FLOOD CONTROL PERMIT NO. FC-32

Name of Applicant: **Lake Pelican Water Project District**

Address: **4002 20th Ave SW, Watertown SD 57201** Phone: **605 882-6041**

Amount of Water Claimed: **NA** Total Acres: **NA**

Source of Water Supply: **runoff**

Water to be used for: **flood control** County: **Codington**

Type of Waste Disposal System:

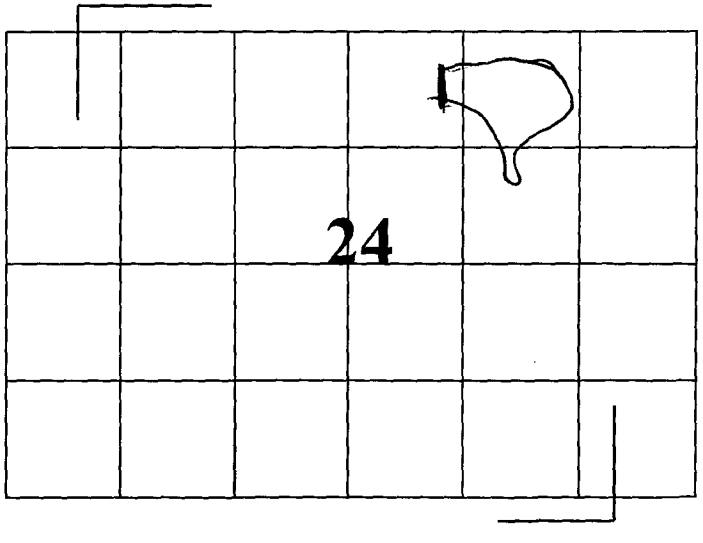
Location: **5 miles west of South Shore**

PRIORITY Date Received: **1-29-02** Fee: **$150**

Corrected Application Received: ~~2-5-02~~ 4/5/02 Period of Annual Use: **January 1 – December 31**

Remarks:

Diversion Point: **NW ¼ NE ¼ Sec 24-T119N-R52W**



Land to be Irrigated:

Depth of Well: **NA**

Well Driller: : **NA**

Remarks:

Type of Map: **topo**

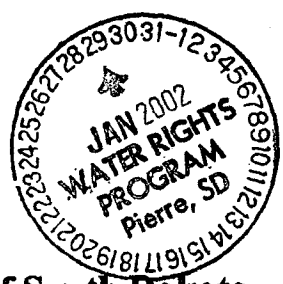
Prepared by: **Steven M. Klein, PE**

Reviewed and the Number Assigned on: **2-5-02** By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

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

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. EC-32 Hydrologic Unit 10170202 Basin Sioux River Newspaper Public Opinion, Watertown



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

Check use(s) of water:

___ Municipal	___ Suburban Housing	___ Recreational	___ Institutional
___ Rural Water System	___ Commercial	___ Fish & Wildlife	___ Geothermal Heat
___ Domestic (over 18 gpm)	___ Industrial	X Other Water Project District Flood Control	

Type of Application: (check one) X New ___ **Vested Right** (Use predates Mar 2, 1955) ___ **Future Use Reservation**
___ **Place to Beneficial Use Water Reserved by Future Use Permit No.** ___
___ **Amendment/Correction to Permit No.** ___

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

1. Name of Applicant Lake Pelican Water Project District Phone 1-605-882-6041
(check one) ___ Owner ___ Tenant/lessee
Mailing Address 4002 20th Avenue SW, Watertown State SD 57201-7033
(Street, RR, or Box and City) (Zip Code)

2. Amount of water claimed ___ *CFS or ___ **GPM 0 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Surface Water Runoff

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) ___
NW-1/4 NE-1/4 Section 24 T119N R52W
County ___

5. County or counties where water will be ~~used~~ detained Codington, SD

6. Annual period during which water is to be used Year-round Jan1- Dec31

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)
A flood detention structure is planned to be constructed across a dry draw. The structure, including a dike and storm sewer, will reduce the peak 100-year discharge from 1,042 cfs to 372 cfs. There will be no permanent pool of water on the upstream side of the dike.

STATE OF SOUTH DAKOTA) SS
County of Codington)

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Attach map and any other technical information. (see instructions)

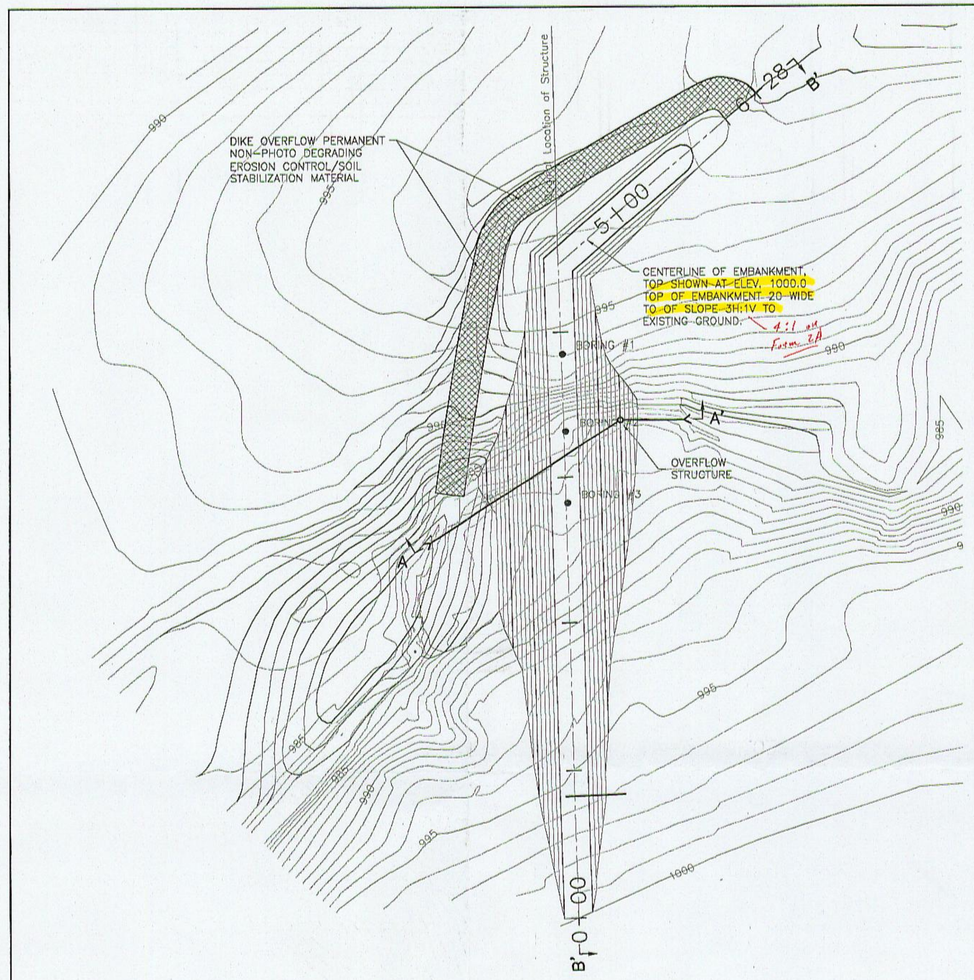
I, Julian Wick, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Julian D. Wick

Subscribed and sworn to before me this 28th day of January 2002

Notary Public signature

4-2000



1 PLAN: EMBANKMENT

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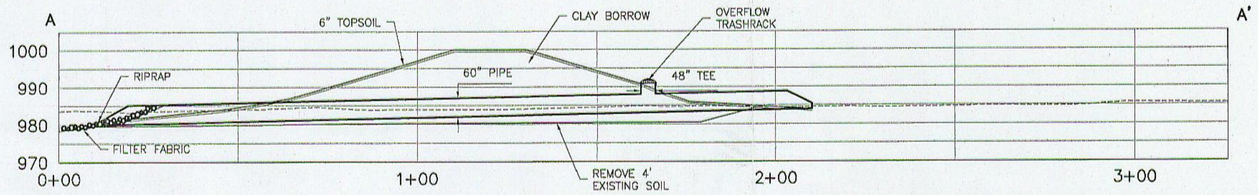
SCALE IN FEET



2 SECTION: A–A': PROPOSED EMBANKMENT

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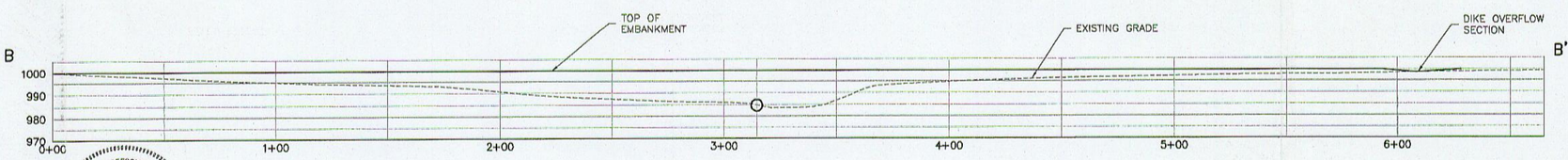


3 SECTION: B–B': PROPOSED EMBANKMENT

0 30 60
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5714
STEVEN M. KLEIN
SOUTH DAKOTA

FOR PERMITTING PURPOSES ONLY

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.
SIGNATURE Steven M. Klein
PRINTED NAME STEVEN M. KLEIN
DATE 1/20/02 REG. NO. 5714

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
	DATE RELEASED						

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277
Project Office: BARR ENGINEERING CO. 450 SOUTH WAGNER ROAD ANN ARBOR, MI 48103 Ph: 1-800-270-5017 Fax: (734) 327-1212 www.barr.com

Scale	AS SHOWN
Date	12/17/2001
Drawn	tkm
Checked	
Designed	
Approved	

LAKE PELICAN WATER PROJECT
WATERTOWN, SOUTH DAKOTA

LPWPD PROJECT NUMBER 01-2002

PRELIMINARY EMBANKMENT LAYOUT AND CROSS-SECTIONS

BARR PROJECT No. 41/14-002
CLIENT PROJECT No.
DWG. No.
REV. No.

Xrefs in Drawing - C:\Documents and Settings\tkm\Desktop\planS.dwg
RJW M:\cad\4114002\pelican1.DWG Plot at 1 01/23/2002 15:17:55

Form 2A
(Complete applicable portions only)

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 _____ Length of Gravel Pack _____

e) Depth to Top of Water Bearing Material _____

f) Depth to Water (ground surface to water level) _____

g) Distance to nearest existing domestic well:

On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field) _____

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of _____ Sanitary System _____

3. Dugout Information

a) Surface Dimensions _____ Depth _____

b) Depth to water (ground surface to water level) _____

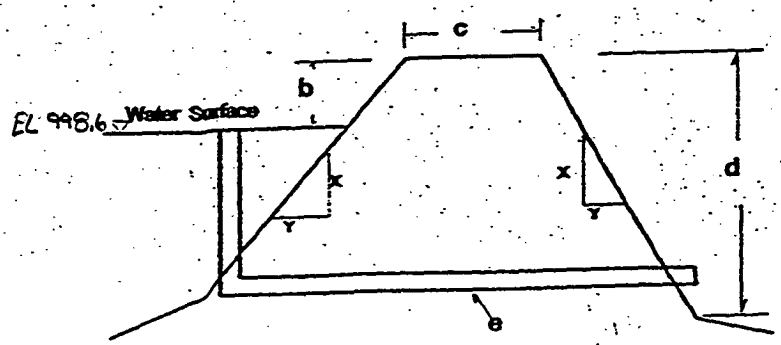
4. Water Storage Dams

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

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

_____

_____



b) Freeboard 1.4 16 ft

c) Crest Width 20 feet

Crest Length 665 feet

d) Height 20 feet

e) Primary Outlet Capacity 372 cfs 400

If pipe, diameter 60-inch

f) Secondary Spillway Capacity 150 cfs

Spillway Width 50 feet

g) X & Y Slope 4:1

Upstream x = 1, y = 4 3

Downstream x = 1, y = 4 3

h) Surface Area of Impoundment 12.1 acres

i) Storage 0 Acre Feet

j) Drainage Area Above Dam 943 Acres

SOUTH DAKOTA
FLOOD CONTROL PERMIT NO. FC-32

Date of first receipt of application January 29, 2002.
Date of return to applicant for corrections, amendments or changes January 29, 2002.
Date of receipt of corrected application February 5, 2002.

The Water Management Board approved Flood Control Permit No. FC-32 on December 4, 2002 for Lake Pelican Water Project District, 4002 20th Ave SW, Watertown SD 57201-7033 authorizing the construction of a flood control dam subject to the following limitations, conditions and qualifications:

1. Flood Control Permit No. FC-32 authorizes construction of a flood detention structure. The project is located in the NW ¼ NE ¼ Section 24 and will temporarily detain a portion of flood flow in the NE ¼ Section 24, T119N, R52W. The structure will consist of a 20 foot high dam across a dry draw with a 60 inch pipe through the dam at the natural drainage elevation. The permit will reduce the peak discharge from the 100-year event from 1,042 cubic feet of water per second to 372 cfs in this drainage. There will be no permanent pool of water on the upstream side of the dam.

2. Approval of this project will reduce damage from flooding and/or erosion, will not increase the likelihood or the severity of flood damages downstream, will not impair existing water rights and is in the public interest.

3. The date from which applicant may claim right is January 29, 2002.

4. All construction is to be completed on or before December 4, 2007.

QUALIFICATION

Flood Control Permit No. FC-32 is subject to the condition that the applicant obtain and file a flood easement for the property on which the project will be developed. The easement must be filed with the Water Rights Program prior to development of the project.

WATER MANAGEMENT BOARD

By: Garland Erbele

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

FEB 21 2003
date

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-32, LAKE PELICAN WATER PROJECT DISTRICT.	)))))	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL DECISION

FINDINGS OF FACT

1. This is an application by the Lake Pelican Water Project District for a Flood Control Permit. Applicant proposes to construct a flood control dam in Codington County, approximately thirteen miles northeast of the City of Watertown. The City has intervened.

2. The proposed flood control dam will be 20 feet high with a 60 inch diameter outlet structure. The outlet structure, which is non-gated, will be located at the upstream embankment toe and there will be no permanent storage associated with the dam.

3. The dam will have a temporary maximum reservoir capacity at the top of the dam elevation of 73 acre feet of water.

4. The dam is classified as a small size, category 3, low hazard dam. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 25-year frequency event.

5. The proposed dam has a drainage area of 943 acres or 1.47 square miles. A 25-year frequency event for this drainage area produces a peak run-off of 205 cfs. The proposed dam is designed to have a 60-inch diameter RCP outlet structure with

16 feet of available freeboard. A 50-foot wide secondary spillway will also be available and will have one foot available of freeboard and a capacity of 150 cfs.

6. There is no dispute that the proposed dam will have the capacity to pass a 25-year frequency event.

7. A Flood Control permit may be issued only if it meets the requisites of SDCL 46-2A-11. The burden is on the Applicant to demonstrate that the requirements of the statute are met. The main question in controversy is whether the project will reduce damage from flooding or erosion in the area purposed to be benefited. The Board credits the evidence of Mr. Steven Klein, a Registered Professional Engineer in this regard. Mr. Klein testified that the project is to be placed on a tight bend area and that erosion is caused immediately downstream of the area. Mr. Klein further testified that the action of the flood-control dam will slow the waters so as to decrease the erosion in that area. The Board has considered the conflicting evidence of the engineer for the City of Watertown, but that testimony indicated only that the witness had not <u>seen</u> any erosion occurring; the witness had not, however, actually walked the site in question. The Board finds that the project will reduce damage from flooding or erosion in the area downstream of FC-32.

8. The Board has also considered whether the project will increase the likelihood or severity of flood damage in areas other than the project area. The evidence is not in conflict that no such flooding will occur. The Board finds, moreover,

that the project will not endanger human life or property. Again, the evidence is not in conflict on this question.

9. Intervenor City of Watertown moved this Board to require an environmental impact statement pursuant to SDCL 34A-9.

10. The facts underlying the motion are that the Lake Pelican Water Project District has been engaged, since 1999,in developing a comprehensive water resources management plan the Soo Creek Basin, the Mahoney Creek Basin, the Middle Sioux Basin, the Mud and Gravel Creek Basin, the Lower Sioux Basin, and the Still Lake basin. Each of these basins lies north of Watertown and water from these basins may eventually flow into the Watertown area.

11. In the process of developing the comprehensive water resources management plan, the District has established that there are virtually hundreds of structures which operate as small dams within the various basins. For example, each roadway with a culvert actually operates as a small dam, although it appears that none of the culverts were designed as dams and the cumulative effect of the structures has never been adequately analyzed.

12. The evidence also establishes that the cumulative effect of the hundreds of structures could be very significant in terms of flooding and erosion. The City of Watertown graphically illustrated this potential through Mr. Niedergeses, a Registered Professional Engineer. The engineer developed a hypothetical basin with a number of similar size sub-basins throughout a watershed to illustrate the impact of putting detention

structures within the watershed. The hypothetical detention structures modified the hydrographs and demonstrated possible flooding to a town downstream. The hypothetical indicated that were the structures improvidently located or constructed, they would have the ability to hold back water such that, when the water crested at the town downstream, there would be an increase in flooding in the downstream town, not a decrease.

13. The Board has determined that it will not exercise its discretion to direct the preparation of an EIS at this time. First, only a single structure has now been proposed. There is, obviously, no reason for an EIS for the single structure. Second, an EIS is not normally prepared unless the project is much closer to final design than the project at issue here. Indeed, it appears that it would be impossible to arrive at useful conclusions from the data now available with regard to cumulative flows downstream. Third, at such time as the next flood project control is proposed by the District, it will be necessary to consider the effect both of FC-32 and the new application. If an additional application is then requested, it will be necessary to consider the existing two projects along with a new one, and so on. Therefore, it is possible or probable that the appropriate analysis can be done on a step-by-step basis. Fourth, if it is not possible or practicable to perform such analysis on a step-by-step basis, the Board leaves open to the present parties, or such other parties which legitimately intervene in a proceeding before this Board, to again request an environmental impact statement.

CONCLUSIONS OF LAW

1. The Board has jurisdiction of this matter.

2. The construction of FC-32 will reduce damage from flooding or erosion in the area of the project.

3. FC-32 will not increase the likelihood or severity of flood damage in areas other than the project area; nor will the project endanger human life or property or impair existing water rights.

4. While the Board has jurisdiction to direct the Lake Pelican Water Project District to have an environmental impact statement prepared, it declines to exercise that discretion in this case. An environmental impact statement is inappropriate in this case for the reasons set forth in the Findings of Fact.

FINAL DECISION

The application for Flood Control Permit No. FC-32 is GRANTED on the condition that the Applicant obtain and file a flood easement for the property on which the project will be developed. The easement must be filed with the Water Rights Program prior to development of the project.

Dated this 5th day of December, 2002.

BY THE BOARD:

Duwayne Rolling

j-pld.jpg WMB FC-32 Lake Pelican

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

No. 417078

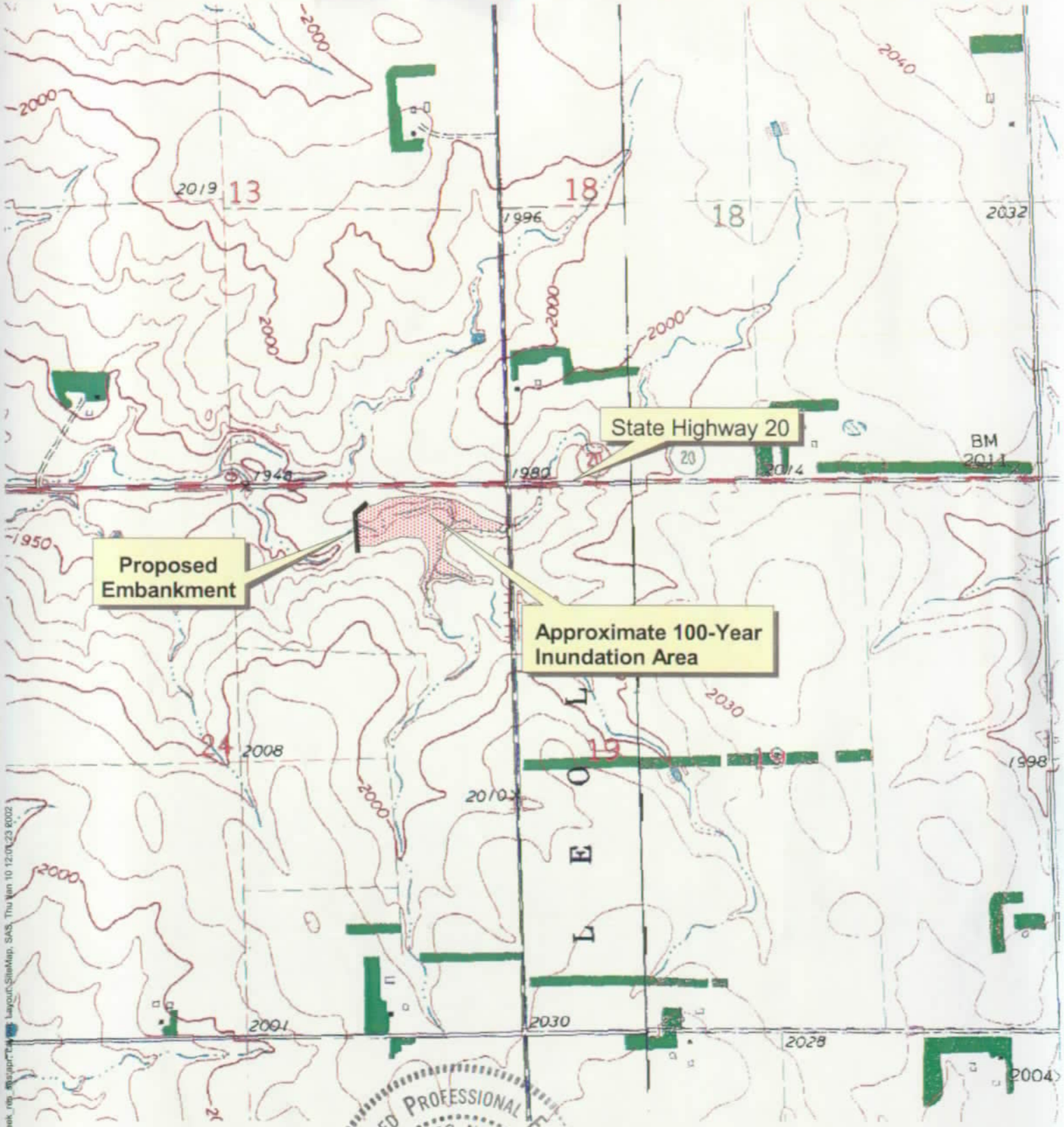
Pierre, February 5, 2002

RECEIVED OF Lake Pelican Water Project District, 44914 W Pelican Dr., Watertown SD 57201 the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. FC 32 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. FC. 32	50	00
Fee for Filing Transfer Form		
Fee for Filing Extension Request		
Fee for		
(Any Other Work Provided by Law) **Total**	200	00

By Garland Erbele
Chief Engineer

(KS)



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
5714
STEVEN M. KLEIN
SOUTH DAKOTA

N

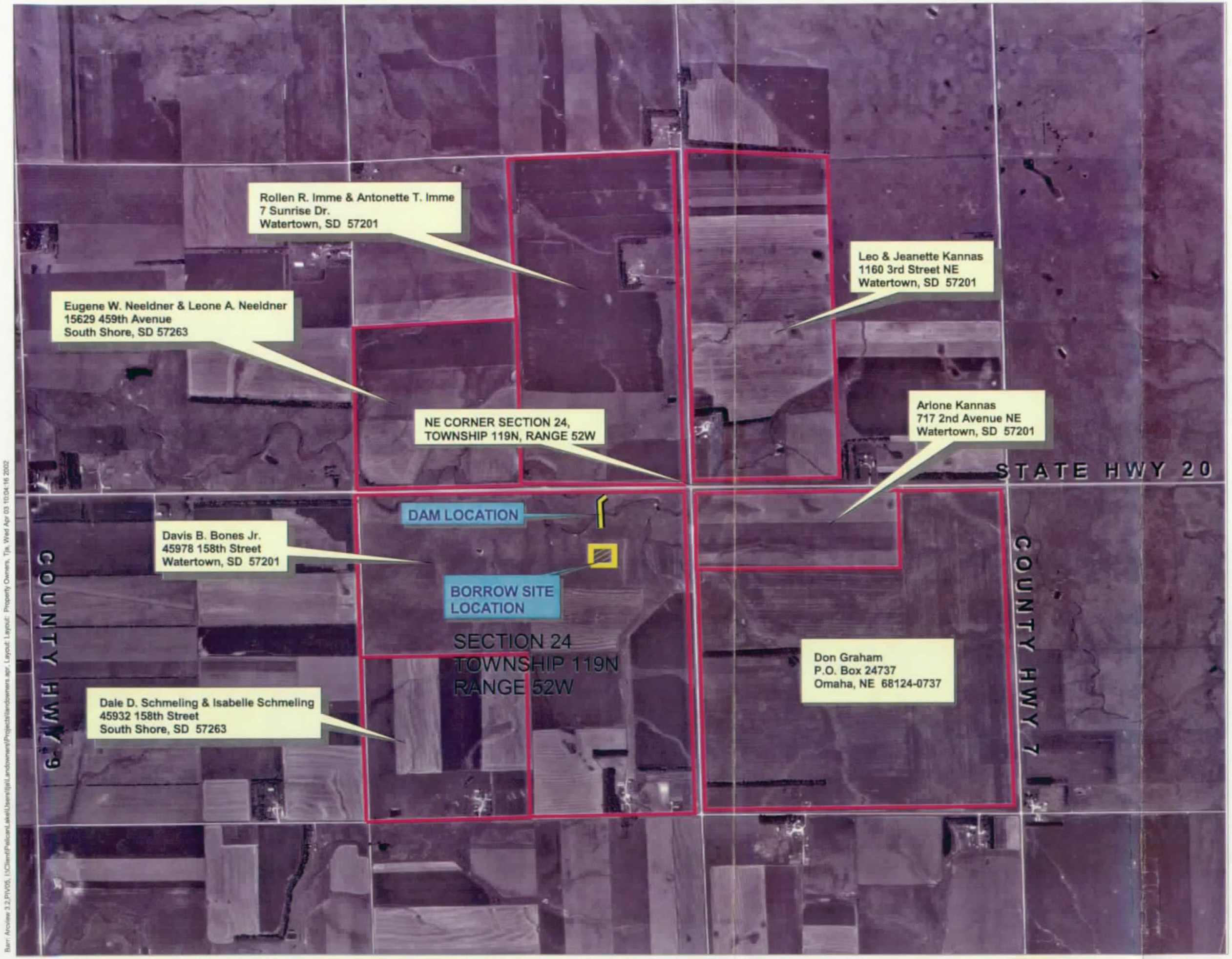
600 0 600 Feet

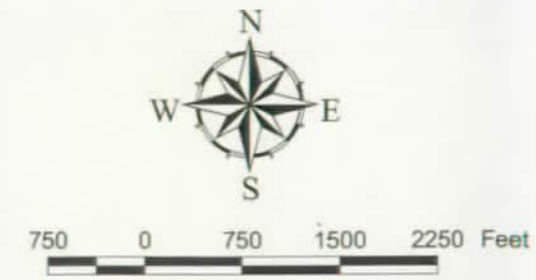
Site Map

Proposed Detention Pond
NW1/4 NE1/4 Section 24 T119N R52W

Lake Pelican Water Project District

FC-32





DAM SITE LEGAL DESCRIPTION

That part of Section 24, Township 119N, Range 52W described as follows:

Commencing at the Northeast Corner of said Section 24, thence westerly along the north line of said Section 24 a distance of 1,250 feet; thence South to the south right-of-way line of South Dakota State Highway 20 to the point of beginning; thence South a distance of 800 feet; thence West a distance of 300 feet; thence North to the south right-of-way line of said Highway 20; thence easterly along the south right-of-way line of said Highway 20 to the point of beginning.

FIGURE A
Property Ownership Map
of Parcels Adjacent to Project

Barr: Arcview 3.2,PIV05, I:\Client\PelicanLake\Users\tjs\Landowners\Projects\landowners.apr, Layout: Layout: Property Owners, Tjs, Wed Apr 03 10:04:16 2002

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

RECOMMENDATION OF CHIEF ENGINEER FOR FLOOD CONTROL PERMIT APPLICATION NO. FC-32, Lake Pelican Water Project District

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 Flood Control Permit Application No. FC-32, Lake Pelican Water Project District, c/o Julian Wick, 4002 20th Avenue SW, Watertown SD 57201-7033.

The Chief Engineer is recommending APPROVAL of Application No. FC-32 because 1) the applicant has calculated this structure will reduce the peak discharge from the 100-year storm event by approximately sixty-five percent within the local drainage, 2) will not increase the likelihood or the severity of flood damages downstream, 3) necessary easements will be obtained, 4) will not impair existing water rights, and 5) it is in the public interest with the following qualifications:

1. The Lake Pelican Water Project District is responsible for maintenance of the flood control works.

2. Flood Control Permit No. FC-32 is subject to securing an easement on the area that will be temporarily inundated during a 100-year storm event. This easement shall be filed with the Water Rights Program prior to construction.

3. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-32 in the event that additional information shows that this project causes adverse downstream impacts.

Garland Erbele

Garland Erbele, Chief Engineer
May 20, 2002

REPORT ON
FLOOD CONTROL APPLICATION No. FC-32
Lake Pelican Water Project District
April 18, 2002

Flood Control Permit Application No. FC-32 has been filed by the Lake Pelican Water Project District to construct a flood control dam located in the NW 1/4 NE 1/4 of Section 24-T119N-R52W, in Codington County.

Discussion:

The proposed flood control dam will be 20 feet high with a 60 inch diameter outlet structure. The non-gated outlet structure will be located at the upstream embankment toe and there will be no permanent storage associated with this dam. The dam will have a temporary maximum reservoir capacity at the top of dam elevation of 1000 (local datum) of 73 acre-feet of water.

The dam will be classified as a small size, Category 3, Low Hazard dam. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 25-year frequency event. Barr Engineering Company designed the dam. The plans and specifications have been reviewed and will be approved; however, construction of the dam can not begin until Flood Control Permit No. FC-32 is approved.

The proposed flood control dam has a drainage area of 943 acres or 1.47 square miles. A 25-year frequency event for this drainage area produces a peak runoff of approximately 205 cfs. The dam is designed to have a 60 inch diameter RCP outlet structure with an inlet elevation of 984 (local datum) with 16 feet of available freeboard. A 50 foot wide secondary spillway will also be available at elevation 999 (local datum) and will have one foot of available freeboard and a capacity of 150 cfs. Barr Engineering used the Corps of Engineers HEC-HMS model to route a 100-year frequency event peak of 1042 cfs through the 60 inch diameter outlet structure with a maximum reservoir elevation of 998.4 (local datum) and a peak discharge of 372 cfs.

The United States Geological Survey (USGS) developed Water-Resources Investigations Report 98-4055 "Techniques for Estimating Peak-Flow Magnitude and Frequency Relations for South Dakota Stream" in 1998. This report was developed in cooperation with the South Dakota Department of Transportation to develop techniques for estimating peak flow magnitudes and frequencies at ungaged sites. The log-Pearson Type III distribution procedure was used to determine peak flow magnitude and frequencies for 197 continuous record and crest-stage gages that had 10 or more years of record. Regional regression equations were developed in relation to the collected data to estimate peak flow magnitude and frequencies for ungaged sites.

One of the 197 sites used in the USGS study was station number 06479350 (site No. 166) and was located in the NW 1/4 NE 1/4 of Sec. 24-T119N-R52W at the culvert on State Highway 20. This site is on the same Soo Creek tributary as the proposed flood control dam and only about one-quarter mile downstream of the dam location. This station had 10 years of recorded data from 1970 through 1979. A log-Pearson Type III distribution estimate for the recorded data has

a 100-year peak flow of 754 cfs. Weighted peak flow magnitudes and frequencies, comparing the regional regression equation estimates and the log-Pearson Type III estimates, were also developed for the 197 sites. Station No. 0679350 had a weighted peak flow of 541 cfs. The report indicates that the weighted peak flow magnitudes generally should provide better estimates than the station peak-flow magnitudes because they take into account additional regional information and reduce the error associated with short periods of record.

The following table lists the 100-year peak flow estimates for the proposed Lake Pelican Water District Flood Control Dam using the various methods.

Summary Table

	100-year peak flow
USGS WRI 80-80 Regional Regression Equation	483 cfs
USGS WRI 98-4055 Regional Regression Equation	353
USGS WRI 98-4055 Weighted Peak Flow	536
Log-Pearson Type III estimate for Station No. 0679350	754
Barr Engineering Company HEC-HMS	1042

The upper Big Sioux River basin has been studied many times to determine the flooding effects on the City of Watertown, Lake Kampeska and Lake Pelican. The Corps of Engineers has completed several reports, a 1994 Feasibility Report titled 'Flood Control for Watertown and Vicinity, South Dakota" and a 2000 General RE-Evaluation Report titled "Big Sioux River Watertown & Vicinity, South Dakota". The second report was completed to reevaluate the 1994 study with the addition of data from the 1997 Watertown flood.

The 1997 flood event was the most severe flood on record for this area. The additional data from this event increased the frequency curves for the entire area. The updated curve for the Big Sioux River near Watertown gage indicates the 1997 flood peak event of 7820 cfs would have a return period of 35 years, compared to 75 years in the 1994 study. The updated curve for the Big Sioux River at Watertown gage indicates the 1997 flood peak event of 4500 cfs would have a return period of 80 years, compared to 125 years in the 1994 study. The revised hydrologic values for the FEMA flood insurance study also increased, now showing the 100-year values about equal to the previous 500-year values. Some of these increases in value are related to recent periods of increased precipitation and decreased evaporation. Another factor, due to high water conditions is the addition of previously reported non-contributing drainage areas.

Barr Engineering Company's HEC-HMS 100-year frequency event peak of 1042 cfs estimate is higher than that produced by the USGS regression equations. The 1.47 square mile drainage basin for the proposed flood control dam would have experienced the same increase in precipitation and decrease in evaporation as the entire upper Big Sioux River basin. The USGS weighted peak flow estimate based on the recorded data during the 1970's does not reflect the flooding events of the 1990's. Using the regression equation peak of approximately 536 cfs, the proposed flood control dam would provide a 30 percent flood control benefit by reducing the peak to approximately 372 cfs. Using Barr Engineering Company's HEC-HMS peak of 1042 cfs,

the proposed flood control dam would provide approximately 65% flood control benefit by reducing the peak to 372 cfs.

The NRCS annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 9 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 26 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 141 acre-feet.

The Lake Pelican Water Project District's Davis Bones Farm Flood Control Dam will be located in the NW 1/4 NE 1/4 of Section 24-T119N-R52W on an unnamed tributary to Soo Creek about five miles upstream of the confluence of the unnamed tributary and Soo Creek. Soo Creek is a tributary to the Big Sioux River and the proposed dam will be about 8 miles upstream of the confluence of Soo Creek and the Big Sioux River. There are no existing Water Permits/Rights located on the unnamed tributary or Soo Creek between the proposed dam and Big Sioux River. The Lake Pelican Water District's Flood Control Permit Application No. FC-32 indicates that the 100-year event temporary pool will be contained within the NE 1/4 of Sec. 24-T119-R52W. The Lake Pelican Water Project District will need to obtain and file a flood easement for this area.

Conclusions:

1. The applicant has determined the Lake Pelican Water Project District's Davis Bones Farm Flood Control Dam will reduce the peak runoff estimate within the local drainage.

2. Flood Control Permit Application No. FC-32 should be approved since the project will reduce damage from flooding or erosion within the local watershed, will not increase the likelihood or the severity of flood damages in areas other than the project area, will not endanger human life and the project will not impair existing water rights. The project will be a beneficial use and is in the public interest.

3. A flood easement for the above mentioned property must be obtained and on file with the Water Rights Program before the project can be developed.

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

Approved by:

Gale N. Selken, P.E.
Natural Resources Engineer Director

BIBLIOGRAPHY:

Becker, Lawrence D., 1980, Techniques for Estimating flood peaks, volumes, and Hydrographs on Small Streams in South Dakota, Water Resources Investigations Report 80-80, USGS, Huron, SD, 57350

Sando, Steven K., 1998, Techniques for Estimating Peak-Flow Magnitude and Frequency Relations for South Dakota Streams, Water-Resources Investigations Report 98-4055, USGS, Rapid City, SD, 57702

US Army Corps of Engineer, Omaha District, 2000, General RE-Evaluation Rèport, Big Sioux River Watertown & Vicinity, South Dakota, US Army Corps of Engineers, Omaha District, 215 North 17th Street, Omaha, NE, 68102

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Codington)

I, Monica K. Saathoff

certify that the attached printed Notice was taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

May 29th, 2002

June 5th, 2002

Cost of Printing 67.50

Monica K Saathoff
(Signature)

Bookkeeper
(Title)

June 5th, 2002
(Date Signed)

RECEIVED
JUN 11 2002
WATER RIGHTS
PROGRAM

PIERRE

NOTICE OF HEARING on Flood Control Permit Application No. FC-32 Lake Pelican Water Project District

Notice is given that Lake Pelican Water Project District, 4002 20th Ave. SW, Watertown, SD 57201-7033 has filed an application to construct a flood detention structure. The project is located in the NW 1/4 NE 1/4 Section 24 and will temporarily detain a portion of flood flow in the NE 1/4 Section 24, T119N,R52W. The structure will consist of a 20 foot high dam across a dry draw with a 60 inch pipe through the dam at the natural drainage elevation. The application states that this will reduce the peak discharge from the 100-year event from 1,042 cubic feet of water per second to 372 cfs in this drainage. There will be no permanent pool of water on the upstream side of the dam.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. FC-32 because 1) the applicant has calculated this structure will reduce the peak discharge from the 100-year storm event by approximately sixty-five percent within the local drainage, 2) will not increase the likelihood or the severity of flood damages downstream, 3) necessary easements will be obtained, 4) will not impair existing water rights, and 5) it is in the public interest.

Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to 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 June 28, 2002. 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.

The Water Management Board will consider this application at 8:30 A.M., July 11, 2002 at the Matthew Training Center, Foss Building, 523 E. Capitol Ave., Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The July 11, 2002 hearing date will automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by June 28, 2002.

Any hearing may be an adversarial proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. This and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by June 28, 2002, at the above Water Rights Poragram address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16, 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 42-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25,46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

Steven Pirner, Secretary
Department of Environment & Natural Resources
(May 29, June 5, 2002)

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

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

May 20, 2002

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201

Dear Mr. Wick:

Water Permit Application No. FC-32 for flood control 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 Public Opinion printed at Watertown, SD (Ph # 605-886-6901). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

c: Steve M. Klein, P.E., Barr Engineering Company

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

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

May 20, 2002

Public Opinion
PO Box 10
Watertown, SD 57201

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. FC-32 for a flood control permit to be published twice. Please publish the first notice on May 29, 2002 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 Julian L. Wick, Chairman, Lake Pelican Water Project District, 4002 20th Ave. SW, Watertown, SD 57201 (Ph # 605-882-6041).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

----------CUT HERE----------

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

No. FC-32

Date_____
We are in receipt of your letter of May 20, 2002 enclosing Notice of Hearing on Application No. FC-32 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 May 29, 2002 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Flood Control Permit Application No. FC - 32 , Lake Pelican Water Project District

Notice is given that Lake Pelican Water Project District, 4002 20th Ave SW, Watertown SD 57201-7033 has filed an application to construct a flood detention structure. The project is located in the NW ¼ NE ¼ Section 24 and will temporarily detain a portion of flood flow in the NE ¼ Section 24, T119N, R52W. The structure will consist of a 20 foot high dam across a dry draw with a 60 inch pipe through the dam at the natural drainage elevation. The application states that this will reduce the peak discharge from the 100-year event from 1,042 cubic feet of water per second to 372 cfs in this drainage. There will be no permanent pool of water on the upstream side of the dam.

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The Water Management Board will consider this application at 8:30 A.M., July 11, 2002 at the Matthew Training Center, Foss Building, 523 E. Capitol Ave., Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The July 11, 2002 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by June 28, 2002.

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This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Steven Pirner, Secretary, Department of Environment and Natural Resources.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

FEB 21 2003

Lake Pelican Water Project District
4002 20th Ave SW
Watertown SD 57201

Dear Sir:

Enclosed is Flood Control Permit No. FC-32 as approved by the Water Management Board. If you have any questions pertaining to the permit, please contact this office.

Sincerely,

Garland Erbele

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

Enclosure

December 27, 2001

Lake Pelican Water Project District
Julian L. Wick
4002 20th Avenue SW
Watertown, SD 57201-7033

Mr. Wick:

As requested I have reviewed your draft application for a flood control permit. I am returning the application with highlighted areas that I think should be changed. In addition, I believe that the following are necessary to handle the application:

1. The hazard category needs to determined. The category is defined on page one of the Safety of Dams rules Chapter 74:02:08.
2. There needs to be an area-capacity curve for the reservoir. Rule 74:02:08:09 (4).
3. The discharge capacity in cubic feet per second of the spillway for each foot in water depth above the spillway crest up to the maximum high-water level and the formula used I making the calculations. Rule 74:02:08:09 (6).
4. The drainage basin yield in acre-feet and maximum discharge from the drainage basin in cubic feet per second for a 100 year 24 hour return frequency. This should include the methods for determining and the calculations.
5. A reservoir routing of the 100 year 24 hour storm and the accompanying calculations.
6. The map will have to be signed.

The map and application have NW1/4 NW1/4 section 24 T119N R52W typed on them but the supplied map would indicate that the dam will be located in the NW1/4 of the NE1/4 of section 24 T119N R52W. The supplied cross-section drawing indicates that the dam is 20 feet high as measured from the downstream toe.

You indicate that the water project is going to own the dam, but there is no indication who owns the land or that there are flood easements for the pool area. This will be needed for the Water Management Board.

Sincerely,

Gale N. Selken P.E.
Natural Resources Engineer Director
Water Rights Program, DENR

Lake Pelican Water Project District

January 28, 2002

Department of Environment & Natural Resources
Water Rights Program
Garland Erebele, Chief Engineer
Joe Foss Building
523 East Capitol
Pierre SD 57501-3181

Re: Application for Water Permit for Nonirrigation Uses

Mr. Erebele,

We are submitting an application for a Water Permit for Nonirrigation Uses, application enclosed.

If you have any questions regarding the application, please give me a call at 1-605-882-6041.

Sincerely,

Julian L. Wick
Chairman

4002 20th Avenue SW ✦ Watertown, SD 57201-7033 ✦ Phone: 605-882-6041 ✦ Email: jrwick@dailypost.com

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 29, 2002

Lake Pelican Water Project District
Julian L. Wick, Chairman
4002 20th Ave SW
Watertown SD 57201-7033

Dear Mr. Wick:

Thank you for submitting the *Application for a Permit to Appropriate Water* for a flood control project. Enclosed is the map and check submitted with the application.

- The map is being returned because it must be signed by the Registered Professional Engineer who prepared it.

- The application/license filing fee will be $200.00.

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352

enclosures

Lake Pelican Water Project District

February 4, 2002

RECEIVED
FEB - 5 2002
WATER RIGHTS
PROGRAM

Department of Environment & Natural Resources
Water Rights Program
Attn: Karen Schlaak
Joe Foss Building
523 East Capitol
Pierre SD 57501-3182

Re: Application for Water Permit for Nonirrigation Uses

Dear Ms. Schlaak:

Enclosed is the application/license filing fee for $200.00.

Also enclosed is a map, which is signed by our Registered Professional Engineer, Steven Klein from Barr Engineering Company.

If you have any further questions, you can call me at 1-605-882-6041.

Sincerely,

Julian L. Wick
Chairman

Enclosures

4002 20th Avenue SW Watertown, SD 57201-7033 Phone: 605-882-6041 Email: jrwick@dailypost.com

Flood Control Permit No. FC-32
Lake Pelican Water Project District

Cat. 3 - Low Hazard Dam

Top of Dam Elev. - 1000
Spillway Elev. - 999
Outlet Elev. - 984
DS Toe Elev. - 980
} Ht. = 20 ft

Normal Storage Capacity - Elev. 984 = 0 Ac-Ft
Int. Storage Capacity - Elev. 999 = 59
Max. Storage Capacity - Elev. 1000 = 73

Int. Capacity x Eff. Ht = 59 x 19 = 1121 < 3000 ∴ 25 yr Min. Spillway Design Flood

From USGS WRI 80-80 "Tech. for Est. Flood Peaks ... in SD"
DA = 943 Ac = 1.47 mi²
Slope = 37.5 ft/mi - Inlet half = 45 ft/mi East half = 30 use 37.5
SI = 3.70

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

$= 83.4(1.47)^{.6}(37.5)^{.44}(3.70)^{-.72}$
$= 83.4(1.26)(4.93)(0.39)$
$= 202$ cfs

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

$= 132(1.47)^{.65}(37.5)^{.46}(3.70)^{-.67}$
$= 132(1.28)(6.80)(0.42)$
$= 483$ cfs

$V_{100} = 589 A^{.77} SI^{-1.49}$

$= 589(1.47)^{.77}(3.70)^{-1.49}$
$= 589(1.35)(0.14)$
$= 111$ Ac-Ft (Barr HEC-HMS = 181)

From USGS WRI 98-4055 "Tech for Est. Peak-Flow Magnitude and Frequency Relations for SD Streams"

CA = 1.47 mi²
PII = 0.95
Region A

$Q_{25} = 218 CA^{.513} P_{II}^{4.80}$

$= 218(1.47)^{.513}(0.95)^{4.80}$
$= 218(1.22)(0.78)$
$= 207$ cfs

$Q_{100} = 362 CA^{.521} P_{II}^{4.47}$

$= 362(1.47)^{.521}(0.95)^{4.47}$
$= 362(1.22)(0.80)$
$= 353$ cfs

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

From USGS WRI 98-4055 (see Table 6 p. 41 Site #166)

page 20 - Eq 4 - Weighted Peak Flow

$Q_{TW} = n Q_{TS} + en Q_{TR} / n + en$

$= 10(754) + 11.9(353) / 10 + 11.9$

$= 536$ cfs

Summary Table

	Q_{100}
USGS WRI 80-80 Regional Regression Eq.	= 483 cfs
USGS WRI 98-4055 " "	= 353
USGS WRI 98-4055 Weighted Peak Flow	= 536
Log-Pearson Type III Est. (Site #166 n=10 years)	= 754
Barr Engineering HEC-HMS	= 1042

NRCS Annual Yield DA = 943 Ac, ISO = 2 1/2 CN = 72
(Mostly Vienna Soils - Group B - Fair Pasture)

80% chance = 0.11
$0.11 \times 943/12 =$ 9 Ac-Ft

50% chance = 0.33
$0.33 \times 943/12 =$ 26 A.-Ft

10% chance = 1.8
$1.8 \times 943/12 =$ 141 Ac-Ft

Section 74:02:08:04

* 1. Topo Map w/ Contiguous Property Owners - NO - Need to show Property Owners & Flood Easements. I also Question Inundation Area
* 2. Dam Axis Profile w/ Test Borings - NO - Need Boring Logs
* 3. Dam Max. X-Sec. - NO - Form 2A shows 4:1 slopes, Pits 3:1
4. Area - Capacity - OK
5. Outlet/Spillway Rating - OK
6. Outlet Detail - OK
7. Spillway Details - OK ? Runs Along Emb Toe ?
* 8. Spacer - NO
9. EPP - N/A cat. 3 - OK

Should have HEC-HMS Input Data

Lake Pelican Water Project District

Proposed Detention Reservoir Project

located in the NW1/4 of the NE1/4 of Section 24 T119N R52W

Rating curve for the Proposed Reservoir Outlet

Proposed Outlet Diameter = 60 inches

Elevation	Area (ac)	Incremental Storage (ac-ft)	Cumulative Storage (ac-ft)	Discharge (cfs)
984	0.0		0	0
985	0.0	0.0	0.0	17
986	0.2	0.1	0.2	32
987	0.5	0.4	0.6	60
988	0.9	0.7	1.3	95
989	1.3	1.1	2.4	130
990	1.9	1.6	4.0	170
991	2.6	2.2	6.2	200
992	3.2	2.9	9.0	240
993	4.0	3.6	12.6	262
994	4.8	4.4	17.0	283
995	5.9	5.4	22.4	300
996	7.2	6.6	28.9	325
997	9.1	8.2	37.1	350
998	11.0	10.1	47.1	365
999	12.7	11.9	59.0	378
1000	14.4	13.6	72.6	400

*Based on accompanying Inlet Control Nomograph

Emergency Overflow

Treated as a 50' rectangular weir

$Q = 3*L*H^{3/2}$

Elevation	H (ft)	Discharge (cfs)	
999	0	0	Invert of spillway
1000	1	150	Top of Embankment
1000.5	1.5	3472	

$Q = CLH^{3/2}$

$= (3)(50)(1.5)^{3/2}$

$= 275\ cfs$

$3472 = CLH^{3/2}$

$= 3L(1.5)^{3/2}$

$L = 630\ ft$

Crest Length = 665 ft

Dam Hazard Category

Category 3 Dam per 74:02:08:05
Small Size dam per 74:02:08:07

HMS * Summary of Results

Project : SoockRes Run Name : Design Run

Start of Run : 01Jul01 0100 Basin Model : SOOCk30-39_NewSurv_R
End of Run : 02Jul01 0100 Met. Model : Scs Type II
Execution Time : 10Jan02 1528 Control Specs : SCS 100yr 24 hr

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
SC-S-32a	55.370	01 Jul 01 1302	8.0675	0.065
Sc-S-30,31&38	276.46	01 Jul 01 1315	50.559	0.412
SC-S-35&36	406.06	01 Jul 01 1309	67.589	0.549
SC-S-37&39	324.36	01 Jul 01 1310	54.997	0.447
Reservoir-1	371.77	01 Jul 01 1414	180.95	1.473
Sink-1	371.77	01 Jul 01 1414	180.95	1.473

HMS * Summary of Results for Reservoir-1

Project : SoockRes Run Name : Design Run

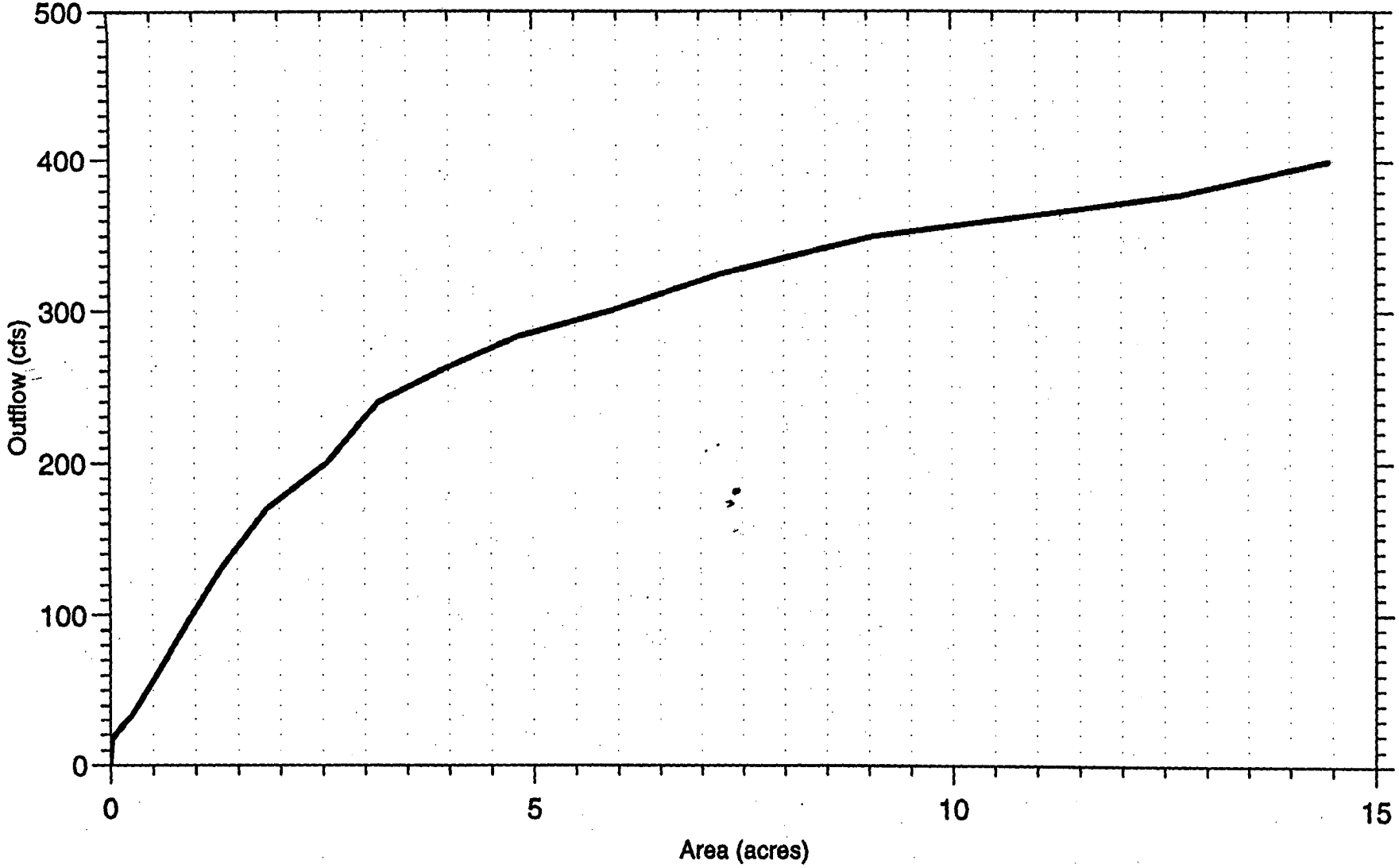
Start of Run : 01Jul01 0100 Basin Model : SOOCk30-39_NewSurv_R

End of Run : 02Jul01 0100 Met. Model : Scs Type II

Execution Time : 10Jan02 1528 Control Specs : SCS 100yr 24 hr

Computed Results

Peak Inflow	: 1041.6 (cfs)	Date/Time of Peak Inflow	: 01 Jul 01 1310
Peak Outflow	: 371.77 (cfs)	Date/Time of Peak Outflow	: 01 Jul 01 1414
Total Inflow	: 181.21 (ac-ft)	Peak Storage	: 53.131(ac-ft)
Total Outflow	: 180.95 (ac-ft)	Peak Elevation	: 998.52(ft)



HEC HMS	Area vs. Outflow	Reservoir

Comparison Table of Existing vs Proposed Conditions

Condition	Outflow Qp (cfs)	Runoff Volume (acft)	Area of Inundation (ac)	Peak Flood Level
Existing	1042	181	0.8	987.8
Proposed	372	181	12.1	998.6

EXISTING

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name:

Comment: Existing Flow Depth: Pelican Lake Prj#1

Solve For Depth

Given Input Data:

Bottom Width.....	5.00 ft
Left Side Slope..	10.00:1 (H:V)
Right Side Slope.	8.00:1 (H:V)
Manning's n.....	0.030
Channel Slope....	0.0080 ft/ft
Discharge.....	1041.00 cfs

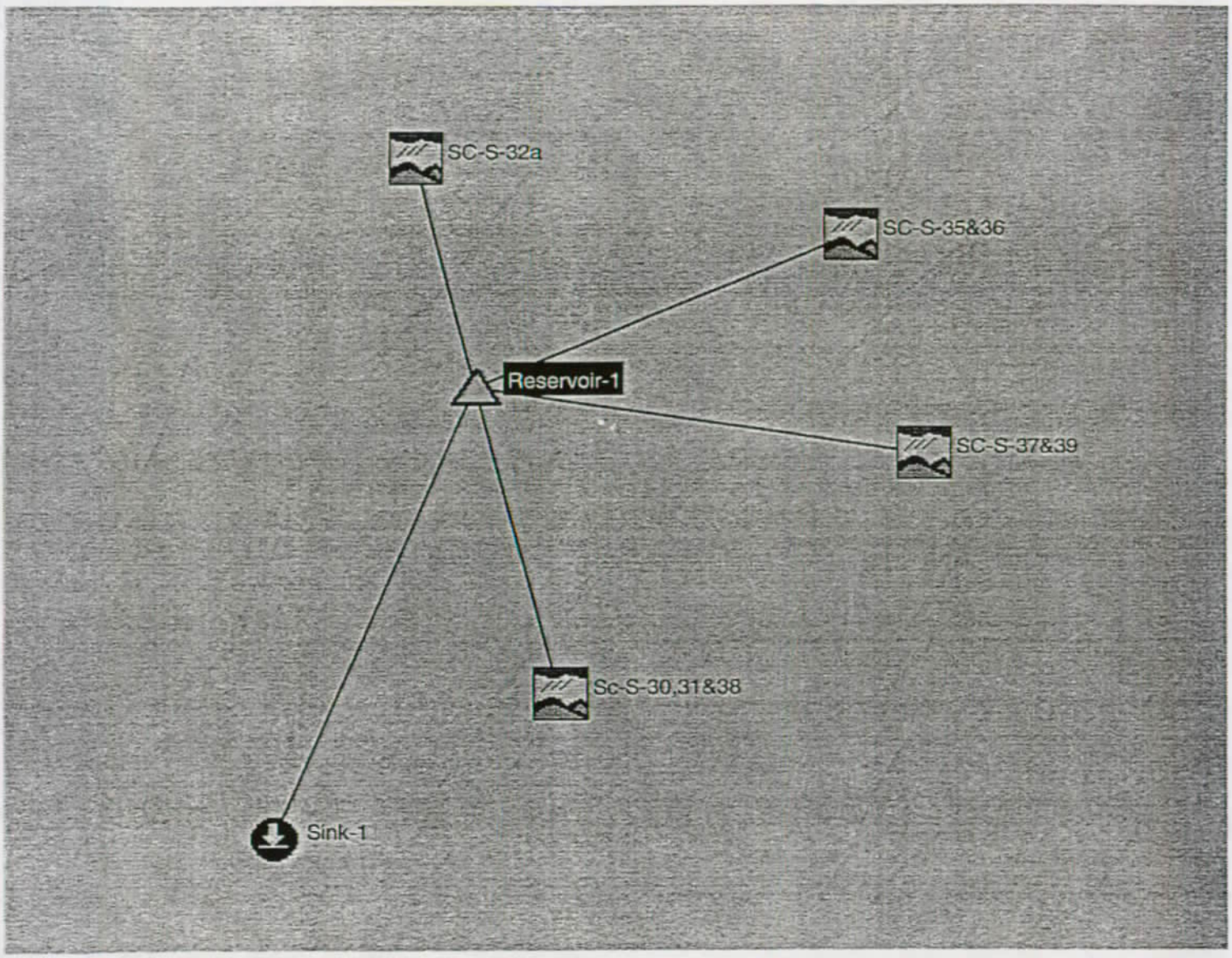
Computed Results:

Depth.....	3.78 ft
Velocity.....	7.05 fps
Flow Area.....	147.60 sf
Flow Top Width...	73.07 ft
Wetted Perimeter.	73.49 ft
Critical Depth...	3.57 ft
Critical Slope...	0.01 ft/ft
Froude Number....	0.87 (flow is Subcritical)

Open Channel Flow Module, Version 2.01 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

PROPOSED

HEC-HMS **Project: SoockRes** **Basin Model:**



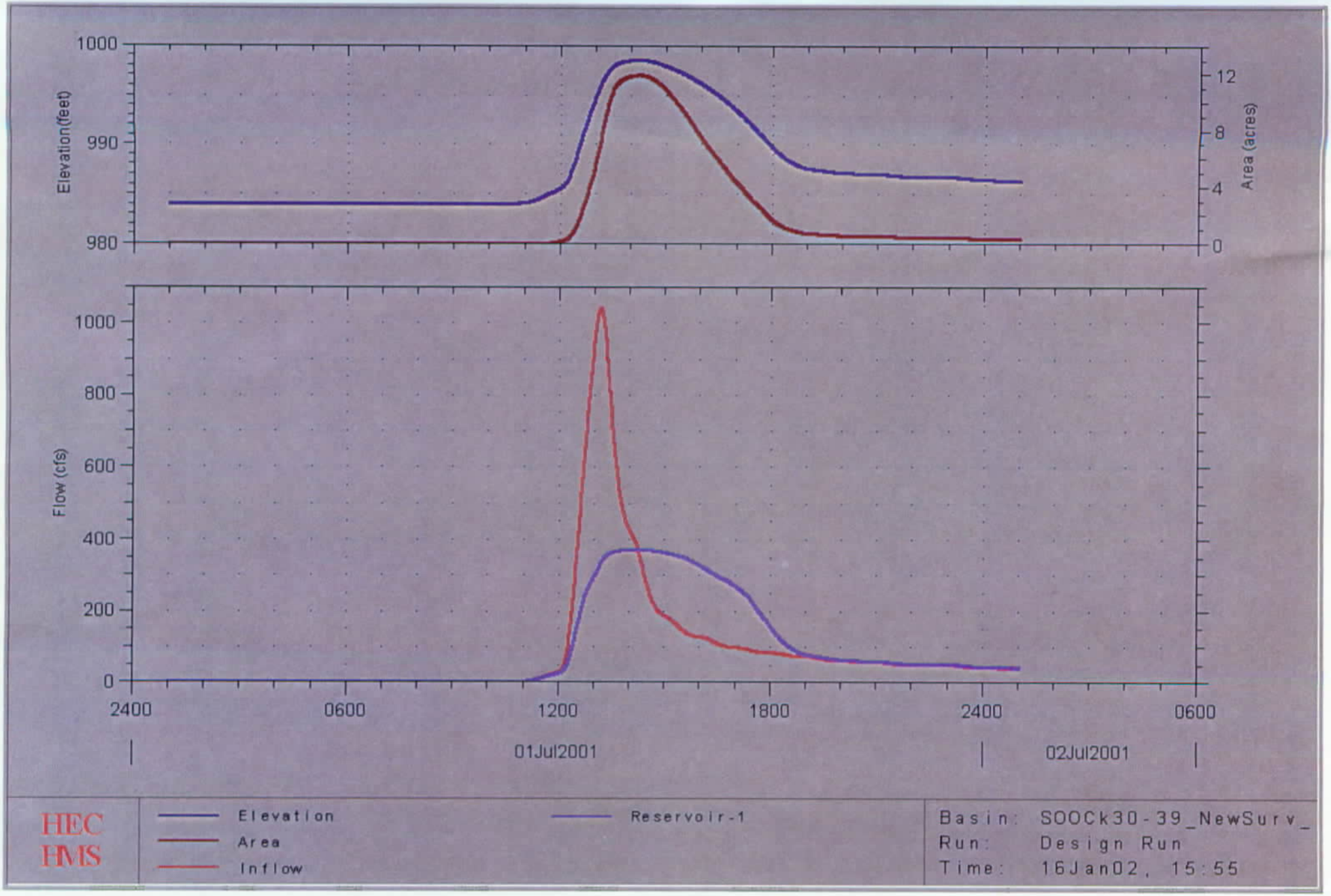
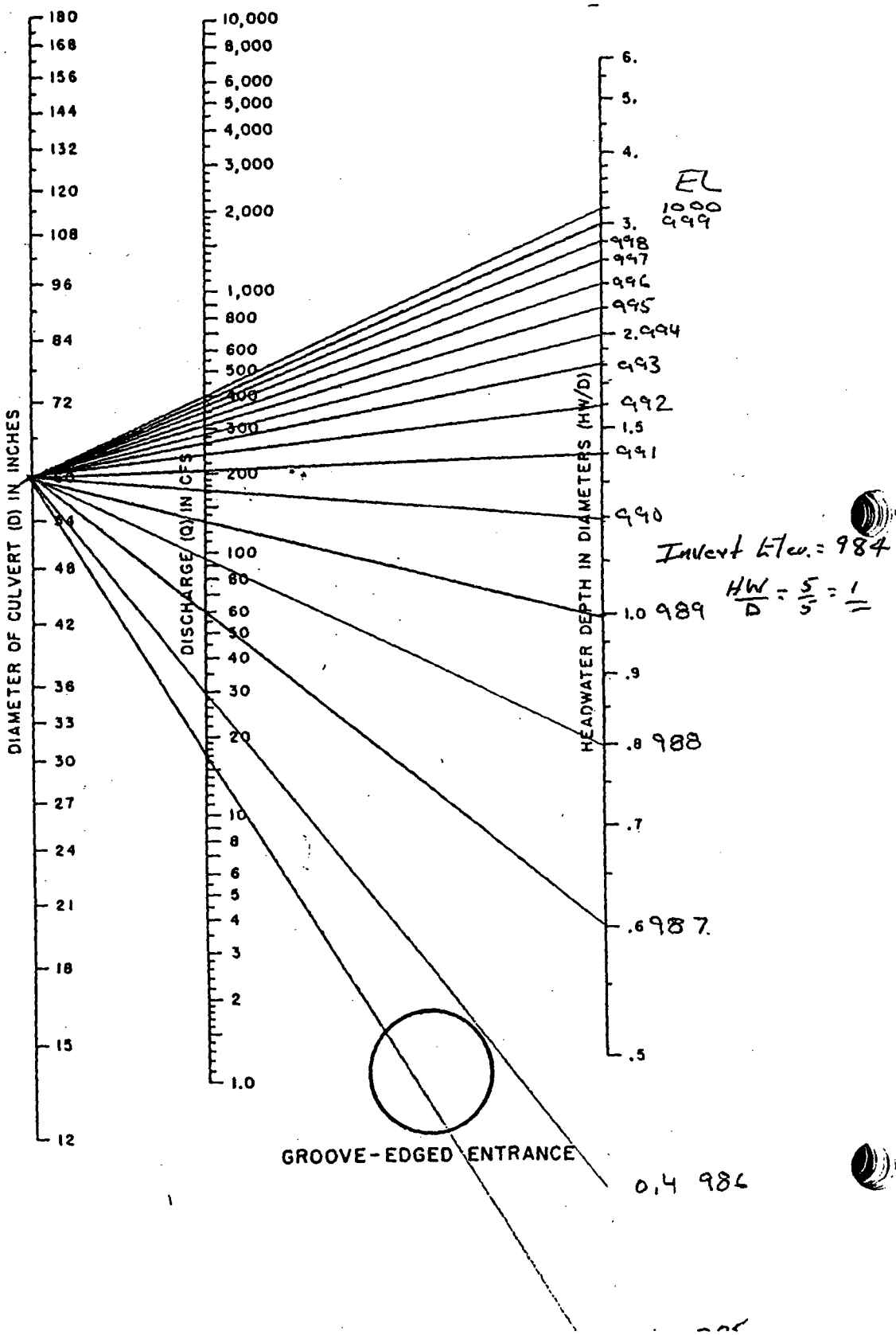

1000
990
980
Elevation(feet)
12
8
4
0
Area (acres)
1000
800
600
400
200
0
Flow (cfs)
2400
0600
1200
1800
2400
0600
01Jul2001
02Jul2001
HEC
HMS
Elevation
Area
Inflow
Reservoir-1
Basin: SOOCk30-39_NewSurv_
Run: Design Run
Time: 16Jan02, 15:55

FIGURE 23
CULVERT NOMOGRAPH
CIRCULAR CONCRETE PIPE CULVERTS WITH INLET CONTROL



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

February 19, 2002

Julian L. Wick, Chairman
Lake Pelican Water Project District
44914 W. Pelican Drive
Watertown, SD 57201

Dear Mr. Wick:

We have reviewed the plans for the Lake Pelican Water Project District's flood control dam located in the NW 1/4 NE 1/4 of Section 24-T119N-R52W, in Codington County. The plans need additional information as described below. These are the same concerns as in previous letters to you.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Enclosed is a copy of these rules. Section 74:02:08:09 lists, as a minimum, nine specific items that must be submitted for review and approval of plans and specifications.

Item No. 1--a topographic map was submitted; however, no property owners contiguous to the dam site and flood zone behind the dam were included. The Lake Pelican Water Project District filed for Flood Control Application No. FC-32, but did not indicate the owner of the property in the NE 1/4 of Sec. 24-T119N-R52W where the dam will be located or the property owners for the land flooded by the temporary pool. Will the Lake Pelican Water Project District be the owners of the dam and responsible for operation and maintenance of the dam?

Item No. 2--The plans indicate that three test holes were drilled; however, no boring logs were included.

Item No. 3--The plans indicate using 3 to 1 slopes on the embankment and Form 2a indicates using 4 to 1 slopes. Which one is correct?

Item Nos. 4 & 6--We would like a complete copy of Barr Engineering Company's HEC-HMS computer model, including the input data. We question using a 100-year peak of 1042 cfs for a 1.47 square miles drainage area.

Item No. 8--No specifications were submitted. We will need to know general construction specifications for the embankment fill, culvert placement, riprap, etc.

Finally, the plans are marked "For Permitting Purposes Only" and we will need a "Final" set of plans and specifications.

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

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer Director
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Steven M. Klein, P.E., Barr Engineering Company

```
Run: Design Run
     Description: Run Submitted for Approval: New Survey Data, CN=69 100yr 24hr
event
     Log File: Design_Run.log
     Basin: SOOCk30-39_NewSurv_R
     Precip: Scs Type II
     Control: SCS 100yr 24 hr
     Precip Last Execution Date: 20 March 2002
     Precip Last Execution Time: 13:21:39
     Basin Last Execution Date: 20 March 2002
     Basin Last Execution Time: 13:21:39
End:
```

```
Table: Reservoir-1(Soock30-39)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(Soock30-39Snow)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39SNOW)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(SooCkw/2Res)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCKW?2RES)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-2(SooCkw/2Res)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-2(SOOCKW?2RES)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-3(SooCkw/2Res)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-3(SOOCKW?2RES)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(SooCkw/2Res_CN69)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-2(SooCkw/2Res_CN69)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-2(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-3(SooCkw/2Res_CN69)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-3(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Table Type: Stage-Flow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(SOOCk30-39_EXConditi)
     Table Type: Stage-Flow
     Use External DSS File: NO
```

```
     Pathname: //RESERVOIR-1(SOOCK30-39_EXCONDITI)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(PropsedDsgnw54in)
     Table Type: Stage-Flow
     X-Units: FEET
     Y-Units: CFS
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(PROPSEDDSGNW54IN)/STAGE-FLOW///TABLE/
End:

Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Table Type: Storage-Outflow
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/STORAGE-FLOW///TABLE/
End:

Table: Reservoir-1(Soock30-39)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-1(Soock30-39Snow)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39SNOW)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-1(SooCkw/2Res)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-2(SooCkw/2Res)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-2(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-3(SooCkw/2Res)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-3(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-1(SooCkw/2Res_CN69)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-2(SooCkw/2Res_CN69)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-2(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
```

```
End:

Table: Reservoir-3(SooCkw/2Res_CN69)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-3(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Table Type: Elevation-Storage
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/ELEVATION-STORAGE///TABLE/
End:

Table: Reservoir-1(SOOCk30-39_EXConditi)
     Table Type: Elevation-Area
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(SOOCK30-39_EXCONDITI)/ELEVATION-AREA///TABLE/
End:

Table: Reservoir-1(PropsedDsgnw54in)
     Table Type: Elevation-Area
     X-Units: FEET
     Y-Units: ACRES
     Use External DSS File: NO
     Pathname: //RESERVOIR-1(PROPSEDDSGNW54IN)/ELEVATION-AREA///TABLE/
End:
```

```
    -----DSS---ZOPEN:  Existing File Opened,  File: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dss
                       Unit: 72;  DSS Versions - Software: 6-MO, File: 6-MO
 Catalog File Does Not Exist: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
 Created Catalog File: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
 Sorting...
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/2MIN/RUN
1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/2MIN/RUN
1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/5MIN/RUN
1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/5MIN/RUN
1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/5MIN/RUN 1/
```

```
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/2MIN/RUN 1/
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-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/5MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/2MIN/RUN 1/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/2MIN/RUN 1/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/2MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-BASE/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-BASE/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-BASE/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-DIRECT/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-DIRECT/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/FLOW-DIRECT/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-EXCESS/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-EXCESS/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-EXCESS/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-INC/01JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-INC/02JUL2001/5MIN/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1/PRECIP-INC/01JUL2001/1HOUR/RUN 1/
 -----DSS---ZDELETE Unit  72:  //SUBBASIN-1-1/PRECIP-EXCESS/01JUL2001/1HOUR/RUN
1/
 Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
 Sorting...
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/07APR2001/2MIN/RUN
2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/05APR2001/2MIN/RUN 2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/03APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/05APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/08APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/03APR2001/2MIN/RUN
2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/04APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/08APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/08APR2001/2MIN/RUN 2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/09APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/03APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/08APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/04APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/10APR2001/2MIN/RUN 2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/05APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/08APR2001/2MIN/RUN 2:SNOW/
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 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/11APR2001/2MIN/RUN 2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/02APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/04APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/07APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/03APR2001/2MIN/RUN
2:SNOW/
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2:SNOW/
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2:SNOW/
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2:SNOW/
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2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/11APR2001/2MIN/RUN
2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/03APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/04APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/05APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/06APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/07APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/08APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/09APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/10APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/11APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/06APR2001/2MIN/RUN
2:SNOW/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/03APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/04APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/05APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/06APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/07APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/08APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/09APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/10APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/11APR2001/2MIN/RUN
2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02APR2001/2MIN/RUN 2:SNOW/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/03APR2001/2MIN/RUN 2:SNOW/
```

```
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/04APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/05APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/06APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/07APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/08APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/09APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/10APR2001/2MIN/RUN 2:SNOW/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/11APR2001/2MIN/RUN 2:SNOW/
Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
Sorting...
-----DSS---ZDELETE Unit  72:  //REACH-1/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-1/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW-COMBINE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW-COMBINE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-3/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //REACH-3/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/AREA/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/AREA/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/ELEVATION/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/ELEVATION/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/STORAGE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/STORAGE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/AREA/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/AREA/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/ELEVATION/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/ELEVATION/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/STORAGE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/STORAGE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/2MIN/RUN 3/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/RUN
3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/RUN
3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/2MIN/RUN
3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/2MIN/RUN
3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/2MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-BASE/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-BASE/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-INC/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-INC/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-BASE/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-BASE/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-EXCESS/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-EXCESS/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-INC/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-INC/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-BASE/01JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-BASE/02JUL2001/1MIN/RUN 3/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
```

```
-----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-EXCESS/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-EXCESS/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-INC/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-INC/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/2MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/1MIN/RUN 3/
-----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/1MIN/RUN 3/
Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
Sorting...
Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
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-----DSS---ZDELETE Unit  72:  //REACH-1/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW-COMBINE/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-2/FLOW-COMBINE/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-3/FLOW/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //REACH-3/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/AREA/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/AREA/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/ELEVATION/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/ELEVATION/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/FLOW/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/STORAGE/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-2/STORAGE/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/AREA/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/AREA/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/ELEVATION/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/ELEVATION/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/FLOW/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/FLOW/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/STORAGE/01JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //RESERVOIR-3/STORAGE/02JUL2001/1MIN/RUN 2/
-----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/1MIN/RUN 2/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/RUN
2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/RUN
2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35A/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-EXCESS/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-EXCESS/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-35B/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-EXCESS/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-EXCESS/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-36/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/RUN 2/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/1MIN/RUN 2/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/1MIN/RUN 2/
 Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
 Sorting...
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/RUN
5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/RUN
5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/RUN 5/
```

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 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/1MIN/RUN 5/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/1MIN/RUN 5/
 Catalog File: P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dsc
 Sorting...
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/AREA/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/ELEVATION/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //RESERVOIR-1/STORAGE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/RUN
6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/RUN
6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-BASE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-35&36/PRECIP-INC/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
```

```
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/01JUL2001/1MIN/RUN 6/
 -----DSS---ZDELETE Unit  72:  //SINK-1/FLOW/02JUL2001/1MIN/RUN 6/
 -----DSS--- ZREAD Unit  72; Vers.    9:  //RESERVOIR-1(SOOCK30-
39_NEWSURV_R)/STAGE-FLOW///TABLE/
 -----DSS--- ZREAD Unit  72; Vers.   13:  //RESERVOIR-1(SOOCK30-
39_NEWSURV_R)/ELEVATION-STORAGE///TABLE/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-1/FLOW-
COMBINE/01JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-1/FLOW-
COMBINE/02JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/FLOW/01JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/FLOW/02JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/STORAGE/01JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/STORAGE/02JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/ELEVATION/01JUL2001/1MIN/DESIGN RUN/
 -----DSS--- ZREAD Unit  72; Vers.   15:  //RESERVOIR-
1/ELEVATION/02JUL2001/1MIN/DESIGN RUN/
    -----DSS---ZCLOSE Unit:  72,   File: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dss
               Pointer Utilization:   .07
               Number of Records:    113
               File Size:   3911.2  Kbytes
               Percent Inactive:  84.3
```

```
Project: SOOCkSubmit
     Description: Design of Project Number 1
     Version: 2.1.2
     Default DSS File Name: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dss
End:

Precipitation: Scs Type II
     FileName: Scs_Type_II.met
     Description: SCS Type 2 100yr 24 hr event
End:

Precipitation: 10-day Snowmelt
     FileName: 10_day_Snowmelt.met
     Description: 100yr 10day snowmelt event
End:

Basin: SOOCk30-39_NewSurv_R
     FileName: SOOCk30_39_NewSurv_R.basin
     Description: Combined Soo Creek to size reservior
End:

Control: SCS 100yr 24 hr
     FileName: SCS_100yr_24_hr.control
     Description: SCS 100yr 24 hr
End:

Control: Snowmelt Event
     FileName: Snowmelt_Event.control
     Description:
End:


Default Attributes:
     Default Basin Unit System: English
     Default Meteorology Unit System: English
     Default Loss Rate: SCS
     Default Transform: Kinematic Wave
     Default Baseflow: None
     Default Route: Muskingum Cunge Standard
     Default Precip: Specified Average
     Enable Flow Ratio: No
     Enable Evapotranspiration: No
     Compute Local Flow At Junctions: No
     Warning On Delete Component: Yes
     Warning On Change Method: Yes
End:
```

```
Gage: Gage 1
     Description: SCS Type II 24 Hr Event
     Latitude:  0
     Longitude: 0
     Gage Type: Precipitation
     Precipitation Type: Incremental
     Units: INCHES
     Local to Project: YES
     Start Time: 1 July 2001,  01:00
     End Time: 2 July 2001,  01:00
     Start Time: 1 July 2001,  01:00
     End Time: 2 July 2001,  02:00
     Start Time: 1 July 2001,  00:00
     End Time: 2 July 2001,  00:00
     Pathname: //GAGE 1/PRECIP-INC//1HOUR/GAGE/
End:

Gage: Gage 2
     Description: 10-day Snowmelt
     Latitude:  0
     Longitude: 0
     Gage Type: Precipitation
     Precipitation Type: Incremental
     Units: INCHES
     Local to Project: YES
     Start Time: 1 April 2001,  01:00
     End Time: 11 April 2001,  01:00
     Pathname: //GAGE 2/PRECIP-INC//4HOUR/GAGE/
End:
```

HECDSS Complete Catalog of Record Pathnames in File P:\41\14\002\Project #1\HECHMS\SOOCkSubmit\SOOCkSubmit.dss

Catalog Created on Apr 2, 2002 at 10:45 File Created on Sep 25, 2001
Number of Records: 165 DSS Version 6-MO, File 6-MO
Sort Order: ABCFED

Ref. Number	Tag	Record Pathname
1	T5	///////
2	T779	/////1MIN/DESIGN RUN/
3	T728	/////1MIN/RUN 4/
4	T1	//GAGE 1/PRECIP-INC/01JUN2001/1HOUR/GAGE/
5	T2	//GAGE 1/PRECIP-INC/01JUL2001/1HOUR/GAGE/
6	T136	//GAGE 2/PRECIP-INC/01APR2001/4HOUR/GAGE/
7	T781	//RESERVOIR-1/AREA/01JUL2001/1MIN/DESIGN RUN/
8	T782	//RESERVOIR-1/AREA/02JUL2001/1MIN/DESIGN RUN/
9	T891	//RESERVOIR-1/AREA/01JUL2001/1MIN/RUN 6/
10	T892	//RESERVOIR-1/AREA/02JUL2001/1MIN/RUN 6/
11	T771	//RESERVOIR-1/ELEVATION/01JUL2001/1MIN/DESIGN RUN/
12	T772	//RESERVOIR-1/ELEVATION/02JUL2001/1MIN/DESIGN RUN/
13	T889	//RESERVOIR-1/ELEVATION/01JUL2001/1MIN/RUN 6/
14	T890	//RESERVOIR-1/ELEVATION/02JUL2001/1MIN/RUN 6/
15	T789	//RESERVOIR-1/ELEVATION-AREA///PROPSEDDSGNW54IN/
16	T846	//RESERVOIR-1/ELEVATION-AREA///PROPSEDDSGNWSDR32/
17	T4	//RESERVOIR-1/ELEVATION-AREA///SOOCK30-39/
18	T135	//RESERVOIR-1/ELEVATION-AREA///SOOCK30-39SNOW/
19	T784	//RESERVOIR-1/ELEVATION-AREA///SOOCK30-39_EXCONDITI/
20	T673	//RESERVOIR-1/ELEVATION-AREA///SOOCK30-39_NEWSURV_R/
21	T426	//RESERVOIR-1/ELEVATION-AREA///SOOCKW?2RES/
22	T556	//RESERVOIR-1/ELEVATION-AREA///SOOCKW?2RES_CN69/
23	T788	//RESERVOIR-1/ELEVATION-FLOW///PROPSEDDSGNW54IN/
24	T845	//RESERVOIR-1/ELEVATION-FLOW///PROPSEDDSGNWSDR32/
25	T3	//RESERVOIR-1/ELEVATION-FLOW///SOOCK30-39/
26	T134	//RESERVOIR-1/ELEVATION-FLOW///SOOCK30-39SNOW/
27	T783	//RESERVOIR-1/ELEVATION-FLOW///SOOCK30-39_EXCONDITI/
28	T672	//RESERVOIR-1/ELEVATION-FLOW///SOOCK30-39_NEWSURV_R/
29	T425	//RESERVOIR-1/ELEVATION-FLOW///SOOCKW?2RES/
30	T555	//RESERVOIR-1/ELEVATION-FLOW///SOOCKW?2RES_CN69/
31	T773	//RESERVOIR-1/FLOW/01JUL2001/1MIN/DESIGN RUN/
32	T774	//RESERVOIR-1/FLOW/02JUL2001/1MIN/DESIGN RUN/
33	T893	//RESERVOIR-1/FLOW/01JUL2001/1MIN/RUN 6/
34	T894	//RESERVOIR-1/FLOW/02JUL2001/1MIN/RUN 6/
35	T769	//RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/DESIGN RUN/
36	T770	//RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/DESIGN RUN/
37	T887	//RESERVOIR-1/FLOW-COMBINE/01JUL2001/1MIN/RUN 6/
38	T888	//RESERVOIR-1/FLOW-COMBINE/02JUL2001/1MIN/RUN 6/
39	T775	//RESERVOIR-1/STORAGE/01JUL2001/1MIN/DESIGN RUN/
40	T776	//RESERVOIR-1/STORAGE/02JUL2001/1MIN/DESIGN RUN/
41	T895	//RESERVOIR-1/STORAGE/01JUL2001/1MIN/RUN 6/
42	T896	//RESERVOIR-1/STORAGE/02JUL2001/1MIN/RUN 6/
43	T681	//RESERVOIR-1/STORAGE-ELEVATION///SOOCK30-39_NEWSURV_R/
44	T790	//RESERVOIR-1/STORAGE-FLOW///PROPSEDDSGNW54IN/
45	T11	//RESERVOIR-1/STORAGE-FLOW///SOOCK30-39/
46	T785	//RESERVOIR-1/STORAGE-FLOW///SOOCK30-39_EXCONDITI/

```
 47  T680      //RESERVOIR-1/STORAGE-FLOW///SOOCK30-39_NEWSURV_R/
 48  T557      //RESERVOIR-1/STORAGE-FLOW///SOOCKW?2RES_CN69/
 49  T792      //RESERVOIR-1(PROPSEDDSGNW54IN)/ELEVATION-AREA///TABLE/
 50  T791      //RESERVOIR-1(PROPSEDDSGNW54IN)/STAGE-FLOW///TABLE/
 51  T39       //RESERVOIR-1(SOOCK30-39)/ELEVATION-AREA///TABLE/
 52  T38       //RESERVOIR-1(SOOCK30-39)/STAGE-FLOW///TABLE/
 53  T424      //RESERVOIR-1(SOOCK30-39SNOW)/ELEVATION-AREA///TABLE/
 54  T423      //RESERVOIR-1(SOOCK30-39SNOW)/STAGE-FLOW///TABLE/
 55  T787      //RESERVOIR-1(SOOCK30-39_EXCONDITI)/ELEVATION-AREA///TABLE/
 56  T786      //RESERVOIR-1(SOOCK30-39_EXCONDITI)/STAGE-FLOW///TABLE/
 57  T683      //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/ELEVATION-STORAGE///TABLE/
 58  T780      //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/STAGE-FLOW///TABLE/
 59  T682      //RESERVOIR-1(SOOCK30-39_NEWSURV_R)/STORAGE-FLOW///TABLE/
 60  T550      //RESERVOIR-1(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
 61  T549      //RESERVOIR-1(SOOCKW?2RES)/STAGE-FLOW///TABLE/
 62  T661      //RESERVOIR-1(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
 63  T660      //RESERVOIR-1(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
 64  T428      //RESERVOIR-2/ELEVATION-AREA///SOOCKW?2RES/
 65  T559      //RESERVOIR-2/ELEVATION-AREA///SOOCKW?2RES_CN69/
 66  T427      //RESERVOIR-2/ELEVATION-FLOW///SOOCKW?2RES/
 67  T558      //RESERVOIR-2/ELEVATION-FLOW///SOOCKW?2RES_CN69/
 68  T560      //RESERVOIR-2/STORAGE-FLOW///SOOCKW?2RES_CN69/
 69  T552      //RESERVOIR-2(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
 70  T551      //RESERVOIR-2(SOOCKW?2RES)/STAGE-FLOW///TABLE/
 71  T663      //RESERVOIR-2(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
 72  T662      //RESERVOIR-2(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
 73  T430      //RESERVOIR-3/ELEVATION-AREA///SOOCKW?2RES/
 74  T562      //RESERVOIR-3/ELEVATION-AREA///SOOCKW?2RES_CN69/
 75  T429      //RESERVOIR-3/ELEVATION-FLOW///SOOCKW?2RES/
 76  T561      //RESERVOIR-3/ELEVATION-FLOW///SOOCKW?2RES_CN69/
 77  T563      //RESERVOIR-3/STORAGE-FLOW///SOOCKW?2RES_CN69/
 78  T554      //RESERVOIR-3(SOOCKW?2RES)/ELEVATION-AREA///TABLE/
 79  T553      //RESERVOIR-3(SOOCKW?2RES)/STAGE-FLOW///TABLE/
 80  T665      //RESERVOIR-3(SOOCKW?2RES_CN69)/ELEVATION-AREA///TABLE/
 81  T664      //RESERVOIR-3(SOOCKW?2RES_CN69)/STAGE-FLOW///TABLE/
 82  T759      //SC-S-30,31&38/FLOW/01JUL2001/1MIN/DESIGN RUN/
 83  T760      //SC-S-30,31&38/FLOW/02JUL2001/1MIN/DESIGN RUN/
 84  T877      //SC-S-30,31&38/FLOW/01JUL2001/1MIN/RUN 6/
 85  T878      //SC-S-30,31&38/FLOW/02JUL2001/1MIN/RUN 6/
 86  T757      //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/DESIGN RUN/
 87  T758      //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/DESIGN RUN/
 88  T875      //SC-S-30,31&38/FLOW-BASE/01JUL2001/1MIN/RUN 6/
 89  T876      //SC-S-30,31&38/FLOW-BASE/02JUL2001/1MIN/RUN 6/
 90  T755      //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/DESIGN RUN/
 91  T756      //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/DESIGN RUN/
 92  T873      //SC-S-30,31&38/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
 93  T874      //SC-S-30,31&38/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
 94  T753      //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/DESIGN RUN/
 95  T754      //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/DESIGN RUN/
 96  T871      //SC-S-30,31&38/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
 97  T872      //SC-S-30,31&38/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
 98  T733      //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/DESIGN RUN/
 99  T734      //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/DESIGN RUN/
100  T851      //SC-S-30,31&38/PRECIP-INC/01JUL2001/1MIN/RUN 6/
101  T852      //SC-S-30,31&38/PRECIP-INC/02JUL2001/1MIN/RUN 6/
102  T767      //SC-S-32A/FLOW/01JUL2001/1MIN/DESIGN RUN/
103  T768      //SC-S-32A/FLOW/02JUL2001/1MIN/DESIGN RUN/
```

```
104  T885      //SC-S-32A/FLOW/01JUL2001/1MIN/RUN 6/
105  T886      //SC-S-32A/FLOW/02JUL2001/1MIN/RUN 6/
106  T765      //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/DESIGN RUN/
107  T766      //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/DESIGN RUN/
108  T883      //SC-S-32A/FLOW-BASE/01JUL2001/1MIN/RUN 6/
109  T884      //SC-S-32A/FLOW-BASE/02JUL2001/1MIN/RUN 6/
110  T763      //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/DESIGN RUN/
111  T764      //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/DESIGN RUN/
112  T881      //SC-S-32A/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
113  T882      //SC-S-32A/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
114  T761      //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/DESIGN RUN/
115  T762      //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/DESIGN RUN/
116  T879      //SC-S-32A/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
117  T880      //SC-S-32A/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
118  T735      //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/DESIGN RUN/
119  T736      //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/DESIGN RUN/
120  T853      //SC-S-32A/PRECIP-INC/01JUL2001/1MIN/RUN 6/
121  T854      //SC-S-32A/PRECIP-INC/02JUL2001/1MIN/RUN 6/
122  T743      //SC-S-35&36/FLOW/01JUL2001/1MIN/DESIGN RUN/
123  T744      //SC-S-35&36/FLOW/02JUL2001/1MIN/DESIGN RUN/
124  T861      //SC-S-35&36/FLOW/01JUL2001/1MIN/RUN 6/
125  T862      //SC-S-35&36/FLOW/02JUL2001/1MIN/RUN 6/
126  T741      //SC-S-35&36/FLOW-BASE/01JUL2001/1MIN/DESIGN RUN/
127  T742      //SC-S-35&36/FLOW-BASE/02JUL2001/1MIN/DESIGN RUN/
128  T859      //SC-S-35&36/FLOW-BASE/01JUL2001/1MIN/RUN 6/
129  T860      //SC-S-35&36/FLOW-BASE/02JUL2001/1MIN/RUN 6/
130  T739      //SC-S-35&36/FLOW-DIRECT/01JUL2001/1MIN/DESIGN RUN/
131  T740      //SC-S-35&36/FLOW-DIRECT/02JUL2001/1MIN/DESIGN RUN/
132  T857      //SC-S-35&36/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
133  T858      //SC-S-35&36/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
134  T737      //SC-S-35&36/PRECIP-EXCESS/01JUL2001/1MIN/DESIGN RUN/
135  T738      //SC-S-35&36/PRECIP-EXCESS/02JUL2001/1MIN/DESIGN RUN/
136  T855      //SC-S-35&36/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
137  T856      //SC-S-35&36/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
138  T729      //SC-S-35&36/PRECIP-INC/01JUL2001/1MIN/DESIGN RUN/
139  T730      //SC-S-35&36/PRECIP-INC/02JUL2001/1MIN/DESIGN RUN/
140  T847      //SC-S-35&36/PRECIP-INC/01JUL2001/1MIN/RUN 6/
141  T848      //SC-S-35&36/PRECIP-INC/02JUL2001/1MIN/RUN 6/
142  T751      //SC-S-37&39/FLOW/01JUL2001/1MIN/DESIGN RUN/
143  T752      //SC-S-37&39/FLOW/02JUL2001/1MIN/DESIGN RUN/
144  T869      //SC-S-37&39/FLOW/01JUL2001/1MIN/RUN 6/
145  T870      //SC-S-37&39/FLOW/02JUL2001/1MIN/RUN 6/
146  T749      //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/DESIGN RUN/
147  T750      //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/DESIGN RUN/
148  T867      //SC-S-37&39/FLOW-BASE/01JUL2001/1MIN/RUN 6/
149  T868      //SC-S-37&39/FLOW-BASE/02JUL2001/1MIN/RUN 6/
150  T747      //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/DESIGN RUN/
151  T748      //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/DESIGN RUN/
152  T865      //SC-S-37&39/FLOW-DIRECT/01JUL2001/1MIN/RUN 6/
153  T866      //SC-S-37&39/FLOW-DIRECT/02JUL2001/1MIN/RUN 6/
154  T745      //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/DESIGN RUN/
155  T746      //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/DESIGN RUN/
156  T863      //SC-S-37&39/PRECIP-EXCESS/01JUL2001/1MIN/RUN 6/
157  T864      //SC-S-37&39/PRECIP-EXCESS/02JUL2001/1MIN/RUN 6/
158  T731      //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/DESIGN RUN/
159  T732      //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/DESIGN RUN/
160  T849      //SC-S-37&39/PRECIP-INC/01JUL2001/1MIN/RUN 6/
```

```
161  T850      //SC-S-37&39/PRECIP-INC/02JUL2001/1MIN/RUN 6/
162  T777      //SINK-1/FLOW/01JUL2001/1MIN/DESIGN RUN/
163  T778      //SINK-1/FLOW/02JUL2001/1MIN/DESIGN RUN/
164  T897      //SINK-1/FLOW/01JUL2001/1MIN/RUN 6/
165  T898      //SINK-1/FLOW/02JUL2001/1MIN/RUN 6/
```

```
Basin: SOOCk30-39_NewSurv_R
     Description: Combined Soo Creek to size reservior
     Last Modified Date: 10 January 2002
     Last Modified Time: 15:28:34
     Version: 2.1.2
     Default DSS File Name: P:\41\14\002\Project
#1\HECHMS\SOOCkSubmit\SOOCkSubmit.dss
     Unit System: English
End:

Subbasin: SC-S-35&36
     Description: Combined Subwatersheds 30-39
     Canvas X: 609.437
     Canvas Y: 829.353
     Label X: 16
     Label Y: 0
     Area: 0.549
     Downstream: Reservoir-1

     LossRate: SCS
     Percent Impervious Area: 0.0
     Curve Number: 69

     Transform: SCS
     Lag: 21.780000

     Baseflow: None
End:

Reservoir: Reservoir-1
     Description: Based on New Survey Data
     Canvas X: 459.591
     Canvas Y: 765.599
     Label X: 16
     Label Y: 0
     Downstream: Sink-1

     Route: Modified Puls
     Routing Curve: Elevation-Area-Outflow
     Initial Outflow Equals Inflow: Yes
     Routing Table in DSS: Yes
     Storage-Outflow Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Elevation-Storage Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Elevation-Area Table: Reservoir-1(SOOCk30-39_NewSurv_R)
     Elevation-Outflow Table: Reservoir-1(SOOCk30-39_NewSurv_R)
End:

Sink: Sink-1
     Canvas X: 377.427
     Canvas Y: 577.670
     Label X: 16
     Label Y: 0
End:

Subbasin: SC-S-37&39
     Canvas X: 639.184
     Canvas Y: 737.488
```

```
     Label X: 16
     Label Y: 0
     Area: 0.447
     Downstream: Reservoir-1

     LossRate: SCS
     Percent Impervious Area: 0.0
     Curve Number: 69

     Transform: SCS
     Lag: 23.280000

     Baseflow: None
End:

Subbasin: Sc-S-30,31&38
     Canvas X: 493.074
     Canvas Y: 637.747
     Label X: 16
     Label Y: 0
     Area: 0.412
     Downstream: Reservoir-1

     LossRate: SCS
     Percent Impervious Area: 0.0
     Curve Number: 69

     Transform: SCS
     Lag: 29.400000

     Baseflow: None
End:

Subbasin: SC-S-32a
     Canvas X: 434.454
     Canvas Y: 860.850
     Label X: 16
     Label Y: 0
     Area: 0.0652
     Downstream: Reservoir-1

     LossRate: SCS
     Percent Impervious Area: 0.0
     Curve Number: 69

     Transform: SCS
     Lag: 9.840000

     Baseflow: None
End:

Default Attributes:
     Default Basin Unit System: English
     Default Meteorology Unit System: SI
     Default Loss Rate: SCS
     Default Transform: Kinematic Wave
     Default Baseflow: None
```

```
     Default Route: Muskingum Cunge Standard
     Enable Flow Ratio: No
     Enable Evapotranspiration: No
     Compute Local Flow At Junctions: No
     Warning On Delete Component: Yes
     Warning On Change Method: Yes
End:
```

BARR

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601 • www.barr.com

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April 4, 2002

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WATER RIGHTS
PROGRAM

Mr. Gale N. Selken, P.E.
Natural Resources Engineer Director
South Dakota Department of Environment and Natural Resources
Joe Foss Building
523 East Capital
Pierre, South Dakota 57501-3182

Re: Lake Pelican Water Project District, Project No. 01-2002
Davis Bone's Farm Flood Control Structure

Dear Mr. Selken:

Thank you for your February 19, 2002 letter pertaining to your review of the Lake Pelican Water Project District project. This letter and attached submittals are in response to the specific item numbers you cited in your February 19, 2002 letter.

Item No. 1: Enclosed is Figure A which is an aerial photo of the region. It includes the location of the dike, the Davis Bone's farm on which the entire dike borrow site and flood impacted area will be located, and all of the property owners in near proximity to the site. Please also note that on Figure 1 is a legal description of the dam site.

Item No. 2: Three test holes were drilled along the centerline of the proposed dam and two soil borings were drilled in the proposed borrow site. A copy of the soil boring logs and a map showing the location of the soil borings are located in Appendix A of the attached Contract Documents for the project.

Item No. 3: You pointed out that the plans called for a 3:1 slope on the embankment but Form 2A indicated a 4:1 slope. The correct slope is a 3:1 slope both on the upstream and downstream side of the dam.

Items No. 4 and 6: You indicated that you would like to obtain a complete copy of Barr Engineering's HEC-HMS computer model including the input data for the project hydraulics and hydrology. Attached is a CD of the computer model for the project.

Item No. 8: Enclosed is a complete set of the signed Contract Documents. The Construction Drawings for the project are bound in the Construction Documents booklet. The Contract Documents include the specifications and drawings for the embankment fill, the culvert placement, riprap, and all other aspects of the project.

If in your review of the attached information you have any further questions please contact me directly at 952-832-2809. Thank you for your detailed review of this project.

Sincerely,

Steven M. Klein
Vice President

SMK/ymh
Enclosures
c: Mr. Julian Wick, Chairman, Lake Pelican Water Project District
44914 West Pelican Drive
Watertown, S.D. 57201
::ODMA\PCDOCS\DOCS\233112\1

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

May 20, 2002

Julian L.Wick, Chairman
Lake Pelican Water Project District
44914 W. Pelican Drive
Watertown, SD 57201

Dear Mr. Wick:

We have reviewed the plans for the Lake Pelican Water Project District's flood control dam located in the NW 1/4 NE 1/4 of Section 24-T119N-R52W, in Codington County. The plans and specifications as submitted on April 4, 2002 are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction of the dam may not begin until Flood Control Permit No. FC-32 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 Lake Pelican Water Project District, as owner of the dam, from the responsibility of operating and maintaining the dam in good repair to ensure the safety of the dam.

The Lake Pelican Water Project District's Davis Bones Farm Flood Control Structure will be classified as a small size Category 3, Low Hazard dam with a dam height of 20 feet with a temporary maximum storage capacity of 73 acre-feet.

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

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer Director
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Steven M. Klein, P.E., Barr Engineering Company

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

May 20, 2002

Richard Schlechter
Public Works Department
City of Watertown
PO Box 910
Watertown SD 57201-0910

Dear Mr. Schlechter:

Please find enclosed a copy of the report, recommendation and public notice for Flood Control Permit Application No. FC-32 filed by the Lake Pelican Water Project District. The notice will be published in the Watertown Public Opinion on May 29 and June 5, 2002 scheduling a July 11th hearing before the Water Management Board. Petitions to intervene in the hearing process must be filed by June 28, 2002.

If you have any questions on the application or hearing process, please contact me.

Sincerely,

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

enclosures

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

July 8, 2002

Rick Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

Dear Mr. Schlechter:

Please find enclosed a copy of the file in the matter of Lake Pelican Water Project District's Flood Control Permit Application No. FC-32. Mayor Barger in the city's petition to intervene filed on June 27, 2002 requested a copy of the file. I have also enclosed an invoice for the cost of the copies.

The Water Project District's consultant also provided a CD of the HEC-HMS run for the project. I did not make a copy of this disc, however, the file does include printouts from this run.

If you have any questions, please feel free to contact Gale Selken or myself at (605) 773-3352.

Sincerely,

Eric Gronlund
Water Rights Program

enclosure

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

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

****
INVOICE
****

Invoice No. 20411-FC-32

Rick Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

---

138 copies @ .20 each	$27.60

PLEASE PAY THIS AMOUNT: $27.60

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

CITY OF WATERTOWN

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WATERTOWN
South Dakota's Rising Star

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605-882-6204

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Inspection Dept.
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Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

June 27, 2002

Mr. Eric Gronlund
Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3188

Re: ***Petition to Intervene by the City of Watertown***
Flood Control Permit Application Number FC-32
Lake Pelican Water Project District

Dear Mr. Gronlund:

Enclosed herewith is a Petition to Intervene on behalf of the City of Watertown on the above-referenced Flood Control Permit Application. This Petition to Intervene by the City of Watertown was approved by the Public Works Committee during its May 28th 2002 meeting.

The purpose of our Petition to Intervene is to enable the City of Watertown to acquire and analyze all relevant data, and to ensure this particular Flood Control Permit Application is not considered in isolation. Accordingly, the City of Watertown hereby requests a copy of all application information submitted by the Lake Pelican Water Project District, hereinafter "permit applicants" for Flood Control Permit Number FC-32. Please invoice the City of Watertown if there are costs associated with providing this information. Employees of the City of Watertown have had no success sharing any technical information with the permit applicants.

The permit applicants have always maintained their flood control mitigation strategy involves a series of "small" dams that in the aggregate are intended to achieve flood protection and control. To illustrate that fact, I enclose herewith articles about this issue that make clear the permit applicants overall flood mitigation strategy. Because the City of Watertown has had no opportunity to review any relevant data concerning this project, we need additional time to assure ourselves that this project is in our citizen's best interests.

To that end, we hereby respectfully request you grant the enclosed Petition to Intervene, and that we be afforded an opportunity to appear and present evidence and testimony during the hearing process on Flood Control Permit Application FC-32.

On behalf of the City of Watertown, thank you for your consideration. We look forward to hearing from you.

Very truly yours,

Brenda S. Barger
Mayor

Enclosures

Cc: City Council Members (w/enclosures)
Lake Pelican Water Project District (w/enclosures)

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
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Mayor
605-882-6204

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Inspection Dept.
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FAX 605-882-6218

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605-886-4733
FAX 605-886-0795

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Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

PETITION TO INTERVENE BY THE CITY OF WATERTOWN

I, Brenda S. Barger, Mayor of the City of Watertown, on behalf of the CITY OF WATERTOWN, hereby Petition the Department of Environment and Natural Resources to Permit the City of Watertown to Intervene in the hearing process on Flood Control Permit Application Number FC-32, Lake Pelican Water Project District.

The Petitioner is an interested party, and the proposed flood control dam will affect the transmission of water and potentially impact the quality of lakes, streams and other water sources within Codington County.

The Petitioner does not support the recommendation of the Chief Engineer, nor does the Petitioner agree with the five (5) bases cited for recommending approval in the Chief Engineer's letter dated May 20, 2002.

Petitioner respectfully requests a deferral of hearing process on Flood Control Permit Application Number FC-32, in no event earlier than the September 25-26th 2002 hearing of the Water Management Board, to ensure that Watertown's overall interest in flood protection and management has been considered, and that the aggregate flood control mitigation process intended by the applicant is afforded a comprehensive review and analysis prior to issuance of this permit.

Petitioner's mailing address is 23 Second Street N.E., P.O. Box 910, Watertown, SD 57201.

Dated this 21st day of June, 2002.

Brenda S. Barger
Mayor

June 27, 2001

Watertown
PUBLIC OPINION

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Weather
Breezy.
Low tonight: 68
High Thursday: 90
Complete forecast on Page 2A

Inside

PRAIRIE LAKES Healthcare System

Prairie Lakes unveils its new logo. Page 4A

Calendar

Friday

■ The Laura Ingalls Wilder Pageant starts at 9 p.m. at the pageant site one mile east of De Smet on Highway 14. Admission is $5 per adult and $2 per child.

Saturday

■ The Laura Ingalls Wilder Pageant starts at 9 p.m. at the pageant site one mile east of De Smet on Highway 14. Admission is $5 per adult and $2 per child.

■ The Hatlbestad Family Ensemble will perform at the

Mahoney Creek project

■ Company presents impact study of series of Big Sioux Watershed dams.

By Terry O'Keefe
Public Opinion Staff Writer

The contentious relationship between those who support the Mahoney Creek Dam project and those in favor of a series of small dams throughout the area continued Tuesday night during a lengthy debate at the Codington County Extension Building in Watertown.

A presentation by Barr Engineering of Minneapolis included preliminary results of testing and analysis of models of the impact a series of small dams in the Upper Big Sioux Watershed would have on flooding in the area, including parts of Watertown. The presentation was hosted by the Lake Pelican Water Project District which has hired Barr to do the study.

At the heart of the debate is the concept of using one large dam in the Mahoney Creek area north of Watertown or the numerous smaller dams being proposed by Barr and supported by the Lake Pelican group as well as people living in the northern watershed area.

The issue could be at least partially decided when Watertown voters go to the polls July 31 in a fourth referendum vote on the Mahoney Creek proposal. The proposal for a

Please see PELICAN, Page 3A

Public Opinion Photo by Terry O'Keefe

Steve Klein, left, vice-president of Barr Engineering of Minneapolis, listens as Nancy Dent, a project manager for Barr, describes the analysis the company has done so far regarding flood control in the Upper Big Sioux Watershed using a series of small dams as opposed to the large Mahoney Creek Dam proposal. A large crowd attended the informational meeting at the Codington County Extension Complex Tuesday night to hear the engineers' opinions on the benefits of the proposal which is being sponsored by the Lake Pelican Water Project District.

See page 15

Recycling this week:
Paper

Comics, crossword 15
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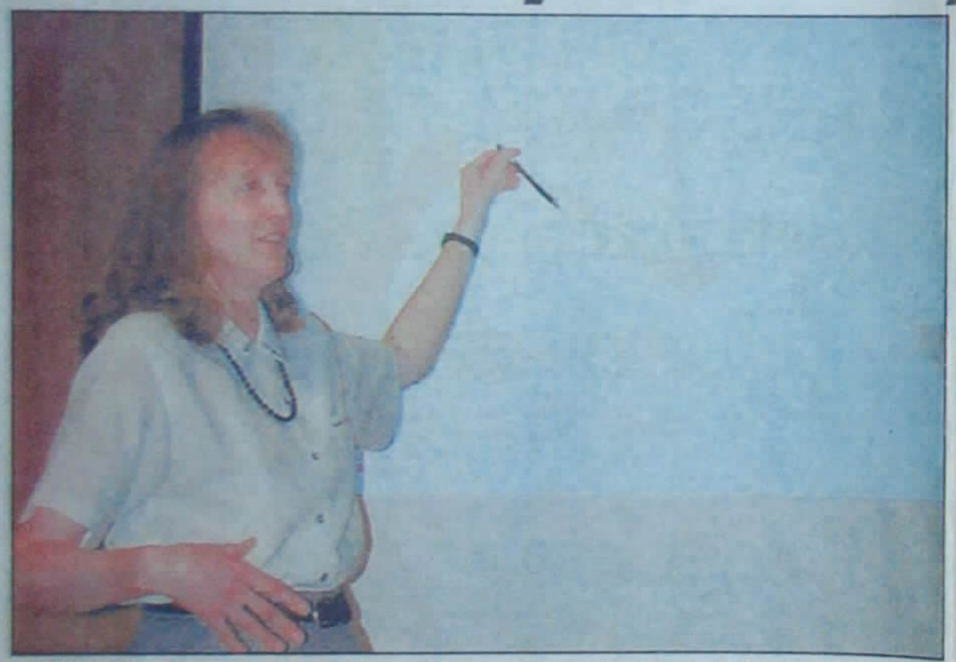
Hamlin sweeps golf titles

See page 9

WATERTOWN PUBLIC OPINION

VOLUME 113 | WATERTOWN, S.D., TUESDAY, MAY 18, 1999 | NUMBER 117 | PRICE 50¢

Flood study firm says smaller is better



EXPLAINING PHASE 1 — Nancy Johnson Dent, an engineer with Barr Engineering of Minneapolis, uses an illustration to explain flooding patterns and what her company has done in phase one of its study for the Lake Pelican Water Project District. The company has been hired to look into flood control and water quality issues in the Upper Big Sioux Watershed. Dent, project manager, explained the work so far at a meeting Monday night at the Codington County Extension Center. (Public Opinion photo by Bob Mooney)

By BOB MOONEY
P.O. City Editor

ONE BIG DAM isn't the only solution to flood control in the Upper Big Sioux Watershed. In fact, Nancy Johnson Dent, an engineer with Barr Engineering of Minneapolis, says it's not even the best solution.

Barr Engineering has been hired by the Lake Pelican Water Project District to look into flood control solutions in the Upper Big Sioux Watershed. Monday night,Dent, project manager, and Steve Kline, a Barr vice president, presented Phase I of their study.

Kline said Barr was hired to see if detaining flows in numerous upstream watersheds would amount to significant flood control. Barr's study is based on data already collected by the U.S. Army Corps of Engineers, S.D. Department of Environment and Natural Resources, and other agencies.

That data had been used in at least two previous studies, both of which concluded that a single, large structure at Mahoney Creek offered the best method of flood control for Watertown and the surrounding area. On two separate occasions, however, voters have rejected the Mahoney Creek Dam proposal.

DENT SAID Barr Engineering's study was in the Indian River Basin, which is in the upper reaches of the watershed. The watershed was divided into six major areas, and those were broken down into 140 smaller subwatersheds. The idea, she said, was to see if there might be some more storage space in those areas.

> "We got existing flows at each of the 140 subwatersheds, what their storage volume is and how much area is affected for how long."
>
> • Nancy Johnson Dent, project manager at Barr Engineering

Barr's study looked at existing storage areas like those formed by roadways and bridges. Also examined was the size of the openings in culverts and spaces under them that allowed water to flow through.

"We got existing flows at each of the 140 subwatersheds, what their storage volume is and how much area is affected for how long," Dent said.

The peak flow of 1700 cubic feet per second (cfs) as measured at the gauging station near Mahoney Creek could be reduced to around 220 cfs, Dent said, if the water is drawn out of the subwatersheds over a longer period of time.

KLINE EXPLAINED that by narrowing the discharge point, the peak flow can be reduced. All that would be required, he said, are some minor modifications. How much those modifications would cost and who would pay for them has not yet been addressed.

Dent said Barr's study showed that by holding water back at numerous, smaller storage sites, the peak flows can be reduced by 85 percent after a 5 1/2 inch rainfall in a 24-hour period. In addition, she said, the peak storage capacity upstream would be increased by 60 percent, the length of storage time would be increased by one to four days and the overall storage area would be increased by 65 percent.

"We can make a huge difference in peak flows in that watershed," Kline said. "If we can do it there, it stands to reason we can do it in others."

During a question and answer session after the presentation, Kline and Dent said issues like the impact on the aquifer, silt removal and maintenance had not yet been addressed. Those areas, however, will be dealt with as the study proceeds.

Barr also does not know how many landowners would be affected by increasing the storage capacity in the 140 subwatersheds.

FLOOD
(Please see page 2, col. 1)

■ Pelican

Continued from Page 1A

large dam has been defeated in each of the three previous special elections dating back to 1994 and as recently as 1998.

The area lost $5 million for flood protection projects when no method could be agreed on after severe flooding in 1997. But Senate Majority Leader Tom Daschle, D-S.D., indicated recently that more federal funding for a project such as Mahoney Creek Dam could become available is voters approve the idea next month.

Those who oppose the large dam say it would unnecessarily flood farm land and homes north of Watertown, while those supporting the Mahoney Creek project say it is the only viable method of flood control to protect homes and property along the Big Sioux River in Watertown as well as at Lake Kampeska.

The intent of the Barr study is to show that a series of small dams would be equally effective as a large dam by slowing the release of flood water from smaller retaining pools without causing excessive damage to landowners in the area.

Barr Engineering Vice President Steve Klein and Project Manager Nancy Dent told the large crowd Tuesday night their analysis to this point has focused on the Indian Creek area of the northern watershed including about 75 square miles, or about 25 percent of the entire watershed area.

Klein said he feels using small dams and existing roads and culverts to hold and slowly release flood water would help protect everything down stream as well.

"We think there would be significant flood reduction, less road erosion and ground water discharge as well as improved wildlife habitat," Klein said. "We're not looking at just flood control, but a whole host of related issues."

He said their analysis has been based on historic water data in the area, specifically from a gauge near Florence which has been recording data for a number of years, and then developing models based on that information. Dent said analysis of the effect of small structures around the northern watershed on the Florence gauge showed a decrease of about 50 percent in the flow there.

While Klein and Dent said their analysis showed peak flows through the Indian Creek area would be reduced by 85 percent and upstream water storage increased by about 60 percent with their proposal, they also conceded their information on the entire watershed was limited as is funding for any further study or implementation.

"We are still hopeful to receive funding from the City of Watertown and other funding entities," Klein said, adding that because of limited funding available to the Lake Pelican group, the project is being looked at in phases.

"We have quite a bit of work left to do and that is pending funding," Klein said. "If left to the (resources of the) Pelican Lake group alone, it will probably take three to five years to complete. If we could get funding such as from the city, that (time) would be decreased."

The issue of funding and the actual cost of such a project was questioned repeatedly during the meeting. While the projected cost of building the Mahoney Creek Dam was set at about $20 million in 1998, Klein was unable to provide cost figures for the small dam proposal.

He answered "no" when he was asked if he could identify the exact number of dams required for the proposal.

"So you don't know the cost of (constructing and) maintaining them?," asked Duane Hoffman, one of a number of Lake Kampeska residents who petitioned for the Mahoney Creek vote in July, to which Klein again said "no."

"I'm not going to jerk numbers out of the air without having better information," Klein said.

But City Alderman Brad Johnson, who is also involved in a number of groups dealing with water-related issues, asked again about the cost of the project and indicated the city would not get involved without a more concrete idea of how much money will be needed. He mentioned an estimate by Klein early in the project that ran from $200,000 to $600,000.

"Does that cost estimate include everything that it would take to get us up to the point of (qualifying for) federal funding?" Johnson asked. "We need a total picture."

"We can't come up with a total cost estimate until we go further and that depends on the funding," Klein said.

Klein also said his experience leads him to believe the small dam proposal would work for flood control and that the project would be considered for federal funding.

"I think the odds of getting federal funding are a lot greater when you have an entire community focused on a project," he said, continuing his theme of a multi-entity project. "I believe, with my experience, this proposal will do better than Mahoney Creek Dam."

Shortly before the close of the meeting, Nick Endres, who farms in the watershed about eight miles north of Watertown, made a point that was well accepted by many in the crowd.

"When we get done worrying about 'me' and start worrying about 'us' we're going to be a lot better off," he said.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 28, 2002

NOTICE

TO: Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Automatic Delay of Hearing on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District

In response to the notice of hearing published in the Watertown Public Opinion a petition has been filed by the city of Watertown in the matter of Flood Control Permit Application No. FC-32 filed by the Lake Pelican Water Project District. The petition also requests an automatic delay of the July 11, 2002, hearing before the Water Management Board. Therefore, the hearing on Application No. FC-32 is automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5 and will not be held on July 11, 2002.

The hearing to consider Application No. FC-32 will be scheduled for the September 25 - 26, 2002, Water Management Board meeting. Future notice of the exact date, time and place of the hearing for Application No. FC-32 will be provided to all parties of record.

Please contact Eric Gronlund at (605) 773-3352, if you have any questions.

c: Diane Best, Assistant Attorney General
Steven M. Klein, Barr Engineering, 4700 West 77th Street, Minneapolis MN 55435-4803
Jay Leibel, PO Box 406, Madison SD 57042
Richard Schlechter, City of Watertown, PO Box 910, Watertown SD 57201-0910

CERTIFICATION

I hereby certify that on June 28, 2002, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated June 28, 2002, regarding Automatic Delay of Hearing on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District, addressed as stated below:

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

Steven M. Klein
Barr Engineering
4700 West 77th Street
Minneapolis MN 55435-4803

Jay Leibel
PO Box 406
Madison SD 57042

Richard Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

A copy of the Notice was hand delivered to:

Diane Best, Assistant Attorney General, Capitol Building

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 28th day of June, 2002.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 19, 2002

NOTICE

TO: Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Scheduling of the Hearing on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District

Flood Control Permit Application No. FC-32 proposes to construct a flood detention structure located in the NW ¼ NE ¼ Section 24, T119N, R52W to temporarily detain a portion of flood flow in a drainage in Codington County. The July 11, 2002 hearing before the Water Management Board was automatically delayed at the request of the city of Watertown who petitioned to intervene in the hearing.

The Water Management Board will now consider Application No. FC-32 on September 25, 2002, at 1:30 PM, in the Conference Room, Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Ave., Pierre SD. The hearing time is an estimate and may be delayed due to prior agenda items. The hearing may also continue on Thursday morning, September 26th if necessary to complete testimony. Parties should plan accordingly.

Applicable provisions of the Notice published May 29 and June 5, 2002, in the Watertown Public Opinion will still apply at the September 25, 2002 hearing before the Water Management Board. This hearing is an adversary proceeding. Any party of record has the right to be present and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Please contact Eric Gronlund at (605) 773-3352, if you have any questions.

c: Diane Best, Assistant Attorney General
Steven M. Klein, Barr Engineering, 4700 West 77th Street, Minneapolis MN 55435-4803
Jay Leibel, PO Box 406, Madison SD 57042
Richard Schlechter, City of Watertown, PO Box 910, Watertown SD 57201-0910

CERTIFICATION

I hereby certify that on August 19, 2002, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated August 19, 2002, regarding scheduling of the hearing on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District, addressed as stated below:

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

Steven M. Klein
Barr Engineering
4700 West 77th Street
Minneapolis MN 55435-4803

Jay Leibel
PO Box 406
Madison SD 57042

Richard Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

A copy of the Notice was hand delivered to:

Diane Best, Assistant Attorney General, Capitol Building

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 20th day of August, 2002.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

September 6, 2002

NOTICE

TO: Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Rescheduling Hearing Time for Flood Control Permit Application No. FC-32, Lake Pelican Water Project District

Flood Control Permit Application No. FC-32 proposes to construct a flood detention structure located in the NW ¼ NE ¼ Section 24, T119N, R52W to temporarily detain a portion of flood flow in a drainage in Codington County. The July 11, 2002 hearing before the Water Management Board was automatically delayed and rescheduled for 1:30 PM on September 25, 2002.

Due to changes in the agenda, the hearing time has been changed. The Water Management Board will now consider Application No. FC-32 on September 25, 2002, at 10:30 AM, in the Conference Room, Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Ave., Pierre SD. The time is an estimate and may be delayed due to prior agenda items.

Applicable provisions of the Notice published May 29 and June 5, 2002, in the Watertown Public Opinion will still apply at the September 25, 2002 hearing before the Water Management Board. This hearing may be an adversarial proceeding. Any party of record has the right to be present and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Please contact Eric Gronlund at (605) 773-3352, if you have any questions.

c: Diane Best, Assistant Attorney General
Steven M. Klein, Barr Engineering, 4700 West 77th Street, Minneapolis MN 55435-4803
Jay Leibel, PO Box 406, Madison SD 57042
Stanton Fox, City Attorney, PO Box 910, Watertown SD 57201
Richard Schlechter, City of Watertown, PO Box 910, Watertown SD 57201-0910

CERTIFICATION

I hereby certify that on September 6, 2002, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated September 6, 2002, regarding rescheduling the hearing time on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District, addressed as stated below:

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

Steven M. Klein
Barr Engineering
4700 West 77th Street
Minneapolis MN 55435-4803

Jay Leibel
PO Box 406
Madison SD 57042

Richard Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

Stanton Fox
City Attorney
City of Watertown
PO Box 910
Watertown SD 57201-0910

A copy of the Notice was hand delivered to:

Diane Best, Assistant Attorney General, Capitol Building

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 10th day of September, 2002.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

KAREN SCHLAAK
NOTARY PUBLIC
SOUTH DAKOTA
SEAL SEAL

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WATER RIGHTS PROGRAM

RECEIVED
SEP 23 2002
WATER RIGHTS PROGRAM

***In Re* Flood Control Permit Application FC-32** **LAKE PELICAN WATER PROJECT DISTRICT,** **Applicant,** **CITY OF WATERTOWN** **Intervenor.**	**MOTION FOR ENVIRONMENTAL IMPACT STATEMENT UNDER *S.D.C.L. §34A-9-4***

CITY OF WATERTOWN
23 SECOND STREET N.E.
P.O. BOX 910
WATERTOWN, SD 57201
(605) 882-6200 FAX (605) 882-5284

COMES NOW the Intervenor, City of Watertown , by and through its attorney, Stanton W. Fox, and moves the Water Rights Management Board to require an Environmental Impact Statement, pursuant to *S.D.C.L. §§34A-9-4.*[1] The legal authority, facts and argument in support of this motion are contained in the Plaintiff's supporting brief, filed herewith, and incorporated by reference.

DATED this 20th day of September 2002 at Watertown, South Dakota.

CITY OF WATERTOWN:

Stanton W. Fox

Stanton W. Fox
City Attorney
City Attorney's Office
23 2nd Street S.E.
Watertown, SD 57201
(605) 882-6200

[1] Chapter 34A-9 is the South Dakota Environmental Policy Act. See *S.D.C.L. §34A-9-13.*

CITY OF WATERTOWN
23 SECOND STREET N.E.
P.O. BOX 910
WATERTOWN, SD 57201
(605) 882-6200 FAX (605) 882-5284

CERTIFICATE OF SERVICE

Pursuant to S.D.C.L. §§46-2A-6; 15-6-5(b), I hereby certify that on this 20th day of September 2002 I caused a true and correct copy of the foregoing document to be served by:

X U.S. Mail X Facsimile ☐ Hand Delivery

to the following person(s):

Garland Erbele, P.E. CHIEF ENGINEER DENR Joe Foss Building 523 East Capitol Pierre, SD 57501-3182	Jay Leibel ATTORNEY AT LAW Ericsson, Ericsson & Leibel P.O. Box 406 Madison, SD 57042
John Guhin 500 East Capitol Pierre, SD 57501	Diane Best Office of the Attorney General 500 East Capitol Pierre, SD 57501-5070
Francis Brink, Chairman 1214 South Wells Street Aberdeen, SD 57401	Bernita Loucks 219 42nd Street Rapid City, SD 57702
Rodney Freeman, Jr. P.O. Box 176 Huron, SD 57350	Dwayne Rollag 320 Lincoln Lane South Brookings, SD 57006
Marian Gunderson 811 West Third Street Yankton, SD 57078	Leo Holzbauer RR1, Box 70 Wagner, SD 57380

By: Stanton W. Fox
Stanton W. Fox, City Attorney

CITY OF WATERTOWN
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WATERTOWN, SD 57201
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SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WATER RIGHTS PROGRAM

***In Re* Flood Control Permit Application FC-32**	)	
LAKE PELICAN WATER PROJECT DISTRICT,	)	**INTERVENOR'S BRIEF IN SUPPORT OF ITS MOTION FOR ENVIRONMENTAL IMPACT STATEMENT UNDER *S.D.C.L. §34A-9-4***
Applicant,	)	
CITY OF WATERTOWN	)	
Intervenor.	)	

COMES NOW the Intervenor, City of Watertown , by and through its attorney, Stanton W. Fox, and files its Brief in Support of Its Motion for Environmental Impact Statement.

JURISDICTIONAL STATEMENT

The Water Rights Management Board, hereinafter "Board," has authority, under *S.D.C.L. §34A-9-4* to prepare, or have prepared by contract, an environmental impact statement on any action they approve which may have a significant effect on the environment. "Actions" include:

> **[N]ew and continuing projects or activities directly undertaken by a public agency. . . .**

See *S.D.C.L. §34A-9-2 (1); (3).* (emphasis added). The Applicant, Lake Pelican Water Project District, hereinafter "LPWPD" falls within the definition of [public] agency as that term is used in S.D.C.L. Chapter 34A-9. An "Agency" is defined as "the executive and administrative departments, offices, boards, commissions, and **other units of state government**." See *S.D.C.L. §34A-9-1 (1)* (emphasis added). The City of Watertown, hereinafter "City" urges the

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Board to conclude that the LPWPD is a unit of state government, and as such, is an "agency" for the purposes of S.D.C.L. Chapter 34A-9. To place the LPWPD in its proper perspective, its existence can be traced to *S.D.C.L. §46A-18-20*, which provides, in relevant part:

> If at least sixty percent of the votes cast in an election are in favor of formation of the water project district, **the board of water and natural resources shall by resolution create and establish the water project district** and give it a corporate name. Upon filing of a true copy of the resolution with the secretary of state, the **district shall become a political subdivision of the state**. . . .

(emphasis added).

In the alternative, the Board has jurisdiction over, and the ability to grant, Intervenor's Motion pursuant to *S.D.C.L. §34A-9-2 (3)*, which provides, in relevant part:

> "[a]ctions" include:
> (3) The issuance by one or more public agencies of a. . .permit. . . .

The LPWPD is before the Board seeking approval of Flood Control Permit Application FC-32, hereinafter "FC-32," which represents the beginning of their new and continuing project to construct countless small dams in the Upper Big Sioux River Watershed.

FACTUAL BACKGROUND

LPWPD has filed FC-32 which, if authorized, would permit construction of a Category 3, Low Hazard Dam, in Codington County, South Dakota. The structure was designed for the LPWPD by Barr Engineering Company.

City has filed a Petition to Intervene in this matter. The gravamen of City's Petition to Intervene is its concern that "the aggregate flood control mitigation process intended by the applicant is afforded a comprehensive review and analysis prior to issuance of this permit." See Petition to Intervene. City's concern is not based on speculation, but is instead borne of the LPWPD's written statements by their agent, Barr Engineering. Barr Engineering has

represented that LPWPD's concept is a piece-meal permit approach to flood control. City urges the Board to conclude that FC-32 is only the beginning of a new and continuous project which may have a significant effect on the environment. Accordingly, the Board should conclude it is a proper exercise of its discretion to defer any decision on issuance of FC-32 until an environmental impact statement, hereinafter "EIS," is prepared for LPWPD's comprehensive project.

The hearing on FC-32 is scheduled for September 25, 2002 at 10:30 a.m. City respectfully requests that prior to the Board hearing any testimony on FC-32, the City's underlying Motion for an Environmental Impact Statement be heard.

ARGUMENT

It is a proper exercise of the Board's discretion, under S.D.C.L. §34A-9-4, to require an EIS on LPWPD's multiple phase, multiple small low-impact flood control structures plan before issuing any permit.

City represents that FC-32 is the beginning of an overall project planned by the LPWPD and designed by Barr Engineering. That contention is confirmed in correspondence from Barr Engineering on LPWPD's behalf. In a February 26, 1999 letter to LaVerne Marquardt, then Chairman of the Codington County Commissioners, attached hereto and incorporated by reference, Steve Klein, P.E., of Barr Engineering states:

> On January 7, 1999 the LPWPD contracted with Barr Engineering Company to begin work on a comprehensive surface water management plan (SWMP). . .The SWMP will focus on detaining the flow of water in the upper portions of the basin, by using small low-impact flood and water quality control structures. . .Phase I [of SWMP] is a pilot study that will determine the effectiveness of various small low-impact flood control structures in a portion of the upstream watershed. Phase II expands the study to the remainder of the watershed and identifies priorities for implementation of flood control structures in the watershed.

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(See Exhibit 1, attached hereto). Prior to allowing any activity to commence under LPWPD's multiple phase project, an EIS should be required. "[T]he purpose of an environmental impact statement is to provide detailed information about the effect which a proposed action is likely to have on the environment, to list ways in which any adverse effects of the action might be minimized, and to suggest alternatives to the action." See *S.D.C.L. §34A-9-6.*

The South Dakota Supreme Court has recognized that the legislature does not intend that an EIS be required for every action an agency takes. See In re Water Management Board, 351 NW2d 119, 124 (SD 1984). However, in this case, FC-32 represents the beginning of a "comprehensive surface water management plan." See Exhibit 1. Before allowing LPWPD to begin implementing its plan, the Board should exercise its statutory discretion and conclude the LPWPD intends to commence a project that constitutes a major action and may have a significant effect on the environment.

S.D.C.L. §34A-9-4 provides, in relevant part: "All agencies may prepare, or have prepared by contract, an environmental impact statement on any major action they propose or approve which may have a significant effect on the environment." City acknowledges that under that section, a Board's decision on whether to require an EIS is optional, not mandatory. See In re Water Management Board, 351 NW2d at 124 (SD 1984). The Board may require or prepare an EIS **if there is a possibility that the major action they** propose or **approve will pose a threat to the environment**. See Application of SDDS, 472 NW2d 502 (SD 1991). (emphasis added). The City respectfully, (and rhetorically), asks the Board: "[I]f the Board denies the City's motion to defer action on FC-32 and require an EIS be prepared, how many more "small dam" flood control permits will be issued to LPWPD until their "comprehensive surface water management plan" is finally identified as a major action that may pose a threat to the environment?"

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Barr Engineering appears to have anticipated that LPWPD's comprehensive surface water management plan might be required to undergo an EIS. In his February 26, 1999 letter, Steve Klein stated:

> The time frame necessary to complete the project would meet the Governor's requirements for use of the funds slated for this region. Other construction-related activities outside of Barr's control (i.e., acquiring easements, performing EAWs or EISs if the regulators require) could, in turn delay construction. At this point, **we are assuming that the size of individual projects will not require preparing EAWs or EISs.**

See Exhibit 1, at page 3). The Board should not allow the LPWPD to incrementally build-out this comprehensive surface water management plan to avoid the necessity of an EIS. An EIS is designed to detail the possible impact of the proposed action. See Application of SDDS, 472 NW2d 502 (SD 1991). The statute does not require that a significant adverse effect on the environment be definitively proven, for that is the purpose of an EIS. See Id. This Board can now confidently conclude, based on FC-32 having been filed, that the LPWPD intends to incrementally construct a "comprehensive surface water management plan" in the Upper Big Sioux River Watershed "by using small low-impact flood and water quality control structures." See Exhibit 1.

In examining FC-32 in its proper context, the Board should conclude the LPWPD planned incremental approach can properly be classified as a "major project" that might pose a threat to the environment. By virtue of having filed FC-32, the LPWPD makes clear that for the foreseeable future, they intend to incrementally submit Flood Control Permit Application(s) to the Board, having been assured by their engineering company that "the size of individual projects will not require preparing EAWs or EISs." See Id.

It is a proper exercise of the Board's discretion to look beyond the four corners of FC-32, put the single, small-dam it encompasses in its proper "comprehensive surface water management plan" perspective, and insist that prior to issuing a single permit to the LPWPD, the Board first be fully informed of the overall impact of their comprehensive surface water management plan.

CONCLUSION

City is aware that the Chief Engineer has recommended approval of FC-32. That recommendation notwithstanding, City urges the Board to exercise its statutory discretion and defer any action on FC-32 until an EIS has been prepared. The Board is empowered to look beyond the four corners of FC-32, and require the LPWPD defer commencing any activity under their comprehensive surface water management plan until an EIS has been prepared.

WHEREFORE Intervenor, City of Watertown, prays its Motion for Environmental Impact Statement under *S.D.C.L. §34A-9-4* be granted.

DATED this 20th day of September 2002 at Watertown, South Dakota.

CITY OF WATERTOWN:

Stanton W. Fox
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CERTIFICATE OF SERVICE

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By: Stanton W. Fox

Stanton W. Fox, City Attorney

BARR

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 612-832-2600 • Fax: 612-832-2601

Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO

February 26, 1999

LaVern Marquardt, Chairman
Codington County Commissioners
14 First Avenue SE
Watertown, SD 57201

Re: Anticipated Work in the Upper Big Sioux River Watershed

Dear Codington County Commissioners:

Mr. Julian Wick, chairman of the Lake Pelican Water Project District (LPWPD), asked that we submit information to Codington County regarding the plans for flood control work in the Upper Big Sioux River Watershed. This letter describes the proposed work and approximate schedule, which are dependent on available funding.

Background

The proposed flood control work is in response to the significant flooding experienced by the City of Watertown during 6 of the past 45 years; the largest event occurring in the spring of 1997 (estimated to be between 100 to 500-year event). Flooding in the city occurs during events greater than the 10-year frequency flood, as a result of the large flows from the upstream watershed, the limited channel capacity, and several restrictions in the city. A city report estimated about $4.3 million in damages to 257 structures during the 10-year flood, and about $21 million in damages to 942 structures during the 100-year flood.

On January 7, 1999 the LPWPD contracted with Barr Engineering Company to begin work on a comprehensive surface water management plan (SWMP) to effectively manage the water quantity and quality within the Upper Big Sioux River Watershed. The SWMP will focus on detaining the flow of water in the upper portions of the basin, by using small low-impact flood and water quality control structures and promoting the use of watershed best management practices (BMPs). These measures will reduce flooding in the City of Watertown and reduce the high sediment load from the watershed.

The comprehensive SWMP is being prepared by Barr Engineering Company, a nationally known water resource and environmental engineering firm that has extensive experience in watershed planning and implementation. The vice-president in charge of the project at Barr is Steven Klein. Steve is a registered professional engineer with over 25 years of experience in water resources projects. He will provide overall guidance regarding study direction and will direct the construction engineering activities to implement the improvements identified in the SWMP. The SWMP project manager at Barr is Nancy Johnson Dent, a professional engineer with over 10 years of experience with water resources projects. Nancy will manage the study and provide coordination with governmental agencies and the LPWPD staff. Resumes for Mr. Klein and Ms. Dent are attached. Ms. Dent will draw on the support of other staff at Barr to conduct the hydrologic and sediment analyses.

Plan Development

Completion of the comprehensive SWMP was divided into two phases because of funding limitations. Phase I is a pilot study that will determine the effectiveness of various small low-impact flood control structures in a portion of the upstream watershed. Phase II expands the study to the remainder of the watershed and identifies priorities for implementation of flood control structures in the watershed. If funds become available, Phase I and Phase II may be combined as one continual effort.

The Phase I analysis includes development of an overall watershed model that is calibrated to the Corps' hydrologic analysis at a nearby gaging station, developed as part of the Flood Control Feasibility Study for Watertown and Vicinity (August, 1994). This initial model will not be a detailed analysis of each small subwatershed, but will analyze flows in the same major subwatersheds that the Corps analyzed. Calibration of flows to the Corps' flows will provide credibility to the detailed model being developed as part of this study. Calibrating to the Corps' flows will also save time by avoiding re-analysis of the gaging station data to determine peak flow rates from the major subwatersheds.

The detailed study of the Phase I pilot area in the upstream section of the watershed will analyze existing conditions to determine flow rates from smaller subwatersheds, with verification of the total flows to the Corps' results. It is our understanding that the townships and counties within the pilot study have agreed to obtain the survey information necessary to complete the detailed analysis as part of their in-kind services in lieu of financial contributions to the study. The model will be used to analyze the effects of various flood control structures in the subwatersheds on the peak flow rates and sediment loads. This may include analysis of small structures for detaining flow and trapping sediment such as: special manholes equipped with flow control measures, permeable weirs (horizontal timber walls installed with small gaps), hole-pierced sheet pile weir structures for ravines, and other low-impact structures. The study will also use data from a detailed analysis that the South Dakota Department of Environment and Natural Resources is conducting of sediment loads to compute expected reductions in sediment load by these structures.

The estimated reduction in peak flows and sediment load computed in the Phase I pilot study will be used to predict the overall effect of a watershed-wide system of such structures on the flooding and water quality in the region. The study will also identify and prioritize (1) other detailed studies that will be required for completion of the comprehensive SWMP; and (2) flood control construction projects. It is our understanding that the additional funds LPWPD is requesting needs to be used for the overall goal of flood reduction or flood protection, and these funds need to be completely used by September 1, 2000. A portion of these additional fundings being requested by the LPWPD would fund completion of Phase II of the comprehensive SWMP, which would expand the study to the remaining portions of the watershed. Data collection efforts may also need to be funded in order to expedite the agressive schedule necessary for completion of the comprehensive SWMP and prepare construction plans and specifications.

Work In Progress

The Phase I pilot study was started in January and is in the data collection stage which, at this point, is being completed by local townships and counties to reduce the overall cost of the project. The previous studies and information on the watershed that have been completed by various agency, city and county staff was also obtained by Barr and reviewed during January. This information will be used to the extent possible to avoid duplication of efforts, enhance acceptability of the study, and expedite the study activities. Several meetings have been held with the LPWPD, the public, and various agency, city and county staff as part of the initial project work. The LPWPD has also applied for a grant to develop a web-site to disseminate information and enhance communications between all stakeholders regarding the watershed initiative and data.
During the Phase I study activities, Barr has made many contacts with the various stakeholders in the watershed. As an outside expert in watershed planning, Barr will attempt to maintain contact

with the various stakeholders and serve as a resource and repository for watershed information. In the initial contacts made to date, Barr has been able to obtain information from parties and work towards the betterment of the watershed's natural resources.

Throughout the preparation of the SWMP, Barr will be in continual contact with the LPWPD directors regarding the methods used to complete the analysis, the alternatives evaluated, and the study status and results. Individual projects identified and prioritized during the study can be implemented once the overall impact is determined to satisfactorily reduce peak flows and sediment loads to the downstream watershed. The LPWPD goal is to begin construction of certain SWMP recommendations early in the year 2000 and complete construction of special funding projects by September 1, 2000.

Requested Funding

It is Barr's understanding that Governor Janklow has designated $5 million in Community Development Block Grant (CDBG) funds for the purposes of flood reduction and protection within the Upper Big Sioux River Watershed. Barr proposes that any remaining dollars that are available from these funds be used to complete the comprehensive SWMP and begin construction of the high priority flood control structures. The SWMP will identify and prioritize the improvements that will effectively and efficiently use the funds with the overall goal of flood reduction. Because the planning phase of the project is not near completion at this time, no specific projects have been analyzed or prioritized to determine the effectiveness on achieving the overall goal of flood reduction and water quality improvement. However, from the previous studies performed by the U.S. Army Corps of Engineers, it was estimated that achieving the desired flood control goals will cost at least $25 million. Therefore, even if the full $5 million were available for implementation of the flood control structures in the upstream watershed, all of the available funds could be used for this effort.

Estimated Schedule

If some or all of the Janklow/Legislature funding is given to LPWPD, Phase I and Phase II of the SWMP will be compiled. Their compiled completion is currently slated for completion by July 15, 1999. The length of time required for the SWMP is dependent on the local effort to obtain data on existing culverts and outlet structures in the watershed. If additional funding were available to obtain this data for the entire watershed, the schedule could include analysis of the remaining study area without affecting the schedule. The attached table provides a list of itemized tasks and an anticipated milestone time frame that Barr is committed to for completion of the project. The time frame necessary to complete the project would meet the Governor's requirements for the use of the funds slated for this region. Other construction-related activities outside of Barr's control (i.e., acquiring easements, performing EAWs or EISs if the regulators require) could, in turn, delay construction. At this point, we are assuming that size of individual projects will not require preparing EAWs or EISs. Also, LPWPD will be working with various landowners to acquire easements where project areas have been identified. Therefore, we do not anticipate any significant issues that could delay the schedule.

Sincerely,

Steven M. Klein, P.E.,
Vice President

SMK/fm
Attachments
204142

Anticipated Project Schedule

Date	Task
1/7/99	Hire Barr Engineering and begin the Surface Water Management Plan effort
4/15/99	Complete the data gathering and existing drainage system modeling
5/15/99	Complete upstream detention / storage ponding scenarios
5/17/99	Mid-term public meeting
6/15/99	Complete draft of the Upper Big Sioux River Surface Water Management Plan (SWMP) including prioritization of projects, recommendations for the specific projects to be undertaken for this first funding effort, and an estimation of the impact these projects will have on reducing flood levels and improving water quality in and along the Upper Big Sioux River, Lake Pelican, Lake Kampeska and City of Watertown.
6/17/99	Public meeting to present results
7/15/99	Revise where necessary and complete the SWMP
7/16/99	Adopt the SWMP and begin the implementation of projects to be completed by 9/1/2000
7/17/99	Begin design of project(s)
11/1/99	Advertise for bids
11/25/99	Receive bids
12/2/99	Authorize construction
9/1/2000	Complete construction

Experience

Mr. Klein has served as principal in charge and project manager in virtually all areas of water resources. His experience emphasizes water resources management, stormwater management, hydrologic and hydraulic analysis, groundwater studies, and the construction of water resources improvements. His clientele includes a substantial private client base, numerous municipalities, counties, and watershed districts. Key experience includes the following:

- Lead engineer for Ramsey-Washington Metro Watershed District, North Fork of the Crow River Watershed District, and the Thirty Lakes Watershed District, all in Minnesota. Also participated in diverse projects for Nine Mile Creek and Riley-Purgatory-Bluff Creek watershed districts and other governmental clients.

  Experience includes rural and urban water resource planning, watershed planning, flood and erosion control, water quality enhancement, park development, wetland mitigation, review of development proposals, feasibility studies, and preparation of plans and specifications for numerous construction projects each year, construction observation, and public meetings.

- Managed construction phase of a $7 million award-winning flood/erosion control project along Battle Creek in St. Paul. Work included three large stormwater reservoirs, 20 channel drop structures, 11 unique waterfall structures, 10,000 feet of storm sewer, a large energy dissipator, special flood-flow diversion structures, riprap, and stabilization of a severely eroded gully. The new system successfully weathered extreme storm events. The Battle Creek Stabilization Restoration Project won a Grand Award for Engineering Excellence from the Minnesota Consulting Engineers Council.

- Managed the design and construction of the award-winning Fish Creek erosion control project in Twin Cities. Work involved stabilizing and restoring a highly eroded creekbed for future park use. A central concern was preserving the natural setting. The Fish Creek restoration won a Grand Award for Engineering Excellence from the Minnesota Consulting Engineers Council.

- Prepared comprehensive surface water management plans for several municipalities, including Hastings, Red Wing, Willmar, Maplewood, Inver Grove, Sauk Rapids, Rosemount, Mankato, and Edina, Minnesota. Plans often entailed evaluation and extensive design of improvements to existing systems, and design and implementation of master stormwater management plans.

For example, Mr. Klein managed four large projects in Hastings, Minnesota. Work involved eight stormwater storage basins, park development, trunk and lateral sewer facilities, and a unique pump station and force main. Prepared plans and specifications and reviewed construction.

- Participated in analysis and design of an urban drainage system and a high-capacity stormwater lift station for the city of Moorhead, Minnesota.
- Analyzed and designed system of relief wells for Hibbing Taconite Company in northern Minnesota. Project included detailed soil analysis, design of well facilities, and design of pumpback system for maximum use of available water.
- Participated in regional flood studies in the city of Duluth and Roseau County in Minnesota.
- Applied computer modeling to predict lake levels, evaluate outlet options, and study potential impacts of land development on water resources.
- Participated in design of Valleyfair, Bredesen Park, and other park areas in Minnesota. Project features include hiking and biking trails, footbridges, rest areas, campgrounds, and aesthetic stormwater storage reservoirs.
- Served as an expert witness or technical advisor on litigative matters involving water resources and construction.

Education

Master of Business Administration, Kotz Graduate School of Management/ St. Thomas University, 1989
M.S., Civil Engineering, University of Minnesota, 1975
B.S., Civil Engineering, University of Minnesota, 1973

Registration

Civil Engineer: FL, IN, MI, MN, NE, SD, WI

Memberships

Minnesota Society of Professional Engineers
American Water Works Association
American Society of Civil Engineers
Minnesota Association of Municipal Engineers
Minnesota Association of Townships
Minnesota City Engineers Association
Professional Managers Association

Certifications

Professional Hydrologist, American Institute of Hydrology
Professional Engineer, National Council of Examiners for Engineering and Surveying
Individual Sewage Treatment System (Design and Evaluation), Minnesota Pollution Control Agency

NANCY JOHNSON DENT, P.E.
Civil Engineer

Experience

Ms. Dent's technical experience is focused in hydrologic and hydraulic modeling and design. She also has extensive experience in planning and managing feasibility studies for flood damage reduction, investigation of flood impacts, and economic analysis. She manages projects and serves as a technical resource on others. Highlights of her work include the following:

- Managed studies to identify the environmental impacts of two hydropower facilities for federal licensing. Studies included recreational, archaeological, sediment analysis, fisheries, earth embankment stability, wildlife, and long-term water quality.

- Planning and management of a sediment study for a hydropower facility, including mapping, collection, and contaminant analysis.

- Managed a study of the impacts of rising water levels on Devils Lake area infrastructure based on various flood protection strategies, and an economic analysis of the potential cost savings and damages prevented with construction of an emergency outlet. The project included development of a computer model to analyze costs and damages associated with flood protection strategies for 10,000 potential 50-year lake level futures.

- Managed technical feasibility and economic evaluation of various flood protection measures and access issues on the Spirit Lake Nation Reservation caused by the rising waters of Devils Lake. The project included a presentation of the assessment to the tribal members.

- Managed levee feasibility assessment study for economic justification of levee extension, followed by the design of an emergency levee for the City of Devils Lake; the projects were completed, designed and built in one construction season. The projects included numerous public meetings to present results, gather additional date and obtain input from locals that would be affected by the project.

- Managed the design and construction support for rural sanitary sewer system modifications resulting from rising Devils Lake levels.

- Managed a feasibility study and cost benefit analysis for flood protection measures in the City of Minnewaukan along a coulee and adjacent to Devils Lake, North Dakota. The project included participation in several public meetings to gain local input and present findings.

- Currently managing a study of water users downstream of Devils Lake: developing detailed inventory of water users along the Sheyenne River and Red River downstream of the proposed emergency outlet and identifying the impacts from outlet operation and costs associated with mitigation from impacts

- Managed the economic analysis of various flood protection measures to protect the downtown area of the City of Granite Falls from flooding.

- Managed preparation of stormwater management plans for the cities of Lakeville, Sunfish Lake, and Inver Grove Heights. Tasks include watershed delineation, identification of drainage patterns, hydrologic and hydraulic analysis, water quality modeling, and preparation of engineering reports. Analyzed existing conditions and designed storm sewer for future development conditions. Completed the analyses using HEC-1, HEC-2, Barr Watershed, PONDNET, and TR-20 models. The analyses and results were summarized in reports that included cost estimates, funding, water quality monitoring data, and a future monitoring plan.

- Conducted hydrologic and hydraulic analyses of watersheds in the City of Burnsville and examined results of the July 1987 superstorm.

- Analyzed and designed a high-capacity storm sewer system that included an energy dissipator. Prepared design, plan, profile, and details for the entire system.

- Designed a system of basins to provide flood control, improve runoff-water quality, and provide wildlife habitat for the Ramsey-Washington Metro Watershed District. Modeled watershed hydrology, prepared designs and plans, and observed construction of the basin. Assisted in the design for the ravine restoration along Carver Creek and observed construction of the channel modifications.

- Conducted and managed hydrologic and hydraulic analyses to determine the impact of proposed developments. Determined the effects of development on the water quality of existing wetlands and lakes.

- Designed several creek channels to maintain existing flood levels after encroachment into the channel. Completed hydraulic analyses using HEC-2.

- Analyzed alternate routes to direct channel flow around developed area. Designed storm sewer system for each alternative.

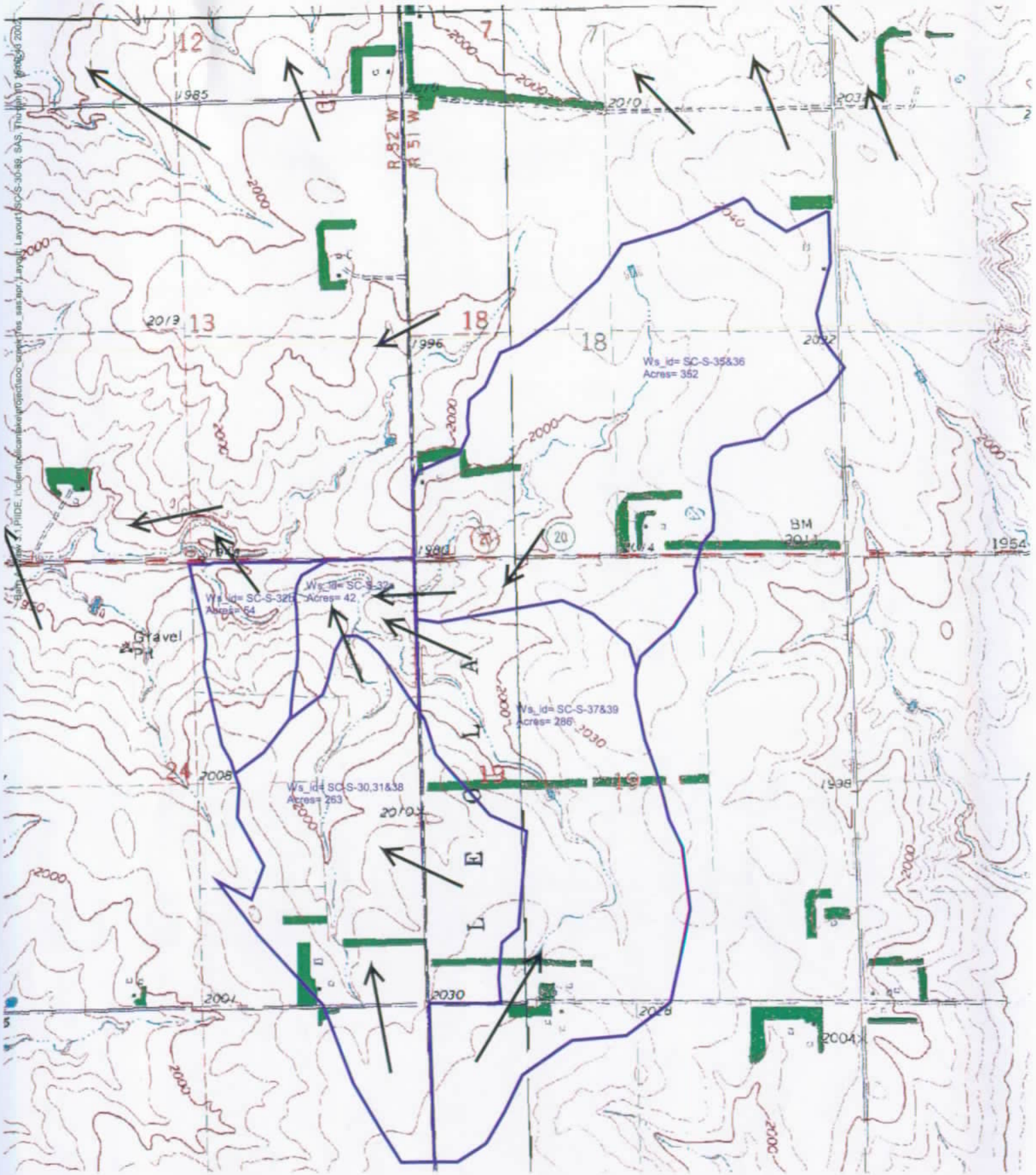
- Designed a feasible system to draw water from the St. Croix River and route it through a chain of lakes to the Minneapolis Water Works as an alternative emergency water source.

Education B.S., Civil Engineering, University of Minnesota, 1989

Registration Civil Engineer: MN, WI

Membership SAME (Chairperson, Readiness Committee)
ASDSO

204256



Draft
Review Purposes Only

Watershed Map

Lake Pelican Water Project District

STATE OF SOUTH DAKOTA

WATER MANAGEMENT BOARD

In re Flood Control Permit Application FC-32	)	
LAKE PELICAN WATER PROJECT DISTRICT,	)	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES' RESPONSE TO REQUEST FOR EIS
Applicant,	)	
CITY OF WATERTOWN,	)	
Intervenor.	)	

Under South Dakota law, the Water Management Board clearly has jurisdiction to require environmental impact statements. In re Water Management Board, 351 N.W.2d 119 (S.D. 1984). The Board holds such authority if (a) an "action" is involved, (b) the action is major, and (c) the major action might result in a significant effect on the environment. SDCL 34A-9-2; SDCL 34A-9-4

The first consideration is whether there is an "action" involved. The term "action" is defined in SDCL 34A-9-2:

> As used in this chapter, unless the context otherwise requires, "actions" include:
>
> (1) New and continuing projects or activities directly undertaken by any public agency, or supported in whole or part through contracts, grants, subsidies, loans or other forms of funding assistance from one or more public agencies;
>
> (2) Policy, regulations and procedure-making; or
>
> (3) The issuance by one or more public agencies of a lease, permit, license, certificate or other public entitlement to an applicant.

City of Watertown relies on the first and third provisions. As seen, the first provision is broad and may include both new

action and "continuing projects or activities." The third provision is narrower and involves only issuance of permits and grants of similar authority. The DENR submits that neither provision applies to the situation at hand.

By its terms, the first provision applies to actions of "public agencies." Watertown submits that the Lake Pelican Water Project District (Pelican) is a "public agency." The term "agency" is defined in SDCL 34A-9-1(1) as "the executive and administrative departments, offices, boards, commissions, and other units of the state government." (Emphasis added.) Watertown submits that Pelican is an "agency" because it is an "other unit of the state government." The DENR acknowledges that the water project district is a subdivision of the state (SDCL 46A-18-20), but submits that the water project district is not an "agency" for this purpose.

What does "other units of state government" mean? The DENR submits that the legal concept of "ejusdem generis" applies. It means "where general words follow the enumeration of particular classes of things, the general words will be construed as applying only to things of the same general class as those enumerated." In re Grievance of Wendell, 1998 S.D. 130, ¶ 7, 587 N.W.2d 595, 597 (quoting Black's Law Dictionary 517 (6th ed. 1990); Nielson v. AT&T Corp., 1999 S.D. 99, 597 N.W.2d 434. Under this principle, one must look at the more specific, listed provisions in the definition to determine the meaning of the term "other units of state government." Here, the more specific terms are the "executive and administrative departments, offices,

boards commissions . . . of the state government." The one common theme among those terms is that they are entities of the government of the state of South Dakota itself. No local entities (such as municipalities, counties, and townships) are mentioned; no other types of special districts are mentioned. The distinguishing factor between local governmental subdivisions, whether they are special districts (like Pelican) or municipalities, is that they have their own board of directors and bylaws and exercise decision-making authority separately from the state. The local subdivisions were not intended to be included in the definition of "agency" since they are not like the other enumerated state government entities in the definition of "agency."

As Watertown points out, the State Board of Water and Natural Resources formalized the creation of the Lake Pelican Water Project District through SDCL 46A-18-20. However, the District was not organized at the behest of the Board of Water and Natural Resources; it was created by citizen vote according to SDCL ch. 46A-18. The Board of Water and Natural Resource vote is the final act or formality for creation of this entity, but such act does not make the project an agency of the government of the State of South Dakota.

Another way to look at this situation is to determine whether subdivisions are considered agencies elsewhere in South Dakota law. This is an appropriate rule of statutory construction. Courts "look at the statute as a whole, as well as enactments relating to the same subject" when determining the

intent of a statute. Kayser v. S.D. Electrical Commission, 512 N.W.2d 746, 747 (S.D. 1994) (citation omitted). Another provision in South Dakota law is the "executive reorganization act," at SDCL ch. 1-32. It was adopted following a statewide vote in 1972 requiring consolidation of various boards, commissions, and instrumentalities of the state government. S.D. Const. art. IV, § 8. The scope of the executive reorganization act clearly applies only to state governmental entities and was never intended to apply to special local districts. The executive reorganization act defines the word "agency" almost identically to the law involved here. Under SDCL 1-32-1(3) an "agency " means "any board, commission, department, bureau, division or any other unit or organization of state government." This supports the analysis that the term "agency" is limited to some part of the government of the state itself, not a project district like Lake Pelican.

As referenced, Watertown also relies on the third part of SDCL 34A-9-2. Under this provision, Lake Pelican's project would be an "action." Indeed, SDCL 34A-9-2(3) is designed for projects that are not being developed by the state itself, but are subject to state approval. Under this portion of SDCL 34A-9-2, the "action" involved is the "issuance" of a state permit, license, certificate, and other similar functions. Because the focus is on the "issuance" of a permit, then it follows that there must be some kind of application pending before a state agency to trigger the EIS statute. Here there is an application pending for a small detention dam. Thus, there is an "action."

Under the state EIS law, there must not only be an "action" but the action must be "major" to invoke the EIS request. SDCL 34A-9-4; In the Matter of SDDS, Inc., 472 N.W.2d 502 (S.D. 1991) (holding that the Lonetree Landfill was a major action because it was designed to receive approximately 7.75 million tons of baled municipal solid waste). In this situation the currently pending flood control application is a small detention pond intended as a pilot or demonstration project. On its own it is clearly not a major project.

An overall proposal to build a large number of dams is a closer call. But is the overall plan or idea sufficiently developed to invoke its "major project" authority? This is a case of first impression in South Dakota.

The South Dakota EIS criterion is whether the "issuance" of a state permit (or similar grant of authority) is a major action. The federal criterion is whether there is a "report or recommendation on a proposal for major federal action." Kleppe v. Sierra Club, 427 U.S. 390, 399 (1976). Notwithstanding that difference, the federal EIS authority provides guidance. In Kleppe, the Court held that "in the absence of a proposal . . . there is nothing that could be the subject of the analysis envisioned by the statute for an impact statement." Id. Absent an overall plan, it is "impossible to analyze the environmental consequences." Id. at 402. There would be no "factual predicate" for an EIS. Id.

If the lack of a plan or proposal defeats a federal EIS (which provides for studies of proposals), it certainly defeats a

state EIS (which provides for issuance of permits and the like). A serious question exists in this case as to whether the Lake Pelican overall proposal is sufficiently developed so that there is a project to analyze in an EIS.

Because the currently pending application involves only one small detention dam, the Pelican project has submitted only information pertaining to that dam. The DENR has substantial authority to obtain data when necessary for reviewing additional permit applications. DENR intends to review each application in light of the cumulative affect of the drainage and flooding including all flood control permits in the area involved. DENR's need for very specific analysis of cumulative hydrologic effects of drainage areas will not be met by an EIS that generally serves as a project wide or programmatic EIS.

Dated this 24th day of September, 2002.

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Counsel for Department of
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pld924.db(dh)

CERTIFICATE OF SERVICE

The undersigned hereby certifies that true and correct copies of Department of Environment and Natural Resources' Response to Request for EIS In re Flood Control Permit Application FC-32 were hand delivered on the 24th day of September, 2002, to:

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ORIGINAL

BEFORE THE WATER MANAGEMENT BOARD

STATE OF SOUTH DAKOTA

In Re:	
Consideration of Flood Control Permit Application No. FC-32, Lake Pelican Water Project District	HEARING

PROCEEDINGS: September 25, 2002
Matthews Training Center
523 E. Capitol
Pierre, South Dakota

BOARD MEMBERS PRESENT: Mr. Francis E. Brink, Chairman
Ms. Marion B. Gunderson
Mr. Dwayne A. Rollag
Ms. Bernita Loucks
Mr. Leo Holzbauer

APPEARANCES:

Representing the Water Management Board:
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ORIGINAL

I N D E X

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Wednesday, September 25, 2002

CHAIRMAN ROLLAG: Basically what we're going to do here, we don't have anybody here on the next water permit application 1772. We're going to wait with the cancellation considerations and the future use review and jump right to the 10:30 agenda item, which is to consider Flood Control Permit Application No. FC-32 Lake Pelican Water Project District.

MR. GRONLUND: Why don't we take a one minute break while the Watertown people get situated up here and get the parties where they need to be.

(A recess was taken at this time.)

(Exhibit Nos. 1 through 21 were marked for identification.)

MS. BEST: I guess we want to do some introductory comments.

CHAIRMAN ROLLAG: Okay.

MR. LEIBEL: The City of Watertown, as an intervenor, is making a motion --

CHAIRMAN ROLLAG: Could you identify yourself?

MR. LEIBEL: Yes, my name is Jay Leibel. I am an attorney from Madison, South Dakota. I'm here on behalf of the Lake Pelican Water Project District. We're the applicant in this particular matter. We're asking for the permit for the construction of a demonstration water

retention project located in Codington County.

The City of Watertown has filed as an intervenor. They have asked that a motion be heard prior to the commencement of the actual hearing on the permit application. This particular motion was presented to the state on Monday morning, and also to us. My office received a copy of that particular motion on Monday of this week.

In your packet you will probably have a copy of the motion that was filed by Watertown. In addition, Diane Best, on behalf of the department, very quickly prepared a written response to that particular motion. You will not see a written response from me in regards to that motion, due to the fact that it was received Monday morning in my office while I was in Court. I didn't have an opportunity to even look at it Monday, other than to make a quick phone call to Diane just to say that I had received it. As a result there is no response from me as we were travelling to this location yesterday.

We do want to object to the submission of that particular motion to you, first of all on the timeliness matter. From a procedural aspect, we do not believe it is timely before you; that it's detrimental to all parties as to the late submission of that. There's no indication in the previous correspondence to the state, or to us, as to this particular motion.

Secondly, we believe that there are substantive grounds for denial of the motion. Some of those are addressed in Diane's particular document to you, and there are additional substantive reasons that I would like to present to you; however, those are a little premature. I would reserve or ask that I be allowed to comment on those particular substantive issues after Mr. Fox has had an opportunity to explain to you what his motion is.

CHAIRMAN ROLLAG: Thank you, Mr. Leibel. So we'll go right to Mr. Fox.

MR. FOX: Thank you. For the record, Stanton Fox, city attorney appearing on behalf of the City of Watertown. And I did, in fact, file the motion and brief in support, and just to make sure the record is clear, I served a FAXed copy on both Diane Best and Mr. Guhin on behalf of the board on Friday of last week. I just wanted to make that point for the board. And I did attempt a mailing to each one of the board members. I received a list from Diane and I attempted to mail them to you. I don't know whether or not they were received prior to arriving in Pierre.

But at any rate, this the city's motion. The basis for the motion is simply to reaffirm the grounds that we laid out in our initial petition to intervene before the board, stating that the basis why the city was intervening on FC-32, why we wanted an opportunity to be heard.

And as I thought through getting ready for appearing in front of you folks today, certainly I knew that I could, at the time FC-32 was being heard, I could orally move for the environmental impact statement under 34A-9. There's no scheduling order. There's no procedure requirement that I make this motion formally in writing.

But for the record, so you folks would have an opportunity, and so it didn't appear like the City of Watertown was, in effect, springing anything on either the applicant or board, I wanted to formally file a motion with you folks laying out what I thought were the -- was the legal authority and the grounds for why we were asking you to grant our motion and require that prior to taking any action on FC-32, that an environmental impact statement be prepared.

Now, with me today in the audience is the mayor of Watertown, Brenda Barger. And if you look in the records you'll see that, in fact, she signed the petition to intervene that lays out the basis that again is reaffirmed in the motion and brief.

And with the board's permission I would certainly like an opportunity to introduce her to you folks. And if you'd hear from her for just a brief moment, she'd like to explain why on behalf of the City of Watertown we filed a petition to intervene. And I'll go through the legal arguments about the basis for the motion, but she is here, and

with the board's permission --

MR. GUHIN: Mr. Chairman, if I might comment, I think at this point the matter before the board is whether or not it should grant the motion with regard to the environmental impact statement. So, I guess I would suggest that the board allow evidence on behalf of the City of Watertown on that subject, I mean if you need to support it with some facts, and if you have some facts, I guess you should do it.

MR. FOX: I thank you, and just for the board, for your information it will be a limited presentation, both the Mayor of Watertown wants to make just some introductory comments, again because the underlying basis was just reaffirming the petition and there's also an engineer from HDR, who we'll call with just a brief -- from an environmental and informative standpoint basis for why we've made our motion. So with the board's permission, I would like to call Mayor Barger.

MAYOR BARGER: Good morning.

MR. LEIBEL: Excuse me, just as a point of clarification, is this a sworn testimony as motion and do we have an opportunity to cross-examine.

MR. GUHIN: Yes, this is. As I was -- for the benefit of members of the board and counsel and any of the parties, yes, what's being -- what is occurring now is a

motion hearing on the City of Watertown's motion to have an environmental impact statement. I would ask the witness to go up to the podium and we'll do it just like anything else, examination, any cross-examination by Lake Pelican and the state.

MR. FOX: Thank you.

Whereupon,

BRENDA BARGER,

called as a witness, testified as follows:

EXAMINATION

BY MR. FOX:

Q. Would you state your name for the record?

A. My name is Brenda S. Barger.

Q. And what is your position with the City of Watertown?

A. Mayor of Watertown.

Q. And why are you appearing here today?

A. I'm appearing to give the board some sense of why we felt it was necessary to request an environmental impact study and to encourage that prior to their ruling on FC-32. Quite frankly I would -- I think I would be remiss were I not here on behalf of my community.

Before you is an application for a single dam structure, which in its isolated context would probably not be of terribly, you know, large concern to me individually; however, in fact, we are aware, as is public knowledge in our

community, that this is not an isolated dam structure, but in fact one of perhaps hundreds of dam structures that are being implicated in a plan that Lake Pelican Water District has contracted to have put together by Barr Engineering.

And so our perspective on this is that not only does the board have the authority to look at this in its entirety as part of a plan, but that we would certainly endorse that you do so, rather than simply moving to accept the application as an isolated structure. There are implications for our community, there's no question about that. We have both safety concerns as well as environmental. And so given those situations, I did, in fact, ask Mr. Fox to prepare and submit to you the request that you determine that an EIS is necessary prior to making your decision about had application.

MR. FOX: I have nothing further.

MR. LEIBEL: I have a couple questions.

EXAMINATION

BY MR. LEIBEL:

Q. Mayor, does the City of Watertown have a comprehensive surface water management plan?

A. The City of Watertown does not have a comprehensive surface water management plan. We have --

Q. Did the City of Watertown recently complete a project known as the 14th Street water retention or detention

project?

MR. FOX: If I could, to the board and board counsel, object on basis of relevance. I don't know what the relevance of that question is.

MR. LEIBEL: The request is for an EIS; that is their entire motion. The facts and circumstances of presenting the legal argument by Mr. Fox and our response will address that particular issue. It is our position that it is relevant because they are asking you to exercise your discretionary authority in requiring or not requiring an ESI.

And we believe for the board to make a full decision on that one, on that issue, that it's necessary for you to have all the facts and the impact that it will not only have on this particular project, but the Town of Watertown, townships, councils and any other potential agency.

14th Avenue, is our understanding, was a project that the mayor has been on the radio in just the last 24 hours indicating to the citizens the effect that it has had as far as retention of flood waters or rain waters. And we believe that this is relevant and the issue of an ESI. It's our understand that no ESI -- excuse me, EIS impact -- environmental impact study was required in this particular project. And we feel that this is a fact that will bear or the circumstances of that and others will bear on the decision of your board.

MR. GUHIN: Well, Mr. Chairman, I think they have made their point. This is really way off the point. The question is whether or not their should be an EIS with regard to this flood control application, not whether somebody should have hauled the City of Watertown in and made them do an EIS. So my advice to the board is to overrule the objection -- or to sustain the objection, excuse me.

CHAIRMAN ROLLAG: So the objection will be sustained.

MR. LEIBEL: If I may just comment. We are not, Mr. Guhin, suggesting that they should have had an EIS; that's not the point of the question. The point of the question is to establish the line of reference in past precedence and the potential impact that their request will have on the department and applicants, as well as this board in the future. That's where we feel that this particular question is important, not on whether or not they did it in the past.

CHAIRMAN ROLLAG: We'll still sustain and your comments are on the record.

MR. LEIBEL: Thank you. Can the witness be excused?

CHAIRMAN ROLLAG: Do you have more questions?

MR. LEIBEL: No more questions.

CHAIRMAN ROLLAG: Thank you.

MR. FOX: If I could, members of the board, one

additional witness in support of the foundation for the city's motion, I would ask to call -- and his CV has been made part of the record. I'll pronounce his name and hope I get it right. He's an engineer with HDR, and it's Rick Niedergeses, and he is here on behalf of the city. If I could call him, he's sitting right next to me.

Whereupon,

RICK NIEDERGESES,

called as a witness, testified as follows:

EXAMINATION

BY MR. FOX:

CHAIRMAN ROLLAG: Please state your name for the record.

A. My name is Rick Niedergeses.

Q. (By Mr. Fox) Mr. Niedergeses -- I'll call you Rick -- are you familiar with the bases and the grounds for the city's motion that we're discussing here this morning?

A. Yes, I am.

Q. And based on your experience, and your resume has been made part of the record and I think that we have a stipulation among the parties that he's qualified and can give testimony in this area. But are there some fundamental environmental and flooding concepts that ought to or should be considered or taken into account when you examine the overall design or implementation of the plan by the Lake

Pelican Water District, as you understand it?

A. Yes, it is generally concern -- or understood that in the development of a plan all components of that plan should be evaluated and their impacts evaluated before you proceed with the plan such that we don't have any individual concerns or issues promulgated in the development of that plan that detriment the environment.

Q. And in anticipation of your testimony today did you prepare some demonstrative exhibits that could hypothetically exhibit to the board the environmental and flooding concepts that you want to talk about?

A. Yes, we did.

Q. Are they next to you?

A. Yes, they are.

Q. We're placing on the easel, for the record, an exhibit that has been marked as Exhibit 8, and I believe that above the word "basin map", for the board's indulgence, the word "hypothetical" ought to be placed up there, but could you describe to the board what's depicted in Exhibit 8?

A. Okay.

MR. LEIBEL: Excuse me, if I may, for purposes of objection, at this time we would object to anything on the basis of hypothetical, unless it can be tied in to this particular project.

The statement that was asked by counsel

specifically referred to the Lake Pelican Water Project District. Now all of a sudden we're talking about hypotheticals. If that's the case I object on the basis of hypothetical and lack of foundation as to this particular exhibit. I don't know how many there are, but I would ask for a standing objection on all of them that are hypothetical, or non factual basis.

MR. FOX: I apologize. Now if I could, for the benefit of the board, I indicated when I called Mr. Niedergeses to the stand that we are going to lay some foundation for the benefit of the board in terms of why the city is objecting to the aggregate plan that's being proposed by the Lake Pelican Water Project District.

The preface to my question regarding these exhibits, and I don't think it's necessary to read it back, but the point that I asked Mr. Niedergeses when he first came up, is if there were some fundamental concepts in environmental law that deal with environmental issues and flooding that ought to be considered when you take into account or consideration design implementation of an overall aggregate plan of small flood control structures. And in response to that question he answered in the affirmative.

And I asked if he prepared some demonstrative exhibits that could illustrate that fundamental concept of environmental law for purposes of illustration. That is the

only point they are being offered for, not that they demonstrate anything necessarily specifically related to flood control permanent 32 or the Lake Pelican Water District, but just to give the board foundation relative to fundamental concepts of environmental law.

By way of an offer of proof, I could certainly have Mr. Niedergeses indicate some of those things that are probably reflected in his curriculum vitae that describe all of these storm water management plans that he's designed and implemented throughout the Continental United States, but I don't know whether or not the board would want to hear that.

MR. GUHIN: Mr. Chairman, I think as a matter of introduction, Pelican has -- excuse me, Watertown has satisfactorily explained what it wanted to do. The thing that concerns me about the statement that I just heard, is that this witness is going to talk about fundamental concepts of environmental law. I don't -- I assume what you mean to say, he's going to talk about fundamental concepts of environmental engineering and good environmental practice, and that kind of stuff, not environmental law.

MR. FOX: Forgive me. Forgive me to the board. I misspoke. I didn't mean that he's going to talk about legal aspects, simply just -- yeah, my apologies.

CHAIRMAN ROLLAG: We'll overrule the objection.

Q. (By Mr. Fox) Okay, Mr. Niedergeses, could you please

describe to members of the board what's depicted on Exhibit 8?

A. Exhibit 8 shows a sample watershed, which is somewhat similar to the watershed above the Town of Watertown. If you will, this lower point could be construed as being point that Watertown would exist.

What I have done here is I have developed a number of similar-sized basins throughout this watershed to illustrate the impact of putting detention structures that modify the hydrographs and the runoff -- rainfall runoff from these various sub basins, to show what the possible flooding impacts to the Town of Watertown may be if a system of reservoirs is constructed without a detailed storm water plan.

Q. And do you have anything in addition to the hypothetical basin map that's depicted in Exhibit 8 that would expand on that?

A. Yes. For this basin, this red basin, I developed a hydrograph which is a depiction in time.

Q. Forgive me, if I could for the record, the exhibit that he's going to be referring to is identified as Exhibit 9.

MR. LEIBEL: For clarification, this is a hypothetical. There is no such thing as red sub station?

MR. FOX: That's an extension of the hypothetical basin map he just referred to.

A. What we've developed here is a hydrograph based on a sample sub basin. And what we -- what a hydrograph is is it is a chart that shows the flood flow in terms of cfs, cubic feet per second, discharge that comes off of a basin in relationship to time.

And as you can see at a certain time in a rainfall event runoff begins to flow off of the watershed and the flow in the channel increases to a point, and at this point the high is approximately 65 cfs.

When one develops a structure, a retention structure, a small dam, or a structure such as being proposed by FC-32, the impact of that structure is to take the water, the volume of water which is depicted by the area underneath the major graph and store that in the reservoir for a period of time. That has the impact of moving some of this water that would normally flow downstream to an area or to a period in time later.

So a volume of water that would have come down at a very rapid rate, now is held for a period of time, comes down at a later time at a slower rate, and it shows a reduction in the peak flow of the amount of flooding. In this case we are seeing a 65 cfs discharge was reduced down to approximately a 45 -- 40 cfs discharge.

For the purposes of the FC-32, they are predicting approximately a 65 percent reduction in the peak.

So we might actually see a slight increase in the peak had that -- this actually be the data provided by Barr on an overall study.

My next chart is Exhibit 10, and what this shows is this shows what would happen if indeed all of these sub areas, the green, the red, the purple, were similar sub basins and each one in turn had a normal natural runoff similar to the red.

And as you can see from this chart we have actually colored the water. We are using colored water in this example. We see how in each one of these basins the runoff would come down, and the water actually gets shifted in the channel. This would be from a perspective of what would happen in the community of Watertown from all these basins. The near basins, of course, would come down and drain; the next basin would come down and would actually superimpose and elevate, increase for a period of time the flow that occurs.

So we have maybe no increase from the flood. We have a general situation where we have each basin coming down and in its own time it flows through Watertown.

But what would happen if say we came in to the red basin and now we built a structure such as indicated on Figure 9? Now what you see here is what we have done cut down the peak and moved the volume of water that flows off

the basin to a later time. So some of this water that would flow off is being reduced and moved into a slightly later time. And what the impact of that is is shown on my Figure 11.

And what happens here, we have each of the different hydrographs, but now we have a flood control structure which reduces the water from our red basin. But unfortunately in a basin downstream the timing has been modified such that this floodway now comes through at a later time when another basin is already flowing. And what we see here is, in this case the water has shifted, the volume of water has shifted and it impacts the area of the brown and creates a flood increase in the Town of Watertown.

Now the point here is that we're only looking at one study. We're only looking at what's happening on the red basin. And the issue is what's happening on the red basin can have detrimental facts to the community of Watertown, unless we're looking at the total proposal of all of the projects of the plan that's going to be provided.

Q. Now if I could, speaking hypothetically, assuming for the sake of my hypothetical question that FC-32 is going to be constructed in the red basin that's depicted on the hypothetical basin map, Exhibit 8, could you again just summarize what the potential effects, with the understanding of the concepts you've just described, what the potential

effects of FC-32 in that overall hypothetical basin would be to the impact point that you described down at the bottom, which you indicated was hypothetically the City of Watertown?

A. Well, the problem is we don't know what the effects are because they haven't been studied. The issue is actually quite complicated. We don't know how many structures are proposed, where they might be. We don't know what order they are going to be constructed in. So it's virtually impossible to take this and to look at a problem down at the basin and say whether it will be an improvement or not.

Had it been a structure in this basin, and had this been the information, this water would have been shifted back to appoint when this water was just arriving down at Watertown and there would be an increase, but we don't have any information to address that. We do not have all the facts.

MR. FOX: At this point I have nothing further for Mr. Niedergeses.

CHAIRMAN ROLLAG: Any board members have any questions for Rick?

Any questions?

MS. GUNDERSON: I have one question, just to get my geography straight. I see the map over there and I see that Pelican Lake, then is the red area Watertown down in the bottom?

MR. LEIBEL: If I may explain, yes, you're correct. For background, this is Watertown down here. These are -- and there will be testimony later -- these are the townships, the counties that are involved in the Lake Pelican Water Project District.

MS. GUNDERSON: My question really, I wanted to establish that, now does the water in Pelican drain north?

MR. LEIBEL: No, the water in this district all flows south through the Big Sioux.

MS. GUNDERSON: That's what I thought.

MR. LEIBEL: The location of this particular project, which we are presenting as a demonstration or a stand-alone project, is located right here from the City of Watertown, as the water flows, it goes through 21 sections and comes down to Watertown through the Big Sioux. As the crow flies it's between 12 and 13 miles from the City of Watertown.

MR. GUHIN: Mr. Chairman, there is a problem here. Mr. Leibel is not sworn. He's not testifying. He can certainly say where the project is going to be, but you know talking about the hydrology and stuff --

CHAIRMAN ROLLAG: Is Mr. Leibel an attorney?

MR. GUHIN: He's an attorney, and he's not intending to testify, I don't believe, he's just trying to help out the board.

MR. LEIBEL: These particular documents or maps are ours, not Rick's. He didn't have the opportunity to --

MS. GUNDERSON: I got my question answered, and I just wanted to know directions, actually. I'm very poor at directions. I'm sorry.

CHAIRMAN ROLLAG: Any other questions for Rick? I hope you don't mind if I just call you Rick.

MR. NIEDERGESES: I'm on a first name basis with a lot of people.

CHAIRMAN ROLLAG: Any questions for --

MR. LEIBEL: I have a number of questions.

EXAMINATION

BY MR. LEIBEL:

Q. First of all, Rick, I want to make sure that we all understand that this is a fictitious hypothetical?

A. Yes.

Q. And the diagrams that you have presented as to water flows are simply that, hypothetical; they aren't based on any facts?

A. That is correct.

Q. That the diagrams that you presented were based upon not one individual project, i.e. FC-32, but on the entire drainage basin, the entire colored area?

A. Yes.

Q. So that would significantly be different than one

particular project?

A. We don't know. We don't have that information.

Q. You do have information in regards to FC-32, as to the size of the project?

A. We do not have any information that downstream impacts of FC-32.

Q. I believe your report that you'll be testifying from later indicates that standing alone FC-32 would have little environmental or public safety impact; isn't that a part of your report?

A. That is true.

Q. Personally have you ever done a comprehensive surface water management plan?

A. Yes.

Q. I also believe that HDR has done a number over the years?

A. Yes.

Q. Did HDR recently do one for Dubuque, Iowa?

A. Yes.

Q. I believe that particular project included multiple ponding projects?

A. Yes, it did.

Q. That is similar to what is envisioned in the Lake Pelican project, or the multiple of those type of ponding projects?

A. There would be a few.

Q. And it did include, I think, some design work?

A. No, we did not do any design work. It was a concept plan.

Q. Did you recommend to them that they include an EIS?

A. We made no recommendations as to how they should permit the project; that wasn't in our scope.

Q. Did it include an EIS?

A. We have not completed the project, sir. No projects have been designed yet.

Q. And therefore no EIS has been presented, even though you have done a comprehensive plan?

A. Not yet.

Q. On that comprehensive plan, did you include what I think is customarily referred to as build-on, that means the future growth projections as to the development of the community?

A. Yes.

Q. How far out did you go?

A. To the limits of the watersheds.

Q. To all the watersheds within the city?

A. Within the watersheds that were studied, not all watersheds were studied.

Q. So you did not go out and determine the impacts it would have on watersheds below the city?

A. No, there were no watersheds below the city.
Q. Is Dubuque on the river?
A. Yes, it is.
Q. So then it would flow into a rather substantial river?
A. Yes, it would.
Q. And wouldn't the potential of that water have an effect on that river and subsequently properties below that?
A. Yes, it will.
Q. Do you concur that FC-32 is not a large structure?
A. Yes.
Q. That under state definition it is a Class 3?
A. It is a Class 3.
Q. It's not located on any mainstream or major tributary of the Big Sioux River?
A. It is a tributary of the Big Sioux River.
Q. I believe it's a dry wash?
A. Yes, it is.

MR. LEIBEL: Thank you. I have no further questions.

MS. BEST: Nothing from DENR.

CHAIRMAN ROLLAG: If I could continue.

MR. LEIBEL: Excuse me, I would have one more question, with the indulgence of Rick and the board.

Q. (By Mr. Leibel) Have you ever, in any comprehensive surface water plan, required a complete -- or had to do a

complete EIS prior to development of the plan and project of any -- I should say any individual project?

A. Could we answer that -- that's a two-part question. Can we separate that into a single part, please?

Q. Have you required to do a complete EIS on the entire build-out prior to the construction of one project?

A. Yes.

Q. And where was that?

A. All over, that's the standard.

Q. If I understand your testimony, you are saying that a complete ESI -- excuse me, EIS is done each and every time?

A. No, that's not what I said. You asked if I had ever had it done once.

Q. Is it customary that it's done?

A. No.

Q. Would you agree that it's extremely rare that it's done?

A. Yes.

Q. In that particular one that you did, was that a large project?

A. Yes.

Q. It was not a Class 3 project?

A. It included the elements of Class 1, Class 2 and Class 3.

Q. And because of those multiple elements of Class 1, 2

and 3 it was done?

A. No, it was done to define unknown environmental impacts.

Q. For all three classes, correct, in the project?

A. Yes, it was a comprehensive plan.

MR. LEIBEL: Thank you.

MR. GUHIN: Mr. Chairman, just to avoid any confusion, I don't believe those exhibits have been offered into evidence. Do you intend to offer those into evidence?

MR. FOX: If there are no objections from DENR.

MS. BEST: No objection.

MR. LEIBEL: No objection, other than what I had previously set forth.

CHAIRMAN ROLLAG: Okay, they will be accepted.

MR. FOX: Thank you. May the witness be excused?

CHAIRMAN ROLLAG: Any other questions?

Mr. Fox?

MR. FOX: May I continue? Now with that foundation having been laid, just by way of summarizing the city's legal arguments relative to the -- both to the board's jurisdictional authority to order an EIS, as well as the legal basis why the city is recommending to the board that they exercise their discretion and order one, I assume that the board members have all had an opportunity to read the

motion and brief that the city has submitted. In addition, as Mr. Leibel indicated, Diane Best on behalf of the department has submitted a reply, and a couple of points in the reply that I think are certainly worth pointing out to the board --

MS. BEST: If I may, you know, I would like the opportunity, at least at some point in time, to speak to this issue as well, but fine.

MR. GUHIN: I think from the board's perspective I believe that everybody is going to get a chance to speak to this, including Mr. Leibel and Ms. Best.

MR. FOX: I'd just like the board to know that the city recognizes this is not something, a request that is typical before the board members for it certainly. As I understand it, would be the first time that, in fact, the board, to the extent they grant the city's motion, would have ever done that.

And in the response to the city's motion one of the issues that was raised in this -- or a question no doubt in the board members mind is does what's contemplated by the Lake Pelican Water Project District constitute a major action as that term is used in state statute.

One of the requirements for ordering an EIS is that what's contemplated has to be considered a major action. Now, certainly the position could be taken that in isolation FC-32, the single dam structure that's before you in that

application, arguably you probably have a tough time suggesting that's a major action.

The city's position is that the board ought to exercise their discretion, look beyond the four corners of the FC-32, because the Lake Pelican Water Project District has made clear their intentions go way beyond FC-32. In fact, I think that Mr. Leibel, although he wasn't sworn and wasn't intending to offer testimony indicated that this was a representation structure -- I don't want to put words in his mouth, but the idea was that this was just the first of many. It was a representation structure.

So certainly I think that FC-32 marks the beginning. This is the start of a major action, and the city's position is that we needed to move the board now, as opposed to waiting until permit 13, 14, 15 or 25, before asking the board, have we gotten to the point where Lake Pelican Water Project District is now up in that basin engaging in what constitutes a major action under state statute.

Certainly the board is aware that there are a number of projects, to the extent that we get into the underlying FC-32 today, there are a number of projects that Lake Pelican Water Project District might be contemplating that they'll never have to come before this board, given the size, the location, those kinds of things under administrative

rule and state statute, they will never come before you. They will be able to go out and engage in those activities and this board will never have to make sure that the applications pass muster because they won't have to file any.

But this is the beginning. This is the start of their plan, and the city had to take the affirmative step of asking for this now before it gets to the point of a major action, and then this board will probably be asking the city, why weren't you here at the beginning, now we've gotten to the point where it's a major action.

And, again, I know Diane on behalf of the board is going to want to speak to her motion but -- or her reply to the city's motion. But in asking the question hypothetically does FC-32 in isolation constitute a major action, the response that Diane has made, and thank you for allowing me to speak relative to her response, is that on its own FC-32 is clearly not a major project.

But the overall proposal to do that, in the words of Diane, is a closer call. Does it constitute a major action in the grand scheme of things, in the aggregate of what Lake Pelican is about to embark on. In her impression and in mine, as I mentioned to you when I started, that this would be the first time that this board would have ever required or ordered that an EIS be required.

And that may well be the case, because most

people who come before you are either in favor of a project, or if there is opposition, it's satisfactorily answered. You know what the overall scheme is. You know what the design is. You know what the impact up here and down here and over there is such that it's not necessary for you to look or require for someone to go out and submit to this board enough information so you can evaluate the overall impact of the overall plan.

In isolation, FC-32, I think you heard Mr. Niedergeses testify that it satisfies the Safety of Dams Administrative Rules, that as it exists it is probably not an objectionable structure. But when you look at this representation structure in its totality, that's why the city of Watertown asserts that this is a major action, and the board ought to exercise its discretion and grant the city's motion requiring that an EIS be ordered before you take any action on FC-32, deferring action until they have completed their work and can show to this board and the Watertown community what the environmental impact is of their total surface water management plan.

I entertain any questions to the extent the board has any.

CHAIRMAN ROLLAG: Any questions by any member of the board?

Thank you, Mr. Fox.

Diane, are you next?

MS. BEST: Pleasure of the board.

CHAIRMAN ROLLAG: The pleasure of the board will be that we will take a lunch break. So you'll be the first on the agenda after lunch. We will break and return again at 1:00, begin promptly at 1:00.

MS. BEST: If I may, we did file a written motion that's already part of the record in this case, but I did not serve it on the individual board members. And if I could just hand that out, I'm not telling you have to read this over lunch, but if you want to.

(A recess was taken at this time.)

CHAIRMAN ROLLAG: Okay, we'll resume and we'll go to Diane for a statement.

MS. BEST: Thank you. The department filed a response and request for motion for EIS, and I handed that out right before lunchtime, and I'm certainly not going to read that, and we would rely on the statements made in that response.

I do want to, though, point out a couple of issues. One is a state EIS is required -- or not required, but a state EIS can be required by the board only when there's a major project. So the question of the day is is the Lake Pelican flood control matter a major project?

And you've already heard the testimony of City

of Watertown's experts, and you've heard the argument made by their attorney. And I think it's pretty clear to everybody that the flood control application to be heard here today is a small project, and if we proceed to hearing today there will be additional evidence regarding just how small it is.

The DENR can't, in any way, support an EIS for this small project, and I don't think that's really the question. The question is there's a concept that's been developed by Lake Pelican for hundreds -- for an overall comprehensive management project with hundreds of small detention dams, and it's that that would be what the EIS is requested for. But that's not what's before the board today, the overall comprehensive plan.

What Pelican has filed -- based on what Pelican has filed today's project is a demonstration project, or a pilot project as part of developing that overall comprehensive plan. In other words, we haven't seen a plan yet, and so it appears that the cart is before the horse. I would point that out.

The other issue -- so there isn't a major project on the table, and undeniably there are serious water flooding issues in the Watertown area that need to be addressed and are being addressed by a number of experts in this room. But the question is whether there's a major

project on the table, and the DENR submits not.

The other issue is what would be considered in an EIS. A state EIS is not as comprehensive of an EIS as what the federal government requires for its EIS. In other words, it is required to include only natural resources criteria and does not include economic and sociological factors, or its certainly not, unless that's a voluntary factor that's considered, I don't think, it's certainly not spelled out in the statute to include that.

So what really would be done with an EIS if one were developed. Flood flow analysis. We're talking about an overall flood project. If there were an EIS, it's apparently intended, at least by Watertown, that the scope of that project would include additional flood flow analysis in the whole -- in the whole Watertown area.

And while study of those issues is a good thing, what the DENR staff needs when they review a specific -- when they review flood control applications is specific water modeling analysis for specific projects, considering specific soil types and specific elevations at specific locations.

And as they review those projects it's a very detailed data regarding those specific water flows. And as you know, that can involve, for any single project, a significant amount of research and specific amount of water modeling. And there may be differences of opinion regarding

those -- that specific kind of data.

Now to do -- to require a programmatic EIS across the board for several hundreds of detention structures on a conceptual basis seems not to mesh with what needs to be looked at by the chief engineer and what certainly is put before the board, and flood control work is the more specific analytical type data.

And that's not to say an EIS can't do that, do some of that, but when the flood control permits that this board looks at, required filings do include flood flow analysis, they do include an explanation of how the structure will be built already.

So what I'm boiling this down to is the chief engineer and staff gets that information and takes a hard look at that information on flood control projects specific to the projects. Project two they are going to be looking at the effects of project two, assuming there is a project two, and how that meshes with project one, and what -- how that affects the natural resources from the base line, or the way it is now.

So they have the ability to look at cumulative effects. They have the ability to look at specifics for flood control projects. And some thought here that a programmatic EIS at the conceptual level won't give us that kind of specific information that would be as good as looking

at the specific kind of information you need when you have flood control applications themselves.

I don't know if I'm making that very clear but -- so those are the two points I want to bring out. Major project, I don't think we're at that stage of knowing yet; and secondly, at least from the DENR's perspective, we need very, very specific data and planning tools that we think if you had to do an EIS with that many dams, you're not going to get specific enough to get the kind of information you need. We could be wrong, but today's not the day. It just -- the project hasn't moved forward enough for us to work that out.

Any questions?

MS. LOUCKS: Yes. My question was going to be, and I think it's been answered but I want to make clear, if any other smaller projects or series of projects came up, they would have to come for permission, right? I mean they can't just do it.

MS. BEST: We've taken the position that they need to come in.

MS. LOUCKS: Okay.

MS. BEST: Yes, and we also take the position that what needs to be studied then are those projects, not just in some incremental level of flood control, but to look back at what has been done and what has been planned and as

we go forward.

MR. HOLZBAUER: If an EIS was required for this situation, would it be a -- set a precedence that EIS's would have to be established for all small projects or --

MS. BEST: No. First of all, an EIS can only be authorized if it's a major project that may significantly affect the environment. But secondly, I don't believe that it would set a precedent from a perspective that it's very clear from the Court decisions that this is discretionary with the board on a project basis. So I would not make that assertion that it is -- it sets a precedent.

MR. HOLZBAUER: So then the biggest thing, are we trying to determine if this is the first step of a major complete innovation; that's basically what we're going to be trying to decide, right? Or are we just going to decide --

MS. BEST: Well, the first question is whether you're going to require an EIS for the small detention dam. But I think the parties have pretty well acknowledged that's not the question of the day. And the second question is major project to have to look at hundreds of dams on a program wide -- on a future basis.

And you know this is not -- this is something that comes up in the federal EIS, too, is when do you start doing EIS, is it at the conceptual idea level? Is it when you get kind of a plan? Is it when you have an actual

proposal? Do you have to wait until it goes to bid? And if you wait until it goes to bid, is it too late? And that's a struggle at the federal level.

The cases that I cite to in the pleading I made cites to a United States Supreme Court decision that looked at that issue and said, you know, you have to have a proposal on the table. A conceptual idea just doesn't make the cut, or at least that's how I read that case.

MR. BRINK: What are -- what is the board's option in determining what goes into any kind of impact statement? A total EIS statement to me is kind of like an infinity. You tell me how to get there -- where it's at, I may be able to get there. But, you know, we ran into snail dace minnows in this lake and carp chasing minnows in another, and I don't want to get into that. I don't want to impose anybody with those type of restrictions.

MS. GUNDERSON: But on the other hand.

MR. BRINK: Yeah, but on the other hand we want to see a total hydrologic model, and maybe that's as far as it goes, and maybe they already have that information.

CHAIRMAN ROLLAG: Mr. Guhin.

MR. GUHIN: Mr. Chairman, the statute at 34-9-7 sets out the minimum contents of an environmental impact statement and I can just read them to you.

CHAIRMAN ROLLAG: Yeah.

MR. GUHIN: The description of the proposed action in its environmental setting. The environmental impact for proposed action, including short term, long term affects, any adverse environmental effects which cannot be avoided should the proposal be implemented, alternatives to the proposed action, irreversible and irretrievable commitments of resources, mitigation measures proposed to minimize environmental impact and the growth-inducing aspects of the proposed action.

MR. HOLZBAUER: Growth-inducing?

MR. GUHIN: I don't know what that means.

MR. BRINK: It's pretty big.

MR. GUHIN: That's the minimum and the board could require more.

MR. BRINK: Those are minimums?

MR. GUHIN: That's what the statute says.

CHAIRMAN ROLLAG: When I look at this basin, and you can kind of equate it to a municipality and a municipality's design and storm sewer systems for various parts of the town, and somewhere along the line somebody says we need to get our act together here and decide what the drainage for this entire town is going to be. So somebody gets the idea they will hire an engineer who will study the drainage for the entire community, come up with a drainage plan.

In my estimation I think what this Pelican needs here is a drainage plan, which is a lot narrower in scope than an EIS. Does this board have enough flexibility that it could require, not maybe for this one, but some time later a drainage plan, comprehensive drainage plan for this entire basin?

MR. LEIBEL: If I may be so blunt to interrupt, as this is a quasi-judicial proceeding, the board has a lot of discretion in how to obtain evidence and information.

Factually we haven't had an opportunity yet to even respond to the motion of the City of Watertown. But what we anticipate is going to happen is after counsel for the department has talked we would be given an opportunity to present evidence to you in response to Watertown's request to their motion.

One of the items that we are going to present to you is this particular document that gives that you timetable. That is going on. That's what they have been working on for three years. We feel that that is a completely separate issue from the issue that Watertown has raised. But for your information, for your future knowledge, because we anticipate we'll be back to you, you know, in the future, we were going to provide that information to you. So if that answers your question.

CHAIRMAN ROLLAG: That answers my question.

MR. LEIBEL: We will have it for you later.

MS. BEST: Any further questions of me?

MS. GUNDERSON: Not right now.

MS. BEST: Thank you.

CHAIRMAN ROLLAG: Do you want to respond now?

MR. LEIBEL: Yes, we would like to briefly, because technically the motion is before you. We would like to call Steve just briefly to talk about some of the hypotheticals and what the actual scope of the issue before you today as far as the permit is. And then I would like an opportunity to make my legal argument, just like Mr. Fox has already had his opportunity to make legal argument on the issue.

MR. GUHIN: Mr. Chairman, could I propose, since the division has raised as the primary objection, I think, that there is no precise plan that Lake Pelican has developed, whether you'd address that and then maybe if there's some reply from Watertown after you're done, if it's something different from what you said, but that's the major address, whenever, just if it fits in, if it doesn't --

MR. LEIBEL: We intend to address that, but again, the way I conceptual -- we can do it earlier if you want, but we felt that would go on the hearing of the merits. The way I understand Watertown is suggesting to you, basically you hear some of this stuff twice. They want to

hear the motion and then they want to potentially again discuss the permit. And right now what is before you technically is Watertown's motion.

CHAIRMAN ROLLAG: We need a little more information.

MS. GUNDERSON: I have a question for John and Diane. If we -- is there such a move as to table the motion for later consideration?

MR. GUHIN: You could do that. The other thing, though, the evidence you hear now, the parties ought to be aware that the board is going to take -- this as sworn evidence, this will be taken into consideration in the final decision. So people shouldn't be thinking that they are going to do things twice.

MS. GUNDERSON: Well, that is what I would like.

MR. GUHIN: You don't have to do it by motion, because if they -- if somebody puts on a presentation X, they are not going to get to do presentation X after you decide the motion.

MS. GUNDERSON: So the chair could just rule we are going on with new testimony?

MR. GUHIN: Sure. Any judge would let you do that.

MR. FOX: If I could, Mr. Chairman, before Mr. Leibel begins his presentation, for the benefit of the

board, the presentation I made prior to our lunch break I tried to stay away from the issue of flood control permit application, only to try to put it in its perspective for you folks for the motion. I have no intention of being redundant or duplicative in anything that I'm going to say to you folks. So if you got that impression, it certainly wasn't intended from me.

CHAIRMAN ROLLAG: I don't think we did but --

MR. LEIBEL: If I understand right, Rick will not be called to testify; he's testified.

MR. FOX: He's testified for the foundation for the city's motion for environmental and flooding concerns relative to a comprehensive surface water plans. That's what he was called to testify on, and he testified in the hypothetical if FC-32 were here then what, but he has offered -- you asked him questions based on his report, but not on direct examination did I elicit anything from him relative to FC-32 as it relates to category three small dams, safety of dams, anything like that.

MR. GUHIN: Mr. Chairman, if I could interrupt, that I think Watertown is exactly right, he can be called again to talk about the individual permit, or talk about things he didn't talk about. That's clear, let's not fight about that.

MR. LEIBEL: I'm not fighting, I want to make it

clear, because I understood your question -- your comment, you made a comment that nobody would be allowed to testify twice. I want to make sure --

MR. GUHIN: Nobody would be allowed to testify about the same material, to talk about X again, have the same witness talk about X again.

MR. LEIBEL: I agree with that, that's a proper way to handle it, but I wanted to make it clear, you may see somebody more than once today.

CHAIRMAN ROLLAG: Mr. Leibel, go ahead.

MS. GUNDERSON: Diane has a question.

MS. BEST: If I may, I'm sorry, Jay, I thought the question was sort of we're considering the motion, can we move on to the merits of the case, like if the board reserved ruling and ruled on both the merits of the flood control application and the EIS at the end; was that the question that was asked?

MS. GUNDERSON: I think that was my question.

MS. BEST: And the DENR has no objection to that process.

MS. GUNDERSON: I don't think we can possibly move on the EIS motion unless we have better information and we're not going to get it until we hear the other side of the story, even if it isn't on the EIS motion, if it is on the project, that's what we want.

CHAIRMAN ROLLAG: Mr. Leibel, would you please proceed?

MR. LEIBEL: I would love to, and I will do so. The reason that I am hesitating a little bit to call my first witness, is that I feel that my client has been put in a little bit of an awkward position here in the sense that the City of Watertown has had an opportunity to present evidence and legal argument, and now I have not had an opportunity to present my side as to their motion and I'm concerned that if we change procedure, and I will, but I want to make you understand that I'm going to have to give you two legal arguments to preserve my record. I'm going to have to address his motion and I have to address the facts, and as long as the board understands that and that's the way the board wants to proceed, I will most certainly proceed in that method, most certainly.

MR. GUHIN: Mr. Chairman, the issue is does the board want to reserve decision on the EIS, and if so, I guess we could go -- could go back and we could say to the proponent of this, or, I don't know, the division, the applicants and then decide everything at once, or you could make -- you could say I want to do the EIS thing right now and have a --

MS. GUNDERSON: I don't want to do the EIS thing right now. I don't know what the project is all about. I

will be able to decide when I hear what the project is all about if I want to hear more about an EIS.

MR. GUHIN: Then may I suggest that you move the board to withhold the decision on the EIS --

MS. GUNDERSON: Okay, I would move that we put the EIS motion on the table.

MR. GUHIN: On the table until the decision --

MS. GUNDERSON: Until the end, until after we have heard further evidence.

CHAIRMAN ROLLAG: Second?

MS. GUNDERSON: If that is a specific enough motion.

MR. GUHIN: I think you probably want to do it at the same time as the merits are decided.

CHAIRMAN ROLLAG: Do I hear a second to the motion?

MR. BRINK: I'll second.

CHAIRMAN ROLLAG: You've heard the motion and the second. Any discussion?

All in favor signify by saying aye.

Opposed the same sign.

The motion carried. So we'll delay the decision on EIS until later, when you've heard all of the evidence on the project and everything and then we'll decide what to do with the EIS on the project.

MR. LEIBEL: Thank you. With that in mind I'll inform the board we'll call two witnesses. The first one will be Julian Wick, who is president of the Lake Pelican Water Project District. He'll give you a brief overview of where we stand. And then specifically we will call Steve Klein, the engineer from Barr Engineering, who has been working on this project for a number of years to get more specific. At this time I would call Julian Wick.

Whereupon,

JULIAN WICK,

called as a witness, testified as follows:

EXAMINATION

BY MR. LEIBEL:

CHAIRMAN ROLLAG: Would you please state your name, maybe even spelling it for the reporter?

A. Julian Wick, J-u-l-i-a-n W-i-c-k. I'm chairman of the board of Lake Pelican Water Project District.

Q. (By Mr. Leibel) Julian, first of all I'm going to move this tripod a little bit to maybe we can pull up the other one so members of the board will be able to see it a little bit better. Julian what you're looking at I believe has been marked as Exhibit --

A. 17.

Q. 17, and I'd ask you to recognize or describe what that is.

A. This map shows the Lake Pelican Water Project District. It -- the color in the blue, and these colors all the way down to the Elmira -- part of Elmira Township and then around Lake Pelican. We are not a contiguous water project district. We cover 220,880 acres. We have approximately 345 square miles in our water district.

Q. How many counties are involved?

A. We have four counties, Codington, Grant, Roberts and Day Counties, parts of those counties in our district with 15 townships and the 16th being Lake Pelican.

Q. And each of the different colors designate a township or a portion thereof?

A. Right, yes.

Q. I would ask you to go to the next exhibit, that being number 18 for identification and what is that, please?

A. This shows the watershed, and back before I showed the part that is the water district, this is the watershed that we're looking at and the specific FC-32 permit we requested is right over here.

Q. I think it's the yellow stick-up stuck on there and the actual location of this particular project that's before the board today is located just below that?

A. Correct.

Q. I believe that there is a highway or a county road that is just to the north of that site?

A. Right, it's Highway 20.

Q. And as the crow flies how far is that from, oh, the Northern boundaries of Watertown to that location?

A. Well, if you take this it's between 13 and a half -- between 13 and 14 miles.

Q. Which direction does the water flow from that particular site?

A. Okay. You're in this is non named tributary, it flows into the Sioux Creek and then the Sioux Creek flows all the way over to the Big Sioux River.

Q. And then the Big Sioux River --

A. Follows all the way down into Watertown, so it's about 21 miles of water flow to get to Watertown.

Q. Through 21 sections of land?

A. Through 21 sections of land.

Q. Has the district been working on a comprehensive surface water management plan?

A. We have.

Q. How long have you been working on that?

A. For about three years, we started.

Q. I'm handing you what has been previously marked for identification as Exhibit No. 19 and ask if you recognize that?

A. This is the milestone table for the year 2000, and we are doing a comprehensive water resource management plan.

Q. Excuse me, Julian, what year?

A. This is for the year 2002, excuse me.

Q. Not year 2000?

A. I'm sorry, 2002, and this covers the entire year. We do the comprehensive water resources management plant. We as water district had to go throughout the district and measure all the culverts that are in there. We did that as an in-kind to bring the costs down, and that has been offered over to Barr Engineering and they are in the process of modeling and preparing a comprehensive water management plan. We will not have that ready until year end, so this is -- we are working on it, it just is not complete yet. It takes time to get this thing done.

Q. You may want to hand that to the board.

CHAIRMAN ROLLAG: If you hand it to the board -- is that an exhibit?

MR. LEIBEL: It is. At this time I would ask that Exhibits 17, 18 and 19 be admitted into evidence.

MR. FOX: If I could, Mr. Chair, I believe the exhibit that Mr. Brink is holding is marked Exhibit 19; is that correct?

MR. BRINK: That's correct.

MR. FOX: The city would have a couple of objections, first regarding the foundation of the exhibit, and once the board members have had an opportunity to see it,

including the attorney for the board, the foundational objection is it's identified as the Lake Pelican Water Project District Comprehensive Water Resources Management Plan Milestone Table, and within that table there are some areas shaded blue and some areas shaded black, and I was presented or provided the opportunity yesterday afternoon to review that exhibit and to stipulate as to its admission, but the City of Watertown found itself unable to identify what milestone it identifies.

It lists basins. It identifies water resource management plan. But in terms of knowing what it is attempting to depict is -- what does the blue portion over through March 4, 2002 -- I know now I've gotten to a point of being a speaking objection, but my objection relates to the foundation because I'm not certain what it depicts so it will be difficult for me to cross-examine a witness on the table, because when you all have will an opportunity to review it hopefully my objection will make more sense to you but that's the basis for the foundation.

MR. LEIBEL: If I may, I'll just handle it with some follow-up questions to try to expedite the proceedings.

Q. (By Mr. Leibel) Julian, I would ask that you take a look again at this particular Exhibit No. 19. Over in the far left-hand side there are identifications such as the first one, I believe, Sioux Creek Basin?

A. Okay.

Q. What is that?

A. Sioux Creek Basin is this area in here. Every -- the water comprehensive water management plan is being done by basins, by the sub basins, and what we're trying to establish here is we had to go into every one of these basins and measure the culverts and then that information had to be moved over to Barr Engineering for their input and then their work. What we're trying to -- the milestone is supposed to do.

Q. Julian, hold on, let's slow it up a little bit. First of all, let's just take the Sioux Creek Basin again, in this case the particular project is located, correct?

A. Uh-huh.

Q. All right. Now what did you actually do for the Sioux Creek Basin, and tie it in to this time line?

A. Okay, what we did is we measured all the culverts, filled out data sheets, and after that was completed then it was sent on to Barr Engineering for their data entry into their modeling. This blue indicates completion.

Q. That is the time frame that it was done and when the actual data was obtained for that particular area?

A. Right.

Q. So, for example, for Sioux Creek that particular data was provided to Barr Engineering by the end of March 2002 or

thereabouts?

A. Thereabouts.

Q. It could vary a little bit?

A. Uh-huh.

Q. All right. Now going down, there is blue in a number of the other basins; what basins are those?

A. We have completed the Mahoney Creek Basin, which is here. We have also completed the Middle Sioux Basin, which is this one right here. We have completed the Still Lake Basin, and there is a small amount of work left on Mud and Gravel Creek.

Q. How do you know that?

A. Because it's black. Black says it's not completed.

Q. And that information is still being gathered?

A. We have the information to Barr. They are entering it.

Q. They are entering it now. And so this time line just shows the information that has been obtained, it has been or is being forwarded to Barr. They are using it in the process of computation and modeling?

A. Correct.

Q. What will that model then be used for?

A. After the model it will then be used for the comprehensive water management plan, which is further on down the year.

Q. And that comprehensive plan will constitute a plan for the entire water project district?

A. Correct.

MR. LEIBEL: I have no further questions on this.

MR. FOX: If I could, with the board's indulgence, and Mr. Guhin, if I'm out of order or if it -- again, if I get to a speaking objection, but Mr. Wick, you haven't tendered the witness to me, but if I understood your testimony, it indicated that if I look at Exhibit 19 and the Sioux Creek Basin, the blue colored portion there, that it's colored blue indicating the work has been finished.

But as I understand what you've described the work to be, it's people measuring culverts and filling out data sheets. That's the completed work that's represented in this table?

A. And the information has gone to Barr Engineering and they have data entered it.

MR. NIEDERGESES: And modeled it?

A. They have modeled -- are in the modeling process or most of it. So it's actually three things, it's the measuring of the culverts, okay, that's the in-kind, the work done on the ground; number two, it indicates that the data sheets have been sent to Barr Engineering and that Barr Engineering has input that data; and number three, they have modeled it; that's where they are.

MR. BRINK: Just in that basin or the whole watershed district?

A. Per basin. There are two basins. Mud and Gravel is not quite completed yet and there was another basin.

MR. FOX: And Mr. Chair, again it was probably made clear and perhaps I missed the point made by Mr. Wick, on the face of the exhibit it doesn't indicate who it was prepared by. For foundation purposes I would like to know who prepared it.

A. I do. If I may say, I prepare every month and present it to the board.

CHAIRMAN ROLLAG: Does that clarify things?

MR. FOX: As to the objection, yeah, the foundational objection.

CHAIRMAN ROLLAG: We'll overrule the objection and we'll accept the exhibit, and how about the other exhibits?

MR. FOX: The city had no objection to either, I believe it was 17 or 18; is that correct?

CHAIRMAN ROLLAG: So we'll accept those.

MR. LEIBEL: Julian --

MR. FOX: If I could, I'm sorry, Mr. Leibel, just as a point of order, I presume that the public hearing portion of FC-32 has begun?

CHAIRMAN ROLLAG: Yes.

MR. FOX: And forgive me, the attorney for the board, Diane Best, I thought that -- and it's of course the purview of the board to decide in what order or what manner, but in our discussions yesterday we understood that the board would hear the recommendation of the chief engineer's representative prior to taking testimony on the flood permit application. I just wanted to mention that to the board, in case I was -- we were doing things out of order. I apologize.

CHAIRMAN ROLLAG: I think that's a good point.

MS. BEST: If I may, I'll speak to that. We had informally met and said that the staff would go first. We don't have any problem --

MR. LEIBEL: And I apologize, and I forgot about that. I only have a couple questions for Julian, a couple more questions. At that time I would defer to Diane and we can put Tim on so you can get the background from him. I have no problems with that.

MR. GUHIN: Actually, it's really up to the proponents. There are two proponents here. I think the division is a proponent of the application, and I think you are; however you want to set it up.

MR. LEIBEL: With that in mind, I will call Tim next -- or let Tim take the stand and Diane can question him.

EXAMINATION

BY MR. LEIBEL:

Q. As I indicated, Julian, just a couple extra questions. I understand that FC-32 is to be a demonstration project that you are requesting for that particular site?

A. That is correct.

Q. And that Steve Klein will more exclusively in his testimony, explain the nuts and bolts of the project.

A. That is correct.

Q. Have the necessary easements been obtained from the private landowners for that particular project?

A. Yes, they have.

Q. I believe that was both a temporary construction easement and a permanent easement?

A. That's correct.

Q. It's my understanding they have not been filed yet?

A. No. We have them in our possession, but we told the landowner that we would not file until we have the approval of the FC-32 permit.

Q. So subsequently, if the permit is issued, then those easements will be recorded and copies will be provided to the state?

A. That is correct.

Q. Who will be responsible for any future maintenance on the structure?

A. Lake Pelican Water Project District will be.

Q. And the future plans for any additional structures

obviously will depend on reports, recommendations, funding and the like?

A. That's correct.

Q. And no timetable has been established --

A. No.

Q. -- for the construction of any future projects?

A. No.

Q. Do you anticipate that one or more of those projects will most certainly need to come back before this particular body?

A. Yes, I believe so.

MR. LEIBEL: Thank you. I have no further questions.

MR. FOX: Thank you, Mr. Chairman.

EXAMINATION

BY MR. FOX:

Q. Julian, you probably made this point in your opening comments when you were discussing your relationship with Lake Pelican Water Project District and how you folks came to be associated with Barr Engineering. But I believe it was Board Member Mrs. Gunderson who asked the question relative to wanting more information about FC-32, and the whole project and those things.

As you understand the relationship you've entered into with Barr Engineering -- I'm not asking to give specific

terms of your contract, or anything like that, but do you have an idea how many projects are planned? You talked about your milestone table and the study by study, measuring culverts and submitting data to Barr Engineering and those things.

If at the end of the day, if Barr has completed all of its work and all of your surface water management plan has been put into the field, how many flood control structures are we talking about?

A. We're not to that point yet in the study.

Q. Do you have an estimate?

A. No, we don't. Until the whole study is done, and I'll have to revert that to Steve, you know, the engineer, it is my understanding until we have the study completed, that's what establishes the numbers. We are not to that point. We have not completed the study.

MR. FOX: I have nothing further.

CHAIRMAN ROLLAG: Diane, you can ask questions.

MS. BEST: I have no questions.

CHAIRMAN ROLLAG: Okay.

MR. BRINK: Kind of a dumb question, but what is the objective totally of what you're doing? Are you trying to protect water quality on the Big Sioux or flooding on Pelican Lake or -- it didn't sound like you're protecting flooding, maybe as a side shoot in Watertown, but they don't seem to agree with you; so what is this all about?

A. What it's about is that the comprehensive water resources management plan will tell us where to put the small dam structures, small dam structures are being used throughout the United States to slow water down and as the water flows very rapidly, it takes along with it a lot of sediment and washes out the river embankments, and it also contributes to the flooding of both Lake Kampeska, the city and Lake Pelican, all right.

When you put slow structures, small structures throughout, it slows the water down, and slowing the water into the tributaries, into the creeks and into the lake -- into the Big Sioux River that the majority of the sediment -- not all of it, but a majority of the sediment will stay on the farmland. That's the main thing it will do, and it will slow the water process down and so we'll slow the flooding process, to a greater extent.

The third thing that these small structures will do is have groundwater recharge, because the water will stay behind these structures somewheres between three to five days, and allow the water to seep into the table below. So there's really three things (indicating).

MR. BRINK: I understand those things, but I'm trying to put Pelican Lake together with this study, which is way up here. Why do you call it what you call it?

A. Lake Pelican Water Project District.

MR. BRINK: Yeah, are you protecting Lake Pelican Lake?

A. No, Lake Pelican Water Project District was the original startup.

MR. BRINK: Okay, all right.

A. In 1988, it was established. In 1999 the rural community throughout this area asked if they could join us through an annexation process. And since water project districts by law can be non contiguous, and can go across borders, we accepted their philosophy, or we agreed with some of their philosophies and we annexed, by vote of the people, to join the Lake Pelican Water Project District, because it's an existing organization.

MR. BRINK: Good answer. Thank you. Now at least I know whose ox is getting gored, or whatever. Thank you.

CHAIRMAN ROLLAG: Call your next witness.

MS. GUNDERSON: Did Diane have any questions?

MS. BEST: I have no questions. Thank you.

MR. LEIBEL: At this point we'll defer to Diane and Tim.

MS. BEST: DENR will call Tim Schaal. As we're getting going here, I'll go ahead and put the DENR Exhibits in. All the exhibits have been stipulated, I believe, by the parties. DENR Exhibit 1 is the agency file in this matter,

which included the application, the newspaper notice, the objections, chief engineer's recommendation, the report that Tim Schaal will testify about, some of the correspondence with Lake Pelican regarding the staff review of the project; that's DENR 1.

DENR 2 is a short qualification sheet or CV of Tim Schaal and we intend to put that in in lieu of going through his background and qualifications, a person with 25 years experience, testified before this board hundreds of times; so I'm not going to bother with that.

And then Tim will be using a map basically to talk about the place of the project, and that's DENR 3, as I indicated the parties have stipulated, and I ask that they will be admitted.

CHAIRMAN ROLLAG: They will be admitted.

Whereupon,

TIM SCHAAL,

called as a witness, testified as follows:

EXAMINATION

BY MS. BEST:

Q. With that, I'm going to ask that Tim give a narrative report and explain the chief engineer's recommendation, and I won't interrupt him with questions. I'll turn it over to you, Tim?

A. Thanks, Diane.

Q. Do you want both maps up?

A. That's probably fine right there. We're passing out a smaller version of the map that's on the side. And basically it's a general location of the map showing Lake Kampeska, Lake Pelican, City of Watertown and the location of FC-32.

On this map it's colored Sioux River runs basically north and south about through the center of the map. The proposed site is about four miles west of town of South Shore and Punish Woman Lake, 13 miles north, four miles east of Watertown, reference as the crow flies maybe about 13 miles. It's on an unnamed tributary about five miles upstream of the confluence of the unnamed tributary and Sioux Creek, and another three miles or so to the confluence of Sioux Creek and the Big Sioux River.

It's located in -- proposed to be located in the northwest quarter northeast quarter of Section 24, Township 119 north, Range 52 west. Any questions on the location? Everybody kind of has a picture?

I'll just go through my report quickly here. We looked at this similar to our other dam projects. It's proposed to be 20 feet high. It's going to have an ungated outlet structure at the base of the dam, 60 inches diameter. No permanent pool or storage with this ungated outlet at the bottom of the dam. The storage capacity, if it would fill up

to the top of the dam, would be 73 acre feet of water.

It's classified as a small size, Category 3, low hazard dam. Dam of this size according to our rules we need spillway capacity to pass 25-year event. This structure does. Barr Engineering used a Corps of Engineers Hec -- H-e-c -- model, an HMS model, Army Corps of Engineers. The HMS is just a hydrologic modeling software.

They show a 100-year frequency of 1042 cfs doesn't over top the structure, and it routes through the dam with a peak discharge of 372 cfs. We looked at the comparison to some other methods of obtaining frequency numbers,. Typically we'll use USGS report, water resource investigation report 98-4055. That was a report developed along with DOT, and it developed some regional regression equations to use on sites that do not have gauging information.

Basically what they do is they study some gauging information in the area and then develop a formula to transfer it to a site that's not gauged. It just so happens that there was a gauging site on this tributary. It would be about a half mile below where the proposed dam is. So there are some numbers dealing with that. They actually had some stage discharge information for about ten years, I guess it was, through the '70s.

In my report there is a table showing a summary

using regression equations that were developed in 1980. You come up with about 483 cfs. The most recent report developed in '98 you come up with 353. Using a weighted peak flow, which is just a comparison of information from the gauge data, in comparing that to the equations, you come up with 536. Just the straight gauge flow data for the site below the dam, they had 100-year peak of 754 cfs.

The report talks a little bit about why they looked at weighted peak flows. They say it takes into account additional information, and it reduces the error associated with short number of years on those gauging stations. Ten years is a relatively small amount of time to when you're looking at hydrologic analysis. Then we have Barr Engineer's estimate 100-year peak of 1042 cfs.

We've heard quite a bit of talk about the flooding in the Watertown area, Lake Kampeska, Lake Pelican. The Corps of Engineers has looked at this several times. In '94 they had a report completed, flood control for Watertown and vicinity, and then again in 2000 they updated that report, basically because of the flooding events in between '94 and 2000, particularly the '97 flood.

Now the '97 flood was the most severe flood on record for this area. The additional data from this event increased the frequency for the entire area, and it goes on to explain that some of the information that was completed in

the '94 study changed to the updated study, the '97 event peak of 7820 cfs would have been a return period of 35 years in the '97 study, and 75 years in the '94 study.

And just another -- some more information, Big Sioux River at the Watertown gauge, the '97 flood peak event of 4500 cfs would have return period of 80 years, compared to 125 years in the '94 study. I guess I have that in there just to show that the numbers have changed, particularly with the recent events of the '90s, and there are some changes in the numbers when you're looking at flood frequencies.

If you're comparing the events on that table, I guess we would go with the weighted peak flow of 536, and Barr used 1042, just comparing the differences. The proposed structure with the 536 event would produce about 30 percent flood benefit, and their numbers they are using about 65 percent flood control benefit.

I guess with that I'm about done. We do talk about one of the requirements is that Lake Pelican Water District does need to file a flood easement for this property I guess we heard that they have that on hand, they just haven't filed it yet. With that, we're recommending approval.

There are several things that we need to look at with flood control applications. One is that the applicant shows that the structure will reduce the peak discharge from

100-year storm event by approximately 65 percent of the local drainage. It will not increase the likelihood or severity of flood damages downstream. Number three, necessary easements will be obtained; and four, will not impair existing water rights; five, is in the public interest with the following qualifications.

The first qualifications is -- we also heard this, the project will be responsible for the operation and maintenance of the structure; and second qualification is the flood easement needs to be filed with us; and the third qualification is we're saying that the board will retain jurisdiction of flood control permit FC-32 in event additional information shows the project causes adverse downstream impacts.

With that I will try to answer questions. Gale Selken is also here. He's been more involved in meetings between Lake Kampeska and Lake Pelican and Watertown and the flooding issues. So if I can't answer, it maybe he can help me.

CHAIRMAN ROLLAG: Any questions?

MS. GUNDERSON: I'm just curious, where is the money coming from?

MR. SCHAAL: I can't answer that.

MS. GUNDERSON: That comes up later?

MR. LEIBEL: We will -- we can address that if

you so desire. You mean for this project?

MS. GUNDERSON: Yeah, how is it organized and how is it paid for.

CHAIRMAN ROLLAG: Any other questions?

MR. BRINK: Mr. Schaal, you say in your report that you made your own analysis and it reduced peak flows out of that basin by such and such an amount. Did you look at what total flow -- how they might be different at Watertown?

We saw this morning, you know, a hypothetical situation and travel time and that sort of thing.

MR. SCHAAL: Yeah, we did not. We just looked at the local area the small watershed associated with FC-32.

MR. BRINK: So there is a possibility that it could increase the flows of Watertown.

MR. SCHAAL: I think the testimony was additional structures, not just the one.

MR. BRINK: I guess you've answered my question. You really -- there has been peak flow projection by the Corps at Watertown, hasn't there been, out of that whole basin? Hasn't somebody made 100-year projection for --

A. Well, I think that has changed between the two reports, the '94 report and 2000 report.

MR. BRINK: Well, I guess you didn't look at the gauging station at Watertown when you said it would reduce flows.

MR. SCHAAL: How does this structure FC-32 affect that? No, we didn't.

MR. BRINK: Okay. Would you venture a guess.

CHAIRMAN ROLLAG: Any other questions for Tim?

A. Can I guess?

MS. BEST: Well, maybe you can explain to the board why you didn't look at that, and then certainly respond to what Mr. Brink asked.

A. Well, I guess in my opinion we were just looking at what we had before us, the application for the one structure, with the understanding that more may come later, but we didn't have that information in front of us.

I think the testimony this morning was the cumulative effect of several, if not many of these flood control structures, and how that cumulative effect could have an adverse effect in Watertown. We didn't have is that before us we were just looking at this one small flood control dam. I guess we didn't have the desire to see how it really affected Watertown 20 miles downstream.

MR. BRINK: Okay.

CHAIRMAN ROLLAG: Any other questions? Thank you very much --

MR. LEIBEL: Just one question. Again, this has been classified as I believe a Class 3 dam, low hazard, and it will not endanger human life?

A. Correct.

MR. LEIBEL: Thank you. I have no further questions.

MR. FOX: Nothing.

CHAIRMAN ROLLAG: No further questions for Tim? Thank you very much, Tim. Now it falls back in your court.

MR. LEIBEL: Thank you. We call Steve Klein.

Prior to asking -- prior to asking Steve any questions, I would like to submit as an exhibit, just for simplification for the board Tim's report, which we have identified as Exhibit No. 20. This is in the big packet, but I thought it would be easier if anyone --

MS. GUNDERSON: Is it this one?

MR. LEIBEL: Yes. Do all members have that? So we would offer it, so if anyone refers to it we will have it.

CHAIRMAN ROLLAG: We will accept this report.

MR. LEIBEL: Thank you. In addition, the CVs were provided to you earlier in regards to other witnesses. We have not submitted Steve's individually to you, and the reason for that is that it's attached as an exhibit to -- it's already in the file. We just felt it wasn't necessary to give it to you again. He's testified before you as an expert in 1999.

And it is actually attached to the Watertown Exhibit that they had their motion, attached as an Exhibit to

their motion. So his CV is in the file and before you, if you have any questions about his qualifications, he'll sure answer him and the update to that one which is date the 1999.

Whereupon,

STEVE KLEIN,

called as a witness, testified as follows:

EXAMINATION

BY MR. LEIBEL:

Q. Steve, just give us a general background, who you work for, what you're doing for Lake Pelican Water Project District?

A. I work for Barr Engineering Company. We were retained by the Lake Pelican Water Project District in 1999 to perform what we call a comprehensive surface water management plan for the entire district, the entire area shown in dark green here on the map that you have.

Systematically, over the last three years, as funds and information became available, we have been modeling this entire watershed area. And what you have in front of you is the milestones, as Julian has mentioned, that we will complete this year.

Early on we took a look at a single sub basin called the Indian River Basin, and from that individual study that we prepared, I believe it was in 2000, I can't remember the specific year we completed that, we identified that

through the construction of multiple projects -- multiple small dams, and basically what we're talking about is -- are roadway systems that are out in all rural Minnesota, as well as in Watertown. Each roadway, with a culvert going through it, is a small dam, by its very essence.

Virtually all of those culverts that pass through all of the roadways and gridwork and network of roads, whether township or county or state highway, serve as small dams. And virtually all of those culverts were not designed, when they were installed, and none of them were looked at in a comprehensive fashion as to how we can slow the water down to significantly reduce flooding throughout not only the Big Sioux River, but upstream reaches where roads are being overtopped on a frequent basis and washed out, where natural resources are being impacted, tremendous amounts of erosion are occurring.

In fact, the city -- not the city but Lake Pelican and Lake Kampesca used to be substantially deeper than they are right now. I've heard anecdotal information that indicates that they were 30 to 40 feet in depth at one time. They average about six to eight feet in depth. A tremendous amount of sediment, a tremendous amount of water quality problems arise from this entire area, tremendous amount of flooding arises from this entire area.

And so we were asked to prepare a comprehensive

management plan that looks at this more holistically than has ever been done before. And so we systematically set out to do that, starting with the Indian River Watershed.

And through that initial study back in 2000, we found that we could reduce the peak flows coming out of just the Indian River Watershed, which is one of the sub watersheds. It's this watershed here. We could reduce the peak flows entering the Big Sioux River by nearly 80 percent for the 100-year event. That gave us a strong indication that that type of approach, this holistic watershed-wide approach would, in all likelihood, work, watershed wide.

And as a result, the district has asked us to complete a complete surface water management plan for the entire area, and that's what we're working on right now. The district last year, about in August, was approached by a farmer that said, Hey, I kind of like this idea, and I would like you to consider my farm and maybe do a demonstration project. That's Davis Bones.

And so the district took a look at that and asked us if we thought it would be worthwhile to do a demonstration project in this area. And I'll get on to that specifically here, but we looked at it and we identified that, yes, it would be a good choice for it, because we could design a stand-alone project; didn't rely on any upstream or downstream projects to be constructed.

It was in the uppermost reach of the watershed, draining in its sub watership. It could be designed and constructed rather inexpensively. And it would have visibility from nearby roads where people, if they wanted to see an example of what could be done in reducing peak flows, they can simply drive to this location and take a look at it. Pretty easy sort of stuff.

And so we went about designing this project as a stand-alone demonstration project, to show people what could be done, and that's what we're here about today.

Q. Would you describe or define what you mean by stand-alone?

A. What I mean by stand-alone is, in essence, if you had a project, for example, that was in the middle of a watershed, say we had a little project in any one of these watersheds and we designed it here, but you needed to have quite a few other projects done in order to make sure that the design on this would work, you wouldn't necessarily want to do this before you have had done these other projects.

In this particular case it's in the upstream most reach of this watershed, where it doesn't require any other sub watershed projects to have been done for that project to be designed. And so it could easily be done without the need to do that, the need to have these other projects and could serve as a demonstration so people could

see that, and actually see it at a time when the surface water management plan is completed and say, Hey, here's an example of one of the types of things that can be done.

Q. Steve, in regards to this particular project, I believe there have been large volume of documents that have been presented to the department for their review. They include the contract documents, correct; that's for the construction of the structure?

A. Correct.

Q. As well as the other supporting documents for that particular project, and those are all in Exhibit No. 1; they are already before the board for their consideration?

A. That's correct.

Q. I'm showing you what has been previously identified as Pelican Exhibit No. 1, and I believe this is a map that is actually involved in that particular file; is that not correct?

A. Yes, it is.

Q. And this is prepared by whom?

A. This was prepared by me and our company.

Q. And what does it depict?

A. This figure that he has shown, that you all have copies of, is one of the -- one of the drawings in the contract documents, that simply shows the dike that we want to build with a culvert going through it. All it is is it's

essentially the same thing as a person's driveway that goes across a dry draw. It's just simply a berm with a culvert going through it, and in fact it's 20 feet wide at the top with a culvert going through it.

MS. GUNDERSON: Where do you put the culvert?

A. At the bottom of the existing draw. We're not creating any wet storage, any upstream pool. This simply is a flow reduction device. In other words, when storms, a large storm, for example a 100-year storm event occurs, under others testimonies today we predict that we would have as much as 1050 cubic feet per second coming through this area.

This structure simply will, by the height of the dam or berm, and the size of the culvert, reduce that 100-year flow from 1050 cubic feet per second to 373 cubic feet per second. And it will detain it for a period of time, rather short period of time, relatively speaking, and will draw down and the dry draw will remain the same as it is right now. It really will not impact the draw in terms of vegetation, its ability to be used as a grazing area. Right now it's a grazing area owned by Davis Bones, and it is not going to impact that at all.

THE REPORTER: Sir, could I clarify what exhibit number that is?

A. 21.

Q. You have addressed what with it would do for the flow

of water; what would this structure do as far as erosion? Would it have a effect on erosion below the structure?

A. Yes, it will. Any time you reduce peak flows from major storms such as this from, for example 1000 cubic feet per second to 300 reduction of over 65 percent, you significantly reduce the amount of water that's impinged on the downstream area.

As part of the entire design of this project to provide downstream armour-plating of the channel and a realignment, minor realignment that also stabilizes an existing erosion area that's right there right now. So, yes, it does reduce the erosion immediately downstream, as well as further downstream.

Q. Reference was made in Tim's report, which is before the board as to the covering that is on that particular berm or structure. Would you briefly describe for the board what that is?

A. The covering?

Q. Yes. I believe that there was some type of material; is that what you're talking about in that plate?

A. The dike will be restored primarily as a grass-covered dike. It in addition to being designed for passing a hundred -- complete one hundred percent of the 100-year flows through the culvert, if we were to have a storm bigger than a 100-year event we've designed an overflow

spillway with a special non photo degrading turf reestablishment -- turf establishment and reinforcing that that would allow water to over top the dike in a controlled channel and be transitioned on down to the main channel without washing out the dike.

And so the structure itself was designed for storms even substantially larger than an 100-year event. As previous testimony has indicated, the design of that structure only had to consider a 25-year event. But because we're doing a comprehensive surface water management plan for the entire district, which will include a management of floods up through 100-year event, we analyzed and designed this structure so that people could see what it would look like for a structure that was designed for that type of a flow.

Q. Steve, I want to change directions on you now. This primarily goes back to the motion that's that's also before the board in regards to the requirement for an EIS. I would like you to comment, if would you, on the hypotheticals that were presented earlier this morning. In doing so would it assist in -- you could refer to any of the exhibits that they did?

A. Sure.

Q. Which ones do you want?

A. Well, we'll take -- I like colors, so why don't we take these colored ones. Why don't we take this one first.

Q. This is Exhibit No. 8 and you were present for the testimony this morning?

A. Yes, I was.

Q. And I believe the testimony of Rick was specifically in regards to hypothetically into what was called the red section?

A. Correct.

Q. And obviously in this particular hypothetical that section seems to be a pretty significant portion, you know maybe someplace between -- this is my math -- between 20 to 30 percent of it, of the hypothetical drainage area?

A. That's correct.

Q. In regards to the project we're talking about that's the subject of FC-32, in regards to the drainage, the basin, what portion is going to be impacted by 32?

A. Let me answer that in less than a brief fashion.

Q. Okay.

A. Rick came up and showed you this morning this hypothetical watershed and said -- and he showed you some demonstrative things of how, if we hold back water here, what could happen, gee, if Lake Pelican was right down here. And he made that analogous to our project. And what's interesting is that this area, as Mr. Leibel has indicated, I guess you would agree is something in the range of 20, maybe 30 percent of this entire area, the red area identified here.

He would have you believe that our project that we're looking at doing by putting that in might cause that demonstrative -- and I'll bring that other drawing -- severe impact perhaps on Watertown that's down here and he would have you believe that this was our project.

The project that's in front of you today is about a 4000ths of the total drainage area that we have in the Lake Pelican water project district, 4000ths or 4/10ths of one percent. It isn't anywheres close to 25 or 30 percent of the entire drainage area. It is a teeny tiny sub watershed. And where is it located, if this was that watershed that it was locate, it would be in the uppermost reach, and the total area would be smaller than the end of this pen. It is tiny. It is very small.

So when Diane Best has indicated that this is a small structure, that's an understatement. It is a very small structure. So when Rick has indicated that, gee, if you stick that structure in, and we don't know the impact of it, it can do and cause this kind of dramatic effect downstream in Watertown. It has no corollary. There is no corollary to this project at all that's from front of you.

And for him to try to draw the point across by pulling out some hypothetical example of this applying to what's in front of you, you make the judgment on that. It has no corollary to it. The project itself, the total area

that drains to it is about 1.4 square miles. The total area --

MS. GUNDERSON: This particular one that we're concerned?

A. Yes, is about 1.4 square miles. The entire project site is on Davis Bone's property, the entire area of inundation is on Davis Bone's properties. The entire area of inundation is simply a grazing land right now. There is no buildings. There is no residences. There is no threatened and endangered species in this area. There are no wetlands where this structure would be built. It is sited very nicely and suitably for this type of project, for a demonstration project.

Q. Steve, you understand that the City of Watertown is taking the position that there needs to be an EIS for the entire drainage basin prior to the issuance of this permit?

A. Yes, I am aware of this.

Q. Have you, in your experience, seen a requirement for a comprehensive surface water management plan for the entire potential project, for an only one small demonstration project is being constructed?

A. No. I've been involved with surface water management in doing comprehensive surface water management plans for cities, counties, watershed districts and regional drainage areas for almost 28 years, over 28 years. In that time I have

never once, in all of the projects that I've had, which are many, or all of the drainage plans that I have reviewed, which are many, or researched, which are many, never once have I ever heard of having to analyze an environmental impact statement that total build out of all of the structures of a surface water management plan before you build one.

That same analogy, to give you an idea of what that means, is that would require if you held that same analogy and said, Gee, you need an environmental impact statement, the analogy would be the same as if you said, Well, City of Watertown, before you build any roads, before you allow any developments before you do any storm sewers, we want you to do a complete environmental impact statement on the entire city, not only what you've done to date, but what you plan to do and what you plan to annex, before you ever do that 14th Street basin that they say they have built.

It would be the same thing as saying to a county, we want you -- before you do any roads, we want you to do a complete environmental impact statement on every single road and culvert before you do any of those. It would mean the same thing for the state. They would tell you -- it would be analogous to that, telling the state we want you to do an environmental impact statement on the build billed out of every single highway with every single culvert, going through it before you build one. That's what they would ask you to do

today. And I have never once every heard of that happening.

MR. LEIBEL: Thank you. I have no further questions.

MR. FOX: If I could, Mr. Chair, just as a point of order, will I be permitted to cross-examine Mr. Klein at this time relative to the testimony he just gave about the motion that was just deferred by -- okay, okay, I just didn't want to get out of order.

EXAMINATION

BY MR. FOX:

Q. Mr. Klein, I'll follow-up on your most recent point. Part of an exhibit that's been submitted to the board just today included a report from HDR, as well as attached portion of a study, and forgive me to the Chair, I don't have the identification number for the record, if someone could -- there's a report that's been identified as HDR's -- a report with an exhibit attached to it?

MS. BEST: Exhibit 5.

MR. FOX: That's Exhibit 5 for the record. The City had attached to -- HDR prepared a report in response to its work it performed for the City of Watertown in reviewing this project as well as the surface water management plan, and attached to that was an exhibit, a portion of some work that had been done previously in the State of Minnesota by the Corps of Engineers.

MS. BEST: It's not in yet.

MR. FOX: It hasn't been admitted?

MS. BEST: No, it's your exhibit.

MR. GUHIN: Well, we seem to have 1, 2 and 3.

MR. FOX: My apologies to the board. I apologize to the board. I misspoke I thought this had been as a preliminary matter admitted.

Q. (By Mr. Fox) I'm going to hand to Mr. Klein, what's been marked as City's Exhibit No. 5. Have you seen that before today Mr. Klein?

A. I have was given a copy of this about a quarter to five yesterday afternoon.

Q. And attached to that report that's identified as Exhibit 5 is there a document identified as --

MR. LEIBEL: If I may have a point of order here, first of all I'm going to have objection to this particular one for lack of foundation, similar to the exhibit that was presented to the board in the time frame. There are questions as to foundation on this, and that was one of the reasons I asked earlier as to whether or not Rick would be coming back. I assume that was one of the documents you were going to be presenting through him.

MR. FOX: But -- it is, but if I could, Mr. Chair, to the extent you want to wait and rule on his objection, but the point of my offering it to Mr. Klein is on

the basis of what he just indicated under direct, that in his years of practicing engineering, and it certainly is a long career, he has never been familiar with a project, never heard of a project, never known of one where prior to building out, an EIS was required for all of the various impoundment structures and what the potential could be and thus requiring an EIS.

I asked him if he had seen that because attached to that report, and we'll get that entered in, too, is a study from the St. Paul District Court of Engineers, as well as the Minnesota Department of Resources, and if I could ask Mr. Klein for --

CHAIRMAN ROLLAG: Overrule the objection. Go ahead.

Q. (By Mr. Fox) Mr. Klein, if you would, please, turn to the page identified as -- it's on -- it's identified as page 1-1; are you able to find that?

A. Of the report?

Q. Of the exhibit, yes.

A. Of which one, the HDR?

Q. Of the attachment. And if you could -- if you could, first of all, Mr. Klein, by way of background, have you done a lot of work in the Red River Basin at all in Minnesota?

A. Personally?

Q. Yes.

A. No, our company has.

Q. Will you just briefly, because the board doesn't have this in front of them, it's only one paragraph long, could you read the section identified as 1.1.1 Purpose. And for the background for the board members, again this is a study prepared jointly by the St. Paul Corps of Engineers and the Minnesota Department that related to a series of impoundment structures in Minnesota. And again, it relates directly to the testimony he just gave regarding its -- to his knowledge it's never been done, and I just want to, by way of illustration, indicate what the city's requesting of the board is not unique in this area.

MR. LEIBEL: If I may, just for the purposes of the clarification as to the objection, I understand that it's already been ruled that it will be admitted for evidence, but it is, as clarification, this again appears to be a hypothetical study. It's entitled Environmental Impact Study of Flood Control Impoundments of Northwestern Minnesota.

No indication in the information that was provided last night to us at approximately 4:30 to quarter of five, that's the first time we seen this particular document, that this has any relationship to any particular project. Again, it's just a hypothetical. It deals with a number of agencies, and therefore we would believe on the basis of foundation and relevancy, it has no bearing. So we would ask

that you keep that in mind as you're listening to the questions and answers.

MR. GUHIN: Mr. Chairman, for the record, when this is formally offered to Watertown's witness, I'm assuming they are going to tell us exactly what this document is and establish that it has some bona fide --

MR. FOX: Yes, thank you.

Q. Now, Mr. Klein, if you would, again, just the -- with as quickly as you can just read through that first paragraph that he referred to relative to purpose?

A. This is which one?

Q. 1.1.1 on page 1-1 of the document in front of you.

A. St. Paul Corps of Engineers COE and the Minnesota Department of Natural Resources have jointly prepared this EIS to analyze the potential cumulative effects of impoundments with a flood damage reduction purpose needing an individual Corps of Engineers permit in the Minnesota portion of the Red River of the north or Minnesota Basin.

Various agencies, organizations have proposed to construct 33 impoundments over the next 10 to 15 years for the purpose of flood damage reduction. The need for an EIS was prompted by the concern that the construction and operation of these impoundments have the potential for significant cumulative effects on the Minnesota Basin's resources.

Q. Thank you. Now you mentioned your having listened to Rick discuss his hypothetical basin and your reaction to it. Do you -- in light of what you've indicated in terms of the -- your representation as to the size of FC-32, in light of the testimony of Rick, do you agree with his fundamental concept in terms of the environmental flooding and those kinds of issues that ought to be considered in the aggregate when developing a storm water resource management plan?

MR. LEIBEL: I'm going to object to the form of the question. It was statement; it was argumentative; it's multiplicious.

MR. GUHIN: Mr. Chairman, I would think that if he can answer the question, the witness ought to be allowed to. If the witness can't --

CHAIRMAN ROLLAG: We're loose in these matters, so we'll overrule.

A. I would ask you to restate it again.

Q. (By Mr. Fox) Well, and I don't want to try to characterize Rick's testimony, but he talked about, and you referred to his hydrological graphs, but he talked about if you put FC-32 up there, and then if you build out the storm -- the management plan that you have and I talked about, you build that out over and over and over with various impoundment structures, be they permit required or not permit required, that depending on where they are put and how and when, that

environmentally, and from a flood management standpoint, they could have various impacts downstream and you need to plan for that at the front end before you start constructing structures?

A. You do that, yes, on all -- generally most people do on generally all projects.

Q. And if I could, I thought that maybe you mentioned this during your direct testimony and maybe I heard it from Mr. Wick, Barr Engineering, after they received the information relative to culvert placement and those kinds of things, has prepared a model; is that a yes?

A. Yes, we have prepared and are nearly completing the model.

Q. And you mentioned, I think in one of the maps, Steve, excuse me, forgive me I don't remember the name of the basin, I think it was probably the Sioux Basin, but relative to the model that you're preparing, how far downstream does that model go?

A. Of the Sioux Basin? It goes 22 miles downstream of Sioux Basin.

Q. And when you talk about the modeling that you have done or are almost finished, in what manner does it incorporate or evaluate impacts of the various flood control structures in the proposed plan area?

A. Completely evaluates those.

Q. Could you elaborate, what do you mean?

A. We take -- we do a complete comprehensive review of every single structure that we have modeled, collectively, and then we optimize which ones would be of benefit, take a look at different modeling scenarios to identify what would be the optimum build out of a project or of a total project area.

Q. Sure, and as you understand -- and I asked this question of Mr. Wick earlier, but as you understand the contract, and I assume it's been made part of the record at least a portion of it with the Lake Pelican Water Development District, if at the end of the day you've finished the work for these folks, all the modeling has been done, all the data's been collected, everything has been done, in your mind do you have an opinion, a guess, how many flood control structures would be required to implement your surface water management plan?

A. I don't have an exact number. It's in all likelihood several hundred, which are essentially already out there. It's essentially just modifying existing structures that are already there, but it's several hundred. These are structures that, again, are roads with culverts going through them. It simply needs to be looked at in total to see how you can reduce those things to reduce that flooding on downstream.

Q. And if I could follow up on that point, and I know we're kind of crossing over from the public hearing portion and the EIS motion, but you mention that the total and those kinds of things, is it your understanding, and I know we read the statute in the record earlier, but based on what the board could require in an EIS, that some of these very things that you just mentioned, in terms of your modeling downstream and all those things, could be incorporated at the front end before you construct FC-32 and provide Mrs. Gunderson and all the other members of the board those answers that they have asked for or that they have indicated they would like to see?

A. They couldn't be, if we're looking at this project today, which we are.

Q. And I appreciate that, but the question I asked was if you mention you're doing all your modeling, you've gotten the data, you're compiling all those things, your understanding of what an EIS would accomplish, that if in fact you do that at the front end before you start commencing construction FC-32, that all of the questions relative to downstream overall impact design build out, those kinds of things, could be answered at the front end before FC-32 is constructed?

A. In order to do that you would have to do complete design of all projects. In order for that to happen the you would have to do essentially all of the upfront work on plans

and specs for every single project before you do one. No, I don't think that you could do that, simply from a financial standpoint alone.

Q. So I guess then -- so will there come a point, though, that you will know the answer to that?

A. There will be a surface water management plan that will be completed in the very near future, whether this will be the end of this year or shortly thereafter, I don't have the specific date.

You have a milestone chart. You can see that we have progressed substantially for that, and we will have a comprehensive surface water management plan prepared by that date, or near that date, and we will have a clear idea of the impacts upstream and downstream of flooding.

What you're asking for is different. You're asking for an environmental impact statement. One component of which is the hydrology information. And so you asked me could you do this before you build the project, and my answer is most likely not, simply because in order to do the EIS you would need, in the way you're proposing, you would need to have built out all of the projects in the district in terms of a design before you do one, you being the city.

Q. So if I understand it, once you -- when your study -- work is completed, is there any chance that on the basis of looking back at the completed study, all the data, all the

analysis, that you're going to say to Mr. Davis Bones, if I have the name right, that in fact that structure should be ten feet to the south or ten feet to the north, or is there going to be something that's going to change your recommendation in terms of where that demonstration structure ought to be located?

A. No, absolutely not, because it's a stand-alone project. At the end of the day, when our surface water management plan is done, that Davis Bones' structure will not change one foot. Even if it isn't built until the project -- until that comprehensive management plan ends, that structure is a stand-alone structure. It was designed as such and it's at the uppermost reach of the region and it incorporates all of the principles and concepts incorporated in the layout of the surface water management plan. So, no, it won't change, not one bit.

Q. And as part of the comprehensive surface water management plan that you're preparing, does that incorporate or discuss things like endangered species, cultural resources, or anything like that; is that part of anything that you include or incorporate as part of your analysis?

A. To the extent that those are available datums -- data they will be incorporated in, yes.

Q. But to date have you received any information or data like that from the Lake Pelican folks who have been giving you

the culvert data?

A. The data that's available is publicly available, and we have obtained public data pertaining to a lot of that information outside of what Lake Pelican is providing us.

Lake Pelican is providing us culvert sizing, make of culvert, for example if it's corrugated steel or concrete, et cetera, those sorts of things, elevation information, things like that. They have not been providing us any threatened and endangered species information at all.

Q. So by January what you'll have completed is the flood study, where the water goes?

A. That's correct, and how it will be impacted through the implementation of numerous small impoundment areas, most all of which will be constructed or were modeled as dry basins, in other words, not open water ponds.

But to answer -- you asked me one question before that I didn't answer. You brought up this document and said, you know, here's a document that essentially calls for doing an EIS. But this particular document, they chose 33 projects, not as a comprehensive management plan that was prepared at all. These were simply 33 projects that were being planned to be done by a variety of agencies, U.S. Fish and Wildlife, some watershed districts, some cities, and they weren't coordinating certain things, and there was indication that there wasn't necessarily even going to be flood reduction

on it, when they got done, at certain key areas.

So they did this study, this environmental impact study to take a look at this. But this is not a -- this wasn't a comprehensive surface water management plan that was prepared for that Red River region; this was just taking a look at 33 areas and, in fact, on page 1-4 of that document it says, approximately 33 impoundment projects were identified during the scoping as being representative of types, locations, sizes and operation of projects expected to be constructed during the 10 to 15 years in the Minnesota River Basin.

They weren't looking at all of the projects that were being proposed in that area. There hadn't even been a surface water management plan developed for that area. So you asked me if I'm aware of any EIS that was required as something that was done as part of a comprehensive surface water management plan, no, and neither was this.

Q. And I think now, to the extent you may have misunderstood my question, I think that was a question that Mr. Leibel asked you relative to whether or not you were aware of an EIS having been required, and you said never, never have I been aware of that actually having occurred. What I followed up with was the concept that the City of Watertown has made inquiry of the board relative to requiring an EIS for the plan that exists in the basin that Lake Pelican

Water Project District is discussing, and FC-32 is just the beginning, that is it inconceivable that -- do you have an objection, Mr. Leibel?

MR. LEIBEL: There's no question. It's a statement. It's argument.

Q. (By Mr. Fox) If I could, Mr. Klein, just as a point of order relative to the Minnesota Basin Study that's before you, that you've just referred to, the notion of an EIS being required prior to the construction of multiple impoundment structures within a basin, is that a novel concept in your estimation, or is that something that has been done before and isn't unique?

A. I have never seen it required before.

Q. So if, in fact, this was required in Minnesota, that would be the first time to your knowledge?

A. This is the first time that I've seen this particular document, yes.

MR. FOX: At this time I have no further questions, Mr. Chair.

CHAIRMAN ROLLAG: Rebut.

FURTHER EXAMINATION

BY MR. LEIBEL:

Q. In regards to that document, was there any reference in there that other bodies were not participating or not requiring an EIS?

A. There was indication in this document, yes, that there were several entities that didn't agree with even having to do it, and I'll quote, Some project proposers and state and local elected officials have contended that the EIS was unnecessary because there already was -- there already exists a system of checks and balances and prevents impacts to the environment. It goes on to say that during the scoping process other comments were received to the effect that the EIS would be useless and a waste of time and money.

MR. LEIBEL: I have no further questions.

MR. GUHIN: Mr. Chairman, if I could ask this witness just a couple questions based upon 46-2A-11 flood control works, when a permit may be issued. I don't recall direct testimony on this particular issue, and obviously any party can address this, but Rule 32 flood control permit 32, if allowed increase the likelihood or severity of flood damages downstream other than the area proposed to be benefited?

A. No, it won't. In fact, it will improve.

MR. GUHIN: Okay, and then maybe you could explain that a little later. And the second question I want to ask is will the information available from the comprehensive study you are now doing, be available to water rights program and to other people as additional flood control permits are requested?

A. It's the Lake Pelican Water Project District's intention that this board will be obtained a copy of that surface water management plan once it's been approved.

MR. GUHIN: And will they be able to tell, or will you be able to tell -- will somebody be able to tell whether an individual project, the next project, flood control 33, or whatever it's going to be, is going to increase flooding downstream?

A. Yes, we will definitely be able to tell you that.

MR. GUHIN: Those are the questions I thought that were pertinent to 46-2A-11.

A. And I guarantee you the answer will be no or we wouldn't be doing it on those future projects.

MR. GUHIN: It would be -- I think it would be appropriate to be allow anybody to ask any questions now that I've asked those.

CHAIRMAN ROLLAG: Do you have any more questions of this witness?

MR. FOX: No.

CHAIRMAN ROLLAG: Diane, do you have anything?

MS. BEST: Nothing, no.

CHAIRMAN ROLLAG: Board members?

FURTHER EXAMINATION

BY MR. LEIBEL:

Q. As a follow-up to that last question, Steve, you were

very confident that it wouldn't increase the flooding downstream, why is that?

A. The reason why I'm confident that the next project would not increase flooding downstream is because that's what our comprehensive surface water management plan is about, it's about flood reduction, and we're analyzing those downstream reaches right now and we will pick and prioritize the ones that make sense to be done that will continue to reduce flooding downstream incrementally.

Q. In other words, you wouldn't seek a permit for a project that wouldn't reduce flooding or wouldn't have some positive impact on erosion?

A. Absolutely.

MR. LEIBEL: No further questions.

CHAIRMAN ROLLAG: Does anybody have any more questions?

MR. BRINK: I have one for Tim. I gotta go back to his recommendation, and that would be my last.

CHAIRMAN ROLLAG: Thank you very much.

Whereupon,

TIM SCHAAL,

recalled as a witness, testified as follows:

MR. BRINK: I don't wish to be argumentative here, and maybe I'm reading this wrong, but in your summary table you have 100-year peak flows varying from 483 up to 1040

cfs, and then down two paragraphs below that -- and I'm looking for information here more than anything -- it says in 1997 flood event was the most severe flood of record, and then you said the updated curve for the Big Sioux near Watertown gauge indicates the 1997 peak event of 7820 cfs; was that the total flow at Watertown in 1997?

A. I believe so.

MR. BRINK: And then I compare that then with --

A. That's the gauge near Watertown. There are two gauges here I'm referring to, the near Watertown and the at Watertown.

MR. BRINK: Okay. Well, a little farther down you said indicates the 1997 peak event of 4500 cfs, what's --

A. That's the two gauges. If you look at the wording, one says near Watertown, which is upstream of the lakes about a mile and a half upstream of Lake Kampeska. The one at Watertown is a mile or so downstream of Lake Kampesca. There's the effect of Lake Kampesca in between.

MR. BRINK: Oh, okay. Well, then I go back to your summary table and I see 100-year peak flows, and some of those are approaching ten percent of this 4500 or 7820 or whatever, either one, you know, that's not quite the same as that pencil point, in my opinion, that's ten percent, that's significant. It may not be enough to cause an impact at Watertown, but even though it's a very, very small area, you

were saying that it would was 4/10ths of a percent I think is what --

MR. KLEIN: The drainage area, yes.

MR. BRINK: 4/10ths of a percent of the total basin area, maybe, but the flows out of this dam you're talking about are approaching ten percent.

A. And I don't have any answer and maybe these guys do, but what is the number for 100-year flood at Watertown it's not the 4500 or the 7800. Those are 35-year events. 100-year event is going to be --

MR. BRINK: Well, 4500 cfs, you said was maybe a 80-year event?

A. So it's still going to be a little larger.

MR. BRINK: That's the only reason I was being hard-nosed about this percentage is because ten percent of ten percent is one percent, and that's an increase, you know. I'm just saying if the travel times and all these things took flow that's going to be ten percent of the total base down here at Watertown, it could have an effect. But you tell us that in your plan when you get all that done.

MR. KLEIN: And what's being stated here is there's dampening effect of the lakes, water going into, water peak flows run in to and out of the lakes; also in the lag time at which water takes to run down stream, and it's a matter of hydrograph timing and dampening of major water

bodies.

And so it may sound significant, but in terms of total runoff volume, it is minuscule. In terms of total runoff volume it's immeasurable. But it's a good point, because you raise the question, well, shoot, this thing projecting maybe even a thousand cubic feet per second come off this area, but that's before it runs through some detention areas.

MR. BRINK: Well, you show on the map, common sense will say there's nothing behind there, as compared to the total area. So I'm trying to put these two numbers together, and they don't come together for me based on what I see.

MS. GUNDERSON: I think they do now.

CHAIRMAN ROLLAG: I was going to ask, Steve, will -- when you get all your modeling done and everything, will you be able to come up with comprehensive hydrographs for each one of the major sub basins.

MR. KLEIN: Absolutely, yes, and their effect at Watertown as well as upstream.

CHAIRMAN ROLLAG: Okay. Anybody else want to talk? Well, we're all through with the audience participation part of this hearing.

MR. LEIBEL: If I may, I would like to recall Julian Wick for one short question and that's with regard to

question that Mrs. Gunderson asked about financing.

Whereupon,

JULIAN WICK,

recalled as a witness, testified as follows:

EXAMINATION

BY MR. LEIBEL:

Q. Julian, I would remind you you are still under oath. How is this particular study and the construction of the well, the construction of the dam we're seeking permit for FC-32 being financed?

A. It's being financed through various items. We have grants that we have received, and since we are a water project district we have tax income coming from the entire water district. So a lot of it is being financed through the taxes that we receive on an annual basis. So that's one of the reasons it's taken us three years. The project could be done lot shorter, but money has not been always available to us. So we were doing it through the taxing ability of our water district, grants that we have received and the in kind work.

MS. GUNDERSON: Thank you.

MS. BEST: I have one follow-up question, sort of along similar lines.

EXAMINATION

BY MS. BEST:

Q. (By Ms. Best) Then the Lake Pelican District will maintain -- it will maintain the dam that's being discussed here today, right, with those funds; is that correct?

A. Right. That's one of the reasons we can do this. As a water project district we have tax moneys coming in on a yearly basis, and therefore as these structures -- or this particular structure is put in, and in the future when we are allowed to put in more, they will be maintained through the taxes that we received for our district.

MS. BEST: Thank you.

CHAIRMAN ROLLAG: We forgot one party here, and that's Watertown. It's your -- you have some witnesses now you want to call?

MR. FOX: Well, and it will be very brief, Mr. Chair, but if I could prior to making --

MR. LEIBEL: This was Exhibit 21, which I believe was referenced earlier, and asked that that be introduced.

MR. FOX: That is without objection.

CHAIRMAN ROLLAG: This will be accepted.

We will take a five minute break.

(A recess was taken at this time.)

(Exhibit No. 22 was marked for identification.)

CHAIRMAN ROLLAG: This is somewhat of a confused hearing, but generally we have the proponents make their presentation and then we hear from those in opposition, then

we sum up. And so right now we are going to hear from the opponents of this application and proponents of the EIS, so we'll call on the City of Watertown.

MR. FOX: Thank you, Mr. Chairman. And if I could, as a preliminary matter, I believe the parties have stipulated to the resume of Richard Niedergeses. He testified earlier, the board will recall, it's been identified as Exhibit No. 6 and if there is no objection I would like to have it entered and made part of the record.

MR. LEIBEL: No objection.

CHAIRMAN ROLLAG: That will be accepted.

MR. FOX: As I understand it, Mr. Chairman, the applicant has rested their portion of the public hearing?

CHAIRMAN ROLLAG: Is that pretty much true?

MR. LEIBEL: That's true.

CHAIRMAN ROLLAG: But you still have your rights to cross-examine.

MR. LEIBEL: And if anything new comes up, rebuttal.

CHAIRMAN ROLLAG: You bet.

MR. FOX: Mr. Chair, just as a preliminary matter, before the city was to present evidence, I would like to -- I know the city has a pending motion that you folks have tabled until after the FC-32 hearing, but as to FC-32 makes a motion on the record that, in fact, the permit

application be denied.

And counsel for the board inquired of Mr. Klein while he was on direct testimony, a portion of 46-2A-11 dealing with severity of flood damages in areas downstream, but there is no evidence in this record that the City of Watertown is aware of, either in the record that's been submitted by the board or in any of the direct testimony that's been offered today, that the permit for flood control works -- the statute reads, The permit for flood control works may be issued only if the project will reduce damage from flooding or erosion.

Now those words have been mentioned before the board, but there is absolutely no evidence in this record anywhere that there is going to be reduction in damage or flooding if you, in fact, issue this permit. Mr. Klein testified this is a demonstration structure. It's grazing land. There are no buildings. There are no residences. There are no species. There are no wetlands.

This is a demonstration project. People drive by on the road, they can look and see FC-32 in its natural state, and probably inquire what is this and what's proposed. But there is no evidence before this board, and that's the basis for the city moving before we present any opponents testimony, that this permit, if issued, will reduce damage from flooding or erosion. The words have been used but there

is no evidence in the record that could substantiate that.

MR. LEIBEL: If I could comment on that, I respectfully disagree. Tim Schaal on behalf of DENR testified. He went through the respective elements. The first one he testified to was reduce flooding. He then talked about will not increase the likelihood or severity of flood damage in other areas. I then asked him the question later will it endanger human life. He answered that it would not. He indicated it would not impair existing water rights. He indicated that it's in the public interest.

In his own testimony those are mentioned, and in addition they are in his report, which is before you, and as well as the recommendations and conclusions reached by the chief engineer, it is in the record, plus the application.

CHAIRMAN ROLLAG: We will deny the motion.

MR. FOX: Mr. Chair, the city would again recall Richard Niedergeses with the reminder that he is still under oath.

Whereupon,

RICK NIEDERGESES,

recalled as a witness, testified as follows:

EXAMINATION

BY MR. FOX:

Q. Mr. Niedergeses, we're going to not talk about the motion for EIS that's been tabled for the time being. We're

simply going to talk about FC-32. Now first of all, have you been out to the proposed flood control structure that's before the board?

A. Yes.

Q. So you've seen the area that's proposed to have the flood control structure placed?

A. Yes.

Q. Were you present when some photographers were taken of the area?

A. I was.

Q. And your understanding that there's some enlargements of those photos have been prepared for you testimony today?

A. They have.

Q. I'm going to approach behind you here, Rick. For the record the photographs that are going to be talked about are Watertown Exhibits No. 22, 13, 14, 15 and 12. If you could, Rick, could you give the board members maybe a frame of reference in terms of on this map which -- why don't you describe what we're looking at, why and what these numbers signify?

A. This is blown-up version of the USGS quad maps and it shows the area of the project, including the area downstream of the project down to mile and a half to the west of I-29. We have taken a number of photographs and driven that whole area and looked at the various elements of the channel and the

watershed, and we've brought four typical photographs here to show you today.

Photograph number four is looking to the southwest along the access of the proposed structure. A second photograph is looking to the northeast about a mile and a half downstream, and looking out across the floodplain. The third photograph is shown approximately four miles downstream, looking to the northwest back towards the freeway, and that also looks across the floodplain from the road. And finally, on the west side about a mile and a half to the west of the highway, we have a photograph that looks back toward the west -- I'm sorry, looks back towards the east and shows the lower end of the floodplain approximately three quarters of the way down the watershed.

Q. On the map you just referred to in Exhibit 12, there are numbered boxes one, two, three and four and those relate specifically to exhibit numbers, and if you could, I guess this is what's been identified on the map as photograph number one, and for the record it's Exhibit No. 15, and if you could very briefly summarize what the board is looking at in that photograph?

A. Okay, this is the westernmost photograph looking easterly back towards I-29 and it shows typical section of the lower floodplain. This also shows the nearest and only area where we found any cropland that was being affected by

the drainage basin. This is an area in excess of five miles away from the site, and there's some hay land down here.

If you'll notice that the floodplain down here is very broad, very wide. The channel is not incised. You cannot see in this photograph any location where there is an exposed bed or aggregates from the channel. There is no indication of erosion or flood damage on this photograph. There's also no structures. This is the location where the nearest structures occur that could be flooded. They are off in these trees up on the hill to the south of this location.

Q. And then continuing to the east on your map, the box that's identified as number two is, for the record, Exhibit No. 14; and if you could very briefly describe to the board?

MS. GUNDERSON: Excuse me, if could you hold that up -- just leave it where it is but just kind of bend it forward a little bit so we lose the light.

A. I can do that. This is a photograph about a mile or so upstream exactly one mile upstream of I-29. It looks towards the northwest. As you can see there's a fairly broad flood floodplain. It's rocky ground pasture. You can see the channel meandering through here. You can see no indication of any erosion damage or any cropland in the floodplain.

Q. And then on the Exhibit No. 12, the photo that's been identified as photograph number three, if you could just briefly tell the board what it is that they are seeing here?

A. Again, this is an area about two miles downstream of the proposed structure shows a wide broad floodplain, it shows the channel meandering through here. There's one point where you can actually see some green water, where the cattle are wallowing around. Again, you see a wide broad floodplain, pasture land, no crops, no particular sign of erosion.

Q. And then finally let's identify as photograph number four on Exhibit 12 has been identified as Exhibit No. 22, and I presume this is the proposed FC-32 location?

A. Correct. This is a photograph looking to the south, to the west, and it's generally along the center line of the proposed structure. You do see here a fairly wide broad flood plane. In this case we have wetland areas and some wetland species down in this area. You can, on the far corner of the site, see one small area of what appears to be erosion, but I believe that's actually cattle damage from where the cattle are tearing away the side of the hill.

This area and total of all the other areas exposed ground that I saw downstream total to less than a couple acres of exposed land. In all the areas that I saw there is very few areas that I saw any exposed channel, any signs of erosion, any cropping of land that wasn't pasture.

Q. And you were here when Mr. Klein testified; did you hear him testify that, in fact, there were no wetlands in the area for FC-32?

A. There's wetlands what we believe right here on the site, as well as downstream there are several locations along the channel the road ditches where we had wetlands species.

Q. Now you've examined FC-32 and have done some analysis relative to the safety of dam provisions of South Dakota Administrative Rule?

A. I prepared the submittals prepared by Barr with the administrative rules, and found that the majority of administrative rules had been accounted for and we have no objection to those elements.

Q. And I believe that the board members have been provided a copy of a report that was prepared for the City of Watertown by HDR. It's been previously identified as Exhibit No. 5. In fact Mr. Klein was referring to an exhibit that was attached to this report, but is that the document you prepared nor the city of Watertown?

A. Yes, it is.

Q. I'm going to -- I believe the board members have been provided copies of that. It's identified as an HDR memorandum -- maybe you haven't been provided copies. At any rate, could you please, Mr. Niedergeses, basically summarize your conclusions based on your analysis of FC-32?

A. As far as FC-32 we find that the applicants have generally met the requirements of the law.

Q. In terms of the safety of dams?

A. Yes.

Q. Based on the information that you've been provided have you seen -- including your site visit to the proposed location and the areas around it, have you seen any indication that as designed, as proposed, if it's built where they have proposed to built it, is there going to be any reduction in damages from flooding?

A. There has been no material that we've reviewed that dealt specifically with a reduction in flooding damages.

Q. How about from erosion?

A. We've not seen any material identifying any erosion or reduction of erosion in the permit application.

Q. Now you also were here when Mr. Klein -- well, I'll defer on that -- regarding FC-32 and the further analysis from a hydrological standpoint, do you have any information you would like to share with the board relative to your analysis?

A. The analysis we were provided with respect to hydrology included HMCHMS model that had four sub basins identified down to the dam. We saw no analysis of any model below the location of the dam. We found that although the issue of snowmelt and runoff were both evaluated, we found that they were evaluated independently, and that there was no analysis that looked at the combination of a rainfall event with snowmelt events. As we know the major floodings that have occurred in the past have been associated with snowmelt.

Q. And in addition, Rick, we've also discussed today the recommendation and the statutory requirement that in fact the permit could only be issued if it will not increase the likelihood or severity of flood damage in areas other than the project area. Do you believe that that requirement has been met?

A. I have seen no evidence to indicate that it has.

Q. How about in the area proposed to be benefited?

A. I've seen no information that shows that those requirements have been met in that area either.

Q. You have no reason to think that the project is going to endanger human life or property?

A. No, I do not.

Q. And if it's constructed as designed it will comply with the safety of dams?

A. Yes, it will.

Q. What additional information, in your professional opinion, ought to be taken into consideration in light of FC-32?

A. I think that there is a problem in the elements of FC-32 in that it does not adequately address the possibilities of downstream flooding related to multiple structures that are proposed. And I see a difficulty with respect to the requirements met by the applicants as it relates to the impact of other drainage structures that may be proposed and their

impact on Watertown.

Q. Do you have -- there's been no evidence offered in the record, but are you familiar with the concept of a demonstration project?

A. Yes, I am.

Q. Could you describe for the board what a demonstration project is?

A. I would say it would be a project that would be put together to develop some new concept in engineering or some concept -- some design concept that maybe hasn't been tried before that would provide a proof that a particular thing would accomplish or could be accomplished.

Q. Can it also have a corollary benefit of reducing damages or -- from flooding or erosion?

A. It could.

Q. But in this particular case, do you think it's more likely than not that FC-32 will have both benefits, both being a demonstration as well as reducing damages from flooding and erosion?

A. I haven't seen any proof that would show that it reduced damage. Certainly it may have a benefit as a demonstration project. But as a flood control project that reduces flooding damages, we haven't seen any evidence to that effect. It's not in the record.

MR. FOX: Because I assured the board chair that

I wasn't going to go into the examination of Mr. Klein relative to the motion that's already been tabled. At this point relative to FC-32, I have no further questions.

MR. GUHIN: Mr. Chairman, just for the record, the motion is still before the board. So if you have questions you want to ask, I think what the board wanted to prevent was reiteration of testimony that had already occurred about the motion. So if you have more on that, this is the time to do it.

MR. FOX: Well, I appreciate that clarification.

Q. (By Mr. Fox) When Mr. Klein was being examined, he talked about the earlier hypothetical basin map that you reviewed and came to some conclusions and used his pen as a demonstrative basis to advise the board why, in his estimation, he might have had a professional disagreement with your hypothetical presentation to the board. I presume you were listening. Could you please respond to what Mr. Klein indicated to the board?

A. Mr. Klein implied that my intention with this example was to show that 32 would specifically have an impact downstream to Watertown. In actuality what my intent on this proposal, and this example, was to show that the development of a plan, which includes multiple structures, and as Mr. Klein said himself, timing is everything. It varies in timing of a flow from a basin can, even though at the site, it

is shown to reduce the flow off the site, can create effects downstream that increase the flow.

And my point was is that until we see some substantial evidence, the models that he's developed indicate what that impact is, there's no way a person could know whether or not this is going to be a benefit or a liability, as it relates to flooding.

Q. And in addition to that analysis by both you and Mr. Klein, we also visited about the environmental impact study that's attached to Exhibit 5 as an exhibit to your report that you prepared for Watertown. And Mr. Klein made some comments and observations relative to what he understood the effect or impact of that study. Would you describe to the board your understanding of that environmental impact study and why you thought it was relevant and attached to your report?

A. We brought that as an example to the board to illustrate that there are substantial cumulative impacts to reservoirs downstream, that the Corps determined that albeit a number of projects by different agencies, that there are still cumulative impacts that needed to be studied. And that even though it could be shown on an one-by-one basis that each of these permits was reasonable and appropriate, that without evaluating the cumulative impacts, one could not determine what the total impact to the basin would be.

Q. And again, I asked Mr. Klein to read from the purpose section of that study, but could you generally describe to the board what the study was about?

A. Well, we believe that study was about a number of basins being proposed, a number of detention cells, small dams being proposed in a watershed by numerous different agencies, each of which might have had a requirement for an EIS or EA or some other environmental document. But the finding was that until all of the impacts of the total project were defined, no one could actually say whether or not, and indeed that was the finding, that it couldn't be determined until the project plans were decided and all set.

And it has the effect of compelling the government to decide what projects are going to be built and in what order, and that is paramount activity when you're talking about development of flood plains, and floodplain plans.

Q. And I understood your testimony, you have, as designed, if it's constructed as designed FC-32 will comply with the safety of dams provisions. Can you indicate to the board what benefit construction of FC-32 at that location will have?

A. I have -- I cannot because I haven't seen the evidence to show.

Q. Are you able to indicate to the board any detriment

that might be occasioned by FC-32?

A. I could speculate as to some possibilities that actually increase erosion downstream by providing a change in the water regime and by providing a shortened channel. Channel modifications could actually be a detriment.

Q. So -- and following up on that, the comment relative to detriment, could you describe what would be the practical effect of that water stopping at that impoundment structure at FC-32?

A. In the development of erosion protection facilities, when you provide a water flowing through a reservoir, there's a certain amount of energy that is acquired by that water, and that energy has a relationship with the size of the particles, erosion particles.

As the water travels across the land its velocity picks up and drops the various erosion particles as it goes down through the basin. If we have flow conditions that cause the water to slow down, material falls out. If we have channel straightening or changes in the channel, it causes the water to speed up.

If we take the water, the water has certain amount of capacity to assimilate sediment. At a certain energy level it will assimilate that sediment and it will pick it up. If we drop the sediments out by a detention pond and create clean water, and then we accelerate that through

the structure, it's possible by that clean water by virtue of being accelerated through the structure and exposed to a straight channel downstream, would be sediment hungry, is what we call it, and it pick sediments up and erosion and degradation downstream.

A large phenomena of this is provided by the Gavins Point Dam above Sioux City, Iowa, where the Missouri River has degraded over two feet since the construction of the Gavins Point Dam. The dam has created a situation where sediments fall out of the river. These sediments are sediments that have to be in the river and be maintained at a certain level in the river so there's a balance, an equilibrium.

So what's happened is we install a dam at Gavins Point we have caused sediments to fall out of the dam. We go through the dam, we accelerate those sediments and just downstream we found situation where the water is sediment hungry and it picks up sediments and carries it downstream.

MS. GUNDERSON: Could I please ask a question relative to Gavins Point Dam? The alluvium or the sand that is collecting upstream, according to what we have been told, is because the dams on the Niobrara to hold water back were not built, and consequently the water that's washing in is washing in from above, not from below.

Now, from what you say, the water emptying the

sand, but what we've been told is if we have detention dams the whole length of the river from -- or the whole length of that project from Niobrara west -- east, that we would be able to cure the future of the sand that's building up because we would be holding the sand back. But you're saying exactly the opposite, aren't you?

A. No, no. There is -- no, actually I don't know if I want to go on that one. That's a good one.

MS. GUNDERSON: I'm sorry, I'm not understanding the rest of it, and this might help me to understand it.

A. Every stream has a flow regime, which includes both water and sediment. There is a part of the sediment suspended in the water and there is another part called bed load which moves along the bottom.

If you construct a dam, two things happen, one is you've created a block across the structure and the bed load stops moving through the structure; and the second thing that happens is the fine particles when you delay the water it allows time for the fine particles to settle out, so you have two processes that occur when you build any dam, that change the relationship between the water and the sediments that are in the dam.

So it's possible to have a situation where -- at Gavins Point Dam where fine sediments have fallen out of the flow where the bed load is blocked and then when the water

comes through it's clean water looking for sediments to pick up to gain this flow regime, this equilibrium flow regime. The whole process was begun when we straightened the river and when the river went angling down and did its natural thing to become longer and flatter, it had a lower and lower state of energy.

So what we're trying to do by installing dams is to replace the lower state of energy that occurs from the end reach. Now the point that we're asking with respect to FC-32 is why is this being done. There doesn't seem to be any damage from sediments in the reach. Why risk dumping sediments that are in the flow out of the flow to have sediment hungry water come out of the dam and possibly cause erosion situations downstream. The point that we would like to bring is that this hasn't been addressed.

MS. LOUCKS: Are you saying that the study from the Lake Pelican Water Project District and the state engineers both have not considered what you're talking about?

A. What we're saying is that the information submitted to us showed no engineering studies below the dam, as proposed, the structures were down, and there was an assumption made, and the assumption was if you reduced the water flow, off the cue that the damages are reduced. And what we're saying is that's not necessarily true. Until you identify what the damages are, and identify how they should

be, either that they do exist or how they should be mitigated if they don't.

MS. LOUCKS: If there's damage that's been done below, they are certainly going to have to correct it, because doesn't the law say that, you know, they can't damage anything below?

A. What the law says, they can't get a permit until there is damage to be mitigated.

CHAIRMAN ROLLAG: Mr. Fox.

Q. (By Mr. Fox) To follow up on Mrs. Gunderson's question relative to the Niobrara, the Gavins Point Dam in that situation, to your knowledge, was any an EIS done prior to construction?

A. To my knowledge I was six years old when that was done.

MS. GUNDERSON: To my knowledge, yes, it was and it was recommended by the study that the dams be built, and the farmers said, no, we don't want to give up our land to dams, so now we are told that we're going to lose the dam in about 25 years because it's going to be full of sand. And so I have to -- I cannot -- I have to put these two things together, because that is my -- where I live.

And now the soil conservation money is being hopefully put to use so that they can stop some of the water from flowing in full of sand.

Q. (By Mr. Fox) And Rick, as you understand the concept of an EIS in the State of South Dakota, what some of those concerns that were just raised or that are existing, how could an EIS that this board has the authority to order address some of those concerns?

A. It can identify. The EIS could identify the concerns of the interested parties, which in this case are the City of Watertown, and then studies could be done to at least develop somewhat of a knowledge. Apparently there's a great deal of knowledge that already exists that hasn't been shared with the city, and making that knowledge available so that the city could study and see what the total impacts of future plans are going to be, seems to be a reasonable request.

Q. And again, based on your site visit and your review of the area is there any compelling need today to construct FC-32?

A. I found absolute minimal. I spotted very pristine natural watershed, pastures, minimal soil -- I did is not see two acres of exposed soil in the basin, including the bottom of the channel.

Q. And as you sit here today are you able to estimate what the possible negative effects of FC-32 could be?

A. I cannot because I don't ever the information.

MR. FOX: I have nothing further.

MS. BEST: Nothing.

FURTHER EXAMINATION

BY MR. LEIBEL:

Q. First of all, I want to take reference to this report that you have attached, the one that I objected to earlier. I understand that this is just a tier one generic document?

A. Yes.

Q. So they did not require and this was not intended as an EIS, was it?

A. No.

Q. So it didn't -- it's not for the purpose of saying that someone else did an EIS, in a multi-dam project, what it is is that this is what they are recommending in this generic document should be done?

A. This was provided as an example of the need and the issues that have been identified in other locations --

Q. But what I'm asking is that it wasn't done -- this document doesn't say it was done, was it?

A. That what was done?

Q. That the EIS was done up there? It doesn't say it was done up there?

A. The project hasn't been built yet either.

Q. And reference was made in this document to Figure 1.1, which was, I believe, the drainage area. Is there some reason why it was not included in this document?

A. I don't understand your question.

Q. Reference was made to Figure 1.1. You talked about you were not familiar with the size of this particular drainage basin. Would 1.1 have answered that question?

A. What is 1.1?

Q. It says the study area, primary study area shown in 1.1, and I don't see where 1.1 is attached to this.

A. The entire report was submitted; this is just a excerpt of it.

Q. Okay. How long has this -- how high is this entire report?

A. Well, we've provided --

Q. Just a small portion of it?

A. We provided the first volume and there are three appendices each about that thick (indicating).

Q. And this was provided last night, again, correct?

A. Yes.

Q. And I understand from looking at this document that they were not studying the entire basin?

A. They were identifying the impacts of these 33 basins.

Q. 33 projects, not --

A. 33 projects, right.

Q. So this statement is incorrect then. This EIS is not a flood control study for the entire Red River Basin?

A. That's true.

Q. So this again is just a portion?

A. It's a portion of the Red River Basin, yes.

Q. And what you're advocating here is that the entire basin should be studied?

A. We're advocating --

Q. There should be an entire ESI is for the entire basin?

A. We're advocating that all the issues should be addressed before the board takes action.

Q. And were you provided information and documentation as to what the structure to be built under FC-32, correct?

A. Yes.

Q. And you have not done any analysis of that particular information, as I understand, is that correct?

A. We reviewed that information.

Q. But you said you can't give any figures. First you said there was no information provided on it. So now you're saying there is information provided to you?

A. No, sir. Let's go back and identify from your first question what particular --

Q. Were you provided information as the structure to your for FC-32?

A. We were provided information down to the structure and nothing below that structure.

Q. Have you done an analysis as to that structure, how it would affect Watertown?

A. No, we have not.

Q. Now I understand that these pictures were taken at various locations?

A. Yes.

Q. Okay, did you walk this entire area?

A. We drove it and looked to the extent that we could at the entire basin, yes.

Q. So you never went out and took a look at this particular thing?

A. No.

Q. As a matter of fact, didn't the owner offer to let you guys walk in there and take a look at it?

A. We did not enter into private property.

Q. But you offered to let you go in there, didn't he?

A. I didn't ask.

Q. But you offered, didn't he?

A. I can't answer that question.

Q. Has this property been looked at by other representatives other than yourself, or from HDR?

A. From HDR, no.

Q. From the city?

A. I believe the city has been out to the site, but I wasn't with them at the time.

Q. But you were there on 9-6?

A. Yes.

Q. But you didn't go out and take a look at that

particular -- or walk out on that particular property and look at that cause here?

A. No.

Q. And basically, the way I understand it, the purpose of these pictures?

A. 9-6 --

Q. 9-6-2002?

A. I don't remember the date we went out there.

MR. FOX: For the record the Exhibits that Jay is referring to that have been marked by the City of Watertown bear a -- it looks like an electronic date of 9-6-2002. For the record -- I'm not testifying, but I was with Rick on behalf of the City of Watertown, as were a couple other people, it may well be the city's digital camera has an incorrect date on there. But Rick was there and photographs were taken and bears the date of 9-6-2002. I can represent to the record that Rick was not there on 9-6-2002. So it's probably a date error on the face of that photograph.

MR. LEIBEL: Are there any other errors we should know about in regards to the photos?

MR. FOX: Well, I think that Rick ought to testify whether it's a true and accurate representation of the area on the day he was there.

Q. (By Mr. Leibel) Was it?

A. Yes, it was.

Q. Okay. But you didn't go out there and walk on it?
A. I did not go out and walk on it.
Q. It's my understanding that the purpose of these pictures is to basically say that the structure doesn't need to be built; is that right?
A. The purpose of these is to show that there are no damages that we have identified or that you have identified as part of the application.
Q. You're aware that Mr. Bones has asked that the structure be built?
A. No, I'm not.
Q. You were present when that was mentioned earlier today in the testimony?
A. Asked for the structure? I don't recall that.
Q. You're aware that the conclusions of the department are to the contrary, to your conclusion?
A. Yes, I am.
Q. You're aware that the conclusions of Barr Engineering are contrary to your conclusions?
A. Yes, I am.
Q. So what you're trying to say is that there will be no damage to the ground from a few feet to four miles downstream if this structure isn't built, correct?
A. No, that's not correct. What I'm saying is that we haven't seen any evidence of damage in the testimony so far.

Q. Do you have any evidence that there won't be damage?

A. No, I do not.

Q. Do you have any evidence that there will be damage to the City of Watertown if it's built?

A. I do not.

Q. And you would agree with the -- well, strike that. You've already agreed this is a small dam and standing alone would have little environmental or public safety impact?

A. Yes.

MR. LEIBEL: I have no further questions.

MS. GUNDERSON: Mr. Chairman, I have a question for Mr. Wick. What made you and your neighbors decide to do this project?

MR. WICK: Well, the way -- can I answer that? How it started out is a lot of the rural people up north that do support the water district and the slowing of the water, because they know when there are rains and runoff that this would occur. We were looking -- we were far enough long now and we were looking for a place that we could put a small structure that would not have to be removed that would be a stand alone project, as an example to the watershed people, the ones who actually live in the watershed, what it would consist of and how it would look.

MS. GUNDERSON: I have another question, how many people -- how many people in the district, the Pelican Lake

district, pay these taxes?

MR. WICK: They all do.

MS. GUNDERSON: And that was by a vote of the people?

MR. WICK: Right. We had 82 percent of the vote. We required 60 percent for annexation, we had 82 percent.

MS. GUNDERSON: And you had expertise come that -- you sought out expertise to tell you what was the best way to stop the problems that the people who live there are concerned about?

MR. WICK: Correct. We went through a process of hiring an engineering firm to know how to approach the entire problem as a holistic approach and --

MS. GUNDERSON: I want to ask a question right there, to whom did you go for advice that you required this engineering firm?

MR. WICK: The townships and the counties got together. They had one representative each when we started this. We had 14 applications --

MS. GUNDERSON: From engineering firms?

MR. WICK: -- from engineering firms throughout the United States, and then we whittled it down to three, and then we had three come in and interview, and then there was a vote taken and Barr Engineering was the one that was chosen.

MS. GUNDERSON: And how many years have you been working on this project?

MR. WICK: Since '99. '99 is when the annexation took place.

MS. GUNDERSON: So you had worked on it prior to that?

MR. WICK: I don't understand.

MS. GUNDERSON: To get the scope of the project together?

MR. WICK: No.

MS. GUNDERSON: You just came together then?

MR. WICK: When that was decided, the annexation took place, and then after the engineering firm was decided, that's what he we approached it.

MS. GUNDERSON: Thank you.

CHAIRMAN ROLLAG: Any more questions?

MR. FOX: Thank you, Mr. Chairman.

EXAMINATION

BY MR. FOX:

Q. Rick, you indicated on the photograph, the one that's at the site of the proposed structure, that you saw what you indicated were wetlands; is that correct?

A. Well, actually the photograph isn't sharp enough, but I did that based on my visual inspection in the field.

Q. And just as a point of clarification, on the date

that you went out and visited the site, did anyone beyond HDR and the City of Watertown, anybody else come up and approach you, visit with you, talk to you and invite you to enter on to the property?

A. No.

Q. In terms of the wetlands, if the structure as proposed is designed and built, will there be any requirement for mitigation of wetlands?

A. Yes, there will be if they have to go through full permit.

Q. Would that also been a requirement of an EIS?

A. Yes, it would identify the need to mitigate wetlands.

Q. What are the other practical benefits of an EIS in the basin, as you understand it?

A. It would require the -- it could possibly require a number of different issues, the minimum requirements which have been identified earlier today. But it also would allow some people to look at some cumulative effects relating to TCTP, the tribal issues, numerous tribal issues to multiple reservoir -- there are several threatened endangered species, including the Topeka shiner that is impacted; might look at that. This being a dry dam, that's not an issue up here. But again. It's a compilation of cumulative effects that would need to be looked at.

Q. Now you indicated that you drove the area, and you

examined the channel for some distance from the proposed structure location. Can you give an estimate of how long the structure has appeared in the state that you saw it on the day that you visited it? I'm talking about from the structure location to the point where you stopped examining the potential downstream channel of FC-32, how long did that -- does it appear that that drainage way has been in the state that it's in?

A. Oh, it's a very stable basin. I imagine it's been that way for thousands of years.

Q. Mr. Leibel asked you a question whether or not you identified any damages or potential mitigation of damages or increased damages in the area, and you responded that you didn't. Is it because the drainage way appears to have remained unchanged for a number of years?

A. Yes.

MR. FOX: Nothing further.

FURTHER EXAMINATION

BY MR. LEIBEL:

Q. How many times have you looked at that particular drainage area?

A. One time.

Q. And you didn't walk any of it?

A. No.

Q. You don't know how long it's been pastured?

A. No.

Q. You don't know if it at some time in the past it was crop ground?

A. No, I do not.

Q. Again, you just observed it from the road, correct?

A. That is correct.

Q. Is it your position that any time you have a structure that you need an EIS?

A. No.

Q. Is it your position that any time you need two or more structures you need an EIS?

A. I couldn't say what number, depending on what the environmental impacts are.

Q. You're agreeing, though, that we're talking about one structure today, correct?

A. Yes.

MR. LEIBEL: I have nothing further.

MS. BEST: I have just a few questions.

EXAMINATION

BY MS. BEST:

Q. Rick, you testified about sediment -- downstream sediment. Was it your testimony that -- that this situation with detaining water and slowing down the water would cause more sediment downstream than any other dam in South Dakota? I mean how do you distinguish this from other dams?

A. No, I did not testify that this would cause more sediment than other dams downstream. I testified that any time you build a dam you have the possibility of changing the flow regime between the channel and the environment. And that I think from the standpoint that I see minimal problems in the basin, and therefore I wonder what merits the structure has to fix the problems.

MS. BEST: I have nothing further.

CHAIRMAN ROLLAG: Now this concludes our testimony, I believe, unless --

MR. FOX: One point of order, Mr. Chair, Mr. Niedergeses has before him a document that's previously been identified as Exhibit 5 and there's been a great deal of testimony about Exhibit 5 and the Exhibit that's attached there to, if there's no objection, I would like to make Exhibit 5 part of the record.

MR. LEIBEL: My objection still continues as to the previous grounds. In addition there's other hearsay in this particular document, specifically there's reference to Dr. Ronald Rossmiller. There's no documentation as to the quotes in the light that's in there. We understand Dr. Rossmiller is an employee of HDR.

CHAIRMAN ROLLAG: We'll overrule and accept it.

MR. FOX: Thank you, Mr. Chair.

CHAIRMAN ROLLAG: Noting the objection.

MR. LEIBEL: Thank you.

CHAIRMAN ROLLAG: What we had in mind --

MR. FOX: One other point of order. I know that the parties, Mr. Chair, have stipulated to the admission of the photographs and the demonstrative exhibits that Mr. Niedergeses testified to. I presume there's no objection to their admission -- admission of all the photographs that the city has relied on today, and Mr. Klein has looked at into evidence; do you want me to go through them?

MR. LEIBEL: No, we have no objections to the photos.

CHAIRMAN ROLLAG: They will be accepted.

MR. GUHIN: Let's get the numbers down, 12 to 15 and 22?

MS. BEST: And the site map.

MR. LEIBEL: Which would be 21.

MR. FOX: 12 through 15, 22 and --

MR. LEIBEL: What is 22?

MR. FOX: That's the map representation -- I'm sorry, 22 is another photo.

CHAIRMAN ROLLAG: They will be accepted. Any further testimony on behalf of any of the parties?

MR. LEIBEL: I would like to briefly call Steve Klein, if I may.

CHAIRMAN ROLLAG: Fine,

Whereupon,

STEVE KLEIN,

called as a witness, testified as follows:

FURTHER EXAMINATION

BY MR. LEIBEL:

Q. Steve, I'll remind you you're still under oath. In regards to erosion, at the site for FC-32 is there erosion?

A. There is erosion. FC-32 is placed on a real tight bend area, and immediately downstream there is erosion that's occurring. And the design of our structure, the velocity coming out of our pipe, we're not just discharging that directly on to the ground. We have a substantial downstream transition section, to transition the water back out, and it's all being completely in an armored-line channel, rip-rap and filter material.

The issue about causing the water to get cleaner just to make it dirtier downstream and enable downstream erosion to occur, in this particular case borders on ridiculousness. But in general I would have to take you on a one-day short course on fluvial geomorphology, which is lowering of water in riverine areas and the like. But when you have a dam, and you have water flowing through it, and it's -- the water spreads out and slows down, it allows water or sediments to settle on out.

But if you're not detaining that water and the

same amount of water coming in goes out, what happens is you have -- then you can, through the cleaning up of water, create a situation downstream, perhaps, that you might reentrane some sediment downstream. But that presumes you're taking the same amount of water in and the same amount of water out. We're not doing that. We're holding water back and letting less water go on out.

So it doesn't hold water, no pun intended, on that comment. It's like the comment is, well, if we have a fire hose that's pointing downstream right now and you have water going out of that, and we throw something on the end of this fire hose to slow water down, we only let water come out at what a garden hose would provide, even though we have sediment settling out over there, you're letting a much smaller amount go on out, and somehow that's going to make the downstream area create a situation for water to get reentraned back into the water column, it just doesn't work that way in these particular types of projects.

And so the idea that, gee, this particular project is going to cause increased erosion downstream, just isn't true. It isn't going to happen. And we've provided in our design a flow expansion and transition section downstream of our dike that actually spreads the water out, slows it down from coming through the pipe at a fast velocity. But the velocity leaving that transition section, combined with the

lower flow quantity, is substantially less detrimental to the environment right there on that site.

Rick hasn't been on that site. He hasn't even walked over to the bend in the channel. But he's taken a picture from far away and asks you to buy, gee, I just don't have any issues here, because we haven't been provided that.

MR. BRINK: Steve, maybe I missed the point. What are you planning to learn from this pilot study that you don't already know in the way of hydrology and runoff and those sorts of things?

A. It isn't a pilot study.

MR. BRINK: Well, okay, it isn't a pilot study.

A. It's a pilot project.

MR. BRINK: Pilot project?

A. And what Julian has mentioned is that it's to demonstrate to the residents of the Lake Pelican Water Project District the types of projects that can be done. It's a demonstration type project. In terms of educating me on something for this area, it in all likelihood won't, because I've had lots and lots and lots of experience on it.

MR. BRINK: You're quantifying of soils and slopes and all those things, you've already done that?

A. That's correct.

MR. BRINK: So this is -- you're not trying to make the model fit, the core model so that it will work

better in the next go-around, okay.

MR. FOX: Just two very brief.

FURTHER EXAMINATION

BY MR. FOX:

Q. Steve, you listened to Rick testify, and then the photo that he took from the road, and he didn't go on the property, but he indicated on the area that was taken at or near the site location, that he saw what appeared to be wetlands. You've obviously been on the site. Do you disagree to his characterization that there are wetlands on the Davis Bones site?

A. No, I don't disagree that there might be some wetland type vegetation on that site.

Q. But I thought -- I don't want to with you, Steve, appear at all like I'm being argumentative, but when you mentioned about the demonstration project and the fact that there were no residences, no structures, no grazing land, no wetlands, no threatened species --

A. No impacted wetlands.

Q. But how do you know that?

A. Through a site analysis that we did, through a site investigation. We walked the site. We identified where the project could be located.

Q. And who -- but -- so you alone make the determination or is that something, once you identify, well, there's

probably not going to be much impact, do you pass that information on and someone else reviews your determination, or is it enough that you have made that conclusion and no one else needs to?

A. Anybody can take a look at what we've done and reviewed it for whatever way they want to review it.

Q. You mentioned also, I think in response to one of Jay's questions, that there is erosion and it exists and downstream from the proposed FC-32 location it's occurring, did you -- or are you aware of whether or not erosion studies were completed at part of FC-32?

A. What type of erosion studies are you talking about?

Q. I guess anything that substantiates your testimony to the board that erosion is occurring, it exists, and it's out there in that area?

A. It's visual erosion. There's bank escarpments right there. You don't need to do a study to see that there's erosion that's occurring.

Q. But is there ever a case where an erosion study -- are they done or is that something that's not ever done?

A. It's not an unheard of thing. There's erosion studies that are done. And also on erosion studies, the erosion studies also show how much erosion comes off of grazing land and cropland.

Just because an area is grassed doesn't mean

that there isn't dirt and sediment that comes off of that. It's less than there would be if it's a row crop. It's less than it would be if it's other types of activity, such as construction work or whatever.

But to assume that there isn't erosion or sediment coming off of a site simply because you have grass in certain areas, or grazing property, doesn't -- isn't true. There's material that comes off of every single one of these projects.

Q. And fundamentally I'm not looking to disagree with you on that point, Steve, but the statutory requirement is that the flood control permit reduce the damage from erosion. So what I'm asking is, you mentioned there's erosion in the area. What I'm asking is there's damage from erosion at the site or near FC-32. You said you walked the area, you can see erosion, I'm asking about damage from erosion?

A. Damage from erosion, you have to qualify what you're talking about there. Is there erosion on the site? Yes. And so this project will prevent erosion in that spot. Is that erosion causing damage? That is a question that we haven't answered, nor do we need to.

Q. Well, I think that certainly that would be a determination from the board, but as an applicant, in terms of the flood control permit, I just asked whether or not --

MR. LEIBEL: The question was asked and answered.

MR. FOX: I was getting to it -- I'm finished. Nothing further.

CHAIRMAN ROLLAG: Any more questions? What we want to do now is give each of the parties a total of, let's say, four minutes to summarize. You can divide it any way you want between giving your summary of why an EIS should or should not be required, and whether FC-32 should be approved or disapproved. So is that agreeable with you, you two, I guess. Do you even want a summary?

MR. LEIBEL: Yes, I want to summarize. You know, I feel a little constrained by the four minutes because Mr. Fox already had over four minutes earlier today where he got to talk strictly about one issue and I'm restricted to four minutes for two, but I'll try my best.

CHAIRMAN ROLLAG: Okay, we'll give you five minutes, and that will be for both sides.

MR. LEIBEL: You want me to go first?

First of all, I think it's clear that this is a small structure. I think it's clear from both the recommendations of the department, as well as the testimony we presented, that this is a viable project. There is no reason that it should not happen are, or not be granted, the permit should not be granted.

Earlier today I made reference as to the timeliness of the objection of the city, both from a

procedural one, which you've heard, and from a substantive portion of the law. I would ask you in your deliberations to take a look at 34A-9-4 as far as your authority. It indicates that the agency may prepare or require to be prepared an environmental impact statement on any major action they propose or approve which may have a significant effect on the environment.

Obviously you aren't proposing this project, we are, but you have to approve the project. We aren't asking you to approve anything but this project. It's our position that under your authority, the action of the city is not timely. But they are asking you for, contrary to -- and this is where I disagree with Diane, they are asking you to set precedent.

There has been a procedure in place for many years by statute, by policy of your board, of the department, for review and requirement of an EIS on a case-by-case basis. It's not always required. You leave it to the discretion of the staff and also the discretion of this particular board.

I would draw your attention to something that you just did this morning, specifically No. 6325-3 VeraSun Energy. You approved today a water permit for a 100-million gallon ethanol plant. The words that the gentleman used to described that plant, in talking about a question as far as the water runoff, he used storm sewer pond and later storm

water ditch. No EIS was required for that. The reason is the department, the DENR, in their evaluation and their discussion and their reviewing of the records determined that it was not appropriate. It wasn't necessary.

Approximately a year ago you approved a permit for the glacial lakes ethanol plant that basically drained right into the Big Sioux, into Lake Pelican. There was a destruction of a slightly over -- there was actually a destruction of a wetlands. There was no requirement for an EIS in that. As a matter of fact, there was even no hearing in that particular matter. The reason is your staff reviewed it determined that the remedial efforts that were being taken were appropriate, that it was not necessary to do an ESI.

So what you have today is Watertown coming before you and saying, hey, you can't do anything, you can't do a small project without having an ESI -- or excuse me, I did it again, an EIS. Thank you, Steve. You can't do a project without having an EIS.

The City of Watertown would like you to believe that you have to do the whole area. The testimony indicates today it's never been required before, it's never been required by your agency, your board, it's never been required of the state of South Dakota. It doesn't appear that it's been required in other areas either. Even the report that they submitted to you wasn't a full study.

I submit to you that if you do require an EIS on this particular project, number one, you are exceeding the authority of statute; number two, you are potentially setting a precedent that's going to be extremely damaging. If you're going to do it on a project of this size, of this nature, how are you going to give the ability, the flexibility to the staff and to your board to review cases on a case-by-case basis.

Hypothetically, if Watertown comes in to you and wants a permit to do something, in order to be fair, in order to be consistent, you're going to have to require an EIS from them. That's going to require an examination of every project that they have done in the past, planning to do now, or they are planning to do in the future, not only for their community, but downstream.

We submit to you that whether it be the City of Watertown, whether it be a township, a county, under the drainage ordinances that are now authorized by South Dakota law, that that's a dangerous precedent. We feel that the law should be complied with in this particular situation, that the recommendation of the department should be accepted, and that the permit 32-FC should be issued without the requirement of an EIS. Thank you.

CHAIRMAN ROLLAG: That was very good, Mr. Leibel; that was five minutes.

MR. FOX: Thank you, Mr. Chair. Well, I'll briefly summarize the city's position. I'm certain that it's been made real clear throughout the day. FC-32 in isolation, as Diane Best indicated, is not a major action. And Mr. Klein indicated, and the city would have to concede, FC-32 in isolation is not a major action. However, by the proponent's own testimony, the applicant's own testimony, they started this process in 1999, that's when they originally entered into an agreement with Barr Engineering to commence their surface water management plan designs for that basin that they are talking about.

Today marks step one of the implementation of that plan. If the board grants this, then they are on their way to implementing it. At what point the city again would ask rhetorically -- I know I did in the brief -- at what point does this plan become a major action? How many permits will this board have to issue, how many flood control structures will have to be up here before it constitutes a major action?

If it constitutes a major action the board can, in their discretion, require an EIS. It certainly -- it certainly, with the best interests of the community, both upstream and downstream that the city made this motion, not to delay or hamper the ability to do this, but to make sure that whatever is done, if it is a major action answers all

those questions that this board has the ability, and arguably the duty, to require that a person engaging, or about to engage in a major action, answer before you go out and allow it to occur.

As to FC-32 taken in isolation, I can't imagine that the city would have any basis to object, except those that have already been made to the board in terms of the specific evidence relative to reduction of damage and erosion and those things that we have already made clear.

But in event the motion for the city is denied, it will be presumably be renewed again at whatever point the applicant next takes their storm water management plan, because at some point if we -- if the motion is denied today the city, I guess hopes that the board will come to the logical and reasonable conclusion at some point that what the Lake Pelican Water District is doing constitutes a major action. Thank you.

CHAIRMAN ROLLAG: Thank you, Mr. Fox, another very excellent summary. Diane.

MS. BEST: Thank you. Members of board, I want to thank you for patiently listening to the testimony here today. I will be brief. I will rely on the statements I made earlier regarding the environmental impact statement. There are two questions for the board to answer. Is a major action pending; and second -- pending before the board; and

secondly, will an EIS provide better data to review flood control projects. And the answer in the DENR's position, the answer to both of those questions is no, and that an EIS is not warranted.

Secondly, with respect to the proposal here today flood control permit application 32, I would simply rely on the chief engineer's recommendation. This flood control project meets the standards set forth in 46-2A-11, and the DE -- the chief engineer has not changed his recommendation, and the DENR submits the approval of the project should go forward with the conditions set forth by the chief engineer. Thank you.

CHAIRMAN ROLLAG: Thank you, Diane. Do you have any instructions for us?

MR. GUHIN: Just close everything up.

CHAIRMAN ROLLAG: Okay, all of the testimony and discussion is closed. Board members, how do you want to handle this? Do you want to take the EIS first, or do you want to take FC-32 first?

MS. GUNDERSON: I think we have to take the EIS first.

CHAIRMAN ROLLAG: We are open to discussion for disposal of the question regarding the EIS. Anybody want to comment?

MR. BRINK: Well, Mr. Chairman, I think to me

it's a very small project, and it's been demonstrated to be a demonstration project, rather than the first of many, and I think we will have other opportunities to ask for more information as far as the full hydrologic model of this basin, and I'm certainly going to be, in my opinion, if I'm still on the board, expecting that information to comfort for the next meeting.

It is to me a small project, and maybe not small in Watertown's eyes as a threat, but as far as definition by statute, it's small, and I'm -- would be, if allowed to make a motion, to deny the application -- or the petition for an environmental impact statement on this matter.

MS. GUNDERSON: And I'll second that and say on the basis I do hope we get enough rain to find out if we really need.

CHAIRMAN ROLLAG: Any other comments from any other board member?

MS. LOUCKS: Well, I share Francis' comments it's to small to ask for anything as complicated as those get, and I would have to deny it.

CHAIRMAN ROLLAG: Mr. Holzbauer?

MR. HOLZBAUER: I'll go along with that in the fact that the size of the project, and if they are afraid of something being multiplied by a number of different little projects later on, overall will be a detriment to that area,

that we'll have -- the board, not we, but the board will be able to have controlling action at any given time.

CHAIRMAN ROLLAG: And in case of a tie vote I usually vote, and so if it comes to that, I will also say that I can understand the City of Watertown's concern, but I agree with Mr. Brink that this FC-32 is a very small project. But I can also understand that in the future, as the development occurs, if there's any real serious concerns regarding the environmental impact of the project as it grows, that there could be a time when the board would favor an EIS.

But I believe that time is somewhere in the future, and that I certainly encourage the drainage district to proceed with their project, and that as it unfolds maybe we'll learn more and determine whether there's real argument for an EIS.

So at this time I'll call the question. All those in favor of the motion to reject Watertown's petition to require an environmental impact statement for the Pelican Lake project, signify by saying aye.

Those opposed to the motion same sign?

I didn't vote, but the motion has carried and so at this time the board rejects the petition. Now let us take up FC-32 -- flood control application FC-32 application, what's the comments of the board?

MS. LOUCKS: I would move approval of the

application based on the engineering, the chief engineer and I would add that the qualifications, whatever they may be, go with it.

CHAIRMAN ROLLAG: Is there --

MS. GUNDERSON: I'll second.

CHAIRMAN ROLLAG: -- a second? What are some of the comments of the board? I should mention this board is a judge and a jury, so you are witnessing now the deliberations on behalf of the jury, part of our function, that's why I asked for comments from the members.

MS. LOUCKS: With the motion I can, I guess, submit my comments, too, but I can't see the basis for denial here. They have met whatever needs to be done for an application and I would have no grounds to deny it.

MR. HOLZBAUER: It looks like to me it came to the vote of the people in that area that they wanted to see this happening, to see what happens, and with no grounds of detrimentation to it, I would allow it.

MR. BRINK: Well, there is an opportunity for damage to be done by detaining water if it's not released at the right time, and the sequence of construction, you have to agree with Watertown, if they go in and they build a large detention pond, for a basin to retain water that puts it back into the stream at the wrong time, on the wrong side of the curb, there can be an increase of flow.

So I think it's very important that we see that whole picture the next time around. This one is a demonstration they are trying to gain support of people within the district to build detention -- small basins, and I think that's a good way to go.

MR. HOLZBAUER: When I look at that whole area, as flat as that is, how much water are we going to back up there?

MS. GUNDERSON: Well, the culvert is right down in the ground.

MR. BRINK: You wouldn't get it done with a large impoundment, so I have no idea. We hope the next piece of information will answer those questions.

MS. GUNDERSON: I just have to say in my experience, I'm getting older, you all know, that any time you see this many farmers get together and do something and it's unanimous, I think it has to be right.

CHAIRMAN ROLLAG: Well, I'm going to support the application on the basis that it's very small. I think it serves a purpose in being a demonstration project. I assume as the applicant comes in for more flood control applications, that we'll have the results of the modeling, and so that will help us, provide information to us that will be very helpful, I think, in future decisions. So certainly I'm going to support this.

MS. GUNDERSON: I want to add one thing, too, again in defense of the scope of this project, because it is a big project, made up of very, very small steps, and I think it proves that these people do want to improve the area where they live, not make it worse. And I don't think they'll know whether it's going to help until they have three or four or five of these small projects that do hold the water back. And I know that hydrology is a big part of this, but the fact still remains that when there are floods to slow the water down has got to be helpful.

CHAIRMAN ROLLAG: All right, any other discussion?

MS. GUNDERSON: I guess I would call the question.

CHAIRMAN ROLLAG: All those if favor of approval of application FC-32, subject to the qualifications of the chief engineer, please indicate by saying aye.

Opposed the same sign. The application is approved.

MS. GUNDERSON: And I thank you all for your courtesy.

CHAIRMAN ROLLAG: We have the question of findings of fact, conclusions of law.

MS. GUNDERSON: Definitely.

CHAIRMAN ROLLAG: Mr. Guhin?

MR. GUHIN: I guess in a contested case we usually do -- I usually do propose findings and then the parties get a chance to have input on them, and I guess I would recommend that being done. You don't actually have to have findings on the EIS, but I would recommend that the board that I do them on behalf of the board, and then everybody have a chance to talk about those, because that is really a major issue here, too, and I think it would help.

CHAIRMAN ROLLAG: I guess we don't need a motion on this, we just order the attorney to proceed with these findings of fact.

MS. GUNDERSON: And the timing schedule is.

MR. GUHIN: It will be by the next meeting.

MS. GUNDERSON: Yeah, but the next meeting is not until December.

MR. GUHIN: I don't know what the days -- I always have to look at what the chief engineer uses.

CHAIRMAN ROLLAG: But the parties will all be --

MR. GUHIN: They will be sent the proposed.

CHAIRMAN ROLLAG: They will get sent copies and they will get a chance to respond. Thank you all.

(Whereupon, the proceedings were adjourned.)

STATE OF SOUTH DAKOTA)
) CERTIFICATE
COUNTY OF HUGHES)

I, Lynne M. Ormesher, Registered Professional Reporter, hereby certify that the foregoing pages 1 through 156, inclusive, are a true and correct transcript of my stenotype notes.

Dated at Pierre, South Dakota, this 20th day of October, 2002.

Lynne M. Ormesher, RPR

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
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September 27, 2002

NOTICE

TO: Jay Leibel
PO Box 406
Madison SD 57042

Stanton Fox, City Attorney
City of Watertown
PO Box 910
Watertown SD 57201

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and Final Decision

The Water Management Board directed John Guhin, the Board's attorney, to prepare proposed Findings of Fact, Conclusions of Law and a Final Decision in the matter of Flood Control Permit Application No. FC-32 filed by the Lake Pelican Water Project District. The Board will consider the proposed Findings, Conclusions and Final Decision at 1:00 PM, CST on December 4, 2002 in the Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Avenue, Pierre SD.

The Board requested that a copy of the proposed Findings, Conclusions and Final Decision be mailed to each Board member and Counsel for Parties by November 14, 2002. Written objections or comments in support of the proposed Findings, Conclusions and Final Decision, or alternative Findings, Conclusions and Final Decision are to be mailed to each Board member, Board attorney, Staff attorney (mailing list enclosed) and Parties of Record by November 25, 2002.

Oral arguments by parties who timely filed written comments in opposition or support of the proposed Findings, Conclusions and Final Decision, or alternative Findings, Conclusions and Final Decision may be made on December 4, 2002. The public hearing was completed September 25, 2002. No additional testimony will be received on December 4, 2002.

Enclosure

c: John Guhin Deputy Attorney General
Diane Best, Assistant Attorney General
Julian Wick, Lake Pelican Water Project District, 4002 20th Ave SW, Watertown SD 57201-7033
Mayor Brenda S. Barger, City of Watertown, PO Box 910, Watertown SD 57201-0910
Richard Schlechter, City of Watertown, PO Box 910, Watertown SD 57201-0910

CERTIFICATION

I hereby certify that on September 27, 2002, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated September 27, 2002, regarding preparation of finding of fact, conclusions of law and a final decision on Flood Control Permit Application No. FC-32, Lake Pelican Water Project District, addressed as stated below:

Jay Leibel
PO Box 406
Madison SD 57042

Stanton Fox
City Attorney
City of Watertown
PO Box 910
Watertown SD 57201-0910

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

Richard Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

A copy of the Notice was delivered via inter-office mail:

John Guhin, Deputy Attorney General, Capitol Building
Diane Best, Assistant Attorney General, Capitol Building

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 27th day of September, 2002.

Karen Schlaak
Karen Schlaak
Notary Public
My Commission expires April 1, 2007

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

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WATER RIGHTS PROGRAM

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WATER MANAGEMENT BOARD

IN THE MATTER OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-32, LAKE PELICAN WATER	))))))	**CITYOF WATERTOWN'S OBJECTIONS TO [PROPOSED] FINDINGS OF FACT AND CONCLUSIONS OF LAW**

COMES NOW the Intervenor, City of Watertown, by and through its attorney, Stanton W. Fox, and files its Objections to the [Proposed] Findings of Fact and Conclusions of Law, which were received from the Water Management Board on November 12, 2002.

FINDINGS OF FACT

1. City of Watertown makes no objection to [Proposed] Findings of Fact Nos. 1, 2, 3, 4, 5, and 6.

2. City of Watertown objects to Finding of Fact No. 7. This proposed finding states:

> The main question in controversy is whether the project **will reduce damage from flooding or erosion** in the area proposed to be benefited. The Board credits the evidence of Mr. Steven Klein. . .in this regard. . . Mr. Klein further testified that the action of the flood-control dam will slow the waters so as to decrease the erosion in that area. . .[T]he Board finds that the project will reduce damage from flooding or erosion in the area downstream of FC-32.

(emphasis added). Review of the record in this matter reveals that when examined about the issue of erosion and flooding, Mr. Klein said the following:

> Q: What I'm asking is there's damage from erosion at the site or near FC-32. You said you walked the area, you can erosion, I'm asking about damage from erosion?

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> A: Damage from erosion, you have to qualify what you're talking about there. Is there erosion on the site? Yes. And so **this project will prevent erosion in that spot. Is that erosion causing damage? That is a question that we haven't answered, nor do we need to.**

(See Hearing Transcript, p. 144, lines 14-21) (emphasis added). There is no basis in the record for the Board to conclude the FC-32 will reduce damage from flooding or erosion. There was no testimony introduced regarding damage from flooding, and when asked about erosion damage, Mr. Klein made clear they have not addressed that issue. For the foregoing reasons, the City of Watertown objects to this [Proposed] Finding of Fact as contrary to the record and evidence.

3. City of Watertown objects to [Proposed] Finding of Fact No. 8. The City's objection is the [Proposed] Finding of Fact that the Board has considered whether the project will increase the likelihood or severity of flood damage in areas other than the project area. In the [Proposed] Finding, the Board will conclude:

> The evidence is not in conflict that no such flooding will occur.

(See [Proposed] Finding of Facts, at p. 2). The evidence is that the Department of Environment and Natural Resources did not determine whether flooding will or will not occur. In Mr. Schaal's testimony to the Board, he offered the following:

> MR. SCHAAL: How does this structure FC-32 affect that? No, we didn't.
> MR. BRINK: Okay. Would you venture a guess.
> CHAIRMAN ROLLAG: Any other questions for Tim?
> A. Can I guess?
> MS. BEST: Well, maybe you can explain to the board why you didn't look at that, and then certainly respond to what Mr. Brink asked. A. Well, I

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> guess in my opinion we were just looking at what we had before us, the application for the one structure, with the understanding that more may come later, but we didn't have that information in front of us. I think the testimony this morning was the cumulative effect of several, if not many of these flood control structures, and how that cumulative effect could have an adverse effect in Watertown. We didn't have is that before us we were just looking at this one small flood control dam. I guess we didn't have the desire to see how it really affected Watertown 20 miles downstream.

(See Hearing Transcript, at p. 69, lines 1-19). Accordingly, the City of Watertown makes its objection.

4. City of Watertown has no objection to [Proposed] Finding of Fact Nos. 9. 10, 11, and 12.

5. City of Watertown objects to [Proposed] Finding of Fact No. 13 and renews the argument and bases contained in its original Motion and Brief for Environmental Impact Statement.

CONCLUSIONS OF LAW

6. City of Watertown has no objections to Conclusions of Law No. 1.

7. City of Watertown objects to Conclusion of Law No. 2 on the same bases as those objections proffered in ¶ 2, *supra*.

8. City of Watertown objects to Conclusion of Law No. 3 on the same bases as those objections proffered in ¶ 3, *supra*.

9. City of Watertown objects to Conclusion of Law No. 4 on the same bases as those objections proffered in ¶ 5, *supra*.

DATED this 27th day of November 2002 at Watertown, South Dakota.

CITY OF WATERTOWN:

Stanton W. Fox

Stanton W. Fox
City Attorney
City Attorney's Office
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CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of November 2002 I caused a true and correct copy of the foregoing document to be served by:

X U.S. Mail X Facsimile ☐ Hand Delivery

to the following person(s):

Garland Erbele, P.E. CHIEF ENGINEER DENR Joe Foss Building 523 East Capitol Pierre, SD 57501-3182	Jay Leibel ATTORNEY AT LAW Ericsson, Ericsson & Leibel P.O. Box 406 Madison, SD 57042
John Guhin 500 East Capitol Pierre, SD 57501	Diane Best Office of the Attorney General 500 East Capitol Pierre, SD 57501-5070
Francis Brink, Chairman 1214 South Wells Street Aberdeen, SD 57401	Bernita Loucks 219 42nd Street Rapid City, SD 57702
Rodney Freeman, Jr. P.O. Box 176 Huron, SD 57350	Dwayne Rollag 320 Lincoln Lane South Brookings, SD 57006
Marian Gunderson 811 West Third Street Yankton, SD 57078	Leo Holzbauer RR1, Box 70 Wagner, SD 57380

By: Stanton W. Fox
Stanton W. Fox, City Attorney

DB
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L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)

January 29, 2001

Department of Natural Resources
Pierre, South Dakota 57501

VIA FAX
(605) 773-4106

RE: Lake Kampeska Diversion Weir – Flood Control FC-29

Ladies and Gentlemen:

Under separate cover the City of Watertown has submitted to you a plan entitled "A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas" dated January 26, 2001.

I have been directed by the Lake Pelican Water Project District to advise the Department that the monitoring plan for FC-29 dated January 26, 2001 is acceptable to the District. The Lake Pelican Water Project District urges DENR to approve this plan.

The Lake Pelican Water Project District believes this monitoring plan, in conjunction with the plan for operation of the gates addresses their concerns and will provide data necessary to evaluate the effect of this project and direction for future developments.

Upon your approval of the January 26, 2001 monitoring plan, I have been instructed to dismiss the appeal now pending in Codington County, Third Judicial Circuit.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

rleric@hcpd.com *jmleibel@hcpd.com* *alangner@hcpd.com*

BARR

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601

Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO

December 18, 2000

Mr. Richard L. Schlechter, P.E.
Public Works Operations Manager
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Re: Inflow Water Quality Monitoring at the Lake Pelican Outlet Weir

Dear Mr. Schlechter:

Late last week I was able to talk with Steve Klein of our staff about the proposed monitoring of inflow water quality at the Lake Pelican weir. He informed me that officials of the Lake Pelican Water Project District are adamant about collecting data sufficient to ***quantify*** the amounts of sediment and phosphorus entering the lake via Big Sioux River backflows ***before***, ***during***, and ***after*** the planned Lake Kampeska weir would be operated. This indicates to me that sampling at the Lake Pelican weir will be necessary, even if your proposed river monitoring is also conducted between the Lake Kampeska weir and the urbanized areas of the city of Watertown. Although your proposed monitoring program should be sufficient to document sediment and total phosphorus transport rates in the river at your gaging station, I do not see any way to translate those data into mass loading estimates for Lake Pelican. Therefore, monitoring at the Lake Pelican weir will also be necessary to quantify sediment and phosphorus loads.

I agree with your contention that passage of the river through the urban area of Watertown has the potential to alter both its suspended sediment and phosphorus concentrations. These changes could be both positive, due to contributions from urban runoff during wet periods, or negative because of suspended particle settlement during low flow periods. Materials deposited in the river channel between your proposed gaging station and the Lake Pelican weir at relatively low flows are susceptible to resuspension during subsequent high flow events and will be transported further downstream. If, at high river flows, backflow into Lake Kampeska is prevented by a new weir, then more river water at higher flow rates, and proportionally greater sediment carrying capacities, will pass downstream, toward the Lake Pelican weir. While it is unclear how much of this river flow would enter Lake Pelican, that is what our monitoring program is intended to quantify.

Therefore, I do not see a convenient alternative to monitoring at the Lake Pelican weir, if mass loads of suspended sediment and phosphorus are required. The monitoring program we recommended previously included sensing of lake and river stage, and concurrent flow velocity and direction, and flow-activated water sampling. Sampling would only be conducted at times when backflows from the river were entering the lake. This sampling would be automated and flow-paced, with equal volume aliquots delivered into a compositing bottle in the automatic sampler base. Pacing can be adjusted to match expected hydrograph conditions and sample holding times. I would suggest the

monitored water quality parameters include total suspended solids, volatile suspended solids, total phosphorus, and total dissolved phosphorus, at a minimum.

Because you prefer to use ISCO flow gaging and automatic sampling equipment, I contacted the ISCO Manufacturer's Representative, Tech Sales, here in Minneapolis, to obtain the enclosed literature concerning the types of their equipment that would be necessary to conduct this monitoring.

Please telephone me if you wish to discuss these matters further. Thank you.

Sincerely,

BARR ENGINEERING COMPANY

/Hal Runke

Henry M. (Hal) Runke, Ph.D.
Limnologist

HMR/lah
Enclosure
c: Julian Wick
Steve Klein

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CITY OF WATERTOWN

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WATERTOWN
Dakota's Rising Star

January 3, 2001

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Mt. Hope Cemetery
605-882-6208

City Attorney
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Engineering Dept.
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Finance Office
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Fire Department
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FAX 605-882-6221

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FAX 605-882-5204

Police Dept.
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FAX 605-882-6216

Public Works Dept.
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Waste Water Treatment Facility
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Julian Wick
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201

Post-it® Fax Note 7671	Date 1/5/01	# of pages ▶ 2
To Hal Runke	From Rick Schlechter	
Co./Dept. Barr Engineering	Co. City of Watertown	
Phone #	Phone # 605-882-6204, x29	
Fax # 952-832-2601	Fax # 605-882-5214	

Dear Mr. Wick:

I have enclosed a copy of my December 29, 2000 letter to Mr. Hal Runke for your information and review. Mr. Runke, Mr. Steven Klein, and I have had the opportunity to visit and exchange written thoughts on several occasions over the last 2 months. We have been developing a monitoring plan to measure pertinent water quality parameters at the fish notch of the Lake Pelican Diversion Weir that will be implemented in conjunction with the Lake Kampeska Diversion Weir project.

I trust Watertown's December 29 conceptual proposal addresses the issues set forth in the District's October 18 proposal. Proposed revisions to the detailed monitoring methodology found in item #1 of the District's proposal have evolved from the cooperative efforts of Barr Engineering, the District, and Watertown over the last 2 months. A discussion of the revisions is beyond the scope of this letter, but I invite you to review Watertown's December 29 monitoring proposal with Mr. Klein and Mr. Runke. I would also welcome the opportunity to visit in person with the District and the Barr Engineering Company representatives to work out any remaining details within the next couple of weeks.

Watertown hopes to offer the project for contractors' consideration early this spring before their construction season schedules are filled in order to promote competitive project bidding and materials pricing, and to allow potential contractors the maximum construction flexibility possible. My goal is to have the District board's agreement regarding the monitoring plan prior to Watertown's January 23 public works committee meeting. This would allow me to obtain committee recommendation for the Council to authorize advertisement for bids on February 5 to facilitate an early March bid opening.

I have also enclosed a copy of the Water Management Board's Final Decision pertaining to the project's flood control permit FC-29 that was adopted on June 15, including related Findings of Fact and Conclusions of Law. The operating procedures and criteria for the gates of the Lake Kampeska Diversion Weir as requested in item #7 of the District's October 18 proposal are set forth in this document.

I look forward to hearing from you soon regarding the District's favorable consideration of the proposed monitoring plan. Please feel free to contact me with questions or comments, or to set a meeting time for us to discuss this issue further.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

CITY OF WATERTOWN

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WATERTOWN
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December 29, 2000

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Mr. Henry M. (Hal) Runke, Ph.D.
Barr Engineering Company
4700 West 77th Street
Minneapolis, MN 55435-4803

Dear Mr. Runke:

Thank you for your December 18 letter regarding inflow water quality monitoring at the Lake Pelican Outlet Weir. I agree with you that it seems it will be necessary to sample at the Lake Pelican weir in addition to implementing Watertown's proposed monitoring plan at the upstream site to meet the water quality monitoring needs associated with the objectives of both Watertown and Lake Pelican Water Project District in this matter.

Paragraph 5 of the Water Management Board's June 15 Final Decision on flood control permit number FC-29 directs that "*...the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican.*" As we have recently discussed, Watertown and the Lake Pelican Water Project District interpret the Water Management Board's direction somewhat differently. Watertown interprets the Board's intent to mean the measurement of the effect of the proposed project, whereas the District interprets the Board's direction to mean the explicit measurement of sediment load entering Lake Pelican.

I don't anticipate this difference in opinion being resolved without another hearing before the Water Management Board, and I don't believe this course of action is an effective use of the limited amount of time available to complete the proposed project. Furthermore, resolution of this issue by the Water Management Board may not change the need to meet the separate water quality monitoring objectives of Watertown and Lake Pelican Water Project District in this matter. Therefore, I will recommend to my Council that Watertown furnish and install automated monitoring equipment at the 2 separate sites.

I was surprised, however, to learn from your letter that the Lake Pelican Water Project District is insisting that data be collected to quantify both sediment and phosphorus. It was my impression from the August 2 and October 5 meetings with Mr. Wick, Mr. Egge and Mr. Miller of the District that there seemed to be agreement that the parameter of concern was limited to sediment only. From Watertown's perspective, this conclusion would be consistent with the testimony and discussion at the May 25 Water Management Board flood control permit hearing as well as with the Board's direction found in paragraph 5 of their final decision referenced above.

The Water Management Board intended only for sediment to be monitored. That is not to say that other water quality parameters can not be monitored, but I'm sure you understand Watertown's concern that including additional parameters in the monitoring effort will require additional financial and human resources. Watertown suggests that financial participation by Lake Pelican Water Project District may be appropriate in light of the District's additional water quality monitoring needs.

In your letter you suggested that the parameters to be monitored include at least the following: total suspended solids, volatile suspended solids, total phosphorus, and total dissolved phosphorus. It is the recent addition of the total dissolved phosphorus parameter that raises a particular concern due to the need for immediate field filtering of the sample and the short 48-hour sample holding time. To meet the filtering requirement and sample holding time, the sample will have to be picked up and transported to a contract laboratory on a daily basis during those times when the gates of the Lake Kampeska Diversion Weir are open and the Big Sioux River is discharging into Lake Pelican. Watertown can not commit to this level of manpower and the potential financial exposure associated with daily sample analyses without financial participation on the part of Lake Pelican Water Project District.

I offer the following for your consideration, and that of Lake Pelican Water Project District, in an effort to find that middle ground that will allow the proposed project to move forward on a timely basis as well as meet the most primary water quality objectives of both organizations.

- Watertown will implement our previously proposed "Lake Kampeska Diversion Weir: A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, August 10, 2000". In addition, I appreciate your suggestion of monitoring volatile suspended solids and will incorporate this parameter into the monitoring effort at this upstream location. In brief and conceptual summary, this scope will include
  - Furnishing, installing, owning, operating and maintaining stationary automated sampling equipment with heating and cooling capabilities at a site on the Big Sioux River between Lake Kampeska and the urbanized areas of Watertown
  - Continuous time-based composite sampling during the open water periods of each year
  - Sample portions will be automatically collected 5 times each day of each 7-day composite sampling period
  - Sample pick-up and analysis frequency will be increased to daily 1 day before through the 3 days following the opening of the Lake Kampeska Diversion Weir gates
  - The samples will be picked up by Watertown's Wastewater Treatment Facility staff
  - The Watertown Wastewater Treatment Facility laboratory staff will analyze the samples for
    - ✓ total suspended solids
    - ✓ volatile suspended solids

- I propose that Watertown implement the following additional monitoring efforts at the fish notch of the Lake Pelican Diversion Weir in accordance with the suggestions contained in your December 18 letter (with the exception of monitoring total dissolved phosphorus). In brief and conceptual summary, this will include:
  - Furnishing, installing, owning, operating and maintaining stationary automated sampling equipment at the Lake Pelican Diversion Weir. Equipment capabilities will include
    - ✓ sensing of flow velocity, flow direction, and water stage (for computing flow area)
    - ✓ heating and/or cooling the sample for preservation purposes
    - ✓ flow-paced and/or time-based automatic sample collection
  - Flow-paced automatic composite sampling adjusted to match expected hydrograph conditions and sample holding times associated with the standard methods for determining concentrations of total suspended solids, volatile suspended solids, and total phosphorus
  - Sampling and analysis will only be conducted at times when flows from the Big Sioux River are entering Lake Pelican and the Lake Kampeska Diversion Weir gates are open.
  - Sample collection, pick-up, and analysis will be conducted on a composite daily basis from 1 day before to 3 days after the gates of the Lake Kampeska Diversion Weir are opened
  - Following the opening of the gates, sample collection, pick-up, and analysis during the extended periods during which the gates are open will coincide with the weekly frequency and schedule associated with the monitoring effort at the upstream location between Lake Kampeska and the urbanized areas of Watertown
  - Sample collection, pick-up, and analysis will continue at the Lake Pelican site for 1 day following the closure of the Lake Kampeska Diversion Weir gates
  - Samples will be picked up by Watertown's Wastewater Treatment Facility staff
  - Watertown's Wastewater Treatment Facility staff will send a representative sample portion to a qualified contract laboratory for the Total Phosphorus analysis at Watertown's cost
  - Watertown's Wastewater Treatment Facility laboratory staff will analyze the samples for
    - ✓ total suspended solids
    - ✓ volatile suspended solids

Thank you for your time, consideration and helpful suggestions in this matter. I look forward to hearing from you soon in this regard.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

STATE OF SOUTH DAKOTA)
:SS
COUNTY OF CODINGTON)

IN CIRCUIT COURT
THIRD JUDICIAL CIRCUIT

LAKE PELICAN WATER PROJECT DISTRICT,

Petitioner,

vs.

SOUTH DAKOTA
WATER MANAGEMENT BOARD,

Respondent.

CIVIL #00-233

APPEAL TRANSCRIPT OF HEARING ON FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN

BEFORE THE WATER MANAGEMENT BOARD
MR. RODNEY FREEMAN, JR., CHAIRMAN

Guest House Motor Inn
101 North Broadway Street
Watertown, South Dakota

May 25, 2000
8:30 A.M.

COPY

Prepared for:

Nancy McClanahan
Court Reporter/RPR,RMR

McCLANAHAN REPORTING
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P. O. Box 342
Watertown, SD 57201-0342

Page 2

APPEARANCES OF COUNSEL

MS. DIANNE BEST, Assistant Attorney General, 500 East Capitol Avenue, Pierre, South Dakota, 57501-5070, appearing on behalf of the Department of Environment and Natural Resources.

MR. JOHN P. GUHIN, Deputy Attorney General, 500 East Capitol Avenue, Pierre, South Dakota, 57501-5070, counsel for the Water Management Board.

MR. KEVIN J. KRULL, Foley Law Office, P. O. Box 845, Watertown, South Dakota, 57201-0845, appearing on behalf of the City of Watertown.

MR. JAY M. LEIBEL, Ericsson, Ericsson & Leibel, Attorneys at Law, P. O. Box 408, Madison, South Dakota, 57402, appearing on behalf of Lake Pelican Water Project District.

Page 3

PROCEEDINGS

THE CHAIRMAN: Well, I will call this morning the meeting, which is to consider a Flood Control Permit Application No. FC-29, City of Watertown, to order.

Diane, perhaps, you would like to give us a little introduction on how the department would like to proceed.

MS. BEST: Thank you. What I would like to do today is each of us lawyers would like to take a very short amount of time for an opening statement. Then the City of Watertown has to proceed first, and then the interveners, the Lake Pelican folks. And there are a couple of other interveners here as well. Then the State, or the DENR, would go last.

Having explained the order of presentation, with your indulgence, I would like to just go ahead and tell you -- Maybe you want Watertown to do their opening statement first since that's the order of presentation.

THE CHAIRMAN: All right. We'll begin it that way.

MS. BEST: But I have a few comments as well.

THE CHAIRMAN: Would the City like to proceed?

MR. KRULL: Thank you. My name is Kevin Krull. I'm the Deputy City Attorney for the City of Watertown. We are the Applicant in this proceeding. We've got a few things that we would like to present today. Our first speaker is going to be Rick Schlechter, who is the Operations Manager for the Public Works Department. He is going to kind of go

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over kind of a short history of where we've been and try to tell you where we're going, as far as the Watertown quality control in Watertown.

Then we're going to turn things over to our representatives from HDR Engineering. And they're going to kind of explain more specifics about the proposed project.

I've been instructed that this is normally kind of an informal hearing. We welcome questions. We want to make sure that there is no confusion about anything that's going on with this project. So we would hope that you would ask these questions whenever they come up.

I guess what I would like to say is that we have tried to be very open in this process. We've asked for as many comments as possible from all of the people that have questions. We've held meetings to meet with these folks to try to iron out any problems before today's hearing.

With that, I would like to introduce Mr. Rick Schlechter. Well, before I do that, did you want to have the other attorneys' opening statements first?

THE CHAIRMAN: I think we better have everybody's opening statement, and then we'll come back and start the testimony.

MR. KRULL: All right.

THE CHAIRMAN: If someone wishes to speak for Lake Pelican.

THE LEIBEL: Thank you. [illegible] an attorney from Madison, South Dakota. I'm here [illegible] of the Lake Pelican Water Project District.

First of all, we want to make it very, very clear that philosophically we do not disagree with the merits that a weir may have as pertains to the Watertown project. However, our position is that this particular board does not have sufficient information at this particular time to determine whether or not it is appropriate to issue the permit for construction of the particular weir requested in the application.

We believe through the testimony that will come out today through the various witnesses, including the State, that there are numerous concerns and issues which have yet to be addressed, as far as this particular application goes.

As indicated, there is going to be a history that will show you, from the State, a checkered past, for sediment control and water quality control in the lake since the 1920s.

Those concerns exist today. We believe that the information that will be presented today will indicate that there is not sufficient analysis of the flows.

There is inconsistencies in the return frequencies that have been specified in some of the data, which you have had available to the staff or which will be presented today.

There is limited or no discussions as to water quality as it pertains to Lake Kampeska.

It is insufficient in addressing the flight impact or flow impasse as may pertain to Lake Kampeska. And in addition, sediment load, water levels for the river, as well as the effects of this particular proposal being a dated weir may have on the entire river, Lake Kampeska, as well as downstream.

We believe that after that information is presented to you, that it will be consistent with the State's recommendations that there is insufficient data, information at this time, and that the Application should be deferred.

THE CHAIRMAN: Thank you. Are there other interveners who wish to make brief opening statement?

Then, Diane.

MS. BEST: Thank you. As the parties have indicated, the DENR's position with respect to this case is it's a flood control application. The DENR reviewed it. There were questions. The Chief engineers's recommendation is for deferral. And the process today is to answer some of those questions.

The application has been filed. It's a complete application [illegible] for hearing. It's been [illegible] notice. It's been reviewed by the Department. There were some additional questions and the deferral has been

recommended. As [illegible] "deferral," I don't mean we're recommending that [illegible] the line. I mean, today is the day, except that the recommendation will be deferred until some other testimony is presented, both by Watertown, as well as public interest testimony, and any testimony regarding the deferment. So I wanted to make that clear.

At this time, I would ask Brenda if you would hand out the Petitions to Intervene -- All three of the handouts, Brenda.

(DOCUMENTS HANDED TO BOARD MEMBERS.)

MS. BEST: The parties have agreed that we're going to hand out the Chief Engineer's recommendation, the report, and Petitions to Intervene, so you know from the get-go the basic position that the parties are taking. And so I am not going to go into a lengthy opening statement regarding what DENR's position is. The DENR's position is what the Chief Engineer has put in the recommendation.

I would point out at this time, though, and it's certainly been stated previously: this is a flood control application. And I'll just give you the legal standard for it. 46-2(A)-9 is the statute -- or excuse me, 46-2(A)-11. Wrong kind of case.

Flood control works. A permit may be issued only when it will reduce the damage from flooding or erosion in the

area proposed to be benefited when the project will not increase the likelihood or severity of flood damages in areas other than the project area; when the project will not endanger human life or property; and fourthly, when the project will not impair existing water rights. And then there is, of course, with flood control permits, the caveat at the end of the statute that applies. It says, in cases where there are impairments, if those rights had been extinguished through compensation agreements or eminent domain, why, then, the flood control permit can be approved.

And I know the board has been exposed to that before with regard to other flood control permits when people have agreed that flooding downstream can be subject to this compensation agreement.

Otherwise, that's the four-part standard, and that's why the order of presentation is the way it is. The DENR doesn't have a definite recommendation for you, just an overview about it at the beginning of the case. We're going to go last, because we're going to hear the evidence as well. So with that, unless you have some questions, we can get started. Thank you.

THE CHAIRMAN: Thank you, Diane. If there is [illegible] I think [illegible] with [illegible]

MR. [illegible]: Freeman, before we begin, I was just

wondering, we just about 10 or 15 minutes ago received a report from BARR Engineering, who has been hired by the Pelican Water District. And there are some concerns in here. And we would like to have the opportunity to respond to those. I guess this is just a procedural question.

But when our representatives are up there speaking, would it be okay if we go ahead and respond to these, or is there going to be a chance at the end of the hearing to maybe address those concerns?

THE CHAIRMAN: I would assume that you would have an opportunity for some rebuttal testimony.

MR. KRULL: Okay.

THE CHAIRMAN: Which would give you a better chance to go through that process.

MR. KRULL: Okay.

THE CHAIRMAN: But I would assume we would proceed the same as any other civil matter with case in chief, and subject to cross and then rebuttal.

MR. KRULL: Okay. Very well. Thank you. With that, then, I would like to introduce Mr. Rick Schlechter, who is our Public Works Operations Manager.

THE CHAIRMAN: I think I'll need to swear you in.

(WITNESS SWORN.)

THE CHAIRMAN: Would you spell your name for the court reporter, please?

THE WITNESS: My last name is Schlechter. S-C-H-L-E-C-H-T-E-R.

THE CHAIRMAN: Thank you. Go ahead.

RICHARD L. SCHLECHTER,

called as a witness herein, being first duly sworn,

testified as follows:

DIRECT TESTIMONY

MR. SCHLECHTER: It's my privilege this morning to not really cover the technical aspects of the project, but upon DENR's staff's recommendation, which we're going first, they thought it might be helpful if we at least talk about what county we're in, where the structures are going to go. That way we will have a reference point to start with from the start of this proceeding.

I would like to hand out some -- Are we calling these exhibits? -- that have been prepared. This is some maps, some digital photographs that I've taken, included in the packet for your reference, and use it if necessary throughout the day.

MR. KRULL: I guess we make the motion to admit that as an exhibit at this time.

THE CHAIRMAN: Any objection?

(CITY'S EXHIBIT 1 MARKED.)

THE CHAIRMAN: All right. We have City Exhibit 1, which has been offered. Are there any objections? Comments?

MS. BEST: The DENR stipulates.

MR. LEIBEL: Lake Pelican stipulates with the exception or understanding that this particular exhibit does have a couple photos of what is referred as to the Lake Pelican weir that we want to make it clear that for background, we have no objections for that information being provided to the Board. But that is not part of this application, not part of this particular hearing. That that was approved by this particular Board and constructed there approximately three years ago. And it's just for your background information.

THE CHAIRMAN: All right. We will accept City Exhibit No. 1. Please proceed.

MR. SCHLECHTER: Thank you. Again, my first order would be to welcome you to Watertown and to thank you for being here to discuss this flood control issue, Flood Control Permit No. FC-29.

My name is Rick Schlechter. I'm a registered engineer in the state of South Dakota, and I am employed by the City of Watertown under public works staff. I've been with Watertown since August of 1996.

Prior to that time, I was employed for approximately five years with the Department of Environment and Natural Resources in the Clean Lake Program and their Watershed Protection Program.

So I've had the opportunity to work with watershed and lake restoration and protection-type projects. My primary [illegible], however, was involved with the dredging program that they had at the time as a tool for restoration.

I would refer you to the exhibit that we just entered. Just as a means of providing some background as to where we're located. The first sheet, and if I were refer to those over there, is that going to be a problem, or do those have to be entered as well? Because they're about the same thing. So I can just refer to this.

This is merely a map of our watershed. It's just black and white. But it gives you relation of where Lake Kampeska is and where Lake Pelican is. The Big Sioux River, of course, starts up here in Roberts County. The head waters of our Big Sioux River are about 25 to 30 miles north of Lake Kampeska and the city proper, in the northwest part of Grant County, and an extreme southwest portion of Roberts County.

That area, depending on what reference you cite, would be somewhere between 520 to [illegible] square miles. So it's relatively a large watershed area. In acres, that's approximately 200,000 to [illegible] acres. Approximately 91 percent of that is of agricultural use.

Another resource that I would like to refer you to, of

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course, is Lake Kampeska, the subject of the issue in front of us today.

Lake Kampeska is a glacial lake by its origin. The surface area is approximately 4,800 acres. It is located completely within the City of Watertown. It's been assigned the beneficial uses of domestic water supply, which is an interesting fact and very important to the City of Watertown as we get between 30 and 40 percent of our drinking water supply from Lake Kampeska.

It also has assigned beneficial uses of warm water permanent fishlife propagation, limited contact recreation, and, of course, wildlife propagation and stock watering.

I would like to share with you the second page of that exhibit. Will indicate to you, in an overview, of our entire community, the location of the existing outlet control structure for Lake Kampeska. This just is provided for your reference only.

That is covered under an individual or a separate flood control permit, but you'll see where that is located. And I will, on the back of that map, is a digital photograph that was taken in March of this year. And that just is an indication of the extent of what that structure is for your information.

BOARD MEMBER BRINK: That's the Kampeska control structure there?

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There is a concrete spillway that directs the flow toward the east and further downstream of the river. And then there is a manmade canal that heads toward the southwest that directs a portion of the flow into Pelican lake.

Again, images of those two structures are included in that information packet.

This photograph is the bridge in the background, is the bridge over the Big Sioux River on Highway 212. And the concrete spillway, you can see the riffle and the step down, that is that structure. That actually controls the outlet elevation of Lake Pelican.

BOARD MEMBER BRINK: This is the diversion structure to the Sioux or to Pelican? The one you're --

MR. SCHLECHTER: This one goes downstream to the Sioux River.

BOARD MEMBER BRINK: Okay.

MR. SCHLECHTER: Downstream reaches of the Big Sioux River.

On the backside of that same sheet is a sheet pile structure, with an individual standing on top of it. It's got some riprap protecting the sheet pile. That is the diversion weir that was constructed in 1998, and as Mr. Leibel referenced that he actually took in this regard a few years ago, provided merely for your information.

BOARD MEMBER BRINK: That's the diversion to

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MR. SCHLECHTER: Yes. It's not even really a sheet pile. It's just steel sheets that are either embedded or driven into the stream bed, and you can see from that photograph that at the time that this photograph was taken, which was early March this year, there wasn't any flow going over it. It's in tough shape. And that's about all, I guess I would have to comment in that regard, just providing that background information.

The photographs also, and the maps indicate the location of Lake Pelican in relation to the city proper and Lake Kampeska. A portion of Lake Pelican is within our city limits.

Lake Pelican is also a glacial lake. And it is approximately 2,800 acres in surface area. There was a diversion constructed from the Big Sioux River into the lake in the 1930s. And if you, again, reference your photographs, you can see that the canal -- I'm sorry. I should back up. If I could, I would like to use the digital photograph for that to show you where we're at.

Okay. These are digital photographs that were taken in the National Aerial Photography Program. I believe the date of capture was August of 1991. This being the Big Sioux River, and Highway 212, for your reference. You can see the Big Sioux River crosses Highway 212 and then it makes kind of a "Y" right here on south side of Highway 212.

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Pelican.

MR. SCHLECHTER: Yes. And this -- Well, the diversion weir is constructed in the canal that leads to Lake Pelican. The canal, of course, is built, like I said, in the 1930s. This structure was implemented and constructed in 1998 in an attempt very much like the issue we're talking about today, with the proposed structure at Lake Kampeska, to minimize the amount of sediment that reaches Lake Pelican from the Big Sioux River.

Without getting into too much technical detail, I have included a little -- just a plan, layout, of the proposed structure. This is draft form. We haven't completed the design yet. I guess completed design would be a little bit premature at this point, not knowing what concerns that might come up today. But this is draft probably what we think it might be within 80 percent, anyway.

You can see that -- Watertown is proposing to construct this weir. And it is a passive weir system, in that once its capacity is exceeded, it really doesn't take any operation from humans to allow water to get into Lake Kampeska once the height of the Big Sioux River reaches the crest elevation. Really, for that occurrence to happen, there is no gates that need to be operated.

There are gates included in this weir. The purpose of the gates is to evacuate lake flood waters, especially at

those times when the lake level is above its normal or its normal outlet or flow elevation, and the lake is also higher than the water surface level of the Big Sioux River. At that time, we felt we needed a mechanism of evacuating those flood waters so that we aren't creating an artificially high water surface elevation in Lake Kampeska.

The gates also provide a method of fish passage under extremely dry conditions, and it also provides the opportunity for surface recharge of the lake under conditions of extremely low lake levels, again. That is important, once again, to the City of Watertown, because we do obtain a large portion of our drinking water supply from Lake Kampeska.

Another feature that will be discussed by our consultant is the fish notch for the passage of various fish species when the gates are entirely closed. And they'll discuss that as well.

The weir system that we're proposing is to reduce the amount of sediment entering Lake Kampeska from the Big Sioux River, much the same as the diversion weir in the canal to Pelican Lake.

Our proposal to construct this weir is in accordance with the recommendations contained in the January 1994 Lake Kampeska Diagnostic Feasibility Study. I'll leave that, the rest of the discussion on the project, the technical working of the project to our consultant, HDR Engineering.

bottom exceeding nine feet.

As far as sediment accumulation rates, a study performed by a Ms. Karen Day, who is a Watertown native and a biology student at North Dakota State University. Lead dating of the sediment was performed in one location only in Lake Kampeska. It was found that the first, and the top twenty centimeters of the sediment was approximately eight years old, which relates to a sedimentation rate of, at that location, 2.7 centimeters per year or about an inch a year. The sedimentation rate varies as you get deeper. It can vary from 0.95 centimeters per year up to a high of they found of 3.4 centimeters per year, depending on the drought condition, the flood condition, and those seem to have effect according to the authors of the paper on sedimentation rates.

The proposed project was recommended again in 1994 UP Study as a primary restoration activity, that there were also secondary restoration activities, but the authors of report, which are the staff of the Clean Lakes Program of the South Dakota Department of Environment and Natural Resources felt that a diversion project at the inlet/outlet of Lake Kampeska was important for the protection of the lake.

We see the benefit of diverting a given amount of water as a way to decrease or stop the inflows of both water and sediment. That technique is to be used only as a supplement, though, to implementation of conservation practices

This project is not new to Watertown, anyway. It might be to the Board. But this thing started back in -- well, documented, anyway, back in 1989, 1990, 1991. The winters of those years, the Lake Kampeska Chapter of the Isaac Walton took upon themselves because of their concern about the future of the lake, to get an idea of how bad the sediment problem was in the lake.

According to, again, once again, the January 1994 Lake Kampeska Diagnostic Feasibility Study, there is an estimated 51 million cubic yards of sediment in Lake Kampeska.

The way they measured the amount of sediment, the people said it was 300-foot grid, drill holes in the ice and push rebar until they hit the top of the sediment, take a measurement, push until they either ran out of rebar or they found refusal at the bottom of the lake and they recorded that, that depth of sediment.

They were using a 25-foot section of rebar. And they would push that rebar into the sediment as far as they could, or until they hit refusal at the bottom of the lake.

It was interesting to note that during that survey, there were 68 percent of the test holes they couldn't reach the bottom of the lake. So there is a lot of sediment that they were not able to measure with that technique. It's been concluded that 64 percent of the lake has sediment at the

throughout the Big Sioux River watershed.

And I mention that because it is this holistic comprehensive watershed approach to lake and watershed restoration that has been and continues to be implemented by the Upper Big Sioux River Advisory Board.

The advisory board is a collection of federal, state, and local governments and local land owners charged with implementing the grant dollars that Watertown area has been successful in receiving. We've received over $800,000 from EPA 319 grant for water quality improvements in our watershed. And when totally invested, will amount to about in leverage, a total of $2 million dollars in water quality improvements in the watershed. Currently, we're looking at extending that effort. We have $600,000 committed as of this date to go toward local matching of continued funding.

It was in these work plans, that EPA grant, that the funding for the Lake Pelican diversion weir were provided. $60,000 of EPA 319 funds went into the construction of that weir. Those work plans, also, contained planning dollars for the Lake Kampeska diversion plan.

I guess what I'm getting at is, the scope I'm trying to [illegible] the proposed project, the Lake Kampeska diversion weirs at this time, you know, especially since we have the diversion structure already in place at Lake Pelican, it just seems to make logical sense.

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THE CHAIRMAN: Mr. Leibel, do you have some questions?

MR. LEIBEL: Thank you, Mr. Freeman.

CROSS-EXAMINATION

By MR. LEIBEL:

Q. Mr. Schlechter, I understand that the issues are not only that this was submitted as flood control application, is that correct?

A. Yes.

Q. But it also has elements of water quality control?

A. Yes.

Q. And it also has elements of surface recharging and controlling the elevation and depth of Lake Kampeska?

A. A limited capability in that regard. The outlet control, the elevation of Lake Kampeska will continue to be controlled by that existing structure in the Big Sioux River.

Q. That was the reason for the gates, so you could control the elevation of the lake?

A. That will -- To a certain extent. And that will be discussed by our consultant, if you don't mind. There is an operating plan that goes along with the gates.

Q. Doesn't that, then, also potentially raise the issue of water rights and the allocation thereof with water?

A. I can't respond to that. I don't know the answer to that question.

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Q. But the intention is to in times of low water, to divert water from the Big Sioux into the lake.

A. That is correct.

Q. And that could impact on the water available for flowing down the river to those areas?

A. No, that's not correct. Under our operating conditions.

Q. And that operating plan doesn't indicate that the gates will open when the lake level falls 30 inches below its normal elevation?

A. That is correct.

Q. And I believe in some of the charts that indicates, then, that that flow could decrease going down the Big Sioux to approximately six cubic feet per second?

A. Downstream of Lake Kampeska?

Q. Yes.

A. When the Lake Kampeska is 30 inches below it's operating level, there will not be any flow going downstream. For example, the Watertown reaches of the Big Sioux River, they will not be flow in that reach of river.

MR. LEIBEL: Thank you. You've answered my question. I have no further questions.

BOARD MEMBER BRINK: What was that again?

MR. SCHLECHTER: What we were kind of getting at here is how this --

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BOARD MEMBER BRINK: Just exactly what was said before.

MR. SCHLECHTER: I don't know if I can.

BOARD MEMBER BRINK: I apologize for having you repeat it. Maybe the reporter can read it back.

(DISCUSSION OFF THE RECORD.)

THE CHAIRMAN: Ms. Best, do you have any questions?

MS. BEST: None. Thank you.

THE CHAIRMAN: Do any other interveners have questions?

Thank you, Mr. Schlechter. I appreciate it.

MR. SCHLECHTER: Thank you.

MR. LEIBEL: Excuse me, Mr. Freeman.

THE CHAIRMAN: Yes.

MR. LEIBEL: I neglected to ask one question.

FURTHER CROSS-EXAMINATION

By MR. LEIBEL:

Q. Again, this is just for background. I apologize to the Board and Mr. Schlechter. In regards to Exhibit No. 1, just for the Board's edification, would you agree that in general, what is shown on the first page of that exhibit, in essence, is what is encompassed in the Lake Pelican Water Project District, the vast majority of that area?

A. That would be an accurate statement. Everything except the immediate watersheds to Lake Kampeska and the

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immediate watershed to the Big Sioux River in Watertown. That's correct.

Q. So this area up here, except like you said for the immediate watersheds of Lake Kampeska and Watertown itself, are included in the Lake Pelican Water District.

A. As I understand it, yes.

MR. LEIBEL: Thank you.

THE CHAIRMAN: Thank you.

MR. KRULL: Mr. Freeman, our next presenter is Rick Niedergeses from HDR Engineering in Sioux Falls.

RICK NIEDERGESES,

called as a witness herein, being first duly sworn, testified as follows:

DIRECT TESTIMONY

MR. NIEDERGESES: My name is Rick Niedergeses. I am Vice-President of HDR Engineering. I've been with the company for 27 years. My role in this project is to provide as senior consultant and quality control. I also served as project engineer on the Lake Pelican Project and was involved in that project since its inception.

I would like to begin by regressing a little bit to what Rick Schlechter just dealt with, to make sure that we all understand all these weirs. I mean, we have been talking about these weirs for five, ten years, here. And there is four of them. And we need to understand exactly where they

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are. Would the Board like me to go into that a little more? Do you feel you understand where they all are?

THE CHAIRMAN: It would probably be helpful.

MR. NIEDERGESES: I see. We have, of course, this is a schematic of the system. All right. It's really rough. We have Lake Kampeska, and Lake Pelican; Watertown, of course, is in between. This center line, double lines, is intended to represent the Big Sioux River. There are two weirs on Lake Pelican. There is a weir right here, across the current mouth of the Pelican river. This weir is a concrete weir and it's shown in your exhibit as a photo.

That's a concrete weir. It's a WPA thing put in in the 1936, '24 year, I'm not exactly sure what the date is. But quite old.

MR. KRULL: Excuse me just for a second. Mr. Freeman, I guess we would move for that exhibit to be entered. The diagram that he is using.

THE CHAIRMAN: If you could bring it over and have the reporter mark it.

(CITY EXHIBIT 2 MARKED.)

THE CHAIRMAN: All right. We have offered City Exhibit 2. Is there any objections?

MR. LEIBEL: No objection.

THE CHAIRMAN: Then it will be received.

MR. NIEDERGESES: As I was saying, we have the Big

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Sioux River, and we have the Big Sioux River weir at Pelican.

Now when that weir was installed, a number of things went on down at Pelican that changed the situation. The natural outlet for Pelican is over here on the south side, and it flowed down and a channels through a field and back downstream and connected in here.

When they built that river in '30s or '20s or whatever it was, they changed and cut the new canal in at this point and constructed that weir. The difficulty with the problem down there is the low flows that occurred during the drought periods of the '30s they needed to pull water into the weir, into the lake. And this revised location gave them that opportunity to pull water in there.

The natural outlet still exists over here to the weir, or to the Lake Pelican. It simply is at a higher elevation than the control weir, the control structures there on Pelican.

And I don't remember the date, but when we evaluated and installed a weir acrossed here, which we call the Pelican weir, and the purpose of that weir is to maintain the low flows, flow by the channel, keep the low flows in the channel, and not allow the low flows to come into the lake. Study that was done in late '80s, early '90s, I don't remember the exact date on that, indicated that most of the sediments were coming into the lake due to the flood flows

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that occurred early in the spring and were tentatively low flows. It was the first flush off the land, brought in most of the sediment. So by eliminating the low flows, we can actually provide a benefit to the water quality.

That basically is the two weirs down there at Pelican. Now there is a picture of that Pelican weir we've included in for your information. Here it's the backside. And that weir has been in service for two seasons now. It's been completed fall of '98, I believe. So we've had two seasons of flooding going by there.

There is an existing weir, and I'm not sure the date that it was installed, but anyway, it's got a lot of history. It is the weir on the Big Sioux River just downstream of Lake Kampeska's inlet. That weir basically establishes the water surface elevation for Lake Kampeska. Those three weirs are in place.

The weir we're talking about today is the fourth weir, which we call the Lake Kampeska weir, which is located right here at "C." And it regulates flow in and out of Lake Kampeska. Its purpose primarily is for water quality. And it's the same philosophy as down at Pelican. It is to divert the low flows, keep the low flows in the channel, keep the velocity up, keep the sediment suspended and to keep that stuff moving in the river, not allow it to come into the lake and settle out in the lake. Are there any questions with

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respect the four weirs? Thank you.
Do you want to introduce each exhibit?
THE CHAIRMAN: Yes.
MR. NIEDERGESES: All right. Exhibit 3 for the City.
(CITY EXHIBIT 3 MARKED.)
THE CHAIRMAN: Would you identify Exhibit 3?
MR. NIEDERGESES: Yes, I will. Exhibit 3 is a plan view of the diversion site layout for the proposed Kampeska weir.
THE CHAIRMAN: We have offered Exhibit 3. Is there any objection?
MS. BEST: None.
MR. LEIBEL: No objection.
THE CHAIRMAN: Then Exhibit 3 will be accepted.
MR. NIEDERGESES: Back to Exhibit 1 and do a little orientation here. What we have here is Highway 20 as it goes out of Kampeska. Kampeska is down on the lower end here. The orientation is slightly skewed. If you look at this drawing, Exhibit 2, this is located right across "C," across the mouth of the river. The Sioux River is located above the top of this view. Flows down right here. And the Sioux River weir is located right here, above and off the chart.
This shows a picture of the basic site plan right at the Kampeska opening. We got some things happening there. We

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got the highway bridge coming across and it's fairly high, high structure. Adjacent to that is an old railroad structure which is now a pedestrian bridge, pedestrian walkway that goes across the system. There is a number of back water areas and open pool area just off to the north. It's actually to the northeast of the particular site.
This shows a long, circular weir that's located just upstream of these two structures. The purpose of that, this weir is a, provides 330 lineal feet of weir, and a gate structure for a total structure lake of 354 lineal feet.
The reason this weir is so long is because one of the chief objectives of our design is to create a weir which blocks out all the low flows and, yet, allows the water flow in the Sioux River at higher flows to identically match the day's conditions. So with the higher flows, the 100-year flow, for example, the extra length provided on this weir provides a situation so this weir basically is overtopped, it floods, and it acts like an old fort on the bottom of the channel. Basically the water just flows right over the top of it. And then the control that really acts with the flooding characteristics in and out is actually diverted back here. That's why this weir is so very low. It's only five inches above the normal water surface elevation.
We elevated the flow splits in the river, as they split between the Big Sioux and the Kampeska, and have sized this

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weir such that for larger flows, it's virtually identical. There is no change in the flow situation, the flows reach downstream for those higher flows. So we are simply looking at the low flows. I would deal with that a little more in a minute here.
Just some basic information on this weir. It has a top crest of 1718.2 again, that's five inches above the normal water surface elevation. Normal water surface elevation of Lake Kampeska is at 1717.8. That water surface elevation is controlled by ordinance and it's controlled by the Big Sioux River weir.
Currently, that Big Sioux River weir is in dilapidating condition. And that's is going to be repaired, and there is going to be some modifications of that, but that's not an issue now, so pretty much.
Is there any questions with respect to the plan layout of the proposed weir?
THE CHAIRMAN: No.
MR. NIEDERGESES: I would like to now introduce Exhibit 4.
(CITY EXHIBIT 4 MARKED.)
MR. NIEDERGESES: Exhibit 4 is an elevation view of the proposed weir, and the fish opening structure.
THE CHAIRMAN: All right. We have offered Exhibit 4. Are there any objections?

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(NO OBJECTIONS VERBALIZED.)
THE CHAIRMAN: Then we will accept Exhibit 4.
MR. NIEDERGESES: Okay. This is exhibit on the top shows the combination of the long weir. As I mentioned, that 330 lineal feet. And that's a combination of both sides of the gate. And it shows the gate structure and at a very high, actually above the elevation of the road. Access to the gate structure, so we can get somebody out here and operate the gate. The gates will be manually operated.
From down below this, you see the fish notch. The actual location of the fish notch weir has not been set exactly in the weir linearly. It will be coordinated with the Fish and Game people such that it provides the best access and use for fish. But basically, the fish notch weir is going to be a three by three structure. It has a bottom elevation of 1715. And, of course, the top of the notch is at 1718.2.
We're proposing two slough skates. These slough skates are going to be 7 by 8 foot slough skates. They're cast iron heavyduty slough skates. They will have a bottom elevation of 1711.2. And basically, they have multi-purposes, which Rick has indicated before, and I'll read to you in a second here what the exact operating procedures are going to be.
Are there any questions with respect to this figure?
Okay. I would like to introduce figure five.

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(CITY EXHIBIT 5 MARKED.)
MR. NIEDERGESES: Exhibit 5 is a weir section view of the proposed weir.
THE CHAIRMAN: Any objection to Exhibit 5?
MR. LEIBEL: None.
MS. BEST: None.
THE CHAIRMAN: Exhibit 5 will be received.
MR. NIEDERGESES: This exhibit shows how we're going to construct the weir. This is the bottom of the lake here. The weir will be composed out the sheet piles, which will be driven into the lake bed. And then on the bottom of the lake we will put down a crush rock bedding and a riprap base on either side of the proposed weir.
The function of the riprap is twofold. One is to provide some protection from ice and ice forces on the weir itself; and to also, when the weir is functioning, to pad and buffer the flow of the water so the water, the energy of the water is broken, and we create less turbulence in the lake and less problems with sedimentation.
The top of the weir will have a channel cap on it so it will be flat. This is a design that's identical to the Lake Pelican weir.
Let's go back now to Exhibit 4. Exhibit 4 shows the gate structure. And I would like to read to you the proposed operation of the gate. And as I understand it, this

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operation scenario will be incorporated in the permit as part of the permit requirements. This is what we're proposing.
During initial flooding, or after a flood event on the river occurs -- or it's during internal flooding, or after a flood event on the river occurs, and the lake level is above the stage in the river, and the lake level is above its normal elevation, 1717.8, these are when the gates can be opened. Or during a drought period when the lake level falls to 30 inches below the normal elevation. And this is an elevation that's 1715.2. Normally, the gates will be closed. These are when they are opened.
What are the purposes of each one of these elements? Okay. During the initial flooding, or after a flood event has occurred. Okay, internal flooding. If we have a major flood event on the lake basin, and no flooding on the Sioux, the Sioux is low, we have high water. One of the purposes of the weir is to get the water out as quickly as we possibly can. Remember that this elevation, the weir very low and it has little effect on high flows. So from a high-flow standpoint, we can wash the floods out and basically the operation of the Sioux is identical. But in the condition where we have low water in the Sioux River and a lot of water in Lake Kampeska, we are going to get that water out as quickly as possible to eliminate flooding and avoid flooding and the duration of the high water in Lake Kampeska. By

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including the gate an opening the gate, basically we can get this water out in the channel. Okay?
After a major flood event on both the Sioux, say, for example, we don't have the big flood here, or we have an area wide event, and we have the high elevations on the Sioux and in Lake Kampeska, then we have a situation where the water would drop in the Sioux, then we would want to open the gate to allow that water to stabilize back into the Sioux River.
Finally, during a drought period, and that responds to the question that was brought up earlier. During a drought period, the level in the lake is being set, as we said before, by the elevation of the Sioux River. And if there is any water in the Sioux, it's going to fill up to a particular elevation. Actually the elevation of the Sioux River weir, which is going to be 1717.8. Is that correct, Jerry?
UNIDENTIFIED SPEAKER: Yes.
MR. NIEDERGESES: Okay. So the drought area, in order to have Lake Kampeska be lower and to open this for lower level that pretty much has to assume that there is minimal water not going over, not going over the weir. And the only water available would be local water and to allow that local water to get into the lake. So that's when we would open the lake for low flow. The answer to his question was, no, that gate regulates the level. The gate does not regulate the level of the water for low flow period in the

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lake. That regulation is done by the Sioux River weir, which is a fixed weir. All that does is permits water to come into the lake from the low areas. Okay.
The gate closed scenario. Normally the gates are closed. Okay. Or when the lake reaches a normal level during draining operation, so the gates, if the gates are open, they become closed when the lakes reach the normal elevation, when they're draining it. Or when the filling during the drought period, the gate is closed when the lake level is 24 inches below the normal level, or at 1715.8.
BOARD MEMBER BRINK: Do you have copies of that you can distribute to the Board?
MR. NIEDERGESES: All of this has been provided to DENR.
BOARD MEMBER BRINK: All the parties have it?
MR. NIEDERGESES: To DENR in response to their letter, and I understand it has not been distributed to the Board?
UNIDENTIFIED SPEAKER: No.
MR. NIEDERGESES: It has been distributed to the Board. You have this.
THE CHAIRMAN: Is this something that we already have?
MR. LEIBEL: If you have what is called the Amendment to Executive Summary for Technical Memorandum

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No. 1, it's included in there.

MS. BEST: Excuse me, if I may. We did not hand out that executive summary. But the operating criteria are set forth. Gale has restated those in his report, and you do have a copy that report at page 2.

BOARD MEMBER BRINK: Okay. Page 2. Okay. I got it.

MR. NIEDERGESES: If I may, our under testimony I have to go through and all this. Generally, the gates are always closed, except for a couple of situations. When you have flooding in Lake Kampeska, we want to get that water out as quickly as possible, the gates may be opened. If the water is very low, in both river and in Kampeska, and you want to get water in, for example, you know, when you have a flood event and the lake is low, we want to encourage the water in there. The level on the lake is still set by the Sioux River, but if we want to get as much water into it as quickly as possible, then the gates can be open. Remember, that's also the City's water supply.

Okay. And the final issue with respect to gate operation, the gate will be operated by the Watertown Municipal Utilities Department. And they will be the only authorized operator.

Are there any questions with respect to the operation?

THE CHAIRMAN: We will do all of the

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cross-examination at one time.

MR. NIEDERGESES: Okay. All right. Well, that's the end of my presentation that I wanted to give you as far as the physical aspects of the weir itself. Now I would like to go into some of the operational aspects that I alluded to before. And I'm going to have another exhibit. And this is going to be six now.

(CITY EXHIBIT 6 MARKED.)

MR. NIEDERGESES: Figure 6 is entitled the Big Sioux River Discharge Frequency Relationship Between Pelican Lake and Lake Kampeska.

THE CHAIRMAN: Any objection to Exhibit 6?

MR. LEIBEL: None.

THE CHAIRMAN: Six will be received.

MR. NIEDERGESES: All right. What this figure shows is on the horizontal access, we have a recurrence interval in years. And these are standard years of recurrence. One-year storm up through a six-year storm. And they show the frequency. That's the return frequency. So it would be six-year. And ten-year and a hundred are out of it. So we just want to show the areas of impact of the flows by the year.

This vertical axis shows the flows into the lake in CFS. What this figure shows is that we get our maximum difference between flows in the Big Sioux River and in Pelican -- I'm

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sorry, and in Lake Kampeska at about two years. The upper line here -- Is that right? The lower, the red line, is the pre-project flow. So the response of the water in recurrence shows what the flows would be for a 2-year storm. And this shows that we would have a 2-year storm flow in the Big Sioux River of 530 CFS, or 2-year storm. And that's the highest impact.

When we install the weir, we will move that line up, basically, and have a 657 CFS flows in the river. So for the low flows, the 2-year flow, we will be increasing the amount of water that flows down the river. And that will be for all events in that area.

Now 2-year flow is generally considered somewhere around a medium and a maximum flow. So if you get that, that's your average peak flow. This figure also shows that at four, at a return period of four, the difference is reduced to 25 CFS. And that by the time we get to a six, the weir basically has no effect at all, that we have the before and after weir is installed, there is going to be 1,200 CFS in the channel. And that's a feature that basically happens because at that level the weir is drowned and the flow over the top of the weir is the same as if the flow would have been, had the weir not been constructed. So basically, the weir disappears right here.

BOARD MEMBER ROLLAG: How many years have been

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analyzed of the rainfall, do you know?

MR. NIEDERGESES: The rainfall of record?

BOARD MEMBER ROLLAG: Yes.

UNIDENTIFIED SPEAKER: How many years as far as which? I don't understand the question.

MR. NIEDERGESES: What was the duration, what period of record was used to establish the frequency?

UNIDENTIFIED SPEAKER: That frequency is what was established by the Corps in their study. By the name, I'm going to use these two guys. If these two people are going to be involved in my presentation, do I want to swear them in now?

THE CHAIRMAN: Well, I think we've got to finish with you.

MR. NIEDERGESES: I had planned to have them come up and down during my presentation. Do we want --

THE CHAIRMAN: Well, I don't have any problem with it, but that depends entirely on the discretion of Mr. Leibel.

MR. LEIBEL: I would object to that simply for the mechanics of it. As far as testimony, questioning, keeping a valid record.

THE CHAIRMAN: Well, and I think that is probably true. So I think you're going to have to testify subject to cross-examination.

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MR. NIEDERGESES: All right.
THE CHAIRMAN: And then if the City wants to supplement it, we'll do it that way.
BOARD MEMBER ROLLAG: That could be answered later, as far as I'm concerned.
MR. NIEDERGESES: Can I go and ask the number?
THE CHAIRMAN: Sure.
MR. NIEDERGESES: He knows the number. And I don't remember it.
THE CHAIRMAN: Sure.
MR. NIEDERGESES: The base line was established based on the Corps of Engineers' evaluation of the stream, and that was done in the later part of the '80s, devised again in about '93. Statistically speaking, in order to have a very sound estimate of a hundreds years, we would need 26 years of data. We have well in excess of 26 years of data.
BOARD MEMBER ROLLAG: That's what I wanted to know.
MR. NIEDERGESES: So from a standpoint of a 2- and a 6-year, extremely solid data. We have lots of data. And we're going to put this in perspective now. I will have the next exhibit marked.
(CITY EXHIBIT 7 MARKED.)
MR. NIEDERGESES: Exhibit 7 is essentially the same exhibit, except that the reoccurrence interval is extended to

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the 100 years.
THE CHAIRMAN: Any objection to Exhibit 7?
Hearing none, that will be received.
A. Basically what we're doing is we're showing the impact of the weir on the total spectrum of zero to a 100-year flow, so you can see what, how that impacts the flooding situation. And this slide speaks for itself, but for the record, the impact of the zero to six is quite small in relationship to the total 100-year flows. The impact of the weir basically diminishes at approximately the thousand CFS point, whereas the 100-year flow is in excess of the 4,000 CFS.
BOARD MEMBER BRINK: Those extrapolations are beyond the period of data that you have of record. You got 26 years or 50 years in the record?
MR. NIEDERGESES: Oh, no, we probably have --
BOARD MEMBER BRINK: Okay.
MR. NIEDERGESES: The rainfall record is extremely long. They start back in the 1800s. Gauges that were used -- And the Corps when they did their evaluation, didn't just do it at this location. They did it up and downstream, so they balanced it out several gauges. So they have quite a few gauges. So I think it's a very solid data. I counted on 27. It only requires 27 years of records to get a strong, level of significance for a 100-year frequency.

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All right. We've prepared our preliminary study and presented that to the department staff, DENR. And they came back with five items in a letter to us. We responded to those five items.
The first item is basically a summary of the statistics of the project. And it's not a question that needed to be resolved.
The second item, and I'm going to paraphrase it, basically, that flood easements will need to be obtained for property where the 2- and the 10-year events exceed channel capacity.
We evaluated the project and went back on a section by section look at the flows for the 2- and the 10-year and found that there are three locations that have any measurable amount of flow that's not properly in the channel. The existing channel, of the two and ten. And of those locations, all three are currently on city property. Okay?
The second issue was reducing flow capacity of the inlet/outlet channel with the weir and the gates, could cause wave damage by holding lake levels higher for a longer period of time. Okay? And that is essentially what I alluded to earlier, saying that we want to have the gate. The purpose of the gate is to reduce this duration of time that we could expose anyone in the lake to flooding damages.
Some general facts, though, need to be understood here.

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The Corps of Engineers did a report on the State's wind/wave action on Lake Kampeska. And their flood stages basically determined that at an elevation of 1719, that and below, they found that there were no measurable concerns with respect to wave action on the lake. Basically, at 1719 and below, wave action is not an issue. 1719 and above. The top of the weir is basically eight-tenths of a foot below the 1719 elevation. At that elevation, the weir is submerged. And as I testified earlier, when the weir is submerged, it is designed to act identically to the flow conditions in and out of the area, had it not been built. So basically, when the weir becomes submerged at the 1719 elevation, it's no longer an issue. The weir is not functioning.
However, we did some additional analysis. Basically, the capacity of the open gate and weir exceeds the capacity of the Big Sioux weir. That is, and if I go back to my Exhibit 4, when we open these gates, the combined flow over the top of the weir and through the gate exceeds the control that's happening over here on the river, anyway. So, basically, it's operating again at a condition before the weir was first constructed.
I have some other interesting statistics about that. The storage volume in the lake from 1717.8, which is the normal lake elevation, is approximately 5,760 acre-feet. The volume of the 24-hour, 500-year storm is less than that.

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It's only 5,100, or 5,031 acre-feet. So the volume of the 100-year storm is less than the fill. So we're talking about a major event that goes above that. The storage volume in the lake from the top of the weir, 1718.2, to the 100-year event, that 100-year event was only 3,136 acre-feet. So that event, also, is buried beneath the top of the weir.

All right. I believe I'm up to my -- The next point that the State brought up had to do with the sediment effects on Lake Pelican. And for that I'm going to have Al Erickson step up after I'm done and address that issue. And the final issue that the State brought up, had to do with the amendment of the Executive Summary, attempted to address the internal flooding for what's basically is 28.8 square-mile-range area, disregarding the flow contributions of the Big Sioux.

In the summary I used a 24-hour period of inflows and outflows for the lake. And the State was saying there should be a reservoir routing evaluation for other frequencies to determine the impacts on the Lake Kampeska water elevation. And from subsequent talks to that, we discovered that their interest was actually at a slightly lower elevation, and the less frequent flows between zero and 25-year events and what happened there.

What that means is when we did our analysis, we made some simplifying assumptions. Engineers always do that. We assume that the river, the Big Sioux River was flowing at its

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normal water surface elevation, when we evaluated what the flooding situation was in the lake. And what they said is, well, what happens if the river is not at, it's varying and it's higher, which would be a good incident flow evaluation.

Our original estimation was that when you look at the ratios of the various basins, you basically get a 17.7 to 1 ratio of the overall basin to this basin. And we were assuming that the kind of a storm that occurred on the 17. large basin, and the kind that it did on the small were not mutually inclusive events, that they were exclusive, so that when we did have flooding on Lake Kampeska we didn't need to worry about that.

But to satisfy the State, basically what we did is we re-evaluated the low flows. We evaluated a 2-, 5-, 10-, and a 25-year storm and defined what the impact of those various events are, and they are as follows: For a 2-year storm, we had an increase in water surface elevation. If we have a 2-year storm in the Sioux, now, and by our storm, we have a three-hundredths of a foot rise in the lake for a duration of 32 hours.

A 5-year storm gave us a five-hundredths of a foot rise in the lake for a duration of 60 hours. And a 10-year storm gave us an eight-hundredths of a foot rise in the lake for 73 hours. Finally, for a 25-year event, we got eleven-hundredths of a foot rise for 75 hours. And we have

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subsequently submitted that data to DENR.

With respect to the water quality issues that Al is going to bring up, that was the end of the DENR's comments.

We did have one other comment from the Games-Fish. We had been working from day one, when we did the design, with the Pelican weir. We contacted DENR and began working with them on fish requirements and we used that data and information on this study. And we had contacted them on several occasions during the study.

The issue with respect to the fish weir, it's principally during the mating season, that there are some species that need access to the river during the early periods of the first flush, run-off from the first, first run-off, the snow melt run-off. And that occurs in the March to, say, June era, depending on the different species. The concerns that we do have adequate opportunity for fish to get to and from the lake.

Basically, what we did is we included a fish notch here which is very similar to the one that was installed down at Pelican. This fish notch, as I indicated earlier, we have not located it exactly. We're going to be moving around to find the ideal location for that. Basically what that does is that provides an opportunity for the fish to get through, with some loss in efficiency to the structure from the water quality standpoint. It is designed to have a certain low

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velocity so that at various flows, fish can be passed through this. Well, different fish can pass it at different times. One of the issues that Game and Parks asked us to resolve is during what period of time can each of the different species pass through the gate.

And we evaluated that and for the record, during the period of March, April, May, and June. Northern Pike can transfer through here 96 percent of the time. Walleyes, 30 centimeters and larger can pass through 79 percent of the time. Walleyes 20 centimeters, up to 20 centimeters -- I'm sorry, the previous one was up to 30 centimeters. Up to 20 centimeters walleye would pass through at 69 percent. Trout-perch, 70 percent. Yellow perch, 65 percent. Small mouth bass, 48 percent. And 33 percent for channel catfish. I thank you for your patience.

BOARD MEMBER BRINK: At what point in time, what frequency, return interval would you say the Big Sioux goes into flood stage at the inlet/outlet of the ...

MR. NIEDERGESES: Okay. Depending on the flood stage. In the early elements of the preliminary planning when we were back working for both, we looked at the 10-year frequency. And at a 10-year frequency, that was an elevation that the Corps looked at for preliminary passage through. Total flow, that's about 3100 CFS, and there is a split 1,500 CFS and 1,600 CFS, which, I believe, is 1,600 passing down

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the Big Sioux channel. That caused some minor channel -- minor where water left the channel throughout Watertown. And the preliminary proposal we originally planned these weirs, we were going to pass the whole 1,600 CFS. And we were looking at that time at about four or five locations where we would put some short berms in. From memory, those areas consisted of some minor backyard areas, and there was only one area that included structures. And those were garages.

BOARD MEMBER BRINK: But you're saying that after the fifth or sixth recurrence, it doesn't make any difference?

MR. NIEDERGESES: No.

BOARD MEMBER BRINK: And I'm asking the same thing again, from the upstream end of it. At what stages -- I think you probably already answered it. Certainly, it's beyond a six-year recurrence interval.

THE WITNESS: We had some at ten. We found, yeah, evaluation for the project at ten, only showed the four locations where it jumped out of the section. So for the six, basically, that is. The only reason you can't say it stays in the channel is because some places it's harder to find where the channel bank and bed actually begin and end. There are some locations where there is no clear shoreline on that particular side of the channel, so sometimes it just kind of goes out a little bit farther.

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BOARD MEMBER BRINK: I guess. Flooding as far as going over roads would not occur before the ten-year interval?

MR. NIEDERGESES: Yes.

THE CHAIRMAN: Mr. Leibel.

MR. LEIBEL: Thank you.

CROSS-EXAMINATION

By MR. LEIBEL:

Q. Repetitive reference has been made to the Lake Pelican weir. In just putting in perspective, I would like to for a moment compare and contrast that particular weir, and the one that is proposed under the permit.

Am I correct in assuming that the length of the Lake Pelican weir appears to be 50, 60 feet?

A. No.

Q. How long is it?

A. The Lake Pelican Weir is actually a two-stage weir. The one that is referring to is the one that is listed in the picture on exhibit --

THE CHAIRMAN: One.

A. One. Where the young man appears to be standing on it?

Q. Uh-huh (Yes). How long is that particular weir?

A. That particular portion is six feet, but there is two elements to the weir. That weir --

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Q. This is the one, though, that controls what is going into Lake Pelican?

A. Right. But there is two elements to that weir. No, same weir. It's the same weir.

Q. Okay.

A. All right. The weir is designed almost identical to the Kampeska weir, in that there is a channel passage area, which you're seeing there. And there is another 280 feet of weir. This weir brought up to the bank elevation. If you walk out there on the bank, you'll find a piece of concrete about that wide on top of the ground. And what that concrete is is it's a cut-off weir that's put in the ground that's flushed with the ground. So the length of that weir, across the park area, is also a part, an integral part of the weir.

Q. The channel here is approximately 60 feet wide.

A. Correct.

Q. The length of the weir that is proposed for Lake Kampeska, I believe, is 330 feet long.

A. Right.

Q. Will there be any going out beyond that?

A. Any flow?

Q. No, any part of the structure.

A. No. But the ground outside of that also functions as a weir similarly to the --

Q. So in essence, we are talking somewhat apples to

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apples here. We're talking 330 versus 60 feet?

A. Pretty much.

Q. Now the particular weir that's for Pelican, is that considered an uncontrolled weir?

A. Yes.

Q. By "uncontrolled weir" I mean that it's fixed. Nobody can mess with it.

A. That's correct.

Q. I believe that when that application was issued, the jurisdiction remained within the state.

A. That's beyond my purview to answer that.

Q. I believe in the State's letter to you dated April 4, when they raised their concerns, that statement was in their particular letter. Do you recall that?

A. I don't recall that.

Q. Okay. Now the particular one that you're proposing for Lake Kampeska, I understand that that would be considered a controlled weir? In other words, that through the operation of the gates, the flow can be changed.

A. Yes.

Q. And the proposal under the application is that authority will be within the City of Watertown.

A. State that question again, please.

Q. That the City of Watertown will control that flow.

A. In accordance, the City of Watertown will control

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the flow in and out of lake in accordance with the permit requirements.
Q. Okay. So it will be controlled by the City and not by the State. Is that correct?
A. I don't know if I can answer that.
Q. Okay. You indicated --
A. If the State dictates what the requirements are, and the City operates the gate, who is controlling the gate?
Q. The requirements that the City is suggesting are those that are repeated in the department letter to the water board. Reference is made to those earlier in your testimony. Is what I think was referred to as the project operation.
A. Project operation parameters as defined in the project, yes.
Q. And that, I believe, was on page 2 of Mr. Selken's report or letter to the Board. This is the ones where you talked about the open gate, closed gate.
A. This letter of April 20, our letter to Mr. Selken, do you want that?
Q. I believe it's in his letter of --
A. April 4.
Q. Of April 4.
A. Okay.
Q. Isn't that just a repeat of the project operations set forth on page 2 of the Amendment and Executive Summary

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for Technical Memorandum No. 1?
A. Well, not having to go through to compare, if you say they are, are they?
Q. I ask you to examine the technical memorandum.
A. Yes, they are a repeat.
Q. And that technical memorandum was prepared by your agency, your organization?
A. Yes.
Q. Does this particular proposed operation plan address anything about time as to when gates will either be opened or closed?
A. I think that depends on your definition of time. It states when conditions exist in the river, when appropriate action should be taken, so that the time that it is open or closed is dictated by the condition of the river or the lake.
Q. So the controlling factor is the elevation of the river or the elevation of the lake?
A. That is correct.
Q. It does not take into consideration what events may or may not be going on up above Lake Kampeska and the Big Sioux River basin or below.
A. In a sense what's going on up above affects the elevation in the two lakes, yes, it does.
Q. Other than that?
A. No.

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Q. In essence, this particular structure is designed to maintain the elevation of Lake Kampeska within certain parameters. Certain elevations.
A. This structure is designed to maintain the elevations in Lake Kampeska as closely as possible to the existing conditions before the weir was built.
Q. That is referred to as normal elevations and normal level?
A. That's right.
Q. 1717.8?
A. Yes.
Q. So in essence, if the lake is at 1717.8, and the levels of a river are below that, the gate would remain closed.
A. Up until the parameters of the depth below that have been established, yes.
Q. Until it falls down to 1715.2.
A. Correct.
Q. Basically, if it goes above 1717.8, then, at that point, any waters running down the river will continue and go down to the river until such time as it got above the elevation of the weir.
A. You need to rephrase that, because you didn't identify what was causing what. Restate that question, please.

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Q. What is going to be the top elevation of the Lake Kampeska weir?
A. The top elevation of the Lake Kampeska weir is at 1718.2.
Q. So as long as the water elevation in the Big Sioux is below 1718.2, no water will flow into Lake Kampeska?
A. That is correct.
Q. It's only --
A. Well, no. Fish weir.
Q. Other than the fish weir.
A. Okay.
Q. As this is a three by three foot opening, total cubic feet per second that will be going through that in normal situations can be fairly insignificant, would you not agree?
A. I think that the flow through the fish weir can be assumed insignificant, yes.
Q. Now in regards to your exhibits, I refer you back to, I believe, Exhibits 6 and 7.
A. Do you want both, or do we simply need six?
Q. Let's start with six. Now I believe that study is based upon peak discharge.
A. Well, in terms of a 2-year flow, yes.
Q. And in terms of a 4-year flow, it's based on peak?
A. And also based on the peak flows, right. But if you

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will, though --
Q. Well, if I may, sir.
A. Okay.
Q. Did you do a study that indicated what it would be during normal flow or average flow?
A. In essence, they are the same.
Q. Was a chart or an exhibit prepared to that nature?
A. Actually, he's leading me. I don't want to -- May I ask you a question?
THE CHAIRMAN: No. He is permitted to lead on cross-examination.
MR. NIEDERGESES: Yes.
THE CHAIRMAN: You need to answer his questions as best you can. If you can't, you can simply say, "I'm sorry, I can't answer that."
MR. NIEDERGESES: Okay.
A. Would you please state the question?
Q. Did you prepare an exhibit for normal flow?
A. This is for both peak flow and normal flow.
Q. Does it indicate that on that particular document?
A. What this graph shows, this is a staged curve. So these flows relate to a stage on the river. So if it's good for an elevation, one elevation, it applies to all other elevations. So a peak flow of two years, during a 2-year flow, you can hit a peak at one time. But through the entire

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duration of the 2-year storm, that same condition can exist.
Q. Your lines, though, show peak flow; correct?
A. Yes. Yes. We used peak flow on this, yes.
Q. And I believe you did the same on No. 7.
A. Yes, we did.
Q. In essence, all of your data that was reported in the technical memorandum, as well as the prior reports were principally based upon peak flow?
A. We stated peak flow, but were the same rates that the flow also applies. Same condition applies to the same flow.
Q. That's the assumption that you made.
A. We did not -- When you design a water quality weir --
Q. My question, sir, was --
A. -- we're not interested in peak flow. You're interested in long-term flow duration. And what the frequency does is the frequency simply --
Q. Sir, just thank you. I appreciate, you know, your explanation. You'll have an opportunity, if there is something that you want to add at a later point. But what you presented is peak discharge; correct?
A. Yes.
Q. There is no documentation as to low flow?
A. We have looked at all flows. There is no

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documentation in this because it wasn't brought up as an issue. This doesn't address the low flow.
Q. Please, just answer my question, sir. What is meant by sediment loading?
A. Okay. Sediment loading, I did not respond to in my response. Al Erickson is going to respond to that issue in a minute.
Q. Your response is simply in the area of flow?
A. Yes.
Q. Would you agree that rate of flow is one of the elements, though, in sediment loading?
A. Yes.
Q. Would it be accurate to say that the information that you received from the data from the downstream was basically received from the Army Corps of Engineers' data?
A. Which information?
Q. I think reference was made to the engineers or the Corps' report in 1994.
A. We used the Corps of Engineers' 1994 model as the basis for this model, however, we augmented that with additional cross-sections to give us better accuracy.
Q. I believe the State has some concerns as to whether or not sufficient cross-sections were used.
A. In the 1994 thing that was brought up, that's why we added additional sections at this time.

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Q. And I believe those cross-sections were, if I remember correctly, approximately five miles apart; was that correct?
A. No. No. The sections of the model we used, they were maximum of a thousand feet apart, and we submitted, looked at closer spacings up around the weir for analysis there.
Q. Are you aware that in the last few weeks the Corps has announced that some of the conclusions that they reached in 1994 needed to be altered because of their evaluation of the 1997 event in Watertown?
A. Yes, I am.
Q. And I believe your data and your testing was based upon their 1994 data?
A. Yes, it was.
Q. On the updated material.
A. Yes.
Q. So therefore, some of the assumptions that were used by the Corps have proven to be maybe not wrong, but not completely correct.
A. I don't know if any of those changes are germane to this study.
Q. So the question then remains as to whether or not the assumptions that you have used from the Corps may or may not have been correct.

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A. I think that the assumptions that we used from the Corps, being that it was a primary hydraulic model, that those assumptions are all solid.
Q. Even though they have changed some of the data since that date?
A. I think their data did not relate to the hydraulic model. I believe it had to do with hydrology.
Q. Okay. Can you say that with absolute certainty?
A. No, sir, I cannot.
Q. Would you agree that a number of attempts have been made to control the flow of waters in and out of Lake Kampeska since the '20s?
A. Yes.
Q. Would you also agree that some of those attempts probably contributed or accelerated the rate of deposit of sediment within the lake?
A. I didn't study that.
Q. I was told years ago that Kampeska in the Sioux language stands for shining rocks. Have you ever heard that?
A. No.
Q. Is it fair to assume that sediment now covers the entire bottom, if you would, of Lake Kampeska?
A. I have not looked at the entire bottom of Lake Kampeska. I have not looked at that as far as water

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quality issue.
Q. You would agree, though, that water quality is a significant issue that should be of concern of this Board?
A. I agree.
Q. And of the City of Watertown?
A. Yes.
Q. Were any water quality tests or results thereof presented in any of the materials that have been presented to this board?
A. No, they weren't. We did not consider the --
Q. Would you agree?
A. May I finish?
Q. You answered my question, sir. Thank you.
A. Oh, okay.
Q. Would you agree that whenever you're altering, we will say, mother nature, it's best to proceed with caution?
A. Yes.
Q. In regards to flows of water, Mr. Brink asked a question as to the years of data that you have available. Would you agree that data indicates that at some years the flow through the Big Sioux is very high; other years, it's considered normal in flow; and other years, it's low?
A. Yes.
Q. And that also can be said on a year-to-year basis, various times of the year, or various years, it could be

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high, normal, or low?
A. Uh-huh (Yes).
Q. The way I understand it, the data that you have presented to this board, basically, is principally based on peak flows, or high flows?
A. No. We did our initial evaluation on normal flow. We did an assumption of normal flow for most of our evaluations. We used peak flow simply to state, to define, say, the issue you brought up before, define the frequency of a particular flow. That's how you define a flow frequency is by its peak.
Q. And that flow, again, you aren't going to address it, but one of your compatriots is going to address the sediment loading?
A. Uh-huh (Yes).
Q. Early in your comments, you made a comment, and I may have misunderstood it, about the existing weir on Lake Kampeska. Did I understand the repair of that particular weir as part of this project?
A. No. No. What I meant to say was that the, this application for permit does not deal with a change in the regulated elevation of that weir. And that weir will be repaired by the contractor that does this work. We have a picture in the submitted exhibit presented to them of the condition of that weir.

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Q. So this new weir is not a replacement of that weir. It's an addition thereto.
A. It is a repair.
Q. Is the new construction going to incorporate into the new structure the existing weir?
A. Parts of it, yes.
Q. And the parts that are not incorporated in it, what's happening to that?
A. They're going to be left in place.
Q. Does that have any effect on flow?
A. Leaving in place?
Q. Yes.
A. No.
Q. Would it have any effect on the settling out of sediment?
A. The portion that is being placed will be incorporated in the structure, so no.
Q. In regards to the statistics that you threw out as to what a 2-year, 5-year, 10- and 25-year storm would do to Lake Kampeska, that was based on the Lake Kampeska basin, or is it based upon the Big Sioux River basin?
A. Those were internal flows on Lake Kampeska. We were evaluating internal flows at that time, is what our discussion was.
Q. You indicated the three-hundredths of a foot up to

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eleven-hundredths of a foot rise. Did that assume that the lake was at flood level prior to the event?
A. No. We did on our initial design, we evaluated the elevation effects to the lake based on the normal water surface in the Big Sioux. The State indicated that they wanted a range of results. So we looked at flow at the top of the weir for those particular results. We also evaluated -- Maybe I shouldn't bring it up. We didn't go over there. We evaluate ordinary conditions as well.
Q. The ones that you reported to this Board were based on what water elevations or starting water elevations in Lake Kampeska?
A. The ones I did on here were based on a lake level without a discharge, and a lake with discharge. So actually what I had was a comparison of the two flows is what I gave. The eleven-hundredths, was with and without.
THE CHAIRMAN: Mr. Leibel, I think that this may be a good time to take a brief recess. We'll take a 15-minute recess and reconvene at about twenty to.
(A 15-MINUTE RECESS WAS TAKEN.)
THE CHAIRMAN: Ms. Best.
MS. BEST: Good morning.

CROSS-EXAMINATION

By MS. BEST:
Q. I wanted to start out with some questions of you

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regarding the various studies that you relied on. Early in your presentation you indicated that you relied on an early 1990s or late 1980s study that included some flotations analysis. What study were you referring to?
A. Let's see. There were three of them. Yes, Upper Little Sioux River Hydrology Study, June 1998.
Q. And that study was performed by whom?
A. By cooperation with the Lake Kampeska Water Project District, and it was prepared by John R. Little, Hydrologist PE.
Q. Okay. That 1998 study is the one that you were referring to when you talked about an early '90s study. Or is there another one?
A. No, there are two other studies. This one also references several studies. And we couldn't find the other two. It was the '94 one.
Q. Well, you've made reference to a '94 study. That's the Army Corps of Engineers' study; correct?
A. There was also the graduate student did the work, where did the graduate, that was for an DENR study, which --
UNIDENTIFIED SPEAKER: I don't have that.
MR. NIEDERGESES: We don't have it with us?
UNIDENTIFIED SPEAKER: No.
MR. NIEDERGESES: What's her name?
MR. BRAD JOHNSON: Karen Day?

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MR. NIEDERGESES: Karen?
MR. RICHARD SCHLECHTER: Karen Day.
MR. NIEDERGESES: Was that in 1994?
MR. BRAD JOHNSON: No, I believe that was done in, I think it was done in '97.
MR. NIEDERGESES: '97. Okay.
THE CHAIRMAN: You'll have to put that in the record, because we didn't get that, if that's going to be your testimony.
A. Karen Day, I guess, is the person who did the study. And that was a -- Al can probably give you a better data on that as far as responding to what she did there. We also used this study for the Big Sioux. And there was a previous study before that which we used for the Pelican study, which I have not made -- I have not been able to retrieve from the files. Somehow lost in antiquity. Those studies --
Q. Were the studies conducted by the Watertown Area Sportsmen, Isaac Walton study, that was referred to earlier?
A. Was that the '89 period? I know there was one in '89.
Q. Okay. Then in addition to those three water quality studies, you also used the Army Corps of Engineers' Feasibility Report and Environmental Assessment for 1994; correct?
A. Yes.

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Q. I'm handing you two documents that have been marked as DENR Exhibits 2-A and 2-B. Are those documents the feasibility report that you were relying on?
A. Actually, there is one more piece.
There is a third piece, isn't there?
UNIDENTIFIED SPEAKER: Yes.
A. There is a third piece.
Q. And what is the third piece?
A. Yes. There are two volumes to the Appendix 1 and 2, and we only have Volume 1 here. Oh, no, this is Volume 2 -- This is Volume 1. Yes, this is it.
Q. And you used both volumes, appendices?
A. Yes.
Q. Then in addition to water quality studies, the Army Corps of Engineer studies, you undertook your own analysis; correct?
A. Yes.
Q. And that analysis included some additional water flow modeling?
A. Yes, it did.
Q. Okay. And what methodology did you use?
A. We used HEC two.
Q. HEC two?
A. Right.
Q. And that is a federally designed program; is it not?

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A. That's the Corps of Engineers' river modeling tool which models water surface elevations.
Q. Can you explain to the Board what the inputs are that you put into a HEC two modeling?
A. Basically what you put in is cross-sections, which include elevations and stations across the channel for key locations along the channel. You put in bridge information that describes the opening of the bridge. You put in channel friction information that defines the energy losses along the channel. And you put in lost coefficients for the various bridges to compensate for compactions and expansions in the channel. And, of course, it has the -- You put in different flows as well. Water surfaces.
Q. You have listed all the data that you used to make your analysis regarding the impact of flows.
A. We also used engineering computations for the various weirs. Not all of the analysis dealt with, you know, weir modeling. A lot of things result with engineering computations. So there were engineering computations on the various weirs and the layouts and other things as well.
Q. Then ultimately you developed your own written study called Technical Memorandum No. 1 Final Report; correct?
A. Yes.
Q. And that is this blue document; correct?
A. That is correct.

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Q. Okay. I'm not going to enter this because now it's part of DENR Exhibit 1. I guess I haven't entered DENR Exhibit 1, but that is the agency file, and is filed with the State.
MS. BEST: Why don't I just go ahead and introduce it now. DENR along with Petitions to Intervene, the advertisements for intervention, the initial filing, the technical memorandum we were just talking about, chief engineer's recommendation and the report, so basically, the agency file. And I would ask that that be admitted into evidence as one, DENR 1.
THE CHAIRMAN: Any objection?
MR. KRULL: No objection.
MR. LEIBEL: No objection.
THE CHAIRMAN: DENR Exhibit 1 will be received.
MS. BEST: Did I ask 2-A and 2-B be admitted?
THE CHAIRMAN: No, you haven't. Do you want to?
MS. BEST: I would like to. Thank you.
THE CHAIRMAN: Any objection?
MR. KRULL: No.
MR. LEIBEL: No, I understand that right now we have four Exhibits 1, 2-A, 2-B, and 3. Lake Pelican has no objection to any those being DENR exhibits.
THE CHAIRMAN: They will be received.
By MS. BEST:

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Q. Okay. In the blue spiral bound technical report that I just showed you, basically, what's that document?
A. That document presents the technical data relating to the proposed design that we've shown.
Q. And you took the technical data and made some recommendations in that study; correct?
A. That's correct. Yep.
Q. Then, ultimately, you developed a proposal based on one of those, a final proposal based upon one of those proposals contained in that?
A. That's correct. There is a number of alternatives we looked at. We dealt with the Board and discussed what they wanted to proceed with and what they thought was permitable and made a recommendation accordingly.
Q. And that recommendation, then, is -- I'm going to show you this document entitled "Amendment and Executive Summary for Technical Memorandum No. 1."
A. Yes, it is.
Q. That's your final proposal?
A. That's our final recommendation, right.
(DENR EXHIBIT 4 MARKED.)
By MS. BEST:
Q. Your final proposal, then, is intended to draw from some of the data and the technical memorandum, but it also is a stand-alone proposal for this project, is it not?

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A. Yes.
MS. BEST: At this time, I would ask that DENR Exhibit 4 be admitted into evidence.
THE CHAIRMAN: Objections?
MR. KRULL: I'm sorry, which exhibit?
MS. BEST: DENR 4, the technical memorandum.
MR. KRULL: Oh, okay. No objection.
MR. LEIBEL: No objection.
THE CHAIRMAN: Four will be received.
By MS. BEST:
Q. Okay. Earlier you testified about the wind/wave action, in inquiry the State had made. Is it fair to say that you testified that wind/wave action is not a problem at Lake Kampeska until the water reaches elevation 1719.
A. That's correct.
Q. Okay. And what's 1719?
A. That is about eight-tenths of a foot above the top of our weir as proposed. And that is an elevation that was described by the Corps of Engineers.
Q. Is that in the 1994 report?
A. Yes, it is.
Q. Okay. Giving you DENR 2-A and 2-B, can you show us where that is in the report, if it's in 2-A or 2-B.
A. Jerry's got it tagged, I think, already. Don't you, Jerry?

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(DISCUSSION OFF THE RECORD.)
A. Core of Engineer's Report, page 51. We have here a letter April 20, response to these questions to DENR that we would like to submit into evidence as an exhibit.
Q. That's fine. I mean --
A. That issue is documented on here, including reference to the report, and page number and figure number for the report.
THE CHAIRMAN: Well, just a minute. We better mark it as an exhibit first, and then we'll address whether or not there are objections.
(CITY EXHIBIT 8 MARKED.)
THE CHAIRMAN: We have proposed City Exhibit 8, which is an April 20, 2000, response to the Division's concerns. Are there any objections to City 8?
MR. LEIBEL: No objection.
THE CHAIRMAN: Any objection, Ms. Best?
MS. BEST: None.
THE CHAIRMAN: City 8 will be received.
By MS. BEST:
Q. Okay. Looking at your response to the DENR's concerns for the 1990 Corps report, your understanding is there is no wind/wave action until the lake reaches 1719, or --
A. No. That there is no noted damage. The operation

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of the lake up to that point does not cause any damage based on the evaluation of the Corps. That is a zero damage elevation that is up and through that elevation that the wind/wave action does not create a concern.
Q. And zero damage elevation, does that assume that lake property owners' property is riprap?
A. Yes. Riprap or protected in such a way that that is not an issue.
Q. And you know what the ordinary high water mark is for Lake Kampeska, don't you?
A. It's nineteen two.
Q. If I suggest to you that it was 1718.3 --
A. 1718.3.
Q. -- would you disagree? Does that sound right?
A. It's actually one-tenth higher.
Q. Okay. So your study design, or your design and analysis are concerned with 1719 as being the no damage area. But when we get down to the ordinary high water mark, it's 1718.3.
A. Correct.
Q. You don't perceive that as it that there is a problem at the 1719 elevation in terms of wind/wave damage. Is your answer the same for the 1718.3?
A. Yes.
Q. Okay.

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A. Yes. Yes. The gist of my testimony was that our weir is substantially below what the Corps determined as an elevation that would cause erosion damage on the lake. And that by -- Because our weir is designed to have no impact on elevations above that, that, therefore, there are no impacts to wind and wave damage on the lake as a result of the weir.
Q. And the elevation of the weir is one-tenth of a foot of the proposed weir, would be one-tenth of a foot below the ordinary high water mark; is that correct?
A. Yes.
Q. And there wouldn't be wave action at that elevation?
A. There will be wave action, but according to the Corps of Engineers, they do not consider that wave action at that level elevation being a potential concern for damage.
Q. Okay. I want to clear up a couple other things that have been raised already. First of all, there were some discussion about building a new weir, rehabbing an old weir.
A. Yes.
Q. The weir, the old weir that will be rehabilitated, is not the subject of this flood control application; correct?
A. That is correct.
Q. Okay. And that is upstream closer to the Big Sioux River than the one for which this application is being applied; correct?

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A. Actually, it is just downstream, closer to the Big Sioux River, right.
Q. Okay. Will you go ahead and show that to the Board on one of your -- I think you have a schematic.
A. Okay. On the schematic, I'll show that.
Q. I think it's your Exhibit 1.
A. Oh, Exhibit 1?
Q. Yes, right there.
A. No, it's not on Exhibit 1.
Q. Okay.
A. I have to use the schematic.
Q. Okay.
UNIDENTIFIED SPEAKER: Can you see it on the big aerial?
A. The big aerial we can do that, too, but I'll have to introduce that as an exhibit, because I didn't use that.
Q. That's fine. Go ahead and use the big aerial or whatever exhibits you have. I can use this, if you want to introduce it as an exhibit.
Q. All I want to do here is make it crystal clear to the Board what's being applied for and what's not being applied for, so if you can take the map that you're holding and explain that to the Board.
A. All right. As we started, we talked about the four weirs. A third weir that we talked about was an existing

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structure across the Big Sioux River. It's located right here. It is located just downstream of the mouth of Kampeska. Big Sioux River flows down past here. Kampeska is in and out here. And that is the weir that controls the elevation of Lake Kampeska.

MR. LEIBEL: What exhibit is that, again?

MS. BEST: It hasn't been introduced.

MR. NIEDERGESES: It hasn't been entered at this point yet.

Q. And that weir, that control weir is not the subject of the hearing today?

A. That is not the subject of the hearing; correct.

Q. But you do intend to rehab that weir; is that correct?

A. That is correct.

Q. Okay. And what will be the elevation at the top of that weir when it's done?

A. I didn't check that. I got to check that. It wasn't part of the -- Yes, that's the normal lake level at 1717.8, is what that is set at.

Q. So in other words, rehabilitating that weir will not be a new change in the stage level or flow of those waters; correct?

A. Right.

Q. Then going to the project at the -- I think you

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referred to it as being at the mouth of the Big Sioux and the lake, or --

A. This.

Q. That's the project weir we're looking at, what differences will evolve in flows from the project; correct?

A. That's correct.

Q. Okay. Referring to Figure 6, that you had used. Frequency analysis.

A. Some questions already came up, and I want to clarify. There was this discussion about peak and low flows on Figure 6.

A. Uh-huh (Yes).

Q. And Figure 6, then, represents the worse-case scenario in terms of flooding when we use peak flow; is that correct?

A. That's correct.

Q. So you indicated that you analyzed flows that are less than peak, but they're not represented on that chart, what would your analysis show?

A. That's the point of confusion. We evaluated the project on the basis of flows in the stream. 100 CFS. 200 CFS. a thousand, 1300 CFS. Whether it's a low flow, a peak flow, flood flow, a normal flow, those are what we did our evaluations and design on, because we want the flow condition when 3,100 CFS is coming down the Big Sioux, we

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want to have the same split regardless of what the frequencies are, so our design has no relationship to frequency. What this, on the other hand does, is that people want to know, well, how often, and what impact it has on damages. The classical approach to that is to assign, well, how often does this 100-year flow occur, or 6-year flow, or whatever? In this case, a 500-year -- or a 500 CFS flow comes over and has a reoccurrence interval of about 1.8. So that in a given time, duration of time, you could expect to see that occur as a peak flow once every 1.8 years.

But the weir is not specifically designed for a 2-year flow. It's designed for a range of flows. So to say that we just design for this peak flow is a misnomer. What we did is we designed for range of flows for the purposes of this graphic to show the periodic relationship of these. We come in here and have assigned for the various flows, a certain peak flow frequencies as an example of what might happen at certain times.

This is a water quality project. And a water quality project you look at the range. If it was a flood control project you would look at 100-year design or 50-year design. You design for a particular peak flow when the flood was issued.

MS. BEST: If I may just take a second. I have nothing further. Thank you.

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THE CHAIRMAN: Any redirect?

MR. KRULL: I guess, we will have an opportunity for rebuttal at the end?

THE CHAIRMAN: Yes. Yes, you would.

REDIRECT EXAMINATION

By MR. KRULL:

Q. I just have a few questions. Reference was made to data from the Corps of Engineers that has now been changed.

A. Yes.

Q. And the data that you used was from when?

A. The data that we used was from the hydraulic model that was initially developed in '89 and later revised in the '94 study, which we have talked about earlier.

Q. And then --

A. The --

Q. Go ahead.

A. That is the hydraulic model. And we relied on that. And that is what our model was based on. We simply used their data, though. We did not use their actual model. We adjusted their model by adding additional sections and information where we found discrepancies and problems and made it more accurate.

Q. All right. Then Mr. Leibel referred to the fact that Corps of Engineer data has changed in the last few weeks. Do you recall that?

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A. Yes. Based on the floods that occurred in the '90s, the Corps of Engineers has gone back and looked at their hydrologic numbers and have had reason to question the frequency assignments of those numbers. And that relates to the peak flows, the 100-year flow, and the major flows, and like occurred in '97.

Q. So the fact that this data has changed, does that have any effect on the flows that will be going downstream towards Lake Pelican?

A. As it relates to this, the parts of the model that we used from them were the hydraulic model. And that was the hydrology. The hydrology deals with the flow rates and flow volumes. And in this case, the information we used, had to do with the speed and the elevation of the model. That they're not questioning.

Q. So none of that would change based on the change that the Corps has come out with in the past few weeks?

A. No.

Q. Let's talk about the operation of the gates, control versus uncontrolled. What determines when the gates will be opened and when the gates will be closed?

A. The gates will be opened and closed based on the parameters of the permit, as specified by the elevation, in relationship to the elevations between the lake and the river.

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Q. And those specifications will be part of the permit; is that correct?

A. Yes, they will.

Q. Does the City of Watertown make any decisions on when these gates are opened or when they're closed?

A. Only when the elevations are met. Then they're trained to open them or close them at that time, so no.

Q. What is the City's role?

A. The City's role is to crank the gate.

Q. Based on the specifications in the permit; correct?

A. Yes.

MR. KRULL: I guess that's all the questions I have right now.

THE CHAIRMAN: Thank you. Any recross?

MR. LEIBEL: Couple questions, if I may.

RECROSS EXAMINATION

By MR. LEIBEL:

Q. What controls are around these gates to keep Mr. "X" from going out and opening up the gate or closing the gate?

A. There will not be handles on the gates, and they'll be locked.

Q. With a padlock?

A. Yes.

Q. Who will control that key?

A. As I testified earlier, the Watertown Municipal Utilities Department.

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Q. So anybody that has access to that key could go out and open the gate.

A. Yes, they could.

Q. Or close the gate. Same way with the handle. Anybody that would have access to the handle could do it; correct?

A. Correct. Yes.

Q. What's the expected life expectancy of this particular structure?

A. I have no idea.

Q. Can we assume that it's more than five years?

A. Oh, yes. Much more.

Q. More than 20 years?

A. Probably 50.

Q. Probably 50. So well after most of us in the room are gone, that control will be determined by someone who was not privy to this discussion; is that correct?

A. Yes.

Q. And be subject to their interpretation and actions.

A. Yes.

Q. I believe you testified that those gates were going to be, was it cast iron or steel?

A. Cast iron.

Q. Do they rust?

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A. Yes, they do.

Q. So they could rust open or shut?

A. The gates will be maintained on an annual basis, and they'll have to be inspected. They will normally be shut, though, so if they rust, they'll rust shut.

Q. Sediment will, especially if they're closed for the majority of the time, sediment will be deposited on the Big Sioux side of that particular structure?

A. Yes.

Q. If those gates are open, that sediment can flow into the lake?

A. Yes.

Q. And I believe the bottom of those gates are going to be approximately seventeen eleven?

A. That's correct.

Q. That's a number of feet below the fish gate and the other elevations of the various structures in the lake?

A. (Witness nods head affirmatively.) Yes.

Q. In regards to the wave action, your conclusions on that were based upon the Army Corps' report of '94, I believe.

A. Yes, they are.

Q. You just adopted their report to that particular facet?

A. We used that as a reference, to answer the question.

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Q. And I believe their actual language was local interest indicated the problems only occurred when it reached above 1.2 feet?
A. Yes.
Q. Was there any data or study done by the Corps other than that just to talk to the, quote, local interest, unquote?
A. That's it.
Q. And you did nothing further other than this?
A. No, we did not.
MR. LEIBEL: Thank you. I have no further questions.
THE CHAIRMAN: Thank you.
BOARD MEMBER BRINK: I have just one. This data that you took from the Corps of Engineers is hydrologic data; is that correct?
A. Yes.
BOARD MEMBER BRINK: Is that a 24-hour rainfall event, or is it a spring snow melt? What is it?
A. Okay. We back to the frequency computation. Neither. We looked at the flow regimes of the river. We made the -- We just picked off numbers and looked at different numbers. So we looked at the 200. We looked at the 800. We looked at the thousand. And we ran the model for all these different ranges. So we looked at each

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different flow condition in the river and evaluated what happened. And, of course, when we got to the 1,600, the 3,100 is what we find as the 10-year. And actually turned out to be less than that, because we ended up with a 6-year. Those are the numbers we looked at. And they don't relate to a run-off event. They relate to a flow condition in the river. They're just numbers that we used.
BOARD MEMBER BRINK: How about the duration of the event? When I talk about silt flow load into a lake --
A. Excellent, okay.
BOARD MEMBER BRINK: -- you have far more silt carried in a longer event than you would have in a short event?
A. We did not evaluate the silt load into the reservoir or in the lake. That wasn't in our scope of services.
BOARD MEMBER BRINK: Okay.
A. What we did is we were charged to look at a hydraulic structure and to design a hydraulic structure which met the flooding requirements. And there is an inherent assumption that anything not flowing into the lake is better than what's flowing in the lake now. We don't know if we are taking 50 percent of the material out of Lake Kampeska or 75 percent of the material out. All we know is that it's going to be less in there with the project than without.
BOARD MEMBER BRINK: That same summary would hold

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true then as far as the volume of water going into Kampeska?
A. Well, we did look at -- My answer is going to confuse this more, I'm afraid. We did look at volume considerations when we looked at internal flows and rainfalls on the lake, when the surface area of the lake and elevation of the lake, that establishes the volume and defines the flow out. So we did look at volume considerations there. And then we looked at duration considerations. We looked at the fish passage. We evaluated the fish passage closed. We looked at river elevations on a daily basis back to the, I believe, '50s or '60s. So we included those, but not in the hydraulics. The hydraulic is when you have a thousand CFS coming at you, you have to do something with it. And you want it to happen like it happened before. It was 12,000, you still have to handle it. So it's really not important that we know the 100-year is 4,530 CFS. It's important that we know that when 4,530 CFS comes at it, it's going to be the same --
BOARD MEMBER BRINK: I think you've answered my question. It is more of a qualitative rather than quantitative, as far as silt?
A. Correct.
BOARD MEMBER BRINK: Half a load is better than a full?
A. The assumption, exactly. Half a glass is better

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than a full glass.
THE CHAIRMAN: Thank you.
MR. KRULL: Our next presenter is Alan Erickson.
AL ERICKSON,
called as a witness herein, being first duly sworn, testified as follows:
DIRECT TESTIMONY
MR. ERICKSON: Thank you. As Rick mentioned, I am going to address some of the concerns with the sediment issues, but first of all, I would just like to clear a couple of other things that I noticed. As the various presenters were up questions came up.
One of the questions was concerning the rating curve which is up on the easel now. How many years of data was there? And Jerry located that in the text while we were going through, and I just want to clarify that that was 27 years of data, that they had. And with the potential for changing that information due to the results of the '97 flood, because that is what they're doing, we're assuming they would incorporate from when they ended the data before, up through that '97 event, or even possibly further, so they just add more years onto that. They wouldn't scrap that data. They would just expand upon it.
And again, I would just like to reiterate, those flows are possibly changing things on that high end. We're not

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talking about the high end. We're, at very low conditions, our weir is overtopped and essentially it disappears, as far as the analysis goes.

Another thing that we talked about was the comparison of weir lengths. And Mr. Niedergeses agreed that we were talking about 60 feet versus 330 feet of weir length. That's really not the case. Because of Lake Kampeska, we don't have overland flow. On a proposed weir there, we're going to be flowing over the weir, or we are not flowing at all. And on the Pelican weir, if you go out to the park, as Rick mentioned there is a long concrete cut-off berm that goes out and you walk that and that is intended to serve as a weir. So we're talking really 280 feet versus 330 feet.

On the control versus uncontrol. This structure has control to it. One thing we have to remember the lake level primarily is being set by the Big Sioux River weir. That's the weir that is permitted, is in bad shape and is being proposed to -- well, will be repaired. Whether this project is approved or not, that one will be repaired. And these gates are built in for flexibility.

This is a passive structure. If the person that's in charge of that is in the hospital that day or and his backup is gone, their backup is gone, this thing is going to function. Nothing detrimental is going to happen. I mean, we are not going to be having a major catastrophe. There are

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some structures that are designed that way, where somebody has to physically make the change in order for the flow to go one way or the other. This is a passive structure. We've got these worse-case scenarios where we have to be able to let this happen. The one is when the lake is full, at the top of our weir, that's about five inches higher than a normal lake level. So what the permitted and it's going to be enforceable conditions are, is now the City has to open those, lower the level approximately that 6 inches to whatever the level was there, and then close the gates again. And the Big Sioux River weir which is set at the same level as the normal lake level, will continue to regulate those levels.

Then, also, when we talked about the low levels, one thing that wasn't mentioned is that, yes, it's for water supply, that we want to get water in there. It's also a fisheries issue. Right now Lake Kampeska is very marginal as far as being able to support fish, because it's eight to ten foot depth where you start losing your ability to maintain oxygen in there through winter levels. And what this will do is allow water to come back in and maintain appropriate pool.

Then when it gets to that level, the 30 inches below, those gates are open. And I don't think it was clear enough that the water will come back into the lake until it rebounds 6 inches. Then that gate is closed again. Then whatever

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happens happens, with the passive weir. It's just to make sure that we're maintaining that minimum, minimum level. And as far as the control of the gates, it was mentioned, you know, anybody with a key can come out and operate it. If they want to cut the loss, they could. Again, this is a passive structure. If somebody opens the gates, you're going to be able to see it, because first of all, they're specified with the rising stem. So the stem will be sticking up in the air, as well as the gate, so you're going to see that it's open. And the water level is set by the Big Sioux River weir. So the only thing that's going to be different is that these gates, which the bottom of is set at the current bottom of the channel elevation, there will be water going back and forth between the river and the lake at that lower level, which means a sediment leaving water is going to be going into the lake or water coming off of the lake, whatever. But, again, opening the gates is not going to cause any catastrophes. So I just want to clarify that. I don't think that's real clear.

There are some other areas, some other gate instructions that their operation makes a huge difference. This was designed to be a passive weir. Worse-case scenario, the gates could go. But it sure lends a lot of flexibility being able to evacuate that lake and reduce any possible wind damage and, also, to support that fishery.

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Just going through my notes here. Excuse my delay.

Again, as Rick mentioned, that the repair of the Big Sioux River weir is in very bad shape, and it's going to be repaired to the permitted conditions. We're not changing that. There was a structure permitted which was constructed and it's been destroyed by vandals and by high flows and ice and that type of thing. And it will be put back to the permitted conditions and it's a maintenance issue, and it's not part of what we're discussing here.

Now as far as getting to the sediment, as Rick mentioned, that was not part of our duty to evaluate sediment load. The controlling factor here was a flow. We did not want to impact flood flows through the city of Watertown, and, also, impact the Pelican. So we look at those, first of all, by looking at the city of Watertown, we were looking at a structure that would handle the -- start bypassing, if I'm right, about 1,500 CFS. And it's essentially at the 10-year event, there would be an even flow split. Well, that has some impacts to various lands through the City of Watertown and, also, over top of the weir at Pelican. And we didn't want that to occur. Because first of all, we thought that would be a hard sell. We didn't think that, you know, we're going to come here and get everybody on the same page and say, yes, this is a good deal if we're impacting them dramatically. So we backed off from that, and we knew that

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we would be losing some of the beneficial impacts of the weir. In that technical memorandum, we looked at things that were control-gate structures and significantly higher. And that lends itself to problems. And for all these various reasons, we backed off to a truly passive weir with some flexibility built in.

There was no attempt to look at sediment load. We knew by decreasing it, we were going to be losing our effect. As to what that is, we don't know. That would be a major, major undertaking for a sediment analysis. And what real benefit would it have been if we decided, well, no, in discussions with the board and everything, we decided that we don't need that. We know that it is going to be beneficial. Is it 70 percent? Is it 50 percent? Is it 40 percent? We don't know. The data might be plus or minus 50 percent anyway that we come up in our report, so rather than go down that route, we looked at the flows, negative impacts. And that's how the weir height was established.

The main benefit is going to happen here when the lake is low. Historical records show that the lake could get quite low. And when we have the, and the river is real low at that time, too, because as I mentioned, the Big Sioux River weir essentially ponds the water up behind it, which allows the flow to go into the lake. Well, if the lake is low, that's mean the river is low. So if we get a

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rainfall event, we've got a lot of run-off, a lot of high sediment load, comes down and virtually all that water, you know, 90 percent, probably plus, rushes into the lake. And that's the City's water supply. It's a recreational lake, and it's a No. 1 priority lake as far as the quality.

So by putting this weir in, that initial portion of the water is going to go, continue down the river as intended, until, of course, it hits the levels where it starts to top the weir, and then it will go on into the lake. Again, we set that level based on flows downstream. And we're going to get the benefit we get. And with that, I don't think I have anything else to discuss here and would be willing to answer any questions.

THE CHAIRMAN: Any questions?

CROSS-EXAMINATION

By MR. LEIBEL:

Q. Just a couple. The Lake Pelican weir is a passive weir.

A. Correct.

Q. You're saying that this structure with gates is also passive.

A. For all practical purposes, yes.

Q. I believe you used the language truly passive with options.

A. Yes.

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Q. So it's not a true absolute passive. There is human action involved in those gates.

A. Yes.

Q. Decisions will have to be made on closing and opening those gates.

A. They will be directed by the permit, and they will not be subject to any discretion of the operator. The operator has a set point, the way he is directed to go open or close those gates.

Q. In the operating instructions, there is no times set or durations set; correct?

A. No. No. Elevation only.

Q. The information that was given by Rick, as to change in elevation, dealt with just a rainfall within the Lake Kampeska basin; correct?

A. That was an analysis that was done to impact, to address the DENR's concern about the internal flooding.

Q. And by internal flooding, we're talking just about flooding created within the Lake Kampeska basin?

A. Yes, due to the weir level being slightly higher than the normal lake level.

Q. What criteria for elevation will be used? Will it be Lake Kampeska basin information or elevations, or will it be Big Sioux River elevations?

A. It will be Lake Kampeska.

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Q. Was any study done to determine what effects using Lake Pelican -- Excuse me, Lake Kampeska data, what affect it would have on the Big Sioux and downstream?

A. I don't understand that. What you're getting at there.

Q. What you're telling me, if I understand it right, is that the criteria for opening and shutting those gates will be exclusively decided on the elevation of Lake Kampeska.

A. Correct.

Q. The elevation of the Big Sioux is not a factor in that decision to raise or lower the gate.

A. The Big Sioux is established by the Big Sioux River weir.

Q. The elevation is.

A. Yes.

Q. But that's not a consideration for opening or closing the gates; correct?

A. No. We're talking just -- What is it? 6 inches different? That weir is set at the normal lake level, so we're talking that the Big Sioux River weir is the same elevation as the normal lake level. So, essentially, yes. The Big Sioux River is.

Q. Now wait a minute. Wait a minute. If the elevation of the lake is at 1717.8, that's normal elevation.

A. Yes.

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Q. Correct?
A. Correct.
Q. If the Big Sioux is at 1716.8, one foot lower, will the gate be opened?
A. At one foot, no. But, also, at that point, every bit of flow that's in the Big Sioux River will be going into the lake, because of the way the elevations work out, all the flow will be going through the fish notch. And that is, that is essentially no different than it is now.
Q. Has any study been done to determine what effect that would have on the Big Sioux with water being retained in Lake Kampeska and all waters from the upper reaches of the Big Sioux coming in to the lake and none of it going down south?
A. No, because it's not a condition of the permit that we're talking about here. That is already a permitted structure. We're not doing anything there. If we don't build this weir, it functions exactly as that weir will let it operate now. And there is no change to that.
Q. If the gates were not open, would that not increase the elevation of the water within the Big Sioux channel?
A. At a foot below, no.
Q. At some point, it would increase, though, the elevation; correct?
A. It could, yes.

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Q. And it would ultimately go over the weir?
A. Yes, but it will --
Q. So then there would be somewhat flowing downstream?
A. It would have been going downstream already. It's over the top of the Big Sioux River weir by that time.
Q. Basically, this structure will allow Watertown, unless it is an extremely dry period, or an extremely wet period, to maintain an elevation within a couple feet of that lake.
A. The couple feet would be too high.
Q. But it would be able to maintain it from a minimum of 1715.2 to 1717.8.
A. No. Big Sioux River weir is what is controlling it and that's at 1717.8.
Q. So if --
A. That's as low as we can draw it down, 1717.8. Unless it's severe drought, when there is no water coming from upstream.
Q. With reduced flows, does that change the sediment loading?
A. The only -- Well, of course, it changes the sediment loading. I don't know what your particularly asking. Of course, reduced flows will allow the sedimentation to occur within the channel itself, if that's what you're asking. So sediment will be dropping out into the river itself, yes.

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Q. Has any study been done to determine where and how much that sediment would be at lower levels?
A. No. Not by us for this project. Some initial data was done as far as sediment loads going to the lake, but --
Q. Assuming that the gates are closed, there would be no exchange, am I correct, in stating that there would be no exchange of water between the river and the lake other than the small fish gate?
A. Yes. Three by three fish notch, which, as you seen, with the Pelican weir, does allow a pretty significant flow to go back and forth at low levels.
Q. And as you were present this morning, Rick testified to the effect of that, that would be basically minimal impact?
A. At normal flows, I would say it's insignificant, yes.
Q. Could that effect stagnation of the water within Lake Kampeska?
A. No. Because there is always a connection between the two. And we haven't studied that, but I don't see that as being a major concern. Reduction of the sediment load, I think would far outweigh the potential of detriment due to that.
Q. But there could be an impact on algae growth?
A. I don't know that.

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Q. There has been no study on it?
A. No.
MR. LEIBEL: Thank you. I have no further questions.
THE CHAIRMAN: Ms. Best, do you have anything?
MS. BEST: Yes.

CROSS-EXAMINATION

By MS. BEST:
Q. Okay. The sediment deal boils down to one thing. The project is designed to stop as much sediment from going into Lake Kampeska as what would otherwise go into Lake Kampeska. So the sediment that doesn't go into Lake Kampeska goes where?
A. Downstream.
Q. Downstream where?
A. In the Big Sioux River.
Q. What about Lake Pelican?
A. As far as the impact to the Lake Pelican?
Q. Yes.
A. With our project, we do not overtop their weir. So any flow that enters Lake Pelican are going through the fish notch. And similarly, we can say that the flows to Kampeska are minimal. We can also say flows going into Pelican are minimal. But, you know, we have identified that there is an increase. That maximum increase is thirteen or fourteen CFS.

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which occurs at the 2-year event.
Q. Okay. Your statement that you studied the flows, you believe the sediment going into Pelican would be minimal, and that's based on the existing controls, or the existing structure at Pelican.
A. Yes. We kept it below the top. That's right. If I may, I can run through some real quick numbers. Now these we took some gross assumptions, because the data that, again, this was not part of our task to do. So we used what data was in that '98 report that Rick had mentioned earlier.
And just for the 2-year event, looking at cubic yards, that are being carried in a 1-day event through the river, 1,150 is based on 60 milligrams per liter at a 2-year. Now these are assumptions so you can shoot all kinds of holes in this. You got to start somewhere and these are the numbers.
Now one other thing I wanted to point out is that these projects were intended to serve the basin as a whole. Pelican was built first because they're downstream. If Kampeska built anything first, everything is going to come down and enter into the lake. Actually, the Kampeska Board actually participated in the funding the study for the Pelican weir, so. I just want to point that out, too. But anyway, then at that 1,600 or -- or 1,150 cubic yards -- Did I read the wrong number off there?
Q. 1,150.

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A. 1,150, that was correct, cubic yards of that before Pelican weir, 325 cubic yards going to Pelican. And this is, again, based only on flow. It's not assuming any quiet waters or anything, because that, again, would be getting that detailed study.
And then the sediment going to Kampeska would be about 534 cubic yards. Now after the Pelican weir was constructed, for that same event, the sediment load to lake has been reduced to 58 cubic yards.
BOARD MEMBER BRINK: What is the number again, after?
THE CHAIRMAN: 58.
A. After the Pelican weir was constructed, after it was constructed, that's reduced to 58 cubic yards.
BOARD MEMBER BRINK: Into Pelican.
A. Into Pelican.
BOARD MEMBER BRINK: And how about Kampeska?
A. Kampeska will still be the same. It's too far upstream that the Pelican weir doesn't have an impact on it.
Then with the Kampeska weir in place, with that additional flow of thirteen or fourteen CFS going into Pelican through the fish notch, we're looking at 73 cubic yards for the same event for an increase of 15 cubic yards. Now I don't think I -- I brought this along. I know we are not in grade school here, but to help.

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Q. Please demonstrate the effects of the sedimentation.
A. This would be, this bag would represent what's in the river to start with. The 1,150 cubic yards. And this amount of that is going to Pelican. Now after Pelican's weir was constructed, significant decrease, 58. With Kampeska weir, 73 versus 58; minor difference of 15. I don't mean to belittle anybody by that, but sometimes visuals can speak volumes of numbers. We've been talking numbers all morning here and getting confused.
Q. Okay. I just have one further thing, and that is the 1998 water quality study. Do you have a photocopy?
MR. KRULL: I'm trying to find an exhibit.
THE CHAIRMAN: I think what we're going to do is we're going to break for lunch so that we can get a jump on the lunch hour. We'll start at back at 10 to 1:00. Before we break for lunch, though, the staff and the Board need to check out if they're going to check out. Can you give me an idea of what else we can expect this afternoon? Do you have any more?
MR. KRULL: We're done with our case in chief, sir.
THE CHAIRMAN: Okay.
MR. LEIBEL: We will have one witness. We anticipate we will be done early afternoon.
MS. BEST: Okay. My cross-examination on this witness will be one question. I'm just going to put that one

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report in. The other thing will be just the staff, a half hour.
THE CHAIRMAN: Okay. Well, then I think everybody should check out.
BOARD MEMBER BRINK: Are there other parties that are going to testify or want to ask questions?
MS. BEST: Is there anybody here that wants to present any testimony?
MR. TIM OLSON: I'll have a few brief comments on behalf of Game, Fish and Parks.
BOARD MEMBER BRINK: Okay. Thanks, Tim.
THE CHAIRMAN: All right. We'll break. We'll reconvene about 10 to 1:00 and check out, please.
(NOON RECESS TAKEN AT 11:50 A.M. AND THE HEARING RECONVENED AT 1:05 P.M.)
THE CHAIRMAN: Ms. Best, you were just finishing up. I think, Mr. Erickson, we need you back up here.
FURTHER CROSS-EXAMINATION
By MS. BEST:
Q. When last we talked we were talking about one report, the sedimentation report containing the sedimentation analysis --
A. Yes.
Q. -- that you folks looked at. I want to make sure that it was the same as what the DENR has looked at or

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thought about. Did you use the Upper Big Sioux Hydrology Study, June 1998?
A. Yes.
Q. Okay. And that is the report prepared by John R. Little.
A. Correct.
Q. And you used the Diagnostic Feasibility Study, Lake Kampeska, January 1994.
A. Yep.
Q. Okay. And that's the one developed by the South Dakota Clean Lakes Program and prepared by Ken Madison; correct?
A. Yes.
Q. Thirdly, you used the Lake Assessment Project, Pelican Lake, also prepared by the Clean Lakes Program, April 1995; is that correct?
A. Yes.
MS. BEST: I'm not going to put these in at the present time yet. I have nothing further. Thank you.
THE CHAIRMAN: Thank you. Any redirect?
MR. KRULL: No.
THE CHAIRMAN: Any additional cross?
MR. LEIBEL: None.
THE CHAIRMAN: Thank you, Mr. Erickson. I believe you indicated, Mr. Krull, that you had one more witness.

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MR. KRULL: Yes, thank you very much. Brad Johnson, who is on the Watertown City Council is going to speak for just a few minutes.

BRAD JOHNSON,
called as a witness herein, being first duly sworn, testified as follows:

DIRECT TESTIMONY

MR. JOHNSON: Thank you for a brief opportunity to speak to you. I am the representative on the City Council for the lake. I also am on the Lake Kampeska Water Project District Board. And I've been involved with this project since the study phase began back in 1995, when we first really got rolling with HDR Engineering.

I just want to speak from a bit of an overview. The people at Lake Kampeska are solidly in support of this particular structure. And the City Council as well has been solidly in support of it. We believe this is one component to a much larger effort to clean up the lake and the watershed. We know there are not answers to every single question that are out there. The information we're working with is the best that there is available. Lake Kampeska is a dying lake. By anybody's stretch of imagination, the Department of Agriculture indicates that at maximum, we got about 225 years of life left of that lake. And I would venture to say that it's probably even less than that. And

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we look at this structure as a small shield when the shotgun shell load of sediment comes down the river. Right now we take 95 percent of the load into us. And the rest of it goes downstream. And we are looking to deflect just a little bit of that.

It's an important step. We're out there trying to raise a lot of additional money to work on programs upstream. We hope to increase cooperation and move everything forward. The structure itself we started out with was something much larger, but we realize that that was too much to handle. So we've lowered it down to point, the lowest level we think it can go. We're really talking about five inches of lake level here. Because the structure that is downstream that sets the maximum elevation of lake, this new structure will be five inches above that, so we're talking a five-inch fluctuation of the lake, in essence, is all that we are dealing with. And five inches is not a lot of protection when you consider how much water can come down that river. And in the flood in 1997, that we had up here that structure would have been under water within 24 hours. So it doesn't provide significant flood protection. It's just strictly water quality. And for the people of Lake Kampeska and the people in the city of Watertown that are vitally interested in this project, I hope that we presented the good facts to you and that you have enough information to make your decision.

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Thank you.
THE CHAIRMAN: Thank you, Mr. Johnson. Excuse me. Anyone have any questions of Mr. Johnson?
MR. LEIBEL: Not me.
THE CHAIRMAN: Thank you. Anything further?
MR. KRULL: No further witnesses.
THE CHAIRMAN: We'll turn it over to you, then.
MR. LEIBEL: At this time, we would call our witness. And this is Steve Klein. With the parties' indulgence, we have already marked Pelican Exhibit No. 1, which is his report. We would offer that into evidence.
THE CHAIRMAN: Any objection to Exhibit 1? Hearing none, Exhibit 1 will be received.
MR. LEIBEL: I do have additional copies which I would provide to members of the Board.
THE CHAIRMAN: Mr. Klein, I saw you took the oath earlier this morning, so I don't think we need to give it to you.
MR. KLEIN: Thank you.
(DISCUSSION OFF THE RECORD. WITNESS SWORN.)

STEVE KLEIN,
called as a witness herein, being first duly sworn, testified as follows:

DIRECT TESTIMONY

MR. KLEIN: As stated, my name is Steve Klein. I work

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for BARR Engineering Company. I'm Vice-President at BARR. I am a licensed registered professional engineer in the state of South Dakota. I'm also a certified hydrologist with the American Institute of Hydrology.

I also have 25 years of experience, specifically, in the area of water resources and water resource management. And I've done quite a few projects relative to creek restoration, river restorations, lake restorations, lake improvement studies, and so I have a great background in this area that I'm speaking on today.

The people at BARR Engineering Company that I had review most of the documents for me pulled together a whole series of concerns. A lot of which I kind of qualify as being somewhat inconsequential. And as a result, I didn't address any of those issues.

Quite frankly, HDR has done a lot of work. You've seen tremendous amounts of documents. And no matter what you do, no matter what an engineer does in the way of designing for doing a study, no study is perfect. Assumptions are going to have to be made. Engineering decisions are going to have to be made. And they're going to have to do the best that they can given the constraints that they have, whether it's financial constraints, physical constraints, availability of data, whatever.

So that having been said, I'm not here to pick at a

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bunch of holes in any sort of documents. What you have in front of you is a few items that are of concern for the Pelican District. When I get done, just briefly walking through some of those concerns, I'll cut to the chase, also, and talk about what really is the biggest issue relative to the Lake Pelican Water Project District.

To give you, you know, a little bit of an idea of some of the discrepancies that cause confusion that don't enable us to understand quite exactly how frequently the Pelican weir will overtop. And it will overtop more frequently than what presently exists without the Kampeska weir. The question is, is we just don't know how much more frequent it's going to happen.

And to give you an idea, I would like to just draw your attention to one of the graphics that was presented. And I don't know what exhibit number it is, but it's one that's up here on the easel right now, what the HDR -- Okay. It's Exhibit No. 6.

What they showed here or attempt to show is that there really is the biggest impact on the frequency relationship between Pelican and Kampeska as during a 2-year event. And they show 657 CFS versus 530 CFS. And they show this nice graph. But the problem is, is in their own report, and I've given you this as part of the figures that's attached to the back of my letter. You can open up to this page. It's a

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Figure 4.6.1. It's in the very low corner. But it looks very similar to this drawing here. But it's a little different. It's got a different chart. What this graph represents is the assumption that Lake Kampeska is at a flood stage when these flows, when these flows are at this high elevation. It doesn't assume that Lake Kampeska is at a normal elevation. Because if you use their own charts, and just take a look at column "D" on this chart, I'm going to walk you through it, for the very lowest chart, is the uncontrolled weir. This is the condition that would occur after the weir is built.

Do you see the number 699 in the middle column on the very lowest chart here? They're saying that for a 2-year event, there is 699 cubic feet per second that would be going down the river for a 2-year event based on new Kampeska weir. Then right above it, they say that on the pre-project conditions, when you have assumed that the lake is at a flood level, when this flow occurs, that the flow going down the river is 530 cubic feet per second. You see that number on your chart?

Okay. Let's go up to very top chart. Let's assume that the lake is at the normal level. At the normal level, there is only six cubic feet per second going down when the lake is at its normal level. So the difference isn't 120 cubic feet per second. And quite frankly, this number is different than

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what is shown on the chart because this number on the chart it says 699. But it's six cubic feet per second. So this chart doesn't look like this under that condition. It would look like this. So there would be a substantially bigger difference. Does that mean something? I'll talk about that in a minute. It's just one of these discrepancies.

Another discrepancy is related to the flood frequency events. And quite frankly, in their own documents, they've got the same curve, and it isn't the same in any case. This is a pre-project peak discharge that's been placed on several drawings. This drawing says, if you take a look at the 4-year return interval, you come up and you intersect this line, you've got 900 cubic feet per second. And it's a pre-project curve. This curve shouldn't be changing at any particular time, it's preconditions. And, yet, if you look at Figure 4.6.2, which is the one that I've attached, if you look at, if you go for the 4-year interval, and you go up to see where that touches that curve, you see that it's 810 CFS. Okay. Do you see that one on that figure?

BOARD MEMBER HOLZBAUER: Yep.

A. You go up here 810, and I've just written the words, the numbers 810 on your drawing. Then if we flip to the next page for the same flood frequency, it's the same heading, same flood frequency. Look at the 4-year event there. It's a thousand. So what is it? Is it 810? Is it 900? Is it a

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thousand? This number, this column, or this line shouldn't change, and yet they're comparing flood frequencies of how frequently Lake Pelican is going to overtop, based on a comparison of post-project conditions to pre-project conditions. And, yet, they can't make the comparison because this line changes every time you're on a different graph. So that's one of the issues that is there. So but is that a major issue? Not a major issue. But it's a concern because we can't tell for sure how more frequent the Lake Pelican will overtop and that's who I'm representing.

BOARD MEMBER BRINK: What is the definition of normal? Is it by his report or is that something that --

A. Normal means something to different people. Typically, when I look at normal level, on lakes or ponds, I look at it if you've got an outlet structure that establishes a point at which water won't go out of it, that elevation is typically the normal level. Now in the Kampeska weir situation, they're saying that the normal level is, or the lake level is, I forget. 1717.3? And, yet, they've got a fish notch that's lower that conceivably water can be flowing out. The only thing is that the downstream weir in the river establishes basically the normal level in the lake regardless, because water can't go over that. So the normal level that's established in the lake and upstream of the weir in the Big Sioux River is all established by the weir in the

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Big Sioux River.

BOARD MEMBER BRINK: The Figure 4.6.1, you've read their report. Normal is defined in there?

A. Yeah, well, not clearly. But it's assuming that, as I understand, that water would be under that top chart condition on that first chart that I talked to you today.

BOARD MEMBER BRINK: Yes.

A. They're assuming that the lake would be at that level when you've got these flows. And then they also took another bracket condition that assumed the lake would be at a high flow condition or a flood level condition when those flows in the river were occurring. And I don't think that's necessarily a reasonable assumption, and I've also just taken the time to download from the Internet some flow information which I've also attached for the flows upstream of the Kampeska weir and downstream of the Kampeska weir, for the 1997 storm. And upstream of the Kampeska weir, there was virtually no flow in the river before the flood occurred. It wasn't at some flood level. The flood started occurring. And in no time during that entire event did the lake get quite up to the Corps of Engineers' projected flood level for the lake. So the assumption that during the storms the lake is going to be at a flood level at the same time these flows occur probably isn't accurate. Does it mean a lot of things to Lake Pelican Water Project District? Probably not. But

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it is an issue there, and a discrepancy issue -- And especially when they're drawing attention to the impact or the difference in impact on flows going to Lake Pelican.

I think the bigger issue is, let's take a look and assume the lake is down when those flows occur.

Now you've all heard about all sorts of cross-testimony, testimony and cross-questioning and things on the weir in Kampeska, the proposed weir. Quite frankly, the weir that will be rebuilt in the Big Sioux River is going to control a whole lot of things. And in a lot of ways it isn't going to matter a whole lot what happens in Kampeska for Lake Pelican. But there are a few issues relative to that Kampeska weir that I think are points of concern.

No. 1, during drought conditions -- Let me back up for just a second. The bottom of the gates that are proposed are at elevation seven eleven point something. I forget what the number is. And the normal level of the river and the normal level of the lake is seven seventeen something. That's about six feet difference. So in other words, I'm about six feet high. You're going to have this much, basically, this much sediment built up on the gates over time. And it's going to be sitting there. Then, somebody during a drought condition decides, okay, the lake has dropped down below 30 inches and they're going to open these gates up to try to drive more

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water into the lake. Well, all this sediment is fairly loose material. And as you open that up, water is going to cut down the sediment and they're going to be taking a lot of up-channel sediment, and it's going to flush right into the lake.

If I'm a lake resident on Lake Kampeska, that's a concern that I would have. And I wouldn't want that to happen because we're putting the weir in to stop sediment, and yet because we have a drought, all of a sudden it's okay to push a lot of sediment in. That particular concern can be corrected fairly easily by simply upstream of those gates, designing an armor-plated channel so that as the river comes in, they open up the gates, water goes down and goes under the gates. And it doesn't take a lot of sediment from the upstream channel to continue to flush that until the lake happens to get 6 inches higher than where it was when they opened up the weirs, where the gates are at.

The bigger concern that we have for Lake Pelican is during the high flow condition. We have in essence the Kampeska weir is 630 feet long. And it's a half a foot higher than the weir in the Big Sioux River. If water is flowing over 630 feet of weir --

MR. LEIBEL: Over 330 feet of weir.

A. Or 330 feet of weir, I'm sorry. 330 feet of weir. If that weir can take a lot of water, if you're opening up

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the gates, those gates will take, will allow more water to go out than what is going down, what the weir in itself is going to allow, but the weir is letting a lot of water to go out anyways. So the question is, is why do we need that beneath those gates in the first place, because of high flow conditions. Doesn't make sense to me. And the bigger problem is, they're talking about doing this during events that aren't monstrous events where we have a huge, huge storm. They're doing times when you get big flows in the river, big flows in the lake, and the lake happens to be higher than the river. And, gee, as long as the lake is higher than the river, let's open up the gates and flush out more water. And the problem is that the weir control on Lake Pelican is designed to overtop at 730 cubic feet per second. Combining water that's already going over this 300 foot weir and opening up gates will increase the chance that more flow is going to go into Pelican. Again, I don't understand the need for the high flow drain and I think that that's the biggest concern that Pelican has is, during the high flow conditions: What is it going to do and what kind of impact is it going to have on Pelican? And nobody can answer that, because quite frankly, it's going to cost a lot of money to do it, and who has all the time in the world and the excess money to devote to study upon study. Not a lot of people do.

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So as was mentioned before by Pelican's attorney, we don't have a philosophical problem at all with the weir. And, in fact, if they can divert dirt from going into the lake, that's probably not a bad idea. The biggest thing is we think that those gates will possibly add more impact to Lake Pelican and we have a problem with it. The other issue is, is with gates, I don't care who puts down information upon a piece of paper in a report about how a gate is to operate. Boards change. Councils change. Somebody gets a wild hair to tear out a gate and put in a gate. There has been gates in the river, weir structure. That was pulled out and put back in. As I understand over the years, there is all sorts of things that have occurred there.

To me, putting gates in just causes extra questions and opens up the opportunity for somebody somewhere down the line, when all of us are probably not involved, to do something inappropriate and open the gates or do certain things that can hurt the lake, Lake Pelican or Lake Kampeska, or both.

The last thing that I wanted to talk about is from a luminological standpoint, from a lake standpoint. I don't know, necessarily, if the weirs in either case are totally without problems, because you've heard today that there is a lot of sediment that's washed into both Lake Pelican and Lake Kampeska over the years. The problem with sediment is

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phosphorus which typically is the controlling nutrient that causes algae blooms and things to occur, and poor smelling water, that globs on to sediment. And over the years, you've had a lot of sediment, a lot of phosphorus, a lot of other nutrients flushing into both of these lakes and you've got a tremendous dead load of nutrients at the bottom of the lake. And now you've got a real shallow lake. If you stop flows going into it, that periodically flush some of the nutrients within the water column itself, the water becomes more stagnant, algae starts to grow. They reduce the oxygen that's in the water column. And when the oxygen gets reduced in the water column, the phosphorus re-entrains from the sediment, comes up, and causes a vicious circle.

I don't know for sure if the weir that is planned in Kampeska is going to stop that type of thing from occurring. My sense is they're going to have water quality problems and odor problems for a long time just because there is a big time dead load in that lake. And putting the weir in may or may not help that. Certainly nobody has done any luminological analyses on that. But it certainly is an issue.

On the other hand, if you can divert a third of your flow of sediment by putting in a weir, maybe that isn't all that bad either. So the biggest concern that Lake Pelican really had is for the gates. My clients suggest that the

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gates be removed. Because it doesn't make a whole lot of sense that they're there. I know you're going to have testimony today that maybe there is some change that could be done in the operation. Maybe there is things that could be done to correct some of the sedimentation when the gates open up. Those are things for you to think about. But we as Lake Pelican Water Project District are very concerned about the increased flows, especially during the high flow conditions where the gates are just opened at the whim to let the Lake Pelican flush out faster when, in fact, their weir allows that lake to flush out pretty fast as it is. And with that, that ends what I have to say.

THE CHAIRMAN: Any questions? Mr. Krull?

CROSS-EXAMINATION

By MR. KRULL:

Q. Mr. Klein, how are sediment loads in a stream or in a river measured?

A. How are they measured?

Q. Yes.

A. There is a number of ways that can you measure it. You can use automatic sampling equipment. You can go out and actually do sampling. You have to also have a good handle on flows. And it typically is done using collected information.

Q. So is a lot of it based on statistics and models and that type of thing?

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A. It involves statistics and models that are backed up by collected materials that further enables you to calibrate the models.
Q. Can you point to a number or an amount, or can you quantify the change in sediment that you are afraid is going to come into Lake Pelican if this weir is constructed?
A. Can I quantify it?
Q. Yes.
A. Given time, effort, and money, I think I could do a fairly good job. Given limitations on all of those, I believe I would have to make gross assumptions similar to what HDR has done.
Q. And you have not spent that time, effort, and money to do so, have you?
A. No.
Q. You spoke about a condition in which sediment will collect outside the gate, in front of the weir. Then when that gate is open, a certain flow of water will carry sediment into the lake, into Lake Kampeska. Can you quantify how much that would be, or would you have any idea of --
A. Sure.
Q. Would you do that?
A. Immediately, when the gate is open, you have almost a vertical drop. If the gate opens, and this is the gate, and you have six feet of sediment here and you got water

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falling down a slight, small opening. It is immediately down-cutting soft sediments and dragging that material into the lake immediately.
Q. But how much is my question, I guess?
A. It depends on the flows that are coming in and when we've opened this up. Is it during drought conditions? Correct? Or during real high flow conditions? And the high flow conditions more than likely it won't come into the lake, but the lake will push it away, if it's open during that. But during a drought condition is what we're talking about here. It depends on the storms. It isn't that, gee, we open up the weirs and the lake just fills up and it comes up 6 inches overnight and that's it, and you shut the weirs. You're dependent on mother nature and a whole series of storms. And if you get -- Maybe it'll take a year, who knows, or more, for during a drought condition for enough accumulated rain to come down and to just constantly flow under those weirs, because nobody says that those weirs have to be shut in any particular time. It's going to take, perhaps -- I could conceivably see where it might take years even before we would even close those gates in order to raise that lake up during a drought condition.
Q. So if there was no weir there, what would happen to all this sediment?
A. It would just stay upstream of the existing weir.

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Q. Okay. Wouldn't the sediment continue to flow into the lake as it is today?
A. Not that particular sediment. The sediment that's flowing into the lake today is carried by the water that spills over the weir, or would spill over the weir. That's coming down from new events. When you open up the gate, you just got a whole channel of standing sediment that's sitting there and it's loose, and it isn't in the water column at all. It's just sitting there waiting to be eroded out of the channel because you've opened the gate up and you've dropped in essence the base of the channel six feet.
Q. Now this would only happen when the water in Kampeska is lower than what's in the river; correct? I mean, this movement of sediment that you're talking about?
A. That would -- Let's see. Yes, that probably would be a guess.
Q. Did you earlier say that if the gates are open at a higher water mark that the water would move out into the channel?
A. During high flow conditions is what I was saying, where you have actually higher water in the lake, and lower water in the river, you've got a hydraulic gradient that will push water out through the gates.
Q. When that water goes out will it take some of that sediment out with it?

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A. Sure. But the problem is that there is so much dead load, it will fill right back in the next time you get a storm.
Q. Let's talk about these other weirs with gates that you've heard about that there have been problems with. Do you know what any of their operating rules or guidelines were?
A. In certain cases, I do.
Q. Okay.
A. Because they were based on projects that we did.
Q. Okay.
A. At BARR. In other cases I've heard anecdotal testimony from public works people that have had to operate them or try to go out and maintain them periodically, or that were told to go out and open it because the Mayor decided they wanted it opened.
Q. Okay. But you don't know if in those cases if they had strict rules to follow?
A. I have no idea if they did or not.
MR. KRULL: That's all the questions I have.
THE CHAIRMAN: Ms. Best? Do you have any questions?
MS. BEST: I don't have anything.
THE CHAIRMAN: Any redirect?
MR. LEIBEL: No redirect, other than just to advise, you know, the Board that there were some other comments that

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he made in his letter, and we would ask that you read those, because of the circumstances, and what we've found important, we aren't going to bore the Board with having him run through each and every one of those.

THE CHAIRMAN: Okay. Thank you, Mr. Klein. Do you have any other witnesses?

MR. LEIBEL: No other witnesses.

THE CHAIRMAN: Do any of the other interveners wish to present any testimony? Yes, Tim. You weren't sworn, were you?

MR. OLSON: No, I wasn't.

TIM OLSON,

called as a witness herein, being first duly sworn, testified as follows:

THE CHAIRMAN: State your name for the reporter, please.

THE WITNESS: My name is Tim Olson.

DIRECT TESTIMONY

MR. OLSON: I appreciate the opportunity to address the Chairman, and the rest of the Board this afternoon regarding this issue. We've heard a lot of testimony today from these gentlemen, so I'll try to keep my comments brief. As most of you know, but I'll go over it again for the benefit of the others, the public that's here. My name is Tim Olson. I work with the Wildlife Division for South

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Dakota Department of Game, Fish and Parks out of the Pierre office. And we filed to be a party to these proceedings basically for two reasons. And their the typical reasons.

"A." South Dakota Game, Fish, and Parks does have a vested water claim for storage of water on Lake Kampeska for fish and wildlife conservation purposes, as well as the statutory authority that we have to manage the fisheries for all the public. That's why we're here today.

We've had an opportunity to review the original report that the HDR folks have prepared subsequent amendments, as well as significant amount of additional information that they provided to try to address many of the questions that we've asked them. Most of those questions were related to the effects of this project on fish movement between Lake Kampeska and the Big Sioux River and the opposite, from the Big Sioux River into the Lake Kampeska.

In a general sense, Game, Fish and Parks supports the City's goal to decrease the quantities of sediment and nutrients that flow into Lake Kampeska from the Big Sioux River system. But we're going to focus on the comments here today, and we have focused our review efforts on this fish passage issue. So I want to make that clear today. I'm not going to try to get into the discussion about the merits of the project. I think the engineers have covered that for you today. So we have spent considerable time discussing the

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whole fish passage issue with the City and the consultants and they've provided a lot of information that we requested.

And at this point, I think that we're fairly comfortable that the proposed structure won't preclude fish movement at an unacceptable level. I think we do recognize that there are flow conditions where fish movement will be precluded. But I think that with the information that we have about the importance of fish movement from the lake into the river, I think that we're willing to support the project as proposed. But because of some of the uncertainties regarding the future fish movement, if the structure is constructed as proposed, we've asked the City to commit to working with the Game and Fish in the future, if we discover that the structure as it's proposed right now is adversely affecting recreational fisheries, or a state-threatened species that we have in Lake Kampeska known as the trout-perch. Lake Kampeska is really one of the strongholds for trout-perch in South Dakota. And it's a population that we want to make sure that we protect.

I guess we believe that such an agreement between Game and Fish and the State in general and the City could be formalized in a couple of different ways. One, I think, is through an MOA between the Game and Fish and the City. And that has been discussed. Or another way to address it is through a condition on the Flood Control Permit, if you

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choose to approve that permit and choose to apply a special condition to it.

I think it's our understanding that the DENR staff is likely to ask the Board to condition the permit, if it's approved. And we would ask that the Board adopt some suggested language that we've provided the staff that would address this uncertainty of fish passage in the future. And I think with that, I would be glad to address any questions that the Board might have. And I think this concludes my comments.

THE CHAIRMAN: Any questions?

CROSS-EXAMINATION

By MR. KRULL:

Q. I guess, I thought you were about ready to say this, but what is the proposed language that you would request concerning -- Maybe you don't have it drafted?

A. I don't have it right in front of me. Do you have a copy of the conditions?

Q. I'm not sure that I do.

A. Okay. I'll just read the third condition, which is the condition that the staff had prepared and it was the one that we proposed to amend. It's item number three. It says the Water Management Board retains jurisdiction of Flood Control Permit No. FC-29. In the event that additional information shows that the weir and gate control system

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causes adverse upstream or downstream impacts including but not limited to, No. 1, altering the established ordinary high water mark for Lake Kampeska; No. 2, flooding to Lake Kampeska properties; No. 3, detrimental sediment transport to downstream areas; or No. 4 -- And this is the one that I suggested -- detrimental effects to recreational fisheries or the state-threatened trout-perch, attributed to the weir.

Q. So that is the language --

A. So basically a condition that would address unforeseen adverse effects to recreational fisheries or state-threatened species.

Q. Have you had communications with city employees concerning those concerns?

A. Yes. Rick and some of the HDR folks, we've discussed the most recent letter that I had written to Mr. Schlechter, I believe, a little over a week, about a week ago.

MR. SCHLECHTER: May 17 or so I think.

A. About a week ago. We have been kind of in a time crunch here as well.

In that letter, we had asked the City to let us know right away if they were uncomfortable with committing to a level of flexibility in the future that would allow us to address these fish passage issues. I think that from an

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engineering perspective, I think it's likely that we could come up with some solutions that wouldn't, you know, negate the City's overall project purposes. And I guess we just wanted some commitment there if something comes up that we don't, that we don't have enough data right now to fully understand, we'll get back together and work together to address that.

Q. Has the City expressed any problems as far as addressing your concerns?

A. No. And I guess the reason I threw out the idea of putting in the condition, I think it's just we're here discussing it, discussing a flood control permit. There is a very clear way to formalize our concern, and we felt that it might be cleanest just to have it in the permit. Otherwise, we might have a flood control permit and some conditions, and then we might have an MOU. Between the City and Game and Fish. And then there might be some, there might be some question, I think, in the future, regarding, well, which document is more important? And I think this would help address those concerns, I think, in our mind. We're willing to discuss it further with the City, if you think it's necessary.

Q. Okay.

THE CHAIRMAN: Wait a minute, Tim. Any questions?

CROSS-EXAMINATION

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By MR. LEIBEL:

Q. Tim, I do have one question. Obviously, in your role you've had considerable experience with both gated and ungated structures.

A. Yes, I have.

Q. Is it fair to say that consistently there is difficulties with gated structures?

A. I think I have to answer that yes. But I think you could almost say that about gated and ungated structures. But whenever there is a control structure, in our experience, Game and Fish, it turns out, that Game and Fish constructed a lot of them, diversions in the past or we inherited a lot of diversion structures that were constructed during the WPA day. And that's a dubious honor. They create all kinds of problems. Gated structures create problems. We have -- I can think of two right off the top of my head within the last year there have been claims against the State because of diversion structures. One of those had a control feature in it. One was so old and decrepit and abandoned that we felt that the State had really abandoned the structure. So like a supervisor of mine has said over the years, a ditch is forever. And you can probably say the same thing about any kind of water control feature. They're not without their problems, I guess is the bottom line.

MR. LEIBEL: Thank you. I have no further

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questions.

THE CHAIRMAN: Any other questions?

MR. KRULL: Mr. Freeman, I just had one more question. I'm sorry.

RECROSS-EXAMINATION

By MR. KRULL:

Q. Kind of getting back to, you know, if you're going to propose some language to the application, would you, I mean, would Game, Fish and Parks have any objection if that language included a provision that any necessary future changes will accommodate the objectives of the weir project?

A. Sure. Yes, we would be open to that. I think we've gone on record in our letter to Mr. Schlechter that we did not in any way want to do anything contrary to the City's purpose.

MR. KRULL: Thank you. That is all I had.

RECROSS-EXAMINATION

By MR. LEIBEL:

Q. One last question. Considering that there is a, or going to be a fish gate there, are other control gates vital as concerns your department?

A. Frankly, we spent very little time examining the function of those other gates. At very low levels they would accommodate fish movement. Frankly, we didn't spend a lot of time evaluating that, how those gates would be operated.

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MR. LEIBEL: Thank you. No further questions.
THE CHAIRMAN: Thank you, Tim.
BOARD MEMBER LOUCKS: I got a question for him. Did I understand you to say that gates are not without problems? But by the same token, are you saying we're better off without them?
A. In this particular situation, I think I would answer your question similarly to how I just answered Mr. Leibel's. We didn't spend a lot of time evaluating the main control gates, because it appeared to us that they weren't going to be very actively managed, and that from our perspective, evaluating routine fish passage was the most important point that we wanted to try to address. I really hesitate to render much of an opinion on the main gates themselves. I don't feel like I am qualified to say much about that because of the level of review that we applied to that.
THE CHAIRMAN: Tim, I have a question. Are you done, Bernita?
BOARD MEMBER LOUCKS: Yes.
THE CHAIRMAN: Did you have any questions? I want to state my ignorance once again, but what in the world is a trout-perch? Is it what the name implies?
A. A trout-perch is a small fish. An adult trout-perch would probably be no longer than three to four inches. They're called trout-perch because to a casual observation,

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they share characteristics of a trout as well as a perch. They're a different genus than either trout or the perch family, the perch family like a yellow perch or a walleye. They're rare enough in South Dakota that it is a state-listed species, and Kampeska is one of the real strongholds for that species that we have. We haven't observed them in Poinsett. And we feel obligated to raise that issue and to share with everybody our concern about making sure that species sticks around.
THE CHAIRMAN: Okay. Thank you.
BOARD MEMBER BRINK: Tim, I would have one question, I guess, as far as this fish movement. I doubt, in my opinion, that it's going to be very effective. Because it isn't going to happen at the right time or it may not open the gates at all. So nothing happens. Springtime or whenever they want to make some releases to level the lakes out, is really the only time the gate is going to be open.
A. But this fish notch that the engineers refer to is open all the time. It's small. But it is open all the time.
BOARD MEMBER BRINK: Where is that?
A. Can I refer to one of the -- Which one of those diagrams?
THE CHAIRMAN: Yes, we got it there.
A. You got it there. Just this small --
BOARD MEMBER BRINK: But that's releasing water all

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the time.
A. All the time.
BOARD MEMBER BRINK: That's the real fish movement position right there, then, rather than the gate?
A. And I think we heard one of the HDR engineers allude to the fact that there may be some adjustment in terms of where that weir is actually located. We believe that there actually might be some benefit of locating that closer to the channel bank so the bottom of that weir is actually closer to the channel bottom, because many of the species of fish that we have like walleyes, most of the time are near the bottom. And there is some advantage to that, I think, in terms of maintaining adequate fish passage.
BOARD MEMBER BRINK: Thank you.
THE CHAIRMAN: Anything else? Thank you, Tim. Anyone else before Diane?
Ms. Best.
MS. BEST: Thank you. DENR calls Gale Selken.
We're going to do the same thing that the other parties have done. Gale is going to go ahead and do a narrative presentation.
THE CHAIRMAN: You were sworn this morning?
THE WITNESS: Yes, I was.
THE CHAIRMAN: Thank you.

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GALE SELKEN,
called as a witness herein, being first duly sworn, testified as follows:
MR. SELKEN: This morning, the report was handed out to you. Just about everything in here has been covered. I'm not going to bore you with the history on this. I would like to point out, that the Board in 1983, I believe it was, established the outlet elevation for Lake Kampeska at 1717.8. Now that's what they call the normal lake elevation here. So that is a board established outlet. We've also established the ordinary high water mark of 1718.3. This proposed weir would be one-tenth of a foot below that ordinary high water mark. First page on the report is just a history. They started constructing, attempting to divert water into and out of this lake in 1928, '32, '33, '41, '69. It's ongoing. So to say that is pristine lake that you're going to have a drastic effect on it with this weir, no. So this area isn't an area that hadn't had a manmade structures on it.
I had five concerns with the application when it came in. That was the reason for the deferral so we could bring it in front of the Board. And the various consultants could present the information. As Mr. Schlechter said this morning, there is a time frame on the money that they want to spend. And this is a way, rather than letting six months in getting stuff to us to make a decision, we did it this way.

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I understand with the staff coming in with the recommendation of deferral, that the Board doesn't look real favorably on that because we're not giving you any information. The concerns I had, No. 1, is with the weir being set a tenth of a foot below the ordinary high water mark. I believe that has been adequately addressed in the testimony today.

Item 2, this is an extra area to be flooded in between the weir and Pelican. As I stated, this land belongs to the City. Therefore, they're flooding their own land. They don't need easements. That question is answered.

No. 3, this adds to the wave runup and the water level is higher in the lake. That question, also, is answered. And No. 5, the 28-square-mile drainage and the internal flooding, I believe that was adequately addressed. The whole issue with this permit comes down to what the statutes say you can approve a flood control permit under these certain conditions. And that condition is the project will not impair existing water rights. The issue is, do we have Flood Control Permit FC-19 for Lake Pelican which was put in as a weir that they've been talking about. There is some testimony today that the additional sediment that will be coming into Pelican, if this weir was put in would be an additional 15 cubic yards on a 24-hour, 2-year frequency storm. Before Lake Pelican's weir was put in, the testimony was 534 cubic yards would be going in there. When you're

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going to build project like these, Pelican had to go in first. Otherwise, all that flow that Kampeska would bypass the 534 would go into Pelican. So it's a stair step and they're caught in the middle with this qualification that you can't affect the downstream water, or any other waters. Is 15-cubic yards significant in that time frame? Probably not. If you do the calculations on it, I believe, like one-seventh of an inch per year. The question is, is this significant? If you look at the statutes, it says you will not impair an existing water right. You can't approve it. You simply can't. Does that mean that you absolutely can't approve another one downstream? I think the question is whether it's significant or not. The question of whether or not the gates are necessary on this, they absolutely are. We have an established outlet of 1717.8. If you don't put those gates in there and you put this weir elevation at 1718.2, you are changing the ordinary high water mark on that lake, and you're changing established outlet. So these gates will be necessary to make sure that you don't do that. So if you approve this, really, I believe that you have to have those gates in there.

The issue of maintenance and security of the gates, that's always an issue. Whether it's an irrigation well, a dam, or set of gates like this, it's always an issue. You always have somebody that thinks it needs to be changed.

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That's going to be a security issue for the City. How they handle it, we don't tell anybody else how to handle them. That's their problem. But if they don't operate according to the operation manual they have in here, then we'll bring them back and they'll probably be back in front of this Board.

My recommendation for the deferral was strictly to get this here today. It wasn't an ongoing recommendation. Whether or not a sediment loading into Pelican is significant is your question. I personally don't think it is. But here again, there is very little data on what the sediment loading is. You know, everything is based on flows. We don't know. The gentlemen over here, yeah, with enough time and money we can do it. They told me the same thing. You give me enough time and money, I can retire before I get it done. It's not an easy issue. And the way they did it with the flow, is probably the best way they can do it.

Now if you approve this, we have some qualifications. One of them is that the Board retains the jurisdiction on it. Just like they did on Lake Pelican. So that if there is an effect, we can be right back in front of you and we can get some way to either mitigate it, eliminate it, do something to correct the problem. Obviously, the gentlemen with Lake Pelican they're representing, aren't opposed to weirs. They have one themself. It's just a question of how much it's going to affect them. And the way it looks to me, it

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could be significant. It might not. I personally don't believe that the numbers that are presented here today, even though they're for a comparison purposes only, because they're aren't any studies that will tell you that 15 cubic yards is it. That's not set in concrete. It could be 30 or it could be 100. But for comparison purposes, they're valid.

With that, I'm open for questions. Oh, on the back of here, I put a map in here just showing what the various structures were and the dates that they were put in. That's more for reference than anything else.

BOARD MEMBER LOUCKS: At what point in time could you determine the amount of sediment that is affecting the Lake Pelican? You know, do they test it every year to see what the difference is, or how are you going to determine that?

A. I can't answer your question. I don't know. I believe it is going to be up to Lake Pelican group to say, our weir doesn't work anymore, because it's full of silt. It came from Kampeska. And then it's going to be an issue of how do we determine this, what's there. It's not a clean issue with the sediment because there is no data on it.

BOARD MEMBER BRINK: Well, that's the problem. You don't have a base line data to come from.

A. There is no base line to come from. In reality, like they said, Kampeska group funded Pelican's weir knowing

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that this other one was going to go in and have this stair step. And we got them in a catch 22 with this flood control application.

One other point I wanted to bring up. The question was raised this morning about why we use the flood control permit instead of the regular water right permit. Flood control permits are used as a catchall. This isn't a total appropriation. The water right is already issued. The Game, Fish and Parks has one on Kampeska. We got the flood control weirs in there. So it's already controlled. So it doesn't fall under the realm of a new appropriation. Granted, we're not eliminating any floods here, but eliminating water quality. It's a fine line of whether or not this should be here or not, but we argue this all the time. Mr. Glen and I daily have an argument about this and he usually wins, and that's why it's here, even though it's on paper. But I wanted to make that point that the purpose on this was to advertise it, get it out to the public, show them what the project is and get it in front of the Board. Now whether or not we use the flood control application process to do that or the regular water right application process. The end result is still the same. All the parties are here, you get the testimony, and you make the decision.

BOARD MEMBER LOUCKS: I have one more question.

A. Certainly.

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BOARD MEMBER LOUCKS: There was a petition here of people concerned about being flooded. Now apparently this is not going to affect them in any way; is that right?

A. I don't believe it will. They're going to reconstruct the existing flood control weir or the FC-19 -- FC-3, I believe, is the number on it, for the City of Watertown, the Big Sioux River, that's going to be reconstructed because of the way it's deteriorated to the point of essentially not functioning. With that in there, and this weir, no, I can't foresee any new flooding problems going on.

This project is looking at diverting low flows. If you're looking at flows under a thousand CFS. The rhetoric about overtopping the weir being the high flows, once this weir is submerged, you eliminate any effect downstream. Once you get to the high flow, you don't even know it's there. And if you think it's there, you can't measure it.

BOARD MEMBER BRINK: Are these operating criteria you have in your report "shall" or "may"?

A. "Shall."

BOARD MEMBER BRINK: Is "shall"?

A. Absolutely. Set in concrete. It doesn't state that in my report.

BOARD MEMBER BRINK: I was wondering if that's what your intent was that those operating conditions will be

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"shall."

THE WITNESS: "Shall." And I believe that's in our proposed qualifications. And the timing on these, granted you can get a storm in the middle of the night and who is going to know whether this elevation was reached 10 minutes ago or an hour ago. There is no way to put a timing on this saying you have to be here within five minutes of this happening with these gates. That's, as Mr. Olson stated, is the problem with gates. We're going to get calls. There is going to be a problem. We deal with them. The City of Watertown, I can guarantee will probably be calling every spring, every time it gets dry. Why are these closed? Why are these open? That's their problem. They're the Applicant. They'll ship the calls to me, and Mr. Schlechter will get them right back. So he's going to do the same back to me through the Mayor.

So there are problems of all gates and all weirs is a problem. I don't care where they're at. Personally, I don't like to ever see any of them, but that's my personal preference. In this case, if you're going to approve this weir, they have to be there. Otherwise, you're going to affect the ordinary high water mark and the outlet elevation. And I don't want to see you do that.

BOARD MEMBER BRINK: Was there any base line data that was done before the Pelican weir that could be

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correlated with what's happening now?

A. Not to my knowledge.

BOARD MEMBER BRINK: To evaluate the weir?

A. Not to my knowledge. That weir has a little different circumstances than this one. Whereas, you can still connect the old channel that was there on Lake Pelican. It would take probably a half hour and a back hoe, you could have that connected again. Where this weir, there is no other way to get water in and out of that lake, other than that inlet/outlet. And that's the purpose for those gates. You have to have some control of it. As much as I dislike them, I believe they need to be used in this project. Yes, sir?

BOARD MEMBER ROLLAG: There had been times in the past that this Board has approved some sort of permit and then one of the qualifications of the permit was to follow up with some further studies or experimental studies that could only be conducted really after the project had been completed.

A. Uh-huh (Yes).

BOARD MEMBER ROLLAG: Would that be a qualification that could be reasonably added to this?

A. You could add that to it. The problem is setting the parameters for the study. What are you going to measure? Are you going to measure the depth of water or the sediment

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behind the weir? Are you going to do grab samples? I think to set the parameters and qualifications for this permit, I don't believe is practical. Because I'm not sure what you would really look at.

BOARD MEMBER ROLLAG: Because that was more than anything really was the impact of the presediment load on Pelican as the primary parameter for the study.

A. I think you would need a background time frame to do that. And what they're looking at for a time frame, I don't believe you can collect enough data to really do that. You know, it's a good idea saying, "Here, prove that you're not affecting anything." But I'm not sure how I'd set up a study. And I know it's not going to be cheap.

BOARD MEMBER ROLLAG: I was thinking strictly cubic yards, if I were -- my interest was Pelican, I would want to know, maybe it's too late now, to conduct a background study and then follow through. But at least it would be interesting to know what this accrued sediment load into Pelican would be, if it would be significant or not.

A. That's the whole issue here. And that's why No. 4 was in here that I couldn't recommend approval or denial on it. As testified today, the data doesn't exist. And maybe it will show something and maybe it won't. This might be one where you have to approve it and watch what's happened in Pelican with their parameters. We're not going to sit there

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and say you got to grab a grab sample every hour or anything like that. But if there is, in fact, you can show it, that yes, this shouldn't be here.

In my mind, these two were supposed to be in tandem. And these weirs were talked about at the very beginning as they cooperated with the cost sharing and all that. The concerns are valid. It's how much sediment is going to go in there, and there simply isn't an answer. And right now I don't think this is an issue with what I've seen.

THE CHAIRMAN: One of the primary requirements of the statute says a flood, a permit for flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited. Is that criteria met?

A. In this case, we're correlating flow with sediment. So by reducing the flows there on the low end, by reducing the sediment, then there is a benefit.

THE CHAIRMAN: Okay. All right.

A. It's kind of up to us, but that's the way we read it and put it in here.

THE CHAIRMAN: Okay. All right.

A. As far as erosion, it's just the opposite --

THE CHAIRMAN: Any other questions by the Board? Does the City have any questions?

MR. KRULL: No, sir.

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MS. BEST: Mr. Freeman? This is out of order, but I have a couple of followup direct. But whatever order you want to go in.

MR. LEIBEL: I do have a couple questions.

THE CHAIRMAN: Okay.

MR. LEIBEL: But I can defer. Maybe her questions will answer my questions.

REDIRECT EXAMINATION

By MS. BEST:

Q. The Board's questioning of the witness prompted a couple things that I just wanted to clarify for the record. You looked at the sediment studies that Watertown's engineers looked at; correct?

A. Yes, I have.

Q. Okay. And you have, obviously, some background and knowledge regarding how these kinds of structures work?

A. How the structures work, yes. My knowledge of sedimentation is very limited. I don't work in that field. I'm in the field of hydrology and hydraulics and I don't study sediment loading.

Q. Based on your study and the background knowledge that you do have, is it fair to say that installing these weirs doesn't guarantee that sediment won't roll into the lake. It doesn't guarantee that there won't be additional sediment during an extremely high flood event? Is that fair

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to say?

A. During extreme high events, all these weirs --

MR. LEIBEL: Wait a minute. For the purpose of the record, I would object. He's indicated that he does not feel qualified as an expert to answer that question. So I would object.

MS. BEST: Yes.

MR. LEIBEL: The Board can decide whether or not they want him to answer.

THE CHAIRMAN: Well, I think we'll let him answer.

BOARD MEMBER BRINK: I don't think he wanted to.

A. If you've got high flows, supposedly, it's linear. What I've been told. The higher the flows, the more the sediment. If the weirs were overtopped, yes, you're going to have more sediment going into the lake. Obvious. You've got more water going in, you got more sediment. That's after the weirs are overtopped.

If you got a fish weir there, yes, you block part of the flows. You're going to have a three by three in there. One at Pelican, can't tell you how wide it is, but you've limited those flows so it's obvious that you didn't have the water carrying the sediment in, it's got to be lower. That's just logical.

Q. To your knowledge, some of the issues with regard to how much sediment will ultimately be involved here will have

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to do with management of the Big Sioux River upstream; isn't that correct?
A. That's one of the parameters, correct.
Q. So there is no absolute, direct correlation between how much -- That's part of the difficulty in studying, performing a study, isn't it, in terms of what this weir will cause for sediment downstream, when you've got other factors that have to be examined as well. Isn't that an example?
A. Yes, there is other factors involved. All the testimony here does not tell you other than the comparison purposes, how much sediment is in there and how it's going to affect it. Everything is based on flow.
Now if you go up in the Big Sioux and you change it with say a thousand little dams and you stop sediment up there, these projects may not be needed. Or if you put in a big dam up there. All these proposals have been kicked around for 15 years, I believe. There are ways to stopping sediment without these weirs. But here you are dealing with one entity, and in the watershed you're dealing with every farmer up there. And you got to get their coordination and their cooperation, or it doesn't work. So what they're trying to do here is get the sediment bypassed.
THE CHAIRMAN: What you're trying to do here is get the sediment bypassed?
A. That's the purpose of this project. I know there is

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working in the Upper Big Sioux with various projects, DENR, to stop the sediment coming down. I don't know how successful they are. Like I said, I haven't worked with sedimentation.
BOARD MEMBER BRINK: What is the big rush to get this project complete? I understand there is a grant application.
A. That's correct. Money.
BOARD MEMBER BRINK: And whose is it?
A. Whose is it? Right now it's the City of Watertown's. They came through CBG.
BOARD MEMBER BRINK: What is the source the fund?
A. Community Block Grant Systems.
BAORD MEMBER BRINK: From the State of South Dakota?
A. From the State of South Dakota.
BOARD MEMBER BRINK: And what's to say that that can't be extended?
A. This is part of the flood mitigation money that came into the state in 1997. There were deadlines on it of a year ago. They got extended from one year. If we don't spend this money, it reverts back to the national treasury.
BOARD MEMBER BRINK: So those money came from the federal source to the state to you.
A. To the state, but the State is administering the money.

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BOARD MEMBER BRINK: And it had to be distributed within then?
A. And it's got a deadline. That's my understanding from the people that handle the money.
BOARD MEMBER BRINK: Would that be correct from Watertown's viewpoint? I see some nods correct, for the record. Thank you.
THE CHAIRMAN: Go ahead, Diane.
MS. BEST: I have nothing further. Thank you.
THE CHAIRMAN: Mr. Leibel.
MR. LEIBEL: Thank you.

CROSS-EXAMINATION

By MR. LEIBEL:
Q. Just to quantify that figure, that guesstimate that you threw out of 15 cubic yards of sediment, we're talking what? One medium-sized dump truck?
A. That would be a large dump truck, yes.
Q. Large dump truck. And that was simply just a guesstimate?
A. That's what was presented this morning and I pulled it out of testimony.
Q. Okay. That's not your testimony?
A. No, that's not my testimony. That's what was put out here this morning for comparison purposes.
Q. So just for assumptions sake, you've accepted that

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figure.
A. I just used it for comparison purpose here to show the Board, if this is what it is, it's not significant. If it's ten times that, I don't know.
Q. And you understand that they had done no sediment loading study.
A. I have stated that. There have been no studies done on the sediment loading.
Q. So at best, that is a guesstimate as to what it may or may not be?
A. I believe Mr. Erickson this morning stated that. It was for comparison ball park figures. This is the number I'm using.
Q. Now in regards to high water mark, would it be fair to equate that to flood level?
A. No.
Q. How does flood level equate to the high water mark?
A. The high water mark in a lake is established by the process of nature. And what you're looking at are flow changes, your gravel fan bed where the water is washed all its silt and fines out. You're looking at vegetation of trees, upland grasses. Usually between a half a foot and a foot-and-a-half of the outlet elevation. In this one, the outlet elevation is established by the Big Sioux River. So if you put a weir in here without gates, you're going to hold

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that water one-tenth of a foot below the established ordinary high water mark. Over time by holding water there over there, the wave action is going to create a new one, higher.

When you do that, above the ordinary high water mark, is strictly the private land. State has no interest in it. You can't beat it. Between the ordinary high water mark and the water's edge, the public has the right to go in and swim and walk, bathe, boat, whatever, unless it gets 50 feet downward from the ordinary high water mark. At that time, the State, or the public, has no right. They can't be in there.

Q. Let's go back. If the high water mark is established, go back even farther. The height of the weir and the controlling factor right now is what?

A. The controlling right now is the Big Sioux weir that they're going to replace at 1717.8 feet.

Q. The new proposed weir, would be at what height?

A. 1718.2.

Q. Or approximately a half a foot below that; correct?

A. I believe it's five inches.

Q. Five inches below that. And in addition, three feet below that particular mark is the fish notch, at the base of the bottom of the fish notch?

A. I believe it's fifteen point zero, if I'm not mistaken. Yes, it, 1715.0. So there is an interchange between the lake and the Big Sioux at that elevation.

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Q. So in normal operation, if water is full to the top of the new proposed weir, the water would still be five inches below the control weir; correct?

A. I didn't understand your question.

Q. Okay. We have the control weir at 1718.8.

A. 1718.2 is the proposed weir.

Q. Yes, and the proposed weir is 1718.2, or five inches lower than that particular structure?

A. The Big Sioux weir, the controlling outlet right now for the lake is 1717.8 feet. The proposed weir is five inches above that. They overtop. You got a fish notch through there at 1715.0. Granted it's not what is there now with the width of the outlet. But the control for this whole thing is existing Big Sioux weir, at 1717.8.

Q. So if you reduce the height of the new proposed weir, to the same elevation, then in essence, both would be equalizing or both would be fulfilling the same function.

A. The application stated that they wanted to bypass the low flows because that --

Q. My question is --

A. Yes.

Q. That would do it, okay. In addition, you'd still have the three-foot fish notch that water would be running out at all times with elevations at or above 1715.2, or it gets to be 1714.2?

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A. It either would be running out or in through that fish notch, depending on the lake level versus the Big Sioux River.

Q. All right. So in that scenario the existence of gates would have no effect whether the water was running in or running out?

A. If they're closed, no. They are at the same elevation.

Q. If the water is at the top of the weir?

A. They would have no effect.

Q. Whether they're opened or closed?

A. That's right.

Q. Now you were present this morning when they testified in regard to the question that you raised about internal flooding.

A. Yes, I was.

Q. And that even on a 25-year event, that the water within Lake Kampeska would raise to eleven-hundredths of an inch?

A. Yes, I was. I heard that testimony.

Q. Let's assume eleven-hundredths of a foot, I guess that would be?

A. Eleven-hundredths of a --

Q. So we're talking in that particular situation less than one inch?

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A. No. 1.3 something.

Q. You're right. I stand corrected. Approximately 1.3. So the only time, if that weir was lowered, as long as the water level of the lake was 1.3 inches less than the top of the weir, that there would be no increase in flooding or rising of the high water mark?

A. You lost me about halfway through that question.

Q. Okay. That's understandable. If the weir was lowered to the same elevation -- Strike that. Assume the new weir is lowered to the same elevation as the existing weir, and the water level of the lake was 1.3 inches below that edge of the weir, and there was a 25-year storm, there would be no flooding?

A. In the lake?

Q. No flooding in the lake or no increase in the high water mark?

A. No, there wouldn't. The lake would fill, but there would be a split.

Q. So the only time those gates would have any effect is if the lake was filled to the max at high water levels or flood levels, and the event was probably well in excess of 25-year event?

A. The scenario that you just gave me with both weirs at the same elevation, any water coming down from the split is going to go in the lake and go down the Big Sioux. But

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those are the same elevation, your gates don't have any function whatsoever.
Q. Again, now, we are restricting it to the same issue that you raised with the City. Assuming an internal, we aren't talking about external. We're talking about internal. That was the example or the scenario that you asked them to address.
A. That's correct.
Q. So that means that the water is not coming out of the Big Sioux, it's coming out of Lake Kampeska drainage basin?
A. Okay.
Q. In that situation, would there be no alteration as for as the high water mark; correct?
A. With the elevation of the weirs the same elevation?
Q. Correct.
A. No, there should not be any effect.
Q. So in the event that the elevation of the weir was dropped five inches, down to the same elevation as the existing weir, that would effectively eliminate the necessities for the gates?
A. Yes. And it would also effectively eliminate the project, which is to bypass that low flow.
Q. The weir would still be in place?
A. Both of them would be, yes.

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Q. And what do you mean by bypass low flows?
A. It's stated in their application that the low flows, the first flush, is what they're trying to get rid of. They're trying to bypass. If you have the elevation for both weirs at the same elevation, you're not doing that; it's splitting just like it is now. With the flows coming in there, you have essentially no effect, you put in that 1717.8, you've eliminated the purpose for the project.
Q. And the gates are not necessary for the low flow, are they? They're more to control in that situation the high flow, because you have that additional elevation.
A. Yes.
Q. Now if we have a rather large event in the Upper Big Sioux Basin, north of Lake Kampeska, and water comes down in an amount to exceed the elevation of 1718.3, and in that scenario, again, the gates mean nothing because the water is going to go over the top of the weir anyway; correct, the proposed weir?
A. On high flows it will have no purpose, because the weirs are submerged. They're back to pre-existing conditions on both Pelican and Kampeska, and it won't make any difference. This is strictly a low flow project. The way I understand it.
MR. LEIBEL: Thank you. I have no further questions.

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MR. SELKEN: Any other questions?
THE CHAIRMAN: Thank you.
MS. SELKEN: Thank you.
THE CHAIRMAN: Anything else, Ms. Best?
MS. BEST: I would only point out that it's pretty obviously that if the Board, once the Board makes its decision, that if it's inclined to do so, we got these things proposed as possible qualifications. And we would certainly give that to the Board. But otherwise, we have no other witnesses and that's our case. Thank you.
THE CHAIRMAN: Mr. Krull, are you going to have any rebuttal?
MR. KRULL: We would like to take a short time just to have some rebuttal to the exhibit that we received this morning.
MR. KRULL: Okay. We had a chance to go over that over lunch.
THE CHAIRMAN: I think we'll take a 10-minute recess to give everybody a chance to stretch. Before we go, are the parties going to want to make closing arguments?
MR. LEIBEL: Yes.
THE CHAIRMAN: All right. So we'll have the rebuttal, cross, and then we'll go directly into closing.
(RECESS TAKEN.)
THE CHAIRMAN: Mr. Krull, are you ready to go?

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MR. KRULL: Yes, we are. We are going to have a brief rebuttal by Mr. Niedergeses. He is going to address a few issues brought up by the summation by Lake Pelican.
THE CHAIRMAN: Okay. Mr. Niedergeses, you're still under oath.
MR. NIEDERGESES: All right. Thank you.

RICK NIEDERGESES,

called as a witness herein, being previously sworn, testified as follows:

REDIRECT EXAMINATION

MR. NIEDERGESES: In the course of this afternoon's conversation, there were just three issues that were discussed that relate to the information at BARR and there were statements made that need to be corrected for the record.
I would like to begin with the note on the accuracy of the figures. And those are Figures 4.6.2 and 4.6.7. We did look at those figures and discovered that the lines as stated are erroneous as per BARR's evaluation. The reason for that is we computed individual numbers at some point. Then we used Microsoft Excel spreadsheet to graph those. We input columns of numbers, and then we used the smoothing technique, which Microsoft Excel does. It looks at the numbers and it writes an equation. And until today, I didn't realize that based on the scale that you use on the bottom, it writes a

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different equation. So indeed, the numbers that are shown on the graph, the lines don't represent the correct numbers, but the numbers that were used to compute all those things are consistent. The problem relates with the fact that when we reviewed numbers, that we reviewed points that weren't in the calculation. Okay.

The impact of the gates on the Pelican weir have been discussed fairly extensively. But we didn't get the correct dimensions. And I think it's important that we understand the configuration in the shape of the Pelican weir and exactly what it is. I grabbed a copy of the plans and I just want to quote from the plans here. The weir we discussed earlier at Pelican is not 66. It across the channel is 110 lineal feet. It has a buried weir that goes through the park, which is an additional 235 lineal feet for a total weir length of 345 feet.

There are some other important dimensions with respect to that weir that we have been talking about all afternoon that need to be stated. Firstly, the fish notch on the Pelican weir is 4.6 feet deep from the top of the weir, and has a width of two point or two-foot eight inches. About that wide. Okay? The elevation at the top of Pelican's weir is 1712.25. The normal water surface elevation is 1709.7. So the height of the Pelican weir is 2.55 feet. And compare that, please, with the elevation of the Kampeska weir of

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approximately five inches.

With respect to that, gentleman from BARR indicated that we had a situation where if we opened the gates, it would adversely impact the Pelican weir. Two issues were discussed with respect to that matter. We discussed the 25-year frequency and the .11 foot difference in the duration that it took to drain that 25-year. That was used as an example to say that the weir didn't have a need. Those computations were that short because for those computations, the gates were open. And what the purpose of that analysis was to show how effective the gates were and how important it was to include those in the purpose of those.

The second point I would like to point out is assuming that the gate is opened, incorrectly, by vandals or whatever, the only impact that can have on the gate and the function of the weir is to make that structure function more like the natural condition. So by having the vandals open the gates erroneously, that would actually have a lesser of an impact on Pelican. All right?

So the only negative impact is when the gates are supposed to be open and are closed erroneously, but these are during conditions that relate to flooding in Pelican lake and don't -- I'm sorry, in Lake Kampeska, and don't impact the downstream flows. And that's flooding. We would open it for flooding. That's not an additional flow to Kampeska. That

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is a lower flow. And those are my three comments.

THE CHAIRMAN: Thank you. Any questions? By the Board? Mr. Leibel?

MR. LEIBEL: No questions.

THE CHAIRMAN: Ms. Best?

MS. BEST: No. Thank you.

THE CHAIRMAN: Anything further, Mr. Krull?

MR. KRULL: No more witnesses.

THE CHAIRMAN: All right. That, then, concludes the evidence and testimony. I will now give the parties an opportunity for closing remarks. We'll start with the City.

MR. KRULL: Thank you, Mr. Freeman. Members of the Board, I appreciate your coming all the way up to Watertown to hear this. And it has been kind of a long day, but I appreciate the fact that you are here. We need to start doing something about cleaning up Lake Kampeska. We've talked to everybody that's had an interest in this.

The people in Castlewood met with representatives from the City, and they didn't have a problem with it.

Residents to the northeast of Watertown, up to the north of Watertown, initially, expressed some concerns. We were able to allay their fears.

The Game, Fish and Parks expressed a few concerns today. But overall, they're in favor of the project.

Mr. Selken from the DENR, obviously, has additional

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concerns. But, also, sees the value of this project. And I don't think it's accurate to say he's totally against it.

There is a few issues here. The one that we're all talking about is sediment. And I wish we could come up here and say, "This is exactly the effect on Pelican. This is exactly what is going to happen." But that's impossible. If we were to do a study, a complete study to determine carrying of the sediment up and down the river and into the lakes and out of the lakes, it would probably cost more than this project costs itself. And then there is no guarantee that we would get the whole answer or that we would get the correct answer, and it would still be based on models. It would still be based on statistics, and we still don't know.

But as Mr. Selken had said, he thinks that this is an amount that is probably not going to be significant. And I can understand why that's Lake Pelican's biggest fear, they don't want the sediment in their lake, and that's why they put their weir there in the first place. But I don't think we're infringing on their water rights sending an insignificant amount of sediment down to their weir.

We talked about the gates a little bit. And Mr. Selken just flat out said the gates have to be there because of the high water mark of the lake. The testimony today concerning the problems that happen with these gates, and I can understand that. There are problems. We think

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that the fact that the State is going to monitor this once it's installed, the fact that there are strict guidelines, the fact that they are "shall" guidelines as opposed to "may" or "might" or "should." Those are enforceable guidelines.

I'm sure there is going to be problems, but I guess that's our job is to manage those problems, the State and the Municipal Utilities Department in Watertown.

As far as the comments by the Game, Fish and Parks, we're happy that they don't object to the project. We talked about some additional language that they want. As long as the language doesn't change the main purpose and the function of this project we have no problem with that. We're more than happy to cooperate with all parties involved, and especially Game, Fish and Parks.

The last line of questioning from Mr. Leibel seemed to suggest maybe lowering the weir and eliminating the gates as a solution. But as Mr. Selken testified, that basically defeats the project. So I don't think that's the answer here.

Finally, I guess kind of a personal note. I grew up in Watertown. And I've been going out to Lake Kampeska enjoying the water since I was a little kid. And I can remember back in mid to late '70s, walking out almost shoulder depth and I looked down I could see my feet and I could see the rocks and I could see fish on bottom.

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Now if you go out there and if you go out there at the right time of the year, you get in knee deep and you can't see your feet and the lake stinks. It's time to fix the lake. I heard some comments that they're starting to see rocks five feet deep over in Lake Pelican where they couldn't see them before the weir was up. And that's the kind of advantage. That's the kind of results that we're looking for at Lake Kampeska. So once again, thank you for coming, and I would ask that you approve our application.

THE CHAIRMAN: Thank you, Mr. Krull. Mr. Leibel?

MR. LEIBEL: Let me take just a moment here.

First of all, it's not every day that I have the opportunity to address Solomon in the sense that I think you're being asked to split the baby. As we indicated in our opening remarks, and we seem to be consistently being misinterpreted by the City of Watertown.

Again, emphatically, Lake Pelican is not, and I repeat, not against the weir. As indicated, Lake Pelican participated in the finance of the study. As indicated, there is a weir affecting Lake Pelican.

Our reasons for coming before the Board today are concerns not simply for Lake Pelican. But for the Lake Pelican District, its neighbors, its residents, including, the residents of Lake Kampeska, and the City of Watertown.

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Because of the formal nature of this proceeding, not so much the hearing itself, but the only mechanism we had to raise our concerns or issues to you was by appearing before you today and presenting testimony.

We do have concerns. As is indicated by all the witnesses, there is little or no evidence, data, whatever you want to call it, as to the sediment that's going to be going down towards Lake Pelican, except for a couple things that everybody agrees on. It's going to increase the sediment. And it's going to increase the frequency that that sediment is going to come down.

Everyone hopes, everyone prays that it's a small amount. A small amount and continues. As indicated by Mr. Selken's testimony, that this is an issue that may have sometime come back in front of this particular Board, or some other agency.

Our concern was to allow you to have as much information as possible. As you'll notice, there was no objections from Lake Pelican to any exhibits presented by any party whether it be the State or the City. We felt in order for you to do your job, you had to have all the information that was possibly available.

We feel that we have pointed out some of our concerns in the form of water quality, what potentially the stagnation can do. Obviously, the sedimentation. And, also, how it

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will affect potentially the residents of Lake Kampeska.

There are some areas of disagreement. One is jurisdiction. Who actually controls that particular structure? We urge that whether it's done today or sometime in the future, that that structure is approved, the jurisdiction remain within the City. Excuse me, not within the City. Within the State. But obviously, they're going to have physical control of it. But ultimate jurisdiction rests with you.

We do have strong concerns about the gates. We see that the gates are opened when the lake is low and the Big Sioux is higher, that because of the accumulated sediment that's going to be there, it's going to increase the problem. Yes, some of it's already going down the river. But sediment is going to have to build up along here. That's the whole purpose of the structure. In a low water situation in the lake, those gates will be opened. The water flow is going to take that sediment right into the lake. That's one of our concerns about the gates. That's not an issue that's going to ultimately affect Lake Pelican, but it is going to affect Lake Kampeska and its residents.

There are some concerns as to the high flow in those situations. We believe that if you took take a look at those circumstances, that the high water mark wouldn't be affected. If you take a look and there is a disagreement there, by

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Mr. Selken, but if there is a flood event internal, and it's of such extent that the gates have to be opened under their own rules and regulations, probably the high water mark is going to go up anyway. Likewise, if the event on the Upper Big Sioux is so large that the weir is overcome, submerged, the same problem exists. The gates did little or nothing to eliminate or reduce this particular problem.

Again, we want to emphasize that we aren't trying to say we shouldn't consider a weir. You have to make the decision as to how much evidence you need, what type of studies you need, to feel comfortable in the decision that you're making that not only will impact on the City of Watertown, but on Lake Kampeska and everyone else in the drainage.

We do have concerns again, as indicated earlier, about the operating instructions. Personally, I'm not worried about the vandalism. I think the opportunity for a vandal to significantly cause harm by the opening or closing of a gate is insignificant.

What I'm more concerned about is the control of those gates by the City of Watertown. And some official, 5, 10, 15, 25, 35, 45, or 50 years down the line, who has long forgotten, because they haven't had to use their controls, arbitrarily goes out and does an event. Does something to open those gates or close those gates which could cause some damage. As indicated, the recourse right now, if you accept

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jurisdiction, will be to come back to this particular board. I dare to say by the time this Board even had knowledge of the damage, it's probably too late. The use of a board proceeding to address the issue once the horse is out of the barn, or the damage is done, the water is down the stream, is of little or no use. We think that if the gates are not in there, it significantly reduces that potential risk. Not only in the near future, but in the long run.

In hindsight, I think everybody realizes that we're dealing with kind of a stacked deck. Since the '20s, things have been done to control the sediment flowage. At the time they were done, they were done with the best intentions. With the best interests of the lake and the drainage involved. In hindsight, maybe some of those were not the best steps. Maybe it caused more damage than good. And that's one of the decisions that you have to make as to whether or not you have enough information to determine whether or not there is information to say that this is a good project with the data you have now, or if you need more.

We will rest or we will leave that to your good judgment as to that decision. We do have concerns at this time, we're asking that if you do have any concerns, that you do not approve the project, that you defer it until such time as you do have sufficient data to insure that your decision, which has long-range impact is the right one. In the event that

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you disagree, and elect to go ahead with the approval of the application, we ask that you amend the conditions of that application to again retain jurisdiction in the State; secondly, to remove the gates from the project, construct it without gates. And in the event that you still determine that it's appropriate to have gates in it, and especially keeping in mind the professed statements from both the State and from the City of Watertown, that it is vital for low flows, and in that event, you change the operating controls to deny their being open during high flow events.

Thank you for your time and consideration in this matter.

THE CHAIRMAN: Thank you. Ms. Best?

MS. BEST: Thank you. I, too, would like to thank the Board for taking the time and the trouble to come to Watertown and listen to this testimony today. Always appreciate it.

This is a tough case. Obviously the State staff had a very difficult time with this case, and ultimately ended up with a deferral recommendation. I'm not going to go into the specifics of the case at length. You heard the testimony of Gale Selken. It was the State's only witness. And he just testified, so I don't think I need to reiterate what Gale said. It's a tough decision the Board has to make.

Let me say this, though. Once the Board makes its

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decision, if the Board determines to grant a flood control permit,for construction of this weir, you can bet that there are adequate civil and criminal provisions in place to properly enforce whatever conditions this Board puts on that permit. And there is specific laws regarding vandalism, and there are specific provisions regarding civil penalties and the chief engineer's authority to enforce the requirements of this Board. Obviously, that won't be necessary, if the Board determines otherwise, and that the weir should not be approved. But I want to make that point, that we stand ready, willing, and able to enforce or implement whatever decision this Board makes. With that, again, I thank you.

THE CHAIRMAN: Thank you, Diane.

Well, that concludes the hearing, and unlike a lot of proceedings, we do our deliberations right here in front of everybody. So, Board, who would like to go first with the deliberation.

BOARD MEMBER BRINK: Well, Mr. Chairman, I would like to thank the parties for presenting with us facts that we could understand and relate to this weir. I also have had to live with this particular problem of what sharing water can be. The City of Aberdeen draws its water supply from Elk Lake. Whenever we went up to open that gate, we had to notify everybody from Ellendale, North Dakota, clear down to Columbia. We did it. We also had to take a few hay bales

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and concrete blocks out of the intake of that structure on occasion, but we live with it.

And I think, I think this project, even though we don't have all the answers, should go forward with the stipulations that as Mr. Leibel has said, he doesn't have any problems except for the gates. Well, keep the gates closed. If the gates are open, who takes the monitoring report, because we don't have any now, no base line data to determine what's going to happen to silt at Pelican. So my suggestion would be that the conditions of the report, conditions of the permit, be such that before the gates are opened, silt strength, silt load, be tested at Pelican, and a certain period after the gates are opened, that they be checked again. At least we can get some background data to see if there is any effect of releases back to the Big Sioux.

And that's the only qualification I think I would have. I think there really hasn't been any evidence prepared to show that we're going to have a tremendous or quantify those silt loadings into Pelican. And that's one way of determining it, but it does look like we've got some impact on Pelican every time we open the gates. The Board is going to retain jurisdiction in the matter. And we can address it. Long-winded deliberation.

THE CHAIRMAN: Bernita?

BOARD MEMBER LOUCKS: Well, I heard a lot of

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testimony, and I'm not sure it's an easy decision to make, because I'm not an engineer. I really think the project is needed for the City of Watertown and Kampeska. I would hesitate to vote for it if I thought it was going to adversely affect Lake Pelican. And I think I would have to share Francis's views that only time will tell. We may have to review it again and make another decision, but I think at this point I'll have to support it.

BOARD MEMBER ROLLAG: Well, I'm going to support approval of this application. I recognize that there is very limited data, probably no data on the impact on Pelican. And I think that should be evaluated as the project is operated.

I like Mr. Brink's idea that whenever the gates are operated, that someone from Pelican's interest be notified and that some sort of a line of communication be established by the City of Watertown to insure that home notification has been given, and I would also like to see some sort of sampling be conducted during these times of operation so that even though the data would be limited and maybe not completely reliable and permanent of what the sediment dynamics are.

I like the idea that the State of South Dakota, the Board of Water Management retain control of this project, and that it delegate operation of the gates to the City of Watertown, and that they be advised that the control of gates

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be under the responsible operation.

I think we should include the Game, Fish, and Parks language in the qualifications for approval of the permit. But basically I can see that there is some very positive things that can happen if this project goes through, and I'm going to support it.

THE CHAIRMAN: Leo?

BOARD MEMBER HOLZBAUER: Yes, Mr. Chairman. Myself, I'm in favor of this permit. And I rely very heavily on the engineer's ideas, and I go along with the other three. And, also, with that, I can say with sediment being a problem on gates, at the gate deal there is today's day and age, there is ways of controlling the sediment movement, with centrifugal movement of mechanism with the water. They've been working on it. It's working in the Nibrair River down there at the Missouri, and things like that. So there is ways of handling that sediment. Sure, it's costly, but that's going to be a big issue. It's not something that should be detrimental to stopping the advancement and improvement of the lake's here in our state. So with that, I would support, I would support this.

THE CHAIRMAN: Thank you. For my part, I'm going to vote against the project. Not because I don't think it's worthy. I do think it's extremely worthy. But I'm fearful of the precedent that we are setting by disregarding the

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statutory language. I think SDCL 46-2(A)-11, is very, very specific that we cannot grant this permit if it impairs existing rights. I think every ounce of testimony agrees that it is going to impair Pelican lake's rights. So the question becomes whether or not it's what the law would term de minimis, or I would term it insignificant impairment. If it's insignificant impairment, then I think we could go ahead with the project and I certainly would.

My problem is, nobody has been able to say whether it's going to be significant or insignificant. It could be for comparison purposes only 15 cubic yards, all the way up to I believe the testimony was 100 yards, cubic yards. We don't know. We have no way of measuring at this point in time. Personally, that doesn't present a big problem to me. But from the legal standpoint, I don't see how we can say the impairment is insignificant when we don't know what the impairment is, i.e., what the sediment is.

I also, for my own purposes, think we are really stretching it to call this a flood control permit. And I'll be very honest with you, I think if a court reviewed this, they'd kick us out after approving it on both of those. No. 1, how do we know if it's an insignificant impairment? How is Mr. Guhin going to write a finding of fact saying it impairs it, but it's insignificant we kind of think.

And secondly, I think the Court would say, "Board, you

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don't have jurisdiction. It's not a flood control permit." Everybody here said it's not a flood control. Gale, and the division are very creative in trying to bring it in that purview. And I appreciate that creativity, but I'm not sure a judge will.

I have nothing against the project. I think it's a good project. Hopefully, it will accomplish its purposes, but I just can't support it because I think we're just stretching the statutory language a little too far.

BOARD MEMBER BRINK: Why didn't you open?

THE CHAIRMAN: I'm not supposed to. I'm hearing officer.

BOARD MEMBER BRINK: You never explained that to me that way before.

(LAUGHTER.)

THE CHAIRMAN: If there is nothing further, I will accept the motion, or Mr. Guhin.

BOARD MEMBER BRINK: Maybe our attorney has some advice for us.

MR. GUHIN: The point as to whether or not that this is a flood control permit certainly has to be considered. I mean, what the statute says is permit for flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited. And the Board has to determine that that will actually occur.

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If from the evidence you can do that, well, that's fine. But obviously, that's an issue.

And the other issue that Mr. Freeman raised, the project will not impair existing water rights. I think the burden is on the proponent of the permit, that being the City of Watertown, to demonstrate to you that the project will not impair existing water rights. If the impairment is de minimis and insignificant, then I think the statute, I agree with Mr. Freeman, if it's insignificant, then we can go ahead anyway. If it's not insignificant, if it hasn't been shown to be insignificant, then I think the statute says you can't go ahead. So I say, go ahead. I don't have any quarrel with the legal analysis that the hearing chairman just gave. But there are based, factual questions in regard to what's going on here.

BOARD MEMBER BRINK: But if our decision is to be appealed, what's the time frame for that?

THE CHAIRMAN: This is in regard to our federal funds.

BOARD MEMBER BRINK: That's what I'm getting at. Is the project out the window? What's --

MR. GUHIN: My recollection, and anybody who wants to can -- We will have to enter, the Board will have to enter findings and conclusions unless it wants to try and go right on the spot here at some further meeting or telephone

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conference, however, you want to do it. If there is an appeal taken, my recollection is the decision is stayed; is that right? Anybody want to talk about that?

MS. BEST: Yes.

MR. GUHIN: The decision does not come in effect if there is an appeal; is that right?

MS. BEST: Well --

MR. GUHIN: I can never remember that.

MS. BEST: There is a couple things with regard to time line I can go ahead and address. If you do approve the permit, we can schedule a telephone conference when and we get those findings done faster.

THE CHAIRMAN: Yes, quickly.

MS. BEST: We can get that issue done. With regard to appeal, it used to be that the administrative action became effective within 10 or 20 days, unless somebody came in and went to the Court and applied for a stay of the Board's order. Your time for appeal was 30 days, but you only had 10 or 20 days to come in and apply to the judge for a stay.

Well, that got changed just this last year, It's effective. So it can be -- I mean, there is no specific time period. I mean, it can be stayed any time, apparently, during the pendency of an appeal. So that makes it, you know, more difficult for somebody to construct pending, is

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what I'm saying.

THE CHAIRMAN: Obviously, I think both parties to this know that if it's appealed, it can effectively at least kill the federal funding. I'm not sure we'd have gone to all this trouble, if somebody was looking to appeal. I think even with the Board's indication that they're going to approve it, I would sure like to see the proposed conditions that I think the division has put together. Because I quite frankly, I think some of the conditions that we put on there would hopefully satisfy the interveners enough to avoid the necessity of appeal.

Again, I'm not trying to kill the project. I try not to look at just one case. I try to look at the impact it's going to have on every case in the future that this Board sits on, and that's where I get really, really nervous.

Did you indicate, Diane, that you all had some --

MS. BEST: Yes, we certainly have something that we can hand out. And since we're presenting something additional, I think it's only fair that the other sides get, the other two parties, obviously, get a shot at making some comments on them as well.

THE CHAIRMAN: Yes, I have no problem with that.

MS. BEST: What we have had, obviously, does not include some of things that the Board raised. So it's pretty clear once you see it, that there will be a lot of -- I'll

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just hand these out. There will be a lot of changes that you all will want to make.

Why don't we ask Eric Gronlund to go through and make some comments in regard to these.

THE CHAIRMAN: All right. And then we'll open it up for the other parties to comment as well.

MR. GRONLUND: Eric Gronlund. Last name is G-R-O-N-L-U-N-D.

Couple of comments. And then as Tim Olson was up here, he made a comment and that was something that we had incorporated after we had drafted this back up. But I would inform the Board, you're used to usually seeing qualifications, when we send out our recommendation on an approval, but in this case, whether we're recommending denial of an application or deferral, we generally try to take what we believe are some of the potential qualifications and to write them down so that if the Board decides to move forward with approval, that they will have a working document to go from, and that's what this is. I believe Tim Olson's comment would be attached to No. 3, and the last one would be No. 4, detrimental effects to recreational fisheries.

THE CHAIRMAN: Slow down. We're writing.

MR. GRONLUND: Ready? Detrimental effects to recreational fisheries or the state-threatened trout-perch period.

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THE CHAIRMAN: Is that one word or two? Is trout-perch one word or two?

MR. TIM OLSON: I believe it's hyphenated.

MR. GRONLUND: Yes, it's hyphenated. Just for clarification the four after the No. 2 item would then be taken out.

The other issue and I might ask the City of Watertown for clarification, because of other water rights issues that I've dealt with them on, my understanding is that the City of Watertown and the Watertown Municipal Utilities Department are separate entities.

MR. KRULL: Yes.

MR. GRONLUND: So I don't know if we say City of Watertown, all the other testimony today, they always said the Watertown Municipal Utilities Department would be the responsible party for operating the gates. If that's so, we should have them listed instead of just the City of Watertown.

MR. KRULL: The Municipal Utilities isn't part of the City.

MR. GRONLUND: I'm confused. I can remember other appropriate water rights that I've worked with them, and they've always kept a separation between calling them the City and the Municipal Utilities Department and I'm not sure why.

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MR. KRULL: As I said, the Municipal Department is a department of the City. Has its own board. Brad, can you help me out here?

MR. BRAD JOHNSON: They act pretty much independently with their own board. And the intent would be for them to and their board to be the coordinator.

THE CHAIRMAN: I think we would be better holding the City responsible, if the City wants to delegate it to that department. And at least that would be my feeling. I think we would have more clout over the City than the Board within the City.

MR. GRONLUND: I just want to bring that up as a point. The only other issue that I heard when the Board was discussing was Mr. Brink's comment, and this isn't the right language, but left it to Mr. Guhin to craft something, but basically before the gates are opened, silt load or strength monitoring take place at Lake Pelican. And I got the impression that some of the other board members felt that would be worthwhile.

THE CHAIRMAN: Could I ask a general question, maybe somebody could help me here a bit? Why are we opening the gates during high flows when everybody seemed to agree that it makes absolutely no difference? And I think that would placate Lake Pelican a little better. Does it make any difference?

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MR. KRULL: Could you ask the question again? I am sorry.

THE CHAIRMAN: Why are we opening the gates during high flow, if it makes no difference?

MR. NIEDERGESES: It's to lower back to its normal lake level, to allow it to go back down, because the weir is above the normal lake level. So if the lake fills to the full level, which is the top of the weir, it will drain off your fish notch, but rather slowly. By opening the gates we can allow the drop down back to a pool level, which is controlled by the Big Sioux River weir. That's the reason. So that we don't get wind/waive action.

THE CHAIRMAN: Does either of the parties have any comments on the proposed conditions that we're now considering it looks like?

MR. LEIBEL: In response to the last comment, we would disagree with that. We think that's a misstatement. Maybe not of the City's position, but Mr. Selken's position as to the reason for the gates was the high water mark. We still are of the position that there is no benefit in that method.

Obviously, at this time, I don't have the authorization or right to consent or agree to any of these. That's going to be a decision for your particular Board as to whether or not you adopt one or all of these potential qualifications.

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In regards to the sampling, I would suggest that maybe you want to address who should do it, who should pay for it, who should keep the records on it, and who should keep copies of the records.

THE CHAIRMAN: Any suggestions, Mr. Brink?

BOARD MEMBER BRINK: Well, I'm just still struggling here a little bit with how to maybe justify this being a motion with some kind of evidence to show that we've got negative impact, or minor impact. And this is an awful lot to ask of Mr. Guhin, when he gets ready to write this up. But if you just look at the numbers that we were talking, we were given with 1150 cubic yards, and I don't know if that total is wrong. At 65 of silt, we had 325 going into Pelican and 534 going into Kampeska. And then after Pelican, the dam was put in, that 325 was reduced to 58. And I was just playing with numbers. That's quite a reduction. But now if we take the 534, that went into Kampeska before, put it back in the creek here, and all except 73 cubic yards of it, put all of that back into the -- take that same percentage of that, it's pretty small amount yet as far as cubic yards. That's where I'm coming from as being minor impact. Now half is important. So we only got 25 percent silt load going into Pelican to start with. Now we're releasing it by another half, so now it ends of getting to be a very small percentage. But it's not zero. And so I would say we just

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try it. If we get appealed, these folks are no worse off than if we turned them down today in the first place. Whether you agree with that or not, at least it's a run at it. We've been beat before.

THE CHAIRMAN: Yes, we have.

BOARD MEMBER BRINK: We'll be beat again. But I personally feel that the impact to Pelican will be small amount. It's also going to be monitored with testing. And this Board is going to retain control. And we are going to find out.

THE CHAIRMAN: Who does the testing? Who pays for it?

BOARD MEMBER BRINK: I think the City of Watertown is responsible, in my opinion. The City of Watertown should be responsible for notifying Pelican we're going to open, go on down and get their samples. Get their samples a day later, if that's how long the flows take to get from the outlet to Pelican, check it again, keep a record of it, report it to the Board, report it to the staff, and subsequently, report it to the bureau. Of course, report it to the Pelican folks. So granted, we may not have a 1-year, 2-year, 5-year event for 10 years. I don't know how long it's going to take to get that information, but every time we have an opening of the gate, we're going to want some information.

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THE CHAIRMAN: Yes, I agree with that.

BOARD MEMBER BRINK: I'm off the Board next year, so we'll see you then. No, never mind, that's fine.

BOARD MEMBER ROLLAG: Usually, when we have these kinds of things, we have a plan developed by the City, approved by our chief engineer, and it's all paid for by the City.

BOARD MEMBER BRINK: That's the way I remember it.

THE CHAIRMAN: Well, I think it's pretty clear to me, folks, that if we weren't under the gun with the feds, we would defer this and tell them to come up with an acceptable plan to measure and monitor, but we're under the gun here.

BOARD MEMBER BRINK: Well, these guys are under a time constraint.

THE CHAIRMAN: Here is the condition John wrote, an additional condition No. 4.

MR. GUHIN: This I hope follows what's been suggested. Before the gates as described in paragraph one are open, the silt load entering Lake Pelican shall be measured. Silt load shall also be measured during the time in which the gates are open. The Applicant is responsible for measurements, which shall be supplied to the DENR.

BOARD MEMBER BRINK: And Pelican have authorization, or do we intend for the DENR to furnish it back to Pelican so that --

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MR. GUHIN: Well, it would be public information at that time.

BOARD MEMBER BRINK: Okay.

THE CHAIRMAN: Any other discussion from the Board?

BOARD MEMBER LOUCKS: I have just a comment here. I think it's unfortunate that through all this testimony it was never brought up that something might not be legal. That we're questioning here whether we have the authority to do this or not. Under the circumstances, that hadn't entered my mind.

THE CHAIRMAN: Well, that's just a statutory interpretation. And ultimately that issue would be decided by a Judge if the matter were appealed. If the matter is not appealed, obviously, we are exercising jurisdiction by approving it, and we're saying that the majority of the Board's interpretation is that it be insignificant sediment impact on Lake Pelican based on the testimony. That's a decision we make. Some judge may second-guess that.

BOARD MEMBER BRINK: Ten years down the road, could this permit be nullified because somebody made a determination that we didn't have jurisdiction?

THE CHAIRMAN: No.

BOARD MEMBER BRINK: It has to be made within the time frame.

THE CHAIRMAN: That would have to be made quickly, I

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think.
MR. GUHIN: I don't see how you could. It would be now or never in my opinion.
BOARD MEMBER BRINK: Well, we wouldn't want anybody to go ahead with sticking a bunch of money into a project and then perhaps five years down the road, somebody come back and ultimately null it. Okay.
MR. GUHIN: I don't know.
MR. KRULL: Mr. Freeman, I'm sorry. We were really unable to hear condition number 4.
MR. GUHIN: This is what I have. Before the gates are opened as described in paragraph 1, the silt load entering Lake Pelican shall be measured. The silt load shall also be measured during the time in which the gates are open. The Applicant is responsible for the measurements which shall be supplied to the DENR.
THE CHAIRMAN: Which means you're all going to have to send a guy down with a tub.
MR. KRULL: Right.
BOARD MEMBER ROLLAG: I kind of like the word "operated" instead of "open," related to the closing.
MR. GUHIN: Oh, yes.
BOARD MEMBER BRINK: I think we need to get some base line data here. Any time something is changed with the valve, that's right. Open or closed.

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(PAUSE IN PROCEEDINGS.)
BOARD MEMBER BRINK: Got it?
MR. GUHIN: To add to paragraph 4, the DENR shall approve the operating plan under this paragraph. And if it turns out there is problems with this, if the Board approves this and it turns out there is problems with this, that are technical, the parties can always come back and get it changed.
THE CHAIRMAN: I think quite frankly it's going to take a little bit of time to figure out how we're going to do this monitoring, how often, if it's necessary after the first year or two years, should we do it just after a main event. So if we leave the details up to the City, subject to DENR's approval, then we can come back and fine tune it without involving this Board. Because that's, you know, you guys are the ones with the technical expertise. So that would be the intent of that addition is you guys work out a plan that you think is acceptable, DENR approves it, and then it can be fine-tuned with Lake Pelican's input, I would assume.
BOARD MEMBER BRINK: DENR would make their approval, of course, with some concurrence with the Pelican group or at least involve them in it, because some place you're going to have to pick up samples. Maybe you're going to have to trespass in order to get it whatever.
MR. SELKEN: May I ask a question? We don't have to

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have your approval on the plan.
THE CHAIRMAN: No, you're the one that approves this as submitted by the City as opposed to Board --
MR. SELKEN: If they have approval, this can kill the whole project.
MR. CHAIRMAN: We understand that. You ultimately approve it, but we certainly will like input from both parties; otherwise, it will come back to us.
BOARD MEMBER BRINK: Are you ready for a motion?
THE CHAIRMAN: I'm ready for a motion.
BOARD MEMBER BRINK: Well, I move approval of Flood Control Permit FC-29, with the Board qualifications as printed, plus, as to be developed for No. 4.
THE CHAIRMAN: We have a motion. Is there a second?
BOARD MEMBER ROLLAG: Second.
THE CHAIRMAN: Any discussion? All in favor signify by saying aye.
(AYES SPOKEN COLLECTIVELY.)
THE CHAIRMAN: Opposed same sign. Aye. The motion is carried.
Findings. When do you want them, Diane? I'm assuming the City would like to award contracts tomorrow.
MS. BEST: We propose a schedule where a month down the road findings and decision could be, final determination could be made by the Board in a telephone conference call,

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which would put us -- I don't know if that's adequate time. I don't know who is going to prepare the findings, whether it's board counsel or me. And so I don't know -- Let's see. We have to have by board rule here it points out to me.
MR. GUHIN: All that's waivable.
MS. BEST: It's waivable, unless otherwise directed, and it has to be 20 days before the next regularly-scheduled meeting. But I don't think that rule can be changed.
THE CHAIRMAN: When do you guys need it?
MR. SCHLECHTER: We really need to be done with construction by about the end of August.
THE CHAIRMAN: Right.
MR. SCHLECHTER: Al, can you comment on construction time?
MR. AL ERICKSON: Of course, as soon as we can get started, the better. We would like to advertise this for bids next week. We would have liked to have advertised last week, and this week for it. But we would have been taking too big of a gamble, so we opted not to. The things that came out of this today aren't going to change the project significantly. We can finish things up pretty quickly next week, like, advertise. We're going to advertise for two weeks plus a few days, two-and-a-half weeks. And if at all possible, if we could have an answer before that, it would make our bidding situation a lot easier, because the

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contractor would know that he is going to build the facility.
At any rate, the Big Sioux River weir improvements are going to go, so he could have a portion of the work. But if he had to gamble on the second part, he would likely have to inflate his bid to cover that.
THE CHAIRMAN: Yes.
MR. AL ERICKSON: So if we can have an answer before we open the bids, a few days before that, we could notify them by addendum, that would be great.
THE CHAIRMAN: If we were to get the findings out the end of next week, then, would a week be sufficient for you to review them?
MR. GUHIN: We could fax them to you by next Friday and then try and set up a phone conference later the following week.
THE CHAIRMAN: A phone conference for the Board to rule on the findings.
MR LEIBEL: Are you asking --
THE CHAIRMAN: I am asking you.
MR. LEIBEL: Asking me? Without looking at my calendar, I couldn't say for sure. We would sure try to review them within that period of time.
THE CHAIRMAN: Well, I tell you what. Why don't we -- Mr. Guhin will fax them to the parties on or before next Friday, and then Eric, wait a couple three days, and

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then start contacting the parties and find out when they feel they could be ready for hearing and then start contacting us.
MR. GRONLUND: Okay.
MR. GUHIN: Are there any other parties that want to be faxed? We got the City fax numbers.
THE CHAIRMAN: Any other parties want these proposed findings faxed to them, other than the Division, Pelican, and the City?
MR. GUHIN: Otherwise, we'll just mail them to you.
MS. BEST: We will get them to Game, Fish and Parks.
MR. GUHIN: Okay.
THE CHAIRMAN: We will mail them to everybody else who is listed as an intervener, but we will fax them to those three parties. And then Eric, you can get on the horn and try and set up a hearing.
MR. GRONLUND: Okay.
THE CHAIRMAN: Yes, good luck, Eric. I believe that concludes the hearing, unless there is loose ends to tie up.
BOARD MEMBER [illegible]: I move adjournment.
BOARD MEMBER [illegible]: I second.
THE CHAIRMAN: We have a motion and second. All in favor say aye.
(AYES SPOKEN COLLECTIVELY.)
THE CHAIRMAN: Opposed? Motion carried.
(HEARING ADJOURNED AT 4:00 P.M.)

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STATE OF SOUTH DAKOTA)
: ss
COUNTY OF CODINGTON)

CERTIFICATE

BE IT KNOWN that the foregoing Proceedings was taken before me, NANCY McCLANAHAN, a court reporter and a notary public in and for the County of Codington, State of South Dakota; that the foregoing witnesses before testifying were duly sworn to testify to the whole truth; that the questions propounded to the witnesses, the answers of the witnesses thereto, any objections or statements of counsel, and rulings of the hearing officerr were taken down by me stenographically and thereafter typewritten through computerized transcription under my direction; and that the foregoing 3-196 pages are a true and correct transcript of all of the proceedings had upon the taking of said deposition, all done to the best of my skill and ability.

DATED at Watertown, South Dakota, Codington County, on this _____ day of _____, _____.

_____
NANCY McCLANAHAN
RPR/RMR/NP

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5/25/2000, AT 8:30 A.M.

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Steve Klein	108	120,		
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City Exhibit 6 - Big Sioux River Discharge Frequency Relationship Between Lake Pelican and Lake Kampeska	38	38	38
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605-256-4597
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L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)

October 25, 2002

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OCT 30 2002
WATER RIGHTS
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Diane Best
Attorney General's Office
500 E. Capitol
Pierre, South Dakota 57501

VIA FAX 605-773-4106

Re: Flood Control Permit Application FC – 32 City of Watertown

Dear Diane:

Pursuant to the requirements of the Water Board and our previous conversation please find enclosed copies of the Perpetual Easement and Temporary Construction Easement which have been recorded in the Office of Register of Deeds, Codington County, South Dakota. Obviously, these are for the property subject to FC 32.

For your information I have been advised by the Lake Pelican Water Project District that the culvert material will be arriving on site sometime around October 28th or 29th. This is to confirm my comment to you that the Lake Pelican Water Project District has **no** intention of commencing construction on the project until the permit is issued by the State. The manufacturer of the pipe desired the materials to be removed from their plant and therefore it will be stored at the construction site until used.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

rleric@hcpd.com *jmleibel@hcpd.com* *alangner@hcpd.com*

2002-6624 14-
BOOK 4P PAGE 783 3pp

State of South Dakota } SS.
County of Codington

OFFICE OF REGISTER OF DEEDS
Filed this 11th day of Oct
2002 at 10:30 o'clock A M
Book 4P Page 783
REGISTER OF DEEDS/DEPUTY

Prepared by: Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042
(605) 256-4597

TEMPORARY CONSTRUCTION EASEMENT AGREEMENT

For and in consideration of One and no/100 ($1.00) Dollar and other good and valuable consideration, receipt of which is hereby acknowledged, Bart D. Bones, Jr. and Stefani A. Bones, husband and wife, of Watertown, South Dakota, hereafter referred to as "Bones", does hereby grant unto Lake Pelican Water Project District, a political subdivision of the State of South Dakota, Watertown, Codington County, South Dakota, hereafter referred to as "LPWPD", a temporary construction easement area, on, over, through and across the real property belonging to Bones and situated in Codington County, South Dakota described as:

The Northeast Quarter (NE1/4) of Section Twenty Four (24), Township One Hundred Nineteen (T119) North, Range Fifty Two (52), West Of the 5th P.M., Codington County, South Dakota

NOW THEREFORE, it is further covenanted and agreed and understood by the parties as follows:

1. This agreement shall be in full force and effect for a period from the date of the signing of this agreement until June 30, 2004 or until the project is completed, whichever is sooner.

2. In general conformance with the plans and specifications now on file or to be filed in the offices of LPWPD and its engineer, Barr Engineering, the LPWPD may use said real property and clay deposits thereon as deemed necessary for the construction of said flood control structure; that the LPWPD its agents, representatives, assigns or any Contractor employed by the LPWPD may enter upon the above described premises owned by Bones and make upon such premises such creek channel changes and other related improvements as are deemed necessary for the proper construction of said flood control structure.

3. It is agreed and understood that all disturbed area used to construct the flood control structure shall be sloped, graded, tilled and restored as soon as practical after the construction of said flood mitigation facility and the disturbed area shall be left in a neat and workmanlike manner.

4. Bones grants permission to the LPWPD to enter upon the above described property to commence construction upon approval of this Agreement.

5. This instrument and the benefits and obligations herein contained shall inure to the benefit of and be binding and obligatory upon the heirs, executors, administrators, successors and assigns of the parties hereto.

Bert D. Bones, Jr. BD.B.Jr.
Owner

Stefani A. Bones

LAKE PELICAN WATER PROJECT DISTRICT

By: _____
President

ATTEST:

Sheila Maag
Secretary

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF CODINGTON)

On this 7 day of October, 2002, before me the undersigned officer, personally appeared Bert D. Bones, Jr. and Stefani A. Bones, known to me or satisfactorily proven to be the persons whose names are subscribed to the within instrument and acknowledged that they have signed the same for the purposes therein contained.

IN WITNESS WHEREOF I hereunto set my hand and official seal.

L. Mae Mesberg
Notary Public, South Dakota
My commission expires: February 3, 2006

SEAL

L. MAE MESBERG
NOTARY PUBLIC, SOUTH DAKOTA

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF Codington)

On this the 7 day of October, 2002, before me, the undersigned personally appeared Julian Wick and Sheila Maag, who acknowledged themselves to be the President and Secretary respectively, of the Lake Pelican Water Project District, a South Dakota corporation, and that they, as such President and Secretary being so authorized to do, executed the foregoing instrument by signing the name of the corporation for the purposes therein contained.

In witness whereof I hereunto set my hand and official seal.

L. Mae Meseberg
Notary Public, South Dakota
My commission expires: FEBRUARY 3, 2006

L. MAE MESEBERG
NOTARY PUBLIC, SOUTH DAKOTA

SEAL

2002-6623

14-
3pp

BOOK 4P PAGE 782

State of South Dakota }
County of Codington } SS.

OFFICE OF REGISTER OF DEEDS
Filed this 11th day of Oct
2002 at 10:45 o'clock A m
Book 4P Page 782
Ruth Rose
REGISTER OF DEEDS/DEPUTY

Prepared by: Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042
(605) 256-4597

PERPETUAL EASEMENT

For and in consideration of One and no/100 ($1.00) Dollar and other good and valuable consideration, receipt of which is hereby acknowledged, Bert D. Bones, Jr. and Stefani A. Bones, husband and wife, of Watertown, South Dakota, hereafter referred to as "Bones", does hereby grant unto Lake Pelican Water Project District, a political subdivision of the State of South Dakota, Watertown, Codington County, South Dakota, hereafter referred to as "LPWPD", a perpetual and permanent right, privilege and easement, over, through and across the real property belonging to Bones and situated in Codington County, South Dakota described as:

> That part of Section Twenty-Four (24), Township One Hundred Nineteen (T119) North, Range Fifty-Two (52), West of the 5th P.M., Codington County, South Dakota described as follows:
>
> The Northeast Corner of Section Twenty Four (24), thence westerly along The north line of Section Twenty Four (24) a distance of 1,250 feet; thence South to the south right-of-way line of South Dakota State Highway 20 to the Point of beginning; thence south a distance of 800 feet; thence West a distance of 300 feet; thence north to the south right-of-way line of said Highway 20; thence easterly along the south right-of-way line of said Highway 20 to the point of beginning.

For the purpose of, for, or in connection with the construction, operation, maintenance, and inspection of the following described works of improvement on the above described land; for the flowage of any waters in, over, upon or through such works of improvement and the above described real estate; and for the temporary storage and detention, either or both, of any waters that are impounded, stored, or detained by or in connection with the construction, operation, maintenance, and inspection of a flood control structure.

It is agreed that:

1. This easement includes the rights of ingress and egress at any time over and upon the above described land of the Bones and any other land of Bones adjoining said land if necessary to

2. the construction, operation, maintenance and inspection of such works of improvement. LPWPD will exercise its right of ingress and egress on public roads and lands except at appropriate locations designated jointly by Bones and LPWPD. LPWPD will not unduly cross lands without authorization. LPWPD will be obligated to repair any damage to Bones' adjoining lands that might result from said crossing.

2. LPWPD or its successors or assigns, shall be responsible for operating and maintaining the above described works of improvement. LPWPD assumes risk of and shall indemnify and save Bones harmless from and against any and all claims, demands, actions, or of suits in law or in equity; including costs and expenses incident thereto, and for all reasonable attorney fees for or on account of injury, damage, or loss to the person or property of others caused by LPWPD while construction, operating, maintaining or inspecting Bones' flood control structure or that may be caused by LPWPD in its exercise of any of the rights herein granted by Bones to LPWPD.

3. There is reserved to Bones, their heirs and assigns, the right and privilege to use the above described land of Bones and any other land of Bones adjoining said land as specified above, at any time, in any manner and for any purpose not inconsistent with the full use and enjoyment by LPWPD

4. This instrument incorporates and describes all of the grants, undertakings, conditions and considerations of the parties. Bones, in executing and delivering this instrument, represents that they have not relied upon any promises, inducements or representations of LPWPD or its agents or employees, except such as are set forth herein.

5. By this agreement LPWPD does hereby have and hold the aforesaid easement in, over and upon the above described land of Bones, with any and all the rights, privileges and appurtenances thereto belonging to LPWPD.

6. This instrument and the benefits and obligations herein contained shall inure to the benefit of and be binding and obligatory upon the heirs, executors, administrators, successors and assigns of the parties hereto.

IT WITNES WHEREOF, the parties of the first part have hereunto set their hands and seals this 7 day of October, 2002.

Bert D. Bones, Jr. BDBJr

Stefani A. Bones

Owners

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF CODINGTON)

On this 7 day of October, 2002, before me the undersigned officer, personally appeared Bert D. Bones, Jr. and Stefani A. Bones, known to me or satisfactorily proven to be the persons whose names are subscribed to the within instrument and acknowledged that they have signed the same for the purposes therein contained.

IN WITNESS WHEREOF I hereunto set my hand and official seal.

L. Mae Meseberg
Notary Public, South Dakota
My commission expires: February 3, 2006

L. MAE MESEBERG
NOTARY PUBLIC, SOUTH DAKOTA

SEAL

STATE OF SOUTH DAKOTA

OFFICE OF ATTORNEY GENERAL
500 East Capitol Avenue
Pierre, South Dakota 57501-5070
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MARK BARNETT
ATTORNEY GENERAL

LAWRENCE LONG
CHIEF DEPUTY ATTORNEY GENERAL

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WATER RIGHTS
PROGRAM

November 7, 2002

MEMORANDUM

TO: Members of the Water Management Board and Interested Parties

FROM: John P. Guhin, Deputy Attorney General

RE: In the Matter of the Application for Flood Control Permit No. FC-32, Lake Pelican Water Project District

In accordance with the direction of the Board, I am herewith enclosing proposed Findings of Fact, Conclusions of Law, and Final Decision. Please see the Notice of the Chief Engineer dated September 27, 2002, for further information.

cc/enc: Francis E. Brink
Rodney Freeman
Marian Gunderson
Leo Holzbauer
Bernita Loucks
Dwayne Rollag
Jay Leibel
Julian Wick
Richard Schlechter
Stanton Fox
Brenda S. Barger
Garland Erbele
Diane Best

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-32, LAKE PELICAN WATER PROJECT DISTRICT.	)))))	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL DECISION

FINDINGS OF FACT

1. This is an application by the Lake Pelican Water Project District for a Flood Control Permit. Applicant proposes to construct a flood control dam in Codington County, approximately thirteen miles northeast of the City of Watertown. The City has intervened.

2. The proposed flood control dam will be 20 feet high with a 60 inch diameter outlet structure. The outlet structure, which is non-gated, will be located at the upstream embankment toe and there will be no permanent storage associated with the dam.

3. The dam will have a temporary maximum reservoir capacity at the top of the dam elevation of 73 acre feet of water.

4. The dam is classified as a small size, category 3, low hazard dam. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 25-year frequency event.

5. The proposed dam has a drainage area of 943 acres or 1.47 square miles. A 25-year frequency event for this drainage area produces a peak run-off of 205 cfs. The proposed dam is designed to have a 60-inch diameter RCP outlet structure with

16 feet of available freeboard. A 50-foot wide secondary spillway will also be available and will have one foot available of freeboard and a capacity of 150 cfs.

6. There is no dispute that the proposed dam will have the capacity to pass a 25-year frequency event.

7. A Flood Control permit may be issued only if it meets the requisites of SDCL 46-2A-11. The burden is on the Applicant to demonstrate that the requirements of the statute are met. The main question in controversy is whether the project will reduce damage from flooding or erosion in the area purposed to be benefited. The Board credits the evidence of Mr. Steven Klein, a Registered Professional Engineer in this regard. Mr. Klein testified that the project is to be placed on a tight bend area and that erosion is caused immediately downstream of the area. Mr. Klein further testified that the action of the flood-control dam will slow the waters so as to decrease the erosion in that area. The Board has considered the conflicting evidence of the engineer for the City of Watertown, but that testimony indicated only that the witness had not seen any erosion occurring; the witness had not, however, actually walked the site in question. The Board finds that the project will reduce damage from flooding or erosion in the area downstream of FC-32.

8. The Board has also considered whether the project will increase the likelihood or severity of flood damage in areas other than the project area. The evidence is not in conflict that no such flooding will occur. The Board finds, moreover,

that the project will not endanger human life or property. Again, the evidence is not in conflict on this question.

9. Intervenor City of Watertown moved this Board to require an environmental impact statement pursuant to SDCL 34A-9.

10. The facts underlying the motion are that the Lake Pelican Water Project District has been engaged, since 1999,in developing a comprehensive water resources management plan the Soo Creek Basin, the Mahoney Creek Basin, the Middle Sioux Basin, the Mud and Gravel Creek Basin, the Lower Sioux Basin, and the Still Lake basin. Each of these basins lies north of Watertown and water from these basins may eventually flow into the Watertown area.

11. In the process of developing the comprehensive water resources management plan, the District has established that there are virtually hundreds of structures which operate as small dams within the various basins. For example, each roadway with a culvert actually operates as a small dam, although it appears that none of the culverts were designed as dams and the cumulative effect of the structures has never been adequately analyzed.

12. The evidence also establishes that the cumulative effect of the hundreds of structures could be very significant in terms of flooding and erosion. The City of Watertown graphically illustrated this potential through Mr. Niedergeses, a Registered Professional Engineer. The engineer developed a hypothetical basin with a number of similar size sub-basins throughout a watershed to illustrate the impact of putting detention

structures within the watershed. The hypothetical detention structures modified the hydrographs and demonstrated possible flooding to a town downstream. The hypothetical indicated that were the structures improvidently located or constructed, they would have the ability to hold back water such that, when the water crested at the town downstream, there would be an increase in flooding in the downstream town, not a decrease.

13. The Board has determined that it will not exercise its discretion to direct the preparation of an EIS at this time. First, only a single structure has now been proposed. There is, obviously, no reason for an EIS for the single structure. Second, an EIS is not normally prepared unless the project is much closer to final design than the project at issue here. Indeed, it appears that it would be impossible to arrive at useful conclusions from the data now available with regard to cumulative flows downstream. Third, at such time as the next flood project control is proposed by the District, it will be necessary to consider the effect both of FC-32 and the new application. If an additional application is then requested, it will be necessary to consider the existing two projects along with a new one, and so on. Therefore, it is possible or probable that the appropriate analysis can be done on a step-by-step basis. Fourth, if it is not possible or practicable to perform such analysis on a step-by-step basis, the Board leaves open to the present parties, or such other parties which legitimately intervene in a proceeding before this Board, to again request an environmental impact statement.

CONCLUSIONS OF LAW

1. The Board has jurisdiction of this matter.

2. The construction of FC-32 will reduce damage from flooding or erosion in the area of the project.

3. FC-32 will not increase the likelihood or severity of flood damage in areas other than the project area; nor will the project endanger human life or property or impair existing water rights.

4. While the Board has jurisdiction to direct the Lake Pelican Water Project District to have an environmental impact statement prepared, it declines to exercise that discretion in this case. An environmental impact statement is inappropriate in this case for the reasons set forth in the Findings of Fact.

FINAL DECISION

The application for Flood Control Permit No. FC-32 is GRANTED on the condition that the Applicant obtain and file a flood easement for the property on which the project will be developed. The easement must be filed with the Water Rights Program prior to development of the project.

Dated this _____ day of _____, 2002.

BY THE BOARD:

_____

j-pld.jpg WMB FC-32 Lake Pelican

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE OF THE APPLICATION FOR FLOOD CONTROL, PERMIT NO. FC-32, LAKE PELICAN WATER PROJECT	)	CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the proposed Findings of Fact, Conclusions of Law, and Final Decision in the above-captioned matter were served upon each of the following by enclosing the same in envelopes with first class postage, prepaid and affixed thereto, and depositing said envelopes in the United States mail, at Pierre, South Dakota, on this 7th day of November, 2002:

Francis E. Brink
1214 South Wells Street
Aberdeen, SD 57401-7351

Leo Holzbauer
RR 1 Box 170
Wagner, SD 57380-9681

Rodney Freeman, Jr.
P.O. Box 176
Huron, SD 57350-0176

Bernita Loucks
219 42nd Street
Rapid City, SD 57702-0240

Marian Gunderson
811 West 3rd
Yankton, SD 57078-3702

Dwayne Rollag, Chairman
320 Lincoln Lane S
Brookings, SD 57006-2741

Jay Leibel
P.O. Box 406
Madison, SD 57042

Stanton Fox
City Attorney
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Richard Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Brenda S. Barger, Mayor
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

by interoffice mail:

Garland Erbele, Chief Engineer
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

and hand-delivered to:

Diane Best
Assistant Attorney General
Office of Attorney General
Natural Resources Section
State Capitol Building
Pierre, SD 57501

John P. Guhin
Deputy Attorney General
500 East Capitol Avenue
Pierre, South Dakota 57501-5070
Telephone: (605) 773-3215

j-cert.jpg WMB FC-32 Lake Pelican

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WATER RIGHTS PROGRAM

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WATER MANAGEMENT BOARD

IN THE MATTER OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-32, LAKE PELICAN WATER	))))))	**CITYOF WATERTOWN'S OBJECTIONS TO [PROPOSED] FINDINGS OF FACT AND CONCLUSIONS OF LAW**

COMES NOW the Intervenor, City of Watertown, by and through its attorney, Stanton W. Fox, and files its Objections to the [Proposed] Findings of Fact and Conclusions of Law, which were received from the Water Management Board on November 12, 2002.

FINDINGS OF FACT

1. City of Watertown makes no objection to [Proposed] Findings of Fact Nos. 1, 2, 3, 4, 5, and 6.

2. City of Watertown objects to Finding of Fact No. 7. This proposed finding states:

> The main question in controversy is whether the project **will reduce damage from flooding or erosion** in the area proposed to be benefited. The Board credits the evidence of Mr. Steven Klein. . .in this regard. . . Mr. Klein further testified that the action of the flood-control dam will slow the waters so as to decrease the erosion in that area. . .[T]he Board finds that the project will reduce damage from flooding or erosion in the area downstream of FC-32.

(emphasis added). Review of the record in this matter reveals that when examined about the issue of erosion and flooding, Mr. Klein said the following:

> Q: What I'm asking is there's damage from erosion at the site or near FC-32. You said you walked the area, you can erosion, I'm asking about damage from erosion?

CITY OF WATERTOWN
23 SECOND STREET N.E.
P.O. BOX 910
WATERTOWN, SD 57201
(605) 882-6200 FAX (605) 882-5284

A: Damage from erosion, you have to qualify what you're talking about there. Is there erosion on the site? Yes. And so **this project will prevent erosion in that spot. Is that erosion causing damage? That is a question that we haven't answered, nor do we need to.**

(See Hearing Transcript, p. 144, lines 14-21) (emphasis added). There is no basis in the record for the Board to conclude the FC-32 will reduce damage from flooding or erosion. There was no testimony introduced regarding damage from flooding, and when asked about erosion damage, Mr. Klein made clear they have not addressed that issue. For the foregoing reasons, the City of Watertown objects to this [Proposed] Finding of Fact as contrary to the record and evidence.

3. City of Watertown objects to [Proposed] Finding of Fact No. 8. The City's objection is the [Proposed] Finding of Fact that the Board has considered whether the project will increase the likelihood or severity of flood damage in areas other than the project area. In the [Proposed] Finding, the Board will conclude:

The evidence is not in conflict that no such flooding will occur.

(See [Proposed] Finding of Facts, at p. 2). The evidence is that the Department of Environment and Natural Resources did not determine whether flooding will or will not occur. In Mr. Schaal's testimony to the Board, he offered the following:

MR. SCHAAL: How does this structure FC-32 affect that? No, we didn't.
MR. BRINK: Okay. Would you venture a guess.
CHAIRMAN ROLLAG: Any other questions for Tim?
A. Can I guess?
MS. BEST: Well, maybe you can explain to the board why you didn't look at that, and then certainly respond to what Mr. Brink asked. A. Well, I

CITY OF WATERTOWN
23 SECOND STREET N.E.
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> guess in my opinion we were just looking at what we had before us, the application for the one structure, with the understanding that more may come later, but we didn't have that information in front of us. I think the testimony this morning was the cumulative effect of several, if not many of these flood control structures, and how that cumulative effect could have an adverse effect in Watertown. We didn't have is that before us we were just looking at this one small flood control dam. I guess we didn't have the desire to see how it really affected Watertown 20 miles downstream.

(See Hearing Transcript, at p. 69, lines 1-19). Accordingly, the City of Watertown makes its objection.

4. City of Watertown has no objection to [Proposed] Finding of Fact Nos. 9. 10, 11, and 12.

5. City of Watertown objects to [Proposed] Finding of Fact No. 13 and renews the argument and bases contained in its original Motion and Brief for Environmental Impact Statement.

CONCLUSIONS OF LAW

6. City of Watertown has no objections to Conclusions of Law No. 1.

7. City of Watertown objects to Conclusion of Law No. 2 on the same bases as those objections proffered in ¶ 2, *supra.*

8. City of Watertown objects to Conclusion of Law No. 3 on the same bases as those objections proffered in ¶ 3, *supra.*

9. City of Watertown objects to Conclusion of Law No. 4 on the same bases as those objections proffered in ¶ 5, *supra.*

DATED this 27th day of November 2002 at Watertown, South Dakota.

CITY OF WATERTOWN
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P.O. BOX 910
WATERTOWN, SD 57201
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CITY OF WATERTOWN:

Stanton W. Fox

Stanton W. Fox
City Attorney
City Attorney's Office
23 2nd Street S.E.
Watertown, SD 57201
(605) 882-6200

CITY OF WATERTOWN
23 SECOND STREET N.E.
P.O. BOX 910
WATERTOWN, SD 57201
(605) 882-6200 FAX (605) 882-5284

CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of November 2002 I caused a true and correct copy of the foregoing document to be served by:

X U.S. Mail X Facsimile ☐ Hand Delivery

to the following person(s):

Garland Erbele, P.E. CHIEF ENGINEER DENR Joe Foss Building 523 East Capitol Pierre, SD 57501-3182	Jay Leibel ATTORNEY AT LAW Ericsson, Ericsson & Leibel P.O. Box 406 Madison, SD 57042
John Guhin 500 East Capitol Pierre, SD 57501	Diane Best Office of the Attorney General 500 East Capitol Pierre, SD 57501-5070
Francis Brink, Chairman 1214 South Wells Street Aberdeen, SD 57401	Bernita Loucks 219 42nd Street Rapid City, SD 57702
Rodney Freeman, Jr. P.O. Box 176 Huron, SD 57350	Dwayne Rollag 320 Lincoln Lane South Brookings, SD 57006
Marian Gunderson 811 West Third Street Yankton, SD 57078	Leo Holzbauer RR1, Box 70 Wagner, SD 57380

By: Stanton W. Fox
Stanton W. Fox, City Attorney

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

December 10, 2002

NOTICE

TO: Jay Leibel
PO Box 406
Madison SD 57042

Stanton Fox, City Attorney
City of Watertown
PO Box 910
Watertown SD 57201

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Adoption of Findings of Fact, Conclusions of Law and Final Decision

This is to notify you that the Final Decision, including Findings of Fact and Conclusions of Law, were adopted December 4, 2002, by the Water Management Board approving Flood Control Permit No. FC-32 filed by the Lake Pelican Water Project District. A copy of the signed Findings of Fact, Conclusions of Law and Final Decision is enclosed.

South Dakota statutes provide that decisions of the Board may be appealed to the Courts. Notice of appeal of the Board's decision must be filed within thirty days of this notice and be in accordance with procedures established in SDCL 1-26-31.

Enclosure

c: John Guhin Deputy Attorney General
Diane Best, Assistant Attorney General
Julian Wick, Lake Pelican Water Project District, 4002 20th Ave SW, Watertown SD 57201-7033
Mayor Brenda S. Barger, City of Watertown, PO Box 910, Watertown SD 57201-0910
Richard Schlechter, City of Watertown, PO Box 910, Watertown SD 57201-0910

CERTIFICATION

I hereby certify that on December 10, 2002, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated December 10, 2002, regarding adoption of finding of fact, conclusions of law and a final decision on Flood Control Permit No. FC-32, Lake Pelican Water Project District, addressed as stated below:

Jay Leibel
PO Box 406
Madison SD 57042

Stanton Fox
City Attorney
City of Watertown
PO Box 910
Watertown SD 57201-0910

Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Brenda S. Barger, Mayor
City of Watertown
PO Box 910
Watertown SD 57201-0910

Richard Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

A copy of the Notice was delivered via inter-office mail:

John Guhin, Deputy Attorney General, Capitol Building
Diane Best, Assistant Attorney General, Capitol Building

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 11th day of December, 2002.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Lake Pelican Water Project District

RECEIVED
APR - 3 2003
WATER RIGHTS
PROGRAM

April 2, 2003

Department of Environment & Natural Resources
Garland Erbele, Chief Engineer
Joe Foss Building
523 East Capitol
Pierre SD 57501-3181

Re: Flood Control Permit No. FC-32

Dear Mr. Erbele

Per Qualification of Flood Control Permit No. FC-32, please find enclosed a copy of the filed Temporary Construction Easement and the filed Perpetual Easement for the project for your records.

Sincerely,

Julian L. Wick
Chairman

2 Enc.

4002 20th Avenue SW ✦ Watertown, SD 57201-7033 ✦ Phone: 605-882-6041 ✦ Email: jrwick@dailypost.com

2002-6623

14-
3pp

BOOK 4P PAGE 782

State of South Dakota } SS.
County of Codington }

OFFICE OF REGISTER OF DEEDS
Filed this 11th day of Oct
2002 at 10:45 o'clock A m
Book 4P Page 782
Ruth Roos
REGISTER OF DEEDS/DEPUTY

Prepared by: Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042
(605) 256-4597

PERPETUAL EASEMENT

For and in consideration of One and no/100 ($1.00) Dollar and other good and valuable consideration, receipt of which is hereby acknowledged, Bert D. Bones, Jr. and Stefani A. Bones, husband and wife, of Watertown, South Dakota, hereafter referred to as "Bones", does hereby grant unto Lake Pelican Water Project District, a political subdivision of the State of South Dakota, Watertown, Codington County, South Dakota, hereafter referred to as "LPWPD", a perpetual and permanent right, privilege and easement, over, through and across the real property belonging to Bones and situated in Codington County, South Dakota described as:

> That part of Section Twenty-Four (24), Township One Hundred Nineteen (T119) North, Range Fifty-Two (52), West of the 5th P.M., Codington County, South Dakota described as follows:
>
> The Northeast Corner of Section Twenty Four (24), thence westerly along The north line of Section Twenty Four (24) a distance of 1,250 feet; thence South to the south right-of-way line of South Dakota State Highway 20 to the Point of beginning; thence south a distance of 800 feet; thence West a distance of 300 feet; thence north to the south right-of-way line of said Highway 20; thence easterly along the south right-of-way line of said Highway 20 to the point of beginning.

For the purpose of, for, or in connection with the construction, operation, maintenance, and inspection of the following described works of improvement on the above described land; for the flowage of any waters in, over, upon or through such works of improvement and the above described real estate; and for the temporary storage and detention, either or both, of any waters that are impounded, stored, or detained by or in connection with the construction, operation, maintenance, and inspection of a flood control structure.

It is agreed that:

1. This easement includes the rights of ingress and egress at any time over and upon the above described land of the Bones and any other land of Bones adjoining said land if necessary to

2. the construction, operation, maintenance and inspection of such works of improvement. LPWPD will exercise its right of ingress and egress on public roads and lands except at appropriate locations designated jointly by Bones and LPWPD. LPWPD will not unduly cross lands without authorization. LPWPD will be obligated to repair any damage to Bones' adjoining lands that might result from said crossing.

2. LPWPD or its successors or assigns, shall be responsible for operating and maintaining the above described works of improvement. LPWPD assumes risk of and shall indemnify and save Bones harmless from and against any and all claims, demands, actions, or of suits in law or in equity; including costs and expenses incident thereto, and for all reasonable attorney fees for or on account of injury, damage, or loss to the person or property of others caused by LPWPD while construction, operating, maintaining or inspecting Bones' flood control structure or that may be caused by LPWPD in its exercise of any of the rights herein granted by Bones to LPWPD.

3. There is reserved to Bones, their heirs and assigns, the right and privilege to use the above described land of Bones and any other land of Bones adjoining said land as specified above, at any time, in any manner and for any purpose not inconsistent with the full use and enjoyment by LPWPD

4. This instrument incorporates and describes all of the grants, undertakings, conditions and considerations of the parties. Bones, in executing and delivering this instrument, represents that they have not relied upon any promises, inducements or representations of LPWPD or its agents or employees, except such as are set forth herein.

5. By this agreement LPWPD does hereby have and hold the aforesaid easement in, over and upon the above described land of Bones, with any and all the rights, privileges and appurtenances thereto belonging to LPWPD.

6. This instrument and the benefits and obligations herein contained shall inure to the benefit of and be binding and obligatory upon the heirs, executors, administrators, successors and assigns of the parties hereto.

IT WITNES WHEREOF, the parties of the first part have hereunto set their hands and seals this 7 day of October 2002.

Bert D. Bones, Jr. BDBJr

Stefani A. Bones
Owners

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF CODINGTON)

On this 7 day of October, 2002, before me the undersigned officer, personally appeared Bert D. Bones, Jr. and Stefani A. Bones, known to me or satisfactorily proven to be the persons whose names are subscribed to the within instrument and acknowledged that they have signed the same for the purposes therein contained.

IN WITNESS WHEREOF I hereunto set my hand and official seal.

L. Mae Meseberg
Notary Public, South Dakota
My commission expires: February 3, 2006

L. MAE MESEBERG
NOTARY PUBLIC, SOUTH DAKOTA

SEAL

2002-6624 14-
BOOK 4P PAGE 783 3pp

State of South Dakota }
County of Codington } SS.
OFFICE OF REGISTER OF DEEDS
Filed this 11th day of Oct
2002 at 10:50 o'clock A m
Book 4P Page 783
REGISTER OF DEEDS/DEPUTY

Prepared by: Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042
(605) 256-4597

TEMPORARY CONSTRUCTION EASEMENT AGREEMENT

For and in consideration of One and no/100 ($1.00) Dollar and other good and valuable consideration, receipt of which is hereby acknowledged, Burt D. Bones, Jr. and Stefani A. Bones, husband and wife, of Watertown, South Dakota, hereafter referred to as "Bones", does hereby grant unto Lake Pelican Water Project District, a political subdivision of the State of South Dakota, Watertown, Codington County, South Dakota, hereafter referred to as "LPWPD", a temporary construction easement area, on, over, through and across the real property belonging to Bones and situated in Codington County, South Dakota described as:

The Northeast Quarter (NE1/4) of Section Twenty Four (24), Township One Hundred Nineteen (T119) North, Range Fifty Two (52), West Of the 5th P.M., Codington County, South Dakota

NOW THEREFORE, it is further covenanted and agreed and understood by the parties as follows:

1. This agreement shall be in full force and effect for a period from the date of the signing of this agreement until June 30, 2004 or until the project is completed, whichever is sooner.

2. In general conformance with the plans and specifications now on file or to be filed in the offices of LPWPD and its engineer, Barr Engineering, the LPWPD may use said real property and clay deposits thereon as deemed necessary for the construction of said flood control structure; that the LPWPD its agents, representatives, assigns or any Contractor employed by the LPWPD may enter upon the above described premises owned by Bones and make upon such premises such creek channel changes and other related improvements as are deemed necessary for the proper construction of said flood control structure.

3. It is agreed and understood that all disturbed area used to construct the flood control structure shall be sloped, graded, tilled and restored as soon as practical after the construction of said flood mitigation facility and the disturbed area shall be left in a neat and workmanlike manner.

4. Bones grants permission to the LPWPD to enter upon the above described property to commence construction upon approval of this Agreement.

5. This instrument and the benefits and obligations herein contained shall inure to the benefit of and be binding and obligatory upon the heirs, executors, administrators, successors and assigns of the parties hereto.

Bert D. Bones, Jr. BDBJr.
Owner

Stefani A. Bones

LAKE PELICAN WATER PROJECT DISTRICT

By: _____
President

ATTEST:

Sheila Maag
Secretary

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF CODINGTON)

On this 7 day of October, 2002, before me the undersigned officer, personally appeared Bert D. Bones, Jr. and Stefani A. Bones, known to me or satisfactorily proven to be the persons whose names are subscribed to the within instrument and acknowledged that they have signed the same for the purposes therein contained.

IN WITNESS WHEREOF I hereunto set my hand and official seal.

L. Mae Meseberg
Notary Public, South Dakota
My commission expires: February 3, 2006

SEAL

L. MAE MESEBERG
NOTARY PUBLIC, SOUTH DAKOTA

STATE OF SOUTH DAKOTA)
: ss
COUNTY OF Codington)

On this the 7 day of October, 2002, before me, the undersigned personally appeared Julian Wick and Sheila Maag, who acknowledged themselves to be the President and Secretary respectively, of the Lake Pelican Water Project District, a South Dakota corporation, and that they, as such President and Secretary being so authorized to do, executed the foregoing instrument by signing the name of the corporation for the purposes therein contained.

In witness whereof I hereunto set my hand and official seal.

L. Mae Meseberg
Notary Public, South Dakota
My commission expires: FEBRUARY 3, 2006

SEAL

L. MAE MESEBERG
NOTARY PUBLIC, SOUTH DAKOTA

EXHIBIT	DESRIPTION	ADMITTED
Watertown Exhibit 5	HDR Report	X
Watertown Exhibit 6	Rick N CV	
Watertown Exhibit 8	Basin Map	X
Watertown Exhibit 9	Red Subbasin Hydrographs – With and Without Detention	X
Watertown Exhibit 10	Subbasin and Combined Hydrographs – Without Detention	X
Watertown Exhibit 11	Subbasin and Combined Hydrographs – With Detention	
Watertown Exhibit 12	Photo Locations	X
Watertown Exhibit 13	Picture	X
Watertown Exhibit 14	Picture	X
Watertown Exhibit 15	Picture	X
Watertown Exhibit 22	Picture	X
Lake Pelican Exhibit 17	Lake Pelican Water Project District Legal Boundaries	X
Lake Pelican Exhibit 18	Lake Pelican Water Project District	X
Lake Pelican Exhibit 19	Milestone Table	X
Lake Pelican Exhibit 20	Tim's Report	X
Lake Pelican Exhibit 21	Figure	X
DENR Exhibit 1	Agency File	X
DENR Exhibit 2	Tim's CV	X
DENR Exhibit 3	Map of Project Area	X

CONTRACT DOCUMENTS

Project No. 1-2002
Davis Bones Farm-Flood Control Structure
Lake Pelican Water Project District

April 2002

000001

BARR

CONTRACT DOCUMENTS

Project No. 1-2002
Davis Bones Farm-Flood Control Structure
Lake Pelican Water Project District

April 2002

BARR

4700 West 77th Street
Minneapolis, MN 55435
Phone: (952) 832-2600
Fax: (952) 832-2601

CONTRACT DOCUMENTS
PROJECT NO. 1-2002 DAVIS BONES FARM-FLOOD CONTROL STRUCTURE
LAKE PELICAN WATER PROJECT DISTRICT

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Division 3 through 16 – [NOT USED]

Appendix A – Soils Exploration and Testing Reports

Drawings

I hereby certify that these specifications were prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the Laws of the State of South Dakota.

Steven M. Klein

Reg. No. 5714 Date 4/1/02

Advertisement for Bids

LAKE PELICAN WATER PROJECT DISTRICT

PROJECT NUMBER 1-2002

DAVIS BONES FARM—FLOOD CONTROL STRUCTURE

ADVERTISEMENT FOR BIDS

Sealed bids for Project No. 1-2002 Davis Bones Farm–Flood Control Structure in Watertown, South Dakota will be received by the OWNER at the office of Barr Engineering Co. until 2:00 p.m., central daylight savings time, May 1, 2002, and then publicly opened and read aloud.

The Work consists of furnishing all labor, materials, equipment, skills, and performing all operations required to construct the Work. The Work includes mobilization and demobilization; clearing and grubbing; installation and maintenance of silt fencing and other erosion control features; stripping and stockpiling topsoil from the project site and the clay borrow area; excavating and hauling clay from the borrow area to the project site; placing and compacting clay material for construction of an embankment; other miscellaneous earthwork, backfilling, excavation, and grading; installing a drainage pipe and appurtenances, including pipe bedding, anti-seepage collars, and trash rack; constructing an overflow channel in the embankment and installing a non-photo degrading erosion control mat; installing drainage filter fabric and riprap; site cleanup and restoration., all as provided for in the Bidding Documents.

Copies of the Drawings, Specifications and other Bidding Documents describing the Work may be examined and/or obtained at the office of the Engineer, Barr Engineering Co., 4700 W. 77th Street, Edina, Minnesota 55435 (Phone 952-832-2600; Fax: 952-832-2601). Potential bidders may obtain the Bidding Documents from Barr Engineering Co. upon deposit of seventy-five dollars ($75.00). Deposits will be refunded upon return of Bidding Documents in good condition within fifteen (15) days after bids are opened. Partial sets of the Documents will not be issued.

Payment for all Work shall be in cash. No bidder may withdraw his/her bid within forty-five (45) days after the actual date of the bid opening thereof. The OWNER reserves the right to waive informalities, to reject any and all bids, and to add or deduct from the proposed work.

Instructions to Bidders

INSTRUCTIONS TO BIDDERS

PROJECT NO. 1-2002 DAVIS BONES FARM—FLOOD CONTROL STRUCTURE WATERTOWN, SOUTH DAKOTA LAKE PELICAN WATER PROJECT DISTRICT

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meaning indicated in the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and the Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. *Bidder* - The individual or entity who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a bid to Bidder.

B. *Successful Bidder* - The lowest, qualified, responsible and responsive Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award. Upon execution of the Agreement, the Successful Bidder becomes the CONTRACTOR.

ARTICLE 2 - CONTRACT DOCUMENTS

2.01 The Contract Documents shall consist of the following:

A. Written Amendment
B. Change Orders
C. Work Change Directives
D. Agreement
E. Purchase Order or similar document (if applicable)
F. Field Orders and Field Memorandums
G. Notice to Proceed
H. Addenda
I. Bid Form
J. Instruction to Bidders
K. Drawings
L. Technical Specifications

M. Supplementary Conditions

N. Standard General Conditions of the Construction Contract (1910-8, 1996 Edition)

O. Advertisement for Bids

P. Soils Investigation Reports

Q. Notice to Ward of Bid

R. Bid Bond (If required)

S. Performance and Payment Bond (if required)

ARTICLE 3 - COPIES OF BIDDING DOCUMENTS

3.01 Complete sets of the Bidding Documents may be obtained from the ENGINEER for the deposit sum stated in the Advertisement for Bids.

3.02 Complete sets of the Bidding Documents must be used in preparing Bids. Neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of the Bidding Documents. Bidding documents will be provided to Bidders in hard copy format only. No documents will be provided to Bidders in electronic format.

3.03 OWNER and ENGINEER in making copies of the Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

ARTICLE 4 - QUALIFICATIONS OF BIDDERS

4.01 To demonstrate qualifications to perform the Work, the low Bidder if requested by the OWNER shall submit to OWNER (with copy to ENGINEER) within seven (7) calendar days following the request by the OWNER written documentation which demonstrates the Bidder's ability to complete the Work as specified. This documentation may include a description of present commitments; description of the Bidder's project experience in the past five years including nature of project, owner's name, dollar value and name of bonding company; a description of the Bidder's equipment, key personnel and resources which demonstrate the Bidder's ability to successfully complete the Work; a list of subcontractors Bidder proposes to use; and such other information the OWNER believes is necessary.

ARTICLE 5 - EXAMINATION OF CONTRACT DOCUMENTS AND SITE

5.01 It is the responsibility of each Bidder before submitting a Bid, to (a) examine the proposed Contract Documents and become thoroughly familiar with all terms, conditions, and requirements; (b)

visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work; (c) consider federal, state and local Laws, Codes, Ordinances, and Regulations that may affect cost, progress, performance or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the proposed Contract Documents; and (e) notify ENGINEER of all conflicts, errors or discrepancies in the Contract Documents.

5.02 *Subsurface and Physical Conditions*

A. *Subsurface Conditions*

1. The following explorations, reports and documents relating to this project were provided to, or obtained by, or prepared by ENGINEER:

i. Report of Geotechnical Exploration, Lake Pelican Water Project District, Project No. 1, South Shore, SD, Ref. Project #41/14-002-NJJ-031, GeoTek Engineering and Testing Services, Inc., Sioux Falls, SD, October 23, 2001.

A copy of these reports are in Appendix A of these Contract Documents.

B. *Existing Structures:*

1. All existing above ground structures at the site may not be shown on the Drawings and Bidder shall be responsible to verify the existence and location of all above ground structures. Bidder's Bid shall include the costs necessary for the performance, progress, furnishing, and installing of the Work as relates to existing above ground structures.

C. *Underground Facilities and Utilities:*

1. The known utilities located within the areas requiring excavation for the project are shown on the Drawings. Bidder shall comply with the following paragraph C.3.

2. The OWNER and ENGINEER have no reliable information regarding the existence of subsurface structures other than those indicated in the Drawings, which are at or contiguous to the Work. If the Bidder suspects or verifies the existence of subsurface structures which may affect the cost, performance, progress, furnishing, or installing of the work in accordance with the Contract Documents prior to the time for the opening of bids, the Bidder shall notify OWNER and ENGINEER promptly, in writing, of the conflict. If such an existing subsurface structure is located

at any time thereafter, OWNER and ENGINEER will consider the existing subsurface structure under the provisions for differing conditions.

3. Information and data concerning Underground Facilities and Utilities at or contiguous to the site, and known to OWNER and ENGINEER, are available for review by any Bidder at the ENGINEER's office by appointment. OWNER and ENGINEER do not imply that this information is necessarily representative, exhaustive, or comprehensive and expressly disclaim responsibility for or any warranties as to its accuracy. Whether Underground Facilities and Utilities are shown or indicated, or not shown or indicated, on the Drawings the CONTRACTOR shall have the full responsibility for locating all Underground Facilities and Utilities prior to the performance of all elements of the Work. The additional responsibilities of Bidder regarding Underground Facilities and Utilities are set forth in the General Conditions.

5.03 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, Underground Facilities and Utilities) at or contiguous to the site or otherwise which may affect the cost, progress, performance or furnishing of the Work, and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. Bidder's failure to conduct or perform such examinations, investigations, explorations, tests, and studies or obtain additional information, shall represent that Bid has included adequate cost contingencies as Bidder deems necessary for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.

5.04 It is the Bidder's responsibility to obtain access to the site, including lands owned by OWNER, to conduct such explorations and tests as Bidder deems necessary for submission of a Bid. Bidder shall be responsible for restoration of all such lands to a condition equal to or better than existing conditions.

5.05 Except for the easement (construction limits) indicated on the Drawings, all lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by CONTRACTOR. **A clay borrow source has been identified and is shown on the Drawings. CONTRACTOR will have access to the borrow area. Clay from the borrow area shall be used for construction of the earthen embankment.** OWNER may or may not be able to assist or aid CONTRACTOR with acquisition of lands and access thereto for purposes of construction.

5.06 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this ARTICLE 5 and that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and by such means, methods, techniques, sequences or procedures of construction as may be specifically indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

5.07 No plea of ignorance of conditions that exist or that may hereafter exist, or of difficulties that will be encountered in the execution of the Work, as a result will be accepted as a sufficient excuse for any failure or omission on the part of the Bidder to fulfill in every detail all the requirements of these Contract Documents, or will be accepted as a basis for any claim whatsoever for extra compensation or for an extension of time.

ARTICLE 6 - INTERPRETATIONS AND CLARIFICATIONS

6.01 Prior to the submittal of Bids, if any potential Bidder is in doubt as to the true meaning, or finds discrepancies in or omissions from the Contract Documents, that potential Bidder shall submit to the ENGINEER a written request for an interpretation or clarification thereof. The Bidder submitting the request shall be responsible for prompt delivery. Interpretations and clarifications considered necessary by ENGINEER in response to such requests will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Contract Documents. Requests received less than ten (10) calendar days prior to the date for opening of Bids may not be answered. Only interpretations and clarifications issued by Addenda will be binding. Oral interpretations and clarifications will be without legal effect. After execution of the Agreement clarifications and interpretations shall be directed to ENGINEER in accordance with paragraph 9.04 of the General Conditions.

6.02 The estimate of quantities as shown in the Bid Form shall be used as the basis for calculation upon which the award of Contract will be made and for calculation of the initial Contract Price, but these quantities are not guaranteed to be accurate and are furnished without liability on the part of OWNER and ENGINEER. The actual quantities of the various items of work performed can be expected to differ from the estimates indicated on the Bid Form and will effect the final Contract Price. The CONTRACTOR shall cooperate with and assist the ENGINEER as necessary to obtain the actual measurements required for the ENGINEER's determination of the actual quantities. The CONTRACTOR may also be required to furnish to the Resident Project Representative or OWNER's

representative, on a daily basis, daily reports stating information such as quantities of work performed, labor force used, hours worked, and equipment used.

6.03 It is the intent of the Contract Documents to cover all aspects of the Work. Should there be some item or items not shown on the Drawings or described in the Specifications which are required for the Work, these items and the furnishing of all necessary labor, materials and equipment shall be considered incidental to the Work and no additional compensation will be provided.

6.04 Any Addenda issued during the time of the bidding or forming a part of the Contract Documents loaned to the Bidder for the preparation of a Bid shall be included in the Bid and shall be made a part of the Contract Documents. Receipt of each Addendum shall be acknowledged on the Bid Form in the spaces provided.

ARTICLE 7 - BID SECURITY

7.01 Each Bid must be accompanied by Bid security made payable to the OWNER in an amount of five (5) percent of the Bidder's total base Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of paragraph 5.01.B of the General Conditions.

7.02 The Bid security of the apparent Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Performance and Payment Bonds and Certificates of Insurance, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement within ten (10) calendar days after Notice of Award, or within ten (10) calendar days after executable Agreement is sent to successful bidder, whichever is later, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited.

7.03 The Bid security of the second and third low Bidders may be retained until the earlier of the seventh (7) day after the Effective Date of the Agreement or the forty-sixth (46) day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security of all other Bidders will be returned within ten (10) days after the Bid opening, although Bids shall remain subject to acceptance per ARTICLE 15 of these Instructions to Bidders.

ARTICLE 8 - CONTRACT TIME

8.01 The number of calendar days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set in paragraphs 8.02 through 8.07 below.

8.02 The Work shall be commenced on or about May 1, 2002, or within 5 calendar days after receipt of the Notice to Proceed, whichever is later, unless the Notice to Proceed states a later date.

8.03 The Work shall be substantially complete on or before September 15, 2002. The Substantial completion of the Work shall mean that all work has been constructed and all areas have been restored in accordance with the specified requirements.

8.04 The Work shall be completed and ready for final payment in accordance with paragraph 14.06 of the General Conditions by September 15, 2002.

ARTICLE 9 - LIQUIDATED DAMAGES

9.01 All time limits stated in these Contract Documents are of the essence of the Agreement.

9.02 OWNER and CONTRACTOR recognize that time is of the essence with regard to completion of the Work, and that OWNER may suffer financial loss if the Work is not substantially completed within the times specified in ARTICLE 8 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Accordingly, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as penalty), CONTRACTOR shall pay compensation to OWNER for those reasonable additional claims, costs, losses, and damages sustained by OWNER for each working day that expires after the time specified for Substantial Completion of the Work. After substantial completion, or if no Substantial Completion date is specified, if CONTRACTOR shall neglect, refuse, or fail to complete the Work within the Contract Time specified in ARTICLE 8 above or any proper extension thereof granted by OWNER, CONTRACTOR shall pay compensation to OWNER for those reasonable additional claims, costs, losses, and damages sustained by OWNER for each working day that expires after the time specified in ARTICLE 8 above for completion and readiness for final payment.

ARTICLE 10 - SUBSTITUTE OR "OR-EQUAL" ITEMS

10.01 The Agreement, if awarded, will be on the basis of materials and equipment described in the Drawings or stated in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or stated in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if approved, application for such approval will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application and consideration of application is set forth in the

General Requirements and in Paragraphs 6.05.A, 6.05.B, 6.05.C, 6.05.D, 6.05.E, and 6.05.F of the General Conditions.

ARTICLE 11 - BID FORM

11.01 The Bid Form is included with these Contract Documents; additional copies may be obtained from ENGINEER.

11.02 All blanks on the Bid Form must be completed in ink or by typewriter.

11.03 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

11.04 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

11.05 All names must be typed or printed below the signature.

11.06 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

11.07 The address and telephone number for communications regarding the Bid must be shown.

ARTICLE 12 - SUBMISSION OF BIDS

12.01 Bids shall be submitted as follows:

A. Oral proposals or modifications will not be considered.

B. It is the sole responsibility of the Bidder to see that his bid proposal is received at the proper place and in proper time. Any proposal received after the scheduled closing time for receipt of the proposals will be rejected.

C. In case of a difference between the unit prices and the extensions of the unit price, the unit prices shall govern.

D. All bid proposals shall be submitted on the unaltered forms included with these Contract Documents. The blank spaces on the proposals shall be filled in correctly in ink or typewritten where indicated for each and every item for which a quantity is given, and the Bidder shall clearly indicate the prices for which he proposes to do each item of work contemplated. Additional copies of the Bid Form and other forms may be obtained from the ENGINEER.

E. The Bid Form including required attachments shall be submitted in a sealed envelope clearly marked:

PROPOSAL FOR PROJECT NO. 1-2002 DAVIS BONES FARM-FLOOD CONTROL STRUCTURE

LAKE PELICAN WATER PROJECT DISTRICT

and the name of the Bidder.

F. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notification "BID ENCLOSED" on its face.

G. Bid proposal shall be delivered to:

LAKE PELICAN WATER PROJECT DISTRICT
c/o Barr Engineering Co.
4700 West 77th Street
Minneapolis, Minnesota 55435-4803
Attn: Steve Klein

not later than the date and time stated in the Advertisement for Bids unless modified by Addendum.

ARTICLE 13 - MODIFICATION AND WITHDRAWAL OF BIDS

13.01 Bids may be withdrawn without prejudice to the Bidder by submitting a written request to the OWNER at the address specified for the submission of Bids at any time prior to the time set for receipt of Bids. The request for withdrawal shall be executed in the manner a Bid must be executed; the request must be signed in the same manner and by the same person or persons who signed the bid and should not reveal the amount of the bid; if such request for withdrawal is not explicit and if it is in any sense subject to misinterpretation, the Bid shall be subject to either acceptance or rejection, as may be in the best interest of the OWNER, and in its discretion. Withdrawn Bids may be modified and resubmitted

anytime prior to the time set for the opening of Bids. Requests shall be clearly marked "Request for Withdrawal of Bid" and labeled with the project name.

ARTICLE 14 - OPENING OF BIDS

14.01 Bids will be opened publicly and read aloud in such place as designated at the time and the date set in the Advertisement for Bids. Bidders or their authorized agents are invited to be present.

ARTICLE 15 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

15.01 All bids will remain subject to acceptance for forty-five (45) calendar days after the Bid opening, but OWNER may, in its sole discretion, release any Bid prior to that date. Bid security shall be returned as stated in ARTICLE 7 of these Instruction to Bidders.

ARTICLE 16 - REJECTION OF BIDS AND AWARD OF CONTRACT

16.01 OWNER reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional Bids. Also, OWNER reserves the right to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. Discrepancies in the multiplication of units of Work and unit prices (if used) will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

16.02 If the contract is to be awarded, it will be awarded to the lowest responsible Bidder whose evaluation by OWNER indicates to OWNER that the Award will be in the best interests of the Project.

16.03 If the contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within forty-five (45) calendar days after the day of the Bid opening.

ARTICLE 17 - CONTRACT SECURITY

17.01 Paragraphs 5.01.A, 5.01.B, and 5.01.C of the General Conditions sets forth OWNER's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

ARTICLE 18 - SIGNING OF AGREEMENT

18.01 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten (10) calendar days thereafter Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER, via the ENGINEER, in accordance with the instructions for delivery in the Notice of Award along with the required Bonds, evidence of insurance, and any other required submittals.

18.02 OWNER or ENGINEER will review required submittals and may require Successful Bidder to make revisions. Successful Bidder shall make required revisions and resubmit to OWNER within five (5) calendar days of OWNER's request for such revision. Within thirty (30) days after receipt of all acceptable materials, OWNER will deliver one (1) fully signed counterpart of the Contract Documents to CONTRACTOR. Each counterpart is to be accompanied by a complete set of the Contract Documents with appropriate identification.

ARTICLE 19 - PAYMENT AND RETAINAGE

19.01 Provisions concerning progress payments and final payment are set forth in Article 14 of the General Conditions as modified by the Supplementary Conditions.

19.02 No payment amounts on account of materials and equipment delivered to the site prior to installation will be made. Progress payments will only be made when materials are completely installed in accordance with the Contract Documents.

19.03 Retainage shall be 10 percent of the value of the Work completed up to and including 50 percent of the current Contract Price as determined by ENGINEER and after which, if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that so long as the character and progress of the Work remain satisfactory to them, remaining progress payments will be made in the amount of 100 percent of the value of Work completed less the amount retained on 50 percent of the current Contract Price as determined by ENGINEER.

ARTICLE 20 - PRECONSTRUCTION CONFERENCE

20.01 Prior to the beginning of construction operations, a preconstruction conference will be held as provided for by paragraph 2.06 of the General Conditions.

ARTICLE 21 - CONSTRUCTION LIMITS

21.01 The construction limits shall be confined to the easement limits as shown on the Drawings. No cutting of trees will be permitted outside the construction limits.

ARTICLE 22 – PERMIT FROM SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR)

22.01 The Lake Pelican Water Project District (LPWPD) needs to obtain a DENR permit for this project. LPWPD has applied for this permit and expects to receive it before May 1, 2002. This permit will need to be obtained before construction can begin.

Bid Form

BID FORM

PROJECT NO. 1-2002 DAVIS BONES FARM—FLOOD CONTROL STRUCTURE WATERTOWN, SOUTH DAKOTA LAKE PELICAN WATER PROJECT DISTRICT

THIS BID FOR: **PROJECT NO. 1-2002 DAVIS BONES FARM—FLOOD CONTROL STRUCTURE**

IS SUBMITTED TO:

Lake Pelican Water Project District
c/o Barr Engineering Co.
4700 West 77th Street
Minneapolis, Minnesota 55435-4803
Attn: Steve Klein

ARTICLE 1

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time and in accordance with the other terms and conditions of the Contract Documents.

ARTICLE 2

2.01 Bidder accepts all of the terms and conditions of Advertisement for Bids (00100) and Instructions to Bidders (00200), including without limitation those dealing with the disposition of Bid Security, and other Contract Documents. This Bid will remain subject to acceptance as set forth in the Instruction to Bidders. Bidder shall sign and submit the Agreement with the Bonds and other documents required by the Contract Documents within ten (10) days after the date of OWNER's Notice of Award.

ARTICLE 3

3.01 In submitting this Bid, Bidder represents, as more fully set forth in the Contract Documents, and incorporated into the Agreement by reference, that:

A. Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all of which is hereby acknowledged):

No.	Date	Addendum Number	Signature
1.)	_____	_____	
2.)	_____	_____	
3.)	_____	_____	

B. Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

C. Bidder has studied carefully all Subsurface and Physical Conditions as they relate to subsurface conditions, existing structures, and underground facilities and utilities as identified in paragraphs 5.02.A, 5.02.B, and 5.02.C of the Instructions to Bidders, and accepts the terms of paragraphs 5.02.A, 5.02.B, and 5.02.C in the Instructions to Bidders as to the extent of the technical data upon which Bidder is entitled to rely.

D. Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, studies, and drawings which pertain to the surface and subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraphs 5.02.A and 5.02.B of the Instructions to Bidders; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.

E. Bidder has reviewed and checked all information and data with respect to existing Underground Facilities and Utilities at or contiguous to the site whether shown or indicated, or not shown or indicated, on the Drawings and Bidder assumes full responsibility for the accurate location of said Underground Facilities and Utilities prior to the performance of all elements of the Work. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities and Utilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the

Contract Documents, including specifically the provisions of paragraph 5.02.C of the Instructions to Bidders and paragraphs 4.04.A and 4.04.B of the General Conditions.

F. Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, studies, and drawings with the terms and conditions of the Contract Documents.

G. Bidder has given ENGINEER written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to Bidder.

H. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding.

I. This Bid has been arrived at the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding, or planned common course of action with any other Bidder or vendor of materials, supplies, equipment or services described in the Contract Documents designed to, or acting to, limit independent bidding or competition.

J. This Bid has not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any Bond furnished with the Bid, and will not be communicated to any such person prior to the opening of the Bid.

ARTICLE 4

4.01 Bidder will complete the Work for the following price(s) as referenced in Section 01270 of the Specifications:

A. BID ITEMS

Item	Description	Unit	Estimated Quantity	Unit Price	Extension
1.04A	Mobilization/Demobilization	L.S.	1		
1.04B	Site Preparation	L.S.	1		
1.04C	Embankment	C.Y.	6,940		
1.04D	Drainage Pipe and Appurtenances	L.F.	208		
1.04E	Anti-Seepage Collars	Ea.	3		
1.04F	Protected Overflow Channel	S.Y.	1,400		
1.04G	Riprap and Geotextile Drainage Fabric	S.Y.	250		
1.04H	Topsoil Borrow	S.Y.	13,700		
1.04I	Structure	L.S.	1		
1.04J	Restoration	L.S.	1		
	Total Extensions				

GRAND TOTAL OF EXTENSIONS

(in words)_____Dollars ($_____)

4.02 Quantities are not guaranteed. Final payment will be based on actual quantities of work performed as determined by the ENGINEER in accordance with Article 9 of the General Conditions.

4.03 CONTRACTOR has the option of bidding either concrete pipe and appurtenances with bentonite anti-seepage collars or aluminized corrugated steel pipe and appurtenances with aluminized corrugated steel anti-seepage collars. CONTRACTOR must indicate which option is being bid by checking one of the following boxes:

Alternate Bid Item	Check One
Concrete Pipe with Bentonite Anti-Seepage Collars	
Aluminized Corrugated Steel Pipe and Anti-Seepage Collars	

ARTICLE 5

5.01 Bidder agrees that the entire Work will be substantially complete and completed and ready for final payment in accordance with Article 14 of the General Conditions within the number of calendar days, or by the date, provided in Article 8 of the Instructions to Bidders.

5.02 Bidder accepts the provisions of the Contract Documents as to liquidated damages in the event of failure to complete the Work on time.

ARTICLE 6

6.01 Bid Security meeting the requirements set forth in the Instruction to Bidders is attached to and made a condition of this Bid.

ARTICLE 7

7.01 Bidder understands and agrees that OWNER reserves the right to reject any or all Bids and to waive formalities. It is further understood and agreed that this Bid may not be withdrawn within forty-five (45) calendar days following opening of Bids.

ARTICLE 8

8.01 The terms used in this Bid which are defined in the other Contract Documents have the meanings assigned to them in the Contract Documents.

ARTICLE 9

9.01 Communications concerning this Bid shall be addressed to the address of Bidder indicated below.

THIS BID IS SUBMITTED BY:

Firm Name: _____.

By: _____.

_____.

Title: _____.

Official Address: _____.

_____.

_____.

Phone: _____ ( ) _____.

Federal Tax I.D. No.: _____.

Date: _____.

Form of Agreement

FORM OF AGREEMENT

PROJECT NO. 1-2002 DAVIS BONES FARM—FLOOD CONTROL STRUCTURE WATERTOWN, SOUTH DAKOTA LAKE PELICAN WATER PROJECT DISTRICT

THIS AGREEMENT is by and between Lake Pelican Water Project District (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agrees as follows:

Article 1. WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents for Project No. 1-2002 Davis Bones Farm-Flood Control Structure. The Work is generally described in Division 1 (General Requirements) of the Technical Specifications. The Work to be provided under the Contract Documents may be the whole or only a part of the total construction for the Project.

Article 2. ENGINEER

2.01 The Project has been designed by ENGINEER (defined in the Supplementary Conditions) and ENGINEER is to act as OWNER's representative, assume all duties and responsibilities and have the limited rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents. The duties and responsibilities and rights and authority of ENGINEER can not be extended without written consent of OWNER and ENGINEER.

Article 3. CONTRACT TIMES

3.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

3.02 *Dates of Substantial Completion and Final Payment*

A. The number of calendar days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Times) are set forth in the Instructions to Bidders except as may be stated below:

No exceptions.

3.03 *Liquidated Damages*

A. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times referred to or specified in paragraph 3.02.A above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. OWNER reserves the right to assess CONTRACTOR and CONTRACTOR agrees to pay liquidated damages as provided in the Instructions to Bidders.

Article 4. CONTRACT PRICE

4.01 OWNER shall pay CONTRACTOR for completion of the Work, all as Unit Price Work, in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 4.01.A and 4.01.C below.

A. For all Unit Price Work including lump sum units, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item as determined by ENGINEER as provided in paragraph 9.10 of the General Conditions. The established unit price shall be as set forth in the Bid Form except as may be stated below or adjusted by Modification to this Agreement.

No exceptions.

B. The initial or estimated Contract Price as determined by the sum of the established unit price for each item of Work times the estimated quantity of that item as set forth in the Bid Form is

_____ $_____ (U.S. dollars).
{using words}

C. As provided in paragraph 11.03.A of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions and such determinations by ENGINEER will be used to compute the final Contract Price. CONTRACTOR acknowledges that unit prices as set forth above, in the Bid Form, and in Modifications have been or will be computed as provided in paragraph 11.03.B of the General Conditions.

Article 5. PAYMENT PROCEDURES

5.01 *Submittal and Processing of Payments*

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions as may be modified by the Supplementary Conditions.

5.02 *Progress Payments; Retainage*

A. CONTRACTOR's Applications for Payment will be processed by ENGINEER as provided in the General Conditions as may be modified by the Supplementary Conditions. Retainage on account of progress payments will be as provided for in the Instructions to Bidders.

5.03 *Final Payment*

A. Final payment will be prepared and paid in accordance with paragraph 14.07 of the General Conditions.

Article 6. INTEREST

6.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at a maximum rate equal to the sum of the prevailing "Prime Rate" in the geographical area of the Project plus 2 percent (2%).

Article 7. CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents including all Addenda and the other related data identified in the Bidding Documents including "technical data."

B. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work.

D. CONTRACTOR makes all representations, previously made as Bidder, upon signing and submitting the Bid Form as though fully repeated herein.

E. CONTRACTOR is aware of the general nature of the work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

F. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports, and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

G. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS

8.01 *Contents*

A. The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work are listed in the Instructions to Bidders which are, with the exception of the Specifications, more specifically identified in the heading or title block as " Suburban Avenue Pipe Repair Project" and, except for Modifications and this Agreement, are attached to this Agreement.

B. Written Amendments, Modifications, Change Orders, and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.04 of the General Conditions as modified by the Supplementary Conditions shall become attached to this Agreement on the effective date of such document.

C. There are no Contract Documents other than those identified above in this Article 8. Beginning on the Effective Date of this Agreement the Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.04 of the General Conditions as modified by the Supplementary Conditions.

Article 9. MISCELLANEOUS

9.01 *Terms*

A. Terms used in this Agreement which are defined in the General Conditions have the meanings assigned to them in the General Conditions except as modified by the Supplementary Conditions.

B. Terms used in this Agreement which are defined in the Contract Documents have the meanings assigned to them in the Contract Documents.

9.02 *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys

that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Other Provisions*

A. This Agreement shall be governed by the laws of the State of South Dakota.

B. There are no other provisions.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER _____	**CONTRACTOR** _____
_____	_____
By: _____	**By:** _____
[CORPORATE SEAL]	**[CORPORATE SEAL]**
Attest: _____	**Attest:** _____
Address for giving notices:	**Address for giving notices:**
_____	_____
_____	_____
	License No. _____
(If OWNER) is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement. If OWNER is a corporation, attach evidence of authority to sign.)	**Agent for service of process:**
	_____
	_____
	(If CONTRACTOR is a corporation, attach evidence of authority to sign).
Designated Representative (if other than ENGINEER):	**Designated Representative (if other than ENGINEER)**
Name: _____	**Name:** _____
Title: _____	**Title:** _____
Address: _____	**Address:** _____
_____	_____
_____	_____
Phone: _____	**Phone:** _____
Facsimile: _____	**Facsimile:** _____

General Conditions

This document has important legal consequences: consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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AMERICAN CONSULTING ENGINEERS COUNCIL

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AMERICAN CONSULTING ENGINEERS COUNCIL

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Construction Specifications Institute

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The

use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified

in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids),

except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property

monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing

in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 *OWNER's Liability Insurance*

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 *Waiver of Rights*

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion

pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items*

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under

paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or

entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits

and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work

Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample

submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except

as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations

and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another

representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority

or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be

considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by

Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that

item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests,

revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibili-

ties pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *OWNER May Suspend Work*

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate

the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday o. Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

Supplementary Conditions

SUPPLEMENTARY CONDITIONS

PROJECT NO. 1-2002 DAVIS BONES FARM-FLOOD CONTROL STRUCTURE WATERTOWN, SOUTH DAKOTA LAKE PELICAN WATER PROJECT DISTRICT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) hereinafter referred to as the "General Conditions," and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meaning indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, or elsewhere in the Contract Documents, which are applicable to both the singular and plural thereof.

SC-1.01.A.12 Delete the definition of *Contract Documents* in paragraph 1.01.A.12 of the General Conditions in its entirety and insert the following in its place:

Contract Documents - The documents which comprise the Contract Documents are set forth in the Instructions to Bidders. Approved Shop Drawings, and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER or ENGINEER to CONTRACTOR are not Contract Documents.

SC-1.01.A.19 Delete the definition of *ENGINEER* in paragraph 1.01A.19 of the General Conditions in its entirety and insert the following in its place:

ENGINEER - Barr Engineering Co., 4700 West 77th Street, Edina, Minnesota, 55435 (Phone: 952-832-2600; Fax: 952-832-2601). ENGINEER may designate an employee to serve as Project Engineer. This designation can be changed upon written notification to CONTRACTOR. All correspondence to or through ENGINEER shall be directed to the attention of the designated Project Engineer.

SC-1.01.A.22 Delete the definition of *General Requirements* in paragraph 1.01.A.22 of the General Conditions in its entirety and insert the following in its place:

General Requirements - Division 1 of the Technical Specifications.

SC-1.01.A.30 Delete the definition of *OWNER* in Article 1 of the Contract Documents in its entirety and insert the following in its place:

OWNER – Lake Pelican Water Project District with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

SC-1.01.A.41 Delete the definition of *Specifications* in paragraph 1.01.A.41 of the General Conditions in its entirety and insert the following in its place:

Specifications, Technical Specifications - The Technical Specifications portion of the Contract Documents consisting of most of the written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

SC-1.01.A.51 Add the following defined terms to paragraph 1.01.A of the General Conditions:

51. Bid Proposal; Bid Form; Bid Proposal Form - The prescribed form on which bidder submits bidder's offer or proposal setting forth the bidder's prices for the Work to be performed.

52. Field Memorandum - A written statement issued by ENGINEER which clarifies or interprets the Contract Documents in accordance with Paragraph 9.04 of the General Conditions.

53. General Conditions - Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition). Any reference to the General Conditions shall also be a reference to the Supplementary Conditions.

54. Contract Modification - a) a Change Order or b) a Field Order. A modification may only be issued after execution of the Agreement.

55. Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, poles or other such facilities or attachments and supports, and any encasements containing such facilities which have been installed above or underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

56. As Specified, as specified - In accordance with the requirements of the Contract Documents.

and as so amended, paragraph 1.01 remains in effect.

SC-2.02.A Delete paragraph 2.02.A of the General Conditions in its entirety and insert the following in its place:

OWNER shall furnish CONTRACTOR up to five copies of the Contract Documents. Additional copies will be furnished upon request at the OWNER's cost of reproduction.

SC-2.03.A Delete paragraph 2.03.A of the General Conditions in its entirety and insert the following in its place:

The Contract Time will commence to run on the day indicated in the Notice to Proceed. CONTRACTOR's failure to proceed immediately with the performance of the Work shall not be justification for CONTRACTOR to make a claim for an adjustment of the Contract Time or a change in the Contract Price and shall be deemed to be a delay within CONTRACTOR's control under paragraph 12.04 of the General Conditions.

SC-2.05.C Delete paragraph 2.05.C of the General Conditions in its entirety and insert the following in its place:

Evidence of Insurance: Before any Work at the Site is started, CONTRACTOR shall deliver to OWNER, with a copies to ENGINEER, certificates of insurance including copies of endorsements required by Contract Documents (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the Agreement and Article 5 of the General Conditions.

SC-2.08 Add the following paragraph after paragraph 2.07.A.3:

2.08 *Progress Meetings*

A. CONTRACTOR shall attend progress meetings as required by the Technical Specifications.

SC-3.01.A Delete paragraph 3.01.A of the General Conditions in its entirety and insert the following in its place:

The Contract Documents are intended to be complementary; what is called for by one is as binding as if called for by all. However, in the case of a discrepancy in the documents, the order of precedence for the documents shall be as follows (provisions of the documents listed first below shall control over the provisions of a document listed later):

a. Written Amendments
b. Change Orders, Work Change Directives, Field Orders
c. Agreement
d. Purchase Order or similar document (if applicable)
e. Notice to Proceed
f. Addenda
g. Field Memorandums
h. Bid Form
i. Instructions to Bidders
j. Specifications
k. Drawings
l. Supplementary Conditions
m. General Conditions
n. Any standard plans or standard specifications
o. Bonds.

SC-3.01.B Add the following language immediately after the second sentence of paragraph 3.01.B of the General Conditions:

Any item or items shown on the Drawings or described in the Specifications, but not specifically included in any of the unit prices, shall be considered incidental to the other work.

and as so amended, paragraph 3.01.B remains in effect.

SC-3.02.A.1 Add the following language following the last sentence of paragraph 3.02.A.1 of the General Conditions:

If there is any conflict between the provisions of the Contract Documents and any such referenced provisions, such discrepancy shall be resolved by in accordance with paragraph 3.03.B of the General Conditions.

and as so amended, paragraph 3.02.A.1 remains in effect.

SC-3.04.B Delete the phrase"(i) a Field Order;" from paragraph 3.04.B and insert the following in its place:

a Field Order or Field Memorandum (pursuant to paragraphs 9.04 or 9.05);

and as so amended, paragraph 3.04.B remains in effect.

SC-3.05.A Delete the phrase "bearing the seal of ENGINEER" from paragraph 3.05.A of the General Conditions and insert the following phrase in its place:

bearing the certification or seal of the ENGINEER

and as so amended, paragraph 3.05.A remains in effect.

SC-4.01.A The construction limits as provided by OWNER are shown on the Drawings except as may be otherwise described in the Specifications.

SC-4.01.C Delete paragraph 4.01.C of the General Conditions in its entirety and insert the following in its place:

CONTRACTOR shall provide for all additional lands and access thereto that CONTRACTOR may require for performance of the Work, temporary construction facilities, or storage of materials and equipment.

SC-4.02.A.1 Delete paragraph 4.02.A.1 of the General Conditions in its entirety and insert the following in its place:

those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents and additional provisions related thereto are identified in the Instructions to Bidders; and

SC-4.02.A.2 Delete paragraph 4.02.A.2 of the General Conditions in its entirety and insert the following in its place:

those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities and Utilities) that ENGINEER has used in preparing the Contract Documents and additional provisions relating thereto are identified in the Instructions for Bidders.

SC-4.04.A Delete paragraphs 4.04.A through 4.04.B.2 of the General Conditions in their entirety and insert the following in their place:

Refer to the Instructions for Bidders for the provisions relating to Underground Facilities and Utilities.

SC-5.01.A Add the following sentence to the end of paragraph 5.01.A of the General Conditions:

CONTRACTOR shall furnish such additional Bonds as may be required by any permitting authority as a condition of any such permit.

and as so amended, paragraph 5.01.A remains in effect.

SC-5.04.A Amend paragraph 5.04.A of the General Conditions as follows:

Add the following limits of liability and coverages to paragraph 5.04 of the General Conditions:

> The CONTRACTOR and Subcontractors shall maintain insurance for Comprehensive Public Liability and Broad Form Property Damage, Comprehensive Automobile Public Liability and Property Damage, Contractual Liability, Completed Operations Liability and Explosion, Collapse and Underground Property Damage. The provisions must include coverage for Bodily Injury Liability which includes bodily injury claims from the CONTRACTOR's and Subcontractor's employees. Minimum coverage shall be as follows:

General Liability

Commercial General Liability	General Aggregate	$2,000,000
(Occurrence)	Products-Comp. Ops Agg.	$2,000,000
	Personal & Adv. Injury	$1,000,000
	Each Occurrence	$1,000,000
	Fire Damage (any 1 fire)	$50,000
	Med. Expense (any 1 person)	$5,000

Automobile Liability

Any Auto	Combined Single Limit	$1,000,000
All Owned Autos		
Scheduled Autos		
Hired Autos		
Non-Owned Autos		

Excess liability

Umbrella Form	Each Occurrence	$5,000,000
	Aggregate	$10,000,000

Worker's Compensation and Employers' Liability

	Statutory Limits	
	Each Accident	$100,000
The Proprietor/Partner Included	Disease-Policy Limit	$500,000
	Disease-Each Employee	$100,000

Other

Excess Liability coverage must include employer's liability claims

Add six new paragraphs to the end of paragraph 5.04 of the General Conditions which read as follows:

The insurance policy or policies required by this paragraph 5.04 of the General Conditions shall include the interests of the OWNER and the ENGINEER, all of whom shall be listed as insured or additional insured parties.

The insurance required by this paragraph 5.04 shall include policy or policies which afford coverage to damage to property of others arising out of the perils of explosion, collapse and damage to underground facilities. The policy or policies shall afford the same limits of liability as set forth in these Supplementary Conditions for liability assumed under the Contract.

All responsibility for payment of any sums resulting from any deductible provision, corridor, or self-insured retention condition of the policy or policies shall remain with the CONTRACTOR.

These insurance requirements are not to be construed as recommended or maximum amounts. CONTRACTOR is solely responsible for determining the appropriate limits of insurance coverage for injuries or damages resulting from the performance of the work under the Contract Documents.

Notwithstanding the availability of, or limits on, or deductible provisions in, any insurance provided by CONTRACTOR under this Section 5.04, CONTRACTOR shall defend, indemnify and hold harmless the OWNER and ENGINEER from any and all claims or causes of action alleged to arise from or on account of acts or omissions of CONTRACTOR, its officers, employees, agents or subcontractors, in performing the work called for in the Contract Documents.

CONTRACTOR shall furnish with the certificate(s) of insurance copies of all endorsements providing additional insured status of OWNER and ENGINEER.

and as so amended, paragraph 5.04 remains in effect.

SC-5.05.A Delete paragraph 5.05.A of the General Conditions in its entirety.

SC-5.06.A Delete paragraphs 5.06.A through 5.06.A.7 of the General Conditions in their entirety and insert the following in their place:

A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Agreement or these Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors and ENGINEER, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework and Work in transit and shall insure against at least the following perils: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued; and

5. the Builder's Risk Insurance required herein shall apply to projects involving construction of structures and building only. The requirements of this section shall be waived on projects involving only underground utilities, grading, street improvements and similar construction work, but any damage or loss to property shall be the sole responsibility of the CONTRACTOR until final acceptance of the work.

6. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.6 shall contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days' prior written notice has been given to OWNER, ENGINEER, and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued.

SC-5.06.B Delete paragraph 5.06.B of the General Conditions in its entirety and insert the following in its place:

CONTRACTOR shall purchase and maintain boiler and machinery insurance affording the same limits of liability as set forth for liability assumed under the Agreement including contractual liability which will include the interests of OWNER, CONTRACTOR, Subcontractors, and ENGINEER, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

SC-5.06.D Delete paragraph 5.06.D of the General Conditions in its entirety.

SC-5.06.E Delete paragraph 5.06.E of the General Conditions in its entirety.

SC-6.02.B Delete paragraph 6.02.B of the General Conditions in its entirety.

SC-6.08.A Delete the first sentence of paragraph 6.08.A of the General Conditions and insert the following sentence in its place:

Unless otherwise specifically provided in the Specifications, CONTRACTOR shall obtain and pay for all permits and licenses required to perform the Work.

and as so amended, paragraph 6.08.A remains in effect.

SC-6.13.B Add the following paragraphs 6.13.C through 6.13.H after the end of paragraph 6.13.B of the General Conditions:

C. The CONTRACTOR shall be solely and completely responsible for conditions on the job site, including safety of all persons and property during the performance of the Work. This requirement shall apply continuously and not be limited to normal work hours.

D. Observation of the CONTRACTOR's performance by ENGINEER is not intended to include review of the adequacy of the CONTRACTOR's safety measures on or near the Site.

E. The CONTRACTOR shall be responsible for furnishing the CONTRACTOR's and any Subcontractor's employees with all safety equipment, including but not limited to, hard hats, eye protection, respiratory protection equipment and all other protection devices needed to comply with Laws and Regulations or with accepted safety practices. The CONTRACTOR shall be responsible for any safety violation and/or fine that may occur because of any neglect by the CONTRACTOR, the CONTRACTOR's employees or any third party.

F. The CONTRACTOR has responsibility for the design and safety of excavations. ENGINEER and OWNER will not provide any excavation designs, nor should excavation designs be presumed to be contained in the Contract Documents. ENGINEER and OWNER will not assist CONTRACTOR in classifying soils or interpreting applicable regulations.

G. No representation is made that the available subsurface information is suitable for excavation design or consistent with the soil classifications in OSHA Regulations for Excavations and Trenches (20 CFR Part 1926, Subpart B).

H. Additional provisions regarding the CONTRACTOR's responsibilities for health, safety and protection may be included in Division 1 (General Requirements) of the Technical Specifications.

and as so amended, paragraph 6.13 remains in effect.

SC-8.06.A Delete paragraph 8.06.A of the General Conditions in its entirety.

SC-9.03.A Add the following paragraphs after paragraph 9.03.A of the General Conditions:

B. The Resident Project Representative shall act as directed by and under the supervision of ENGINEER. The Resident Project Representative shall confer with the ENGINEER regarding the Resident Project Representative's actions. The Resident Project Representative's

dealings in matters pertaining to the on-site work will, in general, be only with ENGINEER and CONTRACTOR. The Resident Project Representative's dealings with Subcontractors will only be through or with the full knowledge of CONTRACTOR or the CONTRACTOR's superintendent.

C. Limitations of Authority for the Resident Project Representative are as follows:

1. Cannot authorize deviation from the Contract Documents or approve any substitute material or equipment;

2. Cannot issue written clarification or interpretation of the requirements of the Contract Documents;

3. Cannot undertake or assume to fulfill any of the responsibilities of ENGINEER under the Contract Documents unless such is specifically called for in the Contract Documents;

4. Cannot undertake any of the responsibilities of CONTRACTOR;

5. Cannot expedite work for CONTRACTOR;

6. Cannot advise on or issue directions relative to any aspects of the means, methods, techniques, sequences or procedures of construction unless specifically called for in the Contract Documents;

7. Cannot advise on or issue directions as to health and safety precautions and programs in connection with the Work; and

8. Is not a representative of the OWNER.

SC-9.06.A Delete paragraph 9.06.A of the General Conditions in its entirety and insert the following in its place:

A. OWNER will disapprove or reject Work, based on ENGINEER's written recommendations indicating the Work the ENGINEER believes to be defective and outlining the reasons ENGINEER believes cause the Work to be defective. ENGINEER will have the authority to require special inspection or testing of the Work ENGINEER believes to be defective, in accordance with the provisions of paragraph 13.04 of the General Conditions, whether or not the Work in question is fabricated, installed, or completed.

SC-10.05.A. Delete the last sentence of paragraph 10.05.A. of the General Conditions and insert the following paragraphs after paragraph 10.05.A. of the General Conditions:

1. ENGINEER shall evaluate claim and prepare a formal written opinion regarding the dispute.

a. This opinion shall be rendered within 30 days after claimant's last submittal except that ENGINEER may notify OWNER and CONTRACTOR that reasonable additional time, up to 30 days, will be required to evaluate the claim.

b. This opinion shall be provided to OWNER and CONTRACTOR.

c. If ENGINEER does not render the formal written opinion within the time stated in paragraph a. above, a decision denying the Claim in its entirety shall be deemed to have been issued the day after the time stated expires.

2. Claimant shall allow opposing party a period of 30 days, after date of ENGINEER's written opinion is issued to accept or reject ENGINEER's opinions, or to request additional data from or further clarification of the issue by claimant, unless ENGINEER reasonably extends such period up to 30 additional days to conform to regularly scheduled meetings of public OWNER's Board, Council, or Committee.

a. If opposing party accepts or rejects ENGINEER's opinion, ENGINEER will issue formal decision regarding Claim in writing within 15 days after opposing parties' determination.

b. If opposing party requests additional data from or further clarification of the issue by claimant, opposing party shall establish reasonable tentative date, within not less than 15 days nor more than 67 days, at which time ENGINEER's opinions and the additional data or further clarification requested will be reconsidered. ENGINEER will issue formal decision regarding Claim in writing within 15 days after the date of opposing parties reconsideration or if not reconsidered by the opposing party on the 68th after prior consideration by the opposing party.

c. If ENGINEER does not render the formal written opinion within the time stated in paragraphs a. or b. above, a decision denying the Claim in its entirety shall be deemed to have been issued the day after the time stated expires.

SC-10.05.B. Delete the first sentence of paragraph 10.05.B. of the General Conditions.

SC-10.05.C. Delete paragraph 10.05.C. of the General Conditions in its entirety.

SC-11.01.A Delete paragraphs 11.01.A through 11.01.A.5.j of the General Conditions in their entirety and insert the following in their place:

A. The term Cost of the Work means the sum of all actual costs necessarily incurred and paid by the CONTRACTOR in the proper performance of the Work plus 15 percent (15%) for overhead and profit.

1. The term "actual cost" shall cover the payroll expenses for the workers employed and supervision required to perform the work including salary, worker's compensation, social security, pension and retirement allowances and other regular payroll charges. Also included in the actual cost will be the cost of additional insurance needs for this Work, the cost of all materials and supplies required of either temporary or permanent character including fuel and lubricants.

2. In addition to the Cost of the Work as outlined above, the CONTRACTOR will be paid for all power-driven equipment at a rate equal to 85 percent of the rate listed in the most recent edition of the "Rental Rate Bluebook" published by Neilson/Dataquest, Inc., to which there will be no percentage added for overhead or profit. The rates used for each piece of equipment used in the performance of the work will be based on the applicable monthly, weekly, daily or hourly rate which

reflects the status of the particular piece of equipment on the project. All rates shall be subject to approval by the ENGINEER.

3. The cost of all such work done each day shall be submitted to the ENGINEER in satisfactory form on succeeding day and shall be approved by the ENGINEER or adjusted at once.

SC-11.01.C Delete paragraph 11.01.C of the General Conditions in its entirety.

SC-11.03.C Delete paragraph 11.03.C of the General Conditions in its entirety.

SC-12.01.C Delete paragraph 12.01.C of the General Conditions in its entirety.

SC-13.02 Add the following paragraph 13.02.B to the end of paragraph 13.02 of the General Conditions:

B. Said access shall conform to all requirements of the regulatory agency or agencies who claim jurisdiction over the safety of the project site. Failure by the CONTRACTOR to provide safe access for the above parties will be a violation in a substantial way of the provisions of the Contract Documents as provided for in paragraph 15.02.A.4 of the General Conditions.

SC-13.06.A Delete the phrase "rejected by ENGINEER" in paragraph 13.06.A of the General Conditions and insert the following in its place:

rejected by OWNER

and as so amended, paragraph 13.06.A remains in effect.

SC-13.09.A Delete paragraph 13.09.A of the General Conditions in its entirety and insert the following sentence in its place:

If CONTRACTOR fails within a reasonable time after written notice of OWNER to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by OWNER in accordance with Paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provisions of the Contract Documents, OWNER may, after seven 7 days written notice to CONTRACTOR, correct and remedy any such deficiency.

SC-14.01.A Delete paragraph 14.01.A of the General Conditions in its entirety and insert the following in its place:

The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to OWNER. Progress payments on accounts of Unit Price Work will be based on the number of units completed.

SC-14.02.A.1 Delete the first sentence in paragraph 14.02.A.1 of the General Conditions in its entirety and insert the following sentence in its place:

At least twenty (20) days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment, on forms furnished by ENGINEER or otherwise acceptable to ENGINEER, filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

SC-14.02.A.3 Delete paragraph 14.02.A.3 of the General Conditions in its entirety and insert the following in its place:

The amount of retainage with respect to progress payments will be as stipulated in the Instructions to Bidders.

SC-14.09.A.2 Delete Paragraph 14.09.A.2 of the General Conditions in its entirety and insert the following in its place:

A waiver of all claims by CONTRACTOR against OWNER and ENGINEER other than those previously made in writing and still unsettled.

Technical Specifications

Division 1

General Requirements

DIVISION 1 - GENERAL REQUIREMENTS

01110 Summary of Work	01110-1
01270 Unit Price Measurement and Payment	01270-1
01313 Project Meetings	01313-1
01330 Submittal Procedures	01330-1
01501 Safety	01501-1
01770 Closeout Procedures	01770-1

SECTION 01110

SUMMARY OF WORK

PART 1: GENERAL

1.01 CONTRACT DOCUMENTS

A. The Contract Documents are as defined in the Instructions to Bidders and the Agreement. The terms of the Contract Documents apply to these Specifications as fully as though repeated herein.

B. The format of these Specifications is based upon the CSI MASTERFORMAT (1995 Edition), however differences in format and subject matter location do exist. It is the CONTRACTOR's sole responsibility to thoroughly read and understand these Specifications and request written clarification of those portions which are unclear.

C. Division of the Work as made in these Contract Documents is for the purpose of specifying and describing work which is to be completed. There has been no attempt to make a classification according to trade or agreements which may exist between CONTRACTOR, Subcontractors, or trade unions or other organizations. Such division and classification of the Work shall be the CONTRACTOR's sole responsibility.

1.02 EXISTING SITE CONDITIONS AND USES

A. Work included as part of this project is construction of an embankment, overflow channel, and drainage pipe located approximately 2 1/4 miles east of the intersection of I-29 and State Highway 20 in Codington County, South Dakota.

B. Access and construction limits are shown on the Drawings.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The overall scope of the Work which is more fully described in these Contract Documents includes, but is not necessarily limited to, furnishing all labor, tools, equipment, and materials necessary to:

1. Mobilize and demobilize labor, equipment, materials, and temporary facilities.

2. Clear and grub, except as restricted by the Specifications, and installation and maintenance of silt fencing and other erosion control features around the work areas as shown on the Drawings.

3. Strip and stockpile topsoil from the project site and the clay borrow area for use in site restoration.

4. Control surface water and groundwater as necessary to construct the Work.

5. Excavate and haul clay from the borrow area to the project site.

6. Place and compact the clay material as shown on the Drawings and in accordance with the Specifications.

7. Complete all earthwork including excavation, embankment, backfill, grading, and "finish"-grading.

8. Furnish and install the drainage pipe and appurtenances, overflow intake trash rack, and anti-seepage collars as shown on the Drawings.

9. Construct the overflow channel in the embankment and install non-photodegrading erosion control material.

10. Furnish and install drainage filter fabric and riprap.

11. Place stockpiled topsoil over disturbed areas and supply and place added topsoil as directed by the OWNER or OWNER's Representative.

12. Site cleanup and restoration.

B. It is the intent of the Contract Documents to cover all aspects of the Project. Should there be some item or items not shown on the Contract Drawings or not described in these Specifications which are required for the Work, those items and the furnishing of all labor, materials, and equipment shall be considered incidental to the Work and no additional compensation will be provided.

C. The Work includes the furnishing of all labor, equipment, tools, machinery, materials, and other items required for the construction of a complete project as specified. Equipment furnished shall be in safe operating condition and of adequate size, capacity, and condition for the performance of the Work. CONTRACTOR shall obtain all measurements necessary for the Work and shall be responsible for establishing all dimensions, levels, and layout of the Work.

D. CONTRACTOR shall be solely responsible for the coordination of its activities with regard to the Project and the activities of Subcontractors and OWNER.

1.04. WORK BY OWNER

A. OWNER will provide benchmark and site coordinate information necessary for construction of the Work. Once provided, it is CONTRACTOR's responsibility to protect the information in accordance with paragraph 1.06E of this Section. CONTRACTOR shall request such information from OWNER a minimum of five days prior to the time when such information is needed.

B. CONTRACTOR shall obtain all permits that may be required other than the "Permit to Appropriate Water within the State of South Dakota". The Lake Pelican Water Project District has already applied for that permit.

1.05 OWNER FURNISHED PRODUCTS

A. OWNER will not furnish any products for this Project.

1.06 CONTRACTOR USE OF PREMISES

A. Definition of Site: The Site is defined as the area within the construction limits shown on the Drawings. CONTRACTOR shall limit operations, including materials and equipment storage, to the area within the construction limits. Any disturbance outside the construction limits shall be fully restored at the CONTRACTOR's expense. CONTRACTOR shall obtain written approvals of property owners at all locations where CONTRACTOR uses lands not included in the construction limits.

B. Hours of Operation: CONTRACTOR's operations shall be limited to the hours approved by the OWNER in accordance with local laws and regulations.

C. Protection and Repair of Existing Facilities and Utilities: CONTRACTOR shall perform operations carefully and in such a manner as to protect existing structures, Underground Facilities, and Utilities. Obstructions not shown on the Drawings may exist and shall be exposed by CONTRACTOR without damage. CONTRACTOR shall be responsible for damage to existing structure, Underground Facilities, and Utilities resulting from CONTRACTOR's operations, and shall repair or replace damaged items to OWNER's satisfaction.

D. Unfavorable Construction Conditions: When unfavorable weather, soil, drainage, or other unsuitable construction conditions exist, CONTRACTOR shall confine operations to work which will not be adversely affected by such conditions. No portion of the Work shall be constructed under conditions which would adversely affect the quality of the Work, unless special means or precautions are taken to perform the Work in a proper and satisfactory manner.

E. Survey Markers: CONTRACTOR shall conduct operations so as to preserve benchmarks, survey reference points, and stakes existing or established by OWNER for the construction. CONTRACTOR will be charged the expense of repairing or replacing survey markers and shall be responsible for mistakes or lost time that results due to damage or destruction of survey markers due to CONTRACTOR's operations.

1.07 SEQUENCE OF WORK

A. Work shall commence within 5 (five) calendar days of the Notice to Proceed, unless a later dated is stated in the Notice to Proceed, and shall be completed on or before the date indicated in the Agreement.

B. CONTRACTOR shall determine the sequence of Work required to efficiently progress with the Work. The sequence of the Work shall be clearly evident from the CONTRACTOR's progress schedule, submitted in accordance with ARTICLE 2 of the General Conditions and thereafter revised.

1.08 WORK BY OTHERS

A. CONTRACTOR's obligations with regard to coordination with other Work are more fully set forth in Article 7 of the General Conditions.

1.09 BASIS FOR COMPENSATION

A. All costs to comply with the requirements of this Section of the Specifications shall be considered to be included in the Contract Price and no additional compensation will be provided.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 01110

SECTION 01270

UNIT PRICE MEASUREMENT AND PAYMENT

PART 1: GENERAL

1.01 GENERAL

A. This Section of the Specifications describes the measurement and payment for the Work to be done under the items listed on the Bid Form.

B. Each unit or lump sum price stated on the Bid Form shall constitute full compensation as herein specified for each item of work completed in accordance with the requirements of the Contract Documents including Drawings and Specifications, including all clean up and restoration.

C. All costs in connection with the Work, including furnishing all materials, machinery, supplies and appurtenances; providing all construction equipment and tools; and performing all necessary labor, coordination, supervision, and management to fully complete the Work shall be included in the unit prices or unit lump sum prices quoted on the Bid Form. All Work not specifically set forth as a separate bid item herein shall be considered a subsidiary obligation of the CONTRACTOR and all costs in connection therewith shall be included in the amounts and prices submitted on the Bid Form. The price on the Bid Form shall include all work necessary to make all of the Work come together including all general, mechanical, electrical and instrumentation connections (if any) between the various parts of the Work.

1.02 ESTIMATED QUANTITIES

A. All estimated quantities for Unit Price items in the Bid Form are approximate and are to be used only as a basis for determining the initial Contract Price. The actual amount of work to be done or materials to be furnished under the Unit Price items may differ from the estimated quantities. The basis of payment for work or materials furnished or placed will be the actual quantities of work performed or material furnished and placed. The CONTRACTOR agrees to make no claim for damages, anticipated profits, or otherwise due to any difference between the quantities of Work actually performed or materials furnished and placed and the estimated quantities included in the Bid Form.

1.03 INTENT OF BID FORM ORGANIZATION

A. Payment for all Work shall be in accordance with the terms and conditions set forth elsewhere in the Contract Documents and the CONTRACTOR's Bid prices set forth in CONTRACTOR's conformed Bid Form. The Bid items set forth in the Bid Form subdivide the Project for purposes of measurement and payment only, and are intended to represent the entire and complete Project as set forth in the Contract Documents. The Bid items set forth in the Bid Form shall constitute full compensation to CONTRACTOR for providing all supervision, labor, materials, equipment, tools and

supplies, and overhead and profit to complete the Work in complete accordance with the Contract Documents.

B. The following paragraphs provide additional descriptions of the Work included in each of the Bid items subject to the provisions of paragraphs 1.01, 1.02, and 1.03 of this Section

1. Some of the Bid items are based on unit lump sum prices. Partial progress payment for those unit lump sum items shall be made in accordance with percent completed for each item based on the breakdown of the lump sum price in CONTRACTOR's approved Schedule of Values. If CONTRACTOR does not provide a breakdown of a lump sum price on the approved Schedule of Values, the lump sum price will not be paid, in whole or in part, until all work included in the lump sum item has been completed.

2. Other Bid items are based on Unit Prices. For those items, progress payments shall be based on the actual quantities of each item of Work completed in accordance with the Contract Documents.

C. The procedures for submitting and processing progress payments are set forth elsewhere in the Contract Documents.

1.04 BID ITEMS

A. Mobilization/Demobilization

1. Method of Measurement: Mobilization/Demobilization will be measured on the basis of a single lump sum unit.

2. Basis of Payment: CONTRACTOR will be paid a lump sum (L.S.) price for mobilization/demobilization. The lump sum price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary for mobilization and demobilization, all complete as specified. This item shall include the CONTRACTOR's premium for any special insurance obtained for this project; furnishing, installing and maintaining CONTRACTOR's facilities; providing work area security; development, implementation, and maintenance of appropriate health and safety plan; providing all electrical, water, and telephone services required or needed by the CONTRACTOR to perform the work; equipment mobilization and demobilization; site cleanup during and upon completion of the work; preparing and transmitting the required submittals; obtaining all permits required of the CONTRACTOR; identifying and locating utilities as necessary for the work; and all incidentals and other items not specifically paid for but included in the total scope of the Work.

B. Site Preparation

1. Method of Measurement: Site preparation will be measured on the basis of a single lump sum unit.

2. Basis of Payment: The CONTRACTOR will be paid a lump sum (L.S.) unit price for site preparation, all complete as specified. This lump sum price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to perform the required clearing and grubbing of the site; to strip and stockpile topsoil from the embankment area and the clay borrow area; to excavate 4 feet of existing soil below the location where the discharge pipe is to be placed; to excavate the downstream channel area for the placement of riprap and stilling pool; to haul, place and compact excavated channel material in the borrow pit once all clay borrow excavation is complete; to furnish and install silt fence or other erosion and sediment control measures including dust control and tracking control; control and management of storm water and groundwater at the site throughout the duration of the work; and removal of the erosion protection upon completion of the work, all complete as specified.

C. Embankment

1. Method of Measurement: Embankment construction will be measured by volume in cubic yards of clay borrow material placed and compacted as specified. The volume will be calculated by the average end area method taken from cross-sections of the embankment to the nearest whole cubic yard. The cross-sections will be surveyed by the ENGINEER or surveyors retained by the OWNER.

2. Basis of Payment: The CONTRACTOR will be paid a unit price per cubic yard (C.Y.) of clay borrow embankment material furnished and installed, complete as specified. This unit price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to furnish, excavate, load, haul, place, and compact clay soil material in place complete as specified. This measurement shall be made before topsoil is placed over the clay embankment material.

D. Drainage Pipe and Appurtenances

1. Method of Measurement: Drainage pipe and appurtenances will be measured by length in lineal feet to the nearest whole foot along the centerline of the pipe from end to end.

2. Basis of Payment: The CONTRACTOR will be paid a unit price per lineal foot (L.F.) for furnishing and installing the drainage pipe, all complete as specified. This unit price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to fabricate, furnish, and install the drainage pipe (for one of the alternatives listed below) including:

a. Concrete Pipe Alternative: Wrapping joints with geotextile drainage fabric, bends, joint ties, hardware, pipe appurtenances including trash guards, tees, trash racks, and concrete flared end sections, excavation, backfill and compaction, and subgrade preparation (compaction), all complete as specified.

b. Aluminized Corrugated Steel Pipe Alternative: Bends, watertight joint connections, hardware, pipe appurtenances including trash guards, tees, trash

racks, and aluminized corrugated steel flared end sections, excavation, backfill and compaction, and subgrade preparation (compaction), all complete as specified.

E. Anti-seepage Collars

1. Method of Measurement: Anti-seepage Collars will be measured on an each (EA) unit price basis for each anti-seepage collar installed as specified.

2. Basis of Payment: The CONTRACTOR will be paid for each anti-seepage collar installed as specified. This unit price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to fabricate, furnish, and install the anti-seepage collars (for one of the options listed below) including:

   a. Bentonite Anti-Seepage Collar Alternative: Bentonite anti-seepage collar material, including preparing the subgrade, and keeping each anti-seepage collar construction site dry during placement of the bentonite and surrounding clay borrow material, all complete as specified.

   b. Aluminized Corrugated Steel Anti-Seepage Collar Alternative: Aluminized corrugated anti-seepage collars, including all hardware and connections and excavating for the seepage collar, all complete as specified.

F. Protected Overflow Channel

1. Method of Measurement: Construction of the protected overflow channel will be measured by the area in square yards to the nearest whole square yard of channel that permanent non-photodegrading erosion control mat is installed.

2. Basis of Payment: The CONTRACTOR will be paid a unit price per square yard (S.Y.) for constructing the overflow channel, and installing the non-photodegrading erosion control mat, all complete as specified. This unit price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to construct the overflow channel, including excavating, backfilling, grading, compacting, and installing the permanent non-photodegrading erosion control mat, all complete as specified.

G. Riprap and Geotextile Drainage Fabric

1. Method of Measurement: Riprap and geotextile drainage fabric will be measured by the area in square yards (S.Y.), to the nearest whole square yard of riprap and geotextile drainage fabric furnished and installed as specified. The limits of the riprap and geotextile drainage fabric will be surveyed by ENGINEER or surveyors retained by the OWNER and the horizontal area determined mathematically based on the surveyed coordinates.

2. Basis of Payment: CONTRACTOR will be paid a unit price per square yard (S.Y.) of riprap and geotextile drainage fabric furnished and installed, complete as specified. This unit price shall be payment in full for the costs of all supervision,

labor, materials, equipment, overhead and profit, and performing all operations as are necessary to furnish and install the riprap including dewatering, excavation, fill, geotextile drainage fabric, and riprap, all complete as specified.

H. Topsoil Borrow Material

1. Method of Measurement: Topsoil borrow material will be measured by the area in square yards (S.Y.) to the nearest whole square yard of topsoil (not on-site stripped and stockpiled topsoil) furnished and installed as specified.

2. Basis of Payment: The CONTRACTOR will be paid a unit price per square yard (S.Y.) of topsoil furnished and installed, complete as specified. This unit price shall be payment in full for the costs of all supervision, labor materials, equipment, overhead and profit, and performing all operations as are necessary to furnish and install the topsoil all complete as specified.

I. Overflow Structure

1. Method of Measurement: The overflow structure will be measured on a lump sum unit.

2. Method of Payment: The CONTRACTOR will be paid a lump sum unit price (L.S.) for constructing the overflow structure, as specified. This unit price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary to construct the overflow structure, including the riser section and special trash rack, all as specified.

J. Restoration

1. Method of Measurement: Restoration will be measured as a single lump sum unit.

2. Basis of Payment: The CONTRACTOR will be paid a lump sum (L.S.) price for the restoration required for the work, complete as specified. This lump sum price shall be payment in full for the costs of all supervision, labor, materials, equipment, overhead and profit, and performing all operations as are necessary for restoration of the work including placing of topsoil from the stockpiles, final finish grading, seed bed preparation, seeding, fertilizing, and mulching. Restoration will not be considered complete until vegetation has become established enough to allow erosion and sediment control facilities to be removed.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

SECTION 01313

PROJECT MEETINGS

PART 1: GENERAL

1.01 PRECONSTRUCTION CONFERENCE

A. After OWNER issues to CONTRACTOR the Notice of Award, ENGINEER will schedule a preconstruction conference to be held at either ENGINEER's offices, the OWNER's offices, or the project site that shall be attended by OWNER, CONTRACTOR, ENGINEER, and others as appropriate. The meeting will be scheduled promptly after the Notice of Award and as far in advance of the commencement date as is practical. The purpose of the meeting will be to comply with the provisions of paragraph 2.06 of the General Conditions.

B. Agenda items may include:

1. Distribution of Contract Documents
2. Designation of responsible personnel for all parties, lines of communication, and lines of authority
3. Scope of work and the anticipated schedule of operations
4. Critical work sequencing
5. Submittal and field test reporting procedures
6. Record documents and reporting
7. Site safety and security procedures
8. List of major subcontractors
9. Procedures for processing change orders
10. Use of premises including equipment and material storage
11. Major equipment deliveries
12. Housekeeping procedures

1.02 PROGRESS MEETINGS

A. Weekly progress meetings may be scheduled by the ENGINEER at a regular time mutually agreeable to the OWNER, CONTRACTOR and ENGINEER. A preferred time for the one of these meetings each month is prior to CONTRACTOR's submittal of Application for Payment. The CONTRACTOR shall attend these meetings and shall coordinate and require the attendance of subcontractors whose work may be in progress

at the time or whose presence may be required for any purpose. Scheduling of required attendees shall meet with the approval of the ENGINEER.

B. Following each meeting, the ENGINEER will prepare and distribute to OWNER and CONTRACTOR copies of the minutes of the meeting. These will include a brief summary of the progress of the Work since the previous meeting.

1.03 UNSCHEDULED MEETINGS

A. The CONTRACTOR shall attend other unscheduled meetings which may be reasonably requested by ENGINEER or OWNER to discuss unanticipated changes in the Work, or conditions at the site, or other issues and which must be resolved before progression of work.

1.04 BASIS FOR COMPENSATION

A. All costs to comply with the requirements of this Section of the Specifications shall be considered to be included in the Contract Price and no additional compensation will be provided.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 01313

SECTION 01330

SUBMITTAL PROCEDURES

PART 1: GENERAL

1.01 GENERAL SUBMITTAL PROCEDURES

A. CONTRACTOR shall:

1. Transmit each submittal labeled with the Project name, name of the submittal, and Section and page number of these Contract Documents in which the submittal was required. Indicate the type or purpose of the submittal as more fully described elsewhere in this section with regard to the Schedule of Submittals. Transmit the correct number of copies as described below for each type of submittal. Each submittal shall be accompanied by a transmittal letter stating the same information.

2. Transmit all submittals to ENGINEER at the address set forth in the Supplementary Conditions and to the attention of the Project Engineer designated by ENGINEER.

3. Apply CONTRACTOR's stamp, signature or initials certifying that review and verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Unstamped or unsigned submittals will be returned without action.

4. Schedule submittals to expedite Project and in accordance with the Schedule of Submittals to be prepared by CONTRACTOR. Coordinate submission of related items.

5. Identify all variations or deviations from the Contract Documents and identify alternative products or system limitations which may be detrimental to successful performance of the completed Work.

6. Provide space for ENGINEER review stamps and comments on all submittals.

7. Revise and resubmit submittals as required in a timely manner. Identify all changes made since previous submittal.

8. Promptly distribute copies of reviewed submittals to Subcontractors, suppliers, and other concerned parties. Instruct parties to promptly report any inability to comply with provisions.

9. Not proceed with any Work requiring a submittal, including resubmittal, to ENGINEER until the submittal has been returned to CONTRACTOR without a requirement for resubmittal.

B. All submittals that are made that are not specifically required by the Contract Documents will be returned without action.

C. All submittals shall come from the CONTRACTOR and submittals directly from Subcontractors or vendors will be returned without action.

1.02 PROGRESS SCHEDULE

A. CONTRACTOR shall submit an estimated progress schedule and a finalized progress schedule in accordance with the requirements of paragraphs 2.05.B and 2.07 of the General Conditions.

B. The CONTRACTOR shall revise the finalized progress schedule from time to time, as may reasonably requested by ENGINEER or OWNER, to reflect the current status and progress of the Work and the operations necessary to complete the Work as required.

C. The progress schedule shall clearly illustrate the sequence of the Work (by locations and other factors as may be appropriate) to be followed by CONTRACTOR to efficiently progress with the Work.

1.03 SCHEDULE OF VALUES

A. If CONTRACTOR intends to file requests for progress payments that includes portions of lump sum items, CONTRACTOR shall submit a preliminary schedule of values and a finalized schedule of values in accordance with the requirements of paragraphs 2.05.B and 2.07 of the General Conditions and in the form herein specified.

B. The schedule of values shall be a detailed cost breakdown for all lump sum items of Work which shall include quantities and unit prices of items aggregating each lump sum price included in the Contract and shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Unit price items shall be subject to progress payments based on the units of Work completed as provided for in the General Conditions.

C. The schedule of values shall be organized in a tabular format with the following columns (clearly labeled) as a minimum:

1. ITEM NUMBER: provided on the Bid Form.	Number items according to the item numbers
2. ITEM DESCRIPTION:	Written description of what item consists of.
3. UNIT:	The units of measure upon which the lump sum price is based. Several units may apply to each lump sum item.
4. NUMBER OF UNITS:	The number of units upon which the total price for the item will be based.
5. UNIT MATERIAL PRICE:	The cost of the raw materials or products needed for the item on a unit price basis. (Not needed for unit price bid items)
6. UNIT LABOR PRICE:	The cost of labor needed to fabricate, install or otherwise construct the item on a unit basis. (Not needed for unit price bid items)
7. UNIT OVERHEAD AND PROFIT PRICE:	CONTRACTOR's overhead and profit distributed on a unit basis. (Not needed for unit price bid items)

8. TOTAL UNIT PRICE: Sum of unit material price, unit labor price, and unit overhead and profit price.

9. EXTENSION: The total price for the item determined by multiplying the number of units by the total unit price.

D. The schedule of values shall include a row labeled TOTAL EXTENSION which shall be the sum of the extension column for each of the individual items. The dollar value shown as the total extension shall match exactly the Contract Price as shown in the Agreement.

E. The schedule of values shall contain sufficient detail to serve as the basis for progress payments for materials or equipment which will be shop fabricated and for lump sum items. The schedule should include such items as design, fabrication, lining, exterior painting, transportation to site, installation and any other pertinent items the CONTRACTOR wishes to break out for purposes of progress payments.

F. [NOT USED]

G. The Schedule of values shall be subject to review and approval by OWNER. If in opinion of OWNER the schedule of values does not contain sufficient detail or appears to be unbalanced, the OWNER may require CONTRACTOR to revise and resubmit the schedule of values and/or provide documentation to justify CONTRACTOR's distribution. CONTRACTOR shall correct such deficiencies and resubmit the schedule of values.

1.04 SCHEDULE OF SUBMITTALS

A. CONTRACTOR shall submit a preliminary schedule of submittals including Shop Drawings in accordance with the requirements of paragraph 2.05.B of the General Conditions, for Shop Drawing submissions, and in the form herein specified. CONTRACTOR shall submit a finalized schedule of submittals including Shop Drawings in accordance with the requirements of paragraph 2.07 of the General Conditions except that this finalized schedule of submittals to ENGINEER and OWNER prior to beginning any Work.

B. The schedule of submittals shall be in tabular form listing all submittals which are required by the Contract Documents and the date on which CONTRACTOR will make submittal. As a minimum, the schedule of submittals shall consist of the following columns:

1. SUBMITTAL NUMBER: Number consecutively.

2. SECTION NO.: Section number or description of location in Contract Documents where submittal is requested.

3. PAGE NO.: where submittal is requested. Page number of section in Contract Documents

4. ITEM: Description of item or items to which submittal pertains.

5. SUBMITTAL TYPE: A letter code indicating what type of submittal was requested. The type key shall be as follows:

   a. Information or Documentation

   b. Review

   c. Approval

   d. Alternate Product Supporting Data

   e. Administrative such as schedules, etc.

6. DEFICIENCIES Manner in which submittal or proposed alternate product does not meet the requirements of the Contract Documents.

7. ANTICIPATED

   SUBMITTAL DATE: Date on which CONTRACTOR anticipates submittal to be delivered to ENGINEER.

8. RESPONSE REQUIRED: Indicate yes if CONTRACTOR anticipates response from ENGINEER and no if no response is anticipated.

C. The Schedule of Submittals will be reviewed by ENGINEER and ENGINEER will respond in writing listing deficiencies. The CONTRACTOR shall not list submittals not called for in the Contract Documents. The schedule shall include all items for which CONTRACTOR proposes to use substitute or "or equal" products. CONTRACTOR shall correct deficiencies and resubmit schedule of submittals prior to beginning any Work.

1.05 APPLICATIONS FOR PAYMENT

A. General

1. Applications for progress payments shall be submitted as set forth in the General Conditions as amended by the Supplementary Conditions. Each Application for Payment shall be accompanied by the required supporting data as specified in the Contract Documents.

2. The OWNER will act on payment requests approximately once each month.

3. All Applications for Payment shall be made on forms provided by OWNER or otherwise acceptable to OWNER. Forms shall be completed in their entirety and all signatures and notarizations shall be completed.

4. Applications for Payment shall be consistent with the actual Work completed as of the date of application. Applications should be consistent with the current schedule of values and progress schedule, and if not, those schedules should be modified as set forth elsewhere in this section.

5. Incomplete or deficient Applications for Payment will be returned to CONTRACTOR. CONTRACTOR shall correct such deficiencies and resubmit the Application for Payment.

B. Payment for Mobilization Expenses

The CONTRACTOR may include items in the schedule of values for mobilization. Mobilization may include, but is not limited to, operations necessary to move personnel, equipment, supplies and incidentals to the site and removing them from the site following completion of the Work; furnishing bonds and insurance required specifically for this Project; furnishing submittals as specified; obtaining all permits required specifically for the Work; and performing all work to restore the Project site to a condition equal to or better than its original condition that is not specifically provided for elsewhere in these Specifications.

Progress payments for any mobilization expense, or any other line item in the schedule of values which does not relate to a physical component of the Work at the site, will be made only in the amount of actual expenses incurred as evidenced by receipts or other evidence of incurred cost satisfactory to the ENGINEER and OWNER. Payment for such expenses for which supporting documentation is not provided will be made at the completion of the Work.

C. Initial Application for Payment

The CONTRACTOR shall not make its initial application for payment until the required administrative procedures have been complied with. These procedures include, but may not be limited to, submittal of acceptable:

1. proof of insurance,

2. progress schedule,

3. schedule of values,

4. schedule of submittals.

D. Supporting Data

Each Application for Payment shall be accompanied by such supporting data as may be required by OWNER or ENGINEER to substantiate the CONTRACTOR's application. All Applications for Payment which include payment for shop fabricated equipment shall be accompanied by invoices and records from the fabricator substantiating the progress of the Work on each of the individual pieces of equipment. Receipts for materials shall indicate the specific piece of equipment for which the materials will be used. Time reports and other records shall be furnished to verify the fabricator's costs. Reports shall contain only information pertinent to this Project and shall contain summaries of all detailed information. If requested, CONTRACTOR shall provide photographs showing the status of construction of the shop fabricated components. Photographs shall have the date of the photograph displayed on the photo.

1.06 REVIEW OF SUBMITTALS

A. The ENGINEER's review of engineering data will cover only general conformity of the data to the Specifications and Contract Documents, external connections, and interfaces with equipment and materials furnished under separate specifications. The ENGINEER's review does not

indicate a thorough review of all dimensions, quantities, and details of the equipment, material, device, or item indicated or the accuracy of the information or documentation submitted; nor shall review or approval by the ENGINEER be construed as relieving the CONTRACTOR from any and all responsibility for errors or deviations from the requirements of the Contract Documents.

B. All engineering data submitted, after final processing by the ENGINEER shall become a part of the Contract Documents and the work indicated or described thereby shall be performed in conformity therewith unless otherwise required by the OWNER.

1.07 SUBMITTAL FOR INFORMATION OR DOCUMENTATION

A. Submit one copy to ENGINEER and one copy to OWNER.

B. Submittal shall be made at least 5 days before the subject of the submittal is to be incorporated into the Work.

C. Submittal is for the purpose of formal verification that the subject of the submittal conforms to the requirements of the Specifications, for formal documentation of the Work, or both.

D. No action is required by OWNER or ENGINEER. ENGINEER will generally notify CONTRACTOR if deficiencies are identified, however CONTRACTOR is solely responsible for ensuring that the subject of the submittal conforms to the requirements of the Specifications.

1.08 SUBMITTAL FOR REVIEW

A. Submit two copies to the ENGINEER and one copy to OWNER.

B. Submittal shall be made at least 10 days before the subject of the submittal is to be incorporated into the Work. ENGINEER will respond within 5 days from receipt of submittal.

C. Submittal is for the purpose of providing opportunity to ENGINEER for review and comment on the subject of the submittal.

D. ENGINEER will respond to the submittal either with a list of comments or indicating no comments.

E. If ENGINEER's comments indicate a deficiency with respect to the requirement of the Specifications, CONTRACTOR shall amend the submittal and resubmit. ENGINEER will again respond to the resubmittal.

F. If ENGINEER's comments are in regards to an issue which based upon the Contract Documents is at CONTRACTOR's discretion, CONTRACTOR shall furnish additional information provide justification, and otherwise cooperate in addressing and resolving ENGINEER's comments.

G. CONTRACTOR shall remain solely responsible for ensuring that the subject of the submittal conforms to the requirements of the Specifications.

1.09 SUBMITTAL FOR APPROVAL

A. Submit two copies to the ENGINEER and one copy to OWNER.

B. Submittal shall be made at least 15 days before the subject of the submittal is to be incorporated into the Work. ENGINEER will respond within 7 days from receipt of submittal.

C. Submittals shall be stamped with CONTRACTOR's approval. CONTRACTOR's stamp shall be a representation that CONTRACTOR has assumed full responsibility for determining the submittal requirements and verifying that the subject of the submittal conforms to the requirements of the Specifications. Submittals not bearing CONTRACTOR's stamp will be returned without review or action.

D. ENGINEER will review, make notations as appropriate, stamp, and return submittals to CONTRACTOR. ENGINEER's stamp and CONTRACTOR's required action are described below:

1. NO EXCEPTIONS TAKEN. CONTRACTOR may proceed without further action.

2. RECOMMENDED REVISIONS NOTED. CONTRACTOR shall review ENGINEER's notations and revise subject of submittal as required to conform to the requirements of the Drawings and Specifications before proceeding with the Work. Resubmittal is not required.

3. RESUBMIT. CONTRACTOR shall review ENGINEER's notations, revise subject of submittal as required to conform to the requirements of the Drawings and Specifications, and resubmit to ENGINEER for additional action.

4. REVIEW COMPLETE, FURNISH THREE FILE COPIES. CONTRACTOR shall furnish the requested number of copies and may proceed without further action.

E. No work shall be performed in connection with the fabrication or manufacture of equipment and materials until the data therefor have been reviewed by the ENGINEER except at the CONTRACTOR's own risk and responsibility. Work may proceed when submittals have been returned marked RECOMMENDED REVISIONS NOTED, provided the work is performed in accordance with the ENGINEER's notations, or NO EXCEPTIONS TAKEN.

F. If changes are made at the project site to correct manufacturing errors, revised drawings incorporating the changes shall be prepared and submitted to the ENGINEER.

G. Drawings shall be in sufficient detail to indicate the kind, size, and arrangement of component materials and devices; the external connections, anchorages, and supports required; the dimensions needed for installation and correlation with the foundations; and other information specifically requested herein.

H. Each drawing submitted shall be black line on white background or blue line on white background. Print size shall not exceed 24 inches by 36 inches.

I. Each drawing submitted shall be clearly marked with the name of the project, the specification title, the specification number, the ENGINEER's assigned number when so advised, and the CONTRACTOR's name. If catalog pages are submitted, the applicable items shall be indicated.

1.10 ALTERNATE PRODUCT SUPPORTING DATA

A. If CONTRACTOR proposes to use alternate or substitute products, CONTRACTOR shall submit written application as required by paragraph 6.05.A.2 of the General Conditions.

B. Submit six (6) copies of literature, drawings, and any other data necessary to substantiate that proposed substitute is equivalent or equal to the item named, and otherwise meets the conditions established in paragraphs 6.05.A through 6.05.F of the General Conditions.

C. Do not proceed with product installation or use until written approval by ENGINEER is received in accordance with paragraphs 6.7.1 through 6.7.3 of the General Conditions.

1.11 RECORD DOCUMENTS

A. Submit one original copy to OWNER and one duplicate to ENGINEER of all record documents (or clearly legible copies) prior to substantial Completion.

B. Record documents consist of all Drawings, Specifications, Addenda, Change Orders, and Shop Drawings legibly annotated to reflect all changes made during construction.

1.12 WARRANTY OR GUARANTEE CERTIFICATES

A. Submit three (3) executed copies prior to Substantial Completion.

B. All warranty or guarantee certificates shall be signed by CONTRACTOR and all other parties as requested in specific sections.

1.13 BASIS FOR COMPENSATION

A. All costs to comply with the requirements of this Section of the Specifications shall be considered to be included in the Contract Price and no additional compensation will be provided.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 01330

SECTION 01501

SAFETY

PART 1: GENERAL

1.01 GENERAL

A. In accordance with generally accepted construction practices, the CONTRACTOR shall be solely and completely responsible for job site conditions and safety procedures and programs, including safety and health of all persons and property, on those portions of the site affected by or used by CONTRACTOR, CONTRACTOR's employees, subcontractors, agents, and others during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. Observation of the Work and CONTRACTOR's performance by OWNER and ENGINEER is not intended to include review of the adequacy of the CONTRACTOR's safety and health procedures and programs on or near the construction site. The CONTRACTOR is solely responsible for the protection of property and the safety and health of its employees, Subcontractors, Suppliers, agents and others on or near the site.

1.02 SAFETY

A. In addition to the requirements of paragraph 6.13.B of the General Conditions as amended by the Supplementary Conditions, the CONTRACTOR shall:

1. CONTRACTOR shall be responsible for furnishing CONTRACTOR's employees, as well as any subcontractor's and supplier's employees, with all safety equipment and other protection devices needed to comply with Laws and Regulations or accepted safety practices. CONTRACTOR shall also be responsible for furnishing all visitors to the site with all safety equipment including but not limited to hard hats and eye protection.

2. CONTRACTOR shall make all persons on the site familiar with the safety precautions appropriate to the construction zones and refuse entry by any person not authorized by CONTRACTOR or OWNER.

3. CONTRACTOR shall be responsible for any safety violation and/or fine that may occur because of any neglect by CONTRACTOR, CONTRACTOR's employees, CONTRACTOR's subcontractors, or any third party under CONTRACTOR's supervision or direction.

4. CONTRACTOR shall provide safe access to all portions of the Work for use by ENGINEER or OWNER and OWNER's authorized representatives in the performance of their observation duties. Said access shall conform to Laws and Regulations and to all requirements of any regulatory agency or agencies who claim jurisdiction over the safety of the project area. If ENGINEER or OWNER are unable to observe CONTRACTOR's work, due to conditions which in opinion of OWNER or ENGINEER are unsafe, ENGINEER's recommendation for payment, or OWNER's payment, for such work may be withheld until work has been determined to be in compliance with the Contract Documents.

1.03 HAZARD COMMUNICATION PROGRAMS

A. CONTRACTOR shall comply with paragraph 6.15 of the General Conditions.

1.04 EMERGENCIES

A. CONTRACTOR shall comply with paragraph 6.16 of the General Conditions.

1.05 BASIS FOR COMPENSATION

A. All costs to comply with the requirements of this Section of the Specifications shall be considered to be included in the Contract Price and no additional compensation will be provided.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 01501

SECTION 01770

CLOSEOUT PROCEDURES

PART 1: GENERAL

1.01 RECORD DOCUMENTS

A. Maintain at the site (or in CONTRACTOR's possession) one set of record documents including all Drawings, Specifications, and Change Orders in good condition and legibly annotated to show changes made during construction. Store record documents separate from documents used for construction, clearly mark, and make accessible to ENGINEER and OWNER at all times.

B. Record information on record documents concurrent with construction progress. ENGINEER or OWNER may require CONTRACTOR to improve its performance with regard to recording information during the construction process.

C. Record for each product Section of the Specifications a description of the actual products installed including the following:

1. Manufacturer's name and product model number.

2. Product substitutions or alternates used.

3. Changes made by Change Order.

4. Quality control procedures and test results.

D. Record drawings shall have recorded, at a minimum, the following items legibly marked to record actual construction:

1. Approved version of all Shop Drawings.

2. Measured depths or elevations of foundations in relation to a clearly defined, reproducible datum.

3. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements or survey markers.

4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible permanent features of the Work.

5. Changes made by Change Order and all minor field changes of dimension and detail.

6. Details not shown on original Contract Drawings.

E. Submit record documents and all operations and maintenance manuals and other submittals required by other Sections of these Specifications.

1.02 CLEANUP

A. The CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, and at the completion of the Work, shall remove all waste materials, rubbish and debris from the premises as well as all tools, construction equipment and machinery, temporary facilities, and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by the OWNER.

B. The CONTRACTOR shall provide cleaning of all surfaces, systems and fixtures, including removal of labels, tags, grease, oil, dirt, dust, stains, etc.

1.03 GUARANTIES AND WARRANTIES

A. The CONTRACTOR shall guarantee all work and material against all defects as specified in paragraph 13.07 of the General Conditions or as otherwise required for specific items in these Specifications. The CONTRACTOR shall repair or replace any such defective Work and materials to conform to the provisions of the Contract and without expense to the OWNER, within ten (10) days after notification in writing by the OWNER or ENGINEER of such defective Work or material. If the CONTRACTOR does not make said repairs or replacements or have made arrangements for the correction thereof within the period specified above, the OWNER may do so and will charge the cost of same to the CONTRACTOR. The CONTRACTOR shall perform repair work so as to cause the OWNER a minimum of inconvenience and interruption of services.

B. The correction period for all equipment and systems, regardless of when placed into continuous service, shall commence on the date of Substantial Completion.

1.04 FINAL SUBMITTALS

A. CONTRACTOR shall complete all submittals required by these Contract Documents prior to the payment of CONTRACTOR's Final Application for Payment by OWNER. Final payment shall not become due and payable until 10 days after all submittals have been made acceptable to ENGINEER or as provided in paragraph 14.07 of the General Conditions, whichever is later.

1.05 BASIS FOR COMPENSATION

A. All costs to comply with the requirements of this Section of the Specifications shall be considered to be included in the Contract Price and no additional compensation will be provided.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 01770

Division 2

Site Construction

DIVISION 2 - SITE CONSTRUCTION

02200 Site Preparation	02200-1
02300 Earthwork	02300-1
02630 Storm Drainage	02630-1
02950 Site Restoration and Rehabilitation	02950-1

SECTION 02200

SITE PREPARATION

PART 1: GENERAL

1.01 DESCRIPTION

A. All Work included in this Section shall be performed in accordance with the following paragraphs, the General Requirements set forth in Division 1 of these Specifications, and the provisions of the other Contract Documents.

B. Work covered under this Section includes providing all materials, equipment, and labor to prepare the Site for construction, including, but not limited to:

1. Maintaining safe access to the site as required by the Drawings, these Specifications, and the other Contract Documents.

2. Clearing and grubbing of those portions of the construction limits described in the Instructions to Bidders. Clearing and grubbing includes: cutting and/or removing all trees, shrubs, and brush and removing all roots, stumps, windfalls and other vegetative material as required for the proper performance of the Work.

3. Protect all trees and vegetative materials not located within the construction limits as well as those tress and vegetative materials which are to remain undisturbed within the construction limits and as may be directed by the OWNER.

4. Strip and stockpile topsoil from all areas to be disturbed by construction operations, including the clay borrow area.

5. Excavate 4 feet of existing soil from the bottom of the existing channel where the discharge pipe is to be placed.

6. Excavate and shape the downstream channel area for the placement of riprap and construction of stilling pool.

7. Haul, place and compact excavated channel material in the borrow pit once the clay borrow excavation is complete.

8. Appropriately dispose of those vegetative materials cleared and grubbed from the site by CONTRACTOR, all in accordance with Laws and Regulations.

9. Construct temporary erosion control measures as specified in this Section, as shown on the Drawings, and as directed by the ENGINEER.

10. Provide temporary erosion controls to control sediments from construction activities from entering low areas inside and outside the construction limits. Included will be all inspections, maintenance, protection, and restoration of the site prior to, during, and after construction of the project.

11. Maintain slopes during construction activities and repair all slopes after rain events.

C. CONTRACTOR shall furnish, install and maintain temporary erosion controls as necessary to prevent the erosion of soils and transport of silt, mud and other debris off of the site or to other areas of the site where damage might result or that might otherwise be required by Laws and Regulations.

D. Temporary erosion controls may include, but are not limited to, silt fences, straw bales, geotextiles, terracing, riprap, temporary drainage piping, sedimentation basins, vegetative cover, and any other construction required to prevent erosion and sediment transport. Temporary erosion control includes the construction and maintenance of a gravel access road to the site to minimize the tracking of soil from the site onto public roads. Gravel surface shall be resurfaced periodically to maintain effectiveness.

E. CONTRACTOR shall schedule its operations so as to minimize the potential for erosion by minimizing the disturbed areas on-site at any given time and completing operations and restoring the site in the shortest time possible.

F. If soil and debris from the site accumulates in low areas, roadways, ditches, or other areas where in OWNER's or ENGINEER's determination it is undesirable, CONTRACTOR shall remove the accumulation and restore the area to its original condition without additional compensation.

G. The CONTRACTOR is responsible for cleaning of roads as directed by the OWNER or ENGINEER. Cleaning shall be completed on an as-needed basis and the cost shall be included in the Contract Price and no additional compensation will be provided.

H. Silt fence moved to allow access to the site shall be replaced at the end of each construction day.

1.02 REFERENCES

A. South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition, hereafter referred to as SD/DOT Standard Specifications.

B. South Dakota Department of Transportation Standard Plates, current edition, hereafter referred to as SD/DOT Standard Plates.

1.03 SEQUENCING AND SCHEDULING

A. Construct temporary erosion control measures specified herein or as directed by the ENGINEER prior to commencing activities.

B. Maintain and replace the temporary erosion controls for the duration of the construction as necessary in accordance with this Section or as directed by the OWNER or ENGINEER.

1.04 SUBMITTALS

A. No submittals are necessary for this section.

1.05 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications shall be in accordance with the provisions set forth in Section 01270, Unit Price Measurement and Payment.

PART 2: PRODUCTS

2.01 MATERIALS

A. Temporary Erosion Control

1. Silt Fence

Silt fence shall conform to SD/DOT Standard Specification 734.2.B.1 and 831 and SD/DOT Standard Plate 200.01.

2. Hay Bales

Hay bales shall conform to the requirements of SD/DOT Standard Specification 734.2.B.2 and 734.2.B.3.

3. Miscellaneous

Other miscellaneous materials needed for erosion control shall conform to SD/DOT Standard Specification 734 and all other applicable specifications.

PART 3: EXECUTION

3.01 CLEARING AND GRUBBING

A. Clearing and grubbing of the work area and borrow area shall consist of the complete removal of all obstructions above the ground surface and removal of stumps, roots, buried logs, and other objectionable matter to the limits provided.

3.02 TEMPORARY EROSION CONTROL

1. Silt fence shall be placed at the locations shown on the Contract Drawings and installed in accordance with SD/DOT Standard Specification 734. Silt fence shall be maintained throughout the project and until the restoration activities are completed.

2. Construct temporary erosion controls where there is evidence that sediment is being transported from the work area, where drainageways flow from the work area, and elsewhere as required to control erosion.

3. Schedule operations to minimize the amount of area disturbed and thus susceptible to erosion at any given time.

4. Remove and dispose of all temporary erosion controls when the work is complete.

3.03 DISPOSITION OF MATERIALS

A. Cleared and grubbed materials must be disposed of off site in accordance with all appropriate laws and regulations.

B. All bituminous materials removed from the site shall be disposed of off site at a suitable location and in accordance with all appropriate Laws and Regulations.

3.04 STRIP AND STOCKPILE MATERIALS

A. Strip topsoil from all areas which will be disturbed by construction operations including the clay borrow area.

B. Stockpile topsoil materials for use in site restoration.

END OF SECTION 02200

SECTION 02300

EARTHWORK

PART 1: GENERAL

1.01 DESCRIPTION

A. All Work included in this Section shall be performed in accordance with the following paragraphs, the General Requirements set forth in Division 1 of these Specifications, and the provisions of the other Contract Documents.

B. Work covered by this section includes furnishing all supervision, labor, materials, and equipment required to complete all general or miscellaneous earthwork and excavation at the site including, but not limited to:

1. Excavating and hauling clay from the clay borrow area to the construction site.

2. Placing and compacting the clay for the construction of the embankment to the lines and grades shown on the Drawings.

3. Excavating, backfilling, and compacting for installation of the drainage pipe and anti-seepage collars.

4. Excavating and grading of the embankment overflow channel.

5. Installing a permanent erosion control mat for the overflow channel.

6. Disposal of all extra soil materials not incorporated into the work.

7. Perform all detailed final grading of the Site necessary to prepare the Site for establishment of vegetative cover.

1.02 REFERENCES

A. South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition, hereafter referred to as SD/DOT Standard Specifications.

B. American Society for Testing and Materials, Current Edition, hereafter referred to as ASTM.

1.03 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications shall be as set forth in Section 01270, Unit Price Measurement and Payment.

PART 2: PRODUCTS

2.01 SOIL MATERIALS

A. Clay

1. A borrow area adjacent to the site has been identified as a clay source. Clay from this borrow area can be used for the construction of the berms. Copies of the soils explorations reports and proctor density tests on the borrow area clay materials are provided in Appendix A.

B. Random Fill

1. On site soils which do not meet the requirements for clay or topsoil may be used as random fill for silt fence anchoring or other erosion control uses as approved by the ENGINEER.

C. Topsoil

1. Topsoil shall conform to the requirements of Section 02950 of these Specifications.

2.02 PERMANENT NON-PHOTODEGRADING EROSION CONTROL MAT

A. The erosion control mat for the embankment overflow channel shall be as shown on the Drawings and shall be LANDLOK TRM 1060 as manufactured by Synthetic Industries 4019 Industry Drive, Chattanooga, TN 37416 or other engineer-approved material meeting the requirements of SD/DOT Standard Specification 734.2C.

PART 3: EXECUTION

3.01 EXAMINATION

A. CONTRACTOR shall examine the area and conditions before performing earthwork. If unsatisfactory conditions occur during the work, CONTRACTOR shall not proceed with the work until unsatisfactory conditions have been corrected.

B. It shall be the CONTRACTOR's responsibility to determine to its own satisfaction the location and nature of all surface and subsurface obstacles and the soil and water conditions that will be encountered during construction.

C. Locations of Utilities and Underground Facilities shown on the Drawings are approximate and neither ENGINEER nor OWNER make any representations as to the accuracy or completeness thereof. It shall be CONTRACTOR's sole responsibility to determine the locations.

3.02 PREPARATION

A. The CONTRACTOR shall make arrangements to locate all existing Utilities and Underground Facilities in the areas of work. If any are to remain in place, CONTRACTOR shall provide adequate means of protection during earthwork operations.

B. The CONTRACTOR shall protect structures, fences, utilities, wells, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

3.03 EXCAVATION

A. Construct excavations in accordance with applicable Laws and Regulations.

B. Excavate to the elevations, slopes, and dimensions shown on the Drawings.

C. The CONTRACTOR shall not perform any excavation through water. Any and all standing and flowing water shall be removed prior to excavation.

3.04 FILL PLACEMENT

A. The CONTRACTOR shall place fill materials as necessary to produce the elevations, slopes, and dimensions shown in the Drawings.

B. Soil removed from the trenches, shall be replaced in the same trench as soon as possible and in no case shall the trench remain open or the excavated soil remain stockpiled for more than one day prior to being backfilled.

C. Backfill and fill materials shall be evenly placed adjacent to structures to required elevations. The CONTRACTOR shall take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

D. No fill shall be placed into standing or flowing water. Any and all such water shall be removed prior to placing fill materials.

E. All fill shall be placed in lifts not exceeding 6" in uncompacted thickness and shall be compacted to the required density before placing the next lift.

3.05 COMPACTION

A. The CONTRACTOR shall compact all approved soils for construction of the earthen embankment and around pipes and inlet and outlet structures to at least 95% Standard Proctor Density (ASTM D 698) for the soil being placed. Clay soils for construction of the berms must also have an in-place compacted moisture content of 0 to 4% above the optimum moisture content.

B. Compaction by flooding or puddling or other means that involve saturation or over-wetting the soil will not be permitted.

3.06 SITE GRADING

A. All areas disturbed by Contractor's activities shall be graded to the slopes and elevations shown on the Drawings such as to blend smoothly into existing ground.

3.07 PERMANENT EROSION CONTROL MAT

A. The permanent erosion control mat shall be installed according to SD/DOT Standard Specification 734.3C and the manufacturer's recommendations.

3.08 DISPOSAL OF SOIL MATERIALS

A. Soil materials designated for disposal shall be disposed at an off-site location determined by the CONTRACTOR in accordance with Laws and Regulations.

B. CONTRACTOR shall load and haul designated soil materials to the off-site location.

3.09 TOLERANCES

A. Construct the excavation and backfill work within the dimensional tolerances given below. Elevation and thickness tolerances are acceptable deviations from the elevations and material thicknesses shown on the Drawings.

B. Elevation Tolerances

1. All earthwork shall be constructed to within +0.1'/- 0.1' of those elevations shown on the Drawings.

C. Horizontal Tolerances

1. All earthwork shall be constructed to within horizontal tolerances of +1.0'/- 1.0' of those locations shown on the Drawings.

3.10 FIELD QUALITY CONTROL

A. The CONTRACTOR shall permit ENGINEER or other Owner-designated consultant to observe subgrades and fill layers before further construction work is performed thereon. Tests of subgrades and fill layers may be taken by the ENGINEER.

3.11 FIELD QUALITY CONTROL

A. The CONTRACTOR shall utilize equipment, materials, and procedures which are anticipated to meet the quality requirements specified.

3.12 DUST CONTROL

A. CONTRACTOR shall keep the surface of any and all construction work areas and haul roads moist by spraying with uncontaminated water so as to prevent, not just reduce, airborne dust. This responsibility shall require CONTRACTOR to suspend construction or haul traffic until such time as CONTRACTOR can and does prevent airborne dust. CONTRACTOR shall not overspray so as to create problems, such as tracking of material onto paved surfaces, or muddy haul roads, due to the application of excess moisture. Dust control may be necessary several times per day. Dust control shall be considered incidental to the project with no additional compensation.

END OF SECTION 02300

SECTION 02630

STORM DRAINAGE

PART 1: GENERAL

1.01 DESCRIPTION

A. All Work included in this Section shall be performed in accordance with the following paragraphs, the General Requirements set forth in Division 1 of these Specifications, and the provisions of the other Contract Documents.

B. Work covered under this Section includes providing all supervision, materials, equipment, and labor required to complete all storm drainage work at the site including, but not limited to:

1. Installation of the drainage pipe through the embankment to the lines and grades shown on the Drawings.

2. Installation of the pipe bedding material and anti-seepage collars as shown on the Drawings.

3. Installation of the flared end section, overflow intake trash guard, joint ties and other pipe appurtenances and fittings as shown on the Drawings.

4. Installation of geotextile fabric and riprap as shown on the Drawings.

1.02 REFERENCES

A. South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition, hereafter referred to as SD/DOT Standard Specifications.

B. South Dakota Department of Transportation Standard Plates, current edition, hereafter referred to as SD/DOT Standard Plates.

C. American Association of State Highway and Transportation Officials, hereinafter referred to as AASHTO. Current edition of reference.

1.03 SUBMITTALS

A. Submit for approval the technical data and product information for all storm drainage materials as outlined in Section 01330 of these Specifications.

B. Submit certificate indicating all materials meet requirements of these Specifications. State item, applicable reference specification, class, type, manufacturer, and distributor.

1.04 SEQUENCING AND SCHEDULING

A. All erosion control measures are to be in place prior to the beginning of any work covered under this section.

1.05 JOB CONDITIONS

A. Known existing Underground Facilities and utilities are shown on the Drawings located in accordance with available data, but locations may vary and cannot be guaranteed. The exact locations shall be determined by CONTRACTOR as Work proceeds. Excavation work shall be done carefully so as to avoid damaging existing work, including hand excavation or probing if necessary to spot locate or uncover.

PART 2: PRODUCTS

2.01 PIPE BEDDING MATERIAL

A. Pipe bedding shall be compacted clay borrow material or compacted sand.

2.02 ANTI-SEEPAGE SEEP COLLARS

A. **Bentonite Alternative**: Bentonite anti-seepage collars shall be a blended mix of one part bentonite to six parts dry sand. Moisture content of the sand during the blending of bentonite and sand shall be no more than 6% by weight.

B. **Aluminized Corrugated Steel Alternative**: Aluminized corrugated steel anti-seepage collars shall be manufactured by All Steel Products Co., Inc., 1165 Highway 212 East, Chaska, MN 55318, or an ENGINEER approved equal. Anti-seepage collars shall be of the size and type to fit the size of pipe indicated on the Drawings and shall meet the following requirements:

1. Constructed of 14 gauge aluminized steel and shall be continuously welded to the steel connecting band.

2. The lap joint and area between the corrugated pipe and the flat steel connecting band shall be fully sealed with mastic tape or water tight seal.

3. Collars to be a minimum of 4 feet from pipe joints.

4. Collars shall be completely covered with soil.

2.03 DRAINAGE PIPE

A. The drainage pipe material and appurtenances shall be reinforced concrete pipe or aluminized corrugated steel pipe. The specifications for each of these types of pipes are described in paragraphs 2.02B and 2.02C.
03 03

B. **Reinforced Concrete Pipe Alternative:** Concrete pipe and flared end sections (FES) shall conform to the requirements of SD/DOT Standard Specifications 450 and 990 and SD/DOT Standard Plate 450.10. Each pipe joint shall be wrapped with geotextile drainage fabric in accordance with SD/DOT Standard Specifications 450.3 and 831. Each pipe joint shall also be tied in accordance with SD/DOT Standard Specification 450 and the manufacturer's recommendations. Pipe sizes shall be as indicated on the Drawings.

C. **Aluminized Corrugated Steel Pipe Alternative:** Aluminized corrugated steel pipe and appurtenances shall be manufactured by All Steel Products Co., Inc., or an ENGINEER

approved equal. Pipe shall be manufactured in accordance with AASHTO M274. Pipe shall have 2 2/3" x ½" corrugations and be made with 10 gauge steel. Pipe shall be sizes and types indicated on the Drawings. All joints shall be both soil and watertight. Joints shall be banded and consist of 4 rods and lugs per band. Flared end sections for this alternative must also be aluminized corrugated steel.

2.04 TRASH RACK

A. Trash rack shall be a galvanized 60-inch diameter cone-type as manufactured by All Steel Products Co., Inc., or of the size and type as shown on the Drawings, or ENGINEER approved equal.

2.05 RIPRAP AND GEOTEXTILE DRAINAGE FABRIC

A. Riprap shall meet the requirements of SD/DOT Standard Specification 830 and shall be of the size and type as indicated on the Drawings.

B. Geotextile drainage fabric shall meet the requirements of SD/DOT Standard Specification 831 and shall be of the size and type as indicated on the Drawings.

PART 3: EXECUTION

3.01 FILL PLACEMENT AROUND PIPES

A. CONTRACTOR shall notify ENGINEER before placing fill around pipes or other structures.

B. CONTRACTOR shall not use frozen fill material or place on frozen subgrade.

C. All zones of trench backfill material shall be placed in strict accordance with the pipe manufacturer's specifications. Some trench backfill borrow material may be required to meet manufacturer's specifications. All trench backfill borrow material is to be considered incidental to the pipe installation.

D. Place fill material in maximum 6-inch loose lifts under pipe haunches and compact to 95 percent of maximum Standard Proctor Density with hand-operated vibrating compactor until firmly compacted to pipe spring line and in strict accordance with the pipe manufacturer's specifications.

E. All other fill material above the pipe shall be compacted in accordance with Section 02300 of these Specifications.

F. No pipe shall be laid in water or when the trench bedding conditions are unsuitable, unstable, and/or unconsolidated.

3.02 ANTI-SEEPAGE COLLARS

A. **Bentonite Alternative:** CONTRACTOR shall keep the areas dry where anti-seepage collars are to be installed. The soil may be moist, but no flowing or standing water will be allowed in the areas where the collar material will be installed. These areas shall be kept dry until the anti-seep collar material is placed and compacted, and the surrounding embankment material is placed and

compacted with at least one-foot of embankment material covering each collar. The collar material shall be compacted until it is firm.

B. **Aluminized Corrugated Steel Alternative:** The aluminized corrugated steel anti-seepage collars shall be installed according to the manufacturer's recommendations.

3.03 REINFORCED CONCRETE PIPE

A. Reinforced concrete pipe shall be installed as shown on the Drawings and according to manufacturer's specifications. Reinforced concrete pipe shall also be installed according to the requirements of SD/DOT Standard Specification 450. The pipe alignment and depth shall be as shown on the Drawings.

B. Wrap all reinforced concrete pipe joints with geotextile drainage fabric in accordance with SD/DOT Standard Specification 450.3.

C. All reinforced concrete pipe joints shall be tied in accordance with the manufacturer's recommendations.

3.04 FLARED END SECTIONS

A. The flared end sections (for both alternatives) shall be installed as shown on the Drawings and according to manufacturer's specifications.

3.05 TRASH RACK

A. The trash rack shall be installed according to the manufacturer's recommendations.

3.06 ALUMINIZED CORRUGATED STEEL PIPE

A. Aluminized corrugated steel pipe shall be installed as shown on the Drawings and according to manufacturer's specifications. The pipe shall also be installed according to the requirements of SD/DOT Standard Specification 450. The pipe alignment and depth shall be as shown on the Drawings.

3.07 RIPRAP AND GEOTEXTILE DRAINAGE FABRIC

A. Riprap shall be installed according to SD/DOT Standard Specification 700.

B. Geotextile Drainage Fabric shall be installed according to SD/DOT Standard Specification 700 and the drawings.

3.08 FIELD QUALITY CONTROL

A. The CONTRACTOR shall establish and maintain quality control for work under this Section to assure compliance with contract requirements and maintain records of his quality control for all construction operations. In addition, the CONTRACTOR shall coordinate, verify and check the precast concrete.

B. Pipe and pipe appurtenance installation will be subject to rejection for any of the following reasons.

1. Failure to conform to the Specifications, particularly with regard to:

   a. compaction under and around the pipe
   b. line and grade

2. Fractures or cracks passing through barrel wall or socket of concrete pipe, or dents, buckling of aluminized corrugated steel pipe.

3. Chips or fractures on interior of barrel exceeding 50 mm (2 inches) in length, 25 mm (1-inch) in width, and depth more than ¼ barrel thickness.

4. Cracks which, in the opinion of OWNER or ENGINEER, may impair strength, durability, or serviceability of pipe.

5. Defects indicating improper proportioning, mixing, or molding.

6. Damaged ends where such damage would prevent making a satisfactory joint.

END OF SECTION 02630

SECTION 02950

SITE RESTORATION AND REHABILITATION

PART 1: GENERAL

1.01 DESCRIPTION

A. All Work included in this Section shall be performed in accordance with the following paragraphs, the General Requirements set forth in Division 1 of these Specifications, and the provisions of the other Contract Documents.

B. Work covered under this Section includes providing all materials, equipment, and labor to establish perennial, herbaceous ground cover, and includes soil preparation, seeding, mulching, sodding, and all other work as may be necessary, on all areas disturbed by construction activities including, but not limited to, the clay borrow area, berms, and access roads, all in accordance with the Contract Documents.

1.02 REFERENCES

A. South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition, hereafter referred to as SD/DOT Standard Specifications.

1.03 SUBMITTALS

A. The seed mix, fertilizer, mulch, and application rates of each shall be submitted to the ENGINEER a minimum of two (2) weeks prior to work.

1.04 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications shall be as set forth in Section 01270, Unit Price Measurement and Payment.

PART 2: PRODUCTS

2.01 TOPSOIL

A. Topsoil may be obtained from topsoil stockpiled during site preparation work. If the existing topsoil does not meet the approval of the ENGINEER or OWNER, or if the ENGINEER determines more topsoil is needed to cover all disturbed areas, CONTRACTOR shall import topsoil from an approved source. Any imported topsoil furnished by CONTRACTOR shall be approved by the ENGINEER or OWNER prior to delivery to the site. Only imported topsoil furnished by the CONTRACTOR that meets the approval of the ENGINEER or OWNER shall be considered for payment as described in Section 01270, paragraph 1.04H. Existing topsoil obtained from the site and used for restoration shall meet the requirements of SD/DOT Standard Specification 230 and shall be considered as incidental to the project.

2.02 SEED AND FERTILIZER

A. The seed mix and seed mix application rates shall be approved by the ENGINEER. Seeding shall meet the requirements of SD/DOT Standard Specifications 730.

The seed mix to be used on the project site shall be as follows:

Plant Species	Percent
Bluestem, little	14.0
Dropseed, prairie	2.0
Dropseed, sand	3.0
Grama, blue	13.0
Grama, side oats	13.0
June grass	2.0
Wheat-grass, slender	3.0
Oats (A)	41.0
Rye-grass, annual	8.00
Prairie clover, purple	1.0
Total	100.0

The seed mix application rate shall be 60 pounds per acre.

Because the seed mix is a native prairie mix no fertilizer shall be applied.

2.03 MULCH

A. Mulch materials shall be straw mulch and meet the requirements of SD/DOT Standard Specification 732 or ENGINEER-approved equal, and applied at a rate of 2000 pounds per acre.

PART 3: EXECUTION

3.01 GENERAL

A. After work in a particular area has been completed, the areas shall be final-graded as shown on the Drawings. Grading shall be performed in a manner that will minimize erosion. After final grading, all disturbed areas shall be covered with four inches of topsoil, seeded and mulched, or straw mulch blanketed as directed by ENGINEER.

B. Coordinate the turf establishment work with the grading and finishing operations to provide turf protection as soon as possible after areas have been graded.

3.02 TOPSOIL PLACEMENT AND GRADING

A. Place topsoil uniformly over entire area to be sodded or seeded to a minimum depth 4 inches. In the event that topsoil has been disturbed or is not of acceptable depth prior to application of sod or seed, supplement topsoil in area to bring it up to the above specified depth. All areas receiving sod or seed shall be worked until the soil is completely fined and in a mellow

condition, and to a smooth, even finish grade. All holes, depressions and rivulets shall be filled in to ensure no disruption of established drainage patterns. All rubble, sticks, branches, or stones and extraneous material over ¾-inch diameter on the surface, which will interfere with the sod, shall be picked up and removed.

B. Immediately prior to seeding, CONTRACTOR shall loosen topsoil to a depth of 3 inches on all areas except slopes steeper than 3 horizontally to 1 vertically using discs, harrows, tiller rakes to produce fine grade. On slopes steeper than 3:1, use cultivating equipment in general direction at right angles to the direction of surface drainage.

C. Prepare ground so top of new seeded area, the area will be flush with adjacent sod or slightly lower than adjacent walks and permanent surfacing.

D. Topsoil that is stripped and stockpiled shall meet the requirements of SD/DOT Standard Specification 230.

E. Imported topsoil shall only be furnished by the CONTRACTOR if directed by ENGINEER.

3.03 SEEDING

A. Seed shall be sowed in accordance with SD/DOT Standard Specifications 730, and as specified herein. The soil shall be prepared less than 24 hours prior to seeding. The seeded area shall not be fertilized.

B. The specified seed mixture shall be a uniform blend of the designated seeds, and shall be uniformly spread and sown by means of mechanical equipment. All mechanical equipment used in the seeding operation shall be operated in a general direction at right angles to the direction of surface drainage whenever practical. Provisions shall be made by markers or other means to ensure that the successive seeded strips will overlap. Seeding shall be done before the soil prepared for seeding becomes eroded, crusted over, or dried out. Seeding activities will be suspended or altered as directed by ENGINEER when soil conditions become excessively wet or dry.

C. Seeding shall be performed mechanically with equipment designed for even distribution of seed. The seed may be applied by (1) a hydro-seeder, (2) a tractor-drawn rotary spreader or seed drill (except that tractor-drawn equipment will not be permitted on previously seeded and mulched areas), or (3) a hand-operated or manually pushed mechanical spreader. The use of hand-operated or manually pushed mechanical spreaders will be permitted only in areas where it is inaccessible for other equipment. During windy weather, no seeding shall be done with hydro-seeding devices.

D. All seeded areas shall have the seed bed firmed after seeding and prior to mulching. In these areas, soil firming shall be performed using a corrugated cultipacker or other OWNER-approved soil-firming equipment. Soil firming shall be accomplished the day seed is applied.

3.04 MULCHING

A. Mulch shall be applied in accordance with SD/DOT Standard Specification 732 at an ENGINEER approved rate. All seeded surfaces shall be mulched the same day seed is applied. Should mulch application be delayed to the next day, the area shall be reseeded and re-firmed at the CONTRACTOR's expense.

B. Following the mulching operation, precautions shall be taken to prohibit pedestrian or vehicular traffic over the mulched area. Any mulch which is displaced by such activities shall be replaced at once, but only after the work preceding the mulching, which may have been damaged as a result of the displacement, has been acceptably repaired. Mulching activities will be suspended or altered as directed by ENGINEER when soil conditions become excessively wet or dry.

END OF SECTION 02950

Appendix A

Soils Exploration and Testing Reports

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 • FAX 605-335-0773

November 7, 2001

Civil Design, Inc.
505 Fifth Street
Brookings, SD 57006

Attn: Mike

Subj: Geotechnical Exploration
Proposed Dam
Lake Pelican Water District
Near South Shore, South Dakota
GeoTek #01-F48

This correspondence is pursuant to our original report dated October 23, 2001. We have made corrections to the log for boring number 1 and have attached two corrected copies. We apologize for any inconvenience this may have caused.

If you have any questions or require additional information, please contact our office.

GeoTek Engineering & Testing Services, Inc.

Jeff L. Christensen, PE
Project Engineer

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-1

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
1/2'	SILTY CLAY, black (CL-OL)	TOPSOIL			1	AUGER				
	LEAN CLAY, a little gravel, brown mottled, rather stiff to medium to rather stiff (CL)	TILL			2	AUGER				
				21	3	SB				
				10	4	SB				
				7	5	SB				
				9	6	SB				
				13	7	SB				
17	LEAN CLAY, a little gravel, brownish gray, stiff to rather stiff to stiff (CL)			16	8	SB				
				13	9	SB				
				19	10	SB				
31	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	3:35	NONE	NONE	29'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 3:25

METHOD OF DRILLING 3 1/4" HSA: 0-29 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-1

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
1/2'	SILTY CLAY, black (CL-OL)	TOPSOIL			1	AUGER				
	LEAN CLAY, a little gravel, brown mottled, rather stiff to medium to rather stiff (CL)	TILL			2	AUGER				
				21	3	SB				
				10	4	SB				
				7	5	SB				
				9	6	SB				
				13	7	SB				
17	LEAN CLAY, a little gravel, brownish gray, stiff to rather stiff to stiff (CL)			16	8	SB				
				13	9	SB				
31				19	10	SB				
	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	3:35	NONE	NONE	29'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 3:25

METHOD OF DRILLING 3 1/4" HSA: 0-29 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-2

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
2	ORGANIC SILTY CLAY, black, a few lenses of sand (CL-OL)	TOPSOIL			1	AUGER				
	LEAN CLAY, a little gravel, brown mottled, soft to medium (CL)	TILL		4	2	SB				
				7	3	SB				
6 1/2	LEAN CLAY, a little gravel, brownish gray mottled, rather stiff to stiff (CL)			9	4	SB				
				13	5	SB				
				13	6	SB				
				16	7	SB				
				16	8	SB				
				21	9	SB				
31	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	3:45	NONE	NONE	29'
	3:45	NONE	NONE	29'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 2:15

METHOD OF DRILLING 3 1/4" HSA: 0-19 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-3

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
1 1/2	SILTY CLAY, black (CL)	TOPSOIL			1	AUGER				
4	LEAN CLAY, a little gravel, black, soft, a lense of silty sand at 2' (CL)	MIXED ALLUVIUM		4	2	SB				
9	LEAN CLAY, a little gravel, brown mottled, medium (CL)	TILL		6	3	SB				
				8	4	SB				
17	LEAN CLAY, a little gravel, brown mottled, medium (CL)			11	5	SB				
				16	6	SB				
31	LEAN CLAY, a little gravel, gray, stiff (CL)			18	7	SB				
				23	8	SB				
	END OF BORING			20	9	SB				

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	1:20	NONE	NONE	29'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 1:10

METHOD OF DRILLING 3 1/4" HSA: 0-29 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-1B

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
1	SILTY CLAY, black (CL)	TOPSOIL			1	AUGER				
	LEAN CLAY, a little gravel, brown mottled, rather stiff, a few lenses of sand above 3' (CL)	TILL			2	*				
					3	AUGER				
				11	11	SB				
				12	5	SB				
11	END OF BORING									
	* Bag sample from 1' – 10'									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	11:25	NONE	NONE	11'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 11:25

METHOD OF DRILLING 6" FA: 0-9 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 01-F48 BORING # SB-2B

PROJECT PROPOSED DAM, LAKE PELICAN WATER DISTRICT, NEAR SOUTH SHORE, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
1	CLAYEY SAND, BLACK, MOIST (SC)	TOPSOIL			1	AUGER				
	SILTY SAND, medium grained, a little gravel, brown, moist (SM)	MIXED ALLUVIUM				BAG*				
					2	AUGER				
3 1/2	LEAN CLAY, a little graavel, brown mottled, rather stiff (CL)	TILL			4	BAG **				
				11	8	SB				
11				9	6	SB				
	END OF BORING									

* Bag sample 1-3 1/2'

** Bag sample 3 1/2' - 10'

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH
10-15	11:05	NONE	NONE	11'

DATE STARTED 10-15-01

DATE FINISHED 10-15-01 @ 11:05

METHOD OF DRILLING 6" FA: 0-9 1/2'

CREW CHIEF Hagedorn

FORMG5

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 Fax 605-335-0773

MOISTURE-DENSITY CURVE

LAB # 01-F48

PROJECT: PROPOSED DAM
LAKE PELICAN WATER DIST.
NEAR SOUTH SHORE, SD

DATE: 10-19-01

REPORTED TO: Civil Design, Inc.
505 5th St.
Brookings SD 57006

COPIES TO:

METHOD OF TEST: ASTM: D698, Method "A"

TYPE OF MATERIAL: Sandy lean clay, brown mottled (CL)

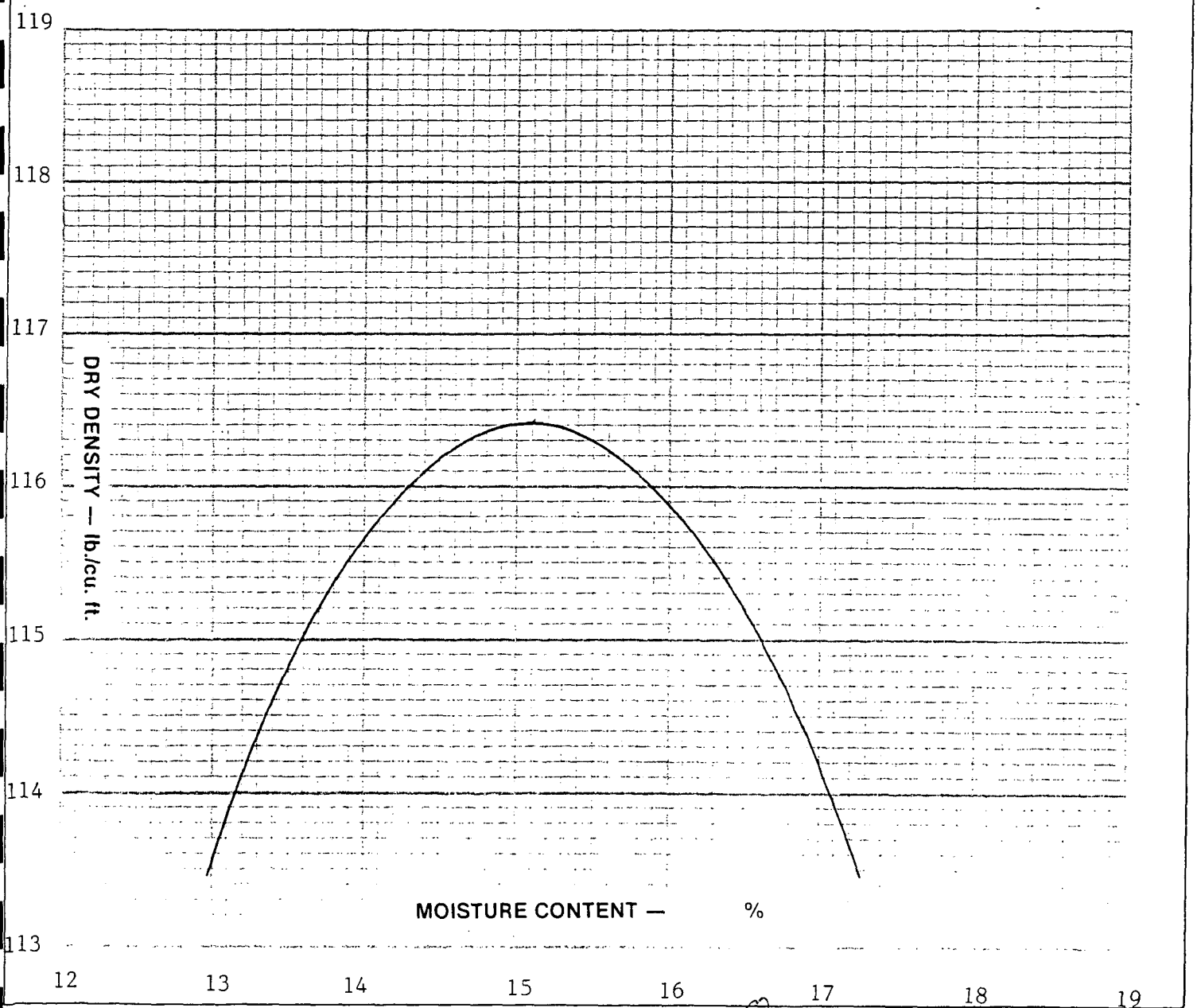
MAXIMUM DENSITY: 116.4 pcf

OPTIMUM MOISTURE: 15.1 %

SAMPLE #: 1 (1'-10')

+ #4:

– #200: 64%



Form 89414

GEOTEK ENGINEERING & TESTING SERVICES, INC. By

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 Fax 605-335-0773

MOISTURE-DENSITY CURVE

LAB # 01-F48

PROJECT: PROPOSED DAM
LAKE PELICAN WATER DIST.
NEAR SOUTH SHORE, SD

DATE: 10-19-01

REPORTED TO: Civil Design Inc.
505 5th St.
Brookings SD 57006

COPIES TO:

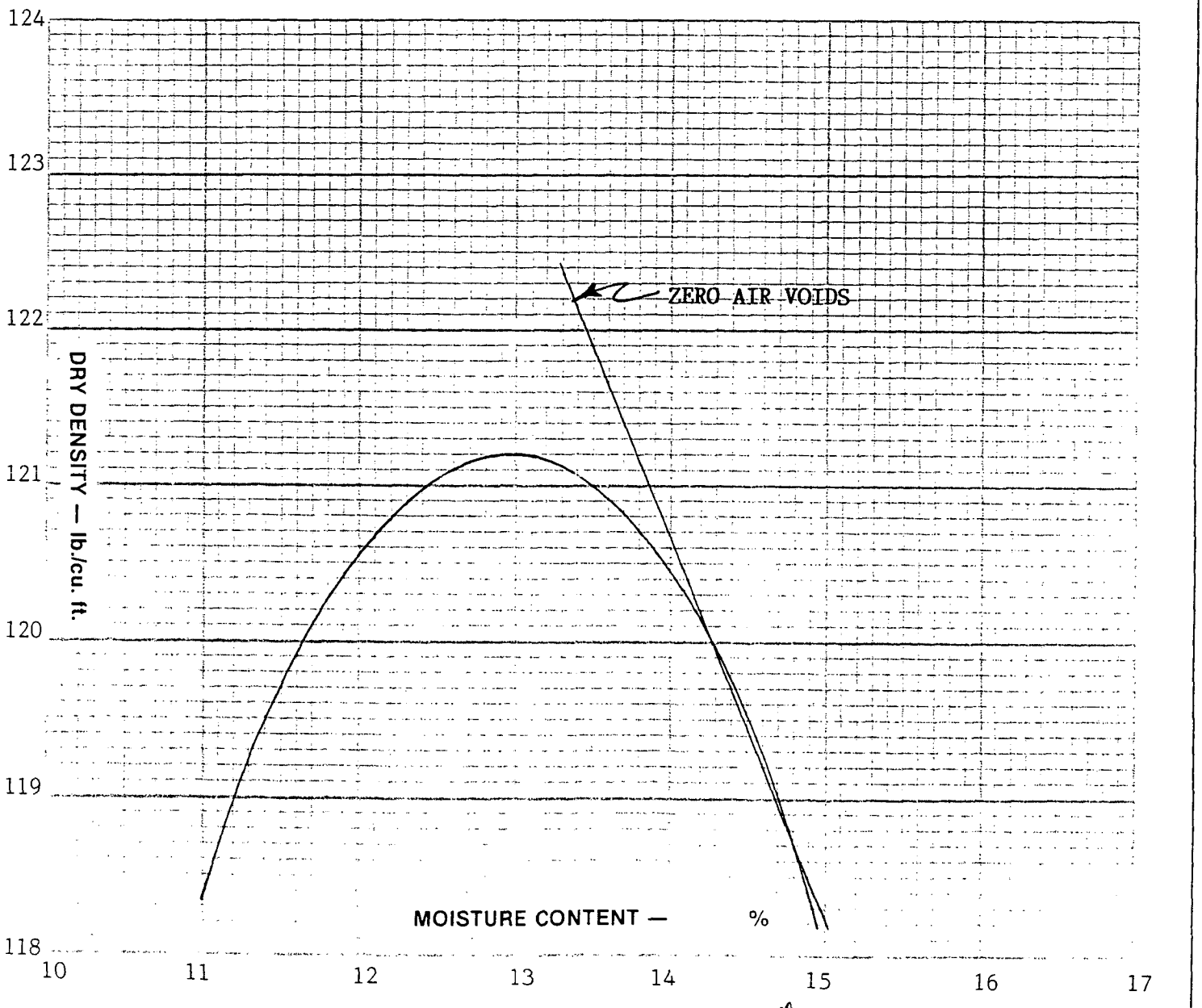
METHOD OF TEST: ASTM: D698, Method "A"

TYPE OF MATERIAL: Silty sand, brown (SM)

MAXIMUM DENSITY: 121.2 pcf

OPTIMUM MOISTURE: 13.0 %

SAMPLE #: 2 (1'-3.5')
+ #4:
– #200: 35%



Form 89414

GEOTEK ENGINEERING & TESTING SERVICES, INC. By

GENERAL NOTES

DESCRIPTIVE TERMINOLOGY

DENSITY TERM	"N" VALUE	CONSISTENCY TERM
Very Loose	0-4	Soft
Loose	5-8	Medium
Medium Dense	9-15	Rather Stiff
Dense	16-30	Stiff
Very Dense	Over 30	Very Stiff

Lamination	Up to ½" thick stratum
Layer	½" to 6" thick stratum
Lens	½" to 6" discontinuous stratum, pocket
Varved	Alternating lamination of clay, silt, and/or fine grained sand, or colors thereof
Dry	Powdery, no noticeable water
Moist	Below saturation
Wet	Saturated, above liquid limit
Waterbearing	Pervious soil below water

RELATIVE PROPORTIONS AND SIZES

Boulder	Over 12"
Cobble	3" - 12"
Gravel	
Coarse	¾" - 3"
Fine	# 4 - ¾"
Sand	
Coarse	#4 - #10
Medium	#10 - #40
Fine	#40 - #200
Silt & Clay	-#200, Based on Plasticity

Term	Range
Trace	0- 5%
A Little	5-15%
Some	15-30%
With	30-50%

BORING AND SAMPLING SYMBOLS

SYMBOL	DEFINITION
___HSA	3¼" or 6¼" I.D. Hollow Stem Auger
___FA	4" or 6" Flight Auger
___HA	2", 4" or 6" Hand Auger
___DC	4" or 6" Drive Casing
PD	Pipe Drill or Clean Out Tube
CS	Continuous Split Barrel Sampling
DM	Drilling Mud
JW	Jetting Water
SB	2" O.D. Split Barrel Sample
TW	3" Thin Wall Tube Sample
LS	2½" O.D. SB Liner Sample
W	Wash Sample
B	Bag Sample
NSR	No Sample Retrieved, Classification based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit.
NMR	No Water Level Measurement Recorded, Primarily due to presence of drilling or coring fluid.
WL	Water Level
N	Standard Penetration Value
▼	Water Level Symbol

Water level data is recorded at the bottom of the log sheet. Water levels are measured in the borings at the time and under the conditions indicated. Depending on soil types and length of time between measurements, the ground water measurement may or may not be a true indication of the ground water level for the time the boring was put down.

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture Content-Percent of Dry Weight-ASTM: D2216
D	Dry Density-Pound Per Cubic Foot
LL PL	Liquid Limit and Plastic Limit—ASTM:D4318
QU	Unconfined Compressive Strength—Pounds Per Square Foot-ASTM: D2166

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 — 69 AND D 2488 —69

(Unified Soil Classification System)

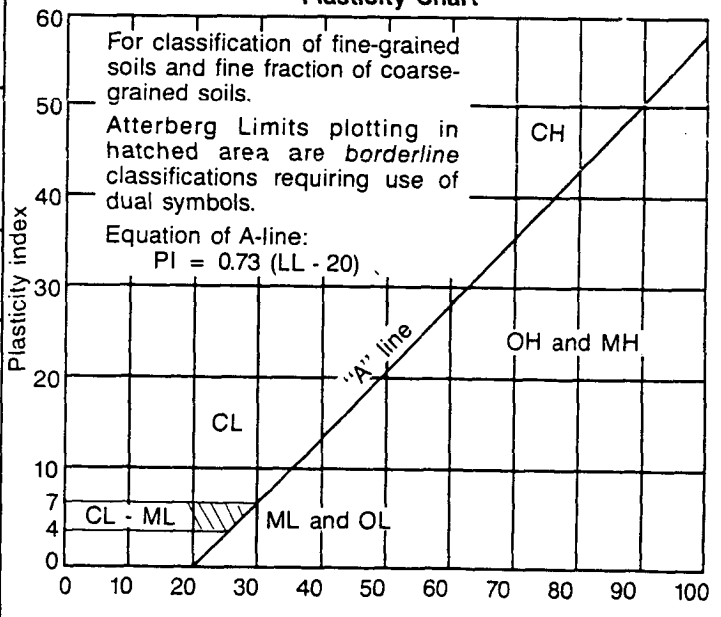
Major divisions			Group symbols	Typical Names	Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve*	Gravels: 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines	Not meeting both criteria for GW
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands and gravelly sands, little or no fines	Not meeting both criteria for SW
		Sands with fines	SM	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
Fine-grained soils: 50% or more passes No. 200 sieve*	Silts and clays: Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and clays: Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity	
Highly organic soils			Pt	Peat, muck and other highly organic soils	

Classification on basis of percentage of fines
Less than 5% pass No. 200 sieve ..... GW, GP, SW, SP
More than 12% pass No. 200 sieve ..... GM, GC, SM, SC
5 to 12% pass No. 200 sieve ..... *Borderline* classifications requiring use of dual symbols

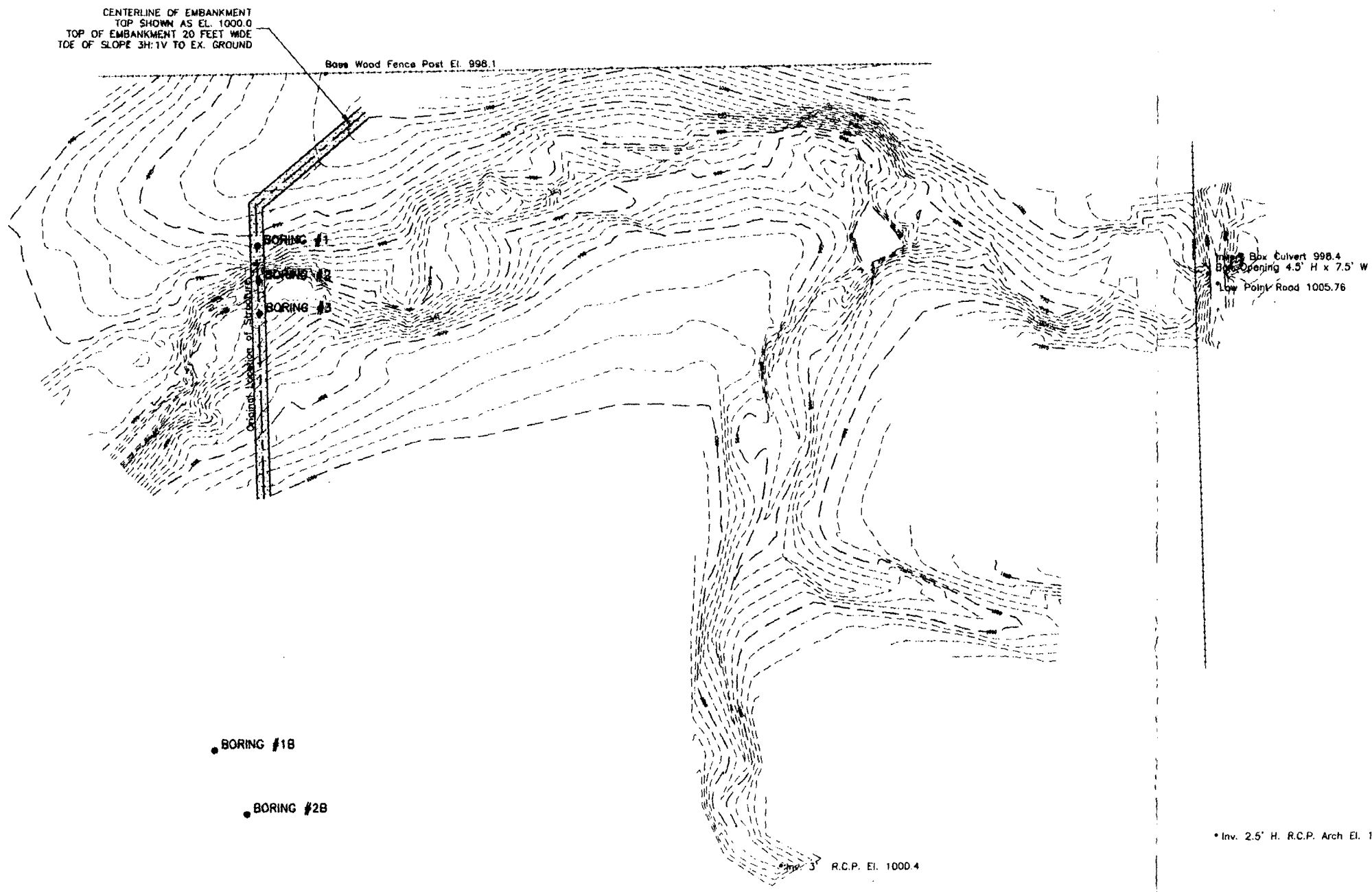
Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols

Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols

Plasticity Chart



* Based on the material passing the 3 in. (76 mm) sieve.



NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE

PRINTED NAME STEVEN M. KLEIN

DATE 4/16/02 REG NO. 22114

RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

CLIENT
BID
CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	3/18/02
Drawn	GGN
Checked	
Designed	GGN
Approved	

LAKE PELICAN

SOIL BORING MAP

BARR PROJECT No. 41/14-002 NJJ
CLIENT PROJECT No.
DWG. No.
REV. No.

3/4 N:\Jobs*\4100\164JC_*JWC Plot at 100 03/18/2002 20:21:27

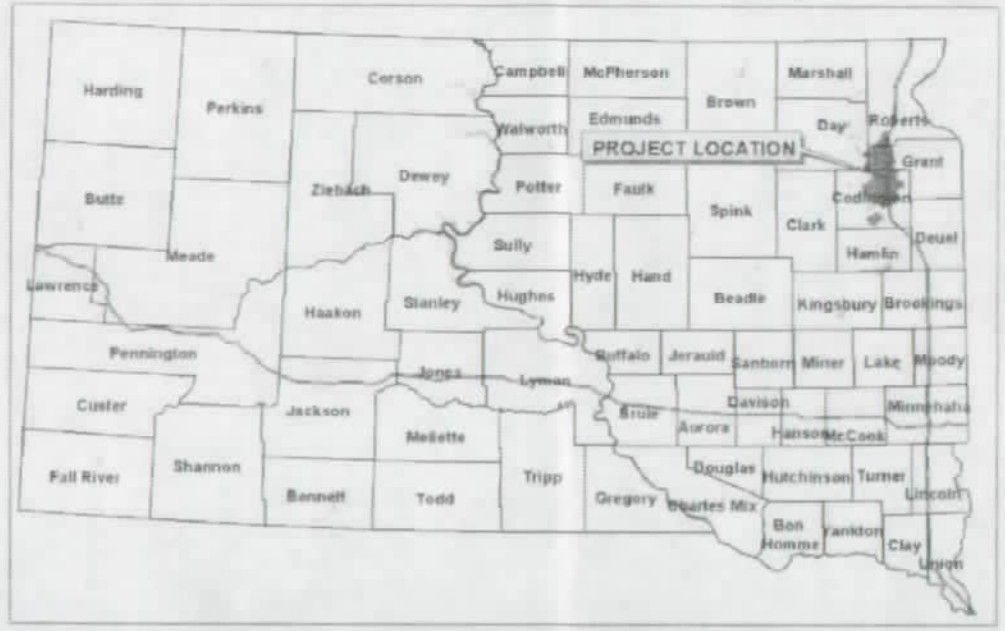
Drawings

LAKE PELICAN WATER PROJECT

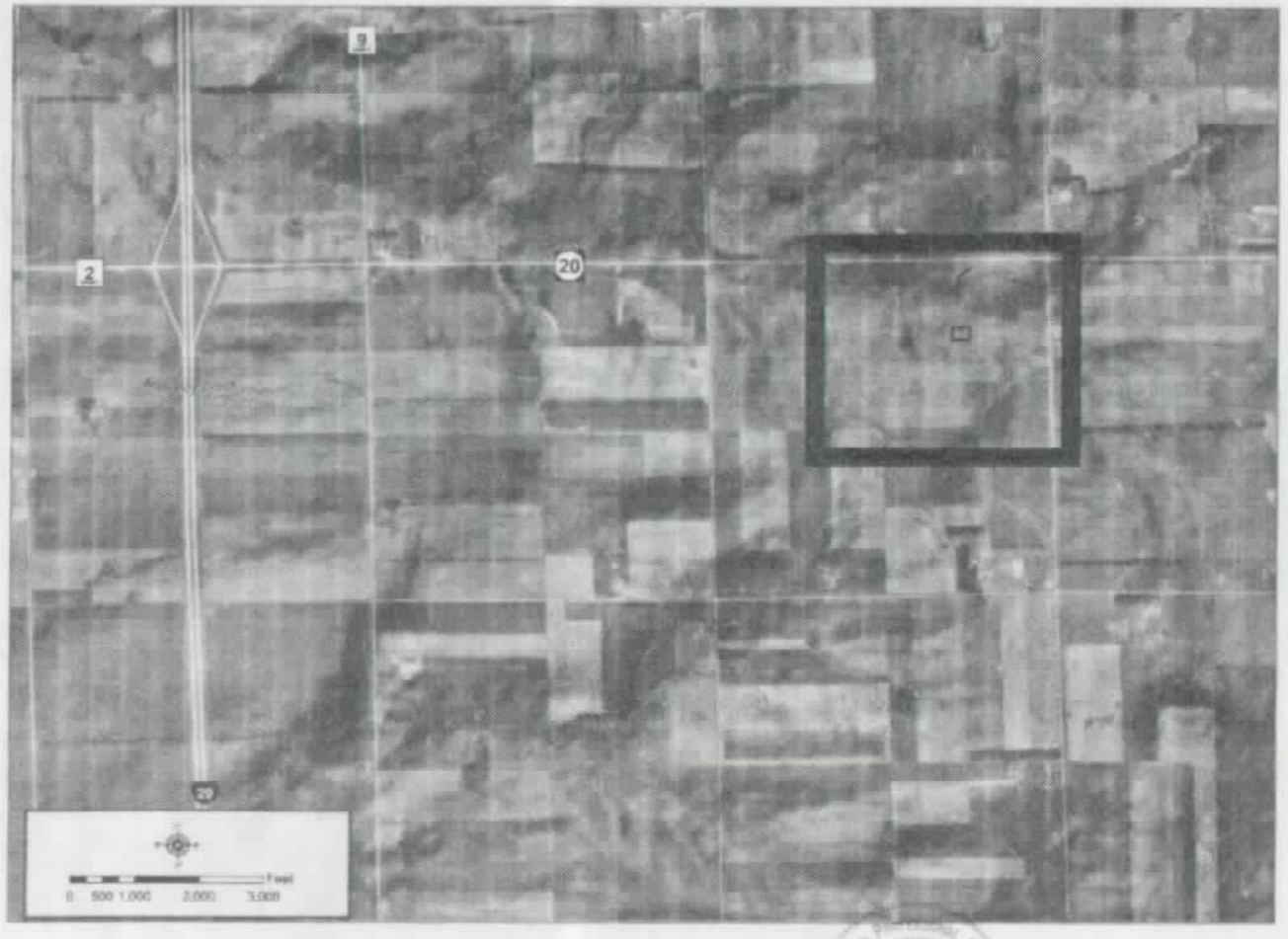
LPWPD PROJECT NUMBER 01-2002

DAVIS BONES FARM-FLOOD CONTROL STRUCTURE

WATERTOWN, SOUTH DAKOTA

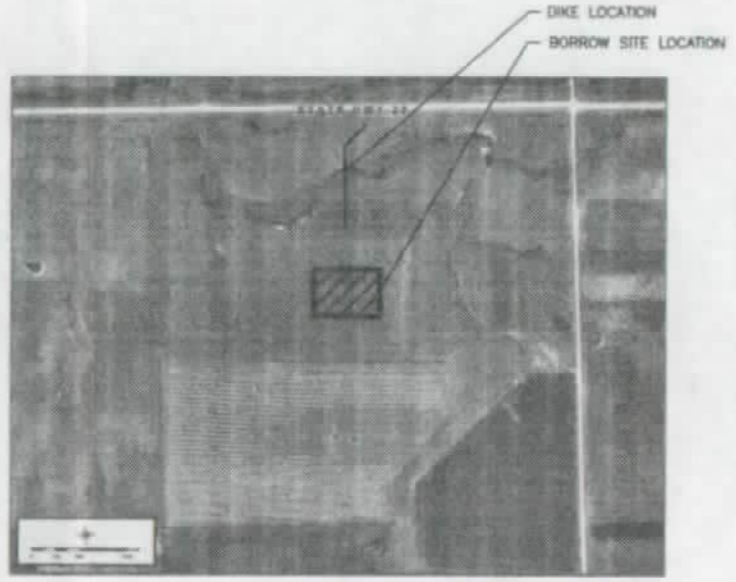


LOCATION MAP



VICINITY MAP

SHEET NO.	TITLE
C-01	Index and Site Location Maps
C-02	Embankment Layout and Cross-Sections
C-03	Sections and Details



SITE LOCATION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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SIGNATURE
PRINTED NAME: STEVEN M. KLEIN
DATE: 5/1/02 REG. NO. 5714

RELEASED TO/FOR: CLIENT / BID / CONSTRUCTION

A	B	C	0	1	2	3

DATE RELEASED

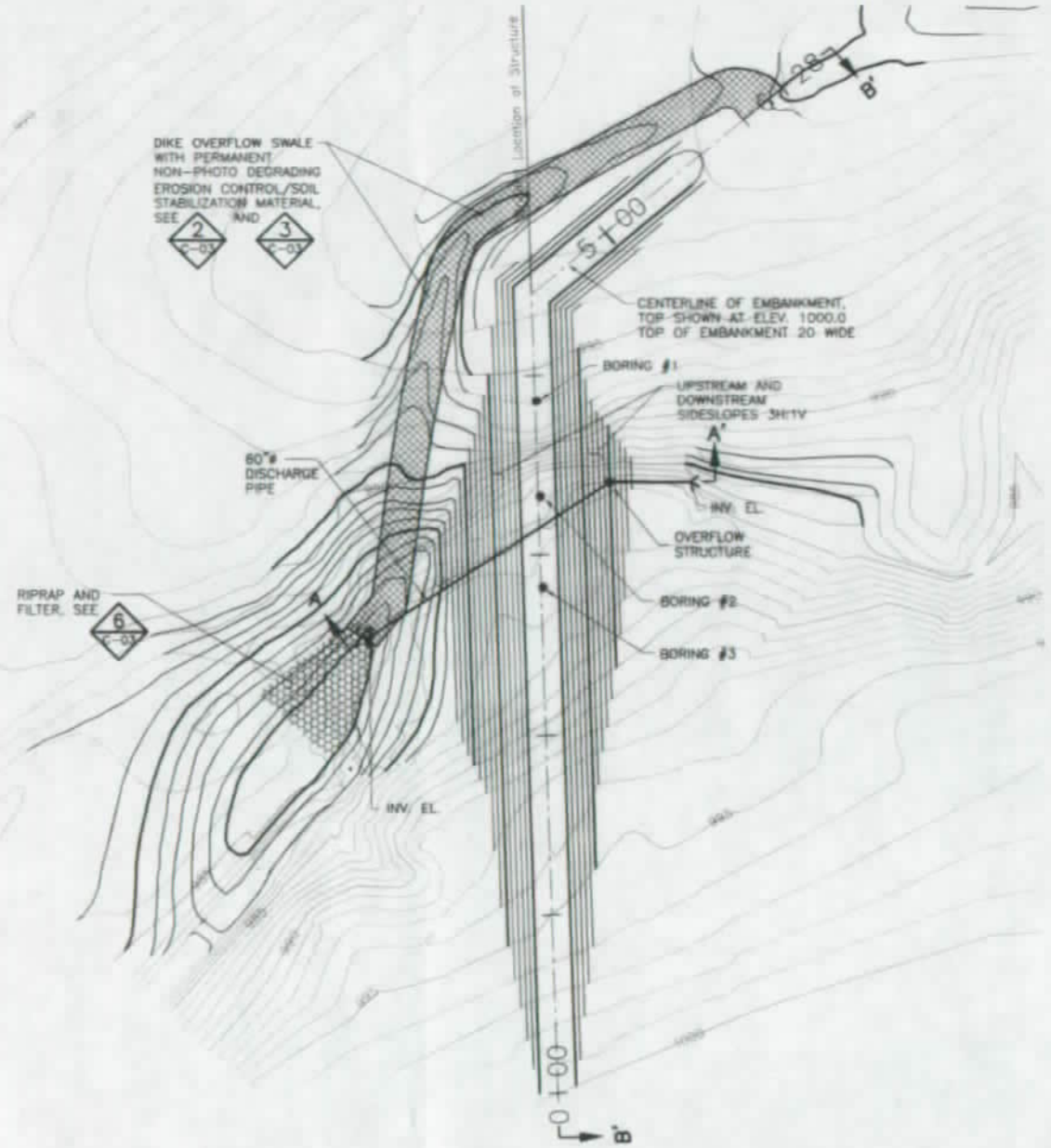
BARR
Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277

Scale	AS SHOWN
Date	3/12/02
Drawn	NRD
Checked	
Designed	
Approved	

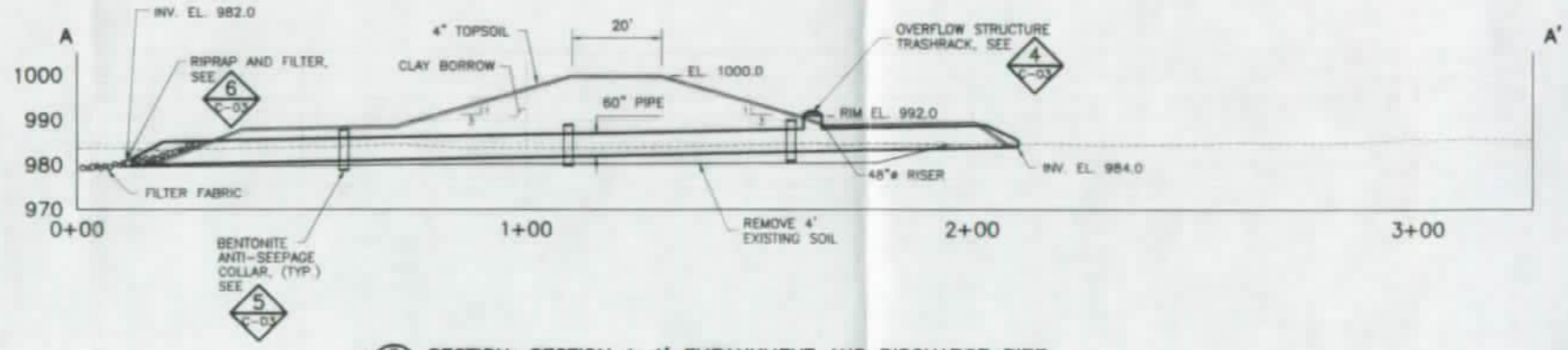
LAKE PELICAN WATER PROJECT
WATERTOWN, SOUTH DAKOTA

LPWPD PROJECT NUMBER 01-2002
DAVIS BONES FARM-FLOOD CONTROL STRUCTURE
INDEX AND SITE LOCATION MAPS

BARR PROJECT No. 41/14-002
CLIENT PROJECT NO.
DWG. No. C-01
REV. No. A

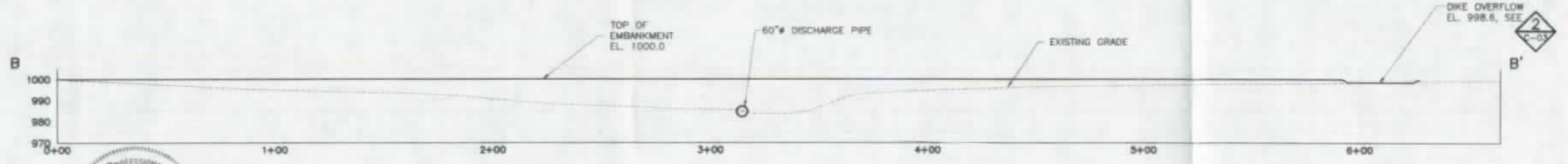


1 PLAN: EMBANKMENT
1"=50'-0"



2 SECTION: SECTION A–A' EMBANKMENT AND DISCHARGE PIPE
1"=20'-0"

0 20 40
SCALE IN FEET



1000.0
998.6
1.4 ft.

2 SECTION: SECTION B–B' EMBANKMENT AND DISCHARGE PIPE
1"=30'-0"

0 30 60
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5714
STEVEN M KLEIN
SOUTH DAKOTA

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.
SIGNATURE
PRINTED NAME Steven M. Klein
DATE 9/11/02 REG. NO. 5714

CLIENT
BID
CONSTRUCTION
RELEASED TO/FOR
A B C 0 1 2 3
DATE RELEASED

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277
Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
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Date	12/17/2001
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Checked	
Designed	
Approved	

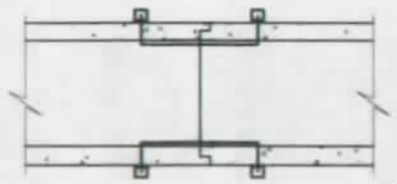
LAKE PELICAN WATER PROJECT
WATERTOWN, SOUTH DAKOTA

LPWPD PROJECT NUMBER 01-2002
DAVIS BONES FARM-FLOOD CONTROL STRUCTURE

EMBANKMENT LAYOUT AND CROSS-SECTIONS

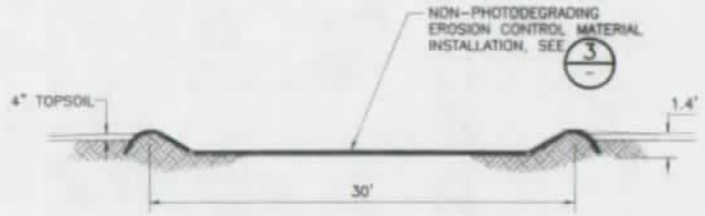
BARR PROJECT No. 41/14-002
CLIENT PROJECT No.
DWG. No. C-02
REV. No. A

Xrefs: ... Drawing ... M:\cad\41-4002\16376_1.DWG
WED ... M:\CAD\41-4002\16376_1.DWG, Plot at ... 03/06/2002 ...

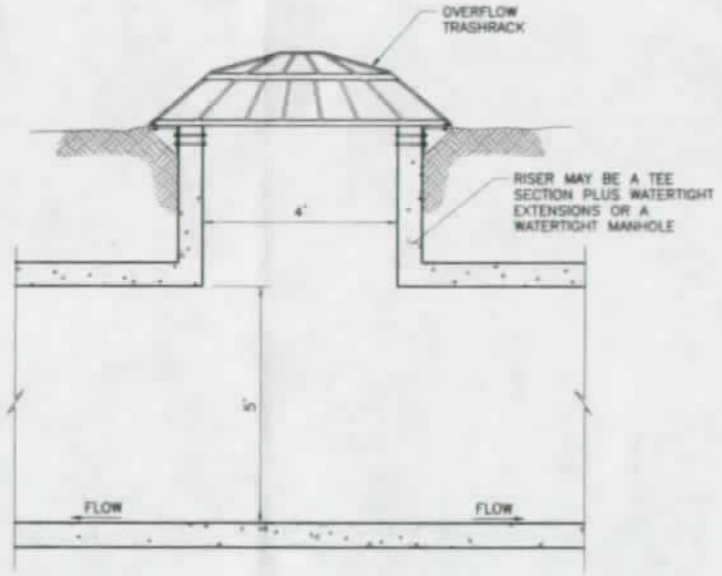


NOTE:
IF CONCRETE PIPE IS USED, ALL CONCRETE JOINTS SHALL BE TIED.

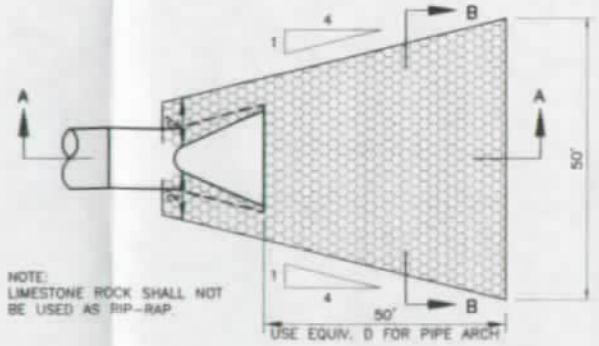
1 SECTION: JOINT TIE
NTS



2 SECTION: OVERFLOW SWALE
NTS

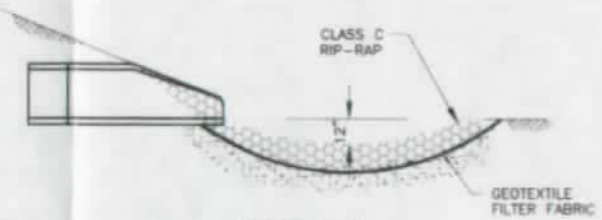


4 SECTION: OVERFLOW STRUCTURE
NTS

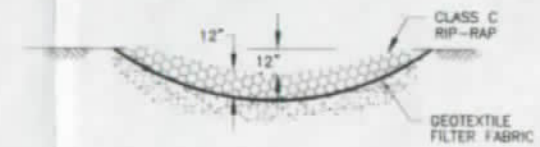


NOTE:
LIMESTONE ROCK SHALL NOT BE USED AS RIP-RAP.

PLAN



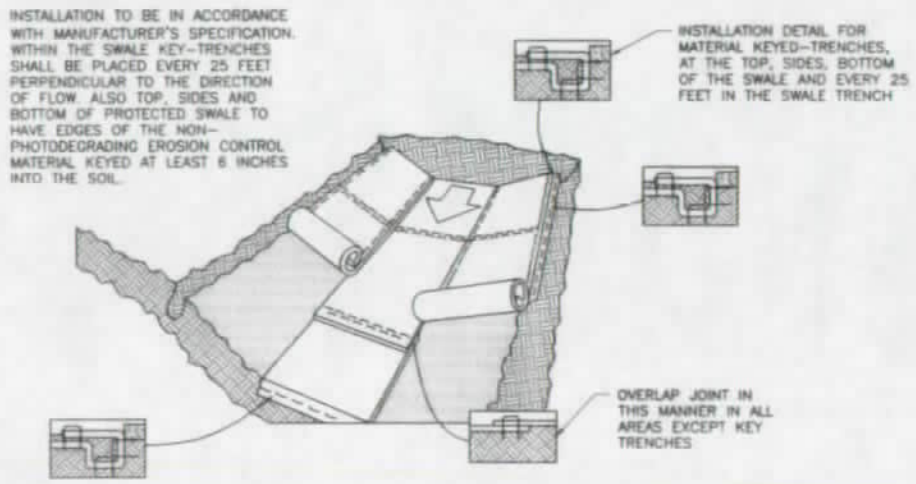
SECTION A-A



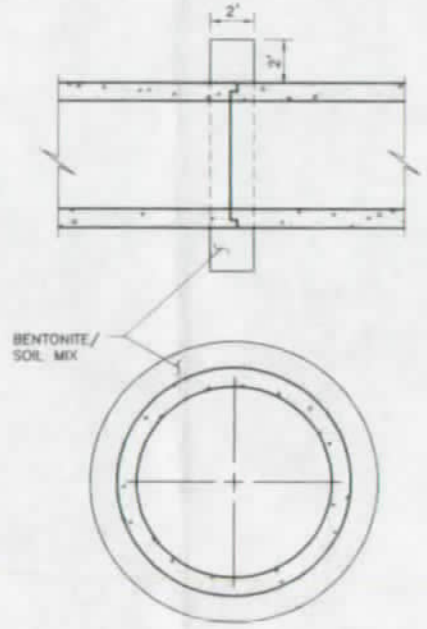
SECTION B-B

6 SECTION: RIPRAP INSTALLATION
NTS

INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. WITHIN THE SWALE KEY-TRENCHES SHALL BE PLACED EVERY 25 FEET PERPENDICULAR TO THE DIRECTION OF FLOW. ALSO TOP, SIDES AND BOTTOM OF PROTECTED SWALE TO HAVE EDGES OF THE NON-PHOTODEGRADING EROSION CONTROL MATERIAL KEYED AT LEAST 6 INCHES INTO THE SOIL.



3 SECTION: OVERFLOW SWALE NON-PHOTODEGRADING EROSION CONTROL MATERIAL INSTALLATION
NTS



5 SECTION: BENTONITE ANTI-SEEPAGE COLLAR
1"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5714
STEVEN M. KLEIN
SOUTH DAKOTA

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.
SIGNATURE Steven M. Klein
PRINTED NAME STEVEN M. KLEIN
DATE 4/1/02 REG. NO. 5714

CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	3/12/02
Drawn	NRD
Checked	
Designed	
Approved	

LAKE PELICAN WATER PROJECT
WATERTOWN, SOUTH DAKOTA

LPWPD PROJECT NUMBER 01-2002
DAVIS BONES FARM-FLOOD CONTROL STRUCTURE

EMBANKMENT LAYOUT AND CROSS-SECTIONS

BARR PROJECT No. 41/14-002
CLIENT PROJECT No.
DWG. No. C-03
REV. No. A

FC 32-3

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

March 13, 2008

John Egge, Board Member
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

Dear Mr. Egge:

A recent article appeared in the Watertown Public Opinion regarding the flood control project efforts of the Lake Pelican Water Project District. The article focused on the second dam structure that was completed last November and future structures planned by the District. This letter is intended to inform the District of the requirement to obtain a flood control permit for these flood control structures.

Pursuant to South Dakota Codified Law 46-5-47, a permit for flood control permit is required to construct facilities on any watercourse to control floods for the purpose of preventing or alleviating damage. Furthermore, SDCL 46-2A-11 states that the permit may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited, the project will not increase the likelihood or the severity of flood damages, the project will not endanger human life or property and the project will not impair existing rights. The District in their application must demonstrate that the requirements of the statute are met.

The District went through the flood control permitting process in 2002 for the first project west of South Shore. Flood Control Permit No. FC-32 obtained for this first structure is enclosed. At the time the Water Management Board considered this application, the city of Watertown intervened and filed a motion that an Environmental Impact Statement (EIS) be prepared for the project. At the time of hearing, the city's engineer illustrated that putting ill-placed detention structures within the watershed may actually increase the flooding downstream. The Board determined not to exercise its discretion to direct the preparation of an EIS at that time since the application before them was for one structure. However, they concluded that as future flood structures are planned it will be necessary to analyze the downstream flood effect of the existing and proposed structures. The Board stated if it is not possible or practicable to permit such an analysis on a step-by-step basis, they left the door open to consider a future request for an environmental impact statement.

The newspaper article states that construction of the structures should speed up. I want to take this opportunity to remind the District of the flood control permitting requirement for the project.

Enclosed are application forms to complete for the second structure already constructed and for futures structures. If the project has progressed to a point where the location, design and analysis of a number of detention structures has been determined, it is possible that they can be included on one application. Construction of any detention structures may not take place until a state flood control permit and necessary easements are obtained.

If you have any questions regarding the flood control permitting requirements, please contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program

enclosure

Gronlund, Eric

From: Erbele, Garland
Sent: Tuesday, February 19, 2008 1:42 PM
To: Gronlund, Eric; Rath, Mark; Schaal, Tim
Subject: FW: Pelican group continues flood control project

-----Original Message-----
From: Templeton, Dave
Sent: Tuesday, February 19, 2008 1:19 PM
To: DENR SECRETARY'S OFFICE; Erbele, Garland
Subject: FW: Pelican group continues flood control project

-----Original Message-----
From: Madison, Ken
Sent: Tuesday, February 19, 2008 1:15 PM
To: Templeton, Dave; Feeney, Jim; Stueven, Gene; Nadenicek, Joe; Smith, Kim
Cc: Cofer, Jay; Pederson, Mike
Subject: Pelican group continues flood control project

the PublicOpinion.com Watertown, SD
The best part of your day!
Local News

Pelican group continues flood control project

By Terry O'Keefe, Staff Writer

Published: Monday, February 18, 2008 10:33 AM CST

A group that formed in opposition to the Mahoney Creek dam project nearly a decade ago has announced the completion of its second flood control structure project.

John Egge, a member of the board of directors of the Lake Pelican Water Project District, said the most recent dam structure was completed in November south of Lake Pelican at a cost of about $17,500. Egge said this is significant because the organization is now in a position where its study costs have been paid along with other ancillary costs for designing a very large project and is now able to move forward with physical construction of some 800 flood control structures they want to build.

After the massive flooding of 1997, the city of Watertown proposed building a large structure north of Watertown known as the Mahoney Creek Dam, something that went through three public votes before finally being approved.

By the time that was accomplished, the original price estimate of about $25 million for the Mahoney Creek project was considered no longer valid and a new study by the U.S. Army Corps of Engineers was determined to be needed. State funding of $5 million for the project was lost when it did not proceed on time and now the study is being done by the corps in bits and pieces.

Watertown Public Works Director Herb Blomquist said last week money has been appropriated in the 2008 federal budget to help move the study forward.

"There is $344,000 for fiscal year 2008 to continue the study, not complete it," Blomquist said. "We'll know the final costs soon.

"But we have been doing bits and pieces over the last couple years."

Blomquist said the study is not looking solely at the Mahoney Creek project, but is doing a review of all flood control

alternatives.

The Lake Pelican group has completed its study which was done by Barr Engineering of Minneapolis, a firm they say specializes in the design and construction of small flood control structures.

The organization encompasses a large area around and north of Watertown as a taxing district which generates its revenue. Its first project was a small dam a few miles west of South Shore completed a couple of years ago. The second structure was completed in November, Egge said, and is designed to control water flow and sediment intake from approximately 1,350 acres flowing into the south side of Lake Pelican.

The Lake Pelican group has based its projects on the theory that hundreds of small flood control structures are just as effective and less intrusive than one large dam, such as the Mahoney Creek project.

"There could be as many as 800 small structures," Egge said. "But if you get 150 done, you take the head off the top."

While the process has been slow in getting off the ground since the group formed a number of years ago, Egge said construction of the structures should now speed up.

"It would be possible to see two or three a year because the surface water plan is complete and paid for," he said. "So the money we collect now will go toward (construction) projects.

"If we keep pecking at it, the high water problem goes away."

Egge said the Lake Pelican group paid about $340,000 to Barr for its study which covered an area of roughly 200,000 acres of land.

"They (Barr) specialize in the natural approach — they make it look like Mother Nature did it," Egge said. "It works very naturally and is a watershed-wide approach that impacts a number of issues."

He said that approach contrasts with larger projects such as Oahe Dam and other large dams.

"They all silted in because they didn't do any (prior) watershed work to hold the silt back," Egge said.

Egge said although the Lake Pelican Water Project District is an entity on its own, the group is also open to working with other groups or government agencies to reach its goals.

"We have plans on the board where we could be partnering with other entities," Egge said.

Egge said the district's third structure is scheduled for construction this spring in the Waverly area.

REPORT ON INSPECTION OF FLOOD CONTROL PERMIT NO. FC32

Big Sioux River - Water District
Report Of Examination Of Works

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

On, **February 29, 2016**, I made a thorough examination of the flood control project constructed by **Lake Pelican Water Project District** of **PO Box 172, Watertown SD 57201** holder of Flood Control Permit No. **FC32-3**, bearing the priority of **January 29, 2002** authorizing the construction and operation of the flood control project, in **Codington** County.

Contact Person & Address: **Ken Bunde, District President cell (605) 880-6725**

Project Legal Description: **From the ~~NW~~ corner of Sec 24 T119N-R52W: 450 feet south and 1505 feet west, Latitude 45.10622 Longitude - 97.01062**

Description of flood control works: **A 20 ft high approximately 650 ft long flood detention dam with no permanent storage capable of passing 375 cfs through the primary outlet and with an additional 150 cfs through the secondary spillway.**

DAM INFORMATION:

1) Height to crest **20** feet
2) Height to primary spillway **0** feet
3) Height to secondary spillway **19** ft
4) Crest width **20** feet
5) Crest length **650** feet
6) Spillway length **400** feet
7) Spillway width **50** feet
8) Approx. storage **0** ac-ft

9) Approx. storage to crest **73** ac-ft

10) Date constructed: **2003**

11) Outlet tubes:

a) diameter **60** inches

b) type **cmp**

c) valved **no**

d) valve type **NA**

e) location on structure **center**

12) Category of Dam **3**

13) Inspection Sheet Completed **no**

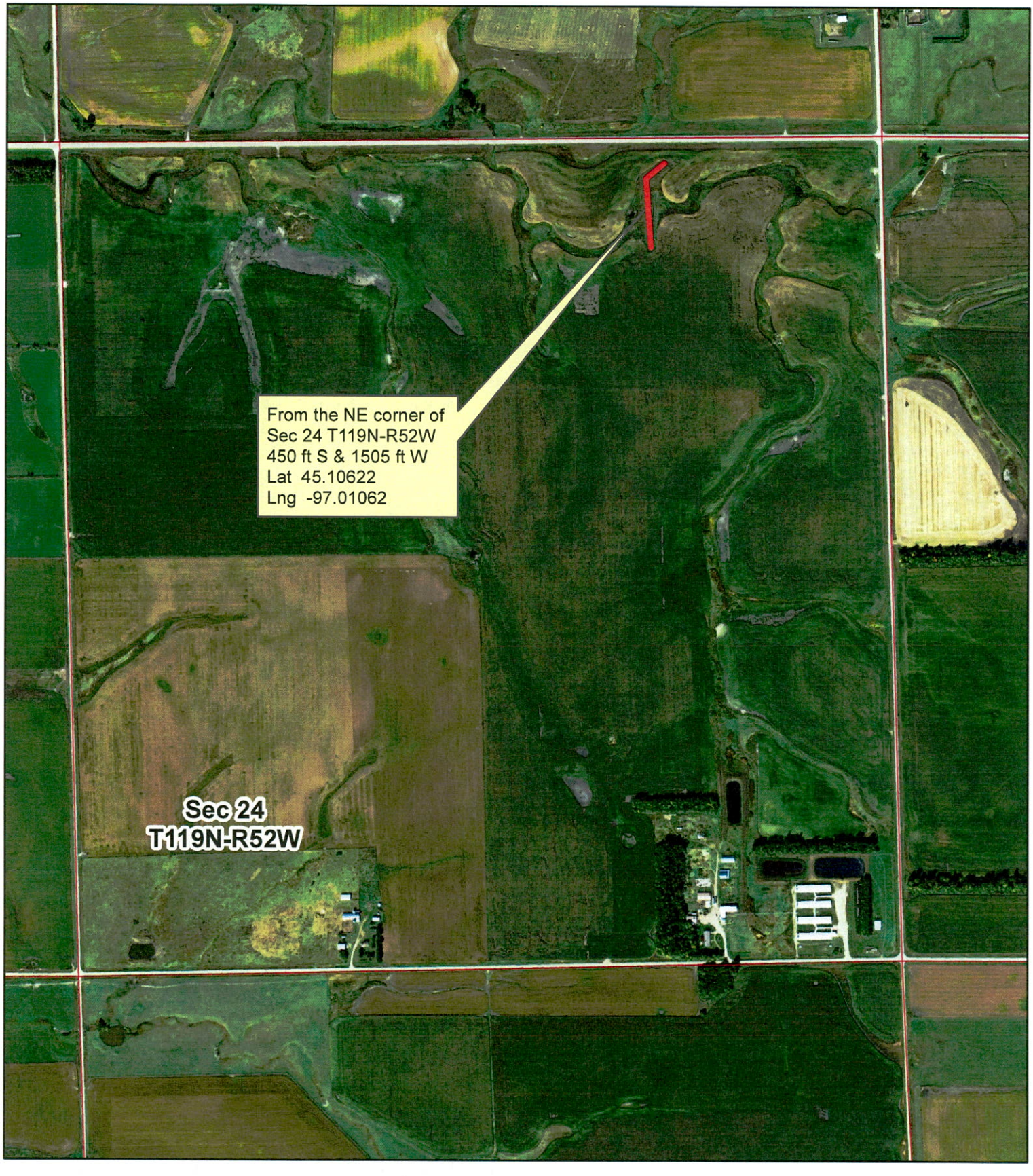
The system is in the following condition **good**.
Applicable permit qualifications have been complied with: **yes**
Exceptions to compliance are: **none**

3-11-16

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

Date

No. FC32-3



South Dakota Department of Environment and Natural Resources
Protecting South Dakota's Tomorrow... Today

0 0.05 0.1 0.2 0.3 0.4 Miles

N
W E
S

Mark D Rath
Natural Resources Engineer
03-03-2016

STATE OF SOUTH DAKOTA

WATER LICENSE NO. FC-32

(1) Lake Pelican Water Project District, PO Box 172, Watertown SD 57201 made Application No. FC-32, January 29, 2002 for a flood control permit to authorize construction of a flood detention structure. The project is located in Codington County, South Dakota. Permit No. FC-32, with a priority date of January 29, 2002 was approved December 4, 2002.

(2) It is certified that the permit holder has complied with the provision South Dakota State Law relating to completion of the flood control project. The flood control works located 450 feet south and 1,505 feet west of the NE corner Section 24-T119N-R52W (NW 1/4 NE 1/4) temporarily detains a portion of flood flow in the NE 1/4 Section 24-T119N-R52W. The structure consists of a 20 foot high dam across a dry draw with a 60 inch pipe through the dam at the natural drainage elevation. There is no permanent pool of water on the upstream side of the dam.

(3) Pursuant to South Dakota Water Law 46-5-30.1 Lake Pelican Water Project District, PO Box 172, Watertown SD 57201 the holder and/or owner of Permit No. FC-32 is issued a license for flood control purposes. No. FC-32 carries a priority date of January 29, 2002.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Flood Control Permit No. FC-32 including the following qualification:

- Flood Control Permit No. FC-32 is subject to the condition that the applicant obtain and file a flood easement for the property on which the project will be developed. The easement must be filed with the Water Rights Program prior to development of the project. ***A copy of the perpetual easement is on file with the Water Rights Program.***

Jeanne Goodman

JUL 2 2 2016

Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

date

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

FC-19
FC-32

JUL 2 2 2016

Lake Pelican Water Project District
c/o Ken Bunde, President
PO Box 172
Watertown SD 57201

Dear Mr. Bunde:

Enclosed are Water License Nos. FC-19 and FC-32. These are the final water right documents completing the District's process of obtaining a Water Right. Enclosed is a receipt for $50.00 which you paid for the investigation and issuance of the water license for No. FC-19. Also, included with the licenses are maps prepared by the staff engineer who conducted the investigation.

As long as the District uses the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Jeanne Goodman

Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures