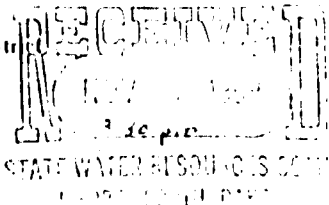


No. 1816-3

Map No. _____ Water Division No. 3 MISSOURI RIVER District _____
(Blanks to be filled by the Engineer for the W. R. C.)



APPLICATION FOR PERMIT

To Appropriate Water within the State of South Dakota

(NOTE--Draw a line through items not applicable)

- Name of Applicant South Dakota Department of Game, Fish & Parks (Swan Lake) (M)
Postoffice address Pierre State South Dakota
If a corporation show date and place of incorporation _____
- Method of accomplishing work (contract, employment of others, or by direct labor) _____
- Name of diversion work _____ 6,000
1200 acre ft
- Amount of water claimed (cubic feet per second) XXXXXX
- Source of water supply Swan Creek
- Location of point of diversion SE 1/4, Sec. 13, Twp. 121, R. 75

County Walworth

- Annual period or periods during which water is to be used continuous
- Use to be made of water (irrigation, industrial, municipal, commercial, recreation, etc.) Public recreation
- For irrigation use, Total number of acres to be irrigated _____

List below each forty-acre subdivision, or lot, or fraction thereof and show number of acres to be irrigated in each.

Land Description	No. Acres Irr.	Land Description	No. Acres Irr.

Attach sheet if more space is needed

- Time required to complete construction of water supply system _____ years. Additional time required to complete application of water to the proposed beneficial use _____ years.
- Choice of newspaper for Notice of Intent to Appropriate Water publication _____

12. Principal Features of the Proposed Water Supply System.

2,000 S.A.
7' MAX. DEPTH

- Works proposed to divert water from its natural source.
- Works proposed to transport water to place of use.
- Works proposed to apply water to beneficial use.

Estimated Total Cost \$ _____

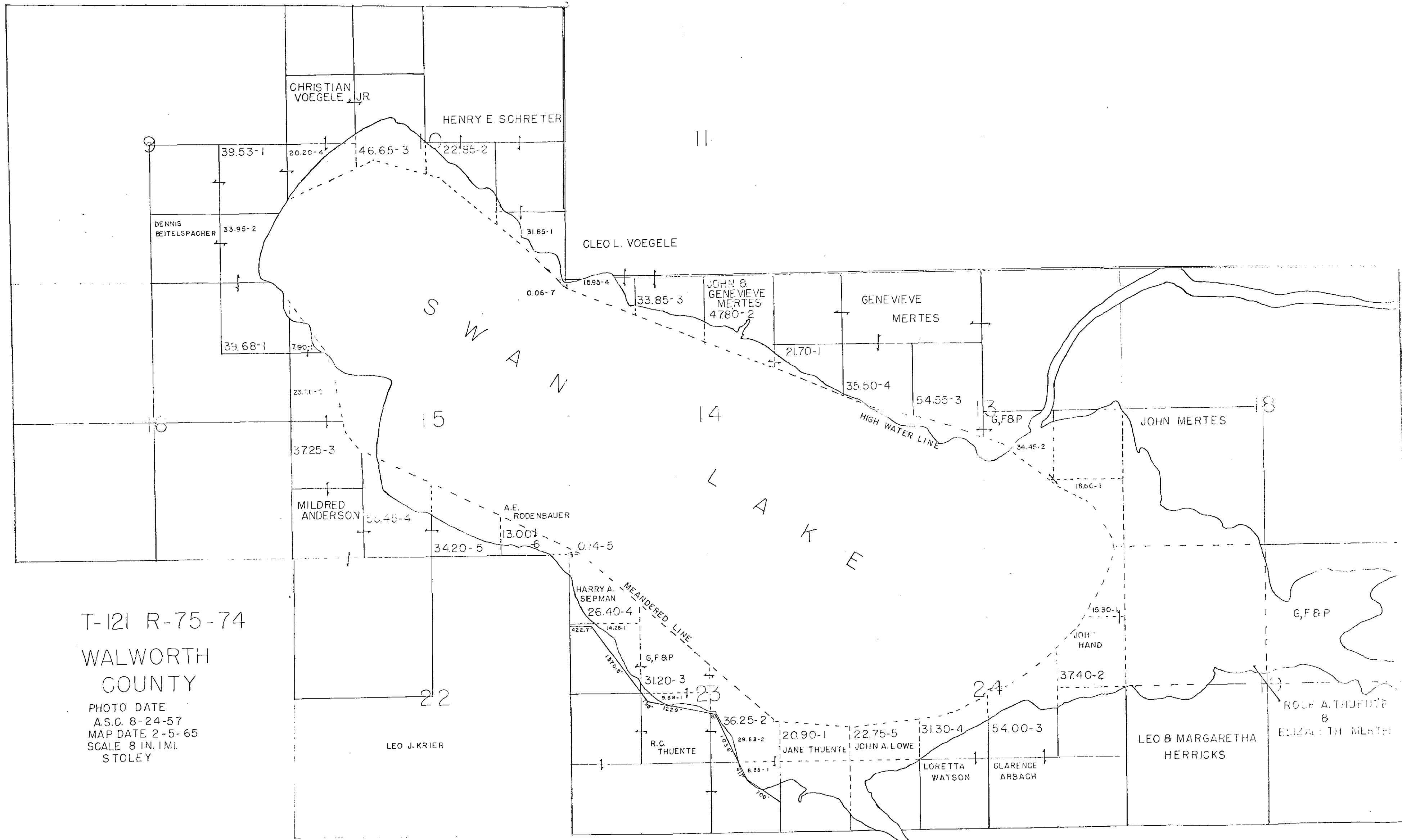
Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map.
(See instructions concerning preparation.)

STATE OF SOUTH DAKOTA

County Hughes
RA Higgins

I, _____ the applicant, certify that I have read the foregoing application and have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction

Subscribed and sworn to before me this 13th day of Nov 1967
Edmund M. Cull
Notary Public (or other qualified Officer)



T-121 R-75-74

WALWORTH
COUNTY

PHOTO DATE
A.S.C. 8-24-57
MAP DATE 2-5-65
SCALE 8 IN. 1 MI.
STOLEY

11/ VR 1816-3

WATER RIGHT APPLICATION APPROVAL

The Water Resources Commission hereby approves Water Right Application No. 1816-3DEPT OF GAME, FISH & PARKS
(Applicant)PIERRE
(Post Office Address)SOUTH DAKOTA
(State) With the following modifications**"VESTED RIGHT" CLAIMED**Date of first receipt of application NOVEMBER 5, 1969Date of return to applicant for correction, amendments or changes required —, 19—Date of receipt of corrected application —, 19—Approved JUNE 11, 1971, Recorded in Book 12 Page 3WATER RIGHT PERMIT NO. 1816-3The Water Resources Commission hereby grants and issues this Water Right Permit No. 1816-3 authorizing the construction of the water use system and the putting of water to beneficial use as stated in the Application and as modified in the Water Right Application approval, subject, however, to the following limitations and conditions:1. The date from which applicant may claim right is 18892. The equivalent of at least one-fifth of the work above specified is ~~not~~ completed —3. The whole of said work is ~~not~~ completed —4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is COMPLETED5. The water appropriated shall be used for the purpose of PUBLIC RECREATION

6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.

7. The amount of the appropriation herein granted shall not exceed 6000 ACRE FEET ANNUALLY — cubic feet per second; neither shall it exceed the capacity of the above described water supply system, nor shall it exceed the amount of water needed for ~~irrigation~~~~and of the water appropriated shall be limited to the amount of water needed for irrigation and of the water appropriated shall be limited to the amount of water needed for irrigation and of the water appropriated shall be limited to the amount of water needed for irrigation~~USED FOR PUBLIC RECREATION actually and beneficially applied on or before JUNE 30, 1955; said water to be used during the following described annual period: CONTINUOUSLYWitness my hand this 11TH day of JUNE, 1971

WATER RESOURCES COMMISSION

By:

Bill Criner
Chief Engineer, Executive OfficerCertificate of Construction Issued JUNE 11, 1971Water License Issued JUNE 11, 1971

Permit No. 1816-3

Water Diversion No. 3 MISSOURI RIVER Water District

CERTIFICATE OF CONSTRUCTION

This is to Certify, that the Department of Game, Fish and Parks

Vested Right
/ Permit No. 1816-3, issued upon Application No. 1816-3, bearing date of priority of 1889
authorizing the diversion of 6000 acre feet annually ~~on it per second~~ of the waters of Swan Creek
County of Walworth, State of South Dakota at a point in the NW 1/4 SE 1/4, Section 13, T121N, R75W
for public recreation (Swan Lake)

purposes, has complied with the provisions of the laws of the State of South Dakota relating to proof of completion of the works of diversion set out and described in said Permit; that said works are recognized as ~~found to be~~ satisfactory condition for diverting and conveying to the place of intended use 6000 acre feet annually ~~on it per second~~ of water.

Date June 11, 1971

WATER RESOURCES COMMISSION

By:

J.W. GRIMES, Executive Officer

WATER LICENSE NO. 1816-3

(1) WHEREAS, On the 5th day of November A. D. 19 69

the Department of Game, Fish and Parks

made Water Right Application No. 1816-3 Vested Right for / permit to use 6000 ac.ft. annually of the waters of Swan Creek

County of Walworth State of South Dakota, for public recreation purposes; and

(2) WHEREAS, On the 11th day of June A. D. 19 71

Vested Right Permit No. 1816-3 with a date of priority of 1889

was issued to said applicant _____ for the diversion of said water, recognizing the completion of construction of the water supply system, therein described as follows: _____ and the application to beneficial use of said water as follows: _____

and:

(3) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota relating to completion of the construction of the water supply system and is entitled to divert 6000 ac.ft. annually of water for beneficial use and.

(4) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota relating to the application of water to beneficial use of the following extent.

water is used in place for public recreational purposes

(5) NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota, We hereby grant and confirm to the Department of Game, Fish and Parks

_____ of Pierre, South Dakota

the holder _____ and owner Vested Right of said permit No. 1816-3 a water right, dating from 1889

_____ to use of 6000 acre feet annually ~~which is not a part of~~ of the waters

of Swan Creek

in the County of Walworth and State of South Dakota, or so much thereof as may be necessary for the

purposes hereinbelow mentioned, to be diverted at a point in the NW 1/4 SE 1/4, Section 13, T121N, R75W

and ~~conduct to and upon~~ stored in place

for the purpose of public recreation (Swan Lake)

Subject to any limitations listed in Water Right Permit No. 1816-3 and subject to the laws of the State of South Dakota.

WITNESS, My hand and seal of our office at Pierre, South Dakota

this 11th day of June A. D.

Nineteen Hundred and Seventy-One

WATER RESOURCES COMMISSION

By:

Chief Engineer, Executive Office, J.W. GRIMES

NOTE:

This Form is supplemental to Form 2, and is to be used when an affidavit pertaining to construction and water use, already completed, is needed.

AFFIDAVIT OF CONSTRUCTION OF WATER USE SYSTEM AND APPLICATION OF WATER TO BENEFICIAL USE

Name of Applicant (Same as Form 2) Game, Fish & Parks
 Post Office Address Pierre, State South Dakota
 If a Corporation show date and place of incorporation _____

13. Notice of Appropriation (If available)

Date of Posting _____ Date of Recording _____
 Recording Date _____

14. Date of start of construction of water supply system 1889-193515. Date that water was first applied to beneficial use 188916. Name of owner of original water supply system State of South Dakota17. Amount of water originally applied to beneficial use 1200 c. f. s.

18. Present Use of Water

Amount of water now being used 1200 c. f. s.

Date that this amount of water was first used _____

19. Chronological History of Water Use

Attach to this Form 2B. any copies of notices, postings, filings, publications, affidavits, or other records that apply.
 You may also attach any written statement by you, or by others, that you deem pertinent.

STATE OF SOUTH DAKOTA)

County of Butte ss.

I, R. A. Hodgins, the applicant, certify that I have read the foregoing and that the matters therein stated are true.

Signed _____
 Subscribed and sworn to before me this 13th day of July, 1969
Edmund W. Gault
 (Notary Public or other qualified Officer)

I, the undersigned, do hereby certify that I know about the water use system described above that I have read the foregoing and that the matters therein stated are true.

Water Rights Division - DWR

File No. 1816-3

Conversation or File Documentation

NAME OF PERSON OR FILE: SD Dept of Game, Fish and Parks - Swan Lake

ADDRESS: _____ COUNTY _____

DATE: _____ TELEPHONE _____

RE: Ordinary High Water Mark Determination

COMMENTS:

July 11 & 12, 1984 - Water Management Board Minutes

Mr. Walters MOVED, SECONDED by Mr. Waldner that the High Water Mark for Swan Lake be established at an elevation of 1853.8 feet msl. Vested Water Right No. 1816-3 be clarified for Swan Lake and be set at an elevation of 1853.3 feet msl.

MOTION CARRIED.

For more information see the Ordinary High Water Mark File.

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

18/6-3

**South Dakota Department of
Water & Natural Resources**

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 21, 1988

Richard Beringson, Secretary
Department of Game, Fish and Parks
Anderson Building
445 E Capitol
Pierre SD 57501

Dear Mr. Beringson:

I am writing to notify you that pursuant to the Notice of Intent to Validate Vested Water Right Claims dated June 20, 1988 that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for lakes for the following reasons:

1. Until the outlet elevation for each lake is surveyed and the outlet elevation is set by the Water Management Board.
2. To allow the Vested Water Right Claim to be amended, if necessary, as follows:
 - a) Include the outlet elevation;
 - b) To correct the amount of water claimed;
 - c) To add the qualification that a vested claim is subject where necessary to installation of a concrete outlet structure to assure retention of the outlet as the established elevation; and
 - d) To add any amendments and qualifications necessary to clarify a Vested Right Claim.

Also, that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for dams to allow the Vested Water Right Claim to be amended, if necessary, as follows:

1. To include the spillway elevation;
2. To correct the amount of water claimed; and
3. To add any amendments and qualifications necessary to clarify a Vested Right Claim.

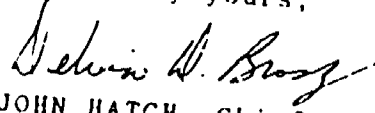


September 21, 1988
Richard Beringson, Secretary
Page 2

We will be working with your staff on these validations. We have already discussed setting outlet elevations before validating claims for lakes. Although the work necessary to complete the validation process will take several years to complete, the results should be of benefit to the public and to your Department. As the work is completed to validate each claim, the claim will be presented to the Water Management Board for validation.

Please advise if you have any questions.

Very truly yours,



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

cc: Ron Koth, Department of Game, Fish and Parks

ORDINARY HIGH WATER MARK
INVESTIGATION REPORT
FOR

SWAN LAKE

WALWORTH COUNTY

 **Department of
Water & Natural Resources**
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

JUNE 1984

REPRODUCTION

REDUCTION

ROLL NO.

DATE MICROFILMED

CAMERA OPERATOR

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INTRODUCTION.....	2
INVESTIGATION.....	3
CONCLUSIONS.....	4
RECOMMENDATIONS.....	5
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RECOMMENDATIONS: REDUCTION 1/20x1 FULL NO. 1
DATE MICROFILMED 1/20/60
CAMERA OPERATOR

SWAN LAKE

ABSTRACT

This report contains the results of an investigation performed to determine the Ordinary High Water mark (High WM) for Swan Lake in Walworth County. The primary factors involved in calculating the High WM were Swan Lake's hydrological characteristics and elevations of boulder lines, cut banks, and changes in soil characteristics found at the upper limit of its lake bed.

Based on the findings in this report. The High WM for Swan Lake has been determined to have been established by Natural Conditions at an elevation of 1853.8 feet mean sea level (msl). The relative outlet elevation for Swan lake is 1853.3 feet msl.

10-11-2000

REVISION 1

DATE

DATE MICROFILMED

CAMERA OPERATOR

INVESTIGATION

Location

Swan Lake is located in the southeast corner of Walworth County. It is within Sections 18, 19, 20, and 30 of T121N R74W, and Sections 9, 10, 11, 13, 14, 15, 16, 22, 23, 24, 25, and 26 of T121N, R75W, (see Appendix B).

Lake Characteristics

Swan Lake is geographically located on the eastern slope of the Missouri River watershed. Swan Lake receives its surface water recharge from a watershed area of 379 square miles. Within this watershed there are two areas or 55 and 20 square miles in the south and north that contribute surface water only after major depressions are filled (see Appendix B, Watershed Map). Swan Lake has a surface area of 3,480 acres. The eastern third of the Lake is connected to the Bowdle aquifer. Please see South Dakota Geological Survey Maps showing Sand and Gravel Resources and Aquifers in Walworth County, Appendix B. Also see Appendix A, Swan Lake Data, for further information.

Elevation References

Elevations in this report are referenced to a United States Geological Survey bench mark. The bench mark is located in T121N, R74W, 300 feet south of the corner of sections 8, 9, 16, and 17, at the center and on the west side of the concrete bridge curbing of a bridge over Swan Lake Creek on Highway 47, a chiseled square, at an elevation of 1861.48 feet msl.

High WM Indicators

The High WM Indicators used to determine Swan Lake's High WM are changes in soil characteristics, beach escarpments, and boulder lines. These characteristics delineate the upper limits of the lake bed. They reflect the elevation of the most continuous high water level.

The most continuous high water level occurs after large and sudden runoff from heavy rains or snow melt. The Lake fills to overflowing, then recedes to its outlet elevation within a few weeks. At the outlet level, the lake is at its most continuous high level and it produces the physical characteristics pictured in Appendix C.

From the measurement and study of these physical characteristics found at the upper limits of Swan Lake, the High WM has been determined to be at an elevation of 1853.8 feet msl.

Outlet Area

Swan Lake has no permanent outlet structure. The overflow area is on the westside. It is approximately 3,000 feet long comprised of a ridge of sandy silty material. This material is easily eroded and during periods of overflow a channel is cut through this ridge.

The natural variation in the outlet elevation is what prompted the request to establish the High WM and the relative outlet elevation. The low point in the

INVESTIGATION
REVISION
DATE
MICROFILMED
CAMERA OPERATOR

SWAN LAKE

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SWAN LAKE

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REVISION

DATE

BY

FILE NO.

DATE MICROFILMED

CAMERA OPERATOR

INTRODUCTION

Authority and Administrator

The Water Management Board is required by SDCL 43-17-21 to establish the High WM on public lakes in South Dakota. The Board establishes the High WM pursuant to SDCL 43-17-1 thru 43-17-3; 43-17-20 thru 43-17-26, and Board Rules ARSD 74:02:03:12. This report contains the results of the investigation conducted by the Water Rights Division, Department of Water and Natural Resources, to determine the elevation of the High WM and outlet for Swan Lake.

Explanation of High WM

The High WM is coordinated with the upper limits of the lake bed. The determination of the High WM is derived from the examination of the upper limits of the bed of the lake. This examination is conducted to determine where the continuous presence and action of the water has left a distinct mark: either by erosion, destruction of terrestrial vegetation, or some other easily recognized characteristic. In examining a lake for the determination of this level, it is necessary to consider the size, watershed, topography, soil and general characteristics of the lake (refer to Appendices).

Date of Investigation

The principal field investigation for this report was conducted in June 1983. At this time, the examination of the shoreline, banks, and vegetation of Swan Lake was performed. The shoreline areas selected for study were those least affected by individuals.

INVESTIGATION

Location

Swan Lake is located in the southeast corner of Walworth County. It is within Sections 18, 19, 20, and 30 of T121N R74W, and Sections 9, 10, 11, 13, 14, 15, 16, 22, 23, 24, 25, and 26 of T121N, R75W, (see Appendix B).

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Outlet Area

Swan Lake has no permanent outlet structure. The overflow area is on the westside. It is approximately 3,000 feet long comprised of a ridge of sandy silty material. This material is easily eroded and during periods of overflow a channel is cut through this ridge.

The natural variation in the outlet elevation is what prompted the request to establish the High WM and the relative outlet elevation. The low point in the

outlet area is presently just north of the center point. See Topographic Map, Appendix B, SW 1/4 of Section 10. At this point, there are two cuts in the soil at elevations of 1852.9 and 1853.1 feet msl. These cuts have been filled to an elevation of 1853.5, level with the existing soil ridge in that area.

Water Levels

Exact water levels for Swan Lake have only been recorded since 1983. The water levels recorded since that time are:

2-17-83, 1849.1
6-8-83, 1848.8
10-11-83, 1847.9 (nearly dry)
5-29-84, 1848.9
6-15-84, 1849.1

Residents of the area reported three occasions when the lake has overflowed. The lake overflowed in the late 1940's, early 1950's, and in 1966. The lake was reported as being nearly full in 1977. There were also reports of the lake being completely dry.

Water Rights

The Department of Game, Fish, and Parks holds a Vested Water Right License No. 1816-3. This Right authorizes an annual recharge of 6,000 acre-feet of water per year.

CONCLUSIONS

Based on the study of Swan Lake's hydrological characteristics and the elevation of High WM indicator found at the upper limits of its lake bed, the High WM for Swan Lake is at an elevation of 1853.8 feet msl.

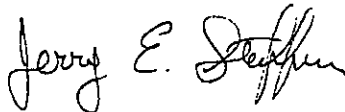
To maintain the natural High WM for Swan Lake, the outlet elevation should be 1853.3 feet msl.

REVISION: 2/2/81
DATE MICROFILMED: _____
CAMERA OPERATOR: _____

RECOMMENDATIONS

The Water Rights Division recommends to the Water Management Board that:

1. The High WM for Swan Lake be established at an elevation of 1853.8 feet msl.
2. Vested Water Right No. 1816-3 be clarified to define the outlet elevation for Swan Lake at an elevation of 1853.3 feet msl.



Jerry E. Steffen
Natural Resources Engineer
Water Right Division
Department of Water and Natural Resources

For information regarding bench marks established at Swan Lake, contact the Department of Water and Natural Resources, Water Rights Division, Pierre, South Dakota 57501.

REPRODUCTION OF ORIGINAL DOCUMENT
REPRODUCTION OF ORIGINAL DOCUMENT
DATE MICROFILMED
CAMERA OPERATOR

APPENDICES

Appendix A.....	Swan Lake Data
Appendix B.....	Watershed Map Topographic Map Map of Sand and Gravel Deposits Map of Aquifers in Walworth County
Appendix C.....	High Water Mark Indicators
Appendix D.....	Soils Map of Swan Lake Area and soils description

REPRODUCTION

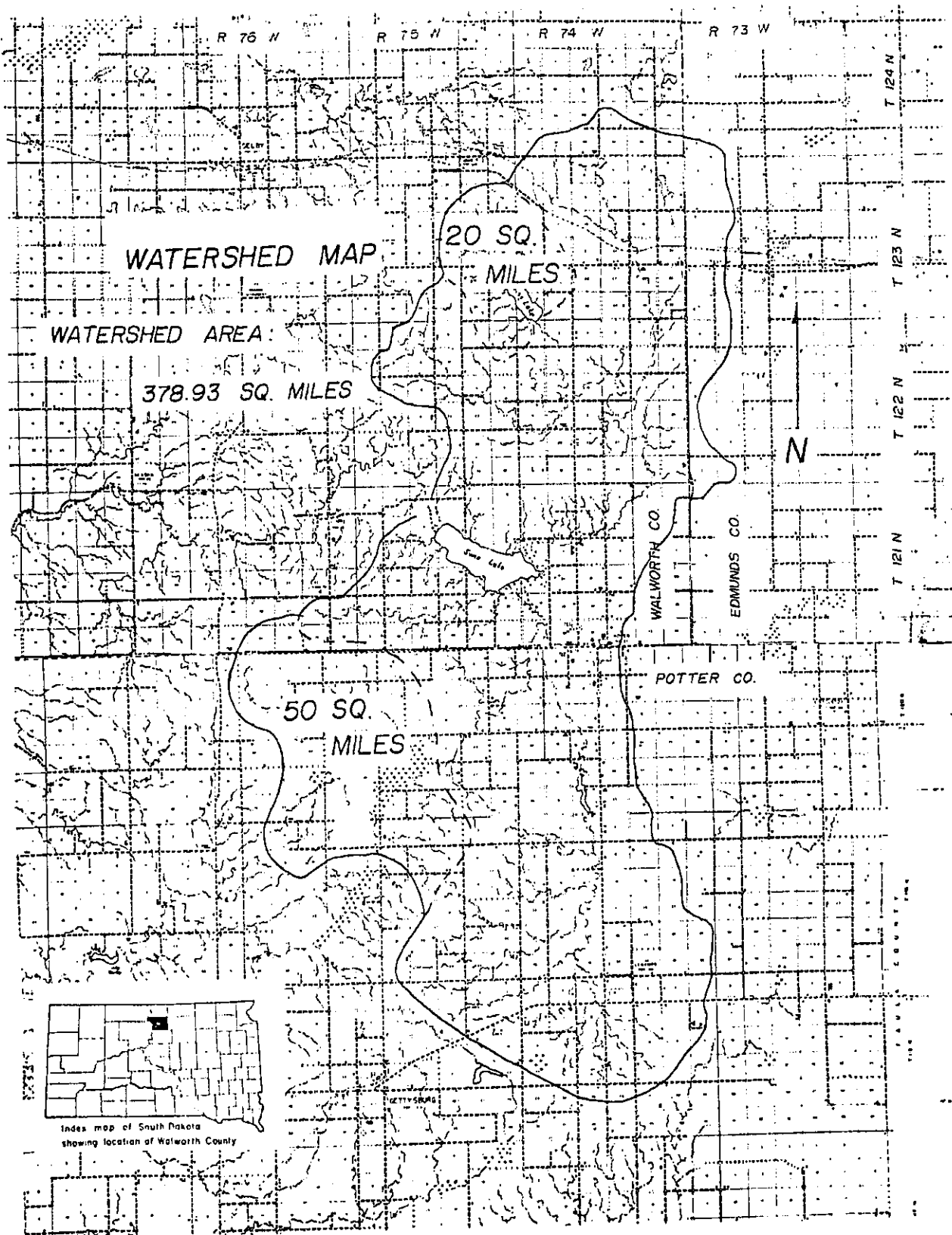
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DATE MICROFILMED

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RETRIBUTION

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CAMERA OPERATOR

Appendix A

Swan Lake Data

Surface Area.....3480 acres
Watershed Area.....379 square miles
Maximum Depth.....6 feet
Aquifer Connection.....connected with the Bowdle Aquifer
on the eastern third of the lake.
Outlet Elevation.....1853.3 feet msl
High WM.....1853.8 feet msl
Water Rights.....Vested Water Right License No. 1816-3
held by the Dept. of Game, Fish, and Parks
for the annual Recharge of 6000 acre-feet.

REFLECTIONS

REDUCTION

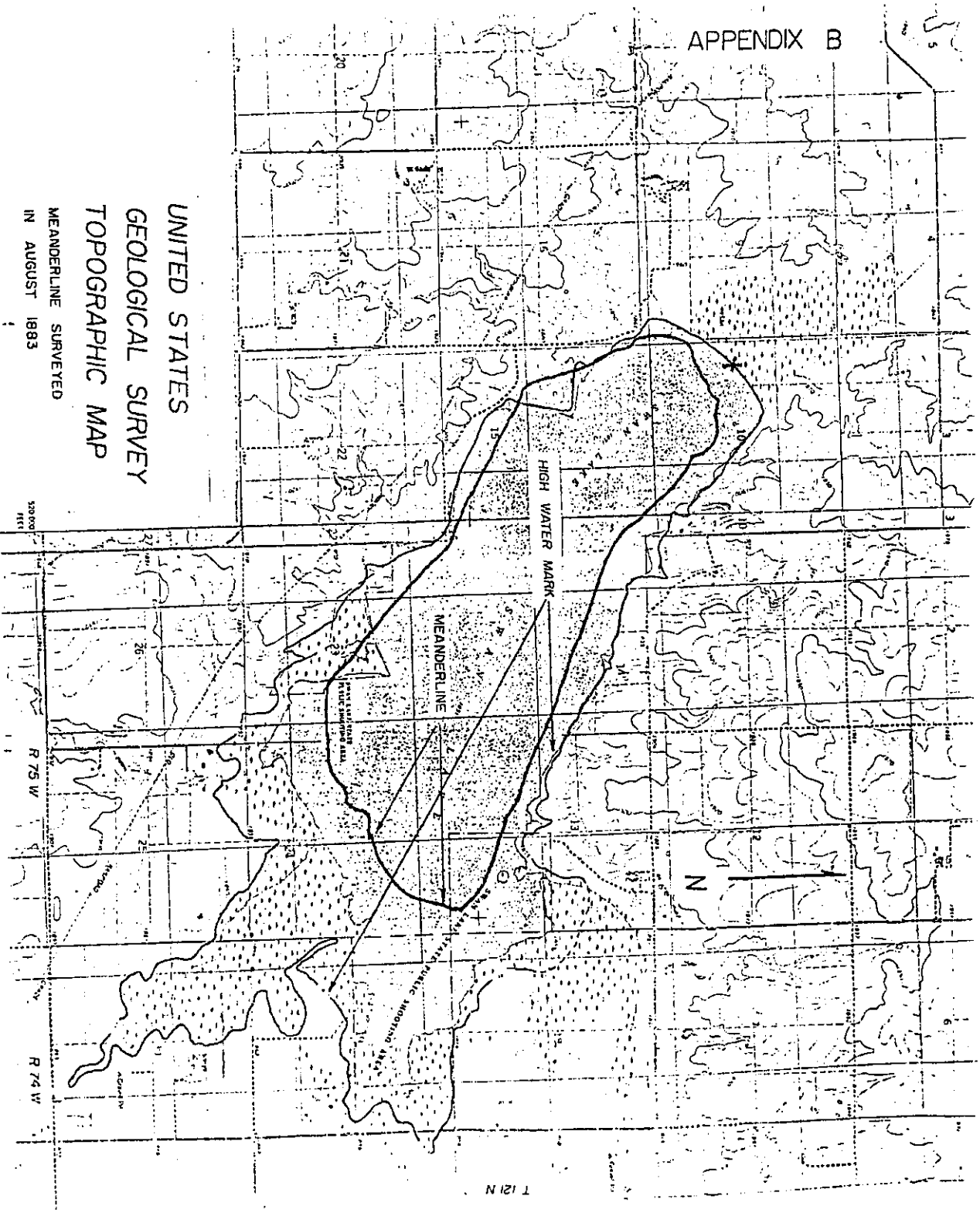
2001

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DATE MICROFILMED

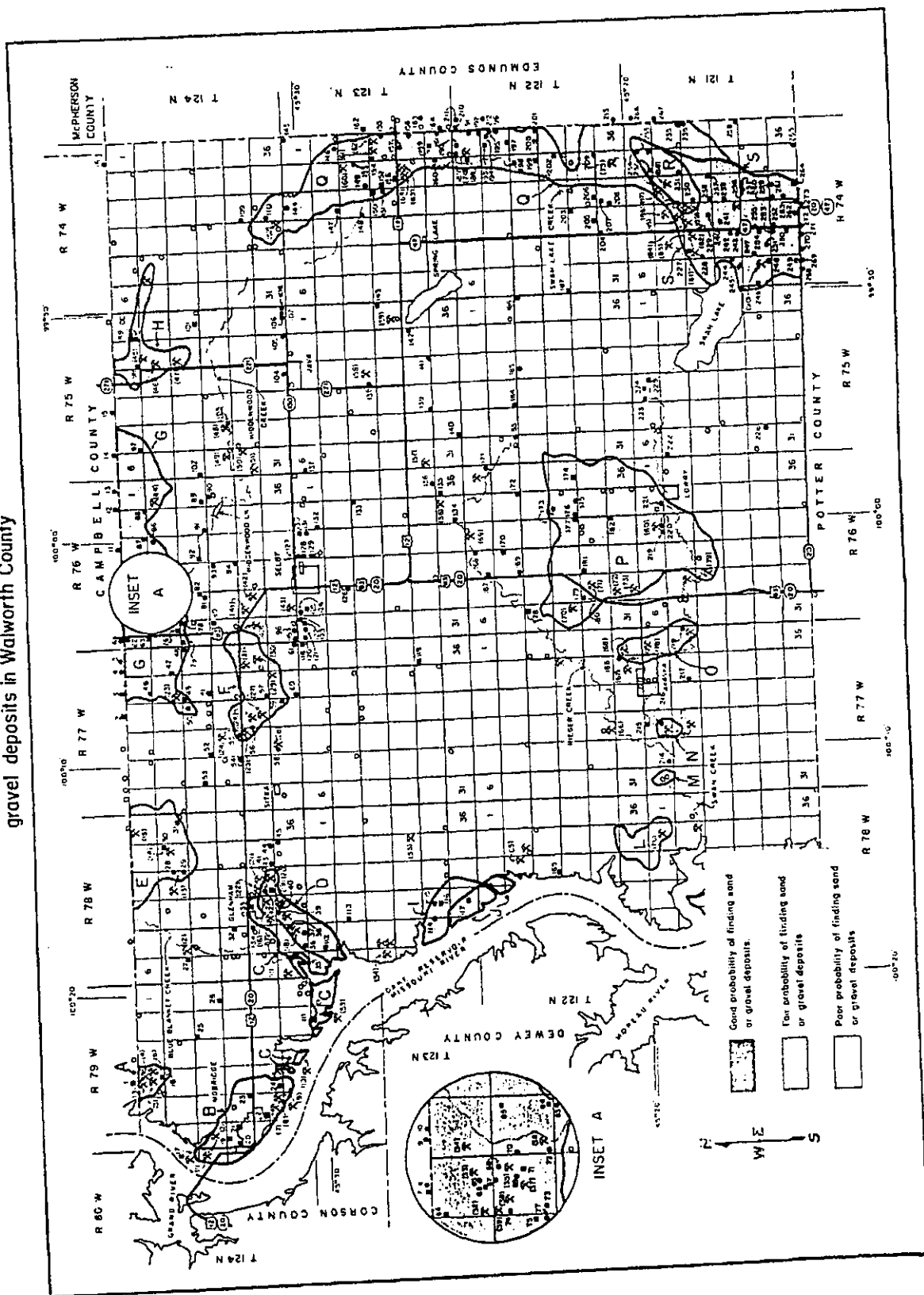
CAMERA OPERATOR

APPENDIX B



UNITED STATES
GEOLOGICAL SURVEY
TOPOGRAPHIC MAP
MEANDERLINE SURVEYED
IN AUGUST 1883

Map showing test holes, gravel pits, and sand and gravel deposits in Walworth County



REDUCTION

ROLL NO.

DATE MICROFILMED

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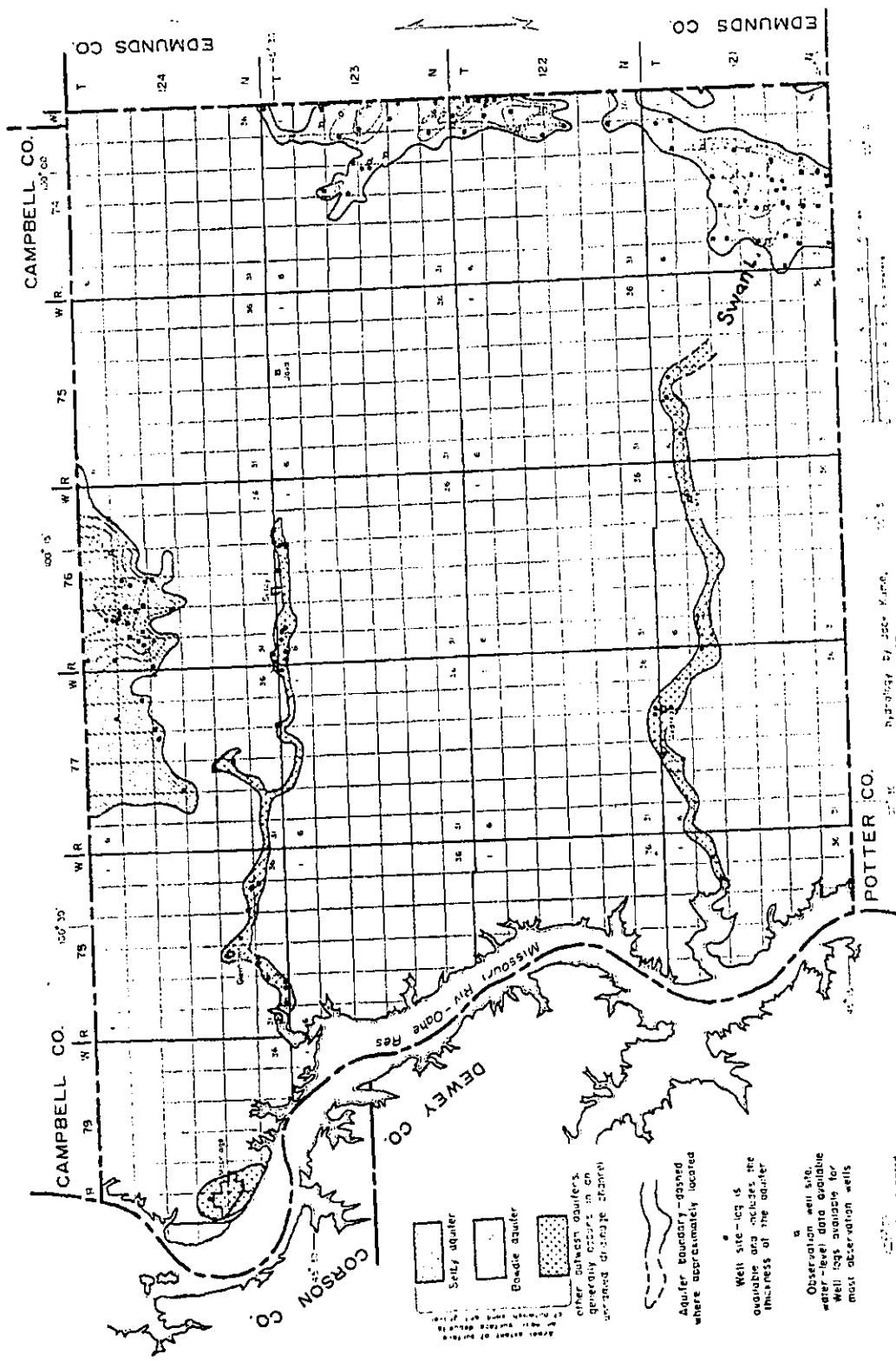


Figure 2. Preliminary map showing the thickness and the areal extent of the Selby, Bowdle, and other outwash aquifers.

REPRODUCTION

REDUCTION

ROLL NO.

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1853.7

Middle Boulder Line
1853.7 1853.7
1853.8 1853.8
1853.9 1853.9
1853.9



1853.8

Middle Boulder Line
1853.8 1853.8
1853.9 1853.9
1853.9



PHOTO NO. 3 High Water Mark
 Toe of cut bank, Middle of Boulder line
 1854.0 1853.5
 1853.2 1853.5
 1853.4 1852.0



PHOTO NO. 4 Rod at an elevation of 1854.0 ft msl

REPRODUCTIONS, REDUCTION

ROLL NO

DATE MICROFILMED

CAMERA OPERATOR

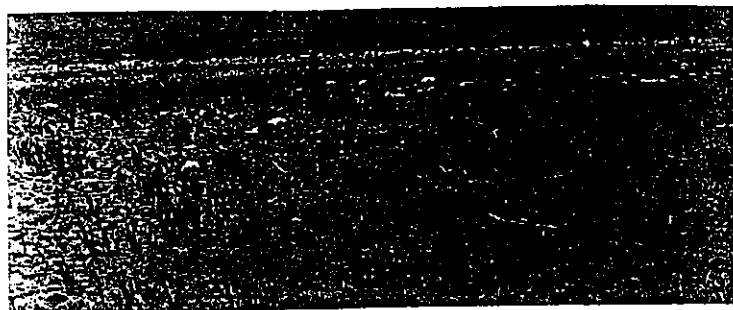


PHOTO NO. 5 High Water Mark
 Toe of cut bank, top of boulder line
 1853.4 1853.9 1853.7 1854.0
 1854.7 1854.0 1854.0

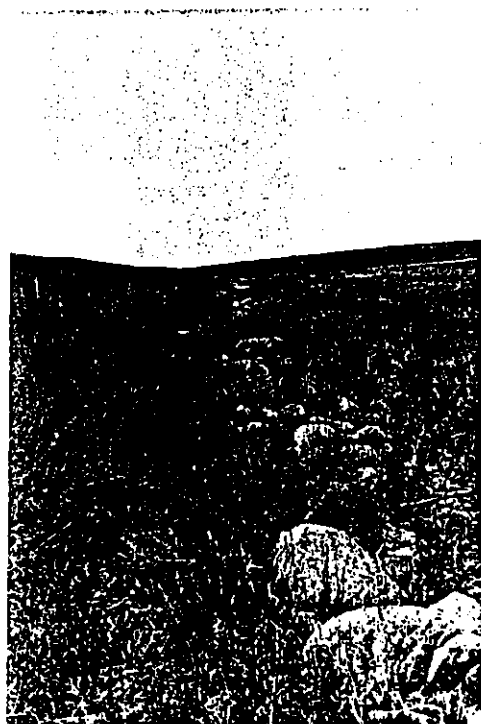
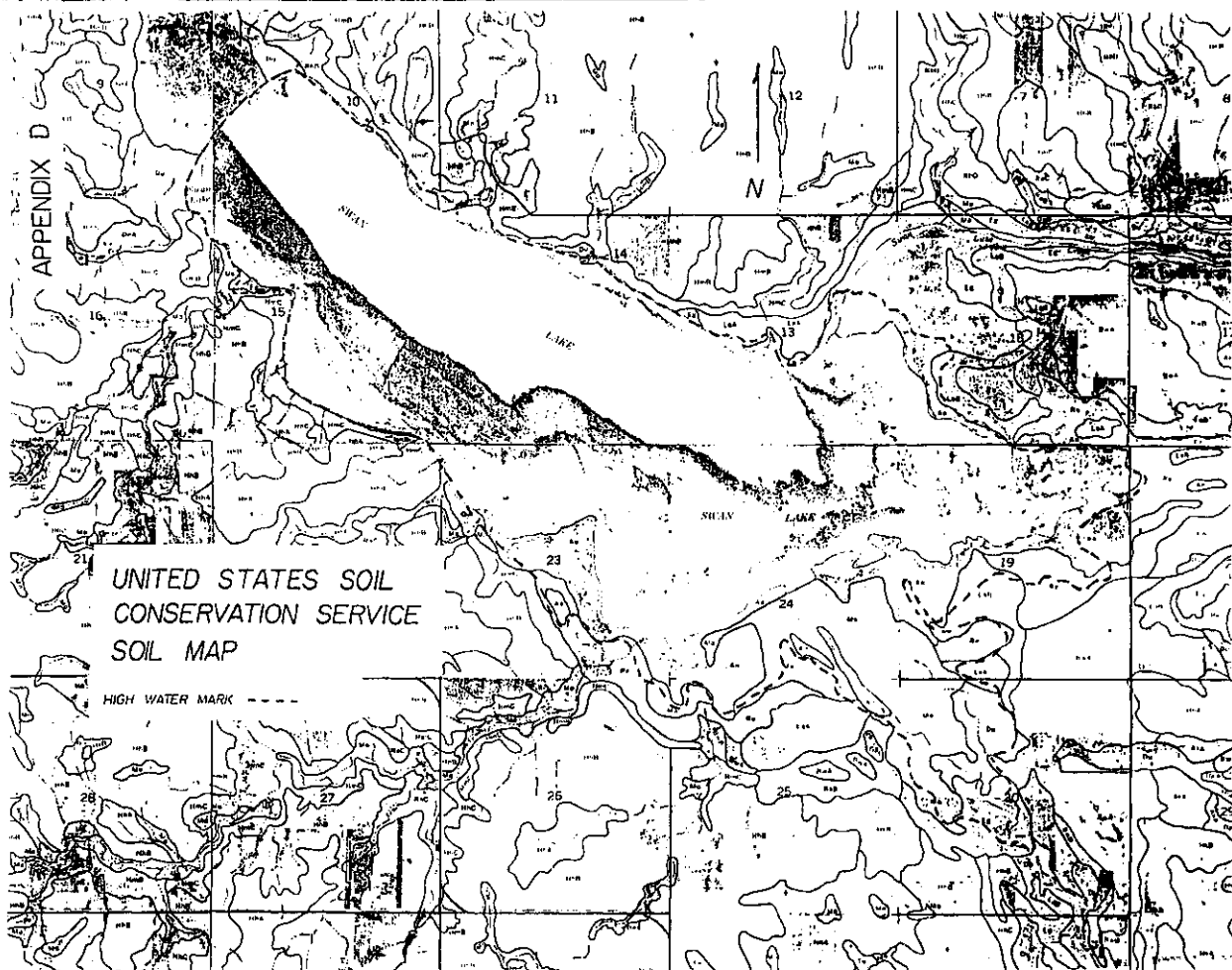


PHOTO NO. 6
 High Water Mark
 Toe of cut bank
 top of boulder line
 1853.4
 1854.7
 1853.9
 1854.0



- AO - Aquolls - This mapping unit consists of deep, very poorly drained, level soils in marshy areas, in closed depressions and along the edges of lakes. These soils are covered with water during the growing season in most years. During wet years, the water is as much as 3 feet deep. These soils are used mainly as habitat for waterfowl and amphibious animals. Tall, coarse grasses are in some of the less wet areas, but typically less than 50 percent of the vegetation is suitable for grazing by domestic livestock.
- BwA - Bowdle loam, 0 to 2 percent slopes. This well drained, nearly level soil is on uplands and terraces. It is underlain by sand and gravel. The soil has fair potential for range, rangeland wildlife, recreation uses, and many engineering uses.
- BwB - Bowdle loam, 2 to 6 percent slopes. This well drained, gently sloping soil is on uplands and terraces. It is underlain by sand and gravel. Fertility is high. The soils have fair potential for crops, tame pasture, and openland wildlife. It has good potential for range, rangeland wildlife, and most recreation and engineering uses. The potential for trees and shrubs is poor.
- BxB - Bowdle-Wabek loams, 2 to 6 percent slopes. This map unit consists of well drained, undulating soils that are underlain by sand and gravel. These soils are on uplands and terraces. This map unit is about 55 percent Bowdle soil and 35 percent Wabek soil. Fertility is high in the Bowdle soil, but low in the Wabek soil. This map unit is best suited to range.
- Co - Colvin silt loam. This deep, poorly drained, level soil is in swales and basins on uplands. It is subject to flooding in most years. Fertility is medium. The seasonal high water table is within 1 foot to 3 feet of the surface early in the growing season. The soil has good potential for range and fair potential for pasture, wetland, and rangeland wildlife.
- Du - Durrstein silt loam. This deep, poorly drained, nearly level soil is on bottom land along upland streams and drainageways. Fertility is medium to low because of the salts content. The soil is subject to flooding. The water table is between depths of 1 foot and 6 feet during part of the growing season. Almost all areas of this soil remain in native grass and are used for range or hay.
- Eg - Egas silty clay loam. This deep, very poorly drained, nearly level soil is a bottom land along upland streams and drainageways. Fertility is low because of salinity. The seasonal high water table is 1 foot to 5 feet below the surface during much of the growing season and commonly is at or near the surface during wet years. Most areas are subject to stream flooding. All areas of this soil remain in native grass and are used for grazing or hay.
- GeE - Gettys clay loam, 9 to 40 percent slopes. This deep, well drained to excessively drained, strongly sloping to steep soil is on the tops and upper side of upland hills and ridges. Fertility is low. All areas of this soil remain in native grass and are used for range.

- HkA - Highmore silt loam, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on uplands. Fertility is medium, and the content of organic matter is moderate. Most areas of this soil are farmed. A few areas remain in native grass and are used for grazing and hay.
- HkB - Highmore silt loam, 2 to 6 percent slope. This deep, well drained, gently sloping soil is on uplands. Fertility is medium and the content of organic matter is moderate. Most areas of this soil are farmed. A few areas remain in native grass and are used for grazing and hay.
- HkC - Highmore silt loam, 6 to 9 percent slopes. This deep, well drained moderately sloping soil is on uplands. Fertility is medium. Most areas of this soil are farmed. A few areas remain in native grass and are used for grazing and hay.
- HkB - Highmore-Eakin silt loams, 2 to 6 percent slopes. This map unit consists of deep, well drained, gently sloping soils on smooth uplands. Fertility is medium. Most areas of these soils are farmed. A few areas remain in native grass and are used for grazing and hay.
- HmB - Highmore-Raber complex, 2 to 6 percent slopes. This map unit consists of deep, well drained, gently sloping to undulating soils on uplands. Fertility is medium. Most areas of these soils are farmed. A few areas remain in native grass and are used for grazing and hay.
- HmC - Highmore-Raber complex, 6 to 9 percent slopes. This map consists of well drained, moderately sloping to gently rolling soils on uplands. Fertility is medium. Most areas of these soils are farmed. A few areas remain in native grass and are used for grazing or hay.
- LaA - Lehr loam, 0 to 2 percent slopes. This somewhat excessively drained, nearly level soil is on upland terraces and outwash plains. Fertility is medium. Many areas of this soil are farmed. Some areas remain in native grass and are used for grazing or hay.
- LaB - Lehr loam, 2 to 6 percent slopes. This somewhat excessively drained, gently sloping to undulating soil is on upland terraces and outwash plains. Fertility is medium. Many areas of this soil are farmed. Some remain in native grass and are used for grazing.
- Ma - Macken silty clay. This deep, poorly drained to very poorly drained, level soil is in closed depressions. Fertility is medium. Most areas remain in native grass and are used for grazing or hay.
- Mo - Mobridge silt loam. This deep, moderately well drained nearly level soil is in swales and uplands. Fertility is high. This soil is well suited to all crops commonly grown in the county.
- RaC - Raber loam, 6 to 9 percent slopes. This deep, well drained, gently rolling soil is on uplands and ridges and knolls. Fertility is medium. This soil is moderately well suited to farming.

- RbD - Raber-Gettys complex, 6 to 15 percent slopes. This map unit consists of deep, well drained, gently rolling to rolling soils on upland ridges and along entrenched drainage ways. Fertility is medium to low. Most areas of this soil remain in native grass and are used for grazing.
- Re - Regan silt loam. This deep, very poorly drained, level soil is along sluggish drainage ways on uplands. In most areas it is subject to flooding. Fertility is medium. Almost all areas of this soil remain in native vegetation and are used for grazing and hay.
- Us - Ustifluvents, channeled. This mapping unit consists of deep, moderately well drained, nearly level soils on bottom land. Fertility is medium. Most areas of this soil remain in native vegetation and are used for grazing and hay.

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Schraeder, Wayne; Sand and Gravel Resources in Walworth County. Information Pamphlet No. 17; United States Geological Study, 1978; South Dakota Geological Survey.

United States Department of Agriculture, Soil Conservation Service; Soil Survey of Walworth County, South Dakota. 1975

REPRODUCTION

REDUCTION

25%

ROLL NO

1

DATE MICROFILMED

CAMERA OPERATOR

WMB M. Wates 5/14/84

(7) years. This permit is approved for groundwater from the Minnelusa Formation.

OHWM - SWAN LAKE

Jerry Steffen presented a report prepared on Swan Lake (copy on file).

Mr. Steffen stated he could not find any physical characteristics to associate with the low water mark on Swan Lake. The staff is presently recording the water levels on these lakes every spring and fall. With a little more background on the actual water levels they may be able to come up with a definition of a low water mark. Presently, the staff is not recommending a low water mark elevation.

Chairman Arend administered the oath to David McGuigan.

Mr. McGuigan stated he was Land Staff Specialist for Game, Fish and Parks. The Dept. of Game, Fish and Parks concurs with the Water Rights Staff recommendation that the OHWM on Swan Lake be established at an elevation of 1853.8 feet msl. They have no outside interest other than it is public waters. Mr. McGuigan stated he would like to see the outlet structures on the natural lakes to be left natural.

Chairman Arend administered the oath to Vernon Rausch.

Mr. Rausch stated he was a landowner and operator on the SE corner of Swan Lake. He would like the Board to be aware of the criticalness of the outlet level. Mr. Rausch stated he requested Jerry to run a line as to the outline of where the water level would be on some of their deeded land in Section 30 of that area. It is approximately 2 miles from the meanderline. The degree of raise as Mr. Steffen pointed out is real gradual. One inch of variation in the level of water makes hundreds of acres difference. Due to the shortness of the notice they received, he is not sure that all the neighbors in the area got notice of this meeting. They received the report just a day ago.

Mr. Hatch stated the notice was mailed one month ago. In the notice it was stated that anybody that wanted a copy of the report should contact us. There was no response. Last week, at Mr. Steffen's suggestion the staff mailed the reports out to the landowners. There was no response originally. It was also advertised in a local paper. The notice was dated June 8. The notice the staff is required to give is lengthy.

Mr. Rausch stated the report says there is 3480 acres in Swan Lake. Is that the acres at the meanderline or spillway line?

Mr. Steffen stated that is the acres at the suggested high water mark. There is one half of a foot difference between the spillway height and the high water mark.

Mr. Rausch stated when he walked the line with Mr. Steffen they rose 18 inches in 1 1/2 miles. Per inch has a drastic effect on the acreage difference on the local landowners. Mr. Rausch stated he would like some impact shown to them on the difference made by each inch. If it took 6000 years to develop a lake like that and you have a variable spillway, how can individual put a stake

REPRODUCTION REDUCTION DATE MICROFILMED CAMERA OPERATOR

in the ground and say this is the official height within one or two inches. That one or two inches can have a drastic effect on the people, especially those in the south east area. On Appendix B there are several sections involved there. Mr. Rausch would like to see where the spillway height is on his land or what impact each inch would have on him, so he could decide if this was a fair decision or not. It would only be fair for other landowners to have the same impact shown to them. Mr. Rausch stated he thought that on his land each inch of water 60 acres of difference on his three quarters. He lives a mile south of this. His deeded land is the NE 1/4 Section 25, SW 1/4 Section 19 and leased land in the NW 1/4 of Section 30, SE 1/4 Section 19. His farmstead is one mile south in Potter County. He lives on the county line. The lake runs in a SE - NW direction. When there is a strong northwesterly wind that can make a quarter of a mile difference on the ground that the water comes out and covers. It is that flat. A nice hot SE wind, 4 or 5 days later you can go in and cut another 40 acres of hayland. It is just a natural lake that runs in that direction. Mr. Rausch stated he did not have any way of knowing if the OHWM suggested was correct. He has seen the lake after high fills and he has some ideas of what it can do. He has also seen the dust blow out of the lake bed.

In response to a comment from Mr. Rausch, Mr. Hatch read the definitions of OHWM and OLWM. The extremes are not considered. The OHWM is 6 inches higher because of the wave action.

Mr. Rausch stated the length of the lake could be 6 to 10 miles depending on whether or not the lake is full. Mr. Rausch stated when they walked into Section 30 he asked Jerry to put a stake where the spillway level is. The spillway level is right on the edge of the NE quarter of Section 30. The OHWM will be 6 inches higher than that. The outline is actually almost spillway height. Actually it is spillway height. Mr. Rausch stated the OHWM can not be changed, it will be what it will be. The outlet is critical to the landowners. The outlet is variable. The dike on the end was built over the last hundred years because of heaving action. Has the lake been gaining or decreasing in size? They do not know. Has the elevation of the dike been changing due to the heaving action other than human action. It has been refilled.

Mr. Steffen stated the dike is about 3000 feet long. It is just a big windrow of silty, sandy material pushed up. The width is about 15 to 20 feet. It comes out of the lakebed and tappers off into pasture land on the downstream side. It is all sodded with grass.

Mr. Rausch stated there used to be a tree line around the lake, but all of those trees have died out. That debris has piled up on the end. Now it is humus materials that have been pushed up there. The people in the area call it Beaver Dam because the beavers came in and it was not a high rainfall area. When the beavers cut down all of the trees they did not grow back. Virtually all of the trees around the lake are gone. They are laying in that beaver dam as humus holding water. It is not a permanent type dike. It is not developed soil over thousands of years.

Mr. Rausch stated every inch of rise, the outlet elevation has an impact on the people of the area. By marking every inch of rise, Mr. Rausch stated he would know if he was comfortable with the outlet level established. Mr. Rausch stated he would like to see water there. He does not like dust blowing in his house windows. He would also like to see reason. The high water level is also

three inches above the road in Section 19. To lower the outlet you do not have to do nothing. It will lower itself the next time if flows over. The next winter with heaving action will raise it again. How does one man have the authority to drive a stake in the ground and say that this is the height on a fluctuating table. In 1830 when the meanderline was put in it may have been three or four inches of that.

Mr. Steffen stated from talking with the people, the outlet level must be fluctuating because the water runs through it and cuts out a certain amount of material pushed up by waves and ice. There is a certain level that the lake is maintained at after the water has run out.

Mr. Rausch stated there are people who live on that end of the lake that believe it not only moves up and down but also sideways.

In answer to a question, Mr. Guhin stated the land in the bed of a navigable river or a navigable stream that is owned by the State of South Dakota would not be taxable or owned by the riparian owner. The land between the low water mark and the high water mark is qualified ownership. The riparian owner would be the owner of that land. It has traditionally been taxed. There is a reasonable access line.

Mr. Rausch stated what they are saying the difference in the water does not deny them to pay taxes, but it denies the right to the use of the land. It is South Dakota land, each year is different. One side of your quarter does not have any fence because normally there is water to it. Now, because there is not any water to it, you will have to run a fence a half mile in because it is so sloped. Sometimes this is on the neighbors land. Before the water could come back up you would have to get the fence off the neighbor's land or state land. It is not really fences. It is mostly hay land because there is no fences to restrict the cattle. They like to see water. But the degree of the level is critical because of the flatness in the area. They would like to see what the impact is when they establish the outlet level.

Mr. Decker stated that when the outlet level is established it does not mean that somebody is going to keep it at that level or it will be maintained. What is going to be changed, once it is established? Nobody is going to construct a concrete dike in there.

Mr. Steffen stated on the other lakes we have worked with Game, Fish and Parks to have them maintain the outlet at the elevation established. This is the general theory behind the establishment of the overflow point.

Chairman Arend administered the oath to Bob Hanten.

Mr. Hanten stated he was Fisheries Specialist for Game, Fish and Parks. Mr. Hanten stated that to his knowledge Game, Fish and Parks does not intend to put in an outlet structure on Swan Lake at this time. Fish have been harvested out of the lake during the mid 70's. Sometimes it overflows and fish come up from the Missouri River and reproduce. There has not been fish in the Lake over the recent years.

Mr. Rausch stated the main problems are at the east end as shown by the dotted line in Mr. Steffen's report.

Chairman Arend administered the oath to LeRoy Permon.

Mr. Permon stated he operated some of the land on the western edge of the spillway that is being talked about. Mr. Permon stated he believed that the elevation about a half mile from the spillway may be even higher than what Mr. Rausch stated.

Mr. Steffen stated he surveyed the area. Mr. Steffen stated when the topo maps are mapped, they survey certain points. They take an air photo by locating that certain point where they know the elevation and that is how they make the contour lines.

Mr. Permon stated that maybe the elevation is higher downstream than what it is at the outlet. The water sets there an awful long time. The heights of the spillway may not make that much difference. You will back water up a 1/2 mile downstream if you lower it. Mr. Permon stated it is a lake without a bank. A mile or two miles from this area and you start getting some drainage.

Mr. Steffen stated the area is sandy and it appeared that the water seeps in.

Mr. Permon stated he was told there was sand in the bed of the lake. When it was dry he took his rotary out there and there was no sand to be found. It was a silty material.

Mr. Steffen stated he can survey the area downstream.

Mr. Permon stated that would answer a lot of questions as to what kind of a level it would be.

Chairman Arend administered the oath to Duane Karst.

Mr. Karst stated he was a landowner 1/4 mile NE of the lake. He bought the land in 1973. He has some that floods at times. It is not flooded now so he uses it. When he bought his land and when Mr. Pausch bought his land, they knew it was going to flood at times. When it was not flooded they could use it. They do not have any control over the weather. The water is going to come. When it is there the natural outlet of the lake is going to hold it back and it is going to run over. There is nothing they can do about that. The height of that lake has been there as long as Mr. Karst can remember. He was born and raised on that farm. The lake is not going up or down just staying real close. If it would be rising, his pasture would be flooded all year long. It goes up in the spring of the year, if there is runoff or fast rain. The water goes up, but it always goes back down. It does not stay there that long. Mr. Karst stated there is a lot of irrigation in the area. That is good. They are probably sucking the aquifer down a little bit. He did not think that the lake is going to have a lot of water in there. That is to be seen. Mr. Karst stated he was with the Sportsmans Club in town.

Most of the people in the area like to fish, hunt and ski. If you lose 6 inches or a foot of water you lose a lot of gallons. When there got to be a few indentations in there they became concerned that something should be done with the height of the dam to keep it right. The SCS surveyed and got ahold of Jerry. Jerry said in order to do anything they should have a OHWM established

and establish the outlet height. Mr. Karst stated he did not know if anything would ever be done with it. The top of the dam is not going any higher if not it is going lower. Some of the old timers in the area say that years ago there was 7 to 7 1/2 feet of water in the lake. Jerry says, and he is right, there is only six feet of water in the lake. It is silting in. If the dam was going any higher there would still be 7 to 7 1/2 feet in the lake. Mr. Karst stated he supposed if you blew out Oahe Dam the people would probably farm land up to the main channel.

In answer to a question from Mr. Waldner as to whether or not he would be comfortable with the OHWM at 1853.8, Mr. Karst stated he felt it had been there for longer than he had been there. It is right. That is the way that it has been. Why monkey around with nature. The same for the outlet elevation.

Chairman Arend administered the oath to Denis Arbach.

Mr. Arbach stated he was a landowner adjoining the lake. He lives 1/4 mile from the lake. Being a shallow lake, there is a lot of evaporation during the summer. Every inch that they can keep in the lake will keep it just that much longer. They do not have that much to lose because of the shallowness of the lake. It has not varied very much from the 30 years Mr. Arbach has lived there. There is a road south of Mr. Arbach. The water gets 3 inches from the top of the road and it is going over the spillway. Mr. Arbach stated he was comfortable with the staff recommendation. He has land that is flooded when it is full, but in a couple of months the water is down because of evaporation and the spillway.

Mr. Walters MOVED, SECONDED by Mr. Waldner that the High Water Mark for Swan Lake be established at an elevation of 1853.8 feet msl. Vested Water Right No. 1816-3 be clarified for Swan Lake and be set at an elevation of 1853.3 feet msl. MOTION CARRIED.

Meeting recessed at 4:45 pm.

Meeting reconvened at 4:50 pm.

INFORMAL DISCUSSION OF IRRIGATION ON GRACE COOLIDGE CREEK

Tim Schaal presented a brief summary of the situation. The staff would like some direction from the Board. It was the general consensus of the Board that since this was not scheduled as a formal hearing the Board could not make any decisions pertaining to this matter at this time.

Meeting recessed at 5:15 pm.

Meeting reconvened at 8:30 am, July 12, 1984.

DISCUSSION OF PROPOSED WELL CONSTRUCTION RULES

After some discussion it was the general consensus of the Board that wells that supply water to the public must be protected. It was suggested that the staff get some of the well drillers together and discuss some of the proposed changes and get their opinions. The more input the Board can receive from the



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Memo to File

Swan Lake in Walworth County

VWR No. 1816-3

The OHWM was set by the Water Management Board on May 14, 1984.

OHWM elevation 1853.8 fmsl NGVD29

The outlet elevation was set by the Water Management Board on May 14, 1984.

OHWM elevation 1853.3 fmsl NGVD29