Report of
NORTH DAKOTA STATE WATER CONSERVATION COMMISSION
1301 State Capitol
BISMARCK, NORTH DAKOTA

Clausen Springs Recreation Complex
Barnes County
SORA Project #2-37 (SWC Project #1378)

Prepared in Cooperation with the
North Dakota State Game & Fish Department
North Dakota State Outdoor Recreation Agency
Barnes County Park Board
Barnes County Water Management District

April 15, 1966

HYDROLOGIC CYCLE

RAIN CLOUDS

PRECIPITATION

WHILE FALLING

FROM SOIL

FROM STREAMS

FROM VEGETATION

FROM LAKES

INfiltration

SURFACE RUNOFF

PERCOLATION

GROUND WATER

"BUY NORTH DAKOTA PRODUCTS"
NORTH DAKOTA STATE WATER COMMISSION

Project Report

Name: Clausen Springs Recreation Complex, Barnes County
Project #: SWC #137E, SORA #2-37
Date: April 15, 1966

Table of Contents

1. Pertinent letters
2. BOR project proposal - acquisition (BOR form 8-90)
3. BOR project proposal - development (BOR form 8-91)
4. Project justification report -
   a. Attachments
      1. Purchase-line map
      2. State maps and picture of area
      3. Topog. mapping report and map
      4. Soil investigation report
      5. Hydrologic report and area capacity graph
      6. Preliminary design data - main structure
      7. Cost estimate - main structure
      8. Map and charts - main structure
      9. Recreation complex - maps and cost estimate
     10. Economic feasibility report
     11. Agreements
April 19, 1966

John Carlisle, Chairman
Barnes County Park Board
Valley City, North Dakota

RE: SWC Proj. #1378
SORA Proj. #2-37

Dear Mr. Carlisle:

Enclosed is a copy of the signed agreement for development of the Clausen Springs Recreation Complex. Also enclosed is a copy of the report on the project prepared in our office with the cooperation of your Board, the Barnes County Water Management District, North Dakota State Game and Fish Department, and the North Dakota State Outdoor Recreation Agency.

Copies of the agreements and the project proposal are also being sent to the Department and Agency as well as an extra copy of the proposal to you for the water management district's information.

The proposal is quite complete and should be forwarded to the Bureau of Outdoor Recreation office in Denver without delay. The State Outdoor Recreation Agency will keep all entities advised of the project's progress.

We appreciate the fine cooperation of all concerned in developing this project proposal and look forward to working with you in the construction of the facilities proposed.

Sincerely yours,

Milo W. Hoisveen
Engineer-Secretary

cc Russell Stuart, Game & Fish Dept.
John Greenhill, Outdoor Recreation Agency
Gordon Gray, Water Commission, Valley City
DEPARTMENT OF THE INTERIOR  
BUREAU OF OUTDOOR RECREATION  
PROJECT PROPOSAL - ACQUISITION

Use this form for submission of individual projects for acquiring lands and waters or interests in lands and waters for public outdoor recreation purposes. If concurrent development is being undertaken, check here X

LEAVE BLANK FOR BOR USE ONLY

<table>
<thead>
<tr>
<th>Date Received</th>
<th>Priority</th>
<th>Project Number</th>
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Project Officer

SECTION 1

1. State or Territory  
North Dakota

2. Name and address of agency responsible for project  
North Dakota State Game and Fish Department  
Fort Lincoln, Bismarck, North Dakota  58501

3. Project Title  
Clausen Springs Recreation Complex, Barnes County, SORA Proj. #2-37

4. Brief description of project  
The Clausen Springs Recreation Complex encompasses 345 acres; 45 of which will be used for a reservoir. 54 acres are now under cultivation and 291 in pasture. Trees are well established at the site making an ideal area for multi-recreation activity development. The project is situated in Sections 17 and 18, Township 137 North, Range 58 West, Barnes County, 16 miles south of Valley City. 345 acres are to be acquired in fee simple through purchase and if necessary one parcel may be acquired through condemnation. Public use facilities are to be provided on the land for such activities as picnicking, swimming, boating, hunting, fishing and playing games.

5. Duration of project  
from 2-1-64 to 6-30-70

6. Federal assistance requested  
$11,775

7. Recommended priority  
A

8. Name, Organization, and Title of individual having day-to-day responsibility for direction of project  
John Carlisle, Chairman, Barnes County  
Park Board, Valley City, North Dakota

9. Name and Address to appear on check  
Milo W. Holmes, Fiscal Officer  
North Dakota State Outdoor Recreation Agency, State Capitol, Bismarck, N.D.

10. TERMS AND CONDITIONS: In submitting this Project Proposal, the State hereby accepts the Terms and Conditions set forth in the BOR Grants-in-Aid Manual, which will be a part of the Project Agreement for any grant awarded under this proposal.

11. CERTIFICATION: As the official designated to represent the State and act for the State for purposes of the Land and Water Conservation Fund Act, I recommend that assistance be made available from the Fund, when monies are available, in accordance with the recommended priority. No financial assistance has been given or promised under any other Federal program or activity with regard to the proposed project. The State or public agency to be responsible for the proposed project has the ability and intention to finance its share of the costs of this project. The Applicant will not discriminate against any person on the basis of race, color, or national origin in the use of any property or facility acquired or developed pursuant to this proposal, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P. L. 88-354 (1964), and of the regulations promulgated pursuant to such Act by the Secretary of the Interior and contained in 43 CFR 17.

(Signature)

John Greenslit (Name)

State Liaison Officer (Title)

12. For State use  
6 BOR  
1 SORA  
8 SWC  
2 G & F  
1 Barnes Co. W.M.D.  
1 Barnes Co. Pk.Bd.

BOR 8-90  
(August 1965)

April 15, 1966
1. Nature and Extent of Use—A. For entire area in which acquisitions are to be made: Farming and livestock grazing.

B. For area to be acquired: 54 acres is cultivated and 291 acres is pasture. A 45 acre reservoir will be created and the balance developed for other public uses to provide outdoor recreation opportunities including public hunting, fishing, picnicking, boating, swimming and playing games.

2. BOR Classification of area

3. Check one

   X New Site

   □ Addition to existing site

4. Location

   County

   Town

   Valley City

   Population

   Miles from Town

5. Total acres to be acquired

   345

6. Cover, acres in

   A. Forest
   B. Rock
   C. Cutover
   D. Swamp
   E. Grass
   F. Desert
   G. Water

7. Topography, acres in

   A. Flat
   B. Hilly
   C. Rolling
   D. Mountainous

8. Waterfront, feet on

   A. Ocean
   B. Lake
   C. Stream

9. Roadfront, feet on

   A. Dirt
   B. Gravel
   C. Paved

10. PARCELS TO BE ACQUIRED

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<tr>
<th>PARCEL</th>
<th>ACREs</th>
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<th>ESTIMATED VALUE</th>
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<td>2,600</td>
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</table>

FOR CONCURRENT ACQUISITION AND DEVELOPMENT PROJECT SUBMISSIONS

- Total estimated acquisition value: $23,550
- Total estimated development costs: $90,000
- TOTAL: $113,550

TOTAL ESTIMATED VALUE $23,550

Source of remainder of funds:
- State Game and Fish Department
- Barnes County Park Board
- Barnes County Water Management District

SECTION 111—ATTACHMENTS

Attach, by reference number, the following supplemental documents necessary to process this Acquisition Project Proposal:

A-660-1 Project Justification. A. Description of how the proposed project is in accord with the State outdoor recreation plan and would help meet priority needs identified in the plan. Indicate how the natural beauty of the area will be preserved. B. Indicate other organizations consulted during formulation of this proposal. C. Plans for Operations and Maintenance.

A-660-2 Maps and Charts. A. Simple plot plan or map showing the total area to be acquired and its relationship to the surrounding area. Annotate any plans for streets, highways, waterlines, sewers, etc. to be located on or near the involved area. (Key to show location within State, County, or city.) B. Description of any improvements on lands to be acquired. C. Description of all legal rights to be held by applicant and any other person or organization.

A-660-3 Agreements. A. Agreements or arrangements made with other organizations for participating in the project, or in later operation and maintenance of the completed project.

The items shown below need not be submitted with the project proposal. However, during the course of execution of an approved project, the applicant should be prepared to submit them to the Bureau for review, as follows:

A-660-4 Appraisal reports and other documentation of cost.
A-660-5 Satisfactory evidence of title (such as an opinion by the State Attorney General) for each parcel.
A-660-6 Five-year history of conveyances for each parcel listed in project proposal (name of parties involved, dates, interest conveyed and consideration).
<table>
<thead>
<tr>
<th>1. State or Territory</th>
<th>2. Name and address of agency responsible for project</th>
</tr>
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<tbody>
<tr>
<td>North Dakota</td>
<td>N.D. State Game &amp; Fish Dept., Ft. Lincoln, Bismarck, N. Dak.</td>
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</table>

3. Project Title

**Clausen Springs Recreation Complex (Barnes County)** SORA Proj. #2-37

4. Brief description of project

Clausen Springs Recreation Complex encompasses 345 acres; 45 of which will be used for a reservoir. 54 acres are now cultivated and 291 are pasture. Trees are well established at the site, making it an ideal area for multi-recreation activity development. Located 16 miles south of Valley City in Section 17 & 18 - 137-58, Barnes Co., the public use facilities will be utilized by about 30,000 persons annually for such activities as picnicking, swimming, boating, fishing, and playing games.

The project will be developed in a manner which will enhance and preserve the area's natural beauty.

**SWC Proj. #1378**

5. Duration of project

<table>
<thead>
<tr>
<th>6. Federal assistance requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>from 12-1-64 to 6-30-70</td>
</tr>
</tbody>
</table>

8. Name, Organization, and Title of individual having day-to-day responsibility for direction of project

John Carlisle, Chairman, Barnes Co. Park Board
Valley City, North Dakota

9. Name and Address to appear on check

Milo W. Hoisveen, Fiscal Officer
State Outdoor Recreation Agency
State Capitol, Bismarck, N.D. 58501

10. TERMS AND CONDITIONS: In submitting this Project Proposal, the State hereby accepts the Terms and Conditions set forth in the BOR Grants-in-Aid Manual, which will be a part of the Project Agreement for any grant awarded under this proposal.

11. CERTIFICATION: As the official designated to represent the State and act for the State for purposes of the Land and Water Conservation Fund Act, I recommend that assistance be made available from the Fund, when monies are available, in accordance with the recommended priority. No financial assistance has been given or promised under any other Federal program or activity with regard to the proposed project. The State or public agency to be responsible for the proposed project has the ability and intention to finance its share of the costs of this project. The Applicant will not discriminate against any person on the basis of race, color, or national origin in the use of any property or facility acquired or developed pursuant to this proposal, and shall comply with the terms and intent of Title VI of the Civil Rights Act of 1964, P. L. 88-354 (1964), and of the regulations promulgated pursuant to such Act by the Secretary of the Interior and contained in 43 CFR 17.

John Greenslit
(Name)

State Liaison Officer
(Title)

12. For State use

6 BOR
1 SORA
8 SWC
1 GF
1 Barnes Co. Pk. Bd. 4/15/66

BOR 8-91
(August 1965)
### SECTION 11 - TABULAR SUMMARY OF PROJECT ELEMENTS AND COSTS

Identify the phase or element of the Development Project suggested by the line items. Indicate additional breakdown of work elements necessary and desirable to allocate work assignments and costs.

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<th>DATE OF</th>
<th>ESTIMATED COST</th>
<th>TOTAL ESTIMATED COST</th>
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<td>B. Rec. Complex</td>
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<td>B. Rec. Complex</td>
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<tr>
<td>B.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>B.</td>
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</table>

### SECTION 111 - ATTACHMENTS

Attach, by reference number, the following supplemental documents necessary to process this Development Project Proposal:

**D-660-1 Project Plan and Justification.** A. Description of how the proposed project is in accord with the State outdoor recreation plan and would help meet priority needs identified in the plan. B. Summary of area, its nature and relation of development to the area. Indicate how the natural beauty of area will be enhanced.

C. Descriptive outline of proposed accomplishments with funds requested. Indicate anticipated other uses of the area. D. List of names of organizations which will undertake the development and how this will be performed. E. Economic feasibility data, or other types of data to indicate extent and kind of use to be made of the completed area or facility. F. Plans for operations and maintenance.

**D-660-2 Maps and Charts.** A. Simple site plans or maps showing total area, in addition to area to be developed. Annotate to show plans for, or existing streets, highways, waterlines, sewers, etc. to be located on or near the area. (Key to allow location within State, County, or city.) Indicate uses now made of the area by applicant or other agencies or individuals. B. Description of all legal rights to the area to be held by applicant and any other person or organization.

**D-660-3 Agreements.** A. Agreements or arrangements made with other organizations for participating in project, including operation and maintenance of completed facility.

The terms shown below need not be submitted with the project proposal. However, during the course of execution of an approved project, the applicant should be prepared to submit them to the Bureau for review, as follows:

**D-660-4 Plans.** A. Site plans, specifications and cost estimates. B. Construction plans, specifications and cost estimates. These must be submitted for review and approval before construction may proceed on a structure to cost in excess of $100,000.

**D-660-5 Contracts.** A. Copies of pertinent contracts, as specifically required by the Bureau of Outdoor Recreation.
D-660-1 Project Plan and Justification:

A. Activities which have a significant gap in the demand-supply
Table #3 shown in Part 3, Volume I of the initial State Outdoor Recreation
Plan include fishing, boating and camping. This project will provide
facilities and area for participation in these activities.

Local unmet needs of picnicking and playing outdoor games in this
area will be satisfied by providing facilities for these activities.

Goals for outdoor recreation in North Dakota as shown in the initial
State Outdoor Recreation Plan include:

1. Further the development of an enjoyable urban and rural en-
vironment;

2. Stimulate the state's economy through development of recreation
resources to provide more permanent employment as well as part-
time employment during the slack seasons of other industries and
non-school months;

3. Support the constructive use of increased leisure time and
increased disposable income of our citizens;

4. Coordinate geographic distribution of outdoor recreation facilities
to make them available to all the people of the state;

5. Encourage increasing quantity and quality of our natural, cultural
and recreational resources in such a manner that people will regard
North Dakota with greater pride;
6. Promote the physical fitness and mental health of individuals through provision of suitable outdoor recreation resources;

7. Encourage the acquisition, protection, interpretation, development and multiple-use management of natural and cultural resources; and

8. Emphasize the preservation and conservation of wildlife and scenic resources that are outstanding and unique in scientific and other values.

This proposed project will help North Dakota to meet these goals for outdoor recreation.

In accordance with the priority system outlined in Table #8, Part 3, Volume 1, "Conclusions", North Dakota State Outdoor Recreation Plan, the proposed recreation complex would merit 120 points on the basis of its outstanding natural beauty, multiple recreation use, preservation of resources, all new development and all new acquisition.

B. Located 16 miles south of Valley City in Barnes County, the Clausen Springs Recreation Complex is situated on the western escarpment of the Sheyenne River Basin. A natural coulee through the area fed by springs and a 119 square mile drainage area provides an ideal location for construction of a dam to create a reservoir with appurtenant facilities to provide water-based recreation opportunities for a 30 square mile area.

Picnic grounds are to be developed in and around a grove of trees near the reservoir's upper end. Additional tree plantings are proposed along with other landscaping to enhance the area's natural beauty. A site plan for the area is shown on the State Water Commission map #6543-1378-6 included with this proposal.
C. The project is for multiple recreation purposes only and will be developed by a cooperative local-state-federal endeavor with the costs to be allocated as follows:

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<th>Land</th>
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<th>Facil.</th>
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<td><strong>4,000</strong></td>
<td><strong>23,550</strong></td>
<td><strong>46,000</strong></td>
<td><strong>40,000</strong></td>
<td><strong>113,550</strong></td>
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1. Preliminary engineering funds will be used to obtain the necessary soils and topographic data, design the dam and recreation facilities, and prepare the plans and specifications for the project's construction. Estimated cost of preliminary engineering is $4,000.

2. Funds for land acquisition are to be used for purchase of approximately 345 acres of land for the reservoir, access, and other public use area. Estimated cost of lands is $23,550.

3. Dam construction funds will be used for a $46,000 structure (detailed estimate of cost included with this proposal) to create a 45 acre reservoir with a capacity of 670 acre-feet. Average depth of the reservoir will be 16 feet with a maximum depth of 37 feet. The reservoir will be situated in Section 17, Township 137, Range 58, Barnes County.

4. Recreation facilities estimated to cost $40,000 will be developed over a four-year period with $25,600 to be utilized in Fiscal Year 1967; $4,500 in Fiscal Year 1968; $4,100 in Fiscal Year 1969; and $5,800 in Fiscal Year 1970. A detailed cost estimate is included. In the picnic area the following items are to be installed: 30 picnic tables, 4 shelters, 15 fire-
places, 4 woodsheds, 15 trash receptacles, 5 comfort stations, 4 drinking fountains, 4 foot bridges, and a 2,000 foot water pipe. In the wading area a combination bath house and restroom will be installed along with a 1500 cubic yard sand blanket. In the boating area, a launching ramp and boat dock will be constructed. At the playground 3 ten foot 3-unit swings, a slide, seesaw and ball diamond back stop will be installed. For general area development a steel shed (30 x 40 ft.), trash incinerator, natural waterspring enclosure, signs, and lights will be provided. A gravel access road and parking lots are to be installed for all-weather use.

D. Agencies cooperating in the project include the Barnes County Park Board, Barnes County Water Management District, North Dakota State Game & Fish Department, North Dakota State Outdoor Recreation Agency, North Dakota State Water Commission, and Bureau of Outdoor Recreation.

The Barnes County Water Management District is providing funds to the Park Board for land acquisition and dam construction. The State Water Commission is providing the preliminary engineering services and will construct the dam utilizing contract forces. The State Game & Fish Department and Barnes County Park Board are acquiring necessary lands. The Bureau and all cooperating entities are providing financial assistance. The Barnes County Park Board will install the recreation facilities.

E. It is estimated that the project will serve a 30 mile radius which has a 24,000 population. Anticipated annual visitation is 30,000 with an assumed value per visitation of $1. Total investment, including land, is $113,550 with an estimated 30 year life for the project. Annual O&M is estimated at 2,515 and depreciation at 3,785 for total annual costs of $6,300. With estimated annual benefits of $30,000 less $6,300 annual costs the average annual benefits are $23,700.
Assuming the $113,550 total costs were compounded at 4% for 30 years, we would have a total product of $368,288. With net annual benefits of $23,700 for 30 years we would receive total benefits of $711,000 indicating a benefit-cost ratio for this project of 1.93:1.

A "project economic feasibility report" is included with this proposal.

F. The Barnes County Park Board will operate and maintain the project through an agreement with the State Game & Fish Department. The State Game & Fish Department will have an operating agreement with the State Outdoor Recreation Agency for the project prior to funding. Technical assistance for maintaining the dam will be provided by the State Water Commission.

G. The area is presently privately owned. Water rights for the reservoir are being processed by the State Engineer to the Barnes County Water Management District. Options for acquiring lands are being obtained by the State Game & Fish Department in cooperation with the Barnes County Park Board.

H. Development of site plans and specs was initiated in December 1964 and is scheduled for completion in April 1966. Construction plans and specs for the dam and recreation complex was initiated in December 1965 and will be completed by July 1966. Construction of the dam is scheduled to start May 15, 1966 if all lands are acquired and the project qualified by BOR. Construction of the dam is to be completed by 10-31-66 and start of construction on the recreation facilities is to be accomplished concurrently and is programmed for completion by 6-30-70 in accordance with the cost estimate and construction schedule included with the proposal.

D-660-2 Maps and Charts:

Maps, charts and pictures included with the proposal are as follows:

1. State map showing project location in relation to other projects in the state.
2. Picture of site where development is proposed.

3. Area - capacity curve.

4. State Water Commission map #6480-1378-4 showing dam location and proposed purchase line.

5. State Water Commission map #6543-1378-6 showing Clausen Springs Dam, recreation area and facilities.

6. State Water Commission map #6559-1378-7 showing pipe inlet and outlet details.

7. State Water Commission map #6318-1378-1 showing topography of Clausen Springs area.

D-660-3

Agreements:

1. Agreement for investigation or survey between Barnes County Park Board and North Dakota State Water Commission dated 11-23-64.

2. Agreement for construction of dam and appurtenant facilities and land acquisition between North Dakota State Water Commission, North Dakota State Outdoor Recreation Agency, North Dakota Game & Fish Department and Barnes County Park Board dated 4-5-66.

3. Project assurances provided by Barnes County Park Board to North Dakota State Outdoor Recreation Agency on 4-5-66 and signed by Chairman of Barnes County Park Board, Chairman of Barnes County Water Management District, and Chairman of Barnes County Board of Commissioners.

Prepared by:

[Signature]
Jim Schulz
Assistant Secretary

JS:jd

Dist.
6 BOR
1 SORA
8 SWC
1 G & F, 1 Barnes Co. Pk. Bd.
TO:    Milo W. Hoisveen, Chief Engineer
FROM:  Merrill C. Rivinus, Investigation Engineer
SUBJECT: Clausen Springs Area #1378
DATE:  December 28, 1964

On December 10, I met with Mr. Gordon Gray, State Water Commissioner, Mr. William Baribeau, SCS Work Unit Conservationist, Mr. John Carlisle and Mr. Martin Larson, members of the newly created Barnes County Water Management District and county Park Board on the proposed water development project in the Clausen Springs area and other related projects in the county. A field trip to the area was made with the above named and discussion thereof.

The Clausen Springs area is located on an unnamed creek which drains a large portion of a non-contributing area in central Barnes County and the Stony Slough area. Its upper basin is relatively flat with the gradient increasing considerably near its confluence with the Sheyenne River at Kathryn, North Dakota. The valley is narrow and deep in this area with numerous springs enhancing tree, underbrush growth and wildlife habitat. The area has a fine setting for a water recreation development project.

It is the desire of the Barnes County Water Management District to have this proposed project investigated to the fullest extent as this is their No. 1 priority project.

From the site inspection it appears that a reservoir of sufficient depth can be constructed to fulfill all purposes. The village of Kathryn experiences recurring floods from this creek and the initial planning should include consideration for flood control.

Site inspection of the proposed Nome dam site proposed by the local wildlife club was made. It is proposed to construct a dam approximately one-half mile downstream from the present washed-out Nome Dam. The purpose of the dam would be recreational and flood control equal to the additional amount of water
drained from a proposed drainage project upstream. It was the opinion of the group that the area would not produce a very good recreation area and its proximity to the Clausen Springs area made it further unfavorable. It also appeared that the reservoir area would not be of sufficient size to incorporate any appreciative flood control storage. It was stated to the group that it would be better for the local wildlife group to direct their interest to a larger multi-purpose reservoir in the area of the confluence of the creek with the Maple River.

Merril C. Rivinius
Investigation Engineer

Dist.
MWH (SWC File #_____)
HAS
VEZ
Report on

SOIL INVESTIGATION

of

Clausen Springs Reservoir
Barnes County, North Dakota

for

NORTH DAKOTA STATE WATER CONSERVATION COMMISSION
Milo W. Hoisven, State Engineer
Bismarck, North Dakota

Robert J. Roberts
Registered Professional Engineer
Moorhead, Minnesota

October 28, 1965
October 20, 1965

Report on: PRELIMINARY SOIL INVESTIGATION
Clausen Springs Reservoir
Barnes County, North Dakota
Project Number 1378

To: North Dakota Water Conservation Commission
Milo W. Hoisveen, State Engineer
Bismarck, North Dakota

From: Lake Agassiz Testing Laboratories
Moorhead, Minnesota

General: On October 15 and October 18, 1965, a series of five test borings
was drilled on the site of the proposed dam structure which is intended
to be a part of the final design of the Clausen Springs Reservoir. The test
borings were located at the points indicated on the Soil Boring Location Plat
attached to this report. This plat was adapted from Drawing Number 3324-1378-2,
a copy of which was furnished to us by the Water Commission Engineers, and the
test borings were located in accordance with instructions from and under their
direction. Borings 2 and 5 were drilled to a depth of thirty feet and Borings 1, 3 and 4 were terminated at the twenty-five foot depth. In each case, the
soil was tested in place by the Vane Shear and Penetration methods and 2-inch
Shelby tube samples were removed to the laboratory for further testing. The
results of the field tests are shown on the Test Boring Field Log, and the lab-
aboratory test results are tabulated on the Laboratory Test Sheets. Copies of each
of these data sheets for the five test borings are attached to this report. In
addition, each Field Log indicates the surface elevation for each test boring
along with a notation indicating the static water level.
Soil Conditions: The soil conditions indicated by the five test borings appear to be uniform and consist of conglomerations of silt, fine sand and clay with the clays predominating, especially at the lower depths in each boring. The soils were encountered in a very firm well-packed condition as indicated by the high Vane Shear test results. Traces of gravel were encountered in the upper levels of all but Test Boring Number Two, and gray shale in a hard moist condition was encountered in the middle level (at the 17-foot depth) of Test Boring Number One. Neither of these soil materials was detected in any quantity to influence the characteristics of the predominantly clay soil structures. It is our opinion that the hard firm clay materials which dominate the soil structures encountered will prove to be excellent materials for the construction of an earth-fill dam, although no testing beyond that indicated on the Field Logs and Laboratory Sheets was conducted as a part of this investigation.

Discussion: We feel that the information developed by this investigation is sufficient to classify this as an economically-feasible site for the construction of the reservoir intended as a part of the final project. We feel that the clay soils will readily lend themselves to the compaction process required for the earthwork. We do feel that additional testing should be projected prior to the final construction.

Recommendations: In view of the data developed by the five test borings located as indicated on the plat under the direction of the Water Commission Engineers, we recommend as follows:

1. That this site be utilized for the proposed reservoir construction.
2. That additional testing, including moisture/density relationships, permeability coefficient determinations, and similar tests be made prior to final construction, and that a complete testing program to insure adequate and complete compaction be evolved for the final construction phase of this project.
Gray sandy-loam with a trace clay

1-5

Gray sandy silt with small pebbles
A trace clay - a few stones
Firm-dry

6

Gray sandy silt, and small pebbles with a trace clay
Firm-dry

9

Dark tan sand, silt and clay with small pebbles
Firm-slightly moist

14.5

Tan silt and clay
Small pebbles

17

Gray shale
Hard - moist

25

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<tr>
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<th>Sample Number</th>
<th>N</th>
<th>T</th>
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| 3.5   | 1-3.5         | 11| 600+*
| 4.5   |               |   |    |
| 7     | 1-7           |   |    |
| 8.0   | 1-8           | 16| 500+* |
| 9     |               |   |    |
| 13    | 1-13          |   |    |
| 14    |               | 9 |    |
| 15    |               | 590|    |
| 18    | 1-18          |   |    |
| 19    | 1-19          | 50|    |
| 24    | 1-24          | 30-50|    |
| 25    |               | 600+*|    |

* Capacity of Wrench

Water Table No water in test hole after 72 hrs.
**Project Number**

**Names** North Dakota Water Commission

**Location** Clausen Springs, Kathryn, N. D.

**Architect**

**Date** October 15, 1965

---

### Test Boring Field Log

**Test Boring Number** 2

**Surface Elevation** 1309.59

**Engineer** Muscha

---

<table>
<thead>
<tr>
<th>Depth (ft)</th>
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<th>T</th>
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<tr>
<td></td>
<td>Soft, moist</td>
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<tr>
<td></td>
<td>Stiff - moist</td>
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<td>600-</td>
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<td>Gray clay</td>
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</tr>
<tr>
<td></td>
<td>Firm - moist</td>
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<td>19</td>
<td>Very hard - moist</td>
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<td>24</td>
<td>Hard - moist</td>
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<td>30</td>
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**Water Table** No water in test hole after 72 hours
### Project Number

North Dakota Water Commission

### Location

Clausen Springs, Kathryn, N.D.

### Architect

October 18, 1955

---

#### TEST BORING FIELD LOG

**Test Boring Number**: 3  
**Surface Elevation**: 1303.12  
**Engineer**: Muscha

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<td>7.5</td>
<td>3-7.5</td>
<td>30-5&quot;</td>
<td>600+</td>
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<td>14</td>
<td>3-14</td>
<td>29</td>
<td>600+</td>
</tr>
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<tr>
<td>19</td>
<td>3-19</td>
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<tr>
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<td>24</td>
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<td>30-5(\frac{1}{2})&quot;</td>
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**Water Table**: Water 1 foot from surface after 3 hours
TEST BORING FIELD LOG

Test Boring Number: 4
Surface Elevation: 1113.18
Engineer: Musche

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<td>4-13</td>
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<td>600+</td>
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<td>4-19</td>
<td>30-5&quot;</td>
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Water Table: No water in test hole after 3 hours
# TEST BORING FIELD LOG

**Project Number**

**Names**  North Dakota Water Commission

**Location**  Clausen Springs, Kathryn, N. D.

**Architect**

**Date**  October 18, 1965

## Depth

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<td>5-3</td>
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<td>5</td>
<td>Dark tan silt and clay Stiff and moist</td>
<td>5-4.5</td>
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<tr>
<td>7.5</td>
<td>Tan fine sand Firm-slightly moist</td>
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<tr>
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<td>Gray clay and silt a few pebbles, stiff-moist</td>
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<td>Dark tan clay and silt Stiff - moist</td>
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<td>Dark tan silt and clay A few laminations of coarse sand, moist - firm</td>
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**Water Table**  No water in test hole after 3 hours
<table>
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<th>Liquid Limit</th>
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Project Number: ________________________
Name: North Dakota Water Commission
Location: Clausen Springs, Kathryn, N. D.
Architect: ________________________
Date: October 15, 1965
**Project Number:**

North Dakota Water Commission

**Location:** Clausen Springs, Kathryn, N. D.

**Architect:**

**Date:** October 15, 1965

### Laboratory Tests

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<td>Liquid Limit (%)</td>
<td>Plastic Limit (%)</td>
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<td>Vane Shear (Tsf)</td>
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Project Number: ____________________________

Name: North Dakota Water Commission

Location: Clausen Springs, Kathryn, N. D.

Architect: ____________________________

Date: October 18, 1965
Tests: The following tests or criteria were employed in this investigation, or are mentioned in subsequent sections of this report:

Penetration: The penetration resistance of the soil was measured by driving a 1 3/8" ID split-spoon sampler one foot into the soil with a 140-pound weight and a 30-inch drop. This standard test gives an indication of the unconfined compressive strength of the soil. The results are tabulated for each of the borings. This test is not conclusive in itself, but it does afford an indication of the relative strength of the various soils tested.

Unconfined Compression: This test is based on undisturbed samples which are taken at the various depths with a 2" ID Shelby-tube sampler. The samples averaged 2.0 inches in diameter and 4.0 inches in length, and were tested in a spring-type compression machine, recognized as standard for this test.

Vane Shear: This test is made on the soil in place. It consists of driving a four-blade steel vane about one foot into the soil, turning the blade, and measuring the in-place shear strength of the soil adjacent to the blade in terms of the torque required to shear it from the in-place soil mass. The shear strengths thus obtained are tabulated for each of the borings.

Sensitivity: The sensitivity of a clay is defined as the ratio of the undisturbed strength to the remolded strength at the same strains. In this instance, the sensitivity values were obtained by computing the ratio of the unconfined compressive strengths (undisturbed and remolded) at the various depths. The water content was held constant for the two compressive strength determinations. The sensitivities thus obtained are tabulated for each of the borings.

Atterburg Limits: The Liquid and Plastic Limits, or Atterburg Limits, are arbitrary upper and lower boundaries of the plastic state in a soil. They are defined by the water content required to produce the consistencies specified for the limits. The Plasticity Index represents the range in water contents through which a soil is plastic and is the difference between the Liquid Limit and the Plastic limit. The results of the laboratory tests on the samples obtained are tabulated for each of the test holes.

Moisture Content: The ratio of the weight of water to the weight of solids in a given sample is termed its moisture content or water content, and is expressed as a percentage. The wet weights for these samples were obtained at the site
Tests (continued):

as soon as the samples were removed from the test hole. The dry weights were obtained after a twenty-four hour drying period at 240°F in the laboratory. The moisture content results are tabulated for each of the test holes.

Original Density: The density is defined as the ratio of the unit weight of soil sample to the unit weight of water. The unit weight of the soil is the ratio of the soil sample to the volume of the soil sample. Original densities for several samples were thus obtained and are tabulated in the data sheets attached to this report.

Specific Gravity: The specific gravity of the individual soil particles is required in the determination of the soil's void ratio and degree of saturation. The specific gravity is the ratio of the weight of the solid matter to the weight of an equal volume of water at 4 degrees Centigrade. If this test is not made at 4°C, a small correction factor must be used to compensate for the difference in density of water. The specific gravities are tabulated for the various depths on the attached boring log sheets.

Void Ratio: The void ratio of a given soil mass is defined as the ratio of the volume of voids to the volume of solids in the given soil mass. It is always expressed as a decimal and is a necessary part of any consolidation or settlement study. The average void ratio for the soils encountered was found to be 1.130, and this figure was used to make the preliminary settlement analysis discussed in subsequent sections of this report.

Compression Index: The compression index is a measure of the compressibility of the soil and is obtained by computing the slope of the stress-void ratio curve for a consolidation study. The average compression index for the soils encountered in this investigation was found to be 0.401, and this figure was employed in the preliminary settlement analysis discussed in subsequent sections of this report.

Coefficient of Permeability: The coefficient of permeability is a constant, having dimensions of a velocity, that expresses the ease with which water passes through a soil. The clays encountered have a coefficient of permeability of 0.0000001 centimeters per second, or less.
Tests (continued):

Allowable Bearing Capacities:

**Per Unconfined Compressive Tests:** These values were obtained from the average unconfined compressive strengths at the various depths by the following relationship:

\[ q_c = \frac{2.85}{\nu} q_u \]

Where \( q_c \) is the allowable bearing capacity in pounds per square foot, \( q_u \) is the average unconfined compressive strength for the various depths in pounds per square foot.

\( \nu \) is the Factor of Safety

**Per Vane Shear Tests:** These values were obtained from the shear strengths at the various depths by the following relationship:

\[ q_c = (1 + 0.3b/L) q_c \]

where \( q_c \) is the allowable bearing capacity in pounds per square foot,

\( c \) is the shear strength in pounds per square foot,

\( b \) is the proposed footing width in feet,

\( L \) is the proposed footing length in feet.

It should be noted that this relation is limited to use in cases where the soil is a low sensitivity clay, and it should also be noted that the bearing capacity of a square footing would be equal to \( 5.2c \). Tests indicate that the bearing capacity of square footings on clay is 1.3 times that for strip loadings. A Factor of Safety of 3 was used in these computations.
REPORT ON HYDROLOGY-CLAUSEN SPRINGS
SWC Project #1378

The location of the proposed Clausen Springs Dam is in Section 17, Township 137 North, Range 58 West, on a waterway known as Stoney Slough, a tributary of the Sheyenne River in southern Barnes County.

About eight miles upstream from the dam site, the Bureau of Sport Fisheries and Wildlife operate a waterfowl refuge, known as Stoney Slough Refuge. This refuge occupies about three sections of land. Water is held on a good part of it by means of the existing road fills, and in case there is a surplus of water, it is released through a 4'x4' gated concrete outlet through the road fill. In March, 1966, following the spring thaw this refuge, and the Stoney Slough drainage area up to the headwaters at Kee Lake, were inspected.

Generally, the stream has only a little gradient, and there are many large flat areas where water ponds at shallow depths. The water is held in storage by the graded roads and water is carried through the roads by culverts. Those culverts which were observed were quite small.

A long time is required for water to collect in Stoney Slough Refuge, because it has to pass through many ponding areas. On entering Stoney Slough, the stream passes through a 48" CMP. This was observed flowing about 3/4 full and indicates a flow of around 100 c.f.s.

The outlet gate from the Refuge was closed, and all the inflow was being used to replenish the refuge ponds. All water released downstream to Clausen Springs would have to pass through the 4'x4' gate or else overflow the road grade in which the gate is located. A resident for 16 years stated that she had never known the water to overflow the road.
In view of this field inspection, it was concluded that all of the drainage area above the outlet from Stoney Slough could be disregarded as a contributor of flood waters entering Clausen Springs reservoir.

The drainage area below Stoney Slough Refuge, which contributes to Clausen Springs reservoir is 12 square miles. A rainfall of 25-year frequency on the area would be about 2.8 inches falling in 2.70 hours, or about one inch per hour. The computed design inflow hydrograph has a peak of 1036 c.f.s. and total volume of 269 acre-feet which is equal to a runoff depth of 0.42 inches from the contributing drainage area of 12 square miles.

The spillway from Clausen Springs reservoir will consist of a drop inlet made of 84" RCP and a 42" RCP discharge conduit. The entrance lip of the inlet is at elevation 1336.0. The reservoir was assumed to be filled to the spillway elevation at time of arrival of the design flood. The flood was routed through this spillway and the following facts established:

(a) The maximum discharge through the spillway would be 241 c.f.s.
(b) The storage increase (surcharge storage) would be 187 acre-feet.
(c) The reservoir water surface would rise to elevation 1340.4.
(d) There would be unused storage space of 266 acre-feet below the level of the emergency spillway, which level was set at 1345.0 ft.

In view of the above, it is evident that there is more than 100% factor of safety with regard to a 25-year frequency flood. About one inch of runoff would be required within a few hours in order to fill the reservoir to the level of the emergency spillway, assuming the reservoir to be filled to spillway level at the beginning of such a flood.

The emergency spillway will add greatly to the factor of safety. This spillway is 40 feet wide and will safely carry water to a depth of four feet. The discharge under those conditions would be about 1000 c.f.s. Simultaneously, there would be a discharge of about 400 c.f.s. from the service spillway.
A copy of the flood computation and a graph showing the routing of the design flood are attached. The factors of safety pertaining to the proposed structure are more than adequate. Erosion of the emergency spillway should be prevented by use of considerable riprap at both upstream and downstream ends.

Dale H. Glover, Hydrologist

Attachments
Clausen Spring - Sec. 17, T 137 N, R 58 W - Proj. #1378

Drainage area, - 12.0 sq.mi.
Length of channel, 8.0 mi.

Fall, 50 Ft.

\[
T_c = \frac{2.47 \times (8.0)^{1.15}}{50^{0.385}} = \frac{2.47 \times 10.9}{4.51} = 5.98 \text{ HR. (Say 6.0 Hours)}
\]

\[
C = \frac{0.25}{6.0^{0.284}} = \frac{0.25}{1.665} = 0.15
\]

\[
\frac{P}{T_c} = 0.15 = 15\%
\]

Use 15% Model Hydrograph

\[
P = 0.15 \times 6 = 0.90 \text{ HR.}
\]

Use 3 Periods = 3 \times 0.90 HR. = 2.70 HR.

25 yr. R.F., 2.70 HR., = 2.8 inches

R.O. = 2.8 \times 0.15 = 0.42 inches

\[
M = \frac{DA}{T_c} = 12.0/6.0 = 2.0
\]

\[
D_{Tot} = M \times RO = 0.84
\]

Dist. = 50%, 35%, 15%

\[
D = 0.42, 0.29, 0.13
\]

Dale H. Glover
October 8, 1965
### Clausen Spring - #1378

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<th>Time, % T&lt;sub&gt;C&lt;/sub&gt;</th>
<th>1st P. D=.42</th>
<th>2nd P. D=.29</th>
<th>3rd P. D=.13</th>
<th>Total = Disch., C.F.S.</th>
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<td>TOTAL 10,844</td>
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Time int. = 5% T<sub>C</sub> = .05 x 6 = 0.30 Hr.
0.30 x 10,844 = 3253 Hr.Sec.Ft. = 269 Acre-feet.
0.42'' R.O. x 53.33 x 12 sq.mi. = 269 Acre-feet (check)

Max. inflow = 1036 C.F.S.

100 year frequency: Max. inflow = 1220 C.F.S.
Vol. = 317 Acre-feet

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Dale H. Glover  
October 8, 1965
NORTH DAKOTA STATE WATER COMMISSION

DESIGN DATA
CLAUSEN SPRINGS RECREATION COMPLEX
SWC Project #1378

Hydrology

Drainage area below Wildlife Refuge: 12.0 mi.²

Maximum floods:
- 25 year rainfall flood: 1036 CFS
- 25 year rainfall flood: 269 AF
- 100 year rainfall flood: 1220 CFS
- 100 year rainfall flood: 317 AF

USGS Flood:
- 10 year: 360 CFS
- 25 year: 600 CFS
- 50 year: 840 CFS
- 100 year: 980 CFS
- 1 inch runoff: 640 AF

Drainage area above wildlife refuge: 119 mi.²

Capacity 4' gate before water flows:
- Over spillway @ Stoney Slough: 100 CFS

Storage capacity @ Stoney Slough: 1556.8 AF

Storage area @ Stoney Slough: 344.4 Ac.

Last time went over spillway: 1952

Proposal

Earth embankment with pipe spillway:

Embankment:
- Crest elevation: 1348.1 MSL
- Length: 650 ft.
- Volume: 48,700 yd³
- Height: 48 ft.

Principal Spillway:
- Drop inlet: 84.0 RCP
- Crest inlet: 1338.3 MSL
- Main pipe: 42.0 RCP
- Outlet: 72.0 RCP
- Capacity: 262 CFS

Emergency Spillway (gross):
- Elevation: 1344.1 MSL
- Width: 40 ft.

Reservoir:
- Area @ control elevation: 45 ac.
- Capacity @ control elevation: 670 CFS
- Area @ emergency spillway elevation: 54 ac.
- Capacity @ emergency spillway elevation: 980 AF
- Capacity flood control zone: 310 AF

April 7, 1966
The dam is designed so that the flood control zone will absorb the floods from below the Stoney Slough Wildlife Refuge and the pipe spillway will handle the water which is released through the gates at Stoney Slough, with a large margin of safety. The emergency spillway will be installed to control overflow during extreme floods and reduce damage to the structure.

H. A. Sandwick, Office Engineer

Distribution:

6 BOR
1 SORA
8 SWC
1 Game and Fish
1 Barnes County Park Board
NORTH DAKOTA STATE WATER COMMISSION

COST ESTIMATE
Clausen Springs Dam #1378

April 7, 1966

Water Control
Stripping 3,880 yd.$ @0.25  $300
Core 1,200 yd.$ @0.60  970
Embarkment 48,700 yd.$ @0.40  19,480
Seeding 200
Riprap 15" 1,480 yd.$ @4.00  5,920
Gravel Base 720
42" RCP 144' @40.00  5,760
72" RCP 12' @45.00  540
72" RCP end section 550
84" RCP 6' @55.00  330
Concrete 4 yd.$ @100.00  400
10" dipped and wrapped steel pipe
280' @7.00  1,960
10" gate valve with box 350
Tie RCPP 300

$38,500

Engineering, inspection 3,600
Contingencies 1,650
Indirect costs 2,250

$46,000

Hazen A. Sandwick
Office Engineer

Dist.
6 BOR
1 SORA
8 WC
1 G&F
1 Barnes Co. Pk.Bd.
# SWC Project #1378

Clausen Springs Recreation Area

April 1, 1966

Facilities Desired:

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<td>e. Rip Rap</td>
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<td>c. Crushed Gravel</td>
<td>1200 cy</td>
<td>1.50</td>
<td>1800</td>
<td>500 cy</td>
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<td>400 cy</td>
<td>600</td>
<td>300 cy</td>
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<td>Indirect Costs</td>
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<td>40,000</td>
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### Project Economic Feasibility Report

**Benefit-Cost Ratio**

**Project:** Clausen Springs Recreation Complex

**Location (Co.):** Barnes

**SORA # 2-37**

---

### I. BASIC DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>A. Radius of anticipated use</td>
<td>30 miles</td>
</tr>
<tr>
<td>B. Population within use area</td>
<td>24,000</td>
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<tr>
<td>C. Anticipated annual visitation</td>
<td>30,000</td>
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<tr>
<td>D. Investment (include land)</td>
<td>$113,550</td>
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<tr>
<td>E. Estimated life of facilities</td>
<td>30 years</td>
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### II. ANNUAL COSTS

<table>
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<th>Description</th>
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<tr>
<td>A. Operation and Maintenance</td>
<td>$2,515</td>
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<tr>
<td>B. Depreciation (I.D + I.E)</td>
<td>$3,785</td>
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<tr>
<td>C. Total annual costs</td>
<td>$6,300</td>
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### III. ANNUAL BENEFITS

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<tbody>
<tr>
<td>A. Assumed value per visitation</td>
<td>$1</td>
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<tr>
<td>B. Est. Annual Benefits (III.A x I.C)</td>
<td>$30,000</td>
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<tr>
<td>C. Average Annual Net Benefits (III.B - II.C)</td>
<td>$23,700</td>
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### IV. BENEFIT-COST RATIO

<table>
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<tbody>
<tr>
<td>A. Factor for value of I. compounded</td>
<td>3.24339751</td>
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<td>30 yrs. @ 4% = (Standard - 30 yrs. @4% = 3.24339751)</td>
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<tr>
<td>B. Product of Investment (I.D) x factor (IV.A)</td>
<td>$368,288</td>
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<tr>
<td>C. Total benefits (III.C x I.E)</td>
<td>$711,000</td>
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<tr>
<td>D. Benefit-cost ratio (IV.C / IV.B)</td>
<td>1.93:1</td>
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</tbody>
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Green Form - D-660-1.E

SORA Form #28
AGREEMENT
For Investigation Or Survey

THIS AGREEMENT made and entered into by and between the State Water Commission, hereinafter referred to as the Commission, party of the first part, and Barnes County Park Board whose post office address is Valley City, North Dakota hereinafter referred to as the Applicant, party of the second part,

WHEREAS, Barnes County Park Board (Name of Applicant) has requested the Commission to investigate, or survey, and study the feasibility and desirability of the following proposed undertaking (describe proposed undertaking or project):

Survey to determine feasibility of establishing County Park and Outdoor Recreation Center in the Clausen Springs area.

and

WHEREAS, in order to investigate, or survey, and study the undertaking proposed by Applicant, a deposit of Two Hundred Dollars is required, under rules and regulations prescribed by the State Water Commission, to cover the cost of such investigation, or survey, and study of the feasibility and desirability of the proposed undertaking; and

WHEREAS, if the cost of such investigation, or survey, and study does not equal or exceed the amount deposited with the Commission, the excess deposit will be credited to and returned to the Applicant, or if the undertaking is approved by the Commission, and carried out, the entire deposit will be applied to the cost of the undertaking as part of the local contribution to its construction;

NOW, THEREFORE, the parties hereto agree as follows:

1. Applicant agrees to deposit with the Commission the sum of Two Hundred Dollars to partially cover the cost of an investigation, or survey, and study of the desirability and feasibility of the proposed undertaking.

2. If, after investigation, or survey, and study of the proposed undertaking it is determined that it is not feasible, or that it will be of no public benefit, or if Applicant shall notify the Commission of abandonment of the proposed undertaking, or if the Applicant fails to show an intent to proceed with the undertaking within 18 months after the date of the deposit, the Applicant shall be furnished a statement of the expenses incurred in
conducting the investigation, or survey, and study thereof, and any balance of Applicant's deposit remaining unexpended shall be returned to Applicant.

3. If, however, the proposed undertaking shall, after investigation, or survey, and study, be found to be feasible, and of benefit to the public, the Applicant shall be notified accordingly.

Dated this 23rd day of November 1964.

Barnes County Park Board

(Applicant)

State Water Commission

By Milo W. Horemen
Chief Engineer

Distribution:

1 Applicant
1 SWC - Project File
1 SWC Acct.

SWC Form No. 98 (200-8/64)
PART E - PROJECT ASSURANCES

NORTH DAKOTA STATE OUTDOOR RECREATION AGENCY
1301 STATE CAPITOL
BISMARCK, NORTH DAKOTA

1. APPLICANT
   Barnes County Park Board
   Address: Valley City, North Dakota
   Project is located in Barnes County

2. PROJECT IDENTIFICATION:
   Title: Clauson Springs
   SORA NO. 2-37
   Legal description:
   Sec. 17 Twp 187 Rge 68
   Scope of project: Construct a large dam and develop approximately 345 acres into a recreational site.

TO BE STARTED April 1, 1966 TO BE COMPLETED April 1, 1967

IN SUBMITTING THIS PROJECT PROPOSAL Barnes County Park Board
(Name of Applying Agency)

HEREBY CERTIFIES THAT:

A. No financial assistance has been given or promised under any other Federal program or activity with regard to this proposed project.

B. The Applicant responsible for the proposed project has the ability and the intention to finance its share of the project.

C. The Applicant accepts the obligation to comply with applicable laws, rules and regulations in effect at the time of the award and to the further terms and conditions of the Bureau of Outdoor Recreation Manual in effect at the time of the award.

D. Property acquired under this program will be placed in use as an outdoor recreation facility and will be retained for such use in perpetuity or otherwise as provided and agreed to in the project agreement. Prior approval of the North Dakota State Outdoor Recreation Agency will be obtained before any other disposal is made of such property.

E. The Applicant has the intent and ability to finance the operation and maintenance of the facility being developed for so long as is required.

F. No foreign uses of such property, other than those described in the proposal will be permitted unless approved in advance by the North Dakota State Outdoor Recreation Agency. In the event foreign use is made of such project the Applicant shall, within one year of such foreign use, reimburse the North Dakota State Outdoor Recreation Agency the cost of the project, less the amount of such cost paid by the Applicant.

G. If for any reason it shall become necessary for any department or agency of the State of North Dakota to expend State funds in order to fulfill any obligations which the Applicant has agreed to perform in the construction and maintenance of this project, the Applicant shall, within a one year period, reimburse the State department or agency the amount of funds expended for such maintenance or operation.

H. The Applicant understands that qualification of this project proposal by the North Dakota State Outdoor Recreation Agency does not in itself constitute an obligation or award of requested funds and does not guarantee that funds will necessarily be made available for the project.

I. The Applicant will supply development specifications and detailed plans to the North Dakota State Outdoor Recreation Agency as requested to do so by the Executive Officer of the Agency.

J. The Applicant shall, within thirty days after completion of the project, submit to the North Dakota State Outdoor Recreation Agency a certified and itemized statement of its expenditures made in connection with the project, and shall, upon request, make all financial records available to the North Dakota State Outdoor Recreation Agency at any time.

SUBMITTED BY Barnes County Park Board
(Name of Applying Agency)

APPLICANT

Chairman, Park Board 1-5-66
Chairman, Water Management 1-5-66
Chairman, County Board 1-5-66

(Signature of Authorized Representative)

(Signature of Authorized Representative)

(Signature of Authorized Representative)
DIST. 1378  
SWC Acct.  
lea. Proj. Participant  

AGREEMENT  
CONSTRUCTION OF WORKS  

THIS AGREEMENT is entered into by and between:  

(1) The North Dakota State Water Commission, hereinafter referred to as the Commission, acting by and through, Milo W. Hoisveen, Secretary and Chief Engineer;  

North Dakota  

(2) The State Outdoor Recreation Agency, hereinafter referred to as the Agency, acting by and through Milo W. Hoisveen (name)  

Executive Officer;  
(title)  

North Dakota  

(3) The State Game and Fish Department, hereinafter referred to as the Department, acting by and through Russell W. Stuart, (name)  

Commissioner;  
(title)  

(4) The Barnes County Park Board, hereinafter referred to as the Board, acting by and through John Carlisle, (name)  

Chairman;  
(title)  

I. Project, Location and Purpose  

WHEREAS, the parties to this Agreement propose to construct the following:  

Clasen Springs Dam and recreation area  

hereinafter referred to as the Project, located in Sections 17 & 18, Twp. 137 N, Rge. 58 W, Barnes County, North Dakota, the purpose of which is to provide a water-based public use outdoor recreation area.  

NOW, THEREFORE, IT IS AGREED:  

II. Drawings and Specifications  

That the Project shall be constructed in accordance with drawings  

SWC Form #42 (200-3/66)
and specifications of the Commission, approved by the Agency, Department, and Board, which drawings and specifications, SWC map #s 6480-1378-4 and 6543-1378-6 (describe) are by this reference made a part of this Agreement to the same force and effect as if they were incorporated into the body of this Agreement.

III. Costs and Allocations

That the estimated cost of the various Project elements and their allocation to the Project participants shall be as follows:

A. Preliminary Engineering and Investigations - Total Estimate $4,000

1. North Dakota State Water Commission - $2,000 or 50 %
2. __________________________ $_________ or _______%
3. __________________________ $_________ or _______%
4. Bureau of Outdoor Recreation $2,000 or 50 %
5. __________________________ $_________ or _______%

B. Land and/or Easement Acquisition - Total Estimate $23,550

1. North Dakota State Water Commission - $_________ or _______%
2. Department $5,887.50 or 25 %
3. Board $5,887.50 or 25 %
4. Bureau of Outdoor Recreation $11,775 or 50 %
5. __________________________ $_________ or _______%

C. Construction of Main Works - Total Estimate $46,000

1. North Dakota State Water Commission - $11,500 or 25 %
2. Department $7,600 or 16.5 %
3. Board $3,900 or 8.5 %
4. Bureau of Outdoor Recreation $23,000 or 50 %
5. __________________________ $_________ or _______ %
D. Construction of Appurtenant Works - Total Estimate $25,600
(recreation facilities)

1. North Dakota State Water Commission - $2,034 or 7.9%
2. Agency (WC allocation) $5,000 or 19.5%
3. Board $5,766 or 22.6%
4. Bureau of Outdoor Recreation $12,800 or 50%

X. Other Items - Total Estimate $2.34

1. North Dakota State Water Commission - $________ or ______%
2. __________________________ $________ or ______%
3. __________________________ $________ or ______%
4. __________________________ $________ or ______%
5. __________________________ $________ or ______%

F. Total Project Costs and Allocations - $99,150

1. North Dakota State Water Commission - $15,534 or 15.7%
2. Agency (WC allocation) $5,000 or 5.0%
3. Department $13,487.50 or 13.6%
4. Board $15,553.50 or 15.7%
5. Bureau of Outdoor Recreation $49,575 or 50%

That all parties shall provide the others with cost statements within 30 days after the Project's completion and settlements shall be made within 30 days of receipt of said statements.

IV. Title to Lands and/or Easements

That title to all lands and/or easements for the Project shall be purchased in the name of North Dakota State Game & Fish Department by the Board and Department and recorded in the County Register of Deeds office wherein the Project is situated.
V. Operation and Maintenance

That the Board shall operate and maintain the Project in accordance with rules and regulations prescribed by the Agency and Department.

VI. Indemnification

That the Board does hereby accept responsibility for, and holds the Commission and the Agency and Department harmless from, all claims and damages to public or private properties, rights, or persons arising out of the construction, operation, and maintenance of the Project. In the event a suit is initiated or judgment entered against the Commission or Agency and Department, the Board shall indemnify them for any settlement arrived at or judgment satisfied.

VI. Changes in Responsibilities

That changes in any responsibilities of the parties hereto or conditions herein stated will not be effective or binding unless such changes or conditions are made in writing, signed by the parties concerned and attached hereto.

VIII. Other Stipulations

1. Agency commitments herein are subject to full Agency approval.

2. Bureau of Outdoor Recreation cost allocations herein are based on assumed qualification and funding through the Land and Water Conservation Fund Act.

3. Department cost participation in the Project shall be limited to $13,500.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement the day and year indicated below.

WITNESS: DATES: NORTH DAKOTA STATE WATER COMMISSION

By: Milo W. Houzeen Secretary and Chief Engineer

North Dakota State Outdoor Recreation Agency

By: Milo W. Houzeen Executive Officer

North Dakota Game and Fish Department

By: Russell Grinstead Commissioner

Barnes County Park Board

By: Chairman