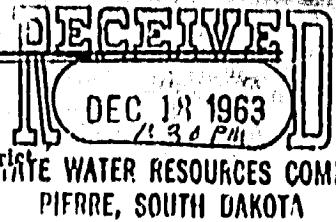


1069..3

1. Considered 3-11, 1964
2. Name of Applicant City of N. Sioux City
3. Post Office Address _____
4. Amount of water claimed .55
5. Source of water supply ground water
6. Water to be used for municipal
Acres to be irrigated _____
7. Water to be diverted and used in Union County about
1/2 miles 1/4 of North Sioux City
8. Proof of Publication Received ~~for~~ ✓
Not Received _____
9. Application Approved _____
Subject to _____
Not Approved _____
Action deferred _____
10. Remarks:



No. 1069-3
 Water Division No. 3 Big Sioux 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.)

1. Name of applicant City of North Sioux City, South Dakota
 Postoffice address North Sioux City, County Union, State South Dakota

I. If a corporation _____

- (a) Name of same _____
 (b) Date and place of incorporation _____
 (c) Amount of capital stock _____
 (d) Amount paid in _____
 (e) Names and addresses of directors _____
Jacob Gondo, Mayor

(NOTE—A certified copy of articles of incorporation must accompany the application.)

II. Method of accomplishing the work and financial resources of the applicant:

- (a) Method of accomplishing work (Whether by contract, employment of others, or by direct labor)
contract

- (b) Cash on hand, \$ _____ (c) Treasury stock, \$ _____
 (d) Bonds to be issued, \$ 112,000 (e) Other resources, \$ _____

2. Name of diversion work Drilled well
 3. Amount of water claimed 250 GPM cubic feet per second
 4. Source of water supply drilled well
 5. Location of point of diversion at corner 551'E and 150'N of the W 1/4 Sec 14 T 44N R 48W on _____ bank Union County.
 6. Annual period or periods during which water is to be used year around
 7. To be used for:

- I. Irrigation or domestic use: Gravity, overhead sprinkling or combination system; domestic and fire protection

- (a) Number of acres to be irrigated _____ acres.

- (b) Legal subdivisions to be irrigated _____

(NOTE—A list of lands to be irrigated, giving each subdivision and fraction with acreage thereof, should be written here, or may be appended as a part of this application. Same must also be shown on accompanying map.)

- (c) Statement as to domestic use (giving location, etc.) available to all residents of North Sioux City

II. Stockwatering, mining, milling, power, fish culture, fire protection and public recreation:

- (a) Nature of use fire protection
 Name any of the above uses claimed

- (b) Amount of power to be generated _____ horse power.

Amount claimed for engine cooling _____

- (c) Location of plant _____

- (d) Method of developing power _____

- (e) Point where water will be returned to stream _____

Map No 107-3

Estimated cost of work:

(a) Head gates, \$.....

(b) Pumping plant, \$.....

(c) Flumes, \$.....

(d) Canal-earth, \$.....

Rock, \$.....

(e) Other structures

Total, \$.....

Description of diversion works: See Form 24.

1. Nature of works: (Reservoir, dam, ditch, flume, pumping plant, etc.)

II. Dimensions of works.

(a) Dam: Height.....feet; length at bottom.....feet; length at top.....feet; thickness at bottom.....feet; thickness at top.....feet; slope at front water face.....; slope at back face.....material used in construction

(b) Reservoir: Capacity when filled.....acre feet. Surface area at highwater mark.....acres.

DEPTH AT OUTLET-Feet	SURFACE AREA AT EACH DEPTH AT OUTLET--ACRES	FEET	ACRE-Feet CAPACITY

(c) Head gate: Width.....feet; height.....feet; Material

(d) Canal: Total length.....miles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER-LINE	GRADE PER MILE
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet
At.....Mile	feet	feet	feet	feet

(Give dimensions where reductions in size are made.)

10. Time required for completion of work.....one-half.....years.

11. Time required for complete application of water to the proposed beneficial use.....one-half.....years.

12. Choice of newspaper for publication of notice of intention to appropriate

Leader-Courier, Elk Point, S. Dak.

STATE OF SOUTH DAKOTA

County of Union

ss.

I, Jacob Goede, being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of owner, that I have read the above foregoing statement, examined the map accompanying the same, and that I know of my own personal knowledge that the matters therein stated and shown are true.

Signed

Jacob Goede
Mayor, City of North Sioux City

Subscribed and sworn to before me this

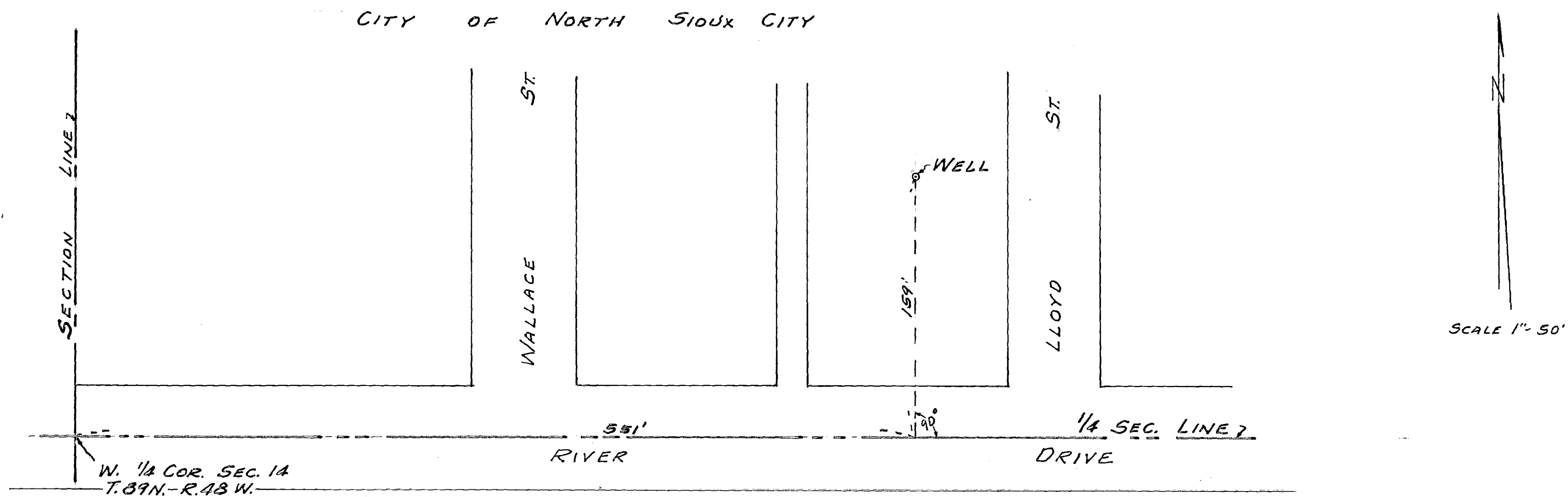
16th

day of

December

1963

L. White
Notary Public (or other qualified officer.)



SURVEYOR'S CERTIFICATE

I, Frank J. Bohac, Registered Land Surveyor, do hereby certify that I have surveyed the well location for the City of North Sioux City, South Dakota and that the location and dimensions shown on this plat are true and correct. In witness whereof I have set my hand and seal this 16th day of December, 1963.

Frank J. Bohac
Registered Land Surveyor

SEAL

STATE OF IOWA }
COUNTY OF WOODBURY } SS

Subscribed and sworn to before me this 16th day of December, 1963.

SEAL

My Commission expires July 4, 1963.

John M. Jacobson
Notary Public

MAP N^o 707-3
(APPL N^o 1069-3)

Remarks by State Water Resources Commission:

STATE OF SOUTH DAKOTA
County of Hughes ss.

Pierre, South Dakota, March 13, 1964

This is to certify that the foregoing application was received by the Commission at 1:30 o'clock
P.m. upon the 18th day of December, 1963

State Water Resources Commission

By:

Fulton Howe
for Chief Engineer, Executive Officer

Number of permit 1069-3

Date of first receipt of application December 18, 1963

Date of return to applicant for correction, amendments or changes required as follows: _____, 19____

Date of receipt of corrected application _____, 19____

Date from which applicant may claim right December 18, 1963

Approved March 11, 1964, Recorded in Book 8 Page 164

This is to certify that we have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and we hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth of the work above specified is to be completed on or before _____

June 11, 1964

2nd. The whole of said work is to be completed on or before September 11, 1964

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is

March 11, 1965

4th. The water appropriated shall be used for the purpose of municipal use

5th. 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.

6th. The amount of the appropriation herein granted shall not exceed .55 cubic feet per second; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for ~~the production of crops in the service of the best industry, and further, said appropriation must be limited to not more than one~~ summit of 1.70 cubic feet of water per second of time for each acre of land to which water is actually

USED FOR MUNICIPAL PURPOSES

and beneficially applied for irrigation on or before March 11, 1964, said water to be used during the following described annual period:

Continuously
Witness my hand this 13th day of March, 1964

State Water Resources Commission

By:

Will Barnes
Chief Engineer, Executive Officer

Certificate of Construction Issued

DECEMBER 15, 1970

Water License Issued

DECEMBER 15, 1970

Form 2A — Wells (Supplement to Form 2)

9. (Continued)

III. Well Specifications

(a) Hole and casing

Size of drill hole or excavation 17" Depth 210 ft.

Type of casing steel
(wood, concrete, steel, etc.)

Size of casing 12" Thickness of casing375"

Length of casing 200 ft. If collection gallery, length, size and depth of
gallery

(b) Screens

Type of perforated screen Layno- stainless steel shutter type

Size of perforated screen 6" 10 ft.
(diameter) (length)

Thickness of gravel pack 13" length of gravel pack 80'

(c) Water Bearing Materials

static level 28' Character of water bearing materials

Dakota sandstone

Thickness of water bearing material 72' from 158' to 210'

(d) Pump and Motor

Type of pump vertical turbine
(centrifugal, propeller, mixed flow, etc.)

Name of pump Fairbanks size 250 P.P.M.

Kind of motor electric
(gasoline, electric, diesel, etc.)

Horsepower 20 Name of Motor Westinghouse

(e) Complete well

Capacity 250 P.P.M. at drawdown of 27' Estimated cost 16,600

(f) Owner of land upon which well is located City of North Sioux City
Name

North Sioux City, S. Dak.
Address

(g) Distance to nearest existing wells

On same owner's property 5 rods. On property owned by others 12 rods

These wells are shallow wells to be abandoned as system is operable.

Permit No. 1069-3

Water Diversion No. 3 BIG SIOUX RIVER Water District

CERTIFICATE OF CONSTRUCTION

This is to Certify, That _____ the City of North Sioux City

the holder _____ of
Permit No. 1069-3, issued upon Application No. 1069-3, bearing date of priority of December 18,
1963 authorizing the diversion of .55 cu. ft. per second of the waters of _____
ground water County of Union, State of South Dakota at _____
a point 551 feet East and 159 feet North of the $W\frac{1}{2}$ Corner, Section 14,
T69W, R48W

_____, for _____ MUNICIPAL

purposes, has 8 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 found in satisfactory condition for diverting and conveying to the place of intended use .55 cu. ft. per second of water.

Date December 15, 1970

WATER RESOURCES COMMISSION

By:

J.W. GRIMES, Executive Officer

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1069-3

(1) WHEREAS, On the 18th day of December A. D. 19 63
the City of North Sioux City

made Water Right Application No. 1069-3 for a permit to use .55 cubic feet per second of the waters
of ground water

County of Union State of South Dakota, for Municipal

_____ purposes; and
(2) WHEREAS, On the 13th day of March A. D. 19 64

Permit No. 1069-3, with a date of priority of December 18, 1963

was issued to said applicant _____ for the diversion of said water, and provided for the completion of construction of the water
supply system therein described on or before the 11th day of September A. D. 19 64 and for the
application to beneficial use of said water on or before the 11th day of March A. D. 19 65

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 .55 cubic feet
per second 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 for municipal purposes by the City of North Sioux City

(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 City of North Sioux City

_____ of South Dakota
the holder _____ and owner _____ of said permit No. 1069-3 a water right, dating from December 18, 1963
_____ to use of .55 cubic feet per second of the waters
of ground water
in the County of Union and State of South Dakota, or so much thereof as may be necessary for the
purposes hereinbelow mentioned, to be diverted at a point 551 ft. East and 159 ft. North of the W $\frac{1}{2}$ Corner, Section 14, 189N, R48W

_____ ed ~~XXXXXXX~~ through the City water distribution system
and conduct ~~for and upon~~ _____

_____ municipal use
for the purpose of _____

Subject to any limitations listed in Water Right Permit No. 1069-3 and subject to the laws of the State of South Dakota.

WITNESS, My hand and seal of our office at Pierre, South Dakota
this 15th day of December A. D.
Nineteen Hundred and Seventy

WATER RESOURCES COMMISSION

By: _____
Chief Engineer, Executive Officer, J.W. GRIMES

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA }
 County _____ } ss.

Byron Helgerson being duly sworn, deposes and says the annexed printed copy of Notice of Intention to Appropriate Water was taken from the _____

The Leader Courier a newspaper which during the whole time of publication of said notice herein after stated, has been and is printed and published in the city _____ of Elk Point County of _____

Union and State of South Dakota; that the said notice was published in said newspaper on the following dates:

2 13 64

2 20 64

2 27 64

3 5 64

in each and every issue of the full number thereof, the first publication being made on the 13th day of February 1964 and the last publication on the 5th day of March 1964, upon which days or times of publication aforesaid the newspaper was regularly published, and that during the whole time of said publication he was editor the printer and publisher of the said newspaper.

Byron Helgerson

Subscribed and sworn to before me this 5th day of March A. D. 1964

Edith Helgerson

Notary Public _____ County, S. D.

APPROPRIATION OF WATER

Office of State Water Resources Commission, Pierre, S. Dak., February 7, 1964.

Notice is hereby given that the City of North Sioux City, S. Dak., has made an application in accordance with the provisions of the water laws of South Dakota for a permit to appropriate for beneficial use .55 cubic feet of water per second of time from ground water through the municipal well, the point of diversion of which is to be located in the SW¼ of the NW¼ of Section 14, Twp. 89N, Range 48W. Said water to be used for the purpose of providing municipal supplies for the City of North Sioux City.

This application will be taken up by the State Water Resources Commission at their office at Pierre for consideration upon the 11th day of March, 1964, at 2 P.M. All interested persons may appear and be heard.

Appropriate action will be taken by the Water Resources Commission after suitable time has elapsed for the consideration of any or all information presented.

State Water Resources Commission

By: BURTON F. JONES
 Water Right Specialist
 (Pub. Feb. 13, 20, 27, Mar. 5)

on or before February 13 64
(First Publication , 19)

APPROPRIATION OF WATER

Office of State Water Resources Commission,

Pierre, S. Dak., February 7, 19 64

Notice is hereby given that the City of North Sioux City whose post office address is ~~XXXX~~ S. Dak., has made an application in accordance with the provisions of the water laws of South Dakota for a permit to appropriate for beneficial use .55 cubic feet of water per second of time from the ground water through the municipal well , the point of diversion of which is to be located on the ~~bank of said stream~~ in the SW 1/4 of the NW 1/4 of Section 14 Twp. 89N Range 48W . Said water to be used for the purpose of providing irrigation on the following described land:
municipal supplies for the City of North Sioux City.

~~XXXX~~ purposes:

This application will be taken up by the State Water Resources Commission at their office at Pierre for consideration upon the 11th day of March, 19 64, at 2 P. M. All interested persons may appear and be heard.

Appropriate action will be taken by the Water Resources Commission after suitable time has elapsed for the consideration of any or all information presented.

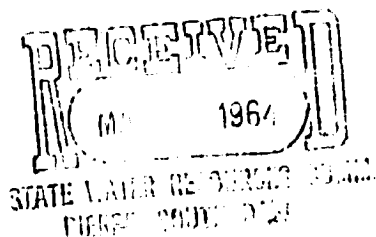
State Water Resources Commission

By:

BURTON F. JONES

Water Right Specialist

CC: Byron Helgerson, Publisher
Leader-Courier
Elk Point, South Dakota



Permit No. 1069-3
 Water Division 3 Sioux River Water District

REPORT OF EXAMINATION OF WORKS
 AND/OR APPLICATION OF WATER TO BENEFICIAL USE

TO: Water Resources Commission, State Office Building No. 2, Pierre, South Dakota 57501

I have this day made a thorough examination of the water use system constructed by the City of
North Sioux City of North Sioux City, South Dakota holder
 of Permit No. 1069-3, bearing date of priority of December 18, 19 63
 authorizing the diversion of 0.55 cu. ft. per second of the waters of ground water
 for x municipal purposes, in Union County.

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

The Water Use System consists of,

A. Works used to divert the water:

Well, 240 ft. deep, 12 inch steel casing
 Fairbanks Morse pump, 6 inch
 Westinghouse electric motor, 20 HP

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

City distribution system including 100,000 elevated storage

C. Works used to apply water to beneficial use.

400 service connections

The system is in the following condition: Very Good

The point of diversion is located at a point 551 feet east and 159 feet north of the W¹/₂
corner of Section 14, T89N, R48W

The works are capable of diverting and conveying to the place of use 0.55
cu. ft. per second of water which is to be used for municipal purposes

Water has been put to beneficial use to the maximum extent as follows: As indicated above for municipal purposes

completed by XXXXXXXXXXXXXXXXXXXX

Brovak

Send notice to Marie Brovak, City Auditor, North Sioux City, S.D.

Date: October 1, 1970

Donald Driscoll
 (Signature)

DONALD DRISCOLL, Deputy Chief Engineer
 Water Resources Commission

MUNICIPAL WATER WELL
CITY OF NORTH SIOUX CITY
NORTH SIOUX CITY, S. D.

SPECIFICATIONS

#2164

Prepared by: Schmucker, Paul, Mohr & Associates
Consulting Engineers
620 N. Lowler, PO Box 357
Mitchell, South Dakota 57301
Telephone: (605) 996-7761

May, 1973

**MUNICIPAL WATER WELL
NORTH SIOUX CITY, SOUTH DAK.**

TABLE OF CONTENTS

Notice to Bidders

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Detail Sheet - Gravel Pack

Detail Sheet - Natural Pack

Well Location Map

NOTE: CHANGE OF DATE OF BID LETTING

NOTICE TO BIDDERS

Notice is hereby given that sealed bids will be received by the City Council of the City of North Sioux City, South Dakota, at the office of the City Auditor at the City Hall, until 8:00 p.m., May 21, 1973, at which time the bids will be publicly opened and read aloud for furnishing all plant, labor, materials and equipment and performing all work for the constructing of a Municipal Water Well.

The scope of the work will involve drilling a pilot hole, reaming, casing, grouting and well development and test pumping. Estimated well depth is 240 feet with a diameter of 12 inches.

The bidder shall submit the proposal on the form prescribed and proposals will be rejected if they show any conditional or uncalled for alternate bids. The proposal shall be submitted in sealed envelopes, marked "Proposal - City of North Sioux City Well" and listing the bidder's name.

All bids shall be on the basis of cash payments for the work accomplished, payable in 90 days after acceptance by the Owner.

Each bidder shall submit his qualifications, using the suggested form. These qualifications shall be submitted in a sealed envelope at the time of the opening of bids. The envelope shall be marked "Qualifications" and list the bidder's name. Bid Proposal and Qualifications Form shall be submitted in separate envelopes.

Each bid must be accompanied by a certified check or draft on a South Dakota bank in the amount of at least five percent of the amount bid; or a bid bond in the amount of ten percent of the amount bid, per the laws of the State of South Dakota. In case the bid is accepted and the bidder fails to enter into a contract with the City, the amount of the certified check or bond shall be forfeited to the City as liquidated damages.

The City Council reserves the right to retain the bid guarantee of the three lowest bidders for a period not to exceed 30 days after the date and the time set for opening of the bids. The City Council reserves the right to reject any and all bids in any part thereof and further reserves the right to award the contract in the best interests of the City.

Plans and specifications, proposal forms, and contract documents for the project may be seen and inspected at the office of the City Auditor, or at the office of Schmuck, Paul, Nohr & Associates, 620 N. Lawler, Mitchell, South Dakota. Plans and specifications and proposal forms may be obtained from the Engineer's office, PO Box 357, Mitchell, South Dakota 57301.

Published by the authority of

City Auditor
North Sioux City, South Dakota

PROPOSAL

Date _____

To City of North Sioux City
North Sioux City, SD

For: Glacial Outwash Well (Gravel Pack)

Pursuant to the foregoing invitation to bidders the undersigned has thoroughly examined the plans, specifications, and the site, and understands the amount of work to be done and here proposes to do all the work and furnish all labor, equipment, and materials necessary to fully complete all of the work as provided in the plans and specifications and subject to the inspection and approval of the Engineer, binds himself on acceptance of this proposal by the Owner to execute a contract and furnish performance bonds acceptable to the Owner for performing and completing said work within the time stated for the following sums, to-wit:

Item	Description	Quantity	Unit Price	Total Price
1.	Pilot hole	175 L.F.	\$	\$
2.	Reaming pilot hole to 16"	60 L.F.	\$	\$
3.	Casing, 12" ID, Sched. 40 Steel	60 L.F.	\$	\$
4.	Grouting of Casing into hole	60 L.F.	\$	\$
5.	Underreaming	105 L.F.	\$	\$
6.	Screen, 8" stainless	75 L.F.	\$	\$
7.	Blank screen, 8" stainless	40 L.F.	\$	\$
8.	Gravel pack	105 L.F.	\$	\$
9.	Well development	24 hours	\$	\$
10.	Test pumping	24 hours	\$	\$
11.	Mobilization		L.S.	\$
12.	Underground discharge		L.S.	\$
13.	Well pump and foot valve complete in place, 200 gpm including disconnect, and wiring		L.S.	\$
TOTAL BASE BID				\$

ALTERNATE PROPOSAL: Glacial Outwash Well (Natural Pack)

1.	Pilot hole	175 L.F.	\$	\$
2.	Reaming hole to 16"	60 L.F.	\$	\$
3.	Casing, 12" I.D. Sched. 40 Steel	60 L.F.	\$	\$
4.	Grouting of casing into hole	60 L.F.	\$	\$
5.	Screen, 11" O.D. stainless	75 L.F.	\$	\$
6.	Stainless steel blank screen & Packer, 11" O.D.,	35 L.F.	\$	\$
7.	Well Development	24 hours	\$	\$
8.	Test pumping	24 hours	\$	\$

PROPOSAL

Date _____

To City of North Sioux City
North Sioux City, SD

For: Glacial Outwash Well (Gravel Pack)

Pursuant to the foregoing invitation to bidders the undersigned has thoroughly examined the plans, specifications, and the site, and understands the amount of work to be done and here proposes to do all the work and furnish all labor, equipment, and materials necessary to fully complete all of the work as provided in the plans and specifications and subject to the inspection and approval of the Engineer, binds himself on acceptance of this proposal by the Owner to execute a contract and furnish performance bonds acceptable to the Owner for performing and completing said work within the time stated for the following sums, to-wit:

Item	Description	Quantity	Unit Price	Total Price
1.	Pilot hole	175 L.F.	\$	\$
2.	Reaming pilot hole to 16"	60 L.F.	\$	\$
3.	Casing, 12" ID, Sched. 40 Steel	60 L.F.	\$	\$
4.	Grouting of Casing into hole	60 L.F.	\$	\$
5.	Underreaming	105 L.F.	\$	\$
6.	Screen, 8" stainless	75 L.F.	\$	\$
7.	Blank screen, 8" stainless	40 L.F.	\$	\$
8.	Gravel pack	105 L.F.	\$	\$
9.	Well development	24 hours	\$	\$
10.	Test pumping	24 hours	\$	\$
11.	Mobilization		L.S.	\$
12.	Underground discharge		L.S.	\$
13.	Well pump and foot valve complete in place, 200 gpm including disconnect, and wiring		L.S.	\$
TOTAL BASE BID				\$

ALTERNATE PROPOSAL: Glacial Outwash Well (Natural Pack)

1.	Pilot hole	175 L.F.	\$	\$
2.	Reaming hole to 16"	60 L.F.	\$	\$
3.	Casing, 12" I.D. Sched. 40 Steel	60 L.F.	\$	\$
4.	Grouting of casing into hole	60 L.F.	\$	\$
5.	Screen, 11" O.D. stainless	75 L.F.	\$	\$
6.	Stainless steel blank screen & Packer, 11" O.D.,	35 L.F.	\$	\$
7.	Well Development	24 hours	\$	\$
8.	Test pumping	24 hours	\$	\$

Item	Description	Quantity	Unit Price	Total Price
9.	Mobilization		L.S. \$	
10.	Underground discharge		L.S. \$	
11.	Well pump and foot valve, complete in place, including starter, disconnect and wiring, 200 gpm		L.S. \$	
TOTAL ALTERNATE BID				\$

Prices bid shall include all necessary taxes, fees, licenses, etc. The undersigned agrees to start construction within _____ days of Notice to Proceed and will complete the work within _____ days after starting.

Within ten days of notice of Acceptance of this bid, the undersigned will execute the formal contract and will deliver to the owner approved surety bonds for the faithful performance and maintenance of this contract.

CONTRACTOR:

Abbreviations:

L.F. Linear Foot
L.S. Lump Sum

By _____
Title _____
Date _____
Address _____

ACKNOWLEDGEMENT OF RETURN OF BID SECURITY

Being an unsuccessful bidder, the undersigned acknowledges the return of his bid security, a _____, No. _____, in the amount of \$ _____

BIDDER: _____
By _____
Title _____
Date _____

STATEMENT OF QUALIFICATIONS

(SUBMIT SEPARATELY)

To: Mayor and City Council
City of North Sioux City
North Sioux City, SD

Project: Municipal Water Well
At: North Sioux City, SD

Date Submitted: _____ Letting Date: May 21, 1973

The following statements of qualifications and experience are current for:

Organization's Name / Address

We are incorporated in the State of _____

Our principal contract work is _____

1. Experience Record:

a. Completed Projects (list 5 minimum)

Location and Description of Work	Owner	Cont. Amt.	Date completed
----------------------------------	-------	------------	----------------

b. Work in Progress:

Location & Description of Work	Owner	Cont. Amt.	Status & Remarks
--------------------------------	-------	------------	------------------

Add additional sheets if required.

CONSTRUCTION CONTRACT

THIS AGREEMENT made and entered into this ____ day of _____, 19____, by and between _____, party of the first part, hereinafter designated as the OWNER and _____, party of the second part, hereinafter designated as the CONTRACTOR.

WITNESSETH: That the Contractor, for and in payments made to him as herein specified, hereby covenants and agrees to perform and execute all of the provisions of the plans, specifications and proposals for the project entitled _____, and shall provide and furnish all of the labor, materials, necessary tools, expendable equipment and all utility and transportation service required to complete the construction of the project, all in strict accordance with the plans and specifications, including any and all addenda, and in strict accordance with the contract documents hereinafter enumerated. It is understood and agreed that said labor, materials, tools, equipment and service shall be furnished and said work performed and completed under the direction and supervision and subject to the approval of the city or its authorized representative.

CONTRACT PRICE: In consideration of the performance by the Contractor of his covenants and agreements as herein set forth, the Owner hereby covenants and agrees to pay the Contractor according to the prices set forth in the attached proposal at the time and in the manner stated in the attached proposal at the time and in the manner stated in the attached specifications.

COMPONENT PARTS OF CONTRACT: This contract consists of the following component parts, all of which are hereby made a part hereof as if herein set out in full.

1. Advertisement for Bids
2. Information for Bidders
3. Proposal
4. General Conditions
5. Special Conditions
6. Detailed Specifications
7. Complete Plans
8. Construction Contract

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be
executed as of the day and year first above written in its numerous
counterparts, each of which shall for all purposes be deemed an original.

CONTRACTOR:

(SEAL)

ATTEST:

BY

TITLE

TITLE

OWNER:

(SEAL)

ATTEST:

BY

TITLE

TITLE

Provision has been made to pay the
liability that will accrue under
this contract.

Approved as to form:

ATTORNEY FOR OWNER

DATE

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS:

Bond No. _____

That we _____
(Contractor)

_____, of _____

as Principal, and the _____

are held and firmly bound unto _____
(Owner)

_____, hereinafter called the Obligee, in the
sum of _____ (\$ _____)

Dollars, for which payment said Principal and Surety bind themselves by these
presents.

WHEREAS, the Principal has entered into a written contract with the Obligee
dated the _____ day of _____, 19____, to:

which contract and specifications are hereby referred to and made a part hereof.

NOW, THEREFORE, the condition of this obligation is such, that if the said
principal shall faithfully perform said contract and indemnify the said Obligee
from any loss, resulting from the breach of any of the terms and conditions
thereof and shall promptly pay all persons supplying labor or material in the
prosecution of the work provided for in such contract, then this obligation
shall be void, otherwise to remain in full force and effect.

Dated this _____ day of _____, 19____.

Countersigned _____

ACKNOWLEDGMENT OF SURETY

STATE OF _____)
) SS
COUNTY OF _____)

On this _____ day of _____, 19____,
before me, the undersigned officer, personally appeared _____
_____ who acknowledged himself to be the _____
_____ of the _____
Official Title or Attorney-in-Fact
_____, and that he as such officer, being
authorized so to do, executed the foregoing instrument for the purposes therein
contained by signing the name of the corporation by himself as such officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my
official seal the day and year last above written.

My Commission Expires:

Notary Public

GENERAL CONDITIONS

GC-1 - DEFINITIONS

Wherever in the Contract Documents the following terms are used, the intent and meaning shall be as follows:

- 1.01 Bidder. An individual, firm, or corporation submitting a proposal.
- 1.02 Calendar Day. One day, covering the 24-hour period from one midnight to the next midnight.
- 1.03 Contract. The agreement between Owner and Contractor, covering the performance of the work, including the furnishing of materials if so stated.
- 1.04 Contract Documents. Those documents comprising the contract, as listed in the Instructions to Bidders.
- 1.05 Contractor. The party named in the Contract.
- 1.06 Engineer. Schmucker, Paul, Nohr & Associates, Inc.
Consulting Engineers
620 N. Lawler, PO Box 357
Mitchell, S. D. 57301
- 1.07 Inspector. The authorized representative of the Engineer assigned to inspect any or all parts of the work and the materials to be used therein.
- 1.08 Owner. The party named in the Contract.
- 1.09 Performance-Payment Bond (referred to as Bond). The security furnished by the Contractor, as prescribed by Item 2.03 of these General Conditions.
- 1.10 Plans. The plans, profiles, general details, layouts and supplemental drawings or reproductions thereof, which show the location, character, dimensions and the details of the work, and which are a part of the contract.
- 1.11 Proposal. The offer of the Bidder, made out on the prescribed form, giving prices for performing the work described in the Plans and Specifications.
- 1.12 Proposal Guaranty. The security required in the Notice to Bidders.
- 1.13 Specifications. The directions, provisions, and requirements contained in the Contract Documents or as supplemented by change orders. Where the phrases, "ordered by the Engineer" or "to the satisfaction of the Engineer" occur, it is to be understood that the directions, orders or instructions to which they relate are within the limitations of the specifications. Change orders will cover alterations in the plans and specifications, which are necessary to the proper completion of the work and will take precedence over the original specifications wherever in conflict therewith.

1.14 Subcontractor. Any person, firm or corporation with a direct contract with the Contractor who acts for or in behalf of the Contractor in executing any part of the Contract, but does not include one who merely furnishes material.

1.15 Superintendent. The authorized representative of the Contractor.

1.16 Surety. The corporate body which is bound with the Contractor for the faithful performance of the work governed by the Contract.

1.17 Working Day. A working day is defined as a calendar day, not including Sundays or legal holidays, in which weather or other conditions not under the control of the Contractor will permit the performance of the principal units of work under way for a continuous period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.

1.18 Written Notice. Written notification from one Contract party to the other Contract party, or either party's authorized representative. Written notice shall be considered as served when delivered in person or sent by registered mail to the last business address known to him who serves the notice. It shall be the duty of each party to advise the other parties to the Contract as to any change in his business address until completion of the Contract.

1.19 Or Equal Clause. Where specific material or equipment is named in the specifications, it is understood that other makes of equal size, quality and performance will be acceptable, if approved as equal by the Engineer in writing prior to the letting. Requests for such approval must be made to the Engineer at least ten (10) days prior to the opening of bids. The approval of material or equipment as equal to that specified will be made in writing in the form of an addendum issued by the Engineer to all plan holders of record. The base bid and any alternate should be based on materials only as specified or approved.

Should the bidder desire to use material or equipment in lieu of those specified or approved, he must so state on the Proposal form, giving the proper deductions or additions as provided for below. The award of the contract will not be based on the deductions or additions so given. After the contracts have been awarded, the Owner and the Engineer will make the decision regarding the use of materials listed in the proposals.

Where the bids are called for the purchase of material, furnishings and equipment of a particular make or kind named in the specifications, the bidders may bid on other makes or kinds of a similar nature, but they must name the make and give the name of the manufacturer and a catalog description and the price of the item on which the bids are based. If the above information is not given, but only price listed, it will be assumed that bidders are bidding on the make and kind named in the specifications and they will be required to furnish that make, and kind, at the price listed, at the penalty of forfeiture of their bid deposit.

GC-2 - AWARD AND EXECUTION OF CONTRACT

2.01 Award of Contract. The award of the Contract, if it be awarded, will be made in the best interest of the Owner. The award will be within thirty (30) days after the opening of the Proposal, but in no case will award be made until the responsibility of the Bidder to whom it is proposed to award the Contract has been investigated. The Owner has the right to reject any or all Proposals and to refuse to award the Contract to any Bidder for any reason the Owner feels in his best interests.

2.02 Return of Proposal Guaranties. Proposal guaranty of the three lowest Bidders will be retained until after the contract has been awarded and the Bond made. Proposal guaranty of all except the three lowest bidders will be returned within forty-eight (48) hours after the opening of the bids.

2.03 Execution of Contract and Bond. Within ten (10) days after written notification of award of Contract, the successful bidder shall execute and file with the Owner a Contract and Bond with an acceptable surety company as surety in the amount of at least 50 percentum or more of the contract price as security for the faithful performance of this contract, and a surety bond in the amount of at least 50 percentum or more of the Contract price as security for the payment of all persons performing labor or furnishing materials or equipment in connection with this Contract. The Bond shall also cover the warranty set forth in Item 4.6 of these General Conditions.

2.04 Failure to Execute Contract. Should the successful Bidder refuse or neglect to execute and file the Contract and Bond within the ten (10) days after written notification of the award of the Contract, the Proposal guaranty shall be enforced by the Owner as provided by law.

GC-3 - SCOPE OF WORK

3.01 Intent of Plans and Specifications. It is the intent of the plans and specifications to describe a completed work to be performed under the Contract. Unless otherwise provided, it is also the intent that the Contractor shall furnish all materials, supplies, tools, equipment, labor, and incidentals necessary for the proper prosecution and completion of the work.

3.02 Changes and Alterations. The Engineer shall have the right to make such changes and alterations in the plans or in the quantities of the work as may be considered necessary or desirable, and such changes and alterations shall not be considered as a waiver of any condition of the Contract, nor shall such changes invalidate any of the provisions thereof. The Contractor shall perform the work as decreased or increased, and no allowances will be made for anticipated profits. When such changes and alterations increase or decrease the quantity of work to be done or materials to be furnished under any item in excess of twenty-five (25) percent, then either party to the Contract shall upon demand, be entitled to a revised consideration on that portion of the work above or below twenty-five (25) percent of the quantity stated in the proposal, such revised consideration to be determined by special agreement.

3.03 Extra Work. Additional work made necessary by changes and alteration of plans or for other reasons, for which no prices are provided in the contract, shall be defined as "Extra Work" and shall be performed by the Contractor in accordance with these specifications as directed, provided, however, that before any extra work is begun, a "Change Order" shall be executed, defining the nature and contract price of such extra work.

3.04 Obstructions. Where, during the progress of the work, there are any pipes, structures, track, highway, or public utility that will be affected by his operations, the Contractor shall give written notice of the fact at least forty-eight (48) hours before starting his operations to the party owning such pipes, structures, track, highway or public utility affected.

3.05 Final Cleaning Up. Upon completion of the work and before acceptance and final payment is made, the Contractor shall clean, remove rubbish and temporary structures from the right-of-way, restore in an acceptable manner all property, both public and private, which has been damaged during the prosecution of the work; and leave the site of the work in a neat and presentable condition throughout. Materials cleared from the right-of-way and deposited on property adjacent thereto will not be considered as a satisfactory method of disposal, unless approved by owner of the adjacent property. No payment will be made for this work, its cost being included in the Bid.

3.06 Warranty. The Contractor shall warrant his portion of the project against any defect in materials or workmanship for a period of one year from the date of final acceptance by the Owner. In case any such defect shall appear and is reported in writing to the Contractor during the warranty period, the Contractor shall make any necessary repairs without charge to the Owner.

GC-4 - CONTROL OF THE WORK

4.01 Beginning of Work. The Contractor shall not begin work until authorized to do so in writing by the Owner or the Engineer.

4.02 Authority of Engineer. The work shall be done to the satisfaction of the Engineer and in accordance with the Contract. The Engineer will decide all questions which may arise as to the quality or ability of materials furnished and work performed; the manner of the performance and the rate of progress of the work; and the interpretation of the Plans and Specifications.

4.03 Shop Drawings. Where supplementary working drawings are necessary, they shall be furnished by the Contractor and approved by the Engineer. Authorized alterations will be endorsed on the Plans or shown on supplemental sheets. The approval by the Engineer of shop drawings will not relieve the Contractor of any responsibility of the Contract. The Contractor shall furnish the Engineer with such blueprint copies of the shop drawings as may be required, and upon completion of the work the tracings of such drawings, if required, shall be delivered to the Engineer. The contract price shall include the cost of furnishing all shop drawings.

4.04 Conformity with Plans and Specifications. Finished work in all cases shall conform with the Plans and Specifications. Deviations from the Plans and Specifications will, in all cases, be decided by the Engineer and must be authorized in writing. The Contractor shall be furnished with three copies of the Plans and Specifications without expense to him, and he shall keep one copy of same constantly accessible on the site of the work. Additional copies may be purchased at reproduction cost.

4.05 Coordination of Plans and Specifications. These Plans and Specifications and Change Orders are essential parts of the Contract, and any requirement occurring in one is as binding as though occurring in all. They are intended to be complimentary and to describe a complete work. In cases of disagreement, figured dimensions shall govern over scaled dimensions. Any discrepancy between Plans and Specifications noted by the Contractor shall be called to the attention of the Engineer for interpretation.

4.06 Contractor's Duty. The Contractor shall at all times keep a competent superintendent or foreman upon the work, fully authorized to act for him in his absence, and to receive such orders as may be given for the proper continuance of the work. Notice to do any work or alter work, to cease work which the Contractor is obligated to do, or concerning any imperfections in work or any material furnished, when given to any foreman or agent of the Contractor in charge of any operation of the work in the absence of the Contractor, shall be considered as notice to the Contractor, provided any notice given under this paragraph shall be in writing.

4.07 Construction Stakes. The Engineer will set construction stakes, establish lines and grades and will furnish the Contractor with all necessary information relative to same. The Contractor shall notify the Engineer of his intention to start any portion of the work and shall furnish the stakes and the helpers, if requested, for laying out the work. The Contractor will be held responsible for the preservation of all stakes and bench marks.

4.08 Authority and Duties of Inspectors. An Inspector may be stationed on the work to report to the Engineer as to the progress of the work, the adequacy with which it is being performed and the fulfillment of the requirements of the Contract. Such inspection will not relieve the Contractor from any obligation to perform. The Inspector will have authority to reject materials or suspend work until any question can be referred to and decided by the Engineer. The Inspector will not, however, be authorized to revoke, alter, enlarge, or release any requirements of the Contract. He will in no case act as foreman or perform other duties for the Contractor. He will not interfere with the management of the work of the Contractor.

4.09 Inspection. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether or not the work as performed is in accordance with the requirements and intent of the Specifications and of the Contract. The Contractor shall not cover or bury any work until it has been inspected and approved. Such approval shall not release the Contractor from his obligation if in the event subsequent inspections reveal deficiencies in his work.

4.10 Removal of Defective and Unauthorized Work. All work which has been rejected shall be remedied or removed and replaced in an acceptable manner by the Contractor at his own expense. Work done beyond the lines and grades given, or as shown on the plans, except as herein provided, or any extra work done without written authority will be considered as unauthorized, and done at the expense of the Contractor, and will not be paid for. Work so done may be ordered removed at the Contractor's expense. Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this paragraph, the Engineer will have authority to have defective work remedied or removed and replaced, unauthorized work removed, and the cost thereof may be deducted from any money due or to become due the Contractor.

4.11 Final Inspection. Whenever the work has been completed and the final cleaning up performed, the Contractor shall request the Engineer, in writing, to make a "Final Inspection." Such inspection shall be made within ten days after such request has been received by the Engineer, or at a time mutually agreed to by all parties. If unsatisfactory work is found, the inspection shall not be considered final until all such work has been corrected by the Contractor, who shall then file a new request for a "Final Inspection." No time charge will be made against the Contractor between said date of notification to the Engineer and the date of final inspection of the work.

GC-5 -- CONTROL OF MATERIALS

5.01 Quality of Materials. Only materials conforming to the requirements of these specifications and approved by the Engineer shall be used in the work. The materials proposed to be used may be inspected or tested at any time during the preparation or use. No material, which, after approval, has in any way become unfit for use, shall be used in the work.

5.02 Storage of Materials. Materials shall be stored so as to insure the preservation of their quality and fitness for the work.

5.03 Samples and Tests. Sampling and testing of all materials proposed to be used shall be made in accordance with the methods prescribed by the A.S.T.M. or other standard methods. The Contractor shall provide such facilities as may be required for the verification of the scales, measures and other devices used.

5.04 Defective Material. All materials not conforming to the requirements of these specifications will be rejected and shall be removed immediately from the site of the work unless permitted to remain by the Engineer. Rejected materials, the defects of which have been subsequently corrected, shall have the status of new material.

GC-5 - LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

6.01 Laws to be Observed. The Contractor shall make himself familiar with, and at all times shall observe and comply with all Federal, State and local laws, ordinances and regulations which in any manner affect the conduct of the work and shall indemnify and save harmless the Owner and the Engineer and its representatives against any claim arising from the violation of any such law, ordinance or regulation, whether by himself or by his employees.

6.02 Permits and Licenses. The Contractor shall procure all permits and licenses, pay all charges and fees and give all notices necessary and incident to the due and lawful prosecution of the work.

6.03 Patented Devices, Materials and Processes. If the Contractor is required or desires to use any design, device, material or process covered by letters patent or copyrighted, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the Surety shall indemnify and save harmless the Owner and Engineer from any and all claims from infringements by reason of the use of any patented design, device, material or process, or any trademark or copyright used in connection with the work agreed to be performed under the Contract; and shall indemnify the Owner and Engineer against any cost, expense, or damages which it may be obligated to pay by reason of such infringement at any time during the prosecution or after completion of the work.

6.04 Sanitary Provisions. The Contractor shall at his entire expense provide and maintain in a neat, sanitary condition such accommodations for the use of his employees, as may be necessary to comply with the law.

6.05 Protection of the Public. The Contractor shall at all times conduct the work in such manner as to insure the least possible obstruction to public traffic and protect the safety of the public. Public safety and convenience and provisions therefor made necessary by the work shall be the direct responsibility of the Contractor and shall be performed at his entire expense. Materials placed upon the site shall be located so as to cause as little obstruction to the public as possible. The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient warning lights, danger signals, signs, and take all necessary precautions for the protection of the work and safety of the public. The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The duty of any person to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

6.06 Insurance. The Contractor will not commence any work until he obtains at his own expense all required insurance. Such insurance must have the approval of the Owner as to limit, form and amount. The Contractor will not permit any Subcontractor to commence work on this project until the same insurance requirements have been complied with by such Subcontractor.

The types of insurance the Contractor is required to obtain and maintain for the full period of the Contract will be Workmen's Compensation Insurance, Comprehensive General Liability Insurance, and Builders' Risk "All Risk" Insurance as detailed in the following portions of this specification. Any insurance bearing on adequacy of performance will be maintained after completion of the project for the full guarantee period. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under this Contract.

As evidence of specified insurance coverage, the Owner may, in lieu of actual policies, accept certificates issued by the insurance carrier showing such policies in force for the specified period. Each policy or certificate will bear an endorsement or statement waiving right of cancellation or reduction in coverage without ten days notice in writing to be delivered by registered mail to the named insureds.

Workmen's Compensation Insurance: Before the agreement between the Owner and the Contractor is entered into, the Contractor will submit written evidence that he and all Subcontractors have obtained for the period of the Contract full Workmen's Compensation Insurance coverage for all persons whom they employ or may employ in carrying out the work under this Contract. This insurance will be in strict accordance with the requirements of the most current and applicable state Workmen's Compensation Insurance Laws.

Comprehensive General Liability Insurance: Before Commencement of the work, the Contractor shall submit written evidence that he and all his Subcontractors have obtained for the period of the Contract full Comprehensive General Liability Insurance coverage. This coverage will provide for both bodily injury and property damage. The bodily injury portion will include coverage for injury, sickness or disease, and death, arising directly or indirectly out of, or in connection with, the performance of work under the Contract, and will provide for a limit of not less than One hundred thousand and no/100 - - - - - Dollars for all damages arising out of bodily injury, sickness or disease to or death of one person, and a total limit of Three hundred thousand and no/100 - - - - - Dollars for damages arising out of bodily injury, sickness or disease and death of two or more persons in any one occurrence.

The property damage portion will provide for a limit of not less than Five hundred thousand & no/100 Dollars for all damages arising out of injury to or destruction of property of others arising directly or indirectly out of or in connection with the performance of work under this Contract and in any one occurrence including explosion, collopse and underground exposure.

Included in such insurance will be Contractual coverage sufficiently broad to insure that provision titled "Indemnity" hereinafter.

The Comprehensive General Liability Insurance will include as Additional Named Insured: the Owner; the Engineer and his consultants; and each of their officers, agents and employees.

Builders' Risk "All Risk" Insurance: Before commencement of the work, the Contractor will submit written evidence that he has obtained for the period of this Contract, Builders' Risk "All Risk" Completed Value insurance coverage (including earthquake) upon the entire project which is the subject of this Contract and including completed work and work in progress. Such insurance shall include as Additional Named Insured: the Owner; the Engineer and his consultants; and each of their officers, employees and agents; and any other persons with an insurable interest designated by the Owner as an Additional Named Insured.

Such insurance may have a deductible clause but not to exceed \$ 100. . (The deductible on Earthquake may be in accordance with the Underwriters requirements.)

6.07 Use of Explosives. When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives must be stored in a secure manner and all storage spaces shall be marked clearly "DANGEROUS - EXPLOSIVES." The method of storing and handling explosives and highly inflammable materials

shall conform with the Federal and State laws and regulations. Any and all use of explosives shall be with the express provision that the Contractor shall be and is hereunder responsible for any and all damages and claims arising from such use or from any accidental explosion of such explosives and for the defense of all actions arising from such causes.

6.08 Protection of Other Property. The Contractor shall take proper measure to protect any property which might be injured by any process of construction; and, in case of any injury or damage, he shall restore at his own expense the damaged property to a condition similar or equal to that existing before such injury or damage was done, or he shall make good such injury or damage in an acceptable manner.

6.09 Indemnity. The Contractor will hold harmless, indemnify and defend the Owner, the Engineer and his consultants and each of their officers and employees and agents, from any and all suits, actions and claims, losses or damage arising or alleged to arise from the performance of the work described herein but not including the sole negligence of the Owner, the Engineer and his consultants, and each of their officers and employees and agents; or on account of any claims or amount recovered for any infringement of patent, trademark, or copyright, except as herein elsewhere specifically provided; or from any claims or amounts arising or recovered under the "Workmen's Compensation Law" or any other laws. He shall be responsible for all damage or injury to property of any kind occurring during the prosecution of the work resulting from any act, omission, neglect or misconduct on his part in the manner or method executing the work, or due to his failure to execute the work properly, or due to defective work or material. He shall not be released from such responsibility until all claims have been settled and suitable evidence to that effect furnished the Owner.

6.10 Contractor's Responsibility for Work. Work under this Contract in every respect from the execution of the Contract Bond and during its progress until final acceptance, shall be under the charge and in the care of the Contractor and at his risk. The Contractor shall rebuild and make good, at his own expense, all injuries and damages to the work occurring before its completion and acceptance. In case of suspension of work for any cause, the Contractor shall be responsible for the preservation of all material. The Contractor shall alone be responsible for any damage or injury for his undertaking of this work to any person or persons or thing connected therewith.

6.11 Liability of Others. In carrying out the provisions of the Contract, or in exercising any power of authority granted thereunder by the Contractor or any subcontractor, or their officers, employees and agents, there shall be no liability upon the Engineer or Owner, and his consultants, and each of their officers, and employees and agents, either personally or otherwise as they are expressly by this Contract agents or representatives of the Owner only.

6.12 Right of Entry. Representatives of the Owner, Engineer, Federal or State Agencies, and others as authorized will have access to the work whenever it is in preparation, or progress. The Contractor will provide facilities for such access and inspection.

GC-7 - PROSECUTION AND PROGRESS

7.01 Subletting or Assigning of Contract. The Contractor will not be permitted to assign, sell, transfer or otherwise dispose of the Contract or any portion thereof, or his rights, title or interests therein, without the approval of the Owner. The Contractor will not be permitted to sublet any portion of the Contract without the approval of the Owner. No subcontractor will, in any case, relieve the Contractor of his responsibility under the Contract and bond.

7.02 Prosecution of Work. Prior to beginning construction operations, the Contractor shall submit to the Engineer a chart or brief outlining the manner of prosecution of the work that he intends to follow, in order to complete the Contract within the allotted time. The Contractor shall begin the work to be performed under the Contract within ten days after the date of receipt of authorization to begin work and shall continuously prosecute same with such diligence as will enable him to complete the work within the time specified. He shall notify the Engineer at least twenty-four (24) hours before beginning work on any section. The Contractor shall not begin work until authorized to do so in writing by the Engineer or the Owner.

7.03 Workmen and Equipment. All workmen employed by the Contractor shall have such skill and experience as will enable them to perform properly the duties assigned them. Any person employed by the Contractor or subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner, or who is disrespectful, intemperate, disorderly or otherwise objectionable, shall at the written request of the Engineer be forthwith discharged from the project and shall not be employed again on any portion of the work without the written consent of the Engineer. The Contractor shall furnish suitable machinery, equipment and construction forces as may be necessary for the proper prosecution of the work.

7.04 Computation of Contract Time for Completion. The Contractor shall complete the work within the number of days or by the date set forth in the Contract. When the time is to be computed using Working Days or Calendar Days, the time shall be computed beginning ten days after receipt by the Contractor of Written Notice authorizing him to begin work. When the time of completion is set by a specific date, the work shall be completed by that date. Completion date shall be adjusted by any subsequent change orders. Completion shall include all work as set forth in the Contract, including all clean-up.

7.05 Time is of the Essence. Unreasonable delay caused by either party shall constitute Breach of Contract. For delay of completion which is not such as constitutes breach of this Contract, the Contractor, if responsible, will pay during the delay as liquidated damages 8 percentum per annum on the sums previously paid to the Contractor paid on the contract price plus the costs incurred by the Owner for engineering and inspection during the delay. The Engineer shall determine what engineering and inspection costs are necessary. The Owner will have authority to suspend the work wholly or in part for such period as he may consider necessary, not to exceed 120 calendar days. Time of completion shall be adjusted accordingly. Notice of such suspension, with the reasons therefor, shall be given the Contractor in writing.

For delay of completion in excess of the aforesaid 120 calendar days, the Owner, if responsible, shall pay as liquidated damages 8 percentum per annum on the unpaid balance of the Contract price. Neither party shall be responsible for delays in completion of the work due to:

- a. Any preference, priority or allocation order duly issued by the Government;
- b. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, Acts of God, or of the public enemy,

acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; and

- c. Any delays of subcontractors or suppliers occasioned by any of the causes specified in sub-sections a and b of this article.

In order to be excused for such delay, the delayed party shall within 7 days from the beginning of such delay notify the other party of the cause thereof.

7.06 Breach of Contract. If the Contractor shall be in default in his performance of his obligations under this Contract, the Owner or Engineer shall give notice thereof in writing to the Contractor and the Surety on the Bond. If the Contractor fails to correct such default within 10 days after receipt of such notice, such failure shall constitute breach of this contract, at the option of the Owner.

Upon breach of the contract notice thereof shall be given in writing to the Contractor and the Surety on the Bond, and all materials or supplies appropriated to the Contract by the Contractor, including specially ordered or constructed material not yet delivered shall become the property of the Owner.

If the Owner shall be in default in his performance of his obligations under this Contract, the Contractor shall give notice thereof in writing to the Owner. If the Owner fails to correct such default within 10 days after receipt of such notice, such failure shall constitute breach of contract, at the option of the Contractor.

Upon breach of the Contract by the Owner, the Contractor shall give notice thereof in writing to Owner and the Contractor may abandon the work and may remove therefrom all machinery, tools, and equipment and all materials on the ground that have not been included in payments to the Contractor and have not been brought in to the work. Thereupon the Engineer shall make an estimate of the total amount earned by the Contractor, which estimate shall include the value of all the work actually completed by said Contractor at the prices stated in the Contract, the value of all partially completed work at a fair and equitable price, and a reasonable sum to cover the cost of any provisions made by the Contractor to carry the whole work to completion and which cannot be utilized. The Engineer shall then make a final statement of the balance due the Contractor by deducting from the above estimate all previous payments by the Owner and all other sums that may be retained by the Owner under the terms of this Contract and shall certify same to the Owner who shall pay the Contractor within 60 days after notification by the Engineer.

7.07 Time of Filing Exceptions. It is further agreed by both parties hereto that all questions of dispute or adjustment presented by the Contractor shall be in writing and filed with the Engineer within 10 days after the Engineer has given any directions, orders or instructions to which the Contractor desires to take exception. The Engineer shall reply to such written exceptions by the Contractor and render his final decision in writing. In case the Contractor should appeal the Engineer's decision, any demand for arbitration shall be filed with the Engineer and the Owner in writing within 10 days after the date of the Engineer's final decision. It is further agreed that acceptance by the Contractor of the final payment shall be a bar to filing of any further exceptions by the Contractor.

GC-8 - MEASUREMENT AND PAYMENT

8.01 Measurement of Quantities. All work completed under the contract will be measured by the Engineer according to the United States Standard Measures unless otherwise specified. In measurement of pipe for water, sewer and gas lines, no deductions will be made for fittings or accessories. All measurements of volume will be neat dimensions and shall not exceed those shown on plans or ordered in writing by the Engineer. All measurements by weight shall be actual weights.

8.02 Payment and Compensation for Altered Quantities. When alterations in plans or quantities of work not requiring change orders are ordered and performed, the Contractor shall accept payment in full at the Contract unit prices for actual quantities of work performed and materials furnished, and no allowance will be made for anticipated profits.

8.03 Partial Payments. The Contractor may, at intervals of not less than 30 days, request payment for materials in place and work performed at contract unit prices. The Contractor shall request such payment in the form prescribed by the Engineer. Payment shall be made of the amount estimated, if approved by the Engineer, less 10 percent or such amounts as may be required by law to be retained until final completion, within 45 days. In addition to the above and upon presentation of certified copies of invoices and freight bills, an estimate shall be made for payment of seventy-five (75) percent of the value of acceptable reinforcing steel, structural steel, stone, gravel, sand, pipe and accessories or any other non-perishable materials delivered on the work or in acceptable storage places and which have not been used in the work prior to such estimate. No estimate other than a final estimate will be made where the value of the work performed since the past preceding estimate is less than \$1,000.00.

The Owner may withhold payment, without interest, in whole or in part of an approved request for payment to the extent necessary to protect himself from loss from: a) defective work; b) liens; c) filing of claims or suits against the Owner.

8.04 Final Completion. Within ten (10) days after the Contractor has given the Engineer written notice that the work has been completed, the Engineer and the Owner shall inspect the work and if the work be found to be completed in accordance with the Plans and Specifications, the Engineer shall issue to the Owner and Contractor his Notice of Completion.

8.05 Final Payment and Acceptance - Lien Waivers. Upon the issuance of the Notice of Completion the Engineer shall proceed to make final measurements and prepare a final statement for all work performed and materials furnished under this Contract, and shall certify same to the Owner, who shall issue his Certificate of Acceptance and shall pay the Contractor within 60 days after the date of the Notice of Completion, or of the delivery to the Owner of lien waivers and releases for all materials and work performed under this Contract and a letter from the Contractor, certifying that all lien waivers and releases are included, whichever is the later date.

8.06 Delayed Payments. Should the Owner, for reasons other than those listed in item 8.03, fail to make payment to the Contractor any sum due, then the Owner shall pay the Contractor in addition to the sum shown as due by such statement interest thereon at the rate of 8 percent per annum from date due until fully paid, which shall fully liquidate any injury to the Contractor growing out of such delay in payment, but the right is expressly reserved to the Contractor in the event payments are not promptly made to at any time thereafter treat the Contract as breached by the Owner, and recover compensation as previously provided.

TECHNICAL PROVISIONS

TP-1 GENERAL. These specifications shall cover drilling of pilot hole, reaming to complete well size, complete with casing, screen, gravel pack, development, test pumping, grouting, furnishing and installing underground discharge and submersible pump, foot valve, complete with starter, breakers and electrical hook-up, ready for operation. The test well shall be completed 30 days after "Notice to Proceed"; the wells shall be completed at the approximate location shown on the attached map, or as otherwise directed by the Project Engineer.

TP 1.01 Scope of Work: The work to be done hereunder includes the furnishing of all labor, materials, transportation, tools, supplies, plant equipment and appurtenances, unless hereinafter specifically excepted, necessary for the completion and satisfactory construction, disinfection and testing of the proposed water supply well.

TP 1.02 Local Conditions. This information regarding sub-surface conditions is intended to assist the contractor in preparing his bid. However, the Owner does not guarantee its accuracy nor that it is necessarily indicative of conditions encountered in sinking the wells to be constructed hereunder. The contractor shall satisfy himself regarding all local conditions affecting his work by personal investigation and neither the information contained in this section nor that derived from maps or plans or from the owner or his agents or employees shall act to relieve the contractor from any responsibility hereunder nor from fulfilling any and all terms under the requirements of this contract.

From a special Report #86 by the South Dakota State Geological Survey two holes were drilled in the vicinity of the proposed well; also, the present city well log is given, as follows:

Hole U-14: Location: NW1/4SE1/4, Sec. 10, T89N, R48W, Union County
Elevation: 1114 feet
Total depth: 107 feet
Source of data: S. Dak. Geol. Survey

Alluvium	Depth (feet)
Top Soil	0-1
Clay	1-29
Silt and clay	29-44
Silt, coarse, and fine sand	44-54
Clay and silt	54-74
Clay, silt, and sand	74-84
Silt and medium sand	84-94
Outwash deposits	
Sand, coarse	94-107

Hole U-15 Location: SW1/4NE1/4, Sec. 21, T89N, R49W, Union County
Elevation: 1095 feet
Total depth: 107 feet
Source of data: S. Dak. Geol. Survey

Alluvium	
Clay	0-4
Sand, medium	4-107

MUNICIPAL WELL

Amount In Feet	Kind of Soil or Formation	Total Depth Feet
7	Top soil	7
6	Yellow clay and gravel mixed	13
5	Sea mud and deposited wood	18
22	Sea mud and streaks of gray clay	40
20	Dark gray clay (hard)	60
102	Sand and gravel (light to)	162
6	Dakota sandstone (hard) and shale streaks	168
62	Dakota sandstone (soft) and thin shale streaks	230

The exploratory hole, 6" min., shall be drilled to a depth of 175 feet or until Dakota Sandstone is reached, whichever is lesser. Samples shall be taken per the specifications on Sampling.

TP 1.03 Well Logs and Records. The Contractor shall keep a log of the hole drilled under these specifications recording:

- a. Location of the well.
- b. Depth, thickness, type, general characteristics, and drilling characteristics of each material encountered.
- c. The time required to drill each foot of depth, along with the speed of rotation of a rotary rig.
- d. Depth, thickness, and static water level of each water bearing formation encountered.
- e. Order, number size, and lengths of the individual pieces of well casing installed.

Each log shall be kept carefully and accurately on the forms supplied by the contractor, with entries made in sequence so that each can be correlated with the depth of hole at that time. It shall be brought up to date at the end of each working day and shall be furnished to the Project Engineer within one week after the performance of all work on the well, whether completed or abandoned.

TP 1.04 Sampling of Formation. Sampling is considered an essential part of this contract. All samples of the formations shall be taken as described in the following paragraph. Samples shall not be washed and shall be kept in cloth sample bags. These samples shall be furnished to the Project Engineer as drilling progresses. When an aquifer is encountered, a sufficient volume of sample shall be taken and analyzed by the manufacturer of the well screen or by the driller to determine the required slot size of the well screen.

a. **Rotary Drilling:** Because the hydrostatic water level of aquifers encountered cannot easily be determined during rotary drilling methods and because of the relatively high speed of penetration of rotary methods of drilling, samples shall be taken during drilling at two foot intervals and at every change in formation. If so directed by the Project Engineer, the driller may be required to take samples at one foot intervals, when a potential aquifer is encountered. Upon completion of test hole, a grout plug sealing the Dakota Formation shall be installed.

TP 1.05 Drilling: The initial hole shall be at least six inches in diameter to ascertain the depth and compaction of the water bearing formation at the drilling site. Samples shall be taken at two-foot intervals or oftener to determine the characteristics of the water bearing formation. These samples shall be supplied to the screen company for their analysis and recommendations in designing a screen and gravel pack for the well. It is anticipated that the formation will require a 25-slot screen and a gravel pack of silica sand with an effective size of 0.71 mm. and a uniformity co-efficient 1.39. In any event sampling shall conform to TP-1.04--Sampling of the Formation.

If the test hole indicates a source of water and an adequate depth of formation, a completed well shall be constructed with single case construction, complete with screen and pack. Grout shall be placed around the casing from the bottom of the casing to the surface. The drill hole shall be 16" minimum in diameter and the 12" I.D. casing shall be centered in said hole; the annular space shall then be grouted, as provided for in the section entitled, "Grouting."

Drilling may be accomplished by using an air-rotary, conventional or reverse rotary drilling machine. The equipment shall be in good repair and be capable of drilling, as specified herein, to the depth of the proposed well. It is estimated that sufficient water can generally be obtained at a depth of less than 175 feet, in a sand formation. When sufficient yield is indicated, the contractor shall install the well screen after obtaining the Engineer's approval according to the provisions of these specifications.

Prior to Proceeding with drilling the 16" diameter hole, the pilot hole shall be logged by use of an electric log and a gamma ray log. Logging shall be by State or Federal Geological Survey personnel and the driller shall arrange for the necessary scheduling of equipment. The Engineer shall be notified and be present at the time of the logging operation.

A minimum yield of 200 gpm is being sought. When a stratum of gravel or sand is encountered which is capable of producing this amount, the well shall be developed to produce a maximum yield obtainable through the well screen installed. The formation to be developed is the glacial outwash above the Dakota Sandstone.

TP 1.06 Well Casing. A 12-inch inside diameter well casing shall be installed above the screen to an elevation above the screen to an elevation above the ground 2 feet. The 12-inch casing shall be of new material, with a minimum weight of 49.55 lb. per foot, and a minimum wall thickness of 0.375 inches. The casing may be connected with butt type screwed couplings or with approved welds.

TP 1.07 Welding. Surfaces to be welded shall be free from loose scale, rust, grease, paint, and other forms of material, except for mill scale which withstands vigorous wire brushing. Joint surfaces shall be free from fins and tears. The techniques of welding employed, the appearance and quality of welds made, and the method of correcting defective work shall conform to normally accepted standards of workmanship. No welding shall be done when the temperature of the base metals is less than 60°F. At temperatures between 60° and 320°F, surfaces to be welded shall be heated until they are too hot to touch before welding is started. Sections of casing after welding shall be true to line and free from twists, bends, offsets, and open joints. All welded joints shall be watertight.

TP 1.08 Well Screen. Well screen shall be installed if the aquifer encountered is an unconsolidated sand or gravel formation, and the contractor is so directed by the Engineer. The well screen shall be designed to produce a minimum loss of head between the water bearing stratum and the well.

Continuous Slot Well Screens. Screens under this contract for the well shall be of special shaped, cold drawn bars. The outer winding that forms the screen surface with the internal, longitudinal bars shall be joined at each intersection by welding. Both members shall be of the same material - 304 Stainless steel - conforming to A.I.S.I. requirements. The screen and all accessories required for the installation shall be a commercial product of a manufacturer regularly engaged in the production of such equipment, such as U.O.P. Johnson, or equal.

The well screen openings shall be of the proper width to permit the maximum practical sand free yield

after development. The size of the slot shall be that recommended by the manufacturer, based on a sieve analysis of a representative sample of the water bearing formation submitted by the driller. The opening shall be of a geometric shape to permit maximum transmitting capacity without clogging or jamming. The well screen slot size shall be approved by the Engineer prior to installation. In any event the screen will be designed so that the velocity of the water through the slot opening will not exceed 0.1 feet per second. If it is necessary to join several screens together, the joints connecting the screen sections shall be butt type couplings of the same material as the screens.

The length of the well screen shall be determined by the Engineer, based on the thickness of the water bearing formation or formations, and the method of installation. The screen shall be 8-inch I.D. and fit inside the proposed well casing. The screen shall be sealed to the casing by use of a gravel filled overlap. The screen shall be of adequate strength to resist the external forces that will be applied after it is installed and to minimize damage during installation. The well screen shall be installed by either the pullback method, or the open hole method. A suitable closure shall be securely attached at the bottom of the screen. If a natural pack is to be used, the screen shall be as above, but 11 inches O.D. and sealed to the casing, using an approved packer.

Based on previous wells in the area, a 25-slot screen is anticipated; however, final selection shall be based on samples taken.

TP 109 Gravel Pack. In the event the analysis of the water bearing formation calls for a gravel pack, the contractor shall room and install a gravel pack of the size and gradation called for by the screen company and the Engineer. Gravel shall be clean, properly graded and shall be placed in the well in a manner which will minimize separation of gravel sizes when falling through water. The pack shall be placed in the well in a manner which will minimize separation of gravel sizes when falling through water. The pack shall be silica sand and is expected to be .71 mm. effective size with a uniformity coefficient of 1.39. The contractor shall provide drawings and technical data on the screen and pack for the Engineer's approval prior to proceeding with this portion of the construction. The contractor shall provide drawings and technical data on the screen and pack for the Engineer's approval prior to proceeding with this portion of the construction.

TP 1.10 Well Development. The contractor shall develop the well by such methods as will effectively extract from the water bearing formation the maximum practical quantity of drilling mud, fine sand, silt, or other fine materials. Development shall bring the well to a maximum yield per foot of drawdown, and the water shall be sand free at the maximum pumping rate.

Unconsolidated Aquifers. One of the following methods shall be used: surge plungers, compressed air, or high velocity jetting. Neither bailing nor pumping shall be considered to be adequate development methods under this contract. The development work must be done in a manner that does not cause undue settlement of the stratum above the water bearing formation. Development of the well shall be continued until water, pumped from the well at the rate determined by the Engineer, is clear and free of sand. The water shall be considered sand free when all samples taken at the determined pumping rate contain less than two parts per million (by weight) of sand.

If directed by the Engineer, additional development work to further improve the specific capacity of the well may be required. Such supplementary work, excluding chemicals, shall be paid for at the same hourly rate as the normal development work. If the Engineer, so directs, the water bearing formation shall be developed by high velocity jetting equipment, using a polyphosphate solution such as Tetrasodium pyrophosphate, sodium hexametaphosphate, and sodium sepiophosphate in concentrations of 5 lb./100 gallons of jetting water. High velocity jetting with the use of phosphates shall also be

mandatory if drilling mud is used in drilling through the water bearing formation(s). If a conventional hydraulic rotary rig is used, the drilling fluid used shall be "Revatt" as manufactured by U.O.P. Johnson Division or an equal self-destroying drilling fluid. Development shall not be considered as test pumping. High velocity jetting equipment and procedures shall be approved for use by the Engineer before this work is begun.

TP 1.11 Grouting. Depth of grouting anticipated on each well is given below. At the discretion of the Engineer the distance may be increased where necessary to provide increased protection of the water supply . . . from the bottom of casing to the surface of the ground. If necessary, a temporary casing should be installed to assure the minimum specified wall thickness of grout. This casing shall be withdrawn as the grout is placed. No payment shall be made for any temporary casing left in place.

Grouting Material. The grout shall be proportioned of cement and the least quantity of water (not over six gallons per cubic foot of cement) required to give a mixture of such consistency that it can be forced through the grout pipes. Bentonite clay may be added to the grout mixture in amounts up to three percent (by weight) in order to improve its flow properties. The mixture, method of mixing, and consistence shall be approved by the Engineer before grouting of the wells.

Placing the Grout. Before proceeding with placing the grout the contractor shall secure the Engineer's approval of the method he proposes to use. No method will be approved that does not specify the forcing of the grout under pressure from the bottom of the space to be grouted towards the surface. The grouting shall be done continuously and in a manner that will insure the filling of the entire annular space with grout in a single operation. No drilling, test pumping or other work in the well will be permitted within 72 hours after completion of grouting. If high early strength cement is used, this period may be reduced to 24 hours upon approval of the Engineer.

Thickness of Grout Seal. A minimum grout envelope of one inch thickness shall be maintained between the well casing and the drill hole for the entire length of casing grouted.

TP 1.12 Precautions During Construction. The contractor shall take such precautions as are necessary or as may be required to permanently prevent contaminated water or water having undesirable physical or chemical characteristics from entering the well. He also shall take precautions during construction to prevent contamination or pollution from the ground surface.

TP 1.13. Plumbness and Alignment. The well shall not deviate from the vertical by more than 2-1/2 inches for each 100 feet of depth. At the discretion of the Engineer a straightness and alignment test shall be run on questionable wells after the well is cased. This shall consist of running a pipe of 40 feet length and whose outside diameter is between 1/4 inch and 1/2 inch smaller than the casing to the bottom of the well. If the test pipe binds, does not pass through the well freely, or is bent as a result of testing procedure, the Engineer shall have the authority to reject the well as drilled and cased, with no payment to the Contractor, until the deficiency is corrected to the Engineer's satisfaction.

TP 1.14 Capping. The well shall be temporarily capped with a welded cover plate or similar device, to protect the well from entrance of foreign objects, until the well is put into operation. No payment will be made for this item. Capping of the well will apply only if the well is left in unfinished condition.

TP 1.15 Testing for Yield and Drawdown. The contractor shall furnish all labor, equipment, materials, and power required for test pumping, to the satisfaction of the Engineer. This shall include all necessary equipment for measuring the water level in the well and the rate of pump discharge. This equipment

must be approved by the Engineer before test pumping. The pumping equipment shall be capable of pumping 500 gpm from a depth of 200 feet. The well shall be test pumped by temporary pumping facilities furnished by the contractor, which shall be removed at the end of the test pumping operation. The contractor shall be responsible for furnishing all necessary piping for conducting the water away from the test site to a suitable location as determined by the Engineer. The period of the pumping test may be lengthened or shortened if deemed advisable by the Engineer.

The duration of the test pumping shall be seventy-two (72) hours with drawdown measurements taken at five-minute intervals for the first half hour, at ten-minute intervals for the next 1-1/2 hours, and at one-half hour intervals for the remaining twenty hours, and one-hour intervals for the balance of the test period. Record recovery rate after pumps are stopped. Read at one-minute intervals for the first 15 minutes; thence on 5-minute intervals for one hour and 15 minute intervals thereafter until the well returns to static conditions. During the pumping test, observation of drawdown will be made at existing city wells within one-half mile of the drilling site; no extra compensation will be paid for this.

TP 1.16 Disinfection. Upon completion of construction and test pumping, each well shall be thoroughly cleaned of foreign substances including but not limited to cement, oil, grease, joint dope, and slum. The well shall then be disinfected with a chlorine solution. The Chlorine solution used for disinfecting the well shall be prepared on the surface and shall be of such volume and strength and so applied that a minimum concentration of 50 ppm of free residual chlorine shall be obtained in all parts of the well for at least 24 hours before removal. The chlorine may be added to the well by any of the following methods:

- Method A. The chlorine solution shall be prepared in a batch having a volume of at least twice the volume of water contained in the well. This prepared solution should then be rapidly discharged into the well.
- Method B. A stock chlorine solution of 15,000 ppm could be added to a continuous flow of water into the well to provide the 50 ppm chlorine concentration in all portions of the well.
- Method C. A stock solution of chlorine may be added through a pipe discharging at different levels in the well. The well should then be agitated with a bit or batter to mix the solution.

Dumping of granular HTH into the top of the well will not be permitted.

Water samples shall be taken after disinfection of each well and shall be submitted to the South Dakota State Department of Health, Division of Laboratories at Pierre, South Dakota, for complete chemical and bacteriological analysis. If positive bacteriological results are obtained, the well disinfection shall be repeated and samples taken until negative bacteriological results are obtained. The well shall not be accepted until bacteriologically satisfactory samples are obtained, and this shall be the sole responsibility of the contractor.

TP 1.17 Abandonment of Well. In the event the well shall not be accepted for completion due to insufficient capacity; unsatisfactory chemical or bacteriological quality; or should it be abandoned because of poor alignment, loss of tools, or for any other cause, the Contractor shall as directed by the Engineer, fill the abandoned hole with puddled clay, or clay and concrete. Provision for payment of drilling and materials used on abandoned shall be made as specified in TP 1.18.

TP 1.18 Mobilization and Demobilization. One mobilization and demobilization charge will be allowed under this contract. Mobilization shall consist of the contractor's moving the drilling rig or rigs where the work is to be done.

TP 1.19 Pump and Disconnect. Provide and install a submersible pump and motor complete with disconnect and necessary accessories to complete the electrical installation at the well. The contractor shall furnish and install disconnects as specified and required by the N.E.C., particularly Article 430A & H and the S. D. Electrical Code. Disconnect at well head shall be raintight and shall be connected with sealtight type flexible conduit or other watertight conduit. Rigid conduit shall be used wherever subject to mechanical injury, for underground runs, under and through concrete slabs on grade, and all exposed runs not attached directly to the building structure. EMT may be used in all other places except flexible conduit or approved cable shall be used for connection to motors between the last box and the motor box. Conductors shall be 600 volt, copper, type "TW" and installed in accordance with NEC or SDEC as applicable.

Contractor to provide and install pump and motor complete with foot valve, bring wiring to an NEC approved disconnect at the well head. The contractor shall provide all necessary data on the size starter and the size heater required for the pump. In addition for emergency service provide the necessary heaters to fit the existing well pump starter so that the existing well may be disconnected and the submersible pump connected to the existing starter. Provide but do not install flexible conductor of sufficient size, capacity and length to run on the surface of the ground from the new well, approximately 45 feet from the existing well house, to the existing starter and electrical panel.

TP 1.20 Measurement and Basis for Payment. Drilling shall be paid for on the actual footage of drilling completed. In cases where abandonment of the well is due to causes which are determined not to be the fault of the contractor, salvaged casing and other materials furnished by the contractor shall remain his property and no payment will be made for such materials. He shall be paid only the unit cost for drilling plus the unit cost for developing, if applicable. Any well hole abandoned due to the fault of the contractor before completion and acceptance shall be the responsibility of the contractor and no payment shall be made for such work.

No additional payment for hard rock drilling will be made. Casing shall be paid for the actual footage installed in the completed well. Payment for the well screen shall be based on the actual footage of continuous slot well screen and blank screen installed and approved, with no extras allowed for seals, couplings, or appurtenances.

Development of the well shall be paid for on an hourly basis for the actual period spent on development as defined in these specifications. Development time shall not include setting up and dismantling of development equipment, but actual development work only.

Test pumping shall be paid for on an hourly basis for the actual pumping period when drawdown measurements are taken and recorded. Time spent in checking the aquifer, or in setting or removing the test pumping equipment, or in developing the well will not be allowed as test pumping.

Disinfection of the well shall be considered a part of this overall contract, and no separate payment shall be made for disinfection. Grouting shall be paid for on a footage basis for the actual linear

footage of grout installed in the annular space between the well casing and the drilled hole. Gravel pack shall be paid for at the unit price bid for gravel pack, complete in place, on a per foot basis of pack installed.

PUMPING TEST FORM

Job: City of North Sioux City

Location: North Sioux City, South Dakota

Well No. _____ Static Level _____ Ft. Date _____

[illegible]

SECTION 300 - SUBMERSIBLE TURBINE PUMP

CLOSED IMPELLER AND WATER LUBRICATED MOTOR

300-01 PITLESS DISCHARGE. Provide and install one 12" x 6" lury pitless discharge unit to fit the 12" well casing. The drop pipe and discharge shall be 6" diameter. The unit shall be a Monitor 6 PS-1214 DF-586-C9 as manufactured by the Baker Manufacturing Co., or approved equal. Provide and install necessary fittings, tubing and gage for drawdown testing, complete, ready for operation. Install blind flange on discharge side of pitless unit.

300-02 GENERAL REQUIREMENTS. These specifications are intended to cover the furnishing of a complete submersible motor-driven vertical turbine pump with foot valve for Municipal Well at North Sioux City, South Dakota; installation will be made by bidder.

300-03 OPERATING CONDITIONS. The following are the operating conditions for the pumping unit:

Size of well (inside diameter)	12 inches
Depth of well	172 feet
Static water level below top of well	20 feet (estimated) (check)
Pumping level below top of well	60 feet estimated
Pumping head above top of well	20 feet
Total pumping head	80 feet
Capacity of pump	200 gpm

Final pumping head and setting to be determined upon completion of test pumping by well contractor. Base bid on above conditions.

300-04. BOWL ASSEMBLY. The impellers shall be of the closed type and shall be bronze. They shall be accurately fitted, smoothly finished and suitably balanced to give smooth, efficient operation. The bowls shall be constructed of close-grained cast iron, having a minimum tensile strength of 35,000 psi, shall be free from blow holes, sand holes, and all other faults, and shall be accurately machined and fitted to close dimensions. The pump shaft shall be of type 416 steel. Bearings shall be a combination of bronze and rubber, and shall be easily renewable. The bowl assembly shall be equipped with a suitable steel strainer at the suction intake.

300-05. DISCHARGE COLUMN. The column pipe shall be Schedule 30 steel pipe with threaded sleeve type steel couplings and shall be random lengths each approximately 20 feet long.

300-06. SUBMERSIBLE MOTOR. The motor shall be of the vertical, submersible squirrel cage, 2 pole induction type designed for continuous duty under water operation on 3 phase, 60 cycle, 240 volt alternating current. The motor shall be designed with normal starting torque and low starting current for across-the-line starting. The motor shall have a 1:15 service factor. The motor shall not be loaded in excess of 110% of its nameplate rating within the normal operating range of the pump. Motor and pump shall be manufactured by the same manufacturer in order to assure properly integrated design, and have single responsibility for the whole unit under warranty. The manufacturer shall state whether or not special baffling is required to direct the flow around and past the motor for adequate cooling of the motor. Any such baffling shall be designed so that it will be a part of the pump and motor assembly. The motor shall be enclosed in a water filled housing. Means shall be provided for circulating the water within the motor for adequate heat distribution and heat transfer. A suitable seal shall be provided to limit interchange of well water with the water in the motor. A protective sand collar shall be provided to prevent accumulation of abrasives around the seal when the unit is stopped.

Any difference in pressure between the well water and water in the motor shall be equalized

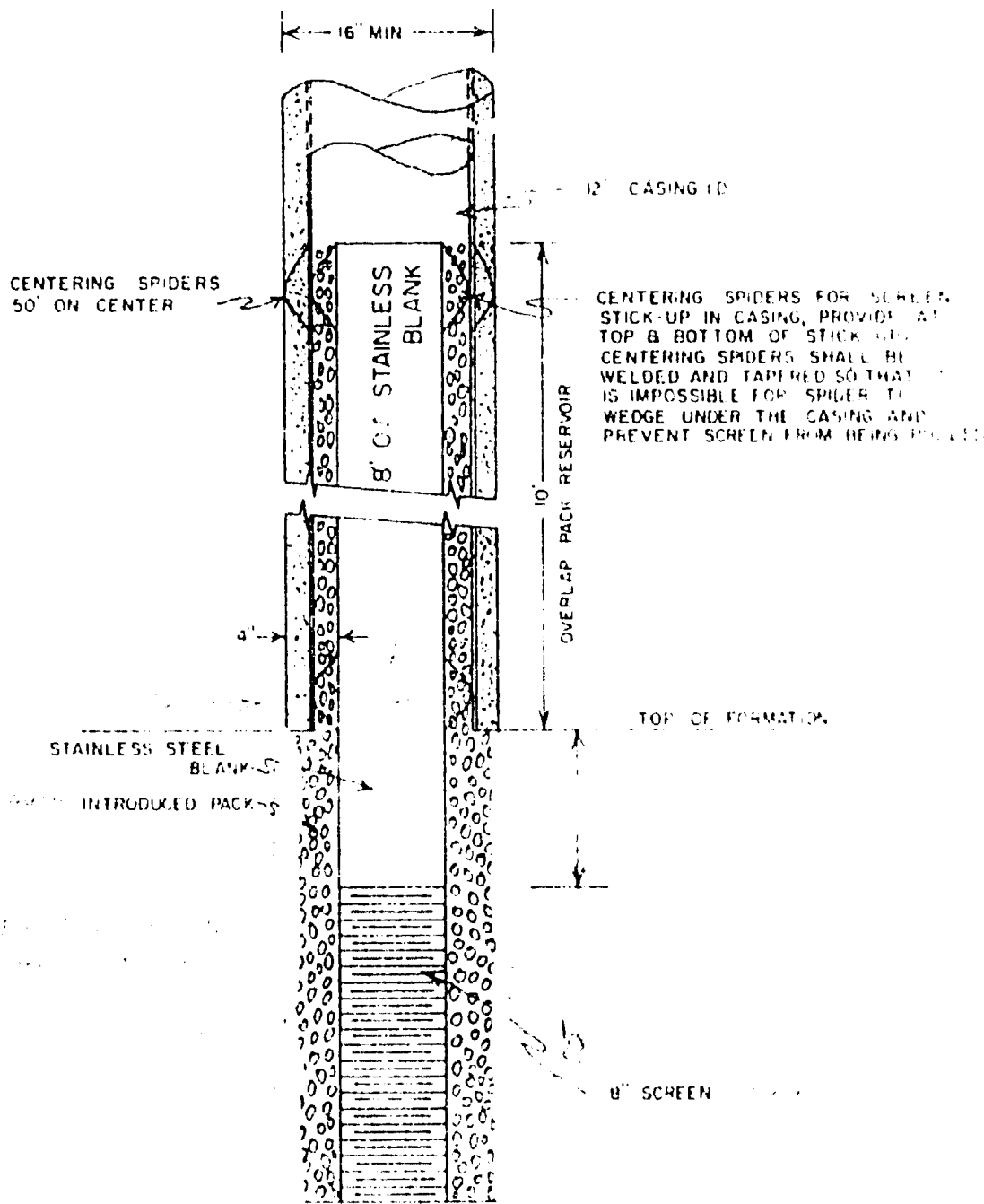
through the action of a neoprene diaphragm at the bottom of the motor. The use of a check valve for the equalizing of pressures will not be permitted. The motor shall be designed in accordance with the latest standards of the A.S.A. and N.E.M.A. for the class of insulation used. The motor shall be provided with a pivot-shoe type thrust bearing of ample size to carry the hydraulic thrust of the pump under all operating conditions. An adequate upthrust bearing arrangement shall be provided. All parts of the motor in contact with the well water shall be stainless steel and/or bronze.

300-07 POWER CABLE. The power cable to the motor shall be impervious to moisture in addition to having high abrasion resistance. The cable shall be protected with a steel guard where it passes by the bowl assembly to prevent damage from contact with the well casing. A cast iron or welded steel weatherproof terminal box shall be furnished and installed on top of the base plate. The cable terminations at the terminal box shall be provided with terminal lugs. The cable size shall be such that the voltage drop does not exceed 3% between the starter and the motor. Stainless steel cable clamps shall be provided to support the cable along the column pipe at intervals of not more than 20 feet.

300-08 BASE. The supporting base plate shall be of ample size to carry the complete weight of the suspended parts plus the hydraulic load with a good margin of safety. The base plate shall be provided with eye-bolts of suitable size to support the suspended equipment safely during installation and servicing operations. Two IPS tapped openings shall be provided to permit the installation of an air line and to allow the well to "breathe" properly during starting and stopping of the pump.

300-09 DRAW DOWN GAGE. Provide a 1/4" copper or nylon air line, fittings, and gauge for determining the draw down of the well. The unit shall be installed complete for operation with the copper or flexible plastic air line reaching to the depth of the base of submersible pump. Run an air line (1/4") from the well to a gage and air fitting mounted on the pump. The gauge shall be mounted for easy disconnection and a plug provided for the air line when the gage is not attached.

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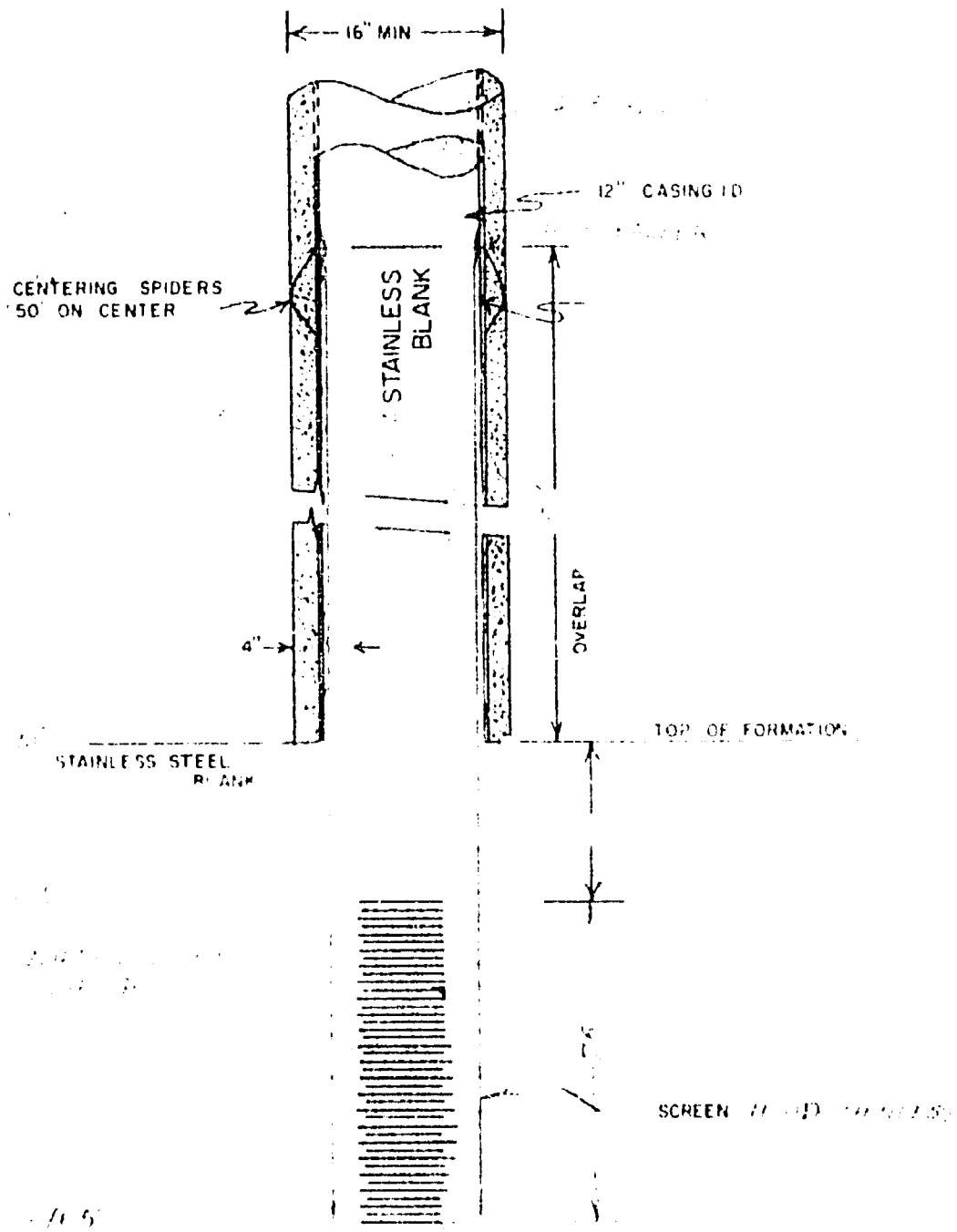
GRAVEL PACK FINE UNCONSOLIDATED FORMATION

SCHMUCKER, PAUL & NOHR —MITCHELL, SOUTH DAKOTA

PLAN 60

12 1/2" DIA

12 1/2" DIA



UNCONSOLIDATED
FORMATION

SCHMUCKER, PAUL & NOHR—MITCHELL, SOUTH DAKOTA

