July 2000
DNR Form 638-2

STATE OF NEBRASKA
DEPARTMENT OF NATURAL RESOURCES

APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER TRANSFERS PERMIT

INSTRUCTIONS

Complete items 1 through 10 by printing in ink or typing the appropriate information and by placing an (X) in the appropriate boxes.

The following information shall be provided on 8½ x 11 inch paper (or folded to such size). An answer is required for each item of A-H. Each answer must be clearly identified in the application. When using a ground water model, justify the applicability to the given geologic setting.

For Department Use Only

Application Number: MT-6
Date Filed: March 8, 2004
Receipt Number: G25
Amount: $ 70.00

A. Discussion of impacts on surrounding ground water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.
B. Statement of impacts on any existing threatened or endangered species in project area.
C. Pump test information, if available, including length of test, data from pump test, and location of observation wells.
D. Information on geology and hydrology of area such as thickness of aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether aquifer is confined or unconfined.
E. Description of type of well, including drawings.
F. Planned operation schedule. (Describe hours per day the wells will likely be pumped, whether there will be seasonal changes to schedule, whether there will be a rotation of wells pumped, and whether certain wells are only for backup purposes.)
G. Explanation of the basis for the amount of water requested. This should include current population and projected growth, daily per capita water use data, current industrial or other large uses and projected growth. The explanation should also include answers to the requirements for approval of the application stated in § 46-642, R.R.S., 1943, as amended, namely: whether request is reasonable, not contrary to the conservation and beneficial use of ground water, and not detrimental to the public welfare.
H. Map showing location of proposed wells, pipelines (exclusive of distribution lines) and the area of proposed use. The map shall be legible and at a scale of not less than one inch to the mile.

A non-refundable filing fee (payable to the Department of Natural Resources) can be computed from the table below and must accompany this application.

QUANTITY OF WATER REQUESTED (daily average)	COST
First 5,000,000 gallons per day	$50.00
Each additional increment (or portion) of 5,000,000 gallons per day	$20.00

Pd on 3/4/04

1. Name, address and telephone number of Applicant:

City of Sidney
1115 13th Avenue, P.O. Box 79
Sidney, NE 69162

Name, address and telephone number of person to contact concerning application:

Gary Person, City Manager
P.O. Box 79
Sidney, NE 69162 (308) 254-4444 or garyperson@cityofsidney.org

2. Identify the city, village, rural area or other entity to be supplied water:

City of Sidney, Nebraska Cheyenne County SID #1

3. Maximum rate of withdrawal for which a permit is requested (complete both)
5,300 gallons per minute
7,620,000 gallons per day

Indicate whether the amount is for each well or a total rate for all wells.

app

4. The daily AVERAGE amount of water requested: 2,288,622 Gallons per day

5. Total quantity of water to be withdrawn annually (gallons). 958,000,000

6. Number of wells proposed: 8 Number of existing wells: 10 - City 3 - SID

7. Location of the proposed ground water wells and existing wells:
(Indicate 40-acre government subdivision, Section, Township, Range and County, and registration number(s) if applicable):

T16N-R51W - Section 28 (all) and Section 33 (east half)
T15N-R51W - Section 33 (northeast corner)
See attached for detailed description and registration numbers

8. Construction will start on or before January 1, 20 04.

9. Construction will be completed on or before January 13, 20 04.

10. If the permit is granted, does the applicant request imposition of statutory spacing protection for one year for test holes or wells to be constructed? ☑ Yes ☐ No

If yes, indicate below the name and address of the owners and occupiers of land affected by the granting of such spacing protection, and a description of the land they own or occupy.

See Attached List of Land Owners

I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true.

Gary Person

Applicant (Signature and Title)

March 5, 2004

Date

Forward application and fee to:

State of Nebraksa
Department of Natural Resources
301 Centennial Mall South
P.O. Box 94676
Lincoln, Nebraska 68509-4676
(402)471-2363

City of Sidney
Municipal Water Transfer Application

Question 10. Indicate blow the name and address of the owners and occupiers of land affected by the granting of such spacing protection, and a description of the land they own or occupy.

CITY OF SIDNEY NORTHWEST WELL FIELD

TRACTS OF LAND WITHIN 1000 FEET OF NEW CITY WELLS

TOWNSHIP 16 NORTH - RANGE 51 WEST

Section 22 - Southeast Southeast Quarter -
Marjorie Kirsop et.al, 11218 Montana, Youngstown, AZ 85363

Section 23 – Southwest Southwest Quarter
Gregory Paul Nagengast, 1514 Hannington Drive, Katy, TX 77450-5019

- Southeast Southeast Quarter
Morgan Farms Inc., A NE Corp., 9720 Road 54, Dalton, NE 69131-8212

Section 24 – Southwest Southwest Quarter
David A. Goranson, 9740 Road 48, Gurley, NE 69141-4109

Section 25 – Southwest Southwest Quarter &
Northwest Northwest Quarter
David A. Goranson, 9740 Road 48, Gurley, NE 69141-4109

Section 27 – Northeast Northeast Quarter
Craig & Lon Maas, 8535 Road 52, Potter, NE 69156
Phillip & Twila Flohr, 9394 Road 46, Gurley, NE 69141

Section 28 – Southwest Southeast Quarter
Raymond Kuehn, Trustee, 9934, Road 40, Sidney, NE 69162-3221

- Southeast Southwest Quarter
Catherine M. Dalton, 2402 3rd Avenue, Scottsbluff, NE 69361

Section 33 – Northeast Northwest Quarter
Doran Land & Cattle Co., Box 319, Sidney, NE 69162

Section 34 – Southwest Northwest Quarter
Hazel Thurston, Trustee, 380 White Cloud, Boise, ID 83709

(More)

Page 2 - List of Tracts of Land and owners within 1,000 feet of new city wells

Section 34 - Northwest Southwest Quarter
Nicola Farm Partnership, LLC, 621 17th Street, Suite 1100, Denver, CO 80293

Section 35 – North Half of the Northwest Quarter &
Northeast Northeast Quarter &
Southeast Southwest Quarter &
Southwest Southeast Quarter
Raymond Kuehn, Trustee, 9934 Road 40, Sidney, NE 69162-3221
Jim & Karen Larson, residents, 9590 Road 44, Gurley, NE 69141

TOWNSHIP 15 NORTH - RANGE 51 WEST

Section 2 Northeast Northwest Quarter
Dennis & Roberta Larson, 9541 Road 44, Gurley, NE 69141-4112

City of Sidney, Nebraska

1115 13TH AVENUE P.O. BOX 79 SIDNEY, NE 69162 PHONE (308) 254-5300 FAX (308) 254-3164

RECEIVED

MAR 08 2004

DEPARTMENT OF NATURAL RESOURCES

March 5, 2004

State of Nebraska
Department of Natural Resources
301 Centennial Mall South
P.O. Box 94676
Lincoln, NE 68509-4676

DNR:

Please find enclosed the Application for a Municipal Water Transfer Permit for the City of Sidney from its northwest water well field.

Also enclosed is a check for $70 representative of the "Quantity of Water Requested" as outlined in the application.

Additional supporting information regarding the application will be forthcoming from the City water engineering firm of Jacobson-Helgoth Consultants in the very near future.

The City is sending the initial application cover sheets so that the Department of Natural Resources can proceed with setting the public hearing date.

An attached list of landowners affected by requested spacing protection is enclosed with the application.

Please contact me if you have any questions.

Sincerely,

Gary Person

Gary Person
Sidney City Manager
P.O. Box 79, Sidney, NE 69162
Office 308-254-4444
Cell 308-249-0900

garyperson@cityofsidney.org

July 2000
DNR Form 638-2

STATE OF NEBRASKA
DEPARTMENT OF NATURAL RESOURCES

Corrected filed: 12-10-04
Corrected filed: 4-16-04

APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER TRANSFERS PERMIT

INSTRUCTIONS

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For Department Use Only

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A. Discussion of impacts on surrounding ground water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.
B. Statement of impacts on any existing threatened or endangered species in project area.
C. Pump test information, if available, including length of test, data from pump test, and location of observation wells.
D. Information on geology and hydrology of area such as thickness of aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether aquifer is confined or unconfined.
E. Description of type of well, including drawings.
F. Planned operation schedule. (Describe hours per day the wells will likely be pumped, whether there will be seasonal changes to schedule, whether there will be a rotation of wells pumped, and whether certain wells are only for backup purposes.)
G. Explanation of the basis for the amount of water requested. This should include current population and projected growth, daily per capita water use data, current industrial or other large uses and projected growth. The explanation should also include answers to the requirements for approval of the application stated in § 46-642, R.R.S., 1943, as amended, namely: whether request is reasonable, not contrary to the conservation and beneficial use of ground water, and not detrimental to the public welfare.
H. Map showing location of proposed wells, pipelines (exclusive of distribution lines) and the area of proposed use. The map shall be legible and at a scale of not less than one inch to the mile.

A non-refundable filing fee (payable to the Department of Natural Resources) can be computed from the table below and must accompany this application.

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First 5,000,000 gallons per day	$50.00
Each additional increment (or portion) of 5,000,000 gallons per day	$20.00

1. Name, address and telephone number of Applicant:

City of Sidney
1115 13th Avenue, P.O. Box 79
Sidney, NE 69162 Phone: 308-254-4444

Name, address and telephone number of person to contact concerning application:

Gary Person, City Manager
Box 79, Sidney, NE 69162
308-254-4444 or 308-249-0900 (cell)

2. Identify the city, village, rural area or other entity to be supplied water:

City of Sidney, Nebraska & Cheyenne County SID #1

3. Maximum rate of withdrawal for which a permit is requested (complete both) 5,300 gallons per minute
7,632,000 gallons per day

Indicate whether the amount is for each well or a total rate for all wells.
All Wells

4. The daily AVERAGE amount of water requested: 3,060,260 Gallons per day

5. Total quantity of water to be withdrawn annually (gallons). 1,116,993,750

6. Number of wells proposed: 0 Number of existing wells: 18

7. Location of the proposed ground water wells and existing wells:
(Indicate 40-acre government subdivision, Section, Township, Range and County, and registration number(s) if applicable):

8. Construction will start on or before January 1, 20 04.

9. Construction will be completed on or before January 13, 20 04.

10. If the permit is granted, does the applicant request imposition of statutory spacing protection for one year for test holes or wells to be constructed? ☐ Yes ☒ No

If yes, indicate below the name and address of the owners and occupiers of land affected by the granting of such spacing protection, and a description of the land they own or occupy.

I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true.

Gary Person City Manager — Original 03-14-04 Resubmitted 12/08/04

Applicant (Signature and Title) — Date

Forward application and fee to:

State of Nebraksa
Department of Natural Resources
301 Centennial Mall South
P.O. Box 94676
Lincoln, Nebraska 68509-4676
(402)471-2363

CITY OF SIDNEY, NEBRASKA

MUNICIPAL WATER WELLS

BRULE WELLS

Well Name	Location	Date Constructed	DNR Registration Number
Well 1	NE NW Section 31 T14N-R49W	1936	G-28490
Well 2	NE SE Section 31 T14N-R49W	1941	G-28491
Well 3	SE NE Section 31 T14N-R49W	8-1943	G-28492
Well 4	SE NE Section 6 T13N-R49W	11-12-1947	G-28493
Well 6*	SE SW Section 31 T14N-R49W	10-22-1954	G-28494
Well 7**	SW SE Section 31 T14N-R49W	9-5-1961	G-28495
Well 8	NW NW Section 5 T13N-R49W	3-25-1976	G-51268
Well 9	SE SW Section 29 T14N-R49W	1-8-1980	G-17339B

- Note: Well 6 removed from drinking water supply due to high nitrate levels, well currently only used to irrigate golf course.
- Note: Well 7 is used as an emergency backup well because of high nitrate concentrations.

NORTHEAST WELL FIELD

Well Name	Location	Date Constructed	DNR Registration Number
Well 10	NW NE Section 20 T14N-R49W	4-1993	G-89313
Well 11	NW SE Section 17 T14N-R49W	6-13-1991	G-89312
Well 12	SE SE Section 17 T14N-R49W	2-12-1992	G-81364

NORTHWEST WELL FIELD

Well Name	Location	Date Constructed	DNR Registration Number
H26-1	NW SE Section 26 T16N-R51W	1-9-2004	G-125747
H26-2	SE SE Section 26 T16N-R51W	1-7-2004	G-125872
H26-3	SW SW Section 26 T16N-R51W	1-8-2004	G-125811
H26-4	NW NW Section 26 T16N-R51W	1-9-2004	G-125749
H26-5	NE NE Section 26 T16N-R51W	1-9-2004	G-125870
DL-4	NW NE Section 2 T15N-R51W	1-12-2004	G-125869
H33-1	NW NE Section 33 T16N-R51W	1-12-2004	G-125748
H33-2	SE NE Section 33 T16N-R51W	1-6-2004	G-125871

CITY OF SIDNEY, NEBRASKA
NORTHWEST WELL FIELD
MUNICIPAL AND RURAL DOMESTIC
GROUND WATER TRANSFERS PERMIT

SUPPORT DOCUMENTATION

A. **Discussion of impacts on surrounding water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.**

The operation of the Northwest Well Field is not expected to have any influence on any surface water supplies in the well field area. There are no permanent surface water locations near the Northwest Well Field site. The few stream drainages that trend eastward across the Well Field area are normally dry and only have water flowing in them on an intermittent basis, usually associated with summer thunderstorm events. Surface water flows into the Lodgepole Creek/South Platte drainage.

The aquifer piezometric surface is 200 feet below the surface at the well field site. The pump test calculations indicate that the Lower Ogallala Aquifer at the well field is a confined aquifer, which means that there is at least one confining layer that limits influence between the surface, the Lower Ogallala confined aquifer and other strata at the well field.

The North Platte River is approximately 25 miles northeast of the well field. The regional ground water flow direction at the well field site is eastward toward the North Platte River. Uncertainty with regard to the amount of water that actually discharges from the Ogallala Aquifer to the North Platte River makes it difficult at this time to estimate an influence on the river by pumping at the well field. The well field is located 15 to 20 miles away from the 15,000-day Stream Depletion Factor (SDF) lines currently delineated by the DNR for the North Platte River. The attached Figure One shows the relationship of the well field to the SDF lines for the North Platte River. The SDF lines for the North Platte River are based on Missouri Basin States Association and U.S. Geological Survey-Regional Aquifer-System Analysis data and compiled by the DNR. Based on the SDF time analysis, there will not be any direct influence of the Northwest Well Field on the North Platte River. If a small influence does occur, it will not be measurable for hundreds of years in the future.

The Ogallala Aquifer in the vicinity of the Northwest Well Field consists of an upper series of confined sand layers that are developed between 200 and 350 feet below the surface and a lower series of confined sands that are found from 350 to 500 feet below the surface. Pump testing at the well field indicates that the upper and lower portions of the Ogallala are separated by aquitard materials that have minimal hydraulic connectivity.

The pump test data from all eight municipal wells showed minimal evidence of leakage between upper water bearing zones and the screened intervals in the wells. Two shallow zone water supply wells constructed in Section 26 at the Well Field exhibited only 20 to 25 percent of the decline observed by deeper screened production and observation wells.

Within a three-mile radius of the Well Field there are approximately forty existing water wells, with 15 of those wells being identified as domestic wells and 25 as irrigation wells. With a few exceptions, the domestic wells are not registered with the Department of Natural Resources, so little is known about the construction of these wells. Of the limited number of domestic wells that have been registered, the wells are generally screened in the upper Ogallala horizons, which will be minimally impacted by pumping from City wells that are screened in the Lower Ogallala. As almost all of the irrigation wells are screened in the deeper Ogallala sand zones, only the registered irrigation wells were analyzed to determine if they might be directly influenced by pumping at the City's Northwest Well Field wells.

The expected radius of the cone of depression for wells at the well field is estimated from distance-drawdown data derived from pump test data. Water level observations from distant observation wells were made during the constant rate pump tests. The zero limit of the cone of depression for well field wells was calculated using the Jacob straight-line method. This method compares observation well drawdowns at variable distances from the pumped well. The following Table One shows the calculated zero radius for each of the wells where distance-drawdown information was available in conjunction with the 24-hour pump tests.

Table One: Radius of Influence

Well	Calculated Radial Distance to Zero Drawdown Influence (feet)
H26-1	(Estimated 10,000)
H26-2	5,900
H26-3	9,900
H26-4	9,800
H26-5	24,000
DL-4	8,000
H33-1	4,500
H33-2	3,700
Average	9,475

The hydraulic properties of the Ogallala aquifer in the Northwest Well Field Area result in cones of depression that cover large aerial extents with relatively small drawdowns. Because the aquifer is confined the observed change in the water level in adjacent observation wells is dueto a drop in the pressure head, not to a drop in the thickness of the water table. Water level measurements from observation wells constructed in the late winter

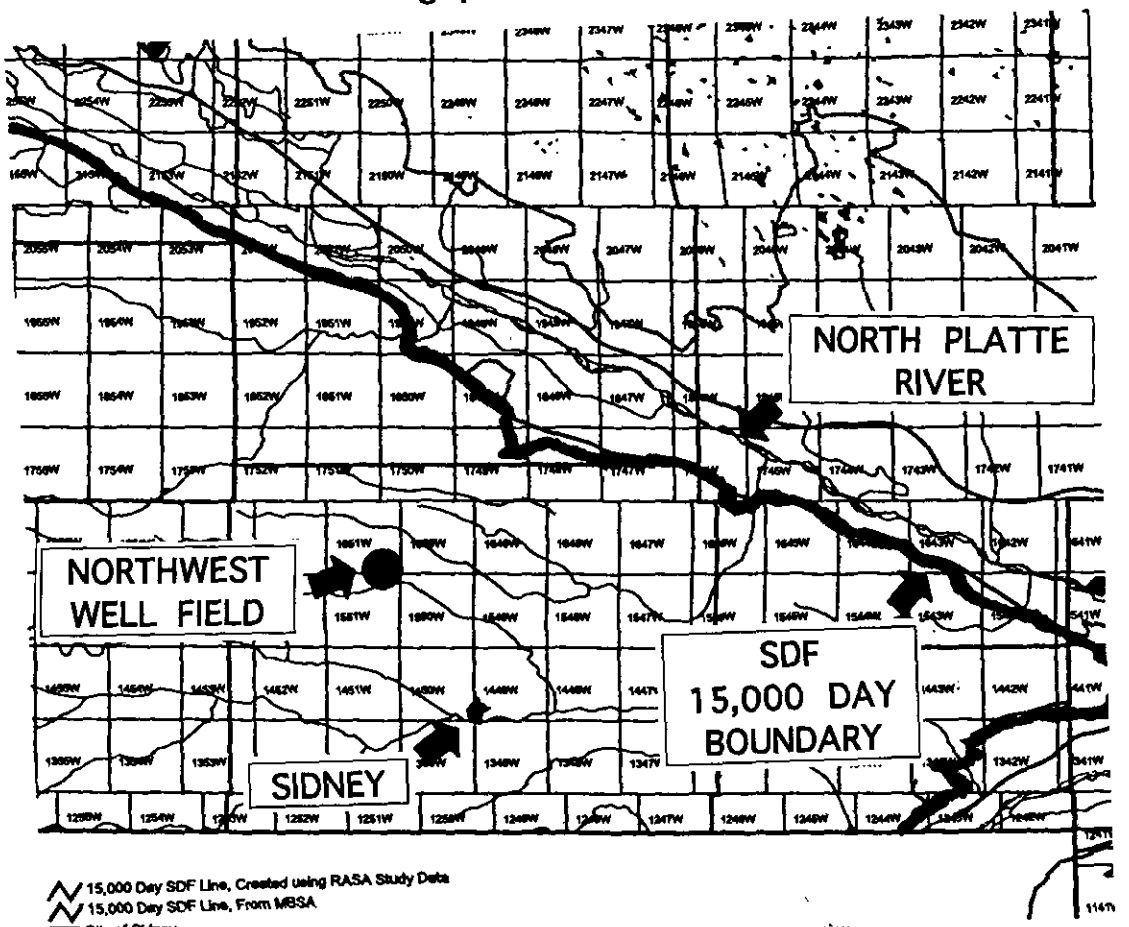
of 2003, indicate that prior to the drilling of any City wells, the piezometric head across the well field area quickly dropped seven to 10 feet during the peak summer irrigation period and then slowly recovered during the fall months. Figure Two shows the seasonal water level changes as measured at monitoring well H33-2 at the well field. As many new irrigation wells were permitted and drilled during the past two years, the anticipated increased irrigation activity can be expected to affect the piezometric head quite independently of any of the City wells.

The approach used to estimate the effect of the City well field on the piezometric head in the vicinity of the well field is based on two different scenarios. The first is based on the pumpage at the well field to replace the three current wells at the Northeast Well Field and older Brule wells used by SID No. 1. In this case, three wells pumping a total of 510 gallons per minute on a rotating basis for one year would provide the 268 million gallons of water needed annually for replacement of the water required for blending by the City to meet minimum quality standards and for the current needs of the SID. One additional well will initially be developed for reserve capacity or use in rotation.

The second drawdown influence case considered is the "worst case scenario" where the City of Sidney would have to completely curtail the use of all of its Brule wells due to quantity and/or quality problems and rely entirely on the Northwest Well Field for all of the water necessary to supply the City and the SID. This situation is not expected, but the threats, particularly to water quality outlined in other portions of this application, are such that the City must plan for such a possibility, however remote. In this case the wells would pump the approximately 1.1 billion gallons of water needed with well rotation use. Although the wells will be pumped on a rotating basis, in both scenarios, the calculations were made on the basis of continuous pumping which has the same effect at distances a mile away from the wells. On average 170 gallons per minute from three wells year-round in the first scenario and 300 gallons per minute from seven wells year-round in the worst case scenario will supply the quantity of water needed. As drawdowns from multiple pumping wells are also additive, the sum of the drawdowns for each well was then calculated. The estimated total drawdown for all of the irrigation wells is shown on attached Table Two for the three well case and Table Three for the seven well case.

For the initial case with three wells pumping 170 gallons per minute, the drawdown analysis indicates that 12 irrigation wells will be influenced by pumping at the well field. Table Two lists the locations, ownership, well registration number, distance to nearest pumping well and estimated cumulative drawdown for the initial influence analysis. Ten of the wells would have a total drawdown influence less than one foot. Two wells on the Dennis Larson property near City Well DL-4 are expected to have the piezometric head reduced from two to three feet. Figure Three shows the

SDF Lines
Bridgeport to Lake McConaughy



Jacobson Helgoth CONSULTANTS

Date:	07-28-04
Scale:	1" = 16 Miles
JHC No.:	106-46
Drawn By:	NCH
Checked By:	
Figure:	1

NORTH PLATTE RIVER - STREAM DEPLETION FACTOR

CITY OF SIDNEY

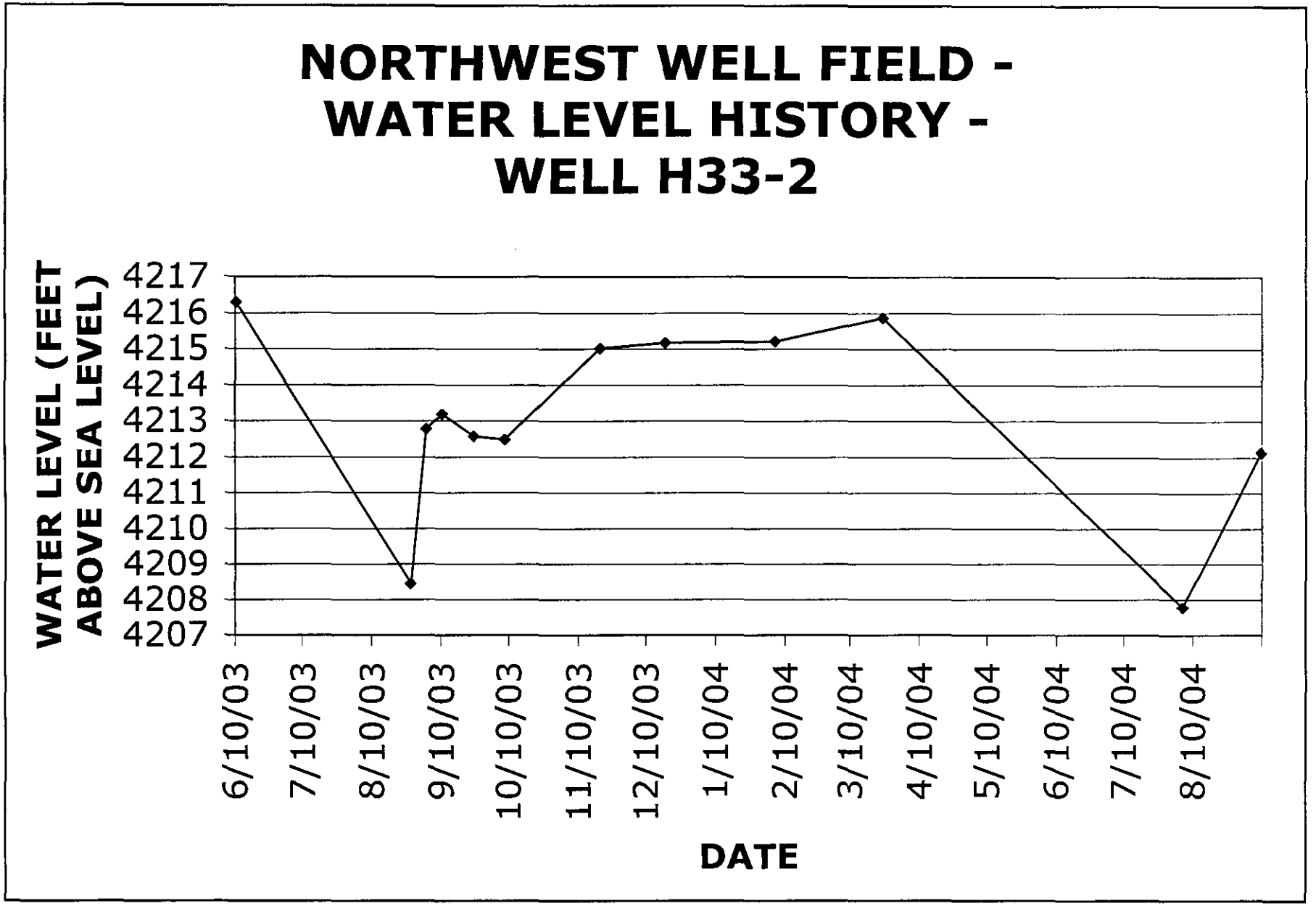

NORTHWEST WELL FIELD -
WATER LEVEL HISTORY -
WELL H33-2
WATER LEVEL (FEET ABOVE SEA LEVEL)
4217
4216
4215
4214
4213
4212
4211
4210
4209
4208
4207
6/10/03
7/10/03
8/10/03
9/10/03
10/10/03
11/10/03
12/10/03
1/10/04
2/10/04
3/10/04
4/10/04
5/10/04
6/10/04
7/10/04
8/10/04
DATE

TABLE TWO: SIDNEY NORTHWEST WELL FIELD
RADIUS OF INFLUENCE ESTIMATES
THREE MUNICIPAL WELLS PUMPING 170 GPM FOR ONE YEAR

Location	Owner	Registration Number	Well Type/ Year Constructed	Distance to Nearest Municipal Well	Estimated Cumulative Drawdown
SW SW 30 T16N-R50W	Beyer Keil Wheat.	G-042684	I 2001	7,000 feet	0.3 feet
C-NW 31 T16N-R50W	McNurlin L. & C.	G-072708	I 1990	7,500 feet	0.4 feet
NE SE 24 T16N-R51W	R. B. Moore	G-116299	I 2002	8,500 feet	0.2 feet
NE NW 27 T16N-R51W	C. L. Maas	G-116404	I 2002	6,000 feet	0.7 feet
SW NW 27 T16N-R51W	C.L. Maas	G-116460	I 2002	6,500 feet	0.5 feet
NE NE 33 T16N-R51W	City of Sidney	G-066254	I 1981	8,500 feet	0.2 feet
NE NE 36 T16N-R51W	Nebraska Edu.Land	G-069463	I 1984	5,000 feet	0.9 feet
SW SW 6 T15N-R50W	R. H. Lessman	G-092324	I 1997	9,500 feet	0.1 feet
SE NW 2 T15N-R51W	D. Larson	G-092149	I 1997	2,500 feet	2.6 feet
NE SW 2 T15N-R51W	D. Larson	G-024152	I 1964	4,000 feet	1.9 feet
SE NE 4 T15N-R51W	J. Dalton Trust	G-082588	I 1994	9,500 feet	0.1 feet
NE SW 10 T15N-R51W	D.C. Larson	G-042636	I 1974	9,000 feet	0.1 feet

Note: This analysis assumes Wells H26-2, H26-3 and DL-4 are pumping 170 gallons per minute each for an entire year. Well H26-1 would be a reserve well.

TABLE THREE: SIDNEY NORTHWEST WELL FIELD
RADIUS OF INFLUENCE ESTIMATES
SEVEN MUNICIPAL WELLS PUMPING 300 GPM FOR ONE YEAR

Location	Owner	Registration Number	Well Type/ Year Constructed	Distance to Nearest Municipal Well	Estimated Cumulative Drawdown
SE NW 19 T16N-R50W	M. Horst	G-099999	I 1999	8,500 feet	0.8 feet
SE SE 19 T16N-R50W	M. Horst	G-046858	I 1974	10,500 feet	0.6 feet
SW SW 30 T16N-R50W	Beyer Keil Wheat.	G-042684	I 2001	7,000 feet	1.5 feet
C-NW 31 T16N-R50W	McNurlin L. & C.	G-072708	I 1990	7,500 feet	1.1 feet
SE SE 13 T16N-R51W	S. Draper	G-047381	I 1975	8,000 feet	0.8 feet
SE NE 20 T16N-R51W	J.L. Frei	G-105873	I 2000	11,500 feet	0.3 feet
NE SE 24 T16N-R51W	R. B. Moore	G-116299	I 2002	5,000 feet	1.5 feet
NE NW 27 T16N-R51W	C. L. Maas	G-116404	I 2002	3,000 feet	3.7 feet
SW NW 27 T16N-R51W	C.L. Maas	G-116460	I 2002	5,500 feet	3.5 feet
C-NW 28 T16N-R51W	Jessen Properties	G-060238	I 1978	9,500 feet	2.1 feet
NE NW 32 T16N-R51W	Dinklage Feed Yard	G-123659	I 2003	6,000 feet	0.1 feet
SW NW 32 T16N-R51W	Dinklage Feed Yard	G-082724	I 1994	8,000 feet	0.1 feet
NE NE 33 T16N-R51W	City of Sidney	G-066254	I 1981	1,500 feet	5.6 feet
NE NE 36 T16N-R51W	Nebraska Edu.Land	G-069463	I 1984	5,000 feet	2.6 feet
SW SW 6 T15N-R50W	R. H. Lessman	G-092324	I 1997	9,500 feet	0.3 feet
NW NW 7 T15N-R50W	Beyer Keil Wheat.	G-091937	I 1997	10,000 feet	0.3 feet
C-SW 7 T15N-R50W	R. Kuehn	G-065767	I 1981	12,000 feet	0.1 feet
SE NW 2 T15N-R51W	D. Larson	G-092149	I 1997	2,500 feet	2.9 feet
NE SW 2 T15N-R51W	D. Larson	G-024152	I 1964	4,000 feet	1.3 feet

TABLE THREE: SIDNEY NORTHWEST WELL FIELD
RADIUS OF INFLUENCE ESTIMATES
SEVEN MUNICIPAL WELLS PUMPING 300 GPM FOR ONE YEAR

Location	Owner	Registration Number	Well Type/ Year Constructed	Distance to Nearest Municipal Well	Estimated Cumulative Drawdown
SE NE 4 T15N-R51W	J. Dalton Trust	G-082588	I 1994	5,500 feet	0.3 feet
NW NE 5 T15N-R51W	Dinklage Feed Yard	G-039202	I 1973	7,500 feet	0.1 feet
SE NW 5 T15N-R51W	Dinklage Feed Yard	G-043729	I 1975	9,000 feet	0.1 feet
NE SE 5 T15N-R51W	Franks & Franks	G-099879	I 1999	9,500 feet	0.1 feet
NE SW 10 T15N-R51W	D.C. Larson	G-042636	I 1974	9,000 feet	0.2 feet
C-NW 12 T15N-R51W	B.J. Warrick	G-105873	I 2000	10,000 feet	0.2 feet

Note: This analysis assumes seven City wells averaging 300 gpm for an entire year. Only Well H26-1 would be the reserve well.

SIDNEY, NEBRASKA NORTHWEST WELL FIELD

RADIUS OF INFLUENCE

WELL: DL-4
LOCATION: NW NE Section 2, T15N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
NE NW Sec 2 T15N-R51W	D.L. Larson	?	Domestic	1,150 feet
SE NW Sec 2 T15N-R51W	D.L. Larson	G-092149	Irrigation	2,300 feet
NE SW Sec 2 T15N-R51W	D.L. Larson	G-024152	Irrigation	3,600 feet
SE SE Sec 35 T16N-R51W	J.L. Larson	?	Domestic	1,600 feet
SE SW Sec 35 T 16N-R51W	J. L. Higgins	?	Stock	2,100 feet

WELL: H26-1
LOCATION: NW EE Section 26, T16N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
SW SW Sec 25 T16N-R51W	D.A. Goranson	?	Domestic (Abandoned Farm House)	3,900 feet
SE SE Sec 27 T16N-R51W	P. Fhlor	?	Domestic	3,800 feet
SE SW Sec 24 T16N-R51W	D.A. Goranson	?	Domestic	5,200 feet
NW SW Sec 26 T 16N-R51W	J.L. Higgins	?	Domestic (Abandoned Farm House)	2,100 feet

WELL: H26-2
LOCATION: SE SE Section 2, T16N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
SW SW Sec 25 T16N-R51W	D.A. Goranson	?	Domestic (Abandoned Farm House)	2,000 feet
SE SE Sec 25 T16N-R51W	K.M. Morgan	?	Domestic	5,200 feet
C-NE Sec 36 T16N-R51W	Nebraska School Lands	G-069463	Irrigation	5,100 feet
SE SW Sec 35 T16N-R51W	J.L. Higgins	?	Stock	5,300 feet
SE SE Sec 35 T 16N-R51W	J.L. Larson	?	Domestic	5,700 feet
SE SE Sec 27 T16N-R51W	P. Fhlor	?	Domestic	4,800 feet
NW SW Sec26 T16N-R51W	J.L. Higgins	?	Domestic (Abandoned Farm House)	4,100 feet

WELL: H26-3
LOCATION: SW SW Section 26, T16N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
SE SE Sec 27 T16N-R51W	P. Fhlor	?	Domestic	1,700 feet
NW SW Sec26 T16N-R51W	J.L. Higgins	?	Domestic (Abandoned Farm House)	2,100 feet
SE SW Sec 35 T16N-R51W	J.L. Higgins	?	Stock	4,100 feet
NE NW Sec 2 T15N-R51W	D.L. Larson	?	Domestic	5,700 feet
SW SW Sec 25 T 16N-R51W	D.A. Goranson	?	Domestic (Abandoned Farm House)	5,200 feet

WELL: H26-4
LOCATION: NW NW Section 26, T16N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
NE NW Sec 27 T16N-R51W	C.L. Maas	G-116404	Irrigation	3,300 feet
SW NW Sec27 T16N-R51W	C.L. Maas	G-116460	Irrigation	5,300 feet
SE SE Sec 27 T16N-R51W	P. Fhlor	?	Domestic	4,900 feet
NW SW Sec26 T16N-R51W	J.L. Higgins	?	Domestic (Abandoned Farm House)	2,900 feet
SW SW Sec 22 T 16N-R51W	E.E. Sanders	?	Domestic	5,000 feet

WELL: H26-5
LOCATION: NE NE Section 26, T16N-R51W

Wells within 6,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
SE SW Sec 24 T16N-R51W	D.A. Goranson	?	Domestic	2,000 feet
NW SE Sec 24 T16N-R51W	R.B. Moore	G-116299	Irrigation	5,100 feet
SW SW Sec 25 T16N-R51W	D.A. Goranson	?	Domestic (Abandoned Farm House)	4,250 feet
NW SW Sec26 T16N-R51W	J.L. Higgins	?	Domestic (Abandoned Farm House)	5,200 feet

WELL: H33-1
LOCATION: NW NE Section 33, T16N-R51W

Wells within 5,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
NE NE Sec33 T16N-R51W	J.L. Higgins	?	Domestic	2,200 feet
NE NE Sec 33 T16N-R51W	City of Sidney	G-066254	Irrigation	1,400 feet
C-NW Sec 28 T16N-R51W	Jessen Properties	G-060238	Irrigation	4,300 feet
SW NW Sec27 T16N-R51W	C.L. Maas	G-116460	Irrigation	4,300 feet

WELL: H33-2
LOCATION: SE NE Section 33, T16N-R51W

Wells within 5,000 feet

Location	Owner	Registration Number	Well Type	Distance From Municipal Well
NE NE Sec33 T16N-R51W	J.L. Higgins	?	Domestic	1,900 feet
NE NE Sec 33 T16N-R51W	City of Sidney	G-066254	Irrigation	1,650 feet

CITY OF SIDNEY, NEBRASKA

MUNICIPAL WATER WELLS

BRULE WELLS

Well Name	Location	Date Constructed	DNR Registration Number
Well 1	NE NW Section 31 T14N-R49W	1936	G-28490
Well 2	NE SE Section 31 T14N-R49W	1941	G-28491
Well 3	SE NE Section 31 T14N-R49W	8-1943	G-28492
Well 4	SE NE Section 6 T13N-R49W	11-12-1947	G-28493
Well 6*	SE SW Section 31 T14N-R49W	10-22-1954	G-28494
Well 7**	SW SE Section 31 T14N-R49W	9-5-1961	G-28495
Well 8	NW NW Section 5 T13N-R49W	3-25-1976	G-51268
Well 9	SE SW Section 29 T14N-R49W	1-8-1980	G-17339B

- Note: Well 6 removed from drinking water supply due to high nitrate levels, well currently only used to irrigate golf course.
- Note: Well 7 is used as an emergency backup well because of high nitrate concentrations.

NORTHEAST WELL FIELD

Well Name	Location	Date Constructed	DNR Registration Number
Well 10	NW NE Section 20 T14N-R49W	4-1993	G-89313
Well 11	NW SE Section 17 T14N-R49W	6-13-1991	G-89312
Well 12	SE SE Section 17 T14N-R49W	2-12-1992	G-81364

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-1

DATE: January 28 and 29, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-1	NW SE Section 26 T16N-R51W	0	62.5	Jacob –Pumping	12,900	NA
				Jacob - Recovery	20,600	NA
				Average	16,800	------

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-2

DATE: February 4 and 5, 2004

24-Hour Pump Test – 960 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-2	SE SE Section 26 T16N-R51W	0	48.15	Jacob –Pumping	5,500	NA
				Jacob - Recovery	17,400	NA
H26-1	NW SE Section 26 T16N-R51W	2,400	2.16	Theis-Pumping	12,200	0.00044
				Theis - Recovery	16,300	0.00070
H26-5	NE SNE Section 26 T16N-R51W	4,300	0.92	Theis-Pumping	21,900	0.00044
All		Calculated Zero Influence 5,900		Distance-Drawdown	12,400	0.00046
				Average	14,300	0.00051

Note: Pump test was shortened to 14.8 hours due to pumping equipment failure.

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-3

DATE: February 12 and 13, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-3	NW NW Section 26 T16N-R51W	0	38.99	Jacob –Pumping	22,200	NA
				Jacob - Recovery	14,000	NA
H26-1	NW SE Section 26 T16N-R51W	2,600	2.54	Theis-Pumping	16,700	0.00043
				Theis - Recovery	15,300	0.00039
H26-2	SW SW Section 26 T16N-R51W	3,350	2.08	Theis-Pumping	19,300	0.00048
				Theis-Recovery	27,000	0.00045
All		Calculated Zero Influence 9,900		Distance-Drawdown	18,750	0.00043
				Average	19,050	0.00044

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-4

DATE: February 19 and 20, 2004

24-Hour Pump Test – 910 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-4	NW NW Section 26 T16N-R51W	0	32.06	Jacob –Pumping	19,300	NA
				Jacob - Recovery	13,300	NA
H26-1	NW SE Section 26 T16N-R51W	3,800	1.91	Theis-Pumping	16,400	0.00028
				Theis - Recovery	18,600	0.00031
H26-3	SW SW Section 26 T16N-R51W	4,900	1.61	Theis-Pumping	15,000	0.00026
				Theis-Recovery	17,400	0.00028
H26-2	SE SE Section 26 T16N-R51W	6,100	0.94	Theis-Pumping	15,500	0.00042
H26-5	NE NE Section 26 T16N-R51W	4,900	1.28	Theis-Pumping	20,200	0.00030
All		Calculated Zero Influence 9,800		Distance-Drawdown	14,400	0.00034
				Average	16,700	0.00031

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-5

DATE: January 30 and 31, 2004

24-Hour Pump Test – 985 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-5	NE NE Section 26 T16N-R51W	0	19.22	Jacob –Pumping	49,000	NA
				Jacob - Recovery	41,800	NA
H26-5 (OW)	NE NE Section 26 T16N-R51W	100	7.13	Theis-Pumping	18,800	0.00146
				Theis - Recovery	20,100	0.00073
H26-1	NW SE Section 26 T16N-R51W	3,500	2.51	Theis-Pumping	30,100	0.00003
				Theis-Recovery	21,500	0.00022
All		Calculated Zero Influence 24,000		Distance-Drawdown	23,200	0.000099
				Average	29,200	0.00051

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H33-1

DATE: February 9 and 10, 2004

24-Hour Pump Test – 500 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H33-1	NW NE Section 33 T16N-R51W	0	29.15	Jacob –Pumping	12,800	NA
H33-2 OW	SE NE Section 33 T16N-R51W	3,100	1.01	Theis-Pumping Theis - Recovery	10,600 15,300	0.00039 0.00034
All		Calculated Zero Influence 4,500		Distance-Drawdown	4,300	0.00048
				Average	10,800	0.00040

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H33-2

DATE: January 27 and 28, 2004

24-Hour Pump Test – 800 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H33-2	SE NE Section 33 T16N-R51W	0	111.25	Jacob –Pumping	3,900	NA
				Jacob - Recovery	4,350	NA
H33-2 OW	SE NE Section 33 T16N-R51W	100	40.63	Theis-Pumping	1,850	0.00024
				Theis - Recovery	1,500	0.00018
H33-1	NW NE Section 33 T16N-R51W	3,100	1.69	Theis-Pumping	14,900	0.00039
				Theis - Recovery	10,200	0.00034
All		Calculated Zero Influence 3,700		Distance-Drawdown	2,200	0.00036
				Average	5,600	0.00030

CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: DL-4

DATE: January 23 and 24, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
DL-4	NW NE Section 2 T15N-R51W	0	38.44	Jacob –Pumping	13,000	NA
				Jacob - Recovery	9,300	NA
DL-4 OW	NW NE Section 2 T15N-R51W	100	21.48	Theis-Pumping	7,700	0.00018
				Theis - Recovery	9,900	0.00004
DL-5	NE NE Section 2 T15N-R51W	2,000	4.68	Theis-Pumping	12,250	0.00004
				Theis - Recovery	18,400	0.00025
NSL-4	SE SE Section 36 T16N-R51W	7,200	0.36	Theis-Pumping	30,600	0.00110
All		Calculated Zero Influence 8,000		Distance-Drawdown	9,700	0.00034
				Average	13,900	0.00033

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Section E

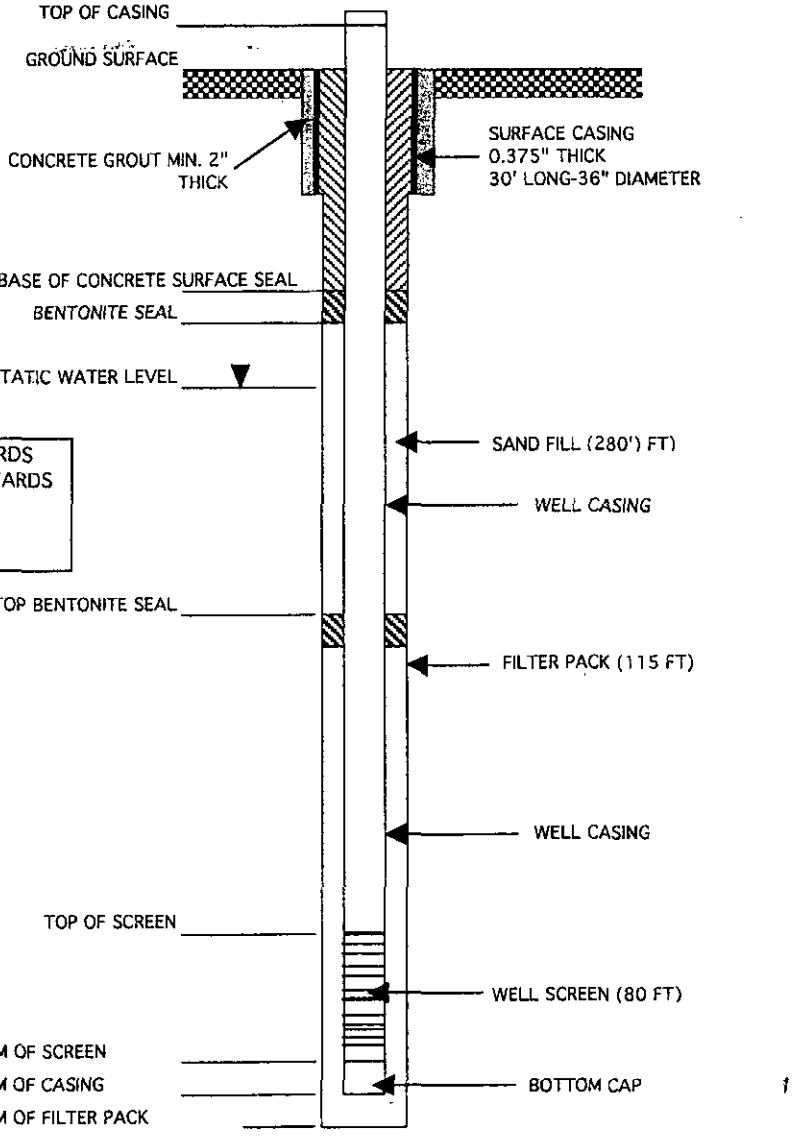
TYPICAL WELL PROFILE

Pumping Well Construction

Project Name		Project No.	Drilling Company	Date Drilled
SIDNEY NORTHWEST WELL FIELD		106-48	Layne Western	7-Jan-04
Well No.	**Location**	**Ground Surface El.**	**Drilling Rig Type**	**Date Constructed**
H26-3	SE SW SEC 26-T16N-R51W	4414'	REVERSE ROTARY	8-Jan-04

	Elevation	Depth From Reference	
Borehole Diameter 30 INCHES			
Survey Reference Point	4417'	3.0'	TOP OF CASING
Joint Type WELDED	4414'	0'	GROUND SURFACE
Type/Size of Casing 388' 18" STEEL			CONCRETE GROUT MIN. 2" THICK
Type/Size of Screen 80' 18" STNL STEEL			SURFACE CASING 0.375" THICK 30' LONG-36" DIAMETER
Screen Slot Size 0.050 INCH		60'	BASE OF CONCRETE SURFACE SEAL
		65' BASE	BENTONITE SEAL
Type/Amount of Grout/Fill 60' CONCRETE 280' SAND FILL		210'	STATIC WATER LEVEL
Type/Amount of Seal 5' BENTONITE CHIPS IN BOTTOM SEAL 5' BENTONITE CHIPS IN TOP SEAL		345'-350'	TOP BENTONITE SEAL
Type/Amount of Filter Pack 115' CUSTOM FILTER PACK - LUTHER MADDOX "A"			
Development Technique SURGE, 3AIL, PUMP		375'	TOP OF SCREEN
Well Test 1200 GPM/ 24 HOURS			
		455'	BOTTOM OF SCREEN
Notes:		465'	BOTTOM OF CASING
		465'	BOTTOM OF FILTER PACK

115' FILTER PACK = 13.4 YARDS
10' BENTONITE CHIPS = 1.2 YARDS
60' CONCRETE = 7 YARDS
280' SAND FILL = 33 YARDS



NOT TO SCALE

LEGEND

- CITY WELLS
- NON-CITY WELLS
- 1.0 FEET OF DRAWDOWN
- DRAWDOWN INFLUENCE AREA

H26-4

H26-5

H26-3
170 GPM

H26-1

H26-2
170 GPM

H33-1

H33-2

DL-4
170 GPM

0.7

0.5

0.2

0.2

0.3

0.9

0.4

2.6

1.9

0.1

0.1

0.1

R 51 W

R 50 W

Road 46

Road 93

Road 96

Road 99

Road 44

T 16 N

T 15 N

N

3000 1500 0 3000

SCALE IS APPROXIMATE

THREE WELLS PUMPING 170 GPM
NORTHWEST WELL FIELD
EFFECTIVE DRAWDOWN BOUNDARY
CITY OF SIDNEY, NEBRASKA

DATE: 06/21/2004
SCALE: 1" = 3000'
JHC PROJ. NO.: 106-46
DRAWN BY: ADN
CHECKED BY: NCH
FIGURE: FIG 3

Jacobson Helgoth CONSULTANTS

FILE NO.: DRAWDOWN ONE.DWG

LEGEND

- CITY WELLS
- NON-CITY WELLS
- 1.0 FEET OF DRAWDOWN
- DRAWDOWN INFLUENCE AREA

H26-4
300 GPM

H26-5
300 GPM

H26-3
300 GPM

H26-1

H26-2
300 GPM

H33-1
300 GPM

H33-2
300 GPM

DL-4
300 GPM

0.8
0.3
0.8
1.5
0.6
3.7
2.1
3.5
1.5
0.1
0.1
5.6
2.6
1.1
0.1
0.1
0.1
2.9
0.3
1.3
0.3
0.3
0.2
0.2

Road 48
Road 46
Road 44
Road 93
Road 95
Road 99

R 51 W
R 50 W
T 16 N
T 15 N

Wild Horse Draw
Creek
OIL FIELD

N

3500 1750 0 3500

SCALE IS APPROXIMATE

SEVEN WELLS PUMPING 300 GPM
NORTHWEST WELL FIELD
EFFECTIVE DRAWDOWN BOUNDARY
CITY OF SIDNEY, NEBRASKA

DATE: 06/21/2004
SCALE: 1" = 3500'
PROJ. NO.: 106-46
DRAWN: ADN
CHECKED: NCH
FIG 4

Jacobson Helgoth CONSULTANTS

FILE NO.: DRAWDOWN ONE.DWG

predicted drawdown influences for existing wells within the initial case area of influence.

For the maximum Northwest Well Field pumping case, the combined pumping influence of seven wells would be detectable at 25 wells. Ten of the irrigation wells would have total drawdowns greater than one foot with the maximum drawdown of 5.6 feet at the soon to be abandoned City-owned irrigation well in Section 33 of T16N-R51W. The attached Table Three lists the locations, ownership, well registration number, distance to nearest pumping well and estimated cumulative drawdown for the initial influence analysis. Figure Four shows the predicted drawdown influences for the existing wells within the seven-well maximum pumping case.

The economic impact of decreased piezometric head on an irrigation well in the vicinity of the Northwest Well Field was estimated using the following assumptions.

1. 160-acre center pivot
2. 750 gpm discharge – 46 Horsepower Motor
3. 260 feet of pumping head (includes 35 feet of head for pivot)
4. 60 days of continuous pumping – 20 inches of total water on crop
5. Electrical cost: $0.06 per kilowatt

The economic analysis assumes that the 20 inches of added irrigation water is evenly distrubuted over the tract with 1,440 hours of total pumping time representing the irrigation season. The total current estimated electrical cost for irrigating this field before pumping at the well field begins would be $4,000.00. For the initial case, the increased cost of pumping irrigation water at wells adjacent to the well field would range from a few pennies per season to an annual maximum of $40.00. The second "worst case scenario" could increase pumping costs at eight of the nearby wells from $30.00 to $75.00 per year. The irrigation wells in the vicinity of the well field are already experiencing seasonal increases in pumping costs of $125.00 to $160.00 per year. This is due to the local seasonal drop in piezometric head as a result of the well to well interference from existing irrigation practices. These costs may be expected to increase due to additional well development from any recently permitted irrigation wells that are near the City well field. The City's municipal wells will also incur seasonal additional lifting costs due to the impacts of increased irrigation development in the area.

Table Four
Increased Head Pumping Costs

Increased Head (feet)	Increase In Horsepower	Additional Seasonal Cost
0.5	0.06	$5.20
1.0	0.14	$12.10
1.5	0.28	$24.20
2.0	0.37	$32.00
2.5	0.46	$39.75
3.0	0.55	$47.50
4.0	0.73	$63.00

B. Statement of impacts on any existing threatened or endangered species in project area.

As part of the Environmental Assessment conducted during the spring of 2003 for the well field project, both the U.S. Department of Interior – Fish and Wildlife Service and the Nebraska Game and Parks Commission were asked to comment on potential impacts on any existing, threatened, or endangered species which might be impacted by the project. The responses from these two agencies indicated that no federally listed or proposed threatened or endangered species are expected to be impacted by the project.

C. Pump test information, if available, including length of test, data from pump test and location of observation wells.

For each of the eight municipal wells constructed at the Northwest Well Field, a 24-hour constant rate pump test was conducted after a variable-rate pump test. During the 24-hour pumping period water levels were measured within the pumped well and at available observation points across the well field area. Water levels were also recorded during the recovery period at the pumped well and selected observation wells. Table Five is attached to this application and lists the well calculation summaries for each of the eight wells. The summaries also include the radial distance to the observation well along with the maximum drawdown observed during the pumping test. The calculation method is identified for each well plus the calculated values for transmissivity and storativity are shown on the summaries. Figure Five shows the locations of the wells and the observation wells used during the pump testing phase of the well field construction.

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: DL-4

DATE: January 23 and 24, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
DL-4	NW NE Section 2 T15N-R51W	0	38.44	Jacob –Pumping	13,000	NA
				Jacob - Recovery	9,300	NA
DL-4 OW	NW NE Section 2 T15N-R51W	100	21.48	Theis-Pumping	7,700	0.00018
				Theis - Recovery	9,900	0.00004
DL-5	NE NE Section 2 T15N-R51W	2,000	4.68	Theis-Pumping	12,250	0.00004
				Theis - Recovery	18,400	0.00025
NSL-4	SE SE Section 36 T16N-R51W	7,200	0.36	Theis-Pumping	30,600	0.00110
All		Calculated Zero Influence 8,000		Distance-Drawdown	9,700	0.00034
				Average	13,900	0.00033

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-1

DATE: January 28 and 29, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-1	NW SE Section 26 T16N-R51W	0	62.5	Jacob –Pumping Jacob - Recovery	12,900 20,600	NA NA
				Average	16,800	------

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-2

DATE: February 4 and 5, 2004

24-Hour Pump Test – 960 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-2	SE SE Section 26 T16N-R51W	0	48.15	Jacob –Pumping	5,500	NA
				Jacob - Recovery	17,400	NA
H26-1	NW SE Section 26 T16N-R51W	2,400	2.16	Theis-Pumping	12,200	0.00044
				Theis - Recovery	16,300	0.00070
H26-5	NE SNE Section 26 T16N-R51W	4,300	0.92	Theis-Pumping	21,900	0.00044
All		Calculated Zero Influence 5,900		Distance-Drawdown	12,400	0.00046
				Average	14,300	0.00051

Note: Pump test was shortened to 14.8 hours due to pumping equipment failure.

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-3

DATE: February 12 and 13, 2004

24-Hour Pump Test – 1,200 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-3	NW NW Section 26 T16N-R51W	0	38.99	Jacob –Pumping	22,200	NA
				Jacob - Recovery	14,000	NA
H26-1	NW SE Section 26 T16N-R51W	2,600	2.54	Theis-Pumping	16,700	0.00043
				Theis - Recovery	15,300	0.00039
H26-2	SW SW Section 26 T16N-R51W	3,350	2.08	Theis-Pumping	19,300	0.00048
				Theis-Recovery	27,000	0.00045
All		Calculated Zero Influence 9,900		Distance-Drawdown	18,750	0.00043
				Average	19,050	0.00044

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-4

DATE: February 19 and 20, 2004

24-Hour Pump Test – 910 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-4	NW NW Section 26 T16N-R51W	0	32.06	Jacob –Pumping	19,300	NA
				Jacob - Recovery	13,300	NA
H26-1	NW SE Section 26 T16N-R51W	3,800	1.91	Theis-Pumping	16,400	0.00028
				Theis - Recovery	18,600	0.00031
H26-3	SW SW Section 26 T16N-R51W	4,900	1.61	Theis-Pumping	15,000	0.00026
				Theis-Recovery	17,400	0.00028
H26-2	SE SE Section 26 T16N-R51W	6,100	0.94	Theis-Pumping	15,500	0.00042
H26-5	NE NE Section 26 T16N-R51W	4,900	1.28	Theis-Pumping	20,200	0.00030
All		Calculated Zero Influence 9,800		Distance-Drawdown	14,400	0.00034
				Average	16,700	0.00031

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H26-5

DATE: January 30 and 31, 2004

24-Hour Pump Test – 985 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H26-5	NE NE Section 26 T16N-R51W	0	19.22	Jacob –Pumping	49,000	NA
				Jacob - Recovery	41,800	NA
H26-5 (OW)	NE NE Section 26 T16N-R51W	100	7.13	Theis-Pumping	18,800	0.00146
				Theis - Recovery	20,100	0.00073
H26-1	NW SE Section 26 T16N-R51W	3,500	2.51	Theis-Pumping	30,100	0.00003
				Theis-Recovery	21,500	0.00022
All		Calculated Zero Influence 24,000		Distance-Drawdown	23,200	0.000099
				Average	29,200	0.00051

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H33-1

DATE: February 9 and 10, 2004

24-Hour Pump Test – 500 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H33-1	NW NE Section 33 T16N-R51W	0	29.15	Jacob –Pumping	12,800	NA
H33-2 OW	SE NE Section 33 T16N-R51W	3,100	1.01	Theis-Pumping Theis - Recovery	10,600 15,300	0.00039 0.00034
All		Calculated Zero Influence 4,500		Distance-Drawdown	4,300	0.00048
				Average	10,800	0.00040

TABLE FIVE: CITY OF SIDNEY NORTHWEST WELL FIELD PUMP TESTING RESULTS

WELL: H33-2

DATE: January 27 and 28, 2004

24-Hour Pump Test – 800 gallons per minute

Well	Location	Radius From Pumped Well (feet)	Maximum Drawdown (feet)	Calculation Method	Transmissivity (feet squared per day)	Storativity (no units)
H33-2	SE NE Section 33 T16N-R51W	0	111.25	Jacob –Pumping	3,900	NA
				Jacob - Recovery	4,350	NA
H33-2 OW	SE NE Section 33 T16N-R51W	100	40.63	Theis-Pumping	1,850	0.00024
				Theis - Recovery	1,500	0.00018
H33-1	NW NE Section 33 T16N-R51W	3,100	1.69	Theis-Pumping	14,900	0.00039
				Theis - Recovery	10,200	0.00034
All		Calculated Zero Influence 3,700		Distance-Drawdown	2,200	0.00036
				Average	5,600	0.00030

D. **Information on geology and hydrology of the area such as the thickness of the aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether the aquifer is confined or unconfined.**

The Ogallala Formation and Aquifer underlies the broad benchland that separates Lodgpole Creek from the North Platte River. The Ogallala Formation is present at the surface around the well field and is often only covered with thin soil veneer. At the well field site, the Ogallala varies in thickness from 400 to 500 feet and consists of variable quantities of clay, silt, sandstone, and very fine gravel. The upper 200 feet consists of fine to coarse sand and fine gravel, silt, clay, and limestone secondary cement is common. The interval from 200 to 300 feet is highly variable in stratigraphy with silts and clay-cemented fine-sands as the most common lithologies. Locally, fine to coarse grain sands are developed in this portion of the Ogallala and this interval often is the source for domestic wells in the greater well field area.

The lower Ogallala, which is separated by low permeability silts and clays from the upper Ogallala, is present from 300 to 500 feet in the well field area, and is characterized by the development of medium to coarse-grain sands in multiple benches. The coarser sand in the lower Ogallala Formation is developed in an older paleo-valley that is two to three miles wide and extends from the Potter area to the east-northeast. The piezometric surface in the well field is 200 feet from the surface and slopes toward the northeast at approximately 14 feet per mile. The Ogallala Aquifer averages 275 feet in thickness across the well field. The City's wells are screened in the lower Ogallala Aquifer.

The Ogallala Aquifer hydraulic properties are estimated from the response of the aquifer to pump testing. The pump test data calculation summaries are included in the support for the Section C. response. The average transmissivity and storativity values for the Section 26, 33 and Section 2 wells are shown on Table Six. Transmissivity is an expression of the amount of water that can be transmitted horizontally through the entire aquifer thickness. Storativity is the volume of water that will be absorbed or expelled from storage per unit change in head.

Table Six: Summary of Aquifer Hydraulic Properties

Area	Transmissivity (feet squared per day)	Storativity (no units)
Average Section 26 Wells	19,200	0.00035
Average Section 33 Wells	8,200	0.00035
Section 2 Well	13,900	0.00033

The hydraulic testing confirms that the higher water transmitting characteristics of the Ogallala Aquifer are associated with the thicker sand development in Section 26. Storativity is remarkably consistent across the

well field area and the very low numerical value is consistent with confined aquifers.

E. Description of type of well, including drawings.

Table Seven summarizes the key construction information for the eight wells at the Northwest Well Field. The eight municipal water wells were drilled with a minimum 30-inch diameter hole to depths ranging from 370 to 470 feet. Casing and screens are all 18-inches in diameter. The well screens are stainless steel, wire wrapped screens with customized apertures for the grain sizes encountered in the test hole for each well bore. Screen aperture thickness varies from 0.040 to 0.080 inches. Gravel packs were designed specifically for each well from the grain-size distributions so that a minimum of 90 percent of the gravel pack be retained by the screen. Figure Six shows the well design profile for Well H26-3, which is typical for the eight wells constructed at the well field.

Pumps will be placed a minimum of 10 feet above the top of the screens in order to prevent dewatering of the well screens. Each well was pumped tested at variable rates in order to determine the maximum efficient pump rate in order to allow sufficient water over the pump during the high demand summer pumping period.

Table Seven: Well Construction Summary

Well	Total Depth (feet)	Total Screen Length (feet)	Screen Opening (inches)	Maximum Pump Rate (gpm)
H26-1	465	60	0.060	1,200
H26-2	460	60	0.040	1,000
H26-3	465	80	0.050	1,200
H26-4	455	65	0.040	1,000
H26-5	470	60	0.040	1,200
H33-1	465	50	0.050	500
H33-2	440	50	0.050	750
DL-4	370	30	0.080	1,200

F. Planned operational schedule.

The City of Sidney controls pumping with its Supervisory Control and Data Acquisition System (SCADA), a computerized monitoring and control network. All wells in the Northwest Well Field will be connected to a transmission line, the southern terminus of which will be at the 1.5 million gallon blending tank on the north side of the City of Sidney. When the blending tank reaches the 27-foot level, the SCADA system will call for one or two Brule wells within the City limits and open a valve on the transmission pipeline to allow water from the elevated tank at the

former Sioux Army Ordinance Depot (now Sioux Meadows) to flow into the City blending tank. As water flows from the elevated tank it will be replaced with water from the well field transmission line, which will be filled, as needed, from wells in the new Northwest Water Well Field. When the City tank refills to the 29-foot level, the SCADA system shuts off any Brule wells then in operation and the transmission pipeline valve. If the tank level continues to drop below 27 feet, the SCADA system will activate another Brule well. The transmission line valve can be set to control gallonage coming from that source to achieve acceptable nitrate-nitrogen blending rates.

Wells in the Northeast Well Field will be placed on reserve when the Northwest Well Field is placed into operation. The SCADA system calls for wells on a rotating basis as it refills the blending tank. The wells in the Northwest Well Field will also operate on a rotation basis once multiple wells are placed on line. The frequency of rotation is somewhat dependent upon the electrical demand charge cost schedule of Wheatbelt Public Power. This has not been an issue before as the City has been the electrical supplier for all municipal water wells prior to the development of the Northwest Well Field.

Obviously, the demands put on the system are varied with the lowest demand occurring at night during winter months. Daytime demand in the winter increases, particularly from 7:00 A.M. to Noon. The greatest demand, however, occurs during summer months. During the lawn irrigation season, particularly during the evening hours, generally from 5:00 P.M. to 9:00 P.M., more pumping will be required to fill the blending tank to the 29-foot shut-off level.

The City takes well water level readings during spring and summer and by policy, twice-a-week lawn watering restrictions are triggered by predetermined lowered water level readings. When in effect, these restrictions assist not only in conservation but in somewhat leveling demand load during the evening hours by assuring that all City residents are not using water for lawn irrigation at any one particular time, but rather that use is rotated to various areas of the City.

When any well in the City's system reaches a level less than ten feet, automatic watering restrictions go into effect which require watering to be limited to six hours one day a week. During drought conditions, depending upon rural irrigation use in the Lodgepole Valley, emergency restrictions are quite possible. When in effect, lawn watering restrictions would lessen the requirement not only from Brule wells but will also reduce requirements from the Northwest Well Field.

It cannot be emphasized enough that the City's water system is governed by levels in the 1.5 million gallon blending tank. All Brule wells and the transmission line valve will be shut down by the SCADA system when the tank fills to the 29-foot level. Water is called from the Brule wells on a

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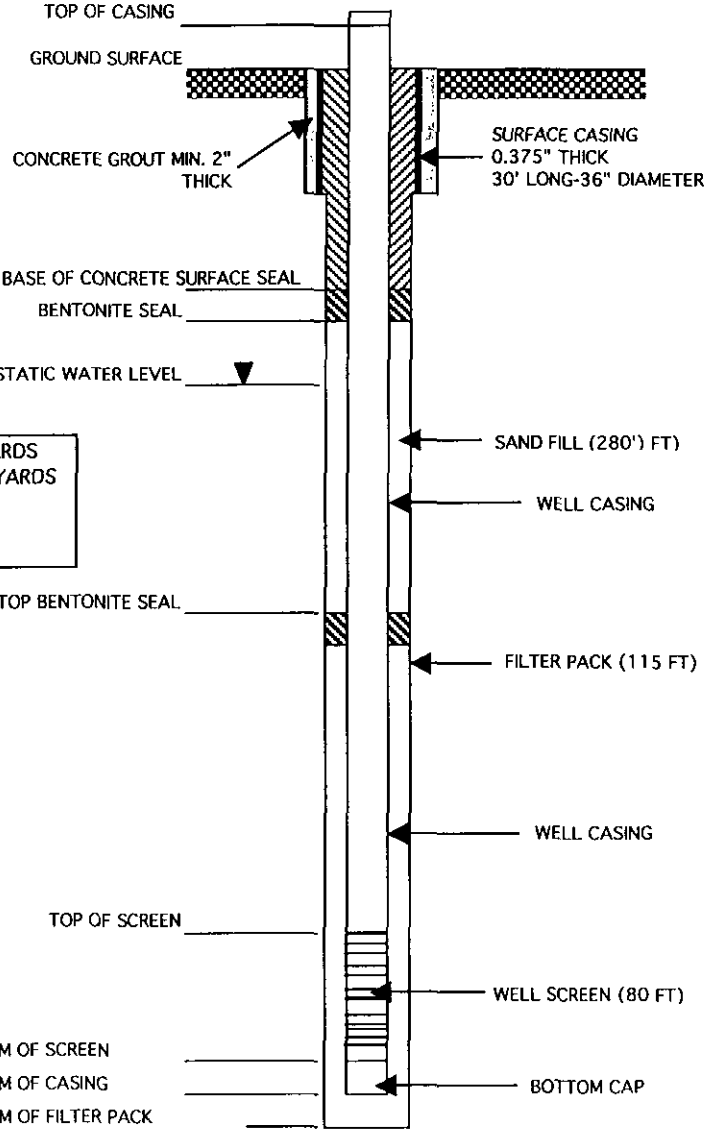
Section E
TYPICAL WELL PROFILE
Pumping Well Construction

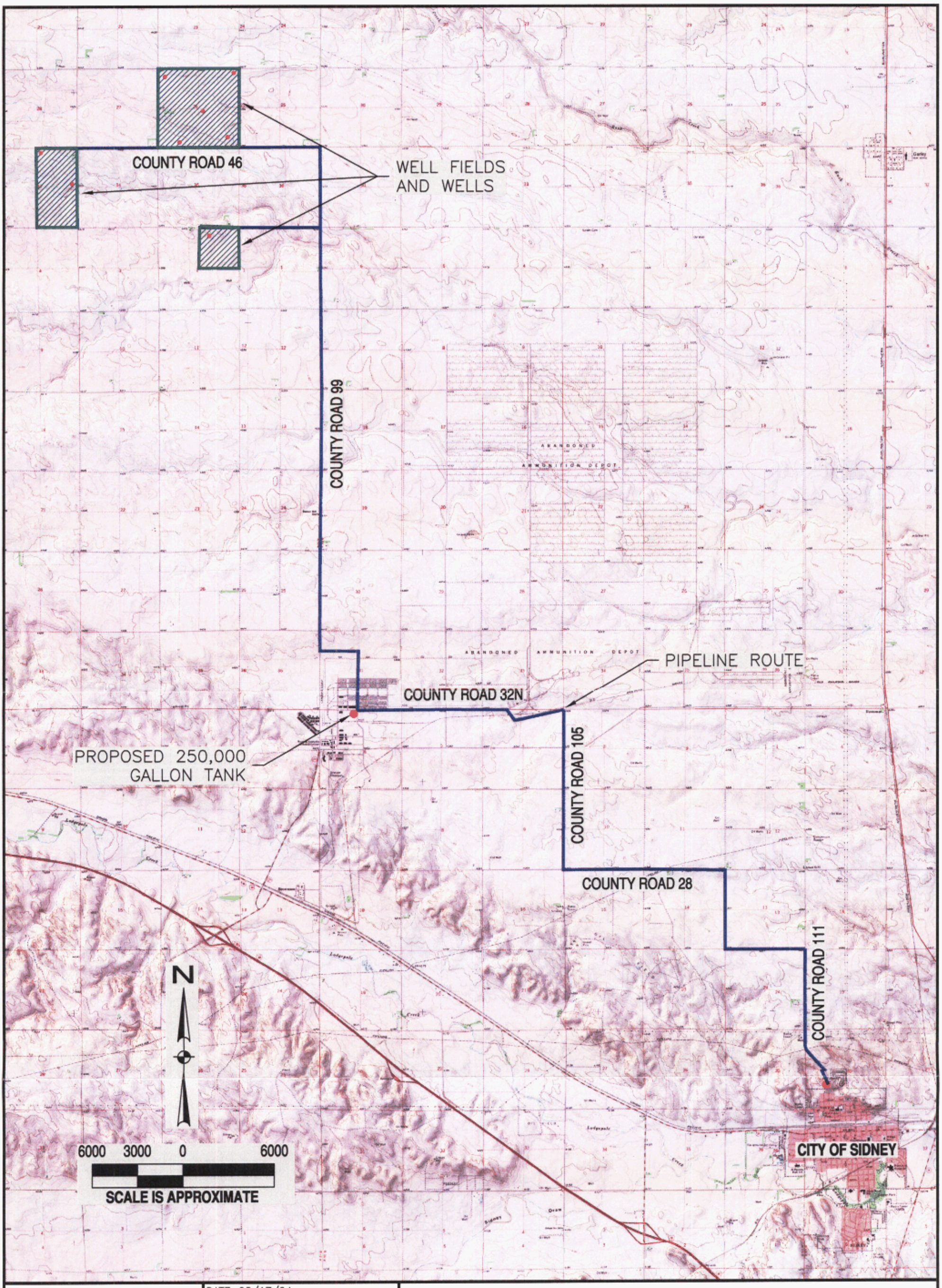
Project Name		Project No.	Drilling Company	Date Drilled
SIDNEY NORTHWEST WELL FIELD		106-48	Layne Western	7-Jan-04
Well No.	**Location** SE SW	**Ground Surface El.**	**Drilling Rig Type**	**Date Constructed**
H26-3	SEC 26-T16N-R51W	4414'	REVERSE ROTARY	8-Jan-04

	Elevation	Depth From Reference	
Borehole Diameter 30 INCHES			
Survey Reference Point	4417'	3.0'	TOP OF CASING
Joint Type WELDED	4414'	0'	GROUND SURFACE
Type/Size of Casing 388' 18" STEEL			
Type/Size of Screen 80' 18" STNL STEEL			
Screen Slot Size 0.050 INCH		60'	BASE OF CONCRETE SURFACE SEAL
		65' BASE	BENTONITE SEAL
Type/Amount of Grout/Fill 60' CONCRETE 280' SAND FILL		210'	STATIC WATER LEVEL
Type/Amount of Seal 5' BENTONITE CHIPS IN BOTTOM SEAL 5' BENTONITE CHIPS IN TOP SEAL		345'-350'	TOP BENTONITE SEAL
Type/Amount of Filter Pack 115' CUSTOM FILTER PACK - LUTHER MADDOX "A"			
Development Technique SURGE, BAIL, PUMP		375'	TOP OF SCREEN
Well Test 1200 GPM/ 24 HOURS			
		455'	BOTTOM OF SCREEN
Notes:		465'	BOTTOM OF CASING
		465'	BOTTOM OF FILTER PACK

115' FILTER PACK = 13.4 YARDS
10' BENTONITE CHIPS = 1.2 YARDS
60' CONCRETE = 7 YARDS
280' SAND FILL = 33 YARDS



NOT TO SCALE
FIGURE SIX



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FILE NO.: PIPELINE 040817.DWG

DATE: 08/17/04
SCALE: 1" = 6000'
PROJ. NO.: 106-46
DRAWN: ADN
CHECKED: TTS
FIG 6

SIDNEY WATER SUPPLY 2003/2004
FINAL PIPELINE AND WELL LOCATIONS
CITY OF SIDNEY, NEBRASKA

rotational basis and the transmission line valve will open when the tank reaches the 27-foot level.

In summary:

1. Wells in the Northeast Well Field will be held in reserve and not pumped except for routine equipment checks as the well field is nearing depletion and its use should be limited only to emergency requirements once the Northwest Well Field is placed in service. Wells at Sioux Meadows will be held in reserve and are not connected to the City's new transmission line. The irrigation well on Section 33, Township 16 North, Range 51 West will be decommissioned. Any wells in the Brule which become unusable due to high nitrates such that even with blending they threaten maximum contaminant levels will be held in reserve. Any Brule wells that become contaminated, testing at or above maximum contaminant levels from hydrocarbon or tetrachloroethylene will not be used in the public water supply system.

2. Four Northwest Well Field wells will initially be used to replace the three Northeast Well Field wells and the former Sioux Army Ordnance Depot (Sioux Meadows) wells.

3. The remaining four wells in the Northwest Well Field for which permits have been issued will be placed on line on an as-needed basis depending on water quantity needs and water quality deteriation in the City's Brule wells.

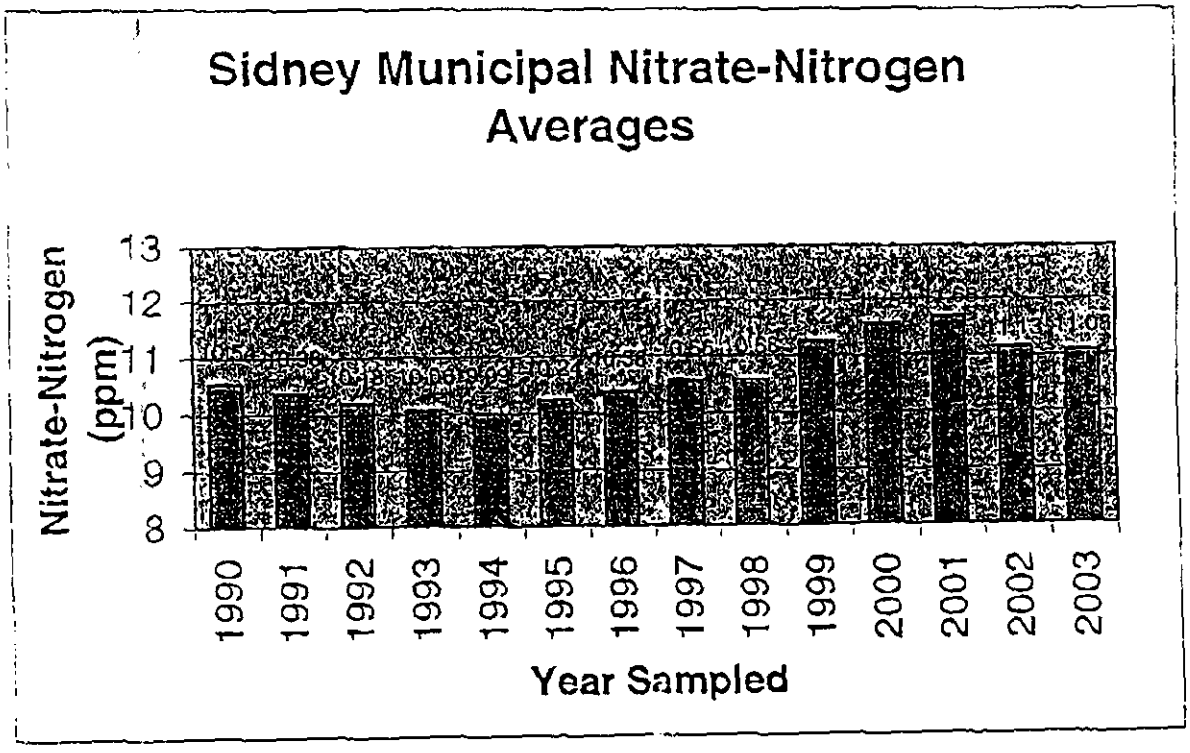
4. The City needs to have the ability to pump its entire water needs from the Ogallala Aquifer if the Brule Aquifer water cannot be used because of quality and/or quantity issues.

G. Explanation of the basis for the amount of water requested.

The City of Sidney has experienced significant problems over the last several years relating to its water supply. Specifically, the City was required to shut down two of its wells in the Brule Aquifer, the traditional source of water lying in the Lodgepole Valley within the City limits of the City in the summer of 2002, as the wells were drawn down to less than a foot of water remaining above the pumps. The City instituted conservation measures through limiting days and hours of water use and more recently, by adjusting its rate structure so that persons using more water have to pay higher rates. These actions have led to significant water conservation and no wells were shut down during the summers of 2003 or 2004. The Brule Aquifer, however, can no longer be depended on to supply the water to sustain community needs from a quantity standpoint, particularly in periods of drought experienced regularly in Western Nebraska.

City of Sidney Municipal Wells Nitrate-Nitrogen Levels

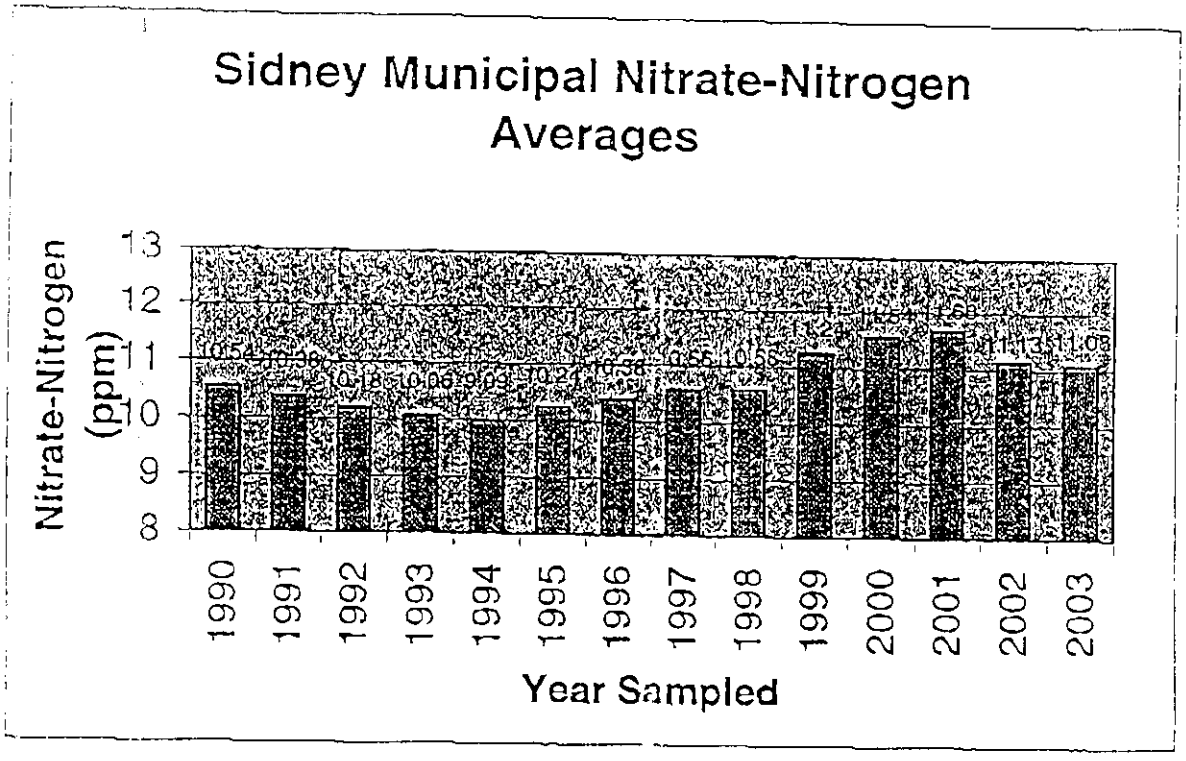
Well ID	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SMW-1	10.22	10.32	11.65	12.28	12.9	13.2	13.25	13.4	12.98	13.6	13.95	13.85	13.36	13.87
SMW-2	12.92	12.39	12.8	13.1	12.6	13.55	13.35	13.4	13.23	14.73	14.98	15.1	14.46	14.18
SMW-3	9.48	9.65	9.3	8.95	11.25	11.2	11.08	11.2	11.03	12.13	12.38	12.88	12.54	13.42
SMW-4	8.37	8.43	8.9	8.8	6.95	8.05	8.48	8.2	7.78	8	8.3	8.45	7.5	7.85
SMW-6	15.1	14.43	12.5	12.3	11.15	11.45	13.9	14.7	14.73	15.4	15.58	14.9	14.86	13.42
SMW-7	12.5	13.42	11.55	11.5	11.5	10.95	10.45	10.3	11.08	11.53	12.03	12.5	10.76	10.23
SMW-8	9.43	8.52	8.9	7.8	7.75	7.58	7.15	7.55	8.2	7.7	7.78	7.88	7.8	7.47
SMW-9	6.31	5.86	5.8	5.78	5.85	5.95	5.38	5.75	5.6	6.85	7.35	7.85	7.76	8.17
AVG	10.54	10.38	10.18	10.06	9.99	10.24	10.38	10.56	10.58	11.24	11.54	11.68	11.13	11.08



ATTACHMENT A

City of Sidney Municipal Wells Nitrate-Nitrogen Levels

Well ID	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SMW-1	10.22	10.32	11.65	12.28	12.9	13.2	13.25	13.4	12.98	13.6	13.95	13.85	13.36	13.87
SMW-2	12.92	12.39	12.8	13.1	12.6	13.55	13.35	13.4	13.23	14.73	14.98	15.1	14.46	14.18
SMW-3	9.48	9.65	9.3	8.95	11.25	11.2	11.08	11.2	11.03	12.13	12.38	12.88	12.54	13.42
SMW-4	8.37	8.43	8.9	8.8	6.95	8.05	8.48	8.2	7.78	8	8.3	8.45	7.5	7.85
SMW-6	15.1	14.43	12.5	12.3	11.15	11.45	13.9	14.7	14.73	15.4	15.58	14.9	14.86	13.42
SMW-7	12.5	13.42	11.55	11.5	11.5	10.95	10.45	10.3	11.08	11.53	12.03	12.5	10.76	10.23
SMW-8	9.43	8.52	8.9	7.8	7.75	7.58	7.15	7.55	8.2	7.7	7.78	7.88	7.8	7.47
SMW-9	6.31	5.86	5.8	5.78	5.85	5.95	5.38	5.75	5.6	6.85	7.35	7.85	7.76	8.17
AVG	10.54	10.38	10.18	10.06	9.99	10.24	10.38	10.56	10.58	11.24	11.54	11.68	11.13	11.08



ATTACHMENT A

In addition, the City of Sidney has experienced significant water quality problems over recent years. Attachment A is a historical record from 1990 through 2003 of nitrate-nitrogen levels in the Brule municipal wells. Without a low-nitrate blending source, the water supply could not meet the maximum contaminant level for nitrate-nitrogen. The City, in its traditional water supply source, the Brule Aquifer, only has three wells that are below the 10 parts per million nitrate maximum contaminant level set by the State of Nebraska. In the 2003 tests, results were as follows: SMW-4 at 7.85, SMW-8 at 7.44 and SMW-9 at 8.17. Four of the other five wells registered 13.42 ppm nitrate or above.

In 1990, the City developed a well field with nitrate levels in wells at 2 ppm or less to provide water for blending in a 1.5 million gallon storage tank. This well field is located two miles northeast of the City limits in an alluvial aquifer which is limited in that it has minimal recharge. At the time that pumping began in the early 1990's, the life of the well field was estimated to be twenty years. In early 2003, engineering investigation established the remaining life of the well field at approximately six years. However, during the last two years, the City has used twice the amount projected in the engineering estimate to meet water needs, therefore, this field will soon be depleted. When this occurs, the City will not have a source of low-nitrate blendable water.

Even with blending, the City has been operating with nitrate-nitrogen as high as 9.7 ppm, precariously close to violation of the nitrate-nitrogen level. SMW-6, which has been as high as 15.58 ppm, has been temporarily disconnected from the drinking water supply and at present can serve only the municipal golf course where it is located. This well will be reconnected to the drinking water supply as soon as nitrate contamination can be lessened and depending on the availability of low nitrate water for blending. SMW-7, currently at 10.25 ppm cannot be connected economically to the blending system and serves only as backup and emergency reserve. Three other wells are of great concern because of high nitrates--SMW-1 at 13.87, SMW-2 at 14.17 and SMW-3 at 13.42 ppm. All three at present are connected to the blending tank. Nitrate levels in SMW-1 and SMW-3 continue to rise, as does the City's largest producer, SMW-9, which raises concern for increased volume required for blending. The Northwest Well Field averages 2 mg/L nitrate and is low in arsenic, uranium, and manganese. It is, therefore, a quality source of blendable water. The attached table lists the individual Sidney municipal well nitrate concentrations for the period from 1990 through 2003. The attached chart shows the average nitrate concentration history for the City's Brule water wells.

Additionally, the major producing City well in the Brule Aquifer, SMW-9 at 8.17 ppm nitrate-nitrogen and steadily rising, has been found to have traces of tetrachloroethylene, an industrial solvent. Although these levels are below the maximum contaminant level, this well, which is our most productive well, will have to be shut down if the contamination levels

rise. Private wells, a short distance east of this well, have been shut down because of solvent contamination, so the concern is elevated.

Additionally, Marathon Oil Company operated a gas plant three and one-half miles west of Sidney in the Lodgepole Valley until the late 1980's. The EPA has recently issued a Unilateral Order reference benzene and toluene contamination and free-floating L-NAPL's found in a sentinel well approximately three miles west of Sidney. As groundwater flow is to the east toward City wells, potential for hydrocarbon contamination from this source is very real. The Unilateral Order notes that the sentinel well, MOC I-88 approximately three miles west of Sidney shows substantial increases in free-floating L-NAPL's going from a thickness of 0.09 feet when tested on April 20, 2002 to 1.89 foot thick layer of L-NAPL's on April 20, 2003. In April of 2004, the thickness of L-NAPL was measured at 1.1 feet. As noted in the Unilateral Order, "Contamination from the West Sidney Gas Plant has been identified in the Brule Formation. The Brule Formation is a source of potable drinking water for farmers and rural users in the Lodgepole Creek drainage basin west of Sidney. It also supplies a portion of the municipal water supply for the City of Sidney, Nebraska. The direction of groundwater flow in the vicinity of the Facility is toward the east and northeast, in the direction of the Sidney, Nebraska municipal well field."

Sidney's population was established at 6,282 in the 2000 census. The City of Sidney has experienced significant growth in its employment sector during recent years. On any given day the population basically doubles as a result of Sidney's 6,400 full-time jobs. It is estimated that 45 percent of the labor force commutes to Sidney from the surrounding communities.

The City has additional water demands from it's Interstate 80 location, particularly in conjunction with the Cabela's retail store which draws more than one million visitors annually to its location and surrounding businesses. Housing development is quite active and the present growth environment is anticipated to continue. In addition to the expected movement to the community of people presently commuting daily particularly to Cabela's corporate, retail and warehousing operations, the development of new employment requires an expanded housing sector. The Cabela's corporate facility recently doubled in sized which speaks to the plan for growth on the part of Sidney's and the Panhandle's largest employer.

Industrial use of water is limited in Sidney as most business use of water is for drinking, food preparation and toilet facilities. The only manufacturers are Krone Digital Communications and Convert-A-Ball, whose use of water in manufacturing is very small. Cabela's, Memorial Health Center and Sidney Public Schools, the largest employers in the community, are users in the consumption/health and safety category. Residential and community uses are, for the most part, domestic in nature including, in addition to consumption and sanitation, lawn and parks

irrigation, several car/truck washes, restaurants, services, retail businesses, and warehousing. The City has 2.975 million gallons of water available in storage tanks, at present, to pressurize the system and provide fire protection.

Additionally, the area of the former Sioux Army Ordnance Depot located approximately ten miles west of Sidney and eight miles south of the new water well field has traditionally been served by a water system dating from construction of the original facility in the 1940's. When the federal government abandoned the site, the large storage buildings were converted by private owners to warehouses and other business uses. Grain storage and a railroad car repair service facility were built later. There are, in addition to business users, presently 70 housing units, 35 of which are occupied in a Sanitary Improvement District known as Sioux Meadows at this site. Although roughly 100 persons live in the apartment units presently, the capacity is approximately 200. Busineses at this location provide employment for approximately 1,000 people. Cheyenne County SID #1 was served with a Department of Health and Human Services Emergency Order dated June 13, 2003 citing numerous water system violations. The Department of Health and Human Services has appointed the City of Sidney to temporarily manage the SID #1 water system until the new well field and transmission pipeline can serve residences and business in this area. This new usage requirement from municipal wells including provisions for 100% occupancy in residences must be considered. Although the old Brule wells which served this area were never metered, we estimate that 100,000,000 gallons per year will be used to provide water from the Northwest Well Field to serve needs at this site. Residential and business use at this location can be expected to grow in future years.

The City's peak one-day use on September 1, 2001, was 6,069,000 gallons. In 2000, the year prior to imposing lawn watering restrictions, the City pumped a total of 756,371,000 gallons of water to meet municipal needs. During that year, the average daily amount pumped was 2,072,250. Using the 2000 census population of 6,282, the per capita usage calculates to 330 gallons per day. Both business and residential growth in the City is expected to increase substantially in future years and therefore a growth factor allowance of 25% is reasonable.

During 2003, the City pumped 216,925,000 gallons from the three wells in the Northeast Well Field. These wells will be placed on reserve when the Northwest Well Field begins to pump. Additionally, the irrigation well located on the West Half of Section 33, Township 16, Range 51 West of the 6th P.M. will be decommissioned. The former owner of the property states that that irrigation well test pumped at 1,400 gallons per minute and was operated at approximately 750 gallons per minute for a period of 75 to 90 days during the summer irrigation season from 1981 through 2003. At 750 gallons per minute for 90 days, this calculates to a total of 97,200,000 gallons. An irrigation well at the City's industrial park will also

be abandoned along with a number of older small capacity wells within the City and at the Airport. Adding irrigation usage and 2003 Northeast Well Field usage, we calculate 314,125,000 gallons per year from wells previously pumped will not be pumped when the Northwest Water Well Field is placed in service. Additionally, the City is committed to continue pumping from Brule wells to the extent quantity and quality allow as pumping and transmission costs from this source are significantly less. The City, except for any growth factor allowed, will reduce pumping from the Brule on a gallon for gallon basis for any replacement water pumped from the new Northwest Well Field. Therefore, except for growth, Northwest Well Field water will simply replace water now pumped from other City wells. In essence, water from the new well field will be offset by less use in other City wells.

Approval is requested for amounts which would supply all City needs if the Brule wells fail due to quantity or further contamination. In 2000, prior to the drought, Brule wells supplied 596,670,000 gallons. When added to 2003 Northeast Well Field pumpage of 216,925,000 gallons and Sioux Meadows area needs of 100,000,000 gallons, total for current usage is 913,595,000. Factoring a 25% growth factor for anticipated municipal use of 203,398,750 brings the total need to 1,116,993,750. The City will continue its use of Brule wells for as long as possible as costs for producing Brule water from in town wells is significantly less, but approval of the full amount requested from the Northwest Well Field is critical as the potential is real that at some point the City will have to supply all needs from this source.

If the total daily and yearly gallonage requested by the City in its application is approved, the system has built-in conservation regulators. The City presently has in place well level triggers for lawn watering restriction and, more importantly, by ordinance, charges on an escalated cost basis which raises the per thousand gallon charge in five stages so that high water users are charged progressively more to encourage conservation.

More importantly, the City controls pumping through a computerized SCADA system which monitors water levels in the 1.5 million gallon blending tank on the City's north side. All water from the new well field will be directed by pipeline to that tank where it will be blended with high nitrate water from Brule wells. The SCADA system shuts off all Brule wells and the water transmission pipeline valve when the tank is at the 29-foot level and will call for a Brule well and Northwest Well Field water well when the level reaches 27 feet. Therefore, the use of the City is self-limiting, the City can only receive enough water to reach the 29-foot level and the system is shut off.

H. **Map showing location of proposed wells, pipelines and the area of proposed use.**

See attached maps.

I. **Additional supporting information.**

§46-613.01 requires that the Director of the Department of Natural Resources consider the following issues prior to issuing a Ground Water Transfer Permit:

(1) The nature of the proposed use and whether it is a beneficial use of ground water;

The water currently pumped by the City of Sidney into its water supply distribution system is for the beneficial use of residents, commuting employees and visitors to the City. It is also used for fire control, health and sanitation at residences and commercial locations. Water use by citizens is overwhelmingly domestic as there are few industrial users and such use is minimal in volume. The City encourages conservation and penalizes unnecessary use through its rate structure and water restriction ordinances.

(2) The availability to the applicant of alternative sources of surface or ground water;

There is not any surface water of sufficient size or quality in the vicinity of the City of Sidney to be considered a potential source of municipal water. Ground water has been the historic source of water for the City since its inception. Nitrate-nitrogen contamination due to non-point source agricultural chemical usage has forced the City to search for higher quality groundwater outside of the City boundaries to blend with its current contaminated ground water to meet State regulatory requirements. Additionally, over development of center-pivot irrigation in the Brule Aquifer has resulted in progressive declines in the regional Brule water table to the point where the City has lost the use of some of its municipal water wells during drought periods. The City has performed an exhaustive search of potential alternative ground water supplies. The Ogallala Aquifer offers the only viable source that can meet the municipal needs of the City from regarding both quantity and quality.

(3) Any negative effect of the proposed withdrawal on ground water supplies needed to meet present or reasonable future demands for water in the area of the proposed withdrawal, to comply with any interstate compact or decree, or to fulfill the provisions of any other formal state contract or agreement;

The initial operation of the Northwest Well Field will involve the use of three wells to replace the water currently being pumped from the Northeast Well Field and the ground water currently pumped by SID No.

1. Three wells pumping a collective average of 510 gallons per minute for an entire year will minimally lower the piezometric head within a one-and one-half mile radius of pumping wells. Due to the confined nature of the lower portion of the Ogallala aquifer, an even smaller impact is expected on the shallower domestic wells. The City of Sidney is expected to grow modestly over the next 20 years and has had a record of sustained growth. The expected increase in water needs over the next 20 years reasonably justifies the anticipated 25 percent growth factor in water demand.

If the City of Sidney has to rely entirely on the Northwest Well Field for its water supply, seven wells collectively averaging 2,100 gallons per minute would be sufficient to meet the municipal water requirements of the City and the Sioux Meadows area. The drawdown influence area for seven wells pumping this volume would increase the drawdown in the area of influence from one to one and a half feet. The impact on those local wells screened in the upper Ogallala is expected to be minimal. The only actual negative impact would be a small increase in the lifting costs of pumps within the drawdown influence area of the well field due to the small increase in pumping head.

(4) Any negative effect of the proposed withdrawal on surface water supplies needed to meet present or reasonable future demands within the sate, to comply with any interstate compact or decree, or to fulfill the provisions of any other formal state contract or agreement;

Because of the confined nature of the lower Ogallala and the lack of surface water supplies, there will be no impact on surface water in the well field area.

The Ogallala Aquifer at the Northwest Well Field is geologically and hydraulically connected to the North Platte River some 25 miles away. The amount of water that is contributed to the North Platte River by the Ogallala south of the River is difficult to estimate, but is considered to be far less than the influence of the Ogallala Aquifer north of the River. The well field is significantly beyond the COHYST 15,000 day depletion line and any impacts on the River by pumping the Lower Ogallala are not expected to influence the River for at least several hundred years.

Outflows from the City's waste water treatment plant will continue to have a positive impact on the Lodgepole Creek/South Platte River and the Lexington-Chapman reach of the North Platte. As less water will be taken from the Brule Aquifer, there will be more water available to the Lodgepole Creek system down stream of Sidney. The positive impact on Lodgepole Creek will increase if it becomes necessary to pump more water from the Ogallala in the situation where City Brule wells have to be curtailed due to water quality considerations.

(5) Any adverse environmental effect of the proposed withdrawal or transportation of ground water;

An environmental impact analysis prepared prior to the location and construction of the well field and transmission pipeline indicated that the overall project would not have any negative environmental impacts.

(6) The cumulative effect of the proposed withdrawal and transfer relative to the matters listed in subdivisions (3) through (6) of this section when considered in conjunction with all other transfers subject to this section;

The City of Sidney has the ability to draw water from three separate aquifers. However, the Brule wells are subject to nitrate-nitrogen contamination, threatened with other man-made contaminants and are subject to quantity reliability concerns as explained earlier. The Northeast Well Field Alluvium is non-recharging and has experienced significant depletion since the early 1990s. The new Northwest Well Field is the only clean water supply of sufficient quantity available to serve 70 percent of the population of Cheyenne County.

The following table shows the expected annual pumped water volumes from the three different aquifers plus the SID Brule wells. Pumping totals are shown below for the current water supply system and the projected Brule/Ogallala use where the SID wells will be turned off and only minimal volumes of water will be pumped from the Northeast Well Field so that this source can be available for emergency use. Two different scenarios are show for the 2025 anticipated water usage. The first scenario assumes that water will be available in the Brule Aquifer under the City, but water quality issues will require additional pumpage from the Northwest Well Field for blending water to meet additional development needs. The second 2025 scenario is the worst-case situation where the Brule does not have sufficient volumes of water available for pumping or water quality becomes degraded to the point this source can no longer be used.

Table Nine
Total Annual Pump Totals (Million Gallons)

Water Source	Current	2005	2025 (With Brule)	2025 (No Brule)
City Brule Wells	694	700	600	0
SID Brule Wells	100	0	0	0
NE Wells Alluvium	220	5	5	5
NW Wells Ogallala	0	315	512	1,112
Total	1,014	1,020	1,117	1,117

Table Ten illustrates the expected consumptive use volumes for the current and future pumping cases. For this analysis, consumptive use is expected to be 30 percent for municipal water use. Return flows to Lodgepole Creek from the City's wastewater treatment plant will continue as a major recharge point to the Brule Aquifer. In comparison, agricultural water use produces 65 to 75 percent consumptive use.

Table Ten
Total Annual Consumptive Use (Million Gallons)

Water Source	Current	2005	2025 (With Brule)	2025 (No Brule)
City Brule Wells	208	210	180	0
SID Brule Wells	30	0	0	0
NE Wells Alluvium	66	1.5	1.5	1.5
NW Wells Ogallala	0	94.5	153.5	333.5
Total	304	306	335	335

There is no impact on surface water systems at Northwest Well Field. Impacts on the Ogallala Aquifer system will be minimal. The curtailment of water pumping at the SID wells combined with the Ogallala return water through out the city corporate limits will have a positive impact on the Brule Aquiver/Lodgepole Creek system. Due to the great distance to the North Platte River, Ogallala pumping is not expected to have a measureable impact on the river for hundreds of years. Increased Ogallala ground water pumping by the City, on the short term, will result in the Brule/Lodgepole system having more water available downstream from the City. In all cases, the cumulative effect on the Platte River east of North Platte should result in a small increase in water available to the

River. The unknown factor in future scenarios is the amount of water in the Brule system. If irrigation is allowed to continue at current rates it is anticipated that less and less Brule water will be available for pumping especially during drought cycles.

(7) **Any other factors consistent with the purpose of this section that the director deems relevant to protect the health, safety, and welfare of the state and its citizens.**

The City of Sidney, which provides the domestic water supply for approximately 70 percent of the population of Cheyenne County, is mandated statutorily to provide a safe and secure water supply system for its citizens. Uncertainty with regard to future water volume availability and water quality concerns in the Brule Aquifer require that the City have a source of water that will meet Nebraska water quality requirements. It has been determined that the Ogallala Aquifer at the site of the Northwest Well Field does meet those standards.

CITY OF SIDNEY, NEBRASKA

MUNICIPAL WATER WELLS

BRULE WELLS

Well Name	Location	Date Constructed	DNR Registration Number
Well 1	NE NW Section 31 T14N-R49W	1936	G-28490
Well 2	NE SE Section 31 T14N-R49W	1941	G-28491
Well 3	SE NE Section 31 T14N-R49W	8-1943	G-28492
Well 4	SE NE Section 6 T13N-R49W	11-12-1947	G-28493
Well 6*	SE SW Section 31 T14N-R49W	10-22-1954	G-28494
Well 7**	SW SE Section 31 T14N-R49W	9-5-1961	G-28495
Well 8	NW NW Section 5 T13N-R49W	3-25-1976	G-51268
Well 9	SE SW Section 29 T14N-R49W	1-8-1980	G-17339B

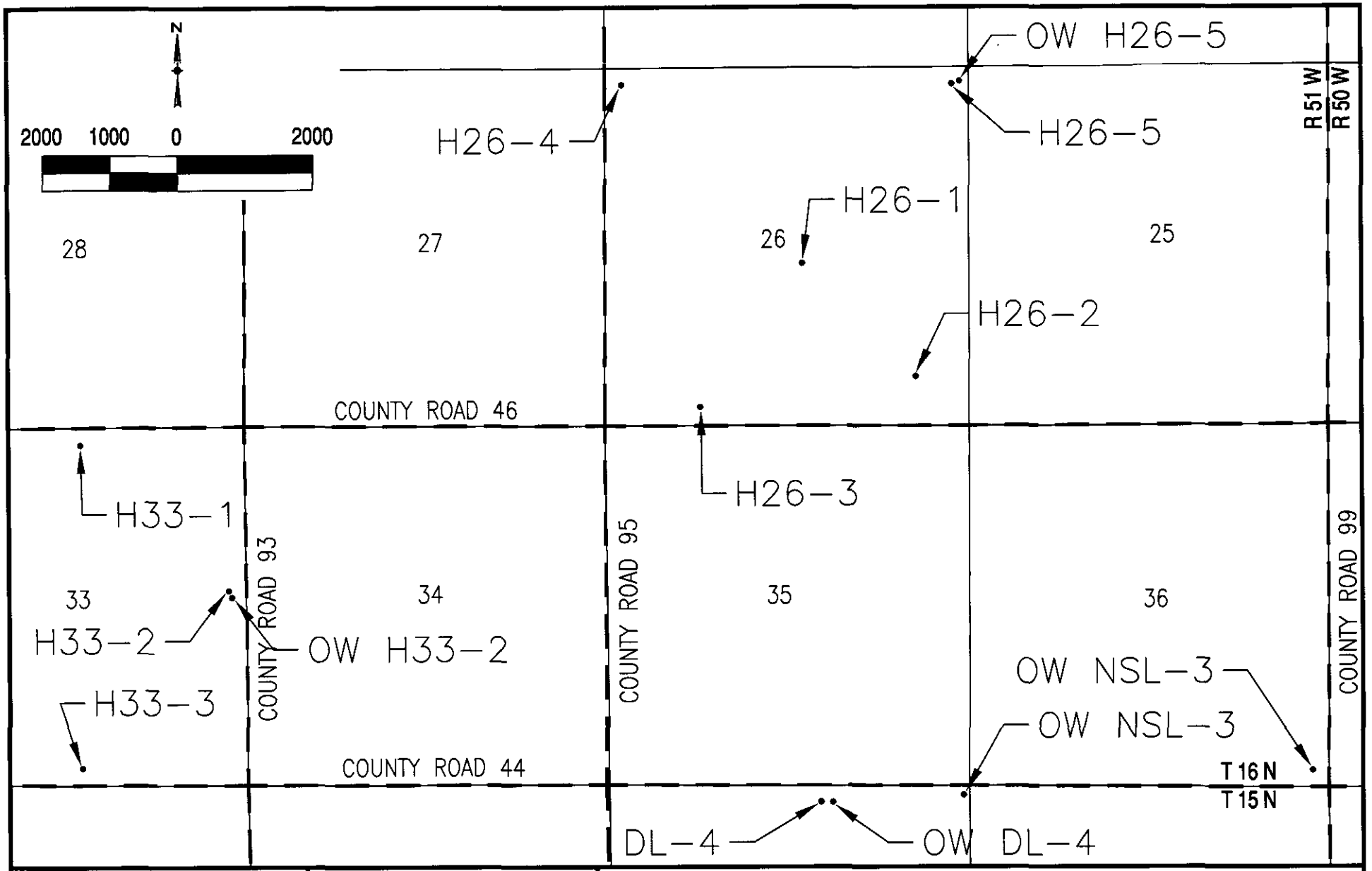
- Note: Well 6 well currently used to irrigate golf course and will be returned to domestic service when nitrate levels are reduced.
- Note: Well 7 is in standby service due to high nitrate concentrations.

NORTHEAST WELL FIELD

Well Name	Location	Date Constructed	DNR Registration Number
Well 10	NW NE Section 20 T14N-R49W	4-1993	G-89313
Well 11	NW SE Section 17 T14N-R49W	6-13-1991	G-89312
Well 12	SE SE Section 17 T14N-R49W	2-12-1992	G-81364

NORTHWEST WELL FIELD

Well Name	Location	Date Constructed	DNR Registration Number
H26-1	NW SE Section 26 T16N-R51W	1-9-2004	G-125747
H26-2	SE SE Section 26 T16N-R51W	1-7-2004	G-125872
H26-3	SW SW Section 26 T16N-R51W	1-8-2004	G-125811
H26-4	NW NW Section 26 T16N-R51W	1-9-2004	G-125749
H26-5	NE NE Section 26 T16N-R51W	1-9-2004	G-125870
DL-4	NW NE Section 2 T15N-R51W	1-12-2004	G-125869
H33-1	NW NE Section 33 T16N-R51W	1-12-2004	G-125748
H33-2	SE NE Section 33 T16N-R51W	1-6-2004	G-125871



Jacobson Helgoth CONSULTANTS

FILE NO.: SECTION PLATT(B).DWG

DATE: 07/09/04
SCALE: 1" = 2000'
PROJ. NO.: 106-46
DRAWN: ADN
CHECKED: NCH
FIG 5

WELLS AND OBSERVATION WELLS
CITY OF SIDNEY
WATER SUPPLY 2003
CITY OF SIDNEY, NEBRASKA

Jacobson Helgoth
CONSULTANTS

March 4, 2004

Mr. Steve McMaster
Water Resources Planner III
Department of Natural Resources
PO Box 94676
Lincoln, Nebraska 68509-4676

Re: Response to letter dated September 20, 2003
Well Head Separation
City of Sidney, Nebraska
JHC Project No. 106-46

Dear Mr. McMaster:

Our office sent an Environmental Assessment and an update to the Environmental Assessment pertaining to well field construction and an accompanying transmission pipeline to your office for review. You sent a response letter to us dated September 20, 2003 referring to the 1,000 foot separation between municipal wells and any other well, and the transfer permit that the City of Sidney (City) must obtain.

Enclosed with this letter is a map showing the City's wells and all other wells in the area of their well field. This map shows that the wells do not infringe upon the 1,000 foot mandatory radius. Each of the wells has also been properly registered.

Also, the City is currently applying for the necessary transfer permit from the South Platte Natural Resources District (SPNRD).

Based upon this information, these issues should be resolved to your satisfaction. If you have any further concerns with regards to the well spacing/registration or the transfer permit, please let me know by April 1, 2004. If no comments have been received by this date, I will consider these issues resolved.

12640 West Cedar Drive, Suite A, Lakewood, CO 80228-2005
303-986-0733 • FAX 303-986-0956
http://www.jhcinc.com

If you have any questions or concerns, please do not hesitate to contact me at (303) 986-0733.

Sincerely,

JACOBSON HELGOTH CONSULTANTS, INC.

Andy Nord
Project Engineer

AND/nr

cc: Tom Cummings, EDA

LEGEND

- CITY WELLS
- NON-CITY WELLS

H26-4
750 GPM

H26-5
1200 GPM

H26-1
1200 GPM

H26-2
1200 GPM

H26-3
1200 GPM

H33-1
800 GPM

H33-2
800 GPM

DL-1
1200 GPM

Road 46

Road 44

Road 93

Road 95

Road 99

R 51 W
R 50 W

T 16 N
T 15 N

N

1500 750 0 1500

SCALE IS APPROXIMATE

WATER SUPPLY 2003/2004
NORTHWEST WELL FIELD
WELLS AND RATES
CITY OF SIDNEY, NEBRASKA

DATE: 02/18/2004
SCALE: 1" = 1500'
JHC PROJ. NO.: 106-46
DRAWN BY: ADN
CHECKED BY: TTS
FIGURE: WELLS AND RATES

Jacobson Helgoth CONSULTANTS

FILE NO.: WELLS AND RATES.DWG

SOUTH PLATTE
NATURAL RESOURCES DISTRICT
551 Parkland Drive, PO Box 294 Sidney, Nebraska 69162
(308) 254-2377 FAX (308) 254-2783 www.spnrd.org

Susan

November 12, 2003

Mayor David Weiderspon
City of Sidney
P.O. Box 79
Sidney, Nebraska 69162

Dear Mayor:

Enclosed is a copy of the South Platte Natural Resources District's resolution granting conditional approval to the City of Sidney, Nebraska, pursuant to section 11 (2)(c) of LB 619, for withdrawal of ground water from its Northwest Well Field, which is located outside of the Lodgepole Creek Integrated Ground Water Management Subarea and for the transfer to and use of that water within the management subarea. The directors adopted this resolution at their Tuesday, November 11, 2003 board meeting.

The board arrived at their decision through a diligent and reasonable process within their responsibilities under the law. We appreciated your willingness to maintain dialog with us to discuss and achieve a better understanding of some of the issues.

Cordially,

Keith Rexroth

Keith Rexroth, Chair
South Platte Natural Resources District

pc: SPNRD Board of Directors
SPNRD Staff

Enclosure

RESOLUTION OF THE
SOUTH PLATTE NATURAL RESOURCES DISTRICT
GRANTING CONDITIONAL APPROVAL TO THE CITY OF SIDNEY, NEBRASKA
PURSUANT TO LB 619

WHEREAS, the South Platte Natural Resources District (the "District"), on or about October 8, 2002, pursuant to *Neb. Rev. Stat.* § 46-656.25(1)(k), closed the Lodgepole Creek Integrated Ground Water Management Subarea (the "Management Subarea") to the issuance of additional well permits; and

WHEREAS, the City of Sidney, Nebraska (the "City") presently withdraws ground water for municipal purposes from its "Northeast Well Field" located outside the city limits which withdraws ground water from the Ogallala aquifer and from its well field located within the city limits which withdraws ground water from the Brule aquifer ("Brule Well Field"); both well fields are located within the District's Ground Water Management Area and the Brule Well Field is within the Management Subarea; and

WHEREAS, depending on the volumetric availability and quality of the ground water withdrawn from the Brule Well Field, the City plans to continue using the Brule Well Field for the bulk of the City's municipal needs; and

WHEREAS, the Northeast Well Field has experienced in the past and is presently experiencing a water supply problem; and

WHEREAS, the City has advised the District that it intends to develop a new well field approximately 17 miles northwest of the City (the "Northwest Well Field") which will be used to withdraw ground water from the Ogallala aquifer to provide the City with a source of high quality water that will serve as a replacement source of water for the Northeast Well Field, and as a supplementary source of ground water for the Brule Well Field; and

WHEREAS, the City has further advised the District that the Northwest Well Field will also supply water to the residents and commercial entities situated at the I-80 Industrial Park complex (the former Sioux Army Depot); and

WHEREAS, the I-80 Industrial Park and the Northwest Well Field are located outside of the Management Subarea but within the District's Ground Water Management Area; and

WHEREAS, the City has advised the District that the Northwest Well Field will be phased in as a replacement for the Northeast Well Field but also will supplement the Brule Well Field if the quality or quantity of the water from the Brule Well Field becomes problematic; and

WHEREAS, the City has advised the District that it will file one or more applications for the Northwest Well Field with the Nebraska Department of Natural Resources (the Department") requesting a permit under the Municipal and Rural Domestic Ground Water Transfers Permit Act; and

WHEREAS, the City has advised the District that it is in the process of constructing eight (8) full-scale wells on four separate tracts of land at the site of the Northwest Well Field; that the

wells will be pump tested to better establish the hydraulic properties of the Ogallala aquifer at and near the well field site; and that the hydraulic information will be used to properly design the new City wells in order to minimize the impacts of operating those wells on other wells and the aquifer itself; and

WHEREAS, the City has advised the District that the hydraulic information derived from the hydraulic testing will be furnished to the Department as part of the application process for one or more permits under the Municipal and Rural Domestic Ground Water Transfers Permit Act; and that the City will provide the District with all the information on the test hole drilling program as well as the hydraulic information from the full-scale wells as soon as the information is available; and

WHEREAS, the City, by letter dated September 2, 2003, requests that the District grant its approval to the City, pursuant to section 11(2)(c) of LB 619, for the withdrawal of ground water from its Northwest Well Field, which is located outside of the Lodgepole Creek Integrated Ground Water Management Subarea ("Management Subarea") and for the transfer to and use of that water within the Management Subarea.

NOW, THEREFORE BE IT RESOLVED:

1. The City's proposed transport of ground water from an area outside of the District's Management Subarea to an area within the District's Management Subarea, requires the District's approval pursuant to Section 11(2)(c) of LB 619. The exceptions to the District's right of approval provided in Section 11(2)(a) and 11(2)(b) of LB 619 are inapplicable since the withdrawal and transport did not begin before the Management Subarea was closed to the issuance of additional well permits, and the water will not be solely used for domestic purposes.

2. The District hereby grants its conditional approval to the City, pursuant Section 11(2)(c) of LB 619 for (a) the withdrawal of ground water from the Ogallala aquifer at the site of its Northwest Well Field, legally described as:

> The Northeast Quarter (NE¼) of Section Two (2), Township Fifteen (15) North, Range Fifty-one (51) West of the 6th P.M., Cheyenne County, Nebraska; and
>
> Section Twenty-six (26), Township Sixteen (16) North, Range Fifty-one (51) West of the 6th P.M., Cheyenne County, Nebraska; and
>
> The East Half (E½) of Section Thirty-three (33), Township Sixteen (16) North, Range Fifty-one (51) West of the 6th P.M., Cheyenne County, Nebraska; and
>
> The West 900 feet of Section Thirty-six (36), Township Sixteen (16) North, Range Fifty-one (51) West of the 6th P.M., Cheyenne County, Nebraska,

which well field is located outside the Management Subarea but within the District's Ground Water Management Area, and (b) the transport of such ground water by pipeline to the City's 1.5 million gallon water storage and blending tank located approximately on the west side of Haskell Hill Road and the west terminus of Sky Road, which is within the Management Subarea, subject to the following:

(a) Prior to the construction of any well to be used for withdrawal of ground water to be transported by the City from the Northwest Well Field, the City will apply to the District pursuant to *Neb. Rev. Stat.* § 46-656.29 for a permit to construct such well and will not commence such construction until such permit has been issued by the District.

(b) The City also shall seek and obtain permits from the Department under the Municipal and Rural Domestic Ground Water Transfers Permit Act, *Neb. Rev. Stat.* §§ 46-638 *et seq.* (the "Act") for all wells developed in Northwest Well Field. The City will file, on or before December 31, 2003, one or more applications pursuant to the Act to locate, develop, and maintain ground water supplies through wells and to transport such water into the I-80 Industrial Park and the City of Sidney.

(c) The City will not contest the intervention by the District in any proceeding before the Department initiated by the City for a permit under the Act.

(d) The City shall follow the process and requirements provided for in the Wellhead Protection Act, *Neb. Rev. Stat.* §§ 46-1501 *et seq.*, for the Northwest Well Field.

(e) The City will provide the District, on an ongoing basis, with copies of any documents that it receives, whether favorable or unfavorable, relating or pertaining to the withdrawal and pumping of ground water from the Northwest Well Field and the effect of such pumping and/or withdrawal on the Ogallala aquifer in the vicinity of the well field, including but not limited to pumping tests and /or reports and hydraulic tests and/or reports. The City will provide copies of such documents within 30 days after the City receives them.

(f) The City will allow the District to use the existing irrigation well(s) located in the Northwest Well Field for the measurement, observation and recordation of ground water levels. The City will not abandon or decommission said irrigation well(s), without the prior written approval of the District. In addition, the City will grant the District the right to construct its own observation/monitoring wells in the Northwest Well Field, subject to the Department of Health and Human Services Regulation and Licensure's requirements. The City and the District will use their best efforts to enter into a written agreement to implement this subparagraph by December 31, 2003. The District will at its sole cost and expense, either convert the irrigation well(s) for monitoring/observation purposes or drill and develop its own wells for observation/monitoring purposes. The District will share any information it obtains from the wells with the City.

3. By granting this approval, the District does not intend to waive nor does it waive any right that it now has or may hereafter be granted under the laws of the State of the Nebraska. The District hereby reserves the right to enforce its rules and regulations in its Ground Water Management Area, as they may be amended from time to time, and any other laws which it has the obligation and responsibility to enforce, including but not limited to issuing permits for other new wells to be constructed by the City or by other parties and adopting new management controls in its Ground Water Management Area.

4. The District reserves the right to revoke its conditional approval granted herein in the event the City fails to comply in a timely manner with the conditions specified herein. If the District believes that the City has failed to comply, it will give the City notice of revocation in writing, specifying the manner in which the City has failed to comply. If the City wishes to contest said notice, it may do so by requesting in writing a hearing before the Board of Directors

within 30 days of the date of the notice of revocation. If the City does not request a hearing within such 30 days, the Board may revoke the approval. If the City files a timely request for a hearing, the Board will grant the request and a hearing will be held within 45 days of the date of the request. At the hearing, the City will have the opportunity to be heard on the issues raised in the notice of revocation. The Board may also revoke its conditional approval after the hearing if, within the judgment of the Board, it determines that such revocation is warranted.

CERTIFICATION

The undersigned, being the duly elected Chairperson for the South Platte Natural Resources District, hereby certifies that the above and forgoing Resolution was duly passed by the Board of Directors of the South Platte Natural Resources District at a meeting duly called and notice published as provided by law on Tuesday, November 11, 2003, at which a quorum of the Board was present and a majority of the quorum voting in favor of the Resolution.

Dated: 11-12-03

Keith Rexroth

Keith Rexroth, Chair
South Platte Natural Resources District

Attested by:

SOUTH PLATTE
NATURAL RESOURCES DISTRICT
551 Parkland Drive, PO Box 294 Sidney, Nebraska 69162
(308) 254-2377 FAX (308) 254-2783 www.spnrd.org

October 31, 2003

City of Sidney
Attn: Gary Person, City Manager
1115 13th Avenue
Sidney, NE 69162

In re: Well Permits; SP-068-2003, SP-069-2003, SP-070-2003, SP-071-2003

Dear Mr. Person,

The South Platte NRD has approved the above-referenced applications to construct two municipal wells in the SE¼ of the SE¼ and the NE¼ of the NE¼ of Section 26, Township 16 North, Range 51 West, one in the SE¼ of the NE¼ of Section 33, Township 16 North, Range 51 West, and one in the NW¼ of the NE¼ of Section 2, Township 15 North, Range 51 West. Enclosed are copies of the approved permits.

Following completion of the well, the permit number **must** be included on the online well registration form submitted to the Nebraska Department of Natural Resources (DNR), or a paper copy of the permit submitted with the registration materials.

Feel free to contact me if you have any questions.

Sincerely,

Kenneth A Quandt
Water Resources Coordinator

KAQ/s

Encl: Permit Application

cc: Layne-Western,Well Driller
Susie Berlowitz, NDNR
Rod Horn, SPNRD District Manager

PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE SOUTH PLATTE NATURAL RESOURCES DISTRICT

153670

1. **Name of Landowner:** City of Sidney (30694)
Address: 1115 13th Avenue
City, State Zip: Sidney, NE 69162
Telephone: (308) 254-4444
Contact other than landowner:
Address & Phone:

NRD and DNR use only
Permit # SP- 071-2003
Registration #

2. **Purpose of Well:** ☒ New Well ☐ Existing Well Modification (If so, registration of well to be modified_____)

3. **Indicate Use of Well** (check one): ☐ Irrigation ☒ Municipal(Public Supply Well) ☐ Commercial/Industrial ☐ Domestic ☐ Monitoring ☐ Observation ☐ Injection ☐ Recovery ☐ Livestock ☐ Dewatering (over 90 days) ☐ Ground Heat Exchanger ☐ Ground Source Heat Pump ☐ Aquaculture

4. **Location of Proposed Well:** Attach the necessary aerial photo(s) marking the location of the proposed well and the area to be irrigated (if applicable). Complete the following information regarding the location of the proposed well and irrigated tract of land

Cheyenne County, Township 16 North, Range 51 West Section 26 Subsection NENE

The well will be located 250 feet from the ☒ North ☐ South section line, and 250 feet from the ☒ East ☐ West section line.

If the purpose of the well is for irrigation, how many acres will be irrigated?_____

If the water is to be used outside of the above written legal description, give the legal description below:
Cheyenne County, Township 14 (13 North) North, Range 49 (49 West) West Section 30&31 (6) Subsection_____

5. **Specifications of Intended Water Well and Pump:**
a. Well Casing Diameter: 18 inches
b. Pump Column Diameter: 12 inches
c. Estimated Pump Capacity: 800 gpm
d. Estimated Total Depth: 470 feet
e. Expected Construction Date: 12 / 15 /2003
f. Attach well log if possible.
g. Type of Irrigation System: ☐ Center Pivot ☐ Gravity ☐ Other_____ (Please Specify)
h. Will this well be used in a series with other wells? ☒ Yes ☐ No If so, how many? 7
i. Aggregate capacity of commingled wells (if applicable) 6,950 gpm
j. Will fertilizer, chemicals, animal waste be applied through the irrigation system? ☐ Yes ☐ No

6. **Well Driller:** Layne-Wester Company
Address: PO Box 189
Kearney, NE 68848
Contractor's License Number: 39266
Phone Number: (308) 234-1914
Fax Number: (308) 234-6326

7. **Replacement & Abandoned Well Information** (Notice of abandonment to NDNR is required for all decommissioned water wells)
a. Is this a replacement well? ☐ Yes ☒ No
b. Registration Number of well to be replaced_____
c. Replacement Well is _____feet from original well
d. Original well last operated on _____/_____/_____
e. Original well decommissioned on 12 / 15 / 2003
f. Pump column diameter for original well_____ inches

8. **Late Permit Application:** ☐ Check when required.

Date well constructed_____ Date application for permit filed with SPNRD_____

I certify that I am familiar with the information in this application, and its restrictions pursuant to district rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

Date: 10-14-03

Gary Person
Signature of Applicant

An incomplete or defective application will be returned. Sixty days shall be allowed for resubmission or the application will be cancelled. A permit will be issued by the district with conditions attached or denied not later than 30 days after receipt of a complete application and correct filing fee. This application must be completed in full and be accompanied by a non-refundable filing fee of $50.00 (Late permit application fee is $250) payable to the South Platte NRD and sent to **South Platte NRD; P.O. Box 294, 551 Parkland Drive: Sidney, NE 69162.**

PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE SOUTH PLATTE NATURAL RESOURCES DISTRICT

153669

1. **Name of Landowner:** City of Sidney (30694)
Address: 1115 13th Avenue
City, State Zip: Sidney, NE 69162
Telephone: (308) 254-4444
Contact other than landowner:
Address & Phone:

NRD and DNR use only

Permit # SP- 070 - 2003

Registration #

2. **Purpose of Well:** ☒ New Well ☐ Existing Well Modification (If so, registration of well to be modified_____)

3. **Indicate Use of Well** (check one): ☐ Irrigation ☒ Municipal(Public Supply Well) ☐ Commercial/Industrial ☐ Domestic ☐ Monitoring ☐ Observation ☐ Injection ☐ Recovery ☐ Livestock ☐ Dewatering (over 90 days) ☐ Ground Heat Exchanger ☐ Ground Source Heat Pump ☐ Aquaculture

4. **Location of Proposed Well:** Attach the necessary aerial photo(s) marking the location of the proposed well and the area to be irrigated (if applicable). Complete the following information regarding the location of the proposed well and irrigated tract of land

Cheyenne County, Township 16 North, Range 51 West Section 26 Subsection SESE

The well will be located 600 feet from the ☐ North ☒ South section line, and 600 feet from the ☒ East ☐ West section line.

If the purpose of the well is for irrigation, how many acres will be irrigated?_____

If the water is to be used outside of the above written legal description, give the legal description below:
Cheyenne County, Township 14 North, Range 49 West Section 30&31 Subsection_____
13 North 49 West 6

5. **Specifications of Intended Water Well and Pump:**
a. Well Casing Diameter: 18 inches b. Pump Column Diameter: 12 inches
c. Estimated Pump Capacity: 750 gpm d. Estimated Total Depth: 420 feet
e. Expected Construction Date: 12 /15 /2003 f. Attach well log if possible.
g. Type of Irrigation System: ☐ Center Pivot ☐ Gravity ☐ Other_____ (Please Specify)
h. Will this well be used in a series with other wells? ☒ Yes ☐ No If so, how many? 7
i. Aggregate capacity of commingled wells (if applicable) 6,950gpm
j. Will fertilizer, chemicals, animal waste be applied through the irrigation system? ☐ Yes ☐ No

6. **Well Driller:** Layne-Western Company
Address: PO Box 189
Kearne, NE 68848
Contractor's License Number: 39266
Phone Number: (308) 234-1914
Fax Number: (308) 234-6326

7. **Replacement & Abandoned Well Information** (Notice of abandonment to NDNR is required for all decommissioned water wells)
a. Is this a replacement well? ☐ Yes ☒ No b. Registration Number of well to be replaced_____
c. Replacement Well is _____feet from original well d. Original well last operated on / /
e. Original well decommissioned on / / f. Pump column diameter for original well_____inches

8. **Late Permit Application:** ☐ Check when required.

Date well constructed_____ Date application for permit filed with SPNRD_____

I certify that I am familiar with the information in this application, and its restrictions pursuant to district rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

Date: 10-14-03 Mary Jensen

Signature of Applicant

NOV 05 2003
DEPARTMENT OF NATURAL RESOURCES

An incomplete or defective application will be returned. Sixty days shall be allowed for resubmission or the application will be cancelled. A permit will be issued by the district with conditions attached or denied not later than 30 days after receipt of a complete application and correct filing fee. This application must be completed in full and be accompanied by a non-refundable filing fee of $50.00 (Late permit application fee is $250) payable to the South Platte NRD and sent to **South Platte NRD; P.O. Box 294, 551 Parkland Drive; Sidney, NE 69162.**

Approved by the South Platte NRD Board of Directors / /2003

PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE SOUTH PLATTE NATURAL RESOURCES DISTRICT

153668

1. **Name of Landowner:** City of Sidney (30694)
Address: 1115 13th Avenue
City, State Zip: Sidney, NE 69162
Telephone: (308) 254-4444
Contact other than landowner:
Address & Phone:

NRD and DNR use only
Permit # SP- 069-2003
Registration #

2. **Purpose of Well:** ☒ New Well ☐ Existing Well Modification (If so, registration of well to be modified_____)

3. **Indicate Use of Well** (check one): ☐ Irrigation ☒ Municipal(Public Supply Well) ☐ Commercial/Industrial ☐ Domestic ☐ Monitoring ☐ Observation ☐ Injection ☐ Recovery ☐ Livestock ☐ Dewatering (over 90 days) ☐ Ground Heat Exchanger ☐ Ground Source Heat Pump ☐ Aquaculture

4. **Location of Proposed Well:** Attach the necessary aerial photo(s) marking the location of the proposed well and the area to be irrigated (if applicable). Complete the following information regarding the location of the proposed well and irrigated tract of land

Cheyenne County, Township 16 North, Range 51 West Section 33 Subsection SENE

The well will be located 2,300 feet from the ☒ North ☐ South section line, and 200 feet from the ☒ East ☐ West section line.

If the purpose of the well is for irrigation, how many acres will be irrigated?_____

If the water is to be used outside of the above written legal description, give the legal description below:
Cheyenne County, Township 14 North, Range 49 West Section 30&31 Subsection_____
13 North 49 West 6

5. **Specifications of Intended Water Well and Pump:**
a. Well Casing Diameter: 18 inches b. Pump Column Diameter: 12 inches
c. Estimated Pump Capacity: 950 gpm d. Estimated Total Depth: 450 feet
e. Expected Construction Date: 12 /15 /2003 f. Attach well log if possible.
g. Type of Irrigation System: ☐ Center Pivot ☐ Gravity ☐ Other_____ (Please Specify)
h. Will this well be used in a series with other wells? ☒ Yes ☐ No If so, how many? 7
i. Aggregate capacity of commingled wells (if applicable) 6,950gpm
j. Will fertilizer, chemicals, animal waste be applied through the irrigation system? ☐ Yes ☐ No

6. **Well Driller:** Layne-Western Company
Address: PO Box 189
Kearney, NE 68848
Contractor's License Number: 39266
Phone Number: (308) 234-1914
Fax Number: (308) 234-6326

7. **Replacement & Abandoned Well Information** (Notice of abandonment to NDNR is required for all decommissioned water wells)

a. Is this a replacement well? ☐ Yes ☒ No b. Registration Number of well to be replaced_____
c. Replacement Well is _____feet from original well d. Original well last operated on ___/___/___
e. Original well decommissioned on ___/___/___ f. Pump column diameter for original well_____inches

8. **Late Permit Application:** ☐ Check when required.

Date well constructed_____ Date application for permit filed with SPNRD_____ RECEIVED

I certify that I am familiar with the information in this application, and its restrictions pursuant to district rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

NOV 05 2003
DEPT. OF NATURAL RESOURCES

Date: 10-14-03 Gary Person
Signature of Applicant

An incomplete or defective application will be returned. Sixty days shall be allowed for resubmission or the application will be cancelled. A permit will be issued by the district with conditions attached or denied not later than 30 days after receipt of a complete application and correct filing fee. This application must be completed in full and be accompanied by a non-refundable filing fee of $50.00 (Late permit application fee is $250) payable to the South Platte NRD and sent to **South Platte NRD; P.O. Box 294, 551 Parkland Drive; Sidney, NE 69162.**

Approved by the South Platte NRD Board of Directors / /2003

PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE SOUTH PLATTE NATURAL RESOURCES DISTRICT

153666

1. **Name of Landowner:** City of Sidney (30694)
Address: 1115 13th Avenue
City, State Zip: Sidney, NE 69162
Telephone: (308) 254-4444
Contact other than landowner:
Address & Phone:

NRD and DNR use only

Permit # SP-068-2003

Registration #

2. **Purpose of Well:** ☒ New Well ☐ Existing Well Modification (If so, registration of well to be modified_____)

3. **Indicate Use of Well** (check one): ☐ Irrigation ☒ Municipal(Public Supply Well) ☐ Commercial/Industrial ☐ Domestic ☐ Monitoring ☐ Observation ☐ Injection ☐ Recovery ☐ Livestock ☐ Dewatering (over 90 days) ☐ Ground Heat Exchanger ☐ Ground Source Heat Pump ☐ Aquaculture

4. **Location of Proposed Well**: Attach the necessary aerial photo(s) marking the location of the proposed well and the area to be irrigated (if applicable). Complete the following information regarding the location of the proposed well and irrigated tract of land

Cheyenne County, Township 15 North, Range 51 West Section 2 Subsection NWNE

The well will be located 100 feet from the ☒ North ☐ South section line, and 2,000 feet from the ☒ East ☐ West section line.

If the purpose of the well is for irrigation, how many acres will be irrigated?_____

If the water is to be used outside of the above written legal description, give the legal description below:
Cheyenne County, Township 14 North, Range 49 West Section 30&31 Subsection_____
13 North 49 West 6

5. **Specifications of Intended Water Well and Pump:**
a. Well Casing Diameter: 18 inches b. Pump Column Diameter: 12 inches
c. Estimated Pump Capacity: 700 gpm d. Estimated Total Depth: 370 feet
e. Expected Construction Date: 12 /15 /2003 f. Attach well log if possible.
g. Type of Irrigation System: ☐ Center Pivot ☐ Gravity ☐ Other_____ (Please Specify)
h. Will this well be used in a series with other wells? ☒ Yes ☐ No If so, how many? 7
i. Aggregate capacity of commingled wells (if applicable) 6,950 gpm
j. Will fertilizer, chemicals, animal waste be applied through the irrigation system? ☐ Yes ☐ No

6. **Well Driller:** Layne-Western Company
Address: PO Box 189
Kearney, NE 68848
Contractor's License Number: 39266
Phone Number: (308) 234-1914
Fax Number: (308) 234-6326

7. **Replacement & Abandoned Well Information** (Notice of abandonment to NDNR is required for all decommissioned water wells)

a. Is this a replacement well? ☐ Yes ☒ No b. Registration Number of well to be replaced_____
c. Replacement Well is _____feet from original well d. Original well last operated on ___/___/___
e. Original well decommissioned on ___/___/___ f. Pump column diameter for original well_____inches

8. **Late Permit Application:** ☐ Check when required.

Date well constructed_____ Date application for permit filed with SPNRD_____

RECEIVED

I certify that I am familiar with the information in this application, and its restrictions pursuant to district rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

NOV 03 2003

DEPARTMENT OF NATURAL RESOURCES

Date: 10-14-03 _____
Signature of Applicant

An incomplete or defective application will be returned. Sixty days shall be allowed for resubmission or the application will be cancelled. A permit will be issued by the district with conditions attached or denied not later than 30 days after receipt of a complete application and correct filing fee. This application must be completed in full and be accompanied by a non-refundable filing fee of $50.00 (Late permit application fee is $250) payable to the South Platte NRD and sent to **South Platte NRD; P.O. Box 294, 551 Parkland Drive; Sidney, NE 69162.**

Approved by the South Platte NRD Board of Directors / /2003

DNR MEMO

September 29, 2003

TO: Steve McMaster

FROM: Tina

SUBJECT: Proposed Water System Improvements for City of Sidney

Relating to the Environmental Assessment for the above stated project, the Department is interested in 1) registration of the new wells and well spacing, 2) permits for the new/existing wells, 3) accuracy of current well registrations for the City of Sidney, and 4) surface water rights.

To address the first item, a list of registered wells located near the alternative project areas, two aerial photographs showing the location of these wells, a list of these wells and other relevant department publications are enclosed. If any change in the status, use, or ownership of any of these wells occurs due to the project, please contact the Department at (402) 471-2363. There are several irrigation wells, G-024152, G-092149, G-069463 and G-066254, which appear to be located within 1,000 feet of the proposed well field. Any municipal well must be over 1,000 feet from any existing irrigation, industrial, or public water supply well owned by another entity. Current Nebraska law states that all new wells are to be registered within sixty days of completion by the water well contractor. Well owners should verify that this process has been completed in a timely manner.

In the case of the second item, the municipal and rural domestic ground water transfers permit is applicable. This permit applies to your situation because the ground water is being transferred off the overlying land for use in the City. The application form is available on the Department website: http://www.dnr.state.ne.us/docs/wellforms.html

The next item concerns the accuracy of the Department's database. Included in the list of registered wells are the wells registered to the City of Sidney. Please look through the list and ensure that the City wells are listed accurately. If they are not, please contact the Department at (402) 471-2363. If, as a result of the project, any of the listed active wells are going to be decommissioned, this Department should be notified of the abandonment of those wells.

There are no surface water rights in the immediate vicinity of the project.

A copy of your letter should be sent to the South Platte Natural Resources District as they are the local agency responsible for non-point source ground water quality.

Copies of forms, statutes, and rules can be found on the Department website:
http://www.dnr.state.ne.us/docs/groundwat.html

cc: South Platte NRD

Wells in vicinity of Sidney Well Field Project

Last Name / Reg. #	Reg. Date	Status	X Date	Use	GPM	Acres	Total Depth	SWL	PWL	Completion Date	Footage N/S	FootageE/W	SubSection	Sec	Twn	Rng
Beyer Keil										**First Name: Wheatlands Inc**						
G-042684	12/03/1974	X	2001-03	I	600	133	400	200	215	09 12 1974			SW Center	30	16	50 W
G-042684	03/07/2001	A		I	800	129	412	210	236	01 18 2001	1310 N	1280 E	SWSW	30	16	50 W
G-091937	07/07/1997	A		I	700	134	300	176	230	05 21 1997	74 S	649 E	NWNW	07	15	50 W
Blanke										**Edwin G & Velma M**						
G-067802	03/26/1982	A		I	900	240	490	149	224	03 24 1981			NENW	11	14	50 W
Borchert										**R V**						
G-091126	04/14/1997	A		J	50		375	161	176	03 10 1997	1568 N	1733 E	NESW	04	14	50 W
Dalton Trust										**James**						
G-082588	09/23/1994	A		I	1200	260	419	180	191	08 24 1994	2500 S	750 W	SENE	04	15	51 W
Denovellis										**Dennis T**						
G-092484	09/03/1997	A		D	3		510	155	330	05 11 1997	1340 N	670 W	NESE	13	14	50 W
G-116183	06/20/2002	A		D	5		320	158	300	06 14 2002	910 N	65 W	SESE	13	14	50 W
Higgins										**James L**						
G-066254	06/25/1981	A		I	650	120	460	210	275	06 03 1981			NENE	33	16	51 W
Hruska Land & Cattle Company																
G-077480	06/04/1993	A		I	750	120	390	161	260	02 13 1985	1400 N	2556 W	NWSE	04	14	50 W
Kuehn										**Raymond**						
G-065767	04/30/1981	A		I	600	120	390	164	277	02 13 1981			SW Center	07	15	50 W
Larson										**Dennis D**						
G-024152	06/18/1965	A		I	600	120	344	160	220	05 15 1964	1840 N	2040 E	NESW	02	15	51 W
G-092149	07/24/1997	A		I	750	130	360	175	180	04 25 1997	1915 S	1310 E	SENW	02	15	51 W
Lessman										**Raymond H**						
G-046912	12/01/1997	I		I	48	80	290	188		05 07 1997	765 N	998 E	SWSW	06	15	50 W
G-046912	09/19/1975	X	1997-10	I	300	50	280	180	240	01 25 1975			SWSW	06	15	50 W
G-092324	08/14/1997	A		I	500	80	320	191	200	06 02 1997	740 N	1023 E	SWSW	06	15	50 W
Maas										**Craig L**						
G-116460	07/15/2002	A		I	800	260	438	236	242	06 06 2002	2595 S	636 E	SWNW	27	16	51 W
McNurlin Land & Cattle Company																
G-072708	06/11/1990	A		I	750	130	420	205	240	05 25 1990			NW Center	31	16	50 W
Nebraska Board of Educational Lands & Funds																
G-069463	06/15/1984	A		I	1000	200	460	202	245	05 17 1984			NENE	36	16	51 W
Progress Rail Services Inc																
G-112087	09/07/2001	A		Q			175	149		08 30 2001	200 N	250 E	SWSW	34	15	50 W
Sidney										**City of**						

Last Name **First Name**

Reg. #	Reg. Date	Status	X Date	Use	GPM	Acres	Total Depth	SWL	PWL	Completion Date	Footage N/S	FootageE/W	SubSection	Sec	Twn	Rng
G-017339A	12/31/1958	A		P	1000		80	50	60	08 01 1957	30 N	2520 E	SESW	29	14	49 W
G-017339B	01/10/1980	A		P	1000		90	44	45	05 03 1979			SESW	29	14	49 W
G-021168	02/14/1961	A		I	200	15	115	37	83	07 24 1960	20 S	324 E	NWNW	33	14	49 W
G-022229	05/23/1963	A		I	446	40	113	22	43	05 13 1962	100 N	1320 E		31	14	49 W
G-027576	07/21/1967	A		I	1000	95	100	19	70	01 10 1967	1140 S	2630 W	NWNE	33	14	49 W
G-028490	12/20/1967	A		P	1050		86	33	34	1936	1300 S	2230 E	NENW	31	14	49 W
G-028491	12/20/1967	A		P	1050		85	29	31	1941	2085 N	1100 W	NESE	31	14	49 W
G-028492	12/20/1967	A		P	1250		90	30	32	08 1943	1750 S	1070 W	SENE	31	14	49 W
G-028493	12/20/1967	A		P	800		100	45	61	11 11 1947	1385 S	1001 W	SENE	06	13	49 W
G-028494	12/20/1967	A		P	1250		93	27	31	10 22 1954	1290 N	1452 E	SESW	31	14	49 W
G-028495	12/20/1967	A		P	1100		100	34	37	09 05 1961	70 N	2050 W	SWSE	31	14	49 W
G-028496	12/20/1967	A		P	500		102	33	36		1250 S	1145 W	NENE	31	14	49 W
G-028497	12/20/1967	A		I	450		113	22	43	04 13 1962	75 N	1280 E	SWSW	31	14	49 W
G-028498	12/20/1967	A		I	200		53			1942	2545 N	1995 W	NWSE	32	14	49 W
G-028499	12/20/1967	A		P	75		68			04 08 1948	2545 N	2150 W	NWSE	32	14	49 W
G-028500	12/20/1967	A		P	3		390	84			558 S	2528 E	NENW	18	13	49 W
G-028501	12/20/1967	A		P	10		303			10 01 1958	1061 S	2472 W	NWNE	18	13	49 W
G-028502	12/20/1967	A		P	500		100	30	36	1950	175 S	1480 W	NWNE	32	14	49 W
G-051268	08/10/1976	A		P	1000		124	30	54	03 25 1976			NWNW	05	13	49 W
G-080136	01/28/1994	A		Q			139	84		04 17 1993	560 N	1485 E	SESW	29	14	49 W
G-081364	05/13/1994	A		P	750		155	80	110	02 12 1992	55 N	1280 W	SESE	17	14	49 W
G-089312	09/16/1996	A		P	1200		180	86	130	06 13 1996	1850 N	2500 W	NWSE	17	14	49 W
G-089313	09/16/1996	A		P	700		125	67	100	04 1993	890 S	2230 W	NWNE	20	14	49 W
G-090678A	02/21/1997	A		Q			87	82		02 04 1997	3395 N	715 W	SENE	29	14	49 W
G-090678B	02/21/1997	A		Q			143			02 07 1997	3395 N	719 W	SENE	29	14	49 W
G-090678C	02/21/1997	A		Q			60	54		02 10 1997	2470 N	1005 W	NESE	29	14	49 W
G-090678D	02/21/1997	A		Q			114			02 12 1997	2470 N	1009 W	NESE	29	14	49 W
G-090678E	06/17/1999	A		Q			56	43		04 19 1999	2310 N	795 W	NESE	29	14	49 W
G-090678E	02/21/1997	X	1999-04	Q			47	42		02 12 1997	2310 N	795 W	NESE	29	14	49 W
G-094952	02/27/1998	A		P	3		340	71	320	07 17 1997	400 S	2200 W	NWNE	18	13	49 W
G-100936	06/17/1999	A		Q			60	54		04 20 1999	1485 N	825 W	NESE	29	14	49 W
G-113747	01/02/2002	I		O	20		140	49	70	08 08 2001	1975 N	1625 W	NWSE	20	14	49 W
G-120333	03/05/2003	A		L			358	171		02 12 2003	194 N	233 W	SESE	36	16	51 W
G-120838	04/08/2003	A		L			380	201	210	03 27 2003	125 S	2011 W	NWNE	02	15	51 W
G-121768	06/04/2003	A		L			450	196		05 28 2003	2415 S	128 W	SENE	33	16	51 W
G-121860	06/06/2003	A		L			400	178		05 27 2003	125 S	148 W	NENE	02	15	51 W

Sorge **Roger**

Last Name	First Name																	
Reg. #	**Reg. Date**	**Status**	**X Date**	**Use**	**GPM**	**Acres**	**Total Depth**	**SWL**	**PWL**	**Completion Date**			**Footage N/S**	**FootageE/W**	**SubSection**	**Sec**	**Twn**	**Rng**
G-122258	07/01/2003	I		D			297	215	235	05	15	2003	348 N	1545 E	SESW	02	15	51 W
Talich									**Geraldine**									
G-081846	07/05/1994	A		D	10		260	142	200	05	26	1994	585 N	627 W	SESE	12	14	50 W
Van Vleet									**Rob Jr**									
G-081831	07/01/1994	A		D	50		380	176		11	17	1993	309 N	384 E	SWSW	35	15	50 W
Warrick									**Bradley J & Peggy L**									
G-053633	12/22/1976	A		I	600	136	400	165	176	09	15	1976			NW Center	12	15	51 W
Water Holes Ranch																		
G-081134	04/18/1994	A		I	650	132	300	173	182	04	04	1994			SE Center	01	15	51 W

Reg.# - Number assigned to the well by the Department of Natural Resources

Reg. Date - date the well registration was completed

Status - current status of the well

Use - the intended use of the well

GPM - capacity of the well in gallons per minute

Acres - the number of acres the well is registered to irrigate

Total Depth - depth of the well in feet

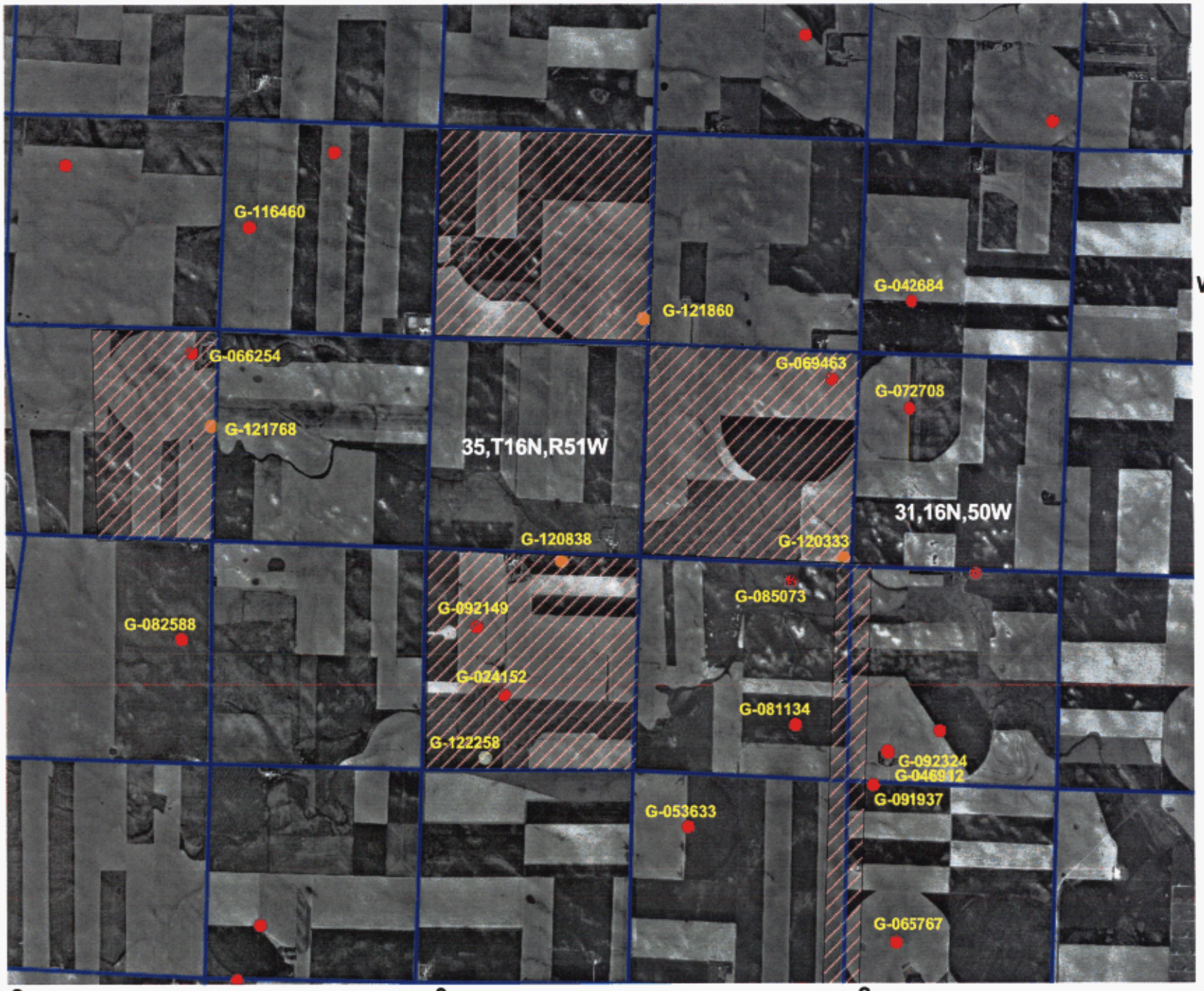
SWL - static water level in feet

PWL - pumping water level in feet

Completion Date - date the well was completed

The remaining columns give the legal description of the well

Proposed Sidney Well Field Area



N
W
E
S

Wells

- Commercial
- Irrigation
- Public Water Supply
- Unprotected PWS
- Domestic
- Stock Watering
- Others

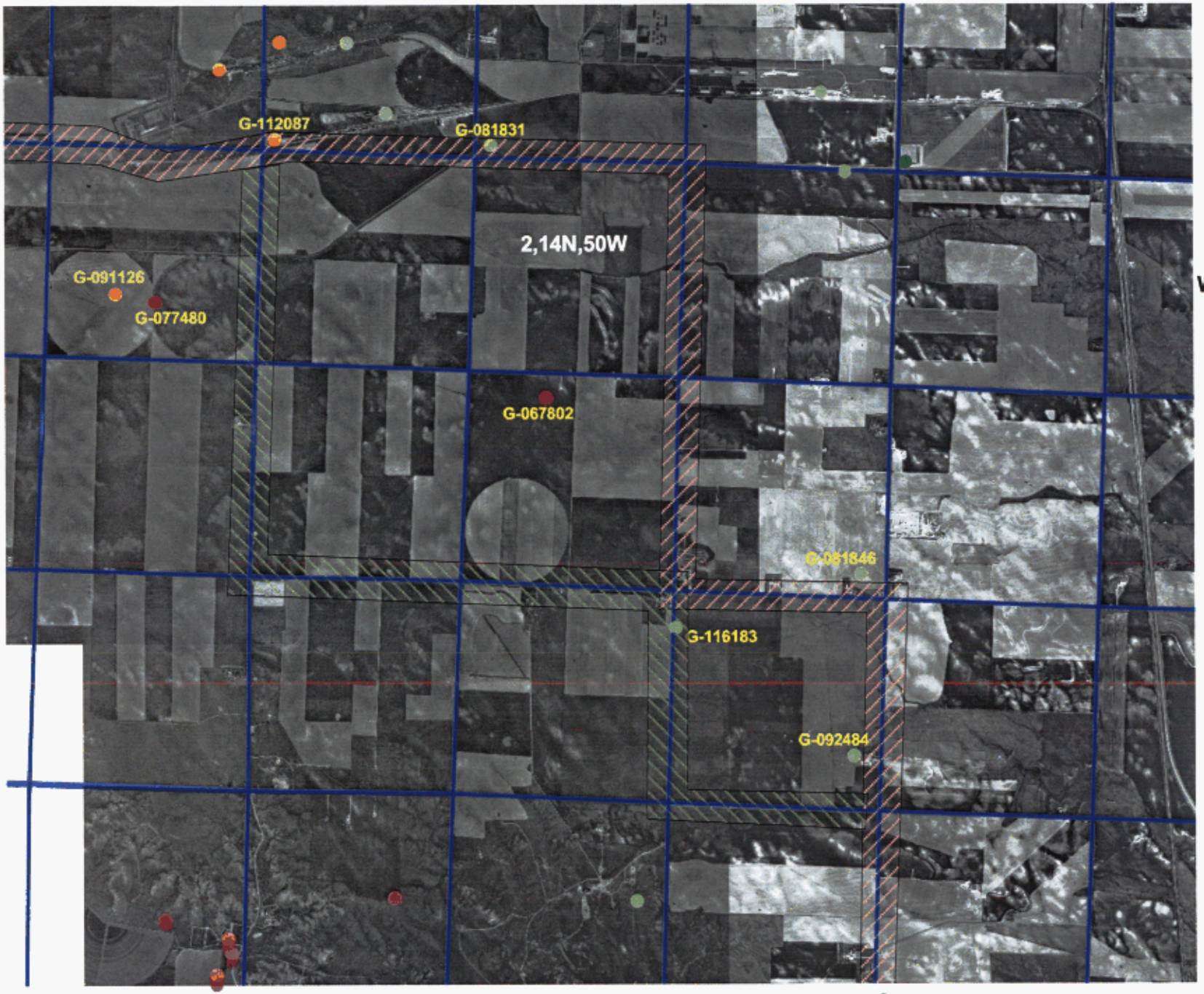
Sections

Area of proposed project

2 0 2 4 Miles

NEBRASKA
Department of Natural Resources

Proposed Sidney Well Field Project Area



N
W
E
S

Wells
- Commercial
- Irrigation
- Public Water Supply
- Unprotected PWS
- Domestic
- Stock Watering
- Others

Sections

Proposed Alternate Route

NEBRASKA
Department of Natural Resources

STATE OF NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909

Mike Johanns
Governor

DRINKING WATER STATE REVOLVING LOAN FUND PROGRAM

AMENDMENT OF A FINDING OF NO SIGNIFICANT IMPACT DATED AUGUST 30, 2003

TO: All Interested Citizens, Government Agencies and Public Groups

In accordance with the procedures for an environmental review, a supplement is being given on the previous Finding of No Significant Impact Decision as outlined below:

PROJECT NAME: New Municipal Well Field, Transmission Main, Elevated Water Storage Tank and Well Head Protection Area, Land Acquisition City of Sidney, Nebraska

DWSRF PROJECT NUMBER: D311351

TOTAL PROJECT AMOUNT: $8,820,000

EXPECTED LAND ACQUISITION CWSRF LOAN AMOUNT: $1,187,730

EXPECTED DWSRF INFRASTRUCTURE LOAN AMOUNT: $5,232,270

OTHER FUNDING: DED Grant: $1,000,000
EDA Grant: $1,400,000

This amendment is being issued to supplement a previous Nebraska Department of Environmental Quality's (NDEQ) Finding of No Significant Impact Decision of August 30, 2003 and to proceed in funding improvements to the City of Sidney's Public Water Supply Distribution System and revise the previous environmental assessment. On August 30, 2003, a Finding of No Significant Impact (FNSI) was issued describing the environmental impacts of the above referenced project. This review indicated minor impacts would result from the construction of the proposed well field and transmission line. Since the issuing of the August 30, 2003 decision, bids were opened, September 3rd for the phase 1 well field development (4 wells), September 9, 2003 for the ductile iron pipe transmission main (phase 1 and 2 material only), and September 23 for phase 1 of the transmission main installation. These three contract awards totaled $4,095,090.50. With under budget bids it was decided to add phase 2 well development (4 additional wells) and negotiate with the pipe-laying contractor to add phase 2 transmission main installation. Additional contracts are anticipated for transmission pipe unloading, phase 1 well houses, pumps and motors and interconnecting piping.

In addition to the bid openings the final test hole program determined the final well field design and changes were made to the original well field plan. The Department of Health and Human Services Regulation and Licensure has approved the revised well locations for phase 1 wells. The wells labeled H26-1, H26-3, H26-4, and H33-1 as shown on the attached map are to be constructed in phase 1 well field development. The phase 1 and 2 wells are proposed in the following locations:

Phase 1 Well Field Development:
Proposed Well H26-1 is located in the NW1/4, SE1/4 of Section 26 T16N R51W
Proposed Well H26-3 is located in the SW1/4, SW1/4 of Section 26 T16N R51W
Proposed Well H26-4 is located in the NW1/4, NW1/4 of Section 26 T16N R51W
Proposed Well H33-1 is located in the NW1/4 of NE1/4 of Section 33 T16N R51W.

Phase 2 Well Field Development:
Proposed Well H26-2 is located in the SE1/4, SE1/4 of Section 26 T16N R51W
Proposed Well H26-5 is located in the NE1/4, NE1/4 of Section 26 T16N R51W
Proposed Well H33-2 is located in the SE1/4, NE1/4 of Section 33 T16N R51W
Proposed Well DL-4 is located in the NW1/4, NE1/4 of Section 2 T15N R51W

The 5 wells in Section 26 and 2 wells in Section 33 and the land acquisition of Section 26 and east half section of 33 land acquisition as shown on the attached map had not been covered by the previous Finding of No Significant Impact Decision of August 30, 2003. Phase 2 well sites will be inspected and approved by NDHHSR&L before construction.

The revised project was reviewed by Federal and State agencies for environmental impacts and an Environmental Assessment was provided by the Consultant dated December 2003. Specifically 24 agencies were contacted for the environmental agency review, which was conducted on the new well sites and the alternate phase 2-transmission main route. Eight agencies responded with no major concerns. In addition, a second public hearing was conducted after receipt of the other agency comments. The second public hearing was held October 14, 2003. The new well sites as located in Section 26 and 33 are currently being used for agriculture. The Section 33 tract has a center-pivot irrigation system that has been used to irrigate grass, wheat, and corn in the northeast past of the tract. The southeast quarter of the section is dry land farming. Section 26 has some pasture and grazing land; however the majority of the land is used for dry-land farming. The existing agricultural areas will only be minimally affected by the work. A well house and gravel access road connecting to the nearest roadway will be the only land use changes. Dry-land farming, as well as grazing will not need to be stopped. The center pivot in Section 33 will have to be abandoned and was apart of the agreement with the purchase of the property. The well houses will not be built within the 100-year flood areas. The Nebraska Department of Natural Resources identified a number of existing irrigation wells which might be located 1,000 feet from the proposed municipal wells. The municipal wells will be sited over 1,000 feet from any existing irrigation well or the irrigation well will be abandoned. The new wells will be registered and a ground water transfer permit will be applied for.

The 6 miles of the proposed route of phase 2, transmission main installation was revised to avoid major underground gas utilities. The original proposed route and

the new alternate route is shown on the attached map of Figure 2. A comment was received from the Corps of Engineers, Omaha District, identifying a stream crossing and isolated wetlands along the proposed transmission main route and if any filling occurs in any of the identified areas a Section 404 Permit would be required. It is not the intention to disturb or impact any wetland, if unavoidable crossing occurs the impact shall be minimized and the original grade restored and seeded to preexisting vegetation. The transmission main will be installed underground via open trench excavation, backfilled, compacted and the surface restored to preconstruction conditions. The stream crossings are intermittent with non-wetland plants growing in the drainage areas. Therefore, they are not considered to be waters of the United States. Care will be taken to not change the drainage patterns of these areas or drainage ditches following the roads. The Fish and Wildlife Service, U.S. Department of the Interior, commented that if wetlands cannot be avoided that compensation (i.e. restoration of a degraded wetland) occur for a like wetland type at a ratio of 1.5:1 acres of wetland. The Fish and Wildlife Service also commented that under the Migratory Bird Treaty Act construction activities that would otherwise result in the taking of migratory birds should be avoided. Nesting activity in Nebraska occurs during the period of April 1 to July 15 and sedge wrens, which occur in some wetland habitats from July 15 to September 10. If the proposed construction period is planned to occur during the primary nesting season which may result in the take of nesting migratory birds, the Service recommends that the project proponent arrange to have a qualified biologist perform a survey and results provided the Service. The Nebraska Service Field Office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests, which cannot be avoided by the planned construction activities. NDEQ had a comment that a Construction Storm Water permit will be necessary for the approximately 17 to 18 miles of transmission main construction. Nebraska State Historical Society and the Comanche Nation had no records of historical resources but if artifacts are uncovered work should stop until an evaluation can be made. USDA Natural Resources Conservation Service and Nebraska Game and Parks Commission had no comment.

The second public hearing was held October 14, 2003 having a 30 day advertised notice. Approximately 10 citizens including the Council members were present. The above comments were presented from the eight agencies, which had responded for the request for comment. No opposition to the project was expressed at the hearing.

Sidney's land acquisition, wellhead protection project is eligible for financing through the Clean Water State Revolving Loan Fund (CWSRF), Nonpoint Source Control Systems, and Wellhead Protection Area Land Acquisition and is included in the FY2004 Intended Use Plan. In addition, the 8 new municipal wells, transmission main and new water tower are eligible under the DWSRF infrastructure loan fund. The city of Sidney is eligible for a 20-year loan at an interest rate of 2.82 percent. In addition to principal and interest payments, an administrative fee of 1.0 percent of the loan balance will be assessed each year. The revenues of the water utility will be dedicated to repay the loan. The existing water rates will need to be raised to provide adequate revenue for system operation and maintenance, existing debt and DWSRF/CWSRF loan repayment. The water rates were raised in March of 2003 from $6.50 per month to $7.00 per month for a ¾ inch service, base rate and from $1.25 per 1,000 gallons use to $1.50 per 1,000 gallons. The typical charge for an average

residential water use of 10,000 gallons per month is $17.00 per month. The City had approximated $6.2 million to finance through the DWSRF, this amount will likely be reduced because of favorable bids. The annual debt service requirements for the $1.19 million land acquisition CWSRF loan (20 year term) are $89,871 with a 10% coverage requirement translates to $2.94 per month increase for land debt only for Sidney's estimated 2800 users. The annual debt service requirements for the $5.2 million DWSRF infrastructure loan are $395,911 with a 10% coverage requirement translates to $12.96 per month per user increase for the 20-year term. A maximum water rate increase of approximately $15.90 in addition to the $17.00 average residential per month per household has been estimated although a smaller water rate increase due to favorable bids is expected for the total project.

The proposed project amendment has been determined by NDHHSR&L to further public health objectives. The review did not indicate a significant environmental impact would result from the proposed action. Consequently, a preliminary decision has been made that an Environmental Impact Statement (EIS) will not be prepared.

This action is taken on the basis of a careful review of the revised facility plan, the environmental information document, the revised environmental assessment and other supporting data, which are on file in the office of the Nebraska Department of Environmental Quality (NDEQ). These are available for public review upon request. A copy of the amended environmental assessment is attached. The NDEQ will not take any administrative action on the project for at least 30 calendar days from the date shown below. Persons disagreeing with the above environmental decision may submit comments to the NDEQ during this period.

Signed this 19th day of December, 2003.

Sincerely,

Michael J. Linder
Director

Attachments: Environmental Assessment
Distribution List
Maps

FINDING OF NO SIGNIFICANT IMPACT AMENDMENT DISTRIBUTION LIST

SIDNEY, NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Public Affairs
P.O. Box 98922
Lincoln, NE 68509-8922

DEPARTMENT OF HEALTH AND HUMAN SERVICES - REGULATION AND LICENSURE
Subhash Jha, P.E.
P.O. Box 95007
Lincoln, NE 68509-5007

DEPARTMENT OF NATURAL RESOURCES
Steve McMaster
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Lincoln, NE 68509-4676

NEBRASKA GAME & PARKS COMMISSION
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P.O. Box 94601, State Capitol
Lincoln, NE 68509-4601

DEPARTMENT OF ECONOMIC DEVELOPMENT
Rick Zubrod
P.O. Box 94666
Lincoln, NE 68509

FISH AND WILDLIFE SERVICE
Steve Anschutz
203 West Second Street
Grand Island, NE 68801

LOCAL NEWSPAPER
Sidney Daily Sun
PO Box 193
Sidney, NE 69162-0193

SOUTH PLATTE NATURAL RESOURCE DISTRICT
551 Parklane Drive
P.O. Box 294
Sidney, NE 69162

USDA RURAL DEVELOPMENT
Ken Shaw
Room 308, Federal Building
100 Centennial Mall North
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ENVIRONMENTAL PROTECTION AGENCY
Judy Novak
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100 Centennial Mall North
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DEPARTMENT OF THE ARMY
State Program Manager
US Army Corps of Engineers
8901 South 154th Street
Omaha, NE 68138-3621

APPLICANT
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PO Box 79
1115 13th Avenue
Sidney, NE 69162-0079

CONSULTING ENGINEER
Tom Satchell, PE
Jacobson Helgoth Consultants, Inc.
12640 West Cedar Drive, Suite A
Lakewood, CO 80228-2030

ENVIRONMENTAL ASSESSMENT DOCUMENT

A. Project Identification:

Applicant: City of Sidney
Project No.: D311351
City: Sidney **County:** Cheyenne **State:** NE
Total Project Amount: $8,820,000
Potential CWSRF Land Acquisition Loan: $1,187,730 land acquisition costs
Potential DWSRF Infrastructure Loan: $5,232,270 eight wells, transmission main, and storage improvements

Other Funding: DED Grant $1,000,000
EDA Grant $1,400,000

B. Community Description:

Location: The City of Sidney is located in western panhandle of Nebraska along Interstate 80 and State Hwy. 385.

Population: The population of Sidney was estimated to be 6,282 by the 2000 census. The population is expected to increase to approximately 7,853 by 2023.

Current Water System Facilities: The Sidney water system includes 10 wells, 7 wells located throughout the City supplying 73% of the water demand from the shallow Brule aquifer, and 3 wells in a well field 2 miles NE of town supplying 27% of the water demand from a shallow alluvial aquifer located in a erosional valley cut into the Brule formation. In addition, the system has 2.975 MG of storage capacity in five storage tanks. A 125,000 gallon steel reservoir on the bluffs on the north side of the City, a nearby 500,000 gallon steel storage tank and a 600,000 gallon in-ground concrete reservoir on high ground south of the City. In the 1990's, a 1.5 million gallon reservoir was constructed north of the City that now serves as the distribution point to the entire City. This is the tank used for blending and disinfection. In 2002 a fifth reservoir, 250,000 gallon elevated water tower, was installed near I-80 that was funded by DWSRF funds.

Current water treatment consists of blending and disinfection. Sodium hypochlorite (NaOCl) is added to the water and the system has a NaOCl generation system. For the distribution system, the system has two pressure zones. The low-pressure zone covers the majority of the City, lying in the Lodgepole Creek basin. This pressure zone is served by the four older storage reservoirs. The high-pressure zone consists of the areas on the north and south side of the City on the bluffs. This pressure zone is supplemented with two booster pump stations. The two pressure zones along with a well-developed infrastructure of piping, allows the water to be distributed throughout the City. The entire system is controlled by a supervisory control and data acquisition (SCADA) system.

Cheyenne County SID#1: This system, which is 7 miles NW of Sidney, is the area of the former abandoned Sioux Army Depot and the former site of the Western Nebraska Technical Community College. It currently is an industrial park comprised of warehouses, commercial and industrial sites (light manufacturing and

rail car repair), grain storage facilities, as well as residences. In total over 1,000 jobs in 27 companies are situated in and around the SID. The SID serves 76 residences and 21 warehouses. The SID plans to consolidate and hookup with the City of Sidney. Currently the SID has 3 shallow wells south of the SID. The wells have total rated capacities of 1470 gpm but have declined in capacity over the years. Two storage facilities exist, an in-ground concrete reservoir with a wood roof, and a 75,000 gallon elevated water tower. The steel water tower needs repainting and the wood roof has failed for the concrete reservoir.

C. *Project Description:*

Purpose: The existing water supply system serving the City of Sidney has two deficiencies: water quantity and quality. The existing primary supply source is the shallow fractured siltstone Brule Aquifer in which the nitrate level commonly exceeds the MCL of 10 mg/l since the late 1980s and the supply is unreliable as evidence in the drought of 2002. Intense agricultural development within the Lodgepole Creek Valley has resulted in a steady decline in the regional water table. The City's northeast well field has a limited declining capacity of 7 years to 19 years depending on usage rates.

The industrial park northwest of the City has a substandard water supply system that does not meet NDHHSR&L standards and a new supply system needs to be provided to maintain nearly 1,000 jobs. The proposed project will encompass two phases. The first phase will consist of developing a new well field, approximately 14 miles northwest of the City of Sidney, in the Ogallala Aquifer, which will provide a reliable, high quality water source. A transmission main will be constructed connecting the well field with the Cheyenne County SID#1 industrial park where a new elevated storage tank and disinfection system will be constructed. Phase 2 of the project will construct a transmission main from the new facilities at the industrial park to the City's existing blending, and storage system on the north edge of the City. The proposed transmission main overall length is approximately 17 miles.

Type: The proposed well field is schemed for 13 new wells as shown on the attached map, 4 to be constructed in phase 1 with well houses approximately 1,800 feet apart. Four capped wells will be constructed for phase II slated for construction in 2004 for future use to be built without well houses. Phase 2 wells will be made operational when the demand dictates. Phase III includes 2 wells for future 2010 construction and 3 additional wells for full development at the 20 year design of year 2023. Each phase 1 well house will contain the cased production well, well pump and electric motor, meter and one or more will be equipped with standby engines, along with all necessary controls. A gravel road will be built from the nearest county road to each phase 1 well house along with fencing to secure the well house. A 24-inch transmission main will be placed below ground and along county right-of-ways for the majority of the distance, for portions that won't follow the road right-of-way; easements will be acquired as necessary. Approximately 1 mile of the transmission main will be located on portions of the former Sioux Army Depot along street or utility right-of-way. The transmission main will extend to the Cheyenne County SID#1 for phase 1 and terminate with a new 125,000-gallon elevated steel water tower and chlorination system. The tower will provide emergency reservoir storage for the industrial park and 60 psi to the industrial park area. For phase 2,

transmission main construction, the connection from the Cheyenne County SID#1 to the existing City 1.5 million-gallon storage reservoir serving the Sky Manor neighborhood north of the City will be constructed. All components of phase 1 and 2 would be incorporated into the existing SCADA system to allow for complete control of the entire water supply and distribution system.

Design Factors: The geological formations were analyzed in the Sidney area and specifically the water yielding capabilities. The aquifer north of Sidney is the Ogallala formation under bench lands of the Lodgepole Creek Valley. The Ogallala formation can be up to 500 feet thick and exhibits two primary stratigraphic facies. Fine-grained silts and clays with limited clean sand development characterize the older Ogallala sediments. During the last phases of Ogallala sedimentation a deep river cut valley was developed in the area between Potter and Dalton, Nebraska. The river valley cut was filled with clean, coarse-grained sands and fine gravels. Center pivot irrigation wells, located within the valley fill are capable of producing from 750 to 1,500 gpm. The municipal wells are expected to be able to deliver 500 to 1,000 gpm with minimal impacts on the regional water table.

The ground water flow direction across the area is from northwest to southeast. A comparison of local water table elevations, taken in the 1960's and 1970's with current measurements indicates that the water table has fallen less than 5 feet over the past 30 years. An observation well was constructed on the extreme down-gradient side of the proposed well field and was sampled and tested for a full water quality scan. No detects of man-made organic or agricultural chemicals, nitrate levels were found between 1.5 and 3.0 mg/l. Dissolved concentrations of arsenic, uranium were below the new proposed MCLs. The overall water quality in the Northern Ogallala Valley fill sediments is better than the current primary shallow Brule water supply for the City.

A summary of the current and future water requirements is shown in the following table:

Sidney Avg. Daily Flow (2001-2002)	1,803,500 gallons per day	1,252 gpm
Sidney Peak Day Flow (2001-2002)	6,069,000 gallons per day	4,215 gpm
Sidney Avg. Annual Flow (1998-2002)	661,940,000 gallons	
SID#1 Avg. Annual Flow	10,000,000 gallons	
Sidney Peak Annual Flow (2000)	756,371,000 gallons	
Projected 20 yr. Increase	25%	
Projected 2023 Avg. Daily Flow	2,288,622 gallons per day	1,589 gpm
Projected 2023 Peak Daily Flow	7,620,000 gallons per day	5,292 gpm
Projected 2023 Peak Annual Flow	957,964,000 gallons	

D. Alternatives Considered:

Types: In summary the alternatives considered were:

1. No action,
2. More Brule aquifer wells,
3. More alluvial aquifer wells by the northeast well field,
4. Go to the Sidney Draw another nearby shallow alluvial aquifer,
5. Go to the Chadron formation two miles west of the City,
6. Go to the Ogallala aquifer south of Sidney,
7. Go to the Ogallala aquifer north of Sidney.

Each alternative was analyzed in detail:

1. *No action alternative: The City would remain at risk of not having sufficient* supplies for the residents or for fire flows. Because of the unreliability of existing wells in the Brule Formation and the limited capacity of the northeast well field, future dry years could cause wells to go down in both formations and leave the City without a source of water. The nitrate problems in the Brule water will continue to be a major concern. In addition the Industrial Park would still lack water supply. If this system isn't upgraded, 27 businesses located in the park as well as the 1,000 employees could be displaced causing a major disruption in the economy and employment of the City.

2. More Brule Aquifer Wells: This is currently the primary source of water for the City. Due to the shallow nature of this aquifer, the aquifer has become contaminated by high nitrates, and is susceptible to rapid declines in water table in drought periods due to the heavy irrigation use.

3. More northeast well field wells: This well field is currently used for supplemental low-nitrate blending water for the City. This water has a high quality, but extent of the aquifer is limited, and further wells in this aquifer would cause rapid declines in available water.

4. Go to the Sidney Draw: This is a shallow alluvial aquifer, like the Brule, and has many contaminants in it from agriculture and oil and gas operations in the area. This water would require extensive and expensive treatment before distribution to the City.

5. Go to the Chadron Formation: This formation also has water quality issues, such as high sodium and trace metals. This would also necessitate treatment be installed before distribution to the City.

6. Go to the Ogallala south of the City: This area has high quality water available, but the sediments in the area make it difficult to develop wells in the aquifer.

7. Go to the Ogallala north of the City: This was the chosen alternative

Reasons for Selection of Proposed Alternative: The most long-term solution was the Ogallala formation north of the City, which had the best water quality and

quantity of all the formations studied. Each formation was reviewed concerning quality, quantity, reliability, and economics. After analyzing the advantages and disadvantages of each of the alternatives, the northern Ogallala valley fill was the preferred source for the City's water supply.

E. Environmental Impact Summary:

Primary:

Construction: Temporary impacts caused by construction include noise and dust, and a limited potential for soil erosion and fuel and oil spills.

Environmental: The construction contract will require that the contractor return the construction area to its original or better condition. The proposed project will be placed within disturbed farming and pasture areas and along existing county and utility right-of-ways, and therefore will have little impact on the flora or fauna in the area. The Well houses and site take up very small areas of land (less than 5,500 square feet each) and should have little, if any affect on the species of the area. No federally listed threatened or endangered species are expected to occur within the project area. The Migratory Bird Treaty Act is applicable if construction in grassland or wetland habitats takes place during nesting season. If the constuction takes place in the nesting season, the Fish and Wildlife Service recommends a field survey by a qualified biologist. The black-tailed prairie dog is a federally listed candidate species and may be present in a prairie dog colony located in Section 36. Wells in this Section are slated for 2010 and after development. This colony will be avoided during construction to prevent any adverse impacts to the colony.

Financial: A Clean Water State Revolving Fund (CWSRF) loan is proposed to fund the well field land acquisition. A 2.82 percent, 20-year loan of $1,187,730 will have a debt service of $89,871 per year. This includes, an administrative fee of 1.0 percent of the loan principal balance, which would be assessed each year. The revenues from the water utility will be dedicated to repay the loan. Water user rates will specifically be used to generate the revenue. To construct phase 1 and 2, well field and transmission main, the City had estimated a DWSRF loan of $5,232,270 to match awarded grant amounts, favorable bids on the initial contracts let will probably reduce the DWSRF loan amount. Annual debt service for the estimated loan amount at a 20-year term at 2.82% plus 1% administrative fee is $395,911 per year. A 10% coverage requirement is required on all DWSRF and CWSRF loans. This would translate to a $12.96 per month increase per user for DWSRF debt service.

The water rate user charge system will have to be increased to provide funds to operate the system and repay the DWSRF/CWSRF loans. Based on the existing water rates, the typical charge for an average residential water of 10,000 gallons per month is approximately $17.00 per month. About $2.94 of additional water use fee would be needed for the CWSRF land acquisition debt service. The City of Sidney has approximately 2800-metered water customers. A significant water rate increase is anticipated to fund phase 1 and phase 2 of the new well field and transmission main project. At a

maximum, a $15.90 per month increase to the rate for DWSRF/CWSRF debt service is anticipated assuming costs come in as anticipated using the design estimate. Awarded costs appear to be coming in underbudget and the funding agencies final grant and loan allocations will determine the actual water rate increase necessary to cover the new operation and maintenance budget and combined debt service amounts.

Secondary:

Population Impacts: The proposed project has a reserve growth factor built into the design criteria used to size the project. Population has been increasing for the community with a 5% gain from the 1990's decade. It is anticipated that population growth percentage will increase in the area; the project is schemed to serve high growth need for a 20 year design life with reserve capacity for a 25% increase or 1,571 additional people.

Land Use and Trends: The proposed well field is fourteen miles northwest of the edge of town and five miles northwest of the Cheyenne County SID#1. The wellhead protection parcels are generally all of Section 26, Township 16 North, and Range 51 West in Cheyenne County and east half of Section 33, Township 16 North, Range 51 West of the Sixth P.M. This land is currently used for agriculture and pasture and will be acquired by the City from a willing seller. The Section 33 tract has a center-pivot irrigation system that has been used to irrigate grass, wheat, and corn in 200 acres of the northeast part of the tract. The southeast quarter of section 33 is dryland farming. Section 26 has some pasture and grazing land; however the majority of the land is used for dry-land farming.

The existing agricultural areas will only be minimally affected by the work. The southern one-third of the Section 36 is pastureland and the remaining acreage is used for dry-land wheat. Section 2 has a center-pivot irrigation system in the southwest quarter that irrigates corn. The remaining portion of the property is used for dry-land wheat, milo, and pasture. With the exception of the southern one-third of Section 36, the remainder of the two tracts is plowed for agricultural crops on a regular basis. The land use should not significantly change but the City will put controls on fertilizer and herbicide and pesticide usage. The pipeline will be placed below ground at a depth where it will not interrupt any farming practices in the area. All above ground appurtenances will be placed to avoid the interruption of any farming practices of the area. The well houses will be small and take up little land area. All practical attempts to minimize loss of farmland will be taken. The future full development of the well fields will require elimination of the center pivot irrigation on the proposed properties.

The State Conservationist has determined that the site should not be subject to the Farmland Protection Policy. Test wells have been constructed at the site and a well layout has been determined at approximately 160 acres per well to minimize the potential well-to-well interference affects. Test pumping and a full water quality scan has been completed for the test wells. Phase 1 well sites were inspected by the NDHHSR&L and reviewed for setbacks for potential contamination sources. The proposed well sites appear

to be acceptable for locating public water supply wells by a August 15th and October 7th, 2003 letter from Shane Bennet, Water Supply Specialist, NDHHSR&L, North Platte Office. Phase 2 well sites will be inspected and approved by NDHHSR&L before construction.

Environmental: No impacts to air or water quality or sensitive environmental areas as wetlands or floodplains are anticipated. The well field lies within the unincorporated area of Cheyenne County, which does participate in the National Flood Insurance Program. A Flood Insurance Rate Map exists for the area and shows that some portions of the proposed well field are within the 100-year floodplain as are three places along the proposed pipeline. The well houses and any other above ground structure will be located outside this floodplain. The pipeline will not contain any aboveground structures: however, care will be taken to keep all valves, pump stations, or other appurtences outside the floodplains. Any flood hazard due to local runoff would be shallow. The DHHSR&L requires elevating the wells and related equipment above where local drainage could accumulate. No known historical or archaeological resources are in the vicinity of this proposed project. The approximate 1,590 acres of the well field site land acquisition is a small percentage of the total prime farmland in Cheyenne County; therefore, the site should not be subject to the Farmland Protection Policy Act.

Environmental Justice: The proposed project will not produce any environmental justice concerns. All structures will be placed in uninhabited areas, and the services provided by the proposed system will be available to everyone in the City, equally. No segment of the community's population is impacted disproportionately from related effects.

Mitigation measures necessary to eliminate adverse environmental effect: Proper construction techniques will be utilized to minimize soil erosion and other potential impacts of construction. The prairie dog colony in Section 36 will be avoided during construction to prevent any negative impact to the black-tailed prairie dog. The normal traffic flow may be affected by delays and construction traffic when transmission main work is being done along the County road right-of-way. The Department of Natural Resources requested that a ground water transfer permit be applied for and the new municipal wells be registered with the Department and approved by the local South Platte Natural Resource District. A floodplain development permit should be obtained from Cheyenne County, Zoning administrator for the construction of the pipeline.

Irreversible and irretrievable commitment of resources: The resources committed to the project include the equipment and construction materials and the energy used in construction.

F. Measures Taken to Insure Environmental Soundness:

Public Involvement: A public hearing with a 30-day notice was held on June 10, 2003 for discussion and public input on the project. Approximately 15 citizens and officials attended the public hearing. A second public hearing with a 30-day notice was held on October 14, 2003 for discussion and public input on the revised project. Approximately 10 citizens and officials attended the public hearing.

Public Opposition or Opinions: *No one at either of the public hearings expressed* opposition to the water project and the location of the new well field.

Coordination and Documentation with Other Agencies and Special Interest Groups:

Facility Planning: Sidney Water Supply 2003 Preliminary Engineering Report for the City of Sidney, Nebraska, Jacobson Helgoth Consultants, April 2003. Environmental Assessment Update, Sidney Water Supply 2003, Jacobson Helgoth Consultants, December 2003

Federal: Corps of Engineers, April 11, and August 26, 2003 letters
Fish and Wildlife Service, April 3 and September 3, 2003 letters
USDA, Natural Resources Conservation Service, May 15, 2003, and September 3, 2003 letters

State: Nebraska Department of Health and Human Services, Regulation and Licensure, May 23rd, August 15th, and October 7th, 2003 well site inspection comment letters
Nebraska Game and Parks Commission, April 10, and Sept. 18, 2003 letters
Nebraska State Historical Society, April 7 and Sept. 4, 2003 letters
Nebraska Department of Natural Resources, April 28 and Sept. 30, 2003, letters
Nebraska Department of Aeronautics, April 3, 2003
Nebraska Department of Environmental Quality, Oct. 6, 2003 letter

Local: North Platte, Natural Resources District, May 30, 2000 letter stating that a construction permit will be necessary from the NRD prior to construction of each well.
Cheyenne County Historical Association, April 24, 2003 letter

Consulting Engineers: Jacobson Helgoth Consultants, Lakewood, CO

Public Groups: City of Sidney Residents

Other: Comanche Tribe, June 4 and October 9, 2003 letters

G. **Positive Effects to be Realized from the Proposed Project:** This water source project will ensure a safe and adequate drinking water supply for the City of Sidney. The benefits to this project are all related to this goal. The Ogallala aquifer is an extensive aquifer with adequate water to supply the City with water well into the future. The Ogallala water is high quality, and would only need to be disinfected before being supplied to the City. The nitrate levels are below 3.0 mg/L, well below the 10.0 mg/L limit set for the maximum contaminant level (MCL). Without these improvements the city would risk noncompliance with nitrate MCL levels and it's associated health hazard, due to nitrate contamination of the shallow Brule aquifer and it's current use as the City's primary public water supply source. In addition, this project will ensure the businesses in the Industrial Park, northwest of the City,

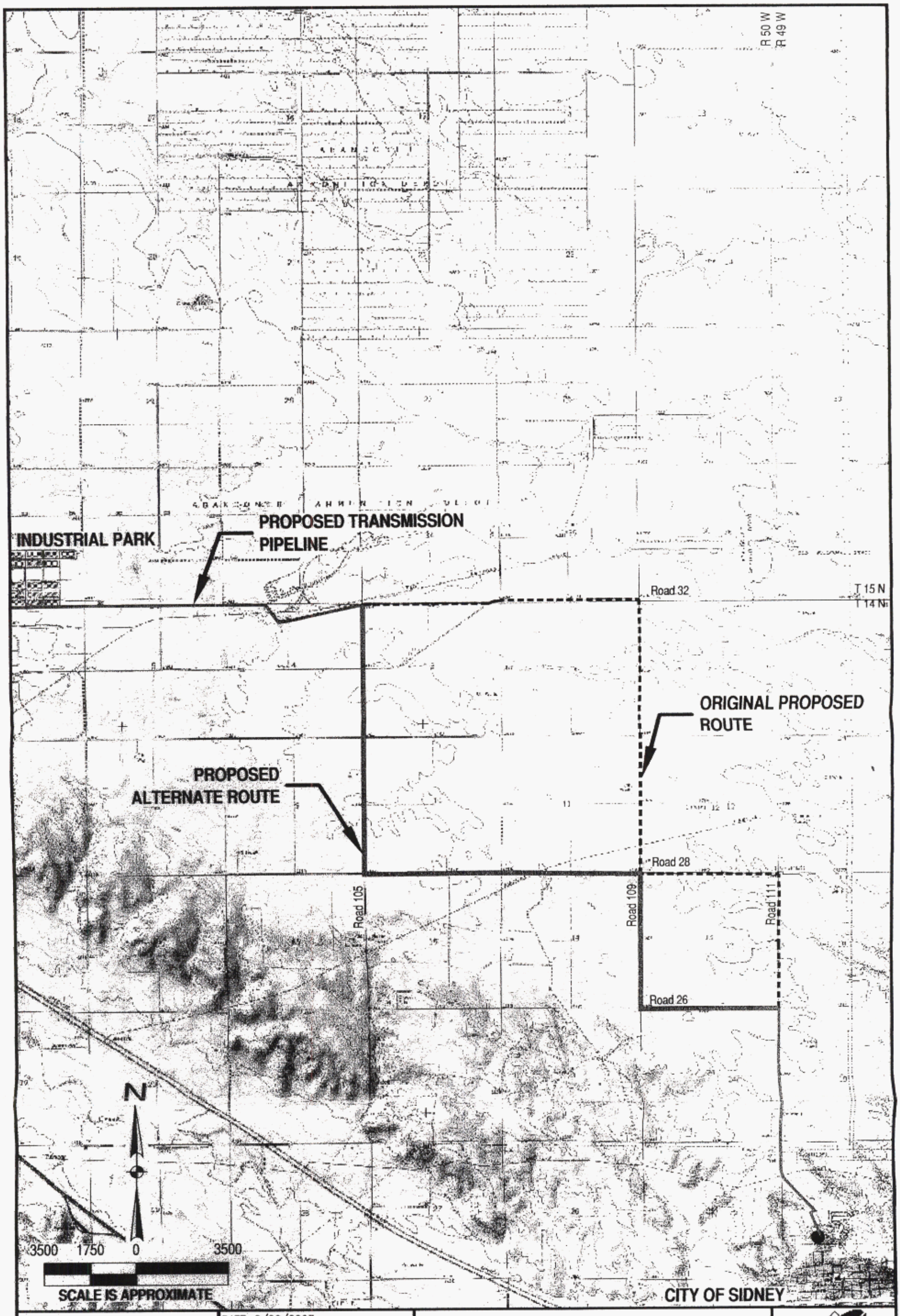
will have an adequate water supply available, thereby securing the 1,000 jobs in the area and avoid disrupting the employment or income patterns of the area.

H. **Reasons for Concluding there will be no Significant Impacts:** Review of the preliminary engineering report planning documents and supporting information indicates that the proposed project will result in no significant impact on the environment. No wetlands, prime farmland, flood plain, and historical resource, threatened or endangered species or sensitive wildlife habitats will be affected. A reported prairie dog colony in Section 36 will be avoided during construction of the pipeline and well houses.

Reviewing Engineer PE

12/19/03

Date



Jacobson Helgoth CONSULTANTS

FILE NO.: Figure 2.dwg

DATE: 8/20/2003
SCALE: NOT TO SCALE
JHC PROJ. NO.: 106-46
DRAWN BY: ZJM
CHECKED BY: TTS
FIGURE: 2

FIGURE 2
PROPOSED ALTERNATE TRANS. PIPELINE ROUTE
ENVIRONMENTAL ASSESSMENT REVISION
CITY OF SIDNEY, NEBRASKA

LEGEND

PHASE I - Under Construction

PHASE II - 2004

PHASE III - 2010

POSSIBLE FUTURE WELL SITE

FLOW RATE IS MAXIMUM ESTIMATED

H26-1
850 GPM

H26-1
1,200 GPM

H26-5
850 GPM

H26-2
850 GPM

H33-1
1,200 GPM

H33-2
1,000 GPM

H26-3
1,200 GPM

NSL-5
750 GPM

H33-4

NSL-1
850 GPM

DL-4
850 GPM

H33-3
800 GPM

DL-2
600 GPM

N

1500 750 0 1500

SCALE IS APPROXIMATE

Road 46

Road 44

Road 42

Road 99

Road 95

Road 97

FINAL WELL DRILLING LAYOUT
NORTHWEST WELL FIELD
PIPING NETWORK
CITY OF SIDNEY, NEBRASKA

DATE: 12/12/2003

SCALE: NOT TO SCALE

JHC PROJ. NO.: 106-46

DRAWN BY: ZJM

CHECKED BY: TTS

FIGURE: 1

Jacobson Helgoth CONSULTANTS

FILE NO.: Network Options.dwg

Jacobson Helgoth
CONSULTANTS

August 20, 2003

Mr. Steve McMaster
Water Resources Planner
Nebraska Department of Natural Resources
PO Box 94676
Lincoln, NE 68509-4676

Re: Environmental Assessment Update – Cheyenne County, Nebraska
Water Supply 2003 – City of Sidney, Nebraska
JHC Project No. 106-46

Dear Mr. McMaster:

As you may remember, the City of Sidney, Nebraska (City) is in the final planning phase of developing a water system improvement project. The City is seeking funding assistance from several Federal and State of Nebraska agencies. Jacobson Helgoth Consultants (JHC) has prepared an Environmental Assessment (EA) as well as a Preliminary Engineering Report (PER). Currently the design and construction bidding processes are underway for the project.

The purpose of this letter is to inform your Agency of additional well field areas as well as an alternate pipeline route that have been included in the proposed project area. Enclosed are two figures that depict the additional well field areas and the alternate transmission line route, respectively. The two additional well field sites are in Township 16 North, Range 51 West; Section 26 in its entirety and the East half of Section 33. These areas were not included in the original EA that was distributed to your Agency for review in April 2003.

We request that you review the following information and respond regarding any environmental impacts that your Agency may identify for this proposed project pursuant to the National Environmental Policy Act (NEPA). We are particularly interested in your comments regarding livestock waste lagoons, new well construction, ground water transfers, and floodplain management around in the project area.

The alternate pipeline route lies within county road right-of-way. The entire length is running along existing roadways. The pipe will not change the usage of any property adjacent to it.

The two additional sections of land selected for well field development are currently being used for agriculture. The Section 33 tract has a center-pivot irrigation system that has been used to irrigate grass, wheat, and corn in the northeast part of the tract. The southeast quarter of the section is dry-land farming. Section 26 has some pasture/grazing land; however, the majority of the land is used for dry-land farming.

A review of the following subject areas has been completed and no potential negative effects have been found: Historic Preservation, Wetlands Protection, Noise Abatement and Control, Air Quality, Thermal Explosive Hazards, Airport Clear Zones, Coastal Areas, Endangered Species, Wild and Scenic Rivers, Environmental Justice, Solid and Hazardous Waste, Formally Classified Land, Other State and Local Laws and Regulations, Conformance with Comprehensive Plans and Zoning, Compatibility and Urban Impact, Slope, Erosion, Soil Stability, Energy Consumption,

12640 West Cedar Drive, Suite A, Lakewood, CO 80228-2005
303-986-0733 FAX 303-986-0956
http://www.jheinc.com

Effects of Ambient Noise on Project and Contribution to Community Noise Levels, Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels, Demographic Character Changes, Educational Facilities, Commercial Facilities, Health Care, Social Services, Solid Waste, Waste Water, Storm Water, Open Space and Recreation, Transportation, Surface Water, Unique and Natural Features and Agricultural Lands, Vegetation and Wildlife, and Odor.

This project will have positive effects on some environmental aspects. The water quality, water resources, and water supply available for the City will all be improved along with fire protection. Also, approximately 1,000 employees and residents at the industrial park area will not be displaced, and jobs will not be lost because of water quality problems.

There are a few areas in the proposed areas that are within 100-year flood plains. However, upon inspection, these areas are intermittent streams, with non-wetland plants growing in the drainage areas. Therefore, they are not considered to be waters of the United States. Care will be taken to not change the drainage patterns of these areas or drainage ditches following the roads. The well houses will not be built within the 100-year flood areas.

The existing agricultural areas will only be minimally affected by the work. A well house and gravel road connecting it to the nearest roadway will be the only effects. Dry-land farming, as well as grazing, will not need to be stopped. The center pivot in Section 33 will have to be abandoned. The City understood this, as part of the agreement with the purchase of the property.

The well houses will be small, in unpopulated areas, and the effects on Visual Quality, as well as Hazards and Nuisances, will be minimal.

This letter is being sent to all the Agencies who may be concerned with the environmental effects of this project. A comment period will be allowed for the public to comment regarding the project. Also, a Public Hearing will be held to revise the FONSI granted for the first portion of this project.

We request that you advise us of any comments you may have regarding this project, within 30 days, to enable the City to proceed with finalizing the funding of this project and completion of the EA update.

If you have any questions concerning this proposed project or if you need further information, please do not hesitate to contact me at (303) 986-0733.

Sincerely,

JACOBSON HELGOTH CONSULTANTS, INC.

Zachary J. Matyja
Project Engineer

ZJM/nr
Enclosures

Jacobson Helgoth
CONSULTANTS

August 20, 2003

Mr. Steve McMaster
Water Resources Planner
Nebraska Department of Natural Resources
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Sincerely,

JACOBSON HELGOTH CONSULTANTS, INC.

Zachary J. Matyja
Project Engineer

ZJM/nr
Enclosures

LEGEND

PHASE I WELL - 9/2003

FUTURE WELLS

WELL FIELD

H26-1

H26-2

H33-1

NSL-1

NSL-5

H33-2

NSL-3

DL-4

H33-3

DL-2

PROPOSED PIPELINE NETWORK

PROPOSED TRANSMISSION PIPELINE

R51 W
R50 W

Road 48

Road 46

To Gurley

Road 44

T 16 N
T 15 N

Road 93

Road 95

Road 97

Road 99

To Industrial Park

Road 42

N

2000 1000 0 2000

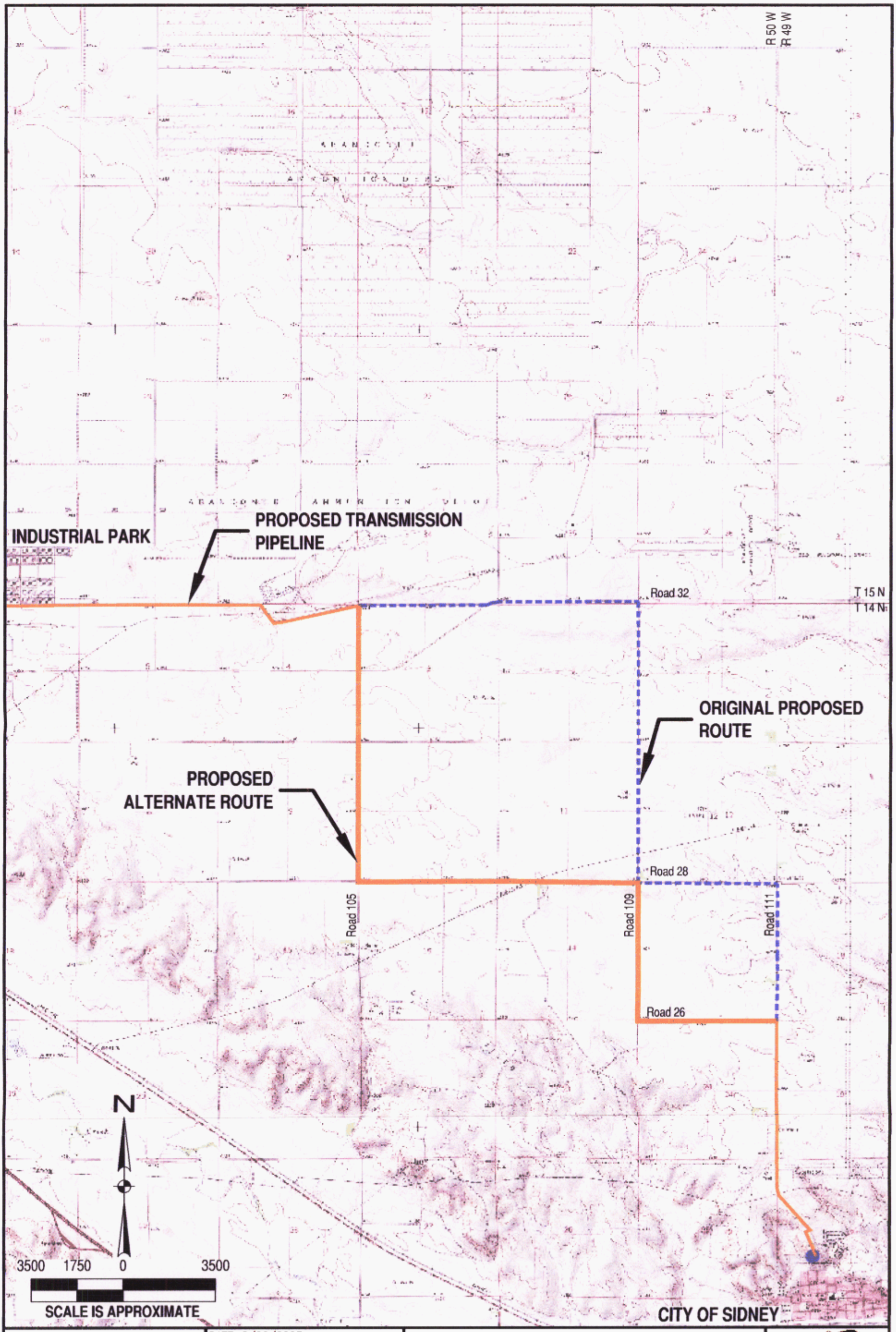
SCALE IS APPROXIMATE

FIGURE 1
PROPOSED WELL FIELD AND PIPE NETWORK
ENVIRONMENTAL ASSESSMENT REVISION
CITY OF SIDNEY, NEBRASKA

DATE: 8/20/2003
SCALE: NOT TO SCALE
JHC PROJ. NO.: 106-46
DRAWN BY: ZJM
CHECKED BY: TTS
FIGURE: 1

Jacobson Helgoth CONSULTANTS

FILE NO.: Figure 1.dwg



Jacobson Helgoth CONSULTANTS

FILE NO.: Figure 2.dwg

DATE: 8/20/2003
SCALE: NOT TO SCALE
JHC PROJ. NO.: 106-46
DRAWN BY: ZJM ZJM
CHECKED BY: TTS
FIGURE: 2

FIGURE 2
PROPOSED ALTERNATE TRANS. PIPELINE ROUTE
ENVIRONMENTAL ASSESSMENT REVISION
CITY OF SIDNEY, NEBRASKA

DNR MEMO

April 24, 2003

TO: Steve McMaster

FROM: Tina

SUBJECT: Proposed Water System Improvements for City of Sidney

Relating to the Environmental Assessment for the above stated project, the Department is interested in 1) registration of the new wells and well spacing, 2) permits for the new/existing wells, 3) accuracy of current well registrations for the City of Sidney, and 4) surface water rights.

To address the first item, a list of registered wells located near the project, four aerial photographs showing the location of these wells, and other relevant department publications are enclosed. If any change in the status, use, or ownership of any of these wells occurs due to the project, please contact the Department at (402) 471-2363. There are several irrigation wells, G-024152, G-092149, and G-069463, which appear to be located within 1,000 feet of the proposed well field. Any municipal well must be over 1,000 feet from any existing irrigation, industrial, or public water supply well owned by another entity. Current Nebraska law states that all new wells are to be registered within sixty days of completion by the water well contractor. Well owners should verify that this process has been completed in a timely manner.

In the case of the second item, the municipal and rural domestic ground water transfers permit is applicable. This permit applies to your situation because the ground water is being transferred off the overlying land for use in the District. Enclosed is a copy of the permit application and relevant information.

The next item concerns the accuracy of the Department's database. Included in the list of registered wells are the wells registered to the City of Sidney. Please look through the list and ensure that the City wells are listed accurately. If they are not, please contact Tina Kurtz at (402) 471-1697. If, as a result of the project, any of the listed active wells are going to be decommissioned, this Department should be notified of the abandonment of those wells.

There are no surface water rights in the immediate vicinity of the project.

A copy of your letter should be sent to the South Platte Natural Resources District as they are the local agency responsible for non-point source ground water quality.

Copies of forms, statutes, and rules can be found on the Department website: http://www.dnr.state.ne.us/docs/groundwat.html

cc: South Platte NRD

City of Sidney wells and wells in project area

Last Name / First Name / Reg. #	Reg. Date	Status	X Date	Use	GPM	Acres	Total Depth	SWL	PWL	Completion Date	Footage N/S	FootageE/W	SubSection	Sec	Twn	Rng
Beyer Keil Wheatlands Inc																
G-091937	07/07/1997	A		I	700	134	300	176	230	05 21 1997	74 S	649 E	NWNW	07	15	50 W
Denovellis									**Dennis T**							
G-092484	09/03/1997	A		D	3		510	155	330	05 11 1997	1340 N	670 W	NESE	13	14	50 W
G-116183	06/20/2002	A		D	5		320	158	300	06 14 2002	910 N	65 W	SESE	13	14	50 W
Ehmke									**Margaret M**							
G-043846	03/04/1975	A		I	600	133	400	170	240	12 17 1974	330 S	330 E	NWNW	18	15	50 W
Kuehn									**Raymond**							
G-048319	01/07/1976	A		I	550	130	418	154	217	12 23 1975			NE Center	13	15	51 W
G-065767	04/30/1981	A		I	600	120	390	164	277	02 13 1981			SW Center	07	15	50 W
Larson									**Ellen E**							
G-024152	06/18/1965	A		I	600	120	344	160	220	05 15 1964	1840 N	2040 E	NESW	02	15	51 W
G-092149	07/24/1997	A		I	750	130	360	175	180	04 25 1997	1915 S	1310 E	SENW	02	15	51 W
Lessman									**Raymond H**							
G-046912	09/19/1975	X	1997-10	I	300	50	280	180	240	01 25 1975			SWSW	06	15	50 W
G-046912	12/01/1997	I		I	48	80	290	188		05 07 1997	765 N	998 E	SWSW	06	15	50 W
G-092324	08/14/1997	A		I	500	80	320	191	200	06 02 1997	740 N	1023 E	SWSW	06	15	50 W
McNurlin Land & Cattle Company																
G-072708	06/11/1990	A		I	750	130	420	205	240	05 25 1990			NW Center	31	16	50 W
Nebraska Board of Educational Lands & Funds																
G-069463	06/15/1984	A		I	1000	200	460	202	245	05 17 1984			NENE	36	16	51 W
Progress Rail Services Inc																
G-112087	09/07/2001	A		Q			175	149		08 30 2001	200 N	250 E	SWSW	34	15	50 W
Sidney									**City of**							
G-017339A	12/31/1958	A		P	1000		80	50	60	08 01 1957	30 N	2520 E	SESW	29	14	49 W
G-017339B	01/10/1980	A		P	1000		90	44	45	05 03 1979			SESW	29	14	49 W
G-021168	02/14/1961	A		I	200	15	115	37	83	07 24 1960	20 S	324 E	NWNW	33	14	49 W
G-022229	05/23/1963	A		I	446	40	113	22	43	05 13 1962	100 N	1320 E		31	14	49 W
G-027576	07/21/1967	A		I	1000	95	100	19	70	01 10 1967	1140 S	2630 W	NWNE	33	14	49 W
G-028490	12/20/1967	A		P	1050		86	33	34	1936	1300 S	2230 E	NENW	31	14	49 W
G-028491	12/20/1967	A		P	1050		85	29	31	1941	2085 N	1100 W	NESE	31	14	49 W
G-028492	12/20/1967	A		P	1250		90	30	32	08 1943	1750 S	1070 W	SENE	31	14	49 W
G-028493	12/20/1967	A		P	800		100	45	61	11 11 1947	1385 S	1001 W	SENE	06	13	49 W
G-028494	12/20/1967	A		P	1250		93	27	31	10 22 1954	1290 N	1452 E	SESW	31	14	49 W
G-028495	12/20/1967	A		P	1100		100	34	37	09 05 1961	70 N	2050 W	SWSE	31	14	49 W

Last Name	First Name																		
Reg. #	**Reg. Date**	**Status**	**X Date**	**Use**	**GPM**	**Acres**	**Total Depth**	**SWL**	**PWL**	**Completion Date**			**Footage N/S**	**FootageE/W**	**SubSection**	**Sec**	**Twn**	**Rng**
G-028496	12/20/1967	A		P	500		102	33	36				1250 S	1145 W	NENE	31	14	49 W
G-028497	12/20/1967	A		I	450		113	22	43	04	13	1962	75 N	1280 E	SWSW	31	14	49 W
G-028498	12/20/1967	A		I	200		53					1942	2545 N	1995 W	NWSE	32	14	49 W
G-028499	12/20/1967	A		P	75		68			04	08	1948	2545 N	2150 W	NWSE	32	14	49 W
G-028500	12/20/1967	A		P	3		390	84					558 S	2528 E	NENW	18	13	49 W
G-028501	12/20/1967	A		P	10		303			10	01	1958	1061 S	2472 W	NWNE	18	13	49 W
G-028502	12/20/1967	A		P	500		100	30	36			1950	175 S	1480 W	NWNE	32	14	49 W
G-051268	08/10/1976	A		P	1000		124	30	54	03	25	1976			NWNW	05	13	49 W
G-080136	01/28/1994	A		Q			139	84		04	17	1993	560 N	1485 E	SESW	29	14	49 W
G-081364	05/13/1994	A		P	750		155	80	110	02	12	1992	55 N	1280 W	SESE	17	14	49 W
G-089312	09/16/1996	A		P	1200		180	86	130	06	13	1996	1850 N	2500 W	NWSE	17	14	49 W
G-089313	09/16/1996	A		P	700		125	67	100	04		1993	890 S	2230 W	NWNE	20	14	49 W
G-090678A	02/21/1997	A		Q			87	82		02	04	1997	3395 N	715 W	SENE	29	14	49 W
G-090678B	02/21/1997	A		Q			143			02	07	1997	3395 N	719 W	SENE	29	14	49 W
G-090678C	02/21/1997	A		Q			60	54		02	10	1997	2470 N	1005 W	NESE	29	14	49 W
G-090678D	02/21/1997	A		Q			114			02	12	1997	2470 N	1009 W	NESE	29	14	49 W
G-090678E	06/17/1999	A		Q			56	43		04	19	1999	2310 N	795 W	NESE	29	14	49 W
G-090678E	02/21/1997	X	1999-04	Q			47	42		02	12	1997	2310 N	795 W	NESE	29	14	49 W
G-094952	02/27/1998	A		P	3		340	71	320	07	17	1997	400 S	2200 W	NWNE	18	13	49 W
G-100936	06/17/1999	A		Q			60	54		04	20	1999	1485 N	825 W	NESE	29	14	49 W
G-113747	01/02/2002	I		O	20		140	49	70	08	08	2001	1975 N	1625 W	NWSE	20	14	49 W
G-120333	03/05/2003	A		L			358	171		02	12	2003	194 N	233 W	SESE	36	16	51 W
G-120838	04/08/2003	A		L			380	201	210	03	27	2003	125 S	2011 W	NWNE	02	15	51 W
Talich												**Geraldine**						
G-081846	07/05/1994	A		D	10		260	142	200	05	26	1994	585 N	627 W	SESE	12	14	50 W
Van Vleet												**Rob Jr**						
G-081831	07/01/1994	A		D	50		380	176		11	17	1993	309 N	384 E	SWSW	35	15	50 W
Water Holes Ranch																		
G-081134	04/18/1994	A		I	650	132	300	173	182	04	04	1994			SE Center	01	15	51 W
G-085073	07/07/1995	I		S			267	170		06	07	1995	450 S	1500 W	NWNE	01	15	51 W

Reg.# - Number assigned to the well by the Department of Natural Resources

Reg. Date - date the well registration was completed

Status - current status of the well

Use - the intended use of the well

GPM - capacity of the well in gallons per minute

Acres - the number of acres the well is registered to irrigate

Total Depth - depth of the well in feet

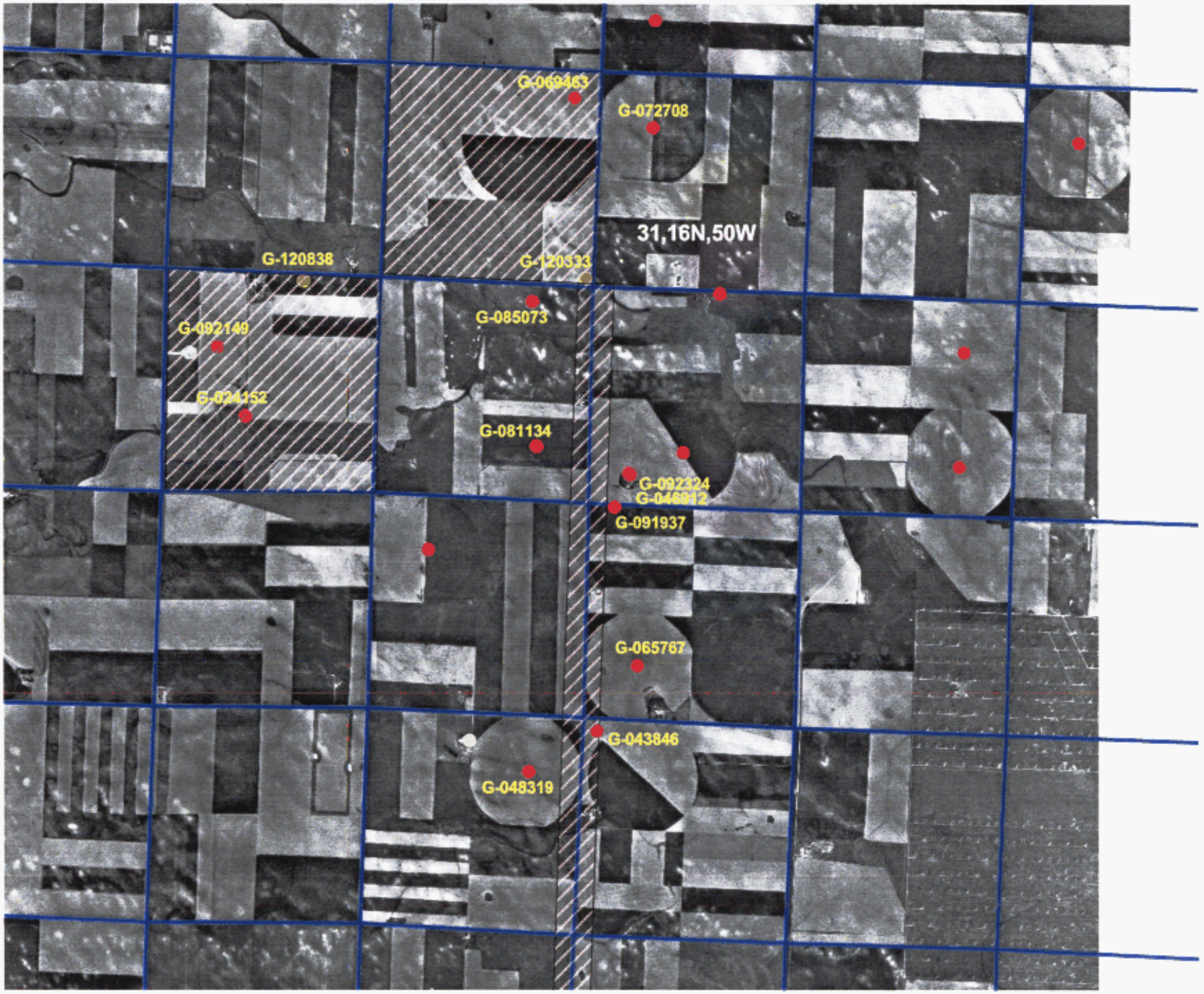
SWL - static water level in feet

PWL - pumping water level in feet

Completion Date - date the well was completed

The remaining columns give the legal description of the well

Proposed Sidney Wellfield Project Area



N
W
E
S

Wells
- Commercial
- Irrigation
- Public Water Supply
- Unprotected PWS
- Domestic
- Stock Watering
- Others

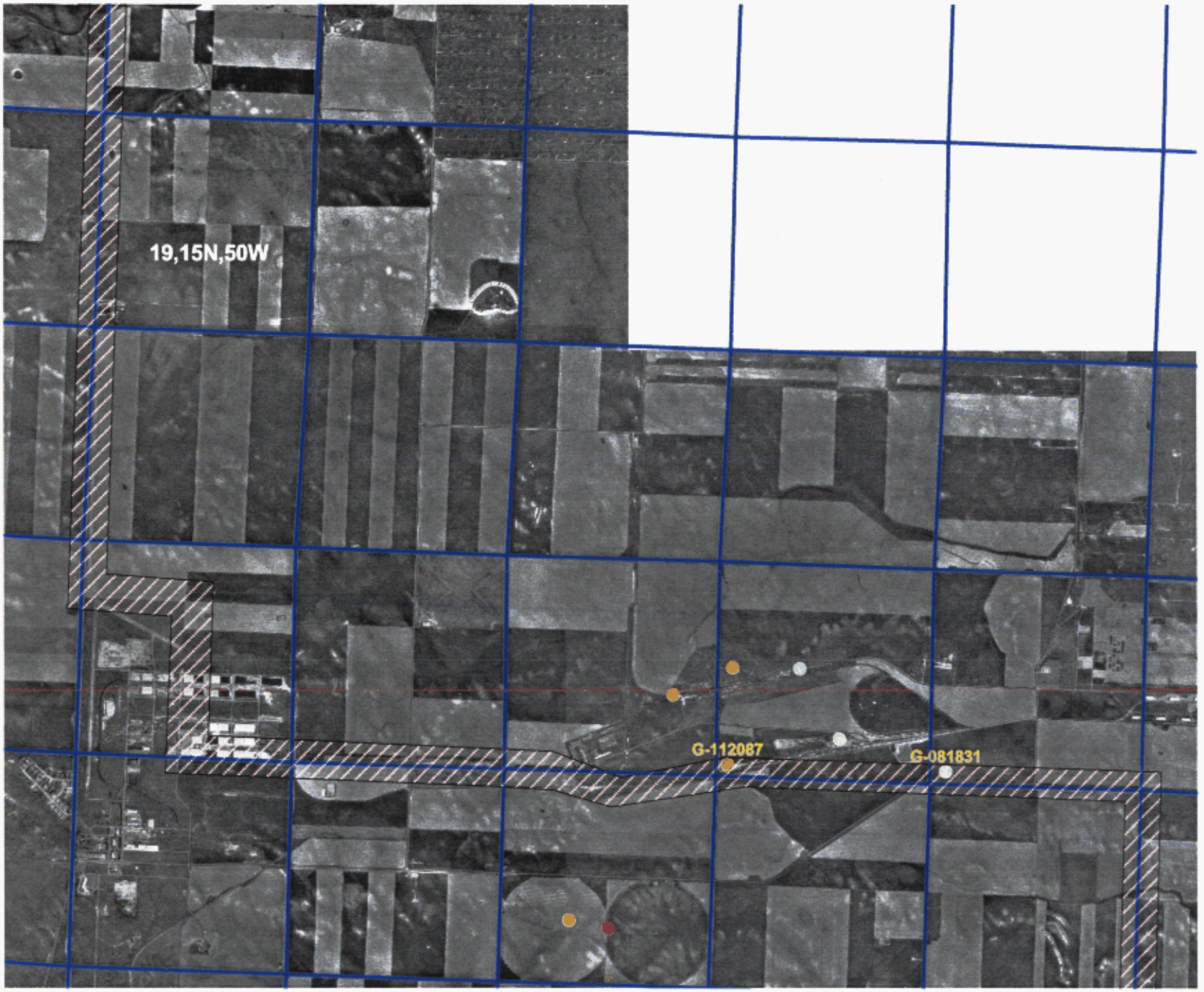
Sections

Area of proposed project

2 0 2 4

NEBRASKA Department of Natural Resources

Proposed Sidney Wellfield Project Area



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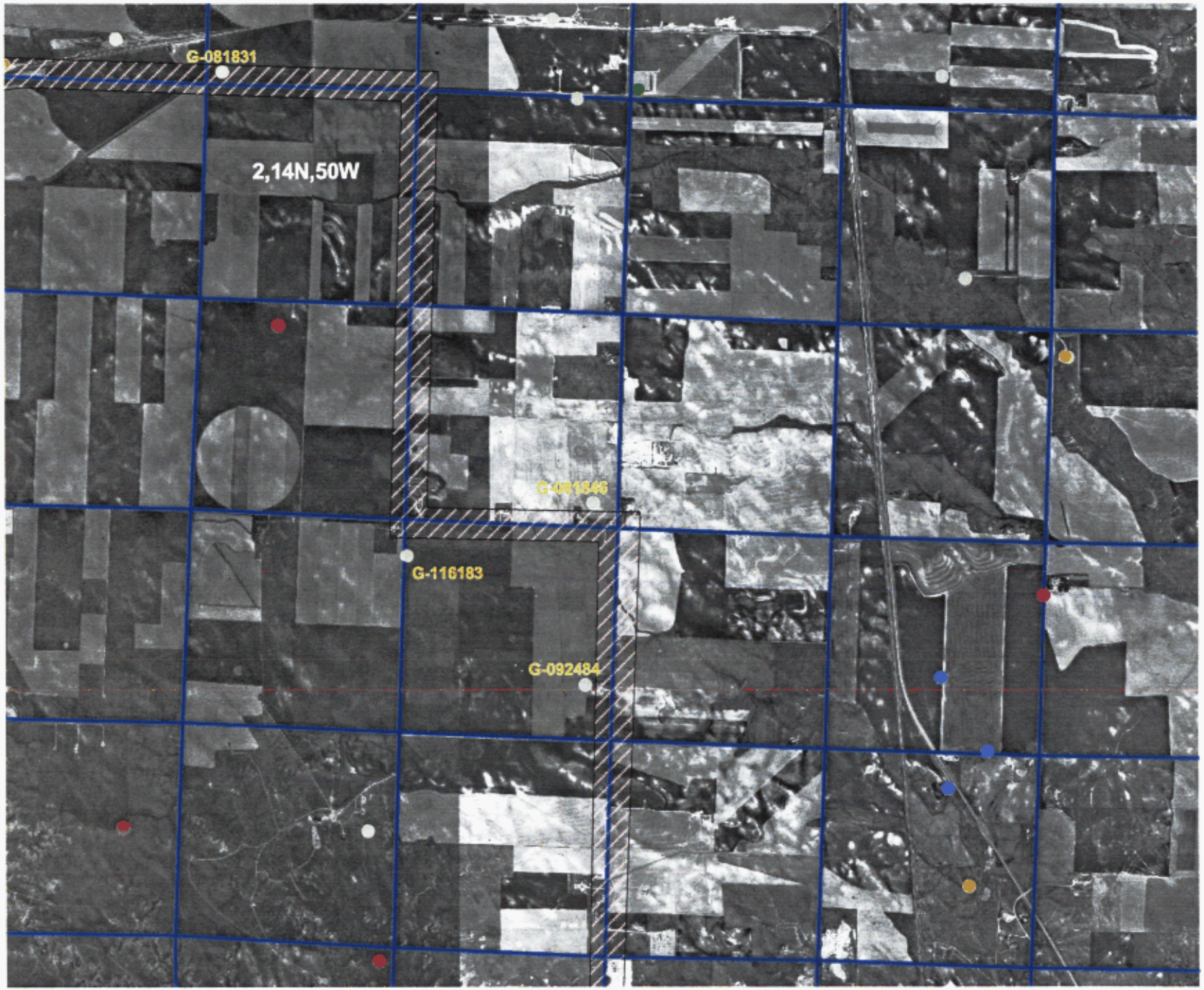
NEBRASKA
Natural Resources

Proposed Sidney Wellfield Project Area



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E
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Wells
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Area of proposed project

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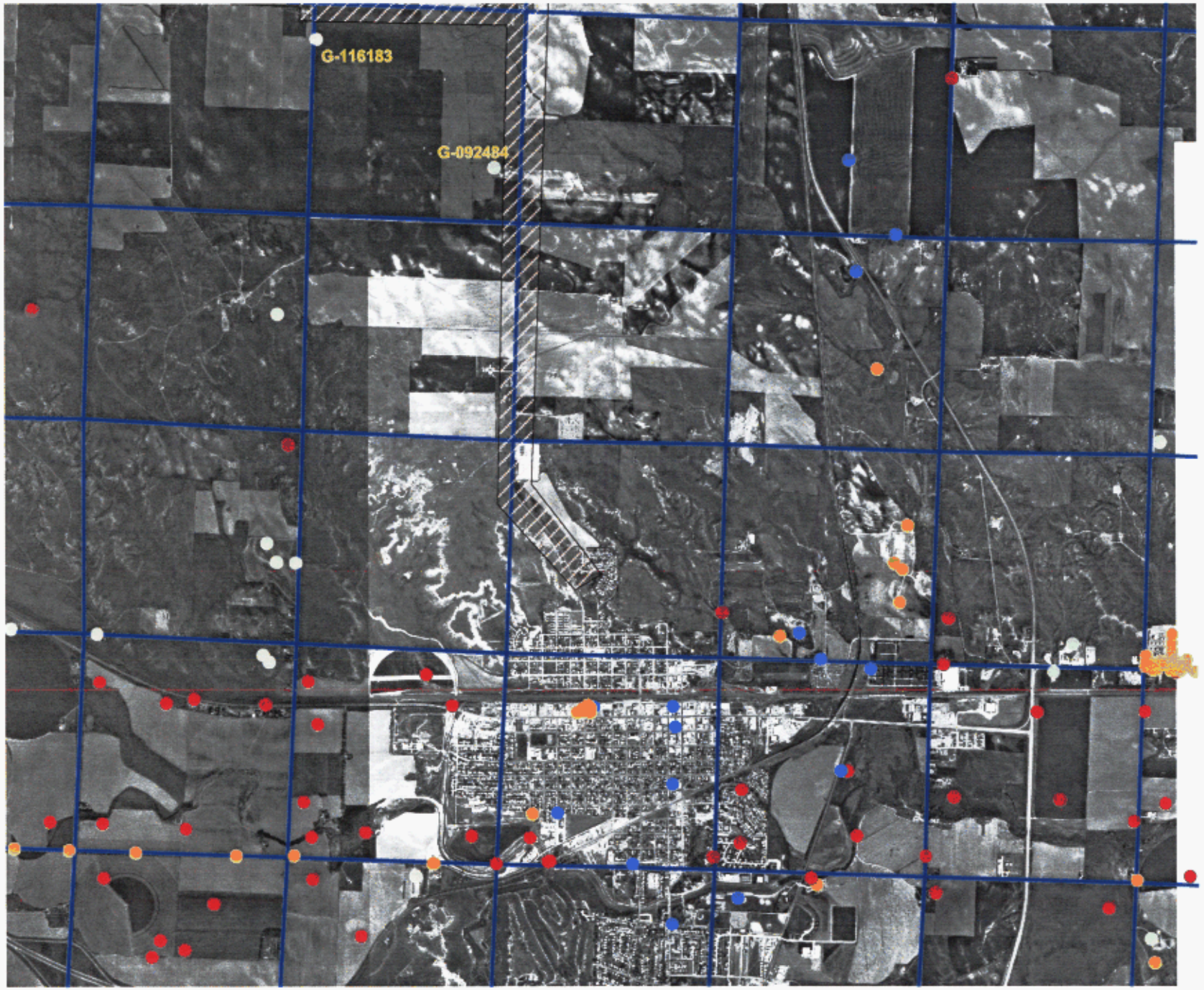
NEBRASKA Department of Natural Resources

Proposed Sidney Wellfield Project Area



N
W
E
S

Wells
- Commercial
- Irrigation
- Public Water Supply
- Unprotected PWS
- Domestic
- Stock Watering
- Others

Sections

Area of proposed project

2 0 2 4

NEBRASKA
Department of Natural Resources

April 28, 2003

Zachary Matyja
Jacobson Helgoth Consultants
12640 West Cedar Drive, Suite A
Lakewood, CO 80228-2005

RE: Proposed Water System Improvements for City of Sidney

Dear Mr. Matyja:

The Nebraska Department of Natural Resources has reviewed this proposed project and has the following comments:

Surface Water/Ground Water

Relating to the Environmental Assessment for the above stated project, the Department is interested in 1) registration of the new wells and well spacing, 2) permits for the new/existing wells, 3) accuracy of current well registrations for the City of Sidney, and 4) surface water rights.

To address the first item, a list of registered wells located near the project, four aerial photographs showing the location of these wells, and other relevant department publications are enclosed. If any change in the status, use, or ownership of any of these wells occurs due to the project, please contact the Department at (402) 471-2363. There are several irrigation wells, G-024152, G-092149, and G-069463, which appear to be located within 1,000 feet of the proposed well field. Any municipal well must be over 1,000 feet from any existing irrigation, industrial, or public water supply well owned by another entity. Current Nebraska law states that all new wells are to be registered within sixty days of completion by the water well contractor. Well owners should verify that this process has been completed in a timely manner.

In the case of the second item, the municipal and rural domestic ground water transfers permit is applicable. This permit applies to your situation because the ground water is being transferred off the overlying land for use in the City. Enclosed is a copy of the permit application and relevant information.

The next item concerns the accuracy of the Department's database. Included in the list of registered wells are the wells registered to the City of Sidney. Please look through the list and ensure that the City wells are listed accurately. If they are not, please contact Tina Kurtz at (402) 471-1697. If, as a result of the project, any of the listed active wells are going to be decommissioned, this Department should be notified of the abandonment of those wells.

There are no surface water rights in the immediate vicinity of the project.

A copy of your letter should be sent to the South Platte Natural Resources District as they are the local agency responsible for non-point source ground water quality.

Copies of forms, statutes, and rules can be found on the Department website:
http://www.dnr.state.ne.us/docs/groundwat.html

Floodplain Management

On page 4 of the Environmental Assessment, you explain that there are regulated floodplain areas which could be impacted by this project. The NDNR likes your plans to keep above-ground structures out of these floodplain areas. However, it appears that there will be stream crossings associated with pipeline between the proposed well field sites and the industrial park. A floodplain development permit should be obtained by Cheyenne County for the construction of these pipelines. Even though the finished project will have these pipes under ground, a development permit would cover the County should a flood occur during the construction of this project.

According to our records, the Cheyenne County floodplain administrator is:

Jim Pelster
Zoning Administrator
P.O. Box 217
Sidney NE 69162
308-254-5300

If you have any questions about this letter, please call me at (402) 471-3957.

Sincerely,

Steve McMaster
Water Resources Planner III

sm
enclosures

cc: South Platte NRD
Jim Pelster, Cheyenne County


G-084495
G-059697
10
G-106190
11
12
G-036279
G-040614
LOWER LOUP
Buffalo
15
14
13
G-004077
G-004077
G-054412
22
23
G-058779
24

Susan
Brian

Please review and draft a response for your area. Thanks
Ann

Jacobson Helgoth
CONSULTANTS

March 31, 2003

RECEIVED
APR 02 2003
DEPARTMENT OF
NATURAL RESOURCES

Ms. Ann Bleed
Deputy Director
State of Nebraska Department of Natural Resources
301 Centennial Mall South, 4th Floor State Office Building
PO Box 94676
Lincoln, NE 68509-4676

Re: Environmental Assessment – Cheyenne County, Nebraska
City of Sidney, Nebraska – Water 2003
JHC Project No. 106-46

Dear Ms. Bleed:

The City of Sidney, Nebraska is in the final planning phase of developing a water system improvement project. The City is seeking funding assistance from several Federal and State of Nebraska agencies. Jacobson Helgoth Consultants has prepared an environmental assessment and is completing a Preliminary Engineering Report (PER).

The purpose of this letter is to request you to review and give us a response regarding any environmental impacts that your Agency may identify for this proposed project pursuant to the National Environmental Policy Act (NEPA). We are particularly interested in your comments regarding livestock waste lagoons, new well construction, ground water transfers, and floodplain management around the project area.

The current water resources available for the City are experiencing quality and quantity problems, and the City has determined that alternate supplies are necessary. The proposed project consists of drilling new wells, building well houses, and running a new water pipeline along existing right-of-ways to the existing blending, disinfection, and distribution facility. The project is being proposed to bring high quality water in sufficient quantities to the City.

Enclosed is a map that depicts the proposed project's improvements and area of potential effect for all construction activities and a copy of the proposed environmental assessment providing a description of the work involved and the potential impacts.

12640 West Cedar Drive, Suite A, Lakewood, CO 80228-2005
303 986-0733 FAX 303 986-0956
http://www.jhcinc.com

We request that you advise us of any comments you may have regarding this project within 30 days, to enable the City of Sidney to proceed with finalizing the funding of this project and completion of the environmental assessment.

If you have any questions concerning this proposed project or if you need any further information, please do not hesitate to contact me at (303) 986-0733.

Sincerely,

JACOBSON HELGOTH CONSULTANTS, INC.

Zachary J. Matyja
Project Engineer

ZJM/nr
Enclosure

ENVIRONMENTAL ASSESSMENT
SIDNEY WATER SUPPLY 2003

for the

CITY OF SIDNEY, NEBRASKA

JHC Project No. 106-46

March 2003

(For Agency's Review)

Jacobson Helgoth
CONSULTANTS

TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT
SIDNEY WATER SUPPLY 2003
SIDNEY, NEBRASKA

1.0 BACKGROUND

The City of Sidney, Nebraska derives the bulk of its municipal water needs from the shallow Brule Aquifer. The Brule is a fractured siltstone aquifer with a shallow water table. Because of the nearness of the water table to the surface, the Brule is susceptible to contamination from non-point sources, including agricultural activities.

In the late 1980s it was discovered that the nitrate concentration in the Brule Aquifer Wells of the City of Sidney (City) exceeded the 10 mg/L standard for water quality. The recommended solution to meet the long-term water volume and quality requirements of the City was to locate a new municipal well field in the Ogallala Aquifer approximately 10 miles north of the City. The City chose to look for a water supply nearer to the City to avoid the high costs that would be incurred constructing a pipeline to this water source.

Therefore, in the early 1990s the City began its search for a closer water supply and was able to locate a source of low nitrate water of sufficient volume to blend with the Brule Aquifer water to meet Safe Drinking Water Regulations. The Northeast Well Field is located two miles northeast of the City and consists of three municipal water wells. The shallow alluvial sand and gravel aquifer is located in an erosional valley cut into the Brule Formation. The alluvial aquifer is limited in aerial extent and cannot meet the entire volumetric requirements of the City.

During the summer drought of 2002, the water table in the Brule Aquifer was lowered sufficiently that two of the City's municipal water wells could not be used. The City placed its residents and commercial customers on severe water restrictions for the rest of the summer. Intense agricultural development within the Lodgepole Creek Valley has resulted in a steady decline in the regional water table. The drought of 2002 accelerated the decline in the Brule water table. Although late summer thunderstorms resulted in a partial recovery of water levels, the City is concerned about not having a long-term reliable and safe source of water for its residents and commercial customers.

Because of these concerns, the City is in the process of finalizing locations for a water well field within the valley-fill portion of the Ogallala Formation in an area 14 miles northwest of the City. The Ogallala Aquifer in the well field area exhibits nitrate levels below 3.0 mg/L. Irrigation wells in the area can deliver up to 1,000 gallons per minute. The water table in the Ogallala Aquifer has shown minimal declines since development began 30 years ago. The City plans to develop two wells initially and to construct approximately 17 miles of pipeline to reach the water storage, blending, treatment and disinfection facilities on the north side of the City. The water pipeline will also pass

through the site of the former Sioux Army Depot that has been developed as an Industrial Park.

The Industrial Park has recently lost its water supply and a number of businesses are threatened unless they can be connected to a new water source. The well field will be located on portions of two tracts covering approximately one and three-quarters sections of land in western Cheyenne County. Well field development will involve the drilling and construction of up six municipal water wells. Individual wells will be spaced approximately 1,800 feet apart. The pipeline will be located in Cheyenne County using either county roads or utility right-of-ways for the majority of the distance; however, approximately one mile will be located on portions of the former Sioux Army Depot. Figure 1-1 shows the general location of the proposed well field and the proposed pipeline route to the City's existing storage, blending, treatment, and distribution facility.

This document provides an assessment of the environmental impacts of the proposed well field and transmission pipeline.

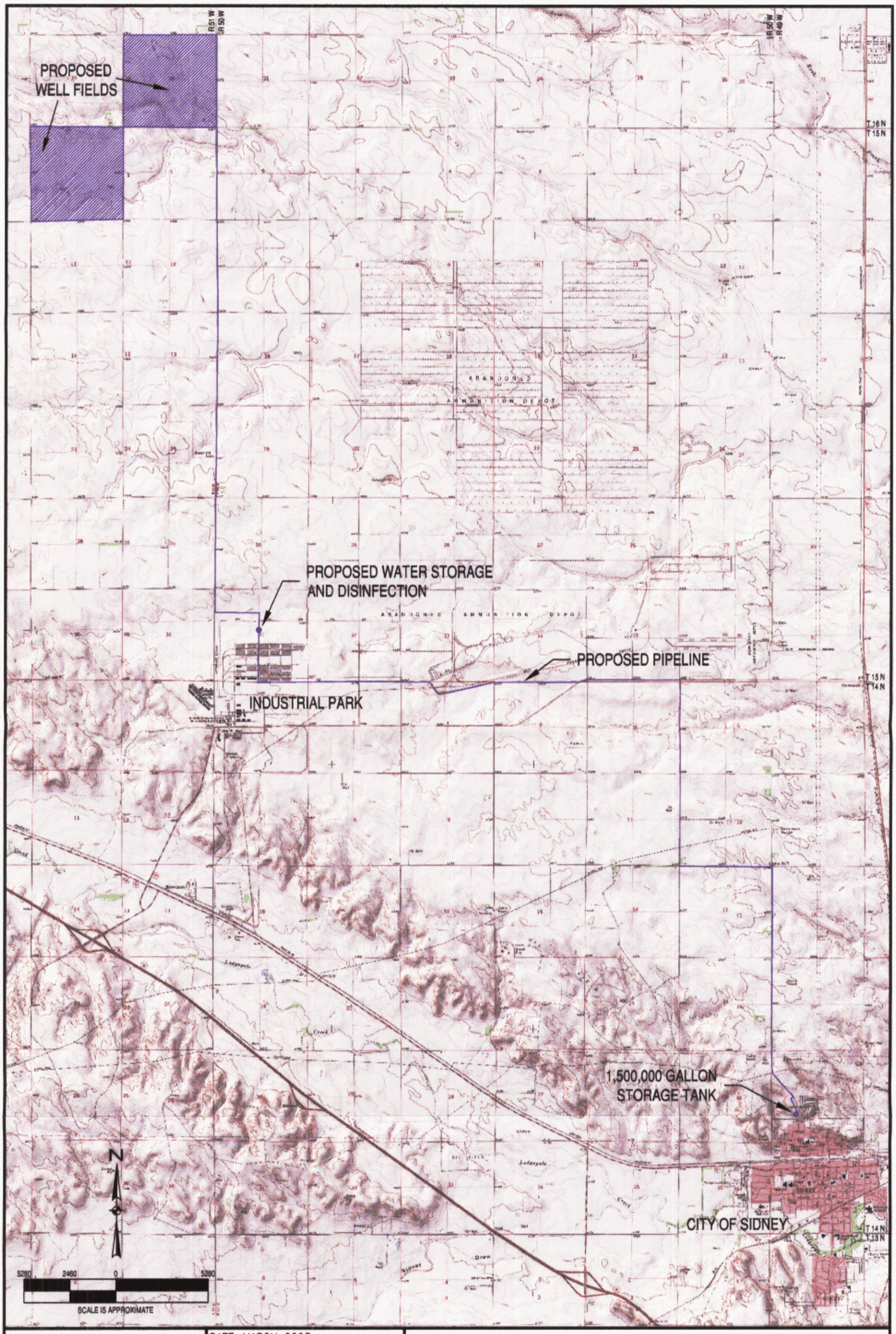
2.0 PROJECT ABSTRACT

2.1 Project and Area Description

The City is located in the southwestern portion of the Nebraska Panhandle. Geographically this area is the Cheyenne Table, a region of flat to gently rolling topography that lies between the Lodgepole Creek Valley and the North Platte River Valley. Intermittent streams produce low-lying areas on this undulating topographic surface. The Ogallala Formation is present at the surface across the tablelands. Soil thickness ranges from zero, in areas of lime-cement sand outcrops, to two feet. Because of the thin soil horizon, most of the farmland is used for winter wheat production. In areas of thicker soil development, irrigated grass and corn are grown. In areas of very thin soil cover, the surface may be used for limited grazing pasturage. There are no year-round lakes, flowing streams in the well fields, or pipeline right-of-way areas. Both tracts being considered for well field development have been used for agriculture and have been plowed for a number of years. The City is in the process of acquiring the selected well fields from the current property owners. Figure 1-1 shows the proposed well fields and pipeline.

2.2 Existing Conditions and Trends

The two sections of land selected for well field development are currently being used for agriculture. The Section 36 tract has a center-pivot irrigation system that has been used to irrigate grass, wheat, and corn in 200-acres of the northeast part of the tract. The southern one-third of the Section 36 is pastureland and the remaining acreage is used for dry-land wheat. Section 2 has a center-pivot



Jacobson Helgoth
CONSULTANTS

FILE NO.: North Well Topo.dwg

DATE: MARCH 2003	
SCALE: APPROXIMATE	
JHC PROJ. NO.: 106-46	
DRAWN BY: ZJM	
CHECKED BY: TTS	
FIGURE: 1-1	

FIGURE 1-1
SITE AREA

irrigation system in the southwest quarter that irrigates corn for cattle feed. The remaining portion of the property is used for dry-land wheat, milo, and pasture. With the exception of the southern one-third of Section 36, the remainder of the two tracts is plowed for agricultural crops on a regular basis. Population density in the well field area is one occupied dwelling for every two square miles.

The industrial park area includes warehouse, light manufacturing, and rail car repair and grain storage facilities. The entire industrial park area covers portions of approximately seven square miles. Over 1,000 individuals work in the industrial park area.

The pipeline lies within county road or utility right-of-way, or within the Industrial Park. The entire length is running along roadways or fence or utility lines. The pipeline will not change the usage of any of the property adjacent to it.

3.0 STATUTORY REQUIREMENTS

3.1 Historic Preservation

A review of the National Historic Landmarks Program Database (http://tps.cr.nps.gov/nhl/result.cfm) provided by the National Park Service found no historic landmarks in the area.

A review of the Nebraska National Register Sites (http://www.nebraskahistory.org/histpres/nebraska/cheyenne.htm) provided by the Nebraska State Historical Society listed five rural sites and four urban sites. The Wes Stevens Site and the Herboldsheimer Ranch are near Potter, Nebraska, information regarding the exact location was not given to us after an inquiry to the Nebraska State Historical Society, so it is unknown if they are in the project area. The Sioux Ordinance Depot Fire and Guard Headquarters is in the Industrial Park, but will not be effected by the pipeline. Deadwood Draw is a creek draw extending from the Lodgepole Creek in Sidney to the northwest. The pipeline will not enter the draw. The final site is the Water Holes Ranch. This site is located in the northwest quarter of Section 1 Township 15 North, Range 51 West, immediately south of one of the proposed well field sections. The pipeline will run adjacent to the ranch in the right-of-way of the county road. This right-of-way has been disturbed by the shoulder of the road; and therefore, the pipeline will not travel through any historical areas. The urban sites are located in the City and Lodgepole and the pipeline will not come near them.

A review of the National Register of Historic Places (http://www.nationalregisterofhistoricplaces.com/ne/Cheyenne/state.html) located the same places of concern as the Nebraska National Register Sites.

Requests for Comment have been made to the Cheyenne County Historical Association and the Nebraska State Historical Society regarding the historic preservation of the project area.

3.2 Floodplain Management

A search of the Flood Insurance Rate Maps for Cheyenne County, Nebraska determined that some portions of the proposed well field sections are within the 100-year floodplain, as are three places along the proposed pipeline. A copy of the FEMA maps around the project area is shown in Figure 3-1. Caution will be taken regarding these areas in the well fields, and the well houses and any other aboveground structures will be located outside this floodplain. The pipeline will not contain any aboveground structures; however, care will be taken to keep all valves, pump stations, or other appurtenances outside of the floodplains.

Requests for Comment have been made to the Nebraska Department of Natural Resources (NDNR) Bridgeport Field office and main office, as well as the U.S. Army Corps of Engineers (USACE) Kearney Field office and the Omaha District office regarding floodplain management around the project area.

3.3 Wetlands Protection

Because the proposed well fields are located on disturbed farmland or pastureland, it is not expected that any of these are wetlands. Because the pipeline is located along county or utility right-of-ways, it is also expected that this will not cross any wetlands.

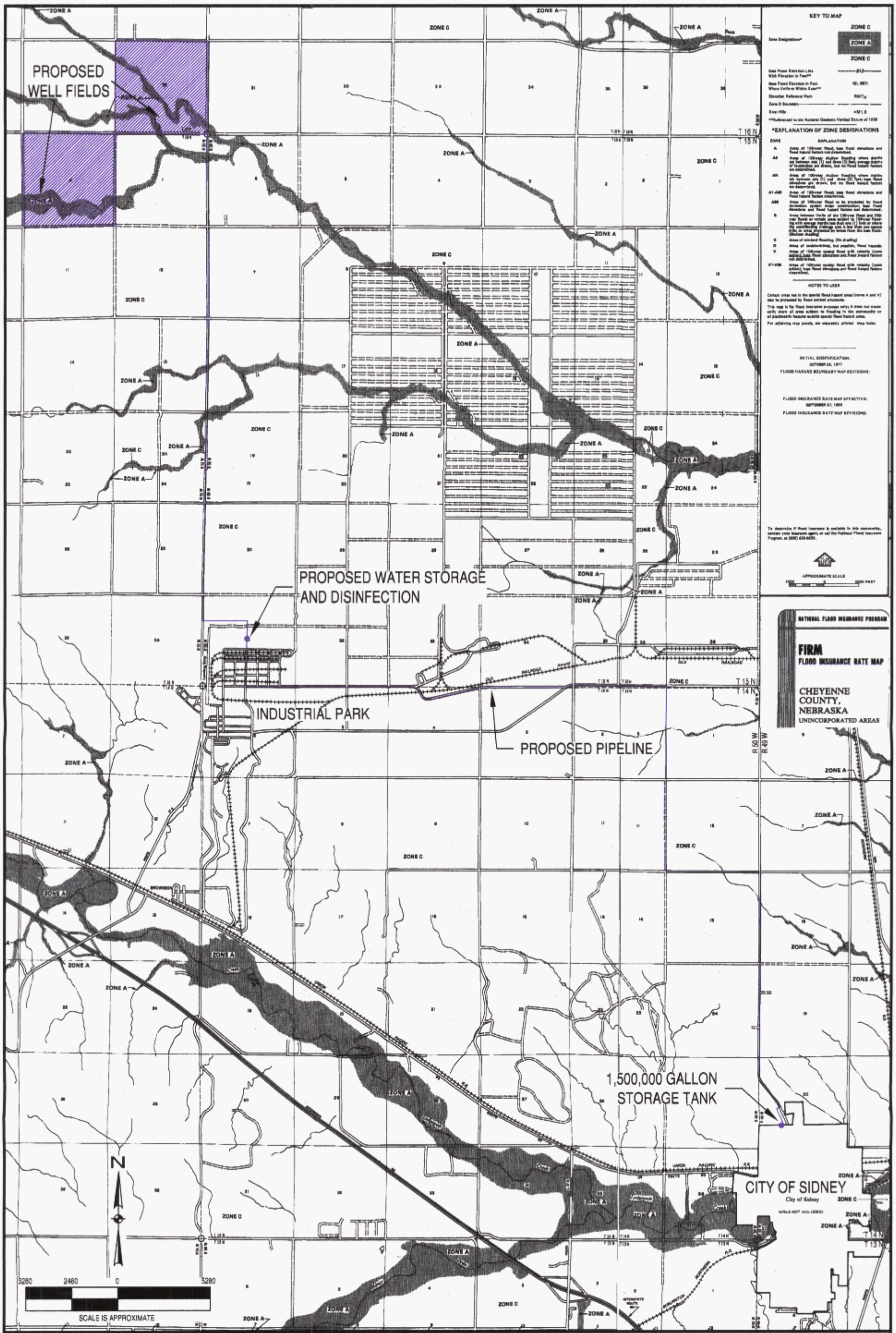
Requests for Comment have been made to the USACE Kearney Field office and Omaha District office as well as the U.S. Fish and Wildlife Service (USFWS) Nebraska Field office regarding wetlands identification, protection and construction permits around the project area.

3.4 Noise Abatement and Control

The proposed project will not cause an excessive amount of noise. The well houses will contain electrically driven pumps that are very quiet, as well as diesel-powered back-up engines which will contain mufflers to contain the noise. However, the well houses will be over half a mile from any occupied areas, so noise will not be a concern. The pipeline is underground and will not contain any noise-causing equipment.

3.5 Air Quality

The proposed project will not influence the air quality. The electric motors and pipeline will not have any emissions, and the back-up engines will be installed with proper pollution control devices.



Jacobson Helgoth CONSULTANTS

DATE: MARCH 2003	
SCALE: APPROXIMATE	
JHC PROJ. NO.: 106-46	
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CHECKED BY: TTS	
FIGURE: 3-1	

FILE NO.: FEMA North Line.dwg

FIGURE 3-1
FEMA FLOOD MAP

3.6 Thermal Explosive Hazards

The proposed project will not include any thermal explosive hazards, nor will it affect any existing hazards in the project area. A Request for Comment has been made to the Nebraska State Fire Marshall regarding the concerns of thermal and explosive hazards around the project area.

3.7 Airport Clear Zones

The proposed project is not located near any existing airports. The nearest airport is Sidney Municipal Airport, southwest of the City. The proposed project will not affect this airport. A Request for Comment has been made to the Nebraska Department of Aeronautics Planning and Engineering Division as well as Sidney Aviation regarding runway clear zones around the project area.

3.8 Water Quality

As stated in Section 1.0, the City currently obtains water from two sources. The first source, the Brule Aquifer has good water quality, however the nitrates in the water exceed the 10 mg/L standard for water quality. The second source, an erosional valley cut in the Brule Formation has good water quality with low nitrates. The proposed source of water is the Ogallala Aquifer. This aquifer exhibits nitrate levels below 3.0 mg/L and good overall water quality. Because the nitrate levels are low, this is a good source of water for the City. The water quality will be acceptable, and using the existing disinfection facilities, the water can be treated to acceptable levels and be distributed to the City without any water quality concerns. Requests for Comments have been made to the Nebraska Department of Environmental Quality (NDEQ) Small Business and Public Assistance Coordinator, as well as the Nebraska Health and Human Services System (NHSS) regarding the water quality of the proposed project.

3.9 Coastal Areas

There are no coastal areas within the project area.

3.10 Endangered Species

The proposed project will be placed within disturbed farming and pasture areas and along existing county and utility right-of-ways, and therefore will have little impact on the flora or fauna in the area. The well houses and sites take up very small areas of land (less than 5,500 square feet each) and should have little, if any affect on the species of the area.

The only potential concern is a black-tailed prairie dog colony that is located on one of the proposed well field properties. Project layout and construction techniques will be developed to prevent disruption of this colony.

Requests for Comments have been made to the USFWS Nebraska Field office and the Nebraska Game and Parks Commission regarding endangered and migrant species around the proposed project.

3.11 Wild and Scenic Rivers

A search of the National Wild and Scenic Rivers System (http://www.nps.gov/rivers/wildriverslist.html#ne) indicates that there are no wild or scenic rivers in the project area. A Request for Comment has been made to the National Park Service (NPS) Midwest Regional office regarding wild and scenic rivers around the project area.

3.12 Farmland Protection

The proposed project will use current farm land and range land for the well fields. Section 2.2 describes these proposed sections. The pipeline will be placed below ground at a depth where it will not interrupt any farming practices in the area. All above ground appurtenances will be placed to avoid the interruption of any farming practices in the area. The well houses will be small and take up little land area. All practical attempts to minimize loss of farmland will be taken. The future development of wells will require the elimination of center pivot irrigation on the subject properties. Requests for Comments have been made to the National Resources Conservation Service (NRCS) State Conservationist and the South Platte Natural Resource District (NRD) District Conservationist regarding the impacts on prime farmlands, range land, and farmland protection around the project area.

3.13 Environmental Justice

The proposed project will not produce any environmental justice concerns. All structures will be placed in uninhabited areas, and the services provided by the proposed system will be available to everyone in the City, equally.

3.14 Solid and Hazardous Waste

The proposed project will not produce any solid or hazardous waste nor will it interfere with any hazardous sites in the area. A Request for Comment has been made to the NDEQ Small Business and Public Assistance Coordinator regarding hazardous sites and solid and hazardous waste for the project area.

3.15 Formally Classified Land

As stated in Section 3.1, the Water Holes Ranch is the only potential property area of concern, and the project will not affect that site. After searching the Nebraska Game and Parks Commission, National Historic Landmarks, National and Nebraska Registers of Historic Places, Wild & Scenic Rivers, and the Natural Center for Cultural Resources Database, we did not find any other potential Formally Classified Land. However, requests for information were made to Local Native American Tribes, Nebraska and Cheyenne County Historical Associations, Nebraska Game and Parks Commission, and the National Park Service regarding any classified lands within or around the project area.

3.16 Former Sioux Army Depot

The former Sioux Army Depot is a potential area of concern for the proposed project. The depot has been abandoned and is no longer in use. Most of the former depot property has been sold. The Industrial Park that the proposed pipeline would pass through is located on parts of the depot. In October 2002, the U.S. Army Corps of Engineers had a Final Removal Report completed for the depot site. A Request for Comment regarding potential impacts for the project has been made to the Omaha District of the Corps of Engineers.

3.17 Other State and Local Laws and Regulations

No other state or local laws or regulations are of concern for this project. However, Request for Comments have been made to Cheyenne County, the City of Sidney, and the Village of Gurley regarding the recreational impacts of the proposed project.

4.0 ENVIRONMENTAL CHECKLIST

4.1 Conformance with Comprehensive Plans and Zoning

The proposed project will not negatively effect any of the comprehensive plans that may be in place. Zoning should not be an issue as a majority of the well field areas will still be able to be farmed. Impacts will be minimal, however, Requests for Comments have been made to the Cheyenne County Planning Commission, the Village of Gurley, and the City Manager for the City of Sidney regarding conformance with any comprehensive plans and zoning in the proposed project area.

4.2 Compatibility and Urban Impact

The proposed project will have no effect on any urban areas. The project will insure that the City will have a high quantity of quality water available for many years.

4.3 Slope

The proposed project will have no effects on the slope of any land areas.

4.4 Erosion

The proposed project will not have any effect on the erosion potential of any land areas.

4.5 Soil Stability

The proposed project will not have an effect on the stability of the soil in the project area.

4.6 Hazards and Nuisances Including Site Safety

The proposed well houses will be kept locked at all times to avoid any potential attractive nuisances or safety hazards. The pipeline will be buried, and any above ground appurtenances will be designed with tamper proof measures to ensure that there are no safety hazards.

4.7 Energy Consumption

Energy consumption of the project will be minimal. The pumps will be driven by energy efficient electric motors and equipped with efficient diesel back-up engines.

4.8 Effects of Ambient Noise on Project and Contribution to Community Noise Levels

The primary electrical motors are very quiet and will be inside well houses to minimize noise levels outside. Back-up diesel engines will be installed with mufflers to ensure minimization of ambient noise. The wells are placed in uninhabited areas, so they will not have an effect on community noise levels (see Section 3.4 for more information).

4.9 Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels

The electrical motors will not produce any emissions, and the diesel engines will be installed with pollution prevention measures to ensure minimum effects on air quality. Because the wells are placed in uninhabited areas, they will have no effect on the community pollution levels (see Section 3.5 for more information).

4.10 Visual Quality – Coherence, Diversity, Compatible Use and Scale

The well houses will be designed to be visually appealing. The design of the well houses will be such that they blend in with the surroundings as much as possible. The piping will be buried and the ground surface above the piping will be re-landscaped to existing conditions, at a minimum.

4.11 Demographic Character Changes

The project will not effect the demographics of the area.

4.12 Displacement

The project will have a beneficial effect on displacement. As described in Section 1.0, approximately 1,000 employees from 27 companies in the Industrial Park have recently had water supply problems and are in fear of being displaced because of the lack of available water. The proposed project will enable the Industrial Park to be supplied with water, alleviating the current supply problems and allowing the companies to remain at their present location.

4.13 Employment and Income Patterns

As described in Section 4.12, the employment and income patterns in the City are endangered due to the water supply problems at the Industrial Park. This project will solve this problem and ensure that employment and income patterns do not change. The project may even encourage an increase in employment opportunities as other companies see the abundance of quality water available.

4.14 Educational Facilities

The proposed project will have no effect on the educational facilities in the area.

4.15 Commercial Facilities

The proposed project will have no effect on commercial facilities in the area.

4.16 Health Care

The proposed project will have no effect on health care in the area.

4.17 Social Services

The proposed project will have no effect on social services in the project area.

4.18 Solid Waste

The proposed project will not produce any solid waste.

4.19 Waste Water

The proposed project will not produce any wastewater.

4.20 Storm Water

The proposed project will have no effect on storm water in the area. Any additional run-off from the well houses will be minimal and be received by the land areas around them. When crossing or paralleling drainage ditches with the pipeline, care will be taken to minimize the effects on their effectiveness.

4.21 Water Supply

As previously described, this project will have many beneficial effects to the water supply for the City. The water that will be pumped out of the Ogallala Aquifer is high quality, with low nitrates, and the supplies are of sufficient quantity to provide for the City well into the future.

This project will allow the City to not totally rely on the Brule Aquifer waters or the Northeast Well Field. These wells can be used as a supplemental water supply, can be taken off the distribution system line, and could be converted to irrigation wells for the City's and County's Parks and recreation areas, or other landscaped and irrigated areas.

4.22 Public Safety

4.22.1 Police

The project will have no effect on the police departments in the area.

4.22.2 Fire

The project will provide assurance of sufficient water supply to allow for increased fire flows for emergencies. This supply will be available throughout the City and the Industrial Park through the existing distribution system.

4.22.3 Emergency Medical

The project will have no effect on the emergency medical operations in the area.

4.23 Open Space and Recreation

4.23.1 Open Space

The project will be installing well houses on existing open space in the project area; however, these well houses will be small and few in number, so the effects will be minimal.

4.23.2 Recreation

The project will have no negative effects on recreation in the area. However, as described in Section 4.21, the project may allow for the use of the Brule well water to be used as irrigation water for the City's recreational areas.

4.23.3 Cultural Facilities

The project will have no effect on cultural facilities in the area.

4.24 Transportation

The project will have no negative effects on transportation in the area. The construction of the pipeline, along county roads, may cause one lane of traffic to be closed temporarily; however, these roads are not well traveled and the effect will be minimal.

4.25 Water Resources

The project will allow more water resources to be available to the City. It will also take the City's water demand off the Brule Aquifer and allow farmers to use the Brule Aquifer without concern to the City. Because the Ogallala Aquifer is very expansive, the City's use of this water will have very little effect on any of the current or future users of that water.

4.26 Surface Water

The proposed project will have no effect on surface waters in the area. Care will be taken when the pipeline crosses any intermittent streams to avoid disruption of the natural flow.

4.27 Unique Natural Features and Agricultural Lands

The proposed project will be placed entirely on disturbed areas. Section 3.12 describes farmland protection in the area. There will be no impact on any unique natural features or agricultural lands. Requests for Comments have been made, as previously described, regarding historic preservation, national landmarks, wild and scenic rivers, prime farmlands, forests, range land, farm land

protection, state parks and recreation areas, fisheries and wildlife management areas, and wetlands in and around the project area.

4.28 Vegetation and Wildlife

Section 3.10 describes the project's impact on endangered species. There is minimal vegetation in the well field areas, and the pipeline will follow existing right-of-ways, so no unique vegetation or wildlife will be effected. Requests for Information have been made to the NRCS, South Platte NRD and USFWS regarding vegetation and wildlife impacts of the proposed project.

4.29 Odor

The proposed project will not produce any odors. The water pumped from the aquifer will not contain odors and the well houses will not produce any odors.

4.30 Public Participation

As the project progresses, public meetings will be held regarding this project, and public opinion will be received and taken into consideration throughout the design and construction of this project.

4.31 Construction and Permits

During the design process of this proposed project, steps will be made to ensure that all parts of the project meet the required codes and standards. All necessary construction and building permits will be received before construction will begin. A Request for Comment regarding planning and zoning has been made to Cheyenne County to ensure that the project will be in conformance with all requirements.

5.0 CONCLUSIONS

5.1 Summary of Findings and Conclusions

The purpose of this project is to provide the City with a new source of water. The benefits to this project are all related to this goal. First, the Ogallala Aquifer is an extensive aquifer with adequate water to supply the City with water well into the future. Secondly, the Ogallala water is high quality, and would only need to be disinfected before being supplied to the City. The nitrate levels are below 3.0 mg/L, well below the 10.0 mg/L limit set for drinking water. Nitrates are the concern with the City's existing water supply, the Brule Aquifer. By establishing the Ogallala water as the primary source for the City's water, demand on the Brule will be released, allowing it to be used by farmers for irrigation. The existing City wells in the Brule could be converted to use for the

watering of parks and other irrigated areas within the City. Establishment of a reliable water supply will also allow for a larger quantity of water to be available for fire flows, if necessary, in an emergency. The final benefit of this project will be the ability to assure the businesses in the Industrial Park, northwest of the City, that they will have an adequate water supply available. This area is presently undergoing water supply issues and the proposed project will alleviate the area of these issues, thereby securing the 1,000 jobs in the area and avoid disrupting the employment or income patterns of the area.

The adverse effects of this project are minimal. The only above ground structures will be the well houses, which will be constructed to minimize farmland, wildlife, and open space impacts. All of the areas to be constructed on have been disturbed by farming, transportation, or utilities in the area, so there is a minimal effect on natural features of the area. Overall, the benefits of this project outweigh the minimal adverse effects that will be produced.

5.2 Alternative and Project Modifications Considered

In the investigation for an alternative water supply for the City, six areas were considered. Development of each of these areas would contain the same adverse effects as the selected project; however, the benefits accompanying the alternatives are different.

The first alternative considered was the Fractured Brule Aquifer. This is the current primary source of water for the City. As described in Section 1.0, problems regarding high nitrates, as well as unreliable quantities of water in this aquifer, have produced problems for the City.

The second alternative is the Northeast Well Field. This well field is currently used for supplemental low-nitrate blending water for the City. This water has a high quality, but extent of the aquifer is limited, and further wells in this aquifer would cause rapid declines in available water.

The third alternative was the Sidney Draw. This is a shallow alluvial aquifer, like the Brule, and has many contaminants in it from agriculture and oil and gas operations in the area. This water would require extensive and expensive treatment before distribution to the City.

The fourth alternative is the Southern Ogallala. This area has high quality water available, but the sediments in the area make it difficult to develop wells in the aquifer.

The fifth alternative considered was the Chadron Formation. This formation also has water quality issues, such as high sodium and trace metals. This would also necessitate treatment techniques be installed before distribution to the City.

Because of the limitations described above, the Northern Ogallala Channel was selected as the source for the City's new water supply.

The sixth alternative is the Northern Ogallala Channel, which is the Proposed Alternative.

5.3 No Action Alternative

If this project is not initiated, there will be many changes in the City. The unreliability of the wells in the Brule formation would place the City at risk of not having sufficient supplies for the residents or for fire flows. Because the Northeast Well Field has a limited capacity as well, future dry years could cause problems in both well fields, leaving the City without a source of water. In addition, the nitrate problems in the Brule water will continue to be a major concern.

The final problem would be that the Industrial Park would still lack a water supply. If this problem is not solved in the near future, the 27 businesses located in the park, as well as the 1,000 employees could be displaced and required to find new locations, causing a major disruption in the economy and employment of the City. No action is not an alternative for this project.

5.4 Additional Studies Performed

Jacobson Helgoth Consultants is in the process of developing a Preliminary Engineering Report for the proposed project.

5.5 Mitigation Measures Needed

As described throughout the report, many Requests for Comment and Requests for Information have been made to all of the known governing bodies regarding any potential impacts. A list of these contacts in Appendix A. After reviewing any comments received from these agencies, proper steps will be taken to minimize all the potential adverse effects of the project as described above.

6.0 SUMMARY

Based upon the information presented in this Environmental Assessment, no significant adverse impacts to the environment have been identified. Further, the use of the Ogallala Aquifer as the City's primary source for drinking water will result in a more reliable source of high quality water for the City, well into the future.

APPENDIX A

REQUEST FOR COMMENTS LIST

APPENDIX A
REQUEST FOR COMMENTS LIST

Title:	Chairperson
Company:	Arapahoe Tribe of the Wind River Reservation
Department:	Northern Arapahoe Business Council
Area of Concern:	the impacts on Native American land around
Title:	NAGPRA Contact
Company:	Cheyenne and Arapahoe Tribes of Oklahoma
Department:	
Area of Concern:	the impacts on Native American land around
Title:	Safety and Building Inspector
Company:	Cheyenne County
Department:	County Planning Comission
Area of Concern:	conformance with comprehensive plans and zoning around and the concerns of thermal and explosive hazards and storage tanks around
Title:	
Company:	Cheyenne County Historical Association
Department:	Cheyenne County Museum
Area of Concern:	the historic preservation of
Title:	
Company:	City of Sidney
Department:	Parks, Cemetary, and Pool
Area of Concern:	the recreational impacts of
Title:	City Manager
Company:	City of Sidney
Department:	
Area of Concern:	conformance with comprehensive plans and zoning around
Title:	NEPA Team Leader
Company:	U.S. Environmental Protection Agency
Department:	Environmental Review Coordination Section
Area of Concern:	FONSI and NOI/RROF notices for
Title:	Division Secretary
Company:	National Park Service
Department:	Midwest Regional Office
Area of Concern:	wild and scenic rivers and national landmarks around

Title:	State Conservationist
Company:	Natural Resources Conservation Service
Department:	
Area of Concern:	the impacts on prime farm lands, forests, range land, and farm land protection around
Title:	Engineer
Company:	Nebraska Department of Aeronautics
Department:	Planning & Engineering Division
Area of Concern:	runway clear zones and accident potential zones around
Title:	Deputy Director of Programs
Company:	Nebraska Department of Environmental Quality
Department:	
Area of Concern:	the impact to air quality, hazardous sites, solid and hazardous waste, and water quality including surface water, ground water, and effluent discharges for
Title:	Deputy Director
Company:	State of Nebraska Department of Natural Resources
Department:	
Area of Concern:	livestock waste lagoons, new well construction, ground water transfers, and floodplain management around
Title:	Water Resources Planner
Company:	Nebraska Department of Natural Resources
Department:	
Area of Concern:	livestock waste lagoons, new well construction, ground water transfers, and floodplain management around
Title:	
Company:	Nebraska Game and Parks Commission
Department:	Heritage Division
Area of Concern:	the impacts on threatened and endangered species around
Title:	
Company:	Nebraska Game and Parks Commission
Department:	Reality & Envrionmental Services Division
Area of Concern:	the impact on state parks and recreation areas, and fisheries and wildlife management areas around
Title:	Director
Company:	Nebraska Health and Human Services System
Department:	Regulation and Licensure
Area of Concern:	the water quality of

Title:	Deputy Director
Company:	Nebraska State Historical Society
Department:	
Area of Concern:	the historic preservation of

Title:	NAGPRA Contact
Company:	Northern Cheyenne Tribe
Department:	
Area of Concern:	the impacts on Native American land around

Title:	
Company:	Sidney Aviation
Department:	
Area of Concern:	runway clear zones around

Title:	District Conservationist
Company:	South Platte NRD
Department:	
Area of Concern:	the impacts on prime farmlands, forests, range land, and farm land protection around

Title:	Nebraska State Program Manager
Company:	U.S. Army Corps of Engineers
Department:	Wehrspann Field Office
Area of Concern:	wetlands identification, protection, and construction permits, floodplain management, as well as potential effects of the Souix Army Depot around

Title:	Regional Wetlands Coordinator
Company:	U.S. Fish and Wildlife Service
Department:	Region 6 - Mountain Prarie Region
Area of Concern:	wetlands protection around

Title:	
Company:	U.S. Fish and Wildlife Service - Nebraska Field Office
Department:	Ecological Service Office
Area of Concern:	endangered and migrant species, fish and wildlife, and wetlands protection around

Title:	
Company:	Village of Gurley
Department:	
Area of Concern:	the recreational impacts as well as conformance with comprehensive plans and zoning around