

Considered: _____

WATER PERMIT NO. 5437-3

Phone: 252-4211, (712) 258-4202

Name of Applicant Dakota Dunes Community Improvement District

Post Office Address Rt#1, Box 93B, Dakota Dunes, SD 57049

Amount of Water Claimed 9.0 cfs (3475 ac-ft annually) Total Acres NA

Source of Water Supply groundwater (2 wells)

Water to be used for Municipal County Union

About 1 miles SW of North Sioux City

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F.& C/L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received 4/12/90 Fee \$900.00 Remarks _____

Corrected Application Received 5/4/90 Period of Annual Use _____

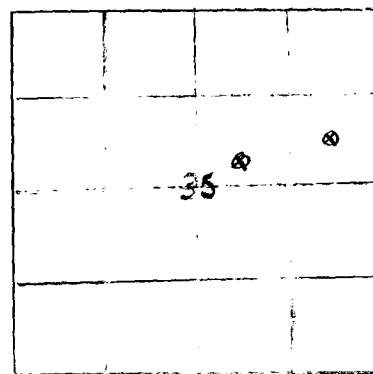
WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point SE1/4 NE1/4 Sec 35 T89N-R48W

SW1/4 NE1/4 Sec 35 T89N-R48W

Land to be Irrigated NA



Well Log: Driller Trask Licensed YES _____ NO _____

Depth of well 150' and 115' REMARKS _____

Type of Map Plat PREPARED BY Doug Mordhorst Reviewed and the Number

Assigned on 5/4/90 By Eric Lundberg

Mail to: Water Rights Div.
523 E. Capitol
Pierre, SD 57501
(605) 773-3352

No. 5437-3 Hydrologic Unit 10170101
Map No. _____ Basin Missouri
Newspaper Elk Point Leader-Courier Box 310 57025

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

Check use of water: Industrial ☐ Commercial ☐ Municipal ☒ Other Common Distribution System ☐
Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following



New ☒ Vested Right ☐ Future Use ☐ Change Use ☐

☐ Amend Permit No. _____ with old priority date retained

Change diversion point(s) ☐ Add diversion point(s) ☐ Other ☐

☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____

☐ Construction to use water reserved by Future Use Permit No. _____

1. Name of Applicant Dakota Dunes Community Improvement District Phone No. 605-232-4211

Post Office Address RR #1 Box 93B, Dakota Dunes State South Dakota Zip Code 57049
(Street, RR or Box) (City)

2. Amount of water claimed (c.f.s.) 9 (maximum pumping rate) - 4.8 (Annual Rate)

3. Source of water supply Alluvium - 2 wells

4. Location of point of diversion Government Lot 1 (90-3) and Government Lot 2 (90-5), Union County,
more generally described as SE 1/4, NE 1/4, (90-3) Sec 35, Twnshp 89N Rge 48W
SW 1/4, NE 1/4 Sec 35, Twnshp 89N Rge 48W (90-5) County Union

5. Counties where water will be used Union

6. Annual period during which water is to be used 12 months of year

7. Give a brief description of proposed project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)
The Dakota Dunes Community Improvement District will serve the Dakota Dunes Development which is a community projected to be 2,000 in population with 6,000 employees commuting daily for work.

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

STATE OF SOUTH DAKOTA)
County of Union)^{ss}

I, Dakota Dunes Community Improvement District and Allan J. Block the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed Dakota Dunes Community Improvement District
by Allan J. Block, District Mgr.

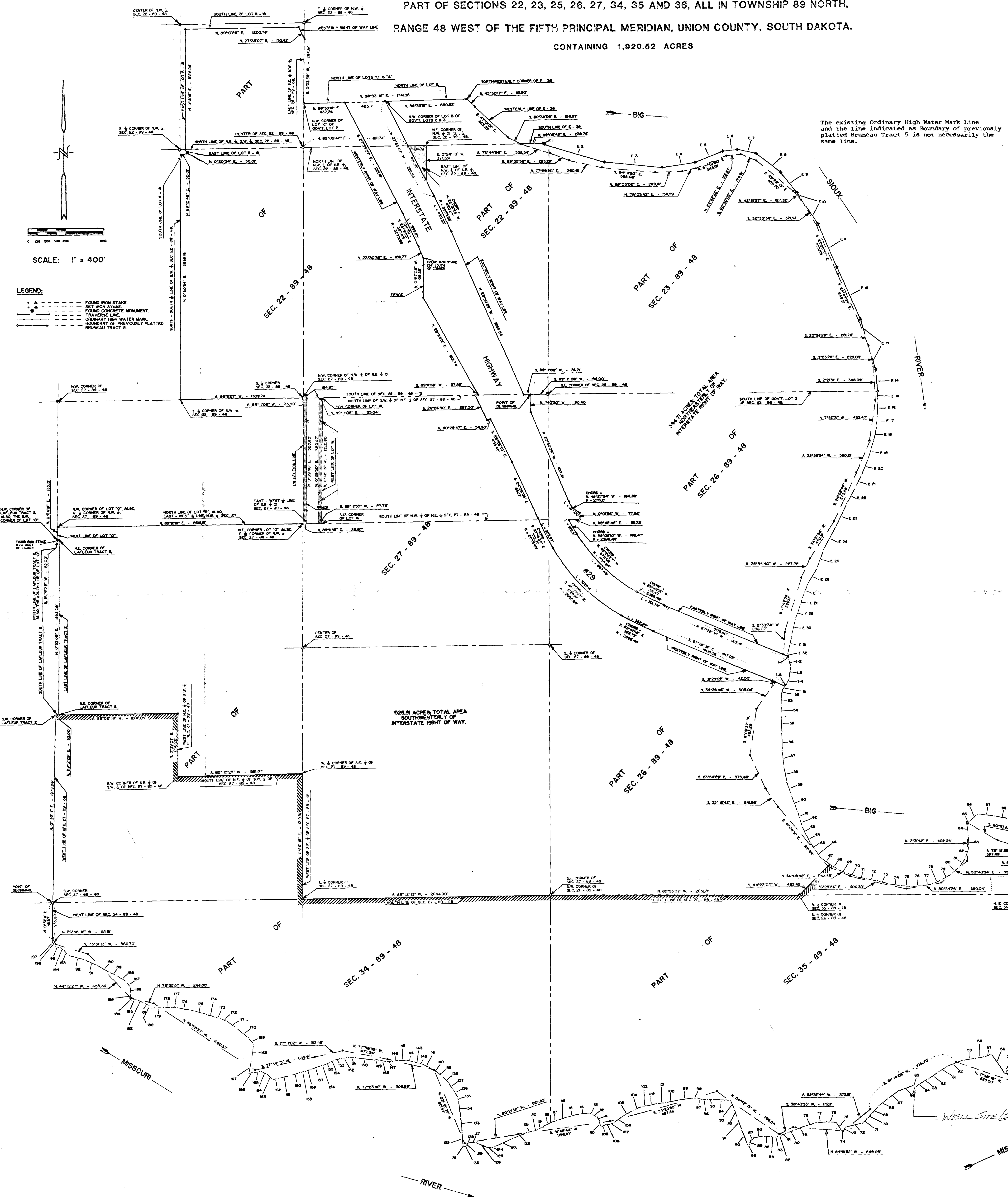
Subscribed and sworn to before me this 3rd day of May 19 90

Rebecca L. West
Notary Public

SURVEY PLAT

OF

PART OF SECTIONS 22, 23, 25, 26, 27, 34, 35 AND 36, ALL IN TOWNSHIP 89 NORTH,
RANGE 48 WEST OF THE FIFTH PRINCIPAL MERIDIAN, UNION COUNTY, SOUTH DAKOTA.
CONTAINING 1,920.52 ACRES



Boundary along the Big Sioux River by course and distance.

No.	Course	Distance	No.	Course	Distance	No.	Course	Distance	No.	Course	Distance
1.	S. 68°02'55"E.	28.32'	51.	S. 31°52'31"W.	43.15'	101.	N. 62°48'34"E.	142.53'	151.	N. 88°03'59"W.	75.87'
2.	S. 73°14'14"E.	669.40'	52.	S. 14°28'44"W.	26.84'	102.	N. 62°48'34"E.	142.53'	152.	N. 88°03'59"W.	75.87'
3.	S. 64°27'27"E.	613.32'	53.	S. 1°09'33"W.	121.10'	103.	N. 62°48'34"E.	142.53'	153.	N. 88°03'59"W.	75.87'
4.	N. 81°43'03"E.	358.32'	54.	S. 1°16'56"W.	99.06'	104.	N. 62°48'34"E.	142.53'	154.	N. 88°03'59"W.	75.87'
5.	N. 68°28'26"E.	316.56'	55.	S. 3°02'36"E.	190.42'	105.	N. 62°48'34"E.	142.53'	155.	N. 88°03'59"W.	75.87'
6.	N. 80°56'34"E.	152.43'	56.	S. 0°05'57"E.	173.46'	106.	N. 62°48'34"E.	142.53'	156.	N. 88°03'59"W.	75.87'
7.	S. 78°44'41"E.	203.19'	57.	S. 4°27'27"E.	168.32'	107.	N. 62°48'34"E.	142.53'	157.	N. 88°03'59"W.	75.87'
8.	S. 50°53'20"E.	320.81'	58.	S. 11°42'41"E.	179.18'	108.	N. 62°48'34"E.	142.53'	158.	N. 88°03'59"W.	75.87'
9.	S. 39°53'33"E.	275.94'	59.	S. 18°07'16"E.	138.56'	109.	N. 62°48'34"E.	142.53'	159.	N. 88°03'59"W.	75.87'
10.	S. 34°38'44"E.	398.84'	60.	S. 23°24'58"E.	188.12'	110.	N. 62°48'34"E.	142.53'	160.	N. 88°03'59"W.	75.87'
11.	S. 23°42'26"E.	494.63'	61.	S. 18°01'39"E.	88.05'	111.	N. 62°48'34"E.	142.53'	161.	N. 88°03'59"W.	75.87'
12.	S. 24°53'10"E.	606.13'	62.	S. 16°47'53"E.	71.18'	112.	N. 62°48'34"E.	142.53'	162.	N. 88°03'59"W.	75.87'
13.	S. 16°25'18"E.	554.18'	63.	S. 25°54'41"E.	112.13'	113.	N. 62°48'34"E.	142.53'	163.	N. 88°03'59"W.	75.87'
14.	S. 42°59'50"E.	233.23'	64.	S. 20°42'38"E.	91.84'	114.	N. 62°48'34"E.	142.53'	164.	N. 88°03'59"W.	75.87'
15.	S. 0°56'13"E.	94.02'	65.	S. 33°12'25"E.	87.50'	115.	N. 62°48'34"E.	142.53'	165.	N. 88°03'59"W.	75.87'
16.	S. 35°10'22"E.	171.98'	66.	S. 39°55'46"E.	103.69'	116.	N. 62°48'34"E.	142.53'	166.	N. 88°03'59"W.	75.87'
17.	S. 41°12'27"E.	93.37'	67.	S. 49°34'31"E.	109.03'	117.	N. 62°48'34"E.	142.53'	167.	N. 88°03'59"W.	75.87'
18.	S. 11°19'46"E.	172.05'	68.	S. 57°54'43"E.	116.86'	118.	N. 62°48'34"E.	142.53'	168.	N. 88°03'59"W.	75.87'
19.	S. 16°50'32"E.	186.00'	69.	S. 68°06'33"E.	105.15'	119.	N. 62°48'34"E.	142.53'	169.	N. 88°03'59"W.	75.87'
20.	S. 22°28'13"E.	187.83'	70.	S. 72°37'15"E.	110.35'	120.	N. 62°48'34"E.	142.53'	170.	N. 88°03'59"W.	75.87'
21.	S. 27°54'56"E.	137.94'	71.	S. 75°03'59"E.	106.38'						
22.	S. 28°53'18"E.	204.30'	72.	S. 75°10'19"E.	127.23'						
23.	S. 25°52'56"E.	273.53'	73.	S. 81°31'09"E.	122.44'						
24.	S. 29°08'47"E.	272.22'	74.	S. 85°37'34"E.	135.65'						
25.	S. 27°02'45"E.	164.66'	75.	S. 85°37'34"E.	135.65'						
26.	S. 26°16'49"E.	215.08'	76.	S. 85°37'34"E.	135.65'						
27.	S. 21°47'33"E.	188.41'	77.	S. 80°21'35"E.	119.01'						
28.	S. 18°59'33"E.	64.00'	78.	S. 68°28'00"E.	111.43'						
29.	S. 18°07'02"E.	167.68'	79.	S. 60°12'42"E.	109.68'						
30.	S. 12°24'36"E.	174.35'	80.	N. 49°08'50"E.	123.10'						
31.	S. 12°51'18"E.	194.35'	81.	N. 33°52'18"E.	135.28'						
32.	S. 7°48'34"E.	27.33'	82.	N. 16°12'43"E.	122.75'						
1-1.	S. 7°48'34"E.	30.81'	83.	N. 12°11'59"E.	125.64'						
1-2.	S. 18°57'18"E.	68.23'	84.	N. 8°34'15"E.	136.21'						
1-3.	S. 12°52'29"E.	142.92'	85.	N. 77°52'10"E.	46.97'						
1-4.	S. 13°24'08"E.	44.45'	86.	N. 65°55'47"E.	104.97'						
1-5.	S. 31°52'31"W.	42.33'	87.	S. 83°33'55"E.	194.61'						
			88.	S. 79°53'38"E.	142.41'						
			89.	S. 75°59'27"E.	105.81'						
			90.	S. 76°30'03"E.	149.55'						
			91.	S. 72°01'48"E.	188.43'						
			92.	S. 70°13'24"E.	178.66'						
			93.	S. 70°12'38"E.	129.37'						
			94.	S. 78°44'46"E.	170.63'						
			95.	S. 78°27'33"E.	182.42'						
			96.	S. 88°59'18"E.	202.34'						
			97.	N. 79°50'01"E.	114.10'						
			98.	N. 82°23'55"E.	78.62'						
			99.	N. 77°53'00"E.	185.37'						
			100.	N. 72°14'07"E.	138.70'						

Boundary along the Missouri River at the ordinary high water mark by course and distance.

No.	Course	Distance	No.	Course	Distance	No.	Course	Distance	No.	Course	Distance
1.	S. 82°44'44"W.	52.78'	51.	S. 72°48'14"W.	164.86'	101.	S. 81°18'26"W.	92.61'	151.	N. 88°03'59"W.	75.87'
2.	S. 79°35'18"W.	323.43'	52.	S. 55°02'48"W.	30.44'	102.	S. 76°45'46"W.	101.75'	152.	N. 88°03'59"W.	75.87'
3.	S. 78°37'48"W.	228.50'	53.	S. 27°02'13"W.	27.70'	103.	S. 68°10'28"W.	55.56'	153.	N. 88°03'59"W.	75.87'
4.	S. 77°02'27"W.	225.23'	54.	S. 25°59'02"E.	24.44'	104.	S. 65°27'18"W.	99.81'	154.	N. 88°03'59"W.	75.87'
5.	S. 75°46'03"W.	256.61'	55.	S. 23°23'45"W.	29.38'	105.	S. 58°58'23"W.	130.84'	155.	N. 88°03'59"W.	75.87'
6.	S. 74°15'10"W.	543.88'	56.	S. 34°42'36"E.	543.88'	106.	S. 58°58'23"W.	130.84'	156.	N. 88°03'59"W.	75.87'
7.	S. 72°18'24"W.	436.92'	57.	S. 30°03'34"W.	86.06'	107.	S. 58°58'23"W.	130.84'	157.	N. 88°03'59"W.	75.87'
8.	S. 70°57'23"W.	128.73'	58.	S. 25°59'27"E.	89.91'	108.	S. 58°58'23"W.	130.84'	158.	N. 88°03'59"W.	75.87'
9.	S. 65°10'35"W.	61.07'	59.	S. 20°48'06"W.	145.05'	109.	S. 58°58'23"W.	130.84'	159.	N. 88°03'59"W.	75.87'
10.	S. 55°56'22"W.	116.25'	60.	S. 20°10'05"W.	182.75'	110.	S. 58°58'23"W.	130.84'	160.	N. 88°03'59"W.	75.87'
11.	S. 62°53'15"W.	118.44'	61.	S. 58°47'40"W.	105.41'	111.	S. 58°58'23"W.	130.84'	161.	N. 88°03'59"W.	75.87'
12.	S. 53°54'23"W.	140.31'	62.	S. 55°28'05"W.	139.33'	112.	S. 58°58'23"W.	130.84'	162.	N. 88°03'59"W.	75.87'
13.	S. 64°18'32"W.	98.88'	63.	S. 54°43'18"W.	105.17'	113.	S. 58°58'23"W.	130.84'	163.	N. 88°03'59"W.	75.87'
14.	S. 73°42'45"W.	50.63'	64.	S. 57°24'03"W.	105.17'	114.	S. 58°58'23"W.	130.84'	164.	N. 88°03'59"W.	75.87'
15.	S. 53°30'39"W.	44.03'	65.	S. 60°47'41"W.	155.86'	115.	S. 58°58'23"W.	130.84'	165.	N. 88°03'59"W.	75.87'
16.	S. 25°18'11"W.	31.30'	66.	S. 60°47'41"W.	155.86'	116.	S. 58°58'23"W.	130.84'	166.	N. 88°03'59"W.	75.87'
17.	S. 23°05'09"E.	90.24'	67.	S. 58°02'15"W.	130.32'	117.	S. 58°58'23"W.	130.84'	167.	N. 88°03'59"W.	75.87'
18.	S. 69°40'00"W.	238.10'	68.	S. 57°32'43"W.	104.17'	118.	S. 58°58'23"W.	130.84'	168.	N. 88°03'59"W.	75.87'
19.	S. 66°07'05"W.	261.01'	69.	S. 54°29'12"W.	104.17'	119.	S. 58°58'23"W.	130.84'	169.	N. 88°03'59"W.	75.87'
20.	S. 69°28'22"W.	57.45'	70.	S. 53°35'38"W.	54.93'	120.	S. 58°58'23"W.	130.84'	170.	N. 88°03'59"W.	75.87'
21.	S. 62°53'15"W.	118.44'	71.	S. 48°00'04"W.	62.44'	121.	S. 58°58'23"W.	130.84'	171.	N. 88°03'59"W.	75.87'
22.	S. 70°24'45"W.	365.82'	72.	S. 38°48'46"W.	184.21'	122.	S. 58°58'23"W.	130.84'	172.	N. 88°03'59"W.	75.87'
23.	S. 73°53'13"W.	104.10'	73.	S. 30°45'28"W.	51.98'	123.	S. 58°58'23"W.	130.84'	173.	N. 88°03'59"W.	75.87'
24.	S. 64°58'23"W.	57.69'	74.	S. 63°06'35"W.	11.32'	124.	S. 58°58'23"W.	130.84'	174.	N. 88°03'59"W.	75.87'
25.	S. 56°21'53"W.	71.72'	75.	S. 60°56'23"W.	58.32'	125.	S. 58°58'23"W.	130.84'	175.	N. 88°03'59"W.	75.87'
26.	S. 51°09'25"W.	65.72'	76.	S. 58°03'19"W.	114.14'	126.	S. 58°58'23"W.	130.84'	176.	N. 88°03'59"W.	75.87'
27.	S. 49°04'44"W.	135.40'	77.	S. 58°06'35"W.	115.85'	127.	S. 58°58'23"W.	130.84'	177.	N. 88°03'59"W.	75.87'
28.	S. 40°13'13"W.	118.23'	78.	S. 53°43'15"W.	128.01'	128.	S. 58°58'23"W.	130.84'	178.	N. 88°03'59"W.	75.87'
29.	S. 32°08'11"W.	98.25'	79.	S. 50°50'08"W.	118.55'	129.	S. 58°58'23"W.	130.84'	179.	N. 88°03'59"W.	75.87'
30.	S. 48°52'14"W.	104.04'	80.	S. 45°50'08"W.	80.04'	130.	S. 58°58'23"W.	130.84'	180.	N. 88°03'59"W.	75.87'
31.	S. 52°52'25"E.	122.37'	81.	S. 43°01'56"W.	72.08'	131.	S. 58°58'23"W.	130.84'	181.	N. 88°03'59"W.	75.87'
32.	S. 42°55'56"W.	77.21'	82.	S. 36°48'28"E.	37.75'	132.	S. 58°58'23"W.	130.84'	182.	N. 88°03'59"W.	75.87'
33.	S. 18°40'27"W.	90.45'	83.	S. 30°03'44"W.	50.45'	133.	S. 58°58'23"W.	130.84'	183.	N. 88°03'59"W.	75.87'
34.	S. 11°08'03"W.	15.94'	84.	S. 74°06'10"W.	26.14'	134.	S. 58°58'23"W.	130.84'	184.	N. 88°03'59"W.	75.87'
35.	S. 64°40'30"W.	88.08'	85.	S. 88°56'38"E.	88.08'	135.	S. 58°58'23"W.	130.84'	185.	N. 88°03'59"W.	75.87'
36.	S. 50°34'37"W.	142.10'	86.	S. 80°23'58"W.	86.10'	136.	S. 58°58'23"W.	130.84'	186.	N. 88°03'59"W.	75.87'
37.	S. 44°47'12"W.	116.35'	87.	S. 84°15'16"W.	64.24'	137.	S. 58°58'23"W.	130.84'	187.	N. 88°03'59"W.	75.87'
38.	S. 84°28'12"E.	66.27'	88.	S. 15°32'01"W.	25.98'	138.	S. 58°58'23"W.	130.84'	188.	N. 88°03'59"W.	75.87'
39.	S. 74°36'09"W.	145.49'	89.	S. 68°37'04"W.	15.98'	139.	S. 58°58'23"W.	130.84'	189.	N. 88°03'59"W.	75.87'
40.	S. 25°42'09"E.	77.40'	90.	S. 20°21'15"W.	178.46'	140.	S. 58°58'23"W.	130.84'	190.	N. 88°03'59"W.	75.87'
41.	S. 18°45'26"W.	14.80'	91.	S. 20°44'06"W.	125.52'	141.	S. 58°58'23"W.	130.84'	191.	N. 88°03'59"W.	75.87'
42.	S. 54°47'10"E.	144.62'	92.	S. 18°42'45"E.	100.56'	142.	S. 58°58'23"W.	130.84'	192.	N. 88°03'59"W.	75.87'
43.	S. 80°27'01"E.	120.08'	93.	S. 25°00'14"W.	96.33'	143.	S. 58°58'23"W.	130.84'	193.	N. 88°03'59"W.	75.87'
44.	S. 61°22'44"W.	110.69'	94.	S. 88°29'28"E.	181.86'	144.	S. 58°58'23"W.	130.84'	194.	N. 88°03'59"W.	75.87'
45.	S. 80°27'01"E.	120.08'	95.	S. 84°50'38"E.	81.98'	145.	S. 58°58'23"W.	130.84'	195.	N. 88°03'59"W.	75.87'
46.	S. 51°31'57"W.	81.86'	96.	S. 85°10'45"E.	62.34'	146.	S. 58°58'23"W.	130.84'	196.	N. 88°03'59"W.	75.87'
47.	S. 45°45'47"W.	116.51'	97.	S. 67°40'21"E.	11.67'	147.	S. 58°58'23"W.	130.84'	197.	N. 88°03'59"W.	75.87'
48.	S. 38°37'22"W.	107.83'	98.	S. 80°26'51"W.	49.09'	148.	N. 80°01'27"W.	114.32'			
49.	S. 18°46'26"W.	158.74'	99.	S. 80°56'43"W.	165.97'	149.	S. 83°03'21"W.	28.55'			
50.	S. 46°03'38"E.	41.04'	100.	S. 78°15'33"W.	157.93'	150.	S. 85°20'04"W.	188.01'			

SOUTH DAKOTA
WATER PERMIT No. 5437-3

Date of first receipt of application April 12, 1990.

Date of return to applicant for corrections, amendments or changes April 23, 1990.

Date of receipt of corrected application May 4, 1990.

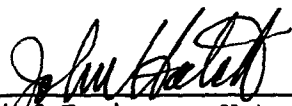
The Water Management Board approved Water Permit Application No. 5437-3 on May 23, 1990 for Dakota Dunes Community Improvement District, RR #1, Box 93B, Dakota Dunes, SD 57049 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5437-3 appropriates 9.0 cubic feet of water per second (3475 acre feet annually) from 2 wells (Missouri - Elk Point Aquifer) 150 feet and 115 feet deep to be located in the SE1/4 NE1/4 and SW1/4 NE1/4 Section 35 T89N-R48W.
2. The water appropriated shall be used for the purpose of water supply needs for the community and may not exceed the amount of water needed for beneficial use for municipal purposes.
3. The water is to be used during the following described annual period: January 1 - December 31.
4. The date from which applicant may claim right is April 12, 1990.
5. One-fifth of the construction is to be completed on or before November 23, 1992.
6. All construction is to be completed on or before May 23, 1995.
7. Water is to be put to beneficial use on or before May 23, 1999.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The wells authorized by Permit No. 5437-3 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted with cement (bottom to top) from the producing formation to the surface pursuant to Section 74:02:04:30.
2. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
3. Approval of Permit No. 5437-3 authorizes maximum annual withdrawals of 3475 acre feet.

WATER MANAGEMENT BOARD

By: 
Chief Engineer, Water Rights Division
Department of Water and Natural Resources

SEP 12 1990

(date)

Supplemental Information

(type or print in ink)

Domestic Wells 1 & 2

1. Well Information - Proposed construction

- a) Drill Hole Diameter 32 Inches Depth 117-144
- b) Casing Type Steel Diameter 20 Inches Thickness 0.375 Inch
- c) Screen Type Stainless Steel Diameter 20 Inches Thickness 0.375 Inch
- d) Gravel Pack Thickness 6 Inches Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material 55-65
- f) Depth to Water (ground surface to water level) 20 feet
- g) Distance to nearest existing domestic well:
- On applicants property 1,000 feet On property owned by others 9,300 feet

2. Dugout Information Estimates

- a) Surface Dimensions N/A Depth _____
- b) Depth to water (ground surface to water level) _____

3. Water Storage Dams

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

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

N/A

b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

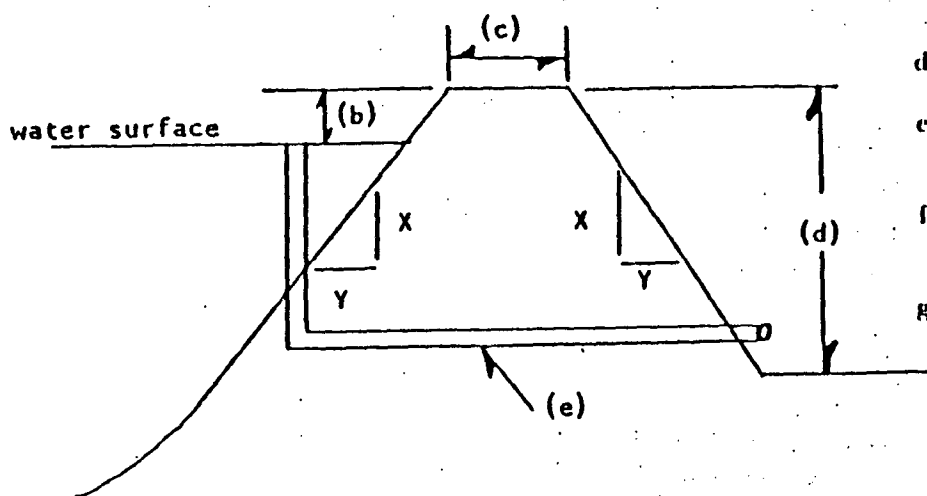
e) Primary Outlet Capacity _____
If Pipe, diameter _____f) Secondary Spillway Capacity _____
Spillway width _____g) X & Y Slope
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____



Signature of Applicant _____





South Dakota Department of Water & Natural Resources

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

April 23, 1990

Greg Meyer
Buell, Winter, Mousel & Associates
666 Benson Building
Sioux City IA 51101

Dear Mr. Meyer:

This letter is in regard to the water permit applications submitted on behalf of the community improvement district and the golf course. The following information is needed to complete both applications:

- 1) Enclosed is a partially completed application for the golf course with an acreage description attached. The application has been completed based on the information supplied by you. Please review the applications and make any needed changes. The applications then need to be signed in the presence of a notary.
- 2) The application submitted for the community improvement district is adequate and can be signed as completed in the presence of notary.
- 3) The application fee for the golf course application is \$250.00 and the application fee for the improvement district is \$900.00.
- 4) A map needs to be submitted for each application and each map needs to be completed and signed by one of the following persons: 1) A South Dakota registered professional engineer, 2) A South Dakota licensed land surveyor or 3) A government employee that signs maps as part of his or her regular duties. The map for the district needs to show both well locations and the map for the golf course needs to outline the acreage to be irrigated, show the proposed well location, existing well location and the location of the lake (dugout). Other details that need to be completed are identified on the enclosed instruction sheet under item No. 2.
- 5) A soil/water compatibility permit is also needed from the Department of Agriculture for the golf course application. A copy of the enclosed application will be forwarded to the Department of Agriculture when the signed and notarized application is returned to Water Rights. A copy of the water analysis and a soils map completed as outlined under item No. 5 on the enclosed instruction sheet also needs to be submitted.

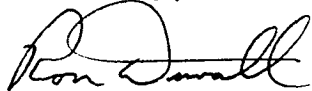
(continued)

April 23, 1990
Greg Meyer
Page 2

The water permit applications can not be considered by the Water Management Board until the applications are complete. The soil/water compatibility permit also needs to be approved prior to the golf course application being considered by the Board. The recommendations to the Water Managment Board are to defer both applications to allow additional time to review the applications. The deferral recommendations will not be revised until the requested information is received and a report is prepared for each application. Therefore, please complete the above items and return the information and fees as soon as possible to the Division of Water Rights.

If you have any questions, please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ron Duvall".

Ron Duvall
Natural Resources Engineer
605 773-3352

enc.

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

412224

Pierre, May 4, 19 90

RECEIVED OF Dakota Dunes, Development Co., RR #1 Box 93B, Dakota Dunes, SD 57049

the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. 5437-3 to Appropriate Water, to construct works and to put water to beneficial use _____

900 00

Fee for Application for Permit No. _____ to Appropriate Water for Future Use _____

Fee to retain Future Use Permit No. _____ after period of seven years.

Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for Certified Copy of _____

Fee for Print Copy of Map _____

Fee for Certifying _____

Fee for _____

(Any Other Work Provided by Law)

Total

900 00

By

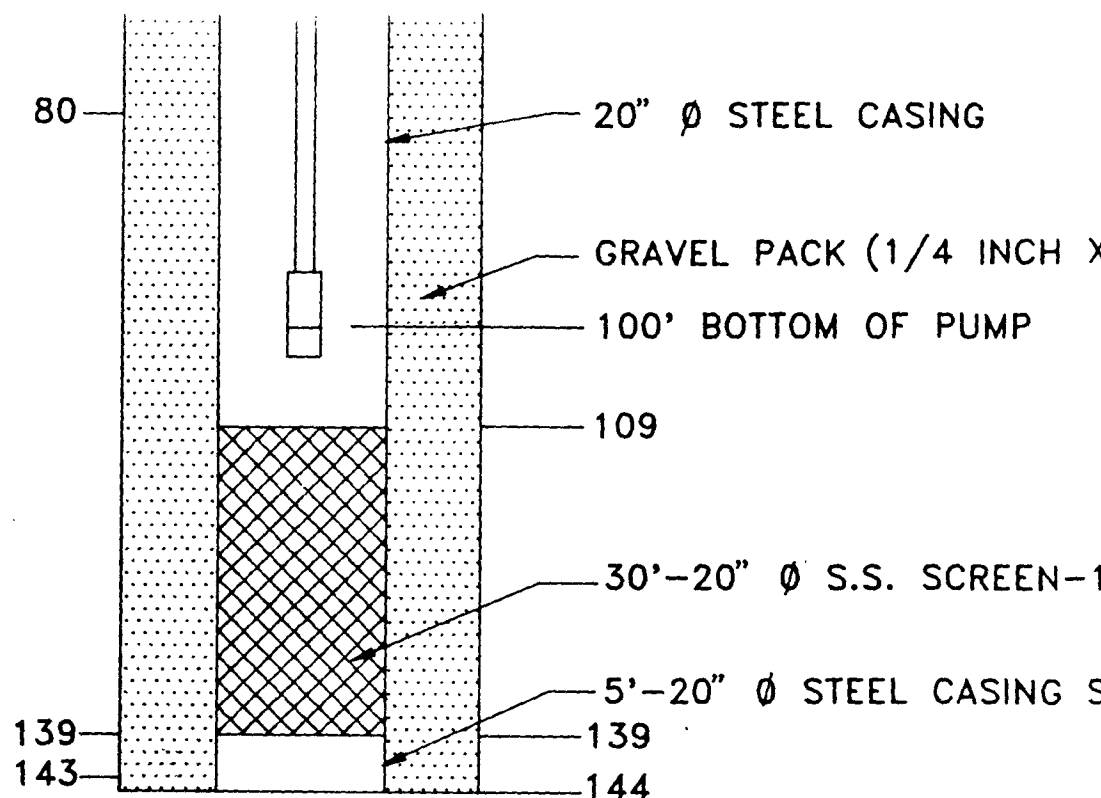
Chief Engineer

John Hatch

5 INCH)

OT

SEE DRILLERS



WELL 90-3 PROFILE

SCALE: NTS

TEST WELL REPORT

City and State North Sioux City, SD

Date 1-11-90

Contract Dakota Dunes Golf Course

Driller Duane Trask

Test No. 90-3

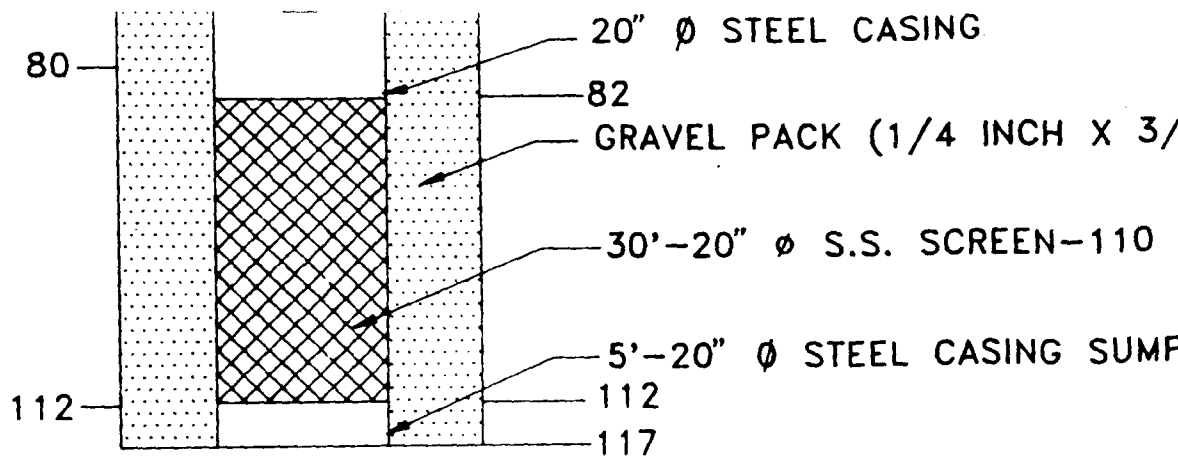
Helpers Walt Michaelson

Static Water Level

Test Log

0	-	4	Brown clay and silt
4	-	20	Medium and fine brown sand
20	-	30	Coarse and fine gray sand
30	-	35	Coarse gray sand layer of clay
35	-	62	Coarse gray sand and gravel
62	-	63	Dark gray clay
63	-	80	Coarse gray sand and gravel
80	-	139	Coarse sand and gravel and boulders (rough)
139	-	143	Light gray shale
143	-	150	White sandstone

SEE DRILLE



WELL 90-5 PROFILE

SCALE: NTS

TEST WELL REPORT

City and State North Sioux City, SD

Date 1-18-90

Contract Dakota Dunes Golf Course

Driller Duane Trask

Test No. 90-5

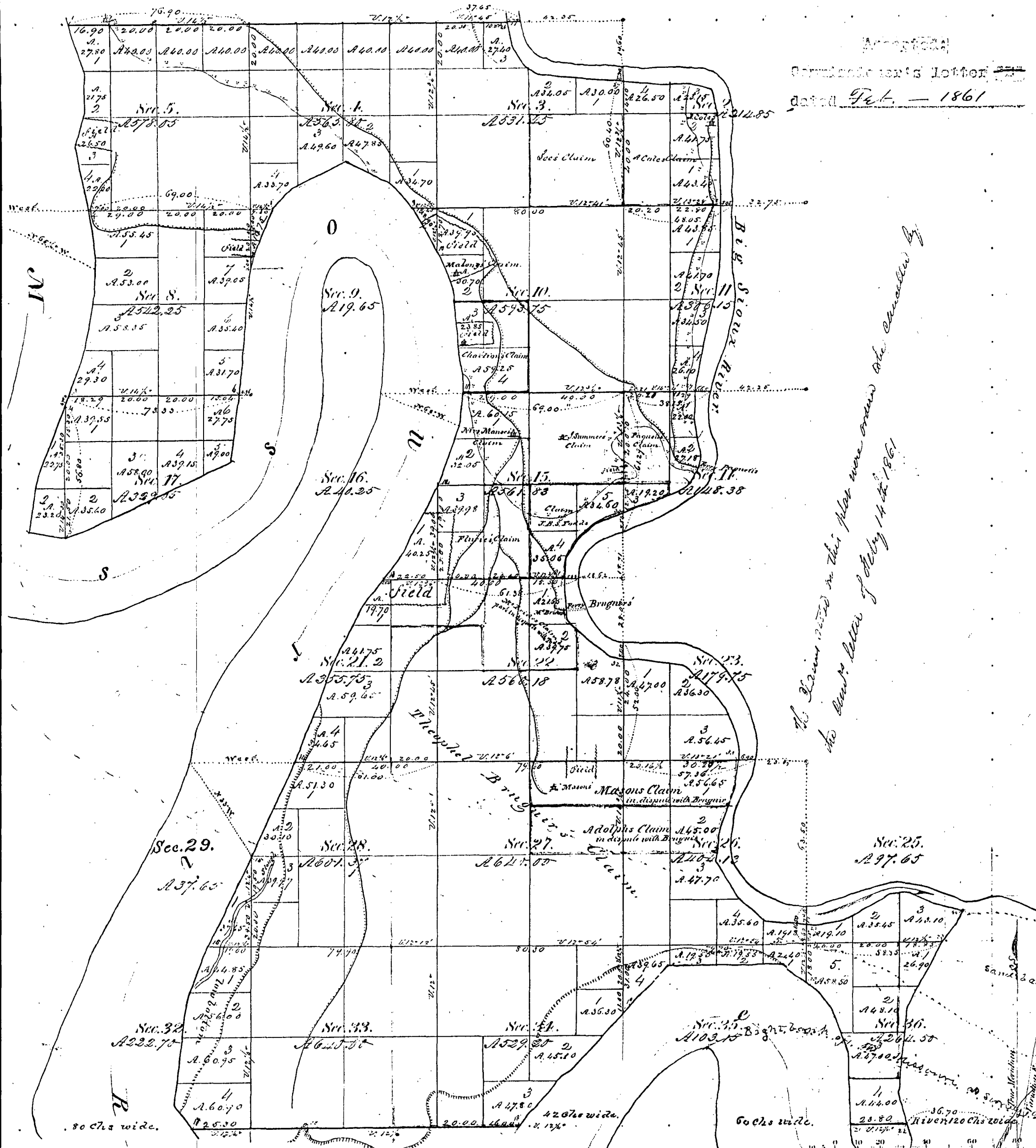
Helpers Walt Michaelson

Static Water Level Estimate 10'

Test Log

0	-	6	Top soil
6	-	35	Medium and fine brown sand
35	-	70	Coarse gray sand and small gravel
70	-	80	Coarse gray sand and gravel
80	-	112	Coarse gray sand and gravel with rough stones
112	-	113	Limestone
113	-	115	Limestone and shale

Township No 89 N, Range No 48 West 5th Mer. Dakota.



Total number of Acres 2113.44

By Whom Surveyed	Date of Contract	Amount of Survey M. Chs Lks	When Surveyed	When Changed in the Sur. Genl. Off.
John Hall	Aug 1st 1860	4 15 8.5	November 1860	
"	"	49 43 68	November 1860	
"	"	2		

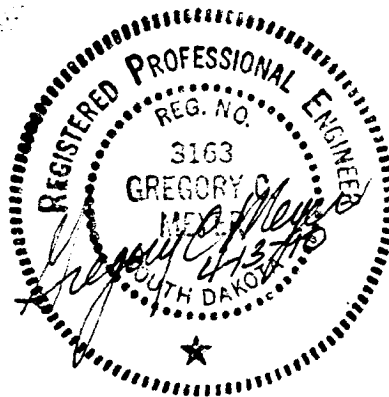
The above Map of Township No 89 North of Principal Meridian Dakota is a true and correct copy of the survey thereof on file in this Office which have been
 Surveyor General's Office
 Dubuque July 4th 1861

Appl. 5437-3

Dakota Dunes

UNION COUNTY, SOUTH DAKOTA

DAKOTA DUNES WELLS



BUELL WINTER MOUSEL AND ASSOCIATES
SIOUX CITY, IOWA

PROJECT MANUAL
FOR
DAKOTA DUNES WELL IMPROVEMENTS
DAKOTA DUNES, SOUTH DAKOTA

BWMA PROJECT NO. 14490

MARCH, 1990



BUELL WINTER MOUSEL AND ASSOCIATES
666 BENSON BUILDING
SIOUX CITY, IOWA 51101

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any

operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than \$500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$200,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by

the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR, if at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other con-

tracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The

ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be

necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. ARBITRATION

30.1 All claims, disputes and other matters in question arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the demand for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the ENGINEER. Demand for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

30.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31. TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR

will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK exe-

cuted and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and

equipment which are suitably stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and at the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUB-CONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equip-

ment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR

observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises,

order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

(a) Unit prices previously approved.

(b) An agreed lump sum.

(c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work

17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security-
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Arbitration
31. Taxes

1. DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA—Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID—The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER—Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS—Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER—A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS—The contract, including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE—The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME—The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR—The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS—The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER—The person, firm or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER—A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD—The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED—Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER—A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT—The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE—The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS—All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS—A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR—An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION—That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS—

Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER—Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK—All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE—Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1. The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the

CHANGE ORDER

Order No. _____

Date: _____

Agreement Date: _____

NAME OF PROJECT: _____

OWNER: _____

CONTRACTOR: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

Justification:

Change to CONTRACT PRICE:

Original CONTRACT PRICE \$ _____

Current CONTRACT PRICE adjusted by previous CHANGE ORDER \$ _____

The CONTRACT PRICE due to this CHANGE ORDER will be (increased) (decreased) by: \$ _____

The new CONTRACT PRICE including this CHANGE ORDER will be \$ _____

Change to CONTRACT TIME:

The CONTRACT TIME will be (increased) (decreased) by _____ calendar days.

The date for completion of all work will be _____ (Date).

Approvals Required:

To be effective this Order must be approved by the Federal agency if it changes the scope or objective of the PROJECT, or as may otherwise be required by the SUPPLEMENTAL GENERAL CONDITIONS.

Requested by: _____

Recommended by: _____

Ordered by: _____

Accepted by: _____

Federal Agency Approval (where applicable) _____

NOTICE TO PROCEED

To: _____ Date: _____

Project: _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 19_____, on or before _____, 19_____, and you are to complete the WORK within _____ consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 19_____.

Owner
By _____
Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____

this the _____ day
of _____, 19_____

By _____
Title _____

NOTICE OF AWARD

To: _____

PROJECT Description: _____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, 19_____, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$_____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 19_____.

Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by _____

this the _____ day of _____, 19_____

By _____

Title _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
Dollars, \$(_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 19____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the two year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby give notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each
(Number)
one of which shall be deemed an original, this the _____ day of _____
19____.

ATTEST:

(Principal) Secretary

(SEAL)

(Witness as to Principal)

(Address)

ATTEST:

(Surety) Secretary

(SEAL)

Witness as to Surety

(Address)

Principal

By _____ (s)

(Address)

Surety

By _____
Attorney-in-Fact

(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars, \$(_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____ 19_____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each
(number)
one of which shall be deemed an original, this the _____ day of _____
19 _____.

ATTEST:

(Principal) Secretary

(SEAL)

Witness as to Principal

(Address)

ATTEST:

Witness as to Surety

(Address)

Principal

By _____(s)

(Address)

Surety

By _____
Attorney-in-Fact

(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

OWNER:

BY _____

Name _____
(Please Type)

Title _____

(SEAL)

ATTEST:

Name _____
(Please Type)

Title _____

CONTRACTOR:

BY _____

Name _____
(Please Type)

Address _____

(SEAL)

ATTEST:

Name _____
(Please Type)

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 19_____, by
and between _____, hereinafter called "OWNER"
(Name of Owner), (an individual)

and _____ doing business as (an individual,) or (a
partnership,) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements herein-
after mentioned:

1. The CONTRACTOR will commence and complete the construction of

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment,
labor and other services necessary for the construction and completion of the PROJECT
described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOC-
UMENTS within _____ calendar days after the date of the NOTICE TO PRO-
CEED and will complete the same within _____ calendar days unless the period
for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CON-
TRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____,
or as shown in the BID schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

- (A) Advertisement For BIDS
- (B) Information For BIDDERS
- (C) BID
- (D) BID BOND
- (E) Agreement

(F) General Conditions

(G) SUPPLEMENTAL GENERAL CONDITIONS

(H) Payment BOND

(I) Performance BOND

(J) NOTICE OF AWARD

(K) NOTICE TO PROCEED

(L) CHANGE ORDER

(M) DRAWINGS prepared by _____
numbered _____ through _____, and dated _____,
19 _____

(N) SPECIFICATIONS prepared or issued by _____

dated _____, 19 _____

(O) ADDENDA:

No. _____, dated _____, 19 _____

No. _____, dated _____, 19 _____

No. _____, dated _____, 19 _____

No. _____, dated _____, 19 _____

No. _____, dated _____, 19 _____

No. _____, dated _____, 19 _____

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in (_____) each
(Number of Copies)
which shall be deemed an original on the date first above written.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____
_____ as Principal, and
_____ as Surety, are hereby
held and firmly bound unto _____ as OWNER
in the penal sum of _____
for the payment of which, well and truly to be made, we hereby jointly and severally
bind ourselves, successors and assigns.

Signed, this _____ day of _____, 19____.

The Condition of the above obligation is such that whereas the Principal has submitted
to _____ a certain BID,
attached hereto and hereby made a part hereof to enter into a contract in writing, for the

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (L.S.)

Surety

By: _____

IMPORTANT—Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

13. Submersible Pump Cable	370 ft	_____	_____
14. Pitless Units	3 ea	_____	_____
15. Discharge Piping and Valve	3 ea	_____	_____
TOTAL BASE BID		_____	_____

PRIME SUBCONTRACTORS: The undersigned proposes the following prime subcontractors:

The undersigned has submitted the required Bid Security and other items required in the Instructions to Bidders.

In submitting this Bid, it is understood that the right to reject any and all Bids and to waive irregularities in the Bidding has been reserved by the Owner.

Dated this _____ day of _____, 1990.

 Name of Bidder

 Address of Bidder

 Authorized Officer

3. To enter into and execute a Contract, if awarded on the basis of this Bid, and to deliver executed Owner-Contractor Agreements to the Engineer within ten (10) calendar days after notice of award.
4. To complete the Work as follows:
Well I-1 - Fully operational by July 1, 1990
Wells 90-1 and 90-2 - Fully operational by September 1, 1990
5. Acknowledges that he has reviewed and read the Drawings, Specifications, General Conditions and Supplementary Conditions, and that there are no errors in or omissions from the Drawings and Specifications. In the event there are errors in or omissions from the Drawings and Specifications, he nevertheless accepts same as is.

BID SCHEDULE FOR WATER SYSTEM

The quantities listed are estimated. Unit Prices are for the complete installation of each item and related work thereto. (Amounts shall be shown in both Unit Prices and Total Amounts. In case of discrepancy, Unit Prices shall govern.)

UNIT PRICE BASE BID: The undersigned agrees to perform all of the Work required to complete the Project for the following Unit Prices:

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
1.	Mobilization and Demobilization	1	Lump Sum	_____
2.	32-inch Diameter Drilling	412 ft	_____	_____
3.	20-inch Diameter Well Casing	315 ft	_____	_____
4.	20-inch Diameter Well Screen	90 ft	_____	_____
5.	Gravel Packing	202 ft	_____	_____
6.	Grouting	210 ft	_____	_____
7.	Test Pumping	72 hr	_____	_____
8.	Recovery	36 hr	_____	_____
9.	Sampling, Disinfecting, and Chemical Analysis	1	Lump Sum	_____
10.	Pump, Motor and Airline (Irrigation)	1 ea	_____	_____
11.	Pump, Motor and Airline (Domestic)	2 ea	_____	_____
12.	12-inch Diameter Drop Pipe	273 ft	_____	_____

BID FORM

DAKOTA DUNES

Dakota Dunes Well Improvements
Dakota Dunes, South Dakota
BWMA Project No. 14490

Bid of _____

_____ a corporation organized and existing under the laws of the
State of _____

_____ a partnership consisting of _____,
partners; or

_____ a sole proprietor:

Hereinafter called the Bidder.

To: Allan Block, District Manager
P.O. Box 93B
Dakota Dunes, South Dakota 57049

The undersigned acknowledges that he has received, and has
familiarized himself with the following:

Project Manual
Drawings
Addenda: No. ____ through ____

The undersigned further acknowledges that he has received, and
has familiarized himself with local conditions affecting the cost
of the Work at the place where the Work is to be done.

In submitting this Bid, the undersigned agrees:

1. To furnish all material labor tools, expendable equipment,
and all utility and transportation services necessary to
perform and complete, in a workmanlike manner, all of the
Work required, in accord with the Bidding Documents prepared
by Buell Winter Mousel and Associates, for the consideration
hereinafter set forth.
2. To hold his Bid open for thirty (30) working days after the
receipt of Bids and to accept the provisions of the Instruc-
tions to Bidders regarding disposition of Bid Security.

IB-18. OPENING. Bids for Dakota Dunes Well Improvements will be received until 7:00 p.m. (CDT), on May 14, 1990, at the Dakota Dunes Community Improvement District office, Dakota Dunes, South Dakota, at which time they will be accepted for consideration. Bids received after this time will not be accepted.

IB-19. METHOD OF AWARD.

IB-19.1 BIDDING PROCEDURE INVOLVING A BASE BID AND ALTERNATE ADDITIVE AND DEDUCTIVE BIDS.

If the Base Bid is within the amount of funds available to finance the Contract, and the Owner wishes to accept Alternate Bids, then the Contract award will be made to that responsive, responsible Bidder submitting the low combined Bid, consisting of the Base Bid including Alternate Bids.

IB-19.2 PREPARATION OF BID. Any Bidder failing to include required data to be submitted with the Bid, or supplying all the information requested on the Bid Form, shall be determined to be nonresponsive and his Bid may be rejected.

IB-20. AWARD OF CONTRACT - REJECTION OF BIDS. The Contract will be awarded to the responsive, responsible Bidder submitting the Base Bid complying with the conditions of the Notice to Contractors and Instructions to Bidders, provided his Bid is reasonable and to the interest of the Owner to accept it. The Bidder to whom the award is made will be notified at the earliest practical date. The Owner, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in the interest of the Owner.

The Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with the intent to defraud or other illegal practices upon the part of the Bidder.

The Owner also reserves the right to reject the Bid of any Bidder who has previously failed to perform properly, or to complete on time, contracts of a similar nature, who is not in a position to perform the Contract, or who has neglected the payment of bills or otherwise disregarded his obligations to Subcontractors, material men, or employees.

IB-9. PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BONDS. each in the amount equal to one hundred percent (100%) of the Contract Price, shall be furnished by the successful Bidder in accord with the General Conditions.

IB-10. POWER OF ATTORNEY. Attorneys-in-fact who sign Bid Bonds and Contract Bonds must file with each Bond a certified and dated copy of their Power of Attorney.

IB-11. SALES AND USE TAX. The Bidder shall include State of South Dakota and Sales and Use Tax and other applicable taxes in his bid.

IB-12. PREPARATION OF BIDS. Submit Bids on unaltered Bid Forms furnished by the Engineer. In ink or typewritten words and figures, fill in all blank spaces for Bid Prices and submit one (1) copy. Bids shall be signed by the person or persons legally authorized to bind the Bidder to a Contract, with the name or names typed below the signature or signatures. Bids submitted by an agent shall have a current Power of Attorney attached certifying the authority of the agent to bind the Bidder.

IB-13. SUBMITTALS. Submit Bids in opaque, sealed envelopes bearing on the outside the name and address of the Bidder, and marked "Bid for Dakota Dunes Well Improvements". If Bids are sent by mail, they shall be received by Dakota Dunes Community Improvement District, R.R. #1, P.O. Box 93B, Dakota Dunes, South Dakota 57049.

IB-14. MODIFICATION AND WITHDRAWAL. Bids may not be modified after submittal. The Bid may be withdrawn at any time before opening but may not be resubmitted. No Bid may be withdrawn or modified after the Bid opening, except where the award of the Contract has been delayed for thirty (30) days.

IB-15. DISQUALIFICATION. The Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with the intent to defraud or other illegal practices upon the part of the Bidder.

IB-16. PRIME SUBCONTRACTORS. Enter the names of proposed Prime Subcontractors and the percentage of the total Base Bid work that each Subcontractor will be doing on the locations provided on the Bid Form. The failure to list Subcontractors shall indicate that none are going to be used, and that all work will be performed by the Bidder's own work force.

IB-17. NONDISCRIMINATION IN EMPLOYMENT. Contracts for Work described in these Bidding Documents obligate the Contractors and Subcontractors not to discriminate in employment practices.

Any costs for redesign necessitated by the substitution of equipment by the Contractor shall be paid for by the Contractor, and shall not alter the Contract Time except by written approval of the Engineer and in accord with Section 01600 of the Specifications.

IB-5. ADDENDA AND INTERPRETATIONS. No interpretation of the meaning of the Bidding Documents will be made verbally to any Bidder.

Every request for such interpretation shall be in writing addressed to the Engineer and, to be given consideration, must be received at least five (5) days prior to the date fixed for receiving Bids. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Bidding Documents which, if issued, will be mailed by certified mail with return receipt requested to Bidders of record, at the respective addresses furnished for such purposes, not later than three (3) days prior to the date fixed for the receipt of Bids. Failure of any Bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligation under his Bid as submitted, Addenda so issued shall become part of the Bidding Documents.

IB-6. BASIS OF BIDS. The Bidder must include all unit cost items and all Alternates shown on the Bid Form; failure to comply may be cause for rejection.

IB-7. BID SECURITY AND SUBMITTAL. A certified check or cashier's check in an amount not less than five percent (5%) or bid bond in an amount not less than ten percent (10%) of the total amount of the Base Bid, payable to Dakota Dunes Community Improvement District, shall accompany each Bid in a separate sealed opaque envelope, bearing on the outside the Bidder's name and address, and marked "Bid Security for Dakota Dunes Well Improvements".

Bid Security will be returned to the Bidders as soon as the successful Bidder has executed and delivered the Contract.

If a Bid Bond is submitted, it shall be issued by a surety company authorized by the State of South Dakota to issue such bonds, to be acceptable to the Owner.

Bid Security will be returned to the Bidders as soon as the successful bidder has executed and delivered the Contract and has furnished satisfactory bonds.

IB-8. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT. Upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after receiving notice of the acceptance of his Bid, the successful Bidder shall forfeit to the Dakota Dunes Community Improvement District the security deposited with his Bid as Liquidated Damages for such failure or refusal.

INSTRUCTIONS TO BIDDERS

Dakota Dunes Well
Dakota Dunes, South Dakota
BWMA Project No. 14490

To be considered, Bids must be made in accord with these Instructions to Bidders.

IB-1. DOCUMENTS. Copies of the bidding documents may be obtained from the Engineer, between the hours of 8:00 a.m. and 12:00 noon and 1:00 p.m. and 5:00 p.m., Monday through Friday, upon the deposit of receipt of fifty dollars (\$50.00) per set. Such deposit will be refunded to all planholders who return the Bidding Documents (Drawings, Project Manuals, and Addenda), in good condition, within ten (10) days after the Bid opening.

IB-2. EXAMINATION. Bidders shall carefully examine the Bidding Documents and the construction site to obtain firsthand knowledge of existing conditions. The contractors will not be given extra payments for conditions which can be determined by examining the site and Bidding Documents. Work shall conform with provisions of state, local, and national codes where applicable. Errors, omissions, and differences between Drawings, and Specifications, and codes shall be called to the attention of the Engineer before submitting a bid. If a discrepancy and/or inadequacy is not brought to the attention of the Engineer, in writing, prior to submittal of the Bid, it will be assumed that the cost of additional requirements to satisfy said discrepancy and/or inadequacy has been incorporated into the Bid by each affected Bidder.

IB-3. QUESTIONS. Submit all questions about Bidding Documents to the Engineer. Replies will be issued to all Prime Bidders of record as Addenda to the Drawings and Project Manual, and will become part of the Contract. The Engineer and the Owner will not be responsible for verbal clarification. Questions received less than forty-eight (48) hours before the Bid opening cannot be answered.

IB-4. SUBSTITUTIONS. Identification of material or equipment by a single manufacturer's name or trade name is not meant to give preference to any one manufacturer but is merely to establish a standard. To obtain approval to use unspecified products, Bidders shall submit written requests at least seven (7) days before the Bid date and hour. Requests received after this time will not be considered. Requests shall clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. If the product is acceptable, the Engineer will approve it in an Addendum issued to all Prime Bidders of record.

Bidding documents may be obtained from Buell Winter Mousel and Associates, 666 Benson Building, Sioux City, Iowa 51101, on payment of a deposit of fifty dollars (\$50.00). Upon the return of the Bidding documents to the Engineer in good condition, within ten (10 days) after the opening of Bids, all planholders will receive a full refund.

Bidding documents may be examined at the office of Dakota Dunes Community Improvement District, Dakota Dunes, South Dakota.

The Community Improvement District reserves the right to reject any or all Bids and to waive informalities in Bids received.

Dakota Dunes Community Improvement District

By: Allan J. Block, District Manager

DAKOTA DUNES COMMUNITY IMPROVEMENT DISTRICT
P.O. Box 93B
Dakota Dunes, South Dakota 57049
BWMA Project No. 14490

March, 1990

NOTICE TO CONTRACTORS

Sealed Bids will be received by Dakota Dunes Community Improvement District for the Dakota Dunes Well Improvements.

Description of Work:

Construction of two domestic and one irrigation well with pumps, motors and electrical.

Bids for the Dakota Dunes Well Improvements will be received until 7:00 p.m. (CDT), on May 14, 1990, at the Dakota Dunes office, at which time they will be accepted for consideration. Bids received after this time will not be accepted.

Nondiscrimination in Employment. Bidders on this Work shall comply with the President's Executive Order No. 11246 as amended. The requirements for Bidders and Contractors under this Order are explained in the Specifications.

The Work shall be started within ten (10) working days from the date of the Notice to Proceed and completed as follows:

Well I-1 - Fully operational by July 1, 1990

Wells 90-1 and 90-2 - Fully operational by September 1, 1990

Each bidder shall submit with his Bid a certified check in an amount not less than five percent or a bid bond in an amount not less than ten percent (10%) of the total amount of the Base Bid. The certified check or cashier's check shall be drawn on a bank in South Dakota or a bank chartered under the laws of the United States of America and payable to Dakota Dunes Community Improvement District as security that, if awarded a Contract by Dakota Dunes Community Improvement District, the Bidder will enter into a Contract at the prices bid and furnish the required Certificate of Insurance. The certified check or cashier's check may be cashed and the proceeds retained as liquidated damages if the Bidder fails to execute a Contract or file acceptable Certificate of Insurance within ten (10) days after the notice of award of Bid by resolution of the Owner. No Bidder may withdraw his Bid for at least thirty (30) calendar days after the scheduled closing time for the receipt of bids.

DAKOTA DUNES
WELL IMPROVEMENTS
DAKOTA DUNES, SOUTH DAKOTA

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- 1.0 Engineer
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ADDITIONAL CONDITIONS

1.0 ENGINEER

1.1 Nothing contained in the Contract Documents shall create any contractual relationship between the Engineer and the Contractor.

1.2 The Engineer will make periodic visits to the site to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accord with the Contract Documents. On the basis of his onsite observations as an Engineer, he will keep the Owner informed of the progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor. The Engineer will not be required to make exhaustive or continuous onsite inspections to check the quality or quantity of the Work. The Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and he will not be responsible for the Contractor's failure to carry out the Work in accord with the Contract Documents.

1.3 Based on such observations and the Contractor's Applications for Payment, the Engineer will determine the amounts owing to the Contractor, and will issue Certificates for Payment in such amounts as provided by the General Conditions.

1.4 Claims, disputes, and other matters in question between the Contractor and the Owner, relating to the execution or progress of the Work or the interpretation of the Contract Documents, shall be referred initially to the Engineer for decision which he will render in writing within a reasonable time.

2.0 CONTRACTOR

2.1 WARRANTY. The Contractor warrants to the Owner and the Engineer that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these standards may be considered defective. If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

2.2 USE OF SITE

2.2.1 The Contractor shall confine operations at the site to areas contained within the construction limits shown on the Drawings.

2.2.2 The entire Work to be performed under the Contract for this improvement is to be at the Contractor's risk, and he is to assume the responsibilities for all damages to the work or to contiguous property. The Contractor shall have charge of, and be responsible for, the entire improvement until its completion and acceptance. It shall be his responsibility to maintain all states of work in a safe and suitable conditions at all times, including nights, weekends, and holidays. The Contractor shall make observations of his work during such periods as are necessary to insure proper care of the work. He shall be liable for any defects which may appear, or be discovered, on his work prior to the termination of the guarantee period.

2.3 CUTTING AND PATCHING OF WORK. The Contractor shall do all cutting, fitting, or patching of his Work that may be required to make its several parts fit together properly, and shall not endanger any Work by cutting, excavating, or otherwise altering the Work or any part of it.

2.4 CLEANING UP.

a. The Contractor, at all times, shall keep the premises free from the accumulation of waste materials or rubbish caused by his operations. At the completion of the Work, he shall remove all his waste materials and rubbish from, and about, the Project as well as all his tools, construction equipment, machinery, and surplus materials, and shall clean all glass surfaces and leave the Work "broom-clean" or its equivalent, except as otherwise specified.

b. The Contractor fails to clean up, the Owner may do so and the cost thereof shall be charged to the Contractor.

2.5 COMMUNICATIONS

2.5.1 The Contractor shall forward all communications to the Owner through the Engineer.

2.5.2 The Contractor shall designate one person who shall have charge of the job and to whom the Engineer shall give directions. If any person employed on the Work shall refuse or neglect to obey the directions of the Engineer or his duly authorized representative in anything relating to the Work, or shall appear to be incompetent, disorderly, or unfaithful he shall, upon the request of the Engineer, be at once discharged and not again employed upon any part of the Work.

2.6 SUPERVISION BY CONTRACTOR. In addition to the requirements established in Paragraph 12.1 of the General Conditions, the Contractor shall provide a superintendent on the Project whose experience shall consist of having been assistant superintendent on at least five projects of similar nature to this Project and two projects as superintendent on projects of similar nature. The superintendent shall be on the jobsite to direct and coordinate the work of his workmen and Subcontractors.

3.0 SEPARATE CONTRACTS

3.1 MUTUAL RESPONSIBILITY OF CONTRACTORS

3.1.1 The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and properly coordinate his Work with theirs.

3.1.2 If any part of the Contractor's work depends for proper execution or results upon the work of any other separate Contractor, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper to receive his Work, except as to defects which may develop in the other separate Contractor's work after the execution of the Contractor's Work.

3.1.3 Should the Contractor cause damage to the work or property of any separate Contractor on the Project, the Contractor shall, upon due notice, settle with such other Contractor by agreement or arbitration, if he will settle. If such separate Contractor sues the Owner or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings at the Owner's expense, and, if any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it, and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

3.2 CUTTING AND PATCHING UNDER SEPARATE CONTRACTS

3.2.1 The Contractor shall be responsible for any cutting, fitting, and patching that may be required to complete his Work except as otherwise specifically provided in the Contract Documents. The Contractor shall not endanger any work of any other Contractors by cutting, excavating, or otherwise altering any work, and shall not cut or alter the work of any other Contractor except with the written consent of the Engineer.

3.2.2 Any costs caused by defective or ill-timed work shall be borne by the party responsible therefor.

3.3 OWNER'S RIGHT TO CLEAN UP

3.3.1 If any dispute arises between the separate Contractors as to their responsibility for cleaning up, the Owner may clean up and charge the cost thereof to the several Contractors as the Engineer shall determine to be just.

4.0 MISCELLANEOUS PROVISIONS

4.1 WRITTEN NOTICE

4.1.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of a firm, or to

an officer of the corporation for whom it was intended, or if delivered at, or sent by, registered or certified mail to the last business address known to him who gives the notice.

4.2 CLAIMS FOR DAMAGES

4.2.1 Should either party to the Contract suffer injury or damage to person or property because of any act of omission of the other party or of any of his employees, agents, or others for whose acts he is legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

4.3 RIGHTS AND REMEDIES

4.3.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to, and not a limitation of, any duties, obligations, rights, and remedies otherwise imposed or available by law.

5.0 PAYMENTS AND COMPLETION

5.1 PROGRESS PAYMENTS

5.1.1 The Contractor warrants and guarantees that title to all Work, materials, and equipment covered by an Application for Payment, whether incorporated in the Project or not, will pass to the Owner upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests, or encumbrances, hereinafter referred to in this Article 5 as "liens"; and that no Work, materials, or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing the work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein, or an encumbrance thereon, is retained by the seller or otherwise imposed by the Contractor or such other person.

5.1.2 The Contractor shall submit, with each Application for Payment, copies of all invoices, bills, and/or other supporting data for materials and equipment delivered and suitably stored for materials and equipment delivered and suitably stored but not incorporated in the work for which he is seeking partial payment.

5.1.3 PAYMENT. Upon certification by the Engineer, the Owner shall pay to the contractor, on account of the Contract, ninety percent (90%) of the value of labor and materials incorporated in the work and ninety percent (90%) of materials suitably stored in accord with Subparagraph 19 of the General Conditions.

5.2 CERTIFICATES FOR PAYMENT

5.2.1 The issuance of a Certificate for Payment will constitute a representation by the Engineer to the Owner, based on his observations at the site as provided in Subparagraph 1.2 and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information, and belief, the quality of the Work is in

accord with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the Contractor is entitled to payment in the amount certified. In addition, the Engineer's final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment have been fulfilled. However, by issuing a Certificate for Payment, the Engineer shall not thereby be deemed to represent that he has made exhaustive or continuous onsite inspections to check the quality or quantity of the Work, or that he has reviewed the construction means, methods, techniques, sequences, or procedures, or that he has made any examination to ascertain how, or for what purpose, the Contractor has used the moneys previously paid on account of the Contract Sum.

5.2.2 No certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accord with the Contract Documents.

5.3 FINAL QUANTITIES

5.3.1 The Owner reserves the right to increase or decrease, within reasonable limits, any of the quantities shown. The term "reasonable limits" shall mean a twenty-five percent (25%) increase or decrease in the quantities on any one Contract item. In the event the actual quantities differ more than the reasonable limits, an equitable revision of the Unit Price shall be made when requested by either the Owner or the Contractor.

6.0 CORRECTION OF WORK

6.1 ACCEPTANCE OF DEFECTIVE OR NONCONFORMING WORK

6.1.1 If the Owner prefers to accept defective or nonconforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the Contract Sum or, if the amount is determined after Final Payment, it shall be paid by the Contractor.

7.0 HISTORICAL AND ARCHAEOLOGICAL PRESERVATION

7.1 If, during the course of construction, evidence of deposits of historical or archaeological interest is found, the Contractor shall cease operations affecting the find, and shall notify the Owner who shall notify the Engineer. No further disturbance of the deposits shall ensue until the Contractor has been notified by the Owner that he may proceed. The Owner will issue a Notice to Proceed only after the State Official has surveyed the find and made a determination of value and effect and submitted such determination to the Owner.

8.0 WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

8.1 The Contract is subject to the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970.

These Contract Documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal law(s), including, but not limited to, the latest amendments of the following:

Williams-Steiger Occupational Safety and Health Act of 1970
Public Law 94-596

Part 1910 - Occupational Safety and Health Standards,
Chapter XVII of Title 29, Code of Federal Regulations

Part 1925 - Safety and Health Regulations for Construction,
Chapter XVII of Title 29, Code of Federal Regulations

9.0 DRAWINGS AND SPECIFICATIONS AT THE SITE

9.1 The Contractor shall maintain at the site, for the Engineer, one copy of all Drawings, Specifications, Addenda, approved shop drawings, Change Orders, and other modifications, in good order, and marked to record all changes made during construction. These shall be available to the Engineer. The Drawings, marked to record all changes made during construction, shall be delivered to him upon completion of the Work.

10.0 INSURANCE

10.1 In addition to the insurance requirements listed in Section 21 of the General Conditions, the Contractor shall provide the following insurance:

<u>TYPE INSURANCE</u>	<u>MINIMUM LIMITS</u>
(1) Workmen's Compensation	Statutory Limits
Employer's Liability	\$500,000 each accident \$500,000 disease-policy limit \$500,000 disease-each employee
(2) Contractor's Bodily Injury Liability with contractual liability endorsement to cover Contractor's indemnify obligation for bodily injury as set out in Paragraph 5(a)	\$1,000,000 per occurrence

- (3) Contractor's Property Damage \$1,000,000 per occurrence
Liability with contractual
liability endorsement to cover
Contractor's indemnity obliga-
tion for property damage as set
out in Paragraph 5(a)
or in place of Items (2) and
(3) above, the following com-
bined single limit coverage
may be provided:

Contractor's Bodily Injury \$1,000,000 combined single
and Property Damage combined limit (CSL)

- (4) Automobile Bodily Injury \$ 500,000 each person
and Property Damage combined \$1,000,000 each accident
- (5) Automobile Property Damage \$ 300,000 each accident
Liability to cover owned,
non-owned, and hired vehicles

or in place of Items (4) and
(5) above, the following com-
bined single limit coverage
may be provided:

Automobile Bodily Injury and \$1,000,000 combined single
Property Damage liability limit (CSL)
combined

- (6) Installation Floater to pro- \$ value of contract
tect the Contractor and the
Owner from all insurable risks
of physical loss or damage to
materials and equipment while
in warehouse or storage areas,
during transportation, during
installation, during testing,
and after the work is completed.
It shall be of the "all risks"
type, with coverages designed
for circumstances which may
occur in the particular work
included in this Contract
Agreement. The coverage shall
be for an amount not less than
the value of the work at com-
pletion. The value shall
include the aggregate value of
the Owner's furnished equipment
and materials to be erected or
installed by the Contractor.
Installation floater insurance
shall provide for losses to be
payable to the Contractor and

Owner as their interests may appear and shall contain a waiver of subrogation rights against the insured.

Before the work is actually commenced, the Contractor shall submit to the Owner certificates, and policies if requested, evidencing that satisfactory coverage of the types above set forth are in effect. The certificates shall contain a provision that no cancellation or material changes in the policies shall become effective except upon ten (10) days' written advance notice thereof by the Insurer to the Owner at PO Box 93B, Dakota Dunes, SD in care of the Insurance Department.

Contractor shall obtain a contractual liability endorsement on its general liability policy. For each insurance policy covered by this Agreement, the policy shall name Dakota Dunes Development Company as additional insured.

Should the Owner permit the Contractor to sublet or subcontract any portion of the work that would permit others, including but not limited to subcontractors and assignees (third parties), to enter Owner's property, or perform a service for the Owner, than the third party shall be required to produce evidence of insurance with limits as set forth in the above paragraphs, prior to commencement of work.

11.0 CONTRACTOR'S EXCISE TAX

11.1 Contractor shall include State of South Dakota excise tax in his bid and shall provide the Dakota Dunes Community Improvement District with a letter from the South Dakota Department of Revenue that all excise tax is paid before receipt of final payment.

12.0 INDEMNIFICATION

12.1 The Contractor shall delete the General Conditions paragraph 24, Indemnification and provide indemnification in accordance with the following:

INDEMNIFICATION PROVISION. The Contractor shall, and hereby does indemnify, protect and hold harmless the Owner and the Engineer from and against any and all liability and all loss, damage, and expense, including judgments, costs, and attorneys' fees by reason of injuries to or death of any person or persons, expressly including therein employees of the Contractor, or loss of or damage to their property or that of any firm, association or corporation, however the same shall occur or be caused and whether the same shall occur or be caused by the negligence of the Owner, or its employees and agents, or otherwise, or by reason of claims of any and every character whatsoever in any manner resulting from, arising out of, or connected with said

work, or undertaking, or acts or omissions of the Contractor, or of any subcontractor hereunder, or of the Owner, or its employees and agents, whether such acts or omissions be claimed to be negligent or not, except that the foregoing indemnification provision shall not cover the sole negligence of the Owner.

The Contractor shall promptly pay all wages due its employees and secure all licenses and permits required by law and shall comply with any and all federal, state and municipal laws and ordinances, and any valid rule or regulation of any legally constituted authority, and shall indemnify and protect the Company against all liability, loss, damage or expense arising from any violation by the Contractor of any such federal, state, or municipal law or ordinance, or any valid rule or regulation of any legally constituted authority.

13.0 LIQUIDATED DAMAGES

The Owner will suffer damage if the project is not substantially completed in the contract period set forth in these bidding documents. Should the Contractor fail to substantially complete the work to the point the work is usable within the allotted contract period (or such later date that may result from extension of time guaranteed by the Owner). The Contractor shall pay the Owner, as liquidated damages, the sum of \$100.00 for each consecutive working day that the terms of the contract remain unfulfilled beyond the date allowed by the contract, which sum is agreed upon as reasonable, which the Owner will sustain per day by the failure of the Contractor to complete work within the time as stipulated; it being recognized by the Owner and the Contractor that the injury to the Owner which could result from the failure of the Contractor to substantially complete on schedule is uncertain and cannot be construed as a penalty on the Contractor.

For each consecutive calendar day that the contract remains incomplete, beyond the contract period provided in the contract documents, the Owner will retain compensation otherwise to be paid to the Contractor the amount of \$25.00. This amount is the minimum amount of damages the Owner will sustain by failure of the Contractor to complete all remedial work, deficient work, clean up the project, complete the paper work required in these contract documents, and other miscellaneous tasks as required to complete all work specified herein. This amount is in addition in lieu of the liquidated damages described above and is applied to contract working days between substantial completion and completion of all contract items.

14.0 ENUMERATION OF THE DRAWINGS, PROJECT MANUAL AND ADDENDA

14.1 Following are the Drawings and Project Manual which form a part of this Contract as set forth in Subparagraph 1.7 of the General Conditions:

Drawing Sheets One through Three
Project Manual
Addenda

DIVISION 1

GENERAL REQUIREMENTS

		<u>Pages</u>
Section 01010	Summary of the Work.....	1; 2
Section 01150	Project Meetings.....	1
Section 01200	Progress and Payment.....	1; 3
Section 01300	Submittals.....	1; 2
Section 01400	Testing Laboratory Services.....	1
Section 01500	Temporary Facilities.....	1; 3
Section 01600	Material and Equipment.....	1
Section 01700	Project Closeout.....	1

SECTION 01010

SUMMARY OF THE WORK

1.0 WORK UNDER THIS CONTRACT Includes all material, labor, tools, expendable equipment, utility and transportation services, and all incidental items necessary to perform and complete, in a workmanlike manner, the Work required for the General Construction for Dakota Dunes Well Improvements.

2.0 WORK ON WEEKENDS AND HOLIDAYS. Except for strictly emergency work, or for protection of property or work required by these Specifications, no work shall be performed on weekends or holidays without permission from the Engineer. The intent of this requirement is that the public or any individuals shall not be unduly disturbed by the construction operations on the said days.

3.0 ITEMS TO BE REMOVED BY THE CONTRACTOR BUT TO REMAIN THE PROPERTY OF THE OWNER include the following:

All removal items shall become the property of the Dakota Dunes Community Improvement District.

4.0 GIVE AT LEAST A FORTY-EIGHT-HOUR NOTICE to the following, and other involved agencies, before commencing work and cooperate with the utility owners while performing the work:

Electric Company - Iowa Public Service Company
Gas Company - Midwest Gas Company
Telephone Company - U.S. West Telephone

5.0 BOUNDARIES AND RIGHTS-OF-WAY

5.1 RIGHTS-OF-WAY necessary for construction of the Project will be provided by the Owner. The Contractor shall confine his construction operations to the immediate vicinity of the location shown on the Drawings, or as required by permit or easement, and shall use due care in placing construction tools, equipment, excavated materials, and pipe line materials and supplies so as to cause the least possible damage to property and interference with traffic.

5.2 THE CONTRACTOR shall be responsible for damage to property outside the boundaries of the construction limits, and shall make satisfactory settlement for such damage directly with the property owner and tenant involved as their interests in such damage may require.

5.3 IF IT IS NECESSARY OR DESIRABLE to use or occupy land outside of the construction limits, obtain written consent from, or execute a written agreement with, the owner and tenant of such land permitting such occupation; do not enter for pipe delivery, or occupy for any other purposes, with men, tools, equipment, construction materials, or materials excavated from the pipe trench, any private property outside the designated construction limit boundaries without such written permission from the owner and tenant of the entered or occupied property.

5.4 THE CONTRACTOR shall make himself cognizant of all property line locations, easement boundaries, and permit requirements prior to starting work. If there are any locations where the Contractor is unsure of the property line, he shall contact a registered land surveyor to provide such information. Any questions concerning easements should be directed to the Owner's legal counsel.

SECTION 01020

ALLOWANCES

1.0 TESTING ALLOWANCE. The Contractor shall allow five thousand dollars (\$5,000) for testing as specified in Section 01400, Testing Laboratory Services.

SECTION 01150

PROJECT MEETINGS

1.0 PRECONSTRUCTION CONFERENCE. The General Contractor shall attend a preconstruction conference to discuss and clarify contract administration procedures, and requirements under which the construction operation is to proceed. Representatives of the Owner and the Engineer will also attend. The Engineer will notify the General Contractor of the date, time, and location of the conference.

SECTION 01200

PROGRESS AND PAYMENT

1.0 SUBMIT APPLICATION FOR PAYMENT to the Engineer on the twenty-fifth (25th) day of each month for Work completed and material stored up to five (5) days prior to the day on which the Application for Payment is submitted. Submit three (3) copies of Applications for Payment on forms provided by the Engineer along with supporting data required in Section 01300, Submittals.

2.0 PAYMENT Upon certification by the Engineer, the Owner shall pay to the contractor, on account of the Contract, ninety percent (90%) of the value of labor and materials incorporated in the work and ninety percent (90%) of materials suitably stored in accord with Subparagraph 19 of the General Conditions.

3.0 FINAL PAYMENT. After Final Completion of any Project Contract, and upon receipt of the project closeout documents required in Section 01400 and upon certification of the Engineer, the Owner shall pay the Contractor the entire balance of the Contract Sum applicable to that Project Contract.

4.0 BID AND UNIT PRICE FOR ALL PIPE LINES shall include mechanical tamping of trench backfill to a density specified herein.

5.0 STORED MATERIALS. With each Application for Payment, submit copies of all invoices, bills, or other supporting data for partial payment of materials, and equipment delivered and suitably stored, but not incorporated in the Work. Also, since the last Application, materials used since the last Application, and materials on the site in this Application.

6.0 BASIS AND MEASUREMENTS FOR PAYMENT

6.1 TAKE MEASUREMENTS with the assistance of the Engineer or his representative.

6.2 MEASURE OF UNIT PRICE QUANTITIES shall be as follows:

- .1 Water Main. Horizontal distance to center of fittings, and piping used for connection of existing main to new main.
- .2 Well screen shall be measured from the bottom plate of the screen to the top of the connection at the well casing. Unit price shall include screen, bottom plate, screen coupling for multiple sections of screen, and coupling for the well casing connection.
- .3 Drop pipe shall be measured on a lineal foot basis from the top of the pump to the bottom of the pitless adapter. The unit price shall include the cost of material and labor for the drop pipe, couplings, and air lines for drawdown

testing. Adjustment for drop pipe quantity and application of unit price shall be adjustment for all related items whose quantity is affected by the pump setting.

- .4 Drilled well hole shall be measured on a vertical foot basis from the bottom of the drill hole to the existing ground surface. Unit price will include all grouting, gravel pack filler and all labor required to fill the annular space between the casing and bore hole which is not included in other unit prices. The unit price shall include all labor required to fill the annular space between the casing and bore hole. The unit price shall include all labor and material required to drill a 16-inch hole to the depth required.
- .5 Steel casing shall be measured on a vertical foot basis from the top of the well screen connector to the top of the casing. The unit price shall include all labor and materials necessary for installation of the well casing.
- .6 Pitless adapter and appurtenances shall be measured on a lump sum basis, which shall be for all labor and material as required to provide the air relief, swing check valve, meter, gate valve, miscellaneous piping, manhole and other miscellaneous mechanical appurtenances as specified and shown on the Drawings.
- .7 Grout backfill shall be measured on a vertical foot basis from the top of gravel pack to the bottom of the pitless adapter. The ten-foot clay seal shall be included in the grout backfill unit price. The unit price will include all grout and all labor required to fill the annular space between the casing and bore hole.
- .8 Gravel pack shall be measured on a vertical foot basis from the bottom of bore hole to the bottom of bentonite seal/backfill. The unit price shall include all gravel pack and all labor required to fill the annular space between the casing or screen and the bore hole.
- .9 Submersible pump and motor shall be measured on a lump sum basis which shall include the submersible pump, motor, and appurtenances as required to make an operational unit.
- .10 Test well pumping unit price shall be full payment for providing the test pumping on the well as specified herein. The well pumping shall be measured as per one each for each well.
- .11 Sampling well unit price shall be full payment for sampling the wells in bottles supplied by the Owner in accordance with these specifications. The sampling well shall be measured as per one each for each well.

- .12 Drop cable shall be measured on a lined foot basis from the top of the pump to junction box in the pitless adapter. The unit price shall include the cost of material and labor for the drop pipe, attachment of drop cable to the column pipe.
- .13 Drop cable shall be measured on a lined foot basis from the top of the pump to junction box in the pitless adapter. The unit price shall include the cost of material and labor for the drop pipe, attachment of drop cable to the drop pipe.
- .14 Backfill and abandonment of existing test well unit price shall be total payment for abandonment of each existing test well in accordance with the Well Construction Standards - State of South Dakota.
- .15 Mobilization/demobilization unit price shall be full payment for transportation of all equipment to the area of the drilling and the transportation of all equipment away from the area of the well hole. Only one mobilization/demobilization charge will be allowed irregardless of the number of wells drilled. The mobilization/demobilization charge shall include the time interval between completion of the well and the beginning of subsequent wells which shall be sufficiently long to complete the pumping and sampling.

SECTION 01300

SUBMITTALS

1.0 SUBMITTALS SPECIFIED IN OTHER SECTIONS are as follows:

General Conditions

- Applications for Payment
- Consent of Surety to Reduction in or Partial Release of Retainage
- Contractor's Affidavit of Payment of Debts and Claims
- Consent of Surety Company to Final Payment
- Contractor's Affidavit of Payment of Debts and Claims
- Contractor's Affidavit of Release of Liens
- Waivers of Liens

Section 01700

- Operating and Maintenance Manuals
- Well Disinfection Reports
- Test Reports

2.0 ENTER THE LIST OF SUBCONTRACTORS AND MATERIAL SUPPLIERS on AIA Document G805, April 1970 Edition, and submit in duplicate prior to approval of the first Application for Payment.

3.0 SUBMIT CERTIFICATE OF INSURANCE with the Contracts.

4.0 SUBMIT THE PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND, in duplicate prior to approval of the first Application for Payment.

5.0 WEEKLY PAYROLL. Each Contractor, Subcontractor, and lower tier Subcontractor shall submit copies of his weekly payroll on Form WH-347, or equal, along with a Statement of Compliance on Form WH-348, available from the Superintendent of Documents, to the Owner for review of conformance with applicable labor standards.

6.0 SUBMIT PROGRESS SCHEDULE/SCHEDULE OF VALUES on forms furnished by the Engineer. Forms shall be submitted to the Engineer by the apparent low Bidder. This form assists the Engineer in setting up the grant payment intervals and interim financing payments by the Owner.

7.0 SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES to the Engineer within twenty (20) days after the date of the Contract.

7.1 TRANSMITTAL FORMS. Each transmittal shall be accompanied by three (3) Shop Drawing Transmittal Forms furnished by the Engineer and completed and consecutively numbered by the Contractor.

7.2 SHOP DRAWINGS. Submit four (4) copies of each shop drawing. Review shop drawings for completeness, coordination with other submittals and/or drawings and adaptability for field erection or construction methods to be used. Certify on the submittals that the review was made prior to submitting to the Engineer. Any shop drawing not reviewed before submitting to the Engineer will delay the review and approval by the Engineer.

7.3 PRODUCT DATA. Submit four (4) copies.

7.4 SAMPLES. Submit in triplicate.

8.0 OPERATION AND MAINTENANCE (O & M) MANUALS

8.1 SUBMITTAL

8.1.1 SUBMIT five (5) copies of the manufacturer's operation and maintenance instructions for each separate piece of equipment that has an operating function. Deliver these manuals to the Engineer before the Project is seventy-five (75) percent complete. Items of equipment for which operation and maintenance manuals are required include, but are not limited to, the following:

Submersible Pump, Submersible Motor, and Appurtenances

9.0 SUBMIT BACTERIOLOGICAL TESTS RESULTS to the Engineer within three days after receipt of test results.

10.0 CHANGE ORDERS. When submitting a Change Order for approval, also submit a revised Progress Schedule showing how the proposed change effects the construction schedule.

SECTION 01400

TESTING LABORATORY SERVICES

1.0 TESTING LABORATORY for testing hereinafter specified shall be selected by the Engineer.

2.0 NOTIFICATION OF TESTING LABORATORY that materials are ready for sampling shall be made by the Contractor. In the case of soils testing, such notification shall be made at least three (3) days in advance.

3.0 SAMPLING shall be made by the testing laboratory's authorized representative. The location from which the sample was taken shall be noted on the Test Report.

4.0 REPORTS shall be made in triplicate directly to the Engineer with a copy sent directly to the Contractor and the Owner.

5.0 PAYMENTS shall be made for testing by the Contractor. The Contractor will be reimbursed from the Testing Allowance specified in Section 01020. Adjustment will be made on the basis of receipts for payment received by the Engineer, with the following exception:

.1 Retesting costs will be the expense of the Contractor.

6.0 PATCHING, if required by the taking of samples, shall be made by the Contractor.

7.0 TESTS ARE SPECIFIED in the following Section:

02221 Utility Excavating, Trenching and Backfilling
02570 Well Drilling
02713 Water Distribution

SECTION 01500

TEMPORARY FACILITIES

1.0 WATER shall be furnished by the Contractor as may be needed for the entire prosecution of the Work.

2.0 TEMPORARY POWER shall be provided throughout the construction period by the Contractor.

3.0 COST OF TEMPORARY POWER used during construction, including the cost of setting and removing temporary service and power transmitted through the permanent system prior to Substantial Completion, shall be borne by the Contractor.

4.0 SANITARY CONVENIENCES for use of all persons employed on the Work will be provided and maintained by the Contractor.

5.0 COLD WEATHER PROTECTION. The Contractor shall be responsible for adequately protecting utilities, supplies, and equipment for the Work during cold weather. Protect items subject to cold weather damage by covering, insulating, or storing in heated space.

6.0 FENCES AND GATES

6.1 TEMPORARY REMOVAL AND REPLACEMENT OF FENCES. When it is necessary for the execution of the Work to pass through existing fences, not designated for permanent removal or relocation, remove and replace such fences, or portions thereof, when and as directed by the Contract Documents.

6.2 EXISTING GATES shall be maintained closed by the Contractor who shall be responsible for any damage, injury, or loss to property resulting from any gate left in an open condition by the Contractor or any of his Subcontractors or sub-subcontractors.

6.3 BARRICADE FENCE. Erect and maintain a barricade fence around the site during the life of the Contract. The fence shall be either a snow fence, or a fence constructed from sound salvage material free from sharp edges or protruding nails. The fence shall be adequate to provide for the safety of the public and especially for the safety of children.

7.0 PROTECTION OF UTILITIES

7.1 VERIFY THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES along the route of work. Omission from, or inclusion of, utility locations on the Drawings is not to be considered as the nonexistence of, or a definite location of, existing underground utilities. All existing service lines and utility structures, as shown on the Drawings and/or located in the field by the utility owners prior to commencing the Work, shall be protected and safeguarded from damage during excavation and grading operations.

If said service lines and/or utility structures are damaged by the Contractor's operation after the locations are known to him, or could have been known to him by notification of the utility owners, the Contractor shall make the necessary repairs at his expense.

7.1.1 DAMAGE TO UTILITY LINES, STRUCTURES, AND SERVICE LINES shall be repaired at the Contractor's expense except when the utility owner inadequately or inaccurately locates his utility or claims the nonexistence of any utilities in the construction area. In such cases, the utility owner shall be responsible for the repair of his utility due to his fault of improper location.

7.2 UTILITY REMOVAL. Before beginning trenching operations, confer with the owners of any underground or overhead utilities which may be on, or in close proximity to, the trenching areas, and arrange for the necessary disconnection of these utilities in accord with the regulations of the utility companies concerned. Take such measures as the Engineer may direct in protecting these utilities properly throughout the period trenching operations are in progress. The party or parties owning or operating overhead or underground utilities shall perform the actual work of moving, repairing, reconditioning, or revising the utilities, unless a Change Order is issued to the Contractor to do the work. Whenever and wherever such operations are undertaken by the owners of utilities, cooperate to the extent that ample protection of their work is provided, so that the entire work is contemplated and expedited to the best interests of all concerned, as judged by the Engineer.

7.3 PROTECT ADJOINING PROPERTY from damage due to the operations of the Contractor. Be responsible for obtaining construction easements from adjacent property owners if operations fall outside the utilities easement or right-of-way. Any damage to adjoining properties shall be repaired at the expense of the Contractor.

7.4 PROTECTION OF EXISTING BUILDINGS AND STRUCTURES. Guard against, and be responsible for, any movement, settlement, or collapse of adjacent buildings, sidewalks, structures, and underground utilities. Repair damage done to the Owner's property or any other property, on or off the premises, by reason of required work.

7.5 PROVIDE FOR SURFACE DRAINAGE, during the period of construction, in a manner that protects trenches and adjacent areas. Provide positive drainage for areas to receive pavement, and at no time allow water to puddle or accumulate on the prepared sub-grade.

7.6 PROTECT EXCAVATIONS within the area of construction from the action of the elements. Keep excavation free of water during the entire progress of construction, regardless of the cause, source, or nature of the water.

7.7 MAINTAIN WATER COURSES AND DRAINAGE WAYS in their natural condition or equivalent courses or construct and maintain other means of drainage.

7.8 MAINTAIN ACCESS TO FIRE HYDRANTS to permit their proper use in case of fire.

8.0 STAKING OUT THE WORK

8.1 THE WORK shall be staked by a licensed land surveyor registered in the State of South Dakota.

8.2 STAKING OUT THE WORK. The Work will be staked out by the Owner or his representative. Additional stakes requested shall be an additional expense to the Contractor payable to the Owner.

8.3 PRESERVATION OF MONUMENTS AND STAKES. The Contractor shall preserve monuments, bench marks, reference points, and stakes, and, in case of willful or careless destruction of the same, will be charged with the resulting expense of replacement. He shall be responsible for any mistakes or loss of time that may be caused by their unnecessary loss of disturbance.

9.0 ACCESS

9.1 STORAGE OF MATERIALS AND EQUIPMENT. Store material and equipment on the site in locations approved by the Engineer. The Owner shall provide a site for the storage of material and equipment.

SECTION 01600

MATERIAL AND EQUIPMENT

1.0 MATERIAL AND EQUIPMENT shall be of the manufacture, model, and type specified. Substitute material and equipment approved prior to bidding, in accord with the Instructions to Bidders, are incorporated into these Specifications as Addenda.

2.0 MATERIAL AND EQUIPMENT OF ACCEPTABLE MANUFACTURE. An item of material or equipment may be used in place of an item which is specified by manufacturer and model number or type, provided that all of the following provisions are met:

- .1 The item is manufactured by one of the acceptable manufacturers listed in the Specifications.
- .2 The item of material or equipment meets or exceeds the minimum qualities established by the specified item.
- .3 The item is used throughout the project so that all items of material or equipment used in place of specified items are of the same make and type.
- .4 The entire cost of all modifications which result from the use of items in place of specified items shall be borne by the Contractor who uses such items, at no additional cost to other Contractors or to the Owner.

SECTION 01700

PROJECT CLOSEOUT

1.0 CLEANING UP. At the completion of the Work, remove waste materials and rubbish from and about the site as well as tools, construction equipment, machinery, and surplus materials. with the General Conditions.

2.0 SUBMITTALS. The following submittals shall accompany the final Application for Payment. Submit in duplicate unless otherwise specified in the Sections indicated.

General Conditions

Contractor's Affidavit of Payment of Debts and Claims
Consent of Surety Company to Final Payment

3.0 SUBMIT INSPECTION CERTIFICATES issued by regulatory agencies to the Engineer as required by Paragraph 7.7 of the General Conditions.

4.0 SUBMIT TESTING REPORTS to the Engineer before final payment and include the following:

Water Well Disinfection Reports
Water Quality Reports
Well Pumping Test Report

5.0 SUBMIT RECEIPTS FOR TESTING COSTS, as specified in Section 01400, Testing Laboratory Services, to the Engineer before final payment.

6.0 DELIVER A RECORD SET OF CONTRACT DOCUMENTS, showing locations and offset distances from permanent surface improvements of underground lines, bends, connections, valves, stops, etc. to the Engineer before final payment.

7.0 OPERATION AND MAINTENANCE MANUALS

7.1 SUBMITTAL

7.1.1 SUBMIT OPERATION AND MAINTENANCE MANUALS to the Engineer before final payment, or earlier when specified, for the following:

Submersible Pump, Motor and Appurtenances

DIVISION 2

SITE WORK

		<u>Pages</u>
Section 02220	Excavation, Trenching and Backfilling...1;	4
Section 02570	Well Drilling.....1;	10
Section 02580	Submersible Pump and Discharge Piping...1	4
Section 02713	Water Distribution.....1;	4

SECTION 02220

EXCAVATION, TRENCHING AND BACKFILLING

1.0 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

Water Distribution

1.2 PROTECTION OF EXISTING UTILITIES

1.2.1 VERIFY THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES along the route of work. Omission from, or inclusion of, utility locations on the Drawings is not to be considered as the nonexistence of, or a definite location of, existing underground utilities.

1.2.2 PROTECT EXISTING UTILITIES from damage due to the operations of the Contractor.

1.2.3 UTILITY REMOVAL. Before beginning trenching operations, confer with the owners of any underground or overhead utilities which may be on, or in close proximity to, the trenching areas, and arrange for the necessary disconnection of these utilities in accord with the regulations of the utility companies concerned. Take such measures as the Engineer may direct in protecting these utilities properly while trenching and excavation operations are in progress. The party or parties owning or operating overhead or underground utilities shall perform the actual work of moving, repairing, reconditioning, or revising the utilities unless a Change Order is issued to the Contractor to do the work. Whenever and wherever such operations are undertaken by the owners of utilities, cooperate to the extent that ample protection of their work will be provided so the entire work, as contemplated, may be expedited to the best interests of all concerned, as judged by the Engineer.

1.2.4 PROTECT ADJOINING PROPERTY from damage. Obtain construction easements from adjacent property owners if operations fall outside the utilities' easement or right-of-way. Any damage to adjoining properties shall be repaired at the expense of the Contractor.

1.2.5 PROTECTION OF EXISTING BUILDINGS AND STRUCTURES. Guard against, and be responsible for, any movement, settlement, or collapse of adjacent buildings, sidewalks, structures, and underground utilities. Repair damage done to the Owner's property or any other property, on or off the premises, by reason of required work.

1.2.6 PROVIDE FOR SURFACE DRAINAGE during the period of construction in a manner that protects trenches and adjacent areas.

1.2.7 PROTECT EXCAVATIONS within the area of construction from the action of the elements. Keep excavation free of water during the entire progress of construction regardless of the cause, source, or nature of the water.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 BACKFILL shall be material from onsite excavations, identical to the type of material found in the trench excavation, free of frozen earth, large clods or stones, cinders, ashes, trash, rubbish, or other foreign materials.

2.1.2 WATER shall not be used for compaction of backfill unless approved by the Engineer.

2.1.3 PIPE BEDDING MATERIAL, if required, shall be select material consisting of crushed limestone screenings finer than 3/8 inch.

3.0 EXECUTION

3.1 EXCAVATION AND TRENCHING

3.1.1 PERFORM EXCAVATION of every description, and of whatever materials are encountered, to the depths indicated on the Drawings. Pile excavated materials a sufficient distance from the banks of the excavation to avoid overloading, slides, or cave-ins, yet providing minimum inconvenience to the public or adjacent property owners.

- .1 Remove excavated materials not required for fill or backfill and waste on the site by burying or as otherwise directed by the Engineer.
- .2 Make excavation by open cut except as shown on the Drawings. Keep banks of trenches as nearly vertical as practical, or sloped as required to prevent slides or cave-ins, and, where required, properly sheathed and braced. Excavate trenches not less than 12 inches nor more than 16 inches wider than the outside diameter of the pipe laid therein. Excavate true to line so a clear space of not less than 6 inches nor more than 8 inches in width is provided on each side of the pipe. The maximum width of the trench specified applies to the width at, and below, the level of the top of pipe. The width of the trench above that level may be as wide as necessary for sheathing and bracing, to prevent slides and cave-ins, and for the proper installation of the work, but care shall be taken not to injure abutting property. Grade the bottom of trenches accurately to provide uniform bearing and support for each section of the pipe on undisturbed soil at every point along its entire length, except for portions of pipe sections

where it is necessary to excavate for bell holes. Excavate bell holes only to an extent sufficient to permit accurate work in the making of joints and to insure that the pipe, for a maximum of its length, will rest on the prepared bottom of the trench. Round the bottom of trenches so that at least one-fourth of the circumference of the pipe shall rest firmly on undisturbed soil.

- .3 If the excavation of pipe trenches is made below grade, due to the fault of the Contractor, restore to the proper grade, at the Contractor's expense, with compacted backfill to a density equal to that of the surrounding undisturbed soil. Backfill of earth under any structure, including manholes, will not be permitted. Fill any excess excavation below the elevations shown with sand, gravel, or concrete as directed by the Engineer and at the Contractor's expense.

3.1.2 EXCAVATE FOR STRUCTURES AND OTHER ACCESSORIES to leave at least 12 inches clear between outer surfaces and the embankment or timber which may be used to hold and protect the banks. The bottom shall be smooth and level. When overexcavation occurs, raise the bottom to the final elevation in 6-inch layers.

3.1.3 CONTROL GRADING in the vicinity of the trench excavation to prevent surface water from flowing into trenches. If water does enter trench, remove and dispose of water until utility lines, fittings, manholes, and other appurtenances are in place and sealed against the entrance of water. Water, earth, or any foreign materials shall not be allowed to enter the utility lines.

3.2 BACKFILLING

3.2.1 PLACE BACKFILL FOR STRUCTURES in horizontal uniform layers not exceeding 6 inches. Bring each layer up uniformly on all sides of the structure and thoroughly compact using pneumatic compaction or other methods approved by the Engineer. Backfill material shall be free from stones and lumps exceeding 3 inches in the greatest dimension. Moisten backfill prior to placing to ensure maximum compaction. Puddling or water flooding for consolidation of backfill will not be permitted.

3.2.2 COMPLETE TRENCH BACKFILL immediately after the approval of the pipe line construction, unless otherwise directed. Do not permit water to rise in unbackfilled trenches after pipe has been placed.

3.2.3 COMPACT BACKFILL for water and sewer trenches thoroughly and uniformly, in layers, by use of hand, pneumatic, or mechanical compactors to eliminate the possibility of lateral displacement. The type of tamper or compactor used shall be as approved by the Engineer. Puddling or flooding of trench for consolidation of backfill or use of wheel-rolling by construction equipment will not be permitted, unless approved by the Engineer.

Backfill and compact each layer in the following manner:

- .1 Backfill with material containing no rocks larger than 3/4 inch in the greatest dimension and carefully place in uniform layers, not exceeding 6 inches in thickness, to a depth of 1 foot over the top of the pipe. Completely and carefully fill the area under the pipe haunches. Place each layer and moisten if necessary.
- .2 Backfill the areas 1 foot over the top of the pipe with a select material containing no rocks larger than 8 inches in the greatest dimension.
- .3 Uniformly moisten backfill above 1 foot over the top of the pipe, as required, and place in 8-inch layers.
- .4 Compact backfill to at least the following percentage of maximum density, at a moisture content within the limits specified above or below optimum moisture content, as determined by Test Procedure ASTM D 698:

<u>Material</u>	<u>Percent of Maximum Density</u>	<u>Percent Above or Below Optimum Moisture Content</u>
Backfill, nonsupporting	90 percent	±3 percent
Backfill beneath driving areas	95 percent	±3 percent

3.2.4 IF SETTLEMENT OCCURS WITHIN THE GUARANTEE PERIOD, regardless of the type of compaction or settlement methods used, refill, compact, and smooth off the trench until it is finally made to conform to the ground surface.

3.3 GRADING

3.3.1 GRADE TO A FINISH ordinarily obtained from a blade grader, with no abrupt changes in grade or holes that will hold water and so that effective drainage is secured.

3.4 SPECIAL PROVISIONS

3.4.1 MOVE MINOR STRUCTURES and restore temporary openings in fences to their original condition. Stockpile and reset, in original locations, any culverts, pipes, cables, or minor structures which are moved. Determine actual condition as to structures and miscellaneous obstacles to move for construction purposes. Removal and placement of these items shall be considered as part of the Contractor's obligation, and no additional payment shall be made.

3.4.2 KEEP EXCAVATIONS free of water by pumping or other means approved by the Engineer, remove any water which accumulates in the trench excavation regardless of the source of the water.

SECTION 02570

WELL DRILLING

1.0 GENERAL

1.1 DESCRIPTION

1.1.1 RELATED WORK SPECIFIED ELSEWHERE

Pumps and Discharge Piping

Section 02580

1.1.2 WELL DRILLING shall include the drilling, casing, screening, grouting, gravel packing, developing, testing, capping and sterilizing of a water well and site clean-up, all in accord with these Specifications and Drawings. Well drilling shall be performed with reverse rotary drilling equipment.

1.1.3 THE LOCATION of the well is as shown on the Drawings, and shall be field located by the Engineer prior to construction.

1.1.4 INFORMATION AVAILABLE from a previous test hole contract is given as the best available indication as to the probable formations to be encountered in drilling the well. Should the actual formation condition require a gravel pack and screen different than indicated herein, a change order will be issued for the difference in material costs only as supported by invoices.

1.2 QUALITY CONTROL

1.2.1 SHOW EVIDENCE OF EXPERIENCE IN DRILLING at least ten wells of comparable diameter and depth. Equipment must be capable of drilling a minimum 36-inch diameter hole to a depth of 200 feet. If the Contractor does not have experience in grouting at least three wells in the manner specified herein, the grouting must be done by a competent crew experienced in such work.

1.2.2 CONTRACTOR shall be licensed in the State of South Dakota as a well driller.

1.3 SUBMITTALS

1.3.1 SUBMIT SHOP DRAWINGS AND MANUFACTURER'S LITERATURE to the Engineer in accord with the General Conditions and General Requirements. These shall include, but not necessarily be limited to, the following:

- Bacteriological Test Results
- Drop Pipe
- Gravel Pack Gradation
- Steel Well Casing
- Well Screen

1.3.2 WELL LOGS shall be carefully and accurately kept for the the hole drilled, with entries made in sequence so that each can be correlated with the depth of the hole at that time. It shall be brought up-to-date at the end of each working day, and shall

be furnished to the Engineer within one week after the performance of all work on the well. The well log shall record the following:

- .1 Location of the Well by section, range, township, and quarter section in accord with the USGS standard well location system
- .2 Depth, Thickness, Type, General Characteristics, and Drilling Characteristics of each material encountered
- .3 Time Required to drill each foot of depth, along with the speed of rotation, when a rotary rig is used for drilling in rock foundations
- .4 Depth, Thickness, and Static Water Level of each water-bearing formation encountered
- .5 Order, Number, Diameter, Gauge Thickness, Type of Material, and Lengths of the individual pieces of well casing installed
- .6 Well Screen Size, Material, Length, Manufacturer, Connections, Fittings, Screen Slot Opening Size, and gravel pack or formation stabilizer material and location.
- .7 Test Pumping Data
- .8 Pump Equipment and Drop Pipe
- .9 Method and Date of bacteriological sampling

1.3.3 GEOLOGICAL SAMPLES. Submit a set of geological samples, collected at 5-foot intervals, along with a well log and a log of all materials installed into the well, including gravel pack, grout, and casing, to the Engineer.

1.3.4 SUBMIT CHEMICAL AND BACTERIOLOGICAL TEST RESULTS to the Engineer within three days after they are received by the Contractor.

2.0 PRODUCTS

2.1 DRILLING FLUID

2.1.1 DRILLING FLUID used in the conventional (mud) rotary drilling shall conform to the tentative NWWA Specifications.

2.2. WELL CASING

2.2.1 STEEL WELL CASING used as a permanent part of the well structure shall be steel pipe conforming to ASTM A53-84a. It shall be of standard brand manufacture, and have the brand name clearly printed on each length of pipe. Permanent steel casing shall be 20-inch nominal diameter with a minimum wall thickness

of 0.375 inches. Lengths of casing shall be connected with either screwed couplings or approved welds. Welded joints shall be made in accord with the provisions of Paragraph 3.02 of this Section.

2.3 CEMENT GROUT

2.3.1 The cement grout mixture shall consist of approximately six gallons of clean water mixed with one sack of portland cement. The cement shall be sulfate resistant, Type III or better. As per ASTM C150 Type II cement may be used provided two pounds of bentonite are added per sack of cement. Water used in cement grout may not contain oil or other organic material.

2.3.2 Additives such as bentonite may be added to cement grout. When additives are used, up to seven gallons of water may be mixed per sack of cement.

2.4 WELL SCREEN

2.4.1 WELL SCREEN shall be designed to produce a minimum loss of head between the water-bearing stratum and well, and shall be of the continuous slot design, fabricated of specially shaped cold drawn bars. The outer winding that forms the screen surface and the internal longitudinal bars shall be jointed at each intersection by welding, and shall be of Type 304 stainless steel conforming to ASI requirements. The well screen shall meet the following requirements:

- .1 Manufacturer. The screen and accessories required for installation shall be commercial products of a manufacturer regularly engaged in the production of such equipment, such as The Johnson Division, Universal Oil Products Company, St. Paul, Minnesota.
- .2 Openings in the Well Screen shall be of the proper width to permit the maximum practical sandfree yield after development. The size of the slot shall be that recommended by the manufacturer, based on a sieve analysis of a representative sample of the water-bearing formation submitted (or analyzed) by the driller. Openings shall be of a geometric shape to permit maximum transmitting capacity without clogging or jamming.
- .3 Joints. If it is necessary to join several screen together, the joints connecting the screen sections shall be butt-type couplings of the same material as the screens.
- .4 Length and Diameter of the Well Screen shall be determined by the Engineer, based on the thickness of the water-bearing formation(s) and the method of installation. Screen diameter and lengths, for the purposes of Bids, shall be as specified herein. If there are significant changes made, based on the actual well profile, additional costs will be negotiated through a change order.

- .5 The screen is to be provided with a stainless steel type 304 plate welded on the bottom of the screen, minimum 0.375-inch thickness.

2.5 GRAVEL PACK

2.5.1 GRAVEL PACK MATERIAL shall be composed of well rounded uniform grains of water washed quartz or granitic gravel. Submit the gradation of the gravel pack to the Engineer for approval. The gravel pack shall be sized and graded by the manufacturer of the well screen, based upon the gradation of the material composing the aquifer. Gravel-pack material shall have a uniformity coefficient of 2.5 or less. The use of a gravel matrix performed on an intake screen shall not be applied unless the amount of open area of the screen allows for full development of the formation, and the pack material and screen are sized in accord with artificial gravel pack principles.

2.6 DISINFECTION

2.6.1 DISINFECTION shall be accomplished with calcium hypochlorite, the equal of HTH as manufactured by Mathieson-Alkalai Works.

2.7 FORMATION STABILIZER

2.7.1 FORMATION STABILIZER shall be used when undesirable overlying materials may collapse downward into the annulus around the screen during the development process. Material used for formation stabilizer shall be clean, well rounded, coarse sand, pea gravel, or other material approved by the Engineer.

3.0 EXECUTION

3.1 DRILLING

3.1.1 DRILL WELLS no deeper than that specified by the Engineer. Drilling may be accomplished by a reverse hydraulic drilling machine. Equipment used shall be in good repair and capable of drilling to a depth of 200 feet. It is estimated that sufficient water can be obtained at a depth less than 200 feet.

If the bore hole is inadvertently drilled below the depths to which the casing and screen is to be installed, the lower part of the bore hole shall be grouted in accordance with these specifications for grout and grout placement.

3.1.2 DIAMETER OF DRILL HOLE shall as shown on the Drawing.

3.2 STEEL WELL CASING

3.2.1 INSTALL STEEL WELL CASING to the depth specified by the Engineer and grout in place. The length of casing required depends on the depth of the formation and overlying materials. Casing shall be provided with centralizers at intervals of 30 feet to accurately center the casing and screen in the bore hole.

3.2.2 WELDING

- .1 Preparation. Surfaces to be welded shall be free from loose scale, rust, grease, paint, and other foreign material except for mill scale which withstands vigorous wire brushing. Joint surfaces shall be free from fins and tears.
- .2 Standards. The technique of welding employed, the appearance and quality of welds made, and the methods of correcting defective work shall conform to normally accepted standards of workmanship.
- .3 Temperature of Material to be Welded. No welding shall be done when the temperature of the base metal is lower than 0°F. At temperatures between 0°F and 32°F, heat the surfaces of areas within 3 inches of the edges to be welded until too hot to touch before welding is started.
- .4 Alignment. Welded sections of steel casing shall be true to line and free from twists, bends, offsets, and open joints. Welded joints shall be watertight.

3.2.3 CASING BOTTOM. The bottom of the screen and casing assembly shall be plugged tight by welding on a stainless steel plate Type 304 plate at least. The welded seam shall be continuous.

3.3 GROUTING OF WELL CASING

3.3.1 PLACE GROUT in the annular space between casing and drill hole. Grout the well from a point 5 feet above well screen up to the bottom of the pitless adapter. Maintain a minimum grout thickness of 4 inches between the well casing and the drill hole.

3.3.2 TEMPORARY CASING. If necessary, install a temporary casing to insure the minimum specified wall thickness of grout. This casing shall be withdrawn as the grout is placed. No payment shall be made for any temporary casing left in place.

3.3.3 PLACE GROUT by either the TREMIE method or Positive Placement-Exterior method as defined in AWWA A100 Appendix B.

3.3.4 CURING. Allow grout to cure at least 72 hours before drilling, test pumping, or performing other work in the well. If quick set cement is used, the curing period may be reduced to 24 hours upon approval by the Engineer.

3.4 WELL SCREEN INSTALLATION

3.4.1 INSTALL WELL SCREEN by suspended from surface method. If Contractor wishes to deviate from the specified method of screen installation, he shall submit the proposed method of screen installation and gravel packing for approval by the Engineer prior to completion of the wells.

3.5 GRAVEL PACK

3.5.1 PLACE GRAVEL PACK MATERIAL in the annulus surrounding the well screen by use of a tremie pipe lowered to the bottom of the space to be packed and slowly raised as the gravel pack fills the annular space. As the gravel pack is poured into the tremie pipe, water shall also be poured in to help carry the filter material in accordance with the Manual of Water Well Construction Practices Paragraph 50.000-000-300.

3.5.2 DISINFECT GRAVEL PACK in accordance with AWWA A100 Section 11 prior to the time the gravel is placed in the well.

3.5.3 GRAVEL PACK MATERIAL shall be placed to the limits shown on the Drawings.

3.5.4 PLACEMENT OF FILL shall be placed to the limits shown on the Drawings. A 2-foot Bentonite seal will be placed between the gravel pack and grout fill.

3.6 BENTONITE

3.6.1 BENTONITE SEAL shall be a minimum of 2 feet thick, and shall be placed by the tremie method in the annular space outside the well casing beginning at the top of the gravel pack. Disinfect clay in accordance with AWWA A100 Section 11.

3.7 WELL DEVELOPMENT

3.7.1 DEVELOP THE WELL by methods which will effectively extract from the water-bearing formation the maximum practical quantity of drilling mud, fine sand, silt, or other fine materials. Develop the well to obtain the maximum yield per foot of drawdown and sandfree water at the maximum pumping rate.

- .1 Methods. Neither bailing nor pumping shall be considered to be adequate development methods under this Contract. One of the following methods shall be used:
 - Compressed Air
 - High velocity jetting
 - Surge plungers
- .2 Precautions. Develop the well in a manner that does not cause undue settlement of the stratum above the water-bearing formation. Take every precaution to avoid development of the well in a manner which introduces unconsolidated material lying above the aquifer into the water-producing zone.
- .3 Continue Development of the Well until water pumped from the well, at the rate determined by the Engineer, is clear and free of sand and silt. Water shall be considered sandfree when samples taken at the determined pumping rate contain less than two parts per million (by weight) of sand, measured as specified in the Manual of Water Well Construction Practices, paragraph 52.000-001-000.

- .4 Additional Development Work, as directed by the Engineer, to further improve the specific capacity of the well may be required. Such additional work, excluding chemicals, will be paid for at the same hourly rate as the normal development work.

3.8 FIELD QUALITY CONTROL

3.8.1 CHECKING DRILLING FLUID. Control of the drilling fluid shall be accomplished by sampling the fluid at least once an hour, or when a new mud system is started, changed, or added to, when specific formations are penetrated that could drastically alter the mud properties, or when directed by the Engineer. Record the results and the time of the test and include the records with the well logs.

3.8.2 PLUMBNESS AND ALIGNMENT TESTS

- .1 Test in accordance with AWWA 100.
- .2 Rejection. If the well does not pass the testing procedure, the Engineer has the authority to reject the well as drilled and cased, with no payment to the Contractor, until the deficiency is corrected to the satisfaction of the Engineer.

3.8.3 TAKE SAMPLES OF THE FORMATION , as drilling progresses, and furnish to the Engineer. Samples shall not be washed, and shall be kept in cloth bags. When an aquifer is encountered, take a sample of sufficient volume and have it analyzed by the manufacturer of the well screen. Samples shall be taken as follows:

- .1 Reverse Hydraulic Drilling. Because the hydrostatic water level of aquifers encountered cannot readily be determined during rotary drilling methods and because of the relatively high speed of penetration of rotary methods of drilling, take samples during drilling at 5-foot intervals and at every change in formation. If so directed by the Engineer, the driller may be required to take samples at 1-foot intervals when a potential aquifer is encountered.

3.9 PRECAUTIONS DURING CONSTRUCTION

3.9.1 TAKE PRECAUTIONS NECESSARY OR REQUIRED to permanently prevent contaminated water or water having undesirable physical or chemical characteristics from entering the well. Also take precautions during construction to prevent contamination or pollution from the ground surface.

3.10 TESTING FOR YIELD AND DRAWDOWN

3.10.1 THE IRRIGATION WELL shall be pumped at a discharge rate of 2000 gpm for a minimum of 24 hours. The domestic well shall be pumped at a discharge of 3000 gpm and 1500 gpm for a minimum of 24 hours each with full recovery between tests. The test pump shall have its intake at least 5 feet below the estimated lowest

pumping level, and shall have sufficient power and capacity to achieve the designated discharge rate. Discharge shall be measured with an accurate totalizing meter and stopwatch, a circular orifice meter, or a Venturi meter, any of which are subject to approval by the Engineer or his representative. Discharge shall be maintained within plus or minus 5 percent of the designated rate by means of a gate valve or throttling device. Discharge shall be checked and adjusted, if necessary, every 10 minutes during the first hour of pumping and at 30-minute intervals thereafter. The discharge and time of measurement shall be recorded each time it is checked and a note made of any adjustments. The static or nonpumping water level trend shall be established prior to the start of the test. Drawdown shall be measured according to the following schedule: 0 to 10 minutes - every minute; 10 to 45 minutes - every 5 minutes; 45 to 90 minutes - every 15 minutes; 90 to 180 minutes - each half hour; 180 minutes to the end of the test - each hour. Should the measurements not be made exactly at the times specified, the actual time of each measurement shall be recorded. On completion of pumping, recovery measurements shall be made according to the above drawdown schedule.

3.11 CLEANING AND DISINFECTING

3.11.1 CLEAN THE WELL of foreign substances including, but not limited to, cement, oil, grease, joint dope, and scum, after completion and test pumping.

3.11.2 DISINFECT THE WELL with a chlorine solution prepared prior to injection into the well, of volume and strength, and so applied that a minimum concentration of 50 ppm of free residual chlorine is obtained in all parts of the well for at least 24 hours before removal. Chlorine may be added to the well by any of the following methods:

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

3.12 TESTING OF WATER SAMPLE

3.12.1 WATER SAMPLES for chemical, mineral, (trace metals) and radiological analysis will be collected prior to disinfection of the well. Samples will be collected in sample containers provided by the laboratory. Submit samples to a testing laboratory for analysis.

3.12.2 WATER SAMPLES for bacteriological analysis shall be taken by the Contractor after the 50 ppm of chlorine has been maintained for 24 hours and sufficient water removed from the well to reduce the residual content to not greater than 0.4 ppm. After the well has been flushed, take water samples from the well and submit to a testing laboratory for bacteriological analysis. If bacteriological results obtained are unsatisfactory, repeat the well disinfection and take samples until bacteriologically satisfactory samples are obtained.

3.12.3 SAMPLE ANALYSIS (both acquisition and payment) shall be by the Contractor. The Contractor must submit copies of the water analysis results to the Engineer before payment for the well will be made.

3.13 CAPPING

3.13.1 CAP THE WELL by a method approved by the Engineer. Attach a cap to the top of the casing to protect the well from the entrance of foreign materials.

3.14 ABANDONMENT OF WELL

3.14.1 ABANDONMENT. In the event the well is not accepted by the Engineer for completion, due to insufficient capacity, unsatisfactory chemical or bacteriological quality, or abandoned because of poor alignment, loss of tools, or any other cause, the Contractor shall, as directed by the Engineer, pull the casing and screen and fill the well hole with the excavated material up to within 12 feet of the top and then fill the remaining 12 feet with compacted clay material. In this event, the Contractor shall be paid for said well only in the amount of his actual reasonable cost of labor, expended materials and equipment rental or its equivalent, plus ten percent to cover overhead and all other expenses and profit. The casing and screen shall be salvaged and used by the Contractor under his Contract in a new well to be built at another location. In the event of damage to the casing or screen during pulling operations, where the Contractor is not at fault, the Owner will replace the damaged parts at its expense. If conditions at the jobsite are such that, in the Engineer's opinion, it is extremely difficult, or not feasible, to pull the casing with normally supplied equipment after the Contractor has made every reasonable effort to do so, then he will be excused from further efforts to pull the casing. The Contractor shall adhere to the State Health Department rules and regulations for well abandonment.

3.15 RECORDS

3.15.1 A RECORD OF WATER WELL CONSTRUCTION shall be furnished by the driller to the Engineer and to the well owner. The record shall contain the following:

1. The name and complete mailing address of the owner;
2. The legal description of the well location;

3. The completion date;
4. The driller's log of geologic formations penetrated plus any geophysical logs;
5. The depth of the well;
6. The depth of the static water level in the well;
7. The size of the drill hole and the method of drilling;
8. The length, depth, and size of the casing, changes in size of casing, and type of casing;
9. The grout used; the amount, type, slurry weight, and location in hole of the grout used; and a description of the grouting procedure;
10. The packers, their location in hole, and the type used;
11. The length of the screen or casing perforations;
12. The location of the top and bottom of the screen, the top and bottom of the aquifer, and the location of multiple screens;
13. The screen slot or perforation size;
14. The gravel pack and its volume, type, or size;
15. The well test that includes specific capacity, static water level, flow, shut-in, pressure or estimate, or actual pump test data if available;
16. The type and method of disinfection;
17. The date and signature of the license representative, and
18. The signature of the well owner.

SECTION 02580

PUMPS AND DISCHARGE PIPING

1.0 GENERAL

1.1 DESCRIPTION

1.1.1 THE CONTRACTOR is responsible for the submersible pump, motor, discharge piping and appurtenances as covered in this Section.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Excavation, Trenching and Backfilling	Section 02221
Water Distribution	Section 02560
Concrete Reinforcing	Section 03200
Cast-in-place Concrete	Section 03320

1.3 SUBMITTALS

1.3.1 SUBMIT SHOP DRAWINGS to the Engineer in accord with the General Conditions and General Requirements. Shop drawings shall include, but are not limited to, the following:

Check Valve
Pitless Adapter
Gate Valves
Motor
Pressure Gauge
Submersible Pump

1.3.2 SUBMITTAL. The Bidder shall submit with his Bid Form the characteristics and pump curves for each pump showing the following:

Rated Speed
Rated Total Pump
Rated Horsepower at rated speed and capacity
Pump Efficiency at rated point
Shut-off Head
Column Piping, Type of Joints and Opening of Joints
Line Shafting, Length of Sections and Diameter
Spacing of Line Shaft Bearing
Manufacturer of Motor
Type of Motor
Horsepower of Motor
Efficiency of Motor
Electrical Equipment and Wiring Diagram
Guaranteed Wire-to-water Efficiency of the installed pumping equipment

1.3.3 SUBMIT PERFORMANCE CURVES, including head capacity, efficiency, and break horsepower, along with a guaranteed wire-to-water efficiency of the installed pumping equipment. Submit complete dimensional prints and descriptive bulletins with the Bid Form.

1.3.4 SUBMIT OPERATION AND MAINTENANCE MANUALS to the Engineer, in triplicate, prior to substantial completion for the following items:

Air Release Valve
Check and Gate Valves
Pump and Motor

1.4 WORK SPECIFIED THIS PROJECT

1.4.1 Work under this contract consists of construction of well, piping and other work as described on the Plans and Specifications, except for work to be performed by the Owner. The Owner will construct earthwork and install seeding.

1.5 QUALITY OF WORK

1.5.1 MAXIMUM PUMP VIBRATION shall not exceed the limits as set forth in the latest edition of the Hydraulic Institute. Pump shall not dewater the screen.

1.5.2 AWWA Standard E101 shall govern the execution of this work.

2.0 PRODUCTS

2.1 SUBMERSIBLE PUMP

2.1.1 PUMP shall be of the submersible type and shall consist of the proper number of stages for a pumping capacity as follows:

Well Description	Capacity	Total Dynamic Head	RPM	Minimum Effluent	Minimum Motor HP
Irrigation	2,000 gpm	80	1,750	80%	60 hp
90-3 and 90-5	700 gpm ea	70	1,750 ea	80% ea	10 hp ea

Pump bowls shall be constructed of cast iron with cast bronze impellers of either the semi-open or enclosed type, accurately machined and balanced, and securely attached to an impeller shaft of stainless steel. Pump shall be designed for water lubrication, and bowl bearings may be either of cutless rubber or bronze. Provide pump discharge bowl with flanged connection for a 6-inch I.D. wrought steel column pipe. Provide a check valve in the column pipe above the pump.

2.1.2 PROVIDE AN INTERCONNECTION UNIT with motor mounting adapter and stainless steel suction strainer of the proper size.

2.1.3 THE PITLESS ADAPTER UNIT shall be an industrial type similar or equal to Monitor for installing the submersible pump as specified above and as shown on the Drawings. It shall have a spool with an integral check valve, with seals that permit withdrawing the entire assembly within the casing without any excavation and also provide space for passage of power cable and air testing tube. The cap shall be the watertight type with a vent top and a conduit tap. All major parts below ground shall be either galvanized or constructed of corrosion-resistant

materials. The unit shall be mounted on the well casing with a threaded or welding connection. Provide an air depth test block fitting on the pitless adapter.

2.2 ELECTRIC MOTOR

2.2.1 SUBMERSIBLE ELECTRIC MOTOR shall be a submersible type suitable for across-the-line starting service and designed to operate on 480-volt, 3-phase 60-cycle current.

- .1 Motor shall be water-filled, water-cooled, and lubricated of the wet stator type with mechanical seal fitted outside the motor to exclude abrasive material in the well water. A diaphragm shall be provided in the base of the motor to provide for internal water expansion during operation.
- .2 Motor shall be provided with a thrust bearing of sufficient capacity for carrying the weight of rotating parts of the pump plus the maximum downthrust of the pump under continuous operation.
- .3 A sufficient length of three-conductor flexible insulated lead wire for connection to the drop cable shall be sealed into the motor.
- .4 Motor and end bells shall be sufficient to not overload under any conditions of pumping or discharge head, shall be in accord with the manufacturer's recommendations, and further provided that the minimum size of motor shall be 30 horsepower.

2.2.3 CABLE shall be sized as shown on the Drawings. Cable shall be 600-volt and suitable for submerged installation.

2.3 DISCHARGE COLUMN

2.3.1 PUMP COLUMN PIPE shall be the size shown on the Drawings and shall conform to the dimensions and weight of extra strong pipe as defined by the American Institute of Steel Construction. Column pipe shall meet the requirements of AWWA E101, along with ASTM A53 and A120.

2.4 DISINFECTION

2.4.1 PUMP DISINFECTION shall be accomplished with calcium hypochlorite, the equal of HTH, as manufactured by Mathieson Alkali Works.

3.0 EXECUTION

3.1 VERTICAL PUMP INSTALLATION

3.1.1 PUMP SHALL NOT BE ORDERED until the well production test has been completed and written instructions received from the Engineer regarding the exact characteristics of the pump to be furnished. The pump characteristics as previously specified are the best obtainable in advance of conducting the well production

test, and will serve for the taking of Bids for this item. In the event that characteristics vary widely from those specified any changes in the Contract Price will be negotiated at that time

before the order for the pump is placed by the Contractor. The basis for any adjustment in Contract Price shall be the difference in the invoice price of the specified pump and the new pump.

3.1.2 FOLLOWING PUMP INSTALLATION, conduct a field performance test of the installed equipment to determine the actual wire-to-water efficiency at the specified capacity and head. Provide all necessary testing equipment, such as accurate test gauges, electrical instruments, orifice meter, weir box, etc. Failure to meet the specified capacity at specified head or the guaranteed wire-to-water efficiency may be cause for rejection of the installed pumping equipment.

3.2 PUMP STERILIZATION

3.2.1 EXTERIOR OF PUMP BOWL ASSEMBLY AND PUMP COLUMN PIPE shall be thoroughly cleaned and then rinsed with hypochlorite solution as the pump is being installed. Following installation, pour a solution made up of two pounds of hypochlorite through the pump discharge openings to sterilize the interior of the pump. After sterilization, pump water to waste until hypochlorite is eliminated.

3.3 MOTOR

3.3.1 INSTALL PUMP MOTOR according to the manufacturer's recommendations and make electrical connections as specified in Division 16, Electrical.

3.4 PUMP DISCHARGE PIPING

3.4.1 FOLLOWING INSTALLATION OF PUMP, install the discharge piping and connection piping as shown on the Drawings.

3.5 STERILIZATION

3.5.1 DURING THE PROGRESS OF PIPING INSTALLATION, each piece of pipe and fitting shall be thoroughly cleaned before final installation in place, and two tablets of HTH 70 percent chlorine or other chlorine compound of equal strength shall be placed in each piece of piping installed. The tablet shall be secured to the upper surface of the pipe or fitting by means of hot tar or gasket cement. The pipe shall then be slowly filled with water and allowed to stand for 24 hours to effectively sterilize the piping system. The Contractor shall collect two samples 24 hours apart for coliform test to be conducted by a testing laboratory. If the two tests do not pass, the Contractor shall redisinfect the wells equipment until two tests taken 24 hours apart are tested safe.

SECTION 02713

WATER DISTRIBUTION

1.0 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

Utility Excavation and Backfilling

Section 02221

1.2 SUBMITTALS

1.2.1 SUBMIT SHOP DRAWINGS AND PRODUCT DATA to the Engineer in accord with the General Conditions and General Requirements. Submittals shall include, but are not limited to, the following:

Gate Valve and Box
Pipe and Fittings
Record Drawings

1.2.2 SUBMIT RECORD DRAWINGS to the Engineer within ten days after completion of the installation. Record Drawings shall the location of water mains, gate valves, and bends. Measure gate valves from two permanent objects.

1.3 PROTECTION OF WATER SUPPLIES

1.3.1 LAY water mains paralleling sanitary sewers at least 10 feet horizontally from any existing or proposed sewer. Measure the distance from face to face of pipes. If approved by the Engineer or shown on the Drawings, water main may be laid closer to sewer provided that water main is laid in a separate trench or on an undisturbed shelf located on one side of sewer at such an elevation that the bottom of water main is at least 18 inches above the top of sewer.

1.3.2 WHERE WATER MAINS CROSS OVER SEWERS, provide a minimum vertical separation of 18 inches between the exterior face of pipes. If an 18-inch clearance cannot be obtained, or where water main must cross under sewers, reconstruct existing sewer or construct new sewer of cast or ductile iron, or prestressed concrete pressure pipe to a distance 10 feet either side of water main. Center one full length of water main at the crossing so that both joints shall be as far from sewer as possible. In any case, where water main crosses under sewer, provide an 18-inch minimum vertical clearance between the exterior face of pipes.

2.0 PRODUCTS

2.1 PIPE MATERIALS

2.1.1 POLYVINYL CHLORIDE (PVC) PIPE shall be Class 200 in accord with AWWA C-900. Joints shall be rubber rings meeting ASTM D 1869. Fittings shall be cast or ductile iron, same class as pipe, and shall be in accord with AWWA C-900.

2.1.2 DUCTILE CAST IRON (DI) PIPE shall be Class 51, with a working pressure of 350 psi, and shall meet the requirements of

AWWA C151 and ANSI A21.51. Joints shall be cement-mortar lined to meet the requirements of AWWA C104 and ANSI A21.4, with a minimum thickness of 1/16 inch. Fittings shall be ductile cast iron, and shall meet the requirements of AWWA C110. The class of all fittings shall be compatible with working pressure and class of pipe specified.

2.1.3 LUBRICANT for pipes with rubber ring joints shall be water soluble, non-toxic, unable to support bacteria growth, impart no objectionable taste when dissolved in the water, and nondestructive to pipe or gasket. Lubricant shall have an easily spreadable consistency at all operating temperatures, and shall provide adequate lubrication for assembly and re-assembly, if required, after 20 minutes. Lubricant shall adhere satisfactorily to wet pipe.

2.2 VALVES AND BOXES

2.2.1 GATE VALVE shall meet the requirements of AWWA C-500, and shall be iron body, with nonrising stem, with type of ends to fit pipe to which they are to be connected. Valve shall have a clear waterway equal to the full nominal diameter of valve, and shall be opened by turning in a counterclockwise direction. Operating nut shall have an arrow cast thereon indicating direction of opening. Valve shall have the manufacturer's name or trademark, pressure rating, and year in which made cast on the body. Design valve for a working pressure equal to, or greater than, that of pipe to which it is connected.

2.2.2 GATE VALVE BOX shall be Buffalo type, two-piece cast iron with a slip-style adjustment and flared base. Stamp lid with the word "Water." Furnish a gate valve wrench 2 feet longer than depth of burial. Box shall be equal to Mueller H 10346.

2.3 CONCRETE

2.3.1 CONCRETE for thrust blocks shall be 3,000 psi at 28 days.

2.4 CHLORINE

2.4.1 CHLORINE for disinfection shall meet the requirements of FS BBC-120 Hypochlorite shall meet the requirements of FS OC-114, Type II, Grade B, or FS O-S-602.

3.0 EXECUTION

3.1 PREPARATION

3.1.1 EXCAVATE trench in accord with Section 02221, Utility excavating and Backfilling. Minimum cover over top of pipe shall be six feet measured from existing or finish grade, whichever is deeper, and shall avoid interference with other utilities.

3.1.2 THOROUGHLY CLEAN interior of pipes and valves of foreign objects prior to lowering in trench. Keep interior clean during construction operations by the use of plugs or other suitable means.

3.1.3 KEEP TRENCH free of water. Do not lay pipe in water, under water, or when unfavorable weather conditions exist.

3.2 BEDDING AND ALIGNMENT OF PIPE

3.2.1 LAY pipe on an even grade free of humps which pocket air. Install mains at grades which permit air to be released at fire hydrants.

3.2.2 ALIGN water main in a straight line or smooth radius curves by deflecting pipe at joints. Make deflections at joints according to pipe manufacturer's engineering data for maximum pipe deflections. Install special bends or a sufficient number of short pipe lengths, at manufacturer's maximum pipe deflections to meet radii shown on the Drawings.

3.3 PIPE INSTALLATION AND JOINTING

3.3.1 CLEAN surfaces of pipes at points where pipes are joined.

3.3.2 LUBRICATE SPIGOT END of PVC ring jointed pipe. Do not lubricate rubber or groove. Insert spigot end into bell and push pipe to depth specified by pipe manufacturer.

3.3.3 LUBRICATE GASKET RETAINING GROOVE of ductile iron pipe bell, insert gasket, and press firmly to seat. Apply lubricant to gasket and beveled nose at end of pipe. Insert pipe into bell and push pipe to depth specified by pipe manufacturer.

3.3.4 CONNECT SPECIALTIES AND PIPES of different materials and sizes according to manufacturer's recommendations and the approval of the Engineer.

3.4 TRENCH WIRE

3.4.1 LAY trench wire directly above the top of PVC water main. Bring wire to ground surface at hydrants, valve boxes, and end of mains. Test wire for electrical conductivity continuity and correct discontinuities.

3.5 VALVE AND BOX INSTALLATION

3.5.1 INSTALL valves and boxes as recommended by the manufacturer and as shown on the Drawings.

3.6 THRUST BLOCKS

3.6.1 INSTALL thrust blocks at bends, tees, valves, hydrants, and ends of mains. Pour thrust blocks against undisturbed earth and in a manner to keep joints and pipe accessible for repair. Precast thrust blocks will not be allowed.

3.7 BACKFILLING

3.7.1 BACKFILL trenches as specified in Section 02221, Utility Excavating and Backfilling.

3.8 DISINFECTION

3.8.1 DISINFECT DOMESTIC WATER SERVICE with chlorine before acceptance. Each time a section of main is tapped or depressurized for any reason, all portions depressurized must be disinfected.

3.8.2 DISINFECT WATER DISTRIBUTION SYSTEM as described below or to meet the requirements of AWWA C601. (Thoroughly flush system before adding chlorine.) Do not introduce chlorine in granular or tabular form. After a contact period of not less than 24 hours, flush system with potable water until residual chlorine content is not greater than two parts per million. Open and close valves several times during contact period. Introduce chlorine into system in an approved manner and at a rate to provide not less than 50 parts per million.

DIVISION 3

GENERAL REQUIREMENTS

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Section 03300 Cast-In-Place Concrete	1; 4

SECTION 03100

CONCRETE FORMWORK

1.0 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

Concrete Reinforcement	Section 03200
Cast-In-Place Concrete	Section 03300

1.2 QUALITY ASSURANCE

1.2.1 DESIGN OF FORMWORK shall be the responsibility of the Contractor.

1.2.2 MINIMUM STANDARDS. American Concrete Institute Building Code Requirements for Reinforced Concrete, ACI 318, and Specifications for Structural Concrete for Buildings, ACI 301, shall be the minimum design and construction standards.

2.0 PRODUCTS

2.1 MATERIALS

2.1.2 FORMS AND SHORING MATERIALS to be used are to be determined by the Contractor.

3.0 EXECUTION

3.1 FORM ERECTION

3.1.1 ERECT FORMS to conform to shapes, lines, and dimensions of the members as shown on the Drawings. Forms shall be sufficiently tight to prevent leakage of mortar, and shall be properly braced or tied together to maintain position and shapes.

3.1.2 EARTH CUTS may be used as a form for footings.

3.1.3 POSITION SHORING as required to safely support forms and to prevent an overload of existing construction.

3.2 FORM REMOVAL

3.2.1 REMOVE FORMS to ensure the complete safety of the structure. Where the structure is supported on shores, the removable floor forms, beam and girder sides, column, and similar vertical forms may be removed after 24 hours providing the concrete will not be injured. Supporting forms or shoring shall not be removed until members have acquired sufficient strength to safely support their weight and imposed loads.

SECTION 03200

CONCRETE REINFORCEMENT

1.0 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

Concrete Formwork	Section 03100
Cast-In-Place Concrete	Section 03300

1.2 SUBMITTALS

1.2.1 SUBMIT SHOP DRAWINGS in accord with ACI 3315, Manual of Standard Practice for Detailing Reinforced Concrete Structures, General Conditions, General Requirements, and requirements stated herein. Splice lengths shall be shown on the shop drawings.

1.2.2 SHOP DRAWINGS shall be complete enough to permit reinforcement placement without reference to the Drawings.

1.3 STORAGE AND HANDLING

1.3.1 STORE, HANDLE, AND CLEAN REINFORCING as necessary to keep it free of dirt, loose mill scale and rust, paint, oil, or other foreign material that will destroy or reduce bond.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 REINFORCING BARS shall meet the requirements of Standard Specification for Deformed Billet-Steel Bars for Concrete Reinforcement, ASTM A 615, Grade 60, and the exceptions to ASTM A 615, listed in ACI 318.

2.1.2 WELDED WIRE FABRIC shall meet the requirements of the Standard Specifications for Welded Wire Fabric for Concrete Reinforcement, ASTM A 185, or Standard Specifications for Welded Deformed Steel Wire Fabric for Concrete Reinforced Construction, ASTM A 497.

2.1.3 BAR SUPPORTS meet the requirements of ACI 315. Use non-corrosive supports to prevent surface staining where supports are in contact with an exposed concrete surface.

2.1.4 SUPPORTS FOR WELDED WIRE FABRIC IN SLABS-ON-GRADE shall meet the requirements of ACI 315, and shall have a base which will not sink into the subgrade or puncture the vapor barrier.

2.1.5 WELDED REINFORCING BARS shall meet the requirements of Standard Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement, ASTM A 706.

3.0 EXECUTION

3.1 PLACING REINFORCEMENT

3.1.1 PLACE REINFORCEMENT BARS accurately and secure adequately to resist displacement.

3.1.2 PLACE FABRIC REINFORCING and lap fabric at least 1-1/2 meshes plus end extension of wires but not less than 12 inches in structural slabs. Lap at least 1/2 mesh plus end extension of wires but not less than 6 inches, unless shown otherwise, in slabs-on-grade.

3.1.3 SUPPORT WELDED WIRE FABRIC IN SLABS-ON-GRADE 2 inches from the upper surface. Hooking and pulling up the fabric as concrete is poured is not acceptable.

3.1.4 WELD REINFORCING BARS in accord with Reinforcing Steel Welding Code, AWS D12.1. Weld bars only when shown on the Drawings or approved by the Engineer.

SECTION 03300

CAST-IN-PLACE CONCRETE

1.0 GENERAL

1.1 CONCRETE QUALITY AND WORKMANSHIP

1.1.1 MINIMUM STANDARDS. American Concrete Institute Building Code Requirements for Reinforced Concrete, ACI 318, and specifications for structural concrete for buildings, ACI 301, shall be the minimum design and construction standards.

1.2 SUBMITTALS

1.2.1 CONCRETE MIX. Submit the following to the Engineer as shop drawings, in accord with the General Conditions and General Requirements, for each mix provided:

- Source of each aggregate
- Aggregate gradation
- Pounds of aggregate per cubic yard
- Pounds of water per pound of cement
- Slump in inches
- Percent air content
- Type and quantity of admixtures used
- Compressive strength
- Additive

Make no alterations in materials without approval.

1.2.2 CERTIFICATION. Submit the admixture manufacturer's certification to the Engineer stating the chloride has not been added to the manufacture of the admixture.

1.3 ENVIRONMENTAL REQUIREMENTS

1.3.1 COLD WEATHER REQUIREMENTS. Conform to ACI 306, Recommended Practice for Cold Weather Concreting or more particularly, place no concrete after the atmospheric temperature reaches 40F when on a downward trend, and under no circumstances in freezing temperature without the approval of the Engineer. In such cases, provisions shall be made for heating the aggregate, water, and placed concrete to the satisfaction of the Engineer.

1.3.2 HOT WEATHER REQUIREMENTS. Conform to ACI 305, Recommended Practice for Hot Weather Concreting.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 PORTLAND CEMENT shall meet the requirements of ASTM C150 Type II. Only one brand or type of cement shall be used concurrently in the work.

2.1.2 NORMAL WEIGHT AGGREGATES shall meet the requirements of ASTM C 33.

- .1 Sand-Gravel Aggregate shall be a mixture of sand and gravel composed of clean, hard, durable, uncoated particles, free from detrimental amounts of soft or flaky particles, shale, alkali, clay, organic matter, or other deleterious material.

2.1.3 REACTIVE AGGREGATES from a particular source, which cause a cement-aggregate reaction as evidenced by the observation of service records of both concrete pavements and structures as well as laboratory test results, shall be rejected.

2.1.4 ADMIXTURES

- .1 Air-Entraining Admixtures shall conform to ASTM C 260.
- .2 Other Admixtures, if used, shall conform to ASTM C 4984, and must be approved by the Engineer prior to use.

2.1.5 CURING AND SEALING COMPOUNDS shall be acrylic base compound, and shall be one of the following types and manufacture:

Surfaseal	L & M Construction Chemicals, Inc.
Acryseal	Nebraska Builders Products
Kure-N-Seal	Protex Industries, Inc.
CS-309	Donneborn Division of Contech, Inc.
Acrylic Curing Compound	W. R. Meadows, Inc.

2.2 CONCRETE MIXES

2.2.1 MIX CONCRETE to provide a compressive strength of not less than 4,000 psi in 28 days, air content five percent to seven percent by volume.

Maximum slump shall be 3 inches, with a minimum slump of 1-1/2 inches.

2.2.2 WATER FOR CONCRETE shall be free from objectionable quantities of oil, acid, alkali, salt, organic matter, or other deleterious materials, and shall not be used until the source of supply has been approved. If, at any time, the water from an approved source becomes of unsatisfactory quality or insufficient quantity, the Contractor will be required to provide satisfactory water from another source.

2.2.3 WATER CONTENT IN ANY MIX shall include the amount of moisture or water carried on the surface of the aggregate. The amount of water used shall be the minimum amount required to produce a plastic mixture uniformity and workability.

3.0 EXECUTION

3.1 PREPARATION

3.1.1 CLEAN EQUIPMENT for mixing and transporting concrete. Forms shall be thoroughly wetted (except in freezing weather) or oiled. Clean reinforcement of ice, dirt, rust, scale, or other coatings. Remove debris, water, and ice from the place of deposit of concrete. Remove laitance and other unsound material from hardened concrete before adding additional concrete.

3.2 CONVEYING AND PLACING

3.2.1 CONVEY CONCRETE FROM TRUCKS to the place of final deposit by methods that prevent separation or loss of materials.

3.2.2 CHUTING, PUMPING, AND PNEUMATIC CONVEYING EQUIPMENT shall be a size and design to ensure a practically continuous flow of concrete at the delivery end without separation of materials. Where a vertical drop greater than 5 feet is necessary, place concrete through elephant trunks or similar devices to prevent segregation. Take care to prevent segregation when dropping through reinforcing bars.

3.2.3 DEPOSIT CONCRETE as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Place concrete at a rate so that concrete is plastic and flows readily into the spaces between the bars. Concrete contaminated by foreign material shall not be used unless approved by the Engineer. When placing is once started, it shall be carried on as a continuous operation until placement of the panel or section is complete, and shall be placed before its initial set has occurred.

3.2.4 PLACE CONCRETE FOR VERTICAL WALLS in horizontal lifts in a manner that no one part of the wall is more than 1 foot higher than any other part at any time.

3.3 CONSOLIDATION

3.3.1 CONSOLIDATE CONCRETE in accord with ACI 309.

3.3.2 TRANSMIT VIBRATION directly to the concrete and do not vibrate forms. Vibration shall be of the minimum duration to produce well compacted and dense concrete.

3.4 FINISHING

3.4.1 FLATWORK. Floor finish shall be in accord with ACI 301, Chapter 11. The following finishes shall be used unless otherwise noted:

- .1 Troweled Finish. Troweled finishes shall be true planed within 1/8 inch in 10 feet as determined by a 10-foot straightedge placed anywhere on the slab in any direction.

- .2 Nonslip Finish. For floors intended as walking surfaces in areas which may become wet. Apply a light brush finish to the surface which has received a single pass steel trowel finish.

3.4.2 FORMED SURFACES. The following finish shall be used unless otherwise noted:

- .1 Rough Form Finish. For concrete surfaces not exposed to view. Patch tie holes and defects. Chip off fins exceeding 1/4 inch in height.

3.4.3 NO EXCESS WATER shall be present when any finishing is being accomplished, and add no water after the concrete is mixed and placed. Rub down excessive form marks on exposed concrete surfaces with Carborundum stones to the satisfaction of the Engineer.

3.5 CURING AND PROTECTION

3.5.1 CURE FORMED SURFACES by moist curing while forms are in place.

3.5.2 CURE FORMED SURFACES NOT EXPOSED TO LIQUIDS by moist curing while forms are in place and by applying a membrane curing compound immediately after removing the forms. Do not apply compound in areas which would destroy bond of future pours.

3.5.3 CURE FLATWORK NOT EXPOSED TO LIQUIDS by applying a membrane curing compound immediately after the finishing of flatwork is complete, in accord with the manufacturer's recommendations, to meet or exceed ASTM C 309. Use a compound which does not interfere with the bond of subsequent coatings.

3.5.4 APPLY A MEMBRANE-FORMING CURING COMPOUND immediately after the finishing of flatwork is complete, in accord with the manufacturer's recommendations, to meet or exceed ASTM C 309. Use a compound which does not interfere with the bond of subsequent coatings.

3.6 FIELD QUALITY CONTROL

3.6.1 TESTS. Unless otherwise noted on the Drawings or directed by the Engineer, the Contractor shall require that a test set be made for each 100 cubic yards of structural concrete. Each test set shall include the following:

- .1 Three compression Test Specimens made, tested, and evaluated in accord with ACI 301
- .2 Slump Test made in accord with ASTM C 143
- .3 Test for Entrained Air Content in accord with ASTM C 173

SECTION 16

ELECTRICAL

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SECTION 16010

GENERAL PROVISIONS

1.0 THE CONDITIONS AND GENERAL REQUIREMENTS shall apply to the Work specified in Division 16, Electrical.

2.0 CODES. Electrical Work shall meet the requirements of national, state, and local codes that govern the Project. It shall be the Contractor's responsibility to be aware of, and to abide by, the governing codes.

3.0 STANDARDS. Electrical equipment and materials shall meet the applicable requirements of the following standards:

- American National Standards Institute (ANSI)
- Certified Ballast Manufacturers (CBM)
- Electrical Testing Laboratories (ETL)
- Independent Testing Laboratories (ITL)
- National Electrical Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- National Fire Protection Association (NFPA)
- Underwriters Laboratories (UL)

4.0 PAYMENTS OF FEES, PERMITS, INSPECTIONS, AND LICENSING required for the Electrical Work shall be included under this Division.

5.0 PAYMENTS OF ASSESSMENTS AND CHARGES levied by the serving utilities, relative to the Electrical Work, shall be paid by the Owner.

6.0 DEFINITION. The term Electrical Contractor" used throughout Division 16 shall mean the Prime Electrical Subcontractor.

SECTION 16020

ELECTRICAL

1.0 GENERAL

1.1 SUBMITTALS

1.1.1 SUBMIT SHOP DRAWINGS AND MANUFACTURER'S LITERATURE to the Engineer in accord with the General Conditions and General Requirements for the following:

Circuit Breakers
Motor Starter
Panelboard

1.2 QUALITY ASSURANCE

1.2.1 STANDARDS AND PERFORMANCE FOR WORK, EQUIPMENT, AND MATERIALS supplied by the Contractor shall conform to the following:

American National Standards Institute (ANSI)
Electrical Testing Laboratories (ETL)
Institute of Electrical and Electronics Engineers, Inc. (IEEE)
National Electrical Code (NEC)
National Electrical Manufacturers Association (NEMA)
Underwriters Laboratories (UL)

2.0 PRODUCTS

2.1 ELECTRICAL BRANCH WIRING

2.1.1 ELECTRICAL CONDUCTORS shall be copper. Wire sizes indicated on the Drawings are minimum. The Contractor shall have the option to furnish larger wire sizes to utilize stock sizes provided conduit sizes are increased as necessary. No wire shall be smaller than No. 12, except that wiring for signal and pilot control circuits may be No. 14.

2.1.2 INSULATION OF ELECTRICAL CONDUCTORS shall be for 600 volts. Insulation shall be of the following types, unless otherwise noted on the Drawings:

TW for dry and wet locations - branch circuits
THW for feeders and services in conduit

2.1.3 SPLICES AND TAPS for smaller than No. 6 wire shall be pressure type set screw connectors, properly taped, except that splices in wire size No. 10 or smaller, at the Contractor's option, shall be made with twist-on insulated connectors similar and equal to Minnesota Mining and Manufacturing Company's pre-insulated twist-on connectors "Scotchlock" Type R or Ideal "Wing Nuts." Splices in wire larger than No. 6 shall be made with approved solderless lugs. Taping of joints shall be made with vinyl plastic tape as manufactured by Minnesota Mining and Manufacturing Company or equal.

2.1.4 CONDUIT shall be rigid metal. No conduit smaller than 1/2 inch shall be used.

.1 Conduit buried, or otherwise in contact with earth or concrete slab, shall be PVC coated steel.

- .2 Conduit may have G.E. gray "Sealtite" flexible connections in nonhazardous areas only.
- .3 Conduit fittings shall be as manufactured by Appleton Electric, Steel City, National Electric Products Company, or Rayco.
- .4 Steel conduit shall be galvanized or sherardized.

2.2 GROUNDING

2.2.1 GROUND CONNECTIONS AND CONDUCTORS shall be according to NEC and state and municipal codes and ordinances. If the water system does not provide an adequate ground, a driven ground system shall supplement the NEC required water service ground. Metallic conduit, supports, cabinets, and equipment shall be grounded in accord with NEC.

2.3 MOTOR

2.3.1 STARTER. Combination magnetic starter fusible disconnect switch with an overload relay in each phase shall be provided with starter sizes as shown on the Drawings.

2.3.2 PROTECT MOTOR with the proper size heater.

2.4 CIRCUIT BREAKERS

2.4.1 CIRCUIT BREAKERS shall be of the load break type. Circuit breakers shall have an interrupting capacity of not less than 10,000 rms symmetrical amperes. MCP are not acceptable.

2.5 PUMPHOUSE ELECTRICAL

2.5.1 ENTIRE ELECTRICAL SYSTEM shall be surface mounted. Items included are as follows:

- .1 Electrical service entrance shall be as shown on the Drawings. Conductor and meter shall be furnished and installed by the utility company. Other items shall be provided and installed by the Contractor.
- .2 Panelboard and devices contained therein shall be by the same manufacturer, shall be approved equal of Square D Type NAB, and shall be listed by Underwriters Laboratories.
- .3 Branch circuit protective devices for panel shall be plug-in thermal magnetic circuit breakers for alternating current. Interrupting rating of circuit breakers shall not be less than 10,000 rms symmetrical amperes.
- .4 Magnetic starter shall be designed for across-the-line starting of the pump. Starter shall be sized as shown on the Drawings.
- .5 Disconnect device shall be as specified on the Drawings.

- .6 Provide terminal block for wiring auxiliaries.
- .7 Unit heater shall be as specified on the Drawings.

3.0 EXECUTION

3.1 COORDINATION

3.1.1 COORDINATION with the electric utility and the various trades involved shall be the responsibility of the Contractor.

3.2 GROUNDING

3.2.1 INSTALL GROUNDING in accord with NEC and state and municipal codes and ordinances.

3.3 PANELBOARDS

3.3.1 MOUNT PANELBOARDS as indicated on the Drawings.

3.4 ELECTRICAL BRANCH WIRING

3.4.1 INSTALL ELECTRICAL BRANCH WIRING in conduit, surface-mounted.

3.4.2 CONDUCTORS shall be continuous from outlet to outlet, and no splices shall be made except within outlet or junction boxes.

3.4.3 CONDUITS

- .1 Conduit shall, in general and unless otherwise noted, be run exposed on structure ceiling and concealed in wall surfaces.
- .2 Exposed conduit runs shall be made parallel to structure lines on the building ceiling, walls, and floors. When installing exposed conduit, no random runs or angles other than 90 degrees shall be made. Where 90-degree bends are required in exposed conduits carrying 600-volt conductor, suitable conduit, or approved equal, fittings shall be used in lieu of elbows wherever possible. Where minimum bending radii of conductors prohibit the use of such fittings, standard elbows shall be used, or conduit may be bent. Random runs may be made when installing concealed conduit.
- .3 Make conduit runs so there will be no obstruction in any location.
- .4 Conduits passing through concrete work shall be run through approved sleeves placed prior to concrete pouring.
- .5 Bends in conduit shall be made with an approved bending device and to a radius of not less than standard factory bends. Any conduit crushed, kinked, or damaged in any way shall be discarded. Not more than the equivalent of four quarter bends shall be made in any one

run of conduit. Conduits 1 inch and larger shall be bent using an approved hydraulic boxes or fittings shall be used. In exterior areas, they shall be of the cast weatherproof type.

- .6 Conduit stubs not immediately capped or extended shall be protected by means of plastic "push pennies" or otherwise effectively sealed to prevent the entrance of dust, moisture, concrete, or other foreign material.

3.5 OUTLET BOXES

3.5.1 PLACE OUTLET BOXES in stud construction.

3.6 WIRING DEVICES

3.6.1 MOUNT SWITCHES 48 inches above finished floor unless noted otherwise. Mount receptacles 48 inches above finished floor unless noted otherwise.

3.7 LIGHTING

3.7.1 INSTALL LIGHTING FIXTURES plumb with the building and the light directed straight down, unless specifically noted otherwise.

3.8 PUMPHOUSE ELECTRICAL

3.8.1 ELECTRICAL COMPONENTS shall be securely and solidly attached to the electrical board in locations as shown on the Drawings.

3.8.2 ELECTRICAL SERVICE WIRING AND METER shall be provided and installed by the electrical utility. Entrance conduit shall be furnished and installed by the Contractor.

SECTION 16110

RACEWAYS

1.0 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

1.1.1 NATIONAL ELECTRICAL CODE (NEC). Raceways shall be approved for the intended application, and shall meet the requirements of the NEC.

1.2 UNDERWRITERS LABORATORIES INC.

1.2.1 RACEWAYS shall be UL listed.

2.0 PRODUCTS

2.1 CIRCULAR METALLIC RACEWAYS

2.1.1 SIZE. Circular raceways shall be 3/4-inch minimum diameter for lighting and receptacle branch circuit home runs and exterior work and 1/2-inch minimum diameter for other interior work, unless otherwise show or specified.

2.1.2 RIGID STEEL CONDUIT (RSC) shall be hot-dipped galvanized mild steel, manufactured to ANSI C80.1 and FS WW-C-581.

2.1.3 RIGID ALUMINUM CONDUIT (RAC) shall be nonmagnetic, corrosion-resistant, solid aluminum, manufactured to meet NEC requirements and ANSI C80.5.

2.1.4 ELECTRICAL METALLIC TUBING (EMT) shall be mild steel, electrically welded, galvanized, and produced to ANSI C80.3 and FS WW-C-563. Couplings, fittings, and connectors shall be rain-tight and concretetight, steel compression type.

2.1.5 FLEXIBLE METAL CONDUITS (FMC) of aluminum shall be 1/2-inch minimum, except 3/8-inch nominal trade size shall be permitted in lengths not in excess of 72 inches (48 inches in environmental air plenums) as a part of a manufacturer's approved assembly of lighting fixtures. Flexible connections to motors, pressure controls, aquastats, solenoid valves, etc., shall be permitted in lengths not in excess of 36 inches. Fittings approved for grounding purposes shall be used at flexible conduit terminations.

2.1.6 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC) shall meet the specifications for flexible metal conduit, and shall have an outer liquidtight, nonmetallic, sunlight-resistant jacket.

2.2 NONCIRCULAR MANUFACTURED RACEWAYS

2.2.1 SURFACE RACEWAYS, NONMETALLIC, shall be UL listed for the uses permitted under NEC Article 352.

2.2.2 WIREWAYS shall be sheet metal troughs with hinged or removable covers, UL listed for exposed work. Wireways for outdoor use shall be of raintight construction. Close dead ends of wireways. Wireways shall have provisions for extensions of circular conduits.

3.0 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

3.1.1 RACEWAYS above ceilings and buried in concrete walls shall be EMT or rigid steel. Raceways in filter room shall be rigid aluminum.

3.1.2 INSTALL AN INDEPENDENT RACEWAY SYSTEM for emergency circuits to meet the requirements of NEC, Article 700. Raceways below grade and floor slabs shall be rigid steel, coated with asphaltum.

3.2 INSTALLATION OF CIRCULAR RACEWAYS

3.2.1 DETERMINE EXACT CONDUIT LOCATIONS in the field. Conduit runs shown on the Drawings are diagrammatic.

3.2.2 AVOID PROXIMITY to heating ducts and hot pipes. Install raceways to clear the insulation of ducts or pipes by a minimum of 6 inches where crossings are unavoidable. Raceways shall not be supported from or fastened to mechanical ductwork or piping.

3.2.3 RUN CONCEALED CONDUITS with long sweep bends and offsets in finished areas.

3.2.4 PROTECT UNGROUNDED CONDUCTORS of No. 4 and larger with insulated bushings where conduits enter boxes, cabinets, gutters, etc., and provide lock nuts on both inside and outside of enclosures to which the conduit is attached.

3.2.5 CONDUITS CAST IN CONCRETE TOPPINGS, SLABS, AND WALLS shall be of such size and in such a location so as not to impair the strength of the construction. Conduits shall meet the following requirements unless shown otherwise on the Drawings or approved, in writing, by the Engineer.

.1 Maximum Diameter or conduit thickness shall be 1/3 of the concrete thickness.

.2 Minimum Concrete Cover shall be 3/4 inch.

.3 Reinforcing Bars shall not be displaced.

3.2.6 CONDUITS shall not be cast in or pass through beams, columns, or joists unless shown on the Drawings or approved, in writing, by the Engineer.

.1 Maximum Diameter shall be 4 inches

.2 Minimum Spacing shall be 3 diameters.

.3 Reinforcing Bars shall not be displaced.

3.2.9 DO NOT EMBED ALUMINUM CONDUIT in concrete or earth. Coat aluminum conduit with asphaltum where it passes through concrete or masonry.

3.2.10 INSTALL FLEXIBLE CONDUIT for motor connections and other electrical equipment connections where subjected to movement and vibration.

3.2.11 INSTALL LIQUIDTIGHT FLEXIBLE CONDUIT for connection of motors and other electrical equipment where subject to movement and vibration and also where subjected to one or more of the following conditions:

- Exterior location

- Moist or humid atmosphere where condensate can be expected to accumulate

- Water spray

- Dripping oil, grease or water

SECTION 16120

WIRES AND CABLES

1.0 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

1.1.1 NATIONAL ELECTRICAL CODE (NEC). Wiring methods, conductor applications, and insulations shall meet the requirements of the NEC.

1.1.2 STANDARDS. Conductors shall conform to IPCEA and NEMA specifications for manufacturing, cable identification, and testing, and shall be listed and labeled by the Underwriters Laboratories Inc.

2.0 PRODUCTS

2.1 CONDUCTOR MATERIAL, SIZES AND INSULATION

2.1.1 CONDUCTOR MATERIAL shall be copper. Aluminum conductors will not be permitted.

2.1.2 MINIMUM CONDUCTOR SIZE shall be No. 12 AWG except that or larger, unless otherwise specified herein and permitted in Article 310-5, NEC. Signal and pilot control circuits may be No. 14 AWG minimum.

2.1.3 STRANDED CONDUCTORS. Conductors 8 AWG and larger shall be stranded.

2.1.4 INSULATION. Rate insulated conductors for 600 volts for electrical systems up to 600 volts, unless otherwise specified. Color code insulation as hereinafter specified.

2.2 BUILDING WIRE AND CABLE 600 VOLTS, NOMINAL OR LESS

2.2.1 SECONDARY FEEDERS AND SUBFEEDERS shall be Type RHW, RUW, THW, THWN, or XHHW rated 75C (167F), sized as shown on the Drawings.

2.2.2 POWER BRANCH CIRCUITS shall be sized as shown on the Drawings and shall be of the following types:

RHW, RUW	Dry and Wet Locations
THW, THWN, XHHW	Dry and Wet Locations
RH, RHH, RUH	Dry Locations
THHN	Dry Locations

2.2.3 LIGHTING AND RECEPTACLE CIRCUITS shall be of the following types:

THW, THWN, XHHW	Dry and Wet Locations
THHN	Dry Locations and where run through lighting fixtures
TW	Dry and Wet Locations, No. 10 and smaller

2.2.4 PULL WIRE shall be 16 AWG galvanized iron in empty conduits in dry locations and 12 AWG copper wire in conduits in, or under, concrete slab-on-grade or in damp locations.

2.3 WIRE CONNECTORS

2.3.1 HAND-APPLIED WIRE CONNECTORS for circuit and fixture conductors from 8 AWG through 10 AWG shall be UL listed for AL/CU, AL/AL, and CU/CU, 600-volt insulated, pressure type, 105C, and shall have an integral self-locking spring grip.

2.3.2 PRESSURE CONNECTORS AND SPLICES for No. 8 AWG through No. 750 MCM shall be mechanical screw or compression type as follows:

- .1 Use Mechanical Connectors for copper conductors only. Connectors shall be copper or bronze bodied and shall be UL listed configurations for taps, tees, or crossover-tees-parallel tap.

2.4 TERMINALS AND SPLICES

2.4.1 SMALL TERMINALS (WIRE SIZE 22-10). Connectors and splices for miscellaneous terminal block connections shall be ring-tongue, insulated indent sleeve type of the proper size to accommodate the conductor.

2.4.2 GROUND CONNECTIONS for 1/0 AWG and larger shall be Cadweld or Burndy "Thermoweld," fusible-metal process.

2.5 MISCELLANEOUS WIRING MATERIAL

2.5.1 MISCELLANEOUS CONNECTING AND SPLICING DEVICES. Miscellaneous products, such as heat shrink tubing, electrical insulation, plug caps, splices and kits, tapes, terminal blocks, and terminations, shall be approved for the specific application.

2.5.2 JOINT COMPOUNDS shall be approved for the specific type metal joint to be prepared.

2.5.3 WIRE PULLING LUBRICANTS shall be UL listed for the conductor insulation types.

2.5.4 CABLE TIES, CLAMPS, AND IDENTIFICATION shall be nylon, self-locking.

3.0 EXECUTION

3.1 WIRING METHODS

3.1.1 INSTALL CONDUCTORS IN CONDUIT unless noted otherwise.

3.1.2 PROVIDE NO. 10 MINIMUM WIRE SIZE from panelboard to first 120-volt lighting fixture or first receptacle for runs 50 feet or more.

3.2 INSTALLATION

3.2.1 INSTALL CONDUCTORS to conform to the applicable requirements of NEC Article 300, Wiring Methods.

3.2.2 RUN FEEDER CABLES CONTINUOUS from origin to termination without splices. Unless otherwise noted, each conduit raceway shall contain only those conductors constituting a single feeder circuit.

3.2.3 SINGLE-PHASE WIRING. Install one common neutral with 2-phase conductors and a maximum of two circuits per conduit home run, except where otherwise shown on the Drawings. Derating factors for additional number of conductors in conduits shall be applied per NEC Table 310, Note 8.

3.2.4 THREE-PHASE WIRING. Install one common neutral with 3-phase conductors and a maximum of three circuits per conduit home run, except where otherwise shown on the Drawings. Derating factors for additional number of conductors in conduits shall be applied per NEC Table 310, Note 8.

3.2.5 EMERGENCY CIRCUIT WIRING shall comply with Article 700, NEC.

3.2.6 INSTALL CABLE in a neat and substantial manner with necessary hangers, racks, cable cleats, and supports.

3.2.7 CABLE TERMINALS, TAPS AND SPLICES

- .1 Pressure-Type Solderless Connectors shall be used, unless otherwise noted or specified.
- .2 Install Compression-Type Connectors with approved hydraulic tools to assure a permanent, mechanically secure, high-conductivity joint.
- .3 Soldered Joints, where noted or specified, shall be made to mechanically strong cable joints. Apply solder carefully without the use of acid. Wrap soldered connections with insulating plastic tape in a manner approved for circuit voltage.

3.2.8 IDENTIFICATION

- .1 Identify Feeder and Branch Circuit Conductors by the following color-coded system:

33	47	51	63	66	79
62	76	80	92	95	108

<u>Phase</u>	<u>120/208 Volts</u>
A	Black
B	Red
C	Blue
Neutral	White
Equipment Ground	Green

- .2 Exit Light Circuits shall be yellow phase conductor, white neutral conductor.

SECTION 16155

MOTOR STARTERS

1.0 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

1.1.1 MOTOR STARTERS shall comply with NEMA Standards, and shall be UL listed.

1.2 ACCEPTABLE MANUFACTURERS

1.2.1 MOTOR STARTERS shall be manufactured by:

Allen Bradley Co.
Cutler Hammer Inc.
General Electric Co., General Purpose Control
I-T-E Electrical Products
Square D Company
Westinghouse, Control Products

2.0 PRODUCTS

2.1 MOTOR STARTER ENCLOSURES

2.1.1 MOTOR STARTER ENCLOSURES shall be NEMA 1 unless noted otherwise, and shall be galvanized, prime painted, and finished in the manufacturer's standard color. NEMA 4 enclosures shall be stainless steel.

2.2 MANUAL MOTOR STARTERS

2.2.1 FURNISH AC FRACTIONAL HORSEPOWER TYPE for single phase motors, 1 hp, 230 volt maximum, consisting of a manually operated toggle switch with integral bimetal thermal overload element, and pilot light. Starters shall be capable of being padlocked in the OFF position.

2.3 AC COMBINATION STARTERS

2.3.1 COMBINATION STARTERS shall be fusible type, NEMA Sized as shown on the Drawings, polyphase, and shall have the following features:

Auxiliary Contacts, a minimum of two normally open and two normally closed

Selector Switch, oiltight with spring return (HOA)

Indicating Pilot Lights

Padlock Feature

Undervoltage Protection

Ambient Temperature Compensated Melting Allow Type Thermal Overload Element

3.3 STORAGE AND HANDLING

3.3.1 STORE WIRING MATERIALS in a protected environment not subject to physical damage or the effects of sunlight or inclement weather.

3.0 EXECUTION

3.1 MOTOR STARTERS

3.1.1 INSTALL MOTOR STARTERS with integral control stations and pilot lights, sized as shown on the Drawings. Verify motor characteristics and ambient temperature and size thermal elements accordingly.

SECTION 16160

PANELBOARDS

1.0 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

1.1.1 PANELBOARDS shall comply with NEMA Standards, shall be UL listed, and shall have an Integrated Equipment Rating.

1.2 WORK FURNISHED AND INSTALLED BY OTHERS

1.2.1 HOUSEKEEPING PADS FOR FREESTANDING PANELBOARDS shall be furnished and installed by the General Contractor.

1.3 ACCEPTABLE MANUFACTURERS

1.3.1 PANELBOARDS shall be as manufactured by:

Crouse-Hinds Co.
Cutler-Hammer, Inc.
General Electric Co., Distribution Assemblies
I-T-E Electrical Products
Square D Co.
Westinghouse, Control Products
Challenger

1.4 SUBMITTALS

1.4.1 SUBMIT SHOP DRAWINGS to the Engineer in accord with the General Conditions and General Requirements. Shop drawings shall include the following:

Rating Standards
Circuit Breaker Withstandability Data
General Standards

2.0 PRODUCTS

2.1 PANELBOARD ENCLOSURES

2.1.1 CABINETS shall be of code gauge galvanized steel.

2.1.2 TRIM AND DOORS shall be suitable to the mode of mounting, and shall be primed and painted in the manufacturer's standard color.

2.1.3 LOCKS shall be flush cylinder tumbler type and furnished with two keys for each lock. Locks shall be keyed alike.

2.1.4 LOCATE BRANCH CIRCUIT DIRECTORY inside the door. Directory shall consist of a metal frame, clear plastic cover, and typed circuit directory.

2.1.5 MOUNT PANELBOARD IDENTIFIER permanently on the exterior side of the door. Identifier shall consist of white letters on black background for all other panels with a metal frame and clear plastic cover.

2.1.6 PROVIDE EQUIPMENT GROUNDING BAR in panelboards.

2.1.7 PROVIDE BONDED GROUNDING LUG in the main panelboard.

2.1.8 FURNISH SPECIAL FEATURES, such as sub-feed lugs, split bus, or integral contactors as shown on the Drawings.

2.1.9 PROVIDE NEUTRAL BAR where required.

2.1.10 LOAD CENTER TYPE PANELS will not be accepted, unless otherwise specified.

2.1.11 PANELBOARDS used on this project shall be the product of one manufacturer.

2.1.12 MAIN AND BRANCH CIRCUIT BREAKERS shall be plug-in type, and shall have interrupting ratings of 10,000 AIC.

2.2 CIRCUIT BREAKER LIGHTING PANELBOARDS

2.2.1 CIRCUIT BREAKER LIGHTING PANELBOARDS shall be dead front, and shall have an integrated equipment rating.

2.2.2 BRANCH CIRCUIT BREAKERS shall be plug-on, thermal magnetic type, full size, quick-make, quick-break, trip indicating, with common trip on multi-pole breakers.

2.2.3 BRANCH CIRCUIT BREAKER minimum interrupting ratings shall be 10,000 AIC for 120/240 volts.

2.2.4 CIRCUIT BREAKERS WITH GROUND FAULT INTERRUPTER shall be plug on thermal magnetic type, with an adjustable ground fault trip setting.

2.3 CIRCUIT BREAKER DISTRIBUTION PANELBOARDS

2.3.1 CIRCUIT BREAKER DISTRIBUTION PANELBOARDS shall be UL labeled for service entrance equipment dead front, and shall have an integrated equipment rating.

2.3.2 EXTEND VERTICAL BUSSING the full height of the panelboard.

2.2.3 MAIN CIRCUIT BREAKERS shall be bolt-on thermal magnetic type, and shall be capable of being padlocked in the OFF position.

2.3.4 MAIN CIRCUIT BREAKER MINIMUM INTERRUPTING RATINGS shall be 25,000 AIC for 120/240 volt.

2.3.5 BRANCH CIRCUIT BREAKERS shall be plug on thermal magnetic type, full size, quick-make, quick-break, trip indicating, with common trip on multi-pole breakers.

2.3.6 BRANCH CIRCUIT BREAKER MINIMUM INTERRUPTING RATES shall be 10,000 AIC for 120/240 volt.

3.0 EXECUTION

3.1 INSTALLATION

3.1.1 MOUNT PANELBOARDS plumb, with the top of panelboard at 72 inches above finished floor.

3.1.2 FURNISH AND INSTALL TYPED BRANCH CIRCUIT DIRECTORY for panelboards and typed panelboard identifier.

SECTION 16170

MOTOR AND CIRCUIT DISCONNECTS

1.0 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

1.1.1 MOTOR AND DISCONNECT SWITCHES shall be NEMA rated and UL listed, and shall meet the requirements of NEC.

1.2 ACCEPTABLE MANUFACTURERS

1.2.1 DISCONNECT SWITCHES shall be as manufactured by the following:

Allen-Bradley Co.
Cutler-Hammer Inc.
General electric Co., General Purpose Control
I-T-E Electrical Products
Square D Company
Westinghouse, Control Products
Challenger

2.0 PRODUCTS

2.1 SWITCHES AND ENCLOSURES

2.1.1 DISCONNECT SWITCHES shall be heavy duty, fusible, unless noted otherwise, horsepower rated for voltage applied, quick-make, quick-break, and shall be capable of being padlocked in the OFF position

2.1.2 DISCONNECT SWITCH ENCLOSURES shall be NEMA 1, unless noted otherwise, and shall be galvanized, prime painted and finished in the manufacturer's standard color. NEMA 4 enclosures shall be stainless steel.

2.1.3 SERVICE DISCONNECT SWITCH shall be rated for service entrance equipment.

3.0 EXECUTION

3.1 INSTALLATION

3.1.1 INSTALL DISCONNECT SWITCHES as shown on the drawings and where required by NEC.

3.1.2 MAKE LINE SIDE CONNECTIONS to connect switches furnished with pre-wired mechanical equipment.

3.1.3 LABEL EACH DISCONNECT SWITCH with card holder with typed label behind clear plastic cover, with red letters on black background for emergency loads, and white letters on black background for other loads.

SECTION 16402

UNDERGROUND ELECTRIC SERVICE

1.0 GENERAL

1.1 SERVING ELECTRIC UTILITY

1.1.1 SERVING ELECTRIC UTILITY will provide 480V service.

1.2 ASSESSMENTS

1.2.1 INCLUDE ALL CHARGES OR FEES levied by the serving electric utility company relative to this Project.

1.3 WORK BY OTHERS

1.3.1 THE SERVING ELECTRIC UTILITY COMPANY will furnish and install the primary conductors.

1.3.2 THE SERVING ELECTRIC UTILITY COMPANY will furnish, and the Electrical Contractor shall install, the metering current transformers and potential transformers as per IPS.

2.0 PRODUCTS

3.0 EXECUTION

3.1 INSTALLATION

3.1.1 INSTALL UNDERGROUND ELECTRIC SERVICE as shown on the Drawings and as required by the serving electric utility company.

3.1.2 FURNISH TRENCHING AND BACKFILL for service entrance conduit.

REPORT ON APPLICATIONS NOS. 5437-3 AND 5438-3
FOR DAKOTA DUNES
May 8, 1990

Application No. 5437-3 proposes to appropriate 9.0 cfs (3475 acre feet annually) from 2 wells, 117 and 144 feet deep. The wells are to be located in the SE 1/4 NE 1/4 and the SW 1/4 NE 1/4 of section 35, T89N R48W in Union County.

Application No. 5438-3 proposes to appropriate an additional 2.5 cfs from one well (151 feet deep). This well is to be located in the SE 1/4 NE 1/4 of section 34, T89N R48W. This application also requests to amend existing permit No. 2709-3 to change the location of irrigated acreage and to use the existing well for this permit as a backup water supply. The combined diversion for the new well and the backup well is 4.5 cfs. The 2.0 cfs developed for Permit No. 2709-3 is to be transferred to this application.

AQUIFER - MISSOURI ELK POINT (M-EP)

The Missouri Elk Point (M-EP) is an alluvium mantled outwash (sand and gravel) which is predominantly under water table conditions in this area. The aquifer underlies 99,400 acres and contains 1.5 million acre feet of recoverable water in storage in Union County (Hedges, 1982). The aquifer is hydraulically connected to the Big Sioux South aquifer in Union County and the M-EP aquifer in Clay County. Also the Big Sioux River and the Missouri River are hydraulically connected to the M-EP aquifer. The Division of Water Rights monitors 28 observation wells completed into the M-EP aquifer in Union County. Water level records for these show good correlation with climatic conditions, that rising during wet years and gradually declining during dry years (Water Rights, 1990). Drawdowns caused by pumping are not significantly affecting water levels in the observation wells and are not adversely affecting water availability from the M-EP aquifer.

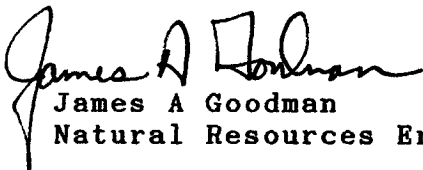
REVIEW OF EXISTING WATER PERMITS/RIGHTS

There is one existing Right No. 2011-3 which obtains ground water from the M-EP aquifer in this area. The well for this right is approximately 1 mile from an existing or proposed diversion for this application. Interference is not expected to be a problem. Drawdowns created by pumping will not extend very far from an individual production well in this aquifer because of the thickness and aquifer conditions and the close proximity to the Missouri River.

CONCLUSIONS

1. Water is available from the M-EP aquifer.

2. Interference is not expected to be a problem.
3. Application No. 5438-3 requests a diversion of 4.5 cfs from two wells into a 41.4 acre foot holding pond. The application then requests a diversion of 3.73 cfs from the pond to irrigate 172.92 acre. The statutory limit for this diversion is 2.47 cfs for this acreage (346 acre feet per year).
4. Permit No. 5437-3 is for public water supply. Any wells constructed for this application must be constructed in accordance with SD Well Construction Standard 74:02:04:30. The annual withdrawal is limited to 3475 acre feet.
5. Irrigation Permit No. 2709-3 will be transferred to Permit application No. 5438-3. Permit No. 2709-3 authorizes 2.0 cfs (reportedly developed) for irrigation of 185 acres. Priority for Permit No. 2709-3 can be transferred with the change in acreage and diversion location without adverse affect on existing users. The existing irrigation well will be used as a backup well and the combined diversion from both wells can not exceed 4.5 cfs.
6. All wells authorized by these applications must be constructed by a licensed SD well driller.



James A Goodman
Natural Resources Engineer

BIBLIOGRAPHY

Hedges, L.S., 1982, EVALUATION OF GROUND WATER RESOURCES EASTERN SD AND UPPER BIG SIOUX RIVER, SD AND IOWA, for US Army Corps of Engineers, SD DWRN, SDGS, Vermillion, SD, 57069.

Water Rights, 1990, OBSERVATION WELL RECORDS FOR THE M-EP AQUIFER IN UNION COUNTY, SD DWRN, Div. of Water Rights, Pierre, SD, 57501.

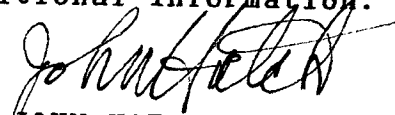
REVISED RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5437-3, Dakota Dunes Golf Course

Pursuant to SDCL 46-2A-2, the following is the revised recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Water Permit Application No. 5437-3, Dakota Dunes Golf Course, RR 1, Box 93B, Dakota Dunes SD.

The Chief Engineer is recommending APPROVAL of Application No. 5437-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. The wells authorized by Permit No. 5437-3 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted with cement (bottom to top) from the producing formation to the surface pursuant to Section 74:02:04:30.
2. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
3. Approval of Permit No. 5438-3 authorizes maximum annual withdrawals of 3475 acre feet.

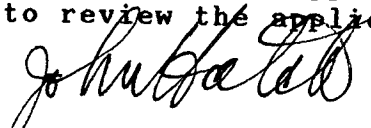
See the attached report for additional information.


JOHN HATCH, Chief Engineer
May 17, 1990

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5437-3, Dakota Dunes Golf Course

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Water Permit Application No. 5437-3, Dakota Dunes Golf Course, RR 1, Box 93B, Dakota Dunes SD.

The Chief Engineer is recommending DEFERRAL of Application No. 5437-3 to allow additional time to review the application.


JOHN HATCH, Chief Engineer
April 19, 1990



Department of Water & Natural Resources

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

May 21, 1990

Greg Meyer
Buell, Winter, Mousel & Associates
666 Benson Building
Sioux City IA 51101

Dear Mr. Meyer:

Enclosed are the Recommendations, Revised Recommendations and Report for Water Permit Applications No. 5437-3 and 5438-3 Dakota Dunes Golf Course.

If you have any questions, please contact this office.

Sincerely,

A handwritten signature in cursive script that reads "Karen Schlaak".

KAREN SCHLAACK
Senior Secretary
605 773-3352

enclosures



Department of Water & Natural Resources

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

April 19, 1990

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

Dakota Dunes Community Improvement Dist.
RR #1 Box 93B
Dakota Dunes, SD 57049

Dear Sirs:

Water Permit Application No. 5437-3 for municipal use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Leader Courier printed at Elk Point SD. For your information, a copy of the notice is enclosed. Copies of the report and the Chief Engineer's recommendation will be sent to you at a later date. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Intent to Appropriate Water and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. We must receive Proof of Publication before the application can be considered by the Water Management Board.

Sincerely,

A handwritten signature in cursive script that reads "Eric Gronlund".

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



Department of Water & Natural Resources

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

April 19, 1990

Leader Courier
Box 310
Elk Point, SD 57025-0310

ATTN: Legal Publications:

Enclosed is a Notice of Hearing on Application No. 5437-3 to be published twice. Please publish the first notice on or before April 26, 1990 with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Dakota Dunes Community Improvement District, RR #1 Box 93B, Dakota Dunes, SD 57049.

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. The permit application cannot be considered by the Water Management Board until proof of publication has been received.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

No. _____

Date _____

We are in receipt of your letter of _____ enclosing Notice of Hearing to Appropriate Water by Application No. _____ which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper

Instruction to Newspaper - Publish first Notice on or before April 26, 1990 with 2nd publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5437-3 to Appropriate Water

Notice is given that Dakota Dunes Community Improvement District, RR #1 Box 93B, Dakota Dunes, SD 57049 has filed an application for a water permit to appropriate 9.0 cubic feet of water per second (3475 acre-feet annually) from 2 wells 150 feet deep to be located in Government Lot 1 (SE1/4 NE1/4) and Government Lot 2 (SW1/4 NE1/4) Section 35-T89N-R48W. The water is to be used for municipal purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer of the Water Rights Division recommends DEFERRAL of Application No. 5437-3 to allow additional time to review the application. This application will be considered by the Water Management Board in the Pelican Room, Ramkota Inn, Hwy 212, Watertown, SD on May 23, 1990 at 10:00 am. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer or 4) deny this application based on the facts presented at the public hearing.

Any interested person that intends to participate in the hearing before the Board by presenting evidence or cross-examining witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and Chief Engineer by May 11, 1990. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application and the signature and mailing address of the petitioner or legal counsel if legal counsel is obtained. The applicant need not file a petition. Contact the Water Rights Division to request information on this application or to assure access to the hearing by the handicapped.

This hearing is an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. The time of the hearing will also be automatically delayed for at least twenty days upon written request to the Chief Engineer from the applicant or a petitioner. The request for a delay must be received by May 11, 1990.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County _____ Union _____) ss.

I, Lester E. Emerson

certify that the attached printed Notice was taken
 from the The Leader-Courier

A newspaper which during the whole time of publication of
 said notice herein after stated, has been and is printed and
 published in the _____

City _____ of Elk Point

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

April 26, 1990

May 3, 1990

Lester E. Emerson
 (Signature)

Editor/Publisher
 (Title)

May 3, 1990

(Date Signed)

Cost of Printing: ~~40.00~~ 35.58

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

ERIC GRONLUND
 Natural Resources Engineer
 Pub. Apr. 26 and May 3. 5-3

NOTICE OF HEARING
On Application No. 5437-3
To Appropriate Water

Notice is given that Dakota Dunes Community Improvement District, RR #1, Box 93B, Dakota Dunes, S. D. 57049 has filed an application for a water permit to appropriate 9.0 cubic feet of water per second (3475 acre-feet annually) from 2 wells 150 feet deep to be located in Government Lot 1 (SE $\frac{1}{4}$ NE $\frac{1}{4}$) and Government Lot 2 (SW $\frac{1}{4}$ NE $\frac{1}{4}$) Section 35-T89N-R48W. The water is to be used for municipal purposes.

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Department of Water & Natural Resources

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

5437-3

SEP 12 1990

Allan Block, District Manager
Dakota Dunes Community Improvement Dist.
RR #1 Box 93B
Dakota Dunes, SD 57049

Dear Mr. Block:

Enclosed is Water Permit No. 5437-3 as approved by the Water Management Board authorizing you to construct your water diversion system and put the water to beneficial use, not exceeding the limits as specified in the Water Permit.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the system and/or have put the water to beneficial use. An inspection can then be scheduled so that the Water License may be issued, thus completing your acquisition of a Water Right.

Very truly yours,

A handwritten signature in cursive script, appearing to read "John Hatch".

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

enclosures

PLEASE NOTE: Certain changes can be made in your permit within the five year construction period, usually without affecting the priority date provided an application to amend your permit is made within the five year period - i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.

Permit No. 5437-3
Big Sioux River - Water District

Report Of Examination Of Works And/Or Application of Water To Beneficial Use

TO: Chief Engineer, Division of Water Rights, DENR, Foss Bldg., Pierre, SD 57501

I have this day made a thorough examination of the water use system constructed by Dakota Dunes Community Improvement District of RR1, Box 93B, Dakota Dunes, SD 57049 holder of Permit No. 5437-3, bearing the priority of April 12, 1990 authorizing the diversion of 9.0 cu. ft. per second of the waters of Missouri Elk Point Aquifer for municipal-domestic purposes, in Union County.

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

A. Works used to divert the water:

Well 90-3, 139' deep with 109' of 20" PVC casing and 30' of stainless steel screen, Layne Bowler pump model no. 10TLC, 750 gpm capacity: Hitachi motor, 15 hp.

Well 90-5, 112' deep with 89' of 20" PVC casing and 30' of stainless steel screen, Layne Bowler pump model no. 10TLC, 750 gpm capacity: Hitachi motor, 15 hp.

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

3000' of 14" ductile iron from the diversion points to the water treatment plant, 600' of 16" ductile iron from the water treatment plant to 14" pvc mains for distribution, back to 0.5 mil. gal. water tower, 12" to 6" pvc lines from the water tower to homes.

C. Works used to apply water to beneficial use:

Municipal-domestic use in homes.

The system is in the following condition good. The points of diversion are located well 90-3: 447' W and 1908' S, well 90-5: 1393' W and 2134' S of the NE corner Section 35-T89N-R48W. The works are capable of diverting and conveying to the place of use 3.33 cu. ft. per second of water which is to be used for municipal-domestic use. Water has been put to beneficial use to the maximum extent as follows:

Municipal water supply.

The license should be issued for 3.33 cfs. Applicable permit qualifications have been complied with: Yes ☒ No

Exceptions to compliance are: none Date: 6-23-93


Gregory C. Johnston
Natural Resources Engineer
DENR, Water Rights Division

REPORT ON INSPECTION OF PERMIT NO. 5437-3

DATE: 6-23-93

Other permit(s) associated with the project:

DIVERSION POINT LEGAL LOCATION: Well 90-3, SE 1/4 NE 1/4 and well 90-5, SW 1/4 NE 1/4 all in Section 35-T89N-R48W.

WELL INFORMATION:

- 1) Well Drilling Firm: Duane Trask
- 2) No. of Wells 2
- 3) Depth(s) 139, 112 feet
- 4) Well log is available Y
- 5) Comment:

Casing:

- 1) Diameter 20, 20 inches
- 2) Length 109, 182 feet
- 3) Type PVC, PVC

Screen:

- 1) Type stainless steel
- 2) Length 30, 30 feet
- 3) Static water level feet

Pump:

- 1) Make Layne Bowler, Layne Bowler
- 2) Model 10TLC, 10TLC
- 3) Size
- 4) Capacity 750, 750 GPM

Motor:

- 1) Make Hitachi, Hitachi
- 2) Model No.
- 3) Horsepower rating 15 hp

DISTRIBUTION LINES OR CANALS:

- | | | |
|-----------------------------|----------------------------|----------------------------|
| 1) Type <u>ductile iron</u> | 2) Size <u>16</u> inches | 3) Length <u>600</u> feet |
| 1) Type <u>ductile iron</u> | 2) Size <u>14</u> inches | 3) Length <u>3000</u> feet |
| 1) Type <u>PVC</u> | 2) Size <u>14</u> inches | 3) Length feet |
| 1) Type <u>PVC</u> | 2) Size <u>6-12</u> inches | 3) Length feet |

SYSTEM TYPE: Communittee distribution system for domestic use of water. 1.5 mil. gal per day water treatment plant and a 0.5 mil. gal. storage tower.

PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Soil and water permit lands agree with lands being irrigated and lands listed on permit N/A
- 2) Special qualifications to permit being abided by Y
- 3) All structures, wells and lands on map Y
- 4) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period N/A

Water Rights Division - DENR

Conversation or File Documentation

Name of Person: Bob Louge, Engineer File No. 5437-3
Address: Buell, Winter, Mousel & Assoc., 636 Benson Bldg., Sioux City, Iowa 51101 County: Project in Turner Co. Union
Date: 1-27-94 Telephone: (712) 258-4202
RE: Dakota Dunes Community Development Project.

Comments:

Mr. Louge said the Dakota Dunes Community domestic water needs would not surpass the pumping capacity (2 wells 750 gpm each) in the next 5 years. The wells probably would not produce more than the 750 gpm each, so if water needs were to increase, new wells may need to be drilled.

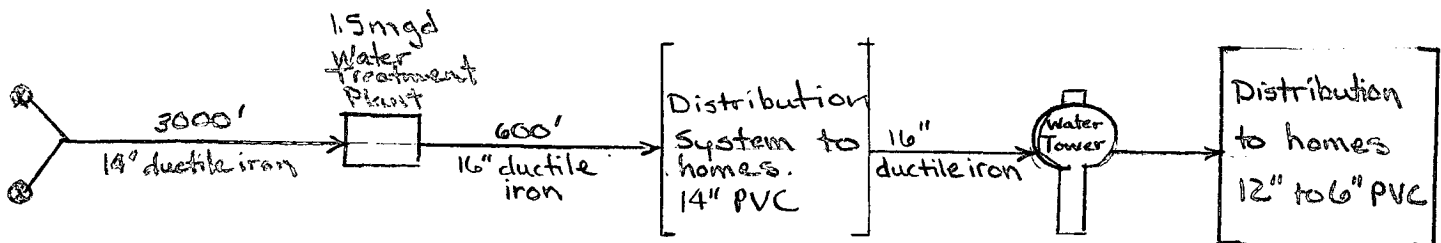
Mr. Louge said that the water plant capacity is 1.08 mil. gal. per day. There is a 0.5 mil. gal storage tower in the distribution system.

I explained that the construction period wasn't up until May, 1995 and Mr. Louge felt they wouldn't need more water than they already can pump before then. I told Mr. Louge I would send a construction completion form and would continue with the licensing report when the form was received by Division of Water Rights.

Lynn Beck

Lynn Beck
Natural Resources Engineer

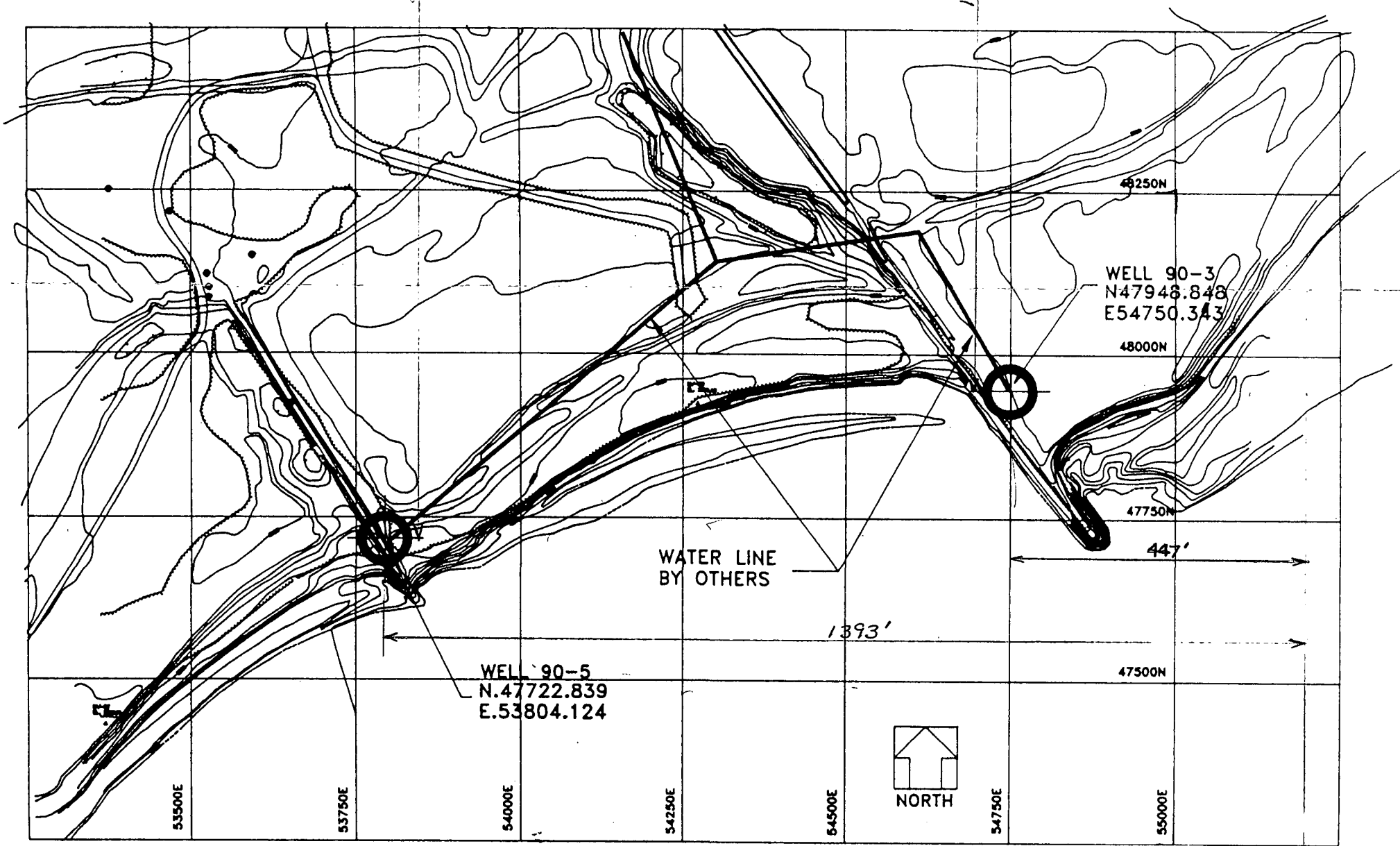
DISTRIBUTION SYSTEM:



NE 1/4 Sec. 35
T 89N-R 48W

2184'

1908'



NE 1/4 Sec. 35

SE 1/4 Sec. 35

Prepared by:
Lynn Beck

Lynn Beck
Natural Resource Engineer
DENR, Water Rights Program
7-17-95

App'l
5437-3



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

February 1, 1994

Allen J. Block, District Manager
Dakota Dunes Community Improvement District
RR 1, Box 93B
Dakota Dunes, SD 57049

Dear Mr. Block:

I am writing in regards to the licensing of Permit No. 5437-3 which appropriates 9.0 cubic feet of water per second (cfs) (3475 acre feet annually) from two wells located in the SE 1/4 NE 1/4 and SW 1/4 NE 1/4 Section 35 T89N-R48W. This permit has been inspected for licensing; however, the construction completion date is May 23, 1995.

An inspection of Permit No. 5437-3 found two wells capable of pumping 750 gallons per minute each (3.33 cfs combined) to a 1.5 million gallon per day water treatment plant. Water continues through a distribution system to several homes. I spoke with Bob Louge, Engineer with Buell, Winter, Mousel & Associates, about water needs for the community. Mr. Louge felt that the two wells would provide enough water for the next few years.

If licensed now, the license would authorize the developed diversion rate of 3.33 cfs from two points of diversion. If water needs are expected to rise, I can hold off on the inspection report until the construction completion date. I am enclosing a construction completion form for you to fill out. You may return the form prior to May 23, 1995, if you feel your water needs are met with the 3.33 cfs, or wait until the construction completion date. I will complete the inspection report upon receiving the form.

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

Sincerely,

Lynn Beck
Natural Resources Engineer III
Water Rights Division
(605) 773-3352

enclosures

cc Bob Louge, Buell, Winter, Mousel & Associates



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

April 18, 1995

5437-3

Allen J Block, District Manager
Dakota Dunes Community Improvement Dist
RR #1 Box 93B
Dakota Dunes, SD 57049

Dear Mr. Block:

I am contacting you in regard to licensing of Water Permit No. 5437-3. The inspection of the water use system was conducted June 23, 1993. A water license has not been processed to date because the construction period has not yet passed. The date for completion of works, as specified in the permit, is May 23, 1995.

The inspection of your water use system found two wells capable of pumping 750 gallons per minute each (3.33 cfs combined). The water was being pumped to a 1.5 million gallon per day water treatment plant. If these water use figures are still accurate, the water license will be issued for 3.33 cfs from two wells.

Enclosed is a "Notice of Completion of Works and Application of Water to Beneficial Use" form. Please complete the form and return it to our office. Completion of the form will allow us to process the water license with the current data we have on file. If water use figures have risen since the inspection, we will need to gather more data from you prior to licensing.

I am also enclosing a copy of the inspection report. If you feel changes need to be made, please contact myself or Lynn Beck with our office.

Sincerely,

Genny McMath
Environmental Scientist
Water Rights Division
(605) 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

May 17, 1995

5437-3

Allan J. Block, District Manager
Dakota Dunes Improvement District
RR 1, Box 93B
Dakota Dunes, SD 57049

Dear Mr. Block:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit No. 5437-3, has been completed. Your final water right document, the Water License, can now be issued.

Statutes require that we charge a \$50.00 fee for the inspection and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

**Please remit fee to:
Department of Environment & Natural Resources
Water Rights Division
523 E. Capitol
Pierre, SD 57501-3181**

South Dakota Water Law 46-5-30.1 requires that a permit holder may not divert water until the \$50.00 license fee has been paid. Please contact us if you have any questions.

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Division
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.

RECEIPT

Division of Water Rights

414533

South Dakota Department of Environment and Natural Resources

Pierre, June 26, 19 95

RECEIVED OF Dakota Dunes Community Improvement Dist, 600 Stevens Port Dr, Ste 200
the following amount in fees for services rendered as provided for by law: Dakota Dunes, SD 57049

Fee for Application for Permit No. _____ to Appropriate Water, to construct
and to put water to beneficial use _____

Fee for Application for Permit No. _____ to Appropriate Water, for Future
Use _____

Fee to retain Future Use Permit No. _____ after period of seven years.

Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water
License No. 5437-3

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for _____

(Any Other Work Provided by Law)

Total

50 00

By John Hatch
Chief Engineer

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5437-3

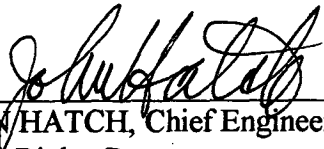
(1) Dakota Dunes Community Improvement District of One River Place, 600 Stevens Port Drive, Suite 200, Dakota Dunes, SD 57049 made Application No. 5437-3, April 12, 1990 for a water permit to appropriate 9.00 cubic feet of water per second from groundwater (two wells), Union County, South Dakota for municipal purposes. Permit No. 5437-3, with a priority date of April 12, 1990 was approved May 23, 1990 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 23, 1995 and for the application to beneficial use of said water on or before May 23, 1999.

On May 15, 1995, the permit holder submitted a "Notice of Completion of Works and Application of Water to Beneficial Use". The "Notice" stated the diversion system was completed in March, 1991 and the water applied to beneficial use in April, 1991.

(2) It is certified that the applicant has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 3.33 cubic feet of water per second for beneficial use. The location of the diversion points are: Well # 90-3 - 447'W and 1908'S of the NE corner (SE 1/4 NE 1/4) and Well # 90-5 - 1393'W and 2134'S of the NE corner (SW 1/4 NE 1/4) both in Section 35, T89N, R48W.

(3) The applicant has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use.

(4) Pursuant to South Dakota Water Law 46-5-30.1 Dakota Dunes Community Improvement District of One River Place, 600 Stevens Port Drive, Suite 200, Dakota Dunes, SD 57049 the holder and/or owner of Water Permit No. 5437-3 is issued a license to appropriate water, the right to use 3.33 cubic feet of water per second from groundwater (two wells) with a priority date of April 12, 1990 from the location specified in (2) of this license. The water is used for municipal purposes. This license is subject to any limitations or qualifications listed in Water Permit No. 5437-3 and subject to South Dakota State Law.



JOHN HATCH, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

SEP 6 1995

date



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

SEP 6 1995

5437-3

Allan J. Block, District Manager
Dakota Dunes Community Improvement District
One River Place
600 Stevens Port Dr., Suite 200
Dakota Dunes, SD 57049

Dear Mr. Block:

Enclosed is Water License No. 5437-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 414533 in the amount of \$50.00 which you paid for the inspection and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 5437-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

gm
enclosures