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SAND AND GRAVEL RESOURCES IN
AURORA COUNTY, SOUTH DAKOTA

by

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INTRODUCTION

This pamphlet is one of a series of reports on the geology and hydrology of Aurora County, South Dakota. It is designed to aid in the exploration and development of sand and gravel resources within the County. The purpose of the report is two-fold: (1) to disseminate information about sand and gravel as rapidly as possible, and (2) to express the technical data in a non-technical manner that will be useful to the lay reader.

Other upcoming reports include "Major Aquifers in Aurora and Jerauld Counties, South Dakota," "Water Resources of Aurora and Jerauld Counties, South Dakota," and "Geology of Aurora and Jerauld Counties, South Dakota."

The first report describes the yield, quality, and location of major aquifers (water-bearing deposits) in a short, easy to read pamphlet. The second and third reports are more technical and exhaustive investigations of the hydrology and geology of the Counties.

In addition, it is recommended that the following publication be used as a companion reference to this pamphlet:

Evaluation of exploration methods for coarse aggregate in eastern South Dakota: South Dakota Geological Survey Report of Investigations 95

GEOLOGIC TERMS

The following brief discussion of geologic terms is presented as an aid in understanding the discussion of sand and gravel deposits.

Outwash

Glacial outwash is a general term referring to any deposit of clay, silt, sand, gravel, or boulders that has been washed and sorted, and subsequently deposited by water from melting glacier ice. Depending on the amount of sorting action, the material may contain an abundance of silt and clay, or in the other extreme, outwash may consist primarily of boulders. Most outwash is a mixture of material between the two extremes. In other words, an outwash deposit is usually composed of sand and gravel.

Till

Till is the term used for the unsorted and unstratified material lodged beneath a glacier or let down by a glacier as the ice melted away. The mixture for the most part has not been subjected to the action of running water and therefore is a mixture of clay and silt containing a random mixture of sand,

gravel, and boulders. The material is locally called "boulder clay" or "blue clay."

Distribution of till at the surface is extensive throughout Aurora County. However, within large areas of till there may exist small isolated hills or lenses of outwash material. The size of these hills or lenses may range from a very small knob or patch as small as 100 square feet to an area covering several acres or several tens of acres. Thickness of the sand and gravel in the knobs or lenses may vary from a thin veneer to 50 feet, but generally the thickness is less than 20 feet. In some cases, the larger and thicker isolated knobs and lenses of outwash may contain useable sand and gravel.

As a result of the complexities in the mechanics of deposition from the ice, these small hills and lenses of outwash have a very random occurrence. Their presence cannot generally be determined unless the outwash material is exposed or unless its presence has been determined through use of hand auger holes, test holes, or other sampling procedures.

Alluvium

Alluvium consists of a mixture of clay, silt, sand, and gravel that has been deposited by streams since the retreat of the glaciers. The grain size of the deposits will depend primarily on the velocity of the stream and may vary from place to place in the stream valley. Where deposits consist primarily of sand and gravel they may be mined for construction materials.

Bedrock Deposits

Bedrock deposits refer to the consolidated rocks underlying the glacial deposits. In Aurora County, the bedrock deposits are sedimentary and consist primarily of shale and chalk. No possibility exists of finding sand and gravel where the bedrock is present at the surface. However, sand and gravel deposits may occur in contact with bedrock along some drainage ways.

EXPLANATION OF TABLES

Table 1 is a list of test holes drilled in Aurora County along with their locations. Water levels are included where known. Most have been drilled by the South Dakota Geological Survey. Other test hole logs have been supplied by private drillers, the Office of Water Rights, the United States Water and Power Resource Services, and the United States Geological Survey. Only that part of the log which indicates sand and/or gravel has been included in order to reduce the amount of extraneous information.

Table 2 is a list of sand and gravel pits on file with the South Dakota Department of Transportation,

Division of Highways. Where the information is available it also includes the type of material it contains, the average thickness of overburden, and the average thickness of sand and/or gravel being removed. The depths of some pits are determined by the water table and others by the predominance of medium to fine sand or clay.

EXPLANATION OF MAP

The map shows locations of test holes, gravel pits, and a few landmarks. Test holes are represented by three different symbols. A filled circle (●) represents a location in which sand and/or gravel was encountered in the upper 25 feet with 5 feet or less of overburden. A filled square (■) indicates a location at which sand and/or gravel was encountered in the upper 25 feet but the overburden exceeded 5 feet. Numbers accompanying these two symbols refer to table 1 which contains the pertinent information from the test hole log. An unfilled circle (○) indicates a location where no sand and/or gravel was encountered in the upper 25 feet, and are not numbered as they are not listed in the tables.

Gravel pits are designated by a crossed pick and shovel (⚒). Those with numbers are listed in table 2 and have additional data on file with the District Highway Office of the South Dakota Department of Transportation, Division of Highways in Mitchell, South Dakota. No attempt has been made to differentiate the active from inactive pits.

In addition, the map has been divided into three different area types determined by the probability of finding sand and/or gravel. The probability designations are "good," "fair," or "poor" and have been delineated by use of test hole data, gravel pit locations, topographic maps, aerial photographs, and field observations. Each area listed as "good" or "fair" has been assigned a capital letter (A through I) which are discussed below.

An area designated as "good" contains deposits that are generally (1) fairly thick--12 feet, (2) encompass a large area, and (3) are covered by little overburden, or (4) are very thick but less continuous in lateral extent. Areas A, D, F, and H have been delineated as "good."

Areas A and D in the northwest part of the County are both large outwash deposits in which the thickest sequences of sand and gravel were encountered in the center of the areas. The thickness of overburden in area A averaged less than 3½ feet in

Survey test holes. Area D has a thinner veneer of overburden than area A.

Areas F and H are both part of an outwash deposit in southern Aurora County and northern Charles Mix and Douglas Counties. Area H is much smaller than area F and has been extensively developed. Area F is the most laterally consistent and thickest sand and gravel deposit of those designated as "good." In addition, it contains a wide range of material size, with a relatively thin layer of overburden.

An area designated as "fair" contains deposits that are fairly thick but less areally extensive with a greater thickness of overburden. Areas B and C in northeast Aurora County are deposits of alluvium and outwash, much of which has been reworked since initial deposition. Both areas contain excellent sand and/or gravel deposits but have been classified as "fair" due to lack of lateral consistency.

Area I in the southeast corner of the County contains an extremely thick interval of sand and gravel in sections 14 and 23, T. 101 N., R. 63 W. The test holes in this area indicated a deposit more than 20 feet thick with an overburden thickness averaging 1 foot. However, the deposit is relatively small and is extremely thin in the southern section of the area.

Area E in the southwest corner of the County contains sand and gravel of good quality and is locally quite thick but has an average overburden thickness of more than 9 feet.

Area G along the southern border of the County has deposits averaging less than 10 feet thick and has little overburden. A water table of 6 to 9 feet in this area partially submerges most of the thicker deposits.

An area designated as "poor" is composed primarily of till but does contain a few sand or gravel deposits. Some pits within these areas may be very productive but the deposits are localized and difficult to find.

GENERAL SUGGESTIONS FOR EXPLORATORY PURPOSES

It should be emphasized that the map is quite general and to be used as a guideline for further exploration and development of sand and gravel resources. The development of any specific sites would depend upon material specifications for desired use and the economics of developing new sources as compared to using known deposits.

TABLE 1. List of test holes in Aurora County, South Dakota, which contain sand and/or gravel in the upper 25 feet

Lithologic descriptions, as listed, have been condensed from data contained in driller's logs on file at the South Dakota Geological Survey Office, Vermillion, South Dakota, and contain only

information which has been deemed most useful for this study. Water levels, measured in the summer of 1978, may vary with time.

Test hole No.	Location	Lithologic Description	From-to Feet
1	SE NW NW NW 8-105-66	Sand and gravel, fine to coarse Sand, fine, silty	0-22 22-38
2	NW SW SW SW 9-105-66	Gravel, medium to coarse Gravel, medium to coarse	7-13 16-20
3	SW SW SW SW 14-105-66	Gravel	4- 5
4	NE NE NE SE 1-105-66	Gravel, fine to medium Gravel, fine to medium	16-18 24-26
5	SE SE SE SE 4-105-65	Gravel, brown, coarse; dry Sand, coarse, pebbly; dry (Water level - 17 feet)	5-10 10-11
6	SW SW SW SE 9-105-65	Sand, brown, coarse, pebbly; moist (Water level - 23 feet)	4- 7
7	SW SW SW SW 16-105-65	Sand, brown, medium, pebbly; moist (Water level - 9 feet)	0- 9
8	SW SW SW SW 20-105-65	Sand, gray, very fine, clayey; saturated	7-15
9	SE SE SE SE 20-105-65	Sand, red-brown and gray, medium to coarse, clayey; saturated	2-17
10	NW NW NW NW 28-105-65	Sand, brown, medium to coarse Sand, gray, fine to medium	2-18 18-46
11	SE SE SE SE 29-105-65	Sand, red-brown, fine to coarse, pebbly, clayey; moist Gravel, red-brown, medium, sandy, clayey; moist	3- 7 11-15
12	NW NW NW NW 31-105-65	Gravel, brown, medium, sandy, clayey; saturated (Water level - 10 feet)	5- 7
13	SW SW SW SW 31-105-65	Sand and gravel	4-20
14	NE NE NE NE 31-105-65	Gravel, medium, sandy, silty, clayey; moist (Water level - 8 feet)	3-15
15	SE SE SE SE 36-105-65	Gravel, fine to medium	22-26
16	SW SE SW SW 35-105-64	Gravel, fine, and coarse sand	0-10
17	SE SW SW SW 35-105-64	Sand, medium to coarse, well sorted Gravel, fine to coarse, sandy, clayey	0-12 12-14
18	SW NW NE NE 1-105-64	Sand, coarse; and gravel (Water level - 6 feet)	19-30
19	NE SW NE NW 1-105-64	Sand, gray, silty (Water level - 6 feet)	15-25

Test Hole No.	Location	Lithologic Description	From-to Feet
20	SE SE NE NE 7-105-63	Sand, red-brown, medium, pebbly, clayey; saturated (Water level - 6 feet)	6-15
21	NW SW SW NE 9-105-63	Sand, gray, coarse, gravelly (Water level - 8 feet)	18-23
22	SE NW SE NW 9-105-63	Sand, gray, fine, silty, with clay layers (Water level - 10 feet)	20-30
23	NW NW SW SW 9-105-63	Sand, red-brown, fine to coarse, clayey; moist (Water level - 14 feet)	8- 9
24	SE SE SE SE 9-105-63	Sand, yellow-brown, medium to coarse, clayey; saturated (Water level - 5 feet)	7-10
25	SE SE SE SE 16-105-63	Sand, brown, medium to coarse, clayey; saturated (Water level - 5 feet)	4-15
26	NW NW NW NE 21-105-63	Sand and gravel	0- 7
27	SE SE SE SE 17-105-63	Sand, red-brown, medium to coarse, pebbly, clayey; moist (Water level - 5 feet)	2-15
28	SW SW SW SE 17-105-63	Gravel, brown, medium; moist Sand, brown, pebbly, silty Sand, gray, silty, pebbly; saturated	4- 7 7-11 11-15
29	SW SW SW SE 18-105-63	Gravel, red-brown, dry Sand, fine to medium, saturated at 10 feet (Water level - 9 feet)	1- 2 2-25
30	SW SW SW NW 19-105-63	Sand, gray-brown, fine, clayey, saturated (Water level - 21 feet)	21-24
31	SW SW SW SW 19-105-63	Sand, brown, fine to medium, silty; moist (Water level - 9 feet)	6-10
32	NW NW NW NW 30-105-63	Sand, brown and gray-brown, fine to medium, clayey	3-20
33	NW NW NW NW 30-105-63	Sand, fine to medium	7-13
34	SW NW NW NW 30-105-63	Sand and gravel	8-32
35	SW SW SW NW 31-105-63	Sand, brown, coarse; moist (Water level - 4 feet)	6- 8
36	SE SE SE SE 31-105-63	Gravel	0-12
37	SW SW SW SW 32-105-63	Sand and gravel	0-18
38	SE SE SE SE 20-105-63	Gravel, medium, dirty; saturated at 9 feet	7-15
39	SE SE SE SW 28-105-63	Sand, very coarse, pebbly, silty; saturated at 8 feet	5-19
40	SE SW SW SE 28-105-63	Sand, brown, coarse, pebbly; moist (Water level - 9 feet)	7- 8

Test Hole No.	Location	Lithologic Description	From-to Feet
41	SE SE SW SE 33-105-63	Sand, very coarse; dry Gravel, medium, clean; saturated	0- 5 5-25
42	SE SE SE SE 33-105-63	Sand, coarse, gravelly with some clay	14-24
43	SW SW SW SE 27-105-63	Gravel, gray, medium to fine; saturated (Water level - 6 feet)	21-35
44	SE SW SW SW 35-105-63	Sand, gray-brown to red-brown, medium to coarse, silty, pebbly; moist (Water level - 8 feet)	6- 9
45	NE NE NE NW 25-105-63	Sand, brown, medium, gravelly; dry	1- 6
46	NE NE NE NE 2-104-66	Sand, yellow-brown, fine to medium, clayey; dry, saturated at 10 feet (Water level - 8 feet)	1-13
47	SW SW SW SE 3-104-66	Sand, yellow-brown, medium to fine, clayey; dry	2- 5
48	SW SW SW SW 10-104-66	Sand, light-gray, fine to medium, pebbly, clayey; dry Sand, brown, coarse, clayey; dry	2- 4 4- 6
49	SW SW SW SW 11-104-66	Sand, red-brown, medium to coarse, silty; moist Sand, yellow-brown, fine to medium; saturated at 7 feet	4- 5 5-12
50	SE SW SE SE 15-104-66	Sand and gravel	2-13
51	SW SW SW SW 13-104-66	Sand, light-gray, fine, clayey; moist Sand, red brown, medium to fine, clayey; saturated at 8 feet Gravel, brown, medium, sandy, clayey; saturated (Water level - 10 feet)	1- 4 4-11 11-20
52	NW SE SW SW 22-104-66	Sand, gray, fine to medium, clayey; saturated (Water level - 16 feet)	9-24
53	NW NW NW NW 26-104-66	Sand, brown, coarse, pebbly, clayey; moist Gravel, brown, sandy, clayey; moist Sand, red-brown, fine to coarse, clayey, pebbly; moist Sand, gray, fine to medium, clayey; saturated (Water level - 14 feet)	7-10 10-13 13-21 21-30
54	NE NE NW NE 33-104-66	Sand, brown, medium, silty; moist	0-11
55	NW NW NW NW 35-104-66	Gravel, brown; dry Sand, brown, medium, pebbly, silty; dry (Water level - 20 feet)	1- 2 2- 6
56	SE SE SE SW 34-104-66	Sand, brown, fine to coarse, silty; dry (Water level - 9 feet)	3-14
57	SW NE NW NE 1-104-64	Sand, fine to medium, some gravel, coal and clay	18-63

Test Hole No.	Location	Lithologic Description	From-to Feet
58	NE NE NE NE 1-104-64	Gravel, coarse Sand, fine to medium, clayey	2- 7 16-34
59	NW NW NW SW 13-104-64	Sand, brown, fine to medium, clayey; saturated at 6 feet	3-19
60	SE SE NE SE 36-104-64	Sand, fine to medium; saturated, clean at 5 to 15 feet	1-14
61	NW NW NW SW 6-104-63	Gravel, coarse	13-18
62	SW SW NE NE 6-104-63	Gravel	0- 5
63	SE SE NW NE 6-104-63	Gravel, coarse	3- 9
64	NW NE NW SW 5-104-63	Gravel	12-20
65	SE SW SE SE 6-104-63	Gravel	4- 8
66	SW SW SW SW 5-104-63	Gravel, sandy Sand, medium to coarse	10-15 22-28
67	SE SW SW SE 5-104-63	Sand, brown, coarse, pebbly; dry (Water level - 14 feet)	0- 4
68	SW SE SE SE 5-104-63	Sand, coarse; saturated at 8 feet, clean	8-29
69	NW NW NW NW 2-104-63	Sand, gray, coarse, pebbly, clayey; saturated	16-18
70	NW NW SW SW 2-104-63	Sand, brown, coarse, gravelly, silty; dry Gravel, brown, fine, silty; dry Sand, yellow-brown, coarse, clayey; saturated	0- 1 1- 2 14-15
71	NE NE NW NW 10-104-63	Gravel, medium to coarse, clean; saturated	2-26
72	NW NW NW NW 11-104-63	Sand, brown, medium; saturated	6- 8
73	NE NE NW NW 11-104-63	Gravel, brown, medium to coarse, silty; saturated (Water level - 5 feet)	24-33
74	SW NW NW SW 11-104-63	Sand, orange, coarse, clayey, pebbly; moist	3- 4
75	SW SW SE SE 11-104-63	Gravel, fine, sandy; saturated at 5 feet	3-30
76	SE SE SE SE 11-104-63	Gravel, brown, medium, sandy; moist, saturated at 14 feet (Water level - 10 feet)	4-31
77	SW SE SW SW 12-104-63	Sand, brown, pebbly; moist Gravel, light brown; dry Sand, brown, coarse; moist	0- 1 1- 2 8-11
78	SW SE SE SW 12-104-63	Sand, light brown, coarse, pebbly; dry Sand, brown, coarse, pebbly; moist (Water level - 20 feet)	0- 3 3- 8
79	SE SE NE NE 18-104-63	Sand, brown, fine to medium, silty; moist	1-14
80	NW NW SW NW 15-104-63	Sand, medium, pebbly; saturated at 10 feet Sand, brown, medium to coarse, silty; saturated	2-11 11-24

Test Hole No.	Location	Lithologic Description	From-to Feet
81	NE SW NE NE 15-104-63	Sand (Water level - 24 feet)	2- 5
82	SW NW NW NW 14-104-63	Sand, yellow-brown, medium; moist	4- 6
83	NW NW NE NE 13-104-63	Sand, brown, coarse, pebbly, silty; dry, moist at 3 feet	0- 6
84	SE SE SE NE 13-104-63	Gravel, gray, silty; saturated (Water level - 5 feet)	18-23
85	NE NE SE SE 13-104-63	Sand, brown, medium to coarse; dry (Water level - 10 feet)	0- 4
86	SE SE SE SE 13-104-63	Sand, brown, coarse, pebbly; dry Gravel, brown, fine; moist	0- 6 6-26
87	SW SW SW SE 13-104-63	Sand, brown, fine, silty; saturated (Water level - 4 feet)	4- 8
88	NE NE NE SE 24-104-63	Sand, brown, coarse, pebbly (Water level - 3 feet)	0- 4
89	NE SE NE NE 25-104-63	Sand, brown, medium; dry (Water level - 7 feet)	0- 2
90	SE SE SE NE 25-104-63	Sand, brown, coarse, pebbly; moist (Water level - 6 feet)	0- 4
91	SE NE SE SE 25-104-63	Sand, brown, silty, pebbly; moist (Water level - 18 feet)	4-41
92	NW NW NW NW 25-104-63	Sand, brown, coarse; moist Gravel, brown, medium to fine; moist (Water level - 10 feet)	0- 5 5-12
93	SE SE NE NE 22-104-63	Sand	24-26
94	NE NE NE NE 22-104-63	Sand, brown, pebbly, silty; saturated (Water level - 20 feet)	22-24
95	NW NW NW NW 22-104-63	Sand, yellow-brown, medium to coarse, clayey, silty; saturated (Water level - 11 feet)	11-14
96	NW NE NE NW 20-104-63	Gravel, fine Gravel, fine	15-18 21-23
97	NW NW NW NW 28-104-63	Sand, brown, coarse, pebbly, dry Sand, brown, coarse, pebbly, silty; saturated Gravel, brown, medium, silty, sandy; saturated (Water level - 8 feet)	0- 4 5-10 10-14
98	NW NW NW NW 34-104-63	Gravel, medium, silty; dry	0- 5
99	NE NE NE NE 4-103-66	Sand, brown, medium Sand, gray-brown, fine to medium	1-17 17-31
100	NE NE NE SE 8-103-66	Sand and gravel, red brown, coarse, clayey; saturated (Water level - 21 feet)	4- 7

Test Hole No.	Location	Lithologic Description	From-to Feet
101	SE SE SE SW 8-103-66	Sand and gravel, red-brown, medium to coarse, clayey; moist	2- 3
102	SE SE SW SW 29-103-66	Gravel, red-brown, coarse, very sandy, clean; dry	3- 6
103	SW SW NW NW 22-103-66	Gravel, red-brown, medium to coarse, clean; dry (Water level - 5 feet)	3- 4
104	SW SW SW SW 15-103-66	Gravel, sandy	12-14
105	NW SE SE SE 15-103-65	Sand, light tan, fine, gravelly; dry	2- 5
106	SE SE SE SE 15-103-65	Sand, very light tan, very fine; dry	1- 4
107	NE SE NE NE 13-103-64	Gravel, brown, fine, silty; saturated at 6 feet	9-13
108	NE SE NE NE 6-103-63	Sand, fine, silty; dry, saturated at 10 feet Sand, gray, fine, silty; saturated	2-15 15-34
109	NW NW NW NW 3-103-63	Sand	8-10
110	SW SW SW NW 3-103-63	Gravel, fine, silty, clayey; saturated	2-13
111	SE NE SE SE 7-103-63	Sand, brown, pebbly; dry	0- 3
112	NE SW SE SW 16-103-63	Sand, medium to coarse	20-29
113	NW NW NE NE 13-103-63	Sand, yellow-brown, fine to medium, slightly clayey; moist (Water level - 18 feet)	1- 3
114	NE NE NE SE 24-103-63	Gravel, fine to medium	3-27
115	SE SE SE SE 24-103-63	Sand, gray, fine, silty, pebbly; saturated at 6 feet	11-22
116	SW SE SE SW 24-103-63	Sand, red-brown, coarse, with some medium gravel; dry, saturated at 6 feet (Water level - 7 feet)	1-17
117	NE NE NE NE 25-103-63	Sand, light brown, fine to medium, pebbly, clayey; dry Sand, brown, fine to coarse, gravelly, clayey; moist, saturated at 9 feet (Water level - 9 feet)	1- 3 3-13
118	NW NE NE NE 7-102-66	Gravel	16-17
119	SW NW NW NW 8-102-66	Gravel, brown, sandy; saturated (Water level - 3 feet)	15-40
120	SW SE SE SW 5-102-66	Sand, brown; saturated	7-20
121	NW NW NW NW 19-102-65	Gravel	16-18
122	SE SE SE SE 26-102-63	Sand, brown, fine to medium; dry	0- 1
123	NW NW NW NW 16-101-66	Gravel, brown, medium to fine, silty at 5 to 7 feet; dry Sand, brown, pebbly, silty; moist	1- 7 7- 9

Test Hole No.	Location	Lithologic Description	From-to Feet
123 -- continued.		Gravel, brown, fine, silty; moist, saturated at 20 feet (Water level - 13 feet)	9-23
124	NE NE NW NW 16-101-66	Sand, brown, medium, silty; saturated at 13 feet (Water level - 8 feet)	11-14
125	NE SE SE NE 21-101-66	Gravel, brown, medium, silty; saturated (Water level - 8 feet)	8-22
126	SE SE SE SW 22-101-66	Sand, brown, medium; dry Gravel, gray, silty; saturated (Water level - 6 feet)	0-2 18-23
127	NW NW NW NW 26-101-66	Sand, brown, fine, pebbly; dry, moist at 5 feet, silty at 8 feet (Water level - 11 feet)	0-13
128	SW SW SW SW 26-101-66	Gravel, brown, medium to coarse, sandy, silty; dry (Water level - 13 feet)	1-17
129	SW SW SW SW 35-101-66	Gravel, red-brown and gray-brown, coarse to medium, very sandy, clayey; dry Sand, brown, coarse, pebbly, clayey; moist (Water level - 20 feet)	1-10 10-13
130	SW SW SW SW 24-101-66	Gravel, brown, medium to fine, clayey; dry Sand, red brown, medium, pebbly, clean; dry Gravel, red brown and yellow brown, coarse, sandy; moist, clayey at 13 to 23 feet (Water level - 11 feet)	3-5 5-7 7-23
131	NW NW NW NW 19-101-65	Gravel	14-16
132	NE NE NE NE 19-101-65	Sand, yellow-brown, coarse, clayey; moist Gravel, yellow-brown, coarse, clayey; saturated (Water level - 11 feet)	7-10 10-16
133	NW NW NW NW 29-101-65	Gravel, yellow-brown, coarse, very sandy, slightly clayey; saturated at 14 feet (Water level - 15 feet)	4-23
134	SW SW SW NW 29-101-65	Gravel, gray, medium, sandy; dry (hit rock, abandoned hole at 11 feet)	3-11
135	SE SE SE SE 30-101-65	Sand, yellow-brown, silty; moist (Water level - 8 feet)	5-6
136	SW SW SW SW 30-101-65	Gravel, gray-brown, medium, clayey; dry Gravel, red brown, medium, very sandy, clayey; dry Gravel, red-brown, medium, very sandy, moist Gravel, gray-brown, clayey; saturated (Water level - 28 feet)	2-6 6-14 14-28 28-35
137	SW SW SW SW 31-101-65	Sand, brown, medium, clean; dry Sand, red-brown, coarse, pebbly; moist Gravel, brown, medium, sandy, clayey; saturated	3-4 4-8 10-12

Test Hole No.	Location	Lithologic Description	From-to Feet
137 -- continued.		Sand, brown, very coarse, pebbly, clayey; saturated (Water level - 12 feet)	12-28
138	SE SE SE SE 31-101-65	Sand, light gray, medium, silty, pebbly; dry Sand, light gray, medium, silty; moist Sand, brown, medium, silty; moist Gravel, brown, medium, sandy; moist Sand, brown, coarse; saturated at 24 feet (Water level - 19 feet)	2- 6 6-11 11-15 15-20 21-43
139	SW NW NW SW 32-101-65	Sand, brown, silty, pebbly; dry Sand, brown, medium to coarse, silty; saturated at 16 feet	5-12 12-43
140	SW SW SW SW 33-101-65	Sand, light gray, medium; dry Sand, yellow-brown, medium; dry Gravel, brown, sandy, slightly clayey; saturated (Water level - 9 feet)	1- 3 3- 4 9-18
141	SW SW SW SW 31-101-64	Sand, fine, clean; dry (Water level - 8 feet)	4- 7
142	SE SE SE SE 31-101-64	Sand, yellow-brown, fine; moist at 7 feet (Water level - 9 feet)	1- 8
143	SW SW SW NW 33-101-64	Sand, gray-brown, coarse, pebbly, clayey; saturated Sand, black, coarse, pebbly, clayey; saturated (Water level - 3 feet)	4- 6 6-25
144	SE SE SE SE 34-101-64	Sand, brown, coarse; moist (Water level - 7 feet)	5- 6
145	SW SW SW SW 31-101-63	Gravel, medium to coarse, and sand Gravel, medium	0 14 16-18
146	SE SW SW SW 31-101-63	Gravel, brown, pebble-size, and coarse sand, clayey; saturated (Water level - 6 feet)	6-13
147	SE SE SW SW 32-101-63	Gravel, light brown, medium, sandy; dry, saturated at 6 feet (Water level - 6 feet)	1-25
148	SE SW SW SW 34-101-63	Gravel, fine to medium	19-21
149	SW SW NW NW 34-101-63	Gravel, yellow-brown, medium, sandy, silty; saturated (Water level - 3 feet)	3- 6
150	SE SE SE SE 28-101-63	Gravel, yellow-brown, sandy, clayey; saturated (Water level - 9 feet)	11-15
151	SW SE SW SW 27-101-63	Sand, brown, fine; moist Gravel, brown, medium, sandy; moist Sand, brown, medium, pebbly; moist Gravel, red-brown, medium; moist (Water level - 4 feet)	0- 2 2- 3 3-13 13-22


Test Hole No.	Location	Lithologic Description	From-to Feet
152	NW NW NW NE 23-101-63	Gravel, brown, coarse, silty; dry Gravel, brown, medium, silty; dry Sand, brown, medium, pebbly; moist (Water level - 7 feet)	1- 2 2- 3 3-18
153	SW SW SW SE 14-101-63	Gravel, medium to coarse	3-23
154	SE SW SW SE 14-101-63	Gravel, fine to coarse	0-23
155	SW SW SW SW 30-101-62	Gravel, medium to coarse	4- 6
156	SE SE SE SE 36-101-63	Gravel, red-brown, medium, very sandy, clayey; saturated (Water level - 5 feet)	6- 8


TABLE 2. List of sand and gravel pits in Aurora County, South Dakota, which are on file at the District Office, South Dakota Department of Transportation, Division of Highways, Mitchell, South Dakota.

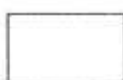
Pit No.	Owner and Address	Location	Type	Average Thickness of Aggregate Deposits (in feet)	Average Overburden Thickness (in feet)
1	Not listed	NW¼ 8-105-66	Gravel	15.0	1.5
2	Markhardt, Mark, White Lake	NW¼ 21-105-65	Gravel	6.0	2.4
3	Markhardt, Mark, White Lake	SE¼ 30-105-65	---	11.4	.9
4	Schroeder, Herbert, Jr., Wessington Springs	N½ SW¼ 8-105-63	Gravel	10.6	2.1
5	Jensen, Elizabeth, Mitchell	SW¼ 8-105-63	Gravel	9.0	2.5
6	Miles, Elizabeth, White Lake	N½ 17-105-63	Gravel	10.2	1.7
7	Scott, Walter, Letcher	SE¼ 17-105-63	Gravel	----	----
8	Scott, Walter, Letcher	NE¼ 20-105-63	Gravel	8.0	2.0
9	Scott, Christ, Estate; Leo Scott, Agent, Letcher	NW¼ 28-105-63	Gravel	----	----
10	Mathis, Wilbur, Plankinton	NW¼ 31-105-63	Sand	7.0	6.0
11	Hagerty, John and Catherina, White Lake	SW¼ 23-104-66	Gravel	7.3	1.8
12	Scott, W. A., Storla	SE¼NW¼ 5-104-63	Gravel	8.0	2.0
13	Frazer, Emma, Plankinton	SW¼NE¼ 5-104-63	Gravel	7.0	2.0
14	Scott, W. A., Storla	SW¼ 5-104-63	Sand & Gravel	9.0	3.0

15	Miller, Walter, Plankinton	NE¼ 8-104-63	---	8.0	1.0
16	Commorford, Francis, Stickney	NE¼ 8-104-63	---	7.0	2.0
17	Stoddard, Allan, Plankinton	NW¼ 20-104-63	Gravel	---	---
18	Stoddard, Allan, Plankinton	NW¼ 21-104-63	Gravel	---	---
19	Stoddard	SW¼ 15-104-63	Gravel	---	---
20	Abeln, Clarence, Stickney	E½ SE¼ 14-104-63	Gravel	9.4	1.9
21	Aithen, John, Mt. Vernon	NE¼ 24-104-63	Gravel	8.0	1.5
22	Lund, K. J., White Lake	SE¼NE¼ 8-103-66	Gravel & Sand	---	---
23	Glissendorf, Ralph, White Lake	SE¼ 8-103-66	Gravel	---	---
24	Glissendorf, Wayne, White Lake	SW¼ 9-103-66	Gravel	8.0	1.4
25	Glissendorf, Herb, White Lake	NW¼ 20-103-66	Gravel	2.5	2.0
26	State of South Dakota	NW¼SE¼ 23-103-63	Sand	---	---
27		NE¼SE¼ 23-103-63	Gravel	7.6	2.0
28	Sigmond, Leonard, Plankinton	NE¼ 25-103-63	Gravel	8.9	2.0
29	Suetow, Arnold, White Lake	NW 31-102-66	---	6.0	2.0
30	Brute County, Chamberlain	SE¼NW¼ 16-101-66	Gravel	---	---
31	Reinesch, Albert, White Lake	NE¼ 27-101-66	Sand	8.9	3.9
32	Reinesch, Albert, White Lake	SE¼SE¼ 27-101-66	Gravel	---	---

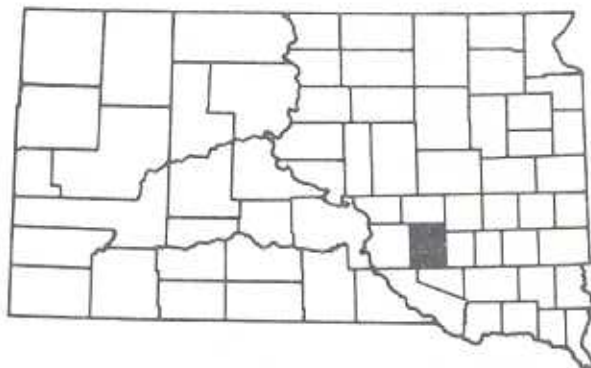
Pit No.	Owner and Address	Location	Type	Average Thickness Of Aggregate Deposits (in feet)	Average Overburden Thickness (in feet)
33	Herrick, Howard, Farmer	SW¼ 26-101-66	Gravel	10.0	1.2
34	Bogenhagen, Lawrence White Lake	NE¼ 26-101-66	Gravel	15.3	2.5
35	School & Public Lands	S½ SE¼ 36-101-66	Gravel	12.3	2.1
36	Vanderpol, Mayme, Corsica	SE¼ 31-101-65	Gravel	9.0+	1.0
37	Vanderpol, Richard	SW¼ 31-101-65	Gravel	8.6+	1.4
38	Bultsma, T. H., Platte	NE¼ 30-101-65	Gravel	8.6	1.4
39	Koch, Matt, Stickney	SE¼ 19-101-65	Gravel	9.3	1.6
40	Pattison, Laurence D., Stickney	SE¼ 32-101-65	Sand	7.7	1.9
41	Niewenhuis, Edwin, Stickney	SW¼ 27-101-64	Gravel	8.0	1.9
42	Johnson, Lloyd, Stickney	NE¼ 36-101-64	Gravel	7.0	3.0
43	Johnson, Lloyd, Stickney	NW¼ 31-101-63	Gravel	----	----
44	Johnson, Lloyd, Stickney	SW¼ 31-101-63	Gravel	7.3	1.1
45		SW¼ 33-101-63	---	----	----

 Good probability of finding sand or gravel deposits.

 Fair probability of finding sand or gravel deposits.

 Poor probability of finding sand or gravel deposits.

Letters A through I designate areas described in the text.



●¹ Test hole containing sand or gravel in upper 25 feet with 0-5 feet of overburden. Number refers to Table 1.

■¹⁵ Test hole containing sand or gravel in upper 25 feet with 6-25 feet of overburden. Number refers to Table 1.

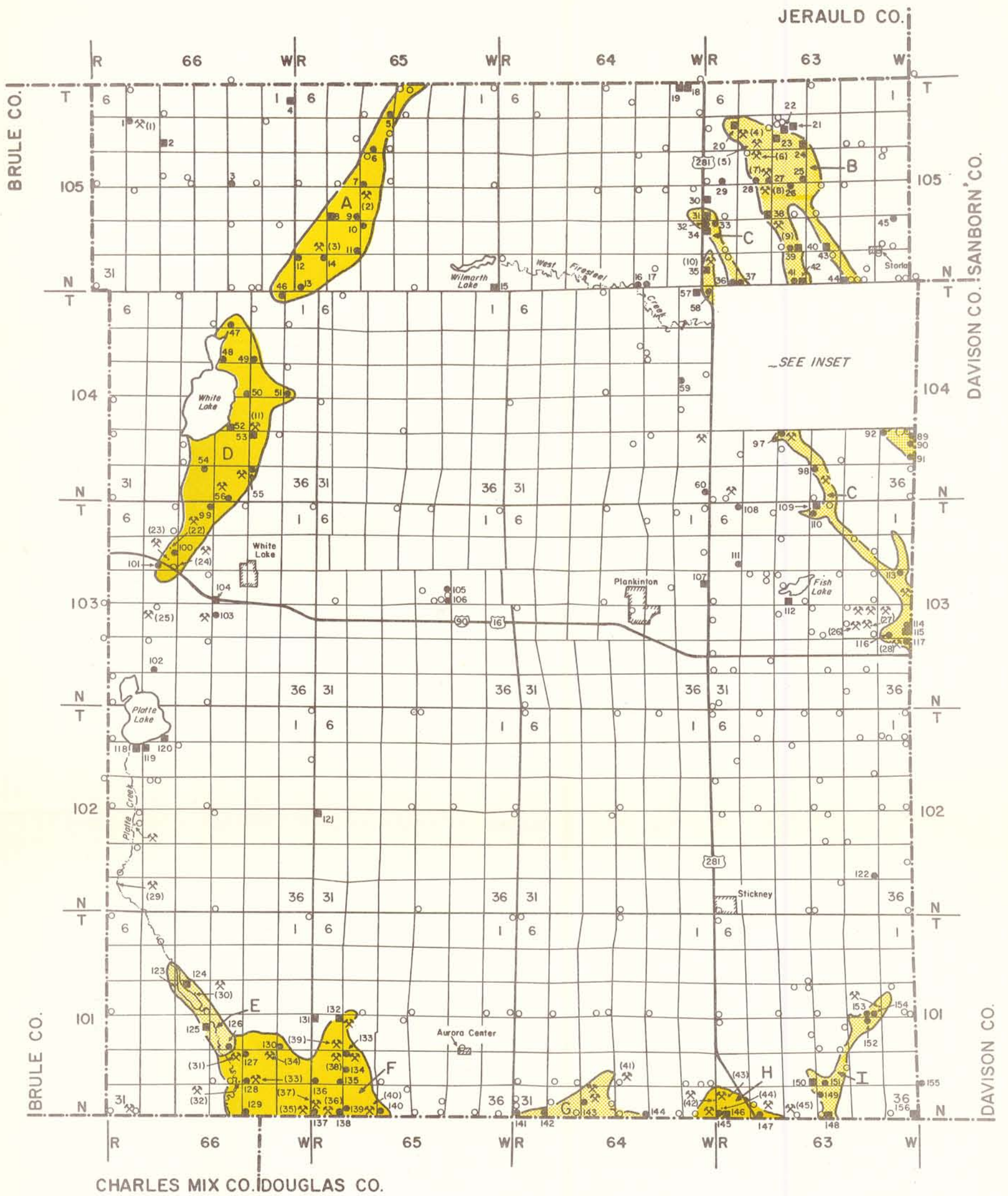
○ Test hole with no sand or gravel in upper 25 feet.

(s) ✕ Gravel pit; those numbered are described in Table 2.

Index map showing location of Aurora County.

Mapped by Douglas A. Blaze.

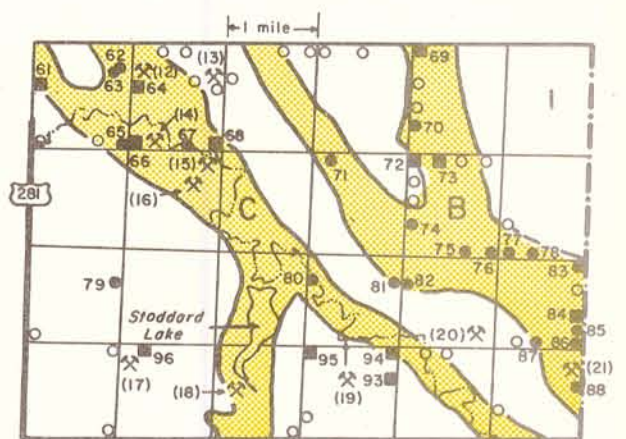
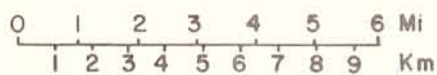
Drafted by E.N. Koglin.



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

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

sectionized township



INSET