

STATE OF SOUTH DAKOTA  
Richard Kneip, Governor

DEPARTMENT OF NATURAL RESOURCE DEVELOPMENT  
Vern Butler, Secretary

GEOLOGICAL SURVEY  
Duncan J. McGregor, State Geologist

Information Pamphlet No. 13

SAND AND GRAVEL RESOURCES  
IN HYDE COUNTY, SOUTH DAKOTA

by

Wayne Schroeder

Prepared in cooperation with the  
United States Geological Survey,  
Oahe Conservancy Sub-District,  
South Dakota Department of Highways,  
and Hyde County

Science Center  
University of South Dakota  
Vermillion, South Dakota  
1976

This publication was printed at a cost of 14 cents per copy. A total of 500 copies were printed for dissemination of geologic information.

## CONTENTS

	PAGE
INTRODUCTION .....	1
EXPLANATION OF TABLES .....	1
EXPLANATION OF MAP .....	1

## TABLES

1. List of test holes in Hyde County, South Dakota, which contain sand and/or gravel in the upper 25 feet .....	2
2. List of sand and gravel pits in Hyde County, South Dakota, which are on file at the District Office, South Dakota Department of Highways, Huron, South Dakota .....	7

## ILLUSTRATION

Map showing test holes, gravel pits, and sand and gravel deposits in Hyde County .....	9
---	---

## INTRODUCTION

This pamphlet is one of a series of reports completed on the geology and hydrology of Hyde County, South Dakota. The purpose of this report is to indicate areas in which to search for sources of aggregate material. The quality of the deposits encountered was not analyzed nor the quantity of available reserves measured. These would require a larger auger in order to get a more representative sample, prior knowledge of the material specifications for each intended use and more extensive drilling.

There are two other reports in this series. The first is a comprehensive publication entitled the "Geology and Water Resources of Hand and Hyde Counties, South Dakota." It contains the technical aspects of the study. It should be used in conjunction with this report as it defines and explains the distribution of earth materials in the County. It will also help answer questions of geologic and hydrologic interest.

The second report is an information pamphlet entitled "The Major Aquifers in Hand and Hyde Counties, South Dakota." It shows the areal distribution of major glacial aquifers and gives their expected yields and quality. It also discusses the bedrock aquifers and their yield and quality.

## EXPLANATION OF TABLES

Table 1 is a list of test holes drilled in Hyde County along with their locations. Most of them have been drilled by either the South Dakota Geological Survey or the United States Geological Survey. A few have been supplied by private drillers or the State Highway Department. Only that part of the log which indicates sand and/or gravel has been included in this table 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 Highways. Where the information is available, it also includes the average thickness of the sand and/or gravel being removed, the average thickness of overburden and the type of material it contains. Average thickness values with a plus sign after them mean that the bottom of the pit is still in sand or gravel. In some cases the depth of the pit is determined by the water table and in others it is due to the predominance of sand.

## EXPLANATION OF MAP

The map (illus.) shows the location of test holes, gravel pits, land marks, and the areas of good, fair, and poor probability of finding sand and gravel. Test holes are indicated by a filled circle (●), a filled

triangle (▲), or an unfilled circle (○). The unfilled circle represents a location where no sand and/or gravel was encountered in the upper 25 feet of drilling. As such they are not numbered because they are not listed in the tables. The other two symbols refer to holes which did encounter sand and/or gravel in this interval. A filled circle represents 0 to 5 feet of overburden and a filled triangle 6 to 25 feet of overburden. The numbers beside each symbol refer to table 1 which lists the amount of sand and/or gravel present.

Gravel pits are designated by 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 Highways in Huron, South Dakota. No attempt has been made to differentiate the active from the inactive pits.

Using the test holes, gravel pit locations, topographic maps, air photos, and field observations, the county has been divided into three types of areas describing the probability of finding sand or gravel--good, fair, and poor. Each area designated as either good or fair has been assigned a roman numeral and is discussed in some detail below.

An area designated as "good" contains deposits that are generally (1) fairly thick--15 feet, (2) encompass a large area, and (3) are covered by little overburden--4 feet, or are very thick but less continuous in distribution. Area I appears to be predominately gravel to the north and sand to the south with the overburden thickest to the north. Area III is mainly gravel to the west and sand to the east. Area IX is mainly gravel but, as you traverse southeast, the overburden thickens to the point where the probabilities of an economically feasible pit are low. Both Areas V and IX are extensively developed.

An area designated as "fair" contains deposits that may still be fairly thick but the distribution is less continuous and the thickness of the overburden is closer to 8 feet. Area II is a narrow valley with gravel deposited on the side walls but in most places it is absent. Area VIII is on high ground and as a result of erosion is patchy. Area X is a region of thick deposits but excessive overburden.

An area designated as "poor" contains few sand and gravel pits. Some may be very productive but the deposits are localized and difficult to find without intensive exploration. One exception is the area north of Lake Mitchell. Numerous pits are found in this region but most are depleted or are too thin for commercial development.

**TABLE 1. List of Test Holes in Hyde 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.

Test Hole No.	Location	Lithologic Description	From-to Feet
1	NE NE NE NW 31-117-71	Sand, fine to medium, silty	0- 3
		Sand, medium to fine, clayey; saturated, dirty	5- 22
		Rocks, very large with included fine sand	22- 26
		Sand, medium to coarse, silty; saturated, still in sand at bottom	26- 50
2	SW SW SE SE 30-117-71	Gravel, fine to coarse with coarse yellow-brown sand	0- 5
		Sand, coarse, and fine gravel with yellow-brown clay; saturated	5- 14
		Gravel, fine to medium with coarse sand and yellow-brown clay; saturated	14- 26
		Sand, coarse with some fine gravel and brown clay; saturated	26- 44
3	SE SE SE SE 29-117-71	Sand, medium with brown clay; saturated	26- 29
4	SW NW NW NW 6-116-73	Sand, coarse, and gravel	15- 48
5	SE SE SE SE 4-116-73	Sand and gravel	0- 80
6	NW NW NW NW 19-116-73	Sand, brown; some gravel	0- 47
7	SE SE SE SE 30-116-72	Gravel, very coarse	3- 20
8	NE NE NE NE 27-116-72	Rocks; impenetrable	0- 2
9	SW SE SE SW 23-116-72	Gravel, light tan-brown; some clay	5- 11
10	SE NE NE SE 33-116-72	Sand, brown; saturated	6- 8
11	SE SE NE SE 33-116-72	Clay, light-tan, rocks; impenetrable	0- 10
12	SW SW SW SW 25-116-72	Sand, light-gray, gravel, rocks; dry	2- 9
		Sand, light-brown, and fine gravel	9- 15
		Rocks; some sand and gravel	15- 19
13	SW SW SW SW 36-116-72	Sand, light-brown, rocks	0- 3
14	SE NE SE NE 36-116-72	Sand, gravel, rocks	0- 3
15	NW SW NW NW 31-116-71	Sand, dark brown, and fine to medium gravel	5- 12
		Sand, light-brown, fine to medium	12- 14
16	NE NE NE NE 16-116-71	Sand	0- 1
17	NE NE NE SE 35-116-71	Sand, coarse; dry, clean, some 3 mm granules	0- 9

Test Hole No.	Location	Lithologic Description	From-to Feet
		Gravel, medium, clayey; oxidized, moist, dirty	9- 20
		Gravel, dark-brown, medium; saturated, dirty	20- 31
		Gravel, medium; unoxidized, saturated, very dirty	31- 38
		Sand, very coarse; unoxidized, saturated, fairly clean	38- 57
18	SE NW NW SE 7-115-73	Sand and gravel	0- 9
19	NW 1-115-73	Gravel; some sand and rock streaks	2- 28
20	NW NW NW NW 1-115-72	Sand, fine to medium	20- 30
21	NE 27-115-72	Sand, fine	5- 12
22	SE SE SE SE 31-115-71	Sand, poorly graded	9- 11
23	NE NE NE NE 33-115-71	Sand, clayey	5- 6
24	NW NW NW NW 13-115-71	Sand, yellow-brown	1- 8
25	NW NW NW NW 7-114-73	Sand	0- 1
26	NW SE NE SW 22-114-73	Rocks, gravel, sand Sand, dark-brown, very coarse; some clay Sand, dark-brown, fine	0- 1 1- 3 3- 4
27	NE SW 22 114-73	Sand, well graded Gravel, well graded Sand, well graded Gravel, well graded; saturated at 14 feet	0- 2 2- 5 5- 8 8- 15
28	NW SW NW NW 27-114-73	Gravel, medium-brown; rocky; dry Sand, medium-brown; dry Gravel, medium-brown, rocky; dry, stopped by rock	2- 6 6- 8 8- 11
29	NW SW SW NW 27-114-73	Gravel; some clay streaks	12- 18
30	NW SW NW NW 32-114-73	Sand, poorly graded; saturated at 17 feet	5- 17
31	SW SW SW SW 34-114-73	Sand, clean	24- 28
32	SW NE 8-114-72	Sand, clayey Gravel, clayey; saturated at 19 feet	10- 15 15- 19
33	NW NW NW SW 6-113-73	Sand, well graded	15- 22
34	SE SE SE SE 22-113-71	Rocks, gravel, clay	2- 5
35	NW NW NW NW 11-112-73	Gravel, medium to coarse	22- 33
36	NE NE NE NE 18-112-72	Gravel, coarse	0- 20
37	NW 17-112-72	Gravel, medium, poorly sorted	6- 18
38	SW NW 17-112-72	Sand, coarse; saturated at 5 feet Gravel, pea	6- 12 12- 24
39	NE SW NE NE 16-112-72	Sand and gravel	6- 18

Test Hole No.	Location	Lithologic Description	From to Feet
40	SE SE SE SE 23-112-72	Sand, coarse Sand, dark, fine to medium Gravel and sand Gravel	10- 33 33- 75 74-140 140-150
41	SE SE SE SE 24-112-71	Gravel Sand and gravel Sand and gravel	9- 16 19- 33 34- 65
42	SE 10-111-73	Sand, blue, clayey	22- 82
43	SE 28-111-73	Gravel; tight	9- 12
44	NW NW NW NW 17-111-72	Gravel	12- 24
45	SW SW SW SW 12-111-72	Sand and gravel Sand, fine Sand, abundant shale; some gravel	0- 25 25- 40 40- 60
46	NE 22-111-71	Sand, yellow	2- 52
47	SW 14-111-71	Sand, fine to medium Gravel, medium Sand, coarse Sand, fine to medium; tight, streaks of clay	9- 12 12- 15 15- 18 25- 35
48	NE 7-110-73	Gravel; tight	6- 7
49	NW SW NW NW 20-110-73	Gravel and shale	8- 9
50	SW SW SW SW 31-110-73	Sandy loam, dark brown; moist	5- 7
51	SW 27-110-73	Gravel; tight	4- 14
52	SE SW SW SW 31-110-72	Sandy loam, gray-brown; dry	2- 3
53	NW NW NW NW 16-110-72	Sandy loam, very dark gray; moist (colluvium)	4- 6
54	SW SW SW SW 36-110-72	Sand, tan, very fine, to silt, clayey (loess?) Gravel, light-brown, coarse, sandy, silty, clayey Sand, very light-brown, fine to very fine, silty; uniform Sand, very light-brown, fine to very fine, silty; uniform Sand, yellowish light brown, medium; moist, some fine sand and silt, fairly well sorted	0- 3 3- 5 5- 12 15- 21 21- 25
55	NE NW NW SW 21-110-71	Sand, dark gray-brown; dry	4- 11
56	NE NE NE SE 4-110-71	Loamy sand, dark gray-brown; dry	5- 9
57	SW SW NE SW 6-109-72	Gravel, light-brown, coarse, to medium sand; some fine sand and silt, slightly clayey (alluvium) Gravel, yellowish-brown, medium to fine, silty, clayey; saturated at 22 feet, fairly stiff drilling Gravel, very silty and clayey	0- 5 5- 31 31- 35

Test Hole No.	Location	Lithologic Description	From-to Feet
58	SE SE SE SE 5-109-72	Sand, light-tan, very fine, to silt (loess)	0- 3
		Gravel, medium-brown, coarse, to coarse sand, silty, clayey; stiff drilling	3- 11
		Gravel, medium-brown, coarse, to coarse sand, silty, clayey; saturated at 24 feet, some rocks	19- 27
59	NE NE SE SE 7-109-72	Gravel, well graded	1- 2
60	NE NE NW NE 10-109-72	Sand, dark- to medium-brown, silty, clayey (alluvium)	0- 4
		Gravel, dark-brown, coarse to fine, very sandy and silty, clayey	4- 6
		Gravel, dark-brown, fine, very sandy and silty, clayey	6- 9
		Gravel, dark-gray, coarse to fine, very sandy and silty, clayey; saturated, some rocks	9- 12
61	SE SE SE SE 3-109-72	Gravel, medium-brown, coarse to fine, clayey; some rocks	4- 6
62	SW SW SW SW 1-109-72	Gravel, medium-brown, coarse to fine, silty, clayey; moist, some sand	5- 12
		Gravel, light medium-brown, medium to coarse sand; some fine sand and silt, little clay	12- 15
		Gravel, medium-brown, fine, and very coarse sand, silty, clayey, sandy	15- 21
		Gravel, medium-brown, coarse to fine, silty, clayey, sandy	21- 26
		Gravel, dark medium-brown, coarse to fine, silty, clayey, sandy	26- 30
		Gravel and sand; saturated at 34 feet, little silt and clay	30- 35
		Gravel and sand, silty, clayey	35- 39
		Gravel and sand, alternating between clean, well-sorted beds and silty, clayey beds, rocks at 39, 42, and 49 feet	39- 53
63	SW SW SW NW 12-109-72	Gravel, medium-brown, coarse to fine; moist, one 2-foot thick bed is clean, the rest contains clay, silt, or sand	5- 11
64	SE SE SE SW 12-109-72	Sand, light-tan, very fine, to silt (loess)	0- 3
65	NW NW NW NW 13-109-72	Sand, very fine, to silt, clayey	0- 3
66	SW SW SW NW 13-109-72	Gravel, fine; saturated, clean, well sorted	19- 21
67	SE SE SE SE 13-109-72	Gravel, medium-brown, fine, to coarse sand, clayey; some fine sand and silt	5- 11
68	NW NW NW NW 18-109-71	Sand, tan, very fine, to silt (loess)	0- 1
		Gravel, light-brown, coarse to fine, sandy; moist at 22 feet, little silt and clay	1- 25

Test Hole No	Location	Lithologic Description	From-to Feet
		Gravel, medium-brown, fine, to coarse sand, clayey, silty; moist, some fine sand, fairly stiff drilling	25 32
		Gravel, yellow-brown, fine to very coarse sand; saturated, rocks from 35 to 43 feet	32 45
69	SW SE SE SW 18-109-71	Gravel, medium brown, fine, clayey, silty, sandy; saturated, stiff drilling	4 10
70	SW SW SW SW 16-109-71	Gravel, medium-brown, medium, to coarse sand, clayey; some fine sand and silt	6 12
		Gravel, medium-brown, fine, to medium sand; saturated, loose, clean	12 23
71	SE SE SE NE 21-109-71	Gravel, medium brown, medium, to medium sand, silty, clayey; some fine sand	5 10
		Gravel, medium brown, medium, to very coarse sand; dry, some fine sand, little silt and clay	10 19
		Gravel, medium-brown, coarse, to coarse sand, sandy, silty; moist, saturated at 29 feet, little clay	19 40
72	SE SE SE SE 21-109-71	Sand, light-brown, coarse to medium; some fine sand and silt, gravelly from 3 to 7 feet	2 25
		Gravel, medium-brown, medium, to coarse sand, silty, clayey; saturated, some fine sand, stiff drilling	25 32
73	SE SE SE NE 28-109-71	Sand, yellowish light-brown, very coarse to medium, gravelly; saturated at 22 feet, some fine sand, bedded	6 31
74	SW SW SW SW 23-109-71	Gravel, light-brown, medium, to coarse sand; very slightly sandy and silty, some coarse gravel from 10 to 36 feet	6 36
75	NW NW NW NW 25-109-71	Sand, light brown, fine, to silt, somewhat clayey, scattered pebbles	5 20
76	NW NW NE NE 25-109-71	Sand, light-brown, fine, to clay; some coarser material (alluvium?)	0 7

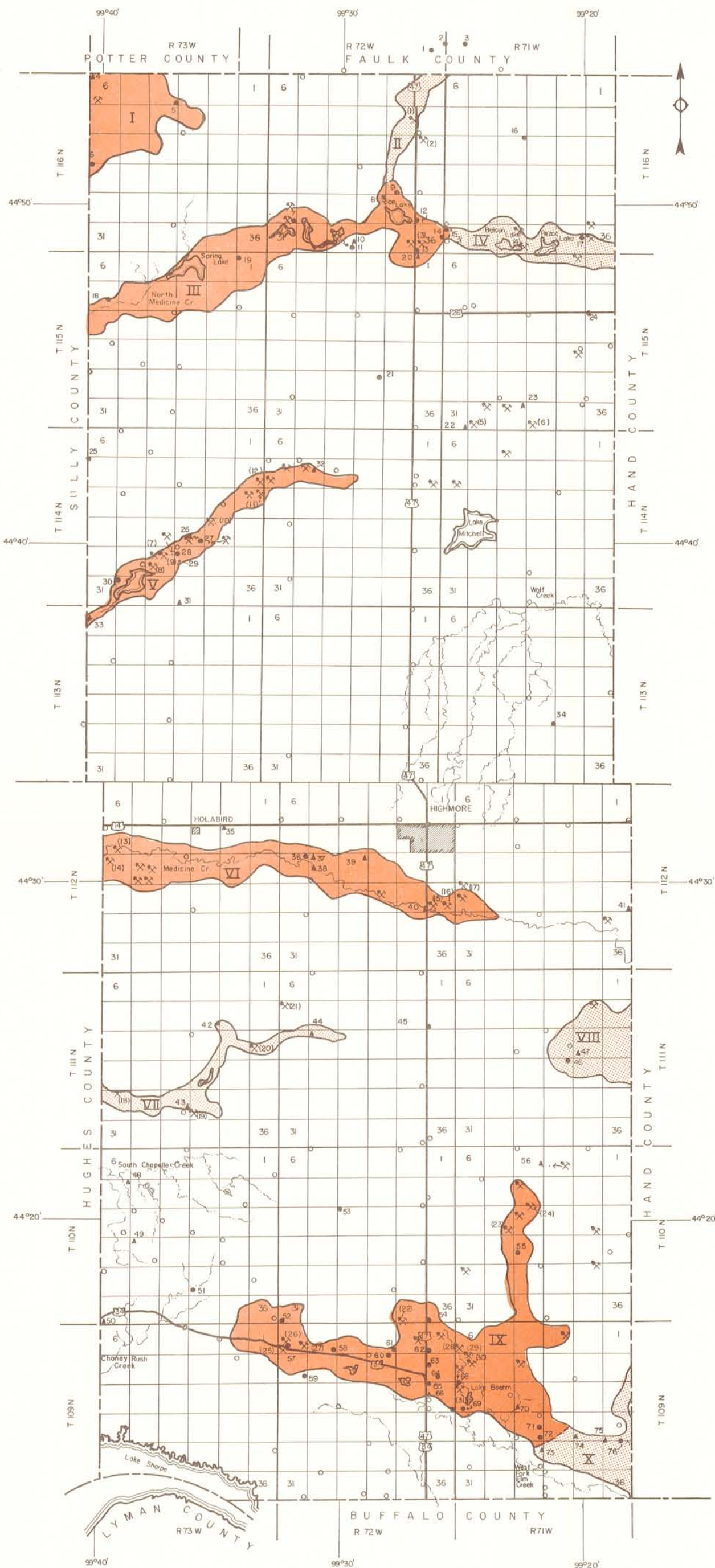





TABLE 2. List of sand and gravel pits in Hyde County, South Dakota, which are on file at the District Office, South Dakota Department of Highways, Huron, South Dakota.

Pit No.	Owner and Address	Description	Type	Average Depth in Feet	Average Depth of Stripping in Feet
1	Schmidt, Frank and Joe — Highmore	NE $\frac{1}{4}$ 11-116-72	Gravel	1.8	6.9+
2	Department of School and Public Lands	NW $\frac{1}{4}$ NW $\frac{1}{4}$ 13-116-72	Gravel	1.5	9.4
3	Rinehart, Harold and Mailyn — Highmore	W $\frac{1}{2}$ 36-116-72	Gravel	2.3	8.4+
4	Baloun, Melvin — Highmore	SE $\frac{1}{4}$ 33-116-71	Gravel	1	10
5	Hatwick, Leonard — Highmore	SW $\frac{1}{4}$ 32-115-71	Sand	5.1	6.7
6	South Dakota Department of Game and Fish — Pierre	SW $\frac{1}{4}$ 34-115 71	Gravel		
7	Zilverberg, Mac — Holabird	SE $\frac{1}{4}$ NW $\frac{1}{4}$ 28-114-73	Gravel		
8	Fischer, August — Holabird	N $\frac{1}{2}$ SW $\frac{1}{4}$ 28-114-73	Gravel	2.8	6.8
9	Kornder, Wm. F. Estate; Kornder Wilbur, Adm. — Osceola	NE $\frac{1}{4}$ 28-114-73	Gravel		
10	Zittner, Xavier — Highmore	NW $\frac{1}{4}$ 23-114-73	Gravel	2.4	7.2
11	Eckstein, Emil — Highmore	NE $\frac{1}{4}$ 13-114-73	Gravel	2.1	5.5
12	Eckstein, Emil — Highmore	SE $\frac{1}{4}$ 12 114-73	Gravel	2.1	5.5
13	Smith, Harlan — Harrold	S $\frac{1}{2}$ 7-112-73	Gravel	3.0	6.8
14	Bauer, Ed — Harrold	NW $\frac{1}{4}$ 18-112-73	Gravel		
15	Mesick, M. R. — Highmore	SW $\frac{1}{4}$ 24- 112 72	Gravel		
16	Cowan, Arthur — Highmore	SE $\frac{1}{4}$ 24 112 72	Gravel		

Table 2 -- continued.

Pit No	Owner and Address	Description	Type	Average Depth in Feet	Average Depth of Stripping in Feet
17	Cowan, Arthur -- Highmore	NW¼ 19-112-71	Gravel		
18	Peterson, Lumas D -- Highmore	N½ 30-111-73	Gravel		
19	Eustad, N. W. & N. P. -- Holabird	NW¼ SW¼ 27-111-73	Gravel		
20		NW¼ SW¼ 13-111-73	Gravel		
21	Ashdown, Mrs. -- Highmore	NW¼ 7-111-72	Gravel		
22	Frank, Mrs. Alice 1512 Lombard Drive Fullerton, California	SW¼ 35-110-72	Filler	3.5	4.6
23		SE¼ 17-110-71	Gravel		
24	Pekarek, Joe -- Highmore	N½ N½ 16-110-71	Gravel	5.1	9.6+
25	Nevermisses, John	SW¼ 6-109-72	Sand & Gravel		
26		NE¼ SW¼ 6-109-72	Sand		
27	Smells the Earth, Allot. CC423	SE¼ 6-109-72	Sand		
28	Hartshorn, Mrs. -- Highmore	1-109-72	Gravel		
29	Kusser, Phillip -- Highmore	SW¼ 6-109-71	Gravel		
30	Kusser, Phillip -- Highmore	N½ 7-109-71	Gravel		
31	Stephan Mission -- Stephan	NW¼ 18-109-71	Gravel	4.9	13.8



-  Good probability of finding sand or gravel deposits.
-  Fair probability of finding sand or gravel deposits.
-  Poor probability of finding sand or gravel deposits.

Roman numerals I through X designate areas described in the text.

●<sup>14</sup> Test hole containing sand or gravel in upper 25 feet with 0 to 5 feet of overburden. Number refers to Table 1.

▲<sup>43</sup> Test hole containing sand or gravel in upper 25 feet with 6 to 25 feet of overburden. Number refers to Table 1.

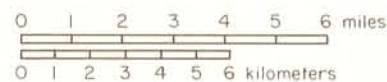
○ Test hole containing no sand or gravel in upper 25 feet.

⊗<sup>(23)</sup> Gravel pit; those with a number are listed in Table 2.

--- Approximate boundary



Index map of South Dakota showing location of Hyde 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

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