SAND AND GRAVEL RESOURCES IN
GRANT COUNTY, SOUTH DAKOTA

by

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INTRODUCTION

This pamphlet is the first in a series of reports describing the geology and water resources of Grant County. It is designed to indicate the most promising areas in which to search for aggregate material. Quality of the deposits encountered was not analyzed, nor was the quantity of available reserves measured, as these would require prior knowledge of the material specifications for each intended use.

Other reports in the series include:


The first report contains a generalized evaluation of the yield, quality, and location of major aquifers (water-bearing deposits) in a condensed, easy-to-read pamphlet. The second and third reports are more technical and present a more comprehensive investigation of the water resources and geology within the two-county area. All basic data used to compile these reports are available from the South Dakota Geological Survey's open file.

It is recommended that the following publication, explaining how aggregate-bearing landforms are recognized, be used as a companion reference to this pamphlet:


GEOLOGIC OVERVIEW

Topographically, Grant County can be split into two sections. The western half is dominated by an area of relative highland, the Coteau des Prairies, lying some 600 to 800 feet above the eastern lowlands. The surface relief of the Coteau exhibits both the rough, stony hills and kettle-like hollows of glacial moraines as well as the swampy flats of the stream valleys. The eastern edge of the Coteau des Prairies is characterized by a steep scarp slope, the lower half of the slope being entrenched by stream valleys.
The most striking characteristic of the relief in the eastern half of Grant County is the flatness of the land. Over this plain, only a few low morainic ridges interrupt the gentle swells and swales of this recently glaciated surface.

Most of the sand and gravel deposits are the result of glaciers that covered this region thousands of years ago, late in the Pleistocene Epoch. Others have been deposited by streams since the glaciers retreated. The following brief description of geologic terms should be used as an aid in further understanding the deposition of sand and gravel.

Till

Till is the term used to define the unsorted and unstratified material either laid down by an active glacier at the base of the ice, or deposited by a glacier as the ice melted. This mixture of boulders, gravel, sand, silt, and clay is often called "boulder clay" or "blue clay." Till covers most of Grant County, though typically it is not considered a source of sand and gravel, as at best, only a few, small isolated lenses occur.

Outwash

Glacial outwash is a general term geologists use to describe any deposits of clay, silt, sand, gravel, or boulders that have been washed, sorted, and subsequently deposited by flowing glacial meltwater. Outwash grain size depends upon sediment type and velocity of the water that transported and deposited the material. A lake or slowly flowing stream will usually deposit silts and clays, while rapidly flowing water may leave streambeds composed almost entirely of boulders. Most outwash, however, is a mixture of material between these two extremes, and is composed of an assortment of sand and gravel with minor amounts of finer and coarser materials. The majority of the deposits shown on the map included in this publication are outwash deposits.

Alluvium

Alluvium is the term used to describe a mixture of clays, silts, sands and gravels deposited by streams since the retreat of the glaciers. The size of material found in any one deposit, is dependent on the same factors that determine grain size in glacial outwash. Alluvium occurs in the valleys of present-day streams, and where deposits consist primarily of sand and gravel, mining for construction materials may take place.
Terrace Deposits

Terrace deposits are flat-topped, fluvial deposits that may or may not be of glacial origin. Being remnants of former flood plains, the streams that formed them have since cut their channels deeper and developed new flood plains at lower elevations. These alluvial or outwash deposits account for a few of the aggregate deposits found in Grant County.

Eskers and Kames

Eskers and kames are glacial landforms that were deposited directly from stagnating, melting ice. Kames usually appear as mound-like hills or short ridges. Generally, they are formed in or on the ice by the filling of crevasses or basin-like depressions. Eskers appear as long, narrow, sinuous ridges and are formed by streams in, on, or under the ice. Both landforms can offer good possibilities for aggregate pit development.

Bedrock

Bedrock is the older, consolidated rock beneath the glacial deposits. In Grant County, the bedrock consists of shale, chalk, limestone, and granite. Granite (termed as the Milbank granite) is the only bedrock exposed in Grant County and these outcrops have been mapped as potential sources of aggregate. Generally, when bedrock units are found at or near the ground surface, no sand or gravel exists below that point.

EXPLANATION OF TABLES

Table 1 is a compilation of test holes that encountered sand and/or gravel in the upper 25 feet. This table lists:

a. location of the test hole,
b. depth of hole, and
c. description of aggregate encountered.

The South Dakota Geological Survey (SDGS), U.S. Geological Survey, South Dakota Division of Water Rights, and private drillers contributed to the formation of this list. The complete set of test-hole logs is on file at the Office of the South Dakota Geological Survey in Vermillion.

Table 2 is a list of gravel pits on file in Pierre with the South Dakota Department of Transportation. The owner, material type, and where possible, thickness of overburden and aggregate being mined, have been listed. The actual thickness of a deposit may be greater than that mined, as depth to the water table,
changing material characteristics, or available mining equipment may limit excavation.

EXPLANATION OF MAP

The map shows the location of test holes, gravel pits (active and inactive), and a few landmarks. Test holes are represented by three types of symbols. A closed circle (●) indicates the presence of sand or gravel within 25 feet of the land surface with 5 feet or less of overburden. A square (▲) indicates that sand or gravel was encountered within 25 feet of the land surface, but that more than 5 feet of overburden existed. The test holes represented by these symbols are numbered and listed in table 1. An open circle (○) indicates that no sand or gravel was found in the upper 25 feet.

Gravel pits are labelled with a crossed pick and shovel (✘), those numbered being listed in table 2. Additional information concerning the numbered gravel pits is on file with the Department of Transportation, Pierre, South Dakota.

To help illustrate the most promising areas, the map has been divided into three area types, each expressing the probability of discovering new sources of economically extractable sand or gravel. Those areas designated as "good" indicate a comparatively thick deposit with thin overburden and underlying large tracts of land. Those considered "fair" lack one or more of these favorable attributes. Areas designated as "good" or "fair" have been assigned a color as well as a letter, and are discussed later in the text.

Areas designated as "poor" are composed mainly of till but may contain random deposits of sand and gravel. Many of these deposits have been located by test holes and gravel pits on the map. Although some of these deposits may be very productive, they are generally limited and difficult to locate.

The above three classifications evolved through an extensive drilling program, the study of gravel pits and their locations, topographic map and aerial photograph interpretations and field observations.

Sand and Gravel

Area "A" (designated "good"). This area covers deposits of approximately 27 square miles. The majority of deposits occur as a "valley train," a long, narrow body of outwash deposited by glacial meltwater streams and confined within preexisting valley walls (the present day Big Sioux River valley). Other deposits occur as terraces up and around the bluff of the Big Sioux valley, and as deposits associated with Indian Creek, a tributary of the Big Stone River.
Aggregate thicknesses average over 20 feet, though some SDGS tests show thicknesses exceeding 45 feet. Some of the sands and gravels are covered by silt, though this overburden averages less than 3 feet.

Area "B" (designated "good"). Situated along the front of a northwest to southeast trending ridge, known as the Altamont moraine, lies a gently sloping sheet of glacial sands and gravels. This outwash plain, 1 to 3 miles wide, occupies the depression known as Antelope Valley. Due to the shape of Grant County, these deposits exist as two separate areas, one in T. 118 N., R. 50 W., the other in T. 120 N., R. 51 W. However, both areas show a remarkable degree of uniformity with aggregate thicknesses to over 60 feet, average thicknesses of around 30 feet and an average overburden of less than 3 feet. Although existing gravel pits are concentrated along the sides of the valley, a dredging operation may well be feasible on the valley floor.

Area "C" (designated "good"). Near the base of the Coteau des Prairies escarpment, there are numerous small outwash fans. These fan-shaped accumulations range from less than 1/2 square mile to several square miles in area. Most of these deposits afford easy access. Thickness of aggregate is usually between 5 and 20 feet, and overburden is generally less than 5 feet. However, in one deposit to the northwest of Revillo, thicknesses of up to 45 feet were found.

Area "D" (designated "good"). This area encompasses just over 16 square miles of fairly continuous sand and gravel deposits. Most aggregates are outwash deposits associated with the Whetstone River valley. The majority of the aggregate appears to be concentrated in two areas: around the confluence of the North and South Forks of the Whetstone River and around the Big Stone City area. In the former, average thicknesses are around 40 feet, with a maximum of over 150 feet having been recorded. In the Big Stone City area, where aggregate thickness averages 15 feet, alluvial deposits and glacial outwash exist as both valley floor and terrace deposits.

Area "E" (designated "fair"). In this area SDGS tests revealed a few thin, discontinuous surficial deposits. More substantial deposits were evident at depth, though thickness of overburden would probably deter pit development. Area "E" partially surrounds a more promising area (Area "F"), whose merits are discussed below.

Area "P" (designated "good"). The most striking aggregate-bearing feature in this area is a series of linear gravel hills. This disintegration ridge is almost entirely composed of stratified sands and gravels. Big Tom Hill, the largest and northernmost deposit, towers some 70 feet above the surrounding valley floor. Tests by SDGS were unable to penetrate more than 83 feet of aggregates on Big Tom Hill, though other test holes in the adjacent valley floor suggest total aggregate thicknesses of over
100 feet. Numerous smaller, kame-like features can also be found in the surrounding area and offer additional possibilities for pit development.

Outwash is also present in the valley floor of the North Fork of the Yellow Bank River. However, a shallow water table would most likely necessitate the use of dredging equipment if development were to take place.

Area "G" (designated "fair"). Various sections of the Yellow Bank River valley afford a fair probability of aggregate pit development. Although further drilling is strongly advised before any development takes place, SNSS test holes revealed scattered terrace and valley-floor remnants. These deposits have an average aggregate thickness of around 10 feet and an average overburden of 5 feet.

Area "H" (designated "fair"). The western-most feature delineated represents possible aggregate deposition as an esker. The other landform mapped constitutes either a series of small kame-like features or the remnants of another esker. Both landforms are only considered "fair" because the poor sorting, oversize material and abundance of clay and shale renders them unsuitable for most aggregate applications.

The remainder of Grant County has been mapped as "poor," though some areas will contain sand or gravel deposits. An example exists within the Sisseton Indian Reservation in secs. 7 and 19, T. 121 N., R. 51 W. Here, both test holes and gravel pits represent what are probably small outwash fans at the base of a moraine. However, due to the randomly scattered nature of these deposits, exploration efforts should first be concentrated in those areas marked "good" and "fair."

**Granite**

Granite outcrops occur approximately 5 miles east and 1 mile south of Milbank. Although the outcrops themselves are relatively small, it is estimated from drill-hole data, that approximately 2 square miles of rocks would be available for quarrying within 25 feet of ground surface.

Composed mainly of feldspars, quartz and mica, the dark, mahogany-colored rock is much valued as an ornamental stone. Being sufficiently jointed to assist in its removal, it is already extensively quarried. It is also used as rip-rap and in its crushed form as a concrete aggregate.

Some of the geologic and economic factors to consider in selecting a quarry site include size, quality and jointing of the outcrop, overburden thickness, local water levels, development costs, transportation costs, future markets, and material specifications.
<table>
<thead>
<tr>
<th>TEST HOLE NUMBER</th>
<th>LOCATION</th>
<th>LEGAL LOCATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| 1               | 118N-47W-04DCCD | SE SW SW SE SEC. 04, T. 118 N., R. 47 W. | 1 - 8 SAND AND GRAVEL, TAN, CLAYEY; DRY, OXIDIZED  
8 - 16 SAND, BROWN, VEZY CLAYEY; SATURATED, OXIDIZED |
| 2               | 118N-47W-16BBBA | NE NW NW NW SEC. 10, T. 118 N., R. 47 W. | 5 - 9 SAND, DARK-BROWN, CLAYEY, PEBBLY; WET, OXIDIZED  
9 - 11 GRAVEL, REDDISH-BROWN; LITTLE SAND, SATURATED, OXIDIZED |
| 3               | 118N-47W-16DDDD | SE SE SE SE SEC. 16, T. 118 N., R. 47 W. | 19 - 25 SAND, FINE; TO MEDIUM GRAVEL, CLAYEY |
| 4               | 118N-47W-17ABBA | NE NW NW NE SEC. 17, T. 118 N., R. 47 W. |
5 - 10 SAND, BROWN, FINE TO MEDIUM, CLAYEY, SILTY; SATURATED
     * * * *

TEST HOLE NUMBER: 5
LOCATION: 118N-47W-27CHDB
LEGAL LOCATION: NW NE SW SE SEC. 27, T. 118 N., R. 47 W.

4 - 6 SAND AND GRAVEL, LIGHT-BROWN, CLAYEY; OXIDIZED, MOIST
     * * * *

TEST HOLE NUMBER: 6
LOCATION: 118N-46W-07CCDC
LEGAL LOCATION: SW SE SW SE SEC. 07, T. 118 N., R. 48 W.

8 - 10 SAND, LIGHT-BROWN, MEDIUM TO COARSE, PEBBLY, CLAYEY; OXIDIZED, DRY
10 - 15 GRAVEL, BROWN, MEDIUM TO COARSE, CLAYEY; SOME SAND, OXIDIZED, DRY
15 - 20 GRAVEL, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY; SOME FINE TO MEDIUM SAND, OXIDIZED, DRY
20 - 53 GRAVEL, BROWN, COARSE, CLAYEY; SOME FINE SAND, CHANGES FROM GRAVEL TO PRIMARILY SAND, FINE TO MEDIUM, AT 38 FEET, SATURATED AT 38 FEET
     * * * *

TEST HOLE NUMBER: 7
LOCATION: 118N-46W-08CCDC
LEGAL LOCATION: SW SW SW SEC. 08, T. 118 N., R. 48 W.

0 - 6 SAND, BROWN, FINE TO MEDIUM, PEBBLY, CLAYEY; OXIDIZED, DRY
6 - 9 SAND, BROWN, FINE TO MEDIUM, PEBBLY, CLAYEY; OXIDIZED, SATURATED
9 - 13 SAND, BROWN, FINE TO MEDIUM, PEBBLY, VERY CLAYEY; OXIDIZED, SATURATED
     * * * *

TEST HOLE NUMBER: 8
LOCATION: 118N-46W-09CCDC
LEGAL LOCATION: SW SW SE SEC. 08, T. 118 N., R. 48 W.
2 - 10 SAND AND GRAVEL, TAN-BROWN, MEDIUM TO
COARSE SAND, MEDIUM GRAVEL; OXIDIZED,
DRY
10 - 12 SAND, TAN-BROWN, MEDIUM TO COARSE,
CLAYEY; FEW PEBBLES, OXIDIZED, VERY
MOIST
12 - 33 SAND, TAN-BROWN, MEDIUM TO COARSE, VERY
CLAYEY; FEW PEBBLES, OXIDIZED,
SATURATED

*** ***
TEST HOLE NUMBER: 9
LOCATION: 118N-46W-08DDD
LEGAL LOCATION: NE SE SE SE SEC. 08, T. 118 N., R. 48 W.

3 - 6 SAND, BROWN, MEDIUM TO COARSE, PEBBLY,
CLAYEY; OXIDIZED, DRY
6 - 25 SAND, BROWN, MEDIUM TO COARSE, CLAYEY;
FEW PEBBLES, OXIDIZED, SATURATED
25 - 40 SAND, GRAY-BROWN, FINE TO MEDIUM SAND,
CLAYEY; SLIGHTLY OXIDIZED, SATURATED,
CHANGES TO A VERY CLAYEY, GRAY SAND AT
36 FEET

*** ***
TEST HOLE NUMBER: 10
LOCATION: 118N-46W-09DADA
LEGAL LOCATION: NE SE NE SE SEC. 09, T. 118 N., R. 48 W.

4 - 10 SAND, TAN-BROWN, COARSE; SOME CLAY AND
FINE PEBBLES, OXIDIZED, SATURATED
10 - 13 SAND, BROWN, MEDIUM; SOME FINE PEBBLES,
OXIDIZED, SATURATED
13 - 20 SAND, GRAYISH-BROWN, MEDIUM; FEW PEBBLES,
OXIDIZED, SATURATED
20 - 34 SAND AND GRAVEL, GRAYISH-BROWN, MEDIUM
SAND, MEDIUM GRAVEL, CLAYEY; OXIDIZED,
SATURATED, LITTLE GRAVEL TO 28 FEET, NO
SAND FROM 28 FEET TO 34 FEET

*** ***
TEST HOLE NUMBER: 11
LOCATION: 118N-46W-12CDBC
LEGAL LOCATION: NW SW NW SW SEC. 12, T. 118 N., R. 48 W.

3 - 5 SAND, BROWN, SILTY, CLAYEY; OXIDIZED,
9
DAMP
5 - 14 SAND, BROWN, SILTY, CLAYEY; OXIDIZED, SATURATED
14 - 19 SAND, GRAY, VERY CLAYEY, SILTY; UNOXIDIZED, SATURATED

* * * *

TEST HOLE NUMBER: 12
LOCATION: 118N-48W-15CCCC 1
LEGAL LOCATION: SW SW SW SW SEC. 15, T. 118 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 12 SAND, MEDIUM; TO FINE GRAVEL, CLEAN, OXIDIZED

* * * *

TEST HOLE NUMBER: 13
LOCATION: 118N-48W-15CCCC 2
LEGAL LOCATION: SW SW SW SW SEC. 15, T. 118 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 8 SAND, MEDIUM; TO MEDIUM GRAVEL, YELLOW

* * * *

TEST HOLE NUMBER: 14
LOCATION: 118N-48W-16ADAD
LEGAL LOCATION: SE NE SE NE SEC. 16, T. 118 N., R. 48 W.

0 - 5 SAND, REDDISH-BROWN, VERY FINE TO FINE, CLAYEY; OXIDIZED, DRY
5 - 9 SAND, REDDISH-BROWN, VERY FINE TO FINE, CLAYEY; OXIDIZED, MOIST

* * * *

TEST HOLE NUMBER: 15
LOCATION: 118N-48W-16BCBB
LEGAL LOCATION: NW NW SW NW SEC. 16, T. 118 N., R. 48 W.

7 - 9 SAND, BLACK, VERY CLAYEY; PEW PEBBLES; UNOXIDIZED, MOIST
9 - 16 SAND, DARK-BROWN, MEDIUM TO COARSE, PEBBLY; SOME OXIDATION, SATURATED
23 - 32 SAND AND GRAVEL, GRAY, COARSE SAND, MEDIUM GRAVEL, VERY CLAYEY; UNOXIDIZED, SATURATED

* * * *
TEST HOLE NUMBER: 16
LOCATION: 118N-48W-18CDDC
LEGAL LOCATION: SW SE SE SW SEC. 18, T. 118 N., R. 48 W.

1 - 4 GRAVEL, BROWN, COARSE TO VERY COARSE; LITTLE SAND, OXIDIZED, DRY
4 - 7 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, MEDIUM GRAVEL; OXIDIZED, DRY
7 - 10 SAND, TAN-BROWN, MEDIUM TO COARSE; SOME FINE TO MEDIUM GRAVEL, SOME CLAY, OXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 17
LOCATION: 119N-48W-23AABB
LEGAL LOCATION: NW NW NE NE SEC. 23, T. 118 N., R. 48 W.

4 - 5 SAND, BROWN, PEBBLY, CLAYEY; OXIDIZED, DAMP
7 - 11 SAND, BROWN, CLAYEY, PEBBLY, SILTY; DAMP, OXIDIZED
11 - 15 SAND, GRAY, VERY CLAYEY, SILTY; MOIST, UNOXIDIZED

* * *

TEST HOLE NUMBER: 18
LOCATION: 118N-49W-25BSCA
LEGAL LOCATION: NE SW NW NW SEC. 25, T. 118 N., R. 49 W.

5 - 7 SAND, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 19
LOCATION: 118N-49W-27BCCC
LEGAL LOCATION: SW SW NW SW SEC. 27, T. 118 N., R. 49 W.

2 - 6 SAND AND GRAVEL, LIGHT-BROWN, COARSE SAND, FINE GRAVEL, CLAYEY; OXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 20
LOCATION: 118N-49W-31DAAA

11
LEGAL LOCATION: NE NE NE SE SEC. 11, T. 118 N., R. 49 W.

0 - 8 SAND, REDDISH-BROWN, COARSE; SOME FINE TO MEDIUM PEBBLES, SOME CLAY, POORLY SORTED, OXIDIZED, DRY

8 - 10 SAND, REDDISH-BROWN, COARSE; SOME MEDIUM TO COARSE PEBBLES, POORLY SORTED, SOME CLAY, OXIDIZED, DRY

* * *

TEST HOLE NUMBER: 21
LOCATION: 118N-49W-33C038
LEGAL LOCATION: SW SW NW SW SEC. 33, T. 118 N., R. 49 W.

2 - 5 SAND, GRAY, FINE TO MEDIUM; SOME MEDIUM PEBBLES, DRY

5 - 10 SAND, TAN-BROWN, FINE TO MEDIUM SAND; SOME MEDIUM PEBBLES, OXIDIZED, LITTLE CLAY, DRY

* * *

TEST HOLE NUMBER: 22
LOCATION: 118N-49W-33C038
LEGAL LOCATION: NW SW SW SW SEC. 33, T. 118 N., R. 49 W.

2 - 18 SAND, MEDIUM-BROWN, FINE, CLAYEY; MOIST, OXIDIZED

* * *

TEST HOLE NUMBER: 23
LOCATION: 118N-49W-34D038
LEGAL LOCATION: NE NE SE SE SEC. 34, T. 118 N., R. 49 W.

4 - 13 SAND AND GRAVEL, BROWN, COARSE SAND, MEDIUM GRAVEL, CLAYEY; OXIDIZED, MOIST

13 - 14 SAND, GRAY-BROWN, COARSE, CLAYEY; SATURATED

* * *

TEST HOLE NUMBER: 24
LOCATION: 118N-49W-35C038
LEGAL LOCATION: SW SE SW SW SEC. 35, T. 118 N., R. 49 W.

12
11 - 30 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, FINE GRAVEL, CLAY; OXIDIZED, SATURATED

* * *

TEST HOLE NUMBER: 25
LOCATION: 118N-50W-05CDD
LEGAL LOCATION: SE SE SE SW SEC. 05, T. 118 N., R. 50 W.

2 - 9 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, FINE TO MEDIUM GRAVEL, CLAY; SILTY; OXIDIZED, MOIST
9 - 11 SAND AND GRAVEL, BROWN, COARSE SAND, FINE GRAVEL, CLAY; SILTY; OXIDIZED, SATURATED
11 - 17 SAND AND GRAVEL, GRAY, COARSE SAND, FINE GRAVEL, SILTY; UNOXIDIZED; VERY MOIST

* * *

TEST HOLE NUMBER: 26
LOCATION: 118N-50W-05CDD
LEGAL LOCATION: SE SE SW SE SEC. 05, T. 118 N., R. 50 W.

0 - 8 SAND AND GRAVEL, RED-BROWN, FINE TO COARSE SAND, FINE TO COARSE GRAVEL, CLAY; MOIST; OXIDIZED

* * *

TEST HOLE NUMBER: 27
LOCATION: 118N-50W-07BBB
LEGAL LOCATION: NE NW NW NW SEC. 07, T. 118 N., R. 50 W.

5 - 8 SAND, LIGHT-BROWN, VERY FINE TO FINE SAND, CLAY; OXIDIZED, SATURATED
8 - 13 SAND, GRAY-BROWN, VERY FINE TO FINE; CLEAN, OXIDIZED, SATURATED
13 - 17 SAND, GRAY-BROWN, VERY FINE TO MEDIUM; CLEAN, OXIDIZED, SATURATED
17 - 23 SAND, GRAY, MEDIUM TO COARSE, CLAY; UNOXIDIZED, SATURATED
23 - 56 SAND, GRAY, MEDIUM TO VERY COARSE, CLAY; CLEAN, UNOXIDIZED, SATURATED, BECOMES COARSER WITH DEPTH AND INCLUDES UPTO COARSE PEBBLES

* * *

13
TEST HOLE NUMBER: 28
LOCATION: 118N-50W-07C0CB
LEGAL LOCATION: NW SW NW SW SEC. 07, T. 118 N., R. 50 W.
PRELIMINARY LOG — SUBJECT TO CHANGE

2 - 25 SAND AND GRAVEL, DARK-BROWN, MEDIUM TO COARSE SAND, FINE TO MEDIUM GRAVEL; VERY LITTLE CLAY

TEST HOLE NUMBER: 29
LOCATION: 118N-50W-07CDDD
LEGAL LOCATION: SE SE SW SE SEC. 07, T. 118 N., R. 50 W.

6 - 16 SAND, BROWN, COARSE, VERY CLAYEY; OXIDIZED, SATURATED
16 - 42 SAND AND GRAVEL, GRAY, COARSE SAND, FINE GRAVEL, CLAYEY; SATURATED, UNOXIDIZED

TEST HOLE NUMBER: 30
LOCATION: 118N-50W-07DDDD
LEGAL LOCATION: SE SE SE SE SEC. 07, T. 118 N., R. 50 W.

0 - 4 SAND, SILTY, GRAVELLY
9 - 19 SAND, VERY FINE, SILTY; WATER
19 - 24 SAND, VERY FINE TO MEDIUM, SILTY

TEST HOLE NUMBER: 31
LOCATION: 118N-50W-08BBBB
LEGAL LOCATION: NW NW NW NW SEC. 08, T. 118 N., R. 50 W.

5 - 23 SAND, BROWN, FINE TO MEDIUM, GRAVELLY, VERY CLAYEY; OXIDIZED, MOIST

TEST HOLE NUMBER: 32
LOCATION: 118N-50W-08CDDD
LEGAL LOCATION: SE SE SW SW SEC. 08, T. 118 N., R. 50 W.

3 - 8 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE SAND, FINE TO COARSE GRAVEL, VERY CLAYEY; OXIDIZED, MOIST

14
8 - 15 SAND, BROWN, FINE TO MEDIUM, CLAYEY; 
OXIDIZED, MOIST
15 - 53 SAND, BROWN, FINE TO MEDIUM, CLAYEY; 
OXIDIZED, SATURATED, UNOXIDIZED BELOW 
30 FEET
* * *
TEST HOLE NUMBER: 33
LOCATION: 118N-50W-16BDDD
LEGAL LOCATION: SE SE SE NW SEC. 16, T. 118 N., R. 50 W.

1 - 10 SAND, LIGHT-BROWN, MEDIUM TO COARSE,
CLAYEY; SOME MEDIUM TO COARSE PEBBLES,
OXIDIZED, DAMP
10 - 13 SAND, LIGHT-BROWN, MEDIUM TO COARSE,
SLIGHTLY CLAYEY; SOME COARSE PEBBLES,
OXIDIZED, DAMP
13 - 18 GRAVEL, VERY COARSE, SANDY; COBBLY;
OXIDIZED, DAMP
20 - 46 SAND, LIGHT-BROWN, FINE TO MEDIUM; DAMP,
OXIDIZED, COBBLES FROM 36 FEET TO 38 
FEET, SATURATED FROM 38 FEET
* * *
TEST HOLE NUMBER: 34
LOCATION: 118N-50W-18BBBC
LEGAL LOCATION: SW NW NW NW SEC. 18, T. 118 N., R. 50 W.

4 - 7 SAND AND GRAVEL, TAN-BROWN, COARSE SAND,
FINE TO MEDIUM GRAVEL, CLAYEY; MOIST,
OXIDIZED
7 - 35 SAND AND GRAVEL, TAN-BROWN, COARSE SAND,
FINE TO MEDIUM GRAVEL, CLAYEY;
OXIDIZED, SATURATED
* * *
TEST HOLE NUMBER: 35
LOCATION: 118N-50W-19AADA
LEGAL LOCATION: NE SE NE NE SEC. 19, T. 118 N., R. 50 W.

0 - 1 SAND, TAN-BROWN, FINE TO MEDIUM; SOME 
MEDIUM PEBBLES, LITTLE CLAY, POORLY 
SORTED, OXIDIZED, DRY
1 - 2 SAND, REDDISH-BROWN, MEDIUM TO COARSE;
LITTLE CLAY, SOME FINE PEBBLES, DRY,
OXIDIZED, POORLY SORTED
<table>
<thead>
<tr>
<th>Test Hole Number</th>
<th>Location</th>
<th>Legal Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 36</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Gravel, Brown, Fine To Coarse; Few Cobbles, Oxidized, Dry</td>
</tr>
<tr>
<td>3 - 4</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Reddish-Brown, Coarse; Some Fine Pebbles, Oxidized, Dry, Loosely Sorted</td>
</tr>
<tr>
<td>4 - 9</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Tan-Brown, Fine, Clayey, Well-Sorted; Moist, Oxidized</td>
</tr>
<tr>
<td>9 - 11</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Reddish-Brown, Fine to Coarse, Clayey; Some Fine Pebbles, Oxidized, Near Saturated</td>
</tr>
<tr>
<td>11 - 12</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Tan-Brown, Fine, Very Clayey; Oxidized, Saturated</td>
</tr>
<tr>
<td>12 - 16</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Gray, Fine to Medium, Very Clayey; Few Fine Pebbles, Partially Oxidized, Saturated</td>
</tr>
<tr>
<td>16 - 51</td>
<td>NW 50W-20CCDD</td>
<td>SE SW SW Sec. 20, T. 118 N., R. 50 W.</td>
<td>Sand, Gray, Coarse, Clayey; Some Fine Pebbles, Unoxidized, Saturated, Changes to Clean, Fine to Medium Gravel from 16 Feet Back to Clayey, Coarse Sand from 40 Feet</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Test Hole Number</th>
<th>Location</th>
<th>Legal Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 23</td>
<td>NW 50W-23CBB</td>
<td>NW SE SE SW Sec. 23, T. 118 N., R. 50 W.</td>
<td>Sand and Gravel, Coarse</td>
</tr>
</tbody>
</table>

* * *

<table>
<thead>
<tr>
<th>Test Hole Number</th>
<th>Location</th>
<th>Legal Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 6</td>
<td>NW 50W-23CBB</td>
<td>NW SE SE SW Sec. 23, T. 118 N., R. 50 W.</td>
<td>Sand and Gravel, Light-Tan to Brown, Coarse Sand, Fine to Medium Gravel, Clayey, Silty; Oxidized, Moist</td>
</tr>
<tr>
<td>18 - 80</td>
<td>NW 50W-23CBB</td>
<td>NW SE SE SW Sec. 23, T. 118 N., R. 50 W.</td>
<td>Sand and Gravel, Brown, Coarse Sand, Fine to Medium Gravel, Clayey; Moist Oxidized, Saturated from 28 Feet</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Test Hole Number</th>
<th>Location</th>
<th>Legal Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 14</td>
<td>NW 50W-23CCC</td>
<td>SW SW SW SE Sec. 23, T. 118 N., R. 50 W.</td>
<td>Gravel and Sand, Coarse</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 5</td>
<td>SAND, BROWN, FINE TO MEDIUM, CLAYEY; SOME PEBBLES, OXIDIZED, DAMP</td>
<td></td>
</tr>
<tr>
<td>5 - 8</td>
<td>SAND, LIGHT-BROWN, VERY FINE TO FINE; FEW PEBBLES, SOME CLAY, OXIDIZER, DAMP</td>
<td></td>
</tr>
<tr>
<td>8 - 14</td>
<td>SAND, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY, FEWLY, OXIDIZED, DAMP</td>
<td></td>
</tr>
<tr>
<td>14 - 18</td>
<td>SAND, LIGHT-BROWN, VERY FINE TO FINE; CLEAN, OXIDIZED, DAMP</td>
<td></td>
</tr>
<tr>
<td>20 - 22</td>
<td>SAND, LIGHT-BROWN, VERY FINE TO FINE; LITTLE CLAY, OXIDIZED, DAMP</td>
<td></td>
</tr>
<tr>
<td>* * *</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST HOLE NUMBER: 40</th>
<th>LOCATION: 118W-50W-29CCC</th>
<th>LEGAL LOCATION: SW SW SW SW SEC. 29, T. 118 N., R. 50 W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 9</td>
<td>SAND AND GRAVEL, FINE TO COARSE SAND, MEDIUM TO COARSE GRAVEL; OXIDIZED</td>
<td></td>
</tr>
<tr>
<td>9 - 24</td>
<td>SAND, GRAY, FINE TO MEDIUM, CLAYEY</td>
<td></td>
</tr>
<tr>
<td>* * *</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST HOLE NUMBER: 41</th>
<th>LOCATION: 118W-50W-30CCBB</th>
<th>LEGAL LOCATION: NW NW SW SW SEC. 30, T. 118 N., R. 50 W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 - 25</td>
<td>SAND AND GRAVEL, COARSE SAND, FINE TO MEDIUM GRAVEL, SILTY, CLAYEY; OXIDIZED, MOIST</td>
<td></td>
</tr>
<tr>
<td>* * *</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST HOLE NUMBER: 42</th>
<th>LOCATION: 118W-50W-32ABBA</th>
<th>LEGAL LOCATION: NE NW NW NE SEC. 32, T. 118 N., R. 50 W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 6</td>
<td>SAND, GRAY-BROWN, FINE TO MEDIUM, CLAYEY, SILTY; OXIDIZED, DAMP</td>
<td></td>
</tr>
<tr>
<td>6 - 12</td>
<td>SAND, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, WET</td>
<td></td>
</tr>
<tr>
<td>12 - 70</td>
<td>SAND, GRAY, MEDIUM TO COARSE, CLAYEY, SILTY, FEWLY TO 43 FEET; UNOXIDIZED, SATURATED, HIT ROCK AT 70 FEET</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TEST HOLE NUMBER: 43
LOCATION: 118N-50W-33CCC
LEGAL LOCATION: SW SW SW Sec. 33, T. 118 N., R. 50 W.

5 - 8 SAND, VERY COARSE, CLAYEY; SATURATED
8 - 11 SAND, VERY COARSE; LITTLE CLAY, SATURATED
17 - 26 SAND, GRAY, VERY COARSE, CLEAN, SATURATED

TEST HOLE NUMBER: 44
LOCATION: 118N-50W-33DCDD
LEGAL LOCATION: SE SE SW SE Sec. 33, T. 118 N., R. 56 W.

23 - 53 SAND, TAN-BROWN, FINE TO COARSE, SLIGHTLY CLAYEY; OXIDIZED, SATURATED

TEST HOLE NUMBER: 45
LOCATION: 118N-50W-34DCDC
LEGAL LOCATION: SW SE SW SE Sec. 34, T. 118 N., R. 50 W.

2 - 5 SAND AND GRAVEL, TAN-BROWN, MEDIUM TO COARSE SAND, MEDIUM GRAVEL; LITTLE CLAY, DRY

TEST HOLE NUMBER: 46
LOCATION: 118N-50W-34DDDD
LEGAL LOCATION: SE SE SE SE Sec. 34, T. 118 N., R. 50 W.

0 - 2 GRAVEL, BROWN, VERY COARSE; WITH COARSE SAND, LARGE COBBLES AT SURFACE, DRY, OXIDIZED
3 - 12 SAND, BROWN, MEDIUM; CLEAN, OXIDIZED, DAMP
12 - 26 SAND, BROWN, MEDIUM; OXIDIZED, DAMP, WITH SOME COARSE PEBBLES

TEST HOLE NUMBER: 47
LOCATION: 118N-50W-35CDCC 1

18
LEGAL LOCATION: SE SW SE SW SEC. 35, T. 118 N., R. 50 W.

0 - 3 SAND, LIGHT-BROWN, VERY FINE TO FINE, PEBBLY; OXIDIZED, DRY
3 - 10 SAND, LIGHT-BROWN, MEDIUM TO COARSE; WITH COARSE PEBBLES, OXIDIZED, DRY, HIT ROCK COULD NOT CONTINUE

* * *

TEST HOLE NUMBER: 48
LOCATION: 118N-50W-35CDD 2
LEGAL LOCATION: SE SW SE SW SEC. 35, T. 118 N., R. 50 W.

0 - 2 SAND, LIGHT-BROWN, FINE TO MEDIUM; WITH MEDIUM PEBBLES, OXIDIZED, DRY
2 - 9 GRAVEL, VERY COARSE; WITH COBBLES AND FINE TO MEDIUM SAND, OXIDIZED, DRY, HIT ROCK ABANDONED HOLE

* * *

TEST HOLE NUMBER: 49
LOCATION: 118N-50W-35CDD 3
LEGAL LOCATION: SE SW SE SW SEC. 35, T. 118 N., R. 50 W.

0 - 2 SAND, LIGHT-BROWN, MEDIUM, PEBBLY; DRY, OXIDIZED
2 - 6 GRAVEL, LIGHT-BROWN, COARSE; WITH COBBLES AND MEDIUM SAND, OXIDIZED, DRY
6 - 8 SAND, LIGHT-BROWN, FINE TO MEDIUM, PEBBLY; OXIDIZED, DRY
8 - 14 GRAVEL, LIGHT-BROWN, COARSE; WITH MEDIUM SAND AND COBBLES, OXIDIZED, DRY
14 - 15 GRAVEL, LIGHT-BROWN, COARSE; WITH COBBLES, LITTLE SAND, OXIDIZED, DRY, HIT ROCK, IMPASSABLE

* * *

TEST HOLE NUMBER: 50
LOCATION: 118N-50W-35DDBC
LEGAL LOCATION: SW SE SE SE SEC. 36, T. 118 N., R. 50 W.

0 - 30 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; OXIDIZED, MOIST, SATURATED AT 15 FEET

* * *
TEST HOLE NUMBER: 51
LOCATION: 119N-47W-04ABB
LEGAL LOCATION: NW NW NW NE SEC. 04, T. 119 N., R. 47 W.

0 - 83 SAND AND GRAVEL, BROWN, COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; MOIST, OXIDIZED, CHANGES TO B WELL-SORTED, BROWN, COARSE SAND AT 40 FEET

* * *

TEST HOLE NUMBER: 52
LOCATION: 119N-47W-04CCD
LEGAL LOCATION: SE SE SW SW SEC. 04, T. 119 N., R. 47 W.

4 - 20 SAND, MEDIUM-BROWN, COARSE, VERY SILTY, CLAYEY; OXIDIZED, SATURATED
20 - 52 SAND, GRAY, COARSE, VERY SILTY, CLAYEY; UNOXIDIZED, SATURATED, SOME FINE TO MEDIUM GRAVEL FROM 30 FEET

* * *

TEST HOLE NUMBER: 53
LOCATION: 119N-47W-06BBA 2
LEGAL LOCATION: NE NW NW NW SEC. 06, T. 119 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

25 - 30 SAND; SOME CLAY

* * *

TEST HOLE NUMBER: 54
LOCATION: 119N-47W-06CBB
LEGAL LOCATION: SE NW NW SW SEC. 06, T. 119 N., R. 47 W.

12 - 18 SAND

* * *

TEST HOLE NUMBER: 55
LOCATION: 119N-47W-10BCB
LEGAL LOCATION: NW SW SW NW SEC. 10, T. 119 N., R. 47 W.

2 - 8 SAND, MEDIUM-BROWN, FINE TO MEDIUM; OXIDIZED, MOIST

* * *

20
TEST HOLE NUMBER: 56
LOCATION: 119N-47W-15BBAB
LEGAL LOCATION: NW NE NW NW SEC. 15, T. 119 N., R. 47 W.

6 - 13 SAND, BROWN, PEBBLY, SILTY; MOIST, OXIDIZED
13 - 18 SAND AND GRAVEL, BROWN, PEBBLY, SILTY; DRY, OXIDIZED
18 - 50 SAND, REDDISH-BROWN, CLAYEY, SILTY; FEW PEBBLES, DRY, OXIDIZED, SATURATED AT 27 FEET, UNOXIDIZED AT 48 FEET

* * *

TEST HOLE NUMBER: 57
LOCATION: 119N-47W-16ABAA
LEGAL LOCATION: NE NE NW NE SEC. 16, T. 119 N., R. 47 W.

19 - 50 SAND, GRAY, SILTY; FEW PEBBLES, SATURATED, UNOXIDIZED

* * *

TEST HOLE NUMBER: 58
LOCATION: 119N-47W-16ADDA
LEGAL LOCATION: NE SE SE NE SEC. 16, T. 119 N., R. 47 W.

5 - 12 SAND, RUSTY-BROWN, FINE TO MEDIUM, CLAYEY; OXIDIZED, SATURATED
12 - 33 SAND, GRAY, FINE TO MEDIUM, SLIGHTLY CLAYEY; UNOXIDIZED, SATURATED

* * *

TEST HOLE NUMBER: 59
LOCATION: 119N-47W-16DDDD
LEGAL LOCATION: SE SE SE SEC. 16, T. 119 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

5 - 11 GRAVEL, FINE TO COARSE

* * *

TEST HOLE NUMBER: 60
LOCATION: 119N-47W-21ABBB
LEGAL LOCATION: NW NW NE NW SEC. 21, T. 119 N., R. 47 W.

12 - 21 SAND, BROWN, FINE, SILTY, SLIGHTLY
CLAYEY; SATURATED, OXIDIZED

** **

TEST HOLE NUMBER: 61
LOCATION: 119N-47W-21BABB 2
LEGAL LOCATION: NW NW NE NW SEC. 21, T. 119 N., R. 47 W.

12 - 30 SAND, BROWN, FINE, SILTY, CLAYEY;
SATURATED, OXIDIZED

** **

TEST HOLE NUMBER: 62
LOCATION: 119N-47W-22BCBC
LEGAL LOCATION: SW NW SW NW SEC. 22, T. 119 N., R. 47 W.

1 - 7 SAND AND GRAVEL, BROWN, PEBBLY, CLAYEY;
DRY, OXIDIZED
24 - 54 SAND, GREENISH, VERY CLAYEY, SILTY;
SATURATED, UNOXIDIZED

** **

TEST HOLE NUMBER: 63
LOCATION: 119N-47W-32BCBB
LEGAL LOCATION: NW NW SW NW SEC. 32, T. 119 N., R. 47 W.

3 - 10 SAND, GRAY-BROWN, CLAYEY, SILTY; SLIGHT
OXIDATION, SATURATED AT 5 FEET
10 - 15 SAND, GRAY, VERY CLAYEY, SILTY;
UNOXIDIZED, SATURATED

** **

TEST HOLE NUMBER: 64
LOCATION: 119N-48W-14BABC
LEGAL LOCATION: SW NW NW NW SEC. 14, T. 119 N., R. 48 W.

24 - 29 GRAVEL

** **

TEST HOLE NUMBER: 65
LOCATION: 119N-48W-21AAAB
LEGAL LOCATION: NW NE NE NE SEC. 21, T. 119 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

22
1 - 4 SAND

* * * *

TEST HOLE NUMBER: 66
LOCATION: 119N-49W-02CCC
LEGAL LOCATION: SW SW NW NW SEC. 02, T. 119 N., R. 49 W.

2 - 6 SAND, FINE (BEACH OR DUNE?)

* * * *

TEST HOLE NUMBER: 67
LOCATION: 119N-49W-05CDDD
LEGAL LOCATION: SE SE SE SW SW SEC. 05, T. 119 N., R. 49 W.

0 - 4 GRAVEL, BROWN, VERY COARSE; LITTLE SAND, OXIDIZED, DRY
4 - 9 SAND, BROWN, FINE TO COARSE; LITTLE FINE TO COARSE GRAVEL, LITTLE CLAY, DRY, OXIDIZED
9 - 12 SAND, TAN-BROWN, MEDIUM TO COARSE, CLAYEY, GRAVELLY; OXIDIZED, MOIST
12 - 17 SAND, TAN-BROWN, COARSE, CLAYEY; FEW PEBBLES, OXIDIZED, VERY MOIST
17 - 20 SAND, TAN-BROWN, COARSE, GRAVELLY, CLAYEY; OXIDIZED, VERY MOIST
20 - 24 SAND, GRAYISH-BROWN, COARSE, VERY CLAYEY; LITTLE GRAVEL, OXIDIZED, VERY MOIST

* * * *

TEST HOLE NUMBER: 68
LOCATION: 119N-49W-08BBBC
LEGAL LOCATION: NW SW NW NW SEC. 08, T. 119 N., R. 49 W.

0 - 4 SAND AND GRAVEL, LIGHT-BROWN, COARSE SAND, VERY COARSE GRAVEL; OXIDIZED, DRY
4 - 6 SAND, TAN-BROWN, COARSE; SOME MEDIUM PEBBLES, OXIDIZED, DRY, LITTLE CLAY
6 - 10 SAND AND GRAVEL, TAN-BROWN, COARSE TO VERY COARSE SAND, MEDIUM TO COARSE GRAVEL, CLAYEY; OXIDIZED, MOIST
10 - 11 SAND, TAN-BROWN, COARSE; FEW MEDIUM PEBBLES, OXIDIZED, SATURATED

* * * *

TEST HOLE NUMBER: 69

23
LOCATION: 119N-45W-06N CBC
LEGAL LOCATION: SW NW SW NW SEC. 08, T. 119 N., R. 49 W.

1 - 5 SAND, LIGHT-BROWN, FINE TO MEDIUM, PEBBLY; OXIDIZED, DRY

* * * *

TEST HOLE NUMBER: 70
LOCATION: 119N-45W-09AAA
LEGAL LOCATION: NE NE NE NE SEC. 09, T. 119 N., R. 49 W.

2 - 19 SAND AND GRAVEL, MEDIUM TO COARSE

* * * *

TEST HOLE NUMBER: 71
LOCATION: 119N-45W-09CBBB
LEGAL LOCATION: NW NW NW SW SEC. 99, T. 119 N., R. 49 W.

10 - 16 SAND, GRAY-BROWN, COARSE, CLAYEY, SILTY, PEBBLY; SLIGHTLY OXIDIZED, SATURATED

* * * *

TEST HOLE NUMBER: 72
LOCATION: 119N-45W-27CBBB 1
LEGAL LOCATION: NW NW NW SW SEC. 27, T. 119 N., R. 49 W.

1 - 5 SAND, TAN-BROWN, FINE; SOME COARSE PEBBLES, OXIDIZED, DRY

* * * *

TEST HOLE NUMBER: 73
LOCATION: 119N-49W-27CBBB 2
LEGAL LOCATION: NW NW NW SW SEC. 27, T. 119 N., R. 49 W.

1 - 6 SAND AND GRAVEL, REDDISH-BROWN, FINE TO MEDIUM SAND, MEDIUM GRAVEL, CLAYEY; OXIDIZED, DRY

14 - 15 SAND AND GRAVEL, TAN-BROWN, MEDIUM TO COARSE SAND, FINE GRAVEL, VERY CLAYEY; OXIDIZED, VERY MOIST. ABANDONED HOLE DUE TO ROCK AT 15 FEET

* * * *

24
TEST HOLE NUMBER: 74
LOCATION: 119N-49W-27CCBA
LEGAL LOCATION: NE NW SW SW SEC. 27, T. 119 N., R. 49 W.

1 - 11 GRAVEL, YELLOW

** * **

TEST HOLE NUMBER: 75
LOCATION: 119N-49W-27DDAA
LEGAL LOCATION: NE NE NE SE SEC. 27, T. 119 N., R. 49 W.

0 - 8 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE SAND, FINE GRAVEL; OXIDIZED, MOIST, SATURATED AT 6 FEET

** * **

TEST HOLE NUMBER: 76
LOCATION: 119N-49W-27DDAA
LEGAL LOCATION: NE NE SE SE SEC. 27, T. 119 N., R. 49 W.

23 - 79 SAND AND GRAVEL, GRAY, MEDIUM TO COARSE SAND, VERY FINE GRAVEL, VERY CLAYY; UNOXIDIZED, SATURATED

** * **

TEST HOLE NUMBER: 77
LOCATION: 119N-49W-18DDAA
LEGAL LOCATION: NE NE SE SE SEC. 28, T. 119 N., R. 49 W.

0 - 6 SAND AND GRAVEL, TAN-BROWN, FINE TO COARSE SAND, FINE GRAVEL; SOME CLAY, FEW BOULDERS, DRY, OXIDIZED

** * **

TEST HOLE NUMBER: 78
LOCATION: 119N-50W-01AAAD
LEGAL LOCATION: SE NE NE NE SEC. 01, T. 119 N., R. 50 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

17 - 21 SAND AND GRAVEL, YELLOW-BROWN

** * **

TEST HOLE NUMBER: 79

25
LOCATION: 119N-50W-14CBAD
LEGAL LOCATION: SE NE NW SW SEC. 14, T. 119 N., R. 50 W.

5 - 6 GRAVEL, DARK-BROWN, MEDIUM TO COARSE, CLAYEY; SOME COARSE SAND, SOME OXIDATION, MOIST
6 - 11 GRAVEL, FINE TO MEDIUM; SOME OXIDATION, DRY

* * *

TEST HOLE NUMBER: 80
LOCATION: 119N-50W-31BCCC
LEGAL LOCATION: SW SW SW NW SEC. 31, T. 119 N., R. 50 W.

3 - 12 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, FINE TO MEDIUM GRAVEL, VERY CLAYEY; OXIDIZED, SLIGHTLY MOIST
12 - 18 SAND, BROWN, COARSE, VERY CLAYEY; SOME PEBBLES, OXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 61
LOCATION: 119N-50W-31CCCI
LEGAL LOCATION: SW SW SW SW SEC. 31, T. 119 N., R. 50 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 35 SAND, YELLOW-BROWN, MEDIUM TO COARSE, CLAYEY

* * *

TEST HOLE NUMBER: 82
LOCATION: 119N-50W-31CCCII
LEGAL LOCATION: SW SW SW SW SEC. 31, T. 119 N., R. 50 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

0 - 10 SAND AND GRAVEL, BROWN; PEAROCK
10 - 15 SAND, BROWN, COARSE

* * *

TEST HOLE NUMBER: 83
LOCATION: 120N-47W-05CDBB
LEGAL LOCATION: NW NW SE SW SEC. 05, T. 120 N., R. 47 W.

18 - 20 SAND, BROWN

* * *

26
TEST HOLE NUMBER: 84
LOCATION: 120N-47W-06DBBB
LEGAL LOCATION: NW NW NW SE SEC. 06, T. 120 N., R. 47 W.

11 - 22 SAND, BROWN, COARSE, CLAYEY; OXIDIZED,
SATURATED
22 - 41 SAND AND GRAVEL, BROWN, COARSE SAND, FINE
TO MEDIUM GRAVEL, CLAYEY; OXIDIZED,
SATURATED, GRAVEL CONTENT INCREASES
WITH DEPTH

** ** *

TEST HOLE NUMBER: 85
LOCATION: 120N-47W-06DBC
LEGAL LOCATION: SW SW NW SE SEC. 06, T. 120 N., R. 47 W.

10 - 18 SAND, MEDIUM-BROWN, FINE TO MEDIUM; SOME
FINE GRAVEL, MOIST, OXIDIZED, SLIGHTLY
CLAYEY
18 - 33 SAND AND GRAVEL, RUSTY-RED-BROWN, FINE TO
MEDIUM SAND, FINE TO MEDIUM GRAVEL,
SLIGHTLY CLAYEY; OXIDIZED, MOIST,
SATURATED AT 28 FEET, CLAY CONTENT
INCREASES WITH DEPTH

** ** *

TEST HOLE NUMBER: 86
LOCATION: 120N-47W-06DCCB 1
LEGAL LOCATION: NW SW SW SE SEC. 06, T. 120 N., R. 47 W.

0 - 4 SAND AND GRAVEL, BROWN TO TAN, COARSE
SAND, FINE TO MEDIUM GRAVEL; OXIDIZED,
SOME CLAY, DRY
4 - 7 SAND, BROWN, COARSE, SLIGHTLY CLAYEY;
MOIST, OXIDIZED
7 - 13 SAND AND GRAVEL, COARSE SAND, MEDIUM
GRAVEL, SLIGHTLY CLAYEY; OXIDIZED,
MOIST

** ** *

TEST HOLE NUMBER: 87
LOCATION: 120N-47W-06DCCB 2
LEGAL LOCATION: NW SW SW SE SEC. 06, T. 120 N., R. 47 W.

0 - 4 SAND AND GRAVEL; TAN-BROWN, COARSE SAND,
FINE TO MEDIUM GRAVEL; SOME CLAY, OXIDIZED, DRY

4 - 7 SAND, BROWN, COARSE, SLIGHTLY CLAYEY; OXIDIZED, MOIST

7 - 13 SAND AND GRAVEL, COARSE SAND, MEDIUM GRAVEL, SLIGHTLY CLAYEY; OXIDIZED, MOIST

13 - 18 SAND AND GRAVEL, GRAY, COARSE SAND, MEDIUM TO COARSE GRAVEL, VERY CLAYEY; UNOXIDIZED, MOIST

18 - 22 SAND, GRAY, VERY CLAYEY; UNOXIDIZED, SATURATED

* * *

TEST HOLE NUMBER: 88
LOCATION: 120N-47W-07ADDA
LEGAL LOCATION: NE SE SE NE SEC. 07, T. 120 N., R. 47 W.

3 - 13 SAND, MEDIUM-BROWN, FINE TO MEDIUM, VERY CLAYEY; MOIST, OXIDIZED, SATURATED AT 5 FEET

13 - 20 SAND, GRAY, FINE TO MEDIUM, VERY CLAYEY; SATURATED, UNOXIDIZED

* * *

TEST HOLE NUMBER: 89
LOCATION: 120N-47W-07BBBB
LEGAL LOCATION: NW NW NW NW SEC. 07, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

13 - 29 SAND AND GRAVEL, COARSE; INTERMITTENT CLAY LAYERS

* * *

TEST HOLE NUMBER: 90
LOCATION: 120N-47W-07CBC
LEGAL LOCATION: SW SW NW SW SEC. 07, T. 120 N., R. 47 W.

16 - 40 GRAVEL, COARSE

* * *

TEST HOLE NUMBER: 91
LOCATION: 120N-47W-07DDDD
LEGAL LOCATION: SE SE SE SE SEC. 07, T. 120 N., R. 47 W.

28
0 - 8  SAND AND GRAVEL, BROWN

TEST HOLE NUMBER: 92
LOCATION: NW NE NE NE SEC. 17, T. 120 N., R. 47 W.
LEGAL LOCATION: NW NE NE NE SEC. 17, T. 120 N., R. 47 W.

7 - 9  SAND, YELLOW-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, SATURATED

9 - 17  SAND AND GRAVEL, GRAY-BROWN, COARSE SAND, FINE GRAVEL, CLAYEY; PARTIALLY OXIDIZED, SATURATED

17 - 21  SAND AND GRAVEL, DARK-GRAY, COARSER SAND, FINE GRAVEL, CLAYEY; UNOXIDIZED, SATURATED

TEST HOLE NUMBER: 93
LOCATION: 120N-47W-17CCDC
LEGAL LOCATION: SW SE SW SW SEC. 17, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 10  SAND, BROWN, FINE, CLAYEY

10 - 25  SAND, BROWN, MEDIUM TO COARSE

TEST HOLE NUMBER: 94
LOCATION: 120N-47W-18CCCC
LEGAL LOCATION: SW SW SW SW SEC. 18, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

8 - 20  SAND, BROWN, FINE TO MEDIUM

TEST HOLE NUMBER: 95
LOCATION: 120N-47W-18DDDD
LEGAL LOCATION: SE SE SE SE SEC. 18, T. 120 N., R. 47 W.

1 - 3  SAND, DARK-BROWN, FINE TO MEDIUM, WELL-SORTED; OXIDIZED, MOIST, LITTLE CLAY, SOME SILT

3 - 6  SAND, REDDISH-BROWN, FINE TO MEDIUM, WELL-SORTED; OXIDIZED, MOIST, LITTLE CLAY, SOME SILT

6 - 10  SAND, TANNISH-RED, MEDIUM, CLAYEY, SILTY; SOME SMALL PEBBLES, OXIDIZED, MOIST

29
10 - 16 SAND, GRAY, MEDIUM, CLAYEY, SILTY; SOME PEBBLES, UNOXIDIZED, VERY MOIST
16 - 17 GRAVEL, GRAY, MEDIUM, CLAYEY, SILTY; UNOXIDIZED, SATURATED
17 - 25 SAND, BROWNISH-GRAY, FINE TO MEDIUM, CLAYEY; SOME SMALL PEBBLES, UNOXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 96
LOCATION: 120N-47W-19BBCB
LEGAL LOCATION: NW SW NW NW SEC. 19, T. 120 N., R. 47 W.

0 - 7 SAND, BROWN, MEDIUM TO COARSE, GRAVELLY, POORLY SORTED; OXIDIZED, DRY
7 - 9 GRAVEL, RED-BROWN, MEDIUM TO COARSE, SANDY; OXIDIZED, DRY, CLEAN
9 - 15 GRAVEL, RED-BROWN, COARSE, SANDY; DRY, OXIDIZED, CLEAN
15 - 20 GRAVEL, RED-BROWN, COARSE, SANDY, SLIGHTLY CLAYEY, POORLY SORTED; OXIDIZED, DRY
20 - 58 SAND, BROWN, COARSE, GRAVELLY, SLIGHTLY CLAYEY TO CLEAN; OXIDIZED, MOIST, CHANGES TO A COARSE, SLIGHTLY CLAYEY TO CLAYEY, BROWN GRAVEL AT 28 FEET, BECOMES UNOXIDIZED AT 48 FEET

* * *

TEST HOLE NUMBER: 97
LOCATION: 120N-47W-190AAO
LEGAL LOCATION: SE NE NE SE SEC. 19, T. 120 N., R. 47 W.

0 - 14 SAND AND GRAVEL, RED-BROWN, FINE TO MEDIUM SAND, MEDIUM TO COARSE GRAVEL, CLAYEY; OXIDIZED, MOIST, SATURATED AT 10 FEET

* * *

TEST HOLE NUMBER: 98
LOCATION: 120N-47W-20CCCC
LEGAL LOCATION: SW SW SW SW SEC. 20, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

2 - 10 SAND AND GRAVEL, MEDIUM TO COARSE

* * *

30
TEST HOLE NUMBER: 99
LOCATION: 120N-47W-218BA
LEGAL LOCATION: NE NE SW NW SEC. 21, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

22 - 31 SAND, FINE TO MEDIUM

** **

TEST HOLE NUMBER: 100
LOCATION: 120N-47W-28BCCC
LEGAL LOCATION: SW SW SW NW SEC. 28, T. 120 N., R. 47 W.

0 - 10 SAND, REDDISH-BROWN, MEDIUM; SOME COARSE GRAVEL, DRY, OXIDIZED
10 - 14 SAND, TAN-BROWN, COARSE, VERY CLAYEY; SOME MEDIUM GRAVEL, DRY, OXIDIZED
14 - 24 SAND, TAN-BROWN, COARSE, CLAYEY; FEW SMALL PEBBLES; VEY MOIST, OXIDIZED
24 - 58 SAND, GRAY, FINE TO COARSE, CLAYEY; FEW SMALL PEBBLES, UNOXIDIZED, SATURATED, VERY SILTY FROM 42 FEET

** **

TEST HOLE NUMBER: 101
LOCATION: 120N-47W-28CBCC
LEGAL LOCATION: SW NW SW NW SEC. 28, T. 120 N., R. 47 W.

0 - 3 SAND, TAN, COARSE; WHITE FINE PEBBLES, OXIDIZED, DRY, WITH CLAY
3 - 5 SAND, TAN, COARSE, GRAVELLY; OXIDIZED, DRY, WITH COBBLES, IMPASSABLE

** **

TEST HOLE NUMBER: 102
LOCATION: 120N-47W-28CHCB
LEGAL LOCATION: NW NW NW SEC. 28, T. 120 N., R. 47 W.

0 - 9 SAND, TAN, FINE TO MEDIUM, GRAVELLY; UNOXIDIZED, DRY
9 - 11 GRAVEL, TAN, COARSE TO VERY COARSE, SANDY; POORLY SORTED; OXIDIZED, DRY
11 - 21 SAND, MEDIUM TO COARSE, GRAVELLY; DRY, OXIDIZED, CLEAN
21 - 42 GRAVEL, BROWN, FINE, SANDY; OXIDIZED, DAMP

** **
TEST HOLE NUMBER:  103  
LOCATION:  120N-47W-32AAAB  
LEGAL LOCATION:  NW NE NE NE SEC. 32, T. 120 N., R. 47 W.  
  0 - 55  GRAVEL, RED-BROWN, FINE TO COARSE, CLAYEY; SOME SAND, MOIST, OXIDIZED  
      * * *  

TEST HOLE NUMBER:  104  
LOCATION:  120N-47W-32ABAA  
LEGAL LOCATION:  NE NE NW NE SEC. 32, T. 120 N., R. 47 W.  
  10 - 15  SAND, GRAY-BROWN, COARSE, CLAYEY; FEW PEBBLES, LITTLE OXIDATION, VERY MOIST  
  15 - 24  SAND, GRAY, COARSE, CLAYEY; UNOXIDIZED, SATURATED, SOME MEDIUM GRAVEL  
  24 - 56  GRAVEL, GRAY, MEDIUM TO COARSE, SAND; VERY MOIST, UNOXIDIZED, LITTLE CLAY  
      * * *  

TEST HOLE NUMBER:  105  
LOCATION:  120N-47W-32BBBB  
LEGAL LOCATION:  NW NW NW NW SEC. 32, T. 126 N., R. 47 W.  
  0 - 30  SAND AND GRAVEL; CAVING  
      * * *  

TEST HOLE NUMBER:  106  
LOCATION:  120N-47W-32CDCC  
LEGAL LOCATION:  SW SE SE SW SEC. 32, T. 120 N., R. 47 W.  
  6 -  9  SAND, YELLOW, VERY FINE, CLAYEY, SILTY; DAMP  
      * * *  

TEST HOLE NUMBER:  107  
LOCATION:  120N-47W-33BBBC  
LEGAL LOCATION:  SW NW NW NW SEC. 33, T. 120 N., R. 47 W.  
  9 - 14  SAND AND GRAVEL, RED-BROWN, MEDIUM TO COARSE SAND, FINE TO MEDIUM GRAVEL, VERY SILTY; OXIDIZED, MOIST  
  14 - 50  SAND AND GRAVEL, COARSE SAND, COARSE
GRAVEL, SILTY; OXIDIZED, MOIST

* * *

TEST HOLE NUMBER: 108
LOCATION: 120N-47W-33CCCD
LEGAL LOCATION: SE SW SW SW SEC. 33, T. 120 N., R. 47 W.

17 - 44 SAND, GRAY, COARSE, VERY CLAYEY, VERY
SILTY; UNOXIDIZED, SATURATED

* * *

TEST HOLE NUMBER: 109
LOCATION: 120N-47W-33DDDC
LEGAL LOCATION: SW SE SE SE SEC. 33, T. 120 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 4 SAND

* * *

TEST HOLE NUMBER: 110
LOCATION: 120N-47W-34CCCA
LEGAL LOCATION: NE SW SW SW SEC. 34, T. 120 N., R. 47 W.

1 - 23 GRAVEL AND BOULDERS

* * *

TEST HOLE NUMBER: 111
LOCATION: 120N-48W-01BBBA 1
LEGAL LOCATION: NE NW NW NW SEC. 01, T. 120 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 16 SAND, YELLOW-BROWN, FINE TO COARSE; FINE
TO MEDIUM GRAVEL, CLAYEY

* * *

TEST HOLE NUMBER: 112
LOCATION: 120N-48W-01BBBA 2
LEGAL LOCATION: NE NW NW NW SEC. 01, T. 120 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 11 SAND, YELLOW-BROWN, FINE TO COARSE; FINE
TO MEDIUM GRAVEL, CLAYEY

* * *

33
TEST HOLE NUMBER: 113
LOCATION: 120N-48W-01BBBA 3
LEGAL LOCATION: NE NW NW NW SEC. 01, T. 120 N., R. 48 W.

0  -  11 SAND, BROWN, FINE, SILTY; OXIDIZED, SLIGHTLY MOIST
** * *

TEST HOLE NUMBER: 114
LOCATION: 120N-48W-01CBBB
LEGAL LOCATION: NW NW NW SW SEC. 01, T. 120 N., R. 48 W.

6  -  8 SAND, YELLOW-BROWN, COARSE, CLAYEY; OXIDIZED, MOIST
8  -  16 SAND, GRAY-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, SATURATED, DIRTY
16 -  27 SAND, GRAY, VERY FINE; UOXIDIZED, DIRTY, SATURATED
** * *

TEST HOLE NUMBER: 115
LOCATION: 120N-48W-02DOD
LEGAL LOCATION: SE SE SE SE SEC. 02, T. 120 N., R. 48 W.

0  -  2 GRAVEL, RED-BROWN, COARSE
** * *

TEST HOLE NUMBER: 116
LOCATION: 120N-48W-11CBBB
LEGAL LOCATION: NW NW NW SW SEC. 11, T. 120 N., R. 48 W.

0  -  1 SAND, DARK-BROWN, FINE TO COARSE, SILTY, GRAVELLY; SOME SMALL COBBLES, LITTLE CLAY, DRY, OXIDIZED
1  -  10 SAND AND GRAVEL, TAN-BROWN, MEDIUM TO COARSE SAND, COARSE GRAVEL, VERY CLAYEY; MOIST, OXIDIZED
10 -  13 SAND, TAN-BROWN, VERY COARSE, CLAYEY; OXIDIZED, MOIST
18 -  28 SAND AND GRAVEL, TAN-BROWN, MEDIUM TO COARSE SAND, COARSE GRAVEL; OXIDIZED, SATURATED, LITTLE CLAY
** * *

34
TEST HOLE NUMBER: 117
LOCATION: 120N-48W-11DDDC
LEGAL LOCATION: SW SE SE SE SEC. 11, T. 120 N., R. 48 W.

17 - 25 SAND, TAN-BROWN, FINE, VERY SILTY; SOME LARGER FEBBLES, OXIDIZED, SLIGHTLY MOIST

25 - 49 SAND, GRAY, FINE, VERY SILTY; SATURATED, UROXIDIZED

** **

TEST HOLE NUMBER: 118
LOCATION: 120N-48W-14AAAD
LEGAL LOCATION: SE NE NE NE SEC. 14, T. 120 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

8 - 18 SAND, YELLOW-BROWN, MEDIUM TO COARSE

** **

TEST HOLE NUMBER: 119
LOCATION: 120N-48W-19BBBB
LEGAL LOCATION: NW NW NW NW SEC. 19, T. 120 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

14 - 18 SAND AND GRAVEL, CLAYEY

** **

TEST HOLE NUMBER: 120
LOCATION: 120N-48W-14AAAA
LEGAL LOCATION: NE NE NE NE SEC. 24, T. 120 N., R. 48 W.

2 - 37 SAND AND GRAVEL, MEDIUM TO COARSE

** **

TEST HOLE NUMBER: 121
LOCATION: 120N-48W-24CCCC
LEGAL LOCATION: SW SW SW SW SEC. 24, T. 120 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

18 - 32 SAND, YELLOW-BROWN, MEDIUM TO COARSE

** **

TEST HOLE NUMBER: 122
LOCATION: 120N-48W-27ABEA
LEGAL LOCATION: NE NW NW NE SEC. 27, T. 120 N., R. 48 W.

35
5 - 15 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; MOIST; OXIDIZED; SATURATED AT 8 FEET

15 - 23 SAND AND GRAVEL, GRAY, MEDIUM TO COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; SATURATED, UNOXIDIZED

** **

TEST HOLE NUMBER: 121
LOCATION: 120N-48W-30DDCD
LEGAL LOCATION: SE SW SE SE SEC. 30, T. 120 N., R. 48 W.

2 - 7 SAND, BROWN, CLAYEY; MOIST, OXIDIZED

7 - 14 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE SAND, FINE TO COARSE GRAVEL, SLIGHTLY CLAYEY; OXIDIZED, SATURATED

18 - 25 SAND, GRAY, FINE TO MEDIUM, SLIGHTLY CLAYEY; UNOXIDIZED, SATURATED

** **

TEST HOLE NUMBER: 124
LOCATION: 120N-48W-34CCDD
LEGAL LOCATION: SE SE SW SW SEC. 34, T. 120 N., R. 46 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

2 - 7 GRAVEL; SOME YELLOW-BROWN CLAY

** **

TEST HOLE NUMBER: 125
LOCATION: 120N-49W-03DAAA
LEGAL LOCATION: NE NE NE SE SEC. 05, T. 120 N., R. 49 W.

18 - 21 SAND, BROWN, CLAYEY, SILTY; SATURATED, OXIDIZED

** **

TEST HOLE NUMBER: 126
LOCATION: 120N-49W-06CCBB
LEGAL LOCATION: NW NW SW SW SEC. 06, T. 120 N., R. 49 W.

0 - 4 SAND AND GRAVEL, DARK-BROWN; LITTLE CLAY, OXIDIZED, DRY

** **

36
TEST HOLE NUMBER: 127
LOCATION: 120N-49W-10DDD
LEGAL LOCATION: SE SE SE SE SE Sec. 10, T. 120 N., R. 49 W.

7 - 18 Gravel, Fine to Medium, Subrounded to Rounded

TEST HOLE NUMBER: 128
LOCATION: 120N-49W-12CCCC
LEGAL LOCATION: SW SW SW SW Sec. 12, T. 120 N., R. 49 W.

2 - 3 Gravel, Medium, Subrounded
14 - 15 Gravel, Medium, Rounded

TEST HOLE NUMBER: 129
LOCATION: 120N-49W-31CBRC
LEGAL LOCATION: SW NW NW SW Sec. 31, T. 120 N., R. 49 W.

0 - 3 Sand and Gravel, Brown, Clayey, Silty; Dry, Oxidized

TEST HOLE NUMBER: 110
LOCATION: 120N-49W-35DDAA
LEGAL LOCATION: NE NE SE SE Sec. 35, T. 120 N., R. 49 W.

15 - 20 Sand, Tan-Brown, Coarse, Clayey, Pebbly; Oxidized, Saturated
22 - 25 Sand and Gravel, Brown, Coarse Sand, Medium Gravel, Very Clayey; Oxidized, Saturated

TEST HOLE NUMBER: 131
LOCATION: 120N-50W-01CCCC
LEGAL LOCATION: SW SW SW SW Sec. 01, T. 120 N., R. 50 W.

0 - 1 Sand and Gravel, Reddish-Brown; Dry, Oxidized
10 - 28 Sand, Reddish-Brown, Very Clayey; Saturated, Oxidized
TEST HOLE NUMBER: 132
LOCATION: 120N-50W-03BBBB
LEGAL LOCATION: NW NW NW NW SEC. 03, T. 120 N., R. 50 W.

19 - 22 SAND AND GRAVEL

TEST HOLE NUMBER: 133
LOCATION: 120N-50W-04BABA
LEGAL LOCATION: NE NW NE NW SEC. 04, T. 120 N., R. 50 W.

15 - 16 SAND, BROWN, FINE, SLIGHTLY CLAYEY; OXIDIZED, MOIST
23 - 68 SAND, BROWN, FINE, SILTY; SATURATED, OXIDIZED; BECOMES UOXIDIZED AT 45 FEET, PROGRESSIVELY SILTIER WITH DEPTH

TEST HOLE NUMBER: 134
LOCATION: 120N-50W-10DDDD 1
LEGAL LOCATION: SE SE SE SE SEC. 10, T. 120 N., R. 50 W.

3 - 10 GRAVEL; WITH CLAY

TEST HOLE NUMBER: 135
LOCATION: 120N-50W-10DDDD 2
LEGAL LOCATION: SE SE SE SE SEC. 10, T. 120 N., R. 50 W.

2 - 6 SAND AND GRAVEL, MEDIUM TO COARSE; WITH CLAY

TEST HOLE NUMBER: 136
LOCATION: 120N-50W-11CDDD
LEGAL LOCATION: SE SE NW NW SEC. 11, T. 120 N., R. 50 W.

12 - 27 SAND AND GRAVEL; WITH CLAY

38
TEST HOLE NUMBER: 137
LOCATION: 120N-50W-22CCCD
LEGAL LOCATION: SW SW SE SE SEC. 22, T. 120 N., R. 50 W.

10 - 13 GRAVEL, BROWN, FINE TO MEDIUM, SANDY, VERY CLAYEY; SATURATED, OXIDIZED

TEST HOLE NUMBER: 138
LOCATION: 120N-50W-25CCDD
LEGAL LOCATION: SE SE SW SW SEC. 25, T. 120 N., R. 50 W.

0 - 3 SAND AND GRAVEL, LIGHT-BROWN, CLAYEY, SILTY; OXIDIZED, DRY

TEST HOLE NUMBER: 139
LOCATION: 120N-51W-06CBBB R
LEGAL LOCATION: NW NW NW SW SW SEC. 06, T. 120 N., R. 51 W.

4 - 14 SAND, MEDIUM TO COARSE; SOME FINE GRAVEL
14 - 19 SAND, MEDIUM TO COARSE; DIRTY
19 - 29 SAND, MEDIUM TO COARSE, PEBBLES; DIRTY

TEST HOLE NUMBER: 140
LOCATION: 120N-51W-08ADD
LEGAL LOCATION: SE SE NE SEC. 08, T. 120 N., R. 51 W.

0 - 13 SAND AND GRAVEL, BROWN, FINE TO COARSE
   SAND, FINE TO MEDIUM GRAVEL, VERY CLAYEY; OXIDIZED
13 - 18 GRAVEL, BROWN, FINE, SANDY, CLAYEY;
   SATURATED, OXIDIZED

TEST HOLE NUMBER: 141
LOCATION: 120N-51W-08BBBC
LEGAL LOCATION: SW NW NW NW NW SEC. 08, T. 120 N., R. 51 W.

0 - 1 SAND, LIGHT-BROWN, SILTY; DRY, OXIDIZED
4 - 9 SAND, BROWN, SILTY, PERBLY; OXIDIZED, DRY

39
TEST HOLE NUMBER: 142
LOCATION: 120N-51W-17AADD 1
LEGAL LOCATION: SE SE NE NE SEC. 17, T. 120 N., R. 51 W.
5 -  7 SAND, DARK-BROWN, VERY CLAYEY, GRAVELLY; MOIST, OXIDIZED, HIT ROCK, ABANDONED HOLE

TEST HOLE NUMBER: 143
LOCATION: 120N-51W-17AADD 2
LEGAL LOCATION: SE SE NE NE SEC. 17, T. 120 N., R. 51 W.
1 - 10 SAND, TAN-BROWN, VERY CLAYEY, SILTY; MOIST, OXIDIZED, HIT ROCK, ABANDONED HOLE

TEST HOLE NUMBER: 144
LOCATION: 120N-51W-17AADD 3
LEGAL LOCATION: SE SE NE NE SEC. 17, T. 120 N., R. 51 W.
1 - 12 SAND, TAN-BROWN, VERY CLAYEY, SILTY; MOIST, OXIDIZED, HIT ROCK, ABANDONED HOLE

TEST HOLE NUMBER: 145
LOCATION: 120N-51W-17AADD 4
LEGAL LOCATION: SE SE NE NE SEC. 17, T. 120 N., R. 51 W.
1 - 11 SAND, TAN-BROWN, VERY CLAYEY, SILTY; MOIST, OXIDIZED, HIT ROCK, ABANDONED HOLE

TEST HOLE NUMBER: 146
LOCATION: 120N-51W-17BBBB
LEGAL LOCATION: NW NW NW NW SEC. 17, T. 120 N., R. 51 W.
3 - 15 SAND, LIGHT-BROWN, PEBBLY, SILTY; DRY, OXIDIZED

40
TEST HOLE NUMBER: 147
LOCATION: 120N-51W-20AA
LEGAL LOCATION: NE NE SEC. 20, T. 120 N., R. 51 W.

1 - 4 SAND, FINE TO MEDIUM, SILTY; SOME PEBBLES
4 - 9 SAND, FINE TO MEDIUM, SILTY; FEW PEBBLES
9 - 14 SAND, FINE TO MEDIUM; SILTY
14 - 49 SAND, FINE TO COARSE; WATER

** **

TEST HOLE NUMBER: 148
LOCATION: 120N-51W-22CCDC 1
LEGAL LOCATION: SW SE SW SW SEC. 22, T. 120 N., R. 51 W.

0 - 3 SAND AND GRAVEL, BROWN; DRY, OXIDIZED
4 - 1C SAND AND GRAVEL, TAN-BROWN; DRY, OXIDIZED, HIT ROCK, ABANDONED HOLE

** **

TEST HOLE NUMBER: 149
LOCATION: 120N-51W-22CCDC 2
LEGAL LOCATION: SW SE SW SE SEC. 22, T. 120 N., R. 51 W.

0 - 2 SAND AND GRAVEL, REDDISH-BROWN; DRY, OXIDIZED
7 - 33 SAND AND GRAVEL, REDDISH-BROWN; DRY, OXIDIZED, ABANDONED HOLE DUE TO COARSE GRAVEL

** **

TEST HOLE NUMBER: 150
LOCATION: 120N-51W-22CCDC
LEGAL LOCATION: SW SW SE SW SEC. 22, T. 120 N., R. 51 W.

5 - 10 SAND, BROWN, CLAYEY; FEW PEBBLES, DRY, OXIDIZED

** **

TEST HOLE NUMBER: 151
LOCATION: 120N-51W-22DDCC
LEGAL LOCATION: SW SW SE SE SEC. 22, T. 120 N., R. 51 W.

0 - 14 SAND AND GRAVEL, BROWN, FINE TO MEDIUM

41
SAND, FINE GRAVEL, SLIGHTLY CLAYEY; OXIDIZED, SLIGHTLY MOIST, SOME COARSE GRAVEL AT SURFACE

14 - 55 SAND AND GRAVEL, BROWN, FINE TO MEDIUM SAND, FINE GRAVEL, CLAYEY; OXIDIZED, SATURATED, UNOXIDIZED AT 40 FEET

* * *

TEST HOLE NUMBER: 152
LOCATION: 120N-51W-25CCCD
LEGAL LOCATION: SE SW SW SW SEC. 23, T. 120 N., R. 51 W.

0 - 43 SAND, TAN-BROWN, CLAYEY, PEBBLY; DAMP, OXIDIZED, SATURATED AT 5 FEET

* * *

TEST HOLE NUMBER: 153
LOCATION: 120N-51W-27BBBB 1
LEGAL LOCATION: NW NW NW NW SEC. 27, T. 120 N., R. 51 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

3 - 45 SAND AND GRAVEL, ORANGE, FINE TO COARSE SAND, FINE TO VERY COARSE GRAVEL; SOME GRAY CLAY STRINGERS; GRAY CLAY FROM 30 TO 35 FEET

* * *

TEST HOLE NUMBER: 154
LOCATION: 120N-51W-27BBBB 2
LEGAL LOCATION: NW NW NW NW SEC. 27, T. 120 N., R. 51 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

3 - 46 SAND AND GRAVEL, ORANGE, FINE TO COARSE SAND, FINE TO VERY COARSE GRAVEL; SOME CLAY STRINGERS; GRAY CLAY FROM 30 TO 35 FEET

* * *

TEST HOLE NUMBER: 155
LOCATION: 120N-51W-28ACCD 1
LEGAL LOCATION: SE SW SW NE SEC. 28, T. 120 N., R. 51 W.

2 - 15 SAND AND ROCKS
15 - 22 SAND
22 - 68 SAND AND GRAVEL

* * *
TEST HOLE NUMBER: 156
LOCATION: 120N-51W-28BAAA
LEGAL LOCATION: NE NE NE NW SEC. 28, T. 120 N., R. 51 W.

1 - 52 SAND AND GRAVEL, FINE TO COARSE

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TEST HOLE NUMBER: 157
LOCATION: 120N-51W-28CBCC
LEGAL LOCATION: SW SW NW SW SEC. 28, T. 120 N., R. 51 W.

2 - 6 SAND, BROWN, CLAYEY, SILTY; OXIDIZED, DRY

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TEST HOLE NUMBER: 158
LOCATION: 120N-51W-28CCCB
LEGAL LOCATION: NW SW SW SE SEC. 28, T. 120 N., R. 51 W.

0 - 9 SAND AND GRAVEL, TAN-BROWN; DRY, OXIDIZED

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TEST HOLE NUMBER: 159
LOCATION: 120N-51W-28DCCC
LEGAL LOCATION: SW SW SW SE SEC. 28, T. 120 N., R. 51 W.

4 - 14 SAND AND GRAVEL, REDDISH-BROWN; DRY, OXIDIZED
14 - 20 SAND, GRAYISH-BROWN, VERY CLAYEY, SILTY; MOIST, UNOXIDIZED
20 - 70 SAND, BROWN, VERY CLAYEY; SATURATED, UNOXIDIZED

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TEST HOLE NUMBER: 160
LOCATION: 120N-51W-32DABB
LEGAL LOCATION: NW SE NE SE SEC. 31, T. 120 N., R. 51 W.

20 - 28 SAND AND CLAY

---

TEST HOLE NUMBER: 161
LOCATION: 120N-51W-33BBAA

43
LEGAL LOCATION: NE NE NW NW SEC. 33, T. 120 N., R. 51 W.

3 -  9 SAND, LIGHT-BROWN, VERY CLAYEY, SILTY; FEW PEBBLES, OXIDIZED, MOIST
     * * *

TEST HOLE NUMBER: 162
LOCATION: 120N-51W-33BCCC
LEGAL LOCATION: SW SW SW NW SEC. 33, T. 120 N., R. 51 W.

3 - 34 SAND, LIGHT-BROWN, PEBBLY, SILTY, VERY CLAYEY FROM 32 FEET; DRY, OXIDIZED
     * * *

TEST HOLE NUMBER: 163
LOCATION: 120N-51W-34BACC
LEGAL LOCATION: SW SW NE SW SEC. 34, T. 120 N., R. 51 W.

2 - 15 SAND AND GRAVEL
     * * *

TEST HOLE NUMBER: 164
LOCATION: 120N-51W-34CBAD
LEGAL LOCATION: SE NE NW SW SEC. 34, T. 120 N., R. 51 W.

2 - 13 SAND AND GRAVEL
     * * *

TEST HOLE NUMBER: 165
LOCATION: 120N-51W-34CCCE
LEGAL LOCATION: SW SW SW SW SEC. 34, T. 120 N., R. 51 W.

1 - 38 SAND AND GRAVEL, MEDIUM TO COARSE; LOTS OF SHALE PEBBLES; SOME CLAY LAYERS; ESPECIALLY FROM 25 TO 32 FEET
     * * *

TEST HOLE NUMBER: 166
LOCATION: 120N-51W-35ACCC 1
LEGAL LOCATION: SW SW SW NE SEC. 35, T. 120 N., R. 51 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

44
TEST HOLE NUMBER: 167
LOCATION: 120N-51W-35A
LEGAL LOCATION: SW SW SW NE SEC. 35, T. 120 N., R. 51 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 45 SAND AND GRAVEL, MEDIUM

TEST HOLE NUMBER: 168
LOCATION: 120N-51W-35CD
LEGAL LOCATION: NE NE SE SW SEC. 35, T. 120 N., R. 51 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 35 SAND AND GRAVEL, MEDIUM-COARSE

TEST HOLE NUMBER: 169
LOCATION: 120N-52W-01A
LEGAL LOCATION: NW NW NW NE SEC. 01, T. 120 N., R. 52 W.

4 - 11 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE
SAND, FINE TO MEDIUM GRAVEL, VERY
CLAYEY; OXIDIZED, MOIST

TEST HOLE NUMBER: 170
LOCATION: 120N-52W-01AD
LEGAL LOCATION: NE SE SE NE SEC. 01, T. 120 N., R. 52 W.

2 - 23 SAND AND GRAVEL, BROWN, FINE TO COARSE
SAND, FINE TO MEDIUM GRAVEL, SLIGHTLY
CLAYEY; MOIST, OXIDIZED, LITTLE COARSE
GRAVEL

23 - 28 SAND AND GRAVEL, GRAY, FINE TO COARSE
SAND, FINE GRAVEL, CLAYEY; Saturated,
UNOXIDIZED

TEST HOLE NUMBER: 171
LOCATION: 120N-52W-02AB
LEGAL LOCATION: SE SE NE NE SEC. 02, T. 120 N., R. 52 W.
2 - 6  SAND AND GRAVEL, TAN-BROWN; DRY, OXIDIZED
10 - 18 SAND AND GRAVEL, BROWN, CLAYEY;
       SATURATED, OXIDIZED

* * * *

TEST HOLE NUMBER: 172
LOCATION: 120N-52W-02AADD 2
LEGAL LOCATION: SE SE NE NE SEC. 02, T. 120 N., R. 52 W.

0 - 6  SAND AND GRAVEL, REDDISH-BROWN; SOME
       CLAY, MOIST, OXIDIZED
10 - 19 SAND AND GRAVEL, TAN-BROWN, VERY CLAYEY;
       SATURATED, OXIDIZED, ABANDONED HOLE
       DUE TO IMPASSABLE ROCK

* * * *

TEST HOLE NUMBER: 173
LOCATION: 120N-52W-02AADD 3
LEGAL LOCATION: SE SE NE NE SEC. 02, T. 120 N., R. 52 W.

0 - 6  SAND AND GRAVEL, REDDISH-BROWN; SOME
       CLAY, MOIST, OXIDIZED
10 - 13 SAND AND GRAVEL, TAN-BROWN, VERY CLAYEY;
       SATURATED, OXIDIZED
13 - 20 SAND AND GRAVEL, BROWN, SILTY,
       CLAYEY; SATURATED, OXIDIZED, ABANDONED
       HOLE DUE TO IMPASSABLE ROCK

* * * *

TEST HOLE NUMBER: 174
LEGAL LOCATION: NW NW NW NW SEC. 02, T. 120 N., R. 52 W.

0 - 2  SAND AND GRAVEL, TAN-BROWN; DRY, OXIDIZED

* * * *

TEST HOLE NUMBER: 175
LOCATION: 120N-52W-04DDDD  R
LEGAL LOCATION: SE SE SE SE SEC. 04, T. 120 N., R. 52 W.

3 - 8  SAND, MEDIUM

* * *
TEST HOLE NUMBER: 176
LOCATION: 120N-52W-05AADD R
LEGAL LOCATION: SE NE NE NE SEC. 05, T. 120 N., R. 52 W.

2 - 13 SAND AND GRAVEL

TEST HOLE NUMBER: 177
LOCATION: 120N-52W-08CCCC R
LEGAL LOCATION: SE SW SW SW SEC. 08, T. 120 N., R. 52 W.

4 - 10 SAND AND GRAVEL, FINE TO COARSE SAND,
FINE GRAVEL, VERY CLAYEY; SLIGHTLY MOIST, OXIDIZED
10 - 33 SAND AND GRAVEL, FINE TO COARSE,
MEDIUM GRAVEL, VERY CLAYEY; SLIGHTLY MOIST, OXIDIZED, SATURATED AT 23 FEET

TEST HOLE NUMBER: 178
LOCATION: 120N-52W-09CDCC R
LEGAL LOCATION: SW SW SE SW SEC. 09, T. 120 N., R. 52 W.

1 - 26 SAND AND GRAVEL, MEDIUM TO COARSE

TEST HOLE NUMBER: 179
LOCATION: 120N-52W-09DDDA R
LEGAL LOCATION: NE SE SE SE SEC. 09, T. 120 N., R. 52 W.

1 - 48 SAND, MEDIUM TO COARSE, GRAVELLY

TEST HOLE NUMBER: 180
LOCATION: 120N-52W-09DDDD R
LEGAL LOCATION: SE SE SE SEC SEC. 09, T. 120 N., R. 52 W.

1 - 48 SAND AND GRAVEL, MEDIUM TO COARSE; VERY COARSE AT 20 FEET AND DEEPER

TEST HOLE NUMBER: 181

47
LOCATION: 120N-52W-10DDD R
LEGAL LOCATION: SE SE SE SE SEC. 10, T. 120 N., R. 52 W.

6 - 18 GRavel, MEdium to COarse; SOME CLAy
18 - 28 SAND AND GRAVEL, MEdium

* * *

TEST HOLE NUMBER: 182
LOCATION: 120N-52W-12BBBB R
LEGAL LOCATION: NW NW NW NW SEC. 12, T. 120 N., R. 52 W.

2 - 9 SAND AND GRAVEL
10 - 19 SAND, COARSE; SOME CLAy
19 - 36 SAND AND GRAVEL, COARSE, ROCKy

* * *

TEST HOLE NUMBER: 183
LOCATION: 120N-52W-15ABDA 2R
LEGAL LOCATION: NE SE NW NE SEC. 15, T. 120 N., R. 52 W.

2 - 57 SAND AND GRAVEL

* * *

TEST HOLE NUMBER: 184
LOCATION: 120N-52W-16DADD R
LEGAL LOCATION: SE SE NE SE SEC. 16, T. 120 N., R. 52 W.

9 - 14 SAND, COARSE
14 - 27 SAND AND GRAVEL, COARSE SAND, FINE GRAVEL

* * *

TEST HOLE NUMBER: 185
LOCATION: 120N-52W-17ABB B R
LEGAL LOCATION: NW NW NW NE SEC. 17, T. 120 N., R. 52 W.

1 - 5 GRAVEL, COARSE

* * *

TEST HOLE NUMBER: 186
LOCATION: 120N-52W-20ABBA R
LEGAL LOCATION: NE NW NW NE SEC. 20, T. 120 N., R. 52 W.

48
6 - 35 GRAVEL, MEDIUM TO COARSE; SOME CLAY

* * *

TEST HOLE NUMBER: 187
LOCATION: 120N-52W-20CCCD 1R
LEGAL LOCATION: SW SW SW SE SEC. 20, T. 120 N., R. 52 W.

6 - 8 SAND AND GRAVEL, BROWN, COARSE
19 - 30 GRAVEL, COARSE; LIMESTONE PEBBLES

* * *

TEST HOLE NUMBER: 188
LOCATION: 120N-52W-20CCCD 2R
LEGAL LOCATION: SW SW SW SE SEC. 20, T. 120 N., R. 52 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 3 GRAVEL, ORANGE, COARSE
21 - 33 SAND AND GRAVEL, FINE SAND, MEDIUM TO COARSE GRAVE; SOME CLAY CONTENT

* * *

TEST HOLE NUMBER: 189
LOCATION: 120N-52W-20CCDC R
LEGAL LOCATION: SW SE SW SE SEC. 20, T. 120 N., R. 52 W.

2 - 4 GRAVEL, COARSE
4 - 9 SAND, MEDIUM TO COARSE
9 - 14 SAND, COARSE; WITH PEBBLES
14 - 19 SAND, MEDIUM TO COARSE
19 - 24 SAND, COARSE
24 - 29 SAND, MEDIUM TO COARSE

* * *

TEST HOLE NUMBER: 190
LOCATION: 120N-52W-21CCDC R
LEGAL LOCATION: SW SE SE SW SEC. 21, T. 120 N., R. 52 W.

3 - 4 SAND AND GRAVEL, COARSE SAND, FINE GRAVEL

* * *

TEST HOLE NUMBER: 191
LOCATION: 120N-52W-22ABDA R
LEGAL LOCATION: NE SE NW NE SEC. 22, T. 120 N., R. 52 W.

49
2 - 47 SAND AND GRAVEL

* * * *

TEST HOLE NUMBER: 192
LOCATION: 120N-52W-22DBBB R
LEGAL LOCATION: NW NW SE NW SEC. 22, T. 120 N., R. 52 W.

5 - 15 SAND AND GRAVEL

* * * *

TEST HOLE NUMBER: 193
LOCATION: 120N-52W-26BBB8
LEGAL LOCATION: NW NW NW SEC. 26, T. 120 N., R. 52 W.

2 - 3 GRAVEL, MEDIUM TO COARSE
16 - 22 SAND AND GRAVEL, FINE TO MEDIUM; WITE CLAY

* * * *

TEST HOLE NUMBER: 194
LOCATION: 121N-46W-07DAAA 1
LEGAL LOCATION: NE NE NE SE SEC. 07, T. 121 N., R. 46 W.

1 - 18 SAND, BROWN, COARSE

* * * *

TEST HOLE NUMBER: 195
LOCATION: 121N-46W-07DAAA 2
LEGAL LOCATION: NE NE NE SE SEC. 07, T. 121 N., R. 46 W.

1 - 15 SAND, BROWN, COARSE
16 - 17 SAND, BROWN

* * * *

TEST HOLE NUMBER: 196
LOCATION: 121N-46W-08CAB
LEGAL LOCATION: NW NE NE SW SEC. 08, T. 121 N., R. 46 W.

18 - 34 SAND, GRAY-BROWN, FINE, SILTY

* * * *

50
TEST HOLE NUMBER: 197
LOCATION: 121N-46W-08CCCD
LEGAL LOCATION: SE SW SW SW SEC. 08, T. 121 N., R. 46 W.

1 - 6 SAND, BROWN, FINE TO MEDIUM  
    * * * *

TEST HOLE NUMBER: 198
LOCATION: 121N-46W-08DCCB
LEGAL LOCATION: NW SW SW SE SEC. 08, T. 121 N., R. 46 W.

1 - 9 SAND, GRAY, FINE TO MEDIUM  
9 - 26 SAND AND GRAVEL, COARSE SAND AND BROWN  
    FINE GRAVEL; CLAYEY  
    * * * *

TEST HOLE NUMBER: 199
LOCATION: 121N-46W-08DDAB
LEGAL LOCATION: NW NE SE SE SEC. 08, T. 121 N., R. 46 W.

22 - 38 SAND, TAN, FINE TO MEDIUM  
    * * * *

TEST HOLE NUMBER: 200
LOCATION: 121N-46W-08DDBA 1
LEGAL LOCATION: NE NW SE SE SEC. 08, T. 121 N., R. 46 W.

23 - 40 SAND; SOME GRAY CLAY  
    * * * *

TEST HOLE NUMBER: 201
LOCATION: 121N-46W-08DDRA 2
LEGAL LOCATION: NE NW SE SE SEC. 08, T. 121 N., R. 46 W.

22 - 39 SAND, GRAY, FINE; SOME SMALL SHELLS  
    * * * *

TEST HOLE NUMBER: 202
LOCATION: 121N-46W-17ADCC 1
LEGAL LOCATION: SW SW SE NE SEC. 17, T. 121 N., R. 46 W.
15 - 28 SAND, MEDIUM TO COARSE, CLAYEY

* * *

TEST HOLE NUMBER: 203
LOCATION: 121N-46W-17BCCC 1
LEGAL LOCATION: SW SW SW NW SEC. 17, T. 121 N., R. 46 W.

11 - 20 SAND AND GRAVEL, BROWN, COARSE SAND, FINE TO MEDIUM GRAVEL; DRY, HIT ROCK, ABANDONED HOLE

* * *

TEST HOLE NUMBER: 204
LOCATION: 121N-46W-17BCCC 2
LEGAL LOCATION: SW SW SW NW SEC. 17, T. 121 N., R. 46 W.

9 - 20 SAND AND GRAVEL, BROWN, COARSE SAND, MEDIUM GRAVEL; DRY

* * *

TEST HOLE NUMBER: 205
LOCATION: 121N-46W-17BDCC
LEGAL LOCATION: SW SW SE NW SEC. 17, T. 121 N., R. 46 W.

2 - 17 SAND, BROWN, COARSE
17 - 34 GRAVEL, MEDIUM

* * *

TEST HOLE NUMBER: 206
LOCATION: 121N-46W-18AERC
LEGAL LOCATION: SW NW SW NE SEC. 18, T. 121 N., R. 46 W.

7 - 11 SAND AND GRAVEL, BROWN, FINE SAND, MEDIUM GRAVEL; OXIDIZED, DRY

* * *

TEST HOLE NUMBER: 207
LOCATION: 121N-46W-18BDCC
LEGAL LOCATION: SW SW SE NW SEC. 18, T. 121 N., R. 46 W.

3 - 6 SAND, BROWN, SILTY
6 - 19 GRAVEL, COARSE

52
TEST HOLE NUMBER:  208
LOCATION:  121N-46W-18DCCD 1
LEGAL LOCATION:  SE SW SW SE SEC. 18, T. 121 N., R. 46 W.

1 -  10  GRAVEL, COARSE

TEST HOLE NUMBER:  209
LOCATION:  121N-46W-18DCCD 2
LEGAL LOCATION:  SE SW SW SE SEC. 18, T. 121 N., R. 46 W.

1 -  9  SAND AND GRAVEL, COARSE SAND AND BROWN,
       MEDIUM TO COARSE GRAVEL

TEST HOLE NUMBER:  210
LOCATION:  121N-46W-19DBDD
LEGAL LOCATION:  SE SE NW SE SEC. 19, T. 121 N., R. 46 W.

25 -  38  SAND, FINE

TEST HOLE NUMBER:  211
LOCATION:  121N-46W-20BACD
LEGAL LOCATION:  SE SW NE NW SEC. 20, T. 121 N., R. 46 W.

1 -  21  SAND AND GRAVEL, COARSE SAND AND FINE TO
       MEDIUM GRAVEL

22 -  36  SAND, GRAY-BROWN, FINE TO COARSE

TEST HOLE NUMBER:  212
LOCATION:  121N-46W-20BBBA
LEGAL LOCATION:  NE NW NW NW SEC. 20, T. 121 N., R. 46 W.

2 -  22  SAND AND GRAVEL, COARSE SAND AND MEDIUM
       TO COARSE GRAVEL

* * *
TEST HOLE NUMBER: 213  
LOCATION: 121N-46W-20BBBD  
LEGAL LOCATION: SE SE NW NW SEC. 20, T. 121 N., R. 46 W.

9 - 27 SAND AND GRAVEL, COARSE SAND AND MEDIUM TO COARSE GRAVEL  
* * * *

TEST HOLE NUMBER: 214  
LOCATION: 121N-46W-20BBDC  
LEGAL LOCATION: SW SE NW SE SEC. 20, T. 121 N., R. 46 W.

1 - 24 GRAVEL, FINE; SOME SAND  
* * * *

TEST HOLE NUMBER: 215  
LOCATION: 121N-47W-13CCCB  
LEGAL LOCATION: NW SW SW SW SEC. 13, T. 121 N., R. 47 W.

5 - 6 SAND AND GRAVEL, REDDISH-BROWN, COARSE SAND, MEDIUM GRAVEL, CLAYSY; MOIST, OXIDIZED (TILL)  
* * * *

TEST HOLE NUMBER: 216  
LOCATION: 121N-47W-16CCBB  
LEGAL LOCATION: NW NW SW SW SEC. 16, T. 121 N., R. 47 W.  
PRELIMINARY LOG -- SUBJECT TO CHANGE

11 - 24 SAND, MEDIUM TO COARSE; POSSIBLY OXIDIZED; BROWN CLAY STRINGERS  
* * * *

TEST HOLE NUMBER: 217  
LOCATION: 121N-47W-17CCC  
LEGAL LOCATION: SW SW SW NW SEC. 17, T. 121 N., R. 47 W.

5 - 65 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, MEDIUM GRAVEL, SILTY; MOIST, FEW VERY COARSE PEBBLES, WET AND PROMINENTLY A COARSE, UNOXIDIZED, SILTY SAND FROM 50 FEET  
* * * *

54
TEST HOLE NUMBER: 218
LOCATION: 121N-47W-17CCCD
LEGAL LOCATION: SE SW SW SW SEC. 17, T. 121 N., R. 47 W.

4 - 12 GRAVEL, COARSE
24 - 26 GRAVEL

** **

TEST HOLE NUMBER: 219
LOCATION: 121N-47W-18AAAE
LEGAL LOCATION: NW NE NE NE SEC. 18, T. 121 N., R. 47 W.

23 - 28 SAND, DARK-GRAY, VERY FINE

** **

TEST HOLE NUMBER: 220
LOCATION: 121N-47W-18BBCA
LEGAL LOCATION: NE SW NW NW SEC. 18, T. 121 N., R. 47 W.

0 - 6 GRAVEL, MEDIUM TO COARSE; BECAME TO COARSE TO PENETRATE

** **

TEST HOLE NUMBER: 221
LOCATION: 121N-47W-18CCBB
LEGAL LOCATION: NW NW SW SW SEC. 18, T. 121 N., R. 47 W.

0 - 70 SAND, LIGHT-BROWN, MEDIUM TO COARSE; WITH FINE TO MEDIUM GRAVEL STRINGERS, SATURATED AT 30 FEET, CHANGES TO A BROWN, FINE TO MEDIUM GRAVEL WITH SOME COARSE SAND AT 45 FEET

** **

TEST HOLE NUMBER: 222
LOCATION: 121N-47W-20AAAB
LEGAL LOCATION: NW SE NE NE SEC. 20, T. 121 N., R. 47 W.

1 - 26 GRAVEL, COARSE TO VERY COARSE, SURBOUNDED

** **

TEST HOLE NUMBER: 223

55
<table>
<thead>
<tr>
<th>Test Hole Number</th>
<th>Location</th>
<th>Legal Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>224</td>
<td>121N-47W-20ADCB</td>
<td>NW SW SE NE Sec. 20, T. 121 N., R. 47 W.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - 7 SAND, DARK-BROWN, MEDIUM, CLAYEY</td>
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<tr>
<td></td>
<td></td>
<td>7 - 8 SAND, BROWN, COARSE, CLAYEY; FINE GRAVEL</td>
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<td></td>
<td>8 - 15 SAND, BROWN, COARSE; FINE GRAVEL; CLEAN</td>
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<tr>
<td></td>
<td></td>
<td>15 - 42 SAND, BROWN, MEDIUM TO VERY COARSE; CLEAN</td>
</tr>
<tr>
<td>225</td>
<td>121N-47W-20ADDC</td>
<td>SW SE SE NE Sec. 20, T. 121 N., R. 47 W.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 - 9 SAND, BROWN, MEDIUM TO COARSE; SOME FINE GRAVEL, CLAYEY; SATURATED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - 14 SAND, BROWN, MEDIUM TO COARSE; SOME FINE GRAVEL, SLIGHTLY CLAYEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 - 20 SAND, GRAY-BROWN, MEDIUM TO COARSE; SOME FINE GRAVEL, CLAYEY</td>
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<tr>
<td></td>
<td></td>
<td>25 - 46 SAND, BROWN, MEDIUM TO COARSE, CLAYEY</td>
</tr>
<tr>
<td>226</td>
<td>121N-47W-20BAAA</td>
<td>NE NE NE NW Sec. 20, T. 121 N., R. 47 W.</td>
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<td></td>
<td>3 - 5 GRAVEL, COARSE</td>
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<td>5 - 17 SAND, GRAY, MEDIUM; SOME COARSE GRAVEL; SATURATED</td>
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<tr>
<td></td>
<td></td>
<td>17 - 20 SAND, GRAY, MEDIUM, VERY CLAYEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 - 40 SAND, GRAY, MEDIUM, VERY CLAYEY</td>
</tr>
<tr>
<td>227</td>
<td>121N-47W-20BBB</td>
<td>SW NE NW NW Sec. 20, T. 121 N., R. 47 W.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 17 GRAVEL AND ROCKS, YELLOW</td>
</tr>
</tbody>
</table>

56
22 – 25  SAND, BROWN, MEDIUM TO COARSE, VERY CLAYEY

* * *

TEST HOLE NUMBER: 228
LOCATION: 121N-47W-20BCBB
LEGAL LOCATION: NW NW NW NW SEC. 20, T. 121 N., R. 47 W.

1 – 5  SAND, TAN, MEDIUM; WTH MEDIUM GRAVEL, CLAYEY; DRY
5 – 12  GRAVEL, MEDIUM TO COARSE, SILTY; DRY
12 – 26  GRAVEL, TAN, FINE TO MEDIUM, VERY CLAYEY; DRY

* * *

TEST HOLE NUMBER: 229
LOCATION: 121N-47W-20BCDA
LEGAL LOCATION: NE SE SW NW SEC. 20, T. 121 N., R. 47 W.

1 – 4  GRAVEL, COARSE, VERY CLAYEY; SOME SAND
4 – 7  SAND, TAN, MEDIUM, VERY CLAYEY; FINE GRAVEL; DRY
14 – 17  GRAVEL, MEDIUM TO COARSE; DRY
17 – 67  SAND, MEDIUM; WTH MEDIUM GRAVEL

* * *

TEST HOLE NUMBER: 230
LOCATION: 121N-47W-20CAB
LEGAL LOCATION: NW NE SW SEC. 20, T. 121 N., R. 47 W.

3 – 26  SAND AND GRAVEL, YELLOW, COARSE
20 – 30  GRAVEL, COARSE, YELLOW

* * *

TEST HOLE NUMBER: 231
LOCATION: 121N-47W-20CAD
LEGAL LOCATION: NE SE NS SW SEC. 20, T. 121 N., R. 47 W.

2 – 24  SAND, VERY COARSE, ROUNDED; GRAVEL, MEDIUM, ROUNDED
24 – 36  GRAVEL, COARSE TO VERY COARSE, ROUNDED

* * *

57
TEST HOLE NUMBER: 232
LOCATION: 121N-47W-20CBDA
LEGAL LOCATION: NE SE NW SW SEC. 20, T. 121 N., R. 47 W.

2 - 8 GRAVEL, FINE TO MEDIUM, ANGULAR TO SUB-ANGULAR
8 - 27 GRAVEL, MEDIUM TO VERY COARSE, SUBANGULAR TO SUBRounded

** * * *

TEST HOLE NUMBER: 233
LOCATION: 121N-47W-20CCAD
LEGAL LOCATION: SE NE SW SW SEC. 20, T. 121 N., R. 47 W.

11 - 22 SAND, TAN, FINE TO MEDIUM; SATURATED
22 - 104 SAND, TAN, VERY FINE TO FINE

** * * *

TEST HOLE NUMBER: 234
LOCATION: 121N-47W-20CCCC
LEGAL LOCATION: SW SW SW SW SEC. 20, T. 121 N., R. 47 W.

1 - 13 SAND, COARSE, SUBRounded TO SUBANGULAR
13 - 28 GRAVEL, FINE TO MEDIUM; SAND, COARSE

** * * *

TEST HOLE NUMBER: 235
LOCATION: 121N-47W-20CCCD 1
LEGAL LOCATION: SE SW SW SW SEC. 20, T. 121 N., R. 47 W.

9 - 25 SAND, LIGHT-GRAY, FINE; CLAYEY; SATURATED
25 - 109 SAND, LIGHT-GRAY, FINE; CLEAN, SATURATED

** * * *

TEST HOLE NUMBER: 236
LOCATION: 121N-47W-20CCCD 2
LEGAL LOCATION: SE SW SW SW SEC. 20, T. 121 N., R. 47 W.

4 - 42 SAND, MEDIUM TO COARSE; GRAVEL, MEDIUM, SUBRounded

** * * *

58
TEST HOLE NUMBER: 237
LOCATION: 121N-47W-20DADD
LEGAL LOCATION: SE SE NE SE SEC. 20, T. 121 N., R. 47 W.

| 0  | 4  | SAND, GRAY-BROWN, MEDIUM TO COARSE; SOME CLAY; DRY |
| 4  | 13 | SAND, TAN, MEDIUM TO COARSE, SILTY; MOIST |

** **

TEST HOLE NUMBER: 238
LOCATION: 121N-47W-20DDDB
LEGAL LOCATION: SE NW NW SE SEC. 20, T. 121 N., R. 47 W.

| 5  | 7  | SAND, DARK-GRAY-BROWN, COARSE, CLAYEY; SATURATED |
| 7  | 10 | SAND, DARK-BROWN, COARSE, CLAYEY |
| 10 | 15 | SAND, GRAI-BROWN, COARSE, CLAYEY; WITH SOME FINE GRAVEL |
| 15 | 24 | SAND, GRAI-BROWN, COARSE; WITH SOME FINE GRAVEL; CLEAN |
| 24 | 45 | SAND, BROWN, COARSE, SLIGHTLY CLAYEY; WITH SOME FINE GRAVEL |

** **

TEST HOLE NUMBER: 239
LOCATION: 121N-47W-20DCCAB
LEGAL LOCATION: NW NE SW SE SEC. 20, T. 121 N., R. 47 W.

| 5  | 7  | SAND, GRAY-BROWN, MEDIUM; SILTY, WITH SOME MEDIUM GRAVEL; SLIGHTLY MOIST |
| 7  | 10 | SAND, LIGHT-BROWN, MEDIUM TO COARSE; SLIGHTLY MOIST |
| 10 | 19 | SAND, BROWN, VERY COARSE, CLAYEY; PEBBLY, SATURATED |
| 19 | 56 | SAND, BROWN, VERY COARSE; WITH SOME FINE GRAVEL; CLEAN |

** **

TEST HOLE NUMBER: 240
LOCATION: 121N-47W-20DDDC
LEGAL LOCATION: SW NW SE SE SEC. 20, T. 121 N., R. 47 W.

| 5  | 14 | SAND, BROWN, COARSE; CLAYEY; SATURATED |
| 14 | 17 | SAND, BROWN, COARSE; SOME FINE GRAVEL |
| 17 | 24 | GRAVEL, FINE; CLEAN |
24 - 25 GRAVEL, FINE; SOME COARSE SAND
25 - 41 SAND, GRAY-BROWN, FINE TO COARSE; CLEAN
   * * *

TEST HOLE NUMBER: 241
LOCATION: 121N-47W-20DDCD
LEGAL LOCATION: SE SW SE SE SEC. 20, T. 121 N., R. 47 W.

12 - 15 SAND, BROWN, FINE TO MEDIUM, CLAYEY
15 - 20 SAND, BROWN, FINE TO COARSE, CLAYEY; WITH
   SMALL GRAVEL
20 - 42 SAND AND GRAVEL, SALT AND PEPPER COLORED,
   VERY COARSE SAND, FINE GRAVEL; CLEAN
   * * *

TEST HOLE NUMBER: 242
LOCATION: 121N-47W-21AAAA
LEGAL LOCATION: NE NE NE NE SEC. 21, T. 121 N., R. 47 W.

7 - 10 GRAVEL, BROWN-RED, COARSE
   * * *

TEST HOLE NUMBER: 243
LOCATION: 121N-47W-21BBBB
LEGAL LOCATION: NW NW NW NW SEC. 21, T. 121 N., R. 47 W.

6 - 8 SAND, GRAY, SLIGHTLY CLAYEY; SOME COARSE
    GRAVEL; SATURATED
8 - 16 SAND, BROWN, MEDIUM-COARSE, SLIGHTLY
    CLAYEY; SOME COARSE GRAVEL
16 - 24 GRAVEL, COARSE
24 - 31 GRAVEL; WITH BROWN CLAY, SANDY
   * * *

TEST HOLE NUMBER: 244
LOCATION: 121N-47W-21BBCC
LEGAL LOCATION: SW SW NW NW SEC. 21, T. 121 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

1 - 6 SAND
6 - 15 GRAVEL
   * * *

TEST HOLE NUMBER: 245

60
LOCATION: 121N-47W-21BCB
LEGAL LOCATION: NW SW NW SW SEC. 21, T. 121 N., R. 47 W.

15 - 36 SAND, DARK-GRAY, FINE, VERY CLAYEY; SATURATED

** **

TEST HOLE NUMBER: 246
LOCATION: 121N-47W-21CCDB
LEGAL LOCATION: NW SE SW SW SEC. 21, T. 121 N., R. 47 W.

24 - 32 GRAVEL, FINE TO COARSE; COARSE SAND, CLEAN

** **

TEST HOLE NUMBER: 247
LOCATION: 121N-47W-22BCB
LEGAL LOCATION: NW SW NW SW SEC. 22, T. 121 N., R. 47 W.

9 - 12 SAND, DARK-GRAY, MEDIUM, CLAYEY; SATURATED
12 - 15 SAND, BROWN, FINE TO MEDIUM; SLIGHTLY CLAYEY
15 - 16 SAND, BROWN, FINE TO MEDIUM; SOME COARSE GRAVEL
16 - 19 SAND, LIGHT-BROWN, VERY COARSE; WITH SOME COARSE GRAVEL; VERY SLIGHTLY CLAYEY
19 - 21 GRAVEL, COARSE

** **

TEST HOLE NUMBER: 248
LOCATION: 121N-47W-22DCAA
LEGAL LOCATION: NE NE SW SE SEC. 22, T. 121 N., R. 47 W.

3 - 5 SAND, LIGHT-BROWN, MEDIUM TO COARSE; OXIDIZED, MOIST
5 - 15 GRAVEL, GRAY, VERY CLAYEY; UNOXIDIZED, SATURATED
15 - 20 GRAVEL, GRAY, COARSE, CLAYEY; UNOXIDIZED, SATURATED
20 - 63 GRAVEL, GRAY, COARSE; SOME CLAY, WELL-SORTED, SATURATED, POSSIBLE CLAY LENS AT 45 FEET, VERY CLAYEY FROM 60 FEET

** **

61
TEST HOLE NUMBER: 249
LOCATION: 121N-47W-24AAAA
LEGAL LOCATION: NE NE NE NE SEC. 24, T. 121 N., R. 47 W.

6 - 22  SAND AND GRAVEL, MEDIUM SAND AND MEDIUM TO COARSE GRAVEL

* * *

TEST HOLE NUMBER: 250
LOCATION: 121N-47W-24AAAB
LEGAL LOCATION: NW NE NE NE SEC. 24, T. 121 N., R. 47 W.

6 - 22  SAND AND GRAVEL, MEDIUM SAND AND MEDIUM TO COARSE GRAVEL

* * *

TEST HOLE NUMBER: 251
LOCATION: 121N-47W-24BACC
LEGAL LOCATION: SW SW NE NW SEC. 24, T. 121 N., R. 47 W.

0 - 8  SAND AND GRAVEL, DIRTY-RED, MEDIUM TO COARSE SAND, COARSE GRAVEL; OXIDIZED, MOIST

8 - 47  SAND AND GRAVEL, DIRTY-RED, COARSE SAND, FINE TO MEDIUM GRAVEL, SLIGHTLY CLAYEZ; OXIDIZED, MOIST, SATURATED AT 43 FEET

* * *

TEST HOLE NUMBER: 252
LOCATION: 121N-47W-24BDCB 2
LEGAL LOCATION: NW SW SE NW SEC. 24, T. 121 N., R. 47 W.

20 - 24  SAND, BROWN, MEDIUM TO COARSE, CLAYEZ; OXIDIZED, DRY, LITTLE GRAVEL

24 - 103  SAND, BROWN, FINE TO COARSE, CLAYEZ; LITTLE GRAVEL, OXIDIZED, SATURATED, BECOMES UNOXIDIZED AND FINE TO MEDIUM GRAINED AT 65 FEET

* * *

TEST HOLE NUMBER: 253
LOCATION: 121N-47W-27AABA
LEGAL LOCATION: NE NW NE NE SEC. 27, T. 121 N., R. 47 W.

62
2 - 4 SAND, LIGHT-BROWN, FINE TO MEDIUM, SLIGHTLY CLAYEY
4 - 23 SAND, LIGHT-BROWN, MEDIUM TO COARSE, WELL-SORTED; CLEAN, SATURATED
23 - 53 SAND, LIGHT-GRAY, MEDIUM TO COARSE; SATURATED

* * *

TEST HOLE NUMBER: 254
LOCATION: 121N-47W-27ABB
LEGAL LOCATION: NW NW NW NE SEC. 27, T. 121 N., R. 47 W.

3 - 5 SAND, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, DRY
8 - 12 GRAVEL, BROWN, COARSE, CLAYEY, WELL-SORTED; OXIDIZED, DRY
12 - 20 SAND, LIGHT-BROWN, FINE TO MEDIUM; SOME COARSE GRAVEL, MOIST, DIRTY
20 - 23 SAND, BROWN, MEDIUM, WELL-SORTED; DAMP, OXIDIZED; WITH SOME GRAVEL
23 - 48 SAND, BROWN TO BROWNISH-GRAY, MEDIUM TO COARSE, CLAYEY TO VERY CLAYEY; WITH GRAVEL, SATURATED AT 36 FEET, OXIDIZED

* * *

TEST HOLE NUMBER: 255
LOCATION: 121N-47W-27ABB
LEGAL LOCATION: NW NW NE NW SEC. 27, T. 121 N., R. 47 W.

10 - 16 SAND AND GRAVEL, BROWN, COARSE SAND, MEDIUM GRAVEL, VERY CLAYEY; SATURATED

* * *

TEST HOLE NUMBER: 256
LOCATION: 121N-47W-28ABB
LEGAL LOCATION: NE NE NE NE SEC. 28, T. 121 N., R. 47 W.

5 - 6 GRAVEL, COARSE; WITH ORANGE-BROWN CLAY
6 - 10 GRAVEL, MEDIUM TO COARSE; WITH MEDIUM SAND AND COARSE ORANGE SILT; MOIST
10 - 15 SAND, FINE; WITH COARSE ORANGE-BROWN SILT
15 - 19 SAND, FINE; WITH COARSE ORANGE-BROWN SILT AND SOME MEDIUM GRAVEL; MOIST
19 - 21 SAND, BROWN, COARSE; WITH FINE GRAVEL; MOIST
21 - 30 SAND, ORANGE-BROWN, COARSE; WITH FINE

63
<table>
<thead>
<tr>
<th>TEST HOLE NUMBER</th>
<th>LOCATION</th>
<th>LEGAL LOCATION</th>
<th>SAND, TAN, FINE TO COARSE, SILTY; DAY</th>
<th>SAND, TAN, COARSE, SILTY; SOME FINE GRAVEL; MOIST</th>
<th>SAND, ORANGE-BROWN, COARSE, SILTY; SOME FINE GRAVEL; SATURATED</th>
<th>GRAVEL, FINE TO COARSE; SOME MEDIUM SAND; SATURATED</th>
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<tr>
<td>257</td>
<td>121N-47W-28CBC</td>
<td>SW NW SW NW Sec. 28, T. 121 N., R. 47 W.</td>
<td>0 - 5</td>
<td>5</td>
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<td>121N-47W-28DDBB</td>
<td>SE NW SE Sec. 28, T. 121 N., R. 47 W.</td>
<td>5 - 10</td>
<td>10</td>
<td>15</td>
<td>20</td>
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<tr>
<td>259</td>
<td>121N-47W-28DCDD</td>
<td>SE SE SW SE Sec. 28, T. 121 N., R. 47 W.</td>
<td>11 - 22</td>
<td>22</td>
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<tr>
<td>260</td>
<td>121N-47W-28DDAA</td>
<td>NE NE SE SE Sec. 28, T. 121 N., R. 47 W.</td>
<td>0 - 30</td>
<td>30</td>
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64
TEST HOLE NUMBER: 261  
LOCATION: 121N-47W-29AAAA 1  
LEGAL LOCATION: NE NE NE NE SEC. 29, T. 121 N., R. 47 W.  
0 -  1  GRAVEL, DARK-BROWN, MEDIUM TO COARSE, ROUNDED  
3 -  9  GRAVEL, FINE TO MEDIUM; VERY COARSE SAND, SUB Rounded  
15 - 33  GRAVEL, MEDIUM TO COARSE, ROUNDED  
* * * *

TEST HOLE NUMBER: 262  
LOCATION: 121N-47W-29AAAA 2  
LEGAL LOCATION: NE NE NE NE SEC. 29, T. 121 N., R. 47 W.  
1 -  8  SAND, MEDIUM TO COARSE, SUBRounded TO ROUNDED  
11 - 15  SAND, MEDIUM TO COARSE; GRAVEL, FINE TO MEDIUM  
15 - 16  GRAVEL, COARSE TO VERY COARSE, ROUNDED  
17 - 18  GRAVEL, COARSE TO VERY COARSE, ROUNDED  
18 - 79  SAND, DARK-GRAY, MEDIUM TO COARSE, SILTY; SOME SHALE CHIPS  
* * * *

TEST HOLE NUMBER: 263  
LOCATION: 121N-47W-29BABB  
LEGAL LOCATION: NW NW NE NW SEC. 29, T. 121 N., R. 47 W.  
1 -  5  SAND, VERY COARSE; TO FINE GRAVEL, SUBRounded  
5 - 16  GRAVEL, COARSE TO VERY COARSE, SUBRounded  
16 - 46  SAND, VERY FINE TO COARSE, SUBRounded  
* * * *

TEST HOLE NUMBER: 264  
LOCATION: 121N-47W-29NCAA  
LEGAL LOCATION: NE SE SW NW SEC. 29, T. 121 N., R. 47 W.  
8 - 15  SAND, COARSE, SUBRounded; CLEAN  
15 - 18  GRAVEL, MEDIUM, SUBRounded; CLEAN  
18 - 25  SAND, GRAY, FINE TO VERY FINE, SILTY, SUBRounded  
* * *
TEST HOLE NUMBER: 265
LOCATION: 121N-47W-30AAA
LEGAL LOCATION: NE NE NE NE Sec. 30, T. 121 N., R. 47 W.

0 - 155 SAND AND GRAVEL, MEDIUM TO COARSE

* * *

TEST HOLE NUMBER: 266
LOCATION: 121N-47W-30AABB
LEGAL LOCATION: NW SE NE NE Sec. 30, T. 121 N., R. 47 W.

2 - 4 SAND, VERY COARSE, SUBANGULAR
4 - 31 GRAVEL, COARSE, SUBBONDED; CLEAN

* * *

TEST HOLE NUMBER: 267
LOCATION: 121N-47W-30ACBB
LEGAL LOCATION: NW NW SW NE Sec. 30, T. 121 N., R. 47 W.

4 - 16 GRAVEL, VERY COARSE
16 - 26 GRAVEL, FINE TO MEDIUM

* * *

TEST HOLE NUMBER: 268
LOCATION: 121N-47W-30BCCC
LEGAL LOCATION: SW SW SW NW Sec. 30, T. 121 N., R. 47 W.

23 - 55 SAND, GRAY, FINE TO MEDIUM, SUBBONDED; VERY SHALEY

* * *

TEST HOLE NUMBER: 269
LOCATION: 121N-47W-30DAAD
LEGAL LOCATION: SE NE NE SE Sec. 30, T. 121 N., R. 47 W.

0 - 24 SAND, REDDISH-BROWN, MEDIUM TO COARSE;
LITTLE CLAY, OXIDIZED, DRY
24 - 25 SAND AND GRAVEL, TAN-BROWN, COARSE SAND,
COARSE GRAVEL; SOME CLAY, OXIDIZED,
MOIST
25 - 58 SAND, LIGHT-BROWN, COARSE, GRAVELLY;
SOME CLAY, OXIDIZED, MOIST, BECOMES
UNOXIDIZED AT 53 FT ET

66
* * *
TEST HOLE NUMBER: 270
LOCATION: 121N-47W-32BBBB
LEGAL LOCATION: SW NW NW NW SEC. 32, T. 121 N., R. 47 W.
12 - 38 GRAVEL, YELLOW-BROWN, MEDIUM TO COARSE; OXIDIZED
* * *
TEST HOLE NUMBER: 271
LOCATION: 121N-47W-32DDDC
LEGAL LOCATION: SW SE SE SE SEC. 32, T. 121 N., R. 47 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE
20 - 42 SAND, YELLOW-BROWN, MEDIUM TO COARSE
* * *
TEST HOLE NUMBER: 272
LOCATION: 121N-47W-33AAAA
LEGAL LOCATION: NE NE NE NE SEC. 33, T. 121 N., R. 47 W.
2 - 5 SAND AND GRAVEL, FINE TO COARSE
20 - 24 SAND, GRAY, MEDIUM; NUMEROUS CLAM SHELLS AND SOME COAL
* * *
TEST HOLE NUMBER: 273
LOCATION: 121N-47W-33BAAA
LEGAL LOCATION: NE NE NE NW SEC. 33, T. 121 N., R. 47 W.
10 - 13 SAND
* * *
TEST HOLE NUMBER: 274
LOCATION: 121N-47W-33DBCC
LEGAL LOCATION: SW SW NW SE SEC. 33, T. 121 N., R. 47 W.
3 - 5 GRAVEL
* * *
TEST HOLE NUMBER: 275

67
LOCATION: 121N-47W-33DCCC  
LEGAL LOCATION: SW SW SW SE SEC. 33, T. 121 N., R. 47 W.

18 - 43 GRAVEL  
* * *

TEST HOLE NUMBER: 276  
LOCATION: 121N-47W-34DAAA  
LEGAL LOCATION: NE NE NE SE SEC. 34, T. 121 N., R. 47 W.

0 - 6 SAND, TAN-BROWN, MEDIUM TO COARSE; SOME PEBBLES, SOME CLAY, OXIDIZED, MOIST  
6 - 10 GRAVEL, DARK-BROWN, MEDIUM, SANDY; VERY MOIST, OXIDIZED  
10 - 15 GRAVEL, DARK-BROWN, MEDIUM, SANDY, CLAYEY; VERY MOIST, OXIDIZED  
15 - 20 GRAVEL, DARK-BROWN, MEDIUM, SANDY; SOME CLAY, OXIDIZED, SATURATED  
20 - 28 SAND, GRAY, FINE TO MEDIUM, CLAYEY; FEW PEBBLES, UNOXIDIZED, SATURATED  
* * *

TEST HOLE NUMBER: 277  
LOCATION: 121N-47W-34DCCC  
LEGAL LOCATION: SW SW SW SE SEC. 34, T. 121 N., R. 47 W.

5 - 11 SAND, TAN-BROWN, FINE TO MEDIUM, CLAYEY, VERY SILTY; MOIST, OXIDIZED  
* * *

TEST HOLE NUMBER: 278  
LOCATION: 121N-47W-36AAAA  
LEGAL LOCATION: NE NE NE NE SEC. 36, T. 121 N., R. 47 W.  
PRELIMINARY LOG -- SUBJECT TO CHANGE  

7 - 12 SAND, FINE TO MEDIUM  
* * *

TEST HOLE NUMBER: 279  
LOCATION: 121N-47W-36BBBB  
LEGAL LOCATION: NW NW NW NW SEC. 36, T. 121 N., R. 47 W.

21 - 43 SAND AND GRAVEL, GRAY FROM 25 FEET, MEDIUM TO COARSE; NUMEROUS LIMESTONE  
68
PEBBLES

TEST HOLE NUMBER: 280
LEGAL LOCATION: NE SE NW NW SEC. 36, T. 121 N., R. 47 W.
12 - 22 GRAVEL, YELLOW
22 - 58 GRAVEL; COARSE SAND

TEST HOLE NUMBER: 281
LOCATION: 121N-48W-02CDCH
LEGAL LOCATION: NW SW SE SW SEC. 02, T. 121 N., R. 48 W.
15 - 24 GRAVEL, DARK-BROWN, MEDIUM TO COARSE,
CLAYEY, SILTY, SANDY; SLIGHTLY
OXIDIZED, NEAR SATURATION

TEST HOLE NUMBER: 282
LOCATION: 121N-48W-02DCCA
LEGAL LOCATION: NE SW SW SE SEC. 02, T. 121 N., R. 48 W.
10 - 22 SAND, TAN-BROWN, MEDIUM, CLAYEY; DAMP,
OXIDIZED, SOME FINE GRAVEL
22 - 28 SAND, TAN-BROWN, MEDIUM TO COARSE,
CLAYEY; OXIDIZED, MOIST, FEW PEBBLES

TEST HOLE NUMBER: 283
LOCATION: 121N-48W-03ABB 1
LEGAL LOCATION: NW NW NW NE SEC. 03, T. 121 N., R. 48 W.
0 - 10 GRAVEL, LIGHT-BROWN, COARSE, SILTY;
OXIDIZED, DRY, POORLY SORTED, DRILLING
BECAME TOO DIFFICULT, ABANDONED HOLE

TEST HOLE NUMBER: 284
LOCATION: 121N-48W-03ABB 2
LEGAL LOCATION: NW NW NW NE SEC. 03, T. 121 N., R. 48 W.

69
1 - 7 GRANULE, BROWN, VERY CLAYEY; OXIDIZED, DAMP, COULD NOT CONTINUE, ABANDONED HOLE

***

TEST HOLE NUMBER: 285
LOCATION: 121N-48W-08BA
LEGAL LOCATION: NW NW NE NW SEC. 03, T. 121 N., R. 48 W.

21 - 25 SAND, DARK-GREY, FINE, CLAYEY; SATURATED, UNOXIDIZED

***

TEST HOLE NUMBER: 286
LOCATION: 121N-48W-03BB
LEGAL LOCATION: NW SW NW NW SEC. 03, T. 121 N., R. 48 W.

5 - 9 SAND AND GRAVEL, TAN-BROWN, COARSE SAND, MEDIUM GRAVEL, VERY SILTY; OXIDIZED, MOIST

***

TEST HOLE NUMBER: 287
LOCATION: 121N-48W-03DC
LEGAL LOCATION: SE SE SW SE SEC. 03, T. 121 N., R. 48 W.

5 - 9 SAND, TAN-BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, MOIST (TILL)
9 - 16 SAND, TAN-BROWN, MEDIUM TO COARSE, EXTREMELY CLAYEY; OXIDIZED, SATURATED (TILL)
16 - 20 SAND, BROWN, MEDIUM TO COARSE, CLAYEY; OXIDIZED, SATURATED, FEW PEBBLES (TILL)
20 - 26 SAND, DARK-GREY, FINE TO MEDIUM, CLAYEY, SILTY; UNOXIDIZED, SATURATED

***

TEST HOLE NUMBER: 288
LOCATION: 121N-48W-10A
LEGAL LOCATION: SE NW NE NE SEC. 10, T. 121 N., R. 48 W.

11 - 20 SAND AND GRAVEL, BROWN, FINE TO MEDIUM SAND, FINE TO MEDIUM GRAVEL, CLAYEY; OXIDIZED

70
TEST HOLE NUMBER: 289
LOCATION: 121N-48W-13ABBA
LEGAL LOCATION: NE NW NW NE SEC. 13, T. 121 N., R. 48 W.

20 - 31 GRAVEL, GRAY, MEDIUM TO COARSE, SANDY, ROCKY, CLAYEY; SATURATED

* * * *

TEST HOLE NUMBER: 290
LOCATION: 121N-48W-20AAAA
LEGAL LOCATION: NE NE NE NE SEC. 20, T. 121 N., R. 48 W.
PRELIMINARY LOG -- SUBJECT TO CHANGE

14 - 23 SAND, MEDIUM, WELL-SORTED

* * * *

TEST HOLE NUMBER: 291
LOCATION: 121N-48W-20BBBB
LEGAL LOCATION: NW NW NW NW SEC. 20, T. 121 N., R. 48 W.

17 - 20 SAND, FINE TO MEDIUM

* * * *

TEST HOLE NUMBER: 292
LOCATION: 121N-48W-21DDDC
LEGAL LOCATION: SW SE SE SE SEC. 21, T. 121 N., R. 48 W.

23 - 29 SAND, COARSE

* * * *

TEST HOLE NUMBER: 293
LOCATION: 121N-48W-24DDDA
LEGAL LOCATION: NE SE SE SE SEC. 24, T. 121 N., R. 48 W.

12 - 15 SAND, LIGHT-BROWN, MEDIUM TO COARSE, CLAYEY

* * * *

TEST HOLE NUMBER: 294
LOCATION: 121N-48W-25DBBA

71
LEGAL LOCATION: NE NW SE NW SEC. 25, T. 121 N., R. 48 W.

2 - 15 SAND, BROWN, FINE TO MEDIUM, SUBBROUNED; SUBSPHERICAL, MOSTLY QUARTZ
* * * *

TEST HOLE NUMBER: 295
LOCATION: 121N-48W-29BBBC
LEGAL LOCATION: SW NW NW SE SEC. 29, T. 121 N., R. 48 W.

24 - 45 SAND, COLORED
* * * *

TEST HOLE NUMBER: 296
LOCATION: 121N-48W-32BBBB
LEGAL LOCATION: NW NW NW NW SEC. 32, T. 121 N., R. 48 W.

14 - 17 SAND, FINE TO MEDIUM; WITH CLAY
* * * *

TEST HOLE NUMBER: 297
LOCATION: 121N-48W-36AAAA
LEGAL LOCATION: NE NE NE NE SEC. 36, T. 121 N., R. 48 W.

5 - 15 SAND AND GRAVEL, GRAY-BROWN, MEDIUM TO COARSE SAND, FINE GRAVEL, VERY CLAYEY; SATURATED AT 9 FEET
* * * *

TEST HOLE NUMBER: 298
LOCATION: 121N-49W-02CBBB
LEGAL LOCATION: NW NW NW SW SEC. 02, T. 121 N., R. 49 W.

12 - 18 SAND, BROWN, FINE TO COARSE SAND; OXIDIZED; SATURATED
18 - 68 SAND, GRAY, FINE TO MEDIUM SAND, CLAYEY; UNOXIDIZED; SATURATED
* * * *

TEST HOLE NUMBER: 299
LOCATION: 121N-49W-03BBBC
LEGAL LOCATION: SW NW NW NW SEC. 03, T. 121 N., R. 49 W.

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<th>Legal Location</th>
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<td>NW NW SW SW SEC. 06, T. 121 N., R. 49 W.</td>
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<tr>
<td><strong>5 - 7</strong></td>
<td>Sand, Brown, Clays, Very Clayey; Moist, Oxidized</td>
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<td>NW SW NW NW SEC. 18, T. 121 N., R. 49 W.</td>
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<td><strong>4 - 2</strong></td>
<td>Sand, Brown, Clays, Slightly Clayey; Saturated, Oxidized</td>
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<td><strong>12 - 20</strong></td>
<td>Sand, Brown, Clays, Slightly Clayey; Saturated, Oxidized</td>
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<tr>
<td><strong>20 - 25</strong></td>
<td>Sand, Gray, Clays, Slightly Clayey; Saturated, Unoxidized</td>
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<td>SE NE SE SE SEC. 30, T. 121 N., R. 49 W.</td>
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<td><strong>3 - 11</strong></td>
<td>Sand, Brown, Silty, Clayey; Some Pebbles, Oxidized, Dry</td>
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<td>NE NW SW NW SEC. 31, T. 121 N., R. 49 W.</td>
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<td><strong>2 - 10</strong></td>
<td>Sand and Gravel, Yellow</td>
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LEGAL LOCATION: NW SW NW SW SEC. 02, T. 121 N., R. 50 W.

4 - 10 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL, VERY CLAYEY; SATURATED, OXIDIZED

TEST HOLE NUMBER: 305
LEGAL LOCATION: NW SE SE SE SEC. 02, T. 121 N., R. 50 W.

3 - 9 SAND AND GRAVEL, BROWN, SILTY; SOME CLAY, OXIDIZED, DRY

9 - 20 SAND, LIGHT-BROWN, PEBBLY, VERY CLAYEY; OXIDIZED, SATURATED

TEST HOLE NUMBER: 306
LOCATION: 121N-50W-02DDC
LEGAL LOCATION: SW SE SW SE SEC. 11, T. 121 N., R. 50 W.

0 - 6 SAND AND GRAVEL, TAN-BROWN, CLAYEY; DRY, OXIDIZED

TEST HOLE NUMBER: 307
LOCATION: 121N-50W-14AADD
LEGAL LOCATION: SE SE NE NE SEC. 14, T. 121 N., R. 50 W.

0 - 2 SAND, LIGHT-BROWN, SILTY, PEBBLY; DRY, OXIDIZED

6 - 20 SAND AND GRAVEL, LIGHT-BROWN, VERY CLAYFY, PEBBLY; OXIDIZED, SATURATED

TEST HOLE NUMBER: 308
LOCATION: 121N-50W-24DDDD
LEGAL LOCATION: SE SE SE SE SEC. 24, T. 121 N., R. 50 W.

1 - 9 GRAVEL, RED-BROWN, MEDIUM TO COARSE

74
TEST HOLE NUMBER: 309
LOCATION: 121N-51W-04DDCC R
LEGAL LOCATION: SW SE SE SE SEC. 04, T. 121 N., R. 51 W.

1 - 5 GRAVEL, BROWN, SANDY, CLAYEY; OXIDIZED, DRY

TEST HOLE NUMBER: 310
LOCATION: 121N-51W-05BAAD R
LEGAL LOCATION: SE NE NE NW SEC. 05, T. 121 N., R. 51 W.

10 - 18 SAND AND GRAVEL, LIGHT-TAN-BROWN, FINE TO COARSE SAND, FINE GRAVEL, VERY CLAYEY; SATURATED, OXIDIZED
18 - 30 SAND, LIGHT-BROWN, MEDIUM, CLAYEY; SATURATED, OXIDIZED

TEST HOLE NUMBER: 311
LOCATION: 121N-51W-06BABC R
LEGAL LOCATION: NW SW NW NW SEC. 06, T. 121 N., R. 51 W.

0 - 6 SAND, TAN-BROWN, VERY CLAYEY, VERY SILTY; WET, OXIDIZED
6 - 10 SAND, TAN-BROWN, CLAYEY, SILTY, PEBBLY; WET, OXIDIZED

TEST HOLE NUMBER: 312
LOCATION: 121N-51W-15CDDC R
LEGAL LOCATION: SW SW SW SE SEC. 15, T. 121 N., R. 51 W.

1 - 3 GRAVEL, BROWN, MEDIUM, CLAYEY; OXIDIZED, MOIST

TEST HOLE NUMBER: 313
LOCATION: 121N-51W-19ABBA R
LEGAL LOCATION: NW NE NW NE SEC. 19, T. 121 N., R. 51 W.

2 - 10 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL, VERY

75
CLAYEY; OXIDIZED, MOIST

* * * *

TEST HOLE NUMBER: 314
LOCATION: 121N-51W-23DCDD
LEGAL LOCATION: SE SE SW SE SEC. 23, T. 121 N., R. 51 W.

0 - 5 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO COARSE GRAVEL, CLAYEY; OXIDIZED, MOIST

* * * *

TEST HOLE NUMBER: 315
LOCATION: 121N-51W-33BCBB R
LEGAL LOCATION: NW NW SW NW SEC. 33, T. 121 N., R. 51 W.

5 - 9 SAND, BROWN, FINE TO COARSE, VERY CLAYEY; OXIDIZED, SATURATED
9 - 23 SAND, TAN-BROWN, FINE, VERY CLAYEY; OXIDIZED, SATURATED

* * * *

TEST HOLE NUMBER: 316
LOCATION: 121N-51W-34DADD
LEGAL LOCATION: SE SE NE SE SEC. 34, T. 121 N., R. 51 W.

1 - 35 SAND AND GRAVEL, TAN-BROWN, FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; MOIST, OXIDIZED, SATURATED AT 5 FEET

* * * *

TEST HOLE NUMBER: 317
LOCATION: 121N-51W-35BBAB 1
LEGAL LOCATION: NW NE NW NW SEC. 35, T. 121 N., R. 51 W.

2 - 15 SAND AND GRAVEL, TAN-BROWN, FINE TO COARSE SAND, FINE GRAVEL, VERY CLAYEY; MOIST, OXIDIZED, SATURATED AT 8 FEET, HIT ROCK, ABANDONED HOLE

* * * *

TEST HOLE NUMBER: 318

76
LOCATION: 121N-51W-35BBAB 2
LEGAL LOCATION: NW NE NW NW SEC. 35, T. 121 N., R. 51 W.

2 - 36 SAND AND GRAVEL, TAN-BROWN, FINE TO COARSE SAND, FINE GRAVEL, VERY CLAYEY; MOIST, OXIDIZED, SATURATED AT 6 FEET

* * *

TEST HOLE NUMBER: 319
LOCATION: 121N-52W-01BAAAD R
LEGAL LOCATION: SE NE NE NW SEC. 01, T. 121 N., R. 52 W.

2 - 26 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO COARSE GRAVEL; CLAYEY; OXIDIZED, MOIST, SATURATED AT 16 FEET

* * *

TEST HOLE NUMBER: 320
LOCATION: 121N-52W-61CBBB R
LEGAL LOCATION: NW SW NW SEC. 01, T. 121 N., R. 52 W.

3 - 13 GRAVEL, COARSE
13 - 23 SAND, MEDIUM

* * *

TEST HOLE NUMBER: 321
LOCATION: 121N-52W-02ADDA R
LEGAL LOCATION: NE SE SE NE SEC. 02, T. 121 N., R. 52 W.

0 - 23 SAND AND GRAVEL, MEDIUM TO COARSE

* * *

TEST HOLE NUMBER: 322
LOCATION: 121N-52W-02BBBA R
LEGAL LOCATION: NE NE NE SW SEC. 02, T. 121 N., R. 52 W.

0 - 15 SAND AND GRAVEL, COARSE

* * *

TEST HOLE NUMBER: 323
LOCATION: 121N-52W-02C CCC R
LEGAL LOCATION: SW SW SW SW SEC. 02, T. 121 N., R. 52 W.
4 - 16  SAND AND GRAVEL, MEDIUM TO COARSE
     * * * *
TEST HOLE NUMBER: 324
LOCATION: 121N-52W-03CCBB R
LEGAL LOCATION: SW NW SW SW SEC. 03, T. 121 N., R. 52 W.

2 - 11  SAND AND GRAVEL, MEDIUM TO COARSE
13 - 21  SAND AND GRAVEL
     * * * *
TEST HOLE NUMBER: 325
LOCATION: 121N-52W-03CCCC R
LEGAL LOCATION: SW SW SW SW SEC. 03, T. 121 N., R. 52 W.

1 - 16  SAND AND GRAVEL
     * * * *
TEST HOLE NUMBER: 326
LOCATION: 121N-52W-04RMAB R
LEGAL LOCATION: NW NE NW NW SEC. 04, T. 121 N., R. 52 W.

1 - 40  SAND AND GRAVEL, MEDIUM TO COARSE
     * * * *
TEST HOLE NUMBER: 327
LOCATION: 121N-52W-08AAAA R
LEGAL LOCATION: NE NE NE NE SEC. 08, T. 121 N., R. 52 W.

2 - 31  SAND AND GRAVEL, MEDIUM TO COARSE
     * * * *
TEST HOLE NUMBER: 328
LOCATION: 121N-52W-08DCCC R
LEGAL LOCATION: SW SW SW SE SEC. 08, T. 121 N., R. 52 W.

2 - 20  SAND AND GRAVEL, MEDIUM TO COARSE
     * * * *

78
TEST HOLE NUMBER: 329
LOCATION: 121N-52W-08DDDD R
LEGAL LOCATION: SE SE SE SE SEC. 08, T. 121 N., R. 52 W.

1 - 34 SAND, MEDIUM TO COARSE; MEDIUM GRAVEL

TEST HOLE NUMBER: 330
LOCATION: 121N-52W-13BBBA R
LEGAL LOCATION: NE NW NW NW SEC. 13, T. 121 N., R. 52 W.

27 - 27 SAND AND GRAVEL, BROWN, MEDIUM TO COARSE

TEST HOLE NUMBER: 331
LOCATION: 122W-52W-16DCCC R
LEGAL LOCATION: SW SW SW SE SEC. 16, T. 121 N., R. 52 W.

0 - 5 SAND AND GRAVEL, LIGHT-TAN-BROWN, FINE TO COARSE SAND, FINE GRAVEL, CLAYEY; OXIDIZED, SLIGHTLY MOIST
5 - 24 SAND AND GRAVEL, BROWN, FINE TO COARSE SAND, FINE TO MEDIUM GRAVEL, CLAYEY; OXIDIZED, SATURATED

TEST HOLE NUMBER: 332
LOCATION: 121N-52W-17BBBC R
LEGAL LOCATION: SW NW NW NW SEC. 17, T. 121 N., R. 52 W.

4 - 30 GRAVEL

TEST HOLE NUMBER: 333
LOCATION: 121N-52W-18DDBB R
LEGAL LOCATION: NW NW SE SE SEC. 18, T. 121 N., R. 52 W.

10 - 40 GRAVEL

TEST HOLE NUMBER: 334
LOCATION: 121N-52W-19BBBA R
LEGAL LOCATION: NE NW NW NW SEC. 19, T. 121 N., R. 52 W.

1 -  5  SAND, LIGHT-BROWN, SILTY, PEBBLY; DRY, OXIDIZED
5 - 12  GRAVEL, BROWN, SILTY, SANDY; OXIDIZED, DRY
12 - 21  SAND AND GRAVEL, RED-BROWN, SILTY; DRY, OXIDIZED

* * * *

TEST HOLE NUMBER: 335
LOCATION: 121N-52W-19BCCA R
LEGAL LOCATION: NE SW SW NW SEC. 19, T. 121 N., R. 52 W.

3 -  10  SAND, TAN-BROWN, CLAYEY, SILTY; OXIDIZED, WET

* * * *

TEST HOLE NUMBER: 336
LOCATION: 121N-52W-19CCBA R
LEGAL LOCATION: NE NW SW SW SEC. 19, T. 121 N., R. 52 W.

0 -  3  SANDE AND GRAVEL, LIGHT-BROWN; OXIDIZED, DRY
3 -  10  GRAVEL, LIGHT-BROWN; SOME SAND, OXIDIZED, DRY
10 -  15  GRAVEL, BROWN, CLAYEY; SOME SAND, DRY, OXIDIZED, HIT ROCK, ABANDONED HOLE

* * * *

TEST HOLE NUMBER: 337
LOCATION: 121N-52W-20BBSA R
LEGAL LOCATION: NE NW NW NW SEC. 20, T. 121 N., R. 52 W.

14 -  15  SAND AND GRAVEL

* * * *

TEST HOLE NUMBER: 338
LOCATION: 121N-52W-20BCCB R
LEGAL LOCATION: NW SW SW NW SEC. 20, T. 121 N., R. 52 W.

18 -  33  SAND AND GRAVEL, DARK-GRAY, COARSE SAND, FINE GRAVEL, CLAYEY; UNOXIDIZED.
Saturated

* * * *

TEST HOLE NUMBER: 339
LOCATION: 121N-52W-20CHBB R
LEGAL LOCATION: NW NW NW SW SEC. 20, T. 121 N., R. 52 W.

3 - 10 SAND AND GRAVEL, TAN-BROWN, FINE TO
COARSE SAND, FINE TO MEDIUM GRAVEL,
CLAYEY, MOIST, OXIDIZED

10 - 27 SAND AND GRAVEL, TAN-BROWN, FINE TO
COARSE SAND, FINE GRAVEL, CLAYEY;
OXIDIZED, SATURATED

* * * *

TEST HOLE NUMBER: 340
LOCATION: 121N-52W-21BBBB R
LEGAL LOCATION: NW NW NW NW SEC. 21, T. 121 N., R. 52 W.

2 - 19 SAND, MEDIUM TO COARSE

* * * *

TEST HOLE NUMBER: 341
LOCATION: 121N-52W-21CCCC R
LEGAL LOCATION: SW SW SW SW SEC. 21, T. 121 N., R. 52 W.

2 - 4 GRAVEL, COARSE
4 - 6 GRAVEL

* * * *

TEST HOLE NUMBER: 342
LOCATION: 121N-52W-22CCCC R
LEGAL LOCATION: SW SW SW SW SEC. 22, T. 121 N., R. 52 W.

4 - 11 SAND AND GRAVEL, MEDIUM TO COARSE

* * * *

TEST HOLE NUMBER: 343
LOCATION: 121N-52W-23BBBC R
LEGAL LOCATION: SW NW NW NW SEC. 23, T. 121 N., R. 52 W.

1 - 9 SAND AND GRAVEL, COARSE
TEST HOLE NUMBER: 344  
LOCATION: 121N-52W-28BBBB  
LEGAL LOCATION: NW NW NW NW SEC. 28, T. 121 N., R. 52 W.  

2 - 3 GRAVEL  

TEST HOLE NUMBER: 345  
LOCATION: 121N-52W-29BCBC  
LEGAL LOCATION: SW SW NW SW SEC. 29, T. 121 N., R. 52 W.  

2 - 28 SAND AND GRAVEL, MEDIUM TO COARSE  

TEST HOLE NUMBER: 346  
LOCATION: 121N-52W-33AAAA  
LEGAL LOCATION: NE NE NE NE SEC. 33, T. 121 N., R. 52 W.  

1 - 7 SAND AND GRAVEL  
7 - 45 SAND, COARSE  

TEST HOLE NUMBER: 347  
LOCATION: 121N-52W-33DEBB  
LEGAL LOCATION: NW NW SE SE SEC. 33, T. 121 N., R. 52 W.  

5 - 14 GRAVEL
TABLE 2. List of sand and gravel pits in Grant County, South Dakota, on file at the Department of Transportation, Division of Highways, Pierre, South Dakota.

EXPLANATION:

Column Description:

a. Landowner and address
b. Location - given in half and quarter sections, section number, township, and range
c. Aggregate type
d. Average thickness of deposits in feet
e. Average thickness of overburden in feet.

<table>
<thead>
<tr>
<th>Pit 1</th>
<th>Landowner: Russel Peterson - Revillo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location: SW 1/4 sec. 7, T. 118 N., R. 48 W.</td>
</tr>
<tr>
<td></td>
<td>Aggregate type: Gravel</td>
</tr>
<tr>
<td></td>
<td>Deposit thickness (ft): -----</td>
</tr>
<tr>
<td></td>
<td>Overburden thickness (ft): -----</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pit 2</th>
<th>Landowner: Gilbert and Beryl Piilntzke - Revillo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location: SE 1/4 sec. 8, T. 118 N., R. 48 W.</td>
</tr>
<tr>
<td></td>
<td>Aggregate type: Gravel</td>
</tr>
<tr>
<td></td>
<td>Deposit thickness (ft): 4</td>
</tr>
<tr>
<td></td>
<td>Overburden thickness (ft): 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pit 3</th>
<th>Landowner: Harry Tucholke - Revillo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location: NE 1/4 sec. 17, T. 118 N., R. 48 W.</td>
</tr>
<tr>
<td></td>
<td>Aggregate type: Gravel</td>
</tr>
<tr>
<td></td>
<td>Deposit thickness (ft): -----</td>
</tr>
<tr>
<td></td>
<td>Overburden thickness (ft): -----</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pit 4</th>
<th>Landowner: John Callahan - Revillo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location: NW 1/4 sec. 17, T. 118 N., R. 48 W.</td>
</tr>
<tr>
<td></td>
<td>Aggregate type: Gravel</td>
</tr>
<tr>
<td></td>
<td>Deposit thickness (ft): 8</td>
</tr>
<tr>
<td></td>
<td>Overburden thickness (ft): 1.5</td>
</tr>
</tbody>
</table>

83
Pit 5
a. Landowner: William Benshoof - Revillo
b. Location: NE 1/4 sec. 18, T. 118 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 6
a. Landowner: Leo Ahartz
b. Location: SE 1/4 sec. 31, T. 118 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 7
a. Landowner: J. Pess
b. Location: SE 1/4 sec. 34, T. 118 N., R. 49 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 8
a. Landowner: Walt Lindberg
b. Location: SE 1/4 SE 1/4 sec. 5, T. 118 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 9
a. Landowner: Donald Misener - Strandberg
b. Location: NE 1/4 SW 1/4 sec. 16, T. 118 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 10
a. Landowner: Donald Misener - Strandberg
b. Location: NW 1/4 SE 1/4 sec. 16, T. 118 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 11
a. Landowner: August and F. Lumbert
b. Location: SW 1/4 sec. 23, T. 118 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----
Pit 12
  a. Landowner: Erna Adleman - Milbank
  b. Location: NW 1/4 sec. 4, T. 119 N., R. 47 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 8
  e. Overburden thickness (ft): 3

Pit 13
  a. Landowner: Albert Radke
  b. Location: SE 1/4 sec. 5, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 14
  a. Landowner: C. F. Anderson - Watertown
  b. Location: NE 1/4 NE 1/4 sec. 7, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 10
  e. Overburden thickness (ft): 1

Pit 15
  a. Landowner: Ralph Leddy - Twin Brooks
  b. Location: N 1/2 NE 1/4 sec. 8, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 16
  a. Landowner: Albert Rehn - Twin Brooks
  b. Location: NW 1/4 sec. 8, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 8
  e. Overburden thickness (ft): 2

Pit 17
  a. Landowner: Ralph Leddy - Twin Brooks
  b. Location: N 1/2 NW 1/4 sec. 8, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 18
  a. Landowner: Arly Jacobs - Milbank
  b. Location: N 1/2 NW 1/4 sec. 8, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----
Pit 19
  a. Landowner: Albert Rehn - Twin Brooks
  b. Location: SW 1/4 sec. 8, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 20
  a. Landowner: Estella Lundquist - Stockholm
  b. Location: SE 1/4 sec. 17, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 7.2
  e. Overburden thickness (ft): 1.6

Pit 21
  a. Landowner: Ossia Johnson - Labolt
  b. Location: SW 1/4 sec. 27, T. 119 N., R. 49 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 11
  e. Overburden thickness (ft): 1

Pit 22
  a. Landowner: F. Strege - Milbank
  b. Location: NW 1/4 sec. 18, T. 120 N., R. 47 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): 8
  e. Overburden thickness (ft): 1

Pit 23
  a. Landowner: Dakota Granite - Milbank
  b. Location: N 1/2 SW 1/4 sec. 18, T. 120 N., R. 47 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 24
  a. Landowner: Grant County - Milbank
  b. Location: NW 1/4 NW 1/4 sec. 33, T. 120 N., R. 47 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

Pit 25
  a. Landowner: W. M. Connor - Milbank
  b. Location: SW 1/4 sec. 3, T. 120 N., R. 50 W.
  c. Aggregate type: Gravel
  d. Deposit thickness (ft): ----
  e. Overburden thickness (ft): ----

86
Pit 26

a. Landowner: ----

b. Location: NW 1/4 sec. 10, T. 120 N., R. 50 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 27

a. Landowner: Kathryn and Bernard T. Lee - Summit

b. Location: W 1/2 SW 1/4 sec. 6, T. 120 N., R. 51 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 28

a. Landowner: Grant County - Milbank

b. Location: S 1/2 NW 1/4 sec. 8, T. 120 N., R. 51 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 29

a. Landowner: Eugene Beuer - Summit

b. Location: SE 1/4 sec 8, T. 120 N., R. 51 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 30

a. Landowner: Clayton Meyers - Summit

b. Location: SW 1/4 sec. 9, T. 120 N., R. 51 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 31

a. Landowner: Grant County - Milbank

b. Location: SE 1/4 NE 1/4 sec. 11, T. 120 N., R. 51 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): ----

e. Overburden thickness (ft): ----

Pit 32

a. Landowner: G. A. Reynolds

b. Location: SW 1/4 sec. 2, T. 120 N., R. 52 W.

c. Aggregate type: Gravel

d. Deposit thickness (ft): 10

e. Overburden thickness (ft): 2
Pit 33
a. Landowner: H. J. Markve - Ortley
b. Location: SE 1/4 SW 1/4 sec. 20, T. 120 N., R. 52 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 14
e. Overburden thickness (ft): 1

Pit 34
a. Landowner: ----
b. Location: SW 1/4 SE 1/4 sec. 20, T. 120 N., R. 52 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 12
e. Overburden thickness (ft): 1.5

Pit 35
a. Landowner: Clayton and Marilyn Heuer - Summit
b. Location: SW 1/4 sec. 27, T. 120 N., R. 52 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 36
a. Landowner: ----
b. Location: NE 1/4 sec. 7, T. 121 N., R. 46 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 37
a. Landowner: H. Leonard - Big Stone City
b. Location: SW 1/4 sec. 18, T. 121 N., R. 46 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 38
a. Landowner: Roy Hoffbeck - Big Stone City
b. Location: NE 1/4 sec. 19, T. 121 N., R. 46 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 8
e. Overburden thickness (ft): 2

Pit 39
a. Landowner: Francis Korstjens - Big Stone City
b. Location: NE 1/4 sec. 17, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----
Pit 40
a. Landowner: Francis Korstjens - Big Stone City
b. Location: SW 1/4 sec. 17, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 41
a. Landowner: Francis Korstjens - Big Stone City
b. Location: SE 1/4 sec. 17, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 42
a. Landowner: Duane Trapp - Milbank
b. Location: NW 1/4 sec. 20, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 43
a. Landowner: Lena Stamp - Ortonville, Minnesota
b. Location: W 1/2 NW 1/4 sec. 24, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 44
a. Landowner: Lena Stamp - Ortonville, Minnesota
b. Location: NW 1/4 SW 1/4 sec. 27, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 45
a. Landowner: Mabelle Upton - Aberdeen
b. Location: SW 1/4 SE 1/4 sec. 27, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 98
e. Overburden thickness (ft): 2.1

Pit 46
a. Landowner: Harvey Sackreiter - Milbank
b. Location: SE 1/4 sec. 28, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----
Pit 47
a. Landowner: Mike Schlesman - Milbank
b. Location: NW 1/4 sec. 31, T. 121 N., R. 47 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 48
a. Landowner: Lillian Steltz, Milbank
b. Location: SE 1/2 NE 1/4 sec. 3, T. 121 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ---

Pit 49
a. Landowner: Lillian Steltz - Milbank
b. Location: N 1/2 SE 1/4 sec. 3, T. 121 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 15
e. Overburden thickness (ft): 1

Pit 50
a. Landowner: Lillian Steltz - Milbank
b. Location: SE 1/4 sec. 3, T. 121 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 51
a. Landowner: Phil H. Mueller - Milbank
b. Location: SE 1/4 sec. 12, T. 121 N., R. 48 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 52
a. Landowner: Gerald Christensen - Marvin
b. Location: SW 1/4 NE 1/4 sec. 14, T. 121 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 53
a. Landowner: Gerald Christensen - Marvin
b. Location: S 1/2 sec. 14, T. 121 N., R. 50 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----
Pit 54
a. Landowner: Harvey and Myla Kneeland - Summit
b. Location: SE 1/4 sec. 7, T. 121 N., R. 51 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 55
a. Landowner: C. Meyers - Summit
b. Location: SW 1/4 sec. 9, T. 121 N., R. 51 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): 12
e. Overburden thickness (ft): 1

Pit 56
a. Landowner: Erwin E. Beskow - Summit
b. Location: NW 1/4 sec. 10, T. 121 N., R. 51 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 57
a. Landowner: Otto Nelson - Summit
b. Location: NE 1/4 sec. 19, T. 121 N., R. 51 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----

Pit 58
a. Landowner: Merle Amdahl - Ortley
b. Location: NW 1/4 sec. 34, T. 121 N., R. 52 W.
c. Aggregate type: Gravel
d. Deposit thickness (ft): ----
e. Overburden thickness (ft): ----
Good probability of finding sand or gravel deposits.

Fair probability of finding sand or gravel deposits.

Poor probability of finding sand or gravel deposits.

p-Cg Milbank Granite

Letters A through H designate areas described in the text.

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

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

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

Gravel pit; those with a number are listed in Table 2.

Map showing test holes, gravel pits, Milbank granite exposures, and sand and gravel deposits in Grant County.