1998

Colfax County Test Hole Logs

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COLFAX COUNTY
Test-Hole Logs

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Nebraska Water Survey
Test-Hole Report No. 19

Conservation and Survey Division
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

April 1990
Revised October 1998

UNIVERSITY OF NEBRASKA-LINCOLN

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The division is authorized to enter into agreements with federal agencies to engage in cooperative surveys and investigations in the state. Publications of the division and the cooperating agencies are available from the Conservation and Survey Division, University of Nebraska, Lincoln, Nebraska 68588-0517.

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Publication and price lists are furnished upon request.

April 1990
Revised October 1998

ACKNOWLEDGMENTS

The authors gratefully acknowledge the contributions of the following Conservation and Survey Division personnel for production of this test-hole log book: Duane Mohlman for computer assistance, Melba Stemm for typing the logs, and Dee Ebbeka for drafting the illustrations.

INTRODUCTION

In 1930, the Conservation and Survey Division of the University of Nebraska and the U.S. Geological Survey began a program of cooperative groundwater studies in Nebraska. Since then test drilling by use of rotary drilling equipment has been an integral part of that program. This report contains logs of all the test holes drilled in the county under the program as well as those drilled by the Conservation and Survey Division with financial assistance from other government agencies.

The map in this report shows the location of all test holes drilled in the county since 1930.

Present techniques of test-hole logging and sampling include use of drilling mud suitable to drilling conditions, timing by stopwatch of the drilling of each 5-foot increment of depth, and removal of all cuttings from the test hole at intervals of 5 feet or less. During the drilling of the hole, cuttings from each interval are examined immediately; samples representing each 5-foot interval and each recognizable change in material are retained. After samples are washed, they are described lithologically and the color is evaluated by comparison with standard color charts. The samples then are dried, stored, and cataloged. Beginning in September 1951, the test holes have been logged electrically. All samples are processed and kept on open file in the offices of Conservation and Survey Division, 113 Nebraska Hall, University of Nebraska-Lincoln, 68588.

This publication is one of a series being issued to make more readily available the record of test holes drilled since 1930. The series of publications is made on a county basis and includes, with some exceptions, logs of all test holes drilled in each of the counties. The logs have not been reviewed for conformance with editorial standards and nomenclature.

The method whereby the altitude of the land surface at test-hole sites was determined is indicated in the heading of each log, as follows: a = altimeter, h = hand leveling, i = spirit leveling, t = estimated from topographic map.

The test-hole records accurately reflect subsurface conditions only at the locations where the test holes were drilled. Interpretive data reflecting probable subsurface conditions between test-holes are being compiled for publication in county reports and are available for inspection in the office of the Conservation and Survey Division.

Each test hole is identified by a number assigned in the field (for example #3-B-67, #41-79), and most are also identified by a number indicating its location within the land divisions of the U.S. Bureau of Land Management's survey of Nebraska. Location numbers of test holes east of the 6th principal meridian, which passes through Columbus in a north-south direction, are preceded by the capital letter A; those west of the principal meridian have no preceding letter. The first numeral indicates the township, the second the range, and the third the section. As shown in figure 1, the letters that follow the section number indicate the location of the test hole within the section, the first letter indicating the quarter section and the second letter indicating the quarter-quarter section. The letters A, B, C, and D are applied in counterclockwise direction beginning with A in the northeast quadrant. The last numeral is the serial number of the test hole within the quarter-quarter section. No number is shown unless more than one test hole is within the given quarter-quarter section.

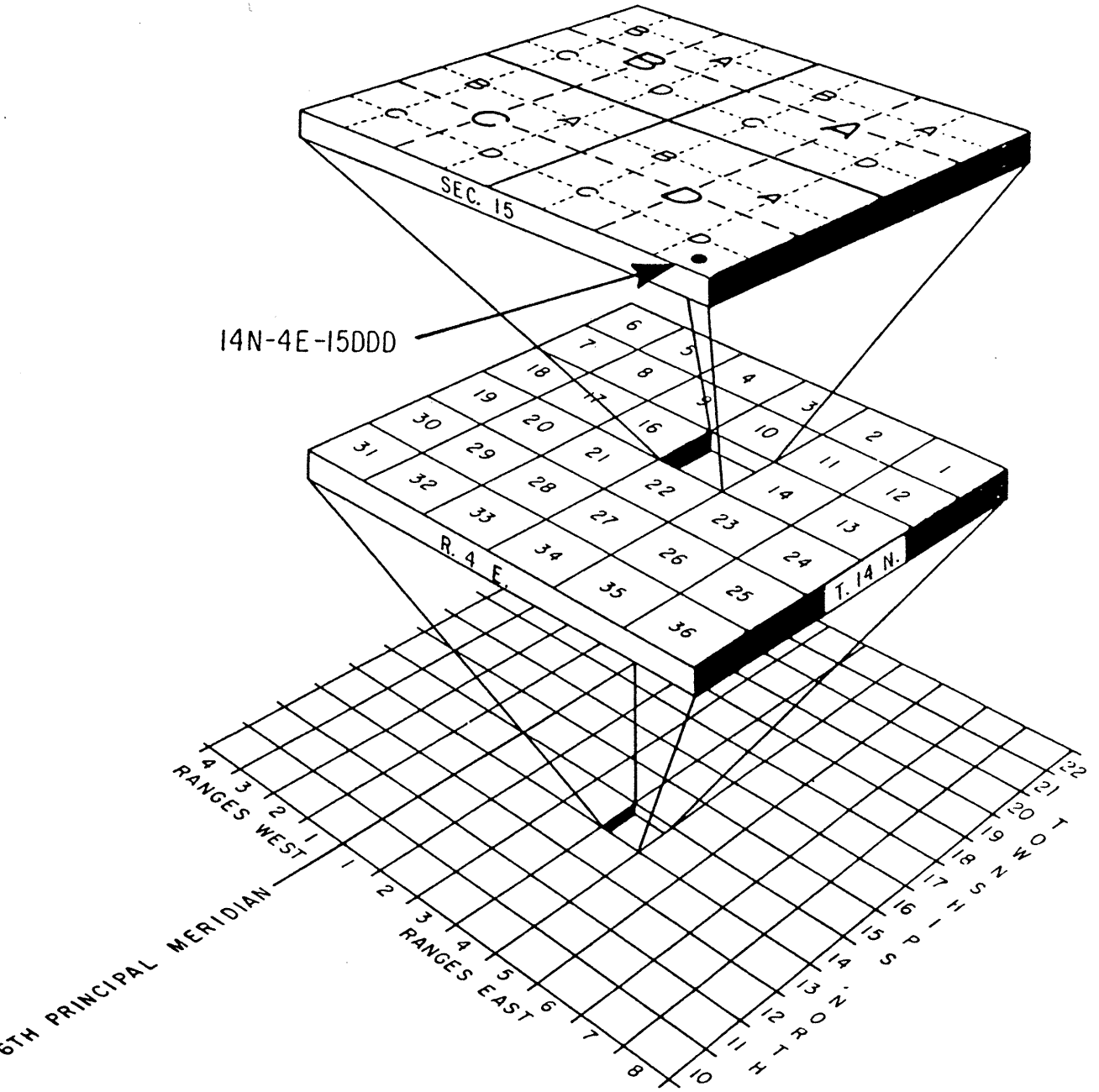

Fig. 1. System for identifying test-holes according to their location.

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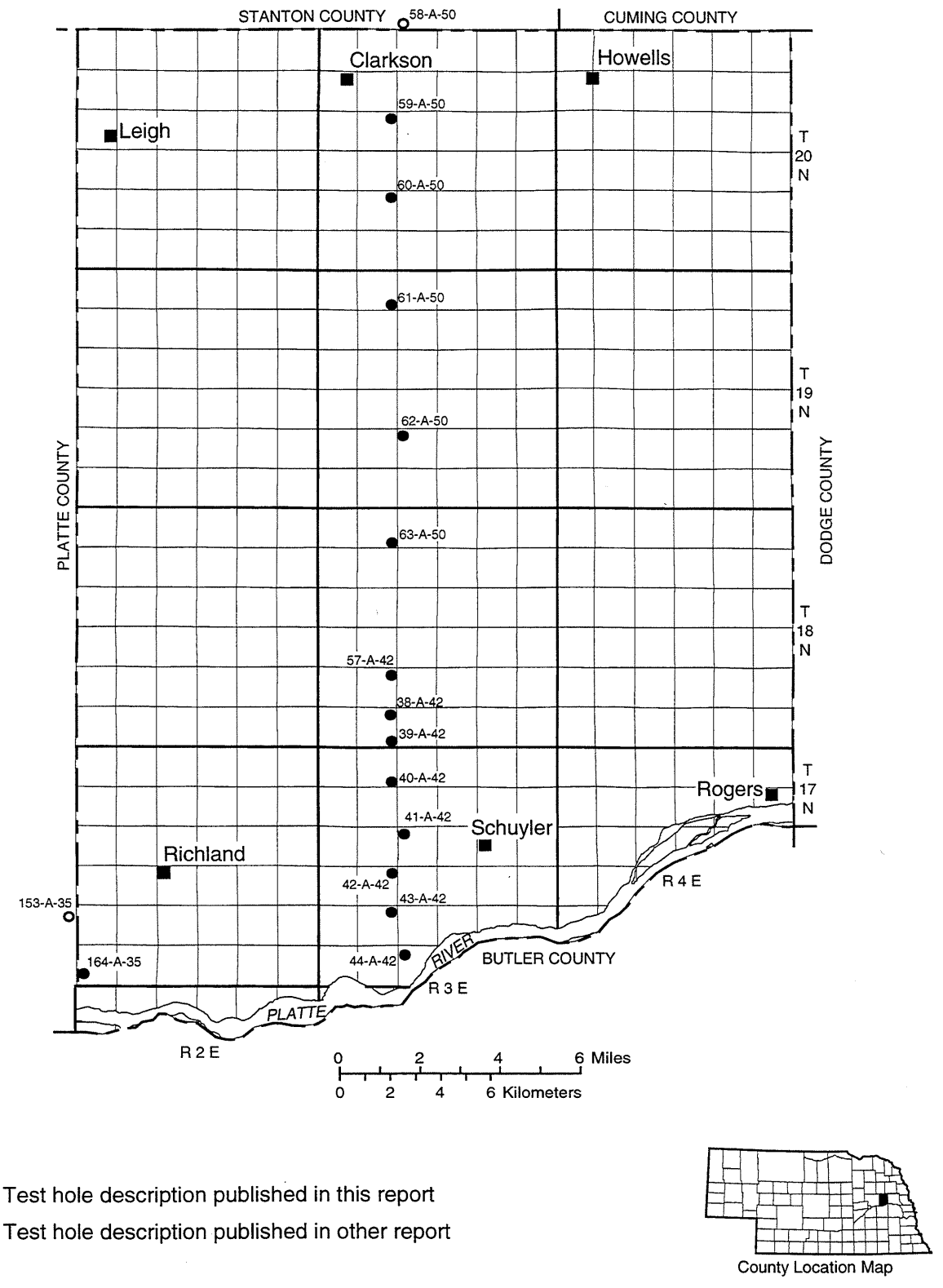
Test hole logs are arranged in this publication by township, range and section.



● Test hole description published in this report

○ Test hole description published in other report

County Location Map

Fig. 2. Test-hole location map of Colfax County.

Test Hole #164-A-35
(A17-1-31bccc)
Colfax County

Location: SW corner NW sec. 31, T. 17 N., R. 1 E.
Ground elevation: 1,407.0 ft. (t). (Columbus 7.5 min. quadrangle)
Depth to water : 7.31 ft. (9-9-35).

No sample description
Total depth: 12.0 ft.

Test Hole #40-A-42
(A17-3-5dddd)
Colfax County

Location: SE corner sec. 5, T. 17 N., R. 3 E., approximately 75 feet north of southeast corner.
Ground elevation: 1,372.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 6.5 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill	0.0	4.0
Silt, clayey, black	4.0	6.0
Silt, clayey, dark gray to black	6.0	8.0
Clay, sandy, light gray	8.0	15.0
Sand and gravel, red, texture grades from sand to coarse gravel	15.0	20.0
Gravel, red, texture grades from fine to coarse	20.0	25.0
Sand and gravel, red, texture grades from sand to coarse gravel	25.0	40.0
Gravel, red, texture grades from fine to coarse	40.0	52.0
Sand and gravel, red, texture grades from sand to coarse gravel	52.0	58.0
Gravel, red with some black stain, texture grades from fine to very coarse	58.0	63.0
Gravel, red with some black stain, coarse texture	63.0	66.0
Clay, tan	66.0	67.0
Clay, green	67.0	71.0
Clay, greenish gray to light gray	71.0	72.0
Clay, dark gray, micaceous	72.0	75.0
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, black	75.0	78.0
Shale, greenish gray	78.0	80.0
Greenhorn Formation:		
Limestone, contains shell fragments	80.0	81.0
Chalk	81.0	82.5
Shale, chalky, yellow	82.5	84.0
Limestone, contains shell fragments	84.0	84.5
Chalk to limestone	84.5	87.0
Limestone, yellow	87.0	88.0
Limestone, tan	88.0	88.5
Limestone, tan, contains shell fragments below 90.0	88.5	93.0
Chalk, white	93.0	94.5
Limestone, tan, contains shell fragments	94.5	95.5
Chalk, white	95.5	97.0
Limestone, tan, contains shell fragments	97.0	97.5
Chalk or limestone	97.5	98.5
Limestone	98.5	99.0

Test Hole #41-A-42
(A17-3-16bbbc)
Colfax County

Location: SW NW NW NW sec. 16, T. 17 N., R. 3 E., approximately 430 feet south of northwest corner.
Ground elevation: 1,366.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 6.0 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill and soil, sandy, dark brown	0.0	5.0
Sand, silty, brown	5.0	8.0
Sand, silty, gray	8.0	10.0
Gravel, red, texture grades from fine to medium with some coarse	10.0	20.0
Sand and gravel, red, texture grades from sand to coarse gravel	20.0	28.0
Gravel, red, texture grades from fine to coarse	28.0	41.0
Sand and gravel, red, texture grades from sand to fine gravel	41.0	43.0
Sand and gravel, red, texture grades from sand to coarse gravel, finer from 47.0 to 52.0 ft	43.0	55.0
Gravel, red and some green, coarse texture	55.0	60.0
Gravel, red and green, texture grades from medium to coarse	60.0	64.0
Gravel, red and green, coarse texture, contains pebbles	64.0	71.0
Gravel, red and green, very coarse texture, contains boulders	71.0	75.0
Clay, tan	75.0	76.0
Clay, green	76.0	84.0
Clay, tan	84.0	85.0
Gravel, red, texture grades from fine to coarse	85.0	97.0
Clay, greenish gray	97.0	104.0
Clay, tan	104.0	108.0
Clay, brownish black, micaceous	108.0	114.0
Clay, silty, black	114.0	121.0
Clay, dark gray to black	121.0	133.0
Clay, gray to greenish black	133.0	138.0
Clay, light gray	138.0	140.0
Clay, light to dark gray	140.0	153.0
Gravel, green, contains limestone chips	153.0	155.0
Clay, dark brownish gray	155.0	156.0
Gravel, green, contains limestone chips	156.0	158.5
Clay, dark brownish gray	158.5	160.0
Gravel, green, fine texture, contains limestone pebbles and chips	160.0	163.0
Cretaceous System - Lower Cretaceous Series - Dakota Group:		
Clay or shale, greenish gray to dark gray	163.0	166.0

Shale, dark grayish brown to black	166.0	170.0
Shale, black, very carbonaceous	170.0	172.0
Shale, dark gray to brown	172.0	175.0
Shale, dark grayish brown, contains marcasite and limestone chips	175.0	178.0
Limestone, dark brown	178.0	178.5
Shale, dark to brownish gray, contains marcasite	178.5	186.5
limestone, dark brown	186.5	186.8
Shale, dark grayish brown, contains thin limestone or marcasite layers	186.8	193.0
Sandstone, dark brown	193.0	194.0

Test Hole #42-A-42
(A17-3-20aaaa)
Colfax County

Location: NE corner sec. 20, T. 17 N., R. 3 E., approximately 90 feet west of northeast corner.
Ground elevation: 1,360.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 5.9 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill and soil: silt, sandy, dark brown.....	0.0	2.5
Sand, buff, contains some clay.....	2.5	5.0
Sand.....	5.0	8.0
Gravel, red, texture grades from fine to coarse.....	8.0	35.0
Gravel, red and green, texture grades from fine to coarse.....	35.0	39.0
Gravel, red and green, texture grades from fine to medium.....	39.0	46.0
Gravel, red and green, texture grades from fine to coarse.....	46.0	52.0
Sand and gravel, red, texture grades from sand to medium gravel.....	52.0	61.0
Gravel, red, texture grades from fine to coarse.....	61.0	70.0
Sand and gravel, red and green, texture grades from sand to coarse gravel.....	70.0	80.0
Clay, brownish gray.....	80.0	84.0
Clay, green.....	84.0	85.0
Gravel, red, texture grades from fine to medium.....	85.0	89.5
Clay, gray and brown.....	89.5	99.0
Clay, dark gray to black.....	99.0	106.0
Clay, silty, light to dark gray.....	106.0	122.0
Gravel, principally limestone fragments.....	122.0	125.0
Clay, silty, dark brown to black, contains shell fragments.....	125.0	151.5
Cretaceous System - Lower Cretaceous Series - Dakota Group:		
Limestone and shale, sandy, brown.....	151.5	154.0
Shale, sandy, brown, contains marcasite.....	154.0	162.0
Shale, black, carbonaceous.....	162.0	163.0
Shale, sandy, brownish gray, contains a thin carbonaceous layer at 167.0 ft., contains marcasite.....	163.0	170.0
Shale, sandy, brown, contains marcasite layers.....	170.0	186.0
Shale, sandy, grayish brown.....	186.0	189.0
Limestone to sandstone, brown, contains marcasite...	189.0	190.0
Shale, grayish brown, contains marcasite.....	190.0	195.0
Shale, sandy, brown, contains thin carbonaceous layer from 195.0 to 200.0 ft.....	195.0	224.0
Shale, light tan to gray.....	224.0	229.0
Shale, light brown.....	229.0	230.0

Shale, dark reddish brown to black, contains thin carbonaceous layer.....	230.0	238.0
Shale, dark reddish brown, contains carbonaceous layers and a thin coal layer.....	238.0	240.0

Test Hole #43-A-42
(A17-3-29aaaa)
Colfax County

Location: NE corner sec. 29, T. 17 N., R. 3 E., approximately 75 feet west of northeast corner.
Ground elevation: 1,362.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 9.8 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill and soil: silt, sandy, dark brown.....	0.0	4.0
Sand, reddish brown.....	4.0	7.0
Sand and gravel, red, texture grades from sand to medium gravel.....	7.0	23.0
Gravel, red, texture grades from fine to coarse.....	23.0	26.0
Sand and gravel, red, texture grades from sand to coarse gravel.....	26.0	34.0
Clay, tan.....	34.0	35.0
Gravel, red, texture grades from fine to coarse.....	35.0	40.0
Sand and gravel, texture grades from sand to fine gravel.....	40.0	56.0
Clay, sandy, limonitic-stained.....	56.0	57.5
Gravel, red, texture grades from fine to coarse.....	57.5	59.0
Sand and some gravel, red, texture grades from sand to fine gravel.....	59.0	62.0
Clay, sandy, tan.....	62.0	69.5
Sand and gravel, red, texture grades from sand to coarse gravel.....	69.5	77.0
Clay, grayish tan.....	77.0	81.0
Clay, dark gray to black.....	81.0	85.0
Clay, medium gray.....	85.0	100.0
Clay, dark gray to black, contains shell fragments..	100.0	109.0
Limestone pebbles.....	109.0	110.0
Clay, silty, light greenish gray, contains small limy fragments, contains limestone pebbles at 117.5 ft. and 122.0 ft.....	110.0	124.0
Limestone pebbles, contains shell fragments.....	124.0	126.0
Silt, gray.....	126.0	129.5
Limestone pebbles.....	129.5	134.0
Silt, black.....	134.0	135.0
Limestone pebbles.....	135.0	136.0
Cretaceous System - Lower Cretaceous Series - Dakota Group:		
Shale, dark gray to black.....	136.0	140.0
Shale, brownish gray, contains black carbonaceous layer.....	140.0	143.0
Shale, brownish gray, contains thin hard layers.....	143.0	147.0

Shale, brownish gray, contains carbonaceous layers or very thin coal layers.....	147.0	150.0
Shale, brownish gray, contains thin hard streaks at 154.0 ft., 157.0 ft. and 159.0 ft.....	150.0	160.0

Test Hole #44-A-42
(A17-3-33bbcc)
Colfax County

Location: SW corner NW NW sec. 33, T. 17 N., R. 3 E., approximately 1,310 feet south of northeast corner.
Ground elevation: 1,358.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 2.7 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Soil, sandy	0.0	2.0
Sand, red, fine texture	2.0	4.0
Sand and gravel, red and green, texture grades from sand to fine gravel	4.0	9.0
Sand and gravel, green and red	9.0	18.5
Gravel, green and red, contains some pebbles or boulders	18.5	35.5
Clay, sandy	35.5	37.0
Gravel, red, texture grades from fine to medium with some coarse, contains some green gravel in upper part	37.0	50.0
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Greenhorn Formation:		
Shale, chalky, yellow	50.0	53.5
Limestone, yellow	53.5	54.0
Chalk	54.0	57.0
Limestone, yellow, contains shell fragments, contains chalk from 63.0 to 64.0 ft	57.0	67.0
Limestone, yellow to gray	67.0	69.0
Graneros Formation:		
Shale, dark gray to black, calcareous, contains white to yellow specks	69.0	81.0
Shale, dark gray to black	81.0	82.0
Shale, dark gray to brownish black, in part specked white	82.0	90.0

Test Hole #63-A-50
(A18-3-5ddda)
Colfax County

Location: NE SE SE SE sec. 5, T. 18 N., R. 3 E., approximately 384 feet north and 36 feet west of southeast corner.
Ground elevation: 1,495.0 ft. (t) (Clarkson SE 7.5 min. quadrangle)
Depth to water: 69.7 ft. (11-20-50).

	Depth, in feet	
	From	To
Quaternary System, undifferentiated:		
Soil: silt, dark gray	0.0	1.0
Silt, medium grayish brown	1.0	1.5
Clay, silty, medium grayish brown	1.5	3.5
Silt, light yellowish brown, slightly to moderately calcareous below 10.0 ft	3.5	30.0
Silt, slightly clayey, soil-like, light reddish brown	30.0	31.0
Clay, silty, medium reddish brown, lighter below 35.0 ft., contains more silt below 40.0 ft	31.0	45.0
Silt, slightly clayey, light reddish gray, in part dark gray below 48.0 ft	45.0	50.0
Clay, silty, light grayish brown, contains a trace of very fine to fine sand	50.0	55.0
Silt, slightly clayey to sandy, light gray, contains very fine sand	55.0	60.0
Silt, sandy, light gray, contains very fine sand	60.0	66.0
Silt, sandy, to sand, silty, light gray, texture of sand grades from very fine to coarse with some fine gravel	66.0	70.0
Sand and silt, interbedded, light gray, contains some pelecypod fragments, texture of sand grades from very fine to coarse with some fine gravel, coarser below 75.0 ft	70.0	83.0
Till: clay, silty to sandy to gravelly, moderately calcareous, medium gray, contains a few limy fragments from 85.0 to 90.0 ft., very calcareous below 95.0 ft	83.0	109.0
Sand, texture grades from very fine to fine, contains a trace of medium sand below 115.0 ft., contains some coarse sand below 125.0 ft., contains some fine gravel below 135.0 ft	109.0	142.5
Silt, moderately calcareous, light bluish gray, moderately clayey and very calcareous below 145.0 ft.	142.5	148.5
Silt, slightly calcareous, dark brown, contains peat	148.5	150.0
Silt, gray, contains a trace of peat	150.0	155.0
Sand and gravel, texture grades from medium sand to medium gravel	155.0	158.0

Cretaceous System - Upper Cretaceous Series - Colorado Group:

Carlile Formation:

Limestone, contains some pelecypod shells.....	158.0	160.0
Limestone, interbedded with dark gray shale.....	160.0	162.0
Shale, clayey, very calcareous, dark gray.....	162.0	170.0

Test Hole #37-A-42
(A18-3-29aadd)
Colfax County

Location: SE corner NE NE sec. 29, T. 18 N., R. 3 E., approximately 1,245 feet south of northeast corner.
Ground elevation: 1,419.0 ft. (i) (Clarkson SE 7.5 min. quadrangle)
Depth to water: 42.8 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill and soil, clayey, dark brown	0.0	2.0
Silt, to clay, buff	2.0	5.5
Clay, sandy to silty, buff, contains limy pebbles and gravel	5.5	10.0
Clay, silty, buff	10.0	18.0
Clay, silty, buff to brown	18.0	38.0
Silt to sand, silty, buff, limonitic-stained	38.0	44.0
Silt, buff, and gravel, red, fine texture gravel	44.0	49.0
Gravel, black and red, texture grades from fine to medium with some coarse	49.0	53.5
Clay, buff	53.5	54.5
Gravel, red, texture grades from fine to medium with some coarse	54.5	65.0
Gravel, red, texture grades from fine to coarse	65.0	74.0
Sand and gravel, red, texture grades from sand to fine gravel	74.0	96.0
Gravel, red, texture grades from fine to medium	96.0	100.0
Sand and gravel, red, texture grades from sand to medium gravel	100.0	110.0
Gravel, red, texture grades from fine to coarse	110.0	117.0
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, tan	117.0	125.0
Shale, yellow with iron-stain	125.0	127.0
Shale, grayish tan, contains aragonite	127.0	128.5
Limestone	128.5	129.0
Shale, black	129.0	135.0

Test Hole #38-A-42
(A18-3-32aaaa)
Colfax County

Location: NE corner sec. 32, T. 18 N., R. 3 E., approximately 75 feet south of northeast corner.
Ground elevation: 1,388.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 14.0 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill	0.0	2.0
Soil, silty, black	2.0	6.0
Silt, clayey, dark brown to black	6.0	8.0
Clay, dark brown to black and gray	8.0	10.0
Clay, silty, buff	10.0	18.0
Sand and gravel, texture grades from sand to fine gravel	18.0	22.0
Sand and gravel, red, texture grades from sand to medium gravel	22.0	28.0
Gravel, red, texture grades from fine to coarse	28.0	46.0
Sand and gravel, texture grades from sand to coarse gravel	46.0	58.0
Gravel, red, texture grades from fine to coarse	58.0	60.0
Clay, grayish tan	60.0	62.0
Gravel, red, texture grades from fine to coarse	62.0	65.0
Clay, black	65.0	66.5
Gravel, red, texture grades from fine to coarse	66.5	70.5
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, tan	70.5	88.0
Shale, light gray to black	88.0	93.5
Limestone, contains some shell fragments	93.5	94.5
Shale, dark gray to black	94.5	97.0

Test Hole #39-A-42
(A18-3-32dddd)
Colfax County

Location: SE corner sec. 32, T. 18 N., R. 3 E., approximately 75 feet north of southeast corner.
Ground elevation: 1,442.0 ft. (i) (Schuyler 7.5 min. quadrangle)
Depth to water: 68.2 ft. (8-10-42).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Road fill	0.0	3.0
Clay, silty, buff	3.0	25.0
Silt, buff, contains some gravel	25.0	29.0
Clay, sandy, contains some gravel	29.0	32.0
Sand and gravel, red, texture grades from sand to fine gravel	32.0	40.0
Sand and gravel, red, texture grades from sand to medium gravel	40.0	45.0
Sand, cemented, fine texture	45.0	50.0
Gravel, fine texture	50.0	54.0
Clay, silty, buff, contains gravel	54.0	60.0
Clay, silty to sandy, buff	60.0	72.0
Sand and gravel, red, texture grades from sand to medium gravel	72.0	79.0
Sand and gravel, red, texture grades from sand to fine gravel	79.0	88.0
Gravel, red, texture grades from fine to coarse	88.0	100.0
Sand and gravel, red, texture grades from sand to fine gravel	100.0	104.0
Gravel, red, texture grades from fine to coarse	104.0	120.0
Clay, tan	120.0	123.0
Gravel, red, texture grades from fine to coarse	123.0	134.0
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, tan to light gray	134.0	141.0
Shale, tan	141.0	149.0
Shale, calcareous, light gray	149.0	153.0
Shale, tan	153.0	154.5
Shale, dark gray to black	154.5	158.5
Limestone	158.5	159.0
Shale, calcareous, dark gray	159.0	160.0

Test Hole #61-A-50
(A19-3-5ddda)
Colfax County

Location: NE SE SE SE sec. 5, T. 19 N., R. 3 E., approximately 542 feet north and 22 feet west of southeast corner.
Ground elevation: 1,515.0 ft. (t) (Clarkson 7.5 min. quadrangle)
Depth to water: 29.4 ft. (11-17-50).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Soil: silt, dark brown.....	0.0	0.5
Silt, moderately calcareous, medium yellowish gray, slightly calcareous and light in color below 1.5 ft., contains limonitic fragments below 10.0 ft...	0.5	18.0
Clay, silty, medium brown, lighter below 20.0 ft....	18.0	22.5
Till: clay, silty, sandy to gravelly, very calcareous, light gray.....	22.5	30.0
Sand and gravel, moderately calcareous, texture grades from fine sand to medium gravel, contains some till from 30.0 to 33.0 ft.....	30.0	38.0
Till: clay, silty to slightly sandy, moderately calcareous, light brown, texture of sand grades from very fine to fine, light gray below 43.5 ft., slightly calcareous from 50.0 to 55.0 ft.....	38.0	56.5
Till: silt, slightly clayey to sandy and gravelly, moderately calcareous, medium gray.....	56.5	60.0
Till: clay, silty to sandy and gravelly, moderately to very calcareous, medium gray.....	60.0	171.5
Sand, texture grades from very fine to fine with some medium.....	171.5	174.5
Silt, sandy, to sand, silty, slightly calcareous, light gray, texture grades from very fine to fine	174.5	180.0
Sand and gravel, principally quartz with some red and yellow silicates, texture grades from fine sand to medium gravel, contains silt from 190.0 to 190.3 ft.....	180.0	192.5
Silt, moderately clayey, light gray.....	192.5	195.0
Silt, slightly clayey to moderately sandy, light greenish gray, contains very fine sand.....	195.0	198.5
Sand and gravel, principally quartz with some green silicates, texture grades from fine sand to fine gravel, contains some silt from 198.5 to 200.0 ft., contains some medium gravel below 205.0 ft...	198.5	207.5
Silt, in part slightly sandy, medium greenish gray..	207.5	210.0
Sand and gravel, principally quartz and green silicates, texture grades from fine sand to fine gravel, slightly coarser below 215.0 ft.....	210.0	223.2

Cretaceous System - Upper Cretaceous Series - Colorado Group:

Carlile Formation:

Shale, clayey, yellowish green, medium greenish gray below 224.0 ft.....	223.2	224.5
Shale, clayey, moderately to very calcareous, dark gray.....	224.5	240.0

Test Hole #62-A-50
(A19-3-28bbbb)
Colfax County

Location: NW corner sec. 28, T. 19 N., R. 3 E., approximately 93 feet south and 27 feet east of northwest corner.
Ground elevation: 1,542.0 ft. (t) (Clarkson SE 7.5 min. quadrangle)
Depth to water: 34.8 ft. (11-22-50).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Soil: silt, dark brown	0.0	0.5
Silt, medium grayish brown	0.5	1.0
Silt, slightly clayey, light gray with some limonitic stain	1.0	2.0
Silt, light yellowish brown, slightly to moderately calcareous below 8.0 ft	2.0	33.0
Silt, soil-like, yellowish to dark brown	33.0	34.0
Clay, silty, medium brown with slight red tint	34.0	40.0
Till: clay, silty to sandy and gravelly, moderately calcareous, light gray, iron-stained below 45.0 ft	40.0	70.0
Till: clay, silty to sandy and gravelly, moderately calcareous, medium yellowish brown, medium gray from 105.0 to 130.0 ft	70.0	131.5
Till: clay, sand, and gravel, moderately calcareous, yellowish brown with much iron-stain	131.5	135.0
Till: clay, silty to sandy and gravelly, moderately calcareous, yellowish brown, in part gray below 136.5 ft., medium gray below 138.5 ft., very calcareous from 140.0 to 200.0 ft	135.0	222.5
Sand and gravel, principally quartz with some light colored silicates, texture grades from fine sand to fine gravel, coarser below 230.0 ft	222.5	250.0
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, clayey, moderately calcareous, dark gray, contains a few shell fragments	250.0	268.5
Limestone and shale, very calcareous, medium gray	268.5	270.0

Test Hole #59-A-50
(A20-3-17aaaa)
Colfax County

Location: NE NE NE NE sec. 17, T. 20 N., R. 3 E., approximately 12 feet south and 136 feet west of northeast corner.
Ground elevation: 1,480.0 ft. (t) (Clarkson 7.5 min. quadrangle)
Depth to water: 7.7 ft. (11-8-50).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Soil: silt, dark brown, black below 2.5 ft.....	0.0	3.5
Silt, dark brown.....	3.5	5.5
Silt, moderately clayey, dark brown.....	5.5	6.0
Clay, silty, to silt, clayey, medium grayish brown..	6.0	7.0
Clay, silty, light grayish brown.....	7.0	8.5
Silt, light grayish brown, light yellowish gray below 10.0 ft.....	8.5	17.0
Silt, medium yellowish brown, slightly clayey from 17.0 to 20.0 ft.....	17.0	29.5
Silt, moderately calcareous, medium yellowish gray, contains a few shell fragments and many limonitic fragments.....	29.5	36.0
Silt, slightly sandy, moderately calcareous, medium gray, contains fine to medium sand, contains a few gastropod shells, very calcareous, contains wood fragments and many shells.....	36.0	45.0
Silt, sandy, to sand, silty, very calcareous, dark gray, contains some fine to medium gravel, contains many gastropod shells and wood fragments....	45.0	50.0
Sand and gravel, principally black silicates, texture grades from medium sand to medium gravel, contains wood fragments and clay pebbles, contains some coarse gravel below 55.0 ft.....	50.0	57.5
Till: clay, silty, slightly to moderately calcareous, medium gray, light gray below 61.0 ft.....	57.5	69.0
Sand, principally quartz with some dark colored and green silicates, texture grades from very fine to fine, contains some medium sand and a few shell fragments below 80.0 ft., contains some coarse sand below 101.0 ft., contains some fine gravel below 140.0 ft., contains a few chalk fragments below 145.0 ft.....	69.0	149.5
Silt, sandy, moderately calcareous, light bluish gray, contains very fine sand.....	149.5	155.0
Silt, moderately calcareous, light bluish gray, slightly to moderately clayey below 158.0 ft., contains a few wood fragments below 160.0 ft.....	155.0	162.0
Silt, sandy, medium brown, contains very fine to fine with a trace of medium sand.....	162.0	165.0

Sand, silty, to silt, sandy, texture of sand grades from very fine to fine, slightly calcareous, contains some medium to coarse sand below 170.0 ft...	165.0	171.0
Silt, slightly clayey, moderately calcareous, light bluish gray.....	171.0	175.5
Silt, slightly clayey, light gray with brown tint...	175.5	176.5
Silt, moderately clayey, slightly calcareous, light gray with brown tint.....	176.5	180.0
Silt, moderately clayey to sandy, light gray, contains very fine to fine sand.....	180.0	181.5
Silt, sandy, medium grayish brown, interbedded with sand and gravel.....	181.5	185.0
Sand and gravel, principally quartz with some green and pink silicates, slightly calcareous and slightly silty below 190.0 ft.....	185.0	193.5
Cretaceous System - Upper Cretaceous Series - Colorado Group:		
Carlile Formation:		
Shale, clayey to silty, moderately calcareous, medium gray, contains some aragonite.....	193.5	210.0

Test Hole #60-A-50
(A20-3-29aaab)
Colfax County

Location: NW NE NE NE sec. 29, T. 20 N., R. 3 E., approximately 18 feet south and 366 feet west of northeast corner.
Ground elevation: 1,625.0 ft. (t) (Clarkson 7.5 min. quadrangle)
Depth to water: 39.8 ft. (11-17-50).

	Depth, in feet From	To
Quaternary System, undifferentiated:		
Soil: silt, dark grayish brown	0.0	0.5
Silt, moderately clayey, medium brown	0.5	2.0
Silt, yellowish brown with limonitic stain	2.0	5.0
Silt, slightly calcareous, light yellowish gray, moderately calcareous from 10.0 to 20.0 ft	5.0	25.0
Silt, light yellowish gray	25.0	36.5
Silt, soil-like, medium brown to dark grayish brown.	36.5	38.0
Clay, moderately silty, medium brown	38.0	42.0
Till: clay, silty to sandy and gravelly, very calcareous, light gray, contains limy fragments and limonitic fragments	42.0	45.0
Till: clay, silty to sandy and gravelly, moderately calcareous, light yellowish gray, yellowish brown from 70.0 to 85.0 ft., in part medium gray below 100.0 ft	45.0	132.5
Till: clay, silty to slightly sandy and gravelly, moderately calcareous, medium gray	132.5	189.0
Sand, principally quartz with some black silicates, texture grades from fine to medium with some coarse	189.0	216.0
Silt, slightly clayey, light bluish gray	216.0	218.5
Sand, principally quartz with some black silicates, texture grades from very fine to fine with some medium, coarser below 225.0 ft., contains some coarse sand below 265.0 ft	218.5	270.0
Sand and gravel, quartz with green and pink silicates	270.0	285.0
Cretaceous System - Upper Cretaceous Seriess - Colorado Group:		
Carlile Formation:		
Shale, clayey, yellow, moderately calcareous and in part light gray below 290.0 ft.	285.0	295.0
Shale, clayey, very calcareous, yellowish gray, medium gray below 300.0 ft	295.0	310.0