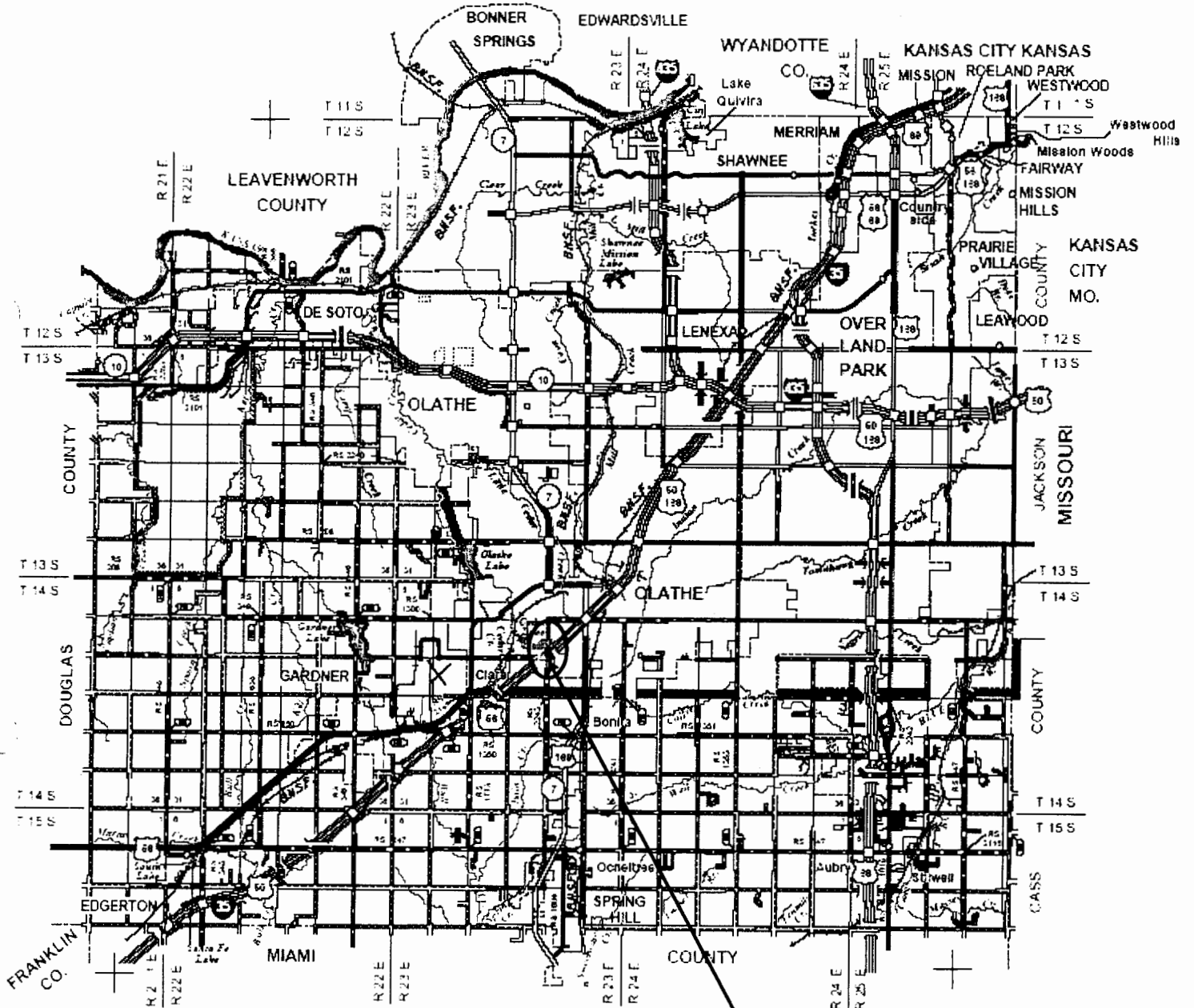


Johnson County



35-46 K-9014-01
159th Street over I-35

Core Hole 1

(See also core hole 2)

10-14S-23E
SW SW

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO.	35-46	SOUNDING NO.	CD-1	SHEET 1 OF 2			
BRIDGE STA.	29+807.080	PROJ.NO.	K-9014-01	BRIDGE NO. 35-46-12.11(354)			
SITE NAME				159th Street over I-35	HOLE STA.29+739.0;15.0m Rt.		
GEOLOGIST		D.Martin	SCALE 1:100 (10mm=1m)		DATE	12-30-04	
DRILLER		B.Bergman	RIG TYPE		CME-75	TOP HOLE ELEV.	311.10
GW ELEV.		305.70	TOTAL DEPTH		13.32	M/B ELEV.	305.92

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	SHAFT 5.0 SEGMENTS	UNCONFINED COMPRESSION	ELASTIC MODULUS	ELEVATION
			0.0	311	T.H.E. = 311.10				311
Augers	Soil Mantle			310	Silty Clay, brown, fill with zones of very hard, yellow-gray to gray limestone rubble at 310.61, 307.93, 307.45, 307.17, 306.89, 306.53. Rubble zones vary across the proposed bridge site.				310
				309					309
				308					308
				307					307
			5.18	306	305.92				306
Diamond	Stoner Limestone Member	1		305	305.61 Weathered limestone, platy, yellow.	1	13000	8340000	304.26
		2		304	Limestone, yellow to light yellow-gray to medium gray, shaly zones occur at 305.46 and 304.10.				304
	Eudora Shale Member		7.77	303	303.33				303
				303	303.08 Shale, medium gray, limy, platy		5330	556000	302.43
				302	Shale, fissile, very firm, black to dark gray.	2			302
				301	301.13		3780	131000	300.93
	Captain Creek Limestone Member		10.50	300	300.60 Shale, med. to dk. gray to olive-gray, clayey				300
				300	Limestone, light gray, fossiliferous, with shaly zones at 299.03.	3	62000	12800000	299.58
				299			63500	11600000	299.03
	Vilas Shale		12.62	298	298.48				298
			13.32	297.78	Shale, medium gray, clayey.	4	167	6200	297.81
					TD = 13.32				



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO.	35-46	SOUNDING NO.	CD-1	SHEET 2 OF 2
BRIDGE STA.	29+807.080	PROJ. NO.	K-9014-01	BRIDGE NO. 35-46-12.II(354)
SITE NAME	159th Street over I-35			HOLE STA. 29+739.0; 5 m Rt

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	ELASTIC MODULUS	ELEVATION																																																							
					<table><tr><td>Core</td><td>Depth</td><td>Elev</td><td>Cut</td><td>Rec</td><td>%</td><td>RQD</td></tr><tr><td>1</td><td>5.18</td><td>305.92</td><td>1.22</td><td>1.22</td><td>100</td><td>30%</td></tr><tr><td>2</td><td>6.40</td><td>304.70</td><td>1.52</td><td>1.52</td><td>100</td><td>70%</td></tr><tr><td>3</td><td>7.92</td><td>303.18</td><td>1.52</td><td>1.52</td><td>100</td><td>76%</td></tr><tr><td>4</td><td>9.45</td><td>301.65</td><td>0.85</td><td>0.85</td><td>100</td><td>93%</td></tr><tr><td>5</td><td>10.30</td><td>300.80</td><td>1.49</td><td>1.49</td><td>100</td><td>76%</td></tr><tr><td>6</td><td>11.80</td><td>299.30</td><td>1.52</td><td>1.52</td><td>100</td><td>88%</td></tr><tr><td>Total</td><td>13.32</td><td>297.78</td><td>8.12</td><td>8.12</td><td>100</td><td>XXXXX</td></tr></table>	Core	Depth	Elev	Cut	Rec	%	RQD	1	5.18	305.92	1.22	1.22	100	30%	2	6.40	304.70	1.52	1.52	100	70%	3	7.92	303.18	1.52	1.52	100	76%	4	9.45	301.65	0.85	0.85	100	93%	5	10.30	300.80	1.49	1.49	100	76%	6	11.80	299.30	1.52	1.52	100	88%	Total	13.32	297.78	8.12	8.12	100	XXXXX		
Core	Depth	Elev	Cut	Rec	%	RQD																																																									
1	5.18	305.92	1.22	1.22	100	30%																																																									
2	6.40	304.70	1.52	1.52	100	70%																																																									
3	7.92	303.18	1.52	1.52	100	76%																																																									
4	9.45	301.65	0.85	0.85	100	93%																																																									
5	10.30	300.80	1.49	1.49	100	76%																																																									
6	11.80	299.30	1.52	1.52	100	88%																																																									
Total	13.32	297.78	8.12	8.12	100	XXXXX																																																									

35-46 K-9014-01
35-46-12.11(354)
159th Street over I-35
Johnson County

Page 1 of 2

CD #1

29+739.0; 15.0 m Rt.

Date: December 30, 2004

T.H.E. = 311.10

<i>Elevation</i>	<i>Meters</i>	<i>Feet</i>	<i>Description</i>
311.10	0.00	0.00	Clay, silty, brown.
310.61	0.49	1.60	Limestone rubble, fill, boulders, very hard.
309.61	1.49	4.90	Limestone rubble, fill, very hard.
309.39	1.71	5.60	Clay, with silt.
308.42	2.68	8.80	Clay, silty.
307.93	3.17	10.40	Limestone rubble*.
307.90	3.20	10.50	Clay.
307.45	3.65	12.00	Limestone rubble*.
307.38	3.72	12.20	Clay.
307.17	3.93	12.90	Limestone rubble*.
307.11	3.99	13.10	Clay, brown.
306.89	4.21	13.80	Clay, brown, firmer, some limestone rubble.
306.53	4.57	15.00	Limestone rubble and clay, brown, firm.
305.92	5.18	17.00	BEGIN CORE

Core #1

5.18 - 6.40

Cut: 1.22

Rec: 1.22

305.92	5.18	17.00	Limestone, platy, weathered, yellow.
305.61	5.49	18.00	Limestone, yellow-gray to gray.
305.46	5.64	18.50	Limestone, shaley, yellow.
305.31	5.79	19.00	Limestone, yellow-gray.
304.85	6.25	20.50	Limestone, light yellow-gray, blocky.
304.70	6.40	21.00	END CORE #1

RQD = 30%

Core #2

6.40 - 7.92

Cut: 1.52

Rec: 1.52

304.70	6.40	21.00	Limestone, light gray.
304.10	7.00	22.95	Limestone, shaley, Medium to dark gray.
304.06	7.04	23.10	Limestone, light to medium gray, fossiliferous.
303.33	7.77	25.50	Shale, medium gray, limy.
303.18	7.92	26.00	END CORE #2

RQD = 70%

Core #3

7.92 - 9.45

Cut: 1.52

Rec: 1.52

303.18	7.92	26.00	Shale, medium gray, platy, firmer.
303.08	8.02	26.30	Shale, black, fissile.
302.81	8.29	27.20	Shale, black, fissile.
302.35	8.75	28.70	Shale, black, fissile, becomes dark gray.
301.77	9.33	30.60	Shale, dark gray, fissile
301.65	9.45	31.00	END CORE #3

RQD = 76%

Core #4

9.45 - 10.30

Cut: 0.85

Rec: 0.85

301.65	9.45	31.00	Shale, black to dark gray, fissile.
301.13	9.97	32.70	Shale, medium to dark gray to olive-gray.
300.80	10.30	33.80	END CORE #4

RQD = 93%

Core #5

10.30 - 11.80	300.80	10.30	33.80	Shale, dark to medium gray, clayey.
Cut: 1.49	300.60	10.50	34.45	Limestone, shaley, dark gray, limy.
Rec: 1.49	300.43	10.67	35.00	Limestone, light gray.
	299.30	11.80	38.70	END CORE #5

RQD = 76%

Core #6

11.80 - 13.32	299.30	11.80	38.70	Limestone, gray, fossiliferous, slightly shaley at 39.6 feet (12.07 m).
Cut: 1.52	298.48	12.62	41.40	Shale, medium gray, clayey.
Rec: 1.52	297.78	13.32	43.70	END CORE #6

RQD = 88%

TD = 13.32 43.70

Kansas Department of Transportation

Report of sample of Geology cores

Laboratory No. 05-0039

Date Reported: 1/12/2005

Date Received: 1/4/2005

Specification No. AASHTO T-208

Quantity: 6

Source of Material 35-46 K-9014-01

County: Johnson

Sampled from 35-46 K-9014-01

Submitted by: Topeka geology office

Identification marks: Tags on samples

Project or POV 35-46 K-9014-01

Description of site:

Type of Construction New construction

TEST RESULTS

Sample No.	Station	Offset (m)	Depth (m)	Description	Unconfined Compression Qu (kPa)	Elastic Modulus E (kPa)	Dry Density γ_d (kg/m ³)	Moisture Percent w %
S-1	29+739.0	15.0 M RT	6.55-6.84	Lt gray LS	13000	8340000	2569	1.8
S-2	"	"	8.38-8.67	Black fissile SH	5330	556000	2127	9.8
S-3	"	"	9.97-10.17	Dk gray to olive gray SH	3780	131000	2153	10.1
S-4	"	"	11.12-11.52	Lt gray LS	62000	12800000	2530	2.6
S-5	"	"	11.83-12.07	Lt gray LS	63500	11600000	2606	1.3
S-6	"	"	13.01-13.29	Med gray SH	167	6200	2104	10.4

cc: L.S. Ingram
R. Fuller
R. Henthorne
Soil Section
File 18-3

Reported by:

Title: Robert A. Fuller; Soils Engineer