



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 24-75	SOUNDING NO. C D 1	SHEET 1 OF 3
BRIDGE STA 7+101.85 #	PROJ. NO. K-7642-01	BRIDGE NO. 24-75-18.8(008)
SITE NAME US-24 Over the Vermillion River		HOLE STA 7+053 7m Rt. Proj. E
GEOLOGIST Randy Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 6/14/01
DRILLER Rob Vervynck	RIG TYPE Mobile B-61	TOP HOLE ELEV. 292.81
GROUNDWATER ELEV 289.77	TOTAL DEPTH 24.68	M/B ELEV. 13.65

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0.0	292.81				
				292	Silty clay, brown Shelby #1 292.08 - 291.47			
			1.52	291.3		26.5		291.47
				291	Silty clay with heavy gravel.			
				290	Shelby #2 290.53 - 289.92 Silty clay with sand and heavy to light gravel.	58.9		289.92
			3.81	289	Shelby #3 289.04 - 288.46			
				289	Silty clay with sand and light gravel.	17.2		288.46
				288				
				287	Shelby #4 287.51 - 286.93			
				287	Coarse sand with Clay binder.	Sample wet & fell apart		286.93
				286				
				285				

SOUNDING NO. CD 1

PROJECT NO. K-7642-01

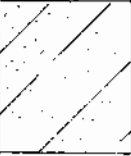

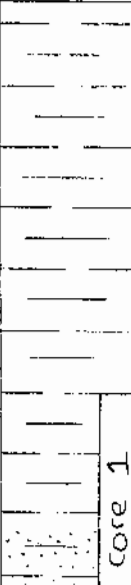
SHEET 2 OF 3

DATE 5/14/01

RTE./CO. 24-75

TOTAL DEPTH 24.10

THE 292 91

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION KPA	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
	MANTLE			285	Coarse sand with clay binder.			
			8.81	284				
	MANTLE			283	Coarse sand.			
				282				
				281				
				280				
	HAMLIN SHALE MBR.		13.65	279.16	Shale, gray, firm.			
				278				
				277				
				276				
				275				
		Core 1	17.19	275.62	Shale, sandy, gray, firm	2319.3	Sample 1	275.81

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION KPA	STANDARD PENETRATION OR CASING DRIVE			
							BLOWS	ELEV		
	HAMLIN SHALE M.B.R.	Core 2	19.05	275	Shale, sandy, gray, firm.	1,805.4	Sample 2	274.25		
					274					
						273.76				
				Core 3		273	Shale, gray, clayey, firm.			
				Core 4	20.97	272		874.8	Sample 3	272.33
							271.84			
				Core 5	21.30	271	Limestone fossiliferous, blocky, gray.			
							271.51			
				Core 6	22.49	270	Shale, green, blocky, firm.	590.6	Sample 4	270.56
					270.32					
			22.96	269	Sandstone, coarse grained, green.	43,386.0	Sample 5	270.17		
				269	Shale, sandy, green, with sandstone lenses.	5,659.1	Sample 6	269.01		
			24.68	268	Shale, sandy, maroon and green.					
				268	Total Depth					
				267						

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	<u>Elevation</u>	<u>Depth</u>		
Core Hole #1	292.81	0.00	Silty clay, brown.	
Sta. 7+053	292.08	0.73	Shelby 1.	
7 m Rt. Project C.L.	291.47	1.34	Silty clay, brown.	
Water Level 3.04 m	291.29	1.52	Heavy gravel.	
Water Elev. 289.77 m	290.53	2.28	Shelby 2.	
Date Drilled 6/14/01	289.92	2.89	Silty clay with sand and light gravel.	
	289.46	3.35	Heavy gravel, some large in size.	
	289.07	3.74	Silty clay with sand and light gravel.	
	289.04	3.77	Shelby 3.	
	288.46	4.35	Silty clay with sand and light gravel.	Mantle
	287.63	5.18	Sand, with clay binder.	
	287.51	5.30	Shelby 4.	
	286.93	5.88	Coarse sand with some clay binder.	
	286.11	6.70	Firmer, maybe more clay binder.	
	285.50	7.31	Coarse sand with some clay binder.	
	283.06	9.75	9.75 to 10.05 Sample collected for scour testing.	
			Coarse sand.	
	282.76	10.05	Coarse sand.	
	279.16	13.65	Shale, gray, very firm.	
	278.34	14.47	Shale, gray, not as firm.	
	278.09	14.72	Shale, gray, firm. Casing set to 14.72.	
	276.57	16.24	Shale, gray. Start coring.	
Core # 1	276.57	16.24	Shale, gray, firm.	
16.24 to 17.52 m	275.62	17.19	Shale, sandy, gray, firm.	
Cut 1.28 m	275.29	17.52	End core 1.	
Recovered 1.28 m				
RQD = 19 %			Sample 1 16.82 to 17.00 m	Shale, gray, firm.
Core # 2	275.29	17.52	Shale, sandy, gray, firm.	
17.52 to 19.05 m	273.76	19.05	End Core 2.	
Cut 1.52 m				
Recovered 1.52 m			Sample 2 18.37 to 18.56 m	Shale, sandy, gray, firm.
RQD = 36 %				
Core # 3	273.76	19.05	Shale, gray, clayey, firm.	
19.05 to 20.11	272.70	20.11	End Core 3.	
Cut 1.06 m				
Recovered 1.06 m				
RQD = Not Available				
Core jammed in barrel.				
RQD estimated at 65 to 70%.				

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	<u>Elevation</u>	<u>Depth</u>	
Core # 4	272.70	20.11	Shale, gray, clayey, firm.
20.11 to 21.64	271.84	20.97	Limestone bed, fossiliferous, blocky, gray.
Cut 1.52 m	271.51	21.30	Shale, green, blocky, firm.
Recovered 1.46 m	271.17	21.64	End core 4.
RQD =90%			
			Sample 3 20.29 to 20.48 m Shale, gray, firm.
Core # 5	271.17	21.64	Shale, green, blocky, firm.
21.64 to 23.16	270.32	22.49	Sandstone, coarse grained, green,
Cut 1.52 m	269.83	22.98	Shale, sandy, green.
Recovered 1.52 m	269.71	23.10	Sandstone, shaly, green.
RQD =20%	269.65	23.16	End core 4.
			Sample 4 22.09 to 22.25 m Shale, green.
			Sample 5 22.5 to 22.64 m Sandstone, green.
Core # 6	269.65	23.16	Sandstone, shaly, green.
23.16 to 24.68	269.62	23.19	Sandstone, maroon & green, shaly.
Cut 1.52 m	269.25	23.56	Shale, sandy, maroon & green.
Recovered 1.24 m	268.13	24.68	End Core 6. Total Depth.
RQD = 40%			
			Sample 6 23.62 to 23.80 m Shale, sandy.