

Project Number B2411087 Geotechnical Evaluation US 59 over Stream Bridge Replacement Pottawattamie, Iowa					BORING: BR5001		
					LOCATION: Station 205+31.0, Rt. 8		
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008773	EASTING: 16598241	
DRILLER: MB/AR		LOGGED BY: R. Gabler		START DATE: 02/27/25	END DATE: 02/28/25		
SURFACE ELEVATION: 1111.0 ft	RIG: 7513	METHOD: 3 1/4" HSA		SURFACING: Pavement	WEATHER: Clear & 42		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1110.8		PAVEMENT					
0.3		APPARENT AGGREGATE BASE		4-6-10			
1110.3		FILL: LEAN CLAY (CL), trace Gravel, trace Sand, dark gray, moist		(16)		20	
0.7				7"			
			5	4-4-5		27	
				(9)			
				8"			
				TW	2.5	29	P200=91%
				20"			DD=92 pcf
1101.0				4-4-7		27	
10.0		LEAN CLAY with SAND (CL), gray, moist, medium (ALLUVIUM)	10	(11)			
				12"			
			15	2-3-2		30	
				(5)			
				15"			
			20	TW	1.25		Mud rotary started at 20 feet
				20"			
1088.0							
23.0		CLAYEY SAND (SC), fine to medium-grained, trace Gravel, gray to brown, moist to wet, medium dense to dense (GLACIAL OUTWASH)	25	3-4-7		25	P200=49%
				(11)			
				4"			
			30	17-18-14		15	
				(32)			
				7"			
			35	13-13-7		22	
				(20)			
				12"			
1073.0							
38.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff to very stiff (GLACIAL TILL)	40	10-13-16		17	P200=61%
				(29)			
				15"			
				3-6-10		30	
				(16)			
				4"			

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					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008773	EASTING: 16598241	
DRILLER: MB/AR		LOGGED BY: R. Gabler		START DATE: 02/27/25		END DATE: 02/28/25	
SURFACE ELEVATION: 1111.0 ft		RIG: 7513		METHOD: 3 1/4" HSA		SURFACING: Pavement	
						WEATHER: Clear & 42	

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, stiff to very stiff (GLACIAL TILL)					
			50	3-4-9 (13) 16"		20	
			55	4-6-7 (13) 18"		20	LL=34, PL=13, PI=21 P200=66%
			60	5-5-8 (13) 20"		21	
			65	6-5-7 (12) 10"		19	
		<i>Becoming hard to very stiff at 68 feet</i>	70	10-30-28 (58) 11"		23	
			75	5-7-11 (18) 14"		20	
			80	10-10-12 (22) 23"		20	
1026.4			85	7-10-50/5" (REF) 22"		20	Water observed at 24.0 feet while drilling.
84.6		APPARENT LIMESTONE					
1026.0		END OF BORING					
85.0		Boring then backfilled with auger cuttings					

Project Number B2411087 Geotechnical Evaluation US 59 over Stream Bridge Replacement Pottawattamie, Iowa					BORING: BR5002		
					LOCATION: Station 205+91.2, Lt. 14		
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008837	EASTING: 16598246	
DRILLER: AL/NT		LOGGED BY: R. Gabler		START DATE: 02/27/25		END DATE: 02/28/25	
SURFACE ELEVATION: 1111.0 ft		RIG: 5501	METHOD: 3 1/4" HSA		SURFACING: Pavement		WEATHER: Clear & 50

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1110.7		PAVEMENT					
0.3		APPARENT AGGREGATE BASE					
1110.3		FILL: SANDY LEAN CLAY (CL), dark gray, moist		5-6-7 (13) 4"		22	
0.7				TW 15"	3.5	24	DD=100 pcf
			5				
				4-4-5 (9) 10"		22	LL=42, PL=20, PI=22 P200=83%
				3-5-5 (10) 10"		25	
1101.0		LEAN CLAY (CL), trace Sand, gray, moist, soft to medium (ALLUVIUM)	10				
10.0				2-3-4 (7) 10"		29	LL=41, PL=21, PI=20
			15				
				TW 6"	0.5		Mud rotary started at 20 feet
			20				
				0-1-2 (3) 18"		40	
			25				
1083.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, soft to medium (ALLUVIUM)	30	2-2-2 (4) 6"		25	
28.0				2-3-4 (7) 6"		25	
			35				
1073.0		CLAYEY SAND (SC), fine to medium-grained, with Gravel, gray, moist, medium dense (GLACIAL OUTWASH)		3-6-18 (24) 10"		19	P200=36%
38.0							

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Project Number B2411087 Geotechnical Evaluation US 59 over Stream Bridge Replacement Pottawattamie, Iowa					BORING: BR5002		
					LOCATION: Station 205+91.2, Lt. 14		
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008837	EASTING: 16598246	
DRILLER: AL/NT		LOGGED BY: R. Gabler		START DATE: 02/27/25		END DATE: 02/28/25	
SURFACE ELEVATION: 1111.0 ft		RIG: 5501	METHOD: 3 1/4" HSA		SURFACING: Pavement		WEATHER: Clear & 50
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1068.0		CLAYEY SAND (SC), fine to medium-grained, with Gravel, gray, moist, medium dense (GLACIAL OUTWASH)					
43.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff to hard (GLACIAL TILL)	45	7-10-8 (18) 18"		21	
			50	5-8-10 (18) 18"		18	
			55	10-14-16 (30) 12"		19	P200=54%
			60	4-9-12 (21) 18"		18	
			65	7-6-8 (14) 18"		17	
1043.0		CLAYEY SAND (SC), fine-grained, gray, moist, dense (GLACIAL TILL)	70	6-16-21 (37) 18"		19	LL=26, PL=11, PI=15 P200=42%
68.0			75	12-18-15 (33) 0"			
1033.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)		5-8-18 (26) 18"		19	
78.0							

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					LOCATION: Station 205+91.2, Lt. 14				
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet				
					NORTHING: 7008837	EASTING: 16598246			
DRILLER: AL/NT		LOGGED BY: R. Gabler		START DATE: 02/27/25		END DATE: 02/28/25			
SURFACE ELEVATION: 1111.0 ft		RIG: 5501		METHOD: 3 1/4" HSA		SURFACING: Pavement		WEATHER: Clear & 50	
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks		
		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)	85	7-10-10 (20) 18"		21			
1025.0 86.0		LIMESTONE, gray, moderately weathered, moderately hard, very fine-grained, slightly fractured	90	64	80	MC=2% q _u =761 tsf DD=159 pcf			
1015.0 96.0		END OF CORING	95			MC=6% q _u =616 tsf DD=149 pcf	Water observed at 20.0 feet while drilling.		
		Boring then backfilled with auger cuttings	100						
			105						
			110						
			115						
				RQD %	Recovery %	Remarks			

Project Number B2411087 Geotechnical Evaluation US 59 over Stream Bridge Replacement Pottawattamie, Iowa					BORING: SB5001		
					LOCATION: Station 205+20.5, Lt. 15		
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008773	EASTING: 16590216	
DRILLER: MB/AR	LOGGED BY: R. Gabler		START DATE: 02/27/25	END DATE: 02/28/25			
SURFACE ELEVATION: 1111.0 ft	RIG: 7513	METHOD: 3 1/4" HSA	SURFACING: Pavement	WEATHER: Clear & 56			
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1110.7 0.3		PAVEMENT FILL: SANDY LEAN CLAY (CL), dark gray, moist		6-5-7 (12) 6" TW 11"	1	18 24	LL=34, PL=17, PI=17 DD=101 pcf
1101.0 10.0		LEAN CLAY (CL), trace Sand, gray, moist, medium (ALLUVIUM)		3-4-5 (9) 8" 4-4-6 (10) 7"		24 28	
1087.5 23.5		POORLY GRADED SAND with CLAY (SP-SC), fine to medium-grained, trace Gravel, brown, wet, dense (GLACIAL OUTWASH)		2-3-5 (8) 13" 0-2-4 (6) 15" TW 7"		29 36	LL=46, PL=21, PI=25 Mud rotary started at 25 feet
1081.0 30.0		LEAN CLAY (CL), with Sand, trace Gravel, gray, moist, very stiff (GLACIAL TILL)		19-32-17 (49) 6" 4-6-10 (16) 8"		16 17	P200=7% LL=38, PL=12, PI=26
1073.0 38.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, very stiff (GLACIAL TILL)		10-7-12 (19) 10"		19	Water observed at 24.0 feet while drilling.
1071.0 40.0		END OF BORING Boring then backfilled with auger cuttings					

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					LOCATION: Station 205+94.3, Lt. 13		
					DATUM: NAD 1983 StatePlane Iowa South FIPS 1402 Feet		
					NORTHING: 7008828	EASTING: 16598271	
DRILLER: MB/AR		LOGGED BY: R. Gabler		START DATE: 02/27/25	END DATE: 02/28/25		
SURFACE ELEVATION: 1110.9 ft		RIG: 7513	METHOD: 3 1/4" HSA	SURFACING: Pavement	WEATHER: Clear & 42		

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1110.6 0.3		PAVEMENT		17-12-7 (19) 0"			
		FILL: LEAN CLAY (CL), with Sand, dark gray, moist	5	5-7-12 (19) 6"		21	
1104.9 6.0		FILL: FAT CLAY (CH), dark gray, moist		TW 18"		27	DD=90 pcf q _u =0.9 tsf
1100.9 10.0		LEAN CLAY (CL), trace Sand, and Gravel, gray to dark gray, moist to wet, soft to medium (ALLUVIUM)	10	3-3-4 (7) 5"			
			15	0-3-3 (6) 15"		32	LL=48, PL=22, PI=26
			20	2-2-2 (4) 18"		37	
			25	2-2-2 (4) 22"		36	
			30	0-0-0 20"		41	
			35	0-0-2 (2) 10"		38	
1074.9 36.0		LEAN CLAY (CL), with Sand, trace Gravel, brown, moist, very stiff (GLACIAL TILL)	40	8-12-17 (29) 16"		17	
				5-8-18 (26) 0"			

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