

Project Number B2306146 Geotechnical Evaluation US 30 Bridge Widening over Skunk Ames, Iowa					BORING: PA-5008		
					LOCATION: Captured with RTK GPS. Station 5278+61.92, LT. 27		
					DATUM: NAD83(2011) / IARCS zone 8		
					NORTHING: 7639747.6	EASTING: 18530934.6	
DRILLER: DM/AC		LOGGED BY: A. Martin		START DATE: 11/15/23		END DATE: 11/15/23	
SURFACE ELEVATION: 878.7 ft		RIG: 8504		METHOD: 3 1/4" HSA		SURFACING: Grass WEATHER: Partly Cloudy, 60°	
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
877.7		TOPSOIL					
1.0		SILTY SAND (SM), fine-grained, dark brown, moist, loose (ALLUVIUM)	×	3-3-3 (6) 5"			
875.2		SANDY LEAN CLAY (CL), dark brown, dry, soft to medium (ALLUVIUM)	5	3-2-2 (4) 4"			
871.7		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, wet, loose (ALLUVIUM)	10	3-3-3 (6) 4"			
865.7		LEAN CLAY (CL), trace Sand, trace organic, dark brown, moist, medium (ALLUVIUM)	15	3-2-3 (5) 8"			
13.0		END OF BORING					
863.7		Boring then backfilled with auger cuttings					
15.0							
							Water observed at 13.0 feet while drilling.

Project Number B2306146 Geotechnical Evaluation US 30 Bridge Widening over Skunk Ames, Iowa					BORING: RB-5011		
					LOCATION: Captured with RTK GPS. Station 1280+69.37, LT. 59		
					DATUM: NAD83(2011) / IARCS zone 8		
					NORTHING: 7639735.4	EASTING: 18531139.8	
DRILLER: AL/JS		LOGGED BY: A. Martin		START DATE: 03/12/24		END DATE: 03/12/24	
SURFACE ELEVATION: 884.5 ft		RIG: 5501	METHOD: 3 1/4" HSA		SURFACING: Aggregate		WEATHER: Partly Cloudy, 60°

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
883.0		APPARENT AGGREGATE BASE					
1.5		FILL: LEAN CLAY (CL), brown and gray, moist					
			5	SH 0"			No recovery
876.5		CLAYEY SAND (SC), fine to coarse-grained, with Gravel, brown, moist, stiff (ALLUVIUM)					
8.0			10	5-5-6 (11) 8"			
869.5						9	LL=23, PL=13, PI=10 Gravel=26%, Sand=28% Silt=25%, Clay=12%
15.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			20				
			25				
			30				
			35				
			40				
			45				

See Descriptive Terminology sheet for explanation of abbreviations

[illegible]

Project Number B2306146 Geotechnical Evaluation US 30 Bridge Widening over Skunk Ames, Iowa					BORING: BB-5038		
					LOCATION: Captured with RTK GPS. Station 1303+42.58, LT. 23		
					DATUM: NAD83(2011) / IARCS zone 8		
					NORTHING: 7639916.3	EASTING: 18533406.1	
DRILLER: DM/AC		LOGGED BY: A. Martin		START DATE: 08/24/23		END DATE: 08/24/23	
SURFACE ELEVATION: 890.4 ft		RIG: 8504	METHOD: 3 1/4" HSA		SURFACING: Grass		WEATHER: Night

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
889.4		TOPSOIL					
1.0		FILL: SILTY SAND (SM), fine-grained, dark gray, moist	5	6-8-10 (18) 5"		11	
886.4		FILL: SANDY LEAN CLAY (CL), trace Gravel, brown, moist	5	7-10-12 (22) 4"			Mud rotary drilling began at 5 feet.
884.4		FILL: POORLY GRADED SAND with CLAY (SP-SC), fine-grained, gray, moist to wet		7-9-10 (19) 2"			OC=2%
881.9		FILL: SANDY LEAN CLAY (CL), little Gravel, dark gray, wet	10	7-8-10 (18) 4"			
8.5			15	3-4-5 (9) 7"		38	Gravel=14%, Sand=20% Silt=33%, Clay=33%
872.4		CLAYEY SAND (SC), fine-grained, trace Gravel, bluish gray, wet, loose (ALLUVIUM)	20	3-4-5 (9) 6"		35	Gravel=4%, Sand=74% Silt=12%, Clay=10%
18.0		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, gray, wet, loose to medium dense (ALLUVIUM)	25	3-3-4 (7) 3"			
867.4			30	2-3-2 (5) 4"		20	P200=7% Gravel=5% Sand=88%
23.0			35	4-5-5 (10) 2"			
			40	6-7-8 (15) 2"			
			45	6-8-9 (17) 4"		15	

Continued on next page

Project Number B2306146 Geotechnical Evaluation US 30 Bridge Widening over Skunk Ames, Iowa					BORING: BB-5038		
					LOCATION: Captured with RTK GPS. Station 1303+42.58, LT. 23		
					DATUM: NAD83(2011) / IaRCS zone 8		
					NORTHING: 7639916.3	EASTING: 18533406.1	
DRILLER: DM/AC		LOGGED BY: A. Martin		START DATE: 08/24/23		END DATE: 08/24/23	
SURFACE ELEVATION: 890.4 ft		RIG: 8504	METHOD: 3 1/4" HSA		SURFACING: Grass		WEATHER: Night
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
840.4 50.0		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, gray, wet, loose to medium dense (ALLUVIUM)	50	12-7-8 (15) 2"			
		POORLY GRADED SAND with CLAY (SP-SC), fine to medium-grained, gray, wet, medium dense to very dense (GLACIAL OUTWASH)	55	10-12-16 (28) 4"		23	P200=7% Sand=93%
			60	50/1" (REF) 0"			
			65	50/1" (REF) 0"			
823.9 66.5		SHALE, gray, highly weathered					
822.4 68.0		SHALE, gray, highly weathered	70	50/1" (REF) 0"			Coring from 68 to 78 feet., no recovery.
			75				Hard layer encountered briefly at 819 feet. However, no recovery was collected from coring. Drilling rate, bit pressure, water pressure and water return were not available due to rapid rate of penetration.
812.4 78.0		SHALE, gray, highly weathered	80	50/1" (REF) 0"			Switched back to mud rotary drilling method at 78 feet.
			85	50/1" (REF) 0"			
			90	50/1" (REF) 0"			
			95	50/1" (REF) 0"			

Continued on next page

Project Number B2306146 Geotechnical Evaluation US 30 Bridge Widening over Skunk Ames, Iowa					BORING: BB-5038		
					LOCATION: Captured with RTK GPS. Station 1303+42.58, LT. 23		
					DATUM: NAD83(2011) / 1aRCS zone 8		
					NORTHING: 7639916.3	EASTING: 18533406.1	
DRILLER: DM/AC		LOGGED BY: A. Martin		START DATE: 08/24/23		END DATE: 08/24/23	
SURFACE ELEVATION: 890.4 ft		RIG: 8504	METHOD: 3 1/4" HSA		SURFACING: Grass		WEATHER: Night
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
791.8		SHALE, gray, highly weathered					
98.6		END OF BORING		50/1" (REF)			Water level obscured due to mud rotary drilling method.
		Boring immediately backfilled	100				
			105				
			110				
			115				
			120				
			125				
			130				
			135				
			140				