
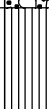

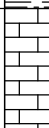


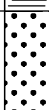


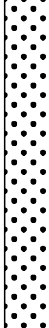
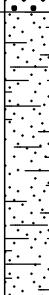








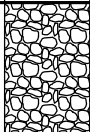



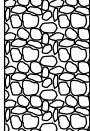

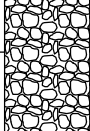

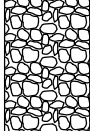





PROJECT: <u>ATH-56-00.90</u>		DRILLING FIRM / OPERATOR: <u>ODOT / FAST</u>		DRILL RIG: <u>CME 850R TRACKED</u>		STATION / OFFSET: <u>52+79, 141' LT.</u>		EXPLORATION ID													
TYPE: <u>ROADWAY</u>		SAMPLING FIRM / LOGGER: <u>ODOT / LEWIS</u>		HAMMER: <u>CME AUTOMATIC</u>		ALIGNMENT: <u>CL CONST SR 56</u>		B-001-0-16													
PID: <u>119908</u> SFN: <u>N/A</u>		DRILLING METHOD: <u>4.25" HSA / NQ2</u>		CALIBRATION DATE: <u>5/27/15</u>		ELEVATION: <u>827.3 (ft)</u> EOB: <u>97.0 ft.</u>		PAGE													
START: <u>3/15/16</u> END: <u>3/17/16</u>		SAMPLING METHOD: <u>SPT / NQ2</u>		ENERGY RATIO (%): <u>87</u>		LAT / LONG: <u>39.370688, -82.274978</u>		1 OF 2													
MATERIAL DESCRIPTION AND NOTES			ELEV.	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	ABAN- DONED
MEDIUM DENSE, DARK BROWN, GRAVEL AND STONE FRAGMENTS WITH SAND , LITTLE SILT, TRACE CLAY, DAMP				827.3	1																
						21	46	89	SS-1	-	-	-	-	-	-	-	9	A-1-b (V)			
						18	14														
HARD, YELLOWISH BROWN, SANDY SILT , LITTLE STONE FRAGMENTS, LITTLE CLAY, DAMP				823.8	2	4	28	89	SS-2	4.50	-	-	-	-	-	-	-	-	12	A-4a (V)	
						7	12														
SHALE , GRAY, HIGHLY WEATHERED, VERY WEAK TO WEAK, THINLY LAMINATED.				821.3	3																
SHALE , GRAY, HIGHLY WEATHERED, VERY WEAK TO WEAK, THINLY LAMINATED.				819.8	4	17	67	72	SS-3	-	-	-	-	-	-	-	-	12	Rock (V)		
						20	26														
LIMESTONE , BROWNISH GRAY, HIGHLY WEATHERED, MODERATELY STRONG, THICK BEDDED, JOINT, FRACTURED, OPEN, SLIGHTLY ROUGH; RQD 26%, REC 100%. @7.9' - 10.3'; HIGH ANGLE FRACTURE WITH RUST STAINING AND PARTIALLY HEALED @8.2' - 8.7'; S _c = 6,430 psi				817.0	5	28		80	NQ2-1												CORE
SHALE , BROWNISH GRAY WITH YELLOWISH ORANGE, SEVERELY WEATHERED, MODERATELY STRONG, MEDIUM BEDDED, CALCAREOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, TIGHT, SLIGHTLY ROUGH; CONTAINS VERY THIN LIMESTONE LAYERS; RQD 26%, REC 71%. @ 17.0' - 17.3'; γ = 156 pcf; Qu = 6,136 psi				808.4	6																CORE
SANDSTONE , GRAY AND BROWN, MODERATELY WEATHERED, SLIGHTLY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, SLIGHTLY CALCAREOUS, VERY BLOCKY, FAIR; JOINT, MODERATELY FRACTURED, NARROW, VERY ROUGH; RQD 69%, REC 100%.				806.2	7																
SHALE , GRAY, MODERATELY WEATHERED, WEAK, LAMINATED TO VERY THIN BEDDED, SLIGHTLY CALCAREOUS, POORLY FISSILE, JOINT, FRACTURED, NARROW, SLIGHTLY ROUGH, BLOCKY/DISTURBED/SEAMY, POOR; RQD 13%, REC 44%. @24.1' - 24.7'; CARBONACEOUS				801.9	8																
SANDSTONE , BROWN AND GRAY, MODERATELY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, SLIGHTLY MICACEOUS, JOINT, SLIGHTLY FRACTURED, NARROW TO OPEN, VERY ROUGH, BLOCKY, FAIR; RQD 78%, REC 97%. @27.1' - 27.8'; HIGH ANGLE FRACTURE @29.2' - 30.7'; HIGH ANGLE FRACTURE @30.7'; GRAY, SLIGHTLY WEATHERED, CONTAINS LITHIC FRAGMENTS. @ 30.7' - 31.0'; γ = 161 pcf; Qu = 7,141 psi				785.4	9	48		92	NQ2-3												CORE
 @34.6' - 36.1'; MODERATELY FRACTURED, CONTAINS LOW ANGLE RUST STAINED FRACTURES @ 36.8' - 37.1'; γ = 163 pcf; Qu = 2,649 psi @37.2'; LOW ANGLE FRACTURE @39.1'; LOW ANGLE FRACTURE @40.8'; LOW ANGLE FRACTURE @41.1' - 41.6'; 45° FRACTURES, OPEN WITH LOSS				779.1	10																
SILTSTONE , GRAY, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, THIN BEDDED, JOINT, FRACTURED, NARROW, VERY ROUGH; VERY BLOCKY, FAIR; RQD 11%, REC 64%. @41.9' - 42.6'; SLIGHTLY ARENACEOUS (GRADATIONAL CHANGE) @43.0' - 47.5'; HIGHLY WEATHERED WITH LOSS @47.5'; SLIGHTLY CARBONACEOUS.				779.1	11																
SANDSTONE , GRAY, MODERATELY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN TO MEDIUM BEDDED, SLIGHTLY ARGILLACEOUS, JOINT, MODERATELY FRACTURED, NARROW TO OPEN, VERY ROUGH; BLOCKY, GOOD; RQD 93%, REC 100%. @48.2' - 49.3'; ARGILLACEOUS (GRADATIONAL CHANGE) @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					12																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					13																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					14																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					15																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					16																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					17																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					18																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					19																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					20																
 @52.9'; LOW ANGLE, NARROW FRACTURE @ 53.1' - 53.7'; Id2 = 86.4% @54.8' - 55.4'; HIGH ANGLE, OPEN RUST STAINED FRACTURE @55.6' - 55.9'; HIGH ANGLE HEALED FRACTURE @56.6'; LOW ANGLE, OPEN FRACTURE @58.4'; LAMINATED TO THIN BEDDED, MICACEOUS					21																

PID: 119908	SFN: N/A	PROJECT: ATH-56-00.90	STATION / OFFSET: 52+79, 141' LT.		START: 3/15/16	END: 3/17/16	PG 2 OF 2		B-001-0-16													
MATERIAL DESCRIPTION AND NOTES			ELEV. 767.3	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	ABAN-DONED	
SANDSTONE , GRAY, MODERATELY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN TO MEDIUM BEDDED, SLIGHTLY ARGILLACEOUS, JOINT, MODERATELY FRACTURED, NARROW TO OPEN, VERY ROUGH; BLOCKY, GOOD; RQD 93%, REC 100%. <i>(continued)</i>				767.3	61																	
					62																	
					63																	
@58.4'; ARGILLACEOUS				759.9	64																	
@65.3' - 65.5'; SHALE BED					65																	
@65.5'; MEDIUM COARSE GRAINED, CONTAINS COAL STRINGERS					66																	
@ 65.5' - 65.8'; γ = 148 pcf; Qu = 4,034 psi				756.3	67	74		99	NQ2-7												CORE	
@67.3'; 0.1' FERRIC LAYER					68																	
COAL , BLACK, SLIGHTLY WEATHERED, CLEATED; RQD 40%, REC 98%.					69																	
@70.5'; BECOMES IMPURE				754.5	70																	
SANDSTONE , GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED TO FINE GRAINED, MEDIUM BEDDED, ARGILLACEOUS, INTACT; RQD 100%, REC 100%.					71																	
@ 71.0' - 71.3'; γ = 161 pcf; Qu = 1,683 psi					72																	
@ 72.3' - 73.0'; Id2 = 94.4%				730.3	73																	
SANDSTONE , GRAY AND DARK GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG TO STRONG, VERY FINE GRAINED TO FINE GRAINED, LAMINATED TO VERY THIN BEDDED, SLIGHTLY ARENACEOUS, MICACEOUS; RQD 95%, REC 100%.					74																	
@ 73.4' - 73.7'; γ = 161 pcf; Qu = 7,800 psi					75																	
@77.4'; LOW ANGLE FRACTURE					76																	
@ 78.0' - 78.3'; γ = 154 pcf; Qu = 6,849 psi					77	100		100	NQ2-8												CORE	
					78																	
					79																	
					80																	
					81																	
@83.9' - 85.3'; SHALE LAYER, FRACTURED					82																	
@ 83.9' - 84.9'; Id2 = 53.7%					83																	
@85.3' - 87.6'; ARGILLACEOUS, SLIGHTLY FOSSILIFEROUS					84																	
@ 86.8' - 87.7'; Id2 = 98.0%					85																	
@ 86.9' - 87.2'; γ = 164 pcf; Qu = 6,784 psi					86																	
					87	88		99	NQ2-9												CORE	
					88																	
					89																	
@89.9' - 90.1'; LOW ANGLE FRACTURES					90																	
					91																	
					92																	
@ 93.2' - 93.5'; γ = 158 pcf; Qu = 8,664 psi					93																	
					94																	
					95	100		100	NQ2-10												CORE	
					96																	
					97																	
					98																	
					99																	

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 1/18/24 07:20 - X:\GINT\PROJECTS\2016 COMPLETE\1600204.GPJ

PROJECT: ATH-56-0.90			DRILLING FIRM / OPERATOR: ODOT / LEWIS			DRILL RIG: CME 850R TRACKED			STATION / OFFSET: 54+88, 337' LT.			EXPLORATION ID B-002-0-23											
TYPE: ROADWAY			SAMPLING FIRM / LOGGER: ODOT / SPROUSE			HAMMER: CME AUTOMATIC			ALIGNMENT: CL CONST SR 56														
PID: 119908 SFN: N/A			DRILLING METHOD: 3.75" HSA / NQ2			CALIBRATION DATE: 4/25/23			ELEVATION: 881.0 (ft) EOB: 73.0 ft.			PAGE 1 OF 2											
START: 12/5/23 END: 12/7/23			SAMPLING METHOD: SPT / NQ2			ENERGY RATIO (%): 89			LAT / LONG: 39.371256, -82.274770														
MATERIAL DESCRIPTION AND NOTES			ELEV.	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED		
			881.0			GR	CS	FS	SI	CL	LL	PL	PI										
TOPSOIL (4") MEDIUM DENSE, REDDISH BROWN, COARSE AND FINE SAND , SOME STONE FRAGMENTS, LITTLE CLAY, LITTLE SILT, MOIST			880.7	1																			
					2	3	4	10	21	61	SS-1	-	20	0	49	14	17	NP	NP	NP		14	A-3a (0)
					3																		
SANDSTONE, REDDISH BROWN, SEVERELY WEATHERED, VERY WEAK, VERY FINE GRAINED TO FINE GRAINED.			877.5	TR	4	13	24	25	72	94	SS-2	-	-	-	-	-	-	-	-	9	Rock (V)		
					5																		
					6	16	24	36	89	100	SS-3	-	-	-	-	-	-	-	-	-	8		Rock (V)
@6.0': LIGHT BROWN AND REDDISH BROWN, HIGHLY WEATHERED.				7																			
					8																		
					9	26	47	53	148	83	SS-4	-	-	-	-	-	-	-	-	-		6	Rock (V)
SANDSTONE, REDDISH BROWN, SEVERELY WEATHERED, VERY WEAK, VERY FINE GRAINED TO FINE GRAINED.			871.0		10																		
					11																		
					12	0			53	NQ2-1													CORE
@13.4'-13.7': CLAY SEAM				13																			
					14																		
					15	53			100	NQ2-2													CORE
@14.6': MODERATELY WEATHERED, SLIGHTLY FRACTURED				16																			
					17																		
					18																		
@15.5' - 15.9': γ = 135 pcf; Qu = 3,252 psi @15.8' - 16.7': Id2 = 89.8%				19																			
					20																		
					21	33			60	NQ2-3													CORE
@17.3' - 17.6': γ = 133 pcf; Qu = 2,650 psi @18.2' - 18.6': γ = 137 pcf; Qu = 2,952 psi				22																			
					23																		
					24																		
@20.3' - 22.8': HIGH ANGLE FRACTURE, SEVERELY TO HIGHLY WEATHERED, HIGHLY FRACTURED, CONTAINS CLAY INFILLING AND LOSS				25																			
					26																		
					27	48			98	NQ2-4													
@22.8': YELLOWISH BROWN WITH OLIVE BLACK, HIGHLY WEATHERED, HIGHLY FRACTURED @23.6' - 24.5': Id2 = 76.8%				28																			
					29																		
					30																		
@23.8': HIGHLY TO MODERATELY WEATHERED, MODERATELY FRACTURED				31																			
					32																		
					33																		
@27.1' - 27.5': γ = 135 pcf; Qu = 3,016 psi			849.5																				
					34																		
					35	45			82	NQ2-5													CORE
SANDSTONE, YELLOWISH BROWN AND REDDISH BROWN, SEVERELY WEATHERED, WEAK TO SLIGHTLY STRONG, COARSE GRAINED, THIN BEDDED, FRIABLE, FERRIFEROUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, FAIR; RQD 14%, REC 69%. @33.0' - 34.2': Id2 = 67.5% @33.7' - 34.1': γ = 135 pcf; Qu = 1,502 psi			846.5																				
					36																		
					37	14			100	NQ2-6													
SILTSTONE, BLUISH GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, FINE GRAINED, VERY THIN TO THIN BEDDED, ARGILLACEOUS, SLIGHTLY ARENACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, OPEN TO MARROW, SLIGHTLY ROUGH; BLOCKY, POOR; RQD 25%, REC 97%. @36.8' - 39.4': Id2 = 90.0% @37.6' - 38.4': SEVERELY WEATHERED, HIGHLY FRACTURED @39.1' - 42.5': S _v = 1,799 psi @39.7' - 40.9': HIGH ANGLE FRACTURE WITH RUST STAINING																							
					38																		
					39																		
@43.6' - 44.2': CLAY SEAM																							
					40																		
					41	58			94	NQ2-7													
SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, MODERATELY TO SLIGHTLY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 88%, REC 96%. @44.2' - 44.6': γ = 155 pcf; Qu = 3,652 psi @45.8' - 46.2': Id2 = 94.4%			836.8																				
					42																		
					43																		
SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, MODERATELY TO SLIGHTLY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 88%, REC 96%. @44.2' - 44.6': γ = 155 pcf; Qu = 3,652 psi @45.8' - 46.2': Id2 = 94.4%																							
					44																		
					45	58			93	NQ2-8													
CLAYSTONE, DARK GRAY AND GRAY, HIGHLY TO MODERATELY WEATHERED, VERY WEAK, MEDIUM BEDDED, SLIGHTLY ARENACEOUS, JOINT, FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, POOR; RQD 0%, REC 75%. @53.1' - 53.1': CARRONACEOUS @53.2' - 54.7': Id2 = 2.4%			828.0																				
					46																		
					47																		
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.			824.1																				
					48																		
					49	97			100	NQ2-9													
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.																							
					50																		
					51																		
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.																							
					52																		
					53																		
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.																							
					54																		
					55	23			80	NQ2-10													
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.																							
					56																		
					57																		
SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%.																							
					58																		
					59																		

PID: 119908	SFN: N/A	PROJECT: ATH-56-0.90	STATION / OFFSET: 54+88, 337' LT.		START: 12/5/23	END: 12/7/23	PG 2 OF 2		B-002-0-23												
MATERIAL DESCRIPTION AND NOTES			ELEV. 821.0	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED	
SANDSTONE , GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO MEDIUM GRAINED, THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 74%, REC 96%. <i>(continued)</i> @57.7' - 58.2'; γ = 162 pcf; Qu = 4,955 psi @58.6' - 59.0'; Id2 = 92.3%				821.0	61	40	95	NQ2-11												CORE	
SHALE , GRAYISH BLACK, HIGHLY WEATHERED, SLIGHTLY STRONG, LAMINATED, ARENACEOUS, JOINT, HIGHLY FRACTURED, OPEN, SLIGHTLY ROUGH; BLOCKY, POOR; RQD 0%, REC 100%. @63.0' - 66.8'; Id2 = 76.7% @63.0' - 65.4'; S _c = 1,662 psi @63.7' - 64.1'; γ = 174 pcf; Qu = 17,391 psi				818.0	63	23	88	NQ2-12										CORE			
																				64	
SANDSTONE , LIGHT GRAY, MODERATELY WEATHERED, VERY STRONG, FINE GRAINED, THIN BEDDED, MICACEOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 37%, REC 84%. @66.7'; ARGILLACEOUS				816.2	65	47	92	NQ2-13									CORE				
																			66		
CLAYSTONE , DARK GRAY, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, THIN TO MEDIUM BEDDED, CALCAREOUS, JOINT, FRACTURED TO MODERATELY FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, POOR; RQD 47%, REC 92%. @68.3' - 69.3'; STRONG LIMESTONE @68.4' - 68.8'; γ = 166 pcf; Qu = 7,892 psi @70.1' - 72.6'; Id2 = 25.6% @71.2' - 71.4'; STRONG, LIMESTONE, NON-MARINE @72.5'; SILTSTONE LAYER				814.0	67	47	92	NQ2-13									CORE				
																			68		
				808.0	69	47	92	NQ2-13									CORE				
																			70		
				EOB	71	47	92	NQ2-13									CORE				
																			72		
			73	47	92	NQ2-13										CORE					
																		74			

NOTES: S_c = POINT LOAD STRENGTH VALUES AS PER ASTM D 5731. LAT/LONG/ELEV FROM DISTRICT SURVEY GRADE INSTRUMENTS.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 120 GAL. BENTONITE GROUT; SLUFF

A photograph of a wooden crate containing several long, cylindrical objects, likely archaeological artifacts, resting on a layer of straw or similar material. The objects are wrapped in light-colored material, possibly paper or cloth, and show signs of wear and damage. The crate is made of light-colored wood.

Run #:	Depth		Recovery		RQD	
NQ2-1	7.5'	12.0'	43/54	80%	15/54	28%
ATH-56-0.90 PID 119908						

A photograph of a wooden crate containing five horizontal compartments, each holding a different type of archaeological artifact. From top to bottom: 1. A long, flat, light-brown object, possibly a tablet or a piece of pottery. 2. A long, irregular, light-colored object, possibly a piece of pottery or a fragment of a larger object. 3. A long, cylindrical object wrapped in blue and white material, possibly a scroll or a piece of pottery. 4. A long, cylindrical object wrapped in green and white material, possibly a scroll or a piece of pottery. 5. A long, flat, light-colored object, possibly a tablet or a piece of pottery.

Run #:	Depth		Recovery		RQD	
NQ2-2	12.0'	22.0'	101/120	84%	45/120	38%
ATH-56-0.90 PID 119908						

Run #:	Depth		Recovery		RQD	
NQ2-3	22.0'	32.0'	110/120	92%	58/120	48%
ATH-56-0.90 PID 119908						

A photograph of a wooden crate containing five long, cylindrical objects, likely ancient scrolls, wrapped in greyish-green material. The objects are arranged horizontally in rows, separated by cardboard dividers. Each scroll has red markings and some show signs of wear or damage.

Run #:	Depth		Recovery		RQD	
NQ2-4	32.0'	42.0'	116/120	97%	104/120	87%
ATH-56-0.90 PID 119908						

A photograph of a wooden crate containing four long, cylindrical objects, likely scientific specimens, arranged horizontally. The objects are wrapped in dark, textured material, possibly plastic or paper, and secured with orange straps. The crate is labeled "N DIV." on the bottom right.

Run #:	Depth		Recovery		RQD	
NQ2-5	42.0'	52.0'	93/120	78%	53/120	44%
ATH-56-0.90 PID 119908						

A photograph showing five horizontal sections of a geological core sample, likely from a sedimentary rock. The sections are arranged vertically, showing different sedimentary textures and colors. The top section is a uniform grey. The second section shows a mix of grey and black with some white and brown staining. The third section is mostly grey with some white and brown. The fourth section is mostly black with some grey and white. The bottom section shows a mix of grey, black, and white with some brown staining. The sections are held in place by wooden blocks and are surrounded by a brown, fibrous material, possibly a core holder or a container lining.

Run #:	Depth		Recovery		RQD	
NQ2-6	52.0'	62.0'	120/120	100%	109/1200	91%
ATH-56-0.90 PID 119908						

A photograph of a wooden crate containing five long, cylindrical sections of geological core samples. The samples are arranged horizontally in a single row, separated by wooden dividers. The core sections show varying colors and textures, ranging from light gray to dark gray and black, indicating different geological layers or rock types. Some sections have red markings or labels.

Run #:	Depth		Recovery		RQD	
NQ2-7	62.0'	72.0'	119/120	99%	89/120	74%
ATH-56-0.90 PID 119908						

A photograph of a wooden crate containing five large, horizontally oriented, cylindrical objects. The objects are wrapped in a grey, textured material, possibly paper or fabric, and are secured by cardboard dividers and wooden slats. Red markings, likely tape or labels, are visible on the wrapping of each object. The objects appear to be large rolls of material or possibly scientific specimens.

Run #:	Depth		Recovery		RQD	
NQ2-8	72.0'	82.0'	120/120	100%	120/120	100%
ATH-56-0.90 PID 119908						

A photograph showing five long, cylindrical objects, possibly ancient scrolls or artifacts, resting horizontally in a wooden box. The objects are wrapped in dark, textured material, likely leather or cloth, and show signs of wear and damage. Red markings are visible on the surfaces of some objects. The objects are arranged in a row, separated by thin wooden dividers. The top object is light-colored with some red markings. The second object from the top is dark and heavily damaged, with a large section missing. The third object is dark and has some red markings. The fourth object is dark and has some red markings. The bottom object is dark and has some red markings.

Run #:	Depth		Recovery		RQD	
NQ2-9	82.0'	92.0'	119/120	99%	106/120	88%
ATH-56-0.90 PID 119908						

B-001-0-16



Run #:	Depth		Recovery		RQD	
NQ2-10	92.0'	97.0'	60/60	100%	60/60	100%
ATH-56-0.90 PID 119908						

ER, 10.0

ER, 13.0

2 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

INCHES

Run #:	Depth		Recovery		RQD	
NQ2-1	10.0'	13.0'	19/36	53%	0/36	0%
ATH-56-0.90 PID 119908						

BR 2 13.0

ER 2 18.0
BR 3

ER 3 23.0

Run #:	Depth		Recovery		RQD	
NQ2-2	13.0'	18.0'	60/60	100%	32/60	53%
NQ2-3	18.0'	23.0'	36/60	60%	20/60	33%
ATH-56-0.90 PID 119908						

ER 4 23.0

ER 4 28.0
BR 5

ER 5 33.0

Run #:	Depth		Recovery		RQD	
NQ2-4	23.0'	28.0'	60/60	100%	29/60	48%
NQ2-5	28.0'	33.0'	49/60	82%	27/60	45%
ATH-56-0.90 PID 119908						

BRG 33.0

ERG 39.0
BR7

ER7 43.0

Run #:	Depth		Recovery		RQD	
NQ2-6	33.0'	39.0'	72/72	100%	10/72	14%
NQ2-7	39.0'	43.0'	45/48	94%	28/48	58%
ATH-56-0.90 PID 119908						

Run #:	Depth		Recovery		RQD	
NQ2-8	43.0'	48.0'	56/60	93%	35/60	58%
NQ2-9	48.0'	53.0'	60/60	100%	58/60	97%
ATH-56-0.90 PID 119908						

Run #:	Depth		Recovery		RQD	
NQ2-10	53.0'	58.0'	48/60	80%	14/60	23%
NQ2-11	58.0'	63.0'	57/60	95%	54/60	90%
ATH-56-0.90 PID 119908						

B-002-0-23



Run #:	Depth		Recovery		RQD	
NQ2-12	63.0'	68.0'	54/60	90%	14/60	23%
NQ2-13	68.0'	73.0'	56/60	93%	28/60	47%

ATH-56-0.90 PID 119908



Boring #	Sample Depth (ft)	Material Type	Test Type	Moist Cont.	W (in)	W (mm)	D (in)	D (mm) Initial	D (mm) Final	D (mm) Avg	L/D	P: Failure Load (kN)	Is ₅₀ (MPa)	Is ₅₀ (psi)	Strength S _c (MPa)	Strength S _c (psi)
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.85	23	20	21.5	0.4	3.353	2.44	353	58	8474
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.65	18	15	16.5	0.3	1.186	1.12	163	27	3906
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.52	14.5	12	13.25	0.3	1.48	1.74	253	42	6069
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.39	11.5	8.5	10	0.2	2.01	3.14	455	75	10922
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.79	21.5	18.5	20	0.4	2.883	2.25	326	54	7833
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.65	18	15	16.5	0.3	2.451	2.32	336	56	8072
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.53	15	12	13.5	0.3	1.569	1.81	263	44	6315
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.77	21	18	19.5	0.4	1.706	1.37	198	33	4754
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.56	15.5	13	14.25	0.3	1.01	1.11	160	27	3851
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.68	18.5	16	17.25	0.3	2.128	1.93	279	46	6703
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.53	15	12	13.5	0.3	1.676	1.94	281	47	6746
B-001-0-15	8.2'-8.7'	Limestone	a	ar	1.98	50.3	0.50	14	11.5	12.75	0.3	1.274	1.56	226	37	5430
														Avg. Sc Value		6430

Rock Type: SS: Sandstone; SH: Shale; LS: Limestone; CLS: Claystone; BLDR: Boulder Moist. Cont.: s: saturated; ar: as received; ad: air dried; od: oven dried (%)



The Ohio Department of Transportation

Office of Geotechnical Engineering

PROJECT ATH-56-0.90
DISTRICT No.: 10
PID No 119908
Tech: CB

Point Load Strength Calc $I_s = P / (D_c^2)$
 $D_c^2 = 4A/\pi$
 $A = (WD)$
 Strenth = $I_s * K$
 $K = 24$
 Sample Preservation Method Core Box

Boring #	Sample Depth (ft)	Material Type	Test Type	Moist Cont.	W (in)	W (mm)	D (in)	D (mm) Initial	D (mm) Final	D (mm) Avg	L/D	P: Failure Load (kN)	I_{s50} (MPa)	I_{s50} (psi)	Strength S_c (MPa)	Strength S_c (psi)
B-002-0-23	63.0'-65.4'	SH	a	AR	1.95	50	1.17	34	26	30	0.600	1.21	0.63	92	8	2205
			a	AR	1.95	50	0.839	23	20	21.5	0.430	0.524	0.38	56	9	1332
			a	AR	1.95	50	1.014	28	24	26	0.520	0.662	0.40	58	10	1392
			a	AR	1.95	50	0.878	26	19	22.5	0.450	1.075	0.75	109	18	2612
			a	AR	1.95	50	0.995	28	23	25.5	0.510	0.72	0.44	64	11	1543
			a	AR	1.95	50	0.78	22	18	20	0.400	0.596	0.47	68	11	1629
			a	AR	1.95	50	0.995	27	24	25.5	0.510	0.561	0.35	50	8	1203
			a	AR	1.95	50	0.722	20	17	18.5	0.370	0.758	0.64	93	15	2240
			a	AR	1.95	50	0.761	21	18	19.5	0.390	0.668	0.54	78	13	1873
			a	AR	1.95	50	0.897	25	21	23	0.460	0.177	0.12	18	3	421
Average Strength																1662

Comments: Test Type: a: axial, d: diametrical; b: block; i: irregular; ⊥: perpendicular; //: parallel
 Rock Type: SS: Sandstone; SH: Shale; LS: Limestone; CLS: Claystone; BLDR: Boulder Moist. Cont.: s: saturated; ar: as received; ad: air dried; od: oven dried (%)