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REFERENCE

3449

CONTENTS

SHEET NO. **DESCRIPTION** TITLE SHEET LEGEND SITE PLAN AND PROFILE BORE LOGS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY <u>CLEVELAND</u>

PROJECT DESCRIPTION US 74, SHELBY BYPASS FROM EXISTING US 74 WEST OF SR 2238 (LONG BRANCH RD.) TO WEST OF SR 1001

SITE DESCRIPTION NOISE WALL 10a FROM -NW10a-STA. 10 + 00.00 (-L - STA. 935 + 69.92, 61.76'LT) TO-NW10a-STA.23+95.00 (-L-STA.949+50.07, 72.5'LT)

STATE PROJECT REFERENCE NO. R-2707E

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-680. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORNOS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DECREE OF RELIBBILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS WITH THE ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRAYT OR CUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS FOO THE THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- IES:
 THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT
 OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS
 OR CONTRACT FOR THE PROJECT.
 BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS
 FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE
 CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

	TRIGON
	GOODNIGHT, D.J.
•	
INVESTIGATED I	BY GOODNIGHT, D.J.
	ROCKETT, S.C.
	HUNSBERGER, W.S.
CUECKED DI _	

PERSONNEL



SUBMITTED BY __FALCON ENG.

DATE JANUARY 2023

R-2707E

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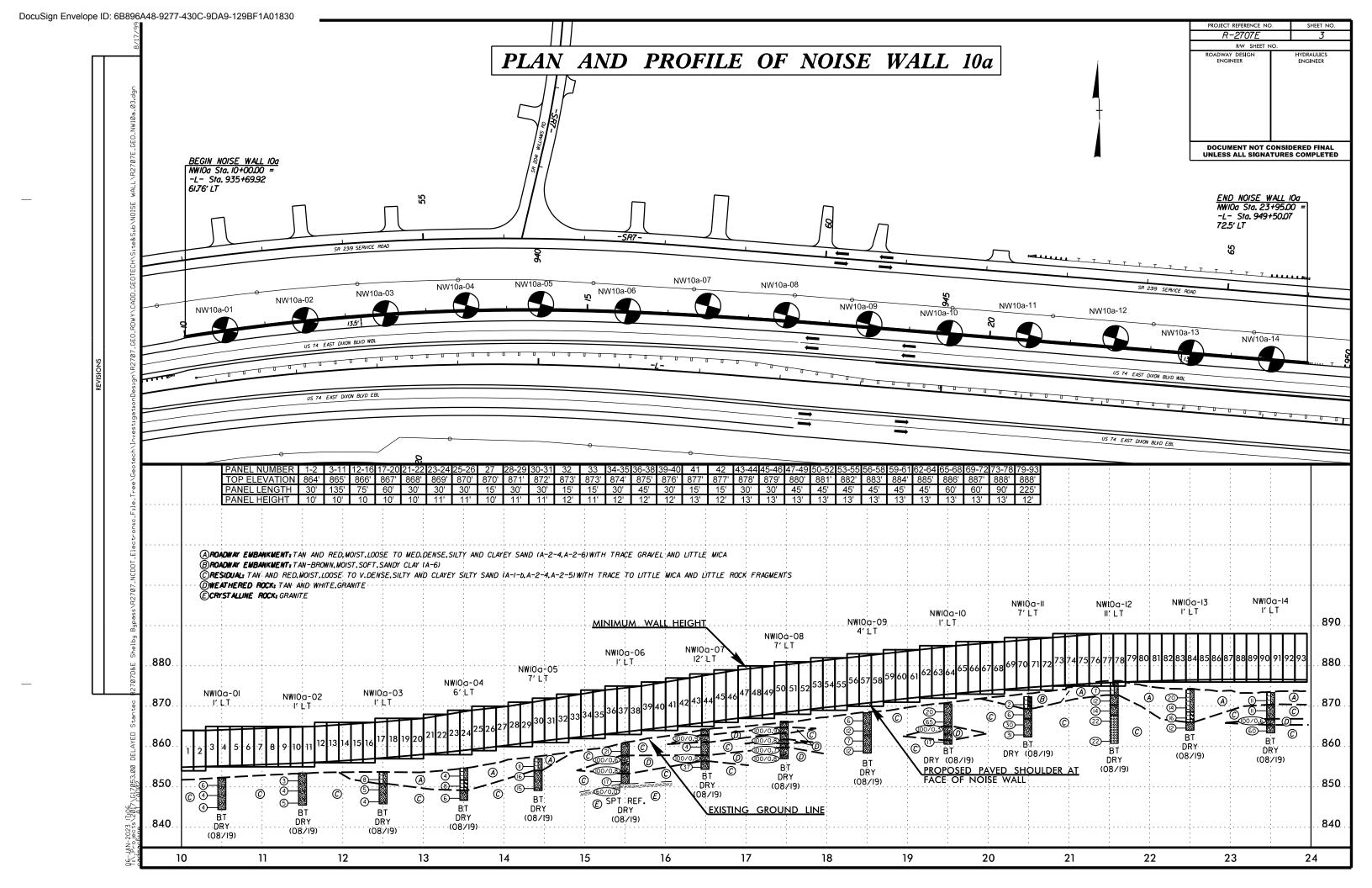
PROJECT REFERENCE NO.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED WISH NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
LLASS. (\$ 35% PASSING *200) (> 35% PASSING *200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED, ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 B-2-6 A-2-7 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN SEDIMENTARY ROCK COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
■10 50 MX GRANULAR SIL1- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 30 MX 50 MX 51 MN PEAT SOILS S	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40 SOILS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
LL 40 MX 41 MN LITTLE OR HIGHLY PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH,
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAYEL, AND SAND GRAYEL AND SAND SOILS SOILS	lacksquare Static water level after 24 Hours	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
CEN PATING FAIR TO		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR POOR UNSUITABLE	SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30	-	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
(N-VALUE) (TUNS/FT-)	WITH SOIL DESCRIPTION OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE	SOIL SYMBOL OPT DMT TEST BORING SLOPE INDICATOR INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER THAN ROADWAY EMBANKMENT TEST	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50	THAN ROADWAY EMBANKMENT TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING ● SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2	A PIEZOMETER	SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY A INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE ACCEPTABLE, BUT NOT TO BE	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	UNDERCUT CONCERSIFIED EXCHAPTION - EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	_ CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN Ø.I FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR CREATER THAN 4 INCHES DIVIDED BY
(SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WET - (W) SEMISOLID; REGULAES DATING TO	FRAC FRACTURED, FRACTURES TO TOTAL REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS w - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: ELEVATIONS OBTAINED FROM TIN FILE
(P) PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	R2707_LS_TNL_I80309 DATED MARCH, 2018
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: FEET
SL _ SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO	CI CONTINUOUS ELICIT AUCED	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
ATTAIN UPTIMUM MUISTURE	CME-55	THINLY LAMINATED < 0.008 FEET INDURATION	
PLASTICITY		INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
PLASTICITY INDEX (PI) DRY STRENGTH NON PLASTIC 0-5 VERY LOW		DIRRING WITH FINCED EDEES NUMEROUS CRAINS.	
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST VANUE SHEAR TEST HAND TOOLS:	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	CASING W/ ADVANCER POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
COLOR	PORTABLE HOIST TRICONESTEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
	X MOBILE B-57 TRICONE TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	CORE BIT VANE SHEAR TEST	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
IENO SOCI NO EIGHT, DANNE STREMED, ETC. HILL OSED TO DESCRIBE HITEHANNE.		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1



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5	ITE C	ESCI	RIPTIC	N No	ise W						.92, 6	61.70	_).07	72	.5' L	_							'	GRO	UNE	WT	R (ft		SITE	DESC	RIP	TION	Nois	se W	Vall 1							92, 6	1.76'	_			949-)7, 7	2.5'								GR	ROUN	ID W	TR ((ft)
E	BORIN	G NO	. NV	/10a-0	1		STA	TION	10+	50			\perp	OFI	SET	Γ 1	ft L	Γ				ALI	GNN	IENT	-N	W10)a-			0 HF	₹.		Dry	' <u> </u> E	BORII	NG N	D. 1	I W10)a-02			S	TAT	TION	11	+50				OF	FSE	T 1	ft LT				AL	IGNM	IENT	N/	W10	a		0	HR.		Г	Dry
(OLL	AR EL	EV.	852.4 1	t		TOT	AL DE	PTH	8.0	ft			NO	RTH	NG	553	3,88	7			EA:	STIN	G 1	,273	,481			2	24 HF	₹.		Dry	<u> </u>	COLL	AR E	LEV	85	3.5 ft	:		Т	OTA	AL D	EPT	H 8	3.0 ft			NC	DRTH	ING	553	,896			EA	STING	G 1	,273,	580			24				Dry
0	RILL	IG/HA	MMER	EFF./DA	TE 1	RI801	MOB	LE B-57	97%	02/2	4/2017	7	_			$\overline{}$					H.S.	Auge	rs					HAM	IMEF	TYP	E A	utom	atic	_ [RILL	RIG/H	AMME	R EF	F./DA	TE	TRI80												DRILL	MET	HOD) H.	S. Auge	ers				Н	IAMM	ER T	YPE	Auto	matic	<u> </u>
[Estep,					RT DA							MP.					_		SUI	RFA	CE W	ATE	R D	EPT	1 H	N/A							_ER							TAF	RT D	ATE						OMP.	DAT	E 0	3/07/	/19		SU	RFAC	CE W	ATE	R DE	PTH	i N	Ά				
E	LEV (ft)	ORIVE ELEV (ft)	DEP (ft)	ГН BI 0.5	_OW (Sft 0.	5ft)	25 25	BLOW	S PEI 50			75 	1	00	SAN	- 1	'/	- ()	ELEV	. (ft)	S	OIL A	ND F	ROCI	K DE	SCF	RIPTI	ON	DE	EPTH (LEV (ft)	DRIV ELE\ (ft)	E DE	EPTH (ft)	0.5ft	OW (5ft	JNT 0.5ft	0)	2			PER 50	FOO	75 	,	100	SAM NO	Ι.	MOI	O G			S	AN JIC	ND R	оск	DES	CRIP	TION	l		
8	355		<u> </u> 																		-					0	3' TC	DDC(.				•		355		1																				 - 853.5	5					PSOI					0.0
		851.4	1.0	2	3			1	:					1					•			852.4		TANI	CII T		RESI	DUA	L	UT	LITT		0	11		852.	+		1	1	2	1	┤│ ┆	3	• • • •			-		. .	· · · · · ·	.			М		_			TAN			DUAL SAND		4)			
-8	350	848.9	3.5	- 1			├	• 6	-		-			+		-			М			•		ΓAN,	SILI	Y SA	MI MI	CA CA	4) VV	шні	LIII	<u>-</u> E		8	350	850.0	+	3.5	2	1 2	2	2	113	4 -				+-		-					М		_											
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8	345	845.9	6.5	2	2	: :	<u>- </u>	j	-		-			-		-			М		Ł	844.4											Ω		-		+		2	1	2	3		● 5				-						\vdash	М		- - 845.5 	5 R	Rorino	Term	ninate	nd at	Flevs	tion 8	345.5	ft IN		8.0
NCDOT BORE DOUBLE R2707_GEO_BORINGS CURRENT.GPJ NC_DOT.GDT 1/6/23			 																					Boring	Terr RE	mina'	ted a	t Ele SILT	vatic Y SA	on 844 AND	4.4 ft	IN .					+++++++++++++++++++++++++++++++++++++++																							RES	SIDU	AL: S	SILTY	SANI				

	BORE LOG						
WBS 34497.1.1 TIP R-2707E	COUNTY CLEVELAND	GEOLOGIST Goodnight, D. J		WBS 34497.1.1		Y CLEVELAND	GEOLOGIST Goodnight, D. J.
SITE DESCRIPTION Noise Wall 10a from -L- Sta. 935+6	9.92, 61.76' LT toL- Sta. 949+50.07, 72	5' LT	GROUND WTR (ft)	SITE DESCRIPTION Noise Wall 1	10a from -L- Sta. 935+69.92, 61.76' l	LT toL- Sta. 949+50.07, 72	2.5' LT GROUND WTR (ft)
BORING NO. NW10a-03 STATION 12+50	OFFSET 1 ft LT	ALIGNMENT -NW10a-	0 HR. Dry	BORING NO. NW10a-04	STATION 13+50	OFFSET 6 ft LT	ALIGNMENT -NW10a- 0 HR. Dry
COLLAR ELEV. 853.8 ft TOTAL DEPTH 8.0	ft NORTHING 553,902	EASTING 1,273,680	24 HR . Dry	COLLAR ELEV. 854.7 ft	TOTAL DEPTH 8.0 ft	NORTHING 553,909	EASTING 1,273,780 24 HR. Dry
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 97% 02/	24/2017 DRILL METHOD	H.S. Augers HAMI	MER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE TRI80	3016 MOBILE B-57 97% 02/24/2017	DRILL METHOD	H.S. Augers HAMMER TYPE Automatic
DRILLER Estep, J. E. START DATE 08/0		SURFACE WATER DEPTH N	N/A	DRILLER Estep, J. E.	START DATE 08/07/19	COMP. DATE 08/07/19	SURFACE WATER DEPTH N/A
ELEV (ft) DRIVE ELEV (ft) DEPTH (ft) BLOW COUNT (ft) BLOW COUNT (ft) BLOW COUNT (ft)		SOIL AND ROCK DES	SCRIPTION DEPTH (ft)	ELEV (ft) DRIVE ELEV (ft) DEPTH BLOW COU	JNT BLOWS PER FOOT 0.5ft 0 25 50	75 100 NO. MOI	O SOIL AND ROCK DESCRIPTION G
855		853.8 0.3' TOPSO	DIL 0.0	855			854.7 0.3' TOPSOIL 0.0
852.8 1.0 3 3 5		DOADWAY EMBAN	NKMENT		2 4		L∭- TAN, SILTY SAND (A-2-4)
850 850 3 + 3.5	· · · · · · · · · · ·	TAN, CLAYEY SILTY S	3.0	850 851.2	4	·	TAN, SILTY SAND (A-2-4)
2 2 3 •5		TAN, SILTY SAND (A-2-4	WITH TRACE	848.2 6.5	1		849.2 5.5
$\begin{vmatrix} 84/.3 & 6.5 & & & & & & & & & & $.		8.0	2 3	3 6		TAN, SILTY SAND (A-2-4) 8.0
NCDOT BORE DOUBLE R2707_GEO_BORINGS CURRENT.GPJ NC_DOT.GDT 1/8/23		845.8 Boring Terminated at Elev RESIDUAL: SILTY RESIDUAL: SILTY RESIDUAL: SILTY RESIDUAL: SILTY RESIDUAL: SILTY	vation 845.8 ft IN Y SAND				Boring Terminated at Elevation 846.7 ft IN RESIDUAL: SILTY SAND

BORE LOG						
WBS 34497.1.1 TIP R-2707E COUNTY CLEVELAND	GEOLOGIST Goodnight, D. J.		WBS 34497.1.1	TIP R-2707E COUNTY	CLEVELAND	GEOLOGIST Goodnight, D. J.
SITE DESCRIPTION Noise Wall 10a from -L- Sta. 935+69.92, 61.76' LT toL- Sta. 949+	· ·	OUND WTR (ft)	SITE DESCRIPTION Noise Wall 1	10a from -L- Sta. 935+69.92, 61.76' L	T toL- Sta. 949+50.07, 72.5	5' LT GROUND WTR (ft)
BORING NO. NW10a-05 STATION 14+42 OFFSET 7 ft LT	ALIGNMENT -NW10a- 0 HR.	R . Dry	BORING NO. NW10a-06	STATION 15+50	OFFSET 1 ft LT	ALIGNMENT -NW10a- 0 HR. Dry
COLLAR ELEV. 857.1 ft TOTAL DEPTH 8.0 ft NORTHING 553,	08 EASTING 1,273,873 24 HR .	R . Dry	COLLAR ELEV. 860.8 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,896	EASTING 1,273,980 24 HR. Dry
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 97% 02/24/2017 DRILL	METHOD H.S. Augers HAMMER TYPE	PE Automatic	DRILL RIG/HAMMER EFF./DATE TRI80	016 MOBILE B-57 97% 02/24/2017	DRILL METHOD	H.S. Augers HAMMER TYPE Automatic
DRILLER Estep, J. E. START DATE 08/07/19 COMP. DATE 08	07/19 SURFACE WATER DEPTH N/A		DRILLER Estep, J. E.		COMP. DATE 08/07/19	SURFACE WATER DEPTH N/A
ELEV (ft) DRIVE ELEV (ft) DEPTH BLOW COUNT BLOWS PER FOOT SAMF O.5ft O	L O SOIL AND ROCK DESCRIPTION	ION DEPTH (ft)	ELEV (ft) DEPTH BLOW COU	0.5ft BLOWS PER FOOT 0 25 50	75 100 NO. MOI G	
860	857.1 0.3' TOPSOIL	0.0	865			- - -
855 856.1 1.0 2 3 8 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ROADWAY EMBANKMENT M L RED-TAN, SILTY SAND (A-2-4) W	T WITH	860 850 8 1 10		2.00	860.8 0.3' TOPSOIL 0.0
853 6 + 35	LITTLE MICA	3.0	859.8 + 1.0 2 13	8 •21	M	RESIDUAL TAN AND WHITE, SILTY F. TO CSE.
4 8 8 • 16	TAN, SILTY SAND (A-2-4) WITH CL	CLAYEY	857.3		100/0.6	857.8 SAND (A-2-4) WITH LITTLE ROCK3.0
850 850.6 + 6.5 5 9 6	ZONES ZONES	8.0	855 854.8 6.0 82 18/0.3			FRAGMENTS WEATHERED ROCK WHITE-TAN, GRANITE 853.3 RESIDIAL
	Boring Terminated at Elevation 849.1 RESIDUAL: SILTY SAND		852.3 7 8.5		100/0.8	853.3
	The side of the si		850.8 + 10.0 8 4	13	60/0.0 M	TAN, SILTY SAND (A-2-4) WITH LITTLE 10.0 ROCK FRAGMENTS
			1 1 1 1 1 1 1 1 1			Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at
						Elevation 850.8 ft ON CRYSTALLINE ROCK: GRANITE
			‡			- ROCK, GRANITE
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		BORE LOG							
WBS 34497.1.1	TIP R-2707E COUNT	TY CLEVELAND	GEOLOGIST Goodnight, D. J		WBS 34497.1.1	TIP R-2707E COUN	TY CLEVELAND	GEOLOGIST Goodnight, D. J	
SITE DESCRIPTION Noise Wall 1	0a from -L- Sta. 935+69.92, 61.76'	LT toL- Sta. 949+50.07, 72.5'	LT	GROUND WTR (ft)	SITE DESCRIPTION Noise Wall	I 10a from -L- Sta. 935+69.92, 61.76	5' LT toL- Sta. 949+50.07, 7	2.5' LT	GROUND WTR (ft)
BORING NO. NW10a-07	STATION 16+49	OFFSET 12 ft LT	ALIGNMENT -NW10a-	0 HR. Dry	BORING NO. NW10a-08	STATION 17+47	OFFSET 7 ft LT	ALIGNMENT -NW10a-	0 HR. Dry
COLLAR ELEV. 864.4 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,900	EASTING 1,274,080	24 HR. Dry	COLLAR ELEV. 866.3 ft	TOTAL DEPTH 9.3 ft	NORTHING 553,886	EASTING 1,274,177	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE TRI80	16 MOBILE B-57 97% 02/24/2017	DRILL METHOD H.	S. Augers HAMI	MER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE TRIS	18016 MOBILE B-57 97% 02/24/2017	DRILL METHOD	H.S. Augers HAMI	MER TYPE Automatic
DRILLER Estep, J. E.	START DATE 08/07/19	COMP. DATE 08/07/19	SURFACE WATER DEPTH N	N/A	DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH	N/A
BLOW COU Court C	0.5ft 0 25 50	75 100 NO. MOI G	SOIL AND ROCK DESERTED. (ft)	DEPTH (ft) DIL 0.0 L 1.5	ELEV (ft)	0.5ft BLOWS PER FO	OT SAMP. 75 100 NO. MOI	C SOIL AND ROCK DE	SCRIPTION
863.4	2 4/0.3	M M M	862.9 RESIDUAL TAN, SILTY SAND 861.1 WEATHERED F TAN, GRANI RESIDUAL	L 1.5 ROCK 3.3 ITE	865 865.3 1.0 9 12 862.8 3.5 5 8	88/0.4		866.3 0.3' TOPSC 864.8 TAN, SILTY SANG 863.3 WEATHERED I TAN, GRANI 859.8 TAN, SILTY SANG WEATHERED I TAN, GRANI TAN, SILTY SANG WEATHERED I TAN, GRANI TAN, SILTY SANG WEATHERED I TAN, GRANI Boring Terminated at Elev WEATHERED ROCK WEATHERED ROCK TAN GRANI Boring Terminated at Elev WEATHERED ROCK TAN GRANI Boring Terminated at Elev WEATHERED ROCK TAN GRANI TAN	1.5 1.5
NCDOT BORE DOUBLE R270			- - - - - - - - -		+ + + + + + + + + + + + + +			- - - - - - - -	

		DRE LOG						
WBS 34497.1.1	TIP R-2707E COUNTY	CLEVELAND	GEOLOGIST Goodnight, D. J.		WBS 34497.1.1	TIP R-2707E COUI	NTY CLEVELAND	GEOLOGIST Goodnight, D. J.
SITE DESCRIPTION Noise Wall	0a from -L- Sta. 935+69.92, 61.76' LT	T toL- Sta. 949+50.07, 72.5' LT		GROUND WTR (ft)	SITE DESCRIPTION Noise W	Vall 10a from -L- Sta. 935+69.92, 61.7	6' LT toL- Sta. 949+50.07, 7	2.5' LT GROUND WTR (ft)
BORING NO. NW10a-09	STATION 18+50	OFFSET 4 ft LT	ALIGNMENT -NW10a-	0 HR. Dry	BORING NO. NW10a-10	STATION 19+50	OFFSET 1 ft LT	ALIGNMENT -NW10a- 0 HR. Dry
COLLAR ELEV. 868.4 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,872	EASTING 1,274,279	24 HR. FIAD	COLLAR ELEV. 870.6 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,858	EASTING 1,274,378 24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE TRI8	016 MOBILE B-57 97% 02/24/2017	DRILL METHOD H.S. A	Augers	MER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE	TRI8016 MOBILE B-57 97% 02/24/2017	DRILL METHOD	H.S. Augers HAMMER TYPE Automatic
DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH N	I/A	DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH N/A
ELEV DRIVE DEPTH BLOW COL	NT BLOWS PER FOOT	SAMP.	SOIL AND ROCK DES	SCDIDTION	ELEV DRIVE DEPTH BLOW (ft) C.55 Lo.	COUNT BLOWS PER FO	OOT SAMP.	O SOIL AND ROCK DESCRIPTION
(ft) (ft) (ft) 0.5ft 0.5ft	0.5ft 0 25 50 75	75 100 NO. MOI G E	ELEV. (ft)	DEPTH (ft)	(ft) (ft) (ft) 0.5ft 0.5	5ft 0.5ft 0 25 50	75 100 NO. MOI	
870					875			
1		- 8	68.4 0.3' TOPSO		T T			F
867.4 + 1.0 2 2	4		RESIDUAL TAN, CLAYEY SILTY S					- 870.6 0.3' TOPSOIL 0.0
865 864.9 <u>3.5</u> 1 5	7	 -			870 869.6 1.0 10 1			RESIDUAL
862.4 + 6.0	12:	· · · ·	62.9 TAN, SILTY SAND	<u> </u>	867.1 3.5	$\begin{vmatrix} 1 & 9 & \\ & & \ddots & \end{vmatrix}$	""	TAN, SILTY SAND (A-2-4) WITH LITTLE ROCK FRAGMENTS
860 859.9 8.5	4		TAIN, OILT I GAINE) (A-2-4)	3 2	23 42	65 M	865.1 5.5
5 5	7 . •12	м <u>8</u>		10.0	864.6 + 6.0 100/0.3			WEATHERED ROCK TAN, GRANITE
			Boring Terminated at Elev RESIDUAL: SILTY	vation 858.4 ft IN Y SAND	862.1 8.5 58 1	2 5		V ≥ 861 6 9 0
					+ + + + + + + + + + + + + + + + + + + +	5 17		RESIDUAL 10.0 TAN, SILTY SAND (A-2-4)
								Boring Terminated at Elevation 860.6 ft IN RESIDUAL: SILTY SAND
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		BORE LOG										
WBS 34497.1.1		ITY CLEVELAND	GEOLOGIST Goodnight, D. J.		WBS 34497.1.1			INTY CLEVELAND		-	IST Goodnight, D. J.	
SITE DESCRIPTION Noise V	/all 10a from -L- Sta. 935+69.92, 61.76		1	GROUND WTR (ft)	SITE DESCRIPTION	Noise Wall 1	0a from -L- Sta. 935+69.92, 61.					GROUND WTR (ft
BORING NO. NW10a-11	STATION 20+49	OFFSET 7 ft LT	ALIGNMENT -NW10a-	0 HR. Dry	BORING NO. NW	10a-12	STATION 21+56	OFFSET 11 ft LT			NT -NW10a-	0 HR. Dr
COLLAR ELEV. 872.4 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,853	EASTING 1,274,477	24 HR. FIAD	COLLAR ELEV. 8	75.8 ft	TOTAL DEPTH 15.0 ft	NORTHING 553,	346	EASTING	1,274,584	24 HR. FIAI
DRILL RIG/HAMMER EFF./DATE	TRI8016 MOBILE B-57 97% 02/24/2017	DRILL METHOD H.	S. Augers HAMN	MER TYPE Automatic	l		016 MOBILE B-57 97% 02/24/2017			H.S. Augers	HAMN	MER TYPE Automatic
DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH N	/A	DRILLER Estep, J		START DATE 08/09/19	COMP. DATE 08		SURFACE	WATER DEPTH N	/A
ELEV CRIVE CHIEF C	COUNT BLOWS PER FO 5ft 0.5ft 0 25 50	OT SAMP. L O O NO. MOI G	SOIL AND ROCK DES	SCRIPTION DEPTH (ft)	ELEV DRIVE ELEV (ft) (ft)	BLOW COU 0.5ft 0.5ft		OOT SAMF 75 100 NO.	MOI	O G	SOIL AND ROCK DES	SCRIPTION
875			- 872.4 0.4' TOPSOI - ROADWAY EMBAY	IKMENT	1						0.3' TOPSO	IL o
868.9 1 3.5			TAN-BROWN, SANDY - 869.4	` ′ 30	875 874.8 1.0	4 4	3		M	TA	ROADWAY EMBAN N, CLAYEY SILTY SAN	IKMENT D (A-2-5) WITH
866.4 T 6.0	2 4 6	M	TAN, CLAYEY SILTY S	AND (A-2-5) 5.5	872.3 3.5	2 6	<u> </u>			872.8	TRACE GRAV	/EL <u>, 3</u>
865 † 36 2	0 10	М	_ TAN, SILTY SAND	(A-2-4)	870 869.8 6.0				M	870.3	TAN, SILTY SAND N AND BROWN, CLAYI (A-2-5) WITH LITT	
863.9 8.5	9 12	· · · · · · ·	- - 862.4	10.0	867.3 + 8.5	5 6	8		M	L 807.8	(/ \ Z \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
			Boring Terminated at Eleva RESIDUAL: SILTY		865	5 9	13		М 000	00- IAI	N, SLI. SILTY F. TO CS VITH LITTLE QUARTZ	FRAGMENTS
‡			- -		†				0000	00-	AND MICA	
			<u>-</u>		862.3 + 13.5	5 8	14		M 000	000- 000- 860.8		15
‡			- -		‡					Bo	ring Terminated at Elev RESIDUAL: SA	ation 860.8 ft IN AND
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	E	BORE LOG							
WBS 34497.1.1	TIP R-2707E COUNT	TY CLEVELAND	GEOLOGIST Goodnight, D. J.		WBS 34497.1.1	TIP R-2707E COUNT	TY CLEVELAND	GEOLOGIST Goodnight, D.	J.
SITE DESCRIPTION Noise Wall	10a from -L- Sta. 935+69.92, 61.76'	LT toL- Sta. 949+50.07, 72.5'	LT	GROUND WTR (ft)	SITE DESCRIPTION Noise Wall 1	0a from -L- Sta. 935+69.92, 61.76'	LT toL- Sta. 949+50.07, 72	2.5' LT	GROUND WTR (ft)
BORING NO. NW10a-13	STATION 22+50	OFFSET 1 ft LT	ALIGNMENT -NW10a-	0 HR . Dry	BORING NO. NW10a-14	STATION 23+50	OFFSET 1 ft LT	ALIGNMENT -NW10a-	0 HR. Dry
COLLAR ELEV. 874.1 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,826	EASTING 1,274,677	24 HR. FIAD	COLLAR ELEV. 873.4 ft	TOTAL DEPTH 10.0 ft	NORTHING 553,815	EASTING 1,274,776	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE TRIS	3016 MOBILE B-57 97% 02/24/2017	DRILL METHOD H.	S. Augers HAMM	IER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE TRI80	016 MOBILE B-57 97% 02/24/2017	DRILL METHOD	H.S. Augers HAI	MMER TYPE Automatic
DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH N	/A	DRILLER Estep, J. E.	START DATE 08/09/19	COMP. DATE 08/09/19	SURFACE WATER DEPTH	N/A
ELEV CHI	UNT BLOWS PER FOC 0.5ft 0 25 50		SOIL AND ROCK DES	CRIPTION DEPTH (ft)	ELEV (ft) DRIVE ELEV (ft) DEPTH BLOW COUNTY (ft) 0.5ft 0.5ft (ft)	NT BLOWS PER FOC 0.5ft 0 25 50	75 100 NO. MOI	O SOIL AND ROCK D	ESCRIPTION
875 873.1 1.0 6 11 870.6 3.5 8 7 865 865.6 8.5 4 4 4 4 4 4 4 4 4	9 14	M L	ROADWAY EMBAN TAN, CLAYEY SILTY SANI TRACE GRAV	KMENT D (A-2-5) WITH	870 869.9 1 3.5		M M	873.4 0.3' TOPS ROADWAY EMB, TAN, SILTY SAND (A-2 GRAVE RESIDU/ TAN, SILTY F. TO CSI R66.9 866.9 TAN, GRAI Boring Terminated at Ele RESIDUAL: SILT RESIDUA	ANKMENT -4) WITH TRACE -13.0 AL -5. SAND (A-2-4) -5. ROCK -8.0 NITE -10.0 NID (A-2-4) evation 863.4 ft IN