CONTENTS

-4751

REFERENCE

<u>SHEET NO.</u>
I
2
3
4
5-7
8-15
16
17

DESCRIPTION TITLE SHEET LEGEND SITE PLAN PROFILE CROSS SECTION(S) BORE LOG REPORTS SOIL TEST RESULTS SITE PHOTOGRAPHS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT**

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY <u>New</u> Hanover

PROJECT DESCRIPTION SR 1409 (Military Cutoff Rd.) to US 17 in Wilmington

SITE DESCRIPTION Bridge on SR 1409 (Military Cutoff Rd.)

(-L-) over US 17 Business/Market Street (-Y1-) at -L-

Sta. 38 + 94.20

40191 PROJECT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–4751	1	17

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 RALEGICH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, CEDTECHNICAL ENGINEERING UNIT AT 1919) TOT-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

CENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT INCEESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS 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 DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS MOICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLL MOISTIGE CONDITIONS MAY VARY CONSIDERABLY WITH TIME 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 WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPNION 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 IMINSELF 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 ACUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- FES: 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 REDUESTED 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.

PERSONNEL

D. Racey

S. Davis

J. Basham

M. Renza

D. Jenks

Catlin Personnel:

(Futral, Hudson, Miller)

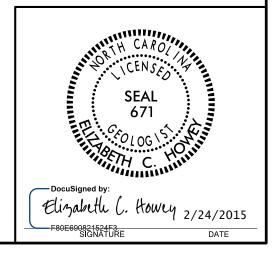
INVESTIGATED BY _____F&R, Inc.

DRAWN BY D. Racey

CHECKED BY <u>B. Howey</u>, PG, PE

SUBMITTED BY __HDR, Inc.

DATE January 2015



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

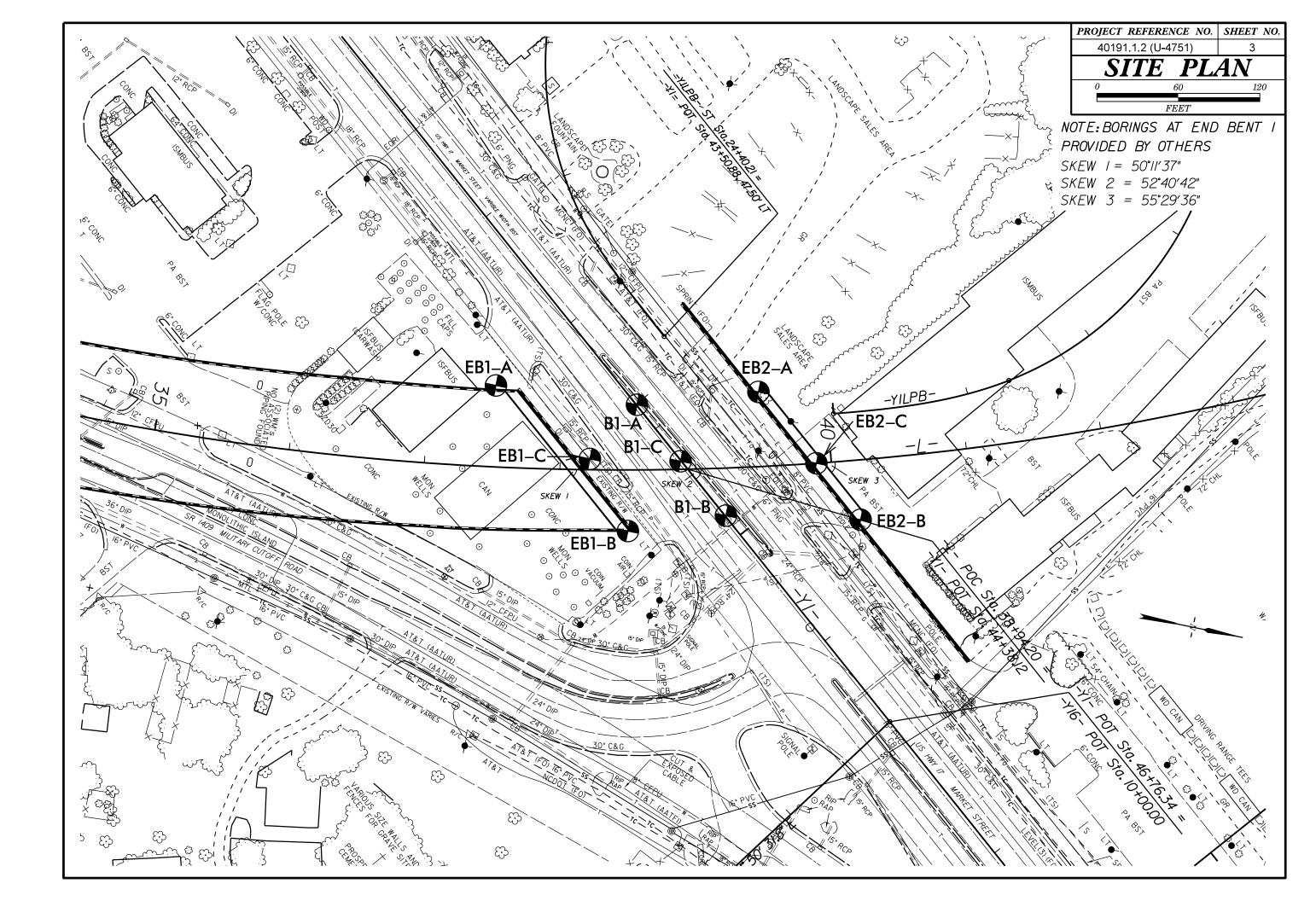
		ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	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.	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:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	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, <u>SUBANGULAR, SUBROUNDED</u> , OR <u>ROUNDED</u> .	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > NOCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
CENERAL CRANILLAR MATERIALS SILT-CLAY MATERIALS	MINERALOGICAL COMPOSITION	THE FILE TO COARSE CRAIN IGNEOUS AND METAMORPHIC POCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) UKGHNIL MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	SURFACE.
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-1-1 A-2, A-2, A-2, A-2, A-3 A-6, A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	NOR CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
A-7-6 A-7-7	COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) SIDELINE SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
SYMBOL COCCESSION CONTRACTOR	MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
X PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SEDIMENTARY SEDIMENTARY R	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
10 50 MX UHANULAR CLAY MULK, SOULC CLAY DEAT	PERCENTAGE OF MATERIAL	WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL <u>SOILS</u> <u>OTHER MATERIAL</u>	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% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING #40 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 50ILS 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
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 Ø Ø Ø 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOLLS	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 SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STORE FRAGS. FINE SILTY OR CLAVEY SILTY CLAVEY MATTER	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. DPEN 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 FRACTORE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER <u>24</u> 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 BATING	∇ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(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 UNSUITABL	E 0.000	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
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
CONSISTENCY (N-VALUE) (TONS/FT ²)	WITH SOIL DESCRIPTION FROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4	SOIL SYMBOL	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR LUUSE 4 10 10 GRANULAR MEDIUM DENSE 10 TO 30 N/O	R1	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER OUGER BORING ON CONE PENETROMETER	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
VERY SOFT < 2 < 0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.5	- INFERRED SOIL BOUNDARY - CORE BORING SOUNDING ROD	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4		SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTALLATION	ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REDUIRES	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 -	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 TOD & 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
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) SAND SAND (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	<u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	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	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB.HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF I FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	CLCLAY MODMODERATELY γ -UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_{a} -DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION CODE FOR THES HOLD ON E DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u> DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLICHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC SEMICOLIDE DEVING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANCE - WET - (W) SEMISCLIF REGULES DATING TO (P) PL PLASTIC LIMIT	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING	BENCH MARK: N/A
	EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	
OM _ OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: N/A FEET
SL SHRINKAGE LIMIT		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 ATTAIN OPTIMUM MOISTURE		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	BORING AND GROUND SURFACE ELEVATIONS OBTAINED FROM NCDOT-PROVIDED DTM FILE
	CME-55	THINLY LAMINATED < 0.008 FEET	NCDUI-PRUVIDED DIM FILE
PLASTICITY			FIAD - FILLED IMMEDIATELY AFTER DRILLING
NON PLASTIC PLASTICITY INDEX (PI)	X CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
NON PLASTIC Ø-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST TUNGCARBIDE INSERTS 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;	
	PORTABLE HOIST X TRICONE 3 1/8 STEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR		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).	CORE BIT		
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	X <u>2 ¹⁵/6 " DRAG BIT</u>	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

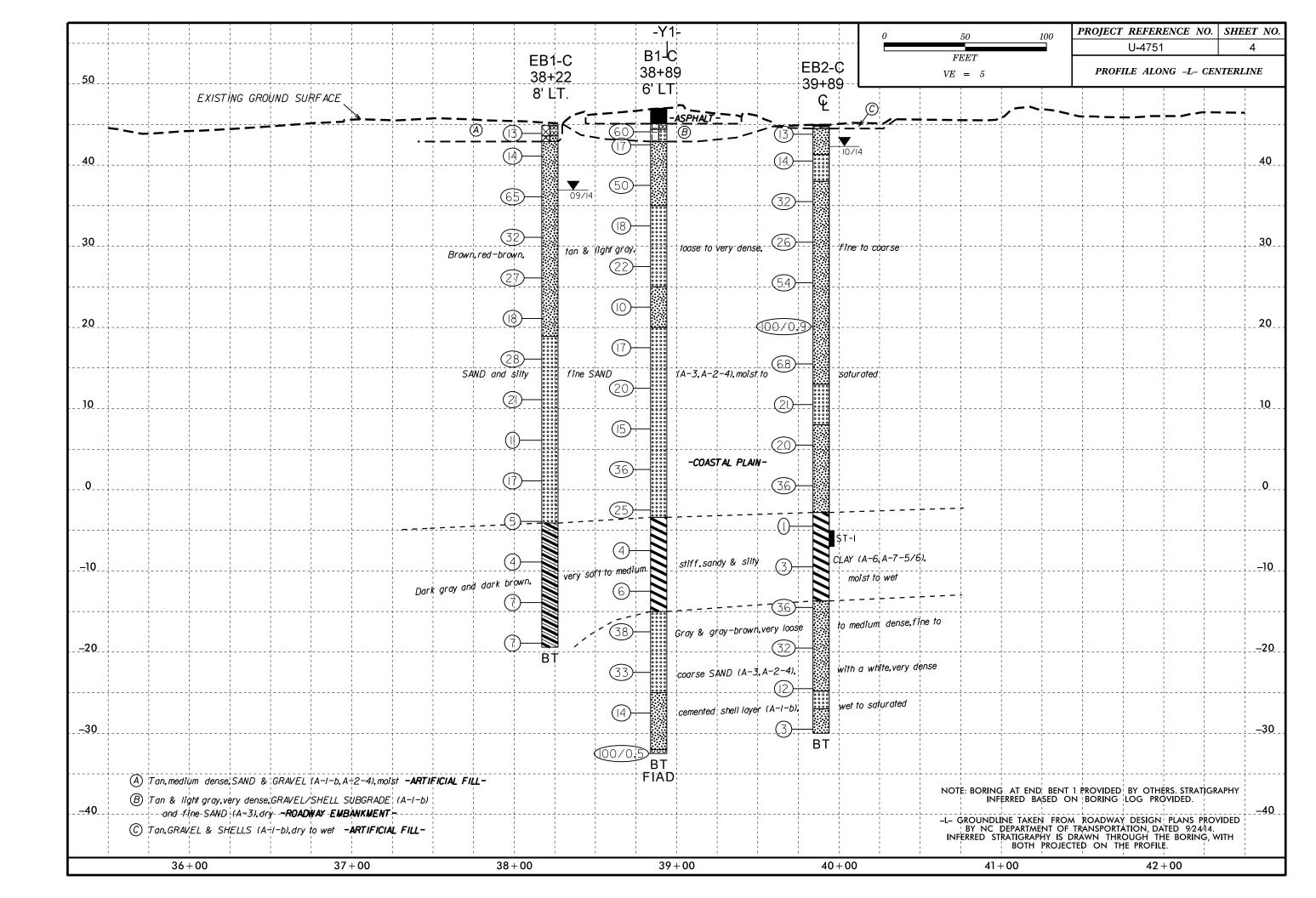
PROJECT REFERENCE NO.

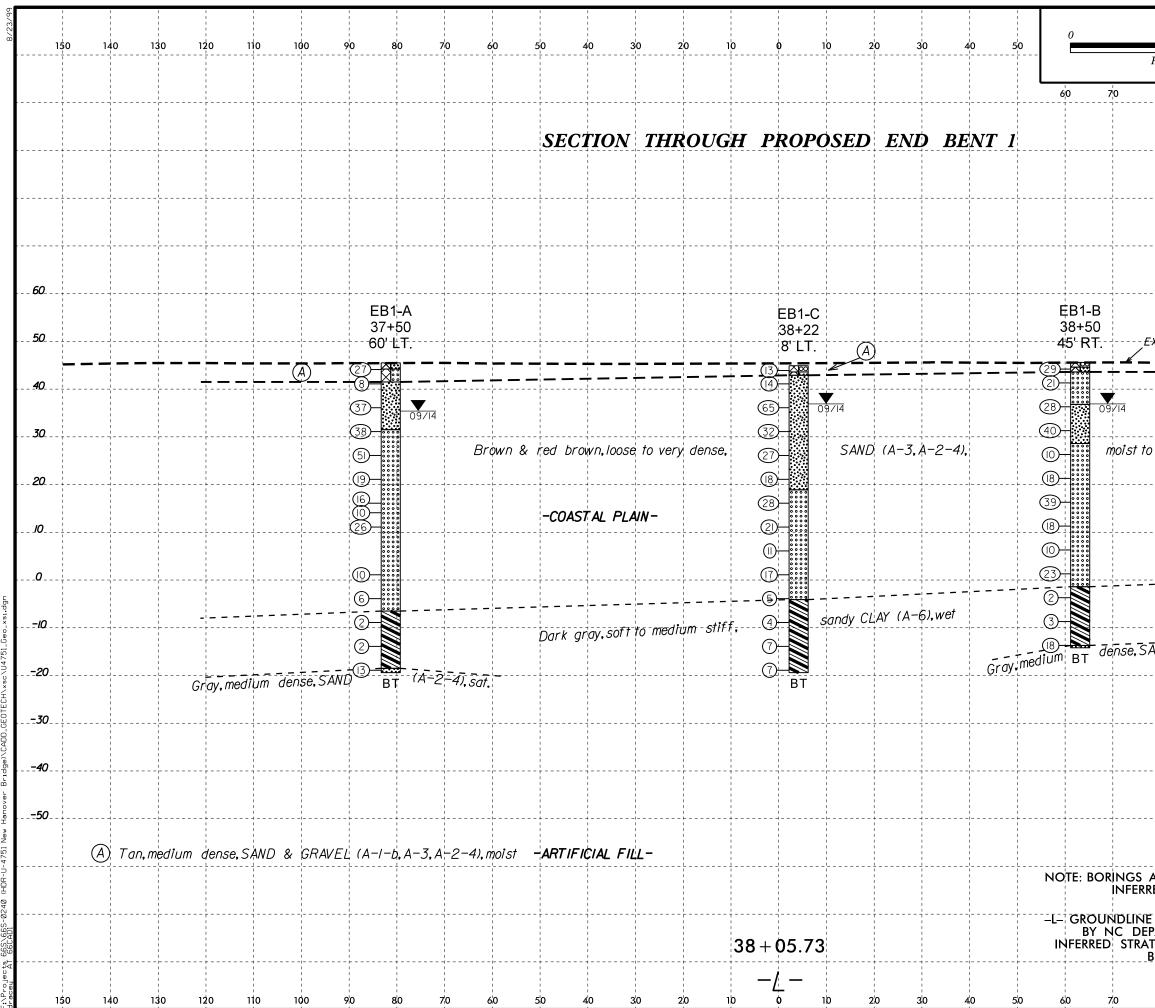


0-4/J

<u>знеет no.</u>



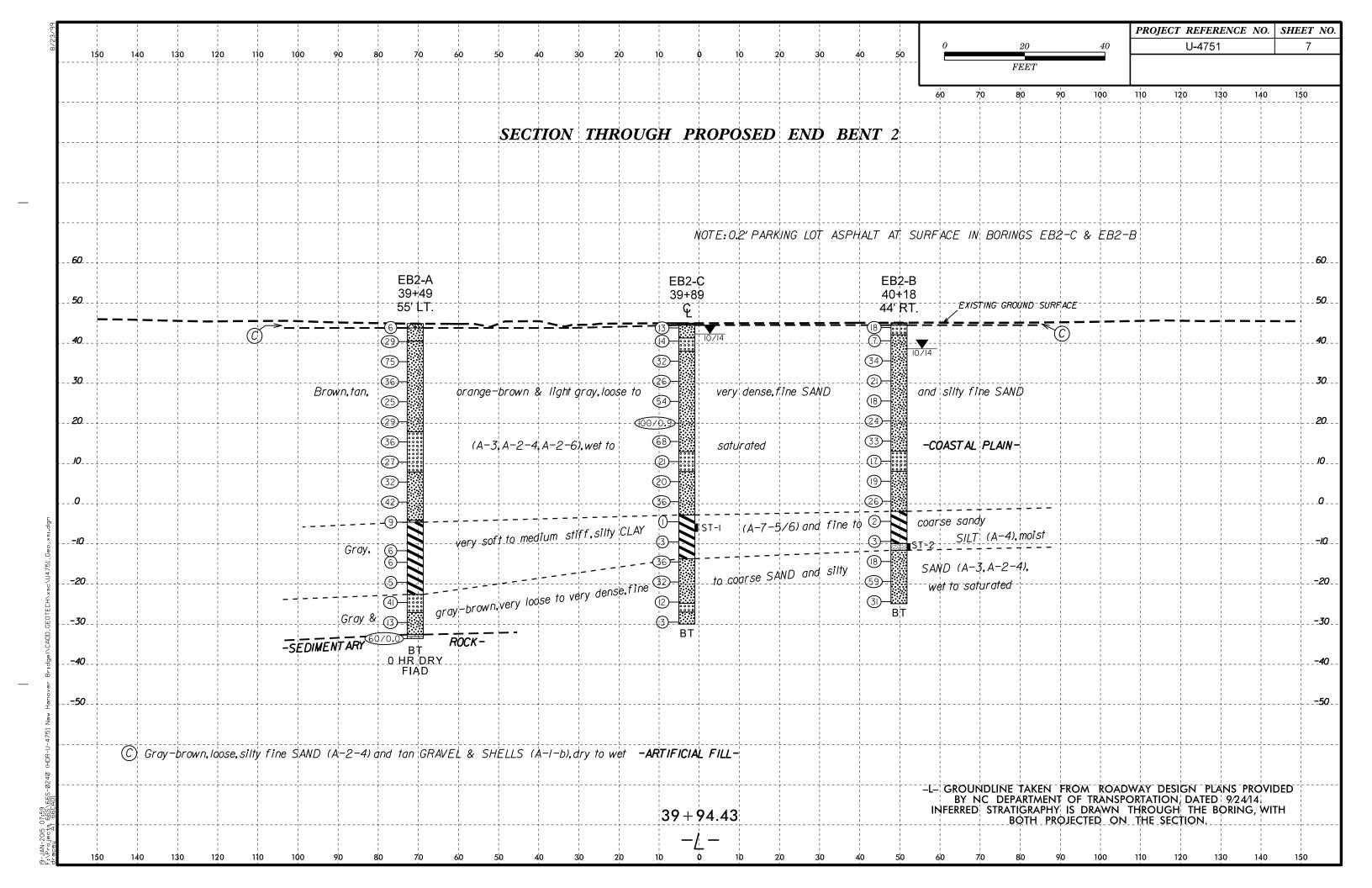




		F	PROJECT	REFER	ENCE N	O. SHEE	T NO.
20	4			U-4751			5
FEET							
80 90) 10	 D 11	0 12	0 13	30 1	40 150	
+							60
EXISTING-GRC	₩₩Ð-SU॑Ŕ	FACE				·	50
	_ <u>₹</u> _{	Ā)					
<mark>1</mark> <u>1</u> 1 1 1							40
							70
to saturated	1						30
							20
							20
							10
							0
							0
							10
SĀNĪD (A-Z	-4) sat						
	//,00/						-20
							30
		-	_				
						, , , , , , , , , , , , , , , , , , ,	_40
	 		 				50
						· · · · · · · · · · · · · · · · · · ·	
AT END B	ENT 1 P ON E	ROVIDE BORING	D BY C LOGS	PROVID	STRATIO ED.	RAPHY	
E TAKEN F	1						
EPARTMENT ATIGRAPHY		NSPOR	TATION		9/24/14		
BOTH PRC	DECTED	ON T	HE SEC	TION.	JRING,	vvII⊓ 	
80 90) 10 ⁰) 11	0 12	0 13	30 1 /	40 150	

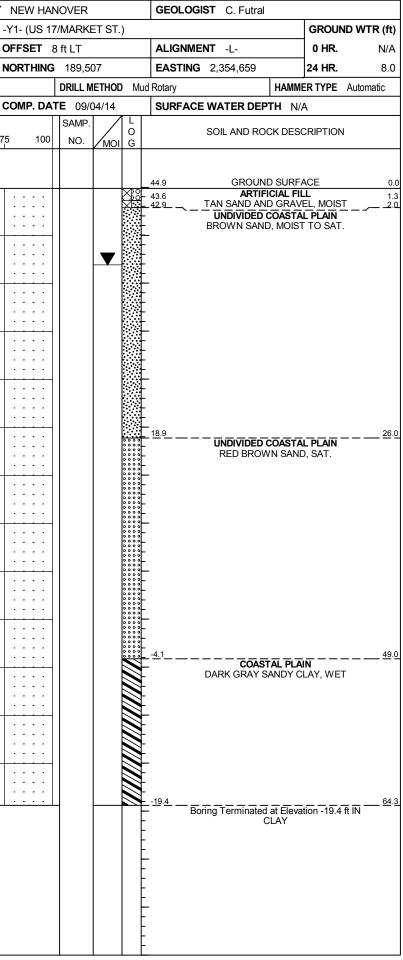
8/23/99															1							0		2	0	4
	150 	140	130	120	110	100	9 0 	80 7	70 (50 	50 4	40 30	20	10	0 		0 2	20 :	0 4 	40 	50			FE.	ET	
																						60	70	80	, ,	90 100
																		+				+				+
										- - 	S	ECTIO	N TI	HROU	U GH	PRO	POS	ED I	BENT	1		+				
	- 1				·								·									<u>+</u>				· <u>+</u>
								- ;							·							+				÷i-
60.	- +																	+			·	+				
									B1 38-	÷57				38	1-C +89					B1-B 39+21						
50_				····			· · · · · · · · · · · · ·		48'	LT		ASPI	HALT	6'_	LT	ASF	HALT			35' RT	E	XISTIN	G GROUNI	D SURFA	CE	·
40_					(₿			- <u>39</u>		÷		+	60 (17)		==:			– 62						B	
	- 			 1 1 1	·	<mark> </mark>	- <mark>-</mark>	- 1	5		- 						' ! ! !	 	30)	·					
30.					·		Bro	wn,dark	8)	<u>_bro</u> i	win_&_ta	h,loose_to_	very	18	<u></u>	ense,fir	e_to_co	arse SA	ND 3		(Å-3,	.A-2-	-4),			
									0/0.9					22	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		1 1 1 1	 	26							
20 _	- +	 	 		·	l	 	-+		0 0 0 0	-+		·				 	 +	(17 (34)			+ 				
									25	• • • • • • • • • •	moist t	to saturate	ed	20-		COAST	AL PLA	N-								
<i>.</i> IO_	$-\frac{1}{1}$!	- L						L- 	(5	0 0 0 0		 	1 	5	0 0 0 0 _ 0 0 0 0 0 _ 0 0 0 0				 		
0.	- 1	, , ,						 	0-	<u>.</u>				36-	0 0				(6	0000 0000 0000		 				· · · · · · · · · · · · · · · · · · ·
								- k browr						- 25-			lty CLA					· 7 <i>-5</i> 76				
-10	- +	 	 					k DI OWI	/ U- 3-]		oft to medi		(4)			 	/ ₁ +	2				it to we	<i>t</i>		
									8	N	÷			- <u>6</u> - <u>3</u> 8					(4) (27))						
_ 20			<mark> </mark>		·		&-gray-	1	2-		-very-loo	se-to-med	រំប៣	33-	de	nse,fin	e- <i>to-co</i> c	11-se	23		SAND	+-(A-3	3, A-2-	4);		<u>+</u>
=30	- 1					with w	hite,very	dense,			cemente	d shell lay	vers	(4-	(′А-1-b),	wet to		1)	satur	ated				
									5-Li B	∰ T AD			Ø)0/0.5 E	BT AD				00/0.							
-: 40	- +								۶I	4D			·	ні 	AD				3	BT FIAD		+				· -
																				FIAD						
- 50	- +		 		·			- -	 	 	- +			+-	·		, 	+ + - - -	- 		· ·	+				
	B	1			medium de) (A-3),dr					<u>LL</u> SU	BGRADE	(A-/-b)	·									L_ C		JLINE T	AKEN -	FROM R
66CAU]						y nor			·····	 					38+9	94.20			 	 		INF	BY NC	DEPAR		T OF TRA Y IS DRAV OJECTED
 a														+-	_/							+ 		μa		ΨJECIED_
000000000000000000000000000000000000000	150	140	130	120	110	100	90	80 7	τ <mark>ο ά</mark>	50	50 4	40 30	20	10	<u>د</u>	-) 1	0 2	zio :	0 4	lo	50	60	70	80	j ¢	90 10(

						PROJECT	REFER	ENCE N	O. SHE	ET NO.
	0		20		40		U-4751			6
-		F	EET		-					
6	0 7	ν <mark>ο ε</mark>	30 9	0 10	I þo	110 1:	20 1:	30 14	40 1:	50
	+	 		- 				+		
	 	- 	 	 	 		 		 	
	+		 	+	 		 	+	 	
	<u> </u> 	/ !	! ! !	<u> </u>	! ! !	!	L 		! ! !	! ! !
	1 	1	1	1 			1		1 1 1	, , , ,
	T I I I	7 ! !		T I I I	1			Гт ! !) ! !	 ! !
	 	 	 	 			 			60
	+	 		+	 		 	+	 	
EXIST	ING GROU	ND SURF	ACE							50
		<u></u> -				· ÷ - -				
			+(B)	 	 				 	40
	, 1 1 1	 		' 					, , , ,	, 1 1 1
3.A-2	2-4).	i 	i I I I	.	, , ,	; ; ;	i i r r	i i i i i i i	, , , ,	30
	 +	' ' 	 	 +	 	 	 	+	 	20
	, 1 1 1	1	1	, 	 		1		, 	
 	 	 	 	 <u> </u> 	 	 	 	 	 	
	 			 					1	1 1 1
	, , , , , ,	; ,		' ' T	; ; ;				, , ,	<i>0</i>
 -7-5,	 /6)		1 1 1	1 1 1			1 1 1		1 	1 1 1 1
	ist to w	het	 	 + 	 		 	+	 	=_!0
			1	 	1 1 1		1		1 1 1	1 1 1 1
D-fA	-3, A-2	-4),	 	 	 		 	 	 	-20
rated		 		 					 	1 1 1
	 	 		<u> </u> 		¦	 			-30
	 			 				+	1 1	-40
	, 			, 	, 				, 	
	+		 	+	 	 	⊢ I I I	+	 	_50
	 			 						1 1 1
	<u> </u> 	2 ! !	 1 1 1	<u>+</u>	! ! !	 	L	±	/ 	L ! ! !
	 			, 	 				 	
-L-	GROUN BY N	NDLINE	TAKEN	FROM OF TR	ROAD\ ANSPC	VAY DESI DRTATION	GN PLA DATED	NS PRC	VIDED	
١N	IFERRED	STRATI BC	GRAPHY	IS DRA	WN 1 ON	RTATION HROUGH THE SEC	THE B	ORING,	WITH	
	•		, 					+	1 	
6	0 7	ήο ε	30 9	0 10	bo	110 1:	20 1:	30 14	10 1	50



-	4019					P U-475 ⁴				NEW HA			• ,	GEOL	OGIST C. Futral					4019		0010	05.0		P U-4751			
		EB1-/		GEO		TATION		- RD.)		-Y1- (US 1 OFFSET			.)				GROUND	WIR (π) N/A		ING NO.			GE O		MILITARY		RD.) OVE	
		EV. 45			_	OTAL DEF		9 ft		NORTHIN				_	ING 2,354,620		4 HR.	10.1		LAR EL					DTAL DEP		ft	
				E CAT		ME-550 77.2					1		D N	/ud Rotary			TYPE Au						E CAT		ME-550 77.2			
		V. Miller				FART DAT				COMP. DA					ACE WATER DEPTH					LER V					ART DAT			cc
ELEV	DRIVE ELEV		BLC	w col	_				FOOT		SAMP.	. 💙/			SOIL AND ROCK D				ELEV	DRIVE ELEV	DEPTH	BLO	W CO				PER FOO)Т
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50		75 100	NO.	мо	I G	ELEV. (ft				DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
50		+												-					45	44.9	- 0.0	11	6	7				
		ŧ												F						42.1	$\frac{1}{28}$		0		· · • • 13·			
45	45.1	† †												45.5	GROUND SL			0.0	40		+	2	6	8	· · • • 14			: :
	-	Ŧ	4	12	15		•27				1			44.2	ARTIFICIA TAN SAND AND GE			1.3		-	Ŧ					·		
	42.1	<u>] 3.4</u>	3	3	5								X	4 <u>1.5</u>				4.0		37.1	<u> 7.8</u> 	28	35	30				35
40	-	ŧ									-				BROWN SAND, M				35	-	ŧ					· · · · ·		<u> </u>
	37.1	8.4	<u> </u>	10	0.1			: :	· · ·	· · · ·										32.1	12.8		17					· ·
35	-	ŧ	'	13	24		• • • • • •	7		· · · ·			-						30	_	ŧ	9	17	15		4 32 · ·		· .
		±						· · ·	· · · · · ·	· · · · ·				-							±							· · ·
30	32.1	<u> 13.4</u>	18	17	21			 8	· · ·					<u>- 31.5</u>				<u> </u>	25	27.1	<u> 17.8</u> -	9	12	15		4		
	-	‡					· · · · ·	<u>, .</u>							RED BROWN S				25	-	ŧ					1		· ·
	27.1	18.4	11	20	31			<u>}</u>	· · · · · ·					0 0 0						22.1	22.8	4	8	10		' · · · · · · · · ·	· · · ·	: :
25	-	‡		20	01			– – 51	1 · · ·					°					20	-	ŧ		0		· · · •••1	8		· ·
	22.1	+ + 23.4						· · ·	· · · · · ·	· · · · ·										17.1	+ 27.8					N ::::		
20		+ 20.4	7	9	10	· · · •	19	: :						° -					15		+ 27.0	7	13	15		● 28		: :
	-	Ŧ											000	000						-	Ŧ					1		
	17.1	28.4	4	6	10															12.1	32.8	6	9	12				
15	15.1	30.4	3	4	6	• • 10				+				-					10	-	Ŧ				– – – –	+ • • • •		
	12.1																			7.1	T 37.8							
10	_	Ŧ	7	12	14		26							0 0					5	_	Ŧ	3	4	7	•11			
		ŧ					$\binom{1}{1}$	· ·	· · ·	· · · ·											ŧ				: : Y :			
_		ŧ						: :	· · ·											2.1	42.8	3	7	10		7		: :
5	-	ŧ				· · · /							000						0	-	ŧ				· ./	· · · · ·		. .
	2.1	43.4	3	4	6	::/::		: :	· · · · · ·	· · · · ·										-2.9	47.8	6	3	2				: :
0	-	‡		+	0	- 6 10 -		· ·						• •					-5	-	ŧ		5		• 5		· · · ·	· ·
2	-29	+ + 48.4						· · ·	· · · · · ·	· · · · ·				• •						-7.9	+ + 52.8				(: : : :			· ·
-5	-2.9	+ +0.4	2	3	3	6		: :	· · · ·										-10	-1.9	+	WOH	2	2	↓ • • • • • • • • • • • • • • • • • • •			: :
	-	Ŧ				1							000	<u> </u>				<u>52.0</u>		-	Ŧ				1			
	-7.9	53.4	1	1	1				· · · · · ·						DARK GRAY SAND	PLAIN DY CLA'	Y, WET			-12.9	57.8	2	3	4				
-10	-	Ŧ				Ψ ² · · ·								-					-15	-	Ŧ							
	-12.9	T 58.4												Ŧ						-17.9	T 62.8							
-15		Ŧ	WOH	WOH	2	Q 2								£							<u>I</u>	WOH	2	5	7			<u> </u>
	-	Ŧ																		-	Ŧ							
-15	-17.9	<u> </u>	6	9	4									18.5	COASTAL			<u>64.0</u> 64.9			ŧ							
	-	1				<u> </u>				1	-			-	GRAY SAN	D, SAT.				-	ŧ							
		ŧ												F	Boring Terminated at E SANE	Devation	n - 19.4 π II	N			ŧ							
	-	‡												F						-	‡							
		‡												‡							‡							
1 CDOI		‡												ŧ							‡							
د 📖		<u> </u>										-		L					L	-	-							

SHEET 8 OF 17



WBS	40191					P U-4751	COUNT		NOVER		GEOLOGIS	T S. Hudsor	 ו		
			BRI			MILITARY CUTOFF F				T ST)	020200.0	0.1100001			WTR (ft)
	NG NO.			<u> </u>	_	TATION 38+50		OFFSET			ALIGNMEN	T _1 _		0 HR.	N/A
	AR ELE				_	OTAL DEPTH 59.8 ft		NORTHING		15	EASTING			4 HR.	8.7
				E CAT		ME-550 77.2% 01/09/2014					Id Rotary	2,004,700			
	LER W		F./DATI	E CAI		TART DATE 09/04/1		COMP. DA				WATER DEP		ITPE A	ulomatic
				W COL			PER FOOT		SAMP.	J4/14	SURFACE	WATER DEP	IN N/A		
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft		0.5ft	4		75 100	NO.	MOI G		SOIL AND ROC	CK DESCR	IPTION	DEDTU
	(11)						1	1			ELEV. (ft)				DEPTH (1
50															
50		-									-				
	-	-									_				
45	45.2	0.4	9	11	18	 					- 45.6 44.6) SURFAC	E	0
	-				10	●29 · · · · · · · · · · · · · · · · · · ·	· · · ·				<u>- 43.6</u> <u> </u>	AN SAND AND	O GRAVEL		
	42.3	3.3	5	10	11					0000	-	BROWN SAND			
40	-	-						· · · · ·			-				
	37.3	8.3									36.8				8
35	-	F	9	13	15	Q28					-				-
	-	-									-				
	32.3	13.3	10	18	22						-				
30	-	-									-				
	27.3	- 18.3									- 28.6 -				17
25		- 10.0	2	4	6					0000	-				
25	-	-									-				
-	22.3	23.3	4	8	10					0000	-				
20	-	L		Ŭ	10	18				0000	-				
	-	-									-				
ŀ	17.3	28.3	4	17	22					0000	_				
15	-	-								0000	_				
	12.3	33.3								0000	-				
10	-	F	6	8	10	€ 18					-				
	-	F				· · · · · · · · ·				0000	-				
-	7.3	38.3	1	4	6					0000	-				
5	-	-									-				
	2.3	- 43.3				: : X: : : : :				0000	-				
0		-	4	9	14	23				0000	-				
	-	-								0000					47
-	-2.7	48.3	WOH	WOH	2		· · · ·				- - C	COAST ARK GRAY SA	ANDY CLA		
-5	-	-			-	$\begin{array}{ } \bullet 2 & \cdot & \cdot & \cdot & \cdot & \cdot \\ \bullet & \bullet & \bullet & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet$					-			,	
		-				<mark> </mark>					-				
	-7.7	53.3	wон	1	2						-				
-10	_	F						+			-				
-	-12.7	58.3	2		1 /						-				
ŀ		<u> </u>	2	4	14	<u> ∳</u> 18 <u></u>	<u> </u>		-		<u>-13.7</u> <u>-14.2</u>	COAST			59 59
	-	F									Borii	<u>GRAY S</u> ng Terminated S	AND, SAT	n -14.2 ft	IN
	-	F									-	S	AND		
	-	[-				
	-	F									-				
	-	F									-				
	-	F									-				
	-	F									-				
	-	t									_				

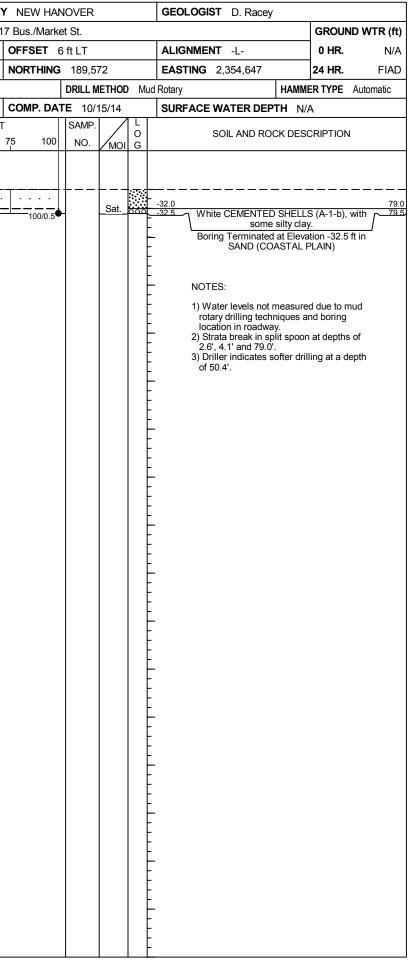
SHEET 9 OF 17

1		ESCRIPTION Bridge on SR 1409 (Military Cutoff Rd.) over US 17 Bus./Market St. G NO. B1-A STATION 38+57 OFFSET 48 ft LT ALI IR ELEV. 47.1 ft TOTAL DEPTH 80.0 ft NORTHING 189,532 EAS IG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/22/2014 DRILL METHOD Mud Rotar ER S. Davis START DATE 10/15/14 COMP. DATE 10/16/14 SUF DRIVE (ft) DEPTH (ft) BLOW COUNT (ft) BLOW COUNT (ft) BLOW COUNT (ft) BLOW COUNT (ft) BLOW COUNT (ft) BLOW COUNT (ft) DeptH (ft) D MOI G (ft) L (ft) L (ft)]		10:					.			001	
																GEOLOGIST D. Racey			-		0191.1					P U-4			COUNT	
				je on S		-		-	over U														Bridg	je on S				,	over US	_
										_						ALIGNMENT -L-		0 HR. N/A				B1-A			_	TATION				-
											NORTHING	1				EASTING 2,354,613		24 HR. FIAD	-			/ . 47						8 0.0 f	t	
			F./DATE	E F&R														ER TYPE Automatic	-				F./DATE	E F&F				2/22/2014		
DRIL					_						COMP. DA			4	;	SURFACE WATER DEPT	H N/.	A	DRIL		S. [10/15/1		0
ELEV	DRIVE	DEPTH	BLO								- 400		17			SOIL AND ROCI	K DES	CRIPTION	ELEV	/ DR EL	IVE EV	EPTH		W CO					PER FOO	
(ft)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25		50		5 100	NO.	/м	OI G	i E	.EV. (ft)		DEPTH (f) (ft)	(1	t)	(ft)	0.5ft	0.5ft	0.5ft	0	25)	50	7
50		Ļ													F				-30	<u> </u>								Mato	h Line	
	-	‡													F ₄	GROUND	SURF	ACE 0.		-3	1.4 +	78.5	3	2	3	j.		· · · · ·	· · · ·	
45	45.2	1.9														19	1													
40	45.2 1.9 45.2 ASPHALT 43.6 3.5 23 16 23														KMENT2			+												
	-	1.9 .														, with trace silt5.			‡											
40	9 (ft) (1) 0.5tt 0.5tt 0.5tt 0 25 50 7.5 100 NO. MOI G ELEV. (ft) 0														V fine SAND			1												
																	y			ŧ										
	-	1.9 Asphalt 3.5 23 16 23 13 14 13 8.5 20 24 27 13.5 27 43 38 13.5 27 43 38 13.5 27 43 38 14.5 35 53 47/0.4 18.5 35 53 47/0.4 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 23.5 2 4 5 100/0.9 100/0.9 100/0.9 125.1 Tan & brown, fine to coarse SAND (A-2-4), with trace sitt 20.1 Tan fine 5 (AND (A-3), with trace sitt																	ŧ											
35	-																		+											
		T 13.5	3.5 13 14 13 13 14 13 8.5 20 24 27 13.5 27 43 38 13.5 27 43 38 18.5 35 53 47/0.4 23.5																	Ŧ										
30	-	Ŧ					-								1						Ŧ									
	28.6 -	18.5			17/0 /				· ·						F						Ŧ									
	-	‡	35	53	47/0.4		-	· · · ·				•	W		1						‡									
25	-	ŧ					-								2	.1		<u>SAND (A 2 4)</u> 22.0			‡									
	23.6 -	35 53 47/0.4 100/0.9 23.5 23.5 with trace silt														SAND (A-2-4),			‡											
	-	‡					2	· · · ·		::					<u> </u>			07.0			‡									
20	186 -	- 28 5				`	<u>.</u>		<u> </u>					000	2	Tan, fine SAND (A	4-3), wi	ith trace silt.			\pm									
	-10.0	1 1	8.5 20 24 27 13.5 27 43 38 18.5 35 53 47/0.4 23.5 2 4 5 28.5 4 9 11 33.5																	ŧ										
15	-	Ł																		Ŧ										
	13.6	33.5	6	12	13	• • •	- 1			•••				000							Ŧ									
	-	Ŧ		12	15		• 1	5					w	000							Ŧ									
10	-	Ŧ					+							000	1	Tan, silty fine	SAND	(A-2-4)			Ŧ									
	8.6 -	+ 38.5 +	3	4	6	· · /	-	· · · ·		•••	· · · ·		w				0/110	(/(2-1)).			‡									
5	-	ŧ				<u></u>									1						‡									
5	36 -	+ 43.5																			+									
	-	ţ	1	3	4	i 4 7	:			· ·	· · · ·		W								±									
0	-	ŧ				· ``	-								<u> </u>	1		47.0			Ŧ									
ۍ	-1.4 -	48.5	5	7	9		•		· ·	· ·	· · · ·		w	000		Tan & gray, fir	ne SAN	ID (A-3).			ŧ									
1/19/15	-	ł			Ŭ	r •	016			•••			**			.2 Gray, silty CL	AY (A	-7-5/6)			ł									
-5 -5		Ŧ				 			+												Ŧ									
DOT.G	-6.4 -	+ 53.5 T	wон	WOH	1	•1 · · ·	-						м		Ŧ						Ŧ									
집 일 -10	-	Ŧ					-														ŧ									
	-11.4 -	- 58.5				1						11									‡									
99.90	-	‡	IMOH	WOH	3	• <u>3</u>	-	· · · · · · · ·		· ·	· · · · · · · ·		M		\$						‡									
00 20 20 20 20 20 20 20 20 20 20 20 20 2	-	‡				· ```	-		· ·						<u>+</u> -1	4.9		<u>62.0</u>			‡									
GEO	-16.4 -	63.5	3	6	12			· · · ·	· ·	•••	· · · ·		w			Interlayered dark b SAND (A-2-4) & si	rown-g Ity CLA	aray, siity fine Y (A-7-5/6).			ŧ									
51	-	t		-		· · /	• 18			::	· · · ·		"								ŧ									
<u>4</u> -20 ш	-21.4 -	+														9.9 Gray-brown, silty fin	e SANI	D (A-2-4), with 67.9	41		+									
	-21.4 -	+ 68.5 T	2	0	2	•2	-						Sat	t.		some	e clay.				Ŧ									
	-	Ŧ				\ <u>\</u>	-								-2	4.9		72.0			Ŧ									
BOR	-26.4 -	73.5	<u> </u>			.\						11				Dark gray, fine to co with tra	barse S	SAND (A-2-4),]		Ŧ									
-30		‡	5	7	5	• •1	2	· · · · ·	· · ·	· ·	· · · · · · · ·		Sat	t.	1	with the	oc old	<i>j</i> .			‡									
-30	-	<u>†</u>				· / ·	-		· ·																					

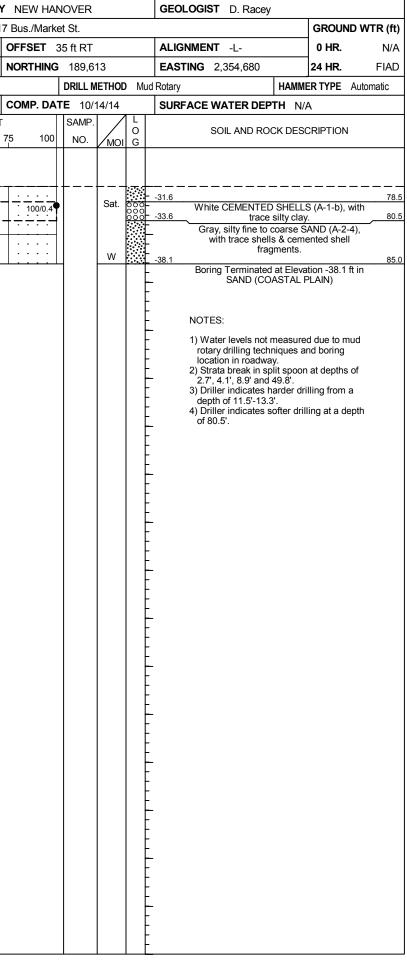
NEW HAN	OVER			GEOLOGIST D. Racey		
7 Bus./Marke	t St.				GROUN	ID WTR (ft)
OFFSET 4	8 ft LT			ALIGNMENT -L-	0 HR.	N/A
NORTHING	189,53	32		EASTING 2,354,613	24 HR.	FIAD
	DRILL M		Muc	1	IER TYPE	Automatic
COMP. DAT		16/14		SURFACE WATER DEPTH N		
	SAMP.		L			
75 100	NO.	моі	O G	SOIL AND ROCK DES	CRIPTION	
<u> </u>				Dark gray, fine to coarse s	SAND (A-2-	-4),
		Sat.	¥	-32.9 with trace clay. (col Boring Terminated at Elev		80.0
				SAND (COASTAL	PLAIN)	
				NOTES:		
				1) Water levels not measure	ed due to m	nud
			[rotary drilling techniques a location in roadway.		-
			F	Strata break in split spoo	n at a depti	n of
			F	2.5'. 3) Driller indicates softer dri	lling at a de	epth
			F	of 50.3'.		
			Ŀ			
			F			
			ļĘ			
			ĹĹ			
			F			
			F			
			F			
			F			
			F			

WR	40101	ESCRIPTION Bridge on SR 1409 (Military Cutoff Rd.) over US 17 Bus./Market St. S NO. B1-C STATION 38+89 OFFSET 6 ft LT R ELEV. 47.0 ft TOTAL DEPTH 79.5 ft NORTHING 189,572 G/HAMMER EFF./DATE F&R2175 CME-55 76% 02/22/2014 DRILL METHOD Mud R R S. Davis START DATE 10/14/14 COMP. DATE 10/15/14 RIVE DEPTH BLOW COUNT BLOWS PER FOOT SAMP. L (ft) 0.5ft 0.5ft 0.5ft 0.5ft 0 25 50 75 100 NO. MOI G E 43.5 3.5 32 32 22 38.5 8.5 18 23 27 50														JIST I	D. Race	,			WRS	40191	12			Т	P U-	4751		COUNT	rv
			Bride	10 0n C											-0-00			,		OWTR (ft)				Brid					utoff Rd.)		
			-					.) over c							IGNM	ENT -	1		0 HR.	N/A	-	NG NO.					-	N 38	-		
					_			ft				72		_		G 2,35			24 HR.	FIAD		LAR ELE							H 79.5 ft		
											1					3 2,30	54,047		R TYPE						E E90)2/22/2014		
			F./DAT															TH N/A		Automatic		LER S.		T./DAT					10/14/1	4	6
	DRIVE		BLO											30					1		-			BIC	ow co			DAIL	BLOWS		
ELEV (ft)		DEPTH (ft)				0				5 100		17		ELE	(4)	SOIL	AND RC	CK DESC	RIPTION	DEPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	(ft)	0.5ft	1	0.5ft	0	2		50	7
	(14)							I	I						v. (it)					DEPTH (II)		(11)						I		1	
50																					20								Mate	h Line	
50	-	÷												F							-30	-31.5			+		+				.
	-	<u>+</u>												47.0					CE	0.0			-	16	100/0.	5		· I	·		<u> </u>
45	45.1	1.9 ASPHALT 1.9 45.1 5 3.5 6 6 11 45.1 5 3.5 6 6 11 1.10 1.10 1.10														1.9		-	F.												
	43.5	3.5		32 28 ASPHALT 6 11														-b). 4.1		-	ł										
10	-	ŧ						: :						1	\ Li	ght gray	y, fine SA	ND (A-3), TAL PLAI	with trace s	silt.		-	ł								
40	385 -	- 85			28 45.1 11 60 11 11 11 11 27 11 27 11 27 11 11 11 12 12 13 12 14 12 14 12 15 12 16 12 17 12 18 12 19 12 10 12 <td>)</td> <td></td> <td>-</td> <td>F</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>)		-	F									
			18	23	27		· · · ·	50	· · ·			M					(,.				-	ŧ								
35		ŧ					· · /	·						35.0			<u></u>			<u> 12.0</u>		-	ŧ			1					
	33.5 -	13.5	5	8	10	· · · ·		- -	· · ·			Sat	0000		Br	own to o				NITH		-	ŧ								
	-	ŧ		-	-		18	: :	· · ·				0000									-	ł								
30	28.5 -	- 18.5				1							0000									-	F								
	- 20.5	10.0	5	10	12		22	: :	· · ·	· · · · ·		Sat.	0000								-	ŧ									
25	-	Ł				· · · /							0000	25.0						<u>22.0</u>		-	Ł								
	23.5	23.5	3	4	6		· · · ·	· · · ·	· · ·	· · · · ·		Sat.			D	ark brov	wn, fine t	coarse S	SAND (A-2-	4).		-	ŧ.								
	-	ŧ						: :	::			J Jai.		1								-	ŧ								
20	18.5	28.5				· · · · ·	· · · ·						0000	20.0	– – – <u>–</u> Br	rown to	tan & ligh	t gray, fin	e SAND (A	- <u>3),</u> <u>27.0</u>		-	F								
		20.5	4	7	10	:: \	7	· · · ·	· · ·	· · · · ·		Sat.	0000				with	trace silt.				-	l l								
15		ŧ				· · · · · ·			• •				0000									-	F								
	13.5	33.5	5	9	11	· · · · ·		· · · ·	· · ·	· · · · ·		Sat.	0000									-	ŧ								
10	-	ŧ		-		7	20		· · ·	· · · · ·			0000									-	ł								
10	8.5 -	- 38.5				<u> </u>							0000									-	÷								
	-	-	3	6	9			· · · ·	: :	· · · · ·		W	0000									-	ł								
5		ŧ				· · · `	<u> </u>	· · ·					0000									-	ŧ			1					
	3.5 -	43.5	8	15	21		× · · ·	· · · ·	· · ·	· · · ·		w	0000									-	ŧ								
0	-	ŧ						: :	· ·	· · · · ·			0000									-	ŧ			1					
0	-1.5	48.5					1						0000										ŧ			1					
1/19/15	-	‡	10	15	10	· · · · ·	¢25	· · · ·	· ·	· · · ·		w		3.4						50.4		-	ŧ			1					
		ŧ					· · ·							<u> </u>	C	Gray to c	dark brow	n, silty CL	AY (A-7-5/	6).		-	ŧ			1					
DT.GDT	-6.5 -	53.5	WOH	2	2	· · · · ·	· · · ·	· · · ·	· ·	· · · ·		м		ļ								-	ŧ			1					
	-	ŧ						: :	· ·	· · · · ·				ł								-	ŧ								
GPJ CG	-11.5	- 58.5												F									ŧ			1					
0 <u>.</u> 0	-	‡	2	2	4	•6 <u>,</u>		· · · ·	· ·	· · · ·		м		ļ								-	ŧ			1					
.9028 -15		ŧ				· · ×.	$\begin{pmatrix} \cdots \\ \cdots \end{pmatrix}$							- <u>15.0</u>)		abt ar	fine SAND		<u>62.0</u>		-	ŧ			1					
GEO	-16.5	63.5	16	19	19			· · · · · ·		· · · ·		w	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			LI	yni gray,	me SANL	ν (A-3).			-	ŧ			1					
-20	-	ŧ					· · T ³⁰	³ . .	· ·	· · · · ·			0000									-	ŧ			1					
	-21.5	- 68.5											0000										ŧ								
OUBI		+	10	13	20		33	· · · ·	· ·	· · · · ·		w	0000									-	ŧ			1					
BORE DOUBLE		ŧ					/						0000	- <u></u>	<u>)</u>					<u>72.0</u>		-	ŧ			1					
T BOI	-26.5	73.5	4	6	8	• • • •	' 	· · · · · ·	· · · ·	· · · ·		Sat.		1	l	Dark gra	ay, fine to with	coarse Sa trace clay	AND (A-2-4	·),		-	ŧ			1					
-30	-	ŧ				• • • • • •		: :		· · · · ·				ł								-	ŧ			1					
9 -30		L	L	I		i						1		<u>الم</u>									L		1	1	L				

SHEET 11 OF 17



Miles Applie 12 The LATS County VEX.MAX.PERT GREADAD THE
LOBING DB 35:3 STATION 39:21 OPFER 135 Intr ALLOWMENT
OULDAR LEV 40.9 TOTAL DEPH. INC.01 MORTHME 110.013 EATING 2.54.800 Jake DOLLAR LEV 40.9 TOTAL DEPH. INC.01 BBU BOMMENT CDD. LET. FX01: 00: 553 NO.0003// 91.00 TOTAL DEPH. INC.01 INC.020 INC.020 INC.020 INC.020 TOTAL DEPH. INC.01 INC.020
DBLEMANNAMENT FLATE DEL BOLYANCE ST 195: 2022114 DEL BOLYANCE ST 195: 2022114 DEL BOLYANCE ST 195: 2022114 INC. DEL BOLYANCE ST 195: 2022114 DEL BOLYANCE
IDBLLER S. Defe START DATE OUTENT DATE
Line Direction During Direction Du
10 10 100
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $
43 43 43 44 43 44 43 45 <td< td=""></td<>
45 42 43 44 <td< td=""></td<>
45 42 <td< td=""></td<>
a 45.2 11 24 37 25 11 24 37 25 11 24 37 25 11 24 37 25 11 24 37 25 11 24 37 25 11 24 37 25 11 <t< td=""></t<>
area
$\begin{array}{c c c c c c c c c c c c c c c c c c c $
-9. -9. -9. -0. -
384 3.5 10 12 18 30 31 <
$ \begin{array}{c} 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 $
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
30 20 214 112
30 -284 105 12 12 14 -0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
25 234 235 5 8 9 1
23.4 23.5 5 8 9 17 10 <t< td=""></t<>
2.4 2.4 2.5 8 9 1 10 <td< td=""></td<>
20 18.4 22.5 9 15 19.2 Brown to tan & light gray, fine SAND (A.3), 27.0 15 13.4 33.5 5 7 10 4.4 36.5 7 10 10 8.4 38.5 2 2 3
18.4 28.5 9 15 19 15 13.4 33.5 7 10 10 8.4 38.5 2 2 3 5 4 10 10 10 10 10 8.4 38.5 5 8 8 10 10 10 10 8.4 38.5 5 8 8 10
15 13.4 33.5 5 7 10 10 8.4 38.5 2 2 3 5 3.4 43.5 8 8 1 1 1.6 6.6 5 4 1 <
15 13.4 33.5 7 10 10 8.4 38.5 2 2 3 5 3.4 43.5 8 8 0 10 10 10 10 10 10 10 8.4 38.5 2 2 3 10 8.4 10 10 10 10 10 10 10
134 335 5 7 10 8.4 38.5 2 2 3 5 3.4 43.5 5 8 9 -16 48.5 6 5 -16 48.5 6 5 4 -10 -16 58.5 1 2 2 -10 -16 58.5 1 2 2 -10 -16 58.5 1 2 2 -10 -16 58.5 1 2 2 -10 -16 58.5 1 2 2 -10 -16 58.5 1 2 2 -10 -116 58.5 1 2 -10 -116 58.5 1 2 -10 -11.6 58.5 -12 -10 -116 58.5 1 2 -10 -11.6 58.5 -12 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6
10 84 385 2 2 3 5 3.4 435 5 8 8 0 -16 48.5 5 8 8 0 -16 48.5 6 5 4 -5 -66 53.5 WOH 1 1 -5 -66 53.5 WOH 1 1 -10 -11.6 58.5 1 2 - - -10 -11.6 58.5 1 2 - - -10 -11.6 58.5 1 2 - - -10 -11.6 58.5 1 2 - - -11.5 -11.6 58.5 1 2 - - -11.6 58.5 1 2 - - - - -11.6 58.5 1 2 - - - - -15 -16.6 63.5 13 13 14 - - - -15
10 8.4 38.5 2 2 3 5
0 0 3.8.5 2 2 3 5 3.4 43.5 5 8 8 0 -16 48.5 6 5 4 -5 -6.6 5.3.5 WOH 1 1 -5 -6.6 5.3.5 WOH 1 1 -116 58.5 - - - - -116 58.5 - - - - -116 58.5 - - - - -116 58.5 - - - - -116 58.5 - - - - - -116 58.5 - - - - - -116 58.5 - - - - - - -116 58.5 - - - - - - - -116 58.5 - - - - - - - -15.1 - - -
5 34 435 5 8 8 0 -16 485 6 5 4 -16 485 6 5 4 -10 -11 1 -5 -6.6 53.5 WOH 1 1 -11 -11.6 58.5 -11.2 -11.6 -11.6 -6.6 53.5 WOH 1 1 -11.6 -11.6 -6.6 -13.1 13 14 -14.1 -15.1 -1
34 435 -
0 -16 48.5 6 5 4 -16 48.5 6 5 4 -5 -6.6 53.5 WOH 1 1 -9 -0.1 -116 48.5 -116 48.5 -6.6 53.5 WOH 1 1 -116 -116 58.5 -116 -116 58.5 -116 -116 -116 58.5 -116
-16 48.5 -
-10 40.5 6 5 4 -5 -6.6 53.5 -10 -11.6 58.5 1 2 -11.6 58.5 1 2 -11.6 58.5 1 2 -11.6 58.5 1 2 -11.6 58.5 1 2
-66 53.5 WOH 1 1 -10 -11.6 58.5 -1 2 2 -11.6 58.5 -1 2 2 -16.6 63.5 13 13 14 -11.5 -20 -10 -11.6 58.5 -10 -11.6 58.5 -10 -10 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.7 -11.7 -11.7 -11.6 -11.7 -11.7 -11.7 -11.7 -11.6 -11.7 -11.7 -11.7 -11.7 -11.7 -11.7 -11.7
-66 53.5 WOH 1 1 -10 -11.6 58.5 -1 2 2 -11.6 58.5 -1 2 2 -16.6 63.5 13 13 14 -11.5 -20 -10 -11.6 58.5 -10 -11.6 58.5 -10 -10 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.6 -11.7 -11.7 -11.7 -11.6 -11.7 -11.7 -11.7 -11.7 -11.6 -11.7 -11.7 -11.7 -11.7 -11.7 -11.7 -11.7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Product 9 11 12 ····· ····· ····· -25 -26.6 73.5 -26.6 73.5 -27.1 Comparing the tocoarse SAND (A-2-4), with trace clay.
$\begin{array}{c c c c c c c c c c c c c c c c c c c $
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $



Inter Description Endpoint Endpoint <th>WBS</th> <th>40191</th> <th>12</th> <th></th> <th></th> <th>Т</th> <th>P U-4751</th> <th></th> <th>COUNT</th> <th>Y NEW HA</th> <th>NOVER</th> <th></th> <th></th> <th>GEOLOGIST D. Racey</th> <th></th> <th></th> <th>WBS</th> <th>40191</th> <th>12</th> <th></th> <th></th> <th>ТИ</th> <th>P U-4751</th> <th> 1</th> <th>COUNTY</th>	WBS	40191	12			Т	P U-4751		COUNT	Y NEW HA	NOVER			GEOLOGIST D. Racey			WBS	40191	12			ТИ	P U-4751	 1	COUNTY
DOPONDANCE D2:0.4 STATEON 39-19 OPPERT 55.1.1 Dest.				Brido	ie on S									D. Addey		VTR (ft)				Brido	ae on S				
COLLAR LEV. 40 ft TOTAL DEPTH. 70.5.1 MORTHON (19:00) Lev. 40 ft TOTAL DEPTH. 70.5.1 DEULS DEMANCEMENT INTERVISE INSTANCE EVALUATION (19:00) EVALUATION (19:0										1				ALIGNMENT -L-	-	. ,				-	,				
IDBL. LONGAUGE FF JUDI: 5-00 10: 05: 07: 07: 07: 07: 07: 07: 07: 07: 07: 07						-			ït			18			_	,									
DPALLER S Date DSATT DATE UNDOWN DOWN DATE DOWN DATE <td>DRILL</td> <td>RIG/HAN</td> <td>MER EF</td> <td>F./DATE</td> <td>E F&R</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>1</td> <td></td> <td>D M</td> <td></td> <td></td> <td>omatic</td> <td></td> <td></td> <td></td> <td></td> <td>E F&R</td> <td></td> <td></td> <td></td> <td></td>	DRILL	RIG/HAN	MER EF	F./DATE	E F&R					1	1		D M			omatic					E F&R				
Imput Number Deconversion Deconversion<	DRILI	LER S	. Davis			ST		E 10/20/*	14	COMP. DA															
10 10 <td< td=""><td>ELEV</td><td>DRIVE</td><td>DEPTH</td><td>BLO</td><td>w cou</td><td>JNT</td><td></td><td>BLOWS</td><td>PER FOO</td><td></td><td></td><td></td><td>1 L</td><td></td><td></td><td></td><td></td><td></td><td></td><td>BLO</td><td>W COL</td><td></td><td></td><td>BLOWS</td><td></td></td<>	ELEV	DRIVE	DEPTH	BLO	w cou	JNT		BLOWS	PER FOO				1 L							BLO	W COL			BLOWS	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(ft)		(ft)		0.5ft	0.5ft	0 :	25	50	75 100	NO.	мо				DEPTH (ft)	(ft)	elev (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50 75
MU CO 2 5																									
-6 -4 -3 0 -4 0 -5 -6 -7	45					_											<u>35</u>							Mato	ch Line
40 1		44.9	1 0.0	2	3	3	6					D	X					-	Ļ						
$ \frac{3}{34} + \frac{1}{154} + \frac{1}{154} + \frac{1}{16} + \frac{1}{1$	10	41.4	3.5	9	14	15						Sat				4.4		-	-						
30 4 4 4 5	40	-	‡					29				Joan.		- Gray-brown, silty fine S	and (a-2-4).			-	+						
30 34 4 105 6 18 1 16 1 1		364	+ 85							 				SAND (A-2-4	l).			-	ŧ						
$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c}$	35		+	19	32	43				75		w		-				-	ŧ.						
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		-	ŧ						1.	· · · · · ·				-				-	ŧ						
20 214 215 7 11 14 20 214 215 6 13 16 15 114 315 7 10 20 20 10 114 315 7 10 20 20 20 20 11 4 315 7 10 20	30	31.4	13.5	16	18	18			1	· · · · · ·		W		-				-	ł						
2 214 23.5 6 13 16 16 23.5 6 13 16 16 16 16 23.5 6 13 16 16 16 16 16 23.5 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 17 16 17 16 17 17 16 17 17 16 17 16 17 17 16 16 16 17 17 16 17 16 17 17 16 17 16 17 16 16 17 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17		-	ŧ					<u>-</u> 30 <u>-</u> -						-					+						
21 23.5 0 13 10 <t< td=""><td></td><td>26.4</td><td>+ 18.5</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td>t -</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		26.4	+ 18.5					1						-				-	t -						
20 214 236 0 13 16 16 26 16 20 16 16 20 16 17 16 20 16 17 16 20 16 16 20 16 16 20 16 16 20 16 17 16 16 20 17 16 20 17 20 17 20 17 20 17 20 17 20 17 20 17 20 17 20 10 <t< td=""><td>25</td><td>-</td><td>ŧ</td><td>7</td><td>11</td><td>14</td><td></td><td>425</td><td></td><td></td><td></td><td>Sat.</td><td></td><td>-</td><td></td><td></td><td></td><td>- </td><td>F</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	25	-	ŧ	7	11	14		4 25				Sat.		-				-	F						
20 10 <td< td=""><td></td><td>-</td><td>Ŧ</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td>F</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		-	Ŧ					1						-				-	F						
10 10 22.6 9 16 20 10 14 33.5 7 12 16 27 10 14 33.5 7 12 16 27 10 14 43.6 7 17 28 10 10 10 10 10 10 10 10 10 10 55.8 1 2 4 4 10 10 10 10 55.8 1 2 4 4 10 10 11 18 23 4 10 <	20	21.4	† 23.5 	6	13	16		29				Sat.		-				-	F						
15 14 235 16 20 16 14 335 7 12 15 5 6 13 7 12 15 6 4 335 6 13 10 10 10 14 435 7 12 15 5 6 5 4 10 14 435 7 17 20 9 14 435 7 17 20 7 10 </td <td></td> <td>-</td> <td>Ŧ</td> <td></td> <td></td> <td></td> <td></td> <td><u> </u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- 17.9</td> <td></td> <td>27.0</td> <td></td> <td></td> <td>F</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		-	Ŧ					<u> </u>						- 17.9		27.0			F						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		16.4	28.5		10								0000	Brown, fine SAND (A-3),	with trace silt.			-	F						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	15	-	Ŧ	9	16	20		36				W	0000	-					F						
10 11 533 7 12 15 6 4 36.5 8 13 19 10 <td< td=""><td></td><td></td><td>Ŧ</td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td>0000</td><td>-</td><td></td><td></td><td></td><td>-</td><td>E</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>			Ŧ					1					0000	-				-	E						
6.4 38.5 8 13 19	10		<u> 33.5 </u>	7	12	15		6 27				w	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-				-	E						
6 4 33.5 6 13 10 0 4.4 43.5 7 17 25 -3.6 48.6 6 5 4 -5 -3.6 48.6 6 5 4 -6 -5 -6 -7 7 7 -3.6 48.6 6 5 4 -7 -7 -5 -10 -10.7 55.6 1 2 4 -10 -10.7 55.6 1 2 4 -7 -10 -13.6 68.6 2 2 4 -7 -7 -10 -13.6 68.5 1 -7 -7 6 -7 -7 -20 -18.6 63.5 -7 -7 6 -7 -7 -7 -23.6 67.5 -7 7 6 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7		-	ŧ					$1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$					0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			37.0		-	L						
0 14 43.5 7 17 26 5 -3.6 48.5 6 5 4 9 -3.6 48.5 6 5 4 9 -10 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 55.6 1 2 4 1 -10.7 -10.7 55.6 1 2 1 -10.7 -10.7 -10.7 -10.7 -10.7 -10.7 1 -10.7 -10.7 -10.7 -10.7 -10.7 -10.7 -10.7 20 -10.7 -10.7 -10.7 -10.7 -10.7 -10.7 -10.7 10.20 -20.7 -10.7		6.4	38.5	8	13	19		1						Tan to light gray, silty fine	SAND (A-2-4).			-	Ļ						
0 -7 17 25	5	-	ŧ	Ũ		10		³²						-					F						
0 -7 17 25		14	+ + 43.5					I N I		 				-				-	-						
-3.6 -48.5 6 5 4 -3.6 -48.5 6 5 4 -10 -10.7 55.6 -26.6 -36.6 -36.6 -10 -10.7 55.6 -26.6 -36.6 -36.6 -10.7 55.6 -27.6 -27.6 -27.6 -10.7 -36.6 -27.6 -27.6 -27.6 -11.8.6 63.5 -27.6 -27.6 -27.1 -28.6 73.5 -7 -6 -11.0 -28.6 73.5 -7 -6 -11.0 -38.6 78.5 -7 -7 -7	0		+	7	17	25		4	2			w		-				-	÷						
-5 -5 -10		-	‡					/						-				-	Ļ						
9 -10 -10.7 55.6 -12 4 -10 -13.6 58.5 2 2 4 -13.6 58.5 2 2 4 -13.6 63.5 WOH 2 3 -23.6 68.5 11 18 23 -23.6 68.5 11 18 23 -33.6 73.5 7 7 -33.6 78.5 78.5	-5	-3.6	48.5	6	5	4		· · · · · ·		 		l w	~					-	ł						
107 55.6 1 2 4 -13.6 58.5 2 2 4 -13.6 58.5 2 2 4 -13.6 63.5 WOH 2 3 -20 -18.6 63.5 WOH 2 3 -20 -18.6 63.5 WOH 2 3 -22.6 -23.6 68.5 11 18 23 -23.6 73.5 7 7 6 -11 -12 -11 -11 -11 -11 -11 -11 -11 -23.6 73.5 7 7 6 -11 -12 -11 -33.6 78.5 -11 18 -11 <t< td=""><td></td><td>-</td><td>ŧ</td><td></td><td></td><td></td><td>· · · ·</td><td></td><td></td><td></td><td></td><td></td><td></td><td>- Gray, silty CLAY (A</td><td>AND (A-2-6). A-7-5/6).</td><td></td><td></td><td></td><td>F.</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		-	ŧ				· · · ·							- Gray, silty CLAY (A	AND (A-2-6). A-7-5/6).				F.						
-107 55.6 1 2 4 -13.6 58.5 2 2 4 -13.6 58.5 2 2 4 -13.6 58.5 2 2 4 -13.6 63.5 WOH 2 3 -20 -118.6 63.5 WOH 2 3 -23.6 68.5 11 18 23 -11 -11 -11 -22.6 -23.6 73.5 7 7 6 -11 <	1.81.1	-	ŧ							· · · · · ·				-				-	+						
-13.6 58.5 -<	- 10 1	-10.7	55.6		_		- <u> </u>	+						-				-	F						
2 -15 -16 -17 -17 -18.6 63.5 -17.5 -20 -8.6 63.5 -11 18 23 -11 -11 -11 -20 -23.6 68.5 -11 18 23 -11 <	<u>ه</u>	-	Ŧ	1	2	4	• • • • • • • • • • • • • • • • • • •					M		-				-	F						
-20 -18.6 63.5 WOH 2 3 -23.6 68.5 11 18 23 -23.6 68.5 11 18 23 -30 -28.6 73.5 7 7 -33.6 78.5 7 7 6	- H - F	-13.6	<u>† 58.5</u>	2	2	4						м		-				-	E						
-20 -18.6 63.5 WOH 2 3 -23.6 68.5 11 18 23 -22.6 67.5 -23.6 68.5 11 18 23 -22.6 67.5 -23.6 68.5 11 18 23 -22.6 67.5 -23.6 73.5 7 7 6 -22.6 67.5 -33.6 7.8.5 7 7 6 -23.6 77.5 -33.6 7.8.5 7 7 6 -23.6 77.5	_	-	Ŧ											-				-	E						
-23.6 68.5 11 18 23 -25 -26 73.5 -27.1 -27.1 -28.6 73.5 -27.1 -27.1 -27.1 -30 -33.6 78.5 -27.5 -27.1 -33.6 78.5 -27.5 -27.1 -27.1 -33.6 78.5 -27.5 -27.5		-18.6	63.5	WOU										-				-	E						
-23.6 68.5 -23.6 68.5 -23.6 68.5 -23.6 68.5 -23.6 Constrained and a constrained		-	ŧ	WUH	2	З	4 5 	+				M		-				-	Ł						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			+					<u> </u>						22.6		67.5		-	Ł						
-28.6 73.5 7 7 6	2 1 1 2 1 2 5	-23.6	1 68.5 -	11	18	23		41				w	0000	Lignt gray, tine SAN	иU (A-3).				Ł						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		-	ŧ					· /. · · ·					0 0 0 0 0 0 0 0 0 0 0 0			72.0		-	ŧ						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		-28.6	73.5	7	7	6		1						Dark gray, silty fine to c	oarse SAND gravel.			-	ł						
$\begin{bmatrix} 1 \\ -33.6 \\ 78.5 \end{bmatrix}$	u -30	-	ŧ		'	J.	¶13 13	+ • • • •						-				-	ŧ						
		-33 6 -	+ 78 5							· + · · · · · · ·				32.6 33.6 COASTAL PLAIN SEDIME		77.5 78.5		-	ŧ						
			10.5	60/0.0				•		60/0.0					DASTAL PLAIN)		-	<u>t</u>						

NEW HAN	OVER			GEOLOGIST D. Racey			
' Bus./Marke	t St.					GROUN	ID WTR (ft)
	5 ft LT			ALIGNMENT -L-		0 HR.	Dry
NORTHING	189,61	18		EASTING 2,354,585		24 HR.	FIAD
	DRILL M		٨٨٠٠-	1			Automatic
COMP. DAT			iviuu	· · · · · · · · · · · · · · · · · · ·			
COWP. DAT	E 10/2 SAMP.	21/14	L	SURFACE WATER DEPT	п N/A	۹	
75 100	NO.	моі	O G	SOIL AND ROC	K DESC	RIPTION	
	·			Boring Terminat Penetration Test Refi ft in SEDIMENTAR	usal at I	Elevation	-33.6
				NOTES:	0	0-11-	
				 1) 0.0-0.1' = Surficial 2) Strata break in spli 1.1', 4.4', 49.0' and 3) Driller indicates ha of 67.5' and 77.5'. 	t spoon 49.5'.	at depths	of pths
			Ē				

WBS	40191	.1.2			Т	P U-475	1	COUNT	TY NEW HA	NOVER			GEO	OGIST D. Racey			WBS	4 0191	1.1.2			TI	P U-4751	COUN	TY
			Bride	ge on S					17 Bus./Mark						GROUND V	VTR (ft)				Bridg	ge on S		9 (Military Cutoff		
	ing no.								OFFSET				ALIG	NMENT -L-	0 HR.	N/A	-	ING NO.		-			FATION 39+89		0
COL	LAR ELI	EV. 45	5.0 ft				PTH 75.0	ft	NORTHING	G 189,6	671		EAST	ING 2,354,628	24 HR.	2.7	COL	LAR EL	EV. 45	5.0 ft		тс	OTAL DEPTH 75	5.0 ft	N
DRILL	RIG/HAN	MMER EF	F./DAT	E F&R	2175 (ME-55 76%	6 02/22/201	4		DRILL	METHO	DM	lud Rotary	HAMN	IER TYPE Auto	omatic	DRILL	RIG/HAN	IMER EF	F./DATE	E F&R	2175 C	ME-55 76% 02/22/2	2014	
DRIL	LER S				S	FART DAT	FE 10/16/	'14	COMP. DA	TE 10/	/17/14		SURF	ACE WATER DEPTH N	/A		DRIL	.LER S	. Davis			ST	TART DATE 10/	/16/14	С
ELEV	ELEV	DEPTH						S PER FOC		SAMP	. V	L		SOIL AND ROCK DES	CRIPTION		ELEV	DRIVE	DEPTH	BLO	W COL			OWS PER FOO	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.		I G	ELEV. (1			DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75
																						1			
45	44.8	0.2	5	7	6	- ·•13·					w	<u> </u>	45.0 44.8 44.5	GROUND SURF	ACE	0.0 -/ 0.2 0.5	<u>35</u> _	+	<u>+</u>			ı—— 		Match Line	
	- 41.5	- 3.5						. .			₩ ₩	-	44.5	ARTIFICIAL F Tan, GRAVEL & SHEL		<u>0.5</u> 3.7			ŧ			1			
40		- 0.0	5	6	8	414					Sat.	0000		COASTAL PL/ Dark gray to dark brown, s	AIN			_	ŧ			1			
	-	ŧ						 	· · · · ·			0000	38.0	(A-2-4), with trace gravel Gray-brown, fine SA	from 0.5'-1.7'.	7.0			‡			1			
35	36.5	8.5	13	15	17						w		+	Dark brown to orange-br	own, silty fine				ŧ			1			
	-	ŧ											<u> </u>	SAND (A-2-4	·).			-	ŧ			1			
	31.5 ⁻	+ - 13.5					: /: : : :						Ļ						ŧ			1	l		
30	-	‡	10	13	13		26	-			Sat.		ţ.					-	‡			, I			
		ŧ						· · · ·	· · · · · ·				ļ						Ŧ			, I			
25	26.5	<u>+ 18.5</u> -	14	24	30		· · · · `	1			Sat.		ł						ŧ			1			
	-	Ŧ								1			-					-	Ŧ			1	l		
	21.5	23.5	10	45	FE/0 4		.						ļ						Ŧ			1	l		
20		Ŧ	16	45	55/0.4				100/0.9	♦	W		<u> </u>					-	Ŧ			1	l		
	-	Ŧ											ļ						Ŧ			1	l		
15	16.5	+ 28.5 	14	27	41				68		w		ļ						Ŧ			1			
	-	Ŧ											13.0			32.0		-	Ŧ			1			
	11.5	33.5	7	10	11									Brown, fine SAND (A-3),	with trace silt.				Ŧ			1			
10	-	Ŧ	'	10			21				W	0 0 0 0 0 0 0 0 0 0 0 0						-	Ŧ			1			
	6.5	- 38.5							· · · · ·			0000	<u>8.0</u>	Tan to light gray, silty fine	SAND (A-2-4).	<u> </u>			ŧ			1			
5	0.5	- 30.5	6	9	11		20				w		<u>}</u>						ŧ			1			
	-	ŧ							· · · · · ·				1						ŧ			1			
_	1.5	43.5	10	18	18		· · · ·	. .	· · · · · ·		w		+						‡			, I			
0	-	‡					· · · · · ·			11			₩_ }					-	‡			, I			
	-3.5	- - 48.5				· · · · ·		. .					-2.8	Gray, highly silty CLAY	(A-7-5(33))	47.8			‡			, I			
-5		‡	WOH	WOH	1	1	· · · ·	· · · ·			М		†	Gray, highly Sity OLAT	(<i>i</i> ((00 <i>)</i>).			-	‡			, I			
/15	-	ŧ				· · · · · · · · ·	· · · · · · · ·	 	· · · · · ·		76%		+						‡			, I			
-1/19/15	-8.5	+ <u>53.5</u>	WOH	1	2			.			м		Ŧ						ŧ			, I			
GDI	-	Ŧ								1			Ŧ					-	Ŧ			, I			
DOT	-13.5	+ - 58.5			00			· · · · ·					-13.7			58.7			Ŧ			, I			
<u>2</u> -15	-	Ŧ	11	'	29		9 36				W		Į –	Gray-brown, silty fine SA	and (a-2-4).			-	Ŧ			, I			
G.GPJ		I						· · · · ·					E						Ŧ			, I			
902 8 -20	-18.5	<u>+ 63.5</u>	13	15	17		32				Sat.		£						Ŧ			, I			
GEO	-	Ŧ																	Ŧ			, I			
	-23.5	68.5	8	7	5			· · · · · ·								_			Į			, I			
-25- E 04751	-	ŧ		'		●12 . <i>I</i> .					Sat.	0000	-24.8	Light gray, fine SAN	ID (A-3).	69.8		-	ŧ			, I			
DOUBLE		- - -				.j		· · · · ·	· · · · · ·				<u>-27.0</u>	Gray-brown, silty fine S		<u>72.0</u>			Ŧ			, I			
о щ -30	-28.5	73.5	1	1	2	6 3				Ц	Sat.		-30.0			75.0			ŧ			, I			
н <u>-30</u>	-	±											F	Boring Terminated at Elev SAND (COASTAL	ation -30.0 ft in PLAIN)				ŧ			, I			
CDOT	-	ŧ											F						ŧ			, I			
ź	_	L	1								1	1	L						L						

NEW HAN	IOVER			GEOLOGIST D. Racey			
' Bus./Marke	t St.					GROUN	ID WTR (ft)
OFFSET C	L			ALIGNMENT -L-		0 HR.	N/A
NORTHING	189,67	71		EASTING 2,354,628		24 HR.	2.7
	DRILL M		Mud	1	Намме		Automatic
COMP. DAT		17/14	iviac	SURFACE WATER DEPT			Automatio
CONF. DAT	SAMP.		LT	SURFACE WATER DEFT		٩	
75 100	NO.	моі	O G	SOIL AND ROC	K DESC	RIPTION	l
	L						
			E	NOTES:			
			F	 Boring located in b Strata break in spli 	usiness	parking l	ot.
			F	0.5', 3.7', 58.7' and 3) Driller indicates so	69.8'.	ing at a d	onth
			F	of 47.8'.		iliy al a u	epui
			Ę	Other Samples:			
			F	ST-1 (50.0 - 52.0)			
			F				
			E				
			F				
			F				
			F				
			F				
			F				
			F				
			Ę				
			E				
			E				
			E				
			F				
			F				
			F				
			F				
			þ				
			E				
			F				
			E				
			F				
			F				
			F				
			F				
			þ				
			F				
			F				
			F				
			F				
			F				
			F				
			F				
			þ				
			F				
			F				
			F				
			Г				

	4019	112				P U-475	.1		COLINIT	Y NEW		ED			GEOLOGIST D. Race	,			WPS	4019 ⁻	112				P U-475		COUNT	
			Brid					ff Pd) /		Y NEW					U. Race	/	GROUND					Brida				/ Cutoff Rd.		
	ING NO.							,		OFFSE					ALIGNMENT -L-		0 HR.	N/A		ING NO.			<u>je un e</u>				., over US	
	LAR EL					OTAL DE	-	-		NORTH					EASTING 2,354,662		24 HR.	6.5		LAR EL						PTH 70.0	ft	
				E F&R		ME-55 76								М	ud Rotary	НАММ	ERTYPE Au						E F&F			% 02/22/2014		<u> </u>
	LER S					TART DA			4	COMP.					SURFACE WATER DEP					LER S						TE 10/20/		C
ELEV	DRIVE	DEPTH	BLC	W CO					PER FOO			MP.		L O					ELEV		DEPTH	BLO	ow co				S PER FOC	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	50	75 1	100 N	0.	моі		SOIL AND RC	JCK DES	SRIPTION	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
50		+												ļ	_				- <u>30</u>		่่่่่่่−−−		L			<u>Ma</u> f	tch Line	
		ŧ												ļ	-						ŧ							
45	44.9													ŀ		ID SURF	ACE	8.2			ŧ							
	44.3	-	11	8	10		18 -						D			SPHALT FICIAL FIL	1			-	Ŧ							
	41.6	3.5	4	3	4					 	-				<u>42.1</u> Tan, GRAVEL		_S (A-1-b).				Ŧ							
40	-	Ŧ		Ŭ	-								Sat.		 Gray, fine SANE) (A-3), wi	ith trace silt.			-	Ŧ							
	36.6	- 8.5									-		•		Dark brown to o	range-bro D (A-2-4)					Ŧ							
35		1 0.5	15	18	16		•	9 34				5	Sat.		-					_	ŧ							
		ŧ						, 	· · ·						-						ŧ							
	31.6	+ 13.5	5	9	12		. / .			: : : :			Sat.		-						ŧ							
30	-	‡					$\frac{\mathbf{P}^{21}}{\mathbf{P}^{1}}$						out.		-					-	ŧ							
	26.6	+ + 18.5					ι	· · · · · ·	· · · ·						-						ŧ							
25	-	+	10	12	6	· · ·	18			· · · ·	-	1	Sat.		-					-	ŧ							
		‡					; :	· · · · · ·	· · · ·	. .					-						ŧ							
20	21.6	+ 23.5 +	7	11	13				· · · ·				Sat.		-						ŧ							
20	-	‡					. \.								-					-	ŧ							
	16.6	+ 28.5					: \\ . \\	· · ·	 	. .	-				-						ŧ							
15		ŧ	9	17	16		- /	33				1	Sat.		-					-	ŧ							
		ŧ					:/:	· · · · · ·	· · · ·		-		• •		<u>13.1</u> Brown, fine SAN	D (A-3) w	with trace silt	<u>32.0</u>			ŧ							
10	11.6	+ 33.5 T	3	7	10		7 17			. .			W	0000							ŧ							
	-	Ŧ									•			00000				<u>37.0</u>		-	Ŧ							
	6.6	38.5	5	8	11					· · · · · · · · · ·					Tan to light gray,	silty fine S	SAND (A-2-4))			Ŧ							
5	-	Ŧ		0			019						W		-					-	Ŧ							
	1.6	- + 43.5					N :				.				-						Ŧ							
0			8	11	15		-	, 					w		-					_	ŧ							
15		ŧ				 	· i ·	· · ·	· · ·				••••		1.9			<u> </u>			ŧ							
1/19/15 7	-3.4	<u>+</u> 48.5	WOH	woн	2		: :	· · ·			:		м	\Box	Gray, silty	CLAY (A-	7-5/6).				ŧ							
-5 -5	-	‡												\exists	-					-	ŧ							
DOT.	-8.4	- 53.5					· ·	· · · · · ·	· · · ·	. .	-			3	-						‡							
9 -10	-	‡	WOH	1	2	• 3		· · ·		· · · ·			M		-9.9 Gray, fine to coar	se sandu	SILT (A-4(0))	55.0		-	‡							
.GPJ		‡				<u> .</u>		· · · · · ·	· · · ·	. .		7	70%		with	little clay.		, <u>56.7</u>			ŧ							
9 00 20 20 20 20 20 20 20 20 20 20 20 20	-13.4	+ 58.5 +	1	3	15		18	· · · ·		· · · · · · · ·	:		w		Gray, silty fi	ne SAND	(A-Z-4).				ŧ							
	-	ŧ						· · · ·							-					-	ŧ							
51_G	-18.4	63.5	00	07	20			115.		. .	-				-						ŧ							
-20	-	Ŧ	23	27	32				•59				W		-					-	Ŧ							
UBLE		Ŧ									-										Ŧ							
E DO	-23.4	+ 68.5 +	7	16	15			31					w		-24.9			70.0			Ŧ							
BOR		Ī													Boring Terminate SAND (CC	d at Eleva DASTAL F	ition -24.9 ft ir PLAIN)	n		-	Ŧ							
NCDOT BORE DOUBLE U4751_GEO_BRDG.GPJ_NC_DOT.GDT 		ŧ												[`		-				ŧ							
ž	-	1	I																	_	L	I	L	<u> </u>				

NEW HAN	OVER			GEOLOGIST D. Racey			
' Bus./Marke	t St.					GROUN	ID WTR (ft)
OFFSET 4	4 ft RT			ALIGNMENT -L-		0 HR.	N/A
NORTHING	189,7	11		EASTING 2,354,662		24 HR.	6.5
	DRILL M		Mu				Automatic
COMP. DAT		20/14		SURFACE WATER DEPTH			
	SAMP.		L				
75 100	NO.	моі	O G	SOIL AND ROCK D	ESC	RIPTION	
1							
			- +	NOTES:			
				1) Boring located in busir	ness	parking I	ot.
				2) Strata break in split sp 0.2' and 0.6'.	oon	at depths	of
				-			
				- <u>Other Samples:</u> - ST-2 (55.0 - 56.9)			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
			ł	-			
				-			
			-	-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			
				-			

North Carolina Department of Transportation Division of Highways Materials and Test Unit Soils Laboratory

 T.I.P. ID NO.:
 U-4751

 DESCRIPTION:
 Bridge on SR 1409 (Military Cutoff Road, -L-) over US 17 Business/Market Street (-Y1-)

REPORT ON SAMPLES OF: SOIL FOR QUALITY

 PROJECT:
 40191.1.2

 DATE SAMPLED:
 10/14

 SAMPLED FROM:
 -L

 SUBMITTED BY:
 W.P. Alton, PE

 COUNTY:
 New H

 RECEIVED:
 11/14

 REPORTED:
 11/14

 BY:
 D. Jer

11/14 D. Jenks D Cert No. 101-02-0603

New Hanover

TEST RESULTS

TEST RESULTS

12

PROJ. SAMPLE NO.	ST-1	ST-2					
BORING NO.	EB2-C	EB2-B				 	
Retained #4 Sieve %	0.0	0.0					
Passing #10 Sieve %	100.0	100.0					
Passing #40 Sieve %	99.9	94.6				-	
Passing #200 Sieve %	99.6	64.8					

SOIL MORTAR - 100%									
Coarse Sand Ret - #60 %	0.2	14.6		1.1				1	
Fine Sand Ret - #270 %	0.3	24.9						1	
Silt 0.053 - 0.010 mm %	45.6	43.9							
Clay < 0.010 mm %	53.9	16.6							
L.L.	70	34							
P.L.	48	NP		1					
P.I.	22	NP			1				
AASHTO Classification	A-7-5 (33)	A-4 (0)							
Station -L-	39+89	40+18		-					
Offset	CL	44' Rt.		-		18			
Depth (ft)	50.0	55.0							
to	52.0	56.9							
Moisture Content (%)	76.1	70.0							
Organic Content (%)	NT	NT							

NP=Not plastic NT=Not tested ND = Not Determined CL = Centerline Sheet 16 of 17

W.P. Alton, PE

Soils Engineer



SITE PHOTOGRAPHS



Photograph No. 1: View looking North across Market Street from End Bent 1 toward End Bent 2



Photograph No. 2: View looking SW along End Bent 1, Market Street to right



Photograph No. 3: View looking NW across Market Street from End Bent 1 toward End Bent 2



Photograph No. 4: View looking SW along End Bent 2, Market Street to left

Sheet 17 of 17