

REFERENCE: B-5662

PROJECT: 45617

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY HALIFAX  
PROJECT DESCRIPTION BRIDGE NO. 93 ON NC 561  
OVER CONOCONNARA SWAMP AT -L- STA. 15+61

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE (-L-)
5	PROFILE (-DET-)
6-8	BORE LOGS
9	SITE PHOTOGRAPH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5662	1	9

**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 (919) 707-6850. 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 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 SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE 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 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 ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. 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.
  2. 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.

PERSONNEL

S. WOODS, GIT

F&R (DRILLING)

S. DAVIS

T. BEARD

INVESTIGATED BY S. WOODS, GIT

DRAWN BY C.T. TANG, PE

CHECKED BY D. BROWN, PE

SUBMITTED BY C.T. TANG, PE

DATE NOVEMBER 2019



STEWART

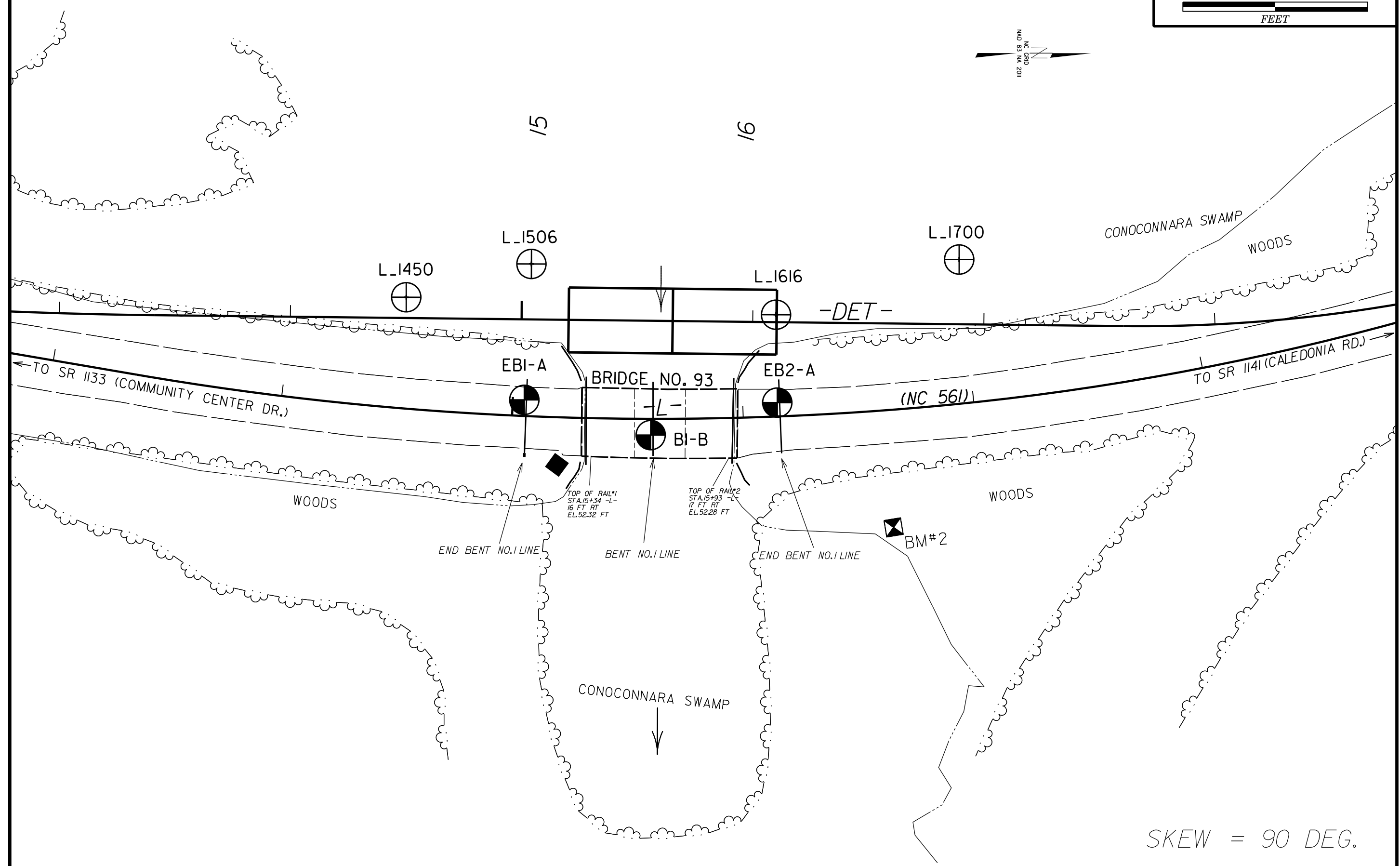
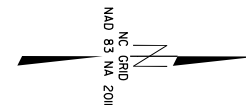


DocuSigned by:  
Chien-Ting Tang 12/13/2019  
806B9478D... SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

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 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: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH 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										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. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.										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. 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 REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. 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. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. 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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. 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 RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENISE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF 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 TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL 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. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																													
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>ANGULARITY OF GRAINS</b>										<b>WEATHERED ROCK (WR)</b>										<b>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES &gt; 100 BLOWS PER FOOT IF TESTED.</b>																													
<b>MINERALOGICAL COMPOSITION</b>										<b>CRYSTALLINE ROCK (CR)</b>										<b>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</b>										<b>NON-CRYSTALLINE ROCK (NCR)</b>										<b>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</b>																			
<b>COMPRESSION</b>										<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>										<b>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</b>										<b>WEATHERING</b>																													
<b>PERCENTAGE OF MATERIAL</b>										<b>FRESH</b>										<b>ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</b>										<b>VERY SLIGHT (IV SLI.)</b>										<b>ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.</b>																			
<b>GROUND WATER</b>										<b>SLIGHT (SLI.)</b>										<b>ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</b>										<b>MODERATE (MOD.)</b>										<b>SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.</b>																			
<b>MISCELLANEOUS SYMBOLS</b>										<b>MODERATELY SEVERE (MOD. SEV.)</b>										<b>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL</b>										<b>SEVERE (SEV.)</b>										<b>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES &gt; 100 BPF</b>																			
<b>RECOMMENDATION SYMBOLS</b>										<b>VERY SEVERE (IV SEV.)</b>										<b>ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</b>										<b>COMPLETE</b>										<b>ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.</b>																			
<b>TEXTURE OR GRAIN SIZE</b>										<b>ROCK HARDNESS</b>										<b>VERY HARD</b>										<b>CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</b>																													
<b>CONSISTENCY OR DENSENESS</b>										<b>HARD</b>										<b>CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</b>										<b>MODERATELY HARD</b>										<b>CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.</b>																			
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>MEDIUM HARD</b>										<b>CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.</b>										<b>SOFT</b>										<b>CAN BE GROOVED 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 PIECES CAN BE BROKEN BY FINGER PRESSURE.</b>																			
<b>PLASTICITY</b>										<b>VERY SOFT</b>										<b>CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.</b>										<b>FRACURE SPACING</b>										<b>BEDDING</b>																			
<b>EQUIPMENT USED ON SUBJECT PROJECT</b>										<b>VERY CLOSE</b>										<b>MORE THAN 10 FEET</b>										<b>VERY THICKLY BEDDED</b>										<b>4 FEET</b>																			
<b>PLASTICITY</b>										<b>MODERATELY CLOSE</b>										<b>3 TO 10 FEET</b>										<b>THICKLY BEDDED</b>										<b>1.5 - 4 FEET</b>																			
<b>COLOR</b>										<b>CLOSE</b>										<b>1 TO 3 FEET</b>										<b>THINLY BEDDED</b>										<b>0.16 - 1.5 FEET</b>																			
<b>INDURATION</b>										<b>VERY CLOSE</b>										<b>LESS THAN 0.16 FEET</b>										<b>VERY THINLY BEDDED</b>										<b>0.03 - 0.16 FEET</b>																			
<b>INDURATION</b>										<b>INDURATED</b>										<b>THINLY LAMINATED</b>										<b>0.008 - 0.03 FEET</b>										<b>THINLY LAMINATED</b>										<b>&lt; 0.008 FEET</b>									
<b>INDURATION</b>										<b>EXTREMELY INDURATED</b>										<b>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</b>										<b>NOTES:</b>										<b>PROBE DATA FOR -DET- BRIDGE PROVIDED BY NCDOT; GROUND SURFACE ELEVATIONS OF PROBE LOCATION GENERATED FROM FILE B5662.IS_TNL.TIN PT; PROBE TERMINATION</b>																			

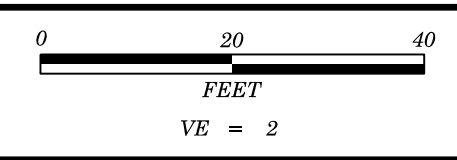


TOP OF RAIL#1  
 STA. 15+34 -L-  
 16 FT RT  
 EL. 52.32 FT

TOP OF RAIL#2  
 STA. 15+93 -L-  
 17 FT RT  
 EL. 52.28 FT

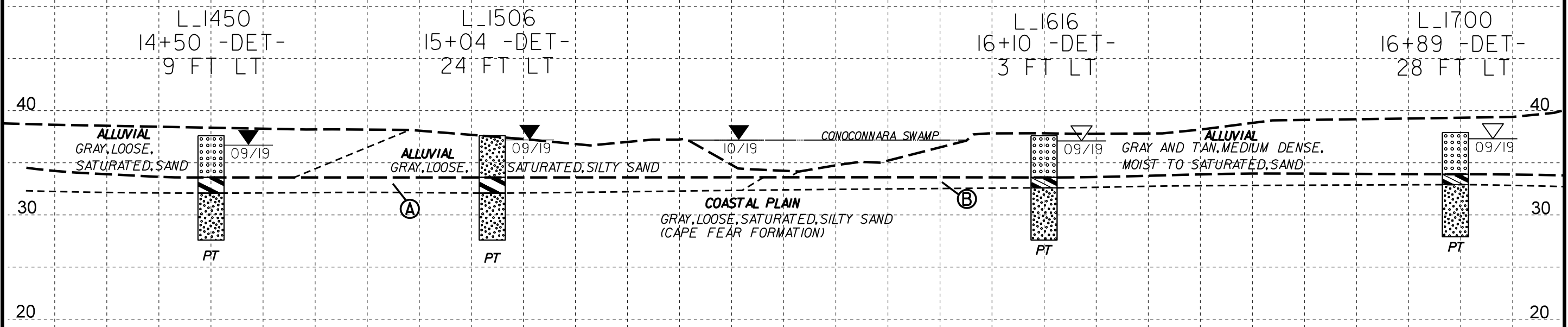
SKEW = 90 DEG.





<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
B-5662	5
<b>PROFILE ALONG -DET- CENTERLINE</b>	

- Ⓐ **COASTAL PLAIN** GRAY, SOFT, WET, SILTY CLAY (CAPE FEAR FORMATION)
- Ⓑ **COASTAL PLAIN** GRAY, SOFT, WET, SANDY CLAY (CAPE FEAR FORMATION)



NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED OCTOBER 2016). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE -DET- PROFILE.

15+00

16+00

17+00



# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 45617.1.1		<b>TIP</b> B-5662		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> S. Woods	
<b>SITE DESCRIPTION</b> Bridge No. 93 on NC 561 over Conoconnara Swamp							<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B1-B		<b>STATION</b> 15+60		<b>OFFSET</b> 7 ft RT		<b>ALIGNMENT</b> -L-	
<b>COLLAR ELEV.</b> 33.6 ft		<b>TOTAL DEPTH</b> 75.0 ft		<b>NORTHING</b> 920,305		<b>EASTING</b> 2,446,987	
<b>DRILL RIG/HAMMER EFF./DATE</b> F&R2175 CME-55 84% 03/01/2019				<b>DRILL METHOD</b> Mud Rotary		<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> S. Davis		<b>START DATE</b> 10/11/19		<b>COMP. DATE</b> 10/14/19		<b>SURFACE WATER DEPTH</b> 3.6ft	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
35	33.6	0.0											WATER SURFACE (10/11/19)	
	33.6	0.0	WOH	WOH	WOH								MUD LINE	0.0
30	30.1	3.5	2	3	3	6						Sat.	ALLUVIAL Gray, Silty Clay, with Trace Roots and Organics	
25	25.1	8.5	5	4	5	9						W	COASTAL PLAIN Gray, Silty Sand, with Trace Mica [Cape Fear Formation]	7.0
20	20.1	13.5	5	9	12	21						W	Gray, Silty Clay [Cape Fear Formation]	12.0
15	15.1	18.5	9	10	14	24						W		
10	10.1	23.5	6	8	14	22						W	Gray, Clayey Silt [Cape Fear Formation]	22.0
5	5.1	28.5	9	12	15	27						W	Gray, Sandy Silt [Cape Fear Formation]	27.0
0	0.1	33.5	10	9	14	23						W		
-5	-4.9	38.5	6	6	11	17						W	Gray, Clayey Sand, with Trace Mica [Cape Fear Formation]	37.0
-10	-9.9	43.5	4	7	8	15						W	Gray, Clayey Silty Sand, with Trace Mica [Cape Fear Formation]	42.0
-15	-14.9	48.5	10	11	14	25						W		
-20	-19.9	53.5	7	11	14	25						W		
-25	-24.9	58.5	6	8	11	19						W	Gray, Sandy Silt, with Trace Mica, Wood Fragments and Organics [Cape Fear Formation]	57.0
-30	-29.9	63.5	8	7	7	14						W		
-35	-34.9	68.5	11	16	23	39						W	Brown, Silty Clay [Cape Fear Formation]	67.0
-40	-39.9	73.5	8	11	16	27						W		
													Boring Terminated at Elevation -41.4 ft In Silty Clay [Cape Fear Formation]	75.0

NCDOT BORE DOUBLE B5662\_GEO BRDG0093\_BH.GPJ NC\_DOT.GDT 11/21/19

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45617.1.1		TIP B-5662		COUNTY HALIFAX		GEOLOGIST S. Woods										
SITE DESCRIPTION Bridge No. 93 on NC 561 over Conoconnara Swamp							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 16+15		OFFSET 6 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 48.3 ft		TOTAL DEPTH 85.0 ft		NORTHING 920,360		EASTING 2,446,973										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 10/10/19		COMP. DATE 10/11/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
50																
	47.5	0.8	6	3	3											48.3
																47.5
45	44.8	3.5	3	2	2											45.3
40	39.8	8.5	1	2	1											38.9
35	34.8	13.5	2	2	3											
30	29.8	18.5	1	1	2											
25	24.8	23.5	4	4	7											
20	19.8	28.5	11	9	18											
15	14.8	33.5	5	6	10											
10	9.8	38.5	5	7	11											
5	4.8	43.5	8	15	22											
0	-0.2	48.5	9	12	14											
-5	-5.2	53.5	6	7	9											
-10	-10.2	58.5	7	9	11											
-15	-15.2	63.5	9	11	16											
-20	-20.2	68.5	10	12	13											
-25	-25.2	73.5	9	10	12											
-30																

WBS 45617.1.1		TIP B-5662		COUNTY HALIFAX		GEOLOGIST S. Woods										
SITE DESCRIPTION Bridge No. 93 on NC 561 over Conoconnara Swamp							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 16+15		OFFSET 6 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 48.3 ft		TOTAL DEPTH 85.0 ft		NORTHING 920,360		EASTING 2,446,973										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 10/10/19		COMP. DATE 10/11/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-30	-30.2	78.5	6	7	10											
-35	-35.2	83.5	6	7	9											

NCDOT BORE DOUBLE B5662\_GEO\_BRDG0093\_BH.GPJ NC\_DOT.GDT 11/21/19



***SITE PHOTOGRAPH***

**BRIDGE 93**



**VIEW LOOKING SOUTHEAST**