

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5808	1	17

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY UNION  
 PROJECT DESCRIPTION CHESTNUT LANE CONNECTOR  
(SR 1362) FROM MATTHEWS INDIAN TRAIL ROAD  
(SR 1367) TO GRIBBLE ROAD (SR 1368)  
 SITE DESCRIPTION BRIDGE NO. 576 ON SR 1362  
(CHESTNUT LANE CONNECTOR) OVER CSX  
RAILROAD

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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.

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PERSONNEL

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SUBMITTED BY P. ZHANG

DATE OCTOBER, 2018

**REFERENCE: U-5808**

**PROJECT: 44381**



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Pu Zhang 10/23/2018 5:15:05 AM  
 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**  
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*

SOIL LEGEND AND AASHTO CLASSIFICATION																
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS					
GROUP CLASS.	A-1	A-1-b	A-3	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	
SYMBOL																
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	50 MN 10 MN	35 MX 35 MX	35 MX 35 MX	35 MX 35 MX	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN						
MATERIAL PASSING #40 LL PI							40 MX 41 MN 10 MX 11 MN	40 MX 41 MN 10 MX 11 MN	40 MX 41 MN 10 MX 11 MN	40 MX 41 MN 10 MX 11 MN						
GROUP INDEX							0	4 MX	8 MX	12 MX	16 MX	NO MX				
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS		SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS			
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR				FAIR TO POOR	POOR	UNSATURABLE			
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30																

CONSISTENCY OR DENSENESS			
PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE							
U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270	
	4.76	2.00	0.42	0.25	0.075	0.053	
BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)	
GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS		
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL PLASTIC RANGE (PI) PL	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM SL	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY		
	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

**COLOR**  
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.

**GRADATION**  
**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.

**ANGULARITY OF GRAINS**  
THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: **ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.**

**MINERALOGICAL COMPOSITION**  
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

**COMPRESSIBILITY**  
SLIGHTLY COMPRESSIBLE LL < 31  
MODERATELY COMPRESSIBLE LL = 31 - 50  
HIGHLY COMPRESSIBLE LL > 50

PERCENTAGE OF MATERIAL			
ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE 1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE 10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME 20 - 35%
HIGHLY ORGANIC	> 10%	> 20%	HIGHLY 35% AND ABOVE

**GROUND WATER**

WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING

STATIC WATER LEVEL AFTER 24 HOURS

PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA

SPRING OR SEEP

**MISCELLANEOUS SYMBOLS**

ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION

SOIL SYMBOL

ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

INFERRED SOIL BOUNDARY

INFERRED ROCK LINE

ALLUVIAL SOIL BOUNDARY

DIP & DIP DIRECTION OF ROCK STRUCTURES

TEST BORING

AUGER BORING

CORE BORING

MONITORING WELL

PIEZOMETER INSTALLATION

SLOPE INDICATOR INSTALLATION

CONE PENETROMETER TEST

SOUNDING ROD

TEST BORING WITH CORE

SPT N-VALUE

**RECOMMENDATION SYMBOLS**

UNDERCUT	UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL
SHALLOW UNDERCUT	UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADED ROCK	

**ABBREVIATIONS**

AR - AUGER REFUSAL	MD. - MEDIUM	VST - VANE SHEAR TEST
BT - BORING TERMINATED	MICA - MICACEOUS	WEA. - WEATHERED
CL. - CLAY	MOD. - MODERATELY	UNIT WEIGHT
CPT - COARSE PENETRATION TEST	NP - NON PLASTIC	DRY UNIT WEIGHT
CSE. - COARSE	ORG. - ORGANIC	SAMPLE ABBREVIATIONS
DMT - DILATOMETER TEST	PMT - PRESSUREMETER TEST	S - BULK
DPT - DYNAMIC PENETRATION TEST	SAP. - SAPROLITIC	SS - SPLIT SPOON
e - VOID RATIO	SD. - SAND, SANDY	ST - SHELBY TUBE
F - FINE	SL. - SILTY, SILTY	RS - ROCK
FOSS. - FOSSILIFEROUS	SLI. - SLIGHTLY	RT - RECOMPACTED TRIAXIAL
FRAC. - FRACTURED, FRACTURES	TCR - TRICONE REFUSAL	CBR - CALIFORNIA BEARING RATIO
FRAGS. - FRAGMENTS	w - MOISTURE CONTENT	
HI. - HIGHLY	V - VERY	

**EQUIPMENT USED ON SUBJECT PROJECT**

DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:
<input type="checkbox"/> CME-45C	<input type="checkbox"/> CLAY BITS	<input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL
<input type="checkbox"/> CME-55	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER	CORE SIZE:
<input type="checkbox"/> CME-550	<input checked="" type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> -B <input type="checkbox"/> -H
<input type="checkbox"/> VANE SHEAR TEST	<input type="checkbox"/> HARD FACED FINGER BITS	<input checked="" type="checkbox"/> -N Q
<input type="checkbox"/> PORTABLE HOIST	<input type="checkbox"/> TUNG-CARBIDE INSERTS	HAND TOOLS:
<input checked="" type="checkbox"/> CME-550X	<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER	<input type="checkbox"/> POST HOLE DIGGER
<input type="checkbox"/>	<input type="checkbox"/> TRICONE <input type="checkbox"/> STEEL TEETH	<input type="checkbox"/> HAND AUGER
<input type="checkbox"/>	<input type="checkbox"/> TRICONE <input type="checkbox"/> TUNG-CARB.	<input type="checkbox"/> SOUNDING ROD
<input type="checkbox"/>	<input checked="" type="checkbox"/> CORE BIT	<input type="checkbox"/> VANE SHEAR TEST
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ROCK DESCRIPTION**  
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:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	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.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

**WEATHERING**

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SL.)	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.
SLIGHT (SL.)	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.
MODERATE (MOD.)	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.
MODERATELY SEVERE (MOD. SEV.)	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. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i>
SEVERE (SEV.)	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. <i>IF TESTED, WOULD YIELD SPT N VALUES &gt; 100 BPF</i>
VERY SEVERE (V SEV.)	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. <i>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</i>
COMPLETE	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.

**ROCK HARDNESS**

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	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.
MEDIUM HARD	CAN BE GROUDED 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.
SOFT	CAN BE GROUDED 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.
VERY SOFT	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.

FRACTURE SPACING		BEDDING	
TERM	SPACING	TERM	THICKNESS
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	4 FEET
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET
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
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET
		THINLY LAMINATED	< 0.008 FEET

**INDURATION**  
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

**TERMS AND DEFINITIONS**

**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 DISLOGGED 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.

**SLICKENSIDE** - 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.

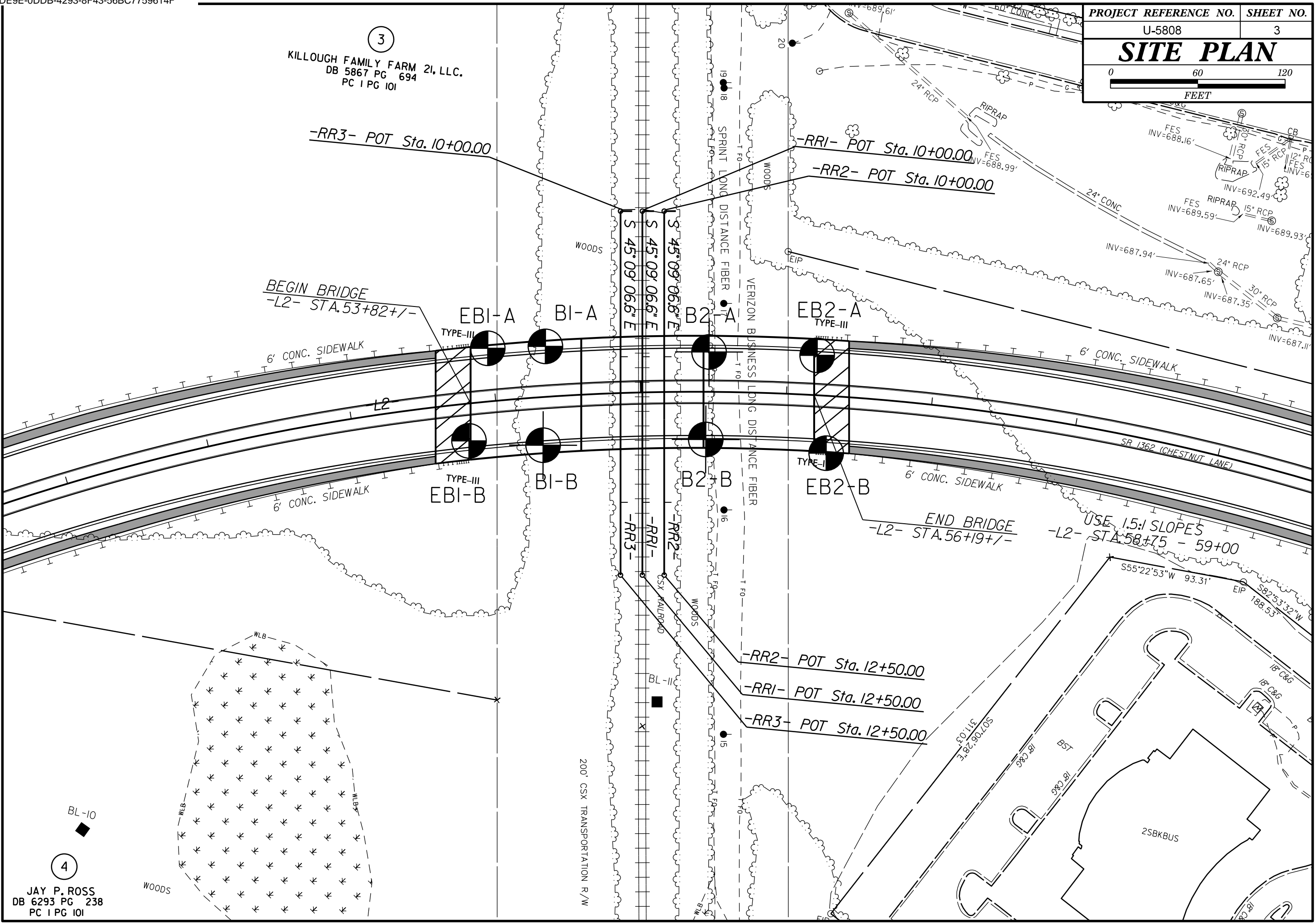
**BENCH MARK: BM 52, -BYI- STA 6+96.08, 32.09' RT, BENCHTIE SET IN 20 INCH PINE**

**ELEVATION: 707.68 FEET**

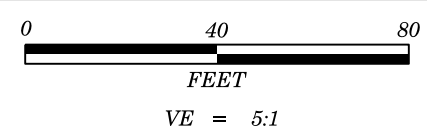
**NOTES:**  
C.I. - CAVED-IN

PROJECT REFERENCE NO.	SHEET NO.
U-5808	3
<b>SITE PLAN</b>	

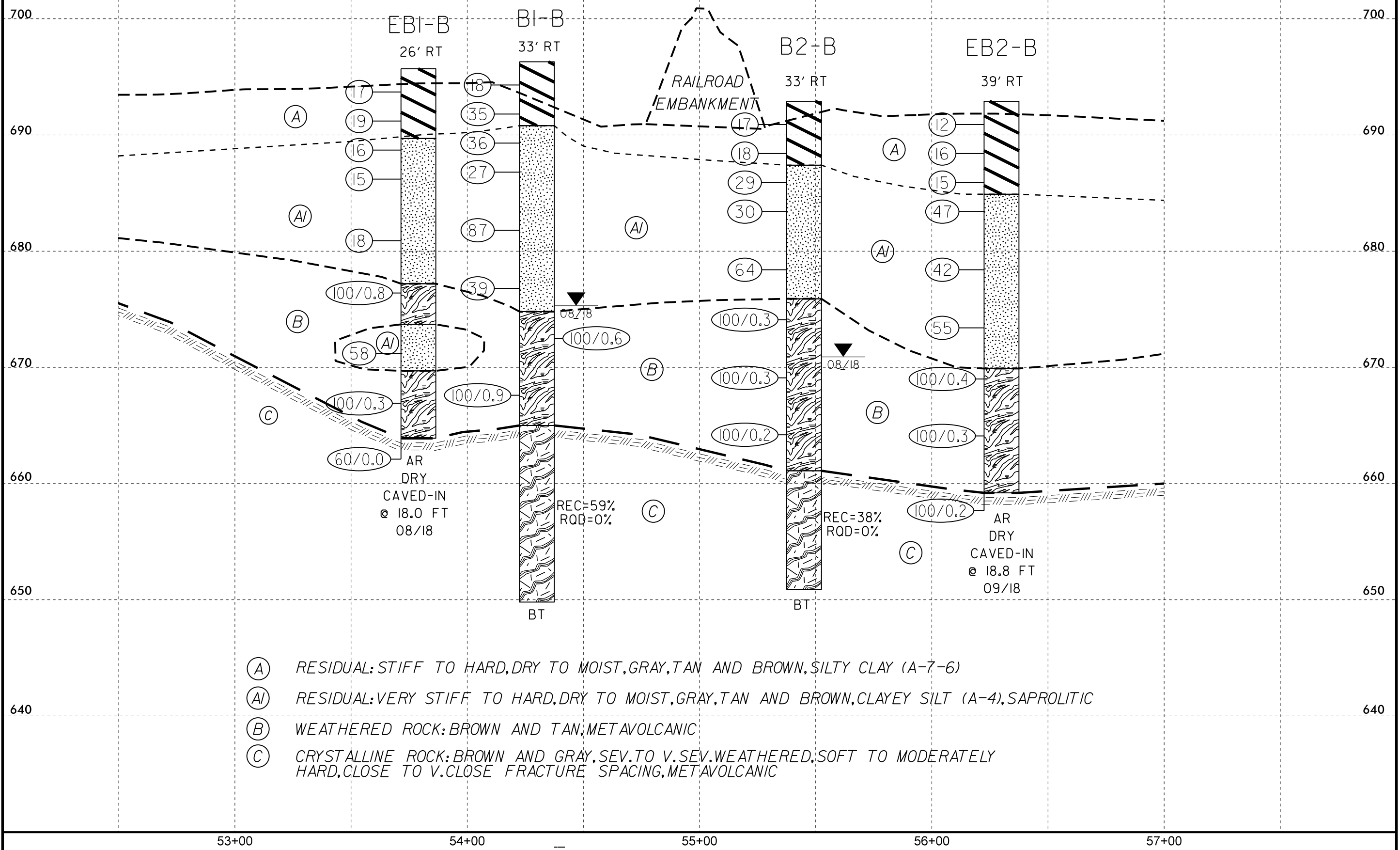
3  
 KILLOUGH FAMILY FARM 21, LLC.  
 DB 5867 PG 694  
 PC 1 PG 101



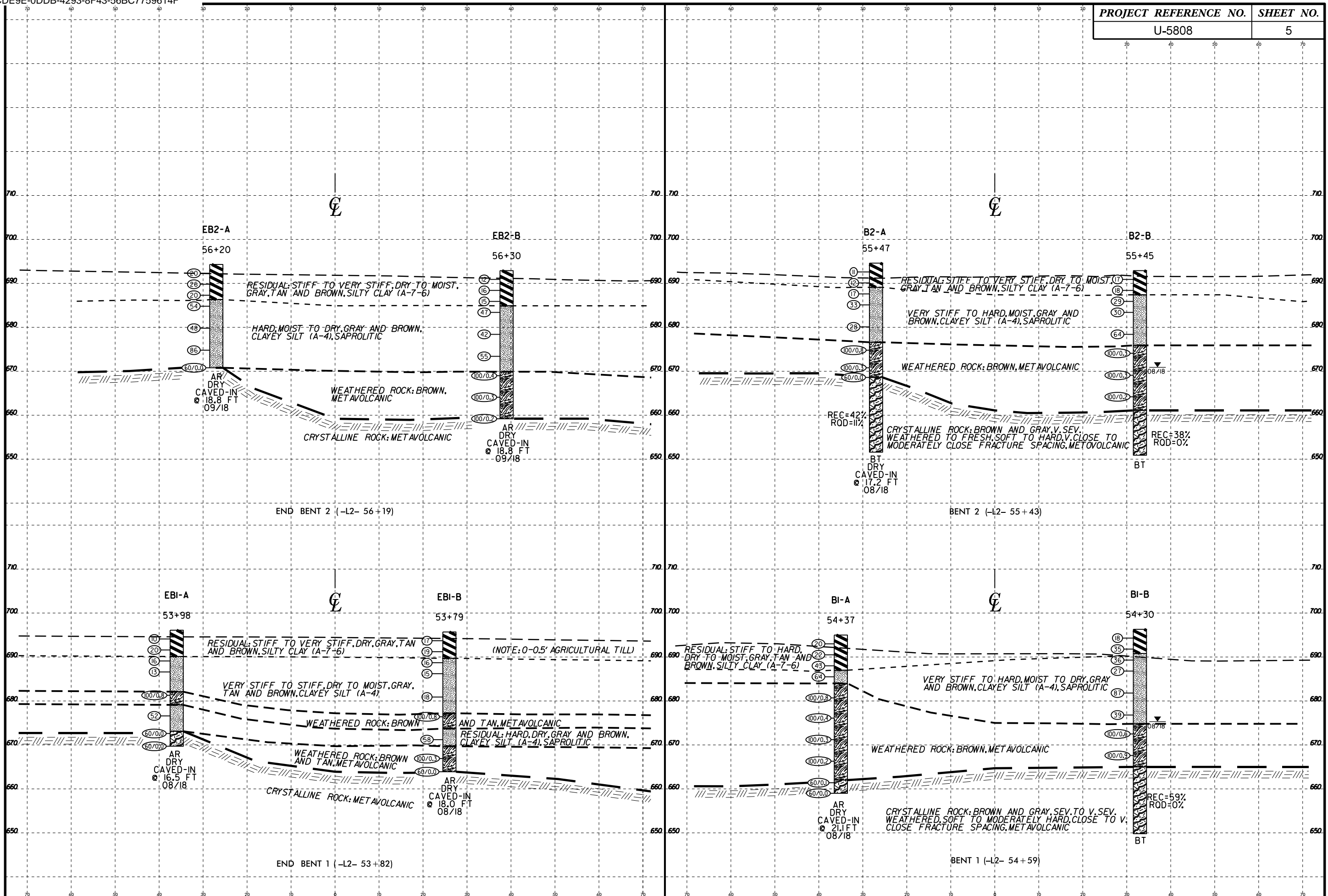
4  
 JAY P. ROSS  
 DB 6293 PG 238  
 PC 1 PG 101



PROJECT REFERENCE NO.	SHEET NO.
U-5808	4
CHESTNUT LANE CONNECTOR BRIDGE OVER CSX RAILROAD -L- PROFILE	



- (A) RESIDUAL: STIFF TO HARD, DRY TO MOIST, GRAY, TAN AND BROWN, SILTY CLAY (A-7-6)
- (A1) RESIDUAL: VERY STIFF TO HARD, DRY TO MOIST, GRAY, TAN AND BROWN, CLAYEY SILT (A-4), SAPROLITIC
- (B) WEATHERED ROCK: BROWN AND TAN, METAVOLCANIC
- (C) CRYSTALLINE ROCK: BROWN AND GRAY, SEV. TO V. SEV. WEATHERED, SOFT TO MODERATELY HARD, CLOSE TO V. CLOSE FRACTURE SPACING, METAVOLCANIC



HORIZ. SCALE 0 20 40 (FEET) VE = 1:1

**END BENT 1 CROSS SECTION**  
**END BENT 2 CROSS SECTION**

HORIZ. SCALE 0 20 40 (FEET) VE = 1:1

**BENT 1 CROSS SECTION**  
**BENT 2 CROSS SECTION**

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay										
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 53+98		OFFSET 36 ft LT		ALIGNMENT -L2-										
COLLAR ELEV. 696.1 ft		TOTAL DEPTH 26.4 ft		NORTHING 488,633		EASTING 1,499,549										
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER C. Meatyard		START DATE 08/20/18		COMP. DATE 08/20/18		SURFACE WATER DEPTH N/A										
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						
700																
695	695.1	1.0	5	5	5									696.1	GROUND SURFACE	0.0
	692.6	3.5	5	11	9									690.1	<b>RESIDUAL</b> Gray and brown, silty CLAY (A-7-6) Note: 0-0.5' Agricultural Till	6.0
690	690.1	6.0	10	8	8									690.1	Tan and brown, clayey SILT (A-4)	6.0
	687.6	8.5	4	5	8									682.1		14.0
685														679.1	<b>WEATHERED ROCK</b> Brown and tan, METAVOLCANIC	17.0
	682.6	13.5	5	27	73/0.3									673.1	<b>RESIDUAL</b> Gray and brown, clayey SILT (A-4), saprolitic	23.0
680														669.7	<b>CRYSTALLINE ROCK</b> METAVOLCANIC	26.4
	677.6	18.5	45	27	25										Boring Terminated by Auger Refusal at Elevation 669.7 ft in Crystalline Rock: METAVOLCANIC	
675																
	672.6	23.5	60/0.0													
670																
	669.7	26.4	60/0.0													

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay										
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 53+79		OFFSET 26 ft RT		ALIGNMENT -L2-										
COLLAR ELEV. 695.7 ft		TOTAL DEPTH 31.8 ft		NORTHING 488,579		EASTING 1,499,585										
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER C. Meatyard		START DATE 08/20/18		COMP. DATE 08/20/18		SURFACE WATER DEPTH N/A										
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						
700																
695	694.7	1.0	7	7	10									695.7	GROUND SURFACE	0.0
	692.2	3.5	6	7	12									689.7	<b>RESIDUAL</b> Gray, tan, and brown, silty CLAY (A-7-6) Note: 0-0.5' Agricultural Till	6.0
690	689.7	6.0	5	8	8									689.7	Gray and brown, clayey SILT (A-4)	6.0
	687.2	8.5	6	6	9									682.1		14.0
685														679.1	<b>WEATHERED ROCK</b> Brown and tan, METAVOLCANIC	17.0
	682.2	13.5	12	10	8									673.1	<b>RESIDUAL</b> Gray and brown, clayey SILT (A-4), saprolitic	22.0
680														669.7	<b>WEATHERED ROCK</b> Brown and tan, METAVOLCANIC	26.0
	677.2	18.5	65	35/0.3											Boring Terminated by Auger Refusal at Elevation 663.9 ft on Crystalline Rock: METAVOLCANIC	
675																
	672.2	23.5	25	31	27											
670																
	667.2	28.5	100/0.3													
665																
	663.9	31.8	60/0.0													

NCDOT BORE DOUBLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT.GDT 10/23/18



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay									
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)								
BORING NO. B1-B		STATION 54+30		OFFSET 33 ft RT		ALIGNMENT -L2-									
COLLAR ELEV. 696.3 ft		TOTAL DEPTH 46.5 ft		NORTHING 488,613		EASTING 1,499,623									
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER C. Meatyard		START DATE 08/22/18		COMP. DATE 08/24/18		SURFACE WATER DEPTH N/A									
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					
700															
695	695.3	1.0	8	8	10									696.3	0.0
	692.8	3.5	12	14	21										
690	690.3	6.0	8	18	18									690.8	5.5
	687.8	8.5	7	11	16										
685															
	682.8	13.5	27	33	54										
680															
	677.8	18.5	26	18	21										
675														674.8	21.5
	672.8	23.5	86	14/0.1											
670															
	667.8	28.5	41	59/0.4											
665														664.8	31.5
660															
655															
650														649.8	46.5

NCDOT BORE SINGLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT.GDT 10/23/18

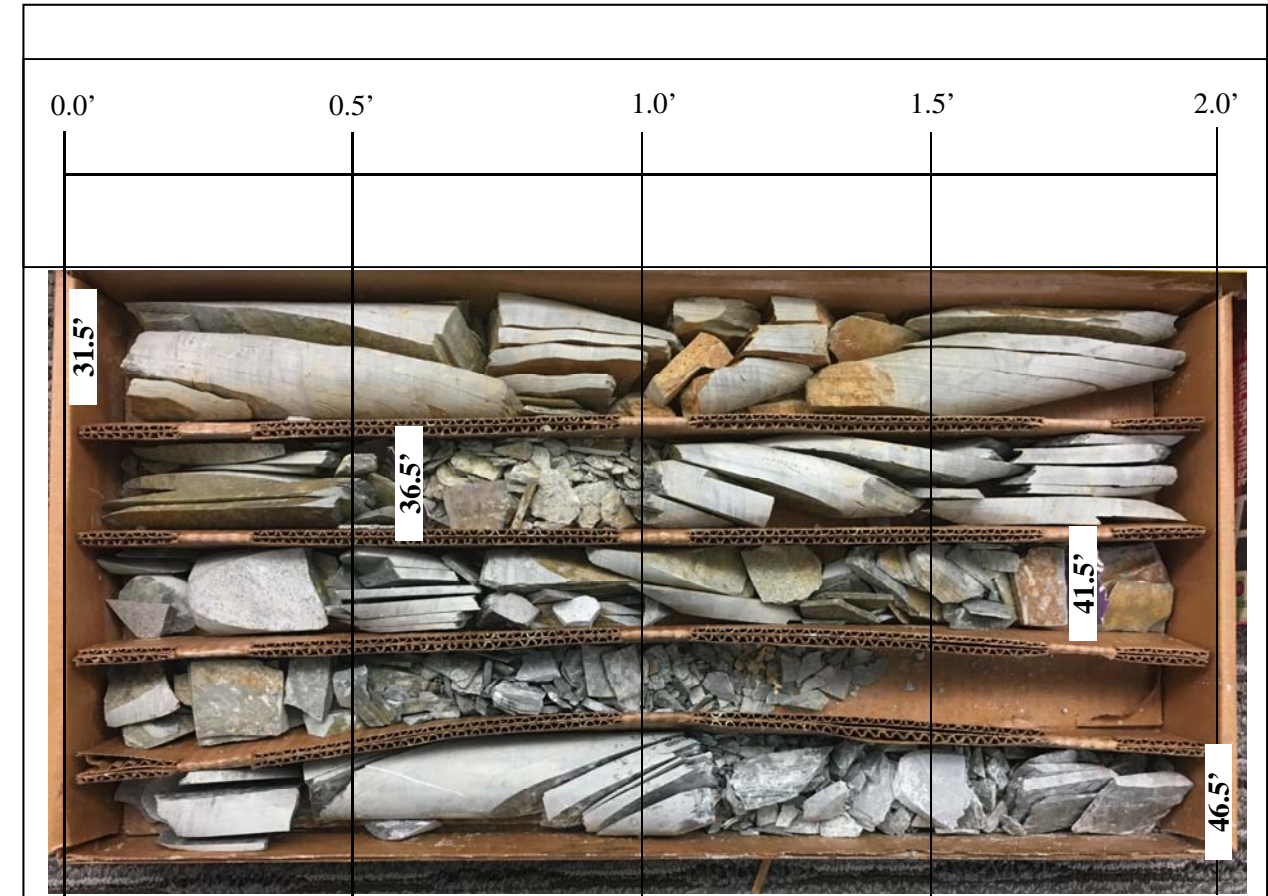
# GEOTECHNICAL BORING REPORT

## CORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay						
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)					
BORING NO. B1-B		STATION 54+30		OFFSET 33 ft RT		ALIGNMENT -L2-						
COLLAR ELEV. 696.3 ft		TOTAL DEPTH 46.5 ft		NORTHING 488,613		EASTING 1,499,623						
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER C. Meatyard		START DATE 08/22/18		COMP. DATE 08/24/18		SURFACE WATER DEPTH N/A						
CORE SIZE NQ Core			TOTAL RUN 15.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
664.8	664.8	31.5	5.0	4:00/1.0 4:00/1.0 4:00/1.0 8:00/1.0 9:00/1.0	(2.3) 46%	(0.0) 0%		(8.9) 59%	(0.0) 0%		Begin Coring @ 31.5 ft	
660	659.8	36.5	5.0	18:00/1.0 10:00/1.0 16:00/1.0 6:00/1.0 8:00/1.0	(3.6) 72%	(0.0) 0%					<b>CRYSTALLINE ROCK</b> Brown and gray, sev. to v. sev. weathered, soft to moderately hard, close to v. close fracture spacing, METAVOLCANIC	31.5
655	654.8	41.5	5.0	13:00/1.0 13:00/1.0 5:00/1.0 6:00/1.0 8:00/1.0	(3.0) 60%	(0.0) 0%						
650	649.8	46.5									Boring Terminated at Elevation 649.8 ft in Crystalline Rock: METAVOLCANIC	46.5

NCDOT CORE SINGLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT.GDT 10/23/18





B1-B, Box 1 of 1, 31.5 feet to 46.5 feet.

SCALE 1:40 (1"=4")

**ROCK CORE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)**

**BRIDGE OVER CSX RR**

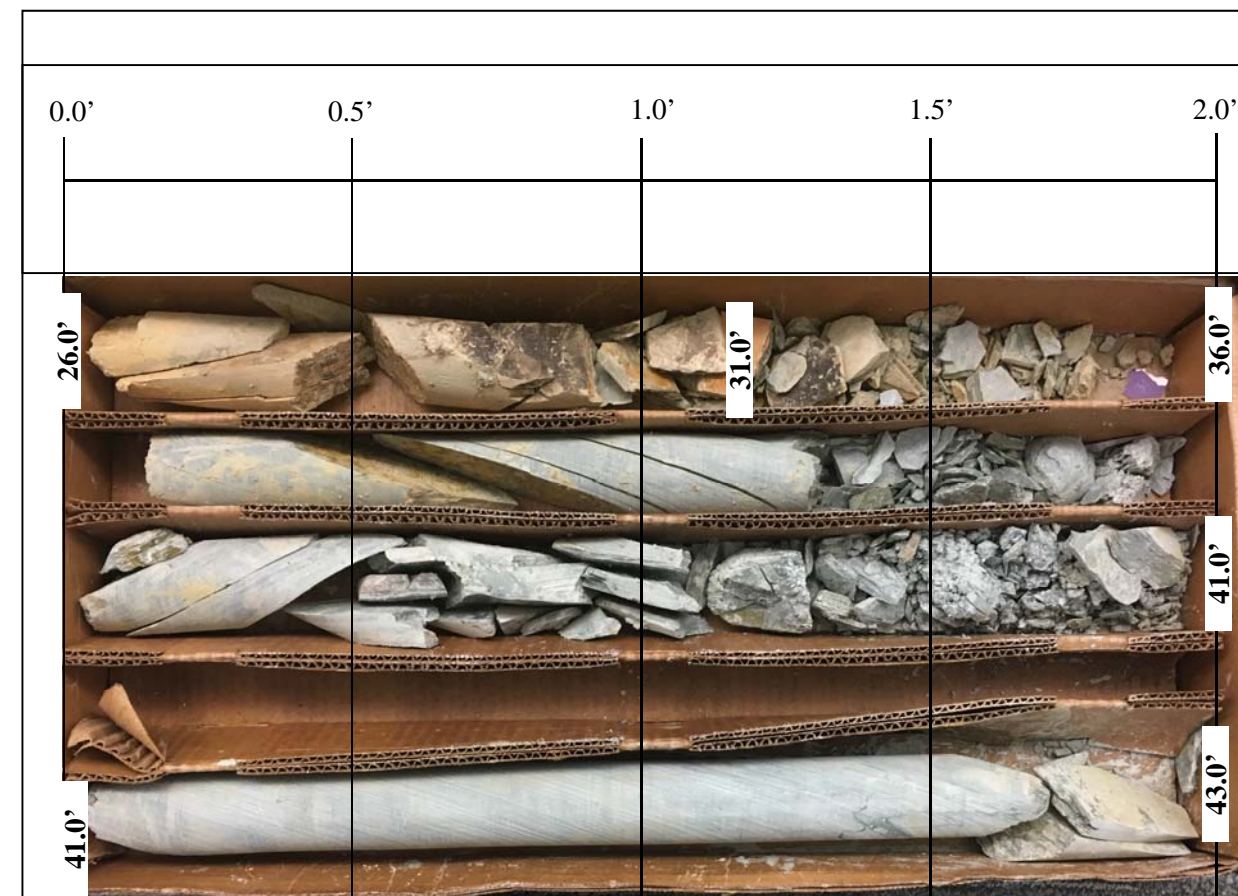
**UNION COUNTY, NORTH CAROLINA**

**WBS NO.: 44381.1.1, TIP NO.: U-5808**



Wood Environment & Infrastructure Solutions, Inc. 1600  
4021 Stirrup Creek Drive, Suite 100  
Durham, North Carolina 27703  
Tel : (919) 381-9900 Fax: (919) 381-9901





B2-A, Box 1 of 1, 26.0 feet to 43.0 feet.

SCALE 1:40 (1"=4")

**ROCK CORE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)  
BRIDGE OVER CSX RR  
UNION COUNTY, NORTH CAROLINA  
WBS NO.: 44381.1.1, TIP NO.: U-5808**



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# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay										
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)									
BORING NO. B2-B		STATION 55+45		OFFSET 33 ft RT		ALIGNMENT -L2-										
COLLAR ELEV. 692.9 ft		TOTAL DEPTH 42.0 ft		NORTHING 488,695		EASTING 1,499,699										
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER C. Meatyard		START DATE 08/28/18		COMP. DATE 08/29/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
695																
	691.9	1.0	7	8	9									692.9	0.0	GROUND SURFACE
690	689.4	3.5	6	8	10								D	687.4	5.5	<b>RESIDUAL</b> Gray, tan, and brown, silty CLAY (A-7-6)
	686.9	6.0	9	13	16								D			
685	684.4	8.5	8	14	16								M			Gray and brown, clayey SILT (A-4), saprolitic
	679.4	13.5	16	17	47								M			
680	674.4	18.5	100/0.3										M	675.9	17.0	<b>WEATHERED ROCK</b> Brown, METAVOLCANIC
675	669.4	23.5	100/0.3													
670	664.4	28.5	100/0.2													
665																
660														660.9	32.0	<b>CRYSTALLINE ROCK</b> Brown and gray, METAVOLCANIC
655														650.9	42.0	Boring Terminated at Elevation 650.9 ft in Crystalline Rock: METAVOLCANIC

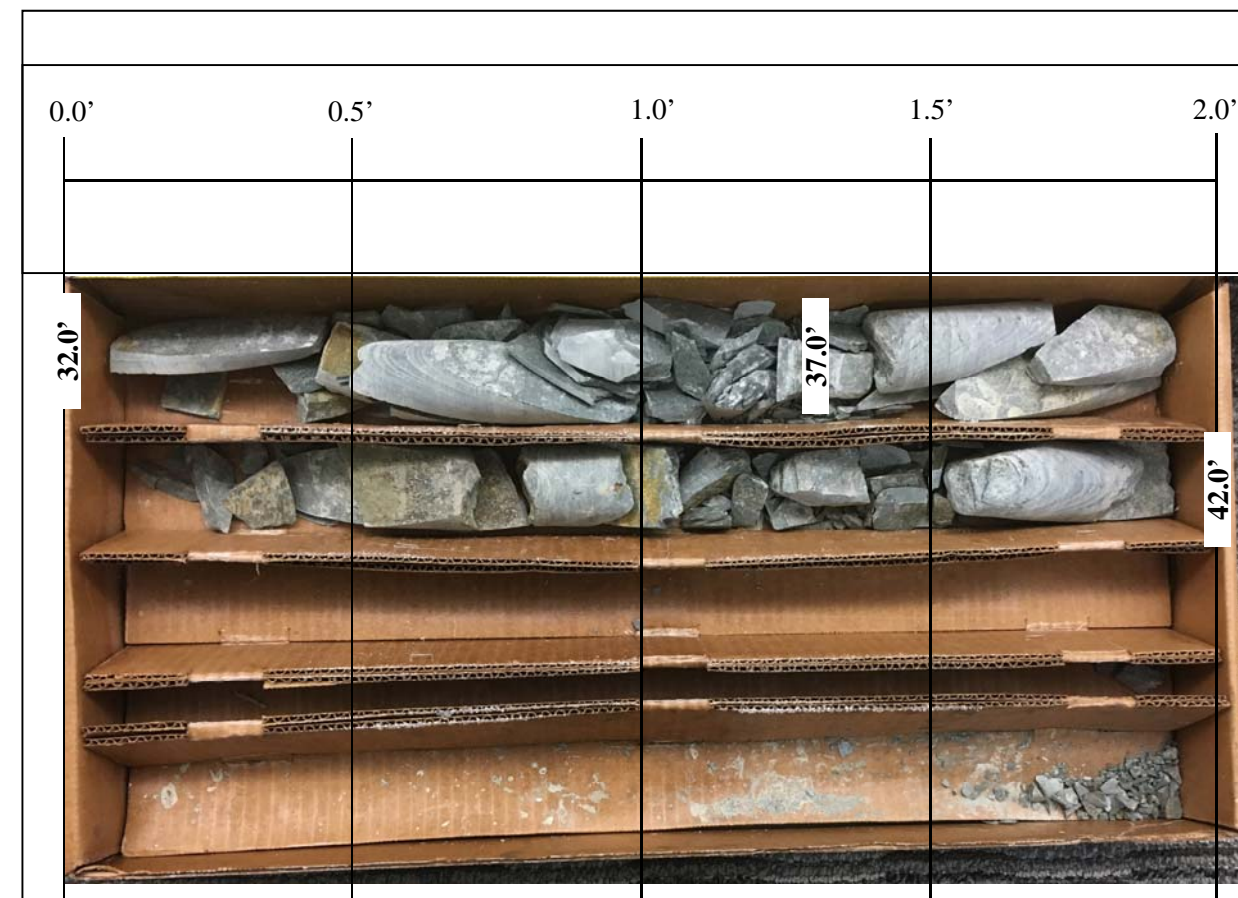
NCDOT BORE SINGLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT.GDT 10/23/18

# GEOTECHNICAL BORING REPORT

## CORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay						
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)					
BORING NO. B2-B		STATION 55+45		OFFSET 33 ft RT		ALIGNMENT -L2-						
COLLAR ELEV. 692.9 ft		TOTAL DEPTH 42.0 ft		NORTHING 488,695		EASTING 1,499,699						
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER C. Meatyard		START DATE 08/28/18		COMP. DATE 08/29/18		SURFACE WATER DEPTH N/A						
CORE SIZE NQ Core				TOTAL RUN 10.0 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	
					REC. (%)	RQD (%)		REC. (%)	RQD (%)		ELEV. (ft)	DEPTH (ft)
660.9	660.9	32.0	5.0	4:00/1.0 6:00/1.0 5:00/1.0 6:00/1.0 7:00/1.0	(1.6)	(0.0)		(3.8)	(0.0)			Begin Coring @ 32.0 ft
												<b>CRYSTALLINE ROCK</b> Brown and gray, sev. to v. sev. weathered, soft to moderately hard, close to v. close fracture spacing, METAVOLCANIC
655	655.9	37.0	5.0	6:00/1.0 7:00/1.0 5:00/1.0 8:00/1.0 7:00/1.0	(2.2)	(0.0)						
												Boring Terminated at Elevation 650.9 ft in Crystalline Rock: METAVOLCANIC

NCDOT CORE SINGLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT.GDT 10/23/18



B2-B, Box 1 of 1, 32.0 feet to 42.0 feet.

SCALE 1:40 (1"=4")

**ROCK CORE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)  
BRIDGE OVER CSX RR  
UNION COUNTY, NORTH CAROLINA  
WBS NO.: 44381.1.1, TIP NO.: U-5808**



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# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay											
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)										
BORING NO. EB2-A		STATION 56+20		OFFSET 27 ft LT		ALIGNMENT -L2-											
COLLAR ELEV. 694.3 ft		TOTAL DEPTH 23.5 ft		NORTHING 488,790		EASTING 1,499,712											
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER C. Meatyrd		START DATE 08/31/18		COMP. DATE 08/31/18		SURFACE WATER DEPTH N/A											
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							
695														694.3	GROUND SURFACE	0.0	
	693.3	1.0	4	8	12										RESIDUAL Tan, gray, and reddish brown, sandy silty CLAY (A-7-6)		
690	690.8	3.5	13	13	13												
	688.3	6.0	5	7	13												
685	685.8	8.5	16	24	30									686.3		Gray and brown, clayey SILT (A-4), saprolitic	8.0
680	680.8	13.5	7	21	27												
675	675.8	18.5	28	51	35												
	670.8	23.5	60/0.0												670.8	Boring Terminated by Auger Refusal at Elevation 670.8 ft on Crystalline Rock: METAVOLCANIC	23.5

WBS 44381.1.1		TIP U-5808		COUNTY UNION		GEOLOGIST C. Tremblay											
SITE DESCRIPTION Bridge No. 576 on SR 1362 (Chestnut Lane Connector) over CSX Railroad							GROUND WTR (ft)										
BORING NO. EB2-B		STATION 56+30		OFFSET 39 ft RT		ALIGNMENT -L2-											
COLLAR ELEV. 692.9 ft		TOTAL DEPTH 33.7 ft		NORTHING 488,747		EASTING 1,499,764											
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER C. Meatyrd		START DATE 08/31/18		COMP. DATE 08/31/18		SURFACE WATER DEPTH N/A											
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							
695														692.9	GROUND SURFACE	0.0	
	691.9	1.0	5	6	6										RESIDUAL Tan and brown, silty CLAY (A-7-6)		
690	689.4	3.5	7	7	9												
	686.9	6.0	5	6	9												
685	684.4	8.5	11	16	31									684.9		Gray and brown, clayey SILT (A-4), saprolitic	8.0
680	679.4	13.5	10	20	22												
675	674.4	18.5	20	28	27												
670	669.4	23.5	100/0.4												669.9	WEATHERED ROCK Brown, METAVOLCANIC	23.0
665	664.4	28.5	100/0.3														
660	659.4	33.5	100/0.2												659.2	Boring Terminated at Elevation 659.2 ft in Weathered Rock: METAVOLCANIC	33.7

NCDOT BORE DOUBLE U5808\_GEO\_RDWY AND BR.GPJ NC\_DOT\_GDT 10/23/18



**PROFILE (-L2-), LOOKING UPSTATION FROM END BENT 1.**



**PROFILE (-L2-), LOOKING DOWNSTATION FROM END BENT 2.**

**SITE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)  
BRIDGE OVER CSX RR  
UNION COUNTY, NORTH CAROLINA  
WBS NO.: 44381.1.1, TIP NO.: U-5808**



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**END BENT 1, LOOKING FROM RT TO LT.**



**END BENT 2, LOOKING FROM RT TO LT.**

**SITE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)  
BRIDGE OVER CSX RR  
UNION COUNTY, NORTH CAROLINA  
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**BENT 1, LOOKING FROM RT TO LT.**



**BENT 2, LOOKING FROM RT TO LT.**

**SITE PHOTOGRAPHS**

**CHESTNUT LANE CONNECTOR (SR1362)  
BRIDGE OVER CSX RR  
UNION COUNTY, NORTH CAROLINA  
WBS NO.: 44381.1.1, TIP NO.: U-5808**



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