CONTRACT: ID: R-2536A

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	332

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34450.1.1	N/A	P.E.
		R/W & UTIL.

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

SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

INVENTORY

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3	DUAL BRIDGES ON -Y4RPA- OVER -L-	I-13
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5	BRIDGE ON -Y2FLYA- OVER -L-	I-10
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7	DUAL BRIDGES ON -Y2- OVER -L-	I-12
8	BRIDGE ON -Y3- OVER -L-	I-12
9	DUAL BRIDGES ON -L- OVER LITTLE RIVER	I-22

CAUTION NOTICE

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DATE *March 2014*

Patrick Alton

W. Patrick Alton, PE.

SECTION 1

CONTRACT: ID: R-2536A

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	0+00.00-266+23.37	4,5,7-12	15-34
-Y1-	0+00.00-22+00.00	8	-
-Y2-	6+87.24-83+05.81	8,13,14	-
-Y2FLYA-	0+00.00-55+47.13	8,13	-
-Y2LPA-	0+00.00-13+66.95	8	-
-Y2LPC-	0+00.00-13+07.78	8	-
-Y2LPD-	0+00.00-12+74.51	8	-
-Y2RPA-	0+00.00-14+37.71	8	-
-Y2RPB-	0+00.00-16+64.85	8	-
-Y2RPC-	0+00.00-16+28.32	8	-
-Y2RPD-	0+00.00-27+34.28	8	-
-Y2B-	10+00.00-22+69.58	8	-
-Y2C-	0+00.00-19+25.68	8,13	-
-Y3-	13+00.00-20+00.00	11	-
-Y4LPC-	0+00.00-10+42.01	5	-
-Y4RPA-	10+42.01-57+18.94	5,6	-
-Y4RPC-	0+00.00-29+65.38	4,5	-
-Y4RPD-	0+00.00-25+94.10	5	-
-Y5-	10+00.00-25+12.52	5	-
-T1-	10+00.00-34+33.40	5	-
-T2-	0+00.00-9+95.90	13	-
-T3-	10+00.00-20+32.41	8,9	-

BORING LOGS, CORE LOGS, CORE PHOTOS	35-213
SOIL TEST RESULTS SUMMARY	214-215
ROCK TEST RESULTS SUMMARY	216

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34450.1.1 (R-2536A) F.A. PROJ. N/A

COUNTY Randolph

PROJECT DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	217

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34450.1.1	N/A	P.E.
		R/W & UTIL.

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PERSONNEL

D. Racey
M. Brewer
K. Murphy
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P. Hughes
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J. Gilchrist
D. Tignor
S. Davis
M. Renza
B. Brewer
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P. Alton
J. Fowler

DRAWN BY D. Racey

INVESTIGATED BY F&R, Inc.

CHECKED BY P. Alton, P.E.

SUBMITTED BY F&R, Inc.

DATE March 2014

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

3/17/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING • 10 • 40 • 200	50 MX 30 MX 15 MX		50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT PLASTIC INDEX	6 MX			NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0			0	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					
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR		UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT^2)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PI) — LL — LIQUID LIMIT		
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- (REF) — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N Q2
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

Notes:
FIAD = Filled Immediately After Drilling
GSRF = Gravel-Sized Rock Fragments
NM = Not Measured
SAA = Same As Above
RM = Resilient Modulus Bulk Sample
TR = Trace
S.O.S. = Surficial Organic Soils

REVISED 09/23/09

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2536A	2A	207

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34450.1.1	N/A	P.E.
		R/W & UTIL.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

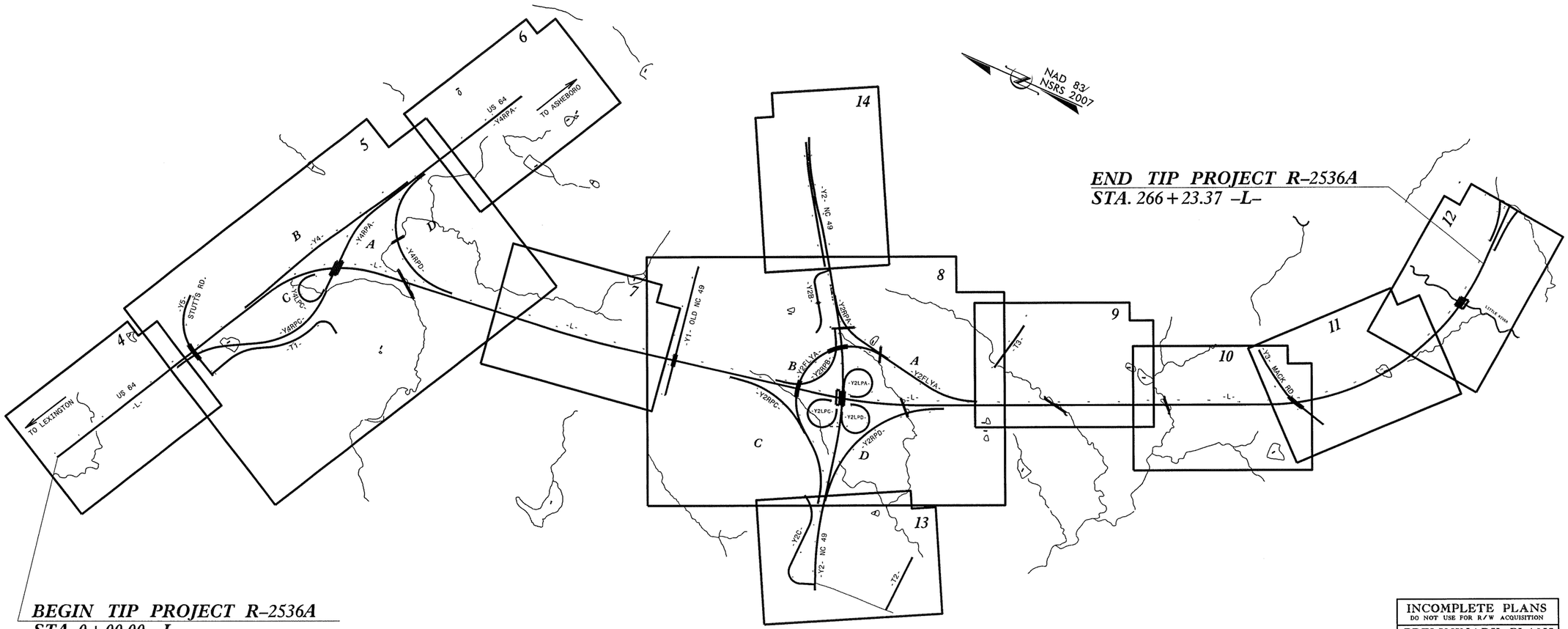
RANDOLPH COUNTY

LOCATION: ASHEBORO BYPASS FROM EXISTING US 64 WEST OF ASHEBORO TO US 220 BYPASS

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

TIP PROJECT: R-2536A

CONTRACT:



BEGIN TIP PROJECT R-2536A
STA. 0+00.00 -L-

END TIP PROJECT R-2536A
STA. 266+23.37 -L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

100 50 0 100 200
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT = ____
ADT = ____
DHV = — %
D = — %
T = — % *
V = — MPH
* TTST 3% DUAL—%
FUNC =

PROJECT LENGTH

LENGTH ROADWAY
TIP PROJECT R-2536A = 5.04 MILES

Prepared In the Office of:
FROEHLING & ROBERTSON, INC.
310 HUBERT STREET RALEIGH, NC 27603 PHONE (919) 828-3441

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99

16-MAR-2014 16:16
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dracey AT 66CAD

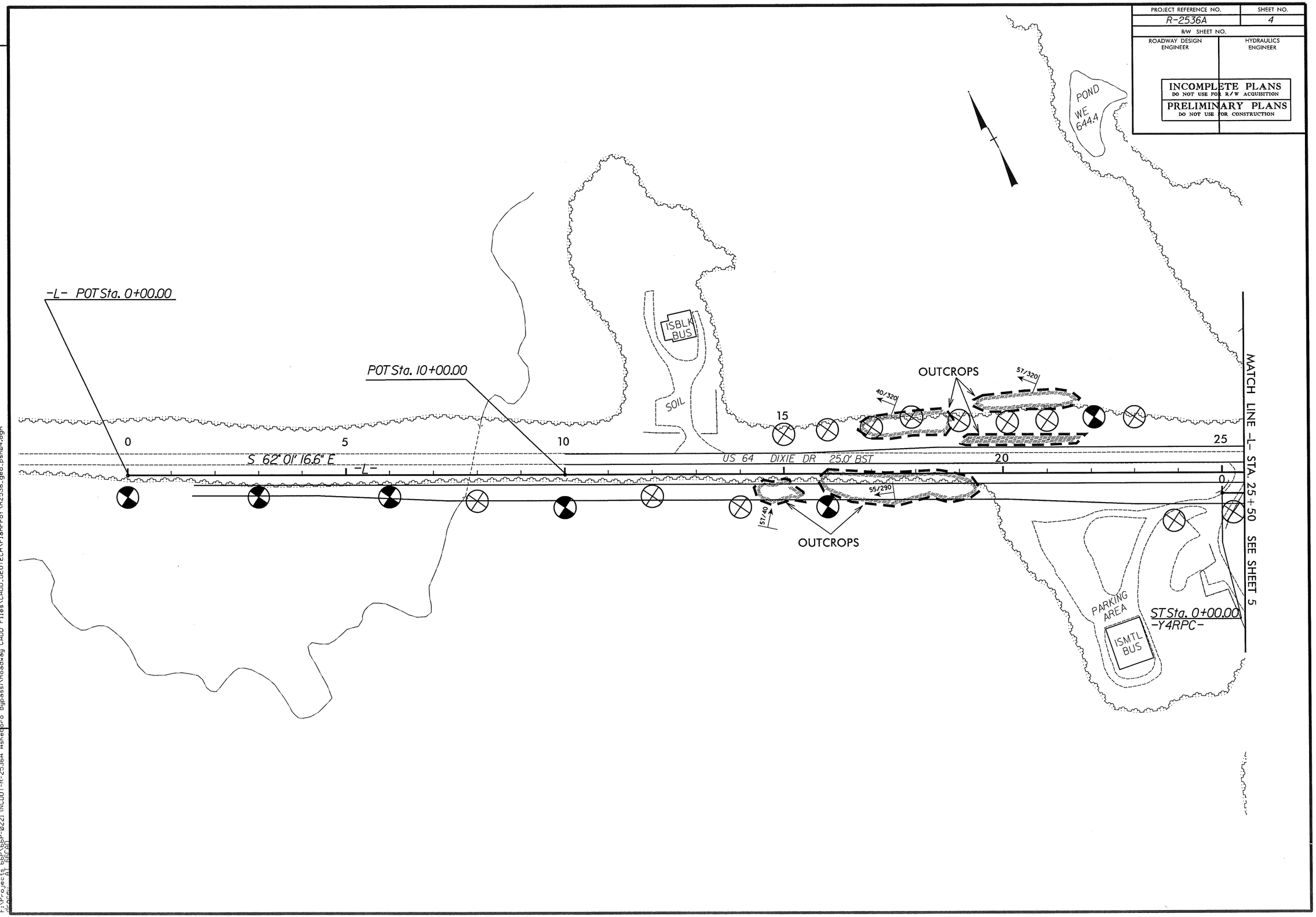
PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	3

EARTHWORK BALANCE SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

16-MAR-2014 16:31
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drocey AT 66CAD

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

DETAIL
-Y5- OVER -L-
SCALE = 1"=50'

POT Sta. 25+12.52
PT Sta. 23+59.87
PCS Sta. 14+83.18
ST Sta. 0+00.00 -Y4-
SCS Sta. 2+75.00
CSS Sta. 5+36.80
SRS Sta. 8+11.80 -Y4-
SCS Sta. 3+00.00
CSS Sta. 7+49.84
SCS Sta. 46+57.83
SCS Sta. 10+86.80
CSS Sta. 17+55.63
ST Sta. 20+30.63
PT Sta. 34+34.75 -Y4-
PCS Sta. 27+72.40
SCS Sta. 20+20.09
CSS Sta. 24+88.23 -Y4RPA-
ST Sta. 27+88.23
CSS Sta. 23+44.10
ST Sta. 25+94.10 -Y4RPD-
TSS Sta. 42+57.83 -L-
TSS Sta. 13+11.03
SCS Sta. 16+11.03
TSS Sta. 17+20.09
ST Sta. 0+00.00
SCS Sta. 3+00.00
CSS Sta. 8+42.01
CSS Sta. 26+65.38
CSS Sta. 61+97.86
POT Sta. 10+00.00 -T1-
POT Sta. 10+00.00 -Y5-
PCS Sta. 13+93.00
PT Sta. 18+89.76
PCS Sta. 20+79.70
PRC Sta. 29+84.97
Ramp A POT Sta. 10+42.01
Loop C ST Sta. 10+42.01
Ramp C ST Sta. 29+65.38 -Y4-
ST Sta. 65+97.86
2 @ 8' x 6' RCBC
PRC Sta. 10+44.12
PT Sta. 32+97.87
POT Sta. 34+33.40 -T1-
SCS Sta. 2+50.00
ST Sta. 0+00.00 -Y4RPD-

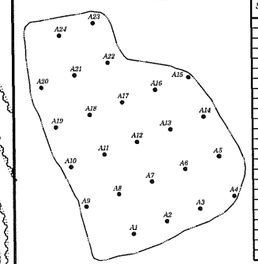
OUTCROPS

MATCH LINE -L- STA. 35+50 SEE SHEET 4

MATCH LINE -Y4RPA- STA. 41+00 SEE SHEET 6

MATCH LINE -L- STA. 85+50 SEE SHEET 7

POND A TEST LOCATION DETAIL
(NOT TO SCALE)



POND A SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
A1	6.8	7.0	0.2
A2	9.4	12.0	2.6
A3	9.3	11.5	2.2
A4	1.9	2.1	0.2
A5	1.4	1.5	0.1
A6	3.9	4.1	0.2
A7	8.5	8.7	0.2
A8	9.9	13.4	3.5
A9	3.8	4.0	0.2
A10	3.1	3.4	0.3
A11	9.3	11.0	1.8
A12	8.9	10.8	1.9
A13	4.7	5.0	0.3
A14	2.3	2.6	0.3
A15	2.1	2.2	0.1
A16	3.5	3.6	0.1
A17	5.4	5.8	0.4
A18	7.9	9.0	1.1
A19	3.8	3.9	0.1
A20	4.0	4.1	0.1
A21	4.5	5.4	0.9
A22	2.9	3.1	0.2
A23	3.0	3.4	0.4
A24	2.4	2.8	0.4

16-MAR-2014 16:32
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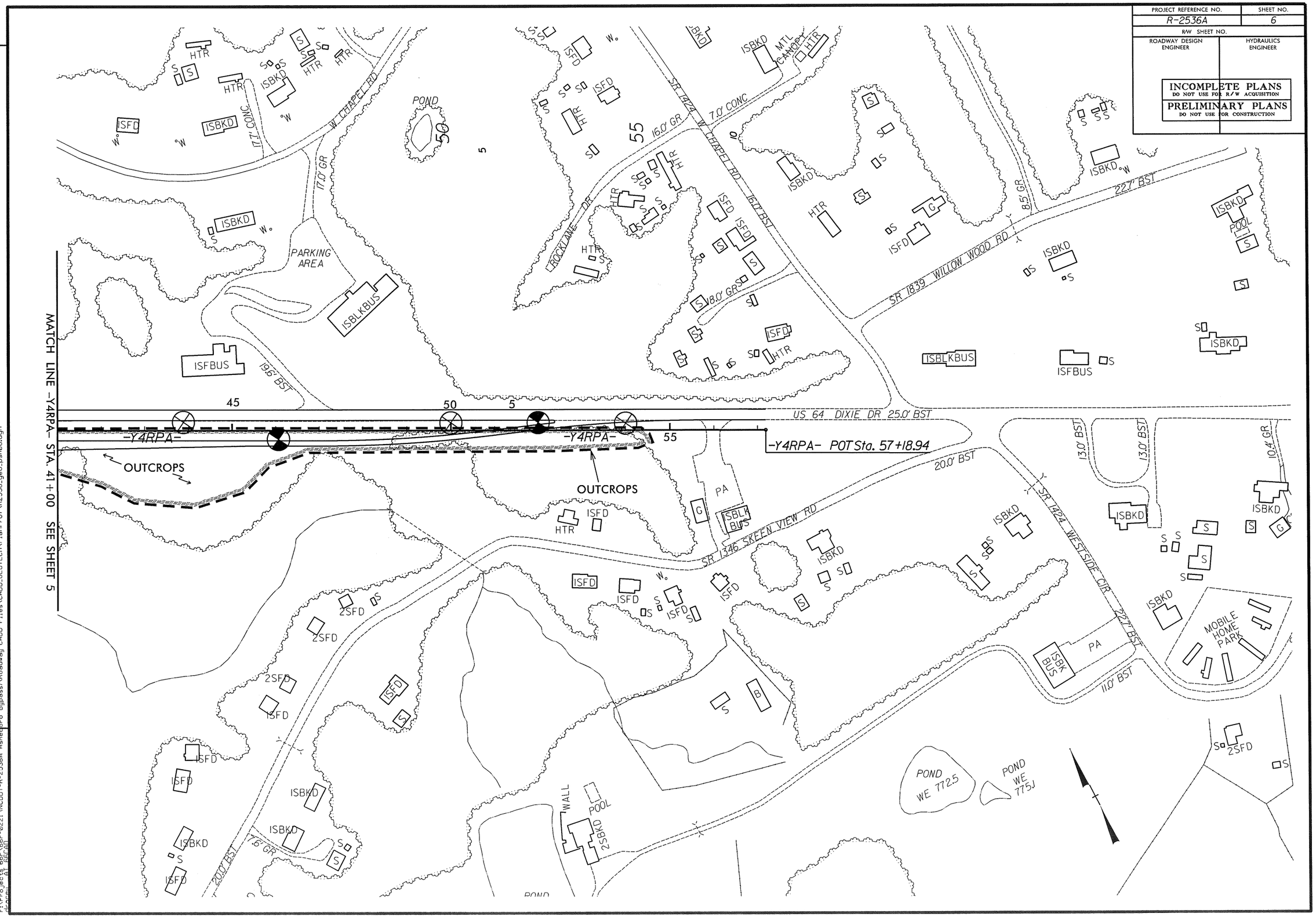
dgnset: ddot

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

16-MAR-2014 16:34
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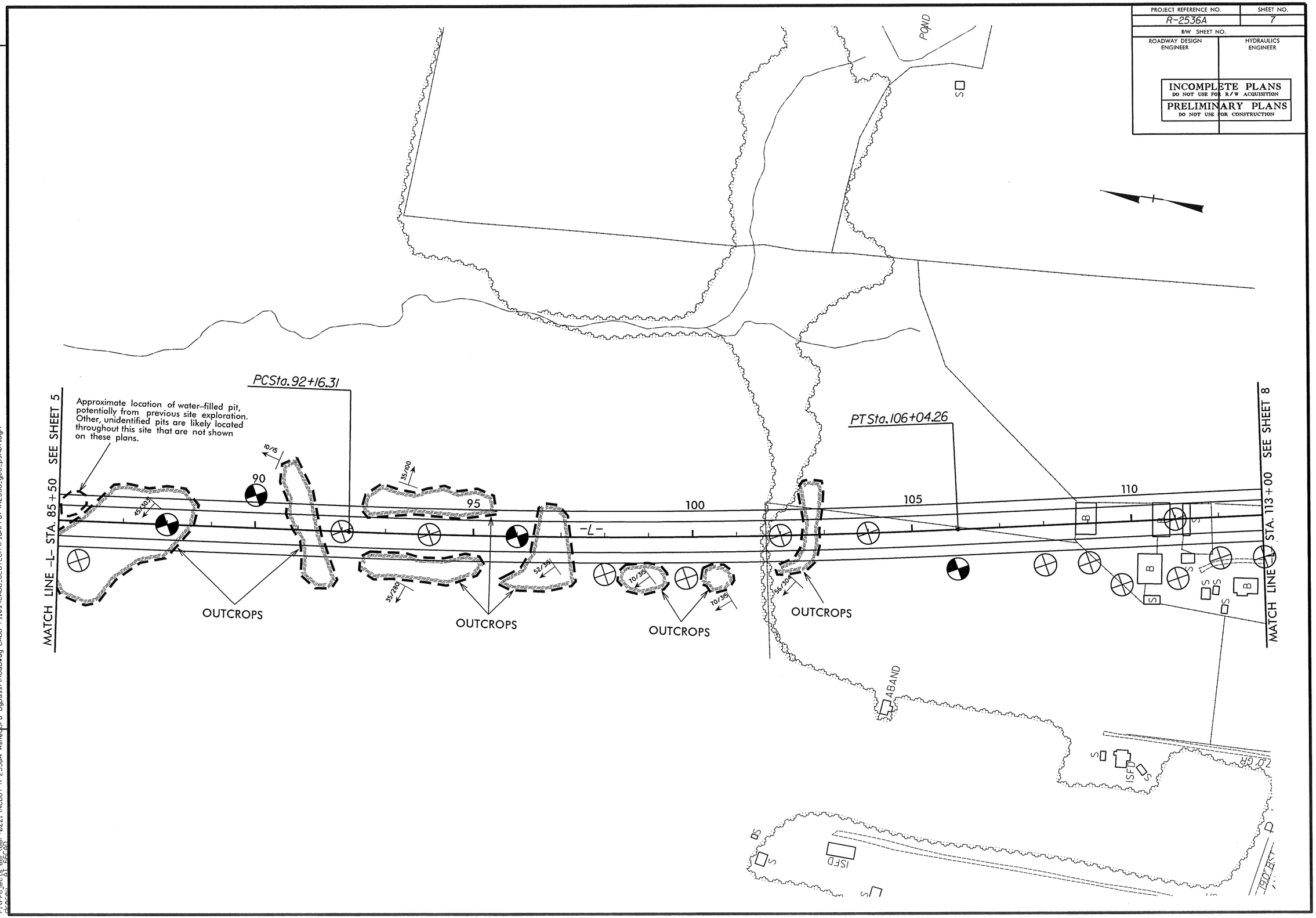
PROJECT REFERENCE NO.	SHEET NO.
R-2536A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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drocey AT 66CAD

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

17-MAR-2014 07:58
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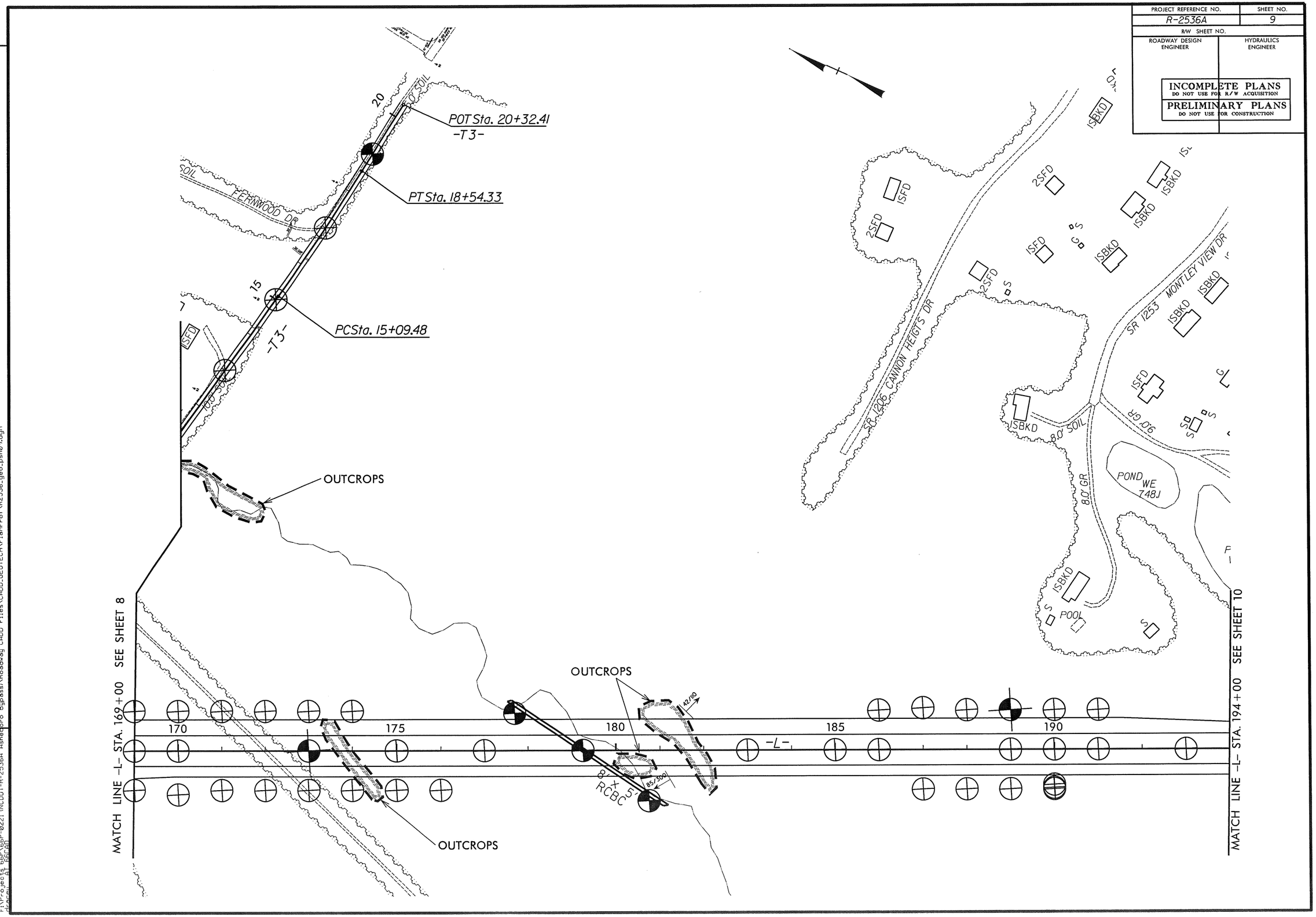
Default

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

16-MAR-2014 16:45
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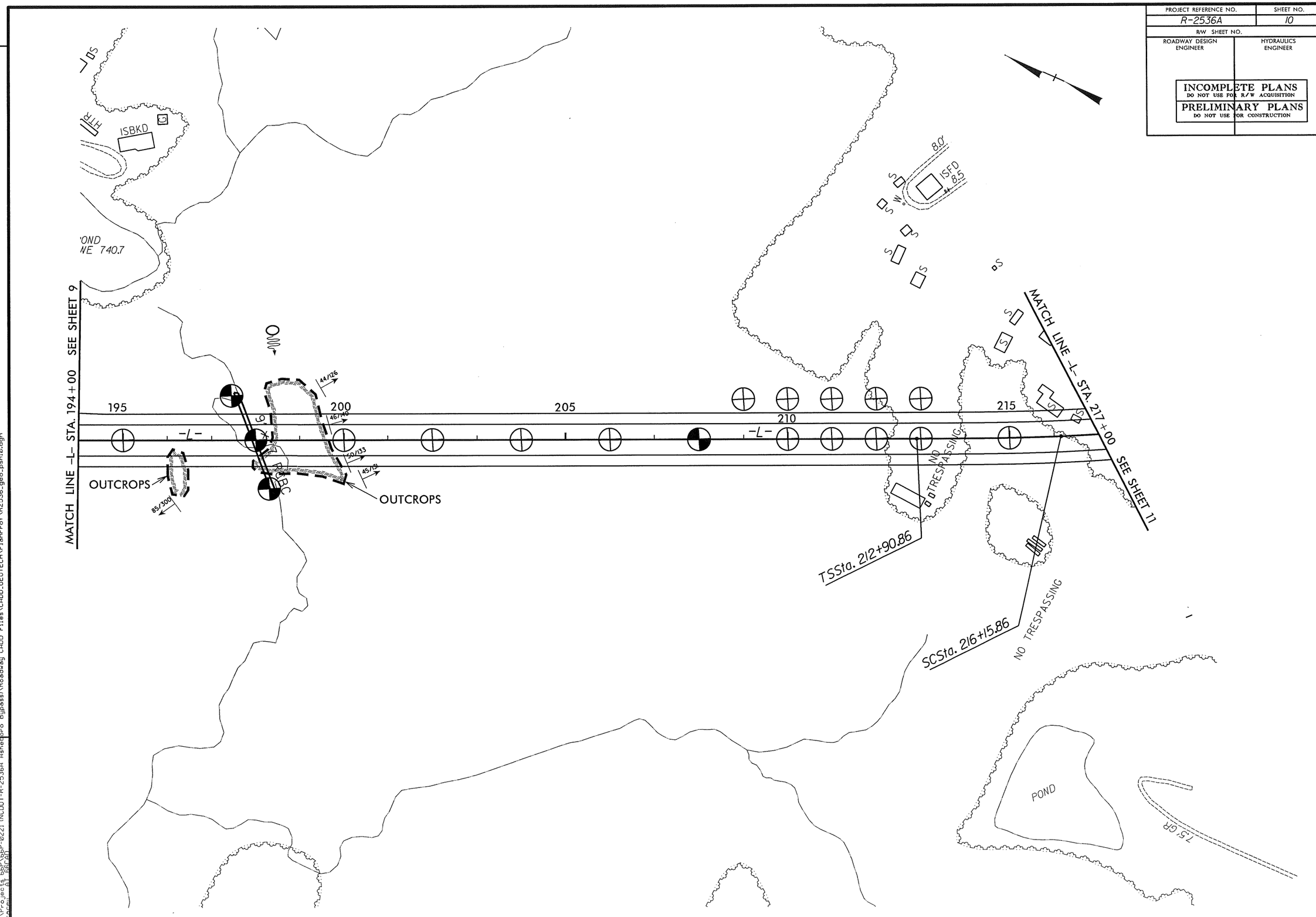
drapeau AT 66CAD

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

16-MAR-2014 16:46
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drawn AT 66CAD

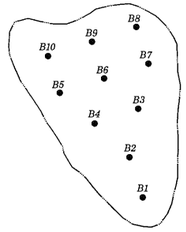
PROJECT REFERENCE NO.	SHEET NO.
R-2536A	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

POND B TEST LOCATION DETAIL
(NOT TO SCALE)



POND B
SEDIMENT SURVEY DATA

STATION	BATHYMETRIC DEPTH (ft)	TOTAL DEPTH (ft)	SEDIMENT DEPTH (ft)
B1	2.4	3.0	0.6
B2	2.8	3.6	0.8
B3	3.0	3.7	0.7
B4	2.3	2.7	0.4
B5	1.5	2.0	0.5
B6	2.0	2.2	0.2
B7	3.3	4.3	1.0
B8	2.7	3.2	0.5
B9	1.3	1.8	0.5
B10	1.2	1.5	0.3

-Y3- Sta.20+00.00

-Y3- Sta.13+00.00

MATCH LINE -L- STA. 217+00 SEE SHEET 10

MATCH LINE -L- STA. 243+00 SEE SHEET 12

-L-

220 225 230 235 240

POND

OUTCROPS

ABAND

ISFD

2SFD

ISBKD

ISBKCH

OHBS

HTR

MTL CANOPY

ISMTL BUS

PA

POWER MEMORIAL BRYAN CHURCH

DANNY BELL RD 18.0' BST

SR 1144 MACK RD 22.0' BST

LUDLUM LN 10.0' BST

12.6' GR

12.0' GR

13.0' GR

13.0' BST

18.0'

SOIL

16-MAR-2014 16:47
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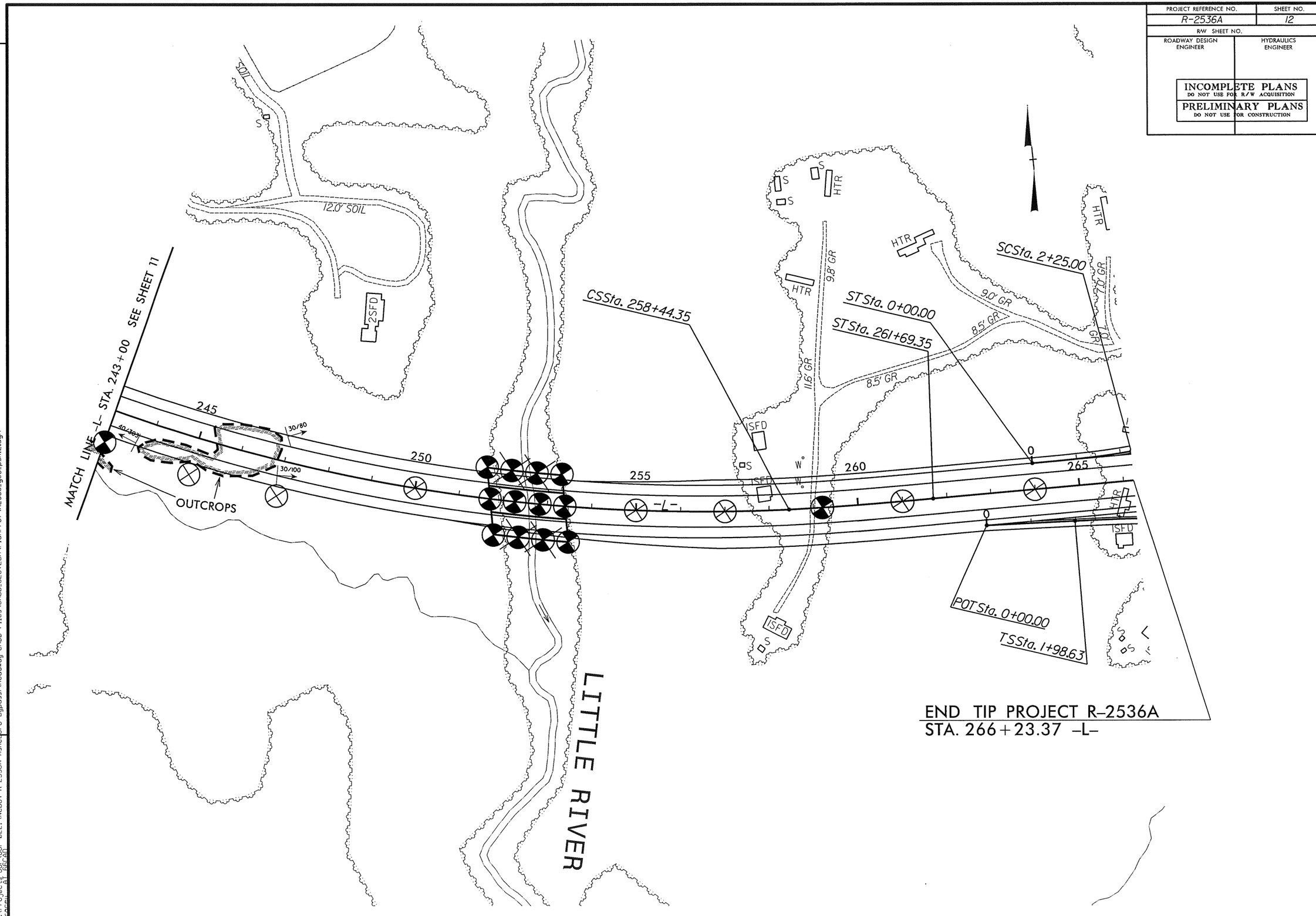
dgnlibs A1 ARCH

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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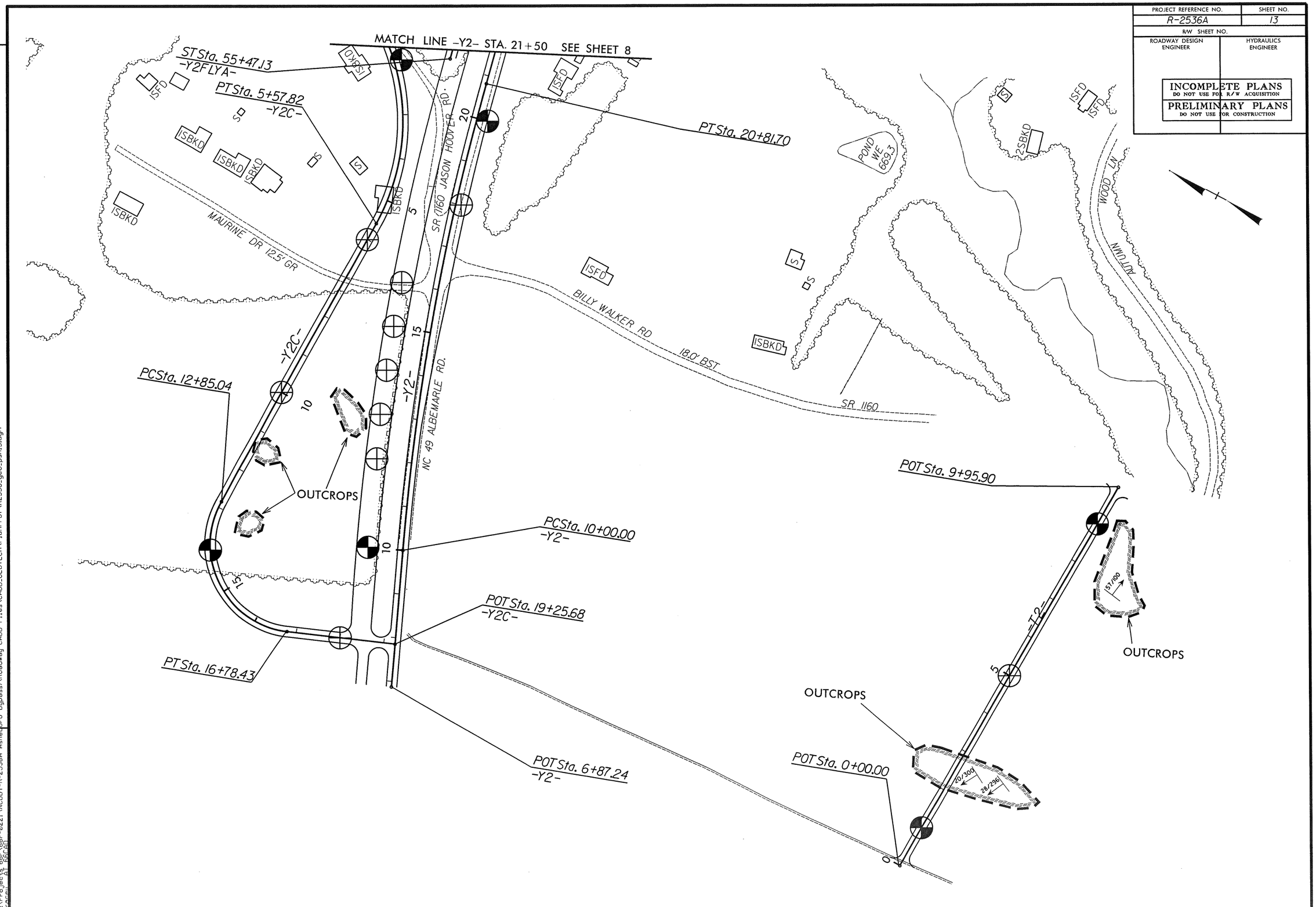
drocey AT 66CAD

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

16-MAR-2014 16:49
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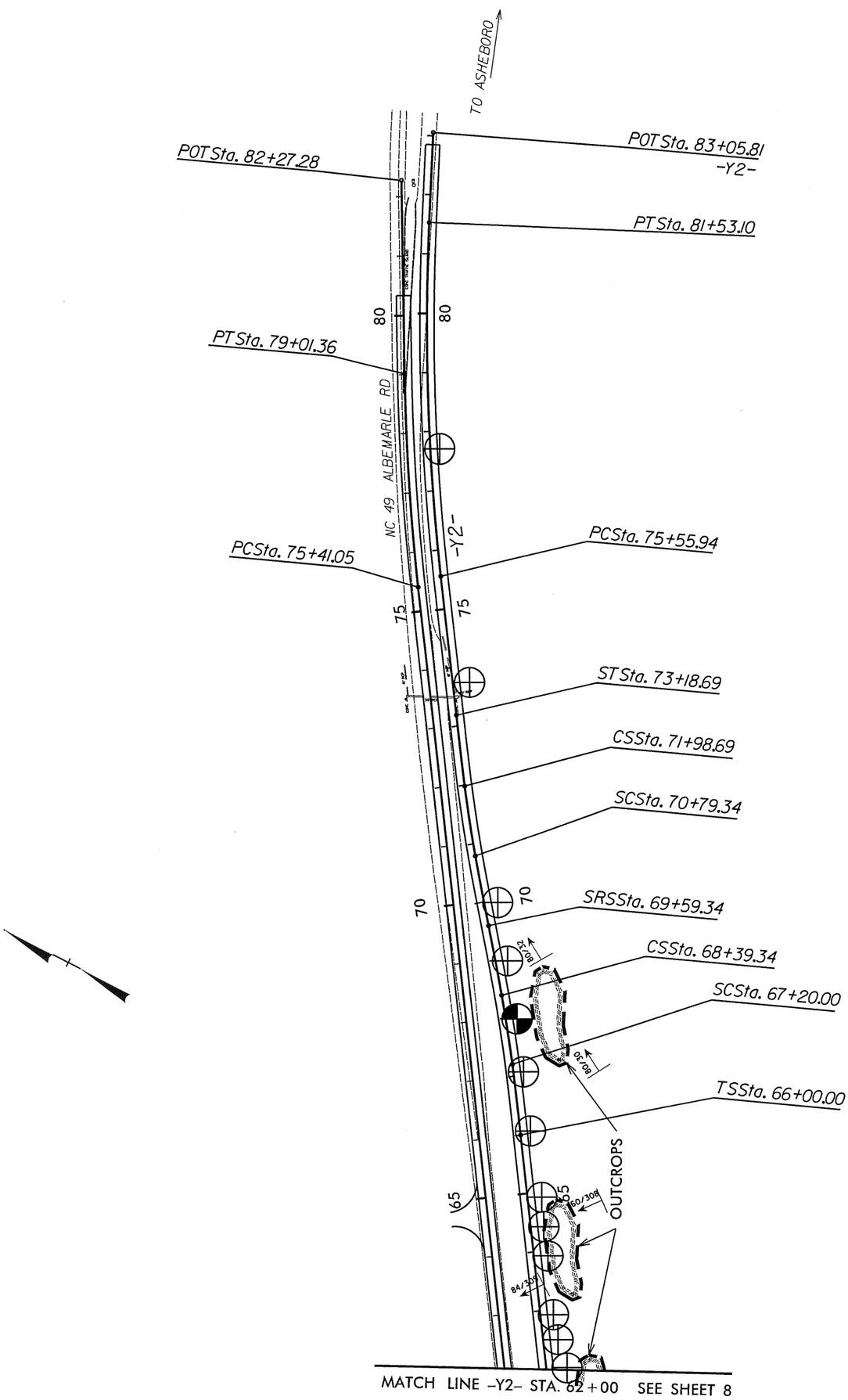
drocey AT 66CAD

PROJECT REFERENCE NO.	SHEET NO.
R-2536A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

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GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R–2536A	15

–L– PROFILE

- L -

612.00

PROPOSED GRADE

EXISTING GROUND

L_1000R
75' RT.
BT
3
10
13
9
17
100/0.5
3/13

L_1200R
50' RT.
BT
DRY
3/13

L_1400R
75' RT.
BT
DRY
3/13

L_1500L
90' LT.
AR
DRY
3/13

L_1600L
100' LT.
AR
DRY
3/13

L_1700L
105' LT.
AR
DRY
3/13

L_1791L
128' LT.
AR
DRY
3/13

L_1900L
120' LT.
AR
FIAD
3/13

L_2010L
116' LT.
AR
DRY
3/13

L_2100L
120' LT.
AR
DRY
3/13

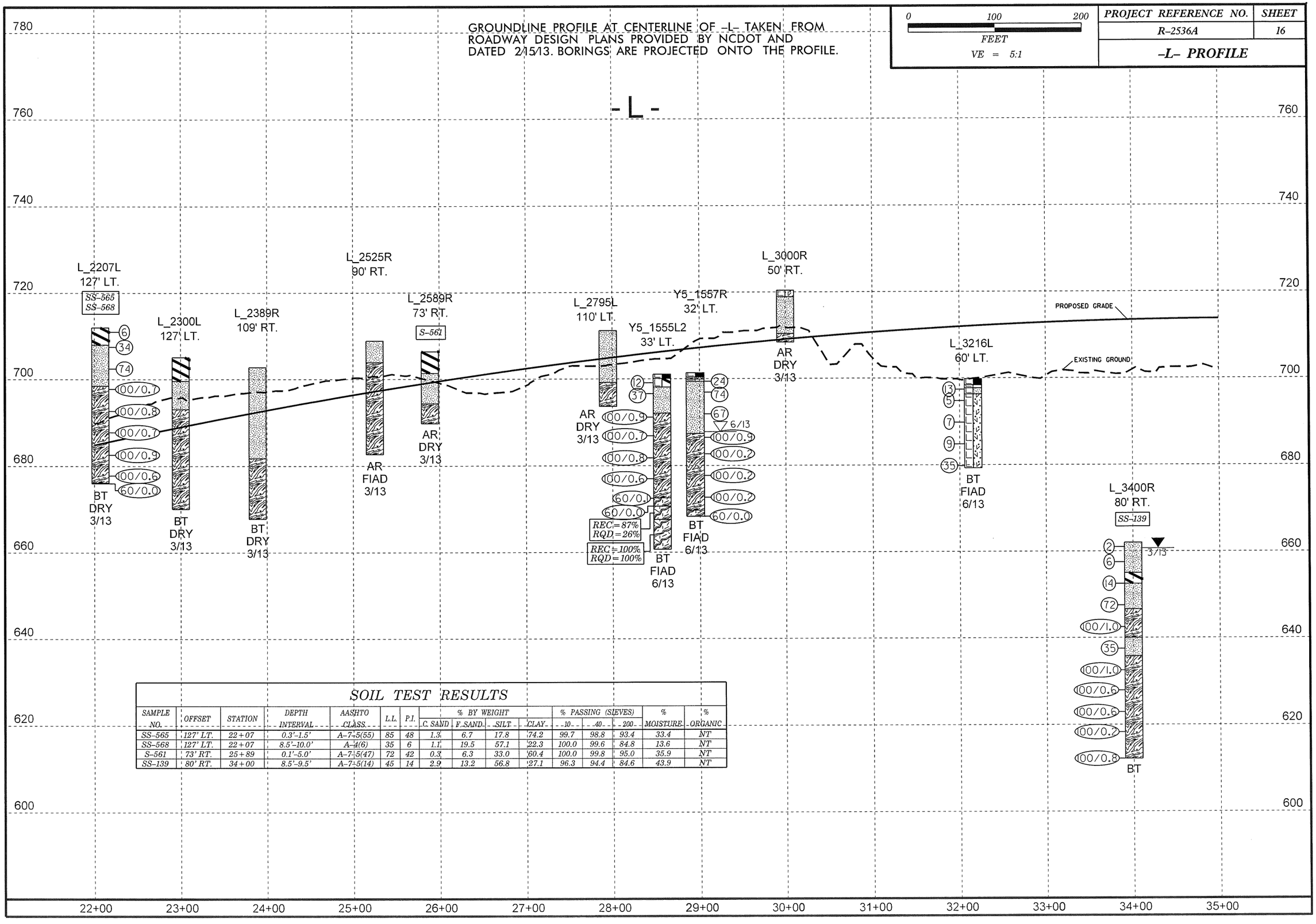
750
730
710
690
670
650
630
610
590
570

9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

PROJECT REFERENCE NO.	SHEET
R-2536A	16
-L- PROFILE	

0 100 200
FEET
VE = 5:1

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-565	127' LT.	22+07	0.3'-1.5'	A-7-5(55)	85	48	1.3	6.7	17.8	74.2	99.7	98.8	93.4	33.4	NT
SS-568	127' LT.	22+07	8.5'-10.0'	A-4(6)	35	6	1.1	19.5	57.1	22.3	100.0	99.6	84.8	13.6	NT
S-561	73' RT.	25+89	0.1'-5.0'	A-7-5(47)	72	42	0.3	6.3	33.0	60.4	100.0	99.8	95.0	35.9	NT
SS-139	80' RT.	34+00	8.5'-9.5'	A-7-5(14)	45	14	2.9	13.2	56.8	27.1	96.3	94.4	84.6	43.9	NT

GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

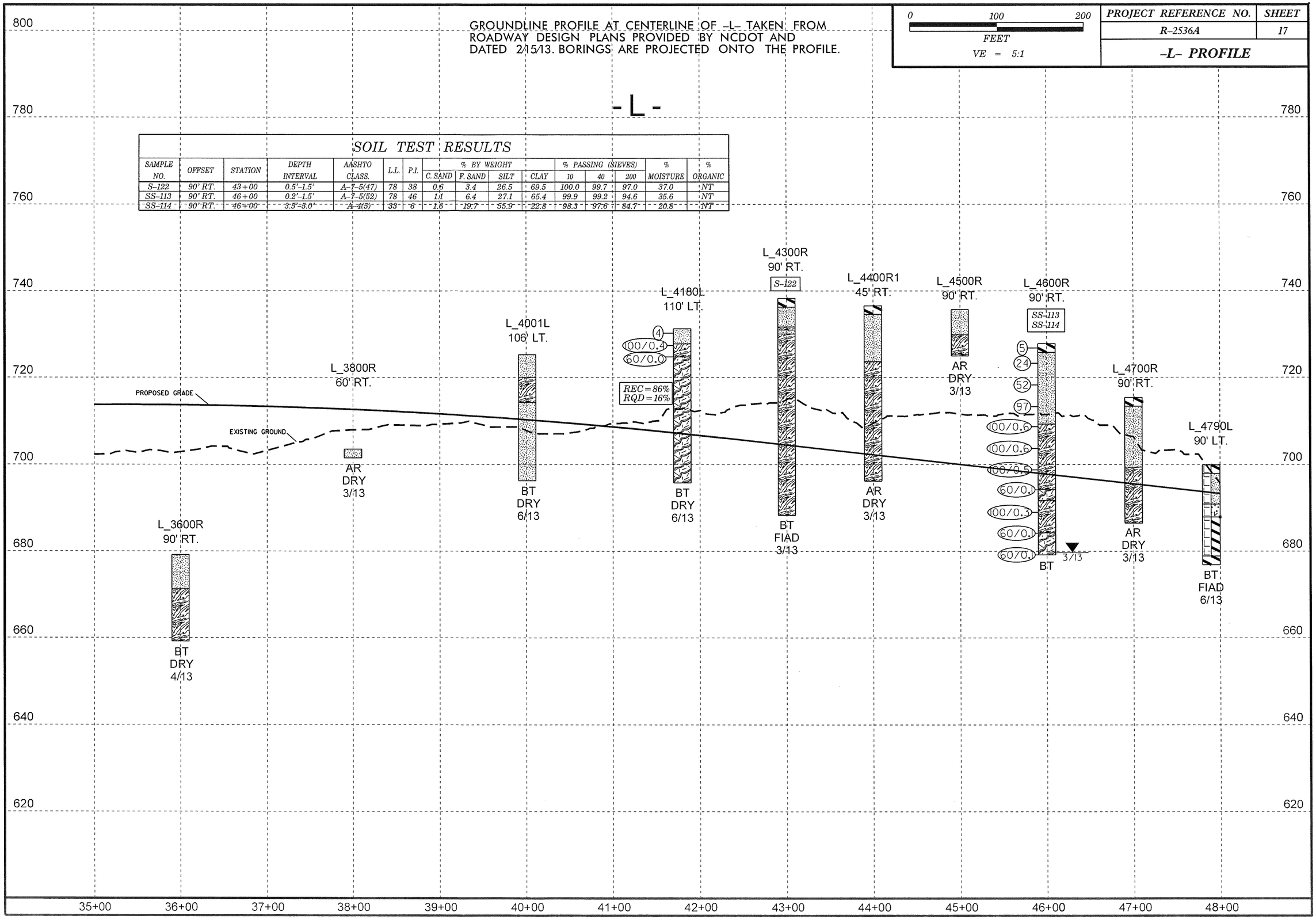
0	100	200
FEET		
VE = 5:1		

PROJECT REFERENCE NO.	SHEET
R–2536A	17
–L– PROFILE	

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S–122	90' RT.	43+00	0.5'–1.5'	A–7–5(47)	78	38	0.6	3.4	26.5	69.5	100.0	99.7	97.0	37.0	NT
SS–113	90' RT.	46+00	0.2'–1.5'	A–7–5(52)	78	46	1.1	6.4	27.1	65.4	99.9	99.2	94.6	35.6	NT
SS–114	90' RT.	46+00	3.5'–5.0'	A–4(5)	33	6	1.6	19.7	55.9	22.8	98.3	97.6	84.7	20.8	NT



GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0	100	200
FEET		
VE = 5:1		

PROJECT REFERENCE NO.	SHEET
R–2536A	18
–L– PROFILE	

- L -

770
750
730
710
690
670
650
630
610
590

PROPOSED GRADE
EXISTING GROUND

L_4900R
45' RT.

L_5100L
90' LT.
BT
DRY
3/13

L_5200
BT
FIAD
3/13

L_5300
AR
DRY
3/13

L_5400
AR
DRY
3/13

L_5500R
90' RT.
BT
DRY
3/13

Y4RPA_1420L
3' RT.

Y4RPA_1445

Y4RPA_1479R
4' LT.

L_5900R
75' RT.

L_6100R
120' RT.

BT
DRY
3/13

BT

BT

BT

BT

BT

REC = 69%
RQD = 11%

REC = 100%
RQD = 57%

REC = 11%
RQD = 0%

REC = 100%
RQD = 40%

REC = 0%
RQD = 0%

REC = 100%
RQD = 0%

REC = 15%
RQD = 0%

REC = 100%
RQD = 35%

48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00

GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0	100	200
FEET		

VE = 5:1

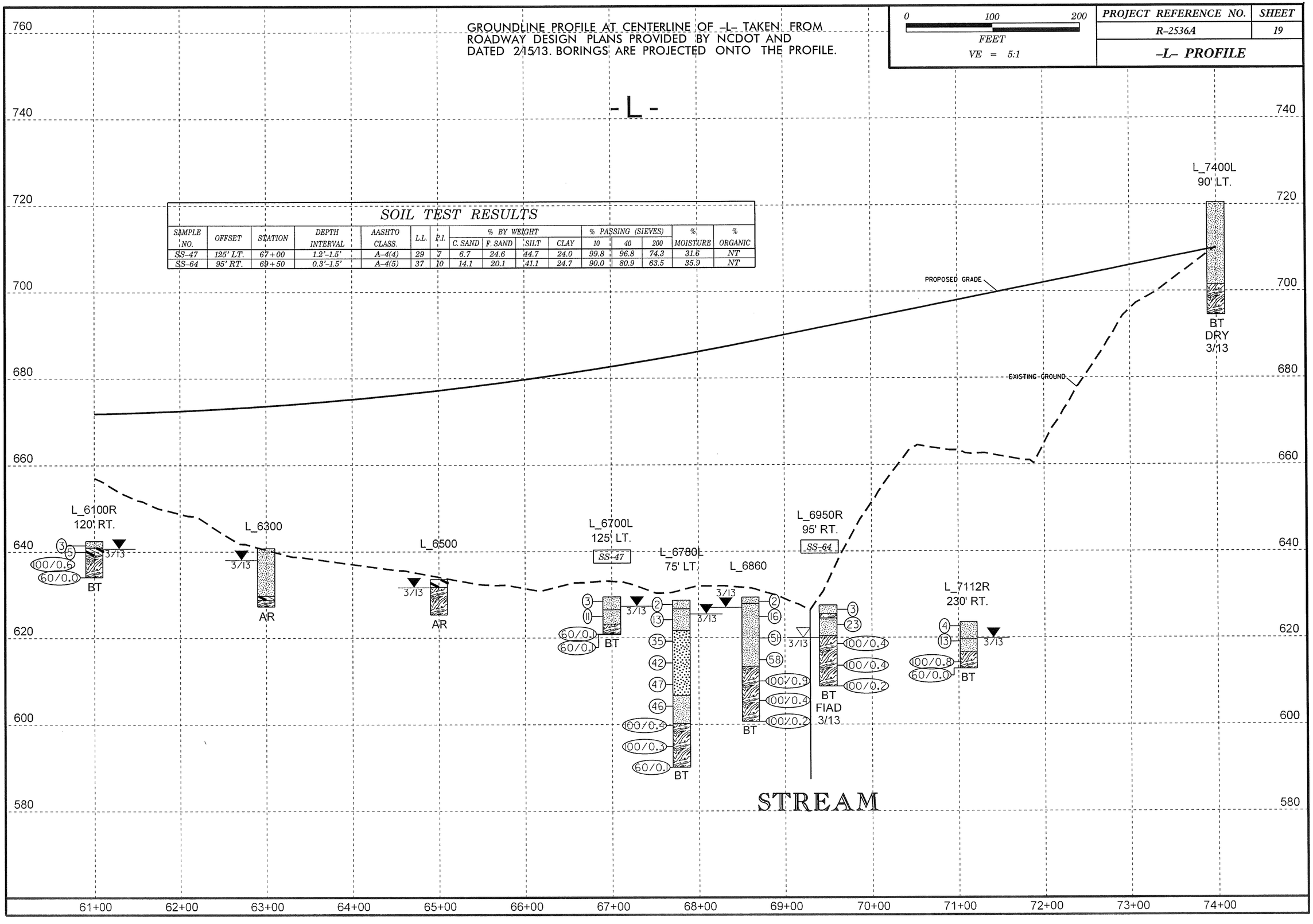
PROJECT REFERENCE NO.	SHEET
R–2536A	19

–L– PROFILE

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS–47	125' LT.	67+00	1.2'–1.5'	A–4(4)	29	7	6.7	24.6	44.7	24.0	99.8	96.8	74.3	31.6	NT
SS–64	95' RT.	69+50	0.3'–1.5'	A–4(5)	37	10	14.1	20.1	41.1	24.7	90.0	80.9	63.5	35.9	NT



GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R–2536A	20

–L– PROFILE

- L -

840
820
800
780
760
740
720
700
680
660

L_7600L
90' LT.
BT
DRY
3/13

L_7700

L_7800
AR
DRY
5/13

L_7900
BT
DRY
5/13

L_8000
BT
FIAD
4/13

L_8100
BT
DRY
5/13

L_8200
AR
DRY
4/13

L_8300
AR
FIAD
5/13

L_8400
BT
FIAD
5/13

L_8600R
90' RT.
BT
DRY
4/13

EXISTING GROUND

PROPOSED GRADE

4/13

74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00

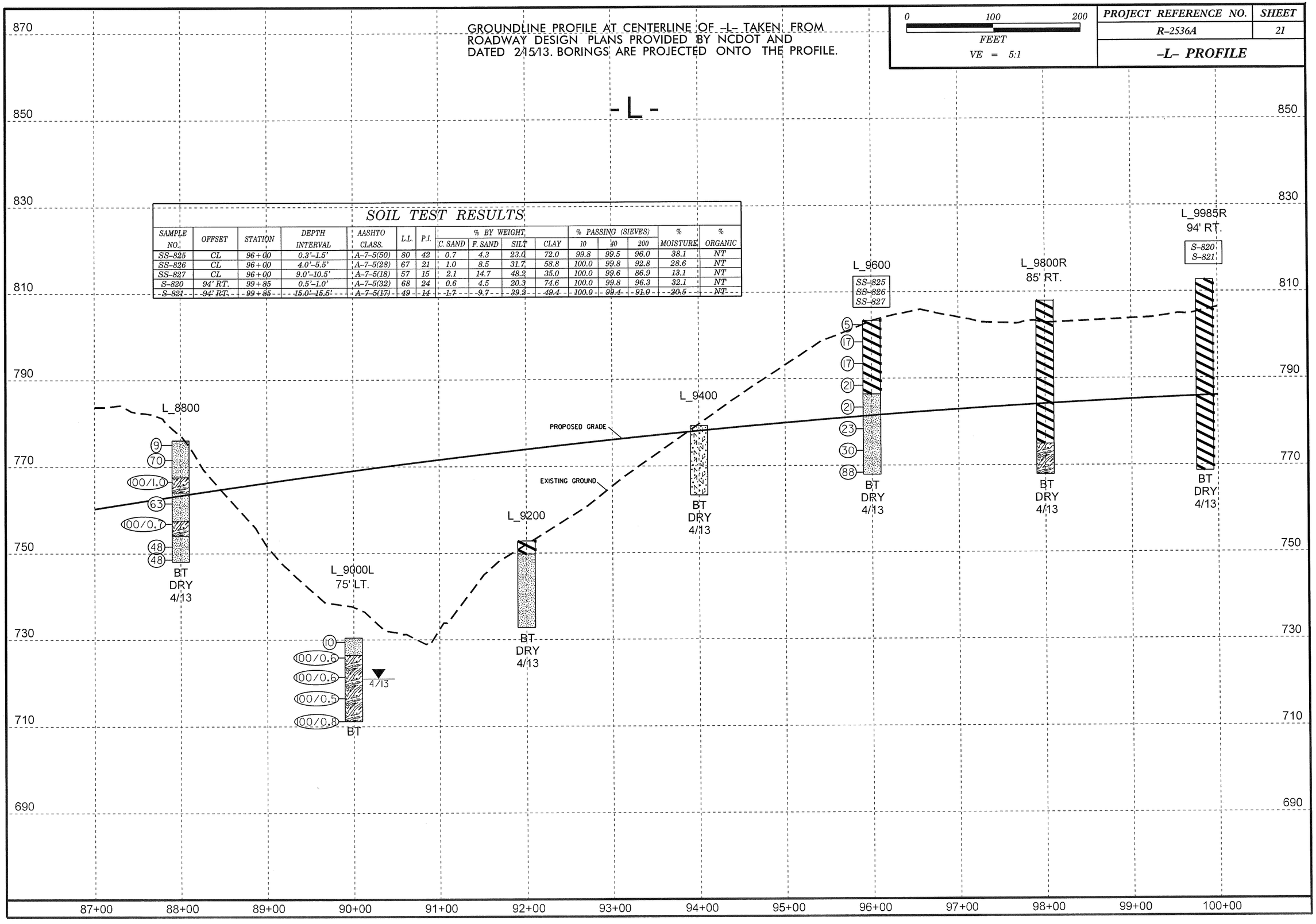
GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0	100	200
FEET		
VE = 5:1		

PROJECT REFERENCE NO.	SHEET
R–2536A	21
–L– PROFILE	

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS–825	CL	96+00	0.3'–1.5'	A–7–5(50)	80	42	0.7	4.3	23.0	72.0	99.8	99.5	96.0	38.1	NT
SS–826	CL	96+00	4.0'–5.5'	A–7–5(28)	67	21	1.0	8.5	31.7	58.8	100.0	99.8	92.8	28.6	NT
SS–827	CL	96+00	9.0'–10.5'	A–7–5(18)	57	15	2.1	14.7	48.2	35.0	100.0	99.6	86.9	13.1	NT
S–820	94' RT.	99+85	0.5'–1.0'	A–7–5(32)	68	24	0.6	4.5	20.3	74.6	100.0	99.8	96.3	32.1	NT
S–821	94' RT.	99+85	15.0'–15.5'	A–7–5(17)	49	14	1.7	9.7	39.2	49.4	100.0	99.4	91.0	20.5	NT



0	100	200
FEET		
VE = 5:1		

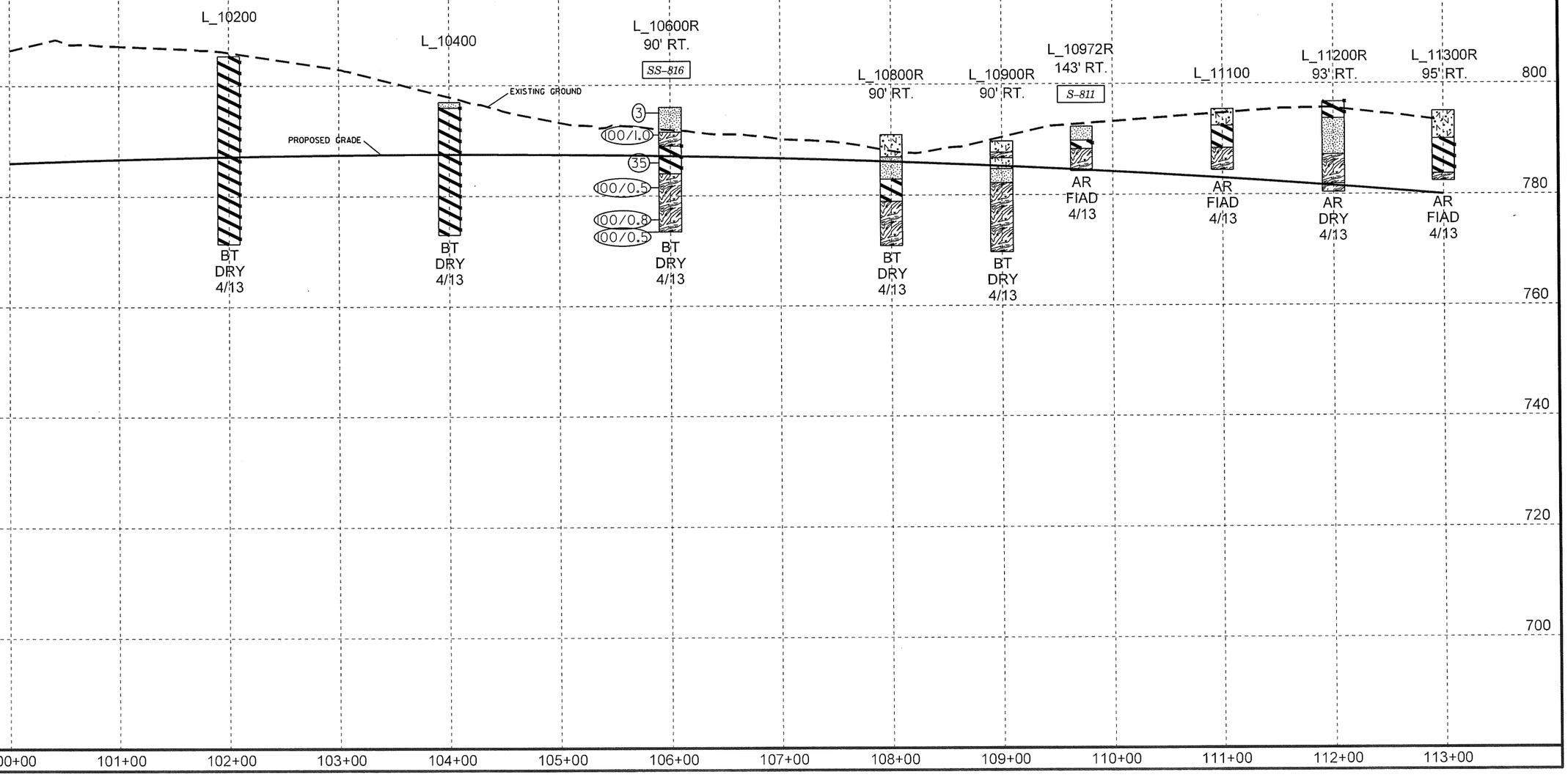
PROJECT REFERENCE NO.	SHEET
R-2536A	22
-L- PROFILE	

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-816	90' RT.	106+00	9.0'-10.5'	A-7-6(11)	54	28	14.4	18.1	35.6	31.9	73.6	67.4	52.0	19.2	NT
S-811	143' RT.	109+72	3.0'-3.5'	A-7-6(11)	41	23	13.5	19.1	31.9	35.5	82.3	75.8	59.2	10.6	NT



GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

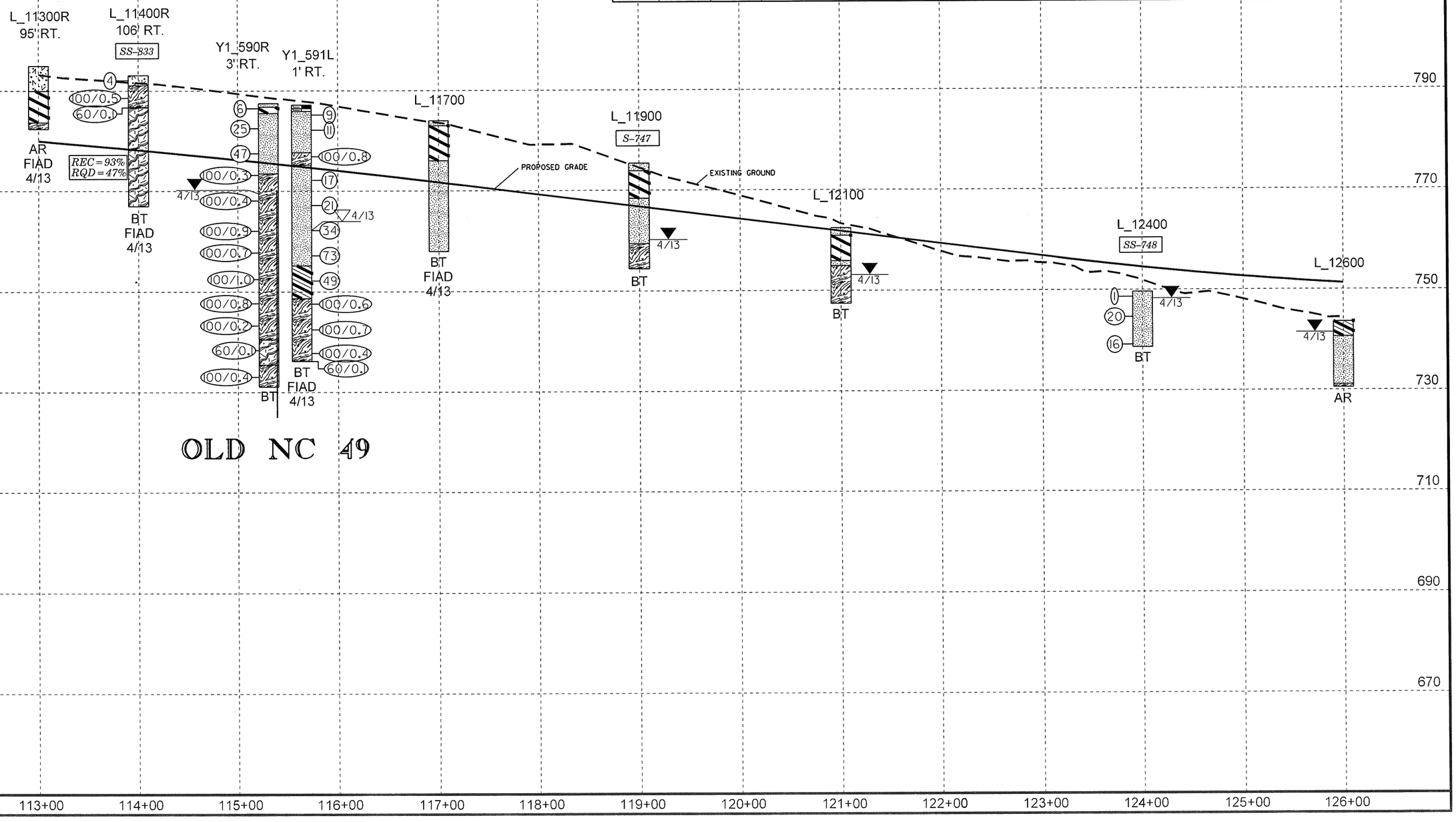
0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R-2536A	23
-L- PROFILE	

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-833	106' RT.	114+00	0.0'-0.4'	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	31.8	8.2
S-747	CL	119+00	4.0'-4.5'	A-7-5(46)	76	42	1.4	9.7	26.0	62.9	99.9	99.1	91.6	34.6	NT
SS-748	CL	124+00	0.2'-1.5'	A-4(5)	28	8	6.8	15.7	51.1	26.4	99.9	95.4	82.2	26.3	NT



GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R–2536A	24

–L– PROFILE

- L -

820
800
780
760
740
720
700
680
660
640

PROPOSED GRADE

L_12600
4/13
AR

L_12800
4/13
AR

L_13000L
90' LT.
4/13
AR

L_13200
4/13
AR

STREAM

L_13400R
75' RT.
3
5
4/13
100/1.0
100/0.8
60/0.0
BT

EXISTING GROUND

L_13800R
75' RT.

Y2FLYA_3550L

Y2FLYA_3550R
4
24
100/0.2
60/0.1
60/0.0
BT
DRY
4/13

9
45
4/13
60/0.
REC = 84%
RQD = 29%
REC = 77%
RQD = 36%
REC = 100%
RQD = 64%
BT

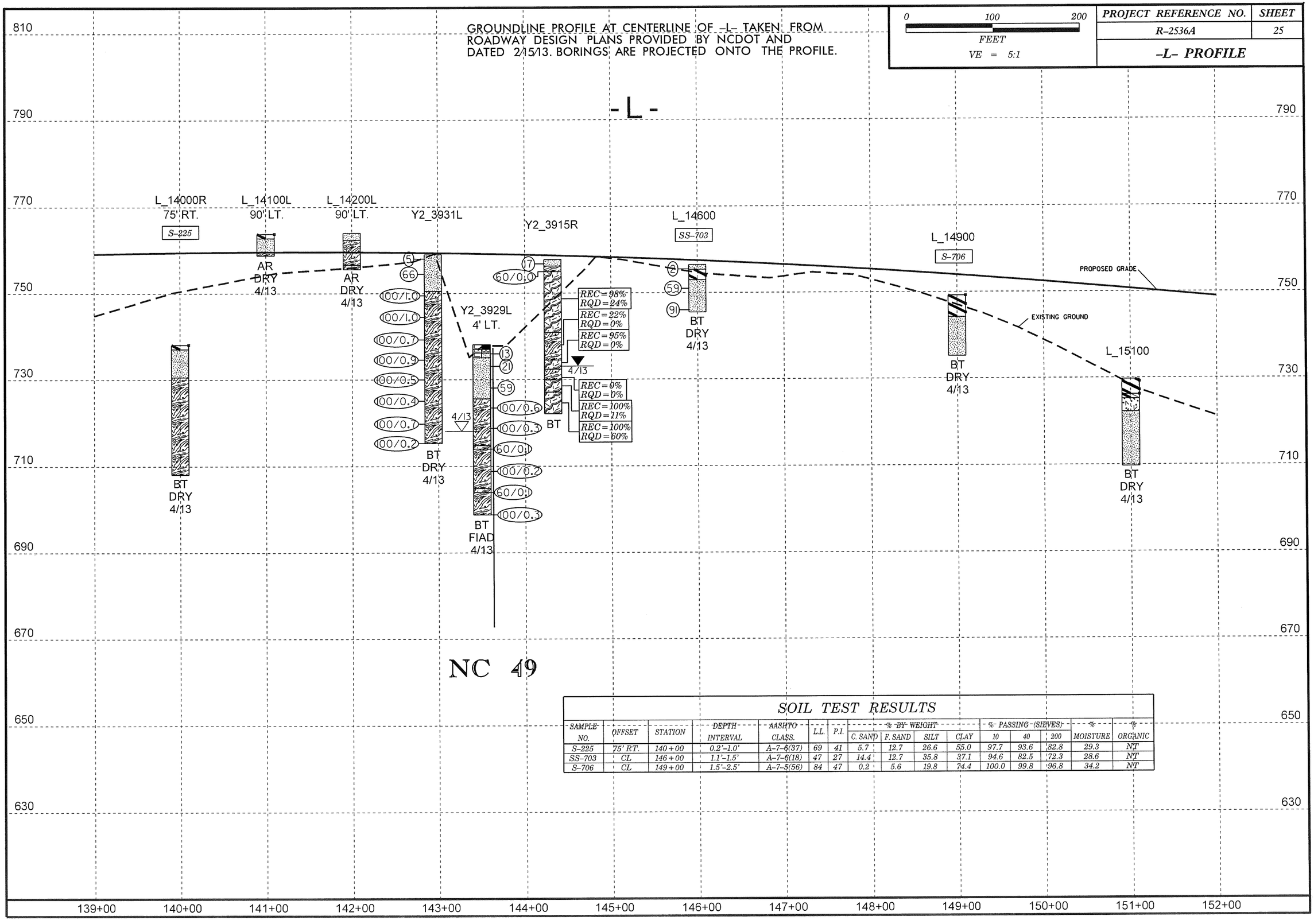
BT
DRY
4/13

126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00

PROJECT REFERENCE NO.	SHEET
R-2536A	25
-L- PROFILE	

0 100 200
FEET
VE = 5:1

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.



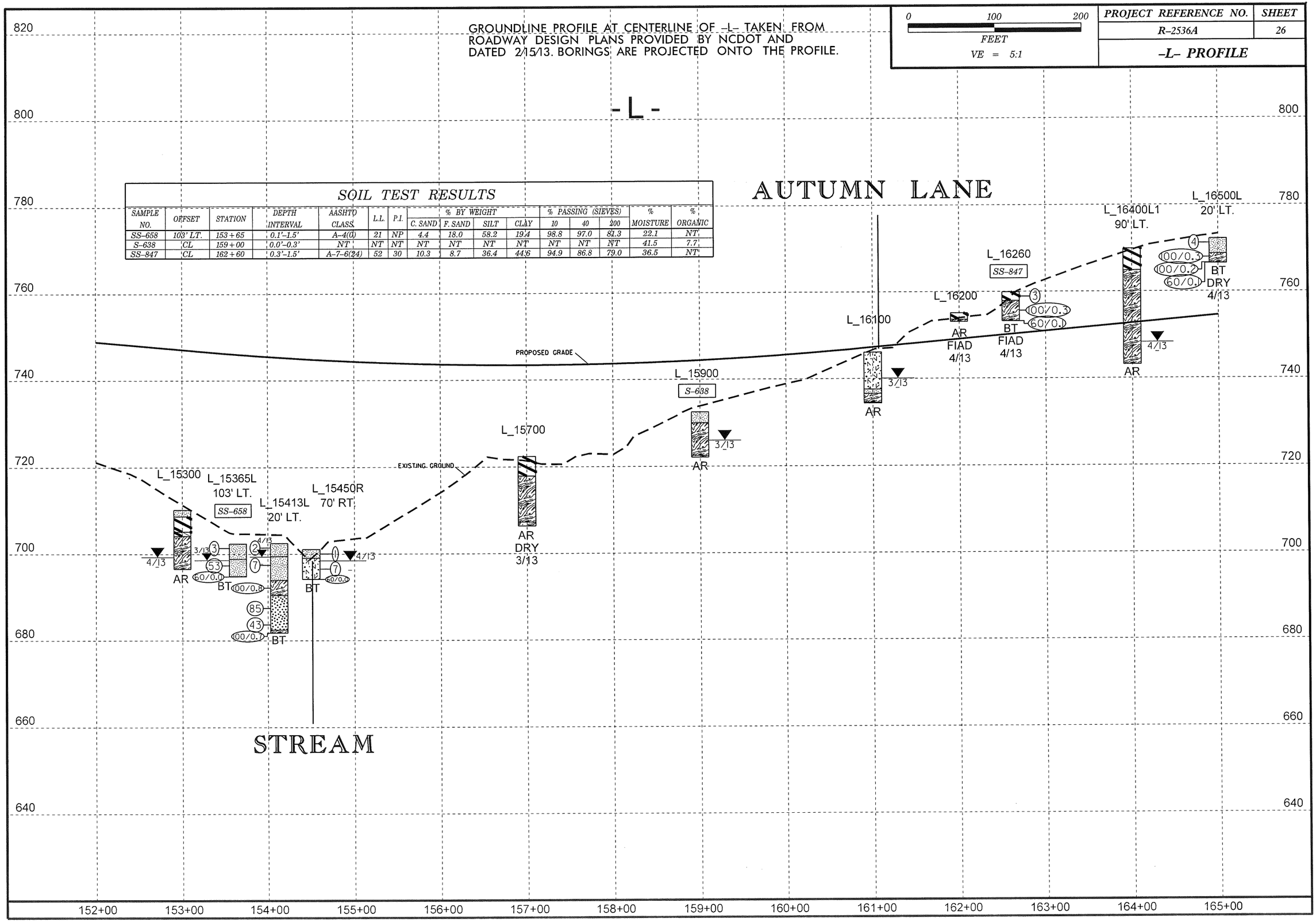
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-225	75' RT.	140+00	0.2'-1.0'	A-7-6(37)	69	41	5.7	12.7	26.6	55.0	97.7	93.6	82.8	29.3	NT
SS-703	CL	146+00	1.1'-1.5'	A-7-6(18)	47	27	14.4	12.7	35.8	37.1	94.6	82.5	72.3	28.6	NT
S-706	CL	149+00	1.5'-2.5'	A-7-5(56)	84	47	0.2	5.6	19.8	74.4	100.0	99.8	96.8	34.2	NT

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET
R-2536A	26
-L- PROFILE	

0 100 200
FEET
VE = 5:1



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-658	103' LT.	153+65	0.1'-1.5'	A-4(0)	21	NP	4.4	18.0	58.2	19.4	98.8	97.0	81.3	22.1	NT
S-638	CL	159+00	0.0'-0.3'	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	41.5	7.7
SS-847	CL	162+60	0.3'-1.5'	A-7-6(24)	52	30	10.3	8.7	36.4	44.6	94.9	86.8	79.0	36.5	NT

GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0	100	200
FEET		
VE = 5:1		

PROJECT REFERENCE NO.	SHEET
R–2536A	27
–L– PROFILE	

- L -

850
830
810
790
770
750
730
710
690
670

L_16500L
20' LT.
(4)
100/0.3
100/0.2
60/0.1
BT
DRY
4/13

L_16600
AR
DRY
4/13

L_16700
BT
DRY
4/13

L_16800
BT
4/13

L_16900
EXISTING GROUND
AR
4/13

L_17000
BT
4/13

L_17100L
90' LT.
AR
DRY
4/13

L_17200L
90' LT.
AR
DRY
4/13

L_17300
(14)
4/13
100/0.5
100/0.3
60/0.1
REC=96%
RQD=55%
BT
FIAD
4/13

L_17400R
90' RT.
AR
DRY
4/13

L_17500
BT
DRY
5/13

L_17600R
90' RT.
BT
DRY
5/13

PROPOSED GRADE

L_17700
AR
DRY
5/13

L_17770L
85' LT.
(WOH)
(9)
5/13
100/0.4
100/0.3
BT

165+00 166+00 167+00 168+00 169+00 170+00 171+00 172+00 173+00 174+00 175+00 176+00 177+00 178+00

PROJECT REFERENCE NO.	SHEET
R-2536A	28
-L- PROFILE	

0 100 200
FEET
VE = 5:1

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-895	90' LT.	189+00	14.0'-15.5	A-7-5(69)	89	59	0.3	1.0	20.6	78.1	100.0	99.9	99.1	37.2	NT
S-896	CL	191+00	11.0'-12.0'	A-7-6(18)	53	12	0.2	6.2	49.4	44.2	100.0	99.9	96.1	19.1	NT

-L-

PROPOSED GRADE

EXISTING GROUND

L_17925
4 29 30 60/0.1 5/13 BT

L_18075R
115' RT.
4 60/0.1 BT DRY 5/13

L_18300
5/13 AR

L_18500
BT DRY 5/13

L_18600
AR DRY 5/13

L_18700L
95' LT.
AR DRY 5/13

L_18800L
90' LT.
AR DRY 5/13

L_18900L
90' LT.
SS-895
4 11 33 16 60/0.1
REC = 42%
RQD = 0%
REC = 98%
RQD = 86%
REC = 79%
RQD = 55%
REC = 18%
RQD = 0%
REC = 63%
RQD = 28%
BT DRY 5/13

L_19000L
90' LT.
AR DRY 5/13

L_19100
S-896
BT DRY 5/13

STREAM

840 820 800 780 760 740 720 700 680 660

178+00 179+00 180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00

0	100	200
FEET		
VE = 5:1		

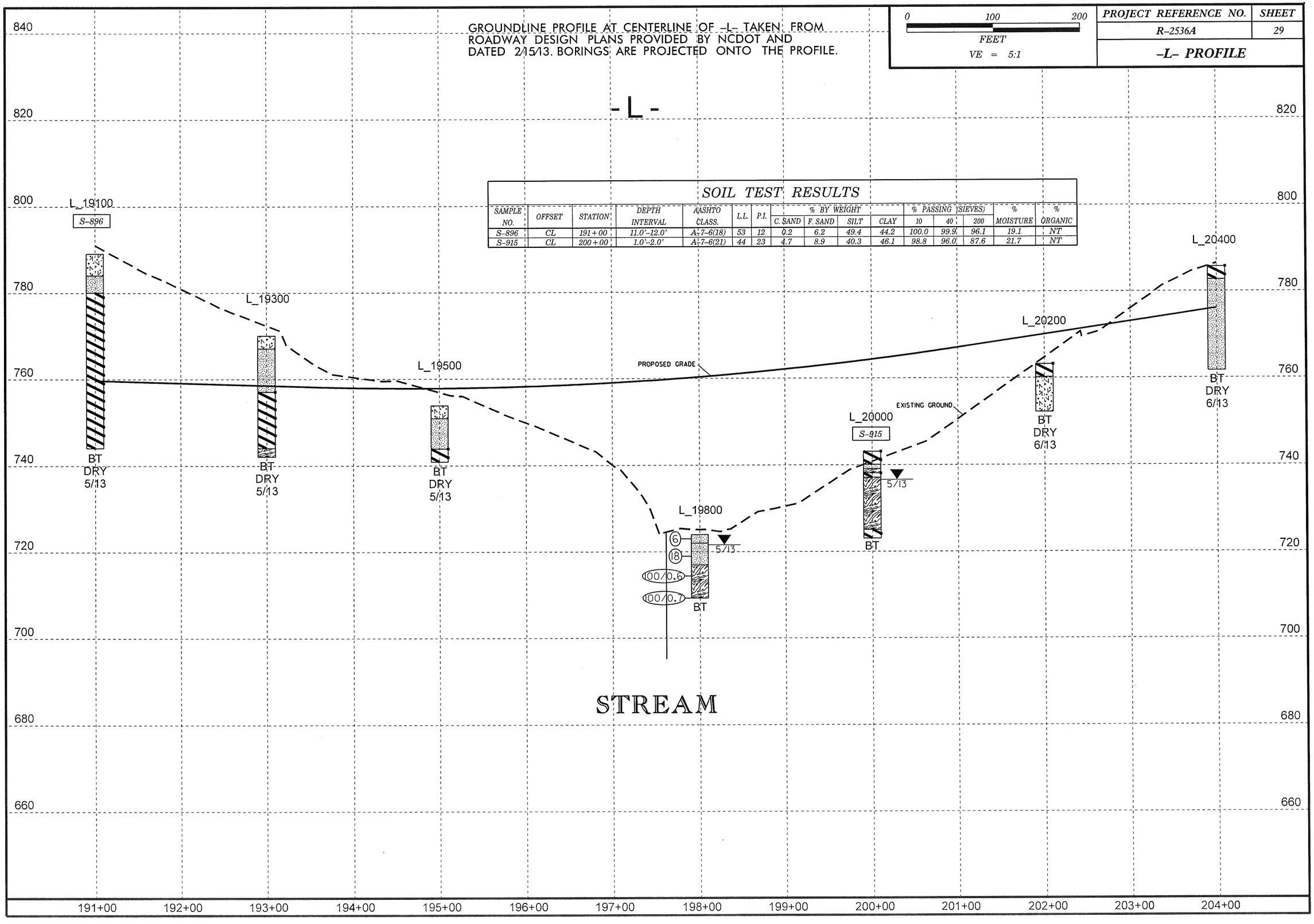
PROJECT REFERENCE NO.	SHEET
R-2536A	29
-L- PROFILE	

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-896	CL	191+00	11.0'-12.0'	A-7-6(18)	53	12	0.2	6.2	49.4	44.2	100.0	99.9	96.1	19.1	NT
S-915	CL	200+00	1.0'-2.0'	A-7-6(21)	44	23	4.7	8.9	40.3	46.1	98.8	96.0	87.6	21.7	NT



0	100	200
FEET		
VE = 5:1		

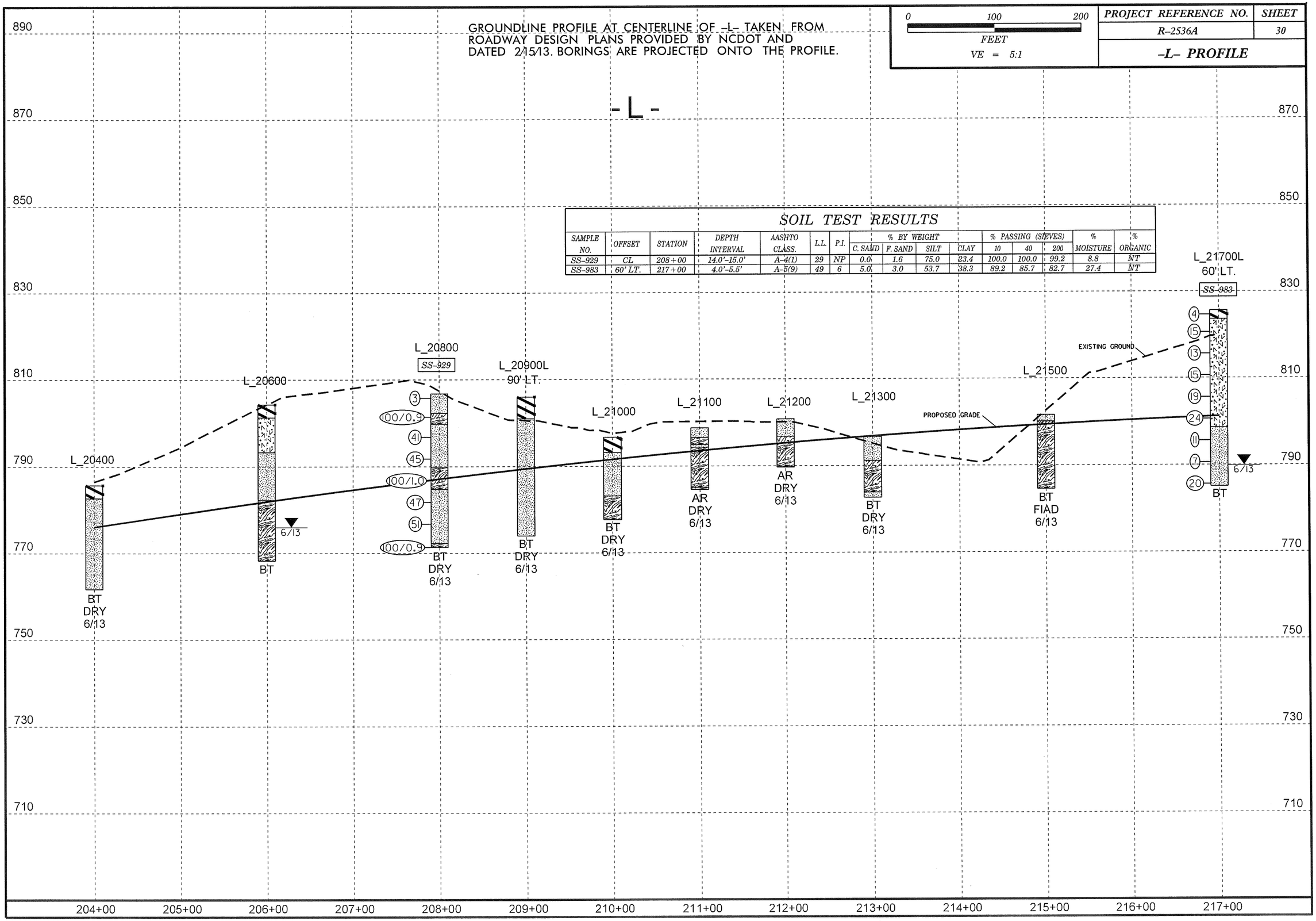
PROJECT REFERENCE NO.	SHEET
R-2536A	30
-L- PROFILE	

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-929	CL	208+00	14.0'-15.0'	A-4(1)	29	NP	0.0	1.6	75.0	23.4	100.0	100.0	99.2	8.8	NT
SS-983	60' LT.	217+00	4.0'-5.5'	A-5(9)	49	6	5.0	3.0	53.7	38.3	89.2	85.7	82.7	27.4	NT



GROUNDLINE PROFILE AT CENTERLINE OF –L– TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R-2536A	31
–L– PROFILE	

- L -

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-983	60' LT.	217+00	4.0'-5.5'	A-5(9)	49	6	5.0	3.0	53.7	38.3	89.2	85.7	82.7	27.4	NT
S-975	CL	221+00	5.0'-15.0'	A-7-5(20)	55	13	0.3	4.3	52.5	42.9	100.0	99.7	97.4	34.4	NT
SS-979	90' RT.	225+00	0.2'-1.5'	A-7-6(26)	52	24	1.9	3.2	35.8	59.1	97.6	96.4	93.5	27.8	NT
SS-980	90' RT.	225+00	4.0'-5.5'	A-7-5(16)	47	11	0.0	0.3	46.8	52.9	100.0	100.0	99.8	28.0	NT

L_21700L 60' LT. SS-983
Y3_1620L 8' LT.
Y3_1594R 1' LT.
L_22100 S-975
L_22200
L_22300
L_22400
L_22500R 90' RT. SS-979 SS-980
L_22700
L_23000
EXISTING GROUND
PROPOSED GRADE
BT
BT FIAD 6/13
AR
BT DRY 6/13
BT DRY FIAD 6/13
BT FIAD 4/13
REC=97%
RQD=38%
MACK ROAD

890 870 850 830 810 790 770 750 730 710

217+00 218+00 219+00 220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET
R-2536A	32

-L- PROFILE

- L -

860
840
820
800
780
760
740
720
700
680

L_23000
L_23200
L_23387L
31' LT.
L_23700
PROPOSED GRADE
L_23888
L_24100R
70' RT.
L_24300R
75' RT.
EXISTING GROUND

BT 6/13
BT 6/13
5 16 100/0.2 BT 6/13
AR 6/13
AR 6/13
AR 6/13
2 10 60/0.0 BT DRY 6/13

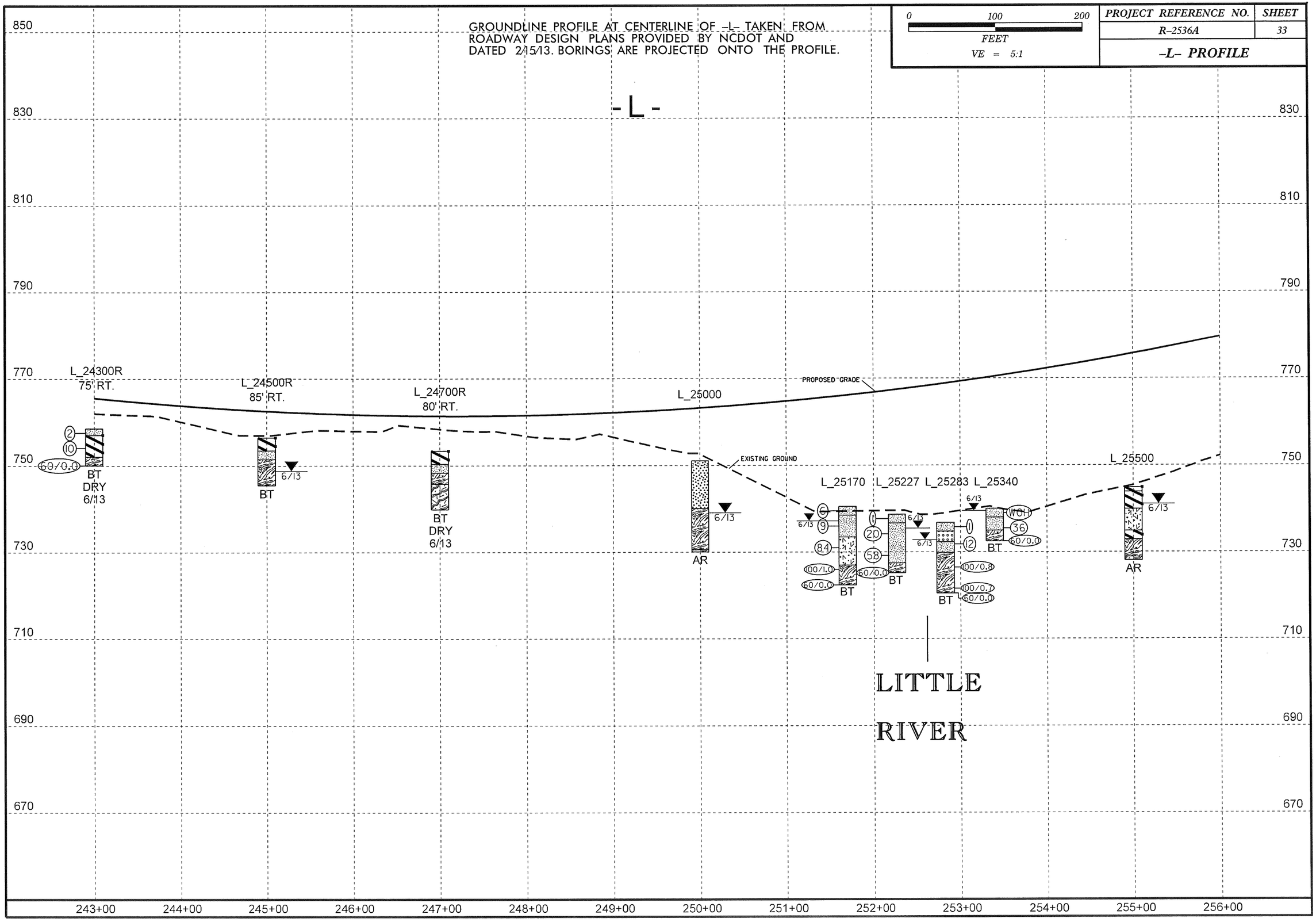
POND B

230+00 231+00 232+00 233+00 234+00 235+00 236+00 237+00 238+00 239+00 240+00 241+00 242+00 243+00

0	100	200
FEET		
VE = 5:1		

PROJECT REFERENCE NO.	SHEET
R-2536A	33
-L- PROFILE	

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.



GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.

0 100 200
FEET
VE = 5:1

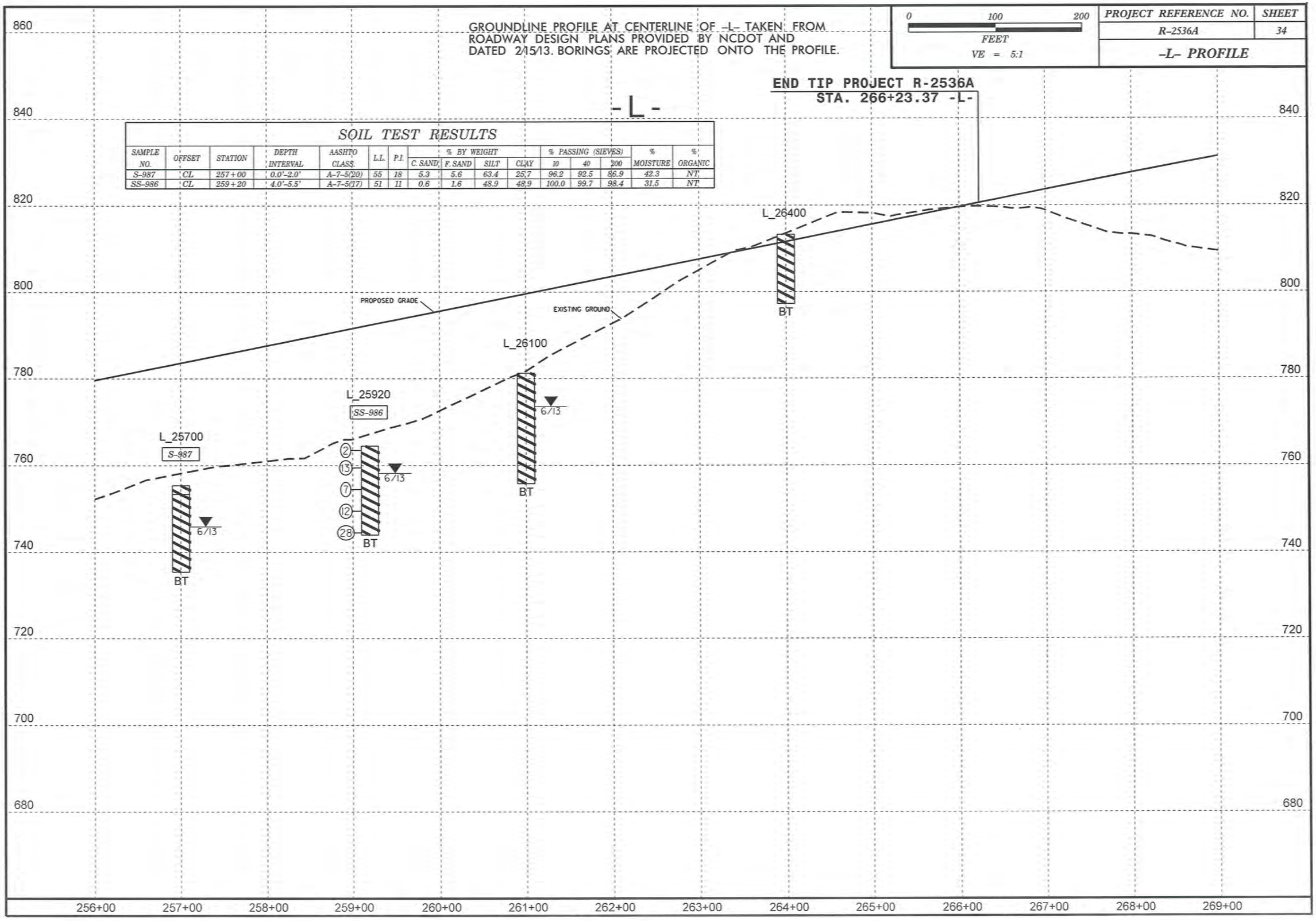
PROJECT REFERENCE NO.	SHEET
R-2536A	34
-L- PROFILE	

END TIP PROJECT R-2536A
STA. 266+23.37 -L-

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-987	CL	257+00	0.0'-2.0'	A-7-5(20)	55	18	5.3	5.6	63.4	25.7	96.2	92.5	86.9	42.3	NT
SS-986	CL	259+20	4.0'-5.5'	A-7-5(17)	51	11	0.6	1.6	48.9	48.9	100.0	99.7	98.4	31.5	NT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_000R	**STATION** 0	**OFFSET** 50 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 559.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 712,844	**EASTING** 1,737,519	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
560	559.2	0.0								559.2 GROUND SURFACE 0.0
			1	1	2	3		W		**RESIDUAL**
										557.2 Tan-orange-brown, fine sandy silty CLAY (A-7-5). 2.0
555	555.7	3.5	23	11	9	20		M		Tan-gray-green, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
550	550.7	8.5	8	9	21	30		M		549.2 10.0
										Boring Terminated at Elevation 549.2 ft in RESIDUAL (SILT)
										NOTES:
										1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_300R	**STATION** 3+00	**OFFSET** 50 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 583.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 712,703	**EASTING** 1,737,784	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
585	583.6	0.0								583.6 GROUND SURFACE 0.0
			WOH	WOH	1	1		W		**ALLUVIAL**
										Tan, clayey fine sandy SILT (A-4).
580	580.1	3.5	4	6	12	18		M		580.1 3.5
										RESIDUAL
575	575.1	8.5	5	7	9	16		M		Red-brown, tan, black & gray-green, fine sandy SILT (A-4), with trace clay.
570	570.1	13.5	9	12	17	29		M		566.6 17.0
										Tan-orange-brown, fine sandy silty CLAY (A-7-5).
565	565.1	18.5	7	6	8	14		W		563.6 20.0
										Boring Terminated at Elevation 563.6 ft in RESIDUAL (CLAY)
										NOTES:
										1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_600R	**STATION** 6+00	**OFFSET** 50 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 564.8 ft	**TOTAL DEPTH** 14.8 ft	**NORTHING** 712,562	**EASTING** 1,738,049	**24 HR.** 4.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
565										
	564.8	0.0	WOH	2	3	5		W		564.8 GROUND SURFACE 0.0
	564.2	0.6								**ALLUVIAL** Tan, fine sandy SILT (A-4).
	561.3	3.5								**RESIDUAL** Tan & gray-green, fine sandy SILT (A-4), with trace gravel-sized rock fragments & saprolitic at 7.0'.
560			2	6	5	11		M		
	556.3	8.5								
555			16	17	21	38		M		
	551.3	13.5								551.3 13.5 **WEATHERED ROCK** Gray-green-tan, (FELSIC METAVOLCANIC ROCK). 550.1 14.7
550	550.0	14.8	17	83/0.5		100/1.0				550.0 14.8 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 550.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 14.8'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_800R	**STATION** 8+00	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** 2.8
COLLAR ELEV. 560.9 ft	**TOTAL DEPTH** 5.3 ft	**NORTHING** 712,460	**EASTING** 1,738,221	**24 HR.** 2.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

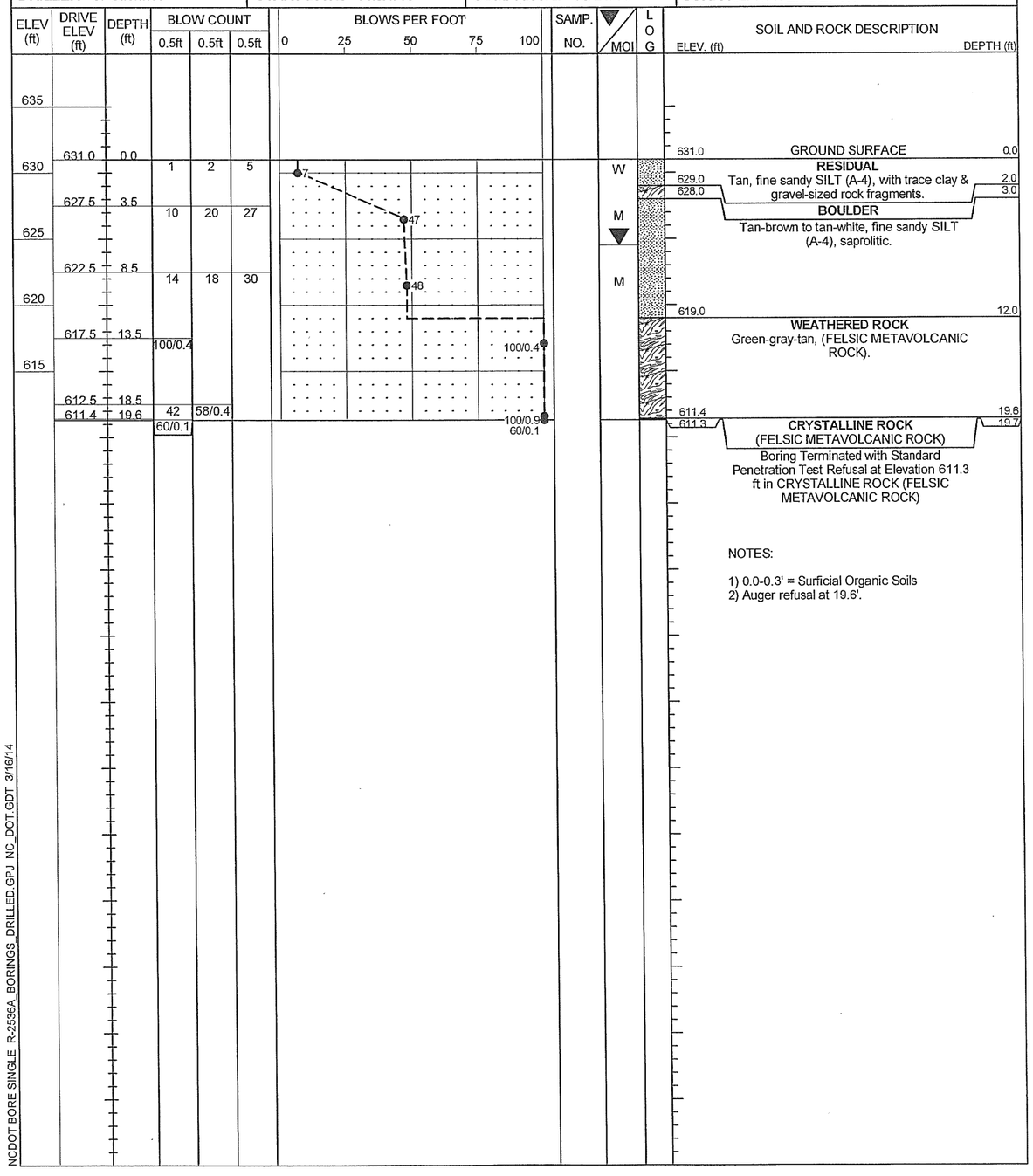
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
565										
560								W		560.9 GROUND SURFACE 0.0 **ALLUVIAL** Very soft, tan, fine sandy SILT (A-4). 557.4 3.5
										555.6 5.3 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 555.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_1600R	**STATION** 16+00	**OFFSET** 75 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 631.0 ft	**TOTAL DEPTH** 19.7 ft	**NORTHING** 712,071	**EASTING** 1,738,920	**24 HR.** 6.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	



NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 19.6'.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4180L	**STATION** 41+80	**OFFSET** 110 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 731.3 ft	**TOTAL DEPTH** 35.5 ft	**NORTHING** 711,024	**EASTING** 1,741,285	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/10/13	**COMP. DATE** 06/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
735										
	731.3	0.0								731.3 GROUND SURFACE 0.0
730			2	2	2	4		M		**RESIDUAL** Yellow, fine sandy SILT (A-4).
	727.8	3.5	100/0.4			100/0.4				727.8 3.5 **WEATHERED ROCK** Gray & light gray, (FELSIC METAVOLCANIC ROCK).
725	724.8	6.5	60/0.0			60/0.0				724.8 6.5 **CRYSTALLINE ROCK** Dark green & gray, (MAFIC METAVOLCANIC ROCK interlayered with METAMUDSTONE).
720										
715										
710										
705										
700										695.8 35.5 Boring Terminated at Elevation 695.8 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 6.5', began coring.
3) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4180L	**STATION** 41+80	**OFFSET** 110 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 731.3 ft	**TOTAL DEPTH** 35.5 ft	**NORTHING** 711,024	**EASTING** 1,741,285	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/10/13	**COMP. DATE** 06/10/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 29.0 ft			

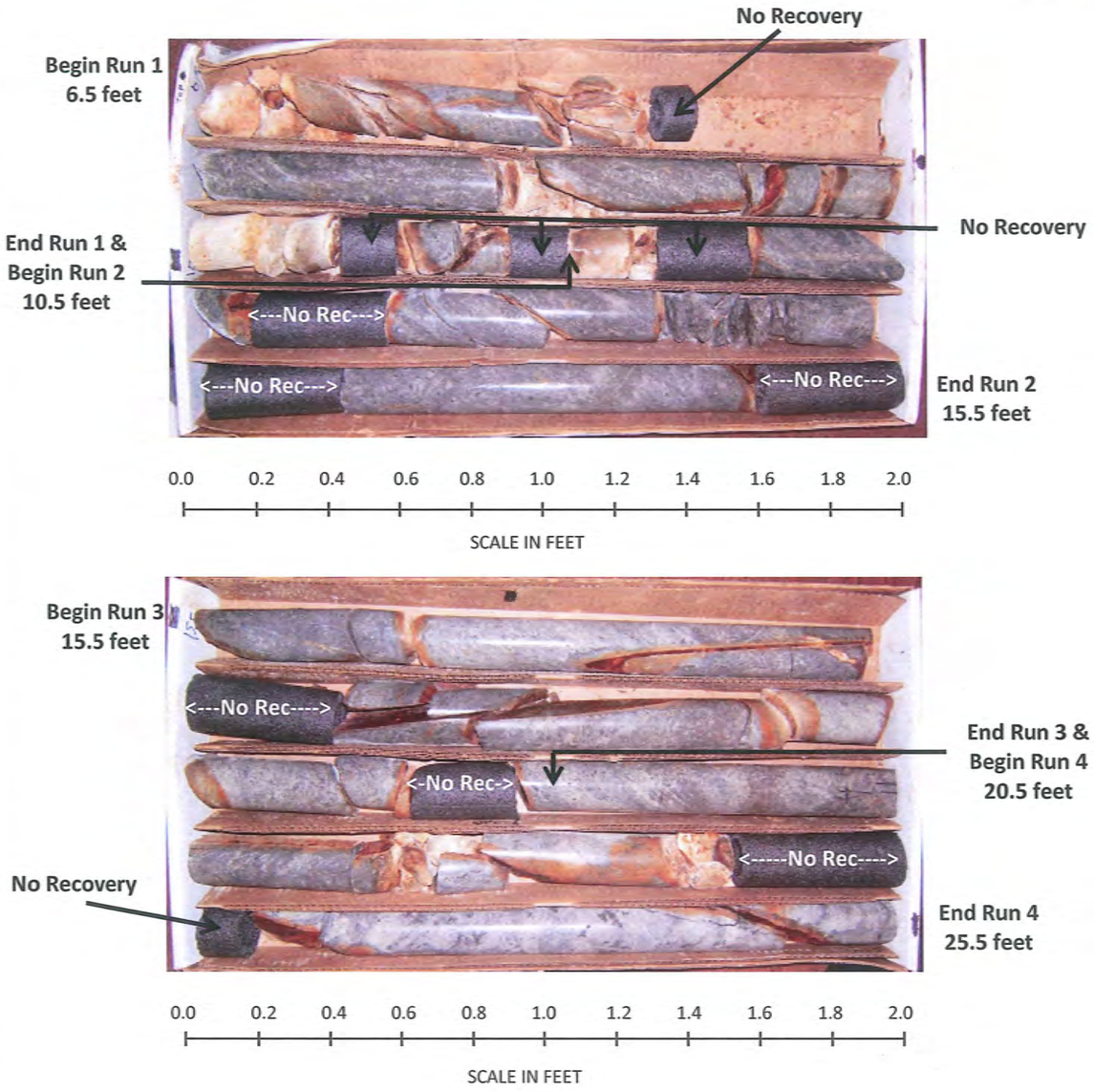
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
724.8											Begin Coring @ 6.5 ft
	724.8	6.5	4.0	*N=60/0.0* 2:20/1.0 3:53/1.0 4:13/1.0 5:11/1.0	(3.7) 93%	(1.6) 40%		(24.9) 86%	(16.0) 55%		724.8 **CRYSTALLINE ROCK** Dark green & gray, moderately to slightly weathered, hard to very hard, (MAFIC METAVOLCANIC ROCK interlayered with METAMUDSTONE), close to moderately close fracture spacing. 6.5
720	720.8	10.5	5.0	3:45/1.0 4:29/1.0 6:17/1.0 7:01/1.0 3:30/1.0	(3.3) 66%	(1.8) 36%					
715	715.8	15.5	5.0	3:38/1.0 4:19/1.0 3:50/1.0 6:04/1.0 7:54/1.0	(4.3) 86%	(2.6) 52%					
710	710.8	20.5	5.0	6:15/1.0 2:20/1.0 7:57/1.0 5:19/1.0 6:55/1.0	(4.4) 88%	(3.5) 70%					
705	705.8	25.5	5.0	9:28/1.0 9:10/1.0 3:30/1.0 3:07/1.0 2:43/1.0	(4.6) 92%	(3.7) 74%					
700	700.8	30.5	5.0	3:12/1.0 3:18/1.0 3:43/1.0 3:26/1.0 2:08/1.0	(4.6) 92%	(2.8) 56%					
	695.8	35.5									695.8 35.5 Boring Terminated at Elevation 695.8 ft in CRYSTALLINE ROCK (METAMUDSTONE)

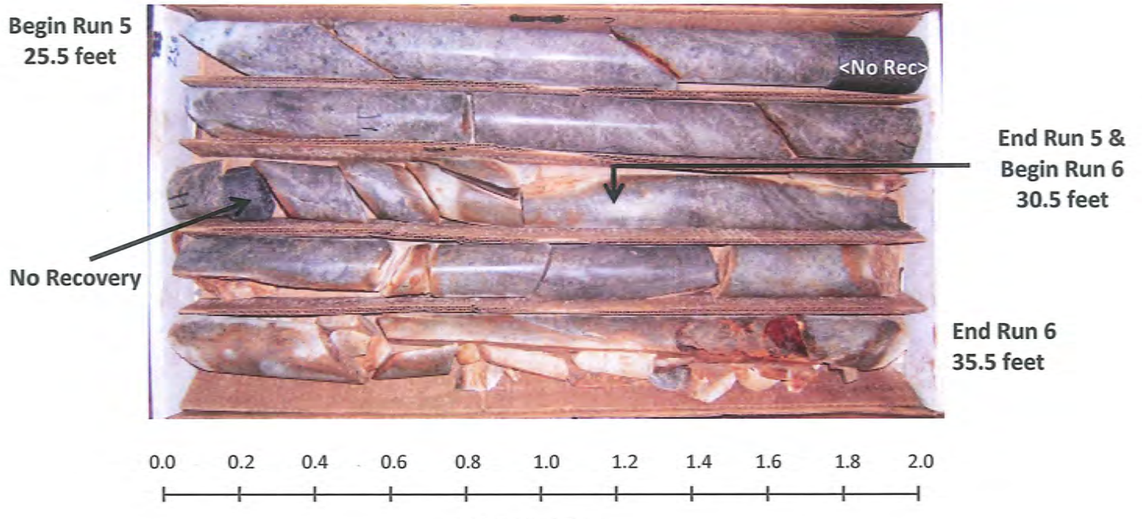
NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 6.5', began coring.
3) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_4180L: Station 41+80, 110' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_2589R1	**STATION** 25+89	**OFFSET** 40 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 701.8 ft	**TOTAL DEPTH** 13.6 ft	**NORTHING** 711,638	**EASTING** 1,739,810	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/15/13	**COMP. DATE** 03/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
705											
								W		701.8 GROUND SURFACE	0.0
700								M		**RESIDUAL**	
										699.8 Soft, tan & orange-brown, fine sandy, silty CLAY (A-7-5).	2.0
695										Medium stiff to very stiff, tan-brown, fine sandy SILT (A-4).	
690										689.8	12.0
										688.2 **WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).	13.6
										Boring Terminated by Auger Refusal at Elevation 688.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4200R	**STATION** 42+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 730.7 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 710,838	**EASTING** 1,741,209	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
735											
								M		730.7 GROUND SURFACE	0.0
730								M		729.7 **RESIDUAL**	1.0
										728.7 Soft to medium stiff, red-orange, silty CLAY (A-7-5).	2.0
725										Stiff to hard, tan, fine sandy SILT (A-4).	
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).	
720											
715											
710											
705											
700											
695											
690										689.7	41.0
										Boring Terminated at Elevation 689.7 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to proximity of road.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_4400R	**STATION** 44+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 739.9 ft	**TOTAL DEPTH** 3.9 ft	**NORTHING** 710,744	**EASTING** 1,741,385 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	ELEV. (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
740										739.9	GROUND SURFACE	0.0
								M			**RESIDUAL**	
								M		737.9	Soft to medium stiff, orange-brown, silty CLAY (A-7-5).	2.0
										736.8	Stiff, tan-brown, fine sandy SILT (A-4).	3.1
										736.0	**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	3.9

Boring Terminated by Auger Refusal at Elevation 736.0 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_4600R1	**STATION** 46+00	**OFFSET** 30 ft RT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 721.7 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 710,697	**EASTING** 1,741,585 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
725											
720											
715											
710											
705											
700											
695											
690											

721.7	GROUND SURFACE		0.0
	RESIDUAL	M	
719.7	Soft, orange, silty CLAY (A-7-5).	M	2.0
	Stiff to hard, tan, fine sandy SILT (A-4).		
715.2	**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).		6.5
697.7	**CRYSTALLINE ROCK** Tan, (FELSIC METAVOLCANIC ROCK).		24.0
687.4	Boring Terminated by Auger Refusal at Elevation 687.4 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		34.3

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4700R1	**STATION** 47+00	**OFFSET** 40 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 709.3 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 710,635	**EASTING** 1,741,661	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710										709.3 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium stiff to hard, tan, fine sandy SILT (A-4).	
705										705.9	3.4
										WEATHERED ROCK 703.7 Tan, (FELSIC METAVOLCANIC ROCK).	5.6
										CRYSTALLINE ROCK 702.3 Tan, (FELSIC METAVOLCANIC ROCK).	7.0
										Boring Terminated by Auger Refusal at Elevation 702.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4800L	**STATION** 48+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 700.3 ft	**TOTAL DEPTH** 8.5 ft	**NORTHING** 710,680	**EASTING** 1,741,820	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
705										700.3 GROUND SURFACE	0.0
								M		**ROADWAY EMBANKMENT** 698.3 Medium stiff, red, silty CLAY (A-7-5).	2.0
700								M		Stiff, tan, fine sandy SILT (A-4), with trace gravel. 695.3	5.0
										BOULDER 693.3	7.0
695								M		692.0 Stiff, tan, fine sandy SILT (A-4), with trace gravel. 691.8	8.3 / 8.5
										BOULDER	
										Boring Terminated at Elevation 691.8 ft in ROADWAY EMBANKMENT (BOULDER)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Augers broke in boulder, abandon boring, move back 10' and retry.
3) Water level not measured due to auger obstruction.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_4800R	**STATION** 48+00	**OFFSET** 70 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 693.2 ft	**TOTAL DEPTH** 4.3 ft	**NORTHING** 710,553	**EASTING** 1,741,722	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
695										693.2 GROUND SURFACE	0.0
								M		692.2 **RESIDUAL** Soft, tan-orange, silty CLAY (A-7-5). Hard, tan, fine sandy SILT (A-4).	1.0
690								M		689.3	3.9
										688.9 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 688.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	4.3

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_5300L	**STATION** 53+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 705.4 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 710,311	**EASTING** 1,742,189	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710										705.4 GROUND SURFACE	0.0
705								Sat. W		704.4 **RESIDUAL** Medium stiff, tan, fine to coarse sandy, clayey SILT (A-5).	1.0
								M		701.9 Stiff, tan-yellow, silty CLAY (A-7-6). Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments from 25.0'-37.0'.	3.5
700											
695											
690											
685											
680								M		668.4 **WEATHERED ROCK** Tan-brown, (FELSIC METAVOLCANIC ROCK).	37.0
675										665.4 Boring Terminated at Elevation 665.4 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	40.0
670											

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7700L	**STATION** 77+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 760.8 ft	**TOTAL DEPTH** 27.3 ft	**NORTHING** 707,969	**EASTING** 1,742,765	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/01/13	**COMP. DATE** 05/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
765										
										760.8 GROUND SURFACE 0.0
760								M		**RESIDUAL** Medium stiff to hard, brown-red, fine sandy SILT (A-4), with trace to little clay.
755										
750										
745								M		
740										
735										734.3 26.5
										733.5 27.3 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 733.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7800L	**STATION** 78+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 765.9 ft	**TOTAL DEPTH** 50.6 ft	**NORTHING** 707,869	**EASTING** 1,742,777	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/30/13	**COMP. DATE** 04/30/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
770										
	765.9	0.0								765.9 GROUND SURFACE 0.0
765			4	2	4	6		M		763.9 **RESIDUAL** Red, silty CLAY (A-7-5), with trace roots. 2.0
	762.4	3.5								Brown, brown-orange & brown-tan, fine sandy SILT (A-4).
760			6	10	14	24		M		
	757.4	8.5								
755			12	15	20	35		M		
	752.4	13.5								
750			31	21	30	51		M		
	747.4	18.5								
745			12	30	44	74		M		
	742.4	23.5	100/0.2			100/0.2				743.6 22.3
740	740.3	25.6	60/0.0			60/0.0	RS-1			**WEATHERED ROCK** Gray-green, (META-ARGILLITE).
										740.3 25.6
735										**CRYSTALLINE ROCK** White & green-gray, (META-ARGILLITE). 28.1
										737.8 Brown & white, (METACONGLOMERATE).
730										
										728.0 37.9
725										White & green-gray, (META-ARGILLITE).
										725.5 40.4
720										Green-gray, white & brown, (META-ARGILLITE). 42.7
										723.2 **WEATHERED ROCK** Brown, (METACONGLOMERATE).
										718.8 47.1
										717.6 **CRYSTALLINE ROCK** Brown & white, (METACONGLOMERATE). 48.3
										715.3 Green-gray & white, (META-ARGILLITE). 50.6
										Boring Terminated at Elevation 715.3 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 25.6', began coring.

Other Samples:
RM-2 (0.0 - 2.0)

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7800L	**STATION** 78+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 765.9 ft	**TOTAL DEPTH** 50.6 ft	**NORTHING** 707,869	**EASTING** 1,742,777	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/30/13	**COMP. DATE** 04/30/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 25.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
740.3											Begin Coring @ 25.6 ft
	740.3	25.6	5.0	*N=60/0.0* 2:44/1.0 1:54/1.0 2:17/1.0 2:27/1.0 2:01/1.0	(3.5) 70%	(2.0) 40%	RS-1	(2.5) 100%	(1.9) 76%		740.3 25.6 **CRYSTALLINE ROCK** White & green-gray, moderately to slightly weathered, moderately hard to hard (META-ARGILLITE), close fracture spacing. 737.8 28.1
735	735.3	30.6	5.0	2:12/1.0 1:45/1.0 1:49/1.0 1:53/1.0 1:37/1.0	(5.0) 100%	(3.0) 60%		(8.4) 86%	(4.2) 43%		RS-1: 26.4'-26.7' qu = 7,862 psi Brown & white, moderately severe to moderately weathered, soft to moderately hard (METACONGLOMERATE), close fracture spacing.
730	730.3	35.6	5.0	2:13/1.0 2:31/1.0 2:02/1.0 2:02/1.0 2:02/1.0	(5.0) 100%	(3.4) 68%					728.0 37.9
725	725.3	40.6	5.0	2:00/1.0 1:42/1.0 2:02/1.0 1:58/1.0 3:12/1.0	(2.8) 56%	(0.3) 6%		(2.5) 100%	(2.3) 92%		White & green-gray, moderately to slightly weathered, moderately hard (META-ARGILLITE), close fracture spacing. 725.5 40.4
720	720.3	45.6	5.0	2:03/1.0 1:45/1.0 2:14/1.0 3:23/1.0 3:27/1.0	(4.2) 84%	(2.8) 56%		(2.3) 100%	(0.3) 13%		Green-gray, white & brown, moderately severe to moderately weathered, soft to medium hard (META-ARGILLITE), very close to close fracture spacing. 723.2 42.7
	715.3	50.6						(1.3) 30%	(0.0) 0%		**WEATHERED ROCK** Brown, (METACONGLOMERATE). 718.8 47.1
								(1.2) 100%	(0.6) 50%		717.6 **CRYSTALLINE ROCK** 48.3
								(2.3) 100%	(2.2) 96%		Brown & white, moderately severe to moderately weathered, medium hard (METACONGLOMERATE), close fracture spacing. 715.3 50.6
											Green-gray & white, very slightly weathered, hard (META-ARGILLITE), close to moderately close fracture spacing. Boring Terminated at Elevation 715.3 ft in CRYSTALLINE ROCK (META-ARGILLITE)

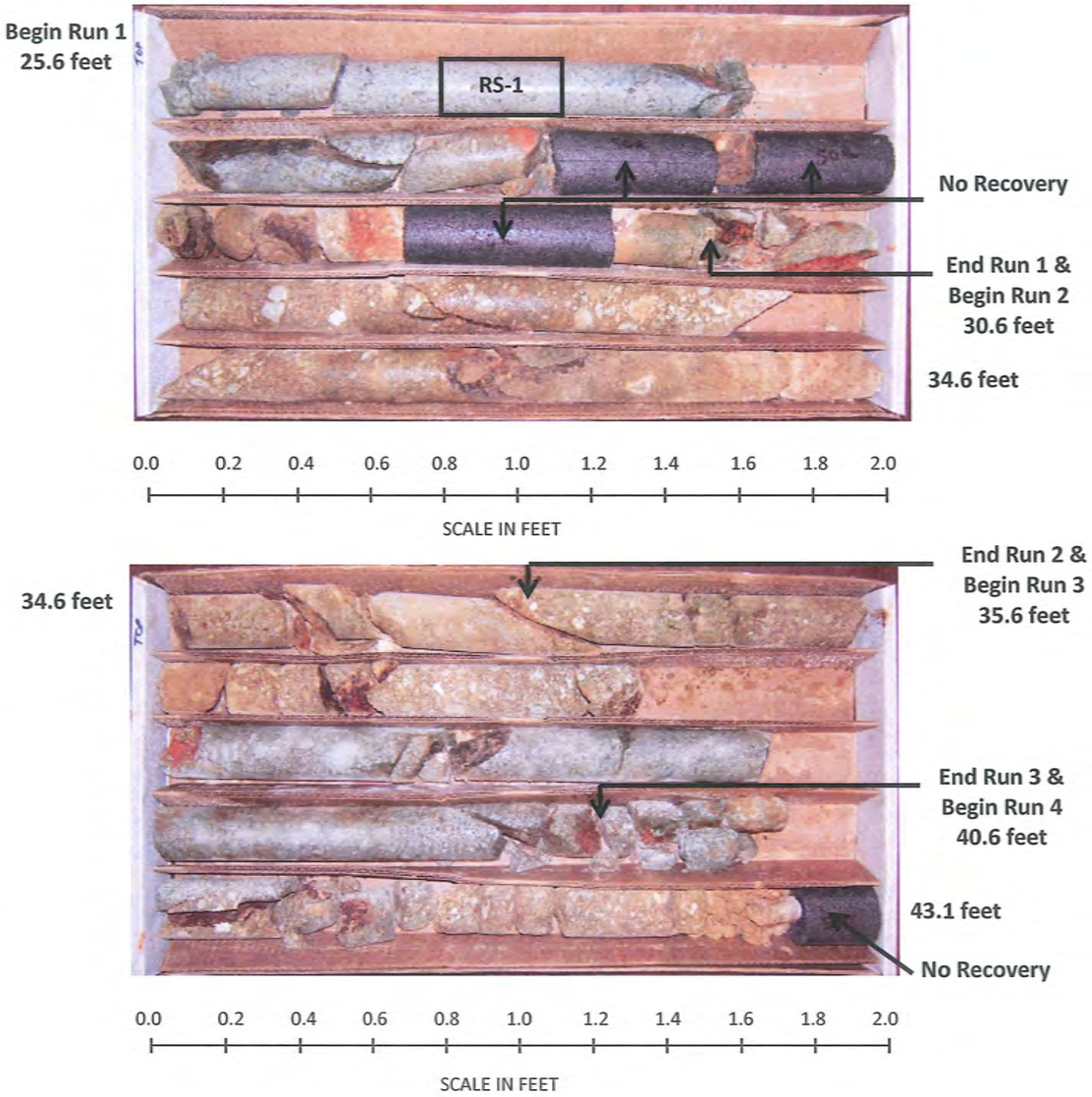
NOTES:

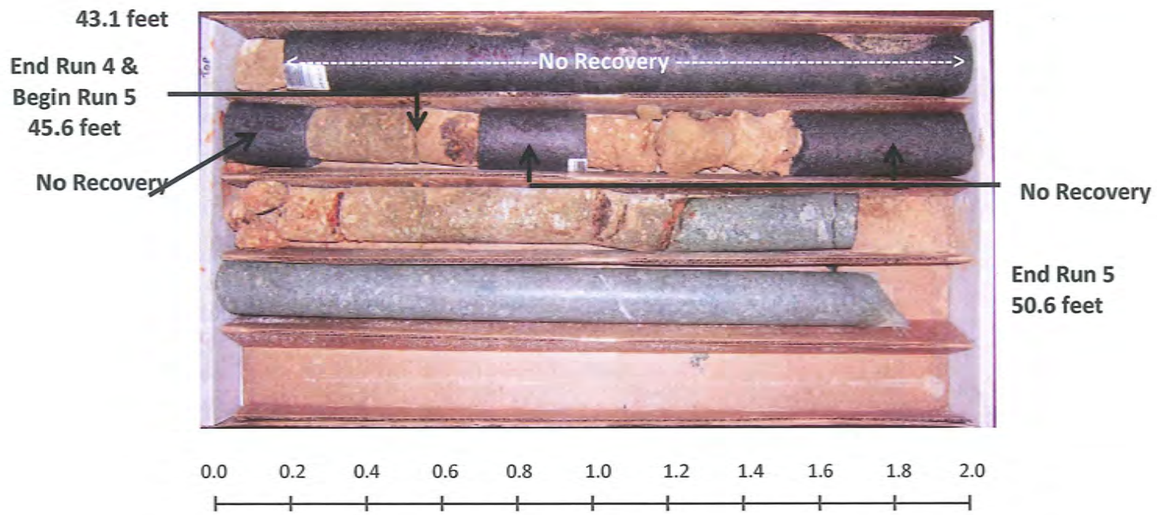
1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 25.6', began coring.

Other Samples:
RM-2 (0.0 - 2.0)

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_7800L: Station 78+00, 90' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7800R	**STATION** 78+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 745.1 ft	**TOTAL DEPTH** 33.7 ft	**NORTHING** 707,849	**EASTING** 1,742,598	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/26/13	**COMP. DATE** 04/26/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
745	745.1	0.0	3	5	4	9 14		M		745.1 GROUND SURFACE 0.0
	741.6	3.5	7	6	16	22		M		**RESIDUAL** Brown-orange, fine sandy SILT (A-4).
740	736.6	8.5	45	55/0.5		100/1.0				736.6 8.5 **WEATHERED ROCK** Tan, orange, & green-gray, (META-ARGILLITE).
735	731.6	13.5	100/0.2			100/0.2				
730	726.6	18.5	100/0.5			100/0.5				
725	721.6	23.5	100/0.2			100/0.2				
720	716.6	28.5	100/0.3			100/0.3				
715	711.6	33.5	100/0.2			100/0.2				711.4 33.7 Boring Terminated at Elevation 711.4 ft in WEATHERED ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7900L	**STATION** 79+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 764.0 ft	**TOTAL DEPTH** 46.6 ft	**NORTHING** 707,770	**EASTING** 1,742,788	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/01/13	**COMP. DATE** 05/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										764.0 GROUND SURFACE 0.0
765								M		**RESIDUAL** Medium stiff to hard, red to brown, fine sandy SILT (A-4), with trace to little clay.
760										
755								M		
750										
745										
740										
735										
730										
725										728.0 36.0 **WEATHERED ROCK** (METACONGLOMERATE)
720										717.5 46.5 717.4 46.6 **CRYSTALLINE ROCK** (META-ARGILLITE) Boring Terminated by Auger Refusal at Elevation 717.4 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_7900R	**STATION** 79+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 749.4 ft	**TOTAL DEPTH** 33.3 ft	**NORTHING** 707,750	**EASTING** 1,742,609	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
750										GROUND SURFACE	749.4	0.0
								M		**RESIDUAL**		
745								M		Medium stiff, red, silty CLAY (A-7-5).	747.4	2.0
										Medium stiff to hard, orange-tan, fine sandy SILT (A-4).		
740												
735												
730												
725												
720												
										WEATHERED ROCK (METACONGLOMERATE)	718.4	31.0
										Boring Terminated by Auger Refusal at Elevation 716.1 ft on CRYSTALLINE ROCK (METACONGLOMERATE)	716.1	33.3

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8000L	**STATION** 80+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 765.5 ft	**TOTAL DEPTH** 41.4 ft	**NORTHING** 707,671	**EASTING** 1,742,799	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
770										
								M		GROUND SURFACE 765.5 0.0
765										**RESIDUAL**
										Medium stiff to hard, brown-red, fine sandy SILT (A-4).
760										
755										
										752.4 13.1
750								M		**WEATHERED ROCK** (METACONGLOMERATE) 750.9 14.6
745										Hard, brown-orange, fine sandy SILT (A-4).
740										
										734.5 31.0
735										**WEATHERED ROCK** (METACONGLOMERATE)
730										
725										724.5 41.0
										724.1 41.4 **CRYSTALLINE ROCK** (META-ARGILLITE)
										Boring Terminated by Auger Refusal at Elevation 724.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8000R	**STATION** 80+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 749.3 ft	**TOTAL DEPTH** 23.4 ft	**NORTHING** 707,650	**EASTING** 1,742,620	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750										749.3 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium stiff to hard, red to brown-orange, fine sandy SILT (A-4), with trace to little clay.	
745								M			
740											
735											
730										728.7	20.6
										WEATHERED ROCK (METACONGLOMERATE)	
										725.9 Boring Terminated by Auger Refusal at Elevation 725.9 ft on CRYSTALLINE ROCK (META-ARGILLITE)	23.4

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8100L	**STATION** 81+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 764.2 ft	**TOTAL DEPTH** 11.5 ft	**NORTHING** 707,571	**EASTING** 1,742,810	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
765										764.2 GROUND SURFACE	0.0
								M		**RESIDUAL**	
								M		762.2 Soft to medium stiff, red, silty CLAY (A-7-5). Medium stiff to hard, red to brown, fine sandy SILT (A-4), with trace to little clay.	2.0
760								M			
755										752.7	11.5
										Boring Terminated by Auger Refusal at Elevation 752.7 ft on CRYSTALLINE ROCK (META-ARGILLITE)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8100R	**STATION** 81+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 758.1 ft	**TOTAL DEPTH** 35.6 ft	**NORTHING** 707,551	**EASTING** 1,742,631	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
760										758.1 GROUND SURFACE	0.0
								M		**RESIDUAL**	
755								M		756.1 Stiff, red, silty CLAY (A-7-5).	2.0
										Stiff to hard, brown-red, fine sandy SILT (A-4).	
750											
745											
740											
735											
730											
725										727.1 **WEATHERED ROCK** (METACONGLOMERATE)	31.0
										723.2	34.9
										722.5 **CRYSTALLINE ROCK** (META-ARGILLITE)	35.6
										Boring Terminated by Auger Refusal at Elevation 722.5 ft in CRYSTALLINE ROCK (META-ARGILLITE)	

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8200L	**STATION** 82+00	**OFFSET** 60 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 767.1 ft	**TOTAL DEPTH** 13.8 ft	**NORTHING** 707,468	**EASTING** 1,742,792	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/03/13	**COMP. DATE** 05/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
770										767.1 GROUND SURFACE 0.0
								M		**RESIDUAL**
765								M		765.1 Medium stiff, red, silty CLAY (A-7-5). 2.0
										Medium stiff to hard, red-brown, fine sandy SILT (A-4).
760										
755										754.1 13.0
										753.3 **WEATHERED ROCK** (METACONGLOMERATE) 13.8
										Boring Terminated by Auger Refusal at Elevation 753.3 ft on CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8200R	**STATION** 82+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 765.7 ft	**TOTAL DEPTH** 38.0 ft	**NORTHING** 707,452	**EASTING** 1,742,643	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/03/13	**COMP. DATE** 05/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	765.7	0.0
								M		RESIDUAL		
								M		Medium stiff, red-brown, silty CLAY (A-7-5).	763.7	2.0
										Medium stiff to hard, red-brown-orange, fine sandy SILT (A-4).		
											727.7	38.0
										Boring Terminated at Elevation 727.7 ft in RESIDUAL (SILT)		

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_8300L	**STATION** 83+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 754.3 ft	**TOTAL DEPTH** 22.0 ft	**NORTHING** 707,372	**EASTING** 1,742,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/03/13	**COMP. DATE** 05/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	754.3	0.0
								M		RESIDUAL	753.8	0.5
								M		Soft, red, silty CLAY (A-7-5).		
										Medium stiff to hard, brown-red, fine sandy SILT (A-4).		
											732.3	22.0
										Boring Terminated at Elevation 732.3 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_8300R	**STATION** 83+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 772.9 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 707,352	**EASTING** 1,742,654	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 05/03/13	**COMP. DATE** 05/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
775										772.9 GROUND SURFACE 0.0
								M		**RESIDUAL**
770								M		770.9 Medium stiff, red, fine sandy silty CLAY (A-7-5). 2.0
										Stiff, red, fine sandy SILT (A-4), with trace clay.
765										
760										
755										
750										746.4 **WEATHERED ROCK** 26.5
745										(METACONGLOMERATE)
										742.9 30.0
										Boring Terminated by Auger Refusal at Elevation 742.9 ft on CRYSTALLINE ROCK (META-ARGILLITE)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_8400R	**STATION** 84+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 782.0 ft	**TOTAL DEPTH** 49.0 ft	**NORTHING** 707,253	**EASTING** 1,742,665	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/26/13	**COMP. DATE** 04/26/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
785										782.0 GROUND SURFACE 0.0
								M		**RESIDUAL**
780										Stiff to hard, red to tan-brown, fine sandy SILT (A-4), with trace clay.
775										
770										
765								M		763.5 18.5
760								M		763.0 **WEATHERED ROCK** 19.0
										(METACONGLOMERATE)
755										Hard, tan-brown, fine sandy SILT (A-4).
750										756.0 26.0
745										**WEATHERED ROCK**
								M		(METACONGLOMERATE)
740										752.5 29.5
735										Hard, tan-brown, fine sandy SILT (A-4).
										742.5 39.5
										WEATHERED ROCK
										(METACONGLOMERATE)
										733.0 49.0
										Boring Terminated at Elevation 733.0 ft in WEATHERED ROCK (METACONGLOMERATE)
										Other Samples: RM-3 (0.0 - 16.5)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_11400R	**STATION** 114+00	**OFFSET** 106 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 793.1 ft	**TOTAL DEPTH** 26.1 ft	**NORTHING** 704,280	**EASTING** 1,743,111	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/16/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
795										ELEV. (ft) DEPTH (ft)
	793.1	0.0	1	2	2	4	S-833	32%		793.1 GROUND SURFACE 0.0
										RESIDUAL
790										791.1 Tan, fine sandy clayey SILT (A-5), with trace coarse sand. 2.0
	789.1	4.0	100/0.5			100/0.5				**WEATHERED ROCK**
	786.8	6.3	60/0.1			60/0.1				Tan, (METAMUDSTONE).
785										786.8 6.3
										786.7 **CRYSTALLINE ROCK** 6.4
										Gray-green & tan-brown, (META-ARGILLITE interlayered with METAMUDSTONE).
780							RS-2			
775										
770										767.0 26.1
										Boring Terminated at Elevation 767.0 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.4' = Surficial Organic Soils
2) Auger refusal at 6.3'.
3) Began coring at 6.4'.
4) Water levels not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_11400R	**STATION** 114+00	**OFFSET** 106 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 793.1 ft	**TOTAL DEPTH** 26.1 ft	**NORTHING** 704,280	**EASTING** 1,743,111	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/16/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 19.7 ft			

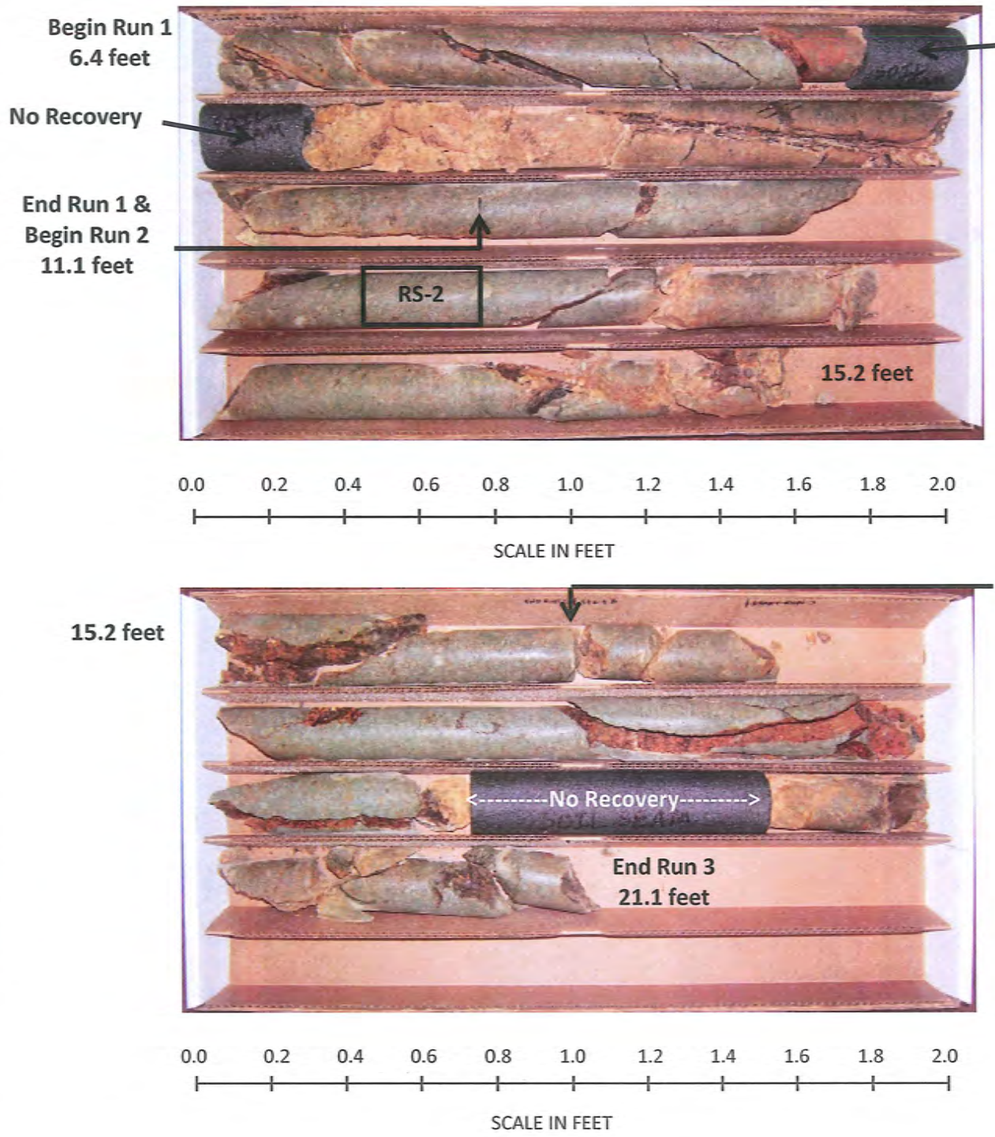
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
786.7											ELEV. (ft) DEPTH (ft)
											Begin Coring @ 6.4 ft
785	786.7	6.4	4.7	3:00/1.0 3:23/1.0 3:48/1.0 5:43/1.0 3:31/0.7	(4.1) 87%	(1.9) 40%		(18.3) 93%	(9.3) 47%		786.7 **CRYSTALLINE ROCK** 6.4 Gray-green & brown, moderately to slightly weathered, medium hard to hard (META-ARGILLITE interlayered with METAMUDSTONE), close to moderately close fracture spacing.
	782.0	11.1	5.0	4:02/1.0 3:10/1.0 4:51/1.0 4:47/1.0 4:15/1.0	(5.0) 100%	(3.3) 66%	RS-2				RS-2: 12.2'-12.5' qu = 4,691 psi
780	777.0	16.1	5.0	3:20/1.0 4:09/1.0 1:51/1.0 1:41/1.0 2:50/1.0	(4.2) 84%	(1.3) 26%					
775	772.0	21.1	5.0	2:30/1.0 2:28/1.0 2:53/1.0 4:02/1.0 5:01/1.0	(5.0) 100%	(2.8) 56%					
770	767.0	26.1									767.0 26.1 Boring Terminated at Elevation 767.0 ft in CRYSTALLINE ROCK (METAMUDSTONE)

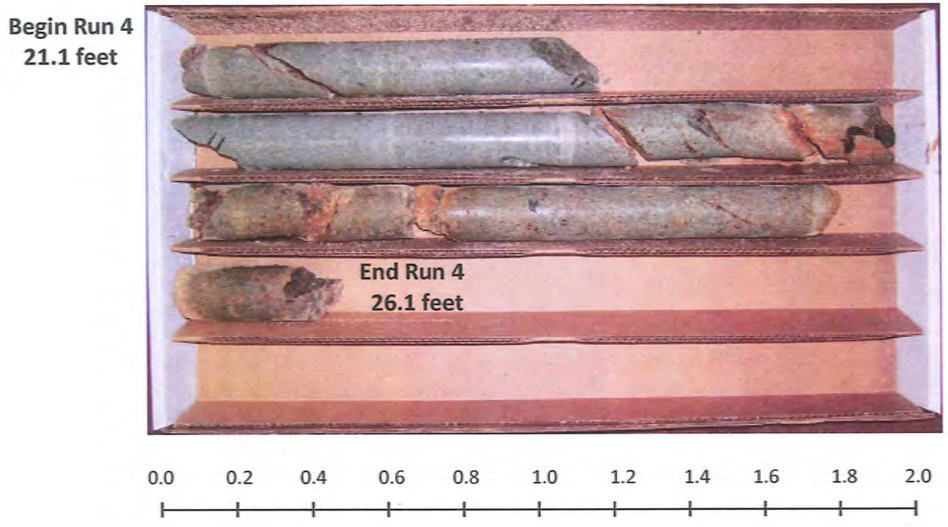
NOTES:

1) 0.0-0.4' = Surficial Organic Soils
2) Auger refusal at 6.3'.
3) Began coring at 6.4'.
4) Water levels not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_11400R: Station 114+00, 106' RT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_11100R	**STATION** 111+00	**OFFSET** 135 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 796.6 ft	**TOTAL DEPTH** 11.0 ft	**NORTHING** 704,568	**EASTING** 1,743,024	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
800										
										796.6 GROUND SURFACE 0.0
795								M		795.1 **RESIDUAL** 1.5 Soft, brown, fine sandy SILT (A-4). **WEATHERED ROCK** Tan to gray-green, (META-ARGILLITE).
790										785.6 11.0 Boring Terminated by Auger Refusal at Elevation 785.6 ft on CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_16200L	**STATION** 162+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 755.3 ft	**TOTAL DEPTH** 15.2 ft	**NORTHING** 699,716	**EASTING** 1,744,526	**24 HR.** 12.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/19/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
										755.3 GROUND SURFACE 0.0
755								W		**RESIDUAL** Soft to medium stiff, tan, fine to coarse sandy, silty CLAY (A-7-6).
								W		751.8 3.5 Soft to medium stiff, brown, fine sandy, clayey SILT (A-5), with trace gravel-sized rock fragments.
750								M		750.3 5.0 Medium stiff to stiff, tan, silty CLAY (A-7-6).
										746.3 9.0 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).
745										740.1 15.2 Boring Terminated by Auger Refusal at Elevation 740.1 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16200R	**STATION** 162+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 752.6 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 699,641	**EASTING** 1,744,362	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/19/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755										ELEV. (ft) DEPTH (ft)
								W		752.6 GROUND SURFACE 0.0
										RESIDUAL Soft to medium stiff, tan, fine to coarse sandy, silty CLAY (A-7-6).
750							S-849	24%		749.6 3.0
										Soft to medium stiff, brown-tan, fine sandy SILT (A-4).
745										742.6 10.0
										742.1 10.5 **WEATHERED ROCK** (MAFIC METAVOLCANIC ROCK)
										Boring Terminated by Auger Refusal at Elevation 742.1 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
										NOTES: 1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16260L	**STATION** 162+60	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 759.1 ft	**TOTAL DEPTH** 16.4 ft	**NORTHING** 699,661	**EASTING** 1,744,551	**24 HR.** 9.4
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/19/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
								W		759.1 GROUND SURFACE 0.0
								M		**RESIDUAL** Soft to stiff, tan to orange-brown, fine to coarse sandy, silty CLAY (A-7-6).
755								M		
										749.1 10.0 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).
750										742.7 16.4
										Boring Terminated by Auger Refusal at Elevation 742.7 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
745										NOTES: 1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16400L	**STATION** 164+00	**OFFSET** 40 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 768.9 ft	**TOTAL DEPTH** 17.5 ft	**NORTHING** 699,513	**EASTING** 1,744,563	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/19/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
770											768.9	
								W		GROUND SURFACE		0.0
765								M		**RESIDUAL** Soft to stiff, tan & brown, fine to coarse sandy, silty CLAY (A-7-6).	765.4	3.5
760								M		**WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).		
755											751.4	17.5

Boring Terminated by Auger Refusal at Elevation 751.4 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16500L1	**STATION** 165+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 774.4 ft	**TOTAL DEPTH** 5.1 ft	**NORTHING** 699,442	**EASTING** 1,744,650	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/22/13	**COMP. DATE** 04/22/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775											774.4	
								W		GROUND SURFACE		0.0
770										**RESIDUAL** Soft, tan, fine to coarse sandy, silty CLAY (A-7-6).	772.4	2.0
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	769.3	5.1

Boring Terminated by Auger Refusal at Elevation 769.3 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_16600L	**STATION** 166+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 776.2 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 699,351	**EASTING** 1,744,691	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
780												
											776.2	0.0
775								M		GROUND SURFACE **RESIDUAL** Soft to medium stiff, tan, silty CLAY (A-7-6).		
											772.7	3.5
770										**WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).		
											769.2	7.0
										Boring Terminated by Auger Refusal at Elevation 769.2 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_16700L	**STATION** 167+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 772.0 ft	**TOTAL DEPTH** 29.5 ft	**NORTHING** 699,260	**EASTING** 1,744,732	**24 HR.** 16.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775												
								M		GROUND SURFACE	772.0	0.0
770								M		**RESIDUAL** Soft to stiff, tan, fine to coarse sandy, silty CLAY (A-7-6).	768.5	3.5
								M		Medium stiff to stiff, tan, fine sandy SILT (A-4).		
765												
760												
755											754.0	18.0
										WEATHERED ROCK Green-gray, (METASILTSTONE).		
750												
745											742.5	29.5
										Boring Terminated by Auger Refusal at Elevation 742.5 ft on CRYSTALLINE ROCK (METASILTSTONE)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16800L	**STATION** 168+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 766.0 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 699,169	**EASTING** 1,744,774	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
770												
											766.0	0.0
765								W		GROUND SURFACE **RESIDUAL** Very soft to stiff, tan, fine to coarse sandy, silty CLAY (A-7-6).		
								M				
760											759.5	6.5
										WEATHERED ROCK Green-gray, (METASILTSTONE). Boring Terminated by Auger Refusal at Elevation 758.7 ft on CRYSTALLINE ROCK (METASILTSTONE)	758.7	7.3

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16800R	**STATION** 168+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 760.2 ft	**TOTAL DEPTH** 18.0 ft	**NORTHING** 699,095	**EASTING** 1,744,610	**24 HR.** 13.7
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
765												
											760.2	0.0
760								W		GROUND SURFACE **RESIDUAL** Soft to medium stiff, tan, fine to coarse sandy, silty CLAY (A-7-6), with trace gravel-sized rock fragments.		
								M				
755											753.2	7.0
								M		Medium stiff to stiff, tan, SILT (A-4), with some fine sand.		
750												
745											742.2	18.0
										Boring Terminated at Elevation 742.2 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16900L	**STATION** 169+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 773.2 ft	**TOTAL DEPTH** 16.4 ft	**NORTHING** 699,078	**EASTING** 1,744,815	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775										GROUND SURFACE	773.2	0.0
								M		**RESIDUAL** Soft to medium stiff, red, silty CLAY (A-6).		
770								M		Medium stiff to stiff, tan, silty CLAY (A-7-6).	769.7	3.5
765												
760										**WEATHERED ROCK** Tan-brown, (MAFIC METAVOLCANIC ROCK).	760.7	12.5
										Boring Terminated by Auger Refusal at Elevation 756.8 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)	756.8	16.4

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_16900R	**STATION** 169+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 764.3 ft	**TOTAL DEPTH** 18.0 ft	**NORTHING** 699,004	**EASTING** 1,744,651	**24 HR.** 11.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
765										GROUND SURFACE	764.3	0.0
								M		**RESIDUAL** Soft to medium stiff, tan, fine sandy clayey SILT (A-5).		
760								M		Medium stiff to very stiff, tan, silty CLAY (A-7-6).	759.3	5.0
755												
750										**WEATHERED ROCK** (MAFIC METAVOLCANIC ROCK)	747.3	17.0
										Boring Terminated at Elevation 746.3 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)	746.3	18.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17000L	**STATION** 170+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 784.6 ft	**TOTAL DEPTH** 13.0 ft	**NORTHING** 698,987	**EASTING** 1,744,856	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
								M		GROUND SURFACE	784.6	0.0
										RESIDUAL Soft to very stiff, red to brown, fine sandy SILT (A-4).		
780												
								M				
775											774.6	10.0
										WEATHERED ROCK Tan-green-gray, (METASILTSTONE).	771.6	13.0
										Boring Terminated by Auger Refusal at Elevation 771.6 ft on CRYSTALLINE ROCK (METASILTSTONE)		
										NOTES: 1) 0.0-0.3' = Surficial Organic Soils		

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17000R	**STATION** 170+00	**OFFSET** 100 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 779.8 ft	**TOTAL DEPTH** 33.0 ft	**NORTHING** 698,908	**EASTING** 1,744,683	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
780												
								M		GROUND SURFACE	779.8	0.0
										RESIDUAL Medium stiff to very stiff, red to brown, fine sandy SILT (A-4).		
775												
770												
								M				
765												
760											759.8	20.0
										Medium stiff to stiff, brown, silty CLAY (A-7-5), with little fine sand.		
755							S-861	18%				
750											746.8	33.0
										Boring Terminated at Elevation 746.8 ft in RESIDUAL (CLAY)		
										NOTES: 1) 0.0-0.2' = Surficial Organic Soils		

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17100R	**STATION** 171+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 789.5 ft	**TOTAL DEPTH** 30.4 ft	**NORTHING** 698,821	**EASTING** 1,744,733	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
790										GROUND SURFACE	789.5	0.0
785								M		**RESIDUAL** Soft to medium stiff, red to tan-brown, fine sandy SILT (A-4), with trace clay.		
								M				
780								M		Medium stiff to stiff, tan-brown, silty CLAY (A-7-5).	783.5	6.0
775												
770												
765												
760								M		**WEATHERED ROCK** (METASILTSTONE)	762.5	27.0
										Boring Terminated by Auger Refusal at Elevation 759.1 ft on CRYSTALLINE ROCK (METASILTSTONE)	759.1	30.4

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17200R	**STATION** 172+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 797.2 ft	**TOTAL DEPTH** 22.2 ft	**NORTHING** 698,730	**EASTING** 1,744,775	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
800										GROUND SURFACE	797.2	0.0
795								M		**RESIDUAL** Soft to medium stiff, red to tan-brown, fine sandy SILT (A-4), with trace clay.		
790								M				
785								M		Medium stiff to stiff, tan-brown, silty CLAY (A-7-5).	787.2	10.0
780												
775										**WEATHERED ROCK** (METASILTSTONE)	777.0	20.2
										Boring Terminated by Auger Refusal at Elevation 775.0 ft on CRYSTALLINE ROCK (METASILTSTONE)	775.0	22.2

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17300L	**STATION** 173+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 784.1 ft	**TOTAL DEPTH** 19.2 ft	**NORTHING** 698,714	**EASTING** 1,744,980	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
785										784.1 / 0.0 GROUND SURFACE
								M		**RESIDUAL** Soft to stiff, tan, fine sandy SILT (A-4).
780										
								M		778.1 / 6.0 Medium stiff to stiff, tan-brown, silty CLAY (A-7-5).
775										
										772.1 / 12.0 **WEATHERED ROCK** (METASILTSTONE)
770										
765										764.9 / 19.2 Boring Terminated by Auger Refusal at Elevation 764.9 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17300R	**STATION** 173+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 797.5 ft	**TOTAL DEPTH** 24.2 ft	**NORTHING** 698,639	**EASTING** 1,744,816	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
800										797.5 / 0.0 GROUND SURFACE
								M		**RESIDUAL** Soft to stiff, tan, fine sandy SILT (A-4).
795										792.5 / 5.0
								M		Medium stiff to stiff, tan, silty CLAY (A-7-5).
790										
										780.0 / 17.5 **WEATHERED ROCK** (METASILTSTONE)
785										
780										773.3 / 24.2 Boring Terminated by Auger Refusal at Elevation 773.3 ft on CRYSTALLINE ROCK (METASILTSTONE)
775										

Other Samples:
RM-4 (6.0 - 16.0)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. L_17300	STATION 173+00	OFFSET CL	ALIGNMENT -L-	0 HR. 2.6
COLLAR ELEV. 794.1 ft	TOTAL DEPTH 41.2 ft	NORTHING 698,676	EASTING 1,744,898	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 04/25/13	COMP. DATE 04/26/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
795											
	794.1	0.0	5	7	7	14		M		794.1 GROUND SURFACE	0.0
										792.1 **RESIDUAL** Tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	2.0
790	790.1	4.0	100/0.5			100/0.5				**WEATHERED ROCK** Tan, (METASILTSTONE).	
785	784.5	9.6									
	783.8	10.3	100/0.3			100/0.3				783.8	10.3
			60/0.1			60/0.1				783.7 **CRYSTALLINE ROCK** Brown & gray, (METASILTSTONE).	10.4
780											
775											
770							RS-3				
765											
760											
755										752.9	41.2

Boring Terminated at Elevation 752.9 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 10.3'.
3) Began coring at 10.4'.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. L_17300	STATION 173+00	OFFSET CL	ALIGNMENT -L-	0 HR. 2.6
COLLAR ELEV. 794.1 ft	TOTAL DEPTH 41.2 ft	NORTHING 698,676	EASTING 1,744,898	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 04/25/13	COMP. DATE 04/26/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 30.8 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
783.7											Begin Coring @ 10.4 ft	
	783.7	10.4	5.0	6:59/1.0 7:12/1.0 10:13/1.0 13:32/1.0 7:17/1.0	(4.8) 96%	(3.7) 74%		(29.6) 96%	(17.0) 55%		783.7 **CRYSTALLINE ROCK** Brown & gray, moderately to slightly weathered, moderately hard to hard (METASILTSTONE), close to moderately close fracture spacing.	10.4
780	778.7	15.4	5.0	3:52/1.0 4:32/1.0 5:35/1.0 5:04/1.0 4:34/1.0	(4.3) 86%	(2.1) 42%					RS-3: 20.9'-21.2' qu = 43,696 psi	
775	773.7	20.4	5.0	4:50/1.0 5:14/1.0 4:49/1.0 5:56/1.0 5:34/1.0	(4.8) 96%	(3.5) 70%	RS-3					
770	768.7	25.4	5.0	4:38/1.0 4:20/1.0 9:01/1.0 11:13/1.0 7:58/1.0	(5.0) 100%	(2.2) 44%						
765	763.7	30.4	5.0	5:37/1.0 10:09/1.0 10:16/1.0 7:29/1.0 3:53/1.0	(5.0) 100%	(2.2) 44%						
760	758.7	35.4	5.0	4:39/1.0 4:04/1.0 4:28/1.0 5:44/1.0 5:32/1.0	(4.9) 98%	(3.3) 66%						
755	753.7	40.4										
	752.9	41.2	0.8	2:38/0.8	(0.8) 100%	(0.0) 0%					752.9	41.2

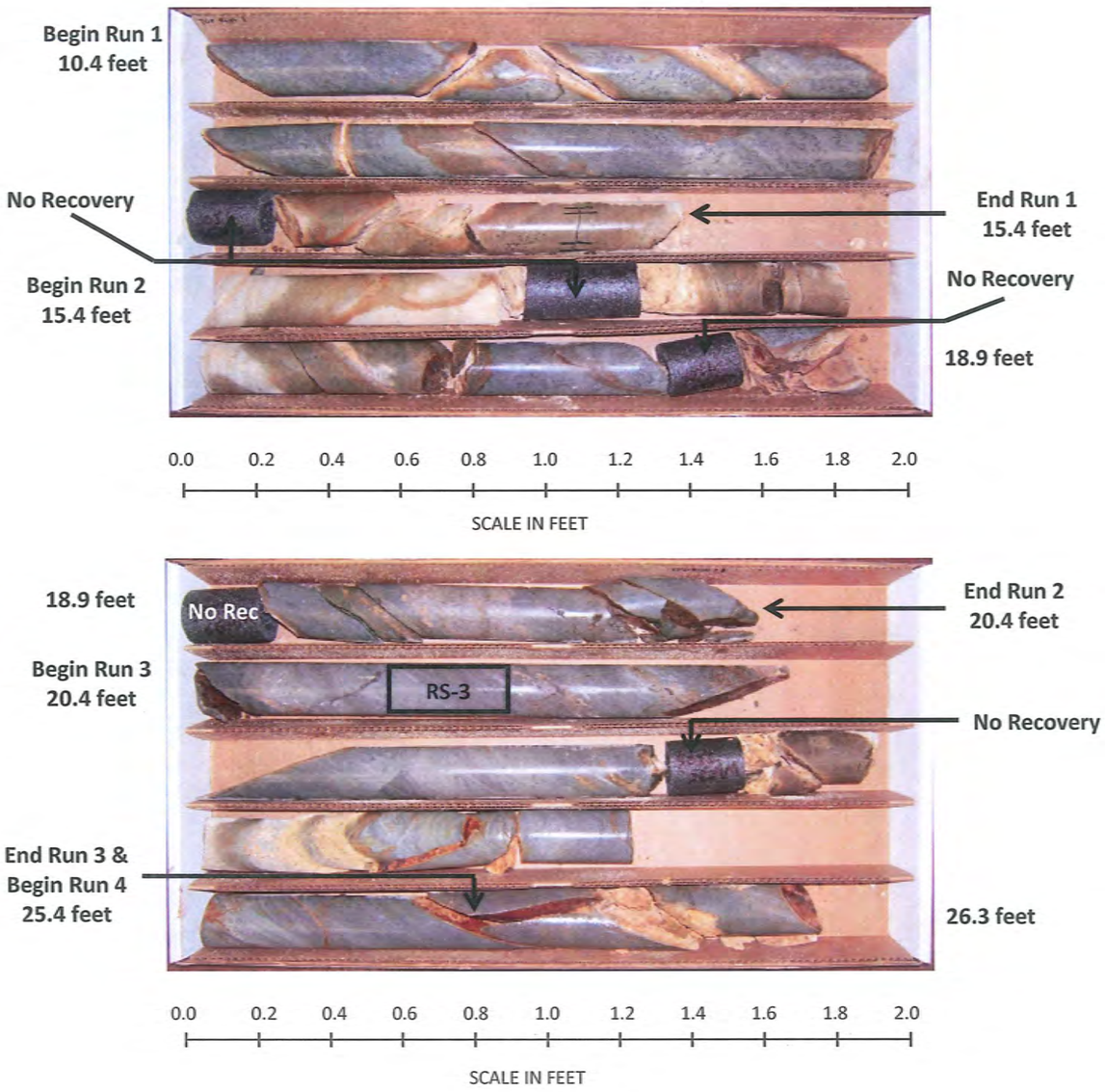
Boring Terminated at Elevation 752.9 ft in CRYSTALLINE ROCK (METASILTSTONE)

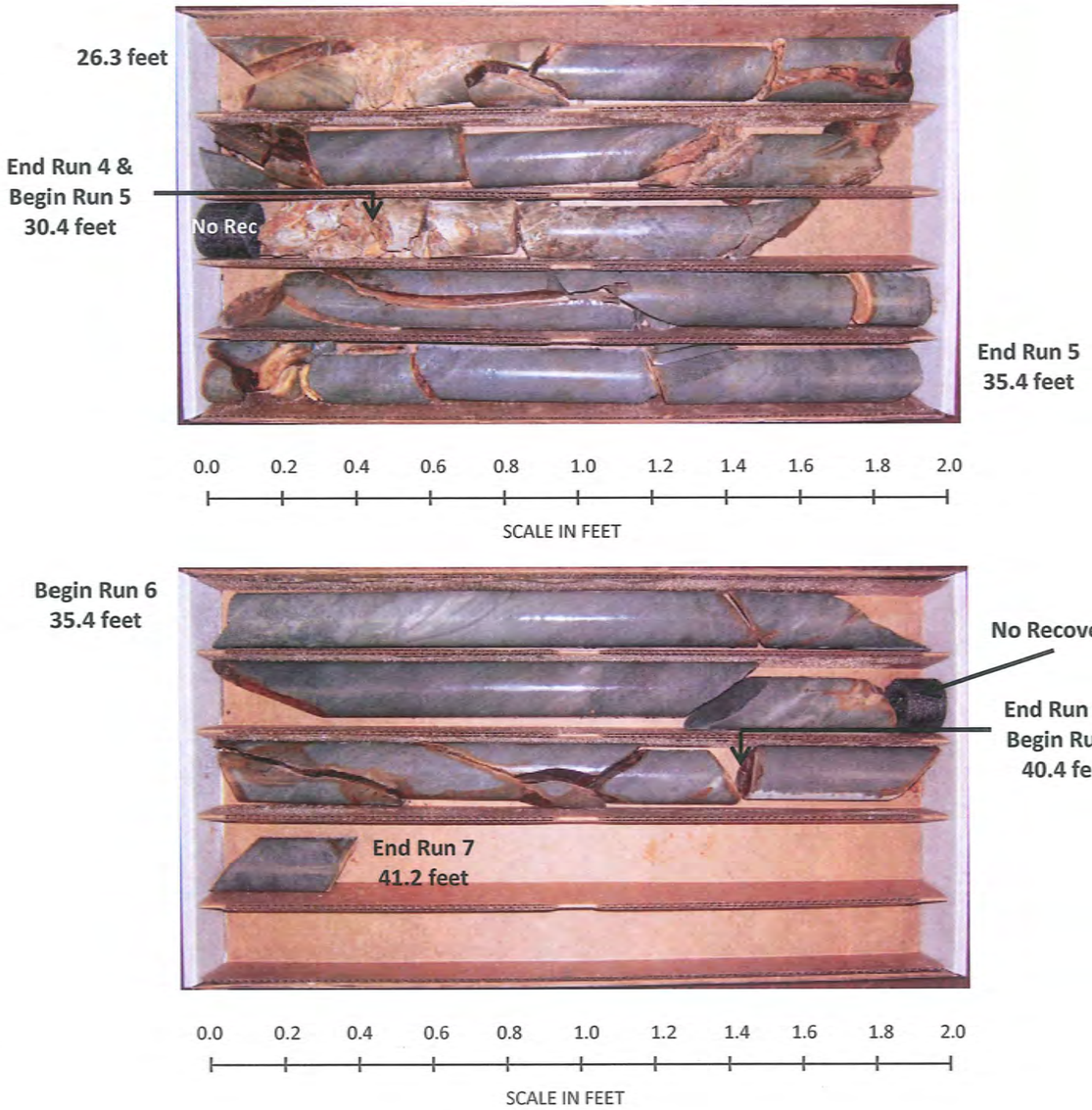
NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 10.3'.
3) Began coring at 10.4'.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_17300: Station 173+00, CL





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17400L	**STATION** 174+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 773.8 ft	**TOTAL DEPTH** 22.0 ft	**NORTHING** 698,622	**EASTING** 1,745,021	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/29/13	**COMP. DATE** 04/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775											773.8	
										GROUND SURFACE		0.0
								W		**RESIDUAL** Soft to medium stiff, tan to red, fine sandy, clayey SILT (A-5).		
770								M			769.8	4.0
								M		Medium stiff to very stiff, tan, fine sandy SILT (A-4).		
765												
								M				
760												
755											754.8	19.0
										WEATHERED ROCK (METASILTSTONE)	751.8	22.0
										Boring Terminated at Elevation 751.8 ft in WEATHERED ROCK (METASILTSTONE)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_17500R	**STATION** 175+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 781.1 ft	**TOTAL DEPTH** 9.3 ft	**NORTHING** 698,457	**EASTING** 1,744,898	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/29/13	**COMP. DATE** 04/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785											781.1	
										GROUND SURFACE		0.0
780								M		**RESIDUAL** Soft to medium stiff, tan-brown, fine sandy SILT (A-4), with trace clay.	779.1	2.0
775										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	771.8	9.3
										Boring Terminated by Auger Refusal at Elevation 771.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_18600L	**STATION** 186+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 777.3 ft	**TOTAL DEPTH** 6.2 ft	**NORTHING** 697,529	**EASTING** 1,745,516	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 05/01/13	**COMP. DATE** 05/01/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
780										ELEV. (ft) DEPTH (ft)
										777.3 GROUND SURFACE 0.0
775								M		**RESIDUAL** Soft to medium stiff, red, fine sandy clayey SILT (A-5).
								M		774.3 3.0
										Soft to medium stiff, red, fine sandy SILT (A-4).
										771.3 6.0
										771.1 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 6.2
										Boring Terminated by Auger Refusal at Elevation 771.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_18700R	**STATION** 187+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 767.3 ft	**TOTAL DEPTH** 10.6 ft	**NORTHING** 697,364	**EASTING** 1,745,393	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
770										
										767.3 GROUND SURFACE 0.0
765								M		**RESIDUAL** Soft to medium stiff, orange, fine sandy clayey SILT (A-5).
								M		763.3 4.0
										Soft to medium stiff, orange, fine sandy SILT (A-4).
760										757.8 9.5
										756.7 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 10.6
										Boring Terminated by Auger Refusal at Elevation 756.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_18800R	**STATION** 188+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 777.5 ft	**TOTAL DEPTH** 26.7 ft	**NORTHING** 697,273	**EASTING** 1,745,434	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
780										
										777.5 GROUND SURFACE 0.0
775								M		**RESIDUAL** Soft to medium stiff, orange, fine sandy clayey SILT (A-5).
								M		773.5 4.0
770								M		Soft to stiff, orange to tan, fine sandy SILT (A-4).
										767.5 10.0
765										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
760										
755										750.8 26.7
										Boring Terminated by Auger Refusal at Elevation 750.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_18900	**STATION** 189+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 789.1 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 697,219	**EASTING** 1,745,558	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/02/13	**COMP. DATE** 05/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV (ft) DEPTH (ft)
790										
								M		789.1 GROUND SURFACE 0.0
785								M		**RESIDUAL** Soft to medium stiff, red, fine sandy clayey SILT (A-5).
										786.1 3.0
780										Soft to medium stiff, red, fine sandy SILT (A-4).
										777.1 12.0
775										**WEATHERED ROCK** Tan-brown, (FELSIC METAVOLCANIC ROCK).
770										
765										
760										759.1 30.0
										Boring Terminated by Auger Refusal at Elevation 759.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_18900L	**STATION** 189+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 792.2 ft	**TOTAL DEPTH** 41.6 ft	**NORTHING** 697,256	**EASTING** 1,745,640 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 05/01/13	**COMP. DATE** 05/01/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
795										
	792.2	0.0								792.2 0.0 GROUND SURFACE
			WOH	1	3	4		W		791.6 0.6 **RESIDUAL** Tan, clayey SILT (A-5), with trace roots.
790										790.2 2.0 Red-orange, clayey SILT (A-5).
	788.2	4.0								Red-orange to light tan, fine sandy SILT (A-4), with trace clay & roots from 4.0'-5.5'.
			3	4	7	11		M		
785										
	783.2	9.0								
			11	14	19	33		M		
780										780.2 12.0 Tan, silty CLAY (A-7-5).
	778.2	14.0								
			5	7	9	16	SS-895	37%		
775										
	773.7	18.5								773.7 18.5
			60/0.1			60/0.1				773.6 18.6 **CRYSTALLINE ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).
770										772.4 19.8 Gray & brown, (FELSIC METAVOLCANIC ROCK).
765										766.6 25.6 Light gray, (FELSIC METAVOLCANIC ROCK).
760										762.4 29.8 **WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).
755										755.2 37.0 **CRYSTALLINE ROCK** Gray-brown, (FELSIC METAVOLCANIC ROCK).
										750.6 41.6 Boring Terminated at Elevation 750.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 18.5'.
3) Began coring at 18.6'.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_18900L	**STATION** 189+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 792.2 ft	**TOTAL DEPTH** 41.6 ft	**NORTHING** 697,256	**EASTING** 1,745,640	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 05/01/13	**COMP. DATE** 05/01/13		**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 23.0 ft			

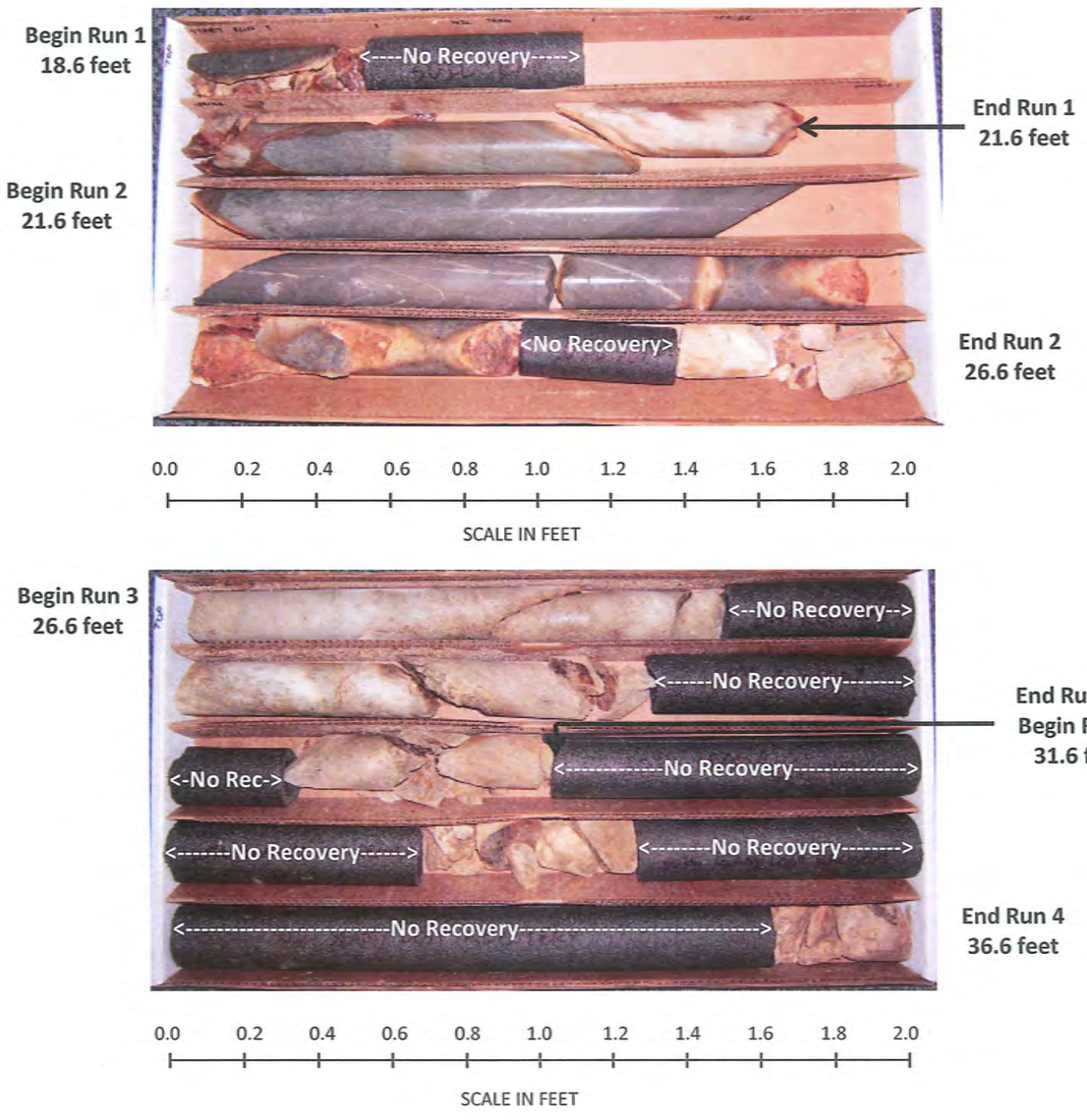
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
773.6											Begin Coring @ 18.6 ft
	773.6	18.6	3.0	2:00/1.0 3:09/1.0 2:08/1.0	(2.2) 73%	(1.5) 50%		(0.5) 42%	(0.0) 0%		773.6 18.6 **CRYSTALLINE ROCK**
770	770.6	21.6									772.4 19.8 Brown & gray, moderately severe to moderately weathered, medium hard, (FELSIC METAVOLCANIC ROCK), very close fracture spacing.
			5.0	4:19/1.0 4:28/1.0 3:18/1.0 1:49/1.0 1:37/1.0	(4.6) 92%	(3.4) 68%		(5.7) 98%	(5.0) 86%		Gray & brown, slightly to very slightly weathered, hard, (FELSIC METAVOLCANIC ROCK), close to moderately close fracture spacing.
765	765.6	26.6									766.6 25.6
			5.0	2:15/1.0 1:48/1.0 2:00/1.0 1:48/1.0 1:28/1.0	(3.2) 64%	(2.4) 48%		(3.3) 79%	(2.3) 55%		Light gray, moderately severe to moderately weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing.
760	760.6	31.6									762.4 29.8
			5.0	1:40/1.0 2:08/1.0 1:51/1.0 2:10/1.0 2:21/1.0	(0.8) 16%	(0.0) 0%		(1.3) 18%	(0.0) 0%		**WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).
755	755.6	36.6									755.2 37.0
			5.0	2:30/1.0 2:10/1.0 3:18/1.0 2:28/1.0 2:23/1.0	(2.9) 58%	(1.3) 26%		(2.9) 63%	(1.3) 28%		**CRYSTALLINE ROCK** Gray-brown, moderately severe to moderately weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing.
	750.6	41.6									750.6 41.6 Boring Terminated at Elevation 750.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

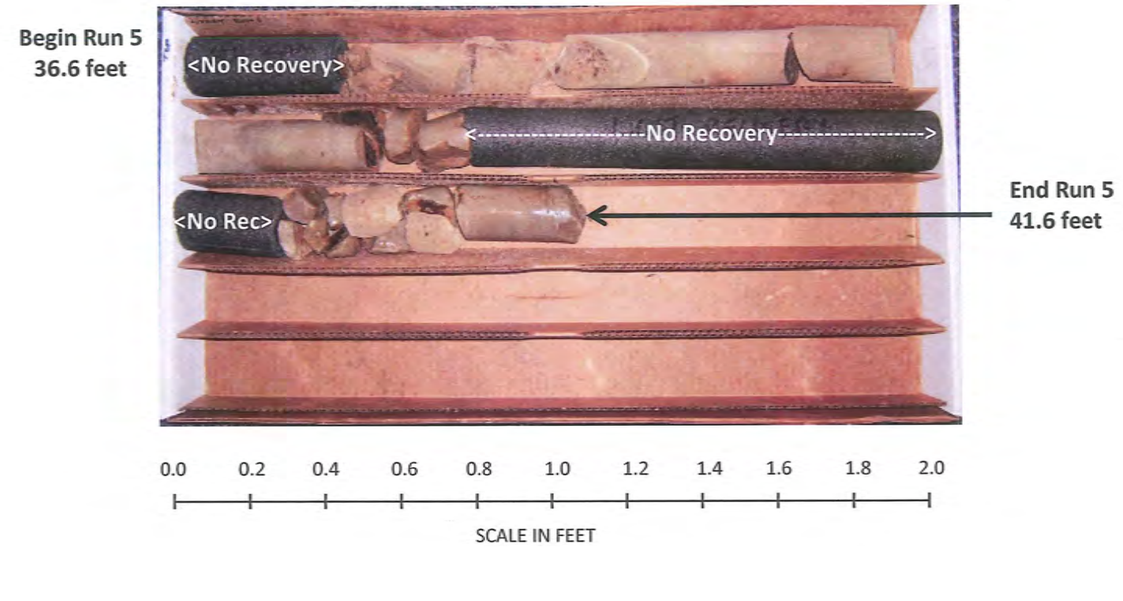
NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 18.5'.
3) Began coring at 18.6'.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_18900L: Station 189+00, 90' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_18900R	**STATION** 189+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 782.9 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 697,182	**EASTING** 1,745,476	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/01/13	**COMP. DATE** 05/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
785										
										782.9 / 0.0 GROUND SURFACE
								M		**RESIDUAL**
780								M		Soft to medium stiff, red, fine sandy clayey SILT (A-5).
										780.4 / 2.5
										Soft to medium stiff, red, fine sandy SILT (A-4).
775										775.9 / 7.0
								M		Medium stiff to stiff, brown, silty CLAY (A-7-5).
770										
765										
760										
755										
750										
745										742.9 / 40.0 Boring Terminated at Elevation 742.9 ft in RESIDUAL (CLAY)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_19000	**STATION** 190+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 793.4 ft	**TOTAL DEPTH** 22.9 ft	**NORTHING** 697,128	**EASTING** 1,745,599	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/08/13	**COMP. DATE** 05/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
795										
										793.4 / 0.0 GROUND SURFACE
								M		**RESIDUAL**
790										Medium stiff to stiff, red, fine sandy clayey SILT (A-5).
								M		788.4 / 5.0
										Medium stiff to stiff, orange-red, fine sandy SILT (A-4).
785								M		783.4 / 10.0
										Stiff to very stiff, tan, silty CLAY (A-7-5).
780										
775										776.2 / 17.2
										WEATHERED ROCK Tan-brown, (FELSIC METAVOLCANIC ROCK).
										770.5 / 22.9 Boring Terminated by Auger Refusal at Elevation 770.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_19000R	**STATION** 190+00	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 792.9 ft	**TOTAL DEPTH** 5.1 ft	**NORTHING** 697,091	**EASTING** 1,745,517	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/08/13	**COMP. DATE** 05/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
795												
								M		GROUND SURFACE	792.9	0.0
790										**RESIDUAL** Medium stiff to stiff, orange, fine sandy clayey SILT (A-5).	789.9	3.0
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	787.8	5.1
										Boring Terminated by Auger Refusal at Elevation 787.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_19000R1	**STATION** 190+00	**OFFSET** 87 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 793.0 ft	**TOTAL DEPTH** 4.5 ft	**NORTHING** 697,092	**EASTING** 1,745,520	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/08/13	**COMP. DATE** 05/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
795												
								M		GROUND SURFACE	793.0	0.0
790										**RESIDUAL** Medium stiff to stiff, orange, fine sandy clayey SILT (A-5).	789.0	4.0
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	788.5	4.5
										Boring Terminated by Auger Refusal at Elevation 788.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_19000R2	**STATION** 190+00	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 793.1 ft	**TOTAL DEPTH** 48.0 ft	**NORTHING** 697,095	**EASTING** 1,745,526	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/08/13	**COMP. DATE** 05/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	793.1	0.0
								M		**RESIDUAL** Medium stiff, orange, fine sandy clayey SILT (A-5).		
								M		Medium stiff to stiff, orange, fine sandy SILT (A-4).	790.1	3.0
								M		Stiff to very stiff, tan-brown, silty CLAY (A-7-5).	786.1	7.0
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).	750.6	42.5
										Boring Terminated at Elevation 745.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	745.1	48.0

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_19100L	**STATION** 191+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 780.5 ft	**TOTAL DEPTH** 37.0 ft	**NORTHING** 697,074	**EASTING** 1,745,722	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 05/09/13	**COMP. DATE** 05/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	780.5	0.0
								M		**RESIDUAL** Soft to stiff, red, fine sandy clayey SILT (A-5).		
								M		Medium stiff to stiff, red to brown, fine sandy SILT (A-4).	777.5	3.0
								M		Stiff to hard, tan-brown, silty CLAY (A-7-5).	772.5	8.0
								M		Boring Terminated at Elevation 743.5 ft in RESIDUAL (CLAY)	743.5	37.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_19745L	**STATION** 197+45	**OFFSET** 100 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 724.7 ft	**TOTAL DEPTH** 14.2 ft	**NORTHING** 696,490	**EASTING** 1,745,997	**24 HR.** 1.4
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 05/09/13	**COMP. DATE** 05/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725	724.7	0.0	WOH	2	3	5				724.7 0.0 GROUND SURFACE
										724.2 0.5 **ALLUVIAL**
720	720.7	4.0	3	6	10	16		M		722.7 2.0 Tan, fine sandy clayey SILT (A-5). Tan, fine sandy SILT (A-4), with little gravel. **RESIDUAL** Brown & gray-green, fine sandy SILT (A-4), with trace mica, saprolitic at 4.5', some gravel-sized rock fragments at 7.0'.
715	715.7	9.0	10	12	17	29		M		
	710.7	14.0	100/0.2			100/0.2				712.0 12.7 **WEATHERED ROCK** (META-ARGILLITE) 710.5 14.2 Boring Terminated at Elevation 710.5 ft in WEATHERED ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_19830R	**STATION** 198+30	**OFFSET** 110 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 725.4 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 696,326	**EASTING** 1,745,841	**24 HR.** 7.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 05/09/13	**COMP. DATE** 05/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										
725	725.4	0.0	WOH	1	1	2		W		725.4 0.0 GROUND SURFACE
	721.9	3.5								724.6 0.8 **RESIDUAL**
			3	8	9	17		M		723.4 2.0 Tan, fine sandy silty CLAY (A-7-5), with trace roots. Orange, fine sandy clayey SILT (A-5). Gray-tan to orange-brown, fine sandy SILT (A-4), with trace clay.
720	718.5	6.9	90	10/0.1		100/0.6				718.6 6.8 **WEATHERED ROCK** Brown, (METAMUDSTONE).
	716.9	8.5	32	56	44/0.3	100/0.8				714.9 10.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 714.9 ft on CRYSTALLINE ROCK (METAMUDSTONE)
715	714.9	10.5	60/0.0			60/0.0				

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 10.5'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_21000L	**STATION** 210+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 808.2 ft	**TOTAL DEPTH** 16.2 ft	**NORTHING** 695,343	**EASTING** 1,746,506	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 06/06/13	**COMP. DATE** 06/06/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
810										808.2 GROUND SURFACE 0.0
								M		**RESIDUAL** Stiff, red, silty CLAY (A-7-5), with trace organics.
805										
								M		800.7 7.5 Stiff, red & tan, SILT (A-4), with trace to some fine sand & clay.
800								M		
										794.7 13.5
795										794.2 **CRYSTALLINE ROCK** Tan, (METAMUDSTONE). 14.0
										792.2 16.0
										792.0 **WEATHERED ROCK** Tan, (METAMUDSTONE). 16.2
										CRYSTALLINE ROCK Tan, (METAMUDSTONE).
										Boring Terminated by Auger Refusal at Elevation 792.0 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.3 = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_21100L	**STATION** 211+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 810.3 ft	**TOTAL DEPTH** 31.0 ft	**NORTHING** 695,252	**EASTING** 1,746,547	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 06/06/13	**COMP. DATE** 06/06/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
815										810.3 GROUND SURFACE 0.0
810								M		**RESIDUAL** Stiff, red, silty CLAY (A-7-5), with trace organics.
										806.3 4.0
805								M		Stiff to very stiff, red to tan, SILT (A-4), with trace to some fine sand, trace clay.
								M		
800										792.8 17.5
795										**WEATHERED ROCK** Tan, (METAMUDSTONE).
790										
785										
780										779.3 31.0
										Boring Terminated at Elevation 779.3 ft in WEATHERED ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) 0 hr. water level not measured.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_21200L	**STATION** 212+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 810.2 ft	**TOTAL DEPTH** 16.3 ft	**NORTHING** 695,161	**EASTING** 1,746,588	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/08/13	**COMP. DATE** 06/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
810.2		0.0								GROUND SURFACE	0.0
808.2		2.0						M		**RESIDUAL** Soft to stiff, tan, silty CLAY (A-7-5). Medium stiff to hard, white, brown & gray, SILT (A-4), with trace to some fine sand.	2.0
798.0		12.2						M			
796.0		14.2						M		**WEATHERED ROCK** Tan, (METAMUDSTONE).	14.2
793.9		16.3						M		**CRYSTALLINE ROCK** (METAMUDSTONE)	16.3
										Boring Terminated by Auger Refusal at Elevation 793.9 ft in CRYSTALLINE ROCK (METAMUDSTONE)	

NOTES

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_21300L	**STATION** 213+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 802.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 695,070	**EASTING** 1,746,629	**24 HR.** 15.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/08/13	**COMP. DATE** 06/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
802.2		0.0								GROUND SURFACE	0.0
800.2		2.0						W		**RESIDUAL** Very soft to soft, red-tan, clayey SILT (A-5). Soft to hard, brown-tan, SILT (A-4), with trace to some fine sand, trace gravel-sized rock fragments.	2.0
								M			
								W			
								M			
782.2		20.0								Boring Terminated at Elevation 782.2 ft in RESIDUAL (SILT)	20.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_22200L	**STATION** 222+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** 25.2
COLLAR ELEV. 818.0 ft	**TOTAL DEPTH** 31.0 ft	**NORTHING** 694,297	**EASTING** 1,747,055	**24 HR.** 19.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/09/13	**COMP. DATE** 06/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
820												
										818.0 GROUND SURFACE		0.0
815								M		**RESIDUAL** Medium stiff to very stiff, red-orange-brown, silty CLAY (A-7-5), with trace mica, trace to some fine sand.		
810								M				
805												
800								W				
795												
790												
										787.0 Boring Terminated at Elevation 787.0 ft in RESIDUAL (CLAY)		31.0

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_22300L	**STATION** 223+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 815.3 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 694,218	**EASTING** 1,747,112	**24 HR.** 5.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/09/13	**COMP. DATE** 06/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
820												
815										815.3 GROUND SURFACE		0.0
								M		**RESIDUAL** Medium stiff, red-brown, fine sandy silty CLAY (A-7-5).		
810										810.3		5.0
										CRYSTALLINE ROCK Brown, (METAMUDSTONE).		
										808.0 Boring Terminated by Auger Refusal at Elevation 808.0 ft in CRYSTALLINE ROCK (METAMUDSTONE)		7.3

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_22300R	**STATION** 223+00	**OFFSET** 80 ft RT	**ALIGNMENT** -L- — **0 HR.** 36.1
COLLAR ELEV. 828.1 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 694,117	**EASTING** 1,746,975 — **24 HR.** 20.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 06/09/13	**COMP. DATE** 06/09/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
										828.1 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium stiff, red-brown, fine sandy silty CLAY (A-7-5).	
										821.1	7.0
										WEATHERED ROCK 819.1 Orange-brown, (METAMUDSTONE).	9.0
								M		Stiff, orange-brown & brown, silty CLAY (A-7-5).	
								W			
										787.1	41.0
										Boring Terminated at Elevation 787.1 ft in RESIDUAL (CLAY)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. L_22400L	**STATION** 224+00	**OFFSET** 90 ft LT	**ALIGNMENT** -L- — **0 HR.** Dry
COLLAR ELEV. 813.4 ft	**TOTAL DEPTH** 28.0 ft	**NORTHING** 694,140	**EASTING** 1,747,171 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 06/09/13	**COMP. DATE** 06/09/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
										813.4 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium stiff, gray-brown, fine sandy silty CLAY (A-7-5), with trace organics.	
										809.4	4.0
								M		Stiff to hard, tan, fine sandy SILT (A-4).	
										788.4	25.0
										WEATHERED ROCK 785.4 Tan, (METAMUDSTONE).	28.0
										Boring Terminated at Elevation 785.4 ft in WEATHERED ROCK (METAMUDSTONE)	

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_24100R1	**STATION** 241+00	**OFFSET** 65 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 759.1 ft	**TOTAL DEPTH** 5.7 ft	**NORTHING** 692,945	**EASTING** 1,748,364	**24 HR.** 1.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 06/14/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
760											
										ELEV. (ft) 759.1 GROUND SURFACE	0.0
755										**RESIDUAL** Medium stiff, brown, silty CLAY (A-7-5).	
										753.4	5.7
										Boring Terminated by Auger Refusal at Elevation 753.4 ft on CRYSTALLINE ROCK (METASILTSTONE)	

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25155L	**STATION** 251+55	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 0.0
COLLAR ELEV. 737.9 ft	**TOTAL DEPTH** 6.8 ft	**NORTHING** 692,708	**EASTING** 1,749,397	**24 HR.** 0.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
740											
	737.9	0.0								ELEV. (ft) 737.9 GROUND SURFACE	0.0
			WOH	1	2	3		W		**ALLUVIAL** Orange & gray, clayey SILT (A-5).	
735	734.4	3.5								735.9	2.0
			6	10	75	85		M		**RESIDUAL** Orange & gray, silty fine to coarse SAND (A-1-b), with little gravel-sized rock fragments.	
	731.1	6.8	60/0.0			60/0.0				731.1	6.8
										Boring Terminated with Standard Penetration Test Refusal at Elevation 731.1 ft on CRYSTALLINE ROCK (METASILTSTONE)	

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 6.8'.

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25187R	**STATION** 251+87	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** 4.3
COLLAR ELEV. 739.1 ft	**TOTAL DEPTH** 13.4 ft	**NORTHING** 692,554	**EASTING** 1,749,396	**24 HR.** 7.3
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										ELEV. (ft) DEPTH (ft)
	739.1	0.0	WOH	WOH	3	3		M		739.1 GROUND SURFACE 0.0
735	735.6	3.5	6	8	13	21		M		737.1 **ALLUVIAL** Grayish-brown, SILT (A-4), with some fine sand. 2.0
										RESIDUAL Gray, SILT (A-4), with some fine sand & trace gravel-sized rock fragments.
730	730.6	8.5	73	27/0.1		100/0.6				730.6 8.5
										728.8 **WEATHERED ROCK** Gray, (METASILTSTONE). 10.3
	725.7	13.4	60/0.0			60/0.0				**CRYSTALLINE ROCK** (METASILTSTONE) 725.7 13.4
										Boring Terminated with Standard Penetration Test Refusal at Elevation 725.7 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 13.4'.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. L_25213L	STATION 252+13	OFFSET 70 ft LT	ALIGNMENT -L-	0 HR. 3.3
COLLAR ELEV. 738.5 ft	TOTAL DEPTH 36.0 ft	NORTHING 692,695	EASTING 1,749,452	24 HR. 3.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 06/14/13	COMP. DATE 06/14/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	738.5	0.0	WOH	1	3	4		W		738.5 GROUND SURFACE	0.0
735								▼		**ALLUVIAL** Brown, gray & orange, fine sandy SILT (A-4), with trace root fragments.	
	734.5	4.0	1	1	7	8		Sat.		733.5 Gray, clayey silty fine to coarse SAND (A-2-4).	5.0
730											
	729.5	9.0	11	43	57/0.3	100/0.8				729.0 **WEATHERED ROCK** Brown & gray, (METASILTSTONE).	9.5
725	725.6	12.9	60/0.0			60/0.0				727.0 **CRYSTALLINE ROCK** Gray, (METASILTSTONE). 725.6	11.5 12.9
720										721.7 Gray, (METASILTSTONE).	16.8
715							RS-12			714.5 **WEATHERED ROCK** Gray, (METASILTSTONE). 712.7	24.0 25.8
710										**CRYSTALLINE ROCK** Gray, (METASILTSTONE). 709.5 Gray & white, (METASILTSTONE).	29.0
705										702.5 Boring Terminated at Elevation 702.5 ft in CRYSTALLINE ROCK (METASILTSTONE)	36.0

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 12.9', began coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. L_25213L	STATION 252+13	OFFSET 70 ft LT	ALIGNMENT -L-	0 HR. 3.3
COLLAR ELEV. 738.5 ft	TOTAL DEPTH 36.0 ft	NORTHING 692,695	EASTING 1,749,452	24 HR. 3.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 06/14/13	COMP. DATE 06/14/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 23.1 ft			

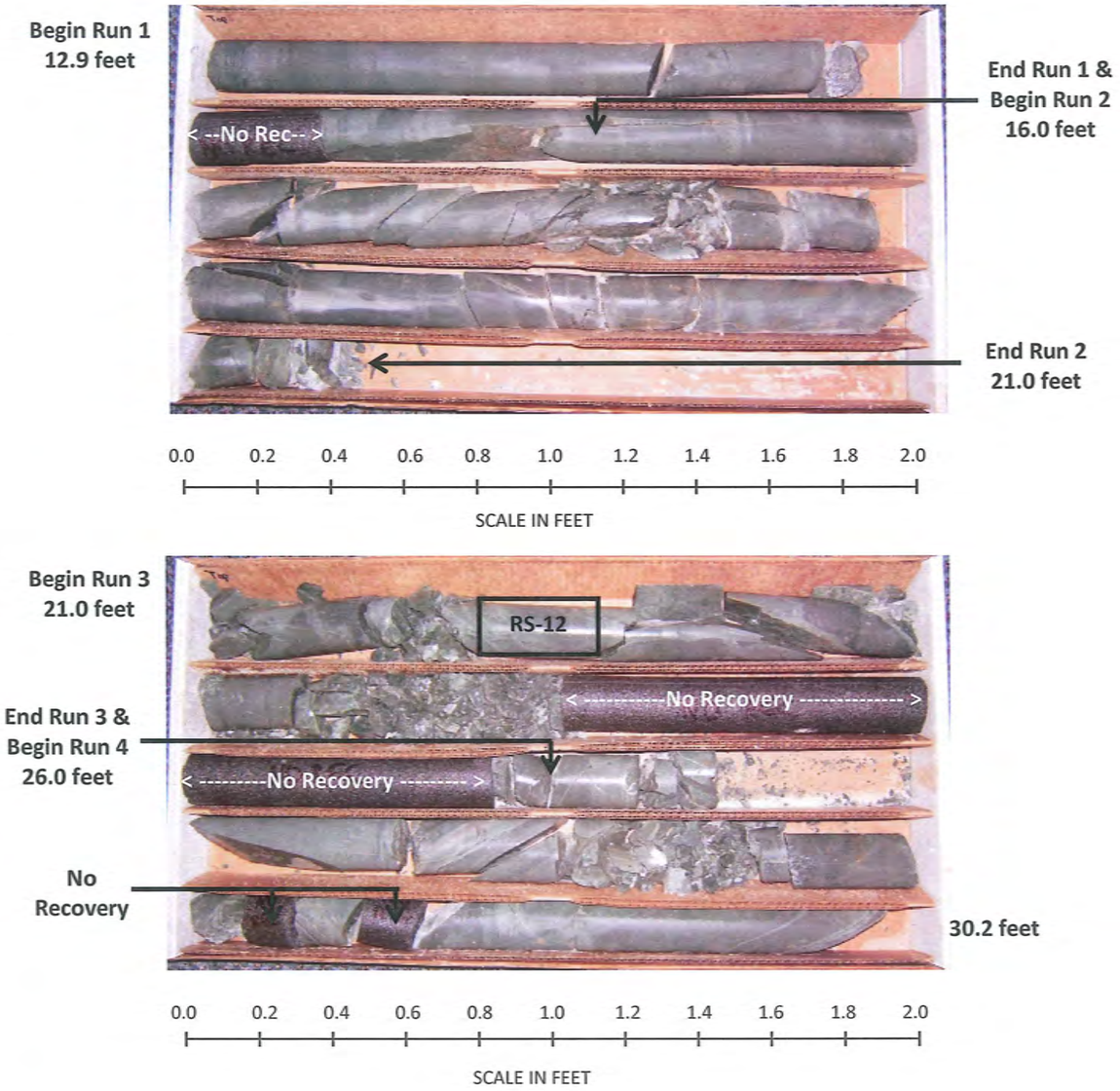
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
725.6											Begin Coring @ 12.9 ft	
	725.6	12.9	3.1	N=60/0.0 4:42/1.0 5:03/1.0 4:26/1.0	(2.6) 84%	(2.1) 68%		(3.6) 92%	(2.9) 74%		725.6 **CRYSTALLINE ROCK** Gray, slightly to very slightly weathered, moderately hard to hard, (METASILTSTONE), close to moderately close fracture spacing.	12.9
	722.5	16.0		0:20/0.1							721.7	16.8
720			5.0	3:49/1.0 4:35/1.0 5:32/1.0 5:35/1.0 6:05/1.0	(5.0) 100%	(1.7) 34%		(7.2) 100%	(1.7) 24%		Gray, moderately to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing. RS-12: 21.8'-22.1' qu = 8,140 psi R_1=7, R_2=3, R_3=10, R_4=12, R_5=7 RMR = 39, Rock Type E	
	717.5	21.0										
715			5.0	5:12/1.0 4:54/1.0 6:10/1.0 8:19/1.0 10:42/1.0	(3.2) 64%	(0.8) 16%	RS-12				714.5	24.0
	712.5	26.0						(0.0) 0%	(0.0) 0%		712.7 **WEATHERED ROCK** Gray, (METASILTSTONE).	25.8
710			5.0	5:00/1.0 6:06/1.0 9:39/1.0 4:25/1.0 4:12/1.0	(4.7) 94%	(2.5) 50%		(2.9) 91%	(0.5) 16%		**CRYSTALLINE ROCK** Gray, moderately to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing.	
	707.5	31.0						(6.4) 91%	(6.0) 86%		709.5 Gray & white, slightly to very slightly weathered, hard, (METASILTSTONE), close to moderately close fracture spacing.	29.0
705			5.0	3:39/1.0 5:33/1.0 4:38/1.0 4:18/1.0 4:17/1.0	(4.6) 92%	(4.0) 80%						
	702.5	36.0									702.5 Boring Terminated at Elevation 702.5 ft in CRYSTALLINE ROCK (METASILTSTONE)	36.0

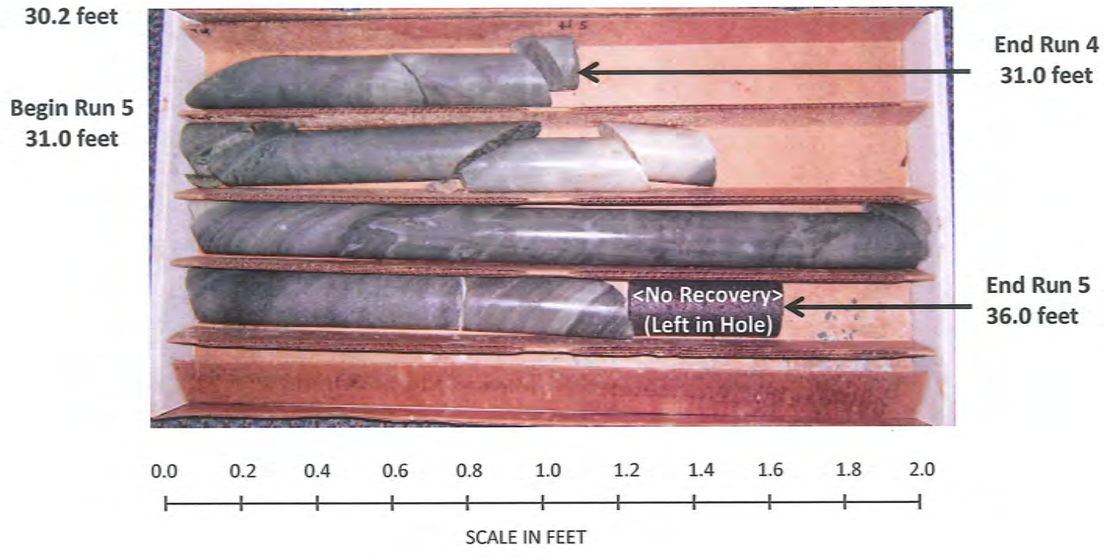
NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 12.9', began coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_25213L: Station 252+13, 70' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25242R	**STATION** 252+42	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 736.7 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 692,544	**EASTING** 1,749,451	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	W/MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740										
	736.7	0.0								736.7 GROUND SURFACE 0.0
			WOH	1	1	2		W		**ALLUVIAL**
735										734.2 Brown-gray, fine sandy SILT (A-4), with trace organics. 2.5
	732.7	4.0								**RESIDUAL**
			9	8	9	17		M		Tan, orange, gray & brown, fine sandy SILT (A-4).
730										
	727.7	9.0								
			8	28	51	79		M		
725										
	722.7	14.0								722.2 14.5
	721.2	15.5	17	28	72/0.3	100/0.8				721.4 **WEATHERED ROCK** 15.3
720			60/0.0			60/0.0	RS-13			721.2 Dark gray, (METASILTSTONE). 15.5
										CRYSTALLINE ROCK
										Gray, green & white, (METASILTSTONE).
715										
710										
										708.2 28.5
										Boring Terminated at Elevation 708.2 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 15.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25242R	**STATION** 252+42	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 736.7 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 692,544	**EASTING** 1,749,451	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 13.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
721.2											ELEV. (ft) DEPTH (ft)
720	721.2	15.5	5.0	*N=60/0.0*	(5.0)	(3.8)		(12.9)	(11.0)		Begin Coring @ 15.5 ft
				5:46/1.0	100%	76%	RS-13	99%	85%		721.2 **CRYSTALLINE ROCK** 15.5
				4:37/1.0							Gray, green & white, very slightly weathered to fresh, hard (METASILTSTONE), close to moderately close fracture spacing.
				4:15/1.0							
				3:55/1.0							RS-13: 16.9'-17.2' qu = 14,119 psi
	716.2	20.5		3:21/1.0							R_1=7, R_2=17, R_3=10, R_4=20, R_5=7
715			5.0	4:06/1.0	(5.0)	(4.7)					RMR = 61, Rock Type E
				4:20/1.0	100%	94%					
				4:42/1.0							
				5:02/1.0							
	711.2	25.5		3:26/1.0							
710			3.0	4:25/1.0	(2.9)	(2.5)					
				3:53/1.0	97%	83%					
	708.2	28.5		3:59/1.0							708.2 28.5
											Boring Terminated at Elevation 708.2 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 15.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_25242R: Station 252+42, 80' RT

Begin Run 1
15.5 feet

End Run 1 &
Begin Run 2
20.5 feet

24.7 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

End Run 2 &
Begin Run 3
25.5 feet

24.7 feet

No Recovery
(left in hole)

End Run 3
28.5 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25270L	**STATION** 252+70	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.0
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 36.3 ft	**NORTHING** 692,684	**EASTING** 1,749,508	**24 HR.** 2.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740										
735	735.5	0.0	WOH	WOH	WOH	0				735.5 GROUND SURFACE 0.0
	731.5	4.0	4	5	11	16		M		**ALLUVIAL** 733.5 Brown-gray, fine sandy SILT (A-4), with trace organics. 2.0; 731.3 Gray, fine to coarse SAND (A-3), with trace gravel. 4.2
730										**RESIDUAL** Tan, orange, brown & gray, fine sandy SILT (A-4).
	726.5	9.0	5	10	81	91		M		723.7 11.8
725	721.5	14.0	100/0.4			100/0.4				**WEATHERED ROCK** Dark gray, (METASILTSTONE).
720	720.3	15.2	60/0.1			60/0.1				720.3 15.2; 720.2 **CRYSTALLINE ROCK** Dark gray, (METASILTSTONE). 15.3; 718.2 **WEATHERED ROCK** Gray, (METASILTSTONE). 17.3; 716.2 **CRYSTALLINE ROCK** Gray, (METASILTSTONE). 19.3; **WEATHERED ROCK** Gray, (METASILTSTONE).
715										
710	709.2	26.3	60/0.1			60/0.1	RS-14			709.8 25.7 **CRYSTALLINE ROCK** Gray & dark gray, (METASILTSTONE).
705										701.9 33.6 **WEATHERED ROCK** Light gray, (METASILTSTONE).
700	699.2	36.3								699.2 36.3 Boring Terminated at Elevation 699.2 ft in WEATHERED ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 15.2'.
3) Began coring at 15.3'.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25270L	**STATION** 252+70	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.0
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 36.3 ft	**NORTHING** 692,684	**EASTING** 1,749,508	**24 HR.** 2.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 20.9 ft			

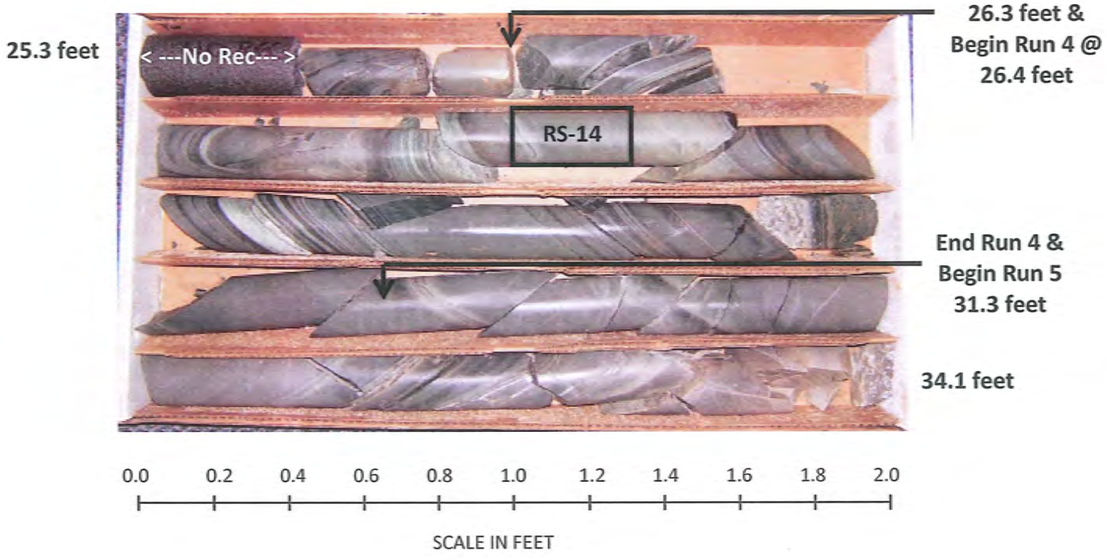
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
720.2											Begin Coring @ 15.3 ft
	720.2	15.3	1.0	4:32/1.0	(0.3)	(0.0)		(0.3)	(0.0)		720.2 **WEATHERED ROCK** 15.3
	719.2	16.3	5.0	5:20/1.0	30%	0%		15%	0%		718.2 Gray, (METASILTSTONE). 17.3
				3:36/1.0	(2.6)	(1.6)		(2.0)	(1.6)		**CRYSTALLINE ROCK**
715				5:06/1.0	52%	32%		100%	80%		716.2 Gray, very slightly weathered, moderately hard to hard, (METASILTSTONE), close fracture spacing. 19.3
	714.2	21.3		7:50/1.0				(1.7)	(0.0)		**WEATHERED ROCK**
			5.0	4:30/1.0				27%	0%		Gray, (METASILTSTONE).
				2:00/1.0	(2.0)	(0.4)					
710				4:50/1.0	40%	8%					
				3:02/1.0							
	709.2	26.3		4:51/1.0							709.8 25.7
	709.1	26.4		2:35/1.0							**CRYSTALLINE ROCK**
			4.9	*N=60/0.1*	(4.6)	(3.1)		(7.9)	(4.0)		Gray & dark gray, slightly to very slightly weathered, moderately hard to
				2:42/0.9	94%	63%		100%	51%		hard, (METASILTSTONE), very close to close fracture spacing.
705				4:29/1.0			RS-14				
				4:40/1.0							RS-14: 27.9'-28.2' qu = 4,861 psi
				4:21/1.0							R_1=4, R_2=13, R_3=10, R_4=12, R_5=7
	704.2	31.3		7:11/1.0							RMR = 46, Rock Type E
			5.0	3:00/1.0	(3.7)	(0.5)					701.9 33.6
700				3:48/1.0	74%	10%		(1.3)	(0.0)		**WEATHERED ROCK**
				4:45/1.0				48%	0%		Light gray, (METASILTSTONE).
				6:16/1.0							699.2 36.3
	699.2	36.3		5:33/1.0							Boring Terminated at Elevation 699.2 ft in WEATHERED ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 15.2'.
3) Began coring at 15.3'.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_25270L: Station 252+70, 70' LT



SPT from
26.3' to 26.4':
N = 60/0.1'

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25298R	**STATION** 252+98	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 738.7 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 692,533	**EASTING** 1,749,507	**24 HR.** 3.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) / DEPTH (ft)
740										
	738.7	0.0	WOH	1	2	3		W		738.7 GROUND SURFACE 0.0 **ALLUVIAL** Brown-gray, clayey fine sandy SILT (A-4), with trace organics.
735	734.7	4.0	7	8	18	26		W		735.7 3.0 **RESIDUAL** Brown, gray & black, fine sandy SILT (A-4).
730	729.7	9.0	52	48/0.4		100/0.9				730.2 8.5 **WEATHERED ROCK** Brown with a little gray, (METASILTSTONE).
725	724.7	14.0	15	15	33	48		M		726.7 12.0 Gray, fine sandy SILT (A-4), saprolitic.
	722.0	16.7	60/0.1			60/0.1				722.7 16.0 722.2 16.5 721.9 16.8 **WEATHERED ROCK** (METASILTSTONE) **CRYSTALLINE ROCK** Gray, (METASILTSTONE).
720										716.9 21.8 Gray, (METASILTSTONE).
715										
710										
705										704.4 34.3 Boring Terminated at Elevation 704.4 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 16.7'.
3) Began coring at 16.8'.
4) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25298R	**STATION** 252+98	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 738.7 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 692,533	**EASTING** 1,749,507	**24 HR.** 3.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 17.5 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) / DEPTH (ft)
721.9											Begin Coring @ 16.8 ft
720	721.9	16.8	4.5	6:08/1.0 4:42/1.0 4:25/1.0 4:40/1.0 2:32/0.5	(4.5) 100%	(0.0) 0%		(5.0) 100%	(0.0) 0%		721.9 **CRYSTALLINE ROCK** 16.8 Gray, slightly weathered, moderately hard, (METASILTSTONE), very close to close fracture spacing.
	717.4	21.3	5.0	3:05/1.0 3:39/1.0 3:31/1.0 4:17/1.0 3:29/1.0	(5.0) 100%	(4.4) 88%		(12.2) 98%	(11.4) 91%		716.9 21.8 Gray, slightly to very slightly weathered, moderately hard to hard, (METASILTSTONE), moderately close fracture spacing.
715	712.4	26.3	5.0	2:52/1.0 3:00/1.0 3:18/1.0 3:35/1.0 3:36/1.0	(4.7) 94%	(4.5) 90%					
710	707.4	31.3	3.0	4:19/1.0 6:15/1.0 6:40/1.0	(3.0) 100%	(2.5) 83%					
705	704.4	34.3									704.4 34.3 Boring Terminated at Elevation 704.4 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 16.7'.
3) Began coring at 16.8'.
4) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, L_25298R: Station 252+98, 80' RT

Begin Run 1
16.8 feet

End Run 1 &
Begin Run 2
21.3 feet

End Run 2
26.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 4
31.3 feet

End Run 4
34.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
26.3 feet

End Run 3
31.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25328L	**STATION** 253+28	**OFFSET** 70 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 739.0 ft	**TOTAL DEPTH** 8.2 ft	**NORTHING** 692,675	**EASTING** 1,749,563	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/11/13	**COMP. DATE** 06/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
740												
	739.0	0.0	WOH	WOH	WOH	0		W		GROUND SURFACE	739.0	0.0
										ALLUVIAL Brownish-orange, clayey SILT (A-5).	737.0	2.0
735	735.5	3.5	2	3	6	9		M		**RESIDUAL** Light brown, fine to coarse sandy rounded GRAVEL (A-1-b).	733.0	6.0
	730.8	8.2	60/0.0			60/0.0				**WEATHERED ROCK** (METASILTSTONE)	730.8	8.2
										Boring Terminated with Standard Penetration Test Refusal at Elevation 730.8 ft on CRYSTALLINE ROCK (METASILTSTONE)		

NOTES:

1) Auger refusal at 8.2'.
2) 0 hr. water level not measured.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. L_25353R	**STATION** 253+53	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** 1.0
COLLAR ELEV. 740.2 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 692,522	**EASTING** 1,749,562	**24 HR.** 0.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
745												
740	740.2	0.0	WOH	WOH	WOH	0				GROUND SURFACE	740.2	0.0
										ALLUVIAL Gray, fine sandy SILT (A-5), with some clay.	738.2	2.0
	736.7	3.5	WOH	6	16	22		Sat.		**RESIDUAL** Gray, SILT (A-4), with some fine sand.	735.2	5.0
735	732.9	7.3	60/0.0			60/0.0				**WEATHERED ROCK** (METASILTSTONE)	732.9	7.3
										Boring Terminated with Standard Penetration Test Refusal at Elevation 732.9 ft on CRYSTALLINE ROCK (METASILTSTONE)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 7.3'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 708.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 711,015	**EASTING** 1,740,040	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/17/13	**COMP. DATE** 06/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710										708.6 GROUND SURFACE	0.0
								M		**RESIDUAL** Very stiff to hard, tan-yellow, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 705.1	3.5
705										**WEATHERED ROCK** Tan-yellow, (FELSIC METAVOLCANIC ROCK). 703.6	5.0
										CRYSTALLINE ROCK Tan-yellow, (FELSIC METAVOLCANIC ROCK). 703.1	5.5
700										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	
695										693.6	15.0
										Boring Terminated at Elevation 693.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_1400	**STATION** 14+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 681.4 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 710,926	**EASTING** 1,740,219	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
685										681.4 GROUND SURFACE	0.0
								M		**RESIDUAL** Soft, tan-brown, silty CLAY (A-7-5). 680.4	1.0
680								M		Medium stiff to hard, tan, fine sandy SILT (A-4).	
675										668.4	13.0
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK). 666.4	15.0
670										Boring Terminated at Elevation 666.4 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_1600	**STATION** 16+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 644.8 ft	**TOTAL DEPTH** 13.1 ft	**NORTHING** 710,815	**EASTING** 1,740,385	**24 HR.** 1.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
645										ELEV. (ft) DEPTH (ft)
										644.8 GROUND SURFACE 0.0
								Sat.		**ALLUVIAL** Soft, tan-gray, clayey fine sandy SILT (A-4).
640										640.1 4.7
										WEATHERED ROCK Green-gray, (FELSIC METAVOLCANIC ROCK).
635										632.0 12.8
										631.7 13.1 **CRYSTALLINE ROCK** Green-gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 631.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** 7.5
COLLAR ELEV. 648.5 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 710,667	**EASTING** 1,740,519	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
650										
	648.5	0.0								648.5 GROUND SURFACE 0.0
			2	2	1	3		M		647.0 **ALLUVIAL** Tan, clayey SILT (A-5), with trace fine sand & gravel. 1.5
645	645.0	3.5	8	11	18	29		M		**RESIDUAL** Brown, fine sandy SILT (A-4), saprolitic.
640	640.0	8.5	25	33	28	61		M		
										636.0 12.5
635	635.0	13.5	25	75/0.1		100/0.6				634.4 **WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK). 14.1
	633.5	15.0	60/0.0			60/0.0				633.5 15.0 **CRYSTALLINE ROCK** Gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 633.5 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 15.0'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_2000	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 675.8 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,495	**EASTING** 1,740,620	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
680											
										675.8 GROUND SURFACE	0.0
675								M		**RESIDUAL**	
								M		674.3 Medium stiff, red, silty CLAY (A-7-5).	1.5
								M		672.3 Medium stiff, orange-brown, fine sandy silty CLAY (A-7-6).	3.5
670										Medium stiff, tan, fine sandy SILT (A-4).	
665										663.8	12.0
								M		662.3 Stiff, brown, clayey SILT (A-5).	13.5
660								M		Stiff to hard, tan, fine sandy SILT (A-4).	
										655.8	20.0
										Boring Terminated at Elevation 655.8 ft in RESIDUAL (SILT)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_2200	**STATION** 22+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 695.0 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,323	**EASTING** 1,740,723	**24 HR.** 13.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
695										695.0 GROUND SURFACE	0.0
								M		**RESIDUAL**	
690								M		Soft to very stiff, orange-brown, fine sandy silty CLAY (A-7-6). 692.0	3.0
										Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	
685											
680											
675										675.0	20.0
										Boring Terminated at Elevation 675.0 ft in RESIDUAL (SILT)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_2400	**STATION** 24+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 682.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,168	**EASTING** 1,740,849	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685												
								W		GROUND SURFACE	682.6	0.0
680								M		**RESIDUAL** Soft to medium stiff, orange-brown, fine sandy silty CLAY (A-7-6).	680.6	2.0
										Medium stiff to very stiff, brown, fine sandy SILT (A-4).	678.1	4.5
675										**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).		
670												
665										Boring Terminated at Elevation 662.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	662.6	20.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_2600	**STATION** 26+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 677.9 ft	**TOTAL DEPTH** 17.6 ft	**NORTHING** 710,035	**EASTING** 1,740,997	**24 HR.** 12.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
680												
								W		GROUND SURFACE	677.9	0.0
675										**RESIDUAL** Soft to medium stiff, orange-brown, fine sandy silty CLAY (A-7-6).	674.4	3.5
								M		Medium stiff to stiff, brown, fine sandy SILT (A-4).	672.9	5.0
670										**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).		
665										Boring Terminated by Auger Refusal at Elevation 660.3 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	660.3	17.6

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_2800	**STATION** 28+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 699.7 ft	**TOTAL DEPTH** 18.1 ft	**NORTHING** 709,926	**EASTING** 1,741,165	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
700												
	699.7	0.0	2	1	2	3	SS-612	30%		GROUND SURFACE	699.7	0.0
										RESIDUAL Orange-brown, silty CLAY (A-7-6), with little fine sand and trace roots.	697.7	2.0
695	696.2	3.5	14	21	27	48		M		Brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments, saprolitic.		
	691.2	8.5	100/0.5			100/0.5				**WEATHERED ROCK** Green-gray & tan-brown, (FELSIC METAVOLCANIC ROCK).	691.2	8.5
690												
685	686.2	13.5	74	26/0.1		100/0.6						
	681.7	18.0	60/0.1			60/0.1				**CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 681.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	681.7 / 681.6	18.0 / 18.1

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 18.0'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_3000	**STATION** 30+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 704.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,844	**EASTING** 1,741,347	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
705												
								W		GROUND SURFACE	704.1	0.0
								W		**RESIDUAL** Very soft to soft, tan, clayey fine sandy SILT (A-4).	702.6	1.5
700								M		Soft to medium stiff, brown, fine sandy silty CLAY (A-7-5).	701.1	3.0
										BOULDER Medium stiff to very stiff, tan, fine sandy SILT (A-4).	700.1	4.0
695												
										WEATHERED ROCK Gray, (FELSIC METAVOLCANIC ROCK).	691.3	12.8
690												
685										Boring Terminated at Elevation 684.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	684.1	20.0

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

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NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T1_3200	**STATION** 32+00	**OFFSET** CL	**ALIGNMENT** -T1-	**0 HR.** Dry
COLLAR ELEV. 718.0 ft	**TOTAL DEPTH** 8.5 ft	**NORTHING** 709,683	**EASTING** 1,741,446	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										ELEV. (ft) DEPTH (ft)
										718.0 GROUND SURFACE 0.0
715								M		**RESIDUAL** Medium stiff to hard, tan, fine sandy SILT (A-4). 714.9 3.1
										WEATHERED ROCK Tan-orange, (FELSIC METAVOLCANIC ROCK). 711.9 6.1
710										**CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) 709.5 8.5
										Boring Terminated by Auger Refusal at Elevation 709.5 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T2_100	**STATION** 1+00	**OFFSET** CL	**ALIGNMENT** -T2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 13.5 ft	**NORTHING** 699,259	**EASTING** 1,740,986	**24 HR.** 6.7
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										GROUND SURFACE 0.0
		0.0	1	1	2	3		W		**RESIDUAL** Brown, fine sandy SILT (A-4), with little clay, trace gravel-sized rock fragments. 4.0
		3.5	17	38	62/0.5	100/1.0		▼		**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). 7.0
		8.5	4	9	18	27		M		Brown, fine sandy SILT (A-4). 12.0
		13.5	60/0.0			60/0.0				**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 13.0 13.5 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Depth 13.5 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T2_500	**STATION** 5+00	**OFFSET** CL	**ALIGNMENT** -T2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 15.0 ft	**NORTHING** 699,241	**EASTING** 1,741,385	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
										GROUND SURFACE 0.0
							S-203	35% M		**RESIDUAL** Medium stiff, brown, silty CLAY (A-7-6), with trace fine sand. 1.5
										Stiff to hard, brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 11.0
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) 15.0
										Boring Terminated at Depth 15.0 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T2_900	**STATION** 9+00	**OFFSET** CL	**ALIGNMENT** -T2-	**0 HR.** 9.1
COLLAR ELEV. 647.1 ft	**TOTAL DEPTH** 14.6 ft	**NORTHING** 699,223	**EASTING** 1,741,785	**24 HR.** 4.4
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
650										
	647.1	0.0								647.1 GROUND SURFACE 0.0
			1	3	4	7		M		**ROADWAY EMBANKMENT** Brown, fine sandy SILT (A-4), with trace roots, gravel & clay.
645	643.6	3.5	2	2	4	6				640.1 7.0
640	638.6	8.5	4	4	18	22		Sat.		**RESIDUAL** Gray, fine sandy SILT (A-4), with little clay.
635	633.6	13.5	34	60	40/0.1	100/0.6				633.1 14.0
										632.5 14.6 **WEATHERED ROCK** Gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated at Elevation 632.5 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T3_1100	**STATION** 11+00	**OFFSET** CL	**ALIGNMENT** -T3-	**0 HR.** Dry
COLLAR ELEV. 755.6 ft	**TOTAL DEPTH** 14.8 ft	**NORTHING** 699,248	**EASTING** 1,745,414	**24 HR.** 10.9
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
760												
755	755.6	0.0	2	3	3	6		M		GROUND SURFACE	755.6	0.0
										ARTIFICIAL FILL Red-brown, fine sandy silty CLAY (A-7-5), with trace gravel.	754.1	1.5
	751.6	4.0								**RESIDUAL** Tan, fine sandy SILT (A-4), saprolitic at 7.5'.		
750			5	4	5	9		M				
	746.6	9.0										
745			5	6	7	13						
											743.6	12.0
	741.6	14.0	53	47/0.3						**WEATHERED ROCK** Gray & brown, (MAFIC METAVOLCANIC ROCK).	740.8	14.8
						100/0.8				Boring Terminated at Elevation 740.8 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T3_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -T3-	**0 HR.** Dry
COLLAR ELEV. 772.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 699,208	**EASTING** 1,745,610	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775												
								M		GROUND SURFACE	772.2	0.0
770										**RESIDUAL** Stiff, tan-red, silty CLAY (A-7-6).		
											768.2	4.0
								M		Stiff to very stiff, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		
765												
760												
											757.2	15.0
										Boring Terminated at Elevation 757.2 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.1' = Gravel
(Boring located in gravel driveway).

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T3_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -T3-	**0 HR.** Dry
COLLAR ELEV. 777.1 ft	**TOTAL DEPTH** 7.4 ft	**NORTHING** 699,167	**EASTING** 1,745,806	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
780										GROUND SURFACE	777.1	0.0
775								M		**RESIDUAL** Stiff, tan-red-gray, fine sandy SILT (A-4).	775.1	2.0
										WEATHERED ROCK Tan, (MAFIC METAVOLCANIC ROCK).	774.3	2.8
770										**CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK).	772.7	4.4
										WEATHERED ROCK Tan, (MAFIC METAVOLCANIC ROCK).	770.3	6.8
										CRYSTALLINE ROCK Gray, (MAFIC METAVOLCANIC ROCK).	769.7	7.4

Boring Terminated by Auger Refusal at Elevation 769.7 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T3_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -T3-	**0 HR.** Dry
COLLAR ELEV. 776.9 ft	**TOTAL DEPTH** 8.6 ft	**NORTHING** 699,130	**EASTING** 1,746,002	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
780										GROUND SURFACE	776.9	0.0
775								M		**RESIDUAL** Stiff, tan-red, silty CLAY (A-7-6), with trace gravel-sized rock fragments from 0.0-1.0'.		
770								M		Stiff, tan, fine sandy SILT (A-4).	770.4	6.5
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	769.6	7.3
										CRYSTALLINE ROCK Gray, (MAFIC METAVOLCANIC ROCK).	768.7	8.2
											768.3	8.6

Boring Terminated by Auger Refusal at Elevation 768.3 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. T3_1900	**STATION** 19+00	**OFFSET** CL	**ALIGNMENT** -T3-	**0 HR.** Dry
COLLAR ELEV. 804.7 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 699,101	**EASTING** 1,746,200	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
805												
	804.7	0.0	5	6	5	11	SS-628	25%		GROUND SURFACE **RESIDUAL** Tan-red, silty CLAY (A-7-6), with some gravel-sized rock fragments from 0.0-1.5'.	804.7	0.0
800	800.7	4.0	5	6	8	14		M				
795	795.7	9.0	3	4	4	8		M		Tan-red-gray, fine sandy SILT (A-4), with trace clay, saprolitic.	794.9	9.8
790	790.7	14.0	3	4	5	9		M		Boring Terminated at Elevation 789.2 ft in RESIDUAL (SILT) NOTES: 1) 0.0-0.1' = Surficial Organic Soils	789.2	15.5

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_019L	**STATION** 19	**OFFSET** 18 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 783.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,085	**EASTING** 1,742,674	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
	782.2	0.8	7	7	5	12		M		GROUND SURFACE **ASPHALT** **ROADWAY EMBANKMENT** ABC STONE	783.0 782.2 781.7	0.0 0.8 1.3
780	779.5	3.5	9	8	21	29		M		Brown & tan, fine sandy SILT (A-4), with trace gravel. Gray, silty coarse to fine SAND (A-2-4), with trace gravel.	778.9 778.0	4.1 5.0
775	774.5	8.5	22	31	47	78		M		**RESIDUAL** Brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments. Boring Terminated at Elevation 773.0 ft in RESIDUAL (SILT) NOTES: 1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.	773.0	10.0

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_300L	**STATION** 3+00	**OFFSET** 49 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 790.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,163	**EASTING** 1,742,946	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
795										
790										790.1 GROUND SURFACE 0.0
								M		788.1 **RESIDUAL** Medium stiff, orange-brown, silty CLAY (A-7-5). 2.0
785								M		Medium stiff to stiff, tan-brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
										781.2 8.9
										780.1 **WEATHERED ROCK** (MAFIC METAVOLCANIC ROCK) 10.0
										Boring Terminated at Elevation 780.1 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_487L	**STATION** 4+87	**OFFSET** 17 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 789.5 ft	**TOTAL DEPTH** 19.1 ft	**NORTHING** 704,166	**EASTING** 1,743,135	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
790										789.5 GROUND SURFACE 0.0
		0.6	17	4	5	9		M		788.6 **ASPHALT** 0.9
785		4.0	4	8	15	23		M		787.0 **ROADWAY EMBANKMENT** Tan, fine to coarse sandy silty CLAY (A-7-5). 2.5
										RESIDUAL Tan, fine sandy SILT (A-4), saprolitic.
780		9.0	44	56/0.2		100/0.7				780.5 9.0
										WEATHERED ROCK Gray-tan, (MAFIC METAVOLCANIC ROCK).
775		14.0	100/0.5			100/0.5				
		19.0	60/0.1			60/0.1				770.6 18.9
										770.4 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 19.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 770.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_488R	**STATION** 4+88	**OFFSET** 24 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 788.4 ft	**TOTAL DEPTH** 24.6 ft	**NORTHING** 704,123	**EASTING** 1,743,144	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
790												
	788.4	0.0	WOH	1	7	8		W		GROUND SURFACE **RESIDUAL** Tan-black, coarse to fine sandy SILT (A-4).	788.4	0.0
785	784.4	4.0	3	7	8	15		M				
										Tan-gray, fine sandy silty CLAY (A-6).	782.1	6.3
780	779.4	9.0	74	26/0.1		100/0.6				**WEATHERED ROCK** Tan-brown, gray-green & brown, (FELSIC METAVOLCANIC ROCK).	781.4	7.0
775	774.4	14.0	100/0.3			100/0.3						
770	769.4	19.0	100/0.2			100/0.2						
765	764.4	24.0	79	21/0.1		100/0.6				Boring Terminated at Elevation 763.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	763.8	24.6

NOTES:

1) 0.0-0.4' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_695L	**STATION** 6+95	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** 30.1
COLLAR ELEV. 784.4 ft	**TOTAL DEPTH** 31.0 ft	**NORTHING** 704,190	**EASTING** 1,743,342	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
	783.7	0.7	7	6	6	12		M		GROUND SURFACE	784.4	0.0
780	780.4	4.0	5	6	10	16		M		ASPHALT	783.7	0.7
										ROADWAY EMBANKMENT Tan, fine to coarse sandy silty CLAY (A-7-5).	782.6	1.8
775	775.4	9.0	8	16	32	48		M		RESIDUAL Red to tan, fine sandy SILT (A-4), with trace clay, saprolitic at 9.0'.		
770	770.4	14.0	60/0.1			60/0.1					771.2	13.2
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	770.4	14.0
765	765.4	19.0	20	80/0.2		100/0.7				CRYSTALLINE ROCK Gray & brown, (MAFIC METAVOLCANIC ROCK).	765.4	19.0
760	760.4	24.0	7	17	35	52		M		WEATHERED ROCK Tan, (MAFIC METAVOLCANIC ROCK). Tan, fine sandy SILT (A-4), saprolitic.	764.7	19.7
755	755.4	29.0	62	38/0.1		100/0.6				WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	755.4	29.0
	753.4	31.0	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 753.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)	753.4	31.0

NOTES:

1) Auger refusal at 31.0'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_696R	**STATION** 6+96	**OFFSET** 26 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 783.5 ft	**TOTAL DEPTH** 24.1 ft	**NORTHING** 704,156	**EASTING** 1,743,349	**24 HR.** 16.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
	783.5	0.0	1	2	1	3	SS-742	W 33%		GROUND SURFACE	783.5	0.0
										RESIDUAL Tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments & rootlets.	782.7	0.8
780	779.5	4.0	3	4	8	12		M		Orange-brown & red-brown, fine to coarse sandy silty CLAY (A-7-6).	778.7	4.8
										Tan-brown & tan-orange-brown, fine sandy SILT (A-4), with trace clay & gravel-sized quartz fragments, saprolitic.		
775	774.5	9.0	8	8	10	18		M			772.0	11.5
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).		
770	769.5	14.0	100/0.4			100/0.4						
765	764.5	19.0	60/0.1			60/0.1					764.5	19.0
										CRYSTALLINE ROCK Gray-green, (MAFIC METAVOLCANIC ROCK).		
760	759.5	24.0	60/0.1			60/0.1					759.4	24.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 759.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)		

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_902L	**STATION** 9+02	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 776.7 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,225	**EASTING** 1,743,546	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
780												
775								M		GROUND SURFACE	776.7	0.0
								M		**ASPHALT**	775.9	0.8
										ROADWAY EMBANKMENT ABC STONE	775.4	1.3
770								M		Soft, red-orange, fine sandy silty CLAY (A-6). **RESIDUAL** Medium stiff to stiff, tan-brown, fine sandy SILT (A-4).	772.7	4.0
										Boring Terminated at Elevation 766.7 ft in RESIDUAL (SILT)	766.7	10.0

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y1_1195L	**STATION** 11+95	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1- — **0 HR.** Dry
COLLAR ELEV. 771.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,274	**EASTING** 1,743,835 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
775										
										771.5 GROUND SURFACE 0.0
	770.9	0.6	24	8	4	12		M		770.6 **ASPHALT** 0.9
770										769.0 **ROADWAY EMBANKMENT** 2.5
	768.0	3.5	5	4	5	9		M		Brown, fine sandy silty CLAY (A-6), with trace gravel & asphalt fragments.
765										766.5 **RESIDUAL** 5.0
	763.0	8.5	7	10	13	23		M		Orange-red, fine sandy silty CLAY (A-7-5). Tan-brown, fine sandy SILT (A-4).
										761.5 10.0
										Boring Terminated at Elevation 761.5 ft in RESIDUAL (SILT)

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y1_1498L	**STATION** 14+98	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1- — **0 HR.** Dry
COLLAR ELEV. 773.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,325	**EASTING** 1,744,134 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
775										
										773.6 GROUND SURFACE 0.0
								M		772.7 **ASPHALT** 0.9
770								W		771.1 **ROADWAY EMBANKMENT** 2.5
										Soft, brown & gray, fine sandy silty CLAY (A-6).
765										Soft, gray & black, fine sandy SILT (A-4), with trace clay, organic odor. 7.0
								M		766.6 **RESIDUAL**
										Medium stiff, tan, fine sandy SILT (A-4), with little clay.
										763.6 10.0
										Boring Terminated at Elevation 763.6 ft in RESIDUAL (SILT)

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_1797L	**STATION** 17+97	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 788.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,375	**EASTING** 1,744,429	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
790										GROUND SURFACE	788.8	0.0
										ASPHALT	788.2	0.6
								M		ROADWAY EMBANKMENT Medium dense, gray & black, silty fine to coarse SAND (A-2-4), with trace gravel.	786.3	2.5
785								M		RESIDUAL Medium stiff to stiff, brown & red, fine sandy SILT (A-4).		
780											778.8	10.0
										Boring Terminated at Elevation 778.8 ft in RESIDUAL (SILT)		

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y1_2098L	**STATION** 20+98	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 803.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 704,423	**EASTING** 1,744,726	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
805										GROUND SURFACE	803.0	0.0
										ASPHALT	802.2	0.8
								M		RESIDUAL Medium stiff to hard, brown-orange, fine sandy SILT (A-4).	798.7	4.3
800								M		WEATHERED ROCK Tan & gray, (MAFIC METAVOLCANIC ROCK).		
795											793.5	9.5
								M		Hard, tan & gray, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	793.0	10.0
										Boring Terminated at Elevation 793.0 ft in RESIDUAL (SILT)		

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_1000L	**STATION** 10+00	**OFFSET** 80 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 686.5 ft	**TOTAL DEPTH** 21.8 ft	**NORTHING** 700,671	**EASTING** 1,740,968	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/04/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
690											
	686.5	0.0	1	1	2	3		M		686.5 GROUND SURFACE	0.0
685										**RESIDUAL**	
	683.0	3.5	5	11	21	32		M		684.5 Tan, silty CLAY (A-7-5).	2.0
680										Tan, fine sandy SILT (A-4).	
	678.0	8.5	100/0.5			100/0.5				680.0 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK)	6.5
675											
	673.0	13.5	100/0.3			100/0.3					
670	670.5	16.0	60/0.1			60/0.1				670.5 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)	16.0
	668.0	18.5	60/0.1			60/0.1					
665	664.7	21.8	60/0.0			60/0.0				664.7 Boring Terminated with Standard Penetration Test Refusal at Elevation 664.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	21.8

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_1200L	**STATION** 12+00	**OFFSET** 80 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 705.8 ft	**TOTAL DEPTH** 18.0 ft	**NORTHING** 700,746	**EASTING** 1,741,157	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
710										
705								M		705.8 GROUND SURFACE 0.0
								M		**RESIDUAL** Stiff to hard, brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
700										698.8 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). 7.0
695								M		695.3 Hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 10.5
690										691.3 **WEATHERED ROCK** Tan & gray-green, (FELSIC METAVOLCANIC ROCK). 14.5
										689.0 16.8
										687.8 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) 18.0
										Boring Terminated at Elevation 687.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_1300L	**STATION** 13+00	**OFFSET** 85 ft LT	**ALIGNMENT** -Y2- **0 HR.** Dry
COLLAR ELEV. 715.1 ft	**TOTAL DEPTH** 11.0 ft	**NORTHING** 700,786	**EASTING** 1,741,250 **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
720												
715										GROUND SURFACE	715.1	0.0
								M		**RESIDUAL** Soft, brown, fine sandy SILT (A-4).	713.1	2.0
								M		Soft to medium stiff, tan, fine sandy clayey SILT (A-5).	712.1	3.0
710								M		Medium stiff to very stiff, tan, fine sandy SILT (A-4).	708.8	6.3
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).	704.1	11.0
705										Boring Terminated by Auger Refusal at Elevation 704.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_1400L	**STATION** 14+00	**OFFSET** 85 ft LT	**ALIGNMENT** -Y2- **0 HR.** Dry
COLLAR ELEV. 715.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 700,820	**EASTING** 1,741,346 **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
715										GROUND SURFACE	715.0	0.0
								M		**RESIDUAL** Stiff to hard, brown & tan, fine sandy SILT (A-4).	709.2	5.8
710								M		**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK)	706.3	8.7
705								M		**CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)	705.0	10.0
										Boring Terminated by Auger Refusal at Elevation 705.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_1500L	**STATION** 15+00	**OFFSET** 85 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 710.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 700,852	**EASTING** 1,741,442	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
715												
										GROUND SURFACE	710.6	0.0
710								M		**RESIDUAL** Soft to medium stiff, tan, fine sandy clayey SILT (A-5).	708.6	2.0
								M		Soft to stiff, tan, fine sandy SILT (A-4).	705.6	5.0
705										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	700.6	10.0
										Boring Terminated at Elevation 700.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_1600L	**STATION** 16+00	**OFFSET** 85 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 709.4 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 700,882	**EASTING** 1,741,539	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
710												
										GROUND SURFACE	709.4	0.0
								W		**ALLUVIAL** Soft to medium stiff, gray, fine sandy SILT (A-4), with little clay.	707.4	2.0
705								M		**RESIDUAL** Stiff to hard, tan, fine sandy SILT (A-4).	699.4	10.0
700										Boring Terminated at Elevation 699.4 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_1800R	**STATION** 18+00	**OFFSET** 12 ft RT	**ALIGNMENT** -Y2- — **0 HR.** Dry
COLLAR ELEV. 718.4 ft	**TOTAL DEPTH** 18.0 ft	**NORTHING** 700,843	**EASTING** 1,741,759 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
720										
										718.4 GROUND SURFACE 0.0
								M		**ROADWAY EMBANKMENT** Medium stiff, tan, fine to coarse sandy SILT (A-4), with some clay.
715										715.4 3.0
										WEATHERED ROCK Tan, (MAFIC METAVOLCANIC ROCK).
710										
705										700.4 18.0
										Boring Terminated at Elevation 700.4 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)
										NOTES: 1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_2000R	**STATION** 20+00	**OFFSET** 25 ft RT	**ALIGNMENT** -Y2- — **0 HR.** Dry
COLLAR ELEV. 721.8 ft	**TOTAL DEPTH** 10.7 ft	**NORTHING** 700,878	**EASTING** 1,741,956 — **24 HR.** 7.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										
		721.8 0.0								721.8 GROUND SURFACE 0.0
720		718.3 3.5	2	2	4	6 100/0.5		M		**ROADWAY EMBANKMENT** Tan & red, fine to coarse sandy SILT (A-4), with trace roots, some clay. 718.3 3.5
			100/0.5							**WEATHERED ROCK** Brown & gray, (MAFIC METAVOLCANIC ROCK).
715		713.3 8.5	50	50/0.1		100/0.6				
		711.1 10.7	60/0.0			60/0.0				711.1 10.7
										Boring Terminated with Standard Penetration Test Refusal at Elevation 711.1 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
										NOTES: 1) 0.0-0.2' = Surficial Organic Soils 2) Auger refusal at 10.7'.

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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_2800L	**STATION** 28+00	**OFFSET** 65 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 704.5 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,132	**EASTING** 1,742,720	**24 HR.** 10.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										ELEV. (ft) DEPTH (ft)
										704.5 GROUND SURFACE 0.0
								M		**RESIDUAL**
								M		Soft to medium stiff, tan-red-brown, fine sandy silty CLAY (A-7-5).
700										702.0 2.5
								M		Soft to medium stiff, brown, fine sandy clayey SILT (A-5).
										699.0 5.5
695										Medium stiff to stiff, tan, fine sandy SILT (A-4).
690										689.5 15.0
										Boring Terminated at Elevation 689.5 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_3000L	**STATION** 30+00	**OFFSET** 70 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 700.3 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 701,178	**EASTING** 1,742,914	**24 HR.** 2.3
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/17/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
										700.3 GROUND SURFACE 0.0
			1	4	3	7 10		W		**RESIDUAL**
700	700.3	0.0								Brown & tan-orange, fine sandy SILT (A-4), with trace roots & gravel-sized rock fragments.
	696.8	3.5	7	4	6			M		
695										
	691.8	8.5	5	6	6	12		M		
690										688.3 12.0
	686.8	13.5	60/0.0			60/0.0				**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 686.8 13.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 686.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_3393L	**STATION** 33+93	**OFFSET** 30 ft LT	**ALIGNMENT** -Y2- — **0 HR.** Dry
COLLAR ELEV. 729.9 ft	**TOTAL DEPTH** 8.2 ft	**NORTHING** 701,229	**EASTING** 1,743,303 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
730										729.9 GROUND SURFACE	0.0
										729.0 **ASPHALT**	0.9
								M		727.9 **ROADWAY EMBANKMENT** Medium dense, gray, silty coarse to fine SAND (A-2-4), with trace gravel.	2.0
725								M		Stiff to hard, red-tan-brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	
								M		722.4	7.5
										721.7 CRYSTALLINE ROCK (BOULDER) Boring Terminated at Elevation 721.7 ft in ROADWAY EMBANKMENT (BOULDER)	8.2

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_3794R	**STATION** 37+94	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2- — **0 HR.** Dry
COLLAR ELEV. 749.7 ft	**TOTAL DEPTH** 12.1 ft	**NORTHING** 701,287	**EASTING** 1,743,705 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
750										749.7 GROUND SURFACE 0.0
	749.7	0.0	1	5	6	11		M		**RESIDUAL** Tan, fine to coarse sandy SILT (A-4), saprolitic. 3.5
745	745.7	4.0	57	43/0.2		100/0.7				746.2 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK). 7.2
										742.5 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 8.0
740	740.7	9.0	100/0.3			100/0.3				741.7 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK). 12.0
	737.7	12.0	60/0.1			60/0.1				737.6 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 12.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 737.6 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Very difficult drilling from 7.2'-8.0, gray cobble-sized rock fragments in auger cuttings.
3) Auger refusal at 12.0'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_3801L	**STATION** 38+01	**OFFSET** 40 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 2.6
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 701,359	**EASTING** 1,743,687	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
740												
735	734.6	0.9	12	8	5	13 22		W		GROUND SURFACE	735.5	0.0
										ASPHALT	734.6	0.9
										ABC STONE	733.8	1.7
	731.5	4.0								**ROADWAY EMBANKMENT** Tan, fine sandy SILT (A-4), with some clay.	733.5	2.0
											732.5	3.0
730			30	12	10					Gray, fine to coarse sandy silty CLAY (A-7-5).	730.0	5.5
	728.2	7.3								**RESIDUAL** Gray, SAND (A-1-a), with high amount of gravel-size rock fragments.	728.2	7.3
			60/0.0			60/0.0				**CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK).		
										Boring Terminated with Standard Penetration Test Refusal at Elevation 728.2 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)		

NOTES:

1) Auger refusal at 7.3'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_3807L	**STATION** 38+07	**OFFSET** 104 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 748.6 ft	**TOTAL DEPTH** 9.0 ft	**NORTHING** 701,422	**EASTING** 1,743,672	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
750												
	748.6	0.0	1	5	3	8		M		GROUND SURFACE	748.6	0.0
745	745.1	3.5								**RESIDUAL** Brown, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments.	745.6	3.0
			41	41	59	100/1.0				**WEATHERED ROCK** Light brown-orange & gray-orange, (FELSIC METAVOLCANIC ROCK).		
740	740.1	8.5										
	739.6	9.0	100/0.4			100/0.4					739.6	9.0
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 739.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) Auger refusal at 9.0'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_3915R	**STATION** 39+15	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	**0 HR.** 13.7
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 35.7 ft	**NORTHING** 701,329	**EASTING** 1,743,820	**24 HR.** 24.7
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/19/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
760											
	757.8	0.0	2	5	12	17		M		757.8 GROUND SURFACE	0.0
										756.3 **RESIDUAL** Tan, fine sandy SILT (A-4).	1.5
755	755.0	2.8	60/0.0			60/0.0				755.0 **WEATHERED ROCK** Tan & gray-green, (FELSIC METAVOLCANIC ROCK).	2.8
										CRYSTALLINE ROCK Brown & gray, (FELSIC METAVOLCANIC ROCK).	
750											
							RS-4				
745											
										740.9 **WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	16.9
740											
										734.5 **CRYSTALLINE ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).	23.3
735										732.4 **WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).	25.4
										729.9 **CRYSTALLINE ROCK** Light gray, (FELSIC METAVOLCANIC ROCK). Gray, (FELSIC METAVOLCANIC ROCK).	27.9
730										727.1	30.7
										722.1 Boring Terminated at Elevation 722.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	35.7
725											

NOTES:

1) Auger refusal at 2.8', began coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_3915R	**STATION** 39+15	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	**0 HR.** 13.7
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 35.7 ft	**NORTHING** 701,329	**EASTING** 1,743,820	**24 HR.** 24.7
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/19/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 32.9 ft			

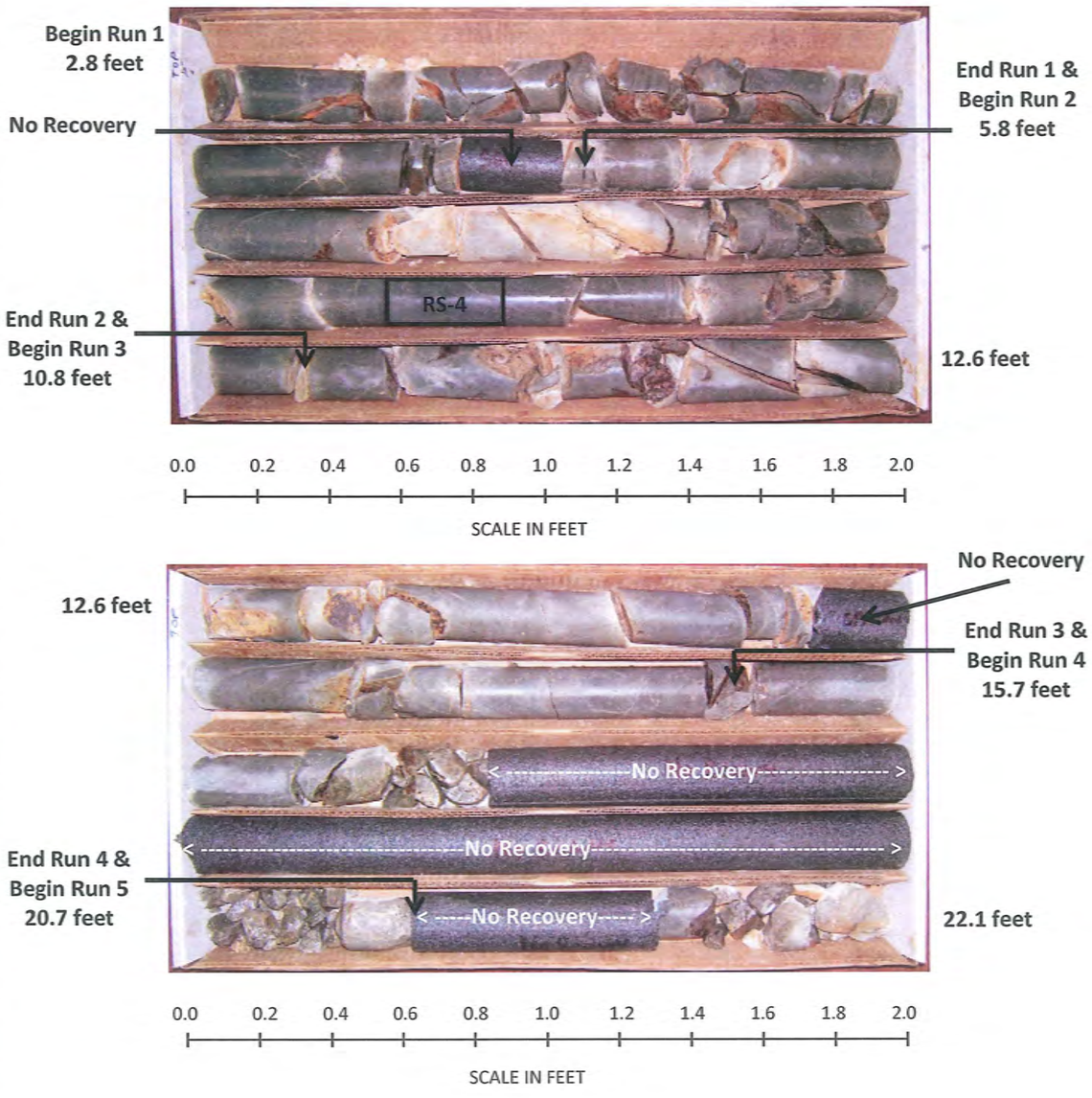
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
755											Begin Coring @ 2.8 ft	
	755.0	2.8	3.0	*N=60/0.0* 4:11/1.0 4:56/1.0	(2.8) 93%	(0.6) 20%		(13.8) 98%	(3.4) 24%		755.0 **CRYSTALLINE ROCK** Brown & gray, slightly to very slightly weathered, moderately hard to hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. RS-4: 9.1' to 9.4' qu = 13,429 psi R_1=7, R_2=3, R_3=10, R_4=6, R_5=7 RMR = 33, Rock Type E	2.8
	752.0	5.8		4:41/1.0								
750			5.0	4:40/1.0 2:40/1.0 3:29/1.0 4:10/1.0	(4.8) 96%	(1.1) 22%						
	747.0	10.8		2:48/1.0			RS-4					
745			4.9	3:40/1.0 2:46/1.0 3:15/1.0 3:51/1.0	(4.9) 100%	(1.3) 27%						
	742.1	15.7		3:10/0.9							740.9 **WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	16.9
740			5.0	4:36/1.0 3:55/1.0 1:36/1.0 2:25/1.0	(1.9) 38%	(0.4) 8%		(1.4) 22%	(0.0) 0%			
	737.1	20.7		3:10/1.0							734.5 **CRYSTALLINE ROCK** Light gray, moderately severely to moderately weathered, medium to moderately hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.	23.3
735			5.0	2:27/1.0 2:16/1.0 4:30/1.0 2:26/1.0	(2.8) 56%	(0.0) 0%		(2.0) 95%	(0.0) 0%		732.4 **WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).	25.4
	732.1	25.7		2:02/1.0				(0.0) 0%	(0.0) 0%		729.9 **CRYSTALLINE ROCK** Light gray, moderately severely to moderately weathered, medium to moderately hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. Gray, slightly to very slightly weathered, hard to very hard (FELSIC METAVOLCANIC ROCK), close fracture spacing.	27.9
730			5.0	1:56/1.0 1:52/1.0 2:44/1.0 2:37/1.0	(2.8) 56%	(0.3) 6%		(2.8) 100%	(0.3) 11%		727.1	30.7
	727.1	30.7		3:34/1.0							722.1 Boring Terminated at Elevation 722.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	35.7
725			5.0	3:58/1.0 2:08/1.0 2:48/1.0 3:30/1.0	(5.0) 100%	(3.0) 60%		(5.0) 100%	(3.0) 60%			
	722.1	35.7		3:44/1.0								

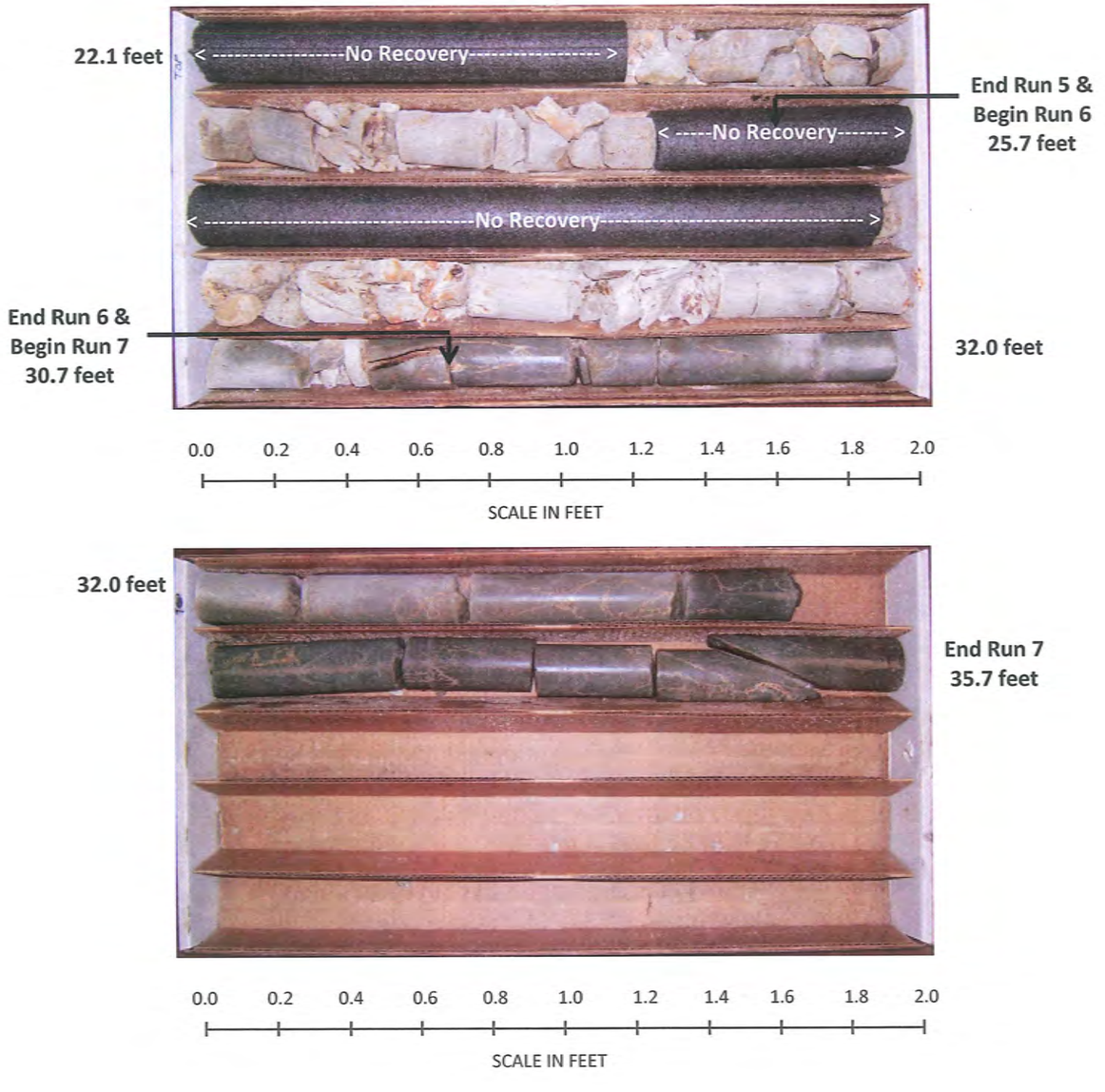
NOTES:

1) Auger refusal at 2.8', began coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y2_3915R: Station 39+15, 34' RT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4038R	**STATION** 40+38	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 13.8 ft	**NORTHING** 701,373	**EASTING** 1,743,935	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
	757.8	0.0	1	3	1	4		M		757.8 GROUND SURFACE 0.0 **RESIDUAL** Tan, fine sandy SILT (A-4), with trace organics.
755	753.8	4.0	100/0.5			100/0.5				754.3 3.5 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).
750	748.8	9.0	100/0.2			100/0.2				
745	744.1	13.7	60/0.1			60/0.1				744.8 13.0 744.0 13.8 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 744.0 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 13.7'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4040L	**STATION** 40+40	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 4.0
COLLAR ELEV. 741.3 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 701,422	**EASTING** 1,743,918	**24 HR.** 4.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										
	741.3	0.0	2	2	7	9		M		741.3 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT** 739.3 Tan, fine sandy SILT (A-4), with some clay. 2.0
740	737.3	4.0	4	100/0.5		100/0.5				**RESIDUAL** 736.8 Gray, fine sandy SILT (A-4) 4.5 736.3 5.0 **WEATHERED ROCK** Gray, (MAFIC METAVOLCANIC ROCK).
	736.3	5.0	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 736.3 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 5.0'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4058L	**STATION** 40+58	**OFFSET** 104 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 761.4 ft	**TOTAL DEPTH** 18.8 ft	**NORTHING** 701,509	**EASTING** 1,743,902	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
765										ELEV. (ft) / DEPTH (ft)
	761.4	0.0	2	2	3	5		M		761.4 — GROUND SURFACE — 0.0
760										**RESIDUAL** Orange-brown & gray, fine sandy silty CLAY (A-6), with trace gravel-size rock fragments & roots.
	757.9	3.5	62	38/0.2		100/0.7				757.9 — 3.5
755										**WEATHERED ROCK** Light brown to gray, (FELSIC METAVOLCANIC ROCK).
	752.9	8.5	100/0.3			100/0.3				
750										749.9 — 11.5
	747.9	13.5	29	51	49/0.1	100/0.6				Brown, fine sandy SILT (A-4). 747.4 — 14.0
745										**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).
	742.9	18.5	100/0.3			100/0.3				742.6 — 18.8
										Boring Terminated at Elevation 742.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4200L	**STATION** 42+00	**OFFSET** 75 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 4.2
COLLAR ELEV. 750.3 ft	**TOTAL DEPTH** 8.6 ft	**NORTHING** 701,536	**EASTING** 1,744,042	**24 HR.** 4.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755										
								M		750.3 — GROUND SURFACE — 0.0
750								M		749.3 — **ROADWAY EMBANKMENT** Stiff, brown, fine sandy SILT (A-4), with trace gravel. — 1.0
										747.3 — 3.0
745										746.0 — **RESIDUAL** Hard, brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments. — 4.3
										743.3 — 7.0
										742.3 — **WEATHERED ROCK** Black & gray, (MAFIC METAVOLCANIC ROCK). — 8.0
										741.7 — 8.6
										CRYSTALLINE ROCK Black & gray, (MAFIC METAVOLCANIC ROCK).
										WEATHERED ROCK Black & gray, (MAFIC METAVOLCANIC ROCK).
										CRYSTALLINE ROCK Black & gray, (MAFIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 741.7 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4500L	**STATION** 45+00	**OFFSET** 65 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 747.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 701,651	**EASTING** 1,744,315	**24 HR.** 4.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
750										
										747.9 GROUND SURFACE 0.0
								M		747.0 **ASPHALT** 0.9
745								M		745.9 **ROADWAY EMBANKMENT** 2.0 Medium dense, gray, silty coarse to fine SAND (A-2-4), with trace gravel.
										744.4 3.5 Medium stiff, brown, fine sandy SILT (A-4), with trace gravel.
740								M		**RESIDUAL** Stiff to hard, tan-brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
735										
										733.9 14.0 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).
730										
										727.9 20.0 Boring Terminated at Elevation 727.9 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_4950	**STATION** 49+50	**OFFSET** CL	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 731.8 ft	**TOTAL DEPTH** 8.4 ft	**NORTHING** 701,808	**EASTING** 1,744,739	**24 HR.** 4.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
										731.8 GROUND SURFACE 0.0
								W		**ALLUVIAL** Soft to stiff, brown-gray, fine sandy SILT (A-4).
730										726.8 5.0
								M		725.8 **WEATHERED ROCK** 6.0 (FELSIC METAVOLCANIC ROCK)
725										724.0 **RESIDUAL** 7.8 Medium stiff to hard, brown-tan, fine sandy SILT (A-4).
										723.4 8.4 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 723.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_5088L	**STATION** 50+88	**OFFSET** 23 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 749.5 ft	**TOTAL DEPTH** 16.9 ft	**NORTHING** 701,900	**EASTING** 1,744,845	**24 HR.** 1.4
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
750										
	749.5	0.0	WOH	2	2	4				749.5 GROUND SURFACE 0.0
										RESIDUAL
	746.0	3.5	4	6	6	12				Brown & white, fine sandy SILT (A-4), with trace clay & roots.
745								M		
										742.0 7.5
	741.0	8.5	100/0.2			100/0.2				**WEATHERED ROCK**
740										Gray, (FELSIC METAVOLCANIC ROCK).
										737.3 12.2
	736.0	13.5	19	22	26	48		M		Brown, fine sandy SILT (A-4).
735										733.5 16.0
	732.6	16.9	60/0.0			60/0.0				732.6 16.9 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 732.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 16.9'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_5250L	**STATION** 52+50	**OFFSET** 85 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 761.5 ft	**TOTAL DEPTH** 2.9 ft	**NORTHING** 702,040	**EASTING** 1,744,946	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
765										
										761.5 GROUND SURFACE 0.0
										760.5 **ASPHALT** 1.0
760								M		759.5 **ROADWAY EMBANKMENT** 2.0
								M		758.7 Medium dense to dense, gray-black, silty fine to coarse SAND (A-2-4), with trace gravel. 2.8
										758.6 Medium stiff, pink-tan, fine sandy SILT (A-4). 2.9
										BOULDER
										Boring Terminated by Auger Refusal at Elevation 758.6 ft in ROADWAY EMBANKMENT (BOULDER)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_5773R	**STATION** 57+73	**OFFSET** 44 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 763.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 702,224	**EASTING** 1,745,452	**24 HR.** 2.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
765												
										GROUND SURFACE	763.0	0.0
										RESIDUAL Medium stiff to stiff, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		
760												
755								M			755.5	7.5
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	755.0	8.0
										Stiff to hard, tan, fine sandy SILT (A-4).	753.0	10.0
										Boring Terminated at Elevation 753.0 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6000	**STATION** 60+00	**OFFSET** CL	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 801.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 702,387	**EASTING** 1,745,616	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
805												
	801.1	0.0								GROUND SURFACE	801.1	0.0
800			1	2	1	3		M		**RESIDUAL** Light brown & orange, SILT (A-4), with trace roots from 0.0-1.5'.		
	797.6	3.5	9	12	16	28		M				
795												
	792.6	8.5	11	12	18	30		M			791.1	10.0
										Boring Terminated at Elevation 791.1 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_6100R	**STATION** 61+00	**OFFSET** 18 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 822.9 ft	**TOTAL DEPTH** 3.8 ft	**NORTHING** 702,427	**EASTING** 1,745,709	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
825										ELEV. (ft) DEPTH (ft)
										822.9 GROUND SURFACE 0.0
820								M		**RESIDUAL** Hard, tan, fine sandy SILT (A-4), with cobbles & boulders.
										819.4 3.5
										819.1 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) 3.8
										Boring Terminated by Auger Refusal at Elevation 819.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2_6198R	**STATION** 61+98	**OFFSET** 35 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 836.8 ft	**TOTAL DEPTH** 3.5 ft	**NORTHING** 702,468	**EASTING** 1,745,799	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
840										
										836.8 GROUND SURFACE 0.0
835								M		**RESIDUAL** Stiff, light brown, SILT (A-4), with trace fine sand.
										834.3 2.5
										833.3 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) 3.5
										Boring Terminated by Auger Refusal at Elevation 833.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6248R	**STATION** 62+48	**OFFSET** 25 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 839.9 ft	**TOTAL DEPTH** 18.0 ft	**NORTHING** 702,504	**EASTING** 1,745,835	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
840										839.9 GROUND SURFACE 0.0
								M		**RESIDUAL**
835								M		Medium stiff to stiff, brown & tan, fine sandy SILT (A-4).
830										
825										822.2 17.7
										821.9 **WEATHERED ROCK** 18.0
										Gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 821.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										NOTES:
										1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6291R	**STATION** 62+91	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 842.6 ft	**TOTAL DEPTH** 11.9 ft	**NORTHING** 702,531	**EASTING** 1,745,869	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
845										842.6 GROUND SURFACE 0.0
								M		**RESIDUAL**
840								M		840.6 Medium stiff, red-brown, silty CLAY (A-7-5). 2.0
835										Soft to very stiff, light brown, SILT (A-4), with trace fine sand.
										832.1 10.5
										830.7 **CRYSTALLINE ROCK** 11.9
										Gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 830.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										NOTES:
										1) 0.0-0.1' = Surficial Organic Soils

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BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6391R	**STATION** 63+91	**OFFSET** 24 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 847.1 ft	**TOTAL DEPTH** 12.3 ft	**NORTHING** 702,585	**EASTING** 1,745,953	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
850												
										GROUND SURFACE	847.1	0.0
845								M		**RESIDUAL** Soft to medium stiff, red, silty CLAY (A-7-5).	845.1	2.0
										BOULDER	843.1	4.0
								M		Soft to stiff, tan, fine sandy SILT (A-4).		
840								M				
835											835.6	11.5
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).	834.8	12.3
										Boring Terminated by Auger Refusal at Elevation 834.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6441R	**STATION** 64+41	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 848.4 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 702,614	**EASTING** 1,745,994	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
850												
										GROUND SURFACE	848.4	0.0
845								M		**RESIDUAL** Soft to medium stiff, red, silty CLAY (A-7-5).	844.4	4.0
								M		Medium stiff to stiff, red-tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		
840												
835												
830												
825											823.4	25.0
										Boring Terminated at Elevation 823.4 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6491R	**STATION** 64+91	**OFFSET** 24 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 24.9 ft	**NORTHING** 702,640	**EASTING** 1,746,037	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/15/13	**COMP. DATE** 04/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE		0.0
								M		**RESIDUAL** Soft to medium stiff, red, silty CLAY (A-7-5).		
								M		Soft to hard, red-tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		4.0
								M				
								M		**WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).		22.9 24.9
										Boring Terminated by Auger Refusal at Depth 24.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils\
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6605R	**STATION** 66+05	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 20.3 ft	**NORTHING** 702,709	**EASTING** 1,746,128	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										GROUND SURFACE 0.0
								M		**RESIDUAL** Soft, red, silty CLAY (A-7-5).
								M		5.5 Soft to stiff, tan-red, fine sandy SILT (A-4).
								M		
								M		13.3
								M		**WEATHERED ROCK** 14.3 Tan, (FELSIC METAVOLCANIC ROCK).
										Soft to medium stiff, light tan, SILT (A-4), 16.3 with trace fine sand.
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK). 20.2
										CRYSTALLINE ROCK 20.3 (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Depth 20.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6705R	**STATION** 67+05	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 15.4 ft	**NORTHING** 702,766	**EASTING** 1,746,211	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	0.0
								M		**RESIDUAL** Soft to medium stiff, red, silty CLAY (A-7-5).	3.5
								M		Soft to stiff, light tan, SILT (A-4), with trace fine sand.	12.2
										WEATHERED ROCK Tan-green, (FELSIC METAVOLCANIC ROCK).	15.4
										Boring Terminated by Auger Refusal at Depth 15.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6795R	**STATION** 67+95	**OFFSET** 19 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 11.0 ft	**NORTHING** 702,817	**EASTING** 1,746,286	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										GROUND SURFACE 0.0
		0.0	1	1	3	4	SS-805	35%		**RESIDUAL** Red, silty CLAY (A-7-5). 4.0
		3.5	5	12	16	28	SS-806	14%		Tan, fine sandy SILT (A-4) with little clay, saprolitic. 7.0
		8.5	100/0.2			100/0.2				**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). 11.0
		11.0	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Depth 11.0 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 11.0'.
3) Boring elevation not obtained due to boring location outside of "TIN" coverage.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6895R	**STATION** 68+95	**OFFSET** 20 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 23.5 ft	**NORTHING** 702,878	**EASTING** 1,746,365	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	0.0
								M		**RESIDUAL** Soft, red, silty CLAY (A-7-5).	
											7.0
								M		Medium stiff to stiff, tan, fine sandy SILT (A-4).	
											23.5
										Boring Terminated at Depth 23.5 ft in RESIDUAL (SILT)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_6995R	**STATION** 69+95	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 22.0 ft	**NORTHING** 702,938	**EASTING** 1,746,445	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/12/13	**COMP. DATE** 04/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
										GROUND SURFACE	0.0
								M		**RESIDUAL** Soft, red, silty CLAY (A-7-5), with trace gravel-sized rock fragments from 3.5'-6.5'.	
								M			6.5
								M		Medium stiff to very stiff, tan, fine sandy SILT (A-4).	
											22.0
										Boring Terminated at Depth 22.0 ft in RESIDUAL (SILT)	

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_7372R	**STATION** 73+72	**OFFSET** 28 ft RT	**ALIGNMENT** -Y2-	**0 HR.** 8.6
COLLAR ELEV. N/A	**TOTAL DEPTH** 10.0 ft	**NORTHING** 703,152	**EASTING** 1,746,753	**24 HR.** 6.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
										GROUND SURFACE 0.0
								M		**ROADWAY EMBANKMENT** Medium stiff, red-tan, fine sandy SILT (A-4), with trace gravel. 3.0
								W		**ALLUVIAL** Soft to very soft, gray to dark gray, fine sandy SILT (A-4), with trace to little clay, trace gravel. 8.0
								Sat.		
								M		**RESIDUAL** Stiff, tan, fine sandy SILT (A-4), saprolitic. 10.0

Boring Terminated at Depth 10.0 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2_7770R	**STATION** 77+70	**OFFSET** 16 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 20.5 ft	**NORTHING** 703,379	**EASTING** 1,747,079	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/17/13	**COMP. DATE** 06/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										GROUND SURFACE 0.0
		0.0	1	2	5	7		M		**RESIDUAL** Tan, black & gray, fine sandy SILT (A-4), saprolitic, trace mica from 14.0'-20.5'.
		4.0	12	12	13	25		M		
		9.0	13	16	14	30		M		
		14.0	17	23	20	43		W		
		19.0	8	8	8	16		W		20.5

Boring Terminated at Depth 20.5 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2B_1195R	**STATION** 11+95	**OFFSET** 28 ft RT	**ALIGNMENT** -Y2B-	**0 HR.** Dry
COLLAR ELEV. 782.1 ft	**TOTAL DEPTH** 11.9 ft	**NORTHING** 702,584	**EASTING** 1,745,546	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
										GROUND SURFACE	782.1	0.0
780								M		**ROADWAY EMBANKMENT** Soft to medium stiff, brown, fine sandy SILT (A-4), with trace gravel & cobbles.		
											776.1	6.0
775								M		**RESIDUAL** Stiff to hard, tan & white, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		
								M			771.1	11.0
										WEATHERED ROCK Gray, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 770.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	770.2	11.9

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2B_1200R	**STATION** 12+00	**OFFSET** 28 ft RT	**ALIGNMENT** -Y2B-	**0 HR.** Dry
COLLAR ELEV. 780.3 ft	**TOTAL DEPTH** 4.9 ft	**NORTHING** 702,587	**EASTING** 1,745,542	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
785												
780								M		GROUND SURFACE	780.3	0.0
								M		**ROADWAY EMBANKMENT** Gray, fine to coarse SAND (A-1-b), with little gravel.	779.3	1.0
										Soft, tan, fine sandy SILT (A-4), with little clay, trace gravel & cobbles, trace organics.	775.8	4.5
										POSSIBLE BOULDER Boring Terminated by Auger Refusal at Elevation 775.4 ft in ROADWAY EMBANKMENT (POSSIBLE BOULDER)	775.4	4.9

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2B_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y2B-	**0 HR.** Dry
COLLAR ELEV. 732.8 ft	**TOTAL DEPTH** 6.4 ft	**NORTHING** 702,374	**EASTING** 1,745,093	**24 HR.** 3.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										ELEV. (ft) DEPTH (ft)
	732.8	0.0	WOH	1	2	3		W		732.8 GROUND SURFACE 0.0
730										**ALLUVIAL** Tan & orange, fine sandy SILT (A-4), with trace roots & gravel. 730.8 2.0
	729.3	3.5	11	12	18	30		M		**RESIDUAL** Gray & tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 726.8 6.0
	726.4	6.4	60/0.0			60/0.0				726.4 6.4 **WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).

Boring Terminated with Standard Penetration Test Refusal at Elevation 726.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 6.4'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2B_2100	**STATION** 21+00	**OFFSET** CL	**ALIGNMENT** -Y2B-	**0 HR.** Dry
COLLAR ELEV. 734.5 ft	**TOTAL DEPTH** 11.8 ft	**NORTHING** 702,188	**EASTING** 1,744,745	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
								W		734.5 GROUND SURFACE 0.0
730								M		732.5 **RESIDUAL** Medium stiff, brown-orange, silty CLAY (A-7-5). 2.0 Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
725										728.2 6.3 **WEATHERED ROCK** Tan & gray-green, (FELSIC METAVOLCANIC ROCK).
										722.9 11.6 722.7 11.8 **CRYSTALLINE ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).

Boring Terminated by Auger Refusal at Elevation 722.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2C_178L	**STATION** 1+78	**OFFSET** 17 ft LT	**ALIGNMENT** -Y2C-	**0 HR.** Dry
COLLAR ELEV. 737.2 ft	**TOTAL DEPTH** 13.6 ft	**NORTHING** 701,116	**EASTING** 1,741,989	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740										
	737.2	0.0	WOH	WOH	3	3		M		737.2 GROUND SURFACE 0.0
735								M		**RESIDUAL**
	733.7	3.5	16	36	64/0.4	100/0.9				735.2 Red-tan, silty CLAY (A-7-5), with trace roots. 2.0
730										Brown, fine sandy SILT (A-4).
	728.7	8.5	60	40/0.2		100/0.7				733.2 4.0
725										**WEATHERED ROCK**
	723.7	13.5	60/0.1			60/0.1				Tan, (FELSIC METAVOLCANIC ROCK).
										723.7 13.5
										723.6 13.6
										CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 723.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2C_600	**STATION** 6+00	**OFFSET** CL	**ALIGNMENT** -Y2C-	**0 HR.** N/A
COLLAR ELEV. 710.0 ft	**TOTAL DEPTH** 12.7 ft	**NORTHING** 700,996	**EASTING** 1,741,590	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
710										710.0 GROUND SURFACE 0.0
								W		**RESIDUAL**
								M		708.0 Soft, red, silty CLAY (A-7-5). 2.0
705										Soft to stiff, tan, fine sandy SILT (A-4).
										703.0 7.0
700										**WEATHERED ROCK**
										Gray, (FELSIC METAVOLCANIC ROCK).
										697.3 12.7
										Boring Terminated by Auger Refusal at Elevation 697.3 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) 0 hr. water level not measured.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2C_1000	**STATION** 10+00	**OFFSET** CL	**ALIGNMENT** -Y2C-	**0 HR.** Dry
COLLAR ELEV. 697.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,008	**EASTING** 1,741,190	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
700										
								M		697.2 GROUND SURFACE 0.0
								M		696.7 0.5 RESIDUAL Stiff, brown, fine sandy silty CLAY (A-6).
695										Stiff to hard, brown, fine sandy SILT (A-4).
690										
685										685.7 11.5 WEATHERED ROCK Brown, (FELSIC METAVOLCANIC ROCK).
										682.2 15.0 Boring Terminated at Elevation 682.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2C_1400	**STATION** 14+00	**OFFSET** CL	**ALIGNMENT** -Y2C-	**0 HR.** Dry
COLLAR ELEV. 663.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,988	**EASTING** 1,740,796	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
665										
		663.8 0.0	1	2	4	6		M		663.8 GROUND SURFACE 0.0
										662.3 1.5 RESIDUAL Brown, fine sandy silty CLAY (A-6).
660		660.3 3.5	36	50	50/0.3	100/0.8		M		Brown, fine sandy SILT (A-4). 659.8 4.0
655		655.3 8.5	32	60	40/0.3	100/0.8				WEATHERED ROCK Orange & white, (FELSIC METAVOLCANIC ROCK).
650		650.3 13.5	9	13	20	33				651.8 12.0 Brown, silty fine to coarse SAND (A-2-4).
								M		648.8 15.0 Boring Terminated at Elevation 648.8 ft in RESIDUAL (SAND)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2C_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -Y2C-
COLLAR ELEV. N/A	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,632	**EASTING** 1,740,756
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER D. Tignor	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft): 0 HR. Dry; 24 HR. 9.9

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	0.0
								W		**RESIDUAL**	1.0
								W		Soft, brown, fine sandy SILT (A-4), with trace roots.	3.0
								M		Soft to medium stiff, brown, fine sandy silty CLAY (A-7-5). Stiff to hard, brown, fine sandy SILT (A-4).	11.2
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	15.0
										Boring Terminated at Depth 15.0 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring elevation not obtained due to boring location outside of "TIN" coverage.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2FLYA_500	**STATION** 5+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-
COLLAR ELEV. 756.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 699,776	**EASTING** 1,744,561
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft): 0 HR. Dry; 24 HR. Dry

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
755								M		756.6 GROUND SURFACE 0.0
								M		755.1 **ROADWAY EMBANKMENT** 1.5
750										Stiff, red-brown, silty CLAY (A-7-5), with trace gravel-sized rock fragments. **RESIDUAL** Stiff, brown, clayey SILT (A-5). 747.8 8.8
								M		Stiff, tan, fine sandy SILT (A-4). 741.6 15.0
745										Boring Terminated at Elevation 741.6 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_700	**STATION** 7+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 737.1 ft	**TOTAL DEPTH** 15.1 ft	**NORTHING** 699,976	**EASTING** 1,744,558	**24 HR.** 8.7
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										ELEV. (ft) DEPTH (ft)
	737.1	0.0								737.1 GROUND SURFACE 0.0
735			1	0	2	2 74		M		**RESIDUAL** Brown to red & tan, fine to coarse sandy SILT (A-4), with trace clay, gravel-sized rock fragments & organics.
	733.1	4.0	23	37	37			D		
730										
	728.1	9.0	11	15	16	31		M		
725										
	723.1	14.0	24	33	67/0.1	100/0.6				722.6 14.5 722.0 15.1 **WEATHERED ROCK** Brown & gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated at Elevation 722.0 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_900	**STATION** 9+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 735.6 ft	**TOTAL DEPTH** 6.3 ft	**NORTHING** 700,174	**EASTING** 1,744,582	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
735							S-647	27% M		735.6 GROUND SURFACE 0.0 733.6 **RESIDUAL** Medium stiff, red-tan, fine to coarse sandy silty CLAY (A-6), with trace organics and gravel-size rock fragments. 2.0 730.6 Hard, tan, fine sandy SILT (A-4). 5.0 729.6 **WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK). 6.0 729.3 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 6.3 Boring Terminated by Auger Refusal at Elevation 729.3 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
730										

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1100	**STATION** 11+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 741.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,371	**EASTING** 1,744,615	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
745												
										GROUND SURFACE	741.2	0.0
740								M		**RESIDUAL** Medium stiff, red-tan, fine to coarse sandy silty CLAY (A-6).	738.7	2.5
								M		Medium stiff to stiff, red-tan, fine sandy SILT (A-4).		
735												
730										**WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK).	729.2	12.0
										Boring Terminated at Elevation 726.2 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)	726.2	15.0

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 734.5 ft	**TOTAL DEPTH** 12.7 ft	**NORTHING** 700,569	**EASTING** 1,744,648	**24 HR.** 9.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
735												
										GROUND SURFACE	734.5	0.0
730								M		**RESIDUAL** Medium stiff, red-tan, fine to coarse sandy silty CLAY (A-6).	731.5	3.0
								M		Medium stiff, tan, silty CLAY (A-7-6)	730.5	4.0
725										Stiff to very stiff, tan, fine sandy SILT (A-4).		
											724.5	10.0
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	723.1	11.4
										CRYSTALLINE ROCK Gray, (MAFIC METAVOLCANIC ROCK).	722.3	12.2
										WEATHERED ROCK Brown, (MAFIC METAVOLCANIC ROCK).	721.8	12.7
										Boring Terminated by Auger Refusal at Elevation 721.8 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 729.2 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 700,766	**EASTING** 1,744,682	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										ELEV. (ft) DEPTH (ft)
	729.2	0.0								729.2 GROUND SURFACE 0.0
			1	2	1	3		M		**RESIDUAL** Soft to hard, tan & brown, fine to coarse sandy SILT (A-4), with trace clay, saprolitic at 2.0'.
725	725.2	4.0	24	30	68	98		D		723.7 5.5
	722.2	7.0	100/0.3			100/0.3				**WEATHERED ROCK** Gray & brown, (MAFIC METAVOLCANIC ROCK). 721.9 7.3
										Boring Terminated at Elevation 721.9 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 7.0'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 728.4 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 700,963	**EASTING** 1,744,715	**24 HR.** 0.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										
										728.4 GROUND SURFACE 0.0
								M		**RESIDUAL** Soft to hard, tan & brown, fine to coarse sandy SILT (A-4), with trace clay. 724.9 3.5
725										**WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK). 723.5 4.9
										CRYSTALLINE ROCK Gray, (MAFIC METAVOLCANIC ROCK). 723.4 5.0
										Boring Terminated by Auger Refusal at Elevation 723.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1748L	**STATION** 17+48	**OFFSET** 125 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 710.9 ft	**TOTAL DEPTH** 2.0 ft	**NORTHING** 701,029	**EASTING** 1,744,602	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/29/13	**COMP. DATE** 03/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
	710.9	0.0	1	1	2	3		W		710.9 GROUND SURFACE 0.0
710	708.9	2.0	60/0.0			60/0.0				709.0 **ALLUVIAL** Tan, fine sandy SILT (A-4), with trace organics. 1.9 708.9 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 2.0 Boring Terminated with Standard Penetration Test Refusal at Elevation 708.9 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1820	**STATION** 18+20	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 727.3 ft	**TOTAL DEPTH** 5.5 ft	**NORTHING** 701,082	**EASTING** 1,744,733	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										
	727.3	0.0	1	1	2	3		W		727.3 GROUND SURFACE 0.0 **RESIDUAL** Tan, fine to coarse sandy SILT (A-4), with trace clay. 3.5
725	723.3	4.0	26	74/0.1		100/0.6				723.8 **WEATHERED ROCK** Brown & gray, (MAFIC METAVOLCANIC ROCK). 5.3 722.0 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). 5.5 721.8 Boring Terminated with Standard Penetration Test Refusal at Elevation 721.8 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
	721.8	5.5	60/0.0			60/0.0				

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_1872R	**STATION** 18+72	**OFFSET** 125 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 6.9
COLLAR ELEV. 735.6 ft	**TOTAL DEPTH** 10.2 ft	**NORTHING** 701,125	**EASTING** 1,744,863	**24 HR.** 3.4
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
735	735.6	0.0	1	1	4	5 21	SS-653	M 25%		735.6 GROUND SURFACE 0.0 **RESIDUAL** Brown, tan & red, fine sandy SILT (A-4), trace to some clay, trace organics from 0.0 to 0.8', and trace gravel-size rock fragments.
730	731.6	4.0	9	11	10					
	726.6	9.0	3	60/0.1		60/0.1				726.1 9.5 725.4 10.2 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 725.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
	725.4	10.2	60/0.0			60/0.0				

NOTES:

1) Auger refusal at 10.2'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2000	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 721.6 ft	**TOTAL DEPTH** 8.0 ft	**NORTHING** 701,261	**EASTING** 1,744,738	**24 HR.** 4.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										
720								W		721.6 GROUND SURFACE 0.0 **RESIDUAL** Very soft to medium stiff, brown & tan, fine to coarse sandy SILT (A-4), with trace gravel-sized rock fragments, clay & organics.
715								W		716.6 5.0 **WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK).
										713.7 7.9 713.6 8.0 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 713.6 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2383L	**STATION** 23+83	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 17.8
COLLAR ELEV. 729.2 ft	**TOTAL DEPTH** 18.1 ft	**NORTHING** 701,619	**EASTING** 1,744,619	**24 HR.** 5.6
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/17/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
730	729.2	0.0								729.2 GROUND SURFACE 0.0
			2	2	2	4		M		**RESIDUAL**
										727.2 Red, silty CLAY (A-7-5). 2.0
725	725.7	3.5	7	7	11	18				Brown & black, fine sandy SILT (A-4).
										720.2 9.0
720	720.7	8.5	11	34	66/0.3	100/0.8				**WEATHERED ROCK**
										Tan & gray-green, (META-ARGILLITE).
715	715.7	13.5	89	11/0.1		100/0.6				713.2 16.0
										CRYSTALLINE ROCK
	711.2	18.0	60/0.1			60/0.1				711.1 (META-ARGILLITE) 18.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Auger refusal at 18.0'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2383R	**STATION** 23+83	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 13.5
COLLAR ELEV. 723.2 ft	**TOTAL DEPTH** 27.1 ft	**NORTHING** 701,637	**EASTING** 1,744,654	**24 HR.** 0.5
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725	723.2	0.0								723.2 GROUND SURFACE 0.0
			1	1	1	2				**ALLUVIAL**
										721.2 Brown, fine sandy SILT (A-4), with trace clay. 2.0
720	719.7	3.5	1	3	5	8		W		Gray & brown, silty CLAY (A-7-5), with trace roots. 4.3
										RESIDUAL
715	714.7	8.5	39	61/0.3		100/0.8				Brown & orange, fine sandy SILT (A-4), with trace gravel-size rock fragments.
										714.7 8.5
710	709.7	13.5	24	22	29	51				**WEATHERED ROCK**
										Gray-green, (META-ARGILLITE).
705	704.7	18.5	60/0.1			60/0.1		M		711.2 12.0
										Gray-green, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments.
700	699.7	23.5	100/0.2			100/0.2				704.7 18.5
										CRYSTALLINE ROCK
	696.2	27.0	60/0.1			60/0.1				Gray-green, (META-ARGILLITE).
										701.2 22.0
										WEATHERED ROCK
										Gray-green, (META-ARGILLITE).
										696.2 27.0
										696.1 27.1
										CRYSTALLINE ROCK
										Gray-green, (META-ARGILLITE).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 696.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Auger refusal at 27.0'.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2FLYA_2493R	**STATION** 24+93	**OFFSET** 16 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 737.8 ft	**TOTAL DEPTH** 21.9 ft	**NORTHING** 701,730	**EASTING** 1,744,591	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/17/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	737.8	0.0	1	1	2	3		M		737.8 GROUND SURFACE	0.0
735										**RESIDUAL**	
	734.3	3.5	4	4	9	13		M		735.8 Red, silty CLAY (A-7-5), with trace roots.	2.0
730										Brown & gray, clayey SILT (A-5).	
	729.3	8.5	9	13	17	30		M		730.8 Brown & orange, fine sandy SILT (A-4).	7.0
725										725.8 **WEATHERED ROCK**	12.0
	724.3	13.5	100/0.3			100/0.3				Brown, (METAMUDSTONE).	
720											
	719.3	18.5	60/0.1			60/0.1				719.3 **CRYSTALLINE ROCK** Gray-green, (META-ARGILLITE).	18.5
	715.9	21.9	60/0.0			60/0.0				715.9 Boring Terminated with Standard Penetration Test Refusal at Elevation 715.9 ft in CRYSTALLINE ROCK (META-ARGILLITE)	21.9

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 21.9'.
3) 0 hr. water level not measured.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2520L	**STATION** 25+20	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 749.0 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 701,733	**EASTING** 1,744,548	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
	749.0	0.0	1	1	2	3		M		749.0 GROUND SURFACE	0.0
										ROADWAY EMBANKMENT Brown, fine sandy silty CLAY (A-7-5), with trace gravel & roots.	
745	745.5	3.5	2	5	7	12		W		747.0	2.0
										RESIDUAL Red to tan-gray, fine sandy SILT (A-4), with trace to little clay.	
740	740.5	8.5	7	10	24	34		M			
735	735.5	13.5	100/0.5			100/0.5				737.0	12.0
										WEATHERED ROCK Tan, (METAMUDSTONE).	
730	730.5	18.5									
	728.0	21.0	45	32	68/0.1	100/0.6				728.0	21.0
725			60/0.0			60/0.0	RS-5			**CRYSTALLINE ROCK** Green, brown & gray, (META-ARGILLITE interlayered with METAMUDSTONE).	
720											
715										718.3	30.7
										Gray & white, (META-ARGILLITE).	
710										708.0	41.0
										Boring Terminated at Elevation 708.0 ft in CRYSTALLINE ROCK (META-ARGILLITE)	

NOTES:

1) Auger refusal at 21.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2520L	**STATION** 25+20	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 749.0 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 701,733	**EASTING** 1,744,548	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/18/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 20.0 ft			

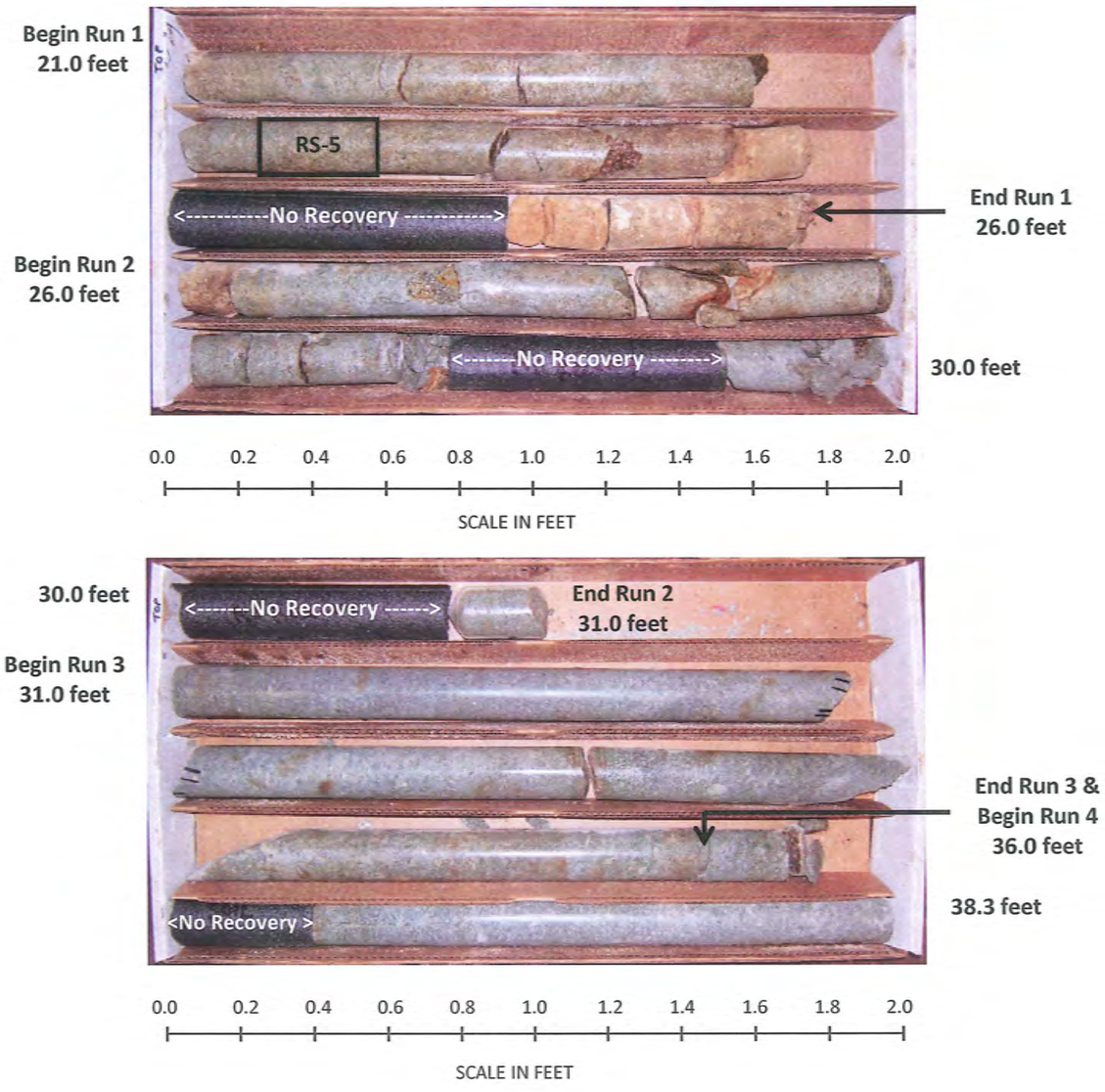
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
728											Begin Coring @ 21.0 ft	
	728.0	21.0	5.0	N=60/0.0 2:15/1.0 2:17/1.0 2:10/1.0 3:45/1.0 2:45/1.0	(4.2) 84%	(2.5) 50%		(7.2) 74%	(4.1) 42%		728.0 **CRYSTALLINE ROCK** Green, brown & gray, moderately to slightly weathered, moderately hard to hard (META-ARGILLITE interlayered with METAMUDSTONE), close fracture spacing.	21.0
725							RS-5					
	723.0	26.0	5.0	3:19/1.0 2:03/1.0 2:17/1.0 3:22/1.0 4:11/1.0	(3.3) 66%	(1.6) 32%					RS-5: 22.8'-23.1' qu = 9,278 psi R_1=7, R_2=8, R_3=10, R_4=12, R_5=7 RMR = 44, Rock Type E	
720	718.0	31.0	5.0	2:47/1.0 2:32/1.0 2:53/1.0 2:17/1.0 2:49/1.0	(5.0) 100%	(5.0) 100%		(9.9) 96%	(9.4) 91%		718.3 Gray & white, slightly to very slightly weathered, hard (META-ARGILLITE), moderately close to wide fracture spacing.	30.7
715	713.0	36.0	5.0	2:06/1.0 2:42/1.0 2:39/1.0 2:47/1.0 2:48/1.0	(4.6) 92%	(4.4) 88%					708.0 Boring Terminated at Elevation 708.0 ft in CRYSTALLINE ROCK (META-ARGILLITE)	41.0
710	708.0	41.0										

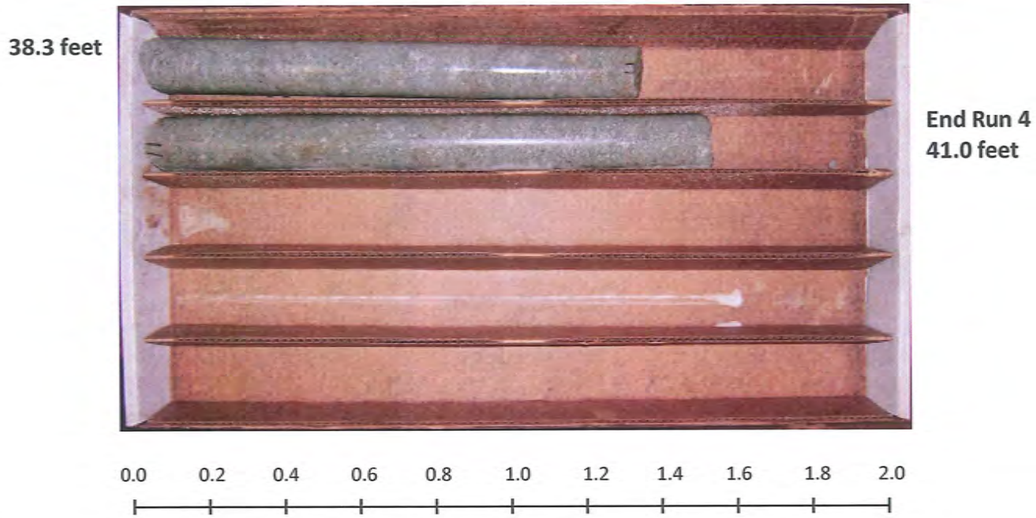
NOTES:

1) Auger refusal at 21.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y2FLYA_2520L: Station 25+20, 18' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2520R	**STATION** 25+20	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 749.9 ft	**TOTAL DEPTH** 7.7 ft	**NORTHING** 701,756	**EASTING** 1,744,580	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
750												
	749.9	0.0	2	4	6	10		M		GROUND SURFACE	749.9	0.0
										ROADWAY EMBANKMENT Red, fine sandy silty CLAY (A-7-5), with trace gravel.	747.9	2.0
	746.4	3.5	6	6	15			M		Gray & tan, silty fine to coarse SAND (A-2-4), with trace gravel.	744.9	5.0
745						21				WEATHERED ROCK (BOULDER)	742.2	7.7
	743.7	6.2	30	41	59/0.5	100/1.0				Boring Terminated at Elevation 742.2 ft in ROADWAY EMBANKMENT (BOULDER)		

NOTES:

1) Auger refusal at 6.2'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2526R	**STATION** 25+26	**OFFSET** 27 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 752.7 ft	**TOTAL DEPTH** 6.2 ft	**NORTHING** 701,764	**EASTING** 1,744,581	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
755												
										GROUND SURFACE	752.7	0.0
								M		**ROADWAY EMBANKMENT** Stiff, tan-brown, fine sandy SILT (A-4), with trace gravel.	750.7	2.0
750										WEATHERED ROCK (BOULDER)	747.8	4.9
								M		Stiff, tan-brown, fine sandy SILT (A-4).	746.5	6.2
										Boring Terminated by Auger Refusal at Elevation 746.5 ft in ROADWAY EMBANKMENT (BOULDER)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2526R1	**STATION** 25+26	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 752.5 ft	**TOTAL DEPTH** 6.5 ft	**NORTHING** 701,758	**EASTING** 1,744,572	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
755												
										GROUND SURFACE	752.5	0.0
								M		**ROADWAY EMBANKMENT** Medium dense, gray, silty fine to coarse SAND (A-2-4), with trace gravel.	750.5	2.0
750								M		Stiff, tan, fine sandy SILT (A-4).	747.7	4.8
										WEATHERED ROCK (BOULDER)	746.0	6.5

Boring Terminated by Auger Refusal at Elevation 746.0 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2640L	**STATION** 26+40	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 752.0 ft	**TOTAL DEPTH** 20.8 ft	**NORTHING** 701,823	**EASTING** 1,744,472	**24 HR.** 13.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
755												
	752.0	0.0								GROUND SURFACE	752.0	0.0
750			2	2	2	4		M		**ROADWAY EMBANKMENT** Brown-tan, fine to coarse sandy SILT (A-4), with trace clay, gravel & organics.	750.5	1.5
	748.5	3.5	4	6	7	13		M		**RESIDUAL** Orange & tan, silty CLAY (A-7-5), with trace roots.	745.5	6.5
745										**WEATHERED ROCK** Tan & gray, (METAMUDSTONE).		
	743.5	8.5	79	21/0.1		100/0.6						
740												
	738.5	13.5	100/0.4			100/0.4						
735										Tan, fine sandy SILT (A-4).	735.0	17.0
	733.5	18.5	4	18	82/0.2						733.0	19.0
	731.3	20.7	60/0.1			100/0.7 60/0.1				**WEATHERED ROCK** Tan, (METAMUDSTONE).	731.3	20.7
										CRYSTALLINE ROCK (METAMUDSTONE)	731.2	20.8

Boring Terminated with Standard Penetration Test Refusal at Elevation 731.2 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 20.7'.
3) N-values from 17.0'-19.0' are implied.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y2FLYA_2653R	STATION 26+53	OFFSET 17 ft RT	ALIGNMENT -Y2FLYA-	0 HR. N/A
COLLAR ELEV. 752.2 ft	TOTAL DEPTH 41.1 ft	NORTHING 701,856	EASTING 1,744,488	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 04/18/13	COMP. DATE 04/19/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
755										
	752.2	0.0	1	2	1	3		M		752.2 / 0.0 GROUND SURFACE
750	751.7	0.5								751.7 / 0.5 SURFICIAL ORGANIC SOILS
	748.7	3.5	4	8	14	22		M		RESIDUAL: Red, silty CLAY (A-7-5), with trace roots from 0.5-1.5'.
745										
	743.7	8.5	100/0.2			100/0.2				743.7 / 8.5 WEATHERED ROCK: Tan & gray-green, (META-ARGILLITE interlayered with METASANDSTONE).
740										
	738.7	13.5	95	5/0.1		100/0.6				
735										
	733.7	18.5	60/0.1			60/0.1				733.7 / 18.5 / 733.6 / 18.6 CRYSTALLINE ROCK: Brown, gray & white, (META-ARGILLITE interlayered with METASANDSTONE).
730										
							RS-6			
725										
										722.8 / 29.4 Green-gray, brown & white, (META-ARGILLITE interlayered with METASANDSTONE).
720										
715										711.1 / 41.1 Boring Terminated at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Began coring at 18.6'.
2) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y2FLYA_2653R	STATION 26+53	OFFSET 17 ft RT	ALIGNMENT -Y2FLYA-	0 HR. N/A
COLLAR ELEV. 752.2 ft	TOTAL DEPTH 41.1 ft	NORTHING 701,856	EASTING 1,744,488	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 04/18/13	COMP. DATE 04/19/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 22.5 ft			

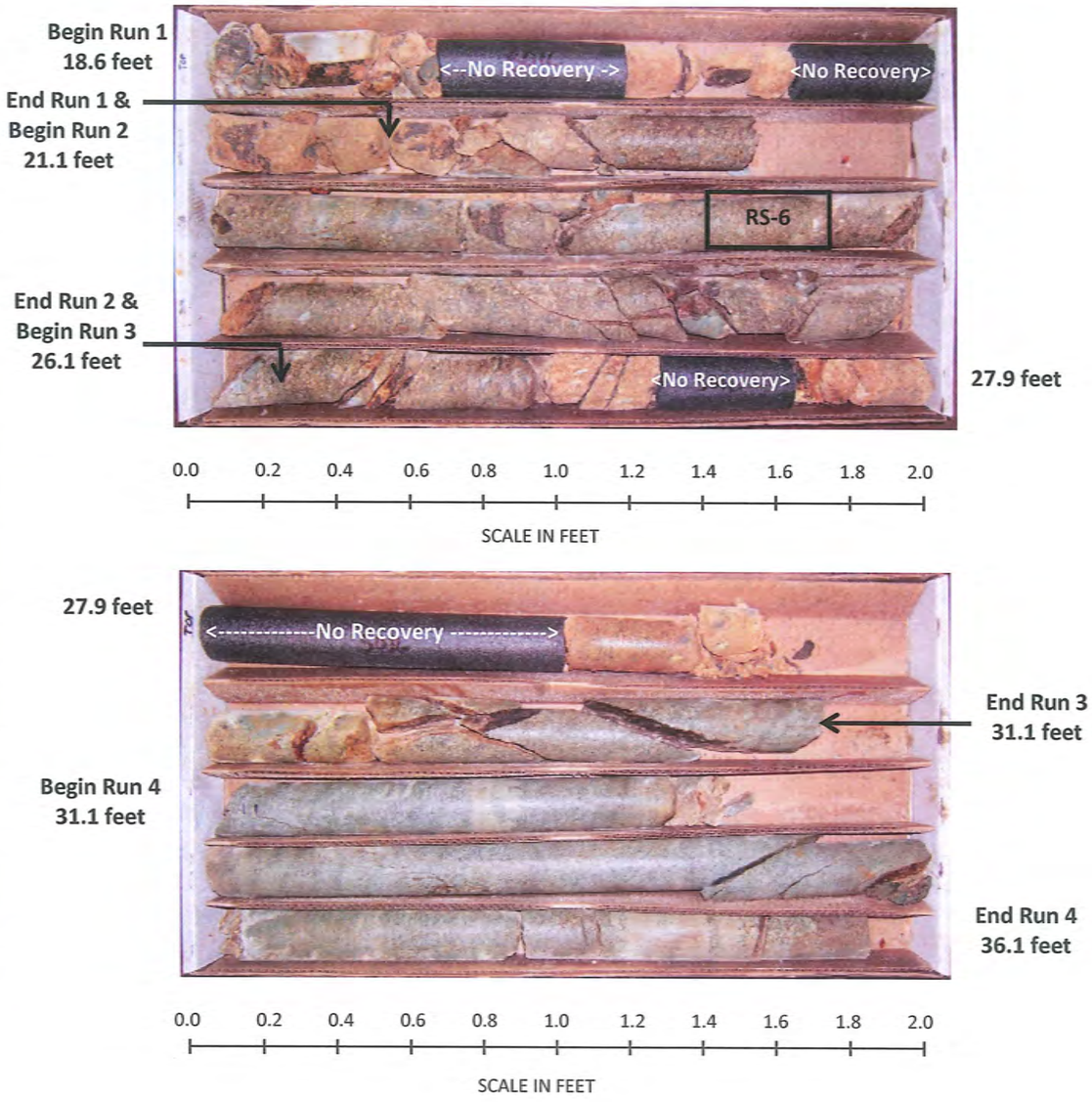
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft) / DEPTH (ft)
733.6											Begin Coring @ 18.6 ft
	733.6	18.6	2.5	1:15/0.5 3:14/1.0 2:35/1.0	(1.5) 60%	(0.0) 0%		(8.4) 78%	(3.0) 28%		733.6 / 18.6 CRYSTALLINE ROCK: Brown, gray & white, moderately severely to moderately weathered, medium hard (META-ARGILLITE interlayered with METASANDSTONE), close fracture spacing. RS-6: 23.5'-23.8' qu = 5,920 psi R_1=4, R_2=8, R_3=10, R_4=6, R_5=7 RMR = 35, Rock Type E
730	731.1	21.1	5.0	3:52/1.0 2:50/1.0 3:00/1.0 3:06/1.0 3:23/1.0	(5.0) 100%	(2.3) 46%	RS-6				
	726.1	26.1	5.0	3:05/1.0 2:40/1.0 2:45/1.0 3:18/1.0 2:22/1.0	(3.7) 74%	(1.1) 22%					722.8 / 29.4 Green-gray, brown & white, moderately weathered, moderately hard (META-ARGILLITE interlayered with METASANDSTONE), close to moderately close fracture spacing.
725	721.1	31.1	5.0	3:40/1.0 2:20/1.0 1:55/1.0 3:02/1.0 2:55/1.0	(4.9) 98%	(3.7) 74%		(11.7) 100%	(7.7) 66%		
720	716.1	36.1	5.0	4:10/1.0 2:30/1.0 2:48/1.0 2:36/1.0 1:45/1.0	(5.0) 100%	(3.6) 72%					
715	711.1	41.1									711.1 / 41.1 Boring Terminated at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Began coring at 18.6'.
2) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y2FLYA_2653R: Station 26+53, 17' RT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2733L	**STATION** 27+33	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 758.6 ft	**TOTAL DEPTH** 24.1 ft	**NORTHING** 701,885	**EASTING** 1,744,406	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
760											
	758.6	0.0	1	1	1	2		M		758.6 GROUND SURFACE	0.0
755	755.1	3.5	2	5	6	11		M		756.6 **RESIDUAL** Brown, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments. Tan-yellow, silty CLAY (A-7-5).	2.0
750	750.1	8.5	20	24	23	47		M		751.6 Tan-orange, fine sandy SILT (A-4).	7.0
745	745.1	13.5	100/0.2			100/0.2				745.1 **WEATHERED ROCK** Tan, (METAMUDSTONE).	13.5
740	740.1	18.5	100/0.5			100/0.5					
735	735.1	23.5	76	24/0.1		100/0.6				734.5 Boring Terminated at Elevation 734.5 ft in WEATHERED ROCK (METAMUDSTONE)	24.1

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_2733R	**STATION** 27+33	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 756.5 ft	**TOTAL DEPTH** 18.7 ft	**NORTHING** 701,916	**EASTING** 1,744,432	**24 HR.** 1.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
	756.5	0.0	WOH	WOH	1	1				756.5 GROUND SURFACE 0.0
755	753.0	3.5	3	2	4	6	SS-235	48%		754.5 **RESIDUAL** Tan, fine sandy SILT (A-4), with trace gravel-size rock fragments. Tan-red, silty CLAY (A-7-5), with trace gravel-size rock fragments. 2.0
750	748.0	8.5	42	58/0.5		100/1.0				750.4 **WEATHERED ROCK** Tan & gray, (METAMUDSTONE). 6.1
745	743.0	13.5	100/0.3			100/0.3				
740	738.0	18.5	100/0.2			100/0.2				737.8 Boring Terminated at Elevation 737.8 ft in WEATHERED ROCK (METAMUDSTONE) 18.7

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3100	**STATION** 31+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 770.3 ft	**TOTAL DEPTH** 10.8 ft	**NORTHING** 702,075	**EASTING** 1,744,098	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
775											
770										770.3 GROUND SURFACE	0.0
								M		769.3 **RESIDUAL** Medium stiff, orange & tan, silty CLAY (A-7-5).	1.0
								M		Stiff to hard, tan, fine sandy SILT (A-4).	
765										762.8	7.5
								M		762.4 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	7.9
										761.2 Hard, tan, fine sandy SILT (A-4).	9.1
760										759.5 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)	10.8

Boring Terminated by Auger Refusal at Elevation 759.5 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3403L	**STATION** 34+03	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 746.5 ft	**TOTAL DEPTH** 4.0 ft	**NORTHING** 702,099	**EASTING** 1,743,800	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
750										
	746.5	0.0								746.5 GROUND SURFACE 0.0
745			1	1	1	2		W		**RESIDUAL** Orange-tan, fine sandy SILT (A-4), with trace gravel-size rock fragments. 743.5 3.0
	743.0	3.5								742.5 4.0
	742.5	4.0	100/0.2		60/0.0	100/0.2 60/0.0				**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).

Boring Terminated with Standard Penetration Test Refusal at Elevation 742.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 4.0'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y2FLYA_3550L	STATION 35+50	OFFSET 18 ft LT	ALIGNMENT -Y2FLYA-	0 HR. N/A
COLLAR ELEV. 726.6 ft	TOTAL DEPTH 36.6 ft	NORTHING 702,084	EASTING 1,743,657	24 HR. 4.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 04/24/13	COMP. DATE 04/24/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
730											
	726.6	0.0	1	4	5	9 45		M		726.6 GROUND SURFACE	0.0
725										726.1 RESIDUAL	0.5
	723.1	3.5	9	20	25					Brown, fine sandy SILT (A-4), with trace roots. 724.1	2.5
										Orange, silty CLAY (A-7-5). Tan & white, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 720.4	6.2
720										WEATHERED ROCK	
	718.1	8.5	60/0.1			60/0.1				718.1 (FELSIC METAVOLCANIC ROCK)	8.5
715										718.0 CRYSTALLINE ROCK Brown & gray, (FELSIC METAVOLCANIC ROCK).	8.6
							RS-7				
710											
										708.1 Brown & gray, (FELSIC METAVOLCANIC ROCK).	18.5
705											
700										698.5 Gray, (FELSIC METAVOLCANIC ROCK).	28.1
695											
										690.1 Boring Terminated at Elevation 690.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	36.5
690											

NOTES:

1) Auger refusal at 8.5'.
2) Began coring at 8.6'.
3) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y2FLYA_3550L	STATION 35+50	OFFSET 18 ft LT	ALIGNMENT -Y2FLYA-	0 HR. N/A
COLLAR ELEV. 726.6 ft	TOTAL DEPTH 36.6 ft	NORTHING 702,084	EASTING 1,743,657	24 HR. 4.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 04/24/13	COMP. DATE 04/24/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 28.0 ft			

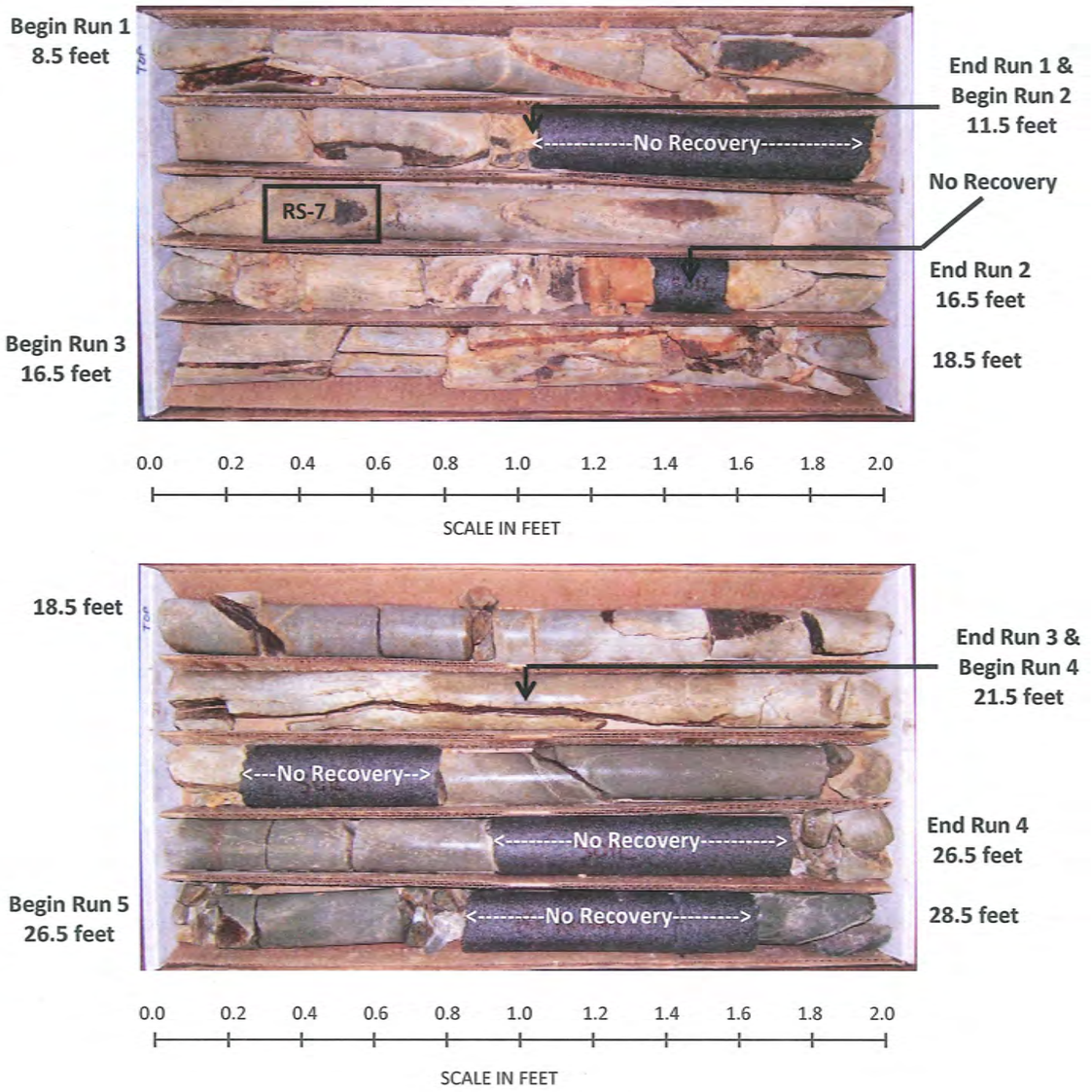
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
718												
	718.0	8.6	3.0	2:41/1.0 2:05/1.0 3:48/1.0	(2.8) 93%	(0.7) 23%		(8.3) 84%	(2.9) 29%		Begin Coring @ 8.6 ft 718.0 CRYSTALLINE ROCK	8.6
715	715.0	11.6									Brown & gray, moderately to slightly weathered, soft to medium hard (FELSIC METAVOLCANIC ROCK), close fracture spacing.	
			5.0	2:53/1.0 2:05/1.0 2:02/1.0 2:20/1.0 4:01/1.0	(3.5) 70%	(1.8) 36%	RS-7				RS-7: 12.8'-13.1' qu = 4,477 psi R_1=4, R_2=8, R_3=10, R_4=6, R_5=7 RMR = 35, Rock Type E	
710	710.0	16.6										
			5.0	3:07/1.0 3:35/1.0 5:50/1.0 3:31/1.0 3:09/1.0	(5.0) 100%	(1.8) 36%		(7.4) 77%	(3.5) 36%		708.1 Brown & gray, moderately to slightly weathered, moderately hard to hard (FELSIC METAVOLCANIC ROCK), close to moderately close fracture spacing.	18.5
705	705.0	21.6										
			5.0	3:57/1.0 2:13/1.0 3:18/1.0 4:30/1.0 2:05/1.0	(3.6) 72%	(1.7) 34%						
700	700.0	26.6									698.5 Gray, very slightly weathered to fresh, hard (FELSIC METAVOLCANIC ROCK), close to moderately close fracture spacing.	28.1
			5.0	4:45/1.0 3:45/1.0 6:23/1.0 5:07/1.0 4:10/1.0	(4.2) 84%	(2.3) 46%		(8.4) 100%	(5.4) 64%			
695	695.0	31.6										
			5.0	3:35/1.0 3:50/1.0 4:19/1.0 3:10/1.0 4:33/1.0	(5.0) 100%	(3.5) 70%						
690	690.0	36.6									690.1 Boring Terminated at Elevation 690.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	36.5

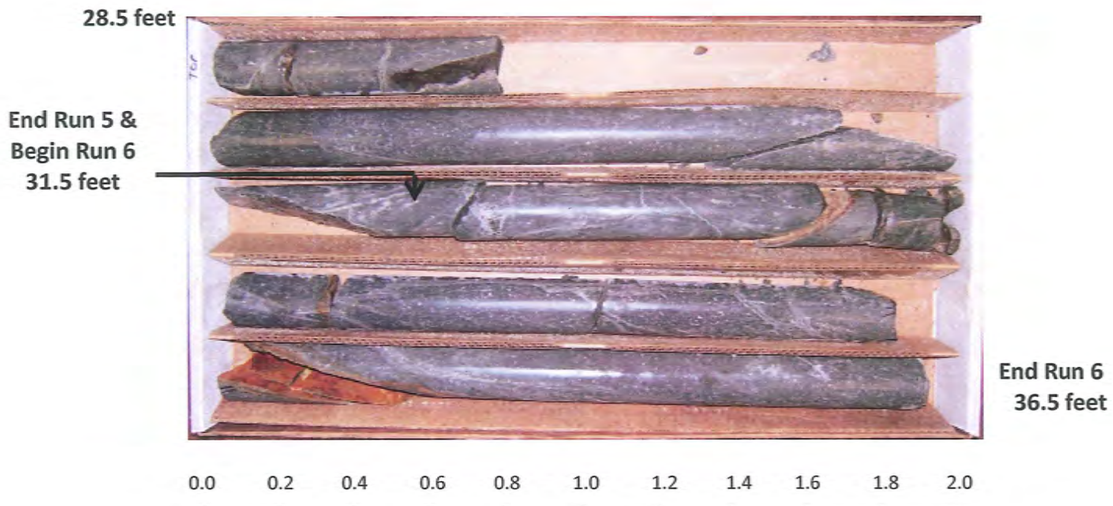
NOTES:

1) Auger refusal at 8.5'.
2) Began coring at 8.6'.
3) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y2FLYA_3550L: Station 35+50, 18' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3403R	**STATION** 34+03	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 744.4 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 702,139	**EASTING** 1,743,799	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
745										
	744.4	0.0	WOH	2	2	4		W		744.4 — GROUND SURFACE — 0.0
										RESIDUAL Brown & black, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments.
	740.9	3.5	11	58	42/0.1					740.4 — 4.0
740	739.4	5.0	60/0.0			100/0.6 60/0.0				739.4 — 5.0 **WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 739.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 5.0'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3688L	**STATION** 36+88	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 16.4
COLLAR ELEV. 711.1 ft	**TOTAL DEPTH** 23.8 ft	**NORTHING** 702,049	**EASTING** 1,743,526	**24 HR.** 3.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/25/13	**COMP. DATE** 04/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										
	711.1	0.0	1	2	2	4		M		711.1 — GROUND SURFACE — 0.0
710	707.6	3.5	2	2	6	8		M		709.1 — 2.0 **RESIDUAL** Tan-yellow, fine sandy SILT (A-4), with trace gravel-sized rock fragments. Gray & tan-yellow, silty CLAY (A-7-5), with little fine sand, trace gravel-sized rock fragments.
705	702.6	8.5	14	16	14	30		M		704.1 — 7.0 Brown, fine sandy SILT (A-4), with trace clay & gravel-sized rock fragments.
700	697.6	13.5	60/0.1			60/0.1				699.1 — 12.0 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) — 697.6 — 13.5 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)
695	692.6	18.5	60/0.1			60/0.1				
690	687.6	23.5	100/0.3			100/0.3				689.1 — 22.0 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) — 687.3 — 23.8 Boring Terminated at Elevation 687.3 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3688R	**STATION** 36+88	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 9.1
COLLAR ELEV. 711.2 ft	**TOTAL DEPTH** 18.4 ft	**NORTHING** 702,086	**EASTING** 1,743,513	**24 HR.** 2.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										
710	711.2	0.0	1	1	1	2				711.2 / 0.0 GROUND SURFACE
										RESIDUAL
	707.2	4.0	6	7	4	11		W		708.7 / 2.5 Brown, fine sandy SILT (A-4), with trace rootlets.
705										Gray-tan, fine sandy silty CLAY (A-7-5), with trace roots & gravel-size rock fragments from 4.0'-5.5'.
	702.2	9.0	1	2	3	5		M		
700										699.2 / 12.0 Brown-gray, fine sandy SILT (A-4), saprolitic.
	697.2	14.0	9	11	16	27		M		694.7 / 16.5
695										**WEATHERED ROCK**
	692.9	18.3	60/0.1			60/0.1				692.9 / 18.3 (FELSIC METAVOLCANIC ROCK)
										692.8 / 18.4 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 692.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 18.3'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_3800	**STATION** 38+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 711.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 702,022	**EASTING** 1,743,417	**24 HR.** 3.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										
710	711.1	0.0						W		711.1 / 0.0 GROUND SURFACE
										709.6 / 1.5 **ALLUVIAL** Very soft, tan, fine sandy clayey SILT (A-5).
							S-767			**RESIDUAL**
705								27%		Very soft to soft, tan, fine sandy silty CLAY (A-7-6).
										703.1 / 8.0
								M		Medium stiff to stiff, brown, fine sandy SILT (A-4).
700										697.6 / 13.5
										696.1 / 15.0 **WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated at Elevation 696.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_4400L	**STATION** 44+00	**OFFSET** 13 ft **LT**	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 716.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,609	**EASTING** 1,742,993	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
720											
										716.7 GROUND SURFACE	0.0
715								M		**RESIDUAL**	
								W		714.7 Very soft to soft, brown, coarse to fine sandy SILT (A-4).	2.0
								M		712.2 Soft, red-brown, fine sandy silty CLAY (A-7-5).	4.5
710										Medium stiff to stiff, brown, fine sandy SILT (A-4).	
										707.2	9.5
705										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	
										701.7	15.0
										Boring Terminated at Elevation 701.7 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_4800	**STATION** 48+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 709.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,321	**EASTING** 1,742,716	**24 HR.** 8.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
710											
	709.7	0.0	2	1	1	2		M		709.7 GROUND SURFACE	0.0
	706.2	3.5								**RESIDUAL** Tan & red-brown, fine sandy silty CLAY (A-7-5).	
705			4	5	10	15		M			
	701.2	8.5								702.7 Brown & black, fine sandy SILT (A-4), with trace mica, saprolitic.	7.0
700			11	20	32	52		M			
	696.2	13.5								694.7	15.0
695			20	18	14	32		M		Boring Terminated at Elevation 694.7 ft in RESIDUAL (SILT)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_5000	**STATION** 50+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 721.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,203	**EASTING** 1,742,554	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725										
										721.2 GROUND SURFACE 0.0
720								M		**RESIDUAL** Soft to stiff, tan & red-brown, fine sandy silty CLAY (A-7-5).
								M		718.2 3.0 Medium stiff to stiff, tan, fine sandy SILT (A-4).
715										714.2 7.0 **WEATHERED ROCK** Tan & gray-green, (FELSIC METAVOLCANIC ROCK).
710										706.2 15.0 Boring Terminated at Elevation 706.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2FLYA_5400	**STATION** 54+00	**OFFSET** CL	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 731.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,050	**EASTING** 1,742,186	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
735										
										731.8 GROUND SURFACE 0.0
730							S-775	35% M		**RESIDUAL** Soft to medium stiff, brown, silty CLAY (A-7-5).
										729.3 2.5 Soft to stiff, tan, fine sandy SILT (A-4).
725										719.3 12.5 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
720										716.8 15.0 Boring Terminated at Elevation 716.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPA_200	**STATION** 2+00	**OFFSET** CL	**ALIGNMENT** -Y2LPA-	**0 HR.** Dry
COLLAR ELEV. 750.0 ft	**TOTAL DEPTH** 11.0 ft	**NORTHING** 701,449	**EASTING** 1,744,111	**24 HR.** 5.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
750										GROUND SURFACE	750.0	0.0
								M		**RESIDUAL** Stiff to very stiff, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	745.5	4.5
745										**WEATHERED ROCK** Tan to brown, (FELSIC METAVOLCANIC ROCK).	739.5	10.5
740										**CRYSTALLINE ROCK** Brown, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 739.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	739.0	11.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPA_400	**STATION** 4+00	**OFFSET** CL	**ALIGNMENT** -Y2LPA-	**0 HR.** Dry
COLLAR ELEV. 743.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,401	**EASTING** 1,744,299	**24 HR.** 11.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/29/13	**COMP. DATE** 03/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
745										GROUND SURFACE	743.6	0.0
								M		**RESIDUAL** Soft, tan-red, fine to coarse sandy silty CLAY (A-6).	740.6	3.0
740								M		Very stiff, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	728.6	15.0
735										Boring Terminated at Elevation 728.6 ft in RESIDUAL (SILT)		
730												

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPA_600	**STATION** 6+00	**OFFSET** CL	**ALIGNMENT** -Y2LPA-	**0 HR.** Dry
COLLAR ELEV. 726.5 ft	**TOTAL DEPTH** 14.3 ft	**NORTHING** 701,227	**EASTING** 1,744,384	**24 HR.** 9.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/29/13	**COMP. DATE** 03/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
730												
	726.5	0.0	1	1	2	3	SS-655	29%		GROUND SURFACE	726.5	0.0
725							SS-656	21%		**SURFICIAL ORGANIC SOILS** Brown, fine sandy SILT, with some clay and little organics.	725.0	0.5
	722.5	4.0	7	18	22	40		M		**RESIDUAL** Tan-red, fine to coarse sandy silty CLAY (A-6), with little gravel-size rock fragments and trace organics.	724.5	2.0
720										Tan, fine sandy SILT (A-4), with a high amount of gravel-sized quartz rock fragments, saprolitic.	717.5	9.0
	717.5	9.0	34	66/0.4		100/0.9				**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).	712.2	14.3
715										Boring Terminated at Elevation 712.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		
	712.5	14.0	100/0.3			100/0.3						

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y2LPA_800	STATION 8+00	OFFSET CL	ALIGNMENT -Y2LPA-	0 HR. Dry
COLLAR ELEV. 721.7 ft	TOTAL DEPTH 13.1 ft	NORTHING 701,050	EASTING 1,744,306	24 HR. 4.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD H.S. Augers	HAMMER TYPE N/A	
DRILLER J. Gilchrist	START DATE 03/29/13	COMP. DATE 03/29/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
725												
								M			721.7	GROUND SURFACE 0.0
720										**RESIDUAL** Soft, tan-red, fine to coarse sandy silty CLAY (A-6).		
								M			715.2	6.5
715										Hard, tan, fine sandy SILT (A-4), with some gravel-sized rock fragments.		
											710.7	11.0
710										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	708.7	13.0
										CRYSTALLINE ROCK Gray, (FELSIC METAVOLCANIC ROCK).	708.6	13.1
										Boring Terminated by Auger Refusal at Elevation 708.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPA_1000	**STATION** 10+00	**OFFSET** CL	**ALIGNMENT** -Y2LPA-	**0 HR.** Dry
COLLAR ELEV. 739.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,995	**EASTING** 1,744,120	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/29/13	**COMP. DATE** 03/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										ELEV. (ft) DEPTH (ft)
										739.8 GROUND SURFACE 0.0
								M		**RESIDUAL**
								M		737.8 Soft, tan-red, fine to coarse sandy silty CLAY (A-6). 2.0
735										Hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
730										729.0 10.8
										WEATHERED ROCK Gray-brown, (FELSIC METAVOLCANIC ROCK).
725										724.8 15.0
										Boring Terminated at Elevation 724.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPC_350	**STATION** 3+50	**OFFSET** CL	**ALIGNMENT** -Y2LPC-	**0 HR.** Dry
COLLAR ELEV. 713.9 ft	**TOTAL DEPTH** 12.2 ft	**NORTHING** 701,794	**EASTING** 1,743,504	**24 HR.** 7.9
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
								Sat.		713.9 GROUND SURFACE 0.0
								M		**ALLUVIAL**
710										711.9 Soft, brown-tan, fine sandy SILT (A-4). 2.0
										RESIDUAL
										709.9 Stiff to hard, brown, fine sandy SILT (A-4). 4.0
705										**WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).
										701.7 12.2
										Boring Terminated by Auger Refusal at Elevation 701.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPC_603R	**STATION** 6+03	**OFFSET** 16 ft RT	**ALIGNMENT** -Y2LPC-	**0 HR.** Dry
COLLAR ELEV. 706.5 ft	**TOTAL DEPTH** 15.3 ft	**NORTHING** 701,737	**EASTING** 1,743,262	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
710										
	706.5	0.0								706.5 0.0 GROUND SURFACE
705			2	1	1	2		W M		706.0 0.5 **RESIDUAL** Brown, silty coarse to fine SAND (A-2-4), with trace rootlets & gravel-sized rock fragments. 704.5 2.0 Tan, coarse to fine sandy clayey SILT (A-5), with trace rootlets. 702.0 4.5 Brown, coarse to fine sandy SILT (A-4), with trace clay, saprolitic. **WEATHERED ROCK** Tan-brown & gray-green, (FELSIC METAVOLCANIC ROCK).
	702.5	4.0	12	49	51/0.2	100/0.7				
700										
	697.5	9.0	26	70	30/0.1	100/0.6				
695										
	692.5	14.0	25	50	50/0.3	100/0.8				691.2 15.3 Boring Terminated at Elevation 691.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPC_862	**STATION** 8+62	**OFFSET** CL	**ALIGNMENT** -Y2LPC-	**0 HR.** Dry
COLLAR ELEV. 700.3 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,484	**EASTING** 1,743,233	**24 HR.** 1.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
										700.3 0.0 GROUND SURFACE
700								M		698.3 2.0 **ALLUVIAL** Very soft, tan-brown, clayey fine sandy SILT (A-4). 697.3 3.0 **RESIDUAL** Stiff, brown, fine to coarse sandy SILT (A-4), with trace gravel-sized rock fragments. 694.3 6.0 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) Stiff, brown, clayey fine sandy SILT (A-5). 693.3 7.0 **WEATHERED ROCK** Green-gray, (FELSIC METAVOLCANIC ROCK).
695								M		
690										685.3 15.0 Boring Terminated at Elevation 685.3 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPD_200	**STATION** 2+00	**OFFSET** CL	**ALIGNMENT** -Y2LPD-	**0 HR.** Dry
COLLAR ELEV. 751.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,983	**EASTING** 1,743,811	**24 HR.** 10.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										751.7 GROUND SURFACE	0.0
								W		**RESIDUAL** Soft to hard, brown to tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments from 6.0'-9.5'.	
								M			
								M			
										742.2 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	9.5
										736.7 Boring Terminated at Elevation 736.7 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	15.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPD_600L	**STATION** 6+00	**OFFSET** 26 ft LT	**ALIGNMENT** -Y2LPD-	**0 HR.** Dry
COLLAR ELEV. 733.3 ft	**TOTAL DEPTH** 8.5 ft	**NORTHING** 700,778	**EASTING** 1,743,501	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	733.3	0.0	1	2	1	3		W		733.3 GROUND SURFACE	0.0
								W		732.1 **RESIDUAL** Brown, fine sandy SILT (A-4), with trace rootlets & gravel-sized rock fragments.	1.2
	729.3	4.0	5	8	12	20		M		730.3 Tan, silty CLAY (A-6). Brown-tan, fine sandy SILT (A-4), saprolitic.	3.0
	724.9	8.4	60/0.1			60/0.1				724.9	8.4
										724.8 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 724.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	8.5

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 8.4'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2LPD_1000	**STATION** 10+00	**OFFSET** CL	**ALIGNMENT** -Y2LPD-	**0 HR.** 11.5
COLLAR ELEV. 729.7 ft	**TOTAL DEPTH** 13.8 ft	**NORTHING** 701,131	**EASTING** 1,743,382	**24 HR.** 6.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	ELEV. (ft)	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
730										729.7	GROUND SURFACE	0.0
								M		727.7	**RESIDUAL** Soft, orange-tan, fine to coarse sandy CLAY (A-6), with trace organics.	2.0
725								M W		726.7	Soft, red-tan, silty CLAY (A-6). Soft to medium stiff, red & tan, clayey SILT (A-5).	3.0
								M		719.7	Stiff to very stiff, tan, fine sandy SILT (A-4).	10.0
720								M		717.4		12.3
										716.0	**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	13.7
										715.9	**CRYSTALLINE ROCK** Gray, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 715.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	13.8

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPA_490R	**STATION** 4+90	**OFFSET** 16 ft RT	**ALIGNMENT** -Y2RPA-	**0 HR.** Dry
COLLAR ELEV. 726.3 ft	**TOTAL DEPTH** 5.7 ft	**NORTHING** 701,414	**EASTING** 1,744,821	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
730											
725											
								W		726.3 GROUND SURFACE	0.0
								M		724.8 **ARTIFICIAL FILL** Soft, brown, fine sandy SILT (A-4), with trace gravel.	1.5
								M		723.3	3.0
								M		722.3 **RESIDUAL** Soft, tan, fine sandy silty CLAY (A-7-5).	4.0
										721.3 Soft, tan, clayey SILT (A-5).	5.0
										720.6 Soft to stiff, tan, fine sandy SILT (A-4). **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 720.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	5.7

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPA_780R	**STATION** 7+80	**OFFSET** 95 ft RT	**ALIGNMENT** -Y2RPA-	**0 HR.** 17.6
COLLAR ELEV. 739.7 ft	**TOTAL DEPTH** 23.6 ft	**NORTHING** 701,657	**EASTING** 1,744,969	**24 HR.** 8.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740	739.7	0.0	1	2	2	4		M		739.7 0.0 GROUND SURFACE
										RESIDUAL
										737.7 2.0 Red-brown, fine sandy clayey SILT (A-5).
735	736.2	3.5	4	6	9	15		M		Tan-orange & green, fine sandy SILT (A-4), with trace mica.
730	731.2	8.5	3	5	6	11		M		
725	726.2	13.5	2	2	5	7		M		
720	721.2	18.5	2	3	5	8		M		718.2 21.5 **WEATHERED ROCK**
	716.2	23.5	60/0.1			60/0.1				716.2 23.5 (FELSIC METAVOLCANIC ROCK)
										716.1 23.6 **CRYSTALLINE ROCK**
										Tan, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 716.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPA_856	**STATION** 8+56	**OFFSET** CL	**ALIGNMENT** -Y2RPA-	**0 HR.** 11.1
COLLAR ELEV. 728.7 ft	**TOTAL DEPTH** 12.6 ft	**NORTHING** 701,764	**EASTING** 1,744,915	**24 HR.** 0.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730	728.7	0.0	WOH	WOH	WOH	0	SS-250	30%		728.7 0.0 GROUND SURFACE
										ALLUVIAL
										726.7 2.0 Gray & tan, silty CLAY (A-6), with little fine sand and trace gravel.
725	725.2	3.5	14	18	19	37		M		**RESIDUAL**
										Brown, orange & gray, fine sandy SILT (A-4), saprolitic.
720	720.2	8.5	4	6	8	14		M		
	716.1	12.6	60/0.0			60/0.0				716.2 12.5 **WEATHERED ROCK**
										716.1 12.6 (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 716.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 12.6'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPA_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -Y2RPA-	**0 HR.** Dry
COLLAR ELEV. 746.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 702,032	**EASTING** 1,745,127	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	746.1	0.0
								M		**RESIDUAL** Medium stiff to hard, brown & orange, fine sandy SILT (A-4).		
											736.1	10.0
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		
											731.1	15.0
										Boring Terminated at Elevation 731.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPB_200	**STATION** 2+00	**OFFSET** CL	**ALIGNMENT** -Y2RPB-	**0 HR.** Dry
COLLAR ELEV. 750.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,857	**EASTING** 1,744,650	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	750.8	0.0
										ASPHALT	749.9	0.9
								M		**ROADWAY EMBANKMENT** Medium dense, gray, silty coarse to fine SAND (A-2-4), with trace gravel.	748.8	2.0
								M			747.3	3.5
										Medium stiff, pink-tan, fine sandy SILT (A-4).	745.2	5.6
								M		BOULDER	743.8	7.0
										Stiff, red-brown, fine sandy SILT (A-4).	742.8	8.0
								M		BOULDER		
										Stiff, brown, fine sandy SILT (A-4).	739.8	11.0
										BOULDER		
											736.8	14.0
								M		Stiff, brown, fine sandy SILT (A-4).	735.8	15.0
										Boring Terminated at Elevation 735.8 ft in ROADWAY EMBANKMENT (SILT)		

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPB_500	**STATION** 5+00	**OFFSET** CL	**ALIGNMENT** -Y2RPB-	**0 HR.** Dry
COLLAR ELEV. 757.9 ft	**TOTAL DEPTH** 13.6 ft	**NORTHING** 701,763	**EASTING** 1,744,367	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
	757.9	0.0	1	1	3	4		W		ELEV. (ft) 757.9 — GROUND SURFACE — DEPTH (ft) 0.0
755	754.4	3.5	19	51	49/0.4	100/0.9				**RESIDUAL** Brown, fine sandy SILT (A-4), with trace roots & gravel-sized rock fragments. — 753.9 — 4.0
750	749.4	8.5	64	36/0.5		100/1.0				**WEATHERED ROCK** Light brown-orange & gray, (FELSIC METAVOLCANIC ROCK).
745	744.4	13.5	60/0.1			60/0.1				744.4 — 13.5 — 744.3 — 13.6 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 744.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPB_900	**STATION** 9+00	**OFFSET** CL	**ALIGNMENT** -Y2RPB-	**0 HR.** Dry
COLLAR ELEV. 777.2 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 701,849	**EASTING** 1,743,983	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
780										
775								M		777.2 — GROUND SURFACE — 0.0 **RESIDUAL** Medium stiff to stiff, tan, fine sandy SILT (A-4). — 774.2 — 3.0 Medium stiff, brown, silty CLAY (A-7-5). — 772.3 — 4.9
								M		771.4 — 5.8 **WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK). — 771.2 — 6.0 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 771.2 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPB_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -Y2RPB- — **0 HR.** Dry
COLLAR ELEV. 718.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 702,336	**EASTING** 1,743,667 — **24 HR.** 5.9
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER D. Tignor	**START DATE** 04/25/13	**COMP. DATE** 04/25/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
720										718.6 GROUND SURFACE 0.0
715								W		**RESIDUAL** Medium stiff to stiff, brown & tan, fine sandy SILT (A-4).
710										706.8 11.8
705										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). 703.6 15.0
										Boring Terminated at Elevation 703.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPC_500	**STATION** 5+00	**OFFSET** CL	**ALIGNMENT** -Y2RPC- — **0 HR.** Dry
COLLAR ELEV. 733.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 702,714	**EASTING** 1,743,427 — **24 HR.** 2.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
735										733.9 GROUND SURFACE 0.0
730								W		732.4 **RESIDUAL** Very soft, tan, clayey fine sandy SILT (A-4). 1.5
725								M		730.9 Soft to medium stiff, orange-brown, fine to coarse sandy silty CLAY (A-7-6). 3.0
720								M		Medium stiff to stiff, brown, fine sandy SILT (A-4), with trace clay.
										721.9 12.0
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK). 718.9 15.0
										Boring Terminated at Elevation 718.9 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPC_900R	**STATION** 9+00	**OFFSET** 30 ft RT	**ALIGNMENT** -Y2RPC-	**0 HR.** Dry
COLLAR ELEV. 729.8 ft	**TOTAL DEPTH** 14.1 ft	**NORTHING** 702,327	**EASTING** 1,743,341	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/11/13	**COMP. DATE** 04/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										ELEV. (ft) DEPTH (ft)
	729.8	0.0	4	8	3	11		M		729.8 GROUND SURFACE 0.0
										728.8 **ARTIFICIAL FILL** 1.0
										Brown, fine sandy SILT (A-4), with trace rootlets & gravel.
725	725.8	4.0	5	4	7	11		M		**RESIDUAL**
										Tan to orange-brown, fine sandy SILT (A-4), with trace to some clay.
720	720.8	9.0	4	9	91/0.4	100/0.9				720.3 9.5
										WEATHERED ROCK
										Tan-brown, (FELSIC METAVOLCANIC ROCK).
	715.8	14.0	60/0.1			60/0.1				715.8 14.0
										715.7 14.1
										CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 715.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										NOTES:
										1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPC_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -Y2RPC-	**0 HR.** Dry
COLLAR ELEV. 720.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 701,953	**EASTING** 1,743,212	**24 HR.** 11.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										
										720.9 GROUND SURFACE 0.0
720								W		**RESIDUAL**
								M		718.4 Very soft to soft, tan, fine sandy clayey SILT (A-5). 2.5
										Medium stiff to stiff, brown, fine sandy SILT (A-4).
715										715.4 5.5
										WEATHERED ROCK
										Brown & gray-green, (FELSIC METAVOLCANIC ROCK).
710										705.9 15.0
										Boring Terminated at Elevation 705.9 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)
										NOTES:
										1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPD_000	**STATION** 0	**OFFSET** CL	**ALIGNMENT** -Y2RPD- — **0 HR.** Dry
COLLAR ELEV. 721.6 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 700,927	**EASTING** 1,742,130 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725										
	721.6	0.0	2	3	5	8		M		721.6 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT** Tan & red, fine to coarse sandy SILT (A-4), with trace roots, some clay.
720										
	717.6	4.0	80	20/0.1		100/0.6				717.6 4.0 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
715										
	712.6	9.0	100/0.2			100/0.2				
710										
	707.6	14.0	79	21/0.0		100/0.5				707.1 14.5 Boring Terminated at Elevation 707.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPD_200	**STATION** 2+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD- — **0 HR.** Dry
COLLAR ELEV. 721.9 ft	**TOTAL DEPTH** 13.0 ft	**NORTHING** 700,957	**EASTING** 1,742,328 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										
								M		721.9 GROUND SURFACE 0.0 **ARTIFICIAL FILL** Medium stiff, brown, fine to coarse sandy SILT (A-4), with trace gravel.
720								M		719.2 2.7 Medium stiff, red, silty CLAY (A-6).
										714.9 7.0 **RESIDUAL** Stiff to very stiff, tan, fine sandy SILT (A-4), with trace clay, trace gravel-sized rock fragments from 8.0'-12.9'.
715								M		
								M		709.0 12.9 708.9 13.0 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 708.9 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)
710										

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPD_600	**STATION** 6+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD-	**0 HR.** Dry
COLLAR ELEV. 693.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,965	**EASTING** 1,742,727	**24 HR.** 8.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/05/13	**COMP. DATE** 04/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
695										693.7 GROUND SURFACE 0.0
690								M		**RESIDUAL** Soft to medium stiff, red-tan, silty CLAY (A-7-5).
								M		688.7 5.0 Medium stiff, tan, fine sandy SILT (A-4).
685										685.7 8.0 Stiff, tan, clayey SILT (A-5).
								M		681.7 12.0 Stiff, tan, fine sandy SILT (A-4). 680.7 13.0
680										679.2 **WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK). 14.5 678.7 15.0 **CRYSTALLINE ROCK** Gray-brown, (MAFIC METAVOLCANIC ROCK). Boring Terminated at Elevation 678.7 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPD_1000	**STATION** 10+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD-	**0 HR.** Dry
COLLAR ELEV. 705.2 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 700,888	**EASTING** 1,743,119	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
710										
705	705.2	0.0								705.2 GROUND SURFACE 0.0
			1	1	2	3		W		**RESIDUAL** Tan, clayey coarse to fine sandy SILT (A-4), with trace roots & gravel-sized rock fragments. 701.7 3.5
700	701.2	4.0	21	39	43	82		M		Brown, fine sandy SILT (A-4). 698.2 7.0
695	696.2	9.0	40	60/0.4		100/0.9				**WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK). 693.2 12.0 Brown, clayey fine sandy SILT (A-4), with trace gravel-sized rock fragments.
690	691.2	14.0	27	16	18	34		M		689.7 15.5 Boring Terminated at Elevation 689.7 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPD_1400	**STATION** 14+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD-	**0 HR.** Dry
COLLAR ELEV. 731.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,732	**EASTING** 1,743,487	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										731.6 GROUND SURFACE 0.0
730								W		**RESIDUAL**
								M		729.6 Very soft, brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments & clay. 2.0
								M		Soft to stiff, orange-brown, silty CLAY (A-7-5). 726.6 5.0
725								M		Soft to stiff, tan, fine sandy silty CLAY (A-6). 724.1 7.5
								M		Stiff to very stiff, tan, fine sandy SILT (A-4).
720										716.6 15.0
										Boring Terminated at Elevation 716.6 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPD_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD-	**0 HR.** Dry
COLLAR ELEV. 720.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 700,503	**EASTING** 1,743,814	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										720.9 GROUND SURFACE 0.0
720								M		**RESIDUAL** Soft, red, silty CLAY (A-7-5).
715								M		714.9 Soft, tan, silty CLAY (A-6). 6.0
710								M		708.9 Soft, tan, fine sandy clayey SILT (A-5). 12.0
										705.9 15.0
										Boring Terminated at Elevation 705.9 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPD_2000	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -Y2RPD- — **0 HR.** Dry
COLLAR ELEV. 706.5 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 700,365	**EASTING** 1,743,957 — **24 HR.** 8.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
710										
	706.5	0.0								706.5 GROUND SURFACE 0.0
705			WOH	1	1	2		W		**RESIDUAL** Orange-tan to gray-tan, fine sandy SILT (A-4), with trace to some clay, trace roots.
	702.5	4.0	4	8	10	18		M		
700										699.5 7.0
	697.5	9.0	13	24	29	53		M		Brown, fine sandy SILT (A-4), with trace mica, saprolitic.
695										
	692.5	14.0	11	19	38	57		M		691.0 15.5 Boring Terminated at Elevation 691.0 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y2RPD_2125R	**STATION** 21+25	**OFFSET** 70 ft RT	**ALIGNMENT** -Y2RPD- — **0 HR.** Dry
COLLAR ELEV. 698.0 ft	**TOTAL DEPTH** 7.9 ft	**NORTHING** 700,226	**EASTING** 1,743,986 — **24 HR.** 4.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
700										
	698.0	0.0								698.0 GROUND SURFACE 0.0
			WOH	1	1	2		W		696.5 **ALLUVIAL** Tan, fine sandy SILT (A-4), with trace clay & organics. 1.5
695										**RESIDUAL**
	694.0	4.0	5	6	4	10				692.5 Tan & gray, silty CLAY (A-7-5), with trace gravel-sized rock fragments. 5.5
										690.1 **WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK). 7.9
	690.1	7.9	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 690.1 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 7.9'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y2RPD_2250	**STATION** 22+50	**OFFSET** CL	**ALIGNMENT** -Y2RPD-	**0 HR.** Dry
COLLAR ELEV. 711.8 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 700,171	**EASTING** 1,744,116	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/27/13	**COMP. DATE** 03/27/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
715										711.8 GROUND SURFACE	0.0
710							S-639	30%		**RESIDUAL** Stiff, red, silty CLAY (A-7-6), with little fine sand.	
								M		708.8 Stiff, tan, fine sandy SILT (A-4).	3.0
								M		706.8 Stiff, tan-red, clayey SILT (A-5).	5.0
705										703.3	8.5
										701.8 **WEATHERED ROCK** Brown, (MAFIC METAVOLCANIC ROCK).	10.0
										701.5 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK).	10.3
										Boring Terminated at Elevation 701.5 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1350R	**STATION** 13+50	**OFFSET** 42 ft RT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 834.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 694,213	**EASTING** 1,746,818	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/09/13	**COMP. DATE** 06/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
835										834.2 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium stiff to stiff, red-brown, silty CLAY (A-7-5).	
830							S-974	28%			
825										824.2	10.0
										Boring Terminated at Elevation 824.2 ft in RESIDUAL (CLAY)	

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in driveway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1439R	**STATION** 14+39	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 37.0
COLLAR ELEV. 831.5 ft	**TOTAL DEPTH** 76.1 ft	**NORTHING** 694,307	**EASTING** 1,746,807	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
840										
835										
830	830.7	0.8								831.5 GROUND SURFACE 0.0 830.7 **ASPHALT** 0.8
			6	7	9	16		M		829.7 **ROADWAY EMBANKMENT** 1.8 Red, fine sandy SILT (A-4), with some clay.
	827.5	4.0	5	5	7	12		M		**RESIDUAL** 5.0 826.5 Red & tan, fine sandy SILT (A-4).
825										Dark red, tan & white, fine sandy SILT (A-4), with some mica.
	822.5	9.0	5	4	7	11		M		
820										
	817.5	14.0	4	5	4	9		M		
815										
	812.5	19.0	6	6	12	18		M		
810										
	807.5	24.0	4	3	5	8		M		809.0 22.5 Red, tan, black & gray, clayey SILT (A-5).
805										
	802.5	29.0	1	1	2	3		M		
800										
	797.5	34.0	2	2	5	7		M	▽	
795										
	792.5	39.0	2	3	4	7		M		
790										
	787.5	44.0	5	10	9	19		M		
785										
	782.5	49.0	8	8	17	25		M		784.0 47.5 Tan & gray, fine sandy SILT (A-4).
780										780.5 51.0 **WEATHERED ROCK**
	777.5	54.0	20	60/0.3		100/0.8		M		Tan & gray, (METAMUDSTONE).
775										
	772.5	59.0	12	25	24	49		M		773.5 58.0 Tan & gray, fine sandy SILT (A-4).
770										
	767.5	64.0	55	40	36	78		M		
765										
	762.5	69.0	85	15/0.0		100/0.5		M		762.5 69.0 **WEATHERED ROCK**
760										Tan, (METAMUDSTONE).

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1439R	**STATION** 14+39	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 37.0
COLLAR ELEV. 831.5 ft	**TOTAL DEPTH** 76.1 ft	**NORTHING** 694,307	**EASTING** 1,746,807	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760						Match Line				
	757.5	74.0	56	44/0.1		100/0.6				**WEATHERED ROCK**
	755.5	76.0	60/0.1			60/0.1				Tan, (METAMUDSTONE). *(continued)*
										756.4 75.1 755.4 **CRYSTALLINE ROCK** 76.1 (METAMUDSTONE)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 755.4 ft in CRYSTALLINE ROCK (METAMUDSTONE)
										NOTES: 1) Auger refusal at 76.0'. 2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1462L	**STATION** 14+62	**OFFSET** 9 ft LT	**ALIGNMENT** -Y3-	**0 HR.** 37.1
COLLAR ELEV. 831.1 ft	**TOTAL DEPTH** 65.9 ft	**NORTHING** 694,334	**EASTING** 1,746,794	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
835										
830	830.3	0.8	6	7	10	17		M		831.1 GROUND SURFACE 0.0 830.3 **ASPHALT** 0.8 829.3 **ROADWAY EMBANKMENT** 1.8 Red, fine sandy SILT (A-4), with some clay.
	827.1	4.0								**RESIDUAL**
825			5	9	11	20		M		Dark red, tan & white, fine sandy SILT (A-4), with some mica.
	822.1	9.0								
820			3	4	4	8		M		
	817.1	14.0								
815			4	5	5	10		M		
	812.1	19.0								
810			2	2	3	5		M		
	807.1	24.0								808.6 22.5 Red, tan & black, clayey SILT (A-5).
805			2	2	3	5		M		
	802.1	29.0								803.6 27.5 Red, tan & gray, SILT (A-4), with trace fine sand.
800			2	2	4	6		M		
	797.1	34.0								798.6 32.5 Tan & gray, clayey SILT (A-5).
795			1	2	3	5		W		
	792.1	39.0								792.1 39.0 791.3 Tan & gray, fine sandy SILT (A-4). 39.8
790			8	8	5	13		M		Tan & gray, clayey SILT (A-5). 788.6 42.5
	787.1	44.0								Tan & gray, fine sandy SILT (A-4), with trace gravel-size rock fragments.
785			13	9	11	20		M		
	782.1	49.0								
780			6	9	15	24		M		
	777.1	54.0								776.6 54.5 Brown, clayey SILT (A-5), with trace mica.
775			12	30	41	71		M		773.8 57.3 **WEATHERED ROCK**
	772.1	59.0	100/0.4			100/0.4				Tan & gray, (METAMUDSTONE).
770										767.6 63.5 **CRYSTALLINE ROCK**
	767.1	64.0	60/0.1			60/0.1				Tan & gray, (METAMUDSTONE). 765.2 65.9
	765.2	65.9	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 765.2 ft in CRYSTALLINE ROCK (METAMUDSTONE)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1462L	**STATION** 14+62	**OFFSET** 9 ft LT	**ALIGNMENT** -Y3-	**0 HR.** 37.1
COLLAR ELEV. 831.1 ft	**TOTAL DEPTH** 65.9 ft	**NORTHING** 694,334	**EASTING** 1,746,794	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755						Match Line				NOTES: 1) Auger refusal at 65.9'. 2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1620L	**STATION** 16+20	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** N/A
COLLAR ELEV. 827.3 ft	**TOTAL DEPTH** 75.0 ft	**NORTHING** 694,487	**EASTING** 1,746,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/20/13	**COMP. DATE** 06/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
835											
830											
										827.3 GROUND SURFACE	0.0
	826.2	1.1								826.2 **ASPHALT**	1.1
825			4	5	12	17		M		**ROADWAY EMBANKMENT** Gray & red-brown, fine sandy clayey SILT	
	823.8	3.5	2	2	2	4		W		(A-5), with little gravel. 822.8	4.5
820										**RESIDUAL** Gray-brown, silty CLAY (A-7-5).	
	818.8	8.5	13	21	39	60		M		818.5	8.8
815										Gray-tan, fine sandy SILT (A-4). 815.3	12.0
	813.8	13.5	45	55/0.3		100/0.8				**WEATHERED ROCK** Light tan, (METASILTSTONE).	
810										810.3	17.0
	808.8	18.5	10	15	20	35		M		Brown & gray-green, fine sandy SILT (A-4), with trace mica, saprolitic.	
805											
	803.8	23.5	16	19	50	69		M			
800											
	798.8	28.5	25	36	33	69		M			
795											
	793.8	33.5	28	72/0.4		100/0.9				793.8 **WEATHERED ROCK** Gray-green, (METASILTSTONE).	33.5
790											
	788.8	38.5	46	44	56/0.4	100/0.9					
785										785.3 Light tan & gray-green, fine sandy SILT	42.0
	783.8	43.5	14	18	26	44		M		(A-4), with trace mica, saprolitic.	
780											
	778.8	48.5	36	60	40/0.3	100/0.8				778.3 **WEATHERED ROCK** Tan-brown & gray-green, (METASILTSTONE).	49.0
775											
	773.8	53.5	100/0.2			100/0.2					
770										770.3 Brown, fine sandy SILT (A-4), with trace	57.0
	768.8	58.5	24	28	48	76		M		mica.	
765										765.3 WEATHERED ROCK Gray-green, (METASILTSTONE).	62.0
	763.8	63.5	100/0.3			100/0.3					
	762.3	65.0	60/0.0			60/0.0				762.3 **CRYSTALLINE ROCK** Gray-brown to light gray, (METASILTSTONE).	65.0
760							RS-9				
755											

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1620L	**STATION** 16+20	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** N/A
COLLAR ELEV. 827.3 ft	**TOTAL DEPTH** 75.0 ft	**NORTHING** 694,487	**EASTING** 1,746,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/20/13	**COMP. DATE** 06/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755						Match Line				
										752.3 75.0
										Boring Terminated at Elevation 752.3 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 65.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			GROUND WTR (ft)
BORING NO. Y3_1620L	STATION 16+20	OFFSET 8 ft LT	ALIGNMENT -Y3-	0 HR. N/A
COLLAR ELEV. 827.3 ft	TOTAL DEPTH 75.0 ft	NORTHING 694,487	EASTING 1,746,833	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER J. Gilchrist	START DATE 06/20/13	COMP. DATE 06/20/13	SURFACE WATER DEPTH N/A
CORE SIZE NQ3	TOTAL RUN 10.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
762.3											Begin Coring @ 65.0 ft
760	762.3	65.0	5.0	N=60/0.0 3:24/1.0 5:07/1.0 5:04/1.0 6:49/1.0 4:20/1.0	(4.9) 98%	(2.0) 40%	RS-9	(9.7) 97%	(3.8) 38%		CRYSTALLINE ROCK Gray-brown to light gray, moderately severe to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing. RS-9: 66.3'-66.6' qu = 9,038 psi R_1=7, R_2=8, R_3=10, R_4=6, R_5=7 RMR = 38, Rock Type E
	757.3	70.0									
755			5.0	3:08/1.0 3:50/1.0 5:50/1.0 3:38/1.0 3:23/1.0	(4.8) 96%	(1.8) 36%					
	752.3	75.0									Boring Terminated at Elevation 752.3 ft in CRYSTALLINE ROCK (METASILTSTONE)

762.3 ELEV. (ft) — 65.0 DEPTH (ft)

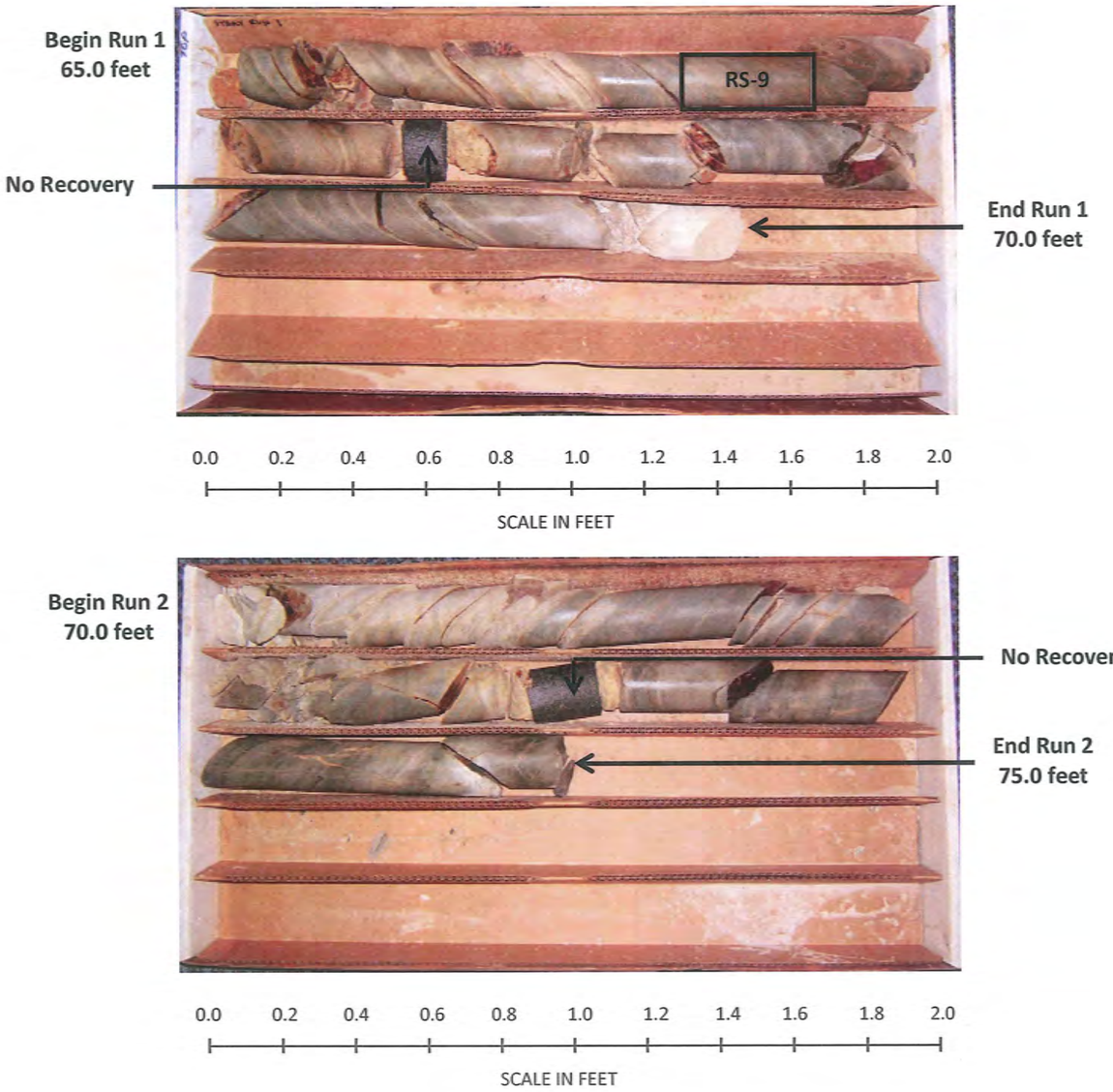
752.3 ELEV. (ft) — 75.0 DEPTH (ft)

NOTES:

1) Auger refusal at 65.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y3_1620L: Station 16+20, 8' LT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1733R	**STATION** 17+33	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 825.0 ft	**TOTAL DEPTH** 33.6 ft	**NORTHING** 694,588	**EASTING** 1,746,888	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION / ELEV. (ft)	DEPTH (ft)
825										825.0 GROUND SURFACE	0.0
	824.2	0.8	7	6	5	11		M		824.2 **ASPHALT**	0.8
820	821.5	3.5	14	19	25	44		M		822.5 **ROADWAY EMBANKMENT** Tan-brown, fine sandy SILT (A-4), with trace gravel.	2.5
	816.5	8.5	8	12	22	34		M		**RESIDUAL** Tan-white & orange, fine sandy SILT (A-4), with trace gravel-size rock fragments.	
815	811.5	13.5	13	21	79/0.3	100/0.8				811.0 **WEATHERED ROCK** Tan-orange, tan & gray, (METAMUDSTONE).	14.0
810	806.5	18.5	42	58/0.3		100/0.8					
805	801.5	23.5	100/0.2			100/0.2					
800	796.5	28.5	100/0.3			100/0.3					
795	791.5	33.5	60/0.1			60/0.1				791.5 **CRYSTALLINE ROCK** (METAMUDSTONE) Boring Terminated with Standard Penetration Test Refusal at Elevation 791.4 ft in CRYSTALLINE ROCK (METAMUDSTONE)	33.5
										791.4	33.6

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y3_1747L	**STATION** 17+47	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 825.9 ft	**TOTAL DEPTH** 33.9 ft	**NORTHING** 694,608	**EASTING** 1,746,876	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION / ELEV. (ft)	DEPTH (ft)
830										825.9 GROUND SURFACE	0.0
825	825.1	0.8	9	4	4	8		M		825.1 ASPHALT	0.8
	822.4	3.5	12	19	26	45		M		823.6 **ROADWAY EMBANKMENT** Tan & yellow, fine sandy SILT (A-4), with trace gravel.	2.3
820	817.4	8.5	14	20	25	45		M		**RESIDUAL** Tan-white to tan-brown, fine sandy SILT (A-4), with trace gravel-size rock fragments.	
815	812.4	13.5	18	12	14	26		M		806.9 **WEATHERED ROCK** Gray, (METAMUDSTONE).	19.0
810	807.4	18.5	10	19	81/0.4	100/0.9					
805	802.4	23.5	23	77/0.5		100/1.0					
800	797.4	28.5	18	26	74/0.5	100/1.0					
795	792.4	33.5	100/0.4			100/0.4				792.0 Boring Terminated at Elevation 792.0 ft in WEATHERED ROCK (METAMUDSTONE)	33.9

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_000	**STATION** 0	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 694.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 710,205	**EASTING** 1,742,082	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
695												
								M		GROUND SURFACE	694.2	0.0
								M		**RESIDUAL** Soft to medium stiff, tan-brown, fine sandy clayey SILT (A-5). Medium stiff to hard, tan, fine sandy SILT (A-4).	693.2	1.0
690											688.6	5.6
										WEATHERED ROCK Tan, green & gray, (FELSIC METAVOLCANIC ROCK).		
685												
680											679.2	15.0

Boring Terminated by Auger Refusal at Elevation 679.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_100	**STATION** 1+00	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 694.9 ft	**TOTAL DEPTH** 3.2 ft	**NORTHING** 710,281	**EASTING** 1,742,018	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/22/13	**COMP. DATE** 03/22/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
695												
	694.9	0.0	2	4	38	42		M		GROUND SURFACE	694.9	0.0
										RESIDUAL Tan, fine sandy SILT (A-4).	692.1	2.8
	691.7	3.2	60/0.0			60/0.0				**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK)	691.7	3.2

Boring Terminated with Standard Penetration Test Refusal at Elevation 691.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 3.2'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_105	**STATION** 1+05	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 694.7 ft	**TOTAL DEPTH** 2.8 ft	**NORTHING** 710,285	**EASTING** 1,742,014	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
695												
								W		GROUND SURFACE	694.7	0.0
										RESIDUAL Stiff to hard, tan, fine sandy SILT (A-4).	692.3	2.4
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	691.9	2.8
										Boring Terminated by Auger Refusal at Elevation 691.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_200	**STATION** 2+00	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** 14.6
COLLAR ELEV. 687.7 ft	**TOTAL DEPTH** 19.4 ft	**NORTHING** 710,343	**EASTING** 1,741,940	**24 HR.** 8.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
690												
										GROUND SURFACE	687.7	0.0
								M		**RESIDUAL** Soft, tan-orange, fine sandy clayey SILT (A-5).	686.2	1.5
685								M		Medium stiff to hard, tan, fine sandy SILT (A-4).		
								W				
680												
								M				
675												
											674.6	13.1
670										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).		
											668.3	19.4
										Boring Terminated by Auger Refusal at Elevation 668.3 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_350	**STATION** 3+50	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 669.0 ft	**TOTAL DEPTH** 13.9 ft	**NORTHING** 710,372	**EASTING** 1,741,795	**24 HR.** 1.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/22/13	**COMP. DATE** 03/22/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
670										GROUND SURFACE	669.0	0.0
								W		**ALLUVIAL** Soft, tan, clayey fine sandy SILT (A-4).	665.3	3.7
665										**WEATHERED ROCK** Gray & green, (FELSIC METAVOLCANIC ROCK).		
660											655.1	13.9
										Boring Terminated by Auger Refusal at Elevation 655.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_600	**STATION** 6+00	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 696.7 ft	**TOTAL DEPTH** 19.7 ft	**NORTHING** 710,207	**EASTING** 1,741,630	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/22/13	**COMP. DATE** 03/22/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
700										GROUND SURFACE	696.7	0.0
695								M		**RESIDUAL** Soft to stiff, red & tan, clayey fine sandy SILT (A-4).		
690								M			679.5	17.2
685										**WEATHERED ROCK** Gray & green, (FELSIC METAVOLCANIC ROCK).	677.0	19.7
680										Boring Terminated by Auger Refusal at Elevation 677.0 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_800	**STATION** 8+00	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** Dry
COLLAR ELEV. 688.6 ft	**TOTAL DEPTH** 10.2 ft	**NORTHING** 710,026	**EASTING** 1,741,693	**24 HR.** 5.6
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/22/13	**COMP. DATE** 03/22/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
690										GROUND SURFACE	688.6	0.0
								W		**RESIDUAL** Soft, tan, fine sandy SILT (A-4), with trace roots. Soft to stiff, red, clayey SILT (A-5).	687.1	1.5
685								M				
										WEATHERED ROCK Gray-green, (FELSIC METAVOLCANIC ROCK).	681.1	7.5
680										Boring Terminated by Auger Refusal at Elevation 678.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	678.4	10.2

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4LPC_1000	**STATION** 10+00	**OFFSET** CL	**ALIGNMENT** -Y4LPC-	**0 HR.** 3.9
COLLAR ELEV. 657.1 ft	**TOTAL DEPTH** 19.2 ft	**NORTHING** 709,965	**EASTING** 1,741,879	**24 HR.** 2.8
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
660										GROUND SURFACE	657.1	0.0
		0.0	1	2	1	3 27		W		**ALLUVIAL** Gray & brown, fine sandy SILT (A-4), with trace organics.	655.1	2.0
655		3.5						M		**RESIDUAL** Tan-orange, fine sandy SILT (A-4).		
			6	9	18							
650		8.5				72		M			646.8	10.3
			15	24	48					**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).		
645		13.5										
			79	21/0.2		100/0.7						
640		18.5									637.9	19.2
			56	44/0.2		100/0.7				Boring Terminated at Elevation 637.9 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 663.1 ft	**TOTAL DEPTH** 11.6 ft	**NORTHING** 709,937	**EASTING** 1,742,078	**24 HR.** 8.4
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
665										663.1 GROUND SURFACE 0.0
								M		**RESIDUAL** Medium stiff to hard, tan, fine sandy SILT (A-4).
660										657.2 5.9
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).
655										651.5 11.6
										Boring Terminated by Auger Refusal at Elevation 651.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1292L	**STATION** 12+92	**OFFSET** 45 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 675.6 ft	**TOTAL DEPTH** 13.3 ft	**NORTHING** 709,980	**EASTING** 1,742,172	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
680										
	675.6	0.0	WOH	WOH	2	2 14		W		675.6 GROUND SURFACE 0.0
675										**RESIDUAL** Tan, orange & white, fine sandy to highly fine sandy SILT (A-4), with trace gravel-size rock fragments.
	672.1	3.5	3	6	8			M		
670										
	667.1	8.5	5	8	11	19		M		
665										663.4 12.2
	662.4	13.2	60/0.1			60/0.1				662.4 **WEATHERED ROCK** Tan & white, (FELSIC METAVOLCANIC ROCK). 13.2
										662.3 13.3
										CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 662.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 13.2'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1319	**STATION** 13+19	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 671.5 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 709,935	**EASTING** 1,742,197	**24 HR.** 8.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
675											
	671.5	0.0	1	2	2	4		W		671.5 GROUND SURFACE	0.0
670										668.0 **RESIDUAL** Tan-white, highly fine sandy SILT (A-4), with trace gravel-size rock fragments.	3.5
	668.0	3.5	62	38/0.4		100/0.9				**WEATHERED ROCK** Brown & orange, (FELSIC METAVOLCANIC ROCK).	
665											
	663.0	8.5	100/0.2			100/0.2					
660											
	658.0	13.5	35	65/0.5		100/1.0				657.0 Boring Terminated at Elevation 657.0 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	14.5

NOTES:

1) 0.0-0.2 = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1350R	**STATION** 13+50	**OFFSET** 57 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 664.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 709,877	**EASTING** 1,742,228	**24 HR.** 13.1
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
665											
	664.8	0.0	2	3	4	7		W		664.8 GROUND SURFACE	0.0
	661.3	3.5	80	20/0.2		100/0.7				**RESIDUAL** Tan, fine sandy SILT (A-4), with trace gravel-size rock fragments. 661.3	3.5
660										**WEATHERED ROCK** Brown & orange, (FELSIC METAVOLCANIC ROCK).	
	656.3	8.5	44	56/0.3		100/0.8					
655											
	651.3	13.5	29	41	59/0.5	100/1.0				649.8 Boring Terminated at Elevation 649.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	15.0
650											

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y4RPA_1420L	STATION 14+20	OFFSET 39 ft LT	ALIGNMENT -Y4RPA-	0 HR. N/A
COLLAR ELEV. 670.1 ft	TOTAL DEPTH 46.8 ft	NORTHING 709,971	EASTING 1,742,299	24 HR. 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 06/14/13	COMP. DATE 06/17/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
675											
670	670.1	0.0	2	3	6	9		M		670.1 GROUND SURFACE	0.0
										RESIDUAL Yellow & red-brown, clayey SILT (A-5).	
	666.6	3.5	14	27	73/0.3	100/0.8				666.1	4.0
665										**WEATHERED ROCK** Red-brown & brown-yellow, (FELSIC METAVOLCANIC ROCK).	
	661.6	8.5	27	23	31	54				663.1 Brown, silty SAND (A-2-4).	7.0
660								M			
	656.6	13.5	80	20/0.1		100/0.6				658.1 **WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).	12.0
655											
	651.6	18.5	100/0.5			100/0.5					
650											
	647.1	23.0	60/0.1			60/0.1				647.1	23.0
645										647.0 **CRYSTALLINE ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK).	23.1
										643.4	26.7
										642.0 Gray, (FELSIC METAVOLCANIC ROCK).	28.1
640										**WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	
										638.2	31.9
										636.7 **CRYSTALLINE ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	33.4
635							RS-8			635.0	35.1
										634.0 **WEATHERED ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK).	36.1
										CRYSTALLINE ROCK Gray & brown, (FELSIC METAVOLCANIC ROCK).	
630	629.0	41.1	50	50/0.2		100/0.7				**WEATHERED ROCK**	
										625.9 Brown, (FELSIC METAVOLCANIC ROCK).	44.2
625										**CRYSTALLINE ROCK**	
										623.3 Gray & brown, (FELSIC METAVOLCANIC ROCK).	46.8
										Boring Terminated at Elevation 623.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 23.0'.
3) Began coring at 23.1'.
4) 0 hr. water level not measured due to water introduced for coring.

NCDOT BORE SINGLE R-2536A BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y4RPA_1420L	STATION 14+20	OFFSET 39 ft LT	ALIGNMENT -Y4RPA-	0 HR. N/A
COLLAR ELEV. 670.1 ft	TOTAL DEPTH 46.8 ft	NORTHING 709,971	EASTING 1,742,299	24 HR. 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER D. Tignor	START DATE 06/14/13	COMP. DATE 06/17/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 23.0 ft			

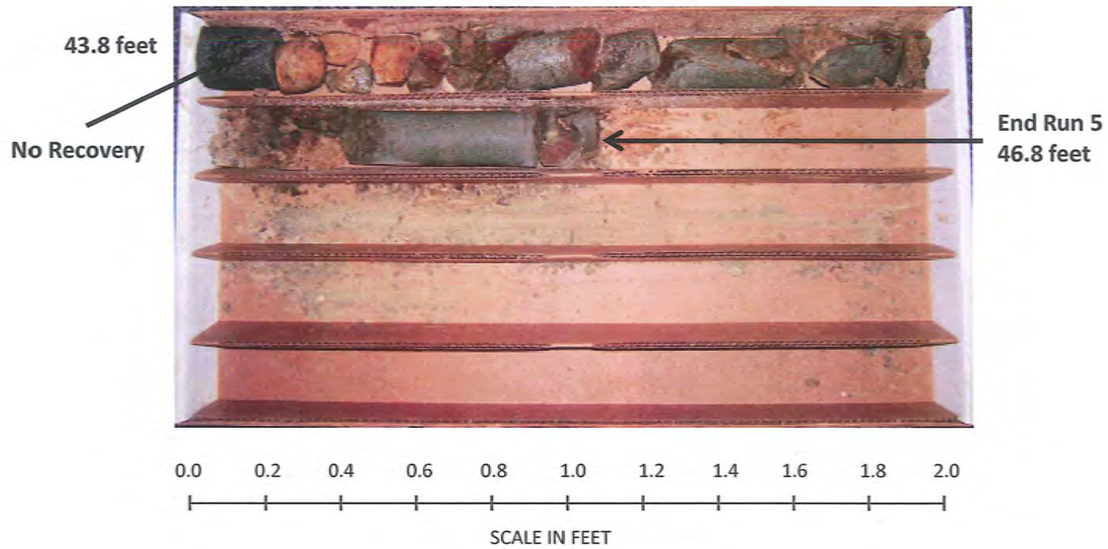
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
647											Begin Coring @ 23.1 ft	
	647.0	23.1	3.0	3:53/1.0 3:23/1.0 3:20/1.0	(1.9) 63%	(0.4) 13%		(2.5) 69%	(0.4) 11%		647.0 **CRYSTALLINE ROCK** Gray & brown, moderately severe to moderately weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.	23.1
645	644.0	26.1	5.0	4:15/1.0 5:08/1.0 2:25/1.0 0:37/1.0 1:15/1.0	(2.2) 44%	(0.8) 16%		(1.4) 100%	(0.8) 57%		643.4	26.7
								(0.4) 11%	(0.0) 0%		642.0 Gray, slightly weathered, hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing.	28.1
640	639.0	31.1	5.0	2:36/1.0 2:46/1.0 3:03/1.0 3:28/1.0 3:38/1.0	(2.7) 54%	(0.6) 12%	RS-8	(1.5) 100%	(0.6) 40%		**WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	
											638.2	31.9
								(0.0) 0%	(0.0) 0%		636.7 **CRYSTALLINE ROCK** Brown & gray, moderately to slightly weathered, moderately hard to hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. RS-8: 32.4'-32.7' qu = 15,830 psi, R_1=12, R_2=3, R_3=5, R_4=0, R_5=7 RMR = 27, Rock Type E	33.4
635	634.0	36.1	5.0	3:45/1.0 2:47/1.0 1:59/1.0 2:26/1.0 3:14/1.0	(1.3) 26%	(0.0) 0%		(1.0) 100%	(0.0) 0%		635.0	35.1
											634.0 **WEATHERED ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK).	36.1
								(1.2) 15%	(0.0) 0%		**CRYSTALLINE ROCK** Gray & brown, moderately weathered, soft to moderately hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.	
630	629.0	41.1									**WEATHERED ROCK**	
	628.3	41.8		N=100/0.7							625.9 Brown, (FELSIC METAVOLCANIC ROCK).	44.2
			5.0	3:16/1.0 3:58/1.0 3:56/1.0 3:23/1.0 3:10/1.0	(2.5) 50%	(0.9) 18%		(2.6) 100%	(0.9) 35%		**CRYSTALLINE ROCK**	
625	623.3	46.8									623.3 Gray & brown, moderately to slightly weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing.	46.8
											Boring Terminated at Elevation 623.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

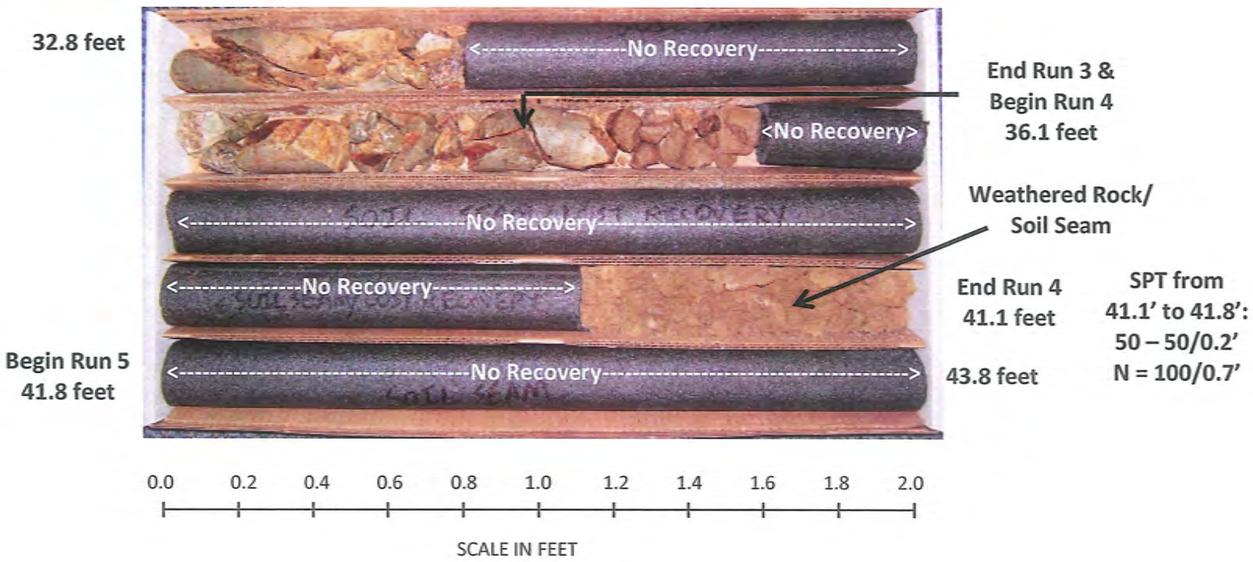
NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 23.0'.
3) Began coring at 23.1'.
4) 0 hr. water level not measured due to water introduced for coring.

NCDOT CORE SINGLE R-2536A BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y4RPA_1420L: Station 14+20, 39' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1545L	**STATION** 15+45	**OFFSET** 45 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 681.4 ft	**TOTAL DEPTH** 11.8 ft	**NORTHING** 709,974	**EASTING** 1,742,425	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685												
	681.4	0.0	1	2	3	5	SS-30	29%		GROUND SURFACE	681.4	0.0
680										**RESIDUAL** Tan & red, silty CLAY (A-7-6), with trace fine sand.		
	677.9	3.5	35	57	43/0.3						677.4	4.0
675						100/0.8				**WEATHERED ROCK** Tan & brown, (FELSIC METAVOLCANIC ROCK).		
	672.9	8.5	60/0.0			60/0.0					672.9	8.5
670										**CRYSTALLINE ROCK** Gray & orange, (FELSIC METAVOLCANIC ROCK).		
	669.6	11.8	60/0.0			60/0.0					669.6	11.8
										Boring Terminated with Standard Penetration Test Refusal at Elevation 669.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1568	**STATION** 15+68	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 680.7 ft	**TOTAL DEPTH** 14.1 ft	**NORTHING** 709,929	**EASTING** 1,742,447	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685												
	680.7	0.0	WOH	2	3	5		M		GROUND SURFACE	680.7	0.0
680										**RESIDUAL** Tan & orange, fine sandy SILT (A-4), with trace roots & gravel-size rock fragments.		
	677.2	3.5	30	42	58/0.5	100/1.0					676.7	4.0
675										**WEATHERED ROCK** Tan, brown, gray & orange, (FELSIC METAVOLCANIC ROCK).		
	672.2	8.5	100/0.5			100/0.5						
670												
	667.2	13.5	82	18/0.1		100/0.6					666.6	14.1
										Boring Terminated at Elevation 666.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1596R	**STATION** 15+96	**OFFSET** 57 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 677.6 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 709,871	**EASTING** 1,742,473	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
680										ELEV. (ft) DEPTH (ft)
	677.6	0.0	1	2	4	6		M		677.6 GROUND SURFACE 0.0
675										**RESIDUAL** Tan-orange, fine sandy SILT (A-4), with a large wood fragment.
	674.1	3.5	100/0.5			100/0.5				674.1 3.5
670										**WEATHERED ROCK** Tan & white, (FELSIC METAVOLCANIC ROCK).
	669.1	8.5	65	35/0.2		100/0.7				
665										
	664.1	13.5	40	60/0.5		100/1.0				663.1 14.5
										Boring Terminated at Elevation 663.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** 0.9
COLLAR ELEV. 661.5 ft	**TOTAL DEPTH** 18.3 ft	**NORTHING** 709,926	**EASTING** 1,742,578	**24 HR.** 1.2
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/19/13	**COMP. DATE** 03/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
665										
										661.5 GROUND SURFACE 0.0
660							S-72	Sat.		661.0 **SURFICIAL ORGANIC SOILS** 0.5
										659.5 **ALLUVIAL** 2.0
655										Soft, brown, fine sandy SILT (A-4).
										RESIDUAL Medium stiff to hard, tan, fine sandy SILT (A-4).
650										652.1 9.4
										WEATHERED ROCK Green & gray, (FELSIC METAVOLCANIC ROCK).
645										
										643.2 18.3
										Boring Terminated by Auger Refusal at Elevation 643.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Moisture content of sample S-72 is 42%

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPA_1900	**STATION** 19+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA- — **0 HR.** Dry
COLLAR ELEV. 676.3 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,919	**EASTING** 1,742,778 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/19/13	**COMP. DATE** 03/19/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
680										
										676.3 — GROUND SURFACE — 0.0
675								M		674.8 — **RESIDUAL** — Soft to medium stiff, red, clayey SILT (A-5). — 1.5
								M		Medium stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
670										
665								M		662.3 — 14.0
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).
660										656.3 — 20.0
										Boring Terminated at Elevation 656.3 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPA_2100	**STATION** 21+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA- — **0 HR.** Dry
COLLAR ELEV. 664.6 ft	**TOTAL DEPTH** 6.4 ft	**NORTHING** 709,898	**EASTING** 1,742,977 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/19/13	**COMP. DATE** 03/19/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
665										
										664.6 — GROUND SURFACE — 0.0
								M		663.1 — **RESIDUAL** — Soft to medium stiff, red, clayey SILT (A-5). — 1.5
660								M		Medium stiff to hard, tan, highly fine sandy SILT (A-4), with trace gravel-sized rock fragments.
										659.6 — 5.0
										658.2 — **WEATHERED ROCK** — 6.4
										Tan, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 658.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_2300	**STATION** 23+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 665.8 ft	**TOTAL DEPTH** 8.0 ft	**NORTHING** 709,854	**EASTING** 1,743,172	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/19/13	**COMP. DATE** 03/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
670												
										GROUND SURFACE	665.8	0.0
665								W		**RESIDUAL** Soft to medium stiff, red, clayey fine sandy SILT (A-5).	663.8	2.0
								W		Soft to stiff, tan, fine sandy SILT (A-4).		
660											659.5	6.3
										WEATHERED ROCK Tan, (FELSIC METAVOLCANIC ROCK).	657.8	8.0
										Boring Terminated by Auger Refusal at Elevation 657.8 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_2500R	**STATION** 25+00	**OFFSET** 15 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 677.0 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,773	**EASTING** 1,743,354	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/19/13	**COMP. DATE** 03/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
680												
										GROUND SURFACE	677.0	0.0
675								M		**RESIDUAL** Soft to medium stiff, tan, fine sandy silty CLAY (A-7-5).	674.5	2.5
								M		Medium stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.		
670								M				
											657.0	20.0
665										Boring Terminated at Elevation 657.0 ft in RESIDUAL (SILT)		
660												

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_2600R	**STATION** 26+00	**OFFSET** 15 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 676.3 ft	**TOTAL DEPTH** 19.2 ft	**NORTHING** 709,731	**EASTING** 1,743,445	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
	676.3	0.0								GROUND SURFACE	676.3	0.0
			1	2	2	4		M		**RESIDUAL** Red, fine sandy SILT (A-4), with trace roots.	674.3	2.0
	672.8	3.5	1	3	3	6		M		Red-tan, fine sandy silty CLAY (A-6), with trace gravel-sized rock fragments.		
										Tan, fine sandy SILT (A-4).	669.3	7.0
	667.8	8.5	11	15	25	40		M				
	662.8	13.5	71	29/0.1		100/0.6				**WEATHERED ROCK** Tan & black, (FELSIC METAVOLCANIC ROCK).	662.8	13.5
	657.8	18.5	54	46/0.2		100/0.7				Boring Terminated at Elevation 657.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	657.1	19.2

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_2900R	**STATION** 29+00	**OFFSET** 20 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 691.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 709,588	**EASTING** 1,743,708	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
	691.1	0.0								GROUND SURFACE	691.1	0.0
								M		**RESIDUAL** Stiff, red-tan, silty CLAY (A-7-5), with trace gravel-sized rock fragments.	684.6	6.5
								M		Stiff, red-tan, fine sandy SILT (A-4), with trace clay.	679.1	12.0
								M		Medium stiff, red-tan, silty CLAY (A-6).	676.1	15.0
										Boring Terminated at Elevation 676.1 ft in RESIDUAL (CLAY)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_3300	**STATION** 33+00	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 715.4 ft	**TOTAL DEPTH** 3.5 ft	**NORTHING** 709,418	**EASTING** 1,744,070	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
720											
715								M		715.4 GROUND SURFACE	0.0
										714.6 **RESIDUAL** Soft, tan, fine sandy SILT (A-4).	0.6
										711.9 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	3.5
										Boring Terminated by Auger Refusal at Elevation 711.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_3600L	**STATION** 36+00	**OFFSET** 22 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 724.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 709,296	**EASTING** 1,744,345	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
725										724.1 GROUND SURFACE	0.0
	723.3	0.8	5	7	13	20		M		723.3 **ASPHALT**	0.8
720	720.6	3.5	5	4	3	7		M		723.1 **ABC STONE**	1.0
										ROADWAY EMBANKMENT Red to tan, silty CLAY (A-7-5), with trace fine sand.	
										717.1 Brown, silty CLAY (A-7-5), with trace gravel, moderately organic (large root fragments).	7.0
715	715.6	8.5	3	8	9	17		M			
										712.1 **RESIDUAL** Tan-red, clayey SILT (A-5), saprolitic.	12.0
710	710.6	13.5	7	9	10	19		M		709.1 Boring Terminated at Elevation 709.1 ft in RESIDUAL (SILT)	15.0

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_3994L	**STATION** 39+94	**OFFSET** 19 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 736.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 709,109	**EASTING** 1,744,692	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
740											736.6	0.0
735								M		**ROADWAY EMBANKMENT** Very stiff, red & brown, silty CLAY (A-7-5), with trace fine sand & gravel, trace organics from 5.0'-7.0'.		
730								M			729.6	7.0
								M		**RESIDUAL** Very stiff, red, silty CLAY (A-7-5).		
725								W		Stiff, tan-red, silty CLAY (A-6).	724.6	12.0
										Boring Terminated at Elevation 721.6 ft in RESIDUAL (CLAY)	721.6	15.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPA_4388L	**STATION** 43+88	**OFFSET** 19 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 748.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 708,924	**EASTING** 1,745,040	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
750											748.6	0.0
745								M		**ROADWAY EMBANKMENT**	747.1	1.5
								M		Very stiff, red-tan, silty CLAY (A-7-5).	746.1	2.5
740								M		**RESIDUAL** Stiff, tan-red, silty CLAY (A-6). Stiff, tan, fine sandy SILT (A-4).		
								W		Stiff, brown, silty CLAY (A-6).	738.6	10.0
735								M		Hard, tan, fine sandy SILT (A-4).	736.1	12.5
730								W		Stiff, tan, silty CLAY (A-6).	729.6	19.0
										Boring Terminated at Elevation 728.6 ft in RESIDUAL (CLAY)	728.6	20.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_4606R	**STATION** 46+06	**OFFSET** 20 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 770.8 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 708,787	**EASTING** 1,745,214	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
775												
770	770.8	0.0	2	8	9	17		M		GROUND SURFACE	770.8	0.0
										RESIDUAL Red-tan, fine sandy SILT (A-4), with high amount of gravel-sized rock fragments.	768.8	2.0
	767.3	3.5	90	10/0.0		100/0.5				**WEATHERED ROCK** Red-tan, (METACONGLOMERATE).		
765												
	762.3	8.5	100/0.4			100/0.4						
760												
	757.3	13.5	100/0.3			100/0.3						
755												
	752.3	18.5	60/0.1			60/0.1				**CRYSTALLINE ROCK** (METACONGLOMERATE)	752.3	18.5
750												
	747.3	23.5	25	15	22	37		D		Red, fine sandy SILT (A-4).	747.3	23.5
											745.8	25.0
										Boring Terminated at Elevation 745.8 ft in RESIDUAL (SILT)		

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_5000L	**STATION** 50+00	**OFFSET** 17 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 767.8 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 708,635	**EASTING** 1,745,579	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
770												
								M		GROUND SURFACE	767.8	0.0
765								M		**ROADWAY EMBANKMENT** Very stiff, red, silty CLAY (A-7-5).	765.8	2.0
										Very stiff, brown, fine sandy SILT (A-4), with some clay.		
								M			761.8	6.0
760										Very stiff, red-brown, silty CLAY (A-7-5), with trace gravel.		
755												
750											747.8	20.0
										Boring Terminated at Elevation 747.8 ft in ROADWAY EMBANKMENT (CLAY)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_5200L	**STATION** 52+00	**OFFSET** 18 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 773.8 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 708,541	**EASTING** 1,745,756	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
775	773.8	0.0	2	5	5	10		M		773.8 GROUND SURFACE 0.0
770	770.3	3.5	4	4	3	7		M		**ROADWAY EMBANKMENT** 771.8 Red, silty CLAY (A-7-5), with little gravel & fine sand. 2.0 Red & tan, fine sandy SILT (A-4), with little clay.
765	765.3	8.5	4	5	15	20		M		763.3 10.5
	763.3	10.5	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 763.3 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPA_5400L	**STATION** 54+00	**OFFSET** 16 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 780.3 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 708,446	**EASTING** 1,745,932	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/04/13	**COMP. DATE** 06/04/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
785										780.3 GROUND SURFACE 0.0
780								M		**ROADWAY EMBANKMENT** 777.8 Stiff, red, silty CLAY (A-7-5), with trace gravel & fine sand. 2.5
775								M		775.3 Medium stiff, red & tan, fine sandy SILT (A-4), with little clay. 5.0 Stiff, red, silty CLAY (A-7-5).
770								M		769.3 11.0 Stiff, red, fine sandy SILT (A-4).
765								M		765.3 15.0 Stiff, red, silty CLAY (A-7-5).
										760.3 20.0 Boring Terminated at Elevation 760.3 ft in ROADWAY EMBANKMENT (CLAY)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_600	**STATION** 6+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 707.9 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 711,326	**EASTING** 1,740,212	**24 HR.** 5.4
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/29/13	**COMP. DATE** 03/29/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
710										
										707.9 GROUND SURFACE 0.0
705								W		**RESIDUAL** Stiff to hard, tan, fine sandy SILT (A-4).
										702.0 5.9
										701.1 **WEATHERED ROCK** 6.8
										700.9 Tan, (FELSIC METAVOLCANIC ROCK). 7.0
										CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										Boring Terminated by Auger Refusal at Elevation 700.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										NOTES: 1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_800	**STATION** 8+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 670.5 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 711,168	**EASTING** 1,740,335	**24 HR.** 6.2
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
675										
670	670.5	0.0	3	3	4	7 12		M		670.5 GROUND SURFACE 0.0
	667.0	3.5	4	5	7			W		668.5 **RESIDUAL** Red & tan, silty CLAY (A-7-5), with trace wood fragments. 2.0
665										Tan & gray, clayey fine sandy SILT (A-5).
	662.0	8.5	5	6	8	14				663.5 Tan, fine sandy SILT (A-4). 7.0
660								M		
	657.0	13.5	16	15	13	28		M		655.5 15.0
										Boring Terminated at Elevation 655.5 ft in RESIDUAL (SILT)
										NOTES: 1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 662.4 ft	**TOTAL DEPTH** 13.8 ft	**NORTHING** 710,821	**EASTING** 1,740,534	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/28/13	**COMP. DATE** 03/28/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
665												
	662.4	0.0	WOH	3	3	6		W		GROUND SURFACE	662.4	0.0
660										**RESIDUAL** Tan-red, fine sandy SILT (A-4), with trace clay.		
	658.9	3.5	22	61	39/0.3	100/0.8					658.4	4.0
655										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).		
	653.9	8.5	64	36/0.1		100/0.6						
650												
	648.9	13.5	100/0.3			100/0.3					648.6	13.8
										Boring Terminated at Elevation 648.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_1400	**STATION** 14+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 657.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,646	**EASTING** 1,740,632	**24 HR.** 2.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gllchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
660												
								M		GROUND SURFACE	657.6	0.0
655										**ALLUVIAL** Soft, tan, clayey SILT (A-5), with trace fine sand.	656.6	1.0
								M		**RESIDUAL** Very stiff to hard, brown, fine sandy SILT (A-4).		
650												
645												
640											637.6	20.0
										Boring Terminated at Elevation 637.6 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_1600	**STATION** 16+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 687.4 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,477	**EASTING** 1,740,737	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
690										687.4 GROUND SURFACE 0.0
								M		**RESIDUAL** Medium stiff, red to orange-brown, fine sandy silty CLAY (A-7-5).
685								M		
										680.4 7.0
680								M		Stiff, brown, clayey SILT (A-5).
										675.4 12.0
675								M		Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
670										667.4 20.0
										Boring Terminated at Elevation 667.4 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 703.7 ft	**TOTAL DEPTH** 16.0 ft	**NORTHING** 710,322	**EASTING** 1,740,864	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										703.7 GROUND SURFACE 0.0
								M		**RESIDUAL** Medium stiff to hard, tan, fine sandy SILT (A-4), with trace clay & gravel-sized rock fragments.
700								M		
										697.7 6.0
695										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
690										688.2 15.5
										687.7 16.0 **CRYSTALLINE ROCK** Gray, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated by Auger Refusal at Elevation 687.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_2000	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 701.9 ft	**TOTAL DEPTH** 17.0 ft	**NORTHING** 710,190	**EASTING** 1,741,013	**24 HR.** 12.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/25/13	**COMP. DATE** 03/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	701.9	0.0
								M		**RESIDUAL** Very stiff to hard, brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	698.9	3.0
										WEATHERED ROCK Brown, (FELSIC METAVOLCANIC ROCK).		
											685.4	16.5
										CRYSTALLINE ROCK Gray, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 684.9 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	684.9	17.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_2200	**STATION** 22+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 706.9 ft	**TOTAL DEPTH** 18.9 ft	**NORTHING** 710,081	**EASTING** 1,741,181	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
										GROUND SURFACE	706.9	0.0
			1	3	3	6		W		Tan-gray to brown, fine sandy SILT (A-4), with trace to some clay.		
			5	9	16	25		M			703.4	3.5
			12	19	34	53		M			698.4	8.5
			20	16	18	34		M			693.4	13.5
			100/0.4			100/0.4					688.4	18.5
										WEATHERED ROCK Tan-brown, (FELSIC METAVOLCANIC ROCK). Boring Terminated at Elevation 688.0 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	688.0	18.9

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_2400	**STATION** 24+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 724.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 710,000	**EASTING** 1,741,364	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
725										GROUND SURFACE	724.7	0.0
720								W		**RESIDUAL** Soft, brown, fine sandy silty CLAY (A-7-5).	722.2	2.5
								M		Medium stiff to very stiff, tan, fine sandy SILT (A-4).		
715												
710												
705											704.7	20.0
										Boring Terminated at Elevation 704.7 ft in RESIDUAL (SILT)		

NOTES:

1) 0.0-0.3' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPC_2600	**STATION** 26+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC-	**0 HR.** Dry
COLLAR ELEV. 717.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,947	**EASTING** 1,741,556	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
720										GROUND SURFACE	717.9	0.0
715								M		**RESIDUAL** Soft to hard, red-tan & brown, fine sandy SILT (A-4), with trace to some clay, trace gravel-sized rock fragments from 12.5'-15.0'.		
710								M				
705								M			702.9	15.0
700										**WEATHERED ROCK** Tan & black, (FELSIC METAVOLCANIC ROCK).	697.9	20.0
										Boring Terminated at Elevation 697.9 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

NCDOT BORE DOUBLE_R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPC_2800	**STATION** 28+00	**OFFSET** CL	**ALIGNMENT** -Y4RPC- — **0 HR.** Dry
COLLAR ELEV. 684.5 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,924	**EASTING** 1,741,755 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685										GROUND SURFACE	684.5	0.0
								M		**RESIDUAL** Soft to medium stiff, red, clayey SILT (A-5).		
680												
675								M		Stiff to hard, tan, fine sandy SILT (A-4).	675.5	9.0
670										**WEATHERED ROCK** Gray & green, (FELSIC METAVOLCANIC ROCK).	671.2	13.3
665										Boring Terminated at Elevation 664.5 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	664.5	20.0

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPD_500	**STATION** 5+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD- — **0 HR.** Dry
COLLAR ELEV. 690.2 ft	**TOTAL DEPTH** 20.3 ft	**NORTHING** 708,498	**EASTING** 1,742,751 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
695										GROUND SURFACE	690.2	0.0
690								M		**RESIDUAL** Soft to medium stiff, red, CLAY (A-7-5).		
685								W		Medium stiff to hard, tan-brown, fine sandy SILT (A-4).	679.2	11.0
680										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).	675.2	15.0
675										Boring Terminated at Elevation 669.9 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	669.9	20.3
670												

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPD_700	**STATION** 7+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD- — **0 HR.** Dry
COLLAR ELEV. 693.5 ft	**TOTAL DEPTH** 11.0 ft	**NORTHING** 708,690	**EASTING** 1,742,809 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
695										693.5 GROUND SURFACE 0.0
								M		**RESIDUAL** Soft to medium stiff, red, CLAY (A-7-5).
690										689.5 4.0
								M		Medium stiff to hard, tan, fine sandy SILT (A-4).
685										683.0 10.5
										682.5 11.0 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK). Boring Terminated by Auger Refusal at Elevation 682.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y4RPD_900	**STATION** 9+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD- — **0 HR.** Dry
COLLAR ELEV. 689.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 708,870	**EASTING** 1,742,895 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
690										689.2 GROUND SURFACE 0.0
								M		**RESIDUAL** Soft to medium stiff, red, CLAY (A-7-5).
685										683.7 5.5
								M		Stiff, tan, fine sandy SILT (A-4).
680										
675										
670										669.2 20.0 Boring Terminated at Elevation 669.2 ft in RESIDUAL (SILT)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1100	**STATION** 11+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 678.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,034	**EASTING** 1,743,008	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
680										678.7 GROUND SURFACE 0.0
							S-100	39%		**RESIDUAL** Soft to medium stiff, red & tan, CLAY (A-7-5), with trace fine sand and silt.
675										
670										
665										
660								M		658.7 20.0 Boring Terminated at Elevation 658.7 ft in RESIDUAL (CLAY)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1290L	**STATION** 12+90	**OFFSET** 100 ft LT	**ALIGNMENT** -Y4RPD-	**0 HR.** 6.3
COLLAR ELEV. 637.7 ft	**TOTAL DEPTH** 40.1 ft	**NORTHING** 709,246	**EASTING** 1,743,079	**24 HR.** 3.4
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
640										637.7 GROUND SURFACE 0.0
	637.7	0.0	1	1	1	2		W		636.2 **ALLUVIAL** Brown, fine sandy SILT (A-4), with trace roots. 1.5
635	634.2	3.5	WOH	WOH	2	2		W		Gray-yellow mottled, SILT (A-4).
630	629.2	8.5	2	3	4	7		W		630.7 7.0 **RESIDUAL** Tan, fine sandy SILT (A-4), saprolitic.
625	624.2	13.5	7	7	12	19		M		
620	619.2	18.5	5	8	11	19		M		
615	614.2	23.5	4	6	8	14		M		
610	609.2	28.5	4	6	9	15		M		
605	604.2	33.5	100/0.3			100/0.3				605.7 32.0 **WEATHERED ROCK** Tan & gray, (FELSIC METAVOLCANIC ROCK).
600	599.2	38.5	100/0.2			100/0.2				
	597.6	40.1	60/0.0			60/0.0				597.6 40.1 Boring Terminated with Standard Penetration Test Refusal at Elevation 597.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 40.1'.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1300L	**STATION** 13+00	**OFFSET** 40 ft LT	**ALIGNMENT** -Y4RPD-	**0 HR.** 12.6
COLLAR ELEV. 644.1 ft	**TOTAL DEPTH** 14.9 ft	**NORTHING** 709,206	**EASTING** 1,743,125	**24 HR.** 8.4
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
645										
	644.1	0.0	2	2	2	4		M		644.1 GROUND SURFACE 0.0 **ARTIFICIAL FILL** Brown, red & white, fine sandy SILT (A-4), with trace roots & gravel.
640	640.6	3.5	2	3	3	6		M		
	635.6	8.5	100/0.5			100/0.5				636.8 7.3 **WEATHERED ROCK** Tan & gray, (FELSIC METAVOLCANIC ROCK).
635										
	630.6	13.5	60/0.1			60/0.1				630.6 13.5
630	629.3	14.8	60/0.1			60/0.1				629.2 14.9 **CRYSTALLINE ROCK** Gray, (FELSIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 629.2 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 14.8'.
3) A.F. place for construction of haul road

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1321L	**STATION** 13+21	**OFFSET** 23 ft LT	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 642.4 ft	**TOTAL DEPTH** 3.6 ft	**NORTHING** 709,206	**EASTING** 1,743,152	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
645										
	642.4	0.0	1	3	2	5		M		642.4 GROUND SURFACE 0.0 **ALLUVIAL** Brown, fine sandy SILT (A-4), with trace roots.
640	638.9	3.5	60/0.1			60/0.1				639.4 3.0 638.9 3.5 638.8 3.6 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) **CRYSTALLINE ROCK** Gray & green, (FELSIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 638.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 3.5'.

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1330R	**STATION** 13+30	**OFFSET** 6 ft RT	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 643.9 ft	**TOTAL DEPTH** 3.2 ft	**NORTHING** 709,189	**EASTING** 1,743,178	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/21/13	**COMP. DATE** 03/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
645										ELEV. (ft) DEPTH (ft)
								M		643.9 GROUND SURFACE 0.0
										ALLUVIAL Brown, fine sandy SILT (A-4), with trace roots. 640.9 3.0
										640.7 3.2 **WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated by Auger Refusal at Elevation 640.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1370R	**STATION** 13+70	**OFFSET** 120 ft RT	**ALIGNMENT** -Y4RPD-	**0 HR.** 5.2
COLLAR ELEV. 641.0 ft	**TOTAL DEPTH** 15.3 ft	**NORTHING** 709,117	**EASTING** 1,743,273	**24 HR.** 3.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
645										
	641.0	0.0								641.0 GROUND SURFACE 0.0
640			WOH	1	1	2		W		639.5 1.5 **ALLUVIAL** Brown & tan mottled, fine sandy SILT (A-4), with trace roots. Gray, clayey fine sandy SILT (A-4), with trace gravel.
	637.5	3.5	3	2	3	5		Sat.		635.0 6.0 **RESIDUAL** Tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
635										
	632.5	8.5	4	5	7	12		W		628.4 12.6 **WEATHERED ROCK** Tan & orange, (FELSIC METAVOLCANIC ROCK).
630										
	627.5	13.5	12	88/0.2		100/0.7				625.7 15.3 Boring Terminated with Standard Penetration Test Refusal at Elevation 625.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
	625.7	15.3	60/0.0			60/0.0				

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 15.3'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 648.6 ft	**TOTAL DEPTH** 6.3 ft	**NORTHING** 709,284	**EASTING** 1,743,317	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
650										648.6 GROUND SURFACE 0.0
645								M		**RESIDUAL** Medium stiff to stiff, red-tan, fine sandy SILT (A-4). 644.3 4.3
										WEATHERED ROCK 642.3 Gray, (FELSIC METAVOLCANIC ROCK). 6.3
										Boring Terminated by Auger Refusal at Elevation 642.3 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 660.4 ft	**TOTAL DEPTH** 16.9 ft	**NORTHING** 709,358	**EASTING** 1,743,503	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
665										660.4 GROUND SURFACE 0.0
660								W		658.9 **RESIDUAL** Soft, red-tan, fine sandy silty CLAY (A-6). 1.5
								M		Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
655										
								M		
650										648.6 **WEATHERED ROCK** 11.8
										Tan, (FELSIC METAVOLCANIC ROCK).
645										643.5 16.9
										Boring Terminated by Auger Refusal at Elevation 643.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_1900	**STATION** 19+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 675.8 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 709,394	**EASTING** 1,743,699	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
680										ELEV. (ft) DEPTH (ft)
675										675.8 GROUND SURFACE 0.0
								M		**RESIDUAL**
								M		673.8 Soft, red, fine sandy silty CLAY (A-6). 2.0
670										Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
								M		
665										
										661.0 14.8
660										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
										655.8 20.0
										Boring Terminated at Elevation 655.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y4RPD_2100	**STATION** 21+00	**OFFSET** CL	**ALIGNMENT** -Y4RPD-	**0 HR.** Dry
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 15.1 ft	**NORTHING** 709,390	**EASTING** 1,743,899	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER S. Davis	**START DATE** 03/20/13	**COMP. DATE** 03/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
										701.1 GROUND SURFACE 0.0
700								M		**RESIDUAL**
										Stiff to hard, tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
695										
										688.9 12.2
690										**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
										686.0 15.1
										Boring Terminated by Auger Refusal at Elevation 686.0 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

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WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_1034R	**STATION** 10+34	**OFFSET** 20 ft RT	**ALIGNMENT** -Y5- — **0 HR.** Dry
COLLAR ELEV. 736.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 711,094	**EASTING** 1,739,878 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
740											
	736.6	0.0								736.6 GROUND SURFACE	0.0
735			1	1	3	4		W		736.0 **ROADWAY EMBANKMENT** Brown, fine sandy SILT (A-4), with trace clay.	0.6
	733.1	3.5	17	28	32	60		M		**RESIDUAL** Light tan & orange-brown, fine sandy SILT (A-4), saprolitic.	
730											
	728.1	8.5	100/0.5			100/0.5				728.1 **WEATHERED ROCK** Light tan & orange-brown, (FELSIC METAVOLCANIC ROCK).	8.5
725											
	723.1	13.5	60	40/0.2		100/0.7					
720										720.6 Light tan & orange-brown, fine sandy SILT (A-4), saprolitic.	16.0
	718.1	18.5	25	20	25	45		M		716.6 Boring Terminated at Elevation 716.6 ft in RESIDUAL (SILT)	20.0

NOTES:

1) 0.0-0.2' = Surficial Organic Soils

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_1250R	**STATION** 12+50	**OFFSET** 10 ft RT	**ALIGNMENT** -Y5- — **0 HR.** Dry
COLLAR ELEV. 732.8 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 711,292	**EASTING** 1,739,965 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
735											
										732.8 GROUND SURFACE	0.0
730								W		731.3 **ROADWAY EMBANKMENT** Soft to medium stiff, red-brown & brown, clayey SILT (A-5), with some gravel.	1.5
								W		728.8 **RESIDUAL** Soft, red-brown, fine sandy clayey SILT (A-5).	4.0
725								M		Stiff, tan-brown, fine sandy SILT (A-4), with trace clay.	
								M			
720											
715										712.8 Boring Terminated at Elevation 712.8 ft in RESIDUAL (SILT)	20.0

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1347R	**STATION** 13+47	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 726.8 ft	**TOTAL DEPTH** 24.0 ft	**NORTHING** 711,374	**EASTING** 1,740,019	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
730										
	726.8	0.0	6	6	7	13		M		726.8 GROUND SURFACE 0.0
725										725.8 **ARTIFICIAL FILL** 1.0
	723.3	3.5	7	9	11	20		M		724.8 Tan, fine sandy SILT (A-4), with some gravel. 2.0
720										Red-brown, fine sandy SILT (A-4), with trace clay.
	718.3	8.5	9	16	38	54		M		**RESIDUAL**
715										Tan, orange-brown & gray, fine sandy SILT (A-4), with trace mica.
	713.3	13.5	21	63	37/0.2	100/0.7				712.8 14.0
710										**WEATHERED ROCK**
	708.3	18.5	27	73/0.3		100/0.8				Tan-white-brown & gray-green, (FELSIC METAVOLCANIC ROCK).
705										
	703.3	23.5	100/0.5			100/0.5				702.8 24.0
										Boring Terminated at Elevation 702.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1357L	**STATION** 13+57	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 723.0 ft	**TOTAL DEPTH** 47.2 ft	**NORTHING** 711,402	**EASTING** 1,739,984	**24 HR.** 47.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
725										
	723.0	0.0	2	2	3	5		W		723.0 GROUND SURFACE 0.0
720										721.0 **ARTIFICIAL FILL** 2.0
	719.5	3.5	4	8	10	18		M		Brown, clayey SILT (A-5), with trace gravel.
715										**RESIDUAL**
	714.5	8.5	9	15	28	43		M		Tan, orange-brown & brown, fine sandy SILT (A-4).
710										
	709.5	13.5	14	16	39	55		M		
705										
	704.5	18.5	4	8	20	28		M		
700										699.5 23.5
	699.5	23.5	64	36/0.1		100/0.6				**WEATHERED ROCK**
695										Tan-black, (FELSIC METAVOLCANIC ROCK).
	694.5	28.5	30	41	59/0.3	100/0.8				
690										691.0 32.0
	689.5	33.5	23	38	50	88		M		Tan, brown & orange-brown, fine sandy SILT (A-4).
685										
	684.5	38.5	26	33	42	75		M		
680										679.5 43.5
	679.5	43.5	100/0.3			100/0.3				**WEATHERED ROCK**
	675.9	47.1	60/0.1			60/0.1				Tan, (FELSIC METAVOLCANIC ROCK).
										675.9 47.1
										675.8 **CRYSTALLINE ROCK** 47.2
										(FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 675.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 47.1'.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_1430L	**STATION** 14+30	**OFFSET** 22 ft **LT**	**ALIGNMENT** -Y5- — **0 HR.** 46.0
COLLAR ELEV. 719.3 ft	**TOTAL DEPTH** 56.6 ft	**NORTHING** 711,467	**EASTING** 1,740,016 — **24 HR.** 32.7
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
720											
	719.3	0.0								719.3 GROUND SURFACE	0.0
			1	1	1	2		M		**ARTIFICIAL FILL**	
	715.8	3.5								717.3 Orange-brown, fine sandy clayey SILT (A-5), with trace gravel & roots.	2.0
715			4	5	8	13		M		**RESIDUAL**	
	710.8	8.5								Tan & orange-brown, fine sandy SILT (A-4), with trace clay & mica.	
710			7	10	17	27		M			
	705.8	13.5									
705			11	20	26	46		M			
	700.8	18.5									
700			13	22	35	57		M			
	695.8	23.5								695.3 **WEATHERED ROCK**	24.0
695			24	42	58/0.3	100/0.8				Tan & brown, (FELSIC METAVOLCANIC ROCK).	
	690.8	28.5									
690			23	41	59/0.3	100/0.8					
	685.8	33.5									
685			40	60/0.5		100/1.0					
	680.8	38.5								682.3 Tan & orange-brown, fine sandy SILT (A-4).	37.0
680			10	16	18	34		M			
	675.8	43.5								675.8 **WEATHERED ROCK**	43.5
675			47	53/0.2		100/0.7				Tan, brown & gray-green, (FELSIC METAVOLCANIC ROCK).	
	670.8	48.5									
670			100/0.3			100/0.3					
	665.8	53.5									
665			52	48/0.2		100/0.7					
	662.8	56.5								662.8 **CRYSTALLINE ROCK**	56.5
			60/0.1			60/0.1				662.7 (FELSIC METAVOLCANIC ROCK)	56.6

Boring Terminated with Standard Penetration Test Refusal at Elevation 662.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 56.5'.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_1555L	**STATION** 15+55	**OFFSET** 22 ft **LT**	**ALIGNMENT** -Y5- — **0 HR.** Dry
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 4.5 ft	**NORTHING** 711,580	**EASTING** 1,740,076 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
										701.1 GROUND SURFACE 0.0
										700.1 **ASPHALT** 1.0
700	700.1	1.0	4	12	38	50		M		**ROADWAY EMBANKMENT**
										698.1 Red-brown, fine to coarse sandy silty CLAY (A-7-5), with trace gravel. 3.0
	697.6	3.5	10	94	6/0.0	100/0.5		Sat.		697.1 4.0
										696.6 4.5
										Brown & gray, GRAVEL (A-1-a), with little fine to coarse sand & clay, trace root fragments.
										WEATHERED ROCK (BOULDER)

Boring Terminated at Elevation 696.6 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) Boring terminated due to augers becoming crooked due to rock encountered in embankment.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1555L1	**STATION** 15+55	**OFFSET** 18 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 3.0 ft	**NORTHING** 711,578	**EASTING** 1,740,079	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
705										
700										701.1 GROUND SURFACE 0.0
										700.1 **ASPHALT** 1.0
										698.1 **ROADWAY EMBANKMENT** Red-brown, fine to coarse sandy silty CLAY (A-7-5), with little to some gravel. 3.0
										Boring Terminated by Auger Refusal at Elevation 698.1 ft in ROADWAY EMBANKMENT (POSSIBLE BOULDER)

NOTES:

1) Offset of original boring.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1573L	**STATION** 15+73	**OFFSET** 24 ft LT	**ALIGNMENT** -Y5-	**0 HR.** 23.6
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 31.3 ft	**NORTHING** 711,597	**EASTING** 1,740,084	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
705										
700	700.1	1.0	8	5	9	14		M		701.1 GROUND SURFACE 0.0
	697.1	4.0	21	29	33	62		M		700.1 **ASPHALT** 1.0
695	692.1	9.0	20	27	40	67		M		699.4 **ROADWAY EMBANKMENT** Red-tan, silty CLAY (A-7-5), with trace fine sand. 1.7
690	687.1	14.0	53	47/0.3		100/0.8				**RESIDUAL** Tan-red & tan, fine sandy SILT (A-4), with trace clay, saprolitic at 4.0'.
685	682.1	19.0	15	17	24	41		M		689.1 12.0 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
680	677.1	24.0	25	36	27	63		M		684.1 17.0 Tan, fine sandy SILT (A-4), saprolitic.
675	672.1	29.0	75	25/0.1		100/0.6		M		675.6 25.5 **WEATHERED ROCK** Tan & gray, (FELSIC METAVOLCANIC ROCK).
670	669.9	31.2	60/0.1			60/0.1				670.1 31.0 669.8 31.3 **CRYSTALLINE ROCK** Gray, brown & black, (FELSIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 669.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 31.2'.
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y5_1555L2	STATION 15+55	OFFSET 16 ft LT	ALIGNMENT -Y5-	0 HR. N/A
COLLAR ELEV. 701.1 ft	TOTAL DEPTH 40.4 ft	NORTHING 711,577	EASTING 1,740,081	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 06/19/13	COMP. DATE 06/19/13	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
705											
										701.1 GROUND SURFACE	0.0
700	700.1	1.0								700.1 ASPHALT	1.0
			16	6	6	12		M		ROADWAY EMBANKMENT	
	697.6	3.5								Red-brown, fine to coarse sandy silty CLAY (A-7-5), with trace gravel.	3.0
			28	20	17	37		M		RESIDUAL	
695										Brown & black, fine to coarse sandy SILT (A-4), with trace gravel-sized rock fragments.	
	692.6	8.5								692.1	9.0
			19	48	52/0.4	100/0.9				WEATHERED ROCK	
690										Brown, (FELSIC METAVOLCANIC ROCK).	
	687.6	13.5									
			54	46/0.2		100/0.7					
685											
	682.6	18.5									
			49	51/0.3		100/0.8					
680											
	677.6	23.5									
			40	60/0.1		100/0.6					
675											
	672.6	28.5								672.6 CRYSTALLINE ROCK	28.5
			60/0.1			60/0.1					
	670.7	30.4								670.7 Dark gray, (FELSIC METAVOLCANIC ROCK).	30.4
670			60/0.0			60/0.0					
										667.6	33.5
							RS-10			Gray, (FELSIC METAVOLCANIC ROCK).	
665											
										660.7	40.4
										Boring Terminated at Elevation 660.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) Auger refusal at 30.4', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				GROUND WTR (ft)
BORING NO. Y5_1555L2	STATION 15+55	OFFSET 16 ft LT	ALIGNMENT -Y5-	0 HR. N/A
COLLAR ELEV. 701.1 ft	TOTAL DEPTH 40.4 ft	NORTHING 711,577	EASTING 1,740,081	24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic	
DRILLER J. Gilchrist	START DATE 06/19/13	COMP. DATE 06/19/13	SURFACE WATER DEPTH N/A	
CORE SIZE NQ3	TOTAL RUN 10.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
670.7												
670	670.7	30.4	5.0	N=60/0.0	(4.6) 92%	(2.7) 54%		(2.7) 87%	(0.8) 26%		Begin Coring @ 30.4 ft	
				4:07/1.0							670.7 CRYSTALLINE ROCK	30.4
				4:18/1.0							Gray & brown, moderately severe to moderately weathered, soft to medium hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.	
				2:32/1.0							667.6	33.5
				2:30/1.0							Gray, very slightly weathered to fresh, hard, (FELSIC METAVOLCANIC ROCK), moderately close to wide fracture spacing.	
	665.7	35.4		2:16/1.0			RS-10	(6.9) 100%	(6.9) 100%		RS-10: 33.7'-34.0' qu = 9,028 psi	
665			5.0	2:42/1.0	(5.0) 100%	(5.0) 100%					R_1=7, R_2=13, R_3=10, R_4=12, R_5=7	
				3:04/1.0							RMR = 49, Rock Type E	
				2:55/1.0							660.7	40.4
				4:40/1.0							Boring Terminated at Elevation 660.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	
	660.7	40.4		3:37/1.0								

NOTES:

1) Auger refusal at 30.4', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y5_1555L2: Station 15+55, 16' LT

Begin Run 1
30.4 feet

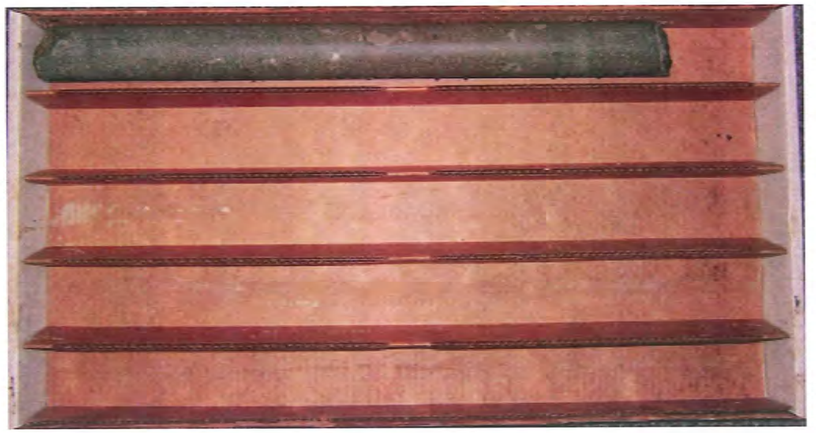
End Run 1 &
Begin Run 2
35.4 feet

39.1 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

39.1 feet



End Run 2
40.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			GROUND WTR (ft)
BORING NO. Y5_1578R	STATION 15+78	OFFSET 22 ft RT	ALIGNMENT -Y5- / 0 HR. N/A
COLLAR ELEV. 701.5 ft	TOTAL DEPTH 36.5 ft	NORTHING 711,576	EASTING 1,740,125 / 24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER D. Tignor	START DATE 06/05/13	COMP. DATE 06/05/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
705										
	701.5									GROUND SURFACE 0.0
	700.5	1.0								ASPHALT 1.0
700			4	6	7	13		M		ROADWAY EMBANKMENT 2.5
	698.0	3.5								Tan-red, fine sandy SILT (A-4), with trace clay.
			72	28/0.2		100/0.7				WEATHERED ROCK
695										Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
	693.0	8.5								
			25	38	62/0.2	100/0.7				
690										
	688.0	13.5								
			55	45/0.2		100/0.7				
685										
	683.0	18.5								
			100/0.2			100/0.2				
680										
	678.0	23.5								678.0 23.5
			60/0.0			60/0.0				CRYSTALLINE ROCK
675										Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
							RS-11			
670										671.9 29.6
										Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
665										665.0 36.5

Boring Terminated at Elevation 665.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 23.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	TIP R-2536A	COUNTY RANDOLPH	GEOLOGIST M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			GROUND WTR (ft)
BORING NO. Y5_1578R	STATION 15+78	OFFSET 22 ft RT	ALIGNMENT -Y5- / 0 HR. N/A
COLLAR ELEV. 701.5 ft	TOTAL DEPTH 36.5 ft	NORTHING 711,576	EASTING 1,740,125 / 24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER D. Tignor	START DATE 06/05/13	COMP. DATE 06/05/13	SURFACE WATER DEPTH N/A
CORE SIZE NQ3	TOTAL RUN 13.0 ft		

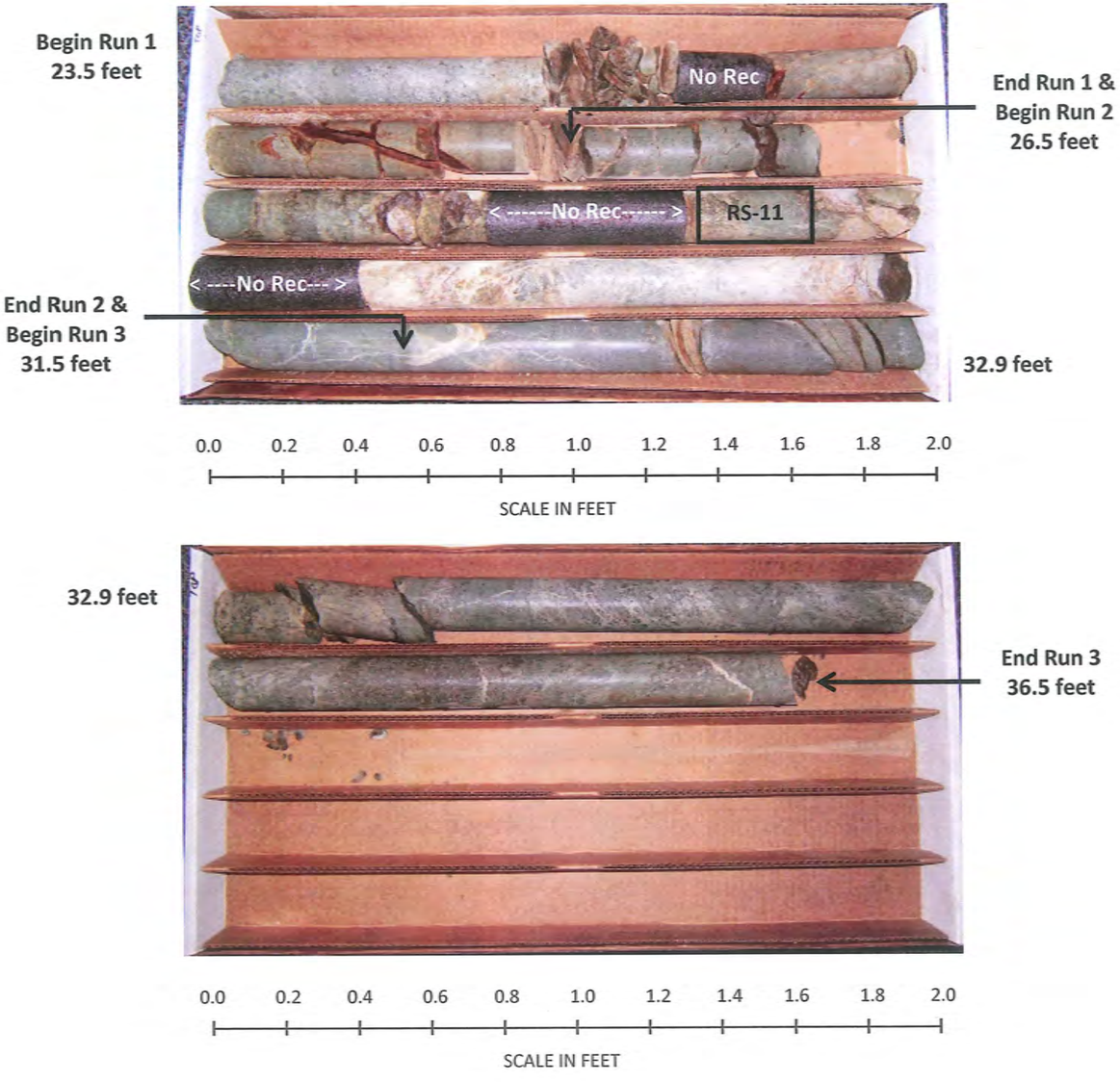
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS (ELEV. (ft) / DEPTH (ft))
678											Begin Coring @ 23.5 ft
	678.0	23.5	3.0	N=60/0.0 1:54/1.0 2:20/1.0 2:14/1.0	(2.8) 93%	(1.8) 60%		(4.9) 80%	(2.9) 48%		678.0 23.5
675	675.0	26.5									CRYSTALLINE ROCK
			5.0	3:22/1.0 1:57/1.0 1:56/1.0 1:46/1.0 2:57/1.0	(4.0) 80%	(2.8) 56%	RS-11				Gray-green & tan, moderately severe to moderately weathered, hard to moderately hard (FELSIC METAVOLCANIC ROCK), close to very close fracture spacing.
670	670.0	31.5						(6.9) 100%	(5.5) 80%		671.9 29.6
			5.0	3:20/1.0 2:54/1.0 3:00/1.0 3:15/1.0 3:01/1.0	(5.0) 100%	(3.8) 76%					RS-11: 28.5'-28.8' qu = 3,291 psi R_1=2, R_2=13, R_3=10, R_4=12, R_5=7 RMR = 44, Rock Type E
665	665.0	36.5									Gray-green & tan, slightly weathered to fresh, hard (FELSIC METAVOLCANIC ROCK), moderately close to very close fracture spacing.
											665.0 36.5
											Boring Terminated at Elevation 665.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 23.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, Y5_1578R: Station 15+78, 22' RT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1655L	**STATION** 16+55	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 712.0 ft	**TOTAL DEPTH** 33.8 ft	**NORTHING** 711,664	**EASTING** 1,740,134	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
	712.0	0.0	2	3	4	7 54 94		W		712.0 GROUND SURFACE 0.0 **RESIDUAL** Brown, orange-brown & tan, fine sandy SILT (A-4), with trace clay, saprolitic.
710	708.5	3.5	9	24	30			M		
705	703.5	8.5	22	37	57			M		
700	698.5	13.5	31	65	35/0.2	100/0.7				698.0 14.0 **WEATHERED ROCK** Brown & black, (FELSIC METAVOLCANIC ROCK).
695	693.5	18.5	22	28	30	58		M		695.0 17.0 Light tan & brown, fine sandy SILT (A-4), saprolitic.
690	688.5	23.5	100/0.3			100/0.3				688.5 23.5 **WEATHERED ROCK** Tan, brown & gray, (FELSIC METAVOLCANIC ROCK).
685	683.5	28.5	39	52	48/0.4	100/0.9				
680	678.5	33.5	100/0.3			100/0.3				678.2 33.8 Boring Terminated at Elevation 678.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_1663R	**STATION** 16+63	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 712.0 ft	**TOTAL DEPTH** 18.6 ft	**NORTHING** 711,643	**EASTING** 1,740,174	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
	712.0	0.0	1	9	15	24		W		712.0 GROUND SURFACE 0.0 **RESIDUAL** Brown, fine sandy clayey SILT (A-5). 2.0 Tan-brown, fine to coarse sandy SILT (A-4).
710	708.5	3.5	100/0.4			100/0.4				710.0 **WEATHERED ROCK** Tan, white & gray-green, (FELSIC METAVOLCANIC ROCK).
705	703.5	8.5	100/0.3			100/0.3				
700	698.5	13.5	100/0.2			100/0.2				
695	693.5	18.5	60/0.1			60/0.1				693.5 18.5 693.4 18.6 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 693.4 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_1800	**STATION** 18+00	**OFFSET** CL	**ALIGNMENT** -Y5- — **0 HR.** Dry
COLLAR ELEV. 709.0 ft	**TOTAL DEPTH** 20.8 ft	**NORTHING** 711,756	**EASTING** 1,740,251 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/15/13	**COMP. DATE** 03/15/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
710										ELEV. (ft) DEPTH (ft)
										709.0 GROUND SURFACE 0.0
								M		**ARTIFICIAL FILL**
								W		707.0 Soft, brown, fine sandy SILT (A-4), with little gravel. 2.0
705										**ALLUVIAL**
								M		704.0 Very soft, gray, clayey fine sandy SILT (A-4). 5.0
										RESIDUAL
700										701.0 Stiff, tan & orange-brown, fine sandy SILT (A-4). 8.0
										WEATHERED ROCK Tan-gray, (FELSIC METAVOLCANIC ROCK).
695										
690										688.2 20.8
										Boring Terminated by Auger Refusal at Elevation 688.2 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. Y5_2000	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -Y5- — **0 HR.** Dry
COLLAR ELEV. 715.1 ft	**TOTAL DEPTH** 19.0 ft	**NORTHING** 711,869	**EASTING** 1,740,415 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A
DRILLER J. Gilchrist	**START DATE** 03/15/13	**COMP. DATE** 03/15/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
										715.1 GROUND SURFACE 0.0
715								M		**RESIDUAL**
										713.1 Medium stiff to soft, tan, fine sandy SILT (A-4). 2.0
710										**WEATHERED ROCK** Green-gray, (FELSIC METAVOLCANIC ROCK).
705										
700										696.1 19.0
										Boring Terminated by Auger Refusal at Elevation 696.1 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. Y5_2250	**STATION** 22+50	**OFFSET** CL	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 735.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 711,949	**EASTING** 1,740,651	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 03/15/13	**COMP. DATE** 03/15/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740										
735										735.1 GROUND SURFACE 0.0
								M		**RESIDUAL** Soft to medium stiff, red-brown, fine sandy silty CLAY (A-7-5).
730										730.1 5.0
								M		Stiff, tan-brown, fine sandy SILT (A-4).
725										
720										717.1 18.0
										WEATHERED ROCK Gray-green, (FELSIC METAVOLCANIC ROCK).
										715.1 20.0
										Boring Terminated at Elevation 715.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/16/14

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

T.I.P. ID NO.: R-2536A
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass

REPORT ON SAMPLES OF: SOIL FOR QUALITY - Page 1 of 2

PROJECT: 34450.1.1
DATE SAMPLED: 3/13 - 6/13
SAMPLED FROM: L, Y1, Y2, Y2FLYA, Y2RPA, Y2LPA
SUBMITTED BY: W.P. Alton, PE

COUNTY: Randolph
RECEIVED: 4/13 - 5/13
REPORTED: 4/13 - 5/13
BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	S-849	S-861	SS-742	SS-805	SS-806	S-647	SS-653	SS-235	S-767	S-775	SS-250	SS-655	SS-656
BORING NO.	L_16200R	L_17000R	Y1_696R	Y2_6795R	Y2_6795R	Y2FLYA_900	Y2FLYA_1872R	Y2FLYA_2733R	Y2FLYA_3800	Y2FLYA_5400	Y2RPA_856	Y2LPA_600	Y2LPA_600
Retained #4 Sieve %	0.0	0.0	1.6	0.0	0.0	3.5	0.4	0.0	1.2	0.3	0.0	NT	9.0
Passing #10 Sieve %	100.0	100.0	96.5	100.0	99.8	91.5	99.3	100.0	97.5	99.4	99.8	NT	83.3
Passing #40 Sieve %	99.2	98.5	88.7	99.5	98.9	86.2	93.6	99.8	92.5	98.1	99.1	NT	77.0
Passing #200 Sieve %	92.6	81.4	79.2	98.4	83.5	78.0	82.7	98.3	78.8	95.2	90.5	NT	69.3

SOIL MORTAR - 100%													
Coarse Sand Ret - #60 %	1.5	5.5	9.8	0.6	2.0	7.5	8.3	0.4	7.5	1.7	1.6	NT	9.1
Fine Sand Ret - #270 %	8.7	16.0	10.6	1.4	19.4	10.0	10.9	1.7	15.4	3.5	10.8	NT	11.2
Silt 0.053 - 0.010 mm %	48.3	46.3	28.4	27.9	62.7	38.5	50.7	14.4	34.4	12.6	49.9	NT	36.6
Clay < 0.010 mm %	41.5	22.2	51.2	70.1	15.9	44.0	30.1	83.5	42.7	82.2	37.7	NT	43.1
L.L.	48	41	45	65	36	38	29	113	43	119	38	NT	38
P.L.	27	30	24	32	NP	23	23	45	19	32	22	NT	22
P.I.	21	11	21	33	NP	15	6	68	24	87	16	NT	16
AASHTO Classification	A-7-6 (22)	A-7-5 (10)	A-7-6 (17)	A-7-5 (40)	A-4 (2)	A-6 (12)	A-4 (4)	A-7-5 (84)	A-7-6 (18)	A-7-5 (97)	A-6 (15)	ND	A-6 (10)
Alignment	-L-	-L-	-Y1-	-Y2-	-Y2-	-Y2FLYA-	-Y2FLYA-	-Y2FLYA-	-Y2FLYA-	-Y2FLYA-	-Y2RPA-	-Y2LPA-	-Y2LPA-
Station	162+00	170+00	6+96	67+95	67+95	9+00	18+72	27+33	38+00	54+00	8+56	6+00	6+00
Offset	90' Rt	100' Rt	26' Rt	19' Rt	19' Rt	CL	125' Rt	22' Rt	CL	CL	CL	CL	CL
Depth (ft)	3.0	22.0	0.8	0.2	4.0	0.5	0.8	3.5	2.5	1.0	0.0	0.0	0.5
to	3.5	23.0	1.5	1.5	5.0	1.5	1.5	5.0	3.0	2.0	1.5	0.5	1.5
Moisture Content (%)	24.2	17.8	32.7	35.1	13.5	26.8	24.6	47.7	27.1	34.6	30.0	29.4	20.7
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.2	NT

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, P.E.
Soils Engineer

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

T.I.P. ID NO.: R-2536A
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass

REPORT ON SAMPLES OF: SOIL FOR QUALITY -

PROJECT: 34450.1.1
DATE SAMPLED: 3/13 - 6/13
SAMPLED FROM: Y2RPD, Y3, Y4RPA, Y4RPD, T1, T2, T3
SUBMITTED BY: W.P. Alton, PE

COUNTY: Randolph
RECEIVED: 4/13 - 5/13
REPORTED: 4/13 - 5/13
BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	S-639	S-974	SS-30	S-72	S-100	SS-612	S-203	SS-628				
BORING NO.	Y2RPD_2250	Y3_1350R	Y4RPA_1545L	Y4RPA_1700	Y4RPD_1100	T1_2800	T2_500	T3_1900				
Retained #4 Sieve %	0.0	0.0	0.0	NT	0.9	0.0	0.0	21.9				
Passing #10 Sieve %	99.6	100.0	99.8	NT	99.0	100.0	99.6	76.4				
Passing #40 Sieve %	98.8	99.9	98.6	NT	98.2	96.6	98.4	75.0				
Passing #200 Sieve %	88.3	99.3	92.2	NT	91.7	86.9	92.9	72.9				
SOIL MORTAR - 100%												
Coarse Sand Ret - #60 %	2.2	0.1	1.5	NT	2.0	4.6	1.8	2.4				
Fine Sand Ret - #270 %	13.3	0.8	9.3	NT	6.4	12.3	6.5	3.1				
Silt 0.053 - 0.010 mm %	39.2	30.9	32.0	NT	9.9	35.9	11.6	47.7				
Clay < 0.010 mm %	45.3	68.2	57.2	NT	81.7	47.2	80.1	46.8				
L.L.	43	68	71	NT	78	49	100	51				
P.L.	27	45	28	NT	50	28	29	26				
P.I.	16	23	43	NT	28	21	71	25				
AASHTO Classification	A-7-6 (15)	A-7-5 (33)	A-7-6 (46)	ND	A-7-5 (36)	A-7-6 (21)	A-7-6 (77)	A-7-6 (18)				
Alignment	-Y2RPD-	-Y3-	-Y4RPA-	-Y4RPA-	-Y4RPD-	-T1-	-T2-	-T3-				
Station	22+50	13+50	15+45	17+00	11+00	28+00	5+00	19+00				
Offset	CL	42' Rt	45' Lt	CL	CL	CL	CL	CL				
Depth (ft)	0.2	0.0	0.2	0.0	0.5	0.3	0.2	0.1				
to	1.5	10.0	1.5	0.5	1.5	1.5	1.2	1.5				
Moisture Content (%)	30.3	27.8	28.9	42.0	39.0	29.7	34.6	25.2				
Organic Content (%)	NT	NT	NT	4.9	NT	NT	NT	NT				

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, P.E.
Soils Engineer

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-1	L_7800L	-L-	78+00	90' LT.	26.4 - 26.7	Meta-Argillite	CZmd	40%	4.10	1.78	187.1	7,862	ND	ND
RS-2	L_11400R	-L-	114+00	106' RT.	12.2 - 12.5	Meta-Argillite	CZmd	66%	3.95	1.76	180.8	4,691	ND	ND
RS-3	L_17300	-L-	173+00	CL	20.9 - 21.2	Metasiltstone	CZmd	70%	4.05	1.77	167.3	43,696	ND	ND

ND = Not Determined

SECTION 2

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	14

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Bridge on -Y5- (Stutts Rd.) over -L- (Asheboro Byp.)*

ID: R-2536A

PROJECT: 34450.1.1

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PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
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 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / OPT DMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 03
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 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.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

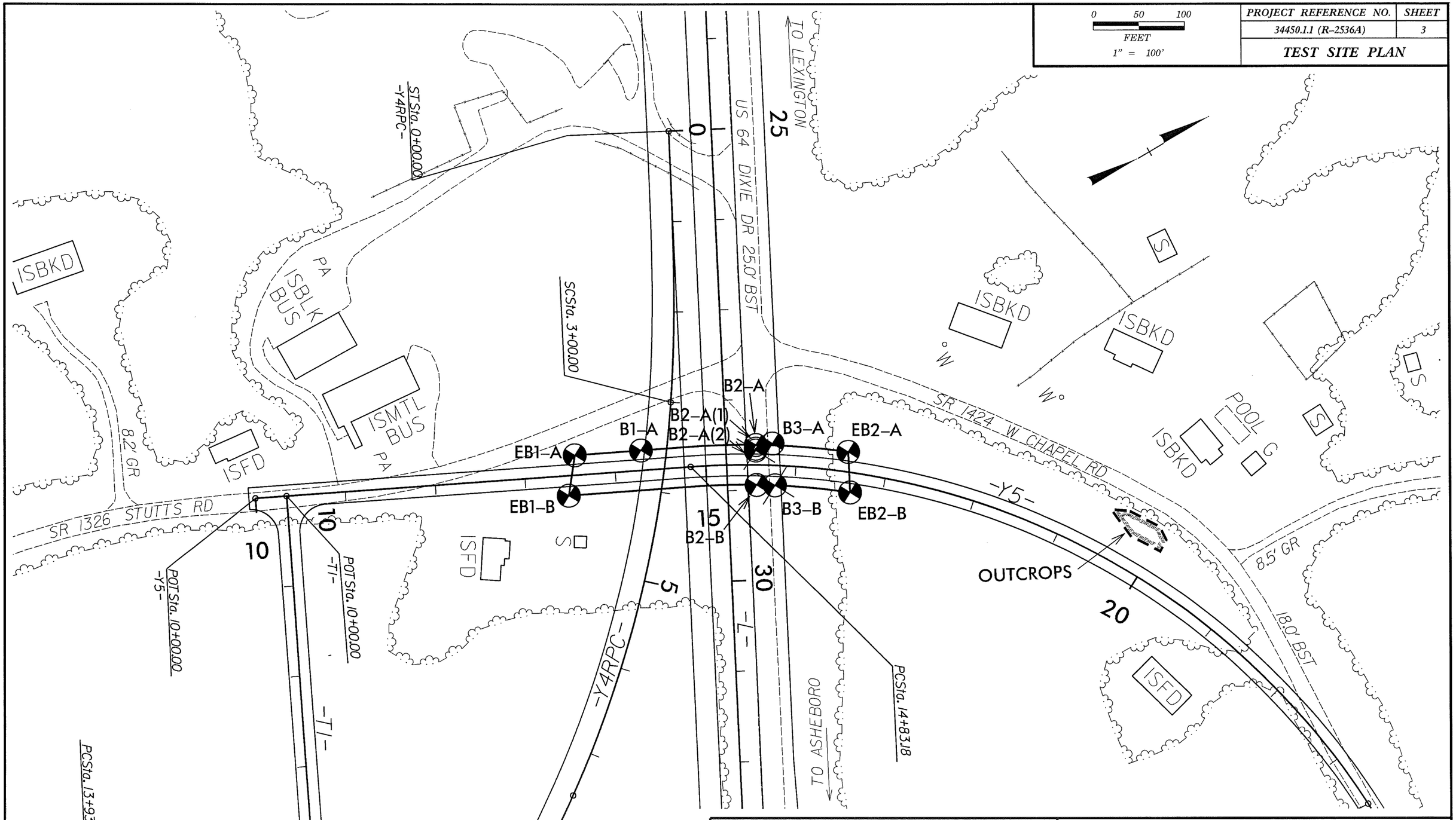
ELEVATION: N/A FT.

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING
NM = NOT MEASURED
TR = TRACE

REVISED 09/23/09

0 50 100 FEET 1" = 100'	PROJECT REFERENCE NO.	SHEET
	34450.1.1 (R-2536A)	3
	TEST SITE PLAN	



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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Bridge on -Y5- (Stutts Rd.) over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 13+57	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 723.0 ft	**TOTAL DEPTH** 47.2 ft	**NORTHING** 711,402	**EASTING** 1,739,984	**24 HR.** 47.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
725	723.0	0.0								723.0 / 0.0 GROUND SURFACE
			2	2	3	5		W		**ARTIFICIAL FILL** 721.0 / 2.0 Brown, clayey SILT (A-5), with trace gravel.
720	719.5	3.5	4	8	10	18		M		**RESIDUAL** Tan, orange-brown & brown, fine sandy SILT (A-4).
715	714.5	8.5	9	15	28	43		M		
710	709.5	13.5	14	16	39	55		M		
705	704.5	18.5	4	8	20	28		M		
700	699.5	23.5	64	36/0.1		100/0.6				699.5 / 23.5 **WEATHERED ROCK** Tan-black, (FELSIC METAVOLCANIC ROCK).
695	694.5	28.5	30	41	59/0.3	100/0.8				
690	689.5	33.5	23	38	50	88		M		691.0 / 32.0 Tan, brown & orange-brown, fine sandy SILT (A-4).
685	684.5	38.5	26	33	42	75		M		
680	679.5	43.5	100/0.3			100/0.3				679.5 / 43.5 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
	675.9	47.1	60/0.1			60/0.1				675.9 / 47.1 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) 675.8 / 47.2

Boring Terminated with Standard Penetration Test Refusal at Elevation 675.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 47.1'.
2) ROADWAY BORING DESIGNATION IS Y5_1357L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 13+47	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 726.8 ft	**TOTAL DEPTH** 24.0 ft	**NORTHING** 711,374	**EASTING** 1,740,019	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730	726.8	0.0								726.8 / 0.0 GROUND SURFACE
			6	6	7	13		M		725.8 / 1.0 **ARTIFICIAL FILL** 724.8 / 2.0 Tan, fine sandy SILT (A-4), with some gravel. Red-brown, fine sandy SILT (A-4), with trace clay.
725	723.3	3.5	7	9	11	20		M		**RESIDUAL** Tan, orange-brown & gray, fine sandy SILT (A-4), with trace mica.
720	718.3	8.5	9	16	38	54		M		
715	713.3	13.5	21	63	37/0.2	100/0.7				
710	708.3	18.5	27	73/0.3		100/0.8				712.8 / 14.0 **WEATHERED ROCK** Tan-white-brown & gray-green, (FELSIC METAVOLCANIC ROCK).
705	703.3	23.5	100/0.5			100/0.5				702.8 / 24.0

Boring Terminated at Elevation 702.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y5_1347R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 14+30	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** 46.0
COLLAR ELEV. 719.3 ft	**TOTAL DEPTH** 56.6 ft	**NORTHING** 711,467	**EASTING** 1,740,016	**24 HR.** 32.7
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
720										
	719.3	0.0	1	1	1	2		M		719.3 GROUND SURFACE 0.0
										ARTIFICIAL FILL
715	715.8	3.5	4	5	8	13		M		717.3 Orange-brown, fine sandy clayey SILT (A-5), with trace gravel & roots. 2.0
										RESIDUAL
710	710.8	8.5	7	10	17	27		M		Tan & orange-brown, fine sandy SILT (A-4), with trace clay & mica.
	705.8	13.5	11	20	26	46		M		
705										
	700.8	18.5	13	22	35	57		M		
700										
	695.8	23.5	24	42	58/0.3	100/0.8				695.3 24.0
695										**WEATHERED ROCK**
	690.8	28.5	23	41	59/0.3	100/0.8				Tan & brown, (FELSIC METAVOLCANIC ROCK).
690										
	685.8	33.5	40	60/0.5		100/1.0				
685										
	680.8	38.5	10	16	18	34		M		
680										
	675.8	43.5	47	53/0.2		100/0.7				682.3 37.0
675										Tan & orange-brown, fine sandy SILT (A-4).
	670.8	48.5	100/0.3			100/0.3				675.8 43.5
670										**WEATHERED ROCK**
	665.8	53.5	52	48/0.2		100/0.7				Tan, brown & gray-green, (FELSIC METAVOLCANIC ROCK).
665										
	662.8	56.5	60/0.1			60/0.1				662.8 56.5
										662.7 56.6
										CRYSTALLINE ROCK
										(FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 662.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 56.5'.
3) ROADWAY BORING DESIGNATION IS Y5_1430L
4) Boring B1-B not drilled due to property owner conflicts.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A	**STATION** 15+55	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 4.5 ft	**NORTHING** 711,580	**EASTING** 1,740,076	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
	701.1									701.1 GROUND SURFACE 0.0
										700.1 **ASPHALT** 1.0
700	700.1	1.0	4	12	38	50		M		**ROADWAY EMBANKMENT**
										698.1 Red-brown, fine to coarse sandy silty CLAY (A-7-5), with trace gravel. 3.0
	697.6	3.5	10	94	6/0.0	100/0.5		Sat.		PC 697.1 Brown & gray, GRAVEL (A-1-a), with little fine to coarse sand & clay, trace root fragments. 4.0
										696.6 WEATHERED ROCK (BOULDER) 4.5
										Boring Terminated at Elevation 696.6 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) Boring terminated due to augers becoming crooked due to rock encountered in embankment.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y5_1555L

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A (1)	**STATION** 15+55	**OFFSET** 18 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 3.0 ft	**NORTHING** 711,578	**EASTING** 1,740,079	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER J. Gilchrist	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
705											
										701.1 GROUND SURFACE	0.0
700										700.1 **ASPHALT**	1.0
										698.1 **ROADWAY EMBANKMENT** Red-brown, fine to coarse sandy silty CLAY (A-7-5), with little to some gravel.	3.0
										Boring Terminated by Auger Refusal at Elevation 698.1 ft in ROADWAY EMBANKMENT (POSSIBLE BOULDER)	

NOTES:

1) Offset of original boring.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y5_1555L1

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A (2)	**STATION** 15+55	**OFFSET** 16 ft LT	**ALIGNMENT** -Y5-	**0 HR.** N/A
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 40.4 ft	**NORTHING** 711,577	**EASTING** 1,740,081	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/19/13	**COMP. DATE** 06/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
705										
										701.1 GROUND SURFACE 0.0
700	700.1	1.0								700.1 **ASPHALT** 1.0
			16	6	6	12		M		**ROADWAY EMBANKMENT**
	697.6	3.5								698.1 Red-brown, fine to coarse sandy silty CLAY (A-7-5), with trace gravel. 3.0
			28	20	17	37		M		**RESIDUAL**
695										Brown & black, fine to coarse sandy SILT (A-4), with trace gravel-sized rock fragments.
	692.6	8.5								692.1 9.0
			19	48	52/0.4	100/0.9				**WEATHERED ROCK**
690										Brown, (FELSIC METAVOLCANIC ROCK).
	687.6	13.5								
			54	46/0.2		100/0.7				
685										
	682.6	18.5								
			49	51/0.3		100/0.8				
680										
	677.6	23.5								
			40	60/0.1		100/0.6				
675										
	672.6	28.5			60/0.1	60/0.1				672.6 **CRYSTALLINE ROCK** 28.5
	670.7	30.4			60/0.0	60/0.0				670.7 Dark gray, (FELSIC METAVOLCANIC ROCK). 30.4
670										667.6 33.5
							RS-10			Gray, (FELSIC METAVOLCANIC ROCK).
665										
										660.7 40.4
										Boring Terminated at Elevation 660.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 30.4', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
4) ROADWAY BORING DESIGNATION IS Y5_1555L2

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A (2)	**STATION** 15+55	**OFFSET** 16 ft LT	**ALIGNMENT** -Y5-	**0 HR.** N/A
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 40.4 ft	**NORTHING** 711,577	**EASTING** 1,740,081	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/19/13	**COMP. DATE** 06/19/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 10.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
670.7											Begin Coring @ 30.4 ft
670	670.7	30.4	5.0	*N=60/0.0* 4:07/1.0 4:18/1.0 2:32/1.0 2:30/1.0 2:16/1.0	(4.6) 92%	(2.7) 54%		(2.7) 87%	(0.8) 26%		670.7 **CRYSTALLINE ROCK** 30.4
											Gray & brown, moderately severe to moderately weathered, soft to medium hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.
											667.6 33.5
	665.7	35.4					RS-10	(6.9) 100%	(6.9) 100%		Gray, very slightly weathered to fresh, hard, (FELSIC METAVOLCANIC ROCK), moderately close to wide fracture spacing.
665			5.0	2:42/1.0 3:04/1.0 2:55/1.0 4:40/1.0 3:37/1.0	(5.0) 100%	(5.0) 100%					RS-10: 33.7'-34.0' qu = 9,028 psi R_1=7, R_2=13, R_3=10, R_4=12, R_5=7 RMR = 49, Rock Type E
	660.7	40.4									660.7 40.4
											Boring Terminated at Elevation 660.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 30.4', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
4) ROADWAY BORING DESIGNATION IS Y5_1555L2

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B2-A(2): Station 15+55, 16' LT

Begin Run 1
30.4 feet

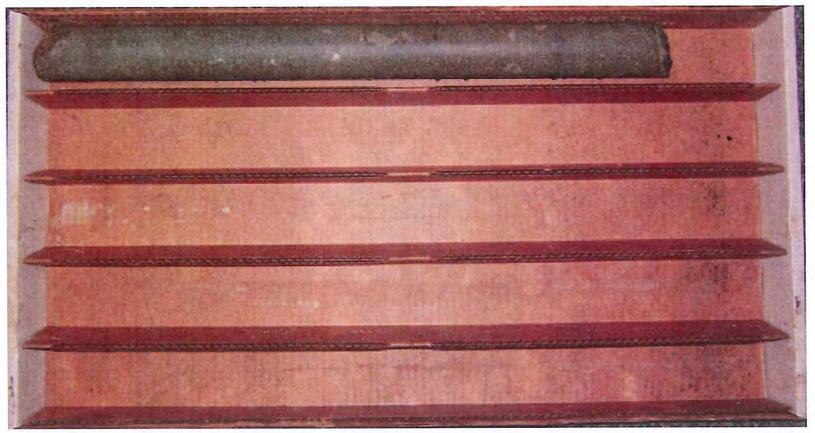
End Run 1 &
Begin Run 2
35.4 feet

39.1 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

39.1 feet



End Run 2
40.4 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 15+57	**OFFSET** 22 ft **RT**	**ALIGNMENT** -Y5-	**0 HR.** 13.6
COLLAR ELEV. 701.4 ft	**TOTAL DEPTH** 33.1 ft	**NORTHING** 711,558	**EASTING** 1,740,114	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
705											
										701.4 GROUND SURFACE	0.0
	700.4	1.0								700.4 **ASPHALT**	1.0
700			3	7	17	24		M		699.9 **ROADWAY EMBANKMENT**	1.5
	697.9	3.5								699.4 BASE COURSE	2.0
			23	29	45	74		M		Brown-red, fine to coarse sandy silty CLAY (A-7-5), with trace gravel.	
695										**RESIDUAL**	
	692.9	8.5								Brown, fine to coarse sandy SILT (A-4), saprolitic at 8.5'.	
			22	30	37	67		M			
690											
	687.9	13.5								687.4	14.0
			39	52	48/4	100/0.9				**WEATHERED ROCK**	
685										Brown, (FELSIC METAVOLCANIC ROCK), with thin clay seams.	
	682.9	18.5	100/0.2			100/0.2					
680											
	677.9	23.5	100/0.2			100/0.2					
675											
	672.9	28.5	100/0.2			100/0.2					
670										669.7	31.7
	668.3	33.1	60/0.0			60/0.0				668.3 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)	33.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 668.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) Auger refusal at 33.1'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y5_1557R

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B3-A	**STATION** 15+73	**OFFSET** 24 ft LT	**ALIGNMENT** -Y5-	**0 HR.** 23.6
COLLAR ELEV. 701.1 ft	**TOTAL DEPTH** 31.3 ft	**NORTHING** 711,597	**EASTING** 1,740,084	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
										701.1 GROUND SURFACE 0.0
	700.1	1.0								700.1 **ASPHALT** 1.0
700			8	5	9	14		M		699.4 **ROADWAY EMBANKMENT** 1.7
	697.1	4.0								Red-tan, silty CLAY (A-7-5), with trace fine sand.
			21	29	33	62		M		**RESIDUAL**
695										Tan-red & tan, fine sandy SILT (A-4), with trace clay, saprolitic at 4.0'.
	692.1	9.0								
			20	27	40	67		M		
690										689.1 12.0
	687.1	14.0								**WEATHERED ROCK**
			53	47/0.3		100/0.8				Tan, (FELSIC METAVOLCANIC ROCK).
685										684.1 17.0
	682.1	19.0								Tan, fine sandy SILT (A-4), saprolitic.
			15	17	24	41		M		
680										
	677.1	24.0								675.6 25.5
			25	36	27	63		M		**WEATHERED ROCK**
675										Tan & gray, (FELSIC METAVOLCANIC ROCK).
	672.1	29.0								
			75	25/0.1		100/0.6				670.1 31.0
670	669.9	31.2	60/0.1			60/0.1				669.8 **CRYSTALLINE ROCK** 31.3
										Gray, brown & black, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 669.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 31.2'.
2) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.
3) ROADWAY BORING DESIGNATION IS Y5_1573L

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B3-B	**STATION** 15+78	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** N/A
COLLAR ELEV. 701.5 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 711,576	**EASTING** 1,740,125	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
705										
	701.5	0.0								GROUND SURFACE 0.0
	700.5	1.0								ASPHALT 1.0
700			4	6	7	13		M		ROADWAY EMBANKMENT 2.5
	698.0	3.5	72	28/0.2		100/0.7				Tan-red, fine sandy SILT (A-4), with trace clay.
695										WEATHERED ROCK
	693.0	8.5	25	38	62/0.2	100/0.7				Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
690										
	688.0	13.5	55	45/0.2		100/0.7				
685										
	683.0	18.5	100/0.2			100/0.2				
680										
	678.0	23.5	60/0.0			60/0.0				678.0 23.5
675										CRYSTALLINE ROCK
										Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
							RS-11			671.9 29.6
670										Gray-green & tan, (FELSIC METAVOLCANIC ROCK).
										665.0 36.5
665										Boring Terminated at Elevation 665.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 23.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.
4) ROADWAY BORING DESIGNATION IS Y5_1578R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B3-B	**STATION** 15+78	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** N/A
COLLAR ELEV. 701.5 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 711,576	**EASTING** 1,740,125	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/05/13	**COMP. DATE** 06/05/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 13.0 ft			

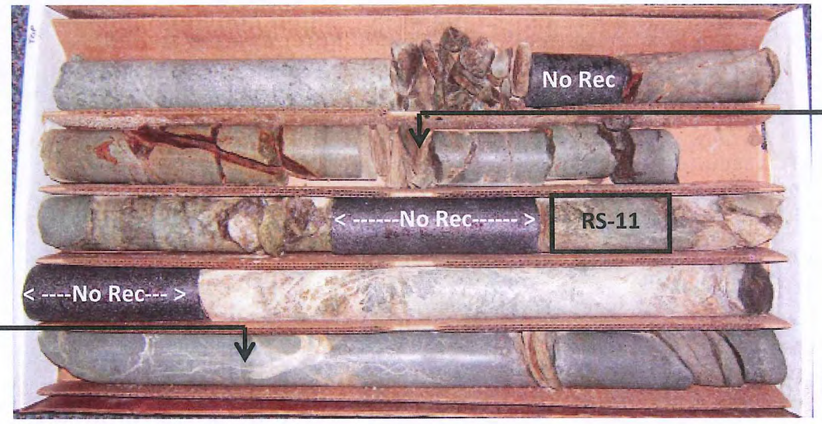
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
678											Begin Coring @ 23.5 ft
	678.0	23.5	3.0	*N=60/0.0* 1:54/1.0 2:20/1.0 2:14/1.0	(2.8) 93%	(1.8) 60%		(4.9) 80%	(2.9) 48%		678.0 CRYSTALLINE ROCK 23.5
675	675.0	26.5	5.0	3:22/1.0 1:57/1.0 1:56/1.0 1:46/1.0 2:57/1.0	(4.0) 80%	(2.8) 56%	RS-11	(6.9) 100%	(5.5) 80%		Gray-green & tan, moderately severe to moderately weathered, hard to moderately hard (FELSIC METAVOLCANIC ROCK), close to very close fracture spacing. RS-11: 28.5'-28.8' qu = 3,291 psi R_1=2, R_2=13, R_3=10, R_4=12, R_5=7 RMR = 44, Rock Type E
670	670.0	31.5	5.0	3:20/1.0 2:54/1.0 3:00/1.0 3:15/1.0 3:01/1.0	(5.0) 100%	(3.8) 76%					671.9 29.6 Gray-green & tan, slightly weathered to fresh, hard (FELSIC METAVOLCANIC ROCK), moderately close to very close fracture spacing.
665	665.0	36.5									665.0 36.5 Boring Terminated at Elevation 665.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 23.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location next to roadway.
4) ROADWAY BORING DESIGNATION IS Y5_1578R

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B3-B: Station 15+78, 22' RT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 16+55	**OFFSET** 22 ft LT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 712.0 ft	**TOTAL DEPTH** 33.8 ft	**NORTHING** 711,664	**EASTING** 1,740,134	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
715										
	712.0	0.0								712.0 0.0 GROUND SURFACE
710			2	3	4	7		W		**RESIDUAL** Brown, orange-brown & tan, fine sandy SILT (A-4), with trace clay, saprolitic.
	708.5	3.5	9	24	30	54		M		
705										
	703.5	8.5	22	37	57	94		M		
700										
	698.5	13.5	31	65	35/0.2	100/0.7				698.0 14.0 **WEATHERED ROCK** Brown & black, (FELSIC METAVOLCANIC ROCK).
695										695.0 17.0 Light tan & brown, fine sandy SILT (A-4), saprolitic.
	693.5	18.5	22	28	30	58		M		
690										
	688.5	23.5	100/0.3			100/0.3				688.5 23.5 **WEATHERED ROCK** Tan, brown & gray, (FELSIC METAVOLCANIC ROCK).
685										
	683.5	28.5	39	52	48/0.4	100/0.9				
680										
	678.5	33.5	100/0.3			100/0.3				678.2 33.8 Boring Terminated at Elevation 678.2 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y5_1655L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 16+63	**OFFSET** 22 ft RT	**ALIGNMENT** -Y5-	**0 HR.** Dry
COLLAR ELEV. 712.0 ft	**TOTAL DEPTH** 18.6 ft	**NORTHING** 711,643	**EASTING** 1,740,174	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
715										
	712.0	0.0								712.0 0.0 GROUND SURFACE
710			1	9	15	24		W		711.8 0.2 **RESIDUAL** 710.0 2.0 Brown, fine sandy clayey SILT (A-5). Tan-brown, fine to coarse sandy SILT (A-4).
	708.5	3.5	100/0.4			100/0.4				**WEATHERED ROCK** Tan, white & gray-green, (FELSIC METAVOLCANIC ROCK).
705										
	703.5	8.5	100/0.3			100/0.3				
700										
	698.5	13.5	100/0.2			100/0.2				
695										
	693.5	18.5	60/0.1			60/0.1				693.5 18.5 693.4 18.6 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 693.4 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y5_1663R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

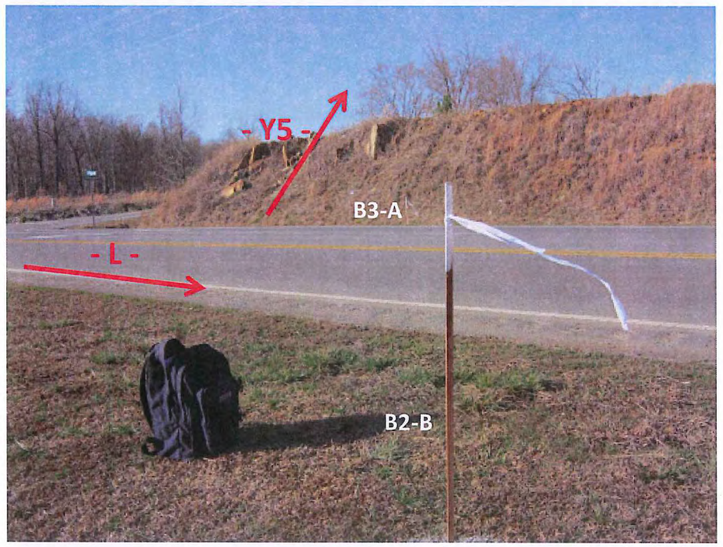
PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Bridge on SR 1326 (Stutts Road) over existing US 64

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-10	Y5_1555L2	-Y5-	15+55	16' LT.	33.7 - 34.0	Felsic Metavolcanic	CZfv	54%	3.98	1.77	175.2	9,028	3.30×10^5	49
RS-11	Y5_1578R	-Y5-	15+78	22' RT.	28.5 - 28.8	Felsic Metavolcanic	CZfv	56%	4.04	1.78	178.2	3,291	1.23×10^5	44

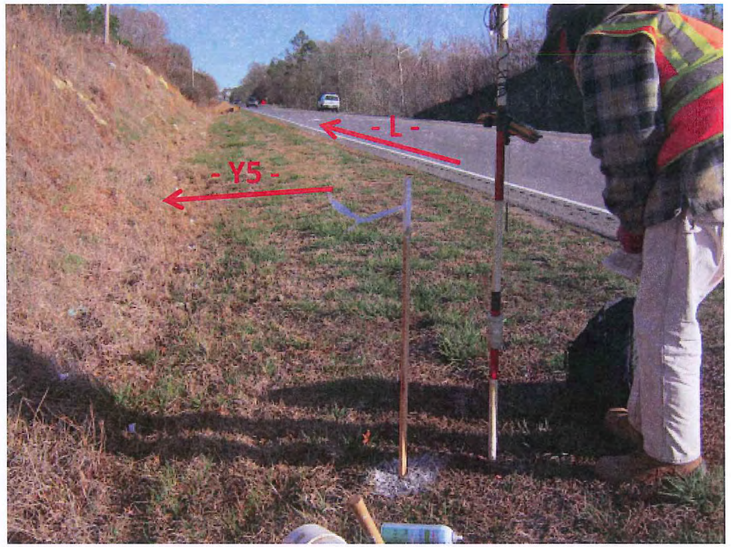
Bridge on -Y5- (Stutts Road) over -L- (Asheboro Bypass)

SITE PHOTOGRAPHS

Photograph No. 1: View from proposed boring B1-B looking northwest along Bent 1



Photograph No. 2: View looking upstation on –Y5- towards Bent 3 & End Bent 2



Photograph No. 3: View from boring B3-A looking southeast along Bent 3

Photograph No. 4: View from End Bent 2 looking southwest along the bridge

SECTION 3

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	13

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Dual Bridges on -Y4RPA- over -L- (Asheboro Byp.)*

ID: R-2536A

PROJECT: 34450.1.1

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-10	BORELOGS, CORELOGS & CORE PHOTOGRAPHS
11	SOIL TEST RESULTS
12	ROCK CORE TEST RESULTS
13	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA , AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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 DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, OR THE 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.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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

M. Brewer

S. Davis

J. Fowler

D. Jenks

K. Murphy

D. Tignor

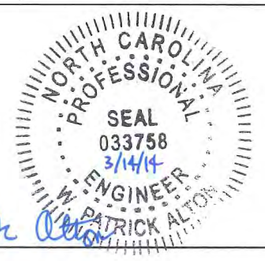
DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*



PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — OIP & OIP DIRECTION OF ROCK STRUCTURES
- SPT / CPT / PMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γd - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 03
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELOSPAR 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 FELOSPARS 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 FELOSPARS 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*
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 FELOSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

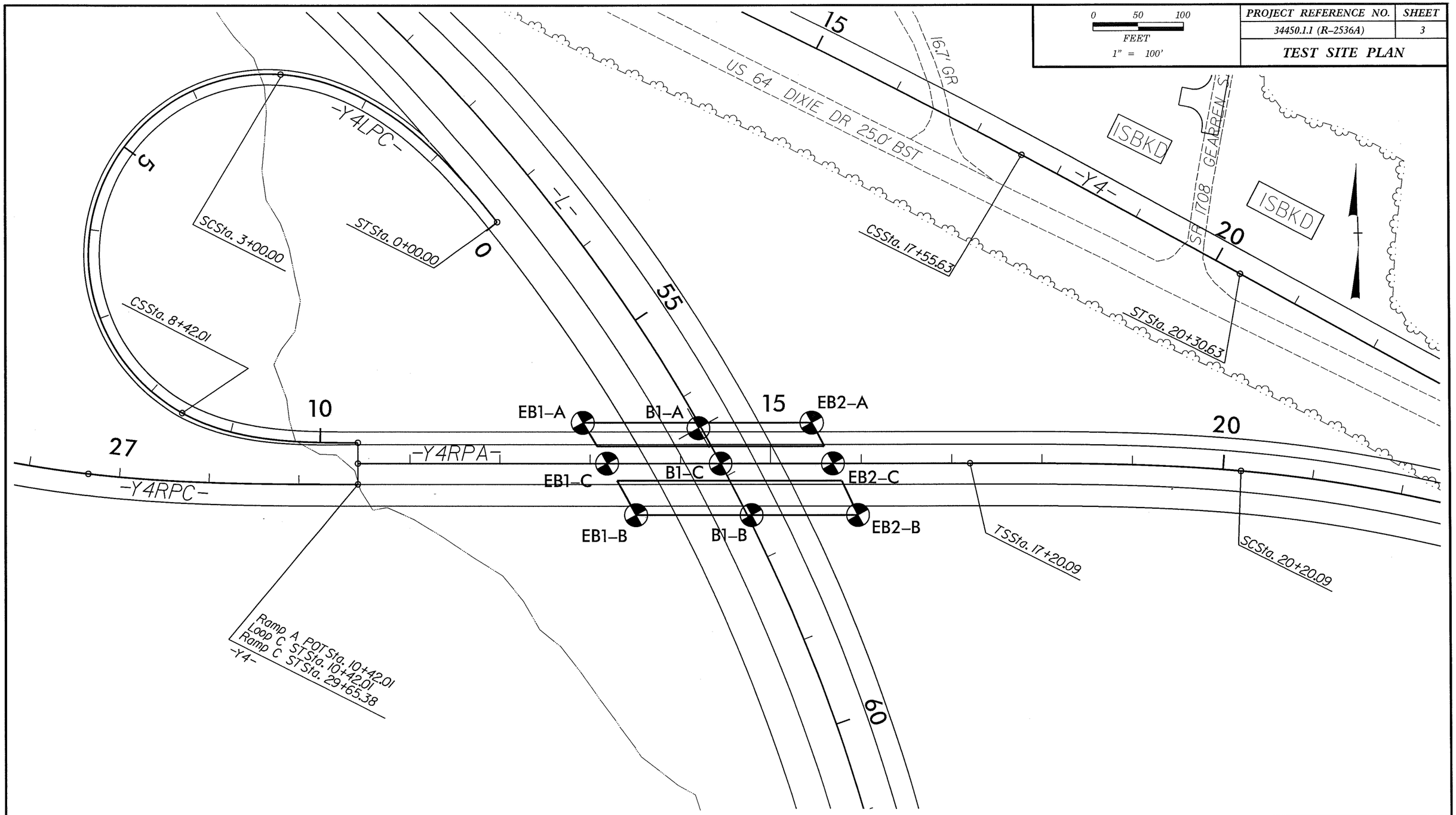
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
SOS = SURFICIAL ORGANIC SOILS
TR = TRACE
NM = NOT MEASURED

REVISED 09/23/09

PROJECT REFERENCE NO.	SHEET
34450.1.1 (R-2536A)	3

0 50 100
FEET
1" = 100'

TEST SITE PLAN



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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Dual Bridges on -Y4RPA- over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 12+92	**OFFSET** 45 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 675.6 ft	**TOTAL DEPTH** 13.3 ft	**NORTHING** 709,980	**EASTING** 1,742,172	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
680										
675	675.6	0.0	WOH	WOH	2	2		W		675.6 GROUND SURFACE 0.0
	672.1	3.5	3	6	8	14		M		**RESIDUAL** Tan, orange & white, fine sandy to highly fine sandy SILT (A-4), with trace gravel-size rock fragments.
670	667.1	8.5	5	8	11	19		M		
665	663.4	12.2								
	662.4	13.2	60/0.1			60/0.1				662.4 13.2 **WEATHERED ROCK** Tan & white, (FELSIC METAVOLCANIC ROCK).
	662.3	13.3								**CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK) Boring Terminated with Standard Penetration Test Refusal at Elevation 662.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 13.2'.
3) ROADWAY BORING DESIGNATION IS Y4RPA_1292L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-C	**STATION** 13+19	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 671.5 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 709,935	**EASTING** 1,742,197	**24 HR.** 8.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
675										
	671.5	0.0	1	2	2	4		W		671.5 GROUND SURFACE 0.0
670	668.0	3.5	62	38/0.4		100/0.9				**RESIDUAL** Tan-white, highly fine sandy SILT (A-4), with trace gravel-size rock fragments. 668.0 3.5
665	663.0	8.5	100/0.2			100/0.2				**WEATHERED ROCK** Brown & orange, (FELSIC METAVOLCANIC ROCK).
660	658.0	13.5	35	65/0.5		100/1.0				657.0 14.5 Boring Terminated at Elevation 657.0 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2 = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y4RPA_1319

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 13+50	**OFFSET** 57 ft RT	**ALIGNMENT** -Y4RPA- — **0 HR.** Dry
COLLAR ELEV. 664.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 709,877	**EASTING** 1,742,228 — **24 HR.** 13.1
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/12/13	**COMP. DATE** 03/12/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
665	664.8	0.0	2	3	4	7		W		664.8 GROUND SURFACE 0.0
										RESIDUAL Tan, fine sandy SILT (A-4), with trace gravel-size rock fragments.
660	661.3	3.5	80	20/0.2		100/0.7				661.3 3.5
										WEATHERED ROCK Brown & orange, (FELSIC METAVOLCANIC ROCK).
655	656.3	8.5	44	56/0.3		100/0.8				
	651.3	13.5	29	41	59/0.5	100/1.0				649.8 15.0
650										Boring Terminated at Elevation 649.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y4RPA_1350R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 14+20	**OFFSET** 39 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** N/A
COLLAR ELEV. 670.1 ft	**TOTAL DEPTH** 46.8 ft	**NORTHING** 709,971	**EASTING** 1,742,299	**24 HR.** 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/14/13	**COMP. DATE** 06/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										670.1 GROUND SURFACE	0.0
	670.1	0.0	2	3	6	9		M		**RESIDUAL** Yellow & red-brown, clayey SILT (A-5).	
	666.6	3.5	14	27	73/0.3	100/0.8				666.1	4.0
										WEATHERED ROCK Red-brown & brown-yellow, (FELSIC METAVOLCANIC ROCK).	
	661.6	8.5	27	23	31	54		M		663.1 Brown, silty SAND (A-2-4).	7.0
										658.1	12.0
	656.6	13.5	80	20/0.1		100/0.6				**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).	
	651.6	18.5	100/0.5			100/0.5					
	647.1	23.0	60/0.1			60/0.1				647.1	23.0
										647.0 **CRYSTALLINE ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK).	23.1
										643.4	26.7
										642.0 Gray, (FELSIC METAVOLCANIC ROCK).	28.1
										WEATHERED ROCK Brown & gray, (FELSIC METAVOLCANIC ROCK).	
							RS-8			638.2	31.9
										636.7 **CRYSTALLINE ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	33.4
										635.0	35.1
										634.0 **WEATHERED ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK).	36.1
										CRYSTALLINE ROCK Gray & brown, (FELSIC METAVOLCANIC ROCK).	
	629.0	41.1	50	50/0.2		100/0.7				**WEATHERED ROCK**	
										625.9 Brown, (FELSIC METAVOLCANIC ROCK).	44.2
										CRYSTALLINE ROCK	
										623.3 Gray & brown, (FELSIC METAVOLCANIC ROCK).	46.8
										Boring Terminated at Elevation 623.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 23.0'.
3) Began coring at 23.1'.
4) 0 hr. water level not measured due to water introduced for coring.
5) ROADWAY BORING DESIGNATION IS Y4RPA_1420L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 14+20	**OFFSET** 39 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** N/A
COLLAR ELEV. 670.1 ft	**TOTAL DEPTH** 46.8 ft	**NORTHING** 709,971	**EASTING** 1,742,299	**24 HR.** 12.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/14/13	**COMP. DATE** 06/17/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 23.0 ft			

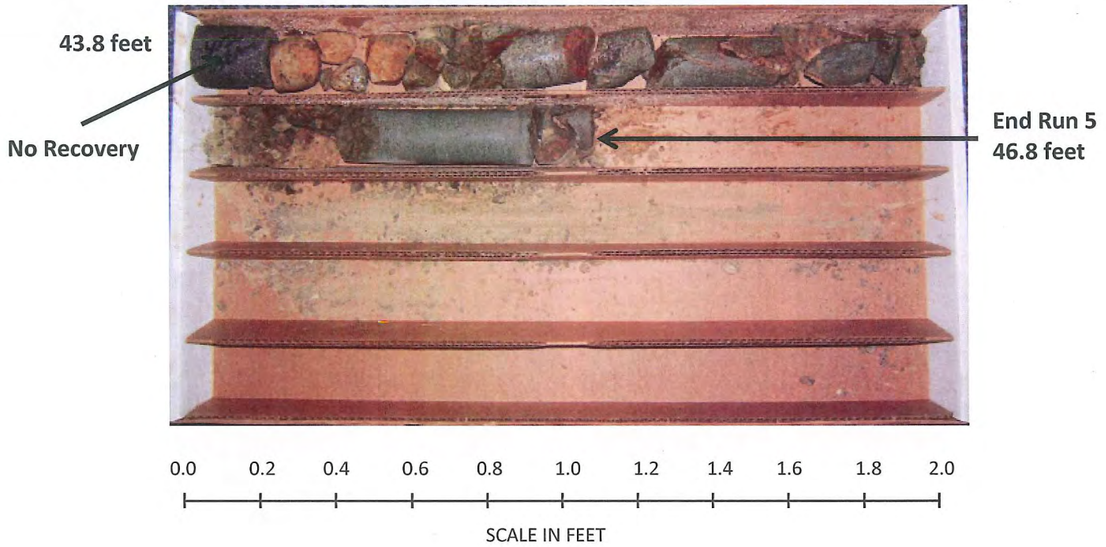
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
											Begin Coring @ 23.1 ft	
	647.0	23.1	3.0	3:53/1.0 3:23/1.0 3:20/1.0	(1.9) 63%	(0.4) 13%		(2.5) 69%	(0.4) 11%		647.0 **CRYSTALLINE ROCK** Gray & brown, moderately severe to moderately weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.	23.1
	644.0	26.1	5.0	4:15/1.0 5:08/1.0 2:25/1.0 0:37/1.0 1:15/1.0	(2.2) 44%	(0.8) 16%		(1.4) 100%	(0.8) 57%		643.4	26.7
	639.0	31.1	5.0	2:36/1.0 2:46/1.0 3:03/1.0 3:28/1.0 3:38/1.0	(2.7) 54%	(0.6) 12%	RS-8	(0.4) 11% (1.5) 100% (0.0) 0%	(0.0) 0% (0.6) 40% (0.0) 0%		642.0 Gray, slightly weathered, hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing.	28.1
	634.0	36.1	5.0	3:45/1.0 2:47/1.0 1:59/1.0 2:26/1.0 3:14/1.0	(1.3) 26%	(0.0) 0%		(1.0) 100% (1.2) 15%	(0.0) 0% (0.0) 0%		**WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK). 638.2	31.9
	629.0	41.1		N=100/0.7							**CRYSTALLINE ROCK** Brown & gray, moderately to slightly weathered, moderately hard to hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. RS-8: 32.4'-32.7' qu = 15,830 psi, R_1=12, R_2=3, R_3=5, R_4=0, R_5=7 RMR = 27, Rock Type E	
	628.3	41.8	5.0	3:16/1.0 3:58/1.0 3:56/1.0 3:23/1.0 3:10/1.0	(2.5) 50%	(0.9) 18%					636.7 635.0 634.0	33.4 35.1 36.1
	623.3	46.8						(2.6) 100%	(0.9) 35%		**WEATHERED ROCK** Gray & brown, (FELSIC METAVOLCANIC ROCK). **CRYSTALLINE ROCK** Gray & brown, moderately weathered, soft to moderately hard, (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. 625.9 **WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).	44.2
											CRYSTALLINE ROCK Gray & brown, moderately to slightly weathered, medium to moderately hard, (FELSIC METAVOLCANIC ROCK), close fracture spacing. 623.3 Boring Terminated at Elevation 623.3 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	46.8

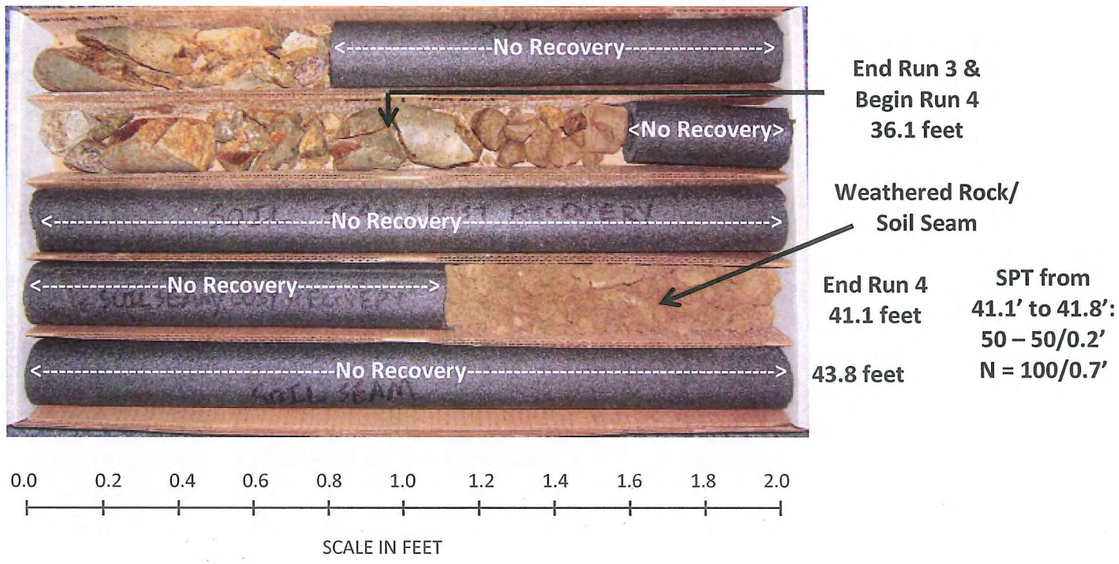
NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 23.0'.
3) Began coring at 23.1'.
4) 0 hr. water level not measured due to water introduced for coring.
5) ROADWAY BORING DESIGNATION IS Y4RPA_1420L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-A: Station 14+20, 39' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-C	**STATION** 14+45	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** 24.6
COLLAR ELEV. 668.1 ft	**TOTAL DEPTH** 31.4 ft	**NORTHING** 709,932	**EASTING** 1,742,323	**24 HR.** 15.1
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
670	668.1	0.0								ELEV. (ft) 668.1 GROUND SURFACE DEPTH (ft) 0.0
			1	3	4	7 56		W		**RESIDUAL** Tan, orange & brown, fine sandy SILT (A-4), with trace clay, roots & gravel-size rock fragments.
665	664.6	3.5	8	25	31			M		
660	659.6	8.5	22	38	42	80		M		656.3 11.8 **WEATHERED ROCK** Tan & brown, (FELSIC METAVOLCANIC ROCK).
655	654.6	13.5	19	32	68/0.2	100/0.7				651.1 17.0 Tan, brown & orange, fine to coarse sandy SILT (A-4), with trace mica & gravel-size rock fragments.
650	649.6	18.5	24	18	26	44		M		
645	644.6	23.5	15	35	49	84		M		640.9 27.2 **WEATHERED ROCK** Gray & orange, (FELSIC METAVOLCANIC ROCK).
640	639.6	28.5	100/0.3			100/0.3				
	636.7	31.4	60/0.0			60/0.0				636.7 31.4 Boring Terminated with Standard Penetration Test Refusal at Elevation 636.7 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.4' = Surficial Organic Soils
2) Auger refusal at 31.4'.
3) ROADWAY BORING DESIGNATION IS Y4RPA_1445

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 14+79	**OFFSET** 57 ft RT	**ALIGNMENT** -Y4RPA-	**0 HR.** 36.0
COLLAR ELEV. 672.6 ft	**TOTAL DEPTH** 38.7 ft	**NORTHING** 709,874	**EASTING** 1,742,356	**24 HR.** 18.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/18/13	**COMP. DATE** 06/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
675	672.6	0.0								ELEV. (ft) 672.6 GROUND SURFACE DEPTH (ft) 0.0
			3	3	3	6		M		**RESIDUAL** Tan & brown, fine sandy SILT (A-4), with trace clay from 0.0-1.5'.
670	669.1	3.5	31	38	56	94		M		
665	664.1	8.5	41	40	60/0.4	100/0.9				663.6 9.0 **WEATHERED ROCK** Tan-brown & gray-green, (FELSIC METAVOLCANIC ROCK).
660	659.1	13.5	77	23/0.1		100/0.6				
655	654.1	18.5	60/0.1			60/0.1				654.1 18.5 **CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)
650	649.1	23.5	35	44	56/0.4	100/0.9				650.6 22.0 **WEATHERED ROCK** Tan-brown, red-brown & gray, (FELSIC METAVOLCANIC ROCK).
645	644.1	28.5	76	24/0.1		100/0.6				
640	639.1	33.5	81	19/0.1		100/0.6				
635	634.1	38.5	100/0.2			100/0.2				633.9 38.7 Boring Terminated at Elevation 633.9 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y4RPA_1479R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 15+45	**OFFSET** 45 ft LT	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 681.4 ft	**TOTAL DEPTH** 11.8 ft	**NORTHING** 709,974	**EASTING** 1,742,425	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685												
	681.4	0.0	1	2	3	5	SS-30	29%		GROUND SURFACE	681.4	0.0
680										**RESIDUAL** Tan & red, silty CLAY (A-7-6), with trace fine sand.		
	677.9	3.5	35	57	43/0.3	100/0.8					677.4	4.0
675										**WEATHERED ROCK** Tan & brown, (FELSIC METAVOLCANIC ROCK).		
	672.9	8.5	60/0.0			60/0.0					672.9	8.5
670										**CRYSTALLINE ROCK** Gray & orange, (FELSIC METAVOLCANIC ROCK).	669.6	11.8
	669.6	11.8	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 669.6 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)		

NOTES:

1) ROADWAY BORING DESIGNATION IS Y4RPA_1545L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-C	**STATION** 15+68	**OFFSET** CL	**ALIGNMENT** -Y4RPA-	**0 HR.** Dry
COLLAR ELEV. 680.7 ft	**TOTAL DEPTH** 14.1 ft	**NORTHING** 709,929	**EASTING** 1,742,447	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)
685												
	680.7	0.0	WOH	2	3	5		M		GROUND SURFACE	680.7	0.0
680										**RESIDUAL** Tan & orange, fine sandy SILT (A-4), with trace roots & gravel-size rock fragments.	676.7	4.0
	677.2	3.5	30	42	58/0.5	100/1.0				**WEATHERED ROCK** Tan, brown, gray & orange, (FELSIC METAVOLCANIC ROCK).		
675												
	672.2	8.5	100/0.5			100/0.5						
670												
	667.2	13.5	82	18/0.1		100/0.6				Boring Terminated at Elevation 666.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)	666.6	14.1

NOTES:

1) ROADWAY BORING DESIGNATION IS Y4RPA_1568

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 15+96	**OFFSET** 57 ft RT	**ALIGNMENT** -Y4RPA- — **0 HR.** Dry
COLLAR ELEV. 677.6 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 709,871	**EASTING** 1,742,473 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 03/13/13	**COMP. DATE** 03/13/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
680										ELEV. (ft) DEPTH (ft)
	677.6	0.0								677.6 GROUND SURFACE 0.0
			1	2	4	6		M		**RESIDUAL** Tan-orange, fine sandy SILT (A-4), with a large wood fragment.
675	674.1	3.5	100/0.5			100/0.5				674.1 3.5
										WEATHERED ROCK Tan & white, (FELSIC METAVOLCANIC ROCK).
670	669.1	8.5	65	35/0.2		100/0.7				
665	664.1	13.5	40	60/0.5		100/1.0				663.1 14.5
										Boring Terminated at Elevation 663.1 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y4RPA_1596R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

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

T.I.P. ID NO.: R-2536A
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass
Dual Bridges on -Y4LPC- and -Y4RPA- over Asheboro Bypass (-L-)

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT: 34450.1.1
DATE SAMPLED: 3/13 - 6/13
SAMPLED FROM: -Y4RPA-
SUBMITTED BY: W.P. Alton, PE

COUNTY: Randolph
RECEIVED: 4/13 - 6/13
REPORTED: 4/13 - 6/13
BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-30											
BORING NO.	Y4RPA_1545L											
Retained #4 Sieve %	0.0											
Passing #10 Sieve %	99.8											
Passing #40 Sieve %	98.6											
Passing #200 Sieve %	92.2											
SOIL MORTAR - 100%												
Coarse Sand Ret - #60 %	1.5											
Fine Sand Ret - #270 %	9.3											
Silt 0.053 - 0.010 mm %	32.0											
Clay < 0.010 mm %	57.2											
L.L.	71											
P.L.	28											
P.I.	43											
AASHTO Classification	A-7-6 (46)											
Alignment	-Y4RPA-											
Station	15+45											
Offset	45' Lt											
Depth (ft)	0.2											
to	1.5											
Moisture Content (%)	28.9											
Organic Content (%)	NT											

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

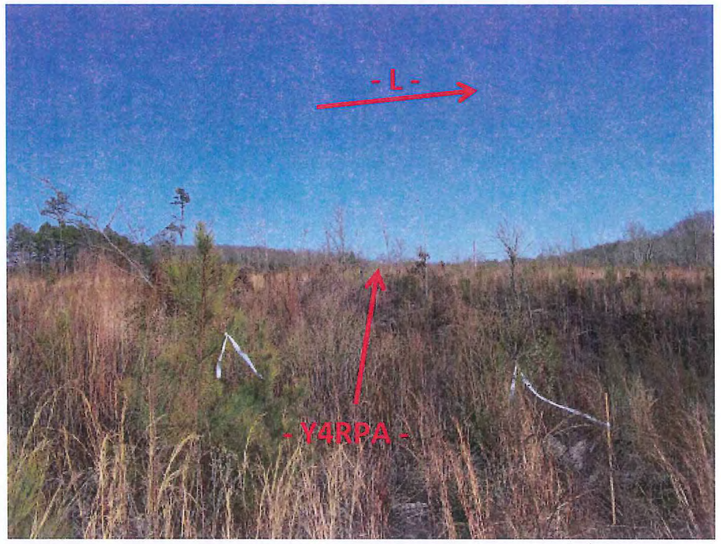
W.P. Alton, P.E.
Soils Engineer

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Dual Bridges on -Y4LPC- and -Y4RPA- over Asheboro Bypass (-L-)

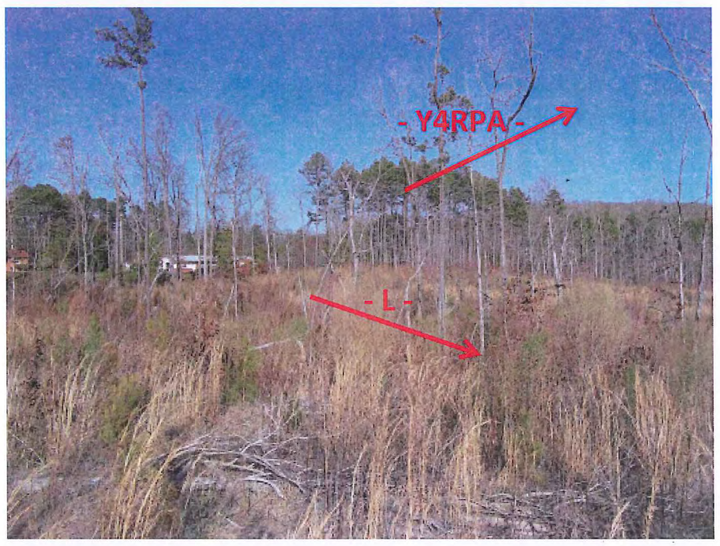
Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-8	Y4RPA_1420L	-Y4RPA-	14+20	39' LT.	32.4 - 32.7	Felsic Metavolcanic	CZfv	12%	3.40	1.77	167.2	15,830	1.74×10^5	27

Photograph No. 1: View from boring EB1-A looking south



Photograph No. 2: View from boring EB1-B looking northeast

Photograph No. 3: View from boring B1-B looking southwest



Photograph No. 4: View from boring EB2-B looking north

SECTION 4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	8

ID: R-2536A

PROJECT: 34450.1.1

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Bridge on -Y1- (Old NC 49) over -L- (Asheboro Byp.)*

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-6	BORELOGS
7	SOIL TEST RESULTS
8	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA , AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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 DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, OR THE 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.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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

D. Racey

K. Murphy

J. Gilchrist

M. Renza

D. Jenks

DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2			A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6		
SYMBOL													
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT PLASTIC INDEX	6 MX		NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
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 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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.

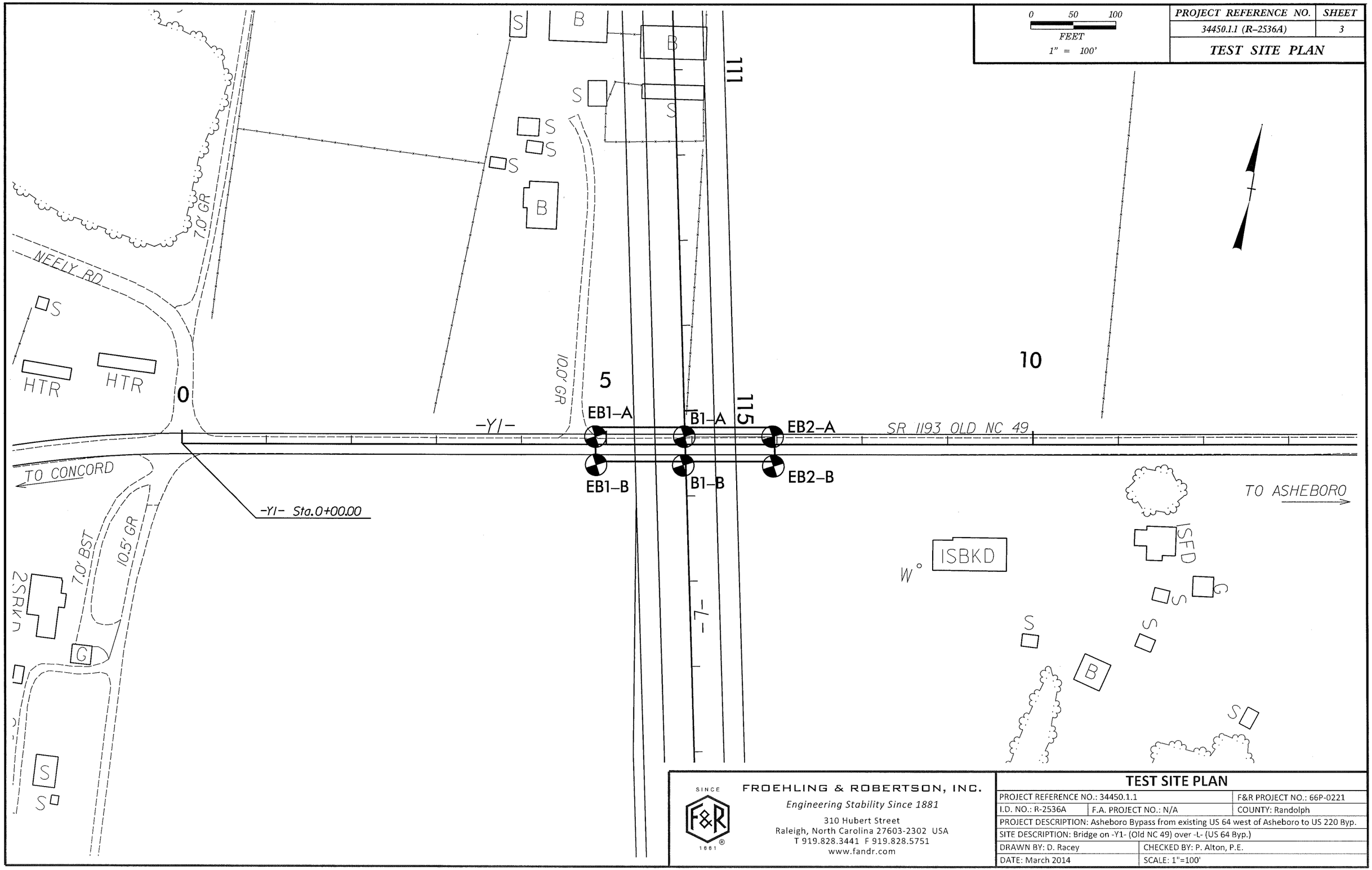
BENCH MARK: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
SOS = SURFICIAL ORGANIC SOILS

REVISED 09/23/09



PROJECT REFERENCE NO.	SHEET
34450.1.1 (R-2536A)	3
TEST SITE PLAN	

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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Bridge on -Y1- (Old NC 49) over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 4+87	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 789.5 ft	**TOTAL DEPTH** 19.1 ft	**NORTHING** 704,155	**EASTING** 1,743,137	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
790										
	788.9	0.6	17	4	5	9		M		789.5 GROUND SURFACE 0.0
										788.6 **ASPHALT** 0.9
										787.0 **ROADWAY EMBANKMENT** 2.5
785	785.5	4.0	4	8	15	23		M		Tan, fine to coarse sandy silty CLAY (A-7-5).
										RESIDUAL
										Tan, fine sandy SILT (A-4), saprolitic.
780	780.5	9.0	44	56/0.2		100/0.7				780.5 9.0
										WEATHERED ROCK
										Gray-tan, (MAFIC METAVOLCANIC ROCK).
775	775.5	14.0	100/0.5			100/0.5				
	770.5	19.0	60/0.1			60/0.1				770.6 18.9
										770.4 19.1 **CRYSTALLINE ROCK**
										Gray, (MAFIC METAVOLCANIC ROCK).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 770.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
2) ROADWAY BORING DESIGNATION IS Y1_487L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 4+88	**OFFSET** 24 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 788.4 ft	**TOTAL DEPTH** 24.6 ft	**NORTHING** 704,123	**EASTING** 1,743,144	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
790										
	788.4	0.0	WOH	1	7	8		W		788.4 GROUND SURFACE 0.0
										RESIDUAL
785	784.4	4.0	3	7	8	15		M		Tan-black, coarse to fine sandy SILT (A-4).
										782.1 6.3
										781.4 Tan-gray, fine sandy silty CLAY (A-6). 7.0
780	779.4	9.0	74	26/0.1		100/0.6				**WEATHERED ROCK**
										Tan-brown, gray-green & brown, (FELSIC METAVOLCANIC ROCK).
775	774.4	14.0	100/0.3			100/0.3				
770	769.4	19.0	100/0.2			100/0.2				
765	764.4	24.0	79	21/0.1		100/0.6				763.8 24.6
										Boring Terminated at Elevation 763.8 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.4' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y1_488R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 5+91	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** 25.0
COLLAR ELEV. 787.2 ft	**TOTAL DEPTH** 51.0 ft	**NORTHING** 704,172	**EASTING** 1,743,240	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
790										
	787.2	0.0								787.2 GROUND SURFACE 0.0
	786.2	1.0	3	4	5	9		M		786.5 ASPHALT 0.7
785										785.9 ROADWAY EMBANKMENT 1.3
	783.2	4.0	4	5	6	11		M		Red-tan, fine to coarse sandy silty CLAY (A-7-5).
780										RESIDUAL
	778.2	9.0	24	53	47/0.3	100/0.8				Red to tan, fine sandy SILT (A-4), with trace clay, saprolitic at 5.0'.
775										777.7 9.5
	773.2	14.0	7	8	9	17		M		WEATHERED ROCK
770										775.2 Brown, (MAFIC METAVOLCANIC ROCK). 12.0
	768.2	19.0	9	11	10	21		M		Tan, fine sandy SILT (A-4), with trace clay.
765										
	763.2	24.0	14	14	20	34				
760										
	758.2	29.0	21	35	38	73		M		
755										755.2 Brown, fine to coarse sandy silty CLAY (A-6), with high amount of gravel-sized rock fragments. 32.0
	753.2	34.0	16	22	27	49		M		
750										
	748.2	39.0	69	31/0.1		100/0.6				748.7 WEATHERED ROCK 38.5
745										Tan, brown, white & gray, (MAFIC METAVOLCANIC ROCK).
	743.2	44.0	27	73/0.2		100/0.7				
740										
	738.2	49.0	100/0.4			100/0.4				
	736.3	50.9	60/0.1			60/0.1				736.3 50.9
										736.2 CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK) 51.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 736.2 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 51.0'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y1_591L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 5+90	**OFFSET** 25 ft RT	**ALIGNMENT** -Y1-	**0 HR.** 25.6
COLLAR ELEV. 787.5 ft	**TOTAL DEPTH** 56.4 ft	**NORTHING** 704,139	**EASTING** 1,743,244	**24 HR.** 18.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/18/13	**COMP. DATE** 04/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
790										
	787.5	0.0								787.5 GROUND SURFACE 0.0
			2	3	3	6		M		786.8 RESIDUAL 0.7
785										785.5 Brown, fine sandy SILT (A-4), with trace gravel-sized rock fragments & roots. 2.0
	783.5	4.0	6	11	14	25		M		Orange-brown, fine sandy silty CLAY (A-7-5), with trace rootlets.
780										Tan-brown, fine sandy SILT (A-4), saprolitic.
	778.5	9.0	8	19	28	47		M		
775										773.5 14.0
	773.5	14.0	100/0.3			100/0.3				WEATHERED ROCK
770										Tan & brown, (MAFIC METAVOLCANIC ROCK).
	768.5	19.0	100/0.4			100/0.4				
765										
	763.5	24.0	53	30	70/0.4	100/0.9				
760										
	758.5	29.0	66	34/0.2		100/0.7				
755										
	753.5	34.0	31	69/0.5		100/1.0				
750										
	748.5	39.0	36	64/0.3		100/0.8				
745										
	743.5	44.0	100/0.2			100/0.2				
740										740.5 CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK) 47.0
	738.5	49.0	60/0.1			60/0.1				735.5 WEATHERED ROCK 52.0
735										Brown, (MAFIC METAVOLCANIC ROCK).
	733.5	54.0	100/0.4			100/0.4				731.1 56.4
										Boring Terminated at Elevation 731.1 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Augers broke, unable to advance beyond 56.4'.
3) ROADWAY BORING DESIGNATION IS Y1_590R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 6+95	**OFFSET** 9 ft LT	**ALIGNMENT** -Y1-	**0 HR.** 30.1
COLLAR ELEV. 784.4 ft	**TOTAL DEPTH** 31.0 ft	**NORTHING** 704,190	**EASTING** 1,743,342	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/01/13	**COMP. DATE** 04/01/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
785										
	784.4	0.0								GROUND SURFACE
	783.7	0.7	7	6	6	12		M		ASPHALT 0.7
	782.6	1.8								ROADWAY EMBANKMENT. Tan, fine to coarse sandy silty CLAY (A-7-5).
780	780.4	4.0	5	6	10	16		M		RESIDUAL. Red to tan, fine sandy SILT (A-4), with trace clay, saprolitic at 9.0'.
775	775.4	9.0	8	16	32	48		M		
770	771.2	13.2								
	770.4	14.0	60/0.1			60/0.1				WEATHERED ROCK. Brown, (MAFIC METAVOLCANIC ROCK). 14.0
										CRYSTALLINE ROCK. Gray & brown, (MAFIC METAVOLCANIC ROCK).
765	765.4	19.0								19.0
	764.7	19.7	20	80/0.2		100/0.7				WEATHERED ROCK. Tan, (MAFIC METAVOLCANIC ROCK). Tan, fine sandy SILT (A-4), saprolitic.
760	760.4	24.0	7	17	35	52		M		
755	755.4	29.0	62	38/0.1		100/0.6		▽		WEATHERED ROCK. Brown, (MAFIC METAVOLCANIC ROCK). 29.0
	753.4	31.0	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 753.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK) 31.0

NOTES:

1) Auger refusal at 31.0'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y1_695L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 6+96	**OFFSET** 26 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 783.5 ft	**TOTAL DEPTH** 24.1 ft	**NORTHING** 704,156	**EASTING** 1,743,349	**24 HR.** 16.6
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
785										
	783.5	0.0								GROUND SURFACE
	782.7	0.8	1	2	1	3	SS-742	W 33%		RESIDUAL. Tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments & rootlets. 0.8
780	779.5	4.0	3	4	8	12		M		Orange-brown & red-brown, fine to coarse sandy silty CLAY (A-7-6). 4.8
775	774.5	9.0	8	8	10	18		M		Tan-brown & tan-orange-brown, fine sandy SILT (A-4), with trace clay & gravel-sized quartz fragments, saprolitic.
	772.0	11.5								
770	769.5	14.0	100/0.4			100/0.4				WEATHERED ROCK. Brown, (MAFIC METAVOLCANIC ROCK).
765	764.5	19.0	60/0.1			60/0.1		▽		19.0
	764.5	19.0								CRYSTALLINE ROCK. Gray-green, (MAFIC METAVOLCANIC ROCK).
760	759.5	24.0	60/0.1			60/0.1				24.1
	759.4	24.1								Boring Terminated with Standard Penetration Test Refusal at Elevation 759.4 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

1) ROADWAY BORING DESIGNATION IS Y1_696R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

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

T.I.P. ID NO.: R-2536A
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass
Bridge on SR 1193 (Old NC 49) over Asheboro Bypass (-L-)

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT: 34450.1.1
DATE SAMPLED: 3/13 - 6/13
SAMPLED FROM: -Y1-
SUBMITTED BY: W.P. Alton, PE

COUNTY: Randolph
RECEIVED: 4/13 - 5/13
REPORTED: 4/13 - 5/13
BY: D. Jenks
Cert No. 101-02-0603

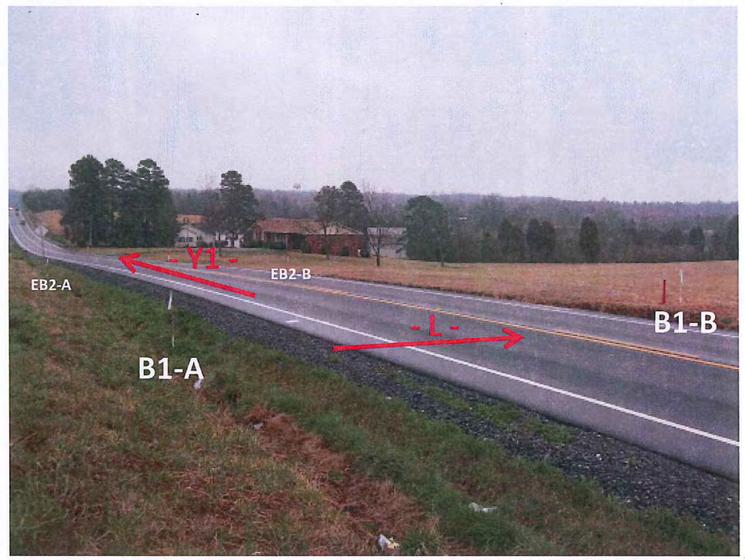
TEST RESULTS

PROJ. SAMPLE NO.	SS-742												
BORING NO.	Y1_696R												
Retained #4 Sieve %	1.6												
Passing #10 Sieve %	96.5												
Passing #40 Sieve %	88.7												
Passing #200 Sieve %	79.2												
SOIL MORTAR - 100%													
Coarse Sand Ret - #60 %	9.8												
Fine Sand Ret - #270 %	10.6												
Silt 0.053 - 0.010 mm %	28.4												
Clay < 0.010 mm %	51.2												
L.L.	45												
P.L.	24												
P.I.	21												
AASHTO Classification	A-7-6 (17)												
Alignment	-Y1-												
Station	6+96												
Offset	26' Rt												
Depth (ft)	0.8												
to	1.5												
Moisture Content (%)	32.7												
Organic Content (%)	NT												

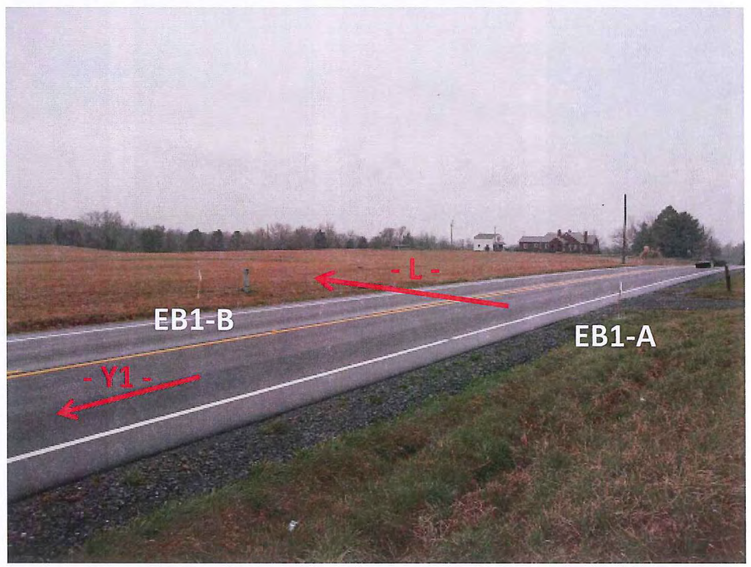
NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, P.E.
Soils Engineer

SITE PHOTOGRAPHS



Photograph No. 1: General view of Bent 1 and End Bent 2 looking east



Photograph No. 2: General view of End Bent 1 looking west

SECTION 5

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	10

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Bridge on -Y2FLYA- over -L- (Asheboro Byp.)*

ID: R-2536A

PROJECT: 34450.1.1

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-8	BORELOGS, CORELOGS & CORE PHOTOGRAPHS
9	ROCK CORE TEST RESULTS
10	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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NOTE - 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

M. Brewer

D. Tignor

S. Davis

J. Fowler

K. Murphy

J. Gilchrist

M. Renza

D. Jenks

DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT (PLASTIC RANGE (PI))	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — OIP & OIP DIRECTION OF ROCK STRUCTURES
- SPT / CPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 03
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 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.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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.

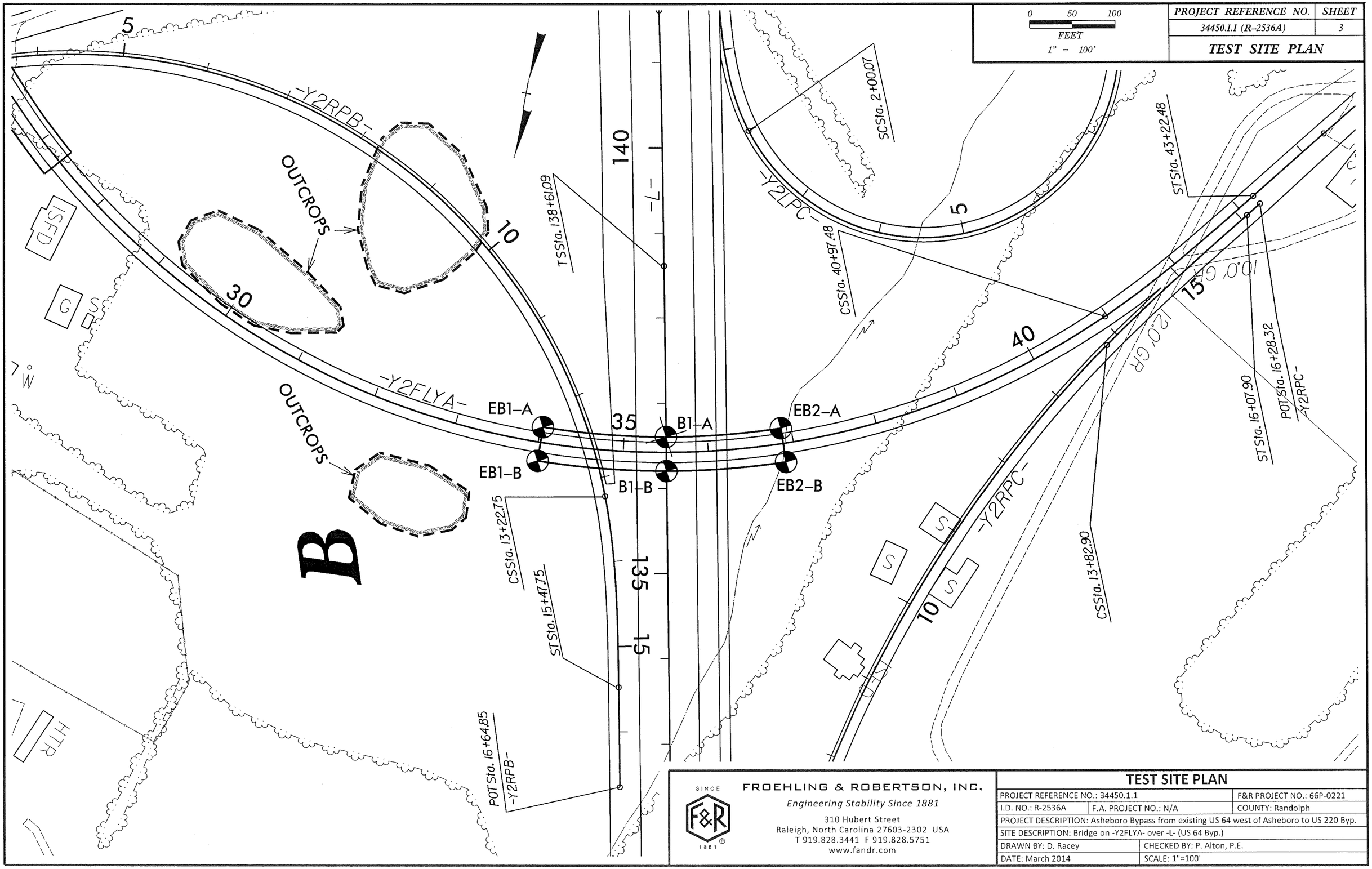
BENCH MARK: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

GSRF = GRAVEL-SIZED ROCK FRAGMENTS
FIAD = FILLED IMMEDIATELY AFTER DRILLING
TR = TRACE
NM = NOT MEASURED
SOS = SURFICIAL ORGANIC SOILS
SAA = SAME AS ABOVE

REVISED 09/23/09



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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Bridge on -Y2FLYA- over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 34+03	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 746.5 ft	**TOTAL DEPTH** 4.0 ft	**NORTHING** 702,099	**EASTING** 1,743,800	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
750										
	746.5	0.0	1	1	1	2		W		ELEV. (ft) 746.5 GROUND SURFACE 0.0
745										**RESIDUAL** Orange-tan, fine sandy SILT (A-4), with trace gravel-size rock fragments. 743.5 3.0
	743.0	3.5								742.5 4.0
	742.5	4.0	100/0.2			100/0.2				**WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 742.5 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 4.0'.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_3403L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 34+03	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 744.4 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 702,139	**EASTING** 1,743,799	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										
	744.4	0.0	WOH	2	2	4		W		744.4 GROUND SURFACE 0.0
740	740.9	3.5								**RESIDUAL** Brown & black, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments. 740.4 4.0
	739.4	5.0	11	58	42/0.1	100/0.6				739.4 5.0
			60/0.0			60/0.0				**WEATHERED ROCK** Gray-green, (FELSIC METAVOLCANIC ROCK).
										Boring Terminated with Standard Penetration Test Refusal at Elevation 739.4 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 5.0'.
2) ROADWAY BORING DESIGNATION IS Y2FLYA_3403R

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 35+50	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA- — **0 HR.** N/A
COLLAR ELEV. 726.6 ft	**TOTAL DEPTH** 36.6 ft	**NORTHING** 702,084	**EASTING** 1,743,657 — **24 HR.** 4.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
	726.6	0.0	1	4	5	9 / 45		M		GROUND SURFACE	0.0
										RESIDUAL Brown, fine sandy SILT (A-4), with trace roots.	0.5
	723.1	3.5	9	20	25					Orange, silty CLAY (A-7-5).	2.5
										Tan & white, fine sandy SILT (A-4), with trace gravel-sized rock fragments.	6.2
	718.1	8.5	60/0.1			60/0.1				**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK)	8.5
							RS-7			**CRYSTALLINE ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).	8.6
										708.1	18.5
										Brown & gray, (FELSIC METAVOLCANIC ROCK).	
										698.5	28.1
										Gray, (FELSIC METAVOLCANIC ROCK).	
										690.1	36.5
										Boring Terminated at Elevation 690.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

NOTES:

1) Auger refusal at 8.5'.
2) Began coring at 8.6'.
3) 0 hr. water level not measured due to water introduced for coring.
4) ROADWAY BORING DESIGNATION IS Y2FLYA_3550L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 35+50	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA- — **0 HR.** N/A
COLLAR ELEV. 726.6 ft	**TOTAL DEPTH** 36.6 ft	**NORTHING** 702,084	**EASTING** 1,743,657 — **24 HR.** 4.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ3	**TOTAL RUN** 28.0 ft		

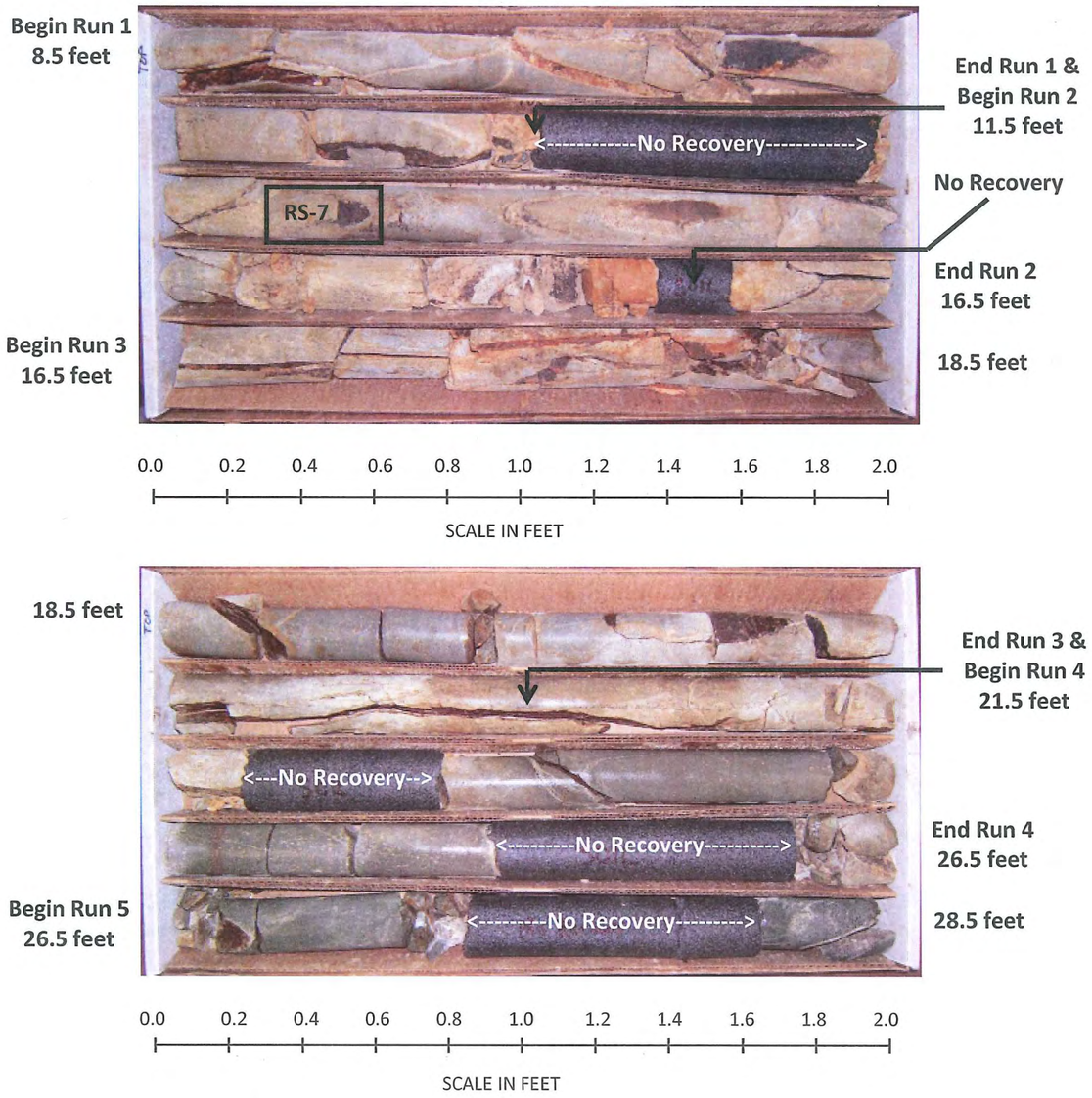
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
718											Begin Coring @ 8.6 ft	
	718.0	8.6	3.0	2:41/1.0 2:05/1.0 3:48/1.0	(2.8) 93%	(0.7) 23%		(8.3) 84%	(2.9) 29%		718.0 **CRYSTALLINE ROCK** Brown & gray, moderately to slightly weathered, soft to medium hard (FELSIC METAVOLCANIC ROCK), close fracture spacing.	8.6
715	715.0	11.6									RS-7: 12.8'-13.1' qu = 4,477 psi R_1=4, R_2=8, R_3=10, R_4=6, R_5=7 RMR = 35, Rock Type E	
			5.0	2:53/1.0 2:05/1.0 2:02/1.0 2:20/1.0 4:01/1.0	(3.5) 70%	(1.8) 36%	RS-7					
710	710.0	16.6									708.1	18.5
			5.0	3:07/1.0 3:35/1.0 5:50/1.0 3:31/1.0 3:09/1.0	(5.0) 100%	(1.8) 36%		(7.4) 77%	(3.5) 36%		Brown & gray, moderately to slightly weathered, moderately hard to hard (FELSIC METAVOLCANIC ROCK), close to moderately close fracture spacing.	
705	705.0	21.6										
			5.0	3:57/1.0 2:13/1.0 3:18/1.0 4:30/1.0 2:05/1.0	(3.6) 72%	(1.7) 34%						
700	700.0	26.6									698.5	28.1
			5.0	4:45/1.0 3:45/1.0 6:23/1.0 5:07/1.0 4:10/1.0	(4.2) 84%	(2.3) 46%		(8.4) 100%	(5.4) 64%		Gray, very slightly weathered to fresh, hard (FELSIC METAVOLCANIC ROCK), close to moderately close fracture spacing.	
695	695.0	31.6										
			5.0	3:35/1.0 3:50/1.0 4:19/1.0 3:10/1.0 4:33/1.0	(5.0) 100%	(3.5) 70%						
690	690.0	36.6									690.1	36.5
											Boring Terminated at Elevation 690.0 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	

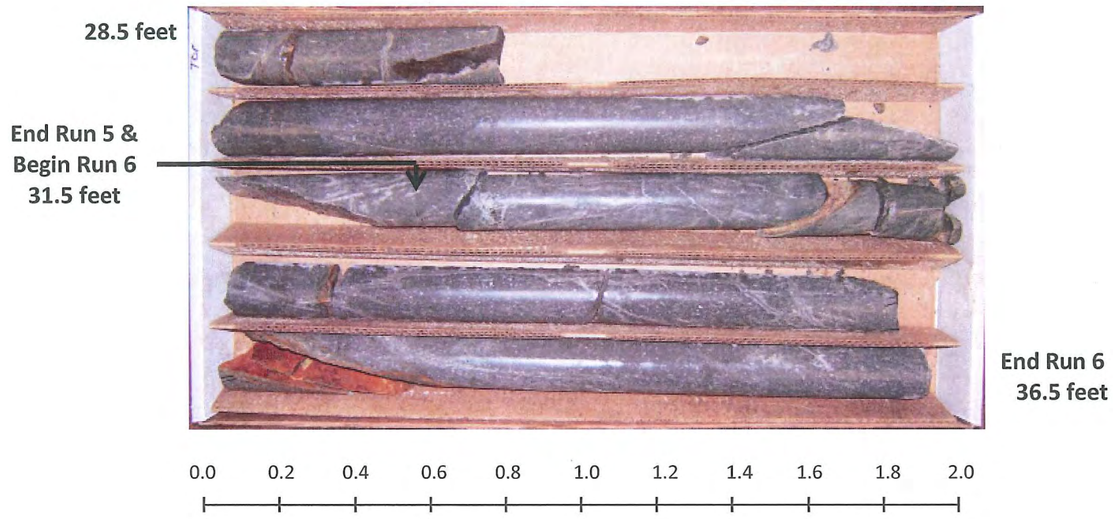
NOTES:

1) Auger refusal at 8.5'.
2) Began coring at 8.6'.
3) 0 hr. water level not measured due to water introduced for coring.
4) ROADWAY BORING DESIGNATION IS Y2FLYA_3550L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-A: Station 35+50, 18' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 35+50	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 723.2 ft	**TOTAL DEPTH** 18.5 ft	**NORTHING** 702,123	**EASTING** 1,743,649	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/24/13	**COMP. DATE** 04/24/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725	723.2	0.0								723.2 GROUND SURFACE 0.0
			1	1	3	4		M		**RESIDUAL**
720	719.7	3.5								721.2 Orange-tan, silty CLAY (A-7-5), with trace fine sand & gravel-sized rock fragments. 2.0
			6	14	10	24		M		White & tan, fine sandy SILT (A-4), with trace gravel-sized rock fragments.
715	714.7	8.5								716.9 6.3
			100/0.2			100/0.2				**WEATHERED ROCK**
710	709.7	13.5								Tan, (FELSIC METAVOLCANIC ROCK).
			60/0.1			60/0.1				709.7 13.5
705	704.7	18.5								**CRYSTALLINE ROCK**
			60/0.0			60/0.0				Gray-green, (FELSIC METAVOLCANIC ROCK).
										704.7 18.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 704.7 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y2FLYA_3550R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 36+88	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 16.4
COLLAR ELEV. 711.1 ft	**TOTAL DEPTH** 23.8 ft	**NORTHING** 702,049	**EASTING** 1,743,526	**24 HR.** 3.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/25/13	**COMP. DATE** 04/25/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										
710	711.1	0.0	1	2	2	4		M		711.1 GROUND SURFACE 0.0
										RESIDUAL
	707.6	3.5	2	2	6	8		M		709.1 Tan-yellow, fine sandy SILT (A-4), with trace gravel-sized rock fragments. 2.0
705										Gray & tan-yellow, silty CLAY (A-7-5), with little fine sand, trace gravel-sized rock fragments.
	702.6	8.5	14	16	14	30		M		704.1 Brown, fine sandy SILT (A-4), with trace clay & gravel-sized rock fragments. 7.0
700										
	697.6	13.5	60/0.1			60/0.1				699.1 12.0
695										**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 697.6 13.5
	692.6	18.5	60/0.1			60/0.1				**CRYSTALLINE ROCK** (FELSIC METAVOLCANIC ROCK)
690										
	687.6	23.5	100/0.3			100/0.3				689.1 22.0
										WEATHERED ROCK (FELSIC METAVOLCANIC ROCK) 687.3 23.8
										Boring Terminated at Elevation 687.3 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y2FLYA_3688L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 36+88	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 9.1
COLLAR ELEV. 711.2 ft	**TOTAL DEPTH** 18.4 ft	**NORTHING** 702,086	**EASTING** 1,743,513	**24 HR.** 2.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										
710	711.2	0.0	1	1	1	2				711.2 GROUND SURFACE 0.0
								W		**RESIDUAL**
	707.2	4.0	6	7	4	11				708.7 Brown, fine sandy SILT (A-4), with trace rootlets. 2.5
705										Gray-tan, fine sandy silty CLAY (A-7-5), with trace roots & gravel-size rock fragments from 4.0'-5.5'.
	702.2	9.0	1	2	3	5		M		
700										699.2 12.0
	697.2	14.0	9	11	16	27		M		Brown-gray, fine sandy SILT (A-4), saprolitic.
695										694.7 16.5
	692.9	18.3	60/0.1			60/0.1				**WEATHERED ROCK** (FELSIC METAVOLCANIC ROCK) 692.9 18.3
										692.8 18.4
										CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 692.8 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 18.3'.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_3688R

NCDOT BORE DOUBLE_R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Bridge on -Y2FLYA- over Asheboro Bypass (-L-)

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-7	Y2FLYA_3550L	-Y2FLYA-	35+50	18' LT.	12.7 - 13.0	Felsic Metavolcanic	CZfv	36%	3.77	1.78	154.5	4,477	4.96×10^5	35

Bridge on -Y2FLYA- over -L- (Asheboro Bypass)

SITE PHOTOGRAPHS

Photograph No. 1: View from boring EB1-A looking north towards boring EB1-B

Photograph No. 2: View from boring EB1-A looking southeast at rock outcrops

Photograph No. 3: View from boring B1-A looking west towards creek and End Bent 2

Photograph No. 4: View from boring EB2-A looking southwest along creek

SECTION 6

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	15

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Bridge on -Y2FLYA- over -Y2- (NC 49)*

ID: R-2536A

PROJECT: 34450.1.1

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-12	BORELOGS, CORELOGS & CORE PHOTOGRAPHS
13	SOIL TEST RESULTS
14	ROCK CORE TEST RESULTS
15	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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

M. Brewer

D. Tignor

S. Davis

J. Fowler

D. Jenks

DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX		50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT PLASTIC INDEX	6 MX		NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)
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 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 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
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 03
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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.

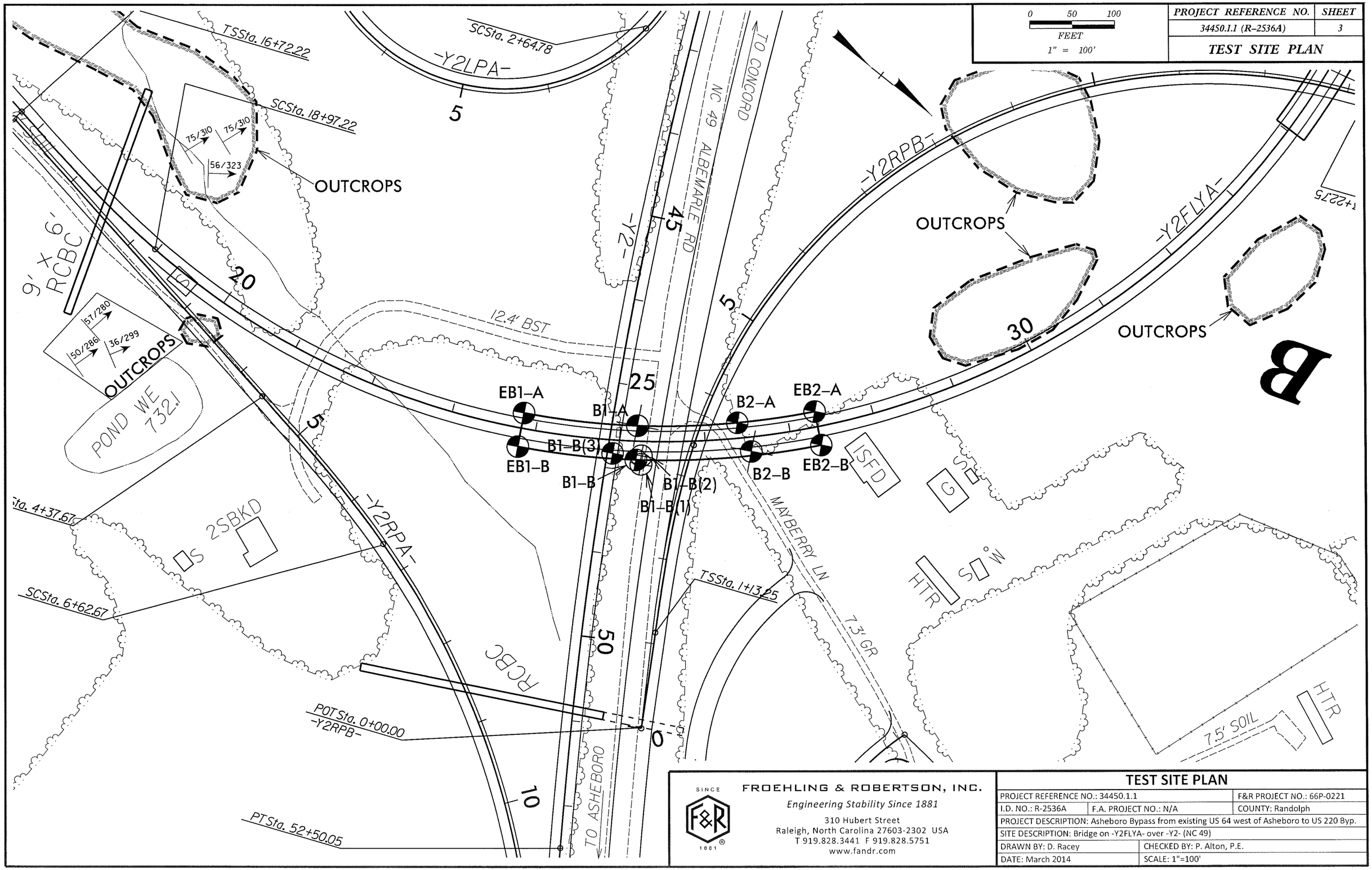
BENCH MARK: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
RDWY. = ROADWAY
TR = TRACE
SOS = SURFICIAL ORGANIC SOILS
SAA = SAME AS ABOVE

REVISED 09/23/09



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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Bridge on -Y2FLYA- over -Y2- (NC 49)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 23+83	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 17.8
COLLAR ELEV. 729.2 ft	**TOTAL DEPTH** 18.1 ft	**NORTHING** 701,619	**EASTING** 1,744,619	**24 HR.** 5.6
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/17/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
730										
	729.2	0.0	2	2	2	4 18		M		729.2 GROUND SURFACE 0.0
725	725.7	3.5	7	7	11					727.2 **RESIDUAL** Red, silty CLAY (A-7-5). 2.0 Brown & black, fine sandy SILT (A-4).
	720.7	8.5	11	34	66/0.3	100/0.8				720.2 9.0 **WEATHERED ROCK** Tan & gray-green, (META-ARGILLITE).
720										
715	715.7	13.5	89	11/0.1		100/0.6				713.2 16.0
	711.2	18.0	60/0.1			60/0.1				711.1 18.1 **CRYSTALLINE ROCK** (META-ARGILLITE) Boring Terminated with Standard Penetration Test Refusal at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Auger refusal at 18.0'.
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2383L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 23+83	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** 13.5
COLLAR ELEV. 723.2 ft	**TOTAL DEPTH** 27.1 ft	**NORTHING** 701,637	**EASTING** 1,744,654	**24 HR.** 0.5
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 04/16/13	**COMP. DATE** 04/16/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
725										
	723.2	0.0	1	1	1	2 8		W		723.2 GROUND SURFACE 0.0
720	719.7	3.5	1	3	5					721.2 **ALLUVIAL** Brown, fine sandy SILT (A-4), with trace clay. 2.0 Gray & brown, silty CLAY (A-7-5), with trace roots. 718.9 4.3
	714.7	8.5	39	61/0.3		100/0.8				**RESIDUAL** Brown & orange, fine sandy SILT (A-4), with trace gravel-size rock fragments. 714.7 8.5
715										**WEATHERED ROCK** Gray-green, (META-ARGILLITE).
710	709.7	13.5	24	22	29	51				711.2 12.0 Gray-green, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments.
705	704.7	18.5	60/0.1			60/0.1		M		704.7 18.5 **CRYSTALLINE ROCK** Gray-green, (META-ARGILLITE).
700	699.7	23.5	100/0.2			100/0.2				701.2 22.0 **WEATHERED ROCK** Gray-green, (META-ARGILLITE).
	696.2	27.0	60/0.1			60/0.1				696.2 27.0 696.1 27.1 **CRYSTALLINE ROCK** Gray-green, (META-ARGILLITE). Boring Terminated with Standard Penetration Test Refusal at Elevation 696.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Auger refusal at 27.0'.
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2383R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 25+20	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 749.0 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 701,733	**EASTING** 1,744,548	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/18/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
	749.0	0.0	1	1	2	3		M		749.0 GROUND SURFACE	0.0
745	745.5	3.5	2	5	7	12		W		**ROADWAY EMBANKMENT** Brown, fine sandy silty CLAY (A-7-5), with trace gravel & roots. 747.0	2.0
740	740.5	8.5	7	10	24	34		M		**RESIDUAL** Red to tan-gray, fine sandy SILT (A-4), with trace to little clay.	
735	735.5	13.5	100/0.5			100/0.5				737.0	12.0
730	730.5	18.5	45	32	68/0.1					**WEATHERED ROCK** Tan, (METAMUDSTONE).	
	728.0	21.0	60/0.0			100/0.6 60/0.0				728.0	21.0
725							RS-5			**CRYSTALLINE ROCK** Green, brown & gray, (META-ARGILLITE interlayered with METAMUDSTONE).	
720										718.3	30.7
715										Gray & white, (META-ARGILLITE).	
710										708.0	41.0

Boring Terminated at Elevation 708.0 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Auger refusal at 21.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_2520L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 25+20	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 749.0 ft	**TOTAL DEPTH** 41.0 ft	**NORTHING** 701,733	**EASTING** 1,744,548	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/18/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 20.0 ft			

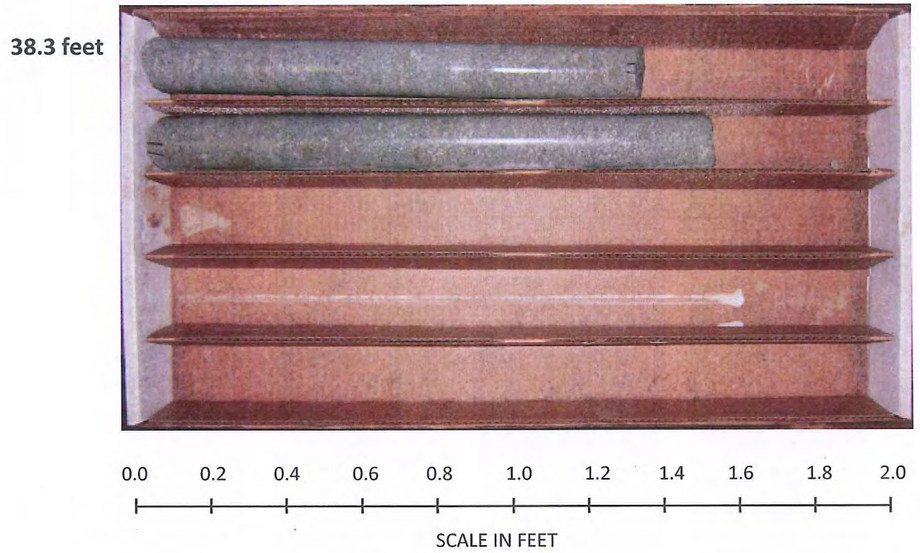
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
728											Begin Coring @ 21.0 ft	
	728.0	21.0	5.0	*N=60/0.0* 2:15/1.0 2:17/1.0 2:10/1.0 3:45/1.0 2:45/1.0	(4.2) 84%	(2.5) 50%		(7.2) 74%	(4.1) 42%		728.0 **CRYSTALLINE ROCK** Green, brown & gray, moderately to slightly weathered, moderately hard to hard (META-ARGILLITE interlayered with METAMUDSTONE), close fracture spacing.	21.0
725	723.0	26.0	5.0	3:19/1.0 2:03/1.0 2:17/1.0 3:22/1.0 4:11/1.0	(3.3) 66%	(1.6) 32%	RS-5				RS-5: 22.8'-23.1' qu = 9,278 psi R_1=7, R_2=8, R_3=10, R_4=12, R_5=7 RMR = 44, Rock Type E	
720	718.0	31.0	5.0	2:47/1.0 2:32/1.0 2:53/1.0 2:17/1.0 2:49/1.0	(5.0) 100%	(5.0) 100%		(9.9) 96%	(9.4) 91%		718.3 Gray & white, slightly to very slightly weathered, hard (META-ARGILLITE), moderately close to wide fracture spacing.	30.7
715	713.0	36.0	5.0	2:06/1.0 2:42/1.0 2:39/1.0 2:47/1.0 2:48/1.0	(4.6) 92%	(4.4) 88%					708.0 Boring Terminated at Elevation 708.0 ft in CRYSTALLINE ROCK (META-ARGILLITE)	41.0
710	708.0	41.0										

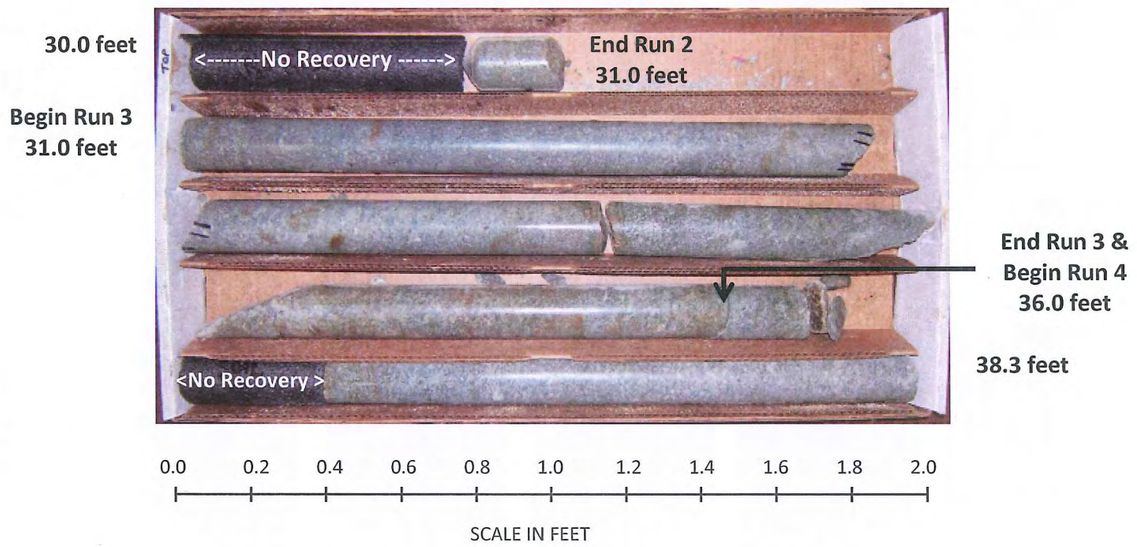
NOTES:

1) Auger refusal at 21.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_2520L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-A: Station 25+20, 18' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 25+20	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 749.9 ft	**TOTAL DEPTH** 7.7 ft	**NORTHING** 701,756	**EASTING** 1,744,580	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750										749.9 GROUND SURFACE	0.0
	749.9	0.0	2	4	6	10 21		M		**ROADWAY EMBANKMENT**	
	746.4	3.5								747.9 Red, fine sandy silty CLAY (A-7-5), with trace gravel.	2.0
745			6	6	15			M		744.9 Gray & tan, silty fine to coarse SAND (A-2-4), with trace gravel.	5.0
	743.7	6.2								WEATHERED ROCK (BOULDER)	
			30	41	59/0.5	100/1.0				742.2	7.7

Boring Terminated at Elevation 742.2 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) Auger refusal at 6.2'.
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2520R

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B (1)	**STATION** 25+26	**OFFSET** 27 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 752.7 ft	**TOTAL DEPTH** 6.2 ft	**NORTHING** 701,764	**EASTING** 1,744,581	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
755										752.7 GROUND SURFACE	0.0
								M		**ROADWAY EMBANKMENT**	
										750.7 Stiff, tan-brown, fine sandy SILT (A-4), with trace gravel.	2.0
750										WEATHERED ROCK (BOULDER)	
										747.8	4.9
								M		746.5 Stiff, tan-brown, fine sandy SILT (A-4).	6.2

Boring Terminated by Auger Refusal at Elevation 746.5 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2526R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B (2)	**STATION** 25+26	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 752.5 ft	**TOTAL DEPTH** 6.5 ft	**NORTHING** 701,758	**EASTING** 1,744,572	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** N/A	
DRILLER D. Tignor	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
755										
										752.5 GROUND SURFACE 0.0
								M		**ROADWAY EMBANKMENT**
750								M		750.5 Medium dense, gray, silty fine to coarse SAND (A-2-4), with trace gravel. 2.0
										747.7 Stiff, tan, fine sandy SILT (A-4). 4.8
										746.0 WEATHERED ROCK (BOULDER) 6.5

Boring Terminated by Auger Refusal at Elevation 746.0 ft in ROADWAY EMBANKMENT (BOULDER)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2526R1

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B (3)	**STATION** 24+93	**OFFSET** 16 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 737.8 ft	**TOTAL DEPTH** 21.9 ft	**NORTHING** 701,730	**EASTING** 1,744,591	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/17/13	**COMP. DATE** 04/17/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
	737.8	0.0								737.8 GROUND SURFACE 0.0
			1	1	2	3		M		**RESIDUAL**
735	734.3	3.5						M		735.8 Red, silty CLAY (A-7-5), with trace roots. 2.0
			4	4	9	13				Brown & gray, clayey SILT (A-5).
730	729.3	8.5						M		730.8 7.0
			9	13	17	30				Brown & orange, fine sandy SILT (A-4).
725	724.3	13.5	100/0.3			100/0.3				725.8 12.0
										WEATHERED ROCK
720	719.3	18.5	60/0.1			60/0.1				Brown, (METAMUDSTONE).
	715.9	21.9	60/0.0			60/0.0				719.3 18.5
										CRYSTALLINE ROCK
										Gray-green, (META-ARGILLITE).
										715.9 21.9

Boring Terminated with Standard Penetration Test Refusal at Elevation 715.9 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 21.9'.
3) 0 hr. water level not measured.
4) ROADWAY BORING DESIGNATION IS Y2FLYA_2493R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. B2-A	**STATION** 26+40	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA- — **0 HR.** Dry
COLLAR ELEV. 752.0 ft	**TOTAL DEPTH** 20.8 ft	**NORTHING** 701,823	**EASTING** 1,744,472 — **24 HR.** 13.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
755										
	752.0	0.0	2	2	2	4		M	L	752.0 GROUND SURFACE 0.0
750	748.5	3.5	4	6	7	13		M		750.5 **ROADWAY EMBANKMENT** Brown-tan, fine to coarse sandy SILT (A-4), with trace clay, gravel & organics. 1.5
745	743.5	8.5	79	21/0.1		100/0.6				**RESIDUAL** Orange & tan, silty CLAY (A-7-5), with trace roots. 745.5 6.5
740	738.5	13.5	100/0.4			100/0.4				**WEATHERED ROCK** Tan & gray, (METAMUDSTONE).
735	733.5	18.5	4	18	82/0.2	100/0.7				735.0 17.0 Tan, fine sandy SILT (A-4). 733.0 19.0
	731.3	20.7	60/0.1			60/0.1				731.3 **WEATHERED ROCK** Tan, (METAMUDSTONE). 20.7 731.2 20.8 **CRYSTALLINE ROCK** (METAMUDSTONE) Boring Terminated with Standard Penetration Test Refusal at Elevation 731.2 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 20.7'.
3) N-values from 17.0'-19.0' are implied.
4) ROADWAY BORING DESIGNATION IS Y2FLYA_2640L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 26+53	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 752.2 ft	**TOTAL DEPTH** 41.1 ft	**NORTHING** 701,856	**EASTING** 1,744,488	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
755										
	752.2	0.0	1	2	1	3		M		752.2 0.0 GROUND SURFACE
	751.7	0.5								751.7 0.5 SURFICIAL ORGANIC SOILS
750								M		RESIDUAL
	748.7	3.5	4	8	14	22				Red, silty CLAY (A-7-5), with trace roots from 0.5-1.5'.
745								M		
	743.7	8.5	100/0.2			100/0.2				743.7 8.5 WEATHERED ROCK
740										Tan & gray-green, (META-ARGILLITE interlayered with METASANDSTONE).
	738.7	13.5	95	5/0.1		100/0.6				
735										
	733.7	18.5	60/0.1			60/0.1				733.7 18.5 733.6 18.6 CRYSTALLINE ROCK
730										Brown, gray & white, (META-ARGILLITE interlayered with METASANDSTONE).
							RS-6			
725										
										722.8 29.4 Green-gray, brown & white, (META-ARGILLITE interlayered with METASANDSTONE).
720										
715										
	711.1	41.1								711.1 41.1 Boring Terminated at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

NOTES:

1) Began coring at 18.6'.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_2653R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 26+53	**OFFSET** 17 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** N/A
COLLAR ELEV. 752.2 ft	**TOTAL DEPTH** 41.1 ft	**NORTHING** 701,856	**EASTING** 1,744,488	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/18/13	**COMP. DATE** 04/19/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 22.5 ft			

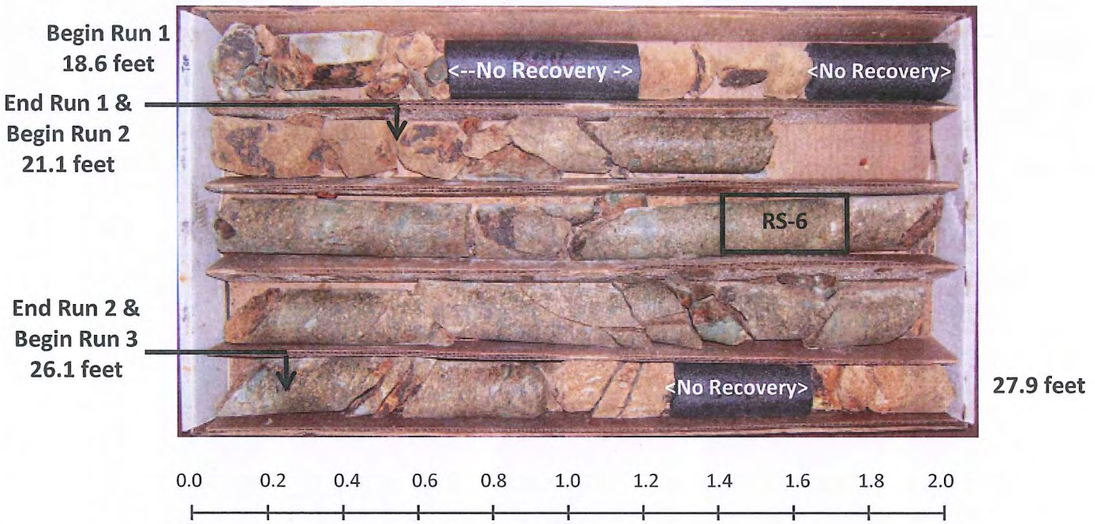
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
733.6											ELEV. (ft) DEPTH (ft)
	733.6	18.6	2.5	1:15/0.5 3:14/1.0 2:35/1.0	(1.5) 60%	(0.0) 0%		(8.4) 78%	(3.0) 28%		Begin Coring @ 18.6 ft
	731.1	21.1									733.6 18.6 CRYSTALLINE ROCK
730			5.0	3:52/1.0 2:50/1.0 3:00/1.0 3:06/1.0 3:23/1.0	(5.0) 100%	(2.3) 46%	RS-6				Brown, gray & white, moderately severely to moderately weathered, medium hard (META-ARGILLITE interlayered with METASANDSTONE), close fracture spacing.
	726.1	26.1									RS-6: 23.5'-23.8' qu = 5,920 psi
725			5.0	3:05/1.0 2:40/1.0 2:45/1.0 3:18/1.0 2:22/1.0	(3.7) 74%	(1.1) 22%					R_1=4, R_2=8, R_3=10, R_4=6, R_5=7
	721.1	31.1						(11.7) 100%	(7.7) 66%		RMR = 35, Rock Type E
720			5.0	3:40/1.0 2:20/1.0 1:55/1.0 3:02/1.0 2:55/1.0	(4.9) 98%	(3.7) 74%					722.8 29.4 Green-gray, brown & white, moderately weathered, moderately hard (META-ARGILLITE interlayered with METASANDSTONE), close to moderately close fracture spacing.
	716.1	36.1									
715			5.0	4:10/1.0 2:30/1.0 2:48/1.0 2:36/1.0 1:45/1.0	(5.0) 100%	(3.6) 72%					
	711.1	41.1									711.1 41.1 Boring Terminated at Elevation 711.1 ft in CRYSTALLINE ROCK (META-ARGILLITE)

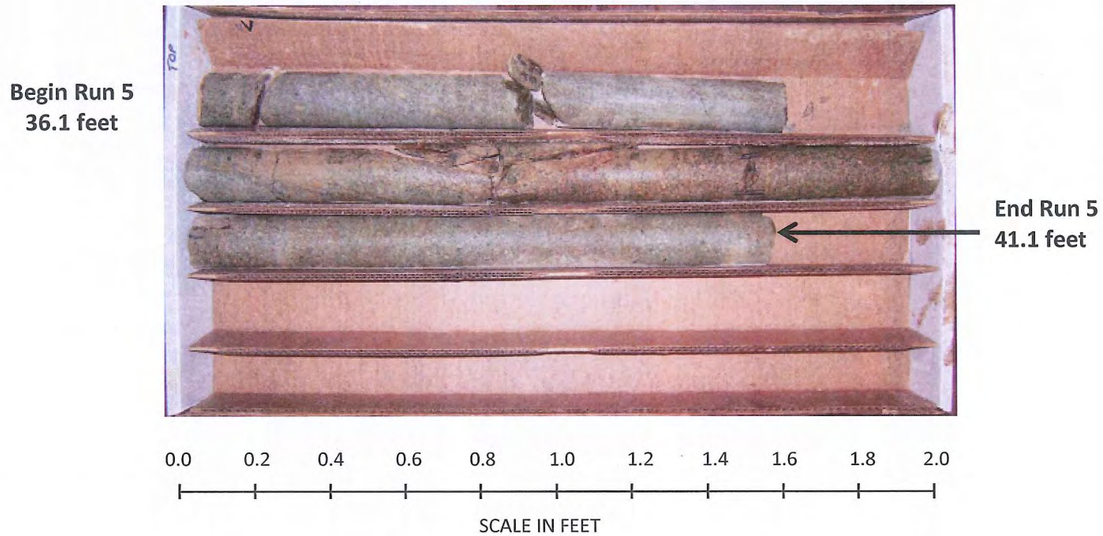
NOTES:

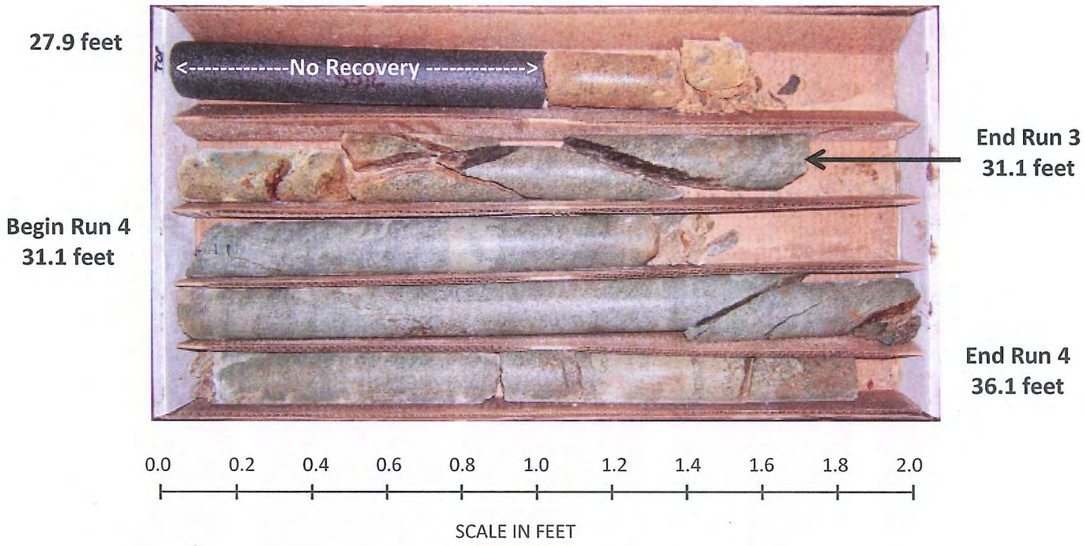
1) Began coring at 18.6'.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS Y2FLYA_2653R

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B2-B: Station 26+53, 17' RT







NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 27+33	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 758.6 ft	**TOTAL DEPTH** 24.1 ft	**NORTHING** 701,885	**EASTING** 1,744,406	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/08/13	**COMP. DATE** 04/08/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
760										
	758.6	0.0	1	1	1	2		M		758.6 / 0.0 GROUND SURFACE
755	755.1	3.5	2	5	6	11		M		**RESIDUAL** 756.6 / 2.0 Brown, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments. Tan-yellow, silty CLAY (A-7-5). 751.6 / 7.0 Tan-orange, fine sandy SILT (A-4).
750	750.1	8.5	20	24	23	47		M		
745	745.1	13.5	100/0.2			100/0.2				745.1 / 13.5 **WEATHERED ROCK** Tan, (METAMUDSTONE).
740	740.1	18.5	100/0.5			100/0.5				
735	735.1	23.5	76	24/0.1		100/0.6				734.5 / 24.1 Boring Terminated at Elevation 734.5 ft in WEATHERED ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2733L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 27+33	**OFFSET** 22 ft RT	**ALIGNMENT** -Y2FLYA-	**0 HR.** Dry
COLLAR ELEV. 756.5 ft	**TOTAL DEPTH** 18.7 ft	**NORTHING** 701,916	**EASTING** 1,744,432	**24 HR.** 1.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/10/13	**COMP. DATE** 04/10/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
760										
	756.5	0.0	WOH	WOH	1	1				756.5 / 0.0 GROUND SURFACE
755	753.0	3.5	3	2	4	6	SS-235	48%		**RESIDUAL** 754.5 / 2.0 Tan, fine sandy SILT (A-4), with trace gravel-size rock fragments. Tan-red, silty CLAY (A-7-5), with trace gravel-size rock fragments. 750.4 / 6.1
750	748.0	8.5	42	58/0.5		100/1.0				**WEATHERED ROCK** Tan & gray, (METAMUDSTONE).
745	743.0	13.5	100/0.3			100/0.3				
740	738.0	18.5	100/0.2			100/0.2				737.8 / 18.7 Boring Terminated at Elevation 737.8 ft in WEATHERED ROCK (METAMUDSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y2FLYA_2733R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

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

T.I.P. ID NO.: R-2536A
DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass Bridge on -Y2FLYA- over NC 49 (-Y2-)

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT: 34450.1.1
DATE SAMPLED: 3/13 - 6/13
SAMPLED FROM: -Y2FLYA-
SUBMITTED BY: W.P. Alton, PE

COUNTY: Randolph
RECEIVED: 4/13 - 5/13
REPORTED: 4/13 - 5/13
BY: D. Jenks Dave A. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-235											
BORING NO.	Y2FLYA_2733R											
Retained #4 Sieve %	0.0											
Passing #10 Sieve %	100.0											
Passing #40 Sieve %	99.8											
Passing #200 Sieve %	98.3											
SOIL MORTAR - 100%												
Coarse Sand Ret - #60 %	0.4											
Fine Sand Ret - #270 %	1.7											
Silt 0.053 - 0.010 mm %	14.4											
Clay < 0.010 mm %	83.5											
L.L.	113											
P.L.	45											
P.I.	68											
AASHTO Classification	A-7-5 (84)											
Alignment	-Y2FLYA-											
Station	27+33											
Offset	22' Rt											
Depth (ft)	3.5											
to	5.0											
Moisture Content (%)	47.7											
Organic Content (%)	NT											

NP=Not plastic
NT=Not tested
ND = Not Determined
CL = Centerline

W.P. Alton, P.E.
Soils Engineer

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

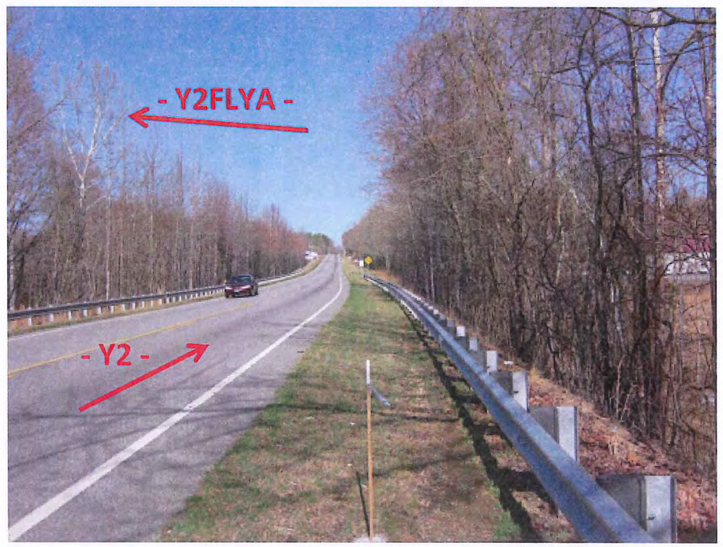
PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Bridge on -Y2FLYA- over NC 49 (-Y2-)

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-5	Y2FLYA_2520L	-Y2FLYA-	25+20	18' LT.	22.8 - 23.1	Meta-Argillite	CZmd	50%	3.96	1.77	180.1	9,278	2.51×10^5	44
RS-6	Y2FLYA_2653R	-Y2FLYA-	26+53	17' RT.	23.5 - 23.8	Metasandstone	CZmd	46%	4.08	1.77	182.3	5,920	1.52×10^5	35

Bridge on -Y2FLYA- over -Y2- (NC 49)

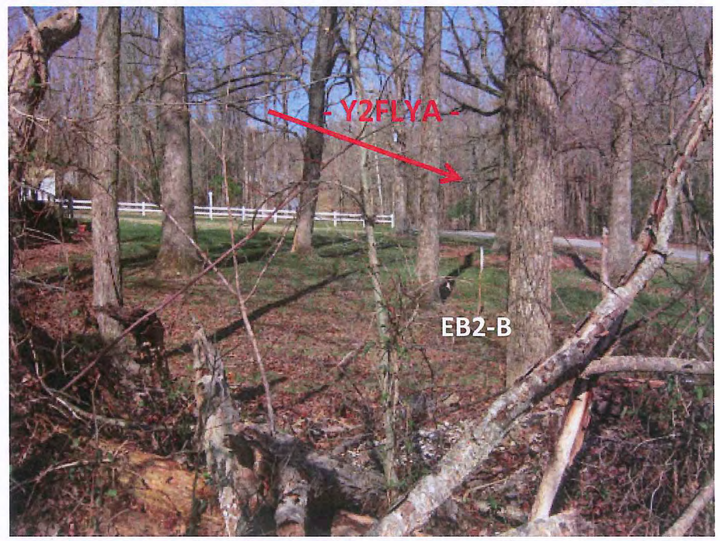
SITE PHOTOGRAPHS

Photograph No. 1: View from boring EB1-A looking northwest along bridge



Photograph No. 2: View from boring B1-B looking northeast along NC 49

Photograph No. 3: View from boring B2-B looking east along the bridge



Photograph No. 4: View from boring EB2-A looking northeast towards boring EB2-B

SECTION 7

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	12

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Dual Bridges on -Y2- (NC 49) over -L- (Asheboro Byp.)*

ID: R-2536A

PROJECT: 34450.1.1

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-10	BORELOGS, CORELOGS & CORE PHOTOGRAPHS
11	ROCK CORE TEST RESULTS
12	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA , AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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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NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

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DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER W. PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING # 10 # 40 # 200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²)
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 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / CPT / PMT / VST — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
OMT - OILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N 03
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELOSPAR 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 FELOSPARS 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 FELOSPARS 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*
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 FELOSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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.

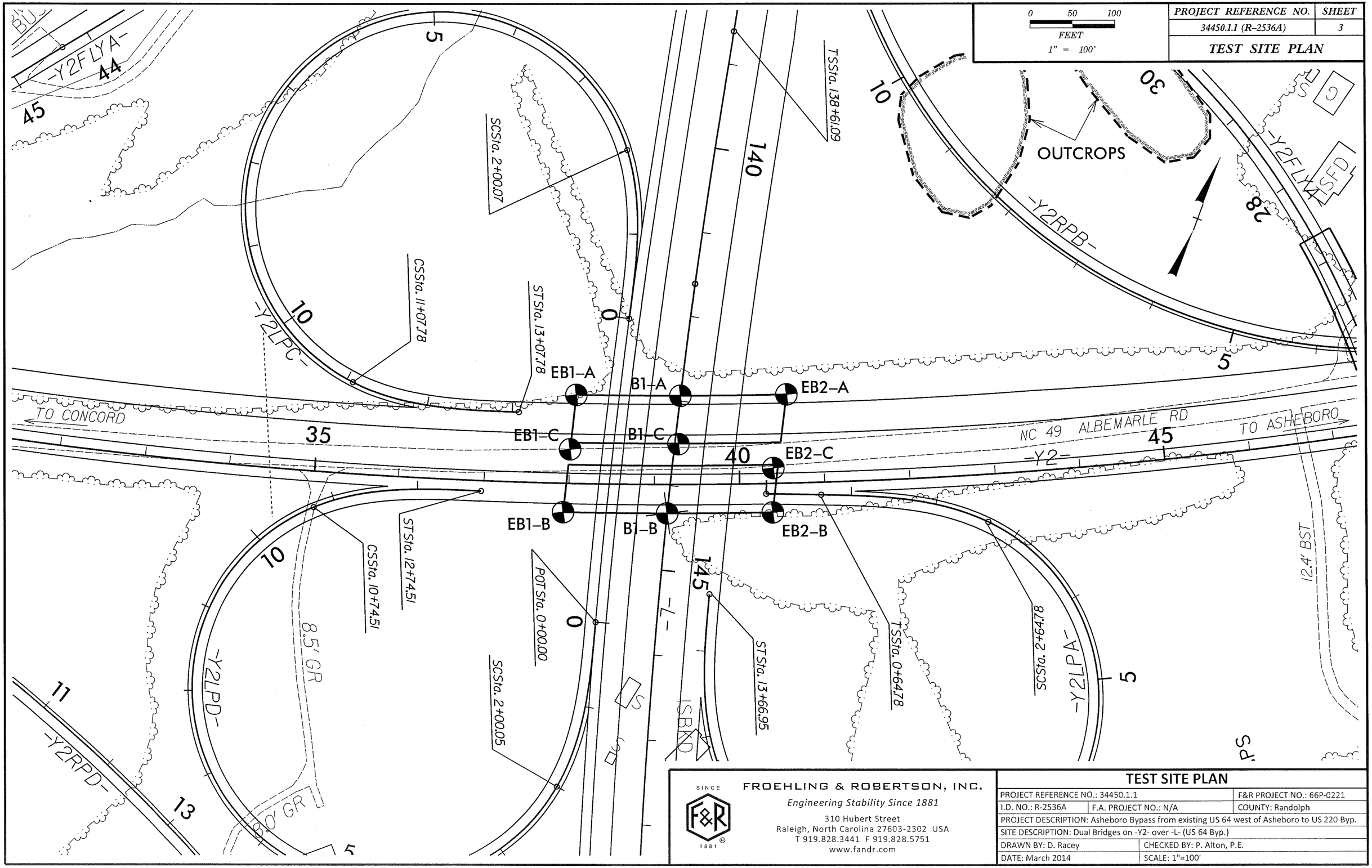
BENCH MARK: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
NM = NOT MEASURED
SOS = SURFICIAL ORGANIC SOILS
SAA = SAME AS ABOVE
TR = TRACE

REVISED 09/23/09



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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Dual Bridges on -Y2- over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 38+07	**OFFSET** 104 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 748.6 ft	**TOTAL DEPTH** 9.0 ft	**NORTHING** 701,422	**EASTING** 1,743,672	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
	748.6	0.0	1	5	3	8		M		748.6 GROUND SURFACE	0.0
										RESIDUAL Brown, fine to coarse sandy SILT (A-4), with trace gravel-size rock fragments.	
745	745.1	3.5								745.6	3.0
			41	41	59	100/1.0				**WEATHERED ROCK** Light brown-orange & gray-orange, (FELSIC METAVOLCANIC ROCK).	
740	740.1	8.5								739.6	9.0
	739.6	9.0	100/0.4			100/0.4				Boring Terminated with Standard Penetration Test Refusal at Elevation 739.6 ft on CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)	
			60/0.0			60/0.0					

NOTES:

1) Auger refusal at 9.0'.
2) ROADWAY BORING DESIGNATION IS Y2_3807L.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-C	**STATION** 38+01	**OFFSET** 40 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 2.6
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 701,359	**EASTING** 1,743,687	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	734.6	0.9	12	8	5	13				735.5 GROUND SURFACE	0.0
735										734.6 **ASPHALT**	0.9
										733.8 ABC STONE	1.7
	731.5	4.0								733.5 **ROADWAY EMBANKMENT** Tan, fine sandy SILT (A-4), with some clay.	2.0
730			30	12	10	22		W		732.5	3.0
	728.2	7.3								730.0 Gray, fine to coarse sandy silty CLAY (A-7-5).	5.5
			60/0.0			60/0.0				728.2 **RESIDUAL** Gray, SAND (A-1-a), with high amount of gravel-size rock fragments.	7.3
										CRYSTALLINE ROCK Gray, (MAFIC METAVOLCANIC ROCK).	
										Boring Terminated with Standard Penetration Test Refusal at Elevation 728.2 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)	

NOTES:

1) Auger refusal at 7.3'.
2) ROADWAY BORING DESIGNATION IS Y2_3801L.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 37+94	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	0 HR. Dry
COLLAR ELEV. 749.7 ft	**TOTAL DEPTH** 12.1 ft	**NORTHING** 701,287	**EASTING** 1,743,705	24 HR. Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
	749.7	0.0	1	5	6	11		M		749.7 GROUND SURFACE	0.0
										RESIDUAL Tan, fine to coarse sandy SILT (A-4), saprolitic.	
										746.2	3.5
745	745.7	4.0	57	43/0.2		100/0.7				**WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).	
										742.5	7.2
										741.7 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK).	8.0
740	740.7	9.0	100/0.3			100/0.3				**WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).	
	737.7	12.0	60/0.1			60/0.1				737.6 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK).	12.0 12.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 737.6 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)	

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Very difficult drilling from 7.2'-8.0, gray cobble-sized rock fragments in auger cuttings.
3) Auger refusal at 12.0'.
4) ROADWAY BORING DESIGNATION IS Y2_3794R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 39+31	**OFFSET** 104 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 759.0 ft	**TOTAL DEPTH** 43.7 ft	**NORTHING** 701,463	**EASTING** 1,743,786	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/23/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
760										
	759.0	0.0	3	3	2	5 · 6		M		759.0 / 0.0 GROUND SURFACE
755	755.5	3.5	29	33	33			M		**RESIDUAL** Brown & tan, fine sandy SILT (A-4), with trace roots & gravel-sized rock fragments from 0.0-1.5'.
750	750.5	8.5	49	51/0.5		100/1.0				750.5 / 8.5 **WEATHERED ROCK** Tan, (FELSIC METAVOLCANIC ROCK).
745	745.5	13.5	42	51	49	100/1.0				
740	740.5	18.5	28	61	39/0.2	100/0.7				
735	735.5	23.5	45	55/0.4		100/0.9				
730	730.5	28.5	100/0.5			100/0.5				
725	725.5	33.5	100/0.4			100/0.4				
720	720.5	38.5	42	58/0.2		100/0.7				
	715.5	43.5	100/0.2			100/0.2				715.3 / 43.7 Boring Terminated at Elevation 715.3 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) ROADWAY BORING DESIGNATION IS Y2_3931L.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-C	**STATION** 39+29	**OFFSET** 47 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 20.0
COLLAR ELEV. 738.1 ft	**TOTAL DEPTH** 39.3 ft	**NORTHING** 701,410	**EASTING** 1,743,804	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
	737.0	1.1	9	7	6	13		D		738.1 / 0.0 GROUND SURFACE
735	734.1	4.0	7	9	12	21		M		737.0 / 1.1 ASPHALT
730	729.1	9.0	22	25	34	59		M		736.2 / 1.9 PO **ROADWAY EMBANKMENT** ABC STONE
725	724.1	14.0	57	43/0.1		100/0.6				735.1 / 3.0 Tan, fine sandy SILT (A-4), with some clay. **RESIDUAL** Tan, fine sandy SILT (A-4), saprolitic.
720	719.1	19.0	100/0.3			100/0.3		▽		725.6 / 12.5 **WEATHERED ROCK** Tan & brown, (MAFIC METAVOLCANIC ROCK).
715	714.1	24.0	60/0.1			60/0.1				714.8 / 23.3 **CRYSTALLINE ROCK** Gray-brown, (MAFIC METAVOLCANIC ROCK). 714.0 / 24.1 **WEATHERED ROCK** Gray-brown, (MAFIC METAVOLCANIC ROCK).
710	709.1	29.0	100/0.2			100/0.2				
705	704.1	34.0	60/0.1			60/0.1				704.9 / 33.2 704.0 / 34.1 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). **WEATHERED ROCK** Gray-brown, (MAFIC METAVOLCANIC ROCK).
700	699.1	39.0	100/0.3			100/0.3				698.8 / 39.3 Boring Terminated at Elevation 698.8 ft in WEATHERED ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y2_3929L.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 39+15	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	**0 HR.** 13.7
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 35.7 ft	**NORTHING** 701,329	**EASTING** 1,743,820	**24 HR.** 24.7
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/19/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
760										
	757.8	0.0								757.8 0.0 GROUND SURFACE
			2	5	12	17		M		756.3 1.5 **RESIDUAL** Tan, fine sandy SILT (A-4).
755	755.0	2.8	60/0.0			60/0.0				755.0 2.8 **WEATHERED ROCK** Tan & gray-green, (FELSIC METAVOLCANIC ROCK).
							RS-4			**CRYSTALLINE ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).
750										
745										
740										740.9 16.9 **WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).
735										734.5 23.3 **CRYSTALLINE ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).
730										732.4 25.4 **WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK). 729.9 27.9
725										727.1 30.7 **CRYSTALLINE ROCK** Light gray, (FELSIC METAVOLCANIC ROCK). Gray, (FELSIC METAVOLCANIC ROCK).
										722.1 35.7 Boring Terminated at Elevation 722.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) Auger refusal at 2.8', began coring.
2) ROADWAY BORING DESIGNATION IS Y2_3915R.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 39+15	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2-	**0 HR.** 13.7
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 35.7 ft	**NORTHING** 701,329	**EASTING** 1,743,820	**24 HR.** 24.7
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/19/13	**COMP. DATE** 04/23/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 32.9 ft			

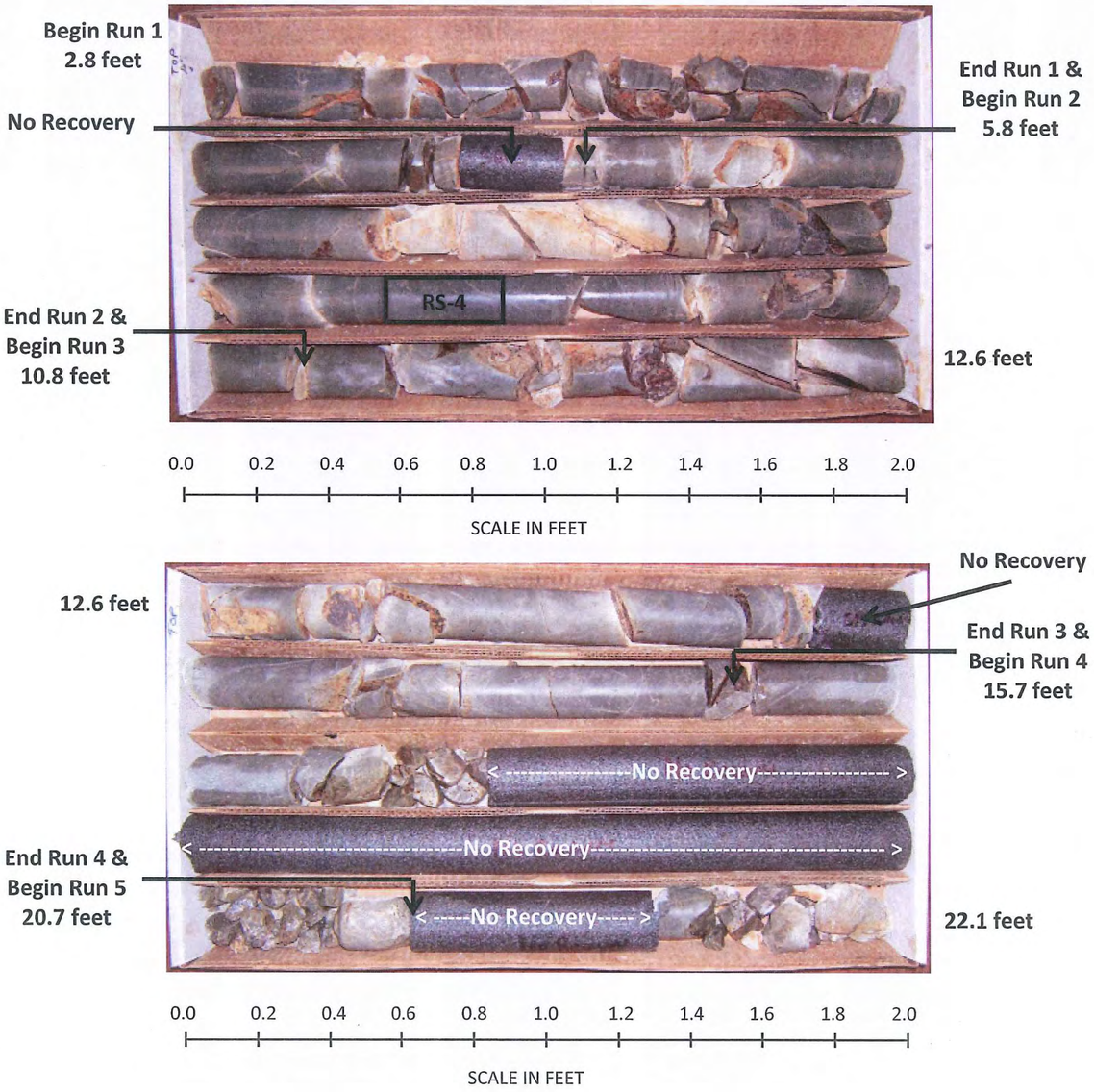
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
755											Begin Coring @ 2.8 ft
	755.0	2.8	3.0	*N=60/0.0* 4:11/1.0 4:56/1.0 4:41/1.0	(2.8) 93%	(0.6) 20%		(13.8) 98%	(3.4) 24%		755.0 2.8 **CRYSTALLINE ROCK** Brown & gray, slightly to very slightly weathered, moderately hard to hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing. RS-4: 9.1' to 9.4' qu = 13,429 psi R_1=7, R_2=3, R_3=10, R_4=6, R_5=7 RMR = 33, Rock Type E
	752.0	5.8	5.0	4:40/1.0 2:40/1.0 3:29/1.0 4:10/1.0 2:48/1.0	(4.8) 96%	(1.1) 22%					
750	747.0	10.8	4.9	3:40/1.0 2:46/1.0 3:15/1.0 3:51/1.0 3:10/0.9	(4.9) 100%	(1.3) 27%	RS-4				
745	742.1	15.7	5.0	4:36/1.0 3:55/1.0 1:36/1.0 2:25/1.0 3:10/1.0	(1.9) 38%	(0.4) 8%		(1.4) 22%	(0.0) 0%		740.9 16.9 **WEATHERED ROCK** Brown & gray, (FELSIC METAVOLCANIC ROCK).
740	737.1	20.7	5.0	2:27/1.0 2:16/1.0 4:30/1.0 2:26/1.0 2:02/1.0	(2.8) 56%	(0.0) 0%		(2.0) 95%	(0.0) 0%		734.5 23.3 **CRYSTALLINE ROCK** Light gray, moderately severely to moderately weathered, medium to moderately hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.
735	732.1	25.7	5.0	1:56/1.0 1:52/1.0 2:44/1.0 2:37/1.0 3:34/1.0	(2.8) 56%	(0.3) 6%		(0.0) 0%	(0.0) 0%		732.4 25.4 729.9 27.9 **WEATHERED ROCK** Light gray, (FELSIC METAVOLCANIC ROCK).
730	727.1	30.7	5.0	3:58/1.0 2:08/1.0 2:48/1.0 3:30/1.0 3:44/1.0	(5.0) 100%	(3.0) 60%		(2.8) 100%	(0.3) 11%		727.1 30.7 **CRYSTALLINE ROCK** Light gray, moderately severely to moderately weathered, medium to moderately hard (FELSIC METAVOLCANIC ROCK), very close to close fracture spacing.
725	722.1	35.7						(5.0) 100%	(3.0) 60%		Gray, slightly to very slightly weathered, hard to very hard (FELSIC METAVOLCANIC ROCK), close fracture spacing. 722.1 35.7 Boring Terminated at Elevation 722.1 ft in CRYSTALLINE ROCK (FELSIC METAVOLCANIC ROCK)

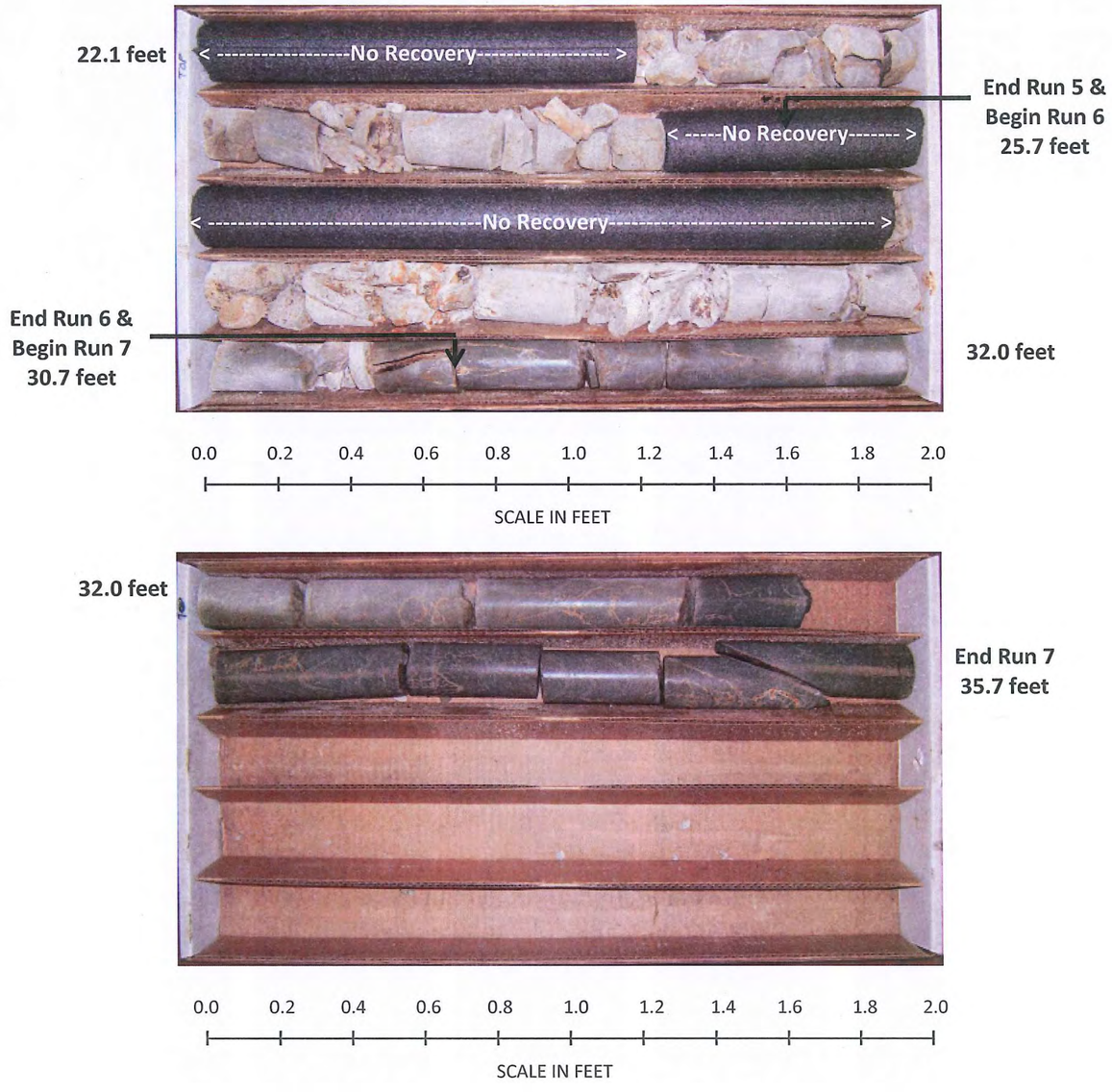
NOTES:

1) Auger refusal at 2.8', began coring.
2) ROADWAY BORING DESIGNATION IS Y2_3915R.

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-B: Station 39+15, 34' RT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 40+58	**OFFSET** 104 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 761.4 ft	**TOTAL DEPTH** 18.8 ft	**NORTHING** 701,509	**EASTING** 1,743,902	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER S. Davis	**START DATE** 04/09/13	**COMP. DATE** 04/09/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
765										
	761.4	0.0	2	2	3	5		M		761.4 / 0.0 GROUND SURFACE
760										**RESIDUAL** Orange-brown & gray, fine sandy silty CLAY (A-6), with trace gravel-size rock fragments & roots.
	757.9	3.5	62	38/0.2		100/0.7				757.9 / 3.5
755										**WEATHERED ROCK** Light brown to gray, (FELSIC METAVOLCANIC ROCK).
	752.9	8.5	100/0.3			100/0.3				
750										749.9 / 11.5
	747.9	13.5	29	51	49/0.1					Brown, fine sandy SILT (A-4). 747.4 / 14.0
745						100/0.6				**WEATHERED ROCK** Brown, (FELSIC METAVOLCANIC ROCK).
	742.9	18.5	100/0.3			100/0.3				742.6 / 18.8

Boring Terminated at Elevation 742.6 ft in WEATHERED ROCK (FELSIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
3) ROADWAY BORING DESIGNATION IS Y2_4058L.

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-C	**STATION** 40+40	**OFFSET** 18 ft LT	**ALIGNMENT** -Y2-	**0 HR.** 4.0
COLLAR ELEV. 741.3 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 701,422	**EASTING** 1,743,918	**24 HR.** 4.3
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/02/13	**COMP. DATE** 04/02/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
745										
	741.3	0.0	2	2	7	9		M		741.3 / 0.0 GROUND SURFACE
740										739.3 / 2.0 **ROADWAY EMBANKMENT** Tan, fine sandy SILT (A-4), with some clay.
	737.3	4.0	4	100/0.5		100/0.5				736.8 / 4.5 **RESIDUAL** Gray, fine sandy SILT (A-4)
	736.3	5.0	60/0.0			60/0.0				736.3 / 5.0 **WEATHERED ROCK** Gray, (MAFIC METAVOLCANIC ROCK).

Boring Terminated with Standard Penetration Test Refusal at Elevation 736.3 ft on CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 5.0'.
3) ROADWAY BORING DESIGNATION IS Y2_4040L.

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 40+38	**OFFSET** 34 ft RT	**ALIGNMENT** -Y2- / **0 HR.** Dry
COLLAR ELEV. 757.8 ft	**TOTAL DEPTH** 13.8 ft	**NORTHING** 701,373	**EASTING** 1,743,935 / **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 04/04/13	**COMP. DATE** 04/04/13	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
760										
	757.8	0.0								757.8 GROUND SURFACE 0.0
			1	3	1	4		M		**RESIDUAL** Tan, fine sandy SILT (A-4), with trace organics.
755										754.3 3.5
	753.8	4.0	100/0.5			100/0.5				**WEATHERED ROCK** Tan, (MAFIC METAVOLCANIC ROCK).
750										
	748.8	9.0	100/0.2			100/0.2				
745										744.8 13.0
	744.1	13.7	60/0.1			60/0.1				744.0 13.8 **CRYSTALLINE ROCK** Gray, (MAFIC METAVOLCANIC ROCK). Boring Terminated with Standard Penetration Test Refusal at Elevation 744.0 ft in CRYSTALLINE ROCK (MAFIC METAVOLCANIC ROCK)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 13.7'.
3) ROADWAY BORING DESIGNATION IS Y2_4038R.

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

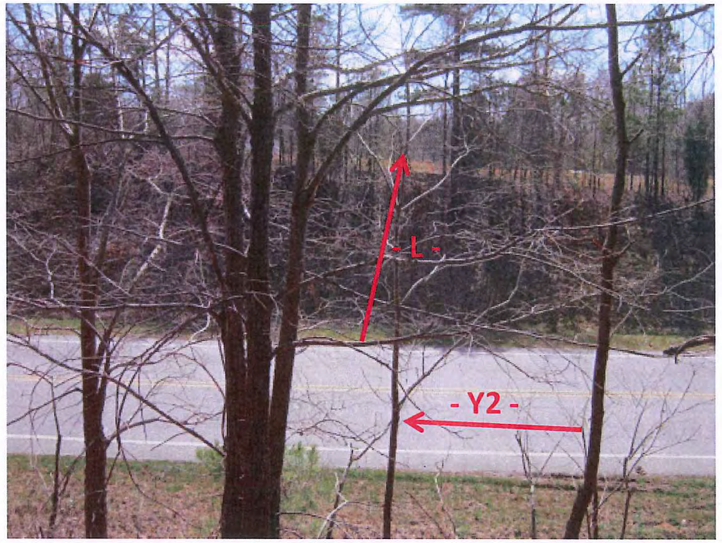
LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Dual Bridges on NC 49 (-Y2-) over Asheboro Bypass (-L-)

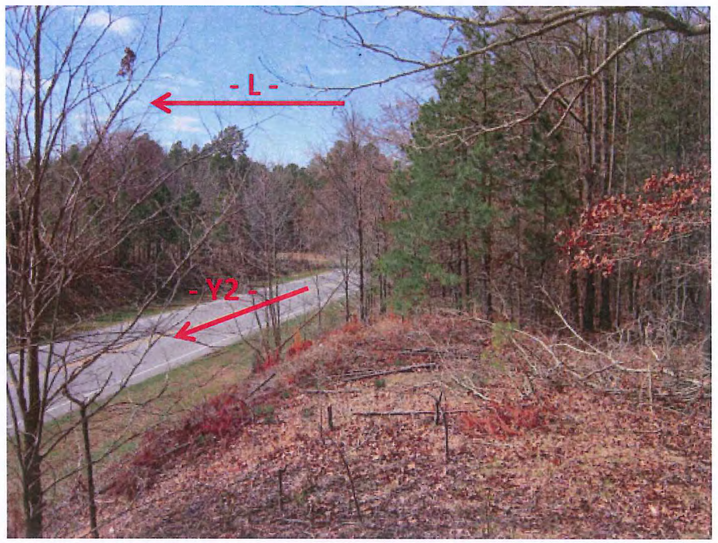
Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-4	Y2_3915R	-Y2-	39+15	34' RT.	9.1 - 9.4	Felsic Metavolcanic	CZfv	22%	4.11	1.77	166.9	13,429	2.94×10^5	33

Dual Bridges on -Y2- (NC 49) over -L- (Asheboro Bypass)

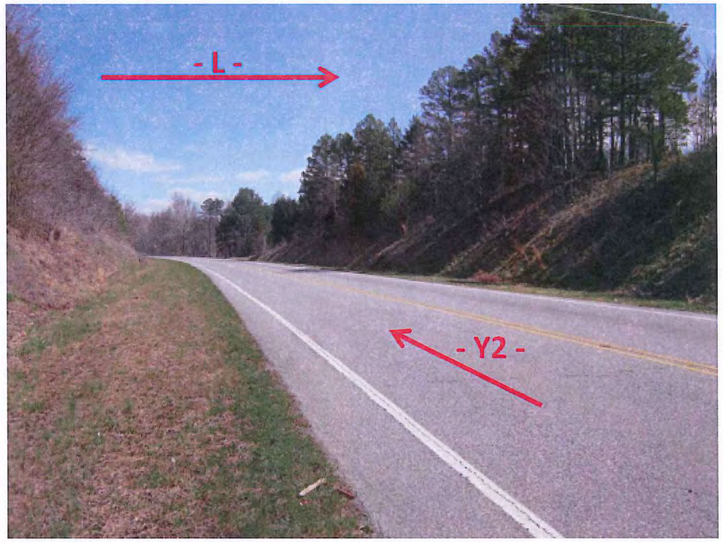
SITE PHOTOGRAPHS



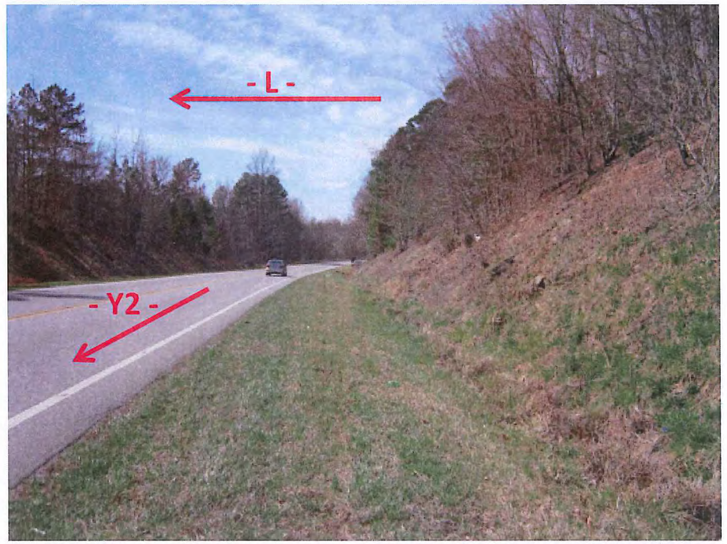
Photograph No. 1: View from boring EB1-A looking south along End Bent 1



Photograph No. 2: View from boring B1-A looking west towards boring EB1-A



Photograph No. 3: View from boring EB1-C looking east along NC 49



Photograph No. 4: View from boring EB2-C looking west along NC 49

SECTION 8

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	12

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Bridge on -Y3- (Mack Rd.) over -L- (Asheboro Byp.)*

ID: R-2536A

PROJECT: 34450.1.1

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SHEET	DESCRIPTION
1	TITLE SHEET
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3	TEST SITE PLAN
4-10	BORELOGS, CORELOGS & CORE PHOTOGRAPHS
11	ROCK CORE TEST RESULTS
12	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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NOTE - 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

D. Racey

J. Gilchrist

M. Renza

M. Brewer

D. Tignor

S. Davis

D. Jenks

K. Murphy

DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MN	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
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 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 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
- PW — 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
- 25/025 — OIP & OIP DIRECTION OF ROCK STRUCTURES
- SPT / OPT / OMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B-_____
- [X] -N- 03
- [ ] -H-_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 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.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING
GSRF = GRAVEL-SIZED ROCK FRAGMENTS
SOS = SURFICIAL ORGANIC SOILS
TR = TRACE
SAA = SAME AS ABOVE

REVISED 09/23/09

0 50 100 FEET 1" = 100'	PROJECT REFERENCE NO.	SHEET
	34450.1.1 (R-2536A)	3
	TEST SITE PLAN	

SCSta. 216+15.86

-Y3- Sta.13+00.00

-Y3- Sta.20+00.00

B1-A

EB1-A

EB2-A

EB1-B

B1-B

EB2-B

-Y3-

-L-

215

220

225

ISBKCH

ISBKD

ISFD

2SFD

2SBKD

HTD

PA

15

20

TO SR 1145

SR 1144 MACK RD

TO NC 49

13.0' GR

12.6' GR

85' SOIL

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TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Bridge on -Y3- (Mack Rd.) over -L- (US 64 Byp.)		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 14+62	**OFFSET** 9 ft LT	**ALIGNMENT** -Y3-	**0 HR.** 37.1
COLLAR ELEV. 831.1 ft	**TOTAL DEPTH** 65.9 ft	**NORTHING** 694,334	**EASTING** 1,746,794	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
835											
830	830.3	0.8	6	7	10	17		M		831.1 GROUND SURFACE	0.0
										830.3 **ASPHALT**	0.8
	827.1	4.0	5	9	11	20		M		829.3 **ROADWAY EMBANKMENT** Red, fine sandy SILT (A-4), with some clay.	1.8
825										**RESIDUAL** Dark red, tan & white, fine sandy SILT (A-4), with some mica.	
	822.1	9.0	3	4	4	8		M			
820											
	817.1	14.0	4	5	5	10		M			
815											
	812.1	19.0	2	2	3	5		M			
810											
	807.1	24.0	2	2	3	5		M		808.6 Red, tan & black, clayey SILT (A-5).	22.5
805											
	802.1	29.0	2	2	4	6		M		803.6 Red, tan & gray, SILT (A-4), with trace fine sand.	27.5
800											
	797.1	34.0	1	2	3	5		W		798.6 Tan & gray, clayey SILT (A-5).	32.5
795											
	792.1	39.0	8	8	5	13		M		792.1 Tan & gray, fine sandy SILT (A-4).	39.0
										791.3 Tan & gray, clayey SILT (A-5).	39.8
790											
	787.1	44.0	13	9	11	20		M		788.6 Tan & gray, fine sandy SILT (A-4), with trace gravel-size rock fragments.	42.5
785											
	782.1	49.0	6	9	15	24		M			
780											
	777.1	54.0	12	30	41	71		M		776.6 Brown, clayey SILT (A-5), with trace mica.	54.5
775										773.8 **WEATHERED ROCK** Tan & gray, (METAMUDSTONE).	57.3
	772.1	59.0	100/0.4			100/0.4					
770											
	767.1	64.0	60/0.1			60/0.1				767.6 **CRYSTALLINE ROCK** Tan & gray, (METAMUDSTONE).	63.5
	765.2	65.9	60/0.0			60/0.0				765.2 Boring Terminated with Standard Penetration Test Refusal at Elevation 765.2 ft in CRYSTALLINE ROCK (METAMUDSTONE)	65.9

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 14+62	**OFFSET** 9 ft LT	**ALIGNMENT** -Y3-	**0 HR.** 37.1
COLLAR ELEV. 831.1 ft	**TOTAL DEPTH** 65.9 ft	**NORTHING** 694,334	**EASTING** 1,746,794	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755						Match Line				

NOTES:

1) Auger refusal at 65.9'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y3_1462L

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 14+39	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 37.0
COLLAR ELEV. 831.5 ft	**TOTAL DEPTH** 76.1 ft	**NORTHING** 694,307	**EASTING** 1,746,807	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
840										
835										
830	830.7	0.8	6	7	9	16		M		831.5 GROUND SURFACE 0.0
										830.7 **ASPHALT** 0.8
										829.7 **ROADWAY EMBANKMENT** 1.8
	827.5	4.0	5	5	7	12		M		Red, fine sandy SILT (A-4), with some clay.
825										**RESIDUAL**
										826.5 Red & tan, fine sandy SILT (A-4). 5.0
	822.5	9.0	5	4	7	11		M		Dark red, tan & white, fine sandy SILT (A-4), with some mica.
820										
	817.5	14.0	4	5	4	9		M		
815										
	812.5	19.0	6	6	12	18		M		
810										
	807.5	24.0	4	3	5	8		M		
805										
	802.5	29.0	1	1	2	3		M		
800										
	797.5	34.0	2	2	5	7		M		
795										
	792.5	39.0	2	3	4	7		M		
790										
	787.5	44.0	5	10	9	19		M		
785										
	782.5	49.0	8	8	17	25		M		
780										
	777.5	54.0	20	80/0.3		100/0.8		M		
775										
	772.5	59.0	12	25	24	49		M		
770										
	767.5	64.0	55	40	36	76		M		
765										
	762.5	69.0	85	15/0.0		100/0.5		M		809.0 Red, tan, black & gray, clayey SILT (A-5). 22.5
760										784.0 Tan & gray, fine sandy SILT (A-4). 47.5
										780.5 **WEATHERED ROCK** 51.0
										Tan & gray, (METAMUDSTONE).
										773.5 Tan & gray, fine sandy SILT (A-4). 58.0
										762.5 **WEATHERED ROCK** 69.0
										Tan, (METAMUDSTONE).

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** D. Racey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 14+39	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 37.0
COLLAR ELEV. 831.5 ft	**TOTAL DEPTH** 76.1 ft	**NORTHING** 694,307	**EASTING** 1,746,807	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760						Match Line				
	757.5	74.0	56	44/0.1		100/0.6				**WEATHERED ROCK**
	755.5	76.0	60/0.1			60/0.1				Tan, (METAMUDSTONE). *(continued)*
										756.4 75.1
										755.4 **CRYSTALLINE ROCK** 76.1
										(METAMUDSTONE)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 755.4 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) Auger refusal at 76.0'.
2) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
3) ROADWAY BORING DESIGNATION IS Y3_1439R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 16+20	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** N/A
COLLAR ELEV. 827.3 ft	**TOTAL DEPTH** 75.0 ft	**NORTHING** 694,487	**EASTING** 1,746,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 06/20/13	**COMP. DATE** 06/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
835											
830											
										827.3 GROUND SURFACE	0.0
	826.2	1.1	4	5	12	17		M		826.2 **ASPHALT**	1.1
825	823.8	3.5	2	2	2	4		W		**ROADWAY EMBANKMENT** Gray & red-brown, fine sandy clayey SILT (A-5), with little gravel. 822.8	4.5
820	818.8	8.5	13	21	39	60		M		**RESIDUAL** Gray-brown, silty CLAY (A-7-5). 818.5	8.8
815	813.8	13.5	45	55/0.3		100/0.8		M		Gray-tan, fine sandy SILT (A-4). 815.3	12.0
810	808.8	18.5	10	15	20	35		M		**WEATHERED ROCK** Light tan, (METASILTSTONE). 810.3	17.0
805	803.8	23.5	16	19	50	69		M		Brown & gray-green, fine sandy SILT (A-4), with trace mica, saprolitic.	
800	798.8	28.5	25	36	33	69		M			
795	793.8	33.5	28	72/0.4		100/0.9				793.8 **WEATHERED ROCK** Gray-green, (METASILTSTONE).	33.5
790	788.8	38.5	46	44	56/0.4	100/0.9					
785	783.8	43.5	14	18	26	44		M		785.3 Light tan & gray-green, fine sandy SILT (A-4), with trace mica, saprolitic.	42.0
780	778.8	48.5	36	60	40/0.3	100/0.8				778.3 **WEATHERED ROCK** Tan-brown & gray-green, (METASILTSTONE).	49.0
775	773.8	53.5	100/0.2			100/0.2					
770	768.8	58.5	24	28	48	76		M		770.3 Brown, fine sandy SILT (A-4), with trace mica.	57.0
765	763.8	63.5	100/0.3			100/0.3				765.3 **WEATHERED ROCK** Gray-green, (METASILTSTONE).	62.0
760	762.3	65.0	60/0.0			60/0.0	RS-9			762.3 **CRYSTALLINE ROCK** Gray-brown to light gray, (METASILTSTONE).	65.0
755											

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 16+20	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** N/A
COLLAR ELEV. 827.3 ft	**TOTAL DEPTH** 75.0 ft	**NORTHING** 694,487	**EASTING** 1,746,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core		**HAMMER TYPE** Automatic
DRILLER J. Gilchrist	**START DATE** 06/20/13	**COMP. DATE** 06/20/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755						Match Line				752.3 75.0

Boring Terminated at Elevation 752.3 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 65.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
4) ROADWAY BORING DESIGNATION IS Y3_1620L

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** K. Murphy	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 16+20	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** N/A
COLLAR ELEV. 827.3 ft	**TOTAL DEPTH** 75.0 ft	**NORTHING** 694,487	**EASTING** 1,746,833	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/20/13	**COMP. DATE** 06/20/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 10.0 ft			

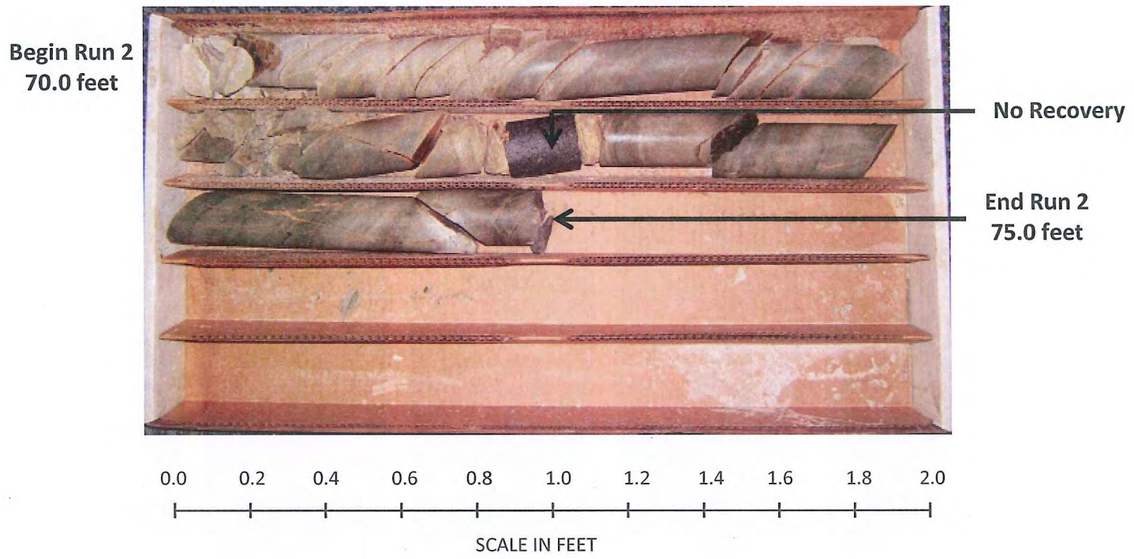
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
762.3											ELEV. (ft) / DEPTH (ft)
											Begin Coring @ 65.0 ft
760	762.3	65.0	5.0	*N=60/0.0* 3:24/1.0 5:07/1.0 5:04/1.0 6:49/1.0 4:20/1.0	(4.9) 98%	(2.0) 40%	RS-9	(9.7) 97%	(3.8) 38%		762.3 **CRYSTALLINE ROCK** 65.0 Gray-brown to light gray, moderately severe to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing. RS-9: 66.3'-66.6' qu = 9,038 psi R_1=7, R_2=8, R_3=10, R_4=6, R_5=7 RMR = 38, Rock Type E
	757.3	70.0									
755			5.0	3:08/1.0 3:50/1.0 5:50/1.0 3:38/1.0 3:23/1.0	(4.8) 96%	(1.8) 36%					
	752.3	75.0									752.3 75.0 Boring Terminated at Elevation 752.3 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 65.0', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) Boring Filled Immediately After Drilling (FIAD) due to location in roadway.
4) ROADWAY BORING DESIGNATION IS Y3_1620L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-A: Station 16+20, 8' LT



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 15+94	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 48.5
COLLAR ELEV. 827.1 ft	**TOTAL DEPTH** 73.5 ft	**NORTHING** 694,458	**EASTING** 1,746,843	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
835										
830										
825	826.3	0.8	4	5	7	12		M		827.1 GROUND SURFACE 0.0 826.3 ASPHALT 0.8
820	823.6	3.5	4	5	7	12		M		824.6 ROADWAY EMBANKMENT 2.5 White-gray, fine sandy SILT (A-4), with trace clay & roots.
815	818.6	8.5	5	7	9	16		M		RESIDUAL Brown, red, white, orange & gray, fine sandy SILT (A-4), with trace clay.
810	813.6	13.5	4	7	9	16		M		
805	808.6	18.5	3	7	11	18		M		
800	803.6	23.5	2	4	4	8		M		
795	798.6	28.5	3	3	5	8		M		
790	793.6	33.5	4	7	11	18		M		
785	788.6	38.5	4	5	7	12		M		
780	783.6	43.5	4	5	8	13		M		
775	778.6	48.5	21	34	66/0.2	100/0.7				778.1 WEATHERED ROCK 49.0 Gray, brown & light brown, (METAMUDSTONE).
770	773.6	53.5	100/0.5			100/0.5				
765	768.6	58.5	43	57/0.5		100/1.0				
760	763.6	63.5	60/0.1			60/0.1				763.6 CRYSTALLINE ROCK 63.5 (METAMUDSTONE)
755	758.6	68.5	60/0.1			60/0.1				

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 15+94	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** 48.5
COLLAR ELEV. 827.1 ft	**TOTAL DEPTH** 73.5 ft	**NORTHING** 694,458	**EASTING** 1,746,843	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
755						Match Line				
	753.6	73.5	60/0.0			60/0.0				753.6 73.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 753.6 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y3_1594R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 17+47	**OFFSET** 8 ft LT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 825.9 ft	**TOTAL DEPTH** 33.9 ft	**NORTHING** 694,608	**EASTING** 1,746,876	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
825	825.9	0.0								GROUND SURFACE
	825.1	0.8								ASPHALT
	823.6	2.3	9	4	4	8		M		**ROADWAY EMBANKMENT** Tan & yellow, fine sandy SILT (A-4), with trace gravel.
820	822.4	3.5	12	19	26	45		M		**RESIDUAL** Tan-white to tan-brown, fine sandy SILT (A-4), with trace gravel-size rock fragments.
	817.4	8.5	14	20	25	45		M		
815	812.4	13.5	18	12	14	26		M		
810	807.4	18.5	10	19	81/0.4	100/0.9				
805	802.4	23.5	23	77/0.5		100/1.0				
800	797.4	28.5	18	26	74/0.5	100/1.0				
795	792.4	33.5	100/0.4			100/0.4				
	792.0	33.9								Boring Terminated at Elevation 792.0 ft in WEATHERED ROCK (METAMUDSTONE)
	806.9	19.0								**WEATHERED ROCK** Gray, (METAMUDSTONE).

NOTES:

1) ROADWAY BORING DESIGNATION IS Y3_1747L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 17+33	**OFFSET** 10 ft RT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 825.0 ft	**TOTAL DEPTH** 33.6 ft	**NORTHING** 694,588	**EASTING** 1,746,888	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 04/03/13	**COMP. DATE** 04/03/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
825	825.0	0.0								GROUND SURFACE
	824.2	0.8								ASPHALT
	822.5	2.5	7	6	5	11		M		**ROADWAY EMBANKMENT** Tan-brown, fine sandy SILT (A-4), with trace gravel.
820	821.5	3.5	14	19	25	44		M		**RESIDUAL** Tan-white & orange, fine sandy SILT (A-4), with trace gravel-size rock fragments.
	816.5	8.5	8	12	22	34		M		
815	811.5	13.5	13	21	79/0.3	100/0.8				
810	811.0	14.0								**WEATHERED ROCK** Tan-orange, tan & gray, (METAMUDSTONE).
805	806.5	18.5	42	58/0.3		100/0.6				
800	801.5	23.5	100/0.2			100/0.2				
795	796.5	28.5	100/0.3			100/0.3				
	791.5	33.5	60/0.1			60/0.1				
	791.4	33.6								**CRYSTALLINE ROCK** (METAMUDSTONE) Boring Terminated with Standard Penetration Test Refusal at Elevation 791.4 ft in CRYSTALLINE ROCK (METAMUDSTONE)

NOTES:

1) ROADWAY BORING DESIGNATION IS Y3_1733R

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

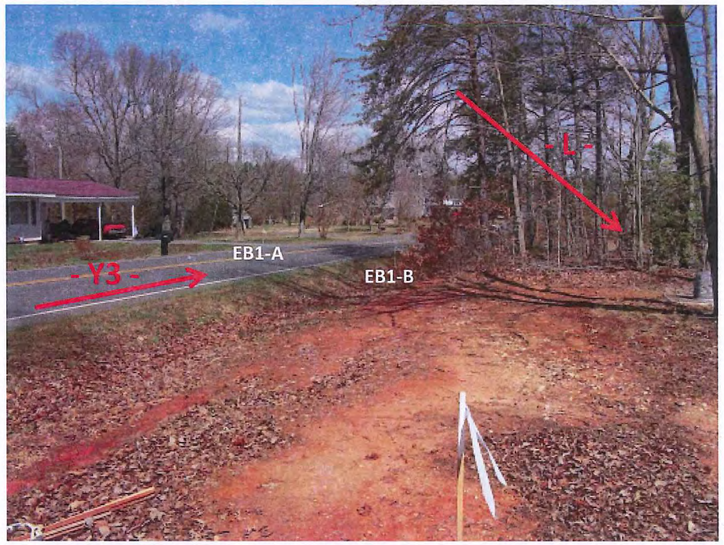
LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Bridge on SR 1144 (Mack Road) over Asheboro Bypass (-L-)

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-9	Y3_1620L	-Y3-	16+20	8' LT.	66.3 - 66.6	Metasiltstone	CZmd	40%	3.79	1.77	170.5	9,038	2.06×10^5	38

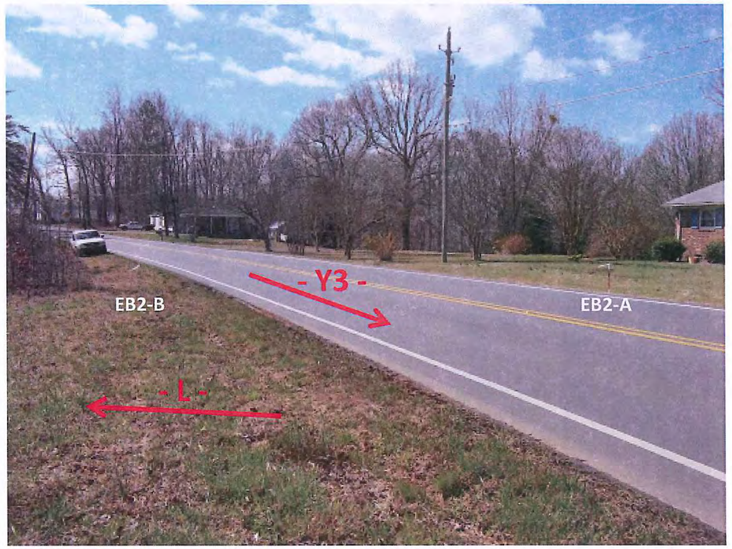
Bridge on -Y3- (Mack Road) over -L- (Asheboro Bypass)

SITE PHOTOGRAPHS



Photograph No. 1: View from boring Y3_1350R looking north at end bent 1

Photograph No. 2: View looking south towards End Bent 1



Photograph No. 3: View looking south towards End Bent 2

SECTION 9

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34450.1.1 (R-2536A)	1	22

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34450.1.1 (R-2536A)* F.A. PROJ. *N/A*

COUNTY *Randolph*

PROJECT DESCRIPTION *Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass*

SITE DESCRIPTION *Dual Bridges on -L- (Asheboro Byp.) over Little River*

ID: R-2536A

PROJECT: 34450.1.1

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	TEST SITE PLAN
4-6	PROFILES
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21	ROCK CORE TEST RESULTS
22	SITE PHOTOGRAPHS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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NOTE - 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

K. Murphy

J. Gilchrist

M. Renza

P. Fahey

P. Alton

D. Tignor

S. Davis

DRAWN BY *D. Racey*

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *March 2014*

NORTH CAROLINA PROFESSIONAL SEAL 033758 ENGINEER PATRICK ALTON

3/14/14

Patrick Alton

PROJECT REFERENCE NO.	SHEET NO.
34450.1.1 (R-2536A)	2

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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6	A-3	A-6, A-7	
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	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				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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 RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	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
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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, FELOSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / CPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SO. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B-_____
- [X] -N- 03
- [ ] -H-_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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 YEILD 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 SLI.)	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 (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELOSPAR 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 FELOSPARS 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 FELOSPARS 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*
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 FELOSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
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 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.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN 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 FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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, 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 (RQD) - 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 (SRQD) - 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: BORING ELEVATIONS OBTAINED FROM "DTM" FILE PROVIDED BY NCDOT-GEU

ELEVATION: N/A FT.

NOTES:

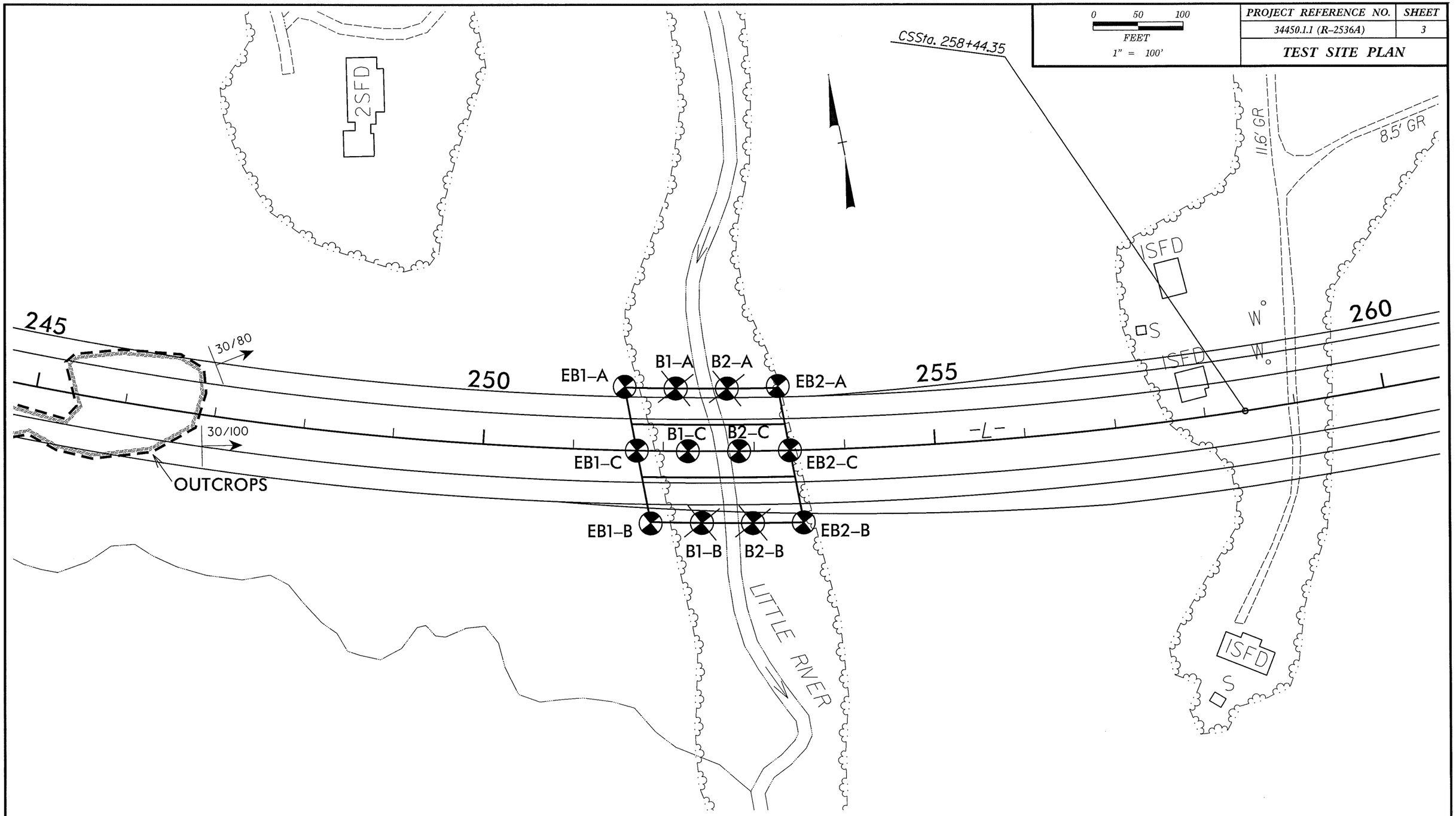
FIAD = FILLED IMMEDIATELY AFTER DRILLING
SOS = SURFICIAL ORGANIC SOILS
NM = NOT MEASURED
LT. = LIGHT
S.B. = STRATA BREAK

REVISED 09/23/09

PROJECT REFERENCE NO.	SHEET
34450.1.1 (R-2536A)	3

0 50 100
FEET
1" = 100'

TEST SITE PLAN



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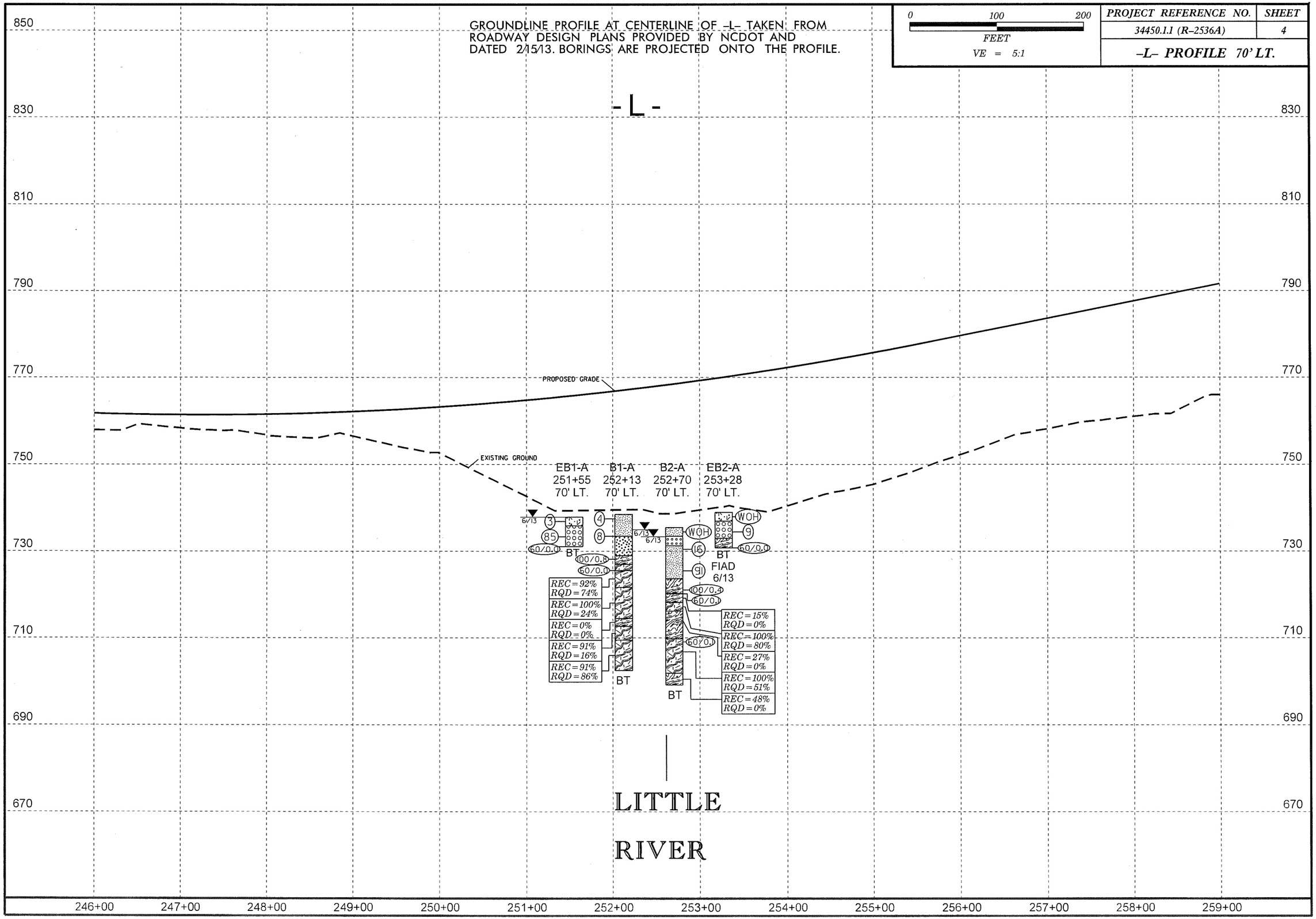
TEST SITE PLAN

PROJECT REFERENCE NO.: 34450.1.1		F&R PROJECT NO.: 66P-0221
I.D. NO.: R-2536A	F.A. PROJECT NO.: N/A	COUNTY: Randolph
PROJECT DESCRIPTION: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Byp.		
SITE DESCRIPTION: Dual Bridges on -L- (US 64 Byp.) over Little River		
DRAWN BY: D. Racey	CHECKED BY: P. Alton, P.E.	
DATE: March 2014	SCALE: 1"=100'	



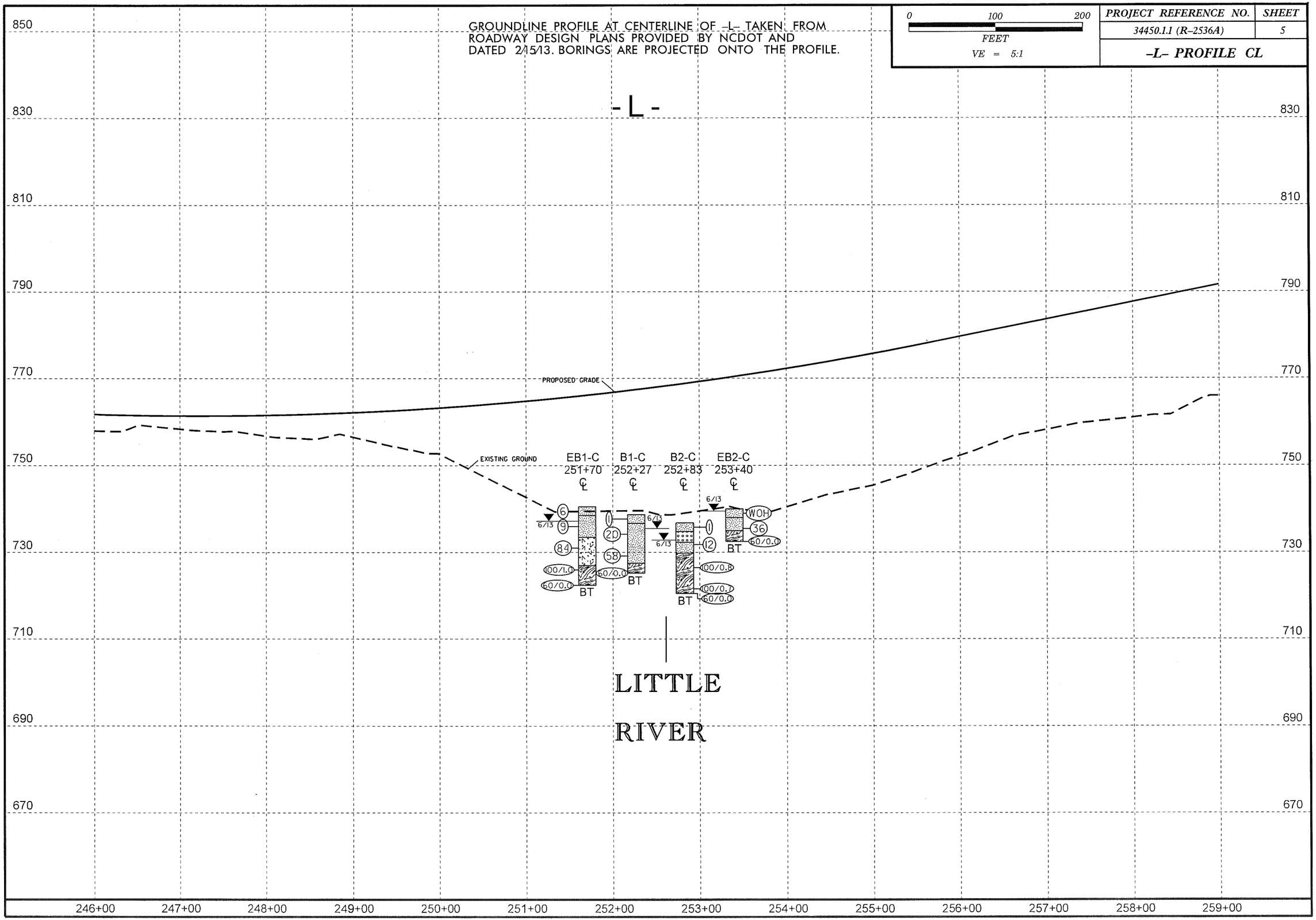
GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.
0 100 200
FEET
VE = 5:1
PROJECT REFERENCE NO.
34450.1.1 (R-2536A)
SHEET
4
-L- PROFILE 70' LT.
-L-
850
830
810
790
770
750
730
710
690
670
PROPOSED GRADE
EXISTING GROUND
EB1-A 251+55 70' LT.
B1-A 252+13 70' LT.
B2-A 252+70 70' LT.
EB2-A 253+28 70' LT.
6/13
3
85
60/0.0
BT
4
8
100/0.8
60/0.0
REC=92% RQD=74%
REC=100% RQD=24%
REC=0% RQD=0%
REC=91% RQD=16%
REC=91% RQD=86%
BT
6/13
WOH
16
91
100/0.4
60/0.1
60/0.1
BT
FIAD 6/13
WOH
9
60/0.0
REC=15% RQD=0%
REC=100% RQD=80%
REC=27% RQD=0%
REC=100% RQD=51%
REC=48% RQD=0%
LITTLE RIVER
246+00
247+00
248+00
249+00
250+00
251+00
252+00
253+00
254+00
255+00
256+00
257+00
258+00
259+00

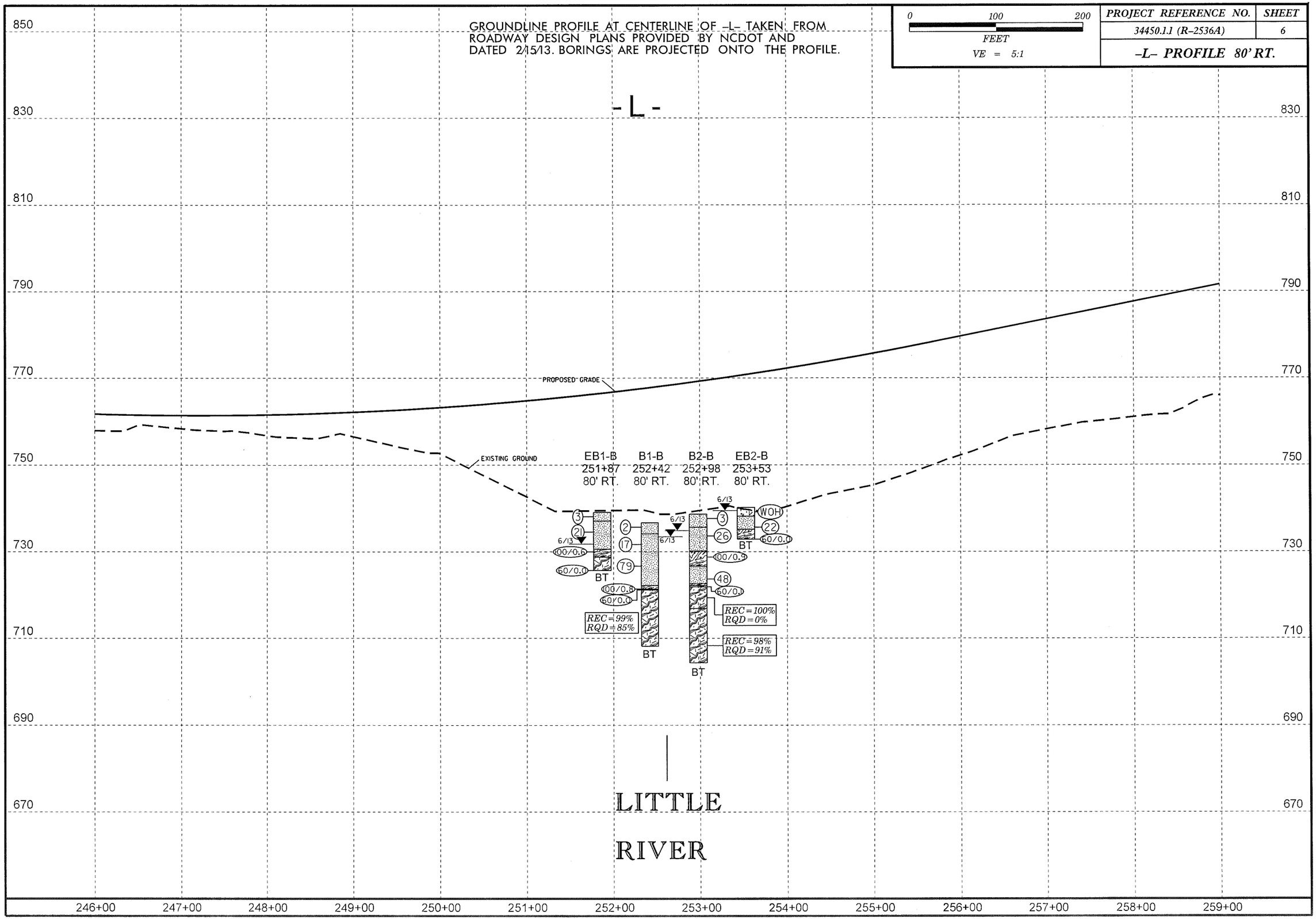
PROJECT REFERENCE NO.	SHEET
34450.1.1 (R-2536A)	5

0 100 200
FEET
VE = 5:1

-L- PROFILE CL

GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.





GROUNDLINE PROFILE AT CENTERLINE OF -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT AND DATED 2/15/13. BORINGS ARE PROJECTED ONTO THE PROFILE.
0 100 200
FEET
VE = 5:1
PROJECT REFERENCE NO.
34450.1.1 (R-2536A)
SHEET
6
-L- PROFILE 80' RT.
-L-
850
830
810
790
770
750
730
710
690
670
PROPOSED GRADE
EXISTING GROUND
EB1-B 251+87 80' RT.
B1-B 252+42 80' RT.
B2-B 252+98 80' RT.
EB2-B 253+53 80' RT.
6/13
3
21
100/0.6
60/0.0
BT
2
17
79
100/0.8
60/0.0
REC=99%
RQD=85%
BT
3
26
100/0.9
48
60/0.1
REC=100%
RQD=0%
REC=98%
RQD=91%
BT
WOH
22
60/0.0
BT
LITTLE
RIVER
246+00
247+00
248+00
249+00
250+00
251+00
252+00
253+00
254+00
255+00
256+00
257+00
258+00
259+00

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 251+55	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 0.0
COLLAR ELEV. 737.9 ft	**TOTAL DEPTH** 6.8 ft	**NORTHING** 692,708	**EASTING** 1,749,397	**24 HR.** 0.0
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										ELEV. (ft) DEPTH (ft)
	737.9	0.0	WOH	1	2	3		W		737.9 GROUND SURFACE 0.0
735										**ALLUVIAL**
	734.4	3.5	6	10	75	85/0.0		M		735.9 Orange & gray, clayey SILT (A-5). 2.0
	731.1	6.8	60/0.0							**RESIDUAL** Orange & gray, silty fine to coarse SAND (A-1-b), with little gravel-sized rock fragments. 731.1 6.8

Boring Terminated with Standard Penetration Test Refusal at Elevation 731.1 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 6.8'.
3) ROADWAY BORING DESIGNATION IS L_25155L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB1-C	**STATION** 251+70	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** 3.7
COLLAR ELEV. 740.5 ft	**TOTAL DEPTH** 18.1 ft	**NORTHING** 692,636	**EASTING** 1,749,397	**24 HR.** 3.3
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										
740	740.5	0.0	WOH	2	4	6		M		740.5 GROUND SURFACE 0.0
	737.0	3.5	6	5	4	9		M		**ALLUVIAL**
735										738.5 Light brown & orange, SILT (A-4), with some fine sand. 2.0
	732.0	8.5	13	46	38	84		M		**RESIDUAL** Light brown & orange, SILT (A-4), with some fine sand. 733.5 7.0
730										Orange & gray, clayey SILT (A-5), with little gravel-sized rock fragments.
	727.0	13.5	21	79/0.5		100/1.0				727.0 13.5
725										**WEATHERED ROCK** Greenish-gray, (METASILTSTONE).
	722.4	18.1	60/0.0			60/0.0				722.4 18.1

Boring Terminated with Standard Penetration Test Refusal at Elevation 722.4 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 18.1'.
3) ROADWAY BORING DESIGNATION IS L_25170

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass			**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 251+87	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** 4.3
COLLAR ELEV. 739.1 ft	**TOTAL DEPTH** 13.4 ft	**NORTHING** 692,554	**EASTING** 1,749,396	**24 HR.** 7.3
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	739.1	0.0	WOH	WOH	3	3		M		739.1 GROUND SURFACE	0.0
735	735.6	3.5	6	8	13	21		M		737.1 **ALLUVIAL** Grayish-brown, SILT (A-4), with some fine sand.	2.0
										RESIDUAL Gray, SILT (A-4), with some fine sand & trace gravel-sized rock fragments.	
730	730.6	8.5	73	27/0.1		100/0.6				730.6	8.5
										728.8 **WEATHERED ROCK** Gray, (METASILTSTONE).	10.3
	725.7	13.4	60/0.0			60/0.0				**CRYSTALLINE ROCK** (METASILTSTONE) 725.7	13.4

Boring Terminated with Standard Penetration Test Refusal at Elevation 725.7 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 13.4'.
3) ROADWAY BORING DESIGNATION IS L_25187R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 252+13	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.3
COLLAR ELEV. 738.5 ft	**TOTAL DEPTH** 36.0 ft	**NORTHING** 692,695	**EASTING** 1,749,452	**24 HR.** 3.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/14/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
										738.5	0.0
										GROUND SURFACE	
	738.5	0.0	WOH	1	3	4		W		**ALLUVIAL** Brown, gray & orange, fine sandy SILT (A-4), with trace root fragments.	
										733.5	5.0
	734.5	4.0	1	1	7	8		Sat.		Gray, clayey silty fine to coarse SAND (A-2-4).	
										729.0	9.5
	729.5	9.0	11	43	57/0.3	100/0.8				**WEATHERED ROCK** Brown & gray, (METASILTSTONE).	
										727.0	11.5
	725.6	12.9	60/0.0			60/0.0				**CRYSTALLINE ROCK** Gray, (METASILTSTONE).	
										725.6	12.9
										721.7	16.8
										Gray, (METASILTSTONE).	
							RS-12				
										714.5	24.0
										WEATHERED ROCK Gray, (METASILTSTONE).	
										712.7	25.8
										CRYSTALLINE ROCK Gray, (METASILTSTONE).	
										709.5	29.0
										Gray & white, (METASILTSTONE).	
										702.5	36.0
										Boring Terminated at Elevation 702.5 ft in CRYSTALLINE ROCK (METASILTSTONE)	

NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 12.9', began coring.
3) ROADWAY BORING DESIGNATION IS L_25213L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 252+13	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.3
COLLAR ELEV. 738.5 ft	**TOTAL DEPTH** 36.0 ft	**NORTHING** 692,695	**EASTING** 1,749,452	**24 HR.** 3.5
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/14/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 23.1 ft			

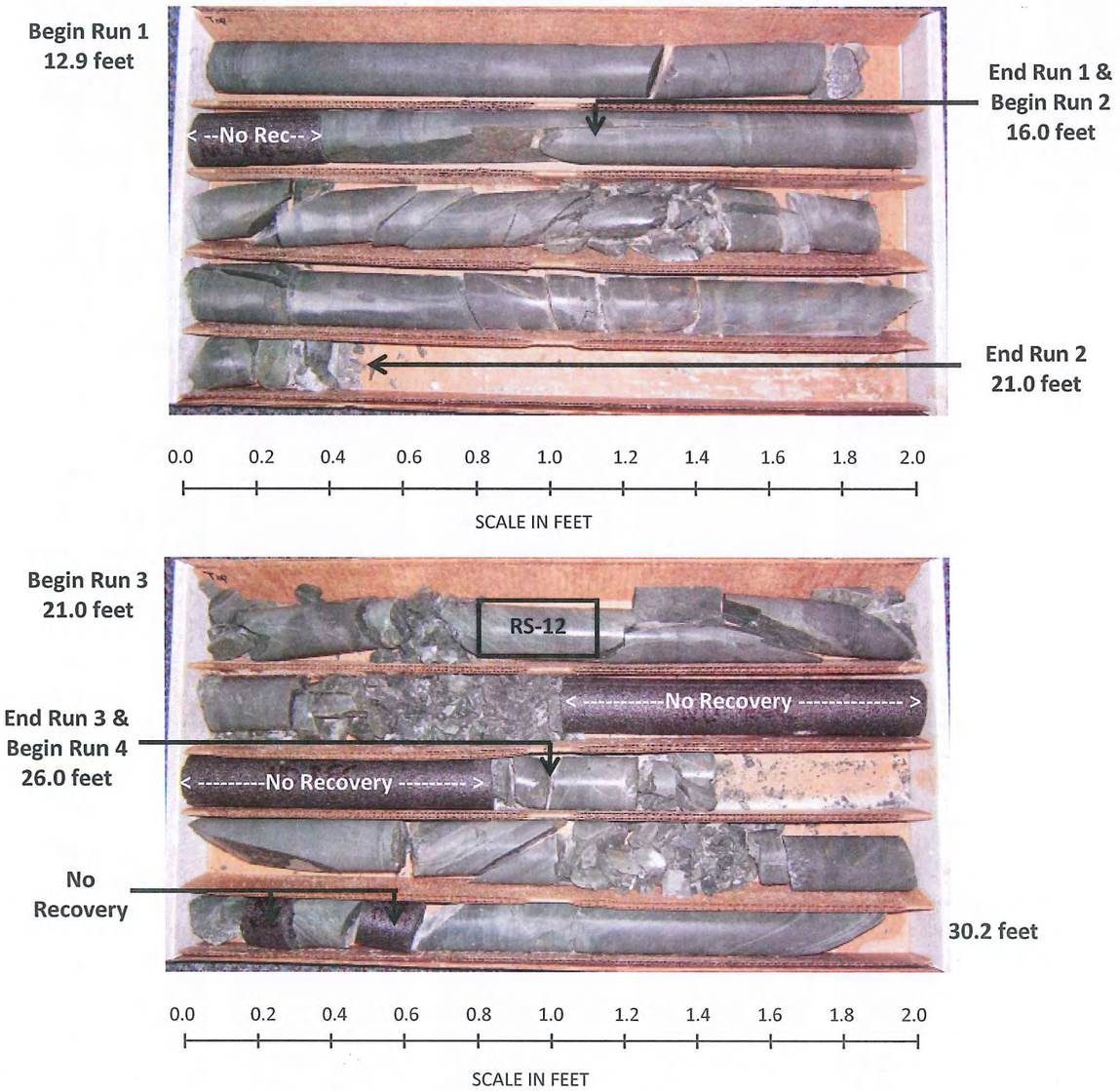
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
725.6											Begin Coring @ 12.9 ft	
725	725.6	12.9	3.1	*N=60/0.0* 4:42/1.0 5:03/1.0 4:26/1.0	(2.6) 84%	(2.1) 68%		(3.6) 92%	(2.9) 74%		725.6 **CRYSTALLINE ROCK** Gray, slightly to very slightly weathered, moderately hard to hard, (METASILTSTONE), close to moderately close fracture spacing.	12.9
	722.5	16.0	5.0	0:20/0.1 3:49/1.0 4:35/1.0 5:32/1.0 5:35/1.0 6:05/1.0	(5.0) 100%	(1.7) 34%		(7.2) 100%	(1.7) 24%		721.7 Gray, moderately to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing. RS-12: 21.8'-22.1' qu = 8,140 psi R_1=7, R_2=3, R_3=10, R_4=12, R_5=7 RMR = 39, Rock Type E	16.8
720	717.5	21.0	5.0	5:12/1.0 4:54/1.0 6:10/1.0 8:19/1.0 10:42/1.0	(3.2) 64%	(0.8) 16%	RS-12	(0.0) 0%	(0.0) 0%		714.5 **WEATHERED ROCK** Gray, (METASILTSTONE).	24.0
715	712.5	26.0	5.0	5:00/1.0 6:06/1.0 9:39/1.0 4:25/1.0 4:12/1.0	(4.7) 94%	(2.5) 50%		(2.9) 91%	(0.5) 16%		712.7 **CRYSTALLINE ROCK** Gray, moderately to slightly weathered, medium to moderately hard, (METASILTSTONE), very close to close fracture spacing.	25.8
710	707.5	31.0	5.0	3:39/1.0 5:33/1.0 4:38/1.0 4:18/1.0 4:17/1.0	(4.6) 92%	(4.0) 80%		(6.4) 91%	(6.0) 86%		709.5 Gray & white, slightly to very slightly weathered, hard, (METASILTSTONE), close to moderately close fracture spacing.	29.0
705	702.5	36.0									702.5 Boring Terminated at Elevation 702.5 ft in CRYSTALLINE ROCK (METASILTSTONE)	36.0

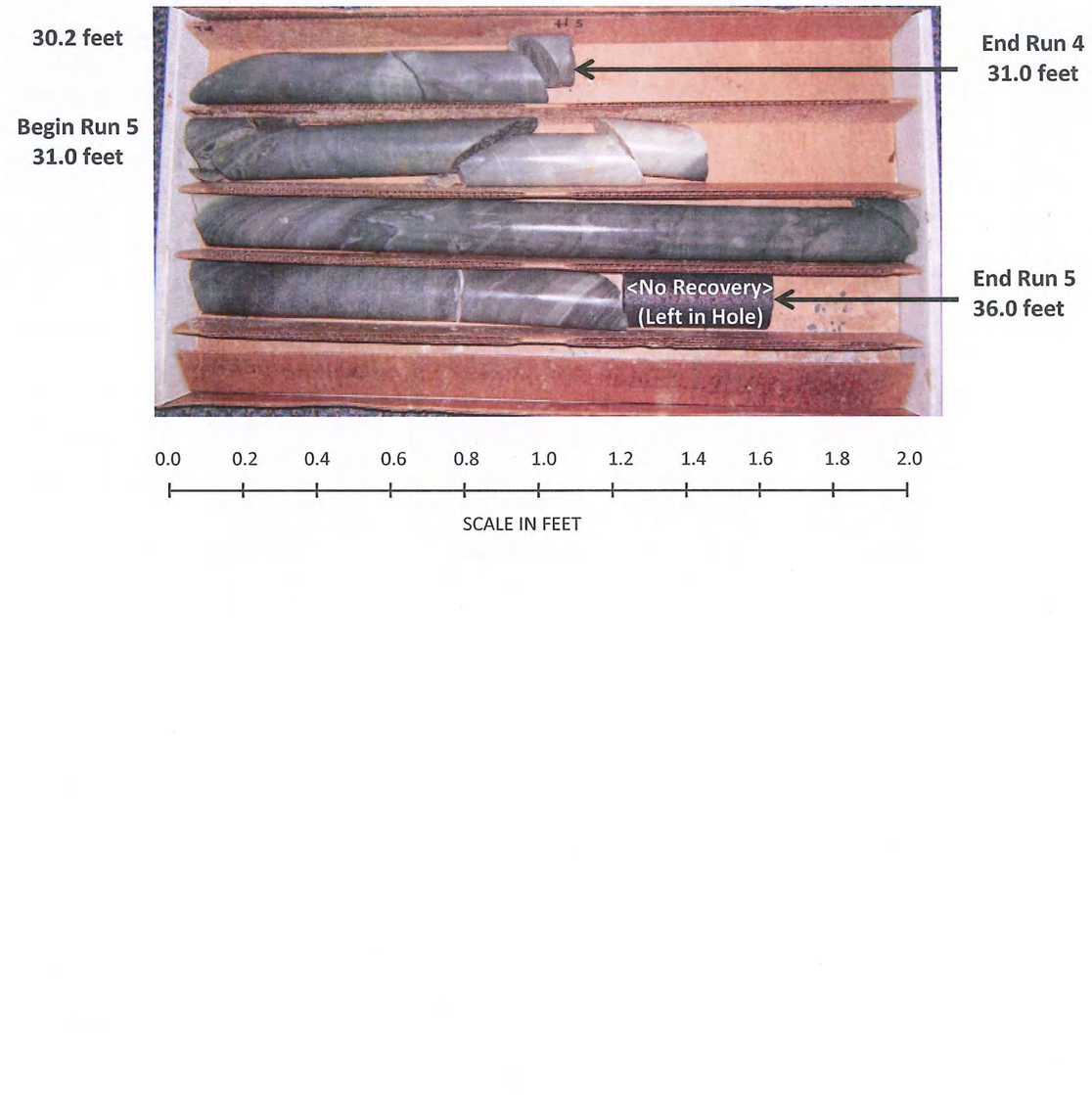
NOTES:

1) 0.0-0.3' = Surficial Organic Soils
2) Auger refusal at 12.9', began coring.
3) ROADWAY BORING DESIGNATION IS L_25213L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-A: Station 252+13, 70' LT





NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-C	**STATION** 252+27	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** 3.6
COLLAR ELEV. 738.7 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 692,624	**EASTING** 1,749,452	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
	738.7	0.0	WOH	WOH	1	1		M		ELEV. (ft) 738.7 GROUND SURFACE DEPTH (ft) 0.0
										ALLUVIAL
										736.7 Light brown & orange, SILT (A-4), with some fine sand. 2.0
735	735.2	3.5	9	7	13	20		M		**RESIDUAL**
										Light brown & orange, fine sandy SILT (A-4), with little gravel-sized rock fragments from 8.5'-10.0'.
730	730.2	8.5	18	26	32	58		M		727.5 11.2
										WEATHERED ROCK
	725.2	13.5	60/0.0			60/0.0				(METASILTSTONE) 725.2 13.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 725.2 ft on CRYSTALLINE ROCK (METASILTSTONE)
										NOTES: 1) Auger refusal at 13.5'. 2) ROADWAY BORING DESIGNATION IS L_25227

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 252+42	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 736.7 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 692,544	**EASTING** 1,749,451	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	736.7	0.0								736.7 GROUND SURFACE	0.0
735			WOH	1	1	2		W		**ALLUVIAL**	
	732.7	4.0								734.2 Brown-gray, fine sandy SILT (A-4), with trace organics.	2.5
			9	8	9	17		M		**RESIDUAL** Tan, orange, gray & brown, fine sandy SILT (A-4).	
730											
	727.7	9.0									
			8	28	51	79		M			
725											
	722.7	14.0								722.2	14.5
	721.2	15.5	17	28	72/0.3	100/0.8				721.4 **WEATHERED ROCK** Dark gray, (METASILTSTONE).	15.3
720			60/0.0			60/0.0	RS-13			721.2 **CRYSTALLINE ROCK** Gray, green & white, (METASILTSTONE).	15.5
715											
710										708.2	28.5

Boring Terminated at Elevation 708.2 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 15.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS L_25242R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 252+42	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 736.7 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 692,544	**EASTING** 1,749,451	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/14/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 13.0 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
721.2											Begin Coring @ 15.5 ft	
720	721.2	15.5	5.0	*N=60/0.0* 5:46/1.0 4:37/1.0 4:15/1.0 3:55/1.0 3:21/1.0	(5.0) 100%	(3.8) 76%	RS-13	(12.9) 99%	(11.0) 85%		721.2 **CRYSTALLINE ROCK** Gray, green & white, very slightly weathered to fresh, hard (METASILTSTONE), close to moderately close fracture spacing. RS-13: 16.9'-17.2' qu = 14,119 psi R_1=7, R_2=17, R_3=10, R_4=20, R_5=7 RMR = 61, Rock Type E	15.5
	716.2	20.5										
715			5.0	4:06/1.0 4:20/1.0 4:42/1.0 5:02/1.0 3:26/1.0	(5.0) 100%	(4.7) 94%						
	711.2	25.5										
710			3.0	4:25/1.0 3:53/1.0 3:59/1.0	(2.9) 97%	(2.5) 83%						
	708.2	28.5									708.2	28.5

Boring Terminated at Elevation 708.2 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 15.5', began coring.
2) 0 hr. water level not measured due to water introduced for coring.
3) ROADWAY BORING DESIGNATION IS L_25242R

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B1-B: Station 252+42, 80' RT

Begin Run 1
15.5 feet

End Run 1 &
Begin Run 2
20.5 feet

24.7 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

End Run 2 &
Begin Run 3
25.5 feet

24.7 feet

No Recovery
(left in hole)

End Run 3
28.5 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A	**STATION** 252+70	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.0
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 36.3 ft	**NORTHING** 692,684	**EASTING** 1,749,508	**24 HR.** 2.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
740										
735	735.5	0.0	WOH	WOH	WOH	0				735.5 GROUND SURFACE 0.0
										ALLUVIAL
										733.5 Brown-gray, fine sandy SILT (A-4), with trace organics. 2.0
	731.5	4.0	4	5	11	16		M		731.3 Gray, fine to coarse SAND (A-3), with trace gravel. 4.2
730										**RESIDUAL**
										Tan, orange, brown & gray, fine sandy SILT (A-4).
	726.5	9.0	5	10	81	91		M		
725										723.7 11.8
	721.5	14.0								**WEATHERED ROCK**
			100/0.4			100/0.4				Dark gray, (METASILTSTONE).
720	720.3	15.2	60/0.1			60/0.1				720.3 15.2
										720.2 15.3
										CRYSTALLINE ROCK
										718.2 Dark gray, (METASILTSTONE). 17.3
715										**WEATHERED ROCK**
										716.2 Gray, (METASILTSTONE). 19.3
										CRYSTALLINE ROCK
										Gray, (METASILTSTONE).
										WEATHERED ROCK
710										Gray, (METASILTSTONE).
	709.2	26.3	60/0.1			60/0.1				709.8 25.7
							RS-14			**CRYSTALLINE ROCK**
705										Gray & dark gray, (METASILTSTONE).
										701.9 33.6
										WEATHERED ROCK
700										Light gray, (METASILTSTONE). 699.2 36.3
										Boring Terminated at Elevation 699.2 ft in WEATHERED ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 15.2'.
3) Began coring at 15.3'.
4) ROADWAY BORING DESIGNATION IS L_25270L

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-A	**STATION** 252+70	**OFFSET** 70 ft LT	**ALIGNMENT** -L-	**0 HR.** 3.0
COLLAR ELEV. 735.5 ft	**TOTAL DEPTH** 36.3 ft	**NORTHING** 692,684	**EASTING** 1,749,508	**24 HR.** 2.1
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 20.9 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
											ELEV. (ft) DEPTH (ft)
~~720.2~~											Begin Coring @ 15.3 ft
	720.2	15.3	1.0	4:32/1.0	(0.3)	(0.0)		(0.3)	(0.0)		720.2 **WEATHERED ROCK** 15.3
	719.2	16.3	5.0	5:20/1.0	30%	0%		15%	0%		718.2 Gray, (METASILTSTONE). 17.3
				3:36/1.0				(2.0)	(1.6)		**CRYSTALLINE ROCK**
				5:06/1.0	(2.6)	(1.6)		100%	80%		716.2 Gray, very slightly weathered, moderately hard to hard, (METASILTSTONE), close fracture spacing. 19.3
715				7:50/1.0	52%	32%					
	714.2	21.3		4:30/1.0				(1.7)	(0.0)		**WEATHERED ROCK**
			5.0	2:00/1.0	(2.0)	(0.4)		27%	0%		Gray, (METASILTSTONE).
				4:50/1.0	40%	8%					
				3:02/1.0							
710				4:51/1.0							
	709.2	26.3		2:35/1.0							
	709.1	26.4	4.9	N=60/0.1	(4.6)	(3.1)		(7.9)	(4.0)		**CRYSTALLINE ROCK**
				2:42/0.9	94%	63%		100%	51%		Gray & dark gray, slightly to very slightly weathered, moderately hard to hard, (METASILTSTONE), very close to close fracture spacing.
				4:29/1.0			RS-14				
				4:40/1.0							RS-14: 27.9'-28.2' qu = 4,861 psi
705				4:21/1.0							R_1=4, R_2=13, R_3=10, R_4=12, R_5=7
				7:11/1.0							RMR = 46, Rock Type E
	704.2	31.3									701.9 33.6
			5.0	3:00/1.0	(3.7)	(0.5)		(1.3)	(0.0)		**WEATHERED ROCK**
				3:48/1.0	74%	10%		48%	0%		Light gray, (METASILTSTONE).
				4:45/1.0							699.2 36.3
700				6:16/1.0							Boring Terminated at Elevation 699.2 ft in WEATHERED ROCK (METASILTSTONE)
	699.2	36.3		5:33/1.0							

NOTES:

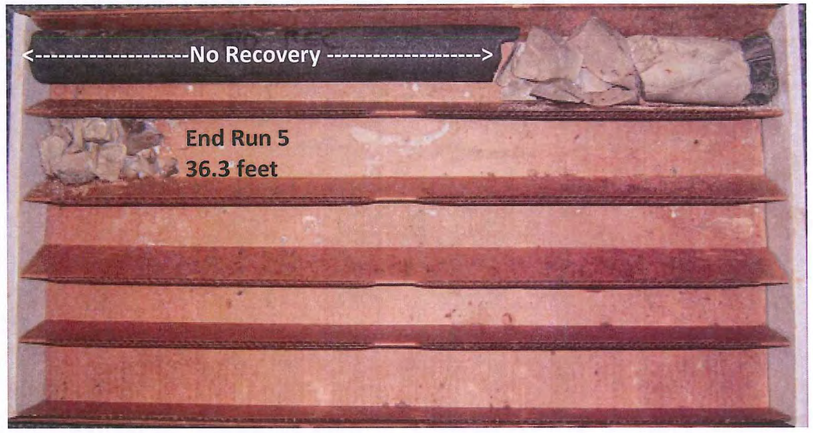
1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 15.2'.
3) Began coring at 15.3'.
4) ROADWAY BORING DESIGNATION IS L_25270L

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B2-A: Station 252+70, 70' LT

SPT from
26.3' to 26.4':
N = 60/0.1'

34.1 feet



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-C	**STATION** 252+83	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 736.8 ft	**TOTAL DEPTH** 16.3 ft	**NORTHING** 692,613	**EASTING** 1,749,507	**24 HR.** 4.0
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/11/13	**COMP. DATE** 06/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	736.8	0.0	WOH	WOH	1	1		W		736.8 GROUND SURFACE	0.0
735										**ALLUVIAL**	
	734.8	2.0								Brown, fine sandy SILT (A-4), with trace organics.	2.0
	732.8	4.0	7	6	6	12		Sat.		732.3 Gray, fine to coarse SAND (A-3).	4.5
730										**RESIDUAL**	
	729.8	7.0								Tan & gray, fine sandy SILT (A-4).	7.0
	727.8	9.0	35	55	45/0.3	100/0.8				**WEATHERED ROCK** Gray & brown, (METASILTSTONE).	
725											
	722.8	14.0	56	43	57/0.2	100/0.7					
	720.5	16.3	60/0.0			60/0.0				720.5	16.3

Boring Terminated with Standard Penetration Test Refusal at Elevation 720.5 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 16.3'.
3) ROADWAY BORING DESIGNATION IS L_25283

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 252+98	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 738.7 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 692,533	**EASTING** 1,749,507	**24 HR.** 3.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	738.7	0.0	WOH	1	2	3		W		738.7 GROUND SURFACE	0.0
735										**ALLUVIAL** Brown-gray, clayey fine sandy SILT (A-4), with trace organics. 735.7	3.0
	734.7	4.0	7	8	18	26		W		**RESIDUAL** Brown, gray & black, fine sandy SILT (A-4).	
730										730.2	8.5
	729.7	9.0	52	48/0.4		100/0.9				**WEATHERED ROCK** Brown with a little gray, (METASILTSTONE). 726.7	12.0
725	724.7	14.0								Gray, fine sandy SILT (A-4), saprolitic.	
	722.0	16.7	15	15	33	48				722.7	16.0
720			60/0.1			60/0.1				722.2 **WEATHERED ROCK** (METASILTSTONE) 721.9	16.5 16.8
										CRYSTALLINE ROCK Gray, (METASILTSTONE).	
715										716.9	21.8
										Gray, (METASILTSTONE).	
710											
705										704.4	34.3

Boring Terminated at Elevation 704.4 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 16.7'.
3) Began coring at 16.8'.
4) 0 hr. water level not measured due to water introduced for coring.
5) ROADWAY BORING DESIGNATION IS L_25298R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Alton	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 252+98	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 738.7 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 692,533	**EASTING** 1,749,507	**24 HR.** 3.8
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 82% 12/14/2012		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER J. Gilchrist	**START DATE** 06/13/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	
CORE SIZE NQ3	**TOTAL RUN** 17.5 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)
721.9											Begin Coring @ 16.8 ft	
720	721.9	16.8	4.5	6:08/1.0 4:42/1.0 4:25/1.0 4:40/1.0 2:32/0.5	(4.5) 100%	(0.0) 0%		(5.0) 100%	(0.0) 0%		721.9 **CRYSTALLINE ROCK** Gray, slightly weathered, moderately hard, (METASILTSTONE), very close to close fracture spacing.	16.8
	717.4	21.3	5.0	3:05/1.0 3:39/1.0 3:31/1.0 4:17/1.0 3:29/1.0	(5.0) 100%	(4.4) 88%		(12.2) 98%	(11.4) 91%		716.9 Gray, slightly to very slightly weathered, moderately hard to hard, (METASILTSTONE), moderately close fracture spacing.	21.8
715												
	712.4	26.3	5.0	2:52/1.0 3:00/1.0 3:18/1.0 3:35/1.0 3:36/1.0	(4.7) 94%	(4.5) 90%						
710												
	707.4	31.3	3.0	4:19/1.0 6:15/1.0 6:40/1.0	(3.0) 100%	(2.5) 83%						
705	704.4	34.3									704.4	34.3

Boring Terminated at Elevation 704.4 ft in CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.1' = Surficial Organic Soils
2) Auger refusal at 16.7'.
3) Began coring at 16.8'.
4) 0 hr. water level not measured due to water introduced for coring.
5) ROADWAY BORING DESIGNATION IS L_25298R

NCDOT CORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

CORE PHOTOGRAPHS: Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass, B2-B: Station 252+98, 80' RT

Begin Run 1
16.8 feet

End Run 1 &
Begin Run 2
21.3 feet

End Run 2
26.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 4
31.3 feet

End Run 4
34.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

Begin Run 3
26.3 feet

End Run 3
31.3 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 253+28	**OFFSET** 70 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 739.0 ft	**TOTAL DEPTH** 8.2 ft	**NORTHING** 692,675	**EASTING** 1,749,563	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/11/13	**COMP. DATE** 06/11/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
740											
	739.0	0.0	WOH	WOH	WOH	0		W		739.0 GROUND SURFACE	0.0
										ALLUVIAL	
										737.0 Brownish-orange, clayey SILT (A-5).	2.0
735	735.5	3.5	2	3	6	9		M		**RESIDUAL** Light brown, fine to coarse sandy rounded GRAVEL (A-1-b).	
										733.0	6.0
										WEATHERED ROCK	
	730.8	8.2	60/0.0			60/0.0				730.8 (METASILTSTONE)	8.2

Boring Terminated with Standard Penetration Test Refusal at Elevation 730.8 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) Auger refusal at 8.2'.
2) 0 hr. water level not measured.
3) ROADWAY BORING DESIGNATION IS L_25328L

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-C	**STATION** 253+40	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** 0.5
COLLAR ELEV. 740.0 ft	**TOTAL DEPTH** 7.5 ft	**NORTHING** 692,603	**EASTING** 1,749,563	**24 HR.** 0.5
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/13/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
740											
	740.0	0.0	WOH	WOH	WOH	0		W		740.0 GROUND SURFACE	0.0
										738.0 **ALLUVIAL** Light grayish-brown & orange, SILT (A-4), with some fine sand.	2.0
	736.5	3.5						W			
735			3	7	29	36				**RESIDUAL**	
										735.0 Light grayish-brown & orange, SILT (A-4), with some fine sand.	5.0
	732.5	7.5	60/0.0			60/0.0				732.5 **WEATHERED ROCK** (METASILTSTONE)	7.5

Boring Terminated with Standard Penetration Test Refusal at Elevation 732.5 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 7.5'.
3) ROADWAY BORING DESIGNATION IS L_25340

NCDOT BORE DOUBLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34450.1.1	**TIP** R-2536A	**COUNTY** RANDOLPH	**GEOLOGIST** P. Fahey	
SITE DESCRIPTION Asheboro Bypass from existing US 64 west of Asheboro to US 220 Bypass				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 253+53	**OFFSET** 80 ft RT	**ALIGNMENT** -L-	**0 HR.** 1.0
COLLAR ELEV. 740.2 ft	**TOTAL DEPTH** 7.3 ft	**NORTHING** 692,522	**EASTING** 1,749,562	**24 HR.** 0.7
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 77% 12/14/2012		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 06/12/13	**COMP. DATE** 06/12/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
745											
740	740.2	0.0	WOH	WOH	WOH	0				740.2 GROUND SURFACE	0.0
										ALLUVIAL	
										738.2 Gray, fine sandy SILT (A-5), with some clay.	2.0
	736.7	3.5	WOH	6	16	22		Sat.		**RESIDUAL**	
735										735.2 Gray, SILT (A-4), with some fine sand.	5.0
										WEATHERED ROCK	
	732.9	7.3	60/0.0			60/0.0				732.9 (METASILTSTONE)	7.3

Boring Terminated with Standard Penetration Test Refusal at Elevation 732.9 ft on CRYSTALLINE ROCK (METASILTSTONE)

NOTES:

1) 0.0-0.2' = Surficial Organic Soils
2) Auger refusal at 7.3'.
3) ROADWAY BORING DESIGNATION IS L_25353R

NCDOT BORE SINGLE R-2536A_BORINGS_DRILLED.GPJ NC_DOT.GDT 3/14/14

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 34450.1.1
TIP NO.: R-2536A
COUNTY: Randolph
DESCRIPTION: Dual Bridges on Asheboro Bypass (-L-) over Little River

Sample #	Boring #	Alignment	Station	Offset	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-12	L_25213L	-L-	252+13	70' LT.	21.8 - 22.1	Metasiltstone	CZmd	16%	3.65	1.77	170.0	8,140	2.79×10^5	39
RS-13	L_25242R	-L-	252+42	80' RT.	16.9 - 17.2	Metasiltstone	CZmd	76%	4.01	1.77	186.7	14,119	5.45×10^5	61
RS-14	L_25270L	-L-	252+70	70' LT.	27.9 - 28.2	Metasiltstone	CZmd	63%	3.99	1.77	169.3	4,861	4.42×10^5	46

Dual Bridges on -L- (Asheboro Bypass) over Little River

SITE PHOTOGRAPHS

Photograph No. 1: View from boring EB1-A looking north

Photograph No. 2: View from boring EB2-A looking south

Photograph No. 3: View from boring B2-B looking west towards boring B1-B

Photograph No. 4: View of Little River looking upstream