

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5312	1	14

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY WILKES  
 PROJECT DESCRIPTION US 421 FROM NC 16 TO US 421  
BUSINESS IN WILKESBORO  
 \_\_\_\_\_  
 SITE DESCRIPTION RW1 -L- STA. 91+50, 82' LT TO  
-L- STA. 95+00, 82' LT  
RW2 -L- STA. 95+50, 66.8' RT TO -L- STA. 97+70, 90.9' RT  
-L- STA. 97+70, 90.9' RT  
RW3 -L- STA. 100+00, 51.417' LT TO -L- STA.  
107+50, 51.417' LT

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3-4	SITE PLAN
5	PROFILES
6-14	BORE LOGS

**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

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

PERSONNEL  
TRIGON EXPLORATION  
LANE, R.W.

INVESTIGATED BY FALCON ENG.  
 DRAWN BY HILL, M.J.  
 CHECKED BY HUNSBERGER, W.S.  
 SUBMITTED BY FALCON ENG.  
 DATE JULY 2023



DocuSigned by:  
W. Scott Hunsberger 7/7/2023  
 5A469AC89FCB49E  
 SIGNATURE DATE

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

**REFERENCE: U-5312**

**PROJECT: 45446**

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

## SUBSURFACE INVESTIGATION

### SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

#### SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, *VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6*

#### SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS		
	A-1	A-1-b	A-2	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7		
GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7			
SYMBOL																	
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN				
MATERIAL PASSING #40 LL PI	-	-	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 11 MN	41 MN 11 MN	40 MX 11 MN	41 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 SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR			FAIR TO POOR	POOR	UNSATURABLE				

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

#### CONSISTENCY OR DENSENESS

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

#### TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.75	2.00	0.42	0.25	0.075	0.053
BOULDER (BLDR.)						
COBBLE (COB.)						
GRAVEL (GR.)						
COARSE SAND (CS, SD.)						
FINE SAND (F SD.)						
SILT (SL.)						
CLAY (CL.)						
GRAIN SIZE	305	75	2.0	0.25	0.05	0.005
MM						
IN.	12	3				

#### SOIL MOISTURE - CORRELATION OF TERMS

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

#### PLASTICITY

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

#### COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

#### GRADATION

**WELL GRADED** - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.  
**UNIFORMLY GRADED** - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.  
**GAP-GRADED** - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

#### ANGULARITY OF GRAINS

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

#### MINERALOGICAL COMPOSITION

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

#### COMPRESSIBILITY

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

#### PERCENTAGE OF MATERIAL

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

#### GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

#### MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- DIP & DIP DIRECTION OF ROCK STRUCTURES
- TEST BORING
- AUGER BORING
- CORE BORING
- MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

#### RECOMMENDATION SYMBOLS

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

#### 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
- W - UNIT WEIGHT
- W<sub>d</sub> - DRY UNIT WEIGHT
- S - BULK
- SS - SPLIT SPOON
- ST - SHELBY TUBE
- RS - ROCK
- RT - RECOMPACTED TRIAXIAL
- CBR - CALIFORNIA BEARING RATIO

#### EQUIPMENT USED ON SUBJECT PROJECT

- DRILL UNITS:
  - CME-45C
  - CME-55
  - CME-550
  - VANE SHEAR TEST
  - PORTABLE HOIST
  - MOBILE B-57
- ADVANCING TOOLS:
  - CLAY BITS
  - 6" CONTINUOUS FLIGHT AUGER
  - 8" HOLLOW AUGERS
  - HARD FACED FINGER BITS
  - TUNG-CARBIDE INSERTS
  - CASING  W/ ADVANCER
  - TRICONE \* STEEL TEETH
  - TRICONE \* TUNG-CARB.
  - CORE BIT
- HAMMER TYPE:
  - AUTOMATIC  MANUAL
- CORE SIZE:
  - B
  - H
  - N
- HAND TOOLS:
  - POST HOLE DIGGER
  - HAND AUGER
  - SOUNDING ROD
  - VANE SHEAR TEST

#### ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

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

#### WEATHERING

- FRESH** - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
- VERY SLIGHT (IV 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, WOULD YIELD SPT N VALUES > 100 BPF*
- VERY SEVERE (IV SEV.)** - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD 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 GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
- VERY SOFT** - CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.

#### FRACTURE SPACING

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

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

#### TERMS AND DEFINITIONS

- ALLUVIUM (ALLUV.)** - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
- AQUIFER** - A WATER BEARING FORMATION OR STRATA.
- ARENACEOUS** - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
- ARGILLACEOUS** - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
- ARTESIAN** - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
- CALCAREOUS (CALC.)** - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
- COLLUVIUM** - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
- CORE RECOVERY (REC.)** - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
- DIKE** - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
- DIP** - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
- DIP DIRECTION (DIP AZIMUTH)** - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
- FAULT** - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
- FISSILE** - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
- FLOAT** - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL.
- FLOOD PLAIN (FP)** - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
- FORMATION (FM)** - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
- JOINT** - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
- LEDGE** - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
- LENS** - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
- MOTTLED (MOT.)** - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
- PERCHED WATER** - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
- RESIDUAL (RES.) SOIL** - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
- ROCK QUALITY DESIGNATION (ROD)** - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
- SAPROLITE (SAP.)** - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
- SILL** - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
- SLICKENISE** - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
- STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)** - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
- STRATA CORE RECOVERY (SREC.)** - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- STRATA ROCK QUALITY DESIGNATION (SROD)** - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
- TOPSOIL (TS.)** - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

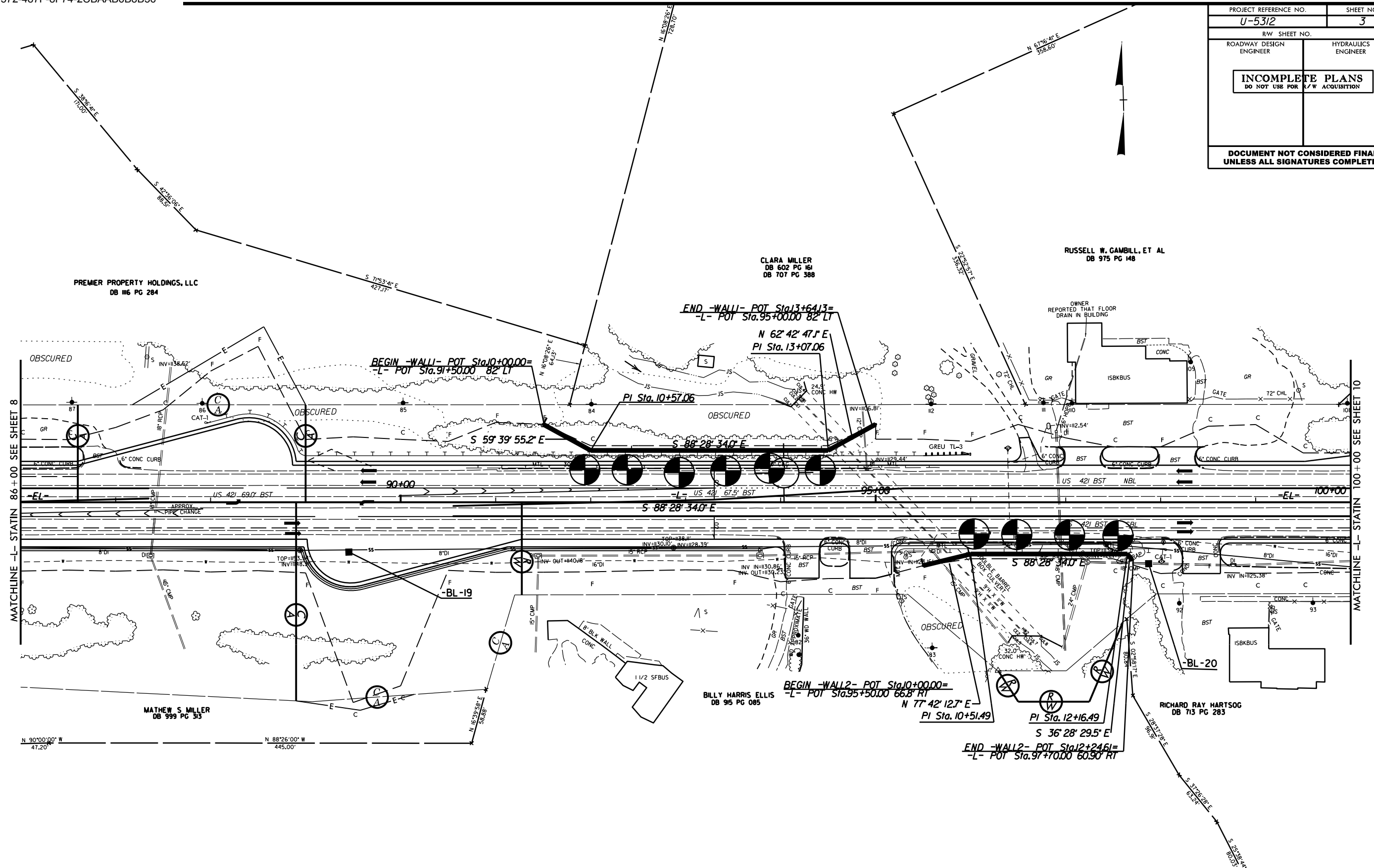
#### BENCH MARK:

BORING ELEVATIONS TAKEN FROM MULTIPLE .TIN FILES  
DATED 09/15-09/22 2018 ELEVATION: \_\_\_\_\_ FEET

#### NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

PROJECT REFERENCE NO.	SHEET NO.
U-5312	3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



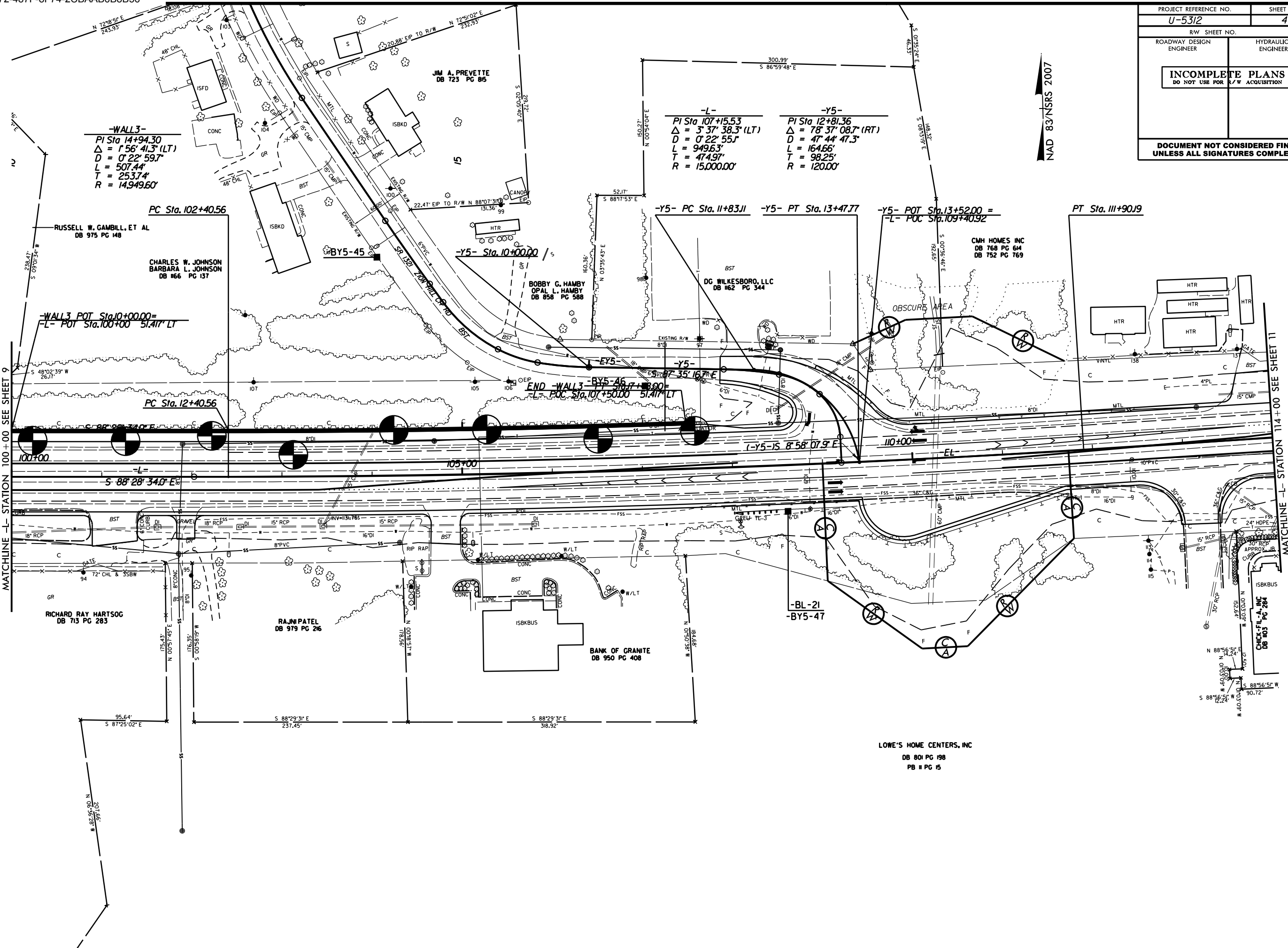
ALL DRIVEWAY TURNOUTS ARE 20' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED.

REVISIONS  
 29-JUN-2023 15:07  
 11-Projects\17-617038.00 VHB U-5312 (US-42) Superstreet in Wilkes County\U5312.GEO\_CADD\GEO\TECH\Plan\Prof\U5312\_geo\_psh03 -WALL1AND2.dgn  
 8/17/19

MATCHLINE -L- STATIN 86+00 SEE SHEET 8

MATCHLINE -L- STATIN 100+00 SEE SHEET 10

PROJECT REFERENCE NO. <b>U-5312</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



REVISIONS  
 29-JUN-2023 15:08  
 11-Projects\07-617038.00 VHB U-5312 (US-42) Superstreet in Wilkes County\U5312.GEO\_RDWY\CADD\_GEO\TECH\Plan\Prof\U5312\_geo\_psh04 - WALL3.dgn  
 cadmachine

MATCHLINE -L- STATION 114+00 SEE SHEET 11

MATCHLINE -L- STATION 100+00 SEE SHEET 9

5/28/09  
28 JUN 2003 09:55  
C:\Users\jacob\Documents\Projects\2017\G17038.00 VHB U-5312 (US-421) Superstreet in Wilkes County\G17038.00 VHB U-5312 GEO.RDW\CADD.GEOTECH\Plan\erPr\of\U5312.GEO.pl\psh.dgn

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

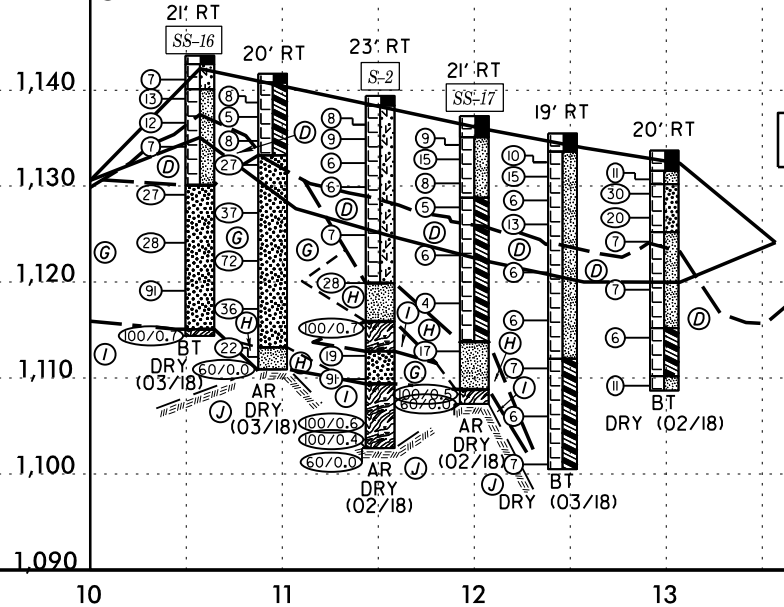
PROJECT REFERENCE NO. <b>U-5312</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-16	21 FT RT	10+57	1.0'-3.0'	A-5	43	6	-	-	-	98	93	72	26.0	-	
S-2	23 FT RT	11+51	13.5'-18.5'	A-5	47	9	-	-	-	81	75	58	20.9	-	
SS-17	21 FT RT	12+00	2.0'-3.5'	A-4	38	3	-	-	-	97	86	46	23.3	-	

APPROXIMATE WALL FACE AREA = 1,040 SQ. FT.

- (C) ROADWAY EMBANKMENT: BROWN AND ORANGE, DRY, MED. DENSE, SILTY SAND
- (D) ROADWAY EMBANKMENT: ORANGE, GRAY BROWN AND WHITE, DRY TO MOIST, MED. STIFF TO STIFF, SANDY SILT AND SANDY CLAY WITH MICA AND TRACE GRAVEL
- (G) RESIDUAL: TAN GRAY AND WHITE, DRY, MED. DENSE TO V. DENSE, SILTY SAND WITH LITTLE ROCK FRAGMENTS
- (H) RESIDUAL: TAN-ORANGE TAN AND WHITE, DRY TO MOIST, V. STIFF, SILT AND SANDY SILT WITH SOME ROCK FRAGMENTS
- (I) WEATHERED ROCK: GRAY TAN AND WHITE, GRANITE
- (J) CRYSTALLINE ROCK: GRAY TAN AND WHITE, GRANITE

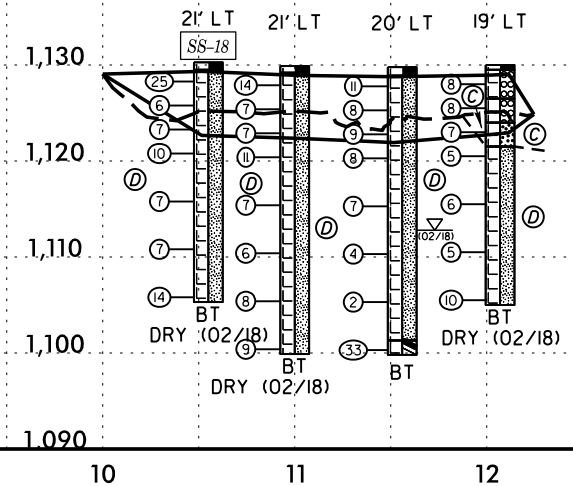


APPROXIMATE WALL FACE AREA = 3,338 SQ. FT.

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-18	21 FT LT	10+55	3.5'-5.0'	A-4	38	NP	-	-	-	97	86	52	23.2	-	

- (C) ROADWAY EMBANKMENT: GRAY TAN AND BROWN, DRY, LOOSE, SAND AND SILTY SAND WITH SOME GRAVEL
- (D) ROADWAY EMBANKMENT: ORANGE TAN TAN-ORANGE AND BROWN, DRY TO MOIST, SOFT TO HARD, SILT AND SANDY SILT WITH TRACE GRAVEL

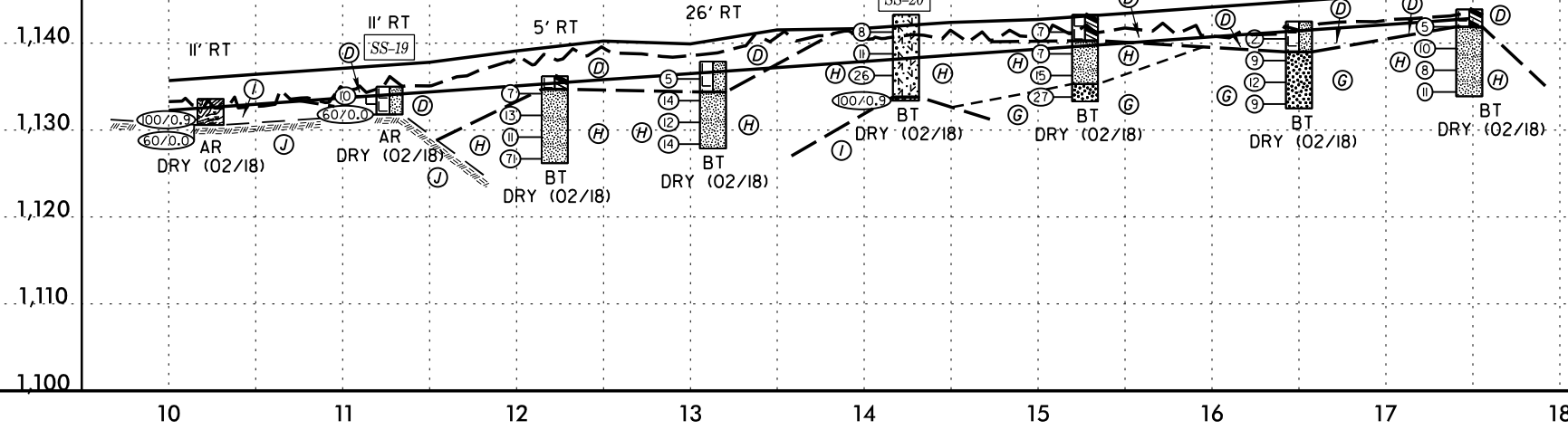


APPROXIMATE WALL FACE AREA = 2,746 SQ. FT.

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-19	11 FT RT	11+27	1.0'-2.5'	A-4	35	1	-	-	-	75	62	38	16.7	-	
SS-20	1 FT LT	14+24	1.0'-2.5'	A-5	42	NP	-	-	-	88	67	38	21.8	-	

- (D) ROADWAY EMBANKMENT: ORANGE BROWN RED AND TAN, MOIST, MED. STIFF TO STIFF, SANDY SILT AND SANDY CLAY WITH TRACE ASPHALT FRAGMENTS
- (G) RESIDUAL: GRAY TAN AND WHITE, DRY, DENSE, SILTY SAND
- (H) RESIDUAL: ORANGE TAN BROWN GRAY WHITE AND BLACK, DRY TO MOIST, MED. STIFF TO HARD, SANDY SILT
- (I) WEATHERED ROCK: TAN AND WHITE, GRANITE
- (J) CRYSTALLINE ROCK: TAN, GRANITE



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW1-1		STATION 10+57		OFFSET 21 ft RT		ALIGNMENT -WALL1-									
COLLAR ELEV. 1,143.6 ft		TOTAL DEPTH 29.2 ft		NORTHING 880,721		EASTING 1,346,492									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 03/02/18		COMP. DATE 03/02/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1145															
	1,142.1	1.5	6	4	3									1,143.6	0.0
	1,142.7													1,142.7	0.9
1140	1,140.1	3.5	2	7	6									1,140.1	3.5
	1,137.6	6.0	11	6	6										
1135	1,135.1	8.5	4	3	4										
	1,130.1	13.5	14	14	13									1,130.1	13.5
1125	1,125.1	18.5	9	13	15										
1120	1,120.1	23.5	9	21	70										
1115	1,115.1	28.5	63	37	0.2									1,115.1	28.5
														1,114.4	29.2

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW1-2		STATION 10+95		OFFSET 20 ft RT		ALIGNMENT -WALL1-									
COLLAR ELEV. 1,141.7 ft		TOTAL DEPTH 30.8 ft		NORTHING 880,720		EASTING 1,346,536									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 03/02/18		COMP. DATE 03/02/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1145															
	1,141.7													1,141.7	0.0
	1,140.8													1,140.8	0.9
1140	1,139.7	2.0	4	4	4										
	1,138.2	3.5	3	2	3										
1135	1,135.7	6.0	2	3	5										
	1,133.2	8.5	13	13	14									1,133.2	8.5
1130	1,128.2	13.5	7	11	26										
1125	1,123.2	18.5	34	49	23										
1120	1,118.2	23.5	13	17	19										
1115	1,113.2	28.5	3	7	15									1,113.2	28.5
	1,110.9	30.8	60	0	0									1,110.9	30.8

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW1-3		STATION 11+51		OFFSET 23 ft RT		ALIGNMENT -WALL1-										
COLLAR ELEV. 1,139.4 ft		TOTAL DEPTH 36.7 ft		NORTHING 880,715		EASTING 1,346,591										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/27/18		COMP. DATE 02/27/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1140															1,139.4	0.0
	1,137.4	2.0													1,138.4	1.0
1135	1,135.9	3.5	5	4	4											
	1,133.4	6.0	4	5	4											
1130	1,130.9	8.5	3	2	4											
	1,125.9	13.5	2	3	3											
1125	1,125.9	13.5	3	3	4											
1120	1,120.9	18.5	9	9	19											
	1,115.9	23.5	55	45/0.2												
1115	1,113.3	26.1	85	14	5											
	1,110.9	28.5	15	29	62											
1110	1,105.9	33.5	63	37/0.1												
	1,104.0	35.4	100/0.4													
	1,102.7	36.7	60/0.0													

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW1-4		STATION 12+00		OFFSET 21 ft RT		ALIGNMENT -WALL1-										
COLLAR ELEV. 1,137.3 ft		TOTAL DEPTH 30.0 ft		NORTHING 880,716		EASTING 1,346,640										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/27/18		COMP. DATE 02/27/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1140															1,137.3	0.0
	1,135.3	2.0													1,135.1	2.2
1135	1,133.8	3.5	8	5	4											
	1,131.3	6.0	7	8	7											
1130	1,128.8	8.5	3	4	4											
	1,123.8	13.5	3	3	2											
1125	1,123.8	13.5	3	3	3											
1120	1,118.8	18.5	3	2	2											
1115	1,113.8	23.5	4	6	11											
	1,108.8	28.5	100/0.5													
1110	1,107.3	30.0	60/0.0													

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23







# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW2-3		STATION 11+56		OFFSET 20 ft LT		ALIGNMENT -WALL2-									
COLLAR ELEV. 1,129.8 ft		TOTAL DEPTH 30.0 ft		NORTHING 880,638		EASTING 1,347,000									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/23/18		COMP. DATE 02/23/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1130	1,128.8	1.0	10	7	4									0.9'	0.0
	1,128.3	3.5	3	4	4										
1125	1,123.8	6.0	3	4	5										
	1,121.3	8.5	3	4	4										
1120	1,116.3	13.5	5	3	4										
	1,111.3	18.5	2	2	2										
1110	1,106.3	23.5	2	1	1										
	1,101.3	28.5	4	25	8										
1100															

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW2-4		STATION 12+07		OFFSET 19 ft LT		ALIGNMENT -WALL2-									
COLLAR ELEV. 1,130.0 ft		TOTAL DEPTH 25.0 ft		NORTHING 880,636		EASTING 1,347,051									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/22/18		COMP. DATE 02/22/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1130	1,129.0	1.0	2	3	5									0.5'	0.0
	1,126.5	3.5	8	4	4										
1125	1,124.0	6.0	2	4	3										
	1,121.5	8.5	2	2	3										
1120	1,116.5	13.5	3	2	4										
	1,111.5	18.5	3	2	3										
1110	1,106.5	23.5	5	5	5										
1105															

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW3-1		STATION 10+24		OFFSET 11 ft RT		ALIGNMENT -WALL3-										
COLLAR ELEV. 1,133.6 ft		TOTAL DEPTH 3.0 ft		NORTHING 880,704		EASTING 1,347,321										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1135																
	1,132.6	1.0												1,133.6	0.2' TOPSOIL	0.0
	1,130.6	3.0	4	7	93/0.4									1,130.6	WEATHERED ROCK TAN, METAMORPHOSED GRANITIC	3.0
		60/0.0													Boring Terminated at Elevation 1,130.6 ft ON CR: METAMORPHOSED GRANITIC ROCK	

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW3-2		STATION 11+27		OFFSET 11 ft RT		ALIGNMENT -WALL3-										
COLLAR ELEV. 1,135.0 ft		TOTAL DEPTH 3.2 ft		NORTHING 880,701		EASTING 1,347,424										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1140																
														1,135.0	ROADWAY EMBANKMENT ORANGE, SANDY SILT (A-4)	0.0
1135	1,134.0	1.0	2	3	7									1,131.8	Boring Terminated at Elevation 1,131.8 ft ON CR: METAMORPHOSED GRANITIC ROCK	3.2
	1,131.8	3.2	60/0.0													

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW3-5		STATION 14+24		OFFSET 1 ft LT		ALIGNMENT -WALL3-										
COLLAR ELEV. 1,143.3 ft		TOTAL DEPTH 9.9 ft		NORTHING 880,706		EASTING 1,347,722										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1145															1,143.3	0.0
	1,142.3	1.0	2	3	5											
1140	1,139.8	3.5	5	5	6							SS-20	22%			
	1,137.3	6.0	5	8	18							M				
1135	1,134.8	8.5	8	15	85/0.4							M				
															1,133.8	9.5
															1,133.4	9.9
<b>WEATHERED ROCK</b> TAN AND WHITE, METAMORPHOSED GRANITIC Boring Terminated at Elevation 1,133.4 ft IN CR: METAMORPHOSED GRANITIC ROCK																

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.										
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)									
BORING NO. RW3-6		STATION 15+27		OFFSET CL		ALIGNMENT -WALL3-										
COLLAR ELEV. 1,143.3 ft		TOTAL DEPTH 10.0 ft		NORTHING 880,704		EASTING 1,347,825										
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1145															1,143.3	0.0
	1,142.3	1.0	1	3	4											
1140	1,139.8	3.5	3	3	4										1,140.3	3.0
	1,137.3	6.0	5	7	8											
1135	1,134.8	8.5	11	12	15										1,135.3	8.0
															1,133.3	10.0
<b>ROADWAY EMBANKMENT</b> ORANGE RED AND TAN, SANDY CLAY (A-6) TRACE ASPHALT FRAGMENTS <b>RESIDUAL</b> ORANGE BLACK GRAY AND TAN, SILT (A-4) SAPROLITIC GRAY TAN AND WHITE, SILTY SAND (A-2-4) SAPROLITIC Boring Terminated at Elevation 1,133.3 ft IN RESIDUAL: SILTY SAND																

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW3-7		STATION 16+50		OFFSET 14 ft RT		ALIGNMENT -WALL3-									
COLLAR ELEV. 1,142.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 880,690		EASTING 1,347,948									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1145															
1140	1,141.5	1.0	1	1	1							M	ROADWAY EMBANKMENT ORANGE, SANDY SILT (A-4)	0.0	
	1,139.0	3.5	2	4	5							D	RESIDUAL GRAY TAN AND ORANGE, SILTY SAND (A-2-4) SAPROLITIC	3.5	
	1,136.5	6.0	5	6	6							D			
1135	1,134.0	8.5	4	5	4							D		10.0	
Boring Terminated at Elevation 1,132.5 ft IN RESIDUAL: SILTY SAND															

WBS 45446.1.1		TIP U-5312		COUNTY WILKES		GEOLOGIST Lane, R.W.									
SITE DESCRIPTION US 421 FROM NC 16 TO US 421 BUSINESS IN WILKESBORO							GROUND WTR (ft)								
BORING NO. RW3-8		STATION 17+48		OFFSET 8 ft RT		ALIGNMENT N/A									
COLLAR ELEV. 1,143.9 ft		TOTAL DEPTH 10.0 ft		NORTHING 880,696		EASTING 1,348,056									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 95% 03/19/2018		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Estep, J. E.		START DATE 02/15/18		COMP. DATE 02/15/18		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1145															
	1,142.9	1.0	4	2	3										
1140	1,140.4	3.5	4	5	5										
	1,137.9	6.0	2	4	4										
1135	1,135.4	8.5	3	5	6										
Boring Terminated at Elevation 1,133.9 ft IN RESIDUAL: SANDY SILT															

NCDOT BORE DOUBLE G17038.GPJ NC\_DOT.GDT 6/29/23