

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C.  | SF-400052                   | 1         | 10           |

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

STRUCTURE  
SUBSURFACE INVESTIGATION

COUNTY GUILFORD  
PROJECT DESCRIPTION BRIDGE NO. 52 OVER DEEP  
RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST.)

CONTENTS

| SHEET NO. | DESCRIPTION |
|-----------|-------------|
| 1         | TITLE SHEET |
| 2, 2A     | LEGEND      |
| 3         | SITE PLAN   |
| 4-9       | BORING LOGS |

PERSONNEL  
TRIGON EXP.  
CROCKETT, S.

INVESTIGATED BY CROCKETT, S.  
DRAWN BY CROCKETT, S.  
CHECKED BY HAMM, J.R.  
SUBMITTED BY FALCON ENG.  
DATE AUGUST 2018

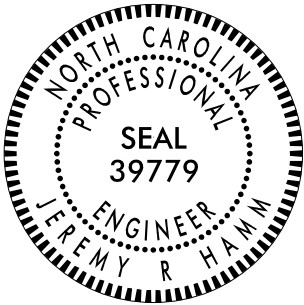
CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
  - BY HAVING 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.



Jeremy R Hamm  
8/8/2018 9:33:02 PM EDT  
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

REFERENCE: SF-400052

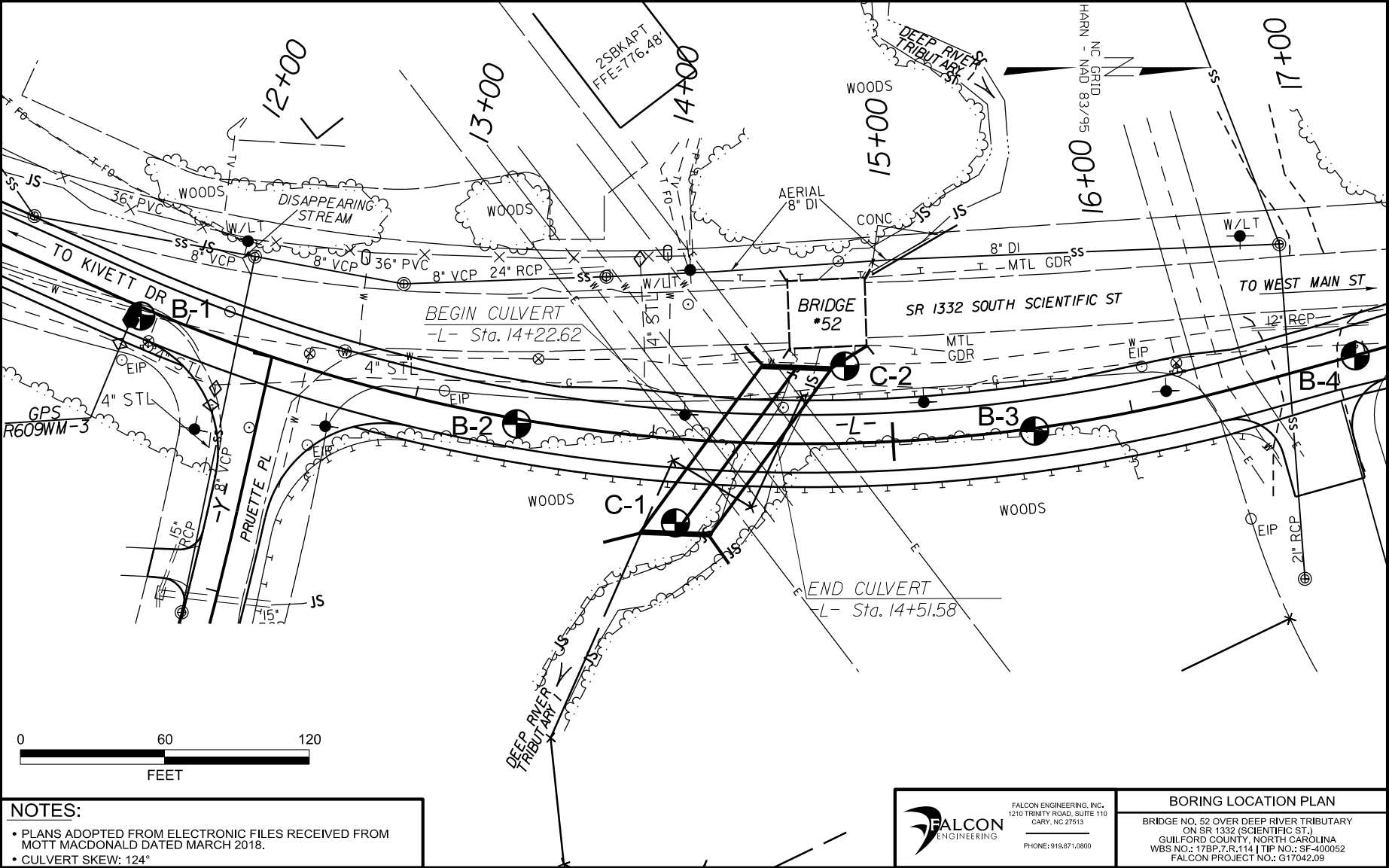
PROJECT: 17BP.7.R.114

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
**SUBSURFACE INVESTIGATION**  
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS  
(PAGE 1 OF 2)

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| <b>SOIL DESCRIPTION</b><br>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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |      |                                 |                                          |             |  |              | <b>GRADATION</b><br>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.<br>UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.<br>GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.<br><b>ANGULARITY OF GRAINS</b><br>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.<br><b>MINERALOGICAL COMPOSITION</b><br>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.<br><b>COMPRESSIBILITY</b><br>SLIGHTLY COMPRESSIBLE LL < 31<br>MODERATELY COMPRESSIBLE LL = 31 - 50<br>HIGHLY COMPRESSIBLE LL > 50<br><b>PERCENTAGE OF MATERIAL</b><br><table><tr><td>ORGANIC MATERIAL</td><td>GRANULAR SOILS</td><td>SILT - CLAY SOILS</td><td>OTHER MATERIAL</td></tr><tr><td>TRACE OF ORGANIC MATTER</td><td>2 - 3%</td><td>3 - 5%</td><td>TRACE</td></tr><tr><td>LITTLE ORGANIC MATTER</td><td>3 - 5%</td><td>5 - 12%</td><td>LITTLE</td></tr><tr><td>MODERATELY ORGANIC</td><td>5 - 10%</td><td>12 - 20%</td><td>SOME</td></tr><tr><td>HIGHLY ORGANIC</td><td>&gt; 10%</td><td>&gt; 20%</td><td>HIGHLY</td></tr></table><br><b>GROUND WATER</b><br>WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING<br>STATIC WATER LEVEL AFTER 24 HOURS<br>PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA<br>SPRING OR SEEP |                                                         |                                      |                                         |                      |                                                                     |                                          |                                                       |                                               |                | ORGANIC MATERIAL                   | GRANULAR SOILS    | SILT - CLAY SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | OTHER MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TRACE OF ORGANIC MATTER | 2 - 3% | 3 - 5%       | TRACE | LITTLE ORGANIC MATTER | 3 - 5% | 5 - 12% | LITTLE        | MODERATELY ORGANIC                                                                                                                                                                                                                                         | 5 - 10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12 - 20%                                                                                                                                                                                                                                                                                                                                                                                                                | SOME                  | HIGHLY ORGANIC         | > 10%            | > 20%            | HIGHLY    |                   |                 |                             |                  |                                  |                        |                |                             |                        |                          |          |                                |                   |                  |                |                   |                  |          |                   |            |                       |                 |                           |                              |                       |                                |                    |                      |  |              |          |       |  |            |    |       |    |       |      |       |       |       |     |                      |   |  |   |  |       |                                                                                                                                                                                                                                                                                                                                                      |       |  |       |  |       |  |       |  |       |          |                                            |                                                                                                      |                  |                                                      |  |    |  |       |  |       |  |       |  |       |  |       |  |       |  |       |  |             |   |  |   |  |   |  |      |  |      |  |       |  |       |  |       |  |       |  |                                |                               |  |           |  |                                 |  |             |  |              |  |                                                         |  |                      |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |  |  |  |  |      |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  |                                               |                                        |             |                              |             |              |             |                        |                                                    |                 |              |                       |                        |                         |             |  |                    |  |  |  |                        |  |  |  |
| ORGANIC MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| TRACE OF ORGANIC MATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| LITTLE ORGANIC MATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| MODERATELY ORGANIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| HIGHLY ORGANIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| <b>SOIL LEGEND AND AASHTO CLASSIFICATION</b> <table><tr><td>GENERAL CLASS.</td><td colspan="5">GRANULAR MATERIALS (&lt; 35% PASSING #200)</td><td colspan="5">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</td><td colspan="5">ORGANIC MATERIALS</td></tr><tr><td>GROUP CLASS.</td><td colspan="2">A-1</td><td colspan="2">A-3</td><td colspan="2">A-2</td><td colspan="2">A-4</td><td colspan="2">A-5</td><td colspan="2">A-6</td><td colspan="2">A-7</td><td colspan="2">A-1, A-2</td><td colspan="2">A-4, A-5</td></tr><tr><td>SYMBOL</td><td colspan="2">A-1-a</td><td colspan="2">A-1-b</td><td colspan="2">A-2-4</td><td colspan="2">A-2-5</td><td colspan="2">A-2-6</td><td colspan="2">A-2-7</td><td colspan="2">A-7-5, A-7-6</td><td colspan="2">A-3</td><td colspan="2">A-6, A-7</td></tr><tr><td>% PASSING</td><td colspan="2">50 MX</td><td colspan="2">30 MX</td><td colspan="2">15 MX</td><td colspan="2">50 MX</td><td colspan="2">51 MN</td><td colspan="2">35 MX</td><td colspan="2">35 MX</td><td colspan="2">35 MX</td><td colspan="2">35 MN</td></tr><tr><td>MATERIAL PASSING #40</td><td colspan="2">-</td><td colspan="2">-</td><td colspan="2">40 MX</td><td colspan="2">41 MN</td><td colspan="2">40 MX</td><td colspan="2">41 MN</td><td colspan="2">40 MX</td><td colspan="2">41 MN</td><td colspan="2">40 MX</td></tr><tr><td>PI</td><td colspan="2">6 MX</td><td colspan="2">NP</td><td colspan="2">10 MX</td><td colspan="2">10 MN</td><td colspan="2">11 MN</td><td colspan="2">11 MN</td><td colspan="2">10 MX</td><td colspan="2">10 MN</td><td colspan="2">11 MN</td></tr><tr><td>GROUP INDEX</td><td colspan="2">0</td><td colspan="2">0</td><td colspan="2">0</td><td colspan="2">4 MX</td><td colspan="2">8 MX</td><td colspan="2">12 MX</td><td colspan="2">16 MX</td><td colspan="2">NO MX</td><td colspan="2">NO MX</td></tr><tr><td>USUAL TYPES OF MAJOR MATERIALS</td><td colspan="2">STONE FRAGS, GRAVEL, AND SAND</td><td colspan="2">FINE SAND</td><td colspan="2">SILTY OR CLAYEY GRAVEL AND SAND</td><td colspan="2">SILTY SOILS</td><td colspan="2">CLAYEY SOILS</td><td colspan="2">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td><td colspan="2">HIGHLY ORGANIC SOILS</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td>GEN. RATING AS SUBGRADE</td><td colspan="5">EXCELLENT TO GOOD</td><td colspan="5">FAIR TO POOR</td><td colspan="5">FAIR TO POOR</td><td colspan="5">POOR</td></tr></table><br>PI OF A-7-5 SUBGROUP IS <= LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |      |                                 |                                          |             |  |              | GENERAL CLASS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | GRANULAR MATERIALS (< 35% PASSING #200)                 |                                      |                                         |                      |                                                                     | SILT-CLAY MATERIALS (> 35% PASSING #200) |                                                       |                                               |                |                                    | ORGANIC MATERIALS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |        | GROUP CLASS. | A-1   |                       | A-3    |         | A-2           |                                                                                                                                                                                                                                                            | A-4                                                             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      |                                  | SYMBOL                 | 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                  |                              | % PASSING             | 50 MX                          |                    | 30 MX                |  | 15 MX        |          | 50 MX |  | 51 MN      |    | 35 MX |    | 35 MX |      | 35 MX |       | 35 MN |     | MATERIAL PASSING #40 | - |  | - |  | 40 MX |                                                                                                                                                                                                                                                                                                                                                      | 41 MN |  | 40 MX |  | 41 MN |  | 40 MX |  | 41 MN |          | 40 MX                                      |                                                                                                      | PI               | 6 MX                                                 |  | NP |  | 10 MX |  | 10 MN |  | 11 MN |  | 11 MN |  | 10 MX |  | 10 MN |  | 11 MN |  | GROUP INDEX | 0 |  | 0 |  | 0 |  | 4 MX |  | 8 MX |  | 12 MX |  | 16 MX |  | NO MX |  | NO MX |  | USUAL TYPES OF MAJOR MATERIALS | STONE FRAGS, GRAVEL, AND SAND |  | FINE SAND |  | SILTY OR CLAYEY GRAVEL AND SAND |  | SILTY SOILS |  | CLAYEY SOILS |  | SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER |  | HIGHLY ORGANIC SOILS |  |  |  |  |  | GEN. RATING AS SUBGRADE | EXCELLENT TO GOOD |  |  |  |  | FAIR TO POOR |  |  |  |  | FAIR TO POOR |  |  |  |  | POOR |  |  |  |  | <b>MISCELLANEOUS SYMBOLS</b> <table><tr><td> ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</td><td> DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</td><td> TEST BORING</td><td> SLOPE INDICATOR INSTALLATION</td></tr><tr><td> SOIL SYMBOL</td><td> AUGER BORING</td><td> CORE BORING</td><td> CONE PENETROMETER TEST</td></tr><tr><td> ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</td><td> MONITORING WELL</td><td> SOUNDING ROD</td><td> TEST BORING WITH CORE</td></tr><tr><td> INFERRED SOIL BOUNDARY</td><td> PIEZOMETER INSTALLATION</td><td> SPT N-VALUE</td><td></td></tr><tr><td> INFERRED ROCK LINE</td><td></td><td></td><td></td></tr><tr><td> ALLUVIAL SOIL BOUNDARY</td><td></td><td></td><td></td></tr></table> |  |  |  |  |  |  |  |  |  | ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION | DIP & DIP DIRECTION OF ROCK STRUCTURES | TEST BORING | SLOPE INDICATOR INSTALLATION | SOIL SYMBOL | AUGER BORING | CORE BORING | CONE PENETROMETER TEST | ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT | MONITORING WELL | SOUNDING ROD | TEST BORING WITH CORE | INFERRED SOIL BOUNDARY | PIEZOMETER INSTALLATION | SPT N-VALUE |  | INFERRED ROCK LINE |  |  |  | ALLUVIAL SOIL BOUNDARY |  |  |  |
| GENERAL CLASS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| GROUP CLASS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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                                   |                      | A-1, A-2                                                            |                                          | A-4, A-5                                              |                                               |                |                                    |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| SYMBOL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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A-7-5, A-7-6                            |                      | A-3                                                                 |                                          | A-6, A-7                                              |                                               |                |                                    |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| MATERIAL PASSING #40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| <b>TEXTURE OR GRAIN SIZE</b> <table><tr><td>U.S. STD. SIEVE SIZE</td><td>4</td><td>10</td><td>40</td><td>60</td><td>200</td><td>270</td></tr><tr><td>OPENING (MM)</td><td>4.76</td><td>2.00</td><td>0.42</td><td>0.25</td><td>0.075</td><td>0.053</td></tr><tr><td>BOULDER (BLDR.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>COBBLE (COB.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>GRAVEL (GR.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>COARSE SAND (CSE, SD.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>FINE SAND (F SD.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>SILT (SL.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CLAY (CL.)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table><br><table><tr><td>GRAIN SIZE</td><td>MM</td><td>305</td><td>75</td><td>2.0</td><td>0.25</td><td>0.05</td><td>0.005</td></tr><tr><td></td><td>IN.</td><td>12</td><td>3</td><td></td><td></td><td></td><td></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |      |                                 |                                          |             |  |              | U.S. STD. SIEVE SIZE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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|                  |          |                   | SILT (SL.) |                       |                 |                           |                              |                       |                                | CLAY (CL.)         |                      |  |              |          |       |  | GRAIN SIZE | MM | 305   | 75 | 2.0   | 0.25 | 0.05  | 0.005 |       | IN. | 12                   | 3 |  |   |  |       | <b>RECOMMENDATION SYMBOLS</b> <table><tr><td> UNDERCUT</td><td> UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</td><td> UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</td></tr><tr><td> SHALLOW UNDERCUT</td><td> UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</td><td></td></tr></table> |       |  |       |  |       |  |       |  |       | UNDERCUT | UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE | UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL | SHALLOW UNDERCUT | UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK |  |    |  |       |  |       |  |       |  |       |  |       |  |       |  |       |  |             |   |  |   |  |   |  |      |  |      |  |       |  |       |  |       |  |       |  |                                |                               |  |           |  |                                 |  |             |  |              |  |                                                         |  |                      |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |  |  |  |  |      |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                       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SIEVE SIZE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| GRAVEL (GR.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| COARSE SAND (CSE, SD.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| FINE SAND (F SD.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <b>SOIL MOISTURE - CORRELATION OF TERMS</b> <table><tr><td>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</td><td>FIELD MOISTURE DESCRIPTION</td><td>GUIDE FOR FIELD MOISTURE DESCRIPTION</td></tr><tr><td rowspan="2">LL - LIQUID LIMIT<br/>PL - PLASTIC LIMIT</td><td>- SATURATED - (SAT.)</td><td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td></tr><tr><td>- WET - (W)</td><td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td></tr><tr><td rowspan="2">OM - OPTIMUM MOISTURE<br/>SL - SHRINKAGE LIMIT</td><td>- MOIST - (M)</td><td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td></tr><tr><td>- DRY - (D)</td><td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td></tr></table>                                                                                                                                                                                                                                                                                                                   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WEIGHT</td></tr><tr><td>CSE. - COARSE</td><td>ORG. - ORGANIC</td><td><b>SAMPLE ABBREVIATIONS</b></td></tr><tr><td>DMT - DILATOMETER TEST</td><td>PMT - PRESSUREMETER TEST</td><td>S - BULK</td></tr><tr><td>DPT - DYNAMIC PENETRATION TEST</td><td>SAP. - SAPROLITIC</td><td>SS - SPLIT SPOON</td></tr><tr><td>e - VOID RATIO</td><td>SD. - SAND, SANDY</td><td>ST - SHELBY TUBE</td></tr><tr><td>F - FINE</td><td>SL. - SILT, SILTY</td><td>RS - ROCK</td></tr><tr><td>FOSS. - FOSSILIFEROUS</td><td>SLI. - SLIGHTLY</td><td>RT - RECOMPACTED TRIAXIAL</td></tr><tr><td>FRAC. - FRACTURED, FRACTURES</td><td>TCR - TRICONE REFUSAL</td><td>CBR - CALIFORNIA BEARING RATIO</td></tr><tr><td>FRAGS. - FRAGMENTS</td><td>w - MOISTURE CONTENT</td><td></td></tr><tr><td>HI. - HIGHLY</td><td>V - VERY</td><td></td></tr></table> |                         |        |              |       |                       |        |         |               |                                                                                    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| SOIL MOISTURE SCALE (ATTERBERG LIMITS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| DMT - DILATOMETER TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| DPT - DYNAMIC PENETRATION TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| FRAC. - FRACTURED, FRACTURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| <b>PLASTICITY</b> <table><tr><td>NON PLASTIC</td><td>0-5</td><td>VERY LOW</td></tr><tr><td>SLIGHTLY PLASTIC</td><td>6-15</td><td>SLIGHT</td></tr><tr><td>MODERATELY PLASTIC</td><td>16-25</td><td>MEDIUM</td></tr><tr><td>HIGHLY PLASTIC</td><td>26 OR MORE</td><td>HIGH</td></tr></table><br><b>COLOR</b><br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0-5                                                     | VERY LOW                             | SLIGHTLY PLASTIC                        | 6-15                 | SLIGHT                                                              | MODERATELY PLASTIC                       | 16-25                                                 | MEDIUM                                        | HIGHLY PLASTIC | 26 OR MORE                         | HIGH              | <b>EQUIPMENT USED ON SUBJECT PROJECT</b> <table><tr><td>DRILL UNITS:<br/><input type="checkbox"/> CME-45C<br/><input type="checkbox"/> CME-55<br/><input type="checkbox"/> CME-550<br/><input type="checkbox"/> VANE SHEAR TEST<br/><input type="checkbox"/> PORTABLE HOIST<br/><input checked="" type="checkbox"/> B-57</td><td>ADVANCING TOOLS:<br/><input type="checkbox"/> CLAY BITS<br/><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER<br/><input checked="" type="checkbox"/> 8" HOLLOW AUGERS<br/><input type="checkbox"/> HARD FACED FINGER BITS<br/><input type="checkbox"/> TUNG-CARBIDE INSERTS<br/><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER<br/><input type="checkbox"/> TRICONE * STEEL TEETH<br/><input type="checkbox"/> TRICONE * TUNG.-CARB.<br/><input type="checkbox"/> CORE BIT</td><td>HAMMER TYPE:<br/><input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL<br/><br/>CORE SIZE:<br/><input type="checkbox"/> -B _____ <input type="checkbox"/> -H _____<br/><input type="checkbox"/> -N _____<br/><br/>HAND TOOLS:<br/><input type="checkbox"/> POST HOLE DIGGER<br/><input type="checkbox"/> HAND AUGER<br/><input type="checkbox"/> SOUNDING ROD<br/><input type="checkbox"/> VANE SHEAR TEST</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| NON PLASTIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| SLIGHTLY PLASTIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| MODERATELY PLASTIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| HIGHLY PLASTIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT  
SUBSURFACE INVESTIGATION  
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS  
(PAGE 2 OF 2)

| ROCK DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                         | TERMS AND DEFINITIONS                                                                                                                                               |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                   |
| WEATHERED ROCK (WR)                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        | NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.                                                                            |                   |
| CRYSTALLINE ROCK (CR)                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                        | FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.                  |                   |
| NON-CRYSTALLINE ROCK (NCR)                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                        | FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. |                   |
| COASTAL PLAIN SEDIMENTARY ROCK (CP)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                        | COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.                       |                   |
| WEATHERING                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                   |
| FRESH                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.                                                                                                                                                                                                                                               |                                                                                                                                                                     |                   |
| VERY SLIGHT (V SL.)                                                                                                                                                                                                                                                                                                                                                                                                                                           | ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.                                                                                                                                                     |                                                                                                                                                                     |                   |
| SLIGHT (SL.)                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.                                                                                                           |                                                                                                                                                                     |                   |
| MODERATE (MOD.)                                                                                                                                                                                                                                                                                                                                                                                                                                               | SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.                                                                                          |                                                                                                                                                                     |                   |
| MODERATELY SEVERE (MOD. SEV.)                                                                                                                                                                                                                                                                                                                                                                                                                                 | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <u>IF TESTED, WOULD YIELD SPT REFUSAL</u>                                                 |                                                                                                                                                                     |                   |
| 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. <u>IF TESTED, WOULD YIELD SPT N VALUES &gt; 100 BPF</u>                                                               |                                                                                                                                                                     |                   |
| VERY SEVERE (V SEV.)                                                                                                                                                                                                                                                                                                                                                                                                                                          | ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</u> |                                                                                                                                                                     |                   |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                         | BEDDING                                                                                                                                                             |                   |
| TERM                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SPACING                                                                                                                                                                                                                                                                                                                                                 | TERM                                                                                                                                                                | THICKNESS         |
| VERY WIDE                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MORE THAN 10 FEET                                                                                                                                                                                                                                                                                                                                       | VERY THICKLY BEDDED                                                                                                                                                 | 4 FEET            |
| WIDE                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3 TO 10 FEET                                                                                                                                                                                                                                                                                                                                            | THICKLY BEDDED                                                                                                                                                      | 1.5 - 4 FEET      |
| MODERATELY CLOSE                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1 TO 3 FEET                                                                                                                                                                                                                                                                                                                                             | THINLY BEDDED                                                                                                                                                       | 0.16 - 1.5 FEET   |
| CLOSE                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.16 TO 1 FOOT                                                                                                                                                                                                                                                                                                                                          | VERY THINLY BEDDED                                                                                                                                                  | 0.03 - 0.16 FEET  |
| VERY CLOSE                                                                                                                                                                                                                                                                                                                                                                                                                                                    | LESS THAN 0.16 FEET                                                                                                                                                                                                                                                                                                                                     | THICKLY LAMINATED                                                                                                                                                   | 0.008 - 0.03 FEET |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                         | THINLY LAMINATED                                                                                                                                                    | < 0.008 FEET      |
| INDURATION                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                   |
| FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                   |
| FRIABLE                                                                                                                                                                                                                                                                                                                                                                                                                                                       | RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.                                                                                                                                                                                                                                                                  |                                                                                                                                                                     |                   |
| MODERATELY INDURATED                                                                                                                                                                                                                                                                                                                                                                                                                                          | GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                   |
| INDURATED                                                                                                                                                                                                                                                                                                                                                                                                                                                     | GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.                                                                                                                                                                                                                                                                      |                                                                                                                                                                     |                   |
| EXTREMELY INDURATED                                                                                                                                                                                                                                                                                                                                                                                                                                           | SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.                                                                                                                                                                                                                                                                               |                                                                                                                                                                     |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                         | BENCH MARK: GPS R609WM-3, -L- STA. 11+78, 7' RT<br>N: 811803 E: 1718030<br>ELEVATION: 780.57 FEET                                                                   |                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                         | NOTES:<br>FIAD - FILLED IMMEDIATELY AFTER DRILLING                                                                                                                  |                   |
| DATE: 8-15-14                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                     |                   |



GEOTECHNICAL BORING REPORT

BORE LOG

|                                                                                     |                       |               |                     |       |        |                          |    |                 |                         |     |              |     |     |                           |                                                                                                                      |            |
|-------------------------------------------------------------------------------------|-----------------------|---------------|---------------------|-------|--------|--------------------------|----|-----------------|-------------------------|-----|--------------|-----|-----|---------------------------|----------------------------------------------------------------------------------------------------------------------|------------|
| WBS 17BP.7.R.114                                                                    |                       |               | TIP SF-400052       |       |        | COUNTY GUILFORD          |    |                 | GEOLOGIST S. CROCKETT   |     |              |     |     |                           |                                                                                                                      |            |
| SITE DESCRIPTION BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                       |               |                     |       |        |                          |    | GROUND WTR (ft) |                         |     |              |     |     |                           |                                                                                                                      |            |
| BORING NO. C-1                                                                      |                       |               | STATION 14+12       |       |        | OFFSET 35 ft RT          |    |                 | ALIGNMENT -L-           |     |              |     |     |                           |                                                                                                                      |            |
| COLLAR ELEV. 764.5 ft                                                               |                       |               | TOTAL DEPTH 5.0 ft  |       |        | NORTHING 812,029         |    |                 | EASTING 1,718,115       |     |              |     |     |                           |                                                                                                                      |            |
| 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 03/14/18 |       |        | COMP. DATE 03/14/18      |    |                 | SURFACE WATER DEPTH N/A |     |              |     |     |                           |                                                                                                                      |            |
| ELEV<br>(ft)                                                                        | DRIVE<br>ELEV<br>(ft) | DEPTH<br>(ft) | BLOW COUNT          |       |        | BLOWS PER FOOT           |    |                 |                         |     | SAMP.<br>NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft)                                                                                                           |            |
|                                                                                     |                       |               | 0.5ft               | 0.5ft | 0.5ft  | 0                        | 25 | 50              | 75                      | 100 |              |     |     |                           |                                                                                                                      | ELEV. (ft) |
| 765                                                                                 |                       |               |                     |       |        |                          |    |                 |                         |     |              |     |     |                           |                                                                                                                      |            |
|                                                                                     | 763.5                 | 1.0           | 1                   | 1     | 28     |                          |    |                 |                         |     |              |     |     | 764.5                     | GROUND SURFACE                                                                                                       | 0.0        |
|                                                                                     | 761.0                 | 3.5           |                     |       |        |                          |    |                 |                         |     |              |     |     | 762.5                     | ALLUVIAL<br>BROWN, CLAYEY SAND (A-2-6)                                                                               | 2.0        |
| 760                                                                                 | 759.5                 | 5.0           | 16                  | 4     | 96/0.0 |                          |    |                 |                         |     |              |     |     | 760.5                     | RESIDUAL<br>GRAY, SILTY SAND (A-2-4) WITH ROCK<br>FRAGMENTS                                                          | 4.0        |
|                                                                                     |                       |               |                     |       |        |                          |    |                 |                         |     |              |     |     | 759.5                     | WEATHERED ROCK<br>GRAY, GRANITE                                                                                      | 5.0        |
|                                                                                     |                       |               |                     |       |        |                          |    |                 |                         |     |              |     |     |                           | Boring Terminated WITH STANDARD<br>PENETRATION TEST REFUSAL at<br>Elevation 759.5 ft ON CRYSTALLINE ROCK:<br>GRANITE |            |

NCDOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18

BORE LOG

|                                                                                     |                 |            |                     |        |       |                          |    |    |                         |     |            |       |                                                                                    |                                                                                                             |                                                |            |      |
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| WBS 17BP.7.R.114                                                                    |                 |            | TIP SF-400052       |        |       | COUNTY GUILFORD          |    |    | GEOLOGIST S. CROCKETT   |     |            |       |                                                                                    |                                                                                                             |                                                |            |      |
| SITE DESCRIPTION BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                 |            |                     |        |       |                          |    |    | GROUND WTR (ft)         |     |            |       |                                                                                    |                                                                                                             |                                                |            |      |
| BORING NO. C-2                                                                      |                 |            | STATION 14+81       |        |       | OFFSET 32 ft LT          |    |    | ALIGNMENT -L-           |     | 0 HR. 6.0  |       |                                                                                    |                                                                                                             |                                                |            |      |
| COLLAR ELEV. 767.6 ft                                                               |                 |            | TOTAL DEPTH 11.8 ft |        |       | NORTHING 812,100         |    |    | EASTING 1,718,049       |     | 24 HR. 4.5 |       |                                                                                    |                                                                                                             |                                                |            |      |
| 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 03/14/18 |        |       | COMP. DATE 03/14/18      |    |    | 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 |            |       |                                                                                    | ELEV. (ft)                                                                                                  |                                                |            |      |
| 770                                                                                 |                 |            |                     |        |       |                          |    |    |                         |     |            |       |                                                                                    |                                                                                                             |                                                |            |      |
| 765                                                                                 | 766.6           | 1.0        |                     |        |       |                          |    |    |                         |     |            |       |                                                                                    | 767.6                                                                                                       | GROUND SURFACE                                 | 0.0        |      |
|                                                                                     | 764.6           | 3.0        | 1                   | WOH    | 1     |                          |    |    |                         |     |            | M     |  | ALLUVIAL BROWN, SANDY CLAY (A-6) WITH TRACE ORGANICS                                                        |                                                |            |      |
|                                                                                     | 761.6           | 6.0        | WOH                 | WOH    | WOH   |                          |    |    |                         |     |            |       |                                                                                    | 761.6                                                                                                       |                                                | 6.0        |      |
| 760                                                                                 | 759.6           | 8.0        | 2                   | 7      | 11    |                          |    |    |                         |     |            | M     |  | RESIDUAL GRAY AND WHITE, SILTY SAND (A-2-4) WITH TRACE ROCK FRAGMENTS                                       |                                                | 8.0        |      |
|                                                                                     | 755.8           | 11.8       | 58                  | 42/0.4 |       |                          |    |    |                         |     |            | 759.6 |                                                                                    |                                                                                                             |                                                |            |      |
|                                                                                     |                 |            |                     |        |       |                          |    |    |                         |     |            |       |                                                                                    |                           | WEATHERED ROCK GRAY, BLACK, AND WHITE, GRANITE |            | 11.8 |
|                                                                                     |                 |            |                     |        |       |                          |    |    |                         |     |            |       |                                                                                    | Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 755.8 ft ON CRYSTALLINE ROCK: GRANITE |                                                |            |      |

NCDOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18

|                                                                                     |                 |            |                     |       |        |                          |    |                         |                       |            |     |                           |                                                                                                                      |
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| WBS 17BP.7.R.114                                                                    |                 |            | TIP SF-400052       |       |        | COUNTY GUILFORD          |    |                         | GEOLOGIST S. CROCKETT |            |     |                           |                                                                                                                      |
| SITE DESCRIPTION BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                 |            |                     |       |        |                          |    | GROUND WTR (ft)         |                       |            |     |                           |                                                                                                                      |
| BORING NO. B-1                                                                      |                 |            | STATION 11+81       |       |        | OFFSET 3 ft RT           |    | ALIGNMENT -L-           |                       | 0 HR. Dry  |     |                           |                                                                                                                      |
| COLLAR ELEV. 780.8 ft                                                               |                 |            | TOTAL DEPTH 14.3 ft |       |        | NORTHING 811,807         |    | EASTING 1,718,029       |                       | 24 HR. Dry |     |                           |                                                                                                                      |
| 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 03/14/18 |       |        | COMP. DATE 03/14/18      |    | 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        |     |                           |                                                                                                                      |
| 785                                                                                 |                 |            |                     |       |        |                          |    |                         |                       |            |     |                           |                                                                                                                      |
| 780                                                                                 | 779.8           | 1.0        | 8                   | 8     | 7      |                          |    |                         |                       |            |     |                           | 780.8 GROUND SURFACE 0.0                                                                                             |
| 775                                                                                 | 777.3           | 3.5        | 7                   | 8     | 9      |                          |    |                         |                       |            |     |                           | RESIDUAL<br>ORANGE, TAN, AND BROWN, SILTY SAND (A-2-4) WITH ROCK FRAGMENTS                                           |
|                                                                                     | 774.8           | 6.0        | 3                   | 6     | 7      |                          |    |                         |                       |            |     |                           |                                                                                                                      |
|                                                                                     | 772.3           | 8.5        | 5                   | 9     | 14     |                          |    |                         |                       |            |     |                           |                                                                                                                      |
| 770                                                                                 | 767.3           | 13.5       | 6                   | 21    | 79/0.3 |                          |    |                         |                       |            |     |                           | 767.3 13.5                                                                                                           |
|                                                                                     |                 |            |                     |       |        |                          |    |                         |                       |            |     |                           | 766.5 14.3                                                                                                           |
|                                                                                     |                 |            |                     |       |        |                          |    |                         |                       |            |     |                           | WEATHERED ROCK<br>ORANGE AND BROWN, GRANITE<br>Boring Terminated at Elevation 766.5 ft IN<br>WEATHERED ROCK: GRANITE |

NC DOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18

GEOTECHNICAL BORING REPORT

BORE LOG

|                                                                                     |                 |                     |               |                          |       |                         |                       |                 |                       |           |     |                           |            |                                                                     |      |
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| WBS 17BP.7.R.114                                                                    |                 |                     | TIP SF-400052 |                          |       | COUNTY GUILFORD         |                       |                 | GEOLOGIST S. CROCKETT |           |     |                           |            |                                                                     |      |
| SITE DESCRIPTION BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                 |                     |               |                          |       |                         |                       | GROUND WTR (ft) |                       |           |     |                           |            |                                                                     |      |
| BORING NO. B-2                                                                      |                 | STATION 13+48       |               | OFFSET 2 ft RT           |       | ALIGNMENT -L-           |                       | 0 HR. Dry       |                       |           |     |                           |            |                                                                     |      |
| COLLAR ELEV. 773.8 ft                                                               |                 | TOTAL DEPTH 14.5 ft |               | NORTHING 811,963         |       | EASTING 1,718,074       |                       | 24 HR. 9.0      |                       |           |     |                           |            |                                                                     |      |
| 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 03/14/18 |               | COMP. DATE 03/14/18      |       | 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       |     | MOI                       | ELEV. (ft) | DEPTH (ft)                                                          |      |
| 775                                                                                 |                 |                     |               |                          |       |                         |                       |                 |                       |           |     |                           |            |                                                                     |      |
|                                                                                     | 772.8           | 1.0                 | 3             | 3                        | 3     |                         |                       |                 |                       |           |     |                           | 773.8      | GROUND SURFACE                                                      | 0.0  |
| 770                                                                                 | 770.8           | 3.0                 | 4             | 5                        | 7     |                         |                       |                 |                       |           | M   |                           | 770.8      | ROADWAY EMBANKMENT<br>RED-BROWN, SANDY CLAY (A-6)                   | 3.0  |
|                                                                                     | 767.8           | 6.0                 | 5             | 6                        | 7     |                         |                       |                 |                       |           | M   |                           |            | RESIDUAL<br>ORANGE, CLAYEY SAND (A-2-6)                             |      |
| 765                                                                                 | 765.8           | 8.0                 | 3             | 3                        | 3     |                         |                       |                 |                       |           | M   |                           | 765.8      | ORANGE, SANDY CLAY (A-6)                                            | 8.0  |
|                                                                                     | 760.8           | 13.0                | 13            | 22                       | 22    |                         |                       |                 |                       |           |     |                           | 762.8      | BROWN, CLAYEY SAND (A-2-6)<br>SAPROLITIC                            | 11.0 |
| 760                                                                                 |                 |                     |               |                          |       |                         |                       |                 |                       |           | D   |                           | 759.3      | Boring Terminated at Elevation 759.3 ft IN<br>RESIDUAL: CLAYEY SAND | 14.5 |

NCDOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18

BORE LOG

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| WBS 17BP.7.R.114                                                                    |                 |            | TIP SF-400052       |       |        | COUNTY GUILFORD          |    |    | GEOLOGIST S. CROCKETT   |     |           |            |     |                           |            |
| SITE DESCRIPTION BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                 |            |                     |       |        |                          |    |    | GROUND WTR (ft)         |     |           |            |     |                           |            |
| BORING NO. B-3                                                                      |                 |            | STATION 15+59       |       |        | OFFSET 1 ft RT           |    |    | ALIGNMENT -L-           |     |           | 0 HR. Dry  |     |                           |            |
| COLLAR ELEV. 770.7 ft                                                               |                 |            | TOTAL DEPTH 14.9 ft |       |        | NORTHING 812,179         |    |    | EASTING 1,718,077       |     |           | 24 HR. 4.5 |     |                           |            |
| 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 03/14/18 |       |        | COMP. DATE 03/14/18      |    |    | 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 |            |
|                                                                                     |                 |            | 0.5ft               | 0.5ft | 0.5ft  | 0                        | 25 | 50 | 75                      | 100 |           |            |     | ELEV. (ft)                | DEPTH (ft) |
| 775                                                                                 |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
| 770                                                                                 | 769.7           | 1.0        | 3                   | 2     | 2      |                          |    |    |                         |     |           |            |     | 770.7                     | 0.0        |
| 765                                                                                 | 767.2           | 3.5        | 2                   | 4     | 5      |                          |    |    |                         |     |           |            |     | 767.7                     | 3.0        |
|                                                                                     | 764.7           | 6.0        | 6                   | 9     | 13     |                          |    |    |                         |     |           |            |     | 764.7                     | 6.0        |
|                                                                                     | 762.2           | 8.5        | 2                   | 2     | 6      |                          |    |    |                         |     |           |            |     | 762.7                     | 8.0        |
| 760                                                                                 |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     | 757.2           | 13.5       | 26                  | 36    | 64/0.4 |                          |    |    |                         |     |           |            |     | 756.7                     | 14.0       |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     | 755.8                     | 14.9       |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |
|                                                                                     |                 |            |                     |       |        |                          |    |    |                         |     |           |            |     |                           |            |

NCDOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18

| <b>WBS</b> 17BP.7.R.114                                                                    |                       |               |            |       |       | <b>TIP</b> SF-400052       |    |    |    |     |              | <b>COUNTY</b> GUILFORD          |     |                           |              |                                                                                                                           |     | <b>GEOLOGIST</b> S. CROCKETT   |  |  |  |  |  |                    |  |
|--------------------------------------------------------------------------------------------|-----------------------|---------------|------------|-------|-------|----------------------------|----|----|----|-----|--------------|---------------------------------|-----|---------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------|--|--|--|--|--|--------------------|--|
| <b>SITE DESCRIPTION</b> BRIDGE NO. 52 OVER DEEP RIVER TRIBUTARY ON SR 1332 (SCIENTIFIC ST) |                       |               |            |       |       |                            |    |    |    |     |              |                                 |     |                           |              |                                                                                                                           |     | <b>GROUND WTR (ft)</b>         |  |  |  |  |  |                    |  |
| <b>BORING NO.</b> B-4                                                                      |                       |               |            |       |       | <b>STATION</b> 16+96       |    |    |    |     |              | <b>OFFSET</b> CL                |     |                           |              |                                                                                                                           |     | <b>ALIGNMENT</b> -L-           |  |  |  |  |  | <b>0 HR.</b> Dry   |  |
| <b>COLLAR ELEV.</b> 781.8 ft                                                               |                       |               |            |       |       | <b>TOTAL DEPTH</b> 13.7 ft |    |    |    |     |              | <b>NORTHING</b> 812,312         |     |                           |              |                                                                                                                           |     | <b>EASTING</b> 1,718,045       |  |  |  |  |  | <b>24 HR.</b> 10.7 |  |
| <b>DRILL RIG/HAMMER EFF./DATE</b> TRI8016 MOBILE B-57 95% 03/19/2018                       |                       |               |            |       |       |                            |    |    |    |     |              | <b>DRILL METHOD</b> H.S. Augers |     |                           |              |                                                                                                                           |     | <b>HAMMER TYPE</b> Automatic   |  |  |  |  |  |                    |  |
| <b>DRILLER</b> Estep, J. E.                                                                |                       |               |            |       |       | <b>START DATE</b> 03/14/18 |    |    |    |     |              | <b>COMP. DATE</b> 03/14/18      |     |                           |              |                                                                                                                           |     | <b>SURFACE WATER DEPTH</b> N/A |  |  |  |  |  |                    |  |
| ELEV<br>(ft)                                                                               | DRIVE<br>ELEV<br>(ft) | DEPTH<br>(ft) | BLOW COUNT |       |       | BLOWS PER FOOT             |    |    |    |     | SAMP.<br>NO. | MOI                             | LOG | SOIL AND ROCK DESCRIPTION |              |                                                                                                                           |     |                                |  |  |  |  |  |                    |  |
|                                                                                            |                       |               | 0.5ft      | 0.5ft | 0.5ft | 0                          | 25 | 50 | 75 | 100 |              |                                 |     | ELEV. (ft)                | DEPTH (ft)   |                                                                                                                           |     |                                |  |  |  |  |  |                    |  |
| 785                                                                                        |                       |               |            |       |       |                            |    |    |    |     |              |                                 |     |                           |              |                                                                                                                           |     |                                |  |  |  |  |  |                    |  |
| 780                                                                                        | 780.8                 | 1.0           | 1          | 2     | 3     |                            |    |    |    |     |              |                                 |     | 781.8                     | TOPSOIL 0.3' | 0.0                                                                                                                       |     |                                |  |  |  |  |  |                    |  |
|                                                                                            | 778.3                 | 3.5           | 2          | 5     | 8     |                            |    |    |    |     |              |                                 | M   |                           | 778.8        | <b>ROADWAY EMBANKMENT</b><br>BROWN, SILTY SAND (A-2-4)                                                                    | 3.0 |                                |  |  |  |  |  |                    |  |
| 775                                                                                        | 775.8                 | 6.0           | 11         | 22    | 25    |                            |    |    |    |     |              |                                 |     | D                         | 775.8        | <b>RESIDUAL</b><br>BROWN AND ORANGE, CLAYEY SAND<br>(A-2-6)<br>BROWN AND GRAY, SILTY SAND (A-2-4)                         | 6.0 |                                |  |  |  |  |  |                    |  |
|                                                                                            | 773.3                 | 8.5           | 10         | 8     | 5     |                            |    |    |    |     |              |                                 |     |                           |              |                                                                                                                           |     |                                |  |  |  |  |  |                    |  |
| 770                                                                                        | 768.3                 | 13.5          |            |       |       |                            |    |    |    |     |              |                                 |     |                           | 768.3        | 13.5                                                                                                                      |     |                                |  |  |  |  |  |                    |  |
|                                                                                            |                       |               |            |       |       |                            |    |    |    |     |              |                                 |     |                           | 768.1        | 13.7                                                                                                                      |     |                                |  |  |  |  |  |                    |  |
|                                                                                            |                       |               |            |       |       |                            |    |    |    |     |              |                                 |     |                           |              | <b>WEATHERED ROCK</b><br>BROWN AND GRAY, GRANITE<br>Boring Terminated at Elevation 768.1 ft IN<br>WEATHERED ROCK: GRANITE |     |                                |  |  |  |  |  |                    |  |

NC DOT BORE SINGLE SF-400052\_CULV052.GPJ NC\_DOT.GDT 7/13/18