

REFERENCE: B-3186/B-5898

PROJECT: 38332/48030

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY HAYWOOD  
PROJECT DESCRIPTION US 23/US 74/US 19 (GREAT SMOKY MOUNTAIN HWY) FROM WEST OF NC 209 (BRABTREE RD.) TO EAST OF RUSS AVE.  
SITE DESCRIPTION RETAINING WALL #5 FROM -YIRT- STA. 15+25.00 TO 26+12.97

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C.  | B-3186/B-5898               | 1         | 18           |

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## PERSONNEL

R. DUGGERN. YACOBIC. SWAFFORDGEOTECHNOLOGY, INC.INVESTIGATED BY C. SWAFFORDDRAWN BY T. LYNNCHECKED BY K. BUSSEYSUBMITTED BY HDRDATE NOVEMBER 2021

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N.C.B.E.L.S. License Number: F-01116

Kenneth R. Bussey, Jr.

SIGNATURE

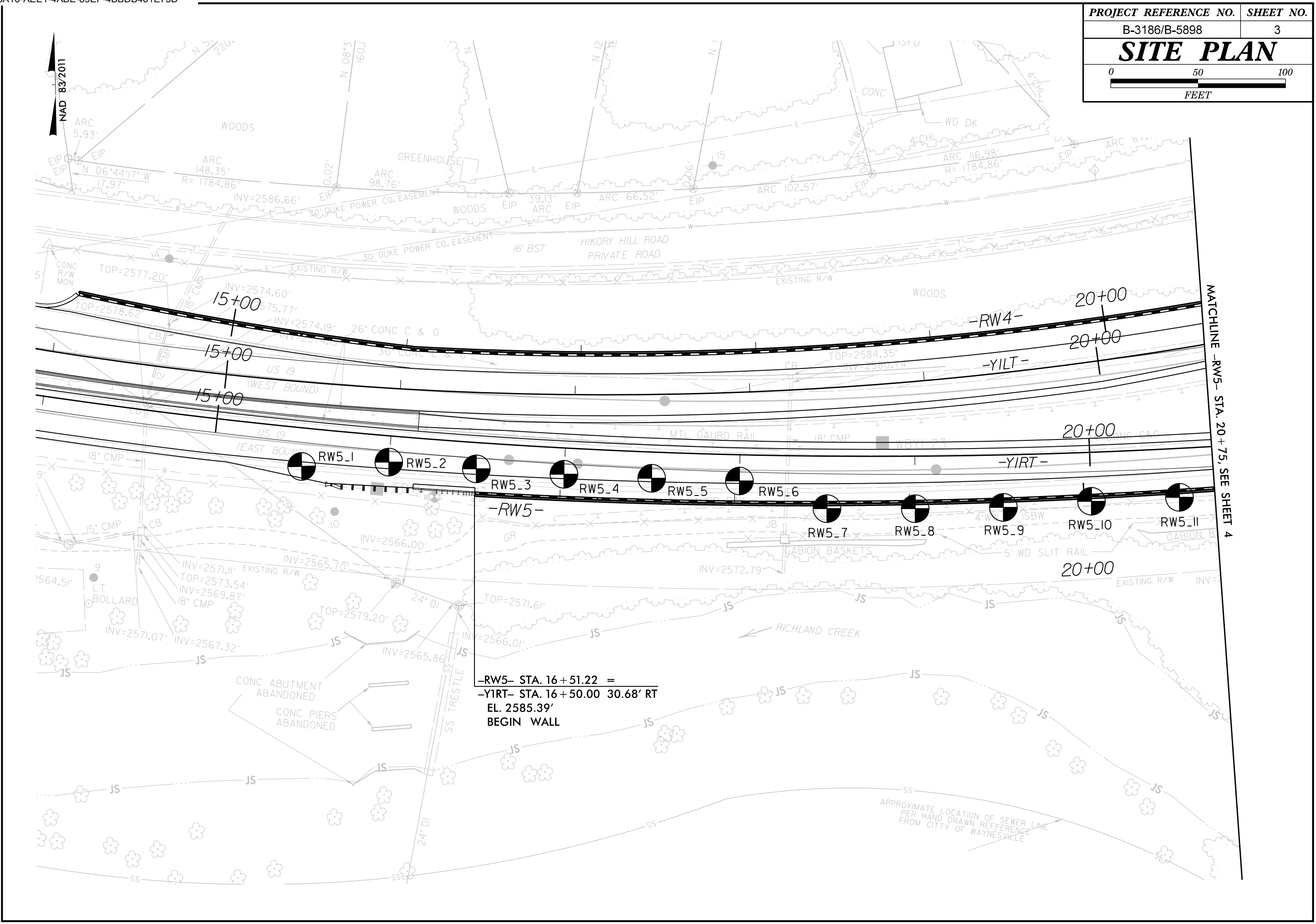
9/6/2023

DATE

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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**

| SOIL DESCRIPTION  |   |   |  |                   |  |  |                   |                   |                       | GRADATION   |   |  |  |   |   |  |  |   |   | ROCK DESCRIPTION   |  |   |                       |  |   |  |                  |             |                 | TERMS AND DEFINITIONS   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |         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| <p>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, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>  |   |   |  |                   |  |  |                   |                   |                       | <p><b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.<br/><b>UNIFORMLY GRADED</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.<br/><b>GAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p> |   |  |  |   |   |  |  |   |   | <p>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:</p> |  |   |                       |  |   |  |                  |             |                 | <p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.<br/><b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA.<br/><b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.<br/><b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.<br/><b>ARTESIAN</b> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.<br/><b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.<br/><b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.<br/><b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br/><b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.<br/><b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.<br/><b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.<br/><b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.<br/><b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.<br/><b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.<br/><b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.<br/><b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.<br/><b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.<br/><b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.<br/><b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.<br/><b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.<br/><b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.<br/><b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.<br/><b>ROCK QUALITY DESIGNATION (RQD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.<br/><b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.<br/><b>SILL</b> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.<br/><b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.<br/><b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.<br/><b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.<br/><b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.<br/><b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p> |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       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| <p style="text-align: center;"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING #10 #40 #200</td> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX</td> <td>51 MN 35 MX 35 MX</td> <td>40 MX 35 MX</td> <td>41 MN 35 MX</td> <td>41 MN 35 MX</td> <td>40 MX 36 MN</td> <td>41 MN 36 MN</td> <td>40 MX 36 MN</td> <td>41 MN 36 MN</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MATERIAL PASSING #40 LL PI</td> <td>- 6 MX</td> <td>- NP</td> <td>40 MX 41 MN 10 MX 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td>40 MX 41 MN 11 MN</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>4 MX</td> <td>8 MX</td> <td>12 MX</td> <td>16 MX</td> <td>NO MX</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS. GRAVEL, AND SAND</td> <td>FINE SAND</td> <td>SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS</td> <td>CLAYEY SOILS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GEN. RATING AS SUBGRADE</td> <td colspan="5">EXCELLENT TO GOOD</td> <td colspan="5">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td>UNSATURABLE</td> </tr> <tr> <td colspan="10">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS &gt; LL - 30</td> <td colspan="10"></td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>CONSISTENCY OR DENSENESS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>PRIMARY SOIL TYPE</th> <th>COMPACTNESS OR CONSISTENCY</th> <th>RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)</th> <th>RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT<sup>2</sup>)</th> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESSIVE)</td> <td>VERY LOOSE<br/>LOOSE<br/>MEDIUM DENSE<br/>DENSE<br/>VERY DENSE</td> <td>&lt; 4<br/>4 TO 10<br/>10 TO 30<br/>30 TO 50<br/>&gt; 50</td> <td>N/A</td> </tr> <tr> <td>GENERALLY SILT-CLAY MATERIAL (COHESIVE)</td> <td>VERY SOFT<br/>SOFT<br/>MEDIUM STIFF<br/>STIFF<br/>VERY STIFF<br/>HARD</td> <td>&lt; 2<br/>2 TO 4<br/>4 TO 8<br/>8 TO 15<br/>15 TO 30<br/>&gt; 30</td> <td>&lt; 0.25<br/>0.25 TO 0.5<br/>0.5 TO 1.0<br/>1 TO 2<br/>2 TO 4<br/>&gt; 4</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>MISCELLANEOUS SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</td> <td></td> <td>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</td> <td></td> <td>SLOPE INDICATOR INSTALLATION</td> </tr> <tr> <td></td> <td>SOIL SYMBOL</td> <td></td> <td>TEST BORING</td> <td></td> <td>CONE PENETROMETER TEST</td> </tr> <tr> <td></td> <td>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</td> <td></td> <td>AUGER BORING</td> <td></td> <td>SOUNDING ROD</td> </tr> <tr> <td></td> <td>INFERRED SOIL BOUNDARY</td> <td></td> <td>CORE BORING</td> <td></td> <td>TEST BORING WITH CORE</td> </tr> <tr> <td></td> <td>INFERRED ROCK LINE</td> <td></td> <td>MONITORING WELL</td> <td></td> <td>SPT N-VALUE</td> </tr> <tr> <td></td> <td>ALLUVIAL SOIL BOUNDARY</td> <td></td> <td>PIEZOMETER INSTALLATION</td> <td></td> <td></td> </tr> </table> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>TEXTURE OR GRAIN SIZE</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> <tr> <td></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> <tr> <td>GRAIN SIZE</td> <td>305 IN.</td> <td>75 IN.</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>RECOMMENDATION SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</td> </tr> <tr> <td></td> <td>SHALLOW UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</td> <td></td> <td></td> </tr> </table> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>SOIL MOISTURE - CORRELATION OF TERMS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>ABBREVIATIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AR - AUGER REFUSAL</td> <td>BT - BORING TERMINATED</td> <td>CL - CLAY</td> <td>CPT - COARSE PENETRATION TEST</td> <td>CSE - COARSE</td> <td>DMT - DILATOMETER TEST</td> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>e - VOID RATIO</td> <td>F - FINE</td> <td>FOSS. - FOSSILIFEROUS</td> <td>FRAC. - FRACTURED, FRACTURES</td> <td>FRAGS. - FRAGMENTS</td> <td>HI. - HIGHLY</td> <td>MED. - MEDIUM</td> <td>MICA - MICACEOUS</td> <td>MOD. - MODERATELY</td> <td>NP - NON PLASTIC</td> <td>ORG. - ORGANIC</td> <td>PMT - PRESSUREMETER TEST</td> <td>SAP. - SAPROLITIC</td> <td>SD. - SAND, SANDY</td> <td>SL. - SILT, SILTY</td> <td>SLI. - SLIGHTLY</td> <td>TCR - TRICONE REFUSAL</td> <td>w - MOISTURE CONTENT</td> <td>V - VERY</td> <td>VST - VANE SHEAR TEST</td> <td>WEA. - WEATHERED</td> <td>UNIT WEIGHT</td> <td>DRY UNIT WEIGHT</td> </tr> <tr> <td colspan="10"></td> <td colspan="10"> <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p> </td> </tr> </table> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>PLASTICITY</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NON PLASTIC</th> <th>SLIGHTLY PLASTIC</th> <th>MODERATELY PLASTIC</th> <th>HIGHLY PLASTIC</th> </tr> <tr> <td>0-5</td> <td>6-15</td> <td>16-25</td> <td>26 OR MORE</td> </tr> <tr> <td colspan="2">PLASTICITY INDEX (PI)</td> <td colspan="2">DRY STRENGTH</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">VERY LOW<br/>SLIGHT<br/>MEDIUM<br/>HIGH</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>EQUIPMENT USED ON SUBJECT PROJECT</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> CME-45C</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC</td> <td><input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td colspan="2">CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-550X</td> <td><input checked="" type="checkbox"/> 8" HOLLOW AUGERS</td> <td><input type="checkbox"/> -B</td> <td><input type="checkbox"/> -H</td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> -N</td> <td></td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG-CARBIDE INSERTS</td> <td colspan="2">HAND TOOLS:</td> </tr> <tr> <td><input checked="" type="checkbox"/> CME-75</td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> HAND AUGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *TUNG-CARB.</td> <td><input type="checkbox"/> SOUNDING ROD</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> MUD ROTARY</td> <td></td> <td></td> </tr> </table> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>FRACATURE SPACING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>BEDDING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>&lt; 0.008 FEET</td> </tr> </table> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>INDURATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>DESCRIPTION</th> </tr> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table> </td> <td colspan="10"> <p style="text-align: center;"><b>NOTES:</b></p> <p>BORING ELEVATIONS OBTAINED USING b3186_br0022_r4047_Mer ged.1-12-21.tin</p> <p>SITE 2 BORING ELEVATIONS OBTAINED FROM TRIMBLE R12 GNSS RECEIVER CERTIFIED WITH FCC PART 15 (CLASS B DEVICE), 24, 32; RCM; PTCRB; BT SIG</p> <p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p> </td> </tr> <tr> <td colspan="10"> <p style="text-align: center;"><b>COLOR</b></p> <p>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.</p> </td> <td colspan="10"> <p style="text-align: center;"><b>BENCH MARK: N/A</b></p> <p style="text-align: right;">ELEVATION: FEET</p> </td> </tr> </table> |   |   |  |                   |  |  |                   |                   |                       | GENERAL CLASS.  | GRANULAR MATERIALS (≤ 35% PASSING #200) |  |  |   |   | SILT-CLAY MATERIALS (> 35% PASSING #200)       |  |   |   |  | ORGANIC MATERIALS  |   |                       |  |   | A-1  | A-3              | A-2         | A-4             | A-5   | A-6           | A-7  | A-1, A-2                                      | A-3                 | A-4, A-5                               | A-6, A-7                         |                                    |   |                                 |                                 | GROUP CLASS.  | A-1-a             | A-1-b                  | A-2-4                             | A-2-5  | A-2-6                       | A-2-7                       |  |   |                             |                        |   |   |                   |                       |  | SYMBOL   |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          | % PASSING #10 #40 #200                         | 50 MX 30 MX 15 MX | 50 MX 25 MX   | 51 MN 35 MX 35 MX | 40 MX 35 MX | 41 MN 35 MX | 41 MN 35 MX | 40 MX 36 MN  | 41 MN 36 MN | 40 MX 36 MN | 41 MN 36 MN |  |  |  |  |  | MATERIAL PASSING #40 LL PI | - 6 MX | - NP     | 40 MX 41 MN 10 MX 11 MN | 40 MX 41 MN 11 MN                          | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN  | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN                                    |  |  |  |  |  | GROUP INDEX | 0 | 0 | 0 | 4 MX | 8 MX | 12 MX | 16 MX | NO MX |  |  |  |  |  |  |  | USUAL TYPES OF MAJOR MATERIALS | STONE FRAGS. GRAVEL, AND SAND | FINE SAND | SILTY OR CLAYEY GRAVEL AND SAND | SILTY SOILS | CLAYEY SOILS |  |  |  |  |  |  |  |  |  |  | GEN. RATING AS SUBGRADE | EXCELLENT TO GOOD |  |  |  |  | FAIR TO POOR |  |  |  |  | FAIR TO POOR | POOR | UNSATURABLE | PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <p style="text-align: center;"><b>CONSISTENCY OR DENSENESS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>PRIMARY SOIL TYPE</th> <th>COMPACTNESS OR CONSISTENCY</th> <th>RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)</th> <th>RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT<sup>2</sup>)</th> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESSIVE)</td> <td>VERY LOOSE<br/>LOOSE<br/>MEDIUM DENSE<br/>DENSE<br/>VERY DENSE</td> <td>&lt; 4<br/>4 TO 10<br/>10 TO 30<br/>30 TO 50<br/>&gt; 50</td> <td>N/A</td> </tr> <tr> <td>GENERALLY SILT-CLAY MATERIAL (COHESIVE)</td> <td>VERY SOFT<br/>SOFT<br/>MEDIUM STIFF<br/>STIFF<br/>VERY STIFF<br/>HARD</td> <td>&lt; 2<br/>2 TO 4<br/>4 TO 8<br/>8 TO 15<br/>15 TO 30<br/>&gt; 30</td> <td>&lt; 0.25<br/>0.25 TO 0.5<br/>0.5 TO 1.0<br/>1 TO 2<br/>2 TO 4<br/>&gt; 4</td> </tr> </table> |  |  |  |  |  |  |  |  |  | PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> ) | GENERALLY GRANULAR MATERIAL (NON-COHESSIVE) | VERY LOOSE<br>LOOSE<br>MEDIUM DENSE<br>DENSE<br>VERY DENSE | < 4<br>4 TO 10<br>10 TO 30<br>30 TO 50<br>> 50 | N/A | GENERALLY SILT-CLAY MATERIAL (COHESIVE) | VERY SOFT<br>SOFT<br>MEDIUM STIFF<br>STIFF<br>VERY STIFF<br>HARD | < 2<br>2 TO 4<br>4 TO 8<br>8 TO 15<br>15 TO 30<br>> 30 | < 0.25<br>0.25 TO 0.5<br>0.5 TO 1.0<br>1 TO 2<br>2 TO 4<br>> 4 | <p style="text-align: center;"><b>MISCELLANEOUS SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</td> <td></td> <td>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</td> <td></td> <td>SLOPE INDICATOR INSTALLATION</td> </tr> <tr> <td></td> <td>SOIL SYMBOL</td> <td></td> <td>TEST BORING</td> <td></td> <td>CONE PENETROMETER TEST</td> </tr> <tr> <td></td> <td>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</td> <td></td> <td>AUGER BORING</td> <td></td> <td>SOUNDING ROD</td> </tr> <tr> <td></td> <td>INFERRED SOIL BOUNDARY</td> <td></td> <td>CORE BORING</td> <td></td> <td>TEST BORING WITH CORE</td> </tr> <tr> <td></td> <td>INFERRED ROCK LINE</td> <td></td> <td>MONITORING WELL</td> <td></td> <td>SPT N-VALUE</td> </tr> <tr> <td></td> <td>ALLUVIAL SOIL BOUNDARY</td> <td></td> <td>PIEZOMETER INSTALLATION</td> <td></td> <td></td> </tr> </table> |  |  |  |  |  |  |  |  |  |  | ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION |  | DIP & DIP DIRECTION OF ROCK STRUCTURES |  | SLOPE INDICATOR INSTALLATION |  | SOIL SYMBOL |  | TEST BORING |  | CONE PENETROMETER TEST |  | ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT |  | AUGER BORING |  | SOUNDING ROD |  | INFERRED SOIL BOUNDARY |  | CORE BORING |  | TEST BORING WITH CORE |  | INFERRED ROCK LINE |  | MONITORING WELL |  | SPT N-VALUE |  | ALLUVIAL SOIL BOUNDARY |  | PIEZOMETER INSTALLATION |  |  | <p style="text-align: center;"><b>TEXTURE OR GRAIN SIZE</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> <tr> <td></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> <tr> <td>GRAIN SIZE</td> <td>305 IN.</td> <td>75 IN.</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> </table> |  |  |  |  |  |  |  |  |  | U.S. STD. SIEVE SIZE OPENING (MM) | 4 | 10 | 40 | 60 | 200 | 270 |  | 4.76 | 2.00 | 0.42 | 0.25 | 0.075 | 0.053 | BOULDER (BLDR.) |  |  |  |  |  |  | COBBLE (COB.) |  |  |  |  |  |  | GRAVEL (GR.) |  |  |  |  |  |  | COARSE SAND (CSE. SD.) |  |  |  |  |  |  | FINE SAND (F SD.) |  |  |  |  |  |  | SILT (SL.) |  |  |  |  |  |  | CLAY (CL.) |  |  |  |  |  |  | GRAIN SIZE | 305 IN. | 75 IN. | 2.0 | 0.25 | 0.05 | 0.005 | <p style="text-align: center;"><b>RECOMMENDATION SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</td> </tr> <tr> <td></td> <td>SHALLOW UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</td> <td></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 |  |  | <p style="text-align: center;"><b>SOIL MOISTURE - CORRELATION OF TERMS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table> |  |  |  |  |  |  |  |  |  | SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION | LL - LIQUID LIMIT | - SATURATED - (SAT.) | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | PL - PLASTIC LIMIT | - WET - (W) | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | OM - OPTIMUM MOISTURE SHRINKAGE LIMIT | - MOIST - (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE | SL - SHRINKAGE LIMIT | - DRY - (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | <p style="text-align: center;"><b>ABBREVIATIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AR - AUGER REFUSAL</td> <td>BT - BORING TERMINATED</td> <td>CL - CLAY</td> <td>CPT - COARSE PENETRATION TEST</td> <td>CSE - COARSE</td> <td>DMT - DILATOMETER TEST</td> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>e - VOID RATIO</td> <td>F - FINE</td> <td>FOSS. - FOSSILIFEROUS</td> <td>FRAC. - FRACTURED, FRACTURES</td> <td>FRAGS. - FRAGMENTS</td> <td>HI. - HIGHLY</td> <td>MED. - MEDIUM</td> <td>MICA - MICACEOUS</td> <td>MOD. - MODERATELY</td> <td>NP - NON PLASTIC</td> <td>ORG. - ORGANIC</td> <td>PMT - PRESSUREMETER TEST</td> <td>SAP. - SAPROLITIC</td> <td>SD. - SAND, SANDY</td> <td>SL. - SILT, SILTY</td> <td>SLI. - SLIGHTLY</td> <td>TCR - TRICONE REFUSAL</td> <td>w - MOISTURE CONTENT</td> <td>V - VERY</td> <td>VST - VANE SHEAR TEST</td> <td>WEA. - WEATHERED</td> <td>UNIT WEIGHT</td> <td>DRY UNIT WEIGHT</td> </tr> <tr> <td colspan="10"></td> <td colspan="10"> <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p> </td> </tr> </table> |  |  |  |  |  |  |  |  |  | AR - AUGER REFUSAL | BT - BORING TERMINATED | CL - CLAY | CPT - COARSE PENETRATION TEST | CSE - COARSE | DMT - DILATOMETER TEST | DPT - DYNAMIC PENETRATION TEST | e - VOID RATIO | F - FINE | FOSS. - FOSSILIFEROUS | FRAC. - FRACTURED, FRACTURES | FRAGS. - FRAGMENTS | HI. - HIGHLY | MED. - MEDIUM | MICA - MICACEOUS | MOD. - MODERATELY | NP - NON PLASTIC | ORG. - ORGANIC | PMT - PRESSUREMETER TEST | SAP. - SAPROLITIC | SD. - SAND, SANDY | SL. - SILT, SILTY | SLI. - SLIGHTLY | TCR - TRICONE REFUSAL | w - MOISTURE CONTENT | V - VERY | VST - VANE SHEAR TEST | WEA. - WEATHERED | UNIT WEIGHT | DRY UNIT WEIGHT |  |  |  |  |  |  |  |  |  |  | <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p> |  |  |  |  |  |  |  |  |  | <p style="text-align: center;"><b>PLASTICITY</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NON PLASTIC</th> <th>SLIGHTLY PLASTIC</th> <th>MODERATELY PLASTIC</th> <th>HIGHLY PLASTIC</th> </tr> <tr> <td>0-5</td> <td>6-15</td> <td>16-25</td> <td>26 OR MORE</td> </tr> <tr> <td colspan="2">PLASTICITY INDEX (PI)</td> <td colspan="2">DRY STRENGTH</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">VERY LOW<br/>SLIGHT<br/>MEDIUM<br/>HIGH</td> </tr> </table> |  |  |  |  |  |  |  |  |  | NON PLASTIC | SLIGHTLY PLASTIC | MODERATELY PLASTIC | HIGHLY PLASTIC | 0-5 | 6-15 | 16-25 | 26 OR MORE | PLASTICITY INDEX (PI) |  | DRY STRENGTH |  |  |  | VERY LOW<br>SLIGHT<br>MEDIUM<br>HIGH |  | <p style="text-align: center;"><b>EQUIPMENT USED ON SUBJECT PROJECT</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> CME-45C</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC</td> <td><input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td colspan="2">CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-550X</td> <td><input checked="" type="checkbox"/> 8" HOLLOW AUGERS</td> <td><input type="checkbox"/> -B</td> <td><input type="checkbox"/> -H</td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> -N</td> <td></td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG-CARBIDE INSERTS</td> <td colspan="2">HAND TOOLS:</td> </tr> <tr> <td><input checked="" type="checkbox"/> CME-75</td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> HAND AUGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *TUNG-CARB.</td> <td><input type="checkbox"/> SOUNDING ROD</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> MUD ROTARY</td> <td></td> <td></td> </tr> </table> |  |  |  |  |  |  |  |  |  | <input type="checkbox"/> CME-45C | <input type="checkbox"/> CLAY BITS | <input checked="" type="checkbox"/> AUTOMATIC | <input type="checkbox"/> MANUAL | <input type="checkbox"/> CME-55 | <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER | CORE SIZE: |  | <input type="checkbox"/> CME-550X | <input checked="" type="checkbox"/> 8" HOLLOW AUGERS | <input type="checkbox"/> -B | <input type="checkbox"/> -H | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> HARD FACED FINGER BITS | <input type="checkbox"/> -N |  | <input type="checkbox"/> PORTABLE HOIST | <input type="checkbox"/> TUNG-CARBIDE INSERTS | HAND TOOLS: |  | <input checked="" type="checkbox"/> CME-75 | <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER | <input type="checkbox"/> POST HOLE DIGGER |  | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *STEEL TEETH | <input type="checkbox"/> HAND AUGER |  | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *TUNG-CARB. | <input type="checkbox"/> SOUNDING ROD |  | <input type="checkbox"/> | <input type="checkbox"/> CORE BIT | <input type="checkbox"/> VANE SHEAR TEST |  | <input type="checkbox"/> | <input checked="" type="checkbox"/> MUD ROTARY |  |  | <p style="text-align: center;"><b>FRACATURE SPACING</b></p> <table border="1" style="width: 100%; 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0.008 FEET</td> </tr> </table> |  |  |  |  |  |  |  |  |  | TERM | THICKNESS | VERY THICKLY BEDDED | 4 FEET | THICKLY BEDDED | 1.5 - 4 FEET | THINLY BEDDED | 0.16 - 1.5 FEET | VERY THINLY BEDDED | 0.03 - 0.16 FEET | THICKLY LAMINATED | 0.008 - 0.03 FEET | THINLY LAMINATED | < 0.008 FEET | <p style="text-align: center;"><b>INDURATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>DESCRIPTION</th> </tr> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table> |  |  |  |  |  |  |  |  |  | TERM | DESCRIPTION | 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. | <p style="text-align: center;"><b>NOTES:</b></p> <p>BORING ELEVATIONS OBTAINED USING b3186_br0022_r4047_Mer ged.1-12-21.tin</p> <p>SITE 2 BORING ELEVATIONS OBTAINED FROM TRIMBLE R12 GNSS RECEIVER CERTIFIED WITH FCC PART 15 (CLASS B DEVICE), 24, 32; RCM; PTCRB; BT SIG</p> <p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p> |  |  |  |  |  |  |  |  |  | <p style="text-align: center;"><b>COLOR</b></p> <p>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.</p> |  |  |  |  |  |  |  |  |  | <p style="text-align: center;"><b>BENCH MARK: N/A</b></p> <p style="text-align: right;">ELEVATION: FEET</p> |  |  |  |  |  |  |  |  |  |
| GENERAL CLASS.  | GRANULAR MATERIALS (≤ 35% PASSING #200)   |   |  |                   |  | SILT-CLAY MATERIALS (> 35% PASSING #200) |                   |                   |                       |   | ORGANIC MATERIALS                       |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |               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 |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
|   | A-1   | A-3   | A-2  | A-4               | A-5  | A-6                                      | A-7               | A-1, A-2          | A-3                   | A-4, A-5  | A-6, A-7                                |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  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|  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |    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          |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| GROUP CLASS.  | A-1-a   | A-1-b   | A-2-4  | A-2-5             | A-2-6  | A-2-7                                    |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |     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| SYMBOL  |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |               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          |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| % PASSING #10 #40 #200  | 50 MX 30 MX 15 MX   | 50 MX 25 MX   | 51 MN 35 MX 35 MX  | 40 MX 35 MX       | 41 MN 35 MX  | 41 MN 35 MX                              | 40 MX 36 MN       | 41 MN 36 MN       | 40 MX 36 MN           | 41 MN 36 MN   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |            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 |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| MATERIAL PASSING #40 LL PI  | - 6 MX  | - NP  | 40 MX 41 MN 10 MX 11 MN  | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN  | 40 MX 41 MN 11 MN                        | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN | 40 MX 41 MN 11 MN     | 40 MX 41 MN 11 MN   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |         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 |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |           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            |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  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| GROUP INDEX   | 0   | 0   | 0  | 4 MX              | 8 MX   | 12 MX                                    | 16 MX             | NO MX             |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |           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  |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       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| USUAL TYPES OF MAJOR MATERIALS  | STONE FRAGS. GRAVEL, AND SAND   | FINE SAND   | SILTY OR CLAYEY GRAVEL AND SAND                                  | SILTY SOILS       | CLAYEY SOILS   |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |   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 |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |         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| GEN. RATING AS SUBGRADE   | EXCELLENT TO GOOD   |   |  |                   |  | FAIR TO POOR                             |                   |                   |                       |   | FAIR TO POOR                            | POOR   | UNSATURABLE  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |              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 |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30   |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |     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       |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| <p style="text-align: center;"><b>CONSISTENCY OR DENSENESS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>PRIMARY SOIL TYPE</th> <th>COMPACTNESS OR CONSISTENCY</th> <th>RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)</th> <th>RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT<sup>2</sup>)</th> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESSIVE)</td> <td>VERY LOOSE<br/>LOOSE<br/>MEDIUM DENSE<br/>DENSE<br/>VERY DENSE</td> <td>&lt; 4<br/>4 TO 10<br/>10 TO 30<br/>30 TO 50<br/>&gt; 50</td> <td>N/A</td> </tr> <tr> <td>GENERALLY SILT-CLAY MATERIAL (COHESIVE)</td> <td>VERY SOFT<br/>SOFT<br/>MEDIUM STIFF<br/>STIFF<br/>VERY STIFF<br/>HARD</td> <td>&lt; 2<br/>2 TO 4<br/>4 TO 8<br/>8 TO 15<br/>15 TO 30<br/>&gt; 30</td> <td>&lt; 0.25<br/>0.25 TO 0.5<br/>0.5 TO 1.0<br/>1 TO 2<br/>2 TO 4<br/>&gt; 4</td> </tr> </table>  |   |   |  |                   |  |  |                   |                   |                       | PRIMARY SOIL TYPE   | COMPACTNESS OR CONSISTENCY              | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )                       | GENERALLY GRANULAR MATERIAL (NON-COHESSIVE) | VERY LOOSE<br>LOOSE<br>MEDIUM DENSE<br>DENSE<br>VERY DENSE                                | < 4<br>4 TO 10<br>10 TO 30<br>30 TO 50<br>> 50 | N/A  | GENERALLY SILT-CLAY MATERIAL (COHESIVE)               | VERY SOFT<br>SOFT<br>MEDIUM STIFF<br>STIFF<br>VERY STIFF<br>HARD          | < 2<br>2 TO 4<br>4 TO 8<br>8 TO 15<br>15 TO 30<br>> 30   | < 0.25<br>0.25 TO 0.5<br>0.5 TO 1.0<br>1 TO 2<br>2 TO 4<br>> 4 | <p style="text-align: center;"><b>MISCELLANEOUS SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</td> <td></td> <td>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</td> <td></td> <td>SLOPE INDICATOR INSTALLATION</td> </tr> <tr> <td></td> <td>SOIL SYMBOL</td> <td></td> <td>TEST BORING</td> <td></td> <td>CONE PENETROMETER TEST</td> </tr> <tr> <td></td> <td>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</td> <td></td> <td>AUGER BORING</td> <td></td> <td>SOUNDING ROD</td> </tr> <tr> <td></td> <td>INFERRED SOIL BOUNDARY</td> <td></td> <td>CORE BORING</td> <td></td> <td>TEST BORING WITH CORE</td> </tr> <tr> <td></td> <td>INFERRED ROCK LINE</td> <td></td> <td>MONITORING WELL</td> <td></td> <td>SPT N-VALUE</td> </tr> <tr> <td></td> <td>ALLUVIAL SOIL BOUNDARY</td> <td></td> <td>PIEZOMETER INSTALLATION</td> <td></td> <td></td> </tr> </table> |                       |  |   |  |                  |             |                 |   |               |      | ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION |                     | DIP & DIP DIRECTION OF ROCK STRUCTURES |                                  | SLOPE INDICATOR INSTALLATION       |   | SOIL SYMBOL                     |                                 | TEST BORING   |                   | CONE PENETROMETER TEST |                                   | ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT   |                             | AUGER BORING                |  | SOUNDING ROD                                    |                             | INFERRED SOIL BOUNDARY |   | CORE BORING                                   |                   | TEST BORING WITH CORE |  | INFERRED ROCK LINE   |   | MONITORING WELL      |                          | SPT N-VALUE                                   |                                     | ALLUVIAL SOIL BOUNDARY |                          | PIEZOMETER INSTALLATION                      |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                 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| PRIMARY SOIL TYPE   | COMPACTNESS OR CONSISTENCY  | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)                  | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> ) |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        | 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| GENERALLY GRANULAR MATERIAL (NON-COHESSIVE)   | VERY LOOSE<br>LOOSE<br>MEDIUM DENSE<br>DENSE<br>VERY DENSE                                | < 4<br>4 TO 10<br>10 TO 30<br>30 TO 50<br>> 50                      | N/A  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                    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| GENERALLY SILT-CLAY MATERIAL (COHESIVE)   | VERY SOFT<br>SOFT<br>MEDIUM STIFF<br>STIFF<br>VERY STIFF<br>HARD                          | < 2<br>2 TO 4<br>4 TO 8<br>8 TO 15<br>15 TO 30<br>> 30              | < 0.25<br>0.25 TO 0.5<br>0.5 TO 1.0<br>1 TO 2<br>2 TO 4<br>> 4   |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |           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|   | ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION   |   | DIP & DIP DIRECTION OF ROCK STRUCTURES                           |                   | SLOPE INDICATOR INSTALLATION   |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |     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|   | SOIL SYMBOL   |   | TEST BORING  |                   | CONE PENETROMETER TEST   |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                           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  |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
|   | ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT  |   | AUGER BORING   |                   | SOUNDING ROD   |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                        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|   | INFERRED SOIL BOUNDARY  |   | CORE BORING  |                   | TEST BORING WITH CORE  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                   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               |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
|   | INFERRED ROCK LINE  |   | MONITORING WELL  |                   | SPT N-VALUE  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  | 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|   | ALLUVIAL SOIL BOUNDARY  |   | PIEZOMETER INSTALLATION  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                             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            |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |               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| <p style="text-align: center;"><b>TEXTURE OR GRAIN SIZE</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> <tr> <td></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> <tr> <td>GRAIN SIZE</td> <td>305 IN.</td> <td>75 IN.</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> </table>   |   |   |  |                   |  |  |                   |                   |                       | U.S. STD. SIEVE SIZE OPENING (MM)   | 4                                       | 10   | 40   | 60  | 200   | 270  |  | 4.76  | 2.00  | 0.42   | 0.25   | 0.075   | 0.053                 | BOULDER (BLDR.)                                      |   |  |                  |             |                 |   | COBBLE (COB.) |      |   |                     |  |                                  |                                    | GRAVEL (GR.)                                  |                                 |                                 |   |                   |                        |                                   | COARSE SAND (CSE. SD.)                               |                             |                             |  |   |                             |                        | FINE SAND (F SD.)                       |   |                   |                       |  |  |   | SILT (SL.)           |                          |   |                                     |                        |                          |  | CLAY (CL.)                            |  |                          |                                   |  |  |                          | GRAIN SIZE                                     | 305 IN.           | 75 IN.  | 2.0               | 0.25        | 0.05        | 0.005       | <p style="text-align: center;"><b>RECOMMENDATION SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</td> </tr> <tr> <td></td> <td>SHALLOW UNDERCUT</td> <td></td> <td>UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</td> <td></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 |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| U.S. STD. SIEVE SIZE OPENING (MM)   | 4   | 10  | 40   | 60                | 200  | 270                                      |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |       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  |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
|   | 4.76  | 2.00  | 0.42   | 0.25              | 0.075  | 0.053                                    |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |               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         |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |    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| BOULDER (BLDR.)   |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                 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|  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |       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  |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| COBBLE (COB.)   |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |        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| GRAVEL (GR.)  |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                     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                       |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |          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               |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| COARSE SAND (CSE. SD.)  |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| FINE SAND (F SD.)   |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| SILT (SL.)  |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                       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| CLAY (CL.)  |   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                       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| GRAIN SIZE  | 305 IN.   | 75 IN.  | 2.0  | 0.25              | 0.05   | 0.005                                    |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |       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|   | UNDERCUT  |   | UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE                       |                   | UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |   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|   | SHALLOW UNDERCUT  |   | UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK             |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                      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                             |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |        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| <p style="text-align: center;"><b>SOIL MOISTURE - CORRELATION OF TERMS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table>  |   |   |  |                   |  |  |                   |                   |                       | SOIL MOISTURE SCALE (ATTERBERG LIMITS)  | FIELD MOISTURE DESCRIPTION              | GUIDE FOR FIELD MOISTURE DESCRIPTION               | LL - LIQUID LIMIT  | - SATURATED - (SAT.)                        | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE                       | PL - PLASTIC LIMIT                             | - WET - (W)  | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | OM - OPTIMUM MOISTURE SHRINKAGE LIMIT                                     | - MOIST - (M)  | SOLID; AT OR NEAR OPTIMUM MOISTURE                             | SL - SHRINKAGE LIMIT  | - DRY - (D)           | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | <p style="text-align: center;"><b>ABBREVIATIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AR - AUGER REFUSAL</td> <td>BT - BORING TERMINATED</td> <td>CL - CLAY</td> <td>CPT - COARSE PENETRATION TEST</td> <td>CSE - COARSE</td> <td>DMT - DILATOMETER TEST</td> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>e - VOID RATIO</td> <td>F - FINE</td> <td>FOSS. - FOSSILIFEROUS</td> <td>FRAC. - FRACTURED, FRACTURES</td> <td>FRAGS. - FRAGMENTS</td> <td>HI. - HIGHLY</td> <td>MED. - MEDIUM</td> <td>MICA - MICACEOUS</td> <td>MOD. - MODERATELY</td> <td>NP - NON PLASTIC</td> <td>ORG. - ORGANIC</td> <td>PMT - PRESSUREMETER TEST</td> <td>SAP. - SAPROLITIC</td> <td>SD. - SAND, SANDY</td> <td>SL. - SILT, SILTY</td> <td>SLI. - SLIGHTLY</td> <td>TCR - TRICONE REFUSAL</td> <td>w - MOISTURE CONTENT</td> <td>V - VERY</td> <td>VST - VANE SHEAR TEST</td> <td>WEA. - WEATHERED</td> <td>UNIT WEIGHT</td> <td>DRY UNIT WEIGHT</td> </tr> <tr> <td colspan="10"></td> <td colspan="10"> <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p> </td> </tr> </table> |  |                  |             |                 |   |               |      |   |                     | AR - AUGER REFUSAL                     | BT - BORING TERMINATED           | CL - CLAY                          | CPT - COARSE PENETRATION TEST                 | CSE - COARSE                    | DMT - DILATOMETER TEST          | DPT - DYNAMIC PENETRATION TEST                      | e - VOID RATIO    | F - FINE               | FOSS. - FOSSILIFEROUS             | FRAC. - FRACTURED, FRACTURES                         | FRAGS. - FRAGMENTS          | HI. - HIGHLY                | MED. - MEDIUM                            | MICA - MICACEOUS                                | MOD. - MODERATELY           | NP - NON PLASTIC       | ORG. - ORGANIC                          | PMT - PRESSUREMETER TEST                      | SAP. - SAPROLITIC | SD. - SAND, SANDY     | SL. - SILT, SILTY                          | SLI. - SLIGHTLY  | TCR - TRICONE REFUSAL                     | w - MOISTURE CONTENT | V - VERY                 | VST - VANE SHEAR TEST                         | WEA. - WEATHERED                    | UNIT WEIGHT            | DRY UNIT WEIGHT          |  |                                       |  |                          |                                   |  |  |                          |  |                   | <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p> |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS)  | FIELD MOISTURE DESCRIPTION  | GUIDE FOR FIELD MOISTURE DESCRIPTION                                |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |               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| LL - LIQUID LIMIT   | - SATURATED - (SAT.)  | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       | 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| PL - PLASTIC LIMIT  | - WET - (W)   | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE               |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |      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| OM - OPTIMUM MOISTURE SHRINKAGE LIMIT   | - MOIST - (M)   | SOLID; AT OR NEAR OPTIMUM MOISTURE                                  |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                           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| SL - SHRINKAGE LIMIT  | - DRY - (D)   | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE                |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |    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| AR - AUGER REFUSAL  | BT - BORING TERMINATED  | CL - CLAY   | CPT - COARSE PENETRATION TEST                                    | CSE - COARSE      | DMT - DILATOMETER TEST   | DPT - DYNAMIC PENETRATION TEST           | e - VOID RATIO    | F - FINE          | FOSS. - FOSSILIFEROUS | FRAC. - FRACTURED, FRACTURES  | FRAGS. - FRAGMENTS                      | HI. - HIGHLY                                       | MED. - MEDIUM  | MICA - MICACEOUS                            | MOD. - MODERATELY   | NP - NON PLASTIC                               | ORG. - ORGANIC   | PMT - PRESSUREMETER TEST                              | SAP. - SAPROLITIC   | SD. - SAND, SANDY  | SL. - SILT, SILTY  | SLI. - SLIGHTLY   | TCR - TRICONE REFUSAL | w - MOISTURE CONTENT                                 | V - VERY  | VST - VANE SHEAR TEST  | WEA. - WEATHERED | UNIT WEIGHT | DRY UNIT WEIGHT |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |     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                    |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                         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|   |   |   |  |                   |  |  |                   |                   |                       | <p style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></p> <p>S - BULK<br/>SS - SPLIT SPOON<br/>ST - SHELBY TUBE<br/>RS - ROCK<br/>RT - RECOMPACTED TRIAXIAL<br/>CBR - CALIFORNIA BEARING RATIO</p>   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     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| <p style="text-align: center;"><b>PLASTICITY</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NON PLASTIC</th> <th>SLIGHTLY PLASTIC</th> <th>MODERATELY PLASTIC</th> <th>HIGHLY PLASTIC</th> </tr> <tr> <td>0-5</td> <td>6-15</td> <td>16-25</td> <td>26 OR MORE</td> </tr> <tr> <td colspan="2">PLASTICITY INDEX (PI)</td> <td colspan="2">DRY STRENGTH</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">VERY LOW<br/>SLIGHT<br/>MEDIUM<br/>HIGH</td> </tr> </table>   |   |   |  |                   |  |  |                   |                   |                       | NON PLASTIC   | SLIGHTLY PLASTIC                        | MODERATELY PLASTIC                                 | HIGHLY PLASTIC   | 0-5   | 6-15  | 16-25  | 26 OR MORE   | PLASTICITY INDEX (PI)                                 |   | DRY STRENGTH   |  |   |                       | VERY LOW<br>SLIGHT<br>MEDIUM<br>HIGH                 |   | <p style="text-align: center;"><b>EQUIPMENT USED ON SUBJECT PROJECT</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> CME-45C</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input checked="" type="checkbox"/> AUTOMATIC</td> <td><input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> CME-55</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td colspan="2">CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-550X</td> <td><input checked="" type="checkbox"/> 8" HOLLOW AUGERS</td> <td><input type="checkbox"/> -B</td> <td><input type="checkbox"/> -H</td> </tr> <tr> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> -N</td> <td></td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG-CARBIDE INSERTS</td> <td colspan="2">HAND TOOLS:</td> </tr> <tr> <td><input checked="" type="checkbox"/> CME-75</td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> HAND AUGER</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> TRICONE *TUNG-CARB.</td> <td><input type="checkbox"/> SOUNDING ROD</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> VANE SHEAR TEST</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/> MUD ROTARY</td> <td></td> <td></td> </tr> </table> |                  |             |                 |   |               |      |   |                     |  | <input type="checkbox"/> CME-45C | <input type="checkbox"/> CLAY BITS | <input checked="" type="checkbox"/> AUTOMATIC | <input type="checkbox"/> MANUAL | <input type="checkbox"/> CME-55 | <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER | CORE SIZE:        |                        | <input type="checkbox"/> CME-550X | <input checked="" type="checkbox"/> 8" HOLLOW AUGERS | <input type="checkbox"/> -B | <input type="checkbox"/> -H | <input type="checkbox"/> VANE SHEAR TEST | <input type="checkbox"/> HARD FACED FINGER BITS | <input type="checkbox"/> -N |                        | <input type="checkbox"/> PORTABLE HOIST | <input type="checkbox"/> TUNG-CARBIDE INSERTS | HAND TOOLS:       |                       | <input checked="" type="checkbox"/> CME-75 | <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER | <input type="checkbox"/> POST HOLE DIGGER |                      | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *STEEL TEETH | <input type="checkbox"/> HAND AUGER |                        | <input type="checkbox"/> | <input type="checkbox"/> TRICONE *TUNG-CARB. | <input type="checkbox"/> SOUNDING ROD |  | <input type="checkbox"/> | <input type="checkbox"/> CORE BIT | <input type="checkbox"/> VANE SHEAR TEST |  | <input type="checkbox"/> | <input checked="" type="checkbox"/> MUD ROTARY |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |     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| NON PLASTIC   | SLIGHTLY PLASTIC  | MODERATELY PLASTIC  | HIGHLY PLASTIC   |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |             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| 0-5   | 6-15  | 16-25   | 26 OR MORE   |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |       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| PLASTICITY INDEX (PI)   |   | DRY STRENGTH  |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |      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   |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
|   |   | VERY LOW<br>SLIGHT<br>MEDIUM<br>HIGH                                |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |         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   |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> CME-45C  | <input type="checkbox"/> CLAY BITS  | <input checked="" type="checkbox"/> AUTOMATIC                       | <input type="checkbox"/> MANUAL                                  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                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 |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  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| <input type="checkbox"/> CME-55   | <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER                                       | CORE SIZE:  |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |               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| <input type="checkbox"/> CME-550X   | <input checked="" type="checkbox"/> 8" HOLLOW AUGERS                                      | <input type="checkbox"/> -B   | <input type="checkbox"/> -H                                      |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  | 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| <input type="checkbox"/> VANE SHEAR TEST  | <input type="checkbox"/> HARD FACED FINGER BITS   | <input type="checkbox"/> -N   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                             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| <input type="checkbox"/> PORTABLE HOIST   | <input type="checkbox"/> TUNG-CARBIDE INSERTS   | HAND TOOLS:   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |          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| <input checked="" type="checkbox"/> CME-75  | <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER                      | <input type="checkbox"/> POST HOLE DIGGER                           |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |    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|  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/>  | <input type="checkbox"/> TRICONE *STEEL TEETH   | <input type="checkbox"/> HAND AUGER                                 |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |         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| <input type="checkbox"/>  | <input type="checkbox"/> TRICONE *TUNG-CARB.  | <input type="checkbox"/> SOUNDING ROD                               |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |           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 |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/>  | <input type="checkbox"/> CORE BIT   | <input type="checkbox"/> VANE SHEAR TEST                            |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                     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| <input type="checkbox"/>  | <input checked="" type="checkbox"/> MUD ROTARY  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |     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| <p style="text-align: center;"><b>FRACATURE SPACING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </table>   |   |   |  |                   |  |  |                   |                   |                       | TERM  | SPACING                                 | VERY WIDE  | MORE THAN 10 FEET  | WIDE  | 3 TO 10 FEET  | MODERATELY CLOSE                               | 1 TO 3 FEET  | CLOSE   | 0.16 TO 1 FOOT  | VERY CLOSE   | LESS THAN 0.16 FEET  | <p style="text-align: center;"><b>BEDDING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>&lt; 0.008 FEET</td> </tr> </table>   |                       |  |   |  |                  |             |                 |   |               | TERM | THICKNESS                                     | VERY THICKLY BEDDED | 4 FEET                                 | THICKLY BEDDED                   | 1.5 - 4 FEET                       | THINLY BEDDED                                 | 0.16 - 1.5 FEET                 | VERY THINLY BEDDED              | 0.03 - 0.16 FEET                                    | THICKLY LAMINATED | 0.008 - 0.03 FEET      | THINLY LAMINATED                  | < 0.008 FEET   |                             |                             |  |   |                             |     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| TERM  | SPACING   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                     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| VERY WIDE   | MORE THAN 10 FEET   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |     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| WIDE  | 3 TO 10 FEET  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                 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| MODERATELY CLOSE  | 1 TO 3 FEET   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |     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| CLOSE   | 0.16 TO 1 FOOT  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| VERY CLOSE  | LESS THAN 0.16 FEET   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| TERM  | THICKNESS   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| VERY THICKLY BEDDED   | 4 FEET  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| THICKLY BEDDED  | 1.5 - 4 FEET  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| THINLY BEDDED   | 0.16 - 1.5 FEET   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| VERY THINLY BEDDED  | 0.03 - 0.16 FEET  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| THICKLY LAMINATED   | 0.008 - 0.03 FEET   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |   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         |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| THINLY LAMINATED  | < 0.008 FEET  |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |            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| <p style="text-align: center;"><b>INDURATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>DESCRIPTION</th> </tr> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table>   |   |   |  |                   |  |  |                   |                   |                       | TERM  | DESCRIPTION                             | 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. | <p style="text-align: center;"><b>NOTES:</b></p> <p>BORING ELEVATIONS OBTAINED USING b3186_br0022_r4047_Mer ged.1-12-21.tin</p> <p>SITE 2 BORING ELEVATIONS OBTAINED FROM TRIMBLE R12 GNSS RECEIVER CERTIFIED WITH FCC PART 15 (CLASS B DEVICE), 24, 32; RCM; PTCRB; BT SIG</p> <p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p>  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |        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                 |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                    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| TERM  | DESCRIPTION   |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| 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. |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      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| INDURATED   | GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.        |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  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         |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |    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    |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| EXTREMELY INDURATED   | SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.                 |   |  |                   |  |  |                   |                   |                       |   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |     |   |  |  |  |   |  |  |  |  |  |  |  |  |  |  |   |  |  |  |                              |  |             |  |             |  |                        |  |  |  |              |  |              |  |                        |  |             |  |                       |  |                    |  |                 |  |             |  |                        |  |                         |  |  |   |  |  |  |  |  |  |  |  |  |                                   |   |    |    |    |     |     |  |      |      |      |      |       |       |                 |  |  |  |  |  |  |               |  |  |  |  |  |  |              |  |  |  |  |  |  |                        |  |  |  |  |  |  |                   |  |  |  |  |  |  |            |  |  |  |  |  |  |            |  |  |  |  |  |  |            |         |        |     |      |      |       |  |  |  |  |  |  |  |  |  |  |  |          |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |                                      |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |
| <p style="text-align: center;"><b>COLOR</b></p> <p>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.</p>   |   |   |  |                   |  |  |                   |                   |                       | <p style="text-align: center;"><b>BENCH MARK: N/A</b></p> <p style="text-align: right;">ELEVATION: FEET</p>   |   |  |  |   |   |  |  |   |   |  |  |   |                       |  |   |  |                  |             |                 |   |               |      |   |                     |  |                                  |                                    |   |                                 |                                 |   |                   |                        |                                   |  |                             |                             |  |   |                             |                        |   |   |                   |                       |  |  |   |                      |                          |   |                                     |                        |                          |  |                                       |  |                          |                                   |  |  |                          |  |                   |   |                   |             |             |             |  |             |             |             |  |  |  |  |  |                            |        |          |                         |  |                   |  |                   |                   |                   |  |  |  |  |  |  |             |   |   |   |      |      |       |       |       |  |  |  |  |  |  |  |                                |                               |           |                                 |             |              |  |  |  |  |  |  |  |  |  |  |                         |                   |  |  |  |  |              |  |  |  |  |              |      |             |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                   |                            |  |  |   |  |  |    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                                  |                   |                      |   |                    |             |   |                                       |               |                                    |                      |             |  |   |  |  |  |  |  |  |  |  |  |                    |                        |           |                               |              |                        |                                |                |          |                       |                              |                    |              |               |                  |                   |                  |                |                          |                   |                   |                   |                 |                       |                      |          |                       |                  |             |                 |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |             |                  |                    |                |     |      |       |            |                       |  |              |  |  |  |                                      |  |  |  |  |  |  |  |  |  |  |  |                                  |                                    |   |                                 |                                 |   |            |  |                                   |  |                             |                             |  |   |                             |  |   |   |             |  |  |  |   |  |                          |   |                                     |  |                          |  |                                       |  |                          |                                   |  |  |                          |  |  |  |   |  |  |  |  |  |  |  |  |  |      |         |           |                   |      |              |                  |             |       |                |            |                     |   |  |  |  |  |  |  |  |  |  |      |           |                     |        |                |              |               |                 |                    |                  |                   |                   |                  |              |   |  |  |  |  |  |  |  |  |  |      |             |         |  |                      |   |           |  |                     |   |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |

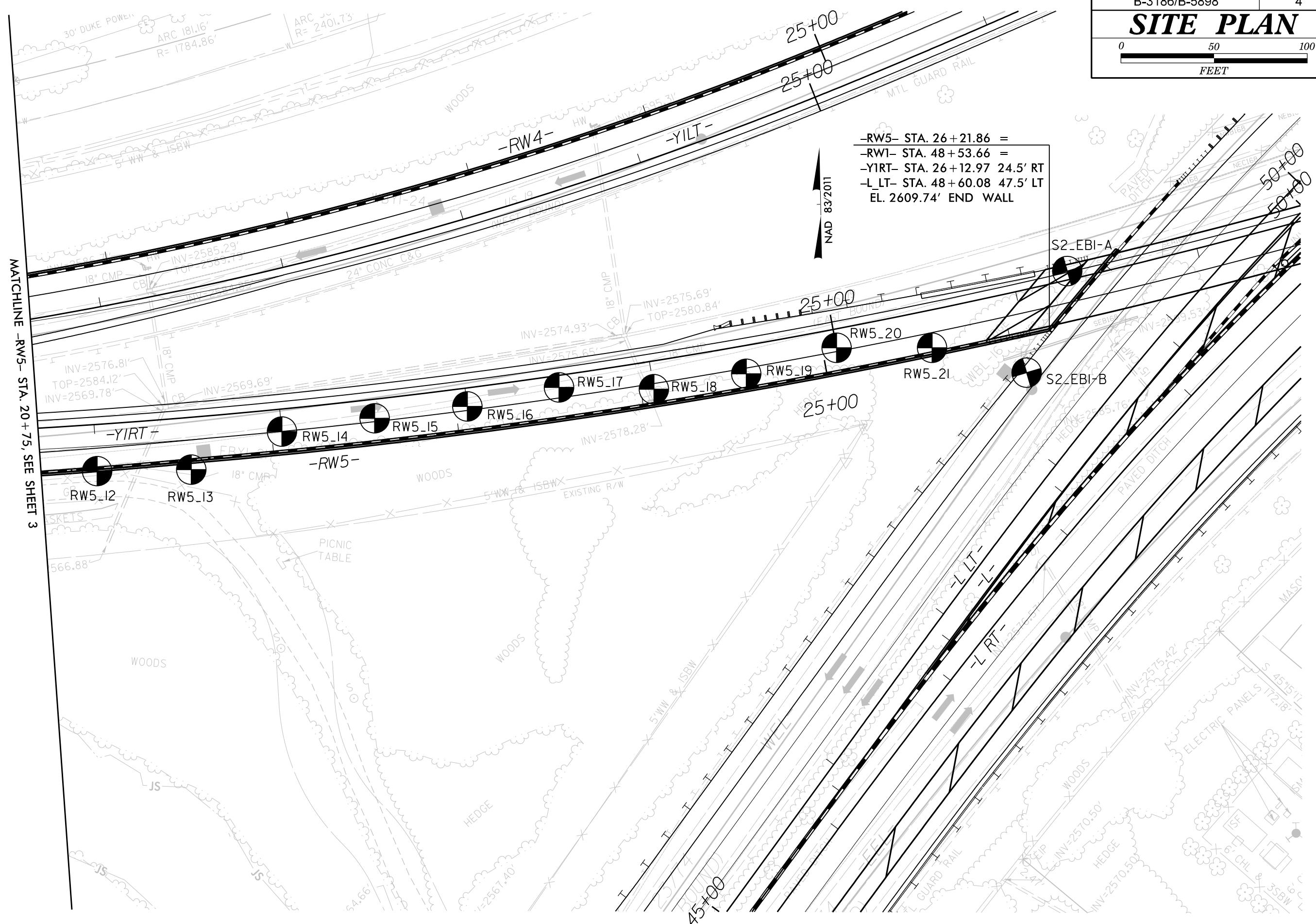


MATCHLINE -RW5- STA. 20+75, SEE SHEET 4

-RW5- STA. 16+51.22 =  
 -YIRT- STA. 16+50.00 30.68' RT  
 EL. 2585.39'  
 BEGIN WALL

APPROXIMATE LOCATION OF SEWER LINE  
 PER HAND DRAWN REFERENCE  
 FROM CITY OF WAYNESVILLE

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-3186/B-5898         | 4         |
| <b>SITE PLAN</b>      |           |
|                       |           |



-RW5- STA. 26+21.86 =  
 -RW1- STA. 48+53.66 =  
 -YIRT- STA. 26+12.97 24.5' RT  
 -L LT- STA. 48+60.08 47.5' LT  
 EL. 2609.74' END WALL

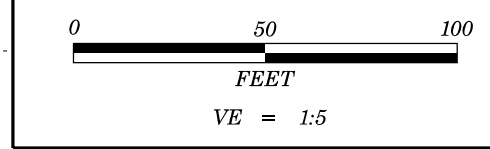


MATCHLINE -RW5- STA. 20+75, SEE SHEET 3

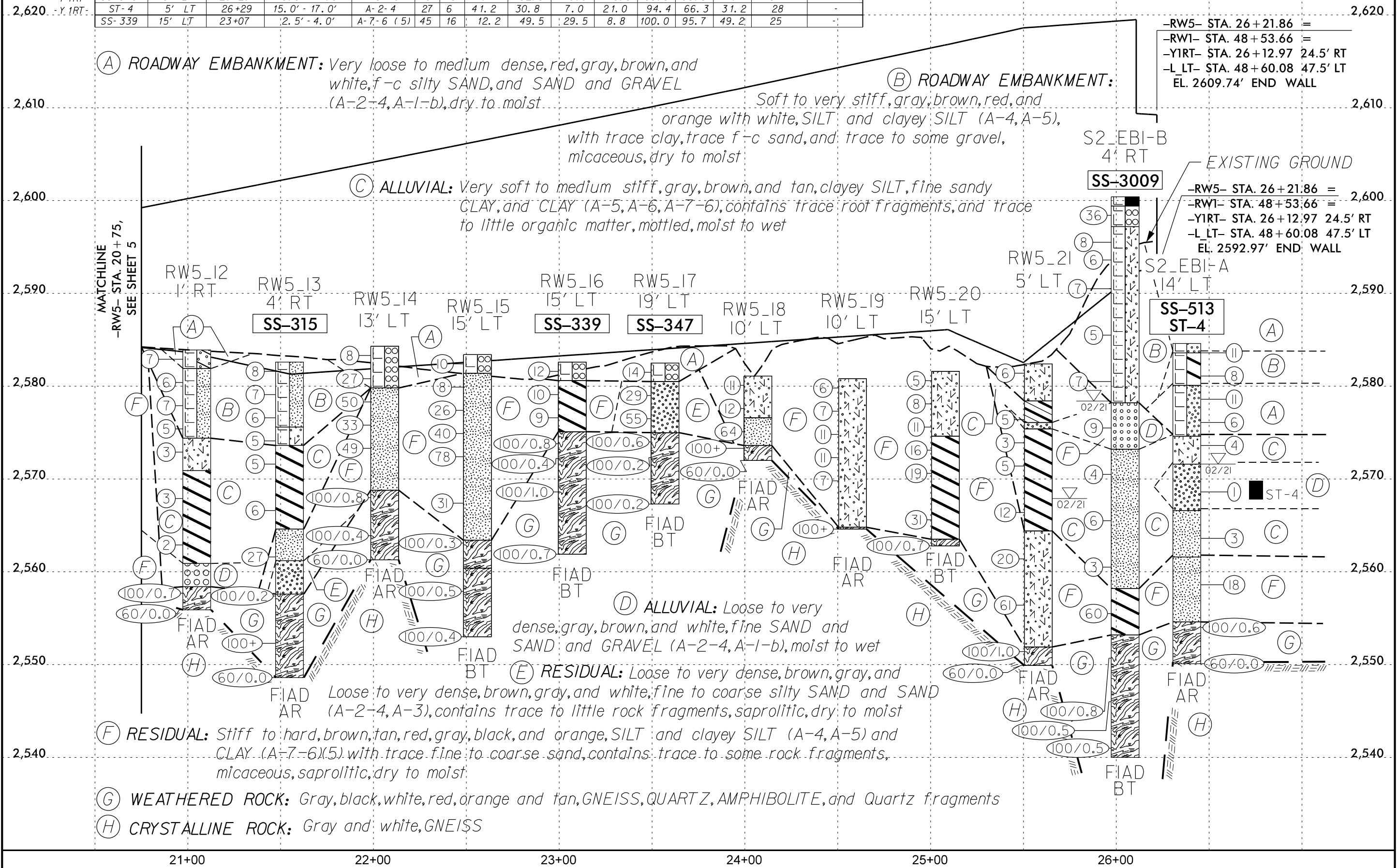


**SOIL TEST RESULTS**

| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT |        |      |      | % PASSING (SIEVES) |      |      | % MOISTURE | % ORGANIC |
|------------|--------|---------|----------------|---------------|------|------|-------------|--------|------|------|--------------------|------|------|------------|-----------|
|            |        |         |                |               |      |      | C.SAND      | F.SAND | SILT | CLAY | 10                 | 40   | 200  |            |           |
| SS-315     | 3' RT  | 21+55   | 2.5' - 4.0'    | A-4 (1)       | 38   | 8    | 28.5        | 29.9   | 34.3 | 7.3  | 94.2               | 75.9 | 45.9 | 21         | -         |
| SS-339     | 15' LT | 23+07   | 2.5' - 4.0'    | A-7-6 (5)     | 45   | 16   | 12.2        | 49.5   | 29.5 | 8.8  | 100.0              | 95.7 | 49.2 | 25         | -         |
| SS-347     | 19' LT | 23+57   | 5.0' - 6.5'    | A-2-4         | 34   | 8    | 39.8        | 31.4   | 18.9 | 9.9  | 96.5               | 70.5 | 33.6 | 11         | -         |
| SS-3009    | 44' RT | 25+96   | 38.9' - 40.4'  | A-4           | 37   | 8    | 26.8        | 36.0   | 25.4 | 11.8 | 86.6               | 72.3 | 36.7 | 43         | -         |
| SS-513     | 5' LT  | 26+29   | 10.0' - 11.5'  | A-5 (9)       | 48   | 10   | 4.1         | 32.5   | 49.9 | 13.5 | 100.0              | 98.0 | 74.1 | 51         | -         |
| ST-4       | 5' LT  | 26+29   | 15.0' - 17.0'  | A-2-4         | 27   | 6    | 41.2        | 30.8   | 7.0  | 21.0 | 94.4               | 66.3 | 31.2 | 28         | -         |
| SS-339     | 15' LT | 23+07   | 2.5' - 4.0'    | A-7-6 (5)     | 45   | 16   | 12.2        | 49.5   | 29.5 | 8.8  | 100.0              | 95.7 | 49.2 | 25         | -         |



|                              |                  |
|------------------------------|------------------|
| <b>PROJECT REFERENCE NO.</b> | <b>SHEET NO.</b> |
| B-3186/B-5898                | 6                |
| <b>-RW5- PROFILE</b>         |                  |



**(A) ROADWAY EMBANKMENT:** Very loose to medium dense, red, gray, brown, and white, f-c silty SAND, and SAND and GRAVEL (A-2-4, A-1-b), dry to moist

**(B) ROADWAY EMBANKMENT:** Soft to very stiff, gray, brown, red, and orange with white, SILT and clayey SILT (A-4, A-5), with trace clay, trace f-c sand, and trace to some gravel, micaceous, dry to moist

**(C) ALLUVIAL:** Very soft to medium stiff, gray, brown, and tan, clayey SILT, fine sandy CLAY, and CLAY (A-5, A-6, A-7-6), contains trace root fragments, and trace to little organic matter, mottled, moist to wet

**(D) ALLUVIAL:** Loose to very dense, gray, brown, and white, fine SAND and SAND and GRAVEL (A-2-4, A-1-b), moist to wet

**(E) RESIDUAL:** Loose to very dense, brown, gray, and white, fine to coarse silty SAND and SAND (A-2-4, A-3), contains trace to little rock fragments, saprolitic, dry to moist

**(F) RESIDUAL:** Stiff to hard, brown, tan, red, gray, black, and orange, SILT and clayey SILT (A-4, A-5) and CLAY (A-7-6)(5) with trace fine to coarse sand, contains trace to some rock fragments, micaceous, saprolitic, dry to moist

**(G) WEATHERED ROCK:** Gray, black, white, red, orange and tan, GNEISS, QUARTZ, AMPHIBOLITE, and Quartz fragments

**(H) CRYSTALLINE ROCK:** Gray and white, GNEISS





# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |            |         |      |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|------------|---------|------|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13   |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |       |                           |            |         |      |
| BORING NO. RW5_3   |                 | STATION 16+52       |            | OFFSET 16 ft LT          |       | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |            |         |      |
| COLLAR ELEV. 2,584.8 ft  |                 | TOTAL DEPTH 11.9 ft |            | NORTHING 666,842         |       | EASTING 818,299         |                 |    |    |     |           |       |                           |            |         |      |
| DRILL RIG/HAMMER EFF./DATE GTC CME 75 183277   |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |            |         |      |
| DRILLER K. Boone   |                 | START DATE 02/13/21 |            | COMP. DATE 02/13/21      |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |            |         |      |
| ELEV (ft)  | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                          |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |         |      |
|  |                 |                     | 0.5ft      | 0.5ft                    | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |       |                           |            |         |      |
| 2585   | 2,583.9         | 0.9                 | 2          | 4                        | 6     |                         |                 |    |    |     |           |       |                           |            | 2,584.8 | 0.0  |
|  |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,583.9 | 0.9  |
| 2580   | 2,581.3         | 3.5                 | 3          | 4                        | 7     |                         |                 |    |    |     |           |       |                           |            |         |      |
|  | 2,578.8         | 6.0                 | 5          | 6                        | 6     |                         |                 |    |    |     |           |       |                           |            |         |      |
| 2575   | 2,576.3         | 8.5                 | 3          | 4                        | 6     |                         |                 |    |    |     |           |       |                           |            |         |      |
|  | 2,572.9         | 11.9                |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,572.9 | 11.9 |
| Boring Terminated with Standard Penetration Test Refusal at Elevation 2,572.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 11.9'. |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            |         |      |

| WBS 38332.1.FS1   |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |            |         |     |
|---|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|------------|---------|-----|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13  |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |       |                           |            |         |     |
| BORING NO. RW5_4  |                 | STATION 17+02       |            | OFFSET 15 ft LT          |       | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |            |         |     |
| COLLAR ELEV. 2,585.7 ft   |                 | TOTAL DEPTH 5.7 ft  |            | NORTHING 666,837         |       | EASTING 818,349         |                 |    |    |     |           |       |                           |            |         |     |
| DRILL RIG/HAMMER EFF./DATE GTC CME 75 183277  |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |            |         |     |
| DRILLER K. Boone  |                 | START DATE 02/13/21 |            | COMP. DATE 02/13/21      |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |            |         |     |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                          |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |         |     |
|   |                 |                     | 0.5ft      | 0.5ft                    | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |       |                           |            |         |     |
| 2590  |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            |         |     |
|   |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            |         |     |
| 2585  | 2,584.9         | 0.8                 | 3          | 4                        | 5     |                         |                 |    |    |     |           |       |                           |            | 2,585.7 | 0.0 |
|   |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,584.9 | 0.8 |
|   | 2,582.2         | 3.5                 |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,582.2 | 3.5 |
| 2580  | 2,580.1         | 5.6                 |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,580.1 | 5.6 |
|   |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            | 2,580.0 | 5.7 |
| Boring Terminated with Standard Penetration Test Refusal at Elevation 2,580.0 ft in Crystalline Rock (GNEISS). A.R. at a depth of 5.6'. |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |            |         |     |

NCDOT BORE DOUBLE\_B3186\_GEO\_SPT.GPJ\_NC\_DOT.GDT\_7/8/21



# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |  |  |
|--|-----------------|---------------------|--------------------------|---------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|--|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |                          |                     |       |                         | GROUND WTR (ft) |    |    |     |           |       |                           |  |  |
| BORING NO. RW5_5   |                 | STATION 17+52       |                          | OFFSET 14 ft LT     |       | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |  |  |
| COLLAR ELEV. 2,586.3 ft  |                 | TOTAL DEPTH 5.4 ft  |                          | NORTHING 666,834    |       | EASTING 818,399         |                 |    |    |     |           |       |                           |  |  |
| DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)             |                 |                     | DRILL METHOD H.S. Augers |                     |       | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |  |  |
| DRILLER K. Boone   |                 | START DATE 02/13/21 |                          | COMP. DATE 02/14/21 |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |  |  |
| ELEV (ft)  | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT               |                     |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft)   |  |
|  |                 |                     | 0.5ft                    | 0.5ft               | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |       |                           |  |  |
| 2590   |                 |                     |                          |                     |       |                         |                 |    |    |     |           |       |                           |  |  |
| 2585   | 2,585.7         | 0.6                 | 7                        | 5                   | 7     |                         |                 |    |    |     |           |       | D                         | 2,586.3 GROUND SURFACE 0.0<br>2,585.7 0.6' PAVEMENT 0.6  |  |
|  | 2,582.8         | 3.5                 | 5                        | 11                  | 17    |                         |                 |    |    |     |           |       | D                         | 2,583.3 RESIDUAL 3.0<br>Stiff, red and brown, clayey SILT (A-5), with trace gravel (quartz)  |  |
|  | 2,580.9         | 5.4                 |                          |                     |       |                         |                 |    |    |     |           |       | D                         | 2,580.9 Medium dense, red, gray, and white, f-c SAND and GRAVEL (A-1-b), with some silt 5.4<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,580.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 5.4'. |  |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |  |  |
|--|-----------------|---------------------|--------------------------|---------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|--|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |                          |                     |       |                         | GROUND WTR (ft) |    |    |     |           |       |                           |  |  |
| BORING NO. RW5_6   |                 | STATION 18+03       |                          | OFFSET 14 ft LT     |       | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |  |  |
| COLLAR ELEV. 2,586.7 ft  |                 | TOTAL DEPTH 8.4 ft  |                          | NORTHING 666,831    |       | EASTING 818,450         |                 |    |    |     |           |       |                           |  |  |
| DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)             |                 |                     | DRILL METHOD H.S. Augers |                     |       | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |  |  |
| DRILLER K. Boone   |                 | START DATE 02/14/21 |                          | COMP. DATE 02/14/21 |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |  |  |
| ELEV (ft)  | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT               |                     |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft)   |  |
|  |                 |                     | 0.5ft                    | 0.5ft               | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |       |                           |  |  |
| 2590   |                 |                     |                          |                     |       |                         |                 |    |    |     |           |       |                           |  |  |
| 2585   | 2,586.2         | 0.5                 | 5                        | 4                   | 10    |                         |                 |    |    |     |           |       | D                         | 2,586.7 GROUND SURFACE 0.0<br>2,586.2 0.5' PAVEMENT 0.5  |  |
|  | 2,583.2         | 3.5                 | 5                        | 4                   | 9     |                         |                 |    |    |     |           |       | D                         | 2,583.2 RESIDUAL 3.5<br>Stiff to hard, red, brown, and gray, clayey SILT (A-5), with trace f-c sand and rock fragments (quartz), micaceous, saprolitic |  |
| 2580   | 2,580.7         | 6.0                 | 4                        | 11                  | 29    |                         |                 |    |    |     |           |       | D                         | 2,580.7 6.0  |  |
|  | 2,578.3         | 8.4                 |                          |                     |       |                         |                 |    |    |     |           |       | D                         | 2,578.3 8.4<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,578.3 ft on Crystalline Rock (GNEISS). A.R. at a depth of 8.4'. |  |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ NC\_DOT.GDT 11/5/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |  |  |  |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|--|--|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |     |  |  |  |
| BORING NO. RW5_7   |                 | STATION 18+53       |            | OFFSET 2 ft RT           |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |  |  |  |
| COLLAR ELEV. 2,585.7 ft  |                 | TOTAL DEPTH 12.5 ft |            | NORTHING 666,814         |       | EASTING 818,499         |                 |    |    |     |           |     |  |  |  |
| DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)             |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |  |  |  |
| DRILLER K. Boone   |                 | START DATE 02/14/21 |            | COMP. DATE 02/14/21      |       | 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 |           |     |  |  |  |
| 2590   |                 |                     |            |                          |       |                         |                 |    |    |     |           |     |  |  |  |
| 2585   | 2,585.0         | 0.7                 | 2          | 4                        | 4     |                         |                 |    |    |     |           |     | D  | 2,585.7 GROUND SURFACE 0.0<br>2,585.0 0.7' PAVEMENT 0.7  |  |
| 2580   | 2,582.2         | 3.5                 | 3          | 4                        | 3     |                         |                 |    |    |     |           |     | D  | <b>RESIDUAL</b><br>Soft to stiff, red and brown, clayey SILT (A-5), with trace gravel (quartz)           |  |
|  | 2,579.7         | 6.0                 | 2          | 1                        | 2     |                         |                 |    |    |     |           |     | D  | No recovery  |  |
| 2575   | 2,577.2         | 8.5                 | 4          | 4                        | 3     |                         |                 |    |    |     |           |     | D  | 2,577.7 8.0<br>Medium stiff, red and brown with white, SILT (A-4), with few gravel (well-rounded quartz) |  |
|  | 2,573.2         | 12.5                | 60/0.0     |                          |       |                         |                 |    |    |     |           |     | 2,573.2 12.5<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,573.2 ft on Crystalline Rock (GNEISS). A.R. at a depth of 12.5'. |  |  |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |  |   |  |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|--|---|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |     |  |   |  |
| BORING NO. RW5_8   |                 | STATION 19+03       |            | OFFSET 2 ft RT           |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |  |   |  |
| COLLAR ELEV. 2,585.8 ft  |                 | TOTAL DEPTH 23.7 ft |            | NORTHING 666,813         |       | EASTING 818,550         |                 |    |    |     |           |     |  |   |  |
| DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)             |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |  |   |  |
| DRILLER K. Boone   |                 | START DATE 02/15/21 |            | COMP. DATE 02/15/21      |       | 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 |           |     |  |   |  |
| 2590   |                 |                     |            |                          |       |                         |                 |    |    |     |           |     |  |   |  |
| 2585   | 2,585.8         | 0.0                 | 7          | 5                        | 3     |                         |                 |    |    |     |           |     | M  | 2,585.8 GROUND SURFACE 0.0  |  |
| 2580   | 2,583.3         | 2.5                 | 6          | 4                        | 6     |                         |                 |    |    |     |           |     | D  | <b>RESIDUAL</b><br>Stiff, brown, clayey SILT (A-5), micaceous<br>Medium stiff to stiff, brown and black, SILT (A-4) |  |
|  | 2,580.8         | 5.0                 | 5          | 3                        | 5     |                         |                 |    |    |     |           |     | M  | 2,581.8 4.0<br>Stiff, red and brown, clayey SILT (A-5)  |  |
| 2575   | 2,578.3         | 7.5                 | 7          | 7                        | 10    |                         |                 |    |    |     |           |     | D  | 2,578.8 7.0<br>Stiff, red, brown, and tan, SILT (A-4), micaceous, saprolitic  |  |
|  | 2,575.8         | 10.0                | 5          | 8                        | 9     |                         |                 |    |    |     |           |     | D  |   |  |
| 2570   | 2,570.8         | 15.0                | 3          | 5                        | 7     |                         |                 |    |    |     |           |     | D  |   |  |
| 2565   | 2,565.8         | 20.0                | 5          | 7                        | 10    |                         |                 |    |    |     |           |     | D  |   |  |
|  | 2,562.1         | 23.7                | 60/0.0     |                          |       |                         |                 |    |    |     |           |     | 2,562.1 23.7<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,562.1 ft on Crystalline Rock (GNEISS). A.R. at a depth of 23.7'. |   |  |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ NC\_DOT.GDT 11/5/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |                           |   |  |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|---|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |   |  |
| BORING NO. RW5_9   |                 | STATION 19+54       |            | OFFSET 3 ft RT           |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |   |  |
| COLLAR ELEV. 2,585.8 ft  |                 | TOTAL DEPTH 19.5 ft |            | NORTHING 666,813         |       | EASTING 818,600         |                 |    |    |     |           |     |                           |   |  |
| DRILL RIGHAMMER EFF./DATE GTC8255 CME-55 93%(11/24/2020)             |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |   |  |
| DRILLER L. Wansrath  |                 | START DATE 03/14/21 |            | COMP. DATE 03/14/21      |       | 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 |           |     |                           |   |  |
| 2590   |                 |                     |            |                          |       |                         |                 |    |    |     |           |     |                           |   |  |
| 2585   | 2,585.8         | 0.0                 | 5          | 2                        | 3     |                         |                 |    |    |     |           |     | D                         | 2,585.8 GROUND SURFACE 0.0  |  |
|  | 2,583.3         | 2.5                 | 4          | 23                       | 29    |                         |                 |    |    |     |           |     | D                         | 2,583.8 RESIDUAL Loose, brown, silty SAND (A-2-4), with some gravel 2.0   |  |
| 2580   | 2,580.8         | 5.0                 | 33         | 44                       | 42    |                         |                 |    |    |     |           |     | D                         | 2,581.3 Very stiff, brown and red, SILT (A-4), contains some rock fragments 4.5   |  |
|  | 2,578.3         | 7.5                 | 28         | 28                       | 29    |                         |                 |    |    |     |           |     | D                         | 2,576.3 Very dense, brown and black, f-c silty SAND (A-2-4), contains trace rock fragments, saprolitic 9.5  |  |
| 2575   | 2,575.8         | 10.0                | 16         | 10                       | 9     |                         |                 |    |    |     |           |     | D                         | 2,576.3 Very stiff, brown, SILT (A-4), with trace f sand 9.5  |  |
| 2570   | 2,570.8         | 15.0                | 62         | 90                       | 47    |                         |                 |    |    |     |           |     | D                         | 2,570.8 WEATHERED ROCK White and tan, GRANITE and quartz fragments 15.0   |  |
|  | 2,566.3         | 19.5                | 60/0.0     |                          |       |                         |                 |    |    |     |           |     |                           | 2,566.3 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,566.3 ft on Crystalline Rock (GNEISS). A.R. at a depth of 19.5'. 19.5 |  |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |                           |  |  |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|--|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |  |  |
| BORING NO. RW5_10  |                 | STATION 20+04       |            | OFFSET 2 ft RT           |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |  |  |
| COLLAR ELEV. 2,584.9 ft  |                 | TOTAL DEPTH 25.6 ft |            | NORTHING 666,815         |       | EASTING 818,651         |                 |    |    |     |           |     |                           |  |  |
| DRILL RIGHAMMER EFF./DATE GTC8255 CME-55 93%(11/24/2020)             |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |  |  |
| DRILLER L. Wansrath  |                 | START DATE 03/16/21 |            | COMP. DATE 03/16/21      |       | 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 |           |     |                           |  |  |
| 2585   | 2,584.9         | 0.0                 | 3          | 1                        | 1     |                         |                 |    |    |     |           |     |                           | 2,584.9 GROUND SURFACE 0.0   |  |
|  | 2,582.4         | 2.5                 | 4          | 5                        | 7     |                         |                 |    |    |     |           |     | D                         | 2,582.9 ROADWAY EMBANKMENT Very loose, brown, silty SAND (A-2-4) 2.0                                       |  |
| 2580   | 2,579.9         | 5.0                 | 8          | 8                        | 8     |                         |                 |    |    |     |           |     | D                         | RESIDUAL Stiff to very stiff, brown, black and red, SILT (A-4), with trace f-c sand, micaceous, saprolitic |  |
|  | 2,577.4         | 7.5                 | 8          | 9                        | 12    |                         |                 |    |    |     |           |     | D                         |  |  |
| 2575   | 2,574.9         | 10.0                | 11         | 8                        | 12    |                         |                 |    |    |     |           |     | D                         |  |  |
| 2570   | 2,569.9         | 15.0                | 71         | 39/0.1                   |       |                         |                 |    |    |     |           |     | D                         | 2,569.9 WEATHERED ROCK Light tan and white, GRANITE and quartz fragments 15.0                              |  |
|  | 2,566.9         | 20.0                | 100/0.5    |                          |       |                         |                 |    |    |     |           |     |                           | 2,566.9 Dark brown, black, and red, GNEISS 18.0  |  |
| 2560   | 2,559.9         | 25.0                | 69         | 31/0.1                   |       |                         |                 |    |    |     |           |     |                           | 2,559.3 Boring Terminated at Elevation 2,559.3 ft in Weathered Rock (GNEISS) 25.6                          |  |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ\_NC\_DOT.GDT 11/5/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |  |                |     |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|--|----------------|-----|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13   |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |       |                           |  |                |     |
| BORING NO. RW5_11  |                 | STATION 20+55       |            | OFFSET 2 ft RT           |       | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |  |                |     |
| COLLAR ELEV. 2,584.5 ft  |                 | TOTAL DEPTH 26.6 ft |            | NORTHING 666,816         |       | EASTING 818,701         |                 |    |    |     |           |       |                           |  |                |     |
| DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93%(11/24/2020)  |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |  |                |     |
| DRILLER L. Wansrath  |                 | START DATE 03/16/21 |            | COMP. DATE 03/16/21      |       | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |  |                |     |
| ELEV (ft)  | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                          |       | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft)   |                |     |
|  |                 |                     | 0.5ft      | 0.5ft                    | 0.5ft | 0                       | 25              | 50 | 75 | 100 |           |       |                           |  |                |     |
| 2585   | 2,584.5         | 0.0                 | 4          | 2                        | 4     |                         |                 |    |    |     |           |       |                           | 2,584.5  | GROUND SURFACE | 0.0 |
| 2580   | 2,582.0         | 2.5                 | 5          | 3                        | 3     |                         |                 |    |    |     |           |       | D                         | RESIDUAL<br>Medium stiff to stiff, red, brown, and gray, SILT (A-4), with trace f-c sand and clay, micaceous |                |     |
|  | 2,579.5         | 5.0                 | 3          | 3                        | 3     |                         |                 |    |    |     |           |       | D                         |  |                |     |
| 2575   | 2,577.0         | 7.5                 | 2          | 2                        | 2     |                         |                 |    |    |     |           |       | M                         |  |                |     |
|  | 2,574.5         | 10.0                | 3          | 3                        | 3     |                         |                 |    |    |     |           |       | D                         |  |                |     |
| 2570   | 2,569.5         | 15.0                | 3          | 4                        | 4     |                         |                 |    |    |     |           |       | D                         |  |                |     |
|  | 2,564.5         | 20.0                | 30         | 35                       | 43    |                         |                 |    |    |     |           |       | D                         |  |                |     |
| 2565   | 2,559.5         | 25.0                | 10         | 14                       | 25    |                         |                 |    |    |     |           |       | D                         | Very dense, gray and brown, f silty SAND (A-2-4)   | 18.0           |     |
|  | 2,557.9         | 26.6                | 60/0.0     |                          |       |                         |                 |    |    |     |           |       | D                         |  |                |     |
| Boring Terminated with Standard Penetration Test Refusal at Elevation 2,557.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 26.6'. |                 |                     |            |                          |       |                         |                 |    |    |     |           |       |                           |  |                |     |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |        | GEOLOGIST N. Yacobi     |                 |    |    |     |           |       |                           |  |                |     |
|--|-----------------|---------------------|------------|--------------------------|--------|-------------------------|-----------------|----|----|-----|-----------|-------|---------------------------|--|----------------|-----|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13   |                 |                     |            |                          |        |                         | GROUND WTR (ft) |    |    |     |           |       |                           |  |                |     |
| BORING NO. RW5_12  |                 | STATION 21+05       |            | OFFSET CL                |        | ALIGNMENT -RW5-         |                 |    |    |     |           |       |                           |  |                |     |
| COLLAR ELEV. 2,583.9 ft  |                 | TOTAL DEPTH 28.0 ft |            | NORTHING 666,821         |        | EASTING 818,751         |                 |    |    |     |           |       |                           |  |                |     |
| DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93%(11/24/2020)  |                 |                     |            | DRILL METHOD H.S. Augers |        | HAMMER TYPE Automatic   |                 |    |    |     |           |       |                           |  |                |     |
| DRILLER L. Wansrath  |                 | START DATE 03/15/21 |            | COMP. DATE 03/16/21      |        | SURFACE WATER DEPTH N/A |                 |    |    |     |           |       |                           |  |                |     |
| ELEV (ft)  | DRIVE ELEV (ft) | DEPTH (ft)          | BLOW COUNT |                          |        | BLOWS PER FOOT          |                 |    |    |     | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft)   |                |     |
|  |                 |                     | 0.5ft      | 0.5ft                    | 0.5ft  | 0                       | 25              | 50 | 75 | 100 |           |       |                           |  |                |     |
| 2585   | 2,583.9         | 0.0                 | 4          | 3                        | 4      |                         |                 |    |    |     |           |       |                           | 2,583.9  | GROUND SURFACE | 0.0 |
| 2580   | 2,581.4         | 2.5                 | 3          | 2                        | 4      |                         |                 |    |    |     |           |       | D                         | ROADWAY EMBANKMENT<br>Loose, gray and brown, clayey SAND (A-2-6), with trace gravel                      | 2.0            |     |
|  | 2,578.9         | 5.0                 | 6          | 4                        | 3      |                         |                 |    |    |     |           |       | M                         |  |                |     |
| 2575   | 2,576.4         | 7.5                 | 2          | 3                        | 2      |                         |                 |    |    |     |           |       | M                         | Medium stiff, brown, SILT (A-4), with trace clay, micaceous  |                |     |
|  | 2,573.9         | 10.0                | 2          | 1                        | 2      |                         |                 |    |    |     |           |       | M                         |  |                |     |
| 2570   | 2,570.9         | 13.0                |            |                          |        |                         |                 |    |    |     |           |       | M                         | ALLUVIAL<br>Soft, tan and light grayish brown, clayey SILT (A-5), contains trace root fragments, mottled | 9.5            |     |
|  | 2,568.9         | 15.0                | 1          | 1                        | 2      |                         |                 |    |    |     |           |       | M                         |  |                |     |
| 2565   | 2,563.9         | 20.0                | 1          | 1                        | 1      |                         |                 |    |    |     |           |       | M                         | Very soft, dark gray and brown, silty CLAY (A-7-6), contains trace root fragments, mottled               | 13.0           |     |
|  | 2,560.9         | 23.0                |            |                          |        |                         |                 |    |    |     |           |       | M                         |  |                |     |
| 2560   | 2,558.9         | 25.0                | 11         | 50                       | 50/0.2 |                         |                 |    |    |     |           |       | W                         | Very dense, brown and white, SAND and GRAVEL (A-1-b)   | 23.0           |     |
|  | 2,555.9         | 28.0                | 60/0.0     |                          |        |                         |                 |    |    |     |           |       | W                         |  |                |     |
| Boring Terminated with Standard Penetration Test Refusal at Elevation 2,555.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 28.0'. |                 |                     |            |                          |        |                         |                 |    |    |     |           |       |                           |  |                |     |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ\_NC\_DOT.GDT 11/5/21



# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |       | GEOLOGIST R. Dugger     |                 |    |    |     |           |     |                           |            |      |  |
|--|-----------------|---------------------|--------------------------|---------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|------|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |                          |                     |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |      |  |
| BORING NO. RW5_15  |                 | STATION 22+56       |                          | OFFSET 15 ft LT     |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |      |  |
| COLLAR ELEV. 2,583.4 ft  |                 | TOTAL DEPTH 30.4 ft |                          | NORTHING 666,846    |       | EASTING 818,901         |                 |    |    |     |           |     |                           |            |      |  |
| DRILL RIGHAMMER EFF./DATE GTC9083 CME-550X 80%(11/24/2020)           |                 |                     | DRILL METHOD H.S. Augers |                     |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |      |  |
| DRILLER L. Wanstrath   |                 | START DATE 02/13/21 |                          | COMP. DATE 02/13/21 |       | 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 |           |     |                           |            |      |  |
| 2585   | 2,583.4         | 0.0                 | 4                        | 6                   | 4     |                         |                 |    |    |     |           |     |                           | 2,583.4    | 0.0  | GROUND SURFACE   |
| 2580   | 2,580.9         | 2.5                 | 2                        | 2                   | 6     |                         |                 |    |    |     |           |     | D                         | 2,581.4    | 2.0  | ROADWAY EMBANKMENT<br>Loose to medium dense, brown, black, and orange, SAND and GRAVEL (A-1-b) |
|  | 2,578.4         | 5.0                 | 12                       | 12                  | 14    |                         |                 |    |    |     |           |     | D                         |            |      | RESIDUAL<br>Medium dense to very dense, gray and white, f-c silty SAND (A-2-4), saprolitic     |
| 2575   | 2,575.9         | 7.5                 | 6                        | 15                  | 25    |                         |                 |    |    |     |           |     | D                         |            |      |  |
|  | 2,573.4         | 10.0                | 29                       | 33                  | 45    |                         |                 |    |    |     |           |     | D                         |            |      |  |
| 2570   | 2,568.4         | 15.0                | 8                        | 14                  | 17    |                         |                 |    |    |     |           |     | D                         |            |      |  |
|  | 2,563.4         | 20.0                | 100/0.3                  |                     |       |                         |                 |    |    |     |           |     | D                         | 2,563.4    | 20.0 | WEATHERED ROCK<br>Tan and white, QUARTZ  |
| 2560   | 2,558.4         | 25.0                | 100/0.5                  |                     |       |                         |                 |    |    |     |           |     | D                         | 2,560.4    | 23.0 | Gray and white with brown, AMPHIBOLITE   |
|  | 2,553.4         | 30.0                | 100/0.4                  |                     |       |                         |                 |    |    |     |           |     | D                         | 2,553.0    | 30.4 | Boring Terminated at Elevation 2,553.0 ft in Weathered Rock (AMPHIBOLITE)                      |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |        | GEOLOGIST R. Dugger     |                 |    |    |     |           |     |                           |            |      |  |
|--|-----------------|---------------------|--------------------------|---------------------|--------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|------|--|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |                          |                     |        |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |      |  |
| BORING NO. RW5_16  |                 | STATION 23+07       |                          | OFFSET 15 ft LT     |        | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |      |  |
| COLLAR ELEV. 2,582.6 ft  |                 | TOTAL DEPTH 20.7 ft |                          | NORTHING 666,852    |        | EASTING 818,951         |                 |    |    |     |           |     |                           |            |      |  |
| DRILL RIGHAMMER EFF./DATE GTC9083 CME-550X 80%(11/24/2020)           |                 |                     | DRILL METHOD H.S. Augers |                     |        | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |      |  |
| DRILLER L. Wanstrath   |                 | START DATE 02/13/21 |                          | COMP. DATE 02/13/21 |        | 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 |           |     |                           |            |      |  |
| 2585   | 2,582.6         | 0.0                 | 4                        | 6                   | 6      |                         |                 |    |    |     |           |     |                           | 2,582.6    | 0.0  | GROUND SURFACE   |
| 2580   | 2,580.1         | 2.5                 | 5                        | 5                   | 5      |                         |                 |    |    |     |           |     | D                         | 2,580.6    | 2.0  | ROADWAY EMBANKMENT<br>Medium dense, brown, black, and orange, SAND and GRAVEL (A-1-b)                      |
|  | 2,577.6         | 5.0                 | 3                        | 4                   | 5      |                         |                 |    |    |     |           |     | D                         |            |      | RESIDUAL<br>Stiff, brown and orange, f sandy, silty CLAY (A-7-6)(5), highly micaceous, saprolitic (gneiss) |
| 2575   | 2,575.1         | 7.5                 | 11                       | 48                  | 52/0.3 |                         |                 |    |    |     |           |     | D                         | 2,575.1    | 7.5  |  |
|  | 2,572.6         | 10.0                | 100/0.4                  |                     |        |                         |                 |    |    |     |           |     | D                         |            |      | WEATHERED ROCK<br>Brown and orange, GNEISS with some quartz fragments                                      |
| 2570   | 2,569.6         | 13.0                | 11                       | 37                  | 63/0.5 |                         |                 |    |    |     |           |     | D                         |            |      |  |
|  | 2,562.6         | 20.0                | 53                       | 47/0.2              |        |                         |                 |    |    |     |           |     | D                         | 2,561.9    | 20.7 | Boring Terminated at Elevation 2,561.9 ft in Weathered Rock (GNEISS)                                       |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ\_NC\_DOT.GDT 8/12/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |       | GEOLOGIST R. Dugger     |                 |    |    |     |           |     |                           |            |      |
|--|-----------------|---------------------|--------------------------|---------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|------|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                     |                          |                     |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |      |
| BORING NO. RW5_17  |                 | STATION 23+57       |                          | OFFSET 19 ft LT     |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |      |
| COLLAR ELEV. 2,582.5 ft  |                 | TOTAL DEPTH 15.2 ft |                          | NORTHING 666,861    |       | EASTING 819,000         |                 |    |    |     |           |     |                           |            |      |
| DRILL RIG/HAMMER EFF./DATE GTC CME550X 9083                          |                 |                     | DRILL METHOD H.S. Augers |                     |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |      |
| DRILLER L. Wanstrath   |                 | START DATE 02/13/21 |                          | COMP. DATE 02/13/21 |       | 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 |           |     |                           |            |      |
| 2585   |                 |                     |                          |                     |       |                         |                 |    |    |     |           |     |                           |            |      |
|  | 2,582.5         | 0.0                 | 4                        | 6                   | 8     |                         |                 |    |    |     |           |     |                           | 2,582.5    | 0.0  |
| 2580   | 2,580.0         | 2.5                 | 11                       | 13                  | 16    |                         |                 |    |    |     |           |     |                           | 2,580.5    | 2.0  |
|  | 2,577.5         | 5.0                 | 27                       | 27                  | 28    |                         |                 |    |    |     |           |     |                           |            |      |
| 2575   | 2,575.0         | 7.5                 | 36                       | 64/0.1              |       |                         |                 |    |    |     |           |     |                           | 2,575.0    | 7.5  |
|  | 2,572.5         | 10.0                | 100/0.2                  |                     |       |                         |                 |    |    |     |           |     |                           |            |      |
| 2570   | 2,567.5         | 15.0                | 100/0.2                  |                     |       |                         |                 |    |    |     |           |     |                           | 2,567.3    | 15.2 |
| Boring Terminated at Elevation 2,567.3 ft in Weathered Rock (GNEISS) |                 |                     |                          |                     |       |                         |                 |    |    |     |           |     |                           |            |      |

| WBS 38332.1.FS1   |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |       | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |                           |            |     |
|---|-----------------|---------------------|--------------------------|---------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|-----|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13  |                 |                     |                          |                     |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |     |
| BORING NO. RW5_18   |                 | STATION 24+07       |                          | OFFSET 10 ft LT     |       | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |     |
| COLLAR ELEV. 2,581.1 ft   |                 | TOTAL DEPTH 9.1 ft  |                          | NORTHING 666,859    |       | EASTING 819,051         |                 |    |    |     |           |     |                           |            |     |
| DRILL RIG/HAMMER EFF./DATE GTC CME 550X 9083  |                 |                     | DRILL METHOD H.S. Augers |                     |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |     |
| DRILLER K. Boone  |                 | START DATE 02/15/21 |                          | COMP. DATE 02/15/21 |       | 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 |           |     |                           |            |     |
| 2585  |                 |                     |                          |                     |       |                         |                 |    |    |     |           |     |                           |            |     |
|   | 2,581.1         | 0.0                 | 2                        | 5                   | 6     |                         |                 |    |    |     |           |     |                           | 2,581.1    | 0.0 |
| 2580  | 2,578.6         | 2.5                 | 4                        | 5                   | 7     |                         |                 |    |    |     |           |     |                           |            |     |
|   | 2,576.1         | 5.0                 | 26                       | 27                  | 37    |                         |                 |    |    |     |           |     |                           |            |     |
| 2575  | 2,573.6         | 7.5                 | 4/0.3                    | 60/0.0              |       |                         |                 |    |    |     |           |     |                           | 2,573.6    | 7.5 |
|   | 2,572.0         | 9.1                 | 60/0.0                   |                     |       |                         |                 |    |    |     |           |     |                           | 2,572.0    | 9.1 |
| Boring Terminated with Standard Penetration Test Refusal at Elevation 2,572.0 ft in Crystalline Rock (GNEISS). A.R. at a depth of 9.1'. |                 |                     |                          |                     |       |                         |                 |    |    |     |           |     |                           |            |     |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ NC\_DOT.GDT 7/8/21



# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1   |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |        | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |                           |            |      |
|---|-----------------|---------------------|--------------------------|---------------------|--------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|------|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13  |                 |                     |                          |                     |        |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |      |
| BORING NO. RW5_19   |                 | STATION 24+58       |                          | OFFSET 10 ft LT     |        | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |      |
| COLLAR ELEV. 2,580.8 ft   |                 | TOTAL DEPTH 16.2 ft |                          | NORTHING 666,866    |        | EASTING 819,101         |                 |    |    |     |           |     |                           |            |      |
| DRILL RIG/HAMMER EFF./DATE GTC CME 550X 9083  |                 |                     | DRILL METHOD H.S. Augers |                     |        | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |      |
| DRILLER K. Boone  |                 | START DATE 02/15/21 |                          | COMP. DATE 02/15/21 |        | 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 |           |     |                           |            |      |
| 2585  |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           |            |      |
| 2580  | 2,580.8         | 0.0                 |                          |                     |        |                         |                 |    |    |     |           |     |                           | 2,580.8    | 0.0  |
|   | 2,578.3         | 2.5                 | 2                        | 3                   | 3      |                         |                 |    |    |     |           |     |                           |            |      |
|   | 2,575.8         | 5.0                 | 1                        | 2                   | 5      |                         |                 |    |    |     |           |     |                           |            |      |
| 2575  | 2,575.8         | 5.0                 | 3                        | 4                   | 7      |                         |                 |    |    |     |           |     |                           |            |      |
|   | 2,573.3         | 7.5                 | 2                        | 5                   | 6      |                         |                 |    |    |     |           |     |                           |            |      |
| 2570  | 2,570.8         | 10.0                | 1                        | 3                   | 4      |                         |                 |    |    |     |           |     |                           |            |      |
| 2565  | 2,565.8         | 15.0                | 1                        | 9                   | 60/0.2 |                         |                 |    |    |     |           |     |                           | 2,564.8    | 16.0 |
|   |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           | 2,564.6    | 16.2 |
| <b>WEATHERED ROCK</b><br>Brown, white, and tan, GNEISS<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,564.6 ft in Weathered Rock (GNEISS) |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           |            |      |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |                          | COUNTY HAYWOOD      |        | GEOLOGIST N. Yacobi     |                 |    |    |     |           |     |                           |            |      |
|--|-----------------|---------------------|--------------------------|---------------------|--------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|------------|------|
| SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13   |                 |                     |                          |                     |        |                         | GROUND WTR (ft) |    |    |     |           |     |                           |            |      |
| BORING NO. RW5_20  |                 | STATION 25+08       |                          | OFFSET 15 ft LT     |        | ALIGNMENT -RW5-         |                 |    |    |     |           |     |                           |            |      |
| COLLAR ELEV. 2,581.6 ft  |                 | TOTAL DEPTH 18.8 ft |                          | NORTHING 666,879    |        | EASTING 819,149         |                 |    |    |     |           |     |                           |            |      |
| DRILL RIG/HAMMER EFF./DATE GTC CME 550X 9083   |                 |                     | DRILL METHOD H.S. Augers |                     |        | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |            |      |
| DRILLER K. Boone   |                 | START DATE 02/14/21 |                          | COMP. DATE 02/14/21 |        | 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 |           |     |                           |            |      |
| 2585   |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           |            |      |
|  | 2,581.6         | 0.0                 |                          |                     |        |                         |                 |    |    |     |           |     |                           | 2,581.6    | 0.0  |
| 2580   | 2,579.1         | 2.5                 | 1                        | 2                   | 3      |                         |                 |    |    |     |           |     |                           |            |      |
|  | 2,576.6         | 5.0                 | 4                        | 3                   | 5      |                         |                 |    |    |     |           |     |                           |            |      |
| 2575   | 2,574.1         | 7.5                 | 3                        | 4                   | 7      |                         |                 |    |    |     |           |     |                           |            |      |
|  | 2,571.6         | 10.0                | 4                        | 6                   | 10     |                         |                 |    |    |     |           |     |                           |            |      |
| 2570   | 2,566.6         | 15.0                | 5                        | 7                   | 12     |                         |                 |    |    |     |           |     |                           |            |      |
|  | 2,563.5         | 18.1                | 7                        | 13                  | 18     |                         |                 |    |    |     |           |     |                           | 2,563.5    | 18.1 |
| 2565   | 2,562.8         | 18.8                | 35                       | 65                  | 60/0.2 |                         |                 |    |    |     |           |     |                           | 2,562.8    | 18.8 |
|  |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           |            |      |
| <b>WEATHERED ROCK</b><br>Brown, white, and tan, GNEISS<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,562.8 ft on Crystalline Rock (GNEISS). A.R. at a depth of 18.8'. |                 |                     |                          |                     |        |                         |                 |    |    |     |           |     |                           |            |      |

NCDOT BORE DOUBLE\_B3186\_GEO\_SPT.GPJ\_NC\_DOT.GDT 7/8/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| <b>WBS</b> 38332.1.FS1  |                 | <b>TIP</b> B-3186 / B-5898 |            | <b>COUNTY</b> HAYWOOD           |        | <b>GEOLOGIST</b> N. Yacobi     |                        |    |    |     |           |     |                           |            |      |  |
|---|-----------------|----------------------------|------------|---------------------------------|--------|--------------------------------|------------------------|----|----|-----|-----------|-----|---------------------------|------------|------|--|
| <b>SITE DESCRIPTION</b> Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13 |                 |                            |            |                                 |        |                                | <b>GROUND WTR (ft)</b> |    |    |     |           |     |                           |            |      |  |
| <b>BORING NO.</b> RW5_21  |                 | <b>STATION</b> 25+58       |            | <b>OFFSET</b> 5 ft LT           |        | <b>ALIGNMENT</b> -RW5-         |                        |    |    |     |           |     |                           |            |      |  |
| <b>COLLAR ELEV.</b> 2,582.4 ft  |                 | <b>TOTAL DEPTH</b> 32.5 ft |            | <b>NORTHING</b> 666,877         |        | <b>EASTING</b> 819,201         |                        |    |    |     |           |     |                           |            |      |  |
| <b>DRILL RIG/HAMMER EFF./DATE</b> GTC CME 550X 9083                         |                 |                            |            | <b>DRILL METHOD</b> H.S. Augers |        | <b>HAMMER TYPE</b> Automatic   |                        |    |    |     |           |     |                           |            |      |  |
| <b>DRILLER</b> K. Boone   |                 | <b>START DATE</b> 02/14/21 |            | <b>COMP. DATE</b> 02/14/21      |        | <b>SURFACE WATER DEPTH</b> N/A |                        |    |    |     |           |     |                           |            |      |  |
| ELEV (ft)   | DRIVE ELEV (ft) | DEPTH (ft)                 | BLOW COUNT |                                 |        | BLOWS PER FOOT                 |                        |    |    |     | SAMP. NO. | LOG | SOIL AND ROCK DESCRIPTION |            |      |  |
|   |                 |                            | 0.5ft      | 0.5ft                           | 0.5ft  | 0                              | 25                     | 50 | 75 | 100 |           |     | ELEV. (ft)                | DEPTH (ft) |      |  |
| 2585  |                 |                            |            |                                 |        |                                |                        |    |    |     |           |     |                           | 2,582.4    | 0.0  | GROUND SURFACE   |
| 2580  | 2,582.4         | 0.0                        | 3          | 2                               | 4      | 6                              |                        |    |    |     |           | M   |                           | 2,578.4    | 4.0  | <b>ALLUVIAL</b><br>Medium stiff, brown, clayey SILT (A-5), with trace sand, micaceous  |
|   | 2,577.4         | 5.0                        | 3          | 2                               | 3      |                                |                        |    |    |     |           | M   |                           | 2,576.1    | 6.3  | Medium stiff, gray, sandy CLAY (A-6)   |
| 2575  | 2,574.9         | 7.5                        | 2          | 1                               | 2      | 5                              |                        |    |    |     |           | M   |                           | 2,575.4    | 7.0  | Loose, gray, fine SAND (A-2-4)   |
|   | 2,572.4         | 10.0                       | 2          | 3                               | 2      |                                |                        |    |    |     |           | M   |                           |            |      | Soft to stiff, gray, CLAY (A-7-6), with few F-c sand lenses, contains little organic matter  |
| 2570  |                 |                            |            |                                 |        |                                |                        |    |    |     |           | M   |                           |            |      |  |
|   | 2,567.4         | 15.0                       | 7          | 6                               | 6      | 12                             |                        |    |    |     |           |     | Sat.                      |            |      |  |
| 2565  |                 |                            |            |                                 |        |                                |                        |    |    |     |           |     |                           | 2,564.4    | 18.0 | <b>RESIDUAL</b>  |
|   | 2,562.4         | 20.0                       | 3          | 5                               | 15     |                                |                        |    |    |     |           |     | Sat.                      |            |      | Very stiff to hard, gray, brown, white, and red, clayey SILT (A-5), saprolitic   |
| 2560  |                 |                            |            |                                 |        |                                |                        |    |    |     |           |     |                           |            |      |  |
|   | 2,557.4         | 25.0                       | 14         | 18                              | 43     |                                |                        |    |    |     |           |     |                           |            |      |  |
| 2555  |                 |                            |            |                                 |        |                                |                        |    |    |     |           |     |                           |            |      |  |
|   | 2,552.4         | 30.0                       | 18         | 35                              | 65/0.5 |                                |                        |    |    |     |           |     |                           | 2,551.9    | 30.5 | <b>WEATHERED ROCK</b>  |
| 2550  | 2,549.9         | 32.5                       |            |                                 |        |                                |                        |    |    |     |           |     |                           | 2,549.9    | 32.5 | Brown, tan, orange, and white, GNEISS  |
|   |                 | 60/0.0                     |            |                                 |        |                                |                        |    |    |     |           |     |                           |            |      | Boring Terminated with Standard Penetration Test Refusal at Elevation 2,549.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 32.5'. |

NCDOT BORE DOUBLE B3186\_GEO\_SPT.GPJ NC\_DOT.GDT 7/8/21

# GEOTECHNICAL BORING REPORT

## BORE LOG

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD          |       | GEOLOGIST C. Swafford   |                 |    |    |     |           |     |                           |  |  |  |
|--|-----------------|---------------------|------------|-------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|--|--|--|
| SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway) |                 |                     |            |                         |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |  |  |  |
| BORING NO. S2_EB1-B  |                 | STATION 25+96       |            | OFFSET 44 ft RT         |       | ALIGNMENT -Y1RT-        |                 |    |    |     |           |     |                           |  |  |  |
| COLLAR ELEV. 2,600.4 ft                                      |                 | TOTAL DEPTH 60.4 ft |            | NORTHING 666,863        |       | EASTING 819,251         |                 |    |    |     |           |     |                           |  |  |  |
| DRILL RIGHAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)     |                 |                     |            | DRILL METHOD Mud Rotary |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |  |  |  |
| DRILLER K. Boone   |                 | START DATE 02/27/21 |            | COMP. DATE 02/27/21     |       | 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 |           |     |                           |  |  |  |
| 2605   |                 |                     |            |                         |       |                         |                 |    |    |     |           |     |                           |  |  |  |
| 2600   | 2,599.4         | 1.0                 | 11         | 20                      | 16    |                         |                 |    |    |     |           |     | M                         | GROUND SURFACE 2,600.4 0.0<br>ROADWAY EMBANKMENT 2,599.4 1.0<br>1.0' PAVEMENT<br>ROADWAY EMBANKMENT 2,596.9 3.5<br>Dense, brown, GRAVEL (A-1-b)<br>Medium stiff, orange and brown with black, clayey SILT (A-5), with trace sand |  |  |
| 2595   | 2,596.5         | 3.9                 | 6          | 4                       | 4     |                         |                 |    |    |     |           |     | M                         |  |  |  |
| 2590   | 2,594.6         | 5.8                 | 6          | 3                       | 3     |                         |                 |    |    |     |           |     | M                         |  |  |  |
| 2585   | 2,591.5         | 8.9                 | 4          | 3                       | 4     |                         |                 |    |    |     |           |     | M                         |  |  |  |
| 2580   | 2,586.5         | 13.9                | 3          | 2                       | 3     |                         |                 |    |    |     |           |     | M                         |  |  |  |
| 2575   | 2,581.5         | 18.9                | 3          | 3                       | 4     |                         |                 |    |    |     |           |     | M                         |  |  |  |
| 2570   | 2,576.5         | 23.9                | 4          | 4                       | 5     |                         |                 |    |    |     |           |     | W                         | ALLUVIAL 2,578.4 22.0<br>Very loose to loose, gray, SAND (A-3), micaceous  |  |  |
| 2565   | 2,573.4         | 27.9                | 3          | 3                       | 1     |                         |                 |    |    |     |           |     | W                         | 2,573.4 27.0<br>Soft to medium stiff, gray, sandy SILT (A-4), contains trace wood fragments, micaceous, organic odor   |  |  |
| 2560   | 2,566.5         | 33.9                | 1          | 3                       | 3     |                         |                 |    |    |     |           |     | W                         |  |  |  |
| 2555   | 2,561.5         | 38.9                | WOH        | 1                       | 2     |                         |                 |    |    |     |           |     | W                         |  |  |  |
| 2550   | 2,556.5         | 43.9                | 18         | 27                      | 33    |                         |                 |    |    |     |           |     | W                         | RESIDUAL 2,558.4 42.0<br>Hard, tan and brown, sandy CLAY (A-7), contains trace rock fragments, micaceous, saprolitic   |  |  |
| 2545   | 2,551.5         | 48.9                | 32         | 68/0.3                  |       |                         |                 |    |    |     |           |     | W                         | 2,551.5 48.9<br>WEATHERED ROCK<br>Brown, GNEISS, micaceous   |  |  |
| 2540   | 2,546.5         | 53.9                | 86         | 14/0.0                  |       |                         |                 |    |    |     |           |     |                           |  |  |  |
|  | 2,541.5         | 58.9                | 79         | 21/0.0                  |       |                         |                 |    |    |     |           |     |                           |  |  |  |
|  |                 |                     |            |                         |       |                         |                 |    |    |     |           |     |                           |  |  | Boring Terminated at Elevation 2,540.0 ft in Weathered Rock (GNEISS) |

| WBS 38332.1.FS1  |                 | TIP B-3186 / B-5898 |            | COUNTY HAYWOOD           |       | GEOLOGIST C. Swafford   |                 |    |    |     |           |     |                           |   |  |                                      |
|--|-----------------|---------------------|------------|--------------------------|-------|-------------------------|-----------------|----|----|-----|-----------|-----|---------------------------|---|--|--------------------------------------|
| SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway) |                 |                     |            |                          |       |                         | GROUND WTR (ft) |    |    |     |           |     |                           |   |  |                                      |
| BORING NO. S2_EB1-A  |                 | STATION 26+29       |            | OFFSET 5 ft LT           |       | ALIGNMENT -Y1RT-        |                 |    |    |     |           |     |                           |   |  |                                      |
| COLLAR ELEV. 2,584.6 ft                                      |                 | TOTAL DEPTH 34.5 ft |            | NORTHING 666,917         |       | EASTING 819,274         |                 |    |    |     |           |     |                           |   |  |                                      |
| DRILL RIGHAMMER EFF./DATE GTC9083 CME-550X 80%(11/24/2020)   |                 |                     |            | DRILL METHOD H.S. Augers |       | HAMMER TYPE Automatic   |                 |    |    |     |           |     |                           |   |  |                                      |
| DRILLER L. Wanstrath   |                 | START DATE 02/25/21 |            | COMP. DATE 02/25/21      |       | 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 |           |     |                           |   |  |                                      |
| 2585   | 2,584.6         | 0.0                 | 5          | 7                        | 4     |                         |                 |    |    |     |           |     |                           |   |  |                                      |
| 2580   | 2,582.1         | 2.5                 | 3          | 4                        | 4     |                         |                 |    |    |     |           |     | M                         | GROUND SURFACE 2,584.6 0.0<br>ROADWAY EMBANKMENT 2,583.6 1.0<br>Medium dense, brown, f SAND (A-2-4), with trace gravel        |  |                                      |
| 2575   | 2,579.6         | 5.0                 | 6          | 5                        | 6     |                         |                 |    |    |     |           |     | M                         | 2,580.1 4.5<br>Soft, brown and orange, CLAY (A-7)<br>Loose to medium dense, gray, f-c SAND (A-2-4)                            |  |                                      |
| 2570   | 2,577.1         | 7.5                 | 3          | 3                        | 3     |                         |                 |    |    |     |           |     | Sat.                      |   |  |                                      |
| 2565   | 2,574.6         | 10.0                | 3          | 2                        | 2     |                         |                 |    |    |     |           |     | SS-513 51%                | 2,574.6 10.0<br>ALLUVIAL<br>Soft, gray, SILT (A-5)(9), micaceous  |  |                                      |
| 2560   | 2,569.6         | 15.0                | 1          | WOH                      | 1     |                         |                 |    |    |     |           |     | W 28%                     | 2,571.6 13.0<br>Very loose, gray, f silty SAND (A-2-4), micaceous   |  |                                      |
| 2555   | 2,564.6         | 20.0                | 1          | 1                        | 2     |                         |                 |    |    |     |           |     | W                         | 2,566.6 18.0<br>Soft, gray, f sandy SILT (A-4), micaceous   |  |                                      |
| 2550   | 2,559.6         | 25.0                | 4          | 7                        | 11    |                         |                 |    |    |     |           |     | W                         | 2,561.6 23.0<br>RESIDUAL<br>Very stiff, brown and orange, f sandy SILT (A-4), micaceous, saprolitic                           |  |                                      |
| 2545   | 2,554.6         | 30.0                | 90         | 10/0.1                   |       |                         |                 |    |    |     |           |     |                           | 2,554.6 30.0<br>WEATHERED ROCK<br>Brown, orange, and white, GNEISS  |  |                                      |
|  | 2,550.1         | 34.5                | 60/0.0     |                          |       |                         |                 |    |    |     |           |     |                           | 2,550.1 34.5<br>Boring Terminated with Standard Penetration Test Refusal at Elevation 2,550.1 ft on Crystalline Rock (GNEISS) |  |                                      |
|  |                 |                     |            |                          |       |                         |                 |    |    |     |           |     |                           |   |  | Other Samples:<br>ST-4 (15.0 - 17.0) |

NCDOT BORE DOUBLE B3186\_GEO\_SITE 2.GPJ NC DOT.GDT 8/12/21