

REFERENCE: SF560143

PROJECT: 17BP.13.R.156

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

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | 17BP.13.R.156 | 1 | 8 |

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

| <u>SHEET NO.</u> | <u>DESCRIPTION</u> |
|------------------|----------------------|
| 1 | TITLE SHEET |
| 2 | LEGEND (SOIL & ROCK) |
| 3 | SITE PLAN |
| 4 | CROSS SECTIONS |
| 5-7 | BORE LOGS |
| 8 | CORE PHOTOS |

COUNTY MADISON
PROJECT DESCRIPTION REPLACE BRIDGE #143 ON
SR 1151 (BIG PINE RD.) OVER BIG PINE CREEK

CAUTION NOTICE

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

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

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

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

PERSONNEL

C.D. JOHNSON
D.O. CHEEK
C.J. COFFEY

INVESTIGATED BY D.M. MULLEN
DRAWN BY JCK
CHECKED BY JCK
SUBMITTED BY JCK
DATE 12/22/2021







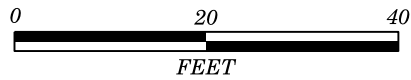
DocuSigned by:
Jody C. Kuhne
4F9C0666A1BC400
SIGNATURE

December 22, 2021
DATE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| SOIL DESCRIPTION | | | | | | | GRADATION | | | | | | | ROCK DESCRIPTION | | | | | | | TERMS AND DEFINITIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|--|------|-------|-------|--|----------------------------|--|--|---|---|--|---|---|--|--|--|--|--|--|---|-----|-----|----------|-----|---|---------------|--|--|--|--|--|------|--------------|------|-----------|-----------|-------------------|---------------------|--|-----------------------|--------------|----------------|--------------|------------------|-------------|---|-------------------|-------|----------------|--------------------|------------------|------------|---------------------|-------------------|-------------------|--|--|------------------|--------------|--|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 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> | | | | | | | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. | | | | | | | HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR)  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR)  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTARY ROCK (CP)  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC. | | | | | | | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOIL LEGEND AND AASHTO CLASSIFICATION | | | | | | | MINERALOGICAL COMPOSITION | | | | | | | WEATHERING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GENERAL CLASS. <table border="1"> <tr> <th colspan="3">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <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> </tr> <tr> <th>SYMBOL</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | | | | | | GRANULAR MATERIALS (≤ 35% PASSING #200) | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | | ORGANIC MATERIALS | | | GROUP CLASS. | A-1 | A-3 | A-2 | A-4 | A-5 | A-6 | A-7 | A-1, A-2 | A-3 | A-4, A-5 | A-6, A-7 | SYMBOL | | | | | | | | | | | | MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE. | | | | | | | FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (IV SL.) - ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) - ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) - SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</i> VERY SEVERE (IV SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i> COMPLETE - ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRANULAR MATERIALS (≤ 35% PASSING #200) | | | SILT-CLAY MATERIALS (> 35% PASSING #200) | | | | ORGANIC MATERIALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROUP CLASS. | A-1 | A-3 | A-2 | A-4 | A-5 | A-6 | A-7 | A-1, A-2 | A-3 | A-4, A-5 | A-6, A-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SYMBOL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONSISTENCY OR DENSENESS | | | | | | | GROUND WATER | | | | | | | MISCELLANEOUS SYMBOLS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <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/FT²)</th> </tr> <tr> <td>GENERALLY GRANULAR MATERIAL (NON-COHESSIVE)</td> <td>VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE</td> <td>< 4 4 TO 10 10 TO 30 30 TO 50 > 50</td> <td>N/A</td> </tr> <tr> <td>GENERALLY SILT-CLAY MATERIAL (COHESIVE)</td> <td>VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD</td> <td>< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30</td> <td>< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4</td> </tr> </table> | | | | | | | PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) | GENERALLY GRANULAR MATERIAL (NON-COHESSIVE) | VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE | < 4 4 TO 10 10 TO 30 30 TO 50 > 50 | N/A | GENERALLY SILT-CLAY MATERIAL (COHESIVE) | VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD | < 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30 | < 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4 | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRIMARY SOIL TYPE | COMPACTNESS OR CONSISTENCY | RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GENERALLY GRANULAR MATERIAL (NON-COHESSIVE) | VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE | < 4 4 TO 10 10 TO 30 30 TO 50 > 50 | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GENERALLY SILT-CLAY MATERIAL (COHESIVE) | VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD | < 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30 | < 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEXTURE OR GRAIN SIZE | | | | | | | RECOMMENDATION SYMBOLS | | | | | | | ABBREVIATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <td>4</td> <td>10</td> <td>40</td> <td>60</td> <td>200</td> <td>270</td> </tr> <tr> <th></th> <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> <th>BOULDER (BLDR.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>COBBLE (COB.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>GRAVEL (GR.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>COARSE SAND (CS, SD.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>FINE SAND (F SD.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>SILT (SL.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>CLAY (CL.)</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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 (CS, SD.) | | | | | | | FINE SAND (F SD.) | | | | | | | SILT (SL.) | | | | | | | CLAY (CL.) | | | | | | | | | | | | | | AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAG. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED w - UNIT WEIGHT w_s - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO | | | | | | |
| 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 (CS, SD.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FINE SAND (F SD.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SILT (SL.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLAY (CL.) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOIL MOISTURE - CORRELATION OF TERMS | | | | | | | EQUIPMENT USED ON SUBJECT PROJECT | | | | | | | FRACTURE SPACING | | | | | | | BEDDING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td rowspan="2">LL - LIQUID LIMIT PL - PLASTIC LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td rowspan="2">OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table> | | | | | | | SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION | LL - LIQUID LIMIT PL - PLASTIC LIMIT | - SATURATED - (SAT.) | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | - WET - (W) | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT | - MOIST - (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE | - DRY - (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | DRILL UNITS: <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-55 <input checked="" type="checkbox"/> CME-550 <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ | | | | | | | <table border="1"> <tr> <th>TERM</th> <th>SPACING</th> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td></td> <td></td> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </table> | | | | | | | TERM | SPACING | TERM | THICKNESS | VERY WIDE | MORE THAN 10 FEET | VERY THICKLY BEDDED | 4 FEET | WIDE | 3 TO 10 FEET | THICKLY BEDDED | 1.5 - 4 FEET | MODERATELY CLOSE | 1 TO 3 FEET | THINLY BEDDED | 0.16 - 1.5 FEET | CLOSE | 0.16 TO 1 FOOT | VERY THINLY BEDDED | 0.03 - 0.16 FEET | VERY CLOSE | LESS THAN 0.16 FEET | THICKLY LAMINATED | 0.008 - 0.03 FEET | | | THINLY LAMINATED | < 0.008 FEET | | | | | | | | | | | | | | | | | | | | | | |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) | FIELD MOISTURE DESCRIPTION | GUIDE FOR FIELD MOISTURE DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LL - LIQUID LIMIT PL - PLASTIC LIMIT | - SATURATED - (SAT.) | USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | - WET - (W) | SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT | - MOIST - (M) | SOLID; AT OR NEAR OPTIMUM MOISTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | - DRY - (D) | REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | SPACING | TERM | THICKNESS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VERY WIDE | MORE THAN 10 FEET | VERY THICKLY BEDDED | 4 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WIDE | 3 TO 10 FEET | THICKLY BEDDED | 1.5 - 4 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MODERATELY CLOSE | 1 TO 3 FEET | THINLY BEDDED | 0.16 - 1.5 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLOSE | 0.16 TO 1 FOOT | VERY THINLY BEDDED | 0.03 - 0.16 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VERY CLOSE | LESS THAN 0.16 FEET | THICKLY LAMINATED | 0.008 - 0.03 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | THINLY LAMINATED | < 0.008 FEET | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLASTICITY | | | | | | | INDURATION | | | | | | | NOTES: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <th colspan="2">PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>NON PLASTIC</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>SLIGHTLY PLASTIC</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>MODERATELY PLASTIC</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td>HIGHLY PLASTIC</td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table> | | | | | | | PLASTICITY INDEX (PI) | | DRY STRENGTH | NON PLASTIC | 0-5 | VERY LOW | SLIGHTLY PLASTIC | 6-15 | SLIGHT | MODERATELY PLASTIC | 16-25 | MEDIUM | HIGHLY PLASTIC | 26 OR MORE | HIGH | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS. | | | | | | | BENCH MARK: BL-1 ELEVATION: 2360.71 FEET NOTES: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PLASTICITY INDEX (PI) | | DRY STRENGTH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NON PLASTIC | 0-5 | VERY LOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLIGHTLY PLASTIC | 6-15 | SLIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MODERATELY PLASTIC | 16-25 | MEDIUM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HIGHLY PLASTIC | 26 OR MORE | HIGH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COLOR | | | | | | | DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

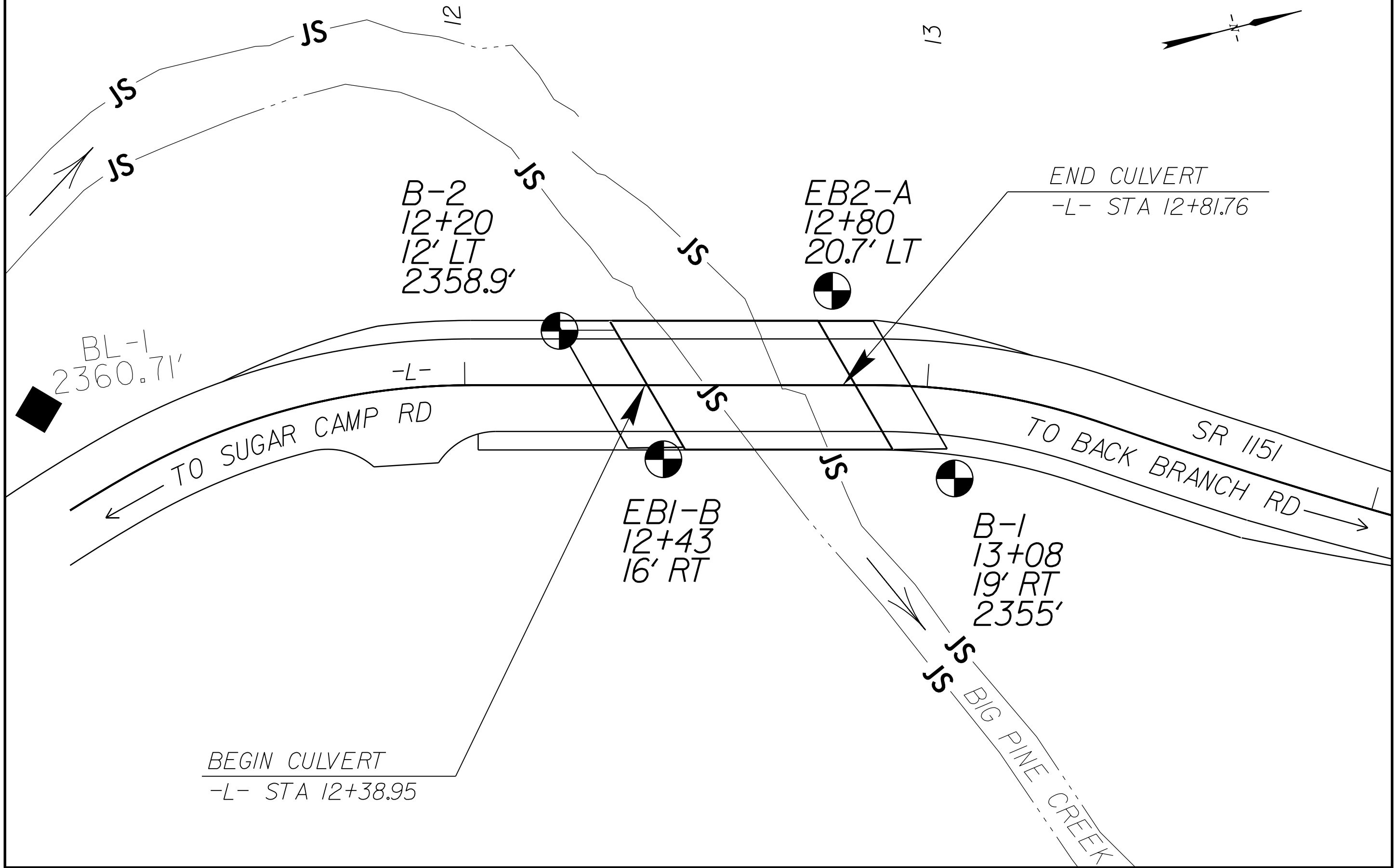


PROJECT REFERENCE NO. SHEET NO.

17BP.13.R.156 3

SF-560143 REPLACE MADISON BRIDGE #143 ON SR 1151 OVER BIG PINE CREEK

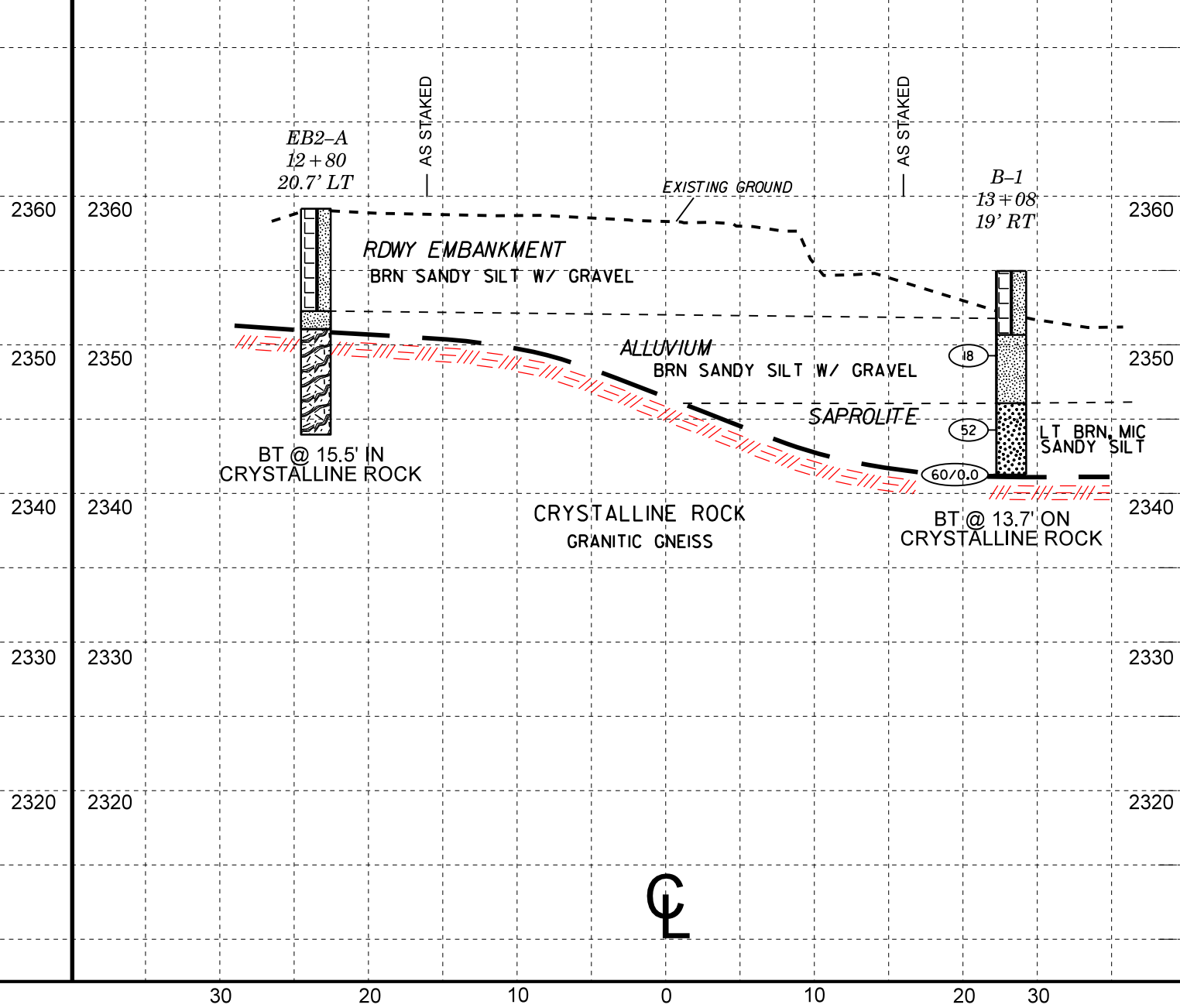
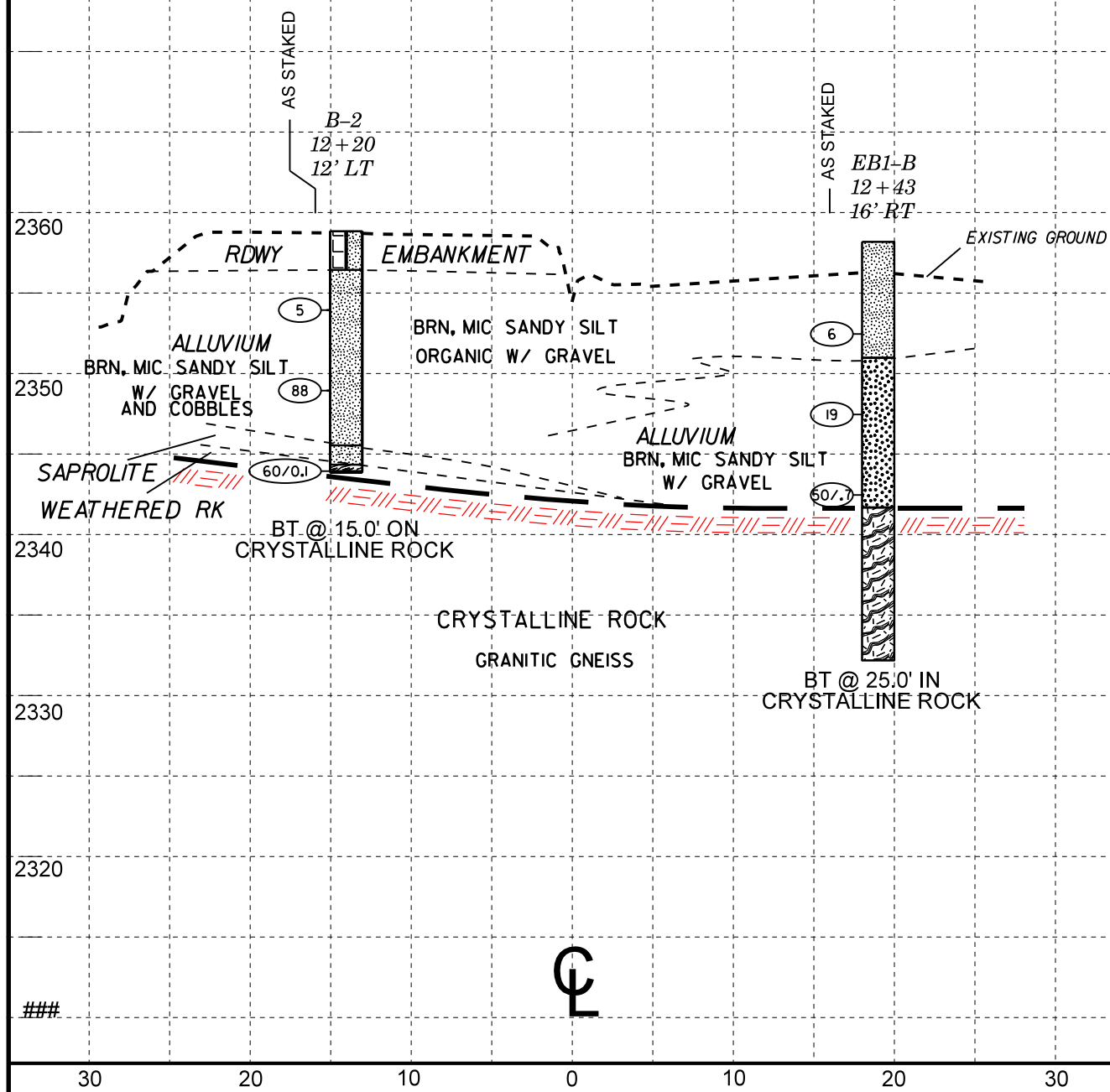
SKEW = 60



0 10 20
FEET
VE = 1:1
SECTION THROUGH EB-1
SKEW = 60'

0 10 20
FEET
VE = 1:1
SKEW = 60'

| | |
|-----------------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 17BP.13.R.156 | 4 |
| SECTION THROUGH EB-2 | |



GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT BORE LOG

| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | | | | | |
|--|-----------------|---------------------|------------|-------------------------------|-------|--------------------------|-----------------|----|----|-----|-----------|-----|-----|---------------------------|---|------|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | | | | | |
| BORING NO. B-2 | | STATION 12+20 | | OFFSET 12 ft LT | | ALIGNMENT L | | | | | | | | | | |
| COLLAR ELEV. 2,358.9 ft | | TOTAL DEPTH 15.0 ft | | NORTHING 765,386 | | EASTING 870,718 | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO8963 CME-550X 94% 04/08/2019 | | | | DRILL METHOD NW Casing w/ SPT | | HAMMER TYPE Automatic | | | | | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 03/02/20 | | COMP. DATE 03/02/20 | | SURFACE WATER DEPTH N/A | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 2360 | | | | | | | | | | | | | | | 2,358.9 | 0.0 |
| | | | | | | | | | | | | | | | 2,356.5 | 2.4 |
| 2355 | 2,354.0 | 4.9 | 5 | 4 | 1 | | | | | | | | W | | | |
| 2350 | 2,349.0 | 9.9 | 14 | 52 | 36 | | | | | | | | W | | | |
| 2345 | 2,344.0 | 14.9 | 60/0.1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 2,344.4 | 14.5 |
| | | | | | | | | | | | | | | | 2,343.9 | 15.0 |
| | | | | | | | | | | | | | | | SAPROLITE | |
| | | | | | | | | | | | | | | | WEATHERED ROCK | |
| | | | | | | | | | | | | | | | Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 2,343.9 ft ON ROCK (GNEISS) | |

NCDOT BORE DOUBLE_SF560143_GEO_BH.GPJ NC_DOT.GDT 12/22/21

| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | | | | | |
|--|-----------------|---------------------|------------|--------------------------|-------|--------------------------|-----------------|----|----|-----|-----------|-----|-----|---------------------------|--|------|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | | | | | |
| BORING NO. EB1-B | | STATION 12+43 | | OFFSET 16 ft RT | | ALIGNMENT L | | | | | | | | | | |
| COLLAR ELEV. 2,358.2 ft | | TOTAL DEPTH 25.0 ft | | NORTHING 765,402 | | EASTING 870,750 | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019 | | | | DRILL METHOD Core Boring | | HAMMER TYPE Automatic | | | | | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 12/09/21 | | COMP. DATE 12/09/21 | | SURFACE WATER DEPTH N/A | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 2360 | | | | | | | | | | | | | | | 2,358.2 | 0.0 |
| | | | | | | | | | | | | | | | | |
| 2355 | 2,352.5 | 5.7 | 1 | 3 | 3 | | | | | | | | M | | | |
| 2350 | 2,347.5 | 10.7 | 9 | 11 | 8 | | | | | | | | M | | | |
| 2345 | 2,342.5 | 15.7 | 37 | 13/0.2 | | | | | | | | | | | | |
| 2340 | | | | | | | | | | | | | | | | |
| 2335 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 2,332.2 | 26.0 |
| | | | | | | | | | | | | | | | Boring Terminated at Elevation 2,332.2 ft IN ROCK (GNEISS) | |

NCDOT BORE SINGLE_SF560143_GEO_BH.GPJ NC_DOT.GDT 12/22/21

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT BORE LOG

| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | | | | | |
|--|-----------------|---------------------|------------|-------------------------------------|-------|--------------------------|-----------------|----|----|-----|-----------|---------|---------------------------|------------|------|--|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | | | | | |
| BORING NO. EB2-A | | STATION 12+80 | | OFFSET 21 ft LT | | ALIGNMENT L | | | | | | | | | | |
| COLLAR ELEV. 2,359.1 ft | | TOTAL DEPTH 15.5 ft | | NORTHING 765,447 | | EASTING 870,724 | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019 | | | | DRILL METHOD NW Casing W/SPT & Core | | HAMMER TYPE Automatic | | | | | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 12/09/21 | | COMP. DATE 12/09/21 | | SURFACE WATER DEPTH N/A | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 2360 | | | | | | | | | | | | | | 2,359.1 | 0.0 | GROUND SURFACE |
| 2355 | | | | | | | | | | | | | | 2,352.2 | 6.9 | ROADWAY EMBANKMENT BROWN, SANDY-SILT, SL MICACEOUS w/FEW GRAVELS |
| 2350 | | | | | | | | | | | | | | 2,351.0 | 8.1 | ALLUVIAL BROWN, SANDY-SILT, SL MICACEOUS, w/GRAVELS/PEBS |
| 2345 | | | | | | | | | | | | | | 2,343.6 | 15.5 | CRYSTALLINE ROCK GREY GNEISS |
| Boring Terminated at Elevation 2,343.6 ft IN ROCK (GNEISS) | | | | | | | | | | | | | | | | |

NCDOT BORE DOUBLE SF560143_GEO_BH.GPJ NC_DOT.GDT 12/22/21

| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | | | | | |
|---|-----------------|---------------------|------------|-------------------------------|-------|--------------------------|-----------------|----|----|-----|-----------|---------|---------------------------|------------|------|--|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | | | | | |
| BORING NO. B-1 | | STATION 13+08 | | OFFSET 19 ft RT | | ALIGNMENT L | | | | | | | | | | |
| COLLAR ELEV. 2,355.0 ft | | TOTAL DEPTH 13.7 ft | | NORTHING 765,461 | | EASTING 870,770 | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO6963 CME-550X 94% 04/08/2019 | | | | DRILL METHOD NW Casing w/ SPT | | HAMMER TYPE Automatic | | | | | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 02/25/20 | | COMP. DATE 02/25/20 | | SURFACE WATER DEPTH N/A | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 2355 | | | | | | | | | | | | | | 2,355.0 | 0.0 | GROUND SURFACE |
| 2350 | | 2,349.3 | 5.7 | 7 | 5 | 13 | | | | | | | | 2,350.7 | 4.3 | ROADWAY EMBANKMENT SOFT, SANDY-SILT, SOME GRAVELS |
| 2345 | | 2,344.3 | 10.7 | 10 | 10 | 42 | | | | | | | | 2,346.1 | 8.9 | ALLUVIAL BROWN, SL MICACEOUS, w/FEW GRAVELS/PEBS/COBS HARD BOULDER @8.2'-8.9' |
| | | 2,341.3 | 13.7 | 60/0.0 | | | | | | | | | | 2,341.3 | 13.7 | SAPROLITE LT BROWN, SL MICACEOUS, V. CRS SANDY-SILT, w/WEA RK FRAGS T/OUT HARD QUARTZ SEAM @12.0' |
| Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 2,341.3 ft ON ROCK (GNEISS) | | | | | | | | | | | | | | | | |

NCDOT BORE SINGLE SF560143_GEO_BH.GPJ NC_DOT.GDT 12/22/21

NCDOT BORE DOUBLE SF560143_GEO_BH.GPJ NC_DOT.GDT 12/22/21

GEOTECHNICAL BORING REPORT CORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

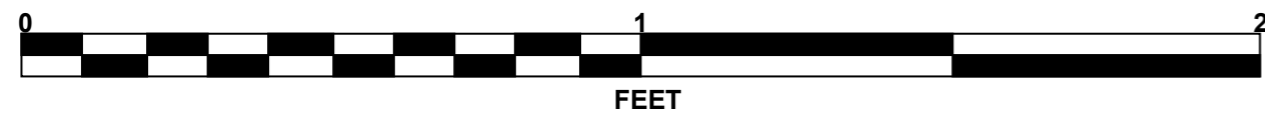
| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | |
|--|---------------|---------------------|----------|--------------------------|-------------|--------------------------|-----------------|-------------|------------|-------|-------------------------|------------|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | |
| BORING NO. EB1-B | | STATION 12+43 | | OFFSET 16 ft RT | | ALIGNMENT L | | | | | | |
| COLLAR ELEV. 2,358.2 ft | | TOTAL DEPTH 25.0 ft | | NORTHING 765,402 | | EASTING 870,750 | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019 | | | | DRILL METHOD Core Boring | | HAMMER TYPE Automatic | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 12/09/21 | | COMP. DATE 12/09/21 | | SURFACE WATER DEPTH N/A | | | | | | |
| CORE SIZE NXWL | | TOTAL RUN 9.5 ft | | | | | | | | | | |
| ELEV (ft) | RUN ELEV (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | L O G | DESCRIPTION AND REMARKS | DEPTH (ft) |
| | | | | | REC. (ft) % | RQD (ft) % | | REC. (ft) % | RQD (ft) % | | | |
| 2341.7 | 2,341.7 | 16.5 | 4.5 | 0/1.0 | (4.5) | (4.2) | | | | | 2,341.7 | 16.5 |
| 2340 | | | | 0/1.0 | 100% | 93% | | | | | | |
| | 2,337.2 | 21.0 | | 0/1.0 | | | | | | | | |
| | | | 5.0 | 0/0.5 | | | | | | | | |
| 2335 | | | | 2:12/1.0 | (5.0) | (5.0) | | | | | | |
| | | | | 2:31/1.0 | 100% | 100% | | | | | | |
| | | | | 5:56/1.0 | | | | | | | | |
| | 2,332.2 | 26.0 | | 2:56/1.0 | | | | | | | 2,332.2 | 26.0 |
| | | | | 4:24/1.0 | | | | | | | | |
| Boring Terminated at Elevation 2,332.2 ft IN ROCK (GNEISS) | | | | | | | | | | | | |

| WBS 17BP.13.R.156 | | TIP SF-560143 | | COUNTY MADISON | | GEOLOGIST Johnson, C. D. | | | | | | |
|--|---------------|---------------------|----------|-------------------------------------|-------------|--------------------------|-----------------|-------------|------------|-------|-------------------------|------------|
| SITE DESCRIPTION BRIDGE #143 OVER BIG PINE CREEK ON SR-1151 (BIG PINE RD.) | | | | | | | GROUND WTR (ft) | | | | | |
| BORING NO. EB2-A | | STATION 12+80 | | OFFSET 21 ft LT | | ALIGNMENT L | | | | | | |
| COLLAR ELEV. 2,359.1 ft | | TOTAL DEPTH 15.5 ft | | NORTHING 765,447 | | EASTING 870,724 | | | | | | |
| DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019 | | | | DRILL METHOD NW Casing W/SPT & Core | | HAMMER TYPE Automatic | | | | | | |
| DRILLER Cheek, D. O. | | START DATE 12/09/21 | | COMP. DATE 12/09/21 | | SURFACE WATER DEPTH N/A | | | | | | |
| CORE SIZE NXWL | | TOTAL RUN 7.4 ft | | | | | | | | | | |
| ELEV (ft) | RUN ELEV (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | L O G | DESCRIPTION AND REMARKS | DEPTH (ft) |
| | | | | | REC. (ft) % | RQD (ft) % | | REC. (ft) % | RQD (ft) % | | | |
| 2351.03 | 2,351.0 | 8.1 | 2.4 | 0/0.4 | (2.4) | (2.3) | | | | | 2,351.0 | 8.1 |
| 2350 | | | | 0/1.0 | 100% | 96% | | | | | | |
| | 2,348.6 | 10.5 | | 0/1.0 | | | | | | | | |
| | | | 5.0 | 2:00/1.0 | (5.0) | (5.0) | | | | | | |
| 2345 | | | | 3:04/1.0 | 100% | 100% | | | | | | |
| | 2,343.6 | 15.5 | | 2:50/1.0 | | | | | | | | |
| | | | | 1:37/1.0 | | | | | | | | |
| | | | | 2:15/1.0 | | | | | | | | |
| Boring Terminated at Elevation 2,343.6 ft IN ROCK (GNEISS) | | | | | | | | | | | | |

CORE PHOTOGRAPHS

EB1-B

BOX 1 OF 1: 16.5 - 26.0 FEET



EB2-A

BOX 1 OF 1: 8.1 - 15.5 FEET

