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PROJECT: 34802.1.1 ID: U-2412A

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-RETAINING WALL 1-	18+50-20+25	3

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34802.1.1 (U-2412A) F.A. PROJ. STP-4121(1)
 COUNTY GUILFORD
 PROJECT DESCRIPTION GREENSBORO/HIGH POINT - SR 4121
(GREENSBORO/HIGH POINT RD.) FROM THE PROPOSED
US 311 BYPASS TO SR 1480 (VICKERY CHAPEL ROAD)
 SITE DESCRIPTION RETAINING WALL 1- RIGHT OF -Y7- STA. 18+50
RETAINING WALL INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34802.1.1 (U-2412A)	1	3
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
U-2412A	STP-4121(1)	P.E.	
		RW & UTIL.	

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

NC DOT
PERSONNEL

N. D. MOHS

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INVESTIGATED BY N. D. MOHS

CHECKED BY N. T. ROBERSON

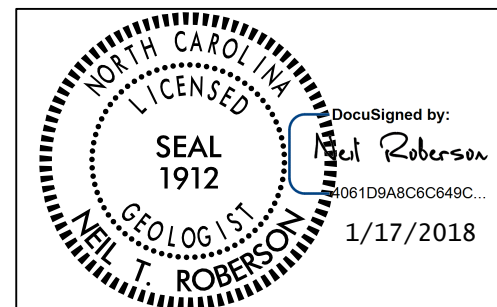
SUBMITTED BY N. T. ROBERSON

DATE NOVEMBER, 2008

DRAWN BY: N. D. MOHS, W. D. FIELDS

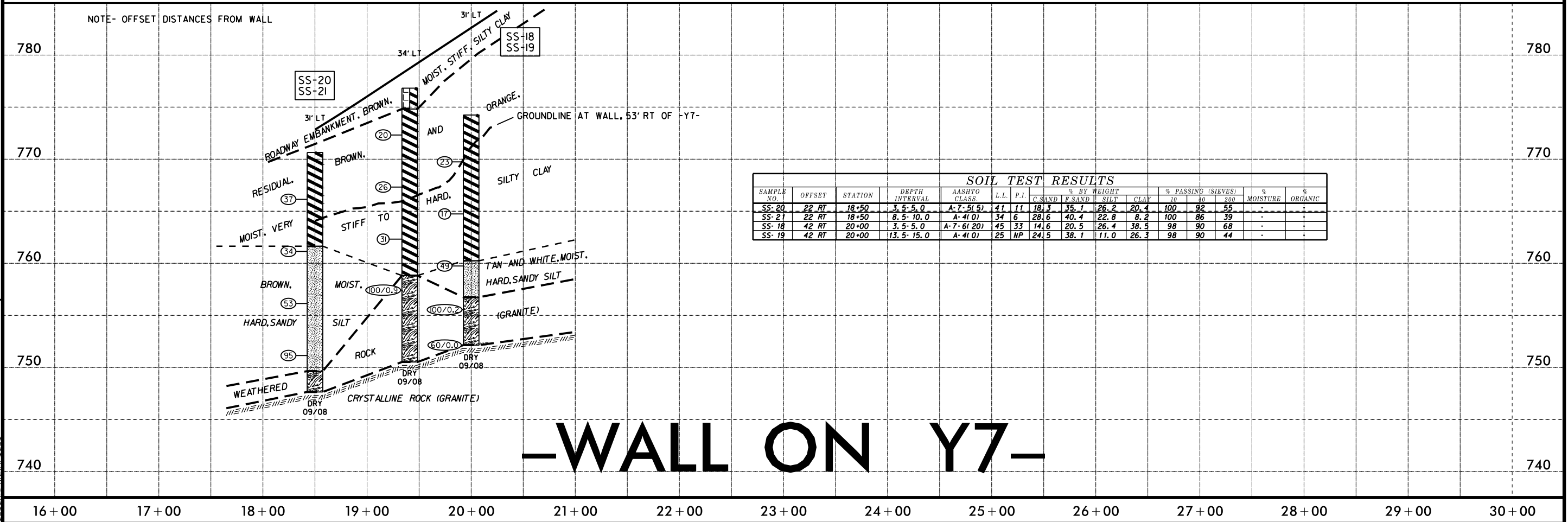
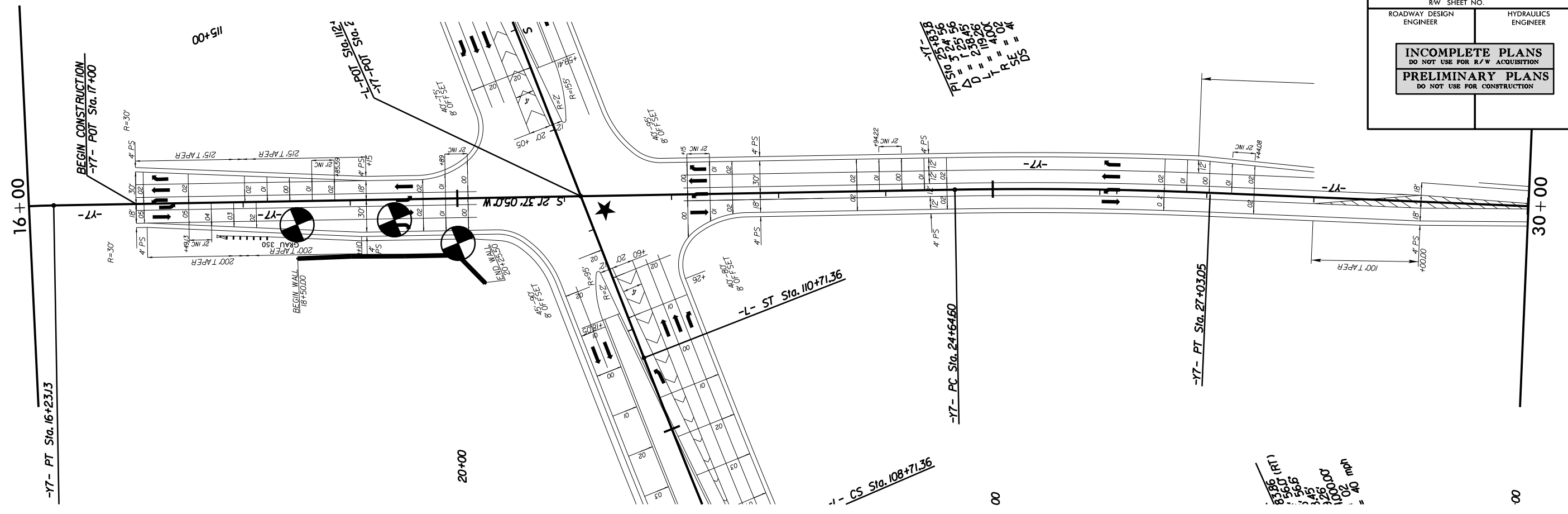
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NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



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																																																																																																																																																																																																																																											
<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 209, 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>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.</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>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 DISLOGGED 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.</p>																																																																																																																																																																																																																																											
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th colspan="2">A-1</th> <th colspan="2">A-3</th> <th colspan="2">A-2</th> <th colspan="2">A-4</th> <th colspan="2">A-5</th> <th colspan="2">A-6</th> <th colspan="2">A-7</th> <th colspan="2">A-1, A-2</th> <th colspan="2">A-4, A-5</th> </tr> <tr> <th>SYMBOL</th> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> <td colspan="2">○○○○○○○○</td> </tr> <tr> <th>% PASSING #10 #40 #200</th> <td>50 MX</td> <td>30 MX</td> <td>50 MX</td> <td>51 MN</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> </tr> <tr> <th>MATERIAL PASSING #40 LL PI</th> <td colspan="2">-</td> <td colspan="2">-</td> <td colspan="2">40 MX</td> <td colspan="2">41 MN</td> <td colspan="2">40 MX</td> <td colspan="2">41 MN</td> <td colspan="2">40 MX</td> <td colspan="2">41 MN</td> <td colspan="2">40 MX</td> </tr> <tr> <th>GROUP INDEX</th> <td colspan="2">0</td> <td colspan="2">0</td> <td colspan="2">0</td> <td colspan="2">4 MX</td> <td colspan="2">8 MX</td> <td colspan="2">12 MX</td> <td colspan="2">16 MX</td> <td colspan="2">NO MX</td> <td colspan="2">NO MX</td> </tr> <tr> <th>USUAL TYPES OF MAJOR MATERIALS</th> <td colspan="2">STONE FRAGS. GRAVEL, AND SAND</td> <td colspan="2">FINE SAND</td> <td colspan="2">SILTY OR CLAYEY GRAVEL AND SAND</td> <td colspan="2">SILTY SOILS</td> <td colspan="2">CLAYEY SOILS</td> <td colspan="2">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="2">HIGHLY ORGANIC SOILS</td> <td colspan="2">MUCK, PEAT</td> <td colspan="2"></td> </tr> <tr> <th>GEN. RATING AS SUBGRADE</th> <td colspan="5">EXCELLENT TO GOOD</td> <td colspan="5">FAIR TO POOR</td> <td colspan="5">FAIR TO POOR</td> <td colspan="5">POOR</td> <td colspan="5">UNSUITABLE</td> </tr> <tr> <td colspan="10">PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30</td> <td colspan="10"></td> <td colspan="10"></td> <td colspan="10"></td> </tr> </table>										GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS					GROUP CLASS.	A-1		A-3		A-2		A-4		A-5		A-6		A-7		A-1, A-2		A-4, A-5		SYMBOL	○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		○○○○○○○○		% PASSING #10 #40 #200	50 MX	30 MX	50 MX	51 MN	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	MATERIAL PASSING #40 LL PI	-		-		40 MX		41 MN		40 MX		41 MN		40 MX		41 MN		40 MX		GROUP INDEX	0		0		0		4 MX		8 MX		12 MX		16 MX		NO MX		NO MX		USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS		SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS		MUCK, PEAT				GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD					FAIR TO POOR					FAIR TO POOR					POOR					UNSUITABLE					PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30																																								<p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p style="text-align: center;">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p style="text-align: center;">WEATHERED ROCK (WR)</p> <p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>										<p style="text-align: center;">CRYSTALLINE ROCK (CR)</p> <p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>										<p style="text-align: center;">NON-CRYSTALLINE ROCK (NCR)</p> <p>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.</p>										<p style="text-align: center;">COASTAL PLAIN SEDIMENTARY ROCK (CP)</p> <p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>									
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<p style="text-align: center;">COMPRESSION</p> <p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p style="text-align: center;">PERCENTAGE OF MATERIAL</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY</td> </tr> </table>										ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	> 10%	> 20%	HIGHLY	<p style="text-align: center;">GROUND WATER</p> <p>▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▼ STATIC WATER LEVEL AFTER 24 HOURS ▽PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP</p>										<p style="text-align: center;">WEATHERING</p> <p>FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <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 (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <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.</p>																																																																																																																																																																																																																							
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BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. 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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>																																																																																																																																																
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-WALL ON Y7-

REVISIONS

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 8/17/99

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	U-2412A	1	30

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

STRUCTURE
SUBSURFACE INVESTIGATION

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PROJ. REFERENCE NO. 34802.1.1 (U-2412A) F.A. PROJ. STP-4121(1)

COUNTY GUILFORD

PROJECT DESCRIPTION GREENSBORO/HIGH POINT RD. FROM
PROPOSED US 311 BYPASS TO WEST OF ST 1480

SITE DESCRIPTION STRUCTURES NO. 3 & 4 ON -L- (SR 4121,
GREENSBORO/HIGH POINT RD.) OVER DEEP RIVER AT
STATION 140+22

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PERSONNEL

N.D. MOHS

J. HOWARD

MACTEC

INVESTIGATED BY N.D. MOHS

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE MAY 2009

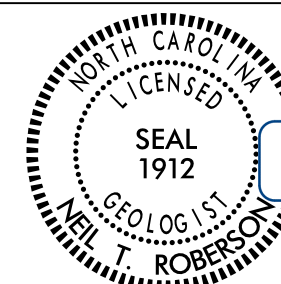
ID: U-2412A

PROJECT: 34802

DRAWN BY: N.D. MOHS

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

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



DocuSigned by:

Neil Roberson

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




2/19/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

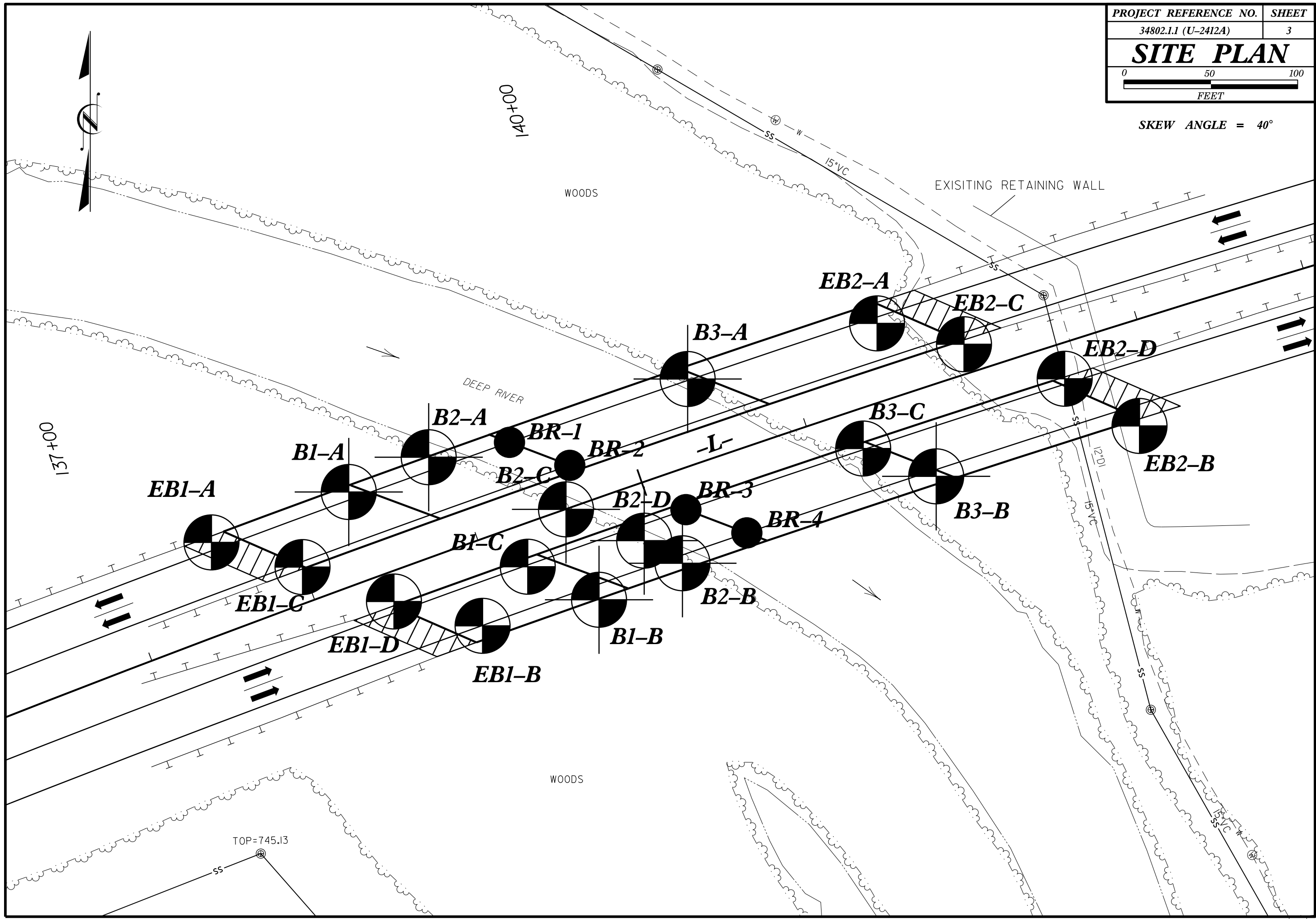
PROJECT REFERENCE NO. U-2412A	SHEET NO. 2
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SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

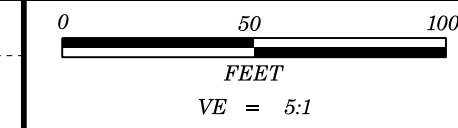
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR , SUBANGULAR , SUBROUNDED , OR ROUNDED .	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:  WEATHERED ROCK (WR)  CRYSTALLINE ROCK (CR)  NON-CRYSTALLINE ROCK (NCR)  COASTAL PLAIN SEDIMENTARY ROCK (CP)	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGED 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 (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERALOGICAL COMPOSITION	WEATHERING	
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <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, YIELDS SPT N VALUES > 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS 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.	
COMPRESSIBILITY SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE	PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	GROUND WATER  WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING  STATIC WATER LEVEL AFTER 24 HOURS  PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA  SPRING OR SEEP	
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	ROCK HARDNESS	
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	
TEXTURE OR GRAIN SIZE	ABBREVIATIONS	FRACTURE SPACING	BEDDING
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	AR - AUGER REFUSAL HI. - HIGHLY BT - BORING TERMINATED MED. - MEDIUM CL. - CLAY MICA. - MICACEOUS CPT - CONE PENETRATION TEST MOD. - MODERATELY CSE. - COARSE NP - NON PLASTIC DMT - DILATOMETER TEST ORG. - ORGANIC DPT - DYNAMIC PENETRATION TEST PMT - PRESSUREMETER TEST e - VOID RATIO SAP. - SAPROLITIC F - FINE SD. - SAND, SANDY FOSS. - FOSSILIFEROUS SL. - SILT, SILTY FRAC. - FRACTURED, FRACTURES SLI. - SLIGHTLY FRAGS. - FRAGMENTS TCR - TRICONE REFUSAL	VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET	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
SOIL MOISTURE - CORRELATION OF TERMS	EQUIPMENT USED ON SUBJECT PROJECT	INDURATION	
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	DRILL UNITS: MOBILE B- BK-51 CME-45C CME-55 PORTABLE HOIST ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE 2 5/8" STEEL TEETH TRICONE TUNG-CARB. CORE BIT	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	BENCH MARK: BM-1, I41+80, 20' LT ELEVATION: 720.79 FT.
PLASTICITY			NOTES:
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY			
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.			

SKEW ANGLE = 40°



770

GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 2/23/2009.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.



PROJECT REFERENCE NO. SHEET

34802.1.1 (U-2412A) 4

PROFILE OF BORINGS ALONG -L-

760

750

740

730

720

710

700

690

680

EB1-C
138+00
20' LT

B1-C
139+22
24' RT

B2-C
139+54
CL

B3-C
141+27
22' RT

EB2-D
142+50
20' RT

-L-

BR-3 BR-4
140+19 140+48
23' RT 47' RT

DEEP RIVER 4/09

RESIDUAL, BROWN AND
VERY STIFF TO
SANDY

ORANGE, MOIST,
HARD,
CLAY

RESIDUAL, BLACK,

WEATHERED ROCK
(GRANITE)

CRYSTALLINE ROCK (GRANITE)

CRYSTALLINE ROCK, BLUE-GRAY,
FRESH TO SLIGHTLY WEATHERED,
HARD, CLOSE TO MODERATELY CLOSE
FRACTURE SPACING, DIABASE

REC=83%
ROD=78%

MOIST, MEDIUM DENSE, SILTY SAND
WEATHERED
CRYSTALLINE ROCK (GRANITE)

MOIST, VERY STIFF,
SANDY SILT
AND STIFF TO HARD, SANDY SILT
ROCK (GRANITE)

ARTIFICIAL FILL, BROWN,
MOIST, VERY STIFF,
SANDY SILT

(A) ALLUVIAL, BROWN, MOIST, VERY LOOSE, SILTY SAND

(B) ALLUVIAL, BROWN, RED, GRAY, AND ORANGE, MOIST TO WET, VERY SOFT TO VERY STIFF, SILTY AND SANDY CLAY, AND SANDY SILT

137+00

138+00

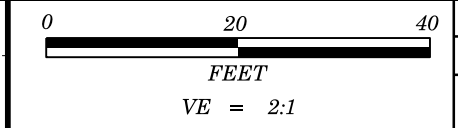
139+00

140+00

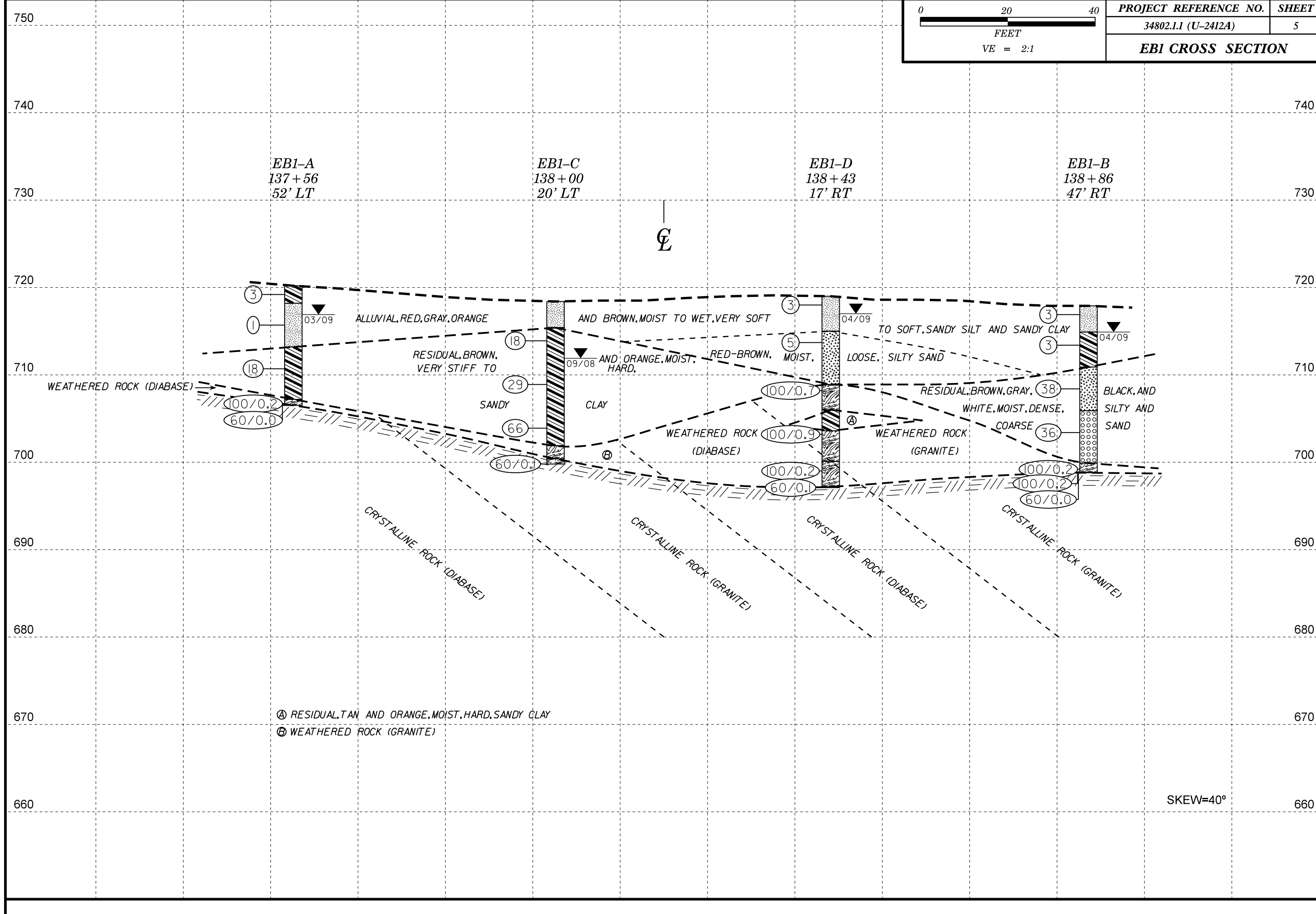
141+00

142+00

143+00



PROJECT REFERENCE NO.	SHEET
34802.1.1 (U-2412A)	5
EB1 CROSS SECTION	



750

740

730

720

710

700

690

680

670

660

	PROJECT REFERENCE NO.	SHEET
	34802.1.1 (U-2412A)	6
BENT 1 CROSS SECTION		

740

730

720

710

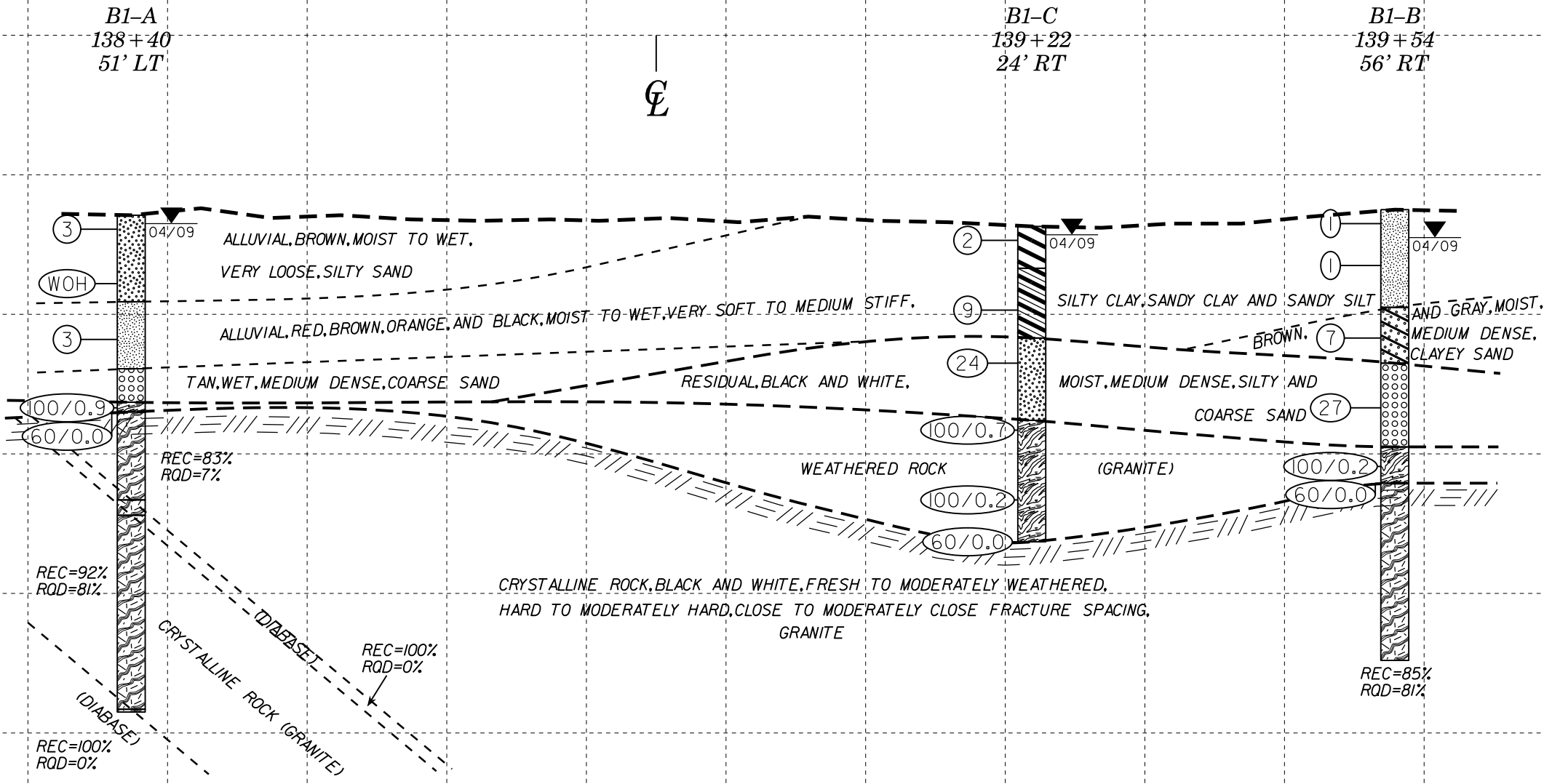
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690

680

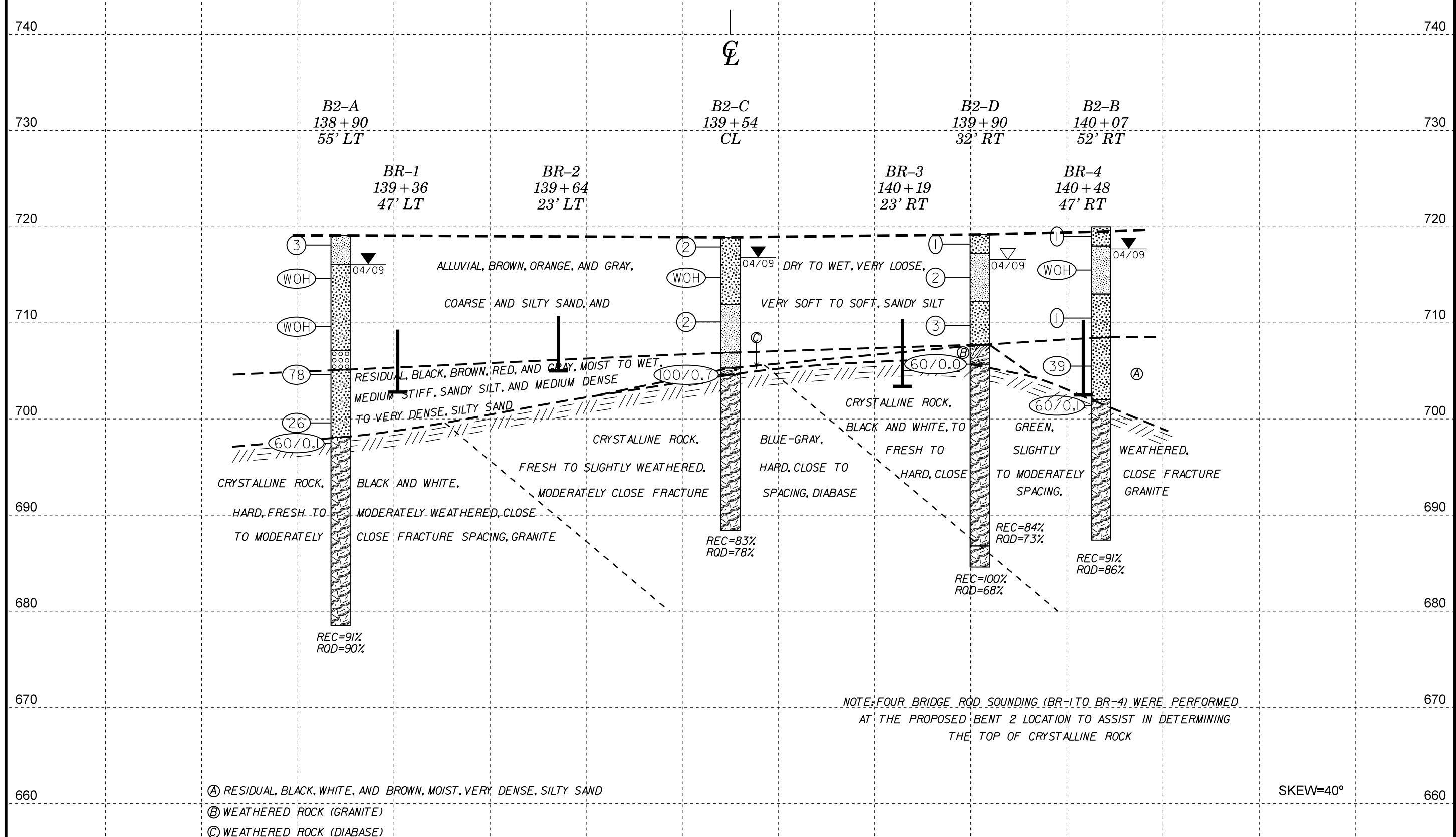
670

660



SKEW=40°

SEE CORE BORING REPORT FOR MORE DETAILED CRYSTALLINE ROCK DESCRIPTIONS



SEE CORE BORING REPORT FOR MORE DETAILED CRYSTALLINE ROCK DESCRIPTIONS

750

740

730

720

710

700

690

680

670

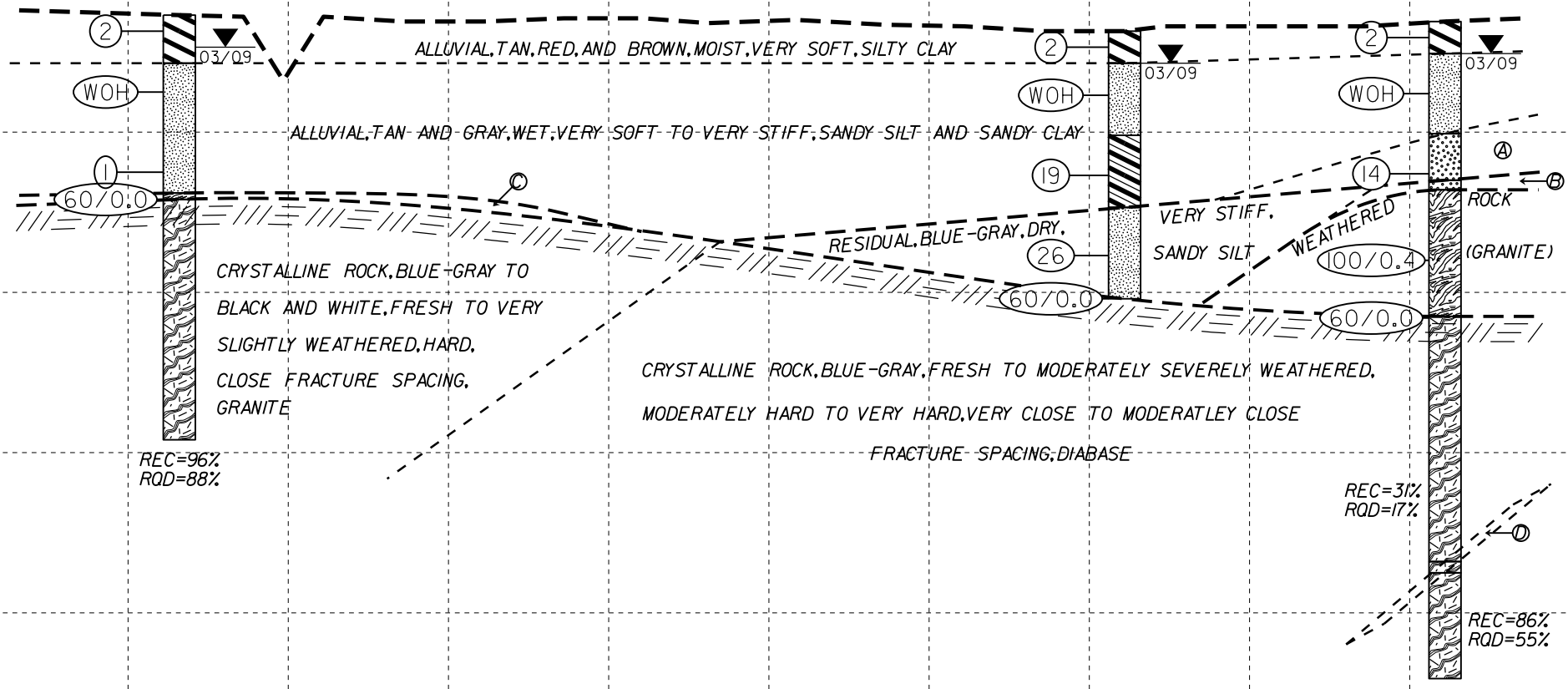
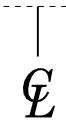
660

	PROJECT REFERENCE NO.	SHEET
	34802.1.1 (U-2412A)	8
BENT 3 CROSS SECTION		

B3-A
140+44
48' LT

B3-C
141+27
22' RT

B3-B
141+62
51' RT



- (A) ALLUVIAL, TAN, WET, MEDIUM DENSE, SILTY SAND
- (B) RESIDUAL, BLACK AND WHITE, WET, MEDIUM DENSE, SILTY SAND
- (C) WEATHERED ROCK (GRANITE)
- (D) CRYSTALLINE ROCK (GRANITE) REC=96%, RQD=88%

SKEW=40°

SEE CORE BORING REPORT FOR MORE DETAILED CRYSTALLINE ROCK DESCRIPTIONS

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.											
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)										
BORING NO. EB1-A		STATION 137+56		OFFSET 52 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 720.2 ft		TOTAL DEPTH 13.7 ft		NORTHING 815,257		EASTING 1,724,189											
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 03/30/09		COMP. DATE 03/30/09		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							
725																	
720	720.2	0.0	1	1	2										720.2	GROUND SURFACE	0.0
715	716.7	3.5	1	WOH	1										718.2	ALLUVIAL Brown, Sandy Clay	2.0
710	711.7	8.5	5	8	10										713.2	RESIDUAL Red-Brown, Sandy Silt	7.0
	706.7	13.5													707.2	RESIDUAL Brown and Gray, Sandy Clay	13.0
	706.5	13.7	100/0.2												706.5	WEATHERED ROCK (Diabase)	13.7
Boring Terminated with Standard Penetration Test Refusal at Elevation 706.5 ft On Crystalline Rock (Diabase)																	

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.											
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)										
BORING NO. EB1-B		STATION 138+86		OFFSET 47 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 718.0 ft		TOTAL DEPTH 19.1 ft		NORTHING 815,209		EASTING 1,724,345											
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 03/31/09		COMP. DATE 03/31/09		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							
720																	
715	718.0	0.0													718.0	GROUND SURFACE	0.0
710	714.5	3.5													715.0	ALLUVIAL Brown, Sandy Silt	3.0
705	709.5	8.5													711.0	RESIDUAL Orange, Gray and Brown, Sandy Clay	7.0
700	704.5	13.5													706.0	RESIDUAL Brown and Gray, Silty Sand	12.0
	699.5	18.5													706.0	Black and White, Coarse Sand and Gravel	12.0
	698.9	19.1	100/0.2												700.0	WEATHERED ROCK (Granite)	18.0
	698.9	19.1	100/0.2												698.9	WEATHERED ROCK (Granite)	19.1
Boring Terminated with Standard Penetration Test Refusal at Elevation 698.9 ft On Crystalline Rock (Granite)																	

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. EB1-C		STATION 138+00		OFFSET 20 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 718.3 ft		TOTAL DEPTH 18.6 ft		NORTHING 815,243		EASTING 1,724,241										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 09/04/08		COMP. DATE 09/04/08		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						
720														718.3	GROUND SURFACE	0.0
														715.3	ALLUVIAL Brown, Sandy Silt	3.0
715	714.8	3.5	6	8	10							SS-16	M		RESIDUAL Brown and Orange, Sandy Clay	
710	709.8	8.5	7	12	17								M			
705	704.8	13.5	8	19	47								M			
700	699.8	18.5												701.8	WEATHERED ROCK (Granite)	16.5
														700.3	CRYSTALLINE ROCK (Granite)	18.0
														699.7		18.6
Boring Terminated with Standard Penetration Test Refusal at Elevation 699.7 ft In Crystalline Rock (Granite)																

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. EB1-D		STATION 138+43		OFFSET 17 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 719.0 ft		TOTAL DEPTH 21.9 ft		NORTHING 815,223		EASTING 1,724,294										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 03/31/09		COMP. DATE 03/31/09		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						
720														719.0	GROUND SURFACE	0.0
														715.0	ALLUVIAL Brown, Sandy Silt	4.0
715	714.7	4.3	2	2	3							SS-1	M		RESIDUAL Red-Brown, Silty Sand	
710	709.4	9.6	6	9	91/0.2							SS-2	M			
705	704.6	14.4	8	10	90/0.4							SS-3	M		WEATHERED ROCK (Granite)	10.1
														706.0	RESIDUAL Tan and Orange, Sandy Clay	13.0
700	700.1	18.9										SS-4		704.1	WEATHERED ROCK (Granite)	14.9
														700.1	(Diabase)	18.9
														697.2	CRYSTALLINE ROCK (Diabase)	21.8
														697.1		21.9
Boring Terminated with Standard Penetration Test Refusal at Elevation 697.1 ft In Crystalline Rock (Diabase)																

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. B1-A		STATION 138+40		OFFSET 51 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 717.1 ft		TOTAL DEPTH 35.6 ft		NORTHING 815,286		EASTING 1,724,268										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/01/09		COMP. DATE 04/01/09		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						
720																
	717.1	0.0	WOH	1	2									717.1	GROUND SURFACE	0.0
715															ALLUVIAL Brown, Silty Sand	
	713.2	3.9	WOH	WOH	WOH											
710															Red, Brown, and Black, Sandy Silt	
	709.2	7.9		1	1	2										
705															Tan, Coarse Sand and Gravel	
	704.2	12.9		7	93/0.4											
	703.0	14.1		60/0.0											WEATHERED ROCK (Granite)	14.1
700															CRYSTALLINE ROCK Black and White, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, Granite REC=83% RQD=67%	20.4
															Blue-Gray, Very Slightly to Severely Weathered, Moderately Hard to Soft, Close Fracture Spacing, 2 Fractures at 40°, 3 at 10°, Diabase REC=100% RQD=0%	21.5
695															Black and White, Fresh to Moderately Weathered, Hard to Moderately Hard, Close to Moderately Close Fracture Spacing, 4 Fractures at 80°, Granite REC=92% RQD=81%	
															Blue-Gray, Very Slightly Weathered, Moderately Hard, Close Fracture Spacing, Diabase REC=100% RQD=0%	35.4
690																
685																

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.						
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)					
BORING NO. B1-A		STATION 138+40		OFFSET 51 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 717.1 ft		TOTAL DEPTH 35.6 ft		NORTHING 815,286		EASTING 1,724,268						
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic						
DRILLER Contract Driller		START DATE 04/01/09		COMP. DATE 04/01/09		SURFACE WATER DEPTH N/A						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
703												
	703.0	14.1	1.5	N=60/0.0 2:30/1.0 45/0.5	(1.5) 100%	(1.3) 87%	RS-1	(5.2) 83%	(4.2) 67%		Begin Coring @ 14.1 ft	
700											CRYSTALLINE ROCK	14.1
	701.5	15.6	5.0	1:15/1.0 1:30/1.0 1:45/1.0 2:00/1.0 1:00/1.0	(3.9) 78%	(2.9) 58%					Black and White, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, Granite	
695												
	696.5	20.6	5.0	2:30/1.0 1:15/1.0 1:45/1.0 1:30/1.0 1:00/1.0	(4.4) 88%	(3.0) 60%	RS-2	(1.1) 100%	(0.0) 0%		Blue-Gray, Very Slightly to Severely Weathered, Moderately Hard to Soft, Close Fracture Spacing, 2 Fractures at 40°, 3 at 10°, Diabase	20.4
690												
	691.5	25.6	5.0	2:30/1.0 2:00/1.0 2:15/1.0 2:30/1.0 2:00/1.0	(4.8) 96%	(3.8) 76%		(12.8) 92%	(11.3) 81%		Black and White, Fresh to Moderately Weathered, Hard to Moderately Hard, Close to Moderately Close Fracture Spacing, 4 Fractures at 80°, Granite	21.5
685												
	686.5	30.6	5.0	2:15/1.0 1:45/1.0 1:30/1.0 1:30/1.0	(4.8) 96%	(4.5) 90%						
	681.5	35.6						(0.2) 100%	(0.0) 0%		Blue-Gray, Very Slightly Weathered, Moderately Hard, Close Fracture Spacing, Diabase Boring Terminated at Elevation 681.5 ft in Crystalline Rock (Diabase)	35.4

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

NCDOT CORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. B2-B		STATION 140+07		OFFSET 52 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 720.0 ft		TOTAL DEPTH 32.6 ft		NORTHING 815,245		EASTING 1,724,460										
DRILL RIG/HAMMER EFF./DATE CME-45C		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 04/06/09		COMP. DATE 04/06/09		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						
720	720.0	0.0	1	WOH	1									720.0	GROUND SURFACE	0.0
	716.5	3.5	1	1	WOH									718.0	ALLUVIAL Brown, Silty Sand	2.0
715														713.0	Brown, Sandy Silt	
	711.5	8.5												708.5	Gray, Silty Sand	7.0
710			WOH	WOH	1									702.0	RESIDUAL Brown, Black and White, Silty Sand	11.5
	706.5	13.5												701.4	CRYSTALLINE ROCK (Diabase)	18.0
705			16	19	20										Green to Blue-Gray, Fresh to Very Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 2 Fractures at 45°, 1 at 20°, 1 at 80°, Diabase REC=91% RQD=86%	
	701.5	18.5												687.4	Boring Terminated at Elevation 687.4 ft In Crystalline Rock (Diabase)	32.6
700			60/0.1													
695																
690																

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.					
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)				
BORING NO. B2-B		STATION 140+07		OFFSET 52 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 720.0 ft		TOTAL DEPTH 32.6 ft		NORTHING 815,245		EASTING 1,724,460					
DRILL RIG/HAMMER EFF./DATE CME-45C		DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic							
DRILLER Contract Driller		START DATE 04/06/09		COMP. DATE 04/06/09		SURFACE WATER DEPTH N/A					
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)			
701.4											
700	701.4	18.6	4.0	1:15/1.0 2:30/1.0 3:30/1.0 4:15/1.0	(2.8) 70%	(2.2) 55%	(12.8) 91%	(12.0) 86%		Begin Coring @ 18.6 ft	
	697.4	22.6								Green to Blue-Gray, Fresh to Very Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 2 Fractures at 45°, 1 at 20°, 1 at 80°, Diabase	18.6
695			5.0	3:45/1.0 2:45/1.0 2:30/1.0 5:00/1.0 6:30/1.0	(5.0) 100%	(5.0) 100%					
	692.4	27.6									
690			5.0	7:30/1.0 3:30/1.0 11:00/1.0 1:45/1.0	(5.0) 100%	(4.8) 96%					
	687.4	32.6								Boring Terminated at Elevation 687.4 ft In Crystalline Rock (Diabase)	32.6

NCDOT CORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.									
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)								
BORING NO. B2-C		STATION 139+54		OFFSET CL		ALIGNMENT -L-									
COLLAR ELEV. 718.9 ft		TOTAL DEPTH 30.5 ft		NORTHING 815,276		EASTING 1,724,393									
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 04/06/09		COMP. DATE 04/06/09		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					
720	718.9	0.0	WOH	1	1								718.9	GROUND SURFACE	0.0
715	715.7	3.2	WOH	1	WOH						SS-1	M	715.7	ALLUVIAL Brown and Orange, Silty Sand	
710	711.1	7.8	WOH	1	1						SS-2	W	711.1	Gray, Sandy Silt	7.0
705	705.8	13.1									SS-3	W	706.9	RESIDUAL Red and Gray, Sandy Silt	12.0
700	704.6	14.3	60/0.0	24	76/0.2						SS-4	M	705.3	WEATHERED ROCK (Diabase)	13.6
695													704.6	CRYSTALLINE ROCK Blue-Gray, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 3 Fractures at 40°, Diabase REC=83% RQD=78%	14.3
690													688.4	Boring Terminated at Elevation 688.4 ft In Crystalline Rock (Diabase)	30.5

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.				
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)			
BORING NO. B2-C		STATION 139+54		OFFSET CL		ALIGNMENT -L-				
COLLAR ELEV. 718.9 ft		TOTAL DEPTH 30.5 ft		NORTHING 815,276		EASTING 1,724,393				
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic				
DRILLER Contract Driller		START DATE 04/06/09		COMP. DATE 04/06/09		SURFACE WATER DEPTH N/A				
CORE SIZE		TOTAL RUN		RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.			
704.6	704.6	14.3	1.2	N=60/0.0 2:15/1.0 15/0.2	(0.8) 67%	(0.3) 25%		(13.5) 83%	(12.7) 78%	704.6
700	698.4	20.5	5.0	2:45/1.0 1:00/1.0 2:00/1.0 2:15/1.0 2:00/1.0	(4.3) 86%	(4.1) 82%				Begin Coring @ 14.3 ft CRYSTALLINE ROCK Blue-Gray, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 3 Fractures at 40°, Diabase
695	693.4	25.5	5.0	2:00/1.0 1:30/1.0 1:15/1.0 1:30/1.0	(5.0) 100%	(5.0) 100%				
690	688.4	30.5	5.0	1:00/1.0 1:30/1.0 1:00/1.0 1:00/1.0 1:15/1.0	(3.4) 68%	(3.3) 66%				
										Boring Terminated at Elevation 688.4 ft In Crystalline Rock (Diabase)

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. B2-D		STATION 139+90		OFFSET 32 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 719.2 ft		TOTAL DEPTH 34.6 ft		NORTHING 815,258		EASTING 1,724,438										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/08/09		COMP. DATE 04/08/09		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						
720	719.2	0.0												719.2	GROUND SURFACE	0.0
			1	WOH	1							SS-1	D	717.2	ALLUVIAL Red-Brown, Silty Sand	2.0
715	715.7	3.5	1		1							SS-2	W	712.2	Red-Brown, Sandy Silt	7.0
710	710.7	8.5	1	WOH	3							SS-3	W	707.7	Gray, Silty Sand	11.5
705	705.7	13.5												705.7	WEATHERED ROCK (Granite)	13.5
												RS-7		705.7	CRYSTALLINE ROCK Black and White, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 2 Fractures at 80°, Granite REC=75% RQD=64%	
700														697.6	Blue-Gray, Fresh to Slightly Weathered, Hard, Close Fracture Spacing, Diabase REC=92% RQD=78%	21.6
695												RS-8				
690																
685														684.6	Boring Terminated at Elevation 684.6 ft In Crystalline Rock (Diabase)	34.6

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.						
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)					
BORING NO. B2-D		STATION 139+90		OFFSET 32 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 719.2 ft		TOTAL DEPTH 34.6 ft		NORTHING 815,258		EASTING 1,724,438						
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic						
DRILLER Contract Driller		START DATE 04/08/09		COMP. DATE 04/08/09		SURFACE WATER DEPTH N/A						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
705.7	705.7	13.5	1.1	N=60/0.0 1:00/1.1	(0.2)	(0.0)		(6.1)	(5.2)		Begin Coring @ 13.5 ft	
705	704.6	14.6	5.0	:30/1.0 1:30/1.0 2:00/1.0 2:15/1.0 2:30/1.0	18%	0%	RS-7	75%	64%		CRYSTALLINE ROCK Black and White, Fresh to Slightly Weathered, Hard, Close to Moderately Close Fracture Spacing, 2 Fractures at 80°, Granite	13.5
700	699.6	19.6	5.0	3:45/1.0 3:00/1.0 3:15/1.0 3:15/1.0 3:30/1.0	(4.6)	(4.5)						
695	694.6	24.6	5.0	2:15/1.0 3:15/1.0 1:45/1.0 1:30/1.0 2:15/1.0	92%	90%	RS-8	(11.9)	(10.1)		Blue-Gray, Fresh to Slightly Weathered, Hard, Close Fracture Spacing, Diabase	21.6
690	689.6	29.6	5.0	2:45/1.0 2:45/1.0 3:45/1.0 4:00/1.0 4:30/1.0	(5.0)	(4.3)						
685	684.6	34.6			100%	86%					Boring Terminated at Elevation 684.6 ft In Crystalline Rock (Diabase)	34.6

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 141+57		OFFSET 44 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 720.6 ft		TOTAL DEPTH 8.1 ft		NORTHING 815,383		EASTING 1,724,572										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 03/26/09		COMP. DATE 03/26/09		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						
725																
720	720.6	0.0													720.6	GROUND SURFACE
	717.0	3.6	WOH	1	1							SS-1	M			RESIDUAL Red-Brown, Sandy Silt
715	712.5	8.1		2	3	2						SS-2	M			
															713.1 712.5	WEATHERED ROCK (Granite) Boring Terminated with Standard Penetration Test Refusal at Elevation 712.5 ft On Crystalline Rock (Granite)

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Howard, J.										
SITE DESCRIPTION Structures No. 3 & 4 on -L- (Greensboro/High Point Rd.) over Deep River at Sta. 140+22							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 142+83		OFFSET 59 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 749.7 ft		TOTAL DEPTH 27.2 ft		NORTHING 815,324		EASTING 1,724,723										
DRILL RIG/HAMMER EFF./DATE CME-45C			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 03/23/09		COMP. DATE 03/23/09		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						
750																
	749.7	0.0		1	2	2									749.7	GROUND SURFACE
745	744.7	5.0		4	4	6										ARTIFICIAL FILL Orange, Brown and Gray, Sandy Silt
740	739.7	10.0		2	6	4										
735	734.7	15.0		9	31	41										RESIDUAL Orange and Black, Silty Sand
730	729.5	20.2													732.7	WEATHERED ROCK (Granite)
725	724.7	25.0														
	722.5	27.2													722.5	Boring Terminated with Standard Penetration Test Refusal at Elevation 722.5 ft On Crystalline Rock (Granite)

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

E1-A

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-1	52 LT	137+56	0.0-1.5	A-6(5)	37	12	23.0	23.0	29.7	24.2	94	79	56	-	-
SS-2	52 LT	137+56	3.5-5.0	A-4(2)	24	8	21.0	26.1	30.7	22.2	94	80	56	-	-
SS-3	52 LT	137+56	8.5-10.0	A-6(3)	30	15	21.0	38.4	14.3	26.3	100	88	47	-	-

E1-B

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-1	47 RT	138+86	0.0-1.5	A-4(4)	34	9	27.1	15.8	32.9	24.2	97	78	59	-	-
SS-2	47 RT	138+86	3.5-5.0	A-6(3)	31	12	13.5	42.2	18.0	26.3	100	95	52	-	-
SS-3	47 RT	138+86	8.5-10.0	A-2-4(0)	29	10	48.7	23.2	9.9	18.2	79	50	25	-	-
SS-4	47 RT	138+86	13.5-15.0	A-1-a(0)	24	2	48.3	24.6	19.0	8.1	43	27	14	-	-

E1-C

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-16	20 LT	138+00	3.5-5.0	A-6(5)	33	13	18.2	25.1	28.3	28.4	94	83	58	-	-

E1-D

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-1	17 RT	138+43	0.0-1.5	A-4(0)	28	5	38.2	29.1	18.6	14.1	96	75	36	-	-
SS-2	17 RT	138+43	4.3-5.8	A-2-4(0)	18	NP	31.7	41.0	17.2	10.1	100	85	33	-	-
SS-3	17 RT	138+43	9.6-10.6	A-2-4(0)	23	NP	63.6	22.9	5.4	8.1	97	57	15	-	-
SS-4	17 RT	138+43	14.4-15.4	A-6(6)	40	12	18.4	26.3	39.2	16.2	100	91	61	-	-

B1-A

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-1	51 LT	138+40	0.0-1.5	Material	Not	enough	26.4	24.8	32.5	16.3	97	75	55	-	-
SS-2	51 LT	138+40	3.9-5.4	A-2-4(0)	19	NP	38.4	39.2	12.2	10.2	100	78	27	-	-
SS-3	51 LT	138+40	7.9-9.4	A-4(2)	30	8	4.9	49.2	23.6	22.4	100	99	57	-	-
SS-4	51 LT	138+40	12.9-13.4	A-1-b(0)	21	NP	56.9	25.8	9.1	8.1	57	32	12	-	-

B1-B

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-1	56 RT	139+54	0.0-1.5	Material	Not	enough	8.5	54.9	16.3	20.3	100	98	43	-	-
SS-2	56 RT	139+54	3.0-4.5	A-4(0)	25	7	39.8	23.6	18.3	18.3	100	78	40	-	-
SS-3	56 RT	139+54	8.2-9.7	A-2-6(0)	29	11	36.8	32.3	8.5	22.4	92	71	32	-	-
SS-4	56 RT	139+54	13.2-14.7	A-1-b(0)	27	2	57.3	25.6	11.0	6.1	85	50	18	-	-

B1-C

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-1	24 RT	139+22	0.0-1.5	A-7-6(11)	43	15	10.0	22.4	37.2	30.5	100	94	74	-	-
SS-2	24 RT	139+22	5.0-6.5	A-6(2)	34	12	16.7	44.5	10.4	28.5	100	93	45	-	-
SS-3	24 RT	139+22	8.8-10.3	A-2-4(0)	22	2	36.8	38.8	14.2	10.2	69	54	21	-	-

B2-A

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-1	55 LT	138+90	0.0-1.5	A-4(0)	28	4	12.8	52.3	20.7	14.2	100	97	42	-	-
SS-2	55 LT	138+90	3.5-5.0	A-2-4(0)	24	2	39.1	30.3	22.5	8.1	100	83	35	-	-
SS-3	55 LT	138+90	8.5-10.0	Material	Not	enough	56.2	25.2	14.5	4.1	82	55	18	-	-
SS-4	55 LT	138+90	13.5-14.0	A-1-b(0)	18	2	62.5	21.6	9.9	6.1	70	35	14	-	-
SS-5	55 LT	138+90	18.5-20.0	A-2-4(0)	28	NP	13.4	59.8	22.7	4.1	95	89	35	-	-

B2-B

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-1	52 RT	140+07	0.0-1.5	A-2-4(0)	26	NP	35.4	44.6	11.9	8.1	100	88	24	-	-
SS-2	52 RT	140+07	3.5-5.0	A-4(0)	25	5	31.3	32.1	24.3	12.2	100	84	43	-	-
SS-3	52 RT	140+07	8.5-10.0	A-2-4(0)	21	NP	44.4	41.7	7.8	6.1	100	84	17	-	-
SS-4	52 RT	140+07	13.5-15.0	A-2-4(0)	31	9	39.7	21.0	29.2	10.2	54	37	24	-	-

B2-C

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-1	CL	139+54	0.0-1.5	A-2-4(0)	29	5	22.8	46.2	18.8	12.2	96	88	35	-	-
SS-2	CL	139+54	3.2-4.7	A-2-4(0)	23	NP	43.3	33.0	15.6	8.1	100	84	27	-	-
SS-3	CL	139+54	7.8-9.3	A-4(0)	27	6	28.9	37.8	15.0	18.3	100	85	39	-	-
SS-4	CL	139+54	13.1-13.6	A-4(1)	31	3	2.8	36.0	53.0	8.1	92	91	67	-	-

B2-D

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-1	32 RT	139+90	0.0-1.5	A-2-4(0)	23	NP	36.0	40.9	15.0	8.1	100	82	28	-	-
SS-2	32 RT	139+90	3.5-5.0	A-4(0)	25	3	37.2	29.5	23.1	10.2	100	77	40	-	-
SS-3	32 RT	139+90	8.5-10.0	A-2-4(0)	20	NP	50.3	34.8	8.9	6.1	100	76	18	-	-

B3-A

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-1	48 LT	140+44	0.0-1.5	A-7-6(13)	45	17	3.2	28.5	38.0	30.3	100	99	76	-	-
SS-2	48 LT	140+44	3.8-5.3	A-4(6)	30	9	3.2	28.3	40.2	28.3	100	99	77	-	-
SS-3	48 LT	140+44	8.8-10.3	A-4(0)	20	1	22.8	46.9	14.1	16.2	100	93	37	-	-

B3-B

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-1	51 RT	141+62	0.0-1.5	A-7-6(12)	42	16	12.9	15.8	41.0	30.3	98	89	74	-	-
SS-2	51 RT	141+62	3.5-5.0	A-4(1)	25	7	12.5	39.2	22.0	26.3	100	95	56	-	-
SS-3	51 RT	141+62	8.5-9.9	A-2-4(0)	28	9	32.3	36.2	11.3	20.2	79	66	28	-	-

B3-C

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-1	22 RT	141+27	0.0-1.5	A-7-5(21)	49	19	3.4	8.3	43.8	44.4	100	98	91	-	-
SS-2	22 RT	141+27	3.0-4.5	A-4(0)	26	6	36.8	19.6	25.5	18.2	94	69	45	-	-
SS-3	22 RT	141+27	8.0-9.5	A-6(3)	33	13	19.4	36.8	13.5	30.3	98	91	48	-	-
SS-4	22 RT	141+27	13.0-14.5	A-4(4)	32	5	5.7	23.2	52.9	18.2	98	94	79	-	-

EB2-A

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-1	44 LT	141+57	0.0-1.5	A-4(0)	24	5	28.5	25.1	26.3	20.2	95	76	50	-	-
SS-2	44 LT	141+57	3.6-5.1	A-4(2)	27	10	27.9	22.2	23.6	26.3	98	80	53	-	-

EB2-B

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-1	59 RT	142+83	0.0-1.5	A-4(1)	29	8	30.7	25.5	23.6	20.2	96	76	48	-	-
SS-2	59 RT	142+83	5.0-6.5	A-4(2)	30	7	24.0	26.3	29.5	20.2	95	78	54	-	-
SS-3	59 RT	142+83	10.0-11.5	A-4(0)	29	8	37.6	24.2	22.0	16.2	93	67	40	-	-
SS-4	59 RT	142+83	15.0-16.5	A-2-4(0)	19	NP	36.1	39.0	15.9	9.1	100	82	32	-	-

EB2-C

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-1	17 LT	142+01	0.0-1.5	A-4(1)	30	5	21.6	26.1	32.1	20.2	99	84	59	-	-
SS-2	17 LT	142+01	3.2-4.7	A-6(5)	29	12	21.0	21.4	27.3	30.3	99	85	62	-	-
SS-3	17 LT	142+01	8.2-9.7	A-4(3)	27	9	22.6	21.8	27.3	28.3	100	85	61	-	-

EB2-D

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-168	20 RT	142+50	0.0-1.5	A-4(2)	28	9	28.1	23.0	24.8	24.0	95	76	51	-	-
SS-169	20 RT	142+50	3.2-4.7	A-4(2)	29	9	29.9	22.0	24.0	24.0	95	74	50	-	-

ROCK TEST RESULTS									
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	H/D RATIO	UNIT WT lbs/ft3	Ultimate lbf	Ultimate ksi	Ultimate (corrected) ksi	Sec. Mod. @ 40% Mpsi
RS-1	51 LT	138+40	14.8-15.4			SAMPLE DAMAGED			
RS-2	51 LT	138+40	19.7-20.3	2.21	182.5	66900	24.6	24.9	6.37
RS-3	56 RT	139+54	19.6-20.3	2.15	184.1	62700	23.1	23.3	8.59
RS-4	56 RT	139+54	28.7-29.3	2.19	168.8	60900	22.4	22.6	7.43
RS-5	55 LT	138+90	22.9-23.5	2.19	184.4	65200	24.0	24.2	8.06
RS-6	55 LT	138+90	29.9-30.5	2.15	182.5	43200	15.9	16.0	6.07
RS-7	32 RT	139+90	15.7-16.3	2.24	166.7	35300	13.0	13.2	4.30
RS-8	32 RT	139+90	22.9-23.6	2.21	178.2	90200	33.2	33.6	7.22
RS-9	48 LT	140+44	12.9-13.4	2.21	178.2	55400	20.4	20.6	6.60
RS-10	48 LT	140+44	16.5-17.0	2.16	182.7	48200	18.3	18.5	6.70

CORE PHOTOGRAPHS

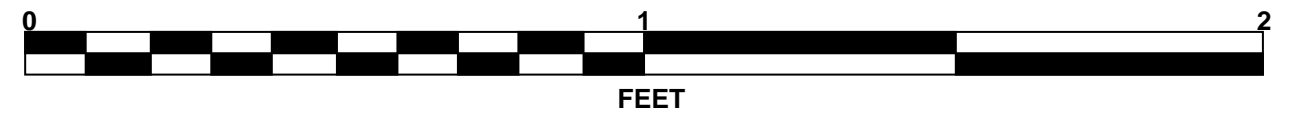
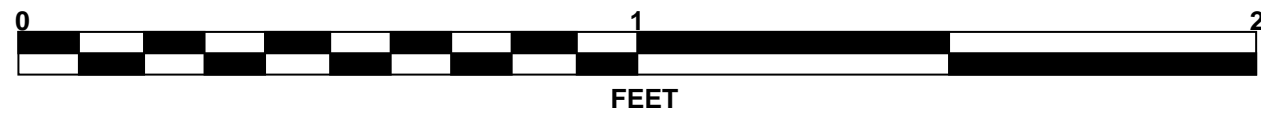
B1-A

BOXES 1 & 2: 14.1 - 35.6 FEET



B1-B

BOXES 1 & 2: 19.6 - 32.3 FEET



CORE PHOTOGRAPHS

B2-A

BOXES 1 & 2: 21.6 - 40.6 FEET



B2-B

BOXES 1 & 2: 18.6 - 32.6 FEET



CORE PHOTOGRAPHS

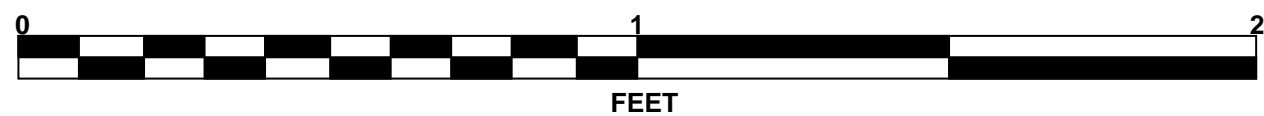
B2-C

BOXES 1 & 2: 14.3 - 30.5 FEET



B2-D

BOXES 1 & 2: 13.5 - 34.6 FEET



CORE PHOTOGRAPHS

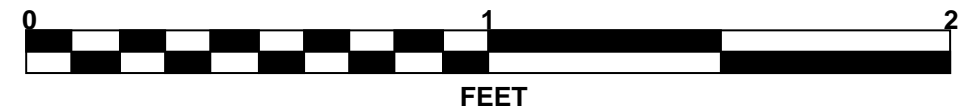
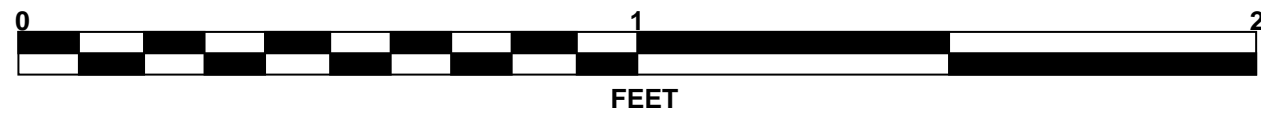
B3-A

BOXES 1 & 2: 11.5 - 26.5 FEET



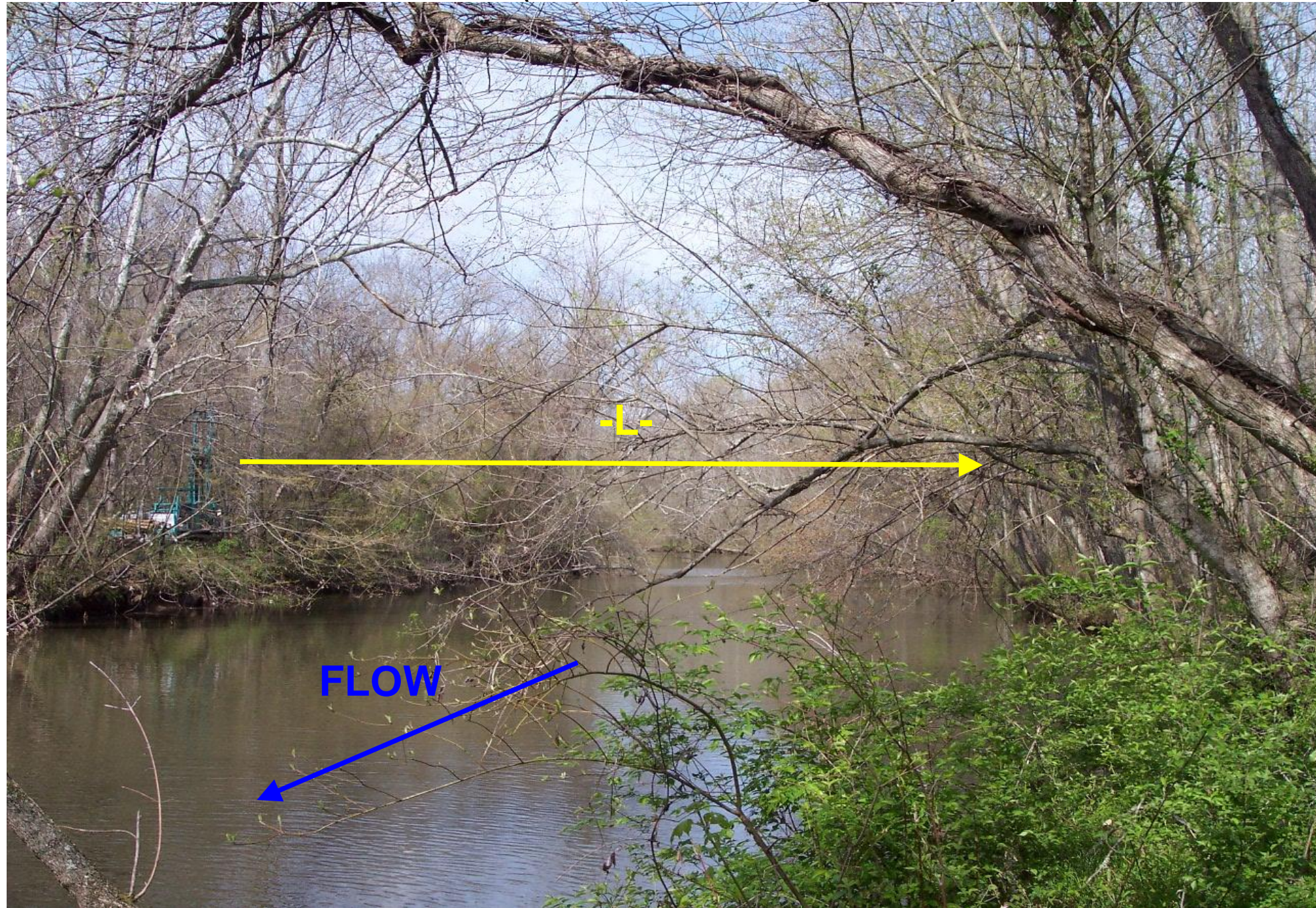
B3-B

BOXES 1, 2 & 3: 18.4 - 41.0 FEET



Site Photograph

Structures No. 3 & 4 on -L- (SR 4121, Greensboro/High Point Rd.) Over Deep River



Looking North

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34802.1.1 (U-2412A)	1	19

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

STRUCTURE
SUBSURFACE INVESTIGATION

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PROJ. REFERENCE NO. 34802.1.1 (U-2412A) F.A. PROJ. STP-4121(1)
COUNTY GUILFORD
PROJECT DESCRIPTION GREENSBORO/HIGH POINT RD. FROM
PROPOSED US 311 BYPASS TO WEST OF SR 1480

SITE DESCRIPTION STRUCTURES NO. 5 & 6 ON -L- (SR 4121,
GREENSBORO/HIGH POINT RD.) OVER BULL RUN CREEK
AT STATION 155+03

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PROJECT: 34802.1.1 ID: U-2412A

PERSONNEL

N.D. MOHS

T.T. WALKER

MACTEC

INVESTIGATED BY N.D. MOHS

CHECKED BY C.D. CZAJKA

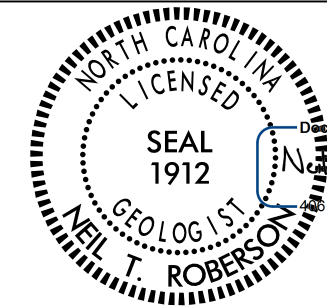
SUBMITTED BY N.T. ROBERSON

DATE MAY 2009

DRAWN BY: N.D. MOHS

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

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



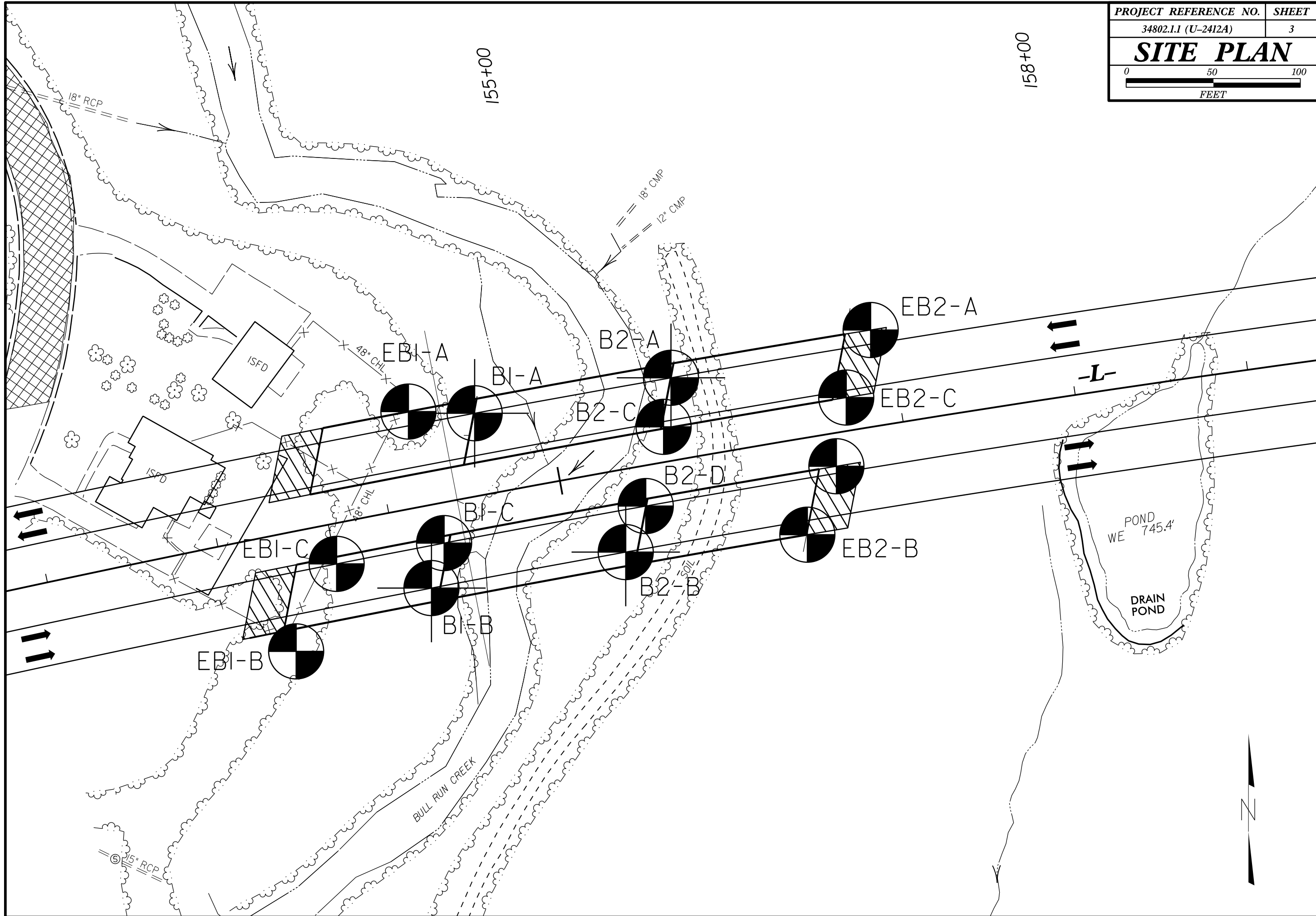
Signed by: Neil T. Roberson

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1/31/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION

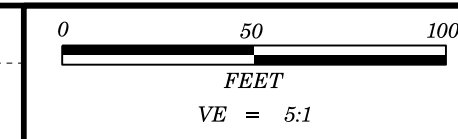
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRN. 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. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR , SUBANGULAR , SUBROUNDED , OR ROUNDED .	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOTJ) - 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 (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7 SYMBOL % PASSING: 10, 40, 200 LIQUID LIMIT: 6 MX, NP, 40 MX, 41 MN, 10 MX, 11 MN, 12 MX, 13 MN, 14 MX, 15 MN, 16 MX, 17 MN, 18 MX, 19 MN, 20 MX, 21 MN, 22 MX, 23 MN, 24 MX, 25 MN, 26 MX, 27 MN, 28 MX, 29 MN, 30 MX, 31 MN, 32 MX, 33 MN, 34 MX, 35 MN, 36 MX, 37 MN, 38 MX, 39 MN, 40 MN, 41 MN, 42 MX, 43 MN, 44 MX, 45 MN, 46 MX, 47 MN, 48 MX, 49 MN, 50 MN, 51 MN, 52 MX, 53 MN, 54 MX, 55 MN, 56 MX, 57 MN, 58 MX, 59 MN, 60 MN, 61 MN, 62 MX, 63 MN, 64 MX, 65 MN, 66 MX, 67 MN, 68 MX, 69 MN, 70 MN, 71 MN, 72 MX, 73 MN, 74 MX, 75 MN, 76 MX, 77 MN, 78 MX, 79 MN, 80 MN, 81 MN, 82 MX, 83 MN, 84 MX, 85 MN, 86 MX, 87 MN, 88 MX, 89 MN, 90 MN, 91 MN, 92 MX, 93 MN, 94 MX, 95 MN, 96 MX, 97 MN, 98 MX, 99 MN, 100 MN GROUP INDEX: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 USUAL TYPES OF MAJOR MATERIALS: STONE FRAGS., GRAVEL, AND SAND; FINE SAND; SILTY OR CLAYEY GRAVEL AND SAND; SILTY SOILS; CLAYEY SOILS GEN. RATING AS A SUBGRADE: EXCELLENT TO GOOD; FAIR TO POOR; FAIR TO POOR; POOR; UNSUITABLE PI OF A-7-5 SUBGROUP IS <= LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	WEATHERING FRESH ROCK FRESH, CRYSTALLINE BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS, SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <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, YIELDS SPT N VALUES < 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS 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.	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOTJ) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. 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HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
CONSISTENCY OR DENSENESS PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²) GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE, LOOSE, MEDIUM DENSE, DENSE, VERY DENSE <4, 4 TO 10, 10 TO 30, 30 TO 50, >50 N/A GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT, SOFT, MEDIUM STIFF, STIFF, VERY STIFF, HARD <2, 2 TO 4, 4 TO 8, 8 TO 15, 15 TO 30, >30 <0.25, 0.25 TO 0.50, 0.5 TO 1.0, 1 TO 2, 2 TO 4, >4	MISCELLANEOUS SYMBOLS ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD SPT DPT VST TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL S - BULK SAMPLE SS - SPLIT SPOON SAMPLE ST - SHELBY TUBE SAMPLE RS - ROCK SAMPLE RT - RECOMPACTED TRIAXIAL SAMPLE CBR - CALIFORNIA BEARING RATIO SAMPLE	ROCK HARDNESS VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE OPENING (MM) 4, 10, 40, 60, 200, 270 4.75, 2.00, 0.42, 0.25, 0.075, 0.053 BOULDER (BLDR.), COBBLE (COB.), GRAVEL (GR.), COARSE SAND (CSE. SD.), FINE SAND (F. SD.), SILT (SL.), CLAY (CL.) GRAIN SIZE MM 305, 75, 2.0, 0.25, 0.05, 0.005 IN. 12, 3
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION 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 - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE. - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP. - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT v - VERY VST - VANE SHEAR TEST WEA. - WEATHERED % - UNIT WEIGHT % - UNIT WEIGHT	FRACTURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.
PLASTICITY NONPLASTIC 0-5 VERY LOW LOW PLASTICITY 6-15 SLIGHT MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: MOBILE B-51, BK-51, CME-45C, CME-55, PORTABLE HOIST ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG. CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE STEEL TEETH, TRICONE 2 5/8" TUNG. CARB., CORE BIT HAMMER TYPE: AUTOMATIC, MANUAL CORE SIZE: B, NO, H HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST	INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	NOTES: BENCH MARK: BL-175, 150+62.58, 752.80 FEET BL-177, 156+88.80, 759.66 FEET



780

GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 2/23/2009.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.



PROJECT REFERENCE NO.	SHEET
34802.1.1 (U-2412A)	4
PROFILE OF BORINGS ALONG -L-	

770

EB1-C
153+65
23' RT

B1-C
154+28
23' RT

-L-

B2-C
155+64
20' LT

EB2-C
156+70
19' LT

770

760

760

750

750

740

740

730

730

720

720

710

710

700

700

690

690

152+00

153+00

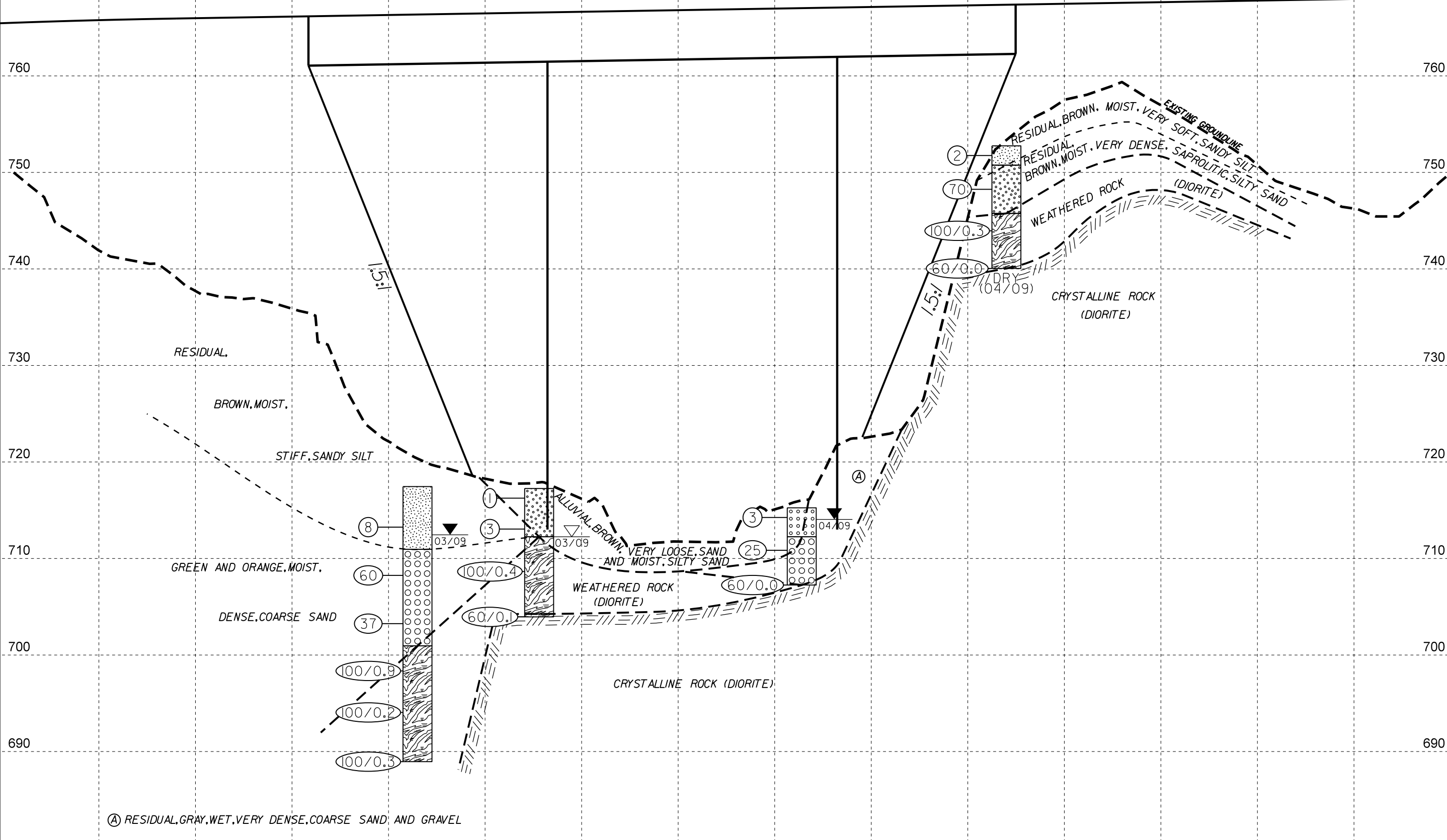
154+00

155+00

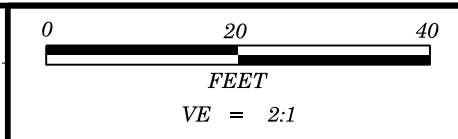
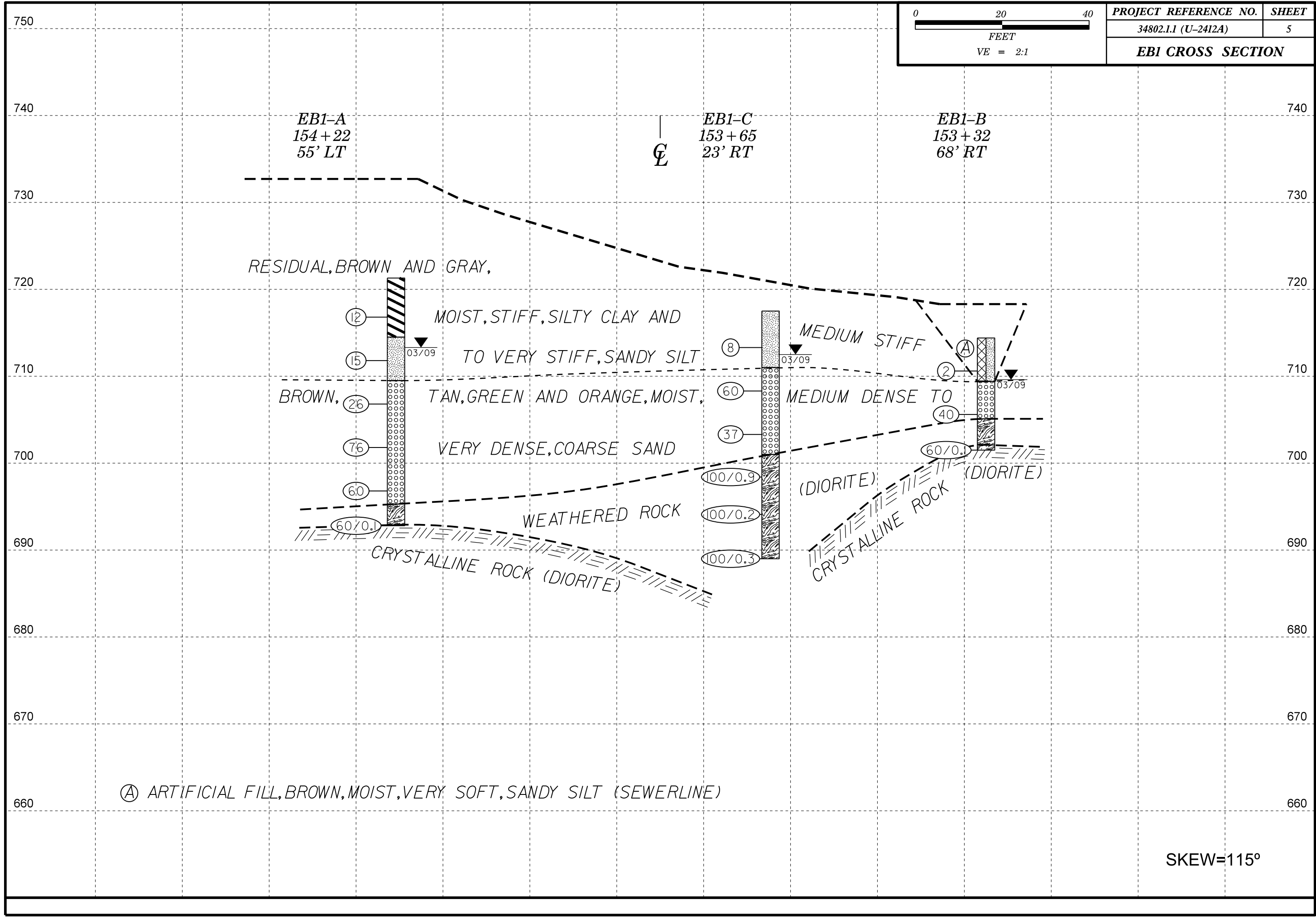
156+00

157+00

158+00



(A) RESIDUAL, GRAY, WET, VERY DENSE, COARSE SAND AND GRAVEL



PROJECT REFERENCE NO.	SHEET
34802.1.1 (U-2412A)	5
EBI CROSS SECTION	

EBI-A
 154 + 22
 55' LT

|
 ⊕

EBI-C
 153 + 65
 23' RT

EBI-B
 153 + 32
 68' RT

RESIDUAL, BROWN AND GRAY,

MOIST, STIFF, SILTY CLAY AND
 TO VERY STIFF, SANDY SILT

MEDIUM STIFF

BROWN, TAN, GREEN AND ORANGE, MOIST,

MEDIUM DENSE TO

VERY DENSE, COARSE SAND

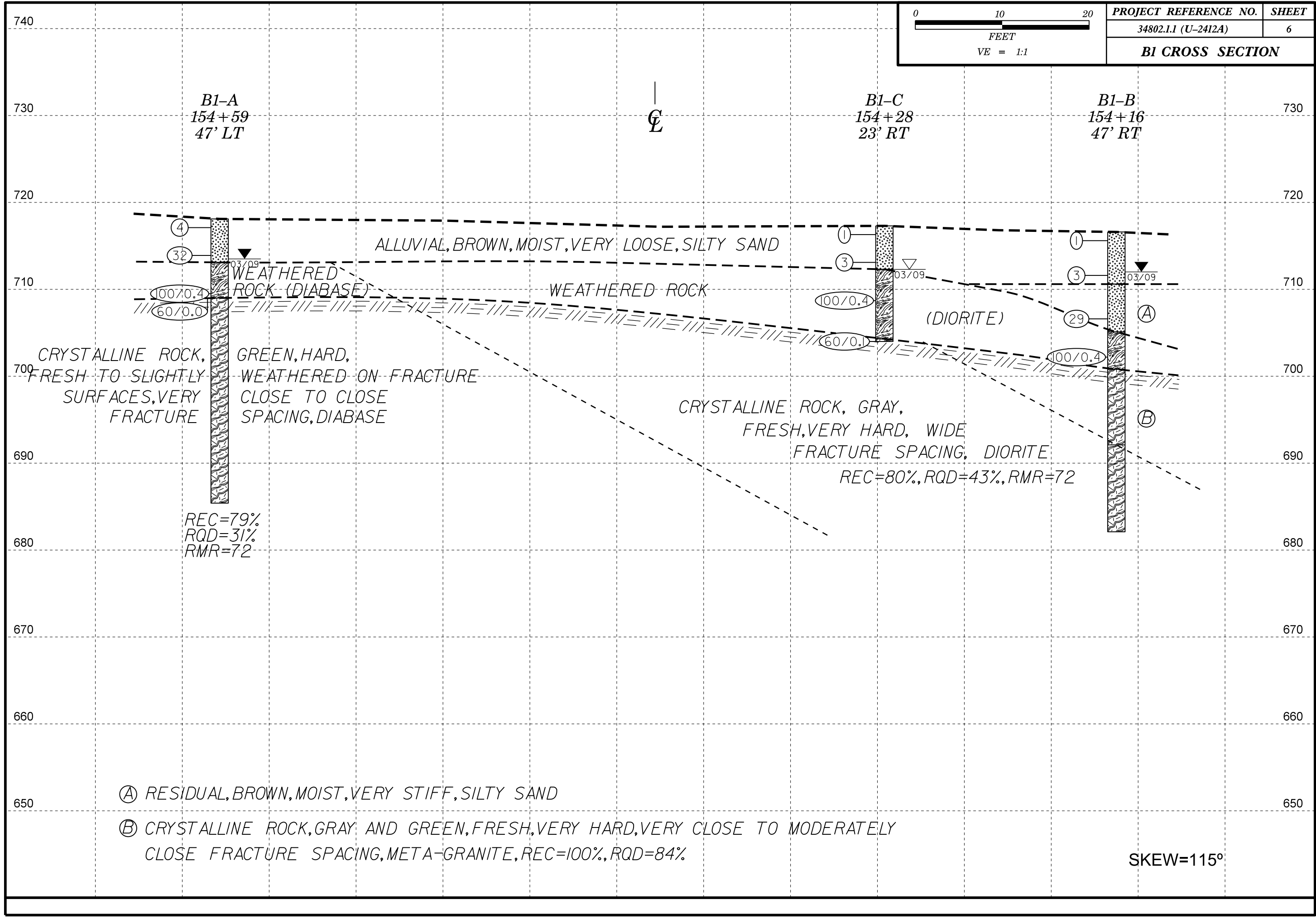
WEATHERED ROCK

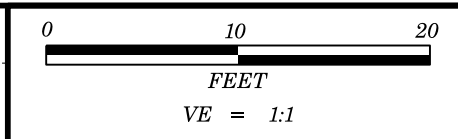
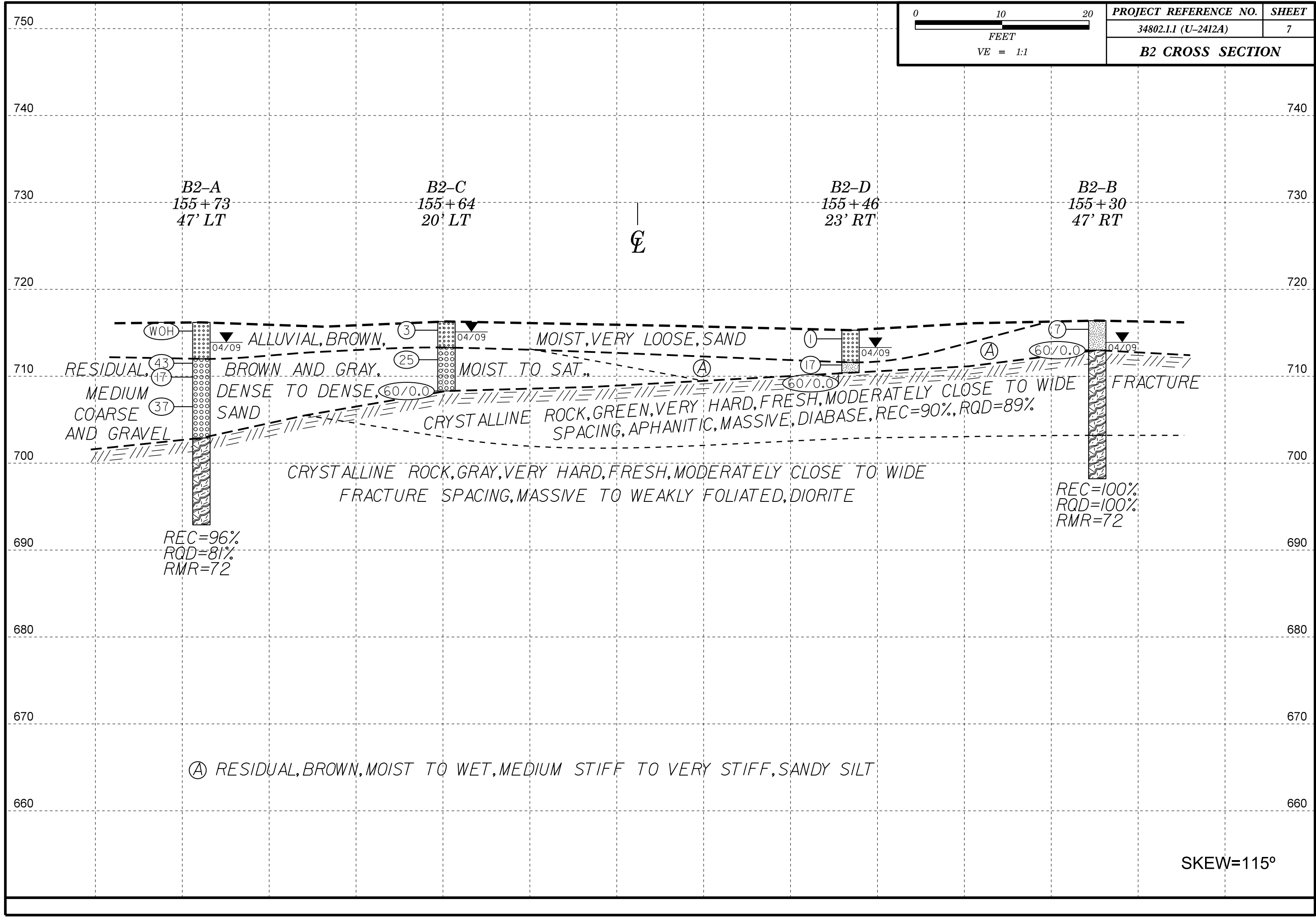
(DIORITE)
 CRYSTALLINE ROCK

CRYSTALLINE ROCK (DIORITE)

Ⓐ ARTIFICIAL FILL, BROWN, MOIST, VERY SOFT, SANDY SILT (SEWERLINE)

SKEW=115°





PROJECT REFERENCE NO.	SHEET
34802.1.1 (U-2412A)	7
B2 CROSS SECTION	

750
740
730
720
710
700
690
680
670
660

740
730
720
710
700
690
680
670
660

B2-A
155+73
47' LT

B2-C
155+64
20' LT

B2-D
155+46
23' RT

B2-B
155+30
47' RT

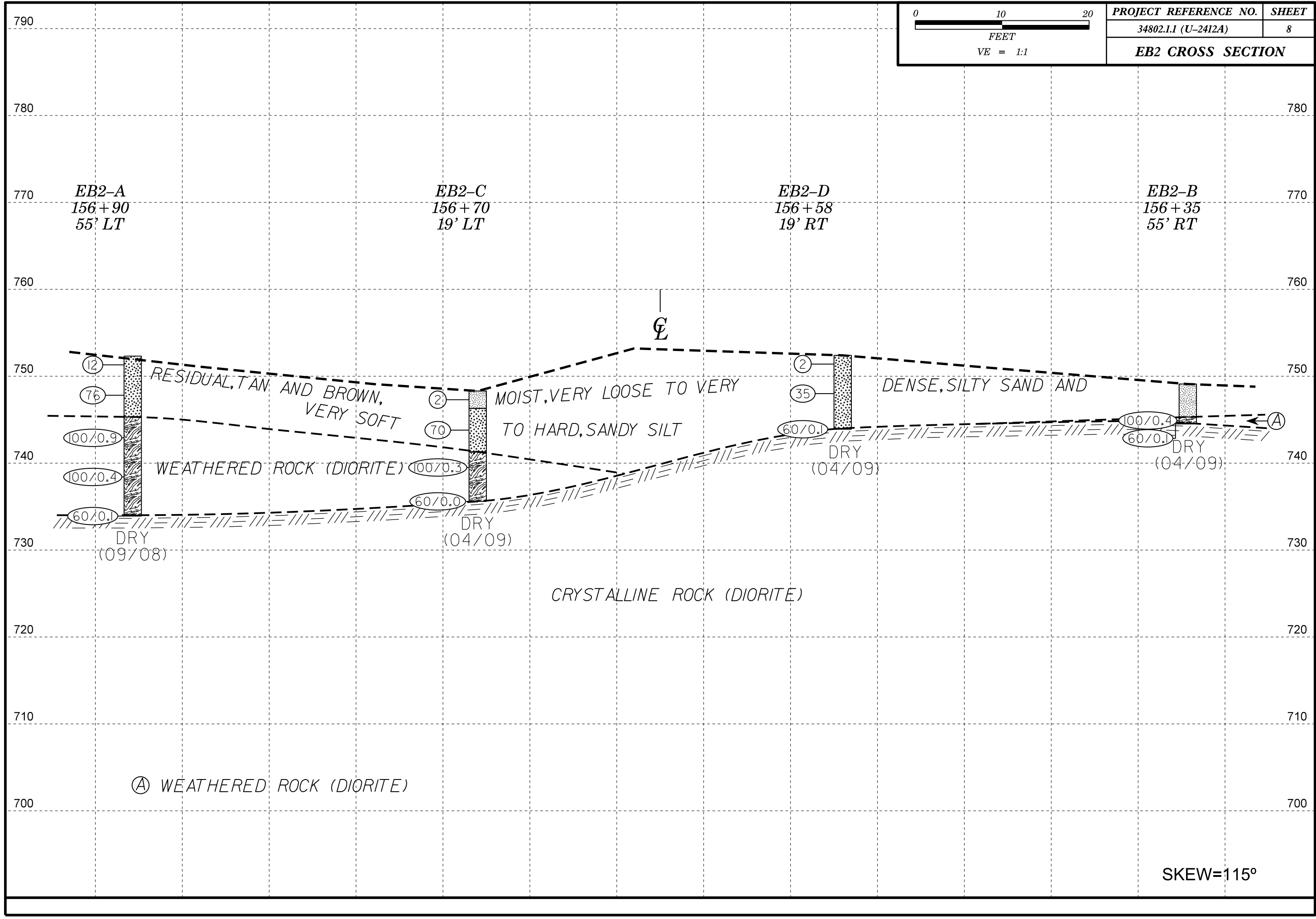
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(WOH) 04/09
 ALLUVIAL, BROWN, MOIST, VERY LOOSE, SAND
 RESIDUAL, BROWN AND GRAY, MOIST TO SAT.
 MEDIUM DENSE TO DENSE, (60/0.0)
 COARSE SAND
 AND GRAVEL
 CRYSTALLINE ROCK, GREEN, VERY HARD, FRESH, MODERATELY CLOSE TO WIDE FRACTURE SPACING, APHANITIC, MASSIVE, DIABASE, REC=90%, RQD=89%
 CRYSTALLINE ROCK, GRAY, VERY HARD, FRESH, MODERATELY CLOSE TO WIDE FRACTURE SPACING, MASSIVE TO WEAKLY FOLIATED, DIORITE
 (A) RESIDUAL, BROWN, MOIST TO WET, MEDIUM STIFF TO VERY STIFF, SANDY SILT

REC=96%
RQD=81%
RMR=72

REC=100%
RQD=100%
RMR=72

SKEW=115°



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.									
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 154+22		OFFSET 55 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 721.3 ft		TOTAL DEPTH 28.6 ft		NORTHING 815,712		EASTING 1,725,799									
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 03/24/09		COMP. DATE 03/24/09		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					
725															
720														721.3	GROUND SURFACE
															RESIDUAL Brown, Silty Clay
715	717.8	3.5	4	5	7							SS-4	M		
															Gray, Sandy Silt
710	712.8	8.5	3	6	9							SS-5	M		
															Tan, Coarse Sand
705	707.8	13.5	11	11	15										
700	702.8	18.5	14	28	48										
695	697.8	23.5	18	34	26										
	692.8	28.5	60/0.1											692.8	WEATHERED ROCK (Diorite)
														692.7	CRYSTALLINE ROCK (Diorite)
														692.7	
															Boring Terminated with Standard Penetration Test Refusal at Elevation 692.7 ft in Crystalline Rock (Diorite)

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.									
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 153+32		OFFSET 68 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 714.4 ft		TOTAL DEPTH 12.9 ft		NORTHING 815,574		EASTING 1,725,734									
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 03/24/09		COMP. DATE 03/24/09		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					
715															
														714.4	GROUND SURFACE
															ARTIFICIAL FILL Brown, Sandy Silt
710	711.6	2.8													
															RESIDUAL Brown, Coarse Sand
705	706.6	7.8	6	16	24										
															WEATHERED ROCK (Diorite)
	701.6	12.8	60/0.1											701.6	CRYSTALLINE ROCK (Diorite)
														701.5	
															Boring Terminated with Standard Penetration Test Refusal at Elevation 701.5 ft in Crystalline Rock (Diorite)

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)									
BORING NO. EB1-C		STATION 153+65		OFFSET 23 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 717.5 ft		TOTAL DEPTH 28.5 ft		NORTHING 815,624		EASTING 1,725,758										
DRILL RIG/HAMMER EFF./DATE CME-55				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 03/24/09		COMP. DATE 03/24/09		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
720														717.5	0.0	GROUND SURFACE
715	714.3	3.2	5	4	4							SS-1	▼	711.0	6.5	RESIDUAL Brown, Sandy Silt
710	709.3	8.2	36	28	32							SS-2	M	701.0	16.5	Green and Orange, Coarse Sand
705	704.3	13.2	10	16	21							M				
700	699.3	18.2	37	63/0.4												WEATHERED ROCK (Diorite)
695	694.3	23.2	100/0.2													
690	689.3	28.2	100/0.3													Boring Terminated at Elevation 689.0 ft in Weathered Rock (Diorite)

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)									
BORING NO. B2-B		STATION 155+30		OFFSET 47 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 716.2 ft		TOTAL DEPTH 18.2 ft		NORTHING 815,631		EASTING 1,725,924										
DRILL RIG/HAMMER EFF./DATE CME-55		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 03/31/09		COMP. DATE 03/31/09		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						
720																
715	716.2	0.0	2	2	5						SS-10	M	716.2	GROUND SURFACE	0.0	
710	712.8	3.4	60/0.0									RS-2		712.8	RESIDUAL Brown, Sandy Silt and Gravel	3.4
705														703.0	CRYSTALLINE ROCK Green, Fresh, Very Hard, Moderately Close to Wide Fracture Spacing, Massive, Aphanitic, Diabase REC=90% RQD=89% RMR=72	13.2
700														703.0	Gray, Fresh, Very Hard, Wide Fracture Spacing, Massive, Phaneritic, Diorite REC=90% RQD=89% RMR=72	13.2
														698.0	Boring Terminated at Elevation 698.0 ft in Crystalline Rock (Diorite)	18.2

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.					
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)				
BORING NO. B2-B		STATION 155+30		OFFSET 47 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 716.2 ft		TOTAL DEPTH 18.2 ft		NORTHING 815,631		EASTING 1,725,924					
DRILL RIG/HAMMER EFF./DATE CME-55		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic							
DRILLER Contract Driller		START DATE 03/31/09		COMP. DATE 03/31/09		SURFACE WATER DEPTH N/A					
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
712.8	712.8	3.4	4.8	N=60/0.0 4:54/1.0 3:58/1.0 3:17/1.0 2:56/1.0 2:16/0.8	(4.0) 83%	(3.9) 81%	(8.8) 90%	(8.7) 89%		Begin Coring @ 3.4 ft	
710										CRYSTALLINE ROCK Green, Fresh, Very Hard, Moderately Close to Wide Fracture Spacing, Massive, Aphanitic, Diabase REC=90% RQD=89% RMR=72	3.4
705			5.0	2:41/1.0 2:36/1.0 2:51/1.0 2:32/1.0 2:30/1.0	(4.8) 96%	(4.8) 96%					
700			5.0	2:51/1.0 2:53/1.0 3:20/1.0 3:10/1.0 3:10/1.0	(5.0) 100%	(5.0) 100%	(5.0) 100%	(5.0) 100%		Gray, Fresh, Very Hard, Wide Fracture Spacing, Massive, Phaneritic, Diorite REC=90% RQD=89% RMR=72	13.2
			18.2							Boring Terminated at Elevation 698.0 ft in Crystalline Rock (Diorite)	18.2

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)									
BORING NO. B2-C		STATION 155+64		OFFSET 20 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 715.3 ft		TOTAL DEPTH 8.0 ft		NORTHING 815,703		EASTING 1,725,946										
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/01/09		COMP. DATE 04/01/09		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						
720																
715	715.3	0.0	WOH	1	2	3							M		715.3	GROUND SURFACE 0.0
	711.9	3.4													712.3	ALLUVIAL Brown, Sand 3.0
710			14	13	12								W			RESIDUAL Gray, Coarse Sand and Gravel
	707.3	8.0													707.3	Boring Terminated with Standard Penetration Test Refusal at Elevation 707.3 ft on Crystalline Rock (Diabase) 8.0

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)									
BORING NO. B2-D		STATION 155+46		OFFSET 23 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 716.3 ft		TOTAL DEPTH 4.9 ft		NORTHING 815,658		EASTING 1,725,935										
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/01/09		COMP. DATE 04/01/09		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						
720																
715	716.3	0.0		3	0	1									716.3	GROUND SURFACE 0.0
	713.3	3.0	WOH	6	11										712.6	ALLUVIAL Brown, Sand 3.7
	711.4	4.9													711.4	RESIDUAL Brown, Sandy Silt and Gravel 4.9
																Boring Terminated with Standard Penetration Test Refusal at Elevation 711.4 ft on Crystalline Rock (Diabase)

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Milkovits, J. I.									
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 156+90		OFFSET 55 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 752.3 ft		TOTAL DEPTH 18.4 ft		NORTHING 815,759		EASTING 1,726,064									
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 09/22/08		COMP. DATE 09/22/08		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					
755															
	752.3	0.0	1	4	8									752.3	0.0
750	748.8	3.5	16	30	46						SS-154	M	RESIDUAL Tan-Brown, Silty Sand		
	743.8	8.5	41	59/0.4							SS-155	M			
745	743.8	8.5											WEATHERED ROCK (Diorite)	7.0	
	738.8	13.5													
740	738.8	13.5													
	734.0	18.3											CRYSTALLINE ROCK (Diorite)	18.3	
735	734.0	18.3												18.4	

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.									
SITE DESCRIPTION Structures No. 5 & 6 on -L- (SR 4121, Greensboro/High Point Rd.) Over Bull Run Creek							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 156+35		OFFSET 55 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 749.1 ft		TOTAL DEPTH 4.6 ft		NORTHING 815,641		EASTING 1,726,028									
DRILL RIG/HAMMER EFF./DATE CME-55			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 04/01/09		COMP. DATE 04/01/09		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					
750															
	749.1													749.1	0.0
	745.3	3.8												745.3	3.8
745	744.6	4.5												744.6	4.5
	744.6	4.5												744.6	4.5
	744.5	4.6												744.5	4.6

NCDOT BORE DOUBLE U2412A_GEO_BH.GPJ NC_DOT.GDT 1/30/18

EB1-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-4	55 LT	154+22	3.5-5.0	A-7-6(15)	41	22	13.1	14.9	29.8	42.3	99	91	75	-	-
SS-5	55 LT	154+22	8.5-10.5	A-4(0)	35	NP	12.9	47.7	31.4	8.0	100	97	50	-	-

EB1-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-3	68 RT	153+32	2.8-4.3	A-4(0)	25	6	33.8	26.8	19.3	20.1	97	78	41	-	-

EB1-C

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	23 RT	153+65	3.2-4.7	A-4(0)	25	7	31.6	33.6	16.7	18.1	98	79	39	-	-
SS-2	23 RT	153+65	8.2-9.7	A-1-b(0)	20	NP	49.7	25.4	16.9	8.0	58	37	17	-	-

B1-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-7	47 RT	154+16	9.0-10.5	A-2-4(0)	28	NP	51.3	24.9	15.7	8.0	92	56	27	-	-

B1-C

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-6	23 RT	154+28	0.0-1.5	A-2-4(0)	24	NP	47.9	33.2	12.9	6.0	98	77	22	-	-

B2-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-8	47 LT	155+73	0.0-3.7	A-3(0)	29	NP	37.9	55.5	2.6	4.0	100	96	9	-	-
SS-9	47 LT	155+73	8.7-10.2	A-1-b(0)	22	2	42.2	24.6	21.0	12.1	50	35	19	-	-

B2-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-10	47 RT	155+30	0.0-1.5	A-4(0)	27	6	23.0	23.4	31.3	22.2	79	67	47	-	-

EB2-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-154	55 LT	156+90	0.0-1.5	A-2-4(0)	26	NP	47.3	25.6	15.1	12.0	92	61	29	-	-
SS-155	55 LT	156+90	3.5-5.0	A-2-4(0)	25	4	49.5	23.9	13.5	13.0	93	60	29	-	-

EB2-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-11	55 RT	156+35	0.0-3.8	A-4(2)	29	5	16.0	23.0	36.8	24.2	97	87	66	-	-

EB2-C

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-12	19 LT	156+70	3.5-5.0	A-2-4(0)	23	3	40.6	28.2	19.1	12.1	95	71	34	-	-

ROCK TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	H/D RATIO	UNIT WT lbs/ft3	Ultimate lbf	Ultimate ksi	Ultimate (corrected) ksi	Sec. Mod. @ 40% Mpsi
RS-1	47 LT	155+73	15.0-15.5	2.44	168.3	65600	23.9	24.4	8.47
RS-2	47 RT	155+30	4.4-5.2	.717	629	92400	33.7	27.7	13.13
RS-3	47 LT	154+59	15.3-16.1	.701	629	92200	33.6	27.5	11.04
RS-4	47 RT	154+16	19.5-20.1	2.41	166.4	69600	25.4	25.9	0.27

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34802.1.1 (U-2412A)	1	13

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

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
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3	SITE PLAN
4	PROFILE
5, 6	CROSS SECTIONS
7-10	BORE LOGS & CORE REPORT
11	SOIL TEST RESULTS
12	CORE PHOTOGRAPHS
13	SITE PHOTOGRAPH

PROJ. REFERENCE NO. 34802.1.1 (U-2412A) F.A. PROJ. STP-4121(1)
COUNTY GUILFORD
PROJECT DESCRIPTION GREENSBORO/HIGH POINT RD. FROM
PROPOSED US 311 BYPASS TO WEST OF SR 1480

SITE DESCRIPTION STRUCTURE NO. 7 ON -Y8- (SR 1352, OAKDALE
RD.) OVER -L- (GREENSBORO/HIGH POINT RD.) AT STATION
14 + 98

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PROJECT: 34802.1.1 ID: U-2412A

PERSONNEL

N.D. MOHS

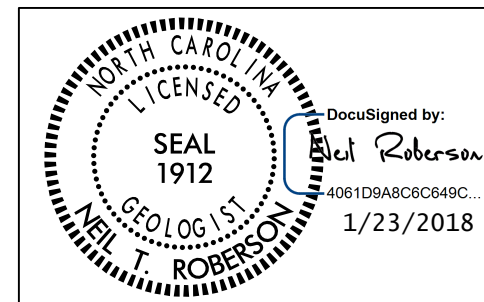
MACTEC

INVESTIGATED BY N.D. MOHS

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE APRIL 2009



DRAWN BY: N.D. MOHS

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

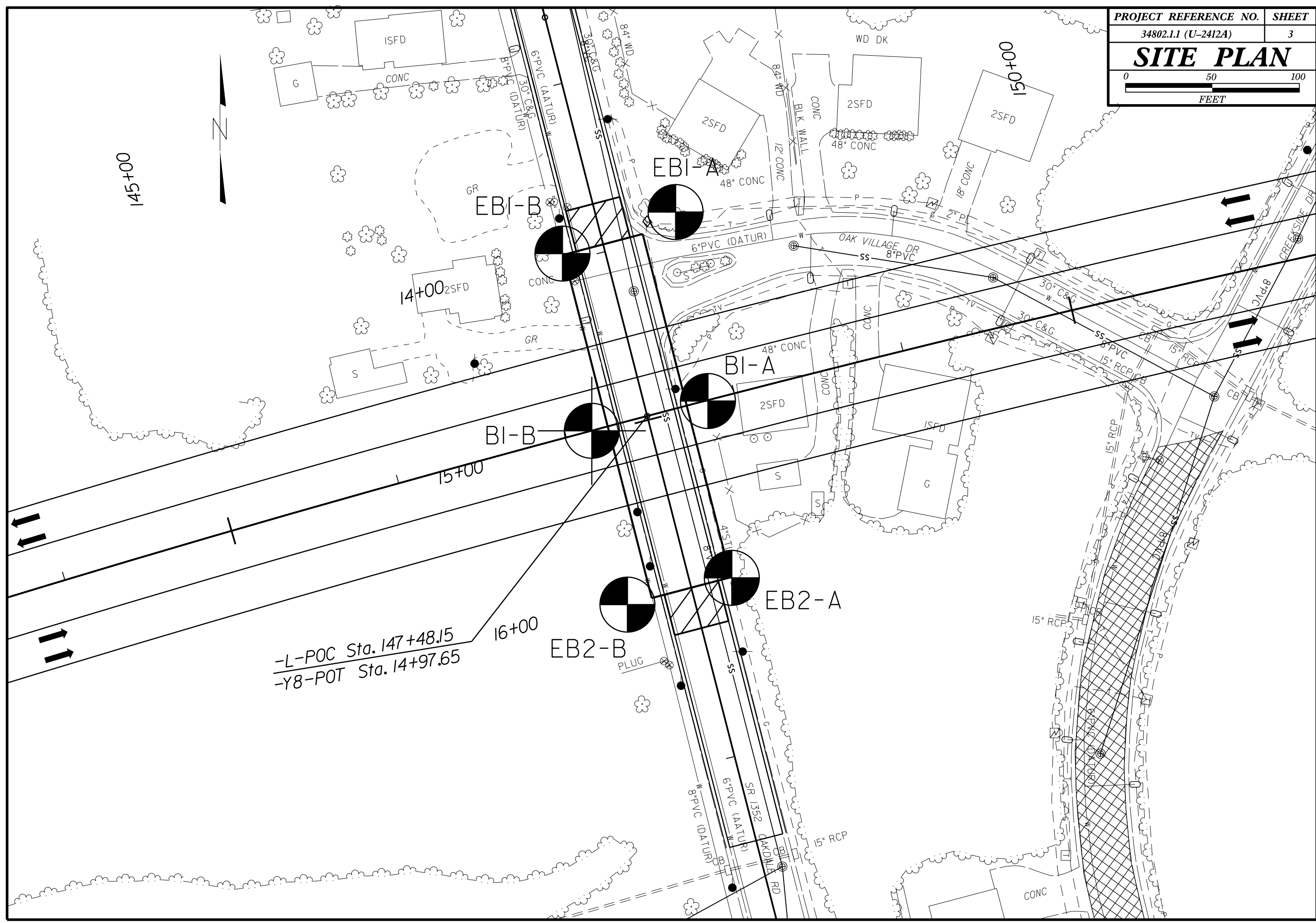
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

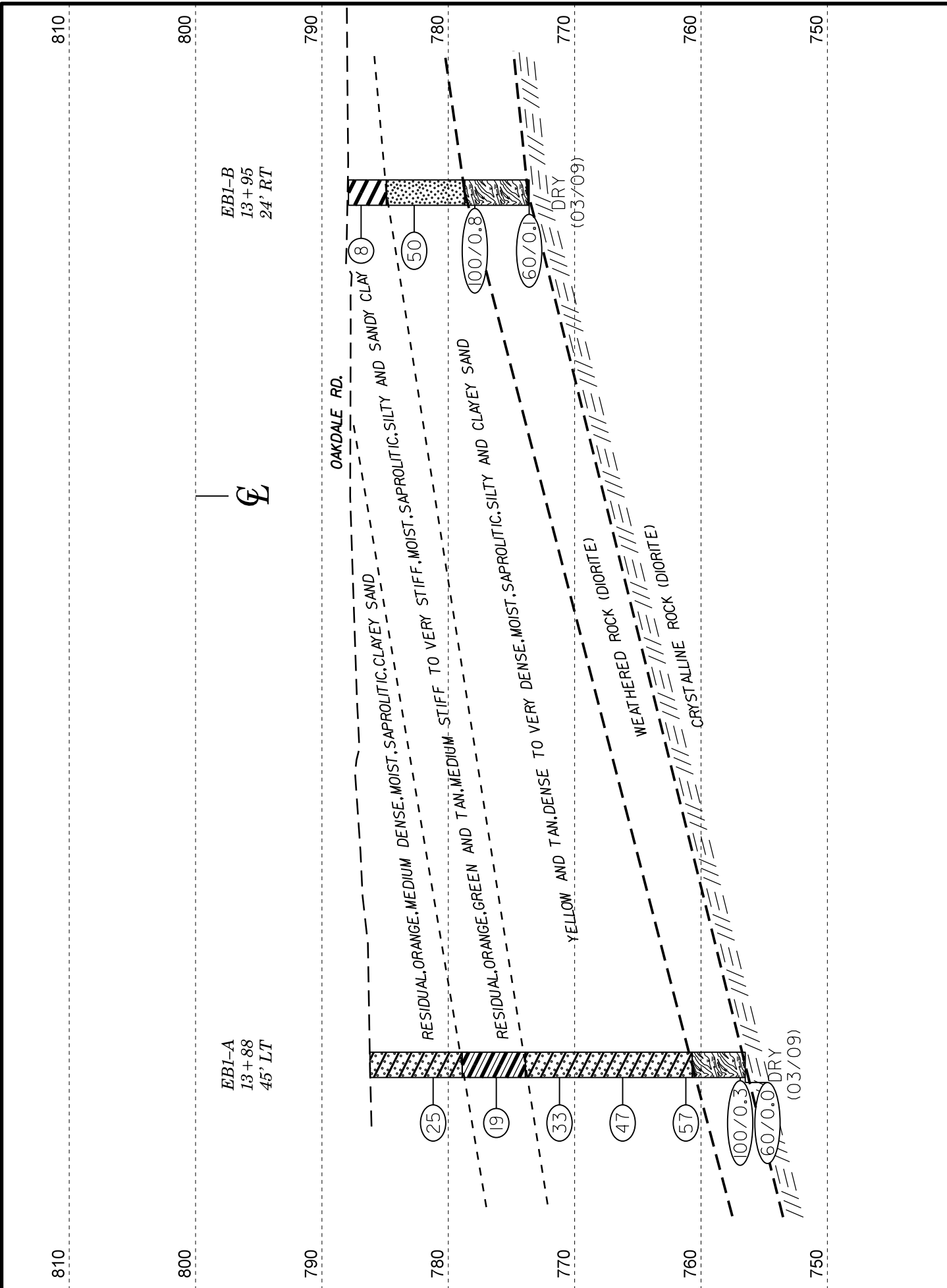
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SUBSURFACE INVESTIGATION

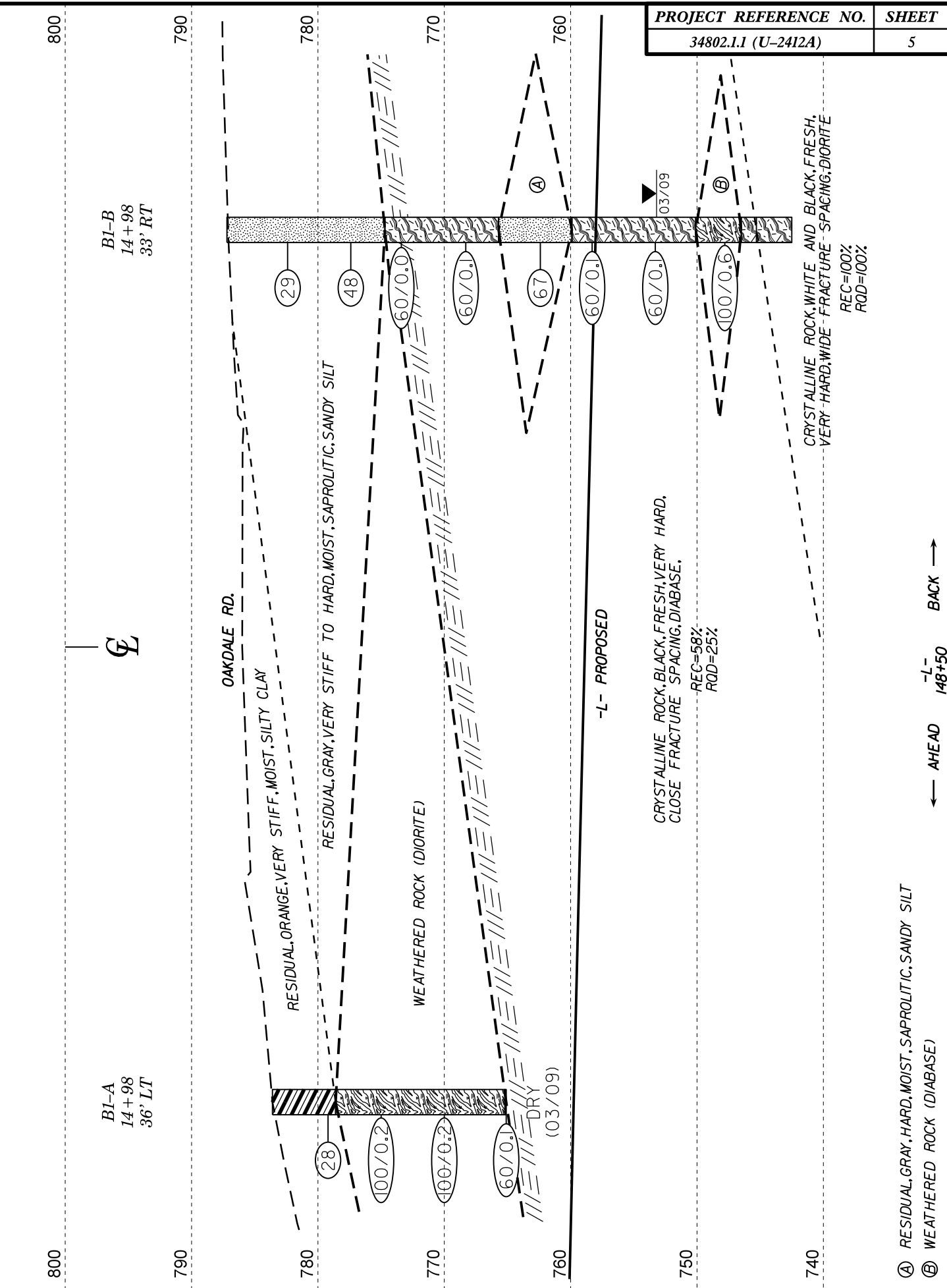
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS	
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRN. 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. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.		HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:		ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROQ) - 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 (IN 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 (SROQ) - 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. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS		MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		WEATHERED ROCK (WR) NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.			
GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-4-1, A-4-2, A-4-3, A-4-4, A-4-5, A-4-6, A-4-7		COMPRESSIBILITY		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.			
SYMBOL		SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE		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.			
% PASSING		PERCENTAGE OF MATERIAL		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.			
LIQUID LIMIT PLASTIC INDEX		ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL					
GROUP INDEX		TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC >10%					
USUAL TYPES OF MAJOR MATERIALS		GROUND WATER					
GEN. RATING AS A SUBGRADE		WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING					
PI OF A-7-5 SUBGROUP IS <= LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30		STATIC WATER LEVEL AFTER 24 HOURS					
		PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA					
		SPRING OR SEEP					
CONSISTENCY OR DENSENESS		MISCELLANEOUS SYMBOLS					
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²)		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD		SPT DPT VST TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL			
GENERALY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE		AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS		SAMPLE DESIGNATIONS S - BULK SAMPLE SS - SPLIT SPOON SAMPLE ST - SHELBY TUBE SAMPLE RS - ROCK SAMPLE RT - RECOMPACTED TRIAXIAL SAMPLE CBR - CALIFORNIA BEARING RATIO SAMPLE			
GENERALY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD		ABBREVIATIONS					
U.S. STD. SIEVE SIZE OPENING (MM)		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 % - UNIT WEIGHT			
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F. SD.) SILT (SL.) CLAY (CL.)							
GRAIN SIZE							
TEXTURE OR GRAIN SIZE							
SOIL MOISTURE - CORRELATION OF TERMS							
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION							
LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT		- SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE					
PLASTICITY							
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY		PLASTICITY INDEX (PI) DRY STRENGTH					
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.							
		EQUIPMENT USED ON SUBJECT PROJECT		FRACTURE SPACING		BEDDING	
		DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CORE SIZE: HAND TOOLS:		TERM SPACING TERM THICKNESS		INDURATION	
		MOBILE B- BK-51 CME-45C CME-55 PORTABLE HOIST		VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
		CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE 2 5/8" STEEL TEETH TRICONE " TUNG-CARB. CORE BIT		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		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-173, -L- STA. 145+64, 13.6' LT ELEVATION: 783.23 FT.	
						NOTES:	



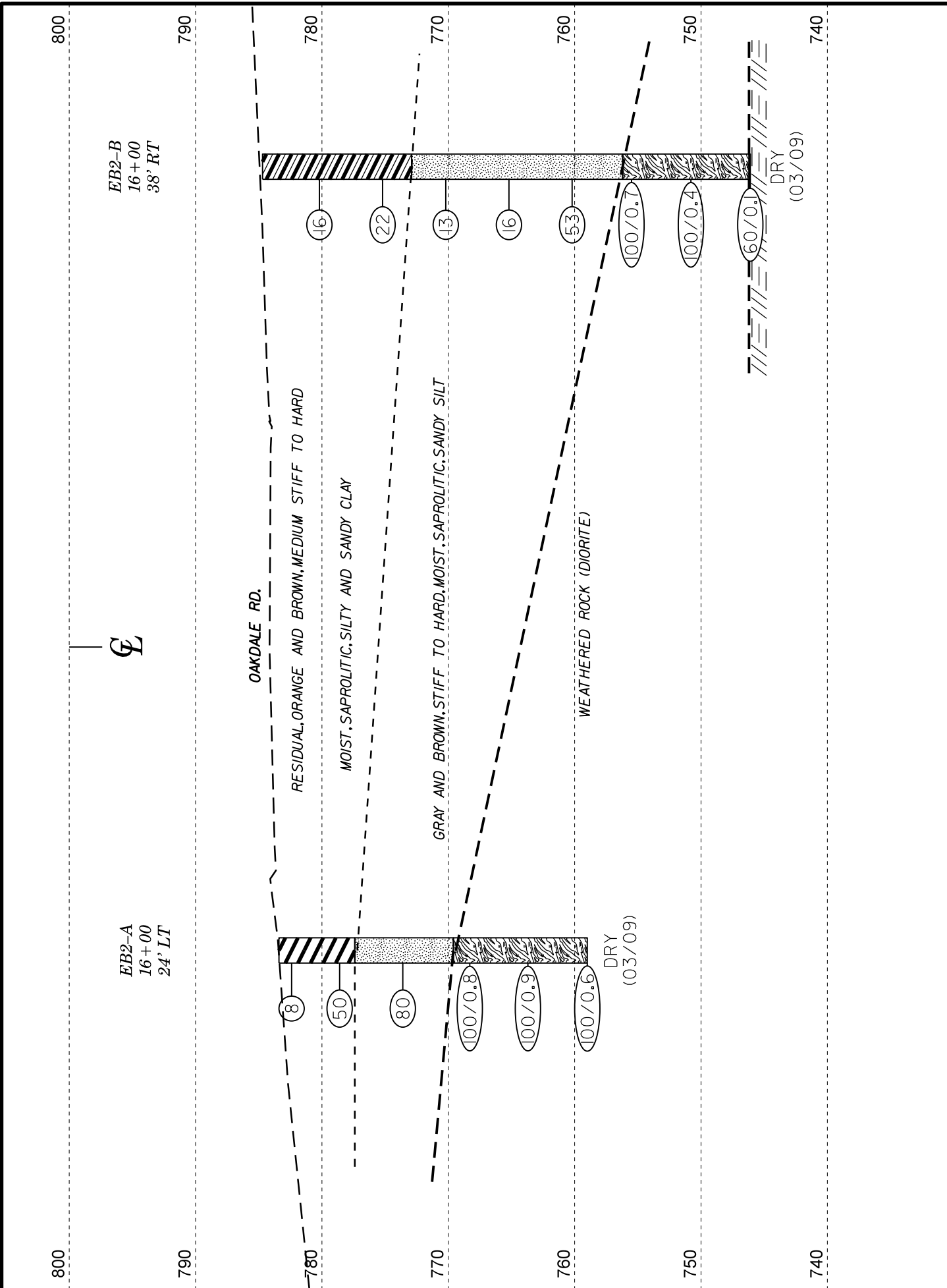


HORIZ. SCALE 0 10 20 (FEET) VE = 1:1



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

- Ⓐ RESIDUAL GRAY, HARD, MOIST, SAPROLITIC, SANDY SILT
- Ⓑ WEATHERED ROCK (DIABASE)



HORIZ. SCALE 0 10 20 (FEET)

VE = 1:1

EB2 CROSS SECTION

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structure NO. 7 on -Y8- (SR 1352, Oakdale Rd.) over -L- (Greensboro/High Point Rd.) at Sta. 14+98							GROUND WTR (ft)									
BORING NO. B1-A		STATION 14+98		OFFSET 36 ft LT		ALIGNMENT -Y8-										
COLLAR ELEV. 783.6 ft		TOTAL DEPTH 18.5 ft		NORTHING 815,518		EASTING 1,725,187										
DRILL RIG/HAMMER EFF./DATE CME-55				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 03/23/09		COMP. DATE 03/23/09		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
785														783.6	0.0	GROUND SURFACE
780	780.2	3.4	6	9	19									778.6	5.0	RESIDUAL Orange, Silty Clay
775	775.2	8.4	100/0.2													WEATHERED ROCK (Diorite)
770	770.2	13.4	100/0.2													
	765.2	18.4	60/0.1											765.2	18.4	CRYSTALLINE ROCK (Diorite)
														765.1	18.5	Boring Terminated with Standard Penetration Test Refusal at Elevation 765.1 ft In Crystalline Rock (Diorite)

NCDOT BORE DOUBLE U2412A_GEO_BH_Y8.GPJ NC_DOT.GDT 1/22/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Milkovits, J. I.										
SITE DESCRIPTION Structure NO. 7 on -Y8- (SR 1352, Oakdale Rd.) over -L- (Greensboro/High Point Rd.) at Sta. 14+98							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 16+00		OFFSET 24 ft LT		ALIGNMENT -Y8-										
COLLAR ELEV. 783.4 ft		TOTAL DEPTH 24.4 ft		NORTHING 815,416		EASTING 1,725,201										
DRILL RIG/HAMMER EFF./DATE CME-55		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 09/23/09		COMP. DATE 09/23/09		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						
785	783.4	0.0	5	5	3									783.4	GROUND SURFACE	0.0
780	779.6	3.8	9	19	31									777.4	RESIDUAL Yellow and Orange, Silty Clay	6.0
775	774.6	8.8	21	34	46									769.6	Tan-Brown, Sandy Silt	13.8
770	769.6	13.8	55	43	57/0.3									769.6	WEATHERED ROCK (Diorite)	13.8
765	764.6	18.8	39	61/0.4										759.0	Boring Terminated at Elevation 759.0 ft In Weathered Rock (Diorite)	24.4
760	759.6	23.8	91	9/0.1										100/0.6		

WBS 34802.1.1		TIP U-2412A		COUNTY Guilford		GEOLOGIST Mohs, N. D.										
SITE DESCRIPTION Structure NO. 7 on -Y8- (SR 1352, Oakdale Rd.) over -L- (Greensboro/High Point Rd.) at Sta. 14+98							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 16+00		OFFSET 38 ft RT		ALIGNMENT -Y8-										
COLLAR ELEV. 784.7 ft		TOTAL DEPTH 38.6 ft		NORTHING 815,400		EASTING 1,725,141										
DRILL RIG/HAMMER EFF./DATE CME-55		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 03/23/09		COMP. DATE 03/23/09		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						
785	784.7	0.0												784.7	GROUND SURFACE	0.0
780	781.2	3.5	5	7	9									777.4	RESIDUAL Orange and Brown, Saprolitic, Sandy Clay	6.0
775	776.2	8.5	9	11	11									772.9	Gray, Saprolitic, Sandy Silt	11.8
770	771.2	13.5	4	5	8									769.6	WEATHERED ROCK (Diorite)	13.8
765	766.2	18.5	4	7	9									759.0	Boring Terminated at Elevation 759.0 ft In Weathered Rock (Diorite)	24.4
760	761.2	23.5	11	19	34									759.0	Boring Terminated at Elevation 759.0 ft In Weathered Rock (Diorite)	24.4
755	756.2	28.5	32	68/0.2										100/0.7		
750	751.2	33.5	100/0.4											100/0.4		
746.2	746.2	38.5	60/0.1											60/0.1		
	746.1													746.1	CRYSTALLINE ROCK (Diorite)	38.5
															Boring Terminated with Standard Penetration Test Refusal at Elevation 746.1 ft in Crystalline Rock (Diorite)	38.6

NCDOT BORE DOUBLE U2412A_GEO_BH_Y8.GPJ NC_DOT.GDT 1/22/18

EB1-A

<i>SOIL TEST RESULTS</i>															
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-4	45 LT	13+88	4.0-5.5	A-2-6(1)	38	19	48.6	19.5	13.8	18.1	82	51	29	-	-
SS-5	45 LT	13+88	9.0-10.5	A-6(5)	36	13	22.5	25.3	30.1	22.1	96	84	55	-	-

EB1-B

<i>SOIL TEST RESULTS</i>															
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-160	24 RT	13+95	0.0-1.5	A-7-6(11)	43	23	27.3	16.2	12.4	44.1	97	80	58	24	-
SS-161	24 RT	13+95	4.2-5.7	A-2-4(0)	28	7	50.7	21.3	12.9	15.0	90	56	29	-	-

B1-A

<i>SOIL TEST RESULTS</i>															
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-3	36 LT	14+98	3.4-4.9	A-7-6(5)	42	21	32.6	26.5	16.8	24.1	100	81	45	-	-

EB2-B

<i>SOIL TEST RESULTS</i>															
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-1	38 RT	16+00	3.5-5.0	A-6(11)	38	13	1.8	24.1	47.9	26.1	100	99	82	-	-
SS-2	38 RT	16+00	13.5-15.0	A-4(5)	36	9	12.3	30.2	43.5	14.1	100	97	65	-	-

CORE PHOTOGRAPH

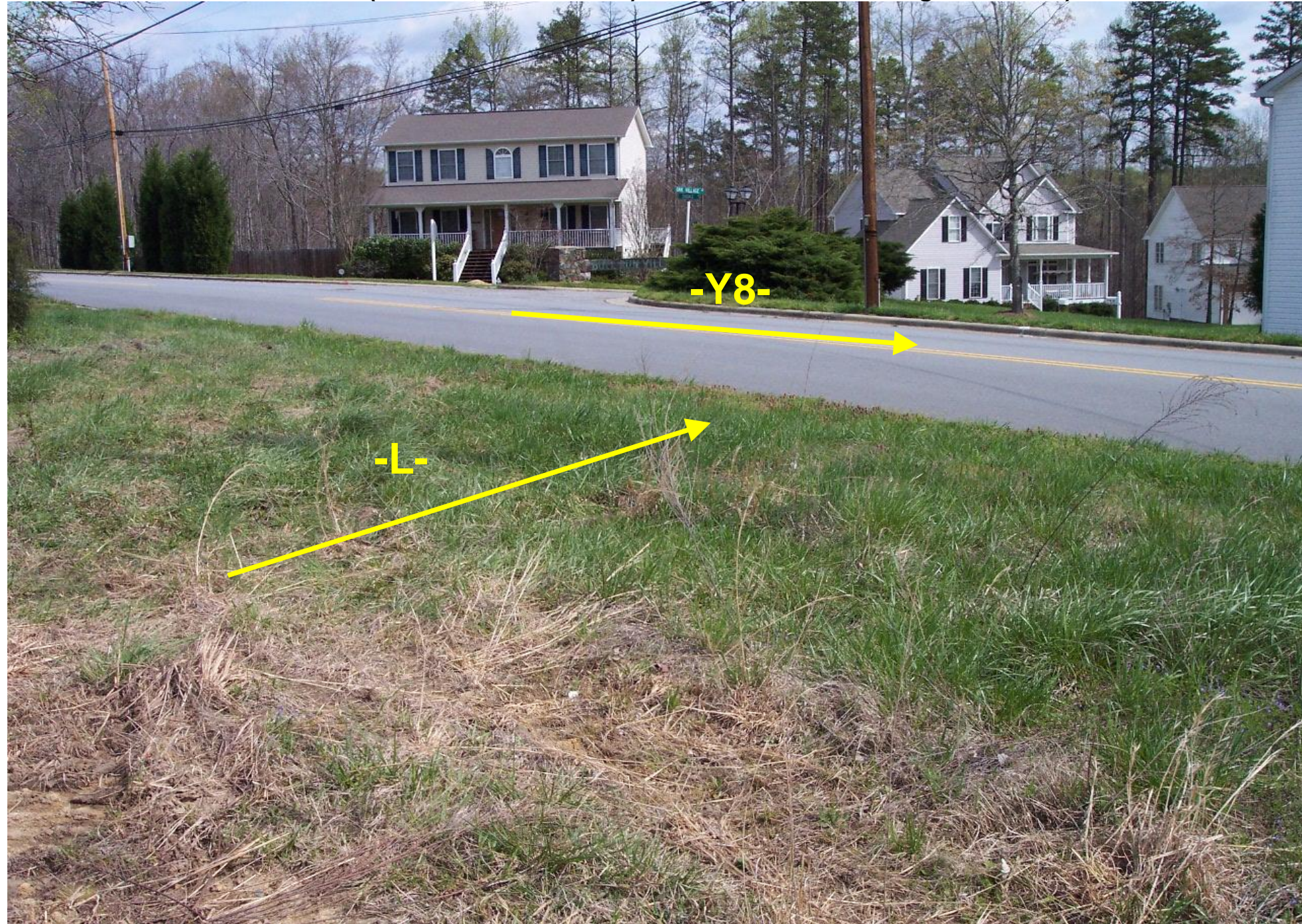
B1-B

BOX 1: 40.7 - 44.7 FEET



Site Photograph

Structure No. 7 on -Y8- (SR 1352, Oakdale Rd.) over-L- (Greensboro/High Point Rd.) at Sta. 14+98



Looking East