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STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY DURHAM PROJECT DESCRIPTION BRIDGE NO. 20 ON SR 1616 OVER DIAL CREEK

STATE PROJECT REFERENCE NO. 12 B-4943

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-8850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOL. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE OR 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 DIES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:

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

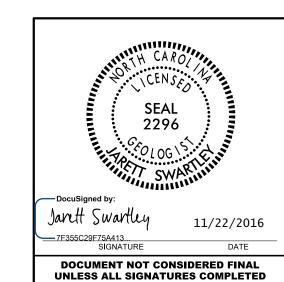
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

J.R. SWARTLEY O.B. OTI D.G. PINTER

J.M. EDMONSON

R.E. SMITH

INVESTIGATED BY J.R. SWARTLEY DRAWN BY J.R. SWARTLEY CHECKED BY _N.T. ROBERSON SUBMITTED BY N.T. ROBERSON DATE OCTOBER 2016



PROJECT REFERENCE NO. SHEET NO. 2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION WELL CRAPED - INDICATES A COOR REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE	ROCK DESCRIPTION HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	<u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	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	AQUIFER - A WATER BEARING FORMATION OR STRATA.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	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
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED,	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CLASS. (\$\leq 35% PASSING *200) (> 35% PASSING *200) (> 36% PASSING *200)	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOOLD FIELD SET REPOSAL IF TESTED, ROCK THE INCLODES GRANTER, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-2-7 A-2-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL COCOGOCOCO	SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	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.
"10 50 MX GRANULAR SIL1- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
"40 30 MX 50 MX 51 MN SOILS PEAT SOILS SOILS SOILS SOILS SOILS	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING *40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOULS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
OF MAJOR GRAVEL, AND MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
CEN PATING		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30	-	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD RANGE OF UNCONFINED PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
(NYMEUE) (TUNO/FT)	WITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT.
GENERALLY VERY LOOSE 4 TO 10	SOIL SYMBOL SOIL SYMBOL SUPE INDICATOR INSTALLATION	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MATERIAI MEDIUM DENSE 10 TO 30 N/A	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50	THAN ROADWAY EMBANKMENT TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING ■ SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MN MONITORING WELL TEST BORING	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BFF</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK,
MATERIAL STIFF 8 TO 15 1 TO 2	A DIE TOMETED	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION -	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053		HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN. MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.005 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA, - MICACEOUS WEA, - WEATHERED	BY MODERATE BLOWS.	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
SIZE IN. 12 3	CL CLAY MOD MODERATELY γ - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE CAUSE TO STATE AND ADDRESS OF STATE ADD	CPT - CONE PENETRATION TEST NP - NON PLASTIC 7/d - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
(ATTERBERG LIMITS) OESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	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	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	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
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC SEMISOLID; REQUIRES DRYING TO	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WEI - (W) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS	FRACTURE SPACING BEDDING	BENCH MARK: *see note
"" PLL + PLASTIC LIMIT -	EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	EL EVATION FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: FEET
SL SHRINKAGE LIMIT	X CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6. CONTINUOUS ELICHT MICER	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	• elevations derived from geopak and the tin file '84943 ls tin.tin' dated 1/27/2016
PLASTICITY	X CME-55 CORE SIZE: CORE SIZE: -BH	INDURATION	04343_18_1111.1111 dated 1/21/2016
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS X-N X	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW	TUNG-CARRIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM	VANE SHEAR TEST X CASING X WY ADVANCER HAND TOOLS:	GENILE BLUW BY HAMMER DISINTEGRATES SAMPLE.	
HIGHLY PLASTIC 26 OR MORE HIGH	POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	TRICONE TUNG-CARR CONTROL PODE	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	X BARGE X CORE BIT VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14
		SHITTLE BREMES AURUSS URAINS.	UATE: 8-15-14

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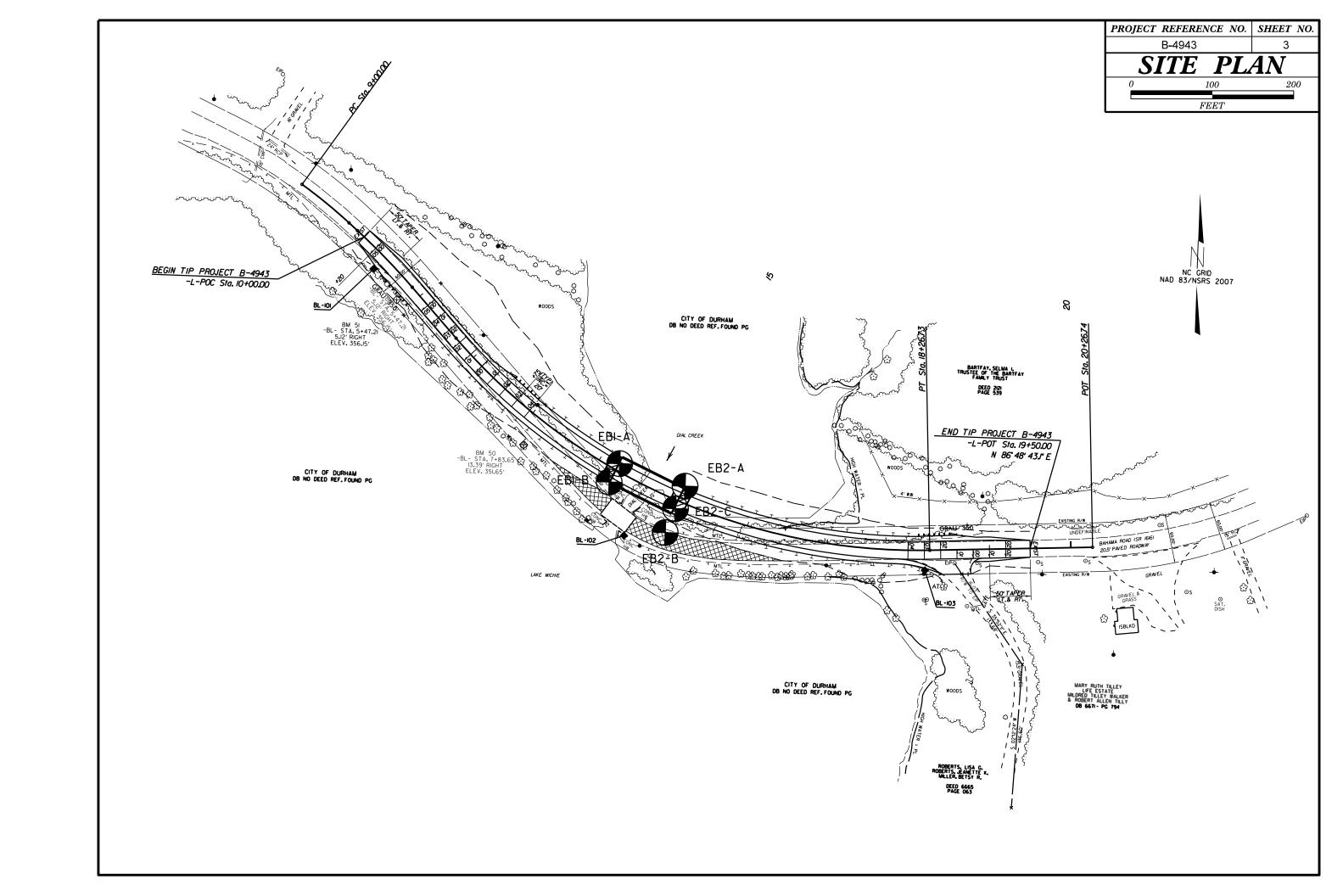
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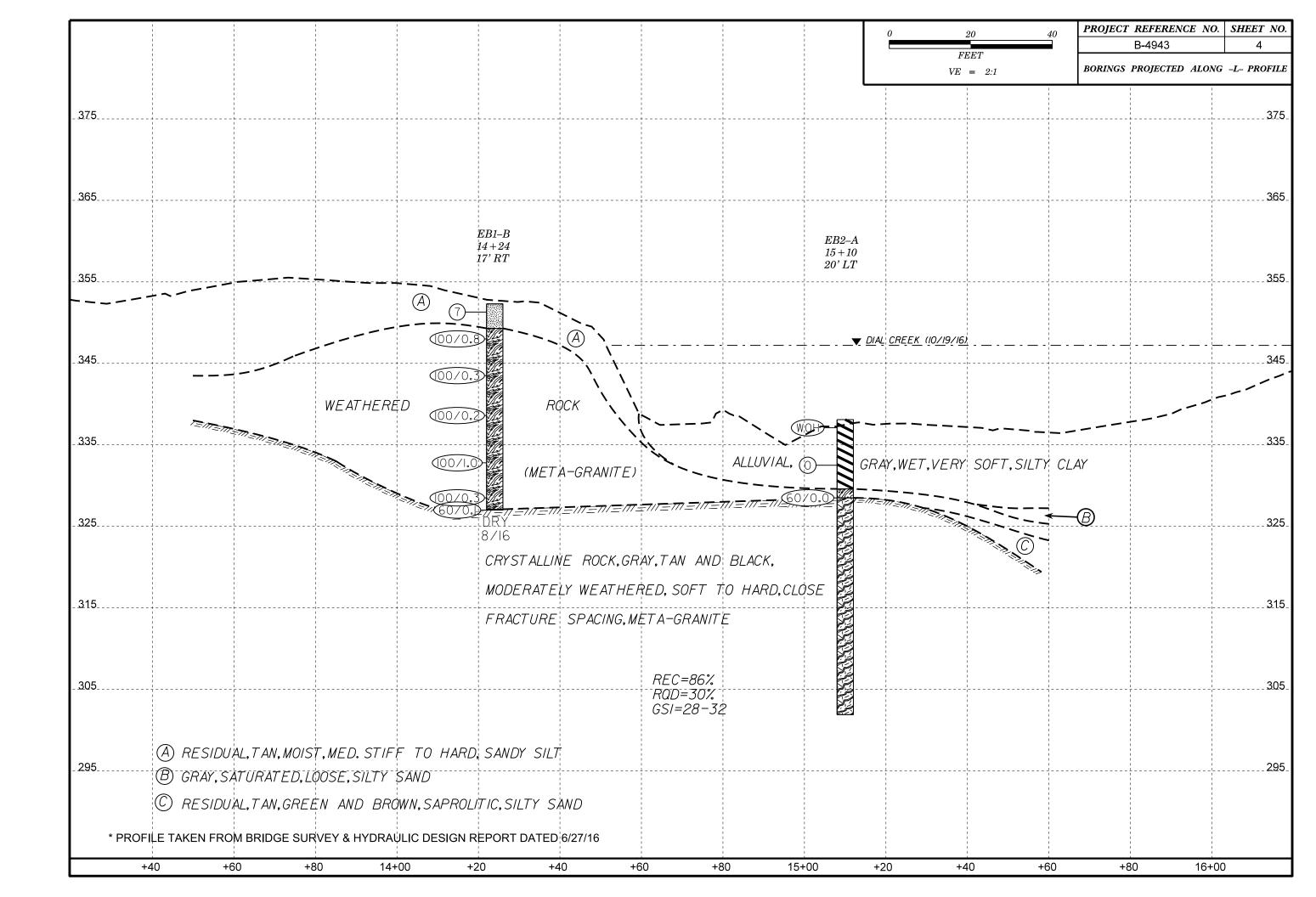
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

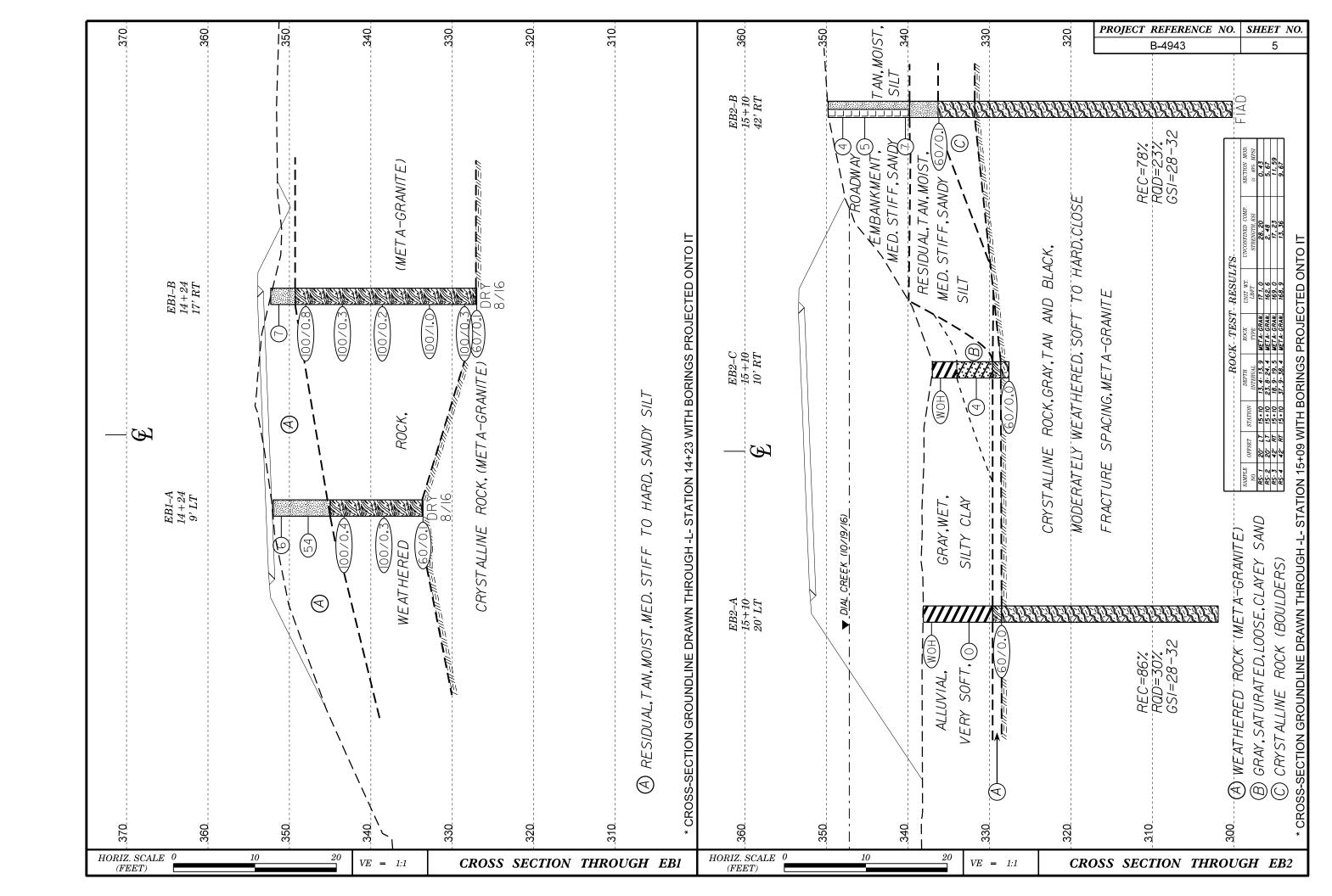
SUBSURFACE INVESTIGATION

SUPPLEMENTAL LEGEND GEOLOGICAL STRENGTH INDEX (GSI) TARLES

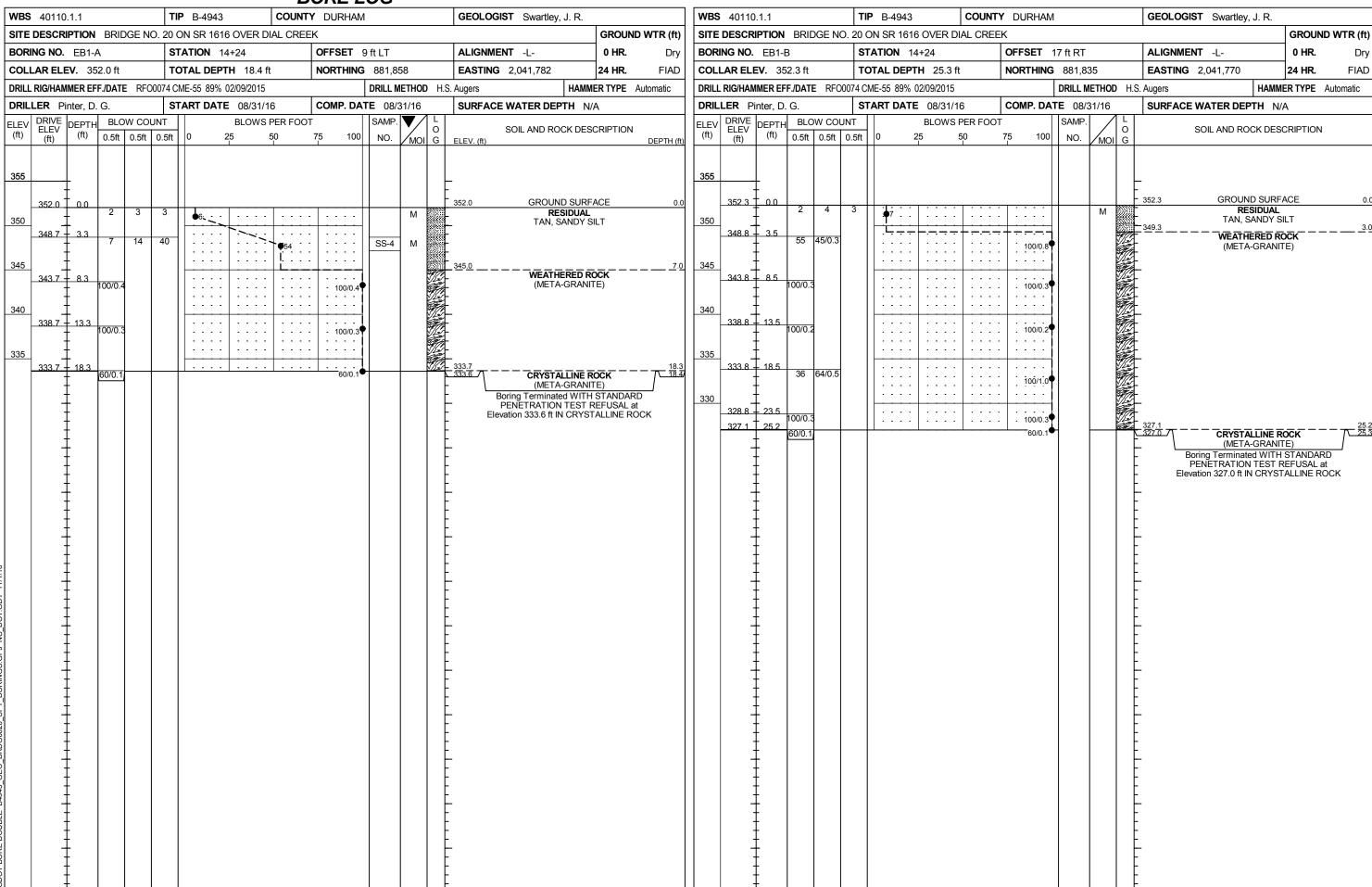
AASHTO LRFD Figure 10.4.6.4-1 $-$ Determination of GSI for Join	ed Rock Mass (Marı	nos and Hoek, 200	30)	ı ı		AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)
GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marınos, 2000)	ν Θ	ס		ν Φ	ς Θ	GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos. P and Hoek E., 2000)
From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.	SURFACE CONDITIONS VERY GOOD Very rough, fresh unweathered surface	GOOD Rough, slightly weathered, iron stained surfaces	FAIR Smooth, moderately weathered and altered surfaces	POOR Slickensided, highly weathered surface with compact coatings or fillings or angular fragments	VERY POOR Slickensided, highly weathered surfaces with soft clay coatings or fillings	Execution of the lithology, structure and surface conditions (barticularly of the pedding planes), choose a pox in the chart. Tocate the bosition in the pox that corresponds to the condition of the discontinuities and estimate the average value of QSI from the contonrs. Do not attempt to perform the controlled failures. May controlled failures. May the sathered surfaces with conditions with conditions with these mill quality weath the controlled surfaces with conditions of failures are breacht these mill quality weath the phasical of failures and this can be allowed to by a slight shift to the right in the columns for failures and earthered of the rock wasses is reduced by the presence of groundwater and this can be allowed for by a slight weathered of the rock wasses is reduced by a slight weathered of the rock wasses is reduced by the presence of continuous water beachered of the rock wasses is reduced by a slight weathered of the rock wasses is reduced by the presence of general the rock wasses is reduced by the presence of general the rock wasses is reduced by the presence of general the rock wasses is reduced by the presence of general to the rock wasses is reduced by the presence of general the rock was and the rock wasses is reduced by the presence of general the rock was and the rock was a slight was a sli
STRUCTURE	DEC	REASING SUR	RFACE QUA		>	COMPOSITION AND STRUCTURE
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities BLOCKY - well interlocked un-	90 80 - 80 - 80 - 80 - 80 - 80 - 80 - 80			N/A	N/A	A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized. A. Thick bedded, very blocky sandstone The effect of pelitic coatings of the pelitic coatings
disturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks	OCKING OF ROCK	60				B. Sand- stone with stone and siltstone in similar amounts C. Sand- stone with stone and siltstone or silty shale with sand- stone layers shale with sandstone layers
formed by 4 or more joint sets BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence	INTERL		40	30		C.D.E. and G - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these sandstone layers forming an
of bedding planes or schistosity DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces	■ DECREASING			20		G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers almost chaotic structure H. Tectonically deformed silty or clayey shale with or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone are transformed sandstone are transformed sandstone are transformed sandstone are transformed sandstone small rock small rock speaks.
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	N/A	N/A			10	Means deformation after tectonic disturbance







GEOTECHNICAL BORING REPORT BORE LOG



GEOTECHNICAL BORING REPORT BORE LOG

TIP B-4943 COUNTY DURHAM **GEOLOGIST** Swartley, J. R. **WBS** 40110.1.1 SITE DESCRIPTION BRIDGE NO. 20 ON SR 1616 OVER DIAL CREEK **GROUND WTR (ft) STATION** 15+10 OFFSET 20 ft LT ALIGNMENT -L-BORING NO. EB2-A 0 HR. N/A COLLAR ELEV. 338.1 ft TOTAL DEPTH 36.2 ft **NORTHING** 881,834 **EASTING** 2,041,863 24 HR. N/A DRILL RIG/HAMMER EFF./DATE DRILL METHOD NW Casing W/SPT & Core HAMMER TYPE Automatic HFO0065 CME-45C 85% 05/20/2016 DRILLER Pinter, D. G. **START DATE** 10/19/16 COMP. DATE 10/20/16 **SURFACE WATER DEPTH** 9.1ft ELEV CHI DEPTH BLOW COUNT (ft) (ft) 0.5ft 0.5ft 0.5ft **BLOWS PER FOOT** SAMP. SOIL AND ROCK DESCRIPTION (ft) 0.5ft 0.5ft 0.5ft NO. MOI G 75 100 ELEV. (ft) **GROUND SURFACE** 338.1 WOH WOH WOH ALLUVIAL W GRAY, SILTY CLAY 335 333.5 + W - - - -330 WEATHERED ROCK 328.5 + 9.6 - 60/0.0 60/0.0 (META-GRANITE) CRYSTALLINE ROCK GRAY, TAN AND BLACK, MODERATELY 325 WEATHERED, SOFT TO HARD, CLOSE FRACTURE SPACING, META-GRANITE RS-1 320 REC = 86 % RQD = 30 % GSI =28-32 315 RS-2 310 305 Boring Terminated at Elevation 301.9 ft IN CRYSTALLINE ROCK

GEOTECHNICAL BORING REPORT CORE LOG

									C	Ol	RE L	OG	j								
WBS	40110).1.1			TIP	B-494	3	C	OUNT	Υ [DURHAM				GEOLO	OGIS	T Sv	vartley	, J. R.		
SITE	DESCR	IPTION	BRI	DGE NO.	20 ON	SR 1	616 OVE	R DIAL	. CREI	ΞK										GROUN	ND WTR (
BOR	ING NO.	EB2-	A		STA	ΓΙΟΝ	15+10			OFFSET 20 ft LT					ALIGN	MEN		0 HR. N/A			
COL	LAR ELI	EV. 33	88.1 ft		TOT	AL DE	PTH 36	2 ft		NO	RTHING	88	1,834		EASTING 2,041,863 24 H						N
	RIG/HAN			E HFO0			85% 05/20						L METHO		Casing W						Automatic
	LER P		. G.				TE 10/1			CO	MP. DA1	TE 1	0/20/16	i	SURFA	CE V	VATE	R DEF	PTH 9.	1ft	
	E SIZE			I DDILL		AL RUI Jn	N 26.6 f	t I STR	ΔΤΔ	<u> </u>											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	L O G	ELEV. (f	t)		DI	ESCRIPTI				KS		DEPTH
328.5	328.5 326.9	9.6 11.2	1.6	N=60/0.0	(1.5)	(0.0)		(23.0)	(8.0)		- 328.5				Begin (Corin STALI	ig @ 9 LINE F	0.6 ft ROCK			
325	326.9		5.0	N=60/0.0 :52/0.6 \1:45/1.0 2:00/1.0 3:22/1.0 4:45/1.0 4:15/1.0 3:35/1.0	(4.4) 88%	(3.8) 76%	RS-1	86%	(8.0) 30%		- - - -	G				ODEF	RATEL	Y WE		D, SOFT RANITE	
320	316.9		5.0	1:16/1.0 3:06/1.0 2:46/1.0 4:02/1.0	(3.4) 68%	(0.0) 0%					- - - -				F	RQD:	= 86 % = 30 % =28-32	0			
315	311.9		5.0	5:43/1.0 1:30/1.0 1:43/1.0 2:32/1.0 4:00/1.0	(4.6) 92%	(0.5) 10%	RS-2				- - - -										
310	306.9	-	5.0	2:45/1.0 1:15/1.0 3:45/1.0 6:45/1.0 5:20/1.0	(4.7) 94%	(2.8) 56%					- - - - -										
305	301.9	<u> </u>	5.0	7:00/1.0 2:15/1.0 10:02/1.0 5:30/1.0 10:20/1.0 5:10/1.0	(4.4) 88%	(0.9) 18%					- - - - - 301.9										3

GEOTECHNICAL BORING REPORT BORE LOG

TIP B-4943 COUNTY DURHAM **GEOLOGIST** Swartley, J. R. **WBS** 40110.1.1 SITE DESCRIPTION BRIDGE NO. 20 ON SR 1616 OVER DIAL CREEK **GROUND WTR (ft)** STATION 15+10 OFFSET 42 ft RT ALIGNMENT -L-BORING NO. EB2-B 0 HR. N/A COLLAR ELEV. 349.8 ft TOTAL DEPTH 49.6 ft **NORTHING** 881,776 **EASTING** 2,041,841 24 HR. FIAD DRILL RIG/HAMMER EFF./DATE DRILL METHOD NW Casing W/SPT & Core HAMMER TYPE Automatic RFO0074 CME-55 89% 02/09/2015 DRILLER Pinter, D. G. **START DATE** 08/06/16 **COMP. DATE** 08/06/16 SURFACE WATER DEPTH N/A ELEV (ft) DEPTH BLOW COUNT (ft) 0.5ft 0.5ft 0.5ft **BLOWS PER FOOT** SAMP. SOIL AND ROCK DESCRIPTION (ft) 0.5ft 0.5ft 0.5ft 75 100 NO. MOI G ELEV. (ft) DEPTH (ft) **GROUND SURFACE** 349.8 349.0 0.8 ROADWAY EMBANKMENT М TAN AND BROWN, SANDY SILT 346.3 345 340 M RESIDUAL TAN, SANDY SILT 336.3 1 13.5 60/0. CRYSTALLINE ROCK 335 (BOULDERS) CRYSTALLINE ROCK 330 RS-3 GRAY, TAN AND BLACK, MODERATELY WEATHERED, SOFT TO HARD, CLOSE FRACTURE SPACING, META-GRANITE 325 REC = 78 % RQD = 23 % GSI =28-32 320 315 RS-4 310 305 Boring Terminated at Elevation 300.2 ft IN CRYSTALLINE ROCK

GEOTECHNICAL BORING REPORT CORE LOG

									C	Ol	RE L	O(j										
WBS	40110	.1.1			TIP	B-494	3	C	OUNT	Y [DURHAM					GEOLO	GIST	· Sı	wartle	y, J. R.			
SITE D	ESCRI	PTION	BRI	DGE NO.	20 ON	ISR 1	616 OVE	R DIAL	CRE	ΞK									GROL	IND WTR	(ft)		
BORIN	IG NO.	EB2-	В			OF	FSET 4	12 ft F	₹T			ALIGNM	IENT	- _{-L}	-		0 HR	.	N/A				
COLLA	COLLAR ELEV. 349.8 ft TOTAL DEPTH 49.6 ft												1,776			EASTING	G 2	2,041	,841		24 HR	F	IAD
DRILL R	RIG/HAM	MER EF	F./DATI	E RF00	074 CM	E-55 8	9% 02/09/2	2015				DRIL	L METH	OD 1	NW C	Casing W/S	SPT 8	k Core)	HAM	MER TYPE	Automa	tic
DRILLI	ER Pi	nter, D.	G.		STAI	RT DA	TE 08/0	6/16		co	MP. DAT	ΓΕ (08/06/1	6		SURFAC	CE W	/ATE	R DE	PTH 1	N/A		
CORE		NX					N 31.6 f																
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft)	JN RQD (ft) %	SAMP. NO.	STR REC. (ft) %	ATA RQD (ft) %	L O G	ELEV. (f	t)			DE	SCRIPTIC	A NC	ND R	EMAR	KS		DEP	TH (ft)
331.8	221 B	18.0	4.0	4.20/0.0	(4.4)	(0.0)		(04.5)	(7.0)	- N	2010					Begin Co	oring	@ 1	8.0 ft				10.0
	331.8 330.2 - - - 325.2 -	- - -	5.0	4:30/0.6 6:00/1.0 4:52/1.0 2:50/1.0 1:53/1.0 1:48/1.0	(4.0) 80%	(0.6) 38% (2.0) 40%	RS-3	(24.5) 78%	(7.2) 23%		331.8	G				FRÁCTI	DER	RATEI SPA(LY WE CING, I		RED, SOFT GRANITE	TO	18.0
320	320.2	- - - 29.6	5.0	1:40/1.0 1:19/1.0 1:20/1.0 1:11/1.0 1:00/1.0	(4.4) 88%	(1.4) 28%					- - -					R	QD = SSI =:	: 23 %	6				
	315.2	- - - - 34.6	5.0	1:07/1.0 :53/1.0 :54/1.0 1:04/1.0 1:04/1.0	(2.5) 50%	(0.5) 10%					- - - -												
		- - -	5.0	:57/1.0 1:15/1.0 :59/1.0 :20/1.0	(2.6) 52%	(1.0) 20%	RS-4				- - - -												
	310.2	- - -	5.0	:05/1.0 :35/1.0 :55/1.0 :52/1.0 :47/1.0	(4.6) 92%	(0.5) 10%					- - - -												
	305.2	- - -	5.0	:47/1.0 :48/1.0 :41/1.0 :40/1.0 :51/1.0	(5.0) 100%	(1.2) 24%																	
	300.2	49.6		:51/1.0 1:30/1.0							300.2		Boring ²	Termin	aated	at Elevat	tion 3	00.2	ft IN C	RYSTAI	LINE ROO	CK	49.6

V S E C C
_3

SHEET 9

WBS	40110.	1 1			ТІ	P B-4943		COUNT	/ DUF	RHAM				GEOLOGIST Swartley, J. R.	
			BRID	GE NO		ON SR 161				XI I/XIVI	ı			Owarticy, 5. 14.	GROUND WTR (ft)
	NG NO.			OL IV		FATION 1		IAL OILL		ET -	10 ft RT			ALIGNMENT -L-	0 HR. N/A
	AR ELE				-	OTAL DEP					881,8			EASTING 2,041,853	24 HR. N/A
				· UEO		ME-45C 85%		2	NOK	HING			. NIA		
				: nro					COM	D DA:			INV		ER TYPE Automatic
	LER Pir			W COI		TART DAT		PER FOOT		P. DA	TE 10/ SAMP.		1 L T	SURFACE WATER DEPTH 4.3	STT.
ELEV (ft)	DRIVE ELEV (ft)	OEPTH (ft)	0.5ft	W COU		0			75	100	NO.	MOI	0	SOIL AND ROCK DESC	CRIPTION
340	+	•												-	
	337.0	0.0	WOH	WOH	WOH		1	T				l w		337.0 GROUND SURFA ALLUVIAL	
335	+					\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			+::			"		GRAY, SILTY CL 334.0	AY3.0
330	332.6	4.4	3	2	2	4						Sat.		TAN, CLAYEY SA	AND
	7						+	+++-:	- 1					= 329.6 WEATHERED RO - 327.6 \ (META_GRANIT	DCK 7.4 9.4
	327.6	9.4	60/0.0							60/0.0	+			CRYSTALLINE RO	оск — — / [
	‡													(META-GRANIT Boring Terminated WITH	E)
	Ŧ													PENETRATION TEST R Elevation 327.6 ft IN CRYST	EFUSAL at
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PROJECT REFERENCE NO.	SHEET NO
B-4943	10
SOIL TE	ST
RESULT	TS .

	$SOIL\ TEST\ RESULTS$														
$SAMPLE\\NO.$	OFFSET	STATION	$DEPTH \ INTERVAL$	$\begin{array}{c c} AASHTO \\ CLASS. \end{array}$	L.L.	P.I.	C.SAND	% BY V	VEIGHT SILT	CLAY	% PAS 10	$\frac{SING}{40}$ (S.	IEVES) 200	% MOISTURE	% ORGANIC
SS- 4	10′ LT	14+24	0.0-0.0	A- 4(0)	28	7	<i>39. 4</i>	26. 1	14.4	20. 1	98	73	39	-	-

CORE PHOTOGRAPHS

EB2-ABOXES 1, 2 & 3: 9.6'-36.2'



EB2-BBOXES 1, 2 & 3: 18.0'-49.6'





SITE PHOTOGRAPH

