

PROJECT: 38522 REFERENCE: B-4750

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

**STRUCTURE
 SUBSURFACE INVESTIGATION**

COUNTY FRANKLIN
 PROJECT DESCRIPTION BRIDGE NO. 90 ON SR 1719
(BRANNON ROAD) OVER NORRIS CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4750	1	8

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 1951 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

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

PERSONNEL

N.D. MOHS, LG

C. TANG, EI

TRIGON

E. ESTEP

T. PRESTON

INVESTIGATED BY N. MOHS, LG

DRAWN BY N. MOHS, LG

CHECKED BY D. BROWN, PE

SUBMITTED BY N. MOHS, LG

DATE SEPTEMBER 2016



Nathan Mohs 9/6/16
 SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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

SOIL DESCRIPTION
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

GRADATION
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.
ANGULARITY OF GRAINS
MINERALOGICAL COMPOSITION
COMPRESSIBILITY
PERCENTAGE OF MATERIAL
GROUND WATER

ROCK DESCRIPTION
HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:
WEATHERED ROCK (WR)
CRYSTALLINE ROCK (CR)
NON-CRYSTALLINE ROCK (NCR)
COASTAL PLAIN SEDIMENTARY ROCK (CPS)
WEATHERING
ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SL.)
SLIGHT (SL.)
MODERATE (MOD.)
MODERATELY SEVERE (MOD. SEV.)
SEVERE (SEV.)
VERY SEVERE (V SEV.)
COMPLETE

TERMS AND DEFINITIONS
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 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 (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 (SCREC) - 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
MATERIAL PASSING #40 LL, PI
GROUP INDEX
USUAL TYPES OF MAJOR MATERIALS
GEN. RATING AS SUBGRADE

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
SLOPE INDICATOR INSTALLATION
CONE PENETROMETER TEST
SOUNDING ROD
TEST BORING WITH CORE
SPT N-VALUE

RECOMMENDATION SYMBOLS
UNDERCUT
UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL
UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
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
SLT. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
UNIT WEIGHT
DRY UNIT WEIGHT
SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

ROCK HARDNESS
VERY HARD
HARD
MODERATELY HARD
MEDIUM HARD
SOFT
VERY SOFT
CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
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.
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.
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.
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)
BOULDER (BLDR.)
COBBLE (COB.)
GRAVEL (GR.)
COARSE SAND (CS, SD.)
FINE SAND (F SD.)
SILT (SL.)
CLAY (CL.)

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS)
FIELD MOISTURE DESCRIPTION
GUIDE FOR FIELD MOISTURE DESCRIPTION
LIQUID LIMIT
PLASTIC LIMIT
OPTIMUM MOISTURE SHRINKAGE LIMIT

FRACTURE SPACING
BEDDING
TERM THICKNESS
VERY WIDE MORE THAN 18 FEET
WIDE 3 TO 18 FEET
MODERATELY CLOSE 1 TO 3 FEET
CLOSE 0.16 TO 1 FOOT
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

PLASTICITY
NON PLASTIC
SLIGHTLY PLASTIC
MODERATELY PLASTIC
HIGHLY PLASTIC
PLASTICITY INDEX (PI)
DRY STRENGTH
VERY LOW
SLIGHT
MEDIUM
HIGH

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS)
FIELD MOISTURE DESCRIPTION
GUIDE FOR FIELD MOISTURE DESCRIPTION
LIQUID LIMIT
PLASTIC LIMIT
OPTIMUM MOISTURE SHRINKAGE LIMIT

EQUIPMENT USED ON SUBJECT PROJECT
DRILL UNITS:
CME-45C
CME-55
CME-55B
VANE SHEAR TEST
PORTABLE HOIST
B-57
ADVANCING TOOLS:
CLAY BITS
6" CONTINUOUS FLIGHT AUGER
6" HOLLOW AUGERS
HARD FACED FINGER BITS
TUNG. CARBIDE INSERTS
CASING w/ ADVANCER
TRICONE STEEL TEETH
TRICONE TUNG. CARB.
CORE BIT
HAMMER TYPE:
AUTOMATIC
MANUAL
CORE SIZE:
B
H
N
HAND TOOLS:
POST HOLE DIGGER
HAND AUGER
SOUNDING ROD
VANE SHEAR TEST

INDURATION
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.
FRIABLE
MODERATELY INDURATED
INDURATED
EXTREMELY INDURATED
RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

NOTES:
TOP OF RAIL #1 ELEV. = 207.0 FEET
TOP OF RAIL #2 ELEV. = 207.0 FEET
BENCH MARK: BL-102; N: 792445.6, E: 2214658.3
ELEVATION: 204.66 FEET

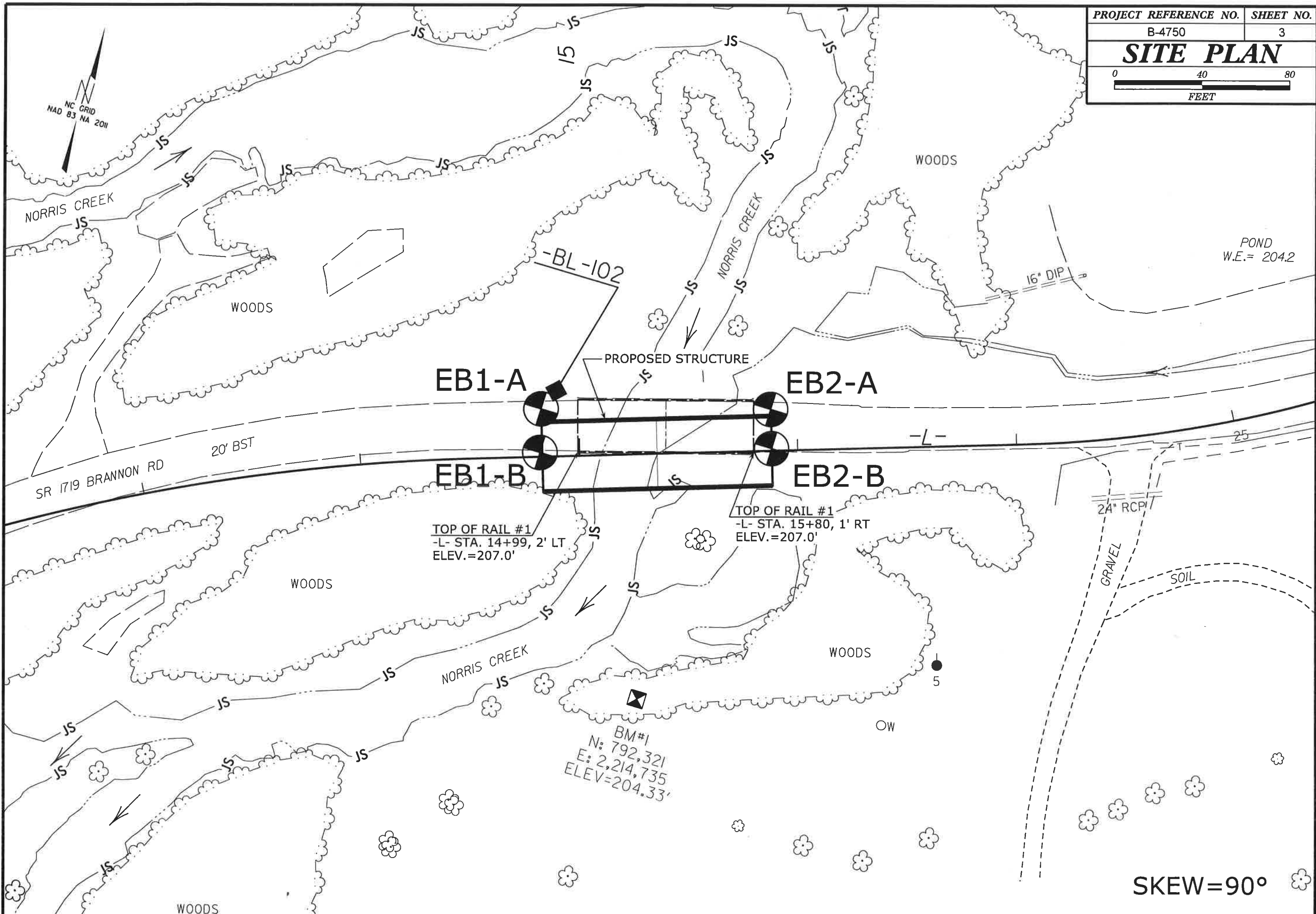
PLASTICITY
NON PLASTIC
SLIGHTLY PLASTIC
MODERATELY PLASTIC
HIGHLY PLASTIC
PLASTICITY INDEX (PI)
DRY STRENGTH
VERY LOW
SLIGHT
MEDIUM
HIGH

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

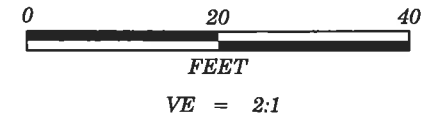
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FRIABLE
MODERATELY INDURATED
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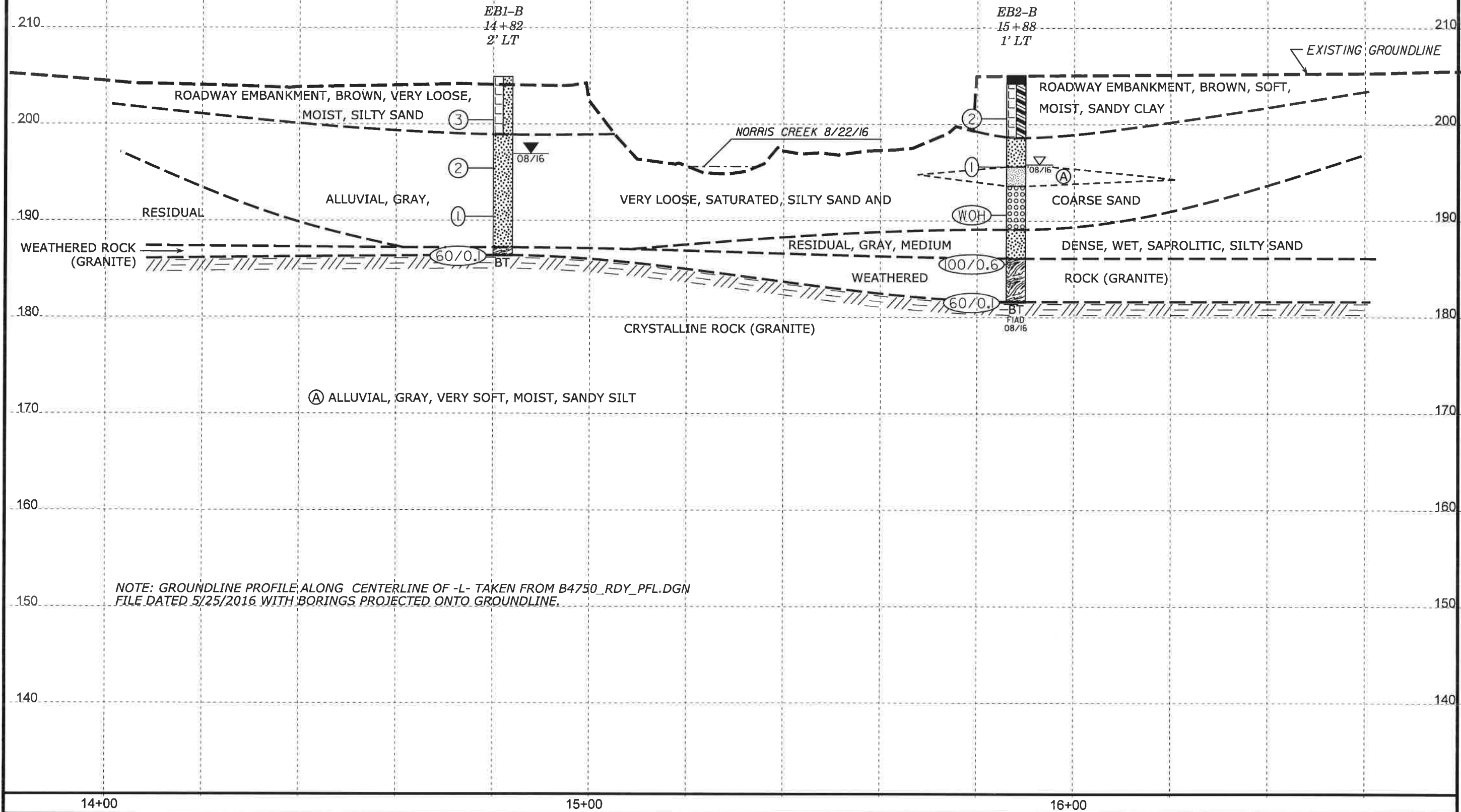
PROJECT REFERENCE NO.	SHEET NO.
B-4750	3
SITE PLAN	
FEET	

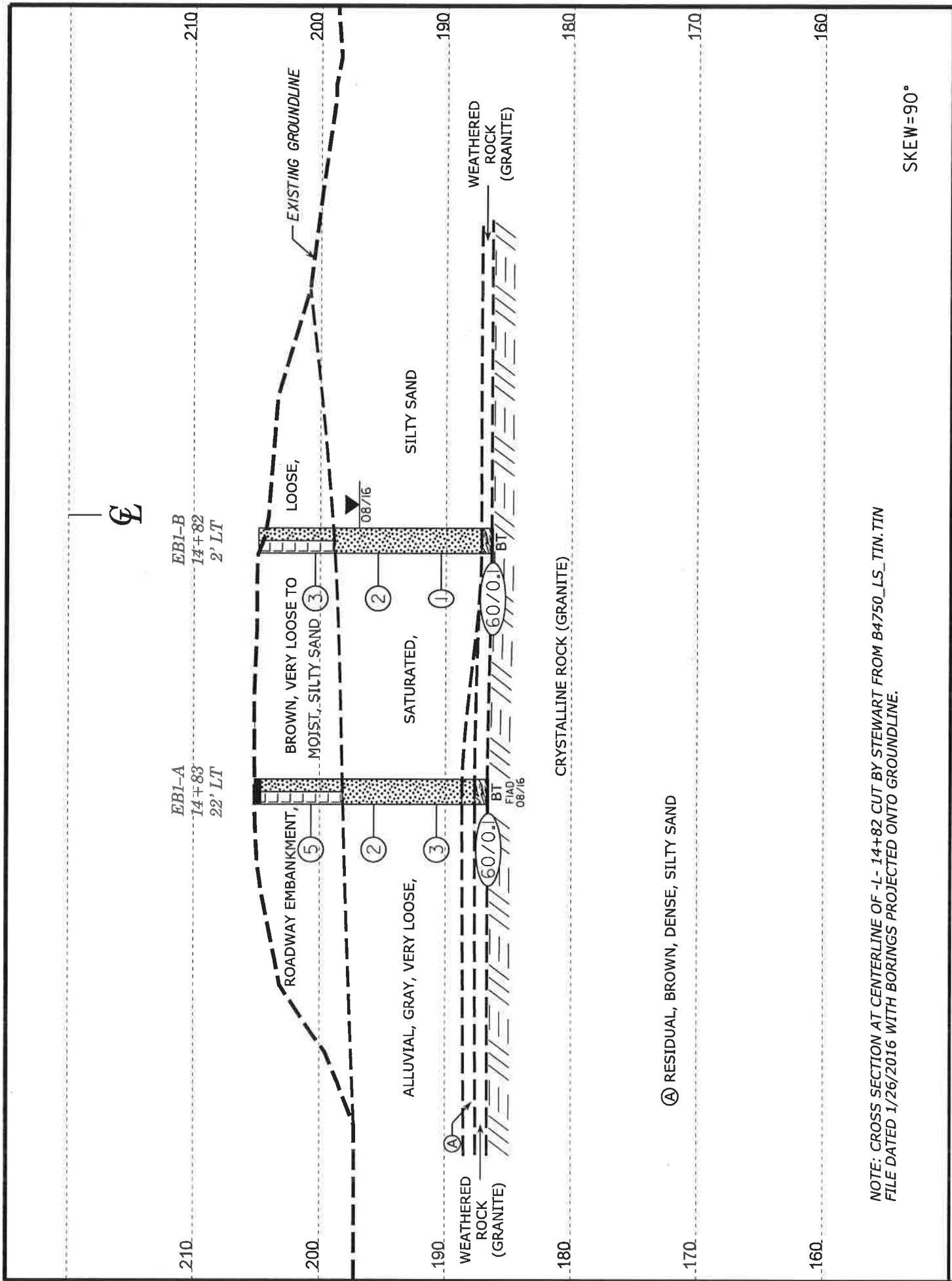


SKEW=90°



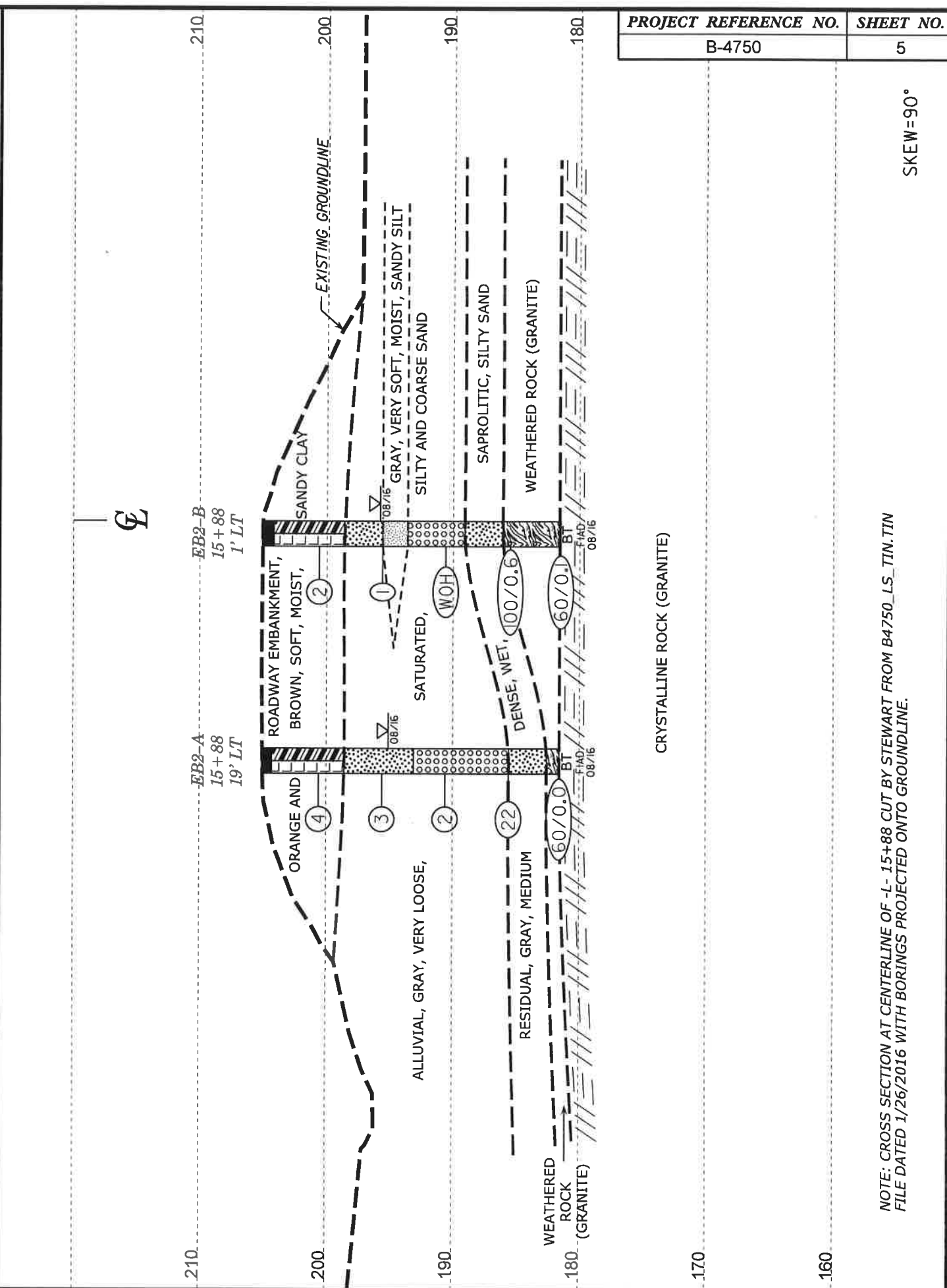
PROJECT REFERENCE NO.	SHEET NO.
B-4750	4
PROFILE ALONG CENTERLINE OF -L-	





NOTE: CROSS SECTION AT CENTERLINE OF -L- 14+82 CUT BY STEWART FROM B4750_LS_TIN.TIN FILE DATED 1/26/2016 WITH BORINGS PROJECTED ONTO GROUNDLINE.

SKEW = 90°



NOTE: CROSS SECTION AT CENTERLINE OF -L- 15+88 CUT BY STEWART FROM B4750_LS_TIN.TIN FILE DATED 1/26/2016 WITH BORINGS PROJECTED ONTO GROUNDLINE.

SKEW = 90°

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 38522.1.2		TIP B-4750		COUNTY FRANKLIN		GEOLOGIST N. Mohs, LG									
SITE DESCRIPTION Bridge No. 90 on SR 1719 (Brannon Road) over Norris Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 14+83		OFFSET 22 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 205.2 ft		TOTAL DEPTH 18.6 ft		NORTHING 792,436		EASTING 2,214,654									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 90% 02/22/2016			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER E. Estep		START DATE 08/22/16		COMP. DATE 08/22/16		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)
210															
205															
200	201.7	3.5	3	3	2								M	205.2 204.7 Asphalt ROADWAY EMBANKMENT Brown, Silty Sand	
195	196.7	8.5	1	1	1								Sat.	198.2 ALLUVIAL Gray, Silty Sand	
190	191.7	13.5	WOH	1	2								Sat.	188.7 187.7 186.7 186.6 RESIDUAL Brown, Silty Sand WEATHERED ROCK (Granite) CRYSTALLINE ROCK (Granite)	
	186.7	18.5	60/0.1										W	16.5 17.5 18.5 18.6 Boring Terminated with Standard Penetration Test Refusal at Elevation 186.6 ft in Crystalline Rock (Granite)	

WBS 38522.1.2		TIP B-4750		COUNTY FRANKLIN		GEOLOGIST N. Mohs, LG									
SITE DESCRIPTION Bridge No. 90 on SR 1719 (Brannon Road) over Norris Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 14+82		OFFSET 2 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 204.9 ft		TOTAL DEPTH 18.6 ft		NORTHING 792,416		EASTING 2,214,659									
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 90% 02/22/2016			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER E. Estep		START DATE 08/22/16		COMP. DATE 08/22/16		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)
205															
200	201.4	3.5	1	2	1								M	204.9 GROUND SURFACE ROADWAY EMBANKMENT Brown, Silty Sand	
195	196.4	8.5	1	1	1								W	198.9 ALLUVIAL Gray, Silty Sand	
190	191.4	13.5	WOR	WOR	1								Sat	187.2 186.4 186.3 WEATHERED ROCK (Granite) CRYSTALLINE ROCK (Granite)	
	186.4	18.5	60/0.1											17.7 18.5 18.6 Boring Terminated with Standard Penetration Test Refusal at Elevation 186.3 ft in Crystalline Rock (Granite)	

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 38522.1.2		TIP B-4750		COUNTY FRANKLIN		GEOLOGIST N. Mohs, LG							
SITE DESCRIPTION Bridge No. 90 on SR 1719 (Brannon Road) over Norris Creek							GROUND WTR (ft)						
BORING NO. EB2-A		STATION 15+88		OFFSET 19 ft LT		ALIGNMENT -L-							
COLLAR ELEV. 205.1 ft		TOTAL DEPTH 23.5 ft		NORTHING 792,466		EASTING 2,214,755							
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 90% 02/22/2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER E. Estep		START DATE 08/22/16		COMP. DATE 08/22/16		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				
210													
205												205.1 GROUND SURFACE 0.0	
												204.3 Asphalt 0.8	
												ROADWAY EMBANKMENT Orange, Sandy Clay	
200	201.6	3.5	2	2	2							198.6 6.5	
												ALLUVIAL Gray, Silty Sand	
195	196.6	8.5	2	1	2							193.1 12.0	
												Gray, Coarse Sand	
190	191.6	13.5	WOH	1	1							185.6 19.5	
												RESIDUAL Gray, Saprolitic, Silty Sand	
185	186.6	18.5	3	2	20							182.6 22.5	
												WEATHERED ROCK (Granite) 23.5	
	181.6	23.5	60/0.0									181.6 Boring Terminated with Standard Penetration Test Refusal at Elevation 181.6 ft on Crystalline Rock (Granite)	

WBS 38522.1.2		TIP B-4750		COUNTY FRANKLIN		GEOLOGIST N. Mohs, LG							
SITE DESCRIPTION Bridge No. 90 on SR 1719 (Brannon Road) over Norris Creek							GROUND WTR (ft)						
BORING NO. EB2-B		STATION 15+88		OFFSET 1 ft LT		ALIGNMENT -L-							
COLLAR ELEV. 205.1 ft		TOTAL DEPTH 23.6 ft		NORTHING 792,449		EASTING 2,214,760							
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 90% 02/22/2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER E. Estep		START DATE 08/22/16		COMP. DATE 08/22/16		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				
210													
205												205.1 GROUND SURFACE 0.0	
												204.2 Asphalt 0.9	
												ROADWAY EMBANKMENT Brown, Sandy Clay	
200	201.6	3.5	1	1	1							198.6 6.5	
												ALLUVIAL Gray, Silty Sand	
195	196.6	8.5	WOH	1	0							195.6 9.5	
												Gray, Sandy Silt	
190	191.6	13.5	WOH	WOH	WOH							193.6 11.5	
												Gray, Coarse Sand	
185	186.6	18.5	9	80	20/0.1							189.1 16.0	
												RESIDUAL Gray, Silty Sand	
												186.1 19.0	
												WEATHERED ROCK (Granite)	
	181.6	23.5	60/0.1									181.6 23.5	
												CRYSTALLINE ROCK (Granite) 23.5	
												Boring Terminated with Standard Penetration Test Refusal at Elevation 181.5 ft in Crystalline Rock (Granite)	

NCDOT BORE DOUBLE B4750_GEO_BRDC0090_BH CPJ NC_DOT_GDT 9/1/16

SITE PHOTOGRAPH



VIEW LOOKING EAST FROM END BENT 1