

REFERENCE: U-2524BC

PROJECT: 34820

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GUILFORD
 PROJECT DESCRIPTION GREENSBORO WESTERN LOOP
(I-73 CONNECTOR) FROM I-73A-840 TO SR 2085
(BRYAN BOULEVARD) INTERCHANGE
 SITE DESCRIPTION BRIDGE NO. 743 OVER SR 2085
(BRYAN BOULEVARD) ON SR 2140 (INMAN ROAD)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2524BC	1	14

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) 707-6850. 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.

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- 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

B. WORLEY, PG

B. SMITH, PG

J. ELLIOTT, PE

J. BARE

T. BRIGMAN

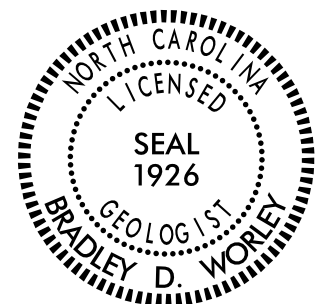
INVESTIGATED BY B. WORLEY, PG

DRAWN BY B. WORLEY & M. BRANDON

CHECKED BY D. DEWEY, PE

SUBMITTED BY Summit Design and Engineering Services, PLLC

DATE JANUARY, 2015



DocuSigned by:

Brad Worley

1/23/2015

CA8721209FC8476 SIGNATURE

DATE

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...

SOIL LEGEND AND AASHTO CLASSIFICATION
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS

CONSISTENCY OR DENSITY
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT^2)

TEXTURE OR GRAIN SIZE
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION

PLASTICITY
NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC 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.

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.

ANGULARITY OF GRAINS
THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY
SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE LL < 31 LL = 31 - 50 LL > 50

PERCENTAGE OF MATERIAL
ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL

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

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
TEST BORING
AUGER BORING
CORE BORING
MONITORING WELL
PIEZOMETER INSTALLATION
SLOPE INDICATOR INSTALLATION
CONE PENETROMETER TEST
SOUNDING ROD
TEST BORING WITH CORE
SPT N-VALUE

RECOMMENDATION SYMBOLS
UNDERCUT EXCAVATION
SHALLOW UNDERCUT
UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

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. - SAPROLITE
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
v - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
UNIT WEIGHT
DRY UNIT WEIGHT
SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT
DRILL UNITS:
CME-45C
CME-55
CME-550
VANE SHEAR TEST
PORTABLE HOIST
DIEDRICH D-50
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

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.

WEATHERED ROCK (WR)
NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.

CRYSTALLINE ROCK (CR)
FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.

NON-CRYSTALLINE ROCK (NCR)
FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.

COASTAL PLAIN SEDIMENTARY ROCK (CP)
COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL.

WEATHERING
FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING.

VERY SLIGHT (V SLI.)
ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.

SLIGHT (SLI.)
ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH.

MODERATE (MOD.)
SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS.

MODERATELY SEVERE (MOD. SEV.)
ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED.

SEVERE (SEV.)
ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH.

VERY SEVERE (V SEV.)
ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS.

COMPLETE
ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS.

ROCK HARDNESS
VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS.

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.

MEDIUM HARD
CAN BE GROVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.

SOFT
CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE.

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.

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 FOOT
VERY CLOSE LESS THAN 0.16 FEET

BEDDING
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 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.

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.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (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 (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 ODDS DIAMETER SPLIT SPOON SAMPLER.

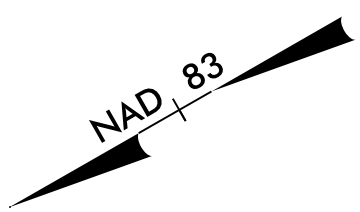
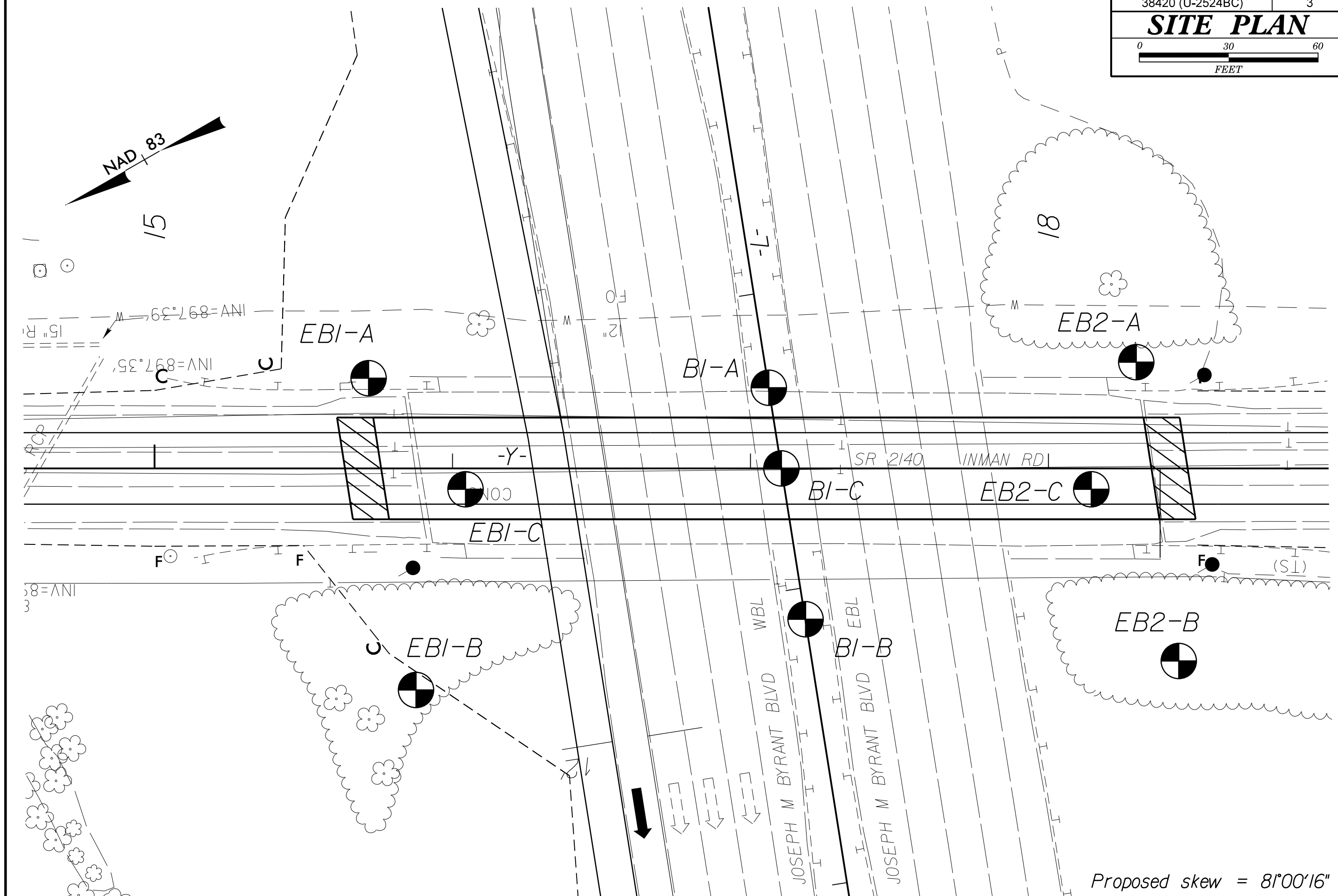
STRATA CORE RECOVERY (SRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
STRATA ROCK QUALITY DESIGNATION (SRQ) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: See NOTE
ELEVATION: FEET

NOTES:
Boring collar elevations obtained using TIN file. (u2524bc.ls.tin.tin)
F.I.A.D. = Filled In After Drilling

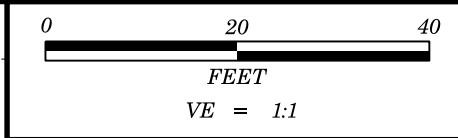
Borings EB1-C, BI-C, and EB2-C are from the original 1989 Inman Rd. Bridge Inventory, completed by the NCDOT GEU Raleigh Geotechnical Field Office. Boring names were changed to reflect current proposed bent designations.



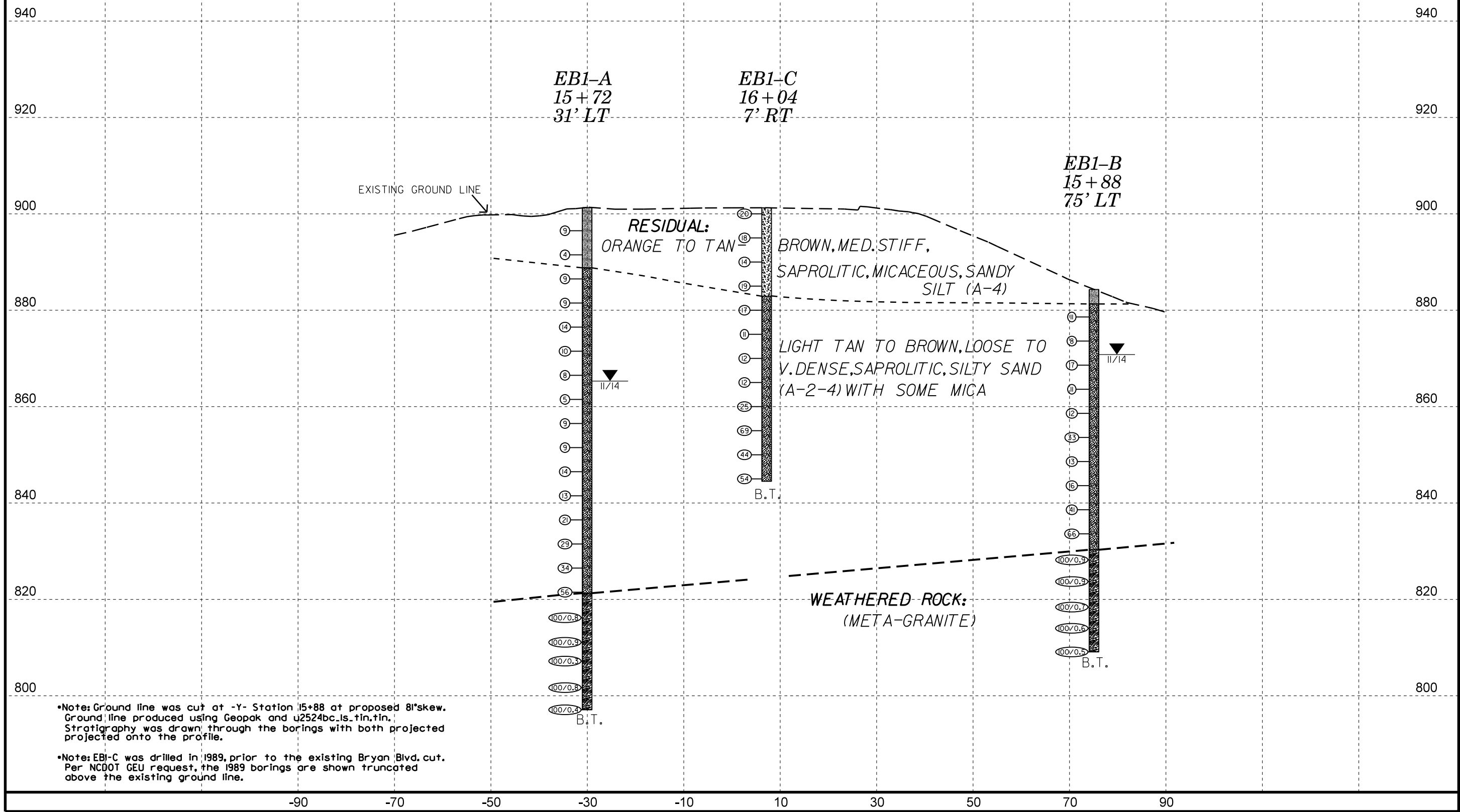
INV=897.39' 15" R
 INV=897.35' C

INV=897.35' F
 3

Proposed skew = 81°00'16"

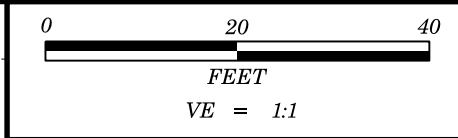


PROJECT REFERENCE NO.	SHEET
38420.1.2 (U-2524BC)	4
END BENT 1 Cross Section	

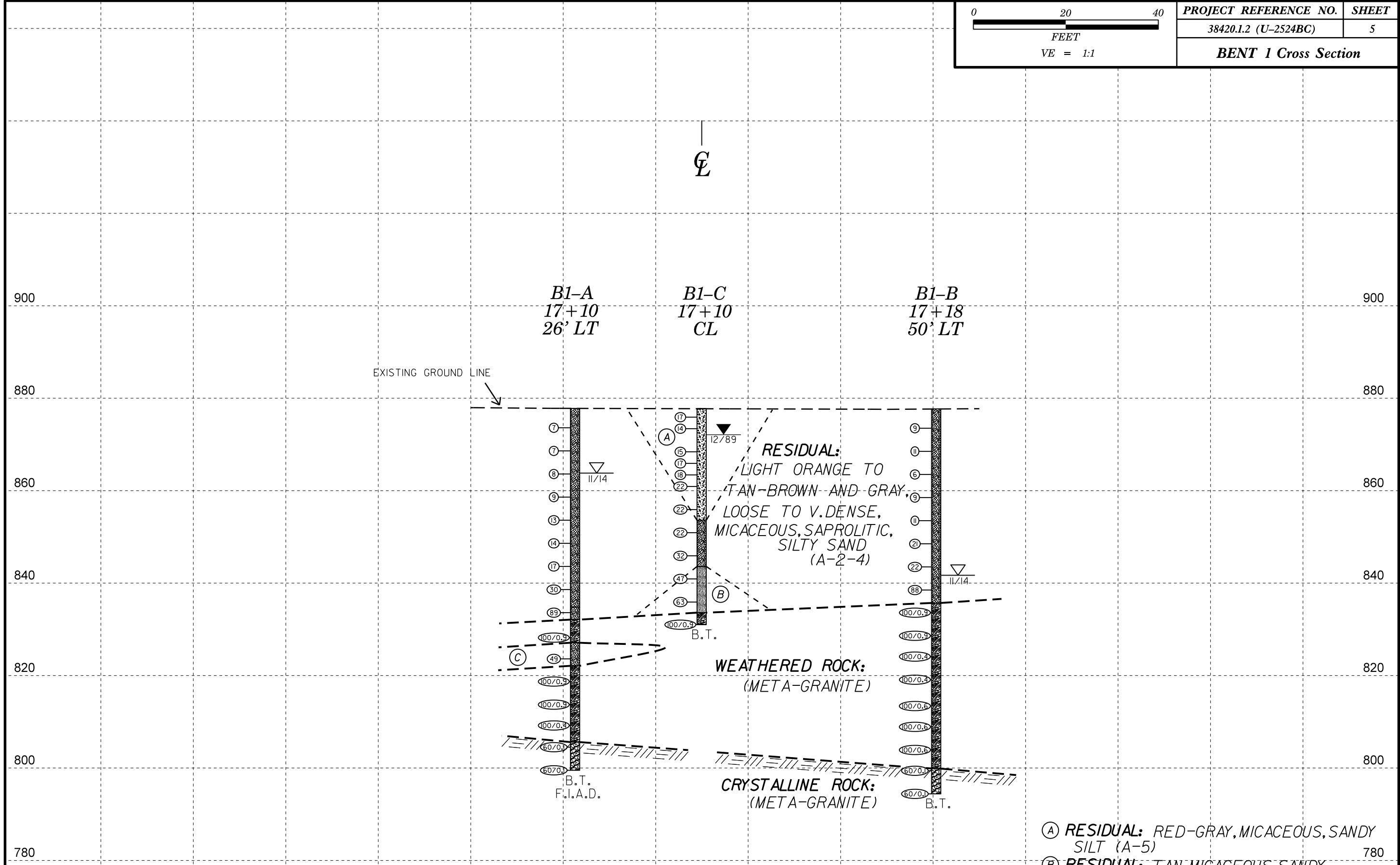


•Note: Ground line was cut at -Y- Station 15+88 at proposed 81'skew. Ground line produced using Geopak and u2524bc.ls.tin.tin. Stratigraphy was drawn through the borings with both projected and existing ground line.

•Note: EB1-C was drilled in 1989, prior to the existing Bryan Blvd. cut. Per NCDOT GEU request, the 1989 borings are shown truncated above the existing ground line.



PROJECT REFERENCE NO.	SHEET
38420.1.2 (U-2524BC)	5
BENT 1 Cross Section	



•Note: Ground line was cut at -Y- Station 17+10 at proposed 81° skew. Ground line produced using Geopak and u2524bc.ls.tin.tin. Stratigraphy was drawn through the borings with both projected and truncated borings.

•Note: B1-C was drilled in 1989, prior to the existing Bryan Blvd. cut. Per NCDOT GEU request, the 1989 borings are shown truncated above the existing ground line.

- (A) RESIDUAL: RED-GRAY, MICACEOUS, SANDY SILT (A-5)
- (B) RESIDUAL: TAN, MICACEOUS, SANDY SILT (A-4)
- (C) RESIDUAL: BROWN-WHITE, MICACEOUS, SAPROLITIC, DENSE, SILTY SAND (A-2-4)

780

800

820

840

860

880

900

780

800

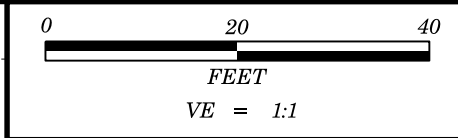
820

840

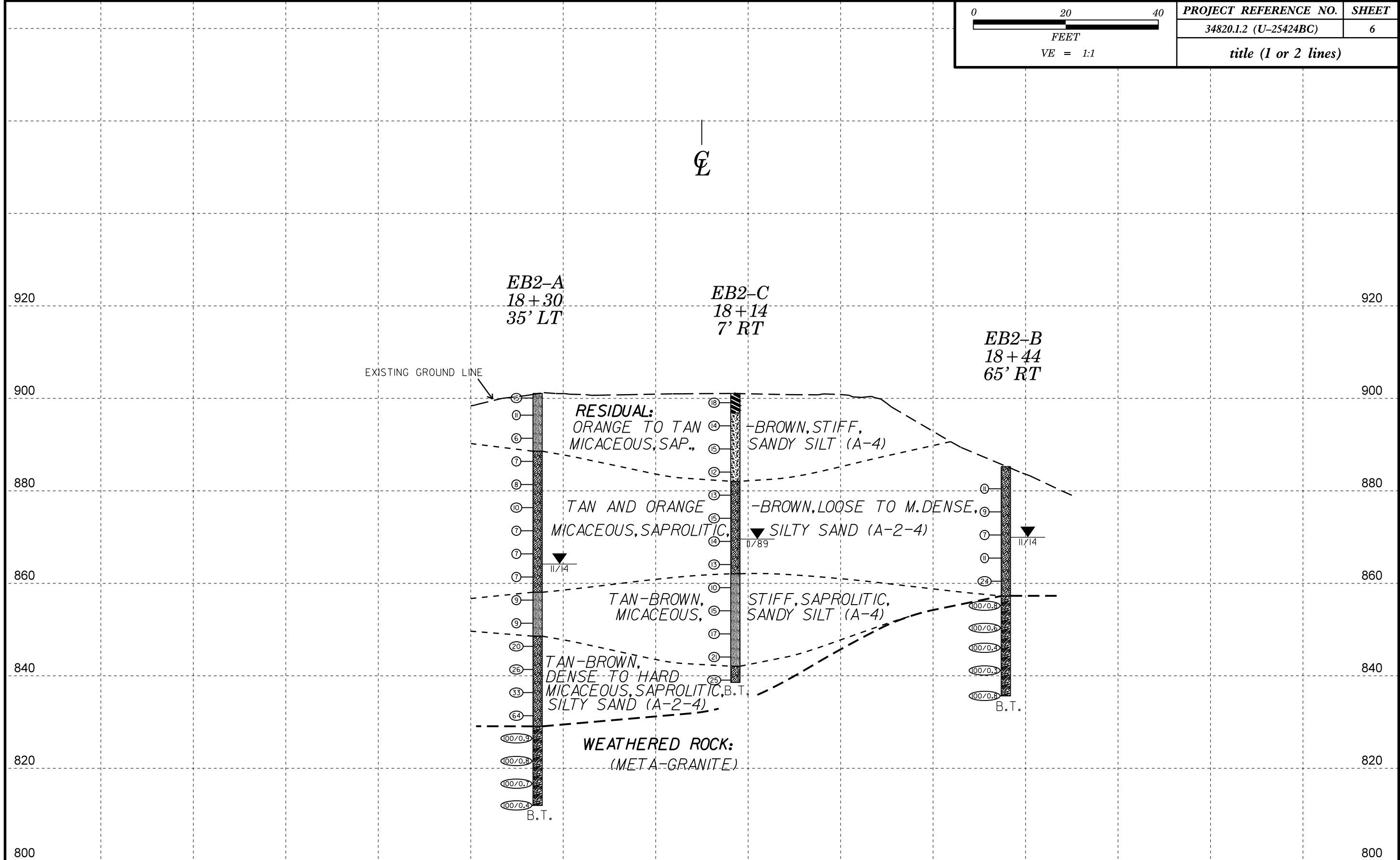
860

880

900



PROJECT REFERENCE NO.	SHEET
34820.1.2 (U-25424BC)	6
title (1 or 2 lines)	



•Note: Ground line was cut at -Y- Station 18+32 at proposed 81° skew. Ground line produced using Geopak and u2524bc.ls.tin.tin. Stratigraphy was drawn through the borings with both projected and projected onto the profile.

•Note: EB2-C was drilled in 1989, prior to the existing Bryan Blvd. cut. Per NCDOT GEU request, the 1989 borings are shown truncated above the existing ground line.

920

900

880

860

840

820

800

920

900

880

860

840

820

800

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Worley, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 15+72	OFFSET 31 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 901.3 ft	TOTAL DEPTH 104.2 ft	NORTHING 863,733	EASTING 1,729,508
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.	START DATE 11/19/14	COMP. DATE 11/19/14	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					
905															
900														901.3	GROUND SURFACE
															RESIDUAL Orange-brown, micaceous, f. sandy SILT (A-4).
895	897.5	3.8	2	4	5										
890	892.5	8.8	2	2	2										
885	887.5	13.8	2	4	5										
880	882.5	18.8	1	3	6										
875	877.5	23.8	2	5	9										
870	872.5	28.8	2	4	6										
865	867.5	33.8	2	3	5										
860	862.5	38.8	2	2	3										
855	857.5	43.8	2	3	6										
850	852.5	48.8	2	3	6										
845	847.5	53.8	3	6	8										
840	842.5	58.8	4	5	8										
835	837.5	63.8	4	9	12										
830	832.5	68.8	11	13	16										
825	827.5	73.8	9	14	20										

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Worley, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 15+72	OFFSET 31 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 901.3 ft	TOTAL DEPTH 104.2 ft	NORTHING 863,733	EASTING 1,729,508
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.	START DATE 11/19/14	COMP. DATE 11/19/14	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					
825															
820	822.5	78.8	19	23	33										
815	817.5	83.8	27	55	45/0.3										
810	812.5	88.8	27	41	59/0.4										
805	807.5	93.8	100/0.3												
800	802.5	98.8	52	48/0.3											
	797.5	103.8	100/0.4												

Match Line

Light tan to brown, saprolitic, silty SAND (A-2-4) with some mica. (continued)

WEATHERED ROCK
(meta-granite)

Boring Terminated at Elevation 797.1 ft in Weathered Rock (meta-granite)

NCDOT BORE DOUBLE U2524BC_GEO_BRD0743_GINT.GPJ NC_DOT.GDT 1/9/15



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Smith, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 17+10	OFFSET 26 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 877.8 ft	TOTAL DEPTH 78.3 ft	NORTHING 863,618	EASTING 1,729,439
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.	START DATE 11/25/14	COMP. DATE 11/25/14	SURFACE WATER DEPTH N/A

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Smith, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. B1-A	STATION 17+10	OFFSET 26 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 877.8 ft	TOTAL DEPTH 78.3 ft	NORTHING 863,618	EASTING 1,729,439
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.	START DATE 11/25/14	COMP. DATE 11/25/14	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				
880														
														877.8 GROUND SURFACE 0.0
875	874.6	3.2	3	3	4								M	RESIDUAL Light orange-brown, brown, white, micaceous, saprolitic, silty SAND (A-2-4).
870	869.6	8.2	3	3	4								M	
865	864.6	13.2	2	3	5								M	
860	859.6	18.2	2	4	5								W	
855	854.6	23.2	2	4	9								Sat.	
850	849.6	28.2	3	5	9								Sat.	
845	844.6	33.2	3	6	11								Sat.	
840	839.6	38.2	6	12	18								Sat.	
835	834.6	43.2	16	37	52								Sat.	
830	829.6	48.2	22	42	58/0.4								Sat.	
825	824.6	53.2	13	17	32								Sat.	
820	819.6	58.2	32	68/0.4									Sat.	
815	814.6	63.2	31	69/0.4									Sat.	
810	809.6	68.2	100/0.4										Sat.	
805	804.6	73.2	60/0.1										Sat.	
800														

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				
800														
	799.6	78.2	60/0.1											Match Line
														799.5
														Boring Terminated with Standard Penetration Test Refusal at Elevation 799.5 ft in Crystalline Rock (meta-granite) *Very hard/slow drilling at 72.2', interpreted as top of CR
														78.3

NCDOT BORE DOUBLE U2524BC_GEO_BRD0743_GINT.GPJ NC_DOT.GDT 1/9/15

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34820.1.2		TIP U-2524BC		COUNTY GUILFORD		GEOLOGIST Pilipchuk, J.L.										
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)							GROUND WTR (ft)									
BORING NO. B1-C		STATION 17+10		OFFSET CL		ALIGNMENT -Y-										
COLLAR ELEV. 905.6 ft		TOTAL DEPTH 74.6 ft		NORTHING 863,628		EASTING 1,729,413										
DRILL RIG/HAMMER EFF./DATE CME 45B		DRILL METHOD H.S. Augers		HAMMER TYPE Manual												
DRILLER Conley, H. R.		START DATE 11/30/89		COMP. DATE 11/30/89		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		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
910																
905	905.6	0.0	3	3	5											905.6 GROUND SURFACE 0.0
900	901.9	3.7	6	11	14											RESIDUAL Red-brown, highly plastic, micaceous, sandy CLAY (A-7-6).
895	896.9	8.7	7	8	8											898.6 7.0 Red, tan, gray, and white, micaceous, sandy SILT (A-5).
890	891.9	13.7	4	8	8											
885	886.9	18.7	4	6	9											
880	881.9	23.7	4	5	7											
875	876.9	28.7	4	7	10											
870	874.4	31.2	3	6	8											
865	869.4	36.2	4	6	9											
860	866.9	38.7	3	7	10											
855	864.4	41.2	4	6	12											
850	861.9	43.7	10	11	11											
845	856.9	48.7	6	9	13											
840	851.9	53.7	6	10	12											
835	846.9	58.7	7	12	20											
	841.9	63.7	22	24	23											
	836.9	68.7	14	25	38											
	831.9	73.7	47	53/0.4												
																100/0.9 Boring Terminated at Elevation 831.0 ft in

WBS 34820.1.2		TIP U-2524BC		COUNTY GUILFORD		GEOLOGIST Pilipchuk, J.L.										
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)							GROUND WTR (ft)									
BORING NO. B1-C		STATION 17+10		OFFSET CL		ALIGNMENT -Y-										
COLLAR ELEV. 905.6 ft		TOTAL DEPTH 74.6 ft		NORTHING 863,628		EASTING 1,729,413										
DRILL RIG/HAMMER EFF./DATE CME 45B		DRILL METHOD H.S. Augers		HAMMER TYPE Manual												
DRILLER Conley, H. R.		START DATE 11/30/89		COMP. DATE 11/30/89		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		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
830																Match Line Weathered Rock (meta-granite)
																*Boring completed during original (1989) investigation for existing Inman Rd. over Byran Blvd. bridge. Boring originally called "B2-C" because of different design.

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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Worley, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 18+30	OFFSET 35 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 902.1 ft	TOTAL DEPTH 89.1 ft	NORTHING 863,507	EASTING 1,729,385
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.		START DATE 11/18/14	COMP. DATE 11/18/14
SURFACE WATER DEPTH N/A			
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT
			0.5ft 0.5ft 0.5ft
BLOWS PER FOOT			
			0 25 50 75 100
SAMP. NO.		MOI	LOG
SOIL AND ROCK DESCRIPTION			
ELEV. (ft)			DEPTH (ft)
905			
	902.1	0.0	2 7 8
900			
	898.4	3.7	3 4 7
895			
	893.4	8.7	2 2 4
890			
	888.4	13.7	2 2 5
885			
	883.4	18.7	1 3 5
880			
	878.4	23.7	2 4 6
875			
	873.4	28.7	2 3 4
870			
	868.4	33.7	2 3 4
865			
	863.4	38.7	1 2 5
860			
	858.4	43.7	2 3 6
855			
	853.4	48.7	2 3 6
850			
	848.4	53.7	5 8 12
845			
	843.4	58.7	5 10 16
840			
	838.4	63.7	8 12 21
835			
	833.4	68.7	15 16 48
830			
	828.4	73.7	31 69/0.4
825			
			100/0.9

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Worley, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 18+30	OFFSET 35 ft LT	ALIGNMENT -Y-
COLLAR ELEV. 902.1 ft	TOTAL DEPTH 89.1 ft	NORTHING 863,507	EASTING 1,729,385
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.		START DATE 11/18/14	COMP. DATE 11/18/14
SURFACE WATER DEPTH N/A			
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT
			0.5ft 0.5ft 0.5ft
BLOWS PER FOOT			
			0 25 50 75 100
SAMP. NO.		MOI	LOG
SOIL AND ROCK DESCRIPTION			
ELEV. (ft)			DEPTH (ft)
825			
	823.4	78.7	56 44/0.3
820			
	818.4	83.7	53 47/0.2
815			
	813.4	88.7	100/0.4
			100/0.4

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Match Line

813.0 Boring Terminated at Elevation 813.0 ft in Weathered Rock (meta-granite)

WEATHERED ROCK
(meta-granite)



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Pilipchuk, J.L.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB2-C	STATION 18+14	OFFSET 7 ft RT	ALIGNMENT -Y-
COLLAR ELEV. 905.1 ft	TOTAL DEPTH 65.5 ft	NORTHING 863,724	EASTING 1,729,460
DRILL RIG/HAMMER EFF./DATE CME 45B		DRILL METHOD H.S. Augers	HAMMER TYPE Manual
DRILLER Conley, H. R.	START DATE 11/29/89	COMP. DATE 11/29/89	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					
910															
905	905.1	0.0											905.1	GROUND SURFACE 0.0	
900	901.1	4.0	1	2	4	6						M	RESIDUAL Red-brown, highly plastic, micaceous, sandy-CLAY (A-7-6).		
895	896.1	9.0	5	7	11	18						M			
890	891.1	14.0	5	7	7	14						M	Red, yellow, tan, and white, micaceous, sandy-SILT (A-5).	7.2	
885	886.1	19.0	4	7	8	15						M			
880	881.1	24.0	4	6	6	12						M			
875	876.1	29.0	5	6	7	13						M	Tan and white, micaceous, saprolitic, silty fine to coarse SAND (A-2-4).	22.0	
870	871.1	34.0	4	7	8	15						M			
865	866.1	39.0	3	6	8	14						W			
860	861.1	44.0	2	6	7	13						W	Red, tan, and brown, highly micaceous, sandy-SILT (A-4).	42.0	
855	856.1	49.0	2	4	6	10						W			
850	851.1	54.0	3	6	9	15						W			
845	846.1	59.0	2	6	11	17						W			
840	841.1	64.0	4	7	14	21						W			
			6	11	14	25						W			
													843.1	Tan and white, micaceous, saprolitic, silty fine to coarse SAND (A-2-4).	62.0
													839.6	Boring Terminated at Elevation 839.6 ft in coarse SAND (A-2-4)	65.5

*Boring completed during original (1989) investigation for existing Inman Rd. over Bryan Blvd. bridge. Boring originally called "EB1-CR" because of different design.

WBS 34820.1.2	TIP U-2524BC	COUNTY GUILFORD	GEOLOGIST Worley, B.
SITE DESCRIPTION Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 18+44	OFFSET 65 ft RT	ALIGNMENT -Y-
COLLAR ELEV. 886.3 ft	TOTAL DEPTH 49.6 ft	NORTHING 863,545	EASTING 1,729,291
DRILL RIG/HAMMER EFF./DATE SUM0093 DIEDRICH D-50 86% 10/10/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Bare, J.	START DATE 11/21/14	COMP. DATE 11/21/14	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					
890															
885													886.3	GROUND SURFACE 0.0	
880	882.5	3.8	2	5	6	11						D	RESIDUAL Tan to orange-brown, micaceous, saprolitic, silty SAND (A-2-4).		
875	877.5	8.8	2	2	7	9						D			
870	872.5	13.8	2	3	4	7						D			
865	867.5	18.8	4	5	6	11						D			
860	862.5	23.8	5	9	15	24						M			
855	857.5	28.8	11	28	72/0.3								858.3	WEATHERED ROCK (meta-granite)	28.0
850	852.5	33.8	7	42	58/0.1										
845	847.5	38.8													
840	842.5	43.8													
	837.5	48.8	46	54/0.3											

Boring Terminated at Elevation 836.7 ft in Weathered Rock (meta-granite)
*Harder drilling at 28.0' interpreted to be top of WR

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SITE PHOTOGRAPHS

Bridge No. 743 over SR 2085 (Bryan Blvd.) on SR 2140 (Inman Rd.)



Looking East along -L- (Bryan Blvd.)



Looking West along -L- (Bryan Blvd.)



Looking South along -Y- (Inman Rd.)