

PROJECT: 45355.1.23 ID: BD-5109W

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 45355.1.23 (BD-5109W) F.A. PROJ. _____
COUNTY DAVIDSON
PROJECT DESCRIPTION BRIDGE 274 OVER LICK CREEK
ON SR 1002 (DENTON RD.)

SITE DESCRIPTION _____

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	45355.1.23 (BD-5109W)	1	21

CAUTION NOTICE

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

KLEINFELDER

TRIGON

INVESTIGATED BY J.E. BEVERLY

CHECKED BY C.B. LITTLE

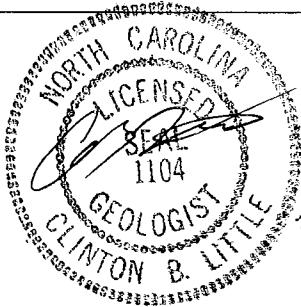
SUBMITTED BY C.B. LITTLE

DATE FEBRUARY 2013

DRAWN BY: J.K. McCLURE

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.







NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS
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SUBSURFACE INVESTIGATION

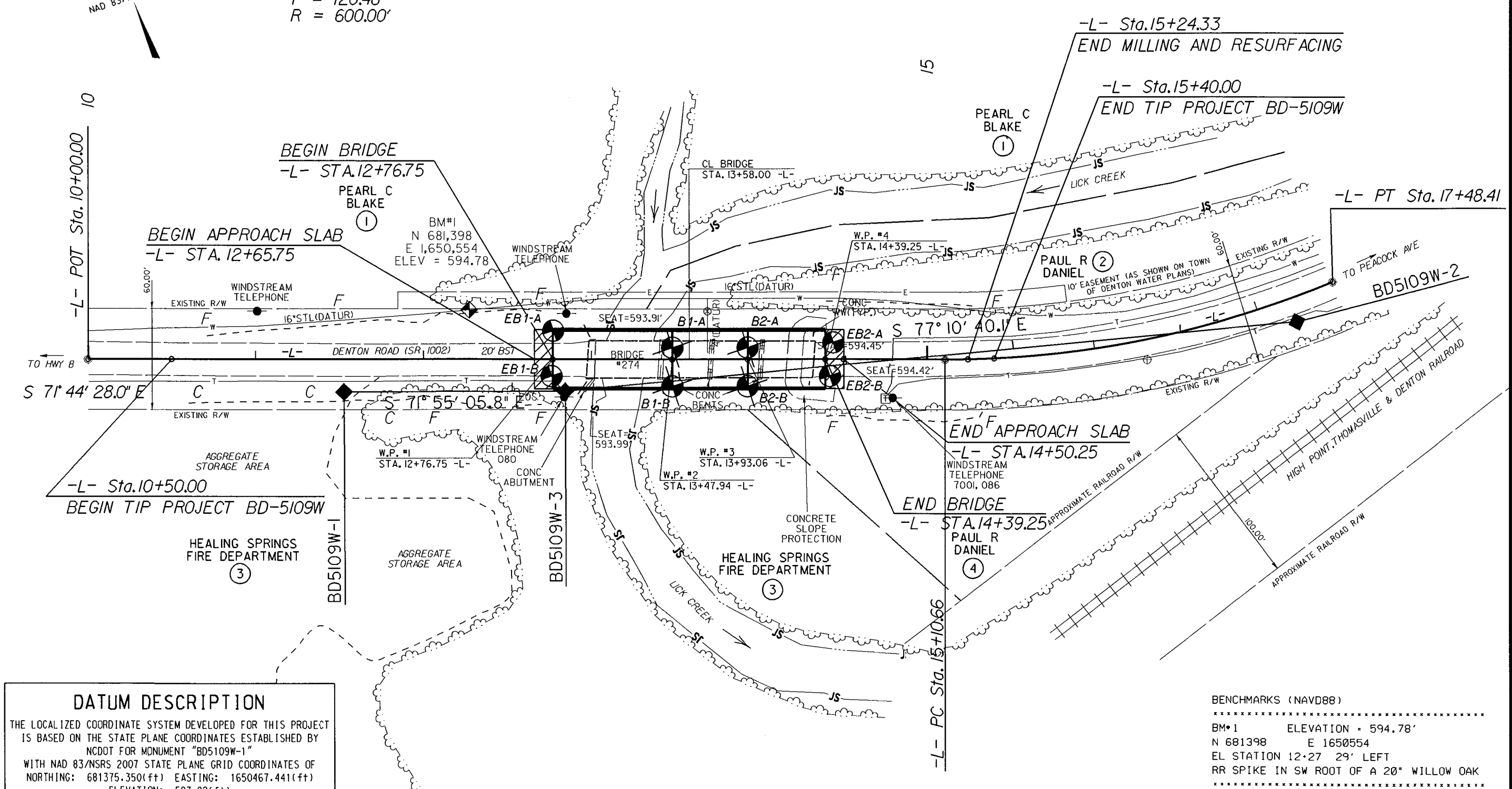
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

PROJECT REFERENCE NO.
45355.J.23 (BD-5109W)SHEET NO.
2

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, HARDY 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. 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:  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. ADUIFIER - 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 DISLOOGED 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. 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. IF TESTED, WOULD YIELD SPT REFUSAL. 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. IF TESTED, YIELDS SPT N VALUES > 100 BPF. 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. IF TESTED, YIELDS SPT N VALUES < 100 BPF. 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.										SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE										LIQUID LIMIT LESS THAN 31 LIQUID LIMIT EQUAL TO 31-50 LIQUID LIMIT GREATER THAN 50									
PERCENTAGE OF MATERIAL										GROUND WATER										ROCK HARDNESS																													
ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL										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										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 CAN BE GROOVED OR GOUGED 0.25 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 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.																													
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										TEST BORING WITH CORE AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD																													
TEXTURE OR GRAIN SIZE										ABBREVIATIONS										ROCK HARDNESS																													
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										AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST OPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HL - HIGHLY										MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY										VST - VANE SHEAR TEST WEA. - WEATHERED W - UNIT WEIGHT W _d - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO																			
SOIL MOISTURE - CORRELATION OF TERMS										EQUIPMENT USED ON SUBJECT PROJECT										FRACTURE SPACING																													
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION										DRILL UNITS: MOBILE B- BK-51 CME-45C CME-55B 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 TUNG-CARB. CORE BIT TRICONE 2 1/2"										HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N Q H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST																			
PLASTICITY										FRIABLE										BEDDING																													
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY										MODERATELY INDOURATED										THICKLY BEDDED THINLY BEDDED VERY THINLY BEDDED THICKLY LAMINATED THINLY LAMINATED																													
COLOR										EXTREMELY INDOURATED										BENCH MARK: BD5109W-3 STA. 12+84.33 - L- 18.93 RT. N 681334.4503 E 1650592.7090 ELEVATION: 593.98 FT.																													
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.										NOTES: SOIL STRATIGRAPHY IS THROUGH THE BORINGS FOR PROFILE AND CROSS-SECTIONS.																																							

DAVIDSON COUNTY
LOW IMPACT BRIDGE
STRUCTURE 280274
LS 09-11-111
WBS 45355.1.23
TIP BD-5109-W

-L- CURVE DATA
PI Sta 16+31.11
 $\Delta = 22^\circ 42' 13.5''$ (LT)
 $D = 9^\circ 32' 57.5''$
 $L = 237.75'$
 $T = 120.46'$
 $R = 600.00'$



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD5109W-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 681375.350(ft) EASTING: 1650467.441(ft) ELEVATION: 597.82(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998690228
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD5109W-1" TO -L- STATION IS
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

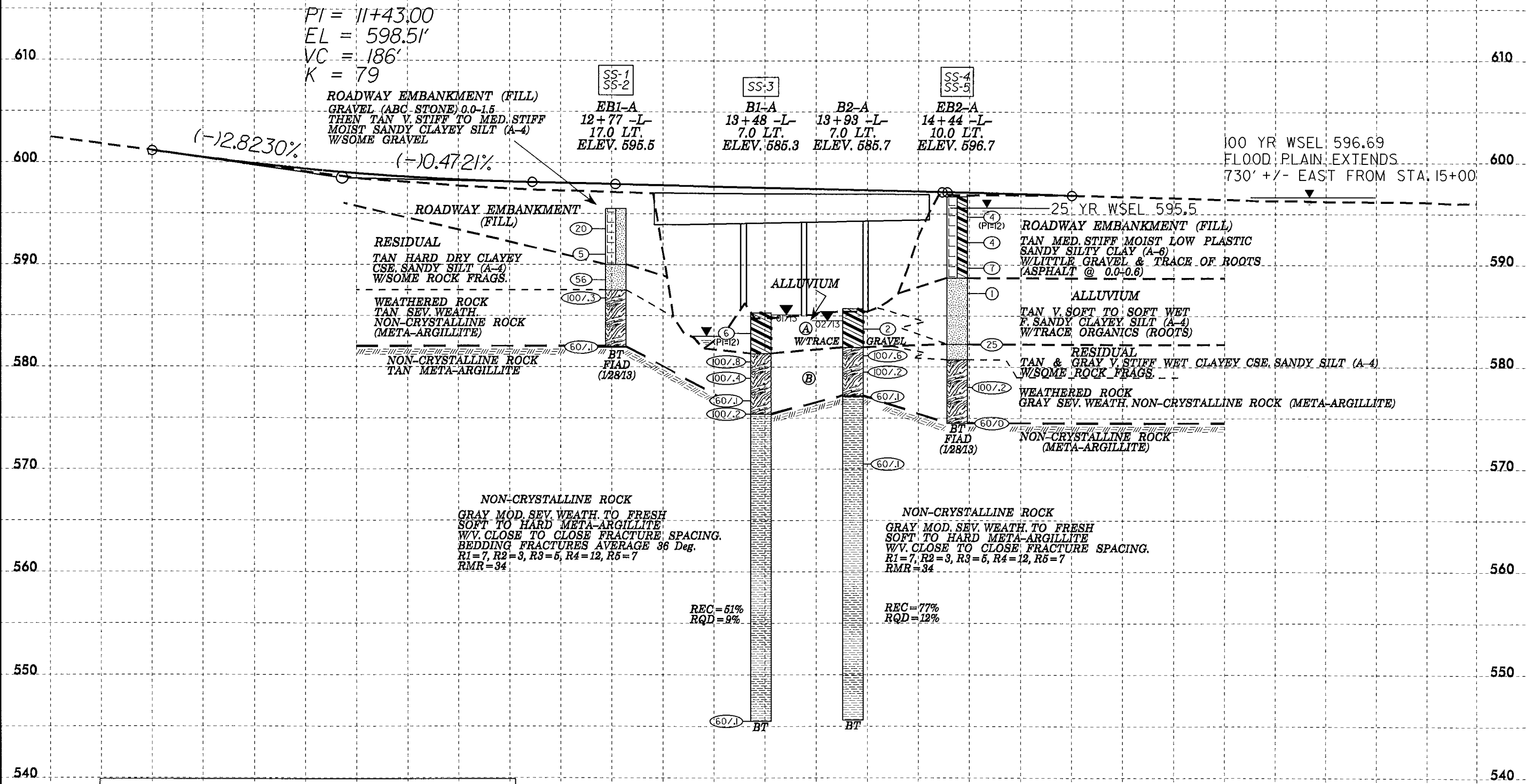
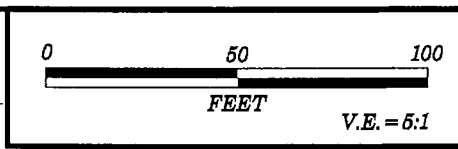
CONTROL POINTS

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BD5109W-1	681375.3500	1650467.4410	597.82	11+52.55	19.34 RT
3	BD5109W-3	681334.4503	1650592.7090	593.98	12+84.33	18.93 RT
2	BD5109W-2	681237.1323	1651020.2889	595.90	17+20.15	14.46 RT

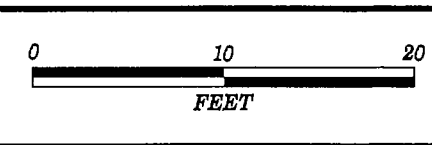
BENCHMARKS (NAVD88)

BM#1 ELEVATION = 594.78'
N 681398 E 1650554
EL STATION 12+27 29' LEFT
RR SPIKE IN SW ROOT OF A 20" WILLOW OAK

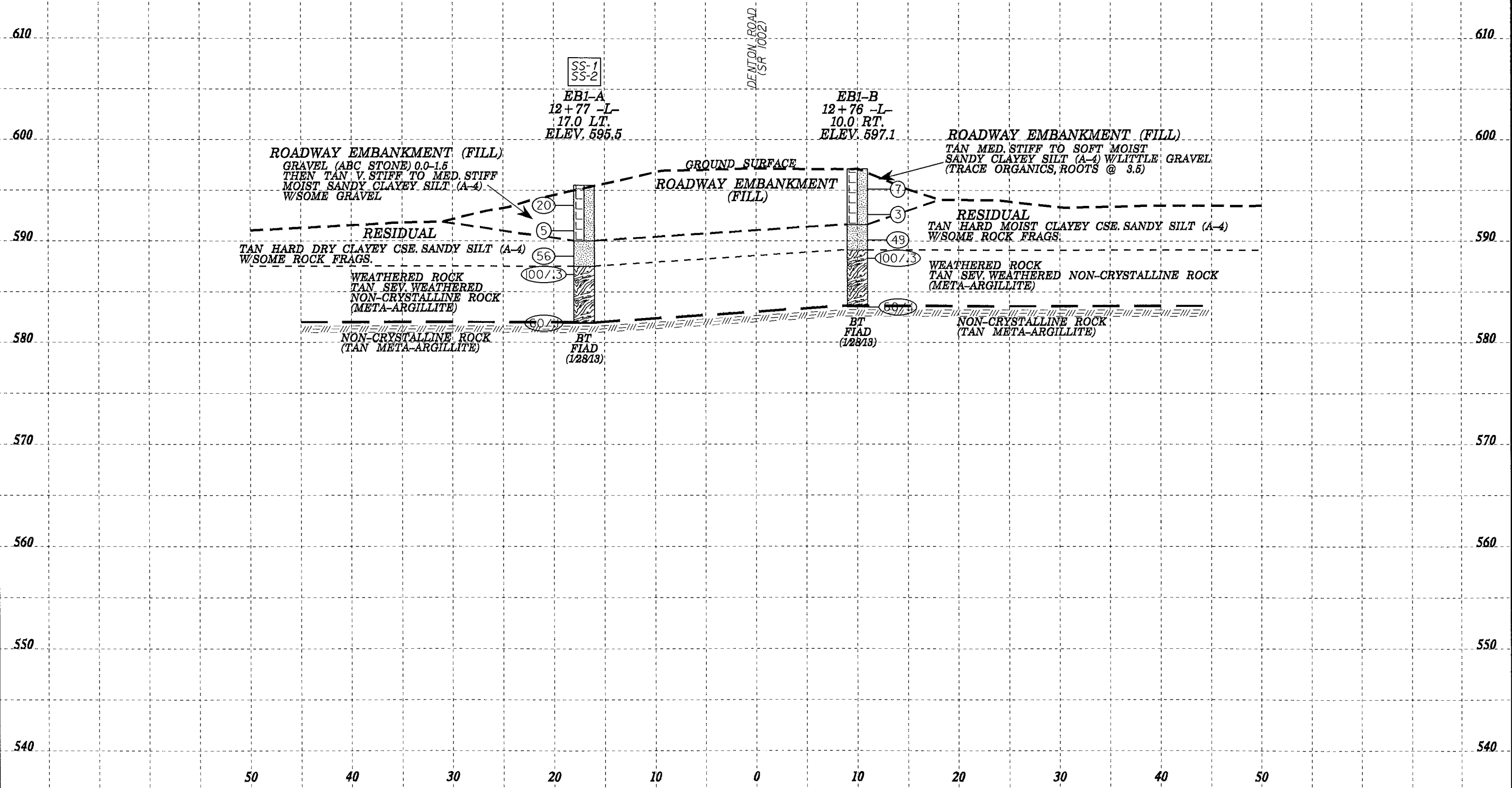
BM#2 ELEVATION = 595.90'
N 681237 E 1651020
EL STATION 17+20 14' RIGHT
REBAR WITH ALUMINUM CAP STAMPED
"BD5109W-2" (SET FLUSH WITH GROUND)
POINT LIES 4.3' SOUTH OF EDGE OF
DENTON ROAD

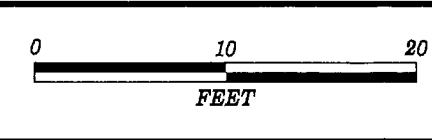


BORING DESCRIPTIONS	
Ⓐ	TAN MED. STIFF & SOFT WET LOW PLASTIC SILTY CSE. SANDY CLAY (A-6) (ALLUVIUM)
Ⓑ	WEATHERED ROCK GRAY SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE) (W/ NON-CRYSTALLINE ROCK LAYER @ 8.5 IN BORING B1-A)

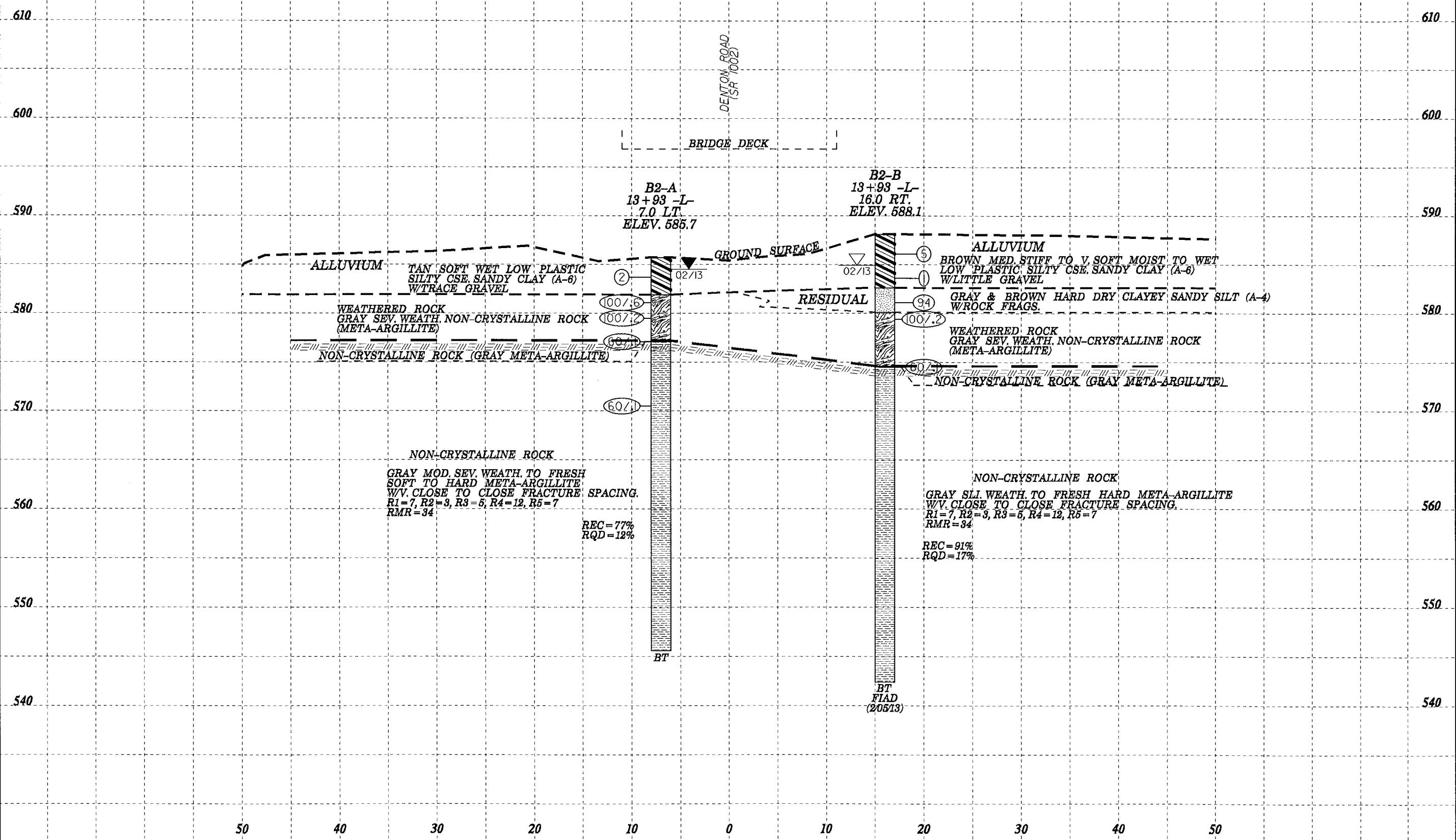


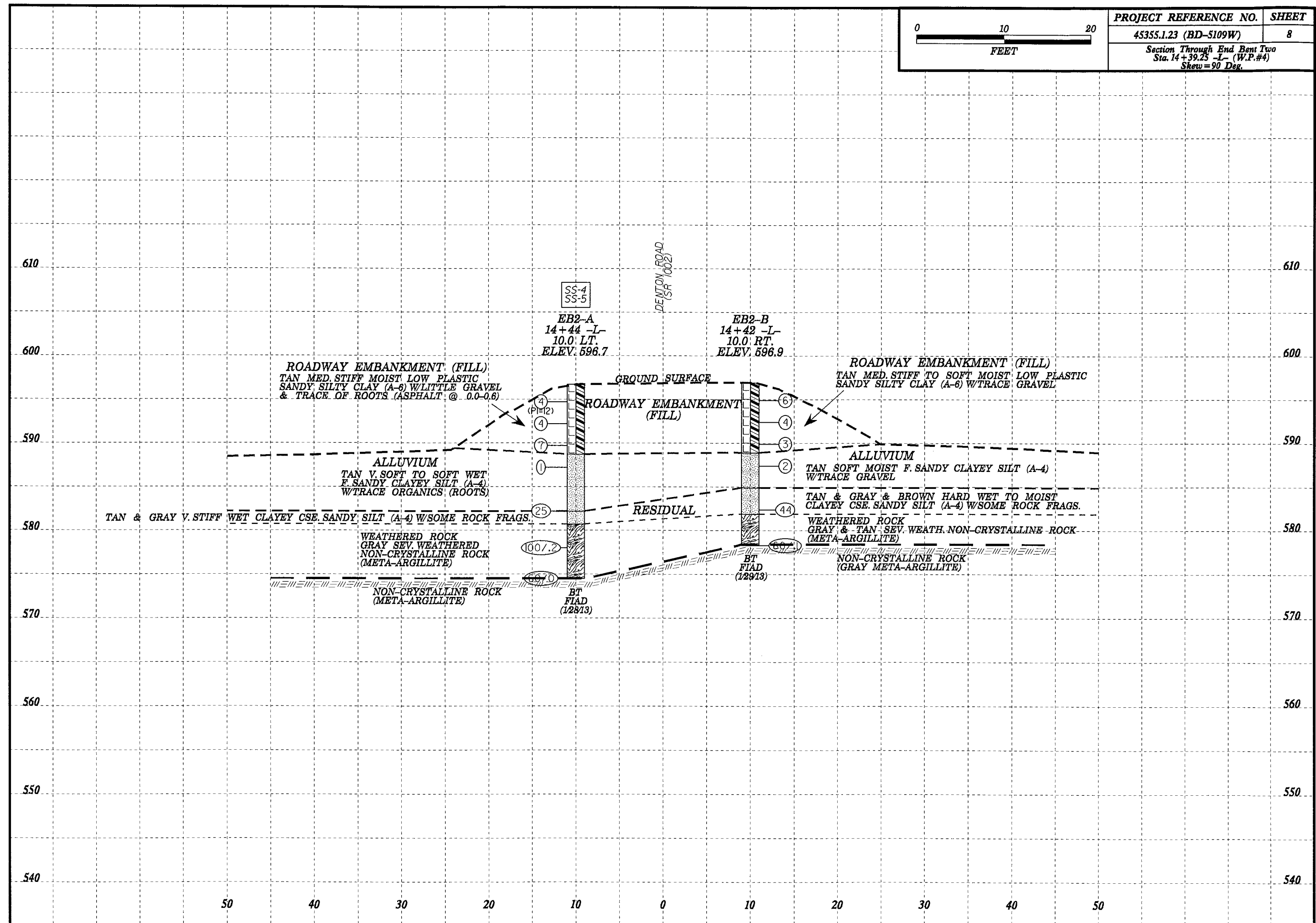
PROJECT REFERENCE NO.	SHEET
45355.1.23 (BD-5109W)	5
Section Through End Bent One Sta. 12+76.75 -L- (W.P.#1) Skew=90 Deg.	





PROJECT REFERENCE NO.	SHEET
45355.1.23 (BD-5109W)	7
Section Through Bent Two Sta. 13+93.06 -L- (W.P.#3) SKEW=90 Deg.	





WBS 45355.1.23						TIP BD-5109W						COUNTY DAVIDSON						GEOLOGIST Goodnight, D.							
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)																		GROUND WTR (ft)							
BORING NO. EB1-A						STATION 12+77						OFFSET 17 ft LT						ALIGNMENT -L-						0 HR. Dry	
COLLAR ELEV. 595.5 ft						TOTAL DEPTH 13.6 ft						NORTHING 681,371						EASTING 1,650,597						24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011												DRILL METHOD H.S. Augers						HAMMER TYPE Automatic							
DRILLER Gower, S.						START DATE 01/28/13						COMP. DATE 01/28/13						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)										
600																									
595	594.5	1.0	1	2	18										595.5 GROUND SURFACE 0.0										
	592.0	3.5	6	2	3						SS-1	M			ROADWAY EMBANKMENT GRAVEL (ABC STONE) 0.0-1.5 THEN TAN V. STIFF TO MED. STIFF MOIST SANDY CLAYEY SILT (A-4) W/ SOME GRAVEL										
590	589.5	6.0	7	20	36							M			590.0 5.5										
	587.0	8.5	100/0.3								SS-2	D			RESIDUAL TAN HARD DRY CLAYEY CSE. SANDY SILT (A-4) W/ SOME ROCK FRAGS.										
585	582.0	13.5	60/0.1												587.5 8.0										
															WEATHERED ROCK TAN SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE)										
															582.0 13.5										
															NON-CRYSTALLINE ROCK TAN META-ARGILLITE Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 581.9 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)										
															581.9 13.6										

WBS 45355.1.23			TIP BD-5109W			COUNTY DAVIDSON			GEOLOGIST Goodnight, D.				
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)									GROUND WTR (ft)				
BORING NO. EB1-B			STATION 12+76			OFFSET 10 ft RT			ALIGNMENT -L-				
COLLAR ELEV. 597.1 ft			TOTAL DEPTH 13.6 ft			NORTHING 681,346			EASTING 1,650,588				
									0 HR. Dry				
									24 HR. FIAD				
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Gower, S.			START DATE 01/28/13			COMP. DATE 01/28/13			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			
600													
	596.1	1.0	2	3	4								597.1 GROUND SURFACE 0.0
595	593.6	3.5	1	1	2								ROADWAY EMBANKMENT
	591.1	6.0	12	22	27								TAN MED. STIFF TO SOFT MOIST SANDY CLAYEY SILT (A-4) W/ LITTLE GRAVEL (TRACE ORGANICS, ROOTS @ 3.5)
590	588.6	8.5	100/0.3										RESIDUAL
	583.6	13.5	60/0.1										TAN HARD MOIST CLAYEY CSE. SANDY SILT (A-4) W/ SOME ROCK FRAGS.
585													WEATHERED ROCK
													TAN SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE)
													NON-CRYSTALLINE ROCK
													TAN META-ARGILLITE
													Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 583.5 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)



NC DOT BORE DOUBLE BD5109W GEO BH BRDG0274 DAVIDSON.GPJ NC DOT.GDT 2/27/13



WBS 45355.1.23		TIP BD-5109W		COUNTY DAVIDSON		GEOLOGIST Goodnight, D.						
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)						GROUND WTR (ft)						
BORING NO. B1-A		STATION 13+48		OFFSET 7 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 585.3 ft		TOTAL DEPTH 39.8 ft		NORTHING 681,339		EASTING 1,650,661						
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Gower, S.		START DATE 01/29/13		COMP. DATE 01/30/13		SURFACE WATER DEPTH N/A						
CORE SIZE NQ		TOTAL RUN 31.1 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
576.7	576.7	8.6	1.3		(0.0) 0%	(0.0) 0%					Begin Coring @ 8.6 ft	
575	575.4	8.8	4.8	N=100/2	(0.0) 0%	(0.0) 0%		(15.3) 51%	(2.8) 9%		WEATHERED ROCK (continued)	9.9
					(4.2) 88%	(1.6) 33%					NON-CRYSTALLINE ROCK	
											GRAY MOD. SEV. WEATH. TO FRESH SOFT TO HARD	
											META-ARGILLITE W/ V. CLOSE TO CLOSE FRACTURE SPACING.	
											BEDDING FRACTURES AVERAGE 36 Deg.	
											R1=7, R2=3, R3=5, R4=12, R5=7	
											RMR=34	
570	570.6	14.7	5.0		(2.2) 44%	(0.0) 0%						
565	565.6	19.7	5.0		(2.2) 44%	(0.0) 0%						
560	560.6	24.7	5.0		(3.6) 72%	(1.2) 24%						
555	555.6	29.7	5.0		(2.1) 42%	(0.0) 0%						
550	550.6	34.7	5.0		(1.0) 20%	(0.0) 0%						
	545.6	39.7		N=60/1								
											Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 545.5 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)	39.8



BORELOG REPORT

NCDOT GEOTECHNICAL CORE BORING REPORT

WBS 45355.1.23				TIP BD-5109W				COUNTY DAVIDSON				GEOLOGIST Goodnight, D.					
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)												GROUND WTR (ft)					
BORING NO. B1-B				STATION 13+48				OFFSET 16 ft RT				ALIGNMENT -L-		0 HR. 3.0			
COLLAR ELEV. 587.1 ft				TOTAL DEPTH 40.5 ft				NORTHING 681,317				EASTING 1,650,654		24 HR. 3.4			
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011								DRILL METHOD Casing, H.S.Augers, W/SPT & Core				HAMMER TYPE Automatic					
DRILLER Gower, S.				START DATE 02/01/13				COMP. DATE 02/04/13				SURFACE WATER DEPTH N/A					
CORE SIZE NQ				TOTAL RUN 31.9 ft													
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		LOG	ELEV. (ft) DESCRIPTION AND REMARKS DEPTH (ft)						
578.5	578.5	8.6	1.9		(1.3)	(0.0)		(25.4)	(6.2)		578.5	Begin Coring @ 8.6 ft		8.6			
	576.6	10.5	5.0		68%	0%		80%	19%			NON-CRYSTALLINE ROCK					
575					(1.5)	(0.0)						GRAY MOD. SEV. WEATH. TO FRESH SOFT TO HARD					
					30%	0%						META-ARGILLITE W/ V. CLOSE TO CLOSE FRACTURE SPACING					
	571.6	15.5	5.0									R1=7, R2=3, R3=5, R4=12, R5=7					
												RMR=34					
570					(4.8)	(0.0)											
					96%	0%											
	566.6	20.5	5.0		(3.9)	(1.7)											
565					78%	34%											
	561.6	25.5	5.0		(4.8)	(0.0)											
560					96%	0%											
	556.6	30.5	5.0		(4.2)	(0.9)											
555					84%	18%											
	551.6	35.5	5.0		(4.9)	(3.6)											
550					98%	72%											
	546.6	40.5									546.6	Boring Terminated at Elevation 546.6 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)		40.5			



BORELOG REPORT



CORE BORING REPORT

NC DOT CORE SINGLE BD5109W GEO BH BRDG0274 DAVIDSON.GPJ NC DOT.GDT 2/25/13



NC DOT BORE DOUBLE BD5109W GEO BH BRDG0274 DAVIDSON.GPJ NC DOT.GDT 2/25/13

WBS 45355.1.23			TIP BD-5109W			COUNTY DAVIDSON			GEOLOGIST Goodnight, D.						
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)									GROUND WTR (ft)						
BORING NO. B2-B			STATION 13+93			OFFSET 16 ft RT			ALIGNMENT -L-						
COLLAR ELEV. 588.1 ft			TOTAL DEPTH 45.7 ft			NORTHING 681,303			EASTING 1,650,697						
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011						DRILL METHOD Casing, H.S.Augers, W/SPT & Core			HAMMER TYPE Automatic						
DRILLER Gower, S.			START DATE 02/04/13			COMP. DATE 02/05/13			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)
590															
	587.1	1.0												588.1	GROUND SURFACE
585	584.6	3.5	1	2	3										ALLUVIAL BROWN MED. STIFF TO V. SOFT MOIST TO WET LOW PLASTIC SILTY CSE. SANDY CLAY (A-6) W/ LITTLE GRAVEL
	582.1	6.0												582.6	
580	579.6	8.5	9	33	61									580.1	RESIDUAL GRAY & BROWN HARD DRY CLAYEY SANDY SILT (A-4) W/ ROCK FRAGS.
															WEATHERED ROCK GRAY SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE)
575	574.6	13.5												574.6	
														574.5	NON-CRYSTALLINE ROCK GRAY META-ARGILLITE
570															NON-CRYSTALLINE ROCK GRAY SLI. WEATH. TO FRESH HARD META-ARGILLITE
565															
560															
555															
550															
545															
														542.4	Boring Terminated at Elevation 542.4 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)



WCDOT CORE SINGLE BD5109W GEO_BH BRDG0274 DAVIDSON.GPJ NC_DOT.GDT 2/25/13

WBS 45355.1.23				TIP BD-5109W		COUNTY DAVIDSON		GEOLOGIST Goodnight, D.				
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)								GROUND WTR (ft)				
BORING NO. B2-B				STATION 13+93		OFFSET 16 ft RT		ALIGNMENT -L-		0 HR. 3.2		
COLLAR ELEV. 588.1 ft				TOTAL DEPTH 45.7 ft		NORTHING 681,303		EASTING 1,650,697		24 HR. FIAD		
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011						DRILL METHOD Casing, H.S.Augers, W/SPT & Core		HAMMER TYPE Automatic				
DRILLER Gower, S.				START DATE 02/04/13		COMP. DATE 02/05/13		SURFACE WATER DEPTH N/A				
CORE SIZE NQ				TOTAL RUN 32.1 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
574.5	574.5	13.6	2.1		(1.8) 86%	(0.8) 38%		(29.3) 91%	(5.3) 17%		Begin Coring @ 13.6 ft NON-CRYSTALLINE ROCK GRAY SLI. WEATH. TO FRESH HARD META-ARGILLITE W/V. CLOSE TO CLOSE FRACTURE SPACING. R1=7, R2=3, R3=5, R4=12, R5=7 RMR=34	13.6
	572.4	15.7	5.0		(4.5) 90%	(0.0) 0%						
570												
	567.4	20.7	5.0		(4.8) 96%	(0.0) 0%						
565												
	562.4	25.7	5.0		(3.5) 70%	(0.0) 0%						
560												
	557.4	30.7	5.0		(4.9) 98%	(2.4) 48%						
555												
	552.4	35.7	5.0		(4.9) 98%	(2.2) 44%						
550												
	547.4	40.7	5.0		(4.9) 98%	(0.7) 14%						
545												
	542.4	45.7									Boring Terminated at Elevation 542.4 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)	45.7

WBS 45355.1.23		TIP BD-5109W		COUNTY DAVIDSON		GEOLOGIST Goodnight, D.								
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)						GROUND WTR (ft)								
BORING NO. EB2-A		STATION 14+44		OFFSET 10 ft LT		ALIGNMENT -L-								
COLLAR ELEV. 596.7 ft		TOTAL DEPTH 22.2 ft		NORTHING 681,312		EASTING 1,650,753								
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic								
DRILLER Gower, S.		START DATE 01/28/13		COMP. DATE 01/28/13		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)
600														
595	595.7	1.0	2	2	2	4					SS-4	M		596.7 GROUND SURFACE 0.0
	593.2	3.5	2	2	2	4						M		ROADWAY EMBANKMENT
	590.7	6.0	3	3	4	7						M		TAN MED. STIFF MOIST LOW (PI=12) PLASTIC SANDY SILTY CLAY (A-6) W/ LITTLE GRAVEL & TRACE OF ROOTS (ASPHALT @ 0.0-0.6)
590	588.2	8.5	1	1	0	1					SS-5	W		588.7 8.0
	583.2	13.5	2	2	23	25						W		ALLUVIAL
585														TAN V. SOFT TO SOFT WET F. SANDY CLAYEY SILT (A-4) W/ TRACE ORGANICS (ROOTS)
	578.2	18.5												582.2 14.5
580														580.7 16.0
	574.5	22.2												RESIDUAL
575														TAN & GRAY V. STIFF WET CLAYEY CSE. SANDY SILT (A-4) W/ SOME ROCK FRAGS.
														WEATHERED ROCK
														GRAY SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE)
														Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 574.5 ft ON NON-CRYSTALLINE ROCK (META-ARGILLITE)

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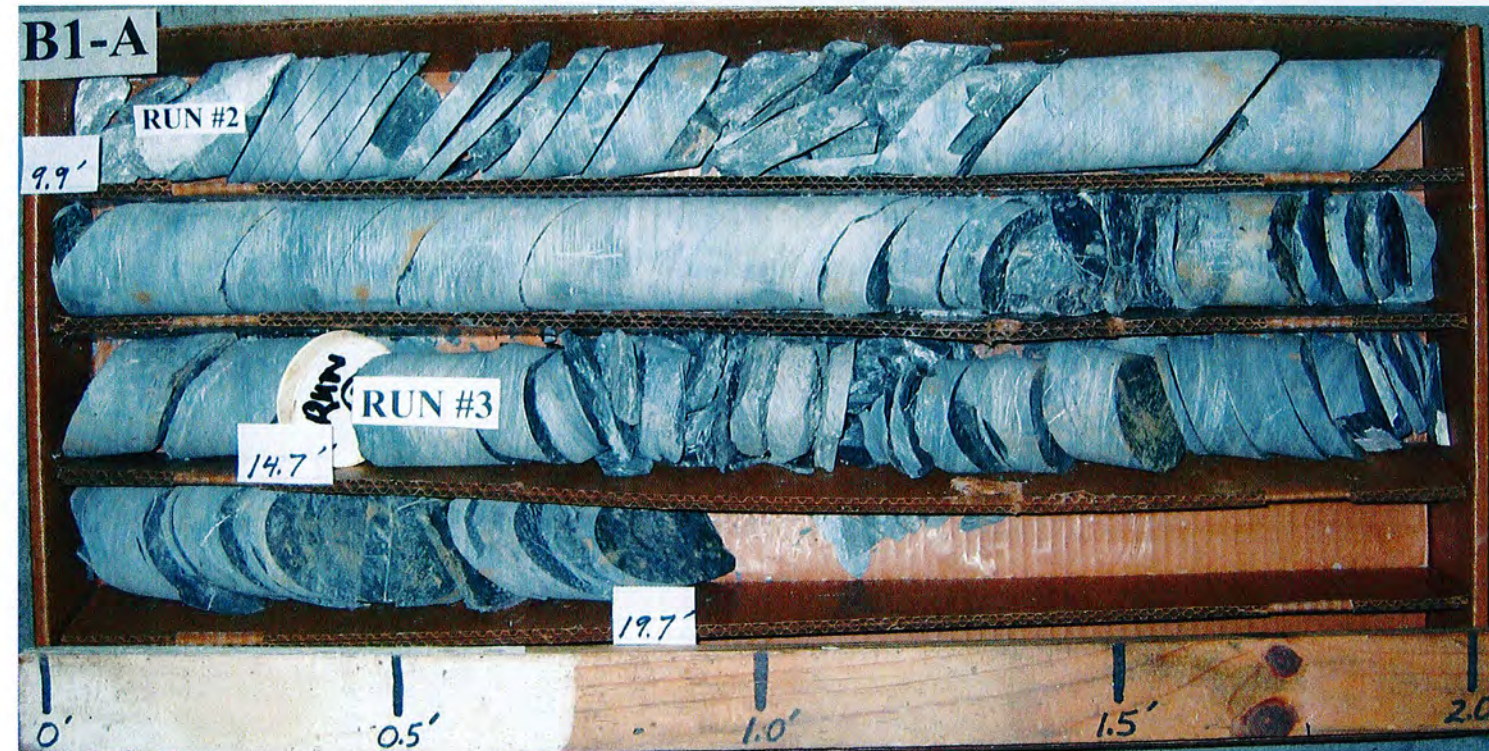
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WBS 45355.1.23			TIP BD-5109W			COUNTY DAVIDSON			GEOLOGIST Goodnight, D.				
SITE DESCRIPTION BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)									GROUND WTR (ft)				
BORING NO. EB2-B			STATION 14+42			OFFSET 10 ft RT			ALIGNMENT -L-				
COLLAR ELEV. 596.9 ft			TOTAL DEPTH 18.6 ft			NORTHING 681,294			EASTING 1,650,745				
DRILL RIG/HAMMER EFF./DATE TRI8016 MOBILE B-57 93% 12/08/2011						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Gower, S.			START DATE 01/29/13			COMP. DATE 01/29/13			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			
600													
595	595.9	1.0	3	2	4	6						M	596.9 GROUND SURFACE 0.0
	593.4	3.5	1	2	2	4						M	ROADWAY EMBANKMENT TAN MED. STIFF TO SOFT MOIST LOW PLASTIC SANDY SILTY CLAY (A-6) W/ TRACE GRAVEL
590	590.9	6.0	2	1	2	3						M	
	588.4	8.5	1	1	1	2						M	588.9 ALLUVIAL TAN SOFT MOIST F. SANDY CLAYEY SILT (A-4) W/ TRACE GRAVEL 8.0
585	583.4	13.5	2	4	40	44						W/M	584.9 12.0
580	578.4	18.5											581.9 RESIDUAL TAN & GRAY & BROWN HARD WET TO MOIST CLAYEY CSE. SANDY SILT (A-4) W/ SOME ROCK FRAGS. 15.0
													578.4 WEATHERED ROCK GRAY & TAN SEV. WEATH. NON-CRYSTALLINE ROCK (META-ARGILLITE) 18.5
													578.3 NON-CRYSTALLINE ROCK GRAY META-ARGILLITE 18.6
													Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 578.3 ft IN NON-CRYSTALLINE ROCK (META-ARGILLITE)

45355.1.23 (BD-5109W)
DAVIDSON COUNTY
BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)

CORE PHOTOS



45355.1.23 (BD-5109W)
DAVIDSON COUNTY
BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)

CORE PHOTOS



45355.1.23 (BD-5109W)
DAVIDSON COUNTY
BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)

CORE PHOTOS



45355.1.23 (BD-5109W)
DAVIDSON COUNTY
BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)

CORE PHOTOS



45355.1.23 (BD-5109W)
DAVIDSON COUNTY
BRIDGE 274 OVER LICK CREEK ON SR 1002 (DENTON RD.)

CORE PHOTOS



