

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34831.1.1 U-2550B	1	12

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

STRUCTURE
SUBSURFACE INVESTIGATION

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PROJ. REFERENCE NO. U-2550B F.A. PROJ. STPNHF-M-8165(1)
COUNTY BURKE
PROJECT DESCRIPTION NC 18 (STERLING STREET) AND I-40
INTERCHANGE

SITE DESCRIPTION REPLACE CULVERT 139 ON I-40 ON EAST
PRONG HUNTING CREEK

CAUTION NOTICE

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

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

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

PERSONNEL

D.C. ELLIOTT

D.O. CHEEK

R.D. CHILDERS

C.J. COFFEY

G.K. ROSE

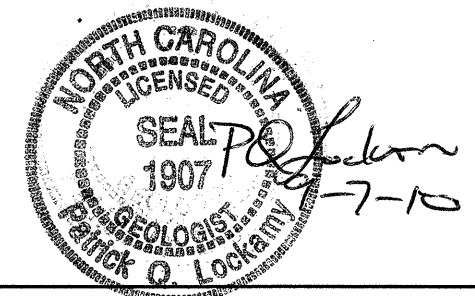
L.A. RIDDLE

INVESTIGATED BY **P.Q. LOCKAMY**

CHECKED BY **W.D. FRYE**

SUBMITTED BY **W.D. FRYE**

DATE **9.7.10**



PROJECT: 34831.1.1 ID: U-2550B

DRAWN BY: **J.T. WILLIAMS**

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 34831JI U-2550B
 SHEET NO. 2 of 12

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																																																																							
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: VERY STIFF, GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-6		WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.		HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)		ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. 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 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 (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 RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																																																																																																							
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PROJECT REFERENCE NO. U-2550B	SHEET NO. 3 OF 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PROPOSED APPROACH SLAB

FOR -L- PROFILE SEE SHEET 12
 FOR -YI- PROFILE SEE SHEET 14
 FOR -RPA- PROFILE SEE SHEET 15
 FOR -RPB- PROFILE SEE SHEET 16
 FOR -RPC- PROFILE SEE SHEET 16
 FOR -RPH- PROFILE SEE SHEET 16
 FOR CURVE DATA SEE SHEET 2-J
 FOR INTERSECTION DETAILS SEE SHEET 2-O
 FOR DITCH DETAILS SEE SHEET 2-R
 FOR STREAM DETAIL SEE SHEET 2-S

MATCHLINE -RPC- STA.14+20.00 SEE SHEET 9

POTSta. 10+00.00

PCSta. 10+51.02

STSta. 16+25.48

BY2-16

PTSta. 12+52.75

PTSta. 15+21.39

PTSta. 19+61.87

PTSta. 15+63.52

-L- POTSta. 20+99.46 =

-RPA- POT Sta.23+43.20

-L- POTSta. 20+95.15 =

-RPB- POT Sta.24+74.37

-L- POTSta. 23+83.10 =

-YI- POC Sta.45+88.34

-L- POTSta. 29+10.92 =

-LPC- POT Sta.15+48.18

S 34' 23' 23.0" W

-L- POTSta. 29+34.22 =

-RPC- POT Sta.18+67.68

S 38' 23' 23.0" W

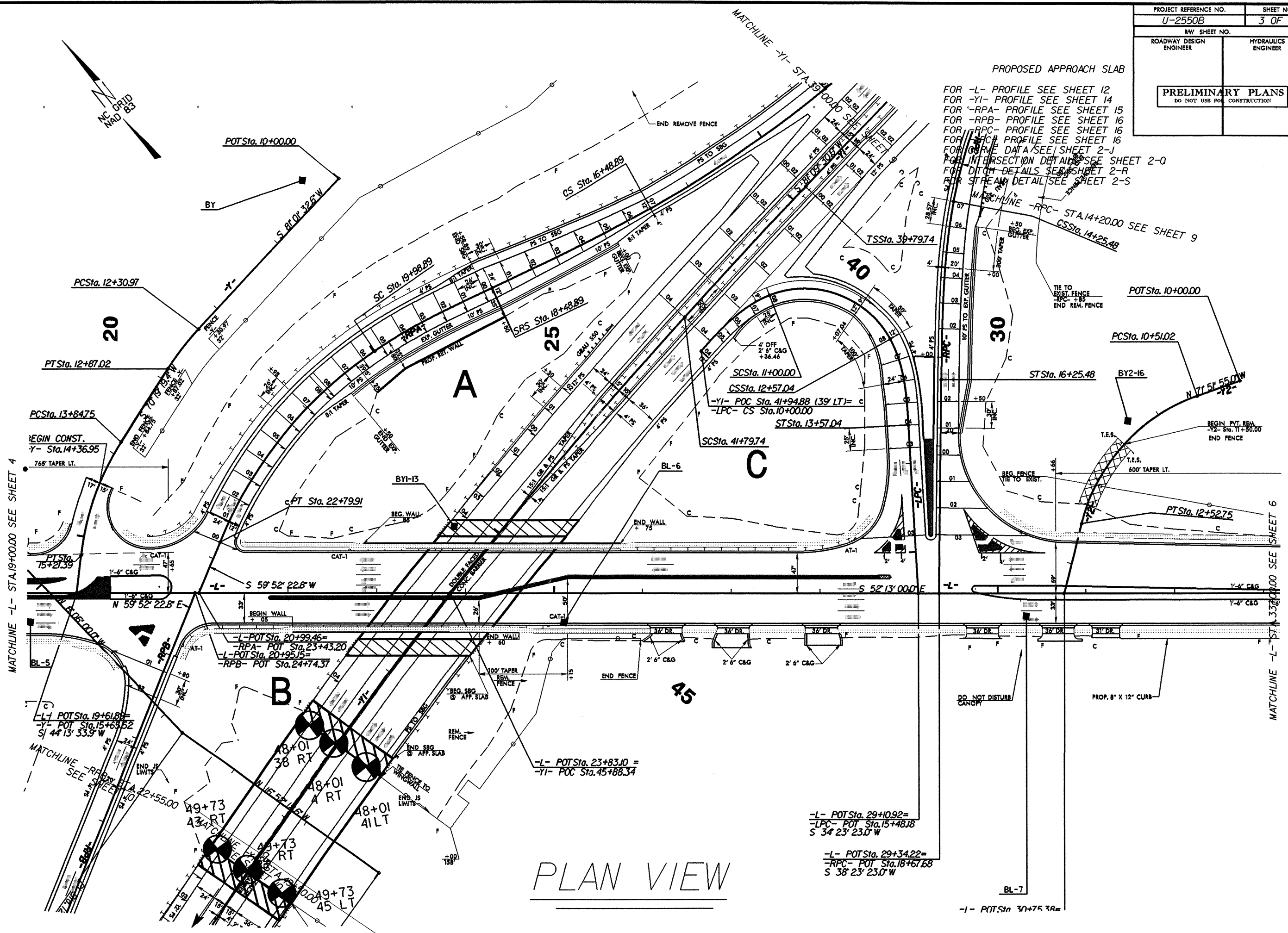
-L- POTSta. 30+75.38 =

BL-7

MATCHLINE -L- STA.19+00.00 SEE SHEET 4

MATCHLINE -L- STA.35+00.00 SEE SHEET 6

PLAN VIEW

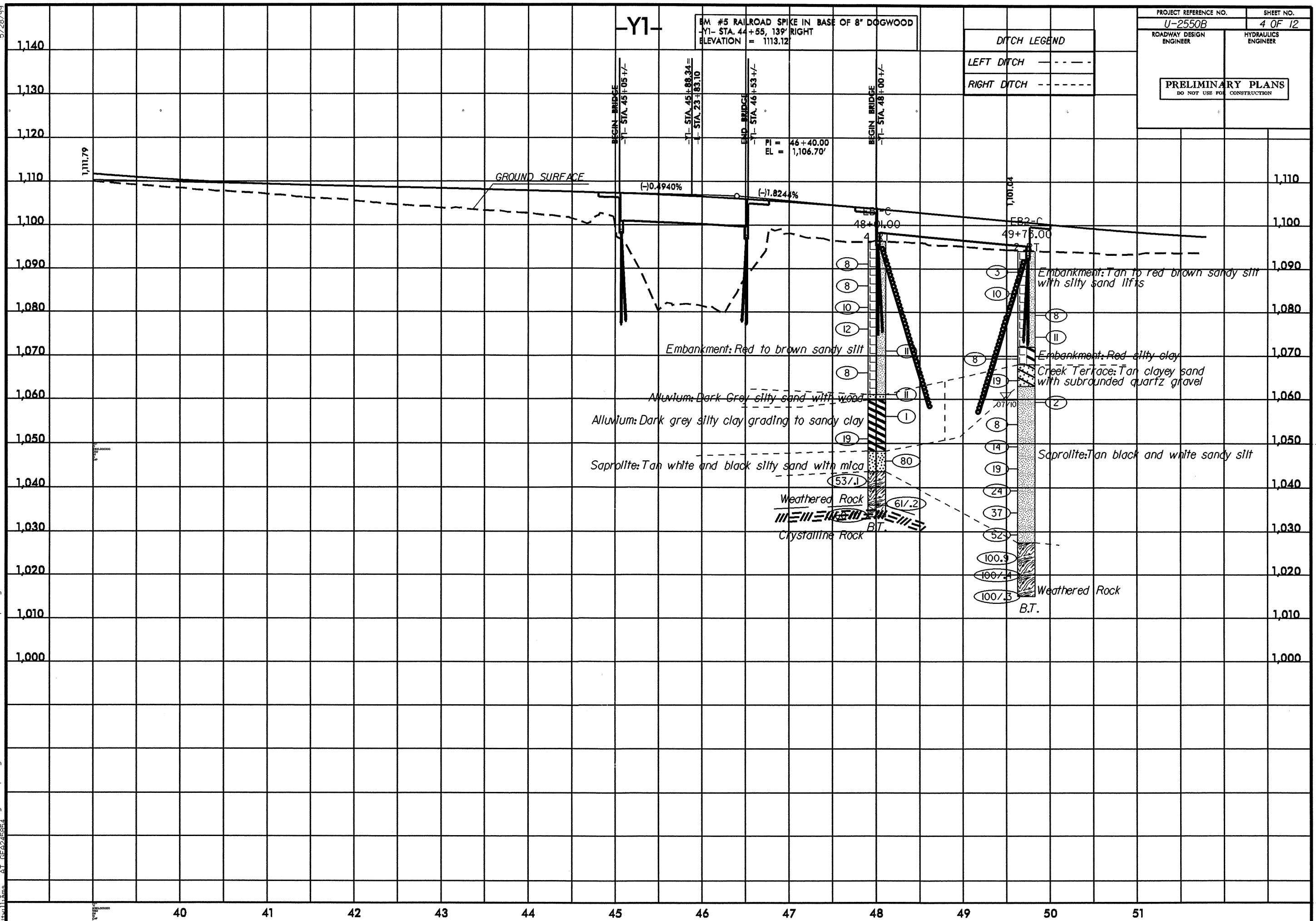


8/17/99
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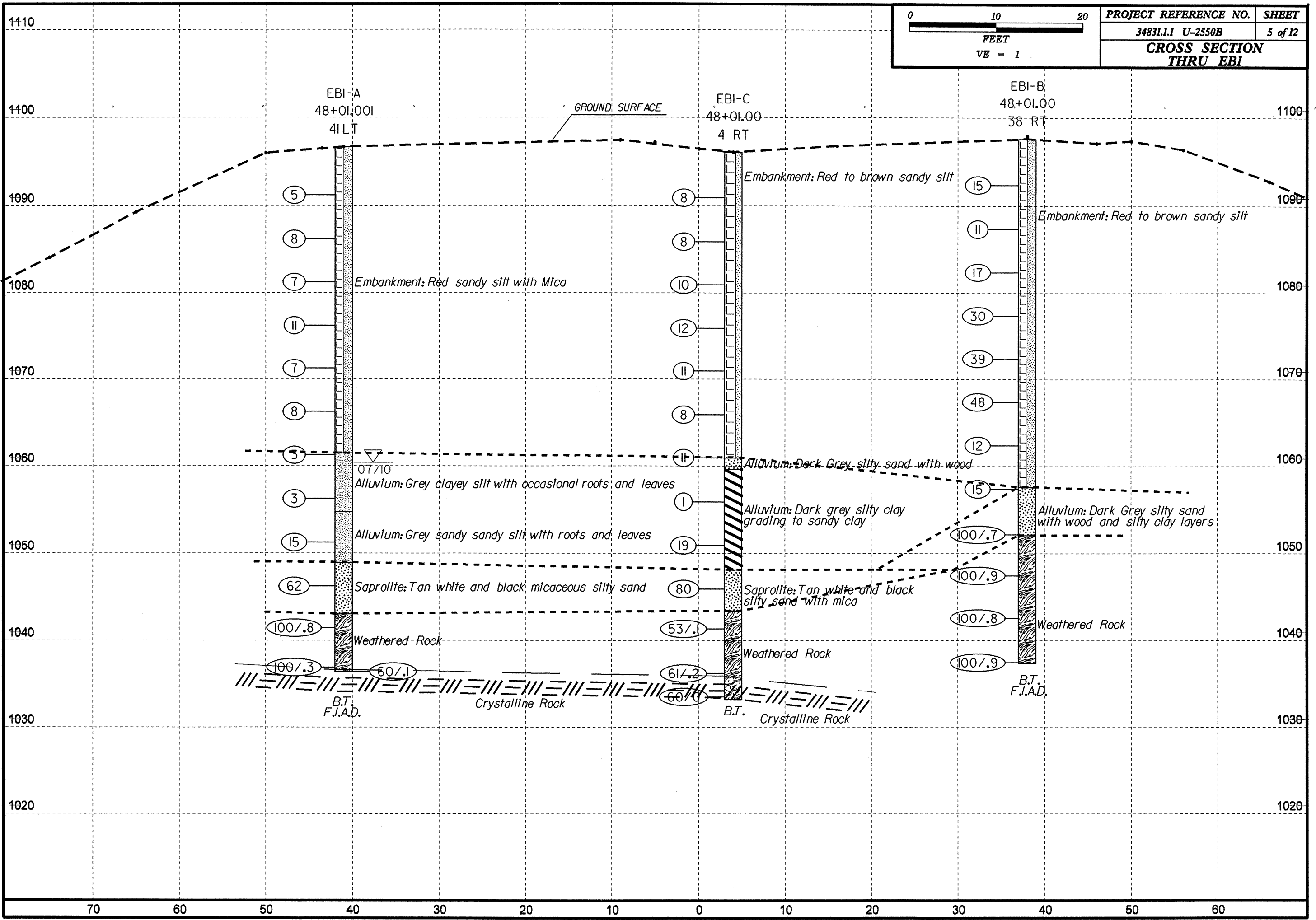
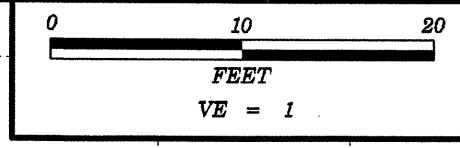
5/28/99

-Y1-
 BM #5 RAILROAD SPIKE IN BASE OF 8" DOGWOOD
 -Y1- STA. 44+55, 139' RIGHT
 ELEVATION = 1113.12'

DITCH LEGEND
 LEFT DITCH - - - - -
 RIGHT DITCH - - - - -



07-SEP-2001 14:59
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1110
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70 60 50 40 30 20 10 0 10 20 30 40 50 60

EBI-A
48+01.001
41 LT

EBI-C
48+01.00
4 RT

EBI-B
48+01.00
38 RT

GROUND SURFACE

Embankment: Red to brown sandy silt

Embankment: Red to brown sandy silt

Embankment: Red sandy silt with Mica

07710
Alluvium: Grey clayey silt with occasional roots and leaves

Alluvium: Dark Grey silty sand with wood

Alluvium: Dark grey silty clay grading to sandy clay

Alluvium: Dark Grey silty sand with wood and silty clay layers

Alluvium: Grey sandy sandy silt with roots and leaves

Saprolite: Tan white and black micaceous silty sand

Saprolite: Tan white and black silty sand with mica

Weathered Rock

Weathered Rock

Weathered Rock

Crystalline Rock

Crystalline Rock

B.T.
F.J.A.D.

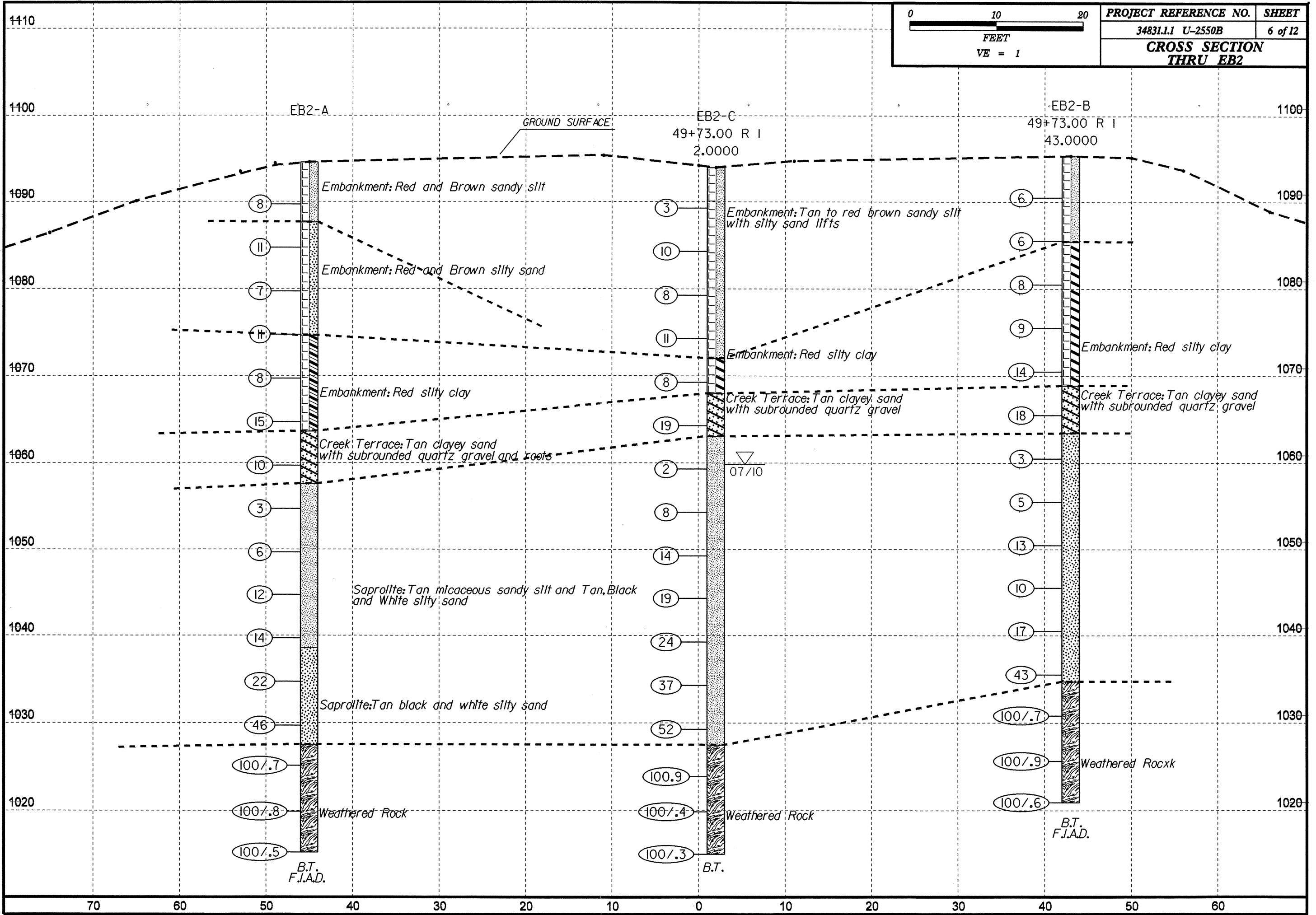
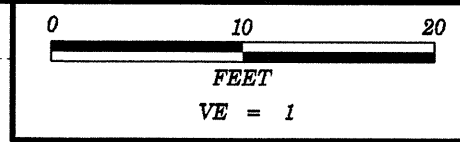
B.T.
F.J.A.D.

B.T.
F.J.A.D.

5
8
7
11
7
8
3
3
15
62
100/.8
100/.3

8
8
10
12
11
8
11
19
80
53/.1
61/.2
60/.6

15
11
17
30
39
48
12
15
100/.7
100/.9
100/.8
100/.9



PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 48+01		OFFSET 41 ft LT		ALIGNMENT -Y1-										
COLLAR ELEV. 1,096.7 ft		TOTAL DEPTH 60.3 ft		NORTHING 728,292		EASTING 1,211,551										
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Coffey, Jr., C.		START DATE 07/22/10		COMP. DATE 07/22/10		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						
1100																
														1,096.7	GROUND SURFACE	0.0
1095															Embankment: Red sandy silt with Mica	
1090	1,092.2	4.5	1	3	2											
1085	1,087.2	9.5	2	3	5											
1080	1,082.2	14.5	3	3	4											
1075	1,077.2	19.5	3	5	6											
1070	1,072.2	24.5	1	3	4											
1065	1,067.2	29.5	2	3	5											
1060	1,062.2	34.5	0	1	2									1,061.4	Alluvium: Grey clayey silt with occasional roots and leaves	35.3
1055	1,057.2	39.5	1	1	2									1,054.7	Alluvium: Grey sandy sandy silt with roots and leaves	42.0
1050	1,052.2	44.5	2	6	9									1,048.9	Saprolite: Tan white and black micaceous silty sand	47.8
1045	1,047.2	49.5	8	23	39									1,043.0	Weathered Rock	53.7
1040	1,042.2	54.5	42	58/3												
1035	1,037.2	59.5	100/3											1,036.6	Crystalline Rock	60.1
	1,036.5	60.2	60/1											1,036.5	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 1,036.4 ft on CR	60.2

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ, NC_DOT_GDT_9/3/10

PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)									
BORING NO. EB1-C		STATION 48+01		OFFSET 4 ft RT		ALIGNMENT -Y1-										
COLLAR ELEV. 1,096.1 ft		TOTAL DEPTH 62.9 ft		NORTHING 728,336		EASTING 1,211,538										
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Coffey, Jr., C.		START DATE 07/21/10		COMP. DATE 07/21/10		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						
1100																
														1,096.1	GROUND SURFACE	0.0
1095															Embankment: Red to brown sandy silt	
1090	1,091.9	4.2	1	3	5											
1085	1,086.9	9.2	3	4	4											
1080	1,081.9	14.2	0	4	6											
1075	1,076.9	19.2	2	4	8											
1070	1,071.9	24.2	3	4	7											
1065	1,066.9	29.2	2	4	4											
1060	1,061.9	34.2	1	5	6									1,060.9	Alluvium: Dark Grey silty sand with wood	35.2
														1,059.6	Alluvium: Dark grey silty clay grading to sandy clay	36.5
1055	1,056.9	39.2	0	0	1											
1050	1,051.9	44.2	0	2	17											
1045	1,046.9	49.2	13	22	58									1,048.1	Saprolite: Tan white and black silty sand with mica	48.0
1040	1,041.9	54.2	47	53/1										1,043.4	Weathered Rock	52.7
														1,043.4	Weathered Rock	52.7
1035	1,036.9	59.2	39	61/2										1,035.8	Crystalline Rock	60.3
														1,033.2	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 1,033.2 ft in	62.9

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ, NC_DOT_GDT_9/3/10



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

SHEET

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST Elliott, D. C.
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek			GROUND WTR (ft)
BORING NO. EB1-B	STATION 48+01	OFFSET 38 ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 1,097.7 ft	TOTAL DEPTH 60.2 ft	NORTHING 728,368	EASTING 1,211,529
DRILL MACHINE CME-550X	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Coffey, Jr., C.	START DATE 07/20/10	COMP. DATE 07/20/10	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1100																
															1,097.7	0.0
															Embankment: Red to brown sandy silt	
1095	1,093.4	4.3	7	7	8											
1090	1,088.4	9.3	5	5	6											
1085	1,083.4	14.3	7	8	9											
1080	1,078.4	19.3	8	14	16											
1075	1,073.4	24.3	9	18	21											
1070	1,068.4	29.3	17	24	24											
1065	1,063.4	34.3	4	6	6											
1060	1,058.4	39.3	6	6	9										1,057.6	40.1
1055	1,053.4	44.3	18	42	58/2											
1050	1,048.4	49.3	61	39/4											1,052.1	45.6
1045	1,043.4	54.3	68	32/3												
1040	1,038.4	59.3	45	55/4												
1035															1,037.4	60.3
															Boring Terminated at Elevation 1,037.5 ft IN WEATHERED ROCK	
1030																
1025																
1020																

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT_GDT 9/3/10

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST Elliott, D. C.
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek			GROUND WTR (ft)
BORING NO. EB2-A	STATION 49+73	OFFSET 45 ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.6 ft	TOTAL DEPTH 79.4 ft	NORTHING 728,239	EASTING 1,211,389
DRILL MACHINE CME-550X	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Rose, G. K.	START DATE 07/22/10	COMP. DATE 07/22/10	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1095														1,094.6	0.0	GROUND SURFACE
																Embankment: Red and Brown sandy silt
1090	1,090.7	3.9	2	3	5											
1085	1,085.7	8.9	3	5	6											
1080	1,080.7	13.9	3	3	4											
1075	1,075.7	18.9	2	4	7											
1070	1,070.7	23.9	2	3	5											
1065	1,065.7	28.9	4	6	9											
1060	1,060.7	33.9	2	4	6											
1055	1,055.7	38.9	1	1	2											
1050	1,050.7	43.9	4	2	4											
1045	1,045.7	48.9	3	4	8											
1040	1,040.7	53.9	4	6	8											
1035	1,035.7	58.9	5	10	12											
1030	1,030.7	63.9	14	19	27											
1025	1,026.3	68.3	14	55	45/2											
1020	1,020.7	73.9	30	80/3												
1015	1,015.7	78.9														

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST Elliott, D. C.
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek			GROUND WTR (ft)
BORING NO. EB2-A	STATION 49+73	OFFSET 45 ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.6 ft	TOTAL DEPTH 79.4 ft	NORTHING 728,239	EASTING 1,211,389
DRILL MACHINE CME-550X	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Rose, G. K.	START DATE 07/22/10	COMP. DATE 07/22/10	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1015																
1010																
1005																
1000																
995																
990																
985																
980																
975																
970																
965																
960																
955																
950																
945																
940																
935																

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT.GDT 9/9/10

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT.GDT 9/9/10

PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)									
BORING NO. EB2-C		STATION 49+73		OFFSET 2 ft RT		ALIGNMENT -Y1-										
COLLAR ELEV. 1,094.0 ft		TOTAL DEPTH 79.0 ft		NORTHING 728,283		EASTING 1,211,375										
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Rose, G. K.		START DATE 07/21/10		COMP. DATE 07/21/10		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						
1095														1,094.0	0.0	GROUND SURFACE
																Embankment: Tan to red brown sandy silt with silty sand lifts
1090	1,090.3	3.7	3	1	2											
1085	1,085.3	8.7	1	4	6											
1080	1,080.3	13.7	2	3	5											
1075	1,075.3	18.7	3	5	6											
1070	1,070.3	23.7	2	3	5											Embankment: Red silty clay
1065	1,065.3	28.7	6	7	12											Creek Terrace: Tan clayey sand with subrounded quartz gravel
1060	1,060.3	33.7	1	1	1											Saprolite: tan black and white sandy silt
1055	1,055.3	38.7	1	3	5											
1050	1,050.3	43.7	3	6	8											
1045	1,045.3	48.7	5	7	12											
1040	1,040.3	53.7	4	9	15											
1035	1,035.3	58.7	11	16	21											
1030	1,030.3	63.7	9	19	33											
1025	1,025.3	68.7														
1020	1,020.3	73.7														
1015	1,015.3	78.7														

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT_GDT 9/3/10

PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)									
BORING NO. EB2-C		STATION 49+73		OFFSET 2 ft RT		ALIGNMENT -Y1-										
COLLAR ELEV. 1,094.0 ft		TOTAL DEPTH 79.0 ft		NORTHING 728,283		EASTING 1,211,375										
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Rose, G. K.		START DATE 07/21/10		COMP. DATE 07/21/10		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						
1015																
1010																
1005																
1000																
995																
990																
985																
980																
975																
970																
965																
960																
955																
950																
945																
940																
935																

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT_GDT 9/3/10

PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.									
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 49+73		OFFSET 43 ft RT		ALIGNMENT -Y1-									
COLLAR ELEV. 1,095.4 ft		TOTAL DEPTH 74.5 ft		NORTHING 728,322		EASTING 1,211,362									
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Rose, G. K.		START DATE 07/20/10		COMP. DATE 07/20/10		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1100															
1095														1,095.4	0.0
														Embarkment: Tan to red brown sandy silt	
1090	1,091.5	3.9	2	3	3										
1085	1,086.5	8.9	2	3	3									1,085.4	10.0
														Embarkment: Red silty clay	
1080	1,081.5	13.9	3	4	4										
1075	1,076.5	18.9	3	4	5										
1070	1,071.5	23.9	3	6	8										
1065	1,066.5	28.9	4	8	10									1,068.9	26.5
														Creek Terrace: Tan clayey sand with subrounded quartz gravel	
1060	1,061.5	33.9	2	1	2										
1055	1,056.5	38.9	1	1	4										
1050	1,051.5	43.9	5	5	8										
1045	1,046.5	48.9	4	5	5										
1040	1,041.5	53.9	4	6	11										
1035	1,036.5	58.9	18	18	25										
1030	1,031.5	63.9	79	21/2										1,034.7	60.7
														Weathered Rock	
1025	1,026.5	68.9	25	75/4										1,034.7	60.7
1020	1,021.5	73.9	85	15/1										1,020.9	74.5
														Boring Terminated at Elevation 1,020.9 ft in	

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT_GDT 9/3/10

PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST Elliott, D. C.									
SITE DESCRIPTION Replace Culvert 139 on I-40 over East Prong Hunting Creek							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 49+73		OFFSET 43 ft RT		ALIGNMENT -Y1-									
COLLAR ELEV. 1,095.4 ft		TOTAL DEPTH 74.5 ft		NORTHING 728,322		EASTING 1,211,362									
DRILL MACHINE CME-550X		DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Rose, G. K.		START DATE 07/20/10		COMP. DATE 07/20/10		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1020															
														Match Line	
1015															
														weathered rock	
1010															
1005															
1000															
995															
990															
985															
980															
975															
970															
965															
960															
955															
950															
945															
940															

NCDOT BORE SINGLE U2550B GEO BORINGS.GPJ NC_DOT_GDT 9/3/10



SHEET

FIELD SCOUR REPORT

WBS: 34831.1.1 TIP: U-2550B COUNTY: Burke

DESCRIPTION(1): Replace Culvert C-139 on I-40 over East Prong Hunting Creel with Single Span Bridge

EXISTING BRIDGE

Information from: Field Inspection XX Microfilm (reel _____ pos: _____)
 Other (explain) _____

Bridge No.: C-139 Length: _____ Total Bents: _____ Bents in Channel: _____ Bents in Floodplain: _____
 Foundation Type: not visible

EVIDENCE OF SCOUR(2)

Abutments or End Bent Slopes: NA

Interior Bents: NA

Channel Bed: NA

Channel Bank: NA

EXISTING SCOUR PROTECTION

Type(3): concrete wings on all 4 corners

Extent(4): roadbed to creek bed

Effectiveness(5): OK but meandering up upstream may eventually undermine embankment beyond wing.

Obstructions(6): Sand and gravel in boxes

INSTRUCTIONS

- 1 Describe the specific site's location, including route number and body of water crossed.
- 2 Note scour evidence at existing end bents or abutments (e.g. undermining, sloughing, degradations).
- 3 Note existing scour protection (e.g. rip rap).
- 4 Describe extent of existing scour protection.
- 5 Describe whether or not the scour protection appears to be working.
- 6 Note obstructions such as dams, fallen trees, debris at bents, etc.
- 7 Describe the channel bed material based on observation and/or samples. Include any lab results with report.
- 8 Describe the channel bank material based on observation and/or samples. Include any lab results with report.
- 9 Describe the material covering the banks (e.g. grass, trees, rip rap, none).
- 10 Determine the approximate floodplain width from field observation or a topographic map.
- 11 Describe the material covering the floodplain (e.g. grass, trees, crops).
- 12 Use professional judgement to specify if the stream is degrading, aggrading, or static.
- 13 Describe potential and direction of the stream to migrate laterally during the bridge's life (approx. 100 years).
- 14 Give the design scour elevation (DSE) expected over the life of the bridge (approx. 100 years). This elevation can be given as a range across the site, or for each bent. Discuss the relationship between the Hydraulics Unit theoretical scour and the DSE. If the DSE is dependent on scour counter measures, explain (e.g. rip rap armoring on slopes). The DSE is based on the erodability of materials, giving consideration to the influence of joints, foliation, bedding characteristics, % core recovery, % RQD, differential weathering, shear strength, observations at existing structures, other tests deemed appropriate, and overall geologic conditions at the site.

DESIGN INFORMATION

Channel Bed Material(7): fine sand with occasional gravel bars

Channel Bank Material(8): Silty sand

Channel Bank Cover(9): Bare and near vertical

Floodplain Width(10): Approx 400 feet wide with extensive areas of fill up and downstream.

Floodplain Cover(11): forest

Stream is(12): Aggrading XX Degrading _____ Static _____

Channel Migration Tendency(13): from EB2 towards EB1 or to the east

Observations and Other Comments: Basin is sediment choked. Gravel and cobbles are minimal. Creek has numerous potential bottlenecks downstream.

DESIGN SCOUR ELEVATIONS(14)

Feet X Meters _____

BENTS

	B1	B2	B3	B4						
SB Lanes, Lt										
SB Lanes, Rt										
NB Lanes, Lt										
NB Lanes, Rt										

Comparison of DSE to Hydraulics Unit theoretical scour:

The GEU agrees with the Theoretical Scour shown on the BSR dated 3/25/2101.

Based on the 100 year scour the End Bents will not be affected.

SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL

Bed or Bank										
Sample No.										
Retained #4										
Passed #10										
Passed #40										
Passed #200										
Coarse Sand										
Fine Sand										
Silt										
Clay										
LL										
PI										
AASHTO										
Station										
Offset										
Depth										

Reported by: _____

PQ Lockamy
PQ Lockamy

Date: 9/7/2010

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. U-2550B F.A. PROJ. STPNHF-M-8165(1)

COUNTY BURKE

PROJECT DESCRIPTION MORGANTON - N.C. 18 (STERLING STREET)
AND I-40 INTERCHANGE

SITE DESCRIPTION BRIDGE NO. 140 AND 142 ON -YI- (I-40) OVER
-L- (N.C. 18)

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-8	CROSS SECTIONS
9-14	BORE LOGS AND CORE REPORTS
15	TEST RESULTS
16-44	TRIGON ENGINEERING REPORT-PROJECT NO. 8.1851001-1995

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.

PROJECT: 34831.1.1 ID: U-2550B

PERSONNEL

P.Q. LOCKAMY

J.T. WILLIAMS

C.J. COFFEY

R.D. CHILDERS

J.D. HARDISTER

B. KING

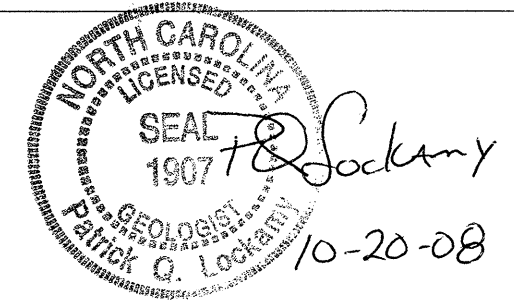
A. WARREN

INVESTIGATED BY P.Q. LOCKAMY

CHECKED BY W.D. FRYE

SUBMITTED BY W.D. FRYE

DATE 10.20.08

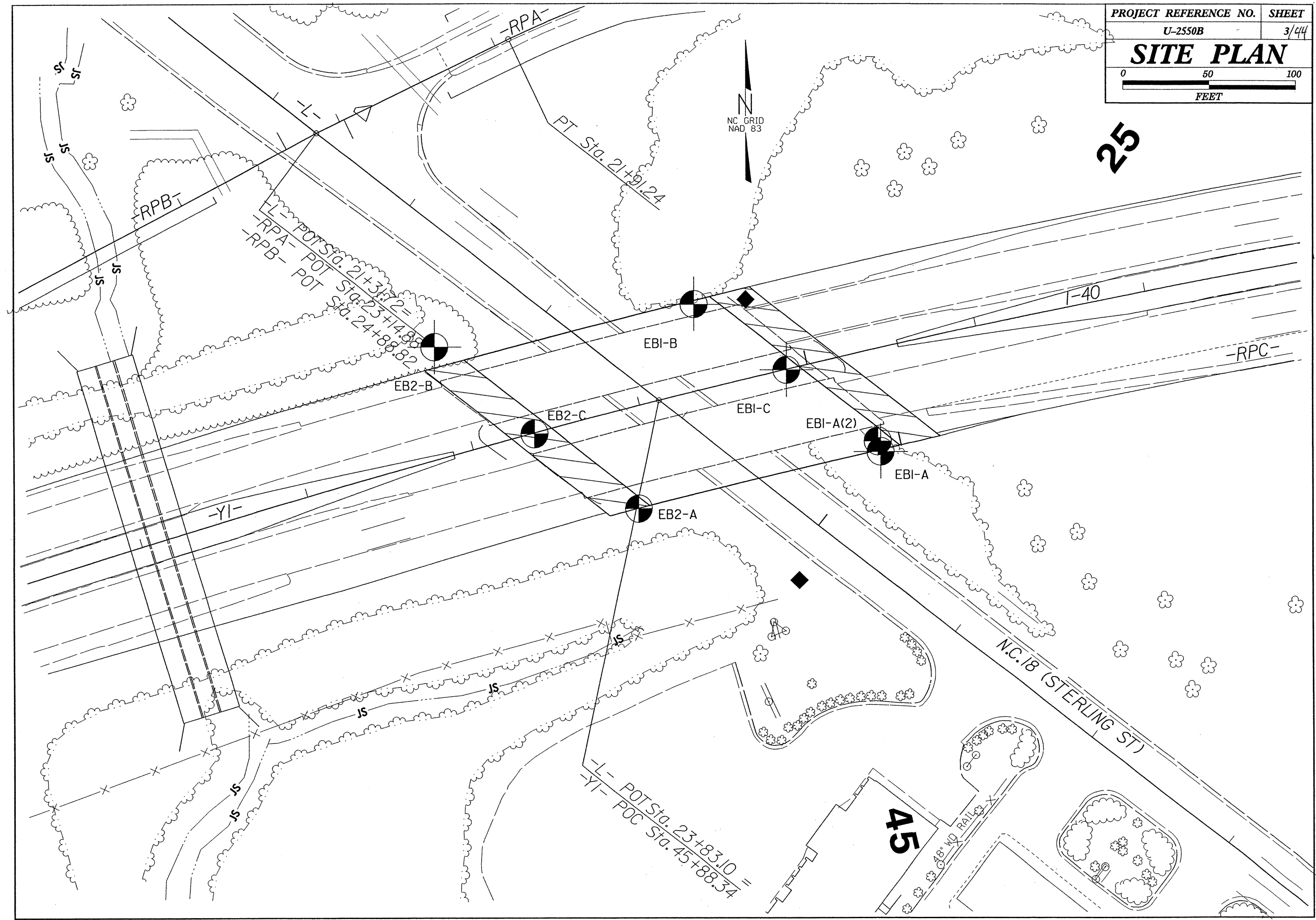


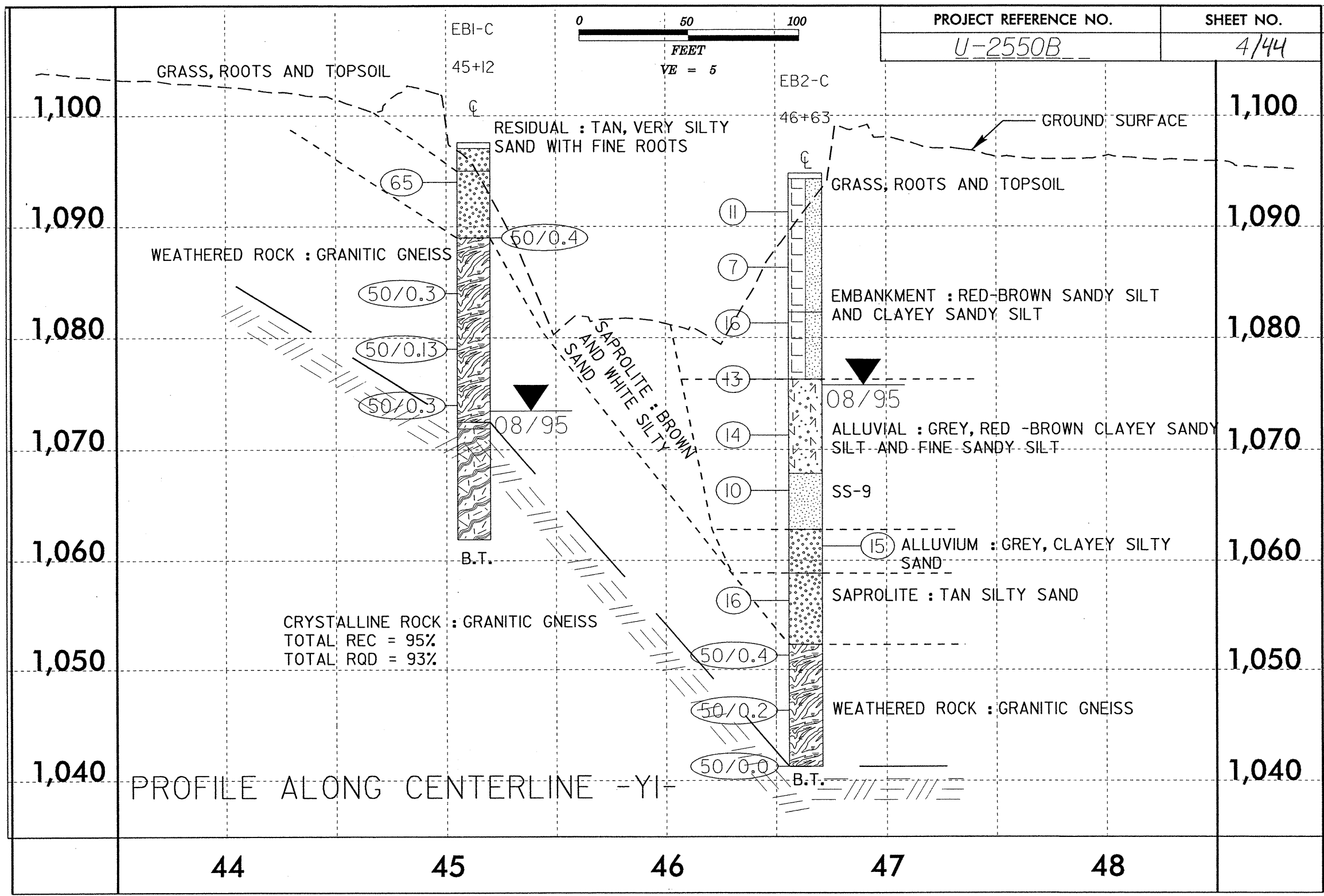
DRAWN BY: J.T. WILLIAMS

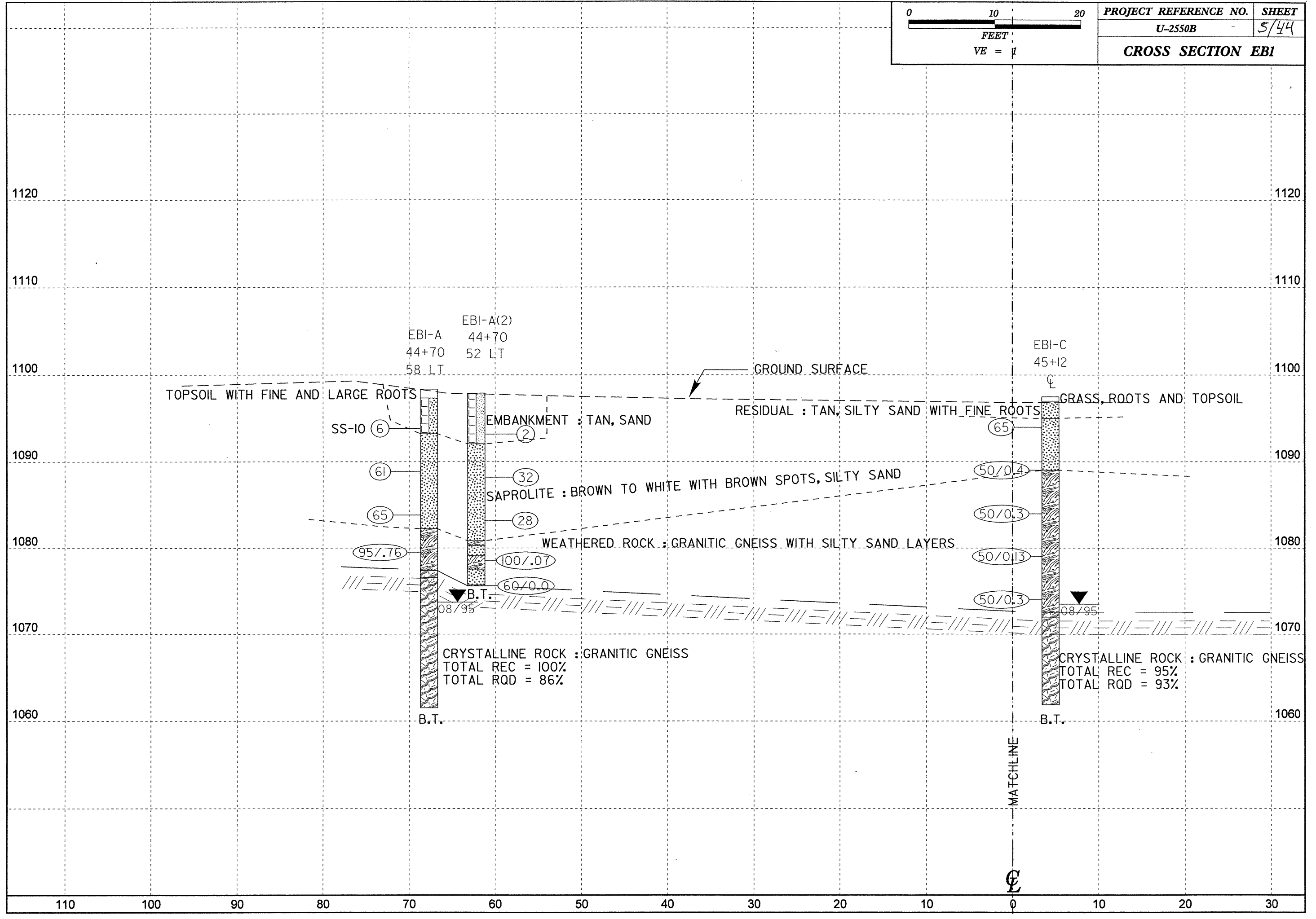
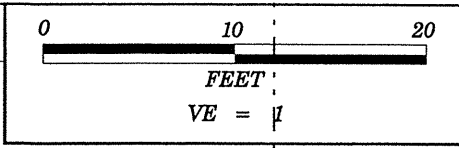
NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

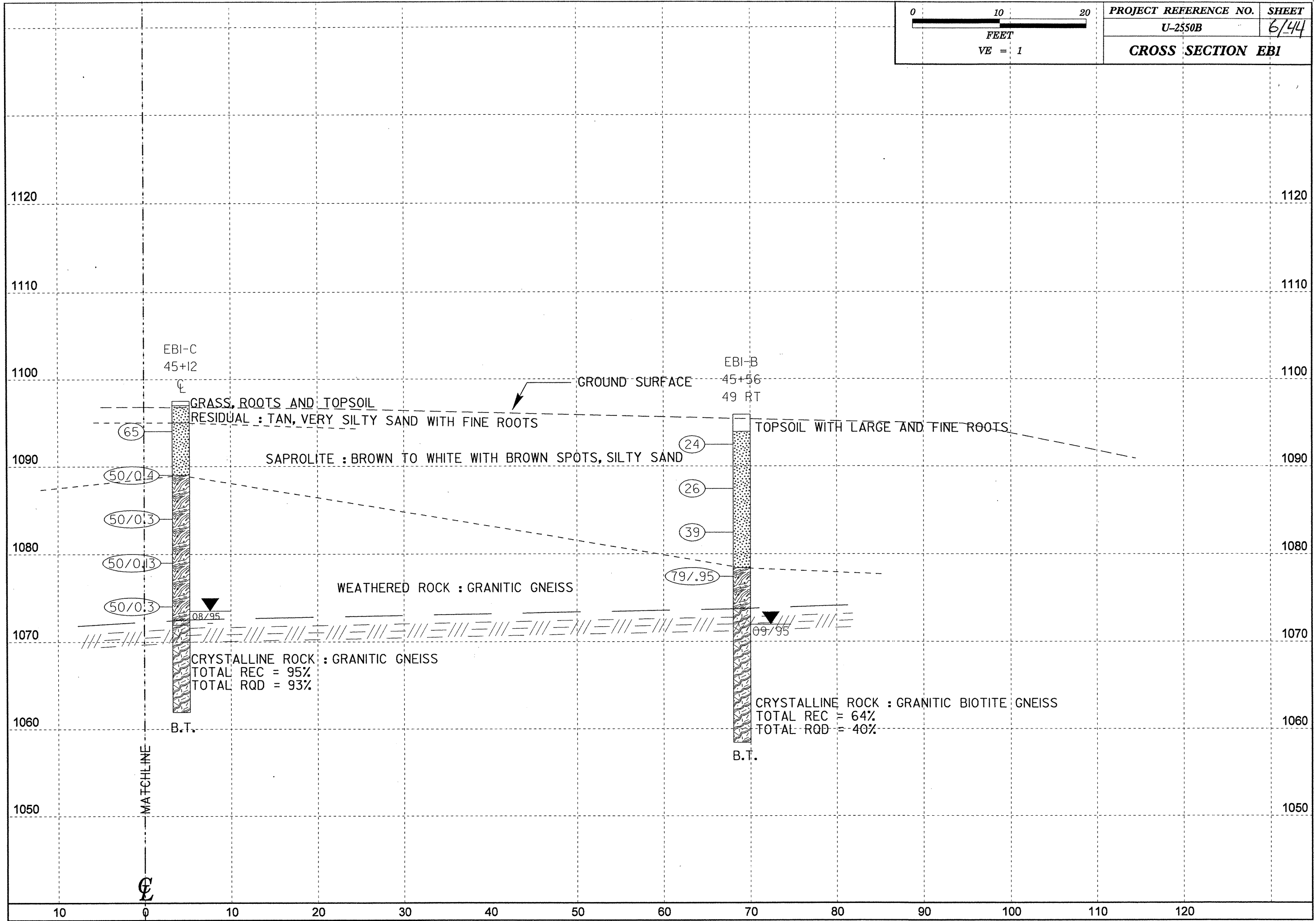
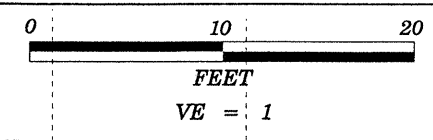
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

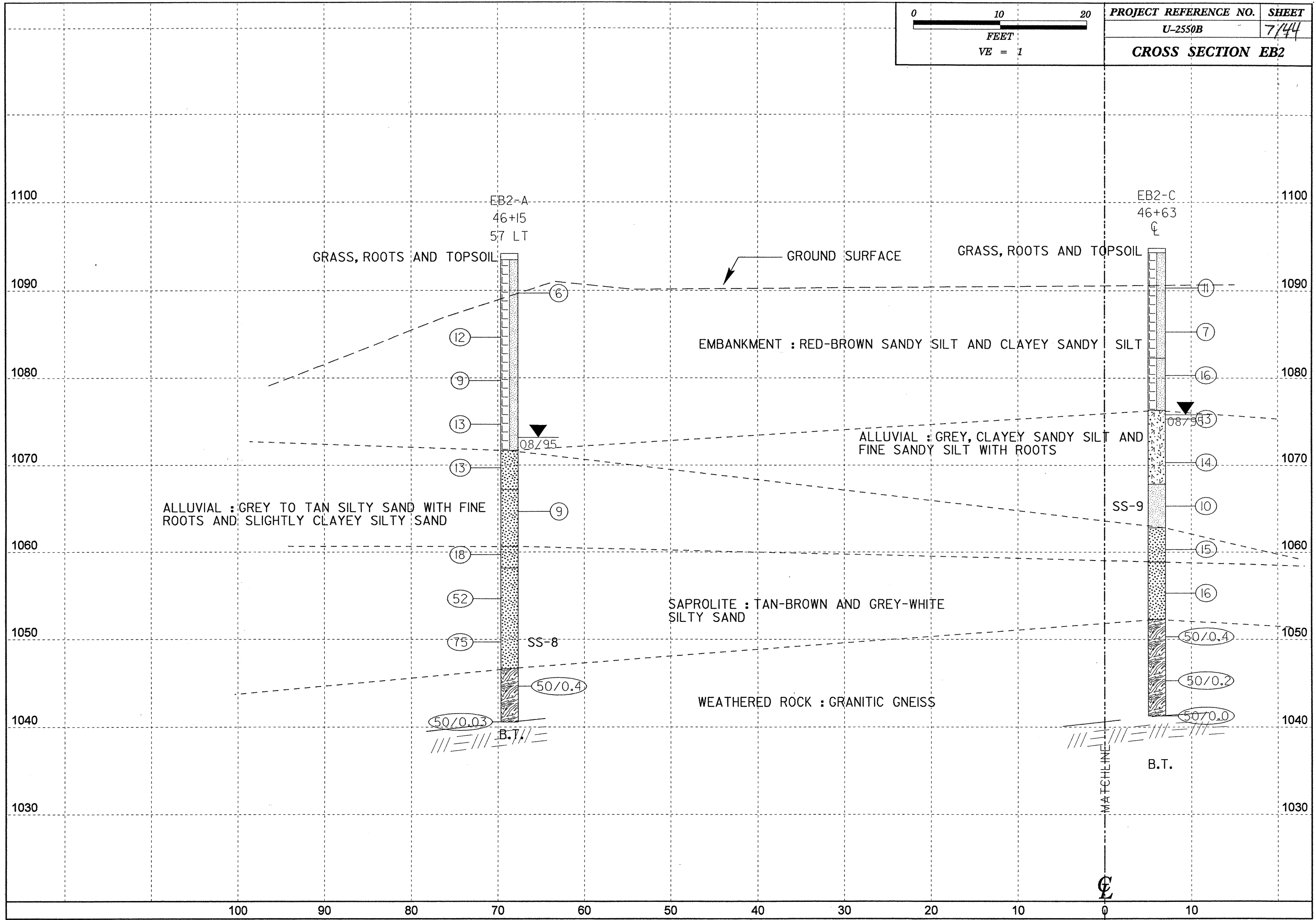
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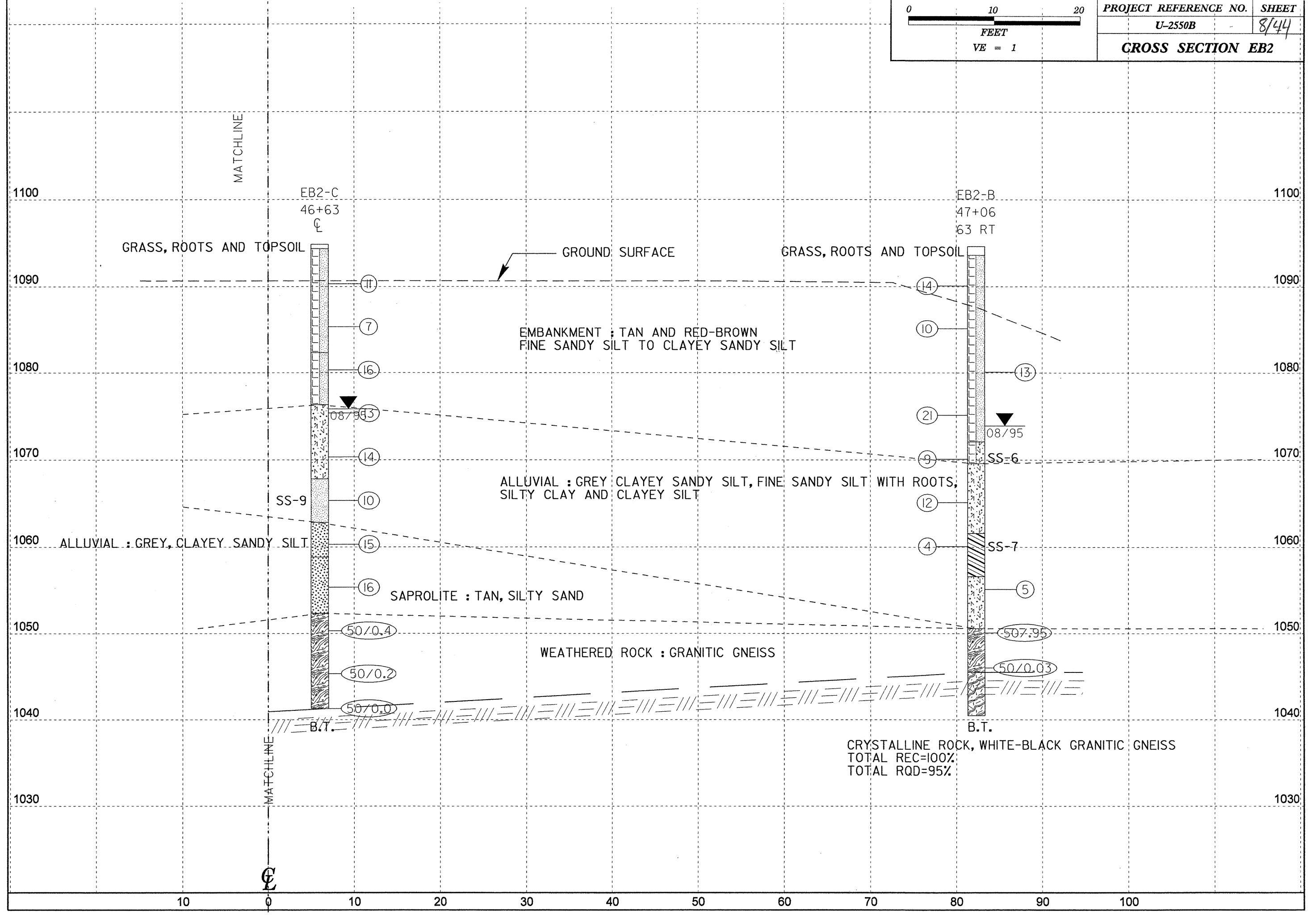
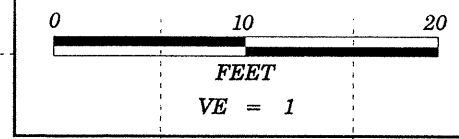












PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB1-A	STATION 44+70	OFFSET 58ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,098.6 ft	TOTAL DEPTH 36.8 ft	NORTHING 728,358	EASTING 1,211,873
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/24/95	COMP. DATE 08/24/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 21.0 ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
1100													1,098.6 GROUND SURFACE 0.0	
													1,097.6 TOPSOIL WITH FINE AND LARGE ROOTS 1.0	
1095	1,095.1	3.5	2	3	3						SS-10	W	1,093.5 EMBANKMENT: TAN SAND 5.1	
1090	1,090.1	8.5	16	27	34							M	RESIDUAL BROWN, BLACK AND WHITE SILTY SAND	
1085	1,085.1	13.5	16	29	36							M		
1080	1,080.1	18.5	45	50/3								M	1,082.5 WEATHERED ROCK GRANITIC GNEISS 16.1	
1075													1,077.6 CRYSTALLINE ROCK GRANITIC GNEISS 21.0	
													1,076.8 CRYSTALLINE ROCK GRANITIC GNEISS 21.8	
1070														
1065														
1060													1,061.8 Boring Terminated at Elevation 1,061.8 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS) 36.8	
1055														
1050														
1045														
1040														
1035														
1030														
1025														
1020														

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/20/08

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB1-A	STATION 44+70	OFFSET 58ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,098.6 ft	TOTAL DEPTH 36.8 ft	NORTHING 728,358	EASTING 1,211,873
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/24/95	COMP. DATE 08/24/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 20.1 ft

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
1076.8											Begin Coring @ 21.8 ft	
1075	1,076.8	21.8	5.0		(5.0)	(3.5)					CRYSTALLINE ROCK (continued)	
					100%	71%						
					REC=100%	RQD=71%						
1070	1,071.8	26.8	5.0		(5.0)	(4.8)						
	1,071.8	26.8			100%	95%						
					REC=100%	RQD=95%						
1065	1,066.8	31.8	5.0		(5.0)	(4.6)						
					100%	92%						
					REC=100%	RQD=92%						
1060	1,061.8	36.8									Boring Terminated at Elevation 1,061.8 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)	36.8
1055												
1050												
1045												
1040												
1035												
1030												
1025												
1020												
1015												
1010												
1005												
1000												

NCDOT CORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/16/08



PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST Lockamy, P. Q.
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB1-A(2)	STATION 44+70	OFFSET 52ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,097.9 ft	TOTAL DEPTH 22.3 ft	NORTHING 728,364	EASTING 1,211,872
DRILL MACHINE CME-550X	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 08/26/08	COMP. DATE 08/26/08	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 22.2 ft

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					
1100															
														1,097.9	0.0
1095	1,094.2	3.7													
														1,092.1	5.8
1090	1,089.2	8.7	1	1	1										
1085	1,084.2	13.7													
1080	1,079.2	18.7												1,080.9	17.0
														1,080.3	17.6
														1,079.1	18.8
														1,077.5	20.4
														1,075.7	22.2
1075	1,075.6	22.3	60/0.0											1,075.6	22.3
1070															
1065															
1060															
1055															
1050															
1045															
1040															
1035															
1030															
1025															
1020															

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ_NC_DOT.GDT_10/20/08

Boring Terminated with Standard Penetration Test Refusal at Elevation 1,075.6 ft ON CRYSTALLINE ROCK (GRANITIC GNEISS)

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB1-C	STATION 45+12	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 1,097.5 ft	TOTAL DEPTH 35.6 ft	NORTHING 728,404	EASTING 1,211,819
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/23/95	COMP. DATE 08/23/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 25.0 ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
1100																
														1,097.5	0.0	GROUND SURFACE
														1,097.6	0.5	GRASS, ROOTS AND TOPSOIL
1095	1,094.0	3.5												1,095.0	2.5	RESIDUAL TAN, SILTY SAND WITH ROOTS
			17	31	34											SAPROLITE BROWN AND WHITE SILTY SAND
1090	1,089.0	8.5												1,089.0	8.5	WEATHERED ROCK GRANITIC GNEISS
1085	1,084.0	13.5														
1080	1,079.0	18.5														
1075	1,074.0	23.5														
1070														1,072.5	25.0	CRYSTALLINE ROCK GRANITIC GNEISS
														1,071.9	25.6	CRYSTALLINE ROCK GRANITIC GNEISS TOTAL REC= 95% TOTAL RQD= 93%
1065																
1060														1,061.9	35.6	Boring Terminated at Elevation 1,061.9 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)
1055																
1050																
1045																
1040																
1035																
1030																
1025																
1020																

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/20/08

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB1-C	STATION 45+12	OFFSET Off LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,097.5 ft	TOTAL DEPTH 35.6 ft	NORTHING 728,404	EASTING 1,211,819
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/23/95	COMP. DATE 08/23/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 25.0 ft

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
1071.92												
1070	1,071.9	25.6	5.0		(4.8) 95%	(4.6) 93%					Begin Coring @ 25.6 ft CRYSTALLINE ROCK (continued)	
	1,066.9	30.6										
1065			5.0		(4.7) 94%	(4.6) 93%						
	1,061.9	35.6									Boring Terminated at Elevation 1,061.9 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)	35.6
1060												
1055												
1050												
1045												
1040												
1035												
1030												
1025												
1020												
1015												
1010												
1005												
1000												
995												

NCDOT CORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/16/08

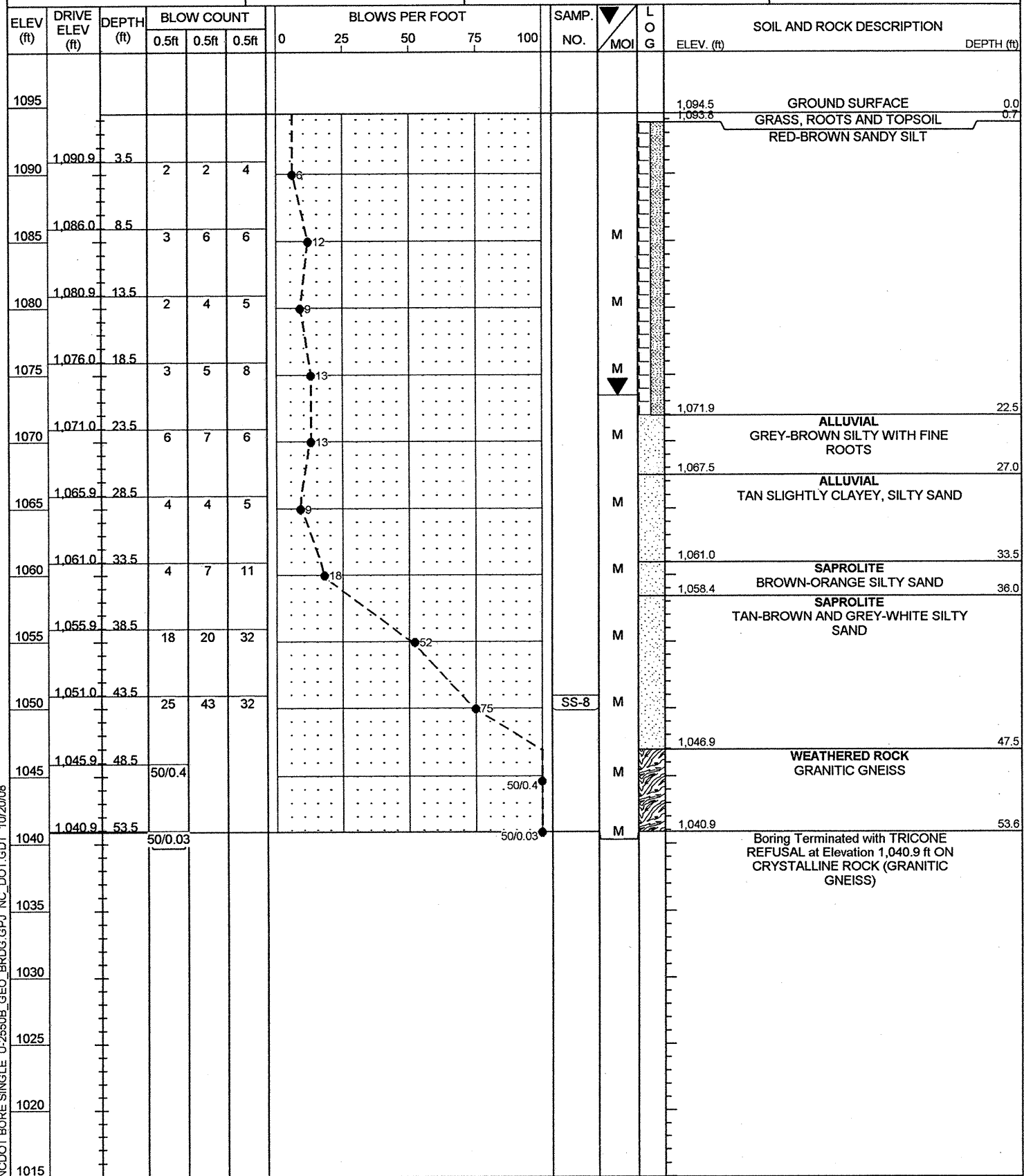
PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST N/A										
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 45+56		OFFSET 49ft RT		ALIGNMENT -Y1-										
COLLAR ELEV. 1,095.9 ft		TOTAL DEPTH 37.5 ft		NORTHING 728,442		EASTING 1,211,765										
DRILL MACHINE CME-45 SKID		DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
START DATE 09/05/95		COMP. DATE 09/05/95		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 23.2 ft										
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						
1100																
1095														1,095.9	GROUND SURFACE	0.0
														1,094.0	TOPSOIL WITH FINE AND LARGE ROOTS	2.0
1090	1,092.4	3.5	9	13	11							M			RESIDUAL BROWN-ORANGE AND BROWN, BLACK AND WHITE SILTY SAND	
1085	1,087.4	8.5	8	14	12							M				
1080	1,082.4	13.5	10	15	24							M				
1075	1,077.4	18.5	29	50/45								M		1,078.4	WEATHERED ROCK GRANITIC GNEISS	17.5
1070														1,072.7	CRYSTALLINE ROCK GRANITIC GNEISS	23.2
1065																
1060																
1055														1,058.5	Boring Terminated at Elevation 1,058.5 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)	37.5
1050																
1045																
1040																
1035																
1030																
1025																
1020																
1015																
1010																
1005																
1000																
995																
1020																

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/20/08

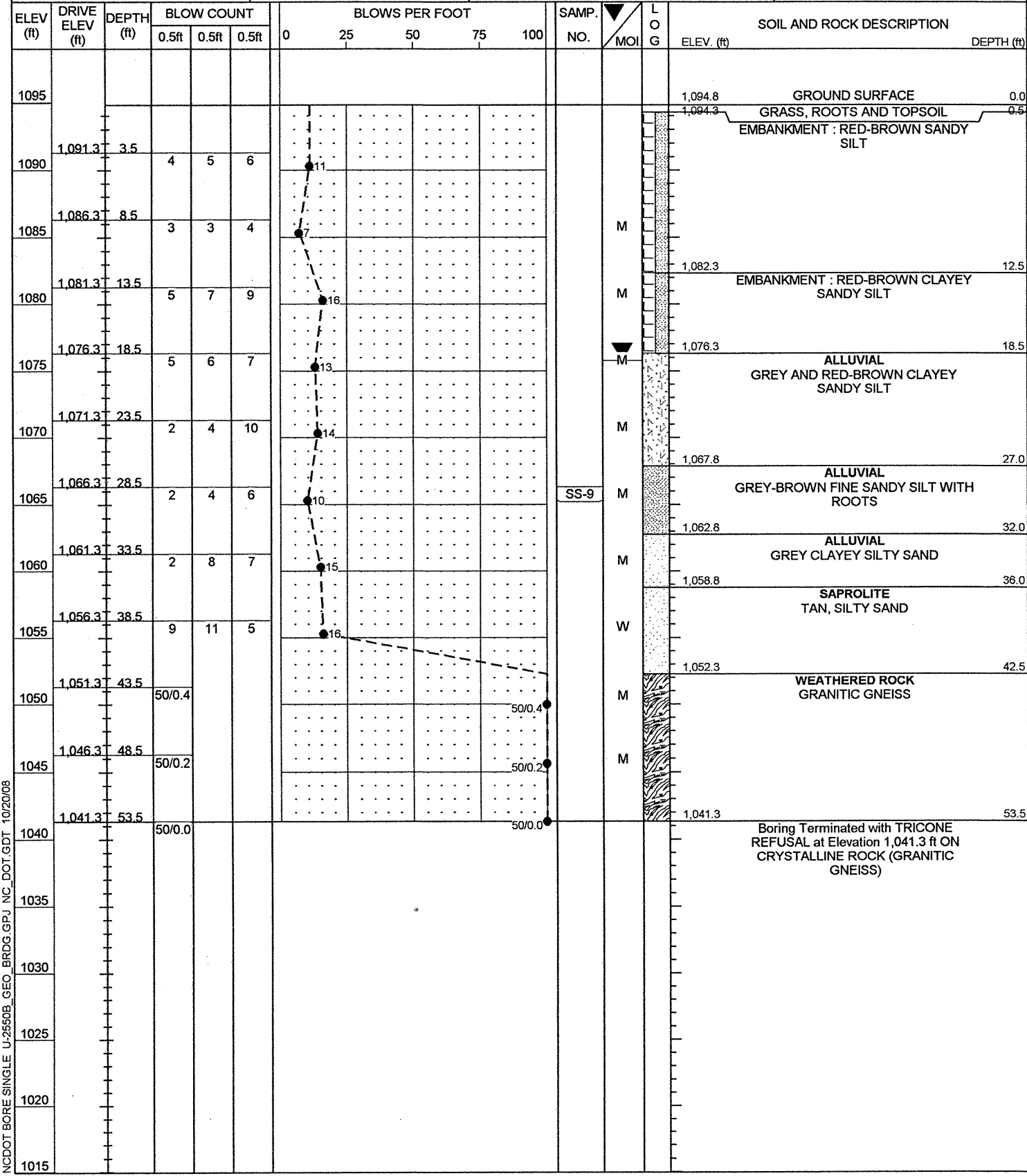
PROJECT NO. 34831.1.1		ID. U-2550B		COUNTY BURKE		GEOLOGIST N/A						
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE							GROUND WTR (ft)					
BORING NO. EB1-B		STATION 45+56		OFFSET 49ft RT		ALIGNMENT -Y1-						
COLLAR ELEV. 1,095.9 ft		TOTAL DEPTH 37.5 ft		NORTHING 728,442		EASTING 1,211,765						
DRILL MACHINE CME-45 SKID		DRILL METHOD Mud Rotary			HAMMER TYPE Automatic							
START DATE 09/05/95		COMP. DATE 09/05/95		SURFACE WATER DEPTH N/A		DEPTH TO ROCK 23.2 ft						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
1072.74	1,072.7	23.2	1.0		(1.0)	(0.4)					Begin Coring @ 23.2 ft	
1070	1,071.8	24.2	5.0		100%	37%					WEATHERED ROCK (continued)	23.2
					(0.8)	REC=98%					CRYSTALLINE ROCK	
					16%	RQD=37%						
1065	1,066.8	29.2	2.0		(1.6)	REC=16%						
	1,064.8	31.2	1.3		79%	RQD=0%						
	1,063.4	32.5	5.0		(1.3)	REC=0%						
					100%	RQD=0%						
1060					(4.9)	REC=48%						
					98%	RQD=0%						
					(0.6)	REC=41%						
1055						RQD=42%						
					(4.8)	REC=97%						
						RQD=97%						
1050												
1045												
1040												
1035												
1030												
1025												
1020												
1015												
1010												
1005												
1000												
995												

NCDOT CORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/16/08

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB2-A	STATION 46+15	OFFSET 57ft LT	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.5 ft	TOTAL DEPTH 53.6 ft	NORTHING 728,325	EASTING 1,211,733
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/29/95	COMP. DATE 08/29/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB2-C	STATION 46+63	OFFSET CL	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.8 ft	TOTAL DEPTH 53.5 ft	NORTHING 728,368	EASTING 1,211,672
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/21/95	COMP. DATE 08/21/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ_NC_DOT.GDT 10/20/08

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ_NC_DOT.GDT 10/20/08

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB2-B	STATION 47+06	OFFSET 63ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.6 ft	TOTAL DEPTH 54.1 ft	NORTHING 728,418	EASTING 1,211,614
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/30/95	COMP. DATE 08/30/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 49.1 ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1095													1,094.6	0.0	GROUND SURFACE
													1,093.6	1.0	GRASS, ROOTS AND TOPSOIL
															EMBANKMENT: TAN AND RED-BROWN SANDY SILT
1090	1,091.1	3.5	4	5	9										
1085	1,086.1	8.5	3	4	6										
1080	1,081.1	13.5	3	6	7										
1075	1,076.1	18.5	5	9	12										
1070	1,071.1	23.5	3	3	6								1,072.1	22.5	RED-BROWN CLAYEY SANDY SILT
													1,069.6	25.0	ALLUVIAL GREY CLAYEY SILT WITH ROOTS
1065	1,066.1	28.5	3	4	8										
1060	1,061.1	33.5	2	2	2								1,061.6	33.0	ALLUVIAL GREY SILTY CLAY
1055	1,056.1	38.5	2	1	4								1,056.6	38.0	ALLUVIAL GREY CLAYEY SILT WITH ROOTS
1050	1,051.1	43.5	9	50/45									1,050.6	44.0	WEATHERED ROCK GRANITIC GNEISS
1045	1,046.1	48.5	50/0.03										1,045.5	49.1	CRYSTALLINE ROCK GRANITIC GNEISS REC=100% RQD=95%
1040													1,040.5	54.1	Boring Terminated at Elevation 1,040.5 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)

NCDOT BORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/20/08

PROJECT NO. 34831.1.1	ID. U-2550B	COUNTY BURKE	GEOLOGIST N/A
SITE DESCRIPTION MORGANTON-NC 18 (STERLING STREET) AND I-40 INTERCHANGE			GROUND WTR (ft)
BORING NO. EB2-B	STATION 47+06	OFFSET 63ft RT	ALIGNMENT -Y1-
COLLAR ELEV. 1,094.6 ft	TOTAL DEPTH 54.1 ft	NORTHING 728,418	EASTING 1,211,614
DRILL MACHINE CME-45 SKID	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 08/30/95	COMP. DATE 08/30/95	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 49.1 ft

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC.		SAMP. NO.	STRATA REC.		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					(ft)	(%)		(ft)	(%)			
1045.5											Begin Coring @ 49.1 ft	
	1,045.5	49.1	5.0		(5.0)	(4.8)		(5.0)	(4.8)		CRYSTALLINE ROCK	49.1
1040	1,040.5	54.1			100%	95%		100%	95%		Boring Terminated at Elevation 1,040.5 ft IN CRYSTALLINE ROCK (GRANITIC GNEISS)	54.1
1035												
1030												
1025												
1020												
1015												
1010												
1005												
1000												
995												
990												
985												
980												
975												
970												

NCDOT CORE SINGLE U-2550B_GEO_BRDG.GPJ NC_DOT.GDT 10/16/08

15/44

SOILS TEST RESULTS

T.I.P. ID # 34831.1.1 BRIDGE ON I-40 OVER NC 18 at Sta. 23+83.10 -L -/45+88.34 -Y1- (2008)

REPORT ON SAMPLES OF: Soils for Classification

PROJECT:	U-2550B	COUNTY:	BURKE	Owner:	--
DATE SAMPLED:	08-95	DATE RECEIVED:		DATE REPORTED:	
SAMPLED FROM:	-Y1-	SAMPLED BY:	JD HARDISTER		
SUBMITTED BY:		STANDARD SPECIFICATION			
LABORATORY:	EXTRACTED FROM TRIGON ENGINEERING CONSULTANTS JOB NUMBER 011-95-132				

TEST RESULTS

Project Sample No.	SS-6	SS-7	SS-8	SS-9	SS-10			
Lab Sample No.								
HiCAMS Sample #	--	--	--	--	--			
Retained #4 Sieve %	--	--	--	--	--			
Passing #10 Sieve %	99	100	99	100	99			
Passing #40 Sieve %	81	95	68	83	63			
Passing #200 Sieve %	57	80	22	59	27			

MINUS #10 FRACTION

Soil Mortar - 100%								
Coarse Sand -Ret. #60	18	5	31	17	36			
Fine Sand - Ret. #270	24	15	47	24	36			
Silt 0.05-0.005 mm %	26	45	22	46	16			
Clay < 0.005 mm %	32	35	0	13	12			
Passing # 40 Sieve %	--	--	--	--	--			
Passing # 200 Sieve %	--	--	--	--	--			

Liquid Limit	45	56	75	40	6			
Plastic Index	10	18	NP	8	NP			
AASHTO Classification	A-5	A-7-5	A-2-4	A-4	A-2-4			
Moisture %	27.2	49.9	15.9	29.7	16.8			
Line	-Y1-	-Y1-	-Y1-	-Y1-	-Y1-			
Station	47+06	47+06	46+15	46+63	44+70			
Offset	63 RT	63 RT	57 LT	CL	58 LT			
Depth (ft) From:	24.0	34.0	44.0	29.0	4.0			
To:	25.0	35.0	45.0	30.0	5.0			

Remarks:

CC:

NORTH CAROLINA DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT
SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS						
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (D 35% PASSING #200)					ORGANIC MATERIALS	PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (IN - VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (KN / m ²)	
GROUP CLASS.	A-1	A-3	A-2			A-4	A-5	A-6	A-7	A-1-A-2	A-4-A-5	A-6-A-7				
SYMBOL																
% PASSING	#10 #40 #200	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX	50 MX 30 MX 15 MX
(PASSING #40)	LL PI	6 MX	N.P.	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX	10 MX 11 MN 12 MX
GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS GRAVEL & SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND			SILTY SOILS	CLAYEY SOILS	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER					GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT	HIGHLY ORGANIC SOILS

TEXTURE OR GRAIN SIZE										
BOULDER	COBBLE	GRAVEL	COARSE SAND	MED. SAND	FINE SAND	SILT	CLAY			
GRAIN (mm) SIZE (NO)	300 12	75 3	2	0.6	0.425	0.2	0.075	0.005		

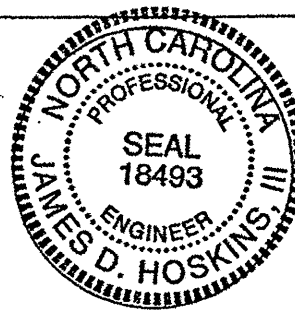
SOIL MOISTURE - CORRELATION OF TERMS		
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL LIQUID LIMIT	-SATURATED- (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PD PL) PLASTIC LIMIT	-WET- (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM OPTIMUM MOISTURE	-MOIST- (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL SHRINKAGE LIMIT	-DRY- (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

ROCK DESCRIPTION		
IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY, TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF "WEATHERED ROCK". FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:		
TERM	SYMBOLS	DESCRIPTION
HARD ROCK (HR)		MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING A SAMPLE
WEATHERED ROCK (WR)		MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL
		MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BLOWS BUT < SPT REFUSAL

¹ SPT REFUSAL ≤ 25 mm OF PENETRATION PER 50 BLOWS IN SPT.
² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:

CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.

ROCK QUALITY DESIGNATION (ROQ) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 100 mm DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.



SEAL
Signature

GROUND WATER

▽ WATER LEVEL IN BORE HOLE [IMMEDIATELY AFTER DRILLING (I.A.D.) SOON AFTER DRILLING (S.A.D.)] (V - VALUE)

▽ STATIC WATER LEVEL (AFTER 24 HRS.)

▽ PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA

▽ SPRING OR SEEPAGE

MISCELLANEOUS SYMBOLS AND ABBREVIATIONS

ROADWAY EMBANKMENT WITH SOIL DESCRIPTION

SOIL SYMBOL

ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS

INFERRED SOIL BOUNDARIES

STRIKE AND DIP

APPARENT DIP (NORMAL TO ...)

ROD SOUNDING

SPT TEST BORING

AUGER BORING

CORE BORING

PIEZOMETER INSTALLATION

SLOPE INDICATOR INSTALLATION

SPT N-VALUE

MONITORING WELL

ABBREVIATIONS

ALLUV.	ALLUVIUM	MIC.	MICACEOUS
AR	AUGER REFUSAL	MOT.	MOTTLED
BLDR.	BOULDER	N	BLOWS / 300 mm
CALC.	CALCAREOUS	NS	NO SAMPLE TAKEN
CL.	CLAY	ORG.	ORGANIC
CLY.	CLAYEY	REF.	REFER TO
COB.	COBBLE	RES.	RESIDUAL
CSE.	COARSE	S.	SOFT
DPT	DYNAMIC PENETRATION TEST	SAT.	SATURATED
EST.	ESTIMATED	SD.	SAND
F.	FINE	SDY.	SANDY
FOSS.	FOSSILIFEROUS	SED(S).	SEDIMENT(S)
FRAC.	FRACTURED	SL.	SILT, SILTY
FRAG(S).	FRAGMENT(S)	SLI.	SLIGHTLY
GR.	GRAVEL	SPT	STANDARD PENETRATION TEST
GS	SPECIFIC GRAVITY	TS.	TOPSOIL
GW	GROUND WATER	VST	VANE SHEAR TEST
MED.	MEDIUM	V.	VERY
		W/	WITH

BENCH MARK: #12 Elev. 327.492M Chiseled
 Square on NW corner of 1.5x1.5m Concrete Slab next to Amoco B-Board-L- STA32+83.2.

STATE PROJECT NO. 8.1851001 23.17m LT

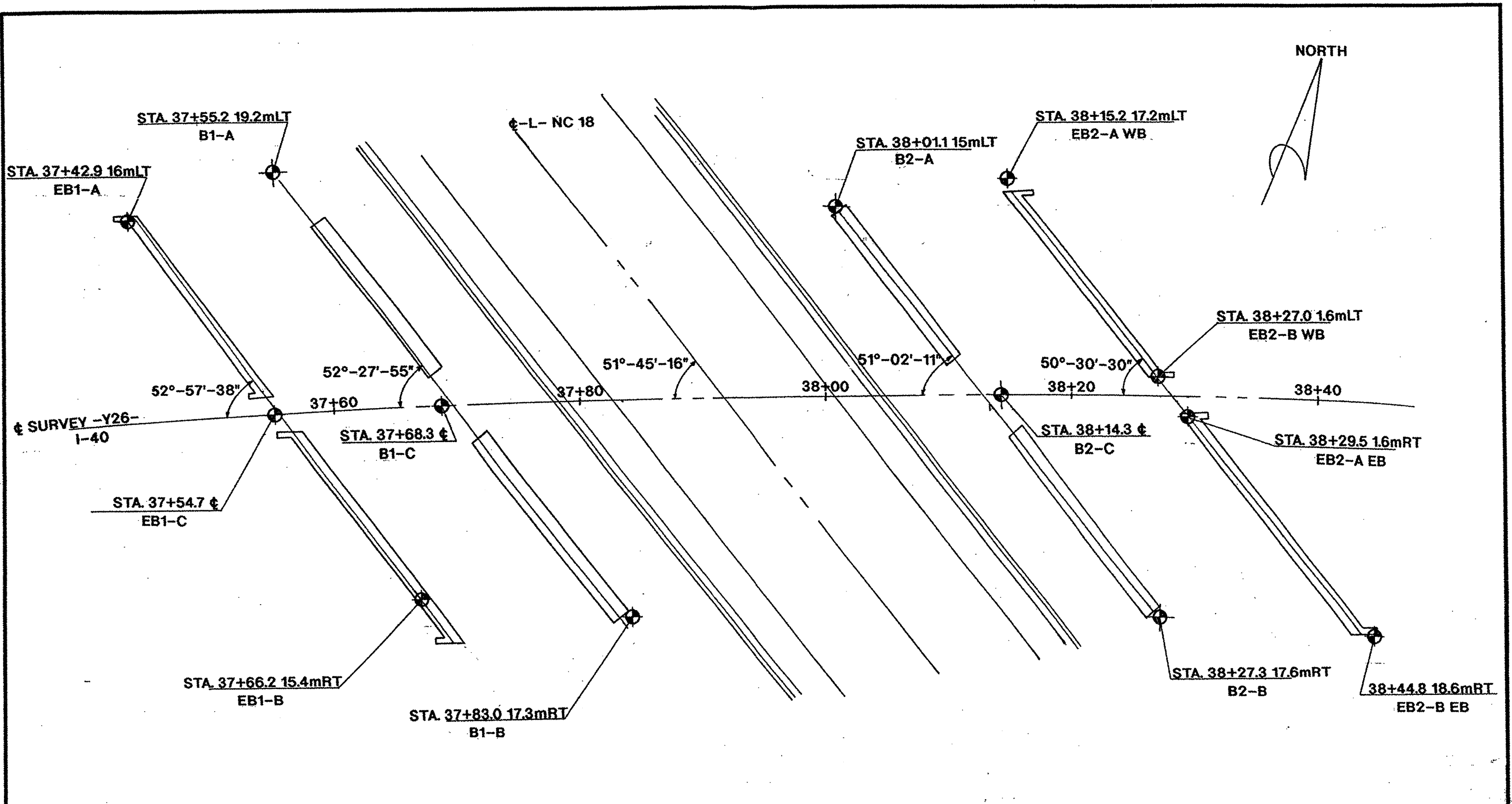
T.J.P. NO. U-2550 F.A. NO. M-8165(1)

COUNTY Burke ROUTE

SITE DESCRIPTION Duals on -Y26-(I-40) at Station 34+69.875 -L- (NC 18)

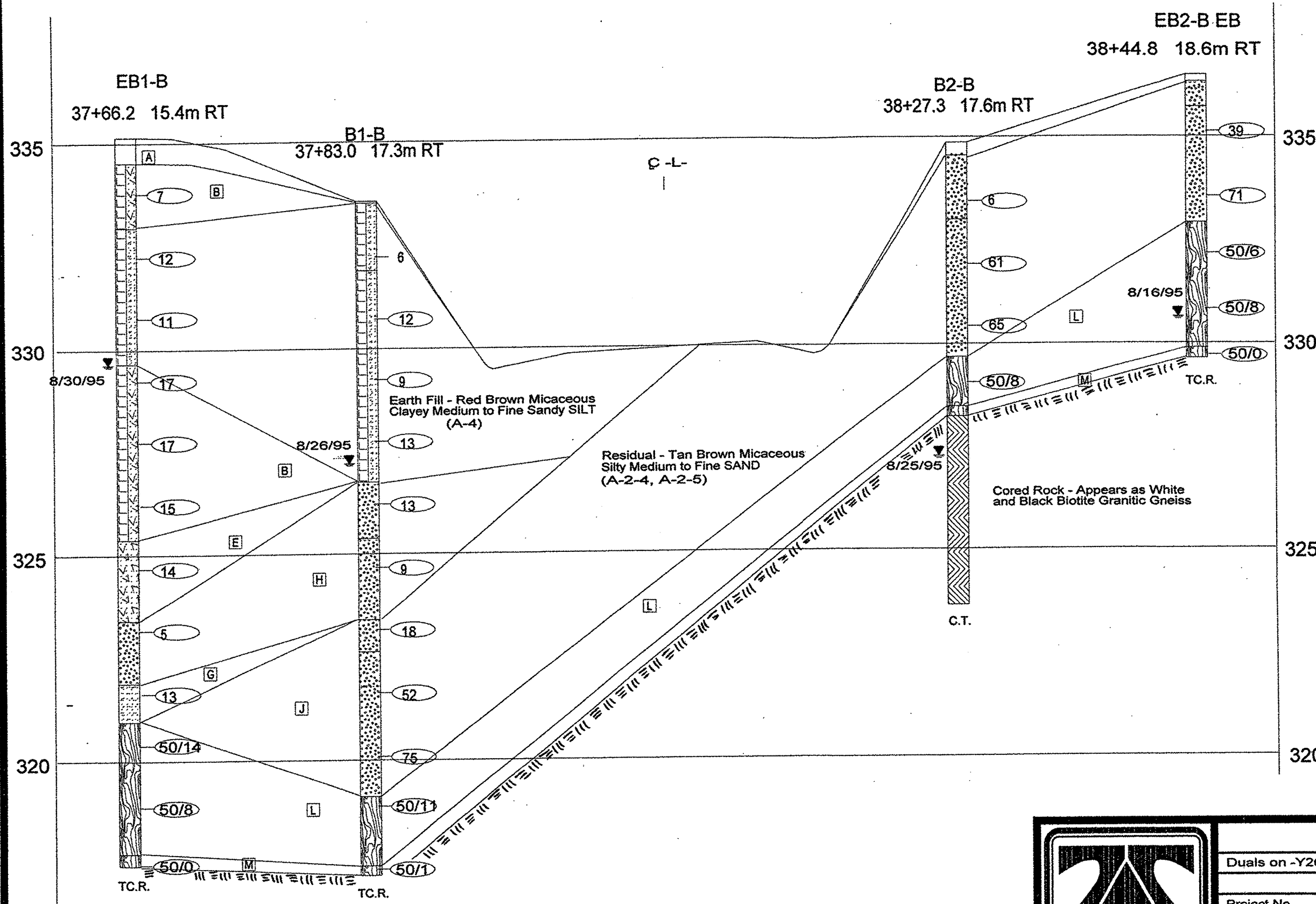
PROJECT GEOLOGIST JD Hardister SUBMITTED BY JD Hoskins

PERSONNEL B. King
D. Kitchen
K. Kleiman DATE SUBMITTED 10-13-95



Boring Identification Diagram

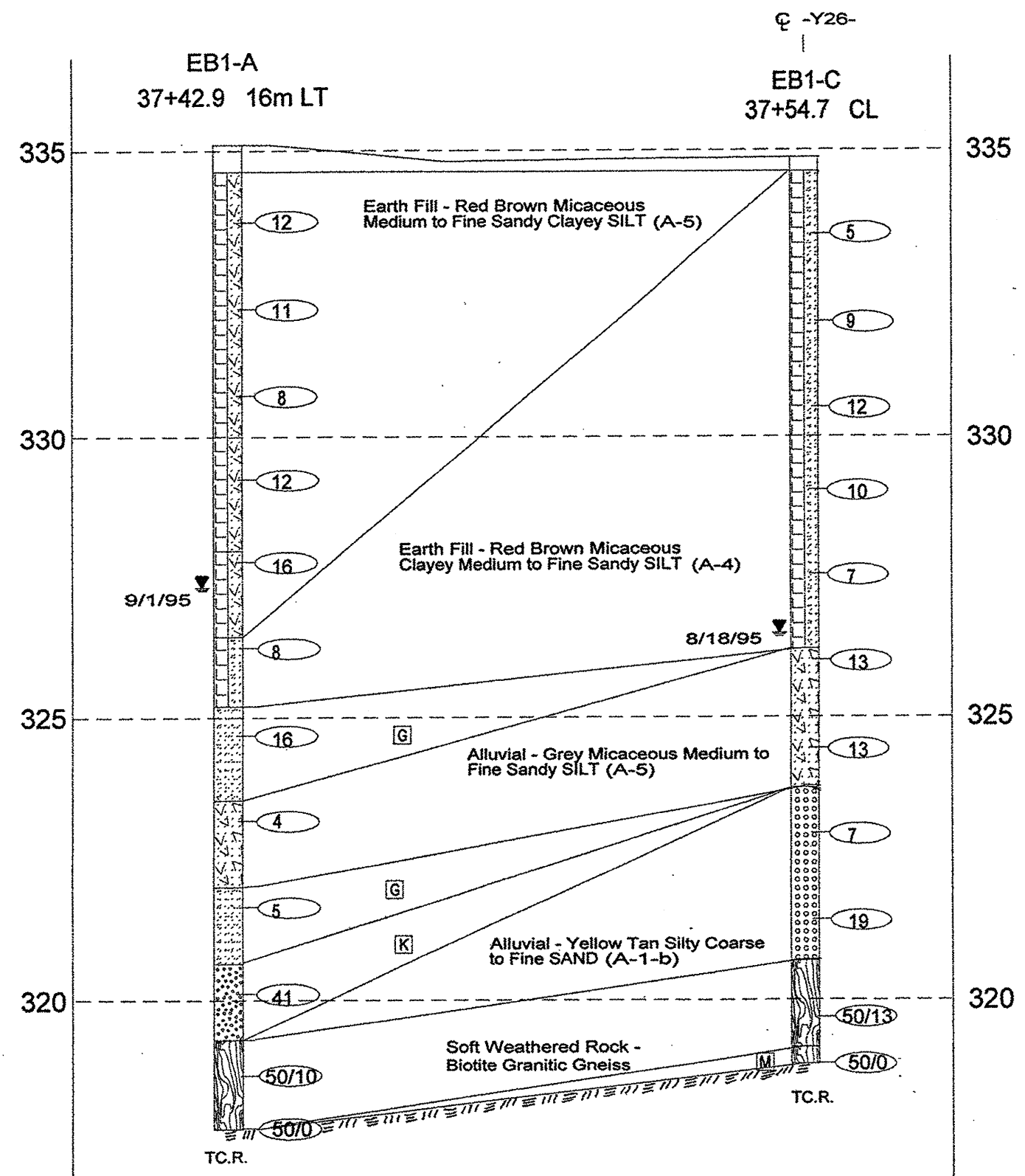
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	N/A
Date	October 13, 1995	Horiz. Scale	1:300
Drawn By	J. Callahan	Drawing No.	1



- A** Grass, Roots, and Topsoil
- B** Earth Fill - Red Brown Micaceous Medium to Fine Sandy Clayey SILT (A-5)
- D** Earth Fill - Red Brown Medium to Fine Sandy SILT (A-4)
- E** Alluvial - Grey Micaceous Medium to Fine Sandy SILT (A-5)
- G** Alluvial - Grey Coarse to Fine Sandy SILT (A-4)
- H** Alluvial - Grey Silty Coarse to Fine SAND (A-2-4, A-2-5)
- L** Soft Weathered Rock - Appears as Grey Brown Micaceous Silty Coarse to Fine SAND
- M** Hard Weathered Rock - Samples as Brown and Black Micaceous Silty Medium to Fine SAND



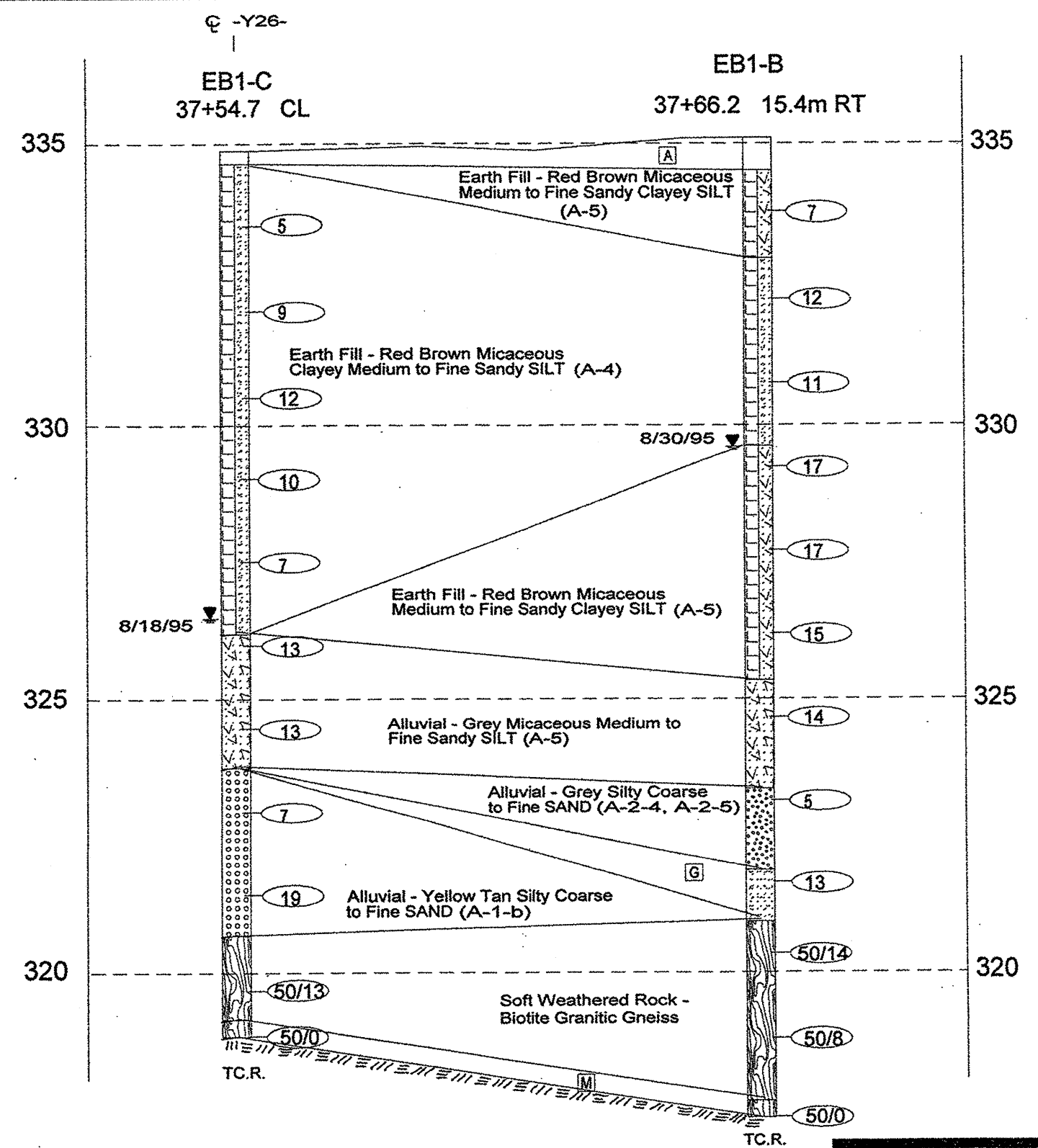
B-Line Profile			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:300
Drawn By	J. Callahan	Drawing No.	8



- [A] Grass, Roots, and Topsoil
- [G] Alluvial - Grey Coarse to Fine Sandy SILT (A-4)
- [J] Residual - Tan Brown Micaceous Silty Medium to Fine SAND (A-2-4, A-2-5)
- [K] Residual - Brown, White and Black Micaceous Silty Coarse to Fine SAND (A-2-4, A-2-5)
- [M] Hard Weathered Rock - Biotite Granitic Gneiss



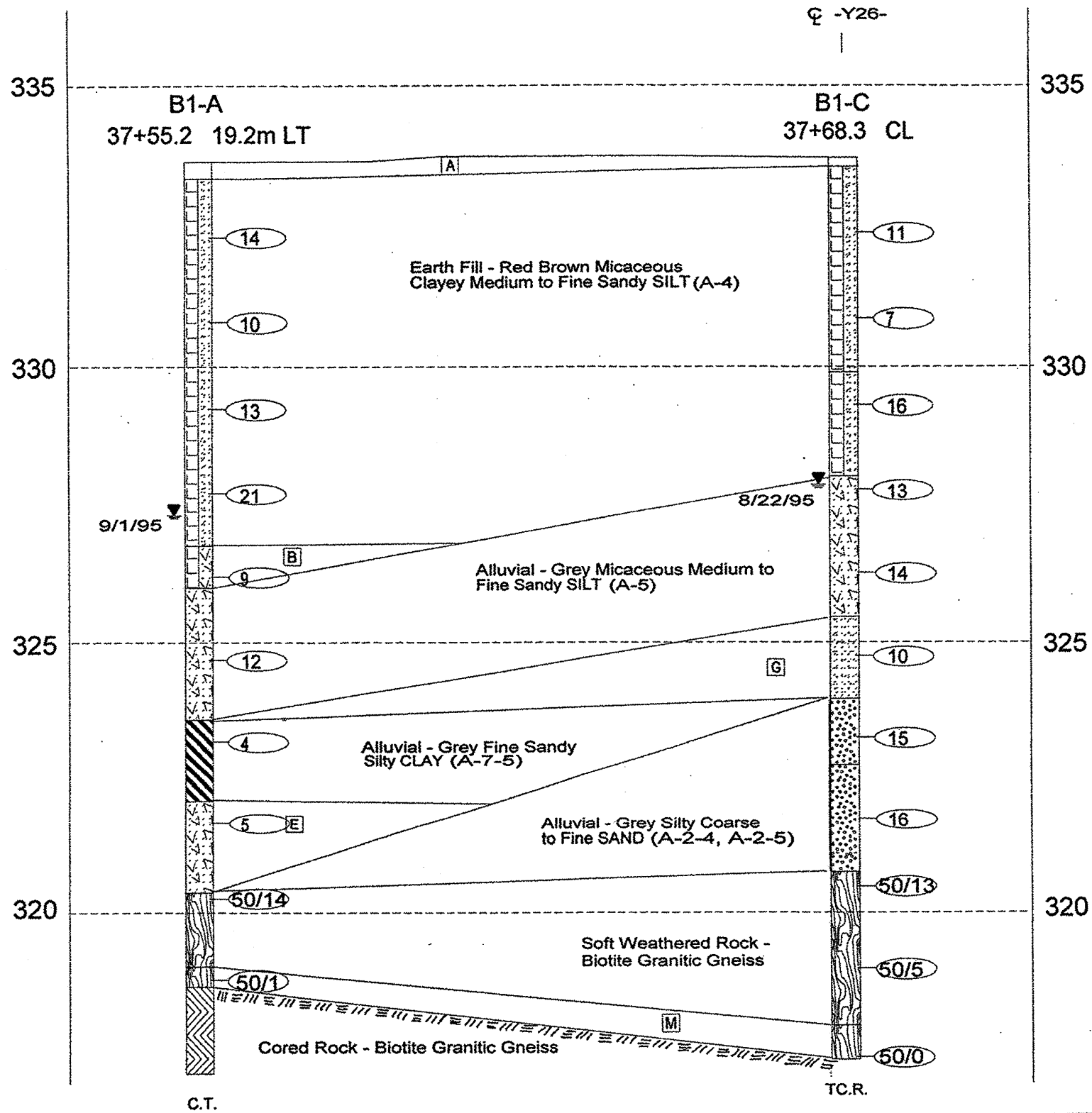
END BENT 1 (WBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	2



- A** Grass, Roots, and Topsoil
- G** Alluvial - Grey Coarse to Fine Sandy SILT (A-4)
- J** Residual - Tan Brown Micaceous Silty Medium to Fine SAND (A-2-4, A-2-5)
- K** Residual - Brown, White and Black Micaceous Silty Coarse to Fine SAND (A-2-4, A-2-5)
- M** Hard Weathered Rock - Biotite Granitic Gneiss



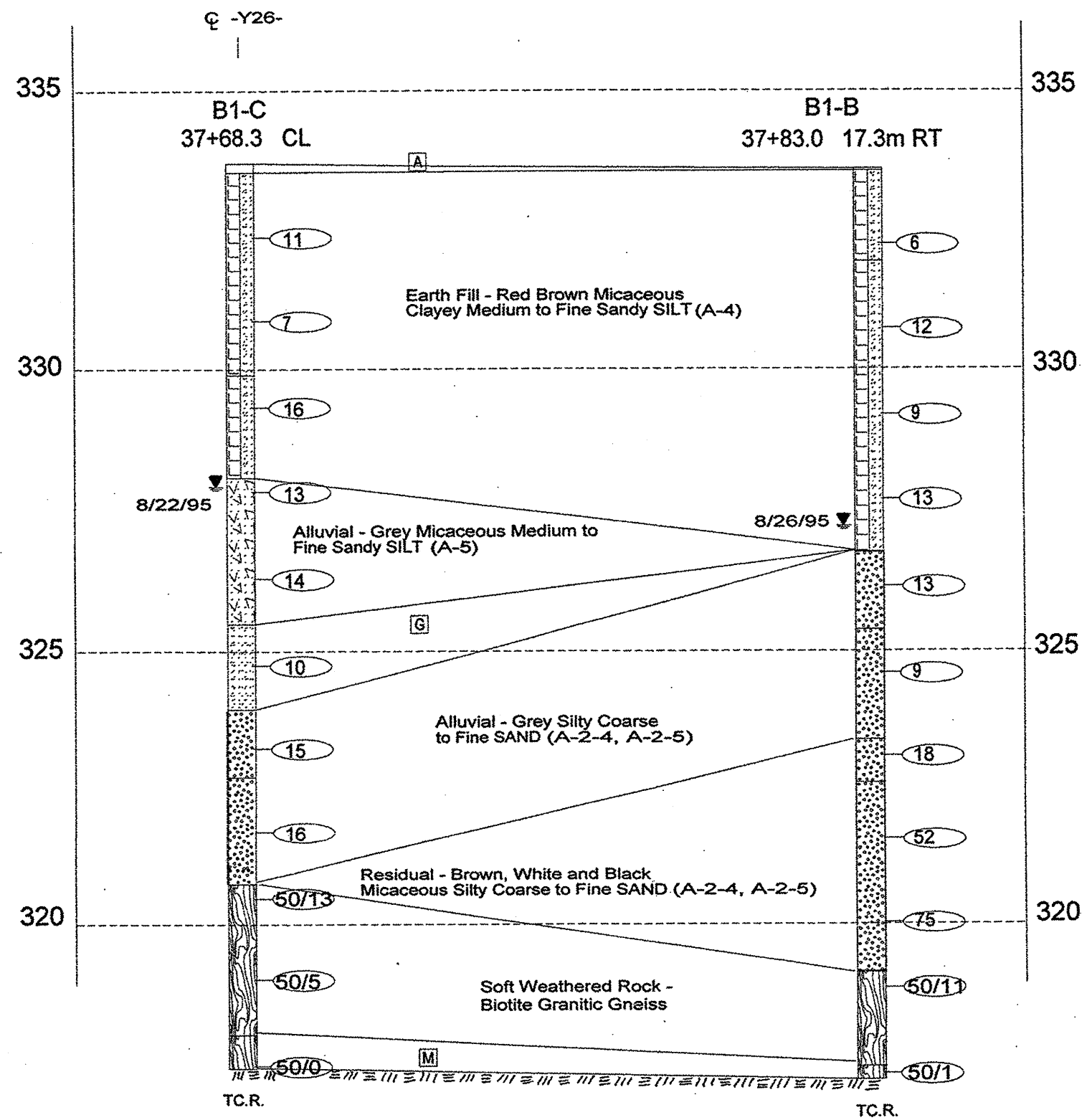
END BENT 1 (EBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	2A



- A** Grass, Roots, and Topsoil
- B** Earth Fill - Red Brown Micaceous Medium to Fine Sandy Clayey SILT (A-5)
- E** Alluvial - Grey Micaceous Medium to Fine Sandy SILT (A-5)
- G** Alluvial - Grey Coarse to Fine Sandy SILT (A-4)
- M** Hard Weathered Rock - Biotite Granitic Gneiss



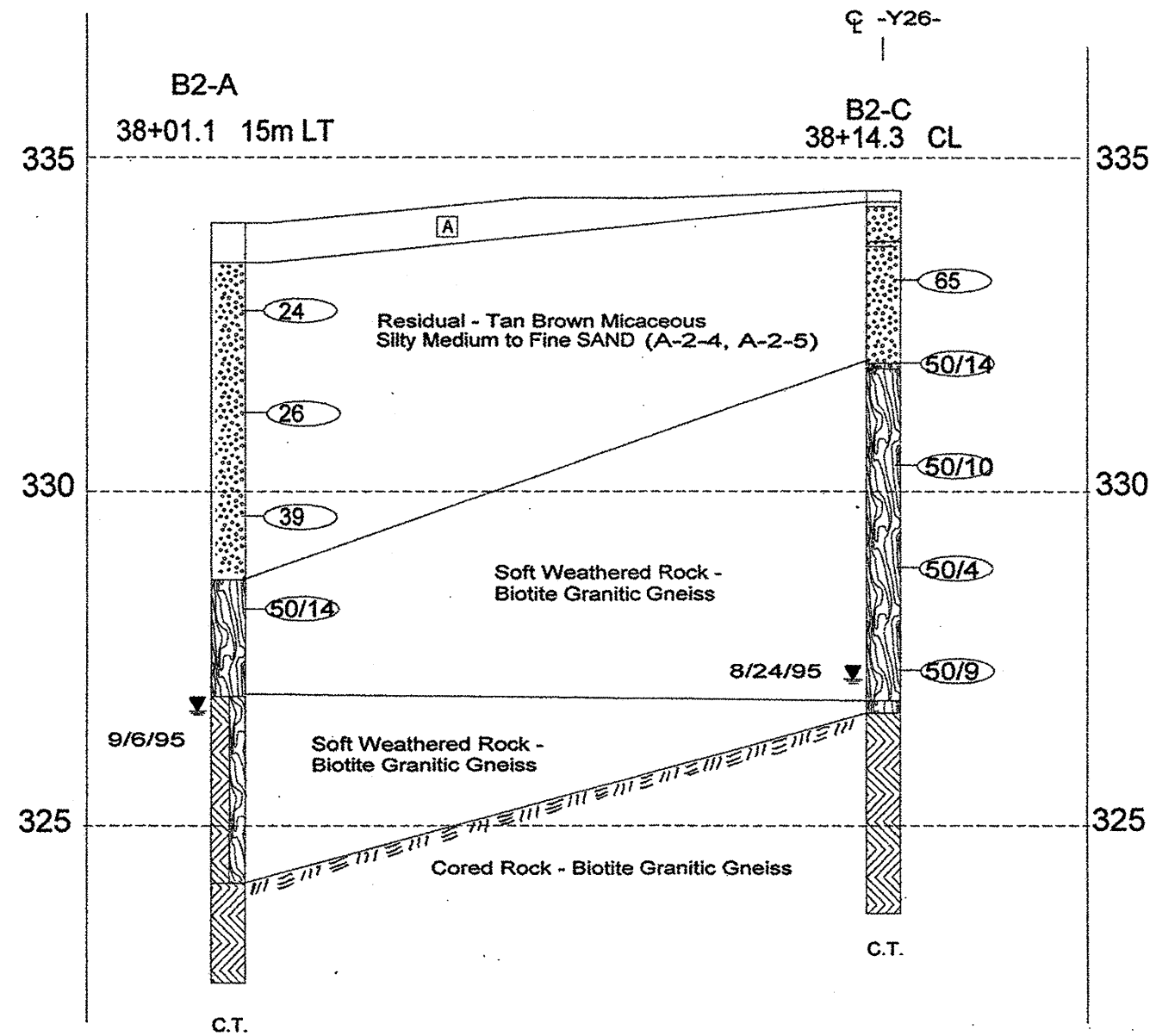
BENT 1 (WBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	3



- [A] Grass, Roots, and Topsoil
- [B] Earth Fill - Red Brown Micaceous Medium to Fine Sandy Clayey SILT (A-5)
- [E] Alluvial - Grey Micaceous Medium to Fine Sandy SILT (A-5)
- [G] Alluvial - Grey Coarse to Fine Sandy SILT (A-4)
- [M] Hard Weathered Rock - Biotite Granitic Gneiss



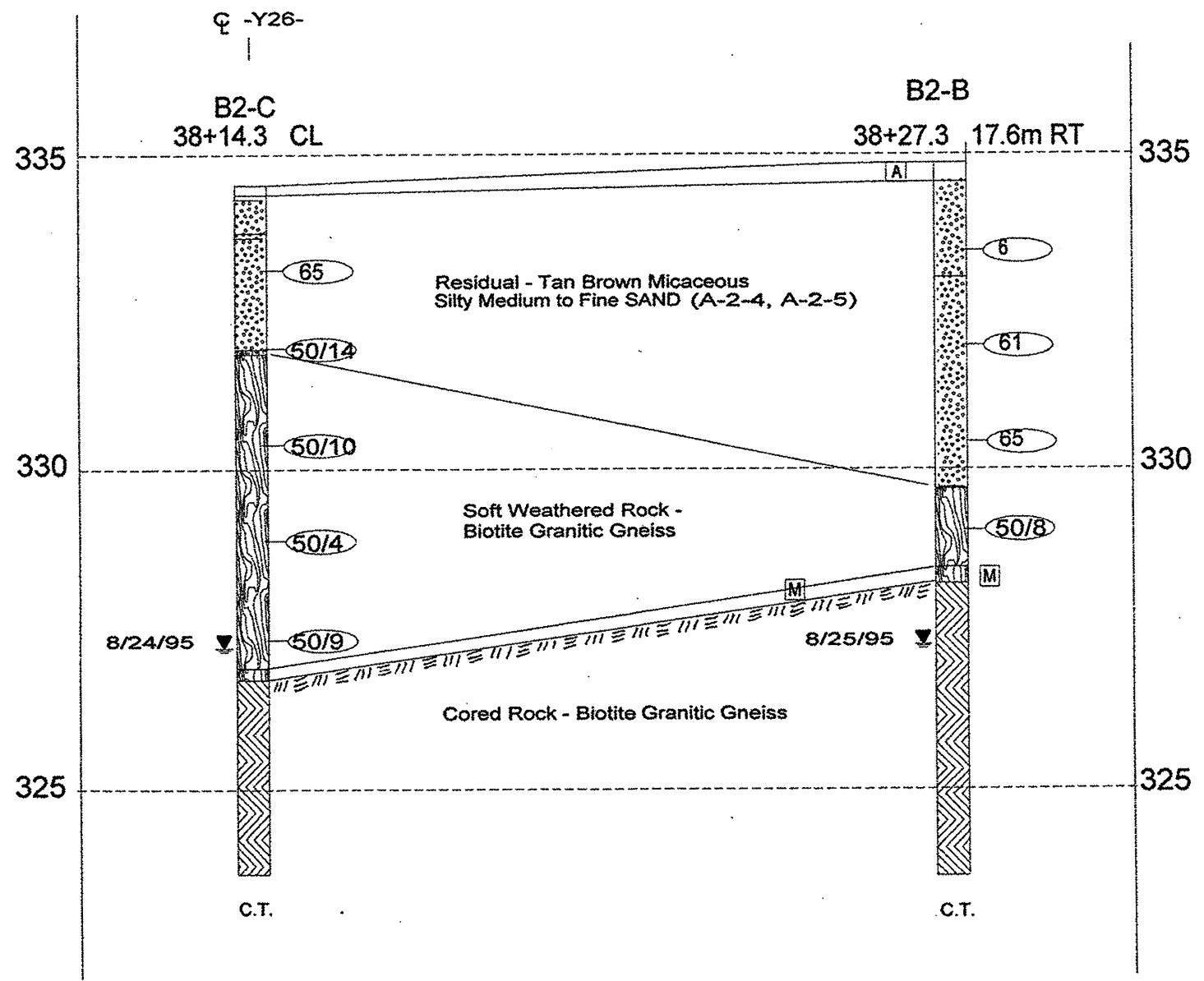
BENT 1 (EBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	3A



- A Grass, Roots, and Topsoil
- M Hard Weathered Rock - Biotite Granitic Gneiss



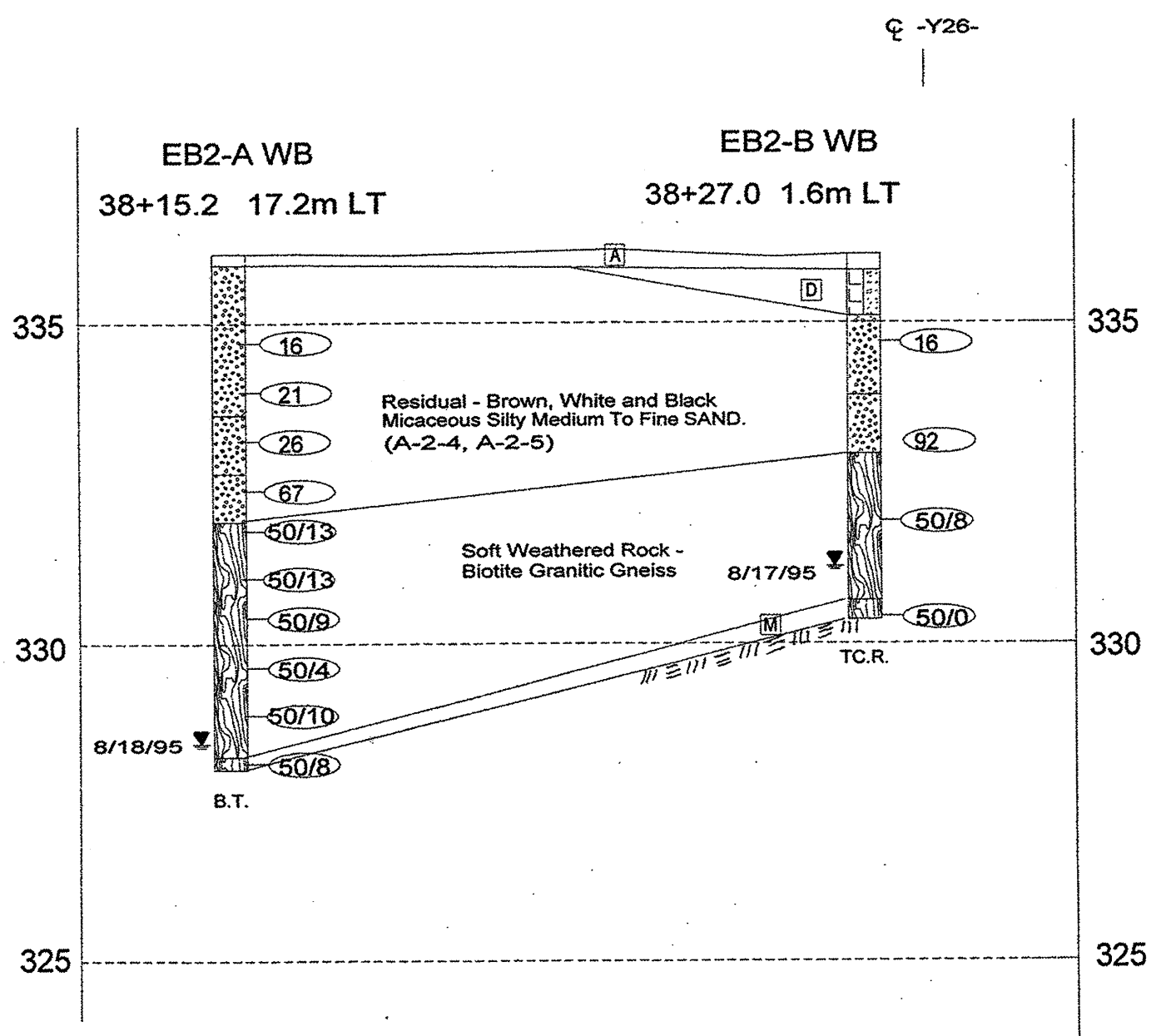
BENT 2 (WBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	4



- A Grass, Roots, and Topsoil
- M Hard Weathered Rock - Biotite Granitic Gneiss



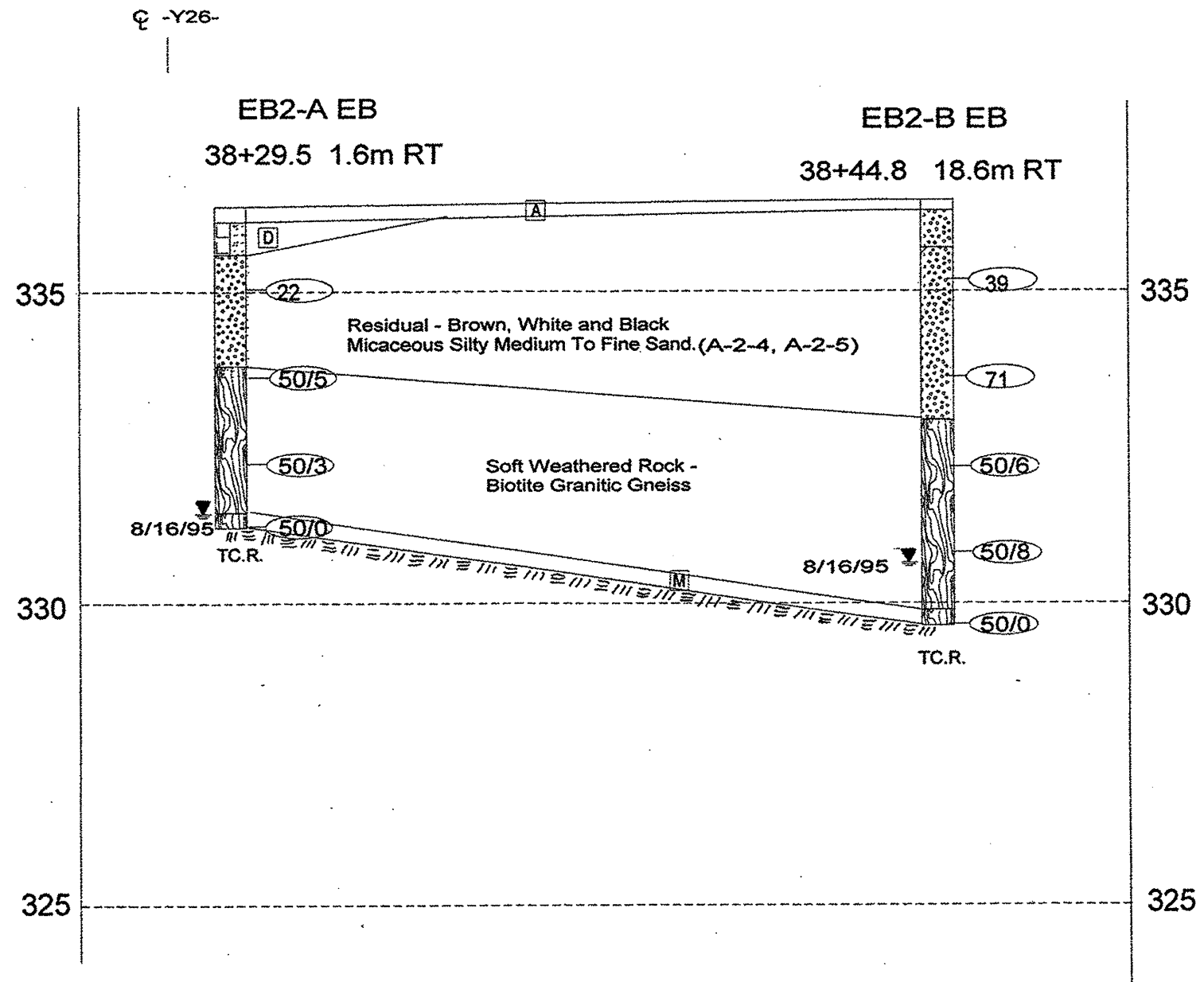
BENT 2 (EBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	4A



- A Grass, Roots, and Topsoil
- D Earth Fill - Red Brown Medium to Fine Sandy SILT (A-4)
- M Hard Weathered Rock - Biotite Granitic Gneiss



END BENT 2 (WBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	5



- A** Grass, Roots, and Topsoil
- D** Earth Fill - Red Brown Medium to Fine Sandy SILT (A-4)
- M** Hard Weathered Rock - Biotite Granitic Gneiss



END BENT 2 (EBL) - CROSS SECTION			
Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)			
Burke County, North Carolina			
Project No.	8.1851001	Tip No.	U-2550
Federal No.	M-8165(1)	Vert. Scale	1:100
Date	October 13, 1995	Horiz. Scale	1:200
Drawn By	J. Callahan	Drawing No.	5A

GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. EB1-A BORING LOCATION(STA.) 37+42.9 OFFSET 16.0m LT GROUND WATER (m)
 COLLAR ELEV. (m) 335.10 DATE STARTED 08-31-95 DRILL MACHINE CME-45 Skid 0 HR. N/A
 TOTAL DEPTH (m) 17.38 DATE COMPLETED 08-31-95 DRILL METHOD Mud Rotary 24 HR. 7.8

ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
335.10	0.00				Ground Surface Elev. 335.10											
334.64	1.07	4	5	7	12					0.30	M	SS-1			Grass, Roots, and Topsoil	
	2.59	5	5	6	11					0.30	M				Stiff Red-Brown Micaceous Medium to Fine Sandy Clayey SILT-Fill MC=25.2%	
	4.12	4	4	4	8					0.30	M					
	5.64	3	5	7	12					0.30	M	SS-2			MC=30.2%	
327.94	7.16	5	7	9	16					0.30	M				Very Stiff Red-Brown Medium to Fine Sandy Clayey SILT-Fill	
326.42	8.69	4	3	5	12					0.30	M				Medium Stiff Red-Brown Micaceous Clayey Medium to Fine Sandy SILT-Fill	
325.20	10.21	5	7	9	16					0.30	M				Very Stiff Grey Slightly Micaceous Fine Sandy SILT with Fine Roots-Alluvial	
323.54	11.74	2	2	2	4					0.30	M				Soft Grey Medium to Fine Sandy Clayey SILT with Wood Fragments-Alluvial	
322.00	13.26	2	3	2	5					0.30	M				Medium Stiff Grey Micaceous Medium to Fine Sandy SILT-Alluvial	
320.62	14.79	16	16	25	41					0.30	SAT				Dense Yellow-Tan Silty Coarse to Fine SAND with Quartz Fragments-Residual	
319.30	16.31	45	50/10		100+					0.10	M				Soft Weathered Rock Samples as Brown, Black, and White Micaceous Silty Medium to Fine SAND	
317.72	17.38	50/00			100+					0.00						
Continued Next Page																

GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. EB1-A BORING LOCATION(STA.) 37+42.9 OFFSET 16.0m LT GROUND WATER (m)
 COLLAR ELEV. (m) 335.10 DATE STARTED 08-31-95 DRILL MACHINE CME-45 Skid 0 HR. N/A
 TOTAL DEPTH (m) 17.38 DATE COMPLETED 08-31-95 DRILL METHOD Mud Rotary 24 HR. 7.8

ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
317.32	17.78				(Continued)											
					Tricone Refusal @ Elevation 317.72 "Meters on Hard Rock" (Granitic Gneiss)											



GEOTECHNICAL BORING LOG

PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister											
SITE DESCRIPTION		Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)		BORING LOCATION(STA.) 37+54.7		OFFSET CL											
BORING NO. EB1-C		BORING LOCATION(STA.) 37+54.7		DATE STARTED 08-17-95		DRILL MACHINE CME-45 ATV											
COLLAR ELEV. (m) 334.88		DATE STARTED 08-17-95		DATE COMPLETED 08-17-95		DRILL METHOD Mud Rotary											
TOTAL DEPTH (m) 16.00		DATE COMPLETED 08-17-95		GROUND WATER (m) 0 HR. N/A		24 HR. 8.4											
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm						Penet. m	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80	100							
334.88	0.00				Ground Surface Elev. 334.88												
334.64	1.07	3	2	3	5							0.30	M				Grass, Roots, and Topsoil with Wood Fragments
	2.59	3	4	5	9							0.30	M				Medium Stiff and Stiff Red-Brown Micaceous Medium to Fine Sandy SILT-Fill
	4.12	4	5	7	12							0.30	M				
	5.64	3	4	6	10							0.30	M				
	7.16	2	3	4	7							0.30	M				
326.20	8.69	4	5	8	13							0.30	M				Stiff Brown-Grey Medium to Fine Sandy Clayey SILT with Fine Roots-Alluvial
	10.21	3	6	7	13							0.30	M				
323.76	11.74	7	3	4	7							0.30	W	SS-5			Loose to Medium Dense Grey Slightly Silty Coarse to Fine SAND-Alluvial MC=21.1%
	13.26	4	8	11	19							0.30	W				
320.68	14.79											0.13	D				Soft Weathered Rock Samples as Green-Black Micaceous Silty Medium to Fine SAND-Residual
319.18	16.00											0.00					Hard Weathered Rock Samples as Green-Black Slightly Micaceous Silty Medium to Fine SAND
318.88																	Tricone Refusal @ Elevation 318.88 Meters on Hard Rock (Granitic Gneiss)



GEOTECHNICAL BORING LOG

PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister										
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)																
BORING NO. EB1-B		BORING LOCATION(STA.) 37+66.2		OFFSET 15.4m RT		GROUND WATER (m)										
COLLAR ELEV. (m) 335.13		DATE STARTED 08-29-95		DRILL MACHINE CME-45 Skid		0 HR. N/A										
TOTAL DEPTH (m) 17.68		DATE COMPLETED 08-29-95		DRILL METHOD Mud Rotary		24 HR. 5.5										
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
335.13	0.00				Ground Surface Elev. 335.13											
334.53	1.07	3	3	4	.....					0.30	M	SS-3				Topsoil and Roots
332.99	2.59	4	6	6	.....					0.30	M					Medium Stiff Red-Brown Micaceous Medium to Fine Sandy Clayey SILT-Fill MC=28.7%
	4.12	3	4	7	.....					0.30	M					Stiff Red-Brown Micaceous Medium to Fine Sandy SILT-Fill
329.65	5.64	4	8	9	.....					0.30	M					Very Stiff to Stiff Red-Brown Medium to Fine Sandy Clayey SILT-Fill
	7.16	5	7	10	.....					0.30	M					
	8.69	3	5	10	.....					0.30	M	SS-4				MC=34.4%
325.37	10.21	4	6	8	.....					0.30	W					Stiff Grey Coarse to Fine Sandy Clayey SILT with Fine Roots-Alluvial
323.39	11.74	3	3	2	.....					0.30	W					Loose Grey Silty Coarse to Fine SAND-Alluvial
321.87	13.26	1	5	8	.....					0.30	W					Stiff Grey Micaceous Fine Sandy SILT with Wood Fragments-Alluvial
320.95	14.79	50/14			.....					0.14	M					Soft Weathered Rock Samples as Tan and Green-Black Micaceous Very Silty Medium to Fine SAND-Residual
	16.31	50/08			.....					0.08	M					
317.75	17.68				.....											Hard Weathered Rock Samples as
317.45					.....											Continued Next Page 100+



GEOTECHNICAL BORING LOG

PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister										
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)																
BORING NO. EB1-B		BORING LOCATION(STA.) 37+66.2		OFFSET 15.4m RT		GROUND WATER (m)										
COLLAR ELEV. (m) 335.13		DATE STARTED 08-29-95		DRILL MACHINE CME-45 Skid		0 HR. N/A										
TOTAL DEPTH (m) 17.68		DATE COMPLETED 08-29-95		DRILL METHOD Mud Rotary		24 HR. 5.5										
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
317.35	17.78				(Continued)					0.00						Brown Slightly Micaceous Silty Medium to Fine SAND
		50/00													Triaxial Refusal @ Elevation 317.45 Meters on Hard Rock (Granitic Gneiss)

GEOTECHNICAL BORING LOG



GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister									
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34 + 69.875 -L- (N.C. 18)															
BORING NO. B1-A		BORING LOCATION(STA.) 37 + 55.2		OFFSET 19.2m LT		GROUND WATER (m) 0 HR. N/A									
COLLAR ELEV. (m) 333.63		DATE STARTED 08-30-95		DRILL MACHINE CME-45 Skid		DRILL METHOD Mud Rotary									
TOTAL DEPTH (m) 16.48		DATE COMPLETED 08-30-95				24 HR. 6.3									
ELEV.	DEPTH	BLOW COUNT			BLOWS PER 30cm					Penet.	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION
	m	15cm	15cm	15cm	0	20	40	60	80	100	m				
333.63	0.00				Ground Surface Elev. 333.63										
333.33	1.07	4	5	9	.....					0.30	M				Grass, Roots, and Topsoil
	2.59	3	4	6	.....					0.30	M				Stiff to Very Stiff Tan and Red-Brown Micaceous Medium to Fine Sandy SILT-Fill
	4.12	3	6	7	.....					0.30	M				
	5.64	5	9	12	.....					0.30	M				
326.77	7.16	3	3	6	.....					0.30	M	SS-6			Stiff Red-Brown Micaceous Medium to Fine Sandy Clayey SILT-Fill MC=27.2%
326.01	8.69	3	4	8	.....					0.30	M				Stiff Grey Fine Sandy Clayey SILT with Fine Roots-Alluvial
323.57	10.21	2	2	2	.....					0.30	W	SS-7			Soft Grey Fine Sandy Silty CLAY-Alluvial MC=49.9%
322.05	11.74	2	1	4	.....					0.30	M				Medium Stiff Grey Micaceous Fine Sandy Clayey SILT with Fine Roots-Alluvial
320.37	13.26	9	50/14		..... 100+					0.14	M				Soft Weathered Rock Samples as Tan, Black, and White Micaceous Silty Medium to Fine SAND-Residual
319.01	14.79				..... 100+					0.01	M				Hard Weathered Rock Samples as Green-Black and White Micaceous Silty Medium to Fine SAND
318.67					..... 100+										White-Black Biotite Granitic Gneiss
317.15					.....										Coring Terminated @ Elevation 317.15 Meters In Hard Rock
					.....										Continued Next Page

PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister									
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34 + 69.875 -L- (N.C. 18)															
BORING NO. B1-A		BORING LOCATION(STA.) 37 + 55.2		OFFSET 19.2m LT		GROUND WATER (m) 0 HR. N/A									
COLLAR ELEV. (m) 333.63		DATE STARTED 08-30-95		DRILL MACHINE CME-45 Skid		DRILL METHOD Mud Rotary									
TOTAL DEPTH (m) 16.48		DATE COMPLETED 08-30-95				24 HR. 6.3									
ELEV.	DEPTH	BLOW COUNT			BLOWS PER 30cm					Penet.	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION
	m	15cm	15cm	15cm	0	20	40	60	80	100	m				
315.85	17.78				(Continued)										(Granitic Gneiss)

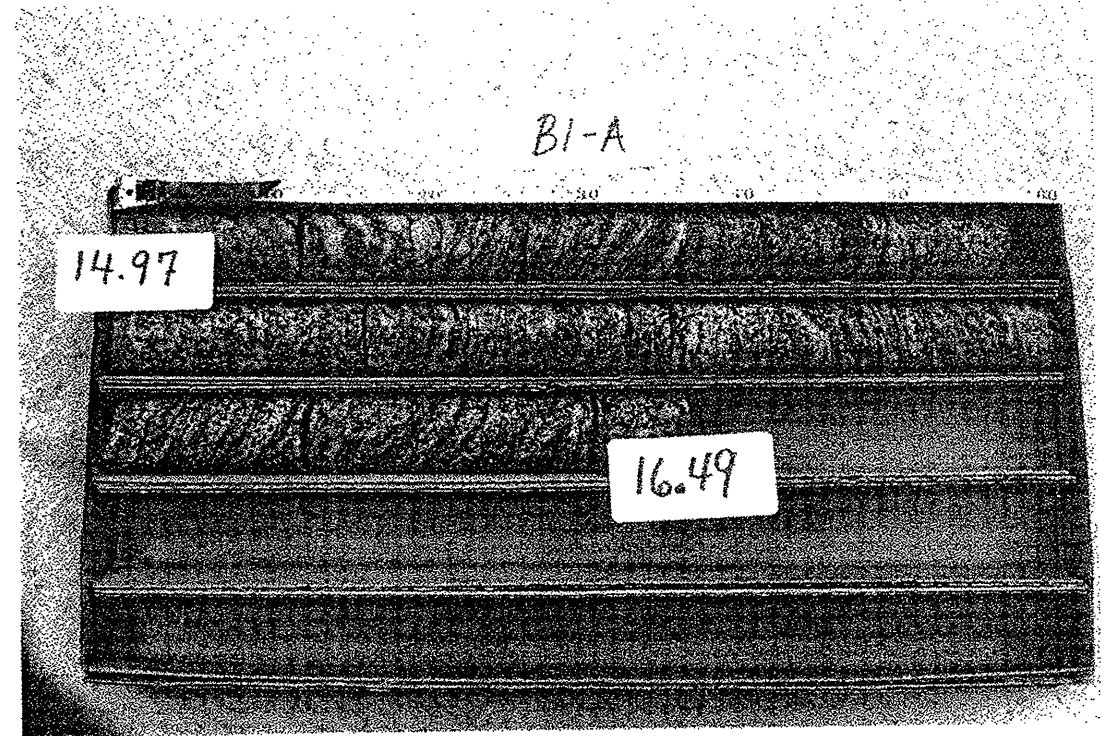
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT CORE BORING REPORT**

CORE PHOTOGRAPHS

PROJECT NO.: 8.1851001 **I.D. NO.:** U-2550 **COUNTY:** Burke **BORING NO.:** B1-A
SITE DESCRIPTION: Duals on -Y26- (I-40) at STA 34+69.875 -L- (N.C. 18)
COLLAR ELEV.: 333.63m **CORE SIZE:** NQ2 **EQUIPMENT:** CME-45 Skid
DRILLER: B. King **GEOLOGIST:** J.D. Hardister **PERSONNEL:** A. Warren
TOTAL DEPTH: 16.48m **TOTAL RUN:** 1.52m **DATE:** 08/30/95

Elev. (m)	Depth (m)	Drill Rate Mn/.3M	Run	REC %	RQD %	Field Classification And Remarks
318.67	14.97	3:47 3:33 3:18	1	1.52	1.45	Sli. weath. mod. fract. (14.97 - 16.48) white-black biotite granitic gneiss. 3 jts @ 5°, ADS=15cm, ADT=.5mm
317.15	16.48	3:19 3:21	1.52	98	95	2 jts @ 5°, ADS=2cm, ADT=.5mm 3 jts @ 5°-10°, ADS=13cm, ADT=.5mm
Coring Terminated @ 16.48m Elevation 317.15m						

B1-A



GEOTECHNICAL BORING LOG



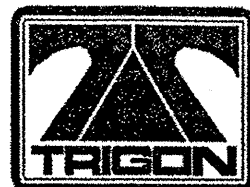
PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister										
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)																
BORING NO. B1-B		BORING LOCATION(STA.) 37+83.0		OFFSET 17.3m RT		GROUND WATER (m) 0 HR. N/A										
COLLAR ELEV. (m) 333.59		DATE STARTED 08-25-95		DRILL MACHINE CME-45 Skid		DRILL METHOD Mud Rotary										
TOTAL DEPTH (m) 16.40		DATE COMPLETED 08-25-95														
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
333.59	0.00				Ground Surface Elev. 333.59											
333.39	1.07				Grass, Roots, and Topsoil											
331.91	2.59	2	2	4	Medium Stiff Red-Brown Micaceous Clayey Medium to Fine Sandy SILT-Fill					0.30	M					
	4.12	3	6	6	Stiff Red-Brown Micaceous Medium to Fine Sandy SILT-Fill					0.30	M					
	5.64	2	4	5						0.30	M					
326.73	7.16	3	5	8						0.30	M					
325.37	8.69	6	7	6	Medium Dense Grey-Brown Silty Medium to Fine SAND with Fine Roots-Alluvial					0.30	M					
323.39	10.21	4	4	5	Loose Tan Slightly Clayey Silty Medium to Fine SAND-Alluvial					0.30	M					
322.61	11.74	4	7	11	Medium Dense Brown-Orange Micaceous Very Silty Medium to Fine SAND-Residual					0.30	M					
	13.26	18	20	32	Very Dense Tan-Brown and Grey-White Micaceous Silty Medium to Fine SAND					0.30	M					
319.11	14.79	25	43	32	MC = 15.9%					0.30	M	SS-8				
317.43	16.31	50/11			Soft Weathered Rock Samples as Brown and White Micaceous Silty Medium to Fine SAND					0.11	M					
317.19	50/01				Hard Weathered Rock Samples as Brown-Grey Micaceous Silty Medium to Fine SAND					0.01	M					
					Tricone Refusal @ Elevation 317.19 Meters on Hard Rock (Granitic Gneiss)					100+						

GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister										
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)																
BORING NO. B1-C		BORING LOCATION(STA.) 37+68.3		OFFSET CL		GROUND WATER (m) 0 HR. N/A										
COLLAR ELEV. (m) 333.70		DATE STARTED 08-21-95		DRILL MACHINE CME-45 Skid		DRILL METHOD Mud Rotary										
TOTAL DEPTH (m) 16.30		DATE COMPLETED 08-21-95														
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
333.70	0.00				Ground Surface Elev. 333.70											
333.54	1.07				Grass, Roots, and Topsoil											
	2.59	4	5	6	Stiff to Medium Stiff Red-Brown Micaceous Medium to Fine Sandy SILT-Fill					0.30	M					
	4.12	3	3	4						0.30	M					
329.90	5.64	5	7	9	Very Stiff Red-Brown Clayey Medium to Fine Sandy SILT-Fill					0.30	M					
328.06	7.16	5	6	7						0.30	M					
	8.69	2	4	10	Stiff Grey and Red-Brown Micaceous Medium to Fine Sandy Clayey SILT with Wood Fragments-Alluvial					0.30	M					
325.48	10.21	2	4	6						0.30	M	SS-9				
323.94	11.74	2	8	7	Stiff Grey-Brown Clayey Medium to Fine Sandy SILT with Fine Roots-Alluvial MC = 29.7%					0.30	M					
322.72	13.26	9	11	5	Medium Dense Grey Micaceous Clayey Silty Medium to Fine SAND-Alluvial					0.30	M					
	14.79	50/13			Medium Dense Tan Micaceous Silty Medium to Fine SAND-Alluvial					0.30	W					
320.74	50/05				Soft Weathered Rock Samples as Green-Black Micaceous Silty Medium to Fine SAND-Residual					0.13	M					
318.00	50/00				Hard Weathered Rock Samples as Green-Black Slightly Micaceous Silty Medium to Fine SAND					0.05	M					
317.40	100+				Tricone Refusal @ Elevation 317.40 Meters on Hard Rock (Granitic Gneiss)					0.00						

GEOTECHNICAL BORING LOG



33144

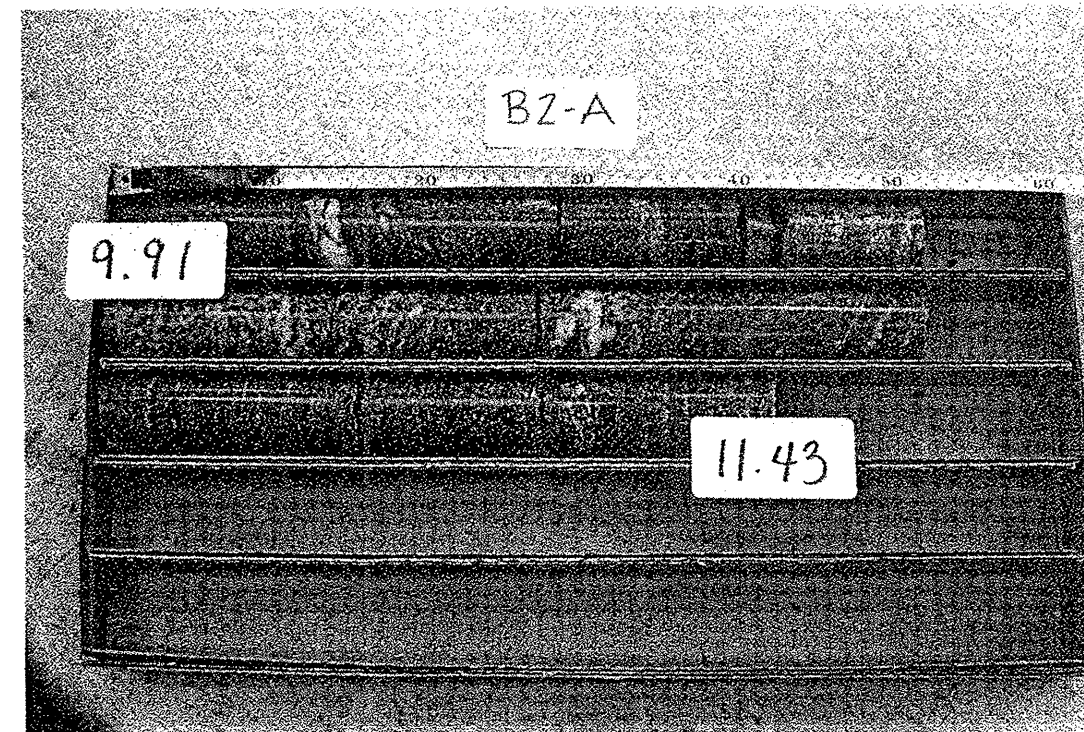
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT CORE BORING REPORT

PROJECT NO. 8.1851001		ID. U-2550		COUNTY Burke		GEO/ENG J.D. Hardister										
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)																
BORING NO. B2-A		BORING LOCATION(STA.) 38+01.1		OFFSET 15.0m LT		GROUND WATER (m)										
COLLAR ELEV. (m) 334.04		DATE STARTED 09-01-95		DRILL MACHINE CME-45 Skid		0 HR. N/A										
TOTAL DEPTH (m) 11.42		DATE COMPLETED 09-05-95		DRILL METHOD Mud Rotary		24 HR. 7.3										
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
334.04	0.00				Ground Surface Elev. 334.04											Topsoil with Fine and Large Roots
333.44	1.07								0.30	M					Medium Dense to Dense Brown-Orange and Brown, Black, and White Micaceous Very Silty Medium to Fine SAND-Residual
		9	13	11	.....										
	2.59				.....					0.30	M				
		8	14	12	.....										
	4.12				.....					0.30	M				
		10	15	24	.....										
328.70	5.64				.....					0.14	M				Soft Weathered Rock Samples as Brown, Black, and White Micaceous Very Silty Medium to Fine SAND
		29	50/14		.....										
326.96					.....										Black, Grey, and White Granitic Gneiss and Biotite Gneiss
															
322.62					.....										Coring Terminated @ Elevation 322.62 *Meters in Hard Rock* (Granitic Gneiss)

PROJECT NO.: 8.1851001 I.D. NO.: U-2550 COUNTY: Burke BORING NO.: B2-A						
SITE DESCRIPTION: Duals on -Y26- (I-40) at STA 34+69.875 -L- (N.C. 18)						
COLLAR ELEV.: 334.04m CORE SIZE: NQ2 EQUIPMENT: CME-45 Skid						
DRILLER: B. King GEOLOGIST: J.D. Hardister PERSONNEL: A. Warren						
TOTAL DEPTH: 11.42m TOTAL RUN: 4.36m DATE: 09/01/95						
Elev. (m)	Depth (m)	Drill Rate Mn/.3M	Run	REC %	RQD %	Field Classification And Remarks
326.96	7.07	1:45	1	0.33	0.11	Mod. weath. mod. to ext. fract. (7.07 - 7.37) mod. foliated black, grey, and white granitic gneiss. 4 jts @ 10°-15°, ADS=6cm, ADT=1mm 1 jt @ 60°, ADT=1mm
326.66	7.37		0.33	98	37	
326.66	7.37	1:01	2	0.25	0	V. sev. to sev. ext. fract. (7.37 - 8.65) mod. to mod. sev. weath. ext. fract. (8.65 - 8.89) mod. foliated black, grey, and white granitic gneiss. 4 jts @ 10°-15°, ADS=2cm, ADT=1mm
		1:31				
		1:05				
		1:40	1.52	16		
325.15	8.89	1:09				
325.15	8.89	0:45	3	0.30	0	Sev. to v. sev. weath. ext. fract. (8.89 - 9.20) mod. to mod. sev. ext. fract. (9.20 - 9.50) well foliated black-grey biotite gneiss. 5 jts @ 10°, ADS=1cm, ADT=1mm
324.54	9.50	1:02	0.61	48		
324.54	9.50	2:02	4	0.41	0.17	Sev. to v. sev. weath. ext. fract. (9.50 - 9.55) sli. weath. mod. fract. (9.55 - 9.91) mod. foliated black-grey biotite gneiss. 2 jts @ 7°, ADS=2cm, ADT=.5mm
324.13	9.91	1:09	0.41	98	42	
324.13	9.91	1:22	5	1.48	1.47	Sli. weath. sli. fract. (9.91 - 11.42) well foliated black, grey, and white granitic gneiss and amphibolite. 3 jts @ 10°-20°, ADS=5cm, ADT=.5mm 5 jts @ 5°, ADS=14cm, ADT=.5mm
		2:21				
		2:08				
		2:50	1.52	95	97	
322.62	11.42	3:33				
Coring Terminated @ 11.42m Elevation 322.62m						

CORE PHOTOGRAPHS

B2-A



GEOTECHNICAL BORING LOG



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL UNIT CORE BORING REPORT

35144

PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. B2-C BORING LOCATION(STA.) 38+14.3 OFFSET CL GROUND WATER (m)
 COLLAR ELEV. (m) 334.52 DATE STARTED 08-23-95 DRILL MACHINE CME-45 Skid 0 HR. N/A
 TOTAL DEPTH (m) 10.84 DATE COMPLETED 08-23-95 DRILL METHOD Mud Rotary 24 HR. 7.3

ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
334.52	0.00															Ground Surface Elev. 334.52
334.36	1.07															Grass, Roots, and Topsoil
333.76		17	31	34					65		0.30	M				Tan Micaceous Very Silty Medium to Fine SAND with Fine Roots-Residual
331.92	2.59															Very Dense Brown and White Micaceous Very Silty Medium to Fine SAND
	4.12															Soft Weathered Rock Samples as Brown, Black, and White Micaceous Very Silty Medium to Fine SAND
		50/14								100+		0.14	M			
	5.84															
		50/10								100+		0.10	M			
	7.16															
		50/04								100+		0.04	M			
326.90	7.16															
326.72		50/09								100+		0.09	M			
																Hard Weathered Rock Samples as Black and White Slightly Micaceous Silty Medium to Fine SAND
																Black, Grey, and White Biotite Granitic Gneiss
323.68																Coring Terminated @ Elevation 323.68 *Meters in Hard Rock* (Granitic Gneiss)

PROJECT NO.: 8.1851001 I.D. NO.: U-2550 COUNTY: Burke BORING NO.: B2-C
 SITE DESCRIPTION: Duals on -Y26- (I-40) at STA 34+69.875 -L- (N.C. 18)
 COLLAR ELEV.: 334.52m CORE SIZE: NQ2 EQUIPMENT: CME-45 Skid
 DRILLER: B. King GEOLOGIST: J.D. Hardister PERSONNEL: A. Warren
 TOTAL DEPTH: 10.84m TOTAL RUN: 3.04m DATE: 08/23/95

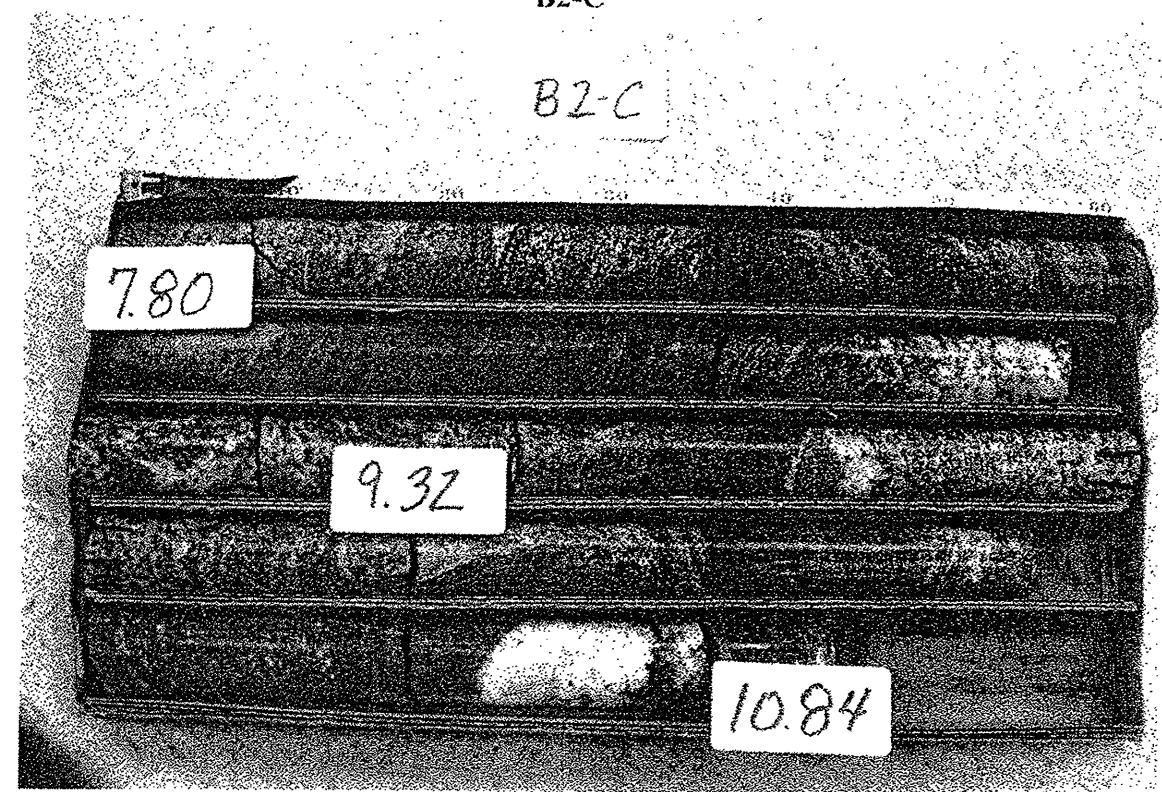
Elev. (m)	Depth (m)	Drill Rate Mn/.3M	Run	REC %	RQD %	Field Classification And Remarks
326.72	7.80	1:43				
		1:48	1	1.45	1.41	Mod. to sli. weath. mod. fract. (7.80 - 9.32) black, grey, and white well foliated biotite granitic gneiss.
		2:26				
		3:14	1.52	93	93	1 jt @ 50°, ADT=1mm
325.20	9.32	4:05				3 jts @ 5°-15°, ADS=10cm, ADT=1mm
						2 jts @ 5°-10°, ADS=3cm, ADT=1mm
325.20	9.32	4:41				
		5:10	2	1.43	1.36	Mod. to sli. weath. mod. to sli. fract. (9.32 - 10.84) black, grey, and white well foliated biotite granitic gneiss. Quartz seam 10.0 - 10.4cm.
		5:54				
		6:57	1.52	92	89	3 jts @ 5°-10°, ADS=15cm, ADT=.5mm
323.68	10.84	7:57				

Coring Terminated @ 10.84m
 Elevation 323.68m

CORE PHOTOGRAPHS

B2-C

B2-C



GEOTECHNICAL BORING LOG



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL UNIT CORE BORING REPORT

37144

PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. B2-B BORING LOCATION(STA.) 38+27.3 OFFSET 17.6m RT GROUND WATER (m)
 COLLAR ELEV. (m) 334.86 DATE STARTED 08-24-95 DRILL MACHINE CME-45 Skid 0 HR. N/A
 TOTAL DEPTH (m) 11.22 DATE COMPLETED 08-24-95 DRILL METHOD Mud Rotary 24 HR. 7.6

ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
334.86	0.00				Ground Surface Elev. 334.86											
334.56	1.07				.....					0.30	W	SS-10				Topsoil with Fine and Large Roots
333.04	2.59	2	3	3	.....					0.30	M					Loose Tan Micaceous Very Silty Medium to Fine SAND-Residual MC=16.8%
	4.12	16	27	34	.....					0.30	M					Very Dense Brown, Black, and White Micaceous Very Silty Medium to Fine SAND
329.68	5.64	16	29	36	.....					0.30	M					
328.46		45	50/08		.....					0.08	M					Soft Weathered Rock Samples as Brown, Black, and White Micaceous Very Silty Medium to Fine SAND
328.22					.....											Hard Weathered Rock Samples as Black and White Slightly Micaceous Silty Medium to Fine SAND
					.....											Black, Grey, and White Biotite Granitic Gneiss
323.64					.....											Coring Terminated @ Elevation 328.64 Meters in Hard Rock (Granitic Gneiss)

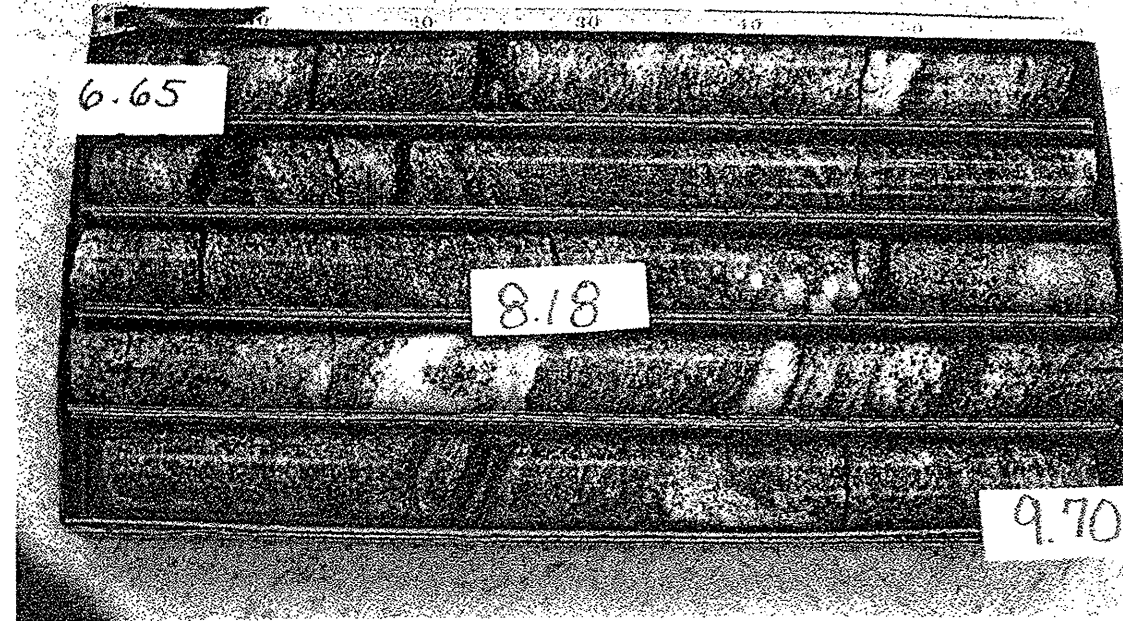
PROJECT NO.: 8.1851001 I.D. NO.: U-2550 COUNTY: Burke BORING NO.: B2-B
 SITE DESCRIPTION: Duals on -Y26- (I-40) at STA 34+69.875 -L- (N.C. 18)
 COLLAR ELEV.: 334.86m CORE SIZE: NQ2 EQUIPMENT: CME-45 Skid
 DRILLER: B. King GEOLOGIST: J.D. Hardister PERSONNEL: A. Warren
 TOTAL DEPTH: 11.22m TOTAL RUN: 4.56m DATE: 08/25/95

Elev. (m)	Depth (m)	Drill Rate Mn/.3M	Run	REC %	RQD %	Field Classification And Remarks
328.22	6.65	2:23 2:42 2:20 2:10 2:33	1	1.52	1.08	Mod. to sli. weath. mod. to sli. fract. (6.65 - 8.18) black, grey, and white biotite granitic gneiss.
326.68	8.18		1.52	98	71	3 jts @ 5°, ADS=5cm, ADT=.5mm 4 jts @ 5°, ADS=4cm, ADT=1mm 2 jts @ 5°, ADS=1cm, ADT=.5mm 100% Water Loss @ 6.8m
326.68	8.18	2:00 2:09 2:42 2:44 3:02	2	1.52	1.45	Sli. weath. sli. fract. (8.18 - 9.21) mod. weath. ext. fract. (9.21 - 9.50) sli. weath. sli. fract. (9.50 - 9.7) black, grey, and white biotite granitic gneiss.
325.16	9.70		1.52	98	95	2 jts @ 5°, ADS=1cm, ADT=.5mm 1 jt @ 10°, ADT=.5mm 3 jts @ 10°-20°, ADS=1.5cm, ADT=1mm
325.16	9.70	2:44 2:45 2:21 3:03 3:56	3	1.52	1.40	Mod. to sli. weath. ext. to sli. fract. (9.70 - 11.22) well foliated black, grey, and white biotite granitic gneiss with zones of amphibolite.
323.64	11.22		1.52	98	92	4 jts @ 5°, ADS=2cm, ADT=1mm 3 jts @ 10°, ADS=.5cm, ADT=1mm 1 jt @ 5°, ADT=1mm 100% Water Loss @ 10.7m
Coring Terminated @ 11.22m Elevation 323.64m						

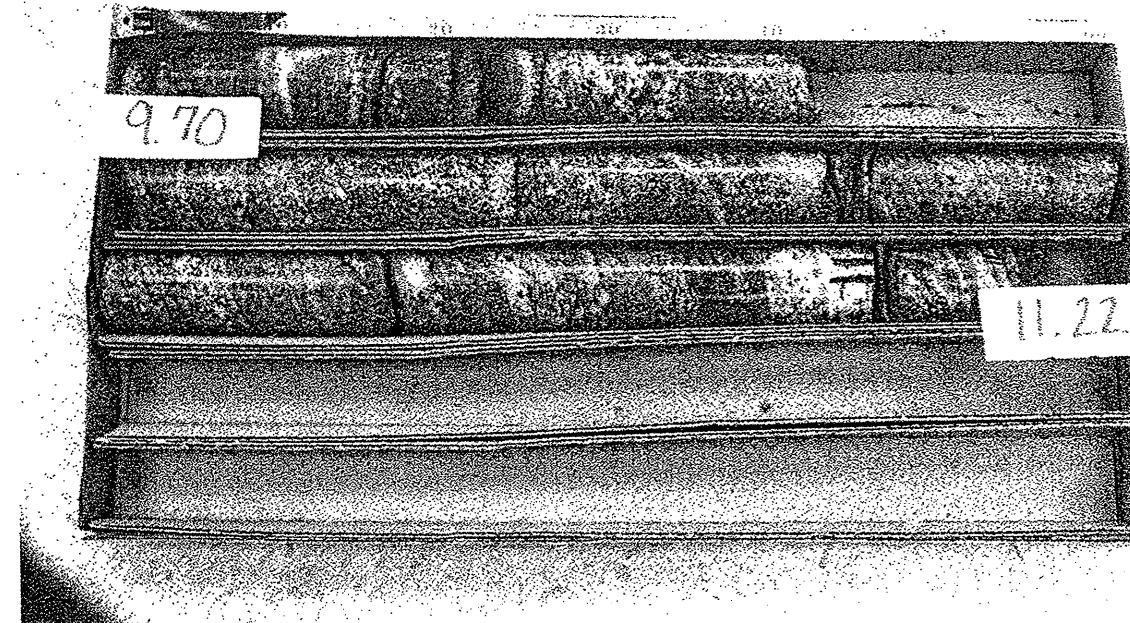
CORE PHOTOGRAPHS

B2-B

B2-B



B2-B





GEOTECHNICAL BORING LOG

PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. EB2-A WB BORING LOCATION(STA.) 38+15.2 OFFSET 17.2m LT GROUND WATER (m)
 COLLAR ELEV. (m) 336.02 DATE STARTED 08-17-95 DRILL MACHINE CME-45 ATV 0 HR. N/A
 TOTAL DEPTH (m) 8.00 DATE COMPLETED 08-17-95 DRILL METHOD Mud Rotary 24 HR. 7.6

ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
336.02	0.00															Ground Surface Elev. 336.02
335.86	1.07															Grass, Roots, and Topsoil
	1.83	7	8	8								SS-12				Medium Dense Brown and White Micaceous Very Silty Medium to Fine SAND-Residual MC=13.2%
333.58	2.59	7	8	13												Medium Dense Brown and White Micaceous Very Silty Coarse to Fine SAND
332.68	3.35	8	11	15												Very Dense Brown and White Micaceous Very Silty Medium to Fine SAND
331.92	4.12	21	25	42												Very Dense Brown and White Micaceous Very Silty Medium to Fine SAND
	4.88	23	50/13						100+	0.13	M				Soft Weathered Rock Samples as Brown, White, and Black Micaceous Very Silty Medium to Fine SAND	
	5.64	38	50/13						100+	0.13	M				Soft Weathered Rock Samples as Brown, White, and Black Micaceous Very Silty Medium to Fine SAND	
	6.40	50/09							100+	0.09	M				Soft Weathered Rock Samples as Brown, White, and Black Micaceous Very Silty Medium to Fine SAND	
	7.16	50/04							100+	0.04	M				Soft Weathered Rock Samples as Brown, White, and Black Micaceous Very Silty Medium to Fine SAND	
328.22	7.93	50/10							100+	0.10	M				Soft Weathered Rock Samples as Brown, White, and Black Micaceous Very Silty Medium to Fine SAND	
328.02		50/08							100+	0.08	M				Boring Terminated @ Elevation 328.02 Meters in Soft Weathered Rock (Granitic Gneiss)	



GEOTECHNICAL BORING LOG

PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister
 SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34+69.875 -L- (N.C. 18)
 BORING NO. EB2-B WB BORING LOCATION(STA.) 38+27.0 OFFSET 1.6m LT GROUND WATER (m)
 COLLAR ELEV. (m) 336.01 DATE STARTED 08-16-95 DRILL MACHINE CME-45 ATV 0 HR. N/A
 TOTAL DEPTH (m) 5.64 DATE COMPLETED 08-16-95 DRILL METHOD Mud Rotary 24 HR. 4.8

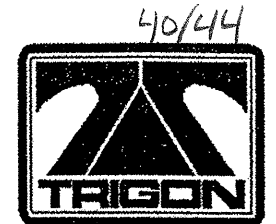
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	LOG	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
336.01	0.00															Ground Surface Elev. 336.01
335.77	1.07															Grass, Roots, and Topsoil with Wood Fragments
335.09	1.07	6	6	10								M				Red-Brown Medium to Fine Sandy SILT-Fill
333.87	2.59															Medium Dense Brown and White Micaceous Very Silty Medium to Fine SAND-Residual
332.97	2.59	22	42	50								D	SS-14			Very Dense Brown, Black, and White Very Silty Medium to Fine SAND MC=11.7%
330.67	4.12															Soft Weathered Rock Samples as Brown and Black Micaceous Very Silty Medium to Fine SAND
330.37	5.64	50/08							100+	0.08	D				Hard Weathered Rock Samples as Brown, Black, and White Micaceous Very Silty Medium to Fine SAND	
		50/00							100+	0.00					Tridon® Refusal @ Elevation 330.37 Meters on Hard Rock (Granitic Gneiss)	

GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister																
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34 + 69.875 -L- (N.C. 18)																
BORING NO. EB2-A EB BORING LOCATION(STA.) 38 + 29.5 OFFSET 1.6m RT GROUND WATER (m)																
COLLAR ELEV. (m) 336.36 DATE STARTED 08-15-95 DRILL MACHINE CME-45 ATV 0 HR. N/A																
TOTAL DEPTH (m) 5.12 DATE COMPLETED 08-15-95 DRILL METHOD Mud Rotary 24 HR. 4.9																
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
336.36	0.00															Ground Surface Elev. 336.36
336.12	1.07															Grass, Roots, and Topsoil with Wood Fragments
335.60		9	11	11								SS-11				Red-Brown Medium to Fine Sandy SILT-Fill
333.82	2.59															Medium Dense Brown, White, and Black Slightly Micaceous Very Silty Medium to Fine SAND-Residual MC = 10.9%
	4.12															Soft Weathered Rock Samples as Brown, White, and Black Slightly Micaceous Very Silty Medium to Fine SAND
331.48		50/08														
331.24	5.12															Hard Weathered Rock Samples as Brown, White, and Black Slightly Micaceous Very Silty Medium to Fine SAND
																Tricone Refusal @ Elevation 331.24 Meters on Hard Rock (Granitic Gneiss)

GEOTECHNICAL BORING LOG



PROJECT NO. 8.1851001 ID. U-2550 COUNTY Burke GEO/ENG J.D. Hardister																
SITE DESCRIPTION Duals on -Y26- (I-40) at Station 34 + 69.875 -L- (N.C. 18)																
BORING NO. EB2-B EB BORING LOCATION(STA.) 38 + 44.8 OFFSET 18.6m RT GROUND WATER (m)																
COLLAR ELEV. (m) 336.45 DATE STARTED 08-15-95 DRILL MACHINE CME-45 ATV 0 HR. N/A																
TOTAL DEPTH (m) 6.82 DATE COMPLETED 08-15-95 DRILL METHOD Mud Rotary 24 HR. 5.8																
ELEV.	DEPTH m	BLOW COUNT			BLOWS PER 30cm					Penet. m	MOIST.	SAMP. NO.	L O G	GW	SOIL AND ROCK DESCRIPTION	
		15cm	15cm	15cm	0	20	40	60	80							100
336.45	0.00															Ground Surface Elev. 336.45
336.29	1.07															Grass, Roots, and Topsoil
335.69		9	14	25								SS-13				Brown-Grey Very Silty Medium to Fine SAND-Residual
	2.59															Dense to Very Dense Brown-White and Black-White Very Silty Medium to Fine SAND MC = 10.8%
332.95		15	26	45												
	4.12															Soft Weathered Rock Samples as Brown and White Slightly Micaceous Very Silty Medium to Fine SAND
		43	50/06													
	5.64															
329.89		50/08														
329.63	6.82															Hard Weathered Rock Samples as Brown, Black, and White Slightly Micaceous Very Silty Medium to Fine SAND
																Tricone Refusal @ Elevation 329.63 Meters on Hard Rock (Granitic Gneiss)

SUMMARY OF LABORATORY TEST DATA

Boring No.	Sample Depth (m)	Sample Type ¹	Natural Moisture Content (%)	AASHTO Class.	N Value (blows per 0.3m)	Atterberg Limits			Gradation Results						
						L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
EB1-A	1.07 - 1.52	SS-1	25.2	A-5	12	45	NP	NP	97	68	36	30	33	34	3
	5.64 - 6.10	SS-2	30.2	A-5	12	47	41	6	98	70	48	29	22	28	21
EB1-B	1.07 - 1.52	SS-3	28.7	A-5	7	42	NP	NP	95	69	45	27	25	31	17
	8.69 - 9.15	SS-4	34.4	A-5	15	46	NP	NP	98	78	54	20	25	33	22
EB1-C	11.74 - 12.19	SS-5	21.1	A-1-b	7	20	NP	NP	94	26	7	72	20	8	0
B1-A	7.16 - 7.62	SS-6	27.2	A-5	9	45	35	10	99	81	57	18	24	26	32
	10.21 - 10.67	SS-7	49.9	A-7-5	4	56	38	18	100	95	80	5	15	45	35
B1-B	13.26 - 13.72	SS-8	15.9	A-2-4	75	21	NP	NP	99	68	22	31	47	22	0
B1-C	8.69 - 9.15	SS-9	29.7	A-4	10	40	32	8	100	83	59	17	24	46	13
B2-B	1.07 - 1.52	SS-10	16.8	A-2-4	6	32	NP	NP	99	63	27	36	36	16	12
EB2-A EB	1.07 - 1.52	SS-11	10.9	A-2-4	22	25	NP	NP	100	62	22	38	40	22	0
EB2-A WB	1.07 - 1.52	SS-12	13.2	A-2-4	16	31	NP	NP	98	54	18	45	37	18	0
EB2-B EB	1.07 - 1.52	SS-13	10.8	A-2-4	39	26	NP	NP	99	62	20	37	42	21	0
EB2-B WB	2.59 - 3.05	SS-14	11.7	A-2-4	92	25	NP	NP	100	65	22	35	43	21	1

¹SS = Split Spoon Sample (ASTM D-1586)TRIGON ENGINEERING CONSULTANTS, INC.
GREENSBORO, NORTH CAROLINAJOB NUMBER: 011-95-132
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TRIGON ENGINEERING CONSULTANTS, INC. SUMMARY OF ROCK DATA NCDOT PROJECT NO. 8.1851001 (U-2550) N.C. 18 STERLING STREET, FROM U.S. 64-70 BYPASS TO I-40 IN MORGANTON DUAL BRIDGES ON -Y26- (I-40) AT STATION 34+69.875 -L- (N.C. 18) BURKE COUNTY, NORTH CAROLINA				
Boring No.	Depth (m)	Unconfined Compressive Strength (kPa)	Young's Modulus (kPa)	Average Poisson's Ratio
B2-A	9.67 - 9.84	177,300	5.7 E7	0.10
	11.12 - 11.22	135,200	5.3 E7	0.14
B2-B	9.35 - 9.55	137,300	4.0 E7	0.15
	10.37 - 10.47	146,900	4.3 E7	0.20
B2-C	7.98 - 8.08	95,600	3.3 E7	0.24
	10.42 - 10.60	125,900	7.0 E7	0.22

SITE PHOTOGRAPHS

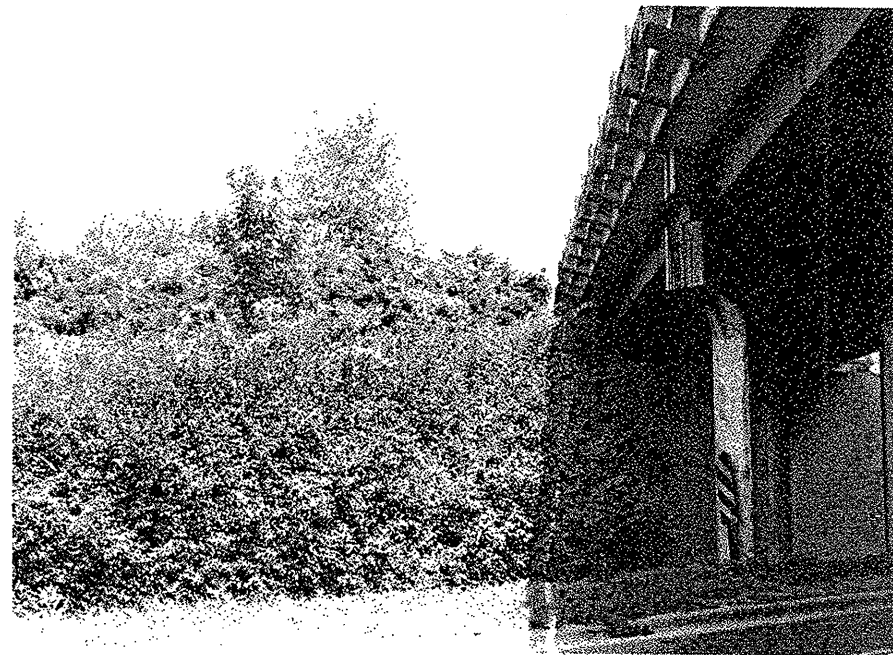


LOOKING EAST FROM END BENT-1 ALONG -Y26- LINE (I-40)

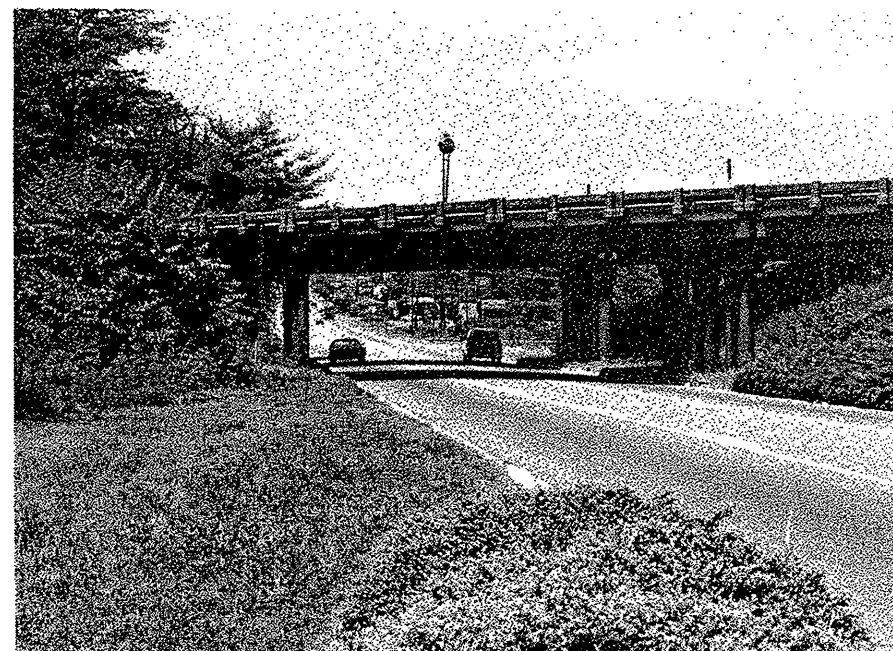


LOOKING WEST FROM BENT-1 ALONG -Y26- LINE (I-40)

SITE PHOTOGRAPHS



LOOKING EAST FROM NC 18 (-L-) TOWARD B2-A



LOOKING NORTHEAST ALONG -L- LINE (NC 18)

SITE PHOTOGRAPHS



**LOOKING EAST ALONG LEFT STRUCTURE
PARALLEL TO -Y26- LINE (I-40)**



**LOOKING WEST ALONG RIGHT STRUCTURE
PARALLEL TO -Y26- LINE (I-40)**