

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

STRUCTURE SUBSURFACE INVESTIGATION

CONTENTS

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	BORING LOCATION PLAN (DWG. 1)
4-5	PROFILE ALONG CENTERLINE OF -L- (DWG. 2-3)
6-13	BORELOG, CORE BORING REPORTS AND CORE PHOTOGRAPHS
14	ROCK TEST RESULTS
15-16	SITE PHOTOGRAPHS

PROJ. REFERENCE NO. 38524.1.1 (B-4752) F.A. PROJ. BRSTP-2014(3)
 COUNTY GASTON
 PROJECT DESCRIPTION BRIDGE No. 6 OVER THE SOUTH FORK CATAWBA RIVER ON SR 2014

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. 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-PLACED) 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: 38524.1.1 ID: B-4752

PERSONNEL

F. COX

D. RHODES

J. HOWARD

INVESTIGATED BY AMEC E&I, Inc.

CHECKED BY S. JOHNSON

SUBMITTED BY B. DEOBALD

DATE 3/21/2012

amec
 AMEC E&I, Inc.
 4021 STIRRUP CREEK DRIVE, SUITE 100
 DURHAM, NORTH CAROLINA 27703
 (919) 381-8500

William B. Deobald
 NC Engineering F-0653 NC Geology C-247

DRAWN BY: R. RAHIE

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

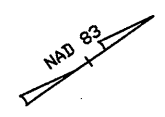
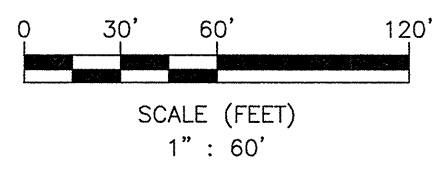
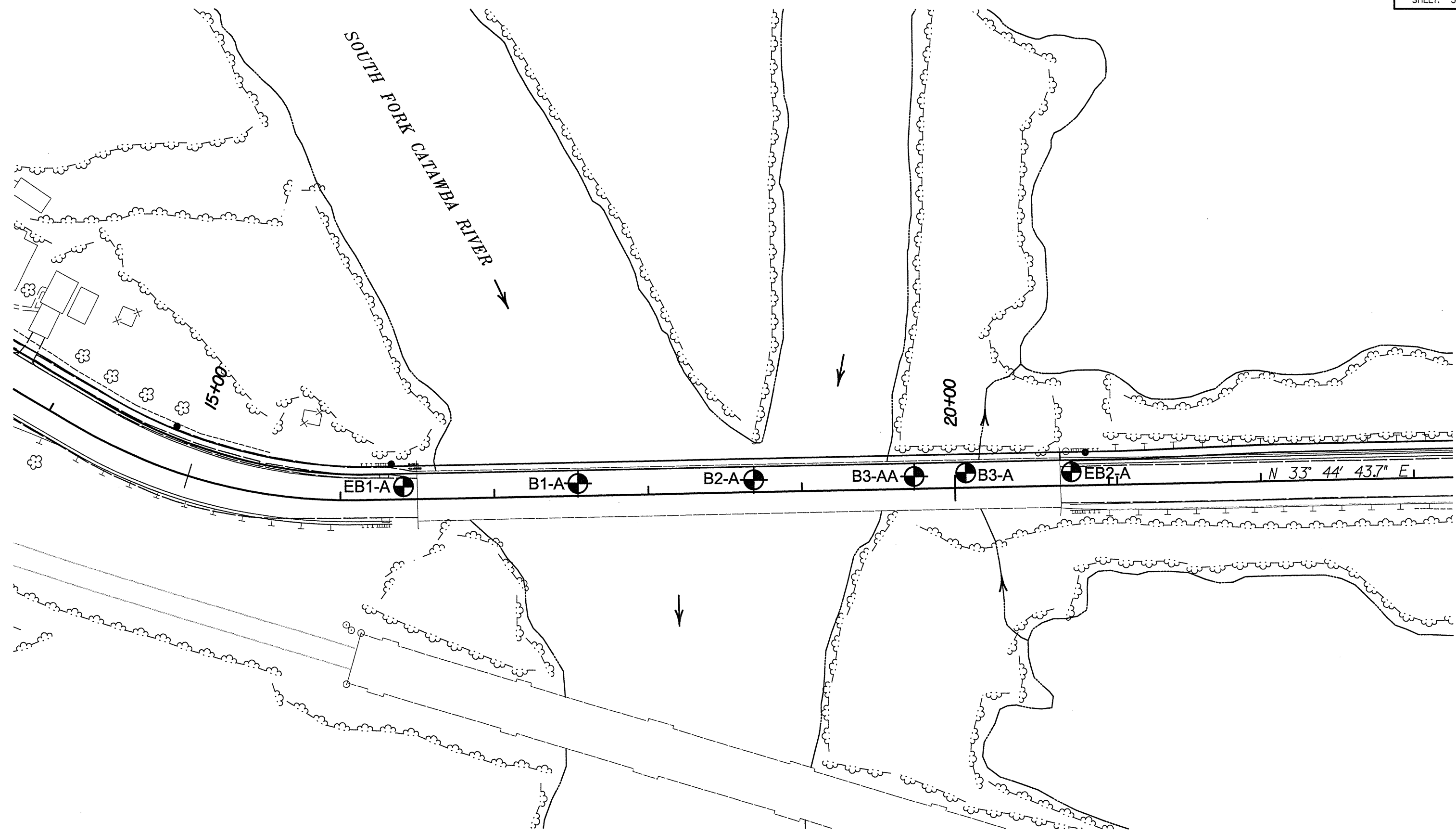
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

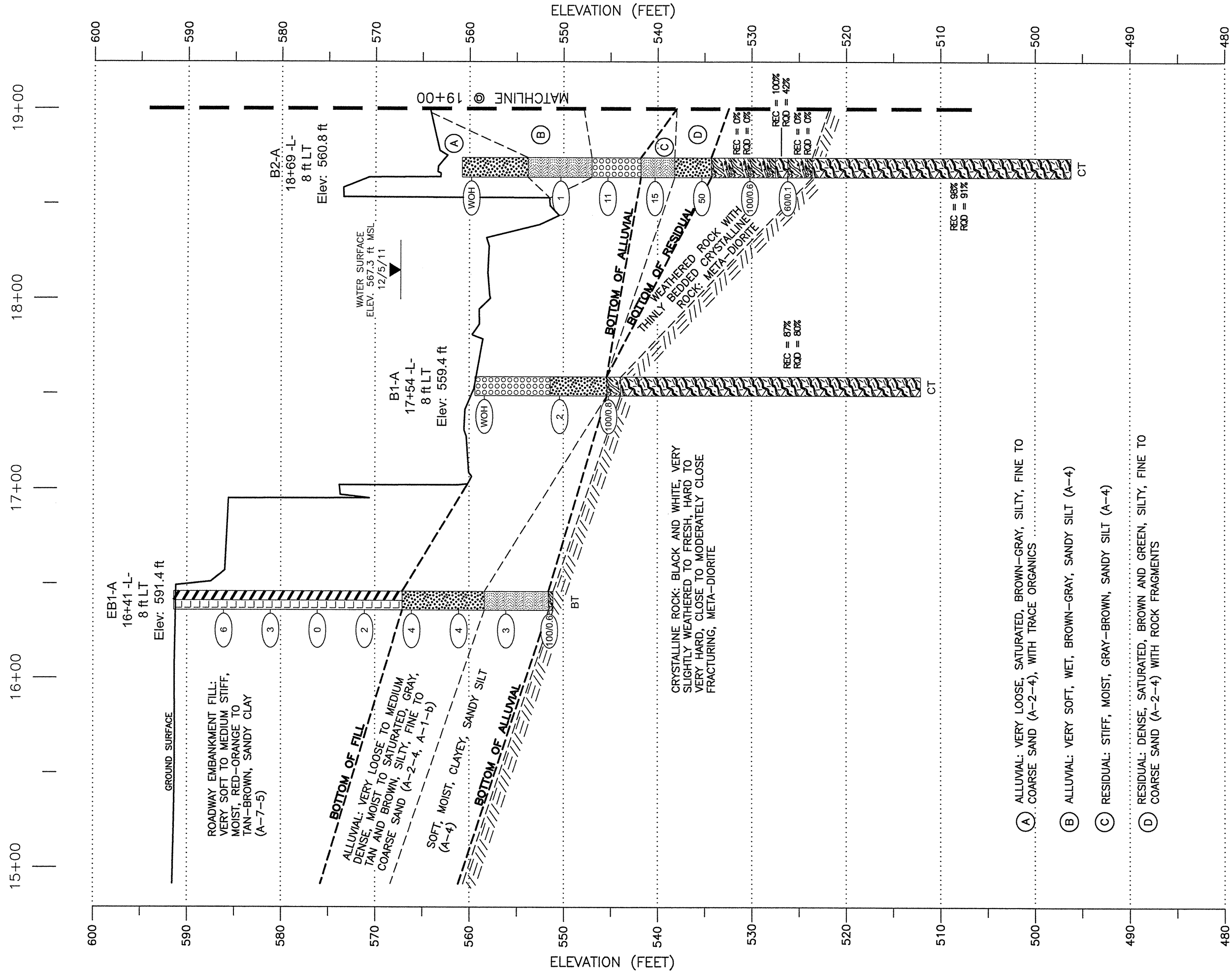
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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: <i>VERY STIFF, GRN. SILTY CLM. MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC. A-7-6</i>				WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.				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 6.1 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) NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR) FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTARY ROCK (CP) COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.				ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDER 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 6.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.			
SOIL LEGEND AND AASHTO CLASSIFICATION				MINERALOGICAL COMPOSITION				WEATHERING							
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS				MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.				FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.							
GROUP CLASS. A-1-a, A-1-b, A-2, A-2-4, A-2-5, A-2-6, A-2-7, A-3, A-3-1, A-3-2, A-3-3, A-3-4, A-3-5, A-3-6, A-3-7, A-4, A-5, A-6, A-7				SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE				VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.							
SYMBOL				PERCENTAGE OF MATERIAL				SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.							
% PASSING 10, 40, 200				ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL				MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.							
LIQUID LIMIT, PLASTIC INDEX, GROUP INDEX				GROUND WATER				SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL.							
USUAL TYPES OF MAJOR MATERIALS				MISCELLANEOUS SYMBOLS				VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF.							
GEN. RATING AS A SUBGRADE				ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION				COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIXES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.							
PI OF A-7-5 SUBGROUP IS <= LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30				SOIL SYMBOL				ROCK HARDNESS							
CONSISTENCY OR DENSENESS				ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT				VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.							
PRIMARY SOIL TYPE, COMPACTNESS OR CONSISTENCY, RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE), RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)				INFERRED SOIL BOUNDARY				HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.							
				INFERRED ROCK LINE				MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.							
				ALLUVIAL SOIL BOUNDARY				MEDIUM HARD CAN BE GROOVED OR GOUGED 0.25 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.							
				DIP & DIP DIRECTION OF ROCK STRUCTURES				SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.							
TEXTURE OR GRAIN SIZE				SOUNDING ROD				VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.							
U.S. STD. SIEVE SIZE OPENING (MM)				ABBREVIATIONS				FRACTURE SPACING				BEDDING			
BOULDER, COBBLE, GRAVEL, COARSE SAND, FINE SAND, SILT, CLAY				AR - AUGER REFUSAL, BT - BORING TERMINATED, CL - CLAY, CPT - CONE PENETRATION TEST, CSE - COARSE, DMT - DILATOMETER TEST, DPT - DYNAMIC PENETRATION TEST, e - VOID RATIO, F - FINE, FOSS. - FOSSILIFEROUS, FRAC. - FRACTURED, FRACTURES, FRAGS. - FRAGMENTS, HI. - HIGHLY				VST - VANE SHEAR TEST, WE. - WEATHERED, W - UNIT WEIGHT, Wd - DRY UNIT WEIGHT, SAMPLE ABBREVIATIONS: S - BULK, SS - SPLIT SPOON, ST - SHELBY TUBE, RS - ROCK, RT - RECOMPACT TRIAXIAL, CBR - CALIFORNIA BEARING RATIO				TERM, SPACING, TERM, THICKNESS			
GRAIN SIZE				EQUIPMENT USED ON SUBJECT PROJECT				INDURATION				BENCH MARK: B4752-2; ALUMINUM CAP N: 546,964 E: 1,383,039			
SOIL MOISTURE - CORRELATION OF TERMS				DRILL UNITS: MOBILE B-51, BK-51, CME-550, CME-45C, PORTABLE HOIST				FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.				ELEVATION: 595.76 FT.			
SOIL MOISTURE SCALE (ATTERBERG LIMITS), FIELD MOISTURE DESCRIPTION, GUIDE FOR FIELD MOISTURE DESCRIPTION				ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING, TRICONE 3" STEEL TEETH, TRICONE TUNG-CARB., CORE BIT				FRIBLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				NOTES: F.I.A.D. - FILLED IMMEDIATELY AFTER DRILLING, C.T. - CORING TERMINATED			
LL, PL, OM, SL				HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST				MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.							
PLASTICITY								INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.							
NONPLASTIC, LOW PLASTICITY, MED. PLASTICITY, HIGH PLASTICITY								EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.							
COLOR															
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.															



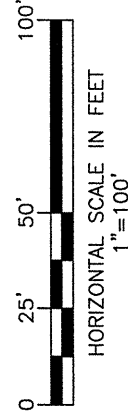
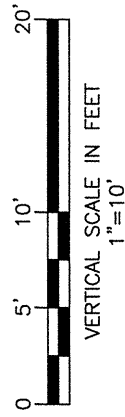
BORING LOCATION PLAN
 BRIDGE No. 6 OVER THE SOUTH FORK CATAWBA RIVER ON SR 2014
 NCDOT PROJECT NO. 38524.1.1 (B-4752)
 F.A. No. BRSTP-2014(3)
 GASTON COUNTY, NORTH CAROLINA

AMEC E&I, INC. DURHAM, NORTH CAROLINA			
REVISIONS	DRAWN: R.R.	DATE:	3/21/2012
	DFT CHECK: W.B.D.	JOB :	6468-11-0537
	ENG CHECK: J.S.J.	DWG:	1



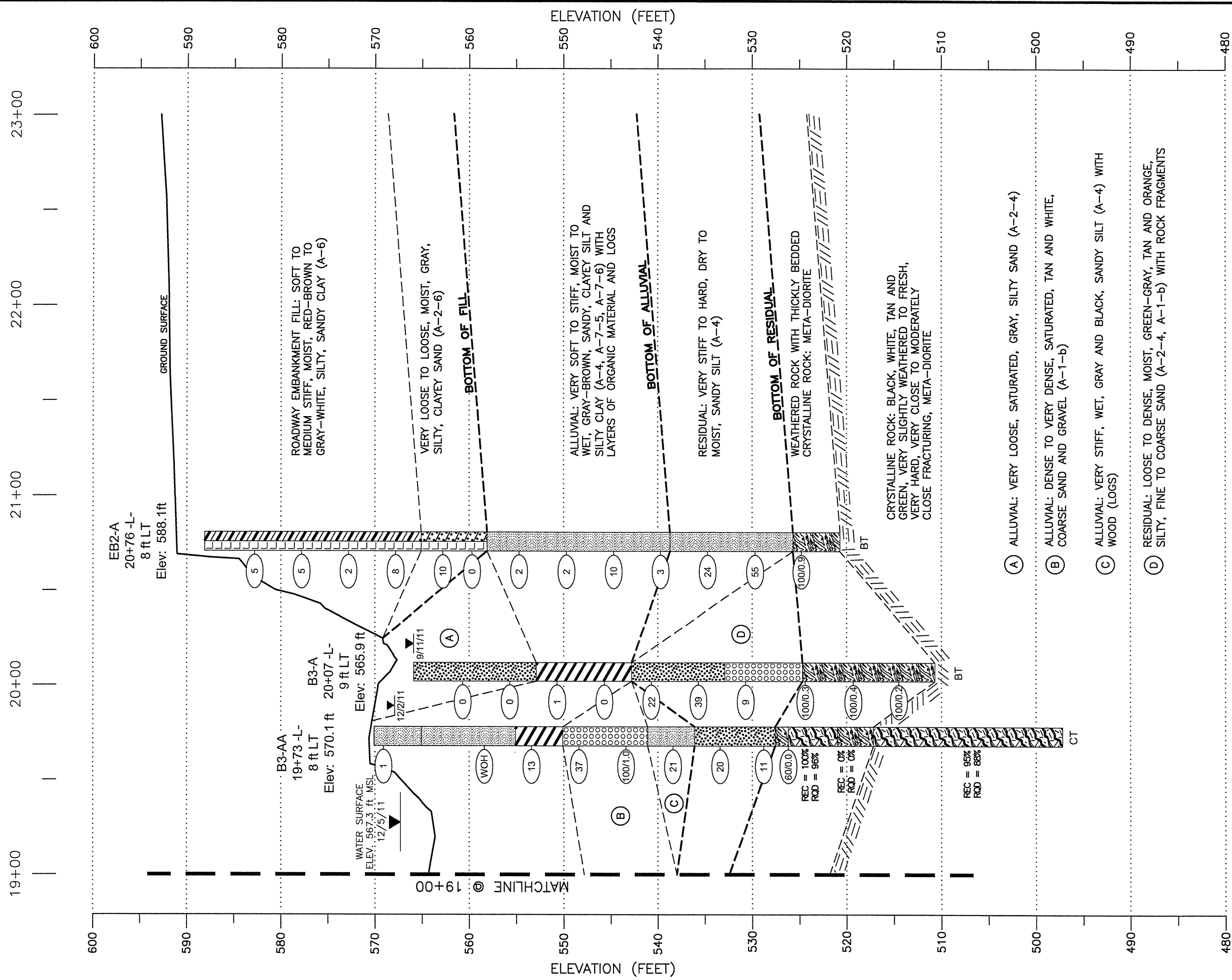
- GROUNDLINE PROFILE -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 8/29/2011.

- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.



PROFILE ALONG CENTERLINE OF -L-
 BRIDGE No. 6 OVER THE SOUTH FORK CATAWBA RIVER ON SR 2014
 NCDOT PROJECT NO. 38524.1.1 (B-4752)
 F.A. No. BRSTP-2014(3)
 GASTON COUNTY, NORTH CAROLINA

AMEC E&I, INC.		DURHAM, NORTH CAROLINA	
REVISIONS	DRAWN:	R.R.	DATE: 3/21/12
	DFT CHECK:	W.B.D.	JOB: 6488-11-0537
	ENG CHECK:	J.S.J.	DWG: 2



- GROUNDLINE PROFILE -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 8/29/2011.
 - INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.



PROFILE ALONG CENTERLINE OF -L-
 BRIDGE No. 6 OVER THE SOUTH FORK CATAWBA RIVER ON SR 2014
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 GASTON COUNTY, NORTH CAROLINA

AMEC E&I, INC.		DURHAM, NORTH CAROLINA	
REVISIONS	DRAWN: R.R.	DATE: 3/21/12	
	DFT CHECK: W.B.D.	JOB: 6488-11-0537	
	ENG CHECK: J.S.J.	DWG: 3	



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 38524.1.1	TIP B-4752	COUNTY GASTON	GEOLOGIST Stickney, J. K.
SITE DESCRIPTION BRIDGE #6 ON SR 2014 OVER SOUTH FORK OF CATAWBA RIVER			GROUND WTR (ft)
BORING NO. EB1-A	STATION 16+41	OFFSET 8 ft LT	ALIGNMENT -L-
COLLAR ELEV. 591.4 ft	TOTAL DEPTH 40.3 ft	NORTHING 547,052	EASTING 1,383,041
DRILL RIG/HAMMER EFF/DATE CME-550X		DRILL METHOD NW Casing w/ Advancer/ SPT	HAMMER TYPE Automatic
DRILLER Smith, M. L.	START DATE 09/08/10	COMP. DATE 09/08/10	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					
595															
590														591.4	GROUND SURFACE
															ROADWAY EMBANKMENT RED-ORANGE TO TAN-BRN MED. STIFF TO SOFT MOIST MED. TO LOW (PI=19, 11, 15) PLASTIC SILTY SANDY CLAY (A-7-5)
585	587.1	4.3	1	2	4								M		
580	582.1	9.3	0	1	2								M		
575	577.1	14.3	0	0	0								M		
570	572.1	19.3	1	1	1								M		
565	567.1	24.3	1	3	1								M	567.1	ALLUVIAL GRAY LOOSE MOIST SILTY SAND (A-2-4)
560	562.1	29.3	1	2	2								M		
555	557.1	34.3	1	2	1								M	558.4	BRN SOFT TO V. STIFF MOIST CLAYEY SANDY SILT (A-4)
	552.1	39.3	18	82	1									551.6	WEATHERED ROCK SEVERELY WEATHERED CRYSTALLINE ROCK
														551.1	Boring Terminated with Casing Advancer Refusal at Elevation 551.1 ft ON CRYSTALLINE ROCK

NCDOT BORE SINGLE_B4752_GEO_BH_BRDG0006_GINT_DOT BORINGS.GPJ NC_DOT.GDT 3/20/12

WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.										
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)									
BORING NO. B1-A		STATION 17+54		OFFSET 8 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 559.4 ft		TOTAL DEPTH 47.3 ft		NORTHING 547,146		EASTING 1,383,104										
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic												
DRILLER Cox, F.		START DATE 12/05/11		COMP. DATE 01/12/12		SURFACE WATER DEPTH 7.9ft										
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						
560	559.4	0.0	WOH	WOH	WOH									559.4	0.0	MUDLINE
555														551.4	8.0	ALLUVIAL Brown, fine to coarse SAND (A-1-b)
550	551.4	8.0	1	1	1									551.4	8.0	Tan and brown, silty, fine to coarse SAND (A-2-4), with trace wood
545	546.4	13.0	2	2	98/0.2									545.4	14.0	WEATHERED ROCK META-DIORITE
540												RS-1		543.9	15.5	CRYSTALLINE ROCK Black and white, very slightly weathered to fresh, hard to very hard, close to moderately close fracturing, META-DIORITE
535																15 joints at 20-30 degrees 7 joints at 40-50 degrees 6 joints at 65-85 degrees
530																RS-1: Unit Weight =185.0 lbs/cf Unconfined Compressive Strength = 20.3 ksi RMR = 59
525												RS-2				RS-2: Unit Weight =177.8 lbs/cf Unconfined Compressive Strength = 23.8 ksi RMR = 69
520																
515																
														512.1	47.3	Boring Terminated at Elevation 512.1 ft in CRYSTALLINE ROCK: META-DIORITE

WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.						
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)					
BORING NO. B1-A		STATION 17+54		OFFSET 8 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 559.4 ft		TOTAL DEPTH 47.3 ft		NORTHING 547,146		EASTING 1,383,104						
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic								
DRILLER Cox, F.		START DATE 12/05/11		COMP. DATE 01/12/12		SURFACE WATER DEPTH 7.9ft						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		SAMP. NO.	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)				
543.9												
	543.9	15.5	3.4	8:30 9:30 8:00	(2.5) 74%	(1.2) 35%					543.9	15.5
540	540.5	18.9	5.0	2:45/0.4 7:30 4:15 7:15 6:30 6:00	(4.4) 88%	(3.4) 68%			RS-1			
535	535.5	23.9	5.0	5:30 6:30 5:00 2:45 5:30	(4.4) 88%	(3.4) 68%						
530	530.5	28.9	5.0	3:45 3:15 3:45 4:30 4:15	(5.0) 100%	(4.9) 98%						
525	525.5	33.9	5.0	3:15 3:00 4:15 4:00	(5.0) 100%	(5.0) 100%			RS-2			
520	520.5	38.9	3.4	4:00 6:45 8:30	(3.4) 100%	(2.7) 79%						
515	517.1	42.3	5.0	1:00/0.4 9:00 7:30 6:30 6:00	(5.0) 100%	(4.8) 96%						
	512.1	47.3									512.1	47.3

NCDOT BORE SINGLE B4752_GEO_BRDG0006_GINT_AMEC BORINGS.GPJ NC_DOT.GDT 3/22/12

NCDOT CORE SINGLE B4752_GEO_BRDG0006_GINT_AMEC BORINGS.GPJ NC_DOT.GDT 3/22/12

CORE PHOTOGRAPHS

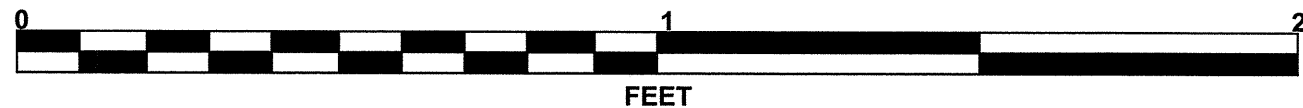
B1-A

BOXES 1 & 2: 15.5 - 35.7 FEET



B1-A

BOXES 3 & 4: 35.7 - 47.3 FEET



WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.									
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)								
BORING NO. B2-A		STATION 18+69		OFFSET 8 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 560.8 ft		TOTAL DEPTH 64.6 ft		NORTHING 547,241		EASTING 1,383,168									
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic											
DRILLER Cox, F.		START DATE 12/02/11		COMP. DATE 01/09/12		SURFACE WATER DEPTH 7.2ft									
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					
565															
560	560.8	0.0	WOH	WOH	WOH								Sat.	560.8	0.0
555															
550	551.3	9.5	WOH	WOH	1								W	553.8	7.0
545	546.3	14.5											Sat.	547.0	13.8
540	541.3	19.5											M	541.8	19.0
535	536.3	24.5											Sat.	538.2	22.6
530	531.3	29.5												534.3	26.5
525	526.3	34.5												527.5	33.3
520														526.2	34.6
515														523.6	37.2
510															
505													RS-3		
500															
														496.2	64.6
Boring Terminated at Elevation 496.2 ft in CRYSTALLINE ROCK: META-DIORITE															

WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.						
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)					
BORING NO. B2-A		STATION 18+69		OFFSET 8 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 560.8 ft		TOTAL DEPTH 64.6 ft		NORTHING 547,241		EASTING 1,383,168						
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic								
DRILLER Cox, F.		START DATE 12/02/11		COMP. DATE 01/09/12		SURFACE WATER DEPTH 7.2ft						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft)	ROD (ft)		REC. (ft)	ROD (ft)			
560.2												
	530.2	30.6	3.9	2:15 3:45 3:30	(1.2) 31%	(0.5) 13%		(0.0) 0%	(0.0) 0%		Begin Coring @ 30.6 ft	
	526.3	34.5		5:00/0.1	(2.4) 48%	(2.3) 46%		(1.2) 100%	(0.5) 42%		WEATHERED ROCK META-DIORITE (continued)	33.3
	526.2	34.8	5.0	1:45 2:00 3:45 4:15				(0.0) 0%	(0.0) 0%		CRYSTALLINE ROCK Black and white, very slightly weathered to fresh, hard, moderately close fracturing, META-DIORITE 1 joint at 70 degrees	34.6
	521.2	39.6		20:45 7:15 4:00 4:15 4:00	(5.0) 100%	(4.4) 88%		(26.9) 98%	(24.9) 91%		WEATHERED ROCK META-DIORITE	37.2
	516.2	44.6	5.0	5:15 4:30 6:00 6:00	(5.0) 100%	(5.0) 100%					CRYSTALLINE ROCK Black and white, very slightly weathered to fresh, hard to very hard, close to moderately close fracturing, META-DIORITE	
	511.2	49.6	5.0	5:15 4:30 6:00 6:15	(5.0) 100%	(4.7) 94%					6 joints at 20-30 degrees 3 joints at 40-50 degrees 4 joints at 70-80 degrees	
	506.2	54.6	5.0	7:45 5:30 7:30 5:15 6:00	(5.0) 100%	(4.5) 90%	RS-3				RS-3: Unit Weight = 179.6 lbs/cf Unconfined Compressive Strength = 28 ksi RMR = 72	
	501.2	59.6	5.0	9:30 9:15 9:00 6:45 6:15	(4.5) 90%	(4.0) 80%						
	496.2	64.6									Boring Terminated at Elevation 496.2 ft in CRYSTALLINE ROCK: META-DIORITE	64.6

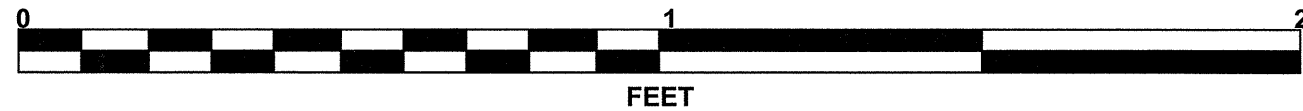
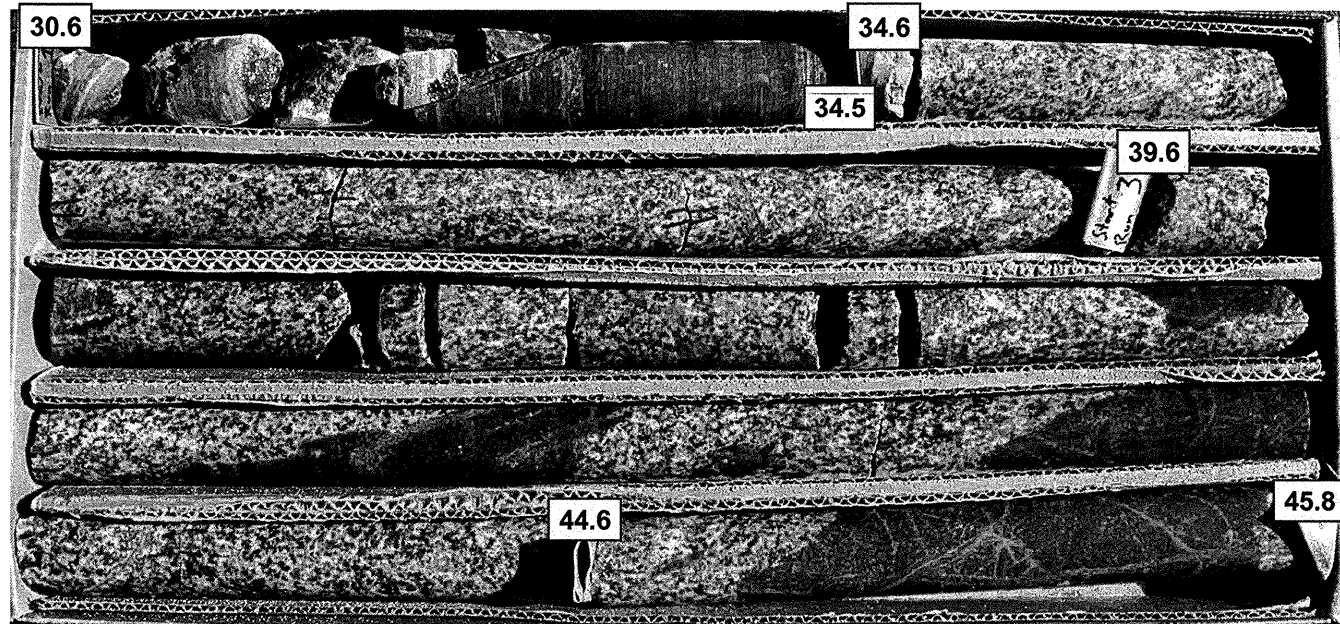
NCDOT BORE SINGLE B4752_GEO_BRDG0006_GINT_AMEC BORINGS.GPJ NC_DOT.GDT_3/22/12

NCDOT CORE SINGLE B4752_GEO_BRDG0006_GINT_AMEC BORINGS.GPJ NC_DOT.GDT_3/22/12

CORE PHOTOGRAPHS

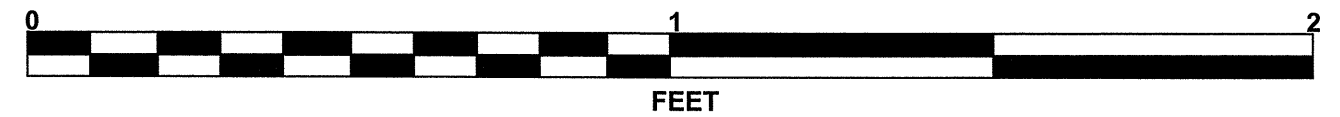
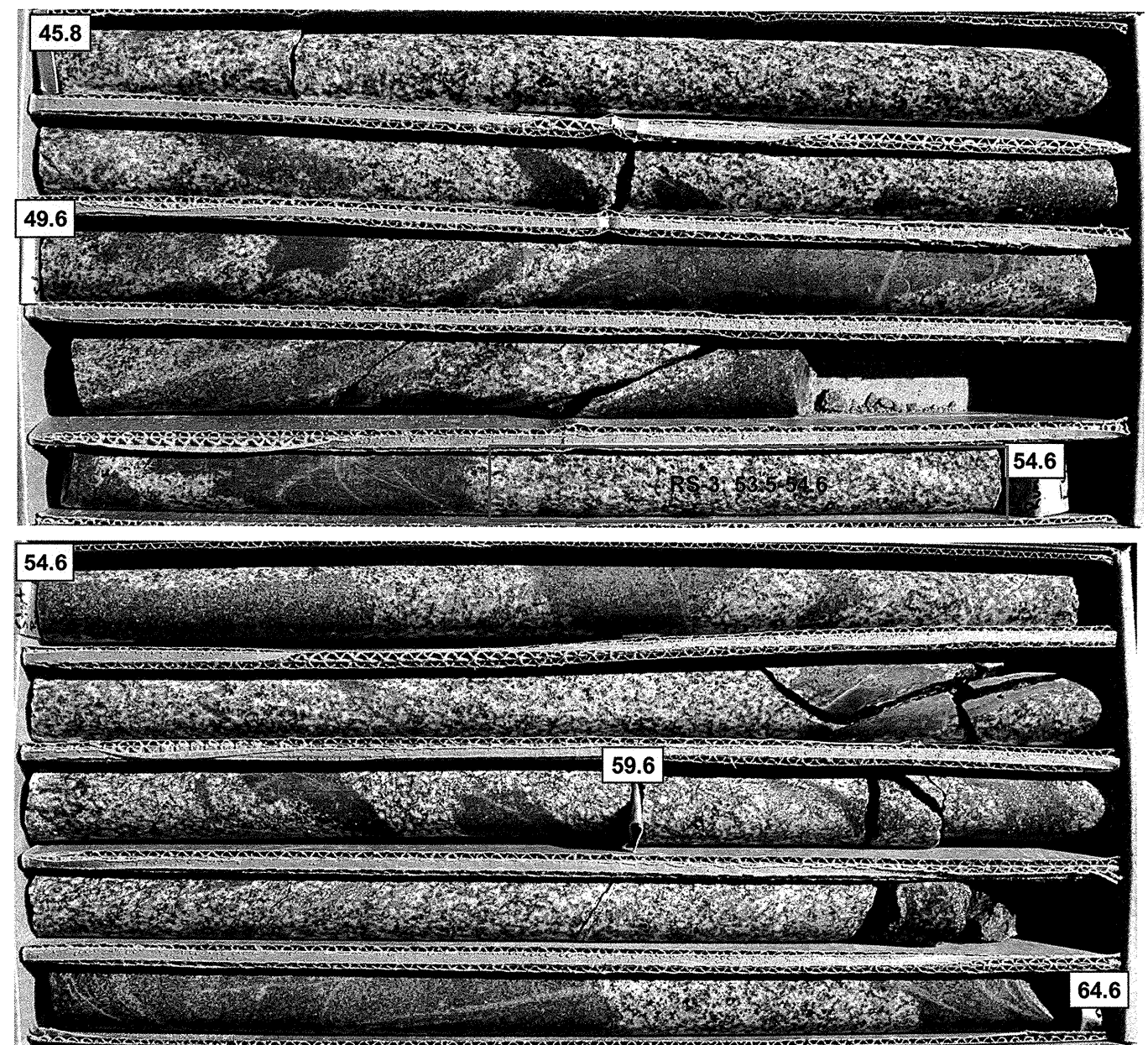
B2-A

BOX 1: 30.6 - 45.8 FEET



B2-A

BOXES 2 & 3: 45.8 - 64.6 FEET



WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.										
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)									
BORING NO. B3-AA		STATION 19+73		OFFSET 8 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 570.1 ft		TOTAL DEPTH 72.9 ft		NORTHING 547,328		EASTING 1,383,226										
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic												
DRILLER Cox, F.		START DATE 11/29/11		COMP. DATE 12/01/11		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						
575																
570	570.1	0.0	1	WOH	1									570.1	GROUND SURFACE	0.0
565														565.1	ALLUVIAL Brown, fine to coarse, sandy SILT (A-4.) with trace organics	5.0
560	559.4	10.7		WOH	WOH	WOH								555.1	Brown-gray, clayey SILT (A-4.) with trace fine sand and mica	5.0
555	554.4	15.7	6		7	6								550.1	20.0ft: bit chatter and loss of circulation	20.0
550	549.4	20.7	23		18	19								550.1	Tan and white, coarse SAND and GRAVEL (A-1-b)	20.0
545	544.4	25.7	28		60	40								541.1	Gray and black, sandy SILT (A-4), with wood (logs)	29.0
540	539.4	30.7	10		11	10								536.1	RESIDUAL Green-gray, white, tan and orange, silty, fine SAND (A-2-4), saprolitic	34.0
535	534.4	35.7	12		11	9								527.6	42.5ft: harder drilling	42.5
530	529.8	40.3	6		6	5								526.2	WEATHERED ROCK META-DIORITE	43.9
525	526.2	43.9	60/0.0											521.0	CRYSTALLINE ROCK Black, white and green, very slightly weathered to fresh, very hard, moderately close to wide fracturing, META-DIORITE 2 joints at 45 degrees	49.1
520														517.2	WEATHERED ROCK META-DIORITE (no recovery)	52.9
515																
510																
505																
500																
														497.2	Boring Terminated at Elevation 497.2 ft in CRYSTALLINE ROCK: META-DIORITE	72.9

WBS 38524.1.1		TIP B-4752		COUNTY GASTON		GEOLOGIST Howard, J.					
SITE DESCRIPTION Bridge No. 6 over the South Fork Catawba River on SR 2014							GROUND WTR (ft)				
BORING NO. B3-AA		STATION 19+73		OFFSET 8 ft LT		ALIGNMENT -L-					
COLLAR ELEV. 570.1 ft		TOTAL DEPTH 72.9 ft		NORTHING 547,328		EASTING 1,383,226					
DRILL RIG/HAMMER EFF./DATE MAC9354 CME-45C 86% 10/3/2010		DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic							
DRILLER Cox, F.		START DATE 11/29/11		COMP. DATE 12/01/11		SURFACE WATER DEPTH N/A					
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	ROD (%)	REC. (%)	ROD (%)			
526.2											
525	526.2	43.9	4.0	N=60/0.0 32:30 6:30 7:45 9:00	(4.0) 100%	(4.0) 100%	(5.2) 100%	(5.0) 96%		Begin Coring @ 43.9 ft	43.9
	522.2	47.9	5.0	2:45 0:15 0:45 1:00 1:30	(1.2) 24%	(1.0) 20%	(0.0) 0%	(0.0) 0%		Note: Slower drill rates from 43.9' to 47.9' caused by worn core bit. Bit replaced at end of run.	49.1
520										WEATHERED ROCK META-DIORITE (no recovery)	52.9
	517.2	52.9	5.0	3:30 3:15 4:15 3:15 3:00	(4.9) 98%	(4.6) 92%	(18.9) 95%	(17.5) 88%		CRYSTALLINE ROCK Black, white, tan and green, very slightly weathered to fresh, very hard, very close to moderately close fracturing, META-DIORITE 8 joints at 20-30 degrees 8 joints at 45 degrees	
515											
	512.2	57.9	5.0	3:15 2:45 2:45 2:45 3:30	(4.9) 98%	(4.3) 86%				RS-4: Unit Weight = 181.3 lbs/cf Unconfined Compressive Strength = 33 ksi RMR = 62	
510											
	507.2	62.9	5.0	3:30 3:30 1:15 3:15 3:30	(4.1) 82%	(3.6) 72%				64.7 - 65.6ft: Moderately weathered zone	
505											
	502.2	67.9	5.0	3:45 2:45 3:00 3:45 3:45	(5.0) 100%	(5.0) 100%				RS-5: Unit Weight = 180.5 lbs/cf Unconfined Compressive Strength = 3.69 ksi RMR = 51	
500											
	497.2	72.9								Boring Terminated at Elevation 497.2 ft in CRYSTALLINE ROCK: META-DIORITE	72.9

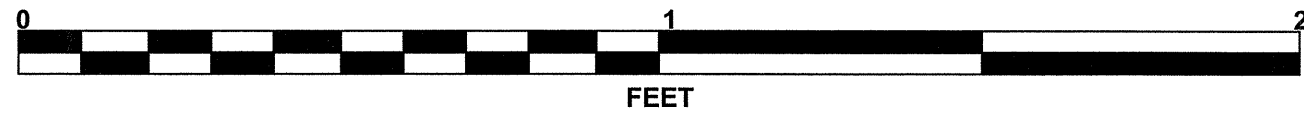
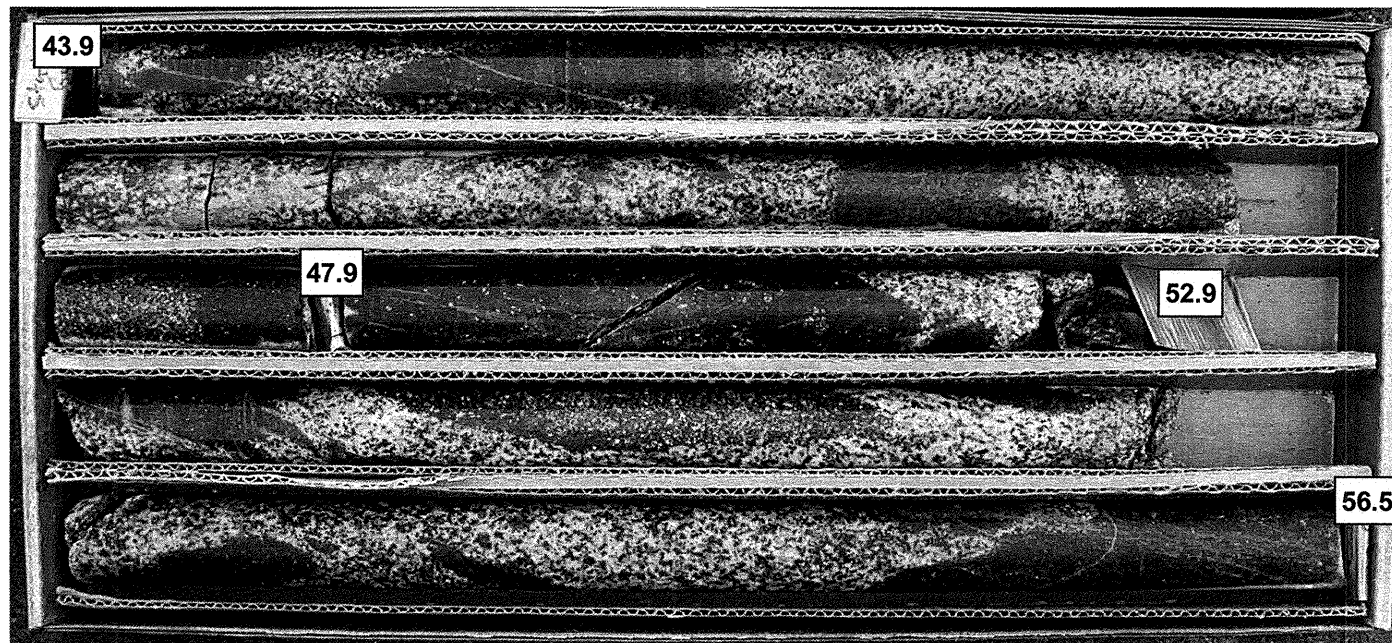
NCDOT BORE SINGLE B4752_GEO_BRD0006_GINT_AMEC BORINGS.GPJ_NC_DOT.GDT 3/22/12

NCDOT CORE SINGLE B4752_GEO_BRD0006_GINT_AMEC BORINGS.GPJ_NC_DOT.GDT 3/22/12

CORE PHOTOGRAPHS

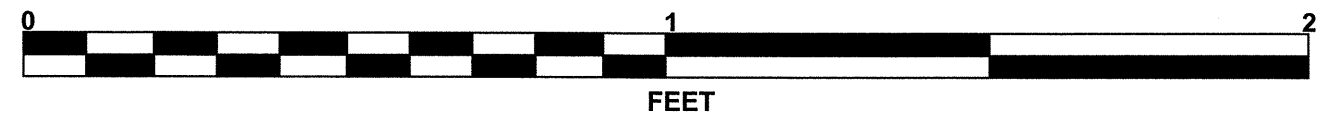
B3-AA

BOX 1: 43.9 - 56.5 FEET



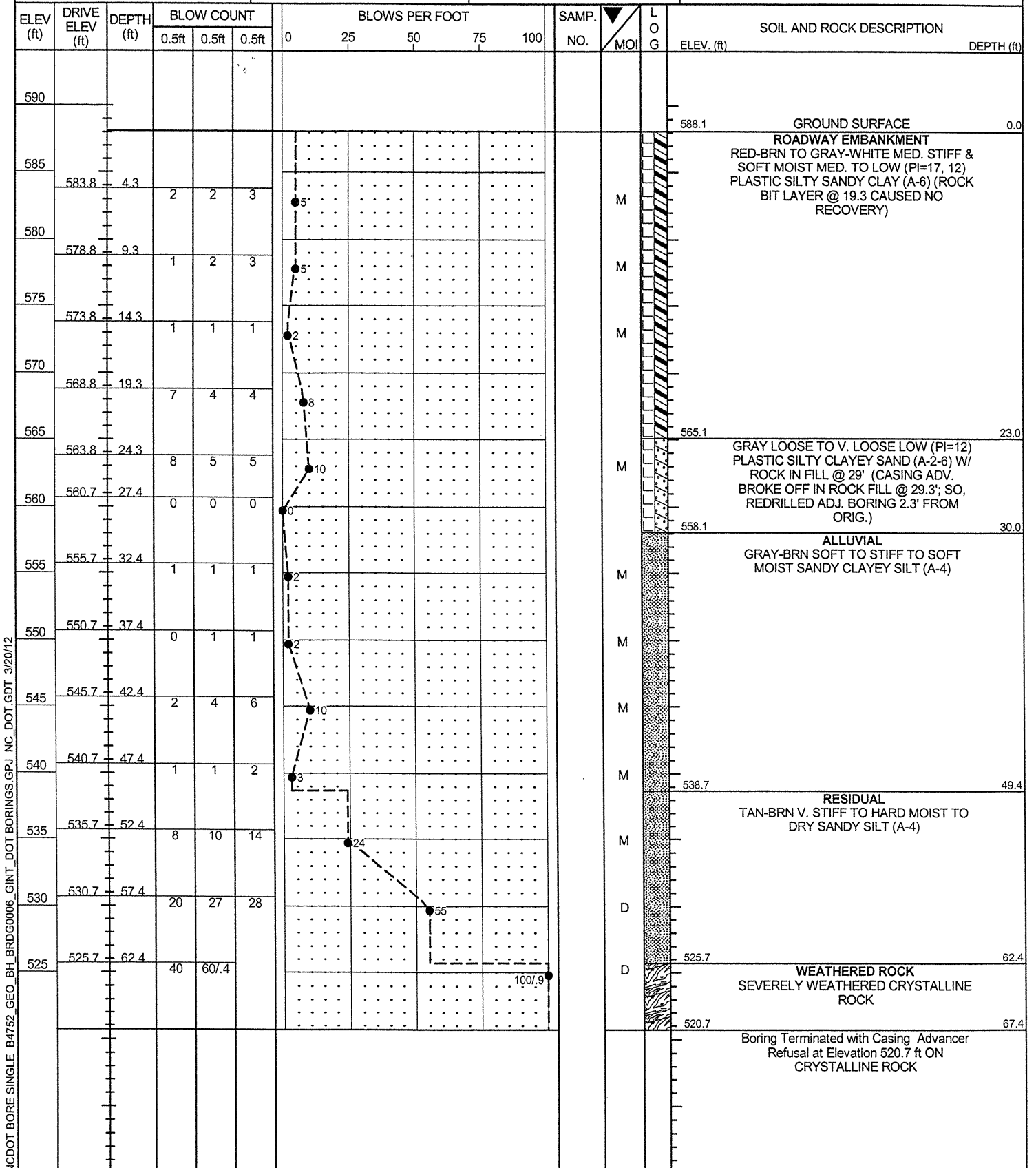
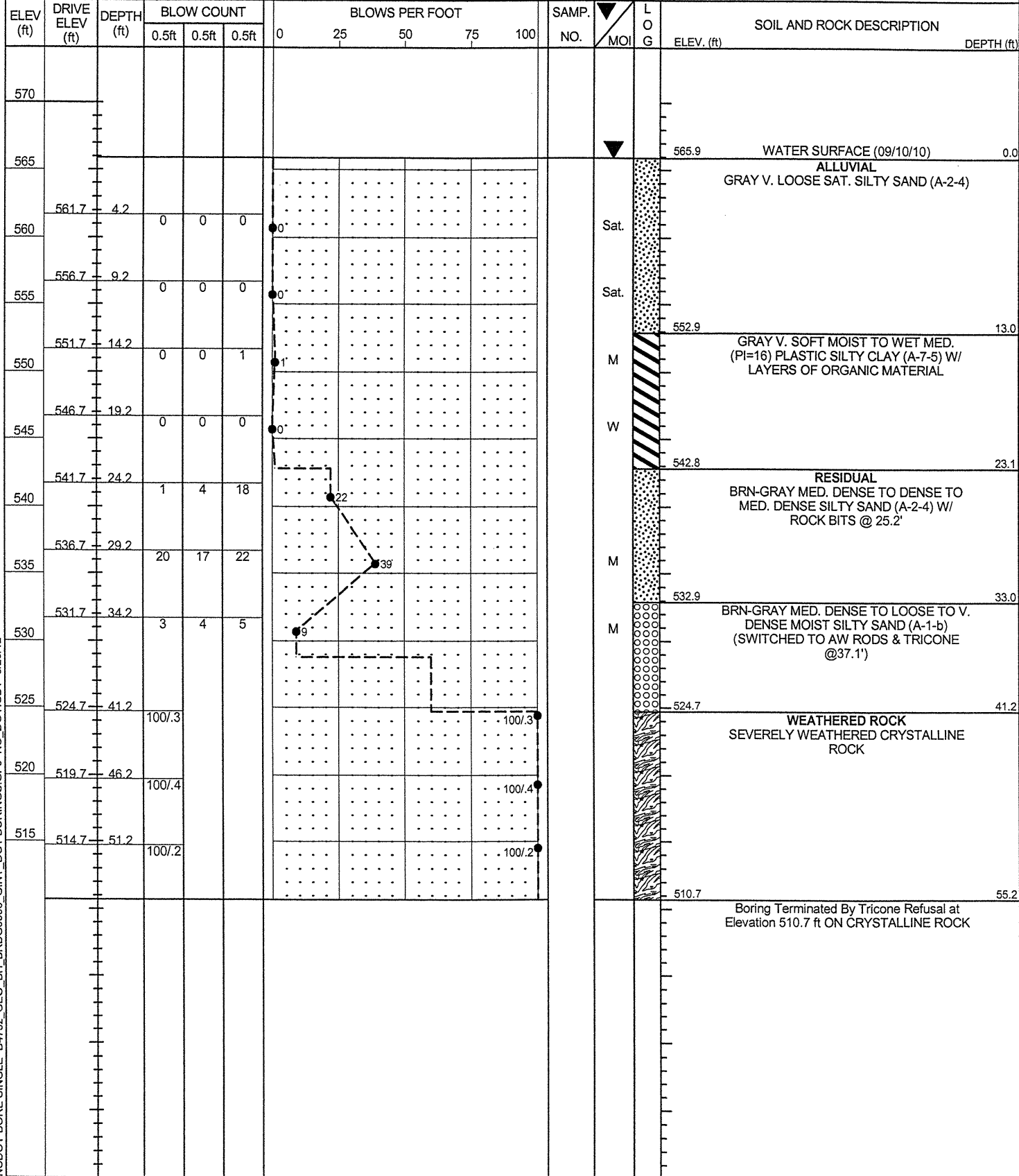
B3-AA

BOXES 2 & 3: 56.5 - 72.9 FEET



WBS 38524.1.1	TIP B-4752	COUNTY GASTON	GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION BRIDGE #6 ON SR 2014 OVER SOUTH FORK OF CATAWBA RIVER				GROUND WTR (ft)
BORING NO. B3-A	STATION 20+07	OFFSET 9 ft LT	ALIGNMENT -L-	0 HR. 0.0
COLLAR ELEV. 565.9 ft	TOTAL DEPTH 55.2 ft	NORTHING 547,357	EASTING 1,383,243	24 HR. 0.0
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Advancer/ SPT	HAMMER TYPE Automatic	
DRILLER Smith, C. L.	START DATE 09/10/10	COMP. DATE 09/10/10	SURFACE WATER DEPTH 0.0ft	

WBS 38524.1.1	TIP B-4752	COUNTY GASTON	GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION BRIDGE #6 ON SR 2014 OVER SOUTH FORK OF CATAWBA RIVER				GROUND WTR (ft)
BORING NO. EB2-A	STATION 20+76	OFFSET 8 ft LT	ALIGNMENT -L-	0 HR. NM
COLLAR ELEV. 588.1 ft	TOTAL DEPTH 67.4 ft	NORTHING 547,414	EASTING 1,383,282	24 HR. NM
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Advancer/ SPT	HAMMER TYPE Automatic	
DRILLER Smith, C. L.	START DATE 09/09/10	COMP. DATE 09/09/10	SURFACE WATER DEPTH N/A	



NCDOT BORE SINGLE B4752 GEO. BH. BRDG0006 GINT_DOT BORINGS.GPJ NC_DOT.GDT 3/20/12

NCDOT BORE SINGLE B4752 GEO. BH. BRDG0006 GINT_DOT BORINGS.GPJ NC_DOT.GDT 3/20/12

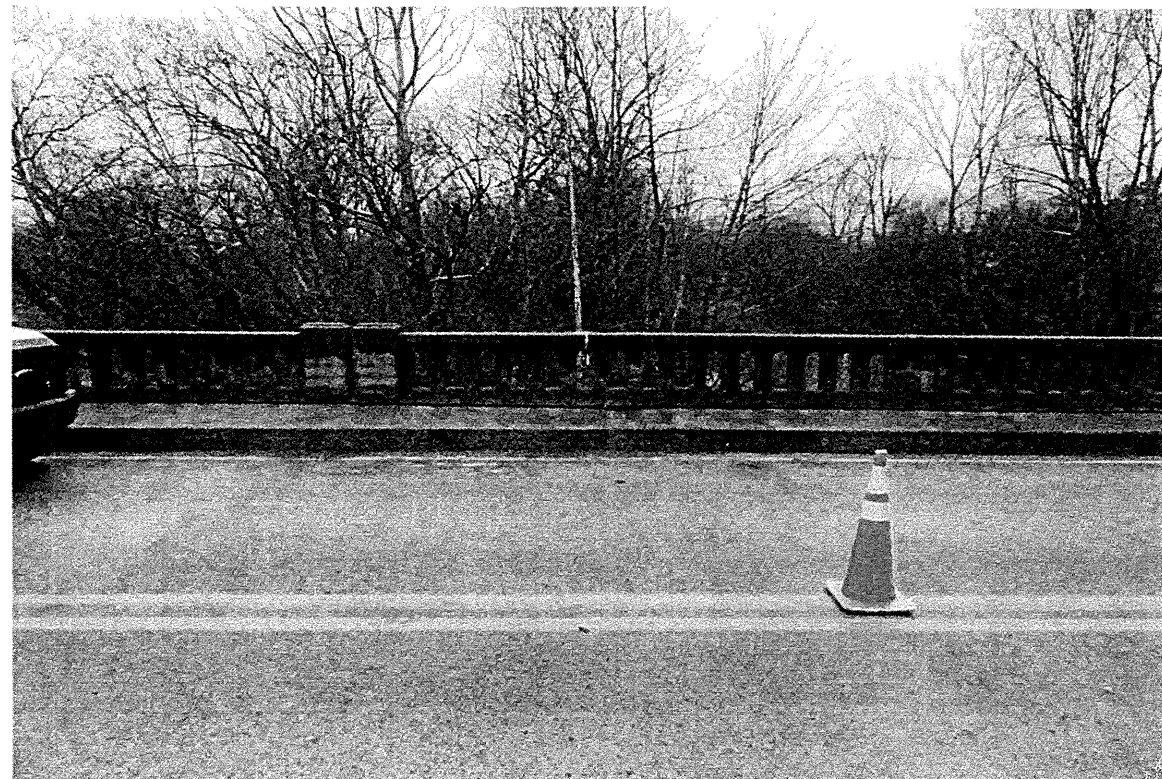
<i>ROCK TEST RESULTS</i>							
SAMPLE NO.	OFFSET	STATION	BORING NO.	DEPTH INTERVAL	UNIT WT. lbs/cf	UNCONFINED COMPRESSIVE STRENGTH KSI	ROCK MASS RATING
RS-1	8 LT	17+54	B1-A	17.8-18.6	185.0	20.3	59
RS-2	8 LT	17+54	B1-A	32.5-33.8	177.8	23.8	69
RS-3	8 LT	18+69	B2-A	53.5-54.6	179.6	28.0	72
RS-4	8 LT	19+73	B3-AA	60.1-61.3	181.3	33.0	62
RS-5	8 LT	19+73	B3-AA	65.6-66.5	180.5	3.69	51



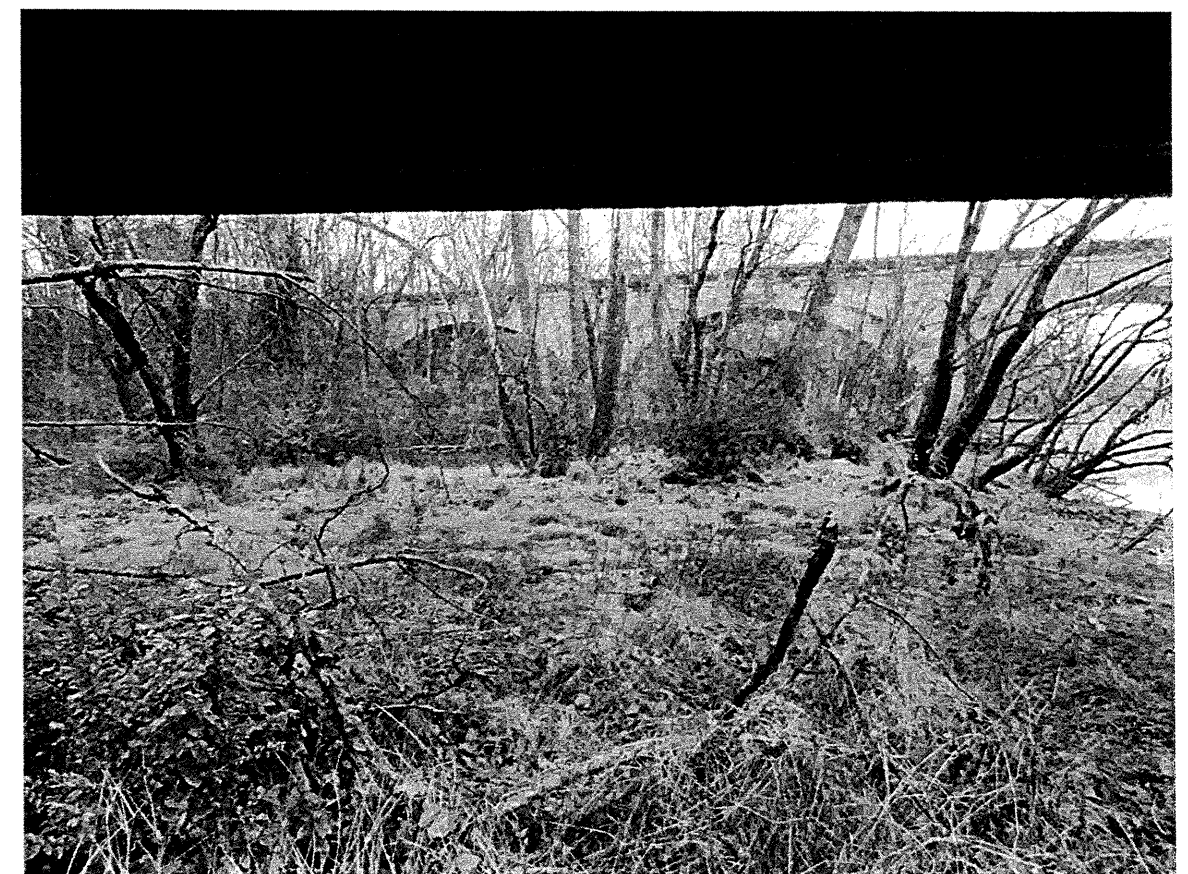
B1-A: Looking right to left.



B2-A: Looking left to right.



B2-A: Looking right to left.



B3-AA: Looking left to right.



B3-AA: Looking right to left.



Looking down station.