

REFERENCE: BR-0070

PROJECT: 67070

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY CASWELL
PROJECT DESCRIPTION REPLACEMENT OF BRIDGE NO. 61
OVER HOGAN'S CREEK ON NC 86 BETWEEN SR
1300 AND SR 1500 AND CONSTRUCT CONNECTOR
ROADS FOR NEW BRIDGE
SITE DESCRIPTION BRIDGE NO. 61 OVER HOGANS CREEK
ON HWY NC 86

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
2A	SUPPLEMENTAL LEGEND (GSI)
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-14	BORE LOGS, CORE REPORTS, & CORE PHOTOGRAPHS
15	LAB TEST RESULTS
16	SITE PHOTOGRAPH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0070	1	17

CAUTION NOTICE

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

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

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

NOTES:

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

PERSONNEL

E. FERREIRA, EI

CATLIN

T. THOMAS

T. PARK

P. MCCAIN

INVESTIGATED BY E. FERREIRA, EI

DRAWN BY E. FERREIRA, EI

CHECKED BY D. BROWN, PE

SUBMITTED BY D. BROWN, PE

DATE DECEMBER 2021



STEWART

12/15/2021



DocuSign by Donald W. Brown Jr.

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SIGNATURE

DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

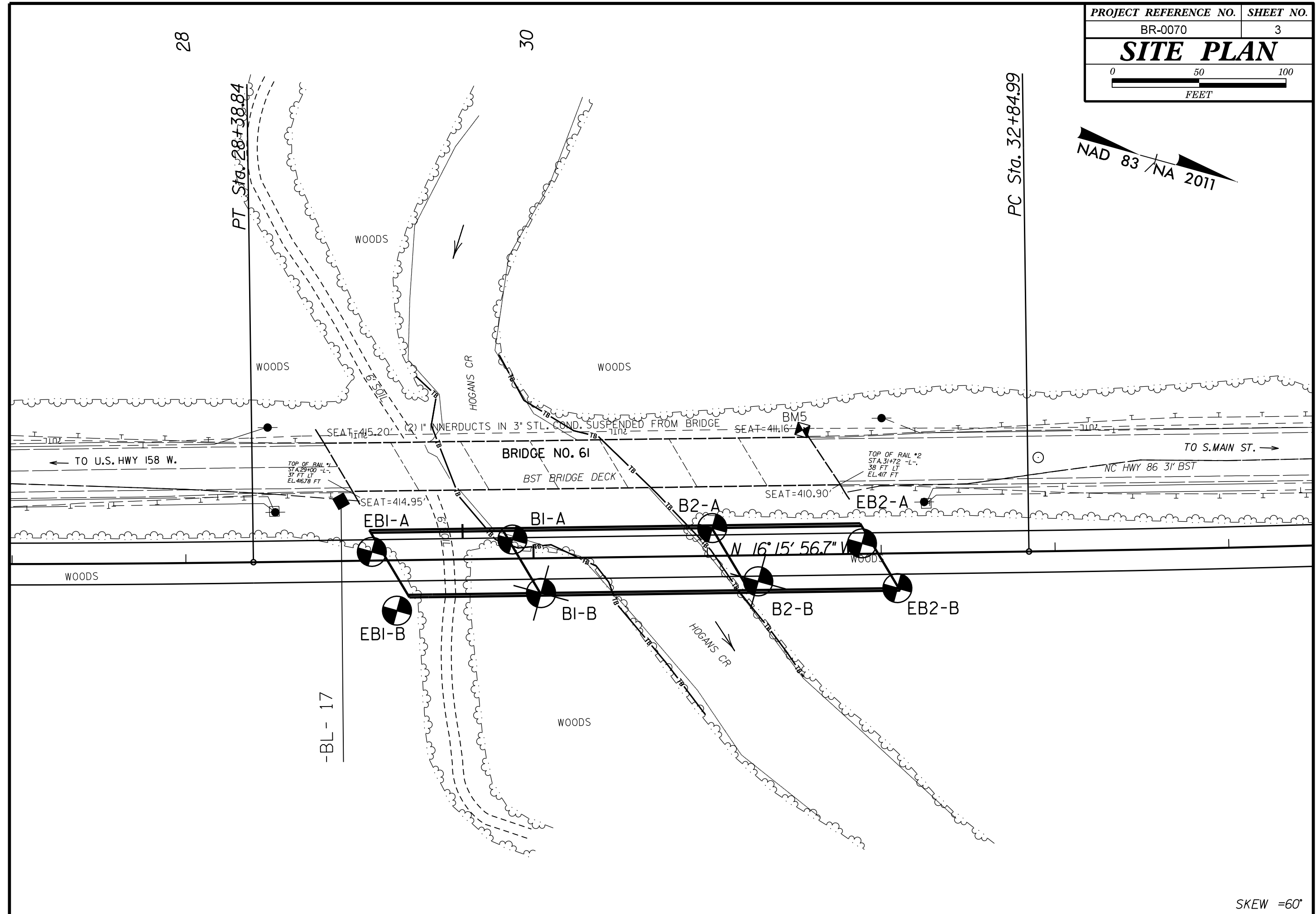
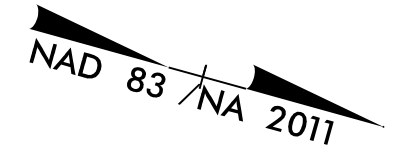
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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SUBSURFACE INVESTIGATION

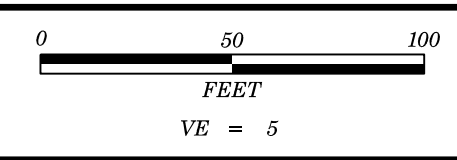
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																																																															
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p>										<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (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 (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (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.</p>																																																																																																																																															
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ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>										<p>FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (IV 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.</p> <p>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.</p> <p>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.</p> <p>MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i></p> <p>SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</i></p> <p>VERY SEVERE (IV SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i></p> <p>COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.</p>									
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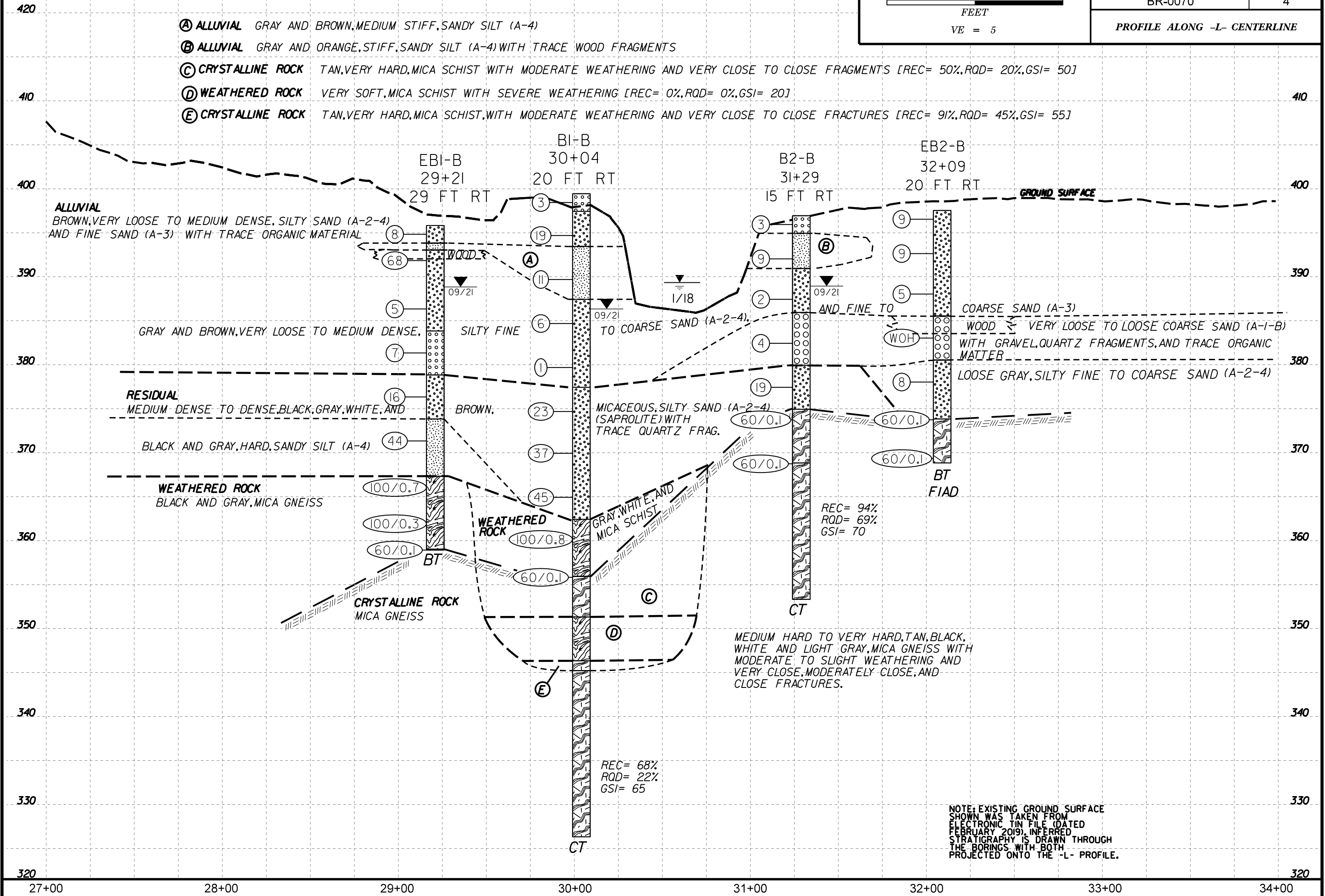
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BR-0070	3
SITE PLAN	
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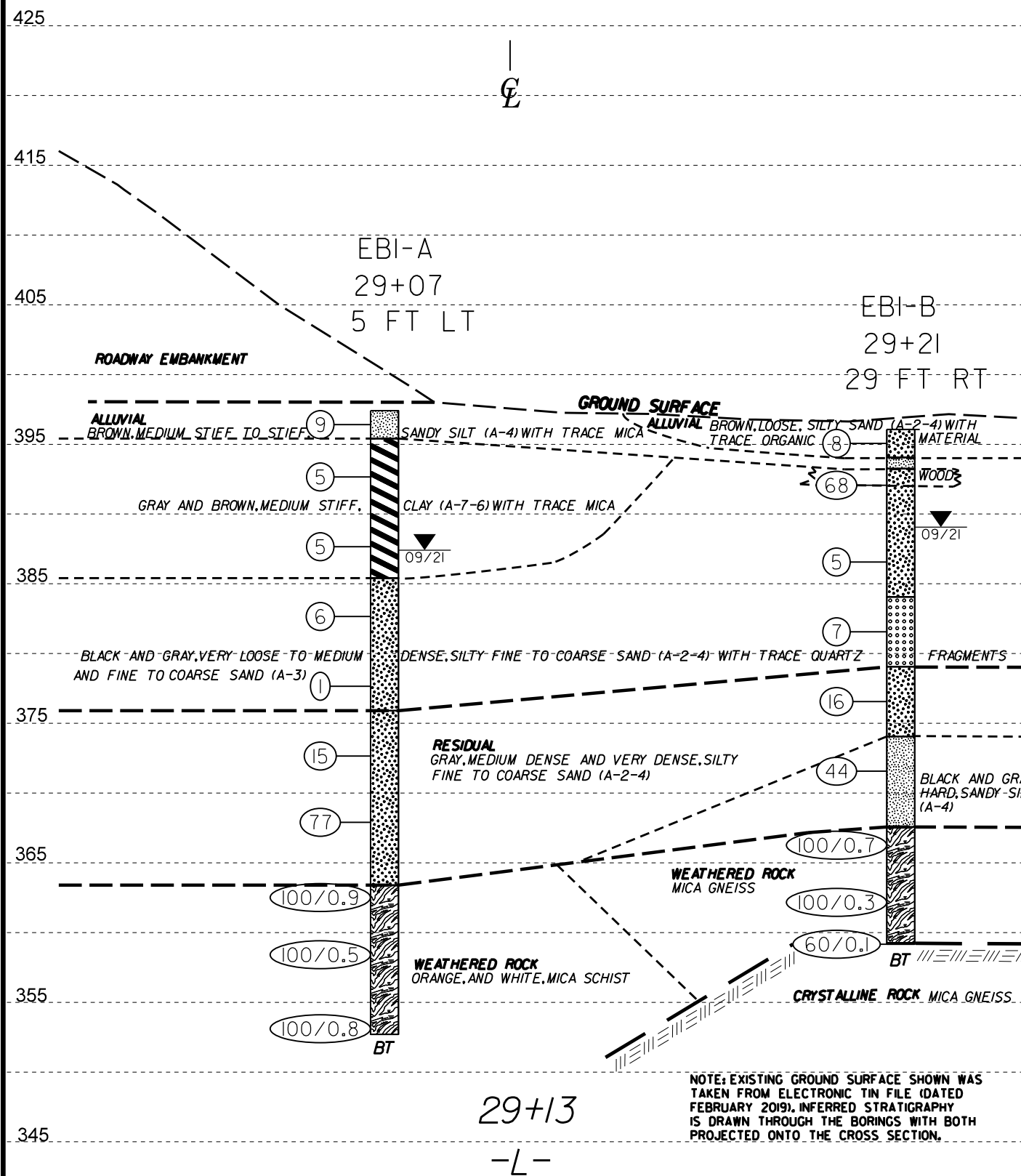
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PROJECT REFERENCE NO.	SHEET NO.
BR-0070	4
PROFILE ALONG -L- CENTERLINE	

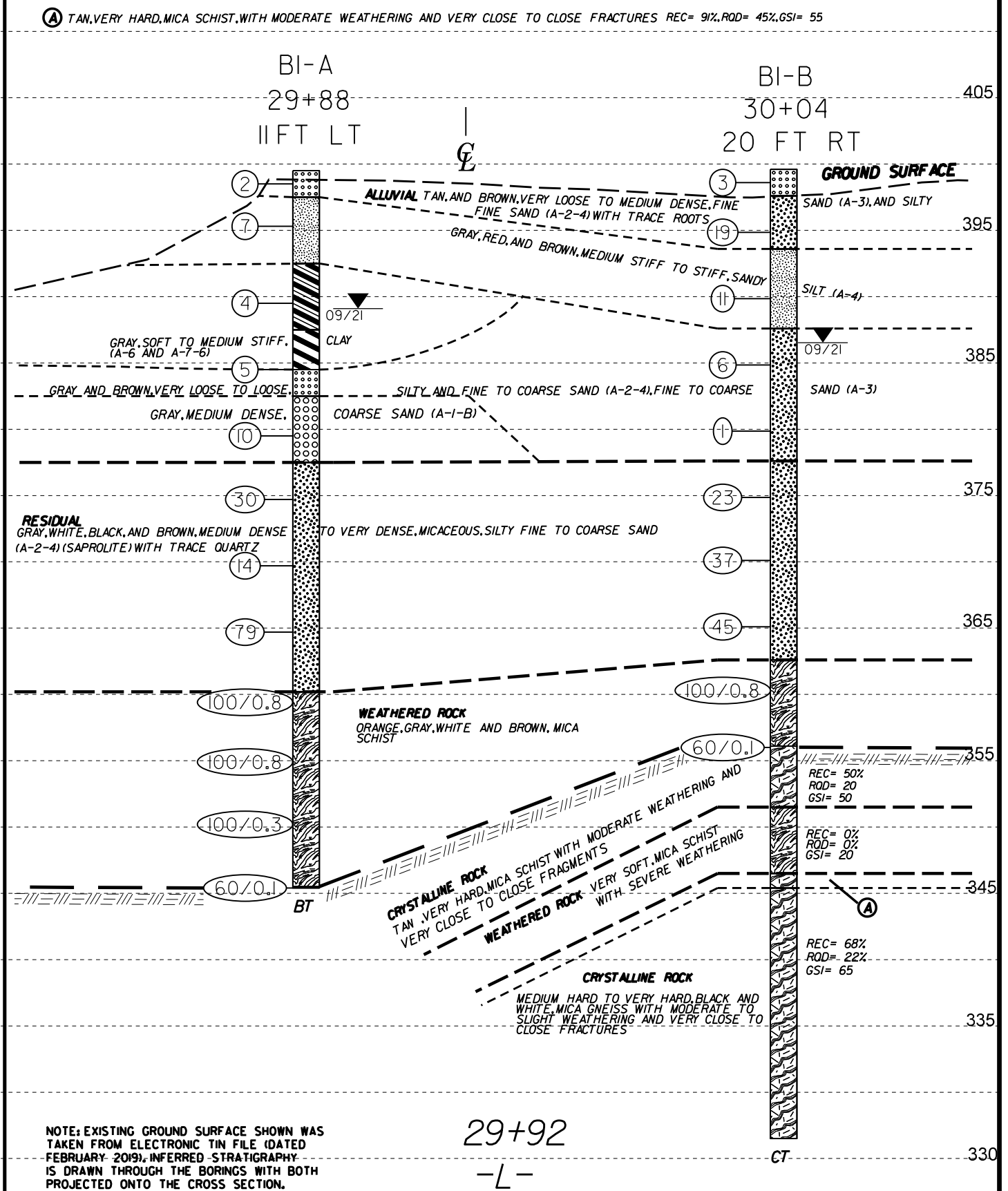


NOTE: EXISTING GROUND SURFACE SHOWN WAS TAKEN FROM ELECTRONIC TIN FILE (DATED FEBRUARY 2019). INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE -L- PROFILE.



VE = 1.0

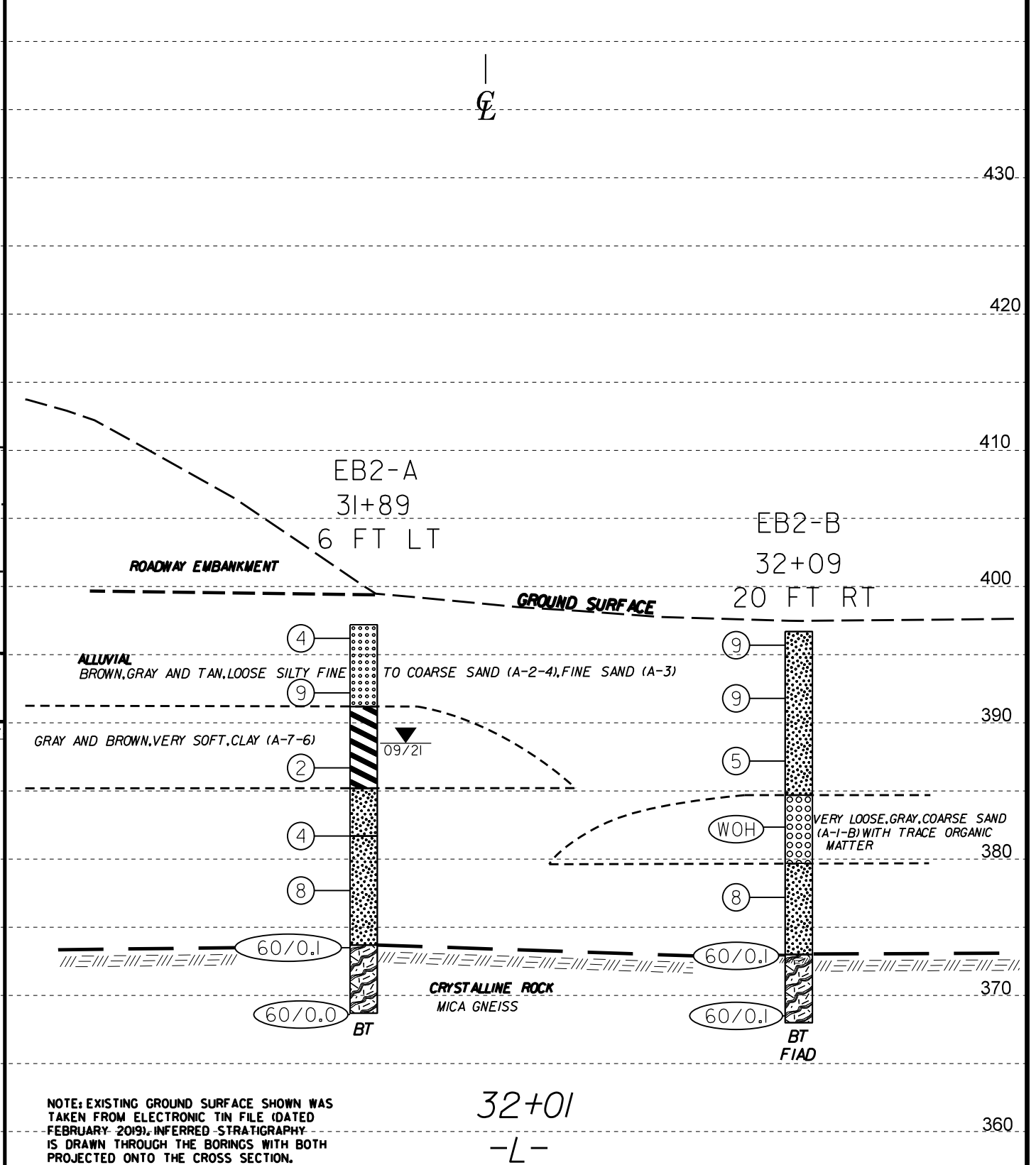
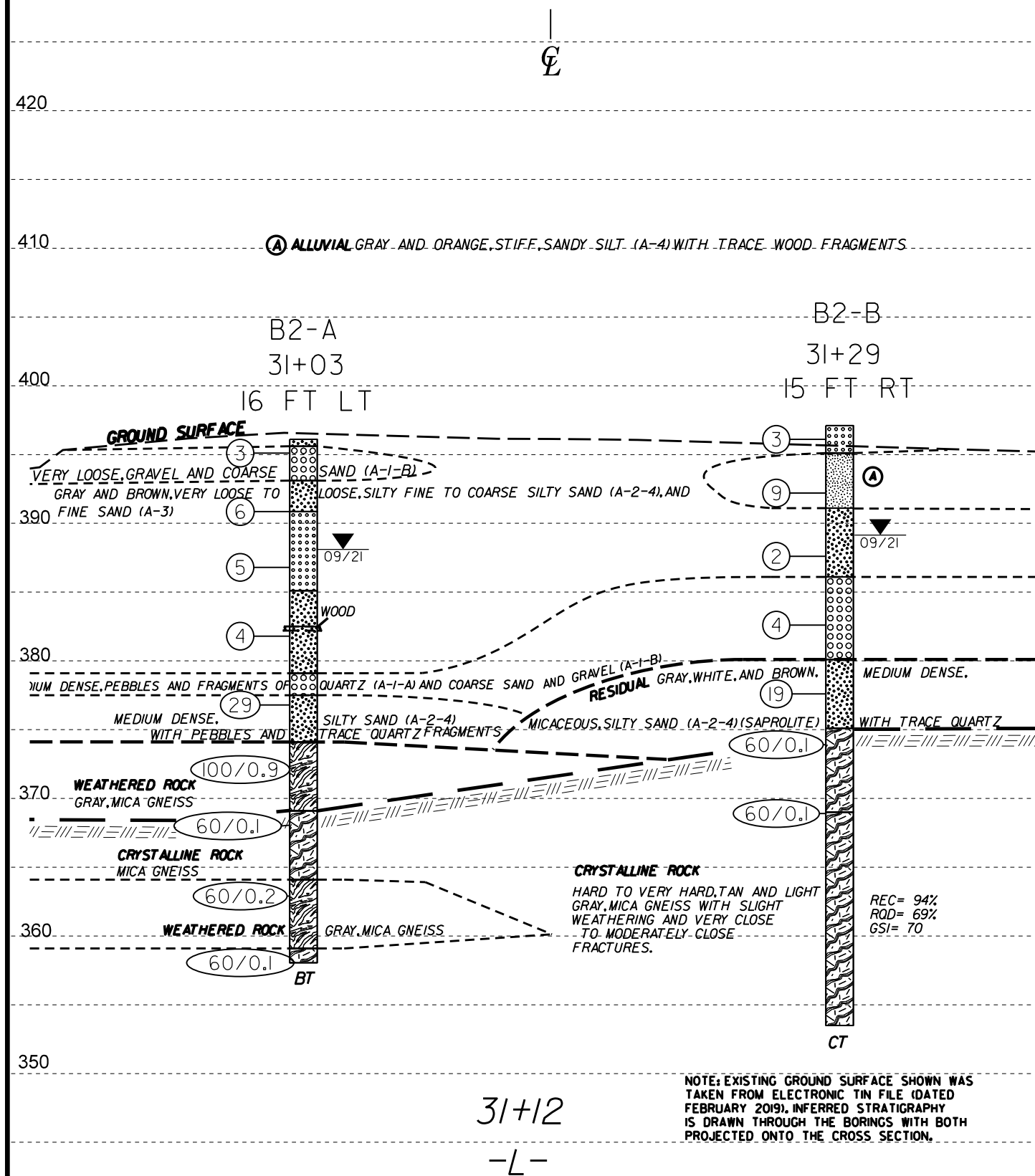
CROSS SECTION AT END BENT #1



VE = 1.0

CROSS SECTION AT BENT #1

(A) TAN, VERY HARD, MICA SCHIST, WITH MODERATE WEATHERING AND VERY CLOSE TO CLOSE FRACTURES REC= 91%, ROD= 45%, GSI= 55



VE = 1.0

CROSS SECTION AT BENT #2



VE = 1.0

CROSS SECTION AT END BENT #2

GEOTECHNICAL BORING REPORT

BORE LOG

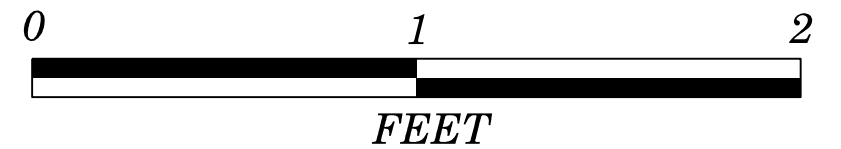
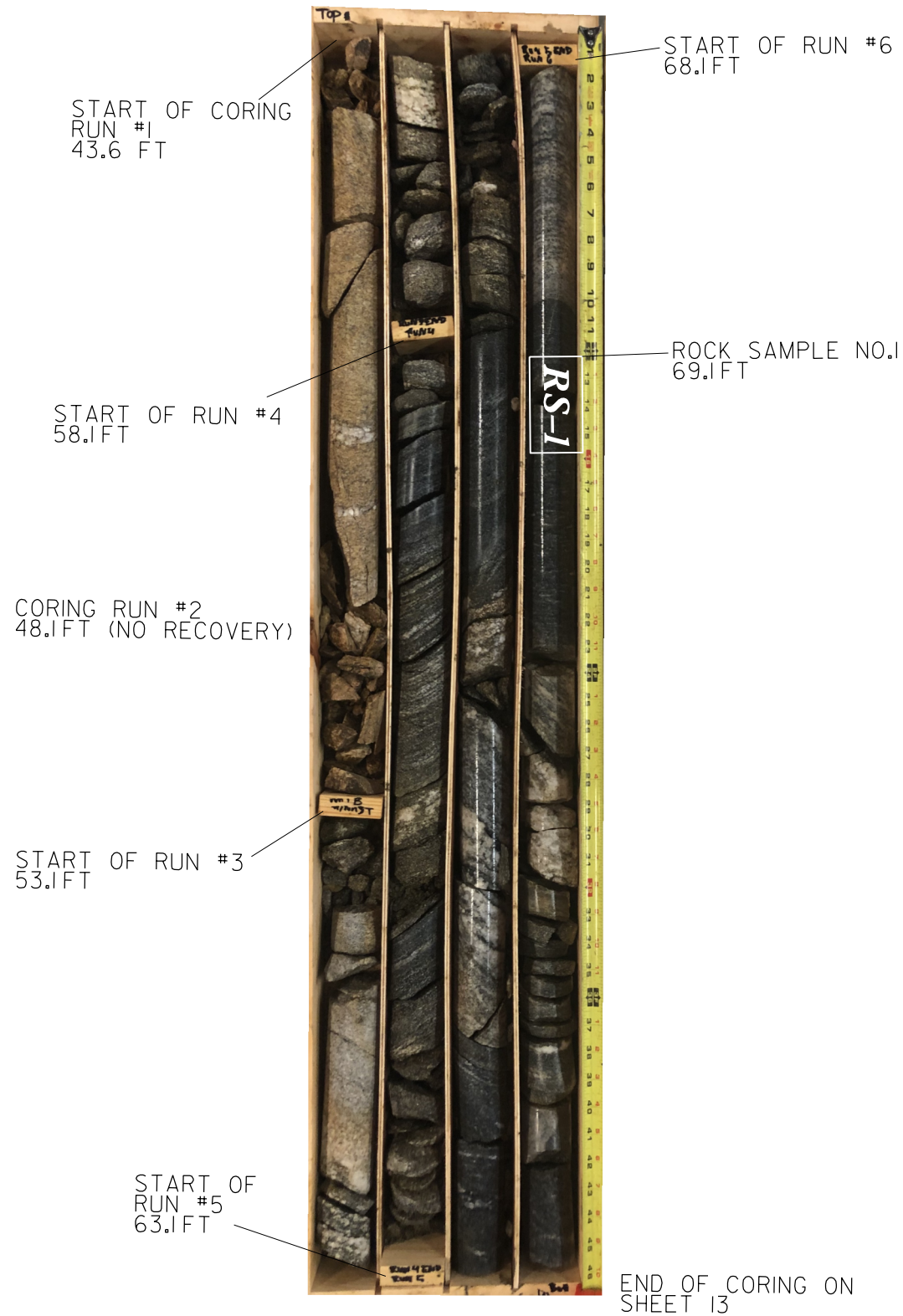
WBS 67070.1.1		TIP BR-0070		COUNTY CASWELL		GEOLOGIST Ferreira, E.	
SITE DESCRIPTION BRIDGE 61 OVER HOGAN'S CREEK ON NC 86 BETWEEN SR 1300 AND SR 1500							GROUND WTR (ft)
BORING NO. B1-A		STATION 29+88		OFFSET 11 ft LT		ALIGNMENT L	
COLLAR ELEV. 399.5 ft		TOTAL DEPTH 54.1 ft		NORTHING 1,002,726		EASTING 1,885,787	
DRILL RIG/HAMMER EFF./DATE CAT1303 CME-550 86.8% 03/12/2021				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER McCain, P.		START DATE 09/23/21		COMP. DATE 09/23/21		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
400	399.5	0.0												399.5	0.0	GROUND SURFACE
	396.3	3.2	WOH	WOH	2								M	397.5	2.0	ALLUVIAL VERY LOOSE, TAN, FINE, SAND (A-3) WITH TRACE ROOTS
395			4	3	4								M	392.5	7.0	MEDIUM STIFF, RED AND BROWN, SANDY SILT (A-4)
	390.5	9.0														SOFT, GRAY, SANDY CLAY (A-6)
390			0	2	2								Sat.	387.5	12.0	MEDIUM STIFF, GRAY, CLAY (A-7-6)
	385.5	14.0														
385			WOR	2	3								Sat.	384.5	15.0	LOOSE, GRAY, FINE TO COARSE SAND (A-3)
	380.5	19.0												382.5	17.0	MEDIUM DENSE, GRAY, COARSE SAND (A-1-B)
380			3	5	5								Sat.	377.5	22.0	RESIDUAL MEDIUM DENSE TO VERY DENSE, GRAY AND BLACK, SILTY FINE TO COARSE SAND (A-2-4)
	375.7	23.8														
375			7	16	14								W			
	370.7	28.8														
370			5	5	9								W			
	365.7	33.8														
365			20	40	39								W			
	360.7	38.8														
360			28	56	44/0.3								W	360.2	39.3	WEATHERED ROCK ORANGE, MICA SCHIST, SAMPLED AS SILTY FINE TO COARSE SAND (A-2-4)
	355.7	43.8														
355			69	31/0.3									W			
	350.5	49.0														
350			100/0.3										W			
	345.5	54.0														
			60/0.1											345.5	54.0	CRYSTALLINE ROCK ORANGE MICA SCHIST Boring Terminated with Standard Penetration Test Refusal at Elevation 345.4 ft in Crystalline Rock (Mica Schist)
														345.4	54.1	

NCDOT BORE DOUBLE BR0070_GEO_BRDG0061_BH.GPJ NC_DOT.GDT 11/22/21

CORE PHOTOGRAPHS

BORING BI-B
BI-B: STA. 30+04 -L-, 20 FT RT
CORE DEPTH: 43.6 FT TO 73.1 FT



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 67070.1.1		TIP BR-0070		COUNTY CASWELL		GEOLOGIST Ferreira, E.	
SITE DESCRIPTION BRIDGE 61 OVER HOGAN'S CREEK ON NC 86 BETWEEN SR 1300 AND SR 1500							GROUND WTR (ft)
BORING NO. B2-A		STATION 31+03		OFFSET 16 ft LT		ALIGNMENT L	
COLLAR ELEV. 396.1 ft		TOTAL DEPTH 38.1 ft		NORTHING 1,002,835		EASTING 1,885,750	
DRILL RIG/HAMMER EFF./DATE CAT1303 CME-550 86.8% 03/12/2021				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER McCain, P.		START DATE 09/29/21		COMP. DATE 09/29/21		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
400																
395	396.1	0.0	1	1	2									396.1	0.0	GROUND SURFACE
														389.6	6.5	ALLUVIAL
														393.1	3.0	VERY LOOSE, GRAY, SILTY SAND (A-2-4)
	391.9	4.3	3	3	3									390.9	5.3	VERY LOOSE, GRAVEL AND COARSE SAND (A-1-B)
390																LOOSE, GRAY, SILTY SAND (A-2-4)
																LOOSE, BROWN, FINE SAND (A-3)
	387.8	8.3	2	3	2											Sat.
385														385.1	11.0	LOOSE, GRAY, SILTY FINE TO COARSE SAND (A-2-4)
	382.8	13.3	WOH	2	2									382.5	13.6	Sat.
380														382.2	13.9	WOOD
														379.1	17.0	LOOSE, GRAY, SILTY SAND (A-2-4)
	377.8	18.3	9	15	14									377.5	18.6	MEDIUM DENSE, PEBBLES AND FRAGMENTS OF QUARTZ (A-1-A)
375														374.1	22.0	MEDIUM DENSE, SILTY SAND (A-2-4) WITH PEBBLES AND FRAGMENTS OF QUARTZ
	373.0	23.1	100/0.9													Sat.
370														369.1	27.0	WEATHERED ROCK
	368.1	28.0	60/0.1													GRAY, MICA GNEISS, SAMPLED AS SILTY SAND (A-2-4)
365														364.1	32.0	CRYSTALLINE ROCK
	363.1	33.0	60/0.2													MICA GNEISS, NO RECOVERY
360														359.1	37.0	WEATHERED ROCK
	358.1	38.0	60/0.1											358.1	38.1	GRAY, MICA GNEISS, SAMPLED AS SILTY SAND (A-2-4)
																CRYSTALLINE ROCK
																GRAY, MICA GNEISS, SAMPLED AS SILTY SAND (A-2-4)
																Boring Terminated with Standard Penetration Test Refusal at Elevation 358.1 ft in Crystalline Rock (Mica Gneiss)

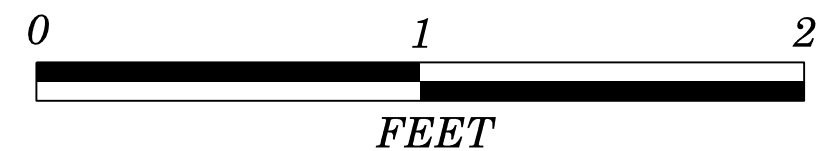
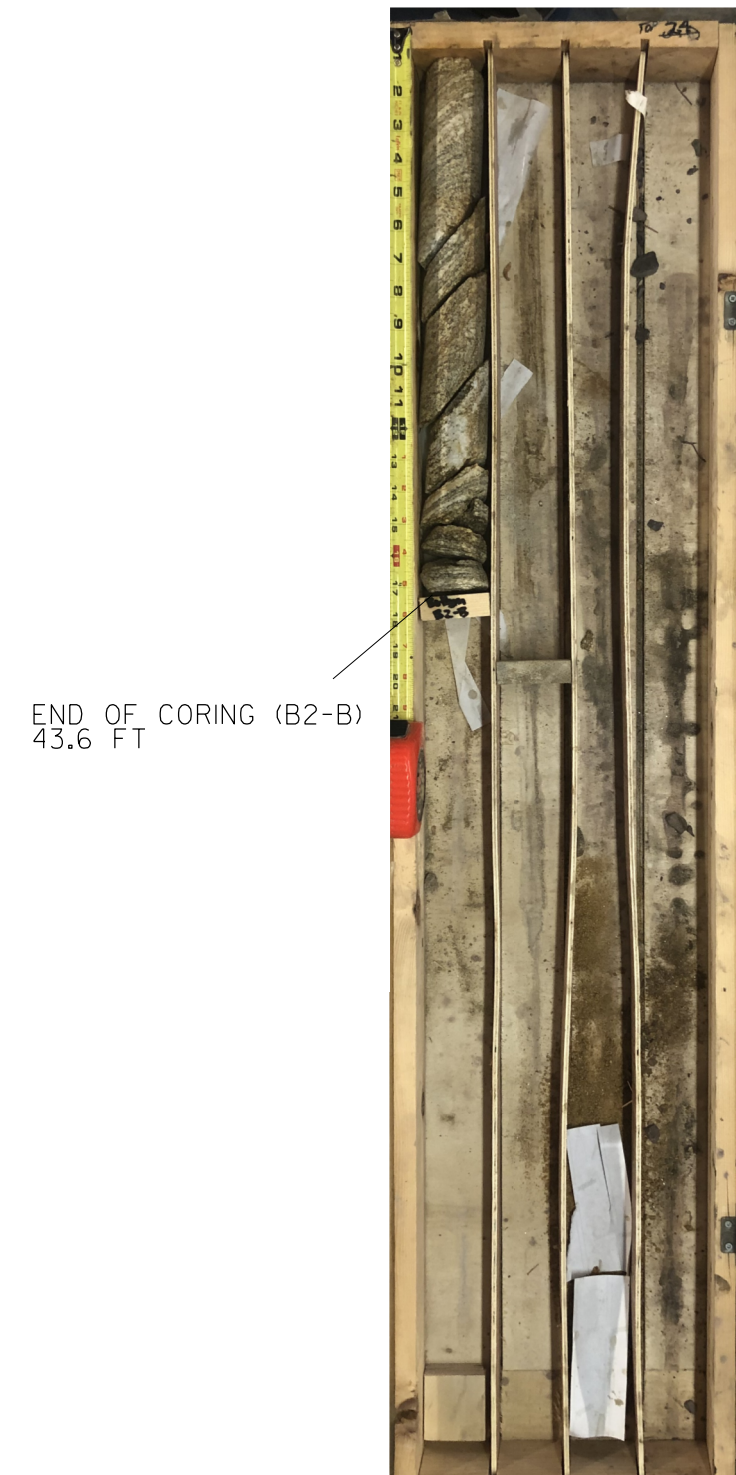
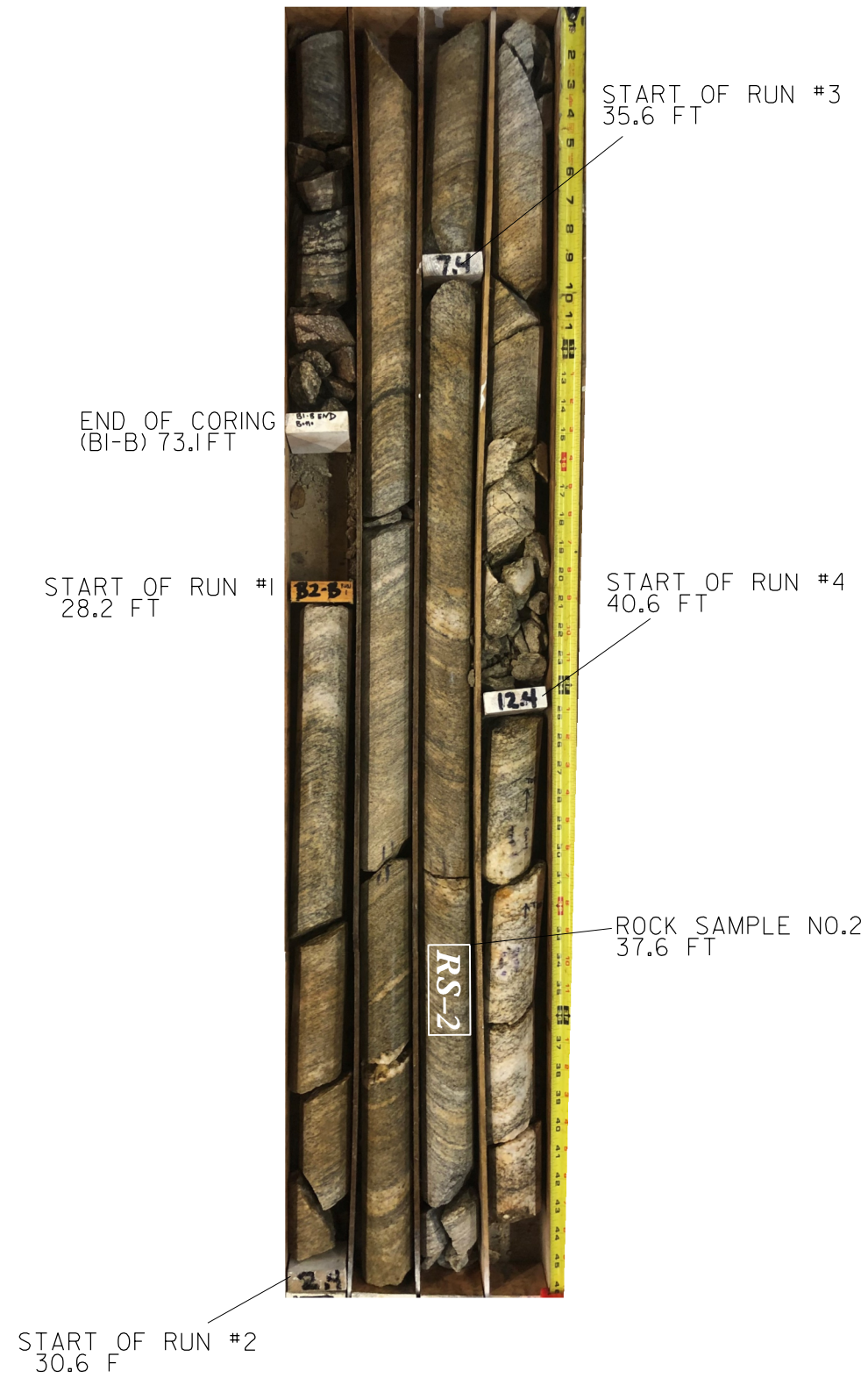
NCDOT BORE DOUBLE BR0070_GEO_BRD0061_BH.GPJ NC_DOT.GDT 11/22/21

BORING BI-B, FIRST CORE IN BOX

CORE PHOTOGRAPHS

BORING B2-B
STA. 31+29 -L-, 15 FT RT
CORE DEPTH: 28.2 FT TO 43.6 FT

BORING B2-B CONT., LAST CORE SHOWN IN BOX



LAB TEST RESULTS



STEWART

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMEN ASTM D7012

WBS No.: 67070.1.1

TIP No.: BR-0070

County: Caswell

Description: Bridge No. 0061 over Hogan's Creek on NC 86 between SR 1300 and SR 1500

Test Date: 10/14/2021

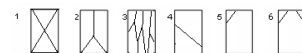
Tested By: J. Evans

Test No.	1	2		
Boring ID	B1-B	B2-B		
Station	30+04	31+28		
Sample ID	RS-1	RS-2		
Sample Depth, ft	69.1	37.6		
Core Length #1, in.	3.980	3.980		
Core Length #2, in.	3.980	3.980		
Core Length #3, in.	3.970	3.990		
Avg. Core Length, in.	3.977	3.983		
Core Dia. #1, in.	1.975	1.975		
Core Dia. #2, in.	1.975	1.975		
Avg. Core Dia., in.	1.975	1.975		
Length/Dia. Ratio	2.02	2.02		
X-Sectional Area, in ²	3.06	3.06		
Weight, lb	1.20	1.15		
Unit Weight, pcf	170.2	162.8		
Break Type	2	2		
Load at Failure, lb	18,735	25,528		
Correction Factor	1.00	1.00		
Comp. Strength, psi	6,120	8,340		
Comp. Strength, ksf	880	1,200		

Rock Descriptions:

Test 1: Black and white, mica gneiss

Test 2: Tan and light gray, mica gneiss

Break Types:

SITE PHOTOGRAPH

BRIDGE NO. 61 OVER HOGANS CREEK ON HWY NC 86

