

REFERENCE: SF-550053

PROJECT: 15B.22.27

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY MACON
 PROJECT DESCRIPTION BRIDGE NO. 550053 OVER
COWEETA CREEK ON SR 1119 (McCLURE MILL RD)

CONTENTS

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-550053	1	14

CAUTION NOTICE

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

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

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:
1. 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.
 2. 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

M. BAHIRADHAN

M. EDWARDS

C. BUTLER

SAEDECCO

INVESTIGATED BY M. EDWARDS

DRAWN BY C. BUTLER

CHECKED BY M. BAHIRADHAN

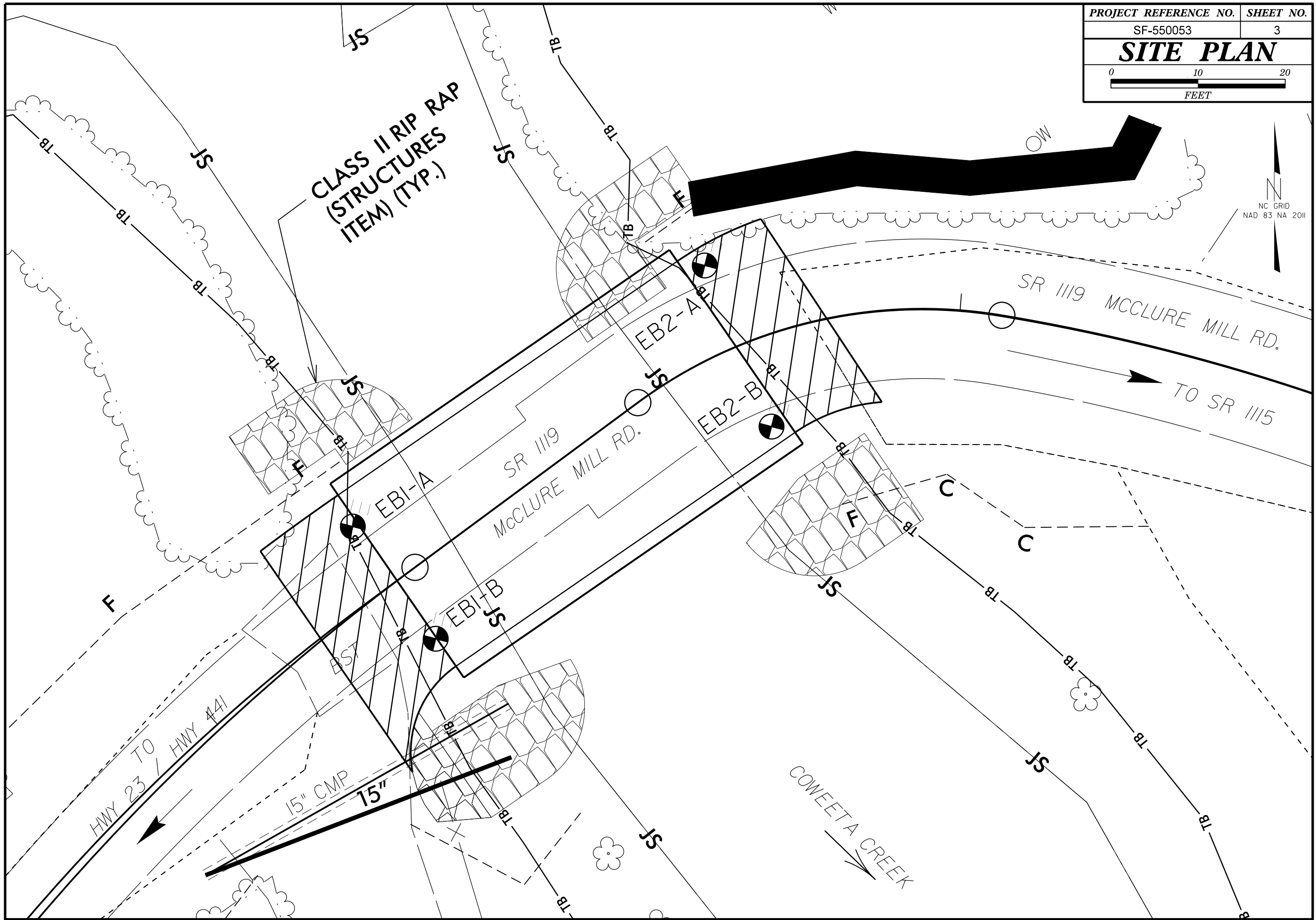
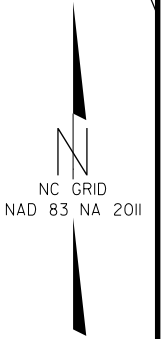
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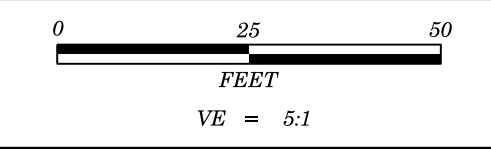
DATE OCTOBER 2016



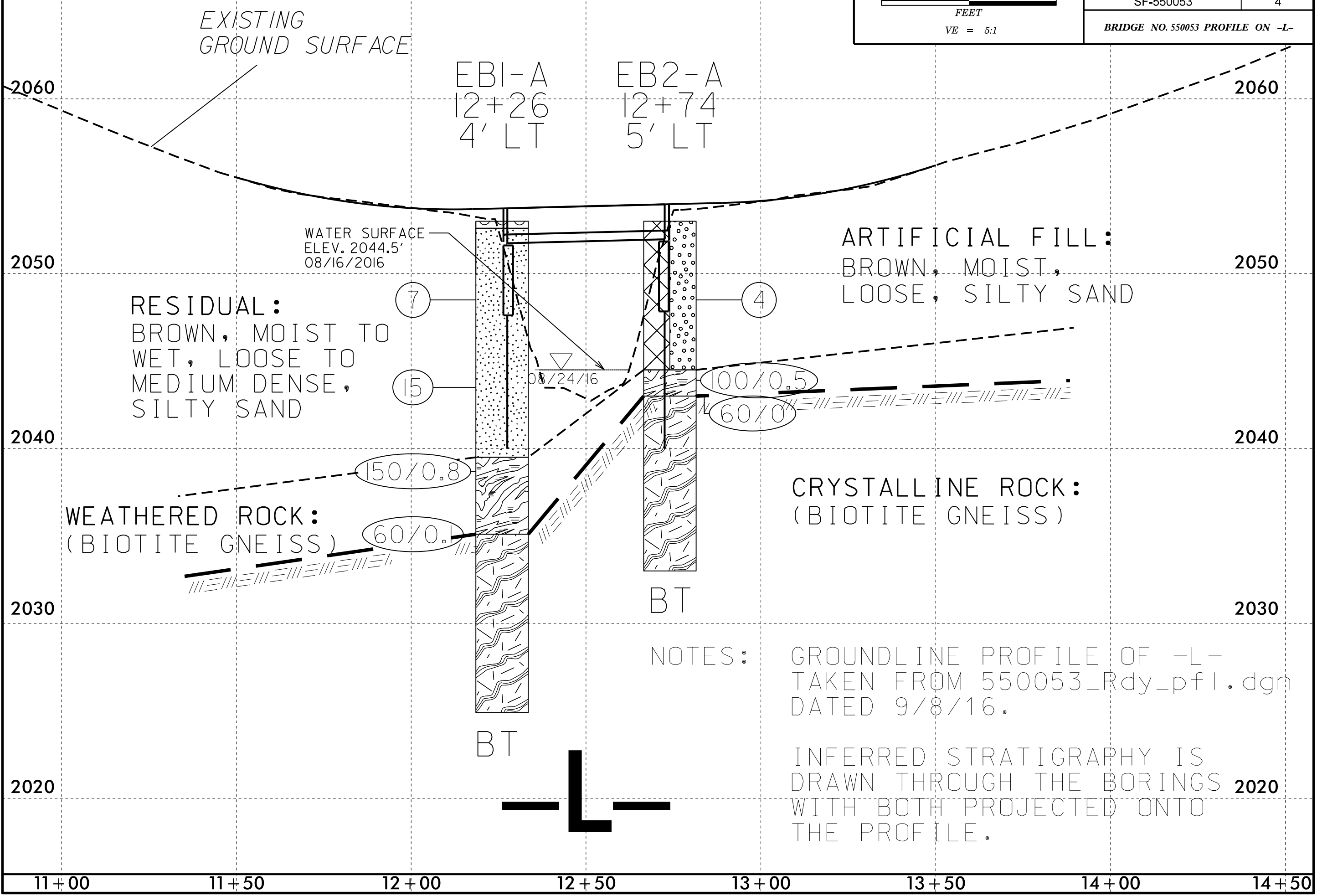
SIGNATURE _____ DATE _____

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**





PROJECT REFERENCE NO.	SHEET NO.
SF-550053	4
BRIDGE NO. 550053 PROFILE ON -L-	



EXISTING
GROUND SURFACE

EBI-A
12+26
4' LT

EB2-A
12+74
5' LT

WATER SURFACE
ELEV. 2044.5'
08/16/2016

RESIDUAL:
BROWN, MOIST TO
WET, LOOSE TO
MEDIUM DENSE,
SILTY SAND

ARTIFICIAL FILL:
BROWN, MOIST,
LOOSE, SILTY SAND

WEATHERED ROCK:
(BIOTITE GNEISS)

CRYSTALLINE ROCK:
(BIOTITE GNEISS)

NOTES:
GROUNDLINE PROFILE OF -L-
TAKEN FROM 550053_Rdy_pfl.dgn
DATED 9/8/16.

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

BT

BT

7

15

150/0.8

60/0.1

4

100/0.5

60/0

2060

2060

2050

2050

2040

2040

2030

2030

2020

2020

11+00

11+50

12+00

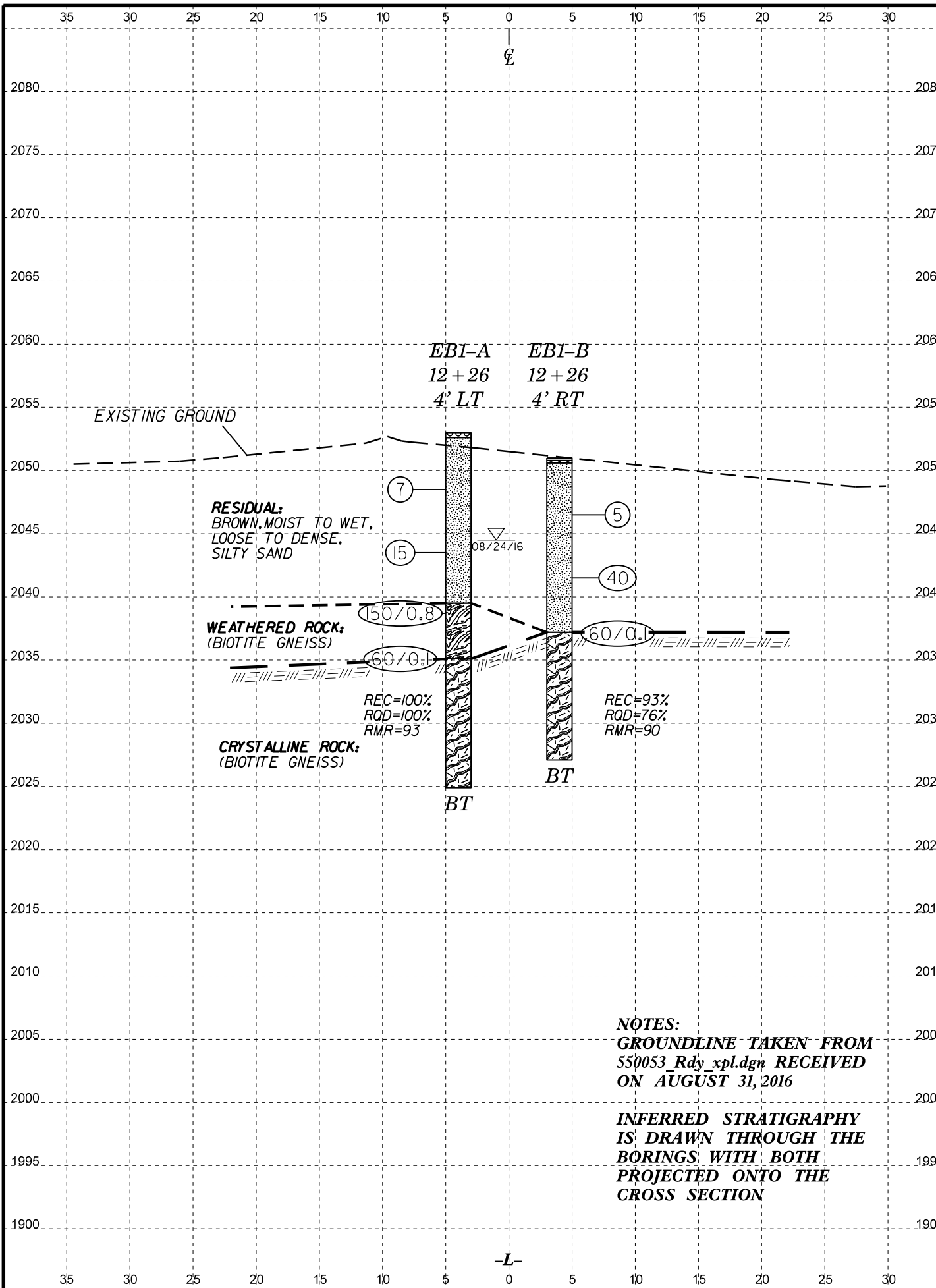
12+50

13+00

13+50

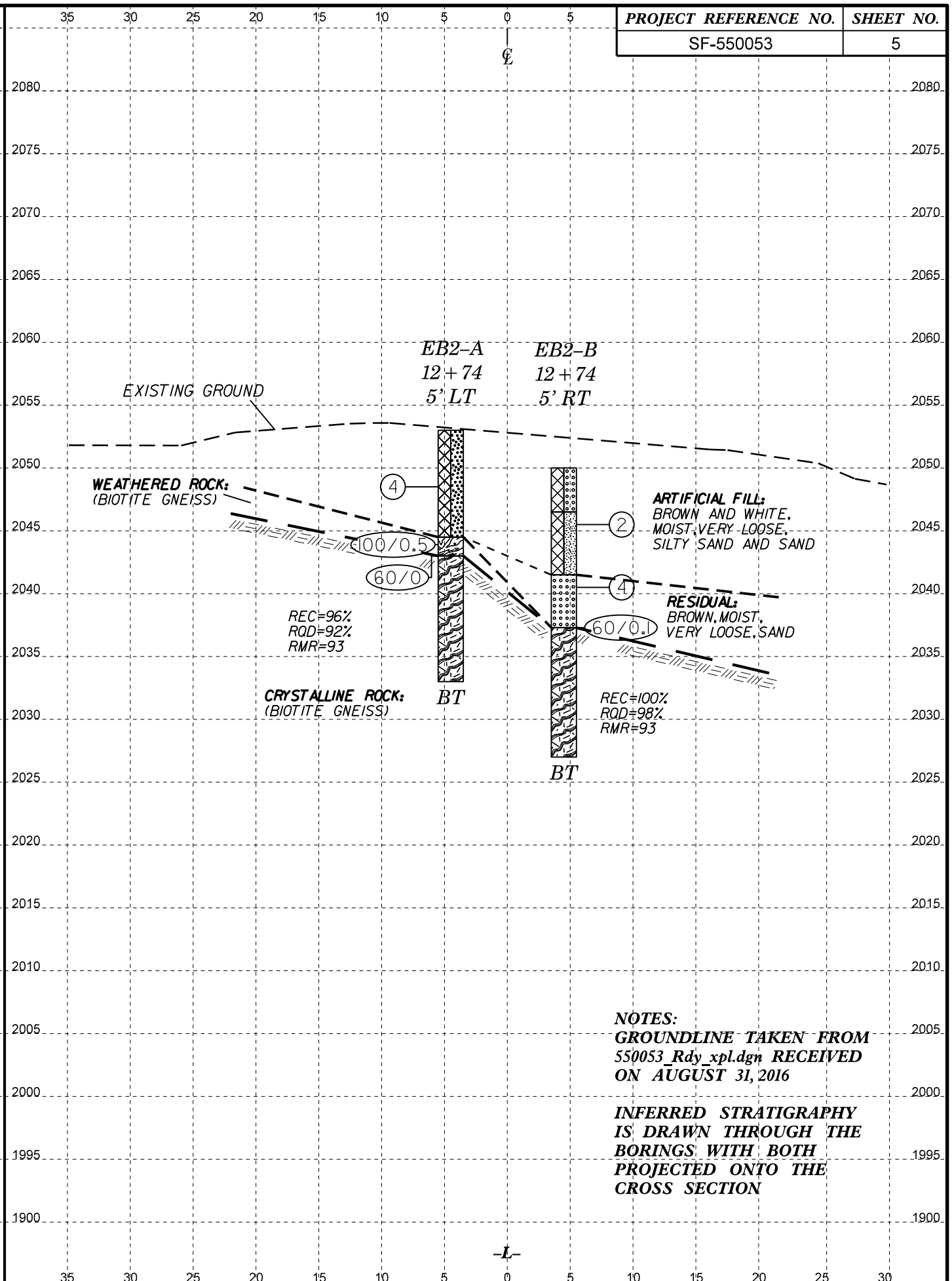
14+00

14+50



NOTES:
GROUNDLINE TAKEN FROM
550053_Rdy_xpl.dgn RECEIVED
ON AUGUST 31, 2016

INFERRED STRATIGRAPHY
IS DRAWN THROUGH THE
BORINGS WITH BOTH
PROJECTED ONTO THE
CROSS SECTION



NOTES:
GROUNDLINE TAKEN FROM
550053_Rdy_xpl.dgn RECEIVED
ON AUGUST 31, 2016

INFERRED STRATIGRAPHY
IS DRAWN THROUGH THE
BORINGS WITH BOTH
PROJECTED ONTO THE
CROSS SECTION

GEOTECHNICAL BORING REPORT BORE LOG

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M.Edwards										
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 12+26		OFFSET 4 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 2,053.0 ft		TOTAL DEPTH 28.1 ft		NORTHING 514,155		EASTING 687,536										
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Stefan Smith		START DATE 08/24/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75				100	ELEV. (ft)	DEPTH (ft)	
2055														2,053.0	0.0	GROUND SURFACE
														2,052.8		GRAVEL
2050	2,049.5	3.5	4	4	3							M				RESIDUAL REDDISH BROWN, SILTY FINE TO COARSE SAND, TRACE MICA
2045	2,044.5	8.5	7	6	9							W				
2040	2,039.5	13.5	90	60/0.3										150/0.6		WEATHERED ROCK (BIOTITE GNEISS)
2035	2,035.2	17.8	60/0.1											60/0.1		CRYSTALLINE ROCK BIOTITE GNEISS RECOVERY: 100% RQD: 100% RMR: 93
2030																
2025														2,024.9	28.1	Boring Terminated at Elevation 2,024.9 ft In Crystalline Rock

NCDOT BORE SINGLE NCDOT-550053-15B_22_27.GPJ NC_DOT.GDT 11/23/16

GEOTECHNICAL BORING REPORT CORE LOG

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M.Edwards					
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)				
BORING NO. EB1-A		STATION 12+26		OFFSET 4 ft LT		ALIGNMENT -L-					
COLLAR ELEV. 2,053.0 ft		TOTAL DEPTH 28.1 ft		NORTHING 514,155		EASTING 687,536					
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic							
DRILLER Stefan Smith		START DATE 08/24/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A					
CORE SIZE 2"		TOTAL RUN 10.2 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		
2035.1	2,035.1	17.9	10.2	6:36/1.0 6:26/1.0 6:19/1.0 6:38/1.0 6:40/1.0 8:11/1.0 8:34/1.0 8:16/1.0 8:16/1.0 8:22/1.0 1:30/0.2	(10.2) 100%	(10.2) 100%		(10.2) 100%	(10.2) 100%		Begin Coring @ 17.9 ft CRYSTALLINE ROCK BLACK AND WHITE, FRESH, MODERATELY HARD, MODERATELY CLOSE TO WIDE FRACTURED, BIOTITE GNEISS
2030											
2025	2,024.9	28.1									Boring Terminated at Elevation 2,024.9 ft In Crystalline Rock

NCDOT CORE SINGLE NCDOT-550053-15B_22_27.GPJ NC_DOT.GDT 11/23/16

CORE PHOTOGRAPH
REPLACE BRIDGE 550053 ON SR1119 OVER COWEETA CREEK

EB1-A
BOX 1: 17.9 - 28.1 FEET



GEOTECHNICAL BORING REPORT BORE LOG

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards	
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)
BORING NO. EB1-B		STATION 12+26		OFFSET 4 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 2,051.0 ft		TOTAL DEPTH 23.9 ft		NORTHING 514,143		EASTING 687,546	
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic			
DRILLER Stefan Smith		START DATE 08/25/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
2055																
2050																
2045	2,047.5	3.5	5	2	3								M		GROUND SURFACE ASPHALT GRAVEL RESIDUAL BROWN, SILTY FINE TO COARSE GRAINED SAND	
2040	2,042.5	8.5	14	15	25								M		LITTLE QUARTZ GRAVEL	
2035	2,037.2	13.8	60/0.1												2,037.2	13.8
2030															2,027.1	23.9
Boring Terminated at Elevation 2,027.1 ft In Crystalline Rock																

NCDOT BORE SINGLE NCDOT-550053-15B_22_27.GPJ NC_DOT.GDT 11/23/16

GEOTECHNICAL BORING REPORT CORE LOG

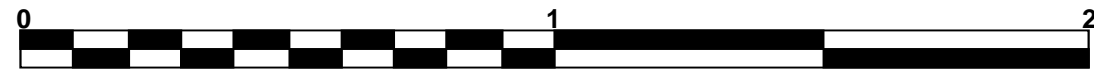
WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards	
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)
BORING NO. EB1-B		STATION 12+26		OFFSET 4 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 2,051.0 ft		TOTAL DEPTH 23.9 ft		NORTHING 514,143		EASTING 687,546	
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic			
DRILLER Stefan Smith		START DATE 08/25/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A	
CORE SIZE 2"		TOTAL RUN 10.0 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. (ft)	RQD (%)		REC. (ft)	RQD (%)			
2037.1	2,037.1	13.9	10.0	18:26/1.0	(9.3)	(7.6)		(9.3)	(7.6)		Begin Coring @ 13.9 ft	
2035				18:20/1.0	93%	76%		93%	76%		CRYSTALLINE ROCK BLACK AND WHITE, FRESH, MODERATELY HARD, CLOSE TO MODERATELY CLOSE FRACTURED, BIOTITE GNEISS WITH QUARTZ VEIINS	
				17:56/1.0								
				17:51/1.0								
				12:10/1.0								
				12:23/1.0								
2030				12:37/1.0								
	2,027.1	23.9		11:58/1.0							Boring Terminated at Elevation 2,027.1 ft In Crystalline Rock	23.9
				12:16/1.0								

NCDOT CORE SINGLE NCDOT-550053-15B_22_27.GPJ NC_DOT.GDT 11/23/16

CORE PHOTOGRAPH
REPLACE BRIDGE 550053 ON SR1119 OVER COWEETA CREEK

EB1-B
BOX 1: 13.9 - 23.9 FEET



APPROXIMATE SCALE IN FEET

GEOTECHNICAL BORING REPORT BORE LOG

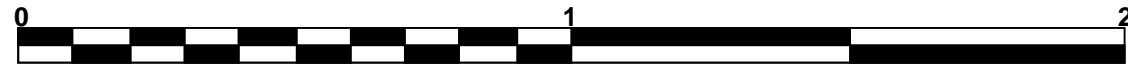
GEOTECHNICAL BORING REPORT CORE LOG

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards											
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)										
BORING NO. EB2-A		STATION 12+74		OFFSET 5 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 2,053.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 514,185		EASTING 687,576											
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic													
DRILLER Stefan Smith		START DATE 08/25/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
2055															2,053.0	GROUND SURFACE	0.0
2050	2,049.5	3.5	2	2	2								M		2,044.5	ARTIFICIAL FILL BROWN, SILTY FINE TO COARSE GRAINED SAND, LITTLE GRAVEL, TRACE MICA	
2045	2,044.5	8.5													2,044.5	WEATHERED ROCK (BIOTITE GNEISS)	8.5
2040	2,043.0	10.0	100/0.5												2,043.0	CRYSTALLINE ROCK BIOTITE GNEISS RECOVERY: 96% RQD: 92% RMR: 93	10.0
2035			60/0												2,033.0	Boring Terminated at Elevation 2,033.0 ft In Crystalline Rock	20.0

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards						
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek							GROUND WTR (ft)					
BORING NO. EB2-A		STATION 12+74		OFFSET 5 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 2,053.0 ft		TOTAL DEPTH 20.0 ft		NORTHING 514,185		EASTING 687,576						
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic								
DRILLER Stefan Smith		START DATE 08/25/16		COMP. DATE 08/25/16		SURFACE WATER DEPTH N/A						
CORE SIZE 2"		TOTAL RUN 10.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (%)	RQD (%)	SAMP. NO.	STRATA REC. (%)	RQD (%)	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
2043	2,043.0	10.0	10.0	N=60/0 18:01/1.0 18:11/1.0 18:40/1.0 18:25/1.0 18:43/1.0 8:11/1.0 8:16/1.0 8:03/1.0 8:28/1.0 8:37/1.0	(9.6)	(9.2)		(9.6)	(9.2)		Begin Coring @ 10.0 ft	10.0
2040											CRYSTALLINE ROCK BLuish GRAY, FRESH, MODERATELY HARD, MODERATELY CLOSE FRACTURED, BIOTITE GNEISS WITH QUARTZ VEINS	
2035											Boring Terminated at Elevation 2,033.0 ft In Crystalline Rock	

CORE PHOTOGRAPH
REPLACE BRIDGE 550053 ON SR1119 OVER COWEETA CREEK

EB2-A
BOX 1: 10.0 - 20.0 FEET



APPROXIMATE SCALE IN FEET

GEOTECHNICAL BORING REPORT BORE LOG

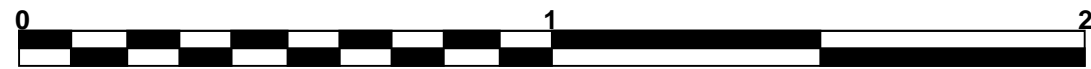
GEOTECHNICAL BORING REPORT CORE LOG

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards								
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek						GROUND WTR (ft)								
BORING NO. EB2-B		STATION 12+74		OFFSET 5 ft RT		ALIGNMENT -L-								
COLLAR ELEV. 2,050.0 ft		TOTAL DEPTH 23.0 ft		NORTHING 514,167		EASTING 687,584								
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Stefan Smith		START DATE 08/26/16		COMP. DATE 08/26/16		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					
2050													2,050.0 GROUND SURFACE 0.0	
	2,046.5	3.5										M	2,046.5 ARTIFICIAL FILL WHITE AND BROWN, POORLY GRADED FINE TO COARSE GRAINED SAND 3.5	
2045				1	1	1							2,041.5 ARTIFICIAL FILL REDDISH BROWN, SILTY FINE TO COARSE GRAINED SAND, TRACE MICA 8.5	
	2,041.5	8.5										M	2,041.5 RESIDUAL GRAYISH BROWN, POORLY GRADED FINE TO COARSE GRAINED SAND, LITTLE SILT 12.7	
2040				3	2	2							2,037.3 CRYSTALLINE ROCK BIOTITE GNEISS RECOVERY: 100% RQD: 98% RMR: 93% 23.0	
	2,037.4	12.6											2,027.0 Boring Terminated at Elevation 2,027.0 ft In Crystalline Rock 23.0	
2035														
2030														

WBS 15B.22.27		TIP SF-550053		COUNTY MACON		GEOLOGIST M. Edwards						
SITE DESCRIPTION Replace Bridge 550053 on SR1119 over Coweeta Creek						GROUND WTR (ft)						
BORING NO. EB2-B		STATION 12+74		OFFSET 5 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 2,050.0 ft		TOTAL DEPTH 23.0 ft		NORTHING 514,167		EASTING 687,584						
DRILL RIG/HAMMER EFF./DATE SAEDECCO Diedrich D50 92% 01-05-2016		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic								
DRILLER Stefan Smith		START DATE 08/26/16		COMP. DATE 08/26/16		SURFACE WATER DEPTH N/A						
CORE SIZE 2"		TOTAL RUN 10.3 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (%)	RQD (%)	SAMP. NO.	STRATA REC. (%)	RQD (%)	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
2037.3												
	2,037.3	12.7	10.3	8:09/1.0 8:22/1.0 8:29/1.0 8:11/1.0 9:16/1.3 5:16/1.0 4:40/1.0 5:12/1.0 5:26/1.0 3:08/0.7	(10.3) 100%	(10.1) 98%		(10.3) 100%	(10.1) 98%		2,037.3 Begin Coring @ 12.7 ft CRYSTALLINE ROCK BLUISH GRAY, FRESH, MODERATELY HARD, MODERATELY CLOSE TO CLOSE FRACTURED, BIOTITE GNEISS	12.7
2030												
	2,027.0	23.0									Boring Terminated at Elevation 2,027.0 ft In Crystalline Rock	23.0

CORE PHOTOGRAPH
REPLACE BRIDGE 550053 ON SR1119 OVER COWEETA CREEK

EB2-B
BOX 1: 12.7 - 23.0 FEET



APPROXIMATE SCALE IN FEET

SITE PHOTOGRAPHS
REPLACE BRIDGE 550053 ON SR1119 OVER COWEETA CREEK



View looking east along proposed bridge alignment



View of Coweeta Creek from west of EB2-B