

REFERENCE: B-5393

PROJECT: 46108

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5393	1	9

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-8	BORE LOGS
9	LAB SUMMARY SHEET

**STRUCTURE  
SUBSURFACE INVESTIGATION**

COUNTY CLEVELAND  
PROJECT DESCRIPTION REPLACE BRIDGE NO. 192 OVER  
MAPLE CREEK ON SR 1662 (WILL DIXON ROAD)

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 (ON-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

J.K. STICKNEY

C.L. SMITH

M.R. MOORE

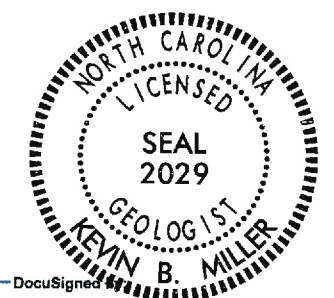
INVESTIGATED BY J.K. STICKNEY

DRAWN BY C. TURNER, ESP

CHECKED BY K.B. MILLER

SUBMITTED BY K.B. MILLER

DATE FEBRUARY 2017



DocuSigned by  
[Signature]  
957A789AED704CB...

SIGNATURE \_\_\_\_\_ DATE 2/27/2017

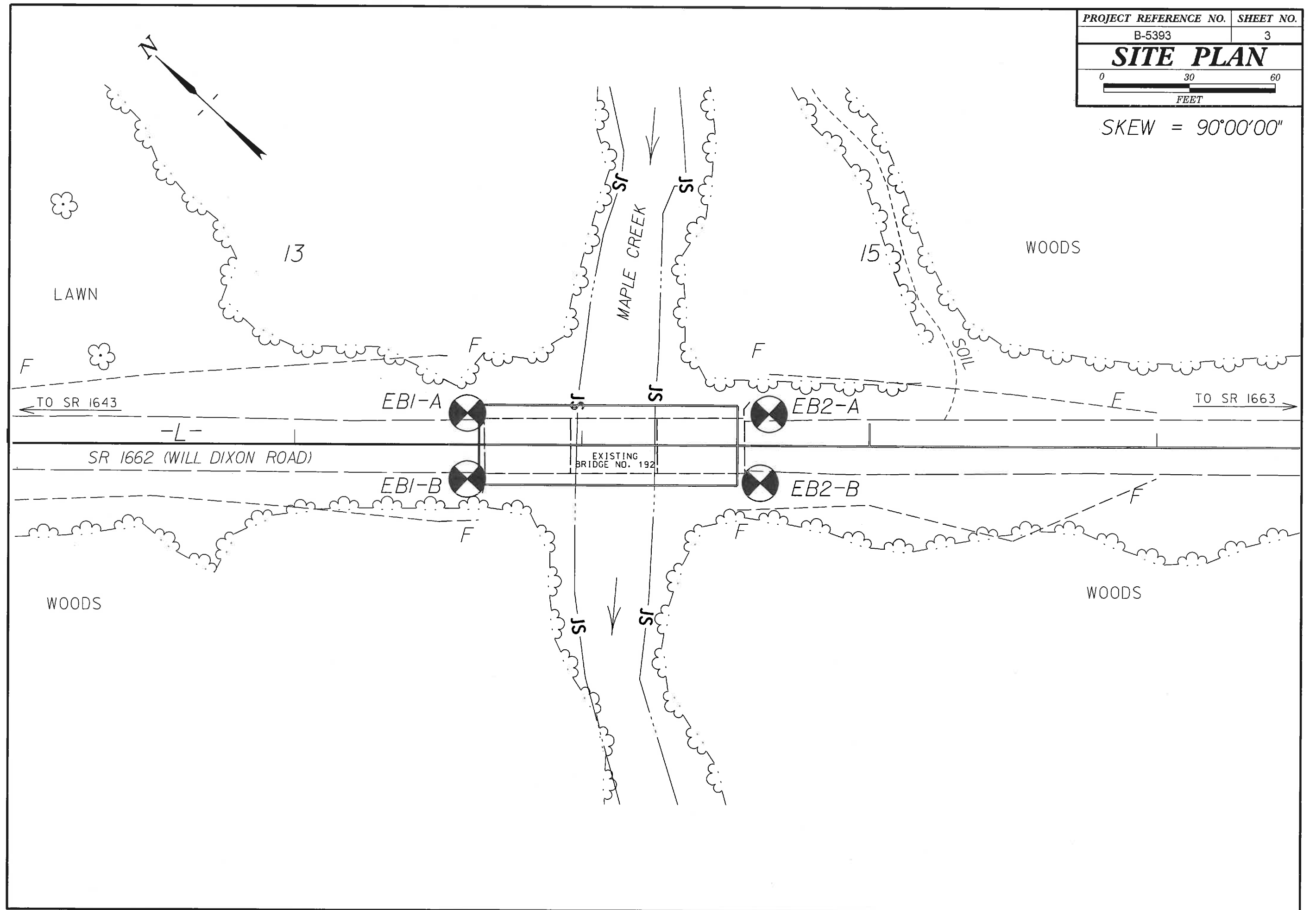
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

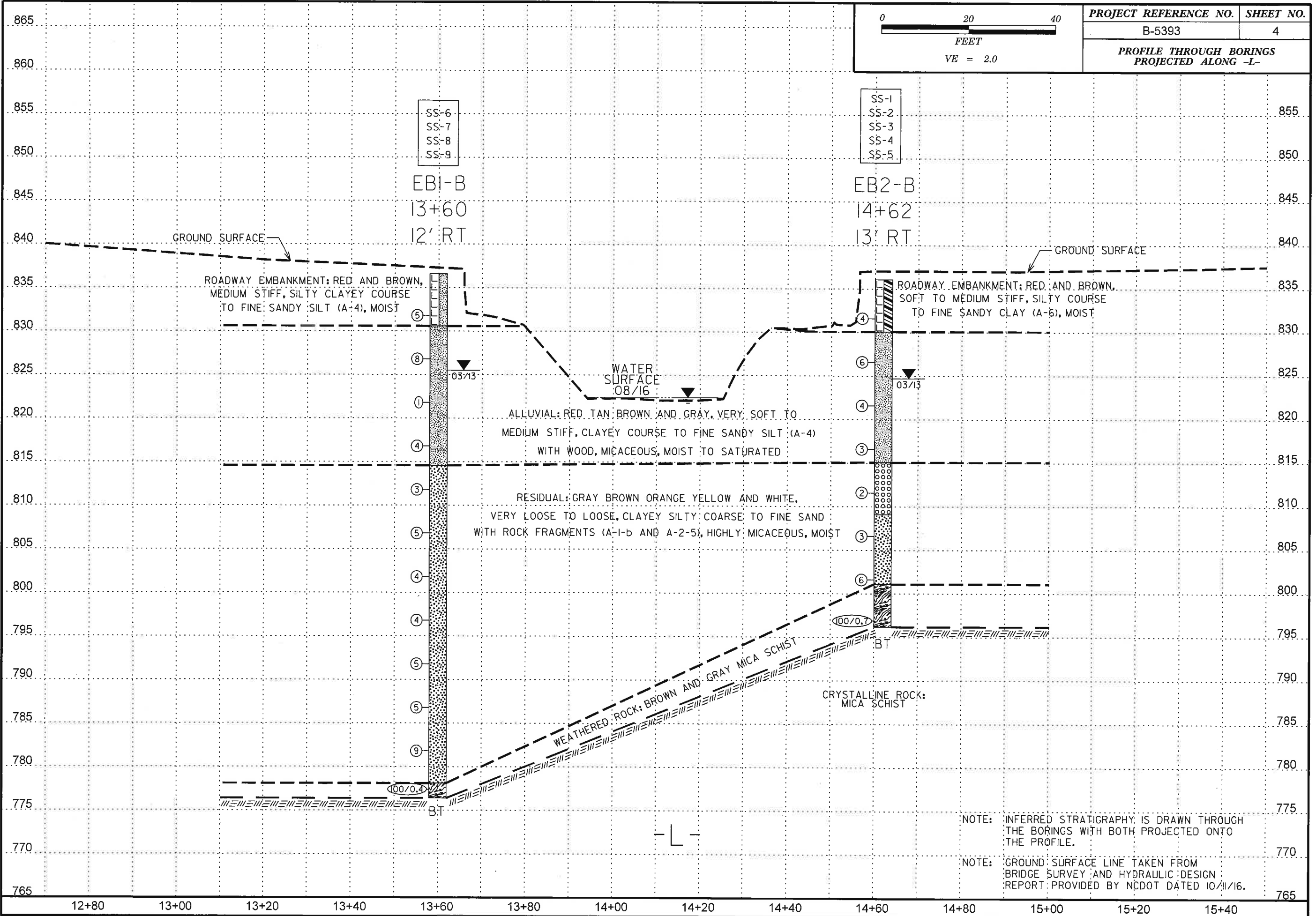
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, ROCK HARDNESS, FRACTURE SPACING, BEDDING, and INDURATION.

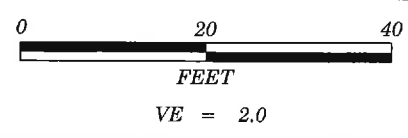
PROJECT REFERENCE NO.	SHEET NO.
B-5393	3
<b>SITE PLAN</b>	

SKEW = 90°00'00"





PROJECT REFERENCE NO. B-5393 SHEET NO. 4  
 PROFILE THROUGH BORINGS PROJECTED ALONG -L-



SS-6  
 SS-7  
 SS-8  
 SS-9

EB1-B  
 13+60  
 12' RT

SS-1  
 SS-2  
 SS-3  
 SS-4  
 SS-5

EB2-B  
 14+62  
 13' RT

GROUND SURFACE

ROADWAY EMBANKMENT: RED AND BROWN, MEDIUM STIFF, SILTY CLAYEY COURSE TO FINE SANDY SILT (A-4), MOIST

GROUND SURFACE

ROADWAY EMBANKMENT: RED AND BROWN, SOFT TO MEDIUM STIFF, SILTY COURSE TO FINE SANDY CLAY (A-6), MOIST

WATER SURFACE  
 08/16

ALLUVIAL: RED TAN, BROWN AND GRAY, VERY SOFT TO MEDIUM STIFF, CLAYEY COURSE TO FINE SANDY SILT (A-4) WITH WOOD, MICACEOUS, MOIST TO SATURATED

RESIDUAL: GRAY BROWN ORANGE YELLOW AND WHITE, VERY LOOSE TO LOOSE, CLAYEY SILTY COARSE TO FINE SAND WITH ROCK FRAGMENTS (A-1-b AND A-2-5), HIGHLY MICACEOUS, MOIST

WEATHERED ROCK: BROWN AND GRAY MICA SCHIST

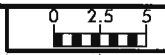
CRYSTALLINE ROCK: MICA SCHIST

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

NOTE: GROUND SURFACE LINE TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT PROVIDED BY NCDOT DATED 10/11/16.

- L -

8/23/99



# CROSS SECTION THROUGH BORINGS PROJECTED ALONG EBI BENT LINE

VE = 1:1

(A) ROADWAY EMBANKMENT: RED AND BROWN, LOOSE, SILTY CLAYEY COARSE TO FINE SAND (A-2-5) AND MEDIUM STIFF, CLAYEY COARSE TO FINE SANDY SILT (A-4), MOIST

- SS-6
- SS-7
- SS-8
- SS-9

EBI-A  
13+60  
11' LT

EBI-B  
13+60  
12' RT

GROUND SURFACE

(A)

ALLUVIAL: BROWN AND GRAY, VERY SOFT TO STIFF,  
CLAYEY COARSE TO FINE SANDY SILT (A-4),  
MICACEOUS, MOIST TO SATURATED

RESIDUAL:  
BROWN ORANGE AND GRAY,  
SOFT TO STIFF, CLAYEY COARSE TO FINE  
SANDY SILT (A-4), HIGHLY MICACEOUS,  
WET TO MOIST

RESIDUAL:  
BROWN AND ORANGE,  
LOOSE, SILTY CLAYEY  
FINE TO COARSE SAND (A-2-5),  
HIGHLY MICACEOUS,  
MOIST

WEATHERED ROCK: 100/0.7  
GRAY AND WHITE MICA SCHIST  
WITH LAYERS OF BROWN 100/0.5  
TO HARD, HIGHLY MICACEOUS,  
CLAYEY SILT 100/1.0

AND GRAY, SOFT SANDY  
100/0.4

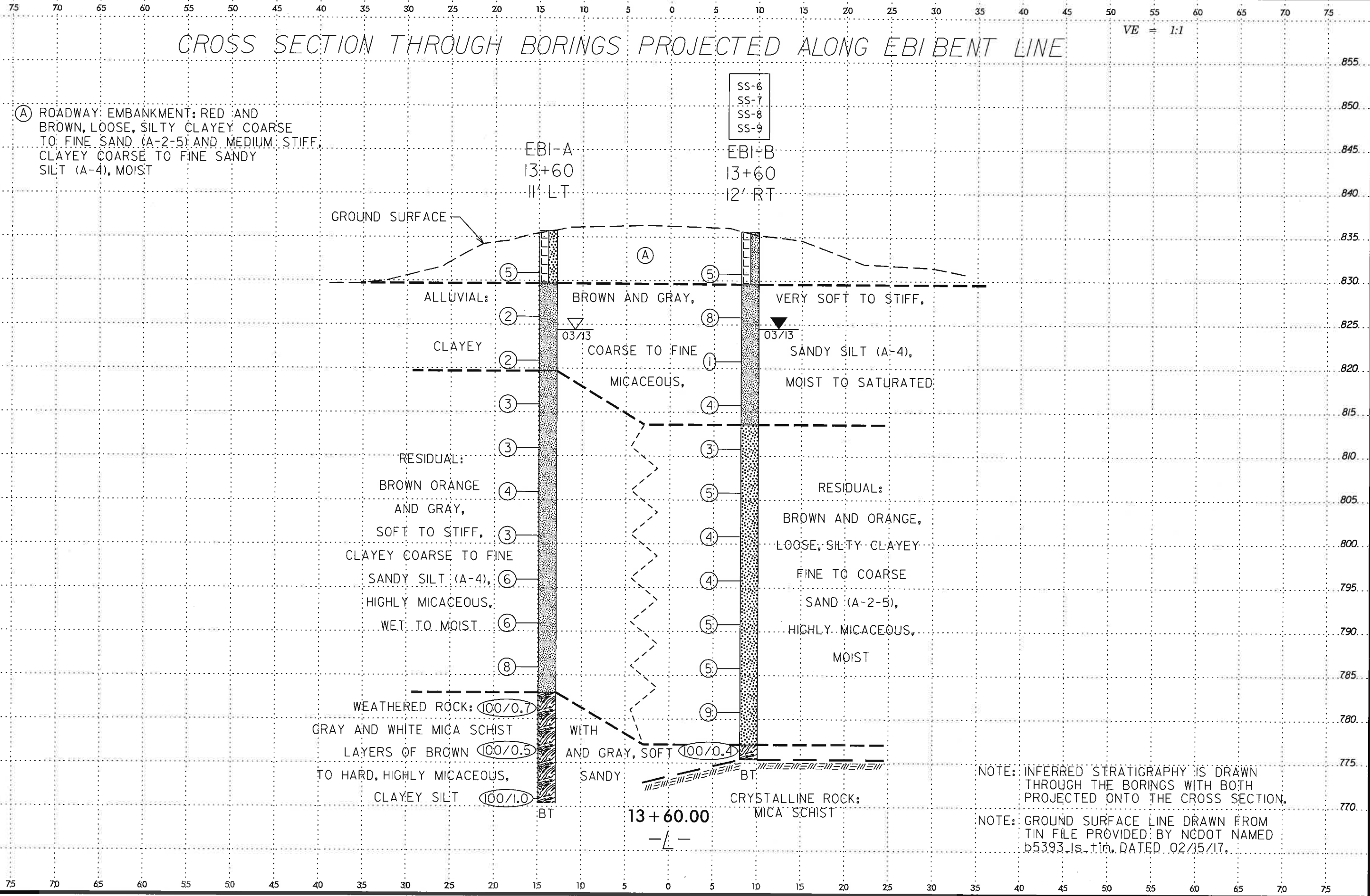
CRYSTALLINE ROCK: MICA SCHIST

13 + 60.00

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

NOTE: GROUND SURFACE LINE DRAWN FROM TIN FILE PROVIDED BY NCDOT NAMED b5393\_Is.tin, DATED 02/15/17.

\*\*\*\*\* SYSTEM TIME \*\*\*\*\*  
\*\*\*\*\* USER NAME \*\*\*\*\*











NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAY  
MATERIALS & TESTS UNIT  
SOILS LABORATORY

T. I. P. No. **B5393**

REPORT ON SAMPLES OF **SOILS FOR QUALITY**

Project **46108.1.1** County **CLEVELAND** Owner \_\_\_\_\_  
Date: Sampled **3/20/13** Received **4/4/13** Reported **4/8/13**  
Sampled from **BRIDGE** By **J E BEVERLY**  
Submitted by **M LUTHER** **2006** Standard Specifications

784520 TO 784533  
2/23/17

TEST RESULTS

Proj. Sample No.	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Lab. Sample No.	784520	784521	784522	784523	784524	784525
Retained #4 Sieve %	-	-	-	1	1	-
Passing #10 Sieve %	94	98	99	49	93	95
Passing #40 Sieve %	82	90	95	43	89	82
Passing #200 Sieve %	40	43	40	18	22	39

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%						
Coarse Sand Ret - #60 %	26.9	21.4	13.3	24.4	22.8	28.5
Fine Sand Ret - #270 %	34.9	38.8	52.5	45.7	59.2	34.7
Silt 0.05 - 0.005 mm %	9.9	9.5	18.0	19.8	11.9	10.5
Clay < 0.005 mm %	28.3	30.3	16.2	10.1	6.1	26.3
Passing #40 Sieve %	-	-	-	-	-	-
Passing #200 Sieve %	-	-	-	-	-	-

L. L.	30	30	34	52	44	28
P. I.	11	10	NP	NP	NP	10
AASHTO Classification	A-6(1)	A-4(1)	A-4(0)	A-1-b(0)	A-2-5(0)	A-4(1)
Station						
Offset						
Alignment						
Location	EB2-B	EB2-B	EB2-B	EB2-B	EB2-B	EB1-B
Depth (Ft)	4.00	9.00	19.00	24.00	34.00	4.30
to	5.00	10.00	20.00	25.00	35.00	5.30

cc: J E BEVERLY

Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAY  
MATERIALS & TESTS UNIT  
SOILS LABORATORY

T. I. P. No. **B5393**

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784520 TO 784533  
2/23/17

TEST RESULTS

Proj. Sample No.	SS-7	SS-8	SS-9		
Lab. Sample No.	784526	784527	784528		
Retained #4 Sieve %	-	-	-		
Passing #10 Sieve %	98	100	100		
Passing #40 Sieve %	90	99	84		
Passing #200 Sieve %	36	48	22		

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%					
Coarse Sand Ret - #60 %	22.8	4.6	45.3		
Fine Sand Ret - #270 %	44.8	56.0	34.3		
Silt 0.05 - 0.005 mm %	12.1	21.2	16.4		
Clay < 0.005 mm %	20.2	18.2	4.0		
Passing #40 Sieve %	-	-	-		
Passing #200 Sieve %	-	-	-		

L. L.	24	36	51		
P. I.	5	NP	NP		
AASHTO Classification	A-4(0)	A-4(0)	A-2-5(0)		
Station					
Offset					
Alignment					
Location	EB1-B	EB1-B	EB1-B		
Depth (Ft)	9.30	14.30	24.30		
to	10.30	15.30	25.30		

cc: J E BEVERLY

Soils Engineer