

REFERENCE: SF-840095

PROJECT: BP10.R021

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY STANLY
PROJECT DESCRIPTION REPLACE BRIDGE NO. 95 OVER
LITTLE CREEK ON SR 1954 (OLD AQUADALE RD.)

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
2A	SUPPLEMENTAL LEGEND (GSI)
3	SITE PLAN
4	PROFILE
5	CROSS SECTIONS
6-9	BORE LOGS
10	CORE PHOTOS
11	SITE PHOTOGRAPH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R021	1	

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

J. SWARTLEY

J. LITTLE

D. WEBER

INVESTIGATED BY S&ME, Inc.

DRAWN BY C. CHANDLER

CHECKED BY J. DAILY

SUBMITTED BY S&ME, Inc.

DATE JULY 2025



8848 RED OAK BLVD., SUITE A
CHARLOTTE, NC 28217
(704) 523-4726



DocuSigned by:

Thomas J. Daily

F29CA6BB83F449F...

SIGNATURE

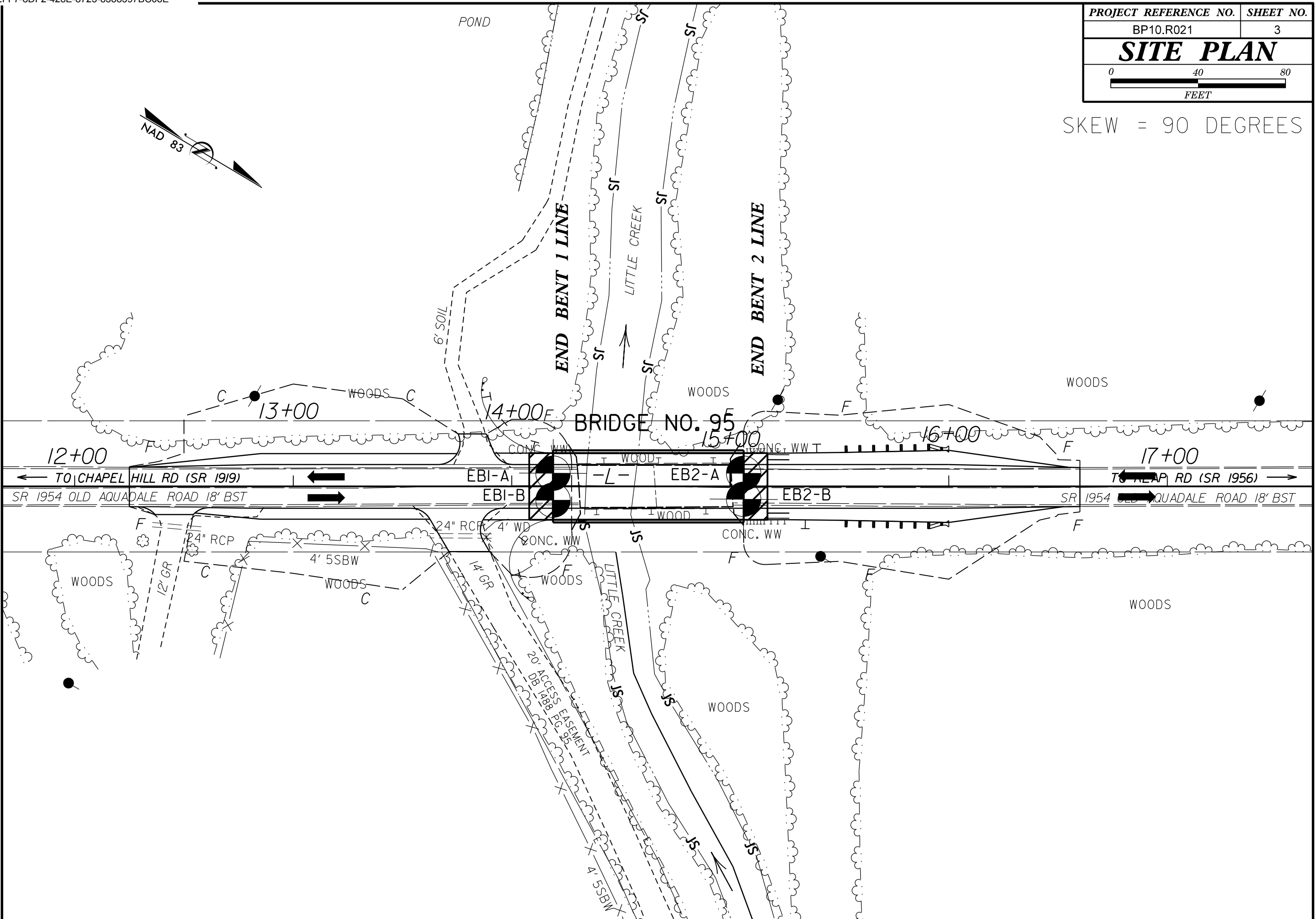
7/24/2025

DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

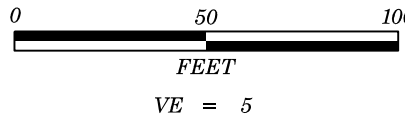
PROJECT REFERENCE NO.	SHEET NO.
BP10.R021	3
SITE PLAN	
 0 40 80 FEET	

SKIEW = 90 DEGREES

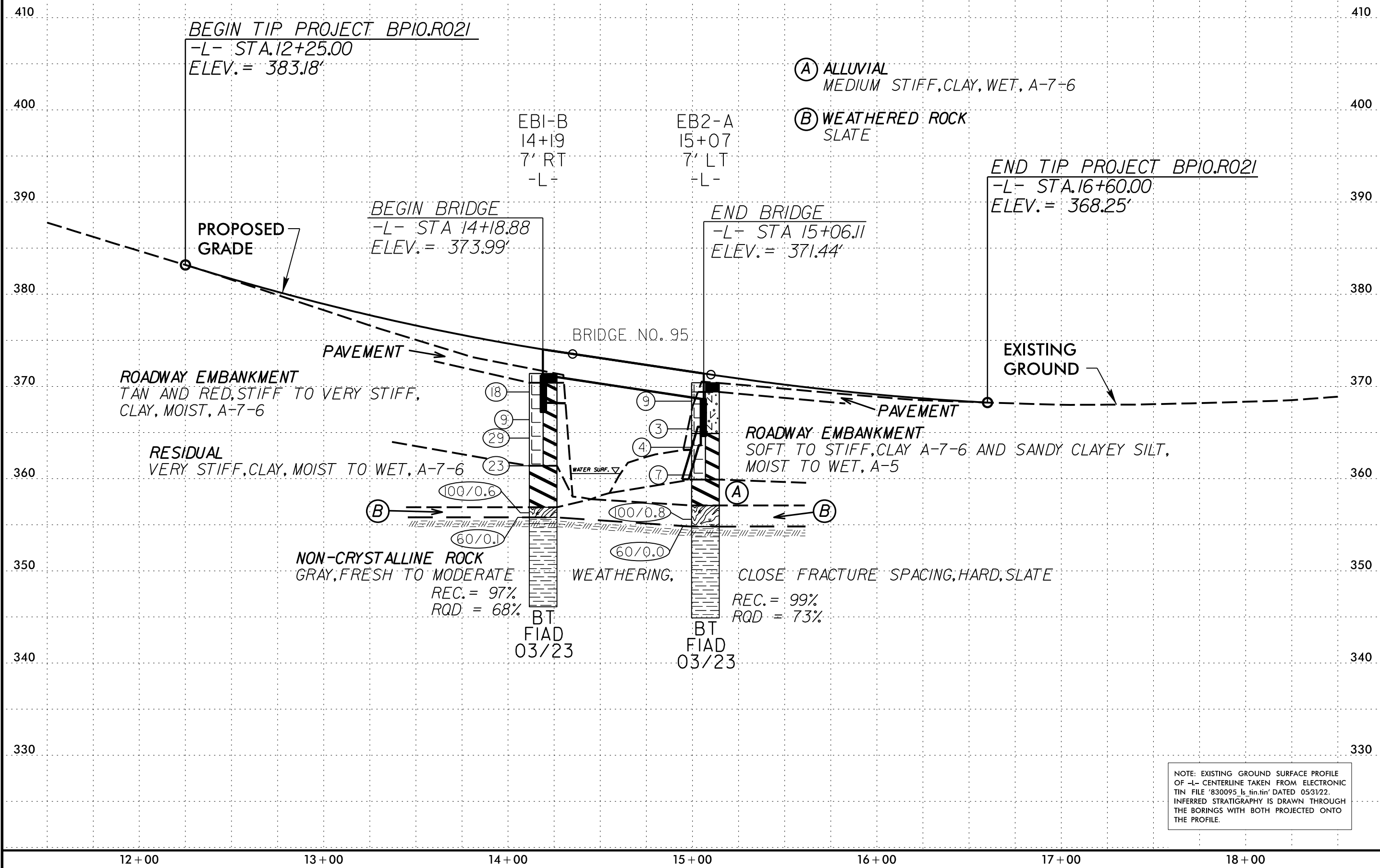


5/14/99

-L-



PROJECT REFERENCE NO.	SHEET NO.
BP10.R021	4
PROFILE PROJECTED ALONG CENTERLINE OF -L-	



BEGIN TIP PROJECT BP10.R021
-L- STA. 12+25.00
ELEV. = 383.18'

END TIP PROJECT BP10.R021
-L- STA. 16+60.00
ELEV. = 368.25'

BEGIN BRIDGE
-L- STA 14+18.88
ELEV. = 373.99'

END BRIDGE
-L- STA 15+06.11
ELEV. = 371.44'

ROADWAY EMBANKMENT
TAN AND RED, STIFF TO VERY STIFF,
CLAY, MOIST, A-7-6

RESIDUAL
VERY STIFF, CLAY, MOIST TO WET, A-7-6

NON-CRYSTALLINE ROCK
GRAY, FRESH TO MODERATE
REC. = 97%
RQD = 68%

WEATHERING,

CLOSE FRACTURE SPACING, HARD, SLATE
REC. = 99%
RQD = 73%

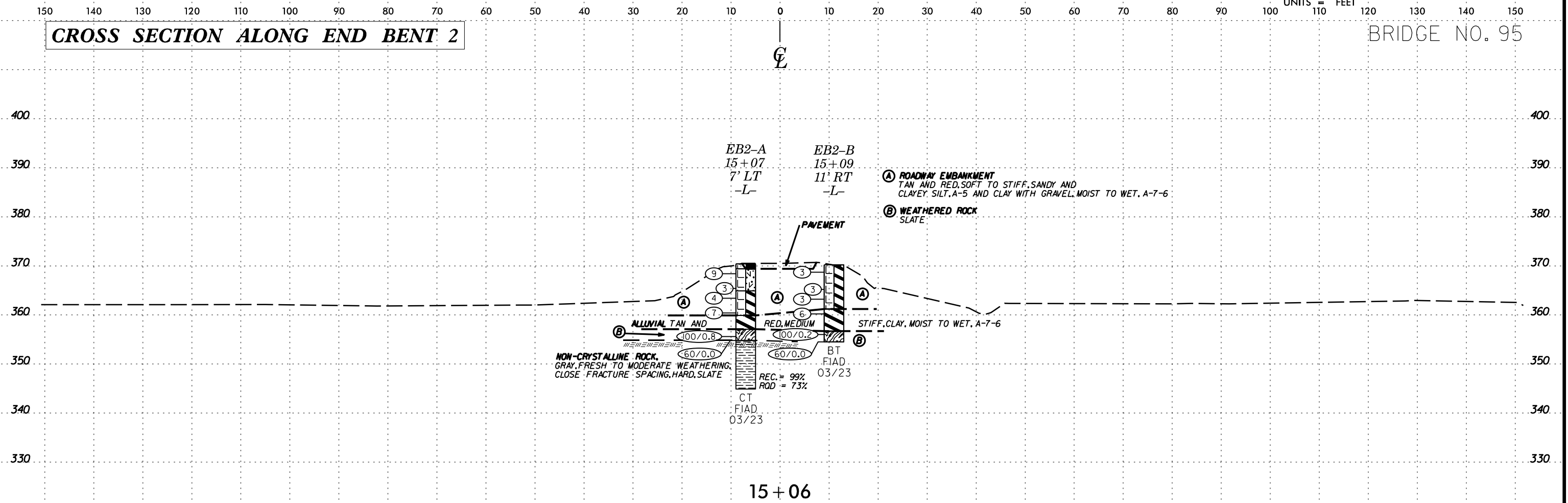
(A) ALLUVIAL
MEDIUM STIFF, CLAY, WET, A-7-6

(B) WEATHERED ROCK
SLATE

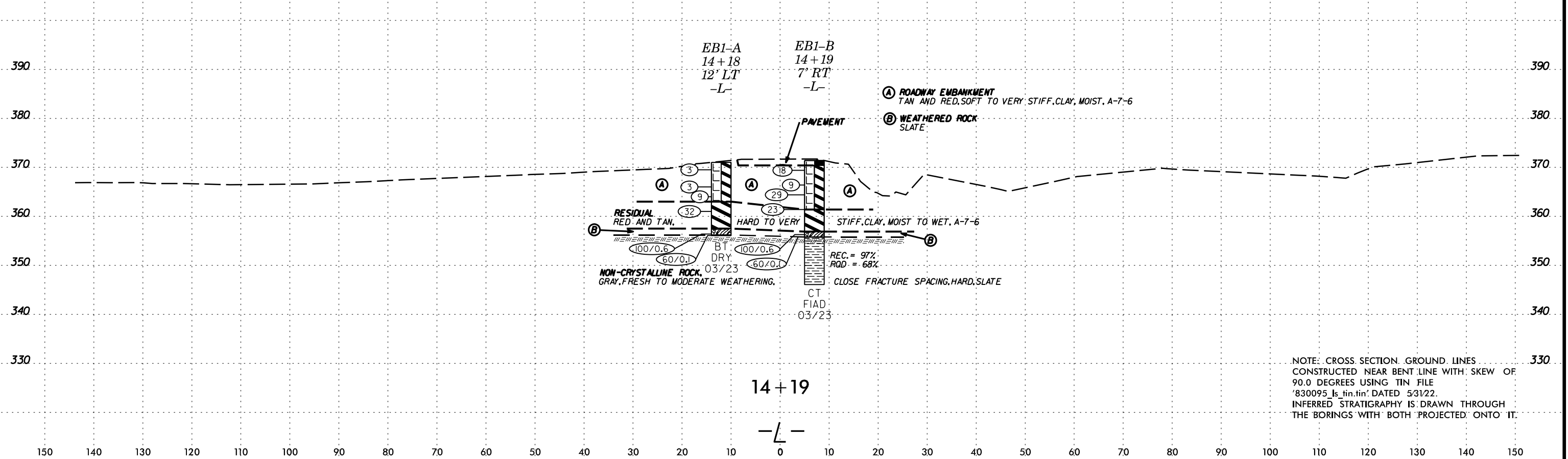
NOTE: EXISTING GROUND SURFACE PROFILE OF -L- CENTERLINE TAKEN FROM ELECTRONIC TIN FILE '830095_1s_tin.tin' DATED 05/31/22. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

CROSS SECTION ALONG END BENT 2

BRIDGE NO. 95



CROSS SECTION ALONG END BENT 1



NOTE: CROSS SECTION GROUND LINES CONSTRUCTED NEAR BENT LINE WITH SKEW OF 90.0 DEGREES USING TIN FILE '830095_Is_tin.tin' DATED 5/31/22. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO IT.

6/23/16
SCHEMATIC
CONSTRUCTION
DRAWING
BRIDGE
NO. 95

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP BP10.R021		COUNTY STANLY		GEOLOGIST Swartley, J.										
SITE DESCRIPTION BRIDGE NO. 95 ON SR 1954 (-L-) OVER LITTLE CREEK							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 14+18		OFFSET 12 ft LT		ALIGNMENT -L-	0 HR. Dry									
COLLAR ELEV. 371.0 ft		TOTAL DEPTH 14.9 ft		NORTHING 553,587		EASTING 1,629,386	24 HR. Dry									
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 82% 05/11/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Little, J.		START DATE 03/15/23		COMP. DATE 03/15/23		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)		
375																
370	370.5	0.5	1	2	1									371.0	0.0	GROUND SURFACE
	367.0	4.0	1	2	1											ROADWAY EMBANKMENT SOFT TO MEDIUM STIFF, RED, CLAY, A-7-6
365	365.0	6.0	3	5	4											
	362.0	9.0	12	17	15											RESIDUAL HARD, RED AND TAN, CLAY, A-7-6
360	357.0	14.0	40	60/0.1										357.5	13.5	WEATHERED ROCK (SLATE)
	356.2	14.8	60/0.1											356.2	14.8	NON-CRYSTALLINE ROCK (SLATE)
														356.1	14.9	NON-CRYSTALLINE ROCK (SLATE)
																Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 356.1 ft IN NON-CRYSTALLINE ROCK (SLATE)

NCDOT BORE DOUBLE STANLY_NO_95.GPJ NC_DOT.GDT 7/24/25

GEOTECHNICAL BORING REPORT BORE LOG

GEOTECHNICAL BORING REPORT CORE LOG

WBS N/A		TIP BP10.R021		COUNTY STANLY		GEOLOGIST Swartley, J.									
SITE DESCRIPTION BRIDGE NO. 95 ON SR 1954 (-L-) OVER LITTLE CREEK							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 14+19		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 371.4 ft		TOTAL DEPTH 25.3 ft		NORTHING 553,598		EASTING 1,629,402									
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 82% 05/11/2022				DRILL METHOD NW Casing w/ Advancer		HAMMER TYPE Automatic									
DRILLER Little, J.		START DATE 03/16/23		COMP. DATE 03/16/23		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					
375															
370	370.4	1.0	13	10	8									GROUND SURFACE	0.0
														ROADWAY EMBANKMENT (PAVEMENT)	1.0
	367.4	4.0												STIFF TO VERY STIFF, TAN AND RED, CLAY, A-7-6	
365	365.4	6.0	2	5	4										
	362.4	9.0	10	13	16										
360	362.4	9.0	8	12	11									RESIDUAL	10.0
	357.4	14.0												VERY STIFF, CLAY, A-7-6	
355	355.9	15.5	9	75	25/0.1									WEATHERED ROCK (SLATE)	14.5
														NON-CRYSTALLINE ROCK	15.6
														GRAY, FRESH TO MODERATE WEATHERING, CLOSE FRACTURE SPACING, HARD, SLATE	
350														REC. = 97%	
														RQD = 68%	
														Boring Terminated at Elevation 346.1 ft IN NON-CRYSTALLINE ROCK (SLATE)	25.3

WBS N/A		TIP BP10.R021		COUNTY STANLY		GEOLOGIST Swartley, J.					
SITE DESCRIPTION BRIDGE NO. 95 ON SR 1954 (-L-) OVER LITTLE CREEK							GROUND WTR (ft)				
BORING NO. EB1-B		STATION 14+19		OFFSET 7 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 371.4 ft		TOTAL DEPTH 25.3 ft		NORTHING 553,598		EASTING 1,629,402					
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 82% 05/11/2022				DRILL METHOD NW Casing w/ Advancer		HAMMER TYPE Automatic					
DRILLER Little, J.		START DATE 03/16/23		COMP. DATE 03/16/23		SURFACE WATER DEPTH N/A					
CORE SIZE NQ		TOTAL RUN 9.7 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
355.8	355.8	15.6	4.7	1:20/0.7 1:30/1.0 1:35/1.0 1:30/1.0 1:35/1.0	(4.5) 96%	(3.2) 68%	(9.4) 97%	(6.6) 68%		Begin Coring @ 15.6 ft	
										NON-CRYSTALLINE ROCK	15.6
										GRAY, FRESH TO MODERATE WEATHERING, CLOSE FRACTURE SPACING, HARD, SLATE	
350	351.1	20.3	5.0	1:35/1.0 1:45/1.0 1:50/1.0 1:40/1.0 1:30/1.0	(4.9) 98%	(3.4) 68%				GSI = 65-70	
	346.1	25.3								Boring Terminated at Elevation 346.1 ft IN NON-CRYSTALLINE ROCK (SLATE)	25.3

NCDOT BORE DOUBLE STANLY_NO_95.GPJ NC_DOT.GDT 7/24/25

NCDOT CORE DOUBLE STANLY_NO_95.GPJ NC_DOT.GDT 7/24/25

GEOTECHNICAL BORING REPORT

BORE LOG

WBS N/A		TIP BP10.R021		COUNTY STANLY		GEOLOGIST Swartley, J.									
SITE DESCRIPTION BRIDGE NO. 95 ON SR 1954 (-L-) OVER LITTLE CREEK							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 15+09		OFFSET 11 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 370.2 ft		TOTAL DEPTH 15.7 ft		NORTHING 553,677		EASTING 1,629,359									
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 82% 05/11/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Little, J.		START DATE 03/16/23		COMP. DATE 03/16/23		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					
375															
370	369.7	0.5	1	2	1									370.2	0.0
365	366.2	4.0	1	2	1										
	364.2	6.0	WOH		1	2									
360	361.2	9.0	1	3	3									361.2	9.0
	356.2	14.0												356.7	13.5
355	354.5	15.7	100/0.2											354.5	15.7
			60/0.0												

NCDOT BORE DOUBLE STANLY_NO_95.GPJ NC_DOT.GDT 7/24/25

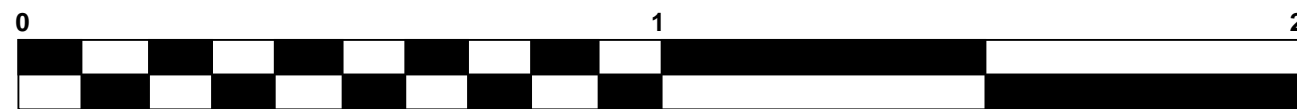
BP10.R021
REPLACE BRIDGE NO. 840095 OVER LITTLE CREEK
ON SR 1954 (OLD AQUADALE RD.)



CORE PHOTOGRAPHS

EB1-B

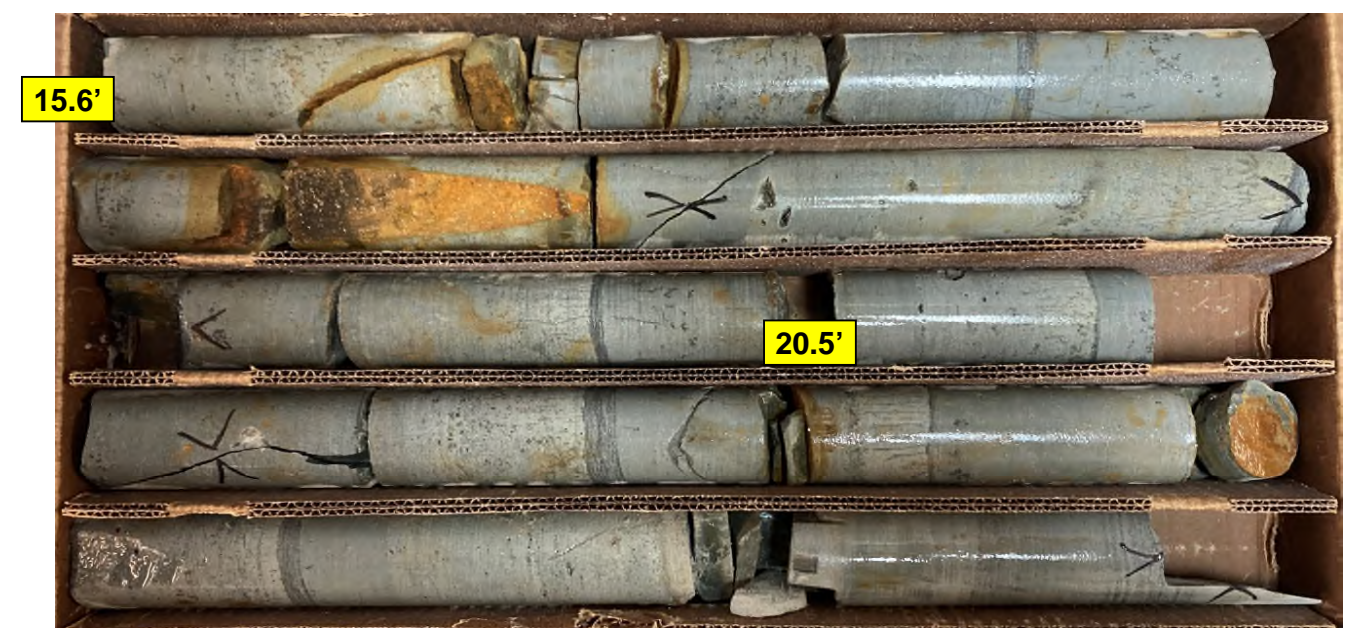
BOXES 1 AND 2: 15.6 – 25.3 FEET



FEET

EB2-A

BOXES 1 AND 2: 15.6 – 25.5 FEET



FEET



SITE PHOTOGRAPH

Bridge No. 95 on -L- (SR 1954) over Little Creek



Looking South