

REFERENCE: U-2579AB

PROJECT: 34839

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	28

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3-4	SITE PLAN
5-6	PROFILES
7-15	CROSS SECTIONS
16-27	BORE LOGS, CORE LOGS, CORE PHOTOGRAPHS
28	SITE PHOTOGRAPHS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM BELTWAY
FROM US 421/I-40 BUS TO I-40

SITE DESCRIPTION BRIDGE NO. 727 ON -YISFLYCA- IN
INTERCHANGE CONNECTING WINSTON-SALEM
NORTHERN BELTWAY AND I-40 BYPASS
BETWEEN SR 4315 AND SR 2679

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

A. SUTTLE

HPC

TOTAL DEPTH DRILLING

INVESTIGATED BY ECS SOUTHEAST, LLP

DRAWN BY K. DE MONTBRUN, P.E.

CHECKED BY M. WALKO, P.E.

SUBMITTED BY ECS SOUTHEAST, LLP

DATE OCTOBER 2019

Prepared in the Office of:



ECS SOUTHEAST, LLP
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-5152 (PHONE)
(704) 357-0023 (FAX)
NC REGISTERED
ENGINEERING
FIRM # F-1078



DocuSigned by:

Michael J. Walko

78222ACT182F187 / 2019

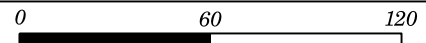
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DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

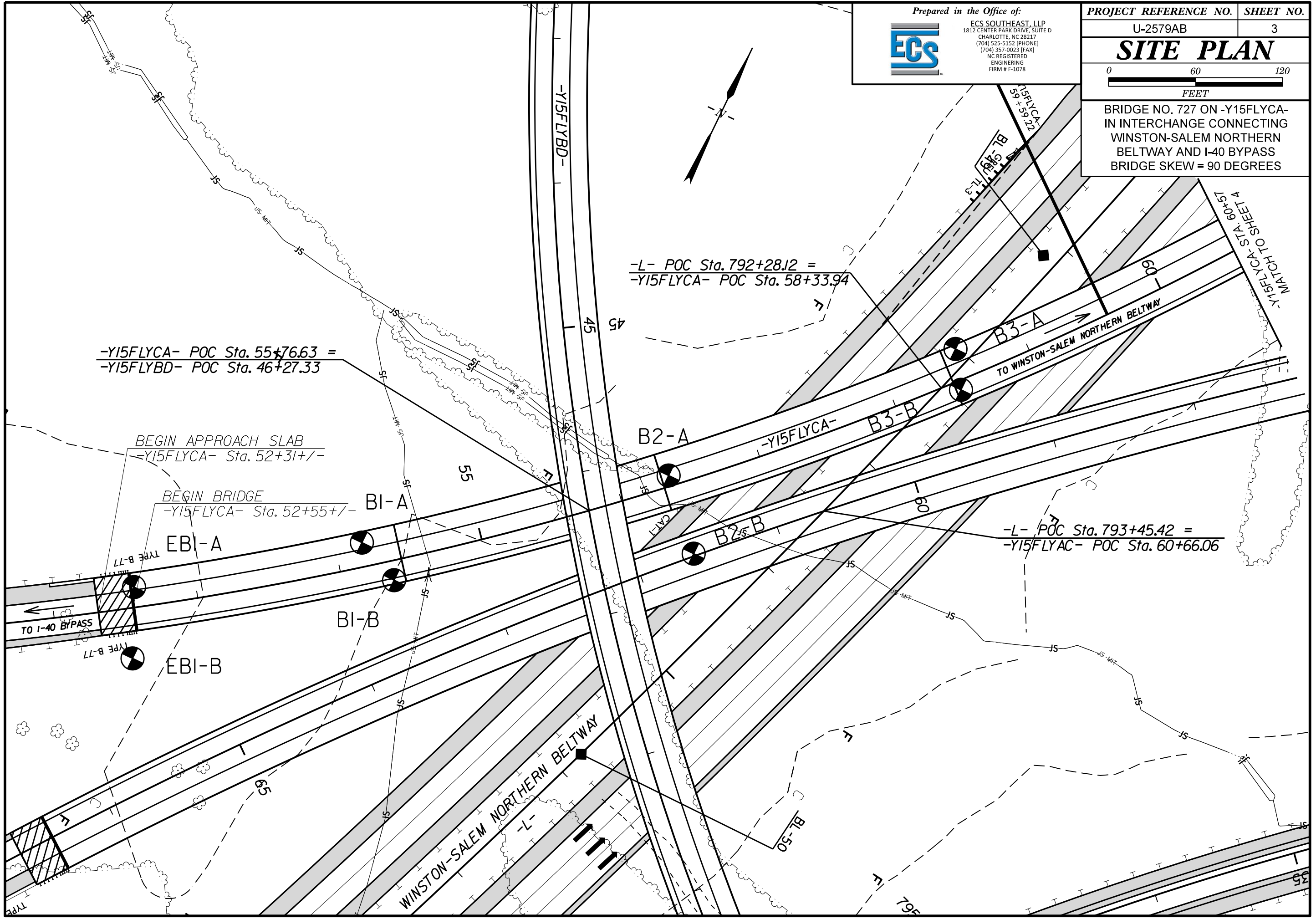
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 NC REGISTERED
 ENGINEERING
 FIRM # F-1078

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	3
SITE PLAN	
	

BRIDGE NO. 727 ON -Y15FLYCA-
 IN INTERCHANGE CONNECTING
 WINSTON-SALEM NORTHERN
 BELTWAY AND I-40 BYPASS
 BRIDGE SKEW = 90 DEGREES




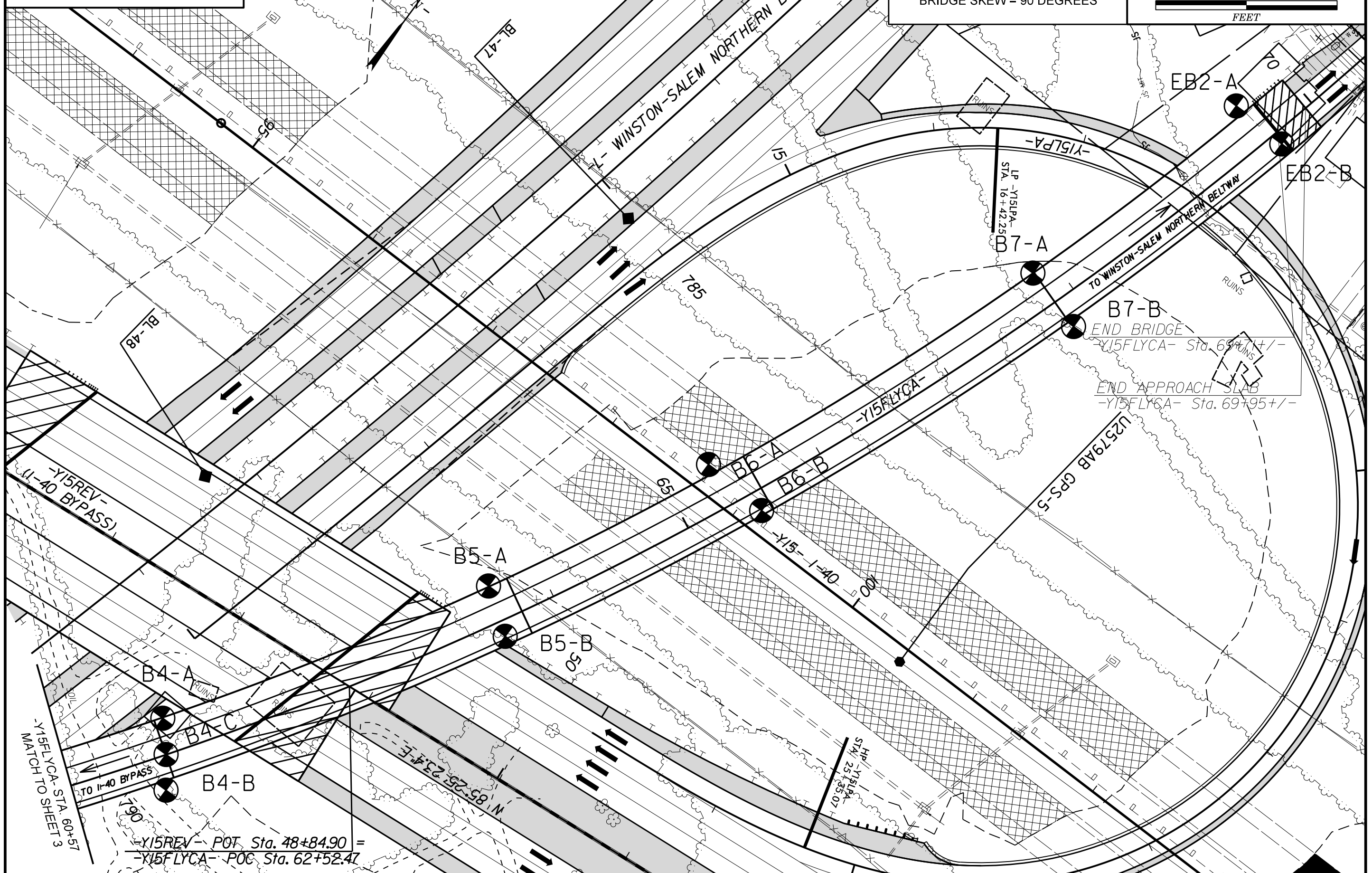
Prepared in the Office of:



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 1812 CENTER PARK DRIVE, SUITE D
 CHARLOTTE, NC 28217
 (704) 525-5152 [PHONE]
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 NC REGISTERED
 ENGINEERING
 FIRM # F-1078

BRIDGE NO. 727 ON -Y15FLYCA-
 IN INTERCHANGE CONNECTING
 WINSTON-SALEM NORTHERN
 BELTWAY AND I-40 BYPASS
 BRIDGE SKEW = 90 DEGREES

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	4
SITE PLAN	
 FEET	



5/14/99

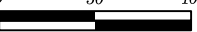
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Prepared in the Office of:



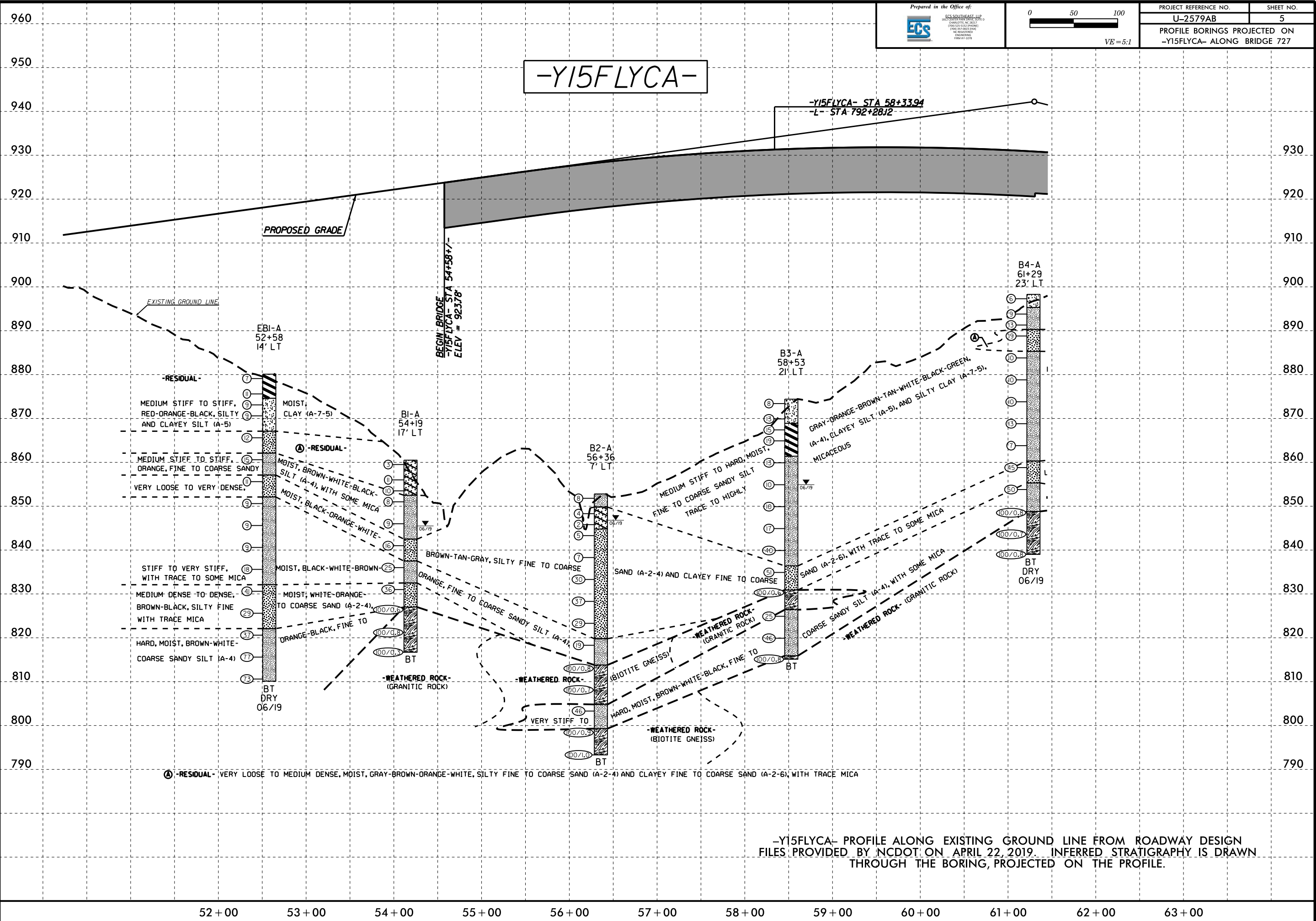
ECS SOUTHEAST, LLP
1815 CENTER MARKET SQUARE, SUITE 100
CHARLOTTE, NC 28212
(704) 353-1000
(704) 353-1001 (FAX)
NCEM LICENSED
ENGINEERING
1988-01-20-08

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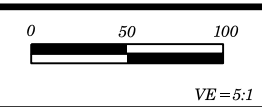
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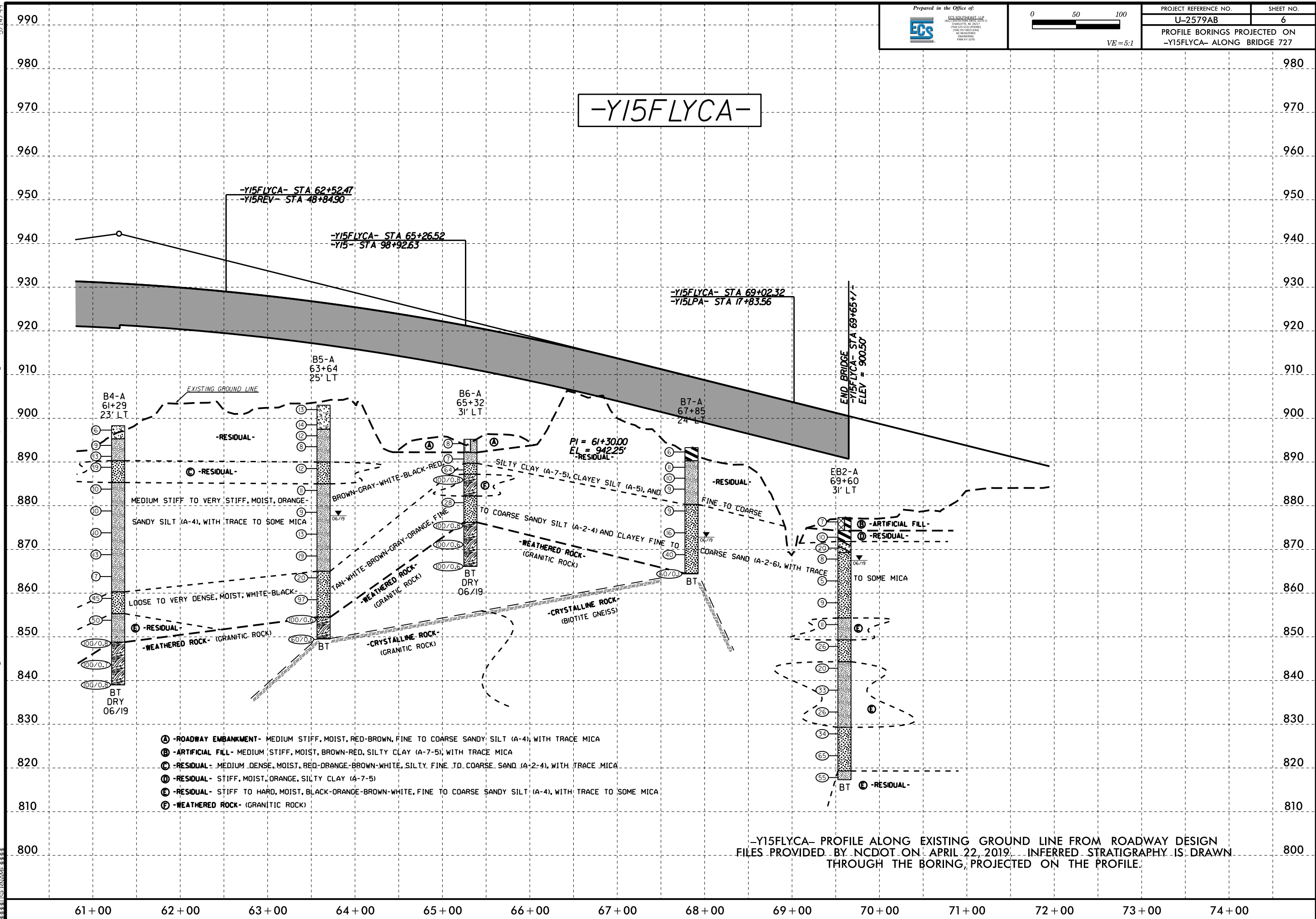
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5/14/19
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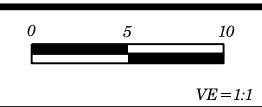
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U-2579AB	6
PROFILE BORINGS PROJECTED ON -Y15FLYCA- ALONG BRIDGE 727	



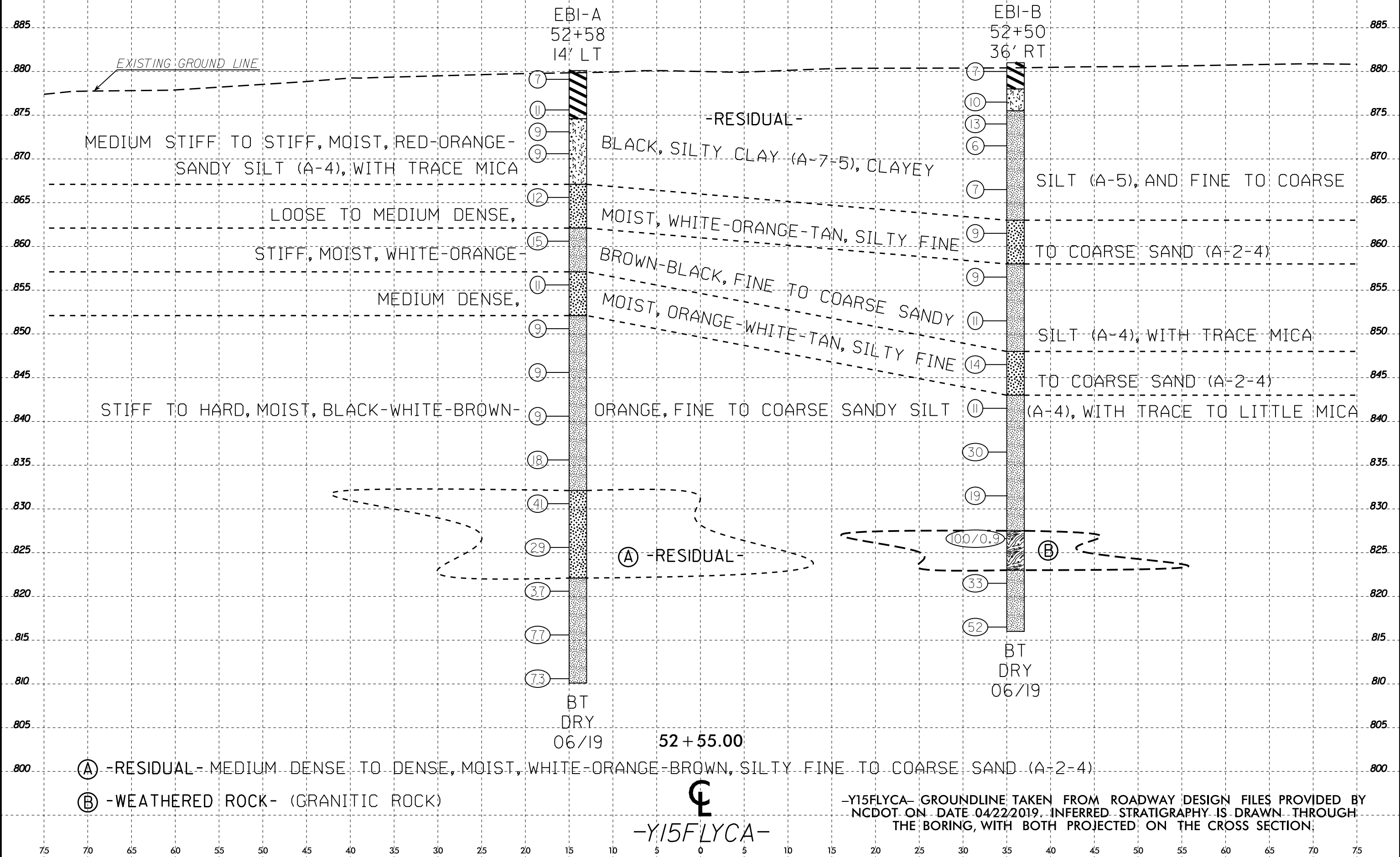
- Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA
- Ⓑ -ARTIFICIAL FILL- MEDIUM STIFF, MOIST, BROWN-RED, SILTY CLAY (A-7-5), WITH TRACE MICA
- Ⓒ -RESIDUAL- MEDIUM DENSE, MOIST, RED-ORANGE-BROWN-WHITE, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA
- Ⓓ -RESIDUAL- STIFF, MOIST, ORANGE, SILTY CLAY (A-7-5)
- Ⓔ -RESIDUAL- STIFF TO HARD, MOIST, BLACK-ORANGE-BROWN-WHITE, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO SOME MICA
- Ⓕ -WEATHERED ROCK- (GRANITIC ROCK)

-Y15FLYCA- PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON APRIL 22, 2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

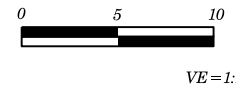
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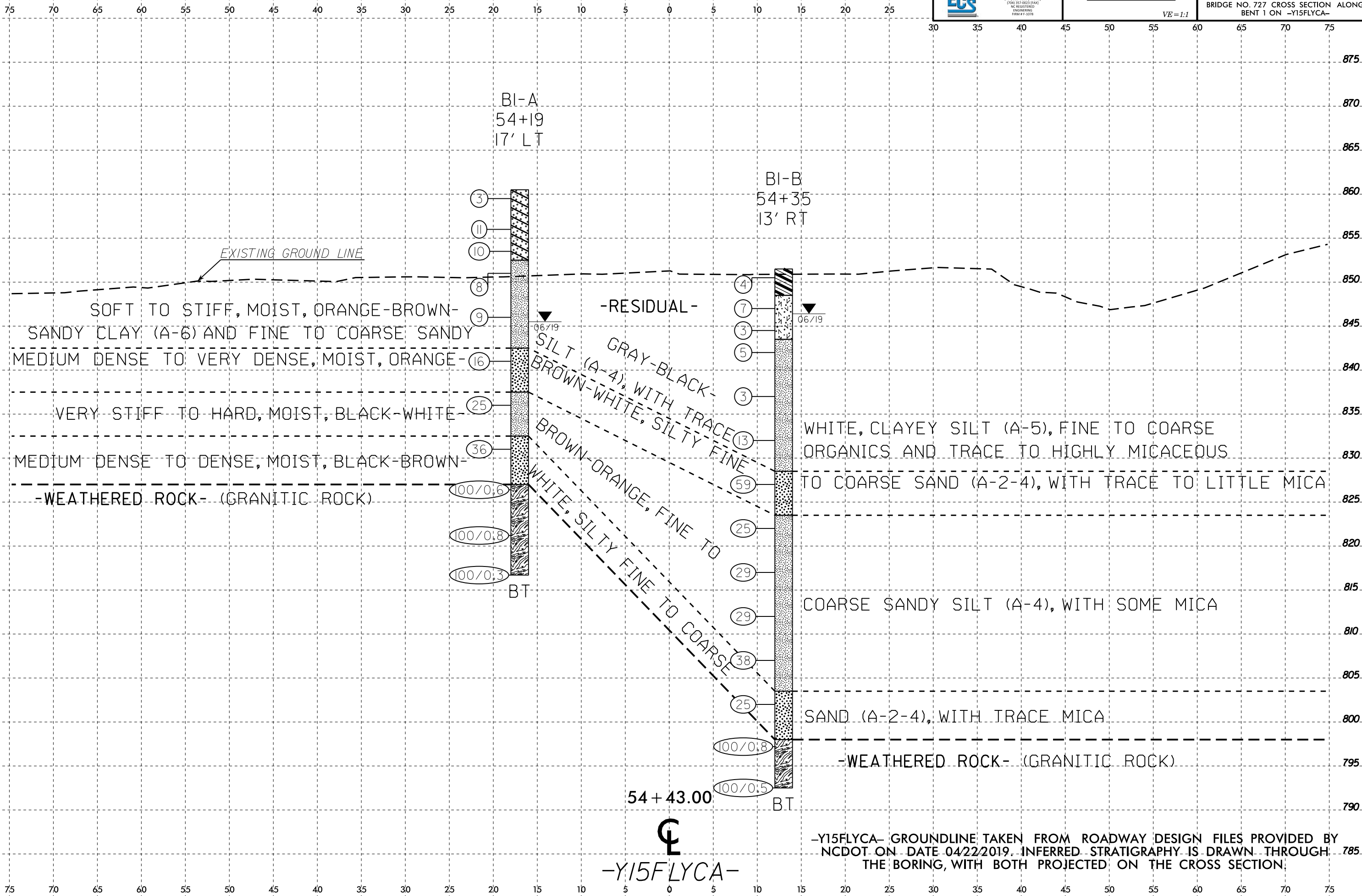
PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	7
BRIDGE NO. 727 CROSS SECTION ALONG END BENT 1 ON -Y15FLYCA-	



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	8
BRIDGE NO. 727 CROSS SECTION ALONG BENT 1 ON -Y15FLYCA-	



Y15FLYCA

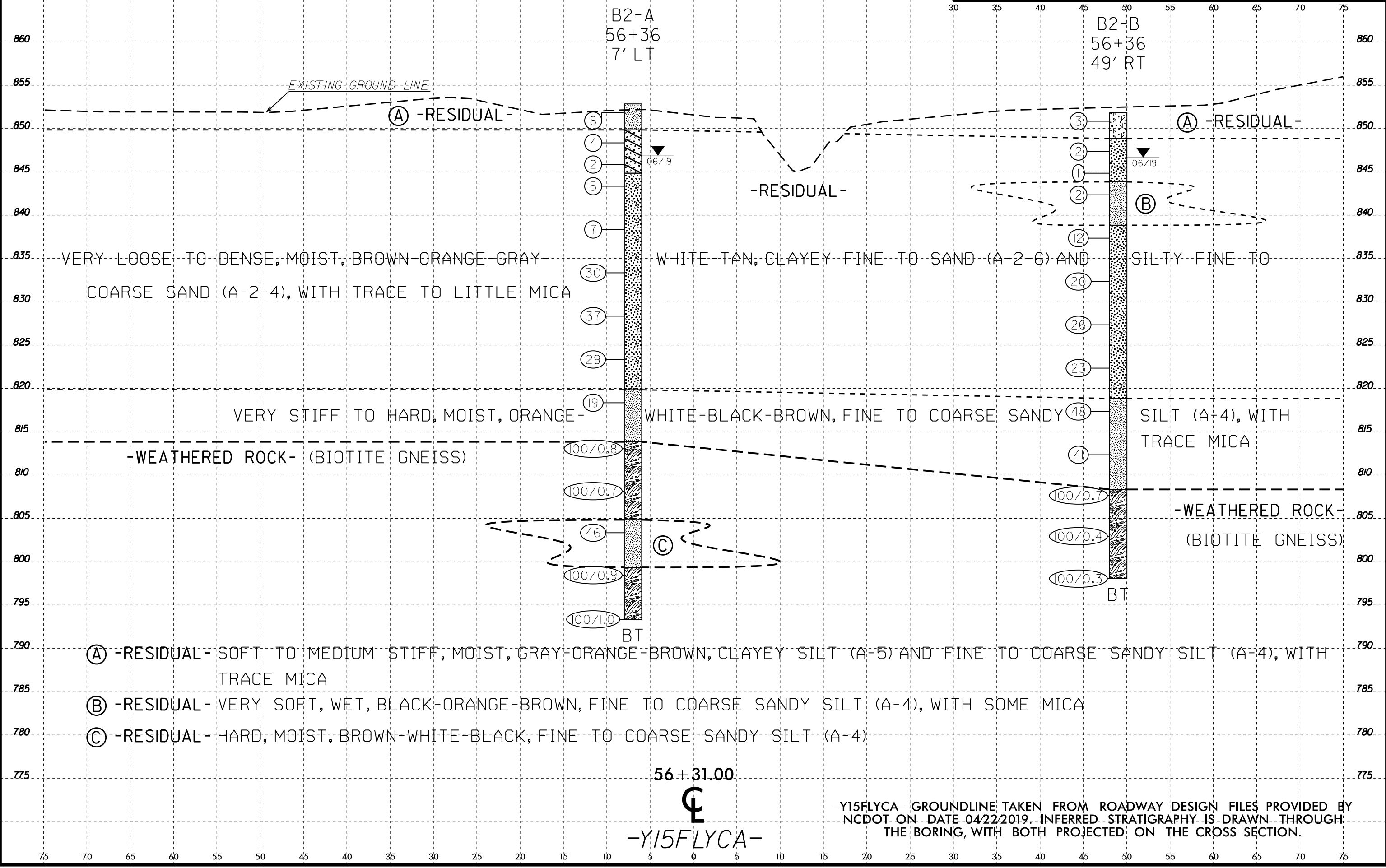
-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION

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PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	9
BRIDGE NO. 727 CROSS SECTION ALONG BENT 2 ON -Y15FLYCA-	



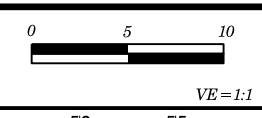
B2-A
56+36
7' LT

B2-B
56+36
49' RT

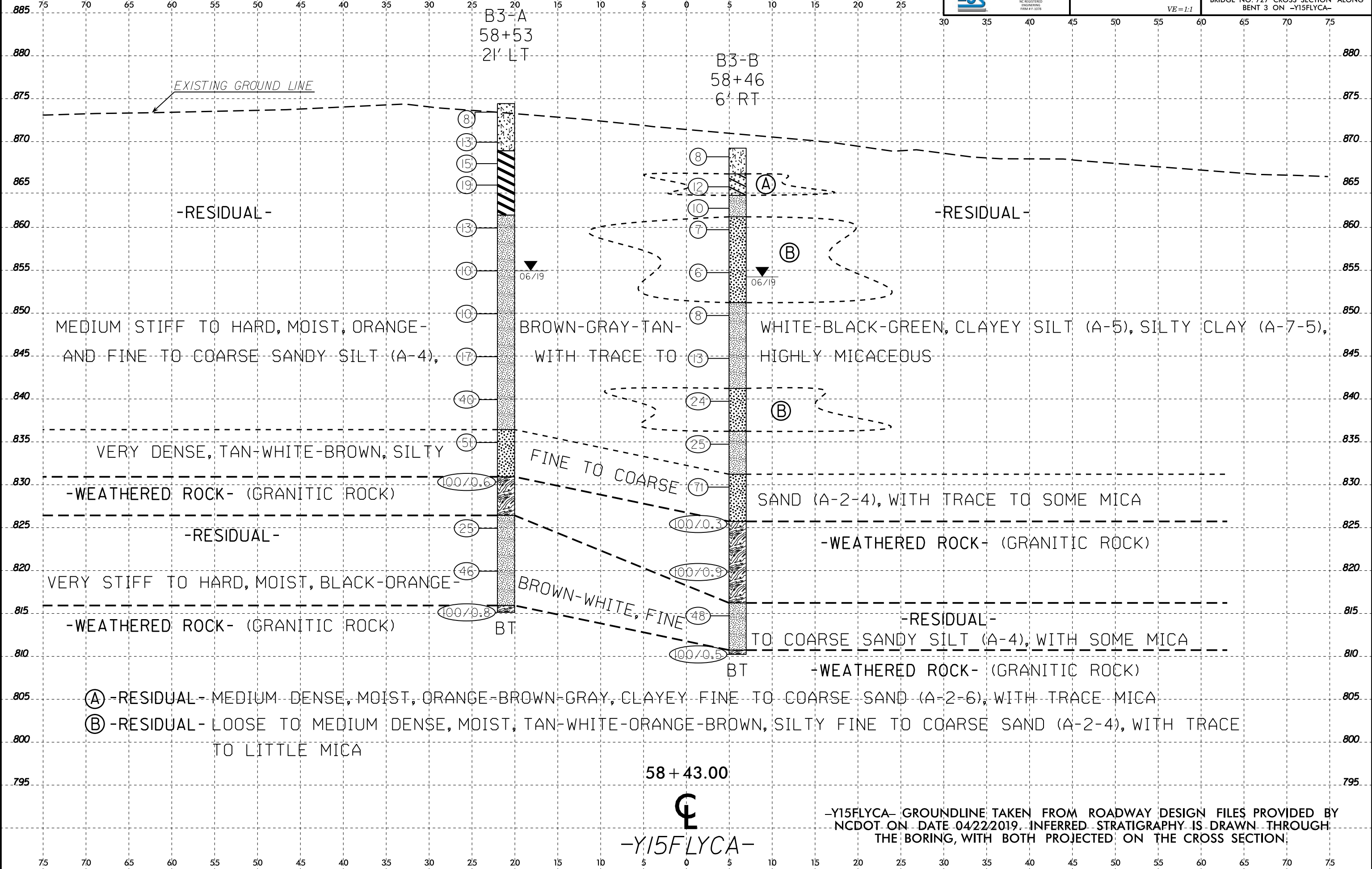
56 + 31.00
CL
-Y15FLYCA-

-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	10
BRIDGE NO. 727 CROSS SECTION ALONG BENT 3 ON -Y15FLYCA-	



B3-A
58+53
2' LT

B3-B
58+46
6' RT

EXISTING GROUND LINE

-RESIDUAL-

-RESIDUAL-

MEDIUM STIFF TO HARD, MOIST, ORANGE- AND FINE TO COARSE SANDY SILT (A-4),

BROWN-GRAY-TAN- WITH TRACE TO

WHITE-BLACK-GREEN, CLAYEY SILT (A-5), SILTY CLAY (A-7-5), HIGHLY MICACEOUS

VERY DENSE, TAN-WHITE-BROWN, SILTY

FINE TO COARSE

SAND (A-2-4), WITH TRACE TO SOME MICA

-WEATHERED ROCK- (GRANITIC ROCK)

-WEATHERED ROCK- (GRANITIC ROCK)

-RESIDUAL-

VERY STIFF TO HARD, MOIST, BLACK-ORANGE-

BROWN-WHITE, FINE

TO COARSE SANDY SILT (A-4), WITH SOME MICA

-WEATHERED ROCK- (GRANITIC ROCK)

-RESIDUAL-

-WEATHERED ROCK- (GRANITIC ROCK)

Ⓐ -RESIDUAL- MEDIUM DENSE, MOIST, ORANGE-BROWN-GRAY, CLAYEY FINE TO COARSE SAND (A-2-6), WITH TRACE MICA

Ⓑ -RESIDUAL- LOOSE TO MEDIUM DENSE, MOIST, TAN-WHITE-ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE TO LITTLE MICA

58 + 43.00

Ⓞ
-Y15FLYCA-

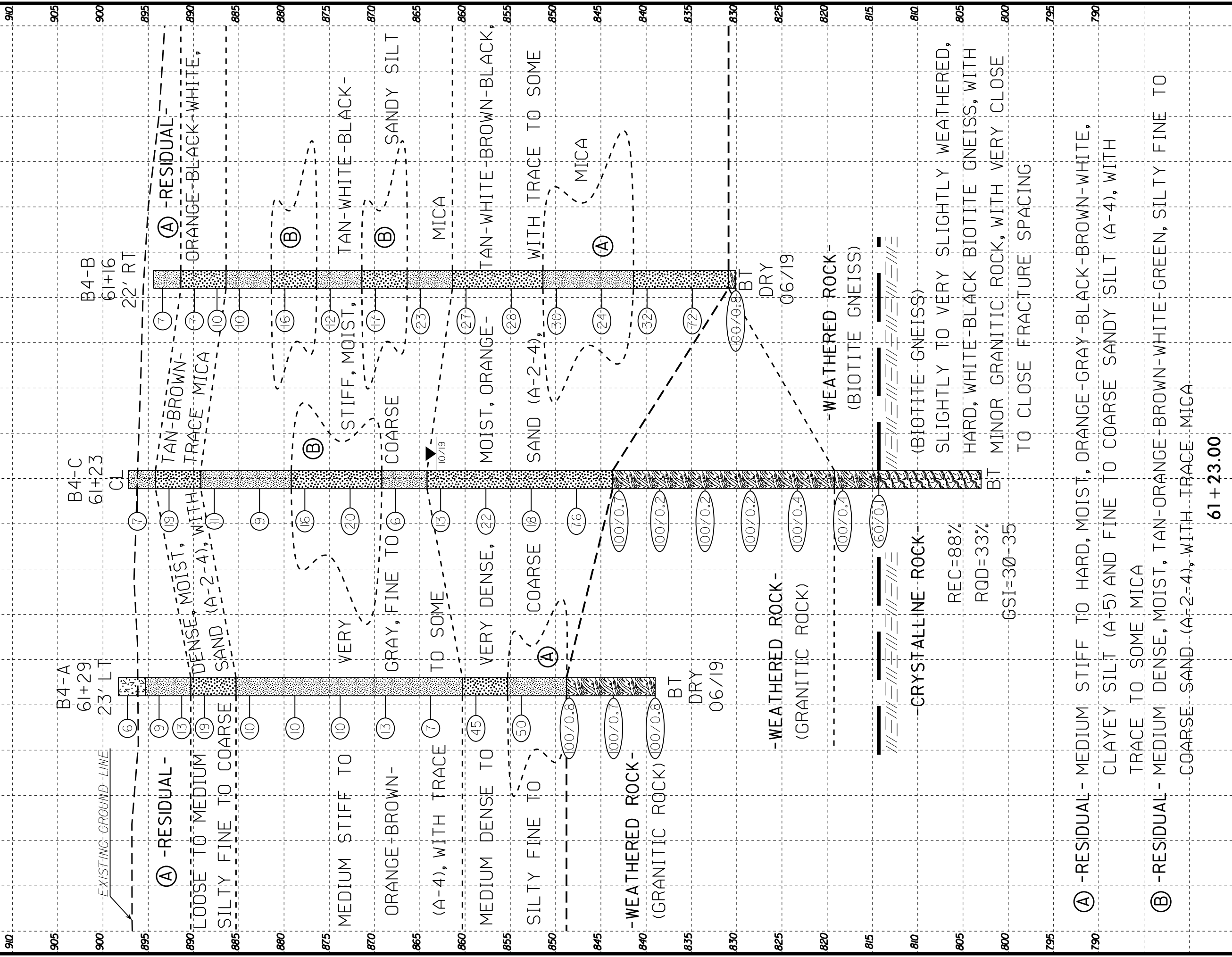
-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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WWW.ECSGROUP.COM

PROJ. REFERENCE NO. **U-2579AB** SHEET NO. **11**
BRIDGE NO. 727 CROSS SECTION ALONG BENT 4 ON -Y15FLYCA-

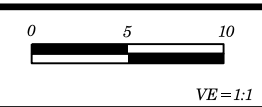
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915 -Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

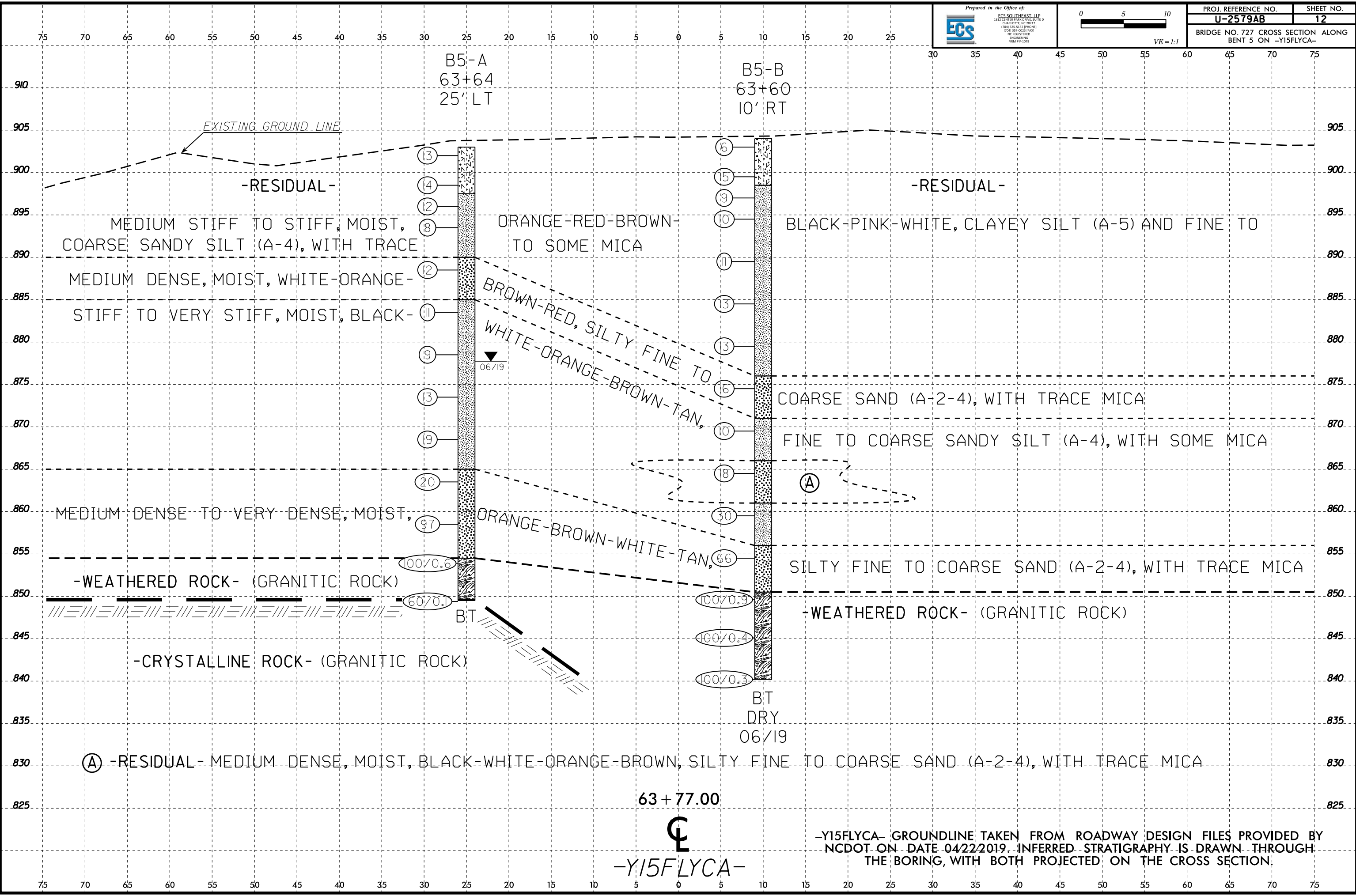


♀
-Y15FLYCA-

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PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	12
BRIDGE NO. 727 CROSS SECTION ALONG BENT 5 ON -Y15FLYCA-	



B5-A
63+64
25' LT

B5-B
63+60
10' RT

EXISTING GROUND LINE

-RESIDUAL-

-RESIDUAL-

MEDIUM STIFF TO STIFF, MOIST, COARSE SANDY SILT (A-4), WITH TRACE

ORANGE-RED-BROWN TO SOME MICA

BLACK-PINK-WHITE, CLAYEY SILT (A-5) AND FINE TO

MEDIUM DENSE, MOIST, WHITE-ORANGE

BROWN-RED, SILTY FINE TO

STIFF TO VERY STIFF, MOIST, BLACK-

WHITE-ORANGE-BROWN-TAN,

06/19

COARSE SAND (A-2-4), WITH TRACE MICA

MEDIUM DENSE TO VERY DENSE, MOIST,

ORANGE-BROWN-WHITE-TAN,

FINE TO COARSE SANDY SILT (A-4), WITH SOME MICA

-WEATHERED ROCK- (GRANITIC ROCK)

100/0.6

SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA

60/0.1

BT

-WEATHERED ROCK- (GRANITIC ROCK)

-CRYSTALLINE ROCK- (GRANITIC ROCK)

100/0.9

100/0.4

100/0.3

BT
DRY
06/19

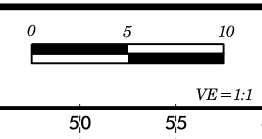
(A) -RESIDUAL- MEDIUM DENSE, MOIST, BLACK-WHITE-ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA

63 + 77.00

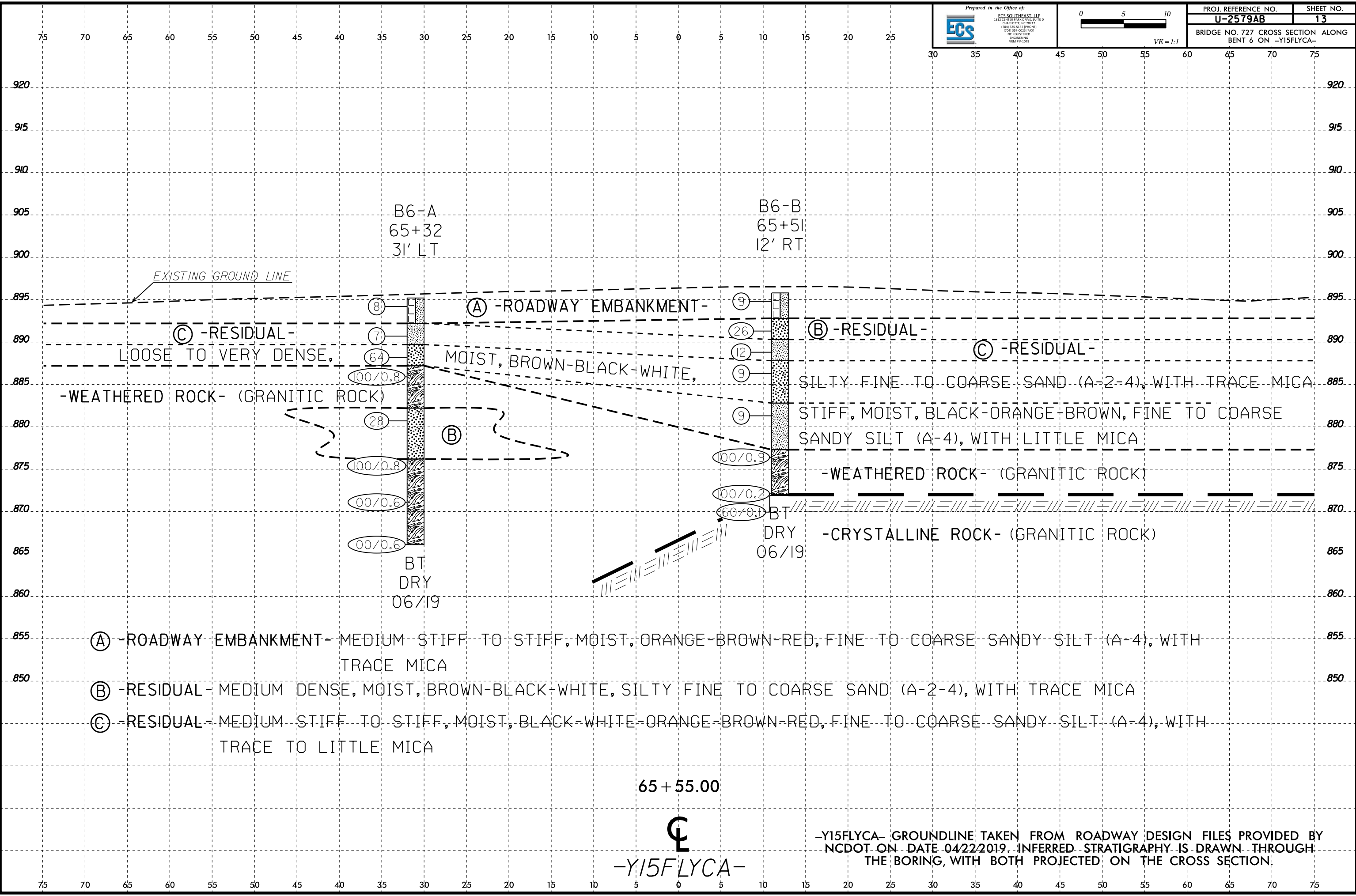
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-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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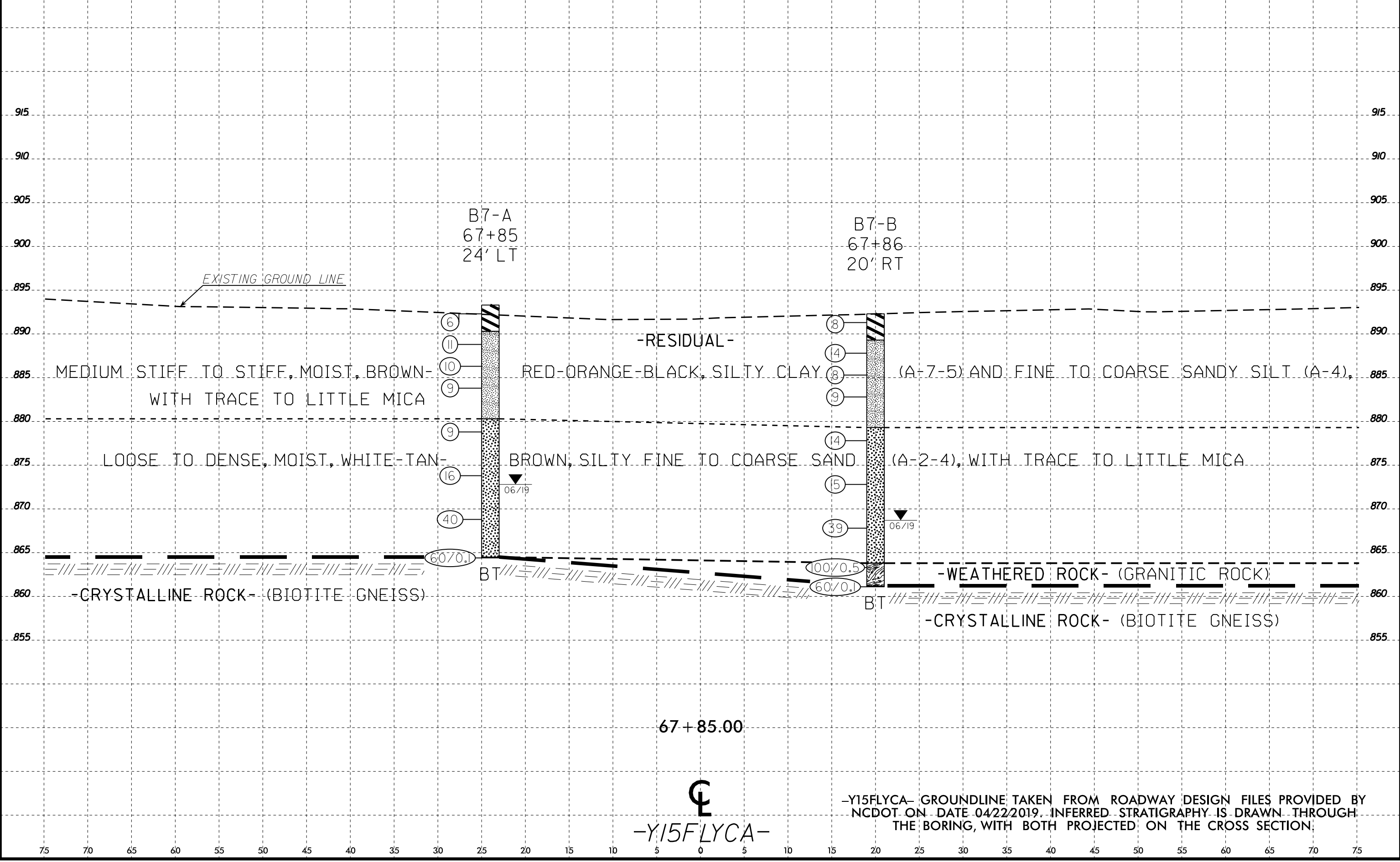


PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	13
BRIDGE NO. 727 CROSS SECTION ALONG BENT 6 ON -Y15FLYCA-	

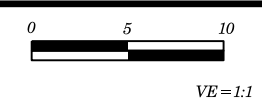
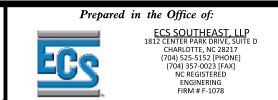


-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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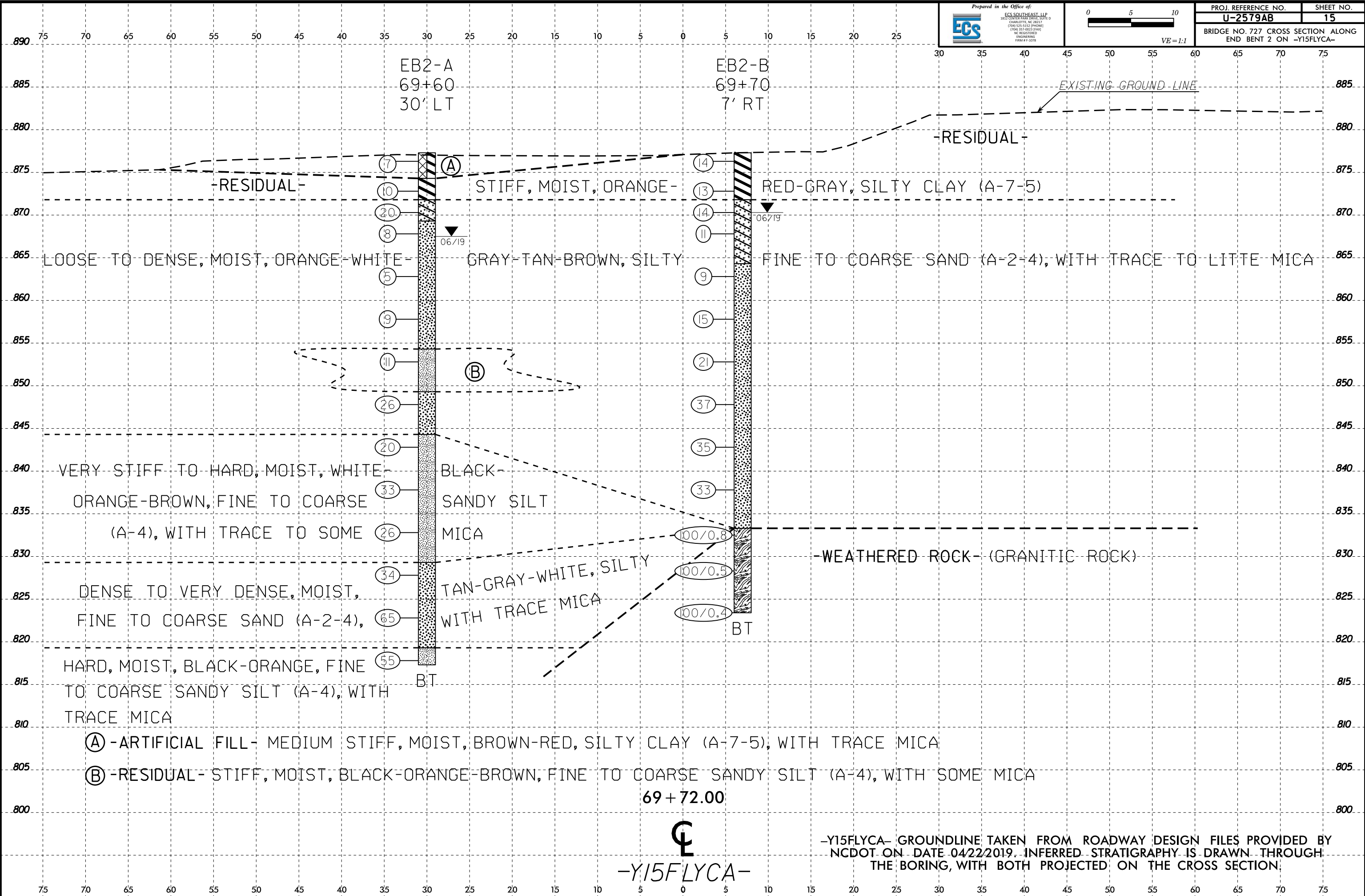


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	15
BRIDGE NO. 727 CROSS SECTION ALONG END BENT 2 ON -Y15FLYCA-	

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-Y15FLYCA- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY NCDOT ON DATE 04/22/2019. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. B1-A		STATION 54+19		OFFSET 17 ft LT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 860.5 ft		TOTAL DEPTH 43.8 ft		NORTHING 847,356		EASTING 1,663,507									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Z. Kiker		START DATE 06/12/19		COMP. DATE 06/12/19		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					
865															
860	860.5	0.0	2	1	2									860.5	GROUND SURFACE 0.0
	857.0	3.5	4	5	6										RESIDUAL Very Loose to Medium Dense, Gray-Brown-Orange, Clayey Fine to Coarse SAND (A-2-6)
855	854.5	6.0	4	5	5										
	852.0	8.5	4	4	4										Medium Stiff to Stiff, Brown-Orange-Black-White, Fine to Coarse Sandy SILT (A-4), with some mica
850															
	847.0	13.5	5	4	5										
845															
	842.0	18.5	5	8	8										Medium Dense, Orange-White-Brown, Silty Fine to Coarse SAND (A-2-4), with little mica
840															
	837.0	23.5	7	11	14										Very Stiff, Black-White-Brown, Fine to Coarse Sandy SILT (A-4), with some mica
835															
	832.0	28.5	13	19	17										Dense, White-Brown-Black, Silty Fine SAND (A-2-4), with trace mica
830															
	827.0	33.5	85	15/0.1											WEATHERED ROCK Black-Brown-White (GRANITIC ROCK)
825															
	822.0	38.5	50	50/0.3											
820															
	817.0	43.5	100/0.3												Boring Terminated at Elevation 816.7 ft In Weathered Rock (GRANITIC ROCK)

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. B1-B		STATION 54+35		OFFSET 13 ft RT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 851.5 ft		TOTAL DEPTH 59.0 ft		NORTHING 847,343		EASTING 1,663,538									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Z. Kiker		START DATE 06/11/19		COMP. DATE 06/11/19		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					
855															
	851.5	0.0	1	1	3									851.5	GROUND SURFACE 0.0
850															RESIDUAL Soft, Orange-Brown, Fine to Coarse Sandy CLAY (A-6), with trace organics and mica
	848.0	3.5	4	4	3										Soft to Medium Stiff, Gray-Orange, Clayey SILT (A-5), with trace mica
845															
	843.0	8.5	3	2	3										Soft to Stiff, White-Black, Fine to Coarse Sandy SILT (A-4), with some to highly micaceous
840															
	838.0	13.5	1	1	2										
835															
	833.0	18.5	6	7	6										
830															
	828.0	23.5	17	36	23										Very Dense, Brown-Orange-White, Silty Fine to Coarse SAND (A-2-4), with trace mica
825															
	823.0	28.5	8	11	14										Very Stiff to Hard, Black-White-Brown-Orange, Fine to Coarse Sandy SILT (A-4), with some mica
820															
	818.0	33.5	12	13	16										
815															
	813.0	38.5	6	10	19										
810															
	808.0	43.5	14	17	21										
805															
	803.0	48.5	11	13	12										Medium Dense, Black-Brown-White, Silty Fine to Coarse SAND (A-2-4), with trace mica
800															
	798.0	53.5	52	48/0.3											WEATHERED ROCK Tan-Brown-White-Black (GRANITIC ROCK)
795															
	793.0	58.5	100/0.5												Boring Terminated at Elevation 792.5 ft In Weathered Rock (GRANITIC ROCK)

NCDOT BORE DOUBLE U2579AB_GEO_BRDG0727.GPJ NC_DOT.GDT 10/25/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass						GROUND WTR (ft)										
BORING NO. B2-A		STATION 56+36		OFFSET 7 ft LT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 852.8 ft		TOTAL DEPTH 59.5 ft		NORTHING 847,490		EASTING 1,663,677										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/05/19		COMP. DATE 06/05/19		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						
855	852.8	0.0	2	4	4									852.8	GROUND SURFACE	0.0
850	849.3	3.5	3	2	2									849.8	RESIDUAL Medium Stiff, Orange-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	3.0
845	846.8	6.0	1	1	1									844.8	Very Loose to Loose, Orange-Brown Clayey Fine to Coarse SAND (A-2-6), with trace mica	8.0
840	844.3	8.5	3	3	2									844.8	Loose to Dense, Gray-White-Orange-Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace to little mica	8.0
835	839.3	13.5	3	3	4											
830	834.3	18.5	8	13	17											
825	829.3	23.5	9	18	19											
820	824.3	28.5	14	15	14											
815	819.3	33.5	10	8	11									819.8	Very Stiff, White-Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica	33.0
810	814.3	38.5	26	60	40/0.3									813.8	WEATHERED ROCK Black-White-Brown (BIOTITE GNEISS)	39.0
805	809.3	43.5	24	54	46/0.2									804.8	RESIDUAL Hard, Brown-White-Black, Fine to Coarse Sandy SILT (A-4)	48.0
800	804.3	48.5	18	20	26									799.3	WEATHERED ROCK Brown-White-Black (BIOTITE GNEISS)	53.5
795	799.3	53.5	23	77/0.4										793.3	Boring Terminated at Elevation 793.3 ft In Weathered Rock (BIOTITE GNEISS)	59.5
	794.3	58.5	52	48/0.5												

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass						GROUND WTR (ft)										
BORING NO. B2-B		STATION 56+36		OFFSET 49 ft RT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 851.8 ft		TOTAL DEPTH 53.8 ft		NORTHING 847,449		EASTING 1,663,716										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/10/19		COMP. DATE 06/10/19		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						
855	851.8	0.0	1	2	1									851.8	GROUND SURFACE	0.0
850	848.3	3.5	2	1	1									848.8	RESIDUAL Soft, Gray-Orange, Clayey SILT (A-5), with trace mica	3.0
845	845.8	6.0	3	1	0									843.8	Very Loose, Brown-Orange-Gray, Silty Fine to Coarse SAND (A-2-4)	8.0
840	843.3	8.5	1	1	1									838.8	Very Soft, Black-Orange-Brown, Fine to Coarse Sandy SILT (A-4), with some mica	13.0
835	838.3	13.5	4	6	6									838.8	Medium Dense, Orange-Brown-White-Tan, Silty Fine to Coarse SAND (A-2-4), with little mica	13.0
830	833.3	18.5	7	10	10											
825	828.3	23.5	7	10	16											
820	823.3	28.5	12	11	12											
815	818.3	33.5	11	18	30									818.8	Hard, Orange-White-Black-Brown, Fine to Coarse Sandy SILT (A-4)	33.0
810	813.3	38.5	15	18	23									808.3	WEATHERED ROCK White-Black-Brown (BIOTITE GNEISS)	43.5
805	808.3	43.5	61	39/0.2										798.0	Boring Terminated at Elevation 798.0 ft In Weathered Rock (BIOTITE GNEISS)	53.8
800	803.3	48.5	100/0.4													
	798.3	53.5	100/0.3													

NCDOT BORE DOUBLE U2579AB_GEO_BRDG0727.GPJ NC_DOT.GDT 10/25/19

1) Boring B2-B was offset to the right due to an existing steep stream embankment.

GEOTECHNICAL BORING REPORT

BORE LOG

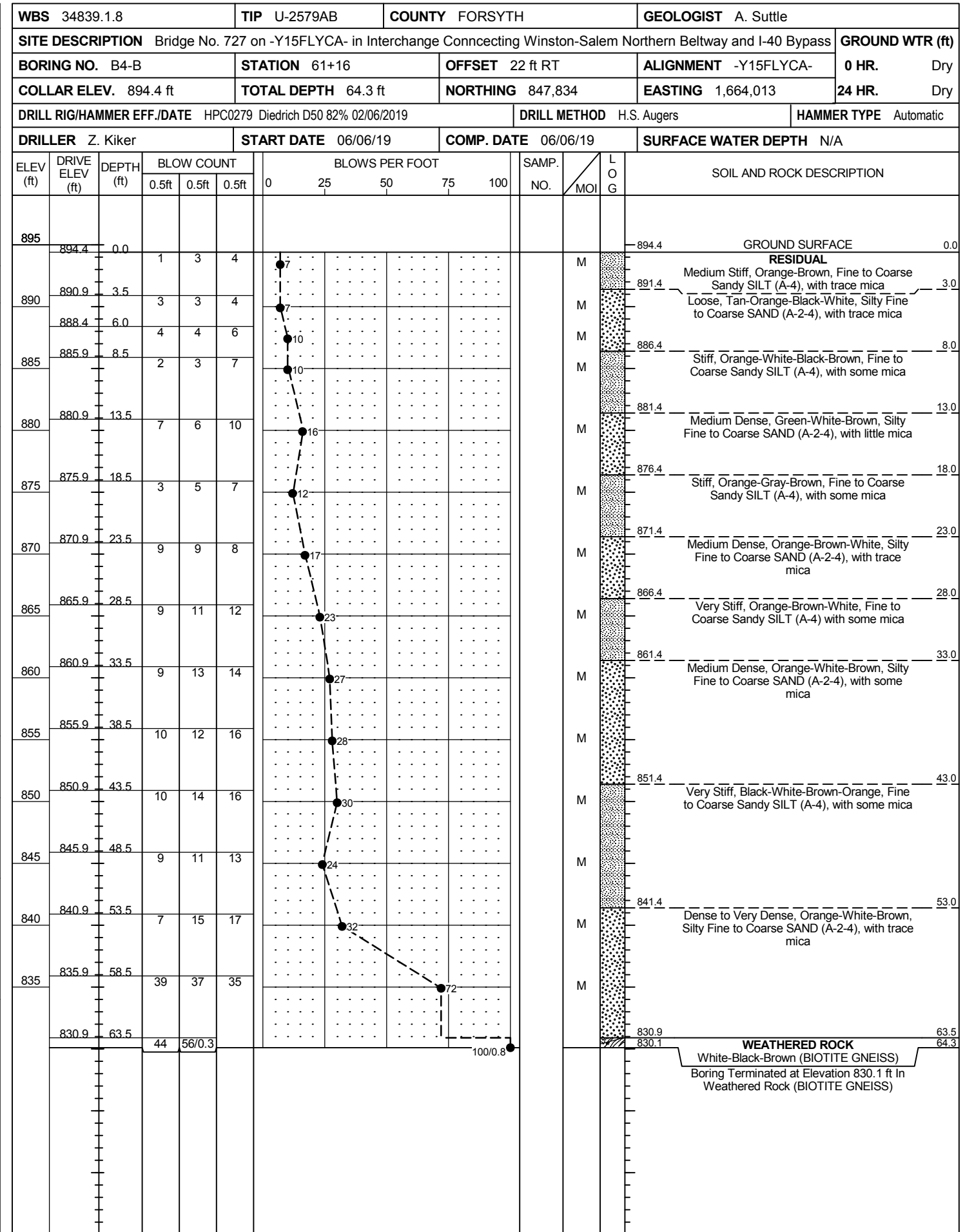
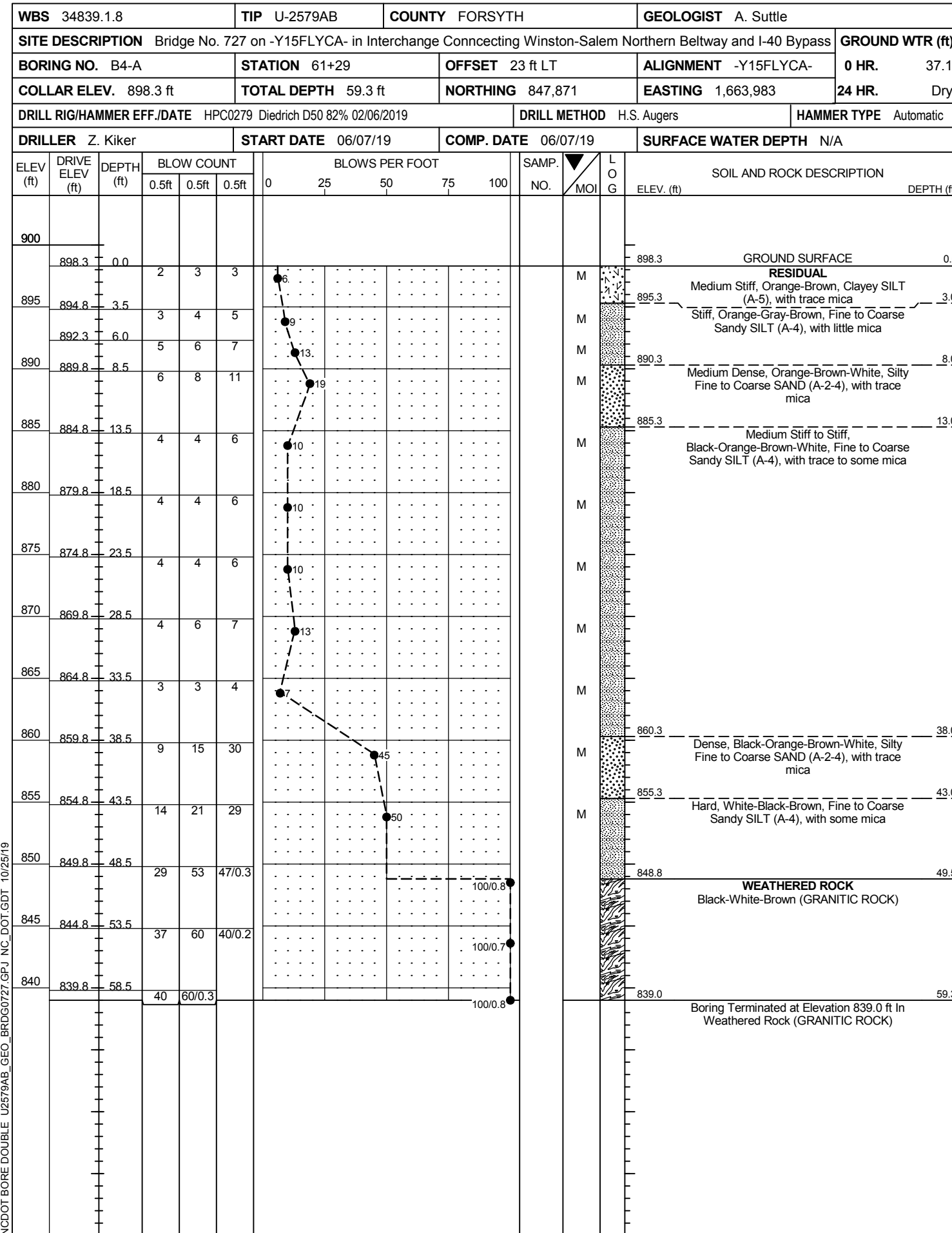
WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass						GROUND WTR (ft)										
BORING NO. B3-A		STATION 58+53		OFFSET 21 ft LT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 874.4 ft		TOTAL DEPTH 59.3 ft		NORTHING 847,655		EASTING 1,663,817										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/06/19		COMP. DATE 06/06/19		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						
875	874.4	0.0												874.4	GROUND SURFACE	0.0
			3	4	4										RESIDUAL Medium Stiff to Stiff, Orange-Brown, Clayey SILT (A-5), with trace mica	
870	870.9	3.5	5	6	7									868.9	Stiff to Very Stiff, Gray-Orange-Brown, Silty CLAY (A-7-5)	5.5
	868.4	6.0	5	6	9											
865	865.9	8.5	5	10	9									861.4	Stiff to Hard, White-Tan-Brown-Black-Green, Fine to Coarse Sandy SILT (A-4), with little to highly micaceous	13.0
	860.9	13.5	4	6	7											
860	860.9	13.5	4	6	7											
	855.9	18.5	4	5	5											
855	855.9	18.5	4	5	5											
	850.9	23.5	2	4	6											
850	850.9	23.5	2	4	6											
	845.9	28.5	6	8	9											
845	845.9	28.5	6	8	9											
	840.9	33.5	6	12	28											
840	840.9	33.5	6	12	28											
	835.9	38.5	28	33	18											
835	835.9	38.5	28	33	18											
	830.9	43.5	81	19/0.1												
830	830.9	43.5	81	19/0.1											WEATHERED ROCK Black-Brown-White (GRANITIC ROCK)	43.5
	825.9	48.5	7	8	17											
825	825.9	48.5	7	8	17										RESIDUAL Very Stiff to Hard, Black-White-Brown, Fine to Coarse Sandy SILT (A-4), with some mica	48.0
	820.9	53.5	15	18	28											
820	820.9	53.5	15	18	28											
	815.9	58.5	33	67/0.3												
	815.9	58.5	33	67/0.3												
	815.1	59.3													WEATHERED ROCK Black-White-Brown (GRANITIC ROCK) Boring Terminated at Elevation 815.1 ft In Weathered Rock (GRANITIC ROCK)	59.3

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass						GROUND WTR (ft)										
BORING NO. B3-B		STATION 58+46		OFFSET 6 ft RT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 869.2 ft		TOTAL DEPTH 59.0 ft		NORTHING 847,631		EASTING 1,663,833										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/05/19		COMP. DATE 06/05/19		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						
870	869.2	0.0												869.2	GROUND SURFACE	0.0
			2	3	5										RESIDUAL Medium Stiff, Orange-Brown, Clayey SILT (A-5), with trace mica	
865	865.7	3.5	4	6	6									866.2	Medium Dense, Orange-Brown-Gray, Clayey Fine to Coarse SAND (A-2-6), with trace mica	3.0
	863.2	6.0	3	4	6									863.7	Stiff, Brown-Black-Orange, Fine to Coarse Sandy SILT (A-4), with little mica	5.5
860	860.7	8.5	4	4	3									861.2	Loose, Tan-Orange-White, Silty Fine to Coarse SAND (A-2-4), with trace to little mica	8.0
	855.7	13.5	3	3	3											
855	855.7	13.5	3	3	3											
	850.7	18.5	2	4	4											
850	850.7	18.5	2	4	4										Medium Stiff to Stiff, White-Orange-Black-Brown, Fine to Coarse Sandy SILT (A-4)	18.0
	845.7	23.5	5	5	8											
845	845.7	23.5	5	5	8											
	840.7	28.5	12	11	13											
840	840.7	28.5	12	11	13										Medium Dense, White-Orange-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica	28.0
	835.7	33.5	9	11	14											
835	835.7	33.5	9	11	14										Very Stiff, White-Orange-Black-Brown, Fine to Coarse Sandy SILT (A-4), with little mica	33.0
	830.7	38.5	46	42	29											
830	830.7	38.5	46	42	29										Very Dense, Tan-White, Silty Fine to Coarse SAND (A-2-4), with trace mica	38.0
	825.7	43.5	100/0.3													
825	825.7	43.5	100/0.3												WEATHERED ROCK Tan-White-Black-Brown (GRANITIC ROCK)	43.5
	820.7	48.5	14	86/0.4												
820	820.7	48.5	14	86/0.4												
	815.7	53.5	26	26	22											
815	815.7	53.5	26	26	22										RESIDUAL Hard, Black-Orange-Brown, Fine to Coarse Sandy SILT (A-4), with some mica	53.0
	810.7	58.5	100/0.5													
	810.7	58.5	100/0.5													
	810.2	59.0													WEATHERED ROCK Black-White-Brown (GRANITIC ROCK) Boring Terminated at Elevation 810.2 ft In Weathered Rock (GRANITIC ROCK)	59.0

NCDOT BORE DOUBLE U2579AB_GEO_BRD0727.GPJ_NC_DOT.GDT 10/25/19

GEOTECHNICAL BORING REPORT

BORE LOG



NCDOT BORE DOUBLE U2579AB_GEO_BRD0727.GPJ NC_DOT.GDT 10/25/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle	
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)
BORING NO. B4-C		STATION 61+23		OFFSET CL		ALIGNMENT -Y15FLYCA-	
COLLAR ELEV. 897.2 ft		TOTAL DEPTH 94.2 ft		NORTHING 847,853		EASTING 1,663,999	
DRILL RIG/HAMMER EFF./DATE TDD1893 CME-550X 88% 07/18/2019			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic	
DRILLER J. Chambless		START DATE 10/07/19		COMP. DATE 10/08/19		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
900																
	897.2	0.0	2	3	4										897.2	0.0
895	893.7	3.5	3	8	11										894.2	3.0
890	888.7	8.5	2	5	6										889.2	8.0
885	883.7	13.5	2	4	5											
880	878.7	18.5	2	6	10										879.2	18.0
875	873.7	23.5	6	10	10											
870	868.7	28.5	2	3	3										869.2	28.0
865	863.7	33.5	3	5	8										864.2	33.0
860	858.7	38.5	6	8	14											
855	853.7	43.5	3	7	11											
850	848.7	48.5	32	25	51											
845	843.7	53.5	82	18/0.2											843.7	53.5
840	838.7	58.5	100/0.2													
835	833.7	63.5	100/0.2													
830	828.7	68.5	100/0.2													
825	823.7	73.5	100/0.4													
820																

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle	
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)
BORING NO. B4-C		STATION 61+23		OFFSET CL		ALIGNMENT -Y15FLYCA-	
COLLAR ELEV. 897.2 ft		TOTAL DEPTH 94.2 ft		NORTHING 847,853		EASTING 1,663,999	
DRILL RIG/HAMMER EFF./DATE TDD1893 CME-550X 88% 07/18/2019			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic	
DRILLER J. Chambless		START DATE 10/07/19		COMP. DATE 10/08/19		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
820																
	818.7	78.5	100/0.4												819.2	78.0
815	814.4	82.8	60/0.1												814.4	82.8
810															814.3	82.9
805																
															803.0	94.2

Match Line

897.2 GROUND SURFACE 0.0

RESIDUAL

894.2 Medium Stiff, Black-Brown, Fine to Coarse Sandy SILT (A-4), with some mica 3.0

889.2 Medium Dense, Tan-Orange-Brown, Silty Fine to Coarse SAND (A-2-4) 8.0

879.2 Stiff, Tan-White-Brown, Fine to Coarse Sandy SILT (A-4), with some mica 18.0

869.2 Medium Dense, Tan-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica 28.0

864.2 Medium Stiff, White-Black-Orange-Brown, Fine to Coarse Sandy SILT (A-4), with some mica 33.0

843.7 Medium Dense to Very Dense, White-Tan-Brown, Silty Fine to Coarse SAND (A-2-4), with some mica 53.5

WEATHERED ROCK
Tan-Brown (GRANITIC ROCK)

819.2 White-Black (BIOTITE GNEISS) 78.0

CRYSTALLINE ROCK
White-Black (BIOTITE GNEISS)
Slightly to Very Slightly Weathered, Hard, White-Black BIOTITE GNEISS, with minor GRANITIC ROCK, with very close to close fracture spacing
REC = 88%, RQD = 33%, GSI = 30 - 35

Boring Terminated at Elevation 803.0 ft In Crystalline Rock (BIOTITE GNEISS)

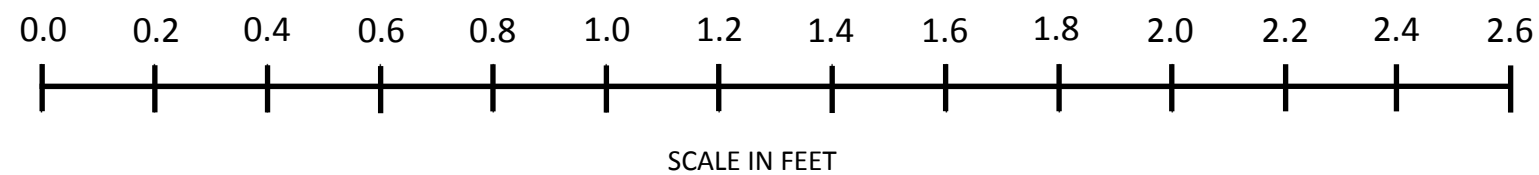
NCDOT BORE DOUBLE U2579AB_GEO_BRDG0727.GPJ NC_DOT.GDT 10/25/19

GEOTECHNICAL BORING REPORT CORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle						
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)					
BORING NO. B4-C		STATION 61+23		OFFSET CL		ALIGNMENT -Y15FLYCA-						
COLLAR ELEV. 897.2 ft		TOTAL DEPTH 94.2 ft		NORTHING 847,853		EASTING 1,663,999						
DRILL RIG/HAMMER EFF./DATE TDD1893 CME-550X 88% 07/18/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER J. Chambless		START DATE 10/07/19		COMP. DATE 10/08/19		SURFACE WATER DEPTH N/A						
CORE SIZE NQ-2		TOTAL RUN 11.3 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) %				
814.3	814.3	82.9	2.2	3:09/1.0	(1.8)	(0.4)	(9.9)	(3.7)		Slightly to Very Slightly Weathered, Hard, White-Black BIOTITE GNEISS, with minor GRANITIC ROCK, with very close to close fracture spacing REC = 88%, RQD = 33%, GSI = 30 - 35	82.9	
	812.1	85.1		3:12/1.0	82%	18%						
			5.0	0:36/0.2	(4.0)	(1.5)						
810				2:32/1.0	80%	30%						
				1:49/1.0								
		807.1	90.1	1:52/1.0								
				2:36/1.0								
				1:47/1.0								
805			4.1	2:57/1.0	(4.1)	(1.8)						
				2:27/1.0	100%	44%						
				2:01/1.0								
		803.0	94.2	2:47/1.1							94.2	
Boring Terminated at Elevation 803.0 ft In Crystalline Rock (BIOTITE GNEISS)												

NCDOT CORE DOUBLE_U2579AB_GEO_BRDG0727.GPJ NC_DOT.GDT 10/25/19

Winston-Salem Beltway from US 421/I-40 BUS to I-40
Bridge No. 727 on -Y15FLYCA-
WBS: 34839.1.8 TIP NO.: U-2579AB
Rock Core Photograph: Boring: B4-C
Station: 61+23 Offset: CL



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)									
BORING NO. B5-A		STATION 63+64		OFFSET 25 ft LT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 903.0 ft		TOTAL DEPTH 53.5 ft		NORTHING 848,069		EASTING 1,664,104										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/07/19		COMP. DATE 06/07/19		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)		
905																
	903.0	0.0	2	6	7										903.0	0.0
900	899.5	3.5	5	6	8											
	897.0	6.0	6	7	5											
895	894.5	8.5	3	3	5											
890	889.5	13.5	6	6	6											
885	884.5	18.5	4	5	6											
880	879.5	23.5	4	4	5											
875	874.5	28.5	5	5	8											
870	869.5	33.5	6	9	10											
865	864.5	38.5	8	10	10											
860	859.5	43.5	20	33	64											
855	854.5	48.5	43	57/0.1												
850	849.5	53.5														

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)									
BORING NO. B5-B		STATION 63+60		OFFSET 10 ft RT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 904.0 ft		TOTAL DEPTH 63.8 ft		NORTHING 848,049		EASTING 1,664,133										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/10/19		COMP. DATE 06/10/19		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)		
905																
	904.0	0.0	2	3	3										904.0	0.0
900	900.5	3.5	3	7	8											
	898.0	6.0	4	4	5											
895	895.5	8.5	3	4	6											
890	890.5	13.5	4	5	6											
885	885.5	18.5	3	6	7											
880	880.5	23.5	4	6	7											
875	875.5	28.5	4	8	8											
870	870.5	33.5	4	4	6											
865	865.5	38.5	5	8	10											
860	860.5	43.5	10	12	18											
855	855.5	48.5	16	28	38											
850	850.5	53.5	46	54/0.4												
845	845.5	58.5														

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)									
BORING NO. B6-A		STATION 65+32		OFFSET 31 ft LT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 895.2 ft		TOTAL DEPTH 29.1 ft		NORTHING 848,221		EASTING 1,664,173										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Z. Kiker		START DATE 06/11/19		COMP. DATE 06/11/19		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						
900																
895	895.2	0.0	2	3	5									895.2	GROUND SURFACE	0.0
															ROADWAY EMBANKMENT	
															Medium Stiff, Red-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	
890	891.7	3.5	3	3	4									892.2	RESIDUAL	3.0
															Medium Stiff, Black-Red-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	
	889.2	6.0	23	29	35									889.7	RESIDUAL	5.5
															Very Dense, Black-Brown-White, Silty Fine to Coarse SAND (A-2-4), with trace mica	
	886.7	8.5	52	48/0.3										887.2	WEATHERED ROCK	8.0
															Black-White (GRANITIC ROCK)	
885	881.7	13.5	9	12	16									882.2	RESIDUAL	13.0
															Medium Dense, Black-Brown-White, Silty Fine to Coarse SAND (A-2-4)	
880	876.7	18.5	20	44	56/0.3									876.2	WEATHERED ROCK	19.0
															Orange-Brown-White-Black (GRANITIC ROCK)	
875	871.7	23.5	85	15/0.1												
870	866.7	28.5	57	43/0.1										866.1		29.1
															Boring Terminated at Elevation 866.1 ft In Weathered Rock (GRANITIC ROCK)	

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle										
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)									
BORING NO. B6-B		STATION 65+51		OFFSET 12 ft RT		ALIGNMENT -Y15FLYCA-										
COLLAR ELEV. 895.8 ft		TOTAL DEPTH 23.9 ft		NORTHING 848,217		EASTING 1,664,220										
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Z. Kiker		START DATE 06/11/19		COMP. DATE 06/11/19		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						
900																
895	895.8	0.0	2	4	5									895.8	GROUND SURFACE	0.0
															ROADWAY EMBANKMENT	
															Stiff, Orange-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica	
890	892.3	3.5	10	12	14									892.8	RESIDUAL	3.0
															Medium Dense, Brown-Black-White, Silty Fine to Coarse SAND (A-2-4), with trace mica	
	889.8	6.0	4	6	6									890.3	RESIDUAL	5.5
															Stiff, Black-White-Orange-Brown, Fine to Coarse SAND (A-4), with little mica	
	887.3	8.5	4	5	4									887.8	RESIDUAL	8.0
															Loose, Brown-Black-White, Silty Fine to Coarse SAND (A-2-4), with trace mica	
885	882.3	13.5	3	4	5									882.8	RESIDUAL	13.0
															Stiff, Black-Orange-Brown, Fine to Coarse Sandy SILT (A-4), with little mica	
880	877.3	18.5	26	74/0.4										877.3	WEATHERED ROCK	18.5
															Black-Brown-White (GRANITIC ROCK)	
875	872.3	23.5	100/0.2											872.0	CRYSTALLINE ROCK	23.8
	872.0	23.8	60/0.1											871.9	Black-White (GRANITIC ROCK)	23.9
															Boring Terminated with Standard Penetration Test Refusal at Elevation 871.9 ft In Crystalline Rock (GRANITIC ROCK)	

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. B7-A		STATION 67+85		OFFSET 24 ft LT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 893.3 ft		TOTAL DEPTH 28.9 ft		NORTHING 848,450		EASTING 1,664,271									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/13/19		COMP. DATE 06/13/19		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					
895	893.3	0.0	2	3	3								M	GROUND SURFACE	0.0
890	889.8	3.5	5	6	5								M	RESIDUAL Medium Stiff, Brown-Red, Silty CLAY (A-7-5)	3.0
	887.3	6.0	4	4	6								M	Stiff, Brown-Orange, Fine to Coarse Sandy SILT (A-4), with trace to little mica	
885	884.8	8.5	6	4	5								M		
880	879.8	13.5	5	5	4								M	Loose to Dense, White-Tan-Brown, Silty Fine to Coarse SAND (A-2-4), with trace to little mica	13.0
875	874.8	18.5	5	8	8								M		
870	869.8	23.5	10	16	24								M		
865	864.5	28.8	60/0.1										M	CRYSTALLINE ROCK White-Black (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 864.4 ft In Crystalline Rock (BIOTITE GNEISS)	28.8

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. B7-B		STATION 67+86		OFFSET 20 ft RT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 892.3 ft		TOTAL DEPTH 31.2 ft		NORTHING 848,437		EASTING 1,664,313									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/13/19		COMP. DATE 06/13/19		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					
895	892.3	0.0	4	5	3								M	GROUND SURFACE	0.0
890	888.8	3.5	3	6	8								M	RESIDUAL Medium Stiff, Brown-Red, Silty CLAY (A-7-5) with trace mica	3.0
	886.3	6.0	4	3	5								M	Medium Stiff to Stiff, Brown-Orange-Black, Fine to Coarse Sandy SILT (A-4), with trace mica	
885	883.8	8.5	4	4	5								M		
880	878.8	13.5	5	7	7								M	Medium Dense to Dense, Tan-White-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica	13.0
875	873.8	18.5	6	6	9								M		
870	868.8	23.5	18	18	21								M		
865	863.8	28.5	100/0.5										M	WEATHERED ROCK Black-White-Brown (GRANITIC ROCK)	28.5
	861.2	31.1	60/0.1										M	CRYSTALLINE ROCK Black-White (BIOTITE GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 861.1 ft In Crystalline Rock (BIOTITE GNEISS)	31.1

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 69+60		OFFSET 30 ft LT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 877.3 ft		TOTAL DEPTH 60.0 ft		NORTHING 848,619		EASTING 1,664,313									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/13/19		COMP. DATE 06/13/19		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					
880														880	
	877.3	0.0	2	3	4									877.3	0.0
875														875	
	873.8	3.5	3	4	6									873.8	3.5
	871.3	6.0	3	7	13									871.3	6.0
870														870	
	868.8	8.5	3	4	4									868.8	8.5
865														865	
	863.8	13.5	2	3	2									863.8	13.5
860														860	
	858.8	18.5	2	3	6									858.8	18.5
855														855	
	853.8	23.5	2	4	7									853.8	23.5
850														850	
	848.8	28.5	7	12	14									848.8	28.5
845														845	
	843.8	33.5	9	9	11									843.8	33.5
840														840	
	838.8	38.5	9	12	21									838.8	38.5
835														835	
	833.8	43.5	9	11	15									833.8	43.5
830														830	
	828.8	48.5	11	15	19									828.8	48.5
825														825	
	823.8	53.5	24	26	39									823.8	53.5
820														820	
	818.8	58.5	19	25	30									818.8	58.5

WBS 34839.1.8		TIP U-2579AB		COUNTY FORSYTH		GEOLOGIST A. Suttle									
SITE DESCRIPTION Bridge No. 727 on -Y15FLYCA- in Interchange Connecting Winston-Salem Northern Beltway and I-40 Bypass							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 69+70		OFFSET 7 ft RT		ALIGNMENT -Y15FLYCA-									
COLLAR ELEV. 877.3 ft		TOTAL DEPTH 53.9 ft		NORTHING 848,616		EASTING 1,664,352									
DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 82% 02/06/2019			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Z. Kiker		START DATE 06/13/19		COMP. DATE 06/13/19		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					
880														880	
	877.3	0.0	4	6	8									877.3	0.0
875														875	
	873.8	3.5	5	5	8									873.8	3.5
	871.3	6.0	5	6	8									871.3	6.0
870														870	
	868.8	8.5	4	6	5									868.8	8.5
865														865	
	863.8	13.5	3	4	5									863.8	13.5
860														860	
	858.8	18.5	5	6	9									858.8	18.5
855														855	
	853.8	23.5	7	9	12									853.8	23.5
850														850	
	848.8	28.5	21	17	20									848.8	28.5
845														845	
	843.8	33.5	15	20	15									843.8	33.5
840														840	
	838.8	38.5	16	17	16									838.8	38.5
835														835	
	833.8	43.5	27	46	54/0.3									833.8	43.5
830														830	
	828.8	48.5	100/0.5											828.8	48.5
825														825	
	823.8	53.5	100/0.4											823.8	53.5

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SITE PHOTOS

BRIDGE NO. 727
ON -Y15FLYCA-



PHOTO 1: VIEW AT BENT 1 FACING UPSTATION TOWARD B1-A AND AN UNNAMED TRIBUTARY OF FIDDLERS CREEK.



PHOTO 2: VIEW NEAR END BENT 1, FACING UPSTATION.



PHOTO 3: VIEW FROM END BENT 2 FACING DOWNSTATION.

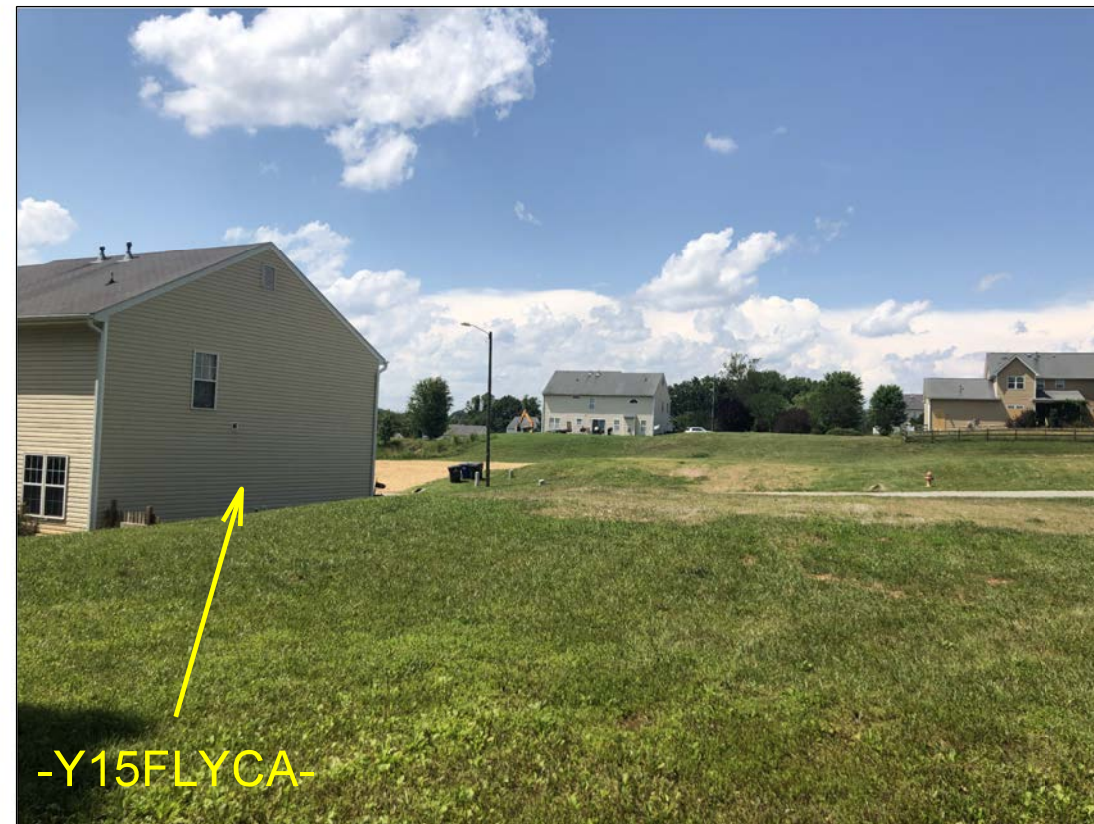


PHOTO 4: VIEW FROM END BENT 2, FACING UPSTATION.