

PROJECT: 32572.1.FS10 REFERENCE: A-0009CB

**CONTENTS**

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	WALL ENVELOPE
5-7	CROSS SECTIONS
8-9	BORE LOGS
10-12	GEOPHYSICAL TEST RESULTS
13-16	LABORATORY TEST RESULTS

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY GRAHAM  
 PROJECT DESCRIPTION UPGRADE NC 143 FROM SR  
1223 (BEECH CREEK ROAD) TO 0.5 MILES NORTH  
OF APPALACHIAN TRAIL  
 SITE DESCRIPTION RETAINING WALL #28:  
SHORED MECHANICALLY STABILIZED EARTH  
(SMSE) WALL ON -L- FROM 389+25 RT TO  
392+00 RT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A-0009CB	1	16

**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

CG2 EXPLORATION

N. MCLAREN

D. GOODNIGHT

GEL SOLUTIONS

F&ME CONSULTANTS

BRECCIA

INVESTIGATED BY CG2

DRAWN BY M. BREWER, P.E.

CHECKED BY R. KRAL, P.E.

SUBMITTED BY M. BREWER, P.E.

DATE MAY 2022

Prepared in the Office of:



**CAROLINAS  
GEOTECHNICAL  
GROUP**

2400 CROWNPOINT EXECUTIVE DRIVE  
SUITE 800  
CHARLOTTE, NC 28227  
(980) 339-8684



DocuSigned by:

D. Matthew Brewer 6/7/2022

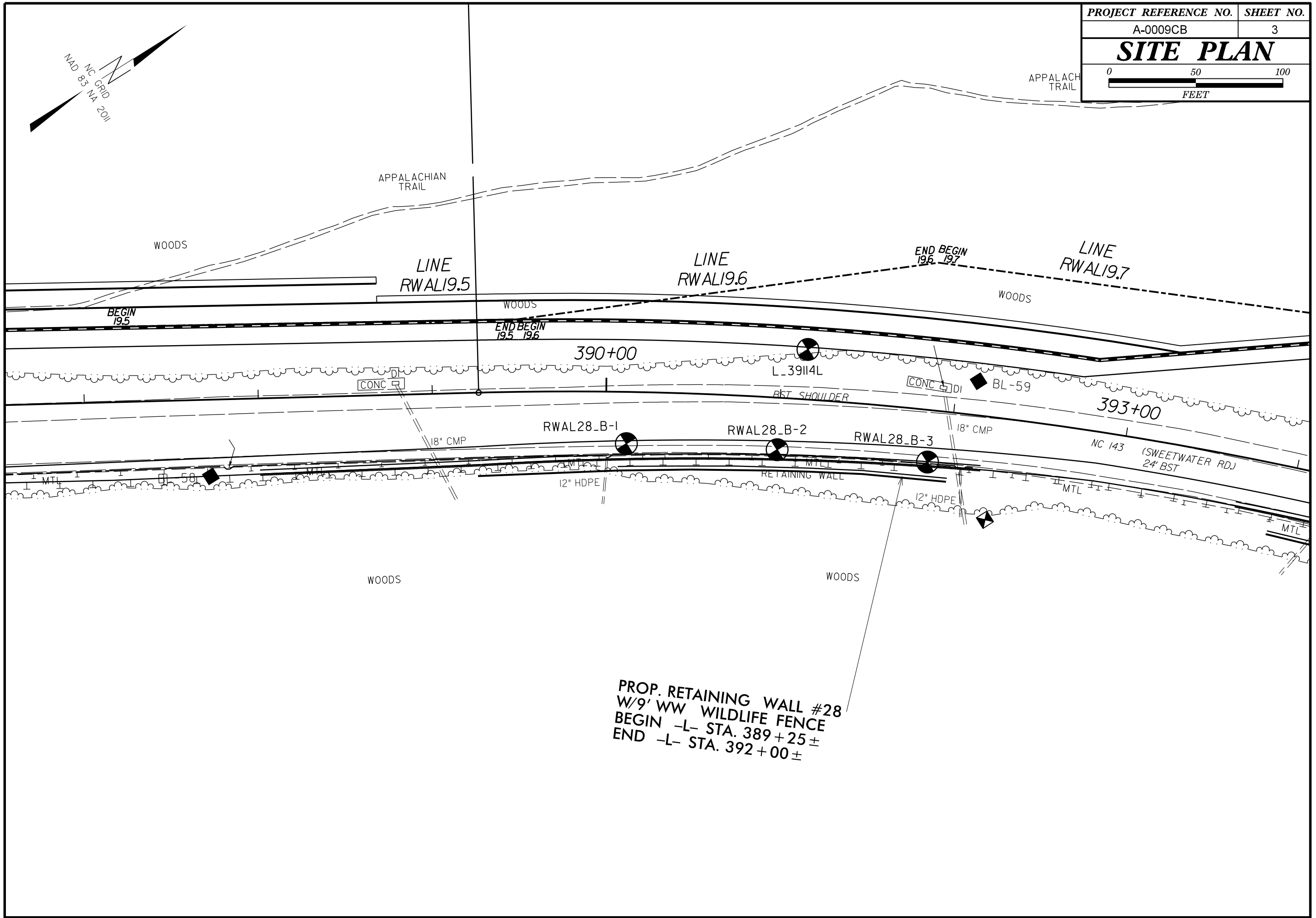
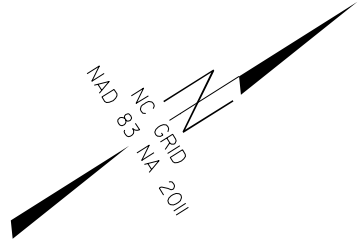
386129C0A4C1462

SIGNATURE DATE

**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, FRACTURE SPACING, BEDDING, INDURATION, and ELEVATION.



PROP. RETAINING WALL #28  
 W/9' WW WILDLIFE FENCE  
 BEGIN -L- STA. 389+25±  
 END -L- STA. 392+00±

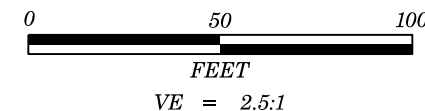


**NOTE:**  
**SOIL, WEATHERED ROCK, AND CRYSTALLINE ROCK**  
**LINES ARE BASED ON AN INTERPRETATION OF**  
**BORE HOLE AND SEISMIC REFRACTION DATA**  
**AND SHALL BE CONSIDERED AS APPROXIMATE.**

Prepared in the Office of:



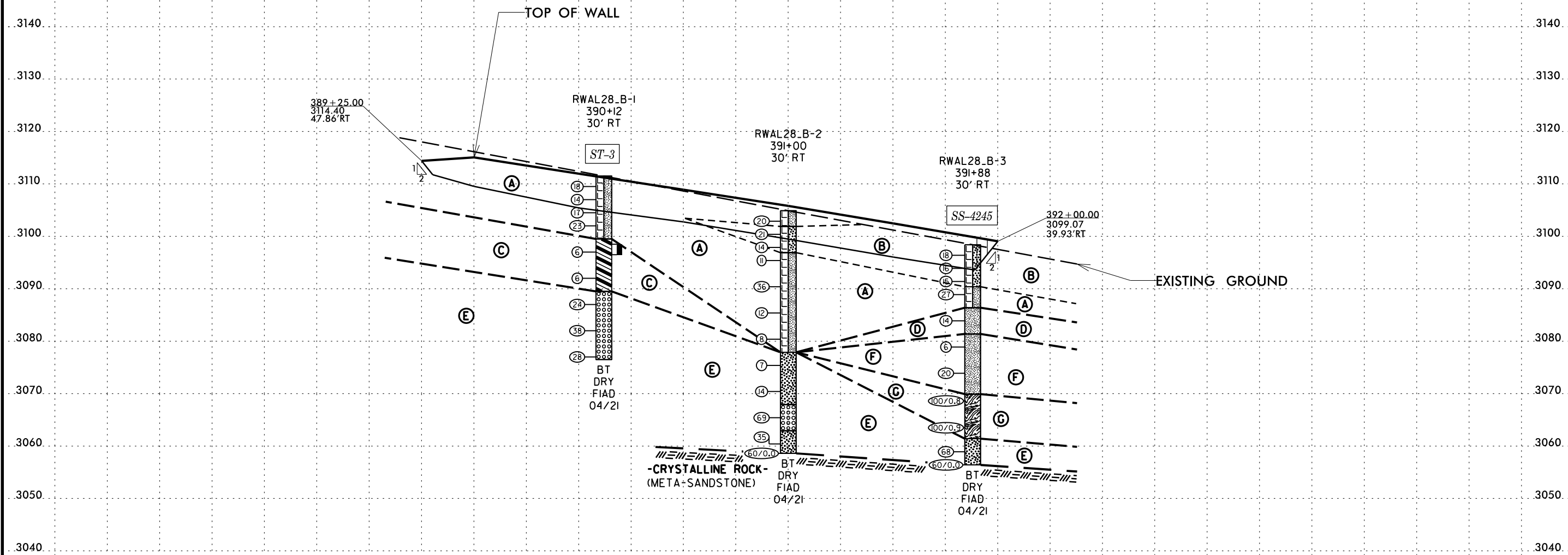
CAROLINAS  
 GEOTECHNICAL  
 GROUP



PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	4
RETAINING WALL #28 PROFILE BORINGS PROJECTED ALONG WALL ENVELOPE	

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-3	30' RT	390+12 -L-	13.0' - 15.0'	A-6(12)	40	15	8.5	17.8	36.6	37.0	98.2	92.4	78.8	23.4	-
SS-4245	30' RT	391+88 -L-	6.0' - 7.5'	A-2-4(0)	26	NP	17	34	36	13	53	47	32	15	-

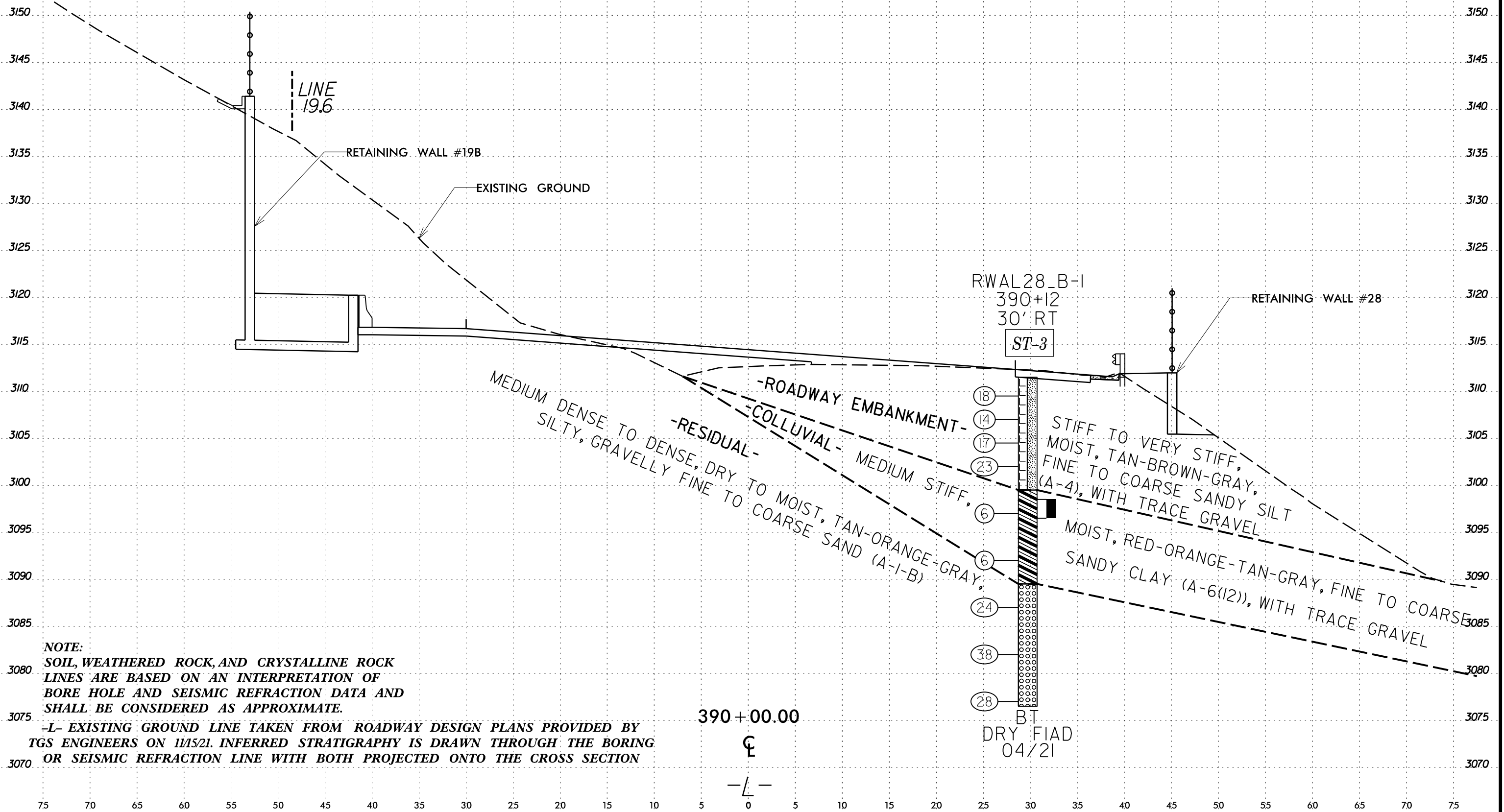


- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF TO HARD, MOIST, TAN-BROWN-GRAY-ORANGE, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO LITTLE GRAVEL AND TRACE ORGANICS
- (B) -ROADWAY EMBANKMENT- MEDIUM DENSE, MOIST, TAN-ORANGE-BROWN-GRAY, SILTY FINE TO COARSE SAND (A-2-4(0)), WITH LITTLE GRAVEL
- (C) -COLLUVIAL- MEDIUM STIFF, MOIST, RED-ORANGE-TAN-GRAY, FINE TO COARSE SANDY CLAY (A-6(12))
- (D) -COLLUVIAL- STIFF, MOIST, TAN-ORANGE-GRAY, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL
- (E) -RESIDUAL- LOOSE TO VERY DENSE, DRY TO MOIST, GRAY-TAN-ORANGE, SILTY, GRAVELLY FINE TO COARSE SAND (A-1-B) AND SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA AND LITTLE GRAVEL-SIZED ROCK FRAGMENTS
- (F) -RESIDUAL- MEDIUM STIFF TO VERY STIFF, MOIST, TAN-GRAY-ORANGE, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA
- (G) -WEATHERED ROCK- (META-SANDSTONE)

**WALL ENVELOPE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/15/21. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE PROFILE.**

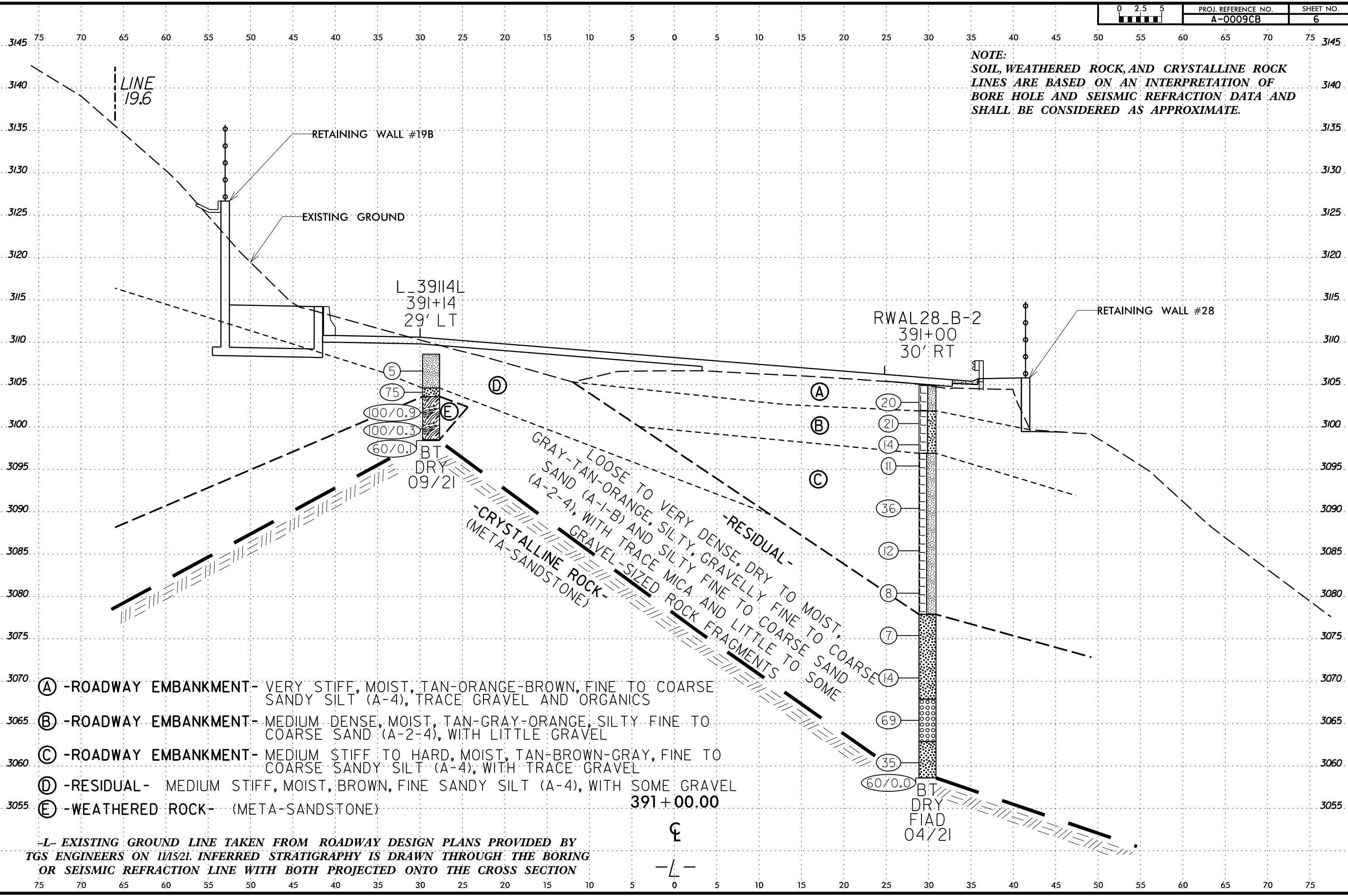
# SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-3	30' RT	390+12 -L-	13.0' - 15.0'	A-6(12)	40	15	8.5	17.8	36.6	37.0	98.2	92.4	78.8	23.4	-



19-MAY-2022 16:35  
 C:\Users\jbriver\OneDrive - Carolines Geotechnical Group, PLLC\Projects\0068 - A-0009CB - Future US 74\_TGS\A-0009CB\CADD\_GEO\TECH\Site\Sub\A-0009CB\_GEO\_RWAL28\_XS1.dgn  
 \$\$\$USERNAME\$\$\$

19-MAY-2022 16:35  
 C:\Users\jbriver\OneDrive - Carolines Geotechnical Group, PLLC\Projects\0068 - A-0009CB - Future US 74\_TGS\A-0009CB\CADD\_GEO\TECH\Site\Sub\A-0009CB\_GEO\_RWAL28\_XS1.dgn  
 \$\$\$SUBFRAME\$\$\$



**NOTE:**  
 SOIL, WEATHERED ROCK, AND CRYSTALLINE ROCK  
 LINES ARE BASED ON AN INTERPRETATION OF  
 BORE HOLE AND SEISMIC REFRACTION DATA AND  
 SHALL BE CONSIDERED AS APPROXIMATE.

- (A) -ROADWAY EMBANKMENT- VERY STIFF, MOIST, TAN-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), TRACE GRAVEL AND ORGANICS
- (B) -ROADWAY EMBANKMENT- MEDIUM DENSE, MOIST, TAN-GRAY-ORANGE, SILTY FINE TO COARSE SAND (A-2-4), WITH LITTLE GRAVEL
- (C) -ROADWAY EMBANKMENT- MEDIUM STIFF TO HARD, MOIST, TAN-BROWN-GRAY, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL
- (D) -RESIDUAL- MEDIUM STIFF, MOIST, BROWN, FINE SANDY SILT (A-4), WITH SOME GRAVEL
- (E) -WEATHERED ROCK- (META-SANDSTONE)

-L- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/5/21. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING OR SEISMIC REFRACTION LINE WITH BOTH PROJECTED ONTO THE CROSS SECTION

391+00.00  
 0  
 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

RWAL28\_B-2  
 391+00  
 30' RT

L\_39114L  
 391+14  
 29' LT

RETAINING WALL #19B

EXISTING GROUND

RETAINING WALL #28

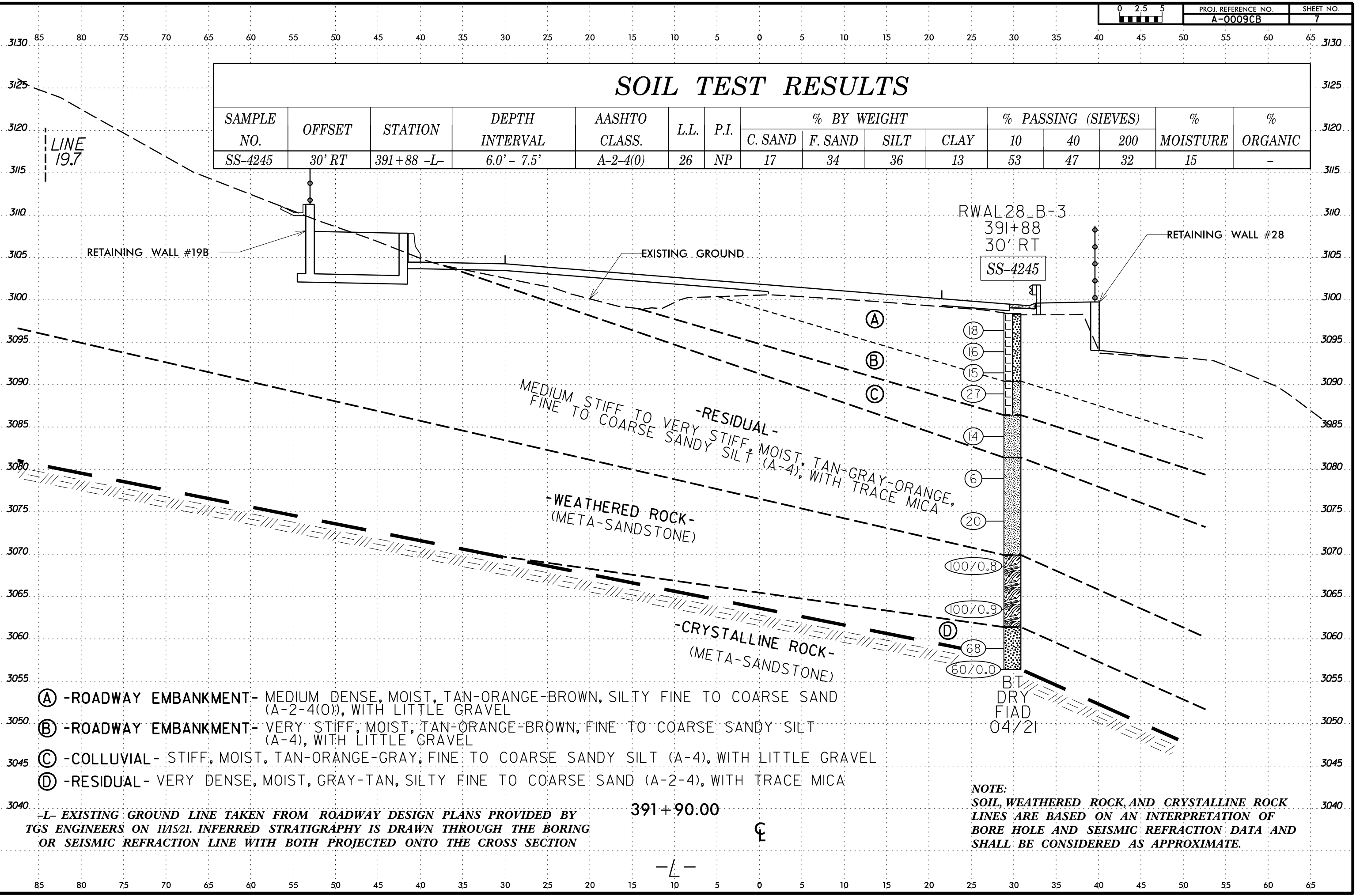
BT  
 DRY  
 09/21

BT  
 DRY  
 FIAD  
 04/21

GRAY-TAN-ORANGE, SILTY, GRAVELLY FINE TO COARSE SAND (A-1-B) AND SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA AND LITTLE TO SOME GRAVEL-SIZED ROCK FRAGMENTS  
 -RESIDUAL-  
 LOOSE TO VERY DENSE, DRY TO MOIST, COARSE SAND (A-2-4), WITH TRACE GRAVEL AND ORGANICS  
 -CRYSTALLINE ROCK-  
 (META-SANDSTONE)

# SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-4245	30' RT	391+88 -L-	6.0' - 7.5'	A-2-4(0)	26	NP	17	34	36	13	53	47	32	15	-



- Ⓐ -ROADWAY EMBANKMENT- MEDIUM DENSE, MOIST, TAN-ORANGE-BROWN, SILTY FINE TO COARSE SAND (A-2-4(0)), WITH LITTLE GRAVEL
- Ⓑ -ROADWAY EMBANKMENT- VERY STIFF, MOIST, TAN-ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL
- Ⓒ -COLLUVIAL- STIFF, MOIST, TAN-ORANGE-GRAY, FINE TO COARSE SANDY SILT (A-4), WITH LITTLE GRAVEL
- Ⓓ -RESIDUAL- VERY DENSE, MOIST, GRAY-TAN, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA

-L- EXISTING GROUND LINE TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 11/15/21. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING OR SEISMIC REFRACTION LINE WITH BOTH PROJECTED ONTO THE CROSS SECTION

**NOTE:**  
 SOIL, WEATHERED ROCK, AND CRYSTALLINE ROCK LINES ARE BASED ON AN INTERPRETATION OF BORE HOLE AND SEISMIC REFRACTION DATA AND SHALL BE CONSIDERED AS APPROXIMATE.

19-MAY-2022 16:35  
 C:\Users\jbruner\OneDrive - Carolines Geotechnical Group, PLLC\Projects\0068 - A-0009CB - Future US 74\_TGS\A-0009CB\CADD\_GEO\TECH\Site&Sub\A-0009CB.GEO\_RWAL28\_XS1.dgn  
 \$\$\$SUBSTRANGE\$\$\$

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 32572.1.FS10		TIP A-0009CB		COUNTY GRAHAM		GEOLOGIST N. McLaren										
SITE DESCRIPTION Upgrade NC 143 from SR 1223 (Beech Creek Road) to 0.5 Miles North of Appalachian Trail							GROUND WTR (ft)									
BORING NO. RWAL28_B-1		STATION 390+12		OFFSET 30 ft RT		ALIGNMENT L										
COLLAR ELEV. 3,111.5 ft		TOTAL DEPTH 35.0 ft		NORTHING 619,248		EASTING 594,134										
DRILL RIG/HAMMER EFF./DATE CG29473 CME-550 79%03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 04/29/21		COMP. DATE 04/29/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3115																
3110	3,110.5	1.0	14	8	10											
	3,108.0	3.5	7	7	7											
3105	3,105.5	6.0	8	7	10											
	3,103.0	8.5	8	9	14											
3100																
	3,098.0	13.5	3	3	3											
3095																
	3,093.0	18.5	3	3	3											
3090																
	3,088.0	23.5	12	12	12											
3085																
	3,083.0	28.5	25	21	17											
3080																
	3,078.0	33.5	22	15	13											

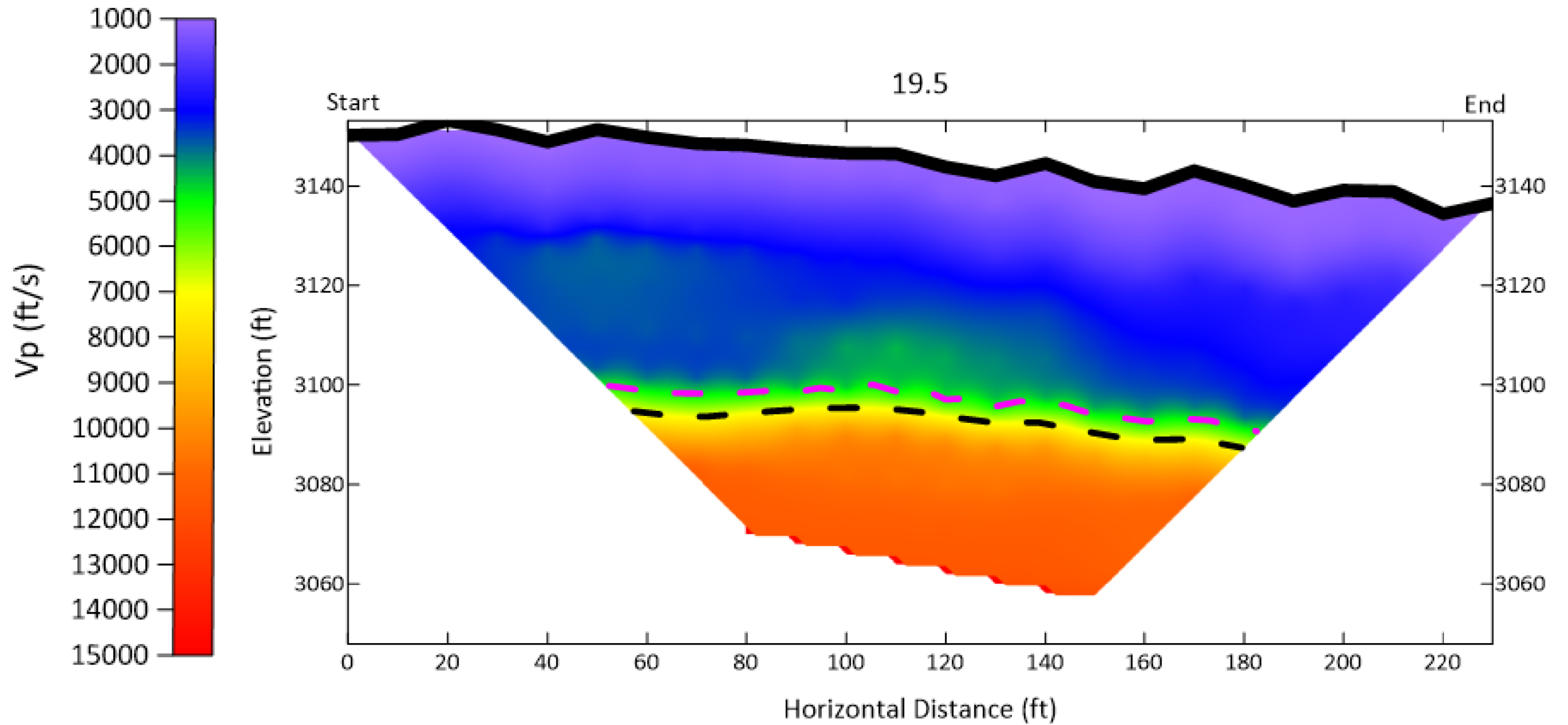
WBS 32572.1.FS10		TIP A-0009CB		COUNTY GRAHAM		GEOLOGIST N. McLaren										
SITE DESCRIPTION Upgrade NC 143 from SR 1223 (Beech Creek Road) to 0.5 Miles North of Appalachian Trail							GROUND WTR (ft)									
BORING NO. RWAL28_B-2		STATION 391+00		OFFSET 30 ft RT		ALIGNMENT L										
COLLAR ELEV. 3,104.9 ft		TOTAL DEPTH 46.3 ft		NORTHING 619,319		EASTING 594,183										
DRILL RIG/HAMMER EFF./DATE CG29473 CME-550 79%03/12/2021				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER J. Estep		START DATE 04/29/21		COMP. DATE 04/29/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3105																
	3,103.9	1.0	7	9	11											
	3,101.4	3.5	7	11	10											
3100																
	3,098.9	6.0	5	5	9											
3095																
	3,096.4	8.5	8	6	5											
	3,091.4	13.5	20	21	15											
3090																
	3,086.4	18.5	6	5	7											
3085																
	3,081.4	23.5	4	4	4											
3080																
	3,076.4	28.5	7	3	4											
3075																
	3,071.4	33.5	8	6	8											
3070																
	3,066.4	38.5	48	33	36											
3065																
	3,061.4	43.5	21	22	13											
3060																
	3,058.6	46.3	60/0.0													

NCDOT BORE DOUBLE A-0009CB\_GEO\_RDY\_GTM.GPJ\_NC\_DOT.GDT 5/17/22





## GEOPHYSICAL TEST RESULTS – SEISMIC REFRACTION LINE 19.5

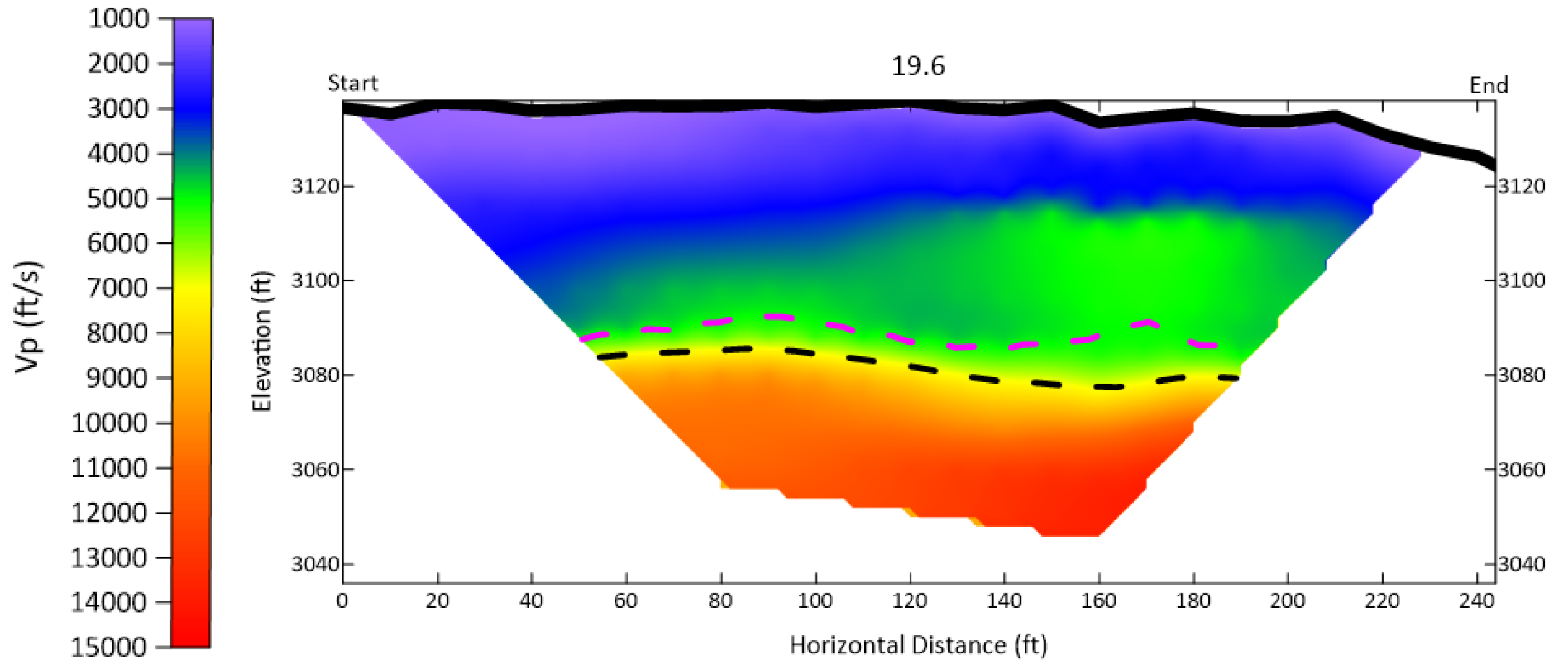


GEOPHYSICAL TESTING PERFORMED BY GEL SOLUTIONS. REFERENCE "SEISMIC REFRACTION SURVEY FOR EVALUATION OF ROCK" DATED 10/01/2021

CG2 ESTIMATED WAVE SPEED FOR WEATHERED ROCK: 4,500 FT/SEC

CG2 ESTIMATED WAVE SPEED FOR CRYSTALLINE ROCK: 7,500 FT/SEC

## GEOPHYSICAL TEST RESULTS – SEISMIC REFRACTION LINE 19.6

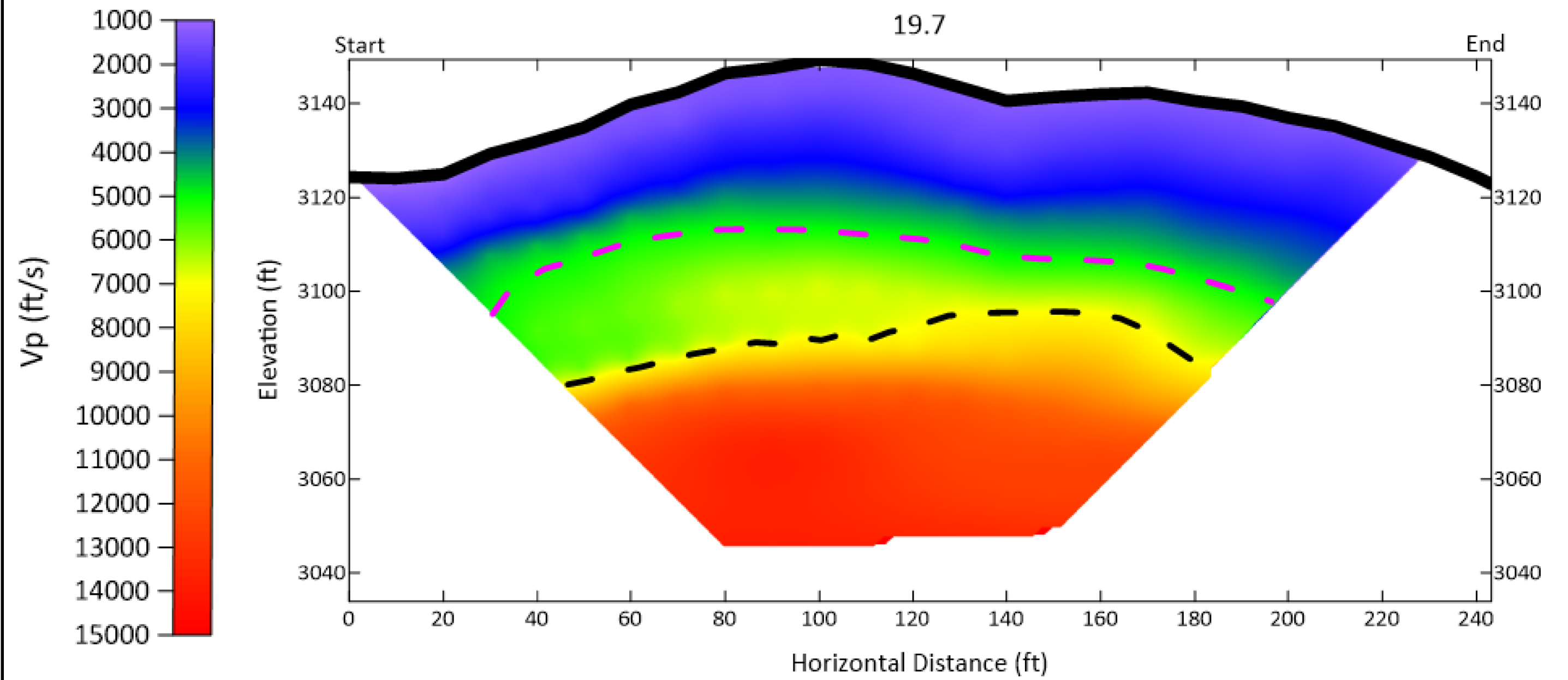


GEOPHYSICAL TESTING PERFORMED BY GEL SOLUTIONS. REFERENCE "SEISMIC REFRACTION SURVEY FOR EVALUATION OF ROCK" DATED 10/01/2021

CG2 ESTIMATED WAVE SPEED FOR WEATHERED ROCK: 4,500 FT/SEC

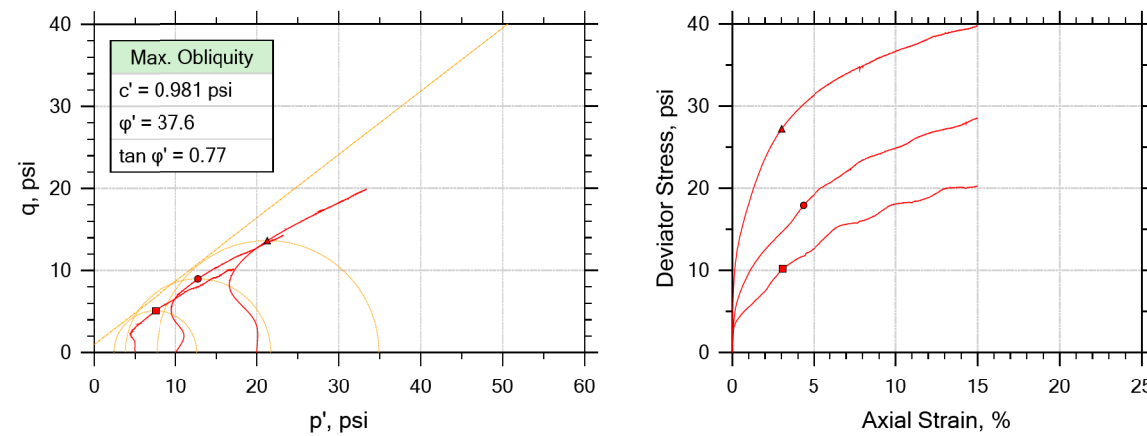
CG2 ESTIMATED WAVE SPEED FOR CRYSTALLINE ROCK: 7,500 FT/SEC

## GEOPHYSICAL TEST RESULTS – SEISMIC REFRACTION LINE 19.7

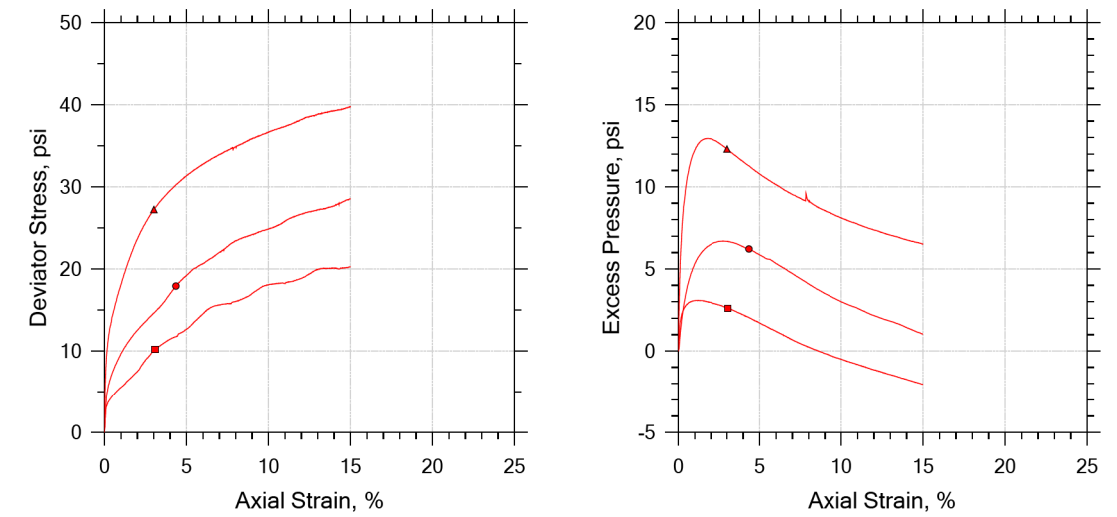


GEOPHYSICAL TESTING PERFORMED BY GEL SOLUTIONS. REFERENCE "SEISMIC REFRACTION SURVEY FOR EVALUATION OF ROCK" DATED 10/1/2021  
 CG2 ESTIMATED WAVE SPEED FOR WEATHERED ROCK: 4,500 FT/SEC  
 CG2 ESTIMATED WAVE SPEED FOR CRYSTALLINE ROCK: 7,500 FT/SEC

Consolidated Undrained by AASHTO T297



Consolidated Undrained by AASHTO T297



Symbol	■	●	▲
Sample ID	22-0009	22-0009	22-0009
Depth	13.0' - 15.0'	13.0' - 15.0'	13.0' - 15.0'
Test Number	ST-3.A	ST-3.B	ST-3.C
Initial			
Height, in	6.118	6.012	6.055
Diameter, in	2.855	2.863	2.857
Moisture Content (from Cuttings), %	23.5	23.5	23.5
Dry Density, pcf	102.	103.	103.
Saturation (Wet Method), %	98.5	101.1	101.4
Void Ratio	0.640	0.624	0.622
Moisture Content, %	23.0	21.1	20.6
Dry Density, pcf	104.	107.	108.
Final			
Cross-Sectional Area (Method A), in <sup>2</sup>	6.339	6.290	6.241
Saturation, %	100.0	100.0	100.0
Void Ratio	0.616	0.565	0.552
Back Pressure, psi	46.99	44.00	89.01
Vertical Effective Consolidation Stress, psi	4.985	9.939	19.90
Horizontal Effective Consolidation Stress, psi	5.008	9.998	19.98
Vertical Strain after Consolidation, %	0.3156	0.9897	1.195
Volumetric Strain after Consolidation, %	0.9138	2.495	2.866
Time to 50% Consolidation, min	1.000	1.500	1.800
Shear Strength, psi	5.103	8.964	13.62
Strain at Failure, %	3.07	4.35	3.01
Strain Rate, %/min	0.04000	0.04000	0.04000
Deviator Stress at Failure, psi	10.21	17.93	27.23
Effective Minor Principal Stress at Failure, psi	2.395	3.779	7.666
Effective Major Principal Stress at Failure, psi	12.60	21.71	34.90
B-Value	0.96	0.95	0.96

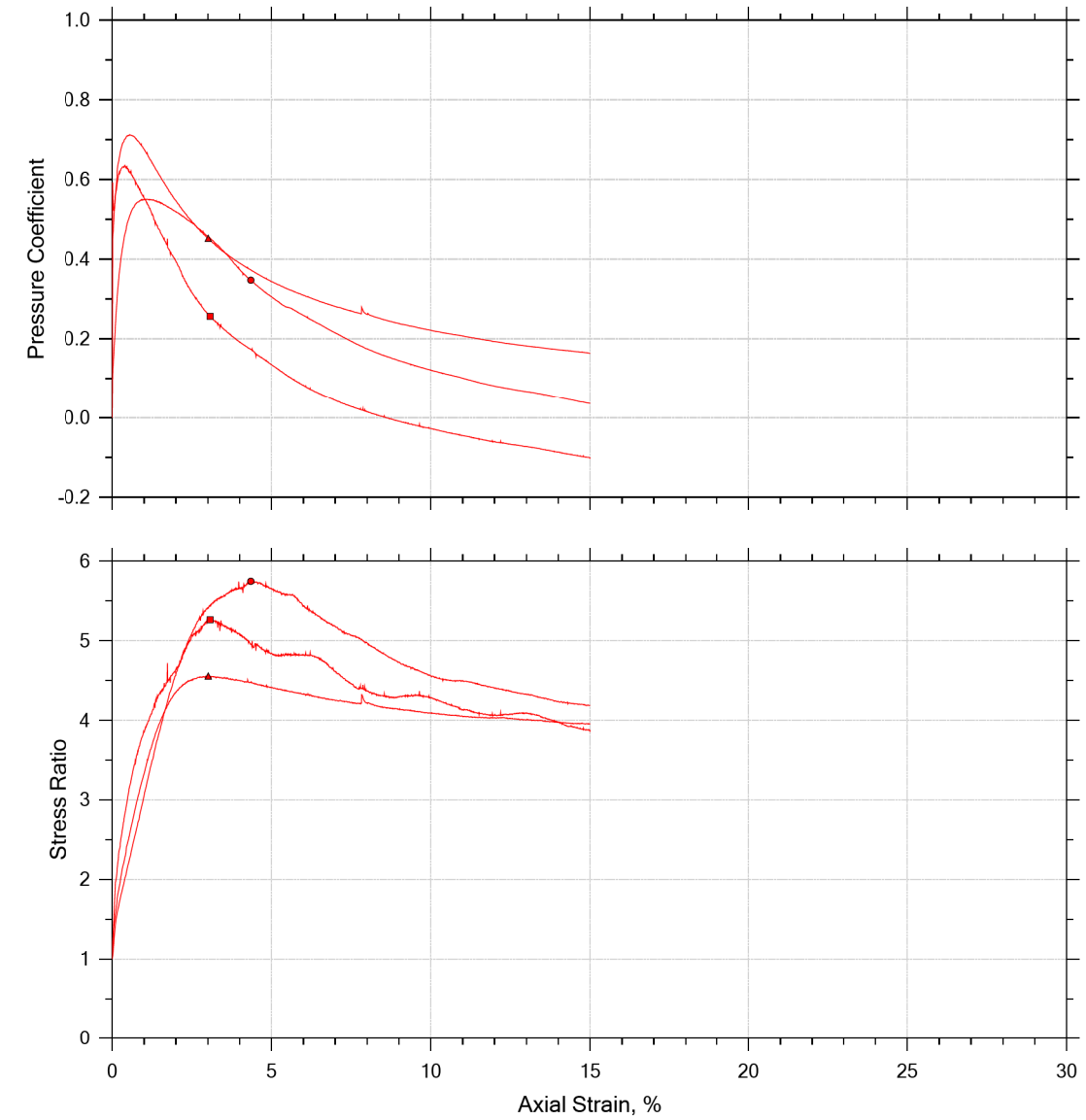
Notes:  
 - Before Shear Saturation set to 100% for phase calculation.  
 - Moisture Content determined by ASTM D2216.  
 - Atterberg Limits determined by ASTM D4318.  
 - Deviator Stress includes membrane correction.  
 - Values for c and  $\phi$  determined from best-fit straight line for the specific test conditions.  
 Actual strength parameters may vary and should be determined by an engineer for site conditions.

	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)	Remarks:	

Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■ 22-0009	ST-3.A	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.A.1.dat
● 22-0009	ST-3.B	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.B.dat
▲ 22-0009	ST-3.C	13.0' - 15.0'	WAP/RMC	04/15/2022	WAP/ WJG		ST-3.C.dat

	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)	Remarks:	

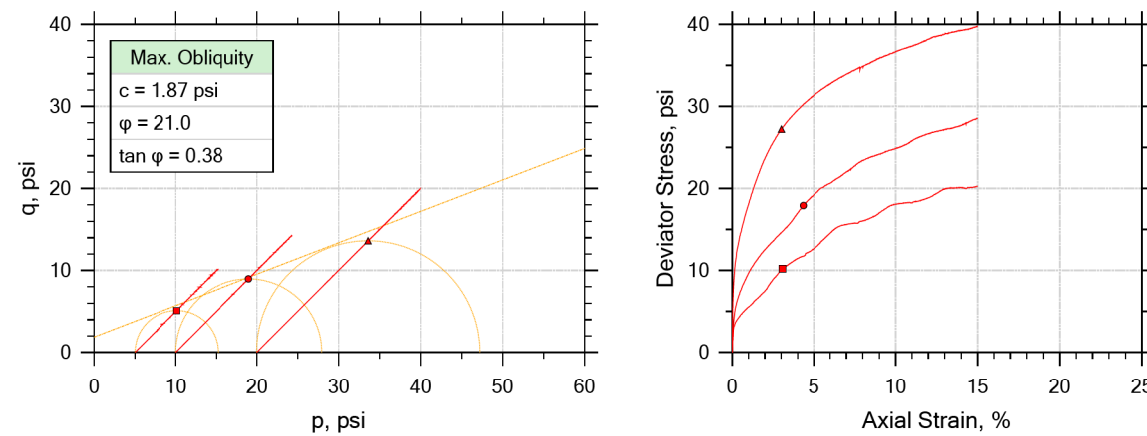
Consolidated Undrained by AASHTO T297



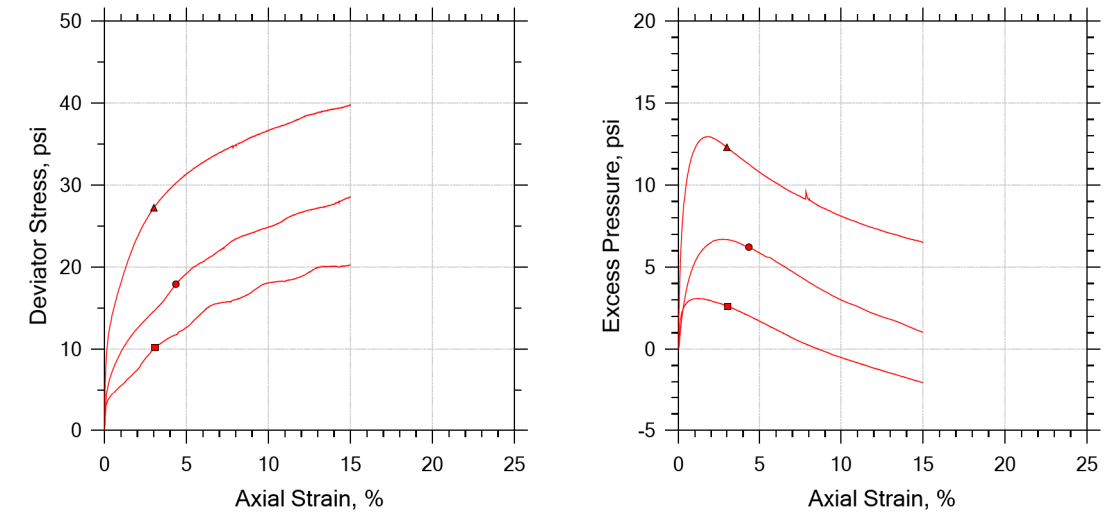
Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■ 22-0009	ST-3.A	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.A.1.dat
● 22-0009	ST-3.B	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.B.dat
▲ 22-0009	ST-3.C	13.0' - 15.0'	WAP/RMC	04/15/2022	WAP/ WJG		ST-3.C.dat

	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)		
	Remarks:		

Consolidated Undrained by AASHTO T297



Consolidated Undrained by AASHTO T297



Symbol	■	●	▲
Sample ID	22-0009	22-0009	22-0009
Depth	13.0' - 15.0'	13.0' - 15.0'	13.0' - 15.0'
Test Number	ST-3.A	ST-3.B	ST-3.C
Initial			
Height, in	6.118	6.012	6.055
Diameter, in	2.855	2.863	2.857
Moisture Content (from Cuttings), %	23.5	23.5	23.5
Dry Density, pcf	102.	103.	103.
Saturation (Wet Method), %	98.5	101.1	101.4
Void Ratio	0.640	0.624	0.622
Moisture Content, %	23.0	21.1	20.6
Dry Density, pcf	104.	107.	108.
Final			
Cross-Sectional Area (Method A), in <sup>2</sup>	6.339	6.290	6.241
Saturation, %	100.0	100.0	100.0
Void Ratio	0.616	0.565	0.552
Back Pressure, psi	46.99	44.00	89.01
Vertical Effective Consolidation Stress, psi	4.985	9.939	19.90
Horizontal Effective Consolidation Stress, psi	5.008	9.998	19.98
Vertical Strain after Consolidation, %	0.3156	0.9897	1.195
Volumetric Strain after Consolidation, %	0.9138	2.495	2.866
Time to 50% Consolidation, min	1.000	1.500	1.800
Shear Strength, psi	5.103	8.964	13.62
Strain at Failure, %	3.07	4.35	3.01
Strain Rate, %/min	0.04000	0.04000	0.04000
Deviator Stress at Failure, psi	10.21	17.93	27.23
Effective Minor Principal Stress at Failure, psi	2.395	3.779	7.666
Effective Major Principal Stress at Failure, psi	12.60	21.71	34.90
B-Value	0.96	0.95	0.96

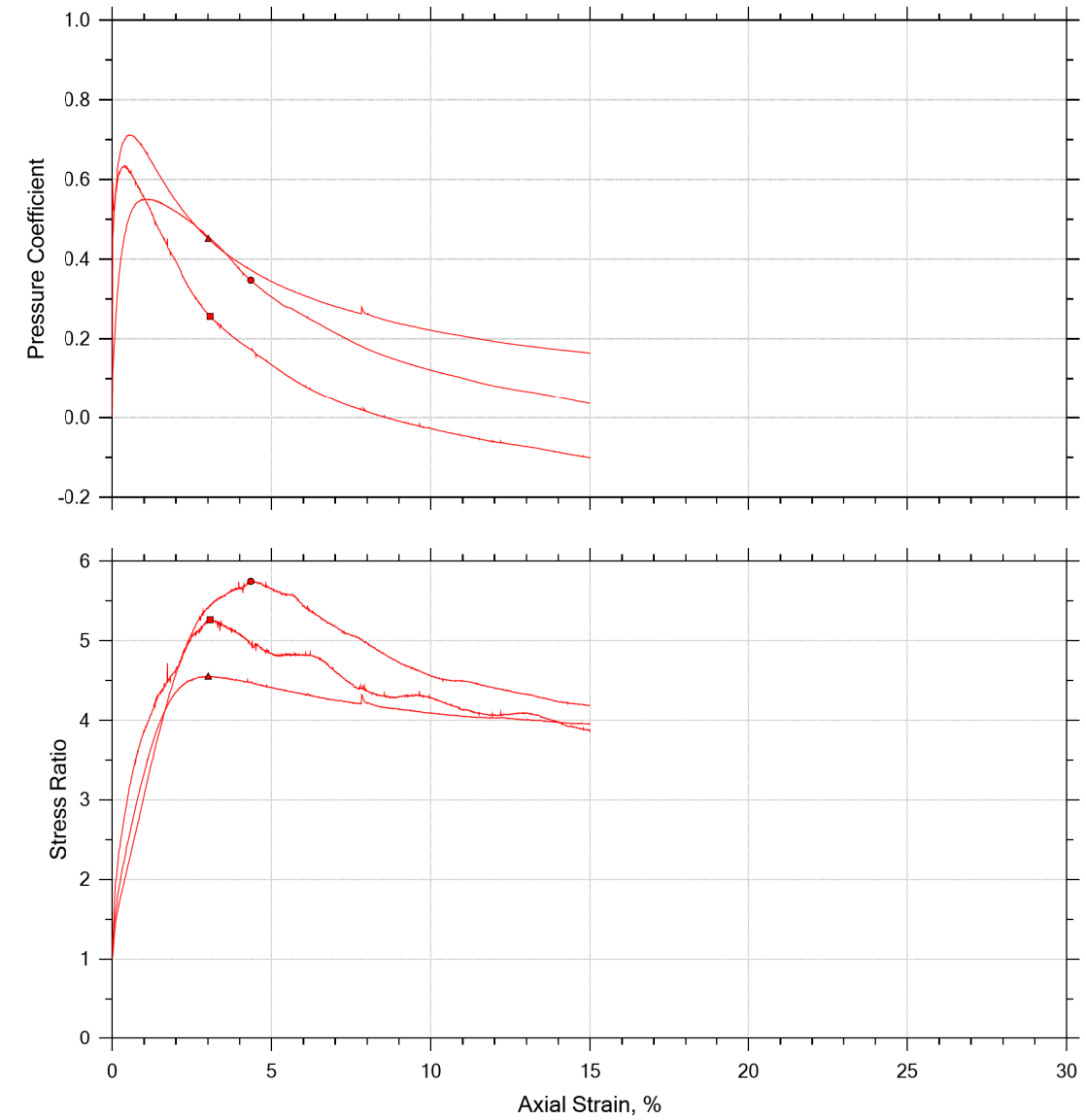
Notes:  
 - Before Shear Saturation set to 100% for phase calculation.  
 - Moisture Content determined by ASTM D2216.  
 - Atterberg Limits determined by ASTM D4318.  
 - Deviator Stress includes membrane correction.  
 - Values for c and φ determined from best-fit straight line for the specific test conditions.  
 Actual strength parameters may vary and should be determined by an engineer for site conditions.

<b>FME</b> CONSULTANTS	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)	Remarks:	

Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■ 22-0009	ST-3.A	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.A.1.dat
● 22-0009	ST-3.B	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.B.dat
▲ 22-0009	ST-3.C	13.0' - 15.0'	WAP/RMC	04/15/2022	WAP/ WJG		ST-3.C.dat

<b>FME</b> CONSULTANTS	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)	Remarks:	

Consolidated Undrained by AASHTO T297



Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■ 22-0009	ST-3.A	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.A.1.dat
● 22-0009	ST-3.B	13.0' - 15.0'	WAP/RMC	4/15/2022	WAP/ WJG		ST-3.B.dat
▲ 22-0009	ST-3.C	13.0' - 15.0'	WAP/RMC	04/15/2022	WAP/ WJG		ST-3.C.dat

	Project Name: A-0009C	Location: NC	Project Number: C8806.00005
	Boring Number: RWAL28_B-1	Tester: WAP/RMC	Checker: WAP/ WJG
	Sample Number: 22-0009	Test Date: 4/15/2022	Depth: 13.0' - 15.0'
	Test Number: ST-3.A	Preparation: Undisturbed	Elevation:
	Description: Soil Classification: A-6(12)		
	Remarks:		