

REFERENCE: I-5987A

PROJECT: 47533

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON
PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
SOUTH OF US 301 (EXIT 22) TO NORTH OF
SR 1758 (McDUFFIE CROSSING ROAD)
SITE DESCRIPTION SITE 2 - ABUTMENT RETAINING
WALLS AT END BENT 1 AND END BENT 2 OF
BRIDGE ON -YIA- (US 301) OVER -L- (I-95) AT
-YIA- STA. 41 +19.02

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4 - 5	PROFILES
6 - 10	BORE LOGS
11	SOIL TEST RESULTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987A	1	11

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

- DEGON, A. N.
- PESL, W. (F&R)
- PAINTER, B. (F&R)
- TURNAGE, J. R.
- KELLY, N. S.
- SMITH, R. (NCDOT)
- TIGNOR, D. (F&R)

INVESTIGATED BY TERRACON CONSULTANTS
 DRAWN BY FIELDS, W. D.
 CHECKED BY RIGGS, Jr., A. F.
 SUBMITTED BY ALEXANDER, M. J.
 DATE JANUARY, 2022

Prepared in the Office of:

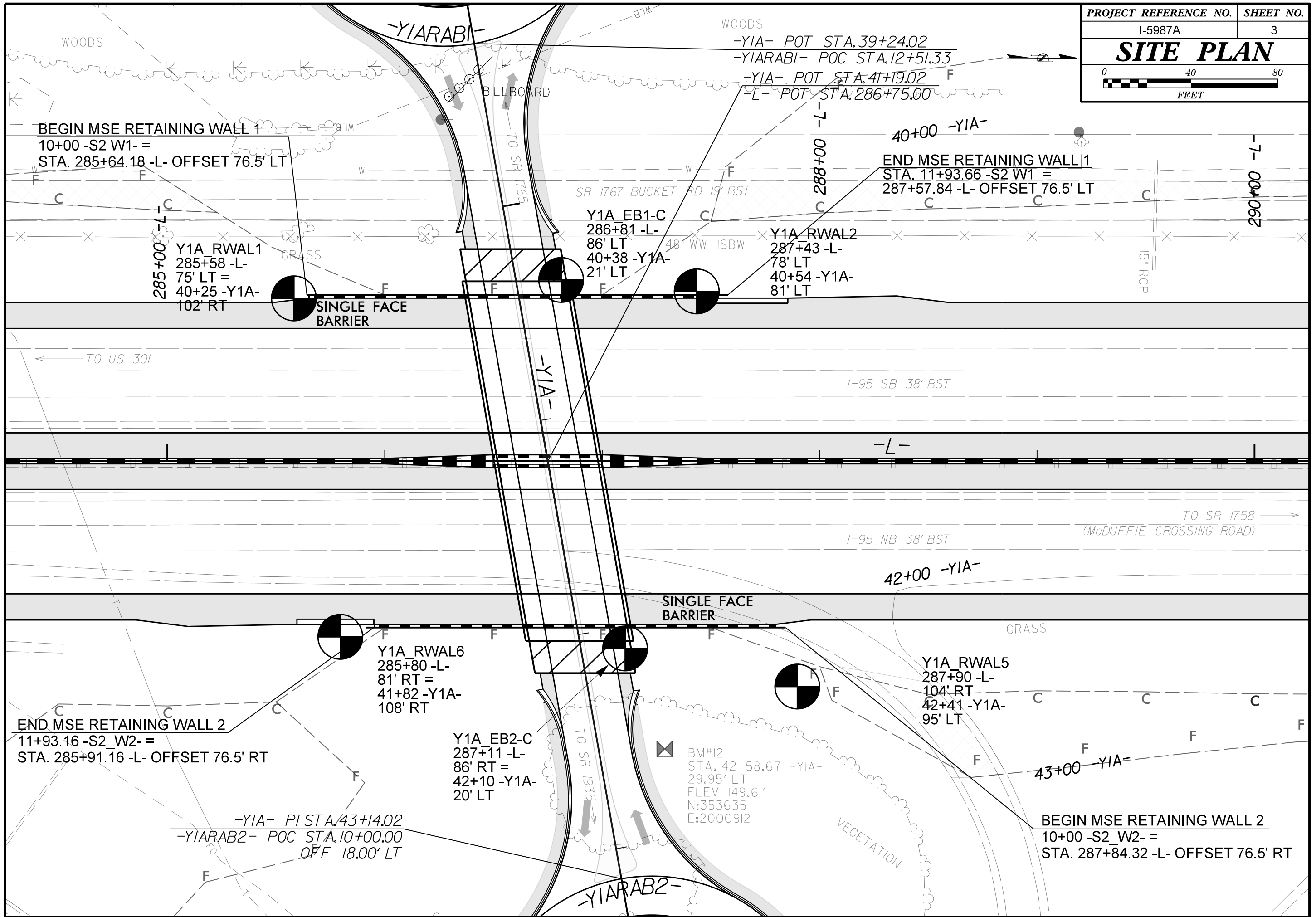


DocuSigned by:
Matthew J. Alexander 01/28/2022
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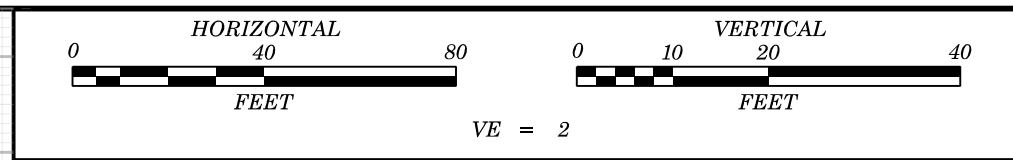
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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

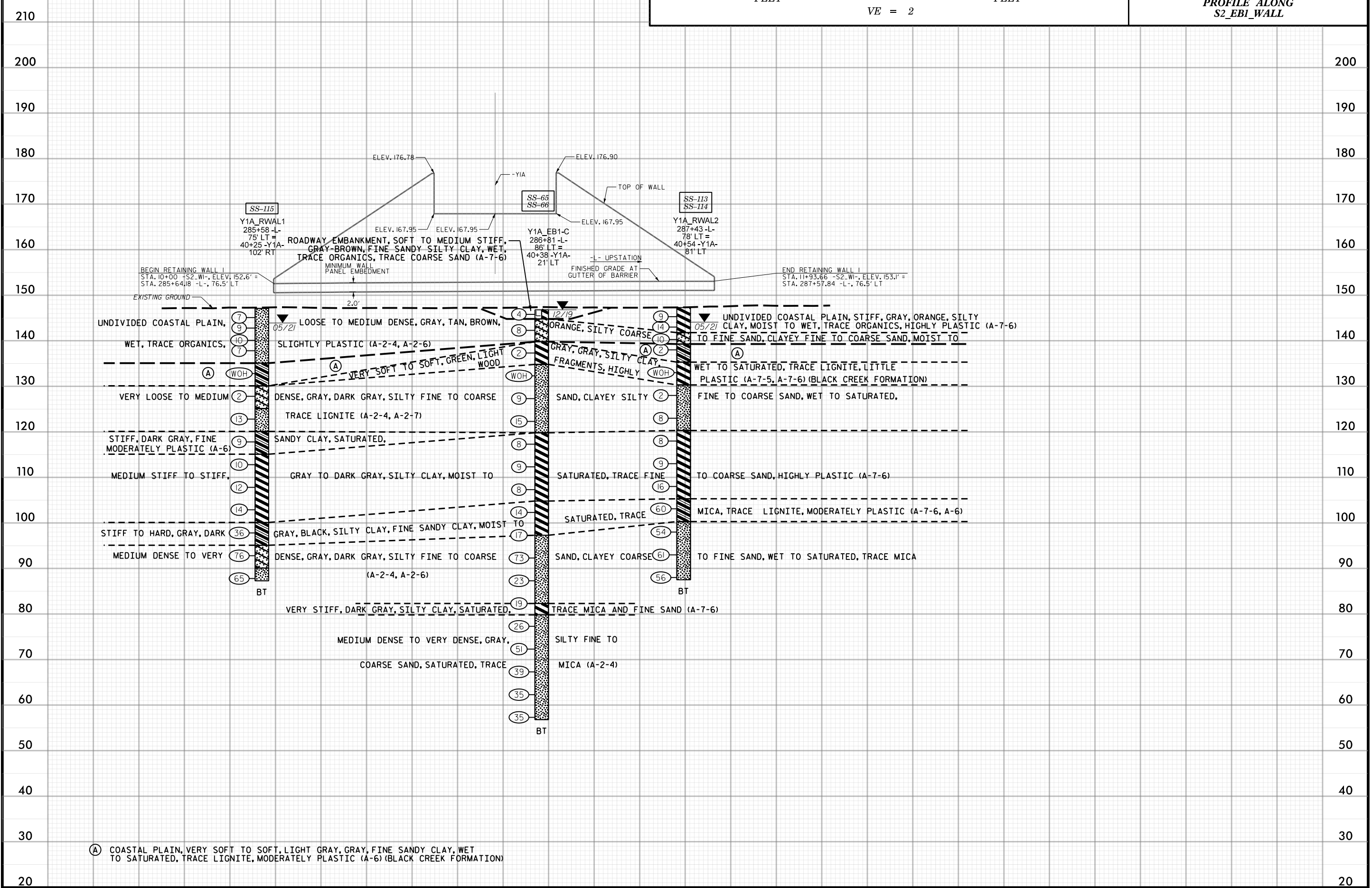
SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																													
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.										HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																													
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.																													
MINERALOGICAL COMPOSITION										CRYSTALLINE ROCK (CR)										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.										NON-CRYSTALLINE ROCK (NCR)										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.																			
COMPRESSION										COASTAL PLAIN SEDIMENTARY ROCK (CP)										COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.																																							
PERCENTAGE OF MATERIAL										WEATHERING										FRESH										ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.																													
GROUND WATER										VERY SLIGHT (V SLI.)										ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.										SLIGHT (SLI.)										ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.																			
MISCELLANEOUS SYMBOLS										MODERATE (MOD.)										SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.										MODERATELY SEVERE (MOD. SEV.)										ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL																			
RECOMMENDATION SYMBOLS										SEVERE (SEV.)										ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF										VERY SEVERE (V SEV.)										ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF																			
ABBREVIATIONS										COMPLETE										ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.										ROCK HARDNESS										VERY HARD										CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.									
TEXTURE OR GRAIN SIZE										HARD										CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.										MODERATELY HARD										CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.																			
SOIL MOISTURE - CORRELATION OF TERMS										MEDIUM HARD										CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.										SOFT										CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.																			
PLASTICITY										VERY SOFT										CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.										FRACTURE SPACING										BEDDING																			
COLOR										EQUIPMENT USED ON SUBJECT PROJECT										VERY WIDE										MORE THAN 10 FEET										VERY THICKLY BEDDED										4 FEET									
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.										DRILL UNITS:										WIDE										3 TO 10 FEET										THICKLY BEDDED										1.5 - 4 FEET									
										ADVANCING TOOLS:										MODERATELY CLOSE										1 TO 3 FEET										THINLY BEDDED										0.16 - 1.5 FEET									
										HAMMER TYPE:										CLOSE										0.16 TO 1 FOOT										VERY THINLY BEDDED										0.03 - 0.16 FEET									
										CORE SIZE:										VERY CLOSE										LESS THAN 0.16 FEET										THICKLY LAMINATED										0.008 - 0.03 FEET									
										HAND TOOLS:										EXTREMELY CLOSE										SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.																													



NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ON TO THE EXISTING GROUND PROFILE ALONG THE CENTERLINE OF -S2_W1- TAKEN FROM THE PROVIDED PROJECT TIN FILE: i5987_ls_tin.tin

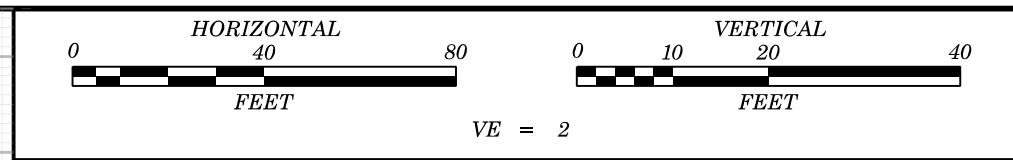


PROJECT REFERENCE NO.	SHEET NO.
I-5987A	4
PROFILE ALONG S2_EBI_WALL	

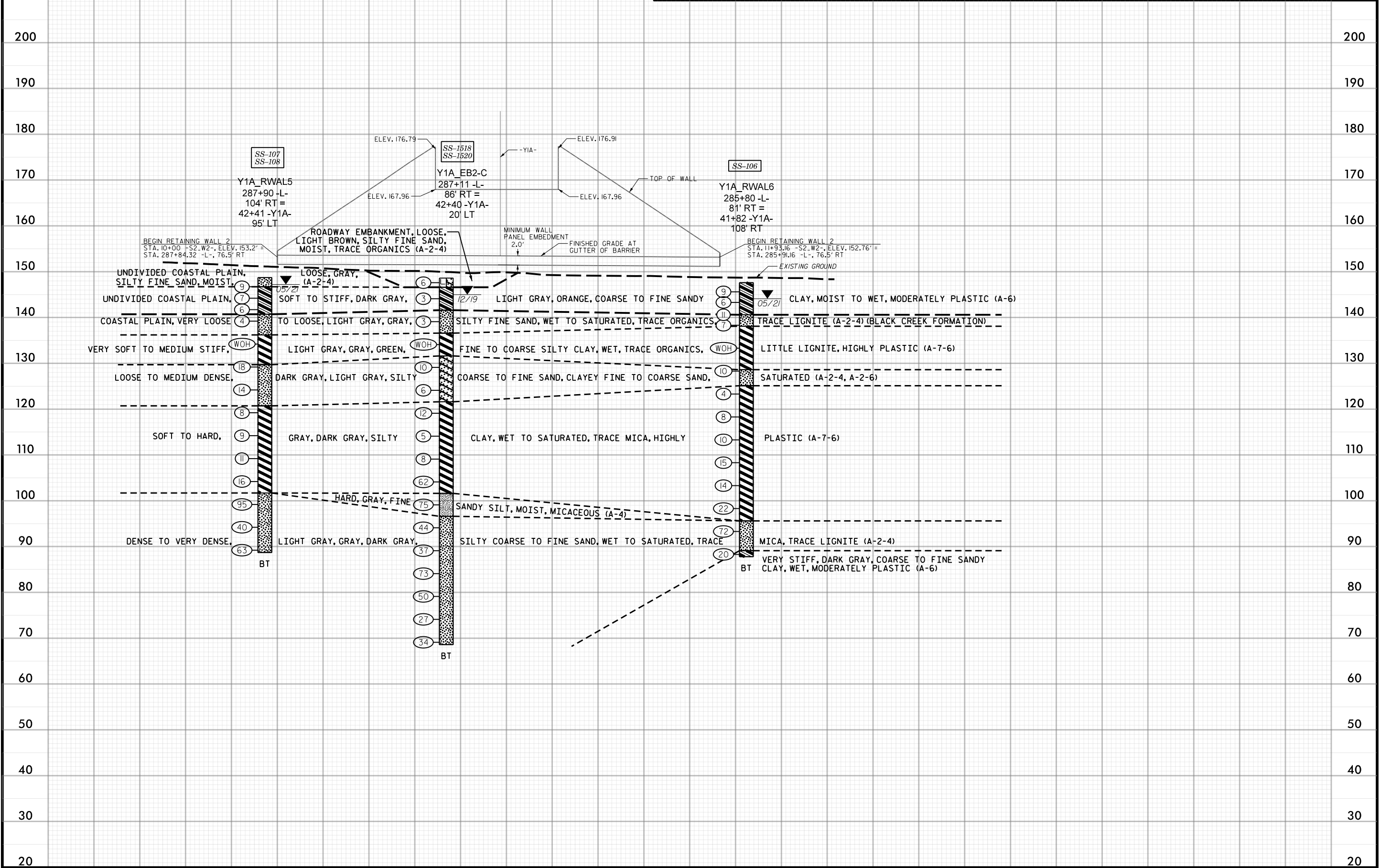


(A) COASTAL PLAIN, VERY SOFT TO SOFT, LIGHT GRAY, GRAY, FINE SANDY CLAY, WET TO SATURATED, TRACE LIGNITE, MODERATELY PLASTIC (A-6) (BLACK CREEK FORMATION)

220 NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ON TO THE EXISTING GROUND PROFILE ALONG THE CENTERLINE OF -S2_W2- TAKEN FROM THE PROVIDED PROJECT TIN FILE: (i5987_ls_tin.tin)



PROJECT REFERENCE NO. I-5987A SHEET NO. 5
 PROFILE ALONG S2_EB2_WALL



10+00 11+00 12+00 13+00 -S2_W2-

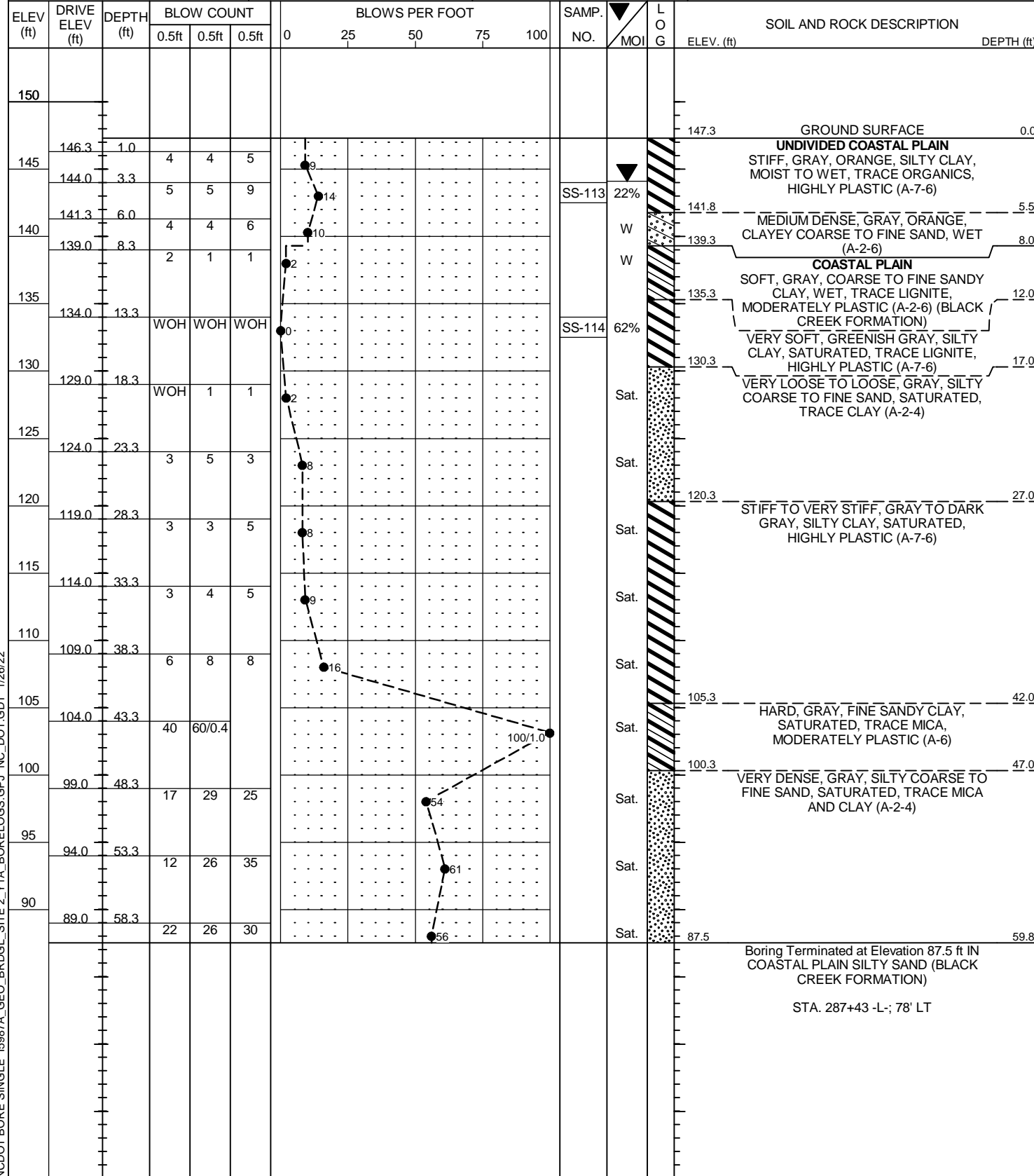
WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST DEGON, A. N.
SITE DESCRIPTION SITE 2 - ABUTMENT RET. WALLS AT EB1 AND EB2 OF BRIDGE ON -Y1A- OVER -L- AT -Y1A- STA. 14+92.02			GROUND WTR (ft)
BORING NO. Y1A_RWAL1	STATION 40+25	OFFSET 102 ft RT	ALIGNMENT -Y1A-
COLLAR ELEV. 147.1 ft	TOTAL DEPTH 59.8 ft	NORTHING 353,466	EASTING 2,000,704
DRILL RIG/HAMMER EFF./DATE TER299 DIEDRICH D-50 79% 12/31/2020		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TURNAGE, J. R.	START DATE 05/11/21	COMP. DATE 05/13/21	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						
150																
														147.1	GROUND SURFACE	0.0
145	146.1	1.0	2	4	3	7									UNDIVIDED COASTAL PLAIN LOOSE TO MEDIUM DENSE, GRAY, BROWN, ORANGE, SILTY COARSE TO FINE SAND, MOIST TO WET, TRACE ORGANICS, SLIGHTLY PLASTIC (A-2-4)	
	143.8	3.3	4	5	4	9										
140	141.1	6.0	2	4	6	10										
	138.8	8.3	3	2	5	7										
135															NO ORGANICS	
	133.8	13.3	WOH	WOH	WOH	10								135.1	COASTAL PLAIN	12.0
130															VERY SOFT, LIGHT GRAY, FINE SANDY CLAY, SATURATED, TRACE LIGNITE, MODERATELY PLASTIC (A-6) (BLACK CREEK FORMATION)	
	128.8	18.3	WOH	WOH	2	2								130.1	VERY LOOSE, DARK GRAY, CLAYEY COARSE TO FINE SAND, SATURATED, SLIGHTLY PLASTIC (A-2-7)	17.0
125																
	123.8	23.3	3	7	6	13								125.1	MEDIUM DENSE, DARK GRAY, SILTY COARSE TO FINE SAND, SATURATED, NON PLASTIC (A-2-4)	22.0
120																
	118.8	28.3	3	4	5	9								120.1	STIFF, DARK GRAY, FINE SANDY CLAY, SATURATED, MODERATELY PLASTIC (A-6)	27.0
115																
	113.8	33.3	4	4	6	10								115.1	STIFF, DARK GRAY, SILTY CLAY, WET, HIGHLY PLASTIC (A-7-6)	32.0
110																
	108.8	38.3	4	5	7	12										
105																
	103.8	43.3	4	6	8	14										
100																
	98.8	48.3	8	15	21	36								100.1	HARD, DARK GRAY, FINE SANDY CLAY, WET, TRACE MICA AND LIGNITE, MODERATELY PLASTIC (A-6)	47.0
95																
	93.8	53.3	20	32	44	76								95.1	VERY DENSE, GRAY, CLAYEY COARSE TO FINE SAND, WET, TRACE MICA, SLIGHTLY PLASTIC (A-2-6)	52.0
90																
	88.8	58.3	20	30	35	65								90.1	VERY DENSE, GRAY, SILTY COARSE TO FINE SAND, WET, TRACE MICA AND CLAY (A-2-4)	57.0
														87.3	Boring Terminated at Elevation 87.3 ft IN COASTAL PLAIN SILTY SAND (BLACK CREEK FORMATION)	59.8
															STA. 285+58 -L-; 75' LT	

NCDOT BORE SINGLE I5987A_GEO_BRDGL_SITE 2_Y1A_BORELOGS.GPJ_NC_DOT.GDT 1/26/22

GEOTECHNICAL BORING REPORT
BORE LOG

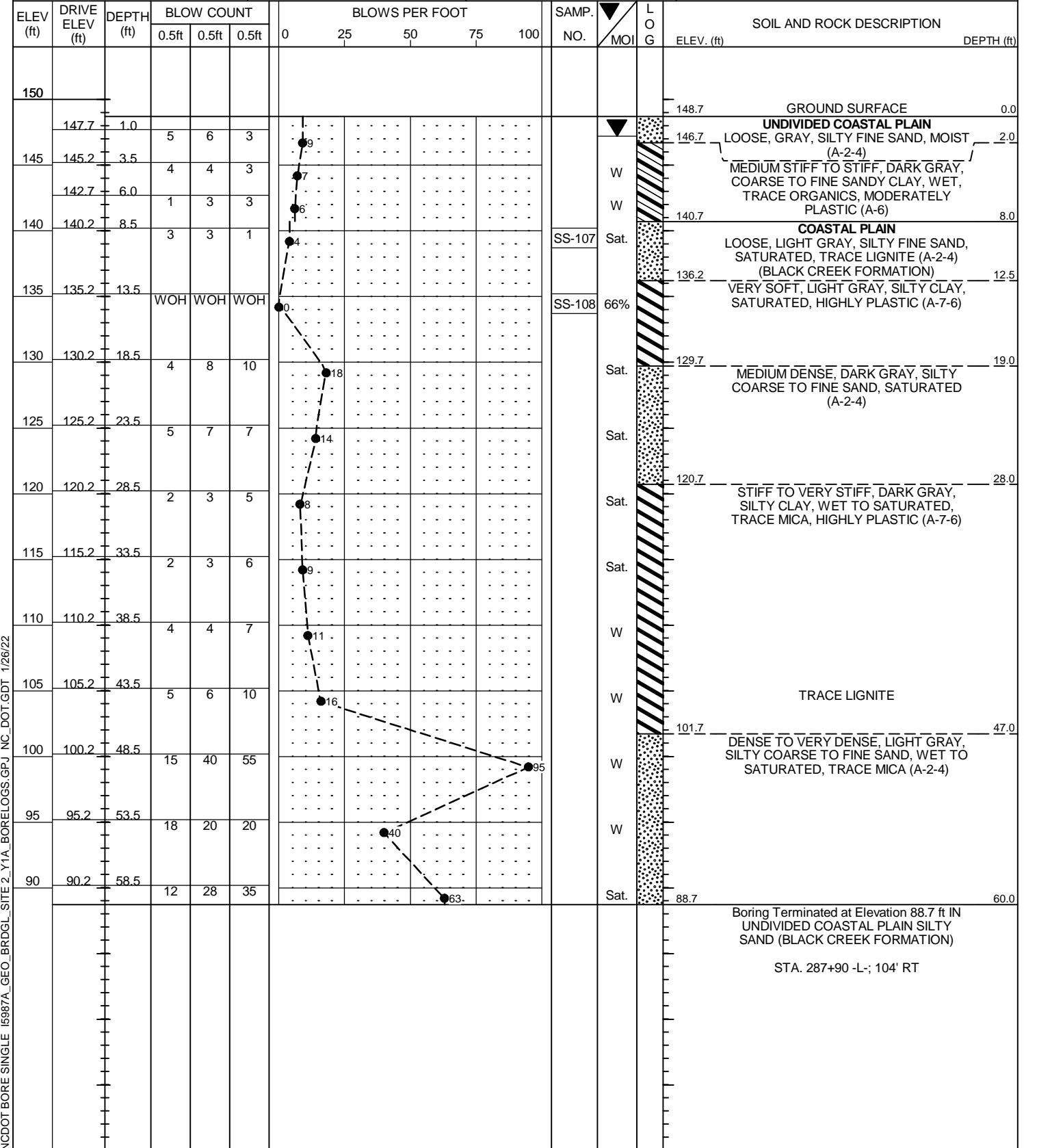
WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST DEGON, A. N.
SITE DESCRIPTION SITE 2 - ABUTMENT RET. WALLS AT EB1 AND EB2 OF BRIDGE ON -Y1A- OVER -L- AT -Y1A- STA. 14+92.02			GROUND WTR (ft)
BORING NO. Y1A_RWAL2	STATION 40+54	OFFSET 81 ft LT	ALIGNMENT -Y1A-
COLLAR ELEV. 147.3 ft	TOTAL DEPTH 59.8 ft	NORTHING 353,651	EASTING 2,000,702
DRILL RIG/HAMMER EFF./DATE TER299 DIEDRICH D-50 79% 12/31/2020		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TURNAGE, J. R.	START DATE 05/11/21	COMP. DATE 05/11/21	SURFACE WATER DEPTH N/A



NCDOT BORE SINGLE I5987A_GEO_BRDGL_SITE 2_Y1A_BORELOGS.GPJ_NC_DOT.GDT 1/26/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST DEGON, A. N.
SITE DESCRIPTION SITE 2 - ABUTMENT RET. WALLS AT EB1 AND EB2 OF BRIDGE ON -Y1A- OVER -L- AT -Y1A- STA. 14+92.02			GROUND WTR (ft)
BORING NO. Y1A_RWAL5	STATION 42+41	OFFSET 95 ft LT	ALIGNMENT -Y1A-
COLLAR ELEV. 148.7 ft	TOTAL DEPTH 60.0 ft	NORTHING 353,696	EASTING 2,000,884
DRILL RIG/HAMMER EFF./DATE TER299 DIEDRICH D-50 79% 12/31/2020		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TURNAGE, J. R.	START DATE 05/06/21	COMP. DATE 05/06/21	SURFACE WATER DEPTH N/A



NCDOT BORE SINGLE I5987A_GEO_BRDGL_SITE 2_Y1A_BORELOGS.GPJ_NC_DOT.GDT 1/26/22

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST B. Painter									
SITE DESCRIPTION SITE 2 - ABUTMENT RET. WALLS AT EB1 AND EB2 OF BRIDGE ON -Y1A- OVER -L- AT -Y1A- STA. 14+92.02							GROUND WTR (ft)								
BORING NO. Y1A_EB2-C		STATION 42+10		OFFSET 20 ft LT		ALIGNMENT -Y1A-									
COLLAR ELEV. 148.6 ft		TOTAL DEPTH 80.0 ft		NORTHING 353,617		EASTING 2,000,866									
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER D. Tignor		START DATE 12/10/19		COMP. DATE 12/10/19		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															
150	148.6	0.0	1	2	4										
145	145.1	3.5	WOH	1	2										
140	140.1	8.5		3	2	1									
135	135.1	13.5	WOH	WOH	WOH										
130	130.1	18.5		2	3	7									
125	125.1	23.5		7	4	2									
120	120.1	28.5		3	5	7									
115	115.1	33.5	WOH	2	3										
110	110.1	38.5		3	3	5									
105	105.1	43.5		3	4	58									
100	100.1	48.5		17	20	55									
95	95.1	53.5		7	19	25									
90	90.1	58.5		9	15	22									
85	85.1	63.5		16	31	42									
80	80.1	68.5		22	26	24									
75	75.1	73.5													

NCDOT BORE SINGLE I5987A_GEO_BRDGL_SITE 2_Y1A_BORELOGS.GPJ_NC_DOT.GDT 1/26/22

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST B. Painter									
SITE DESCRIPTION SITE 2 - ABUTMENT RET. WALLS AT EB1 AND EB2 OF BRIDGE ON -Y1A- OVER -L- AT -Y1A- STA. 14+92.02							GROUND WTR (ft)								
BORING NO. Y1A_EB2-C		STATION 42+10		OFFSET 20 ft LT		ALIGNMENT -Y1A-									
COLLAR ELEV. 148.6 ft		TOTAL DEPTH 80.0 ft		NORTHING 353,617		EASTING 2,000,866									
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER D. Tignor		START DATE 12/10/19		COMP. DATE 12/10/19		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
75															
70	70.1	78.5	11	13	21										

NCDOT BORE SINGLE I5987A_GEO_BRDGL_SITE 2_Y1A_BORELOGS.GPJ_NC_DOT.GDT 1/26/22

Match Line

DENSE TO VERY DENSE, GRAY, CLAYEY SILTY FINE TO COARSE SAND, SATURATED, TRACE LIGNITE (A-2-4) (continued)

Boring Terminated at Elevation 68.6 ft in SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)
1. SURFICIAL ORGANIC SOIL: 0.0 - 0.2' STA. 287+11 -L-; 86' RT

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 47533.1.2

TIP: I-5987A

COUNTY: ROBESON

DESCRIPTION: SITE 2 - ABUTMENT RETAINING WALLS AT END BENT 1 AND END BENT 2 OF BRIDGE ON -Y1A- (US 301) OVER -L- (I-95) AT -Y1A- STA. 41+19.02

Sample No.	Station	Alignment	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
SS-106	41+82	-Y1A-	108 RT	13.3 - 14.8	A-7-6 (29)	57	36	1.9	26.3	25.5	46.3	0	100	99	78	87.1	--
SS-107	42+41	-Y1A-	95 LT	8.5 - 10.0	A-2-4 (0)	24	3	4.5	76.2	2.0	17.3	0	100	98	21	--	--
SS-108	42+41	-Y1A-	95 LT	13.5 - 15.0	A-7-6 (44)	66	43	1.2	8.0	21.2	69.6	0	100	100	92	65.5	--
SS-113	40+54	-Y1A-	81 LT	3.3 - 4.8	A-7-6 (9)	44	28	28.3	23.0	23.4	25.3	0	100	85	49	21.7	--
SS-114	40+54	-Y1A-	81 LT	13.3 - 14.8	A-7-6 (46)	72	54	1.5	20.9	17.6	60.0	0	100	100	81	61.9	--
SS-115	40+25	-Y1A-	102 RT	8.3 - 9.8	A-2-4 (0)	25	8	20.6	61.6	2.1	15.7	0	100	88	18	--	--

Stephanie H. Huffman
 Certified Lab Technician Signature

114-01-1203
 Certification Number

Sample No.	Station	Alignment	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
SS-65	40+38	-Y1A-	21 LT	8.5-10.0'	A-7-5(53)	81	32	2.6	8.6	17.4	71.4	0.0	100	99	92	75.8	-
SS-66	40+38	-Y1A-	21 LT	13.5-15.0'	A-2-4(0)	NP	NP	59.2	24.3	7.5	9.0	0.0	98	69	17	-	-
SS-1518	42+40	-Y1A-	20 LT	3.5-5.0'	A-6(6)	40	17	24.0	29.9	8.1	38.0	0.0	100	87	48	21.0	-
SS-1520	42+40	-Y1A-	20 LT	13.5-15.0'	A-7-6(20)	54	24	11.6	22.2	14.6	51.6	0.0	100	95	69	19.8	-

D. COUNCIL - F&R
 Certified Lab Technician Signature

101-02-0603
 Certification Number

NP - NON-PLASTIC