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PROJECT: 34522 REFERENCE: R-3100B

PROJECT: 34522

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY CATAWBA
PROJECT DESCRIPTION NC 16 FROM NORTH OF
SR 1801 (CLAREMONT RD.) TO NORTH OF SR 1814
(CALDWELL RD.)
SITE DESCRIPTION RETAINING WALL 1 AT -L-
STATION 44 + 50, 49.5' RT

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	BORE LOGS
8	SOIL TEST RESULTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3100B	1	8

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

J.K. STICKNEY

C.L. SMITH

M.R. MOORE

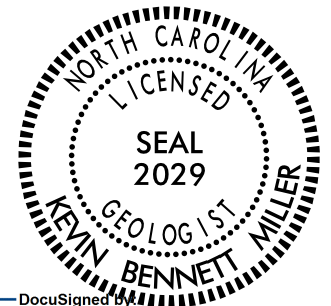
INVESTIGATED BY J.K. STICKNEY

DRAWN BY T.T. WALKER

CHECKED BY J.E. BEVERLY ^{DS} JEB

SUBMITTED BY K.B. MILLER

DATE SEPTEMBER 2016



DocuSigned by

[Signature]

957A789AED704CB...

9/7/2016

SIGNATURE

DATE

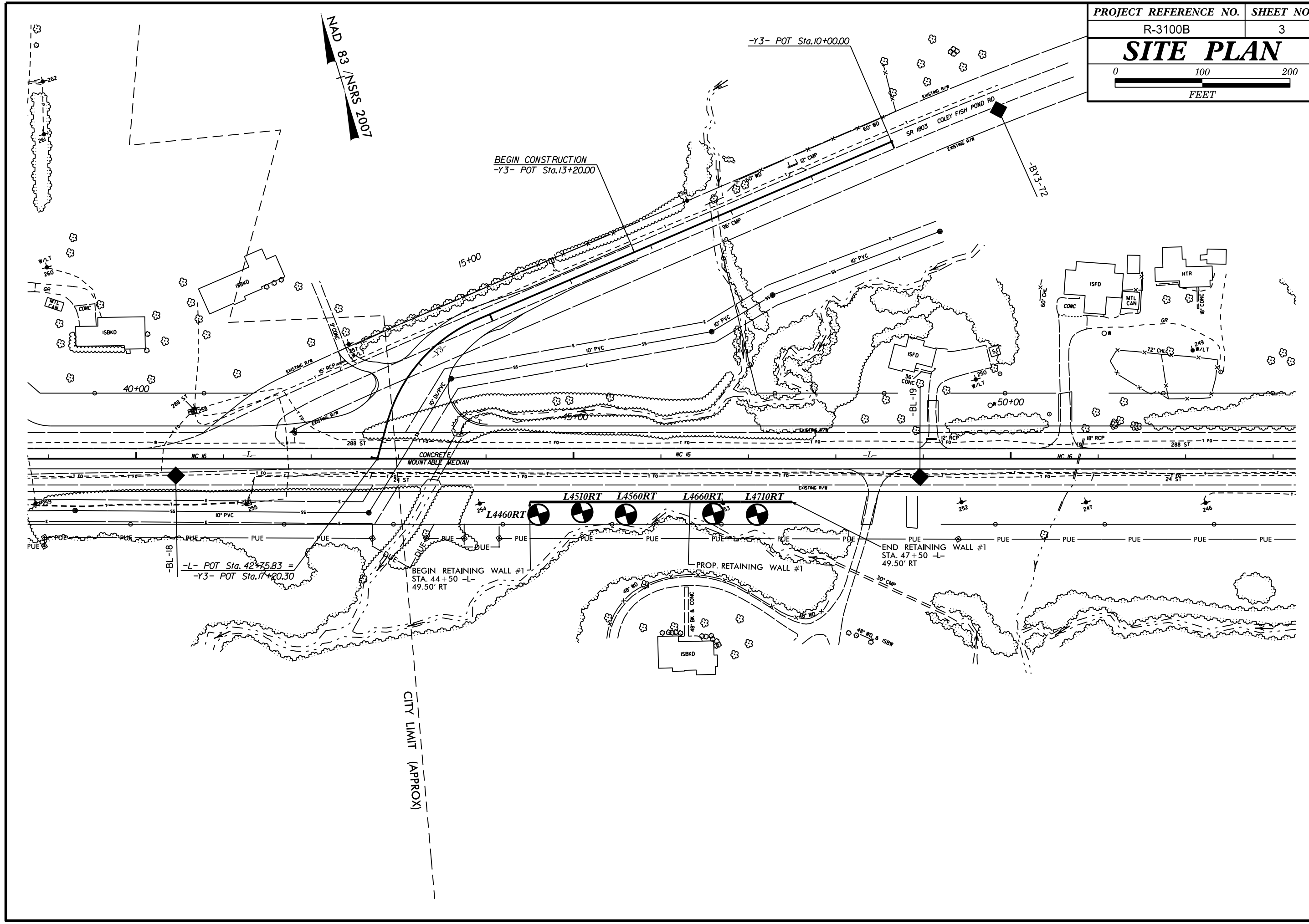
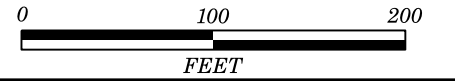
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION

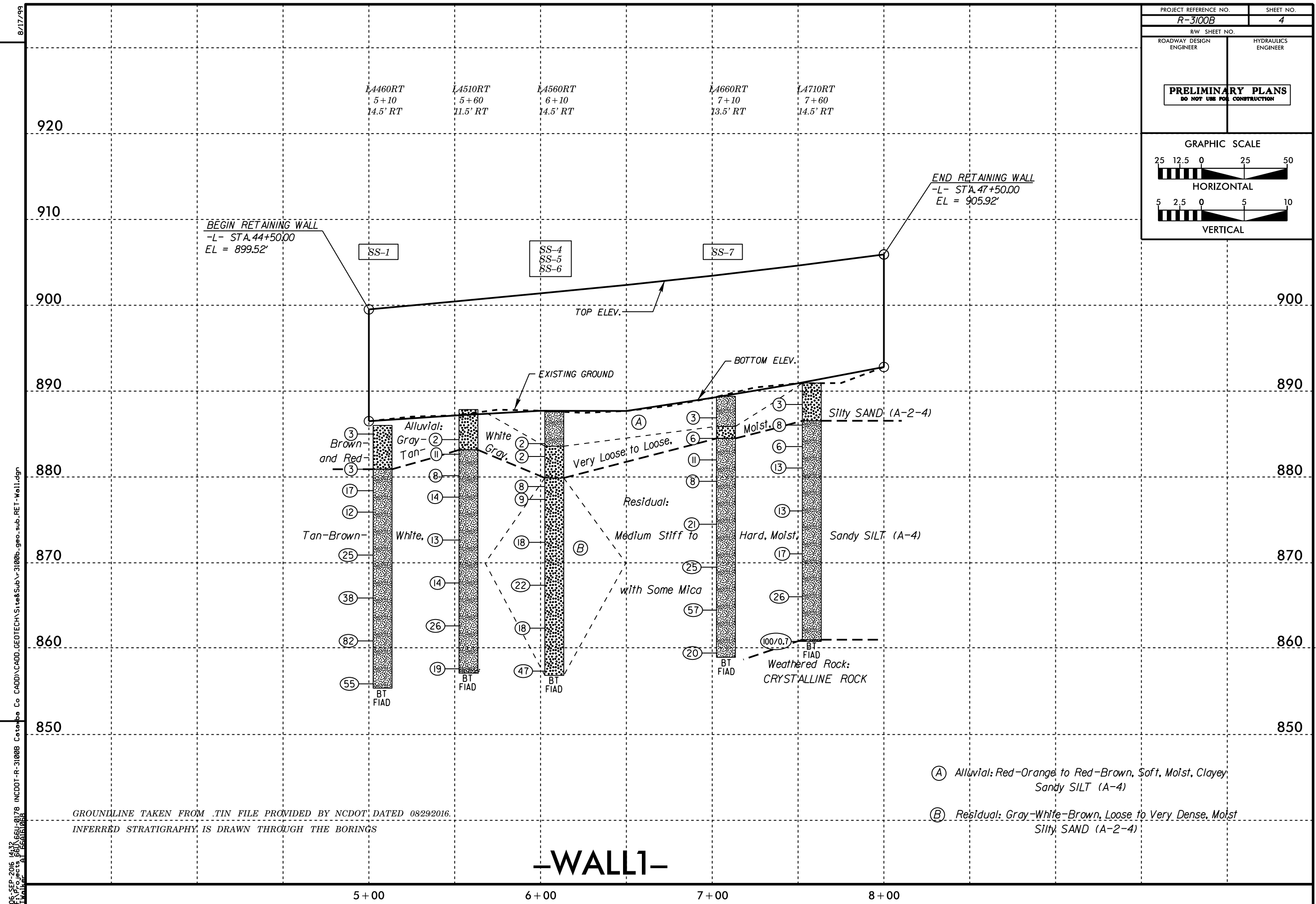
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It contains detailed technical specifications, classification charts, and symbols for geotechnical engineering.

SITE PLAN



PROJECT REFERENCE NO.		SHEET NO.
R-3100B		4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
GRAPHIC SCALE		
 HORIZONTAL		
 VERTICAL		



GROUNDLINE TAKEN FROM TIN FILE PROVIDED BY NCDOT, DATED 08/29/2016.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS

-WALL 1-

REVISIONS

8/17/99
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 08-SEP-2016 14:32
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GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34522.1.4		TIP R-3100B		COUNTY CATAWBA		GEOLOGIST Stickney, J. K.														
SITE DESCRIPTION Retaining Wall 1 at -L- Station 44+50, 49.5' RT							GROUND WTR (ft)													
BORING NO. L4460RT		STATION 44+60		OFFSET 64 ft RT		ALIGNMENT -L-														
COLLAR ELEV. 886.0 ft		TOTAL DEPTH 30.6 ft		NORTHING 695,412		EASTING 1,351,858														
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic														
DRILLER Smith, C.L.		START DATE 08/09/16		COMP. DATE 08/09/16		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)					
890																				
	886.0	0.0																		
885			1	2	1															
	881.9	4.1																		
880			0	1	2															
	879.4	6.6																		
	876.9	9.1	4	8	9															
875			3	5	7															
	871.9	14.1																		
870			4	10	15															
	866.9	19.1																		
865			6	15	23															
	861.9	24.1																		
860			29	39	43															
	856.9	29.1																		
			16	28	27															

WBS 34522.1.4		TIP R-3100B		COUNTY CATAWBA		GEOLOGIST Stickney, J. K.														
SITE DESCRIPTION Retaining Wall 1 at -L- Station 44+50, 49.5' RT							GROUND WTR (ft)													
BORING NO. L4510RT		STATION 45+10		OFFSET 61 ft RT		ALIGNMENT -L-														
COLLAR ELEV. 887.9 ft		TOTAL DEPTH 30.7 ft		NORTHING 695,400		EASTING 1,351,907														
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic														
DRILLER Smith, C.L.		START DATE 08/09/16		COMP. DATE 08/09/16		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)					
890																				
	887.9	0.0																		
885			1	1	1															
	885.4	2.5																		
	883.7	4.2	1	6	5															
880			1	3	5															
	881.2	6.7																		
	878.7	9.2	3	5	9															
875			3	6	7															
	873.7	14.2																		
870			5	7	7															
	868.7	19.2																		
865			7	11	15															
	863.7	24.2																		
860			7	7	12															
	858.7	29.2																		

NCDOT BORE DOUBLE R3100B GEO BORINGS.GPJ NC_DOT.GDT 9/6/16

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34522.1.4		TIP R-3100B		COUNTY CATAWBA		GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION Retaining Wall 1 at -L- Station 44+50, 49.5' RT							GROUND WTR (ft)
BORING NO. L4560RT		STATION 45+60		OFFSET 64 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 887.6 ft		TOTAL DEPTH 30.7 ft		NORTHING 695,382		EASTING 1,351,954	
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic	
DRILLER Smith, C.L.		START DATE 08/09/16		COMP. DATE 08/09/16		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				
890													GROUND SURFACE	0.0
885	884.9	2.7									SS-4	M	ALLUVIAL RED-ORANGE, VERY SOFT, MOIST, CLAYEY SANDY SILT (A-4)	4.0
	883.4	4.2	1	1	1						SS-5	M	ALLUVIAL RED-TAN-GRAY, VERY LOOSE, MOIST, CLAYEY SAND (A-2-4)	7.7
880	879.9	7.7	6	4	4						SS-6	M	RESIDUAL GRAY-WHITE-BROWN, LOOSE TO VERY DENSE, MOIST, SILTY SAND (A-2-4)	7.7
	878.4	9.2	3	3	6							M		
875												M		
	873.4	14.2	6	8	10							M		
870												M		
	868.4	19.2	7	11	11							M		
865												M		
	863.4	24.2	4	6	12							M		
860												M		
	858.4	29.2	12	23	24							M		
Boring Terminated at Elevation 856.9 ft In Residual Sand														

WBS 34522.1.4		TIP R-3100B		COUNTY CATAWBA		GEOLOGIST Stickney, J. K.	
SITE DESCRIPTION Retaining Wall 1 at -L- Station 44+50, 49.5' RT							GROUND WTR (ft)
BORING NO. L4660RT		STATION 46+60		OFFSET 63 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 889.4 ft		TOTAL DEPTH 30.4 ft		NORTHING 695,354		EASTING 1,352,050	
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic	
DRILLER Smith, C.L.		START DATE 08/09/16		COMP. DATE 08/09/16		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				
890													GROUND SURFACE	0.0
	887.9	1.5									SS-7	M	ALLUVIAL RED-BROWN, SOFT, MOIST CLAYEY SANDY SILT (A-4)	3.5
885	885.5	3.9	3	3	3							M	ALLUVIAL BROWN, LOOSE, MOIST, SILTY SAND (A-2)	4.9
	883.0	6.4	5	5	6							M	RESIDUAL BRAY-WHITE-BROWN, STIFF TO HARD, MOIST SANDY SILT (A-4) WITH SOME MICA	
880	880.5	8.9	4	4	4							M		
	875.5	13.9	5	9	12							M		
870	870.5	18.9	4	9	16							M		
	865.5	23.9	3	9	48							M		
860	860.5	28.9	6	7	13							M		
Boring Terminated at Elevation 859.0 ft In Residual Silt														

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34522.1.4	TIP R-3100B	COUNTY CATAWBA	GEOLOGIST Stickney, J. K.
SITE DESCRIPTION Retaining Wall 1 at -L- Station 44+50, 49.5' RT			GROUND WTR (ft)
BORING NO. L4710RT	STATION 47+10	OFFSET 64 ft RT	ALIGNMENT -L-
COLLAR ELEV. 890.9 ft	TOTAL DEPTH 30.1 ft	NORTHING 695,338	EASTING 1,352,097
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, C.L.	START DATE 08/09/16	COMP. DATE 08/09/16	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)
895																
890	889.4	1.5													890.9	GROUND SURFACE 0.0
	887.0	3.9	1	1	2											
885	884.5	6.4	2	3	5										886.5	ALLUVIAL GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, CLAYEY SAND (A-2) 4.4
	882.0	8.9	3	2	4											
880			5	6	7											
	877.0	13.9														
875			4	5	8											
	872.0	18.9														
870			4	6	11											
	867.0	23.9														
865			7	11	15											
	862.0	28.9														
			22	39	61.2										861.0	WEATHERED ROCK WEATHERED CRYSTALLINE ROCK Boring Terminated at Elevation 860.8 ft In Weathered Rock: CRYSTALLINE ROCK
															860.8	29.9 30.1

NCDOT BORE DOUBLE R3100B_GEO_BORINGS.GPJ NC_DOT.GDT 9/6/16

PROJ. NO. - 34522.14
ID NO. - R-3100B
COUNTY - CATAWBA

L4460RT

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-1	64' RT	44+60	0.5-1.5	A-2-4(0)	19	NP	25.9	53.0	11.0	10.0	96	88	26	-	-

L4560RT

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-4	64' RT	45+60	3.2-4.2	A-4(1)	33	6	22.5	33.7	17.7	26.1	97	87	46	-	-
SS-5	64' RT	45+60	4.7-5.7	A-2-4(0)	23	NP	50.8	32.9	6.2	10.0	96	74	18	-	-
SS-6	64' RT	45+60	8.2-9.2	A-2-4(0)	25	NP	45.6	32.3	16.1	6.0	96	68	27	-	-

L4660RT

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-7	63' RT	46+60	2.0-3.0	A-4(0)	26	4	20.1	47.2	16.7	16.1	100	91	40	-	-