

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

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE(S)
5-7	CROSS SECTION(S)
8-13	BORE LOG & CORE REPORT(S)
14	SOIL TEST RESULTS
15	CORE PHOTOGRAPH(S)

PROJ. REFERENCE NO. 35007.1.1 (U-4006) F.A. PROJ. STP-4126 (I)
 COUNTY GUILFORD
 PROJECT DESCRIPTION SR 4126 (BRIDFORD PARKWAY, NEW ROUTE)
FROM SR 1541 (WENDOVER AVE.) AT HORNADAY ROAD TO BURNT POPLAR
ROAD AT SWING ROAD
 SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY,
NEW ROUTE) OVER I-40 AT -L- STA. 20+90.21

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

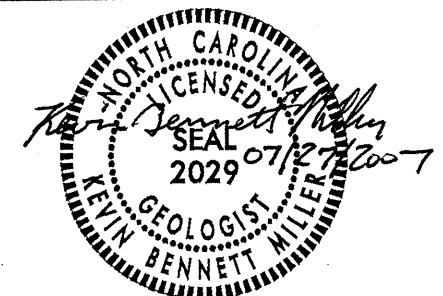
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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 THIS 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.

PERSONNEL

TRIGON

INVESTIGATED BY K. B. MILLER
 CHECKED BY N.T. ROBERSON
 SUBMITTED BY N.T. ROBERSON
 DATE JULY 2007



PROJECT: 35007.1.1
ID: U-4006

DRAWN BY: J.R. MATULA

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

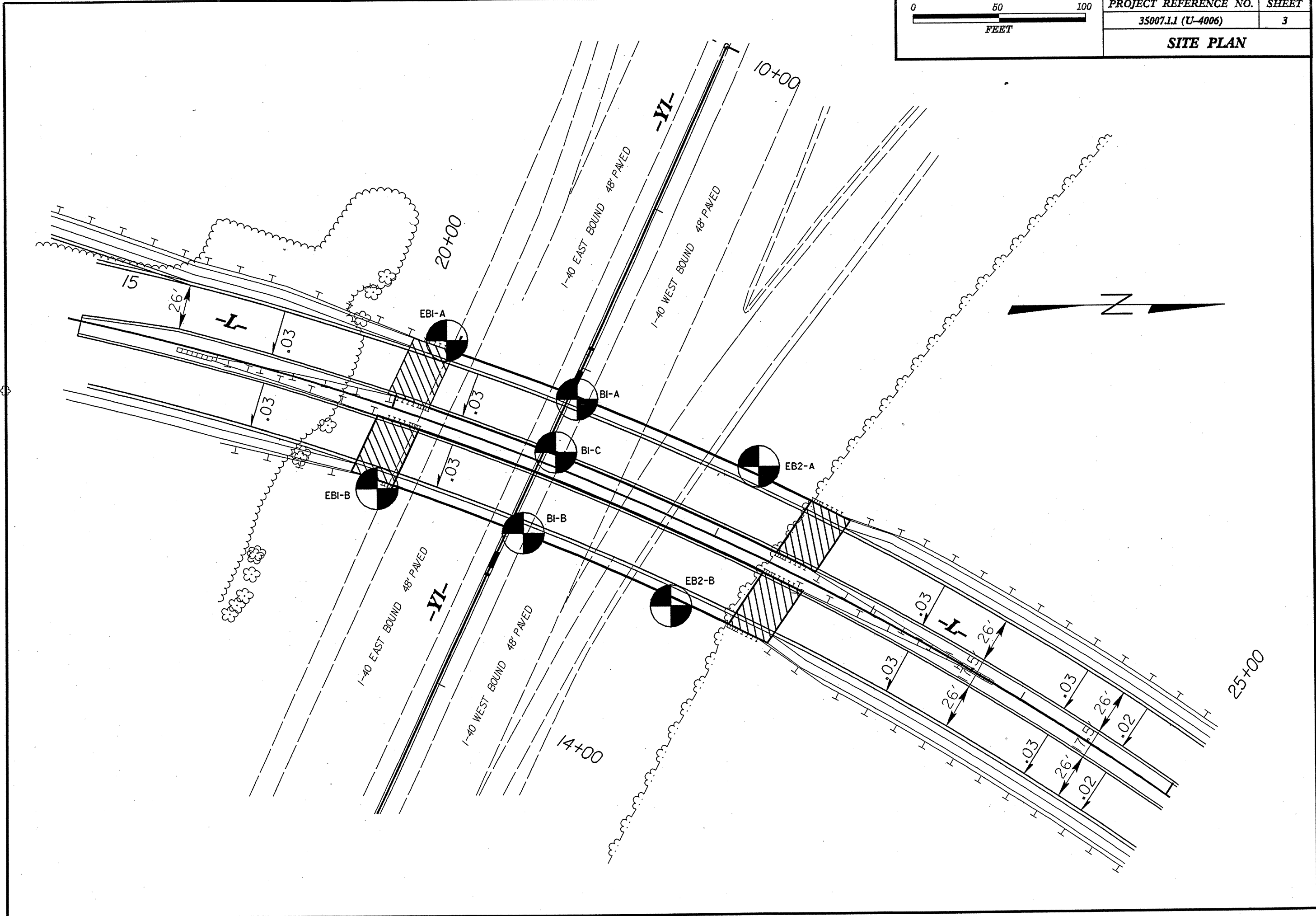
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

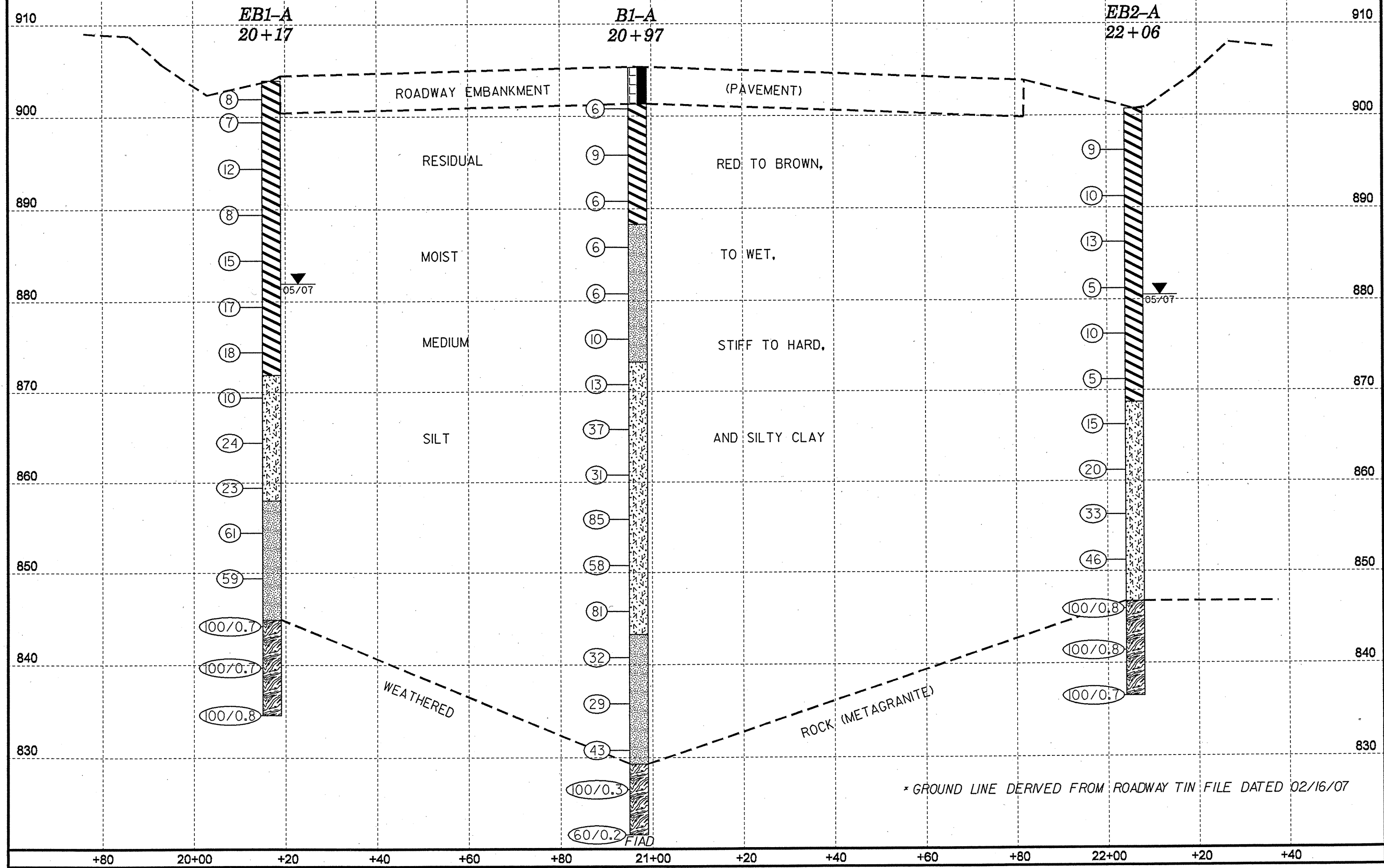
SUBSURFACE INVESTIGATION

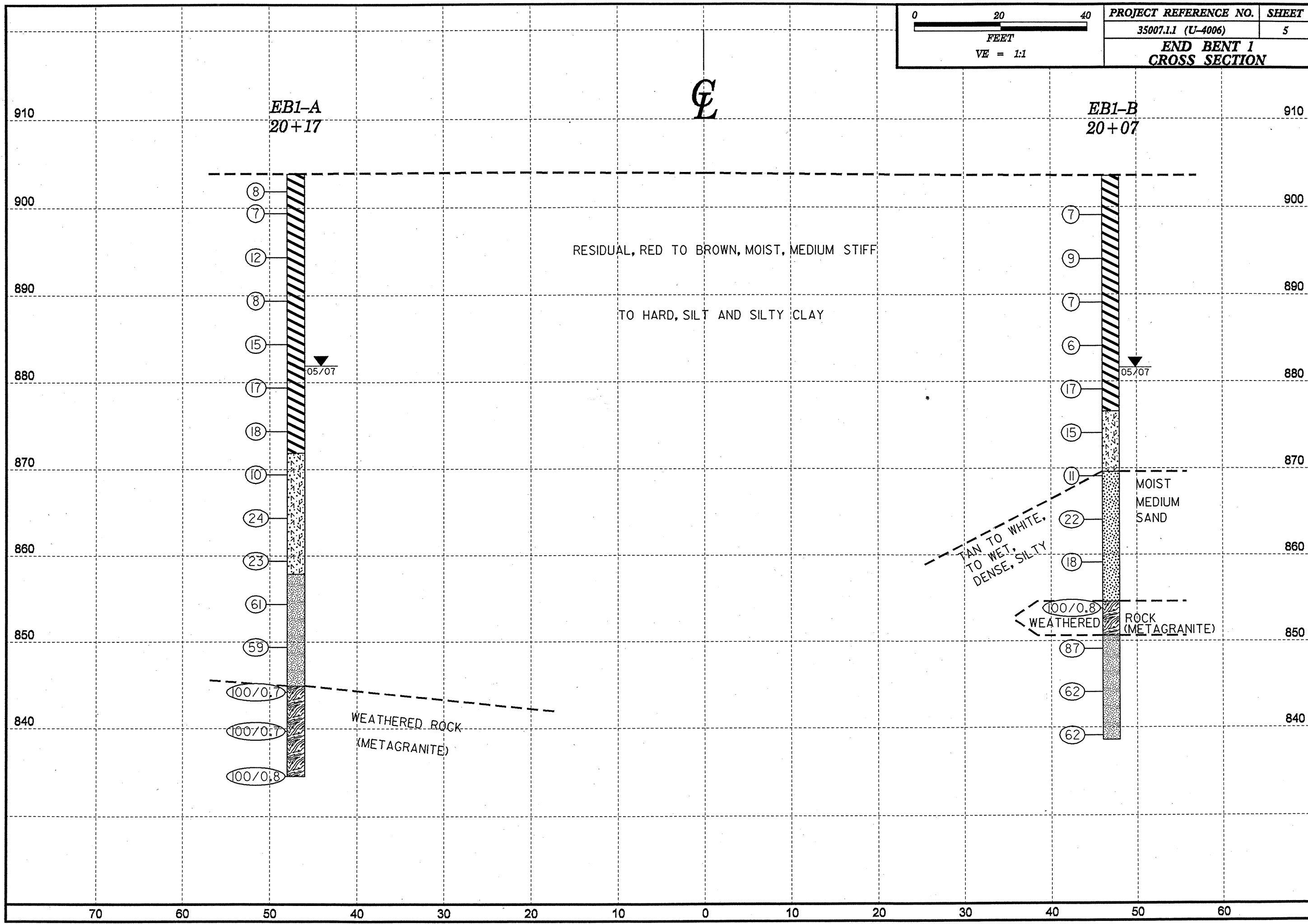
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABERRATIONS

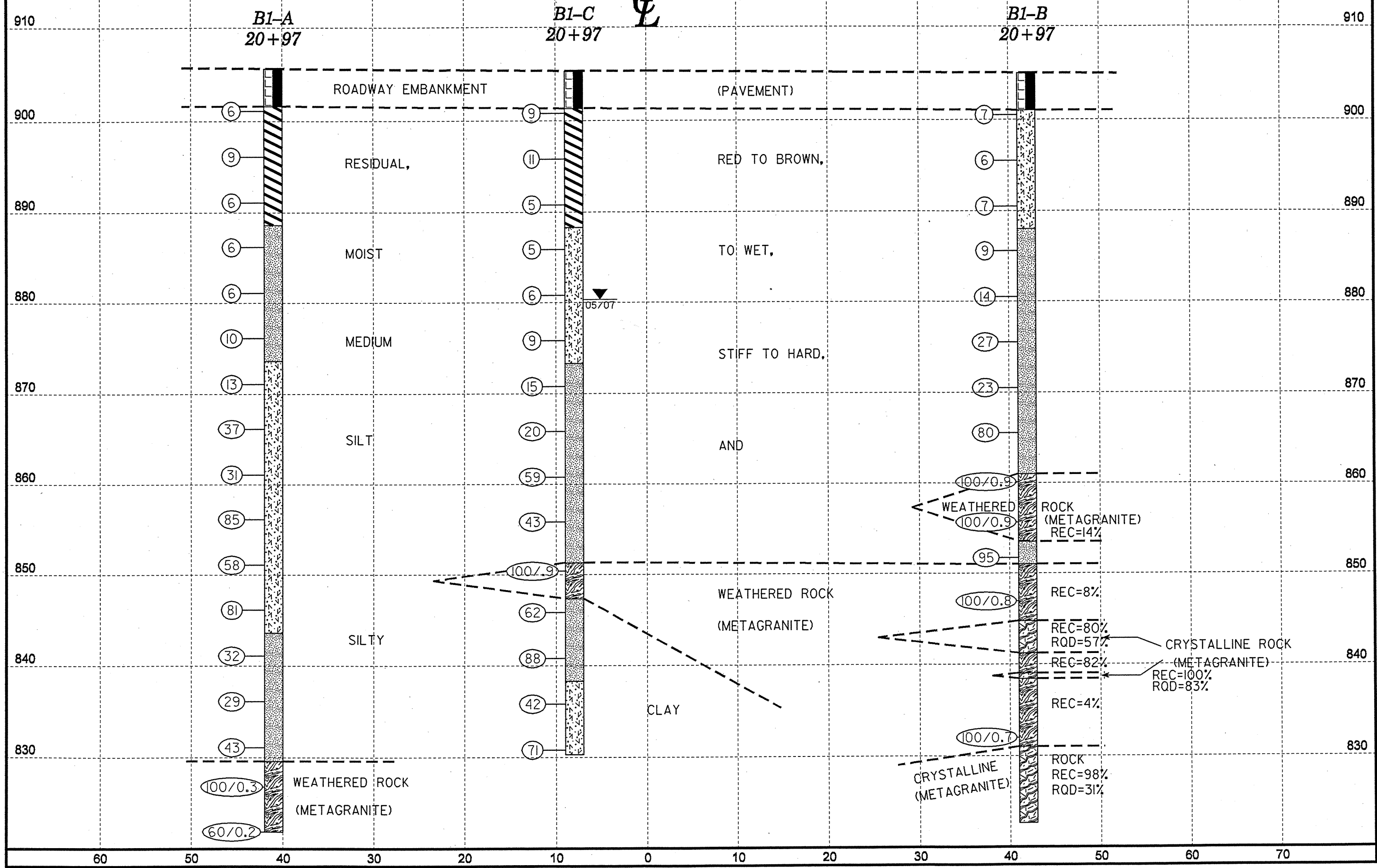
PROJECT REFERENCE NO. 35007.II (U-4006) SHEET NO. 2

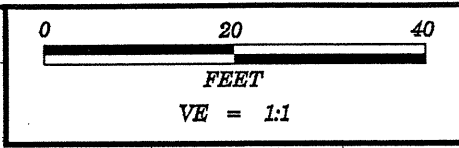
SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSION, PERCENTAGE OF MATERIAL, WEATHERING, CONSISTENCY OR DENSENESS, MISCELLANEOUS SYMBOLS, ABBREVIATIONS, SOIL MOISTURE - CORRELATION OF TERMS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, PLASTICITY, COLOR.



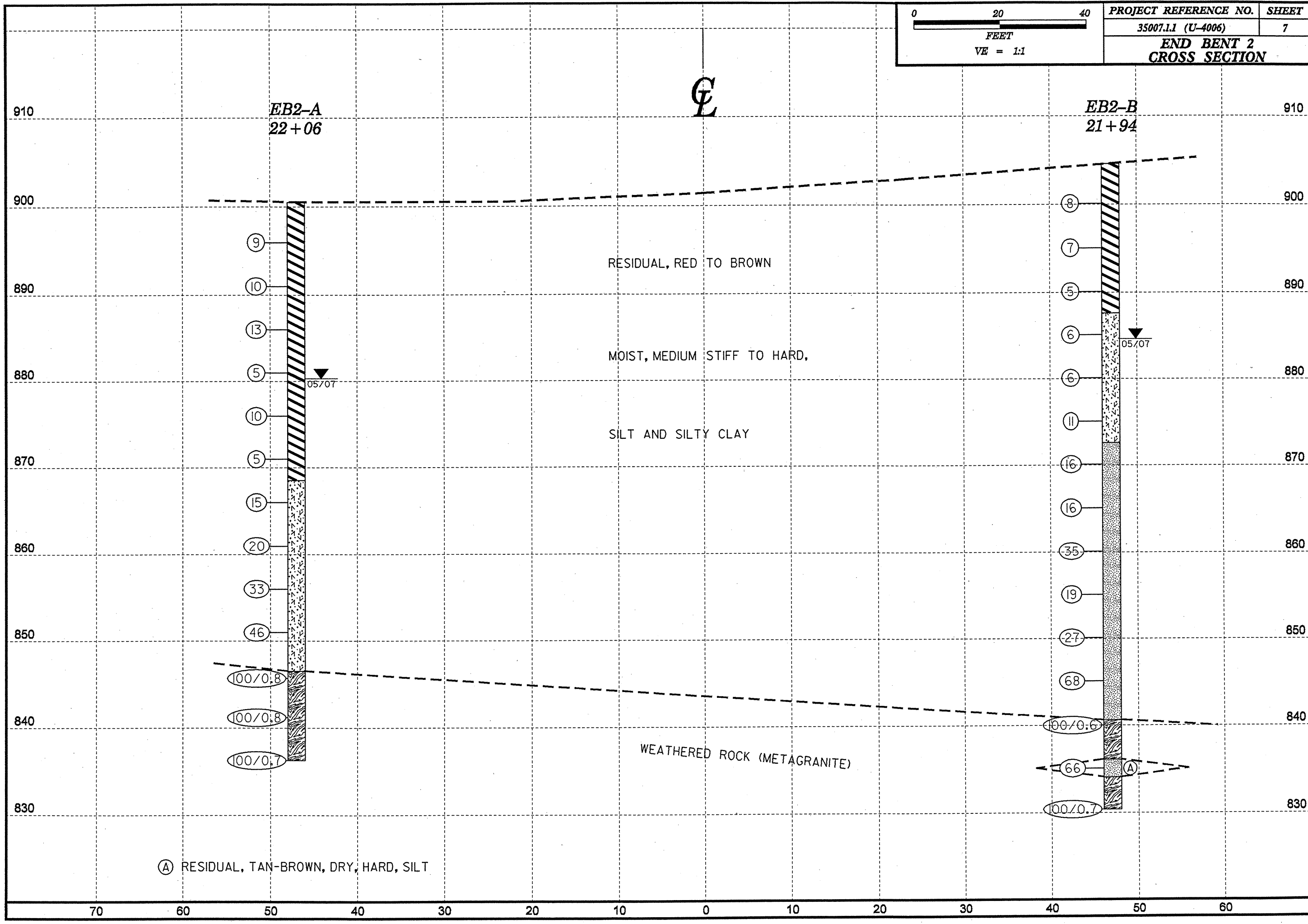








PROJECT REFERENCE NO.	SHEET
35007.1.1 (U-4006)	7
END BENT 2 CROSS SECTION	

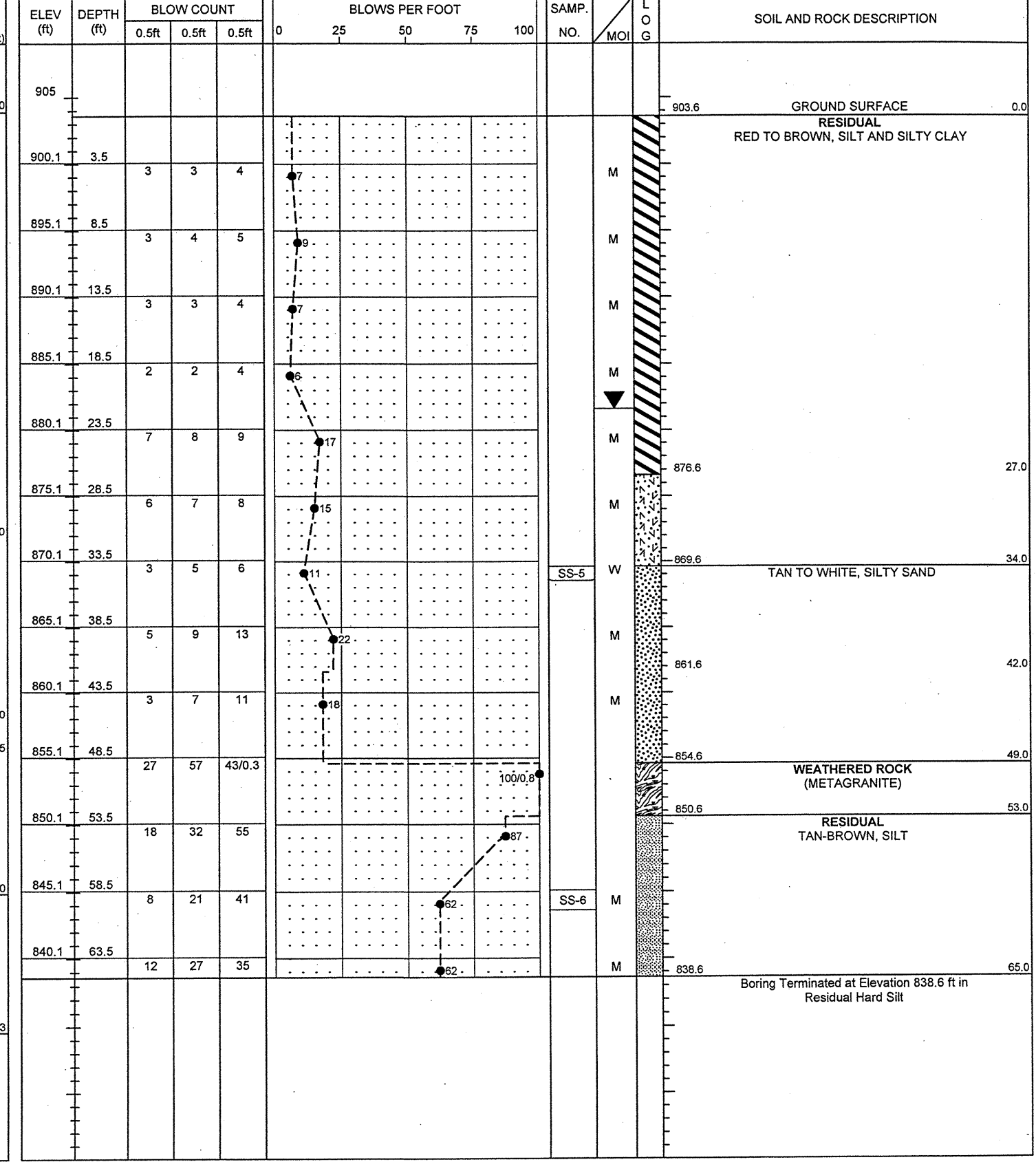
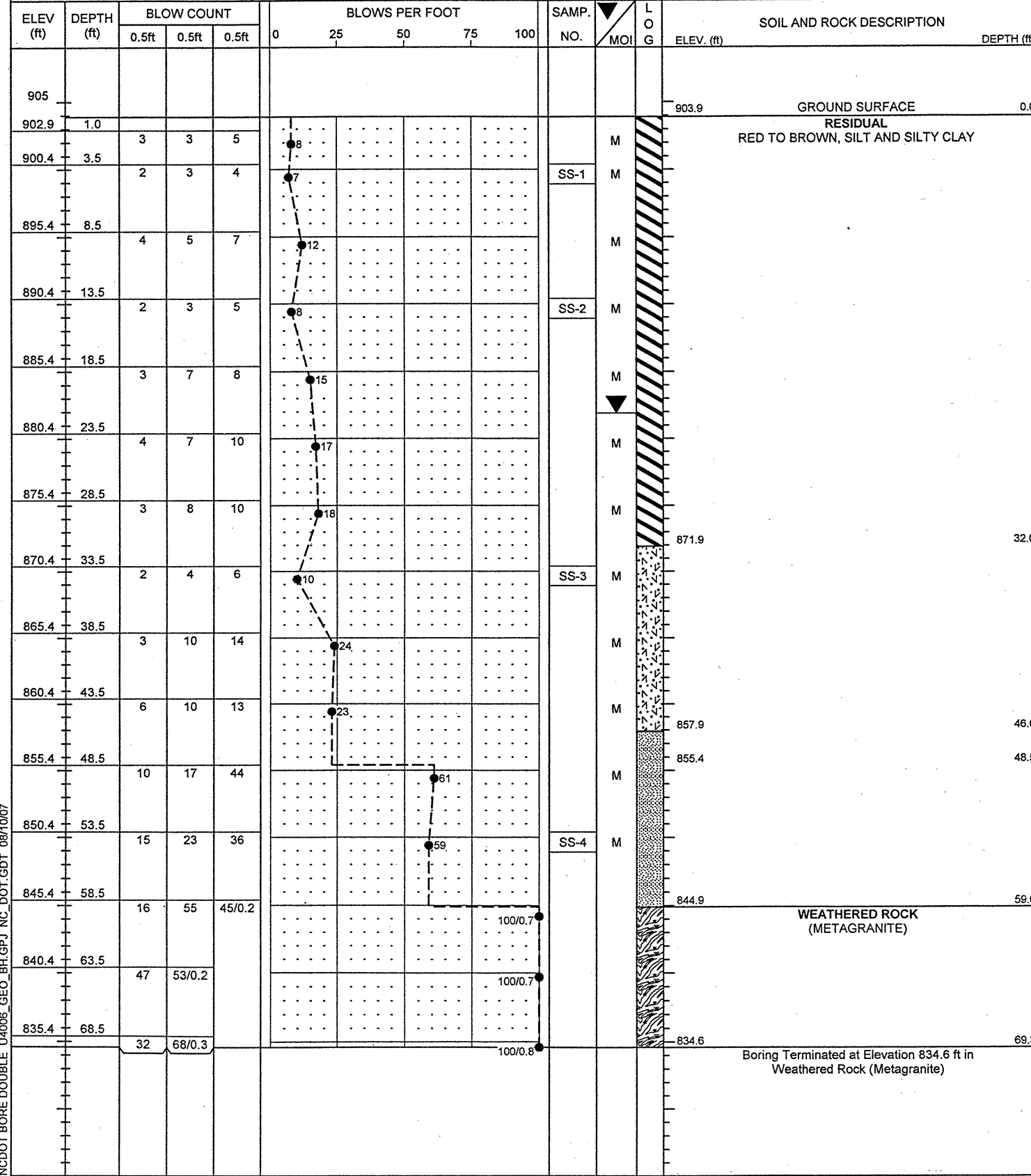


(A) RESIDUAL, TAN-BROWN, DRY, HARD, SILT

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. EB1-A	STATION 20+17	OFFSET 47ft LT	ALIGNMENT -L-
COLLAR ELEV. 903.9 ft	TOTAL DEPTH 69.3 ft	NORTHING 842,159	EASTING 1,733,080
DRILL MACHINE Mobile B-57	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 05/21/07	COMP. DATE 05/22/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. EB1-B	STATION 20+07	OFFSET 47ft RT	ALIGNMENT -L-
COLLAR ELEV. 903.6 ft	TOTAL DEPTH 65.0 ft	NORTHING 842,119	EASTING 1,733,165
DRILL MACHINE Mobile B-57	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 05/22/07	COMP. DATE 05/22/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



NCDOT BORE DOUBLE U4006 GEO_BH.GPJ NC_DOT_GDT 08/10/07



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-A	STATION 20+97	OFFSET 41ft LT	ALIGNMENT -L-
COLLAR ELEV. 905.6 ft	TOTAL DEPTH 83.7 ft	NORTHING 842,234	EASTING 1,733,114
DRILL MACHINE Mobile B-57		DRILL METHOD Mud Rotary	
START DATE 05/24/07		COMP. DATE 05/25/07	
		SURFACE WATER DEPTH N/A	
		DEPTH TO ROCK N/A	

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-A	STATION 20+97	OFFSET 41ft LT	ALIGNMENT -L-
COLLAR ELEV. 905.6 ft	TOTAL DEPTH 83.7 ft	NORTHING 842,234	EASTING 1,733,114
DRILL MACHINE Mobile B-57		DRILL METHOD Mud Rotary	
START DATE 05/24/07		COMP. DATE 05/25/07	
		SURFACE WATER DEPTH N/A	
		DEPTH TO ROCK N/A	

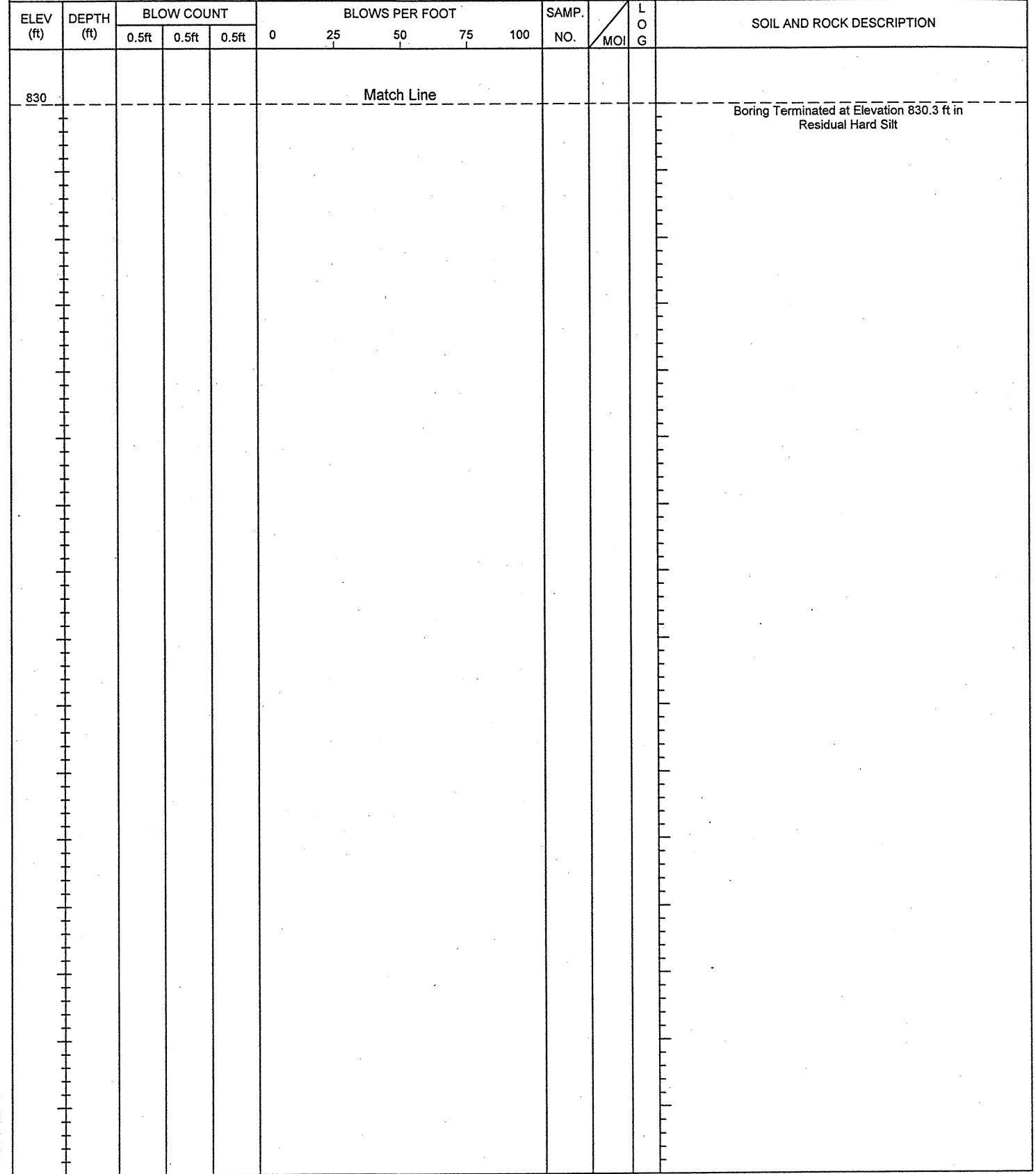
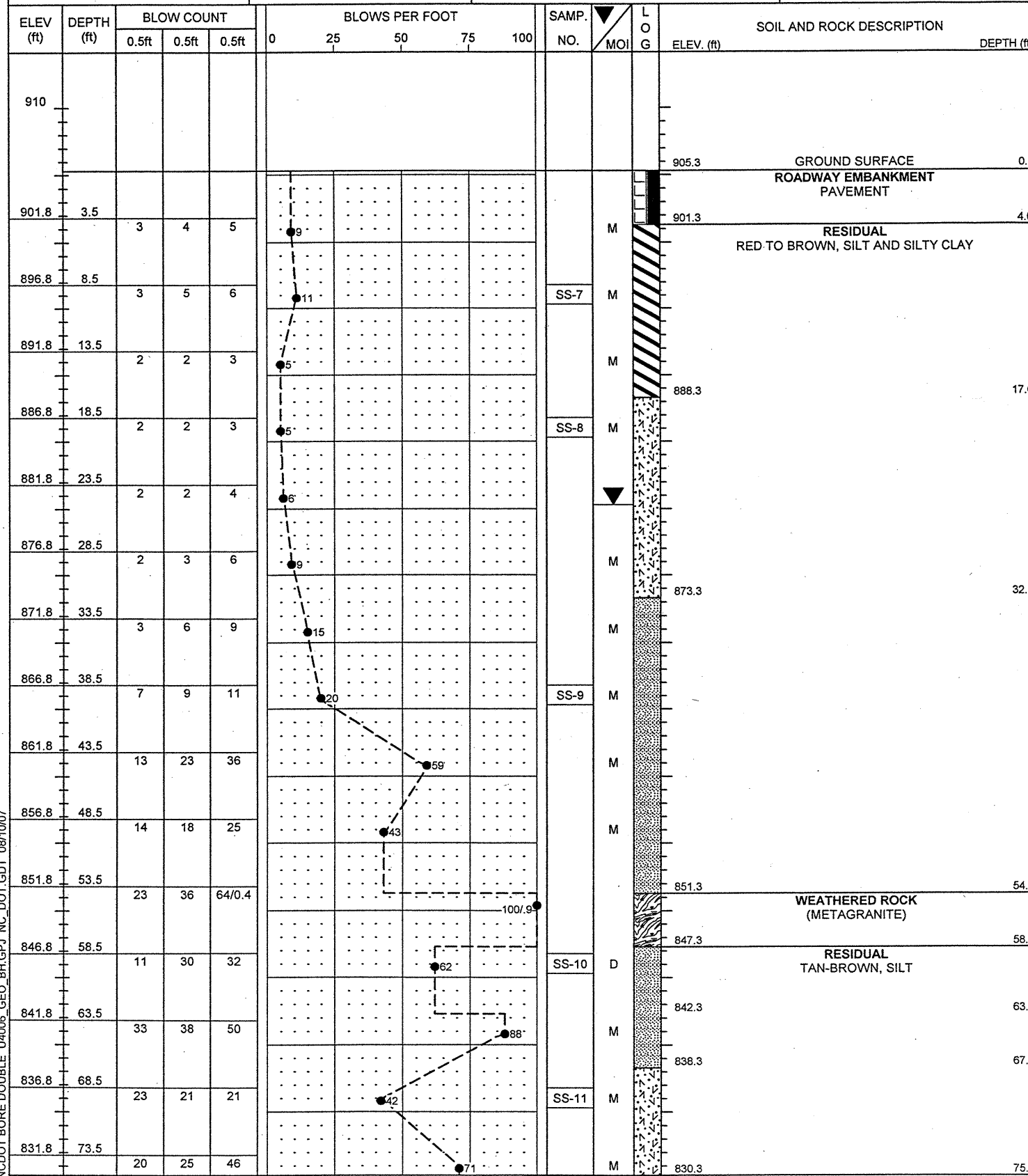
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100				
910													
905.6												GROUND SURFACE	0.0
902.1	3.5	4	3	3						SS-12	M	ROADWAY EMBANKMENT PAVEMENT	4.0
897.1	8.5	4	4	5							M	RESIDUAL RED TO BROWN, SILT AND SILTY CLAY	
892.1	13.5	2	2	4							M		
887.1	18.5	1	3	3						SS-13	W		
882.1	23.5	2	2	4							W		
877.1	28.5	2	3	7							W		
872.1	33.5	3	4	9						SS-14	M		
867.1	38.5	8	13	24							M		
862.1	43.5	5	11	20							M		
857.1	48.5	18	31	54						SS-15	M		
852.1	53.5	12	23	35							M		
847.1	58.5	26	31	50							M		
842.1	63.5	9	14	18						SS-16	M		
837.1	68.5	14	11	18							M		
832.1	73.5	11	17	26							M		

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				
830													
829.6												WEATHERED ROCK (METAGRANITE)	76.0
827.1	78.5	100	0	3									
822.1	83.5	60	0	2								Boring Terminated at Elevation 821.9 ft in Weathered Rock (Metagranite)	83.7

NCDOT BORE DOUBLE U4006 GEO_BH.GPJ NC_DOT_GDT_08/10/07

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-C	STATION 20+97	OFFSET 8ft LT	ALIGNMENT -L-
COLLAR ELEV. 905.3 ft	TOTAL DEPTH 75.0 ft	NORTHING 842,221	EASTING 1,733,145
DRILL MACHINE Mobile B-57	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 05/23/07	COMP. DATE 05/24/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-C	STATION 20+97	OFFSET 8ft LT	ALIGNMENT -L-
COLLAR ELEV. 905.3 ft	TOTAL DEPTH 75.0 ft	NORTHING 842,221	EASTING 1,733,145
DRILL MACHINE Mobile B-57	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 05/23/07	COMP. DATE 05/24/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



NCDOT BORE DOUBLE UA006 GEO. BH.GPJ NC DOT.GDT 08/10/07

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-B	STATION 20+97	OFFSET 42ft RT	ALIGNMENT -L-
COLLAR ELEV. 905.0 ft	TOTAL DEPTH 82.3 ft	NORTHING 842,203	EASTING 1,733,191
DRILL MACHINE Mobile B-57	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 06/07/07	COMP. DATE 06/12/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 60.3 ft

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. B1-B	STATION 20+97	OFFSET 42ft RT	ALIGNMENT -L-
COLLAR ELEV. 905.0 ft	TOTAL DEPTH 82.3 ft	NORTHING 842,203	EASTING 1,733,191
DRILL MACHINE Mobile B-57	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
START DATE 06/07/07	COMP. DATE 06/12/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 60.3 ft

ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100					
905													GROUND SURFACE	0.0
901.5	3.5												ROADWAY EMBANKMENT PAVEMENT	4.0
896.5	8.5	5	3	4									RESIDUAL RED TO BROWN, SILT	
891.5	13.5	2	3	3										
886.5	18.5	2	3	4										
881.5	23.5	1	3	6										
876.5	28.5	4	6	8										
871.5	33.5	6	10	17										
866.5	38.5	5	10	13										
861.5	43.5	11	29	51										
856.5	48.5	27	32	68/0.4									WEATHERED ROCK (METAGRANITE)	44.0
852.7	52.3	16	84/0.4									WEATHERED ROCK (METAGRANITE)	49.4	
847.7	57.3	10	11	84									WEATHERED ROCK (METAGRANITE)	51.5
		52	48/0.3									RESIDUAL RED TO BROWN, SILT	54.0	
													WEATHERED ROCK (METAGRANITE)	60.3
													CRYSTALLINE ROCK (METAGRANITE)	63.8
													WEATHERED ROCK (METAGRANITE)	66.0
													CRYSTALLINE ROCK (METAGRANITE)	66.6
													WEATHERED ROCK (METAGRANITE)	74.0
													CRYSTALLINE ROCK (METAGRANITE)	

ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100					
825													Match Line	
													CRYSTALLINE ROCK (METAGRANITE) (continued)	82.3
													Boring Terminated at Elevation 822.7 ft in Crystalline Rock (Metagranite)	

NCDOT BORE DOUBLE U4006_GEO_BH.GPJ_NC_DOT.GDT 08/10/07



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. EB2-B	STATION 21+94	OFFSET 47ft RT	ALIGNMENT -L-
COLLAR ELEV. 900.7 ft	TOTAL DEPTH 74.2 ft	NORTHING 842,287	EASTING 1,733,234
DRILL MACHINE Mobile B-57	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 05/28/07	COMP. DATE 05/28/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 35007.1.1	ID. U-4006	COUNTY GUILFORD	GEOLOGIST P. WEAVER
SITE DESCRIPTION STRUCTURES 1 & 2 ON SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) OVER I-40			GROUND WTR (ft)
BORING NO. EB2-B	STATION 21+94	OFFSET 47ft RT	ALIGNMENT -L-
COLLAR ELEV. 900.7 ft	TOTAL DEPTH 74.2 ft	NORTHING 842,287	EASTING 1,733,234
DRILL MACHINE Mobile B-57	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 05/28/07	COMP. DATE 05/28/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

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				
905													
897.2	3.5	3	3	5						SS-21	D	RESIDUAL RED TO BROWN, SILT AND SILTY CLAY	
892.2	8.5	3	3	4							M		
887.2	13.5	2	2	3							M		
882.2	18.5	2	2	4						SS-22			
877.2	23.5	2	3	3							M		
872.2	28.5	2	6	5							M		
867.2	33.5	4	6	10						SS-23	M		
862.2	38.5	3	6	10							M		
857.2	43.5	7	12	23							M		
852.2	48.5	5	9	10							M		
847.2	53.5	4	8	19						SS-24	M		
842.2	58.5	13	29	39							D		
837.2	63.5	23	71	29/0.1								WEATHERED ROCK (METAGRANITE)	64.0
832.2	68.5	20	32	34						SS-25	D	RESIDUAL TAN-BROWN, SILT	70.5
827.2	73.5	66	34/0.2									WEATHERED ROCK (METAGRANITE)	74.2

ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	25	50	75	100				
825												Match Line	
												Weathered Rock (Metagranite)	

NCDOT BORE DOUBLE U4006 GEO.BH.GPJ NC.DOT.GDT 08/10/07

Boring Terminated at Elevation 826.5 ft in

EB1-A

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	47 LT	20+17	3.5-5.0	A-7-5(22)	67	18	3.9	20.5	45.3	30.4	100	99	85	-	-
SS-2	47 LT	20+17	13.5-15.0	A-7-5(23)	66	23	2.4	31.2	48.1	18.2	100	99	80	-	-
SS-3	47 LT	20+17	33.5-35.0	A-5(5)	42	6	5.3	34.9	47.7	12.2	100	99	72	-	-
SS-4	47 LT	20+17	53.5-55.0	A-4(0)	34	NP	20.9	36.3	32.7	10.1	100	90	53	-	-

EB1-B

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-5	47 RT	20+07	34.0-35.0	A-2-4(0)	33	NP	28.8	40.9	10.0	20.3	89	76	34	-	-
SS-6	47 RT	20+07	58.5-60.0	A-4(0)	32	NP	14.8	36.5	40.6	8.1	97	88	59	-	-

BL-A

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-12	41 LT	20+97	4.0-5.0	A-7-5(17)	59	15	5.7	17.2	46.7	30.4	94	91	80	-	-
SS-13	41 LT	20+97	18.5-20.0	A-4(0)	33	NP	21.1	40.3	30.5	8.1	100	90	50	-	-
SS-14	41 LT	20+97	33.5-35.0	A-5(12)	56	10	3.0	30.6	46.1	20.3	100	99	78	-	-
SS-15	41 LT	20+97	48.5-50.0	A-5(7)	46	7	3.0	36.9	47.9	12.2	100	99	75	-	-
SS-16	41 LT	20+97	63.5-65.0	A-4(0)	34	NP	13.6	41.3	35.0	10.1	100	94	57	-	-

BL-C

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	8 LT	20+97	8.5-10.0	A-7-5(21)	60	16	1.6	14.6	49.3	34.4	100	100	90	-	-
SS-8	8 LT	20+97	18.5-20.0	A-5(12)	55	9	4.5	26.5	52.8	16.2	100	98	81	-	-
SS-9	8 LT	20+97	38.5-40.0	A-4(3)	34	6	8.7	37.5	45.7	8.1	100	97	67	-	-
SS-10	8 LT	20+97	58.5-60.0	A-4(0)	30	4	18.6	44.4	30.9	6.1	100	93	47	-	-
SS-11	8 LT	20+97	68.5-70.0	A-5(7)	42	9	8.7	31.8	47.3	12.2	100	97	70	-	-

BL-B

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-17	42 RT	20+97	4.0-5.0	A-5(13)	45	9	0.4	5.9	65.3	28.4	100	100	97	-	-
SS-18	42 RT	20+97	23.5-25.0	A-4(3)	38	3	8.1	29.4	52.4	10.1	100	95	73	-	-
SS-19	42 RT	20+97	38.5-40.0	A-4(0)	31	NP	9.1	34.4	46.3	10.1	100	95	69	-	-
SS-20	42 RT	20+97	52.3-53.8	A-4(0)	28	NP	15.8	36.3	39.8	8.1	99	90	58	-	-

EB2-A

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-26	47 LT	22+06	3.5-5.0	A-7-5(15)	57	12	2.0	28.2	53.6	16.2	100	99	84	-	-
SS-27	47 LT	22+06	18.5-20.0	A-7-5(22)	69	13	0.8	19.7	57.2	22.3	100	100	91	-	-
SS-28	47 LT	22+06	33.5-35.0	A-5(7)	44	8	7.1	33.6	47.1	12.2	99	96	72	-	-
SS-29	47 LT	22+06	43.5-45.0	A-5(8)	43	9	3.0	38.7	48.1	10.1	100	100	73	-	-

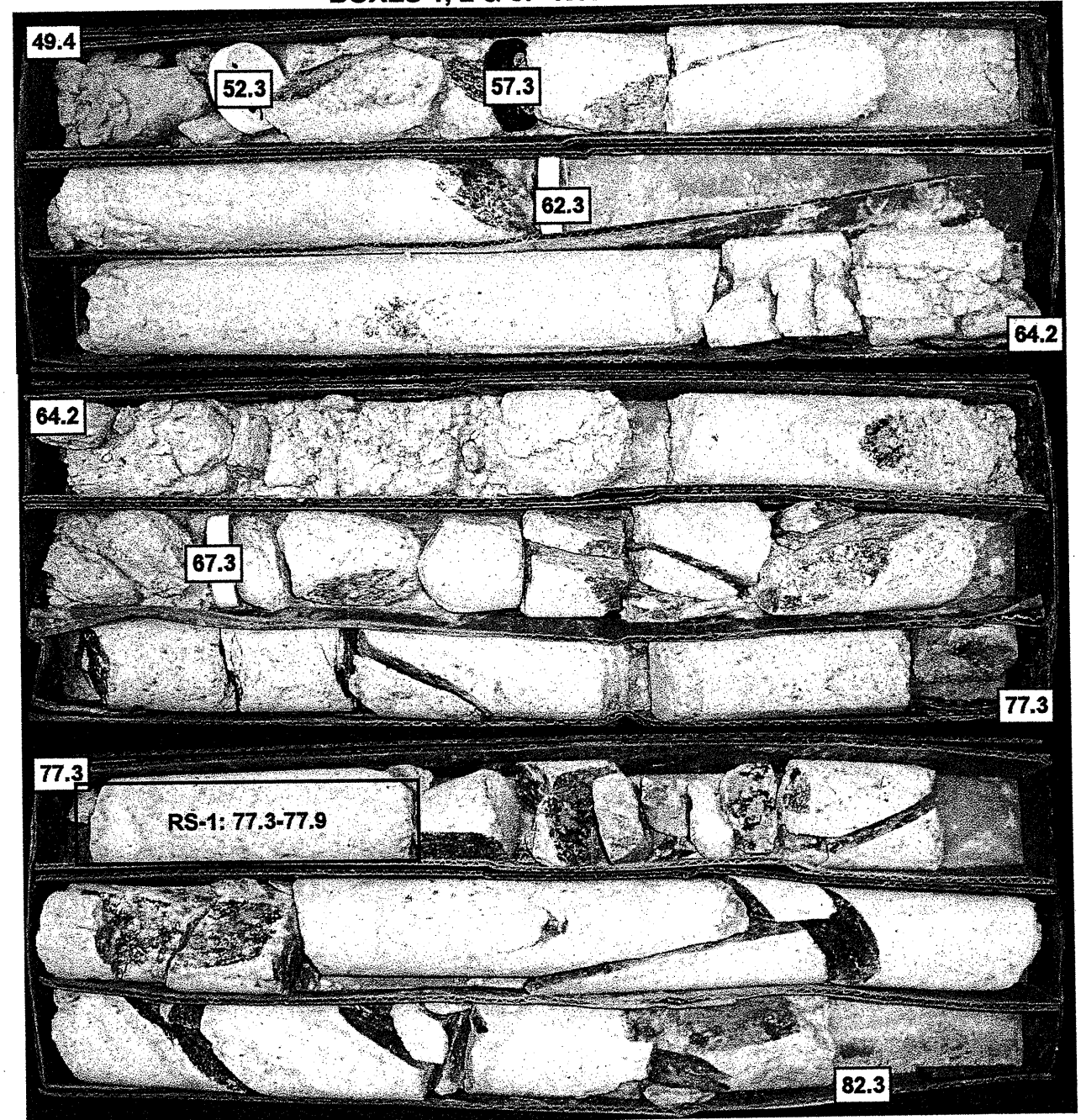
EB2-B

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-21	47 RT	21+94	3.5-5.0	A-7-5(20)	64	15	3.4	19.9	44.3	32.4	100	99	86	-	-
SS-22	47 RT	21+94	18.5-20.0	A-5(7)	45	6	3.4	34.4	49.9	12.2	100	99	75	-	-
SS-23	47 RT	21+94	33.5-35.0	A-4(1)	34	NP	5.7	36.3	47.9	10.1	100	98	71	-	-
SS-24	47 RT	21+94	53.5-55.0	A-4(7)	37	9	8.3	26.1	51.4	14.2	99	95	74	-	-
SS-25	47 RT	21+94	68.5-70.0	A-4(4)	35	6	10.7	34.7	44.5	10.1	100	94	67	-	-

CORE PHOTOGRAPHS

B1-B

BOXES 1, 2 & 3: 49.4 - 82.3 FEET



0 1 2
FEET

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

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN AND PROFILE RET. WALL 1 & 2
4	SITE PLAN AND PROFILE RET. WALL 3

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35007.1.1 (U-4006) F.A. PROJ. STP-4126(1)

COUNTY GUILFORD

PROJECT DESCRIPTION GREENSBORO SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) FROM SR 1541 WENDOVER AV.) AT HORNADAY RD., TO SR 1607 (BURNT POPLAR RD.) AT SWING RD.

SITE DESCRIPTION RETAINING WALL 1 LEFT OF -L- STATION 17+00
RETAINING WALL 2 RIGHT OF -L- STATION 17+00
RETAINING WALL 3 LEFT OF -Y4- STATION 17+00

WALL INVENTORY

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PERSONNEL

N.D. MOHS

L.W. DAIL

R.E. SMITH

W.N. CHERRY

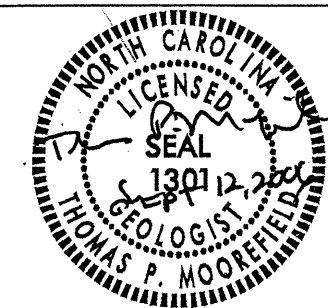
J. WHITE

INVESTIGATED BY T.P. MOOREFIELD

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE SEPTEMBER 2006



PROJECT: 35007.1.1
ID: U-4006

DRAWN BY: T.T. WALKER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

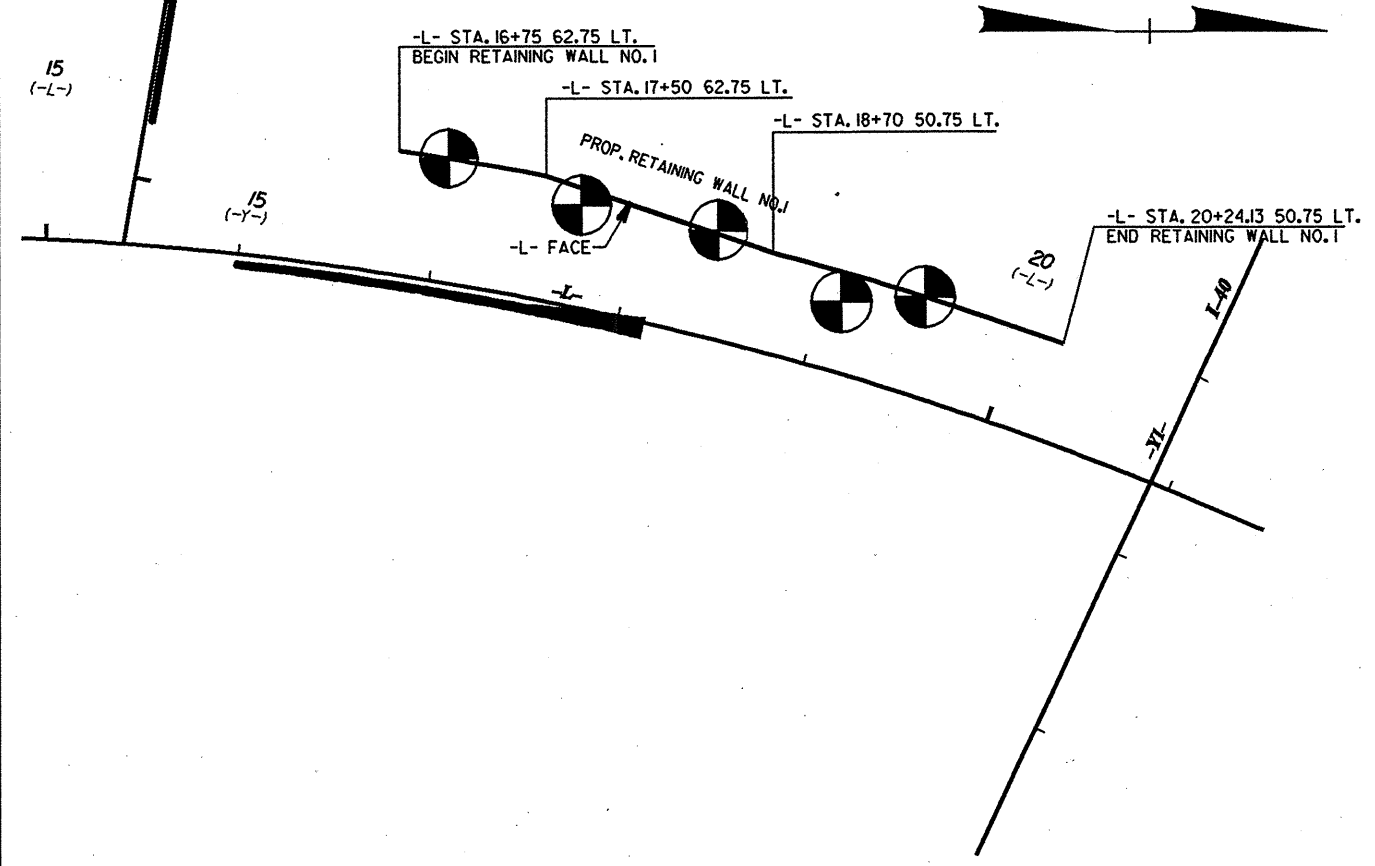
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

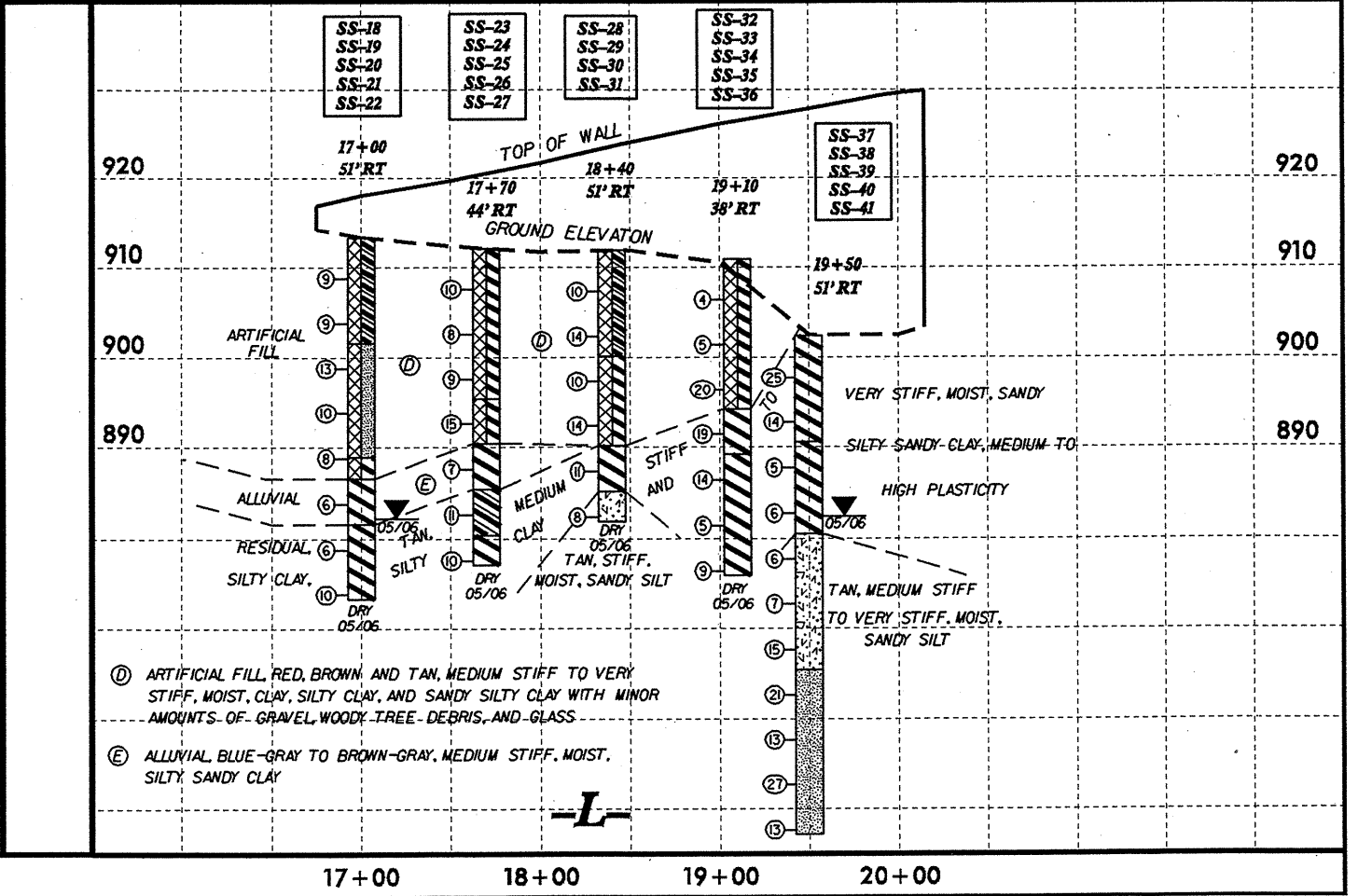
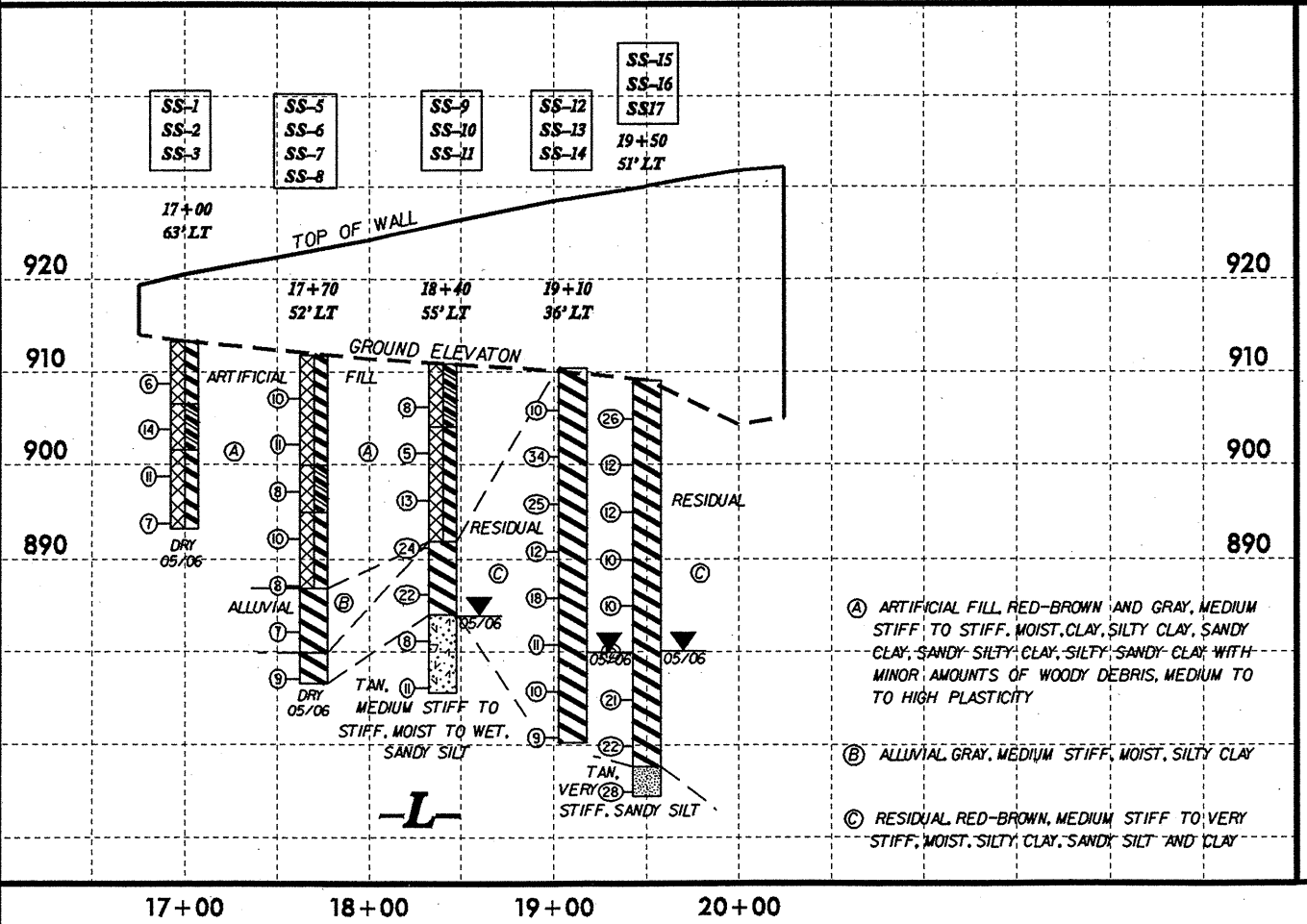
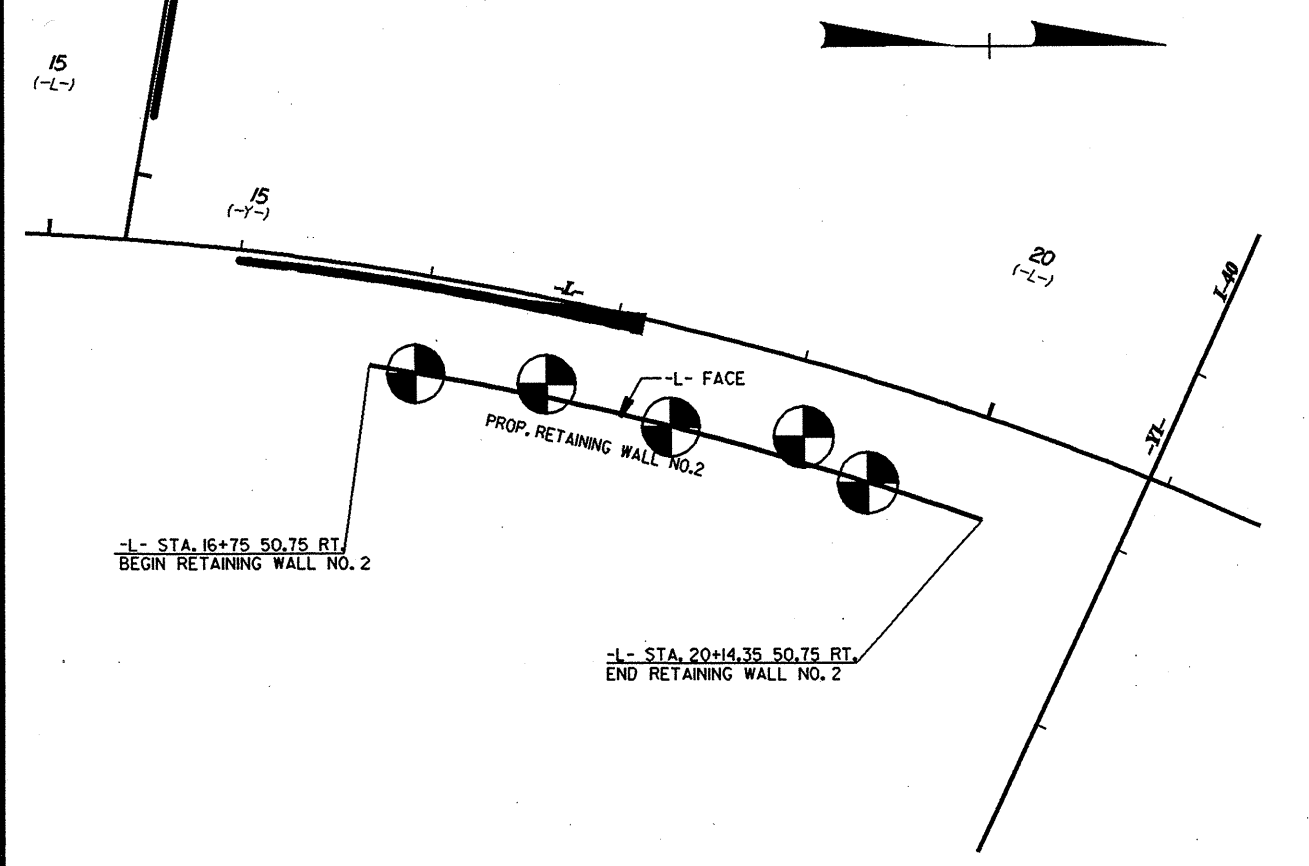
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS																																																																																																																																																																																																																																																																																																																																														
<p>SOIL IS CONSIDERED TO BE THE 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 STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:</p> <p style="text-align: center;"><i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, MEDIUM PLASTIC, A-7-6</i></p>	<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>	<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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:</p>	<p>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, 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. FALLT - 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 (MOTJ.) - 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 (ROD) - 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.</p>																																																																																																																																																																																																																																																																																																																																														
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="7">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="7">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th><th>A-3</th><th colspan="2">A-2</th><th>A-4</th><th>A-5</th><th>A-7</th> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</th><th>A-6, A-7</th> <th>A-4</th><th>A-5</th><th>A-6</th><th>A-7</th> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</th><th>A-6, A-7</th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1-a</td><td>A-1-b</td><td>A-2-4</td><td>A-2-5</td><td>A-2-6</td><td>A-2-7</td><td>A-4</td><td>A-5</td><td>A-6</td><td>A-7</td> <td>A-1, A-2</td><td>A-3</td><td>A-4, A-5</td><td>A-6, A-7</td> <td>A-4</td><td>A-5</td><td>A-6</td><td>A-7</td> </tr> <tr> <td>SYMBOL</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>% PASSING</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> <td>10 30 40 200</td> </tr> <tr> <td>LIQUID LIMIT</td> <td>6 MX</td> <td>NP</td> <td>40 MX</td><td>41 MN</td><td>40 MX</td><td>41 MN</td><td>40 MX</td><td>41 MN</td><td>40 MX</td><td>41 MN</td> <td>40 MX</td><td>41 MN</td><td>40 MX</td><td>41 MN</td> <td>40 MX</td><td>41 MN</td><td>40 MX</td><td>41 MN</td> </tr> <tr> <td>PLASTIC INDEX</td> <td>0</td><td>0</td><td>0</td><td>4 MX</td><td>8 MX</td><td>12 MX</td><td>16 MX</td><td>10 MX</td><td>11 MN</td><td>11 MN</td> <td>11 MN</td><td>11 MN</td><td>11 MN</td><td>11 MN</td> <td>11 MN</td><td>11 MN</td><td>11 MN</td><td>11 MN</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td><td>0</td><td>0</td><td>4 MX</td><td>8 MX</td><td>12 MX</td><td>16 MX</td><td>10 MX</td><td>11 MN</td><td>11 MN</td> <td>11 MN</td><td>11 MN</td><td>11 MN</td><td>11 MN</td> <td>11 MN</td><td>11 MN</td><td>11 MN</td><td>11 MN</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS. GRAVEL AND SAND</td> <td>FINE SAND</td> <td>SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS</td> <td>CLAYEY SOILS</td> <td colspan="3">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="3">HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td colspan="3">EXCELLENT TO GOOD</td> <td colspan="3">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td colspan="3">UNSUITABLE</td> </tr> <tr> <td colspan="19">PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30</td> </tr> </table>	GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS			A-1	A-3	A-2		A-4	A-5	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-4	A-5	A-6	A-7	SYMBOL																			% PASSING	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	LIQUID LIMIT	6 MX	NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	PLASTIC INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	10 MX	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	10 MX	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER			HIGHLY ORGANIC SOILS			GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD			FAIR TO POOR			FAIR TO POOR	POOR	UNSUITABLE			PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30																			<p style="text-align: center;">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p> <p style="text-align: center;">COMPRESSIBILITY</p> <p>SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50</p> <p style="text-align: center;">PERCENTAGE OF MATERIAL</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>>10%</td> <td>>20%</td> <td>HIGHLY</td> </tr> <tr> <td></td> <td></td> <td></td> <td>35% AND ABOVE</td> </tr> </table> <p style="text-align: center;">GROUND WATER</p> <p> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p> <p> STATIC WATER LEVEL AFTER 24 HOURS</p> <p> PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p> <p> SPRING OR SEEP</p> <p style="text-align: center;">MISCELLANEOUS SYMBOLS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">ABBREVIATIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AR - AUGER REFUSAL</td> <td>HI. - HIGHLY</td> <td>W - MOISTURE CONTENT</td> </tr> <tr> <td>BT - BORING TERMINATED</td> <td>MD. - MEDIUM</td> <td>V - VERY</td> </tr> <tr> <td>CL. - CLAY</td> <td>MICA. - MICACEOUS</td> <td>VST - VANE SHEAR TEST</td> </tr> <tr> <td>CPT - CONE PENETRATION TEST</td> <td>MOD. - MODERATELY</td> <td>WEA. - WEATHERED</td> </tr> <tr> <td>CSE. - COARSE</td> <td>NP - NON PLASTIC</td> <td>W - UNIT WEIGHT</td> </tr> <tr> <td>DMT - DILATOMETER TEST</td> <td>ORG. - ORGANIC</td> <td>W_d - DRY UNIT WEIGHT</td> </tr> <tr> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>PMT - PRESSUREMETER TEST</td> <td></td> </tr> <tr> <td>e - VOID RATIO</td> <td>SAP. - SAPROLITIC</td> <td></td> </tr> <tr> <td>F - FINE</td> <td>SD. - SAND, SANDY</td> <td></td> </tr> <tr> <td>FOSS. - FOSSILIFEROUS</td> <td>SL. - SILT, SILTY</td> <td></td> </tr> <tr> <td>FRAC. - FRACTURED, FRACTURES</td> <td>SLI. - SLIGHTLY</td> <td></td> </tr> <tr> <td>FRAGS. - FRAGMENTS</td> <td>TCR - TRICONE REFUSAL</td> <td></td> </tr> </table>	ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	>10%	>20%	HIGHLY				35% AND ABOVE																									AR - AUGER REFUSAL	HI. - HIGHLY	W - MOISTURE CONTENT	BT - BORING TERMINATED	MD. - MEDIUM	V - VERY	CL. - CLAY	MICA. - MICACEOUS	VST - VANE SHEAR TEST	CPT - CONE PENETRATION TEST	MOD. - MODERATELY	WEA. - WEATHERED	CSE. - COARSE	NP - NON PLASTIC	W - UNIT WEIGHT	DMT - DILATOMETER TEST	ORG. - ORGANIC	W _d - DRY UNIT WEIGHT	DPT - DYNAMIC PENETRATION TEST	PMT - PRESSUREMETER TEST		e - VOID RATIO	SAP. - SAPROLITIC		F - FINE	SD. - SAND, SANDY		FOSS. - FOSSILIFEROUS	SL. - SILT, SILTY		FRAC. - FRACTURED, FRACTURES	SLI. - SLIGHTLY		FRAGS. - FRAGMENTS	TCR - TRICONE REFUSAL		<p style="text-align: center;">ROCK HARDNESS</p> <p>VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</p> <p>HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</p> <p>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.</p> <p>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.</p> <p>SOFT CAN BE GROVED 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.</p> <p>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 FINGERNAIL.</p> <p style="text-align: center;">ROCK HARDNESS</p> <p>VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</p> <p>HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</p> <p>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.</p> <p>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.</p> <p>SOFT CAN BE GROVED 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.</p> <p>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 FINGERNAIL.</p>	<p style="text-align: center;">TEXTURE OR GRAIN SIZE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th><th>10</th><th>40</th><th>60</th><th>200</th><th>270</th> </tr> <tr> <td></td> <td>4.75</td><td>2.00</td><td>0.42</td><td>0.25</td><td>0.075</td><td>0.053</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>BOULDER (BLDR.)</th> <th>COBBLE (COB.)</th> <th>GRAVEL (GR.)</th> <th>COARSE SAND (CSE. SD.)</th> <th>FINE SAND (F. SD.)</th> <th>SILT (SL.)</th> <th>CLAY (CL.)</th> </tr> <tr> <td>GRAIN SIZE</td> <td>MM 305 IN. 12</td> <td>75 3</td> <td>2.0</td> <td>0.25</td> <td>0.05</td> <td>0.005</td> </tr> </table> <p style="text-align: center;">SOIL MOISTURE - CORRELATION OF TERMS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> <tr> <td rowspan="2">LL PLASTIC RANGE (PI) PL</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td rowspan="2">OM SHRINKAGE LIMIT SL</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </table> <p style="text-align: center;">PLASTICITY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NONPLASTIC</th> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> <tr> <td>LOW PLASTICITY</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>MED. PLASTICITY</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>HIGH PLASTICITY</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td></td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </table> <p style="text-align: center;">COLOR</p> <p>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.</p>	U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270		4.75	2.00	0.42	0.25	0.075	0.053	BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F. SD.)	SILT (SL.)	CLAY (CL.)	GRAIN SIZE	MM 305 IN. 12	75 3	2.0	0.25	0.05	0.005	SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION	LL PLASTIC RANGE (PI) PL	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	OM SHRINKAGE LIMIT SL	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH	LOW PLASTICITY	0-5	VERY LOW	MED. PLASTICITY	6-15	SLIGHT	HIGH PLASTICITY	16-25	MEDIUM		26 OR MORE	HIGH
GENERAL CLASS.		GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS																																																																																																																																																																																																																																																																																																																																	
	A-1	A-3	A-2		A-4	A-5	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7																																																																																																																																																																																																																																																																																																																														
GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-4	A-5	A-6	A-7																																																																																																																																																																																																																																																																																																																															
SYMBOL																																																																																																																																																																																																																																																																																																																																																	
% PASSING	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200	10 30 40 200																																																																																																																																																																																																																																																																																																																															
LIQUID LIMIT	6 MX	NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN																																																																																																																																																																																																																																																																																																																															
PLASTIC INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	10 MX	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN																																																																																																																																																																																																																																																																																																																															
GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	10 MX	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN	11 MN																																																																																																																																																																																																																																																																																																																															
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER			HIGHLY ORGANIC SOILS																																																																																																																																																																																																																																																																																																																																								
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD			FAIR TO POOR			FAIR TO POOR	POOR	UNSUITABLE																																																																																																																																																																																																																																																																																																																																								
PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30																																																																																																																																																																																																																																																																																																																																																	
ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL																																																																																																																																																																																																																																																																																																																																														
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE																																																																																																																																																																																																																																																																																																																																														
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE																																																																																																																																																																																																																																																																																																																																														
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME																																																																																																																																																																																																																																																																																																																																														
HIGHLY ORGANIC	>10%	>20%	HIGHLY																																																																																																																																																																																																																																																																																																																																														
			35% AND ABOVE																																																																																																																																																																																																																																																																																																																																														
AR - AUGER REFUSAL	HI. - HIGHLY	W - MOISTURE CONTENT																																																																																																																																																																																																																																																																																																																																															
BT - BORING TERMINATED	MD. - MEDIUM	V - VERY																																																																																																																																																																																																																																																																																																																																															
CL. - CLAY	MICA. - MICACEOUS	VST - VANE SHEAR TEST																																																																																																																																																																																																																																																																																																																																															
CPT - CONE PENETRATION TEST	MOD. - MODERATELY	WEA. - WEATHERED																																																																																																																																																																																																																																																																																																																																															
CSE. - COARSE	NP - NON PLASTIC	W - UNIT WEIGHT																																																																																																																																																																																																																																																																																																																																															
DMT - DILATOMETER TEST	ORG. - ORGANIC	W _d - DRY UNIT WEIGHT																																																																																																																																																																																																																																																																																																																																															
DPT - DYNAMIC PENETRATION TEST	PMT - PRESSUREMETER TEST																																																																																																																																																																																																																																																																																																																																																
e - VOID RATIO	SAP. - SAPROLITIC																																																																																																																																																																																																																																																																																																																																																
F - FINE	SD. - SAND, SANDY																																																																																																																																																																																																																																																																																																																																																
FOSS. - FOSSILIFEROUS	SL. - SILT, SILTY																																																																																																																																																																																																																																																																																																																																																
FRAC. - FRACTURED, FRACTURES	SLI. - SLIGHTLY																																																																																																																																																																																																																																																																																																																																																
FRAGS. - FRAGMENTS	TCR - TRICONE REFUSAL																																																																																																																																																																																																																																																																																																																																																
U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270																																																																																																																																																																																																																																																																																																																																											
	4.75	2.00	0.42	0.25	0.075	0.053																																																																																																																																																																																																																																																																																																																																											
BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F. SD.)	SILT (SL.)	CLAY (CL.)																																																																																																																																																																																																																																																																																																																																											
GRAIN SIZE	MM 305 IN. 12	75 3	2.0	0.25	0.05	0.005																																																																																																																																																																																																																																																																																																																																											
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION																																																																																																																																																																																																																																																																																																																																															
LL PLASTIC RANGE (PI) PL	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE																																																																																																																																																																																																																																																																																																																																															
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE																																																																																																																																																																																																																																																																																																																																															
OM SHRINKAGE LIMIT SL	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE																																																																																																																																																																																																																																																																																																																																															
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE																																																																																																																																																																																																																																																																																																																																															
NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH																																																																																																																																																																																																																																																																																																																																															
LOW PLASTICITY	0-5	VERY LOW																																																																																																																																																																																																																																																																																																																																															
MED. PLASTICITY	6-15	SLIGHT																																																																																																																																																																																																																																																																																																																																															
HIGH PLASTICITY	16-25	MEDIUM																																																																																																																																																																																																																																																																																																																																															
	26 OR MORE	HIGH																																																																																																																																																																																																																																																																																																																																															
<p style="text-align: center;">EQUIPMENT USED ON SUBJECT PROJECT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td> <p>DRILL UNITS:</p> <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> CME-45B </td> <td> <p>ADVANCING TOOLS:</p> <input type="checkbox"/> CLAY BITS <input checked="" type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____ * STEEL TEETH <input type="checkbox"/> TRICONE _____ * TUNG-CARB. <input type="checkbox"/> CORE BIT </td> <td> <p>HAMMER TYPE:</p> <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL <p>CORE SIZE:</p> <input type="checkbox"/> B _____ <input type="checkbox"/> N _____ <input type="checkbox"/> H _____ <p>HAND TOOLS:</p> <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST </td> </tr> </table>		<p>DRILL UNITS:</p> <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> CME-45B	<p>ADVANCING TOOLS:</p> <input type="checkbox"/> CLAY BITS <input checked="" type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____ * STEEL TEETH <input type="checkbox"/> TRICONE _____ * TUNG-CARB. <input type="checkbox"/> CORE BIT	<p>HAMMER TYPE:</p> <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL <p>CORE SIZE:</p> <input type="checkbox"/> B _____ <input type="checkbox"/> N _____ <input type="checkbox"/> H _____ <p>HAND TOOLS:</p> <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST	<p style="text-align: center;">FRACTURE SPACING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 18 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 18 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.6 TO 1 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.6 FEET</td> </tr> </table> <p style="text-align: center;">BEDDING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY THICKLY BEDDED</td> <td>> 4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </table> <p style="text-align: center;">INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table>	TERM	SPACING	VERY WIDE	MORE THAN 18 FEET	WIDE	3 TO 18 FEET	MODERATELY CLOSE	1 TO 3 FEET	CLOSE	0.6 TO 1 FEET	VERY CLOSE	LESS THAN 0.6 FEET	TERM	THICKNESS	VERY THICKLY BEDDED	> 4 FEET	THICKLY BEDDED	1.5 - 4 FEET	THINLY BEDDED	0.16 - 1.5 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET	THINLY LAMINATED	< 0.008 FEET	FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.																																																																																																																																																																																																																																																																																																										
<p>DRILL UNITS:</p> <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST <input checked="" type="checkbox"/> CME-45B	<p>ADVANCING TOOLS:</p> <input type="checkbox"/> CLAY BITS <input checked="" type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____ * STEEL TEETH <input type="checkbox"/> TRICONE _____ * TUNG-CARB. <input type="checkbox"/> CORE BIT	<p>HAMMER TYPE:</p> <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL <p>CORE SIZE:</p> <input type="checkbox"/> B _____ <input type="checkbox"/> N _____ <input type="checkbox"/> H _____ <p>HAND TOOLS:</p> <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST																																																																																																																																																																																																																																																																																																																																															
TERM	SPACING																																																																																																																																																																																																																																																																																																																																																
VERY WIDE	MORE THAN 18 FEET																																																																																																																																																																																																																																																																																																																																																
WIDE	3 TO 18 FEET																																																																																																																																																																																																																																																																																																																																																
MODERATELY CLOSE	1 TO 3 FEET																																																																																																																																																																																																																																																																																																																																																
CLOSE	0.6 TO 1 FEET																																																																																																																																																																																																																																																																																																																																																
VERY CLOSE	LESS THAN 0.6 FEET																																																																																																																																																																																																																																																																																																																																																
TERM	THICKNESS																																																																																																																																																																																																																																																																																																																																																
VERY THICKLY BEDDED	> 4 FEET																																																																																																																																																																																																																																																																																																																																																
THICKLY BEDDED	1.5 - 4 FEET																																																																																																																																																																																																																																																																																																																																																
THINLY BEDDED	0.16 - 1.5 FEET																																																																																																																																																																																																																																																																																																																																																
VERY THINLY BEDDED	0.03 - 0.16 FEET																																																																																																																																																																																																																																																																																																																																																
THICKLY LAMINATED	0.008 - 0.03 FEET																																																																																																																																																																																																																																																																																																																																																
THINLY LAMINATED	< 0.008 FEET																																																																																																																																																																																																																																																																																																																																																
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.																																																																																																																																																																																																																																																																																																																																																
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.																																																																																																																																																																																																																																																																																																																																																
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.																																																																																																																																																																																																																																																																																																																																																
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.																																																																																																																																																																																																																																																																																																																																																
<p style="text-align: center;">INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>FRIABLE</td> <td>RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</td> </tr> <tr> <td>MODERATELY INDURATED</td> <td>GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</td> </tr> <tr> <td>INDURATED</td> <td>GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</td> </tr> <tr> <td>EXTREMELY INDURATED</td> <td>SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</td> </tr> </table>		FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	<p style="text-align: center;">BENCH MARK:</p> <p style="text-align: right;">ELEVATION: _____ FT.</p> <p>NOTES:</p>																																																																																																																																																																																																																																																																																																																																							
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.																																																																																																																																																																																																																																																																																																																																																
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.																																																																																																																																																																																																																																																																																																																																																
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.																																																																																																																																																																																																																																																																																																																																																
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.																																																																																																																																																																																																																																																																																																																																																

RETAINING WALL NO. 1



RETAINING WALL NO. 2



RETAINING WALL NO.1

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	63' LT	17+00	3.6-5.1	A-7-5(29)	65	28	4.9	11.0	33.4	50.8	98	95	86	-	-
SS-2	63' LT	17+00	8.6-10.1	A-6(3)	33	11	16.2	21.1	20.0	42.6	79	71	53	-	-
SS-3	63' LT	17+00	13.6-15.1	A-7-5(20)	60	18	6.5	14.4	36.4	42.6	98	82	83	-	-
SS-4	63' LT	17+00	18.6-20.1	A-7-6(23)	57	28	8.7	15.0	17.4	58.9	95	90	76	-	-
SS-5	52' LT	17+70	8.7-10.2	A-7-5(29)	64	34	7.5	13.8	13.7	65.0	97	93	79	-	-
SS-6	52' LT	17+70	13.7-15.2	A-6(4)	34	13	18.5	22.7	20.2	38.6	84	74	54	-	-
SS-7	52' LT	17+70	18.7-20.2	A-7-5(20)	60	30	9.5	12.4	19.2	58.9	82	77	66	-	-
SS-8	52' LT	17+70	28.7-30.2	A-7-5(19)	55	18	2.8	27.2	47.6	22.3	100	99	83	-	-
SS-9	55' LT	18+40	8.7-10.2	A-7-5(32)	66	36	5.1	8.9	21.0	65.0	90	87	80	-	-
SS-10	55' LT	18+40	19.0-20.5	A-7-5(28)	70	35	6.6	13.7	17.4	62.3	89	85	74	-	-
SS-11	55' LT	18+40	28.7-30.2	A-5(9)	50	10	9.0	34.5	42.4	14.0	100	96	69	-	-
SS-12	36' LT	19+10	3.6-5.1	A-7-5(18)	59	16	4.9	18.1	40.5	36.5	95	92	81	-	-
SS-13	36' LT	19+10	8.6-10.1	A-7-5(35)	68	38	5.9	13.0	18.2	62.9	98	95	83	-	-
SS-14	36' LT	19+10	18.6-20.1	A-7-5(15)	54	14	3.0	32.1	46.6	18.3	100	99	80	-	-
SS-15	51' LT	19+50	3.2-4.7	A-7-5(43)	79	33	0.8	3.7	26.5	69.0	100	100	97	-	-
SS-16	51' LT	19+50	18.2-19.7	A-7-5(20)	63	23	3.7	35.3	46.8	14.2	100	99	75	-	-
SS-17	51' LT	19+50	43.2-44.7	A-4(1)	33	3	25.2	35.3	27.3	12.2	94	80	46	-	-

RETAINING WALL NO.2

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-18	51' RT	17+00	3.4-4.9	A-6(9)	39	16	13.2	19.1	21.0	46.7	90	83	65	-	-
SS-19	51' RT	17+00	13.4-14.9	A-4(2)	31	10	18.1	21.9	19.4	40.6	77	68	50	-	-
SS-20	51' RT	17+00	23.4-24.9	A-7-5(18)	53	19	7.5	13.4	42.5	36.5	96	91	81	-	-
SS-21	51' RT	17+00	28.4-29.9	A-7-5(7)	49	16	16.0	27.4	32.2	24.4	85	76	54	-	-
SS-22	51' RT	17+00	33.4-34.9	A-7-5(20)	57	23	4.1	31.3	50.5	14.2	100	98	77	-	-
SS-23	44' RT	17+70	3.4-4.9	A-7-6(9)	42	17	13.4	18.1	21.8	46.7	84	77	61	-	-
SS-24	44' RT	17+70	18.4-19.9	A-7-5(33)	70	34	3.7	8.5	18.8	69.0	92	90	83	-	-
SS-25	44' RT	17+70	23.4-24.9	A-7-6(16)	47	22	10.2	16.9	21.8	51.0	96	90	74	-	-
SS-26	44' RT	17+70	28.4-29.9	A-6(10)	40	18	13.1	25.5	22.7	38.8	96	90	65	-	-
SS-27	44' RT	17+70	33.4-34.9	A-7-5(12)	49	15	9.0	30.8	39.8	20.4	97	91	71	-	-
SS-28	51' RT	18+40	3.5-5.0	A-6(5)	34	13	17.1	21.0	16.9	44.9	88	79	58	-	-
SS-29	51' RT	18+40	13.5-15.0	A-7-5(24)	56	23	4.3	10.0	16.3	69.4	99	96	88	-	-
SS-30	51' RT	18+40	23.5-25.0	A-7-6(15)	49	23	12.4	23.7	21.0	42.9	95	88	67	-	-
SS-31	51' RT	18+40	28.5-30.0	A-5(7)	50	7	7.8	35.5	38.4	18.4	100	97	71	-	-
SS-32	38' RT	19+10	3.5-5.0	A-7-5(16)	57	15	9.4	14.7	31.0	44.9	99	94	81	-	-
SS-33	38' RT	19+10	8.5-10.0	A-7-5(22)	59	21	6.3	13.3	33.5	46.9	99	95	85	-	-
SS-34	38' RT	19+10	13.5-15.0	A-7-5(28)	60	26	3.9	9.6	19.2	67.3	99	97	89	-	-
SS-35	38' RT	19+10	18.5-20.0	A-7-6(21)	53	24	6.5	20.4	22.0	51.0	100	97	80	-	-
SS-36	38' RT	19+10	23.5-25.0	A-7-5(29)	67	26	4.9	12.9	29.2	53.1	100	97	87	-	-
SS-37	51' RT	19+50	3.7-5.2	A-7-6(20)	50	24	7.1	18.0	17.8	57.1	99	95	79	-	-
SS-38	51' RT	19+50	8.7-10.2	A-7-5(19)	61	19	9.0	16.1	21.8	53.1	99	95	79	-	-
SS-39	51' RT	19+50	13.7-15.2	A-7-5(22)	60	18	2.4	19.4	55.7	22.4	100	99	88	-	-
SS-40	51' RT	19+50	23.7-25.2	A-5(10)	50	7	3.5	26.9	47.1	22.4	100	99	82	-	-
SS-41	51' RT	19+50	38.7-40.2	A-4(4)	37	7	19.2	23.1	43.5	14.3	99	85	65	-	-

