

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514C	1	7

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
5-6	BORE LOGS
7	SOIL TEST RESULTS

PROJ. REFERENCE NO. 34442.1.4 (R-2514C) F.A. PROJ. NHF-17(7)
COUNTY JONES

PROJECT DESCRIPTION US 17 FROM NORTH OF MAYSVILLE TO SOUTH OF NC 58

SITE DESCRIPTION TEMPORARY SHORING AT DUAL BRIDGES OVER WILDLIFE CROSSING ON -L- (US 17 BYPASS) BETWEEN SR 1116 AND NC 58 AT -L- STA. 102+05.00

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. 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.

PROJECT: 34442.1.4 ID: R-2514C

PERSONNEL
R.E. SMITH

A.A. MOORE

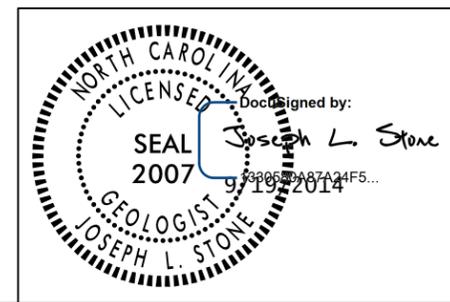
SUMMIT PERSONNEL

INVESTIGATED BY J.L. STONE

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE JULY 2014



DRAWN BY: C.P. TURNER

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.

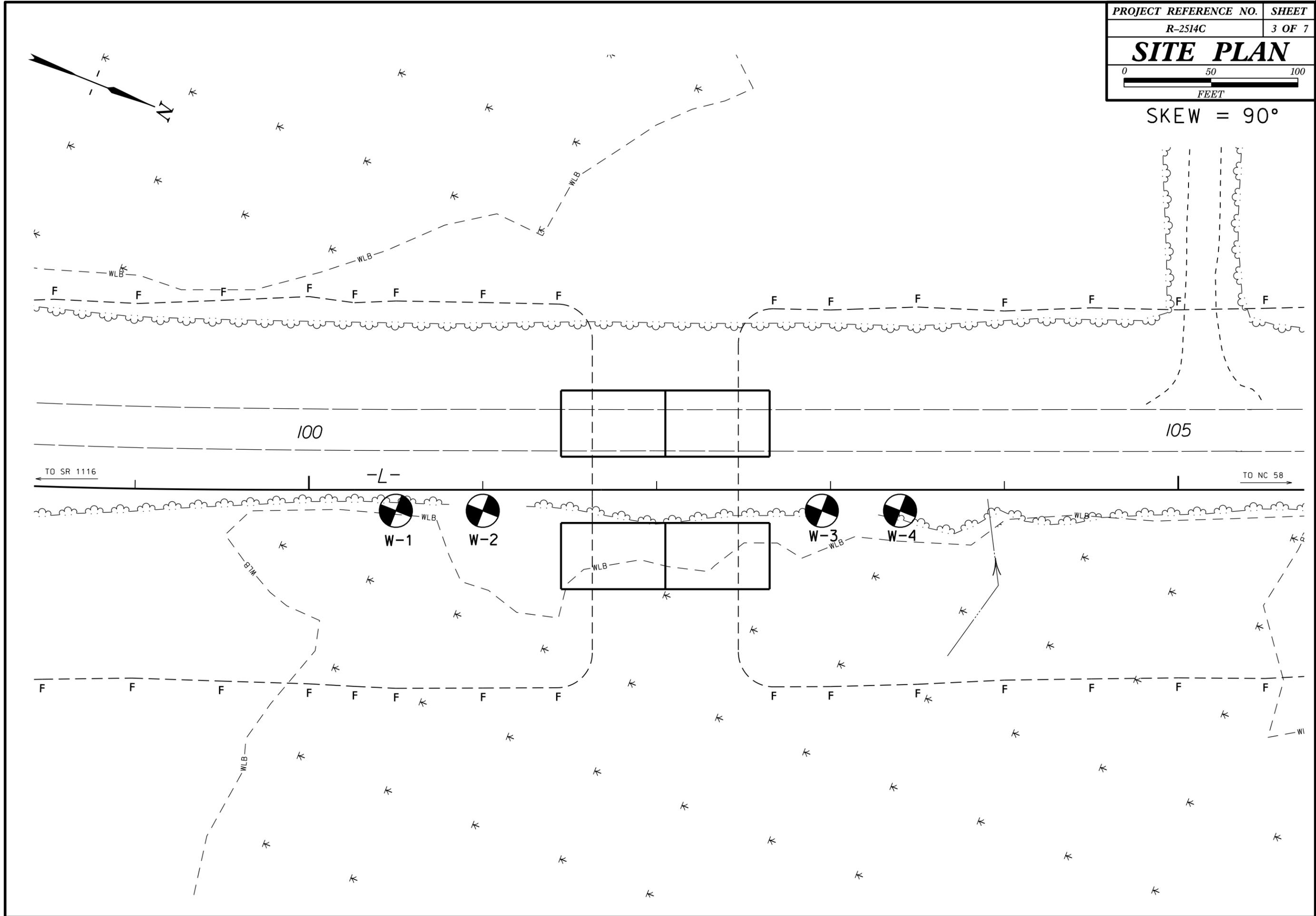
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS					
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 (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS AND GENERAL PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRN. SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>		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. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.		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:  WEATHERED ROCK (WR)  CRYSTALLINE ROCK (CR)  NON-CRYSTALLINE ROCK (NCR)  COASTAL PLAIN SEDIMENTARY ROCK (CP)		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. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (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 (IN 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 (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.					
SOIL LEGEND AND AASHTO CLASSIFICATION		MINERALOGICAL COMPOSITION		WEATHERING							
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS		MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		FRESH ROCK FRESH, CRYSTALLINE SHELL, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.		COMPRESSIONIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50 PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SILT - CLAY SOILS SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE		WEATHERING FRESH ROCK FRESH, CRYSTALLINE SHELL, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.			
CONSISTENCY OR DENSENESS		GROUND WATER		MISCELLANEOUS SYMBOLS							
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)		WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED ROCK BOUNDARY INFERRED SOIL LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES		TEST BORING WITH SOIL DESCRIPTION AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD					
TEXTURE OR GRAIN SIZE		ABBREVIATIONS		EQUIPMENT USED ON SUBJECT PROJECT							
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053		AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY		VST - VANE SHEAR TEST WEA. - WEATHERED ? - UNIT WEIGHT % - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO		DRILL UNITS: <input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST		ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 1/16" STEEL TEETH <input type="checkbox"/> TRICONE " TUNG-CARB. <input type="checkbox"/> CORE BIT			
SOIL MOISTURE - CORRELATION OF TERMS		FRACTURE SPACING		BEDDING							
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION		TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 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		BENCH MARK: GPS R-2514-7 ELEVATION: 41.8 FT.					
LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT		INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. 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.		INDURATION		NOTES: UNDIVIDED C.P. = UNDIVIDED COASTAL PLAIN					
PLASTICITY		INDURATION									
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY		INDURATION									
COLOR											
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.											

SKEW = 90°

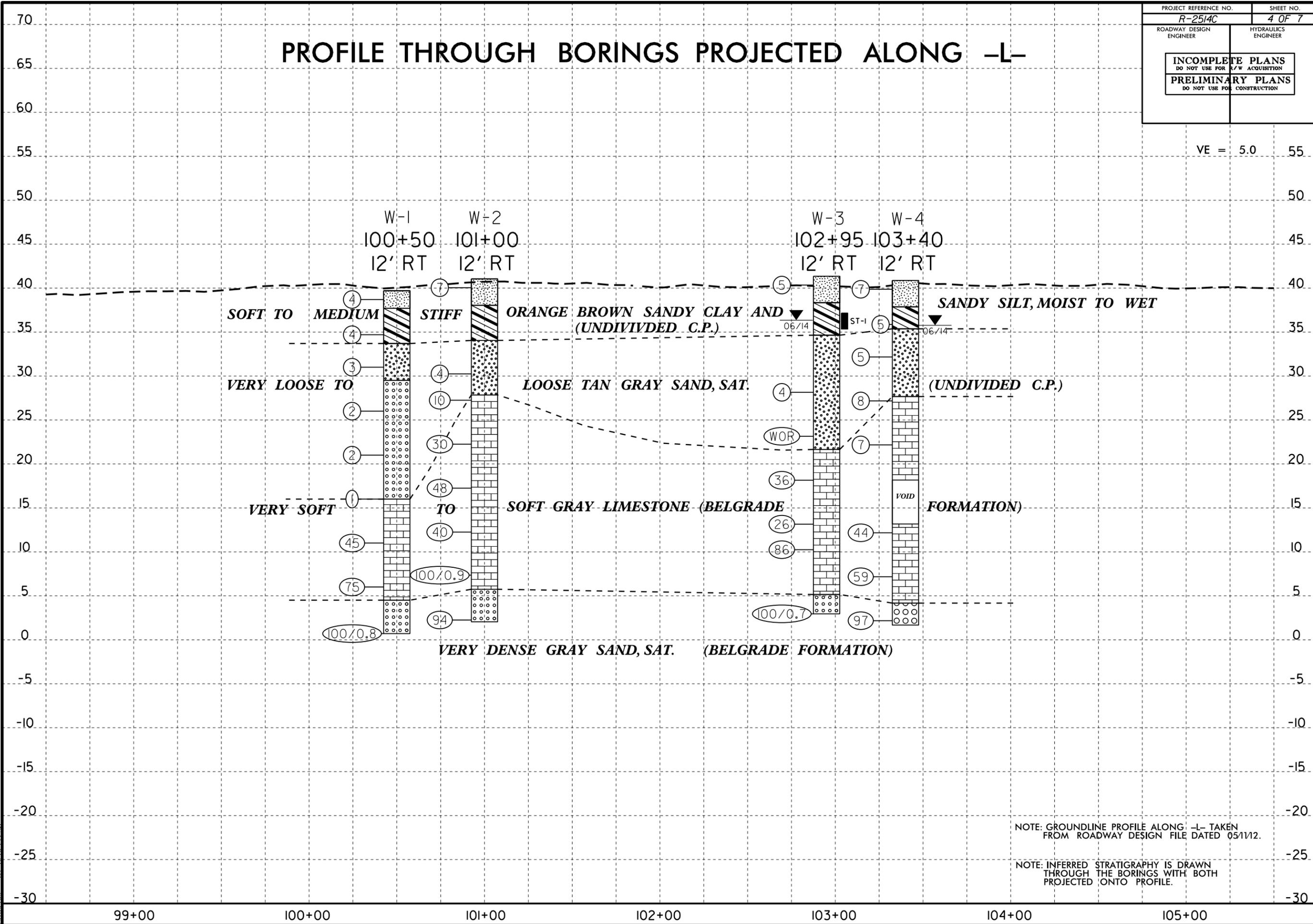


5/14/99

PROJECT REFERENCE NO. <i>R-2514C</i>	SHEET NO. <i>4 OF 7</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PROFILE THROUGH BORINGS PROJECTED ALONG -L-

VE = 5.0 55



NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM ROADWAY DESIGN FILE DATED 05/11/12.

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

18-SEP-2014 13:21 L:\ERD\CAD\Drawings\Investigation\TIP\NR2514C_GEO_SHRG_WILDIFE\CADD_GEO\TECHN\Plan\Prof\NR2514C_GEO_BRDC_Wildife_WALL.plt.L.dgn



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 34442.1.4		TIP R-2514C		COUNTY JONES		GEOLOGIST Contract Geologist									
SITE DESCRIPTION TEMPORARY SHORING AT BRIDGE ON -L- (US 17 BYPASS) OVER WILDLIFE CROSSING							GROUND WTR (ft)								
BORING NO. W-3		STATION 102+95		OFFSET 12 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 41.3 ft		TOTAL DEPTH 38.4 ft		NORTHING 438,109		EASTING 2,527,937									
DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 82% 05/19/2014		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER N/A		START DATE 06/09/14		COMP. DATE 06/09/14		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					
45															
40	41.3	0.0	1	2	3									41.3	GROUND SURFACE
														38.3	UNDIVIDED COASTAL PLAIN ORANGE BROWN SANDY SILT, MOIST
														34.6	UNDIVIDED COASTAL PLAIN ORANGE BROWN SANDY CLAY, MOIST TO WET
														21.6	UNDIVIDED COASTAL PLAIN TAN GRAY SAND, SAT.
														19.7	COASTAL PLAIN GRAY LIMESTONE (BELGRADE FORMATION)
														5.1	COASTAL PLAIN GRAY SAND, SAT. (BELGRADE FORMATION)
														2.9	COASTAL PLAIN GRAY SAND, SAT. (BELGRADE FORMATION) Boring Terminated at Elevation 2.9 ft IN VERY DENSE SAND
															Other Samples: ST-1 (4.2 - 6.2)

WBS 34442.1.4		TIP R-2514C		COUNTY JONES		GEOLOGIST Contract Geologist									
SITE DESCRIPTION TEMPORARY SHORING AT BRIDGE ON -L- (US 17 BYPASS) OVER WILDLIFE CROSSING							GROUND WTR (ft)								
BORING NO. W-4		STATION 103+40		OFFSET 12 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 40.8 ft		TOTAL DEPTH 39.2 ft		NORTHING 438,150		EASTING 2,527,921									
DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 82% 05/19/2014		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER N/A		START DATE 06/03/14		COMP. DATE 06/03/14		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					
45															
40	40.8	0.0	2	3	4									40.8	GROUND SURFACE
														37.8	UNDIVIDED COASTAL PLAIN ORANGE BROWN SANDY SILT, MOIST
														35.3	UNDIVIDED COASTAL PLAIN ORANGE BROWN SANDY CLAY, MOIST TO WET
														27.6	UNDIVIDED COASTAL PLAIN TAN GRAY SAND, SAT.
														13.2	COASTAL PLAIN GRAY LIMESTONE (BELGRADE FORMATION)
														18.1	VOID
														13.1	COASTAL PLAIN GRAY LIMESTONE (BELGRADE FORMATION)
														4.1	COASTAL PLAIN GRAY SAND, SAT (BELGRADE FORMATION)
														1.6	COASTAL PLAIN GRAY SAND, SAT (BELGRADE FORMATION) Boring Terminated at Elevation 1.6 ft IN VERY DENSE SAND

NCDOT BORE DOUBLE WALLBORINGS.GPJ NC_DOT_GDT_9/18/14

34442.1.4

R-2514C

**TEMPORARY SHORING AT DUAL BRIDGES OVER WILDLIFE CROSSING ON -L-
(US 17 BYPASS) BETWEEN SR 1116 AND NC 58 AT -L- STA. 102+05.00**

W-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-6	12 RT	100+50	0.0- 1.5	A-4(0)	30	NP	28.8	33.1	27.7	10.4	100	86	43	-	-
SS-7	12 RT	100+50	4.0- 5.5	A-6(7)	36	19	23.8	26.2	7.1	42.9	100	91	54	-	-
SS-8	12 RT	100+50	7.7- 9.2	A-2-4(0)	18	NP	37.2	40.9	0.6	21.2	96	81	23	-	-
SS-9	12 RT	100+50	12.7- 14.2	A-3(0)	17	NP	47.6	49.1	1.5	1.7	93	79	4	-	-
SS-10	12 RT	100+50	27.7- 29.2	A-1-b(0)	15	NP	43.5	37.0	4.8	14.7	65	46	14	-	-
SS-11	12 RT	100+50	37.7- 39.0	A-3(0)	12	NP	36.4	63.2	0.4	0.0	100	95	2	-	-

W-4 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	12 RT	103+40	0.0- 1.5	A-4(0)	25	NP	29.7	36.1	23.8	10.4	100	89	40	-	-
SS-2	12 RT	103+40	4.0- 5.5	A-6(2)	29	14	33.1	29.4	5.4	32.0	100	89	41	-	-
SS-3	12 RT	103+40	7.7- 9.4	A-2-4(0)	24	NP	50.0	31.6	5.8	12.6	86	64	25	-	-
SS-4	12 RT	103+40	17.7- 19.2	A-1-b(0)	24	NP	61.3	16.5	3.2	19.0	73	44	17	-	-
SS-5	12 RT	103+40	27.7- 29.2	A-1-b(0)	13	NP	52.6	39.4	6.3	1.7	64	39	7	-	-