

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 34442.1.5 (R-2514D) F.A. PROJ. NHF-17(7)  
COUNTY JONES  
PROJECT DESCRIPTION US 17 FROM SOUTH OF NC 58 TO THE  
NEW BERN BYPASS  
  
SITE DESCRIPTION BRIDGE NO. 105 AND 106 ON -L- (US 17 BYPASS)  
OVER -Y6- (SR 1002) AT -L- STA. 526 + 71.12

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**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: 34442.1.5 ID: R-2514D**

PERSONNEL

C.M. WRIKE

R.E. SMITH

D.G. PINTER

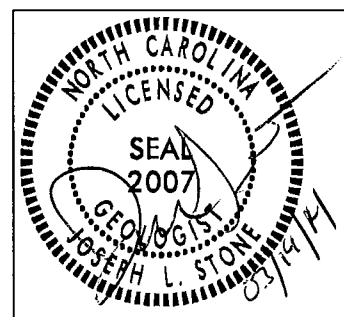
MID ATLANTIC PERSONNEL

INVESTIGATED BY J.L. STONE

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE MARCH 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 IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

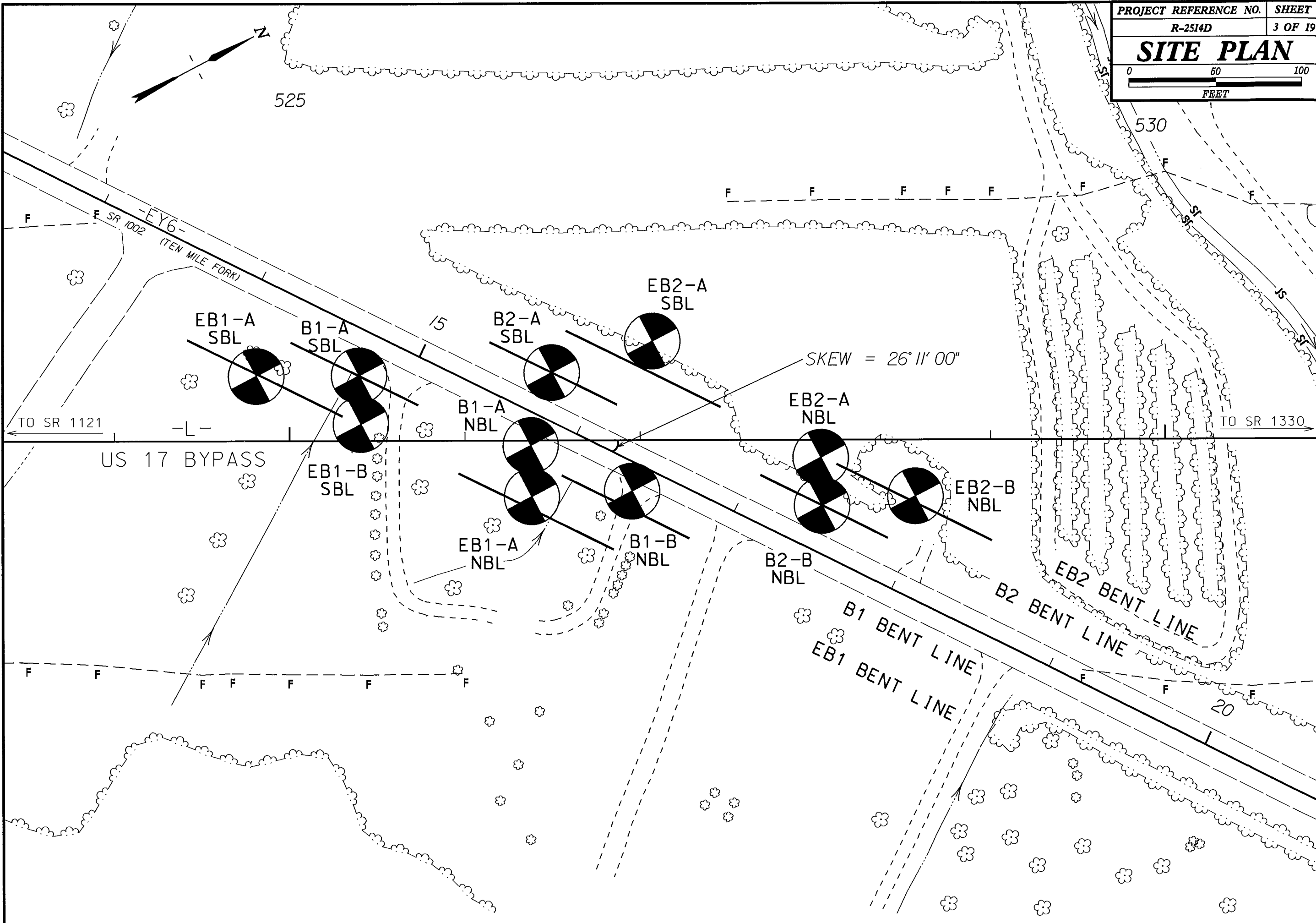
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
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## SUBSURFACE INVESTIGATION

### SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

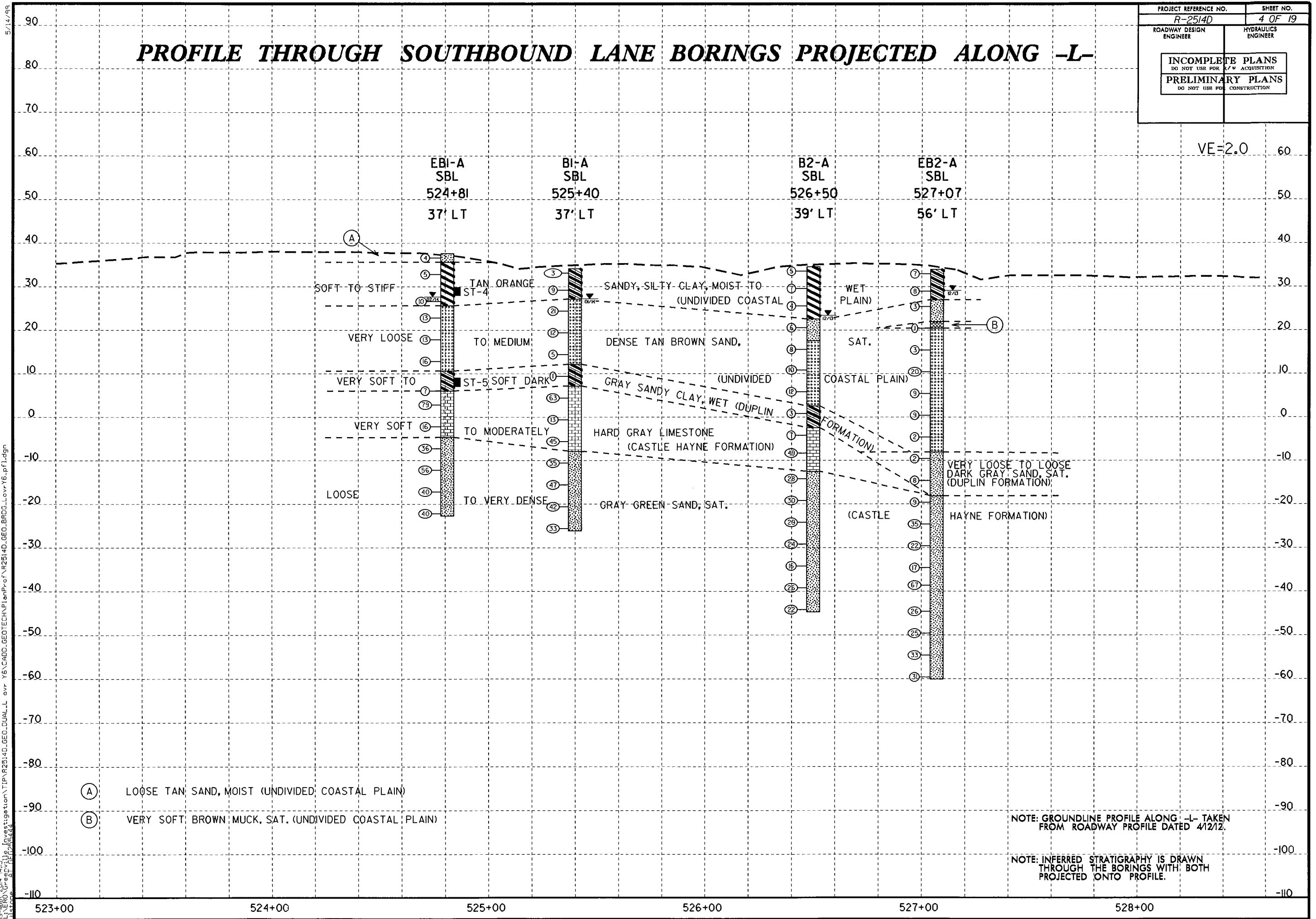
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS																																																																																																																																																																																																																																																																																																																											
<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, HEAVY PLASTIC, A-7-6</i></p>	<p><b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORM</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) <b>POORLY GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p style="text-align: center;"><b>ANGULARITY OF GRAINS</b></p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <b>ANGULAR</b>, <b>SUBANGULAR</b>, <b>SUBROUNDED</b>, OR <b>ROUNDED</b>.</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><b>WEATHERED ROCK (WR)</b>  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES &gt; 100 BLOWS PER FOOT IF TESTED.</p> <p><b>CRYSTALLINE ROCK (CR)</b>  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p> <p><b>NON-CRYSTALLINE ROCK (NCR)</b>  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p> <p><b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>	<p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. <b>ARTESIAN</b> - 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. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>HOTTLED (HOTJ.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. HOTTLED IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (RQD)</b> - 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. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - 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. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - 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. <b>STRATA CORE RECOVERY (SCREC)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SRQD)</b> - 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. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																																																																																																																																																																																																											
<p style="text-align: center;"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="7">GRANULAR MATERIALS (&lt;= 35% PASSING #200)</th> <th colspan="7">SILT-CLAY MATERIALS (&gt; 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-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> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</th><th>A-6, A-7</th> <th>A-1, A-2</th><th>A-3</th><th>A-4, A-5</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-7-3</td><td>A-7-8</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-1, A-2</td><td>A-3</td><td>A-4, A-5</td><td>A-6, A-7</td> <td>A-1, A-2</td><td>A-3</td><td>A-4, A-5</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><td></td> </tr> <tr> <td>% PASSING</td> <td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td><td>10</td> <td>10</td><td>10</td><td>10</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</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><td>40 MX</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>20 MX</td> <td>0</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>0</td><td>0</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">GRANULAR SOILS</td><td>SILT-CLAY SOILS</td><td>MUCK, PEAT</td><td colspan="3">HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td colspan="7">EXCELLENT TO GOOD</td><td colspan="3">FAIR TO POOR</td><td>FAIR TO POOR</td><td>POOR</td><td>UNSATURABLE</td><td colspan="5"></td> </tr> <tr> <td colspan="19">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS &gt; 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-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-1, A-2	A-3	A-4, A-5	GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-7-3	A-7-8	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	A-1, A-2	A-3	A-4, A-5	SYMBOL																				% PASSING	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	LIQUID LIMIT PLASTIC INDEX	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	40 MX	GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	20 MX	0	0	0	0	0	0	0	0	0	0	0	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			GRANULAR SOILS			SILT-CLAY SOILS	MUCK, PEAT	HIGHLY ORGANIC SOILS			GEN. 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ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p> <p style="text-align: center;"><b>COMPRESSIBILITY</b></p> <p>SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE</p> <p>LIQUID LIMIT LESS THAN 31 LIQUID LIMIT EQUAL TO 31-50 LIQUID LIMIT GREATER THAN 50</p> <p style="text-align: center;"><b>PERCENTAGE OF MATERIAL</b></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>&gt;10%</td> <td>&gt;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;"><b>GROUND WATER</b></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;"><b>MISCELLANEOUS SYMBOLS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION</td> <td></td> <td>TEST BORING</td> </tr> <tr> <td></td> <td>SOIL SYMBOL</td> <td></td> <td>AUGER BORING</td> </tr> <tr> <td></td> <td>ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT</td> <td></td> <td>CORE BORING</td> </tr> <tr> <td></td> <td>INFERRED SOIL BOUNDARY</td> <td></td> <td>MONITORING WELL</td> </tr> <tr> <td></td> <td>INFERRED ROCK LINE</td> <td></td> <td>PIEZOMETER INSTALLATION</td> </tr> <tr> <td></td> <td>ALLUVIAL SOIL BOUNDARY</td> <td></td> <td>SLOPE INDICATOR INSTALLATION</td> </tr> <tr> <td></td> <td>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES</td> <td></td> <td>CONE PENETROMETER TEST</td> </tr> <tr> <td></td> <td>SOUNDING ROD</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;"><b>ABBREVIATIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AR - AUGER REFUSAL</td> <td>MEQ. - MEDIUM</td> <td>VST - VANE SHEAR TEST</td> </tr> <tr> <td>BT - BORING TERMINATED</td> <td>MICA - MICACEOUS</td> <td>WEA. - WEATHERED</td> </tr> <tr> <td>CL. - CLAY</td> <td>MOO. - MODERATELY</td> <td>W - UNIT WEIGHT</td> </tr> <tr> <td>CPT - CONE PENETRATION TEST</td> <td>NP - NON PLASTIC</td> <td>W<sub>d</sub> - DRY UNIT WEIGHT</td> </tr> <tr> <td>CSE. - COARSE</td> <td>ORG. - ORGANIC</td> <td></td> </tr> <tr> <td>DMT - DILATOMETER TEST</td> <td>PMT - PRESSUREMETER TEST</td> <td colspan="2" style="text-align: center;"><b>SAMPLE ABBREVIATIONS</b></td> </tr> <tr> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>SAP. - SAPROLITIC</td> <td>S - BULK</td> </tr> <tr> <td>e - VOID RATIO</td> <td>SD. - SAND, SANDY</td> <td>SS - SPLIT SPOON</td> </tr> <tr> <td>F - FINE</td> <td>SL. - SILT, SILTY</td> <td>ST - SHELBY TUBE</td> </tr> <tr> <td>FOSS. - FOSSILIFEROUS</td> <td>SLI. - SLIGHTLY</td> <td>RS - ROCK</td> </tr> <tr> <td>FRAC. - FRACTURED, FRACTURES</td> <td>TCR - TRICONE REFUSAL</td> <td>RT - RECOMPACTED TRIAXIAL</td> </tr> <tr> <td>FRAGS. - FRAGMENTS</td> <td>w - MOISTURE CONTENT</td> <td>CBR - CALIFORNIA BEARING RATIO</td> </tr> <tr> <td>HL. - HIGHLY</td> <td>V - VERY</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		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION		TEST BORING		SOIL SYMBOL		AUGER BORING		ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT		CORE BORING		INFERRED SOIL BOUNDARY		MONITORING WELL		INFERRED ROCK LINE		PIEZOMETER INSTALLATION		ALLUVIAL SOIL BOUNDARY		SLOPE INDICATOR INSTALLATION		DIP & DIP DIRECTION OF ROCK STRUCTURES		CONE PENETROMETER TEST		SOUNDING ROD			AR - AUGER REFUSAL	MEQ. - MEDIUM	VST - VANE SHEAR TEST	BT - BORING TERMINATED	MICA - MICACEOUS	WEA. - WEATHERED	CL. - CLAY	MOO. - MODERATELY	W - UNIT WEIGHT	CPT - CONE PENETRATION TEST	NP - NON PLASTIC	W <sub>d</sub> - DRY UNIT WEIGHT	CSE. - COARSE	ORG. - ORGANIC		DMT - DILATOMETER TEST	PMT - PRESSUREMETER TEST	<b>SAMPLE ABBREVIATIONS</b>		DPT - DYNAMIC PENETRATION TEST	SAP. - SAPROLITIC	S - BULK	e - VOID RATIO	SD. - SAND, SANDY	SS - SPLIT SPOON	F - FINE	SL. - SILT, SILTY	ST - SHELBY TUBE	FOSS. - FOSSILIFEROUS	SLI. - SLIGHTLY	RS - ROCK	FRAC. - FRACTURED, FRACTURES	TCR - TRICONE REFUSAL	RT - RECOMPACTED TRIAXIAL	FRAGS. - FRAGMENTS	w - MOISTURE CONTENT	CBR - CALIFORNIA BEARING RATIO	HL. - HIGHLY	V - VERY		<p style="text-align: center;"><b>ROCK HARDNESS</b></p> <p><b>VERY HARD</b> - CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.</p> <p><b>HARD</b> - CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.</p> <p><b>MODERATELY HARD</b> - 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><b>MEDIUM HARD</b> - CAN BE GROUDED OR GOUGED 0.085 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.</p> <p><b>SOFT</b> - CAN BE GROUDED 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><b>VERY SOFT</b> - CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.</p> <p style="text-align: center;"><b>FRACTURE SPACING</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>TERM</th> <th>SPACING</th> <th>TERM</th> <th>THICKNESS</th> </tr> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> <td>VERY THICKLY BEDDED</td> <td>&gt; 4 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FEET</td> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td></td> <td></td> <td>THINLY LAMINATED</td> <td>&lt; 0.008 FEET</td> </tr> </table> <p style="text-align: center;"><b>INDURATION</b></p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p><b>FRIABLE</b> - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p><b>MODERATELY INDURATED</b> - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p><b>INDURATED</b> - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p><b>EXTREMELY INDURATED</b> - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>	TERM	SPACING	TERM	THICKNESS	VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET	WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET	MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET	CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET	VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET			THINLY LAMINATED	< 0.008 FEET
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PROJECT REFERENCE NO. R-2514D	SHEET NO. 4 OF 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

# PROFILE THROUGH SOUTHBOUND LANE BORINGS PROJECTED ALONG -L-



VE=2.0 60

523+00      524+00      525+00      526+00      527+00      528+00

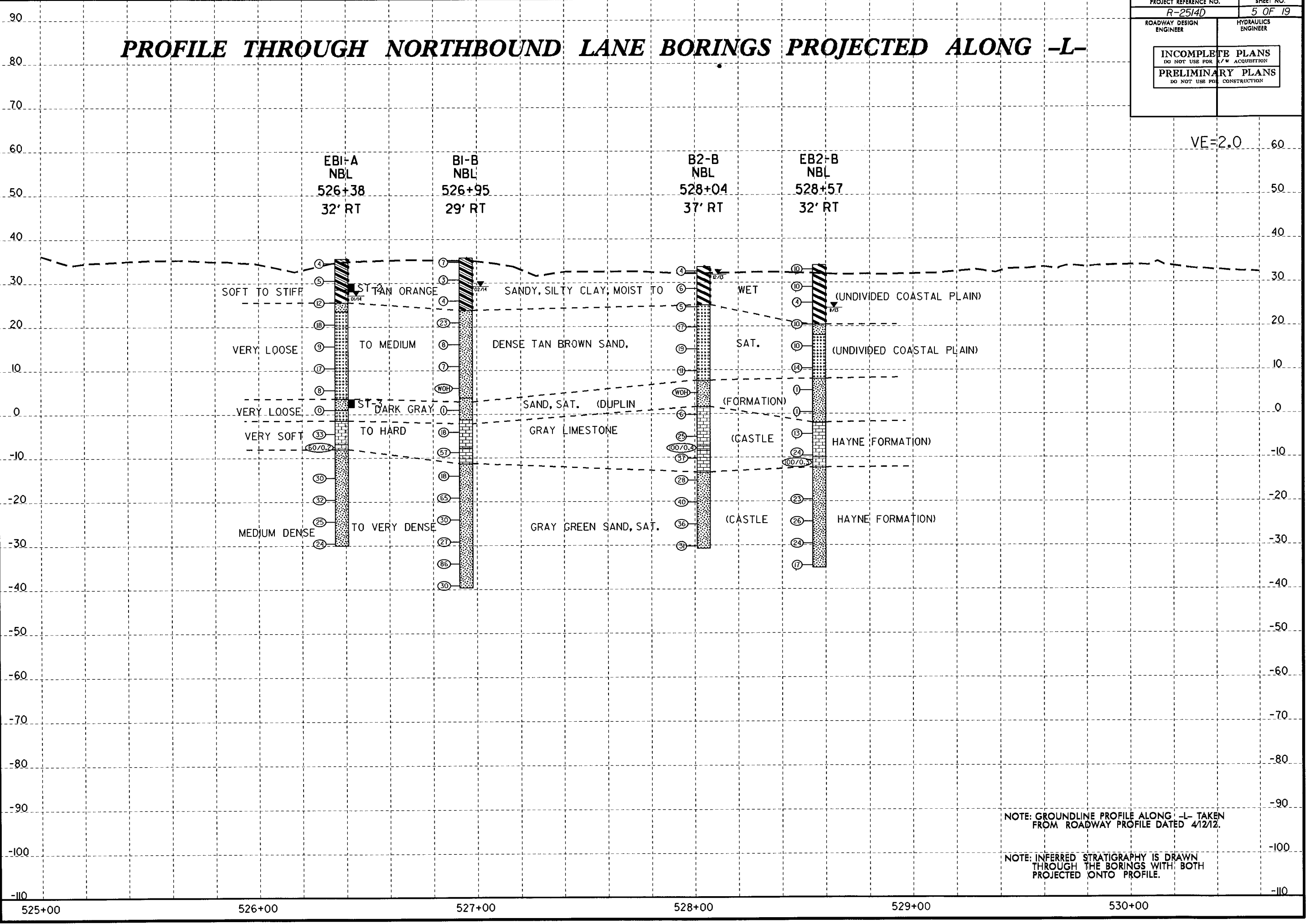
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PROJECT REFERENCE NO. <b>R-2514D</b>	SHEET NO. <b>5 OF 19</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

# PROFILE THROUGH NORTHBOUND LANE BORINGS PROJECTED ALONG -L-

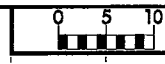
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NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM ROADWAY PROFILE DATED 4/12/12.

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

8/23/99



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

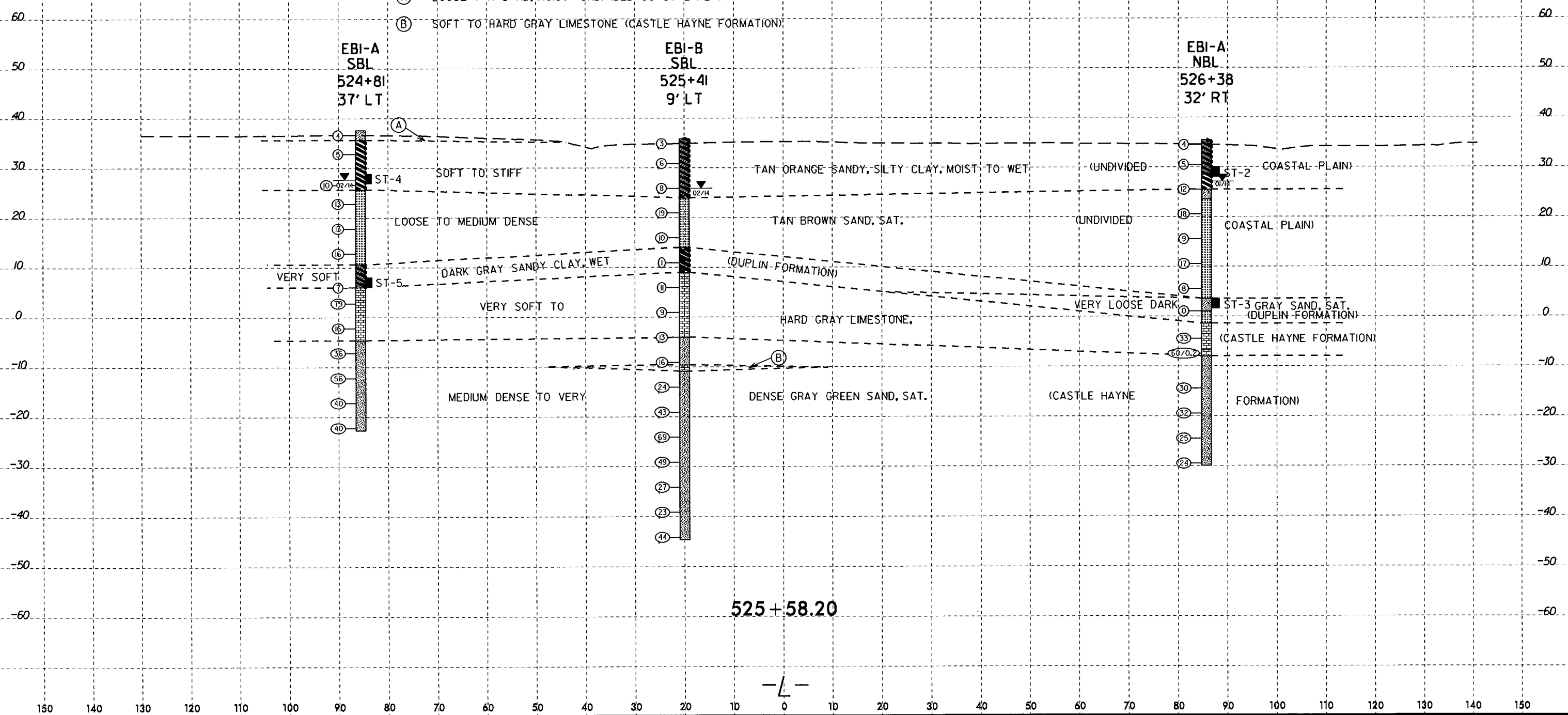
# CROSS SECTION ALONG END BENT 1 NBL AND SBL

- (A) LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)
- (B) SOFT TO HARD GRAY LIMESTONE (CASTLE HAYNE FORMATION)

**EBI-A  
SBL  
524+81  
37' LT**

**EBI-B  
SBL  
525+41  
9' LT**

**EBI-A  
NBL  
526+38  
32' RT**

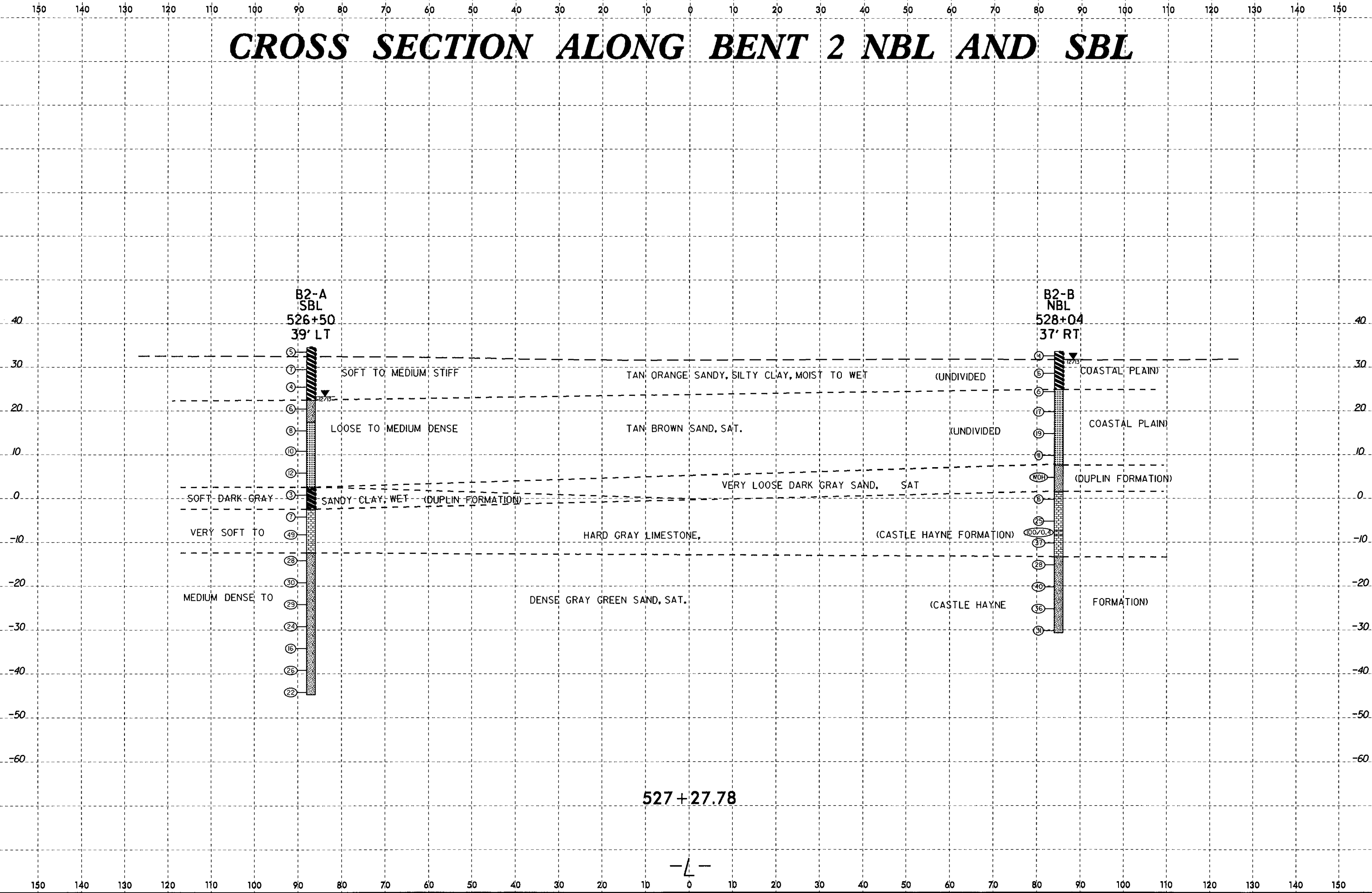


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 User: jstone  
 Plot: 0625544



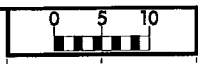
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# CROSS SECTION ALONG BENT 2 NBL AND SBL



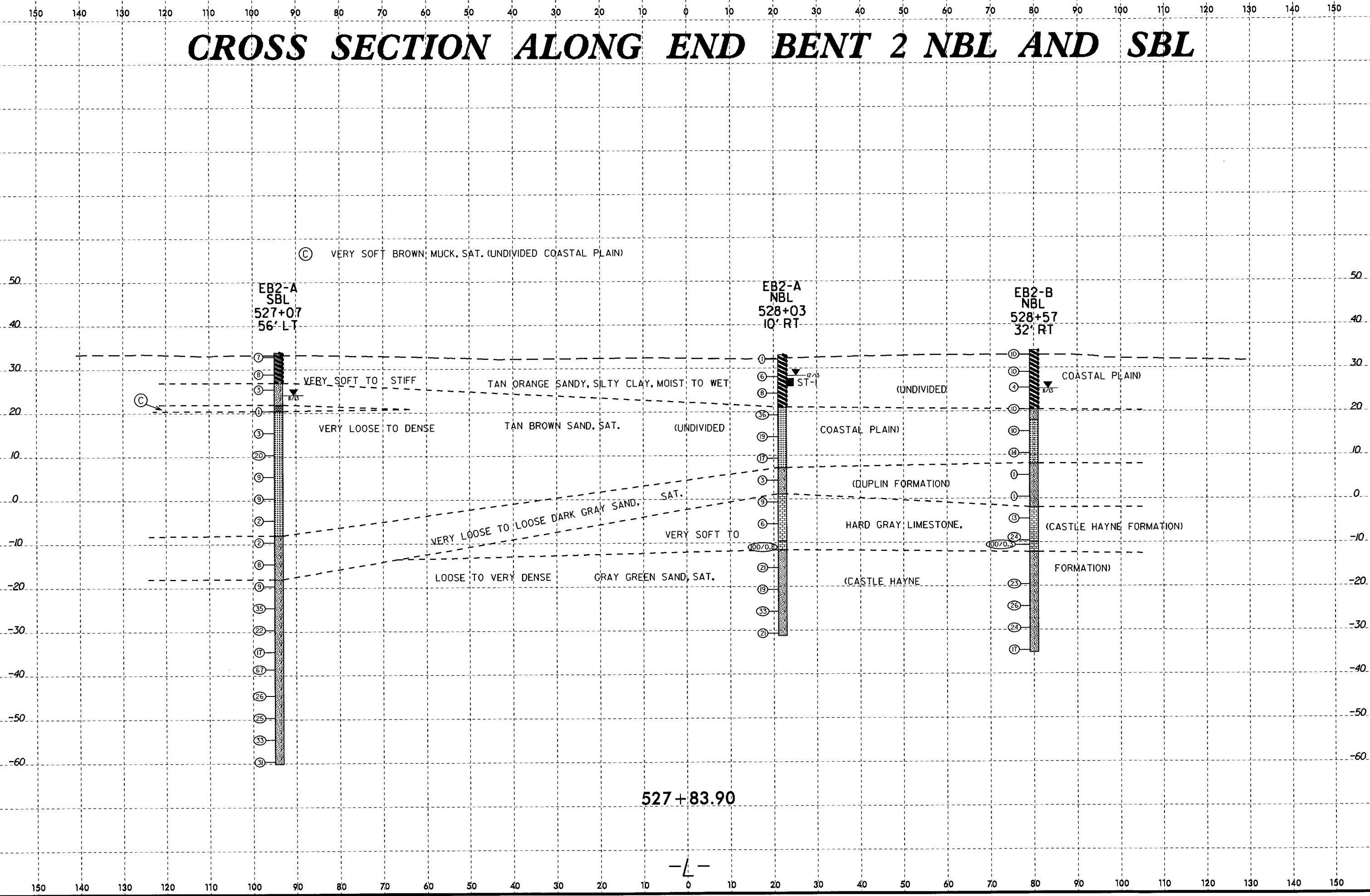


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Limestone



PROJ. REFERENCE NO. R-2514D	SHEET NO. 9 OF 19
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# CROSS SECTION ALONG END BENT 2 NBL AND SBL









# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 34442.1.5		TIP R-2514D		COUNTY JONES		GEOLOGIST Gemperline, J. D.										
SITE DESCRIPTION BRIDGE NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)						GROUND WTR (ft)										
BORING NO. EB1-A NBL		STATION 526+38		OFFSET 32 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 35.5 ft		TOTAL DEPTH 65.5 ft		NORTHING 478,921		EASTING 2,534,760										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45-B 80.5% 12/26/13				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/24/14		COMP. DATE 01/27/14		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
40																
35	35.5	0.0	1	1	3										35.5	GROUND SURFACE 0.0
30	31.5	4.0	2	2	3									SS-11	28.5	UNDIVIDED COASTAL PLAIN TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET
25	26.5	9.0	3	6	6									SS-12 SS-13	25.5	UNDIVIDED COASTAL PLAIN TAN BROWN SAND, SAT.
20	21.5	14.0	6	8	10									SS-14	23.5	UNDIVIDED COASTAL PLAIN TAN BROWN SAND, SAT.
15	16.5	19.0	2	4	5											
10	11.5	24.0	4	8	9									SS-15		
5	6.5	29.0	2	4	4											
0	1.5	34.0	1	0	0									SS-16 SS-17	3.5	COASTAL PLAIN DARK GRAY SAND, SAT. (DUPLIN FORMATION)
-5	-3.5	39.0	14	17	16									SS-18	-1.5	COASTAL PLAIN GRAY LIMESTONE (CASTLE HAYNE FORMATION)
-10	-6.8	42.3	35	60/0.2											-6.8	COASTAL PLAIN GRAY LIMESTONE (CASTLE HAYNE FORMATION)
-15	-13.5	49.0	9	13	17									SS-19	-8.0	COASTAL PLAIN GRAY GREEN SAND, SAT. (CASTLE HAYNE FORMATION)
-20	-18.5	54.0	8	12	20											
-25	-23.5	59.0	9	10	15									SS-20		
-30	-28.5	64.0	9	10	14											
															-30.0	Boring Terminated at Elevation -30.0 ft IN MEDIUM DENSE SAND

Other Samples:  
ST-2 (5.5 - 7.5)  
ST-3 (32.0 - 34.0)

WBS 34442.1.5		TIP R-2514D		COUNTY JONES		GEOLOGIST Gemperline, J. D.										
SITE DESCRIPTION BRIDGE NO. 105 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)						GROUND WTR (ft)										
BORING NO. B1-A SBL		STATION 525+40		OFFSET 37 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 34.1 ft		TOTAL DEPTH 60.2 ft		NORTHING 478,866		EASTING 2,534,653										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45-B 80.5% 12/26/13				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/22/14		COMP. DATE 01/22/14		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
35	34.1	0.0													34.1	GROUND SURFACE 0.0
30	30.2	3.9	2	5	4											
25	25.4	8.7	6	9	12											
20	20.4	13.7	4	5	7											
15	15.4	18.7	2	2	3											
10	10.4	23.7	1	0	1											
5	5.4	28.7	11	20	43											
0	0.4	33.7	5	6	7											
-5	-4.6	38.7	12	25	20											
-10	-9.6	43.7	9	15	20											
-15	-14.6	48.7	16	22	25											
-20	-19.6	53.7	12	16	26											
-25	-24.6	58.7	12	14	19											
															-26.1	Boring Terminated at Elevation -26.1 ft IN DENSE SAND

NCDOT BORE DOUBLE R2514D\_LOVEREY6 BORINGS.GPJ NC\_DOT\_GDT 3/19/14



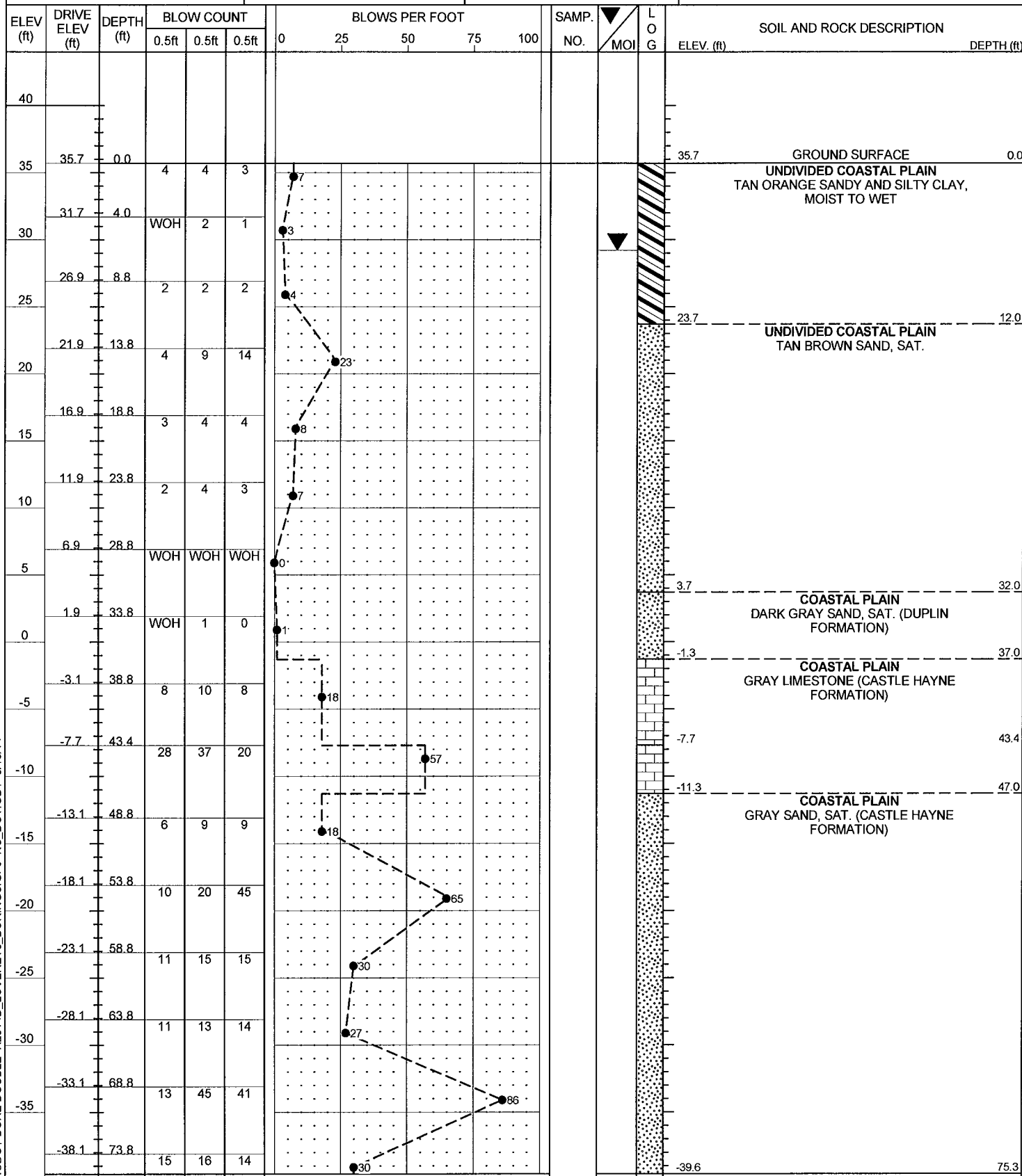


# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

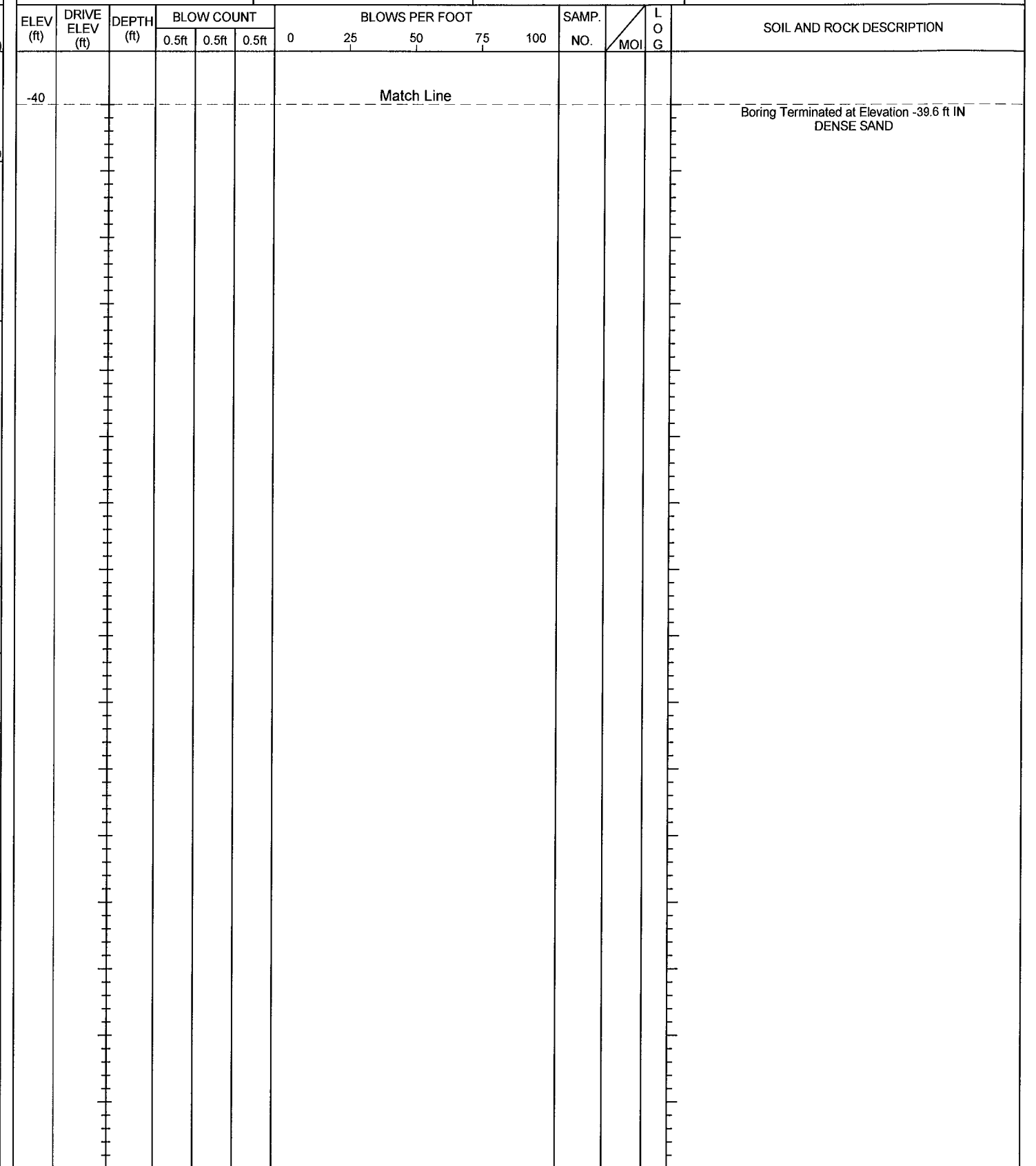
WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. B1-B NBL	STATION 526+95	OFFSET 29 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 35.7 ft	TOTAL DEPTH 75.3 ft	NORTHING 478,973	EASTING 2,534,784	24 HR. 6.5

DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45-B 80.5% 12/26/13	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/03/14	COMP. DATE 02/03/14
SURFACE WATER DEPTH N/A		



WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. B1-B NBL	STATION 526+95	OFFSET 29 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 35.7 ft	TOTAL DEPTH 75.3 ft	NORTHING 478,973	EASTING 2,534,784	24 HR. 6.5

DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45-B 80.5% 12/26/13	DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/03/14	COMP. DATE 02/03/14
SURFACE WATER DEPTH N/A		



NCDOT BORE DOUBLE R2514D\_LOVEREY6 BORINGS.GPJ NC\_DOT.GDT 3/19/14





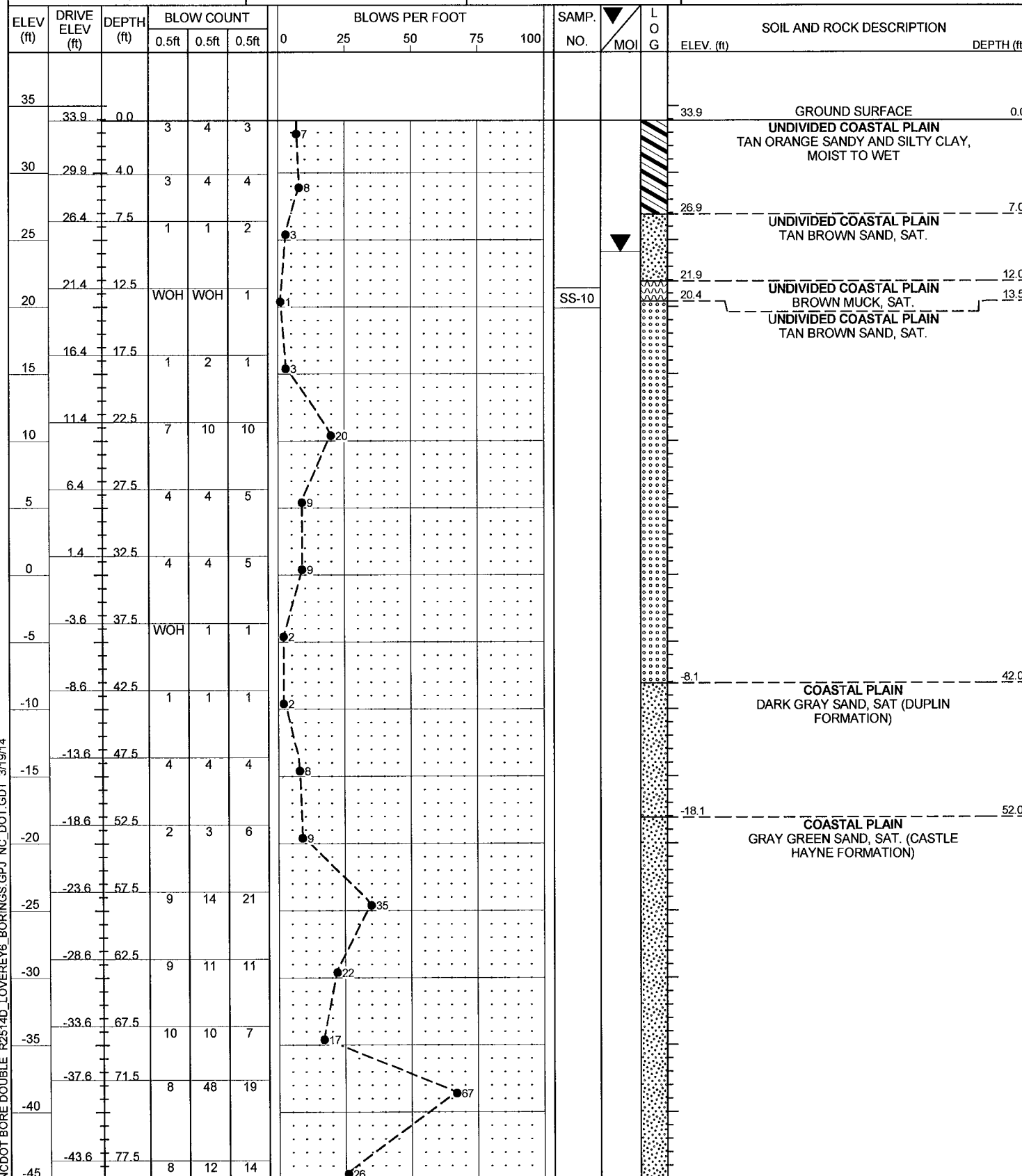




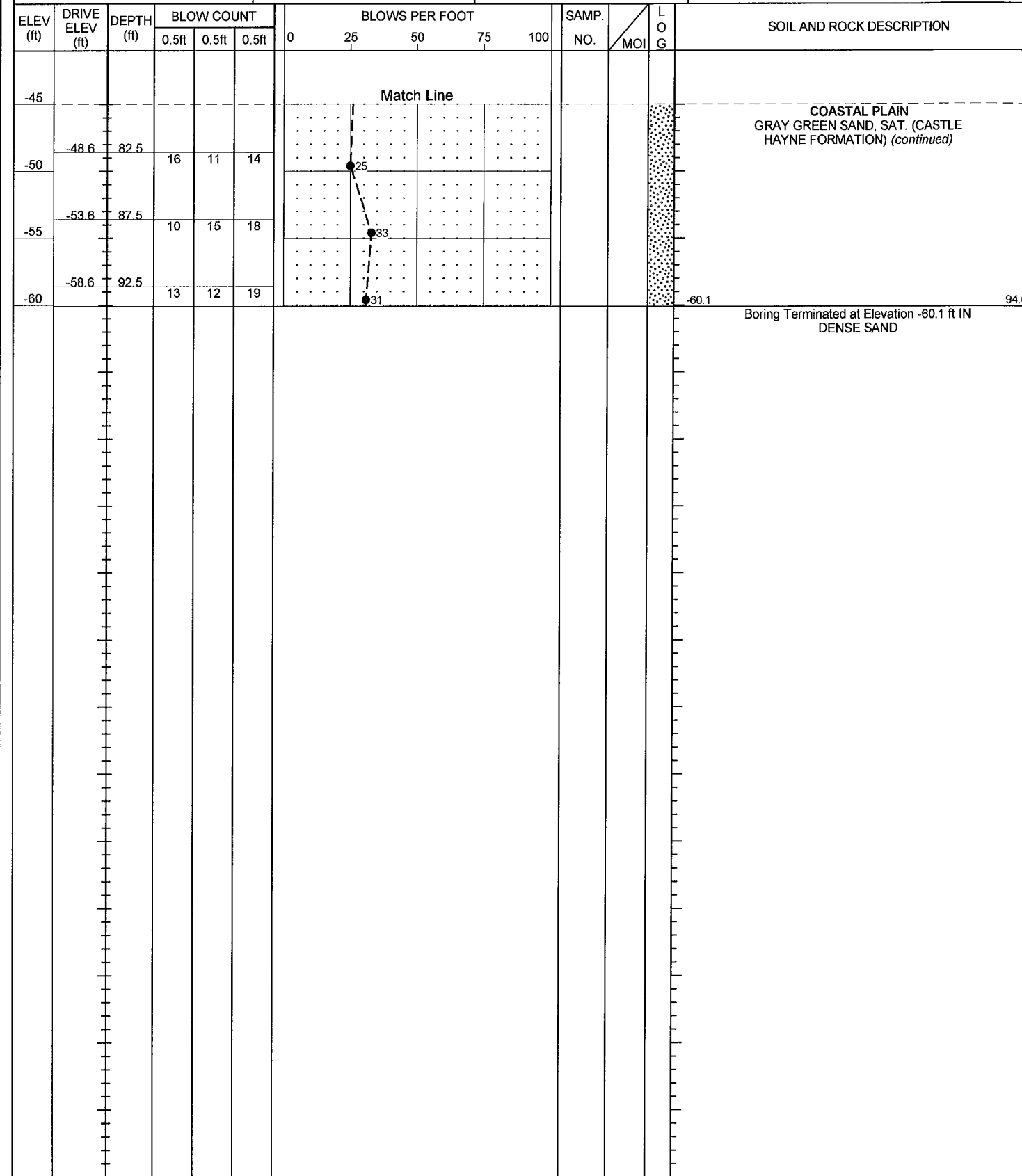
# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 105 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. EB2-A SBL	STATION 527+07	OFFSET 56 ft LT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 33.9 ft	TOTAL DEPTH 94.0 ft	NORTHING 479,023	EASTING 2,534,714	24 HR. 9.8
DRILL RIG/HAMMER EFF./DATE GFO1042 CME-550 87% 09/03/2009		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 11/26/13	COMP. DATE 11/26/13	SURFACE WATER DEPTH N/A	



WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 105 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. EB2-A SBL	STATION 527+07	OFFSET 56 ft LT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 33.9 ft	TOTAL DEPTH 94.0 ft	NORTHING 479,023	EASTING 2,534,714	24 HR. 9.8
DRILL RIG/HAMMER EFF./DATE GFO1042 CME-550 87% 09/03/2009		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 11/26/13	COMP. DATE 11/26/13	SURFACE WATER DEPTH N/A	



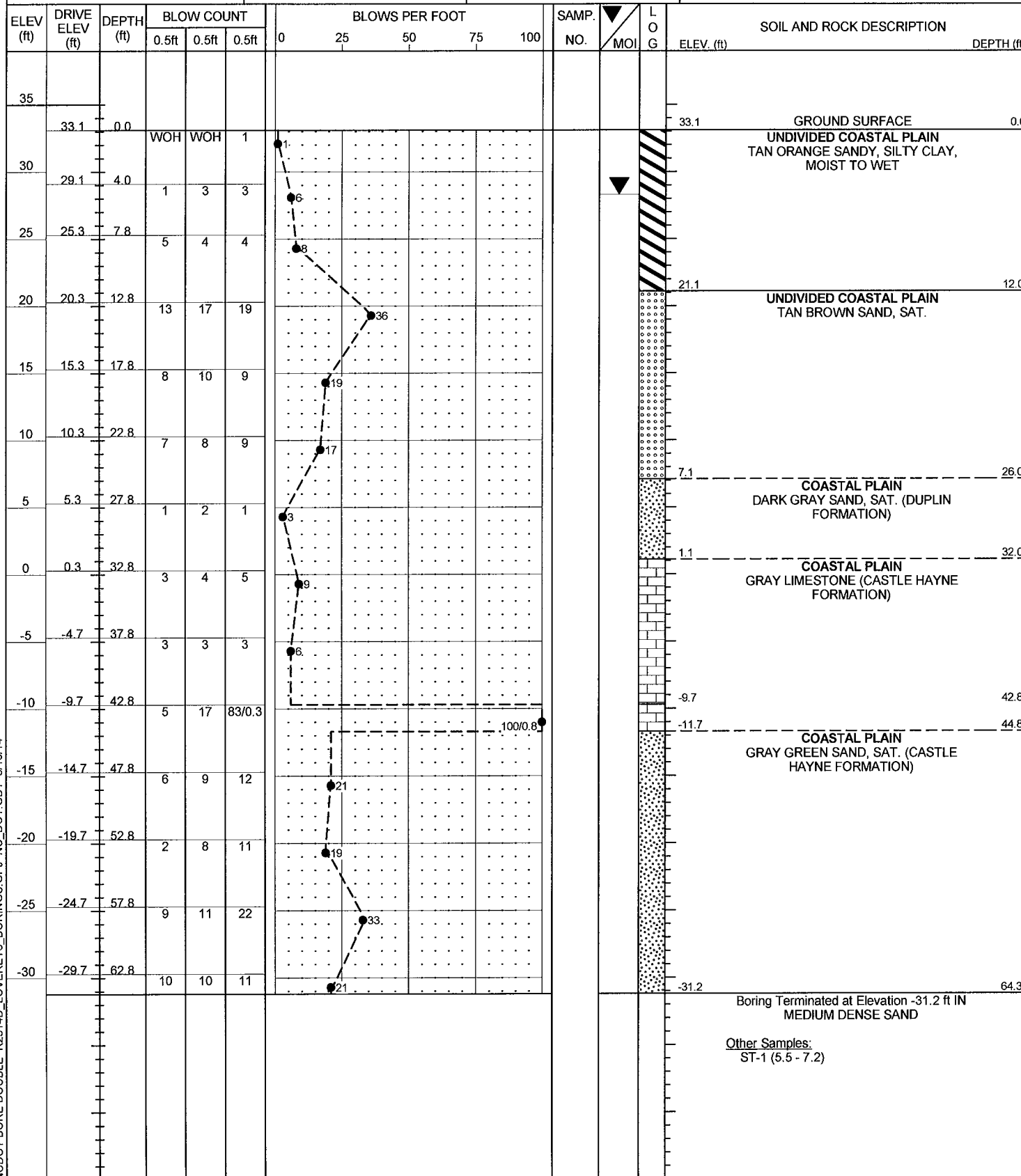
NCDOT BORE DOUBLE R2514D\_LOVEREY6 BORINGS.GPJ NC\_DOT.GDT 3/19/14



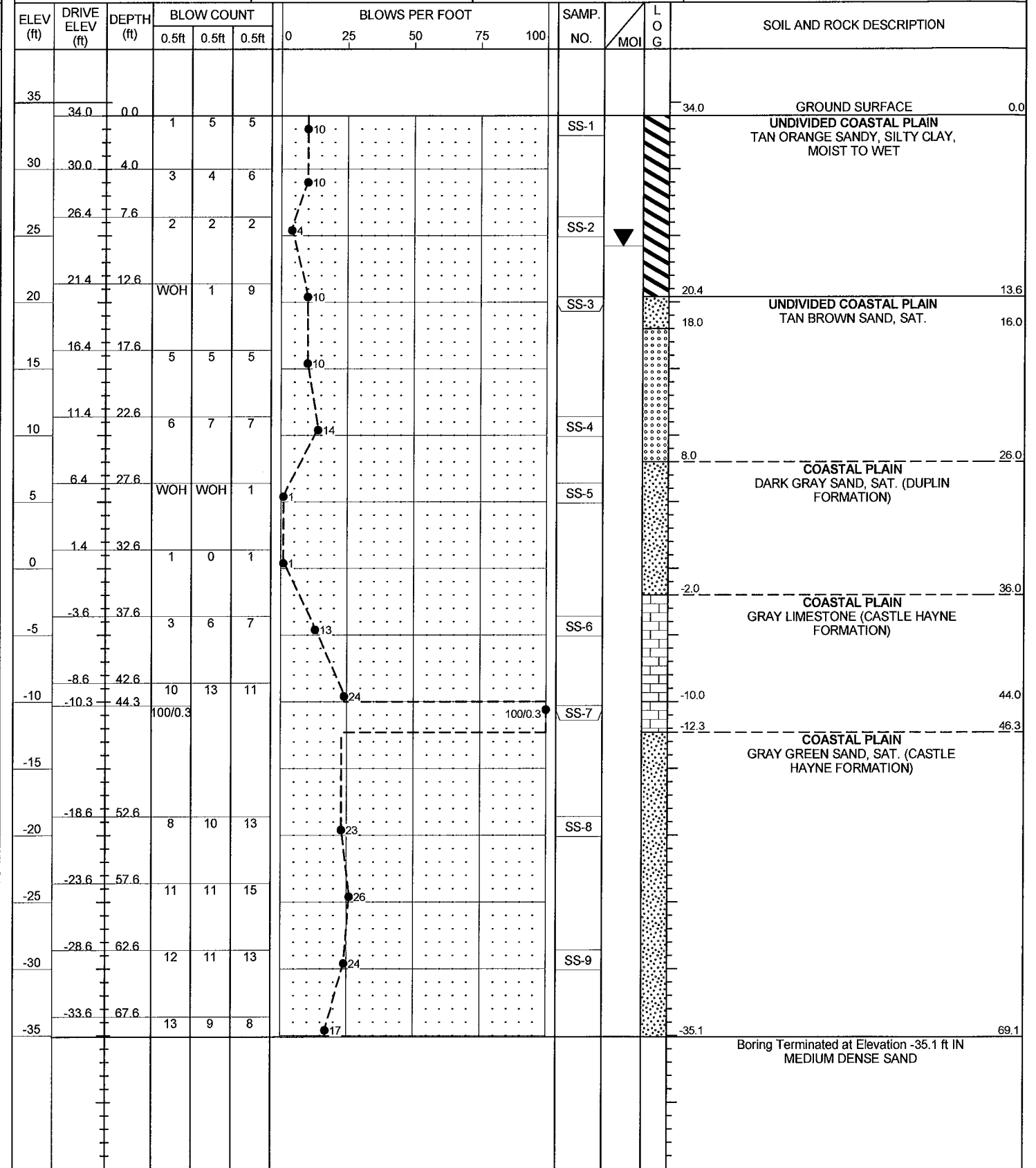
# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. EB2-A NBL	STATION 528+03	OFFSET 10 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 33.1 ft	TOTAL DEPTH 64.3 ft	NORTHING 479,077	EASTING 2,534,817	24 HR. 4.8
DRILL RIG/HAMMER EFF./DATE GFO1042 CME-550 87% 09/03/2009		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 12/04/13	COMP. DATE 12/05/13	SURFACE WATER DEPTH N/A	



WBS 34442.1.5	TIP R-2514D	COUNTY JONES	GEOLOGIST Gemperline, J. D.	
SITE DESCRIPTION BRIDGE NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (TEN MILE FORK RD.)				GROUND WTR (ft)
BORING NO. EB2-B NBL	STATION 528+57	OFFSET 32 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 34.0 ft	TOTAL DEPTH 69.1 ft	NORTHING 479,114	EASTING 2,534,862	24 HR. 9.8
DRILL RIG/HAMMER EFF./DATE GFO1042 CME-550 87% 09/03/2009		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 11/25/13	COMP. DATE 11/25/13	SURFACE WATER DEPTH N/A	



NCDOT BORE DOUBLE R2514D\_LOVEREY6 BORINGS.GPJ NC\_DOT\_GDT\_3/19/14

BRIDGE NO. 105 AND NO. 106 ON -L- (US 17 BYPASS) OVER -Y6- (SR 1002) AT -L- STA. 526+71.12

EB1-A SBL 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	37 LT	524+81	3.8-5.3	A-7-6(26)	50	30	1.2	18.6	24.0	56.1	100	99	84	-	-
SS- 22	37 LT	524+81	13.8-15.3	A-3(0)	19	NP	68.6	22.7	1.6	7.0	100	58	9	-	-
SS- 23	37 LT	524+81	23.8-25.3	A-3(0)	15	NP	47.7	46.8	2.5	3.0	100	91	7	-	-
SS- 24	37 LT	524+81	30.6-31.6	A-6(5)	37	22	31.4	25.8	9.8	33.1	99	85	44	-	-
SS- 25	37 LT	524+81	31.6-32.1	A-2-4(0)	25	6	56.1	8.8	11.0	24.0	85	51	31	-	-
SS- 26	37 LT	524+81	38.8-40.3	A-2-4(0)	18	NP	44.7	40.3	7.0	8.0	95	71	17	-	-
SS- 27	37 LT	524+81	48.8-50.3	A-2-4(0)	26	NP	4.6	83.4	7.0	5.0	100	98	18	-	-
SS- 28	37 LT	524+81	58.8-60.3	A-2-4(0)	26	NP	3.2	88.9	1.9	6.0	100	99	14	-	-

EB1-A NBL 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- 11	32 RT	526+38	4.0-5.5	A-6(11)	35	19	2.0	34.5	21.4	42.1	100	99	69	-	-
SS- 12	32 RT	526+38	9.0-10.0	A-7-6(19)	43	26	9.6	13.4	36.9	40.1	100	95	78	-	-
SS- 13	32 RT	526+38	10.0-10.5	A-2-4(0)	17	NP	43.3	42.5	6.2	8.0	100	78	15	-	-
SS- 14	32 RT	526+38	14.0-15.5	A-3(0)	17	NP	50.7	42.7	2.6	4.0	100	80	7	-	-
SS- 15	32 RT	526+38	24.0-25.5	A-3(0)	19	NP	34.7	58.4	4.9	2.0	100	94	8	-	-
SS- 16	32 RT	526+38	34.0-34.5	A-2-4(0)	27	NP	44.7	34.7	6.6	14.0	90	75	19	-	-
SS- 17	32 RT	526+38	34.5-35.5	A-3(0)	25	NP	46.4	47.2	4.4	2.0	100	86	7	-	-
SS- 18	32 RT	526+38	39.0-41.5	A-1-b(0)	19	NP	33.5	7.4	55.1	4.0	40	29	24	-	-
SS- 19	32 RT	526+38	49.0-50.5	A-2-4(0)	26	NP	2.8	88.4	4.8	4.0	99	99	15	-	-
SS- 20	32 RT	526+38	59.0-60.5	A-2-4(0)	21	NP	11.1	76.7	4.2	8.0	99	51	15	-	-

EB2-A SBL 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- 10	56 LT	527+07	12.5-14.0	A-2-4(0)	24	NP	30.0	50.5	14.4	5.1	100	86	23	-	-

EB2-A NBL SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
ST- 1 1	10 RT	528+03	5.5-7.2	A-7-6(21)	44	27	2.0	26.6	27.0	44.4	100	99	81	-	3.5
ST- 1 2	10 RT	528+03	5.5-7.2	A-6(12)	35	17	15.7	12.3	37.7	34.3	100	89	78	-	3.1

EB2-B NBL 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	32 RT	528+57	0.0-1.5	A-7-6(41)	63	40	0.4	3.6	27.3	68.7	95	95	92	-	-
SS- 2	32 RT	528+57	7.6-9.0	A-7-6(30)	60	40	13.5	11.9	22.0	52.5	100	93	75	-	-
SS- 3	32 RT	528+57	13.6-14.1	A-2-4(0)	18	NP	12.3	73.7	5.9	8.1	100	97	16	-	-
SS- 4	32 RT	528+57	22.6-24.1	A-3(0)	15	NP	61.1	32.5	2.3	4.0	100	77	7	-	-
SS- 5	32 RT	528+57	27.6-29.1	A-2-4(0)	23	NP	45.5	42.8	6.7	5.1	100	86	13	-	-
SS- 6	32 RT	528+57	37.6-39.1	A-1-b(0)	19	NP	53.4	17.0	20.5	9.1	74	44	24	-	-
SS- 7	32 RT	528+57	44.3-45.8	-	-	-	42.4	31.3	16.2	10.1	65	45	19	-	-
SS- 8	32 RT	528+57	52.6-54.1	A-2-4(0)	19	NP	3.8	85.8	6.4	4.0	100	99	16	-	-
SS- 9	32 RT	528+57	62.6-64.1	A-2-4(0)	20	NP	25.6	61.4	7.0	6.1	100	82	15	-	-