

REFERENCE: B-5503

PROJECT: 55003

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN
-L-	18+10 TO 27+30	4

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	18+00 TO 21+50	5 TO 7
-L-	23+00 TO 27+50	8 TO 14

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY TESTING SUMMARY	15 TO 16

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

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY MARTIN
 PROJECT DESCRIPTION BRIDGE NO. 570053 OVER
COLLIE SWAMP ON SR 1142 (PRISON CAMP
ROAD)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5503	1	16

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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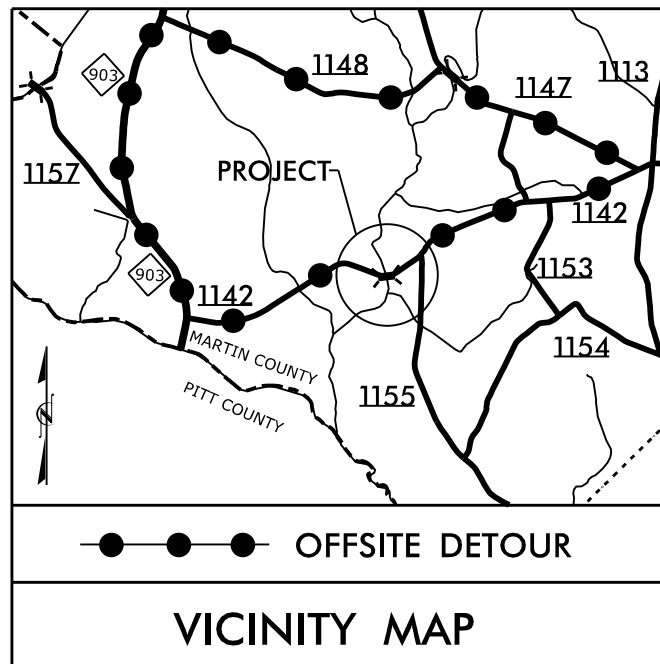
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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: 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, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. 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. COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	
MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	COMPRESSION SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	WEATHERING FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI) - ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI) - ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. 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, WOULD YIELD SPT N VALUES > 100 BPF</i> VERY SEVERE (V SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD 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.	
PERCENTAGE OF MATERIAL ORGANIC MATERIAL TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC > 10%	GROUND WATER ▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING ▽ STATIC WATER LEVEL AFTER 24 HOURS ▽ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA ○ SPRING OR SEEP		
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY	RECOMMENDATION SYMBOLS UNDERCUT SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	
TEXTURE OR GRAIN SIZE	ABBREVIATIONS 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 γ - UNIT WEIGHT γ _d - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO	ROCK HARDNESS VERY HARD - CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD - CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD - CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD - CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT - CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT - CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	
SOIL MOISTURE - CORRELATION OF TERMS	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST D-50 (TER346) BENECADE (TER92-0)	SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION - SATURATED - (SAT.) - WET - (W) - MOIST - (M) - DRY - (D)	
PLASTICITY	PLASTICITY INDEX (PI) NON PLASTIC 0-5 SLIGHTLY PLASTIC 6-15 MODERATELY PLASTIC 16-25 HIGHLY PLASTIC 26 OR MORE	PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH	
COLOR	FRACATURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET	BEDDING 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	INCLINATION FOR SEDIMENTARY ROCKS, INCLINATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INCLINATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INCLINATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INCLINATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.
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.	NOTES: FIAD - FILLED IMMEDIATELY AFTER DRILLING TOP OF BORING ELEVATIONS FOR EB1-B, EB2-B, L2370 WERE SURVEYED USING BM3 - RR SPIKE IN 30' PINE (N: 741133; E: 2530859) ELEVATION: 32.86 TOP OF BORING ELEVATIONS FOR REMAINING BORINGS ESTIMATED USING PROVIDED PROJECT TIN FILE (B5503_Is_TIN.tin)	BENCH MARK: SEE NOTES BELOW. ELEVATION: N/A FEET	

TIP PROJECT: B-5503



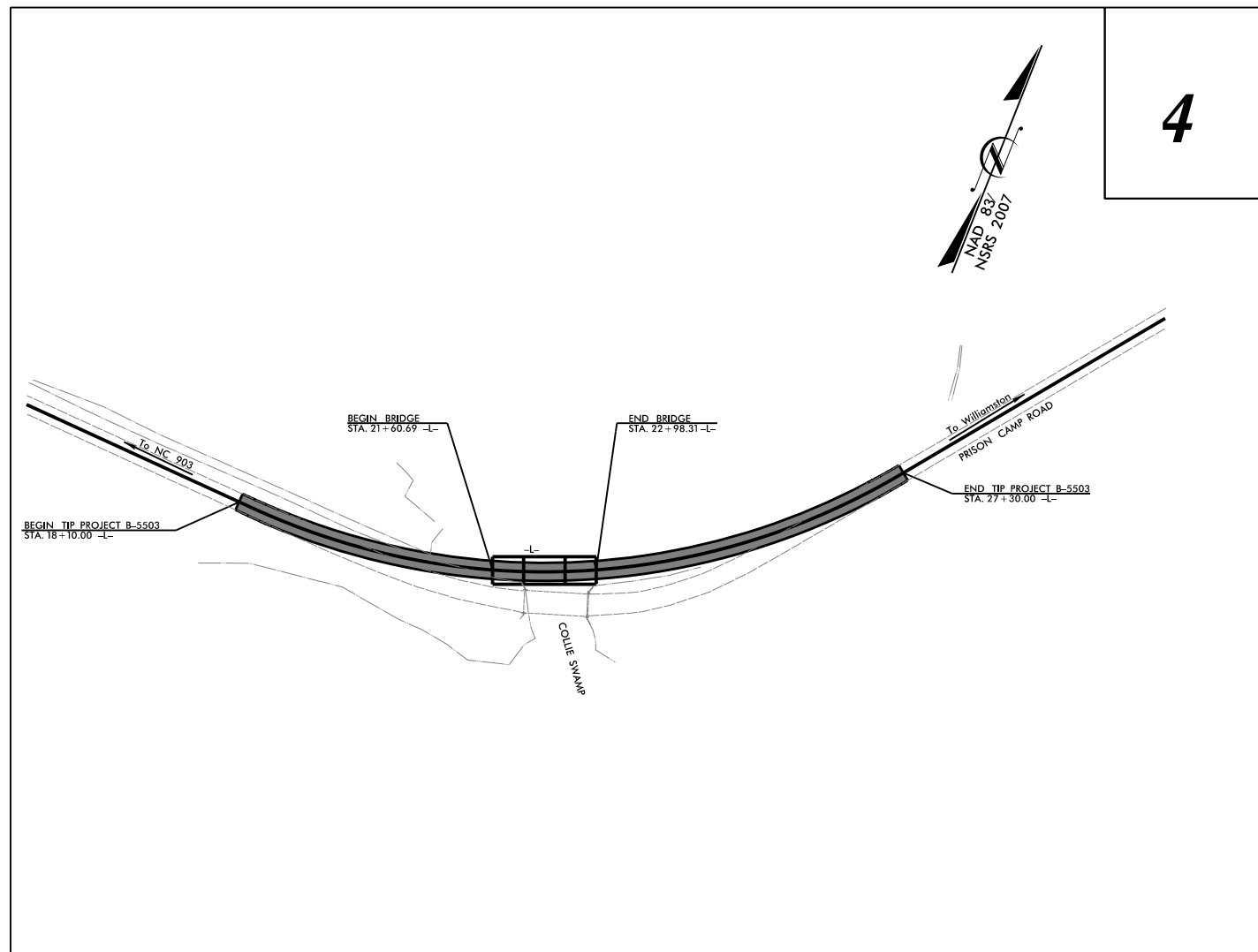
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MARTIN COUNTY

**LOCATION: BRIDGE NO. 53 OVER COLLIE SWAMP
ON SR 1142 (PRISON CAMP ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5503	3	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
55003.1.FR1	BRSTP-0125(6)	PE	



1. THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

<p>GRAPHIC SCALES</p> <p>25 12.5 0 50 PLANS</p> <p>25 12.5 0 50 PROFILE (HORIZONTAL)</p> <p>10 5 0 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2015 = 3200 ADT 2040 = 4800 K = 10 % D = 60 % T = 3 % * V = 50 MPH * TTST = 1 DUAL 2 FUNC CLASS = Minor Collector REGIONAL TIER</p>	<p>PROJECT LENGTH</p> <p>LENGTH OF ROADWAY TIP PROJECT B-5503 = .149 MILES LENGTH OF STRUCTURE TIP PROJECT B-5503 = .026 MILES TOTAL LENGTH OF TIP PROJECT B-5503 = .175 MILES</p>	<p>Prepared in the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610</p>	<p>HYDRAULICS ENGINEER</p> <p>SIGNATURE: _____ P.E.</p>	
			<p>2012 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: OCTOBER 15, 2017</p> <p>LETTING DATE: OCTOBER 1, 2018</p>	<p>DEWAYNE L. SYKES, PE PROJECT ENGINEER</p> <p>BRYAN E. HOUGH, PE PROJECT DESIGN ENGINEER</p>	

Date: June 2018
 WBS Number: 55003.1.FR1
 Federal Aid Number: BRSTP-0125(6)
 TIP Number: B-5503
 County: Martin
 Description: Bridge No.570053 over Collie Swamp on SR 1142 (Prison Camp Road)

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located south of Williamston in Martin County, North Carolina. The project will consist of replacing the existing bridge and the realignment of SR 1142 (Prison Camp Road) at the Collie Swamp crossing. The new bridge will have three spans (1@55', 2@41') cored slab with spill-through abutments. The total length of the project is 0.175 miles. The alignment will be shifted to the north of its existing location. Maximum fill heights for construction of the roadway embankments and approaches will be about 7.5 feet. The project corridor is in a rural setting and the adjacent areas are wetlands.

The geotechnical subsurface investigation was performed in October and November, 2017. Standard Penetration Test (SPT) borings were advanced using a Diedrich D-50 and an Acker Renegade rotary drill rigs, both equipped with a recently calibrated automatic hammer. Borings were advanced utilizing wash boring drilling techniques to the necessary depths. In addition to soil test borings performed along the corridor, ten hand auger borings were performed along the -L- alignment. Representative soil samples were collected in the field for visual classification and selected samples were submitted for laboratory analysis by Terracon's soil testing laboratory. Laboratory testing was performed in accordance with the AASHTO Soil Classification System.

The following alignment was investigated by soil testing and visual reconnaissance:

<u>Alignment</u>	<u>Stations</u>
-L-	18+10 to 27+30

Physiography and Geology

The site is located within the Inner Coastal Plain Physiographic and Geologic Province of North Carolina in Martin County. The Coastal Plain Province is characterized by subdued topographic features. The existing natural grade elevations along the investigated corridor range from approximately 35 to 50 feet. In general, the topography at this site is flat.

The project is located in the Inner Coastal Plain Physiographic Province with geology consisting of a wedge of unconsolidated sands, silt, marl, and other clays interbedded with occasional limestone strata, which rests atop crystalline basement rocks.

Based on previous mapping (N.C. Geologic Map 1985) and our knowledge of the local geology, the site falls within the Tertiary age Yorktown Formation. However, based on our site visit and subsurface conditions encountered, the near surface soils appear to be recent alluvial deposits and are consistent with interbedded sands, clayey sands and clays typical of alluvial deposits in the Coastal Plain. These near surface soils overlie the Yorktown Formation. The Yorktown Formation soils are described as fossiliferous clay with varying amounts of fine-grained sand and bluish-gray shell material commonly concentrated in lenses mainly in the area north of the Neuse River.

Under the Yorktown Formation soil, the Cretaceous age Black Creek Formation was encountered. The Black Creek Formation soils are described as gray to black lignitic clay with thin beds and laminae of fine-grained micaceous sand and thick lenses of cross-bedded sand. Glauconitic, fossiliferous clayey sand lenses are common in the upper part.

Soil Properties

Soils encountered during this investigation are separated into three categories based on their origin. The soils encountered consist of roadway embankment fill, alluvial deposits, and Formational soils.

Roadway Embankment soils were encountered at the following approximate locations:

<u>Alignment</u>	<u>Stations</u>
-L-	18+10 to 21+02
-L-	22+88 to 27+30

Roadway embankment soils were encountered along the -L- alignment at the beginning through the end of the roadway work limits. Approximately 3 to 10 feet of roadway embankment fill soils were encountered along the -L- alignment and at the approaches to the existing bridge. Down-station from the existing bridge, soils consist of soft to medium stiff, moist to wet, fine sandy silt (A-4) and loose to medium dense, moist to wet, relatively clean to silty and clayey fine to coarse sands (A-2-4, A-2-6). Up-station of the existing bridge these soils also include very soft to medium stiff, moist to wet, fine sandy clays with a trace of gravel and organics (A-6).

Alluvial soils were encountered at the following approximate locations:

<u>Alignment</u>	<u>Stations</u>
-L-	18+10 to 27+30

Alluvial deposits are present at the surface and beneath some of the roadway embankment soils. The existing roadway appears to have been undercut during the original construction. The alluvial soils along the -L- alignment consist of silty to relatively clean very loose to dense, saturated, sands (A-2-4, A-3) and very soft to medium stiff, saturated to wet, fine sandy to silty clays (A-6, A-7-6) containing trace to little amounts of organic matter. The clay soils exhibited plastic indices of 11 to 28 percent and are considered to be slightly plastic soils with between 44 and 64 percent fines passing the No. 200 sieve. Organic content tests indicate the alluvial materials contain approximately 4 to 8 percent organic matter.



The Yorktown Formation soils consist of very soft to very stiff, wet, highly plastic silty clays (A-7-6), with trace shell fragments, extending to the surface of the underlying Black Creek Formation. The clay soils exhibited plastic indices of 43 percent and are considered to be highly plastic soils. These soils also had between 85 and 94 percent fines passing the No. 200 sieve.

Groundwater

The project crosses Collie Swamp which flows south through of the corridor. Groundwater was encountered above the surface to 3.5 feet below the existing the ground surface on the -L- alignment. The depth of groundwater, beneath the ground surface, will fluctuate with rising of the adjacent wetland areas during seasonal precipitation and may occur a higher levels at other times of the year and above less permeable near surface clayey soils. The normal water surface elevation of Collie Swamp was 29.1 feet on June 2017.

Areas of Special Geotechnical Interest

1) Soft Wet Alluvial Organic Soils – Soft, wet, near surface soils which have the potential to cause embankment stability/settlement problems occur throughout the following sections:

<u>Alignment</u>	<u>Station (±)</u>
-L-	18+10 to 21+67
-L-	22+92 to 27+30

These soils contain trace to little organic matter. A discussion of these soft, wet, alluvial, near surface soils is located above in the section titled “Soil Properties”.

2) High Groundwater – Groundwater was encountered at the following locations within 6 feet of proposed grades:

<u>Alignment</u>	<u>Stations</u>
-L-	18+10 to 27+30

3) Poor Drainage –The following areas are delineated as wetland and were observed to hold standing surface water for periods during the investigation:

<u>Alignment</u>	<u>Stations</u>
-L-	18+10 to 27+30

Closing

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us at your convenience.

BULK SAMPLES

No bulk samples were collected.

UNDISTRUBED SAMPLES

No “Shelby” tube samples were taken.

Sincerely,
Terracon Consultants, Inc.

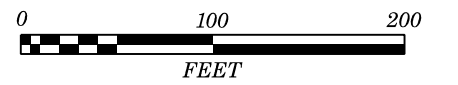


Andrew A. Nash, PE
 Geotechnical Department Manager

Matthew J. Alexander, PE
 Senior Geotechnical Engineer



Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367



15+00 -L-

20+00 -L-

21+00+52 -L-

27+00+05 -L-

NYSSA BURDICK ETALS
DB 24 PG 916

WORLEY MOORE &
KIMBERLY WARREN
DB 24 PG 587

CULTIVATED

WOODS

WOODS

WOODS

WOODS

CULTIVATED

BEGIN BRIDGE
STA. 21+60.69 -L-

END BRIDGE
STA. 22+98.31 -L-

BEGIN TIP PROJECT B-5503
STA. 18+10.00 -L-

END TIP PROJECT B-5503
STA. 27+30.00 -L-

ALLUVIAL

ALLUVIAL

ALLUVIAL

WOODS ALLUVIAL

ALLUVIAL

ALLUVIAL

ALLUVIAL

ALLUVIAL

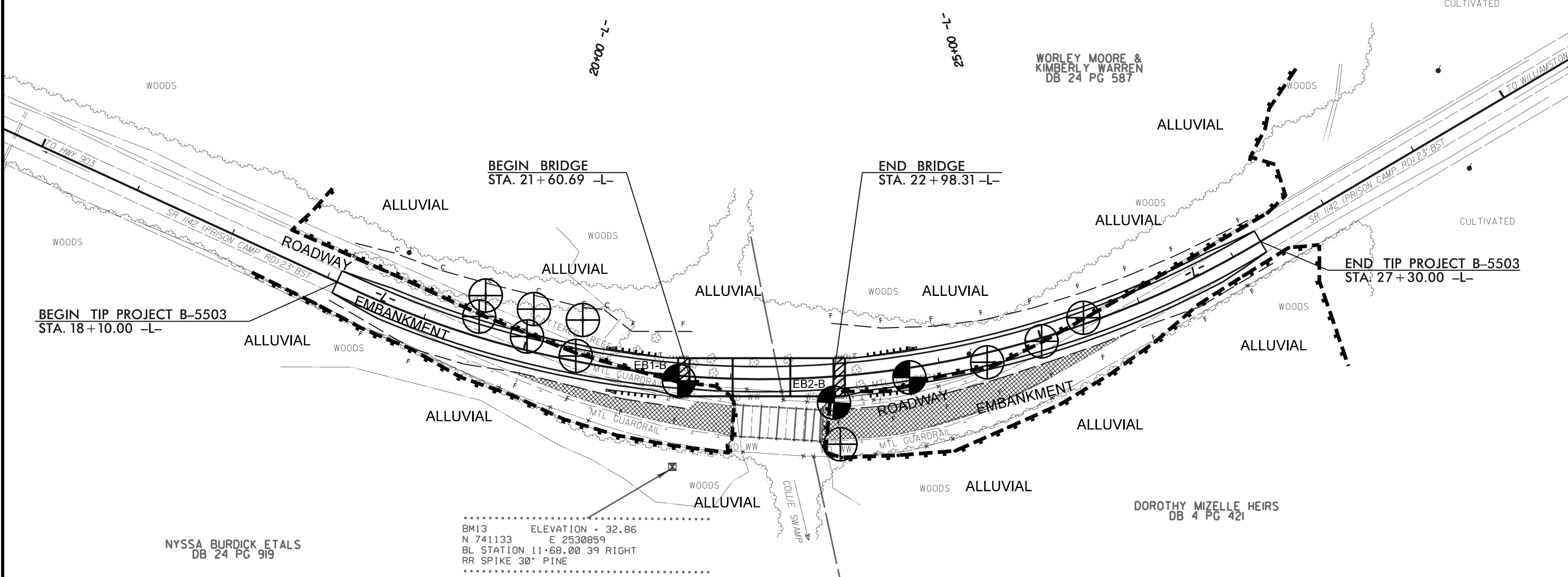
WOODS ALLUVIAL

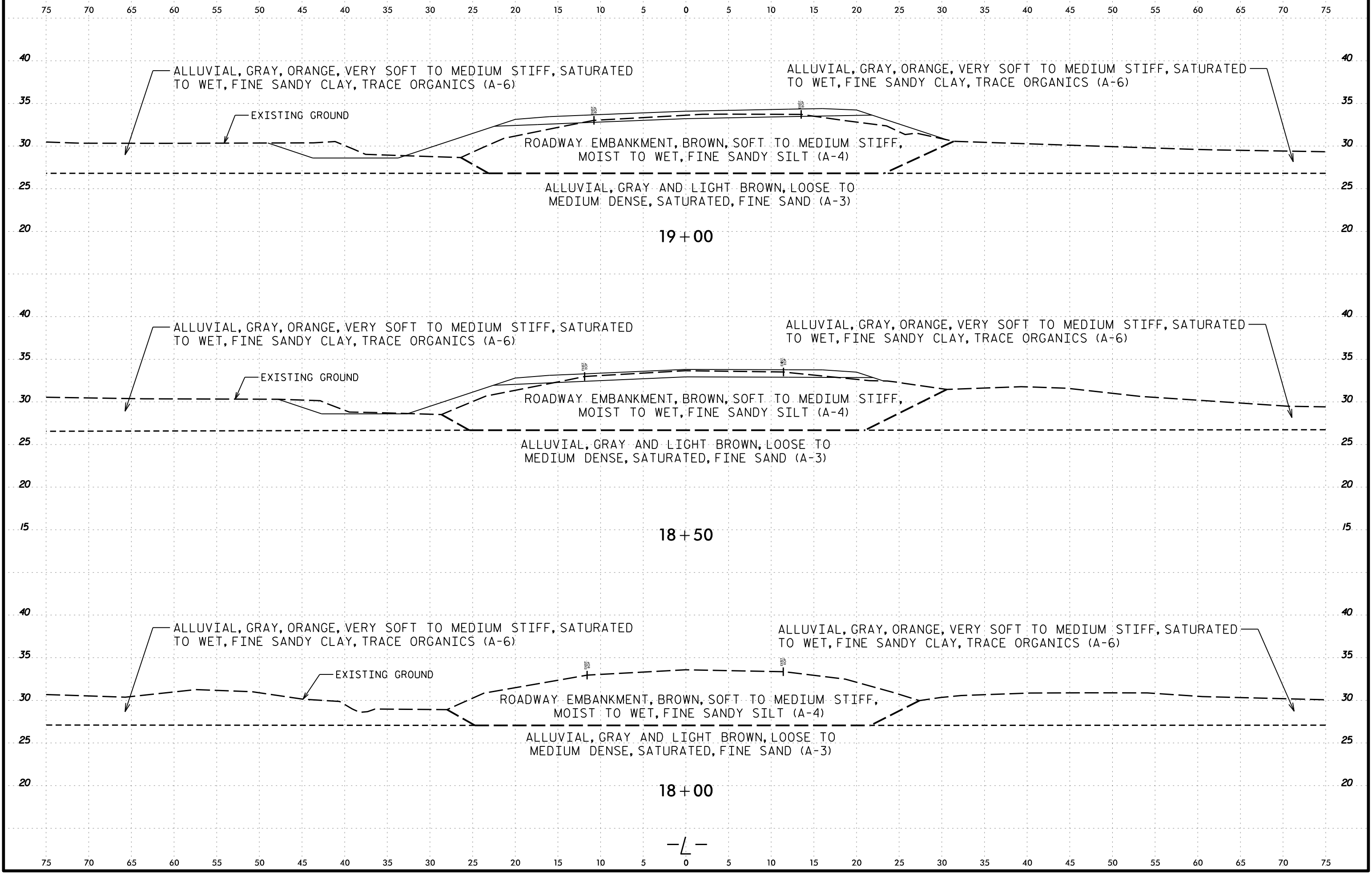
ALLUVIAL

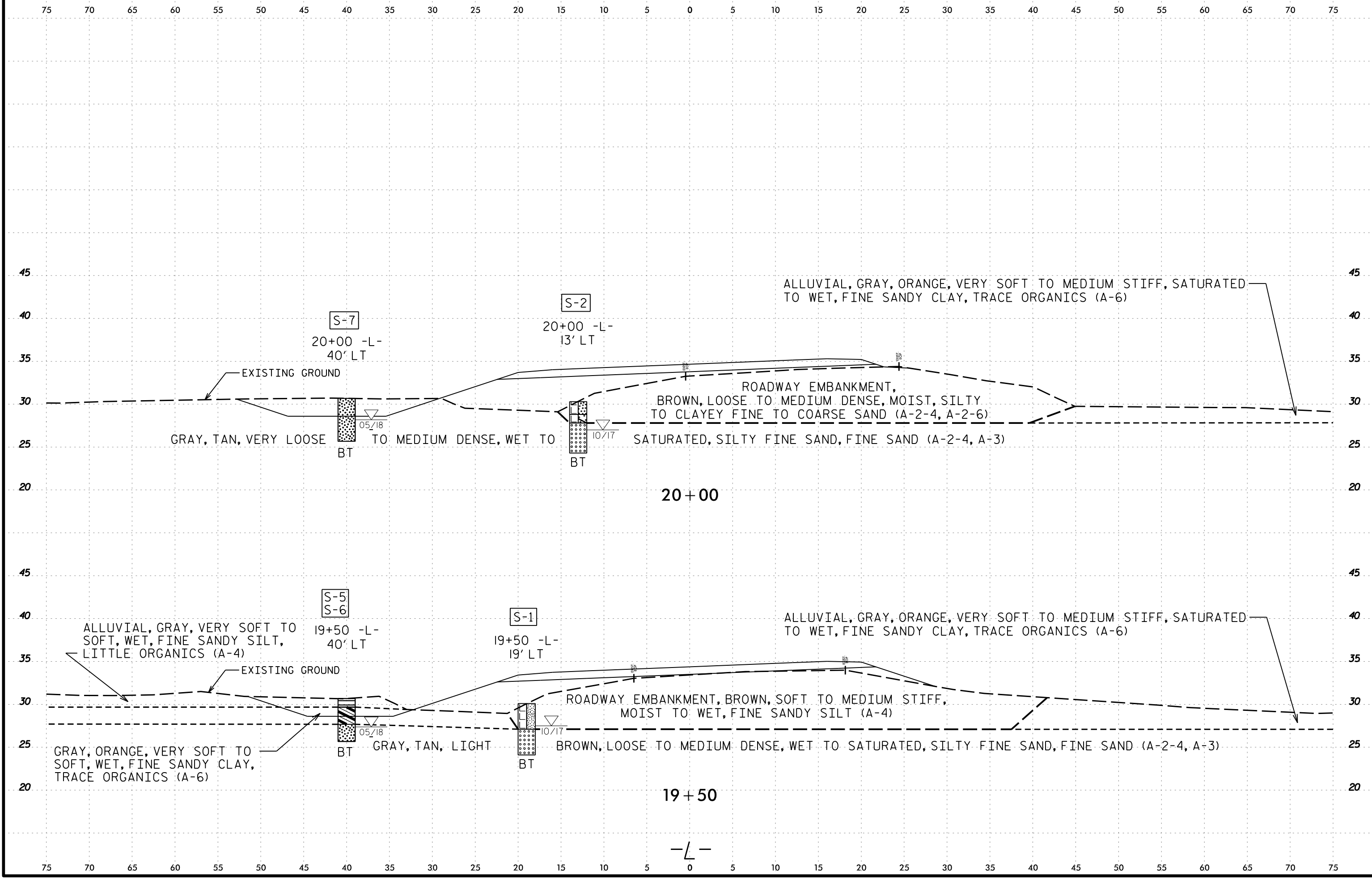
NYSSA BURDICK ETALS
DB 24 PG 919

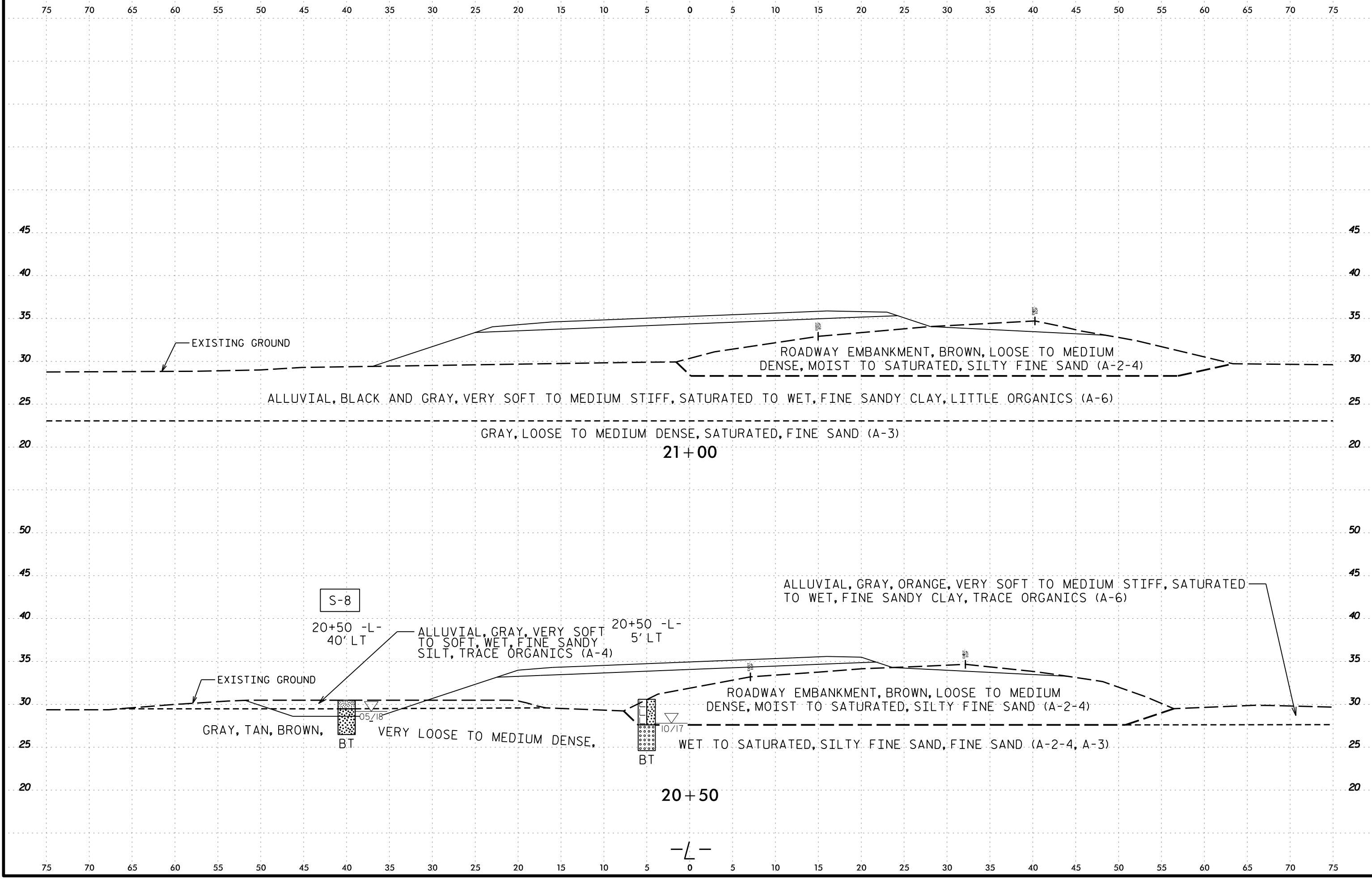
.....
BM13 ELEVATION = 32.86
N 741133 E 2530859
BL STATION 11+68.00 39 RIGHT
RR SPIKE 30' PINE
.....

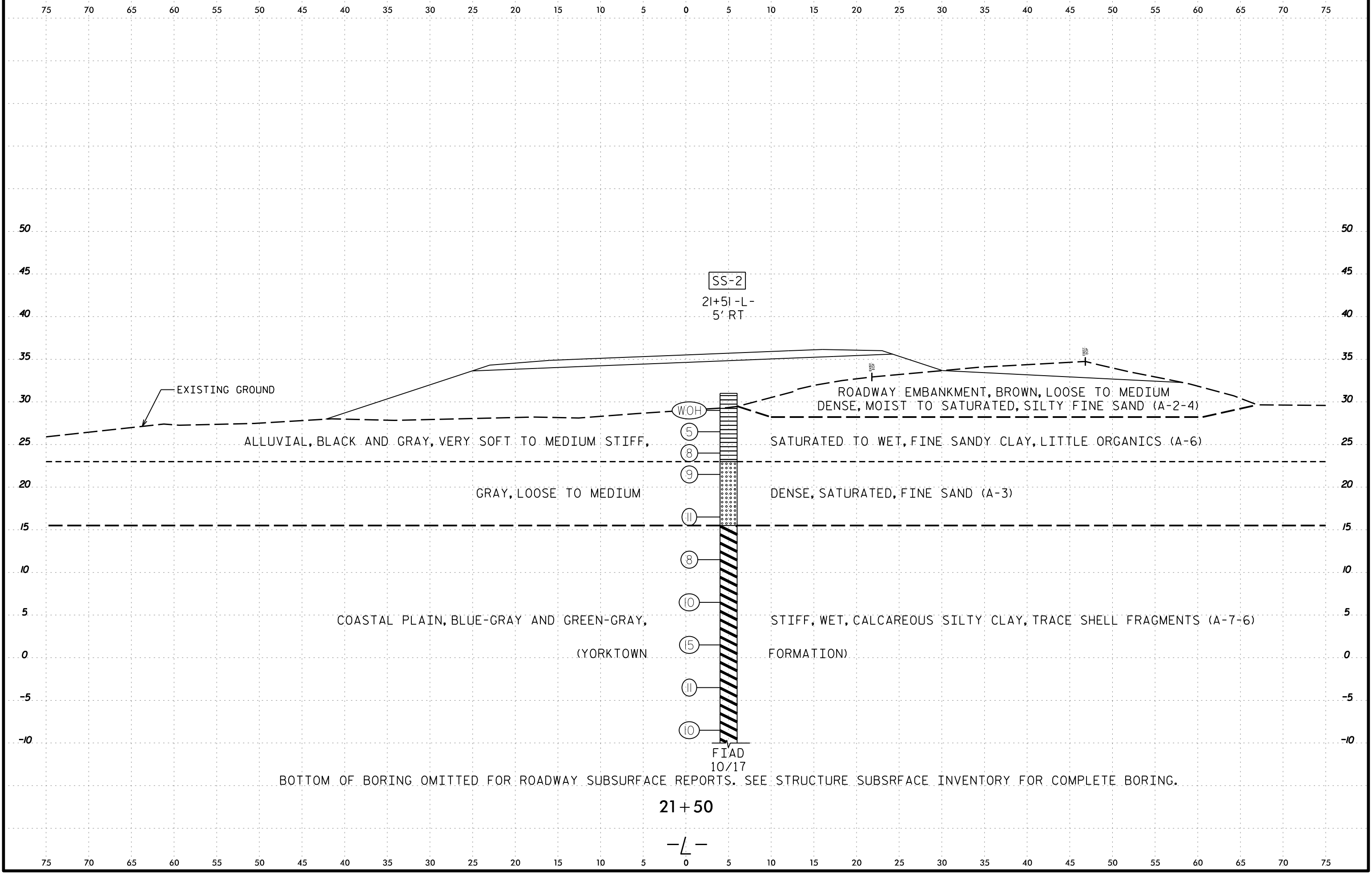
DOROTHY MIZELLE HEIRS
DB 4 PG 421











SS-2
21+51 -L-
5' RT

EXISTING GROUND

ALLUVIAL, BLACK AND GRAY, VERY SOFT TO MEDIUM STIFF,

GRAY, LOOSE TO MEDIUM

COASTAL PLAIN, BLUE-GRAY AND GREEN-GRAY,
(YORKTOWN

ROADWAY EMBANKMENT, BROWN, LOOSE TO MEDIUM
DENSE, MOIST TO SATURATED, SILTY FINE SAND (A-2-4)

SATURATED TO WET, FINE SANDY CLAY, LITTLE ORGANICS (A-6)

DENSE, SATURATED, FINE SAND (A-3)

STIFF, WET, CALCAREOUS SILTY CLAY, TRACE SHELL FRAGMENTS (A-7-6)
FORMATION)

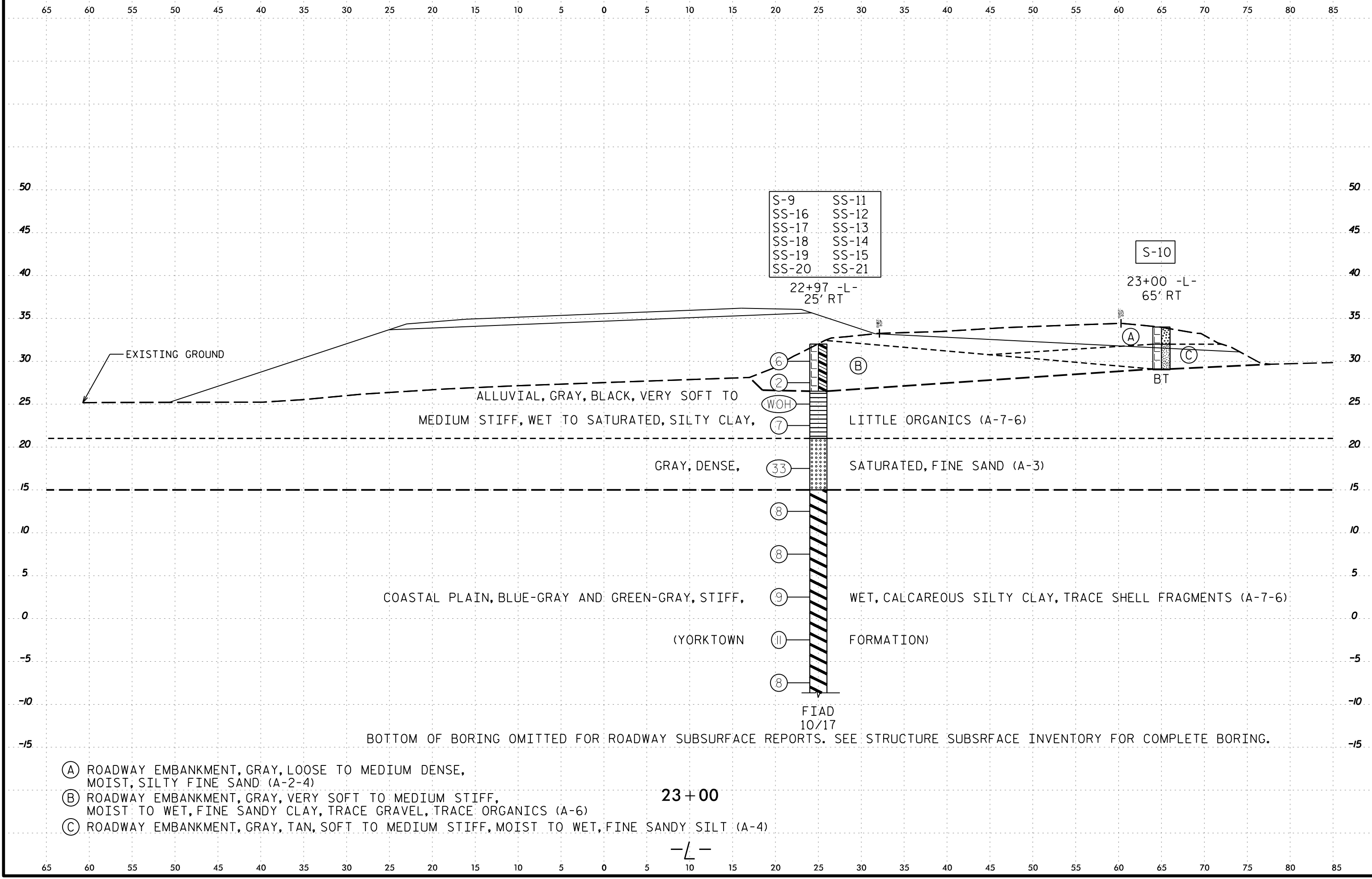
- WOH
- 5
- 8
- 9
- 11
- 8
- 10
- 15
- 11
- 10

FIAD
10/17

BOTTOM OF BORING OMITTED FOR ROADWAY SUBSURFACE REPORTS. SEE STRUCTURE SUBSRFACE INVENTORY FOR COMPLETE BORING.

21 + 50

-L-



S-9	SS-11
SS-16	SS-12
SS-17	SS-13
SS-18	SS-14
SS-19	SS-15
SS-20	SS-21

S-10

22+97 -L-
25' RT

23+00 -L-
65' RT

EXISTING GROUND

ALLUVIAL, GRAY, BLACK, VERY SOFT TO
MEDIUM STIFF, WET TO SATURATED, SILTY CLAY,

LITTLE ORGANICS (A-7-6)

GRAY, DENSE,

SATURATED, FINE SAND (A-3)

COASTAL PLAIN, BLUE-GRAY AND GREEN-GRAY, STIFF,
(YORKTOWN FORMATION)

WET, CALCAREOUS SILTY CLAY, TRACE SHELL FRAGMENTS (A-7-6)

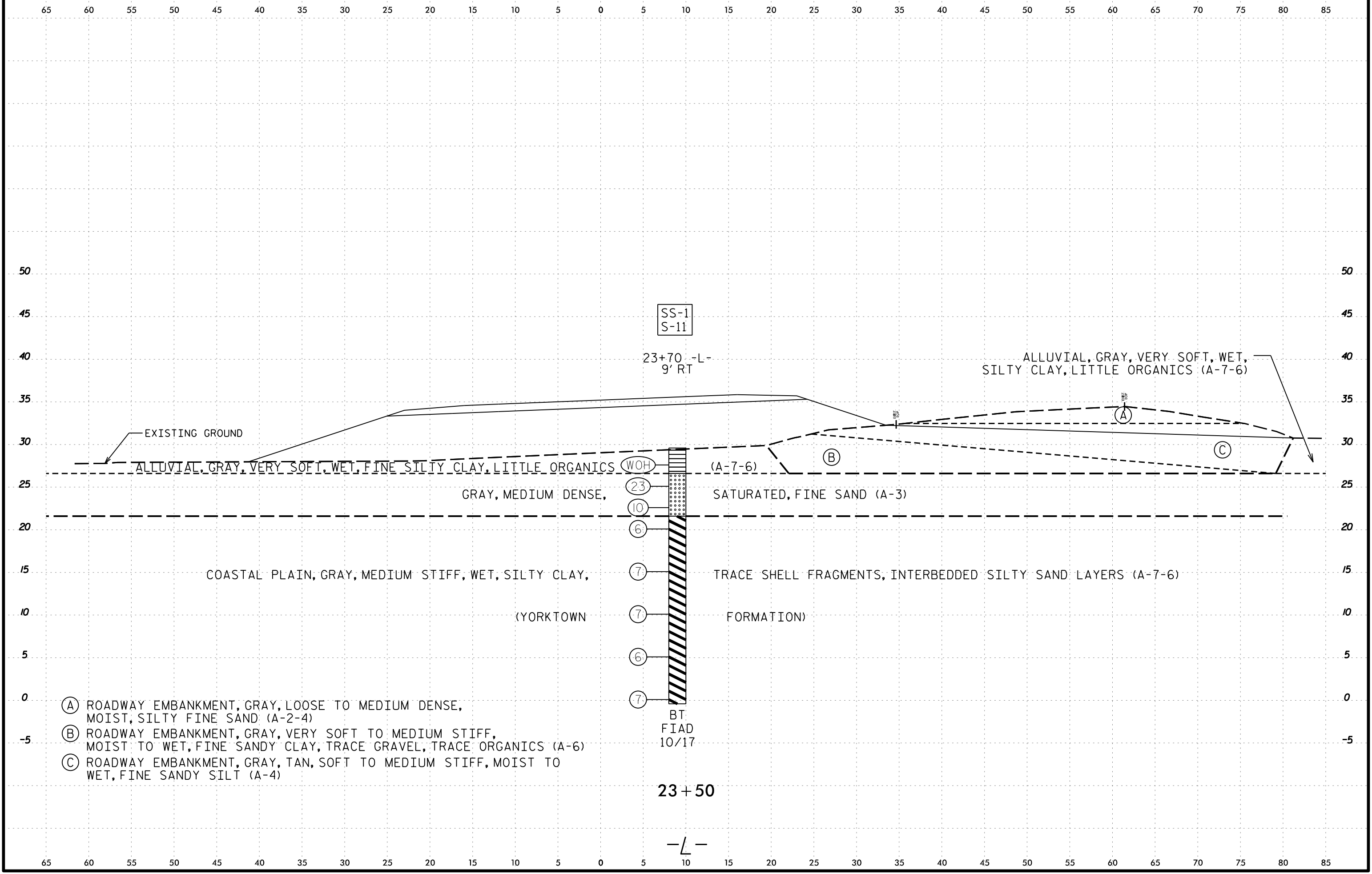
FIAD
10/17

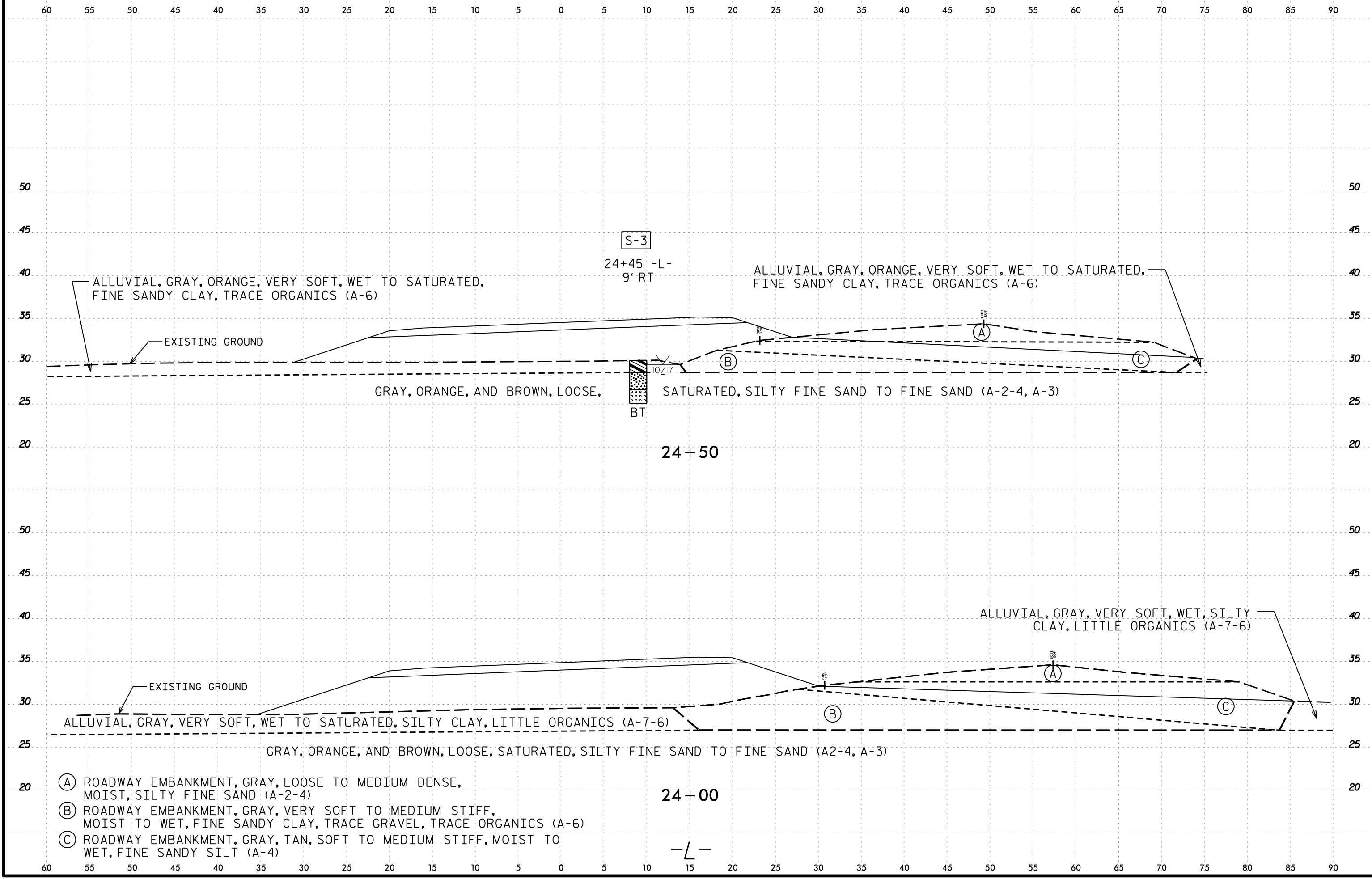
BOTTOM OF BORING OMITTED FOR ROADWAY SUBSURFACE REPORTS. SEE STRUCTURE SUBSRFACE INVENTORY FOR COMPLETE BORING.

- (A) ROADWAY EMBANKMENT, GRAY, LOOSE TO MEDIUM DENSE, MOIST, SILTY FINE SAND (A-2-4)
- (B) ROADWAY EMBANKMENT, GRAY, VERY SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY CLAY, TRACE GRAVEL, TRACE ORGANICS (A-6)
- (C) ROADWAY EMBANKMENT, GRAY, TAN, SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY SILT (A-4)

23+00

-L-





S-3

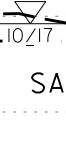
24+45 -L-
9' RT

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED,
FINE SANDY CLAY, TRACE ORGANICS (A-6)

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED,
FINE SANDY CLAY, TRACE ORGANICS (A-6)

EXISTING GROUND

GRAY, ORANGE, AND BROWN, LOOSE,



BT

10/17

24+50

24+00

-L-

SATURATED, SILTY FINE SAND TO FINE SAND (A-2-4, A-3)

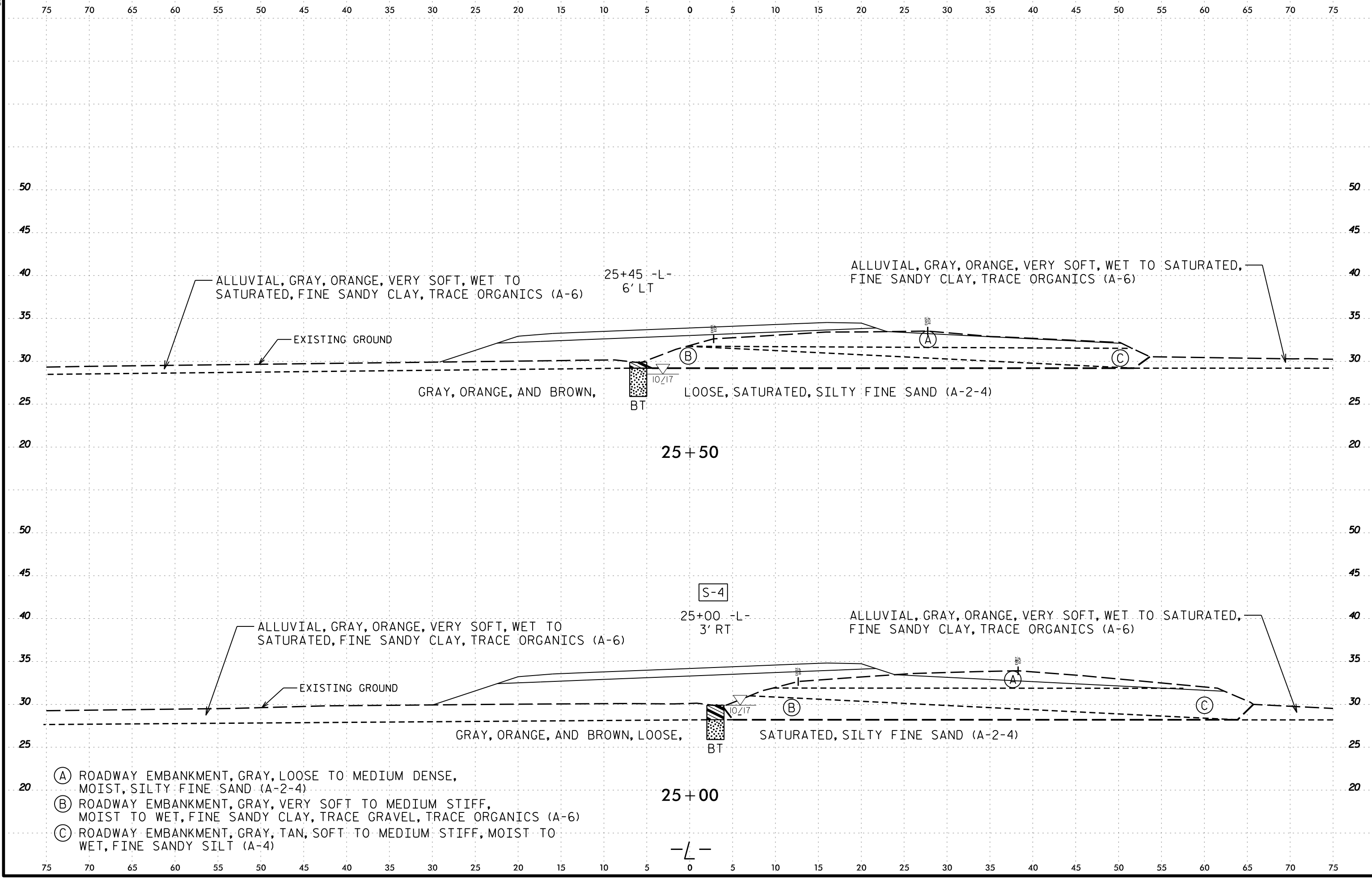
ALLUVIAL, GRAY, VERY SOFT, WET, SILTY
CLAY, LITTLE ORGANICS (A-7-6)

EXISTING GROUND

ALLUVIAL, GRAY, VERY SOFT, WET TO SATURATED, SILTY CLAY, LITTLE ORGANICS (A-7-6)

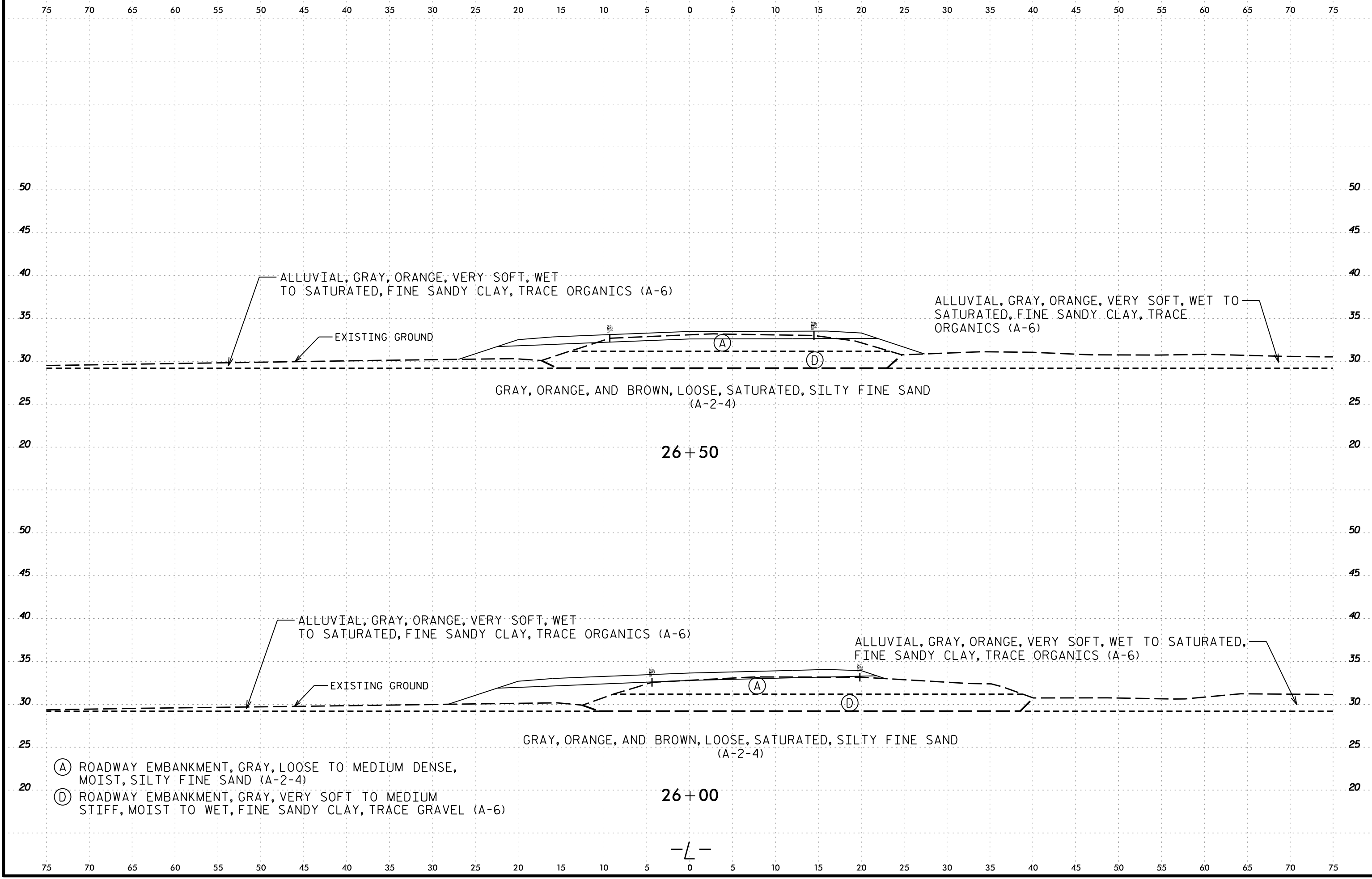
GRAY, ORANGE, AND BROWN, LOOSE, SATURATED, SILTY FINE SAND TO FINE SAND (A2-4, A-3)

- (A) ROADWAY EMBANKMENT, GRAY, LOOSE TO MEDIUM DENSE,
MOIST, SILTY FINE SAND (A-2-4)
- (B) ROADWAY EMBANKMENT, GRAY, VERY SOFT TO MEDIUM STIFF,
MOIST TO WET, FINE SANDY CLAY, TRACE GRAVEL, TRACE ORGANICS (A-6)
- (C) ROADWAY EMBANKMENT, GRAY, TAN, SOFT TO MEDIUM STIFF, MOIST TO
WET, FINE SANDY SILT (A-4)



- (A) ROADWAY EMBANKMENT, GRAY, LOOSE TO MEDIUM DENSE, MOIST, SILTY FINE SAND (A-2-4)
- (B) ROADWAY EMBANKMENT, GRAY, VERY SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY CLAY, TRACE GRAVEL, TRACE ORGANICS (A-6)
- (C) ROADWAY EMBANKMENT, GRAY, TAN, SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY SILT (A-4)

-L-



ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

EXISTING GROUND

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

GRAY, ORANGE, AND BROWN, LOOSE, SATURATED, SILTY FINE SAND (A-2-4)

26 + 50

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

EXISTING GROUND

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

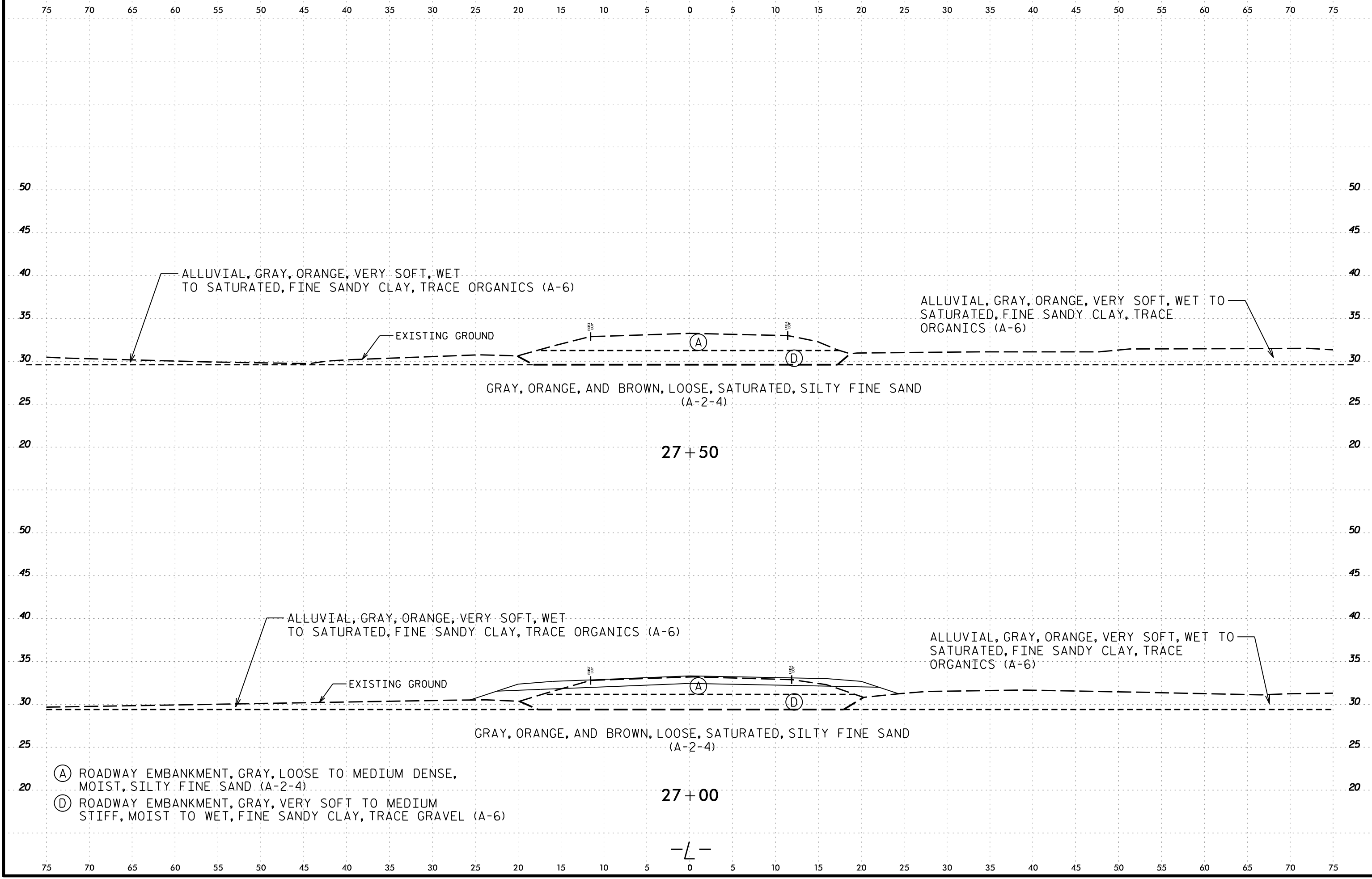
GRAY, ORANGE, AND BROWN, LOOSE, SATURATED, SILTY FINE SAND (A-2-4)

26 + 00

(A) ROADWAY EMBANKMENT, GRAY, LOOSE TO MEDIUM DENSE, MOIST, SILTY FINE SAND (A-2-4)

(D) ROADWAY EMBANKMENT, GRAY, VERY SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY CLAY, TRACE GRAVEL (A-6)

-L-



ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

EXISTING GROUND

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

GRAY, ORANGE, AND BROWN, LOOSE, SATURATED, SILTY FINE SAND (A-2-4)

27+50

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

EXISTING GROUND

ALLUVIAL, GRAY, ORANGE, VERY SOFT, WET TO SATURATED, FINE SANDY CLAY, TRACE ORGANICS (A-6)

GRAY, ORANGE, AND BROWN, LOOSE, SATURATED, SILTY FINE SAND (A-2-4)

27+00

(A) ROADWAY EMBANKMENT, GRAY, LOOSE TO MEDIUM DENSE, MOIST, SILTY FINE SAND (A-2-4)

(D) ROADWAY EMBANKMENT, GRAY, VERY SOFT TO MEDIUM STIFF, MOIST TO WET, FINE SANDY CLAY, TRACE GRAVEL (A-6)

-L-

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
APPENDIX A
LABORATORY TESTING SUMMARY

REFERENCE: B-5503

PROJECT: 55003

Prepared in the Office of:

Terracon

Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 55003.1.FR1

TIP: B-5503

COUNTY: MARTIN

DESCRIPTION: BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)

Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
S-1	-L-	19+50	19 LT	0 - 3.0	A-4 (0)	16	NP	5.1	64.0	16.6	14.3	0	100	98	37	23.4	--
S-5	-L-	19+50	40' LT	0.0-1.0	A-4 (0)	33	9	8.0	60.1	17.7	14.2	0	100	96	38	47.1	7.1
S-6	-L-	19+50	40' LT	1.5-3.0	A-6 (3)	24	11	3.2	50	21.2	25.6	0	100	99	53	17.6	
S-2	-L-	20+00	13 LT	0 - 1.5	A-2-4 (0)	17	NP	27.9	50.3	9.4	12.4	1	98	86	25	--	--
S-7	-L-	20+00	40' LT	0.0-2.0	A-2-4 (0)	13	NP	2.2	79.2	10.5	8.1	0	100	100	24	19.1	
S-8	-L-	20+50	40' LT	0.0-2.0	A-2-4 (0)	13	NP	1.6	85.0	7.6	5.8	0	100	100	18	19.9	
SS-2	-L-	21+51	5 RT	48.5 - 50.0	A-7-6 (44)	60	43	0.0	12.2	24.9	62.9	0	100	100	94	45.2	--
S-9	-L-	22+97	25' RT	1.0-2.0	A-6 (2)	29	14	27.2	35.5	14.2	23.1	0	98	84	40	40.3	4.2
SS-11	-L-	22+97	25' RT	18.5 - 20.0	--	--	--	--	--	--	--	--	--	--	--	51.5	--
SS-12	-L-	22+97	25' RT	23.5 - 25.0	--	--	--	--	--	--	--	--	--	--	--	54.3	--
SS-13	-L-	22+97	25' RT	28.5 - 30.0	--	--	--	--	--	--	--	--	--	--	--	58.7	--
SS-14	-L-	22+97	25' RT	33.5 - 35.0	--	--	--	--	--	--	--	--	--	--	--	55.9	--
SS-15	-L-	22+97	25' RT	38.0 - 40.0	--	--	--	--	--	--	--	--	--	--	--	60.1	--
SS-16	-L-	22+97	25' RT	43.5 - 45.0	A-7-6 (38)	58	43	0.0	22.8	24.1	53.1	0	100	100	85	45.6	--
SS-17	-L-	22+97	25' RT	48.5 - 50.0	--	--	--	--	--	--	--	--	--	--	--	42.5	--
SS-18	-L-	22+97	25' RT	53.5 - 55.0	--	--	--	--	--	--	--	--	--	--	--	40.0	--
SS-19	-L-	22+97	25' RT	58.5 - 60.0	--	--	--	--	--	--	--	--	--	--	--	40.2	--
SS-20	-L-	22+97	25' RT	63.5 - 65.0	--	--	--	--	--	--	--	--	--	--	--	35.7	--
SS-21	-L-	22+97	25' RT	68.5 - 70.0	--	--	--	--	--	--	--	--	--	--	--	28.6	--
S-10	-L-	23+00	65' RT	2.0-3.0	A-4 (1)	20	6	12.7	34.0	29.6	23.7	1	97	91	56	-	
SS-1	-L-	23+70	9 RT	1.0 - 2.5	--	--	--	--	--	--	--	--	--	--	--	--	8.1
S-11	-L-	23+70	9' RT	1.0-2.0	A-7-6 (15)	45	28	1.9	38.3	16.9	42.9	0	100	99	64	44.6	6.6
S-3	-L-	24+45	9 RT	0.7 - 1.4	A-6 (5)	28	14	0.8	46.2	22.9	30.1	0	100	100	59	20.2	--
S-4	-L-	25+00	3 RT	1.0 - 1.7	A-6 (2)	30	13	2.9	59.1	11.7	26.3	0	100	100	44	23.0	--

NP - NONPLASTIC

Stephanie H. Huffman
 Certified Lab Technician Signature

114-01-1203
 Certification Number

REFERENCE: B-5503

PROJECT: 55003

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY MARTIN
 PROJECT DESCRIPTION BRIDGE NO. 570053 OVER
COLLIE SWAMP ON SR 1142 (PRISON CAMP
ROAD)

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5 TO 8	BORE LOGS
9	LABORATORY TESTING SUMMARY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5503	1	9

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL
NASH, A. A.
SCHLEMM, T. S.
ECKLUND, M. A.
STUDNICKY, R. T.
DUGGINS, W. T.
MASHBURN, S. R.

INVESTIGATED BY TERRACON CONSULTANTS
 DRAWN BY ALEXANDER, M. J.
 CHECKED BY NASH, A. A.
 SUBMITTED BY TERRACON CONSULTANTS
 DATE JUNE 2018

Prepared in the Office of:
Terracon
 Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
 RALEIGH, NORTH CAROLINA 27604
 NC REGISTERED ENGINEERING FIRM: F-0869
 NC REGISTERED GEOLOGIC FIRM: C-367



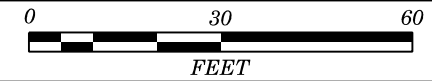
SIGNATURE _____ DATE _____

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with multiple columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, PLASTICITY, COLOR, FRACTURE SPACING, BEDDING, INDURATION.

SITE PLAN

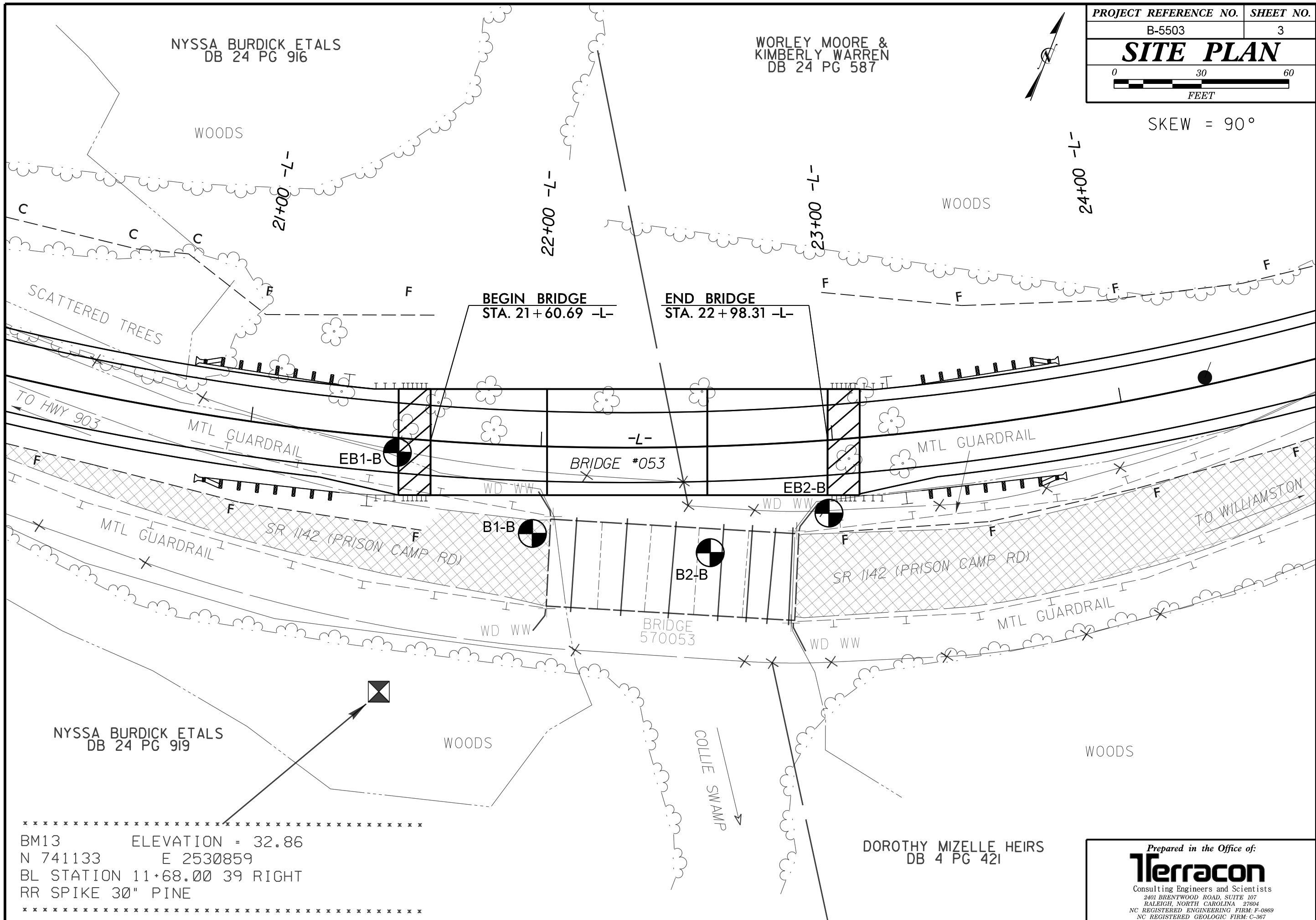


SKEW = 90°



NYSSA BURDICK ETALS
DB 24 PG 916

WORLEY MOORE &
KIMBERLY WARREN
DB 24 PG 587

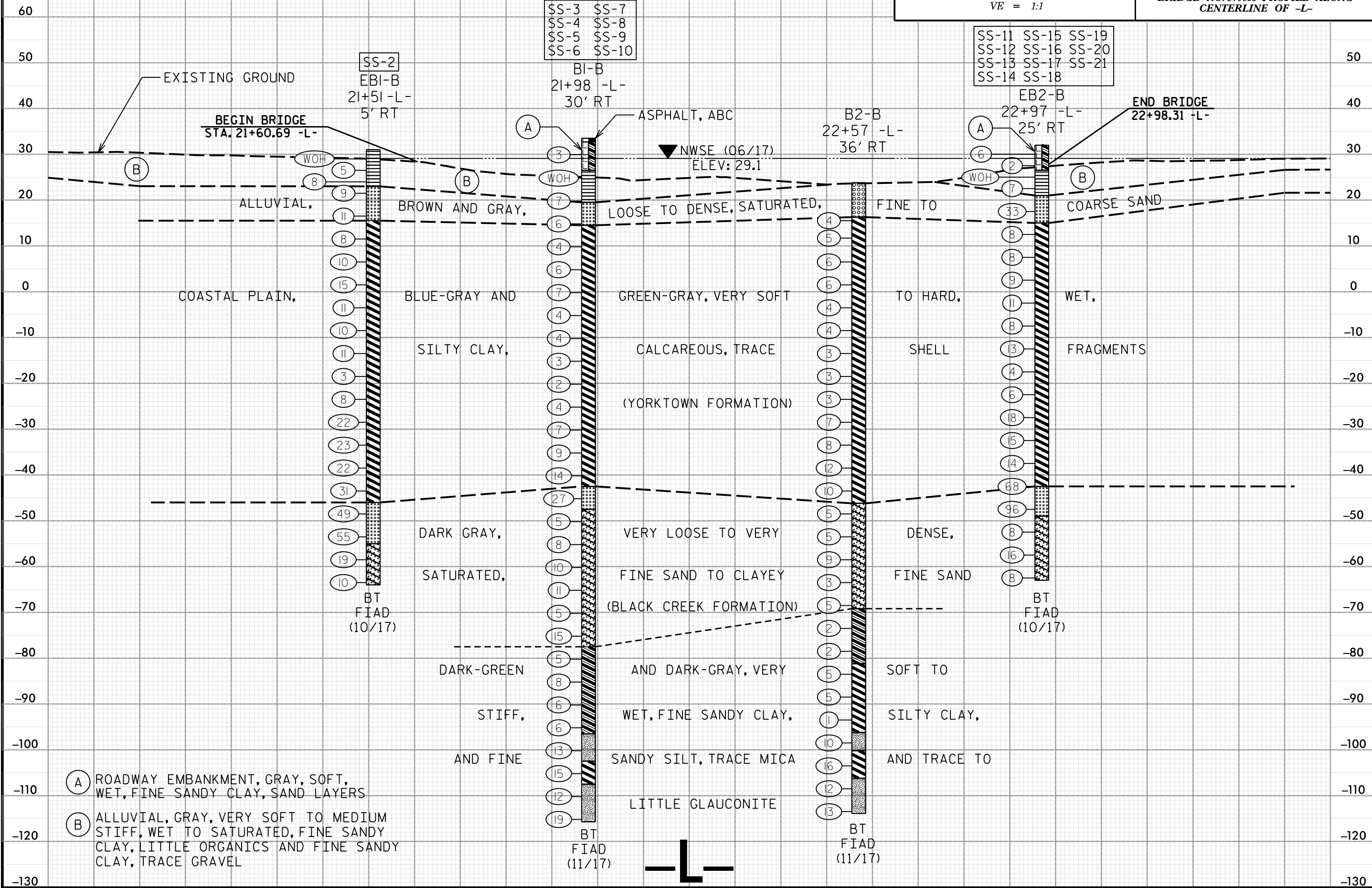
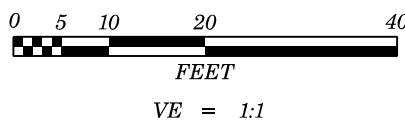


 BM13 ELEVATION = 32.86
 N 741133 E 2530859
 BL STATION 11+68.00 39 RIGHT
 RR SPIKE 30" PINE

DOROTHY MIZELLE HEIRS
DB 4 PG 421

Prepared in the Office of:
Terracon
 Consulting Engineers and Scientists
 2401 BRENTWOOD ROAD, SUITE 107
 RALEIGH, NORTH CAROLINA 27604
 NC REGISTERED ENGINEERING FIRM: F-0869
 NC REGISTERED GEOLOGIC FIRM: C-367

NOTE: INFERRED STRATIGRAPHY AT CENTERLINE, BORINGS
 PROJECTED ON TO THE -L- CENTERLINE PROFILE
 TAKEN FROM ROADWAY PLANS DATED JULY 11, 2017.



(A) ROADWAY EMBANKMENT, GRAY, SOFT, WET, FINE SANDY CLAY, SAND LAYERS

(B) ALLUVIAL, GRAY, VERY SOFT TO MEDIUM STIFF, WET TO SATURATED, FINE SANDY CLAY, LITTLE ORGANICS AND FINE SANDY CLAY, TRACE GRAVEL

21+00

22+00

23+00

WBS 55003.1.FR1		TIP B-5503		COUNTY MARTIN		GEOLOGIST NASH, A. A.										
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 21+51		OFFSET 5 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 31.0 ft		TOTAL DEPTH 95.0 ft		NORTHING 741,212		EASTING 2,530,835										
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 90% 03/10/2017		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER ECKLUND, M. A.		START DATE 10/26/17		COMP. DATE 10/27/17		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						
35																
30	30.0	1.0														
	27.5	3.5	WOH	WOH	WOH											
25	25.0	6.0														
	22.5	8.5	WOH	3	5											
20																
	17.5	13.5														
15																
	12.5	18.5														
10																
	7.5	23.5														
5																
	2.5	28.5														
0																
	-2.5	33.5														
-5																
	-7.5	38.5														
-10																
	-12.5	43.5														
-15																
	-17.5	48.5														
-20																
	-22.5	53.5														
-25																
	-27.5	58.5														
-30																
	-32.5	63.5														
-35																
	-37.5	68.5														
-40																
	-42.5	73.5														
-45																

WBS 55003.1.FR1		TIP B-5503		COUNTY MARTIN		GEOLOGIST NASH, A. A.										
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 21+51		OFFSET 5 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 31.0 ft		TOTAL DEPTH 95.0 ft		NORTHING 741,212		EASTING 2,530,835										
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 90% 03/10/2017		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER ECKLUND, M. A.		START DATE 10/26/17		COMP. DATE 10/27/17		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																
	-47.5	78.5	17	23	26											
	-52.5	83.5	13	25	30											
	-57.5	88.5	8	10	9											
	-62.5	93.5	3	5	5											

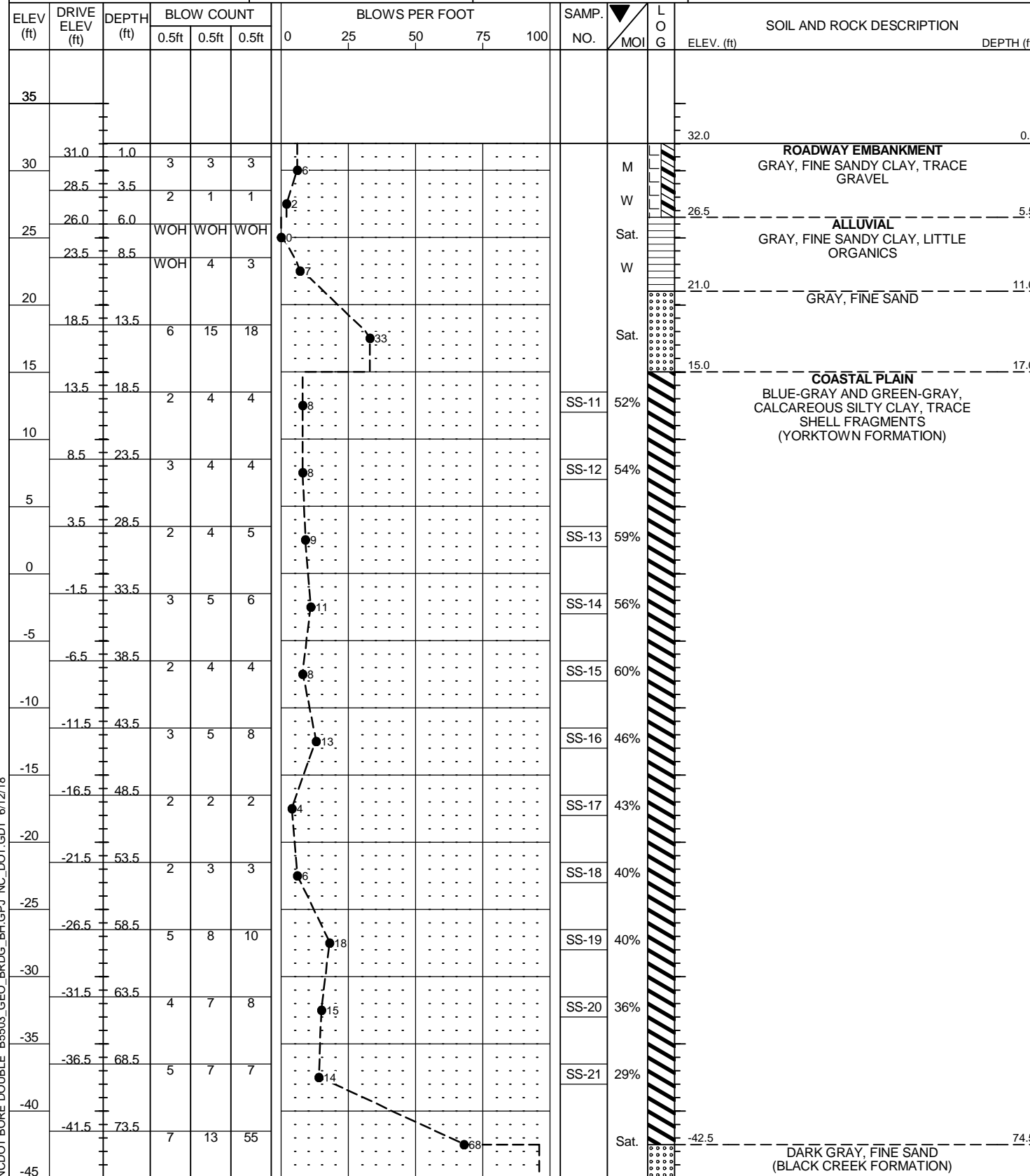
NCDOT BORE DOUBLE B5503_GEO_BRDG_BH.GPJ NC_DOT.GDT 6/12/18

WBS 55003.1.FR1		TIP B-5503		COUNTY MARTIN		GEOLOGIST SCHLEMM, T. S.										
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)							GROUND WTR (ft)									
BORING NO. B1-B		STATION 21+98		OFFSET 30 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 33.5 ft		TOTAL DEPTH 149.2 ft		NORTHING 741,202		EASTING 2,530,888										
DRILL RIG/HAMMER EFF./DATE TER92-0 ACKER RENEGADE 94% 03/09/2017		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER DUGGINS, W. T.		START DATE 11/09/17		COMP. DATE 11/10/17		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						
35																
	30.9	2.6	4	2	1											
30																
	25.8	7.7	WOH	WOH	WOH											
25																
	20.8	12.7	WOH		6											
20																
	15.8	17.7	4	2	4											
15																
	10.8	22.7	1	2	2											
10																
	5.8	27.7	2	3	3											
5																
	0.8	32.7	2	3	4											
0																
	-4.2	37.7	1	2	2											
-5																
	-9.2	42.7	1	2	2											
-10																
	-14.2	47.7	WOH		2											
-15																
	-19.2	52.7	WOH	WOH	2											
-20																
	-24.2	57.7	WOH		3											
-25																
	-29.2	62.7	2	3	4											
-30																
	-34.2	67.7	3	4	5											
-35																
	-39.2	72.7	5	6	8											
-40																
	-44.2	77.7	4	7	20											
-45																

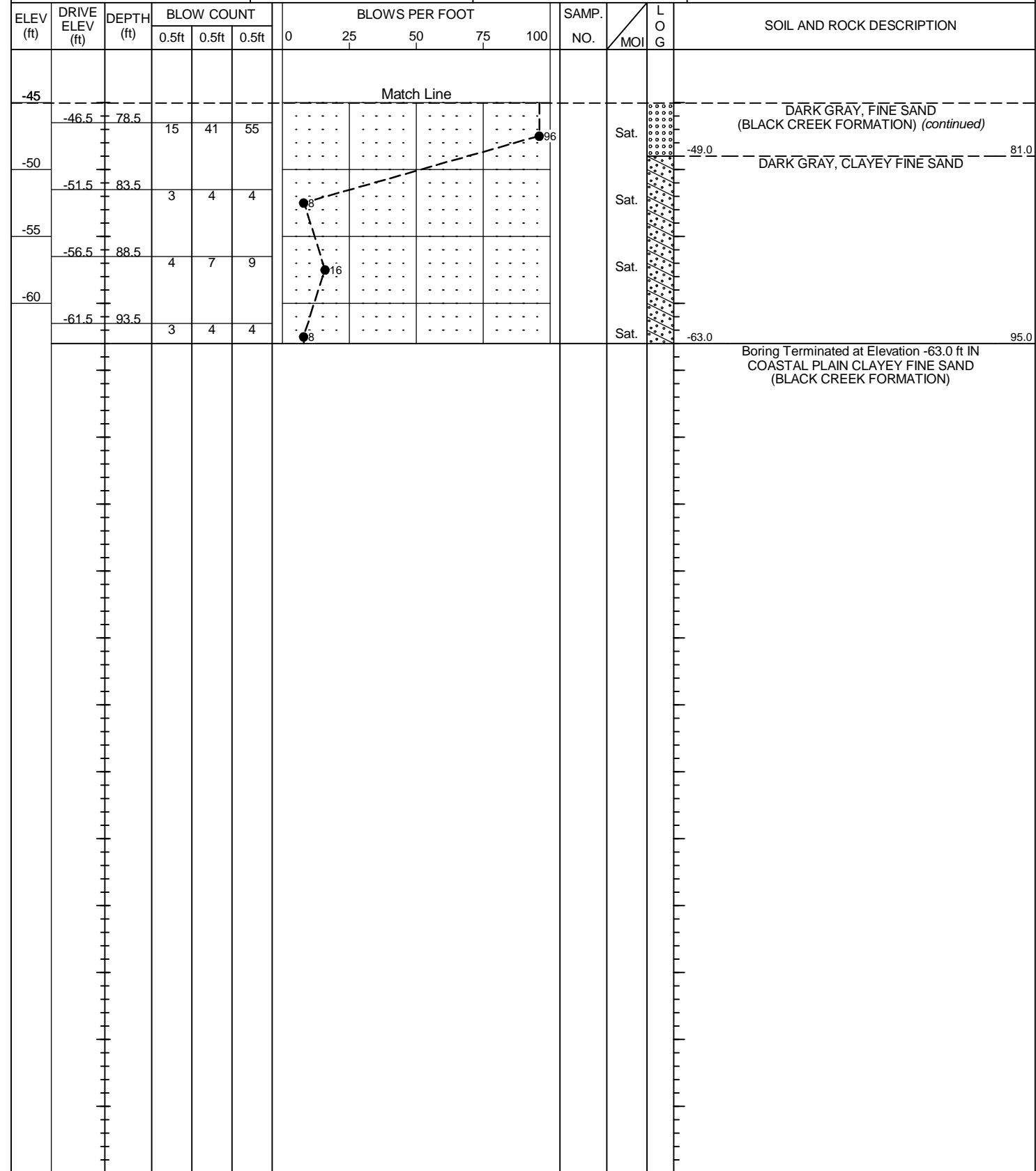
WBS 55003.1.FR1		TIP B-5503		COUNTY MARTIN		GEOLOGIST SCHLEMM, T. S.										
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)							GROUND WTR (ft)									
BORING NO. B1-B		STATION 21+98		OFFSET 30 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 33.5 ft		TOTAL DEPTH 149.2 ft		NORTHING 741,202		EASTING 2,530,888										
DRILL RIG/HAMMER EFF./DATE TER92-0 ACKER RENEGADE 94% 03/09/2017		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER DUGGINS, W. T.		START DATE 11/09/17		COMP. DATE 11/10/17		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																
	-49.2	82.7	3	3	2											
-50																
	-54.2	87.7	3	4	4											
-55																
	-59.2	92.7	7	5	5											
-60																
	-64.2	97.7	3	5	6											
-65																
	-69.2	102.7	WOH	3	2											
-70																
	-74.2	107.7	WOR	8	7											
-75																
	-79.2	112.7	2	2	3											
-80																
	-84.2	117.7	WOH	WOH	8											
-85																
	-89.2	122.7	WOH		4											
-90																
	-94.2	127.7	WOH	WOH	6											
-95																
	-99.2	132.7	4	6	7											
-100																
	-104.2	137.7	5	6	9											
-105																
	-109.2	142.7	5	6	6											
-110																
	-114.2	147.7	6	8	11											
-115																

NCDOT BORE DOUBLE B5503_GEO_BRDG_BH.GPJ_NC_DOT.GDT 6/12/18

WBS 55003.1.FR1	TIP B-5503	COUNTY MARTIN	GEOLOGIST NASH, A. A.
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 22+97	OFFSET 25 ft RT	ALIGNMENT -L-
COLLAR ELEV. 32.0 ft	TOTAL DEPTH 95.0 ft	NORTHING 741,245	EASTING 2,530,981
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 90% 03/10/2017		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER ECKLUND, M. A.	START DATE 10/26/17	COMP. DATE 10/26/17	SURFACE WATER DEPTH N/A



WBS 55003.1.FR1	TIP B-5503	COUNTY MARTIN	GEOLOGIST NASH, A. A.
SITE DESCRIPTION BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)			GROUND WTR (ft)
BORING NO. EB2-B	STATION 22+97	OFFSET 25 ft RT	ALIGNMENT -L-
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DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 90% 03/10/2017		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER ECKLUND, M. A.	START DATE 10/26/17	COMP. DATE 10/26/17	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE B5503_GEO_BRDG_BH.GPJ NC_DOT.GDT 6/12/18

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 55003.1.FR1

TIP: B-5503

COUNTY: MARTIN

DESCRIPTION: BRIDGE NO. 570053 OVER COLLIE SWAMP ON SR 1142 (PRISON CAMP ROAD)

Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
SS-2	-L-	21+51	5 RT	48.5 - 50.0	A-7-6 (44)	60	43	0.0	12.2	24.9	62.9	0	100	100	94	45.2	--
SS-3	-L-	21+98	30 RT	22.7 - 24.2	--	--	--	--	--	--	--	--	--	--	--	56.3	--
SS-4	-L-	21+98	30 RT	27.7 - 29.2	--	--	--	--	--	--	--	--	--	--	--	69.1	--
SS-5	-L-	21+98	30 RT	32.7 - 34.2	--	--	--	--	--	--	--	--	--	--	--	58.7	--
SS-6	-L-	21+98	30 RT	37.7 - 39.2	A-7-6 (46)	73	55	0.0	12.7	26.0	61.3	0	88	88	81	61.9	--
SS-7	-L-	21+98	30 RT	42.7 - 44.2	--	--	--	--	--	--	--	--	--	--	--	56.6	--
SS-8	-L-	21+98	30 RT	47.7 - 49.2	--	--	--	--	--	--	--	--	--	--	--	47.6	--
SS-9	-L-	21+98	30 RT	52.7 - 54.7	--	--	--	--	--	--	--	--	--	--	--	41.2	--
SS-10	-L-	21+98	30 RT	57.7 - 59.2	--	--	--	--	--	--	--	--	--	--	--	31.0	--
SS-11	-L-	22+97	16 RT	18.5 - 20.0	--	--	--	--	--	--	--	--	--	--	--	51.5	--
SS-12	-L-	22+97	16 RT	23.5 - 25.0	--	--	--	--	--	--	--	--	--	--	--	54.3	--
SS-13	-L-	22+97	16 RT	28.5 - 30.0	--	--	--	--	--	--	--	--	--	--	--	58.7	--
SS-14	-L-	22+97	16 RT	33.5 - 35.0	--	--	--	--	--	--	--	--	--	--	--	55.9	--
SS-15	-L-	22+97	16 RT	38.0 - 40.0	--	--	--	--	--	--	--	--	--	--	--	60.1	--
SS-16	-L-	22+97	16 RT	43.5 - 45.0	A-7-6 (38)	58	43	0.0	22.8	24.1	53.1	0	100	100	85	45.6	--
SS-17	-L-	22+97	16 RT	48.5 - 50.0	--	--	--	--	--	--	--	--	--	--	--	42.5	--
SS-18	-L-	22+97	16 RT	53.5 - 55.0	--	--	--	--	--	--	--	--	--	--	--	40.0	--
SS-19	-L-	22+97	16 RT	58.5 - 60.0	--	--	--	--	--	--	--	--	--	--	--	40.2	--
SS-20	-L-	22+97	16 RT	63.5 - 65.0	--	--	--	--	--	--	--	--	--	--	--	35.7	--
SS-21	-L-	22+97	16 RT	68.5 - 70.0	--	--	--	--	--	--	--	--	--	--	--	28.6	--

NP - NONPLASTIC

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number