

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	11

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1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
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7-II	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY

SITE DESCRIPTION BRIDGE ON -Y7- (SR 1723-
(PARKTON TOBEMORY RD.) OVER -L- (I-95) AT
-L- STA. 883 + 36.60

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

F&R, INC.

INVESTIGATED BY F&R, INC.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE SEPTEMBER 2021



DocuSigned by:
Stephen C Crockett 9/22/2021

C6CA6FED48E0426 SIGNATURE DATE

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

SOIL DESCRIPTION

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 208, 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, *VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6*

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
	A-1	A-3	A-2	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7
GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7	
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 35 MX 35 MX	40 MX 41 MN 10 MX 11 MN	40 MX 41 MN 11 MN 11 MN	40 MX 41 MN 11 MN 11 MN	36 MN 36 MN 36 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	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT	
MATERIAL PASSING #40 LL PI	-	-	40 MX 41 MN NP	40 MX 41 MN 10 MX 11 MN	40 MX 41 MN 11 MN 11 MN	40 MX 41 MN 11 MN 11 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 41 MN				
GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX						
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND	FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS						SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS		
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD			FAIR TO POOR			FAIR TO POOR	POOR	UNSATURABLE					
	PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30													

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.75	2.00	0.42	0.25	0.075	0.053
BOULDER (BLDR.)						
COBBLE (COB.)						
GRAVEL (GR.)						
COARSE SAND (CS.E. SD.)						
FINE SAND (F SD.)						
SILT (SL.)						
CLAY (CL.)						
GRAIN SIZE	305	75	2.0	0.25	0.05	0.005
MM						
IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL - LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL - PLASTIC LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM - OPTIMUM MOISTURE SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

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.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: **ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.**

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE LL < 31
MODERATELY COMPRESSIBLE LL = 31 - 50
HIGHLY COMPRESSIBLE LL > 50

PERCENTAGE OF MATERIAL

	GRANULAR SOILS	SILT - CLAY 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

GROUND WATER

- 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

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
- DIP & DIP DIRECTION OF ROCK STRUCTURES
- TEST BORING
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

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

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
- UNIT WEIGHT
- DRY UNIT WEIGHT
- SAMPLE ABBREVIATIONS
- S - BULK
- SS - SPLIT SPOON
- ST - SHELBY TUBE
- RS - ROCK
- RT - RECOMPACTED TRIAXIAL
- CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

- DRILL UNITS:
 - CME-45C
 - CME-55
 - CME-550
 - VANE SHEAR TEST
 - PORTABLE HOIST
- ADVANCING TOOLS:
 - CLAY BITS
 - 6" CONTINUOUS FLIGHT AUGER
 - 8" HOLLOW AUGERS
 - HARD FACED FINGER BITS
 - TUNG-CARBIDE INSERTS
 - CASING W/ ADVANCER
 - TRICONE 2 1/8" STEEL TEETH
 - TRICONE " TUNG-CARB.
 - CORE BIT
- HAMMER TYPE:
 - AUTOMATIC MANUAL
- CORE SIZE:
 - B
 - H
 - N
- HAND TOOLS:
 - POST HOLE DIGGER
 - HAND AUGER
 - SOUNDING ROD
 - VANE SHEAR TEST

ROCK DESCRIPTION

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)
NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
- CRYSTALLINE ROCK (CR)
FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
- NON-CRYSTALLINE ROCK (NCR)
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 SEDIMENTARY ROCK (CP)
COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

- FRESH** ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
- VERY SLIGHT (IV 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. *IF TESTED, WOULD YIELD SPT REFUSAL*
- 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. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
- VERY SEVERE (IV 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. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
- 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.

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 GROUDED 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 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.
- 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.

FRACTURE 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

INDURATION

- FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF 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.

TERMS AND DEFINITIONS

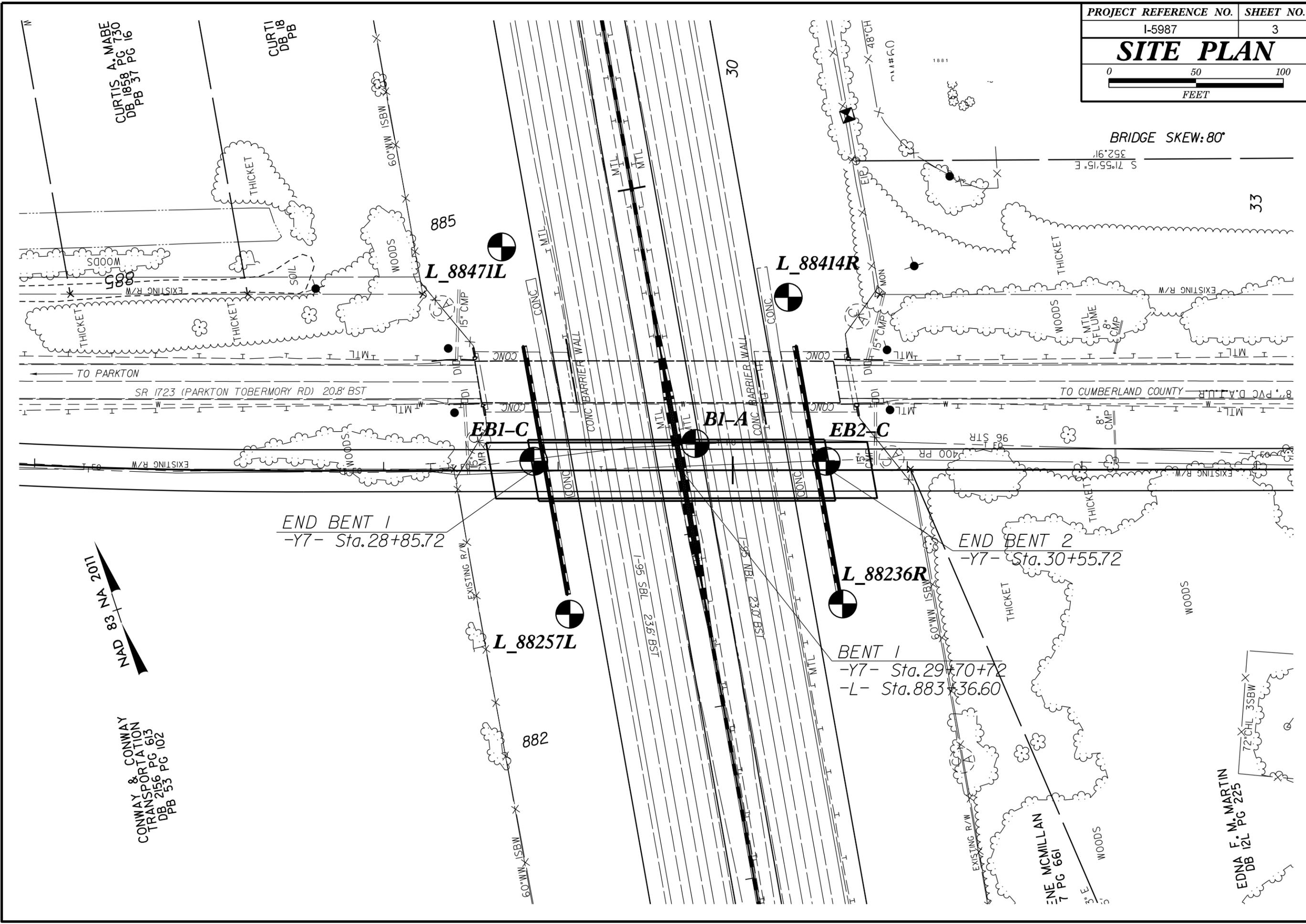
- ALLUVIUM (ALLUV.)** - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
- AQUIFER** - A WATER BEARING FORMATION OR STRATA.
- ARENACEOUS** - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
- ARGILLACEOUS** - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE 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 DISLOADED 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 (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
- STRATA CORE RECOVERY (SREC.)** - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- STRATA ROCK QUALITY DESIGNATION (SROD)** - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
- TOPSOIL (TS.)** - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: ELEVATIONS TAKEN FROM I5987_LS_TIN3.TIN DATED 05/21

ELEVATION: FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING



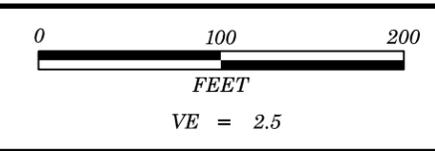
CURTIS A. MABE
DB 1858 PG 730
PB 37 PG 16

CURTI
DB 18
PB

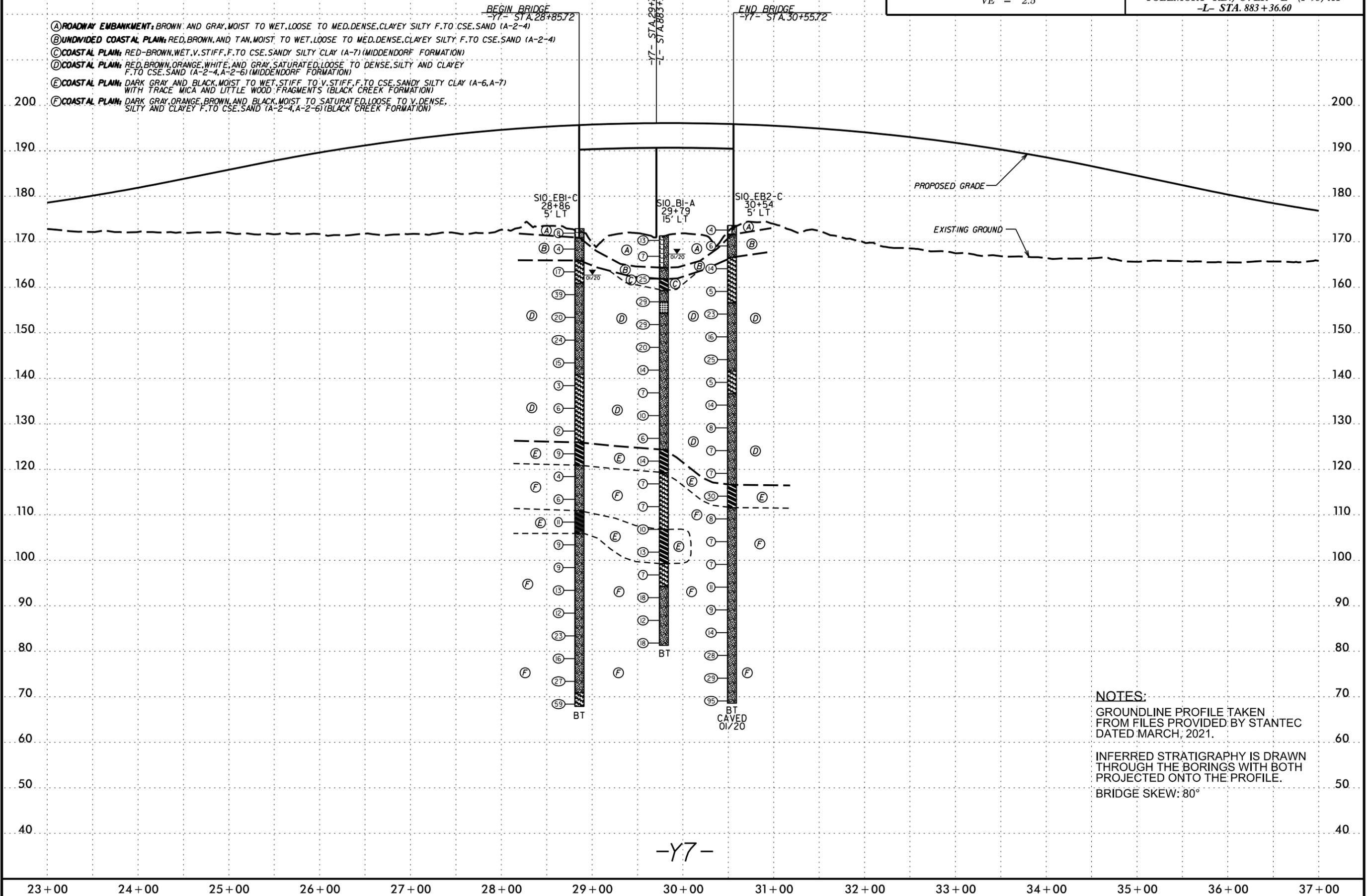
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CONWAY & CONWAY
TRANSPORTATION
DB 2156 PG 613
PB 53 PG 102

EDNA F. M. MARTIN
DB 12L PG 225



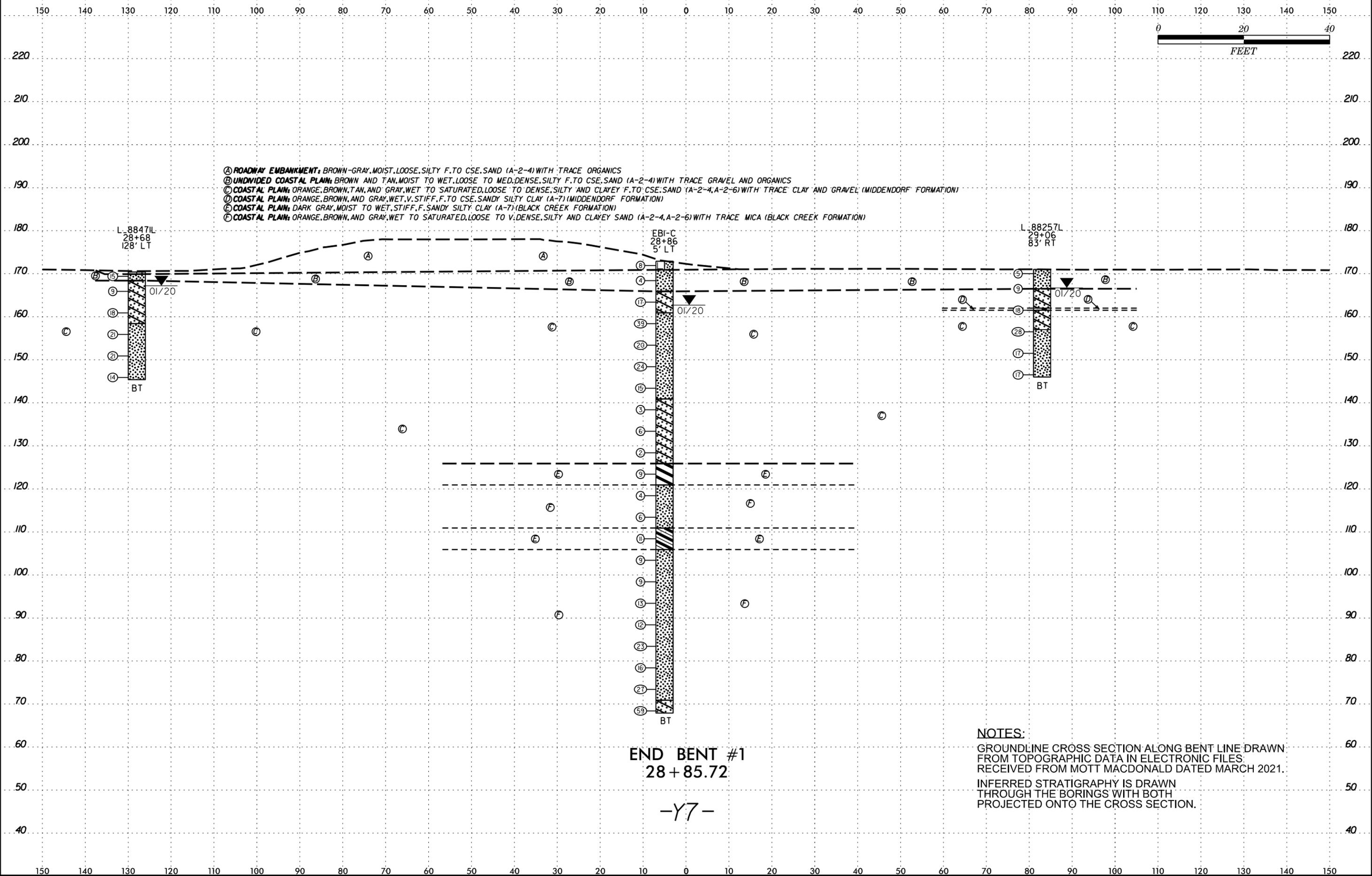
PROJECT REFERENCE NO.	SHEET NO.
I-5987B	4
BRIDGE ON -Y7- (SR 1723- PARKTON TOBEMORY RD.) OVER -L- (I-95) AT -L- STA. 883+36.60	



- Ⓐ ROADWAY EMBANKMENT: BROWN AND GRAY, MOIST TO WET, LOOSE TO MED. DENSE, CLAYEY SILTY F. TO CSE. SAND (A-2-4)
- Ⓑ UNDIVIDED COASTAL PLAIN: RED, BROWN, AND TAN, MOIST TO WET, LOOSE TO MED. DENSE, CLAYEY SILTY F. TO CSE. SAND (A-2-4)
- Ⓒ COASTAL PLAIN: RED-BROWN, WET, V. STIFF, F. TO CSE. SANDY SILTY CLAY (A-7) (MIDDENDORF FORMATION)
- Ⓓ COASTAL PLAIN: RED, BROWN, ORANGE, WHITE, AND GRAY, SATURATED, LOOSE TO DENSE, SILTY AND CLAYEY F. TO CSE. SAND (A-2-4, A-2-6) (MIDDENDORF FORMATION)
- Ⓔ COASTAL PLAIN: DARK GRAY AND BLACK, MOIST TO WET, STIFF TO V. STIFF, F. TO CSE. SANDY SILTY CLAY (A-6, A-7) WITH TRACE MICA AND LITTLE WOOD FRAGMENTS (BLACK CREEK FORMATION)
- Ⓕ COASTAL PLAIN: DARK GRAY, ORANGE, BROWN, AND BLACK, MOIST TO SATURATED, LOOSE TO V. DENSE, SILTY AND CLAYEY F. TO CSE. SAND (A-2-4, A-2-6) (BLACK CREEK FORMATION)

NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY STANTEC DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 80°

8/23/99



- Ⓐ ROADWAY EMBANKMENT; BROWN-GRAY, MOIST, LOOSE, SILTY F. TO CSE. SAND (A-2-4) WITH TRACE ORGANICS
- Ⓑ UNDIVIDED COASTAL PLAIN; BROWN AND TAN, MOIST TO WET, LOOSE TO MED. DENSE, SILTY F. TO CSE. SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS
- Ⓒ COASTAL PLAIN; ORANGE, BROWN, TAN, AND GRAY, WET TO SATURATED, LOOSE TO DENSE, SILTY AND CLAYEY F. TO CSE. SAND (A-2-4, A-2-6) WITH TRACE CLAY AND GRAVEL (MIDDENDORF FORMATION)
- Ⓓ COASTAL PLAIN; ORANGE, BROWN, AND GRAY, WET, V. STIFF, F. TO CSE. SANDY SILTY CLAY (A-7) (MIDDENDORF FORMATION)
- Ⓔ COASTAL PLAIN; DARK GRAY, MOIST TO WET, STIFF, F. SANDY SILTY CLAY (A-7) (BLACK CREEK FORMATION)
- Ⓕ COASTAL PLAIN; ORANGE, BROWN, AND GRAY, WET TO SATURATED, LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE MICA (BLACK CREEK FORMATION)

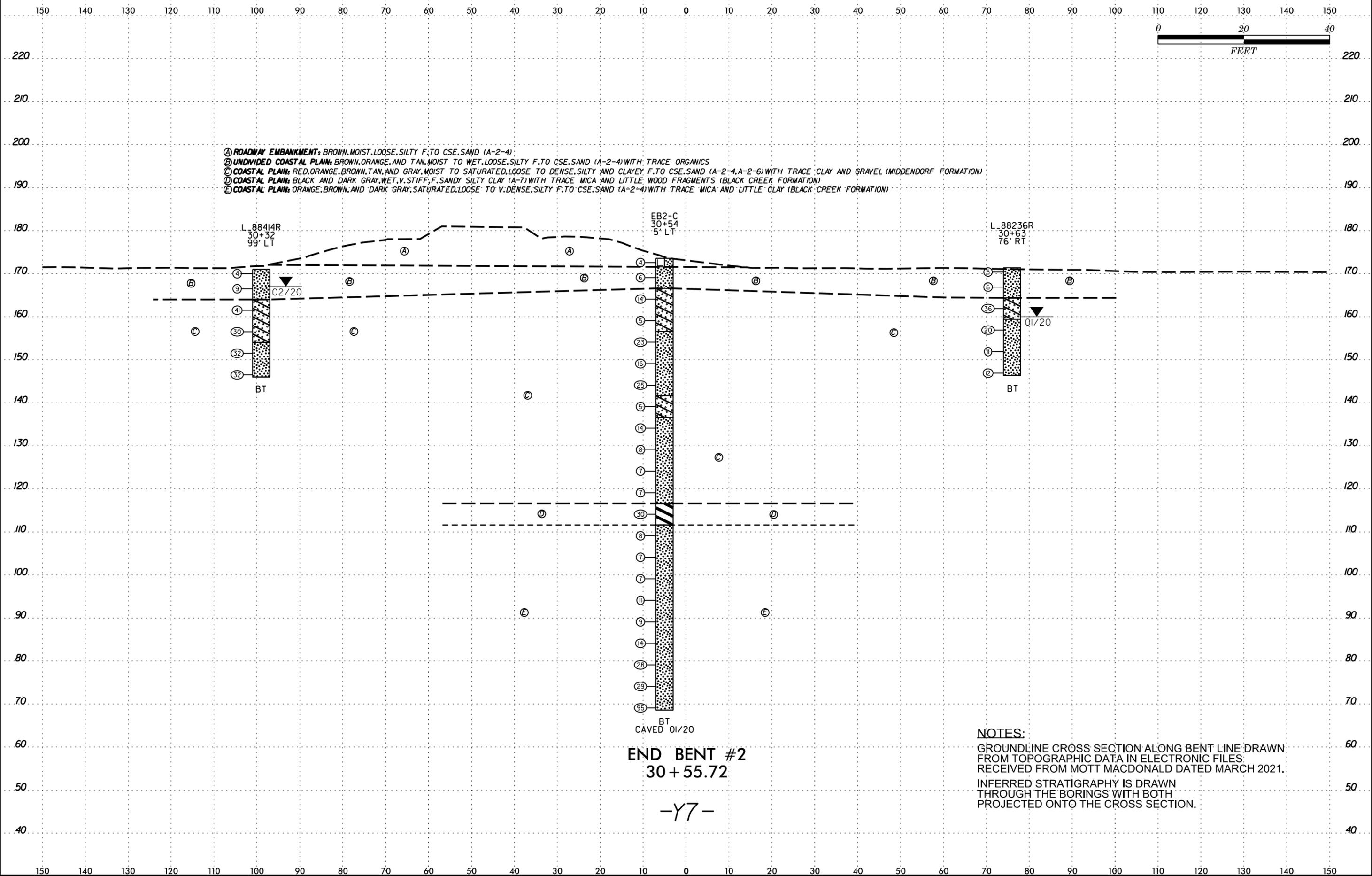
END BENT #1
28 + 85.72

-Y7-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM MOTT MACDONALD DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

SCALE\$

8/23/99



END BENT #2
30 + 55.72

-Y7-

SCALE\$

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION Bridge on -Y7- (Parkton Tobermory Road) over -L- (I-95) at -L- Sta. 883+36.60							GROUND WTR (ft)									
BORING NO. S10_EB2-C		STATION 30+54		OFFSET 5 ft LT		ALIGNMENT -Y7-										
COLLAR ELEV. 173.6 ft		TOTAL DEPTH 105.0 ft		NORTHING 411,406		EASTING 2,011,537										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/14/20		COMP. DATE 01/15/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
175	173.6	0.0	2	2	2											173.6
																171.6
170	170.1	3.5	3	3	3											166.6
																156.6
165	165.1	8.5	4	6	8											150.1
																145.1
160	160.1	13.5	3	3	2											140.1
																135.1
155	155.1	18.5	11	12	11											130.1
																125.1
150	150.1	23.5	6	7	9											120.1
																115.1
145	145.1	28.5	11	12	13											110.1
																105.1
140	140.1	33.5	2	2	3											100.1
																95.1
135	135.1	38.5	5	7	7											
130	130.1	43.5	4	3	5											
125	125.1	48.5	3	3	4											
120	120.1	53.5	3	2	5											
115	115.1	58.5	11	13	17											
110	110.1	63.5	5	4	4											
105	105.1	68.5	3	3	4											
100	100.1	73.5	3	3	4											
95	95.1	78.5														

NCDOT BORE SINGLE B07_15987_GEO_BORELOGS_BRDG_Y7.GPJ_NC_DOT.GDT 9/3/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION Bridge on -Y7- (Parkton Tobermory Road) over -L- (I-95) at -L- Sta. 883+36.60							GROUND WTR (ft)									
BORING NO. S10_EB2-C		STATION 30+54		OFFSET 5 ft LT		ALIGNMENT -Y7-										
COLLAR ELEV. 173.6 ft		TOTAL DEPTH 105.0 ft		NORTHING 411,406		EASTING 2,011,537										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/14/20		COMP. DATE 01/15/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
95			4	5	6											95
																83.5
90	90.1	83.5	3	4	5											85.1
																80.1
85	85.1	88.5	5	5	9											75.1
																70.1
80	80.1	93.5	7	13	15											68.6
																62.0
75	75.1	98.5	14	15	14											
70	70.1	103.5	40	44	51											

NCDOT BORE SINGLE B07_15987_GEO_BORELOGS_BRDG_Y7.GPJ_NC_DOT.GDT 9/3/21

Match Line

Orange-Brown to Dark Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Mica and Little Clay (BLACK CREEK FORMATION) (continued)

Boring Terminated at Elevation 68.6 ft in SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)

- Notes:
1. Surficial Organic Soil: 0.0-0.2'
 2. Boring caved-in at 5.5' after 24 hours, probable groundwater level

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST B. Painter	
SITE DESCRIPTION Bridge on -Y7- (Parkton Tobermory Road) over -L- (I-95) at -L- Sta. 883+36.60							GROUND WTR (ft)
BORING NO. L_88414R		STATION 30+32		OFFSET 99 ft LT		ALIGNMENT -Y7-	
COLLAR ELEV. 171.0 ft		TOTAL DEPTH 25.0 ft		NORTHING 411,502		EASTING 2,011,546	
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER R. Clarke		START DATE 02/04/20		COMP. DATE 02/04/20		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
175																	
170	171.0	0.0	1	1	3										171.0	GROUND SURFACE	
165	167.5	3.5	1	3	6												
160	162.5	8.5	15	19	22												
155	157.5	13.5	12	15	15												
150	152.5	18.5	11	16	16												
	147.5	23.5	7	15	17												

Boring Terminated at Elevation 146.0 ft in SILTY SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)

Notes:
1. Surficial Organic Soil: 0.0-0.1'

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl	
SITE DESCRIPTION Bridge on -Y7- (Parkton Tobermory Road) over -L- (I-95) at -L- Sta. 883+36.60							GROUND WTR (ft)
BORING NO. L_88236R		STATION 30+63		OFFSET 76 ft RT		ALIGNMENT -Y7-	
COLLAR ELEV. 171.4 ft		TOTAL DEPTH 25.0 ft		NORTHING 411,326		EASTING 2,011,520	
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER S.Davis		START DATE 01/20/20		COMP. DATE 01/20/20		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
175																	
170	171.4	0.0	1	2	3										171.4	GROUND SURFACE	
165	167.9	3.5	1	1	5												
160	162.9	8.5	12	17	19												
155	157.9	13.5	7	9	11												
150	152.9	18.5	5	5	6												
	147.9	23.5	5	5	7												

Boring Terminated at Elevation 146.4 ft in SILTY SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)(MIDDENDORF FORMATION)

Notes:
1. Surficial Organic Soil: 0.0-0.1'

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	19

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-8	CROSS SECTIONS
9-19	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY

SITE DESCRIPTION BRIDGE ON -L- (I-95)
OVER BIG MARSH SWAMP AT -L- STA. 586+14.00

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. 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

M.A.D.

WEIS, J.M.

LANE, R.W.

F&R, INC.

INVESTIGATED BY GOODNIGHT, D.J.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE DECEMBER 2021



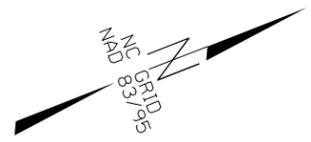
DocuSigned by:
Stephen C Crockett Dec 16, 2021

CSCA5FED48E0435 SIGNATURE DATE

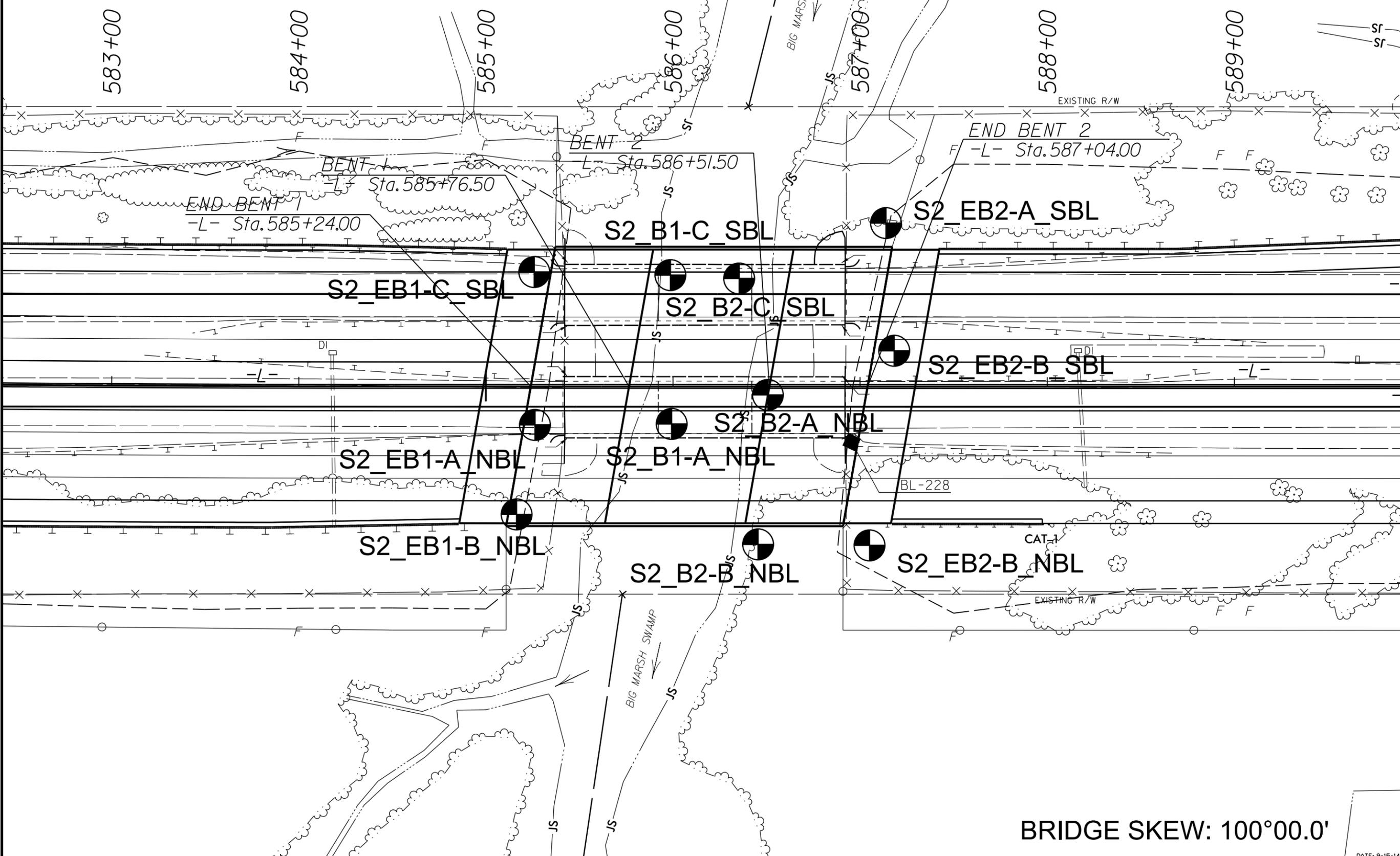
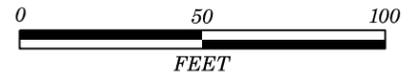
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

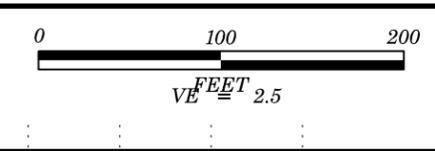
SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																																																																																	
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, 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></p>										<p>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.</p>										<p>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:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, 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 DISLOGGED 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 (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																																																	
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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 DISLOGGED 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. 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<p>COLOR</p> <p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>FRACATURE SPACING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TERM</th> <th>SPACING</th> </tr> </thead> <tbody> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </tbody> </table>										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	<p>BEDDING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> </thead> <tbody> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </tbody> </table>										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																																																																																																																																								
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<p>INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p>FRACATURE SPACING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TERM</th> <th>SPACING</th> </tr> </thead> <tbody> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FOOT</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> </tr> </tbody> </table>										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	<p>BEDDING</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TERM</th> <th>THICKNESS</th> </tr> </thead> <tbody> <tr> <td>VERY THICKLY BEDDED</td> <td>4 FEET</td> </tr> <tr> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </tbody> </table>										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																																																																																																																																								
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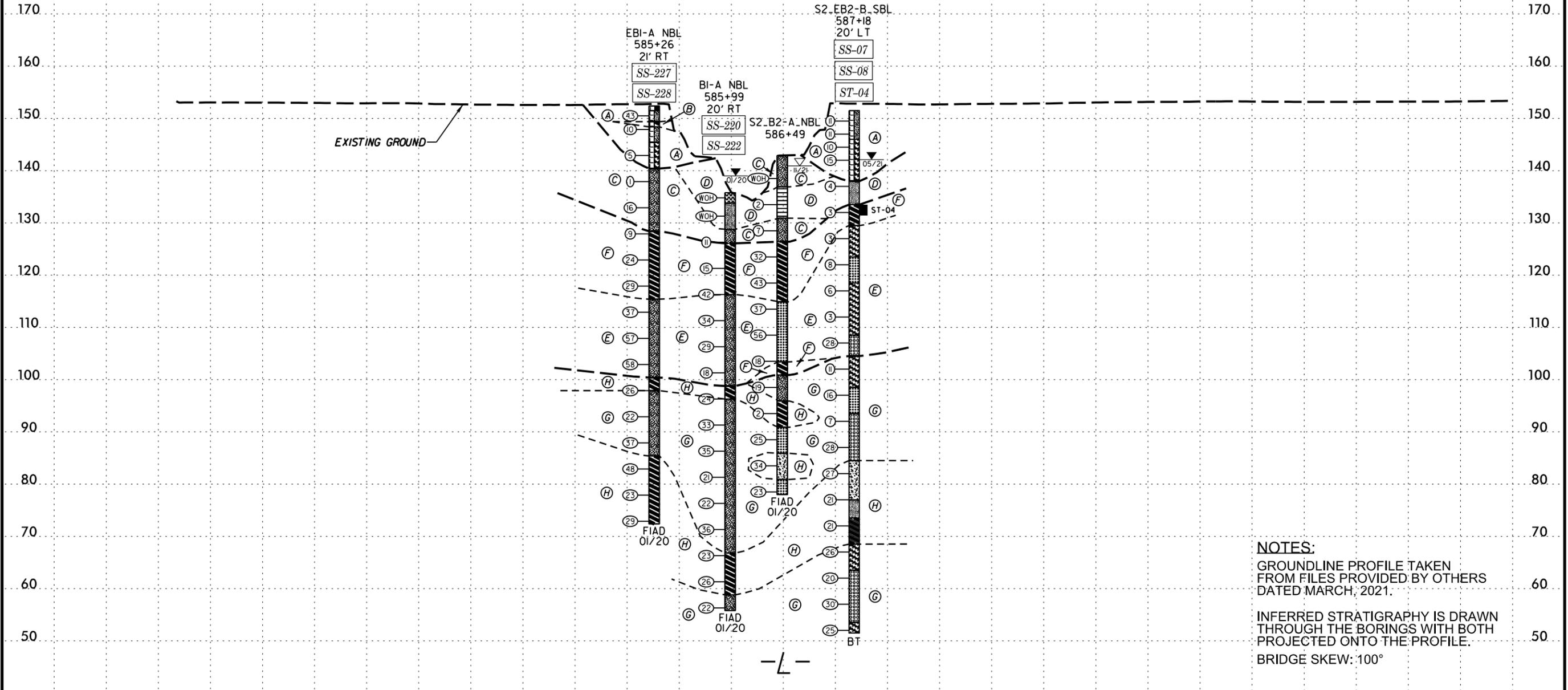
BRIDGE SKEW: 100°00.0'



- 230 (A) ROADWAY EMBANKMENT: BROWN RED ORANGE TAN AND GRAY, MOIST TO SAT, LOOSE TO DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6) (MOD. TO HIGHLY PLASTIC) WITH TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: GRAY, MOIST, STIFF, SANDY SILTY CLAY (A-7-6) (MOD. TO HIGHLY PLASTIC)
- (C) ALLUVIAL: BROWN TAN GRAY AND ORANGE, SAT, V. LOOSE TO M. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-7) (MOD. TO HIGHLY PLASTIC)
- (D) ALLUVIAL: BROWN GRAY AND BLACK, WET TO SAT, V. SOFT TO SOFT, CLAYEY AND SANDY SILT (A-4, A-5) AND MUCK WITH TRACE GRAVEL
- 220 (E) UNDIVIDED COASTAL PLAIN: GRAY TAN BROWN ORANGE AND WHITE, MOIST TO SAT, V. LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. AND CSE. SAND (A-3, A-1-b) WITH TRACE MICA
- (F) UNDIVIDED COASTAL PLAIN: TAN AND GRAY, MOIST TO SAT, SOFT TO HARD, SANDY AND SILTY CLAY (A-7, A-7-6) HIGHLY PLASTIC
- (G) COASTAL PLAIN: GRAY ORANGE AND BROWN, SAT, LOOSE TO DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6, A-2-7) AND F. TO CSE. SAND (A-3, A-1-b) WITH TRACE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- 210 (H) COASTAL PLAIN: GRAY, MOIST TO SAT, SOFT TO HARD, SANDY AND SILTY CLAY (A-6, A-7) AND SANDY AND CLAYEY SILT (A-4, A-5) WITH TRACE MICA, WOOD FRAGMENTS, ORGANICS AND SAND LENSES (BLACK CREEK FORMATION)

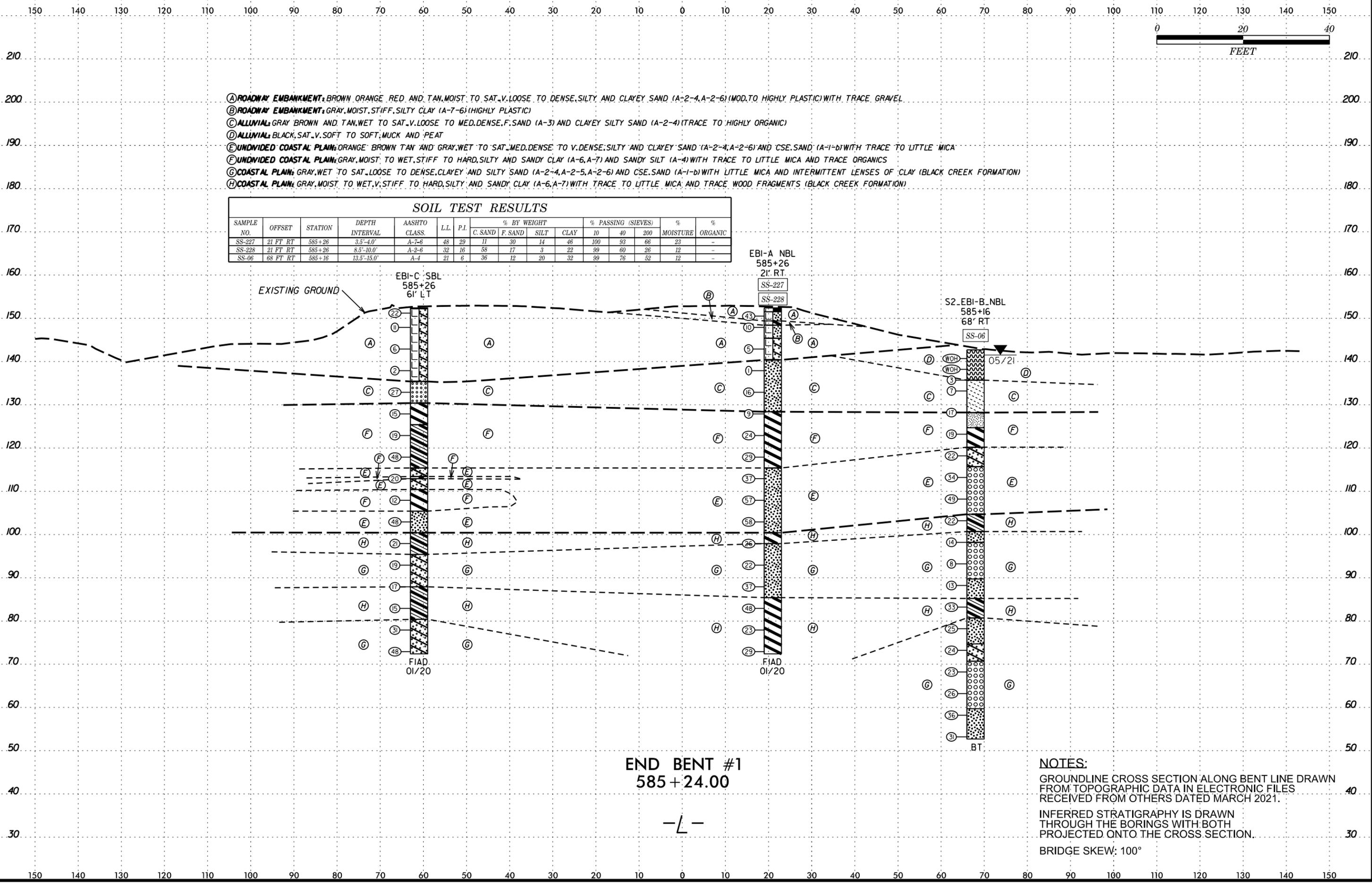
SOIL TEST RESULTS

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-227	21 FT RT	585+26	3.5'-4.0'	A-7-6	48	29	11	30	14	46	100	93	66	23	-
SS-228	21 FT RT	585+26	8.5'-10.0'	A-2-6	32	16	58	17	3	22	99	60	26	12	-
SS-220	20 FT RT	585+99	3.5'-5.0'	A-4	25	9	4	51	20	26	100	99	56	25	-
SS-222	20 FT RT	585+99	9.7'-10.0'	A-7-6	51	29	13	11	18	59	99	92	79	26	-
SS-07	20 FT LT	587+18	3.5'-5.0'	A-2-6	39	21	50	19	4	27	99	68	33	16	-
SS-08	20 FT LT	587+18	13.5'-14.5'	A-4	32	10	46	21	5	28	99	69	36	29	-
ST-04	20 FT LT	587+18	18.0'-20.0'	A-7-6	60	36	1	19	24	57	100	100	81	30	-



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 100°

8/23/99



- (A) ROADWAY EMBANKMENT: BROWN ORANGE RED AND TAN, MOIST TO SAT., V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) (MOD. TO HIGHLY PLASTIC) WITH TRACE GRAVEL
- (B) ROADWAY EMBANKMENT: GRAY, MOIST, STIFF, SILTY CLAY (A-7-6) (HIGHLY PLASTIC)
- (C) ALLUVIAL: GRAY BROWN AND TAN, WET TO SAT., V. LOOSE TO MED. DENSE, F. SAND (A-3) AND CLAYEY SILTY SAND (A-2-4) (TRACE TO HIGHLY ORGANIC)
- (D) ALLUVIAL: BLACK, SAT., V. SOFT TO SOFT, MUCK AND PEAT
- (E) UNDIVIDED COASTAL PLAIN: ORANGE BROWN TAN AND GRAY, WET TO SAT., MED. DENSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND CSE. SAND (A-1-b) WITH TRACE TO LITTLE MICA
- (F) UNDIVIDED COASTAL PLAIN: GRAY, MOIST TO WET, STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) AND SANDY SILT (A-4) WITH TRACE TO LITTLE MICA AND TRACE ORGANICS
- (G) COASTAL PLAIN: GRAY, WET TO SAT., LOOSE TO DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-5, A-2-6) AND CSE. SAND (A-1-b) WITH LITTLE MICA AND INTERMITTENT LENSES OF CLAY (BLACK CREEK FORMATION)
- (H) COASTAL PLAIN: GRAY, MOIST TO WET, V. STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) WITH TRACE TO LITTLE MICA AND TRACE WOOD FRAGMENTS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-227	21 FT RT	585+26	3.5'-4.0'	A-7-6	48	29	11	30	14	46	100	93	66	23	-
SS-228	21 FT RT	585+26	8.5'-10.0'	A-2-6	32	16	58	17	3	22	99	60	26	12	-
SS-06	68 FT RT	585+16	13.5'-15.0'	A-4	21	6	36	12	20	32	99	76	52	12	-

END BENT #1
585+24.00

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 100°

8/23/99

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

0 20 40
FEET

210 210

200 200

190 190

180 180

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-214	59 FT LT	585+99	8.5'-10.0'	A-4	52	29	2	22	16	60	100	99	83	26	-
SS-220	20 FT RT	585+99	3.5'-5.0'	A-4	25	9	4	51	20	26	100	99	56	25	-
SS-222	20 FT RT	585+99	9.7'-10.0'	A-7-6	51	29	13	11	18	59	99	92	79	26	-

- Ⓒ ALLUVIAL: BROWN TAN GRAY AND ORANGE, MOIST TO SAT., MED. DENSE, SILTY SAND (A-2-4) WITH TRACE CLAY LENSES, ORGANICS AND GRAVEL
- Ⓓ ALLUVIAL: BROWN, SAT., V. SOFT, SANDY SILT (A-4) AND MUCK
- Ⓔ UNDIVIDED COASTAL PLAIN: GRAY ORANGE BROWN AND TAN, WET TO SAT., DENSE TO V. DENSE, SILTY SAND (A-2-4) WITH TRACE MICA
- Ⓕ UNDIVIDED COASTAL PLAIN: GRAY, MOIST, STIFF TO HARD, SILTY SANDY CLAY (A-7-6) (MOD. TO HIGHLY PLASTIC) WITH TRACE MICA
- Ⓖ COASTAL PLAIN: BROWN TAN GRAY AND ORANGE, SAT., LOOSE TO DENSE, SILTY SAND (A-2-4) WITH TRACE CLAY AND MICA (BLACK CREEK FORMATION)
- Ⓗ COASTAL PLAIN: GRAY, MOIST TO SAT., SOFT TO V. STIFF, SILTY CLAY (A-7) WITH TRACE SAND LENSES AND MICA (BLACK CREEK FORMATION)

170 170

160 160

150 150

140 140

130 130

120 120

110 110

100 100

90 90

80 80

70 70

60 60

50 50

40 40

30 30

EXISTING GROUND

BI-C SBL
585+99
59' LT

BI-A NBL
585+99
20' RT

SS-214

SS-220

WOR

WOH

1

1

2

15

30

42

50

34

90

29

33

18

19

24

9

33

8

35

13

21

16

22

39

36

25

23

26

26

22

22

FIAD
01/20

FIAD
01/20

BENT #1
585+76.50

-L-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 100°

8/23/99

8/23/99

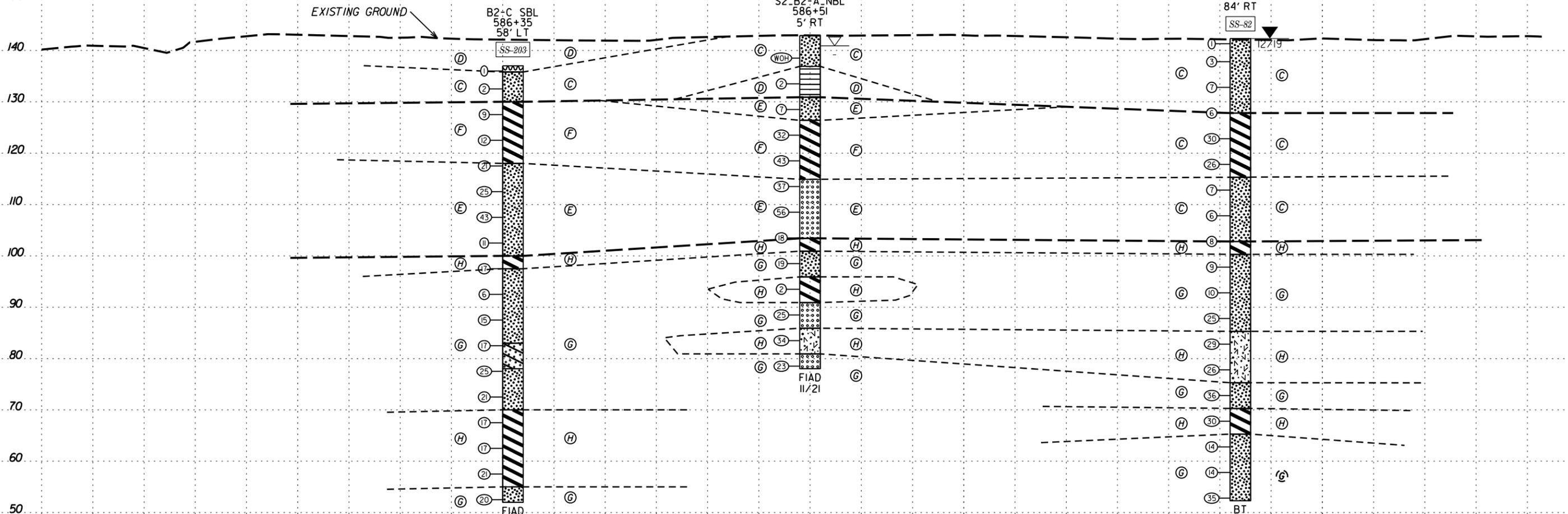
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 20 40
FEET

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-203	58 FT LT	586+35	8.5'-10.0'	A-7-6	43	23	6	11	26	57	100	97	87	21	-
SS-228	84 FT RT	586+45	14.5'-15.0'	A-7-6	57	31	6	11	13	70	100	98	86	27	-

- (C) ALLUVIAL: BLACK GRAY AND BROWN, WET TO SAT., LOOSE TO V. LOOSE, SILTY AND CLAYEY SAND (A-2-4, A-2-7) WITH TRACE CLAY, ORGANICS AND WOOD FRAGMENTS
- (D) ALLUVIAL: BLACK, SAT., V. SOFT TO SOFT, SANDY CLAYEY SILT (A-5) AND MUCK (HIGHLY ORGANIC)
- (E) UNDIVIDED COASTAL PLAIN: ORANGE BROWN WHITE AND TAN, MOIST TO SAT., LOOSE TO V. DENSE, SILTY SAND (A-2-4) AND F. SAND (A-3) WITH TRACE CLAY
- (F) UNDIVIDED COASTAL PLAIN: GRAY, MOIST, STIFF TO HARD, SILTY CLAY (A-7, A-7-6) (MOD. TO HIGHLY PLASTIC) WITH TRACE WOOD FRAGMENTS AND SAND
- (G) COASTAL PLAIN: GRAY ORANGE BROWN AND TAN, SAT., LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6, A-2-7) WITH TRACE CLAY, MICA AND WOOD FRAGMENTS (BLACK CREEK FORMATION)
- (H) COASTAL PLAIN: GRAY, MOIST TO SAT., STIFF TO HARD, SILTY CLAY (A-7) AND SANDY CLAYEY SILT (A-5) WITH TRACE MICA, SAND AND ORGANICS (BLACK CREEK FORMATION)



BENT #2
586 + 51.50

-L-

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 100°

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

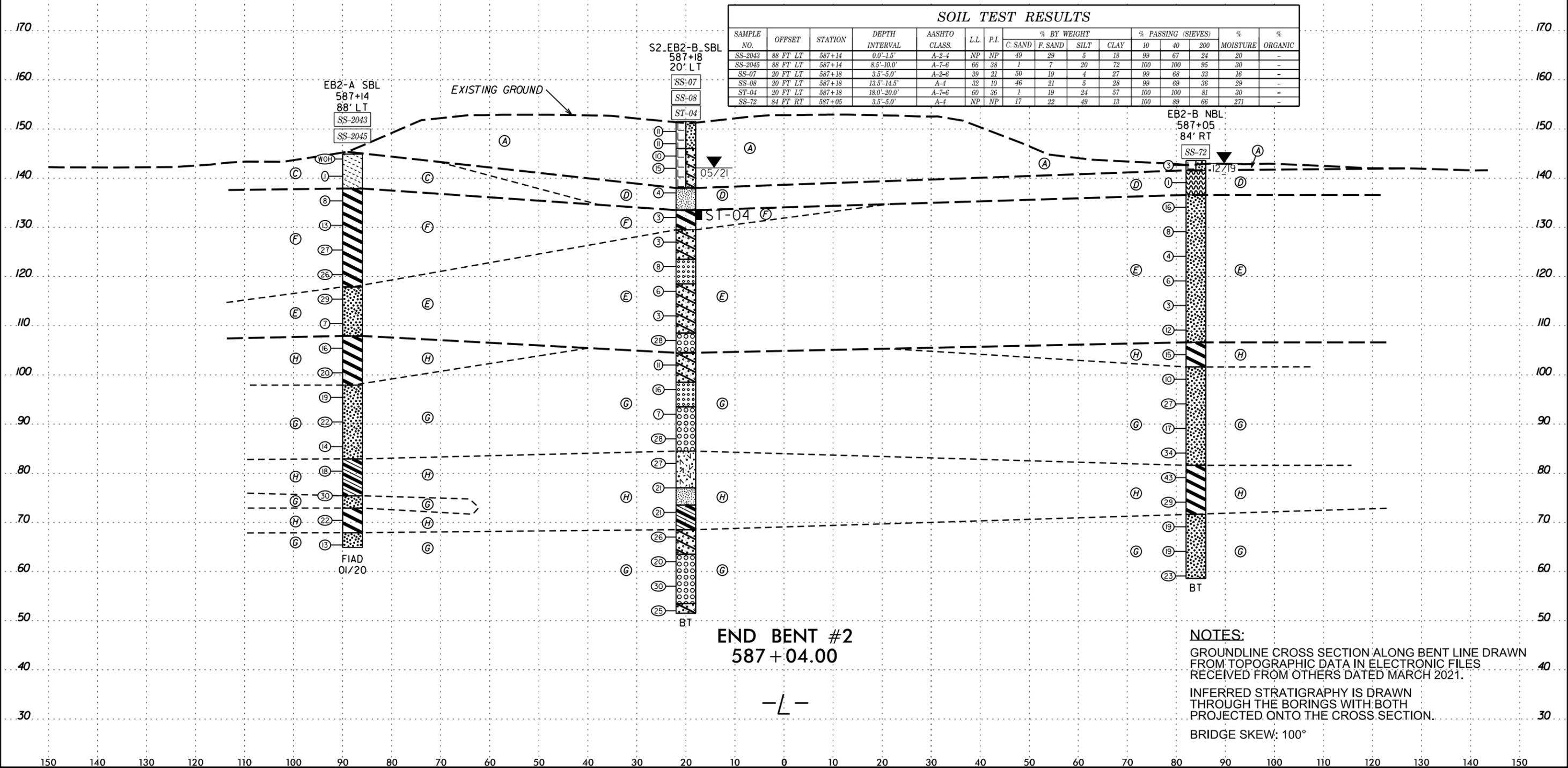
8/23/99

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

0 20 40
FEET

- (A) ROADWAY EMBANKMENT: BROWN AND GRAY, MOIST TO SAT., V. LOOSE TO MED. DENSE CLAYEY AND SILTY SAND (A-2-4, A-2-6) WITH TRACE ORGANICS
- (C) ALLUVIAL: BROWN AND BLACK, MOIST TO SAT., V. LOOSE, CLAYEY SILTY SAND (A-2-4) WITH LITTLE TO MOD. ORGANICS
- (D) ALLUVIAL: BROWN BLACK, MOIST TO WET, V. SOFT TO SOFT, SANDY SILT (A-4) AND MUCK WITH TRACE GRAVEL
- (E) UNDIVIDED COASTAL PLAIN: ORANGE TAN BROWN GRAY AND BROWN-TAN, SAT., V. LOOSE TO DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6) AND F. AND CSE. SAND (A-1-b, A-3) WITH TRACE MICA
- (F) UNDIVIDED COASTAL PLAIN: GRAY AND TAN, MOIST TO SAT., SOFT TO V. STIFF, SILTY CLAY (A-7-6) (MOD. TO HIGHLY PLASTIC) WITH TRACE ORGANICS AND GRAVEL
- (G) COASTAL PLAIN: GRAY ORANGE AND BROWN, SAT., LOOSE TO DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6) AND F. TO CSE. SAND (A-1-b, A-3) WITH TRACE TO LITTLE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- (H) COASTAL PLAIN: GRAY, MOIST TO SAT., V. STIFF TO HARD, SANDY AND SILTY CLAY (A-6, A-7) AND SANDY AND CLAYEY SILT (A-4, A-5) WITH TRACE TO LITTLE MICA AND TRACE GRAVEL AND ORGANICS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-2043	88 FT LT	587+14	0.0'-1.5'	A-2-4	NP	NP	49	29	5	18	99	67	24	-	-
SS-2045	88 FT LT	587+14	8.5'-10.0'	A-7-6	66	38	1	7	20	72	100	100	95	30	-
SS-07	20 FT LT	587+18	3.5'-5.0'	A-2-6	39	21	50	19	4	27	99	68	33	16	-
SS-08	20 FT LT	587+18	13.5'-14.5'	A-4	32	10	46	21	5	28	99	69	36	29	-
ST-04	20 FT LT	587+18	18.0'-20.0'	A-7-6	60	36	1	19	24	57	100	100	81	30	-
SS-72	84 FT RT	587+05	3.5'-5.0'	A-4	NP	NP	17	22	49	13	100	89	66	271	-



END BENT #2
587+04.00

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 100°

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

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST W. Pesl
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00			GROUND WTR (ft)
BORING NO. S2_EB1-A NBL	STATION 585+26	OFFSET 21 ft RT	ALIGNMENT -L-
COLLAR ELEV. 152.4 ft	TOTAL DEPTH 80.0 ft	NORTHING 383,169	EASTING 2,003,089
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER S. Davis	START DATE 01/30/20	COMP. DATE 01/31/20	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					
160															
155															
150	151.5	0.9	19	22	21										
145	148.9	3.5	3	5	5										
140	143.9	8.5	2	2	3										
135	138.9	13.5	WOH	1	0										
130	133.9	18.5	5	8	8										
125	128.9	23.5	4	2	7										
120	123.9	28.5	7	11	13										
115	118.9	33.5	8	11	18										
110	113.9	38.5	12	16	21										
105	108.9	43.5	24	30	27										
100	103.9	48.5	20	26	32										
95	98.9	53.5	5	11	15										
90	93.9	58.5	10	10	12										
85	88.9	63.5	13	15	22										
80	83.9	68.5	14	20	28										

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST W. Pesl
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00			GROUND WTR (ft)
BORING NO. S2_EB1-A NBL	STATION 585+26	OFFSET 21 ft RT	ALIGNMENT -L-
COLLAR ELEV. 152.4 ft	TOTAL DEPTH 80.0 ft	NORTHING 383,169	EASTING 2,003,089
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER S. Davis	START DATE 01/30/20	COMP. DATE 01/31/20	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					
80															
75	78.9	73.5	7	9	14										
	73.9	78.5	9	13	16										

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl									
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)								
BORING NO. S2_B1-C SBL		STATION 585+99		OFFSET 59 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 137.3 ft		TOTAL DEPTH 80.0 ft		NORTHING 383,264		EASTING 2,003,038									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 01/28/20		COMP. DATE 01/29/20		SURFACE WATER DEPTH 4.1ft									
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					
145															
140															
135	137.3	0.0	WOR	WOR	WOR										
130	133.8	3.5	2	5	6										
125	128.8	8.5	3	4	7										
120	123.8	13.5	9	10	11										
115	118.8	18.5	7	12	18										
110	113.8	23.5	16	20	30										
105	108.8	28.5	19	37	53										
100	103.8	33.5	5	12	21										
95	98.8	38.5	6	8	11										
90	93.8	43.5	4	3	6										
85	88.8	48.5	1	0	3										
80	83.8	53.5	4	5	8										
75	78.8	58.5	4	6	10										
70	73.8	63.5	11	19	20										
65	68.8	68.5	6	11	14										

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl									
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)								
BORING NO. S2_B1-C SBL		STATION 585+99		OFFSET 59 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 137.3 ft		TOTAL DEPTH 80.0 ft		NORTHING 383,264		EASTING 2,003,038									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 01/28/20		COMP. DATE 01/29/20		SURFACE WATER DEPTH 4.1ft									
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					
65															
60	63.8	73.5	7	10	16										
	58.8	78.5	9	10	12										

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST Lane, R. W.	
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)
BORING NO. S2_B2-A_NBL		STATION 586+49		OFFSET CL		ALIGNMENT -L-	
COLLAR ELEV. 142.9 ft		TOTAL DEPTH 64.9 ft		NORTHING 383,292		EASTING 2,003,111	
DRILL RIG/HAMMER EFF./DATE MID636214 CME-45C 86% 02/21/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Strickland, T.		START DATE 11/09/21		COMP. DATE 11/09/21		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					
145														142.9	0.0
140	139.5	3.4	WOH	WOH	WOH	0							ALLUVIAL GRAY, CLAYEY SAND (A-2-7)		
135	134.5	8.4	WOH	WOH	2								BLACK, SANDY SILT (A-5) HIGHLY ORGANIC	6.0	
130	129.5	13.4	2	3	4								UNDIVIDED COASTAL PLAIN WHITE AND TAN, SILTY FINE SAND (A-2-4)	12.0	
125	124.5	18.4	7	12	20								GRAY, SILTY CLAY (A-7)	16.5	
120	119.5	23.4	10	17	26										
115	114.5	28.4	10	18	19								TAN, SAND (A-3)	28.0	
110	109.5	33.4	20	26	30										
105	104.5	38.4	16	9	9								COASTAL PLAIN GRAY, SILTY CLAY (A-7) WITH TRACE ORGANICS (BLACK CREEK FORMATION)	39.5	
100	99.5	43.4	5	8	11								GRAY, CLAYEY SAND (A-2-7) (BLACK CREEK FORMATION)	42.0	
95	94.5	48.4	2	1	1								GRAY, SILTY CLAY (A-7) (BLACK CREEK FORMATION)	47.0	
90	89.5	53.4	8	11	14								GRAY, SAND (A-3) (BLACK CREEK FORMATION)	52.0	
85	84.5	58.4	8	14	20								GRAY, FINE SANDY CLAYEY SILT (A-5) WITH TRACE MICA (BLACK CREEK FORMATION)	57.0	
80	79.5	63.4	10	10	13								GRAY, SAND (A-3) WITH TRACE MICA (BLACK CREEK FORMATION)	62.0	
													Boring Terminated at Elevation 78.0 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)	64.9	

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)									
BORING NO. S2_B2-B NBL		STATION 586+45		OFFSET 84 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 142.3 ft		TOTAL DEPTH 90.0 ft		NORTHING 383,260		EASTING 2,003,189										
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 80% 03/08/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER D. Pinter		START DATE 12/17/19		COMP. DATE 12/18/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
145																
	142.3	0.0													142.3	GROUND SURFACE
140	138.8	3.5	1	2	1									W	ALLUVIAL BROWN-GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE WOOD FRAGMENTS, AND CLAY	
135	133.8	8.5	1	2	5									Sat.		
130	128.8	13.5	1	3	3									Sat.		
125	123.8	18.5	8	14	16									SS-82 27%	UNDIVIDED COASTAL PLAIN DARK GRAY TO LIGHT GRAY, SILTY CLAY (A-7-6) WITH TRACE FINE TO COARSE SAND, HIGHLY PLASTIC (BLACK CREEK FORMATION)	
120	118.8	23.5	8	12	14									M		
115	113.8	28.5	1	2	5									M		
110	108.8	33.5	6	3	3									Sat.	ORANGE-BROWN-TAN, SILTY FINE TO COARSE SAND (A-2-4)	
105	103.8	38.5	4	4	4									Sat.		
100	98.8	43.5	3	5	4									Sat.	COASTAL PLAIN DARK GRAY, SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)	
95	93.8	48.5	6	4	6									Sat.	GRAY TO ORANGE-BROWN-TAN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION)	
90	88.8	53.5	10	11	14									Sat.		
85	83.8	58.5	7	13	16									Sat.	DARK GRAY, FINE SANDY CLAYEY SILT (A-5) WITH TRACE MICA (BLACK CREEK FORMATION)	
80	78.8	63.5	7	12	14									M		
75	73.8	68.5	10	20	16									Sat.	GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY, WOOD FRAGMENTS, AND MICA (BLACK CREEK FORMATION)	
70	68.8	73.5	6	13	17									M	DARK GRAY, FINE SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)	
65															65.3	Boring Terminated at Elevation 52.3 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)									
BORING NO. S2_B2-B NBL		STATION 586+45		OFFSET 84 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 142.3 ft		TOTAL DEPTH 90.0 ft		NORTHING 383,260		EASTING 2,003,189										
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 80% 03/08/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER D. Pinter		START DATE 12/17/19		COMP. DATE 12/18/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
65																
	63.8	78.5	4	7	7											
60	58.8	83.5	4	6	8									Sat.	GRAY, SILTY FINE SAND (A-2-4) WITH TRACE MICA AND CLAY (BLACK CREEK FORMATION) (continued)	
55	53.8	88.5	6	15	20									Sat.		
															52.3	Boring Terminated at Elevation 52.3 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST Weis, J. M.
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00			GROUND WTR (ft)
BORING NO. S2_EB2-B_SBL	STATION 587+18	OFFSET 20 ft LT	ALIGNMENT -L-
COLLAR ELEV. 151.5 ft	TOTAL DEPTH 100.0 ft	NORTHING 383,363	EASTING 2,003,116
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Powell, B.	START DATE 05/27/21	COMP. DATE 05/28/21	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															151.5
150	150.5	1.0	12	7	4								M	ROADWAY EMBANKMENT BROWN, CLAYEY SAND (A-2-6)	0.0
	148.0	3.5	6	5	6								SS-07	BROWN, CLAYEY SAND (A-2-6)	5.5
145	145.5	6.0	3	5	5								Sat.		
	143.0	8.5	6	8	7										
140	138.0	13.5	WOH	WOH	4								SS-08	ALLUVIAL BROWN, SANDY SILT (A-4) WITH TRACE GRAVEL	13.5
135	133.0	18.5	WOH	WOH	3								30% Sat.	COASTAL PLAIN TAN, SILTY CLAY (A-7-6)	18.0
130	128.0	23.5	1	1	2								Sat.	TAN, SILTY CLAYEY SAND (A-2-6)	22.0
125	123.0	28.5	2	4	4								Sat.	TAN, F. SAND (A-3)	28.0
120	118.0	33.5	2	3	3								Sat.	TAN, CLAYEY F. SAND (A-2-6)	33.0
115	113.0	38.5	1	1	2								Sat.		
110	108.0	43.5	4	14	14								Sat.	LIGHT-BROWN, CSE. SAND (A-1-b)	43.0
105	103.0	48.5	5	5	6								Sat.	GRAY, CLAYEY SAND (A-2-6)	47.0
100	98.0	53.5	5	8	8								Sat.	GRAY, F. SAND (A-3)	53.0
95	93.0	58.5	6	6	1								Sat.	BROWN TO GRAY, CSE. SAND (A-1-b)	58.0
90	88.0	63.5	8	12	16								Sat.		
85	83.0	68.5	7	11	16								W	GRAY, CLAYEY SILT (A-5)	67.0
80	78.0	73.5	5	10	11								Sat.		
75															74.5

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1	TIP I-5987	COUNTY ROBESON	GEOLOGIST Weis, J. M.
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00			GROUND WTR (ft)
BORING NO. S2_EB2-B_SBL	STATION 587+18	OFFSET 20 ft LT	ALIGNMENT -L-
COLLAR ELEV. 151.5 ft	TOTAL DEPTH 100.0 ft	NORTHING 383,363	EASTING 2,003,116
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Powell, B.	START DATE 05/27/21	COMP. DATE 05/28/21	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
75															75.0
	73.0	78.5	5	8	13								W	GRAY, SANDY SILT (A-4) (continued)	78.0
70													Sat.	GRAY, SANDY CLAY (A-6)	
	68.0	83.5	5	11	15								Sat.	GRAY, CLAYEY SAND (A-2-6) WITH CEMENTED SAND FRAGMENTS	83.0
65													Sat.	GRAY, CSE. SAND (A-1-b) WITH TRACE CEMENTED SANDS	88.0
	63.0	88.5	7	10	10								Sat.		
60													Sat.		
	58.0	93.5	10	12	18								Sat.		
55													Sat.		
	53.0	98.5	7	12	13								Sat.	GRAY, CLAYEY F. SAND (A-2-6)	98.0
															100.0

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

Boring Terminated at Elevation 51.5 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)
Other Samples:
ST-04 (18.0 - 20.0)

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)									
BORING NO. S2_EB2-B NBL		STATION 587+05		OFFSET 84 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 143.6 ft		TOTAL DEPTH 85.0 ft		NORTHING 383,316		EASTING 2,003,209										
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 80% 03/08/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER R. Smith		START DATE 12/12/19		COMP. DATE 12/12/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
145	143.6	0.0	1	1	2											143.6
																141.6
140	140.1	3.5	WOH	WOH	1											136.6
																133.6
135	135.1	8.5	7	7	9											130.6
																127.6
130	130.1	13.5	2	4	4											124.6
																121.6
125	125.1	18.5	1	2	2											118.6
																115.6
120	120.1	23.5	1	2	4											112.6
																109.6
115	115.1	28.5	1	1	2											106.6
																103.6
110	110.1	33.5	2	5	7											100.6
																97.6
105	105.1	38.5	7	7	8											94.6
																91.6
100	100.1	43.5	3	5	5											88.6
																85.6
95	95.1	48.5	10	14	13											82.6
																79.6
90	90.1	53.5	11	9	8											76.6
																73.6
85	85.1	58.5	13	18	16											70.6
																67.6
80	80.1	63.5	10	19	24											64.6
																61.6
75	75.1	68.5	5	12	17											58.6
																55.6
70	70.1	73.5	3	7	12											52.6
																49.6
65	65.1	78.5														46.6

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00							GROUND WTR (ft)									
BORING NO. S2_EB2-B NBL		STATION 587+05		OFFSET 84 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 143.6 ft		TOTAL DEPTH 85.0 ft		NORTHING 383,316		EASTING 2,003,209										
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 80% 03/08/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER R. Smith		START DATE 12/12/19		COMP. DATE 12/12/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
65			5	9	10											65.0
																60.0
60	60.1	83.5	7	11	12											58.6
																55.6

NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ_NC_DOT.GDT 12/10/21

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	16

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTIONS
8-16	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY

SITE DESCRIPTION BRIDGE ON -L- (I-95)
OVER LITTLE MARSH SWAMP AT -L- STA.
803+15.00

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. 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

F&R, INC.

GOODNIGHT, D.J.

INVESTIGATED BY F&R /FALCON

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE DECEMBER 2021



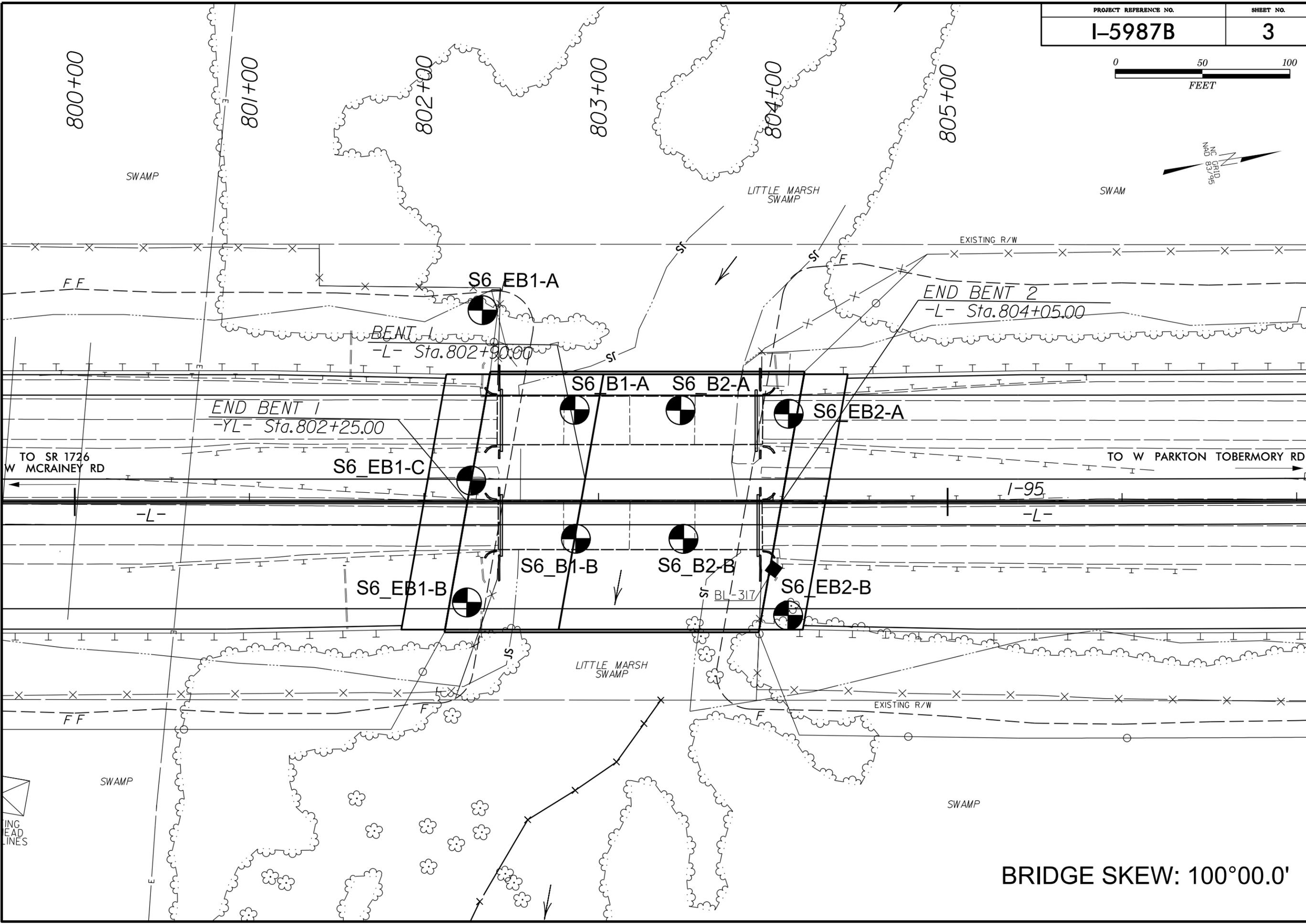
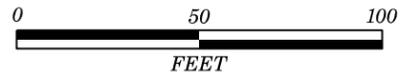
DocuSigned by:
Stephen C Crockett Dec 16, 2021

SIGNATURE DATE

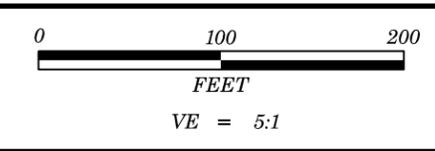
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UNLESS ALL SIGNATURES COMPLETED

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

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																																																																																										
<p>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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</p>										<p>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.</p>										<p>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:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, 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 DISLOGGED 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 (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																																																										
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-3</th> <th>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></th> <th></th> <th></th> <th></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></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SYMBOL</td> <td></td> </tr> <tr> <td>% PASSING #10 #40 #200</td> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX</td> <td>51 MN 35 MX 35 MX</td> <td>40 MX 41 MN 10 MX 11 MN</td> <td>40 MX 41 MN 11 MN 11 MN</td> </tr> <tr> <td>MATERIAL PASSING #40 LL PI</td> <td>-</td> <td>-</td> <td>NP</td> <td>40 MX 10 MX</td> <td>41 MN 11 MN</td> <td>40 MX 11 MN</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</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>NO MX</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS. 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CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</p> <p>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.</p> <p>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. IF TESTED, WOULD YIELD SPT REFUSAL.</p> <p>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. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF.</p> <p>VERY SEVERE (IV 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. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF.</p> <p>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.</p>										<p style="text-align: center;">GROUND WATER</p> <p> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p> <p> STATIC WATER LEVEL AFTER 24 HOURS</p> <p> PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p> <p> SPRING OR SEEP</p>									
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<p style="text-align: center;">PLASTICITY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NON PLASTIC</th> <th>SLIGHTLY PLASTIC</th> <th>MODERATELY PLASTIC</th> <th>HIGHLY PLASTIC</th> </tr> <tr> <td>0-5</td> <td>6-15</td> <td>16-25</td> <td></td></tr></table>										NON PLASTIC	SLIGHTLY PLASTIC	MODERATELY PLASTIC	HIGHLY PLASTIC	0-5	6-15	16-25																																																																																																																																																																																								
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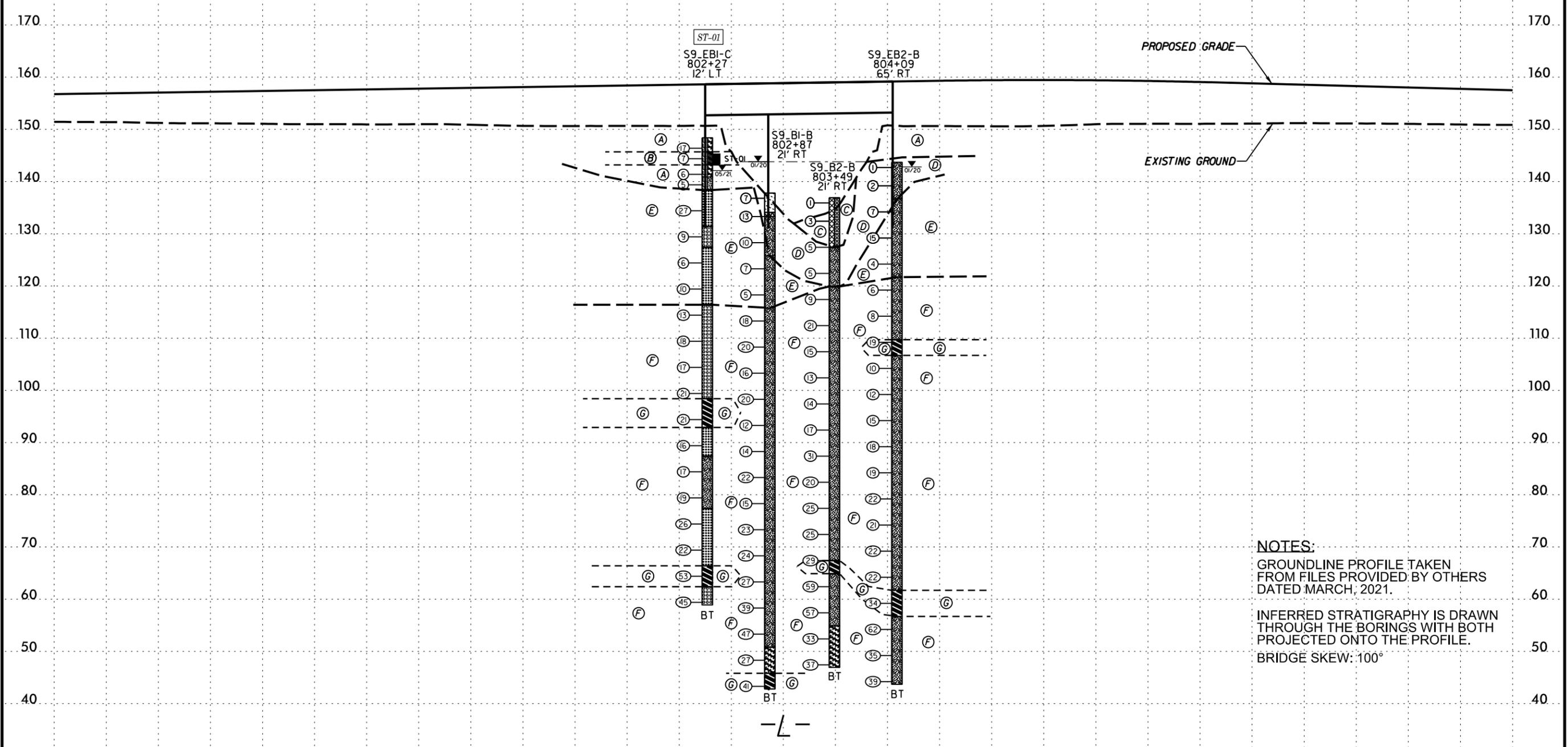


BRIDGE SKEW: 100°00.0'



- 220 (A) ROADWAY EMBANKMENT: TAN AND GRAY, MOIST TO WET, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6)
- (B) ROADWAY EMBANKMENT: TAN, MOIST, MED. STIFF, SANDY CLAY (A-6)
- 210 (C) ARTIFICIAL FILL: GRAY, SATURATED, V. LOOSE, F. TO CSE, GRAVEL (A-1-o)
- (D) ALLUVIAL: BROWN, TAN, AND GRAY, SATURATED, V. LOOSE TO MED. DENSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS, LITTLE GRAVEL, AND LITTLE WOOD FRAGS.
- (E) UNDIVIDED COASTAL PLAIN: BROWN, TAN, AND GRAY, SATURATED, LOOSE TO MED. DENSE, CSE, SAND (A-1-o) F. SAND (A-3) AND SILTY SAND (A-2-4) WITH TRACE CLAY, ORGANICS, AND GRAVEL
- 200 (F) COASTAL PLAIN: GRAY, SATURATED, MED. DENSE TO V. DENSE, F. TO CSE, SAND (A-1-b) SAND (A-3) AND SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE MICA, CLAY, AND WOOD FRAGS. (BLACK CREEK FORMATION)
- (G) COASTAL PLAIN: GRAY, WET TO SATURATED, V. STIFF TO HARD, SANDY SILTY CLAY (A-7) WITH TRACE MICA AND WOOD FRAGS. (BLACK CREEK FORMATION)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-01	12 FT LT	802+27	3.0'-5.0'	A-7-6	51	24	39	19	14	28	100	76	42	22	-



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 100°

8/23/99

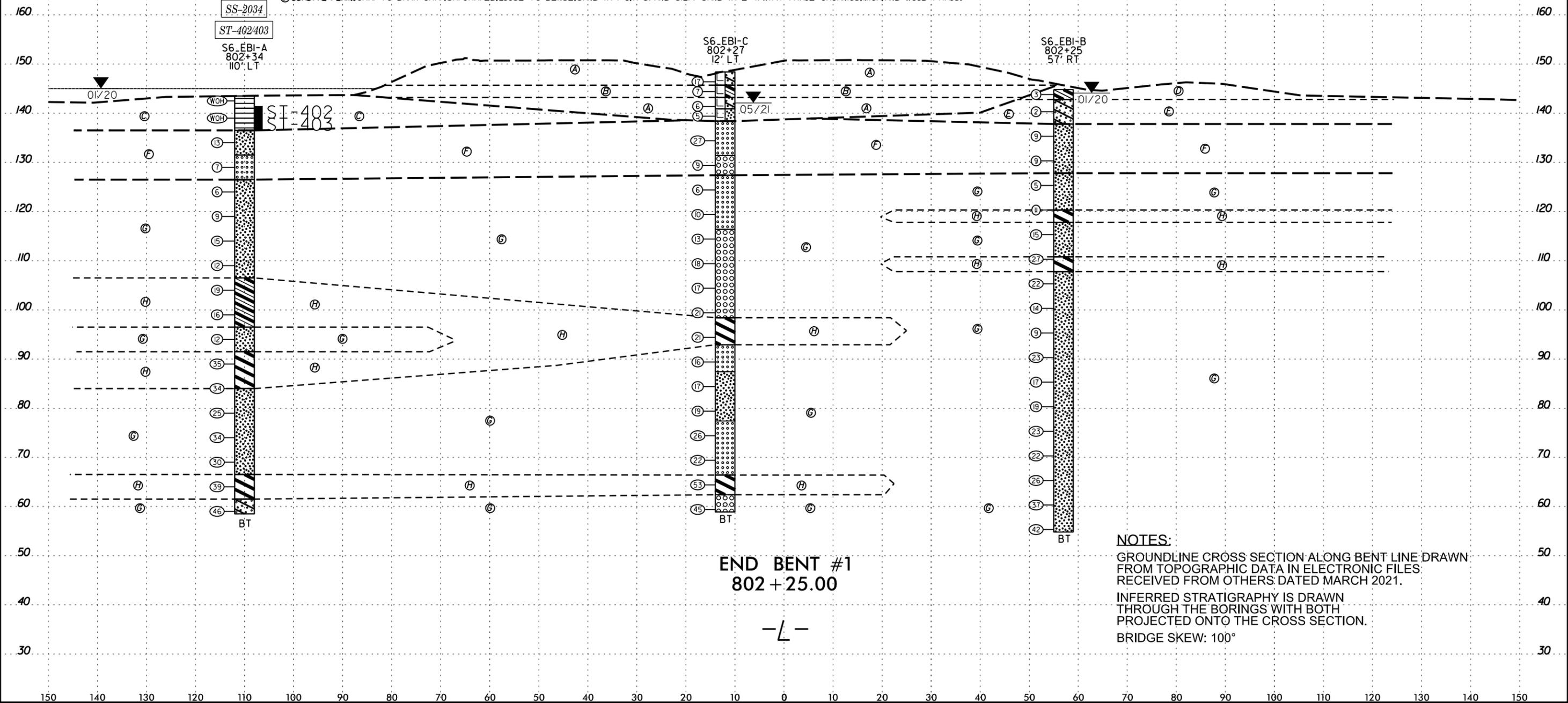
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 20 40
FEET

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-2034	110 FT LT	802+34	0.2'-1.0'	A-6	39	18	41	20	8	31	99	73	41	30	6.3
ST-402/403	110 FT LT	802+36	2.0'-6.0'	A-7-6	47	28	42	23	4	32	100	74	39	23	-

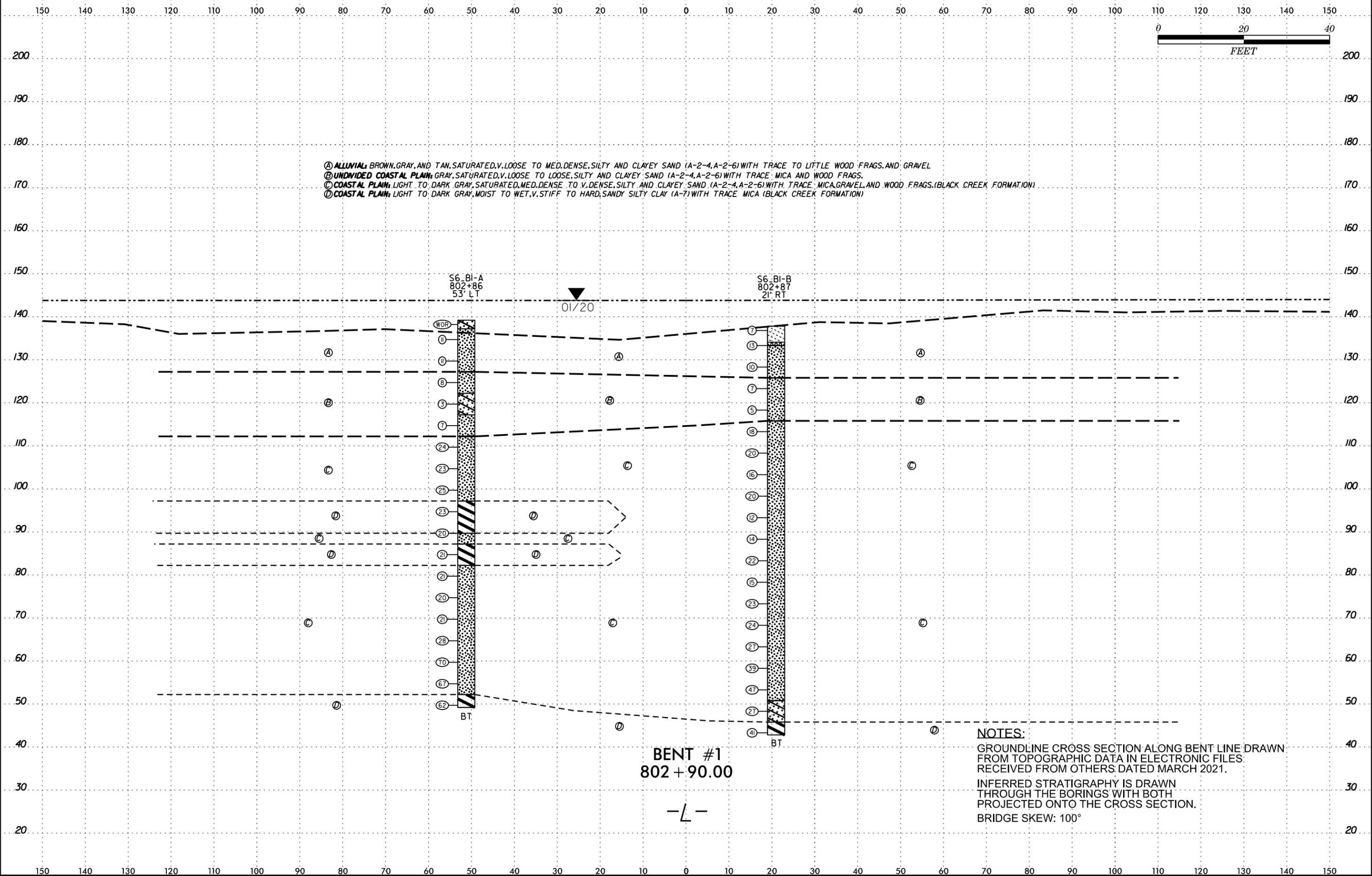
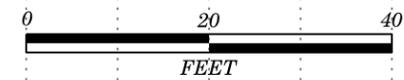
- Ⓐ ROADWAY EMBANKMENT: TAN AND GRAY, MOIST TO WET, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6)
- Ⓑ ROADWAY EMBANKMENT: TAN, MOIST, MED. STIFF, SANDY CLAY (A-6)
- Ⓒ ALLUVIAL: BROWN, SATURATED, V. SOFT, SANDY AND HIGHLY PLASTIC SILTY CLAY (A-6, A-7-6) WITH LITTLE ORGANICS
- Ⓓ ALLUVIAL: BROWN AND GRAY, WET, SOFT, SILTY SANDY CLAY (A-6) WITH TRACE ORGANICS
- Ⓔ ALLUVIAL: BROWN AND GRAY, WET, V. LOOSE, SILTY CLAYEY SAND (A-2-6) WITH TRACE ORGANICS AND WOOD FRAGS.
- Ⓕ UNDIVIDED COASTAL PLAIN: BROWN, GRAY, TAN, AND WHITE, SATURATED, LOOSE TO MED. DENSE, SAND (A-1-a, A-3) AND SILTY SAND (A-2-4) WITH TRACE MICA, ORGANICS, GRAVEL, AND WOOD FRAGS.
- Ⓖ COASTAL PLAIN: GRAY TO DARK GRAY, SATURATED, LOOSE TO DENSE, SAND (A-1-b, A-3) AND SILTY SAND (A-2-4) WITH TRACE ORGANICS, MICA, AND WOOD FRAGS.



NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 100°

8/23/99

8/23/99



- Ⓐ ALLUVIAL: BROWN, GRAY, AND TAN, SATURATED, V. LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE TO LITTLE WOOD FRAGS. AND GRAVEL
- Ⓑ UNDIVIDED COASTAL PLAIN: GRAY, SATURATED, V. LOOSE TO LOOSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE MICA AND WOOD FRAGS.
- Ⓒ COASTAL PLAIN: LIGHT TO DARK GRAY, SATURATED, MED. DENSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE MICA, GRAVEL, AND WOOD FRAGS. (BLACK CREEK FORMATION)
- Ⓓ COASTAL PLAIN: LIGHT TO DARK GRAY, MOIST TO WET, V. STIFF TO HARD, SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)

S6_BI-A
802+86
53' LT

01/20

S6_BI-B
802+87
21' RT

BENT #1
802+90.00

-L-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 100°

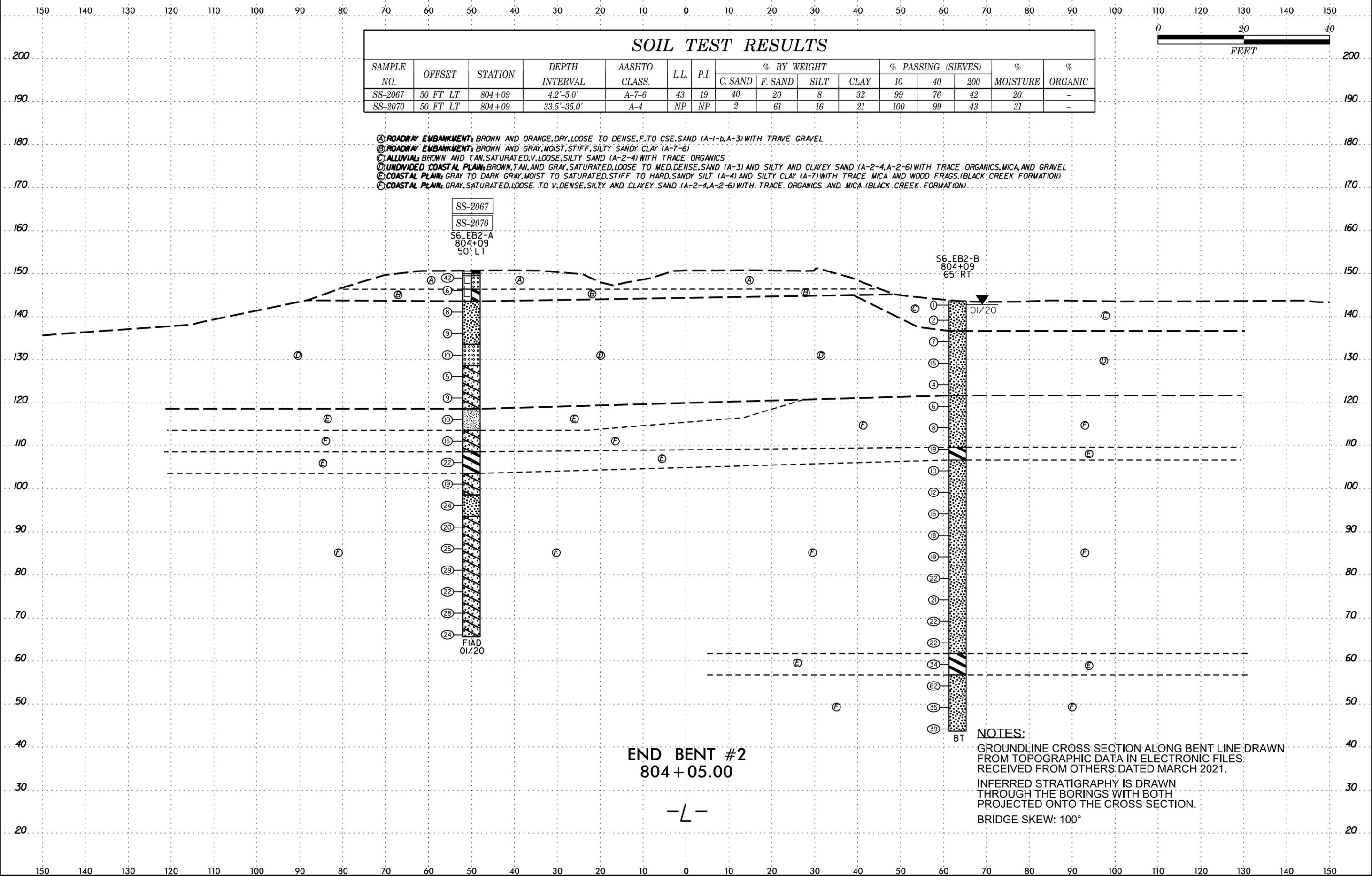
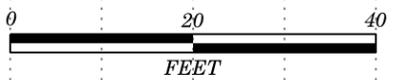
SCALE\$

8/23/99

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-2067	50 FT LT	804+09	4.2'-5.0'	A-7-6	43	19	40	20	8	32	99	76	42	20	-
SS-2070	50 FT LT	804+09	33.5'-35.0'	A-4	NP	NP	2	61	16	21	100	99	43	31	-

- Ⓐ ROADWAY EMBANKMENT: BROWN AND ORANGE, DRY, LOOSE TO DENSE, F. TO CSE. SAND (A-1-b, A-3) WITH TRACE GRAVEL
- Ⓑ ROADWAY EMBANKMENT: BROWN AND GRAY, MOIST, STIFF, SILTY SANDY CLAY (A-7-6)
- Ⓒ ALLUVIAL: BROWN AND TAN, SATURATED, V. LOOSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS
- Ⓓ UNDIVIDED COASTAL PLAIN: BROWN, TAN, AND GRAY, SATURATED, LOOSE TO MED. DENSE, SAND (A-3) AND SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE ORGANICS, MICA, AND GRAVEL
- Ⓔ COASTAL PLAIN: GRAY TO DARK GRAY, MOIST TO SATURATED, STIFF TO HARD, SANDY SILT (A-4) AND SILTY CLAY (A-7) WITH TRACE MICA AND WOOD FRAGS. (BLACK CREEK FORMATION)
- Ⓕ COASTAL PLAIN: GRAY, SATURATED, LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE ORGANICS AND MICA (BLACK CREEK FORMATION)



SS-2067
 SS-2070
 S6_EB2-A
 804+09
 50' LT

S6_EB2-B
 804+09
 65' RT

END BENT #2
 804+05.00

-L-

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 100°

SCALE\$

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST B. Painter										
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)									
BORING NO. S6_EB1-A		STATION 802+34		OFFSET 110 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 143.5 ft		TOTAL DEPTH 85.0 ft		NORTHING 403,424		EASTING 2,010,186										
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 73% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER D. Tignor		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH 0.3ft										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
150																
145	143.5	0.0														
140	140.0	3.5	WOH	WOH	WOH											
135	135.0	8.5	3	6	7											
130	130.0	13.5	3	4	3											
125	125.0	18.5	3	3	3											
120	120.0	23.5	4	4	5											
115	115.0	28.5	4	6	9											
110	110.0	33.5	5	6	6											
105	105.0	38.5	4	8	11											
100	100.0	43.5	5	6	10											
95	95.0	48.5	4	6	6											
90	90.0	53.5	8	15	20											
85	85.0	58.5	8	16	18											
80	80.0	63.5	7	12	13											
75	75.0	68.5	14	16	18											
70	70.0	73.5														

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST B. Painter										
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)									
BORING NO. S6_EB1-A		STATION 802+34		OFFSET 110 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 143.5 ft		TOTAL DEPTH 85.0 ft		NORTHING 403,424		EASTING 2,010,186										
DRILL RIG/HAMMER EFF./DATE F&R5785 CME-55 73% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER D. Tignor		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH 0.3ft										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
70																
65	65.0	78.5	10	17	22											
60	60.0	83.5	9	19	27											

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

Match Line

66.5 - DARK GRAY, FINE TO COARSE SANDY SILTY CLAY (A-7), MICACEOUS (BLACK CREEK FORMATION) 77.0

61.5 - DARK GRAY, SILTY CLAYEY FINE TO COARSE SAND (A-2-6), MICACEOUS (BLACK CREEK FORMATION) 82.0

58.5 - Boring Terminated at Elevation 58.5 ft IN CLAYEY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION) 85.0

Notes:
1. Shelby Tubes pushed in Offset Boring 802+26, 93' Lt; ST-402: 2.0'-4.0', ST-403: 4.0'-6.0', Both Lab Tested

Other Samples:
ST-402 (2.0 - 4.0)
ST-403 (4.0 - 6.0)

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)									
BORING NO. S6_EB1-B		STATION 802+25		OFFSET 57 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 144.8 ft		TOTAL DEPTH 90.0 ft		NORTHING 403,391		EASTING 2,010,350										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/08/20		COMP. DATE 01/08/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
145	144.8	0.0	2	1	2									144.8	0.0	GROUND SURFACE
140	141.3	3.5	1	1	1								W	142.8	2.0	ALLUVIAL BROWN-GRAY, SILTY FINE TO COARSE SANDY CLAY (A-6) WITH TRACE ORGANICS
	137.8	8.5	3	4	5								Sat.	137.8	7.0	BROWN-GRAY, SILTY CLAYEY FINE TO COARSE SAND (A-2-6) WITH TRACE ORGANICS AND WOOD FRAGMENTS
135	136.3	8.5	3	4	5								Sat.			UNDIVIDED COASTAL PLAIN GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE ORGANICS AND GRAVEL
130	131.3	13.5	4	4	5								Sat.			
125	126.3	18.5	3	2	3								Sat.	127.8	17.0	COASTAL PLAIN DARK GRAY, CLAYEY SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION)
120	121.3	23.5	3	5	6								Sat. W	120.3	24.5	DARK GRAY, FINE TO COARSE SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)
115	116.3	28.5	5	7	8								Sat.	117.8	27.0	GRAY, SILTY FINE TO COARSE SAND (A-2-4) (BLACK CREEK FORMATION)
110	111.3	33.5	9	10	17								Sat. W	110.8	34.0	DARK GRAY, FINE TO COARSE SANDY SILTY CLAY (A-7) WITH TRACE MICA AND WOOD FRAGMENTS (BLACK CREEK FORMATION)
105	106.3	38.5	7	10	12								Sat.	107.8	37.0	GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, AND WOOD FRAGMENTS (BLACK CREEK FORMATION)
100	101.3	43.5	7	7	7								Sat.			
95	96.3	48.5	2	4	5								Sat.			
90	91.3	53.5	8	10	13								Sat.			
85	86.3	58.5	6	7	10								Sat.			
80	81.3	63.5	9	10	9								Sat.			
75	76.3	68.5	9	10	13								Sat.			
70	71.3	73.5	10	9	13								Sat.			
65	66.3	78.5	7	12	14								Sat.			Boring Terminated at Elevation 54.8 ft IN SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl												
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)											
BORING NO. S6_EB1-B		STATION 802+25		OFFSET 57 ft RT		ALIGNMENT -L-												
COLLAR ELEV. 144.8 ft		TOTAL DEPTH 90.0 ft		NORTHING 403,391		EASTING 2,010,350												
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic														
DRILLER S. Davis		START DATE 01/08/20		COMP. DATE 01/08/20		SURFACE WATER DEPTH N/A												
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)			
65																	Match Line	
60	61.3	83.5	15	16	21								Sat.				GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, AND WOOD FRAGMENTS (BLACK CREEK FORMATION) (continued)	
55	56.3	88.5	13	19	23								Sat.					

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl									
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)								
BORING NO. S6_B2-A		STATION 803+47		OFFSET 52 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 134.4 ft		TOTAL DEPTH 85.0 ft		NORTHING 403,528		EASTING 2,010,259									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 01/16/20		COMP. DATE 01/17/20		SURFACE WATER DEPTH 9.6ft									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															
150															
145															
140															
135	134.4	0.0													
			WOR	WOR	WOR										
130	130.9	3.5	2	1	1										
125	125.9	8.5	3	1	2										
120	120.9	13.5	4	2	2										
115	115.9	18.5	3	3	2										
110	110.9	23.5	3	5	8										
105	105.9	28.5	3	6	9										
100	100.9	33.5	5	6	9										
95	95.9	38.5	10	10	13										
90	90.9	43.5	6	10	12										
85	85.9	48.5	9	12	14										
80	80.9	53.5	11	12	17										
75	75.9	58.5	12	15	14										

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl									
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)								
BORING NO. S6_B2-A		STATION 803+47		OFFSET 52 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 134.4 ft		TOTAL DEPTH 85.0 ft		NORTHING 403,528		EASTING 2,010,259									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 01/16/20		COMP. DATE 01/17/20		SURFACE WATER DEPTH 9.6ft									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
75															
70	70.9	63.5	12	14	16										
65	65.9	68.5	12	17	20										
60	60.9	73.5	9	23	28										
55	55.9	78.5	10	17	27										
50	50.9	83.5	13	16	29										

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

Match Line

COASTAL PLAIN

DARK GRAY, SILTY FINE SAND (A-2-4) WITH TRACE CLAY AND MICA (BLACK CREEK FORMATION) (continued)

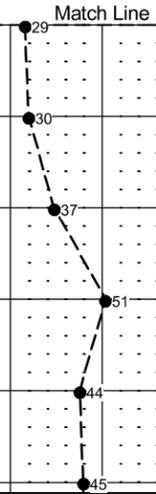
DARK GRAY, FINE SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)

GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION)

GRAY, FINE TO COARSE SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION)

GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE CLAY AND MICA (BLACK CREEK FORMATION)

Boring Terminated at Elevation 49.4 ft IN SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)



GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl												
SITE DESCRIPTION Bridge on -L- (I-95) over Little Marsh Swamp at -L- Sta. 803+15							GROUND WTR (ft)											
BORING NO. S6_EB2-B		STATION 804+09		OFFSET 65 ft RT		ALIGNMENT -L-												
COLLAR ELEV. 143.7 ft		TOTAL DEPTH 100.0 ft		NORTHING 403,572		EASTING 2,010,384												
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic														
DRILLER S. Davis		START DATE 01/08/20		COMP. DATE 01/08/20		SURFACE WATER DEPTH N/A												
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)			
145	143.7	0.0													143.7	0.0	GROUND SURFACE	
			WOH	1	0													ALLUVIAL BROWN-TAN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE ORGANICS
140	140.2	3.5	1	1	1									Sat.				
135	135.2	8.5	3	3	4									Sat.	136.7	7.0	UNDIVIDED COASTAL PLAIN GRAY-BROWN, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE ORGANICS, GRAVEL, AND CLAY	
130	130.2	13.5	6	7	8									Sat.				
125	125.2	18.5	1	1	3									Sat.				
120	120.2	23.5	2	3	3									Sat.	121.7	22.0	COASTAL PLAIN DARK GRAY, CLAYEY SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL (BLACK CREEK FORMATION)	
115	115.2	28.5	2	4	4									Sat.				
110	110.2	33.5	3	8	11									Sat. W	109.7	34.0	DARK GRAY, FINE TO COARSE SANDY SILTY CLAY (A-7) WITH TRACE MICA AND WOOD FRAGMENTS (BLACK CREEK FORMATION)	
105	105.2	38.5	2	4	6									Sat.	106.7	37.0	GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, AND WOOD FRAGMENTS (BLACK CREEK FORMATION)	
100	100.2	43.5	6	6	6									Sat.				
95	95.2	48.5	6	7	8									Sat.				
90	90.2	53.5	7	7	11									Sat.				
85	85.2	58.5	7	9	10									Sat.				
80	80.2	63.5	10	11	11									Sat.				
75	75.2	68.5	10	10	11									Sat.				
70	70.2	73.5	9	11	11									Sat.				
65	65.2	78.5												Sat.				

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GEOTECHNICAL BORING REPORT BORE LOG

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DRILLER S. Davis		START DATE 01/08/20		COMP. DATE 01/08/20		SURFACE WATER DEPTH N/A												
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)			
65																		Match Line
60	60.2	83.5	8	12	22									Sat.	61.7	82.0	DARK GRAY, SILTY CLAY (A-7) WITH TRACE FINE TO COARSE SAND AND MICA (BLACK CREEK FORMATION)	
55	55.2	88.5	24	37	25									Sat.	56.7	87.0	GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION)	
50	50.2	93.5	10	15	20									Sat.				
45	45.2	98.5	11	16	23									Sat.				
														Sat.	43.7	100.0	Boring Terminated at Elevation 43.7 ft IN SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)	

NCDOT BORE SINGLE B06_15987_GEO_BORELOGS_BRDG_L80315.GPJ_NC_DOT.GDT 12/10/21

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	13

STRUCTURE
SUBSURFACE INVESTIGATION

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-13	BORE LOGS

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY

SITE DESCRIPTION BRIDGE NO. 100 ON -YIB- (US 301)
OVER -L- (I-95) AT -L- STA. 702 + 75.43

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:
- 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.

PERSONNEL

F&R, INC.

GOODNIGHT, D.J.

WEIS, J.M.

INVESTIGATED BY FALCON ENG.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE DECEMBER 2021



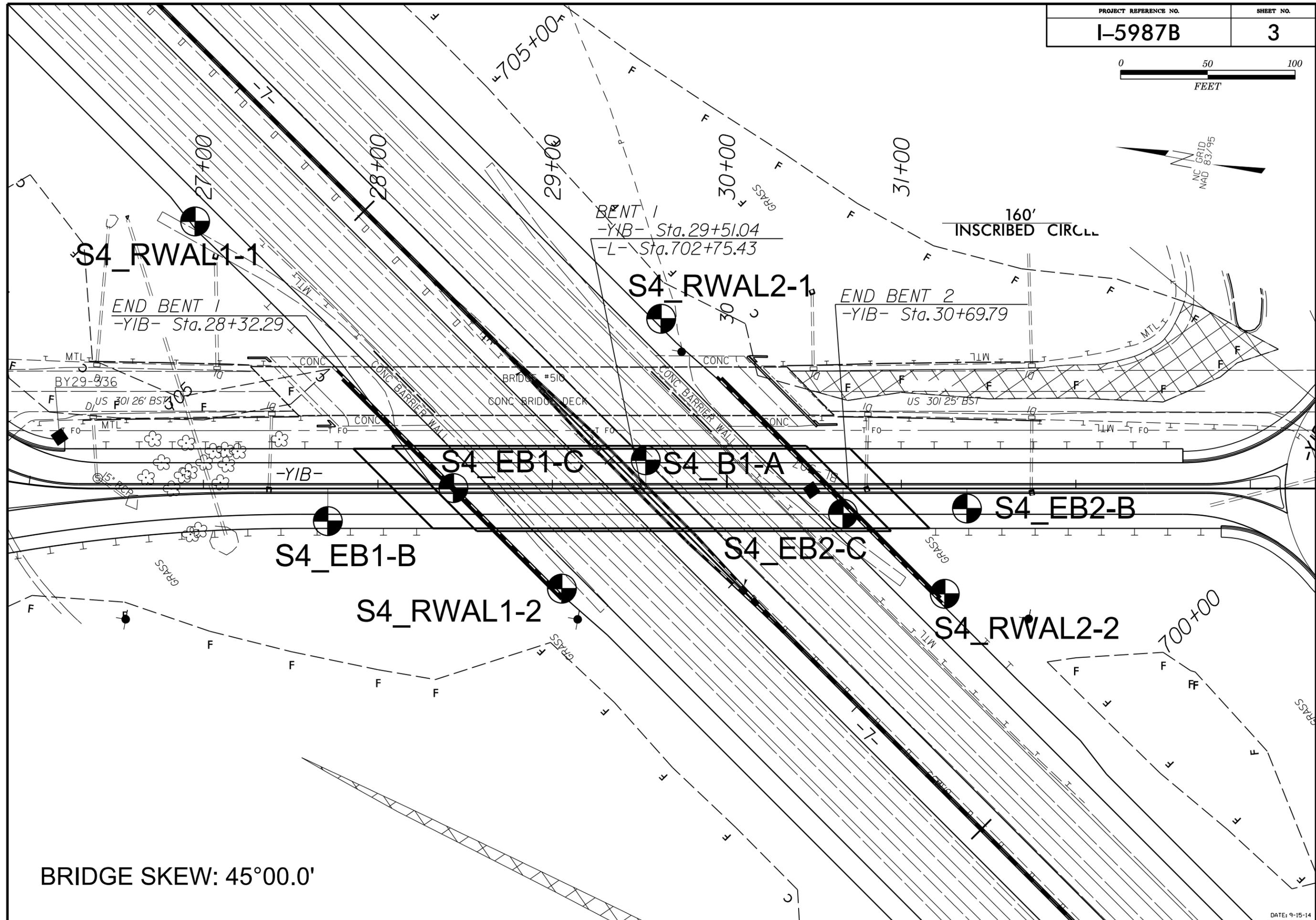
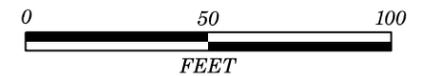
DocuSigned by:
Stephen C Crockett Dec 16, 2021

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SIGNATURE DATE

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

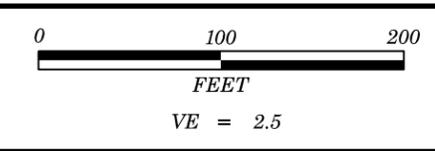
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																									
<p>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></p>										<p>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.</p>										<p>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:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, 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 DISLOGGED 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 (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																									
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRYSTALLINE ROCK (CR)																																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-2-4</th> <th>A-2-5</th> <th>A-2-6</th> <th>A-2-7</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> </tr> <tr> <th>SYMBOL</th> <td colspan="5">[Pattern]</td> <td colspan="5">[Pattern]</td> <td colspan="5">[Pattern]</td> </tr> <tr> <th>% PASSING #10 #40 #200</th> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX</td> <td>51 MN 10 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>35 MX 35 MX</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>36 MN 36 MN</td> <td>GRANULAR SOILS</td> <td>SILT-CLAY SOILS</td> <td>MUCK, PEAT</td> <td></td> </tr> </table>										GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS					GROUP CLASS.	A-1	A-3	A-2	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	SYMBOL	[Pattern]					[Pattern]					[Pattern]					% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX 35 MX	35 MX 35 MX	35 MX 35 MX	35 MX 35 MX	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT		<p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.</p>										<p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>									
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MINERALOGICAL COMPOSITION										COMPRESSION										NON-CRYSTALLINE ROCK (NCR)										COASTAL PLAIN SEDIMENTARY ROCK (CP)																																																																									
<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p>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>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																																																																									
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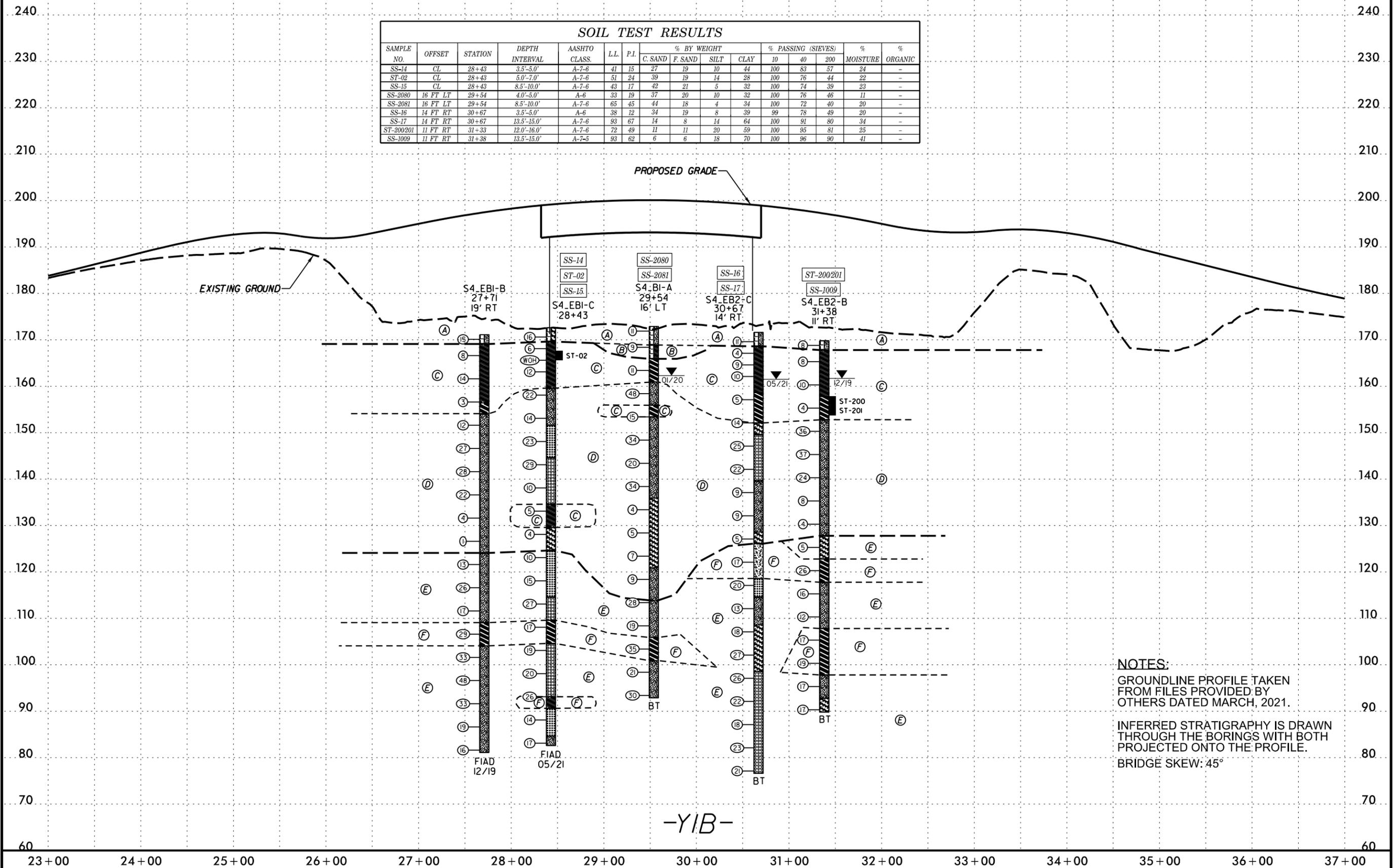
BRIDGE SKEW: 45°00.0'

- Ⓐ ROADWAY EMBANKMENT: ORANGE, GRAY, TAN, AND BROWN, MOIST TO WET, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE ORGANICS AND QUARTZ FRAGS.
- Ⓑ ROADWAY EMBANKMENT: BROWN, MOIST, STIFF, SILTY SANDY CLAY (A-6) WITH TRACE ORGANICS
- Ⓒ UNDIVIDED COASTAL PLAIN: GRAY, ORANGE, RED, TAN, AND BROWN, MOIST TO SATURATED, V. SOFT TO STIFF, SANDY AND HIGHLY PLASTIC SILTY CLAY (A-6, A-7-5, A-7-6)
- Ⓓ UNDIVIDED COASTAL PLAIN: ORANGE, RED, TAN, GRAY, WHITE, AND BROWN, WET TO SATURATED, V. LOOSE TO DENSE, CSE. SAND, SAND, AND SILTY AND CLAYEY SAND (A-1-b, A-3, A-2-4, A-2-6) WITH TRACE ORGANICS AND GRAVEL
- Ⓔ COASTAL PLAIN: DARK GRAY, GRAY, AND TAN, SATURATED, MED. DENSE TO DENSE, CSE. SAND, SAND, AND SILTY AND CLAYEY SAND (A-1-b, A-3, A-2-4, A-2-6) WITH TRACE ORGANICS AND MICA (BLACK CREEK FORMATION)
- Ⓕ COASTAL PLAIN: DARK GRAY AND GRAY, MOIST TO SATURATED, V. STIFF TO HARD, CLAYEY SILT AND SANDY AND SILTY CLAY (A-5, A-6, A-7) WITH TRACE ORGANICS AND MICA



PROJECT REFERENCE NO.	SHEET NO.
I-5987B	4
BRIDGE NO. 100 ON -YIB- (US-301) OVER	
-L- (I-95) AT	
-L- STA. 702+75.43	

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-14	CL	28+43	3.5'-5.0'	A-7-6	41	15	27	19	10	44	100	83	57	24	-
ST-02	CL	28+43	5.0'-7.0'	A-7-6	51	24	39	19	14	28	100	76	44	22	-
SS-15	CL	28+43	8.5'-10.0'	A-7-6	43	17	42	21	5	32	100	74	39	23	-
SS-2080	16 FT LT	29+54	4.0'-5.0'	A-6	33	19	37	20	10	32	100	76	46	11	-
SS-2081	16 FT LT	29+54	8.5'-10.0'	A-7-6	65	45	44	18	4	34	100	72	40	20	-
SS-16	14 FT RT	30+67	3.5'-5.0'	A-6	38	12	34	19	8	39	99	78	49	20	-
SS-17	14 FT RT	30+67	13.5'-15.0'	A-7-6	93	67	14	8	14	64	100	91	80	34	-
ST-200201	11 FT RT	31+33	12.0'-16.0'	A-7-6	72	49	11	11	20	59	100	95	81	25	-
SS-1009	11 FT RT	31+38	13.5'-15.0'	A-7-5	93	62	6	6	18	70	100	96	90	41	-



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 45°

-YIB-

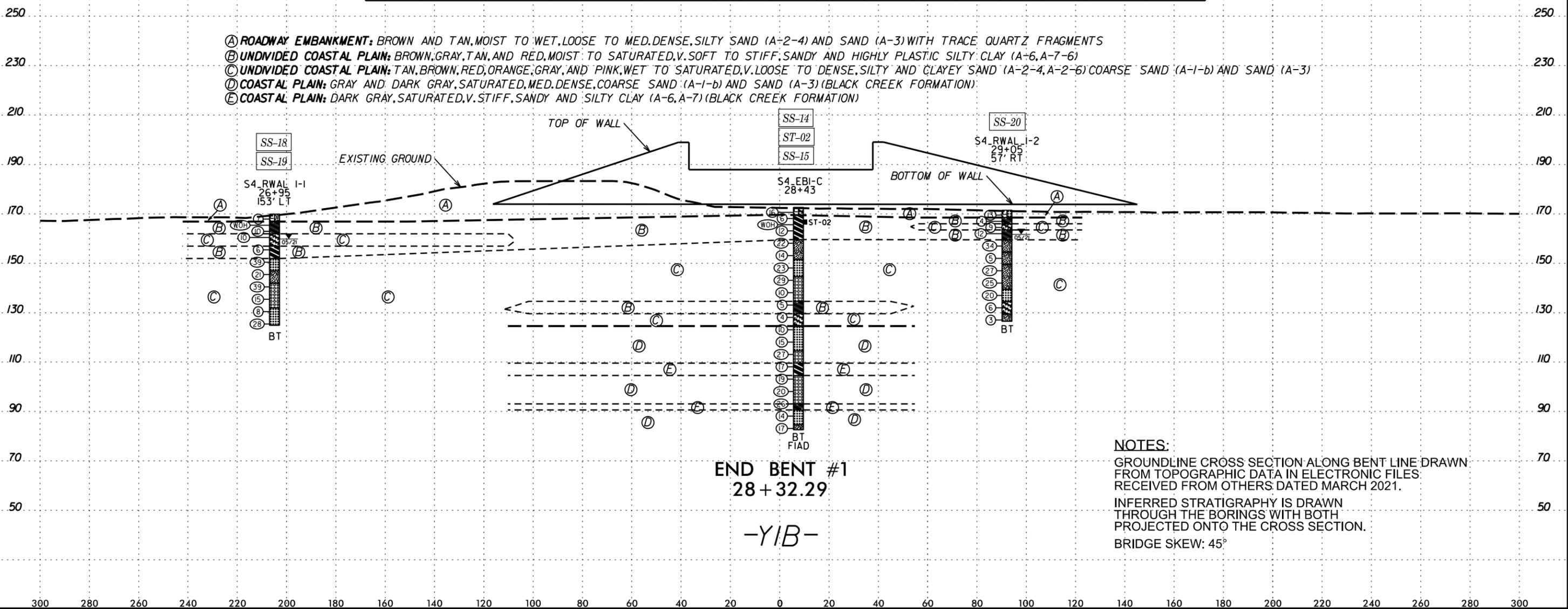
8/23/99

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

0 40 80
FEET

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-18	153 FT LT	26+95	3.5'-5.0'	A-6	36	19	41	20	9	30	98	71	41	23	-
SS-19	153 FT LT	26+95	13.5'-15.0'	A-7-6	62	37	12	8	22	58	100	91	81	29	-
SS-14	153 FT LT	26+95	3.5'-5.0'	A-7-6	41	15	27	19	10	44	100	83	57	24	-
ST-02	CL	28+43	5.0'-7.0'	A-7-6	51	24	39	19	14	28	100	76	42	22	-
SS-15	CL	28+43	8.5'-10.0'	A-7-6	43	17	42	21	5	32	100	74	39	23	-
SS-20	57 FT RT	29+05	3.5'-5.0'	A-6	34	15	34	21	11	34	100	79	49	24	-

- (A) ROADWAY EMBANKMENT: BROWN AND TAN, MOIST TO WET, LOOSE TO MED. DENSE, SILTY SAND (A-2-4) AND SAND (A-3) WITH TRACE QUARTZ FRAGMENTS
- (B) UNDIVIDED COASTAL PLAIN: BROWN, GRAY, TAN, AND RED, MOIST TO SATURATED, V. SOFT TO STIFF, SANDY AND HIGHLY PLASTIC SILTY CLAY (A-6, A-7-6)
- (C) UNDIVIDED COASTAL PLAIN: TAN, BROWN, RED, ORANGE, GRAY, AND PINK, WET TO SATURATED, V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) COARSE SAND (A-1-b) AND SAND (A-3)
- (D) COASTAL PLAIN: GRAY AND DARK GRAY, SATURATED, MED. DENSE, COARSE SAND (A-1-b) AND SAND (A-3) (BLACK CREEK FORMATION)
- (E) COASTAL PLAIN: DARK GRAY, SATURATED, V. STIFF, SANDY AND SILTY CLAY (A-6, A-7) (BLACK CREEK FORMATION)



NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
BRIDGE SKEW: 45°

END BENT #1
28+32.29

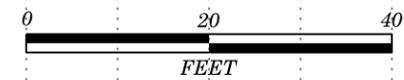
-YIB-

8/23/99

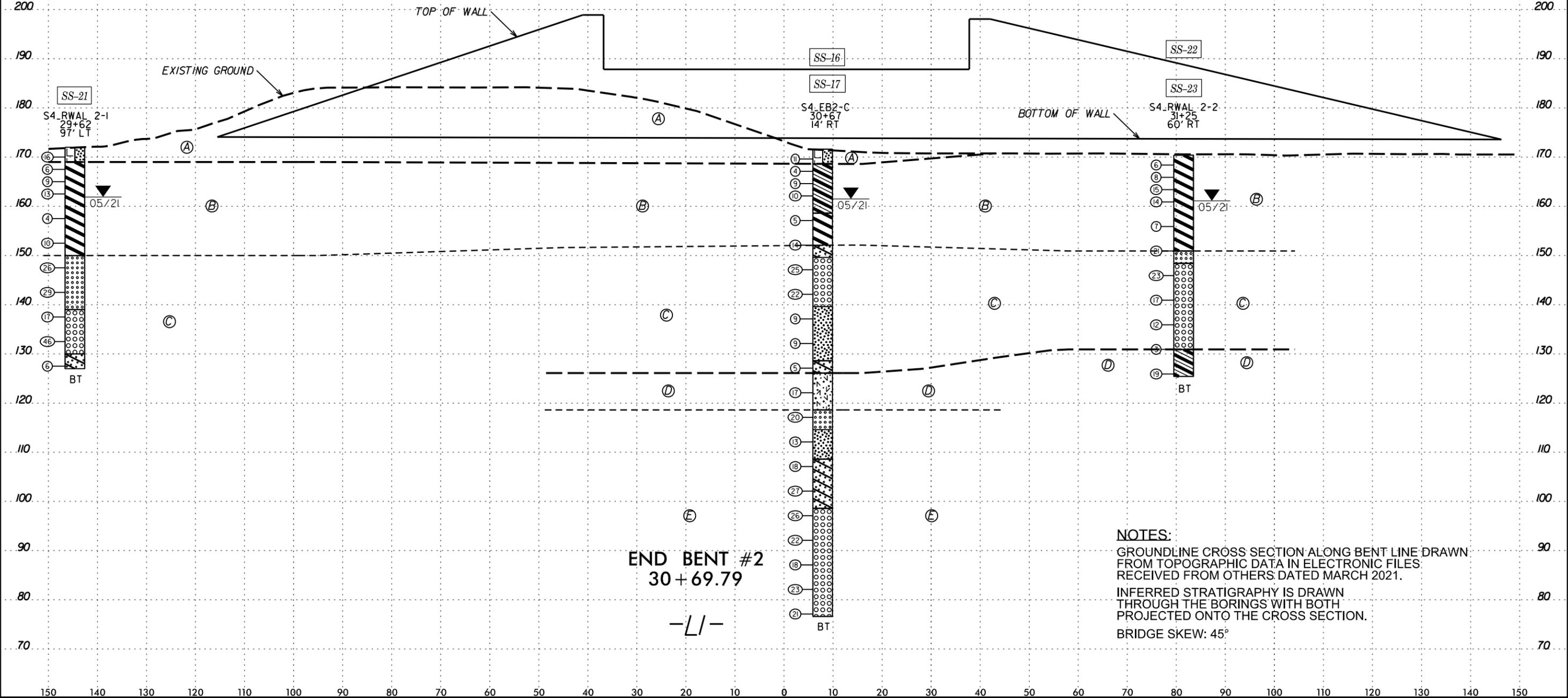
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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	97 FT LT	29+62	6.0'-7.5'	A-7-6	43	19	40	20	8	32	99	76	42	20	-
SS-16	14 FT RT	30+67	3.5'-5.0'	A-6	38	12	34	19	8	39	99	78	49	20	-
SS-17	14 FT RT	30+67	13.5'-15.0'	A-7-6	93	67	14	8	14	64	100	91	80	24	-
SS-22	60 FT RT	31+25	3.5'-5.0'	A-7-6	44	21	34	19	11	36	100	79	50	22	-
SS-23	60 FT RT	31+25	38.5'-40.0'	A-6	34	12	8	18	27	47	100	95	77	30	-



- Ⓐ ROADWAY EMBANKMENT: TAN AND LIGHT BROWN, MOIST, MED. DENSE, SILTY SAND (A-2-4)
- Ⓑ UNDIVIDED COASTAL PLAIN: LIGHT BROWN, TAN, GRAY, AND RED, MOIST TO WET, MED. STIFF TO STIFF, SANDY AND HIGHLY PLASTIC SILTY CLAY (A-6, A-7-6)
- Ⓒ UNDIVIDED COASTAL PLAIN: TAN, SATURATED, LOOSE TO MED. DENSE, COARSE SAND (A-1-b) FINE SAND (A-3) AND SILTY AND CLAYEY SAND (A-2-4, A-2-6)
- Ⓓ COASTAL PLAIN: BROWN AND DARK GRAY, MOIST, SOFT TO V. STIFF, CLAYEY SILT AND SANDY CLAY (A-5, A-6) (BLACK CREEK FORMATION)
- Ⓔ COASTAL PLAIN: GRAY, SATURATED, MED. DENSE, COARSE SAND (A-1-b) FINE SAND (A-3) AND SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE ROCK FRAGMENTS (BLACK CREEK FORMATION)



END BENT #2
30 + 69.79
-11-

NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.
 BRIDGE SKEW: 45°

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST B. Painter										
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)									
BORING NO. S4_B1-A		STATION 29+54		OFFSET 16 ft LT		ALIGNMENT -Y1B-										
COLLAR ELEV. 172.9 ft		TOTAL DEPTH 80.0 ft		NORTHING 394,332		EASTING 2,006,411										
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER D.Tignor		START DATE 01/20/20		COMP. DATE 01/21/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
180																
175																
172.9	172.9	0.0	2	4	7										172.9	GROUND SURFACE
170	169.4	3.5	7	4	5									M	ROADWAY EMBANKMENT DARK GRAY-BROWN, SILTY F. SAND (A-2-4) WITH TRACE ORGANICS	4.0
165	164.4	8.5	3	4	7									SS-2080 11%	BROWN, SILTY F. TO CSE. SANDY CLAY (A-6) WITH TRACE ORGANICS	7.0
160	159.4	13.5	12	22	26									SS-2081 20%	UNDIVIDED COASTAL PLAIN RED-BROWN-GRAY, SILTY F. TO CSE. SANDY CLAY (A-7-6), HIGHLY PLASTIC	12.0
155	154.4	18.5	5	9	6									W	BROWN-PINK, CLAYEY SILTY F. TO CSE. SAND (A-2-4)	17.0
150	149.4	23.5	13	14	20									W	PINK-ORANGE, F. SANDY SILTY CLAY (A-7)	19.5
145	144.4	28.5	7	9	11									W	WHITE-GRAY-BROWN, CLAYEY SILTY F. TO CSE. SAND (A-2-4) WITH TRACE GRAVEL FROM 33.5'-35.0'	34.0
140	139.4	33.5	16	17	17									W		34.0
135	134.4	38.5	4	2	2									Sat.	BROWN-GRAY-PINK, SILTY CLAYEY F. TO CSE. SAND (A-2-6) WITH TRACE GRAVEL	37.0
130	129.4	43.5	3	3	2									Sat.		44.0
125	124.4	48.5	3	3	4									Sat.		48.5
120	119.4	53.5	3	4	5									Sat.	ORANGE-GRAY-RED, CLAYEY SILTY F. SAND (A-2-4), MICACEOUS	52.0
115	114.4	58.5	7	12	16									Sat.		59.0
110	109.4	63.5	5	8	11									W	COASTAL PLAIN DARK GRAY, SILTY F. TO CSE. SAND (A-2-4) WITH TRACE MICA AND ORGANICS (BLACK CREEK FORMATION)	67.0
105	104.4	68.5	6	15	20									M	GRAY, SILTY CLAY (A-7), WITH TRACE MICA AND GRAVEL (BLACK CREEK FORMATION)	72.0
100																

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST B. Painter										
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)									
BORING NO. S4_B1-A		STATION 29+54		OFFSET 16 ft LT		ALIGNMENT -Y1B-										
COLLAR ELEV. 172.9 ft		TOTAL DEPTH 80.0 ft		NORTHING 394,332		EASTING 2,006,411										
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER D.Tignor		START DATE 01/20/20		COMP. DATE 01/21/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
100	99.4	73.5	5	7	14											
95	94.4	78.5	10	15	15									W	GRAY, SILTY F. TO CSE. SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION) (continued)	80.0
														W	Boring Terminated at Elevation 92.9 ft IN COASTAL PLAIN: SILTY SAND (BLACK CREEK FORMATION)	
															Notes: 1. Surficial Organic Soil: 0.0-0.3'	

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST R. French										
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)									
BORING NO. S4_EB2-B		STATION 31+38		OFFSET 11 ft RT		ALIGNMENT -Y1B-										
COLLAR ELEV. 169.8 ft		TOTAL DEPTH 80.0 ft		NORTHING 394,146		EASTING 2,006,417										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 12/09/19		COMP. DATE 12/10/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
185																
180																
175																
170	169.8	0.0													169.8	0.0
			2	3	5											
165	166.3	3.5														
			2	3	5											
160	161.3	8.5														
			4	4	6											
155	156.3	13.5														
			2	1	3											
150	151.3	18.5														
			14	17	19											
145	146.3	23.5														
			11	16	21											
140	141.3	28.5														
			11	12	12											
135	136.3	33.5														
			2	2	6											
130	131.3	38.5														
			2	1	3											
125	126.3	43.5														
			3	2	3											
120	121.3	48.5														
			7	10	16											
115	116.3	53.5														
			4	7	9											
110	111.3	58.5														
			3	5	7											
105	106.3	63.5														
			4	7	10											

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST R. French										
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)									
BORING NO. S4_EB2-B		STATION 31+38		OFFSET 11 ft RT		ALIGNMENT -Y1B-										
COLLAR ELEV. 169.8 ft		TOTAL DEPTH 80.0 ft		NORTHING 394,146		EASTING 2,006,417										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER S. Davis		START DATE 12/09/19		COMP. DATE 12/10/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
105																
100	101.3	68.5														
			4	7	12											
95	96.3	73.5														
			10	7	10											
90	91.3	78.5														
			4	7	10											

Match Line

DARK GRAY, F. SANDY SILTY CLAY (A-7), MICACEOUS (BLACK CREEK FORMATION) (continued)

97.8 — GRAY, SILTY F. TO CSE. SAND (A-2-4) WITH TRACE MICA AND GRAVEL — 72.0

92.8 — DARK GRAY, SILTY CLAYEY SAND (A-2-6), MICACEOUS WITH TRACE GRAVEL (BLACK CREEK FORMATION) — 77.0

89.8 — Boring Terminated at Elevation 89.8 ft IN COASTAL PLAIN: CLAYEY SAND (BLACK CREEK FORMATION) — 80.0

Notes:
1. Surficial Organic Soil: 0.0-0.2'
2. Shelby Tubes pushed in Offset Boring 31+33, 11' RT; ST-200: 12.0'-14.0', ST-201: 14.0'-16.0', Both Lab Tested

Other Samples:
ST-200 (12.0 - 14.0)
ST-201 (14.0 - 16.0)

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Weis, J. M.								
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)							
BORING NO. S4_RWAL 1-1		STATION 26+95		OFFSET 153 ft LT		ALIGNMENT -Y1B-								
COLLAR ELEV. 169.9 ft		TOTAL DEPTH 45.0 ft		NORTHING 394,611		EASTING 2,006,499								
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Powell, B.		START DATE 05/18/21		COMP. DATE 05/18/21		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
170	168.9	1.0	6	5	2							M	ROADWAY EMBANKMENT BROWN, SILTY SAND (A-2-4)	0.0
165	166.4	3.5	WOH	WOH	WOH							SS-18	UNDIVIDED COASTAL PLAIN LIGHT BROWN TO RED, SANDY CLAY (A-6)	3.0
	163.9	6.0	3	4	6							W	BROWN-RED, CLAYEY SAND (A-2-6)	8.0
	161.4	8.5	5	5	5							W	RED AND GRAY, SILTY CLAY (A-7-6)	13.0
155	156.4	13.5	2	2	4							SS-19	TAN, F. SAND (A-3)	18.0
	151.4	18.5	8	16	23							Sat.	TAN, SILTY SAND (A-2-4)	23.0
145	146.4	23.5	10	11	10							Sat.	TAN AND PINK, CSE. SAND (A-1-b)	28.0
	141.4	28.5	15	19	20							Sat.	TAN, F. SAND (A-3) WITH INTERMITTENT CLAY LENSES	38.0
135	136.4	33.5	7	8	7							Sat.		
	131.4	38.5	3	3	5							Sat.		
125	126.4	43.5	8	13	15							Sat.		
	Boring Terminated at Elevation 124.9 ft IN COASTAL PLAIN: SAND (BLACK CREEK FORMATION)													

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Goodnight, D.								
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)							
BORING NO. S4_RWAL 1-2		STATION 29+05		OFFSET 57 ft RT		ALIGNMENT -Y1B-								
COLLAR ELEV. 171.5 ft		TOTAL DEPTH 45.0 ft		NORTHING 394,366		EASTING 2,006,330								
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Powell, B.		START DATE 05/17/21		COMP. DATE 05/17/21		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
175														
170	170.5	1.0	5	6	7							M	ROADWAY EMBANKMENT TAN, SLI. SILTY SAND (A-3)	0.0
	168.0	3.5	WOH	2	2							SS-20	UNDIVIDED COASTAL PLAIN TAN, SANDY CLAY (A-6)	3.0
	165.5	6.0	2	3	6							M	TAN, CLAYEY SAND (A-2-6)	5.5
160	163.0	8.5	3	5	7							W	GRAY AND TAN, SANDY CLAY (A-6)	8.0
	158.0	13.5	13	16	18							W	ORANGE-TAN, SILTY F. TO CSE. SAND (A-2-4)	12.0
150	153.0	18.5	6	2	3							Sat.	RED-TAN, SILTY CLAYEY F. TO CSE. SAND (A-2-5)	17.0
	148.0	23.5	10	12	15							Sat.	TAN, SILTY SAND (A-2-4)	22.0
140	143.0	28.5	11	12	13							Sat.		
	138.0	33.5	6	8	12							Sat.		
130	133.0	38.5	WOH	2	4							Sat.		
	128.0	43.5	1	1	2							Sat.		
Boring Terminated at Elevation 126.5 ft IN COASTAL PLAIN: SILTY SAND (BLACK CREEK FORMATION)														

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Weis, J. M.	
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)
BORING NO. S4_RWAL 2-1		STATION 29+62		OFFSET 97 ft LT		ALIGNMENT -Y1B-	
COLLAR ELEV. 172.0 ft		TOTAL DEPTH 45.0 ft		NORTHING 394,338		EASTING 2,006,492	
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER Powell, B.		START DATE 05/19/21		COMP. DATE 05/19/21		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
175														3 INCHES TOPSOIL	0.0
170	171.0	1.0	4	8	8								M	ROADWAY EMBANKMENT LIGHT BROWN, SILTY SAND (A-2-4)	3.0
	168.5	3.5	3	3	3								M	UNDIVIDED COASTAL PLAIN LIGHT BROWN, SILTY CLAY (A-7-6)	
165	166.0	6.0	3	4	5						SS-21	20%			
	163.5	8.5	4	5	8										
160	158.5	13.5	2	2	2								M		
155	153.5	18.5	7	5	5								M		
150	148.5	23.5	10	14	12								Sat.	TAN, F. SAND (A-3)	22.0
145	143.5	28.5	10	12	17								Sat.		
140	138.5	33.5	7	8	9								Sat.	TAN, CSE. SAND (A-1-b) TRACE GRAVEL	33.0
135	133.5	38.5	12	20	26								Sat.		
130	128.5	43.5	1	3	3								Sat.	LIGHT BROWN AND RED, CLAYEY SAND (A-2-6) TRACE GRAVEL	42.0
														Boring Terminated at Elevation 127.0 ft IN COASTAL PLAIN: CLAYEY SAND (BLACK CREEK FORMATION)	45.0

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Weis, J. M.	
SITE DESCRIPTION Bridge No. 100 on -Y1B- (US 301) over -L- (I-95) at -L- Sta. 702+75.43							GROUND WTR (ft)
BORING NO. S4_RWAL 2-2		STATION 31+25		OFFSET 60 ft RT		ALIGNMENT -Y1B-	
COLLAR ELEV. 170.4 ft		TOTAL DEPTH 45.0 ft		NORTHING 394,150		EASTING 2,006,367	
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER Powell, B.		START DATE 05/19/21		COMP. DATE 05/19/21		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
175														3 INCHES TOPSOIL	0.0
170	169.4	1.0	7	3	3								M	UNDIVIDED COASTAL PLAIN LIGHT BROWN, GRAY, AND RED, SILTY CLAY (A-7-6)	
165	166.9	3.5	3	3	5						SS-22	22%			
	164.4	6.0	4	7	8								M		
160	161.9	8.5	4	7	7								M		
155	156.9	13.5	2	3	4								M		
150	151.9	18.5	6	8	13								Sat.	TAN, F. SAND (A-3)	19.5
145	146.9	23.5	5	10	13								Sat.	RED AND TAN, CSE. SAND (A-1-b)	22.0
140	141.9	28.5	6	10	7								Sat.		
135	136.9	33.5	5	5	7								Sat.		
130	131.9	38.5	3	1	2						SS-23	30%		COASTAL PLAIN BROWN AND DARK GRAY, SANDY CLAY (A-6) (BLACK CREEK FORMATION)	39.5
	126.9	43.5	4	7	12								M	Boring Terminated at Elevation 125.4 ft IN COASTAL PLAIN: SANDY CLAY (BLACK CREEK FORMATION)	45.0

NCDOT BORE SINGLE B04_15987_GEO_BRDG_Y1B.GPJ NC_DOT.GDT 12/9/21

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	11

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-II	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY

SITE DESCRIPTION BRIDGE ON -Y4- (SR 1006-GREAT
MARSH CHURCH ROAD) OVER -L- (I-95) AT
-L- STA. 573 + 67.87

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.

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PERSONNEL

M.A.D.

GOODNIGHT, D.J.

F&R, INC.

INVESTIGATED BY GOODNIGHT, D.J.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

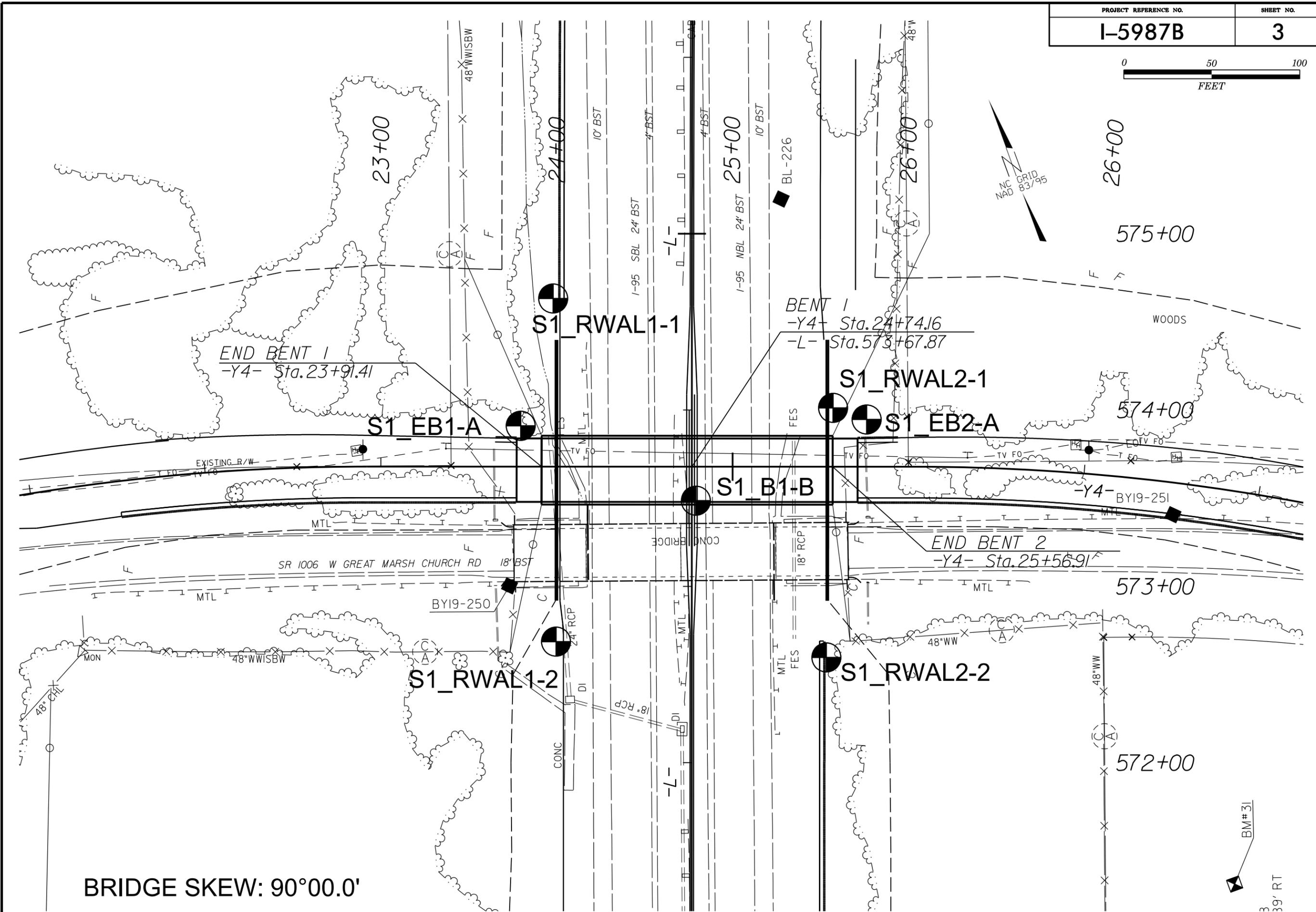
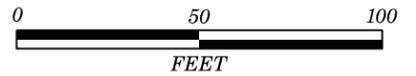
DATE OCTOBER 2021



DocuSigned by:
Stephen C Crockett 10/13/2021

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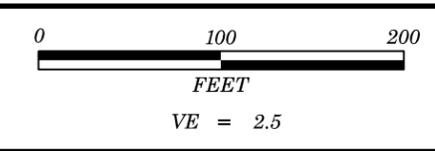
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



BRIDGE SKEW: 90°00.0'

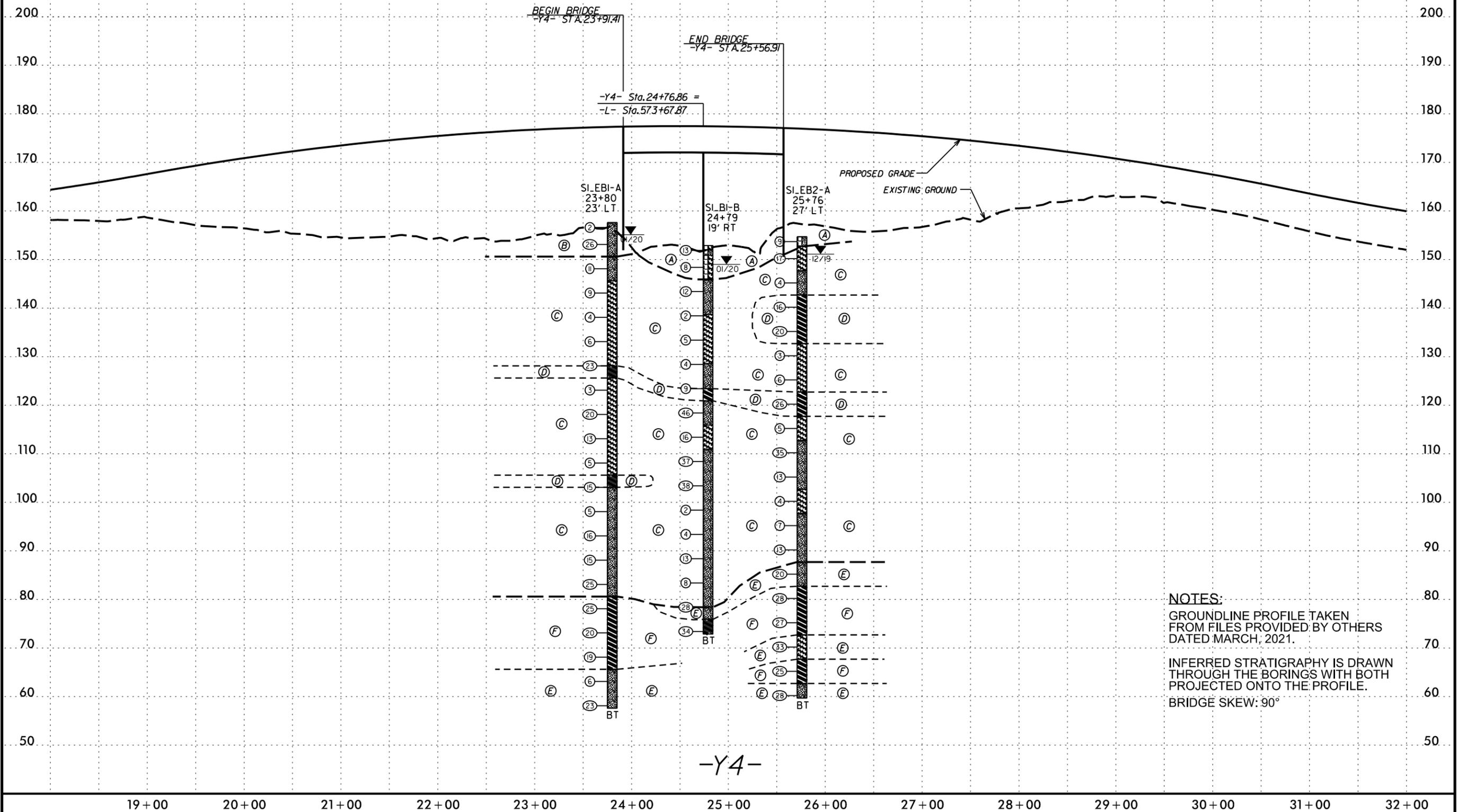


39' RT



PROJECT REFERENCE NO.	SHEET NO.
I-5987B	4
BRIDGE ON -Y4- (SR 1006- GREAT MARSH CHURCH RD.) OVER -L- (I-95) AT -L- STA. 573+67.87	

- Ⓐ **ROADWAY EMBANKMENT:** ORANGE AND BROWN, MOIST, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE ORGANICS
- Ⓑ **ALLUVIAL:** BLACK AND BROWN, MOIST TO SATURATED, V. LOOSE TO MED. DENSE, CLAYEY SILTY SAND (A-2-4) WITH TRACE ORGANICS
- Ⓒ **UNDIVIDED COASTAL PLAIN:** ORANGE, GRAY, BROWN, RED, AND PINK, MOIST TO SATURATED, V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE GRAVEL AND MICA
- Ⓓ **UNDIVIDED COASTAL PLAIN:** GRAY, ORANGE, AND RED, SATURATED, STIFF TO V. STIFF, SILTY SANDY CLAY AND SANDY SILTY CLAY (A-6, A-7) WITH TRACE ORGANICS, GRAVEL, AND MICA
- Ⓔ **COASTAL PLAIN:** GRAY, ORANGE, RED, AND BROWN, SATURATED, LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE GRAVEL AND MICA
- Ⓕ **COASTAL PLAIN:** DARK GRAY, WET TO SATURATED, V. STIFF, SANDY SILTY CLAY (A-6, A-7) WITH TRACE GRAVEL AND MICA



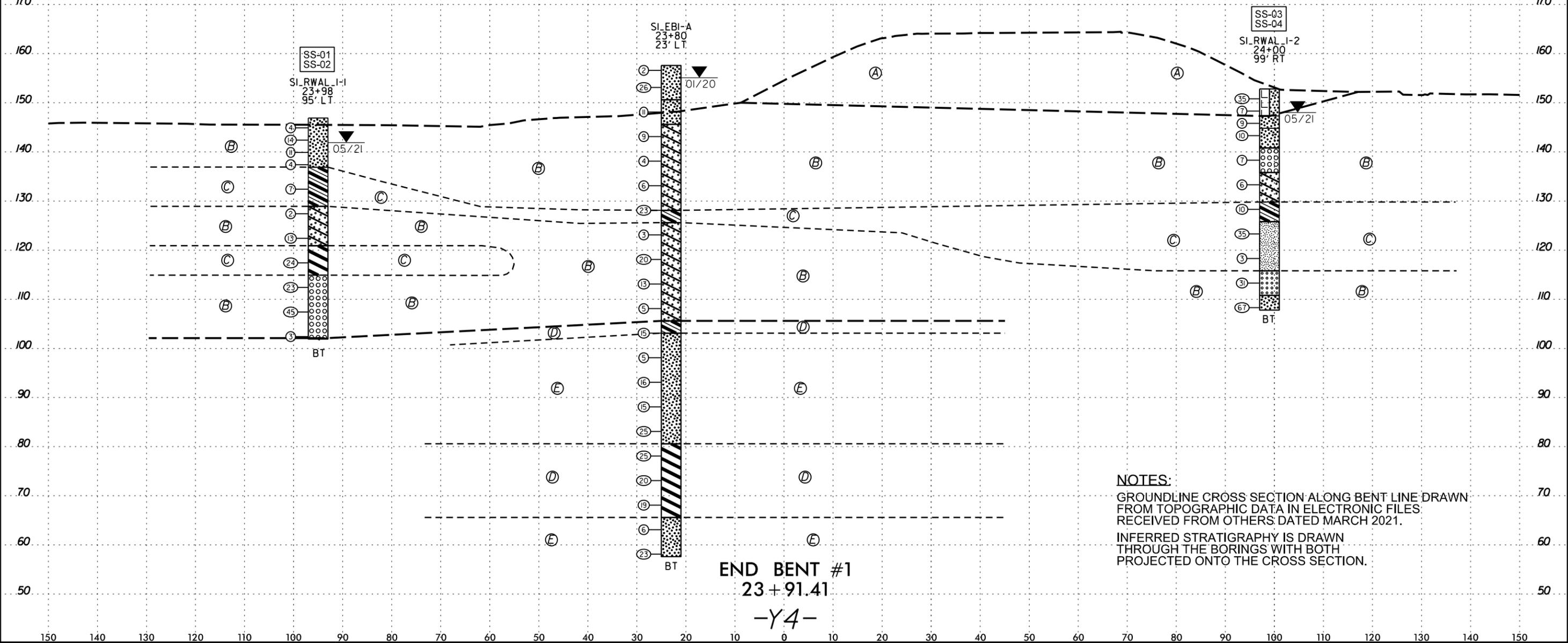
NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 90°

8/23/99

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-01	95 FT LT	23+98	1.0'-2.5'	A-2-4	28	10	39	29	7	25	97	71	34	22	-
SS-02	95 FT LT	23+98	8.5'-10.0'	A-2-4	20	1	19	58	3	20	98	86	25	25	-
SS-03	99 FT RT	24+00	23.5'-25.0'	A-6	31	14	26	16	21	37	100	85	61	19	-
SS-04	99 FT RT	24+00	33.5'-35.0'	A-4	30	10	15	21	30	34	100	93	68	25	-

- (A) ROADWAY EMBANKMENT: TAN, ORANGE, AND GRAY, MOIST, LOOSE TO DENSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS
- (B) UNDIVIDED COASTAL PLAIN: BROWN, TAN, ORANGE, GRAY, AND PINK, MOIST TO SATURATED, V. LOOSE TO V. DENSE, COARSE SAND (A-1-b), SAND (A-3), AND SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE GRAVEL AND MICA
- (C) UNDIVIDED COASTAL PLAIN: TAN, ORANGE, RED, AND GRAY, MOIST TO SATURATED, SOFT TO HARD, SANDY SILT (A-4) AND SANDY AND SILTY CLAY (A-6, A-7)
- (D) COASTAL PLAIN: DARK GRAY, WET, V. STIFF, SANDY AND SILTY CLAY (A-6, A-7) WITH TRACE ORGANICS AND MICA (BLACK CREEK FORMATION)
- (E) COASTAL PLAIN: ORANGE, RED, BROWN, AND GRAY, SATURATED, LOOSE TO MED. DENSE, CLAYEY SILTY SAND (A-2-4) WITH TRACE GRAVEL AND MICA (BLACK CREEK FORMATION)



NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99

8/23/99

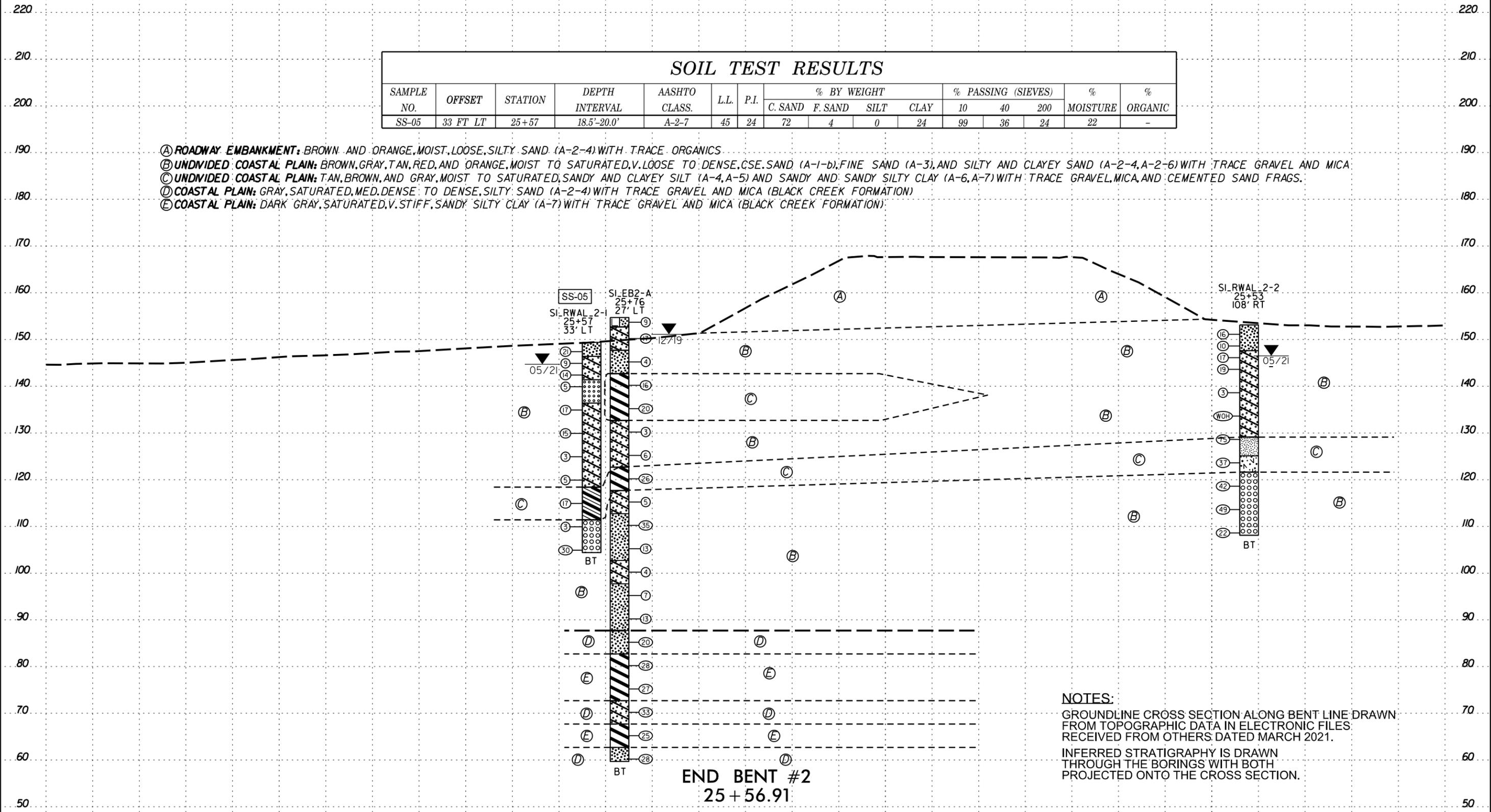
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 20 40
FEET

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-05	33 FT LT	25+57	18.5'-20.0'	A-2-7	45	24	72	4	0	24	99	36	24	22	-

- Ⓐ ROADWAY EMBANKMENT: BROWN AND ORANGE, MOIST, LOOSE, SILTY SAND (A-2-4) WITH TRACE ORGANICS
- Ⓑ UNDIVIDED COASTAL PLAIN: BROWN, GRAY, TAN, RED, AND ORANGE, MOIST TO SATURATED, V. LOOSE TO DENSE, CSE. SAND (A-1-b), FINE SAND (A-3), AND SILTY AND CLAYEY SAND (A-2-4, A-2-6) WITH TRACE GRAVEL AND MICA
- Ⓒ UNDIVIDED COASTAL PLAIN: TAN, BROWN, AND GRAY, MOIST TO SATURATED, SANDY AND CLAYEY SILT (A-4, A-5) AND SANDY AND SANDY SILTY CLAY (A-6, A-7) WITH TRACE GRAVEL, MICA, AND CEMENTED SAND FRAGS.
- Ⓓ COASTAL PLAIN: GRAY, SATURATED, MED. DENSE TO DENSE, SILTY SAND (A-2-4) WITH TRACE GRAVEL AND MICA (BLACK CREEK FORMATION)
- Ⓔ COASTAL PLAIN: DARK GRAY, SATURATED, V. STIFF, SANDY SILTY CLAY (A-7) WITH TRACE GRAVEL AND MICA (BLACK CREEK FORMATION)



NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
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END BENT #2
25+56.91

-Y4-

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

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST B. Painter									
SITE DESCRIPTION Bridge on -Y4- (SR1006-Great Marsh Church Road) over -L- (I-95) at -L- Sta. 573+67.87							GROUND WTR (ft)								
BORING NO. S1_B1-B		STATION 24+79		OFFSET 19 ft RT		ALIGNMENT -Y4-									
COLLAR ELEV. 152.9 ft		TOTAL DEPTH 80.0 ft		NORTHING 382,070		EASTING 2,002,665									
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER D.Tignor		START DATE 01/28/20		COMP. DATE 01/29/20		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					
160															
155															
150	152.9	0.0	3	4	9										
145	149.4	3.5	4	4	4										
140	144.4	8.5	6	6	6										
135	139.4	13.5	2	1	1										
130	134.4	18.5	2	3	2										
125	129.4	23.5	2	2	2										
120	124.4	28.5	2	2	7										
115	119.4	33.5	9	22	24										
110	114.4	38.5	8	7	9										
105	109.4	43.5	12	15	22										
100	104.4	48.5	18	20	18										
95	99.4	53.5	2	1	1										
90	94.4	58.5	1	1	3										
85	89.4	63.5	4	6	7										
80	84.4	68.5	3	4	4										

NCDOT BORE SINGLE B01_15987_GEO_BORELOGS_BRDG_Y4.GPJ NC_DOT.GDT 10/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST B. Painter									
SITE DESCRIPTION Bridge on -Y4- (SR1006-Great Marsh Church Road) over -L- (I-95) at -L- Sta. 573+67.87							GROUND WTR (ft)								
BORING NO. S1_B1-B		STATION 24+79		OFFSET 19 ft RT		ALIGNMENT -Y4-									
COLLAR ELEV. 152.9 ft		TOTAL DEPTH 80.0 ft		NORTHING 382,070		EASTING 2,002,665									
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER D.Tignor		START DATE 01/28/20		COMP. DATE 01/29/20		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					
80															
75	79.4	73.5	11	13	15										
	74.4	78.5	8	13	21										

Match Line

NCDOT BORE SINGLE B01_15987_GEO_BORELOGS_BRDG_Y4.GPJ NC_DOT.GDT 10/8/21

COASTAL PLAIN
GRAY, SILTY FINE TO COARSE SAND (A-2-4), MICACEOUS (BLACK CREEK FORMATION)
GRAY, SILTY CLAY (A-6), MICACEOUS (BLACK CREEK FORMATION)
Boring Terminated at Elevation 72.9 ft IN SILTY CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION)

Notes:
1. Surficial Organic Soil: 0.0-0.3'

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST Weis, J. M.										
SITE DESCRIPTION Bridge on -Y4- (SR1006-Great Marsh Church Road) over -L- (I-95) at -L- Sta. 573+67.87							GROUND WTR (ft)									
BORING NO. S1_RWAL 2-1		STATION 25+57		OFFSET 33 ft LT		ALIGNMENT -Y4-										
COLLAR ELEV. 149.4 ft		TOTAL DEPTH 45.0 ft		NORTHING 382,093		EASTING 2,002,756										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Powell, B.		START DATE 05/24/21		COMP. DATE 05/24/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
150														149.4	2 INCHES TOPSOIL	0.0
	148.4	1.0	5	10	11								M	146.4	UNDIVIDED COASTAL PLAIN BROWN, SILTY SAND (A-2-4)	3.0
145	145.9	3.5	3	4	5								W	141.4	TAN, CLAYEY SAND (A-2-6)	8.0
	143.4	6.0	5	7	7								Sat.	136.4	TAN, FINE SAND (A-3)	13.0
140	140.9	8.5	3	2	3								M	136.4	GRAY AND TAN, SILTY CLAYEY SAND (A-2-7)	13.0
135	135.9	13.5	3	7	10											
130	130.9	18.5	4	7	8							SS-05 22%				
125	125.9	23.5	1	2	1							Sat.				
120	120.9	28.5	3	2	3							Sat.				
115	115.9	33.5	6	8	9							Sat.	118.4	TAN, SANDY CLAY (A-6)	31.0	
110	110.9	38.5	4	2	1							Sat.	111.4	TAN, COARSE SAND (A-1-b)	38.0	
105	105.9	43.5	7	13	17							Sat.	104.4	Boring Terminated at Elevation 104.4 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)	45.0	

NCDOT BORE SINGLE B01_15987_GEO_BORELOGS_BRDG_Y4.GPJ NC_DOT.GDT 10/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST Weis, J. M.										
SITE DESCRIPTION Bridge on -Y4- (SR1006-Great Marsh Church Road) over -L- (I-95) at -L- Sta. 573+67.87							GROUND WTR (ft)									
BORING NO. S1_RWAL 2-2		STATION 25+53		OFFSET 108 ft RT		ALIGNMENT -Y4-										
COLLAR ELEV. 153.1 ft		TOTAL DEPTH 45.0 ft		NORTHING 381,961		EASTING 2,002,704										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Powell, B.		START DATE 05/24/21		COMP. DATE 05/24/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
155														153.1	2 INCHES TOPSOIL	0.0
	152.1	1.0	8	9	7								M	147.6	UNDIVIDED COASTAL PLAIN BROWN, SILTY SAND (A-2-4)	5.5
150	149.6	3.5	3	4	6								W	147.6	LIGHT BROWN, SILTY CLAYEY SAND (A-2-6)	5.5
	147.1	6.0	7	7	10								W			
145	144.6	8.5	8	7	12								W			
140	139.6	13.5	2	2	1								Sat.			
135	134.6	18.5	WOH	1	WOH								Sat.			
130	129.6	23.5	1	28	47								M	129.1	TAN, SANDY SILT (A-4) WITH TRACE CEMENTED SAND FRAGMENTS	24.0
125	124.6	28.5	7	14	23								M	125.1	GRAY, CLAYEY SILT (A-5)	28.0
120	119.6	33.5	7	16	26								M	121.6	TAN, COARSE SAND (A-1-b)	31.5
115	114.6	38.5	13	21	28								W			
110	109.6	43.5	9	13	9								W			
													Sat.	108.1	Boring Terminated at Elevation 108.1 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)	45.0

NCDOT BORE SINGLE B01_15987_GEO_BORELOGS_BRDG_Y4.GPJ NC_DOT.GDT 10/8/21

REFERENCE: I-5987B

PROJECT: 47533

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON
PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59
(EXIT 41) IN CUMBERLAND COUNTY
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER
-Y5- (NC 20) AT -L- STA. 617+12.20

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTIONS
8-18	BORE LOGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	18

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PERSONNEL

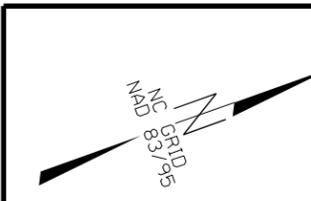
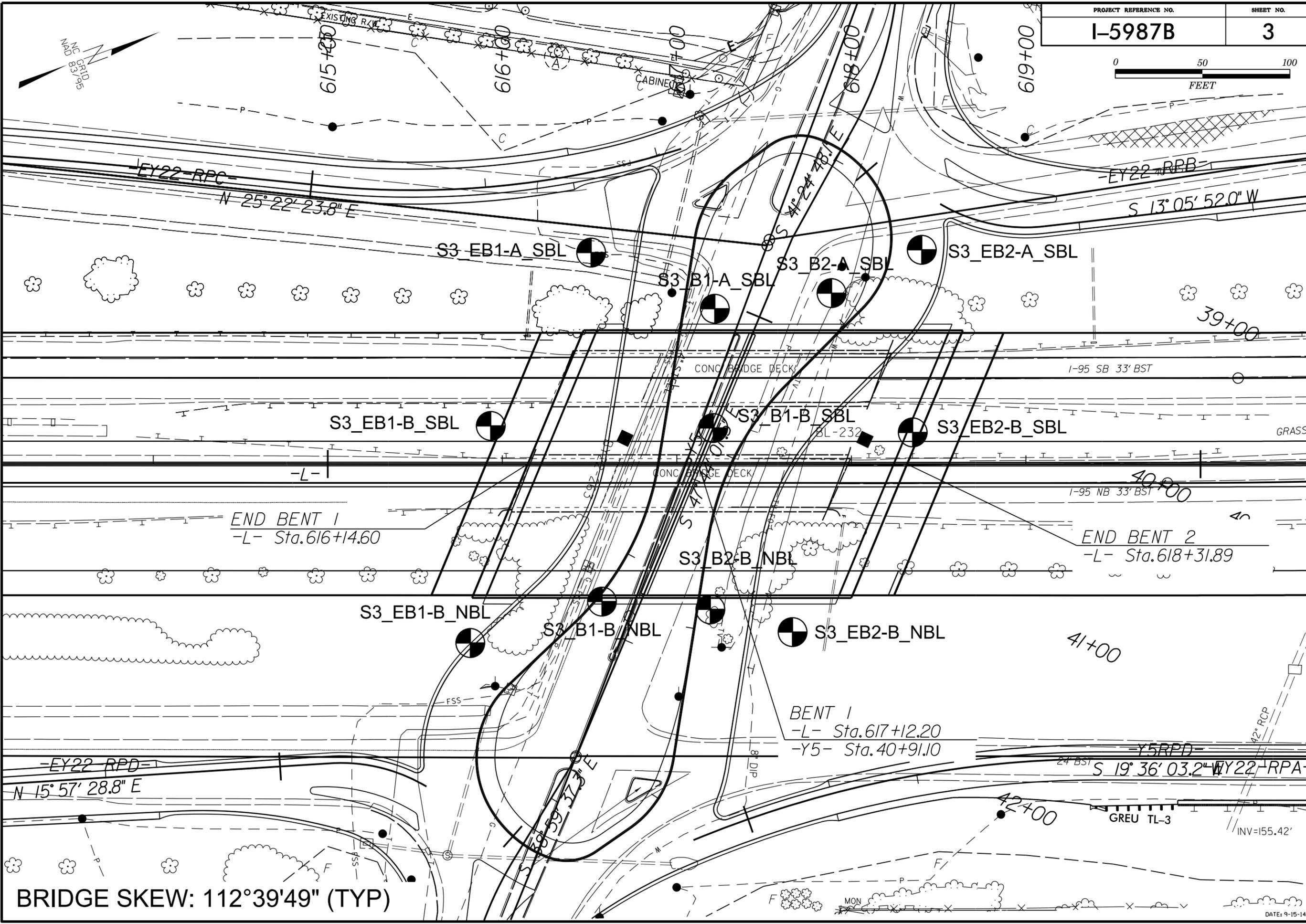
M.A.D.
GOODNIGHT, D.J.
WEIS, J.M.
F&R, INC.

INVESTIGATED BY GOODNIGHT, D.J.
DRAWN BY CROCKETT, S.C.
CHECKED BY HAMM, J. R.
SUBMITTED BY FALCON
DATE DECEMBER 2021



DocuSigned by:
Stephen C Crockett Dec 16, 2021
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



EXISTING R/W
EY22-RPC
N 25° 22' 23.8" E
EY22-RPB
S 13° 05' 52.0" W

S3_EB1-A_SBL
S3_B1-A_SBL
S3_B2-A_SBL
S3_EB2-A_SBL

S3_EB1-B_SBL
S3_B1-B_SBL
S3_EB2-B_SBL

S3_EB1-B_NBL
S3_B1-B_NBL
S3_EB2-B_NBL

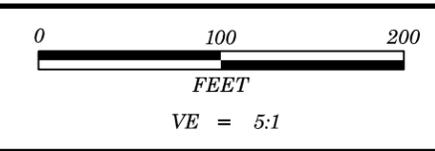
END BENT 1
-L- Sta. 616+14.60

END BENT 2
-L- Sta. 618+31.89

BENT 1
-L- Sta. 617+12.20
-Y5- Sta. 40+91.10

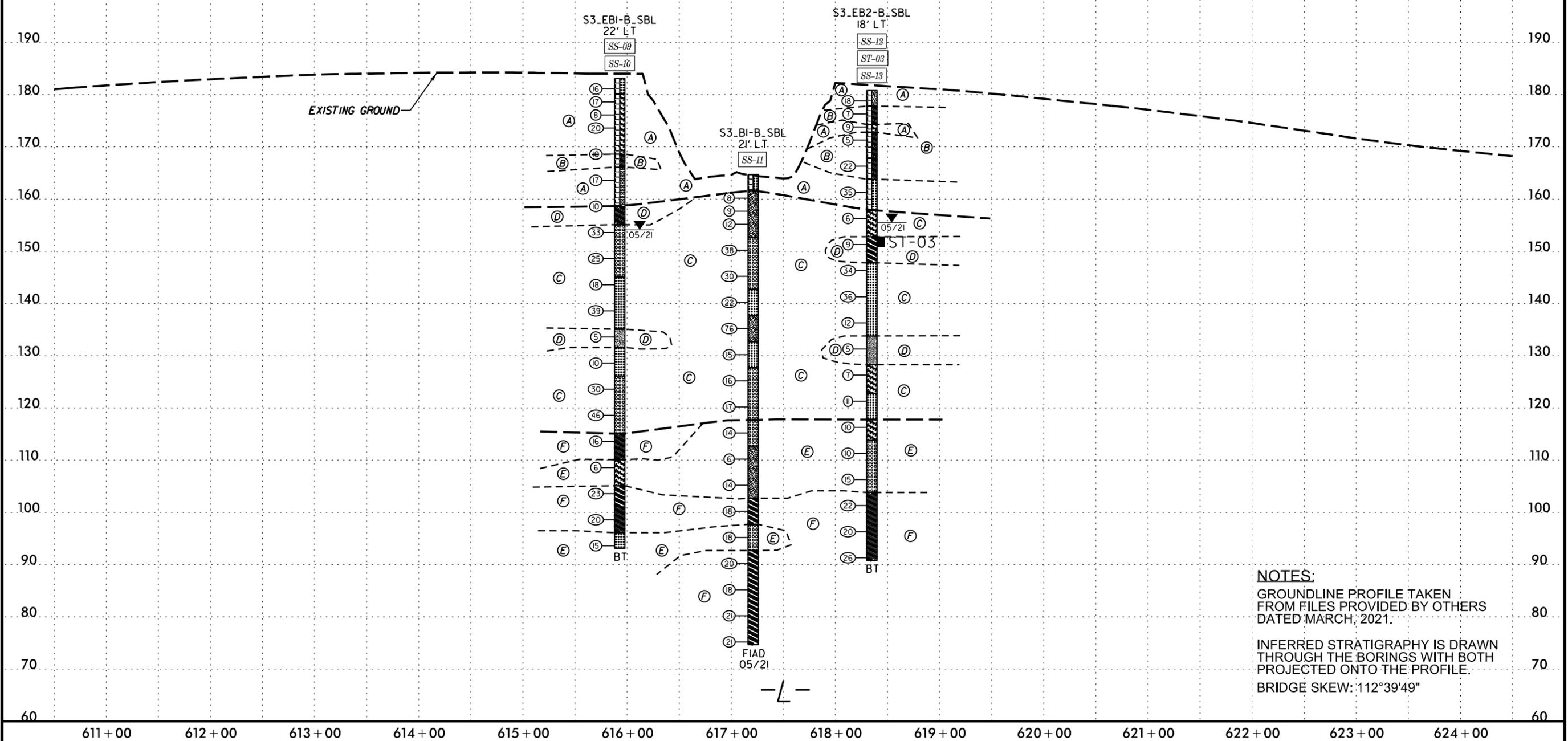
EY22-RPD
N 15° 57' 28.8" E
Y5RPD
S 19° 36' 03.2" W
EY22-RPA

BRIDGE SKEW: 112°39'49" (TYP)



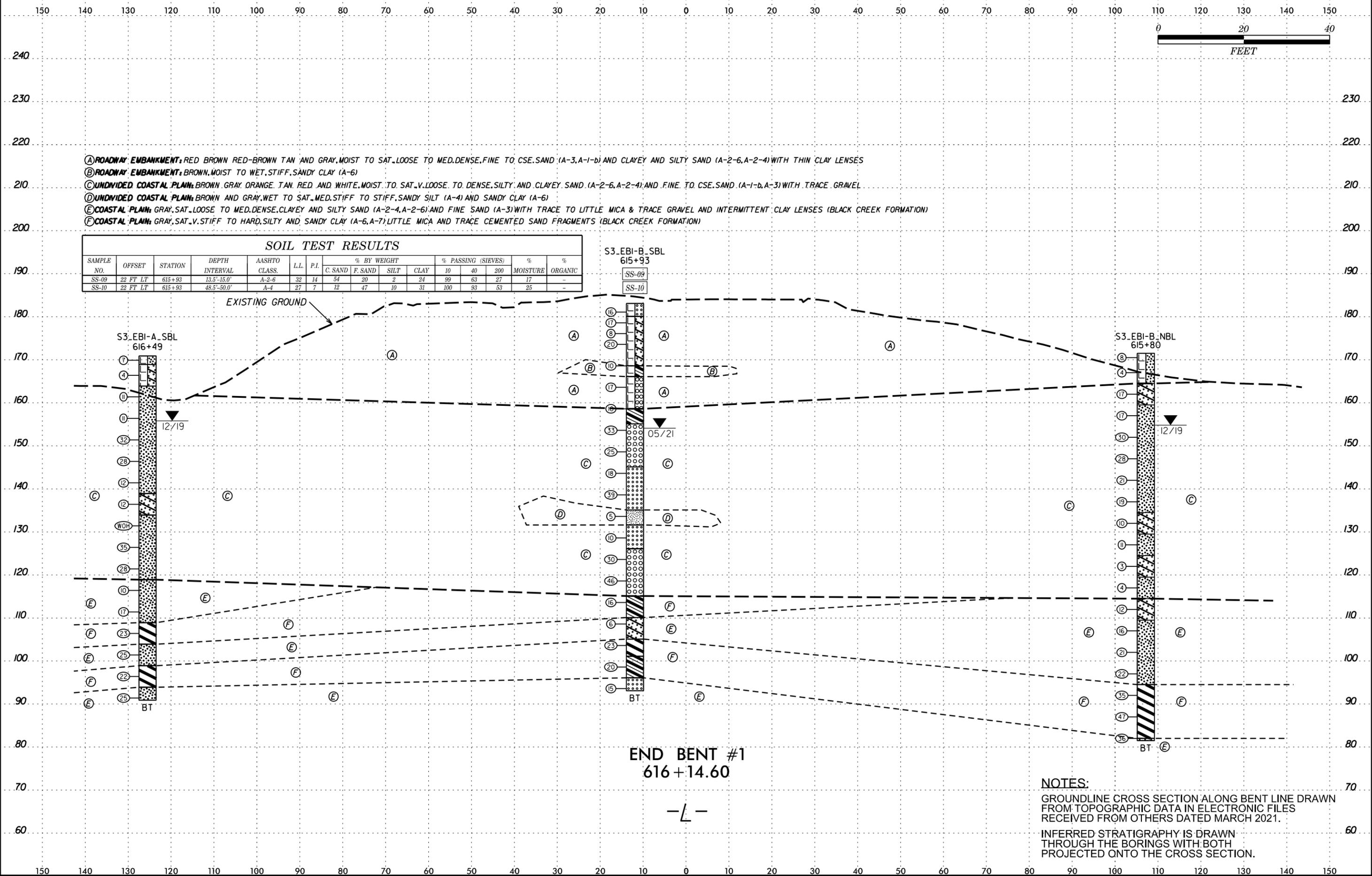
- Ⓐ **ROADWAY EMBANKMENT:** RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO DENSE, FINE TO COARSE SAND (A-3, A-1-a, A-1-b) AND CLAYEY AND SILTY SAND (A-2-6, A-2-5, A-2-4) WITH THIN CLAY LENSES
- Ⓑ **ROADWAY EMBANKMENT:** BROWN, MOIST TO WET, MED. STIFF TO V. STIFF, SANDY AND SANDY SILTY CLAY (A-6, A-7-6)
- Ⓒ **UNDIVIDED COASTAL PLAIN:** ORANGE, BROWN RED GRAY AND TAN, MOIST TO SAT., LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (A-2-5, A-2-6) AND F. TO COARSE SAND (A-1-a, A-1-b, A-3) WITH INTERMITTENT CLAY LENSES
- Ⓓ **UNDIVIDED COASTAL PLAIN:** GRAY-BROWN BROWN AND GRAY, WET TO SAT., MED. STIFF TO STIFF, SANDY AND SILTY CLAY (A-6, A-7-6) AND SANDY SILT (A-4)
- Ⓔ **COASTAL PLAIN:** GRAY, SAT., LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. COARSE SAND (A-3, A-1-b, A-1-a) WITH INTERMITTENT LENSES OF LIGNITE AND CLAY AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- Ⓕ **COASTAL PLAIN:** GRAY, MOIST TO SAT., V. STIFF, SANDY SILTY CLAY (A-6, A-7, A-7-6) WITH TRACE MICA, INTERMITTENT LENSES OF SAND AND BLACK PLANT FOSSILS AND CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40			200
SS-09	22 FT LT	615+93	13.5'-15.0'	A-2-6	32	14	54	20	2	24	99	63	27	17	-
SS-10	22 FT LT	615+93	48.5'-50.0'	A-4	27	7	12	47	10	31	100	93	53	25	-
SS-11	21 FT LT	617+21	63.5'-65.0'	A-7-6	50	23	1	5	32	62	100	99	95	29	-
SS-12	18 FT LT	618+35	8.5'-10.0'	A-7-6	45	20	43	18	5	34	99	71	42	22	-
ST-03	18 FT LT	618+35	28.0'-30.0'	A-7-6	58	40	0	21	33	46	100	100	79	25	-
SS-13	18 FT LT	618+35	48.5'-50.0'	A-4	26	5	5	56	13	26	99	96	48	27	-



NOTES:
 GROUNDLINE PROFILE TAKEN FROM FILES PROVIDED BY OTHERS DATED MARCH, 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 BRIDGE SKEW: 112°39'49"

8/23/99



- (A) ROADWAY EMBANKMENT: RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO MED. DENSE, FINE TO CSE. SAND (A-3, A-1-b) AND CLAYEY AND SILTY SAND (A-2-6, A-2-4) WITH THIN CLAY LENSES
- (B) ROADWAY EMBANKMENT: BROWN, MOIST TO WET, STIFF, SANDY CLAY (A-6)
- (C) UNDIVIDED COASTAL PLAIN: BROWN, GRAY, ORANGE, TAN, RED, AND WHITE, MOIST TO SAT., V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-6, A-2-4) AND FINE TO CSE. SAND (A-1-b, A-3) WITH TRACE GRAVEL
- (D) UNDIVIDED COASTAL PLAIN: BROWN AND GRAY, WET TO SAT., MED. STIFF TO STIFF, SANDY SILT (A-4) AND SANDY CLAY (A-6)
- (E) COASTAL PLAIN: GRAY, SAT., LOOSE TO MED. DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-6) AND FINE SAND (A-3) WITH TRACE TO LITTLE MICA & TRACE GRAVEL AND INTERMITTENT CLAY LENSES (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN: GRAY, SAT., V. STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) LITTLE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)

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-09	22 FT LT	615+93	13.5'-15.0'	A-2-6	32	14	54	20	2	24	99	63	27	17	-
SS-10	22 FT LT	615+93	48.5'-50.0'	A-4	27	7	12	47	10	31	100	93	53	25	-

S3_EBI-B_SBL
615+93

SS-09
SS-10

S3_EBI-A_SBL
616+49

7
4
0
32
28
12
12
WOH
35
28
0
17
23
25
22
25
BT

12/19

16
17
20
10
17
16
33
25
18
59
6
10
30
46
16
6
23
20
15
BT

05/21

S3_EBI-B_NBL
615+80

8
4
17
30
28
21
19
10
11
3
4
12
16
2
22
35
47
38
BT

12/19

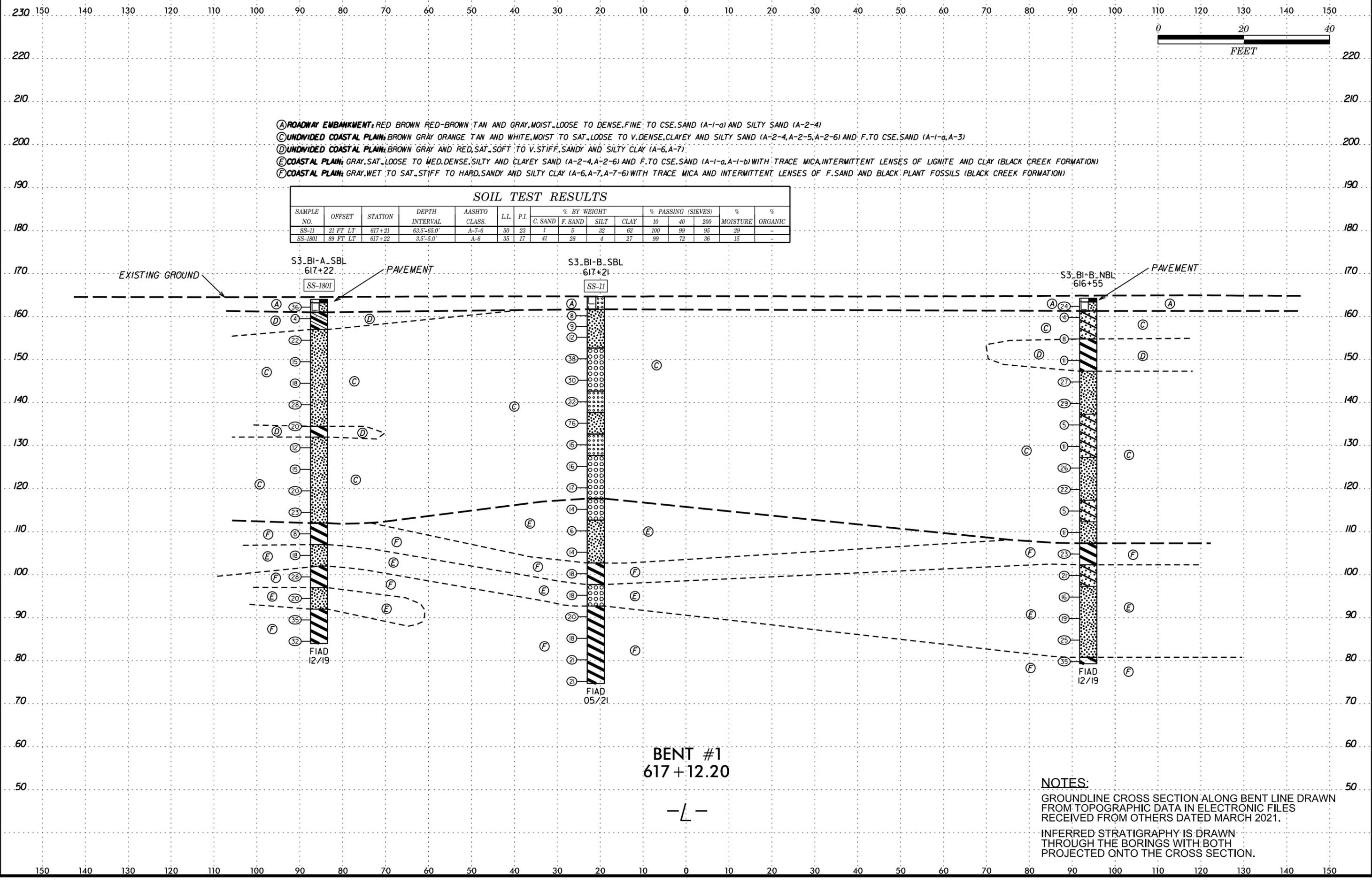
END BENT #1
616+14.60

-L-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99

8/23/99



- (A) ROADWAY EMBANKMENT: RED BROWN RED-BROWN TAN AND GRAY, MOIST, LOOSE TO DENSE, FINE TO CSE. SAND (A-1-a) AND SILTY SAND (A-2-4)
- (C) UNDIVIDED COASTAL PLAIN: BROWN GRAY ORANGE TAN AND WHITE, MOIST TO SAT., LOOSE TO V. DENSE, CLAYEY AND SILTY SAND (A-2-4, A-2-5, A-2-6) AND F. TO CSE. SAND (A-1-a, A-3)
- (D) UNDIVIDED COASTAL PLAIN: BROWN GRAY AND RED, SAT., SOFT TO V. STIFF, SANDY AND SILTY CLAY (A-6, A-7)
- (E) COASTAL PLAIN: GRAY, SAT., LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. TO CSE. SAND (A-1-a, A-1-b) WITH TRACE MICA, INTERMITTENT LENSES OF LIGNITE AND CLAY (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN: GRAY, WET TO SAT., STIFF TO HARD, SANDY AND SILTY CLAY (A-6, A-7, A-7-6) WITH TRACE MICA AND INTERMITTENT LENSES OF F. SAND AND BLACK PLANT FOSSILS (BLACK CREEK FORMATION)

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40			200
SS-11	21 FT LT	617+21	63.5'-65.0'	A-7-6	50	23	1	5	32	62	100	99	95	29	-
SS-1801	89 FT LT	617+22	3.5'-5.0'	A-6	35	17	41	28	4	27	99	72	36	15	-

BENT #1
617+12.20

-L-

NOTES:
GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

SDATES

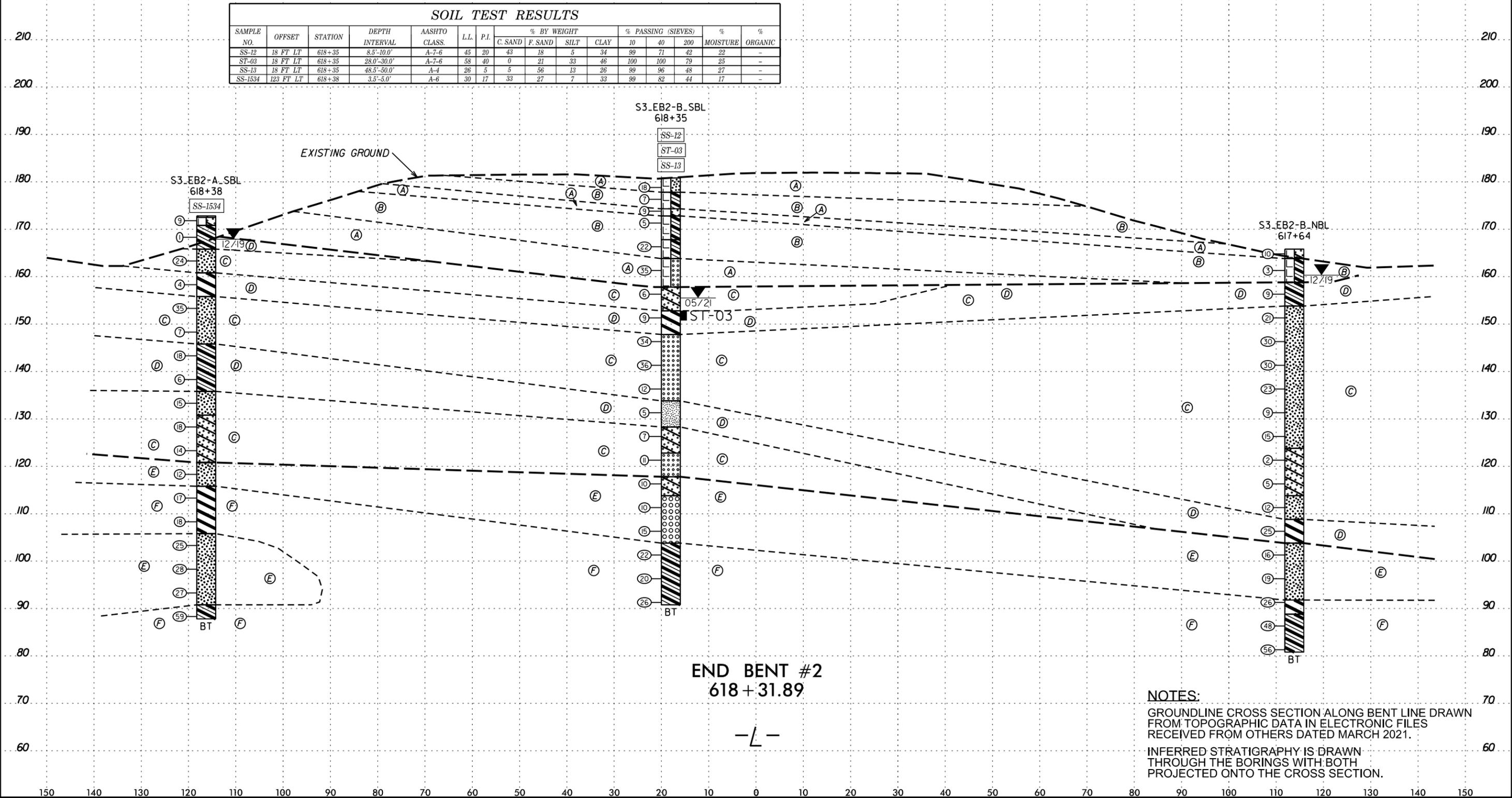
8/23/99

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



- (A) ROADWAY EMBANKMENT; RED BROWN RED-BROWN TAN AND GRAY, MOIST TO SAT., LOOSE TO MED. DENSE, FINE TO CSE. SAND (A-3) AND CLAYEY AND SILTY SAND (A-2-6, A-2-4)
- (B) ROADWAY EMBANKMENT; BROWN, MOIST TO WET, SOFT TO MED. STIFF, SANDY AND SILTY CLAY (A-6, A-7-6)
- (C) UNDIVIDED COASTAL PLAIN; BROWN ORANGE GRAY WHITE AND TAN, WET TO SAT., V. LOOSE TO DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND F. SAND (A-3) WITH INTERMITTENT CLAY LENSES
- (D) UNDIVIDED COASTAL PLAIN; BROWN GRAY AND WHITE, MOIST TO SAT., V. SOFT TO STIFF, SANDY AND HIGHLY PLASTIC, SILTY CLAY (A-6, A-7, A-7-6) AND SANDY SILT (A-4) WITH LITTLE MICA AND TRACE ORGANICS
- (E) COASTAL PLAIN; GRAY, SAT., M. DENSE, SILTY AND CLAYEY SAND (A-2-4, A-2-6) AND CSE. SAND (A-1-b) WITH LITTLE MICA AND TRACE CEMENTED SAND FRAGMENTS (BLACK CREEK FORMATION)
- (F) COASTAL PLAIN; GRAY, WET TO SAT., V. STIFF TO HARD, SILTY AND SANDY CLAY (A-6, A-7) WITH TRACE GRAVEL AND ORGANICS AND LITTLE MICA AND INTERMITTENT SAND LENSES (BLACK CREEK FORMATION)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-12	18 FT LT	618+35	8.5'-10.0'	A-7-6	45	20	43	18	5	34	99	71	42	22	-
ST-03	18 FT LT	618+35	28.0'-30.0'	A-7-6	58	40	0	21	33	46	100	100	79	25	-
SS-13	18 FT LT	618+35	48.5'-50.0'	A-4	26	5	5	56	13	26	99	96	48	27	-
SS-1534	123 FT LT	618+38	3.5'-5.0'	A-6	30	17	33	27	7	33	99	82	44	17	-

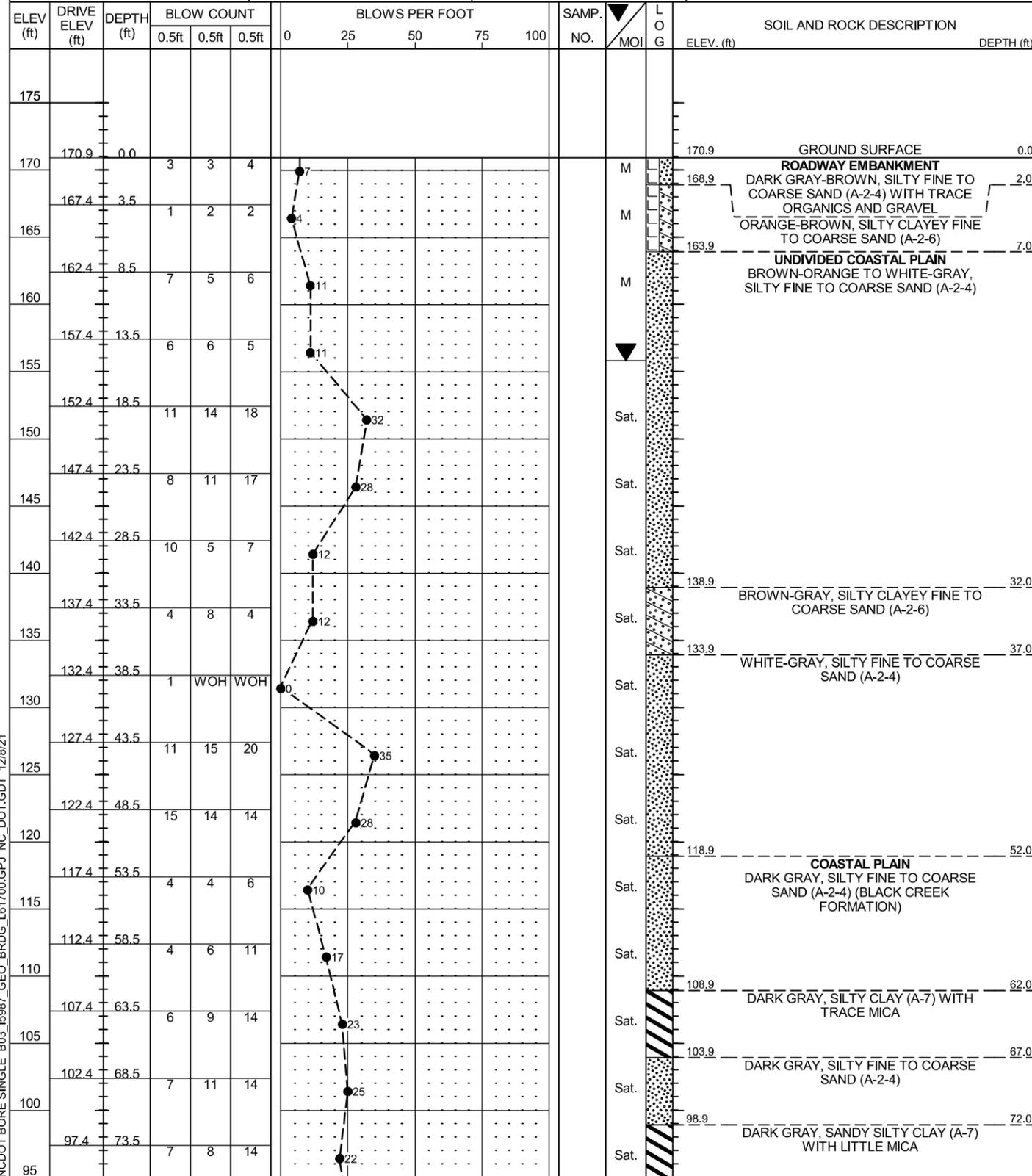


NOTES:
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM OTHERS DATED MARCH 2021.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

8/23/99

GEOTECHNICAL BORING REPORT BORE LOG

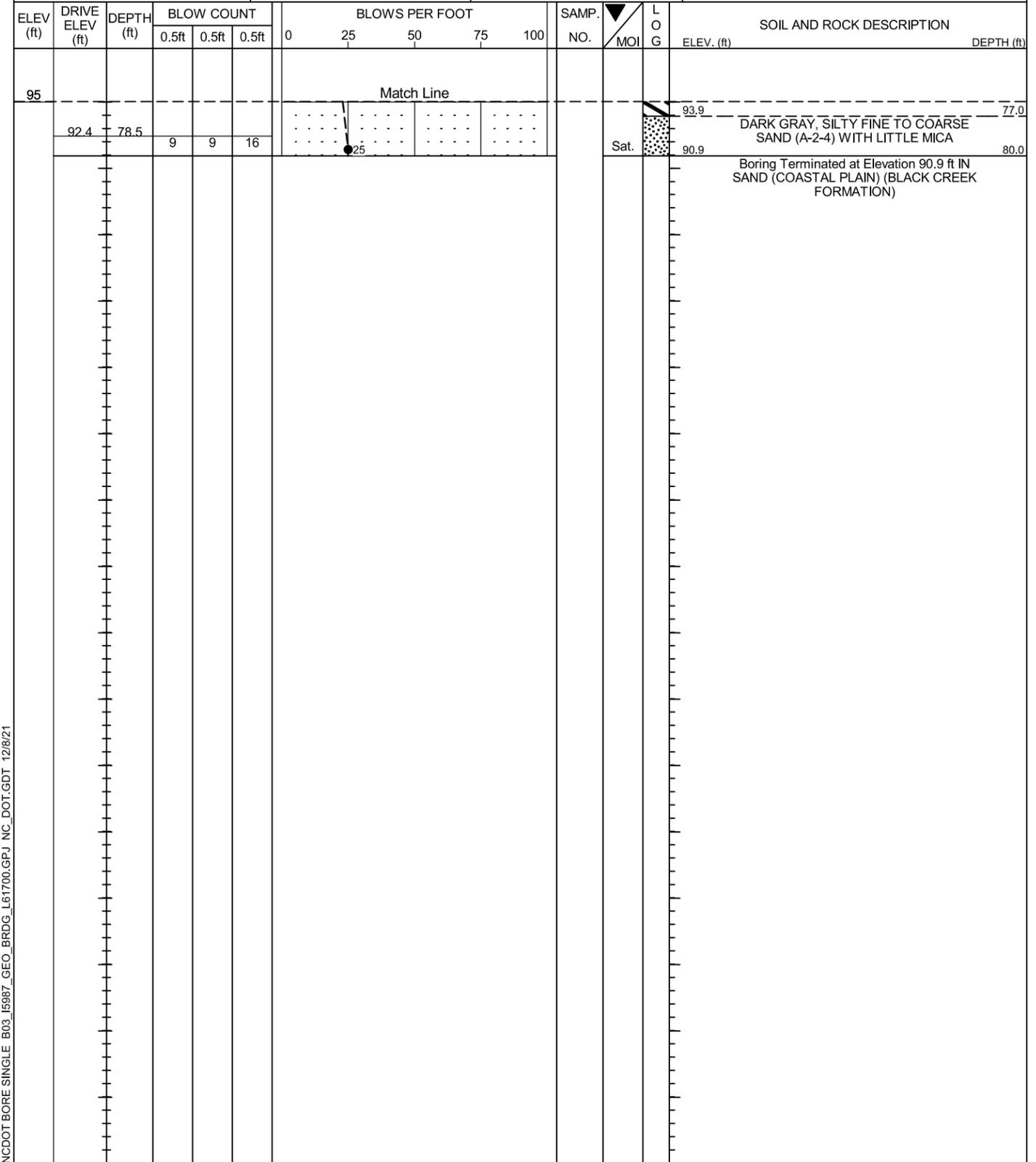
WBS 47533.1.1	TIP I-5987B	COUNTY ROBESON	GEOLOGIST R. French
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20			GROUND WTR (ft)
BORING NO. S3_EB1-A SBL	STATION 616+51	OFFSET 121 ft LT	ALIGNMENT -L-
COLLAR ELEV. 170.9 ft	TOTAL DEPTH 80.0 ft	NORTHING 386,160	EASTING 2,004,004
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER S. Davis	START DATE 12/12/19	COMP. DATE 12/12/19	SURFACE WATER DEPTH N/A



NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1	TIP I-5987B	COUNTY ROBESON	GEOLOGIST R. French
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20			GROUND WTR (ft)
BORING NO. S3_EB1-A SBL	STATION 616+51	OFFSET 121 ft LT	ALIGNMENT -L-
COLLAR ELEV. 170.9 ft	TOTAL DEPTH 80.0 ft	NORTHING 386,160	EASTING 2,004,004
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER S. Davis	START DATE 12/12/19	COMP. DATE 12/12/19	SURFACE WATER DEPTH N/A



NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)										
BORING NO. S3_B1-B_SBL		STATION 617+21		OFFSET 21 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 164.7 ft		TOTAL DEPTH 90.0 ft		NORTHING 386,192		EASTING 2,004,122											
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic													
DRILLER Powell, B.		START DATE 05/20/21		COMP. DATE 05/20/21		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
165															164.7	7 INCHES ASPHALT ROADWAY EMBANKMENT TAN, SANDY GRAVEL (A-1-a)	0.0
160	161.2	3.5	9	5	3									M	161.7	UNDIVIDED COASTAL PLAIN TAN AND GRAY, SILTY CLAYEY SAND (A-2-5)	3.0
155	158.7	6.0	2	4	5									M			
150	156.2	8.5	4	5	7									M			
145	151.2	13.5	10	17	21									Sat.	152.7	ORANGE AND LIGHT GRAY, F TO CSE. SAND (A-1-a)	12.0
140	146.2	18.5	9	12	18									Sat.			
135	141.2	23.5	8	9	13									Sat.	142.7	LIGHT GRAY, F. SAND (A-3)	22.0
130	136.2	28.5	21	25	51									Sat.	137.7	LIGHT GRAY, CLAYEY SILTY SAND (A-2-5)	27.0
125	131.2	33.5	4	7	8									Sat.	132.7	LIGHT GRAY, SAND (A-3)	32.0
120	126.2	38.5	5	7	9									Sat.	127.7	LIGHT GRAY AND TAN, F. TO CSE. SAND (A-1-a)	37.0
115	121.2	43.5	6	6	11									Sat.	117.7	COASTAL PLAIN LIGHT GRAY, F. TO CSE. SAND (A-1-a) WITH INTERMITTENT LENSES OF LIGNITE AND CLAY (BLACK CREEK FORMATION)	47.0
110	116.2	48.5	2	7	7									Sat.	112.7	LIGHT GRAY, SLIGHTLY SILTY F TO CSE. SAND (A-2-4) (BLACK CREEK FORMATION)	52.0
105	111.2	53.5	3	2	4									Sat.			
100	106.2	58.5	2	6	8									Sat.	102.7	DARK GRAY, F. SANDY SILTY CLAY (A-7-6) WITH TRACE MICA (BLACK CREEK FORMATION)	62.0
95	101.2	63.5	4	8	10								SS-11 29%	Sat.	97.7	GRAY, SLIGHTLY SILTY F. TO CSE. SAND (A-1-b) WITH INTERMITTENT LENSES OF CLAY (BLACK CREEK FORMATION)	67.0
90	96.2	68.5	3	7	11									M	92.7	DARK GREY, F. SANDY SILTY CLAY (A-7) WITH TRACE MICA, INTERMITTENT LENSES OF F. SAND AND BLACK PLANT FOSSILS (BLACK CREEK FORMATION)	72.0
85	91.2	73.5	6	9	11									W			
	86.2	78.5	3	6	12												

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST Goodnight, D.											
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)										
BORING NO. S3_B1-B_SBL		STATION 617+21		OFFSET 21 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 164.7 ft		TOTAL DEPTH 90.0 ft		NORTHING 386,192		EASTING 2,004,122											
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic													
DRILLER Powell, B.		START DATE 05/20/21		COMP. DATE 05/20/21		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
85																	
80	81.2	83.5	5	9	12									W			
75	76.2	88.5	5	9	12									W			
															74.7	Boring Terminated at Elevation 74.7 ft IN CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION)	90.0

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B2-A SBL		STATION 617+89		OFFSET 98 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 163.5 ft		TOTAL DEPTH 80.0 ft		NORTHING 386,282		EASTING 2,004,072										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
165	163.5	0.0	2	4	7											
160	160.0	3.5	1	2	2											
155	155.0	8.5	5	6	8											
150	150.0	13.5	10	11	10											
145	145.0	18.5	12	16	16											
140	140.0	23.5	8	9	10											
135	135.0	28.5	5	9	10											
130	130.0	33.5	3	11	11											
125	125.0	38.5	10	6	8											
120	120.0	43.5	23	31	23											
115	115.0	48.5	6	7	6											
110	110.0	53.5	3	3	5											
105	105.0	58.5	6	8	11											
100	100.0	63.5	10	18	20											
95	95.0	68.5	8	11	14											
90	90.0	73.5														

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987B		COUNTY ROBESON		GEOLOGIST W. Pesl										
SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20							GROUND WTR (ft)									
BORING NO. S3_B2-A SBL		STATION 617+89		OFFSET 98 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 163.5 ft		TOTAL DEPTH 80.0 ft		NORTHING 386,282		EASTING 2,004,072										
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Davis		START DATE 01/07/20		COMP. DATE 01/07/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
90																
85	85.0	78.5	14	21	33											

NCDOT BORE SINGLE B03_15987_GEO_BRDG_L61700.GPJ_NC_DOT.GDT 12/8/21

Match Line

GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA, CLAY, AND GRAVEL (continued) 77.0

DARK GRAY TO LIGHT GRAY, FINE SANDY SILTY CLAY (A-7) WITH TRACE MICA 80.0

Boring Terminated at Elevation 83.5 ft IN CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION)

