STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5896	1	40

REFERENCE: U-5896

PROJECT: 44674

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	6+40 TO 10+50	4	8
-L-	10+50 TO 39+00	5	8 TO 10
-L-	39+00 TO 44+25	6	10
-Y-	10+50 TO 23+50	5	11
-Y-	23+50 TO 25+80	7	11
-YI-	13+90 TO 15+12	7	14
-RPA-	10+00 TO 24+05	5	12
-RPB-	10+00 TO 21+37	5	12
-RPC-	10+00 TO 24+12	5	13
-RPD-	10+00 TO 26+15	5	13 TO 14

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	10+00	15
-L-	12+50 TO 13+50	16 TO 17
-L-	19+00 TO 22+50	18 TO 21
-L-	24+50 TO 32+50	22 TO 27
-Y-	14+00 TO 17+50	28 TO 30
-RPA-	16+00 TO 17+50	31 TO 32
-RPC-	16+50 TO 21+50	33 TO 36
-RPD-	16+50 TO 17+50	37
-RPD-	24+00 TO 25+50	38

TITLE	SHEETS
SOIL TEST RESULTS	39 TO 40

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *GUILFORD*

PROJECT DESCRIPTION *US 29, US 70 AND SOUTH MAIN STREET (SR 1009 AND US 311 BUSINESS)*

INVENTORY

CAUTION NOTICE

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

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DATE *SEPTEMBER 2019*

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PROJECT REFERENCE NO.	SHEET NO.
U-5896	2

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 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

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% 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	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
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				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (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	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

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

ORGANIC 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
- PW — 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
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- 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
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME-550X
- [ ] _____

ADVANCING TOOLS:
- [X] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] 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 YEILD 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 (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *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 (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *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 GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

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 DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: BL-4 N: 796651 E: 1706359
• SEE NOTE
ELEVATION: 834.39 FEET

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING

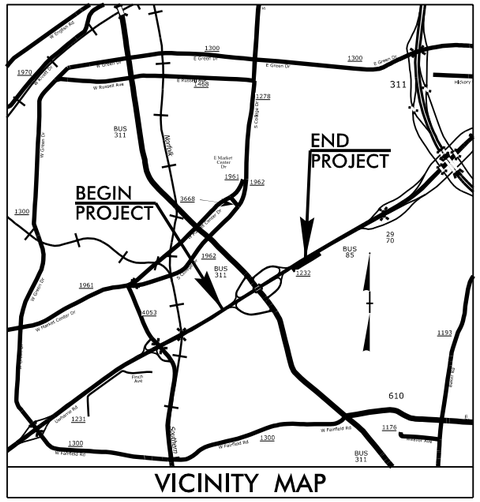
• ROADWAY BORING ELEVATIONS DERIVED FROM GEOPAK AND TIN FILE 'U5896_ls_tin_180521.tin' dated 4/8/19

DATE: 8-15-14

09/08/99

TIP PROJECT: U-5896

CONTRACT:



VICINITY MAP

25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

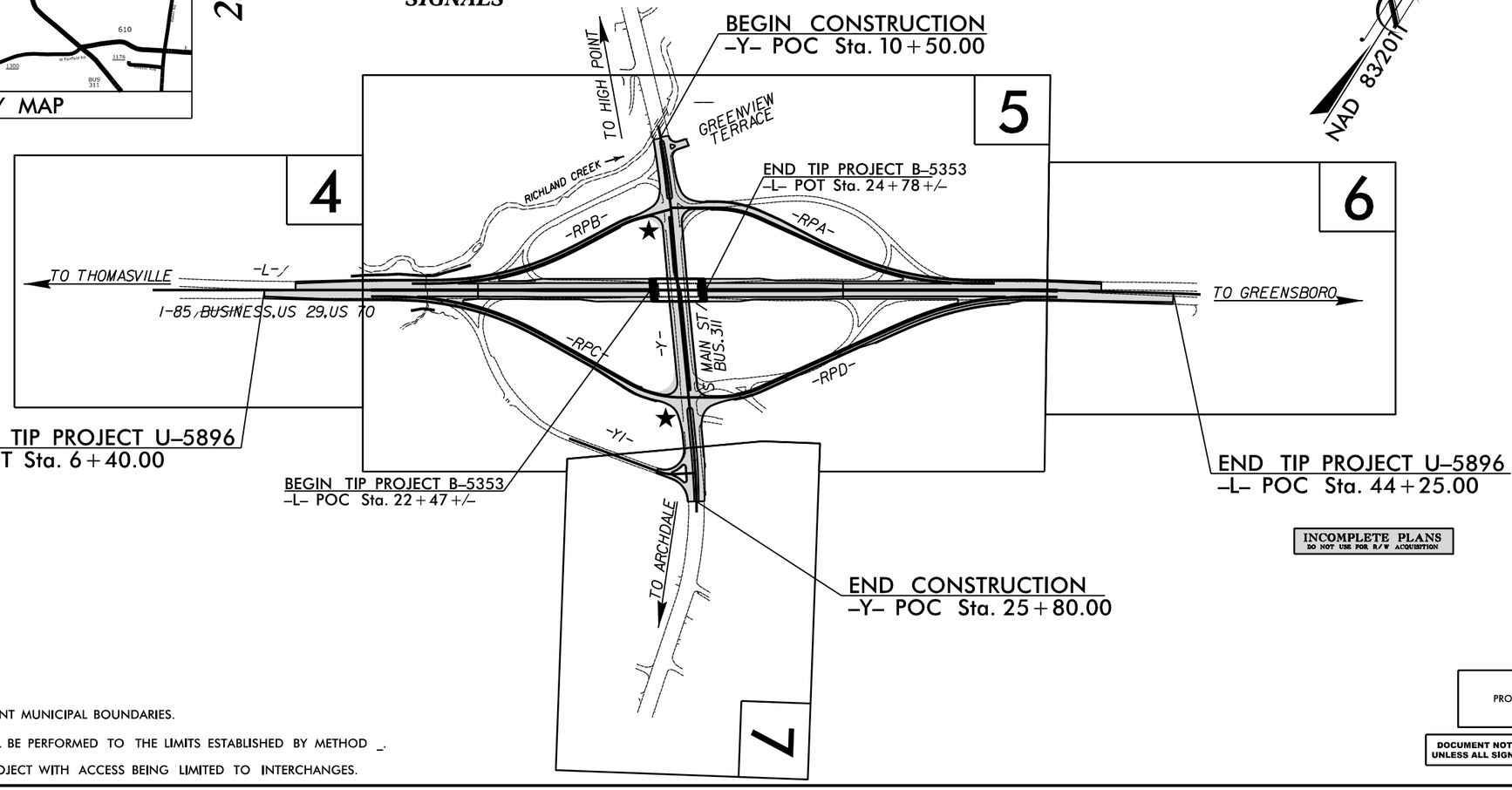
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5896	3	40

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44674.1.1	NHP-0029(068)	PE(U-5896)

LOCATION: INTERCHANGE AT US 29, US 70 AND S MAIN STREET (SR 1009 & US 311 BUSINESS), NEAR HIGH POINT

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, SIGNALS



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THIS PROJECT IS WITHIN HIGH POINT MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD _.

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GRAPHIC SCALES

PLANS 0 50 100

PROFILE (HORIZONTAL) 0 50 100

PROFILE (VERTICAL) 0 10 20

DESIGN DATA

ADT 2020 = 38,070
ADT 2040 = 42,700
K = 10 %
D = 60 %
T = 9 % *
V = 60 MPH
* TTST = 4% DUAL = 5%
FUNC CLASS = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5896	=	0.683	MI
LENGTH OF STRUCTURE TIP PROJECT B-5353	=	0.034	MI
TOTAL LENGTH TIP PROJECTS U-5896 & B-5353	=	0.717	MI

PLANS PREPARED FOR THE NCDOT BY:

MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
(919) 552-2253
(919) 552-2254 (Fax)
www.mottmac.com/bmericos
LICENSE NO. F-0669

VHB *Vanasse Hangen Brustlin, Inc.*

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 31, 2019

LETTING DATE:
AUGUST 18, 2020

TIM JORDAN, PE
PROJECT ENGINEER

JORDAN WOODARD, PE
PROJECT DESIGN ENGINEER

BRYAN C. KEY, PE
NCDOT CONTACT DIVISION 1

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

16-SEP-2019 12:57
Z:\Projects\2019\Trans\6235-19-003 - NCDOT US 29 & I-85 (U-5896)(GEU)\U5896_GEO_RDWY\CADD_GEOTECH\Site&Sub\U-5896_rdy_tsh.dgn
$$$$USERNAME$$$$

September 5, 2019

STATE PROJECT: 44674.1.2 (U-5896)
FEDERAL PROJECT: N/A
COUNTY: Guilford
DESCRIPTION: US 29, US 70 and South Main Street (SR 1009 and US 311 Business)

SUBJECT: Geotechnical Report – Inventory

S&ME, Inc. has completed a reconnaissance and subsurface investigation for the above roadway project and presents the following inventory. Plans, profiles and cross-sections are included in this report.

Project Description

The project corridor is located in Guilford County near the town of High Point. The project consists of improving the existing interchange of US 29/US 70 (-L-) and S. Main St./US 311 Business (-Y-). The work consists of grading, drainage, minor widening, and the partial realignment of the on and off-ramps associated with this interchange. The existing structure (Bridge No. 147) over S. Main St./US 311 Business will be replaced and was also investigated during this project. There are two proposed retaining walls near the beginning of the mainline (-L-) that were investigated during this project. The mainline (-L-) starts at the southwestern end of the project and continues northeast for approximately 0.68 miles. The -Y- alignment passes underneath -L- and -Y- stations increase as the alignment trends from the North to the South.

The geotechnical field investigation was conducted during the period of March and April of 2019. Two S&ME drill crews were used to drill, sample, and log the borings in this report. S&ME rigs used for the drilling include two ATV mounted CME-550X drill machines. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers or hand augers. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the S&ME soils lab. Soil results are referenced back to the original alignment the boring was assigned to during layout and drilling.

The following alignments, excluding the bridge, totaling 1.82 miles, were investigated. Subsurface profiles and/or cross-sections of these alignments are included in this report.

Line	Station
-L-	8+03 to 42+00
-Y-	11+20 to 25+50
-RPA-	12+00 to 23+00
-Y1-	13+90 to 15+12
-RPB-	14+00 to 20+71
-RPC-	14+25 to 23+50
-RPD-	11+50 to 24+50

Areas of Special Geotechnical Interest

1) The following station ranges encountered soft, cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

Line	Station
-L-	22+50
-L-	25+00

2) Highly Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following station ranges:

Line	Stations	Offsets (ft)
-L-	10+00 to 15+00	LT & RT
-L-	21+50 to 22+80	LT & RT
-L-	24+50 to 31+00	LT & RT
-Y-	10+00 to 11+50	LT & RT
-Y-	14+50 to 17+00	LT & RT
-Y-	19+00 to 21+00	LT & RT
-RPA-	15+50 to 17+00	LT & RT
-RPC-	16+50 to 21+00	LT & RT
-RPD-	15+00 to 17+00	LT & RT

3) High Groundwater: High groundwater within 6’ of grade or less was encountered at the following station ranges:

Line	Stations	Offsets (ft)
-L-	9+75 to 10+25	RT
-RPA-	20+00 to 22+25	LT & RT
-RPC-	20+00 to 22+50	LT & RT

4) Crystalline Rock: Crystalline rock was encountered above or within 6’ of grade at the following locations:

Line	Stations	Offsets (ft)
-RPD-	24+43 to 24+50	23 LT to 25 LT

Physiography and Geology

The project corridor is located in central North Carolina in the Piedmont Physiographic Province of North Carolina. A mixture of fields, wooded areas and streams lie within the project area. The project corridor is predominately urban with commercial businesses and few single family homes. Topography along the project is flat to gently sloping. Elevations along the project range from 804± to 848± feet above sea level.

Geologically the surficial soils in the area are generally classified as residual soils. These soils were formed by the in place weathering of the underlying bedrock in the area. There are some alluvial soils in the area adjacent to streambeds. The crystalline bedrock in this area is classified as Biotite Gneiss. This rock is metamorphosed granitic rock that formed in the late Proterozoic to late Cambrian periods during the Taconic Orogeny and is part of the Carolina Slate Belt suite of rocks.

Water Bodies

There is one creek that runs through the project corridor. The name of this creek is Richland Creek and it is part of the larger Cape Fear drainage basin. Richland Creek passes underneath US 29/70 at -L- sta. 13+15 through a single barrel culvert then flows to the north adjacent to -RPB- before passing underneath S. Main Street. at -Y- sta. 10+00 through a triple barrel culvert. This creeks flow from south to north in the vicinity of the project. It is anticipated that the single barrel culvert will need to be extended on the southern/inlet side but not the northern side due to the retaining wall that is proposed there. No modifications are anticipated for to the culvert passing underneath -Y- alignment.

Soil Properties

Soils encountered during this investigation are separated into 3 categories: Roadway Embankment, Alluvial soils and Residual soils.

Roadway Embankment soils are predominately cohesive in nature and may be derived from nearby sources. These soils consist of orange, brown, tan, red, and gray, soft to hard, sandy silt (A-4), clayey silt, (A-5), sandy clay (A-6), and silty clay (A-7-5/A-7-6) and loose to dense, sand with gravel (A-1-a/A-1-b), clayey sand (A-2-6), and silty sand (A-2-4).

Alluvial soils are found near the channels and floodplains from the nearby rivers and streams in the area. These soils consist of gray, brown, tan, orange and green, very loose to dense, sand (A-3), silty sand (A-2-4) and clayey sand (A-2-6) and very soft to stiff, sandy clay (A-6), silty clay (A-7-6), sandy silt (A-4), clayey silt (A-5) and organic clay.

Residual soils underlie the alluvial soils in some areas and are exposed at the surface in most locations. These soils consist of brown, tan, orange, white and black, soft to hard, sandy clay (A-6), sandy silt (A-4) and silty clay (A-7-6) and loose to very dense, sand (A-3), silty sand (A-2-4) and clayey sand (A-2-6).

Rock Properties

Beneath residual soils, Weathered Rock and Crystalline Rock were encountered. Crystalline rock is classified as metamorphosed granitic rock, and was first encountered at elevations ranging from 800± to 830± feet above sea level. Rock coring was performed near the bridge. RQD values ranged between 80% and 100% and recovery values were generally 90% and above.

Groundwater

Groundwater measurements were taken in March and April of 2019. Groundwater is typically between 7 feet and 23 feet below the ground surface. Ground water is expected to cause some minor impacts during construction depending on rainfall conditions at the time.

Respectfully Submitted,

Jarett Swartley, PG
Senior Geologist

PROJECT REFERENCE NO.	SHEET NO.
U-5896	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

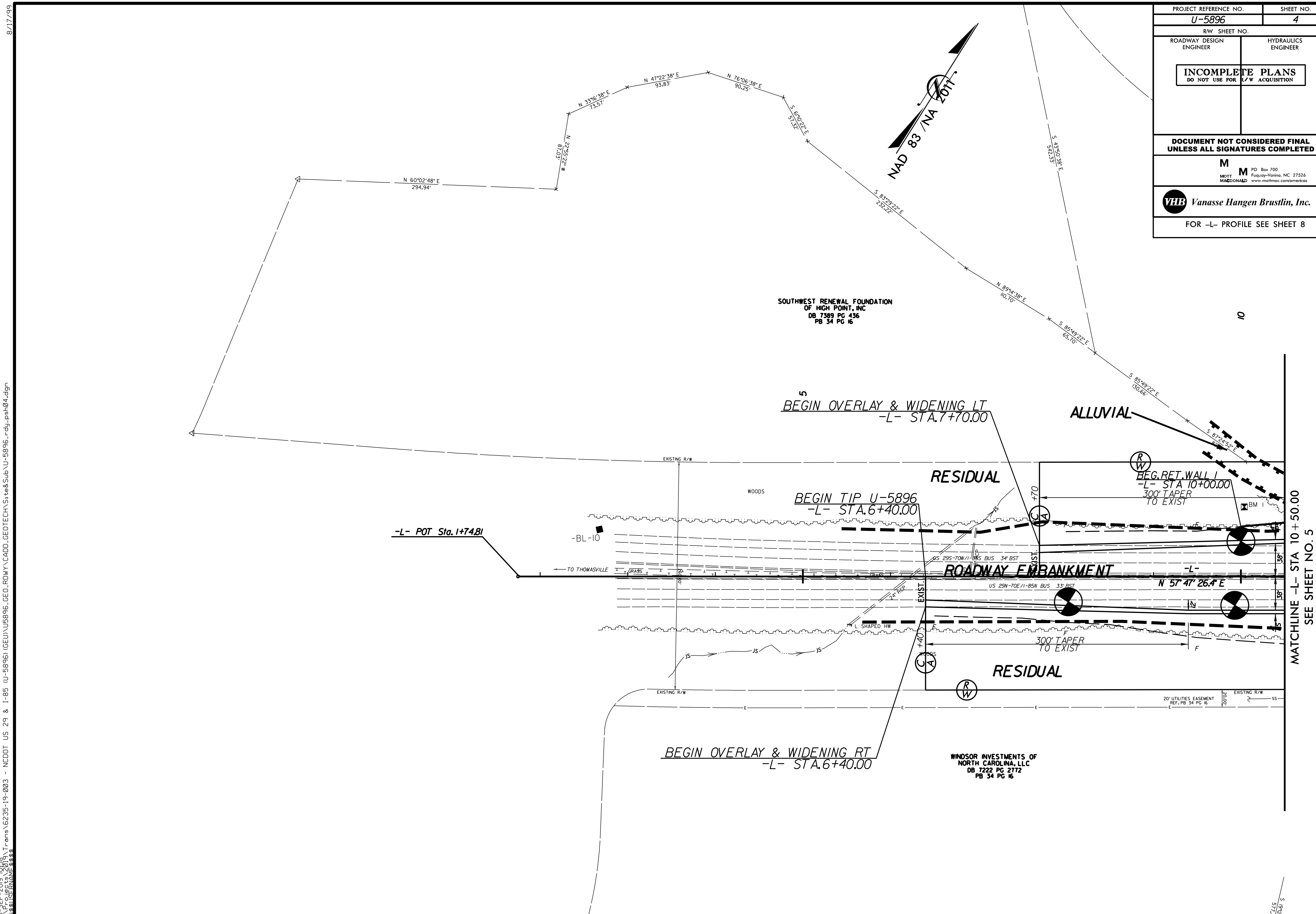
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas

VHB Vanasse Hangen Brustlin, Inc.

FOR -L- PROFILE SEE SHEET 8



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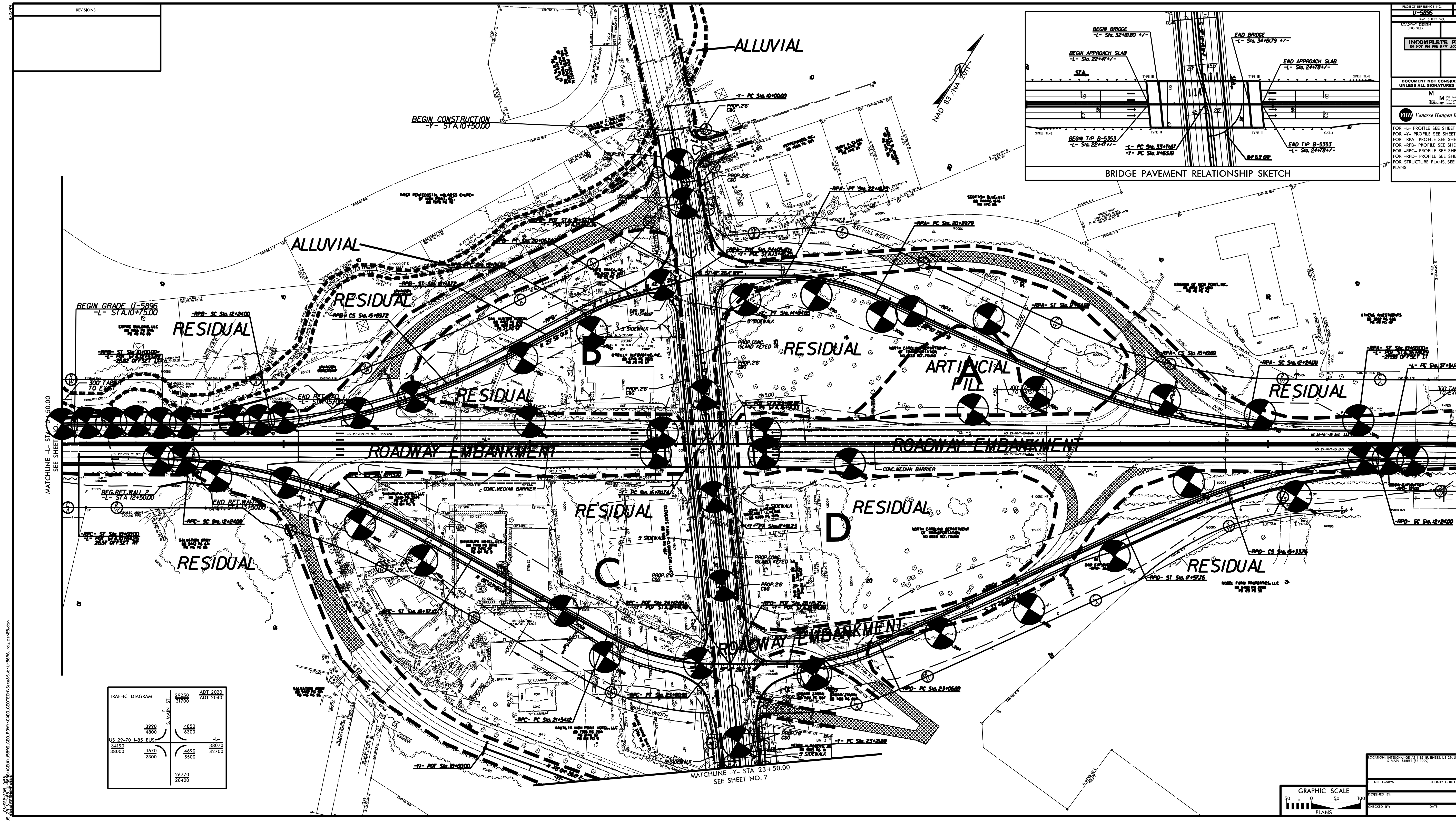
REVISIONS
PROJECT REFERENCE NO. U-5896
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas
VHB Vanasse Hangen Brustlin, Inc.
FOR -L- PROFILE SEE SHEET 8 & 9
FOR -Y- PROFILE SEE SHEET 10
FOR -RPA- PROFILE SEE SHEET 11
FOR -RPB- PROFILE SEE SHEET 11
FOR -RPC- PROFILE SEE SHEET 12
FOR -RPD- PROFILE SEE SHEET 12
FOR STRUCTURE PLANS, SEE B-5353 PLANS
BRIDGE PAVEMENT RELATIONSHIP SKETCH
BEGIN BRIDGE -L- Sta. 32+81.80 +/-
END BRIDGE -L- Sta. 34+61.79 +/-
BEGIN APPROACH SLAB -L- Sta. 22+47+/-
END APPROACH SLAB -L- Sta. 24+78+/-
BEGIN TIP B-5353 -L- Sta. 22+47+/-
END TIP B-5353 -L- Sta. 24+78+/-
-L- PC Sta. 33+71.67
-Y- PC Sta. 11+63.19
84°53'09"
NAD 83 /NA 2011
ALLUVIAL
RESIDUAL
ARTIFICIAL FILL
ROADWAY EMBANKMENT
A
B
C
D
BEGIN CONSTRUCTION -Y- STA.10+50.00
BEGIN GRADE U-5896 -L- STA.10+75.00
-Y- PC Sta. 10+00.00
-RPA- PT Sta. 22+18.75
-RPA- PC Sta. 20+29.79
-RPA- ST Sta. 17+74.69
-RPA- CS Sta. 15+10.69
-RPA- SC Sta. 12+24.00
-RPA- ST Sta. 10+00.00
-L- PC Sta. 37+51.17
-RPB- SC Sta. 12+24.00
-RPB- CS Sta. 15+89.72
-RPB- ST Sta. 10+00.00
-RPB- PT Sta. 20+06.74
-RPC- ST Sta. 10+00.00
-RPC- SC Sta. 12+24.00
-RPC- ST Sta. 18+37.10
-RPC- PC Sta. 21+54.12
-RPC- PT Sta. 23+80.96
-RPD- ST Sta. 17+57.76
-RPD- CS Sta. 15+33.76
-RPD- SC Sta. 12+24.00
-RPD- PC Sta. 23+06.69
-Y- PC Sta. 23+21.69
-Y- PC Sta. 16+70.74
-Y1- POT Sta. 10+00.00
BEG. RET. WALL 2 -L- STA 12+50.00
END RET. WALL 1 -L- STA 15+00.00
END RET. WALL 2 -L- STA 13+50.00
CONC. MEDIAN BARRIER
300' TAPER TO EXIST
MATCHLINE -L- STA 10+50.00 SEE SHEET NO. 4
MATCHLINE -L- STA 39+00.00 SEE SHEET NO. 6
MATCHLINE -Y- STA 23+50.00 SEE SHEET NO. 7
TRAFFIC DIAGRAM
ADT 2020
ADT 2040
-Y- S. MAIN ST.
US 29-70 I-85 BUS.
-L-
29250 / 31700
3990 / 4800
4850 / 6300
34190 / 38000
38070 / 42700
1670 / 2300
4690 / 5500
26770 / 28400
LOCATION: INTERCHANGE AT I-85 BUSINESS, US 29, US 70 AND S MAIN STREET (SR 1009)
TIP NO.: U-5896
COUNTY: GUILFORD
DESIGNED BY:
CHECKED BY:
DATE:
GRAPHIC SCALE
50 0 50 100
PLANS
05-SEP-2019 10:58
US 29 & I-85 (U-5896) (GEU\U5896_GEO_RDWY\CADD_GEOTECH\Site&Sub\U-5896_rdy_psh05.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5896	6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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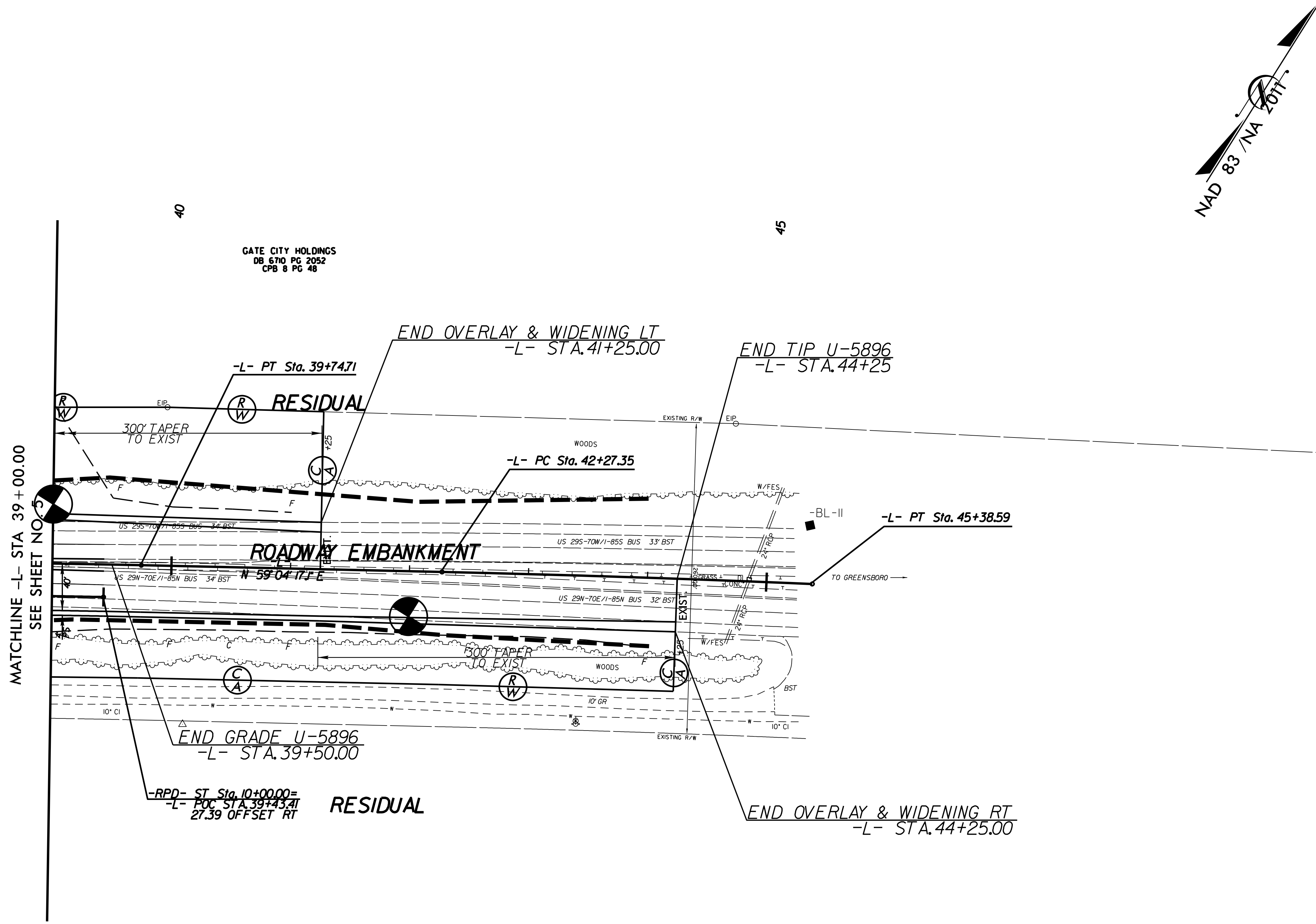
Vanasse Hangen Brustlin, Inc.

FOR -L- PROFILE SEE SHEET 8 & 9



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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5896	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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MOTT MACDONALD
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Fuquay-Varina, NC 27526
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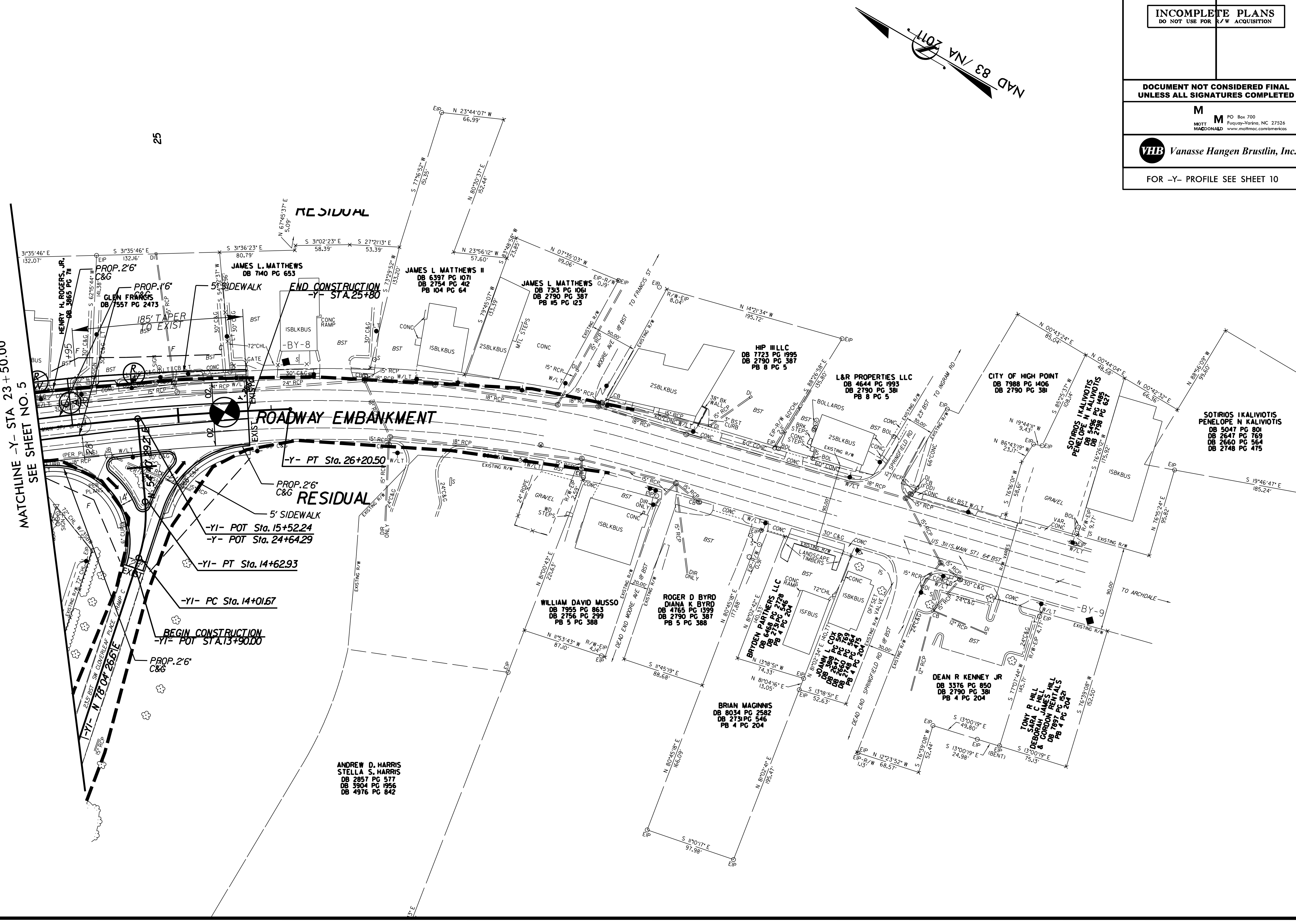
VHB Vanasse Hangen Brustlin, Inc.

FOR -Y- PROFILE SEE SHEET 10



PROJECT REFERENCE NO.	SHEET NO.
U-5896	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	% BY WEIGHT F SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-20	CL	14+00	3.3-4.8	A-6(3)	32	11	22	30	32	16	92	80	51	16.3	-
SS-22	53 LT	15+00	3.4-4.9	A-7-5(12)	49	13	9	25	46	20	100	96	76	29.0	-
SS-25	48 LT	14+50	0.9-2.4	A-4(3)	33	7	19	25	34	22	95	84	60	19.7	-
SS-31	43 LT	13+00	13.3-14.8	A-4(1)	22	6	12	33	37	18	100	96	63	ND	-
SS-34	43 LT	12+50	8.4-9.9	A-7-6(37)	70	41	8	14	23	56	100	97	82	ND	-
SS-37	43 LT	11+50	3.4-4.9	A-7-5(12)	48	13	8	20	36	36	98	94	77	36.4	-
SS-45	40 LT	10+00	8.4-9.9	A-7-6(17)	47	21	8	16	31	45	98	94	78	ND	-
SS-65	29 RT	8+03	6.4-7.9	A-5(7)	44	7	10	25	47	18	100	94	73	38.0	-
SS-101	CL	15+17	1.0-2.5	A-6(8)	40	17	16	24	39	22	88	79	59	ND	-

-L-

BEGIN GRADE
STA. 10+75.00
EL = 814.19'

- (A) ROADWAY EMBANKMENT, BLACK AND GRAY, LOOSE TO MED. DENSE, SILTY SAND, CLAYEY SAND AND SAND WITH GRAVEL (A-2-4, A-2-6, AND A-1-b), DRY TO MOIST
- (B) ROADWAY EMBANKMENT, ORANGE, GRAY AND BROWN, MED. STIFF TO STIFF, SANDY SILT, SANDY CLAY AND SILTY CLAY (A-4, A-6, AND A-7-5), MOIST
- (C) ALLUVIAL, BROWN, GRAY, RED AND ORANGE, SOFT TO STIFF, SANDY SILT, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY WITH TRACE ORGANIC MATTER (A-4, A-6, AND A-7-6), MOIST TO WET
- (D) ALLUVIAL, TAN, RED AND GRAY, COARSE SAND, SAND AND CLAYEY SAND WITH GRAVEL (A-1-b, A-3, AND A-2-6), MOIST TO SATURATED
- (E) RESIDUAL, TAN AND GRAY, MED. STIFF TO VERY STIFF, SANDY SILT AND CLAYEY SILT (A-4 AND A-5), WET
- (F) RESIDUAL, GRAY AND TAN, LOOSE TO VERY DENSE, SILTY SAND AND CLAYEY SAND (A-2-4 AND A-2-6), SATURATED

L-803
29' RT
SS-65
FIAD
BT
03/26/19

ALLUVIAL, BROWN, GRAY AND ORANGE, SOFT TO MED. STIFF, SILTY CLAY, SANDY SILT AND CLAYEY SILT (A-7-6, A-4, AND A-5), MOIST TO WET

RESIDUAL, TAN; SOFT TO VERY STIFF, SANDY SILT AND SANDY CLAY (A-4 AND A-6), MOIST TO WET

WEATHERED ROCK, BIOTITE GNEISS

RWI-1 SS-45 40' LT
RWI-2 41' LT
RWI-3 43' LT
RWI-4 SS-37 43' LT
RWI-5 46' LT
RWI-6 SS-34 43' LT
RWI-7 SS-31 43' LT
RWI-9 48' LT
RWI-10 SS-25 48' LT
RWI-11 SS-22 53' LT
RPB_1400 SS-20 63' LT
RPB_1517 SS-101 96' LT

PAVEMENT

CRYSTALLINE ROCK, BIOTITE GNEISS

FIAD BT 03/22/19

RESIDUAL, GRAY AND RED, MED. STIFF, SILTY CLAY AND SANDY SILT (A-7-5/A-7-6), MOIST TO WET

Dry BT 03/18/19

4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920

5/14/99

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5896	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-8	40 RT	26+50	3.5-5.0	A-7-6(30)	60	34	3	19	26	52	98	97	81	29.2	-
SS-13	22 LT	24+79	8.3-9.8	A-7-6(19)	50	29	12	19	29	41	94	87	71	38.6	-
SS-15	23 LT	22+70	8.1-9.6	A-7-6(19)	48	27	11	19	33	38	96	89	74	33.4	-
SS-16	23 LT	22+70	18.1-19.6	A-4(0)	32	10	30	28	27	15	77	62	38	19.2	-
SS-19	45 LT	20+00	6.0-7.5	A-4(1)	35	2	14	33	39	14	97	91	61	29.5	-
SS-124	70 LT	29+00	1.0-2.5	A-7-6(19)	49	28	14	19	29	38	98	89	70	24.2	-

Ⓐ ROADWAY EMBANKMENT, GRAY, MOIST, DENSE, SAND WITH GRAVEL
Ⓑ ROADWAY EMBANKMENT, BROWN, MOIST, MED. STIFF, HIGHLY PLASTIC, SILTY CLAY
Ⓒ ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY

L_2000
SS-19
40' LT
PAVEMENT
ROADWAY EMBANKMENT, ORANGE, BROWN AND GRAY, MED. STIFF TO STIFF, SANDY CLAY, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY (A-6, A-4, AND A-7-6), MOIST
RESIDUAL, GRAY, BROWN, TAN, AND RED, MED. STIFF TO STIFF, SANDY CLAY, SILTY CLAY AND SANDY SILT (A-6, A-7-5/A-7-6, AND A-4), MOIST TO WET
FIAD
BT
03/22/19

SS-15
SS-16
23' LT
EB1-A
PAVEMENT
PAVEMENT
WEATHERED ROCK, BIOTITE GNEISS
CRYSTALLINE ROCK, BIOTITE GNEISS
FIAD
BT
03/21/19

EB2-A
SS-13
22' LT
PAVEMENT
PAVEMENT
03/18
BT

L_2650
SS-8
40' RT
ROADWAY EMBANKMENT, BROWN AND ORANGE, SOFT TO STIFF, SANDY SILT AND HIGHLY PLASTIC SILTY CLAY (A-4 AND A-7-6), MOIST
RESIDUAL, TAN, DENSE, SILTY SAND (A-2-4), MOIST
FIAD
BT
03/19/19

L_2900
SS-124
70' LT
ARTIFICIAL FILL, BROWN, HIGHLY PLASTIC, SILTY CLAY (A-7-6), MOIST
RESIDUAL, ORANGE AND TAN, VERY STIFF, SANDY SILT (A-4), MOIST
FIAD
BT
03/19/19

930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760 750 740 730

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5896	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ ROADWAY EMBANKMENT, ORANGE, RED, BLACK AND TAN, MED. STIFF TO VERY STIFF, SANDY CLAY, SILTY CLAY WITH TRACE ORGANICS, AND SANDY SILT (A-6, A-7-6, AND A-4), MOIST

Ⓑ ROADWAY EMBANKMENT, GRAY, LOOSE TO MED. DENSE, SILTY SAND AND SAND WITH GRAVEL (A-2-4 AND A-1-b), MOIST

Ⓒ RESIDUAL, RED, BLACK, ORANGE AND TAN, MED. STIFF TO VERY STIFF, SANDY CLAY, SANDY SILT AND HIGHLY PLASTIC SILTY CLAY (A-6, A-4, AD A-7-6), MOIST TO WET

Ⓓ RESIDUAL, TAN, BLACK, GRAY AND ORANGE, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST TO SATURATED

Ⓔ WEATHERED ROCK, BIOTITE GNEISS

Ⓕ ROADWAY EMBANKMENT, BROWN, SOFT, SILTY CLAY WITH LITTLE ORGANIC MATTER (A-7-6), MOIST

Ⓖ RESIDUAL, BROWN, MED. STIFF, SANDY CLAY AND SANDY SILT (A-6 AND A-4), MOIST TO WET

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-10	CL	12+00	3.3-4.8	A-4(4)	32	6	13	28	52	7	100	93	71	11.4	-
SS-11	38 RT	42+00	3.4-4.9	A-2-4(0)	22	3	39	30	26	6	87	64	34	3.4	-
SS-64	50 LT	39+00	3.6-5.1	A-7-6(11)	41	19	9	31	34	25	98	94	66	28.0	5.9
SS-66	27 RT	12+00	3.6-5.1	A-4(0)	31	4	10	50	29	12	99	96	51	17.9	-
SS-68	27 RT	14+00	6.5-8.0	A-7-6(11)	43	17	16	21	27	36	99	89	68	26.7	4.5

SS-68
90' LT

SS-66
59' LT

RPA_1000
48' LT

RPD_1200
SS-10
30' RT

RPD_1150
30' RT

END GRADE
STA. 39+50.00
EL = 827.04'

L_3900
SS-64
50' LT

L_4200
SS-11
38' RT

Dry
BT
03/26/19

Dry
BT
03/26/19

Dry
BT
03/26/19

FIAD
BT
03/19/19

FIAD
AR
03/19/19

BT

FIAD
BT
03/19/19

CRYSTALLINE ROCK, BIOTITE GNEISS

RESIDUAL, GRAY AND TAN, DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST

WEATHERED ROCK, BIOTITE GNEISS

730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930

32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00

5/14/99

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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5896	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-69	CL	11+20	3.3-4.8	A-7-6(22)	55	29	12	17	24	47	99	91	74	21.3	-
SS-70	CL	12+00	3.0-4.5	A-7-6(12)	43	19	14	23	27	36	98	90	67	22.9	-
SS-160	CL	23+00	3.9-5.4	A-6(3)	35	17	28	29	22	21	86	68	43	21.2	-
SS-161	CL	19+80	1.3-2.8	A-7-6(19)	50	29	14	19	23	43	98	89	70	21.5	-
SS-166	CL	18+00	6.8-8.3	A-6(8)	39	17	18	23	32	27	91	79	60	ND	-
SS-167	CL	15+91	1.0-2.5	A-7-5(39)	72	37	4	11	30	55	99	97	89	39.0	-

Ⓐ ROADWAY EMBANKMENT, BROWN, VERY STIFF TO HARD, SANDY CLAY AND HIGHLY PLASTIC SILTY CLAY (A-6 AND A-7-5/A-7-6), MOIST

Ⓑ RESIDUAL, GRAY, TAN, WHITE AND RED, LOOSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST

Ⓒ RESIDUAL, BROWN, ORANGE, RED, GRAY AND TAN, MED. STIFF TO VERY STIFF, SANDY CLAY AND HIGHLY PLASTIC SILTY CLAY (A-6 AND A-7-6), MOIST

BEGIN PROFILE
-Y- STA.10+50.00
EL = 804.35'

-Y- STA.13+47.74 =
-RPA- STA.24+05.39

-Y- STA.13+53.84 =
-RPB- STA.21+37.76

-Y- STA.21+39.99 =
-RPC- STA.24+12.65
-RPD- STA.26+15.26

Y_1120 SS-69 — (31) (6) (7) (25) — FIAD BT 03/26/19

Y_1200 SS-70 — (19) (9) (5) (15) (78) — FIAD BT 03/26/19

PAVEMENT

RED, TAN, WHITE, ORANGE AND GRAY, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST

Y_1591 SS-167 — (11) (11) (15) (27) (50/0.0) — FIAD BT 03/22/19

CRYSTALLINE ROCK, BIOTITE GNEISS

Y_1800 SS-166 — (10) (8) (16) (100/0.2) (50/0.0) — FIAD BT 03/22/19

WEATHERED ROCK, BIOTITE GNEISS

Y_1980 SS-161 — (7) (14) (43) (100/0.9) (50/0.0) — FIAD BT 03/22/19

CRYSTALLINE ROCK, BIOTITE GNEISS

Y_2300 SS-160 — (9) (28) (60/0.0) — FIAD BT 03/22/19

-Y-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-157	CL	25+50	1.2-2.7	A-2-4(0)	27	4	35	37	20	8	99	78	35	16.0	-

Ⓑ RESIDUAL, GRAY, TAN, WHITE AND RED, LOOSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST

END PROFILE
-Y- STA.25+80.00
EL = 843.61'

-Y- STA.24+56.29 =
-YI- STA.15+52.24

Y_2550 SS-157 — (14) (21) (10) (25) (50/0.1) — FIAD BT 03/22/19

PAVEMENT

CRYSTALLINE ROCK, BIOTITE GNEISS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5896	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Ⓐ ROADWAY EMBANKMENT, GRAY, LOOSE TO MED. DENSE, SAND WITH GRAVEL (A-1-b), MOIST
Ⓑ RESIDUAL, WHITE, VERY DENSE, SAND WITH GRAVEL (A-1-b), MOIST
Ⓒ RESIDUAL, RED, GRAY AND TAN, VERY SOFT TO VERY STIFF, SILTY CLAY, SANDY SILT AND CLAYEY SILT (A-7-6, A-4, AND A-5), MOIST TO WET

-RPA-

BEGIN PROFILE
-RPA- STA.10+00.00
EL = 833.55'

RPA_1000
48' LT
WEATHERED ROCK, BIOTITE GNEISS
Dry
B.T
26/19
CRYSTALLINE ROCK, BIOTITE GNEISS

RPA_1200
SS-66
27' RT
ROADWAY EMBANKMENT, ORANGE, STIFF TO VERY STIFF, SANDY CLAY, SILTY CLAY, AND SANDY SILT
Dry
B.T
03/26/19
RESIDUAL, TAN AND GRAY, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST

RPA_1400
SS-68
27' RT
(A-6, A-7-6, AND A-4), MOIST
RESIDUAL, GRAY, BROWN AND RED, STIFF TO VERY STIFF, SILTY CLAY AND SANDY SILT (A-7-5/A-7-6 AND A-4), MOIST
Dry
B.T
03/26/19

RPA_1650
SS-74
44' LT
RESIDUAL, TAN, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST
FIAD
B.T
03/26/19

RPA_1800
SS-121
50' RT
RESIDUAL, ORANGE, TAN, MEDIUM STIFF TO HIGHLY WHITE AND BROWN, STIFF, SANDY SILT AND PLASTIC, SILTY CLAY (A-4 AND A-7-6), MOIST
WEATHERED ROCK, BIOTITE GNEISS
FIAD
B.T
03/19/19
CRYSTALLINE ROCK, BIOTITE GNEISS

RPA_1950
FIAD
B.T
03/19/19

RPA_2000
SS-118
SS-119
35' LT
FIAD
B.T
03/19/19

RPA_2150
SS-114
35' LT
B.T

RPA_2300
SS-111
50' LT
RESIDUAL, ORANGE AND GRAY, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4), MOIST TO SA
B.T

END PROFILE
-RPA- STA.23+65.68=
-Y- STA.13+51.77 39.5' LT
EL = 810.94'

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-66	27 RT	12+00	3.6-5.1	A-4(0)	31	4	10	50	29	12	99	96	51	17.9	-
SS-68	27 RT	14+00	6.5-8.0	A-7-6(11)	43	17	16	21	27	36	99	89	68	26.7	4.5
SS-74	44 LT	16+50	0.0-1.5	A-7-6(27)	60	37	14	15	24	47	98	89	73	25.6	-
SS-111	50 LT	23+00	1.0-2.5	A-2-4(0)	NP	NP	42	36	17	6	100	76	28	ND	-
SS-114	35 LT	21+50	7.1-8.6	A-5(10)	48	8	3	26	51	21	100	99	85	ND	-
SS-118	35 LT	20+00	6.9-8.4	A-7-6(18)	52	25	12	20	30	39	98	91	72	ND	-
SS-119	35 LT	20+00	14.4-15.9	A-4(4)	40	6	11	35	41	12	100	94	65	31.3	-

-RPB-

Ⓐ ROADWAY EMBANKMENT, GRAY, MED. DENSE, SILTY SAND AND SAND WITH GRAVEL (A-2-4 AND A-1-b), MOIST
Ⓑ ALLUVIAL, GRAY, BROWN, ORANGE AND RED, SOFT TO STIFF, SILTY CLAY, SANDY CLAY, AND SANDY SILT (A-7-5/A-7-6, A-6, AND A-4), MOIST TO WET
Ⓒ RESIDUAL, GRAY, MED. STIFF, CLAYEY SILT (A-5), WET
Ⓓ ROADWAY EMBANKMENT, ORANGE, GRAY, BROWN, RED AND BLACK, SOFT TO VERY STIFF, SANDY CLAY, SILTY CLAY AND SANDY SILT (A-6, A-7-5/A-7-6, AND A-4), MOIST
Ⓔ RESIDUAL, TAN, MED. DENSE, SILTY SAND (A-2-4), SATURATED
Ⓕ ALLUVIAL, TAN, LOOSE, SAND (A-3), SATURATED
Ⓖ ARTIFICIAL FILL, RED, BLACK, GRAY, BROWN AND ORANGE, SOFT TO STIFF, SANDY SILT AND SILTY CLAY (A-4 AND A-7-6), MOIST

BEGIN PROFILE
-RPB- STA.10+00.00
EL = 814.75'

RW1-7
SS-31
16' LT
PAVEMENT
B.T

RW1-9
19' LT
B.T

RW1-10
SS-25
16' LT
B.T

RW1-11
SS-22
17' LT
FIAD
B.T
03/22/19

RPB_1400
SS-20
CL
FIAD
B.T
03/22/19

RPB_1517
SS-101
CL
Dry
B.T
03/18/19
RESIDUAL, GRAY, RED, TAN AND ORANGE, MED. STIFF TO VERY STIFF, SANDY SILT, SANDY CLAY AND SILTY CLAY (A-4, A-6, AND A-7-5/A-7-6), MOIST TO WET

RPB_1750
SS-105
20' RT
B.T
WEATHERED ROCK, BIOTITE GNEISS

RPB_1900
SS-109
40' RT
Dry
B.T
03/18/19

RPB_2071
SS-71
5' LT
PAVEMENT
FIAD
B.T
03/26/19

END PROFILE
-RPB- STA.20+97.74=
-Y- STA.13+60.31 39.5' RT
EL = 809.56'

SOIL TEST RESULTS

SAMPLE NO	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-20	CL	14+00	3.3-4.8	A-6(3)	32	11	22	30	32	16	92	80	51	16.3	-
SS-22	53 LT	15+00	3.4-4.9	A-7-5(12)	49	13	9	25	46	20	100	96	76	29.0	-
SS-25	48 LT	14+50	0.9-2.4	A-4(3)	33	7	19	25	34	22	95	84	60	19.7	-
SS-31	43 LT	13+00	13.3-14.8	A-4(1)	22	6	12	33	37	18	100	96	63	ND	-
SS-71	5 LT	20+71	0.4-1.9	A-7-6(12)	45	16	11	25	35	29	100	93	72	35.9	-
SS-101	CL	15+17	1.0-2.5	A-6(8)	40	17	16	24	39	22	88	79	59	ND	-
SS-105	20 RT	17+50	1.0-2.5	A-4(1)	31	10	29	25	23	23	74	59	38	ND	-
SS-109	40 RT	19+00	1.0-2.5	A-7-6(9)	45	22	17	18	29	36	78	69	54	24.6	-

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5896	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

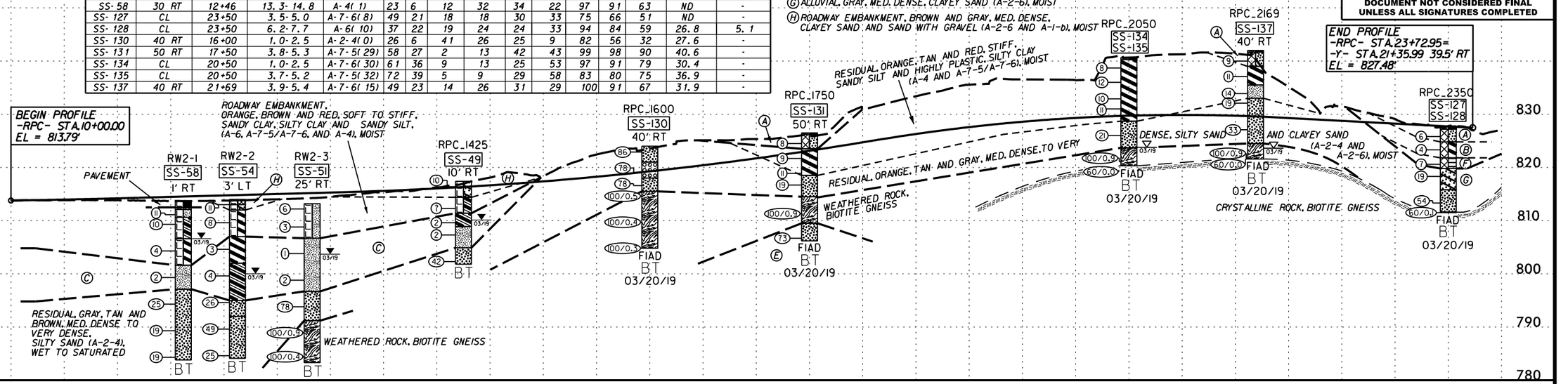
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-RPC-

SOIL TEST RESULTS

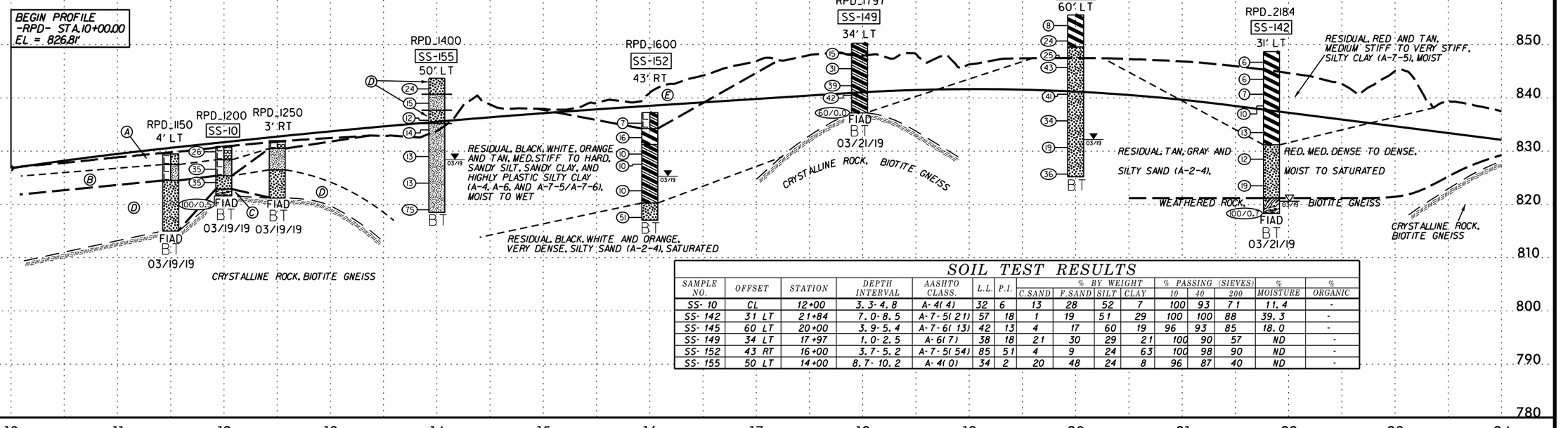
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-49	10 RT	14+25	9.1-10.6	A-4(1)	28	7	20	25	34	21	80	69	49	25.0	-
SS-51	65 RT	13+63	8.4-9.9	A-4(2)	35	5	17	33	36	14	99	91	59	37.0	-
SS-54	30 RT	12+97	3.4-4.9	A-7-5(14)	51	15	8	21	39	32	100	96	78	31.0	-
SS-58	30 RT	12+46	13.3-14.8	A-4(1)	23	6	12	32	34	22	97	91	63	ND	-
SS-127	CL	23+50	3.5-5.0	A-7-6(8)	49	21	18	18	30	33	75	66	51	ND	-
SS-128	CL	23+50	6.2-7.7	A-6(10)	37	22	19	24	24	33	94	84	59	26.8	5.1
SS-130	40 RT	16+00	1.0-2.5	A-2-4(0)	26	6	41	26	25	9	82	56	32	27.6	-
SS-131	50 RT	17+50	3.8-5.3	A-7-5(29)	58	27	2	13	42	43	99	98	90	40.6	-
SS-134	CL	20+50	1.0-2.5	A-7-6(30)	61	36	9	13	25	53	97	91	79	30.4	-
SS-135	CL	20+50	3.7-5.2	A-7-5(32)	72	39	5	9	29	58	83	80	75	36.9	-
SS-137	40 RT	21+69	3.9-5.4	A-7-6(15)	49	23	14	26	31	29	100	91	67	31.9	-

(A) ARTIFICIAL FILL, BROWN AND GRAY, LOOSE, SILTY SAND (A-2-4), MOIST
(B) ARTIFICIAL FILL, ORANGE, BROWN AND RED, SOFT, SILTY CLAY (A-7-6), MOIST
(C) ALLUVIAL, ORANGE AND GRAY, VERY SOFT TO STIFF, SILTY CLAY, SANDY CLAY AND SANDY SILT (A-7-5/A-7-6, A-6, AND
(D) RESIDUAL, GRAY, BROWN, ORANGE AND TAN, MED. DENSE TO VERY DENSE, SILTY SAND AND SAND WITH GRAVEL (A-2-4
(E) RESIDUAL, BROWN AND GRAY, VERY DENSE, SILTY SAND (A-2-4), SATURATED
(F) ARTIFICIAL FILL, GRAY, MED. STIFF, SANDY CLAY WITH LITTLE ORGANIC MATTER (A-6), MOIST
(G) ALLUVIAL, GRAY, MED. DENSE, CLAYEY SAND (A-2-6), MOIST
(H) ROADWAY EMBANKMENT, BROWN AND GRAY, MED. DENSE, CLAYEY SAND AND SAND WITH GRAVEL (A-2-6 AND A-1-b), MOIST



-RPD-

(A) ROADWAY EMBANKMENT, GRAY, MED. DENSE, SILTY SAND AND SAND WITH GRAVEL (A-2-4 AND A-1-b), MOIST
(B) ROADWAY EMBANKMENT, ORANGE AND BROWN, STIFF TO HARD, SANDY CLAY AND SANDY SILT (A-6 AND A-4), MOIST
(C) WEATHERED ROCK, BIOTITE GNEISS
(D) RESIDUAL, BROWN, TAN, GRAY AND WHITE, DENSE, SILTY SAND (A-2-4), MOIST
(E) ROADWAY EMBANKMENT, BROWN AND ORANGE, MEDIUM STIFF, SANDY CLAY, MOIST



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-10	CL	12+00	3.3-4.8	A-4(4)	32	6	13	28	52	7	100	93	71	11.4	-
SS-142	31 LT	21+84	7.0-8.5	A-7-5(21)	57	18	1	19	51	29	100	100	88	39.3	-
SS-145	60 LT	20+00	3.9-5.4	A-7-6(13)	42	13	4	17	60	19	96	93	85	18.0	-
SS-149	34 LT	17+97	1.0-2.5	A-6(7)	38	18	21	30	29	21	100	90	57	ND	-
SS-152	43 RT	16+00	3.7-5.2	A-7-5(54)	85	51	4	9	24	63	100	98	90	ND	-
SS-155	50 LT	14+00	8.7-10.2	A-4(0)	34	2	20	48	24	8	96	87	40	ND	-

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5896	14

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:
MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
www.mottmac.com/americas

VHB Vanasse Hangen Brustlin, Inc.

-RPD-

END PROFILE
-RPD- STA. 25+75.56=
-Y- STA. 21+43.93 39.5' LT
EL = 827.68'

RPD_2443
23' LT

100/0.4

FIAD
BT
03/21/19

RESIDUAL, TAN AND GRAY, DENSE, SILTY SAND (A-2-4), MOIST

CRYSTALLINE ROCK, BIOTITE GNEISS

850
840
830
820
810
800
790

24 25 26

-Y1-

BEGIN GRADE
STA. 13+90.00
EL = 840.01'

END GRADE
-Y1- STA. 15+12.74=
-Y- STA. 24+56.29 39.5' RT
EL = 838.04'

Y_2550
94' RT

SS-157

PAVEMENT

14
21
10
25

RESIDUAL, GRAY AND WHITE, MED. DENSE, SILTY SAND (A-2-4), MOIST

60/0.1

CRYSTALLINE ROCK, BIOTITE GNEISS

FIAD
BT
03/22/19

850
840
830
820
810
800

10 11 12 13 14 15

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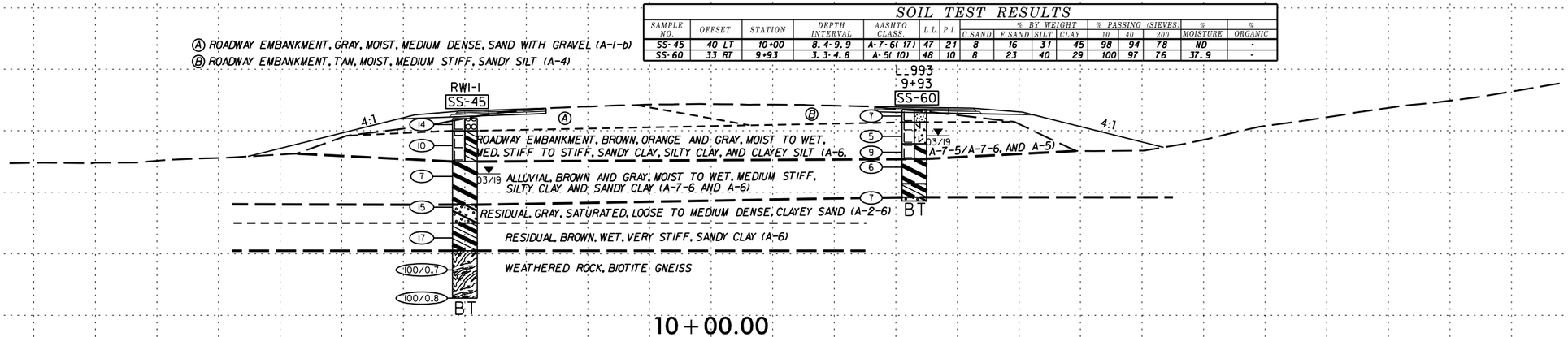
Z:\Projects\2019\Trans\6235-19-003 - NCDOT US 29 & I-85 (U-5896)\GEU\U5896_GEO_ROWY\CADD_GEOTECH\PlanProf\U-5896_rdy_pfl_psh.dgn
$$$$USERNAME$$$$

Ⓐ ROADWAY EMBANKMENT, GRAY, MOIST, MEDIUM DENSE, SAND WITH GRAVEL (A-1-b)
Ⓑ ROADWAY EMBANKMENT, TAN, MOIST, MEDIUM STIFF, SANDY SILT (A-4)

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	% BY WEIGHT F SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-45	40 LT	10+00	8.4-9.9	A-7-6(17)	47	21	8	16	31	45	98	94	78	ND	-
SS-60	33 RT	9+93	3.3-4.8	A-5(10)	48	10	8	23	40	29	100	97	76	37.9	-

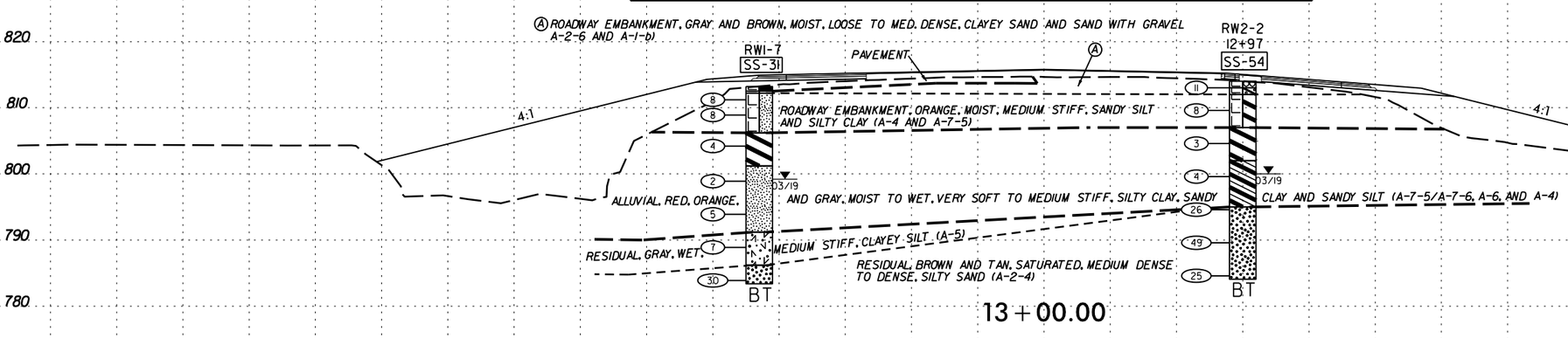


10+00.00

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	16

SOIL TEST RESULTS

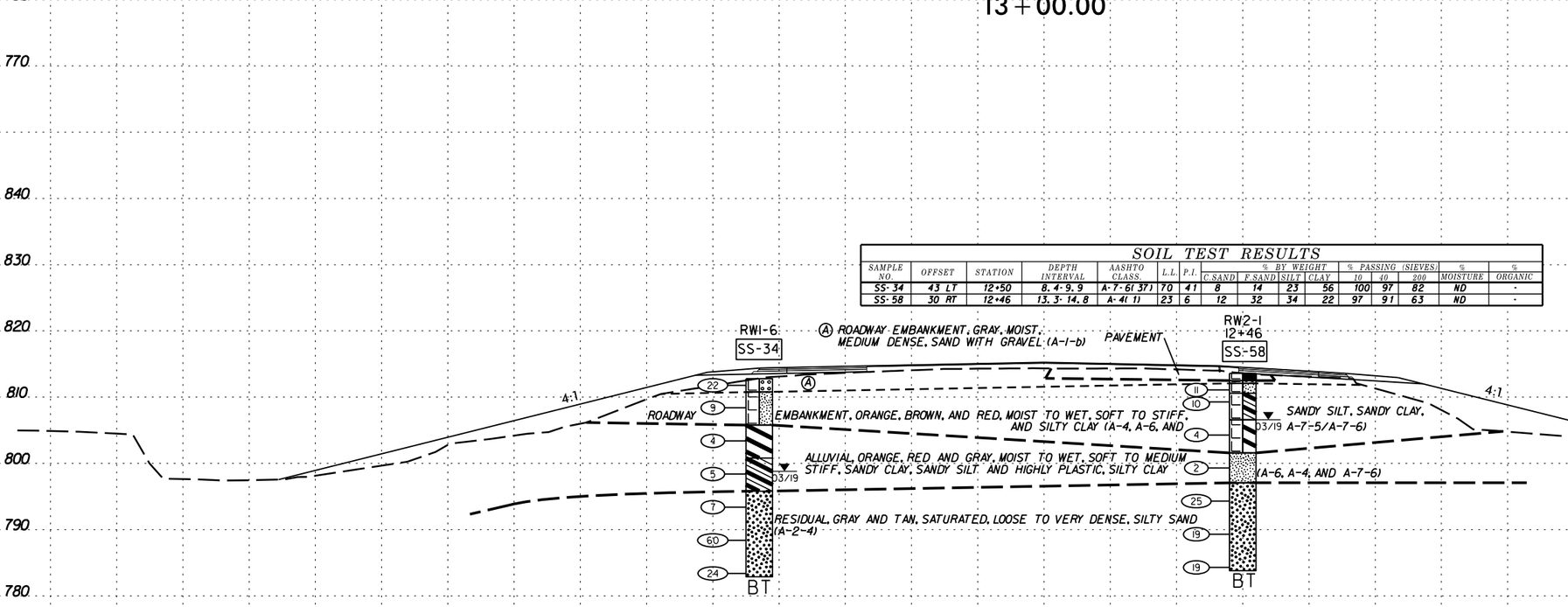
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-31	43 LT	13+00	13.3-14.8	A-4(1)	22	6	12	33	37	18	100	96	63	ND	-
SS-54	30 RT	12+97	3.4-4.9	A-7-5(14)	51	15	8	21	39	32	100	96	78	31.0	-



13+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-34	43 LT	12+50	8.4-9.9	A-7-6(37)	70	41	8	14	23	56	100	97	82	ND	-
SS-58	30 RT	12+46	13.3-14.8	A-4(1)	23	6	12	32	34	22	97	91	63	ND	-



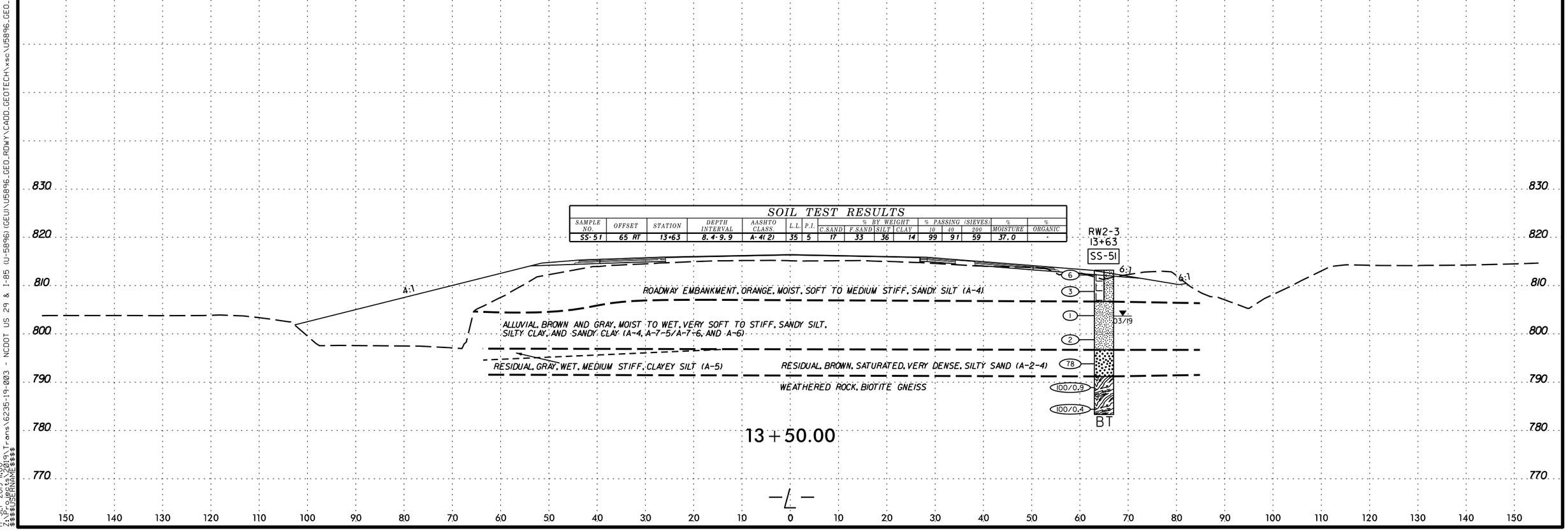
12+50.00

—L—

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	17

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-51	65 RT	13+63	8.4-9.9	A-4(2)	35	5	17	33	36	14	99	91	59	37.0	-



13+50.00

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6/23/16

17-SEP-2019 11:00
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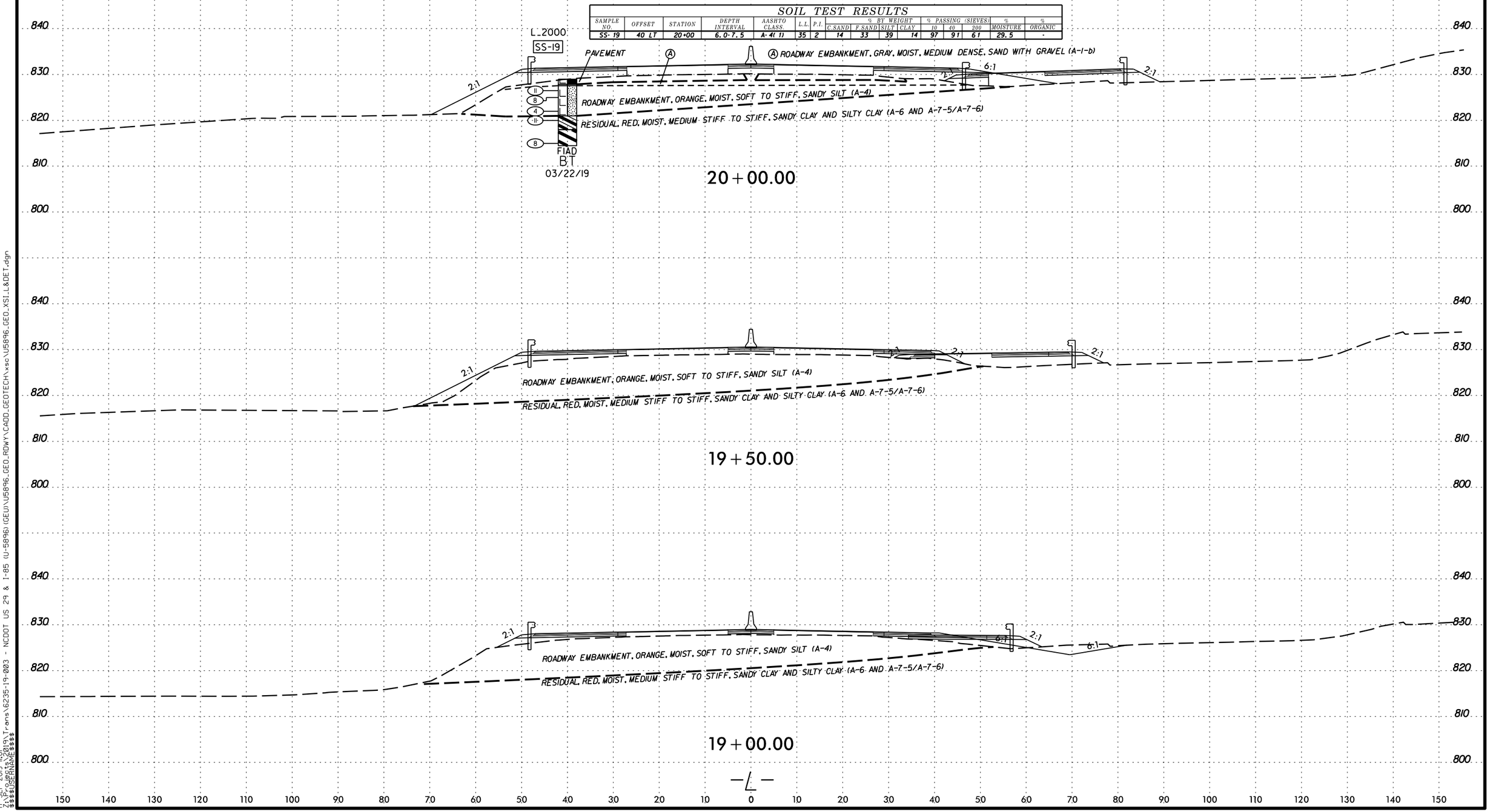
$$$$USERNAME$$$$

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-19	40 LT	20+00	6.0-7.5	A-4(1)	35	2	14	33	39	14	97	91	61	29.5	-



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	19

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

850 840 830 820 810 800

2:1 2:1 2:1 2:1

ROADWAY EMBANKMENT, ORANGE, BROWN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-6)

RESIDUAL, GRAY, BROWN AND ORANGE, MOIST TO WET, MED. STIFF TO HARD, SANDY SILT, SANDY CLAY AND SILTY CLAY (A-4, A-6, AND A-7-6)

WEATHERED ROCK, BIOTITE GNEISS

21+50.00

840 830 820 810

2:1 2:1 2:1 2:1

ROADWAY EMBANKMENT, ORANGE, MOIST, SOFT TO STIFF, SANDY SILT (A-4)

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY AND SILTY CLAY (A-6 AND A-7-6)

21+00.00

840 830 820 810

2:1 2:1 2:1

ROADWAY EMBANKMENT, ORANGE, MOIST, SOFT TO STIFF, SANDY SILT (A-4)

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY AND SILTY CLAY (A-6 AND A-7-6)

20+50.00

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

6/23/16

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	20

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

850
840
830
820
810
800

2:1
2:1
2:1
2:1

ROADWAY EMBANKMENT, ORANGE, BROWN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-6)

RESIDUAL, GRAY, BROWN AND ORANGE, MOIST TO WET, MED. STIFF TO HARD, SANDY SILT, SANDY CLAY AND SILTY CLAY (A-4, A-6, AND A-7-6)

WEATHERED ROCK, BIOTITE GNEISS

22+00.00

—L—

850
840
830
820
810
800

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

17-SEP-2019 11:01
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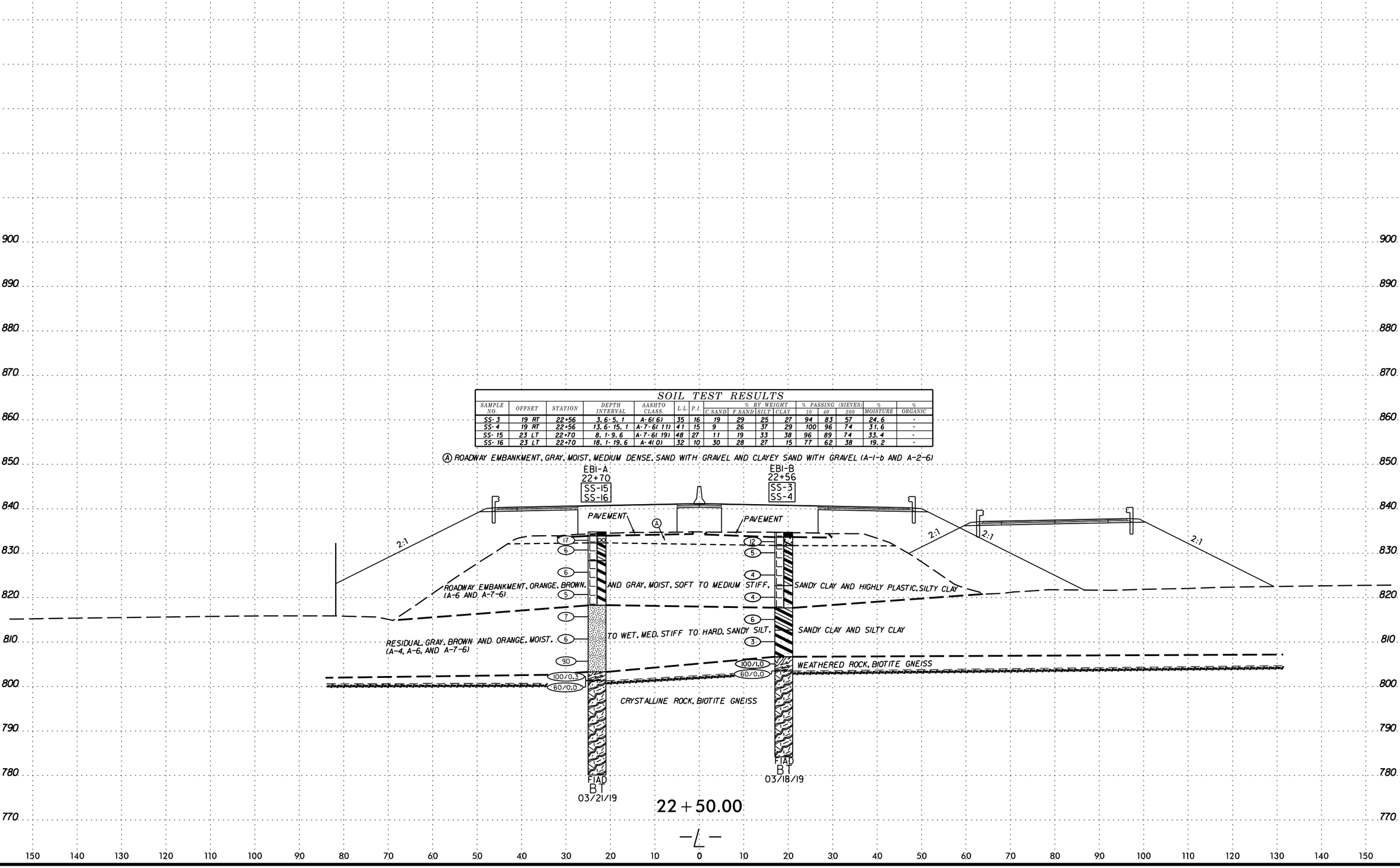
$$$$USERNAME$$$$

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-3	19 RT	22+56	3.6- 5.1	A-6(6)	35	16	19	29	25	27	94	83	57	24.6	-
SS-4	19 RT	22+56	13.6- 15.1	A-7-6(11)	41	15	9	26	37	29	100	96	74	31.6	-
SS-15	23 LT	22+70	8.1-9.6	A-7-6(19)	48	27	11	19	33	38	96	89	74	33.4	-
SS-16	23 LT	22+70	18.1-19.6	A-4(0)	32	10	30	28	27	15	77	62	38	19.2	-

Ⓐ ROADWAY EMBANKMENT, GRAY, MOIST, MEDIUM DENSE, SAND WITH GRAVEL AND CLAYEY SAND WITH GRAVEL (A-1-b AND A-2-6)



22+50.00

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PROJ. REFERENCE NO.	SHEET NO.
U-5896	22

0 5 10

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

860 850 840 830 820 810

2:1

ROADWAY EMBANKMENT, ORANGE, BROWN AND GRAY, MOIST, SOFT TO MED. STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-6)

RESIDUAL, ORANGE AND BROWN, MOIST TO WET, MED. STIFF TO STIFF, SANDY CLAY AND SILTY CLAY (A-6 AND A-7-5)

WEATHERED ROCK, BIOTITE GNEISS

25+00.00

880 870 860 850 840 830 820 810 800 790 780

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	21 RT	24+75	3.7-5.2	A-6(6)	36	14	16	31	35	18	97	88	60	20.1	-
SS-2	21 RT	24+75	18.7-20.2	A-7-5(6)	49	19	29	27	22	22	99	80	49	39.5	-
SS-13	22 LT	24+79	8.3-9.8	A-7-6(19)	50	29	12	19	29	41	94	87	71	38.6	-

EB2-A
SS-13
24+79

EB2-B
SS-1
SS-2
24+75

Ⓐ ROADWAY EMBANKMENT, GRAY AND ORANGE, MOIST, MEDIUM DENSE TO DENSE, SAND WITH GRAVEL (A-1-b)

2:1

ROADWAY EMBANKMENT.

ORANGE, BROWN, AND GRAY, MOIST, SOFT TO MED. STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-6)

RESIDUAL, ORANGE AND BROWN, MOIST TO WET, MED. STIFF TO STIFF

SANDY CLAY AND SILTY CLAY (A-6 AND A-7-5)

WEATHERED ROCK, BIOTITE GNEISS

CRYSTALLINE ROCK, BIOTITE GNEISS

Ⓐ 38 6 5 3 15 7 100/0.6 60/0.0

21 7 3 4 9 100/0.8 60/0.0

03/19

BT

24+50.00

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

6/23/16

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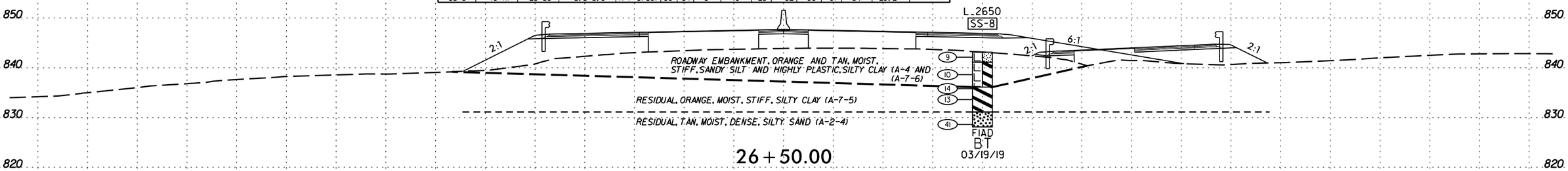
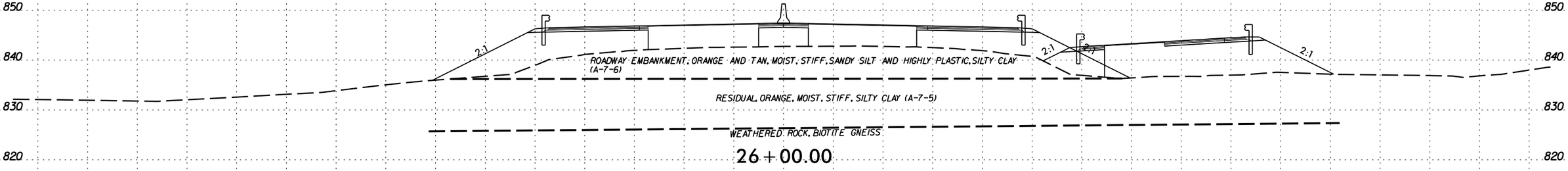
SOIL TEST RESULTS

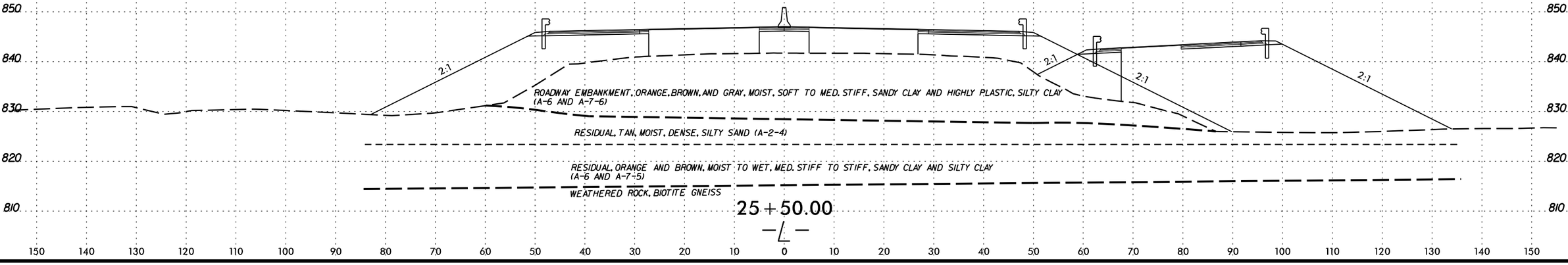
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-8	40 RT	26+50	3.5-5.0	A-7-6(30)	60	34	3	19	26	52	98	97	81	29.2	-



26+50.00



26+00.00



25+50.00

—L—

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	24

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

860 850 840 830

Ⓐ ARTIFICIAL FILL, ORANGE AND TAN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT (A-4)

2:1 4:1 6:1 6:1 4:1 2:1

28 + 50.00

860 850 840 830

L-2800 FIAD BT 06/11/19

Ⓐ ARTIFICIAL FILL, ORANGE AND TAN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

RESIDUAL, ORANGE AND TAN, MOIST, DENSE, SILTY SAND (A-2-4)

4:1 6:1 6:1

28 + 00.00

860 850 840 830

Ⓐ ARTIFICIAL FILL, ORANGE AND TAN, MOIST, MEDIUM STIFF, SANDY CLAY AND HIGHLY PLASTIC SILTY CLAY (A-6 AND A-7-6)

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-6)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT AND DENSE, SILTY SAND (A-2-4)

6:1 6:1 6:1 6:1

L-2750 FIAD BT 06/11/19

4:1 2:1

27 + 50.00

860 850 840 830

ROADWAY EMBANKMENT, ORANGE AND TAN, MOIST, STIFF, SANDY SILT AND HIGHLY PLASTIC SILTY CLAY (A-7-6)

2:1 6:1 6:1 4:1 2:1 2:1 4:1

RESIDUAL, ORANGE, MOIST, STIFF, SILTY CLAY (A-7-5)

RESIDUAL, TAN, MOIST, DENSE, SILTY SAND (A-2-4)

27 + 00.00

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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

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	25

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

850 840 830

6:1 6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

RESIDUAL, ORANGE AND TAN, MOIST, MED. STIFF TO STIFF, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY (A-7-6)

TAN, MOIST, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4)

30+00.00

860 850 840 830

2:1 4:1 6:1 6:1 6:1

ARTIFICIAL FILL, ORANGE AND TAN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF HIGHLY PLASTIC SILTY CLAY (A-7-6)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT (A-4)

29+50.00

870 860 850 840 830

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-124	70 LT	29+00	1.0-2.5	A-7-6(19)	49	28	14	19	29	38	98	89	70	24.2	-

L-2900
SS-124
6
14
17
16
FIAD
BT
03/19/19

2:1 4:1 6:1 6:1 6:1

(A) ARTIFICIAL FILL, ORANGE AND TAN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-6)

ROADWAY EMBANKMENT, ORANGE AND TAN MOIST, STIFF, SANDY SILT AND HIGHLY PLASTIC SILTY CLAY (A-7-6)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT (A-4)

29+00.00

—L—

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

APPROX. -RPA- STA. 15+50

℄ -RPA-

℄ -L-

6:1

4:1

6:1

6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

RESIDUAL, ORANGE AND TAN, MOIST, STIFF TO MEDIUM STIFF, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY (A-7-6)

RESIDUAL, TAN, MOIST, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4)

31+50.00

APPROX. -RPA- STA. 16+00

℄ -RPA-

6:1

6:1

6:1

6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

RESIDUAL, ORANGE AND TAN, MOIST, STIFF TO MEDIUM STIFF, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY (A-7-6)

RESIDUAL, TAN, MOIST, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4)

31+00.00

-L- & -RPA-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-74	44 LT	16+50	0.0-1.5	A-7-6(27)	60	37	14	15	24	47	98	89	73	25.6	-

RPA_1650
SS-74
30+31
8
6
12
15
51
FIAD
BT
03/26/19

6:1

6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

RESIDUAL, ORANGE AND TAN, MOIST, MED. STIFF TO STIFF, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY (A-4 AND A-7-6)

TAN, MOIST, MED. DENSE TO VERY DENSE, SILTY SAND (A-2-4)

30+50.00

-L-

℄ -L-

860 850 840 830 820 810 870

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

6/23/16

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200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

℄ -L-

APPROX. -RPA- STA. 14+50

℄ -RPA-

850 840 830 820

5.40:1 6:1 4:1 6:1 6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

ALLUVIAL, GRAY AND BROWN, MOIST, MEDIUM STIFF TO VERY STIFF SILTY CLAY WITH TRACE ORGANIC MATTER (A-7-5/A-7-6)

RESIDUAL, RED, MOIST, VERY STIFF, SANDY SILT (A-4)

32+50.00

860 850 840 830 820

APPROX. -RPA- STA. 15+00

℄ -RPA-

6:1 4:1 6:1 6:1

ROADWAY EMBANKMENT, ORANGE, MOIST, STIFF, SANDY CLAY (A-6)

ALLUVIAL, GRAY AND BROWN, MOIST, MEDIUM STIFF TO VERY STIFF SILTY CLAY WITH TRACE ORGANIC MATTER (A-7-5/A-7-6)

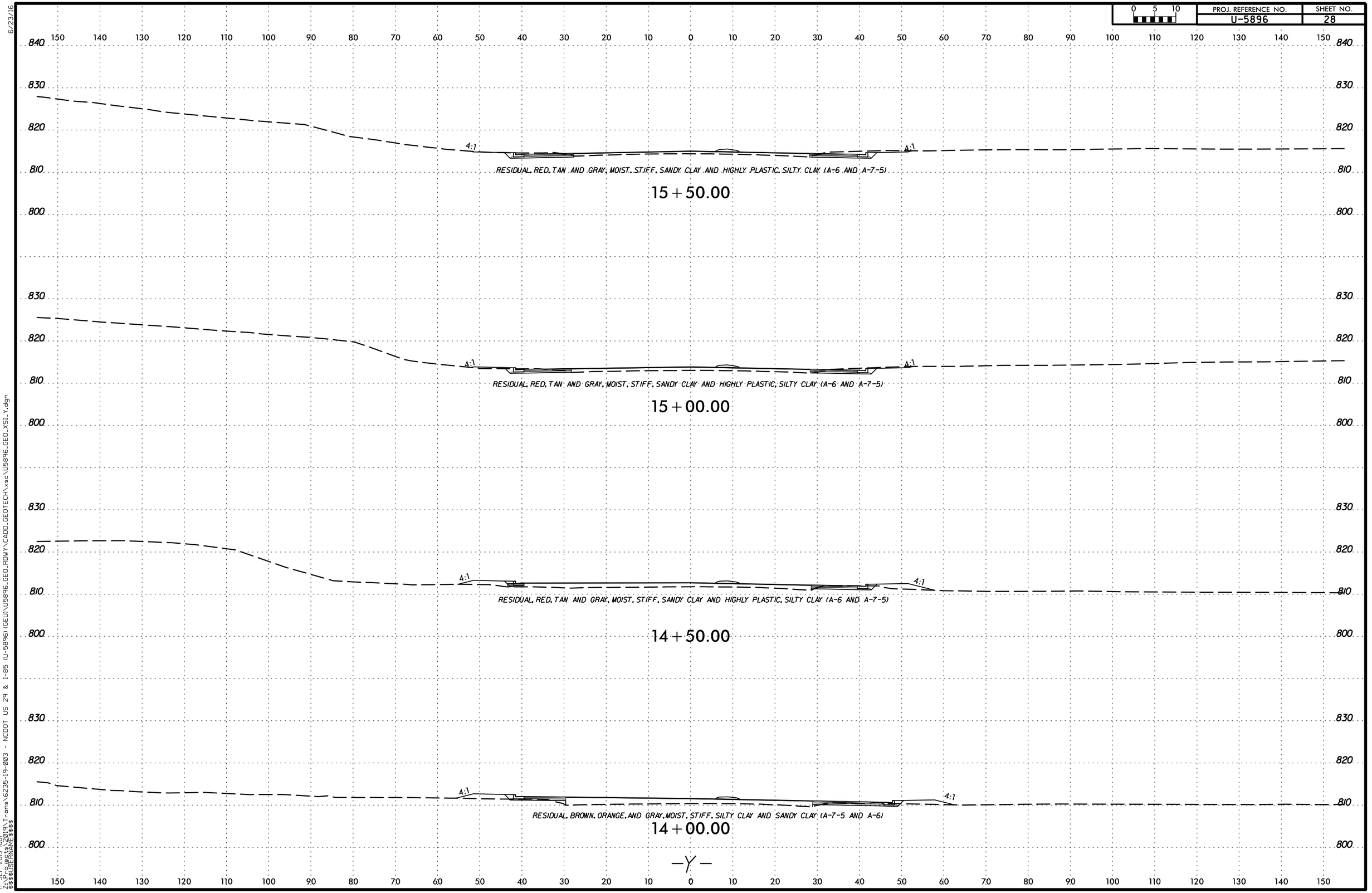
RESIDUAL, RED, MOIST, VERY STIFF, SANDY SILT (A-4)

32+00.00

-L-&-RPA-

℄ -L-

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



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

850 840 830 820 810

2:1

4:1

RESIDUAL. RED. TAN AND GRAY. MOIST. STIFF. SANDY CLAY AND HIGHLY PLASTIC. SILTY CLAY (A-6 AND A-7-5)

17+00.00

840 830 820 810

2:1

4:1

RESIDUAL. RED. TAN AND GRAY. MOIST. STIFF. SANDY CLAY AND HIGHLY PLASTIC. SILTY CLAY (A-6 AND A-7-5)

16+50.00

840 830 820 810

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	% BY WEIGHT F SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-167	CL	15+91	1.0-2.5	A-7-5(39)	72	37	4	11	30	55	99	97	89	39.0	-

Y-1591
15+91
SS-167

PAVEMENT

11
11
15
27
60/0.0

RESIDUAL. RED. TAN. AND GRAY. MOIST. STIFF. SANDY CLAY AND HIGHLY PLASTIC SILTY CLAY (A-6 AND A-7-5)

RESIDUAL. RED. TAN. AND WHITE. MOIST. MEDIUM DENSE. SILTY SAND (A-2-4)

CRYSTALLINE. ROCK. BIOTITE. GNEISS.

FIAD
BT
03/22/19

16+00.00

-Y-

790

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	30

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

850
840
830
820
810

2:1

4:1

RESIDUAL, GRAY, WHITE, AND RED, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY CLAY (A-6)

17+50.00

-Y-

6/23/16

17-SEP-2019 11:01
Z:\Projects\2019\Trans\6235-19-003 - NCDOT US 29 & I-85 (U-5896)\GEO\U5896_GEO_ROWY\CADD_GEOTECH\xsc\U5896_GEO_XSI_Y.dgn
$$$$USERNAME$$$$

RESIDUAL, ORANGE, MOIST, MEDIUM STIFF, HIGHLY PLASTIC SILTY CLAY (A-7-6)

RESIDUAL, TAN, MOIST, STIFF, SANDY SILT (A-4)

RESIDUAL, TAN, MOIST, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4)

2:1 4:1 6:1 6:1 4:1 2:1

17+00.00

RPA_I650

SS-74

8 6 12 15 51

FIAD

BT

03/26/19

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-74	44 LT	16+50	0.0-1.5	A-7-6(27)	60	37	14	15	24	47	98	89	73	25.6	-

RESIDUAL, ORANGE, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-6)

RESIDUAL, TAN, MOIST, STIFF, SANDY SILT (A-4)

RESIDUAL, TAN, MOIST, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4)

6:1 4:1 6:1 2:1

16+50.00

RESIDUAL, ORANGE, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-6)

RESIDUAL, TAN, MOIST, STIFF, SANDY SILT (A-4)

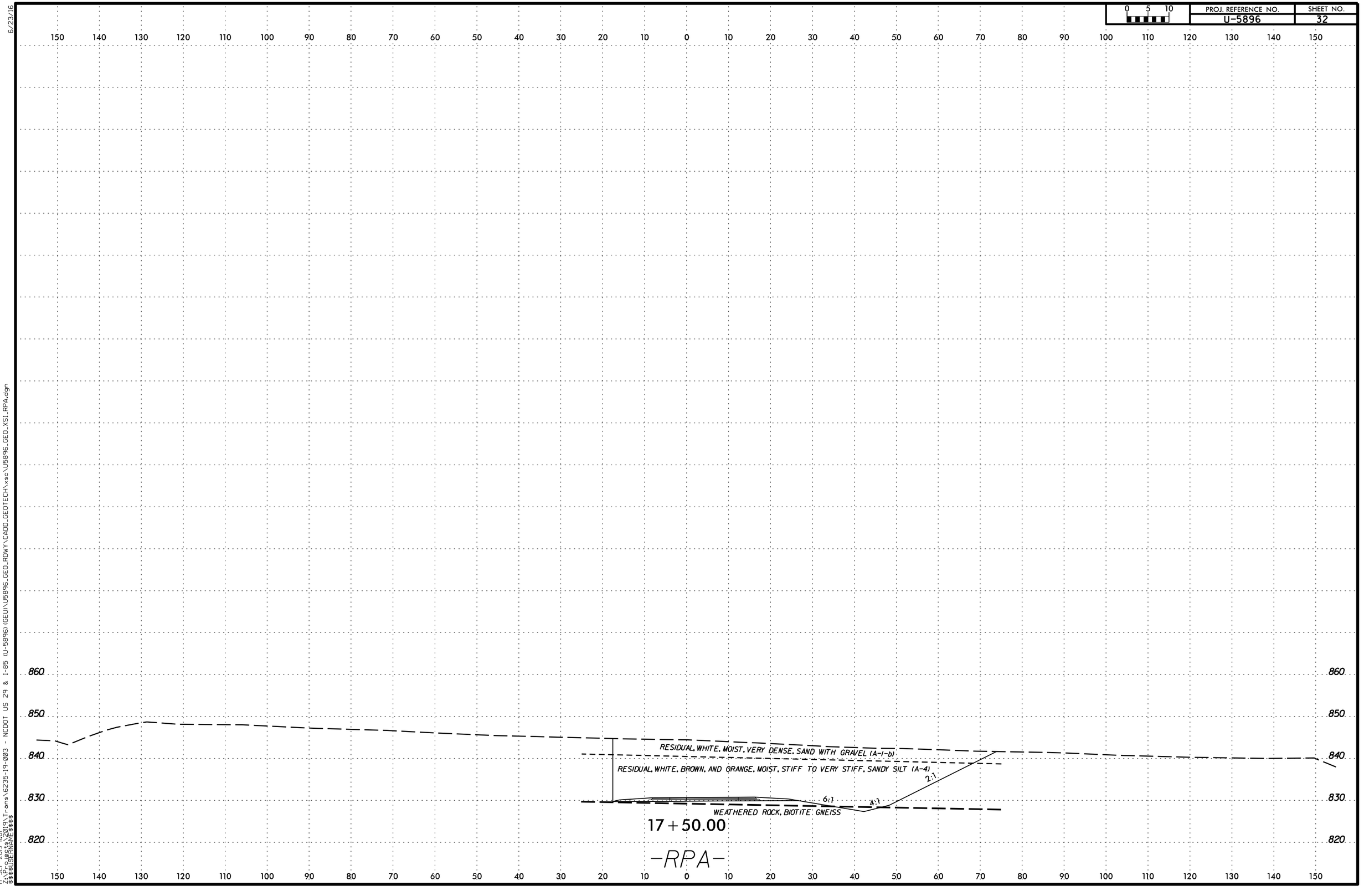
RESIDUAL, TAN, MOIST, MEDIUM DENSE TO VERY DENSE, SILTY SAND (A-2-4)

6:1 4:1 4:1

16+00.00

-RPA-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	32



6/23/16

17-SEP-2019 11:01
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$$$$USERNAME$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	33

18+00.00

ROADWAY EMBANKMENT, GRAY AND BROWN, MOIST, LOOSE, SILTY SAND (A-2-4)

RESIDUAL, ORANGE AND TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

17+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	% BY WEIGHT F SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-131	50 RT	17+50	3.8-5.3	A-7-5(29)	58	27	2	13	42	43	99	98	90	40.6	-

PAVEMENT

RPC_1750

SS-131

8 / 9 / 11 / 19 / 100/0.9 / 73

ROADWAY EMBANKMENT, GRAY AND BROWN, MOIST, LOOSE, SILTY SAND (A-2-4)

RESIDUAL, ORANGE AND TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

RESIDUAL, BROWN AND GRAY, MOIST, VERY DENSE, SILTY SAND (A-2-4)

FIAD

BT

03/20/19

17+00.00

ROADWAY EMBANKMENT, GRAY AND BROWN, MOIST, LOOSE, SILTY SAND (A-2-4)

RESIDUAL, ORANGE AND TAN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

RESIDUAL, ORANGE AND TAN, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

16+50.00

RESIDUAL, GRAY AND BROWN, MOIST, VERY DENSE, SILTY SAND AND SAND WITH GRAVEL (A-2-4 AND A-1-b)

WEATHERED ROCK, BIOTITE GNEISS

-RPC-

17-SEP-2019 11:01
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$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	34

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

850 840 830 820 810

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

19 + 50.00

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

19 + 00.00

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

18 + 50.00

-RPC-

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

6/23/16

17-SEP-2019 11:01
Z:\Projects\2019\Trans\6235-19-003 - NCDOT US 29 & I-85 (U-5896)(GEU)\U5896_GEO_RDWY\CADD_GEOTECH\xsc\U5896_GEO_XSI_RPC.dgn
$$$$USERNAME$$$$

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

850 840 830 820

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5/A-7-6)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

21+00.00

870 860 850

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	F SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-134	CL	20+50	1.0-2.5	A-7-6(30)	61	36	9	13	25	53	97	91	79	30.4	-
SS-135	CL	20+50	3.7-5.2	A-7-5(32)	72	39	5	9	29	58	83	80	75	36.9	-

RPC_2050

SS-134
SS-135

8 12 10 11 21 100/0.9 60/0.0

03/19

FIAD

BT
03/20/19

PAVEMENT

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5/A-7-6)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

CRYSTALLINE ROCK, BIOTITE GNEISS

20+50.00

850 840 830 820 810

RESIDUAL, RED, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY (A-7-5/A-7-6)

2:1 4:1 4:1 6:1 4:1 2:1

RESIDUAL, GRAY, MOIST, MEDIUM DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

20+00.00

-RPC-

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

6/23/16

17-SEP-2019 11:01
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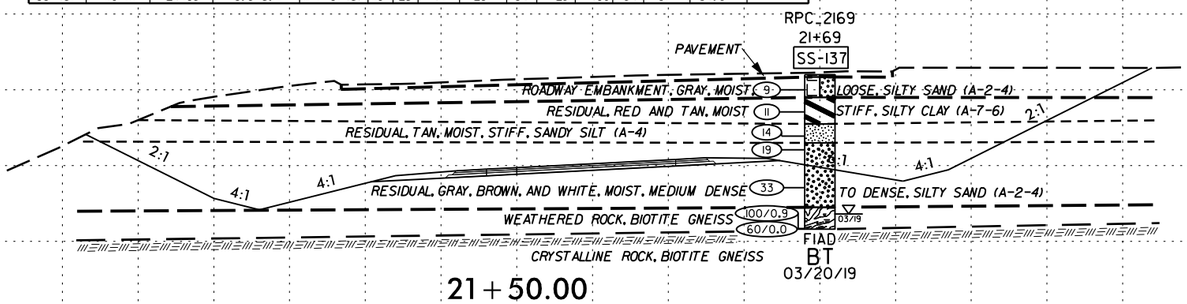
$$$$USERNAME$$$$

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	F SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-137	40 RT	21+69	3.9-5.4	A-7-6(15)	49	23	14	26	31	29	100	91	67	31.9	-



21+50.00

-RPC-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	37

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

860
850
840
830

4:1 RESIDUAL, BROWN, RED, AND GRAY, MOIST, STIFF TO HARD, SANDY CLAY (A-6)
4:1 4:1 2:1
RESIDUAL, BLACK, WHITE AND ORANGE, SAT., VERY DENSE, SILTY SAND (A-2-4)

17+50.00

860
850
840
830
820

4:1 RESIDUAL, ORANGE, RED AND BLACK, MOIST, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-5/A-7-6)
4:1
RESIDUAL, BLACK, WHITE AND ORANGE, SAT., VERY DENSE, SILTY SAND (A-2-4)

17+00.00

860
850
840
830
820

4:1 RESIDUAL, ORANGE, RED AND BLACK, MOIST, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY (A-6 AND A-7-5/A-7-6)
4:1
RESIDUAL, BLACK, WHITE AND ORANGE, SAT., VERY DENSE, SILTY SAND (A-2-4)

16+50.00

-RPD-

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

6/23/16

17-SEP-2019 11:01
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$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5896	38

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

840 830 820 810

RESIDUAL, TAN, MOIST, VERY DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

2:1 4:1 6:1 4:1 2:1

CRYSTALLINE ROCK, BIOTITE GNEISS

25+50.00

840 830 820

WEATHERED ROCK, BIOTITE GNEISS

RESIDUAL, TAN, MOIST, VERY DENSE, SILTY SAND (A-2-4)

2:1 4:1 6:1 4:1 2:1

CRYSTALLINE ROCK, BIOTITE GNEISS

25+00.00

850 840 830 820

RPD_2450 RPD_2443 24+43

RESIDUAL, TAN, MOIST, VERY DENSE, SILTY SAND (A-2-4)

WEATHERED ROCK, BIOTITE GNEISS

2:1 4:1 86 92 6:1 100/0.4 4:1 4:1 2:1

FIAD AR 03/21/19 FIAD AR 03/21/19

CRYSTALLINE ROCK, BIOTITE GNEISS

24+50.00

850 840 830 820

WEATHERED ROCK, BIOTITE GNEISS

RESIDUAL, TAN, MOIST, VERY DENSE, SILTY SAND (A-2-4)

2:1 4:1 6:1 4:1 2:1

CRYSTALLINE ROCK, BIOTITE GNEISS

24+00.00

-RPD-

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

6/23/16

19-SEP-2019 10:54
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$$$$USERNAME$$$$

SUMMARY OF LABORATORY TEST DATA

Soil Classification and Gradation

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

S&ME Project #: 6235-19-003 — Date Report: 4/16/2019

State Project No.: 44674.1.2 — County: Guilford County — Date Tested: 4/3/19-4/16/19

Federal ID No.: NHP-0029(068) — TIP No.: U-5896

Project Name: US 29, US 70 and South Main St. (SR 1009 and US 311 Business)

Client Name: NCDOT GEU — Client Address: Raleigh, NC

Sample No.	Boring No.	Station No.	Offset	Alignment	Sample Depth (ft)	AASHTO Classification		Total % Passing Sieve #				Total Mortar Fraction (%)				LL	PL	PI	Organic	Moist. %
								10	40	60	200	Coarse Sand	Fine Sand	Silt	Clay					
SS-1	EB2-B	24+75	21 RT	-L-	3.7 - 5.2	A-6	(6)	97	88	82	60	16	31	35	18	36	22	14	-	20.1
SS-2	EB2-B	24+75	21 RT	-L-	18.7 - 20.2	A-7-5	(6)	99	80	70	49	29	27	22	22	49	30	19	-	39.5
SS-3	EB1-B	22+56	19 RT	-L-	3.6 - 5.1	A-6	(6)	94	83	77	57	19	29	25	27	35	19	16	-	24.6
SS-4	EB1-B	22+56	19 RT	-L-	13.6 - 15.1	A-7-6	(11)	100	96	91	74	9	26	37	29	41	26	15	-	31.6
SS-8	L_2650	26+50	40RT	-L-	3.5 - 5.0	A-7-6	(30)	98	97	95	81	3	19	26	52	60	26	34	-	29.2
SS-10	RPD_1200	12+00	CL	-RPD-	3.3 - 4.8	A-4	(4)	100	93	87	71	13	28	52	7	32	26	6	-	11.4
SS-11	L_4200	42+00	38 RT	-L-	3.4 - 4.9	A-2-4	(0)	87	64	53	34	39	30	26	6	22	19	3	-	3.4
SS-13	EB2-A	24+79	22 LT	-L-	8.3 - 9.8	A-7-6	(19)	94	87	83	71	12	19	29	41	50	21	29	-	38.6
SS-15	EB1-A	22+70	23 LT	-L-	8.1 - 9.6	A-7-6	(19)	96	89	86	74	11	19	33	38	48	21	27	-	33.4
SS-16	EB1-A	22+70	23 LT	-L-	18.1 - 19.6	A-4	(0)	77	62	54	38	30	28	27	15	32	22	10	-	19.2
SS-19	L_2000	20+00	40 LT	-L-	6.0 - 7.5	A-4	(1)	97	91	83	61	14	33	39	14	35	33	2	-	29.5
SS-20	RPB_1400	14+00	CL	-RPB-	3.3 - 4.8	A-6	(3)	92	80	71	51	22	30	32	16	32	21	11	-	16.3
SS-22	RW1-11	15+00	53 LT	-L-	3.4 - 4.9	A-7-5	(12)	100	96	92	76	9	25	46	20	49	36	13	-	29
SS-25	RW1-10	14+50	48 LT	-L-	0.9 - 2.4	A-4	(3)	95	84	77	60	19	25	34	22	33	26	7	-	19.7
SS-31	RW1-7	13+00	43 LT	-L-	13.3 - 14.8	A-4	(1)	100	96	88	63	12	33	37	18	22	16	6	-	ND
SS-34	RW1-6	12+50	43 LT	-L-	8.4 - 9.9	A-7-6	(37)	100	97	92	82	8	14	23	56	70	29	41	-	ND
SS-37	RW1-4	11+50	43 LT	-L-	3.4 - 4.9	A-7-5	(12)	98	94	90	77	8	20	36	36	48	35	13	-	36.4
SS-45	RW1-1	10+00	40 LT	-L-	8.4 - 9.9	A-7-6	(17)	98	94	90	78	8	16	31	45	47	26	21	-	ND
SS-49	RPC_1425	14+25	10 RT	-RPC-	9.1 - 10.6	A-4	(1)	80	69	64	49	20	25	34	21	28	21	7	-	25
SS-51	RW2-3	13+63	65 RT	-L-	8.4 - 9.9	A-4	(2)	99	91	82	59	17	33	36	14	35	30	5	-	37
SS-54	RW2-2	12+97	30 RT	-L-	3.4 - 4.9	A-7-5	(14)	100	96	92	78	8	21	39	32	51	36	15	-	31
SS-58	RW2-1	12+46	30 RT	-L-	13.3 - 14.8	A-4	(1)	97	91	85	63	12	32	34	22	23	17	6	-	ND
SS-60	L_993	9+93	33 RT	-L-	3.3 - 4.8	A-5	(10)	100	97	92	76	8	23	40	29	48	38	10	-	37.9
SS-64	L_3900	39+00	50 LT	-L-	3.6 - 5.1	A-7-6	(11)	98	94	89	66	9	31	34	25	41	22	19	-	28
SS-65	L_803	8+03	29 RT	-L-	6.4 - 7.9	A-5	(7)	100	94	90	73	10	25	47	18	44	37	7	-	38
SS-66	RPA_1200	12+00	27 RT	-RPA-	3.6 - 5.1	A-4	(0)	99	96	90	51	10	50	29	12	31	27	4	-	17.9
SS-68	RPA_1400	14+00	27 RT	-RPA-	6.5 - 8.0	A-7-6	(11)	99	89	84	68	16	21	27	36	43	26	17	4.5	26.7
SS-69	Y_1120	11+20	CL	-Y-	3.3 - 4.8	A-7-6	(22)	99	91	87	74	12	17	24	47	55	26	29	-	21.3
SS-70	Y_1200	12+00	CL	-Y-	3.0 -4.5	A-7-6	(12)	98	90	85	67	14	23	27	36	43	24	19	-	22.9
SS-71	RPB_2071	20+71	5 LT	-RPB-	0.4 - 1.9	A-7-6	(12)	100	93	89	72	11	25	35	29	45	29	16	-	35.9
SS-74	RPA_1650	16+50	44 LT	-RPA-	0 - 1.5	A-7-6	(27)	98	89	85	73	14	15	24	47	60	23	37	-	25.6
SS-101	RPB_1517	15+17	CL	-RPB-	1.0 - 2.5	A-6	(8)	88	79	74	59	16	24	39	22	40	23	17	-	ND
SS-105	RPB_1750	17+50	20 RT	-RPB-	1.0 - 2.5	A-4	(1)	74	59	53	38	29	25	23	23	31	21	10	-	ND
SS-109	RPB_1900	19+00	40 RT	-RPB-	1.0 - 2.5	A-7-6	(9)	78	69	64	54	17	18	29	36	45	23	22	-	24.6
SS-111	RPA_2300	23+00	50 LT	-RPA-	1.0 - 2.5	A-2-4	(0)	100	76	58	28	42	36	17	6	NP	NP	NP	-	ND
SS-114	RPA_2150	21+50	35 LT	-RPA-	7.1 - 8.6	A-5	(10)	100	99	97	85	3	26	51	21	48	40	8	-	ND
SS-118	RPA_2000	20+00	35 LT	-RPA-	6.9 - 8.4	A-7-6	(18)	98	91	86	72	12	20	30	39	52	27	25	-	ND

SUMMARY OF LABORATORY TEST DATA

Soil Classification and Gradation

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

S&ME Project #: 6235-19-003 — Date Report: 4/16/2019

State Project No.: 44674.1.2 — County: Guilford County — Date Tested: 4/3/19-4/16/19

Federal ID No.: NHP-0029(068) — TIP No.: U-5896

Project Name: US 29, US 70 and South Main St. (SR 1009 and US 311 Business)

Client Name: NCDOT GEU — Client Address: Raleigh, NC

Sample No.	Boring No.	Station No.	Offset	Alignment	Sample Depth (ft)	AASHTO Classification		Total % Passing Sieve #				Total Mortar Fraction (%)				LL	PL	PI	Organic	Moist. %
								10	40	60	200	Coarse Sand	Fine Sand	Silt	Clay					
SS-119	RPA_2000	20+00	35 LT	-RPA-	14.4 - 15.9	A-4	(4)	100	94	89	65	11	35	41	12	40	34	6	-	31.3
SS-121	RPA_1800	18+00	50 RT	-RPA-	4.0 - 5.5	A-4	(0)	82	64	56	37	31	32	22	15	31	22	9	-	18.6
SS-124	L_2900	29+00	70 LT	-L-	1.0 - 2.5	A-7-6	(19)	98	89	84	70	14	19	29	38	49	21	28	-	24.2
SS-127	RPC_2350	23+50	CL	-RPC-	3.5 - 5.0	A-7-6	(8)	75	66	61	51	18	18	30	33	49	28	21	-	ND
SS-128	RPC_2350	23+50	CL	-RPC-	6.2 - 7.7	A-6	(10)	94	84	76	59	19	24	24	33	37	15	22	5.1	26.8
SS-130	RPC_1600	16+00	40 RT	-RPC-	1.0 - 2.5	A-2-4	(0)	82	56	48	32	41	26	25	9	26	20	6	-	27.6
SS-131	RPC_1750	17+50	50 RT	-RPC-	3.8 - 5.3	A-7-5	(29)	99	98	97	90	2	13	42	43	58	31	27	-	40.6
SS-134	RPC_2050	20+50	CL	-RPC-	1.0 - 2.5	A-7-6	(30)	97	91	88	79	9	13	25	53	61	25	36	-	30.4
SS-135	RPC_2050	20+50	CL	-RPC-	3.7 - 5.2	A-7-5	(32)	83	80	79	75	5	9	29	58	72	33	39	-	36.9
SS-137	RPC_2169	21+69	40 RT	-RPC-	3.9 - 5.4	A-7-6	(15)	100	91	86	67	14	26	31	29	49	26	23	-	31.9
SS-142	RPD_2184	21+84	31 LT	-RPD-	7.0 - 8.5	A-7-5	(21)	100	100	99	88	1	19	51	29	57	39	18	-	39.3
SS-145	RPD_2000	20+00	60 LT	-RPD-	3.9 - 5.4	A-7-6	(13)	96	93	92	85	4	17	60	19	42	29	13	-	18
SS-149	RPD_1797	17+97	34 LT	-RPD-	1.0 - 2.5	A-6	(7)	100	90	79	57	21	30	29	21	38	20	18	-	ND
SS-152	RPD_1600	16+00	43 RT	-RPD-	3.7 - 5.2	A-7-5	(54)	100	98	96	90	4	9	24	63	85	34	51	-	ND
SS-155	RPD_1400	14+00	50 LT	-RPD-	8.7 - 10.2	A-4	(0)	96	87	77	40	20	48	24	8	34	32	2	-	ND
SS-157	Y_2550	25+50	CL	-Y-	1.2 - 2.7	A-2-4	(0)	99	78	64	35	35	37	20	8	27	23	4	-	16
SS-160	Y_2300	23+00	CL	-Y-	3.9 - 5.4	A-6	(3)	86	68	62	43	28	29	22	21	35	18	17	-	21.2
SS-161	Y_1980	19+80	CL	-Y-	1.3 - 2.8	A-7-6	(19)	98	89	84	70	14	19	23	43	50	21	29	-	21.5
SS-166	Y_1800	18+00	CL	-Y-	6.8 - 8.3	A-6	(8)	91	79	75	60	18	23	32	27	39	22	17	-	ND
SS-167	Y_1591	15+91	CL	-Y-	1.0 - 2.5	A-7-5	(39)	99	97	95	89	4	11	30	55	72	35	37	-	39

References / Comments / Deviations: ND=Not Detemined.

AASHTO T88: Particle Size Analysis of Soils as Modified by the NCDOT

AASHTO T89: Determining the Liquid Limit of Soils

AASHTO T90: Determining the Plastic Limit & Plasticity Index of Soils

AASHTO T265: Laboratory Determination of Moisture Content of Soils

AASHTO M145: The Classification of Soils and Soil Aggregate Mixtures for Highway Construction Purposes

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