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REFERENCE: U-5796

PROJECT: 54039

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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-Y8-	13+00 TO 39+35	6,8-9	13-15
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *WAYNE*

PROJECT DESCRIPTION *DIVISION 4 – US 117 AND SR 1120 (O'BERRY ROAD) INTERCHANGE*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5796	1	97

CAUTION NOTICE

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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.

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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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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-5796	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 SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- 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] ACKER RENEGADE
- [X] D-50 (TER346)

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2⅝ " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [X] 3¼" HSA
- [X] TRICONE 3⅞" STEEL TEETH

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] 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: SEE NOTE

ELEVATION: N/A FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

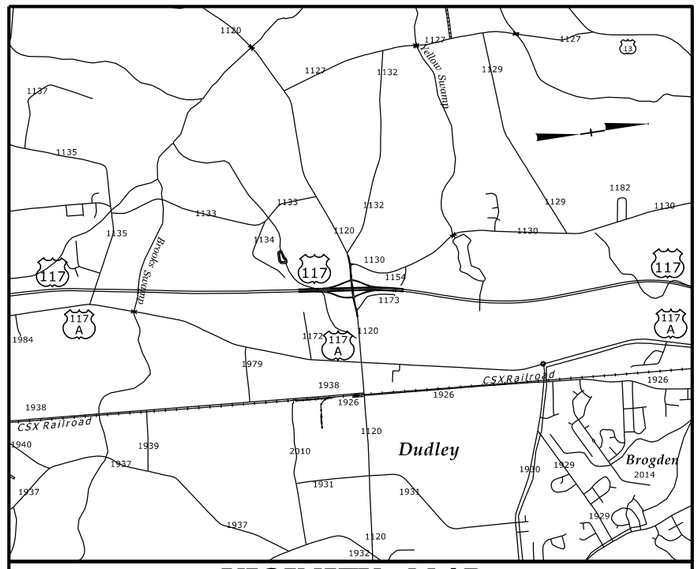
PROJECT WAS DRAFTED USING NCDOT PROVIDED TIN FILE
FILE: W5204-A_LS_tnl (DATED 02/05/2013)

DATE: 8-15-14

HP45100

TIP PROJECT: U-5796

CONTRACT:



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

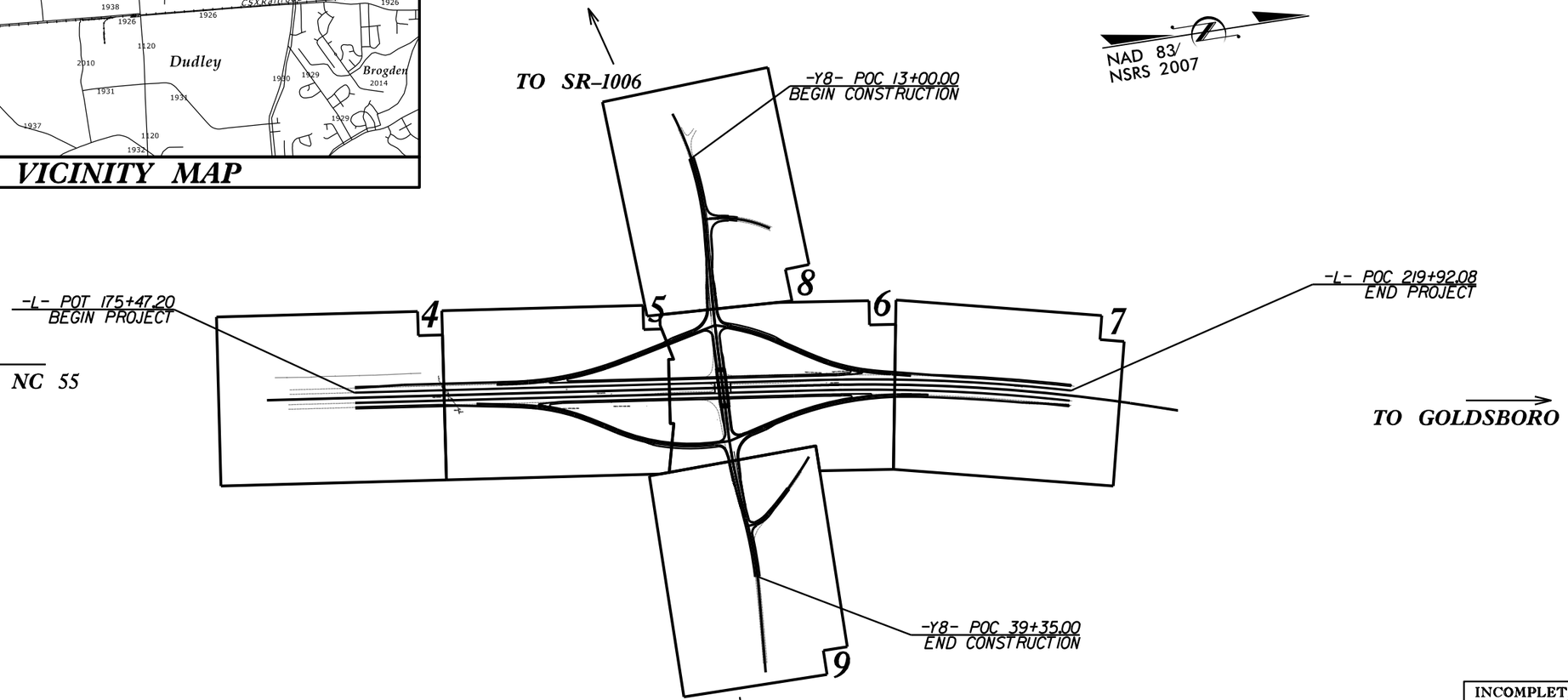
WAYNE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5796	3	97

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
54039.1.FD1		PE

LOCATION: US-117 & SR-1120 INTERCHANGE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE.



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2012 = 12,600
ADT 2035 = 24,700
K = 8 %
D = 55 %
T = 13 % *
V = 70 MPH

* TTST 8% DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5796 = 0.842

TOTAL LENGTH TIP PROJECT U-5796 = 0.842

Prepared In the Office of:
DIVISION OF HIGHWAYS
Division 4 DDC
509 Ward Blvd., Wilson NC, 27895

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 2016

LETTING DATE: June 20, 2017

TIM LITTLE, PE
PROJECT ENGINEER

D.R. ETHRIDGE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY DESIGN ENGINEER P.E.

03-MAR-2017 08:35
N:\Projects\2015\55190\U5796\U5796_GEO_RDWY_WAYNE\CADD_GEOTECH\PlanProf\U5796_RDY_TSH.dgn
wdfields AT WBG-70013825

Date: March 2017
WBS Number: 54039
TIP Number: U-5796
County: Wayne
Description: US 117 and SR 1120 (O' Berry Road) Interchange Improvements

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located along the existing US 117 corridor between Goldsboro and Mt. Olive in Wayne County. On US 117 (-L-), the project begins approximately 0.4 miles south of the existing at-grade intersection and continues north along US 117 for approximately 0.9 miles. On SR 1120 (-Y8-), the project begins approximately 0.25 miles east of the existing intersection and continues east for approximately 0.5 miles. The -Y8- alignment will pass over the -L- alignment on a new proposed two span bridge. The -L- alignment will stay at existing grades and pavements will be widened on the inside and outside shoulders. The project corridor is in a rural setting and much of the surrounding land is undeveloped.

The geotechnical subsurface investigation was performed from February through March of 2016. Standard penetration test (SPT) borings were advanced using a Diedrich D-50 and an Acker Renegade rotary drill rig equipped with recently calibrated automatic hammers. Borings were advanced utilizing wash boring and hollow stem auger drilling techniques to the necessary depths. In addition to soil test borings performed along the corridor, a Pagani TG73-200 rig was utilized to perform four cone penetrometer (CPT) soundings. Supplemental hand auger borings were performed along the -L-, -Y8-, -Y10- and -Y12- alignments during October 2016. Two Shelby tube samples were taken near the proposed bridge structures for consolidation testing. Representative soil samples were collected in the field for visual classification and selected samples were submitted for laboratory analysis by Terracon's soil testing laboratory. Laboratory testing was performed in accordance with the AASHTO Soil Classification System.

The following alignments were investigated by soil testing and visual reconnaissance:

Alignment	Stations
-L-	174+47 to 219+92
-RAMP A-	0+00 to 12+66
-RAMP B-	0+00 to 14+17
-RAMP C-	0+00 to 16+09
-RAMP D-	0+00 to 12+84
-Y8-	13+00 to 39+35
-Y10-	10+00 to 14+11
-Y12-	10+00 to 12+00

Physiography and Geology

The site is located within the Inner Coastal Plain Physiographic and Geologic Province of North Carolina in Wayne County. The Coastal Plain Province is characterized by subdued topographic features. The existing elevations along the investigated corridor range from approximately 162 feet to 171 feet. In general, the topography at this site is slightly rolling with gentle slopes.

The project is located in the Inner Coastal Plain Physiographic Province with geology consisting of a wedge of unconsolidated sands, silt, marl, and other clays interbedded with occasional limestone strata, which rests atop crystalline basement rocks. Based on previous mapping (N.C. Geologic Map 1985) and our knowledge of the local geology, the site falls within the Cretaceous age Black Creek Formation. However, based on our site visit and subsurface conditions encountered, the near surface soils appear to be recent Coastal Plain deposits of alluvial origin and are consistent with interbedded sands, clayey sands and clays typical of Undivided Coastal Plain soils. These near surface soils overlie the denser, darker soils belonging to the Black Creek Formation. The Black Creek Formation soils are described as gray to black lignitic clay with thin beds and laminae of fine-grained micaceous sand and thick lenses of cross-bedded sand. Glauconitic, fossiliferous clayey sand lenses are common in the upper part.

Soil Properties

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

Roadway Embankment soils were encountered at the following approximate locations:

Alignment	Stations
-L-	176+50 to 184+70
-L-	207+00 to 209+20
-RAMP A-	0+90 to 3+00
-RAMP C-	0+00 to 1+75
-Y8-	13+00 to 17+50
-Y10-	11+00 to 14+11
-Y12-	10+00 to 12+00

Roadway embankment soils were encountered along the -L- alignment at the beginning of the project, along the -Y8- alignment near the intersections of -Y10- and -Y12- and at proposed -RAMP A- and -RAMP C- alignments adjacent to the existing US 117 corridor. The roadway embankment soils on -RAMP A- appear to be reworked in-place Undivided Coastal Plain soils measuring less than a foot thick beneath the existing asphalt pavement sections. The remaining fill depths extend to at least 3 to 4 feet beneath the ground surface or to termination depths of the borings. The roadway embankment soils consist of slightly to

moderately plastic medium stiff, dry to moist, silty clay (A-7-6), sandy clay (A-6), sandy silt (A-4) and loose, moist, silty to clayey sands (A-2-4 and A-2-6).

Undivided Coastal Plain deposits are present at the surface and beneath the roadway embankment soils and asphalt pavement sections. The Undivided Coastal Plain soils can be generalized as alternating layers of clay and sand extending to the maximum depths of exploration or to the surface of the underlying Black Creek Formation. The near surface layer of soil deposits along -Y8- and -Y10- consists of 8 to 38 feet of very soft to hard, moist to saturated, sandy clays (A-6), high plasticity silty clays (A-7-6) and sandy silts (A-4).These soils were underlain by alternating layers of very loose to medium dense, moist to saturated, silty sand (A-2-4), clayey sand (A-2-6) and very soft to hard, wet, sandy clays (A-6) and high plasticity silty clays (A-7-6).

The Undivided Coastal Plain deposits along the -L- and -RAMP- alignments consists of soft to stiff, dry to saturated, sandy to silty clay (A-6 and A-7-6), very loose to loose, moist to saturated, fine sand (A-3) and silty to clayey sand (A-2-4 and A-2-6) extending to the maximum depths of exploration. Very loose, moist to saturated, silty to clayey sands (A-2-4, A-2-6) and soft, wet, sandy clays (A-6) were encountered between approximately Stations 3+50 and 12+66 along –RAMP A- extending to depths 1.5 to 2.5 feet beneath the ground surface. Very loose, moist to saturated, silty to clayey sands (A-2-4, A-2-6) and very soft to soft, wet, sandy to silty clays (A-6 and A-7-6) were encountered between approximately Stations 4+00 and 14+17 along –RAMP B- extending to depths 2.5 to 6 feet beneath the ground surface. The near surface layer of deposits along the -RAMP C- alignment between approximately Stations 5+00 and 16+09 consists of soft, wet, sandy to silty clay (A-6 and A-7-6) extending to depths of about 2.5 to 5.0 feet. The near surface deposits along the –RAMP D- alignment between approximately Stations 5+00 and 12+84 consists of soft, moist to wet, highly plastic silty clay (A-7-6) with areas of very loose, moist to wet, clayey sands (A-2-6) to depths of about 2.5 to 8.5 feet beneath the surface. The clayey sand (A-2-6), sandy silt (A-4), sandy clay (A-6) and silty clay (A-7-6) soils, encountered within the upper 6 feet of existing grade along the -L- and -RAMP- alignments, were tested in our laboratory. These soils exhibited plastic indices of 8 to 36 percent and are considered to be slightly to highly plastic soils. These soils also had between 21 and 63 percent fines passing the No. 200 sieve.

Formational soils of the Black Creek Formation were encountered in the deep borings along the -Y8- alignment as high as elevation 114 feet. These soils are characterized by their black to gray color and consist of layers of loose to very dense, saturated, silty to clayey sands (A-2-4 and A-2-6) and very stiff to hard, wet, sandy to silty clays (A-6 and A-7-6).

Groundwater

In general, the corridor drains to unnamed jurisdictional streams that run south out of the corridor. Groundwater was encountered during drilling and sampling along the -Y8- and -Y10- alignments at depths of 2 to 18 feet below the existing ground surface. Groundwater was encountered at depths 2.0 to 2.5 feet beneath the ground surface on the -Y8- alignment at Stations 21+00 and 34+50 and at 3 feet at Station 13+00 on the -Y10- alignment. Groundwater was encountered along the -RAMP A- alignment at depths of 5 to 5.1 feet below the existing ground surface. Groundwater was encountered along the –RAMP B- alignment at depths of 6 to 11.7 feet and along the -RAMP C- alignment at depths of 8 to 14.5 feet below the existing ground surface. Groundwater was encountered along the -RAMP D- alignment at depths of 4 to 8 feet below the existing ground surface. Groundwater was encountered along the -L- alignment at depths of 3 to 8 feet below the ground surface. No groundwater was encountered within the 4 feet of the boring termination depth on the -Y12- alignment. The depth of groundwater, beneath the ground surface, will fluctuate with seasonal precipitation and may occur a higher levels at other times of the year above less permeable clayey soils.

Areas of Special Geotechnical Interest

1) Plastic Soils - Moderate to high plasticity soils with plastic indices (PI) of 16 and greater were encountered near the existing ground surface and may impact subgrade construction at the following locations:

Alignment	Stations
-L-	175+47 to 188+75
-L-	192+75 to 200+25
-L-	204+25 to 211+75
-RAMP A-	0+00 to 3+45
-RAMP B-	0+00 to 4+25
-RAMP B-	4+90 to 5+90
-RAMP C-	0+00 to 6+50
-RAMP D-	0+00 to 7+25
-Y8-	17+50 to 18+00
-Y8-	35+40 to 39+35
-Y10-	10+00 to 13+50

A discussion of these plastic soils is located above in the section titled “Soil Properties”.

2) Soft Wet Soils- Soft wet near surface soils that may impact subgrade or embankment construction were encountered at the following locations:

Alignment	Stations
-RAMP A-	3+50 to 12+66
-RAMP B-	4+00 to 14+17
-RAMP C-	4+90 to 16+09
-RAMP D-	5+00 to 12+84

A discussion of these soft wet near surface soils is located above in the section titled “Soil Properties”.

BULK SAMPLES

The following bulk samples were taken for tests to determine the engineering properties of the soil.

Sample No.	Location	Depth (ft.)	Test
S-1	9+50 -RAMP B- CL	1.0-6.0	Proctor and CBR
S-2	10+00 -RAMP D- CL	1.0-6.0	Proctor and CBR

UNDISTRUBED SAMPLES

The following “Shelby” tube samples were taken to provide data for the in-situ strength of the soil.

Sample No.	Location	Depth (ft.)	Test
ST-1	23+50 -Y8- CL	15.0-17.4	Consolidation
ST-2	28+50 -Y8- CL	10.0-12.4	Consolidation

Sincerely,
Terracon Consultants, Inc.

Matthew J. Alexander, PE
Project Geotechnical Engineer

Abner F. Riggs, Jr., PE
Senior Geotechnical Engineer

PROJECT REFERENCE NO.	SHEET NO.
U-5796	4

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 100 200
FEET

NAD 83/NSRS 2007

-L- 170+00

-L- 175+00

-L- 180+00

BURL J. MITCHELL
DB 1261 PG 577

BEGIN PROJECT (U-5796)
-L- POT 175+47.20

EXISTING R/W

UNDIVIDED COASTAL PLAIN

ROADWAY EMBANKMENT

UNDIVIDED COASTAL PLAIN

EXISTING R/W

EXISTING R/W

DEBORAH KAY WILLIAMS
DB 2641 PG 112

MATCH LINE -L- STA. 181+00.00 SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
U-5796	5

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 100 200
FEET

NAD 83/NSRS 2007

185+00 -L-

190+00 -L-

KENNETH LEE COX, et als
DB 1289 PG 104

-L- POT 184+27.20 =
-RAMPB- ST 0+00.00

EXISTING R/W

5+00 -RAMP B-

10+00 -RAMP B-

MATCH LINE
-RAMPB- STA. 11+00.00
SEE SHEET 6

-L- 195+00

UNDIVIDED COASTAL PLAIN

US 117 SOUTH

ROADWAY EMBANKMENT

US 117 NORTH

MATCH LINE -L- STA. 195+00.00 SEE SHEET 6

MATCH LINE -L- STA. 181+00.00 SEE SHEET 4

-L- POT 183+00.00 =
-RAMPC- POT 0+00.00

5+00 -RAMP C-

10+00 -RAMP C-

KENNETH LEE COX, et als
DB 1289 PG 104

MATCH LINE -RAMPC- STA. 12+50.00
SEE SHEET 6

PROJECT REFERENCE NO.	SHEET NO.
U-5796	6

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 100 200
FEET

NAD 83/NSRS 2007

MATCH LINE -Y8- STA. 22+50.00 SEE SHEET 8

MATCH LINE -RAMPB- STA. 11+00.00 SEE SHEET 5

O' BERRY RD.

LLOYD MACON MASSEY, et als
DB 1385 PG 557

10+00 -RAMP A-

LINDA H. MCBRIDE
DB 1890 PG 246

-Y8- POC 23+50.00 =
-RAMPA- POT 12+66.87
-RAMPB- POT 14+17.61

25+00 -Y8-

WOODS

EXISTING R/W

5+00 -RAMP A-

STATE WILDFLOWERS

GRASS

-L- 200+00

-L- 195+00

UNDIVIDED COASTAL PLAIN

UNDIVIDED COASTAL PLAIN

-L- 205+00

ROADWAY EMBANKMENT

MATCH LINE -L- STA. 209+00.00 SEE SHEET 7

US 117 SOUTH

US 117 NORTH

MATCH LINE -L- STA. 195+00.00 SEE SHEET 5

UNDIVIDED COASTAL PLAIN

UNDIVIDED COASTAL PLAIN

STATE WILDFLOWERS

STATE WILDFLOWERS

30+00 -Y8-

-Y8- POC 30+75.00 =
-RAMPC- POT 16+09.21
-RAMPD- ST 12+84.34

10+00 -RAMP D-

EXISTING R/W

LINDA H. MCBRIDE
DB 1890 PG 246

WOODS

CULTIVATED

5+00 -RAMP D-

15+00 -RAMP C-

O' BERRY RD.

MATCH LINE -RAMPC- STA. 12+50.00 SEE SHEET 5

MATCH LINE -Y8- STA. 32+00.00 SEE SHEET 9

PROJECT REFERENCE NO.	SHEET NO.
U-5796	7

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 100 200
FEET

NAD 83/NSRS 2007

-L- 210+00

-L- 215+00

-L- 220+00

KENNETH R. BEDFORD, SR.
DB 2825 PG 215

EVE & FRAN LLC
DB 1819 PG 790

-L- POC 210+00.00 =
-RAMPA- POT 0+00.00

END PROJECT (U-5796)
-L- POT 219+92.08

ROADWAY EMBANKMENT

UNDIVIDED COASTAL PLAIN

US 117 SOUTH

US 117 NORTH

UNDIVIDED COASTAL PLAIN

MATCH LINE -L- STA. 209+00.00 SEE SHEET 6

-L- POT 211+12.08 =
-RAMPD- TS 0+00.00

THURMAN RAY LEE
DB 1042 PG 311

PROJECT REFERENCE NO.	SHEET NO.
U-5796	8

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

NAD 83/NSRS 2007

0 100 200
FEET

LLOYD MACON MASSEY, et als

-Y12- PT 14+11.09

15+00 -Y8-

CULITIVATED

20+00 -Y8-

CULITIVATED

STUART L. BROWN

GARAGE

S

2SFD

VIRGINIA LOUISE MASSEY BRASWELL

DURHAM LAKE RD.

LLOYD MACON MASSEY, et als

NCNG CORP.

ALICE DARDEN

GR.

UNDIVIDED COASTAL PLAIN

CONC. ISLAND

ROADWAY EMBANKMENT

UNDIVIDED COASTAL PLAIN

O' BERRY RD.

UNDIVIDED COASTAL PLAIN

O' BERRY RD.

-Y8- POC 16+90.00 =
-Y12- POT 10+00.00

MATCH LINE -Y8- STA. 22+50.00 SEE SHEET 6

MARY ELIZABETH M. BRANNON

-Y8- PC 10+00.00

CULITIVATED

KENNETH LEE COX, et als

CULITIVATED

PROJECT REFERENCE NO.	SHEET NO.
U-5796	9

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

NAD 83/NSRS 2007

-Y10- PT 15+86.04

SHILOH-SAINT MATHEW'S RELIGIOUS FOUNDATION INC.

WOODS

EXISTING R/W

15+00 -Y10-

ISFD

FAITH PRESBYTERIAN CHURCH (USA)

CULITIVATED

UNDIVIDED COASTAL PLAIN

ROADWAY EMBANKMENT

STEPHENS RD.

SAINT MATHEW PRESBYTERIAN CHURCH

ISBK CHURCH

FAITH PRESBYTERIAN CHURCH

ISBK CHURCH

LINDA H. MCBRIDE

40+00 -Y8-

WOODS

DUDLEY CHRISTIAN CHURCH (DISPLES OF CHRIST) INC.

ISMTL CHURCH

ISBK CHURCH

45+00 -Y8-

ISFD

CULITIVATED

35+00 -Y8-

LINDA H. MCBRIDE

ROSE MARIE GREENFIELD

GRAVEL

-Y8- POT 45+31.36

LINDA H. MCBRIDE

EXISTING R/W

UNDIVIDED COASTAL PLAIN

O' BERRY RD.

UNDIVIDED COASTAL PLAIN

20' ACCESS EASEMENT

20' UTILITY EASEMENT

ISFD

CAROLYN ARMSTRONG BLEDSOE

EXISTING R/W

SANDRA FAYE SMITH

CULITIVATED

EXISTING R/W

ISFD (ABAND)

SANDRA FAYE SMITH

CULITIVATED

-Y8- POC 36+14.50 =
-Y10- POT 10+00.00

AMERICAN TOWERS, INC.

KENNETH LEE COX, et als

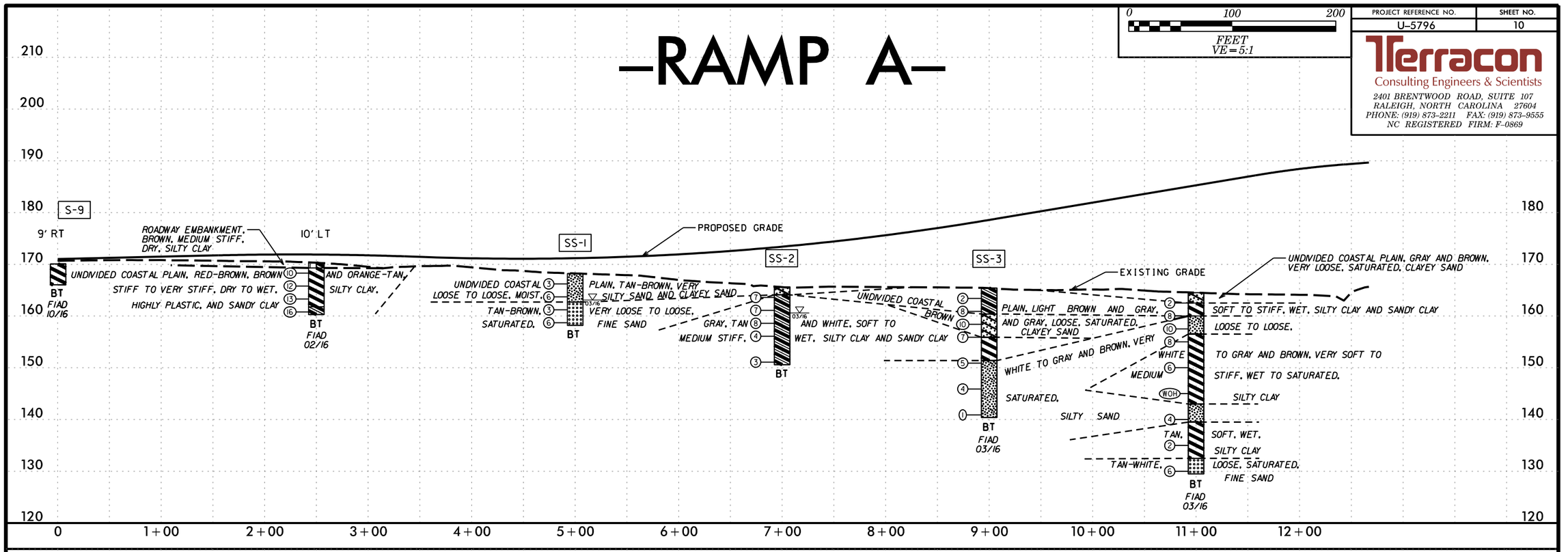
MATCH LINE -Y8- STA. 32+00.00 SEE SHEET 6

PROJECT REFERENCE NO.	SHEET NO.
U-5796	10

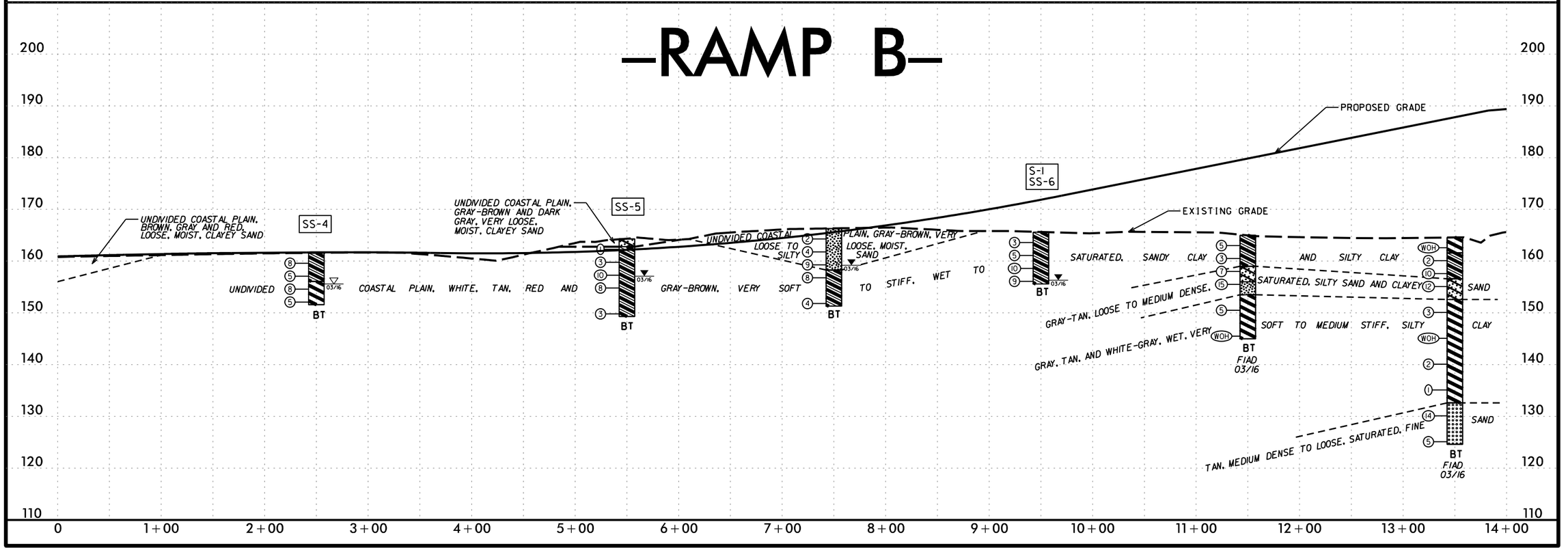
Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 100 200
FEET
VE = 5:1

–RAMP A–



–RAMP B–

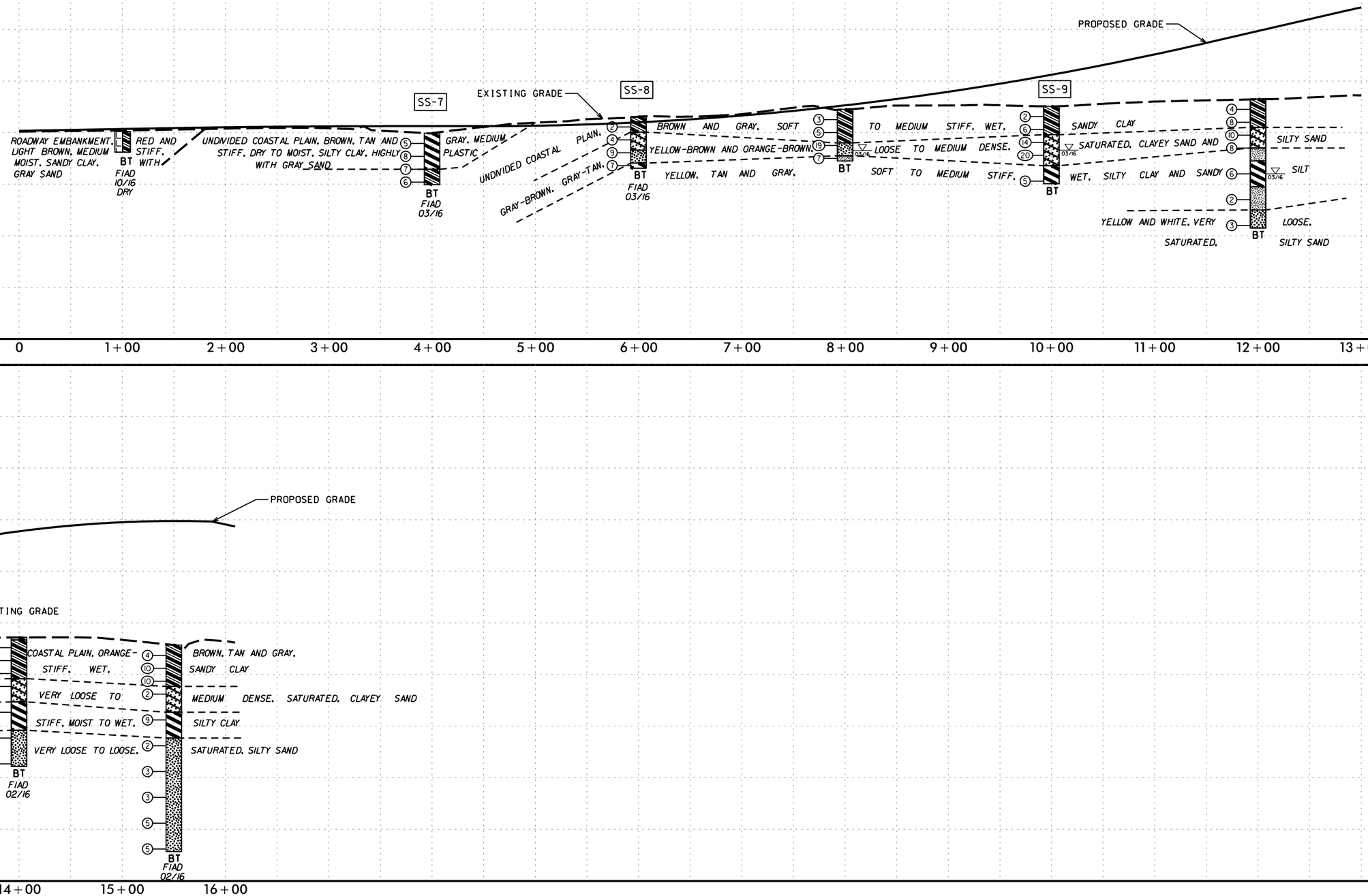


–RAMP C–

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
U-5796	11

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

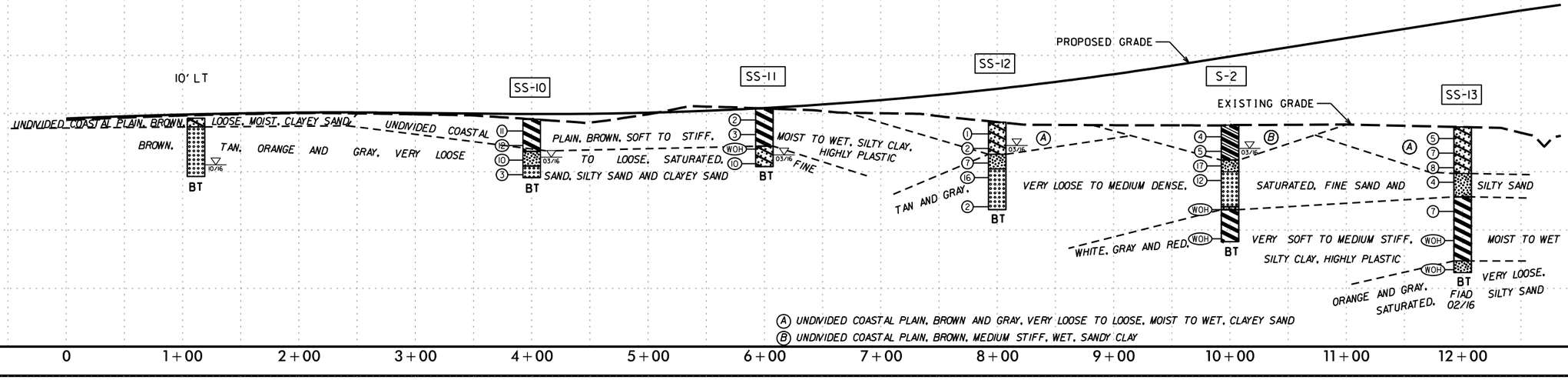


–RAMP D–

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
U-5796	12

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869



-Y8-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	13

0 100 200
FEET
VE = 5:1

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50

PROPOSED GRADE

EXISTING GRADE

S-3
9' RT
ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY SAND
BT
DRY
10/16

20' RT
UNDIVIDED COASTAL PLAIN, GRAY-ORANGE, RED AND TAN, VERY SOFT TO VERY STIFF, MOIST TO WET, SANDY SILT, SILTY CLAY AND SANDY CLAY
8 4 7 6
BT
DRY
02/16

7' LT
ROADWAY EMBANKMENT, PAVEMENT
7 8 7 23 3 3
02/16
A
BT

ST-1
2' RT
17 5 7 12 3 WOH WOH 2 16 8
ST-1
02/16
GRAY AND WHITE, SATURATED, LOOSE, SAND
BT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

(A) ORANGE-TAN, MEDIUM DENSE, SATURATED, SILTY SAND

-Y8-

0 100 200
FEET
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
U-5796	14

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40

10' RT
26' RT
EXISTING GRADE
ST-2
8' LT
SS-14
13' LT
14' LT
ROADWAY EMBANKMENT
PAVEMENT
PROPOSED GRADE
S-4
20' LT

UNDIVIDED COASTAL PLAIN. ORANGE, WHITE AND GRAY, VERY LOOSE TO HARD, MOIST TO WET, SILTY CLAYEY SAND

ORANGE, TAN AND GRAY, VERY SOFT TO SOFT, WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

BLACK-OLIVE AND GRAY, VERY STIFF TO HARD, WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

BLACK-OLIVE, GRAY AND DARK GRAY, VERY STIFF TO HARD, WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

RED AND ORANGE, VERY SOFT TO MEDIUM DENSE, MOIST TO WET, SILTY SAND

BROWN, GRAY, VERY LOOSE TO MEDIUM DENSE, WET, SILTY SAND

RED AND GRAY-BROWN, MEDIUM DENSE TO VERY DENSE, MOIST TO WET, SILTY SAND

ORANGE AND TAN, WET, SANDY AND SILTY CLAY (BLACK CREEK FORMATION)

GRAY, VERY DENSE, SATURATED, SILTY SAND

SATURATED, SILTY CLAY, HIGHLY PLASTIC AND SANDY CLAY

SATURATED, SOFT TO HARD, SILTY CLAY

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

DRY 10/16

FIAD 02/16

BT

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

Ⓑ RED AND GRAY-BROWN, MEDIUM DENSE, MOIST, SILTY SAND

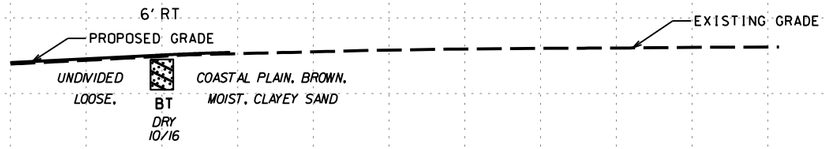
Ⓒ ORANGE, GRAY AND TAN, VERY SOFT TO STIFF, MOIST TO WET, SANDY SILT

PROJECT REFERENCE NO.	SHEET NO.
U-5796	15

0 100 200
FEET
VE = 5:1

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

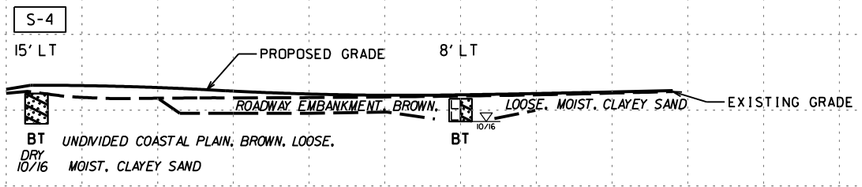
-Y8-



220 210 200 190 180 170 160 150 140

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00

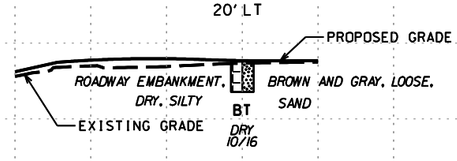
-Y10-



210 200 190 180 170 160 150 140 130 120

10+00 11+00 12+00 13+00 14+00 15+00

-Y12-



210 200 190 180 170 160 150 140 130 120

10+00 11+00 12+00 13+00 14+00

PROJECT REFERENCE NO.	SHEET NO.
U-5796	16

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

6:1 6:1 8:1 8:1 6:1 6:1 4.35:1

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

175 + 50

160
150

175 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	17

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150
140

6:1 8:1 8:1 6:1 6:1 4.665:1

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SANDY SILT

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

176 + 50

160
150

6:1 8:1 8:1 6:1 6:1 4.272:1

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

176 + 00

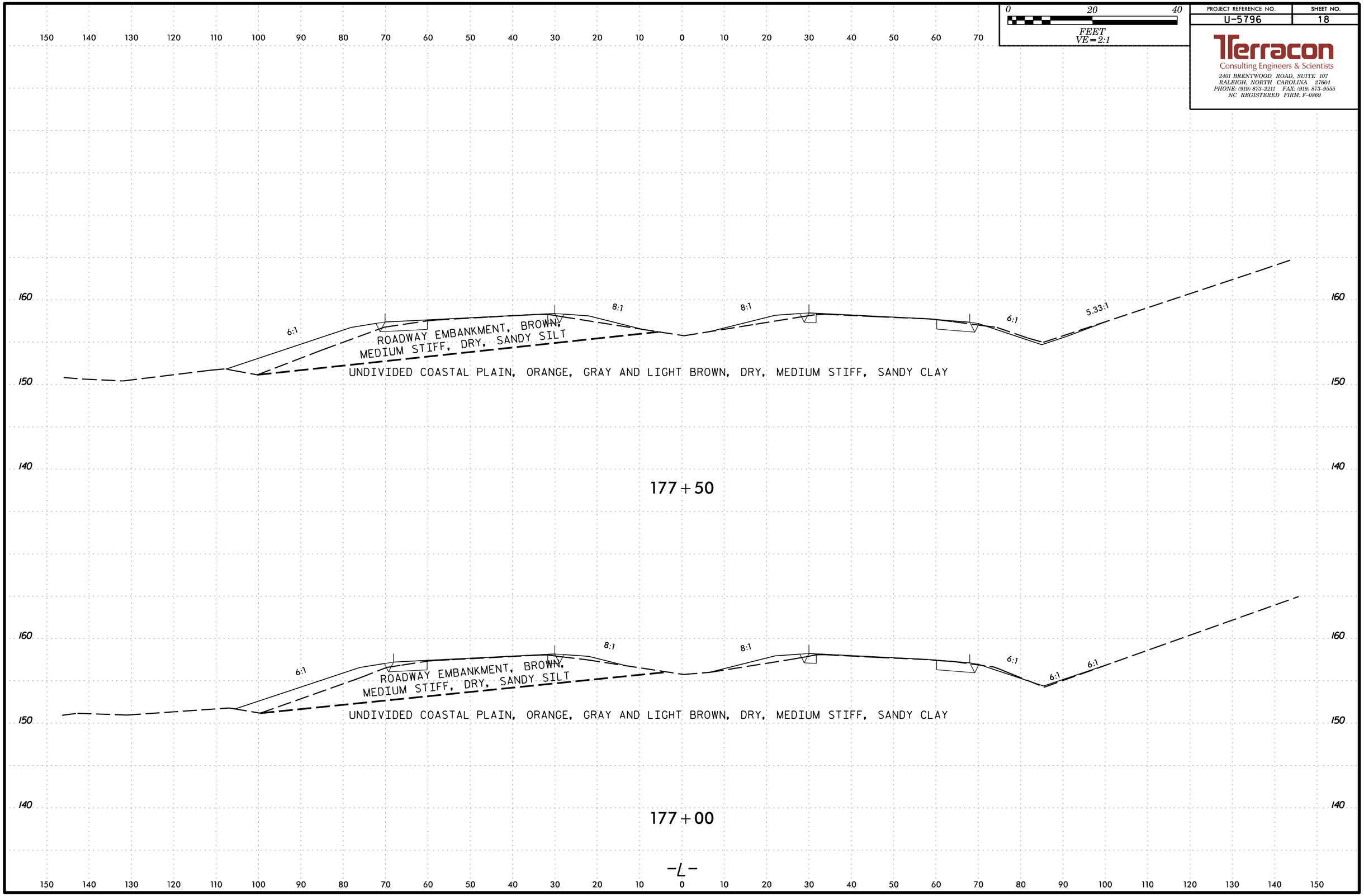
-L-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	18

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

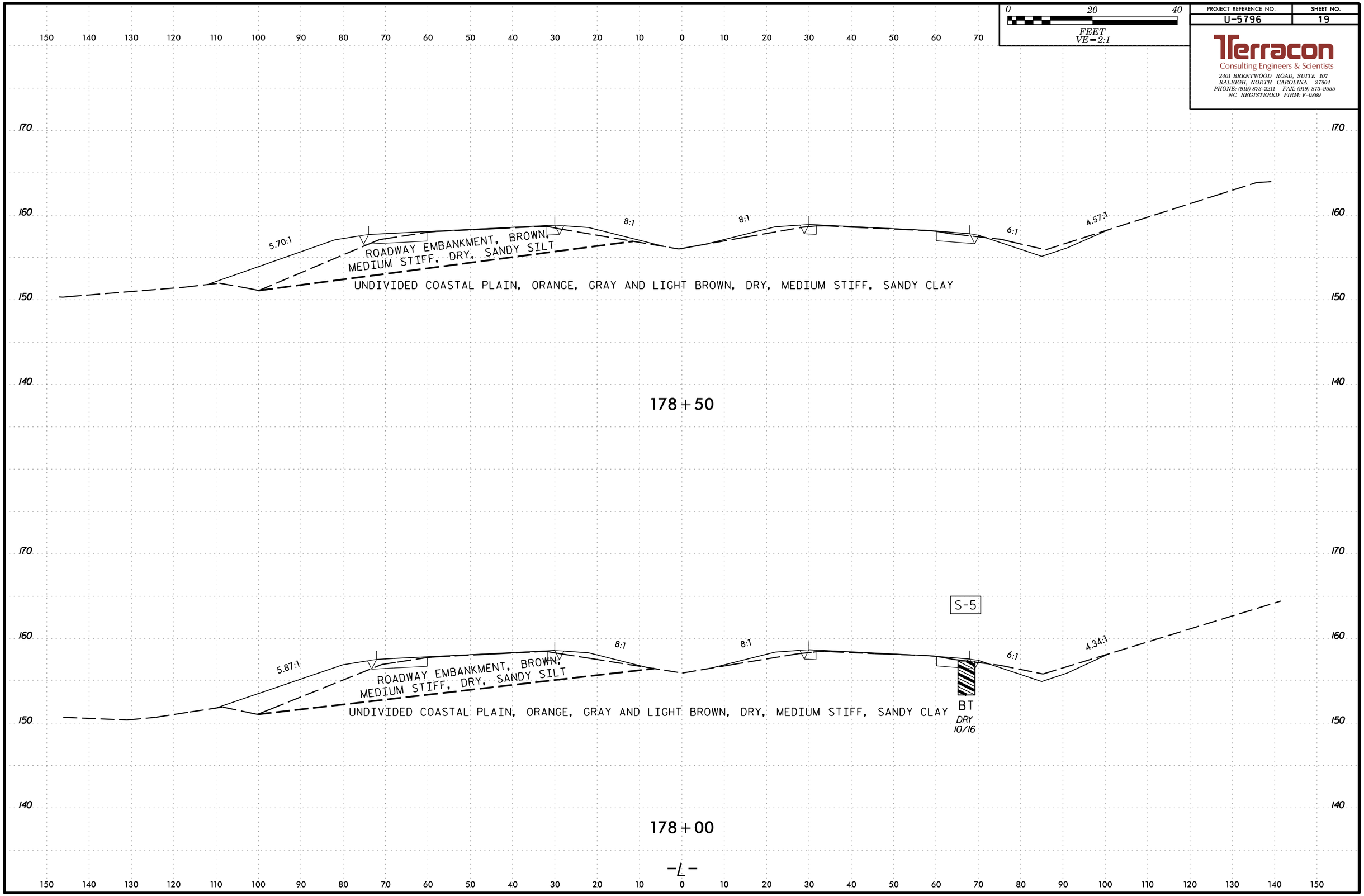
0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	19

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

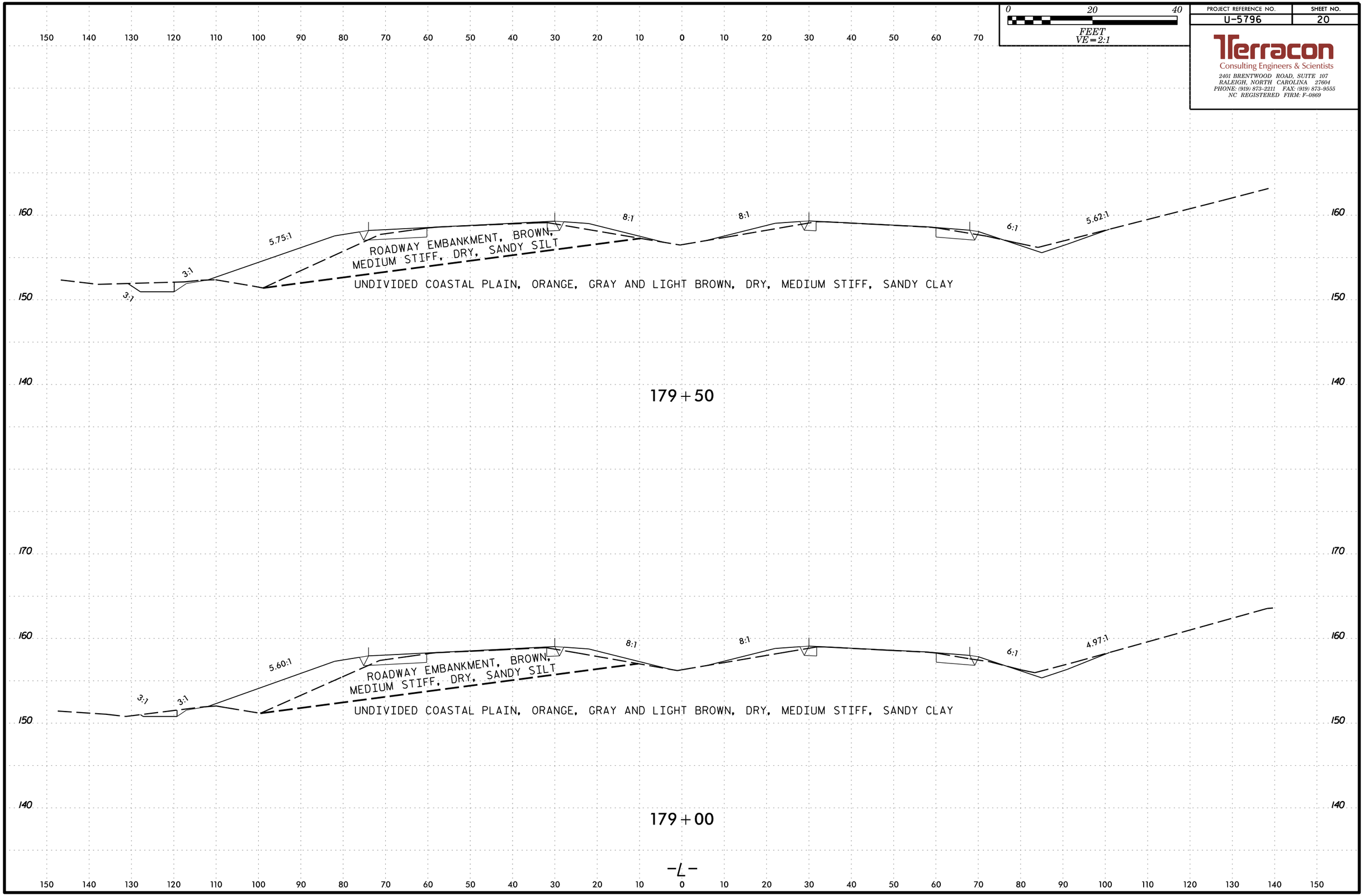
0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	20

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

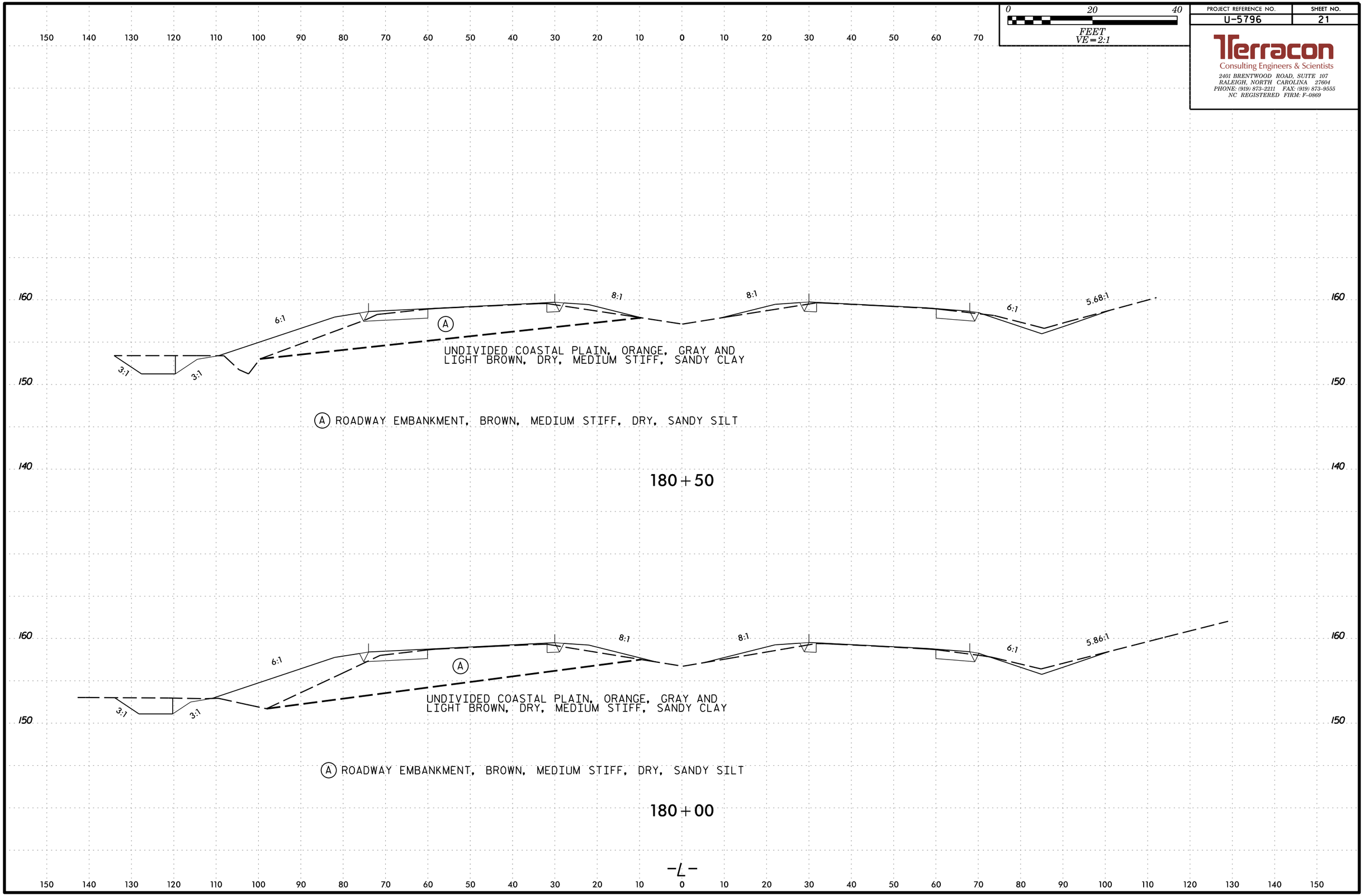
0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	21

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	22

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

6:1 3:1 3:1 8:1 8:1 6:1

A

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

(A) ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SANDY SILT

181+50

S-6

160
150

6:1 3:1 3:1 8:1 8:1 6:1 6:1

A

BT
FIAD
10/16

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

(A) ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SANDY SILT

181+00

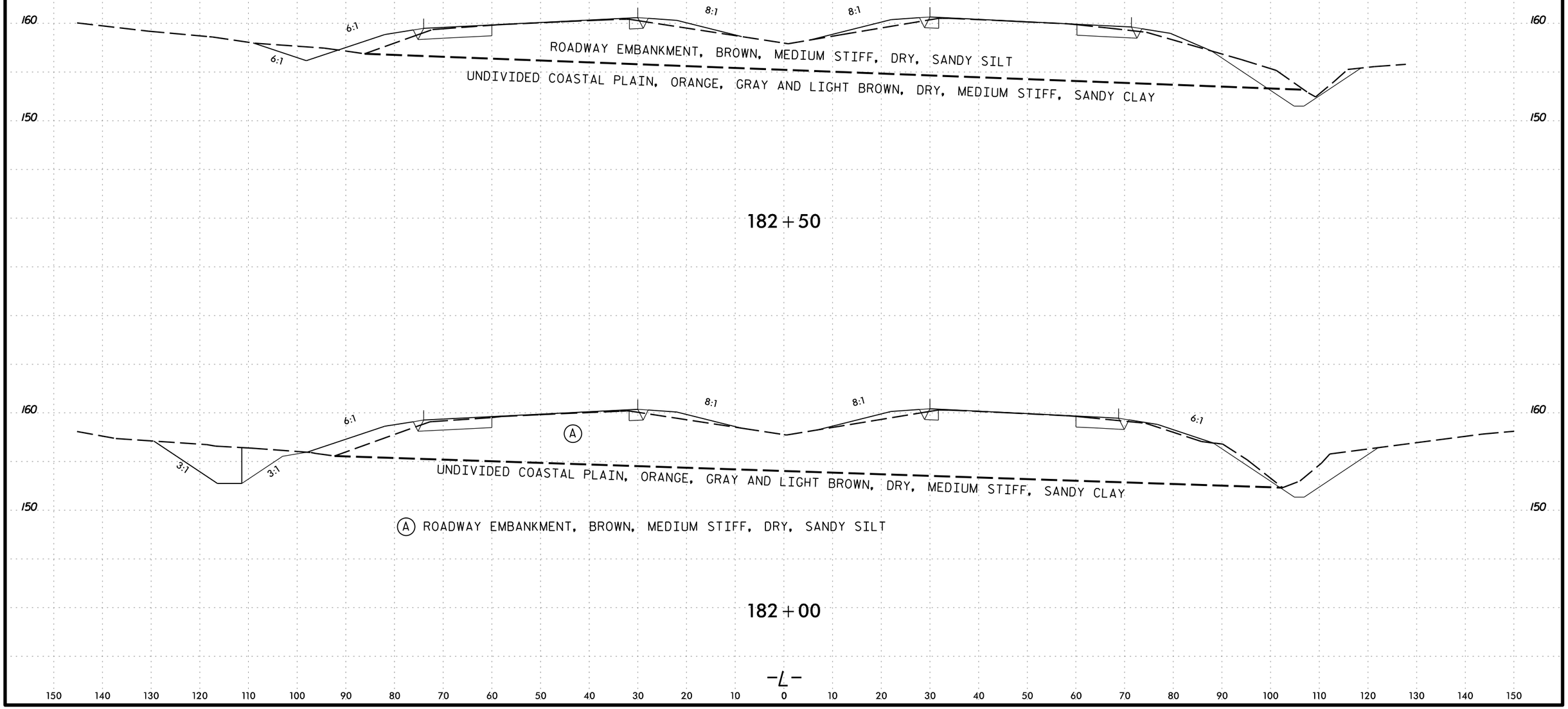
-L-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	23

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	24

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

SEE LINE RAMPC

8:1
8:1
6:1
6:1
3:1

ROADWAY EMBANKMENT, RED AND LIGHT BROWN MEDIUM STIFF, DRY, SANDY CLAY, WITH GRAY SAND

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND
BROWN, GRAY AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

183 + 50

SEE LINE RAMPC

8:1
8:1
6:1
VAR
6:1

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SANDY SILT

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, DRY, MEDIUM STIFF, SANDY CLAY

183 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	25

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160
150

SEE LINE RAMPB

SEE LINE RAMPC

8:1

8:1

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

BROWN, GRAY AND RED, MEDIUM STIFF, MOIST TO SATURATED, SANDY CLAY

ROADWAY EMBANKMENT, RED AND LIGHT BROWN, MEDIUM STIFF, DRY, SANDY CLAY, WITH GRAY SAND

184 + 50

170
160
150

SEE LINE RAMPC

3:1

6:1

8:1

8:1

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

BROWN, GRAY AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

ROADWAY EMBANKMENT, MEDIUM STIFF, DRY, SANDY CLAY, RED AND LIGHT BROWN WITH GRAY SAND

BT
FIAD
10/16

BT
FIAD
10/16

184 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	26

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160
150

SEE LINE RAMPB

8:1

8:1

SEE LINE RAMPC

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, SOFT TO MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

185 + 50

170
160
150

SEE LINE RAMPB

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

8:1

8:1

SEE LINE RAMPC

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

185 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	27

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160
150

SEE LINE RAMPB

8:1

8:1

SEE LINE RAMPC

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, SOFT TO MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

186 + 50

170
160
150

SEE LINE RAMPB

8:1

8:1

SEE LINE RAMPC

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, SOFT TO MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

186 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	28

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160
150

SEE LINE RAMPB

8:1

8:1

SEE LINE RAMPC

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

187 + 50

SS-4

186 + 77

SEE LINE RAMPB

8:1

8:1

SEE LINE RAMPC

SS-7

186 + 99

8
5
8
5

03/16

BT

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

5
8
7
6

BT
FIAD
03/16

187 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	29

Terracon
Consulting Engineers & Scientists
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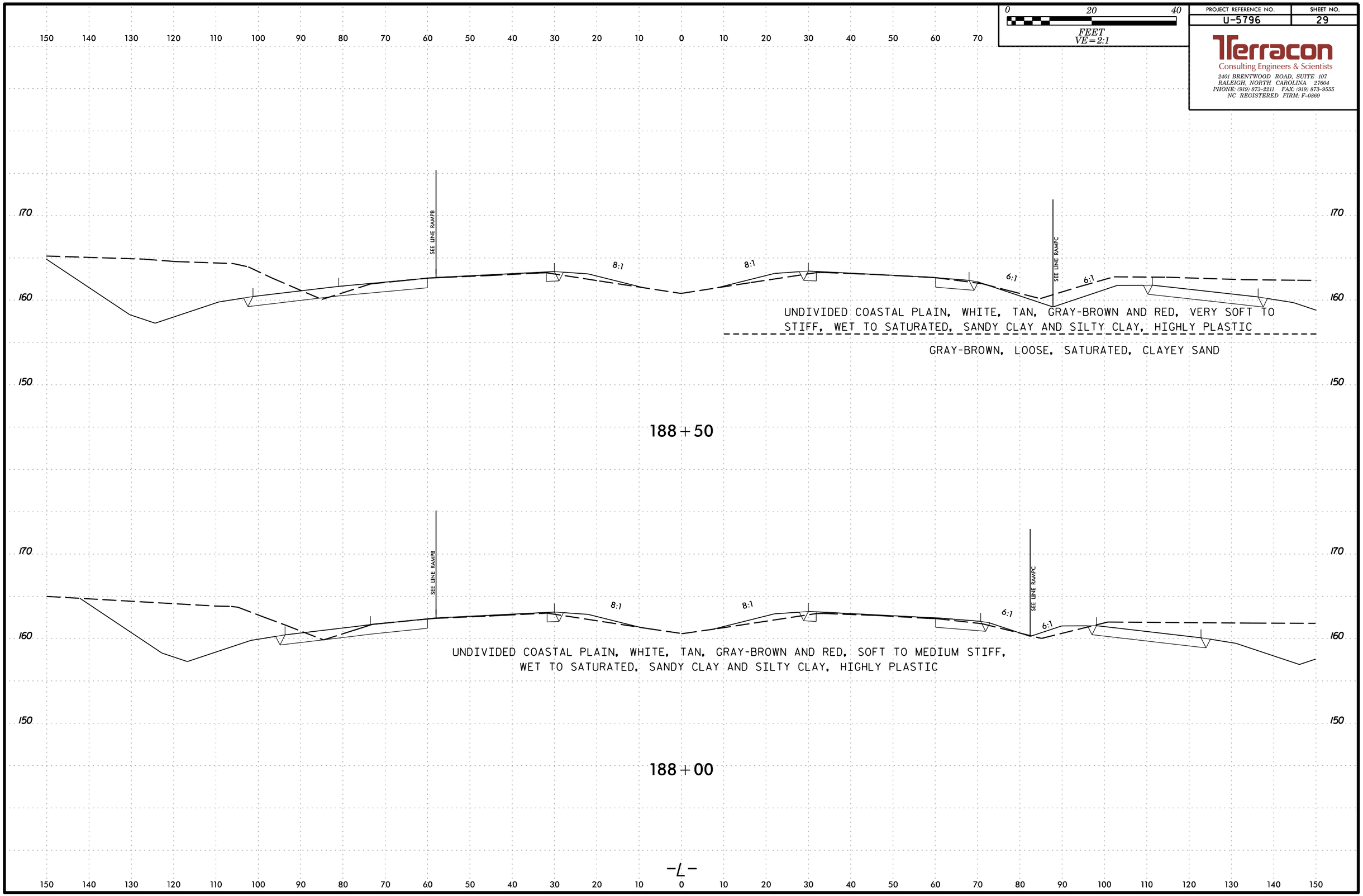
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

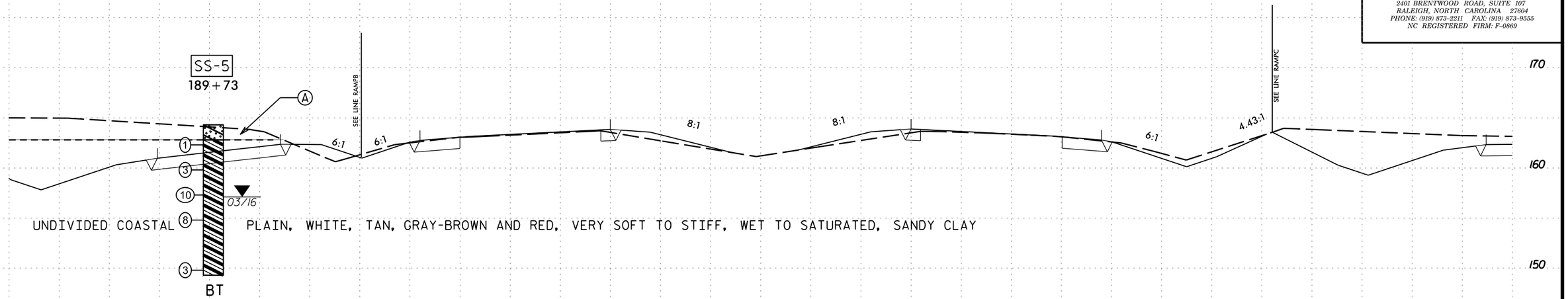
0 20 40
FEET
VE = 2:1

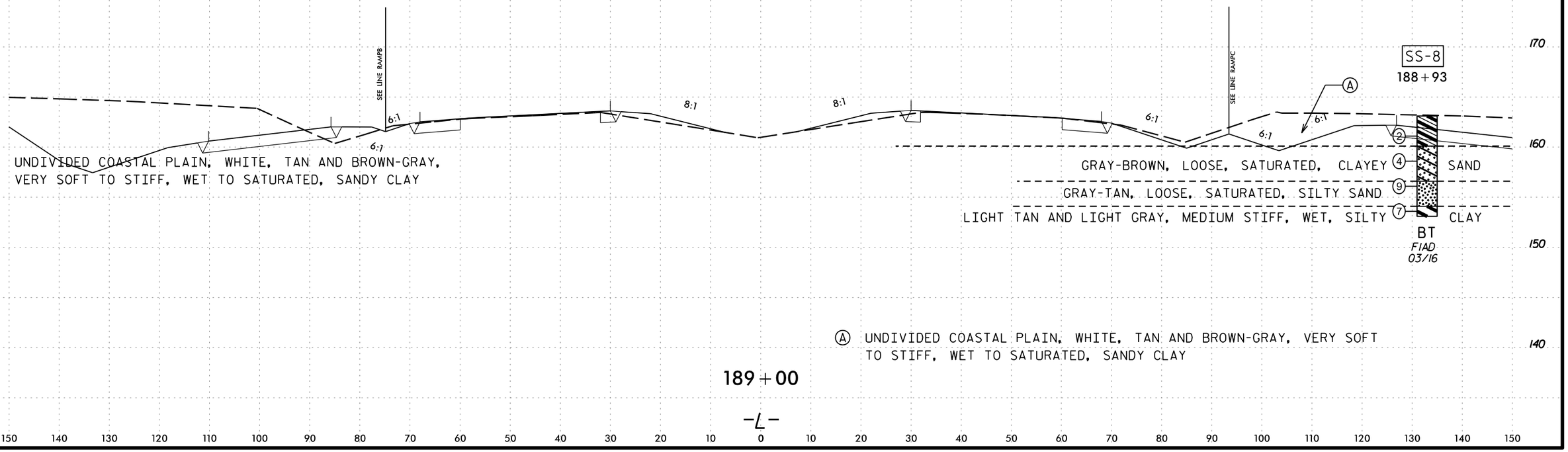


PROJECT REFERENCE NO.	SHEET NO.
U-5796	30

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1





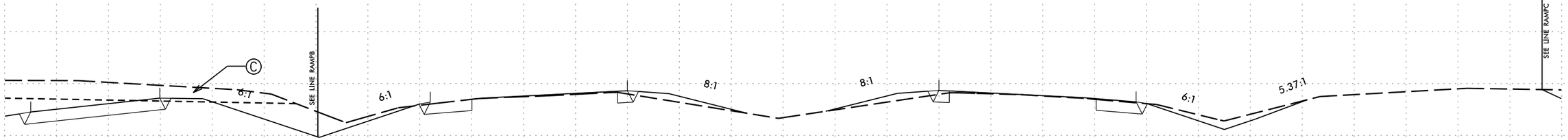
PROJECT REFERENCE NO.	SHEET NO.
U-5796	31

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

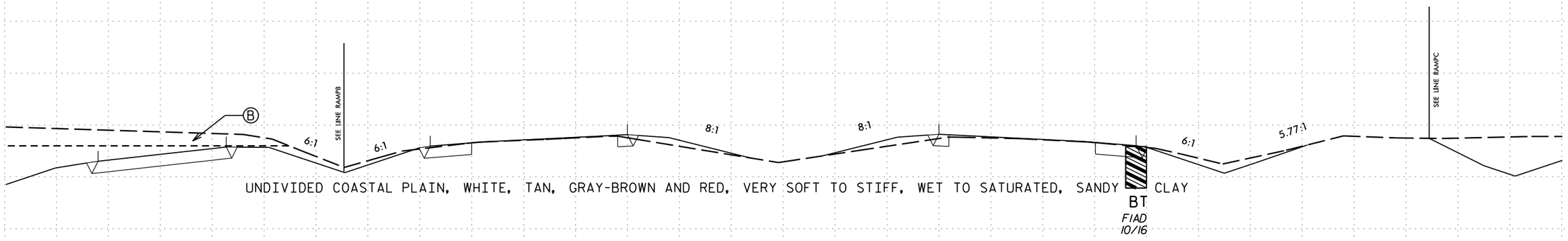
170
160
150



UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

Ⓒ UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

190 + 50



UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

Ⓑ UNDIVIDED COASTAL PLAIN, GRAY-BROWN AND DARK GRAY, VERY LOOSE, MOIST, CLAYEY SAND

190 + 00

-L-

170
160
150
140

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	32

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

SEE LINE RAAPB

UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

6:1 6:1 8:1 8:1 6:1 4.59:1

UNDIVIDED COASTAL PLAIN, BROWN, VERY SOFT TO STIFF, MOIST, SANDY CLAY

191+50

170
160
150

SEE LINE RAAPB

Ⓒ

6:1 8:1 8:1 6:1 4.98:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

Ⓒ UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

191+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	33

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

4.167:1 6:1 6:1 8:1 8:1 6:1 4.44:1

UNDIVIDED COASTAL PLAIN, BROWN, VERY SOFT TO STIFF, MOIST, SANDY CLAY

192 + 50

SEE LINE RAMPB

UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

4.529:1 6:1 6:1 8:1 8:1 6:1 4.50:1

UNDIVIDED COASTAL PLAIN, BROWN, VERY SOFT TO STIFF, MOIST, SANDY CLAY

192 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	34

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

5:665:1 6:1 6:1 8:1 8:1 6:1 4.47:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT TO STIFF, MOIST, SANDY CLAY

193+50

5:1 6:1 6:1 8:1 8:1 6:1 4.36:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT TO STIFF, MOIST, SANDY CLAY

BT
FIAD
10/16

193+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	35

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

6:1 6:1 8:1 8:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

194 + 50

170
160

5.76:1 6:1 6:1 8:1 8:1 6:1 5.11:1

UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

194 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	36

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0 20 40
FEET
VE = 2:1

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

170
160

6:1 6:1 8:1 8:1 6:1

Ⓓ

GRAY, MEDIUM STIFF, MOIST, SANDY SILT

Ⓓ UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

195+50

170
160

6:1 6:1 8:1 8:1 6:1

Ⓓ

GRAY, MEDIUM STIFF, MOIST, SANDY SILT

Ⓓ UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

195+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	37

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0 20 40
FEET
VE = 2:1

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

180
170
160

6:1 6:1 8:1 6:1

Ⓓ

GRAY, MEDIUM STIFF, MOIST, SANDY SILT

Ⓓ UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

196 + 50

S-7

170
160

6:1 6:1 8:1 8:1 6:1

Ⓓ

GRAY, MEDIUM STIFF, MOIST, SANDY SILT

BT
FIAD
10/16

Ⓓ UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

196 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	38

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

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

UNDIVIDED COASTAL PLAIN, GRAY, BROWN, RED AND ORANGE, SOFT TO HARD,
MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

197 + 50

180
170
160

6:1 6:1 6:1

Ⓓ

GRAY, MEDIUM STIFF, MOIST, SANDY SILT

Ⓓ UNDIVIDED COASTAL PLAIN, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

197 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	39

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0 20 40
FEET
VE = 2:1

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

170 160 150 140 130 120 110 100 90 80

197 + 95

Ⓓ

6:1 6:1

02/16

35 29 4 9

UNDIVIDED COASTAL PLAIN, GRAY, BROWN, RED AND ORANGE, SOFT TO HARD, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

11

ORANGE, GRAY AND TAN, STIFF, MOIST TO WET, SANDY SILT

WOH

GRAY, BROWN, RED AND ORANGE, VERY SOFT, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

WOH

4

4

6

ORANGE, WHITE AND GRAY, VERY LOOSE TO LOOSE, SATURATED, CLAYEY SAND

2

WOH

5

ORANGE, TAN AND GRAY, VERY SOFT TO MEDIUM STIFF, WET, SANDY CLAY

35

BLACK-OLIVE AND GRAY, HARD, WET, SANDY CLAY (BLACK CREEK FORMATION)

87

95

BLACK-OLIVE AND GRAY, VERY DENSE, SATURATED, SILTY SAND

34

22

24

BLACK-OLIVE AND DARK GRAY, VERY STIFF, WET, SILTY CLAY, HIGHLY PLASTIC

BT

Ⓓ PAVEMENT (CONCRETE)

198 + 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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	40

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PHONE: (919) 873-2211 FAX: (919) 873-9555
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0 20 40
FEET
VE = 2:1

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

170 160 150 140 130 120 110 100 90 80

ROADWAY EMBANKMENT (PAVEMENT)

198+32

ROADWAY EMBANKMENT (PAVEMENT)

ST-2

UNDIVIDED COASTAL PLAIN, ORANGE-TAN, RED, ORANGE AND TAN, MEDIUM STIFF TO VERY STIFF, SILTY CLAY, HIGHLY PLASTIC, AND MOIST TO SATURATED, SANDY CLAY

ORANGE, GRAY AND TAN, VERY SOFT, WET, SANDY SILT

ORANGE-TAN, RED, ORANGE AND TAN, MEDIUM STIFF TO VERY STIFF, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

GRAY AND WHITE, VERY LOOSE TO LOOSE, SATURATED, CLAYEY SAND

RED, ORANGE AND TAN, STIFF, WET, AND SILTY SAND, VERY SOFT TO MEDIUM SANDY AND SILTY CLAY

BLACK-OLIVE AND GRAY, VERY STIFF, WET, SANDY CLAY (BLACK CREEK FORMATION)

BLACK-OLIVE, GRAY AND DARK GRAY, DENSE TO VERY DENSE, SATURATED, SILTY SAND

BLACK-OLIVE, GRAY AND DARK GRAY, HARD, WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

10 16 8 WOH 10 WOH WOH WOH 8 3 4 18 25 89 100/0.7 41 47 36

02/16

6 5 7 5 1 1 WOH 2 14 1 WOH 9 26 26 78 46 85 31 30

02/16

ST-2

BT

198+50
-L-

BT

PROJECT REFERENCE NO.	SHEET NO.
U-5796	41

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PHONE: (919) 873-2211 FAX: (919) 873-9555
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0 20 40
FEET
VE=2:1

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

170
160
150

6:1
6:1

UNDIVIDED COASTAL PLAIN, ORANGE-TAN, RED, ORANGE AND TAN, MEDIUM SOFT TO VERY STIFF, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC AND SANDY CLAY

199+50

UNDIVIDED COASTAL PLAIN, ORANGE-TAN, RED, ORANGE AND TAN, MEDIUM SOFT TO VERY STIFF, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC AND SANDY CLAY

199+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	42

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

6:1 6:1 8:1 8:1 6:1 6:1

BT
FIAD
10/16

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

201+00

6:1 6:1 8:1 8:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

200+50

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

UNDIVIDED COASTAL PLAIN, ORANGE-TAN AND RED, MEDIUM STIFF TO VERY STIFF, MOIST TO SATURATED, SILTY CLAY, HIGHLY PLASTIC AND SANDY CLAY

200+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	43

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

6:1 6:1 8:1 8:1 6:1 6:1 SEE LINE RA

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

202 + 50

6:1 6:1 8:1 8:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

202 + 00

8:1 8:1 6:1 6:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

201 + 50

-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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	44

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PHONE: (919) 873-2211 FAX: (919) 873-9555
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0 20 40
FEET
VE = 2:1

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

180
170
160

SEE LINE RAMPA

6:1 8:1 8:1 6:1

S-8

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

BT
FIAD
10/16

204+00

SEE LINE RAMPA

6:1 8:1 8:1 6:1 6:1

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

203+50

8:1 8:1 6:1 6:1

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, LIGHT BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST, FINE SAND AND CLAYEY SAND

203+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	45

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0 20 40
FEET
VE = 2:1

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

180
170
160

205 + 10

6:1 SEE LINE RAMPA 6:1 8:1 8:1 6:1 SEE LINE RAMPD 6:1

UNDIVIDED (3) COASTAL PLAIN, TAN-BROWN, VERY LOOSE TO LOOSE,
MOIST TO (6) SATURATED, SILTY SAND
03/16
TAN-BROWN, (3) VERY LOOSE TO LOOSE, SATURATED, FINE SAND
(6)
BT
FIAD
10/16

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, WET, SILTY (2) (3) CLAY, HIGHLY PLASTIC
BROWN AND GRAY-BROWN, VERY LOOSE TO LOOSE, (WOH) (10) 03/16 WET TO SATURATED,
CLAYEY SAND

SS-11
205 + 12
BT
FIAD
10/16

205 + 00

180
170

SEE LINE RAMPA 6:1 8:1 8:1 6:1 SEE LINE RAMPD 6:1

UNDIVIDED COASTAL PLAIN, TAN-BROWN TO BROWN, VERY LOOSE TO LOOSE, MOIST TO SATURATED, FINE SAND, SILTY SAND AND CLAYEY SAND

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, WET, SILTY CLAY, HIGHLY PLASTIC

204 + 50

-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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	46

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

SEE LINE RAMPA
SEE LINE RAMPD
6:1
8:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT TO STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, BROWN, TAN AND GRAY, VERY LOOSE TO LOOSE, MOIST TO SATURATED, FINE SAND, SILTY SAND AND CLAYEY SAND

206+00

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, WET, SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, TAN-BROWN AND GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST TO SATURATED, SILTY SAND AND CLAYEY SAND

205+50

-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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	47

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

SEE LINE RAMPA

8:1

8:1

SEE LINE RAMPD

SS-10

207 + 11

UNDIVIDED COASTAL PLAIN, BROWN, STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

DARK BROWN AND TAN, VERY LOOSE TO MEDIUM DENSE, SATURATED, SILTY SAND AND FINE SAND

11
12
10
3

03/16

BT

FIAD
03/16

207 + 00

UNDIVIDED COASTAL PLAIN, BROWN, SOFT TO STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, BROWN, TAN AND GRAY, VERY LOOSE TO LOOSE, MOIST TO SATURATED, FINE SAND, SILTY SAND AND CLAYEY SAND

206 + 50

-L-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	48

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

SEE LINE RAMPA

Ⓔ

8:1

8:1

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, RED, BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

BROWN, TAN AND ORANGE, VERY LOOSE TO LOOSE, MOIST TO SATURATED, SILTY AND FINE SAND

Ⓔ ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

208+00

207+51

SEE LINE RAMPA

Ⓔ

8:1

8:1

SEE LINE RAMPD

10
12
13
16

BT
FIAD
02/16

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

DARK BROWN AND TAN, VERY LOOSE TO LOOSE, SATURATED, SILTY AND FINE SAND

Ⓔ ROADWAY EMBANKMENT, BROWN, STIFF, DRY, SILTY CLAY

207+50

-L-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	49

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0 20 40
FEET
VE = 2:1

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

180
170
160

SEE LINE RAMPA

8:1

8:1

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, BROWN, TAN AND ORANGE, MEDIUM DENSE TO VERY LOOSE, MOIST TO SATURATED, SILTY SAND AND FINE SAND

Ⓔ ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

209+00

SEE LINE RAMPA

8:1

8:1

SEE LINE RAMPD

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY, HIGHLY PLASTIC

UNDIVIDED COASTAL PLAIN, BROWN, TAN AND ORANGE, MEDIUM DENSE TO VERY LOOSE, MOIST TO SATURATED, SILTY SAND AND FINE SAND

Ⓔ ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

208+50

-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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	50

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0 20 40
FEET
VE = 2:1

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

180
170
160
150

S-9
210+00

SEE LINE RAMPA

4.58:1
6:1
8:1

BROWN AND ORANGE-TAN, SILTY CLAY, BT FIAD 10/16

UNDIVIDED COASTAL PLAIN, RED, STIFF TO VERY STIFF, MOIST, HIGHLY PLASTIC

8:1

SEE LINE RAMPD

Ⓕ

LIGHT BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

10/16

BT
FIAD
10/16

Ⓕ UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

210+00

SEE LINE RAMPA

8:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

8:1

SEE LINE RAMPD

Ⓕ

LIGHT BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

Ⓕ UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

209+50

-L-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	51

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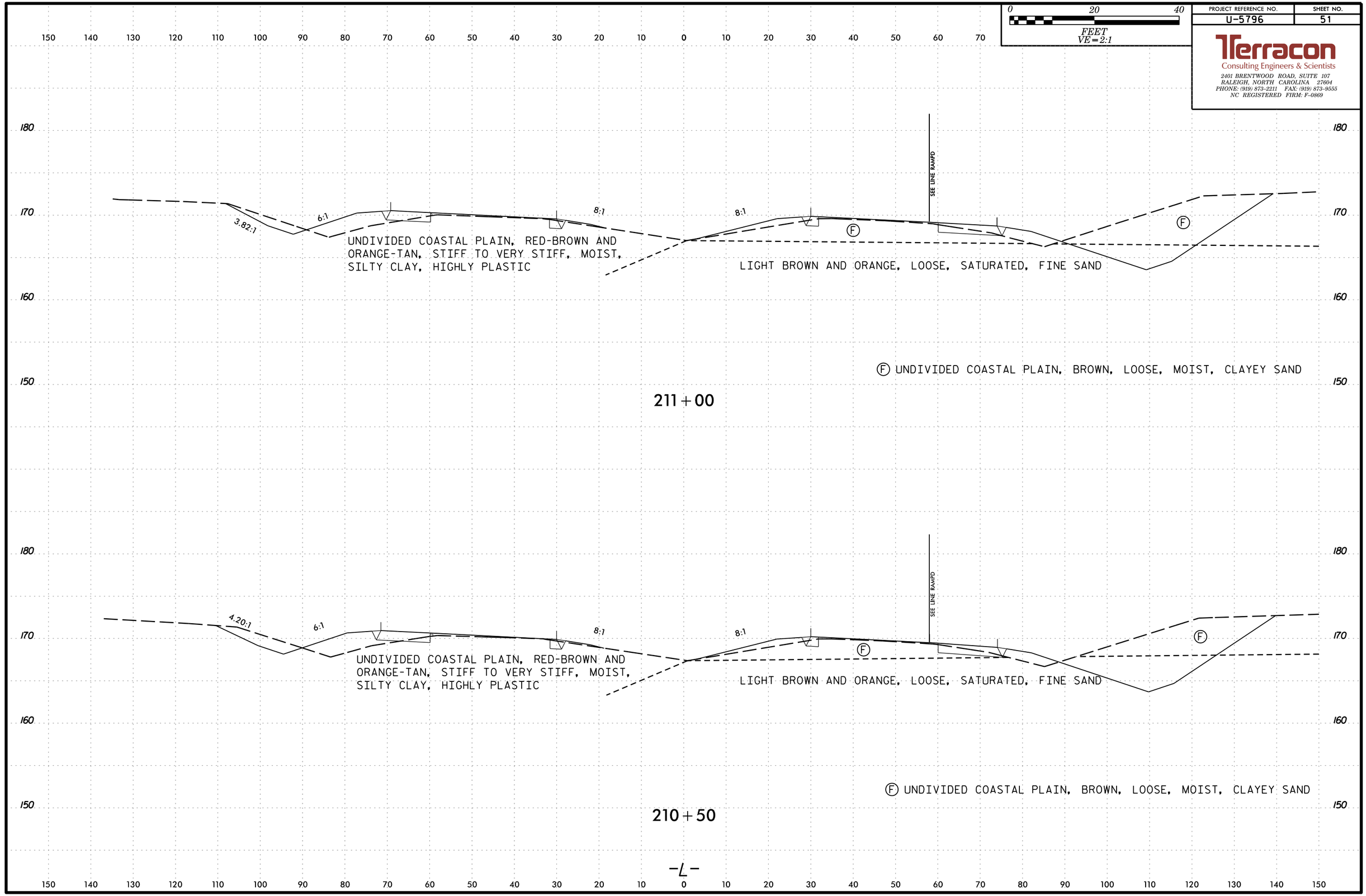
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	52

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0 20 40
FEET
VE = 2:1

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

180
170
160
150

4.74:1 6:1 8:1 8:1 6:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN AND ORANGE, LOOSE, MOIST, FINE SAND

212 + 00

5.15:1 6:1 8:1 8:1 6:1 3:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

Ⓕ LIGHT BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

Ⓕ UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

211 + 50

-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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	53

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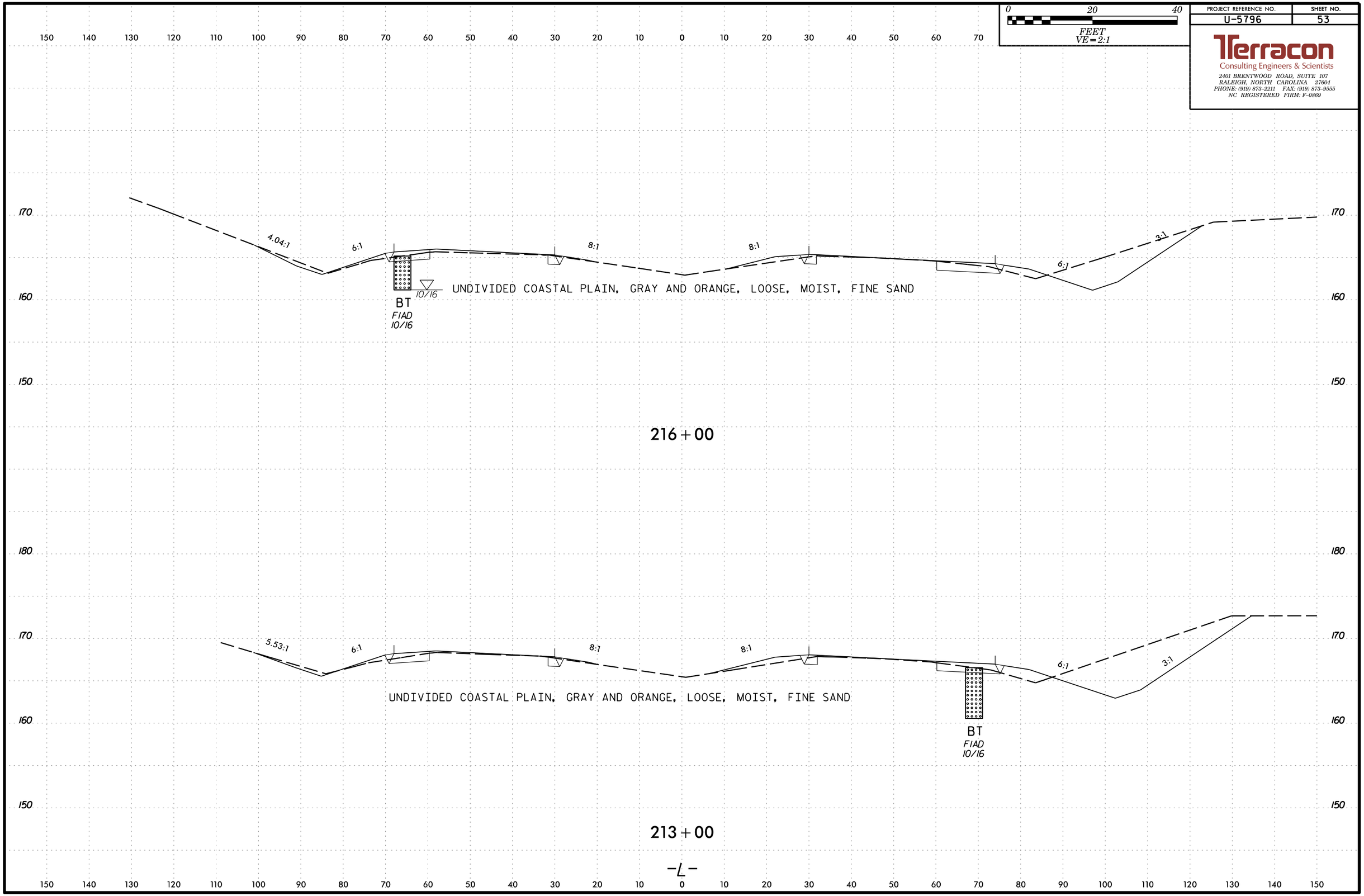
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1



216 + 00

213 + 00

-L-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	54

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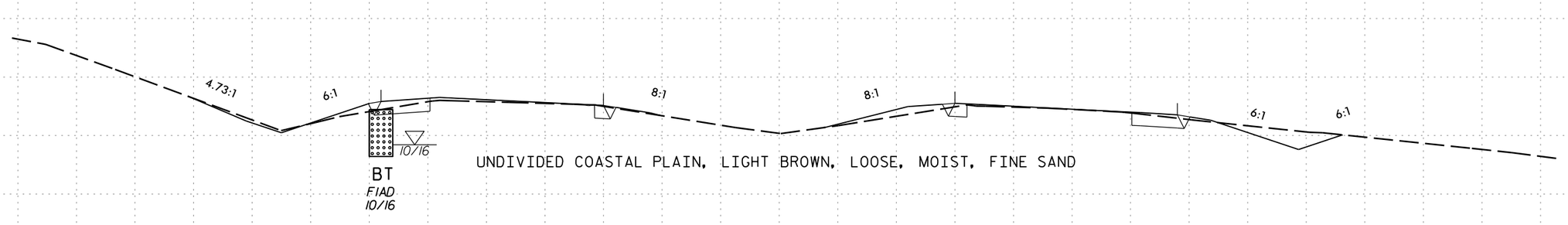
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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



219+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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	55

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

8:1 6:1 4.79:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

0+50

180
170
160

S-9

8:1 6:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHTLY PLASTIC, AND SANDY CLAY

BT
DRY
10/16

0+00

-RAMP A-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	56

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

190
180
170
160

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

8:1 6:1 4.41:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

1+50

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

8:1 6:1 4.91:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

1+00

-RAMP A-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	57

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PHONE: (919) 873-2211 FAX: (919) 873-9555
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0 20 40
FEET
VE = 2:1

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

180
170
160

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

8:1 6:1 5.23:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

10 12 13 16

BT
FIAD
02/16

2+50

190
180
170
160

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, DRY, SILTY CLAY

8:1 6:1 3.58:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

2+00

-RAMP A-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	58

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PHONE: (919) 873-2211 FAX: (919) 873-9555
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0 20 40
FEET
VE = 2:1

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

190
180
170
160

8:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, TAN-BROWN, VERY LOOSE TO LOOSE, MOIST TO SATURATED, SILTY SAND AND FINE SAND

3+50

ROADWAY EMBANKMENT, BROWN,
MEDIUM STIFF, DRY, SILTY CLAY

8:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, RED-BROWN AND ORANGE-TAN, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, HIGHLY PLASTIC, AND SANDY CLAY

3+00

-RAMP A-

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 90 100 110 120 130 140 150

PROJECT REFERENCE NO.	SHEET NO.
U-5796	59

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

190
180
170
160

8:1 6:1 6:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, TAN-BROWN, VERY LOOSE TO LOOSE, MOIST TO SATURATED, SILTY SAND AND FINE SAND

4+00
-RAMP A-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	60

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

160
150

3:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

1+00

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

160

3:1
6:1
8:1

WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

150

0+50

170
160

SEE LINE 1

3:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND
WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

0+00

-RAMP B-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	61

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

SS-4

3:1
6:1
8:1

8
5
8
5

03/16

BT

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN, AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

2+50

160
150

3:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

2+00

160
150

3:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

1+50

-RAMP B-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	62

Terracon
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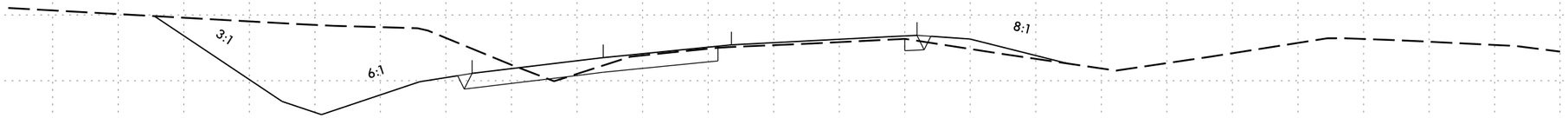
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

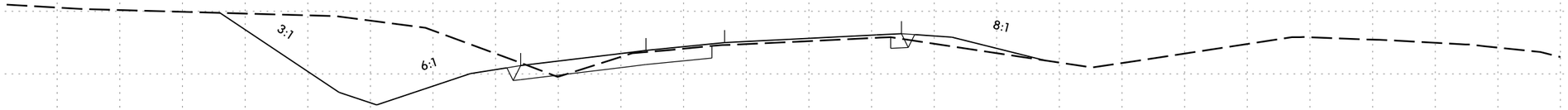
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

160
150



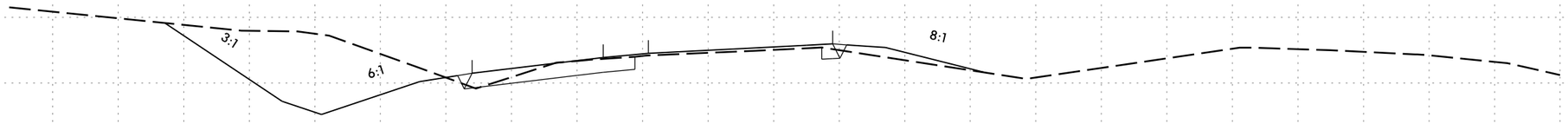
UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

4+00



UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

3+50



UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY AND SILTY CLAY

3+00

-RAMP B-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	63

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0 20 40
FEET
VE = 2:1

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

170
160
150

UNDIVIDED COASTAL PLAIN, GRAY-BROWN AND DARK GRAY, VERY LOOSE, MOIST, CLAYEY SAND

SS-5

3:1
6:1
6:1
6:1
8:1

1
3
10
8
3

03/16

WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

BT

5+50

UNDIVIDED COASTAL PLAIN, GRAY-BROWN AND DARK GRAY, VERY LOOSE, MOIST, CLAYEY SAND

3:1
6:1
6:1
8:1

WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

5+00

3:1
6:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

4+50

-RAMP B-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	64

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0 20 40
FEET
VE = 2:1

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

170
160

3:1 6:1 6:1 6:1 3.96:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

7+00

170
160

3:1 6:1 6:1 6:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, GRAY-BROWN, VERY LOOSE TO LOOSE, MOIST, SILTY SAND

COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

6+50

170
160

3:1 6:1 6:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, WHITE, TAN, GRAY-BROWN AND RED, VERY SOFT TO STIFF, WET TO SATURATED, SANDY CLAY

6+00

-RAMP B-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	65

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

BROWN, GRAY AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

8:1

ROADWAY EMBANKMENT, MEDIUM STIFF, MOIST, BROWN, SANDY CLAY

5.62:1

BT
FIAD
10/16
DRY

1+00

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

BROWN, GRAY AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

8:1

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

5.12:1

0+50

8:1

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

4.669:1

UNDIVIDED COASTAL PLAIN, ORANGE, GRAY AND LIGHT BROWN, MEDIUM STIFF, DRY, SANDY CLAY

0+00

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	66

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0 20 40
FEET
VE = 2:1

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

160
150

8:1
6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, WET TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

2+50

8:1
6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, WET TO SATURATED, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

2+00

8:1
6:1

UNDIVIDED COASTAL PLAIN, BROWN, GRAY AND RED, LOOSE, MOIST, CLAYEY SAND

ROADWAY EMBANKMENT, BROWN, MEDIUM STIFF, MOIST, SANDY CLAY

BROWN, GRAY AND RED, MEDIUM STIFF, WET TO SATURATED, SANDY CLAY

1+50

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	67

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

8:1
6:1
3.60:1
SS-7
⑤
⑧
⑦
⑥
BT
FIAD
03/16

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, MEDIUM STIFF, WET, SANDY CLAY

4+00

8:1
6:1
4.40:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

3+50

8:1
6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

3+00

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	68

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150
140

8:1 6:1 6:1 6:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, SOFT, WET, SANDY CLAY

GRAY-BROWN, LOOSE, SATURATED, CLAYEY SAND

GRAY-TAN, LOOSE, SATURATED, SILTY SAND

LIGHT TAN AND LIGHT GRAY, MEDIUM STIFF, WET, SILTY CLAY

5+00

170
160
150

8:1 6:1 3.50:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, MEDIUM STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

4+50

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	69

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

160
150

8:1 6:1 5.88:1 4:1 6:1 6:1 3.20:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, SOFT, WET, SANDY CLAY

GRAY-BROWN, LOOSE, SATURATED, CLAYEY SAND

GRAY-TAN, LOOSE, SATURATED, SILTY SAND

LIGHT TAN AND LIGHT GRAY, MEDIUM STIFF, WET, SILTY CLAY

6+50

SS-8

8:1 6:1 6:1 6:1 6:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, SOFT, WET, SANDY CLAY

GRAY-BROWN, LOOSE, SATURATED, CLAYEY SAND

GRAY-TAN, LOOSE, SATURATED, SILTY SAND

LIGHT TAN AND LIGHT GRAY, MEDIUM STIFF, WET, SILTY CLAY

BT
FIAD
03/16

6+00

160
150

8:1 6:1 6:1 6:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, SOFT, WET, SANDY CLAY

GRAY-BROWN, LOOSE, SATURATED, CLAYEY SAND

GRAY-TAN, LOOSE, SATURATED, SILTY SAND

LIGHT TAN AND LIGHT GRAY, MEDIUM STIFF, WET, SILTY CLAY

5+50

160
150
140

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	70

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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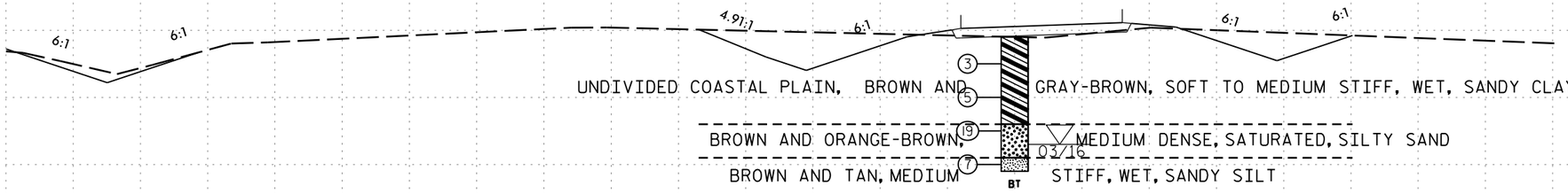
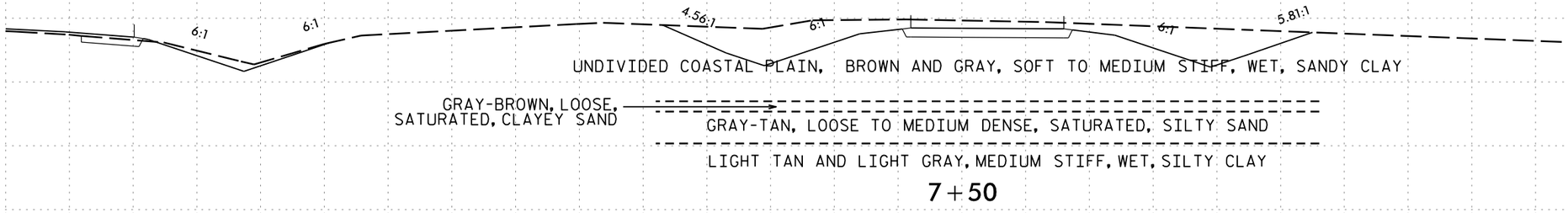
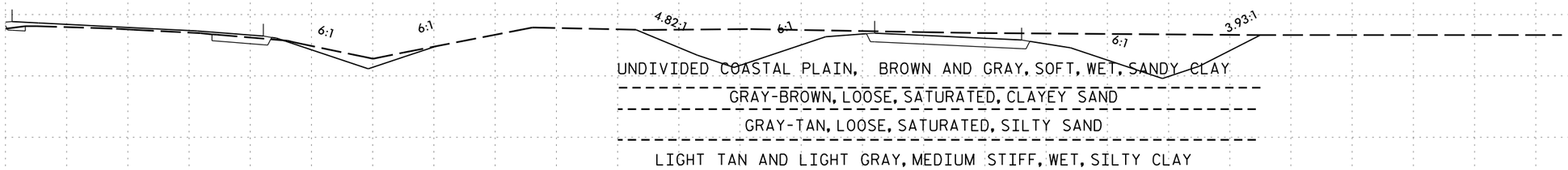


8+00



7+50



7+00

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	71

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NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

170
160

6:1 6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY-BROWN, SOFT, WET, SANDY CLAY

BROWN AND ORANGE-BROWN, MEDIUM DENSE, SATURATED, SILTY SAND

BROWN AND TAN, MEDIUM STIFF, WET, SANDY SILT

9+50

170
160

6:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY-BROWN, SOFT, WET, SANDY CLAY

BROWN AND ORANGE-BROWN, MEDIUM DENSE, SATURATED, SILTY SAND

BROWN AND TAN, MEDIUM STIFF, WET, SANDY SILT

9+00

160
150

6:1 6:1 6:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY-BROWN, SOFT TO MEDIUM STIFF, WET, SANDY CLAY

BROWN AND ORANGE-BROWN, MEDIUM DENSE, SATURATED, SILTY SAND

BROWN AND TAN, MEDIUM STIFF, WET, SANDY SILT

8+50

160
150

-RAMP C-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	72

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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160
150

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND
3:1
6:1
8:1
BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

0+50

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND
3:1
6:1
8:1
BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

0+00

-RAMP D-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	73

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180
170
160

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1
6:1
8:1

BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

1+50

180
170
160

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1
6:1
8:1

BROWN AND ORANGE, LOOSE, SATURATED, FINE SAND

10/16

BT

150

1+00

-RAMP D-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	74

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

UNDIVIDED COASTAL PLAIN, BROWN
STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

3:1
6:1
8:1

DARK BROWN AND TAN, VERY LOOSE TO LOOSE, SATURATED, SILTY AND FINE SAND

2+50

180
170
160

UNDIVIDED COASTAL PLAIN, BROWN,
LOOSE, MOIST, CLAYEY SAND

3:1
6:1
8:1

BROWN AND ORANGE, LOOSE, MOIST, FINE SAND

2+00

150

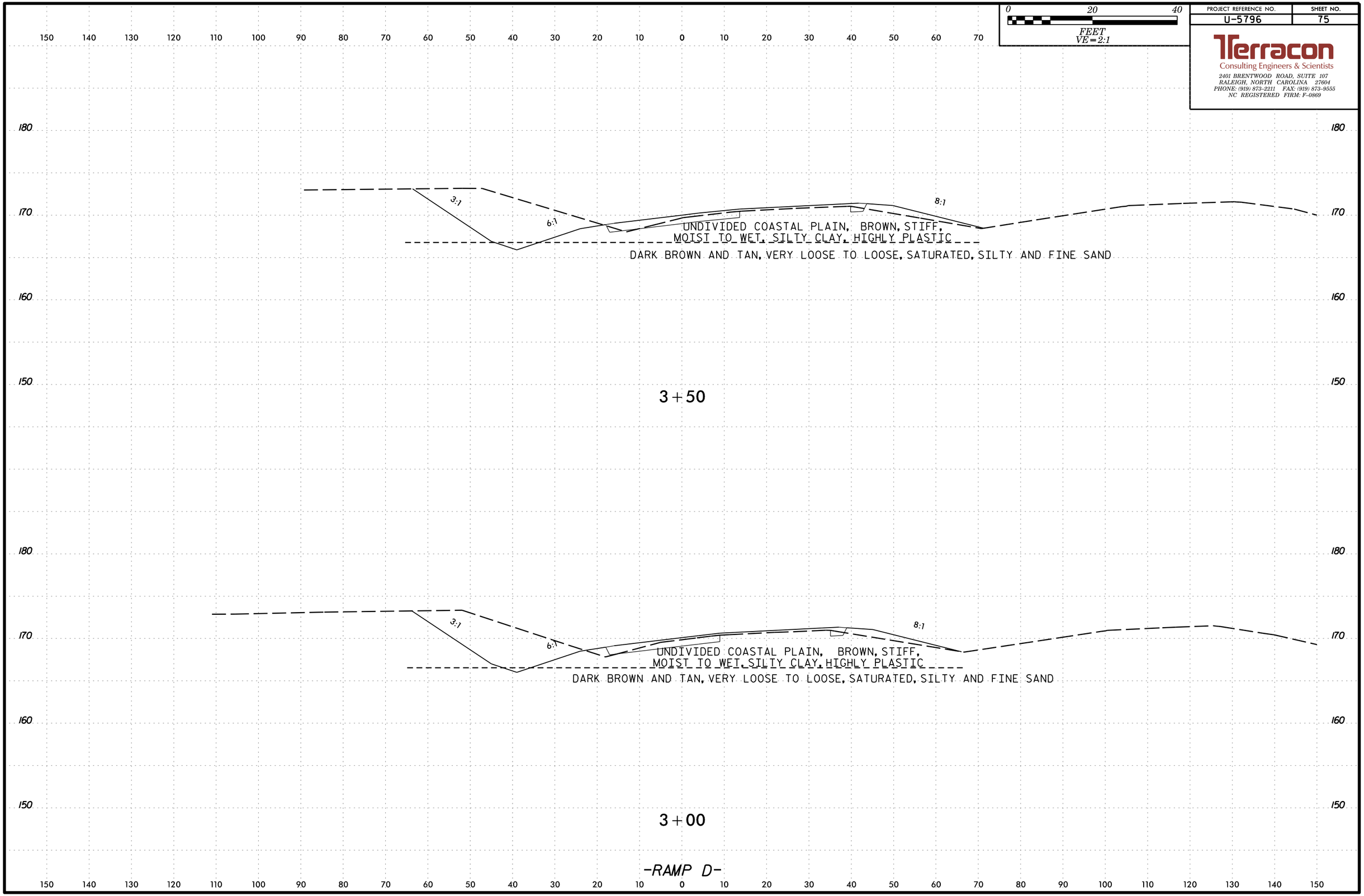
-RAMP D-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	75

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1



PROJECT REFERENCE NO.	SHEET NO.
U-5796	76

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180
170
160
150

3:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, BROWN, STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

DARK BROWN AND TAN, VERY LOOSE TO LOOSE, SATURATED, SILTY AND FINE SAND

4+50

SS-10

11
12
10
3

03/16

BT

4+00

-RAMP D-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	77

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

3:1
6:1
6:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

DARK BROWN AND TAN, VERY LOOSE TO LOOSE, SATURATED, SILTY AND FINE SAND

5+50

180
170
160
150

3:1
6:1
6:1
6:1
8:1

UNDIVIDED COASTAL PLAIN, BROWN, STIFF, MOIST TO WET, SILTY CLAY, HIGHLY PLASTIC

DARK BROWN AND TAN, VERY LOOSE TO LOOSE, SATURATED, SILTY AND FINE SAND

5+00

-RAMP D-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	78

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160
150

3:1 6:1 6:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, WET, SILTY CLAY, HIGHLY PLASTIC

BROWN AND GRAY-BROWN, VERY LOOSE TO LOOSE, WET TO SATURATED, CLAYEY SAND

6+50

SS-11

3:1 6:1 6:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, BROWN, SOFT, (2) (3) WET, SILTY CLAY HIGHLY PLASTIC

(WOH) BROWN AND GRAY-BROWN, VERY LOOSE (10) 03/16 TO LOOSE, WET TO SATURATED, CLAYEY SAND

BT

6+00

-RAMP D-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	79

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

6:1 6:1 6:1 6:1 8:1

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, VERY LOOSE, MOIST TO WET, CLAYEY SAND AND FINE SAND

BROWN, SOFT, WET, SILTY CLAY, HIGHLY PLASTIC

TAN AND GRAY, VERY LOOSE TO MEDIUM DENSE, SATURATED, FINE SAND AND SILTY SAND

7+50

UNDIVIDED COASTAL PLAIN, BROWN AND GRAY, VERY LOOSE, MOIST, CLAYEY SAND

6:1 6:1 6:1 6:1 8:1

BROWN, SOFT, WET, SILTY CLAY, HIGHLY PLASTIC

7+00

-RAMP D-

PROJECT REFERENCE NO.	SHEET NO.
U-5796	80

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

170
160

SEE LINE -Y12- SHEAR LINE

3:1 3:1

UNDIVIDED COASTAL PLAIN, TAN, GRAY AND ORANGE, MEDIUM STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY

150

17 + 50

170
160

SEE LINE -Y12- SHEAR LINE

3:1 3:1

ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY SAND

17 + 00

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	81

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180
170
160
150

3:1 3:1

UNDIVIDED COASTAL PLAIN, TAN, GRAY AND ORANGE, MEDIUM STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY

18+50

180
170
160
150

3:1 3:1

UNDIVIDED COASTAL PLAIN, TAN, GRAY AND ORANGE, MEDIUM STIFF, MOIST TO WET, SANDY CLAY AND SILTY CLAY

18+00

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	82

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170
160

S-4
SEE LINE -Y10- SHEAR LINE

3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

BT
DRY
10/16

36+00

3:1 3:1

UNDIVIDED COASTAL PLAIN, ORANGE, RED, GRAY AND TAN, SOFT TO VERY STIFF,
MOIST TO SATURATED, SILTY CLAY AND SANDY CLAY

35+50

3:1 3:1

UNDIVIDED COASTAL PLAIN, ORANGE, RED, GRAY AND TAN, SOFT TO VERY STIFF,
MOIST TO SATURATED, SILTY CLAY AND SANDY CLAY

35+00

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	83

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE = 2:1

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

180
170

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

37 + 50

180
170

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

37 + 00

180
170

SEE LINE -Y10- SHEAR LINE

3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

36 + 50

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	84

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180
170

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

BT
DRY
10/16

39+00

180
170

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

38+50

180
170

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

38+00

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	85

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

170

40+00

180

170

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

39+50

-Y8-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	86

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 10 20
FEET
VE = 2:1

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

180
170
160

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

10 + 50

S-4
10+20

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

BT
DRY
10/16

10 + 00

-Y10-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	87

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 10 20
FEET
VE=2:1

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

180
170
160

ROADWAY EMBANKMENT, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

11+50

180
170
160

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

11+00

-Y10-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	88

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

170
160

ROADWAY EMBANKMENT, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1 3:1 3:1 3:1

BT 10/16

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

13+00

170
160

ROADWAY EMBANKMENT, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

12+50

180
170
160

ROADWAY EMBANKMENT, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

12+00

-Y10-

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

PROJECT REFERENCE NO.	SHEET NO.
U-5796	89

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

0 20 40
FEET
VE=2:1

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

180
170
160

ROADWAY EMBANKMENT, BROWN, LOOSE, MOIST, CLAYEY SAND

3:1 3:1 3:1 3:1

UNDIVIDED COASTAL PLAIN, BROWN, LOOSE, MOIST, CLAYEY SAND

13+50

-Y10-

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

PROJECT REFERENCE NO.	SHEET NO.
U–5796	90

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY SUMMARY SHEET

REFERENCE: U–5796

PROJECT: 54039

SOIL LABORATORY TESTING SUMMARY

PROJECT NUMBER: 50439 **ID (TIP):** U-5796 **COUNTY:** WAYNE

DESCRIPTION: Division 4 - US 117 and SR 1120 (O'Berry Road) Interchange

Boring No.	Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
									Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
RPA_500	SS-1	-RAMPA-	5+00	CL	3.5 - 5.0	A-2-4 (0)	19	NP	60.4	21.5	10.4	7.7	0	100	75	21	ND	ND
RPA_700	SS-2	-RAMPA-	7+00	CL	3.5 - 5.0	A-6 (2)	30	21	49.2	16.9	10.7	23.2	0	100	80	36	15.6	ND
RPA_900	SS-3	-RAMPA-	9+00	CL	1.0 - 2.5	A-6 (3)	36	22	44.4	20.4	10.4	24.8	0	100	83	38	20.3	ND
RPB_250	SS-4	-RAMPB-	2+50	CL	1.0 - 2.5	A-6 (4)	33	22	41.2	21.1	13.6	24.1	0	100	85	41	14.3	ND
RPB_550	SS-5	-RAMPB-	5+50	CL	3.5 - 5.0	A-6 (2)	23	12	36.4	22.0	20.3	21.3	0	100	87	46	14.5	ND
RPB_950	SS-6	-RAMPB-	9+50	CL	3.5 - 5.0	A-6 (7)	38	24	37.0	17.7	14.0	31.3	0	100	85	48	18.8	ND
RPC_400	SS-7	-RAMPC-	4+00	CL	3.5 - 5.0	A-7-6 (8)	50	29	42.6	14.8	11.4	31.2	0	100	81	44	21.1	ND
RPC_600	SS-8	-RAMPC-	6+00	CL	1.0 - 2.5	A-6 (1)	24	14	44.0	20.6	13.4	22.0	0	100	81	39	15.5	ND
RPC_1000	SS-9	-RAMPC-	10+00	CL	1.0 - 2.5	A-6 (2)	22	13	37.5	21.6	14.3	26.6	0	100	86	45	14.0	ND
RPD_400	SS-10	-RAMPD-	4+00	CL	1.0 - 2.5	A-7-6 (5)	42	26	46.5	14.2	8.4	30.9	0	100	80	41	19.0	ND
RPD_600	SS-11	-RAMPD-	6+00	CL	3.5 - 5.0	A-7-6 (6)	42	26	41.8	17.6	9.1	31.5	0	100	86	43	21.4	ND
RPD_800	SS-12	-RAMPD-	8+00	CL	3.5 - 5.0	A-2-6 (0)	35	22	54.5	18.4	4.8	22.3	0	100	79	28	ND	ND
RPD_1200	SS-13	-RAMPD-	12+00	CL	13.0 - 15.0	A-7-6 (19)	43	30	0.4	35.2	29.4	35.0	0	100	100	72	22.5	ND
Y8_3000	SS-14	-Y8-	30+00	13 LT	18.5 - 20.0	A-7-6 (63)	75	57	0.4	1.8	36.1	61.7	0	100	100	99	41.1	ND
RPB_950	S-1	-RAMPB-	9+50	CL	1.0 - 6.0	A-6 (4)	30	18	36.4	21.4	14.9	27.3	0	100	87	46	16.1	ND
RPD_1000	S-2	-RAMPD-	10+00	CL	1.0 - 6.0	A-6 (4)	37	21	42.4	18.9	10.3	28.4	0	100	82	41	20.8	ND
Y8_1600	S-3	-Y8-	16+00	9 RT	0.0-4.0	A-2-4 (0)	20	9	48.4	23.5	9.9	18.2	0	100	83	32	ND	ND
Y8_3600	S-4	-Y8-	36+00	20 LT	0.0-4.0	A-2-6 (0)	32	16	50.9	18.3	8.5	22.3	4	92	73	31	ND	ND
L_17800	S-5	-L-	178+00	67 RT	0.0-4.0	A-6 (12)	40	24	23.0	20.2	32.0	24.8	0	100	91	63	18.5	ND
L_18100	S-6	-L-	181+00	70 LT	0.0-4.0	A-4 (0)	19	8	38.8	30.0	13.5	17.7	0	100	88	36	9.6	ND
L_19600	S-7	-L-	196+00	67 RT	1.5-4.0	A-4 (0)	19	10	45.6	21.7	12.3	20.4	0	100	81	36	7.7	ND
L_20400	S-8	-L-	204+00	68 RT	2.5-4.0	A-2-6 (0)	29	17	50.2	22.2	6.0	21.6	0	100	82	30	ND	ND
L_21000	S-9	-L-	210+00	67 LT	0.0-4.0	A-7-6 (7)	49	36	47.5	15.0	5.6	31.9	0	100	82	39	15.0	ND
Y8_2350	ST-1	-Y8-	23+50	2 RT	15.0 - 17.4	A-4 (6)	29	8	0.4	36.6	39.4	23.6	0	100	100	83	31.6	ND
EB2-A	ST-2	-Y8-	28+50	8 LT	10.0 - 12.4	A-7-6 (31)	52	35	0.3	21.4	43.0	35.3	0	100	100	86	21.3	ND

ND-NOT DETERMINED
NP-NONPLASTIC
LABORATORY TESTING OF SHELBY TUBE SAMPLES, ST-1 AND ST-2, WAS PERFORMED BY GEOTECHNICS.

Stephanie H. Huffman
Certified Lab Technician Signature

114-01-1203
Certification Number

PROJECT REFERENCE NO.	SHEET NO.
U–5796	92

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX B
IN–SITU TESTING RESULTS

REFERENCE: U–5796

PROJECT: 54039

CPT LOG NO. C1

PROJECT: U-5796 - US-117 & SR 1120 (O'Berry Road) Interchange

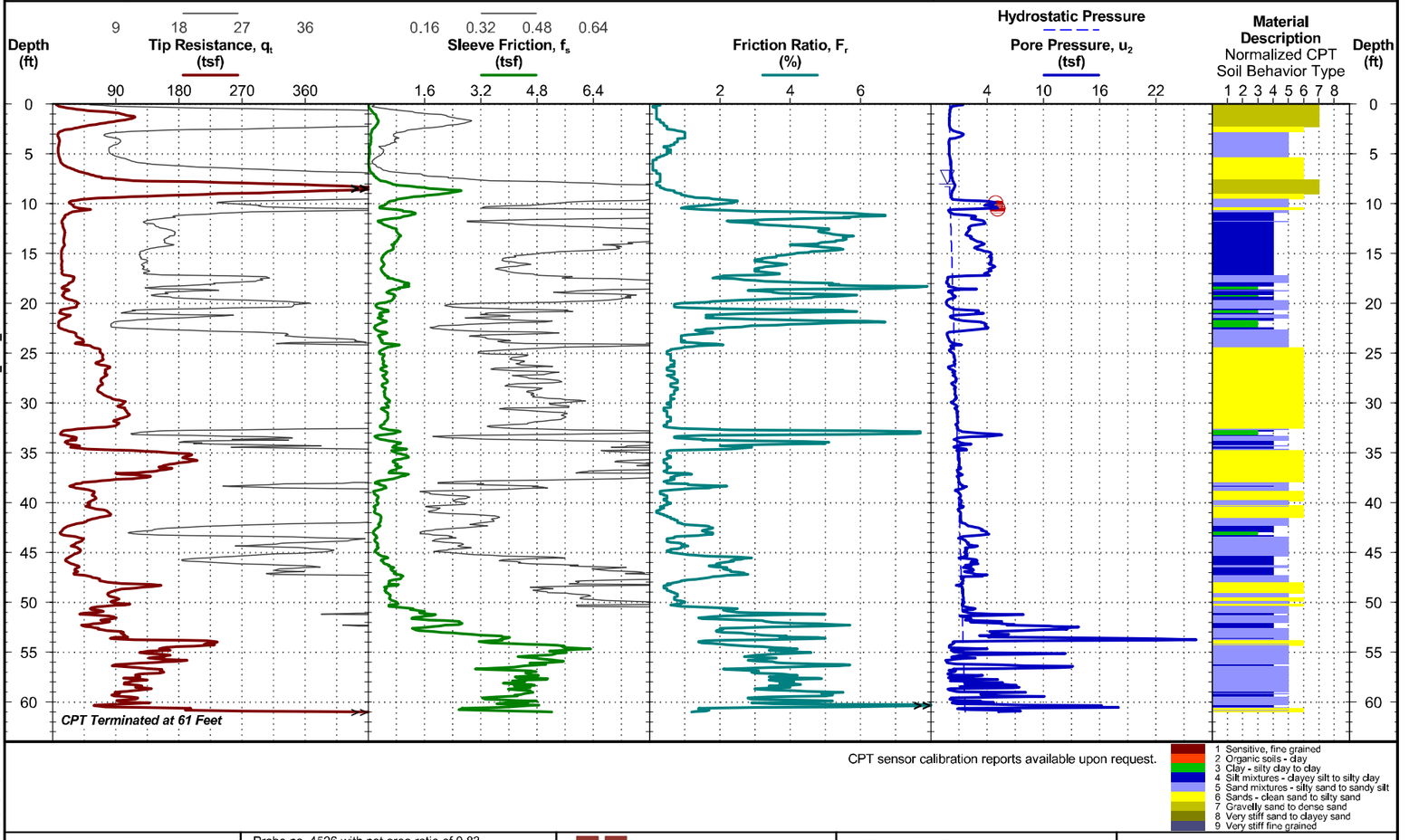
CLIENT: Wetherill Engineering
Raleigh, North Carolina

TEST LOCATION: (As-Tested Locations)

SITE: US-117 & O'Berry Road
Dudley, North Carolina

LL: 35.2681°,-78.05209°
NE: 553851,2282930

Station: 28+76 -Y8-
Offset: 74 ft Right



CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
6 Sands - clean sand to silty sand
7 Gravelly sand to dense sand
8 Very stiff sand to clayey sand
9 Very stiff fine grained

WATER LEVEL OBSERVATION				
▽ 8 ft estimated water depth (used in normalizations and correlations; see Appendix C)	Probe no. 4526 with net area ratio of 0.83 U2 pore pressure transducer location Manufactured by Geotech A.B.; calibrated 12/7/2015 Tip and sleeve areas of 10 cm² and 150 cm² Ring friction reducer with O.D. of 1.875 in	Terracon 2401 Brentwood Road, Suite 107 Raleigh, North Carolina	CPT Started: 2/17/2016 Rig: Pagani TG73-200 Project No.: 54039.1.FD1	CPT Completed: 2/17/2016 Operator: JB Exhibit: CPT-1

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. CPT REPORT U5796_GEO_CPT.GPJ TERRACON2015.GDT 3/2/16

CPT LOG NO. C2

PROJECT: U-5796 - US-117 & SR 1120 (O'Berry Road) Interchange

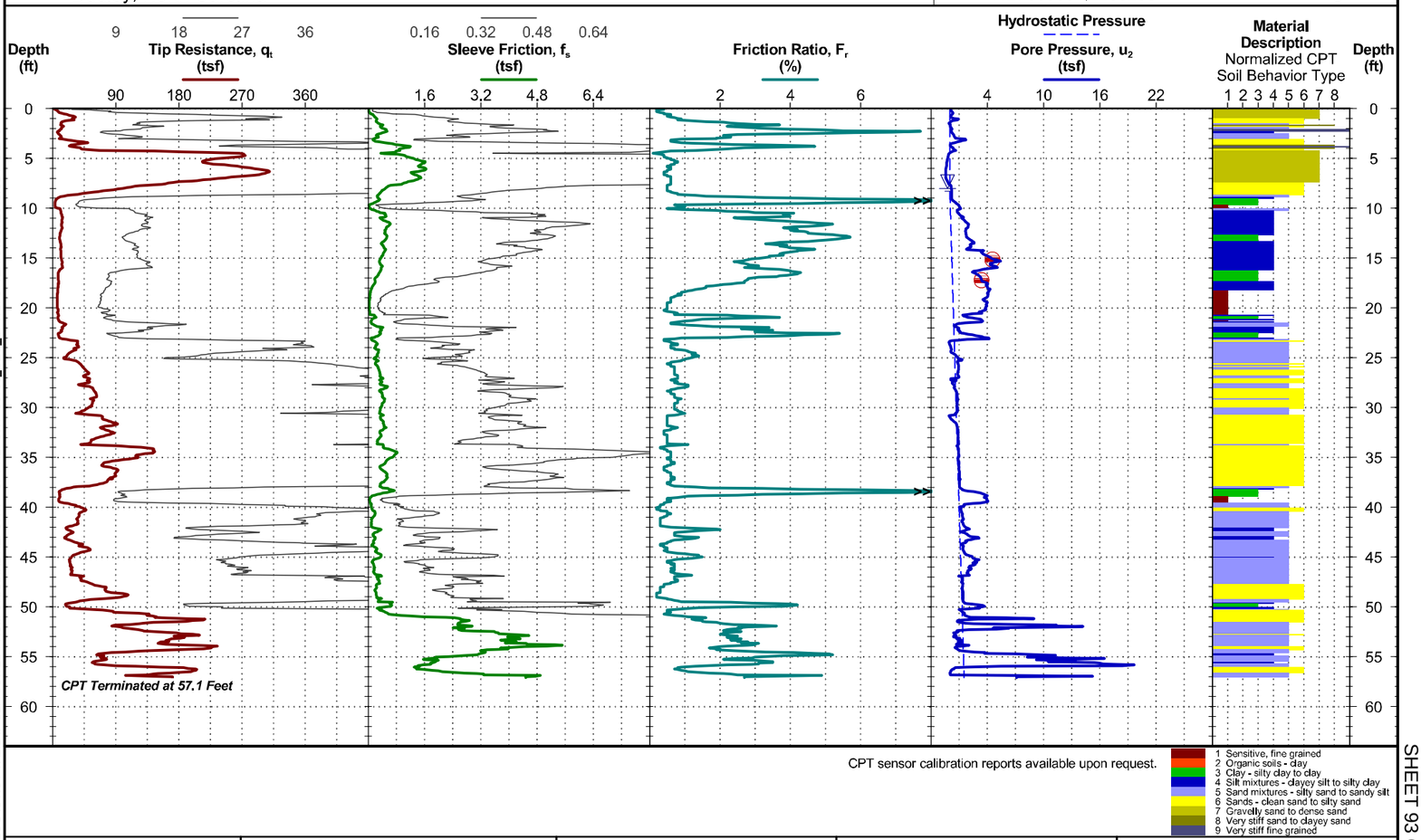
CLIENT: Wetherill Engineering
Raleigh, North Carolina

TEST LOCATION: (As-Tested Locations)

SITE: US-117 & O'Berry Road
Dudley, North Carolina

LL: 35.26817°,-78.051°
NE: 553881,2283255

Station: 31+98 -Y8-
Offset: 40 ft Right



CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
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WATER LEVEL OBSERVATION				
▽ 8 ft estimated water depth (used in normalizations and correlations; see Appendix C)	Probe no. 4526 with net area ratio of 0.83 U2 pore pressure transducer location Manufactured by Geotech A.B.; calibrated 12/7/2015 Tip and sleeve areas of 10 cm² and 150 cm² Ring friction reducer with O.D. of 1.875 in	Terracon 2401 Brentwood Road, Suite 107 Raleigh, North Carolina	CPT Started: 2/17/2016 Rig: Pagani TG73-200 Project No.: 54039.1.FD1	CPT Completed: 2/17/2016 Operator: JB Exhibit: CPT-2

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. CPT REPORT U5796_GEO_CPT.GPJ TERRACON2015.GDT 3/2/16

CPT LOG NO. C3

PROJECT: U-5796 - US-117 & SR 1120 (O'Berry Road) Interchange

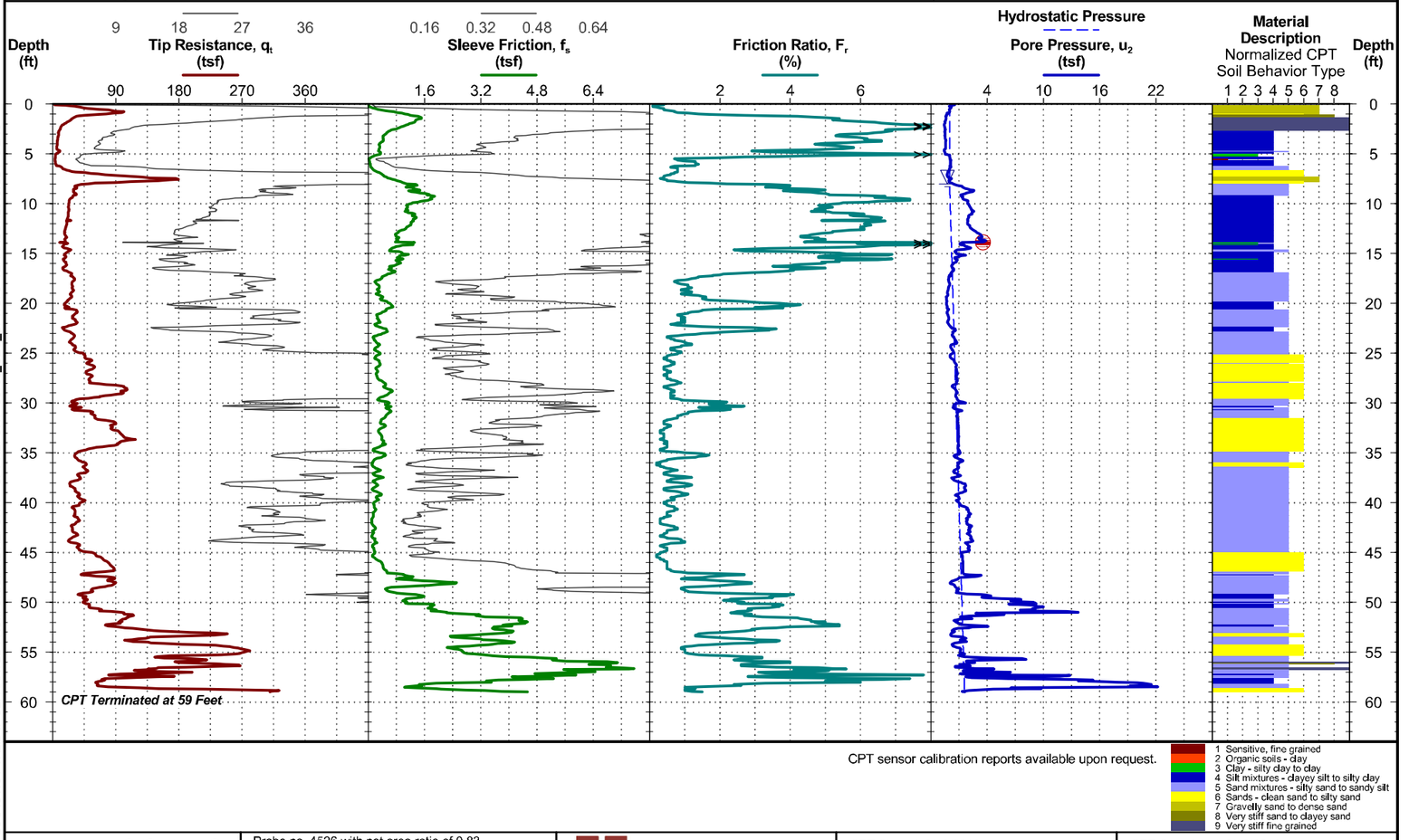
CLIENT: Wetherill Engineering
Raleigh, North Carolina

TEST LOCATION: (As-Tested Locations)

SITE: US-117 & O'Berry Road
Dudley, North Carolina

LL: 35.26837°,-78.05291°
NE: 553947,2282684

Station: 26+27 -Y8-
Offset: 15 ft Left



CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
6 Sands - clean sand to silty sand
7 Gravelly sand to dense sand
8 Very stiff sand to clayey sand
9 Very stiff fine grained

WATER LEVEL OBSERVATION	Probe no. 4526 with net area ratio of 0.83 U2 pore pressure transducer location Manufactured by Geotech A.B.; calibrated 12/7/2015 Tip and sleeve areas of 10 cm² and 150 cm² Ring friction reducer with O.D. of 1.875 in	Terracon 2401 Brentwood Road, Suite 107 Raleigh, North Carolina	CPT Started: 2/18/2016	CPT Completed: 2/18/2016
▽ 8 ft estimated water depth (used in normalizations and correlations; see Appendix C)			Rig: Pagani TG73-200	Operator: JB
			Project No.: 54039.1.FD1	Exhibit: CPT-3

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. CPT REPORT U5796_GEO_CPT.GPJ TERRACON2015.GDT 3/2/16

CPT LOG NO. C4

PROJECT: U-5796 - US-117 & SR 1120 (O'Berry Road) Interchange

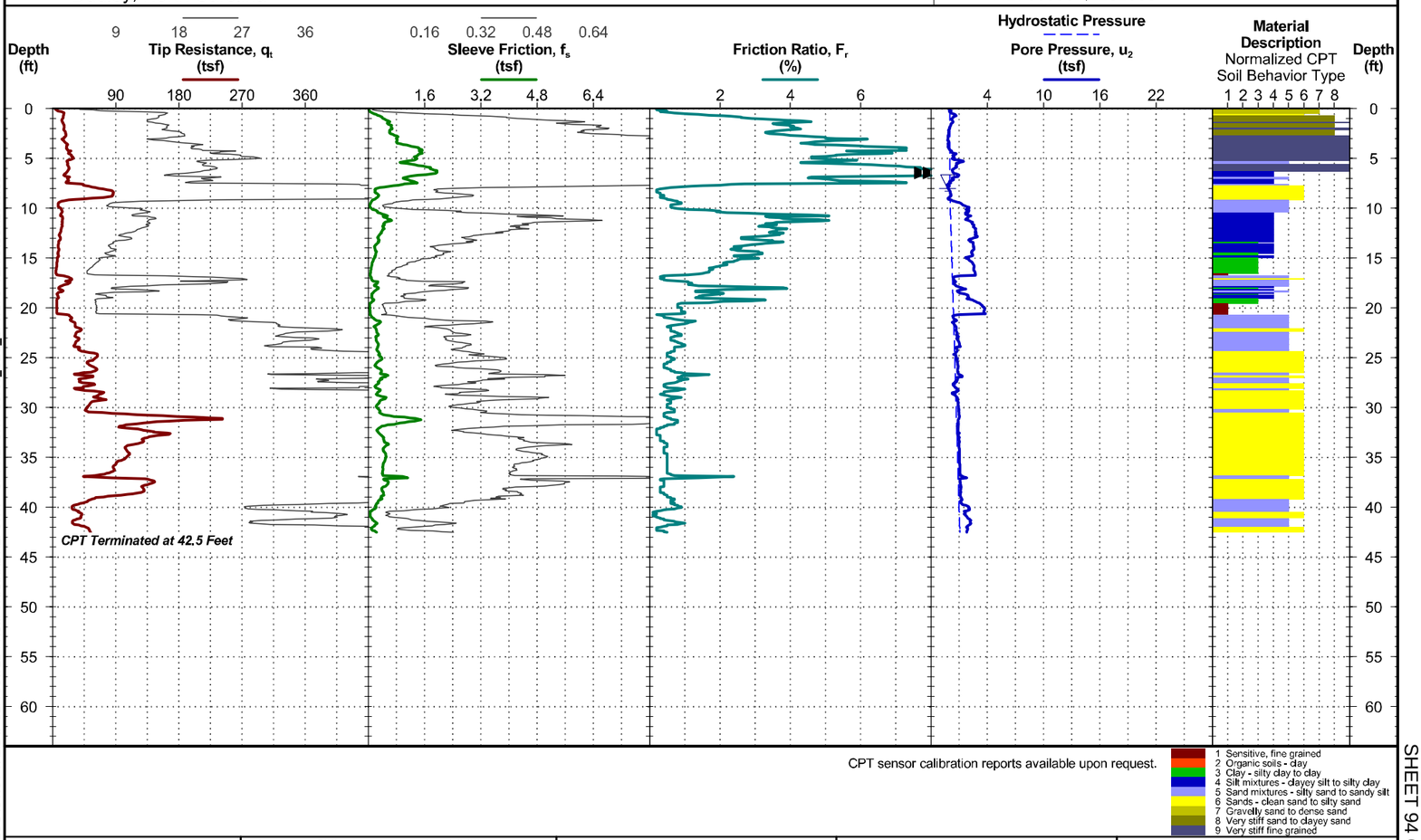
CLIENT: Wetherill Engineering
Raleigh, North Carolina

TEST LOCATION: (As-Tested Locations)

SITE: US-117 & O'Berry Road
Dudley, North Carolina

LL: 35.26842°,-78.05391°
NE: 553964,2282385

Station: 23+28 -Y8-
Offset: 22 ft Left



CPT sensor calibration reports available upon request.

1 Sensitive, fine grained
2 Organic soils - clay
3 Clay - silty clay to clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
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8 Very stiff sand to clayey sand
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WATER LEVEL OBSERVATION	Probe no. 4526 with net area ratio of 0.83 U2 pore pressure transducer location Manufactured by Geotech A.B.; calibrated 12/7/2015 Tip and sleeve areas of 10 cm² and 150 cm² Ring friction reducer with O.D. of 1.875 in	Terracon 2401 Brentwood Road, Suite 107 Raleigh, North Carolina	CPT Started: 2/18/2016	CPT Completed: 2/18/2016
▽ 8 ft estimated water depth (used in normalizations and correlations; see Appendix C)			Rig: Pagani TG73-200	Operator: JB
			Project No.: 54039.1.FD1	Exhibit: CPT-4

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. CPT REPORT U5796_GEO_CPT.GPJ TERRACON2015.GDT 3/2/16

PROJECT REFERENCE NO.	SHEET NO.
U–5796	95

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

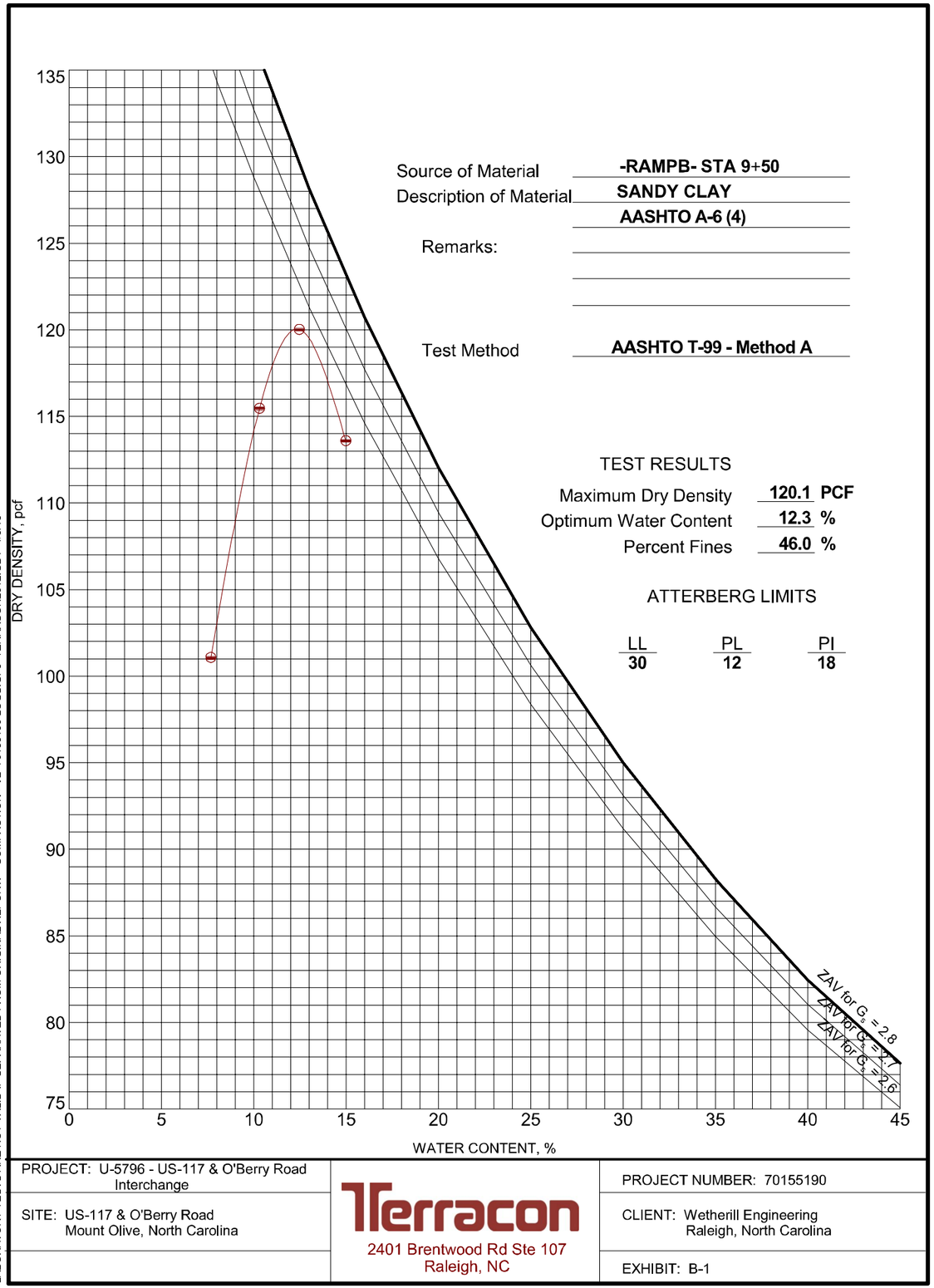
APPENDIX C
PROCTOR AND CBR TEST RESULTS

REFERENCE: U–5796

PROJECT: 54039

MOISTURE-DENSITY RELATIONSHIP

AASHTO T-99



Source of Material: **-RAMPB- STA 9+50**
Description of Material: **SANDY CLAY**
AASHTO A-6 (4)

Remarks:

Test Method: **AASHTO T-99 - Method A**

TEST RESULTS

Maximum Dry Density	**120.1**	**PCF**
Optimum Water Content	**12.3**	**%**
Percent Fines	**46.0**	**%**

ATTERBERG LIMITS

LL	PL	PI
30	**12**	**18**

PROJECT: U-5796 - US-117 & O'Berry Road Interchange	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70155190
SITE: US-117 & O'Berry Road Mount Olive, North Carolina		CLIENT: Wetherill Engineering Raleigh, North Carolina
		EXHIBIT: B-1

REPORT FOR CALIFORNIA BEARING RATIO

Service Date: 03/28/16
Report Date: 04/05/16

Terracon
2401 Brentwood Road, Suite 107
Raleigh, NC 27604
919-873-2211

Client

Wetherill Engineering
Attn: Eddie Wetherill
1223 Jones Franklin Road
Raleigh, North Carolina

Project

U-5796 - US-117 & O'Berry Road Interchange
US-117 & O'Berry Road
Mount Olive, North Carolina

Project No. 70155190

SAMPLE INFORMATION

Sample Number:	S-1	Proctor Method:	AASHTO T99 - Method A
Boring Number:	RPB-950	Maximum Dry Density (pcf):	120.1
Sample Location:	Bulk Sample	Optimum Moisture:	12.3
Depth:	1-6'	Liquid Limit:	30
Material Description:	Sandy Clay - AASHTO A-6 (4)	Plasticity Index:	18

CBR TEST DATA

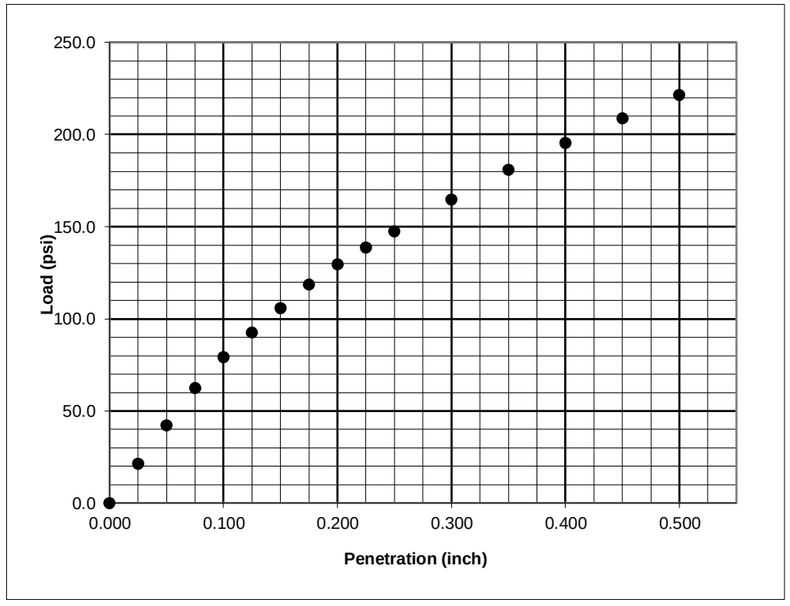
CBR Value at 0.100 inch	**7.9**
CBR Value at 0.200 inch	**8.6**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	0.0

DENSITY DATA

Dry Density Before Soaking (pcf)	118.9
Compaction of Proctor (%)	99.0

MOISTURE DATA

Before Compaction (%)	12.9
After Compaction (%)	12.2
Top 1" After Soaking (%)	14.7
Average After Soaking (%)	13.9



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matthew J. Alexander
Contractor:

Report Distribution

Reviewed by:

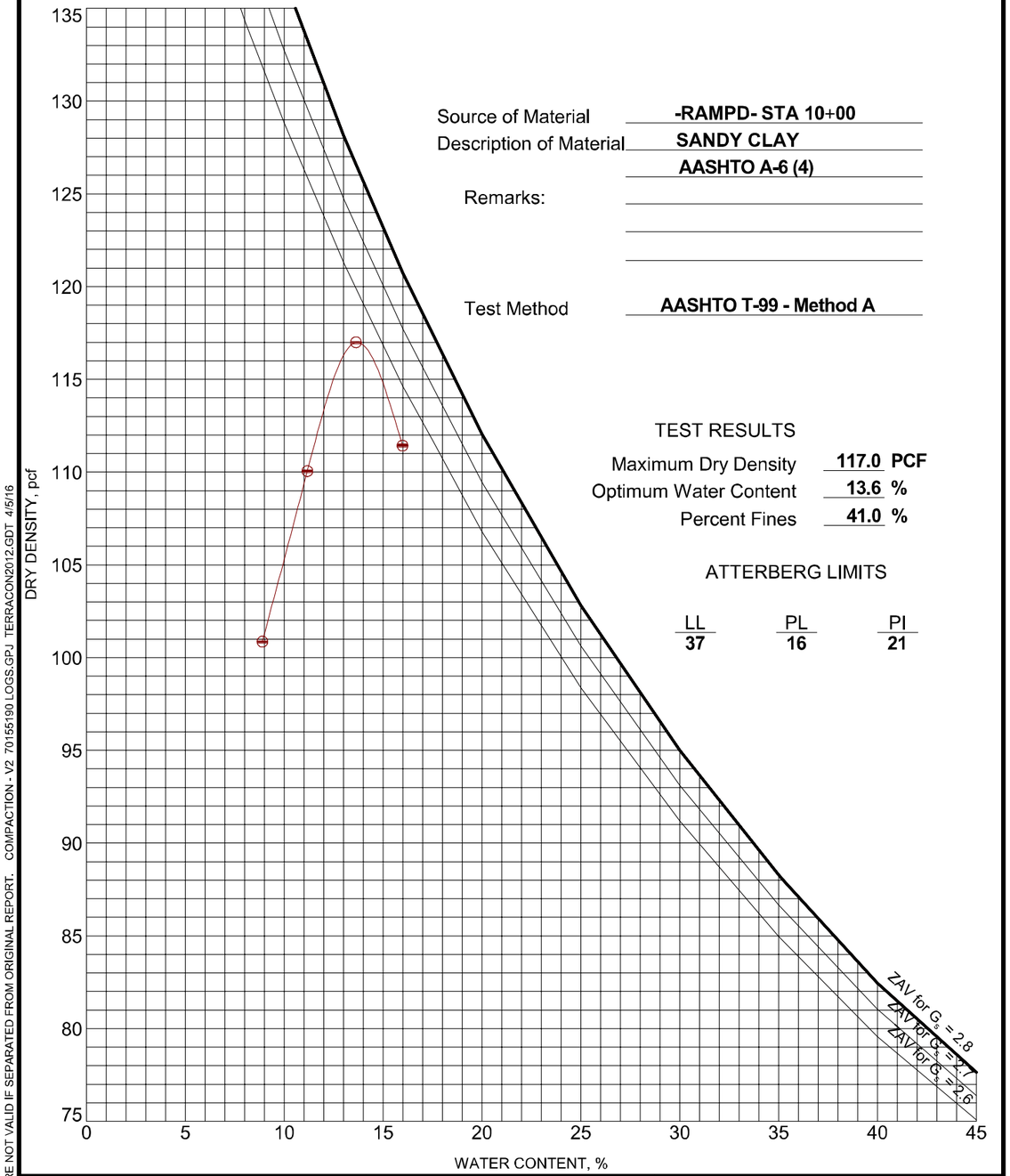
Matthew J. Alexander, PE
Geotechnical Project Manager

Test Methods: AASHTO T-193

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written approval of Terracon. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

MOISTURE-DENSITY RELATIONSHIP

AASHTO T-99



Source of Material: **-RAMPD- STA 10+00**

Description of Material: **SANDY CLAY**
AASHTO A-6 (4)

Remarks:

Test Method: **AASHTO T-99 - Method A**

TEST RESULTS

Maximum Dry Density	**117.0**	**PCF**
Optimum Water Content	**13.6**	**%**
Percent Fines	**41.0**	**%**

ATTERBERG LIMITS

LL	PL	PI
37	**16**	**21**

PROJECT: U-5796 - US-117 & O'Berry Road Interchange	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70155190
SITE: US-117 & O'Berry Road Mount Olive, North Carolina		CLIENT: Wetherill Engineering Raleigh, North Carolina
		EXHIBIT: B-1

REPORT FOR CALIFORNIA BEARING RATIO

Service Date: 03/28/16
Report Date: 04/05/16

Terracon
2401 Brentwood Road, Suite 107
Raleigh, NC 27604
919-873-2211

Client

Wetherill Engineering
Attn: Eddie Wetherill
1223 Jones Franklin Road
Raleigh, North Carolina

Project

U-5796 - US-117 & O'Berry Road Interchange
US-117 & O'Berry Road
Mount Olive, North Carolina

Project No. 70155190

SAMPLE INFORMATION

Sample Number:	S-2	Proctor Method:	AASHTO T99 - Method A
Boring Number:	-RAMPD- STA	Maximum Dry Density (pcf):	117.1
Sample Location:	10+00 Bulk Sample	Optimum Moisture:	13.6
Depth:	1-6'	Liquid Limit:	37
Material Description:	Sandy Clay - AASHTO A-6 (4)	Plasticity Index:	21

CBR TEST DATA

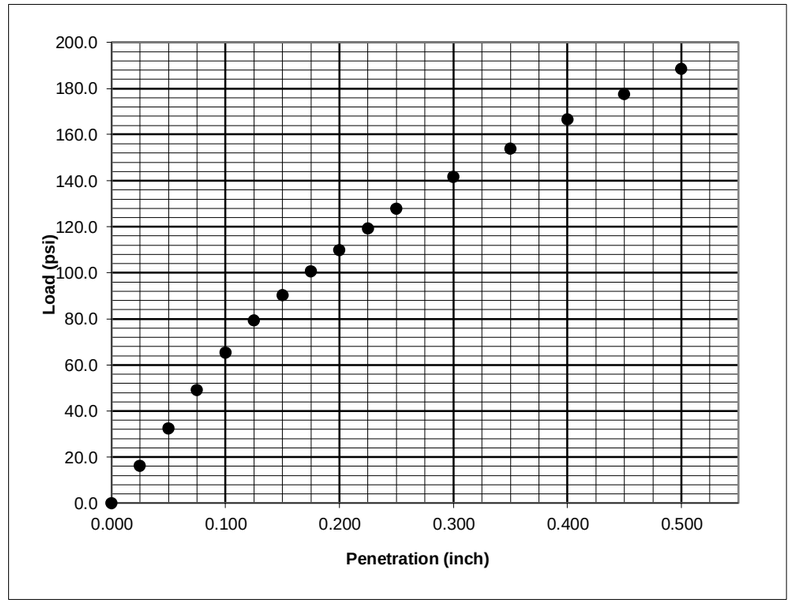
CBR Value at 0.100 inch	**6.5**
CBR Value at 0.200 inch	**7.3**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	0.1

DENSITY DATA

Dry Density Before Soaking (pcf)	115.2
Compaction of Proctor (%)	98.4

MOISTURE DATA

Before Compaction (%)	14.4
After Compaction (%)	14.3
Top 1" After Soaking (%)	15.6
Average After Soaking (%)	15.2



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matthew J. Alexander
Contractor:

Report Distribution

Reviewed by: _____
Matthew J. Alexander, PE
Geotechnical Project Manager

Test Methods: AASHTO T-193