REFERENCE: W-5706L

PROJECT: 44852

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN
-L-	11+50 - 24+00	4
-Y1-	10+00 - 16+54	4
-Y2-	22+75 - 26+55	4
-Y3-	27+56 - 28+56	5
-RBT1-	10+00 - 14+12	4

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	13+50 - 24+00	6 - 10
-Y1-	12+25	11
-Y2-	20+25 - 26+00	12 - 18
-RBT1-	10+00 - 13+75	19 - 20

APPENDICES

APPENDIX	TITLE	SHEETS
A	ADDITIONAL BORING LOGS	22 - 24
	LABORATORY TESTING SUMMARY	25
	PROCTOR & CBR TESTING RESULT	26

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY HARNETT

PROJECT DESCRIPTION ROUNDABOUT AT NC 27 / SR 1007 (OLD STAGE ROAD) /SR 2084 (LESLIE CAMPBELL AVENUE)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5706L	1	

CAUTION NOTICE

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

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

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

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DATE NOVEMBER 2023

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C2F6ACA84D274B1...
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
W-5706L	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] DIEDRICH D-50 (TER373)
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 2¼" HOLLOW STEM AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE 2 15/16" TUNG.-CARB.
- [X] 4¼" THIN WALL CORE BARREL
- [X] 3¼" SOLID STEM AUGERS

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: BORINGS PROJECTED USING NCDOT PROVIDED TIN FILE: w5706l_ls_tin.tin; DATED 07/02/2019.
ELEVATION: N/A FEET

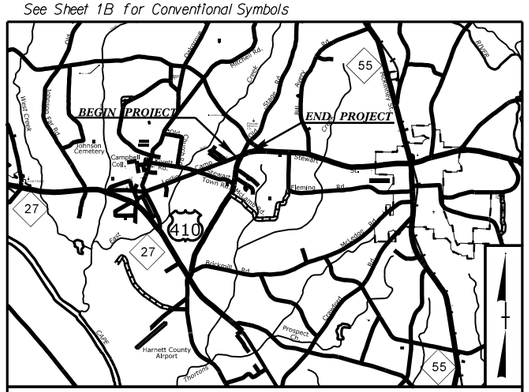
NOTES:
FIAD - FILLED IMMEDIATELY AFTER DRILLING

⊙ TEST LOCATION - PAVEMENT CORED, DCP, AUGER PROBE

09/08/99

CONTRACT: TIP PROJECT: W-5706L

See Sheet 1A for Index of Sheets
See Sheet 1B for Conventional Symbols



VICINITY MAP NTS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

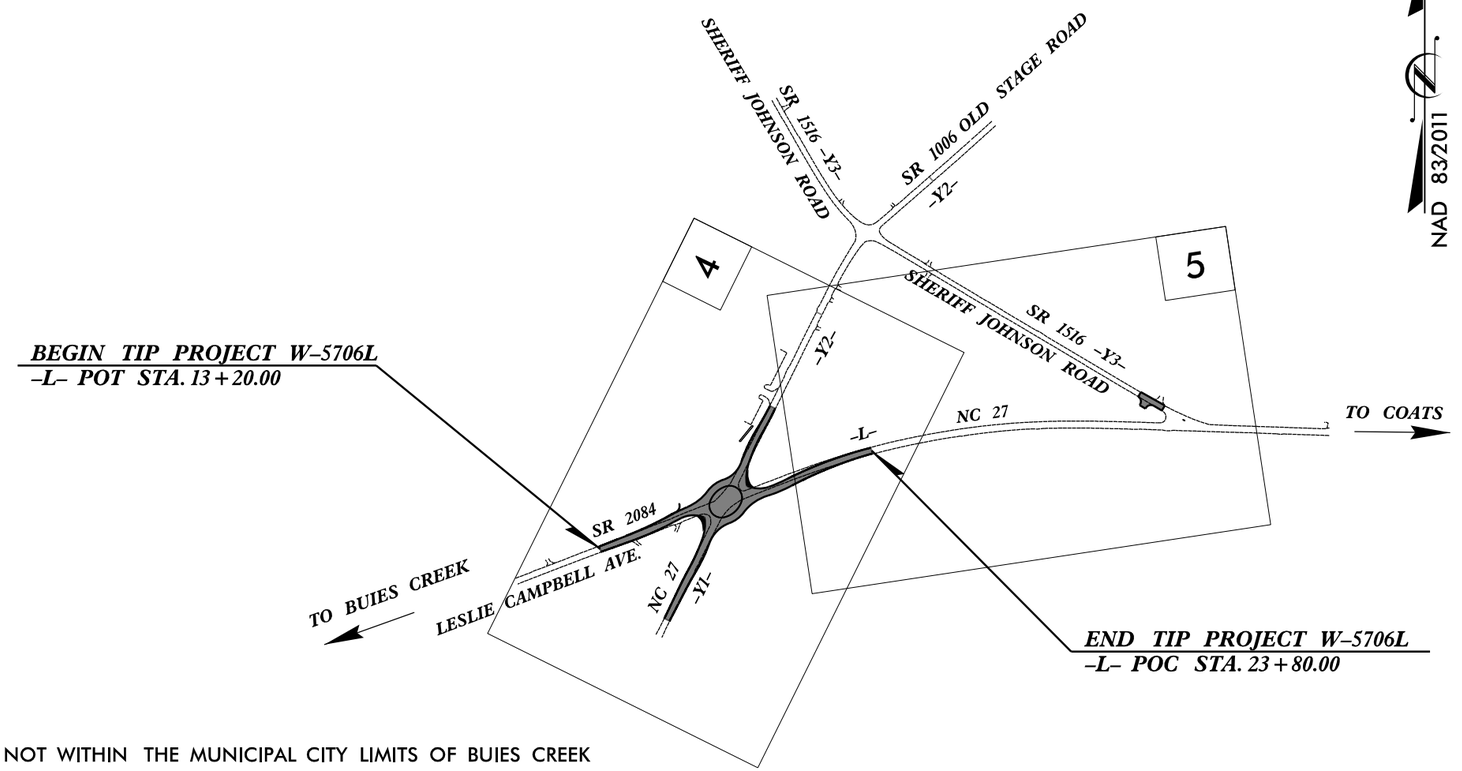
HARNETT COUNTY

LOCATION: NC 27/SR 1007(OLD STAGE RD.)/ SR 2084(LESLIE CAMPBELL AVE)

TYPE OF WORK: GRADING, DRAINAGE, & PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5706L	3	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44852.1.12	HSIP-0027(019)	PE
44852.2.12	HSIP-0027(019)	R / W
44852.2.33	HSIP-0027(019)	UTIL.
44852.2.12	HSIP-0027(019)	CONSTR.



NAD 83/2011

THIS PROJECT IS NOT WITHIN THE MUNICIPAL CITY LIMITS OF BUIES CREEK
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 5,750
ADT 2040 = 7,400
K = 12 %
D = 55 %
T = 5 % *
V = 50 MPH
* TTST = 2% DUAL 3%
FUNC CLASS = RURAL ARTERIAL

TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT W-5706L = 0.201 MILES
TOTAL LENGTH OF TIP PROJECT W-5706L = 0.201 MILES

Prepared In The Offices of:

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866 Fax. (919) 851-7024
www.stantec.com License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM/ LICENSE NO. C-890

For the North Carolina Department of Transportation

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2021

LETTING DATE:
APRIL 3, 2024

STANTEC CONTACT
STEVE SMALLWOOD, PE
PROJECT ENGINEER

NCDOT CONTACT:
ALEX HENDERSON

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

21-NOV-2023 13:16
\\P70WFSO\Data\Projects\2021\7021508б\W5706L\W5706L_GEO_RDWY\CADD_GEOTECH\PlanProf\NEW\W5706L_Rdy_tsh.dgn
halmulla AT WXE-70045194

PROJECT REFERENCE NO.	SHEET NO.
W-5706L	3A

Date: November 22, 2023

WBS Number: 44852.1.1
TIP Number: W-5706L
County: Harnett
Description: Roundabout at NC 27 / SR 1006 (Old Stage Road) / SR 2084 (Leslie Campbell Avenue)

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located in Harnett County, North Carolina at the intersection of NC 27 / SR 1006 (Old Stage Road) / SR 2804 (Leslie Campbell Avenue). The project consists of improving grades and alignments of 0.211 miles of roadway to construct a roundabout at the intersection of Old Stage Road and Leslie Campbell Avenue. All the existing roadways on the project are two-lane rural routes.

The geotechnical subsurface investigation was performed in August of 2021 and August of 2022. The site was investigated with nine (9) hand auger borings and three (3) standard penetration test (SPT) borings. The hand auger borings were performed at locations that could not be easily accessed by the drill rig. Additionally, five (5) auger probes, performed during the pavement design investigation are included in this report. The hand auger borings and auger probes were advanced to depths of 6 to 10 feet beneath the ground surface. The SPT borings and auger probes were advanced using a D-50 Diedrich track mounted rotary drill rig equipped with a recently calibrated automatic hammer. The SPT borings were advanced with hollow stem augers to depths of 10 feet beneath the ground surface.

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. A bulk bag sample was collected of representative subgrade soil to perform compaction moisture–density curves and California Bearing Ratio (CBR) testing to evaluate subgrade support values to be used in pavement design. All laboratory testing was performed in a NCDOT materials and testing certified laboratory in accordance with the AASHTO Soil Classification System.

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

Alignment	Stations (±)
-L-	11+50 to 24+00
-Y1-	10+00 to 16+54
-Y2-	22+75 to 26+55
-RBT-	10+00 to 14+12

Physiography and Geology

The site is located within the Inner Coastal Plain Physiographic and Geologic Province of North Carolina in Harnett County. The Coastal Plain Province is typically characterized by marine and eolian sediments that were deposited during periods of fluctuating sea levels and moving shorelines. The existing elevations along the investigated corridor range from approximately 225 feet at the south end of the project to about 237 feet at the north end of the project. In general, the topography at this site is generally flat.

The Inner Coastal Plain Physiographic Province consists 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 Middendorf Formation. Based on our site visit and subsurface conditions encountered, the surface soils appear to be Coastal Plain deposits of sands, silts, and clays, typical of Coastal Plain formations.

The Middendorf Formation consists of beds of sands and clays of alluvial origin. The lithology of the materials and mica content indicates that these sediments are derived from weathered crystalline granitic and metamorphosed gneiss rocks of the Piedmont. The sands consist of angular grains that are fine to course in texture and the clays are arenaceous. Iron- cemented concretions are common. Crossbedding is common, and beds are laterally discontinuous.

Soil Properties

Soils encountered during this investigation consist of roadway embankment fill and Coastal Plain Formational soils. Coastal Plain deposits are present at the surface along the shoulders and beneath the pavements and roadway embankment fill. The Coastal Plain formational soils encountered contain soils that can be generalized as alternating layers of sand, silt and clay.

Roadway embankment soils encountered along NC 27 appear to be reworked near-by Coastal Plain deposits. Roadway embankment fill was encountered up to a maximum depth of about 2.0 feet along NC 27. The roadway embankment soils consist of loose, moist, silty fine to coarse sand (A-2-4).

The Middendorf Formation consists of very loose to medium dense, moist to saturated, silty and clayey fine to coarse sands (A-2-4 and A-2-6). Some of the silty and clayey sands were non-plastic to moderately plastic and exhibited plasticity indices of 5 to 19 percent with 24 to 35 percent passing the #200 sieve. The cohesive soils consist of soft to very stiff, moist to wet, fine to coarse sandy silt (A-4), slightly to moderately plastic fine to coarse sandy clay (A-6) and moderately plastic silty clay (A-7-6). The plasticity indices of the clayey soils range from 13 to 21 percent with 40 to 48 percent passing the #200 sieve and natural moisture contents of 7 to 18 percent, based on laboratory testing.

Groundwater

Groundwater was encountered at depths of about 3.5 to 9.0 feet (elevations 223 to 227 feet) along the -L- alignment between approximately stations 13+75 and 24+00 and along the -Y2- alignment between approximately stations 22+75 and 26+55.

The depth of groundwater, beneath the ground surface, will fluctuate with seasonal precipitation and may occur at higher levels at other times of the year above less permeable clayey soils.

A well was also observed within the proposed NCDOT right-of-way at the following location:

Alignment	Station (±)	Offset(ft)
-L-	17+13	41 LT

Areas of Special Geotechnical Interest

1) Plastic Soils – Moderately plastic soils with plastic indices (PI) of 16 and greater were encountered at the following locations:

Alignment	Stations (±)
-L-	14+25 to 18+00
-L-	21+75 to 24+00
-Y2-	22+75 to 26+55
-RBT-	10+00 to 12+00
-RBT-	13+00 to 14+12

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

2) Groundwater- High water tables, seasonal high ground water, as well as, potential perched groundwater were encountered within six feet of existing grade or proposed grade at the following locations.

Alignment	Station (±)
-L-	11+50 to 24+00
-Y2-	22+75 to 26+55

BULK SAMPLES

The following bulk sample was taken for testing to determine the engineering properties of the soil for compaction and pavement subgrade support.

Samples No.	Location	Depth	Test
CBR-1	21+31 -L- 51’ RT	1.0 – 6.0	Proctor and CBR

Sincerely,
Terracon Consultants, Inc.

DocuSigned by:
Kelly Plummer
9B5B0925E2C247E...
2/13/2024
Kelly R. Plummer, PG
Project Manager

DocuSigned by:
Abner Riggs Jr.
C2F6ACA84D274B1...
2/13/2024
Abner F. Riggs, Jr., PE
Senior Geotechnical Engineer

PROJECT REFERENCE NO.	SHEET NO.
W-5706L	4

0 100 200
FEET

N

BEGIN CONSTRUCTION
-L- POT STA. 11+50.00

N 69° 12' 31.6" E

-L- PC Sta. 14+29.64

END CONSTRUCTION
-Y1- POT STA. 16+54.00

ROGER WAYNE CANTRELL
DB 948 PG 164
PC*E SLIDE 32D

WOODS

L_1350 LT LN
13+50 -L-
8' LT

DAWN RENEE COLLINS
DB 14E PG 686

GRASS

-L- PRC Sta. 16+01.90
-L- PCC Sta. 16+74.89
-L- PT Sta. 17+23.15
AHD BRG N 88° 27' 01.3" E
-RBT- PC Sta. 10+00.00
-RBT- PT Sta. 14+12.37
-RBT- PCC Sta. 10+20.06
-L- PI Sta. 17+93.15
AHD BRG N 47° 48' 58.1" E
-Y1- POT Sta. 10+00.00

-L- PI Sta. 18+34.38
-Y2- POT Sta. 26+55.01
-RBT- PCC Sta. 11+12.38

NOV PROGRESS ENERGY POWERLINE EASEMENT

OLD STAGE TOWNES HOMEOWNERS ASSOC., INC.
DB 3771PG 093 PB 2017 PG 296

-Y2- PRC Sta. 23+87.83

BEGIN CONSTRUCTION
-Y2- POT STA. 22+75.00

-Y2- PT Sta. 25+85.01
AHD BRG S 21° 34' 05.8" W
-Y2- PRC Sta. 25+17.31

PHILIP L CROSS
DB 2392 PG 788
PC*F SLIDE 134D

L_1500-RT
14+98 -L-
33' RT

L_1700-LT
17+00 -L-
12' LT

JOHNNY W BYRD
DB 918 PG 804
PC*F SLIDE 32D

RONALD DUFFER
DB 3937 PG 821
PC*F SLIDE 32D

ISBKD

ISFRD

2SFRAPT

Y1_1215 LT LN
12+23 -Y1-
2' LT

L_1700-RT
17+04 -L-
94' RT

-Y1-

-Y2-

S 26° 25' 24.6" W

SR 1006 (OLD STAGE RD N) 23' BST

Y2_2250-LT
22+49 -Y2-
29' LT

-Y2- PC Sta. 22+92.97

Y2_2020 LT
20+20 -L-
6' LT

ISFRD

-Y1- PT Sta. 13+36.88

-Y1- POT Sta. 16+56.88

SR1_1100
10+80
CL

SR1_1200
11+20
CL

ISFD

DONALD A BENNETT
DB 970 PG 31
PB 2016 PG 245

ISBK

CONNIE MACK JOHNSON
DB 1382 PG 7
PB 2016 PG 245

-Y1- PRC Sta. 12+57.12
-Y1- PRC Sta. 11+33.53
-Y1- PC Sta. 10+70.00
BK BRG S 23° 04' 05.3" W
-RBT- PCC Sta. 13+18.57

L_1900-RT
19+15 -L-
23' RT

L_1920-LT
19+21 -L-
38' LT

RANDELL FERNANDO MADRIGAL
DB 3499 PG 24
PB 2017 PG 19

CULTIVATED

Y2_2425
23+79 -Y2-
140' LT

-L- PRC Sta. 20+54.08

CATHY P McLAMB
DB 18IPG 470
PB 2008 PG 271

DANIEL R GILBERT
DB 3355 PG 782
PB 2008 PG 271

ROADWAY EMBANKMENT

COASTAL PLAIN

-RBT- PCC Sta. 12+26.25

-L- PC Sta. 19+04.38
BK BRG N 81° 22' 29.8" E
-L- PCC Sta. 19+84.70

RANDELL FERNANDO MADRIGAL
DB 3499 PG 24
PB 2017 PG 19

50' INGRESS/EGRESS EASEMENT PER MB 2017 PG 19

L_2125-RT
21+31 -L-
51' RT

L_2250-LT
22+61 -L-
15' LT

END CONSTRUCTION
-L- POC STA. 24+00.00

EDWIN KENT PENNY
DB 18IPG 468
PB 2018 PG 73

WOODS

-L- PCC Sta. 23+77.47

MATCHLINE -L- STA. 24+50 SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
W-5706L	5

0 100 200
FEET

MATCHLINE SEE -L- STA. 24+50 SHEET 4

COASTAL PLAIN

L_2500 LT LN
25+11 -L-
10' LT

L_2500 RT LN
25+11 -L-
5' RT

L_2680-RT
25+91 -L-
30' RT

-Y3- POT Sta. 22+00.00

-Y3- POT Sta. 27+56.21
BEG CONSTRUCTION

-Y3- POT Sta. 28+56.
END CONSTRUCTION

-Y3- POT Sta. 29+92.48
-L- POT Sta. 35+64.21

-L- PT Sta. 32+25.63

S 59°19'22.8" E

S 88°03'21.4" E

ANDY C LEE
DB 350 PG 176
PB 2002 PG 158

CATHY P McLAMB
DB 1189 PG 470
PB 2008 PG 271

TALMON PENNY
DB 3501 PG 434
PB 2002 PG 1131

TED L PENNY
DB 1258 PG 424
PC*F SLIDE 568A

TALMON K PENNY
DB 3501 PG 434
PC*F SLIDE 568A

ADAM R PENNY
DB 2625 PG 17
PB 2003 PG 17

EDWIN KENT PENNY
DB 1181 PG 468

KOREY D PENNY
DB 3589 PG 519
PB 2018 PG 73

EDWIN KENT PENNY
DB 1435 PG 195

EDWIN KENT PENNY
DB 832 PG 271
PC*F SLIDE 665A

CULTIVATED

WOODS

GRASS

GRAVEL

POND

PROP. G/R W/TERM.

UNDER CONSTRUCTION

15" RCP

CONC. HW INV=219.63

INV=218.68

INV=211.67

INV=212.4

D.A.T.U.R. 6'

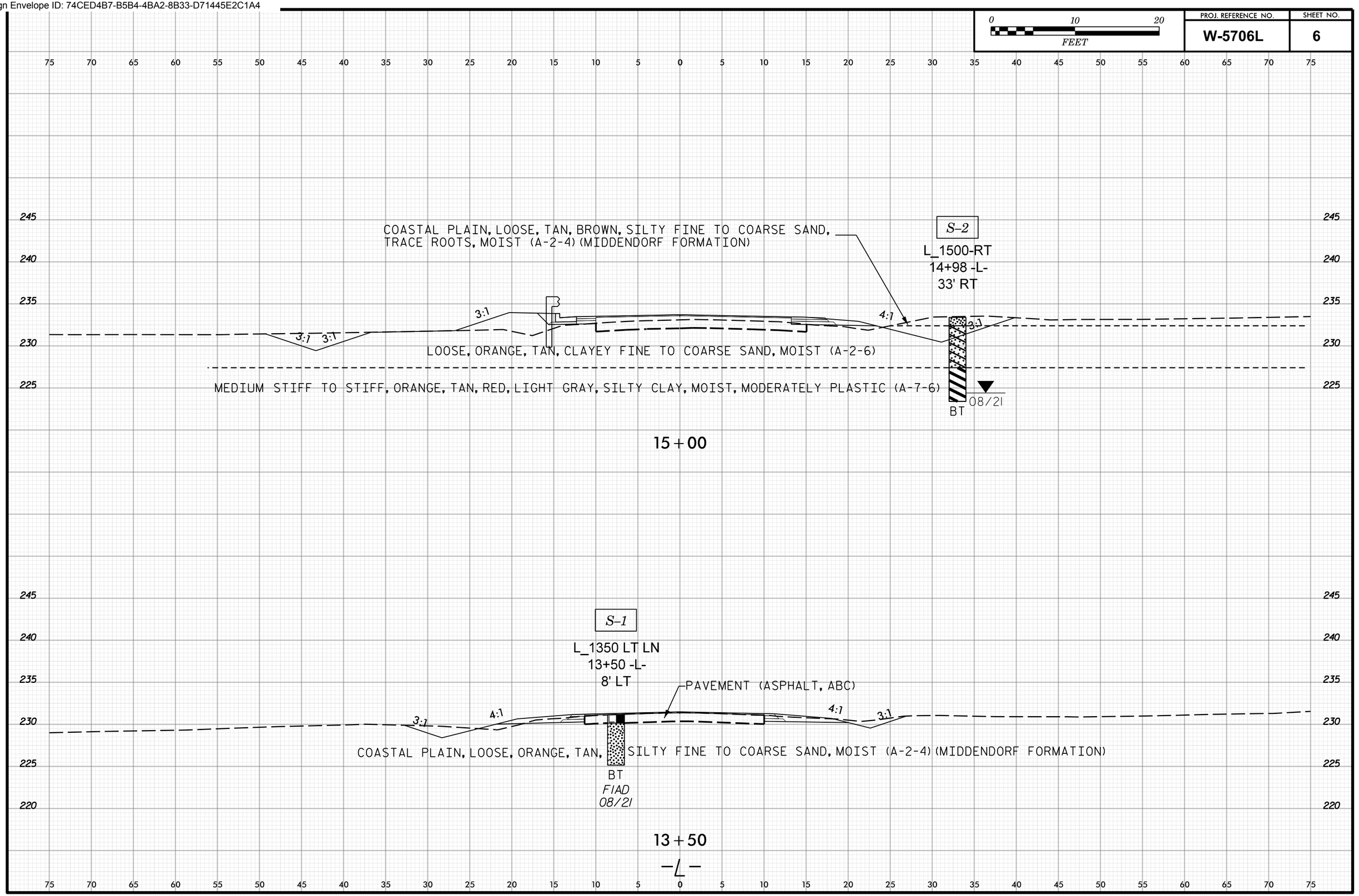
NC 27° 25' BST

EXISTING R/W

25' DSC SHERIFF JOHNSON RD BST

60' EASEMENT PER DB 3589, PG. 17

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	W-5706L	6



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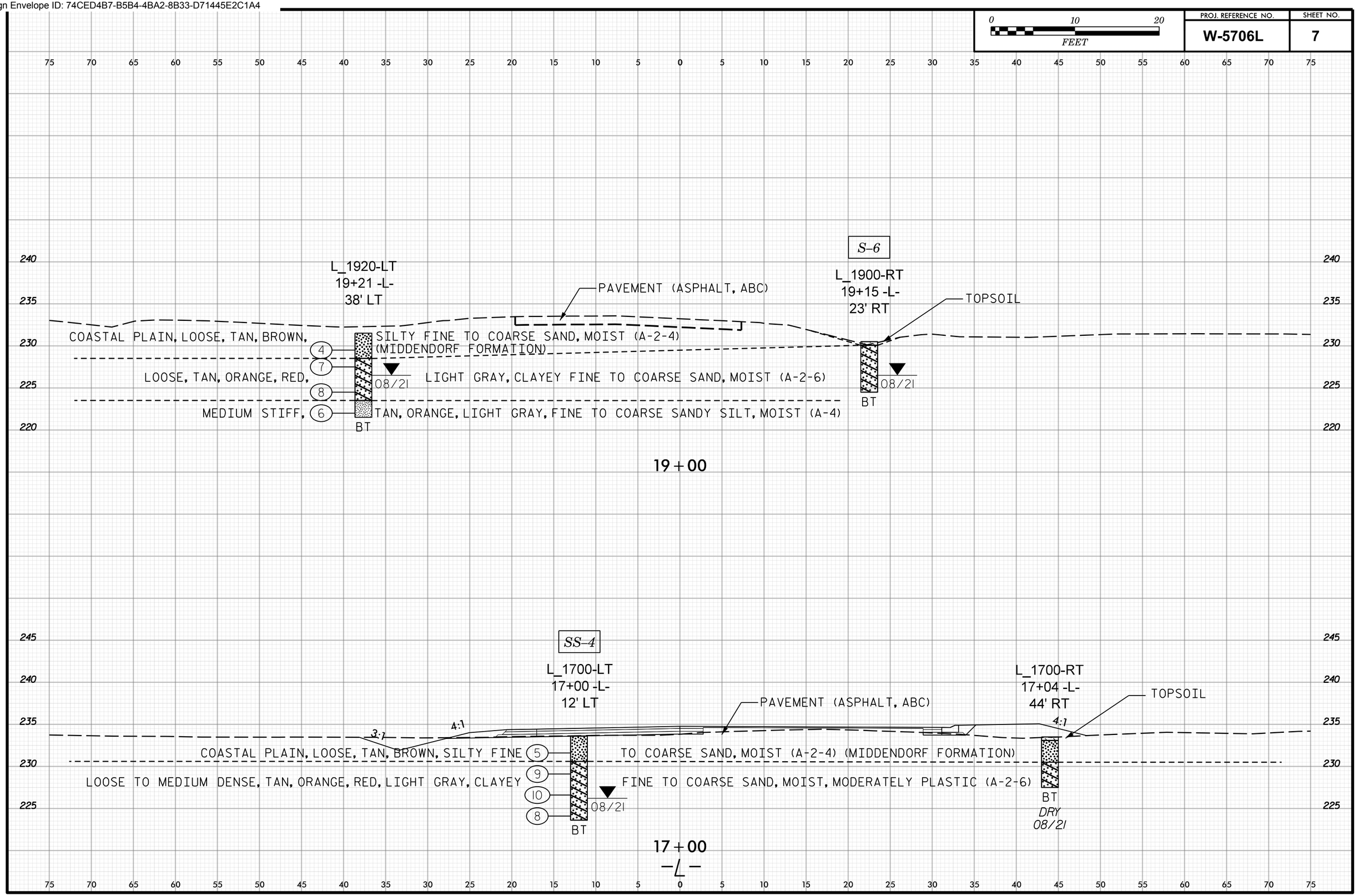
	W-5706L	7



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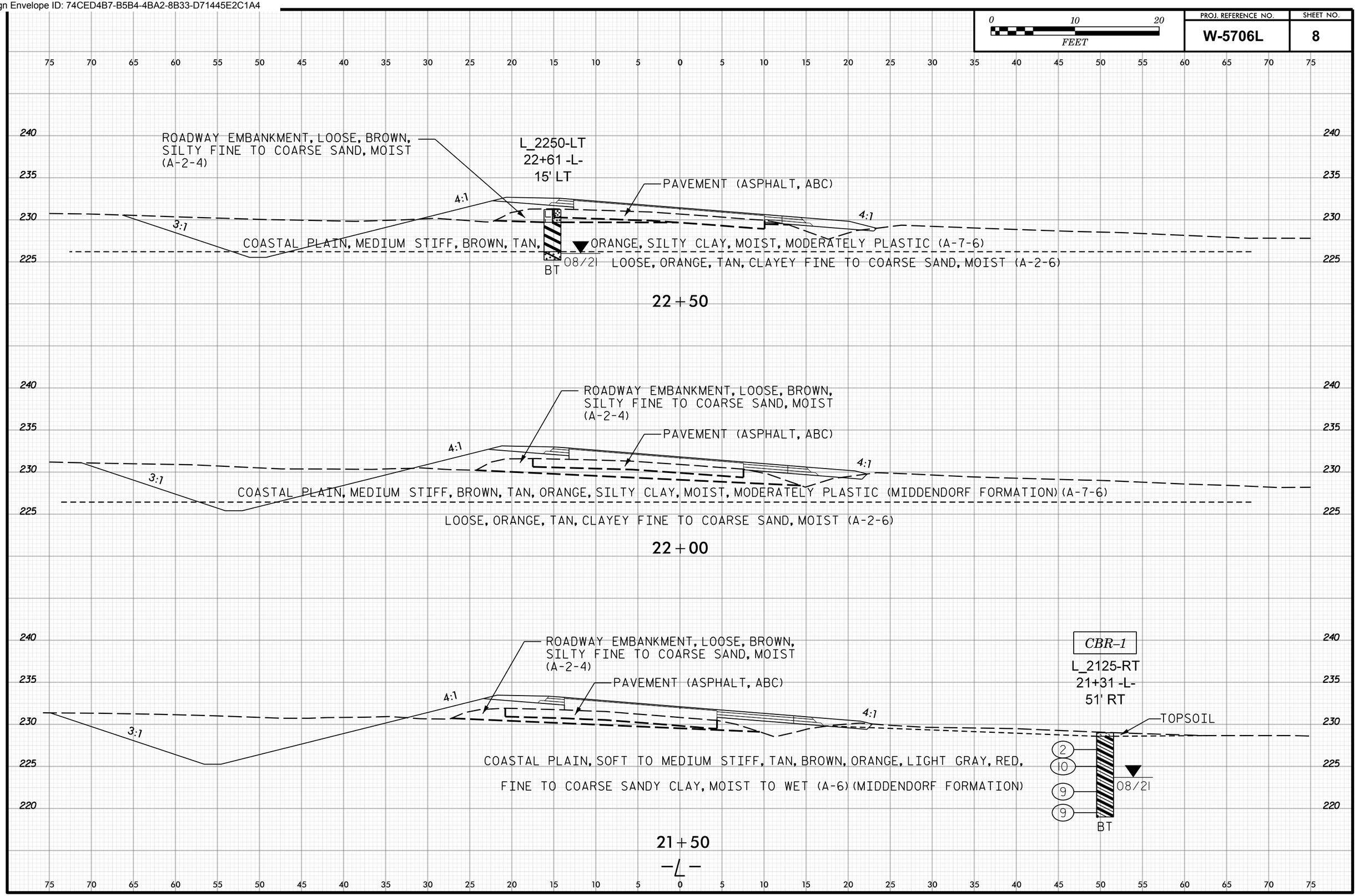
W-5706L	8



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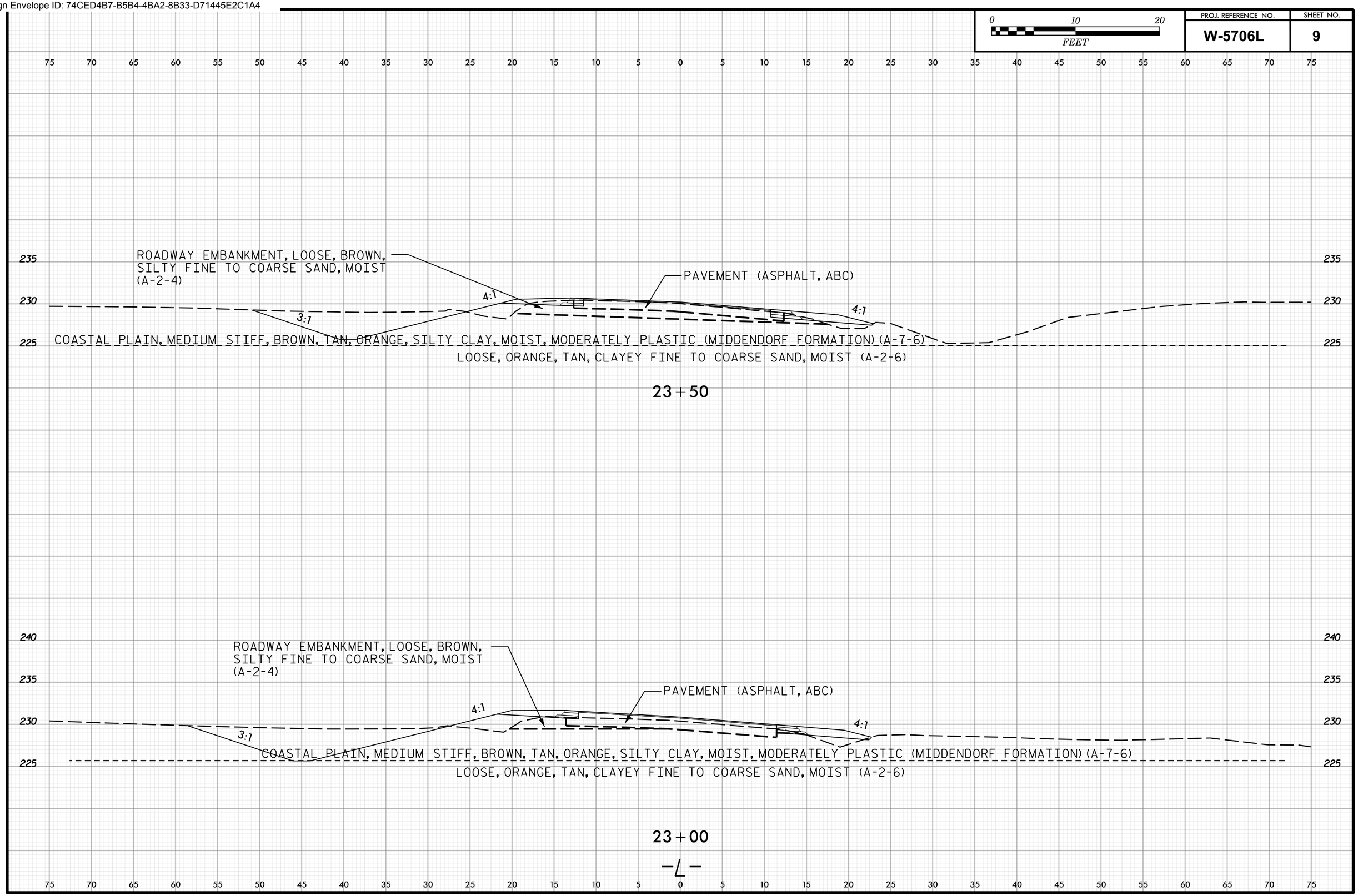
	W-5706L	9



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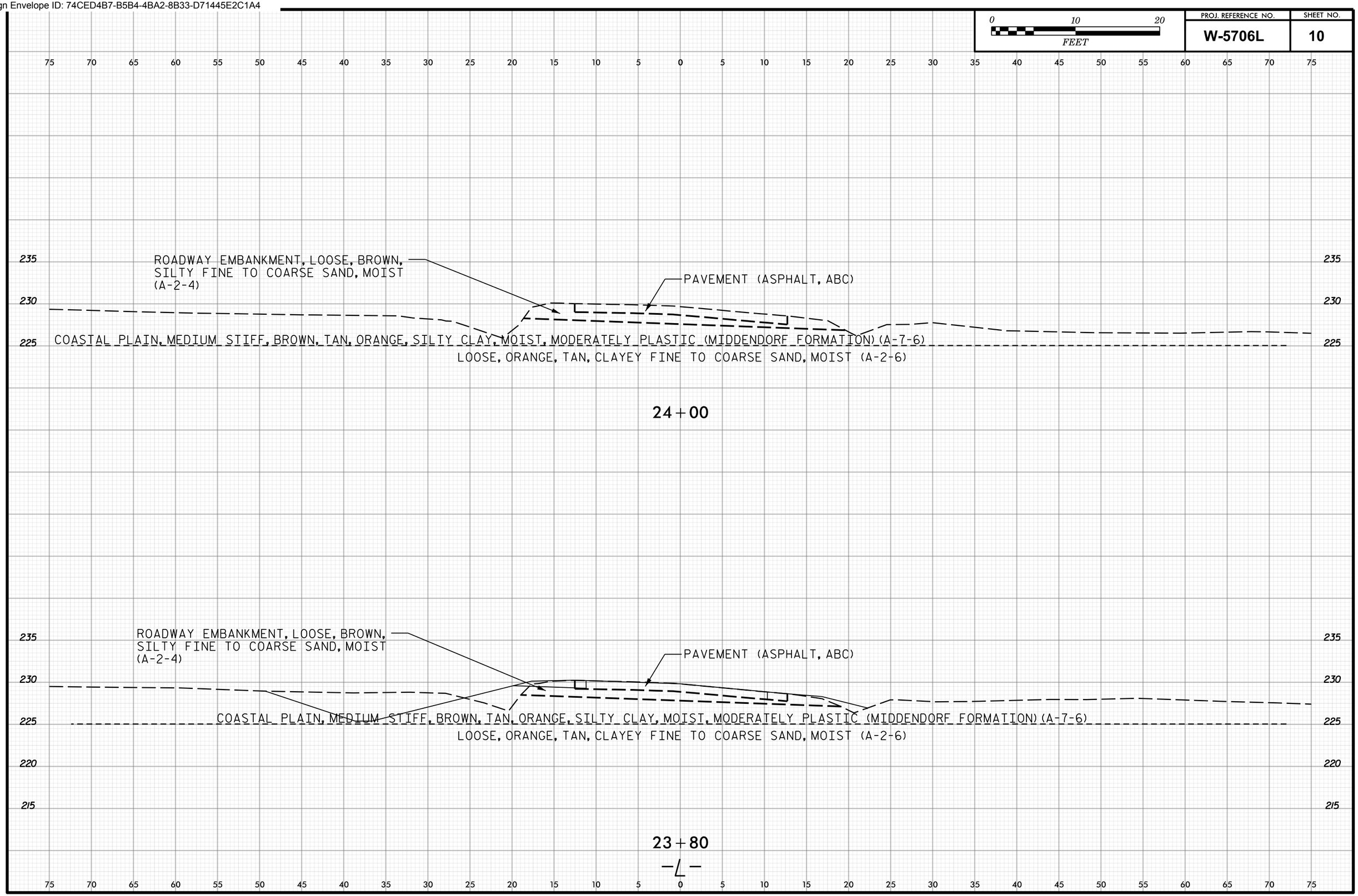
	W-5706L	10



0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	11

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

245
240
235
230
225

Y1_1215 LT LN
12+23 -Y1-
2' LT

PAVEMENT (ASPHALT, STBC)

4:1 3:1

COASTAL PLAIN, LOOSE, TAN, BROWN, ORANGE, SILTY FINE TO COARSE SAND, MOIST (A-2-4)(MIDDENDORF FORMATION)

BT
FIAD
08/21

12+25

-Y1-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	12

0 10 20
FEET

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

245 240 235 230

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

PAVEMENT (ASPHALT, ABC)

3:1 4:1 4:1 3:1

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

23+00

240 235 230 225

Y2_2250-LT
22+49 -Y2-
29' LT

PAVEMENT (ASPHALT, ABC)

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

BT 08/21

22+50

255 250 245 240 235 230 225

S-12

Y2_2020 LT LN
20+20 -Y2-
6' LT

COASTAL PLAIN, LOOSE TO MEDIUM DENSE, BROWN, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

PAVEMENT (ASPHALT, STBC)

SOFT TO MEDIUM STIFF, ORANGE, TAN, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

BT

FIAD
08/21

20+25

-Y2-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	13

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

240
235
230

PAVEMENT (ASPHALT, ABC)

3:1 4:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

240
235
230

23+50

PAVEMENT (ASPHALT, ABC)

3:1 4:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

240
235
230

23+25

-Y2-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	14

225 220 215 210 205 200 195 190 185 180 175 170 165 160 155 150 145 140 135 130 125 120 115 110 105 100 95 90 85 80 75

245
240
235
230
225
220

S–5
S–11

Y2_2425
23+79 -Y2-
140' LT

COASTAL PLAIN, LOOSE, BROWN, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

SOFT TO MEDIUM STIFF, ORANGE, TAN, RED, FINE TO COARSE SANDY CLAY, MOIST TO SATURATED, MODERATELY PLASTIC (A-6)

08/21

BT

23+75
1 OF 2
-Y2-

0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	15

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

240
235
230

PAVEMENT (ASPHALT, ABC)

3:1 4:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

SOFT TO MEDIUM STIFF, TAN, ORANGE, RED, FINE TO COARSE SANDY CLAY, MOIST TO SATURATED, MODERATELY PLASTIC (A-6)

23+75
2 OF 2

-Y2-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	W-5706L	16

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

240
235
230

PAVEMENT (ASPHALT, ABC)

4:1 3:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

24+50

240
235
230

PAVEMENT (ASPHALT, ABC)

4:1 3:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

24+25

240
235
230

PAVEMENT (ASPHALT, ABC)

4:1 3:1 4:1 3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

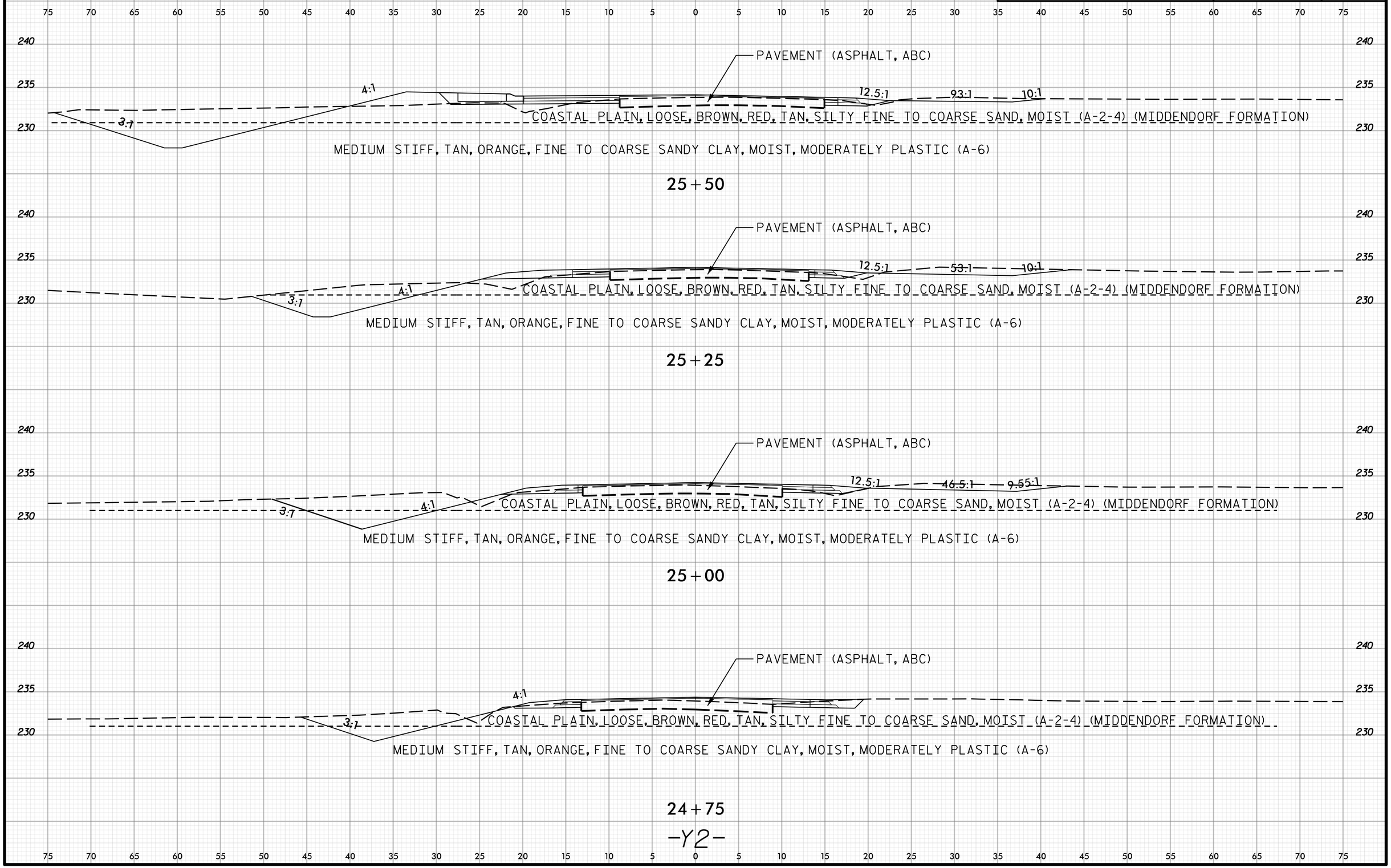
MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

24+00

-Y2-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	W-5706L	17



0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	18

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

240
235
230

PAVEMENT (ASPHALT, ABC)

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

26+00

240
235
230

PAVEMENT (ASPHALT, ABC)

6:1
3:1

COASTAL PLAIN, LOOSE, TAN, BROWN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

LOOSE, TAN, ORANGE, RED, LIGHT GRAY, CLAYEY FINE TO COARSE SAND, SLIGHTLY TO MODERATELY PLASTIC, MOIST (A-2-6)

25+85

240
235
230

PAVEMENT (ASPHALT, ABC)

6:1
3:1

COASTAL PLAIN, LOOSE, BROWN, RED, TAN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM STIFF, TAN, ORANGE, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLASTIC (A-6)

25+75

-Y2-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	19

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

240
235
230
225
220

L_1920-LT
11+79 -L-
43' LT

4:1

4
7
8
6
08/21
BT

COASTAL PLAIN, LOOSE, TAN, BROWN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

LOOSE, TAN, ORANGE, RED, LIGHT GRAY, CLAYEY FINE TO COARSE SAND, MOIST MODERATELY PLASTIC (A-2-6)

MEDIUM STIFF, TAN, ORANGE, LIGHT GRAY, FINE TO COARSE SANDY SILT, MOIST (A-4)

11+75

250
245
240
235
230
225
220

SS-4

L_1700-LT
10+03 -RBT-
44' LT

SHEAR LINE
SEE -L- XS

5
9
10
8
08/21
BT

COASTAL PLAIN, LOOSE, TAN, SILTY, FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

LOOSE TO MEDIUM DENSE, TAN, ORANGE, RED, LIGHT GRAY, CLAYEY FINE TO COARSE SAND, MOIST, MODERATELY PLASTIC (A-2-6)

10+00

-RBT1-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

PROJ. REFERENCE NO.	SHEET NO.
W-5706L	20

0 10 20
FEET

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

255 250 245 240 235 230 225

SHEAR LINE
SEE -Y1- XS

L_1700-RT
13+84 -RBT-
38' LT

TOPSOIL

COASTAL PLAIN, LOOSE, TAN, BROWN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION)

MEDIUM DENSE, ORANGE, TAN, CLAYEY FINE TO COARSE SAND, TRACE SILT, MOIST, MODERATELY PLASTIC (A-2-6)

BT

13+75

SHEAR LINE
SEE -L- XS

S-6

L_1900-RT
12+14 -RBT-
31' LT

TOPSOIL

COASTAL PLAIN, LOOSE, TAN, ORANGE, CLAYEY FINE TO COARSE SAND, MOIST (A-2-6) (MIDDENDORF FORMATION)

08/21

BT

12+25

-RBT1-

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W–5706L	21	

REFERENCE: W–5706L

PROJECT: 44852

APPENDIX A

ADDITIONAL BORING LOGS
LABORATORY TESTING SUMMARY
CBR TESTING RESULTS

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44852.1.12	**TIP** W-5706L	**COUNTY** HARNETT	**GEOLOGIST** Plummer, K.	
SITE DESCRIPTION ROUNDABOUTS AT NC 27 / SR 1007				**GROUND WTR (ft)**
BORING NO. SR1_1100	**STATION** 10+80	**OFFSET** CL	**ALIGNMENT** -SR1-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 6.0 ft	**NORTHING** 605,527	**EASTING** 2,085,189	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE Automatic
DRILLER N/A	**START DATE** 08/26/22	**COMP. DATE** 08/26/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
										GROUND SURFACE 0.0
								M		**COASTAL PLAIN** LOOSE, TAN, BROWN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION) 3.0
								M		SOFT TO MEDIUM DENSE, ORANGE, RED, FINE TO COARSE SANDY CLAY, MOIST (A-6) (MIDDENDORF FORMATION) 6.0
										Boring Terminated at Depth 6.0 ft IN COASTAL PLAIN, FINE TO COARSE SANDY CLAY (MIDDENDORF FORMATION)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44852.1.12	**TIP** W-5706L	**COUNTY** HARNETT	**GEOLOGIST** Plummer, K.	
SITE DESCRIPTION ROUNDABOUTS AT NC 27 / SR 1007				**GROUND WTR (ft)**
BORING NO. SR1_1200	**STATION** 12+00	**OFFSET** CL	**ALIGNMENT** -SR1-	**0 HR.** Dry
COLLAR ELEV. N/A	**TOTAL DEPTH** 6.0 ft	**NORTHING** 605,473	**EASTING** 2,085,296	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE Automatic
DRILLER N/A	**START DATE** 08/26/22	**COMP. DATE** 08/26/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
										GROUND SURFACE 0.0
								M		**COASTAL PLAIN** LOOSE , TAN, BROWN, SILTY FINE TO COARSE SAND, MOIST (A-2-4) (MIDDENDORF FORMATION) 2.0
								M		SOFT TO MEDIUM DENSE, ORANGE, RED, FINE TO COARSE SANDY CLAY, MOIST (A-6) (MIDDENDORF FORMATION) 6.0
										Boring Terminated at Depth 6.0 ft IN COASTAL PLAIN, FINE TO COARSE SANDY CLAY (MIDDENDORF FORMATION)

NCDOT BORE SINGLE W5706L_GEO_RDWY.GPJ NC_DOT.GDT 11/11/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44852.1.12	**TIP** W-5706L	**COUNTY** HARNETT	**GEOLOGIST** Braun, S.	
SITE DESCRIPTION ROUNDABOUTS AT NC 27 / SR 1007				**GROUND WTR (ft)**
BORING NO. L_2500 LT LN	**STATION** 25+11	**OFFSET** 10 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 229.5 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 606,043	**EASTING** 2,085,897	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER373 DIEDRICH D-50 95% 02/06/2021		DRILL METHOD Core Boring	HAMMER TYPE Automatic	
DRILLER TANNER, M.	**START DATE** 08/19/21	**COMP. DATE** 08/19/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
230										229.5 GROUND SURFACE	0.0
										228.7 **PAVEMENT** (0.8' ASPHALT, ABC))	0.8
								M/W		227.5 **ROADWAY EMBANKMENT** LOOSE, BROWN, SILTY FINE TO COARSE SAND, MOIST TO WET (A-2-4)	2.0
225								M/W		223.5 **COASTAL PLAIN** SOFT, DARK GRAY, FINE TO COARSE SANDY SILT, MOIST TO WET (A-4) (MIDDENDORF FORMATION)	6.0
										Boring Terminated at Elevation 223.5 ft IN COASTAL PLAIN, SILTY FINE TO COARSE SAND (MIDDENDORF FORMATION)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44852.1.12	**TIP** W-5706L	**COUNTY** HARNETT	**GEOLOGIST** Braun, S.	
SITE DESCRIPTION ROUNDABOUTS AT NC 27 / SR 1007				**GROUND WTR (ft)**
BORING NO. L_2500 RT LN	**STATION** 25+11	**OFFSET** 5 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 228.8 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 606,028	**EASTING** 2,085,900	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER373 DIEDRICH D-50 95% 02/06/2021		DRILL METHOD Core Boring	HAMMER TYPE Automatic	
DRILLER N/A	**START DATE** 08/19/21	**COMP. DATE** 08/19/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
230										228.8 GROUND SURFACE	0.0
										228.1 **PAVEMENT** (0.7' ASPHALT, ABC)	0.7
										227.6 **ROADWAY EMBANKMENT** LOOSE, BROWN, SILTY FINE TO COARSE SAND, MOIST TO WET (A-2-4)	1.2
225							S-3	M/W		222.8 **COASTAL PLAIN** SOFT, DARK GRAY, FINE TO COARSE SANDY SILT, MOIST TO WET (A-4) (MIDDENDORF FORMATION)	6.0
										Boring Terminated at Elevation 222.8 ft IN COASTAL PLAIN, SILTY FINE TO COARSE SAND (MIDDENDORF FORMATION)	

NCDOT BORE SINGLE W5706L_GEO_RDWY.GPJ NC_DOT.GDT 11/9/23

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 44852.1.12	**TIP** W-5706L	**COUNTY** HARNETT	**GEOLOGIST** Braun, S.	
SITE DESCRIPTION ROUNDABOUTS AT NC 27 / SR 1007				**GROUND WTR (ft)**
BORING NO. L_2680-RT	**STATION** 26+91	**OFFSET** 30 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 229.5 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 606,036	**EASTING** 2,086,080	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE Automatic
DRILLER TANNER, M.	**START DATE** 08/27/21	**COMP. DATE** 08/27/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
230											
								M		229.5 GROUND SURFACE	0.0
										229.2 TOPSOIL	0.3
								M		228.0 **COASTAL PLAIN** MEDIUM STIFF, BROWN, FINE TO COARSE SANDY CLAY, MOIST, MODERATELY PLATIC (A-6) (MIDDENDORF FORMATION)	1.5
225							S-7	17%			
								M		224.5 MEDIUM STIFF, TAN, RED, SILTY CLAY, MOIST, MODERATELY TO HIGHLY PLASTIC (A-7-6)	5.0
								M		223.5 LOOSE, ORANGE, TAN, RED, CLAYEY FINE TO COARSE SAND, MOIST	6.0
										Boring Terminated at Elevation 223.5 ft IN COASTAL PLAIN, CLAYEY SAND (MIDDENDORF FORMATION)	

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 44852.1.12 **TIP:** W-5706L **COUNTY:** HARNETT

DESCRIPTION: ROUNDABOUT AT NC 27 / SR 1007 (OLD STAGE ROAD) / SR 2084 (LESLIE CAMPBELL AVENUE)

Sample No.	Station	Alignment	Northing	Easting	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
										Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
S-1	13+50	-L-	605662	2084811	8 LT	1.0 - 6.0	A-2-4 (0)	20	5	31.2	38.1	10.1	20.6	0	99	88	34	--	--
S-2	14+98	-L-	605679	2084965	33 RT	1.0 - 6.0	A-2-6 (0)	28	12	34.3	33.4	5.4	26.9	0	100	88	35	--	--
S-3	25+11	-L-	606028	2085900	5 RT	2.0 - 6.0	A-4 (0)	NP	NP	38.0	27.8	19.3	14.9	0	99	77	38	7.1	1.5
SS-4	17+00	-L-	605807	2085131	12 LT	3.5 - 5.0	A-2-6 (2)	35	19	35.0	32.8	4.3	27.9	0	99	90	34	--	--
S-6	19+15	-L-	605820	2085340	23 RT	0.3 - 4.5	A-2-6 (1)	27	14	34.4	33.3	7.6	24.7	0	100	90	35	--	--
S-7	26+91	-L-	606036	2086080	30 RT	1.5 - 4.5	A-7-6 (6)	41	21	32.6	19.8	10.6	37.0	2	94	75	48	17.2	--
CBR-1	21+31	-L-	605875	2085558	51 RT	1.0 - 6.0	A-6 (1)	26	13	37.1	27.2	15.6	20.1	0	99	80	40	16.7	--
S-5	23+79	-Y2-	606011	2085490	140 LT	1.0 - 5.0	A-6 (3)	32	16	31.4	28.8	10.3	29.5	0	99	87	42	18.1	--
S-11	23+79	-Y2-	606011	2085490	140 LT	0.0 - 1.0	A-2-4 (0)	NP	NP	42.2	37.5	8.5	11.8	0	100	84	24	--	--
S-12	20+20	-Y2-	606400	2085538	6 LT	2.0 - 6.0	A-6 (4)	39	19	33.2	27.1	7.0	32.7	3	96	81	41	14.1	--

NP - NON-PLASTIC

Stephanie H. Huffman

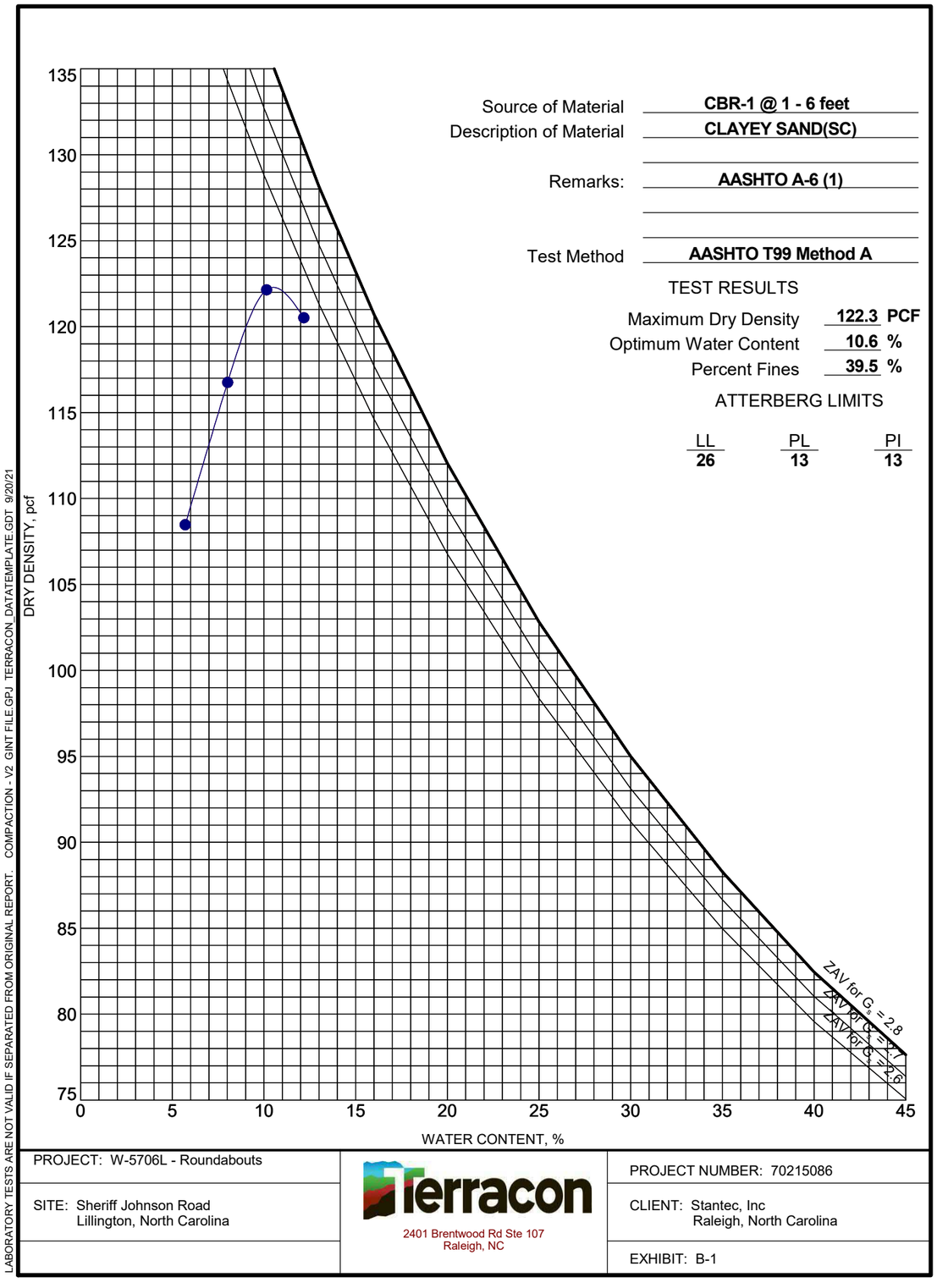
Certified Lab Technician Signature

114-01-1203

Certification Number

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **CBR-1 @ 1 - 6 feet**
Description of Material: **CLAYEY SAND(SC)**

Remarks: **AASHTO A-6 (1)**

Test Method: **AASHTO T99 Method A**

TEST RESULTS

Maximum Dry Density	122.3	PCF
Optimum Water Content	10.6	%
Percent Fines	39.5	%

ATTERBERG LIMITS

LL	PL	PI
26	13	13

PROJECT: W-5706L - Roundabouts	Terracon 2401 Brentwood Rd Ste 107 Raleigh, NC	PROJECT NUMBER: 70215086
SITE: Sheriff Johnson Road Lillington, North Carolina		CLIENT: Stantec, Inc Raleigh, North Carolina
		EXHIBIT: B-1

REPORT FOR CALIFORNIA BEARING RATIO

Service Date: 09/13/21
Report Date: 09/20/21

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

Client
Stantec, Inc
Attn: Steve Smallwood
801 Jones Franklin Road
Suite 300
Raleigh, North Carolina 27606

Project
W-5706L - Roundabouts
Sheriff Johnson Road
Lillington, North Carolina

Project No. 70215086

SAMPLE INFORMATION

Sample Number:	CBR-1	Proctor Method:	AASHTO T99 - Method A
Boring Number:	Station 21+31 -L- 51' RT	Maximum Dry Density (pcf):	121.8
Sample Location:	Bulk Sample	Optimum Moisture:	10.8
Depth:	1.0 - 6.0'	Liquid Limit:	26
Material Description:	AASHTO A-6 (1)	Plasticity Index:	13

CBR TEST DATA

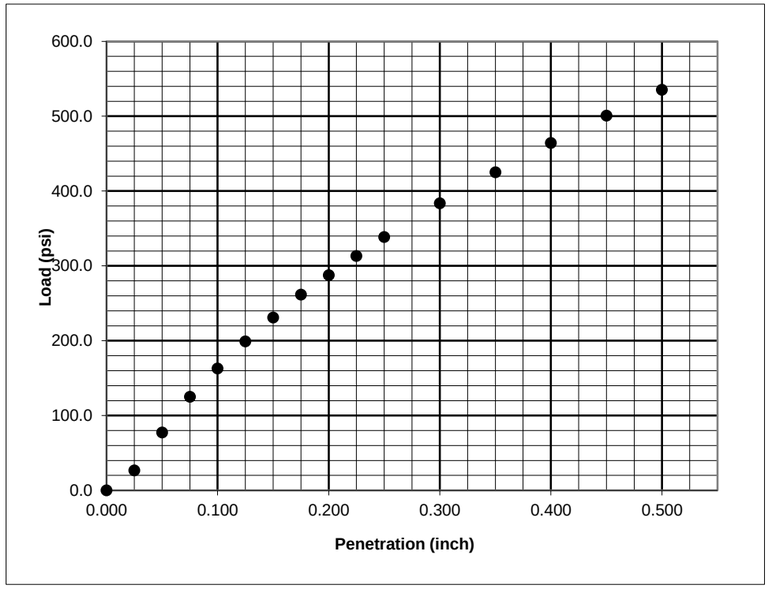
CBR Value at 0.100 inch	**16.3**
CBR Value at 0.200 inch	**19.2**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	0.1

DENSITY DATA

Dry Density Before Soaking (pcf)	122.0
Compaction of Proctor (%)	100.2

MOISTURE DATA

Before Compaction (%)	10.4
After Compaction (%)	10.5
Top 1" After Soaking (%)	12.0
Average After Soaking (%)	11.4



Comments:

Services: Obtain soil sample and test for California Bearing Ratio

Terracon Rep: Stephanie Huffman
Reported To: Matt Alexander
Contractor:

Report Distribution

Reviewed by: _____
Matthew J. Alexander
Geotechnical Project Manager

Test Methods: AASHTO T193