REFERENCE: U-4906

PROJECT: 40255

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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LINE	STATION	PLAN	PROFILE
-L-	30+50 - 280+00	4-22	26-34
-LI-	14+00 - 23+25	23	35
-LI-	61+25 - 71+40	25	36
-YI-	12+25 - 16+73	10	37
-Y2-	12+00 - 23+15	13	37
-Y4-	10+00 - 18+66	25	38

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	105+00	39
-L-	110+00	40
-L-	111+50	41
-L-	116+00	42
-L-	118+00	43
-L-	120+00	44
-L-	124+00	45
-L-	151+00	46
-L-	155+00	47
-L-	274+50	48
-L-	280+00	49
-LI-	14+00 - 20+00	50-55
-Y4-	10+50 - 16+00	56-61

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *ONSLOW*

PROJECT DESCRIPTION *GUM BRANCH ROAD (SR 1308) WIDENING FROM THE EASTERN CITY LIMITS OF RICHLANDS TO TIMOTHY ROAD (SR 1388)*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4906	1	61

CAUTION NOTICE

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

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

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

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

PERSONNEL

J.K. CRENSHAW

R.E. SMITH

J.M. EDMONSON

INVESTIGATED BY *T.C. BOTTOMS*

DRAWN BY *J.K. CRENSHAW*

CHECKED BY *D.N. ARGENBRIGHT*

SUBMITTED BY *D.N. ARGENBRIGHT*

DATE *OCTOBER, 2016*

NORTH CAROLINA LICENSED SEAL 2240 GEOLOGIST TYLER C. BOTTOMS

DocuSigned by:
Tyler C. Bottoms
48A2D3BD08CF4A6...
SIGNATURE

12/12/2016
DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4906	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		—	—	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
- [ ] _____
- [ ] _____

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

HAMMER TYPE:
- [ ] 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: U4906_ls_tnl.tin USED TO POST BORINGS

ELEVATION: FEET

NOTES:

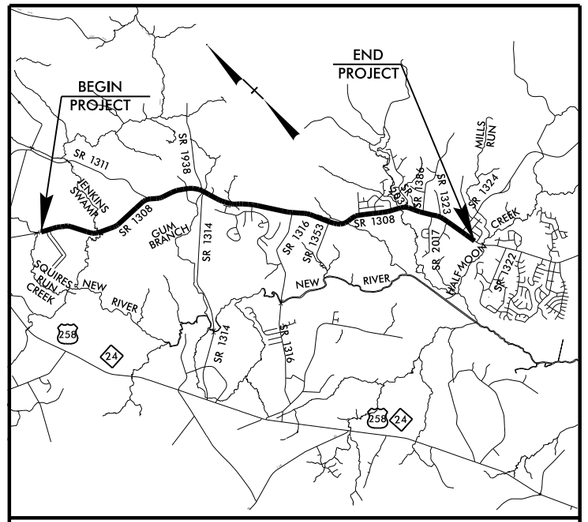
FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

09/08/99

CONTRACT: TIP PROJECT: U-4906

See Sheet 1-A For Index of Sheets



VICINITY MAP

25% SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

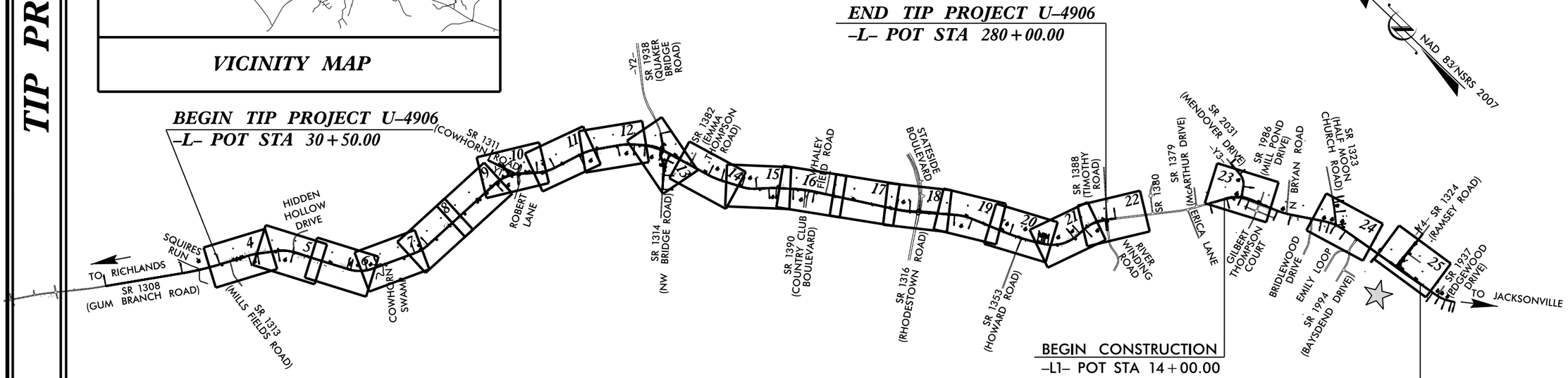
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4906	3	61

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40255.1.1	STP-1308(12)	P.E.

LOCATION: GUM BRANCH ROAD (SR 1308) – WIDENING FROM THE EASTERN CITY LIMITS OF RICHLANDS TO TIMOTHY ROAD (SR 1388)

EXISTING TRAFFIC SIGNAL

TYPE OF WORK: RESURFACING & WIDENING, DRAINAGE AND PAVEMENT MARKINGS



NOTE:

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

** DESIGN SPEED IS 60 MPH FROM SQUIRES RUN BRIDGE TO QUAKER BRIDGE ROAD AND 50 MPH FROM QUAKER BRIDGE ROAD TO TIMOTHY ROAD

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2015 = 19600
ADT 2040 = 41000
K = 8 %
D = 60 %
T = 4 % *
** V = 60/50 MPH
* TTST = 1% DUAL 3%
FUNC CLASS = MINOR ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-4906 = 4.725 MILES
TOTAL LENGTH OF TIP PROJECT U-4906 = 4.725 MILES

Prepared in the Office of:
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUG., 2017

LETTING DATE: JULY 16, 2019

DAVID W. BASS, PE
PROJECT ENGINEER

MONICA J. DUVAL
PROJECT DESIGN ENGINEER

DAVID B. LEONARD, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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S:\ERO\Greenville Investigation\TIP\U4906_GEO_RDWY\CADD_GEOTECH\Site&Sub\U4906_rdy_tsh.dgn
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PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

October 12, 2016

STATE PROJECT: 40255.1.1 (U-4906)
F.A. PROJECT: STP-1308(12)
COUNTY: Onslow
DESCRIPTION: Gum Branch Road (SR 1308) Widening from the Eastern City Limits of Richlands to Timothy Road (SR 1388)

SUBJECT: Geotechnical Inventory

Project Description

This project is located in Onslow County on Gum Branch Road from the eastern city limits of Richlands to Timothy Road. Proposed construction consists of widening portions of Gum Branch Road and the intersecting roads. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork for this project was conducted during August and September of 2016. Hand auger borings were completed and representative soil samples were collected for visual classification in the field and laboratory analysis.

The following alignments were investigated:

Line	Station(±)
-L-	30+50 to 280+00
-L1-	14+00 to 23+25
-L1-	61+25 to 71+40
-Y1-	12+25 to 16+73
-Y2-	12+00 to 23+15
-Y4-	10+00 to 18+66

Areas of Special Geotechnical Interest

1) The entire project was found to exhibit seasonal high ground water.

2) The following section contains cohesive soils which have the potential to cause embankment, subgrade, and or slope stability problems during construction.

Line	Station(±)
-L-	30+50 to 62+25
-L-	78+25 to 86+25
-L-	98+60 to 128+25
-L-	139+10 to 140+90
-L-	159+10 to 181+70
-L-	199+25 to 251+90
-L-	266+90 to 280+00
-L1-	14+00 to 23+25
-L1-	61+25 to 71+40
-Y1-	13+35 to 15+25
-Y2-	18+80 to 23+15
-Y4-	10+00 to 18+66

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations range from 25± to 53± feet above sea level along the existing SR 1308 embankment.

Surficial soils in this area are generally classified as undivided coastal plain.

Ground Water

Ground water data was collected in August of 2016, during a time of normal precipitation. Ground water elevations ranged from 20± to 46± feet above sea level.

Soils

Soils within this project area have been divided into two categories: roadway embankment and undivided coastal plain.

Roadway embankment soils were encountered along existing SR 1308 and intersecting roads. These soils are comprised of 1± to 3± feet of medium dense to dense sand and sand with gravel (A-2-4, A-3, A-1-b).

Undivided coastal plain soils were encountered beneath the roadway embankment. They are comprised of 2± or more feet of loose to medium dense sand (A-2-4, A-3) and soft to stiff silt (A-4), sandy clay, and clay (A-6, A-7-5, A-7-6). Within the cohesive soils moistures ranged from 16.2% to 63.6%.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

30

35

40

BEGIN TIP PROJECT U-4906
-L- POT STA 30+50.00

-L- PT Sta. 30+45.55

N 6°60'52.46"E

-BL- 5 (B3884) PINC

SR 1931 - MILLS RD. 16' GRAVEL ROADWAY

-BL- 40 PINC

-L- PC Sta. 38+35.86

WOODS

-L- PT Sta. 40+79.33

N 52° 07' 44.3" W

MATCH LINE STA 43+50.00
SEE SHEET 5

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.

FOR –L– PROFILE, SEE SHEET 28

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

45 50 55

-BL- U4906-10 PINC

-BL- 39 PINC

HIDDEN HOLLOW DR. EST

PRIVET HEDGE

3' SOIL

WOODS

12" DNWASA

FSS

F

S 26°34'19.2" E

S 51°29'33.7" E

-L- PT Sta. 50+32.27

-L- PC Sta. 46+23.36

18" SWEETGUM

6" DOGWOOD

PEAR

6" DR

24" PINE

24" PINE

PAMPASS GRASS

FSS MH /ARV

10" HOLLY

18" MAGNOLIA

PE

MATCH LINE STA 57+00.00
SEE SHEET 6

MATCH LINE STA 43+50.00
SEE SHEET 4

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR –L– PROFILE, SEE SHEET 28

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

60 65 70

MATCH LINE STA 57+00.00 SEE SHEET 5

-BL- 38 PINC

S 26° 34' 19.2" E

S 26° 34' 19.2" E

SR1308 - GUM BRANCH RD. N 23° 29' 03.4" W

22' PAVED ROADWAY

-L- TS Sta. 64+93.09

-L- SC Sta. 65+93.09

-L- CS Sta. 70+27.85

N 35° 30' 29.4" W

MATCH LINE STA 71+00.00 SEE SHEET 7

-BL- 37 PINC

-BL- U4906-38 PINC

12" ONWASA

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR –L– PROFILE, SEE SHEET 28 AND 29

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

75

80

85

MATCH LINE STA 71+00.00
SEE SHEET 6

-L- ST Sta. 73+27.83

-BL- 36 PINC

-BL- 35 PINC

-L- PC Sta. 83+63.55

S 64°15'35.3" E

MATCH LINE -L- STA 85+00.00
SEE SHEET 8

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 29

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

85

90

95

MATCH LINE -L- STA 85+00.00 SEE SHEET 7

-L- PT Sta. 87+73.17

S 86°17'42.1"E

-BL- 34 PINC

-BL- 33 PINC

12' ONWASA

MATCH LINE -L- STA 98+50.00 SEE SHEET 9

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 29 AND 30

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

100 105 110

MATCH LINE -L- STA 98+50.00
SEE SHEET 8

WOODS

-BL- 32

-BL- 31 PINC

S 86° 17' 42.1" E

SR1308 - GUM BRANCH RD.
22' PAVED ROADWAY

S 86° 17' 42.1" E

-L- PC Sta. 111+69.70

PC Sta. 121+69.70

MATCH LINE -L- STA 112+00.00
SEE SHEET 10

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 30

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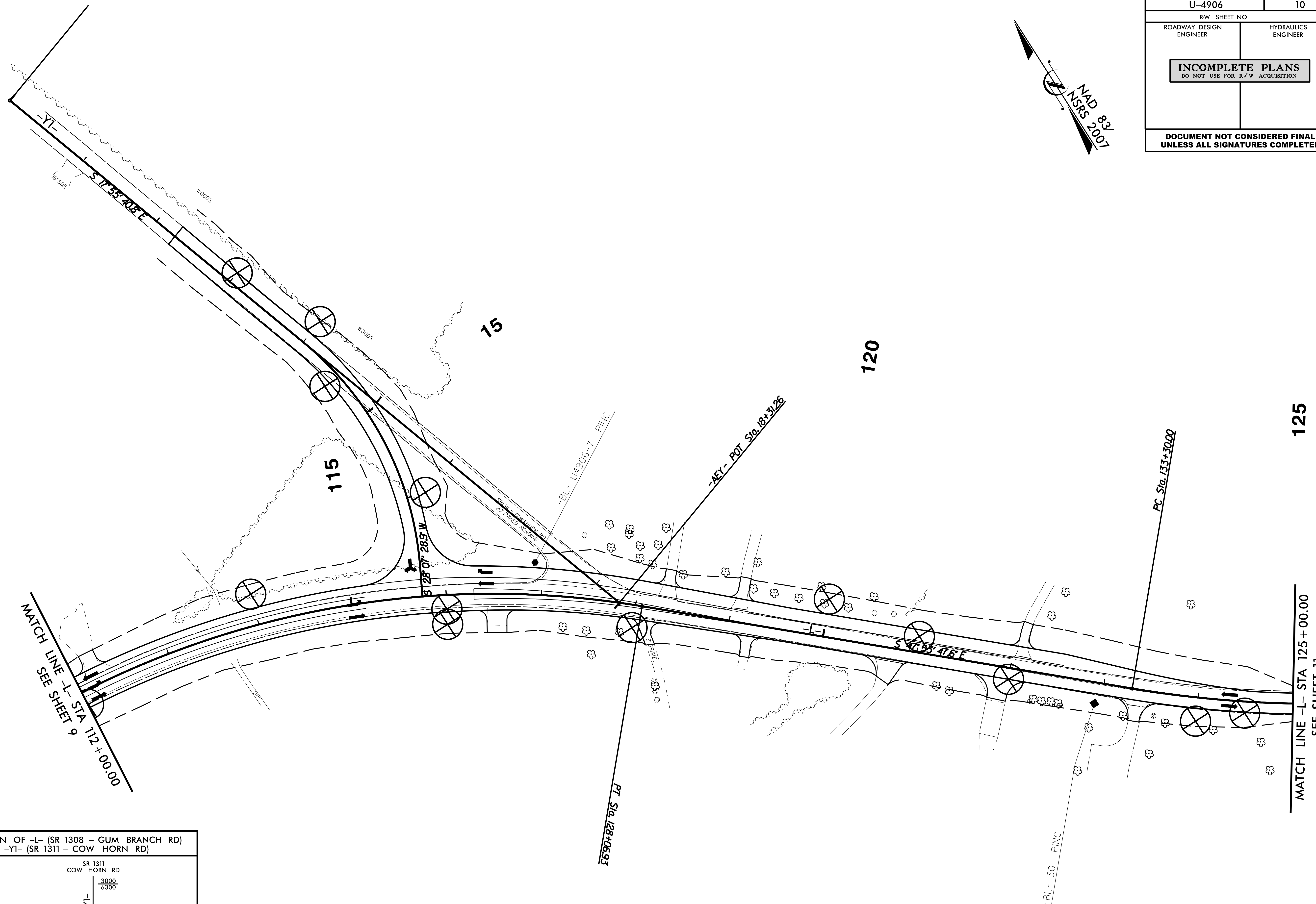
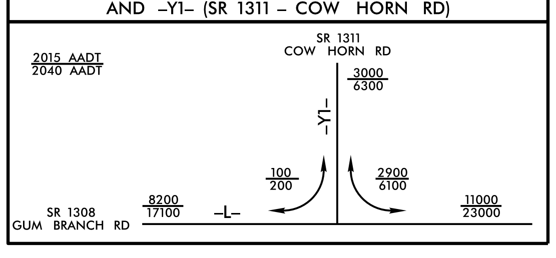
PROJECT REFERENCE NO.	SHEET NO.
U-4906	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



INTERSECTION OF -L- (SR 1308 - GUM BRANCH RD) AND -Y1- (SR 1311 - COW HORN RD)



NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 30 AND 31
FOR -Y1- PROFILE, SEE SHEET 39

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

125

130

135

MATCH LINE -L- STA 125+00.00 SEE SHEET 10

-L- PT Sta. 128+08.22

-BL- 29 PINC

-BL- 28 PINC

-L- PC Sta. 135+25.27

MATCH LINE -L- STA 138+50.00 SEE SHEET 12

N 60° 17' 15.7" W

S 71° 23' 26.6" E

N 65° 48' 18.9" W

8' GR

12' GR

18' SOIL

10' GR

8' SOIL

12' CONC

14' GR

TIMBERED AREA

TIMBERED AREA

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 31

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

140

145

150

-BL- 27 PINC

-BL- 26 PINC

WOODS

MATCH LINE -L- STA 138+50.00 SEE SHEET 11

S 53°54'24"E

-L- PT Sta. 140+14.65

-L- PC Sta. 145+75.51

-L- PT Sta. 150+15.25

MATCH LINE -L- STA 152+00.00 SEE SHEET 13

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 31 AND 32

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

-Y2- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y2- STA 12+00.00

10

S 34° 25' 59.0" W 34.56' 368 W

-Y2-

-Y2- PC Sta. 12+42.84

-Y2- PT Sta. 13+78.25

155

-L- PT Sta. 158+14.20

-BL- 24 PINC

-BL- 23 PINC

160

MATCH LINE -L- STA 165+00.00
SEE SHEET 14

S 15° 18' 08.2" E

15° 19' 08.1" W

S 72° 45' 54.3" W

-Y2- PC Sta. 14+75.39

15

S 65° 27' 04" W

-L- STA 157+40.90 =
-Y2- STA 14+29.88

-Y2- PRC Sta. 16+79.60

-Y2- PT Sta. 19+65.79

20

S 49° 25' 53.9" W

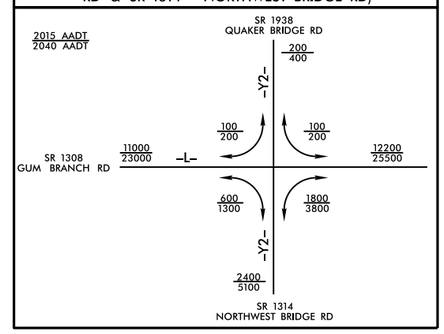
END CONSTRUCTION
-Y2- STA 23+15.00

MATCH LINE -L- STA 152+00.00
SEE SHEET 12

S 39° 55' 19.5" E

-L- PC Sta. 152+93.83

INTERSECTION OF -L- (SR 1308 - GUM BRANCH RD) AND -Y2- (SR 1938 - QUAKER BRIDGE RD & SR 1314 - NORTHWEST BRIDGE RD)



NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 32
FOR -Y2- PROFILE, SEE SHEET 39

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

165

170

175

MATCH LINE -L- STA 165+00.00 SEE SHEET 13

SR1382 - EMMA THOMPSON RD. 20' PAVED ROADWAY

S 15°18'02" E

SR1308 - GUM BRANCH RD. 22' PAVED ROADWAY

-L- PC Sta. 171+42.00

-L- PT Sta. 175+10.78

S 26°26'34" E

S 26°26'34" E

MATCH LINE -L- STA 179+00.00 SEE SHEET 15

-BL- U4906-6 PINC

-BL- 22 PINC

F

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 32 AND 33

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

180

185

190

MATCH LINE -L- STA 179+00.00
SEE SHEET 14

-L- PC Sta. 180+71.82

-L- PT Sta. 184+66.66

-BL- 21 PINC

S 26° 26' 34.2" E

S 41° 03' 26.8" E

S 41° 03' 26.8" E

S 40° 52' 11.7" E

S 40° 52' 11.7" E

-BL- U4906-5 PINC

-L- PC Sta. 187+89.26

-L- PT Sta. 189+89.09

MATCH LINE -L- STA 193+00.00
SEE SHEET 16

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEET 33

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

195

200

205

-BL- 20 PINC

-BL- 19 PINC

N 40° 21' 10.6" W

N 31° 49' 53.1" W

S 31° 42' 34.1" E

8" GR

15" CONC

-L- PC Sta. 194+35.77

-L- PT Sta. 199+94.60

MATCH LINE -L- STA 193+00.00
SEE SHEET 15

MATCH LINE -L- STA 207+00.00
SEE SHEET 17

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 33 AND 34

25-OCT-2016 13:20
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

210

215

220

MATCH LINE -L- STA 207+00.00
SEE SHEET 16

N 31° 43' 25.7" W

S 31° 42' 34.5" E

31° 42' 34.5" E

-L-

-BL- 18 PINC

-BL- 17 PINC

N 31° 45' 37.6" W

MATCH LINE -L- STA 221+00.00
SEE SHEET 18

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 34

25-OCT-2016 13:22
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PROJECT REFERENCE NO.	SHEET NO.
U-4906	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

225

230

235

MATCH LINE -L- STA 221+00.00
SEE SHEET 17

S 31° 42' 34.5" E

-L- PC Sta. 221+87.05

-L- PT Sta. 225+40.73

WOODS

-BL- U4906-3 PINC

-BL- J6 PINC

S 39° 28' 14.2" E

SR1308 - GUM BRANCH RD.

-L-

40' PAVED ROADWAY

TIMBERED AREA

TIMBERED AREA

SR136 - RHODESTOWN RD.

MATCH LINE -L- STA 235+00.00
SEE SHEET 19

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -L- PROFILE, SEE SHEETS 34 AND 35

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

235

240

245

MATCH LINE -L- STA 235+00.00 SEE SHEET 18

-L- PC Sta. 237+24.31

-L- PT Sta. 242+01.99

-BL- 15 PINC

MATCH LINE -L- STA 249+00.00 SEE SHEET 20

S 39°28'14.2" E

N 28°49'50.1" W

N 21°43'09.0" W

S 21°38'58.3" E

S 21°38'58.3" E

WOODS

WOODS

TIMBERED AREA

TIMBERED AREA

F

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR -L- PROFILE, SEE SHEET 35

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

250

255

260

MATCH LINE -L- STA 249+00.00
SEE SHEET 19

-L- TS Sta. 249+62.51

-L- SC Sta. 252+62.51

-L- CS Sta. 261+56.57

MATCH LINE -L- STA 263+00.00
SEE SHEET 21

-BL- 12 PINC

S 21° 38' 58.3" E

N 20° 32' 15.0" W

S 31° 25' 57.8" E

S 33° 12' 54.0" E

N 30° 51' 56.0" W

-L-

F

BST

11.5' BST

PAMPAS GRASS

10' BST

10.5' BST

CONC

22' BST

SR1353 - HOWARD RD. 20' PAVED ROADWAY

PINC

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR -L- PROFILE, SEE SHEETS 35 AND 36

5/14/99

25-OCT-2016 13:29
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

265

270

275

MATCH LINE -L- STA 263+00.00
SEE SHEET 20

-L- SC Sta. 263+56.67

-L- CS Sta. 270+13.76

-L- ST Sta. 272+13.76

-L- PC Sta. 273+92.51

MATCH LINE -L- STA 277+00.00
SEE SHEET 22

N 52° 38' 02.3" W

N 84° 07' 59.7" W

S 85° 15' 27.4" E

SHRUBS

12" CONC

18" CONC

15" CMP

6" GRAVEL

PINC

PINC

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR -L- PROFILE, SEE SHEET 36

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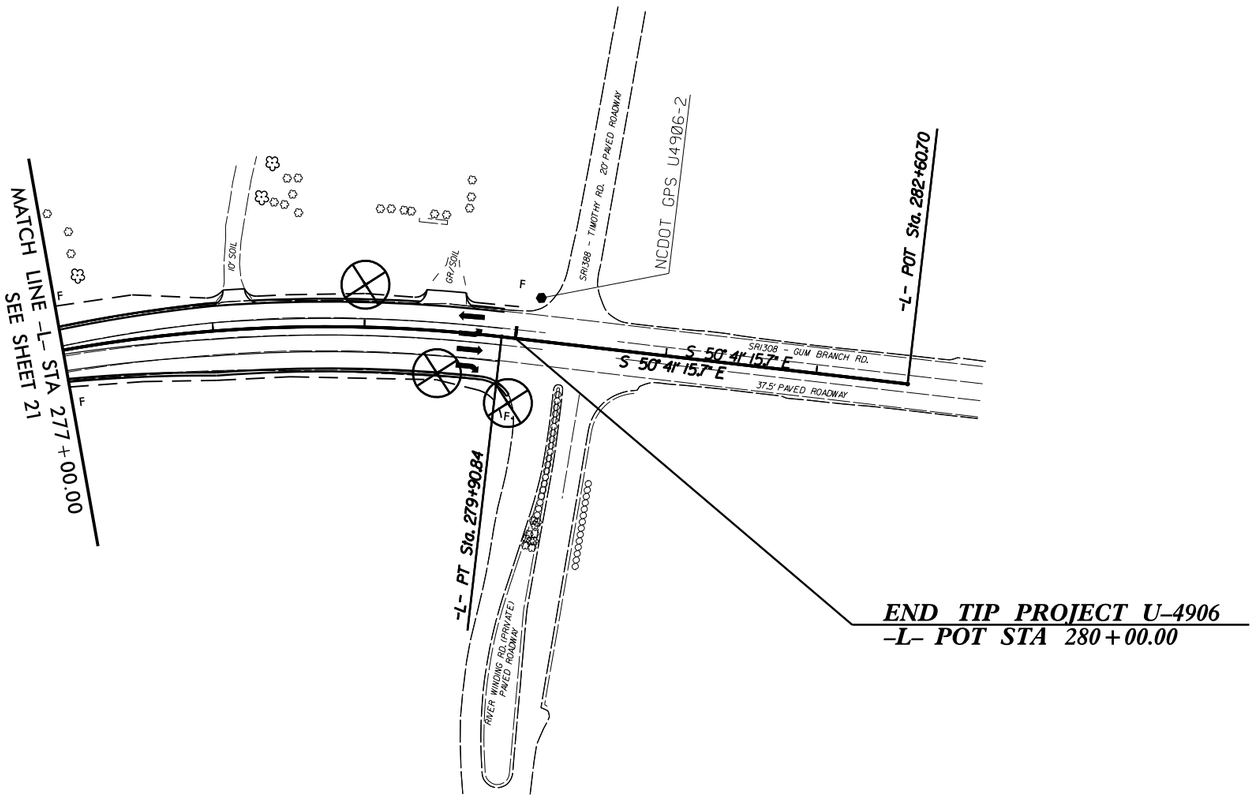
PROJECT REFERENCE NO.	SHEET NO.
U-4906	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NAD 83/ NSRS 2007

280



NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR -L- PROFILE, SEE SHEET 36

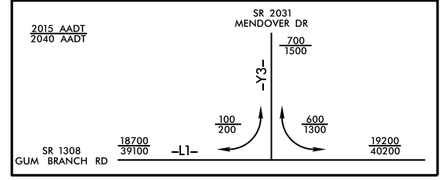
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INTERSECTION OF –L1– (SR 1308 – GUM BRANCH RD) AND –Y3– (SR 2031 – MENDOVER DR)



NAD 83/
NSRS 2007

15

20

25

–Y3– PC Sta. 13+66.46

–BY2– All

–Y3– PT Sta. 17+10.28

–Y3–

BEGIN CONSTRUCTION
–Y3– STA 19+29.75

S 55°06'07.8" W

BEGIN CONSTRUCTION
–L1– POT STA 14+00.00

S 59°33'42.6" E

–L1– PC Sta. 14+65.38

–BL – A5

–L1– PT Sta. 20+69.57

S 22°19'07.6" E

END CONSTRUCTION
–L1– POT STA 23+25.00

–BL – A4

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR –L– PROFILE, SEE SHEET 37

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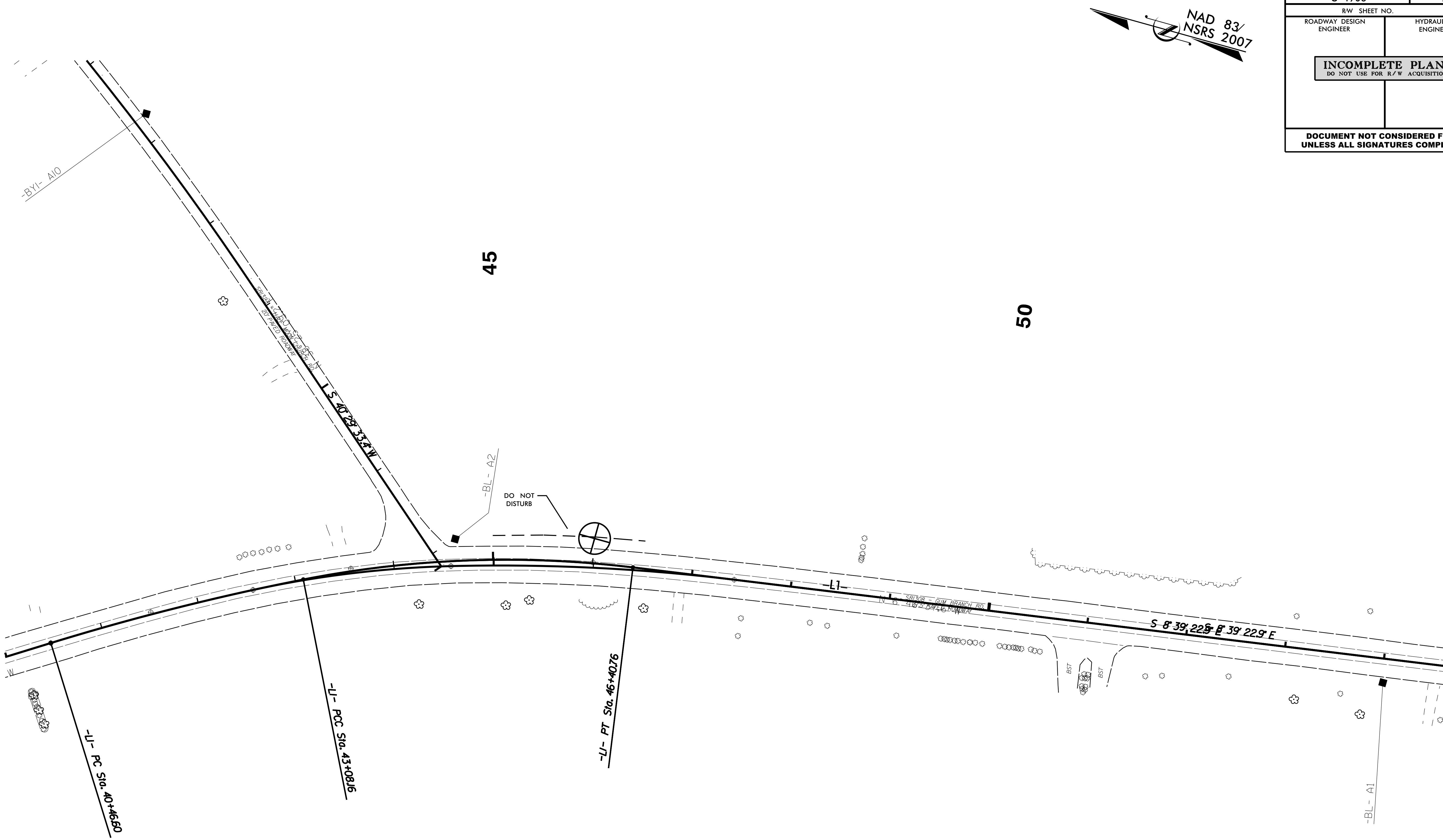
PROJECT REFERENCE NO.	SHEET NO.
U-4906	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

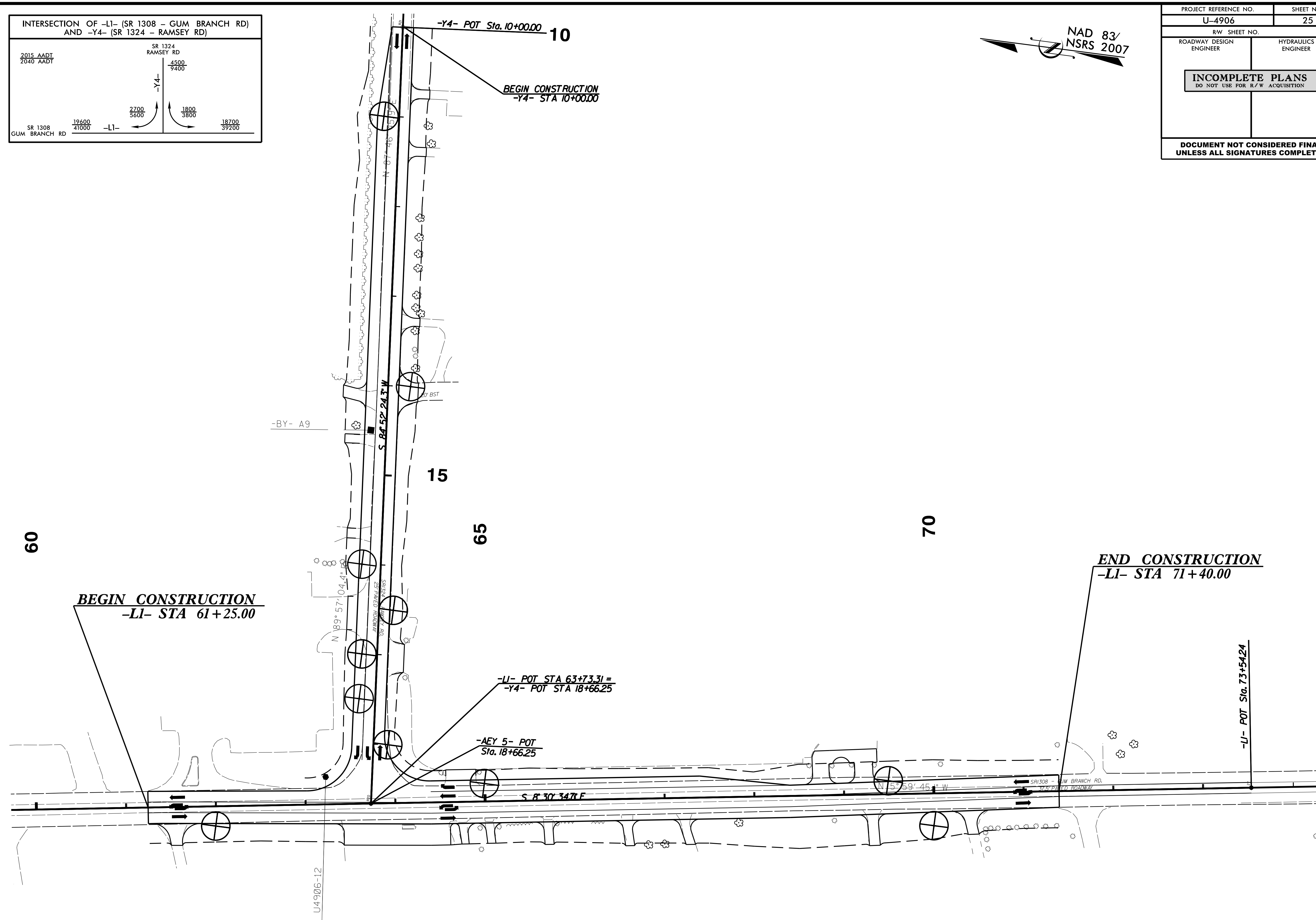


FOR -L1- PROFILE, SEE SHEET 37

PROJECT REFERENCE NO.	SHEET NO.
U-4906	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED ON PLANS

FOR -L1- PROFILE, SEE SHEET 38

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

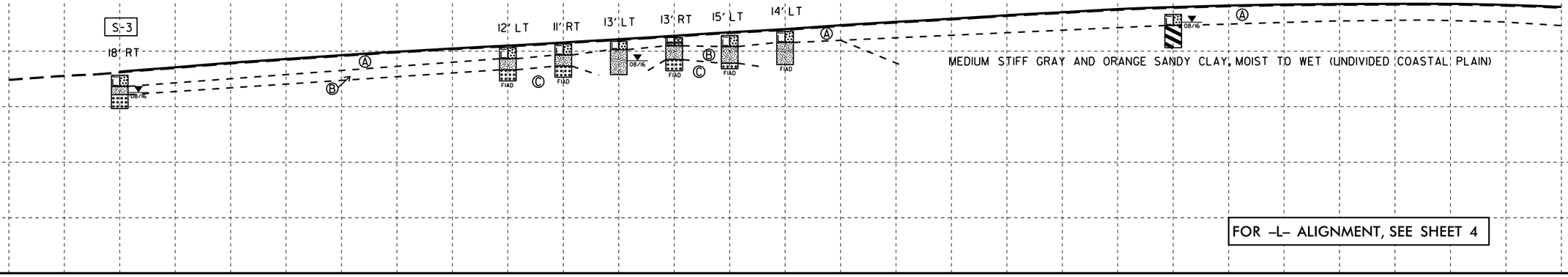
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-3	18' RT	30+50	2.0-3.5	A-4(0)	29	7	6.4	60.0	5.3	28.2	100	98	39	18.5	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)



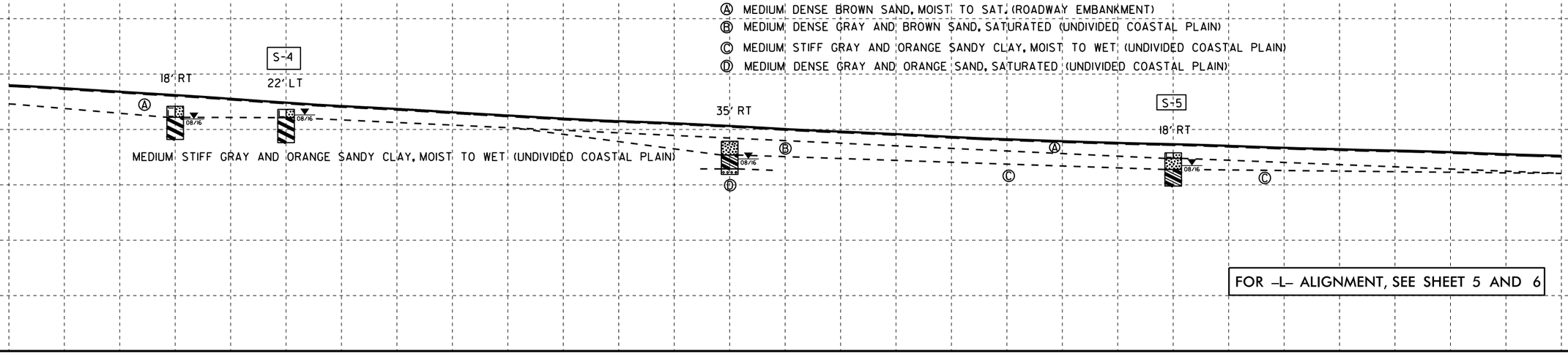
FOR -L- ALIGNMENT, SEE SHEET 4

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-4	22' LT	46+00	1.5-6.0	A-7-5(15)	51	18	1.8	35.2	14.6	48.3	100	99	74	27.7	-
S-5	18' RT	54+00	3.0-6.0	A-6(11)	32	11	12.1	49.3	10.4	28.2	100	96	42	21.9	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM DENSE GRAY AND BROWN SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓓ MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)



FOR -L- ALIGNMENT, SEE SHEET 5 AND 6

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-6	23' LT	60+00	1.0-3.0	A-7-6(14)	51	22	0.4	36.9	14.4	48.3	100	100	66	24.0	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

S-6
23' LT
15' RT
14' LT
08/16
FIAD
MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

FOR -L- ALIGNMENT, SEE SHEETS 6 AND 7

55 45 35 25 15 05 -05

58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-7	20' RT	80+00	2.0-6.0	A-7-5(29)	74	36	12.3	16.5	12.8	58.4	100	95	73	39.8	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

S-7
15' RT
20' RT
19' LT
08/16
FIAD
MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY AND ORANGE CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

FOR -L- ALIGNMENT, SEE SHEETS 7 AND 8

55 45 35 25 15 05 -05 -10

72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, WET (UNDIVIDED COASTAL PLAIN)

14' RT
08/16
14' LT
08/16
MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. UNDIVIDED COASTAL PLAIN)

55 45 35 25 15 05 -05

86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00

FOR -L- ALIGNMENT, SEE SHEETS 8 AND 9

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH IN STERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C-SAND	F-SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-8	21' RT	100+00	2.5-6.0	A-4(3)	28	8	2.8	43.9	29.1	24.2	100	99	66	23.1	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

S-8
21' RT
08/16
MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, WET (UNDIVIDED COASTAL PLAIN)

12' RT FIAD
13' LT FIAD
11' RT FIAD
11' RT FIAD
13' RT FIAD

55 45 35 25 15 05 -05

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00

FOR -L- ALIGNMENT, SEE SHEETS 9 AND 10

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5/28/99

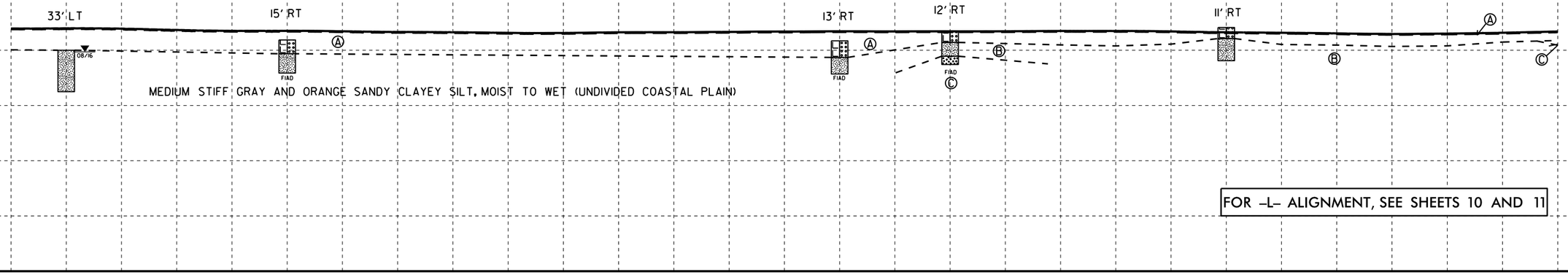
PROJECT REFERENCE NO.	SHEET NO.
U-4906	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE TAN AND ORANGE SAND, MOIST TO SAT. UNDIVIDED COASTAL PLAIN)



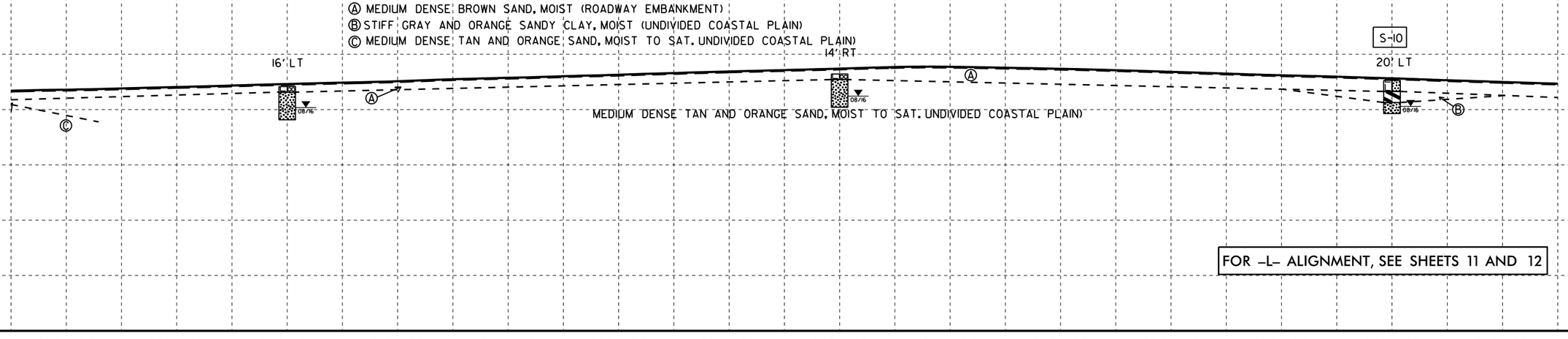
FOR –L– ALIGNMENT, SEE SHEETS 10 AND 11

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
S-10	20' LT	140+00	2.0-5.5	A-7-5(14)	53	22	4.2	44.9	12.6	38.3	100	99	64	28.2	

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE TAN AND ORANGE SAND, MOIST TO SAT. UNDIVIDED COASTAL PLAIN)



FOR –L– ALIGNMENT, SEE SHEETS 11 AND 12

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	30

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

26' RT

08/16

MEDIUM DENSE GRAY AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

55 45 35 25 15 05

142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00

FOR –L– ALIGNMENT, SEE SHEETS 12 AND 13

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-11	28' LT	161+00	3.5-5.0	A-6(7)	37	14	4.0	46.3	19.4	30.2	100	98	61	29.1	

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

Ⓑ STIFF GRAY ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

S-11

28' LT

18' RT

08/16

MEDIUM DENSE GRAY AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

STIFF GRAY ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

55 45 35 25 15 05

156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00 166+00 167+00 168+00 169+00

FOR –L– ALIGNMENT, SEE SHEETS 13 AND 14

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PROJECT REFERENCE NO.	SHEET NO.
U-4906	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ MEDIUM DENSE GRAY AND ORANGE SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

21' LT
14' RT
16' LT
08/16

STIFF GRAY, ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

55 45 35 25 15 05

170+00 171+00 172+00 173+00 174+00 175+00 176+00 177+00 178+00 179+00 180+00 181+00 182+00 183+00

FOR –L– ALIGNMENT, SEE SHEETS 14 AND 15

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-12	22' RT	185+00	3.0-6.0	A-2-4(0)	17	NP	6.0	79.2	2.7	12.1	100	99	17	-	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

S-12
22' RT
20' LT
25' RT
08/16

MEDIUM DENSE GRAY AND ORANGE SAND AND CLAYEY SAND, SATURATED (UNDIVIDED COASTAL PLAIN)

55 45 35 25 15 05

184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00 196+00 197+00

FOR –L– ALIGNMENT, SEE SHEETS 15 AND 16

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

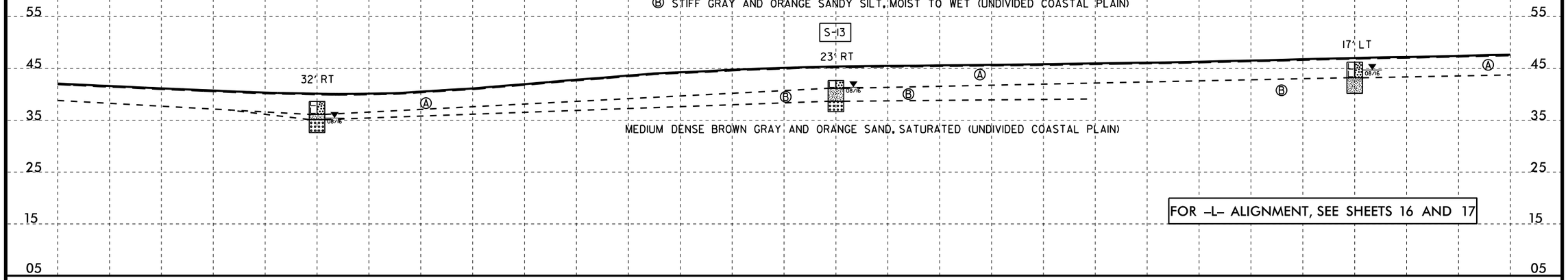
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C SAND	F SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-13	23' RT	205+00	1.5-4.0	A-4(1)	29	7	7.3	50.6	14.0	28.2	100	97	52	63.6	-

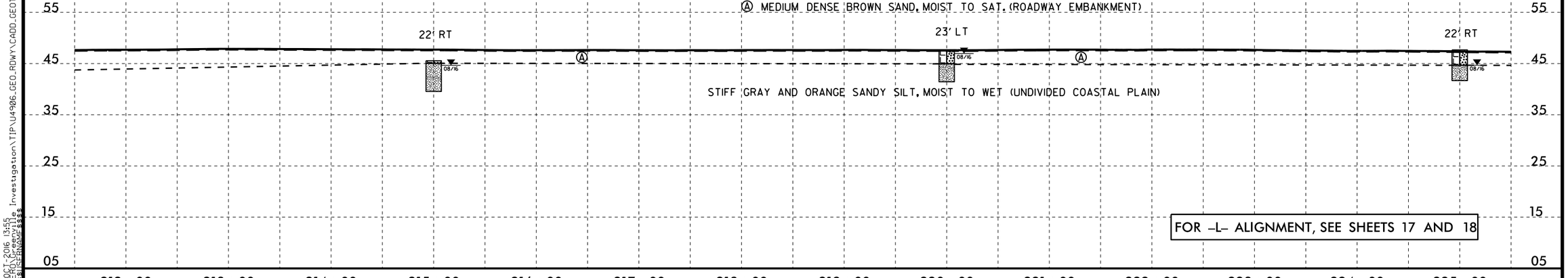
Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



FOR -L- ALIGNMENT, SEE SHEETS 16 AND 17

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)



FOR -L- ALIGNMENT, SEE SHEETS 17 AND 18

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	33

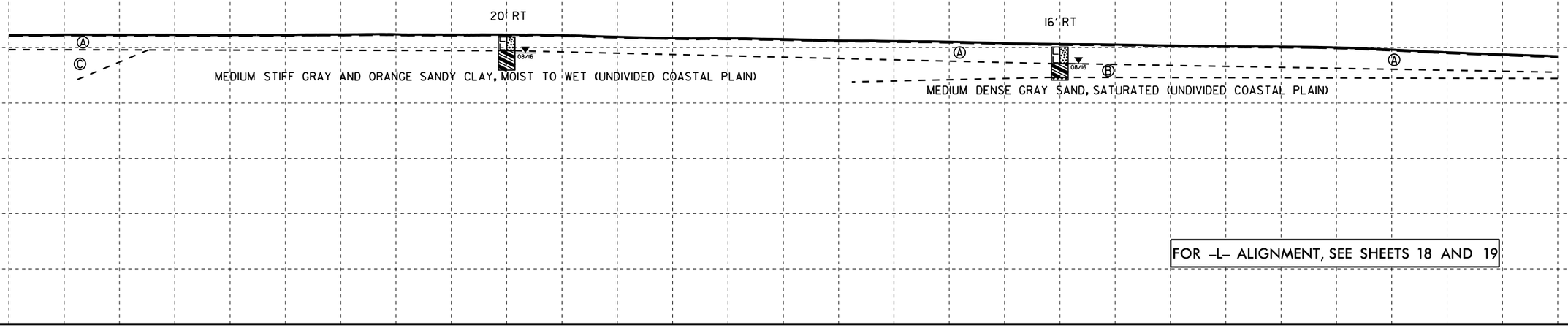
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



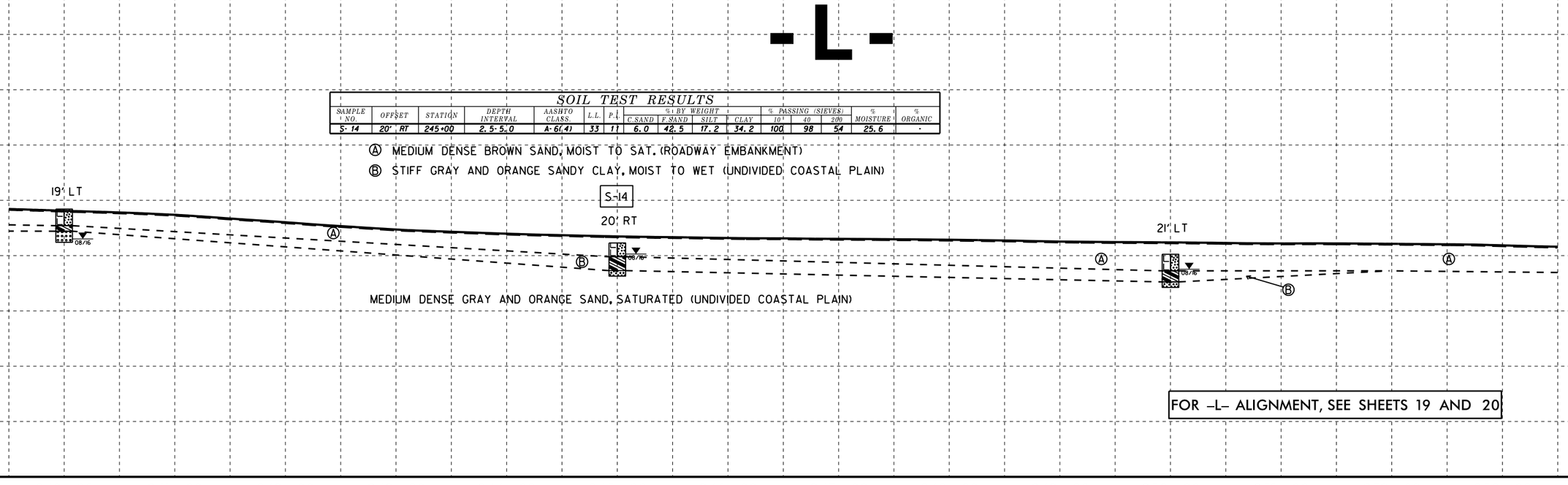
FOR -L- ALIGNMENT, SEE SHEETS 18 AND 19

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-14	20' RT	245+00	2.5-5.0	A-6(4)	33	11	6.0	42.5	17.2	34.2	100	98	54	25.6	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)
Ⓑ STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



FOR -L- ALIGNMENT, SEE SHEETS 19 AND 20

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5/28/99

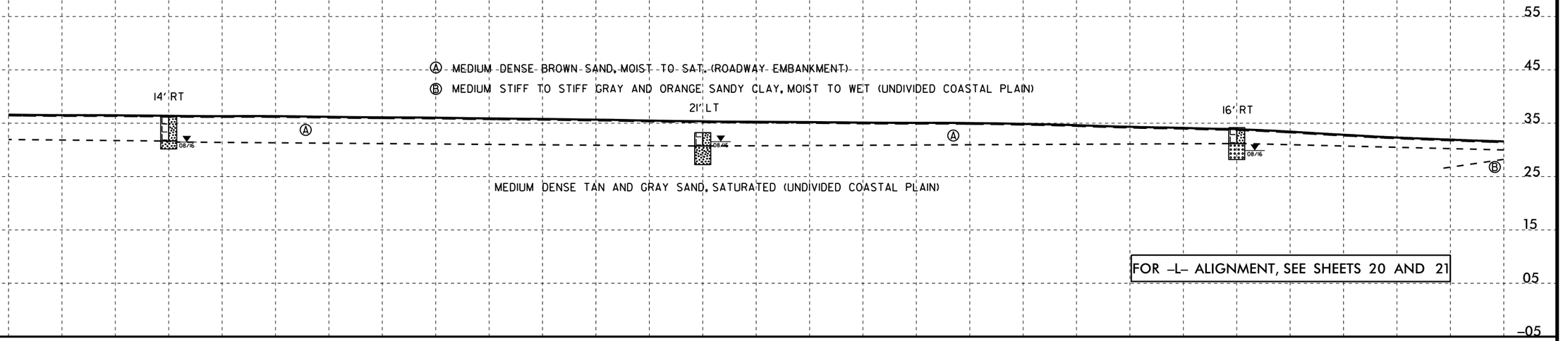
PROJECT REFERENCE NO.	SHEET NO.
U-4906	34

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

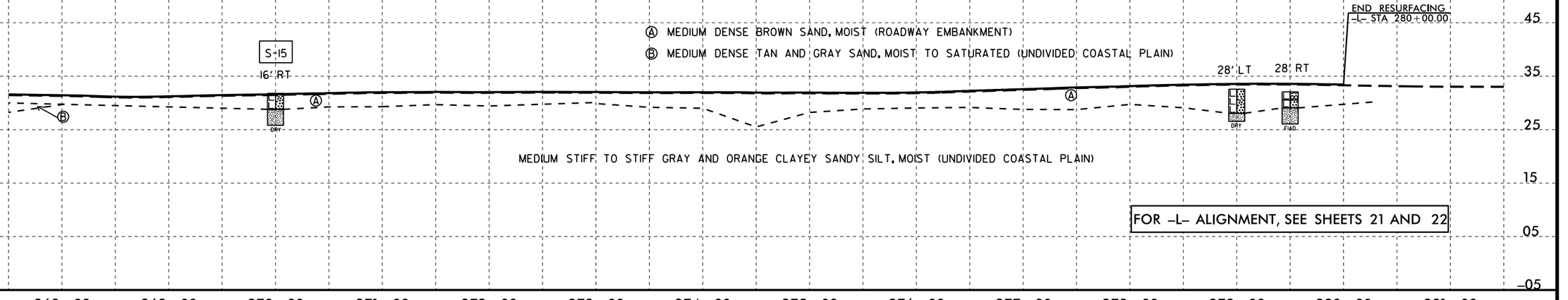


FOR –L– ALIGNMENT, SEE SHEETS 20 AND 21

-L-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C SAND	% BY WEIGHT F SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) #10	% PASSING (SIEVES) #40	% PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
S-15	16' RT	270+00	3.0-6.0	A-4(0)	26	5	11.1	48.3	14.4	26.2	100	94	44	21.4	-



FOR –L– ALIGNMENT, SEE SHEETS 21 AND 22

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	35

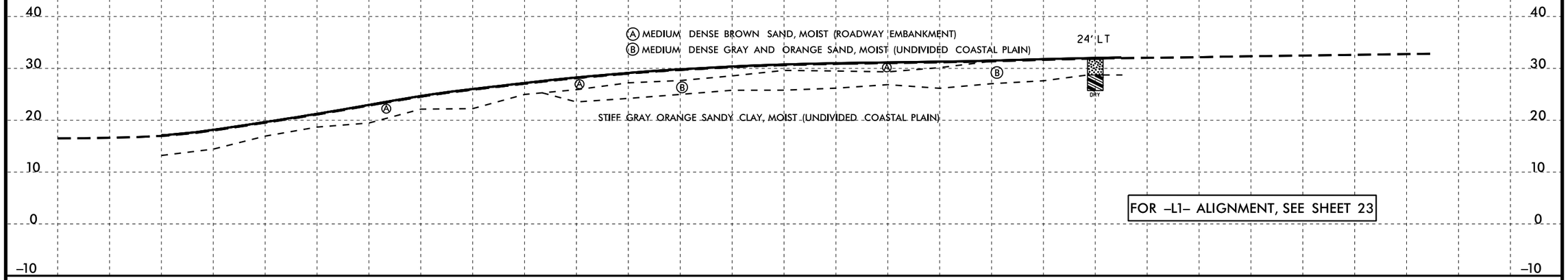
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

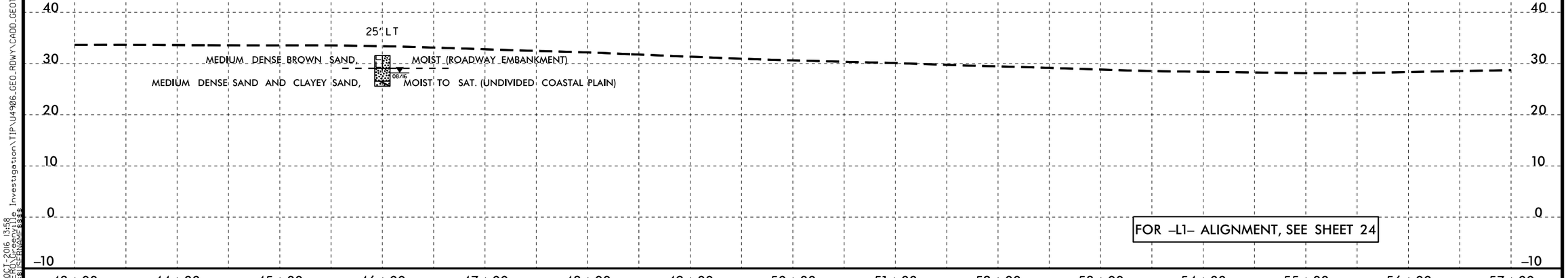
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L1-



FOR –L1– ALIGNMENT, SEE SHEET 23

-L1-



FOR –L1– ALIGNMENT, SEE SHEET 24

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L1-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-17	36' RT	70+00	2.0-6.0	A-4(3)	36	9	9.3	45.1	11.4	34.2	100	95	52	19.5	-

Ⓐ MEDIUM DENSE BROWN SAND WITH SOME GRAVELS, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM DENSE GRAY BROWN AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF ORANGE AND GRAY SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22' RT
20' LT
15' LT
S-17
36' RT
08/16
FIAD

40 30 20 10 0 -10 -20

60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00

FOR -L1- ALIGNMENT, SEE SHEET 25

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4906	37

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

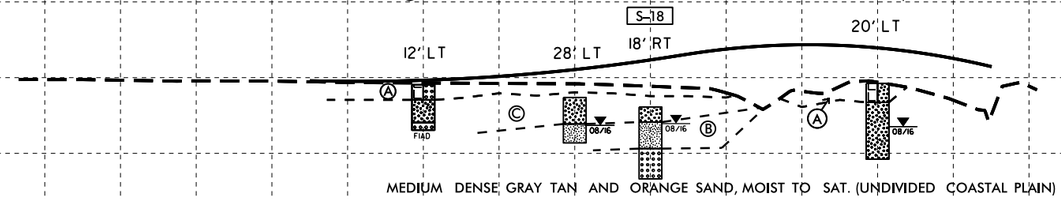
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y1-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-18	18' RT	14+50	3.0-5.5	A-4(0)	25	5	4.0	56.2	17.6	22.2	100	99	51	24.5	-

Ⓐ MEDIUM DENSE BROWN TAN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ MEDIUM DENSE GRAY TAN AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)



MEDIUM DENSE GRAY TAN AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

FOR -Y1- ALIGNMENT, SEE SHEET 10

60 50 40 30 20

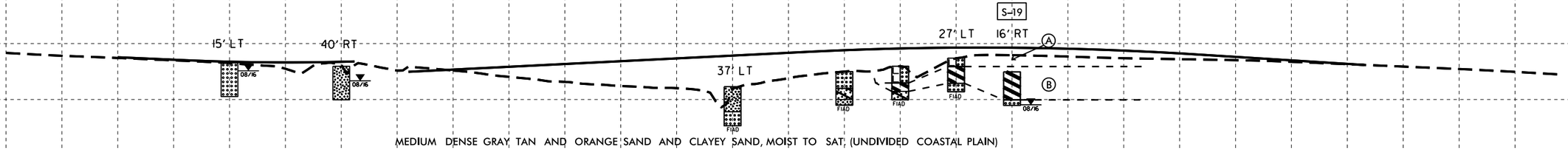
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

-Y2-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-19	16' RT	20+00	0.0-5.0	A-7-6(6)	42	13	4.6	47.1	14.0	34.2	100	98	57	22.7	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)



MEDIUM DENSE GRAY TAN AND ORANGE SAND AND CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

FOR -Y2- ALIGNMENT, SEE SHEET 13

50 40 30 20 10

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 25+00

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-Y4-

PROJECT REFERENCE NO.	SHEET NO.
U-4906	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

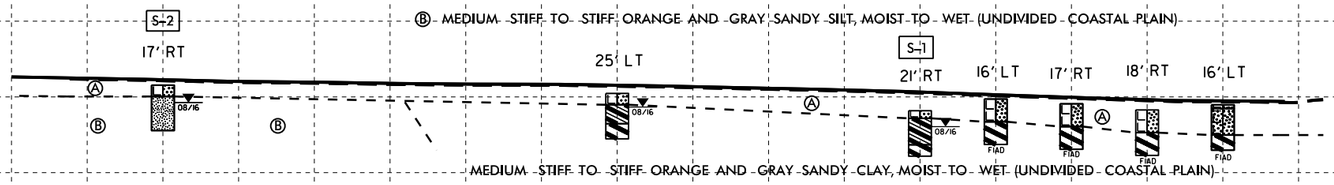
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-2	17' RT	11+00	1.5-6.0	A-4(2)	30	8	9.5	43.5	18.8	28.2	100	95	54	-	-
S-1	21' RT	16+00	1.0-4.5	A-6(6)	40	11	9.1	38.1	18.6	34.2	100	96	63	21.3	-

Ⓐ LOOSE TO MEDIUM DENSE BROWN SAND, MOIST (ROADWAY ENBANKMENT)

Ⓑ MEDIUM STIFF TO STIFF ORANGE AND GRAY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



FOR –Y4– ALIGNMENT, SEE SHEET 25

40 30 20 10 0 –10

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	39

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

55 50 45 40 35

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

08/16

FIAD

MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

105 + 00.00

—L—

55 50 45 40 35

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

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	40

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

08/16

MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

110+00.00

—L—

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	41

Ⓐ MEDIUM DENSE BROWN SAND, MOIST TO SAT. (ROADWAY EMBANKMENT)

Ⓑ MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

FIAD

111 + 50.00

—L—

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6/23/16

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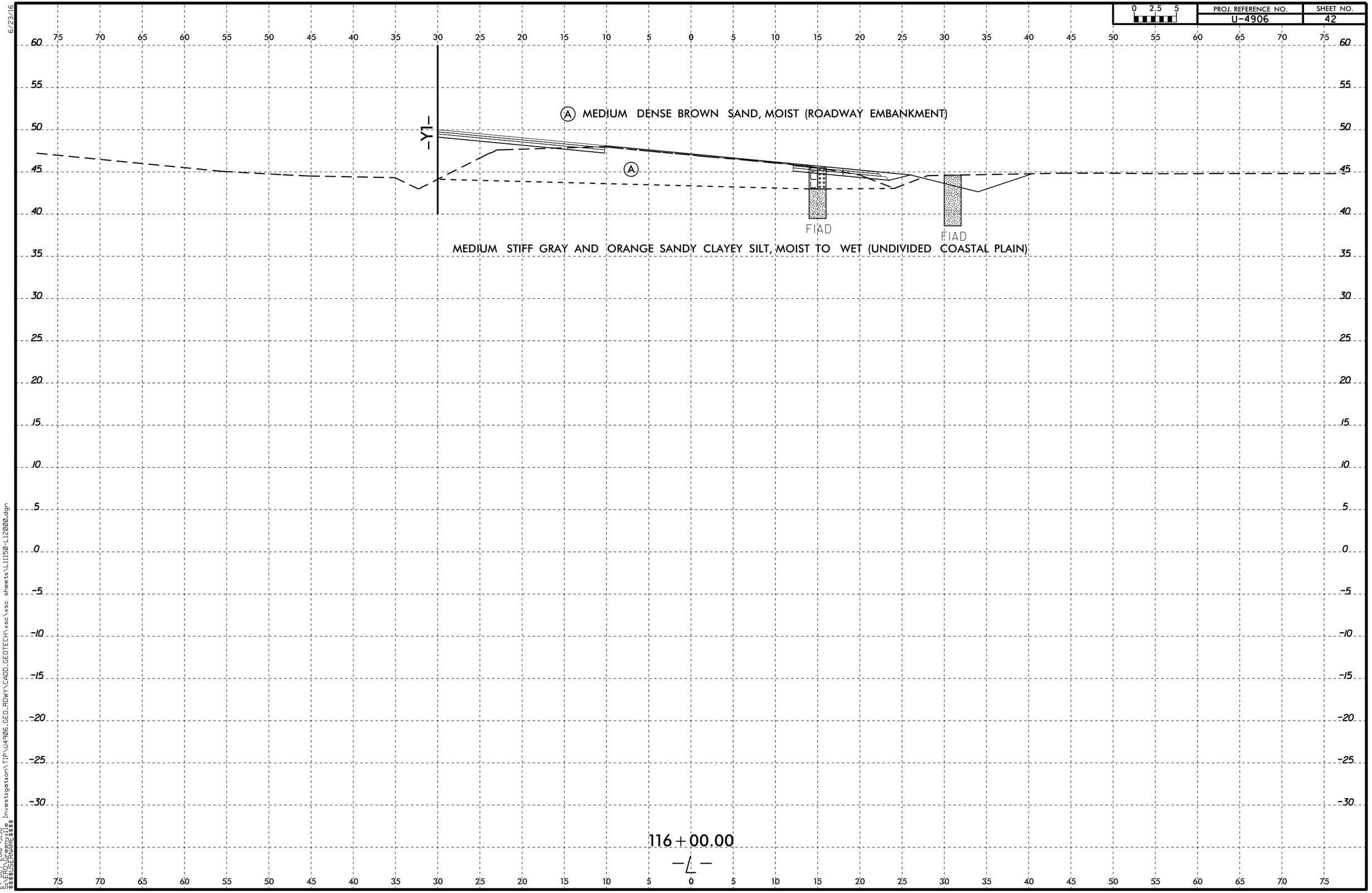
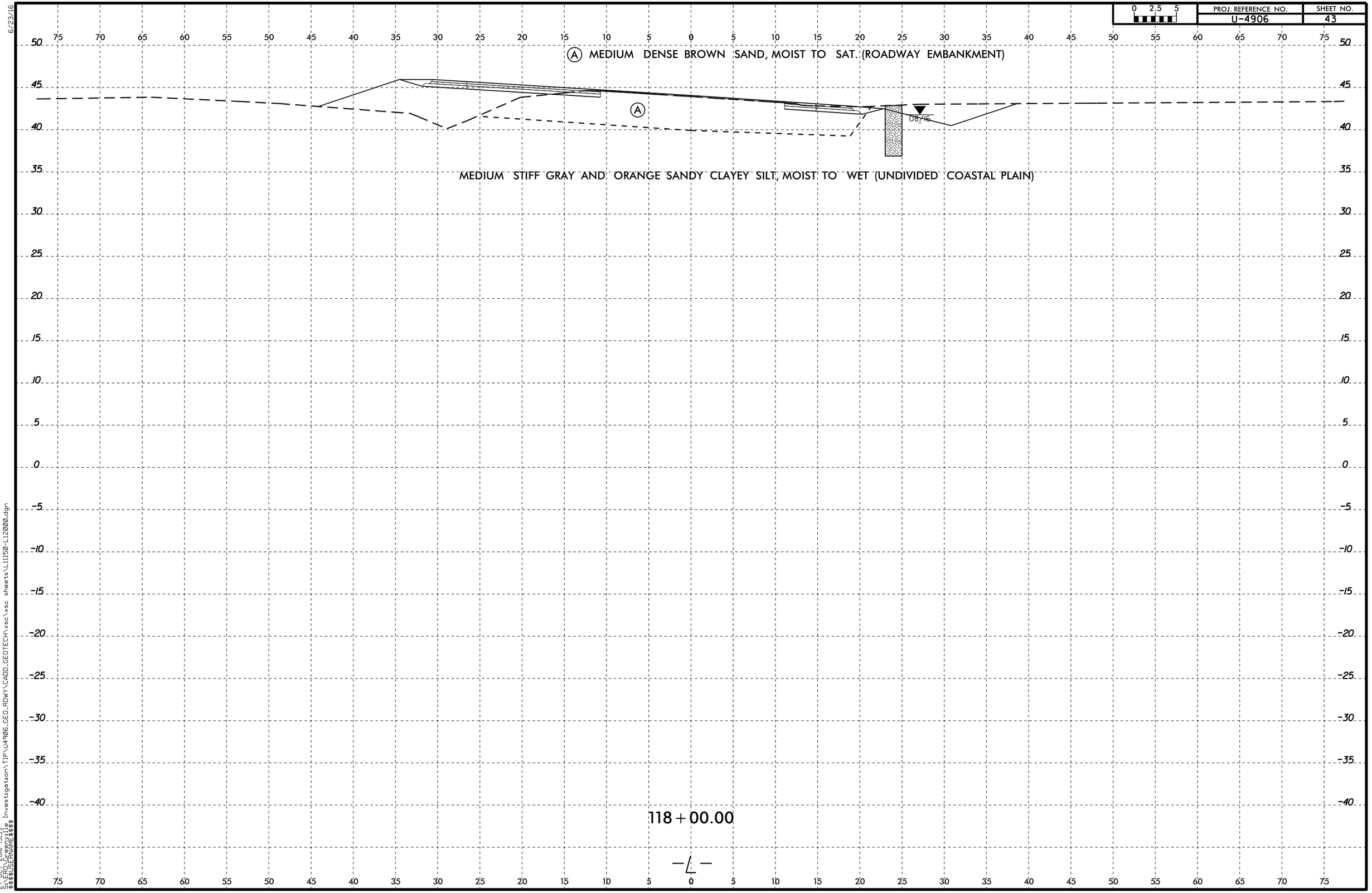


6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	43



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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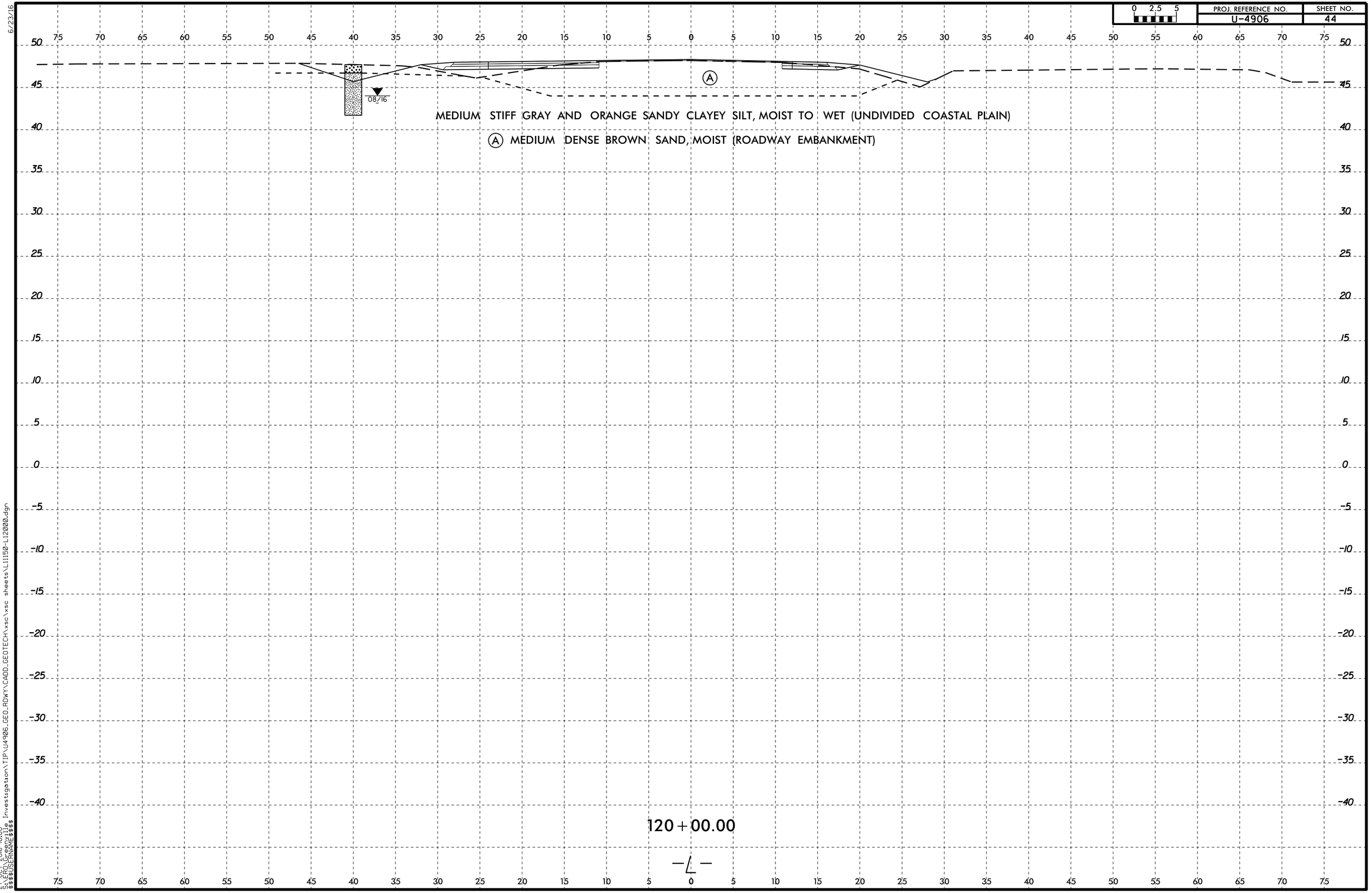

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	45

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓐ

08/16

MEDIUM STIFF GRAY AND ORANGE SANDY CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

124+00.00

—L—

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	46

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM DENSE GRAY AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

08/16

151+00.00

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	47

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM DENSE GRAY AND ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

08/16

155+00.00

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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	48

MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM DENSE TAN AND GRAY SAND, MOIST TO SATURATED (UNDIVIDED COASTAL PLAIN)

08/16

274+50.00

—L—

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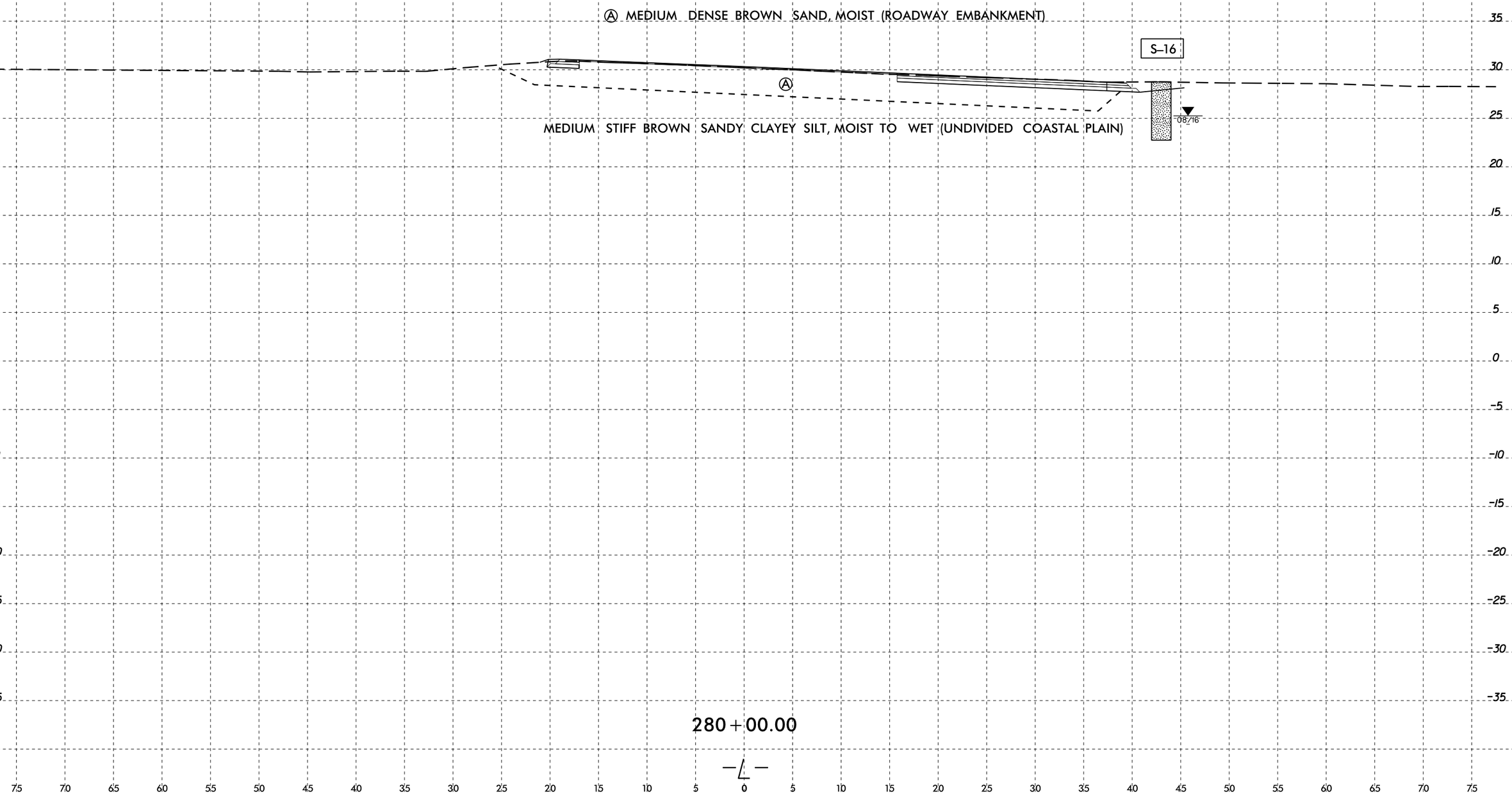
SOIL TEST RESULTS

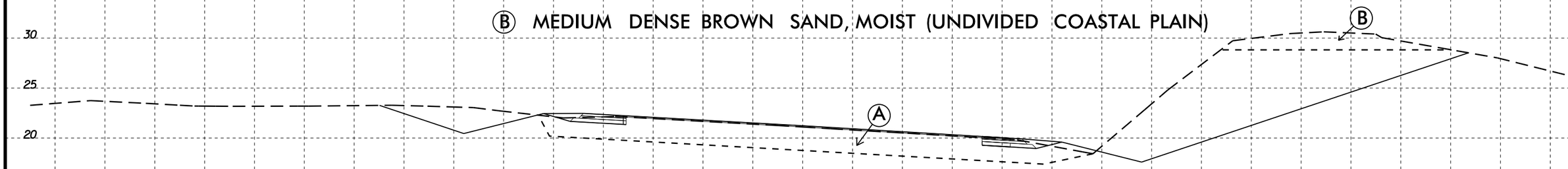
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-16	43' RT	280+00	0.5-6.0	A-4(4)	34	10	4.2	41.3	20.2	34.2	100	99	59	22.7	-



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	50

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

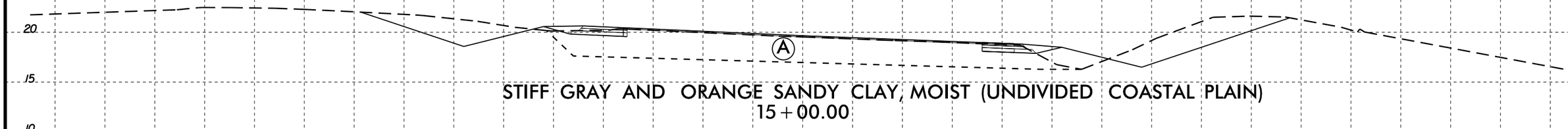
Ⓑ MEDIUM DENSE BROWN SAND, MOIST (UNDIVIDED COASTAL PLAIN)



STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

15 + 50.00

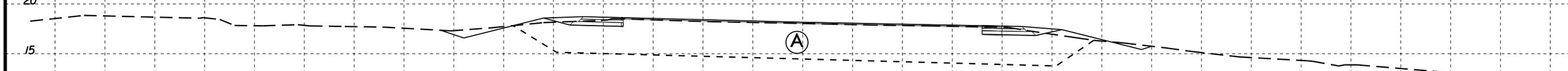
Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)



STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

15 + 00.00

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)



STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

14 + 50.00

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

14 + 00.00

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	51

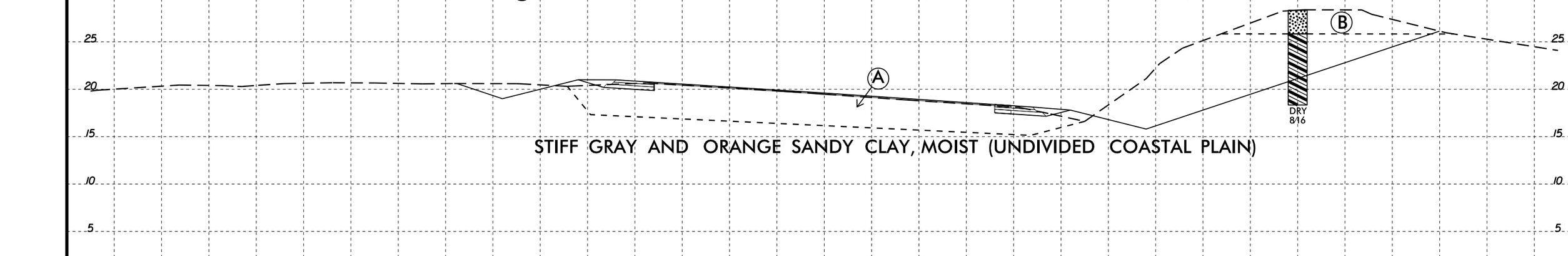
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-20	50' RT	16+00	2.5-10.0	A-6(9)	33	20	5.4	37.1	19.2	38.3	100	97	60	16.2	-

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ MEDIUM DENSE BROWN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

S-20



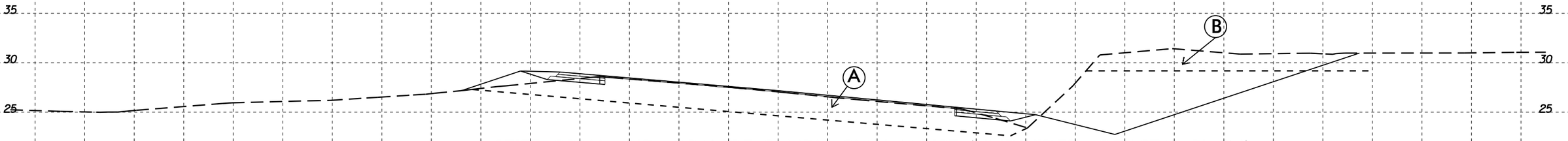
STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

16+00.00

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	52

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ MEDIUM DENSE BROWN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

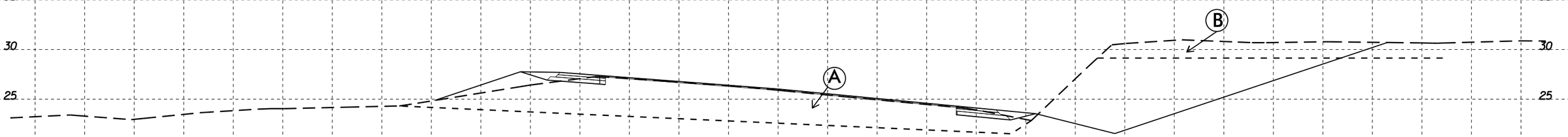


STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

17 + 50.00

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ MEDIUM DENSE BROWN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

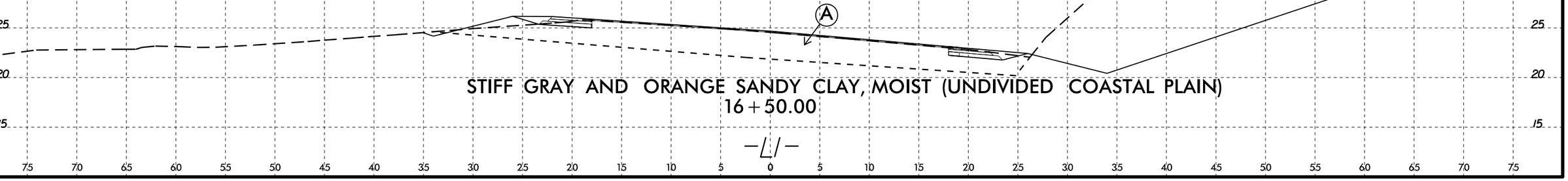


STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

17 + 00.00

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

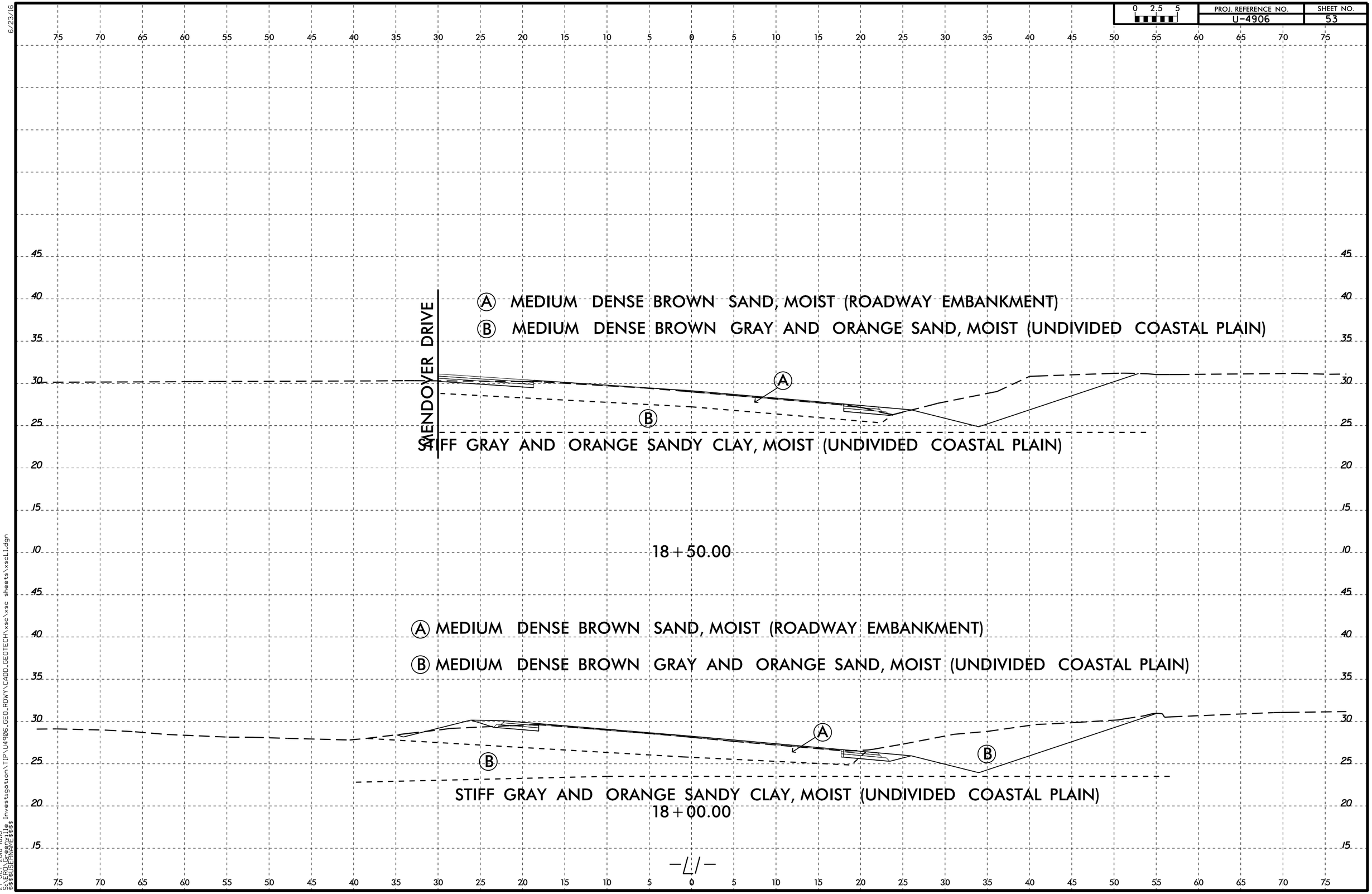
Ⓑ MEDIUM DENSE BROWN SAND, MOIST (UNDIVIDED COASTAL PLAIN)



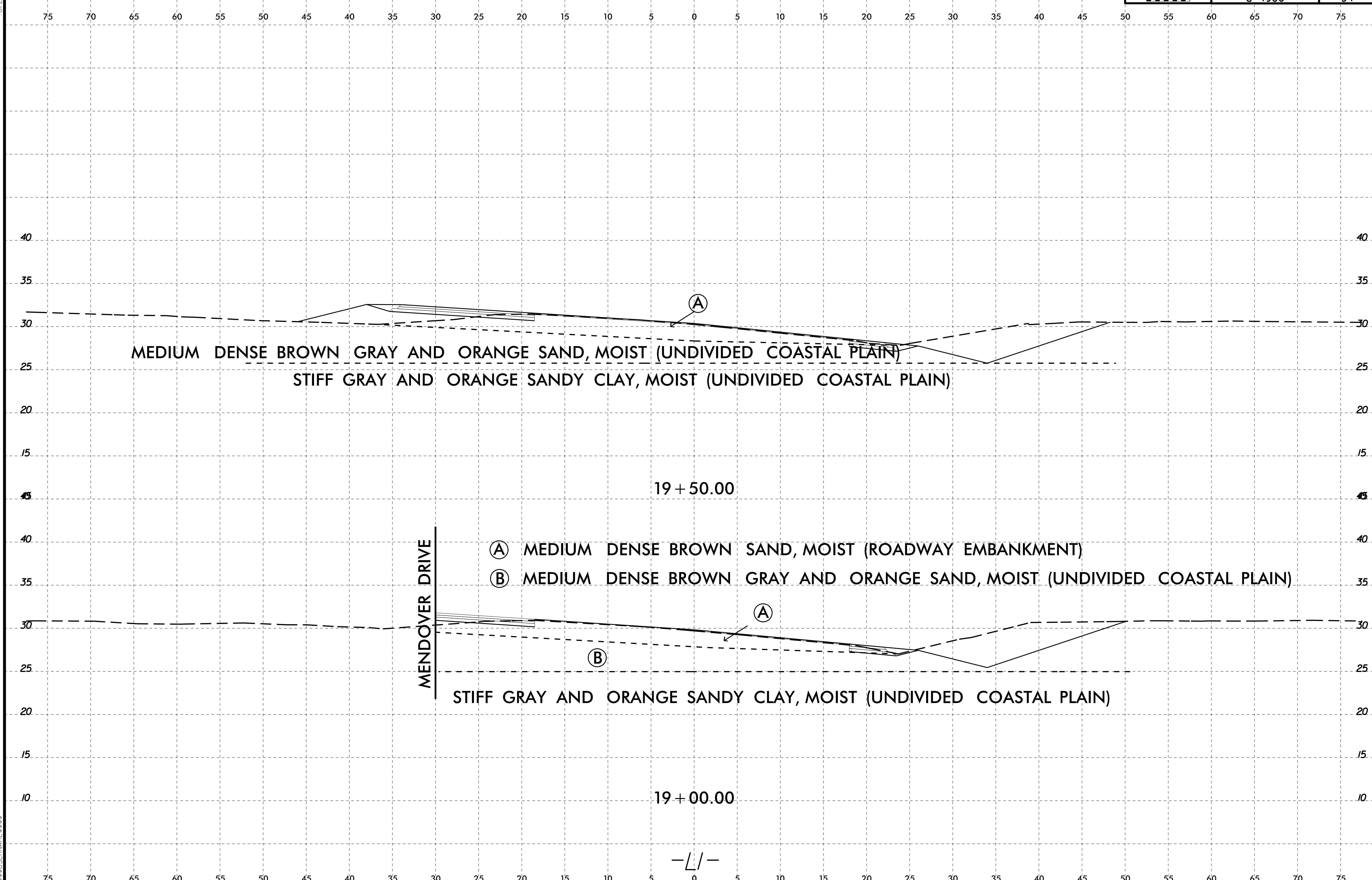
STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

16 + 50.00

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	53



PROJ. REFERENCE NO. U-4906 | SHEET NO. 54



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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	55

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

40 35 30 25 20 15 10 5 0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50

Ⓐ MEDIUM DENSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓐ

MEDIUM DENSE BROWN GRAY AND ORANGE SAND, MOIST (UNDIVIDED COASTAL PLAIN)

STIFF GRAY AND ORANGE SANDY CLAY, MOIST (UNDIVIDED COASTAL PLAIN)

DRY
8/16

20+00.00

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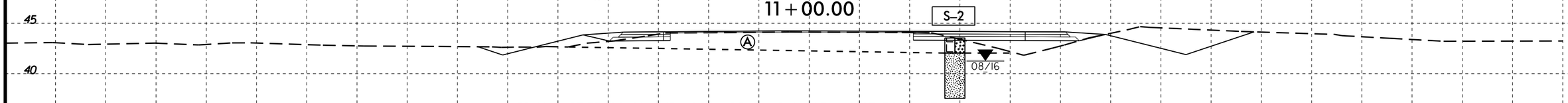
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-2	17' RT	11+00	1.5-6.0	A-4(2)	30	8	9.5	43.5	18.8	28.2	100	95	54	-	-

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

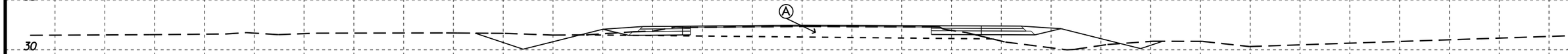
11+00.00



MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

BEGIN SHALLOW UNDERCUT AT –Y4– STA. 10+50

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)



MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

10+50.00

–Y4–

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	57

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

40
35
30
25
20

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

13 + 00.00

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

12 + 50.00

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

12 + 00.00

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF GRAY AND ORANGE SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

11 + 50.00

-Y4-

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

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	58

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

40 35 30 25 20

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

13+50.00

-Y4-

40 35 30 25 20

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

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	59

Ⓐ LOOSE BROWN SAND, MOIST (ROADWAY EMBANKMENT)

08/16

MEDIUM STIFF GRAY AND ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

14+00.00

-Y4-

27-OCT-2016 16:27
$$$$USERNAME$$$$
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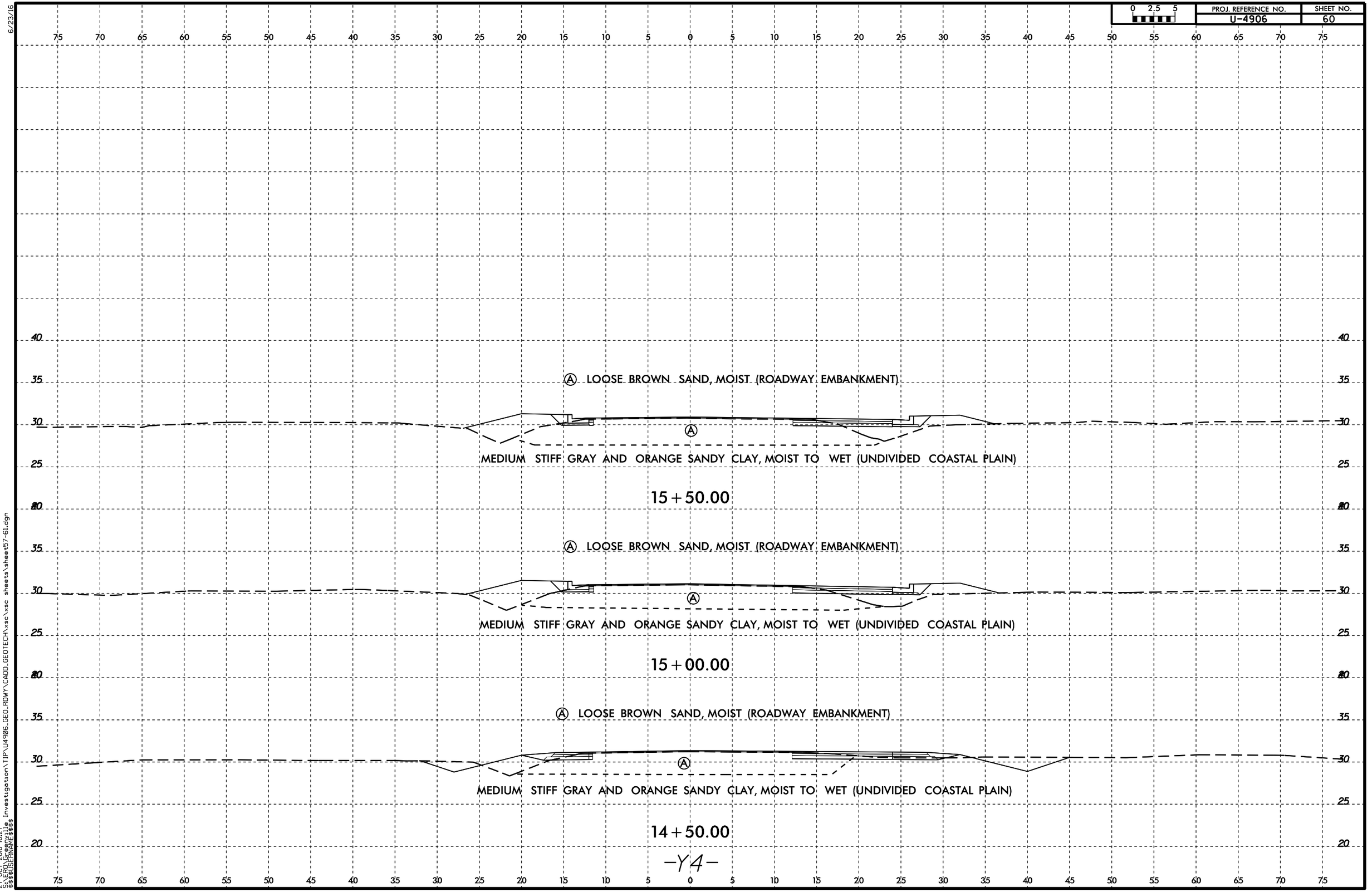
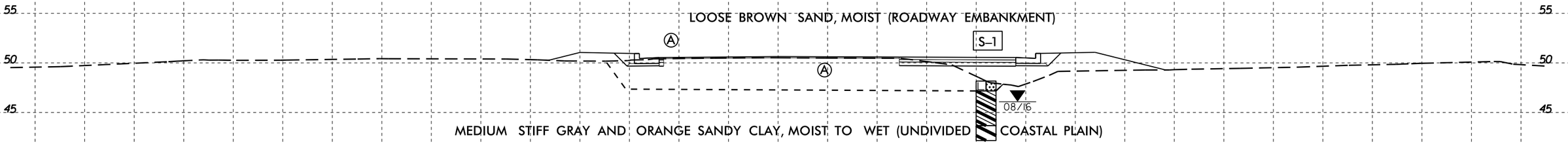
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4906	60



-Y4-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-1	21' RT	16+00	1.0-4.5	A-6(6)	40	11	9.1	38.1	18.6	34.2	100	96	63	21.3	-



END UNDERCUT STA 15+75

16+00.00

-Y4-