CONTRACT: C203161 ID: R-2303C

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS:

LINE	STATION	SHEET NUMBERS PLAN	PROFILE	X-SECTS.
-L-	730+10 to 744+00	4,5	33	
	744+00 to 752+00	5	33	55-59
	752+00 to 781+00	5-7	33,34	
	781+00 to 788+50	8	34,35	60-65
	788+50 to 851+50	8-13	35-37	
	851+50 to 854+00	13	37	66-67
	854+00 to 870+50	13,14	37,38	
	870+50 to 875+00	14	38	68-70
	875+00 to 928+00	14-18	38-40	
	928+00 to 931+00	18	40	71-74
	931+00 to 942+50	18,19	40	
	942+50 to 944+33	19	40	75-79
	944+33 to 1080+36	19-29	40-45	
	1080+36 to 1081+77	29	45	80-83
	1081+77 to 1097+00	29-30	45,46	
-D1-	10+00 to 11+55	19-20		
-Y25-	16+40 to 18+60	4		
-Y26-	10+00 to 11+00	4	47	
	11+00 to 16+00	4,31	47	84-89
-Y27-	10+00 to 15+87	4,31	47	
-Y28-	12+00 to 17+50	7	47	
-Y29-	19+00 to 25+50	8	48	
-Y30-	10+00 to 15+65	9	48	
-Y31-	15+70 to 27+50	12,32	49	
-Y31A-	10+00 to 10+50	12	48	
	10+50 to 14+13	12	48	90-93
	14+13 to 14+45	12	48	
-Y32-	13+50 to 14+00	32	49	
	14+00 to 22+00	32	49	94-100
	22+00 to 22+91	32	49	
-Y32A-	10+00 to 12+50	32	50	
-Y32B-	10+15 to 10+93	12	50	
-Y33-	10+00 to 15+44	18	50	
-Y33A-	10+00 to 65+06	14-18	51,52	
-Y33B-	10+00 to 10+91	16	50	
-D2-	10+05 to 11+80	18		
-Y34-	10+00 to 13+80	21	53	
-Y35-	12+25 to 14+88	22	53	
-Y36-	10+00 to 16+15	25,26	53	
-Y37-	12+60 to 23+00	26,27	54	
-D3-	10+00 to 12+13	26		
-Y36A-	10+20 to 10+95	26	53	
-Y36B-	10+25 to 10+97	27	53	
-Y38-	10+00 to 12+50	29	54	
APPENDIX A	CPT LOGS			

This project contains 1 ADDENDUM. Refer to it as well as to this Subsurface Investigation.

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34416.1.1 (R-2303C) F.A. PROJ. STPNHF-F-8-2(17)

COUNTY SAMPSON

PROJECT DESCRIPTION NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303 (MITCHELL LOOP ROAD)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2303C	1	100

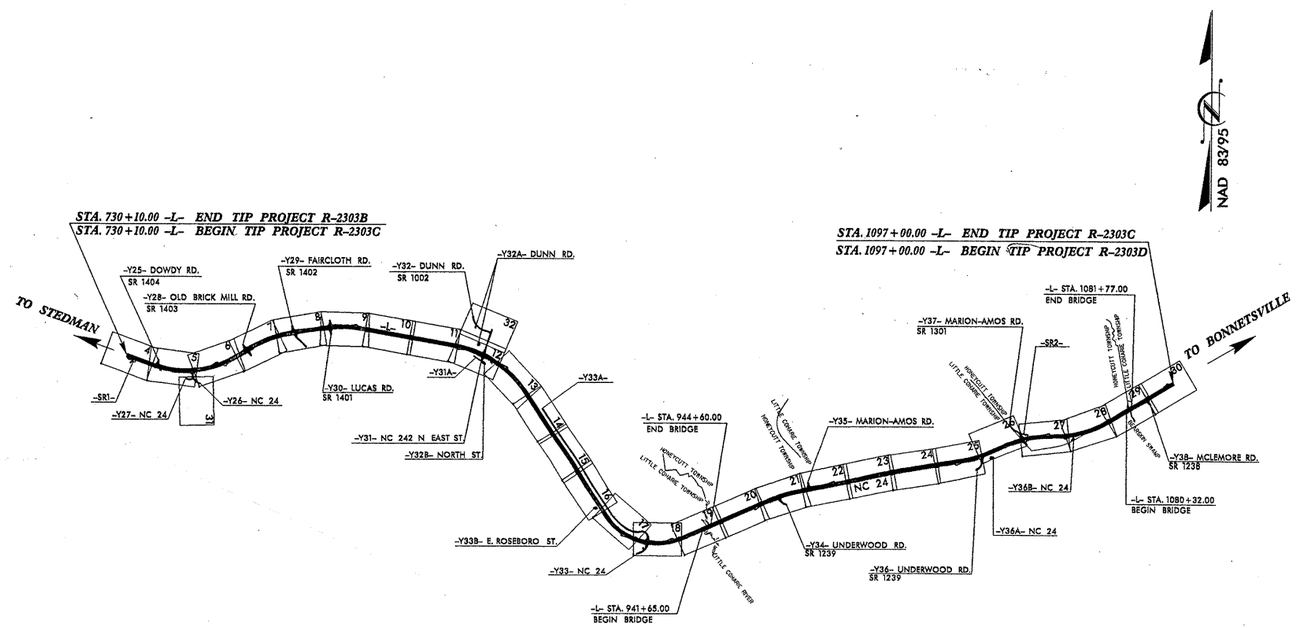
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34416.1.1	STPNHF-F-8-2(17)	PE
34416.2.4		ROW & UTL.
34416.3.5		CONST.

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.



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SUBMITTED BY J. L. PEDRO

DATE JUNE 2009

NORTH CAROLINA LICENSED SEAL 2137 GEOLOGIST JAIME LOVE PEDRO 6-1-09

DRAWN BY: J. L. PEDRO, W. D. FIELDS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

PROJECT REFERENCE NO.	SHEET NO.
34416.1.1 (R-2303C)	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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
# 40	30 MX	50 MX	51 MN											
# 200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A 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 0.50 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
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL — LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PI): LL — PL — PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
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
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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 CPT DPT DMT VST PMT TEST BORING
- AUGER BORING
- CORE BORING
- HW MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF SPT REFUSAL

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:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-550
- [X] PORTABLE HOIST
- [X] CPT ATV
- [X] D-50

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

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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:

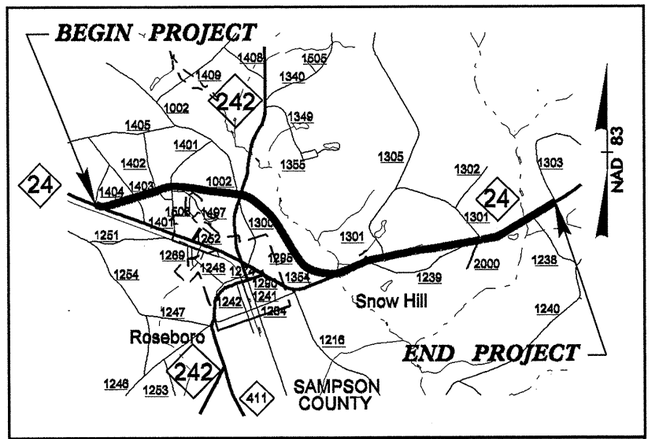
ELEVATION: FT.

NOTES:

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2303C	2A	100

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34416.1.1	STPNHF-F-8-2(17)	PE

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SAMPSON COUNTY

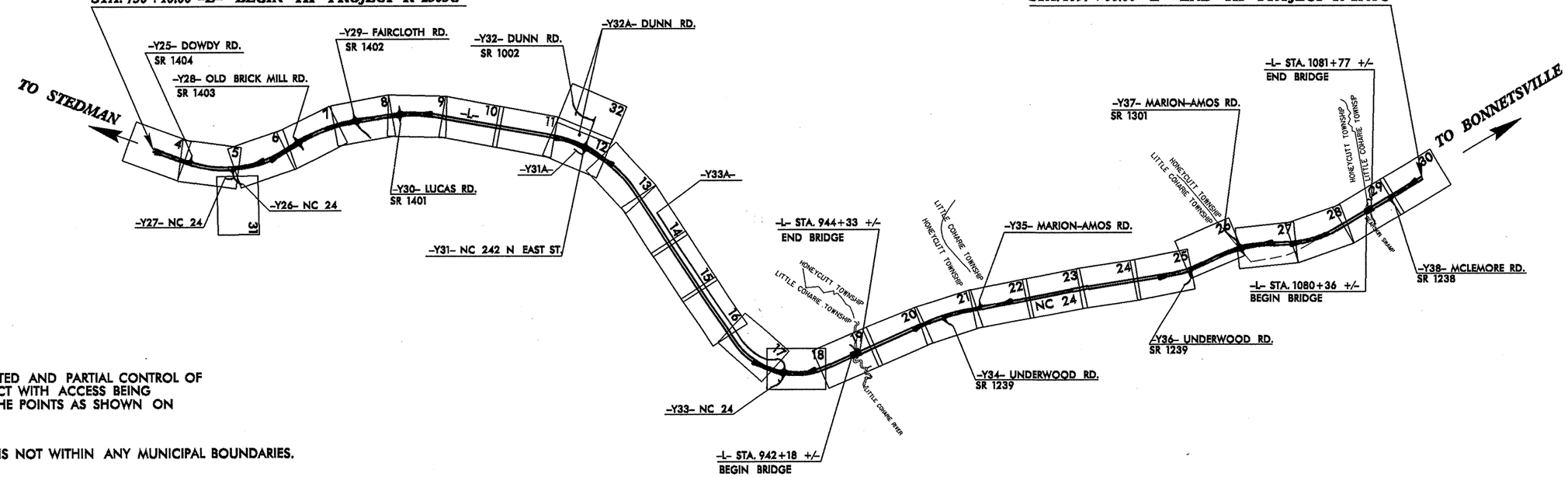
LOCATION: NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303 (MITCHELL LOOP ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

NAD 83

STA. 730+10.00 -L- BEGIN TIP PROJECT R-2303C

STA. 1097+00.00 -L- END TIP PROJECT R-2303C



THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE POINTS AS SHOWN ON THE PLANS.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

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 2010 = 12,360
ADT 2030 = 18,600
DHV = 11 %
D = 55 %
T = 8 % *
V = 60 MPH
FUNC CLASS = ARTERIAL
* (TTST 5% + DUAL 3%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2303C = 6.882 MILES
LENGTH STRUCTURES TIP PROJECT R-2303C = 0.067 MILES
TOTAL LENGTH TIP PROJECT R-2303C = 6.949 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 19, 2010

LETTING DATE: FEBRUARY 21, 2012

BRENDA MOORE, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
P.E.
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: R-2303C

CONTRACT:

09/08/99

22-APR-2009 15:18
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jlpedro AT GEJ248327

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 1, 2009

STATE PROJECT: 34416.1.1 (R-2303C)
FEDERAL PROJECT: STPNHF-F-8-2(17)
COUNTIES: Sampson
DESCRIPTION: NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)

SUBJECT: Geotechnical Report - Inventory

Project Description

This project consists of a proposed 6.9 mile, four-lane roadway (-L-) on new location between Dowdy Road (-Y25-) and Industrial Park Drive (SR 1354). This new section of the NC 24 will bypass the town of Roseboro and reconnect to the existing NC 24. The remainder of the project consists of adding an additional two lanes along side NC 24. All of the Y-lines (-Y26- through -Y38-) will be tied into the improved NC 24, and -Y33A- is a new service road the will parallel a new section of NC 24.

The geotechnical investigation was conducted during November and December of 2008 by the consultant group: S&ME. Several drill machines, a D-50, CME-550, CME-750 and CPT ATV, with automatic hammers, were used during the investigation. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers and Cone Penetration Test borings. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit. Bulk samples were also collected for CBR testing.

The following alignments, totaling 9.7 miles, were investigated. Subsurface profiles and/or cross sections of these alignments are included in this report.

Line	Stations
-L-	730+10 to 1097+00
-Y26-	10+00 to 16+00
-Y27-	10+00 to 15+87
-Y28-	12+00 to 17+50
-Y29-	19+00 to 25+50
-Y30-	10+00 to 15+65
-Y31-	15+70 to 27+50
-Y31A-	10+00 to 14+45
-Y32-	13+50 to 22+91
-Y32A-	10+00 to 12+50
-Y32B-	10+15 to 10+93
-Y33-	10+00 to 15+44
-Y33A-	10+00 to 65+06
-Y33B-	10+00 to 10+91
-Y34-	10+00 to 13+80
-Y35-	12+25 to 14+88
-Y36-	10+00 to 16+15
-Y36A-	10+20 to 10+95
-Y36B-	10+25 to 10+97
-Y37-	12+60 to 23+00
-Y38-	10+00 to 12+50

Areas of Special Geotechnical Interest

1) Highly Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following locations:

Line	Stations	Offsets (ft)
-L-	743+00 to 753+00	LT to RT
-L-	766+00 to 786+00	LT to RT
-L-	811+00 to 840+00	LT to RT
-L-	863+50 to 866+50	CL
-L-	881+00 to 884+00	CL
-L-	926+08 to 933+00	CL
-L-	940+50 to 945+00	LT to RT
-L-	1064+50 to 1071+50	LT to RT
-L-	1075+75 to 1095+00	LT to RT
-Y26-	10+47 to 16+00	LT to RT
-Y27-	15+00 to 16+00	RT
-Y29-	19+00 to 21+69	LT to CL
-Y30-	11+00 to 15+65	CL to RT
-Y31-	25+00 to 27+50	LT to CL
-Y31A-	11+25 to 13+00	CL to RT
-Y32-	15+00 to 21+40	LT to CL
-Y32A-	15+36 to 16+11	CL to RT
-Y33A-	10+00 to 18+50	LT to RT
-Y33A-	44+00 to 54+00	CL
-Y37-	12+60 to 17+00	LT to CL
-Y37-	20+75 to 23+00	LT to CL
-Y38-	10+47 to 12+50	LT to RT

A discussion of these highly plastic clay soils is located below in the section titled "Soil Properties".

2) Groundwater: The following areas exhibit a high water table, seasonal high groundwater or the potential for groundwater related construction problems:

Line	Stations
-L-	730+10 to 742+00
-L-	788+00 to 792+00
-L-	872+00 to 873+00
-L-	894+00 to 904+00
-L-	931+00 to 933+00
-L-	941+00 to 945+00
-L-	959+00 to 967+00
-L-	994+50 to 1030+50
-L-	1038+50 to 1060+00
-L-	1079+00 to 1089+00
-Y28-	15+50 to 17+50
-Y29-	22+65 to 27+50
-Y30-	13+96 to 15+65
-Y31-	15+70 to 27+50
-Y32-	19+00 to 22+79
-Y32A-	15+36 to 16+11
-Y33A-	10+00 to 40+00
-Y38-	10+47 to 12+00

3) Ponds: Several ponds occur on or within close proximity of right of way on this project. These were noted at the following locations:

Line	Station	Offset (ft)
-L-	754+50 to 766+00	500 LT to 500 RT
-L-	772+50 to 777+90	350 LT to 260 LT
-L-	862+00 to 864+25	385 LT to 215 RT
-L-	960+40 to 966+10	140 LT to 500 RT
-L-	997+85 to 999+35	305 RT to 375 RT
-L-	999+65 to 1005+20	37 LT to 350 LT
-L-	1007+27 to 1007+93	126 RT to 182 RT
-L-	1008+47 to 1011+00	10 LT to 190 LT
-L- (-D3-)	1034+40 to 1035+90	127 LT to 323 LT
-L-	1059+60 to 1065+45	120 LT to 380 LT
-Y33A-	52+52 to 55+37	390 LT to 65 RT

4) Water wells: Several water wells were found within or in close proximity to the proposed right of way at the following location:

Line	Stations and Offsets (ft)
-L-	731+83, 125 RT
-L-	786+87, 41 LT
-L-	930+23, 96 LT
-L-	933+88, 173 LT
-L-	996+30, 117 RT
-L-	999+17, 260 RT
-L-	1002+12, 140 RT
-L-	1005+95, 47 LT
-L-	1012+25, 80 LT
-L-	1020+73, 49 LT
-L-	1021+77, 168 RT
-L- (-Y36-)	1028+48(15+80), 188 RT(174RT)
-L-	1044+09, 261 RT
-L-	1049+16, 51 LT
-L-	1051+69, 246 RT
-L-	1052+11, 350 RT
-L-	1095+26, 108 LT
-Y29-	21+30, 41 LT
-Y31-	14+52, 82 LT
-Y37-	23+72, 39 RT

5) Artificial Fill: One area of artificial fill occurs at the following location:

Line	Station	Offset (ft)
-L-	738+04 to 739+95	65 RT to 105 RT
-L-	1000+25 to 1004+22	65 LT to 5 RT

Physiography and Geology

The project is located in the central Coastal Plain Physiographic Province. The terrain is relatively flat with gently rolling hills. Little Coharie Creek, Bearskin Swamp, and their tributaries typically flow across the project in a south to southeast direction. A mixture of family dwellings, farmland, and woods occur along the project corridor.

Geologically, the project is located within the Coastal Plain Province. Soils within the project are Cretaceous-age Coastal Plain sediments that are derived from the Black Creek formation. Black Creek material is clays interbedded with thin laminae of micaceous sand and thick lenses of cross-bedded sand.

Soil Properties

Soils encountered during this investigation are separated into four categories based on their origin. They consist of roadway embankment, artificial fill, alluvial, and Coastal Plain soils.

Roadway Embankment soils are present along the existing roadways on the project. These soils consist of tan, gray, and brown, loose to medium dense, dry to moist, silty sand (A-2-4) and medium to very stiff, moist, sandy clay (A-6). They are derived from the residual soils encountered near the embankments on the project.

Artificial Fill soils are present in a few areas of the project. These areas are listed in "Areas of Special Geotechnical Interest." A small area of artificial fill along -L- Sta. 738+50 consists of black, medium stiff, moist, sandy silt (A-4), and is related to the existing embankment and ditch cut. The other area is located along a pond dam at -L- Sta. 1002+00 and consists of brown, loose to medium dense, dry to moist, silty sand

Alluvial soils are present in the vicinity of all water sources with the major areas being in the floodplains of the Little Coharie Creek and Bearskin Swamp. These soils consist primarily of black to dark gray, very soft,

moist to wet, sandy and silty clay (A-6, A-7-6) and very loose to medium dense, wet to saturated, silty and coarse sand (A-2-4 and A-1-b). Alluvial soils also occur in the ponds along the project corridor.

Coastal Plain soils are deposited on top of Pre-Mesozoic basement materials. These soils consist of tan, orange, gray, and brown, very soft to hard, dry to wet, sandy and silty clay, and highly plastic, silty clay (A-6, A-7-6), and sandy silt (A-4) with trace to moderate organics. Equal amounts of tan, brown, and green-gray, very loose to very dense, moist to saturated, silty sand, coarse sand and sand (A-2-4, A-1-b, A-3) are interbedded with the clays. The silty clays and clayey sands exhibit moderate to high plastic indices from 26 to 68.

Groundwater

Groundwater was encountered in almost all borings throughout the project corridor. Areas that exhibit high groundwater are discussed in "Areas of Special Geotechnical Interest." Groundwater is generally shallow across the project and generally occurs within 10.0 feet of the ground surface. The groundwater levels at the Little Coharie Creek and Bearskin Swamp exhibit artesian conditions, which are above the ground surface. Note: The zero hour (0 hr.) groundwater level was measured and reported for all of the CPT holes.

Ponds

Several ponds occur on or near the project right of way. These ponds are listed by alignment, station, and offsets in the "Areas of Special Geotechnical Interest". Two ponds on either side of -L- cross the alignment at -L- Sta.757+00 with a small opening between them on the Boren Clay Products property. A third pond is across the road (-Y28-), and the corner of the pond just misses the centerline at -L- Sta. 777+00. These three ponds are in fill sections and were used by Boren Clay Products to gather for materials for production. Another area of standing water occurs at -L- Sta. 863+00 to 864+20 (left to right), and is associated with the Little Coharie Creek as a drainage and wetland area. The water appears to be less than three feet deep with a sandy bottom. The area of standing water is also in a fill section. Another pond just left of -L- Sta. 913+50, crosses the -Y33A- alignment from Sta. 53+00 to 54+00 and is in a fill section. The pond left of -L- Sta. 999+65 to 1005+20 falls on toe of the proposed embankment and is the be filled up to meet the ground surface. The pond at -L- Sta. 1008+47 to 1011+00 also falls left of centerline, and is in a fill section. These two ponds are likely used for irrigation purposes. Another pond next to -D3- is in close proximity to the project corridor and is in a fill section. The Sampson County Waste Disposal property has a pond that is adjacent to -L- Sta. 1059+60 to 1065+45 (left) and it is next to a partial cut section, but mostly fill.

Graveyard

A small family graveyard along -L- Sta. 803+22, Offset 21 to 75' LT is shown in a fill area and lies in the middle of a farm field (see Plan Sheet No. 9). This graveyard is inside the right of way limits for this project.

Prepared by,

Jaime Love Pedro

Jaime Love Pedro, LG
Project Geological Engineer

BULK SAMPLES

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

Sample No.	Location	Depth (ft)	Test
CBR-1	-L-, 904+50, 50' LT	3.0-10.0	California Bearing Ratio

Volumes in Cubic Yards

PROJECT R-2303C COUNTY: SAMPSON DATE: 10/1/2012 COMPILED BY: GSBLELL

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- LT.															
730+00.00	740+00.00	1,211				1,211	6,018		6,018	7,523	6,312				
-Y25-															
16+40.00	18+12.78	380				380	102		102	128			252		252
1	SUBTOTAL	1,591				1,591	6,120		6,120	7,651	6,312		252		252
-L- FULL															
740+00.00	770+00.00	3,209		5,629	2,532	677	92,209		92,209	115,261	114,584			8,161	8,161
-Y26- 11+00.00	16+00.00	579		500	530	49	1,260		1,260	1,575	1,526			1,030	1,030
-Y27- 10+12.00	15+87.00	984				984	1,423		1,423	1,779	795				
-Y28- 12+00.00	14+55.19	271				271	1,240		1,240	1,550	1,279				
-Y28- 15+49.87	17+50.00	83				83	762		762	953	870				
2	SUBTOTAL	5,126		6,129	3,062	2,064	96,894		96,894	121,118	119,054			9,191	9,191
-L- FULL															
770+00.00	800+00.00	2,219		2,150	416	1,803	57,178		57,178	71,473	69,670			2,566	2,566
-Y29- 19+00.00	21+69.46						1,112		1,112	1,390	1,390				
-Y29- 22+65.12	27+50.00	264				264	1,006		1,006	1,258	994				
-Y30- 11+00.00	13+02.30	63				63	618		618	773	710				
-Y30- 13+96.33	15+65.00	110				110	149		149	186	76				
3	SUBTOTAL	2,656		2,150	416	2,240	60,063		60,063	75,080	72,840			2,566	2,566
-L- FULL															
800+00.00	830+00.00	908				908	88,648		88,648	110,810	109,902				
4	SUBTOTAL	908				908	88,648		88,648	110,810	109,902				
-L- FULL															
830+00.00	860+00.00	1,591		291	127	1,464	151,969		151,969	189,961	188,497			418	418
-Y31- 15+70.00	23+67.05	252				252	8,581		8,581	10,726	10,474				
-Y31- 24+61.92	27+50.00	311				311	281		281	351	40				
-Y31A- 10+00.00	14+35.00	1,464		1,000	1,464		110		110	138	138			2,464	2,464
-Y32- 13+50.00	22+79.35	3,628		1,990	3,383	245	634		634	793	548			5,373	5,373
-Y32A- 10+45.36	12+50.00	281				281	26		26	33			248		248
-Y32A- 15+36.15	16+11.00	219				219	7		7	9			210		210
-Y32B- 10+00.00	10+93.06	277				277							277		277
5	SUBTOTAL	8,023		3,281	4,974	3,049	161,608		161,608	202,011	199,697		735	8,255	8,990
-L- FULL															
860+00.00	875+00.00	192		706	63	129	122,783		122,783	153,479	153,350			769	769
875+00.00	890+00.00	273				273	67,909		67,909	84,886	84,613				
-D4- 10+00.00	10+94.00	20				20							20		20
-D5- 10+00.00	10+90.74	19				19	3		3	4			15		15
-Y33A- ON -L-															
(-L- 870+00.00)	(890+00.00)	276				276	12,758		12,758	15,948	15,672				
-D6- 10+04.00	11+05.02						127		127	159	159				
-D7- 10+00.00	11+65.18						943		943	1,179	1,179				
6	SUBTOTAL	780		706	63	717	204,523		204,523	255,655	254,973		35	769	804
	SHEET TOTAL	19,084		12,266	8,515	10,569	617,856		617,856	772,325	762,778		1,022	20,781	21,803

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

Volumes in Cubic Yards

PROJECT R-2303C COUNTY: SAMPSON DATE: 10/1/2012 COMPILED BY: GSBLELL

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- FULL															
890+00.00	917+45.54	19,178				19,178	39,342		39,342	49,178	30,000				
917+45.54	920+00.00	248				248	1,185		1,185	1,481	1,233				
-D8- 10+00.00	-D8- 11+47.19						158		158	198	198				
-Y33A- ON -L-															
(-L- 890+00.00	(-L- 917+45.54)	2,123				2,123	26,884		26,884	33,605	31,482				
-Y33B- 10+15.00	-Y33B- 10+90.52	91				91	99		99	124	33				
7	SUBTOTAL	21,640				21,640	67,668		67,668	84,586	62,946				
-L- FULL															
920+00.00	929+00.00	4,516		1,090	1,417	3,099	8,225		8,225	10,281	7,182			2,507	2,507
-Y33A- 57+50.00	-Y33A- 67+92.08	451				451	5,029		5,029	6,286	5,835				
-D9- 10+00.00	-D9- 10+85.82						246		246	308	308				
-Y33- 10+47.00	-Y33- 15+44.00	129				129	755		755	944	815				
8	SUBTOTAL	5,096		1,090	1,417	3,679	14,255		14,255	17,819	14,140			2,507	2,507
-L- RT.															
929+00.00	BEG. BR. 941+65.00	6,491		1,100	3,539	2,952	29,902		29,902	37,378	34,426			4,639	4,639
END BR. '944+60.00	959+00.00	211		900		211	34,176		34,176	42,720	42,509			900	900
-D2- 10+05.01	-D2- 11+33.47						121		121	151	151				
9	SUBTOTAL	6,702		2,000	3,539	3,163	64,199		64,199	80,249	77,086			5,539	5,539
-L- LT.															
959+00.00	989+00.00	1,824				1,824	27,346		27,346	34,183	32,359				
-Y35- 12+25.00	14+41.23	233				233	729		729	911	678				
10	SUBTOTAL	2,057				2,057	28,075		28,075	35,094	33,037				
-L- LT.															
989+00.00	1019+00.00	2,095				2,095	14,868		14,868	18,585	16,490				
-D11- 10+00.00	-D11- 12+14.66	17				17	282		282	353	336				
-D12- 10+00.00	-D12- 11+32.98	35				35	58		58	73	38				
11	SUBTOTAL	2,147				2,147	15,208		15,208	19,011	16,864				
-L- LT.															
1019+00.00	1029+90.00	315				315	13,752		13,752	17,190	16,875				
12	SUBTOTAL	315				315	13,752		13,752	17,190	16,875				
	SHEET TOTAL	37,957		3,090	4,956	33,001	203,157		203,157	253,949	220,948			8,046	8,046

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

Volumes in Cubic Yards

PROJECT R-2303C COUNTY: SAMPSON DATE: 10/1/2012 COMPILED BY: GSBLELL SHEET 3 OF 5 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- FULL															
1029+90.00	1060+00.00	2,646				2,646	107,047		107,047	133,809	131,163				
-Y36- 10+47.34	-Y36- 16+15.00	100				100	7,466		7,466	9,333	9,233				
-Y36A- 10+20.00	-Y36A- 10+94.65	135				135							135		135
-D3- 10+00.00	-D3- 11+65.92						1,654		1,654	2,068	2,068				
-Y37-															
12+60.00	19+81.15	347				347	3,774		3,774	4,718	4,371				
20+75.45	23+00.00	141				141	472		472	590	449				
-SR2- 10+04.30	-SR2- 12+76.32	101				101	1,103		1,103	1,379	1,278				
13	**SUBTOTAL**	3,470				3,470	121,516		121,516	151,897	148,562		135		135
-L- FULL															
1060+00.00	1067+00.00	948				948	21,794		21,794	27,243	26,295				
-Y36B- 10+25.00	-Y36B- 10+96.95	201				201	22		22	28			173		173
-D10- 10+25.48	-DR10- 14+12.29	21				21	282		282	353	332				
14	**SUBTOTAL**	1,170				1,170	22,098		22,098	27,624	26,627		173		173
-L- RT.															
1067+00.00	BEG. BR.1080+32.00	232				232	21,875		21,875	27,344	27,112				
END BR. 1081+77.00	1097+00.00	1,600				1,600	16,199		16,199	20,249	18,649				
-Y38- 10+47.37	-Y38- 12+50.00	723				723	413		413	516			207		207
15	**SUBTOTAL**	2,555				2,555	38,487		38,487	48,109	45,761		207		207
-L- RT.															
730+00.00	740+00.00	526				526	5,691		5,691	7,114	6,588				
-SR1- 10+47.02	-SR1- 12+77.00	139				139	765		765	956	817				
16	**SUBTOTAL**	665				665	6,456		6,456	8,070	7,405				
-L- LT.															
929+00.00	BEG. BR. 941+65.00	9,376			3,880	5,496	19,589		19,589	24,486	18,990			3,880	3,880
END BR. 944+60.00	959+00.00	8				8	18,059		18,059	22,574	22,566				
-D2- 10+05.00	-D2- 11+33.47						121		121	151	151				
17	**SUBTOTAL**	9,384			3,880	5,504	37,769		37,769	47,211	41,707			3,880	3,880
-L- RT.															
959+00.00	989+00.00	2,984				2,984	23,881		23,881	29,851	26,867				
-Y34- 10+47.00	-Y34- 13+80.00	351				351	1,284		1,284	1,605	1,254				
18	**SUBTOTAL**	3,335				3,335	25,165		25,165	31,456	28,121				
	SHEET TOTAL	20,579			3,880	16,699	251,491		251,491	314,367	298,183		515	3,880	4,395

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

Volumes in Cubic Yards

PROJECT R-2303C COUNTY: SAMPSON DATE: 10/1/2012 COMPILED BY: GSBLELL

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- RT.															
989+00.00	1019+00.00	538				538	12,681		12,681	15,851	15,313				
19	SUBTOTAL	538				538	12,681		12,681	15,851	15,313				
-L- RT.															
1019+00.00	1029+90.00						10,538		10,538	13,173	13,173				
20	SUBTOTAL						10,538		10,538	13,173	13,173				
-L- LT.															
1067+00.00	BEG. BR. 1080+32.00	1,743				1,743	10,458		10,458	13,073	11,330				
END BR. 1081+77.00	1097+00.00	125				125	20,698		20,698	25,873	25,748				
21	SUBTOTAL	1,868				1,868	31,156		31,156	38,946	37,078				
-DET1- 14+00.00	-DET1- 24+95.62	1,432				1,432	329		329	411			1,021		1,021
-DET2- 12+50.00	-DET2- 18+45.42	5,384				5,384	15		15	19			5,365		5,365
-DET3- 10+00.00	-DET3- 16+82.60	464				464	1,014		1,014	1,268	804				
-Y34- DET 11+00.00	-Y34- DET 13+05	203				203	209		209	261	58				
-DET4- 11+42.75	-DET4- 22+61.53	695				695	2,405		2,405	3,006	2,311				
-DET5- 10+41.71	-DET5- 19+00.00	139				139	1,669		1,669	2,086	1,947				
22	SUBTOTAL	8,317				8,317	5,641		5,641	7,051	5,120		6,386		6,386
	SUBTOTAL														
	SUBTOTAL														
	SHEET TOTAL	10,723				10,723	60,016		60,016	75,021	70,684		6,386		6,386

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

Volumes in Cubic Yards

PROJECT: R-2303C COUNTY: Sampson DATE: 10/1/2012 COMPILED BY: G S BLELL SHEET 5 OF 5 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
	TOTAL FROM SHEET 1	19,084		12,266	8,515	10,569	617,856		617,856	772,325	762,778		1,022	20,781	21,803
	TOTAL FROM SHEET 2	37,957		3,090	4,956	33,001	203,157		203,157	253,949	220,948			8,046	8,046
	TOTAL FROM SHEET 3	20,579			3,880	16,699	251,491		251,491	314,367	298,183		515	3,880	4,395
	TOTAL FROM SHEET 4	10,723				10,723	60,016		60,016	75,021	70,684		6,386		6,386
TOTAL FROM ALL DETOUR REMOVALS		5,641				5,641	8,317		8,317	10,396	4,755				
TOTAL		93,984		15,356	17,351	76,633	1,140,837		1,140,837	1,426,058	1,357,348		7,923	32,707	40,630
MATERIAL FOR SHOULDER CONSTRUCTION							64,350		64,350	80,438	80,438				
LOSS DUE TO CLEARING & GRUBBING		-17,000				-17,000					17,000				
ADDITIONAL UNDERCUT PER GEOTECH. RECS.				1,500										1,500	1,500
GRADE PT. UNDERCUT PER GEOTECH. RECS.				500										500	500
EMBANK. STAB. UNDERCUT PER GEOTECH. RECS.				1,500										1,500	1,500
WASTE IN LIEU OF BORROW											-7,923		-7,923		-7,923
PROJECT TOTAL		76,984		18,856	17,351	59,633	1,205,187		1,205,187	1,506,496	1,446,863			36,207	36,207
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											72,343				
GRAND TOTAL		76,984		18,856	17,351	59,633	1,205,187		1,205,187	1,506,496	1,519,206			36,207	36,207
SAY		**77,000**		19,000							**1,519,500**				
	ALTERNATE PAVEMENT DESIGN														
TOTAL		88,557		15,356	16,448	72,109	1,202,666		1,202,666	1,503,346	1,439,160		7,923	31,804	39,727
MATERIAL FOR SHOULDER CONSTRUCTION							44,666		44,666	55,833	55,833				
LOSS DUE TO CLEARING & GRUBBING		-17,000				-17,000					17,000				
ADDITIONAL UNDERCUT PER GEOTECH. RECS.				1,500										1,500	1,500
GRADE PT. UNDERCUT PER GEOTECH. RECS.				500										500	500
EMBANK. STAB. UNDERCUT PER GEOTECH. RECS.				1,500										1,500	1,500
WASTE IN LIEU OF BORROW											-7,923		-7,923		-7,923
PROJECT TOTAL		71,557		18,856	16,448	55,109	1,247,332		1,247,332	1,559,179	1,504,070			35,304	35,304
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											75,204				
GRAND TOTAL		71,557		18,856	16,448	55,109	1,247,332		1,247,332	1,559,179	1,579,274			35,304	35,304
SAY		**71,600**		19,000							**1,579,500**				

ALTERNATE PAVEMENT STRUCTURE VOLUME = 9,000 CUBIC YARDS

EST. DDE = 3,500 CUBIC YARDS

PAVEMENT STRUCTURE VOLUME = 14,000 CUBIC YARDS

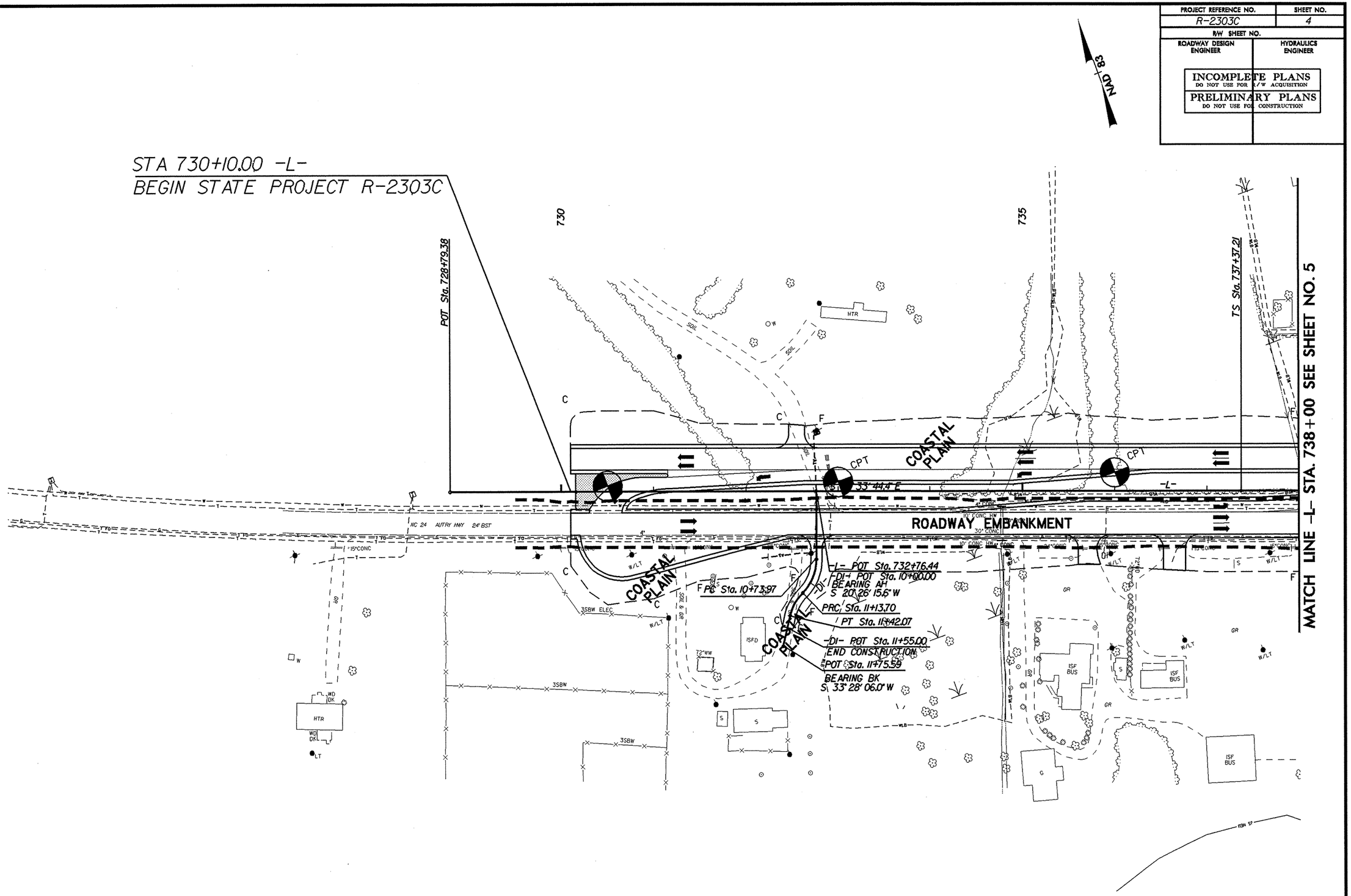
ESTIMATED SHALLOW UNDERCUT AS PER GEOTECH. RECS. '-L- STA. 927+54 TO -L- STA. 930+75 = 775 CY

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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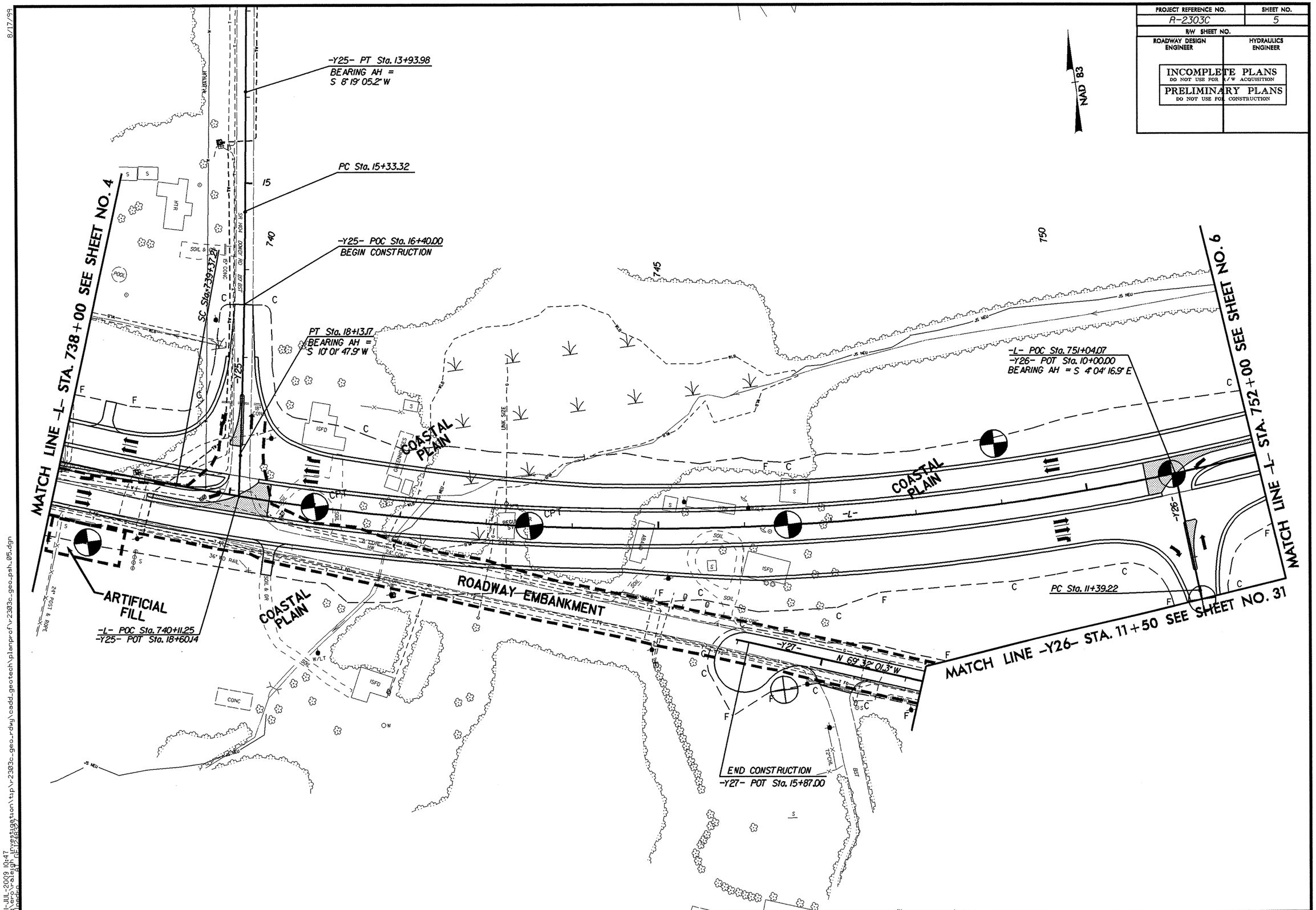

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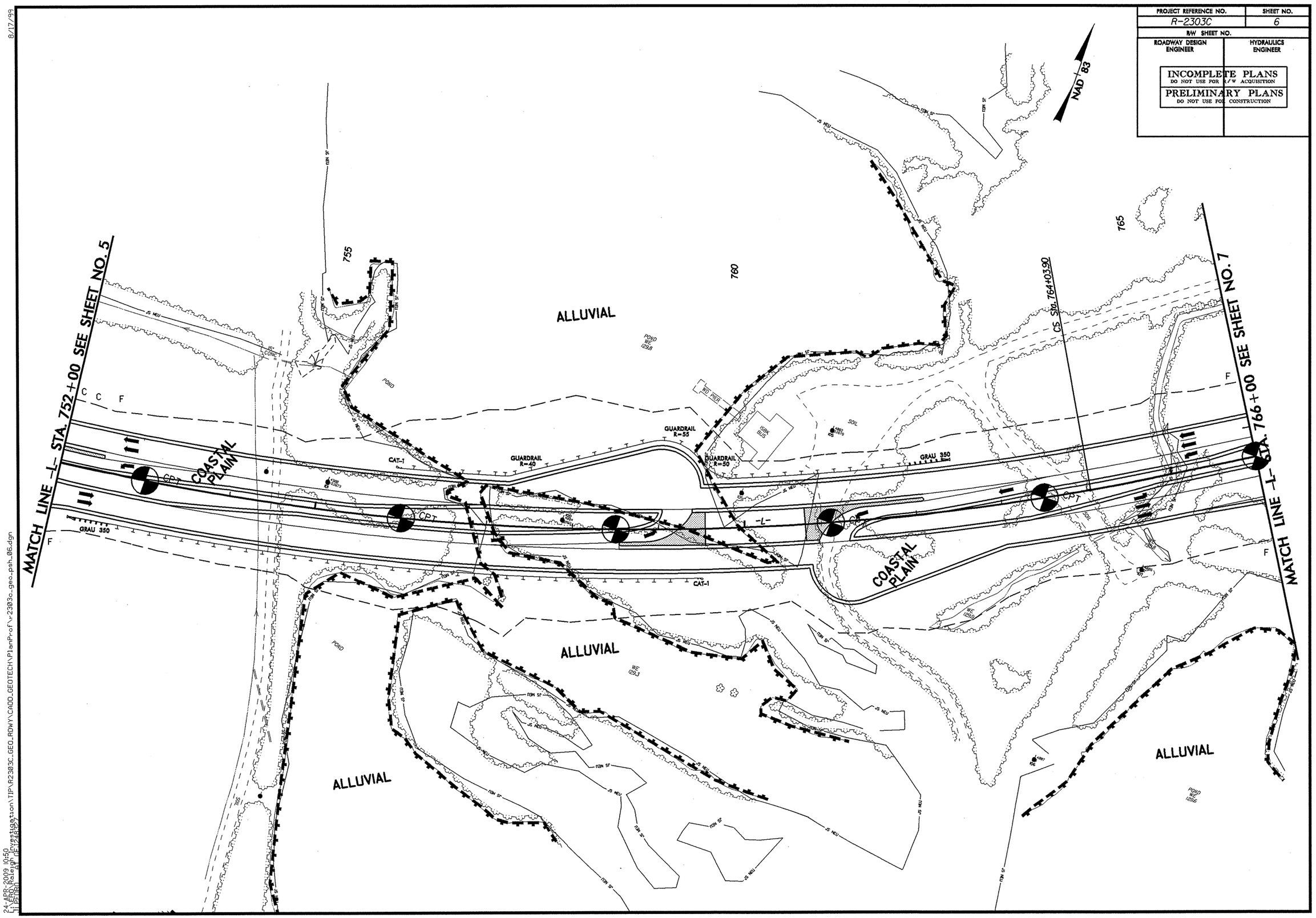
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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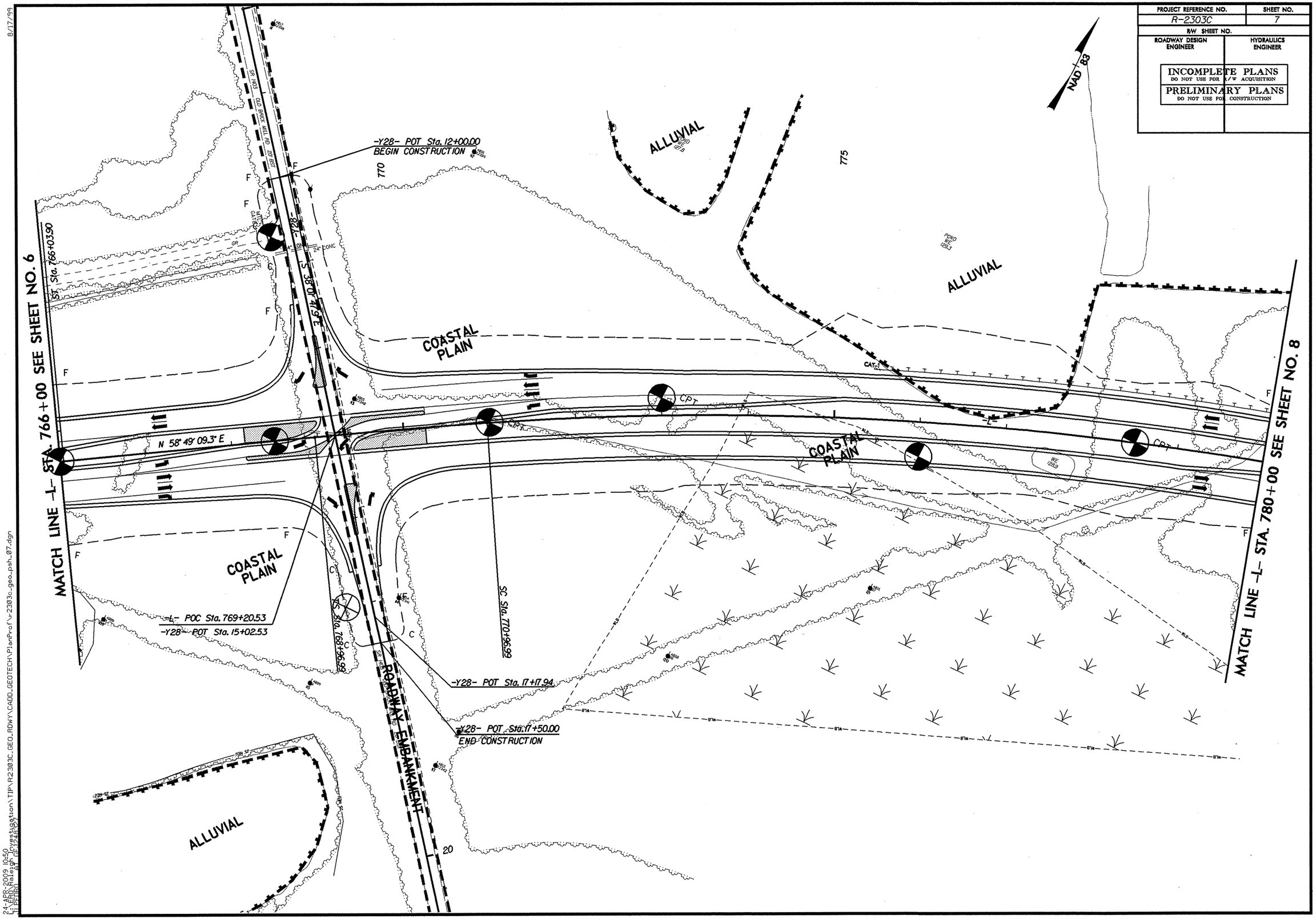
PROJECT REFERENCE NO.
R-2303C
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
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COASTAL PLAIN
COASTAL PLAIN
-Y28- POT Sta. 12+00.00
BEGIN CONSTRUCTION
-Y28- POT Sta. 17+17.94
-Y28- POT Sta. 17+50.00
END CONSTRUCTION
-L- POC Sta. 769+20.53
-Y28- POT Sta. 15+02.53
N 58° 49' 09.3" E
S 38° 01' 47.9" E
ST Sta. 766+03.90
SC Sta. 770+96.99
ST Sta. 768+96.99
ROADWAY EMBANKMENT
MATCH LINE -L- STA. 766+00 SEE SHEET NO. 6
MATCH LINE -L- STA. 780+00 SEE SHEET NO. 8
770
775
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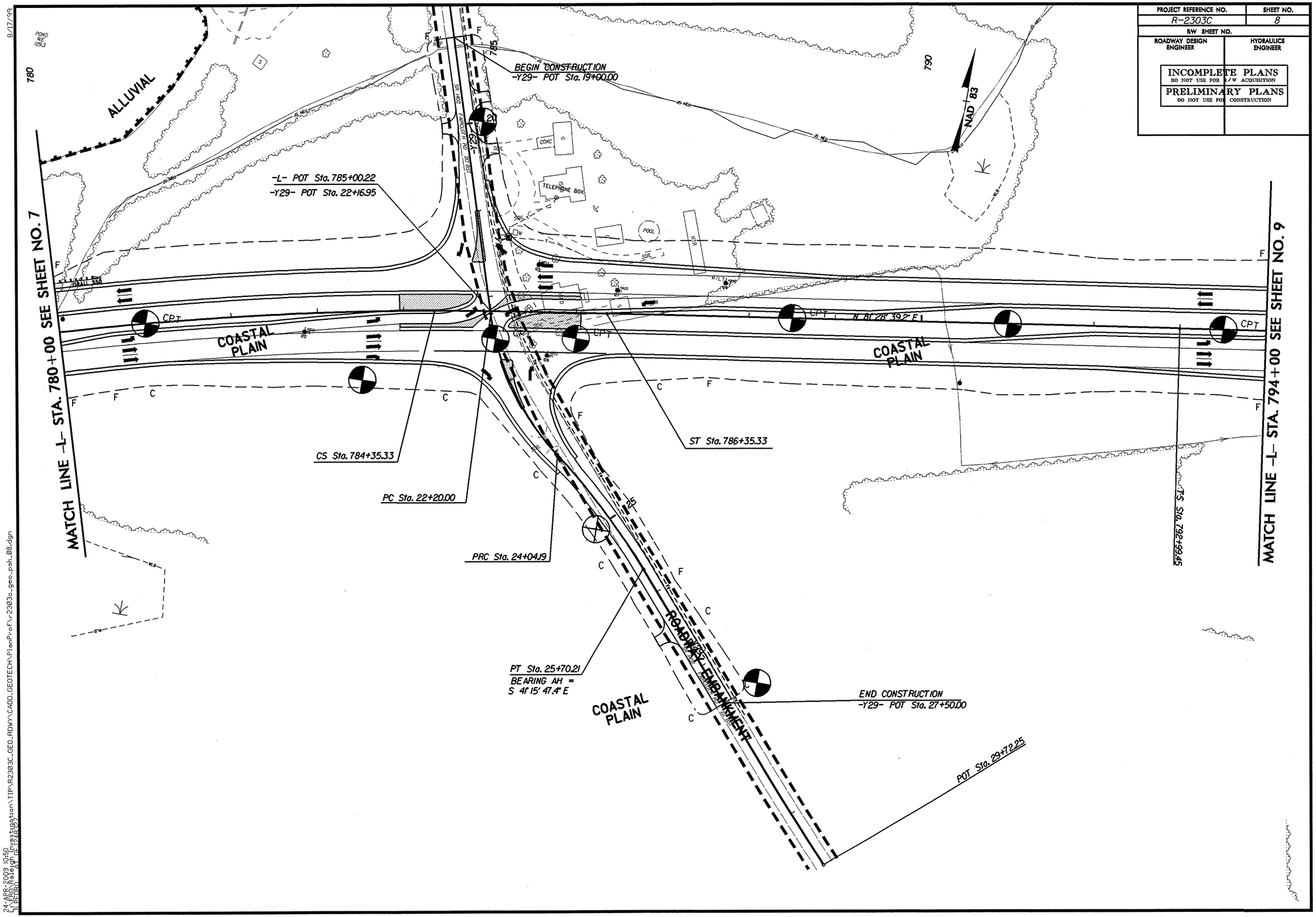
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

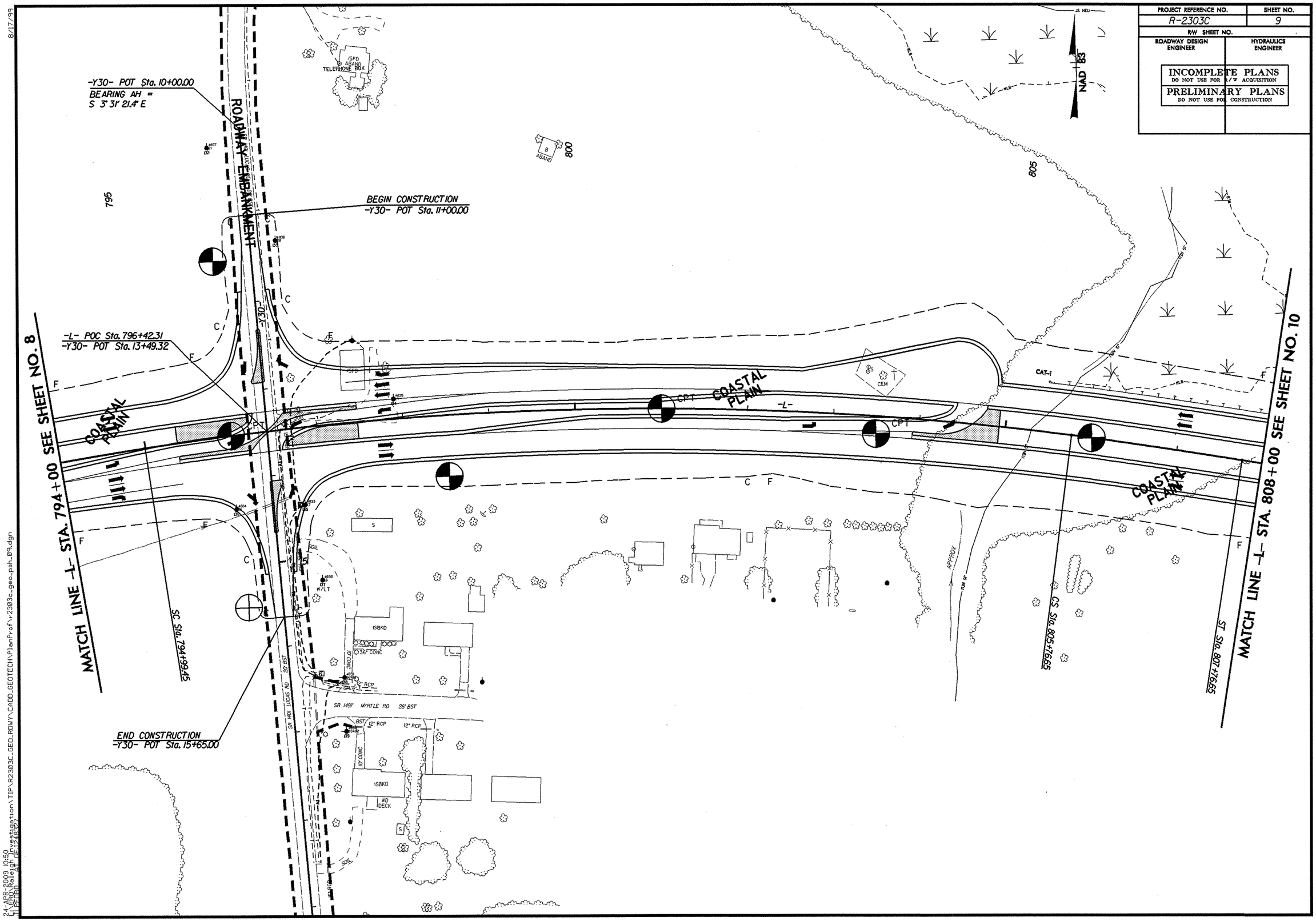
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROJECT REFERENCE NO.	SHEET NO.
R-2303C	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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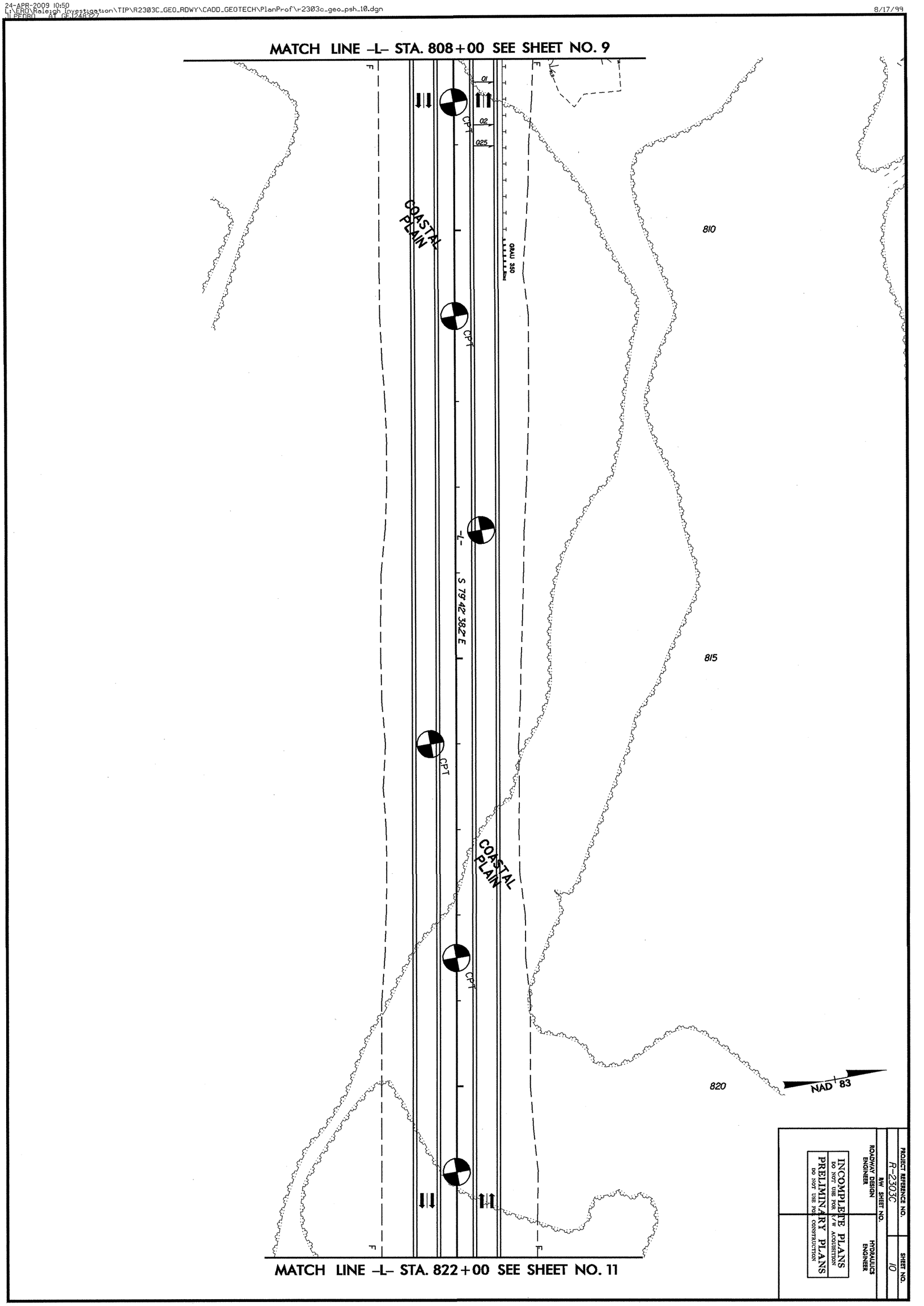
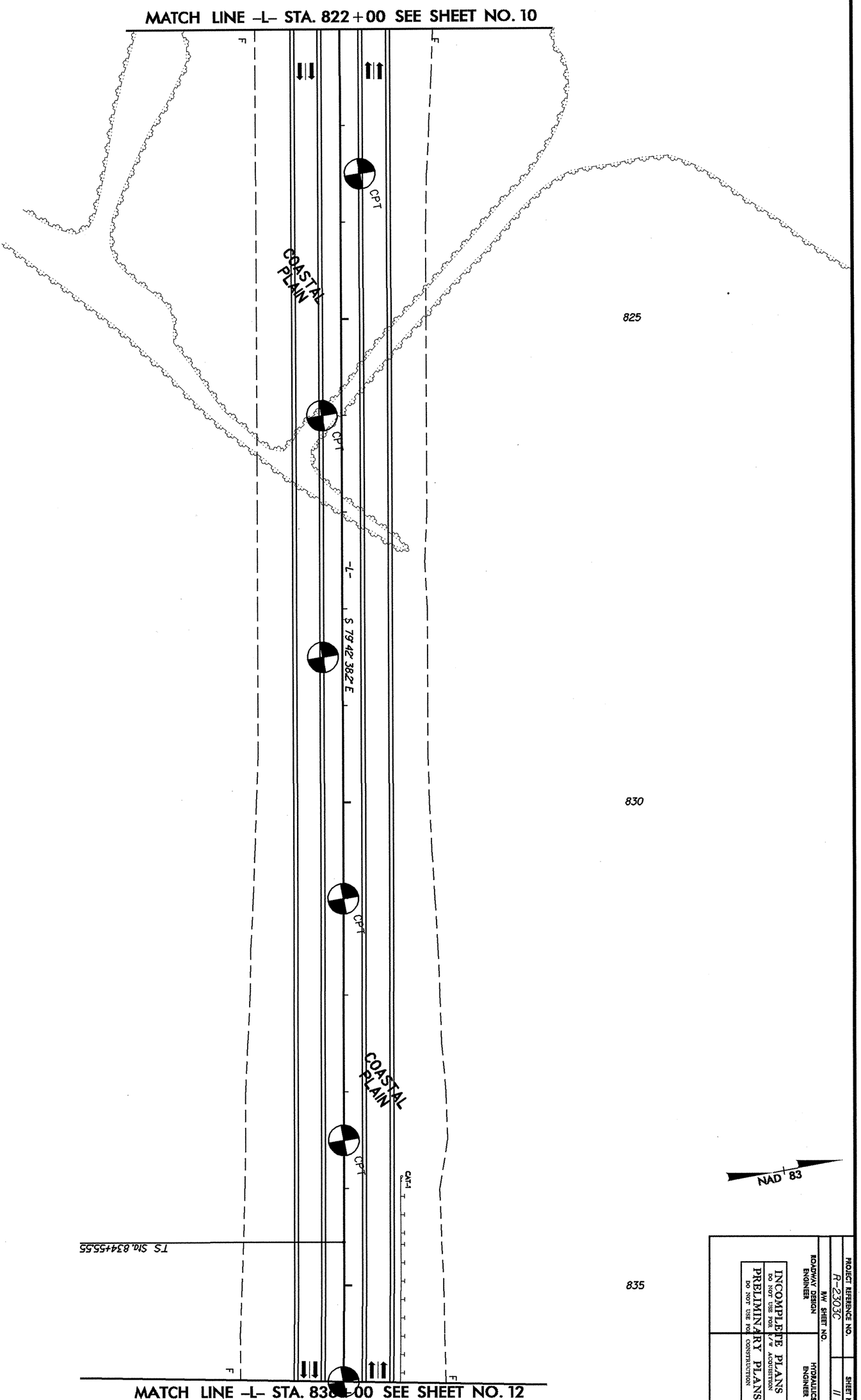




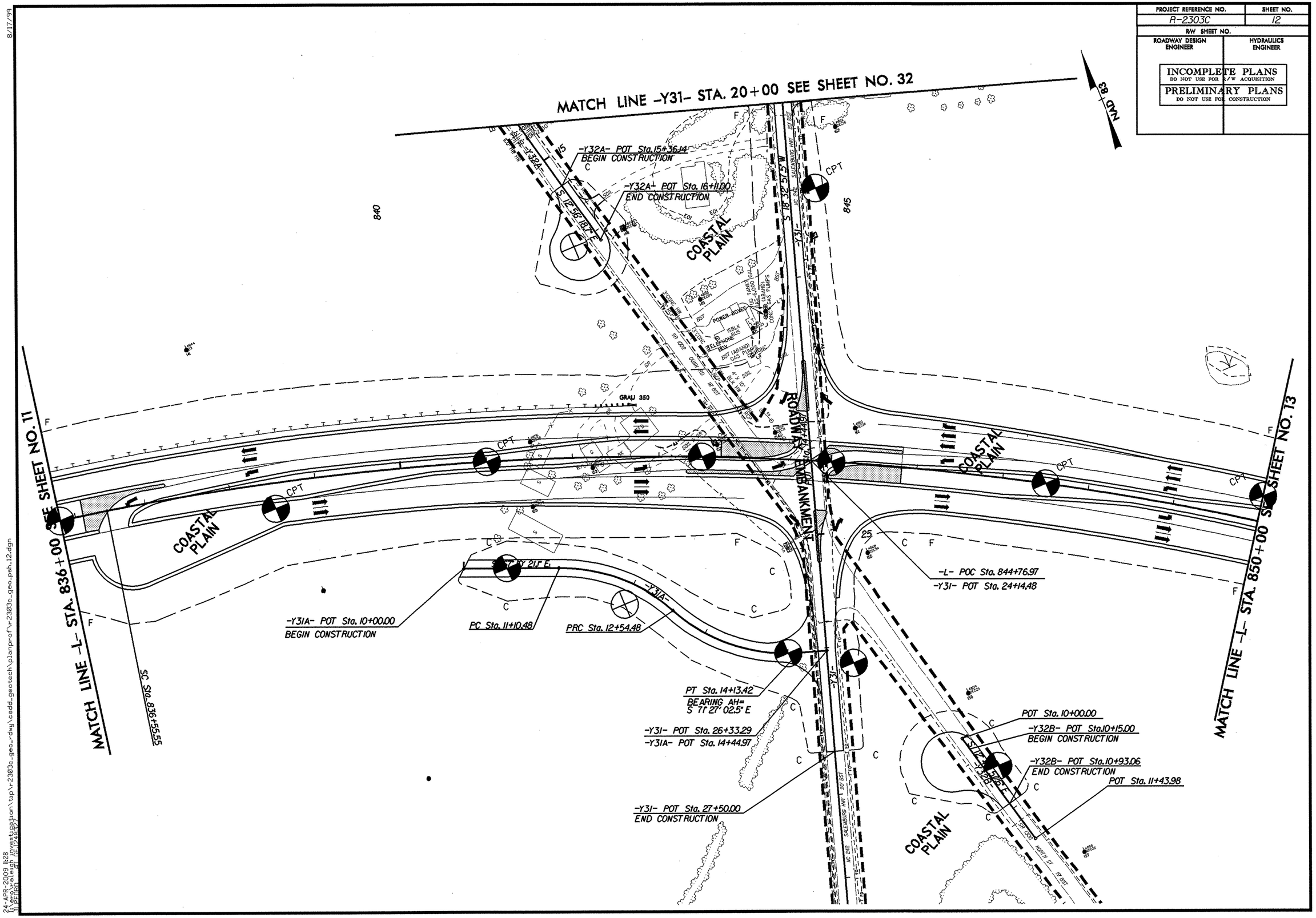
PROJECT REFERENCE NO.	R-2303C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
SHEET NO.	11

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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PROJECT REFERENCE NO.	SHEET NO.
R-2303C	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

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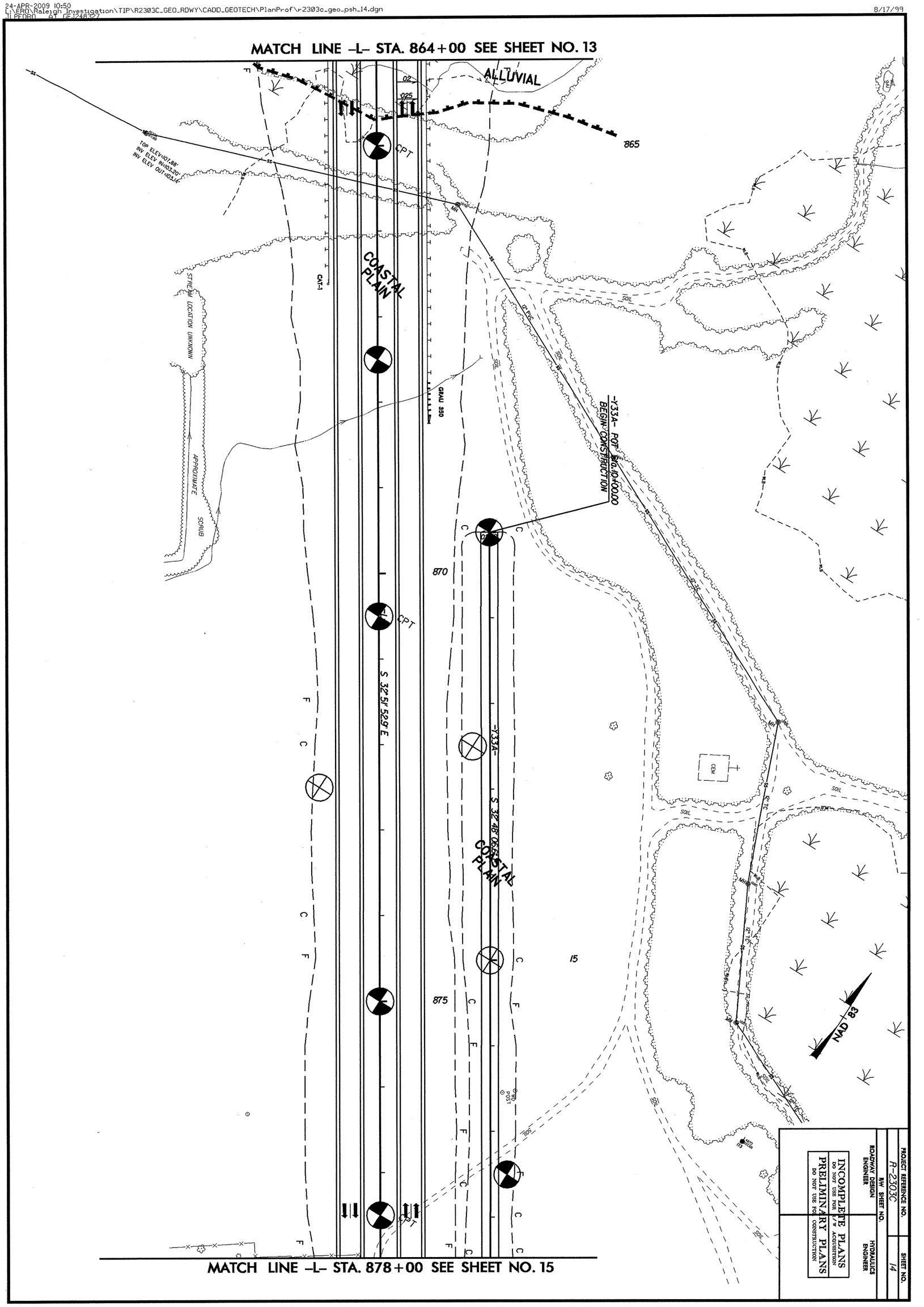

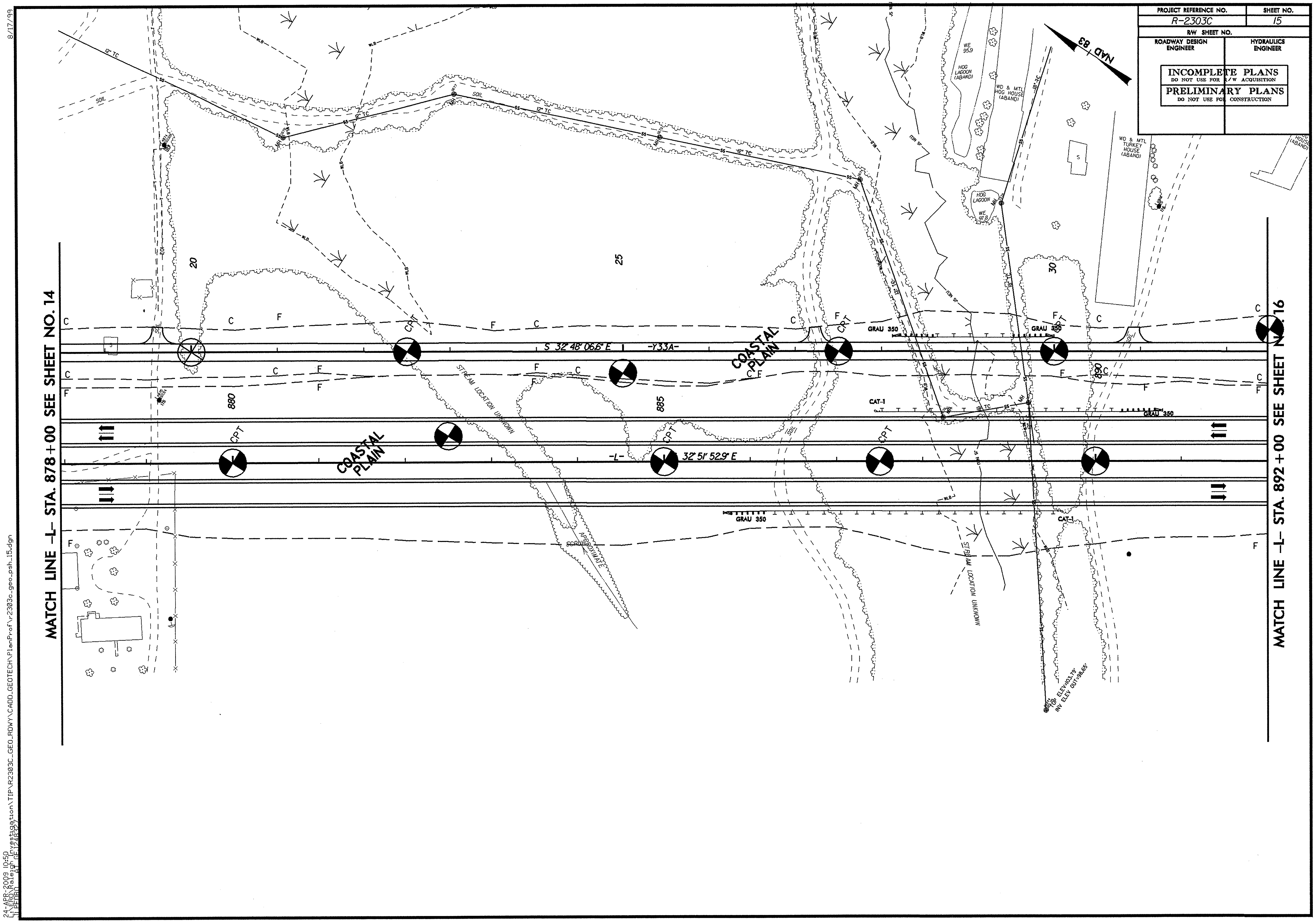

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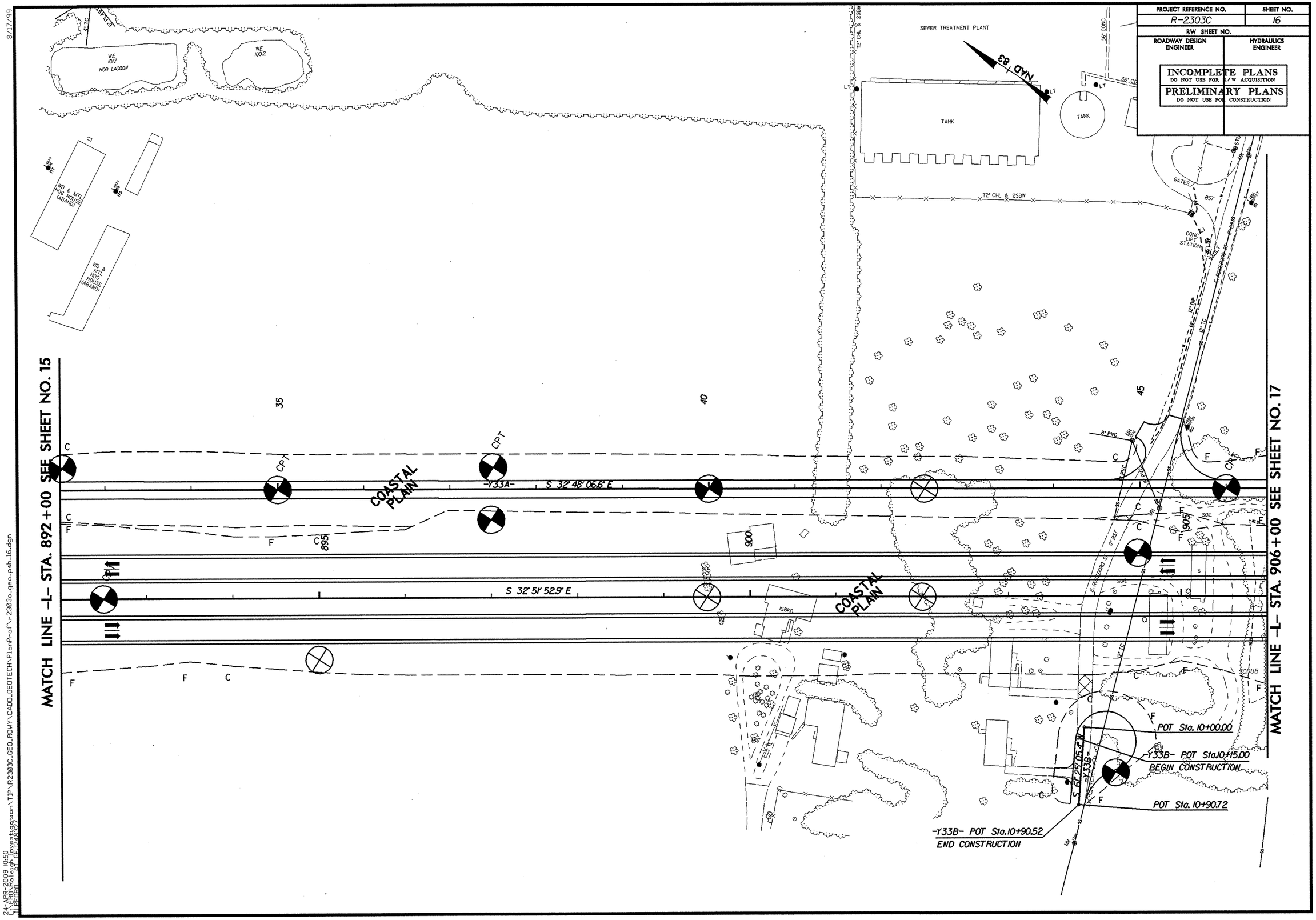
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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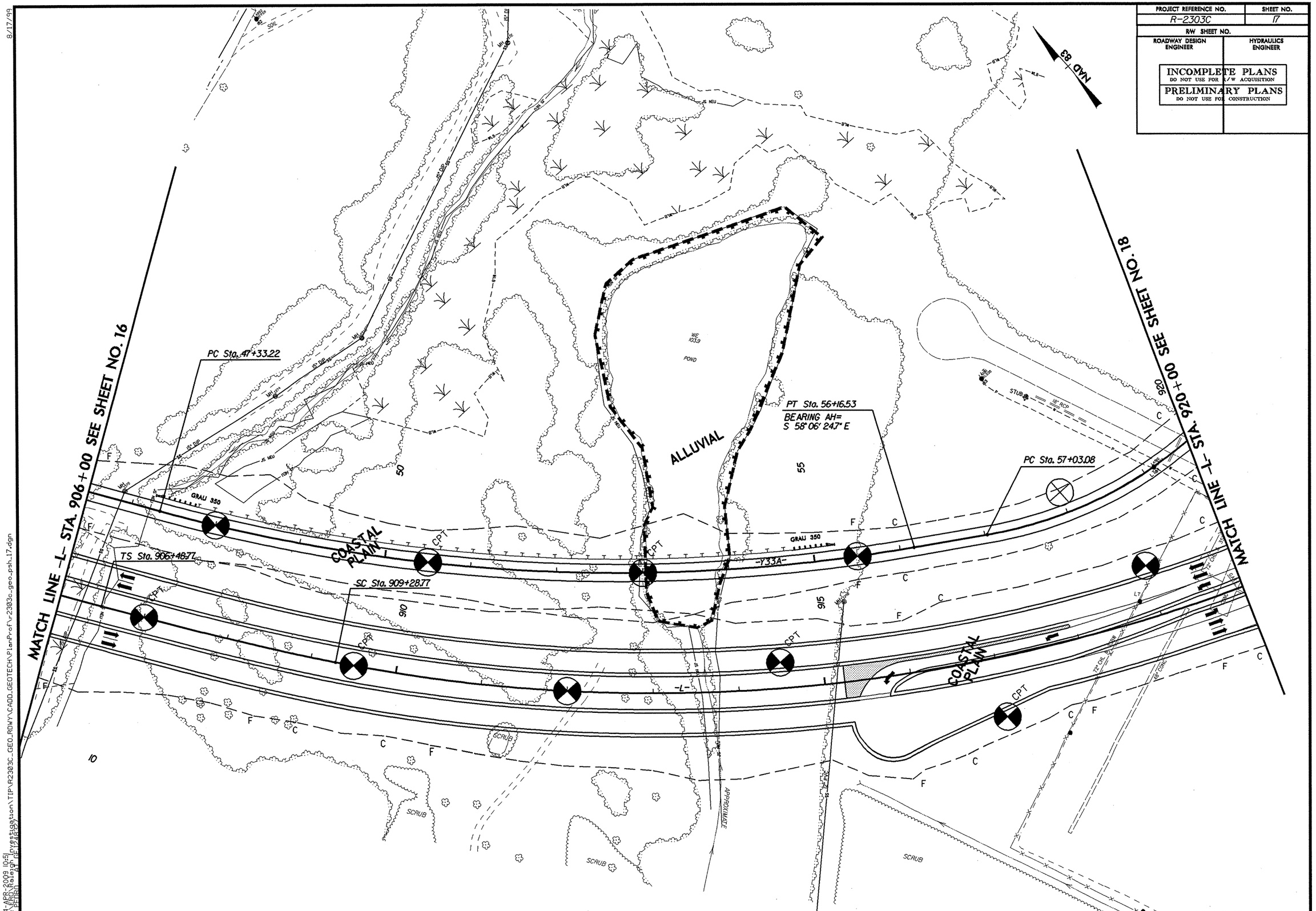

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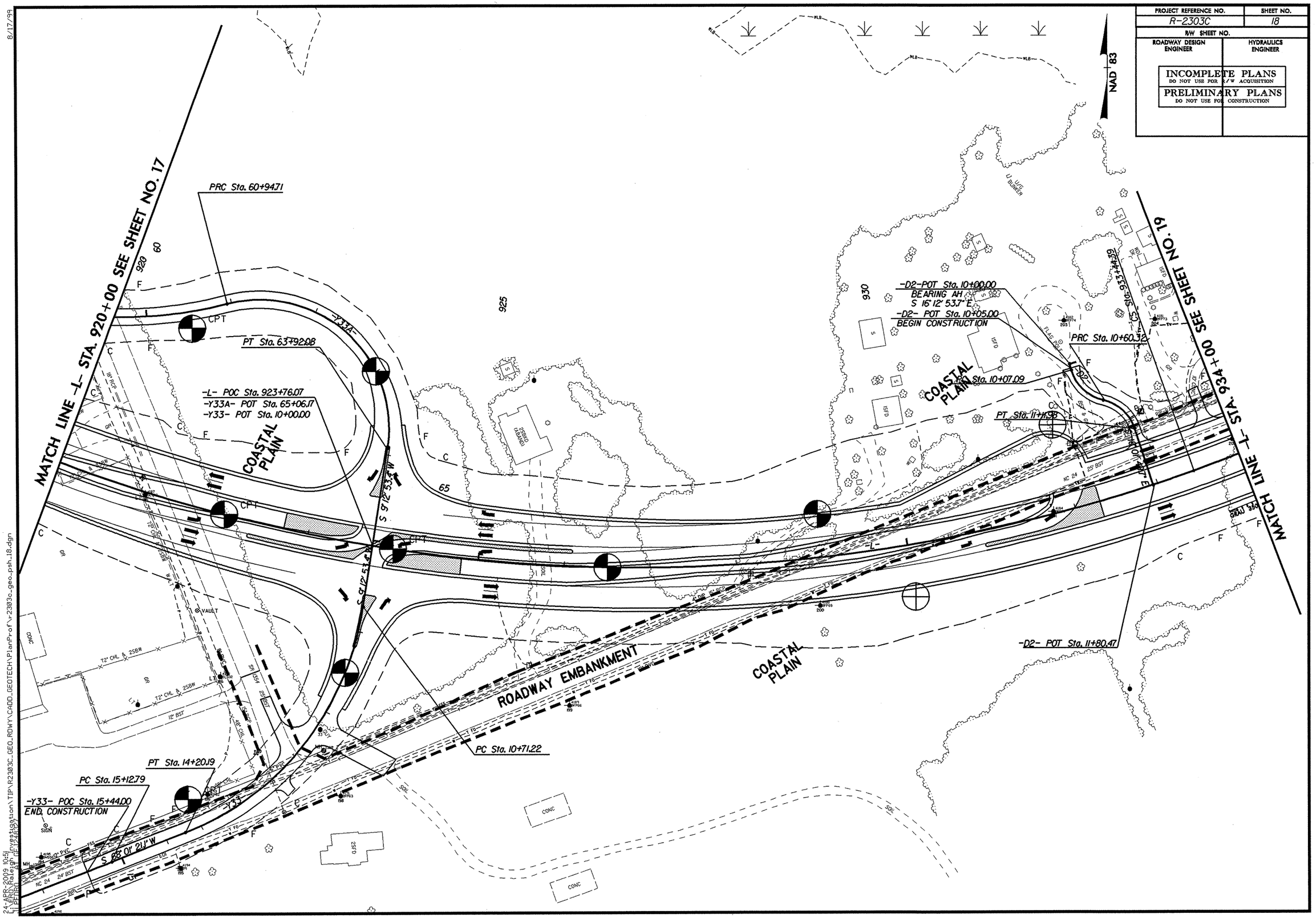
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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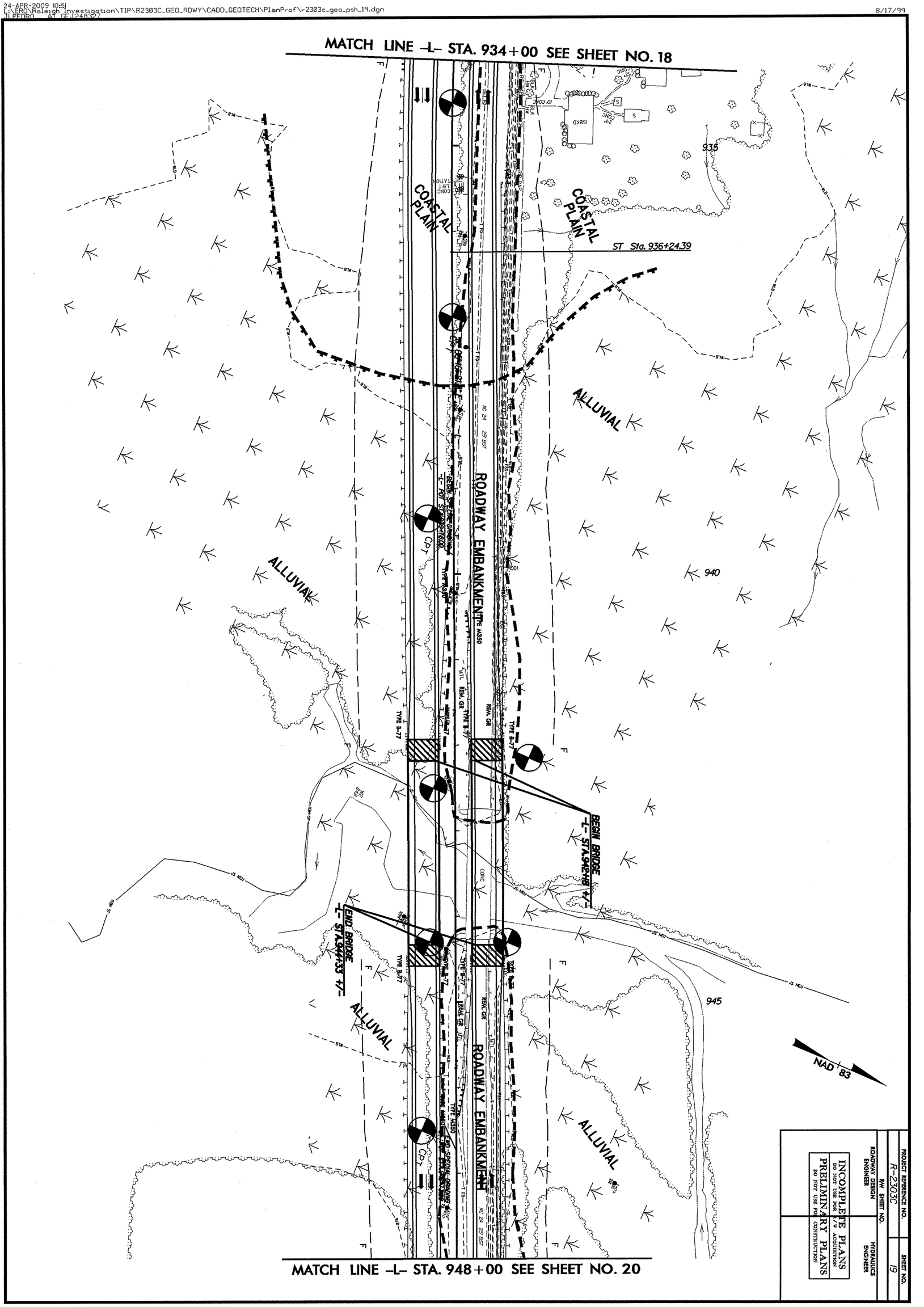

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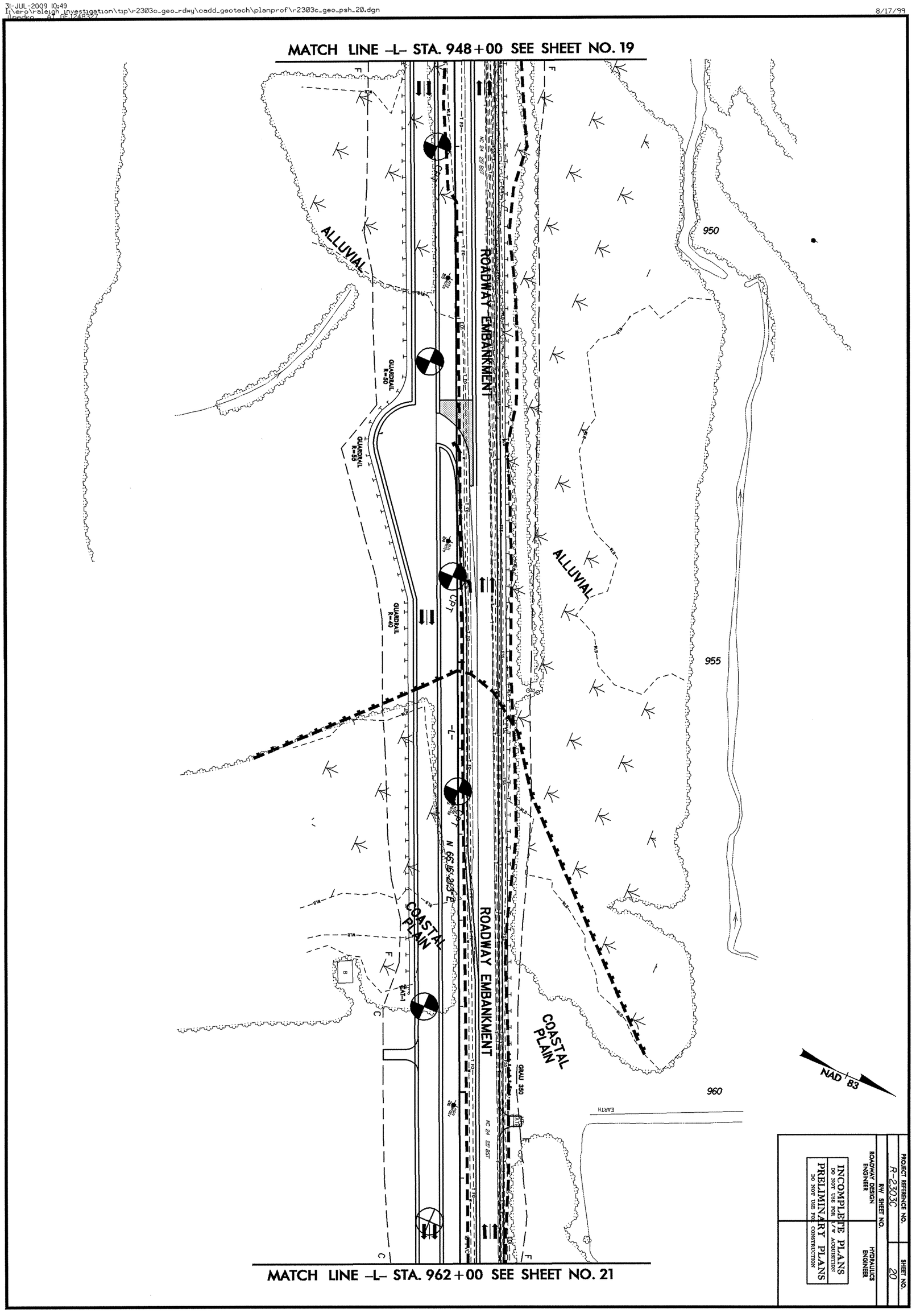
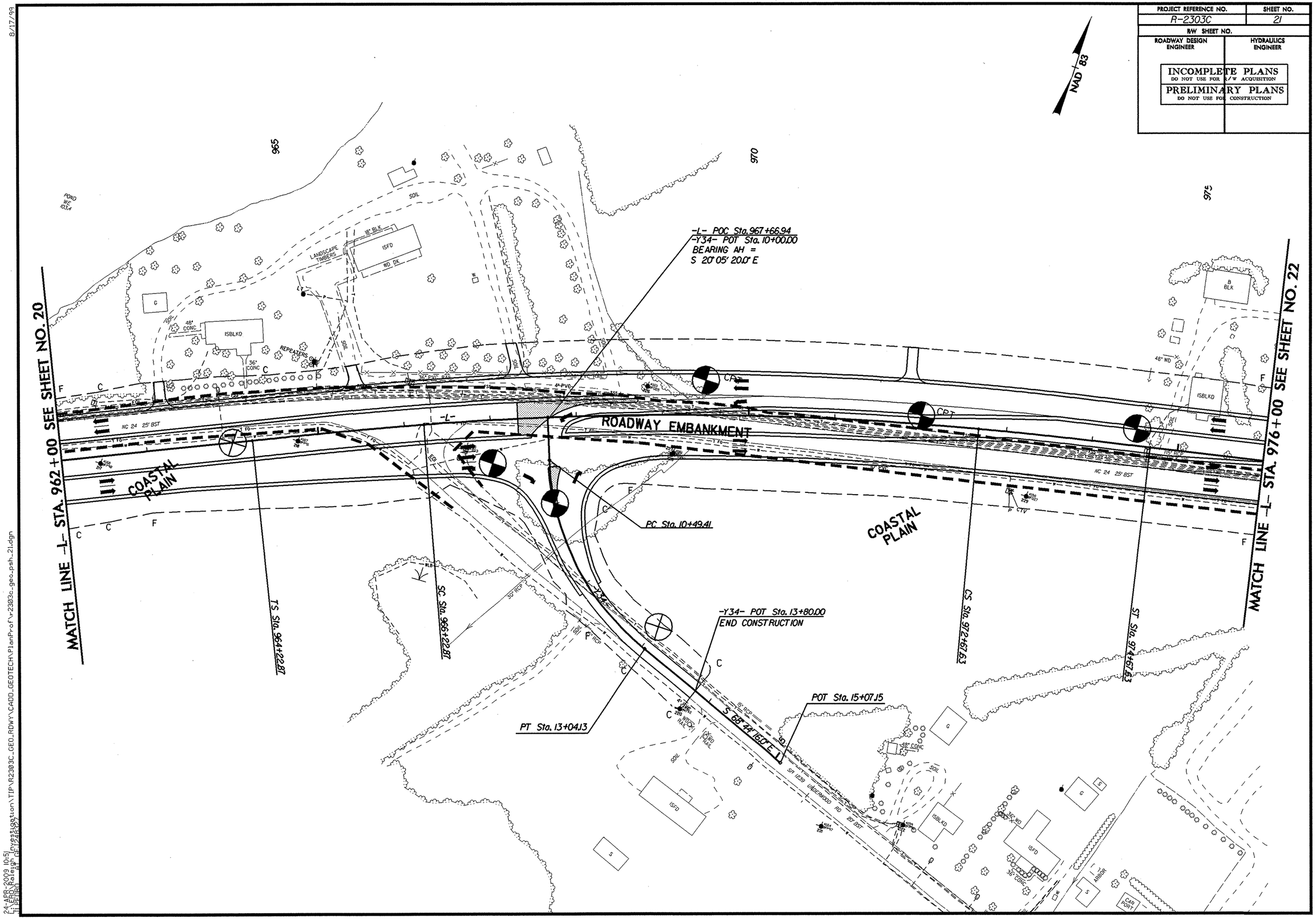


PROJECT REFERENCE NO.	SHEET NO.
R-2303C	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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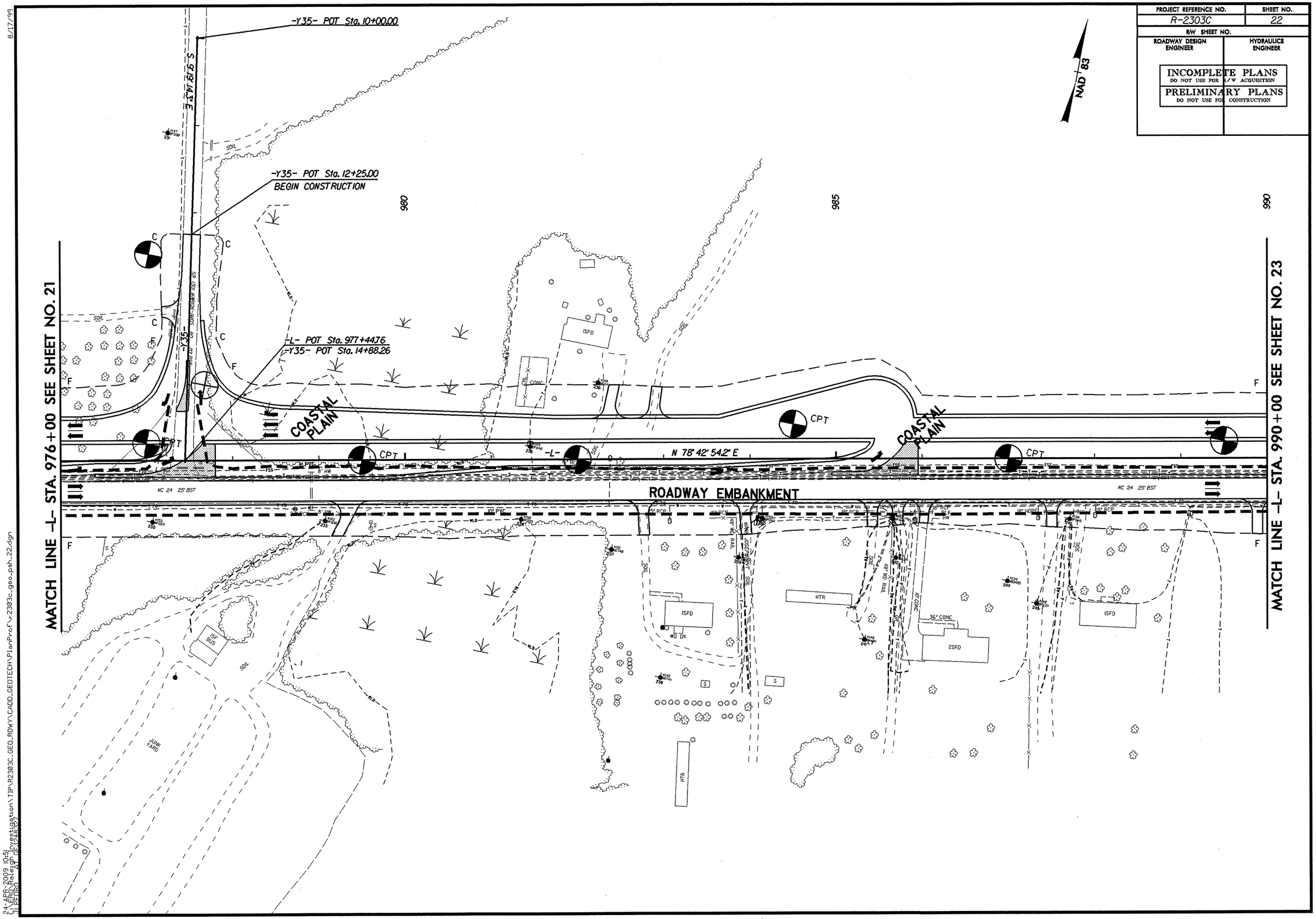
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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13-AUG-2009 11:30
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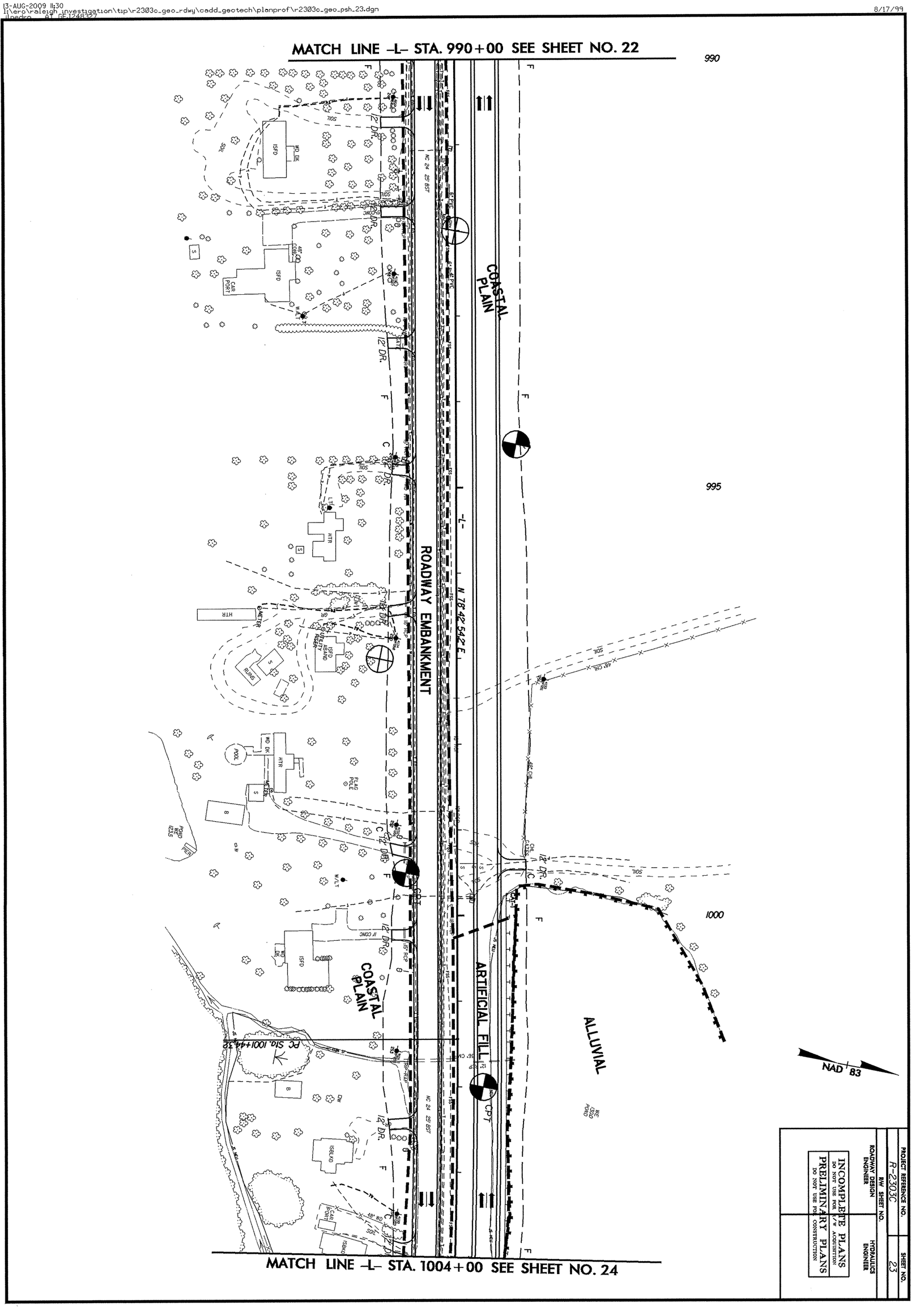
8/17/99



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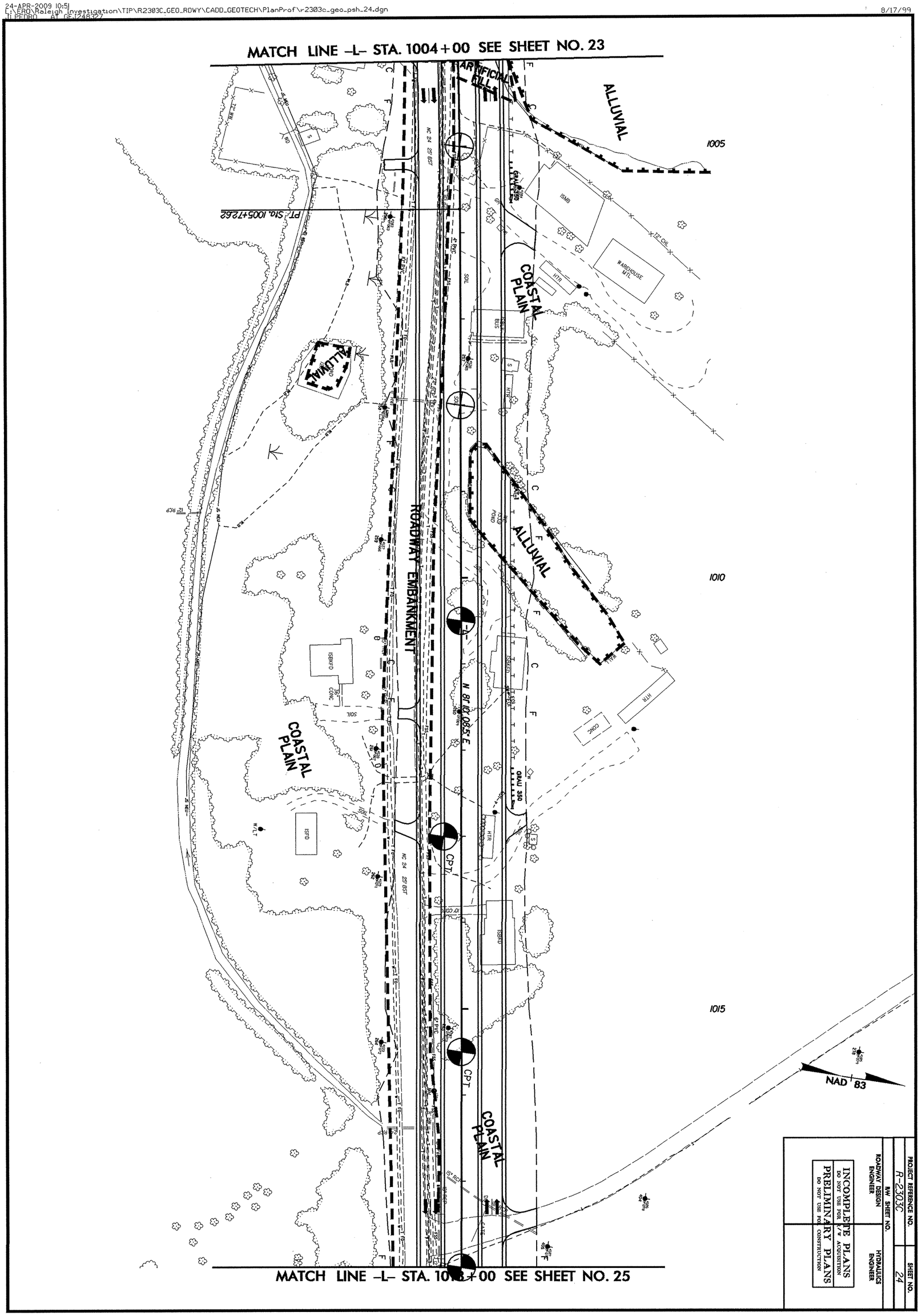
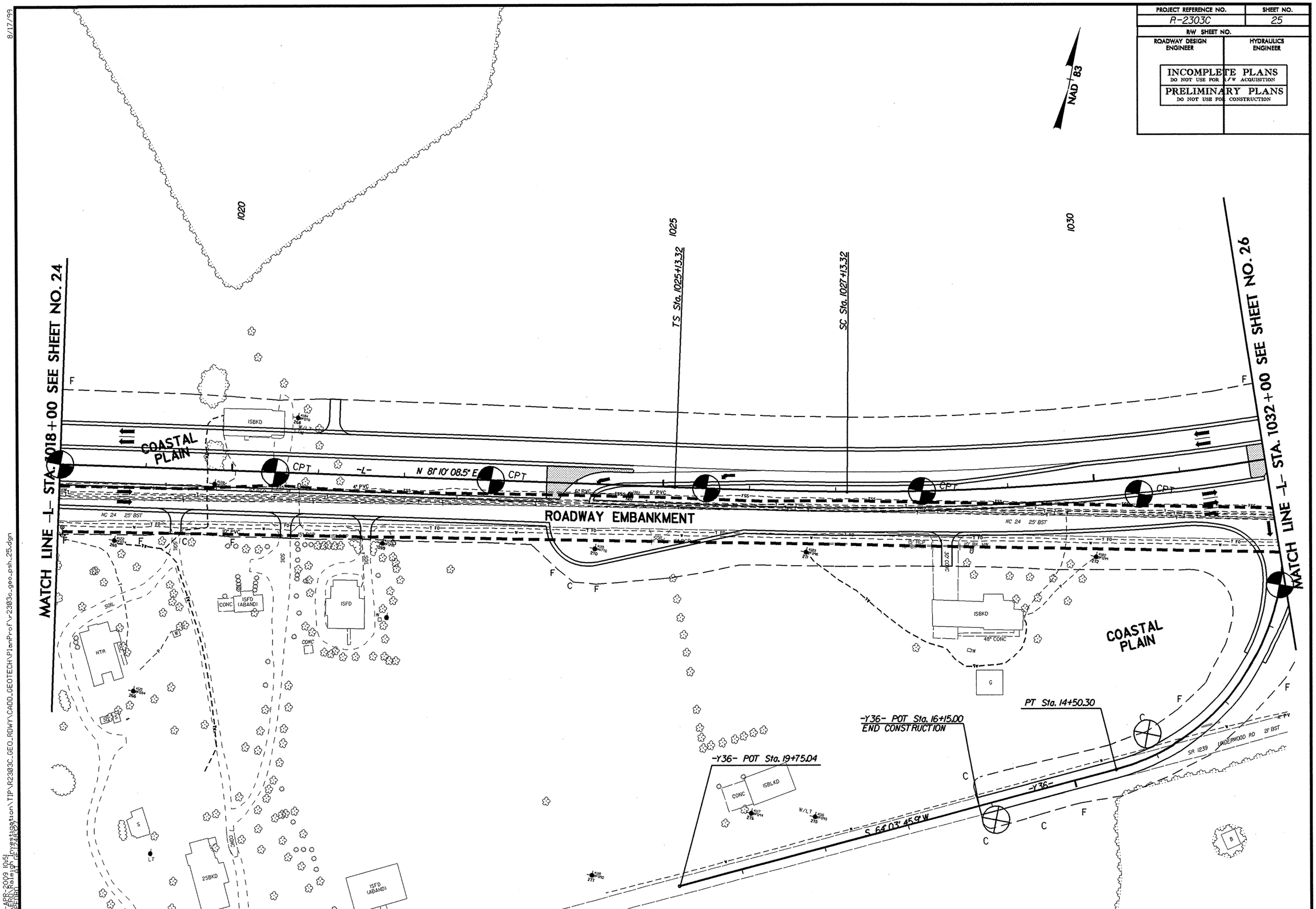


PROJECT REFERENCE NO.	SHEET NO.
R-2303C	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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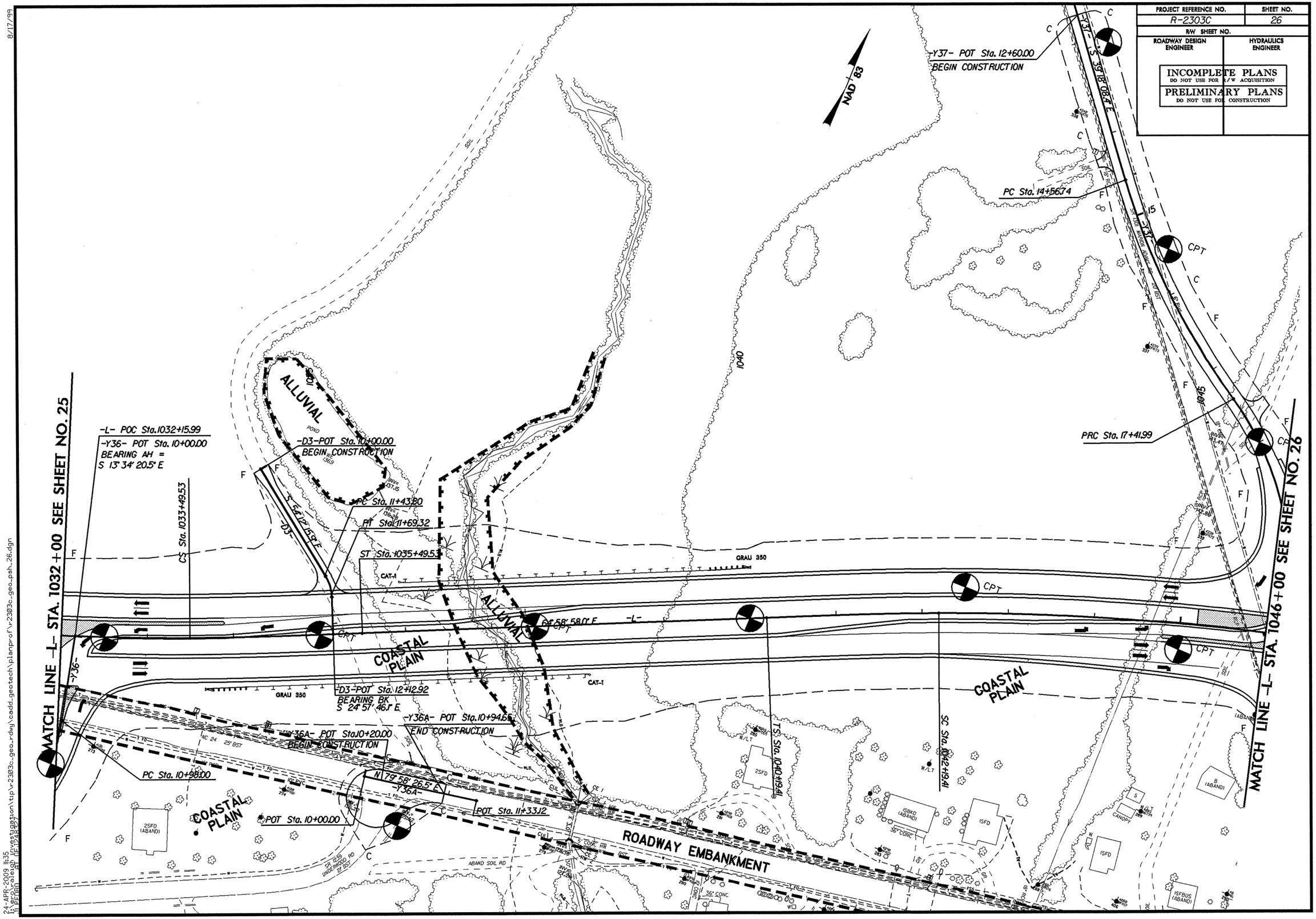
PROJECT REFERENCE NO.
R-2303C
SHEET NO.
26
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
-Y37- POT Sta. 12+60.00
BEGIN CONSTRUCTION
PC Sta. 14+56.74
PRC Sta. 17+41.99
MATCH LINE -L- STA. 1032+00 SEE SHEET NO. 25
MATCH LINE -L- STA. 1046+00 SEE SHEET NO. 26
-L- POC Sta. 1032+15.99
-Y36- POT Sta. 10+00.00
BEARING AH =
S 13° 34' 20.5" E
CS Sta. 1033+49.53
-D3-POT Sta. 10+00.00
BEGIN CONSTRUCTION
PC Sta. 11+43.80
PT Sta. 11+69.32
ST Sta. 1035+49.53
ALLUVIAL
COASTAL PLAIN
-D3-POT Sta. 12+12.92
BEARING BK
S 24° 57' 46.1" E
-Y36A- POT Sta. 10+94.65
END CONSTRUCTION
-Y36A- POT Sta. 10+20.00
BEGIN CONSTRUCTION
PC Sta. 10+98.00
N 79° 58' 26.5" E
POT Sta. 10+00.00
POT Sta. 11+33.12
TS Sta. 1040+19.41
SC Sta. 1042+19.41
ROADWAY EMBANKMENT
GRAU 350
CAT-1
CPT
1040
1045
2SFD (ABAND)
ISFD
ISBKD (ABAND)
ISFBUS (ABAND)
CANOPY
ABAND SOIL RD
SR 1239 UNDERWOOD RD 21' BST
NC 24 25' BST
SR 1301 MARION ADAMS RD 20' BST
36" CONC
8/17/99
24-APR-2009 11:35
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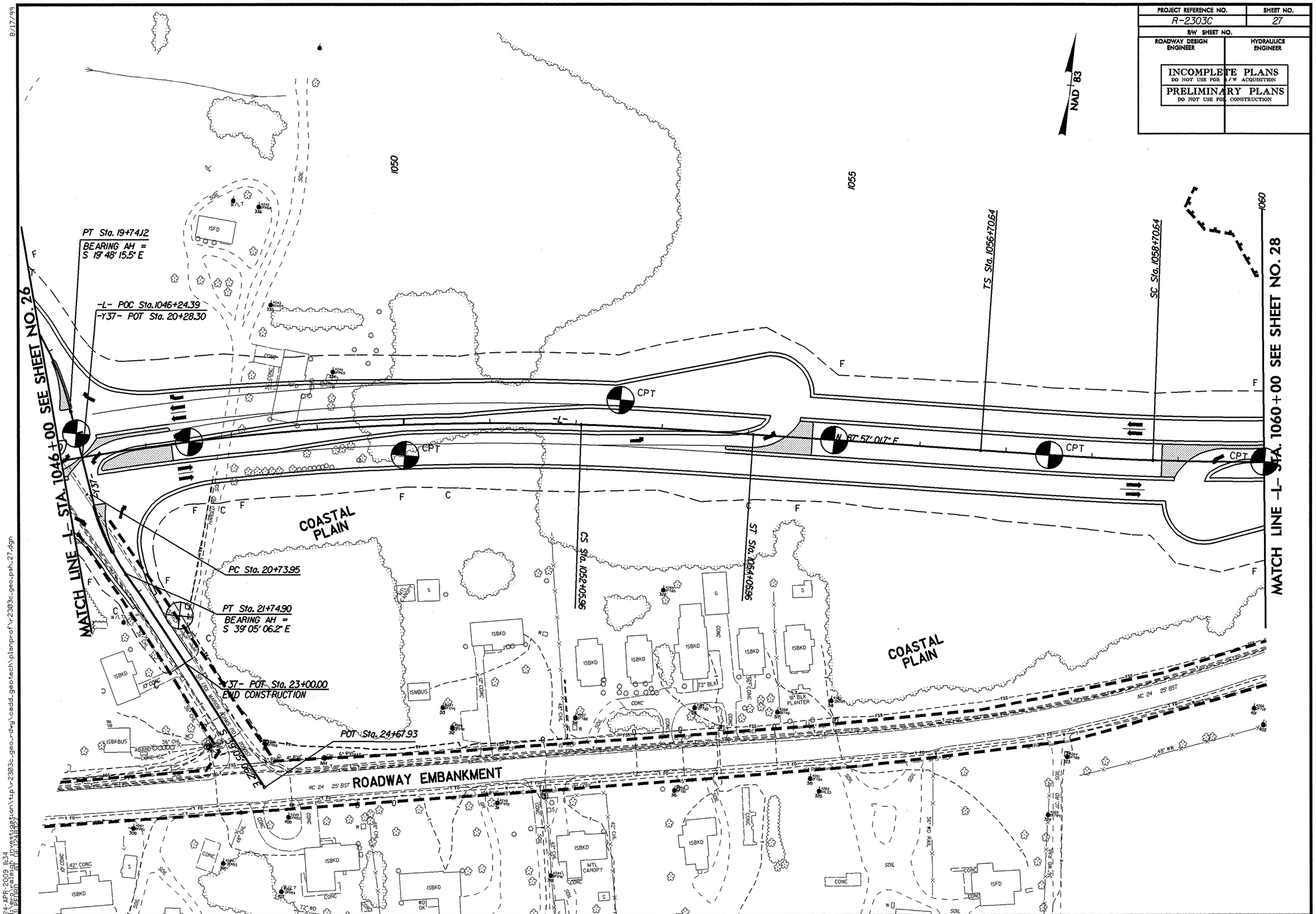
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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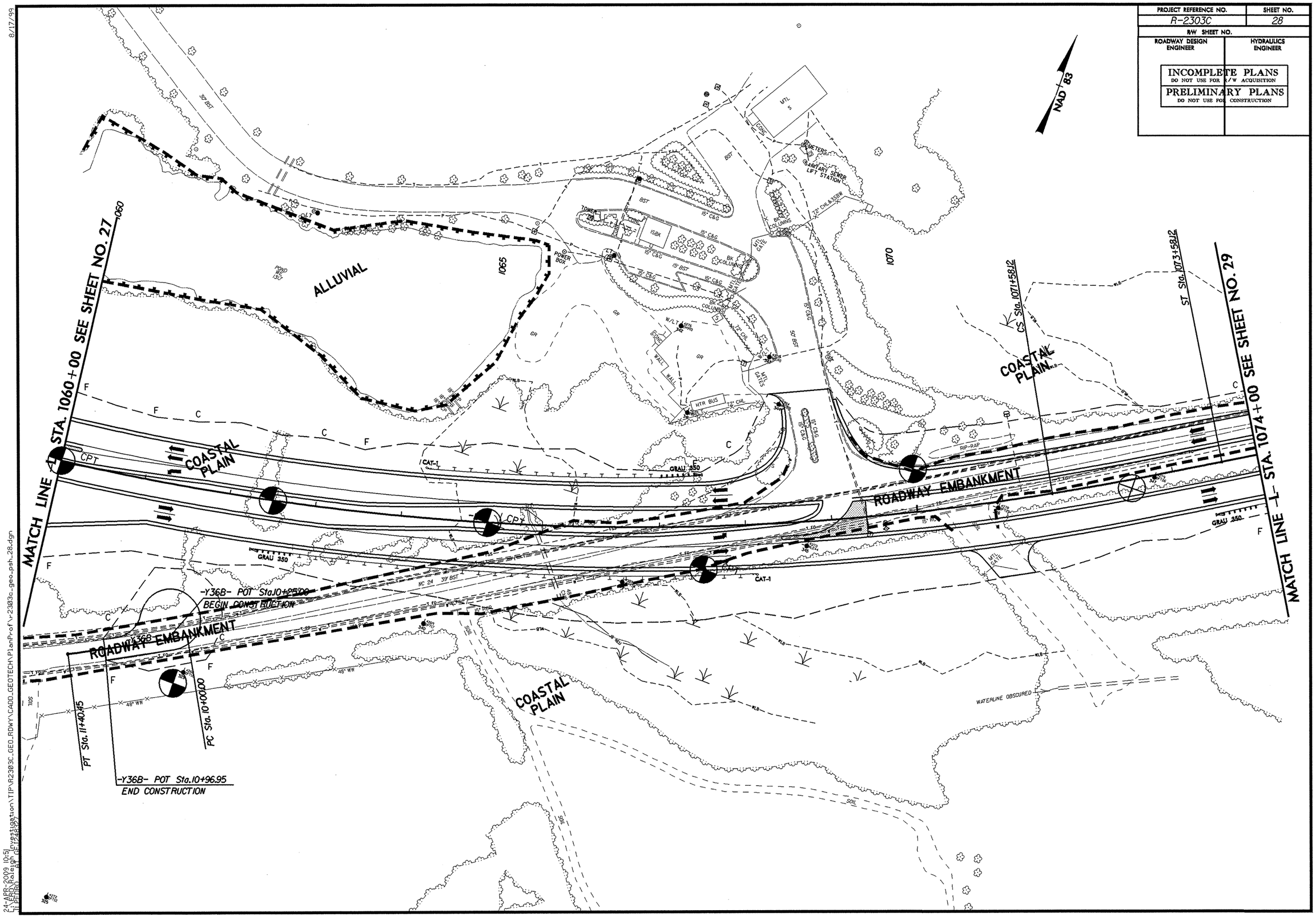
BFINCH AT DF174847

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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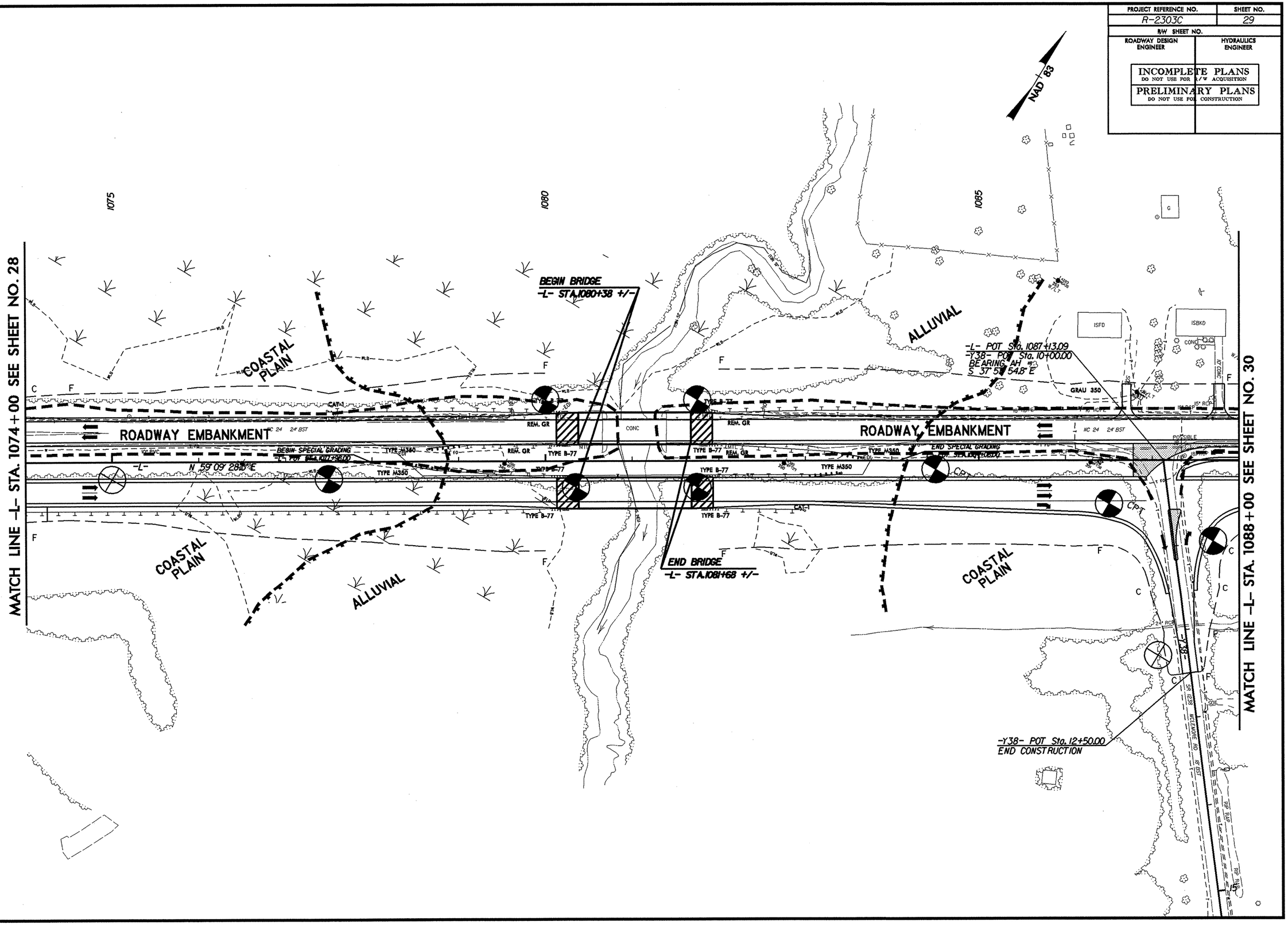
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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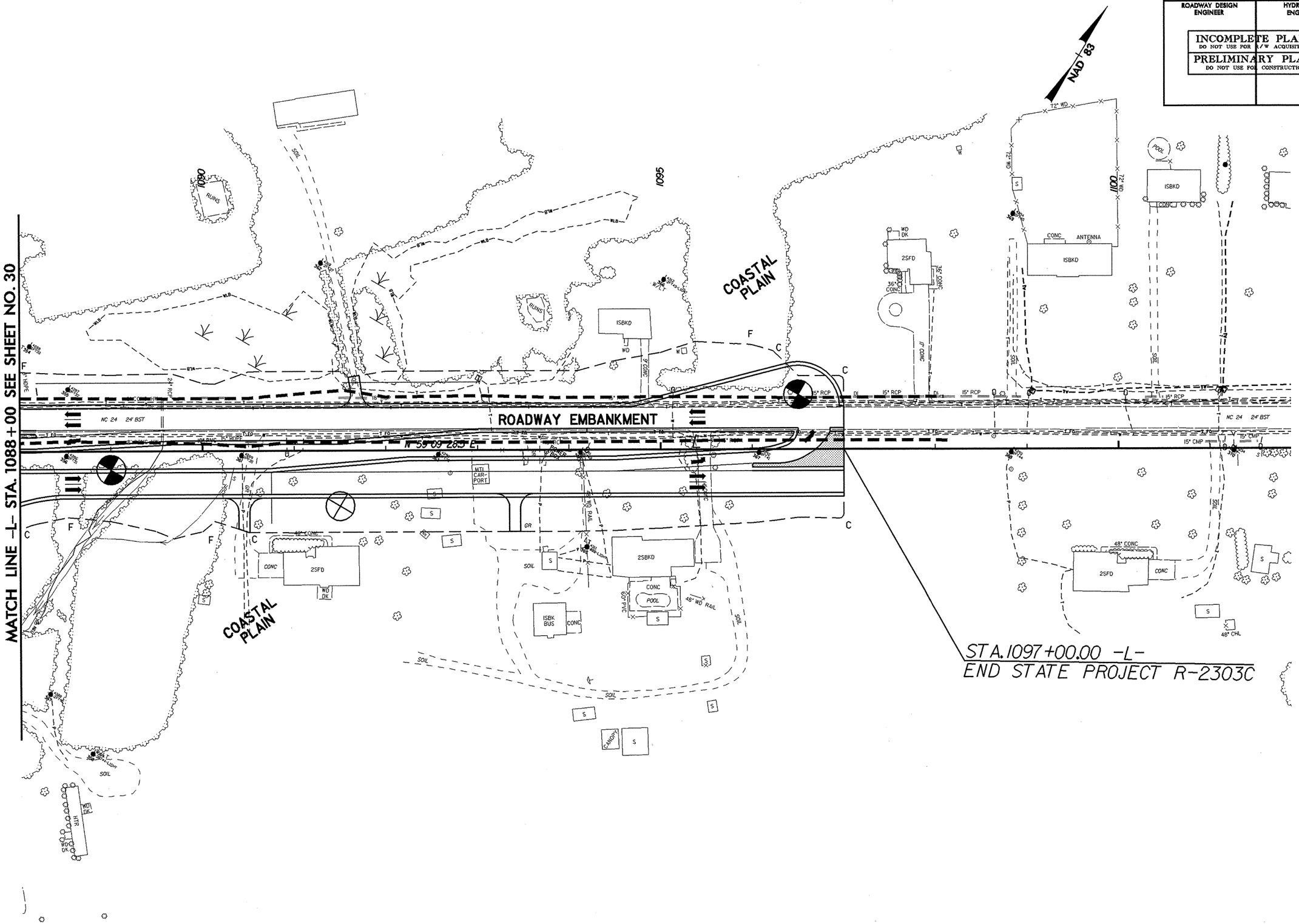
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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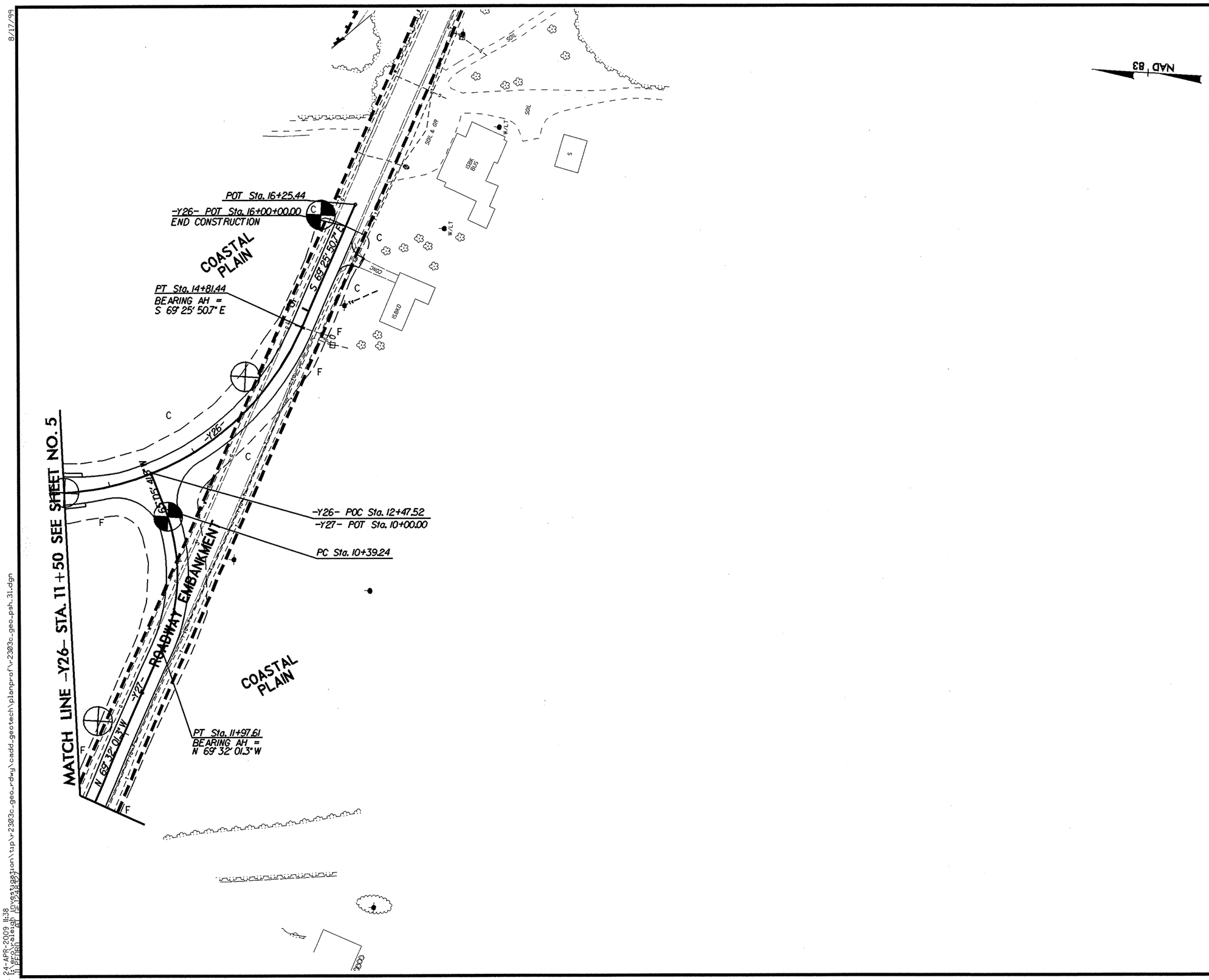
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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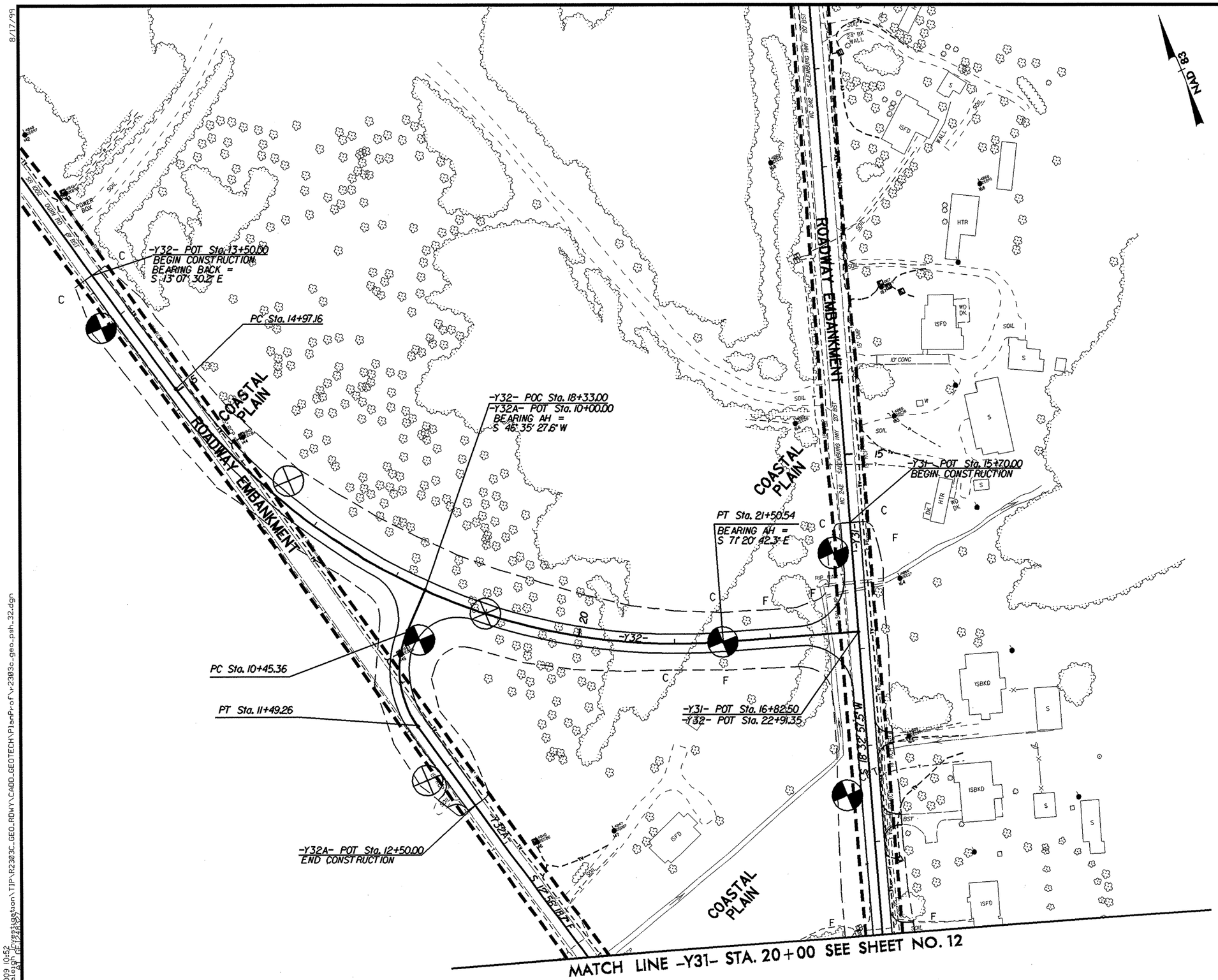
11 PEDRO AT GE1248327

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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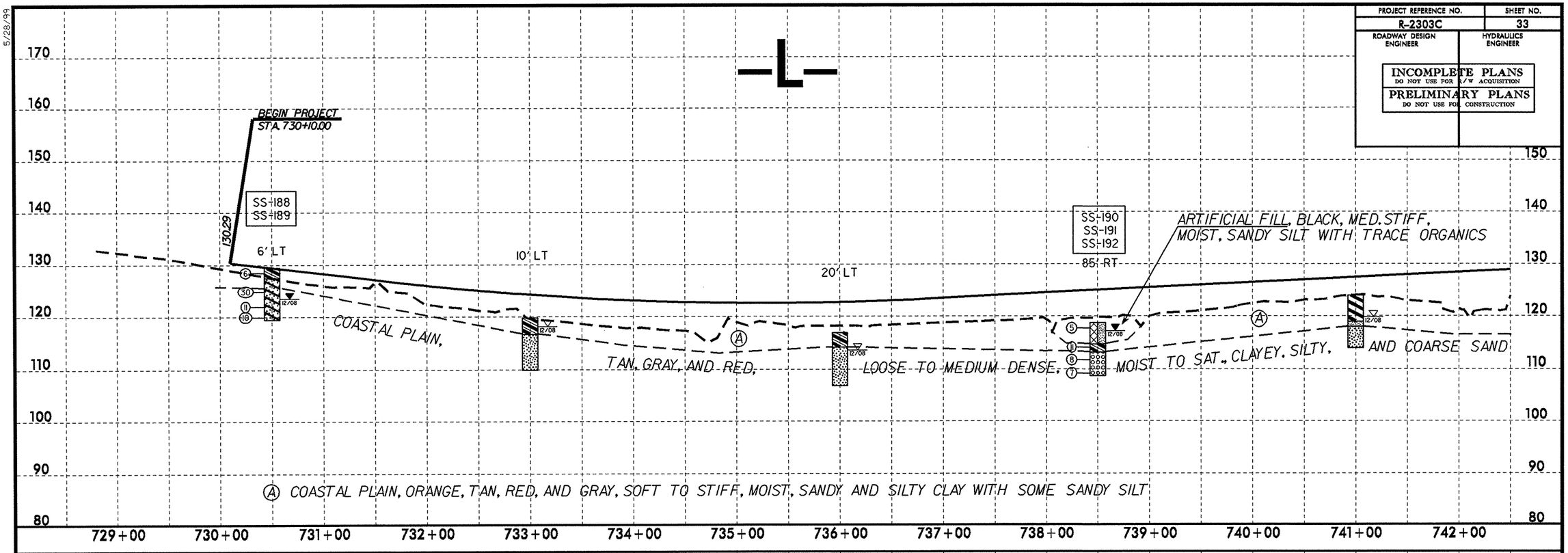
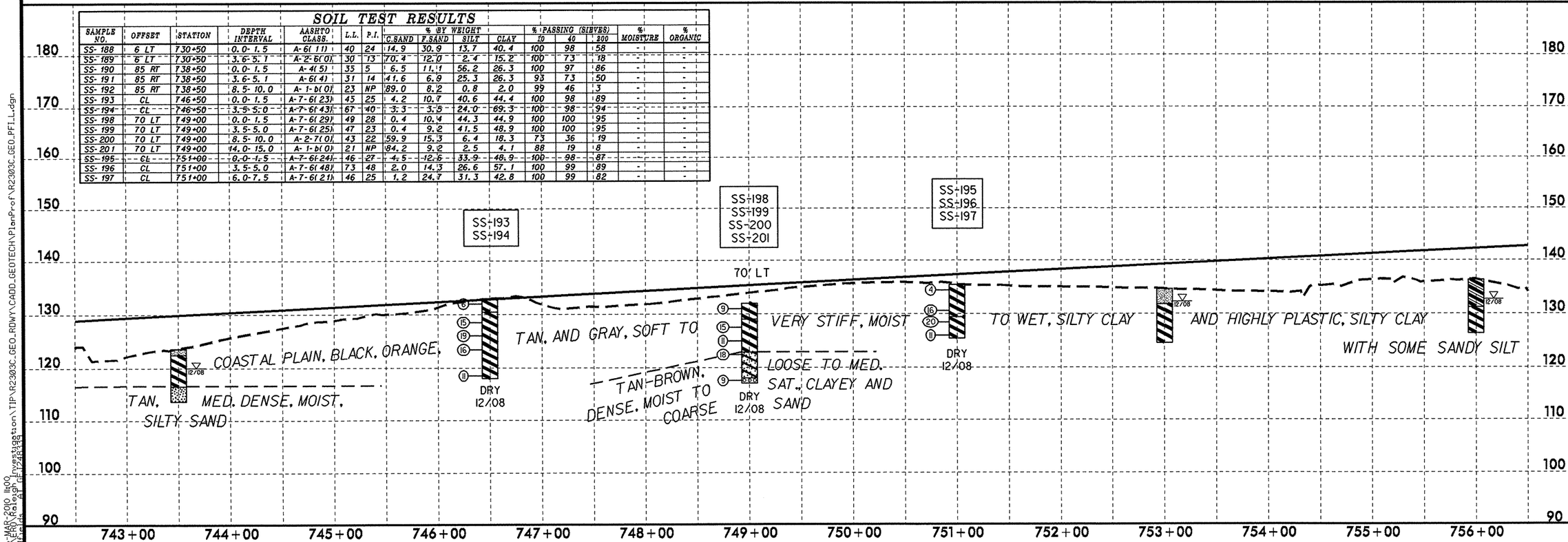
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-188	6 LT	730+50	0.0-1.5	A-6(11)	40	24	14.9	30.9	13.7	40.4	100	98	58	-	-
SS-189	6 LT	730+50	3.6-5.1	A-2-6(0)	30	13	70.4	12.0	2.4	15.2	100	73	18	-	-
SS-190	85 RT	738+50	0.0-1.5	A-4(5)	35	5	6.5	11.1	56.2	26.3	100	97	86	-	-
SS-191	85 RT	738+50	3.6-5.1	A-6(4)	31	14	41.6	6.9	25.3	26.3	93	73	50	-	-
SS-192	85 RT	738+50	8.5-10.0	A-1-b(0)	23	NP	89.0	8.2	0.8	2.0	99	46	3	-	-
SS-193	CL	746+50	0.0-1.5	A-7-6(23)	45	25	4.2	10.7	40.6	44.4	100	98	89	-	-
SS-194	CL	746+50	3.5-5.0	A-7-6(43)	67	40	3.3	3.5	24.0	69.3	100	98	94	-	-
SS-198	70 LT	749+00	0.0-1.5	A-7-6(29)	49	28	0.4	10.4	44.3	44.9	100	100	95	-	-
SS-199	70 LT	749+00	3.5-5.0	A-7-6(25)	47	23	0.4	9.2	41.5	48.9	100	100	95	-	-
SS-200	70 LT	749+00	8.5-10.0	A-2-7(0)	43	22	59.9	15.3	6.4	18.3	73	36	19	-	-
SS-201	70 LT	749+00	14.0-15.0	A-1-b(0)	21	NP	84.2	9.2	2.5	4.1	88	19	8	-	-
SS-195	CL	751+00	0.0-1.5	A-7-6(24)	46	27	4.5	12.6	33.9	48.9	100	98	87	-	-
SS-196	CL	751+00	3.5-5.0	A-7-6(48)	73	48	2.0	14.3	26.6	57.1	100	99	89	-	-
SS-197	CL	751+00	6.0-7.5	A-7-6(21)	46	25	1.2	24.7	31.3	42.8	100	99	82	-	-



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26-MAR-2010 11:00
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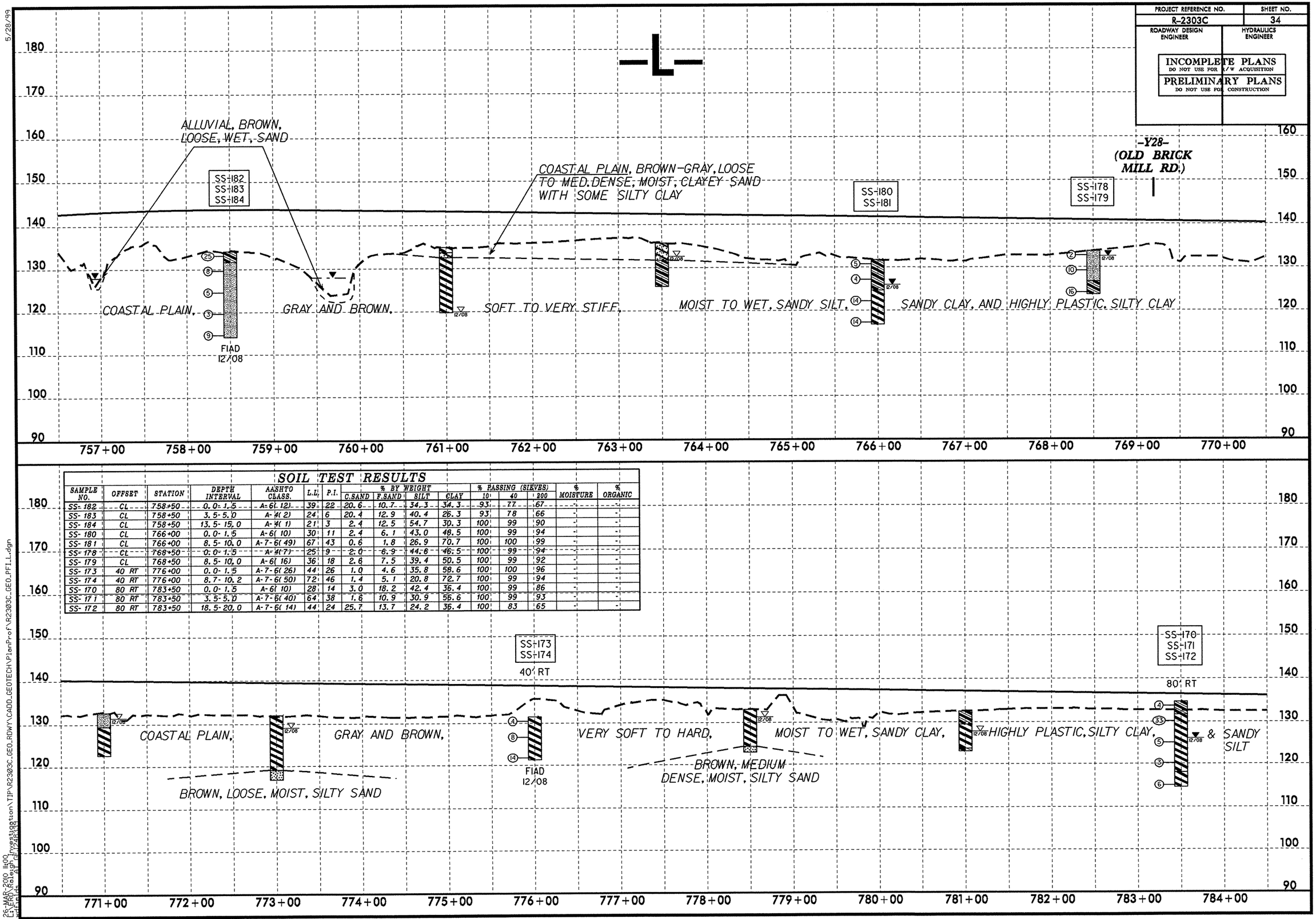
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-182	CL	758+50	0.0-1.5	A-6(12)	39	22	20.6	10.7	34.3	34.3	93	77	67	-	-
SS-183	CL	758+50	3.5-5.0	A-4(2)	24	6	20.4	12.9	40.4	26.3	93	78	66	-	-
SS-184	CL	758+50	13.5-15.0	A-4(1)	21	3	2.4	12.5	54.7	30.3	100	99	90	-	-
SS-180	CL	766+00	0.0-1.5	A-6(10)	30	11	2.4	6.1	43.0	48.5	100	99	94	-	-
SS-181	CL	766+00	8.5-10.0	A-7-6(49)	67	43	0.6	1.8	26.9	70.7	100	100	99	-	-
SS-178	CL	768+50	0.0-1.5	A-4(7)	25	9	2.0	6.9	44.6	46.5	100	99	94	-	-
SS-179	CL	768+50	8.5-10.0	A-6(16)	36	18	2.8	7.5	39.4	50.5	100	99	92	-	-
SS-173	40 RT	776+00	0.0-1.5	A-7-6(26)	44	26	1.0	4.6	35.8	58.6	100	100	96	-	-
SS-174	40 RT	776+00	8.7-10.2	A-7-6(50)	72	46	1.4	5.1	20.8	72.7	100	99	94	-	-
SS-170	80 RT	783+50	0.0-1.5	A-6(10)	28	14	3.0	18.2	42.4	36.4	100	99	86	-	-
SS-171	80 RT	783+50	3.5-5.0	A-7-6(40)	64	38	1.6	10.9	30.9	56.6	100	99	93	-	-
SS-172	80 RT	783+50	18.5-20.0	A-7-6(14)	44	24	25.7	13.7	24.2	36.4	100	83	65	-	-

5/28/99

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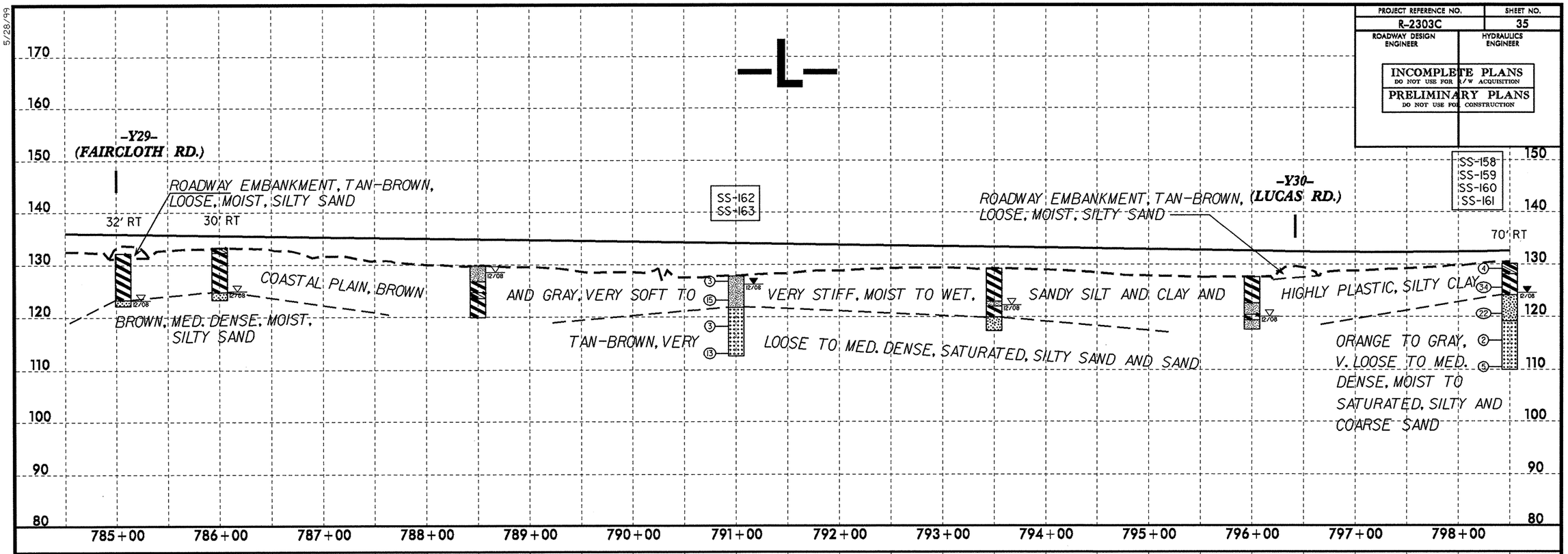
wdavis1ds AT GF1248339

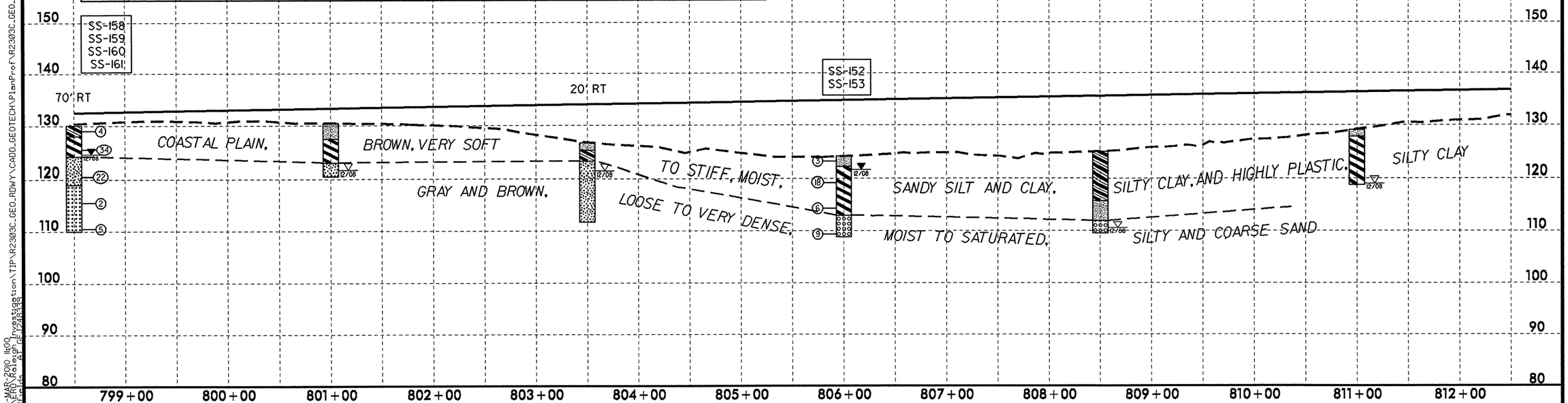
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-162	CL	791+00	0.0-1.5	A-4(4)	24	8	2.6	21.0	44.0	32.3	100	99	81	-	-
SS-163	CL	791+00	8.6-10.1	A-3(0)	21	NP	67.8	27.5	1.7	3.0	100	67	6	-	-
SS-158	70 RT	798+50	0.0-1.5	A-6(8)	32	19	25.9	17.4	18.4	38.4	100	88	60	-	-
SS-159	70 RT	798+50	3.6-5.1	A-7-6(5)	47	23	44.5	16.0	8.2	31.3	100	80	41	-	-
SS-160	70 RT	798+50	8.6-10.1	A-2-4(0)	25	NP	71.8	12.1	0.9	15.2	96	72	16	-	-
SS-161	70 RT	798+50	13.6-15.1	A-3(0)	26	NP	87.7	7.6	1.7	3.0	100	64	5	-	-
SS-152	CL	806+00	3.7-5.2	A-7-6(11)	42	24	13.9	32.1	23.6	30.3	100	99	58	-	-
SS-153	CL	806+00	13.7-15.2	A-1-b(0)	24	NP	83.1	10.4	1.4	5.1	97	48	7	-	-



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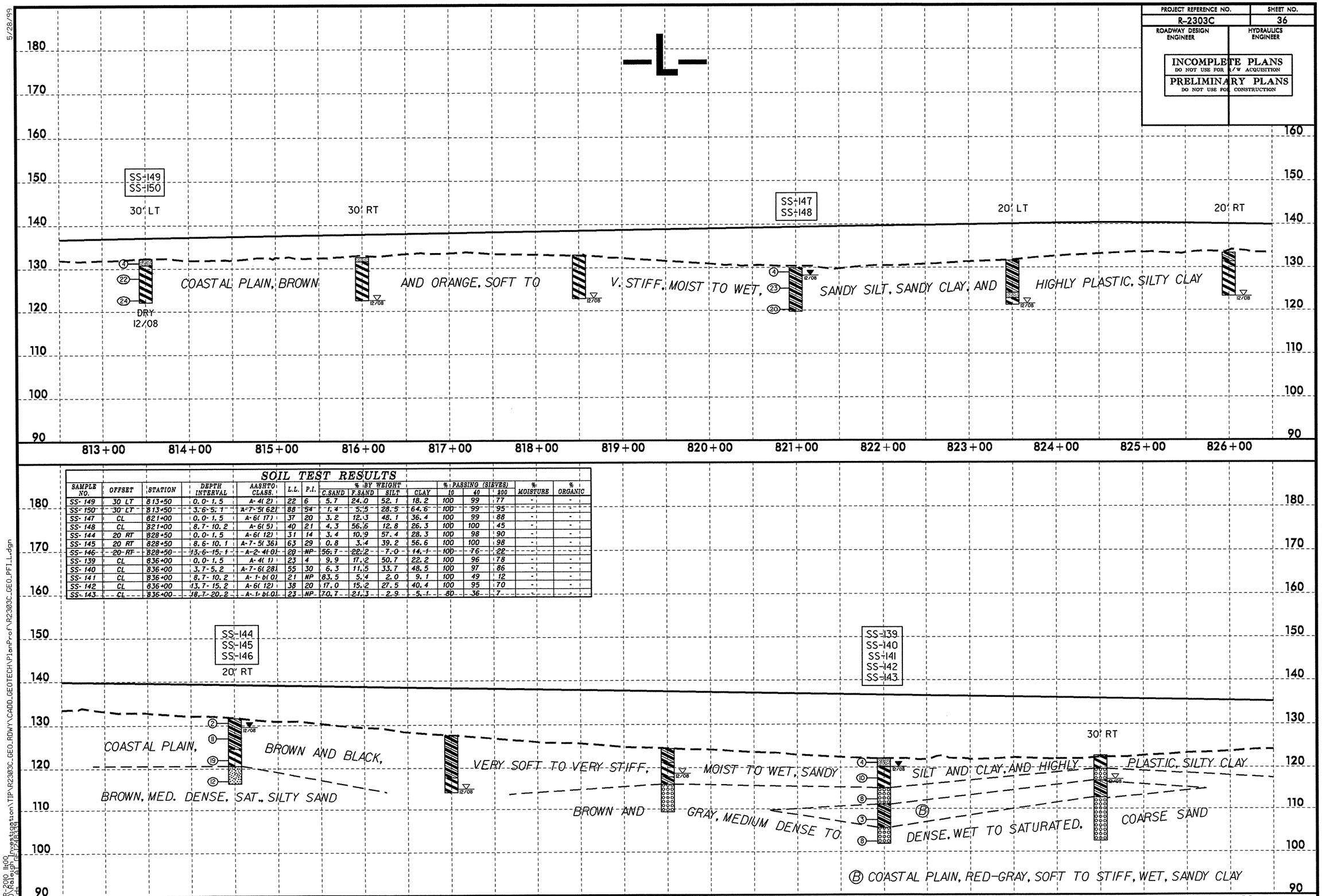
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-149	30 LT	813+50	0.0-1.5	A-4(2)	22	6	5.7	24.0	52.1	18.2	100	99	77	-	-
SS-150	30 LT	813+50	3.6-5.1	A-7-5(62)	88	54	1.4	5.5	28.5	64.6	100	99	95	-	-
SS-147	CL	821+00	0.0-1.5	A-6(17)	37	20	3.2	12.3	48.1	36.4	100	99	88	-	-
SS-148	CL	821+00	8.7-10.2	A-6(5)	40	21	4.3	56.6	12.8	26.3	100	100	45	-	-
SS-144	20 RT	828+50	0.0-1.5	A-6(12)	31	14	3.4	10.9	57.4	28.3	100	98	90	-	-
SS-145	20 RT	828+50	8.6-10.1	A-7-5(36)	63	29	0.8	3.4	39.2	56.6	100	100	98	-	-
SS-146	20 RT	828+50	13.6-15.1	A-2-4(0)	20	NP	56.7	22.2	7.0	14.1	100	76	22	-	-
SS-139	CL	836+00	0.0-1.5	A-4(1)	23	4	9.9	17.2	50.7	22.2	100	96	78	-	-
SS-140	CL	836+00	3.7-5.2	A-7-6(28)	55	30	6.3	11.5	33.7	48.5	100	97	86	-	-
SS-141	CL	836+00	8.7-10.2	A-1-b(0)	21	NP	83.5	5.4	2.0	9.1	100	49	12	-	-
SS-142	CL	836+00	13.7-15.2	A-6(12)	38	20	17.0	15.2	27.5	40.4	100	95	70	-	-
SS-143	CL	836+00	18.7-20.2	A-1-b(0)	23	NP	70.7	21.3	2.9	5.1	80	36	7	-	-

5/28/99
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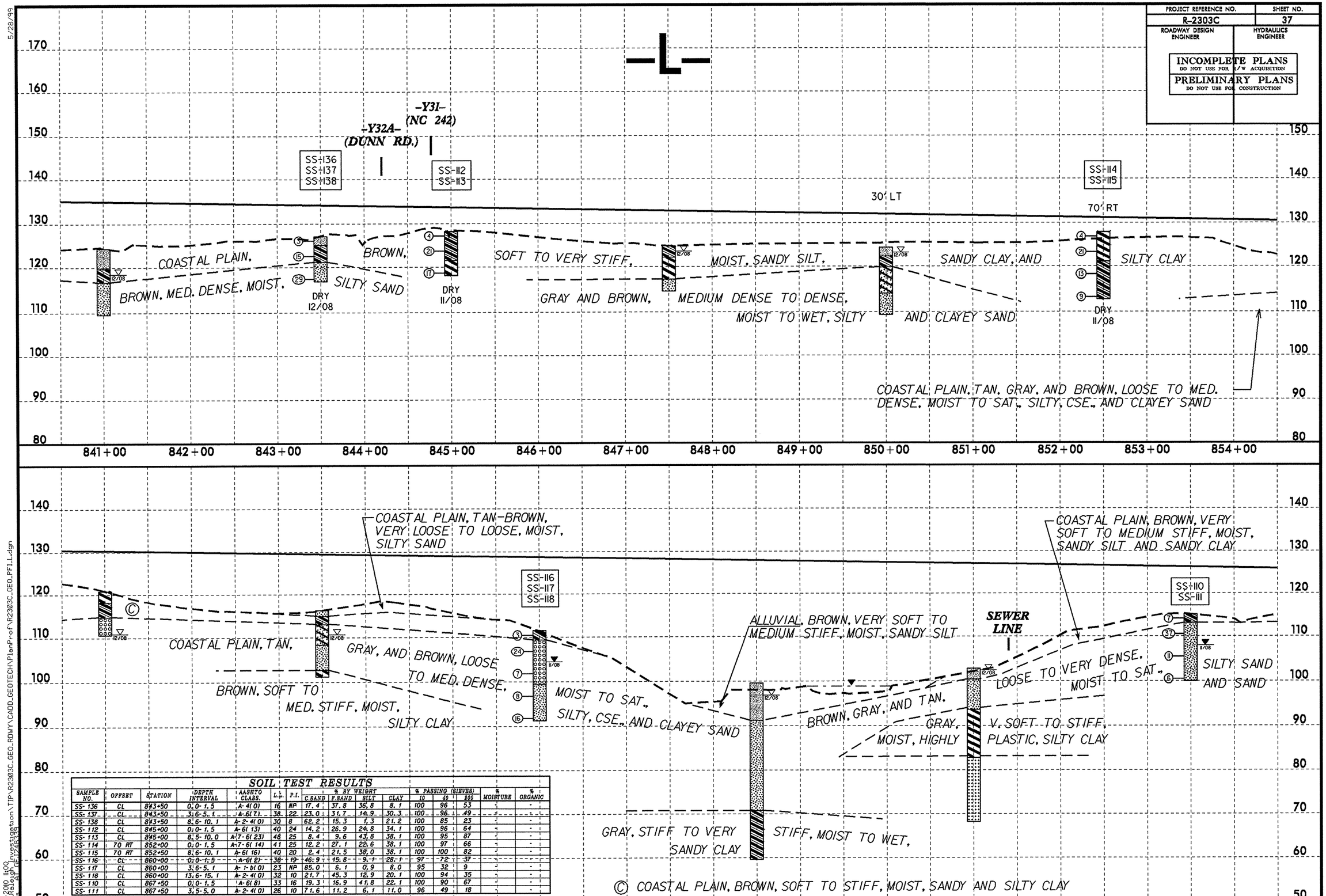
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-136	CL	843+50	0.0-1.5	A-4(0)	16	NP	17.4	37.8	36.8	8.1	100	96	53	-	-
SS-137	CL	843+50	3.6-5.1	A-6(7)	38	22	23.0	31.7	14.9	30.3	100	96	49	-	-
SS-138	CL	843+50	8.6-10.1	A-2-4(0)	30	8	62.2	15.3	1.3	21.2	100	85	23	-	-
SS-112	CL	845+00	0.0-1.5	A-6(13)	40	24	14.2	26.9	24.8	34.1	100	96	64	-	-
SS-113	CL	845+00	8.5-10.0	A-7-6(23)	48	25	8.4	9.6	43.8	38.1	100	95	87	-	-
SS-114	70 RT	852+00	0.0-1.5	A-7-6(14)	41	25	12.2	27.1	22.6	38.1	100	97	66	-	-
SS-115	70 RT	852+50	8.6-10.1	A-6(16)	40	20	2.4	21.5	38.0	38.1	100	100	82	-	-
SS-116	CL	860+00	0.0-1.5	A-6(2)	38	19	46.9	15.8	9.1	28.1	97	72	37	-	-
SS-117	CL	860+00	3.6-5.1	A-1-b(0)	23	NP	85.0	6.1	0.9	8.0	95	32	9	-	-
SS-118	CL	860+00	13.6-15.1	A-2-4(0)	32	10	21.7	45.3	12.9	20.1	100	94	35	-	-
SS-110	CL	867+50	0.0-1.5	A-6(8)	33	16	19.3	16.9	41.8	22.1	100	90	67	-	-
SS-111	CL	867+50	3.5-5.0	A-2-4(0)	26	10	71.6	11.2	6.1	11.0	96	49	18	-	-

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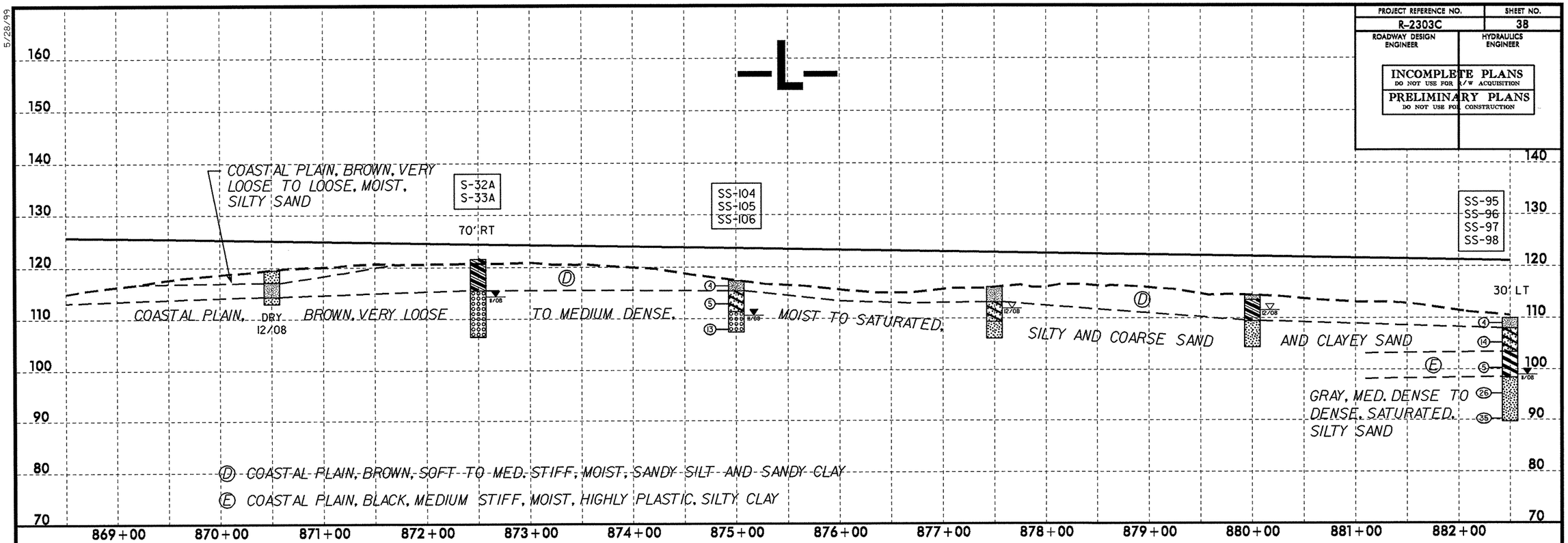
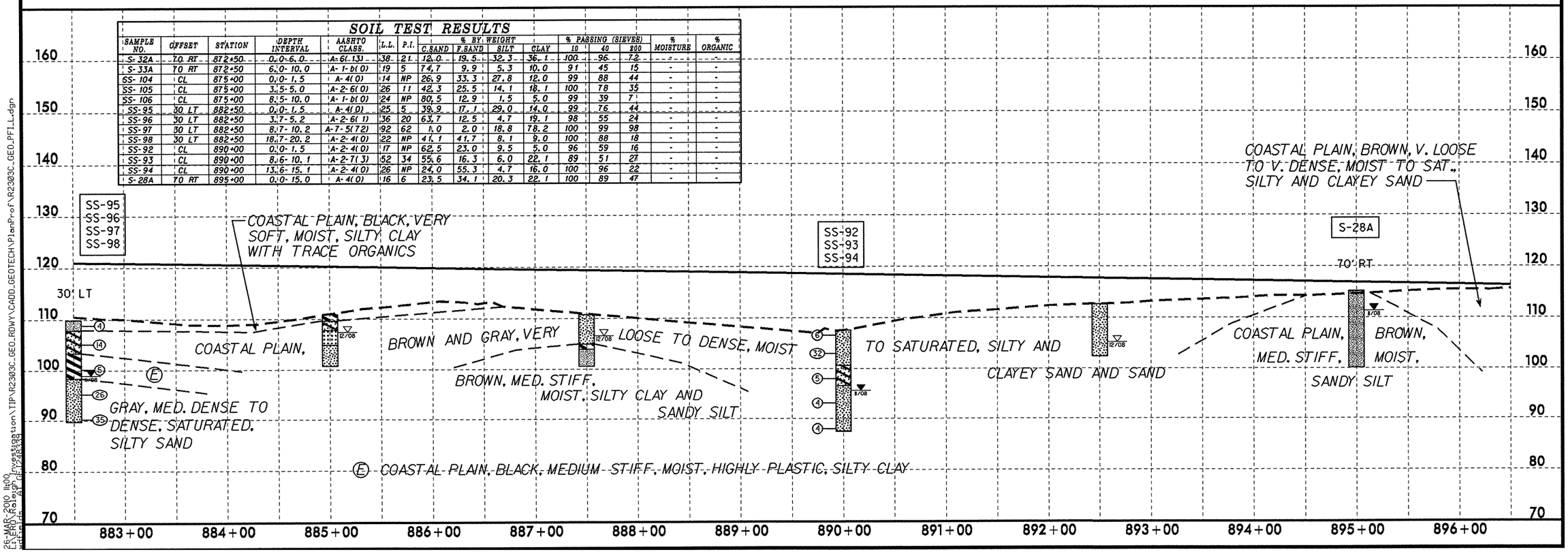
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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-32A	70 RT	872+50	0.0-6.0	A-6(13)	38	21	12.0	19.5	32.3	36.1	100	96	72	-	-
S-33A	70 RT	872+50	6.0-10.0	A-1-b(0)	19	5	74.7	9.9	5.3	10.0	91	45	15	-	-
SS-104	CL	875+00	0.0-1.5	A-4(0)	14	NP	26.9	33.3	27.8	12.0	99	88	44	-	-
SS-105	CL	875+00	3.5-5.0	A-2-6(0)	26	11	42.3	25.5	14.1	18.1	100	78	35	-	-
SS-106	CL	875+00	8.5-10.0	A-1-b(0)	24	NP	80.5	12.9	1.5	5.0	99	39	7	-	-
SS-95	30 LT	882+50	0.0-1.5	A-4(0)	25	5	39.9	17.1	29.0	14.0	99	76	44	-	-
SS-96	30 LT	882+50	3.7-5.2	A-2-6(1)	36	20	63.7	12.5	4.7	19.1	98	55	24	-	-
SS-97	30 LT	882+50	8.7-10.2	A-7-5(72)	92	62	1.0	2.0	18.8	78.2	100	99	98	-	-
SS-98	30 LT	882+50	18.7-20.2	A-2-4(0)	22	NP	41.1	41.7	8.1	9.0	100	88	18	-	-
SS-92	CL	890+00	0.0-1.5	A-2-4(0)	17	NP	62.5	23.0	9.5	5.0	96	59	16	-	-
SS-93	CL	890+00	8.6-10.1	A-2-7(3)	52	34	55.6	16.3	6.0	22.1	89	51	27	-	-
SS-94	CL	890+00	13.6-15.1	A-2-4(0)	26	NP	24.0	55.3	4.7	16.0	100	96	22	-	-
S-28A	70 RT	895+00	0.0-15.0	A-4(0)	16	6	23.5	34.1	20.3	22.1	100	89	47	-	-



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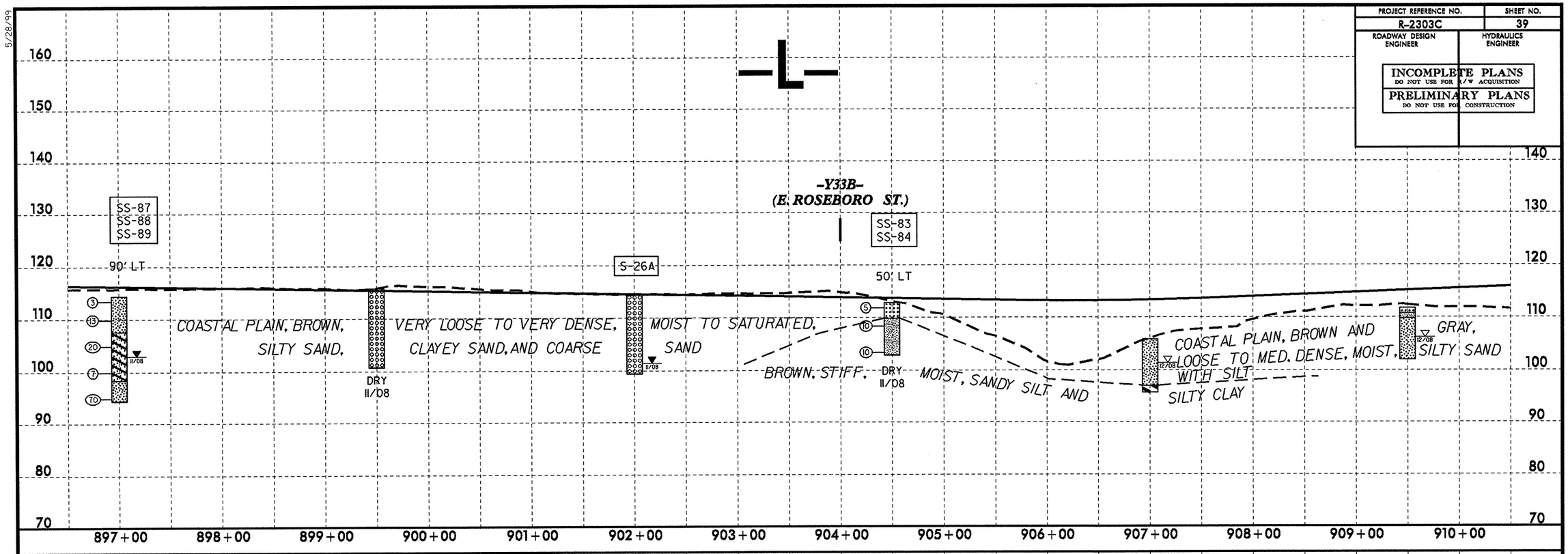
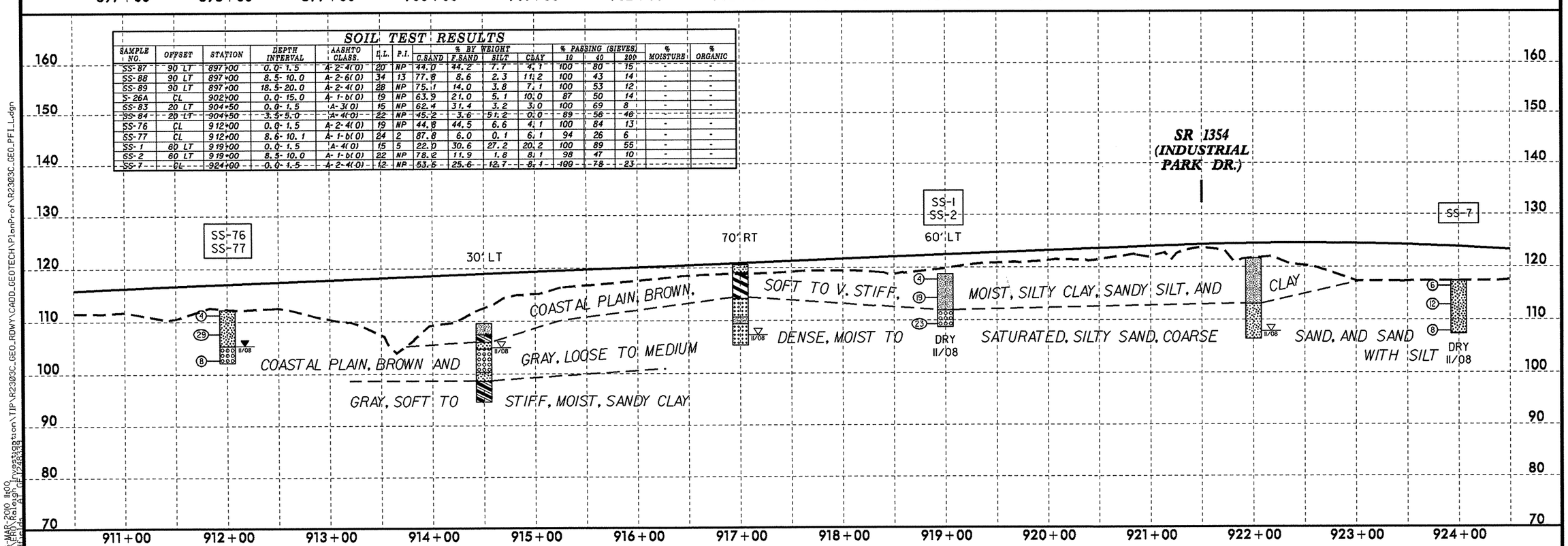
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-87	90 LT	897+00	0.0-1.5	A-2-4(0)	20	NP	44.0	44.2	7.7	4.1	100	80	15	-	-
SS-88	90 LT	897+00	8.5-10.0	A-2-6(0)	34	13	77.8	8.6	2.3	11.2	100	43	14	-	-
SS-89	90 LT	897+00	18.5-20.0	A-2-4(0)	28	NP	75.1	14.0	3.8	7.1	100	53	12	-	-
S-26A	CL	902+00	0.0-15.0	A-1-b(0)	19	NP	63.9	21.0	5.1	10.0	87	50	14	-	-
SS-83	20 LT	904+50	0.0-1.5	A-3(0)	15	NP	62.4	31.4	3.2	3.0	100	69	8	-	-
SS-84	20 LT	904+50	3.5-5.0	A-4(0)	22	NP	45.2	3.6	51.2	0.0	89	56	46	-	-
SS-76	CL	912+00	0.0-1.5	A-2-4(0)	19	NP	44.8	44.5	6.6	4.1	100	84	13	-	-
SS-77	CL	912+00	8.6-10.1	A-1-b(0)	24	2	87.8	6.0	0.1	6.1	94	26	6	-	-
SS-1	60 LT	919+00	0.0-1.5	A-4(0)	15	5	22.0	30.6	27.2	20.2	100	89	55	-	-
SS-2	60 LT	919+00	8.5-10.0	A-1-b(0)	22	NP	78.2	11.9	1.8	8.1	98	47	10	-	-
SS-7	CL	924+00	0.0-1.5	A-2-4(0)	12	NP	53.6	25.6	12.7	8.1	100	78	23	-	-



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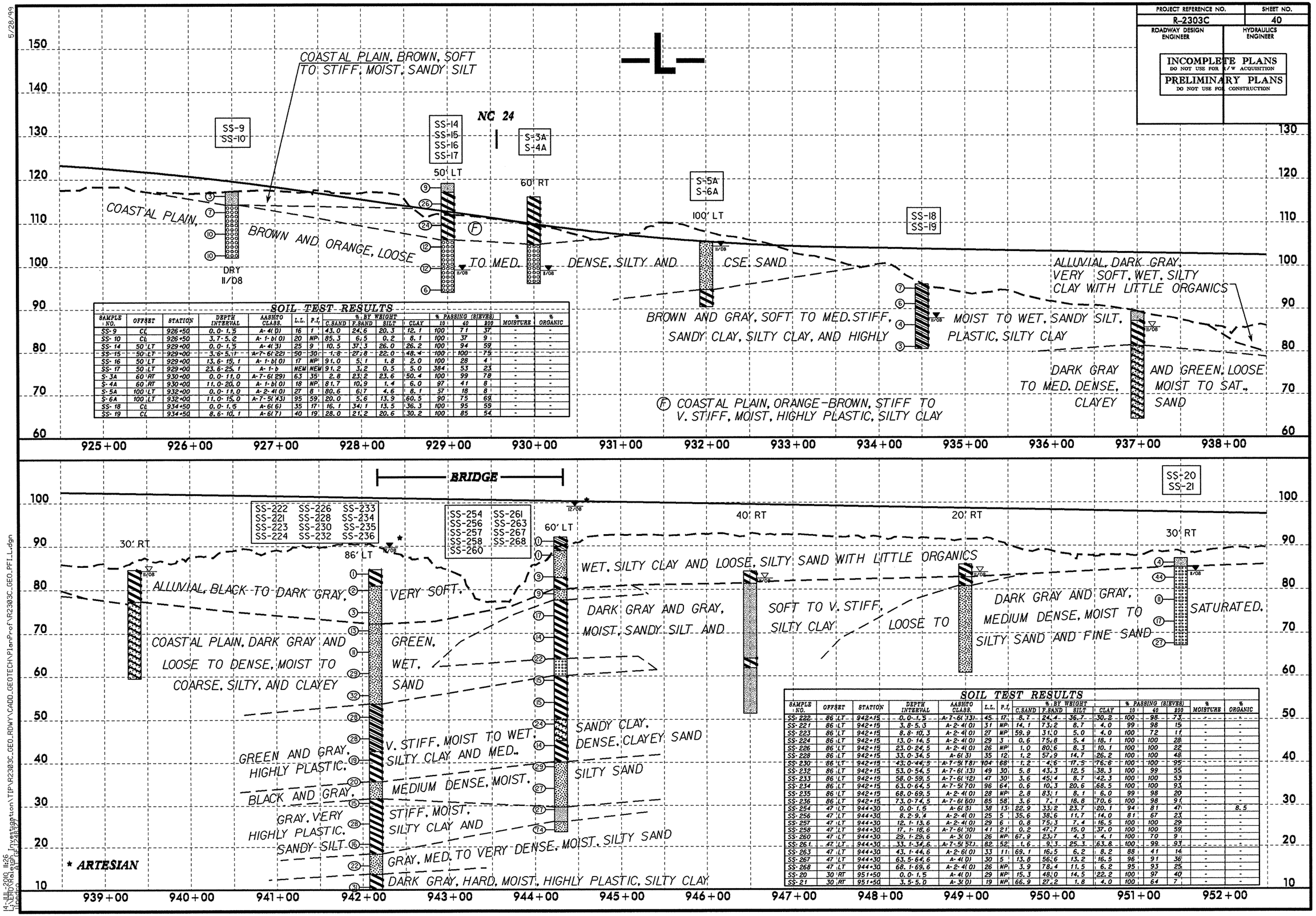
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-9	CL	926+50	0.0-1.5	A-4(0)	16	1	43.0	24.6	20.3	12.1	100	71	37	-	-
SS-10	CL	926+50	3.7-5.2	A-1-b(0)	20	NP	85.3	6.5	0.2	8.1	100	37	9	-	-
SS-14	50' LT	929+00	0.0-1.5	A-4(3)	25	9	10.5	37.3	26.0	26.2	100	94	59	-	-
SS-15	50' LT	929+00	3.6-5.1	A-7-6(22)	50	30	1.8	27.8	22.0	48.4	100	100	75	-	-
SS-16	50' LT	929+00	13.6-15.1	A-1-b(0)	17	NP	91.0	5.1	1.8	2.0	100	28	4	-	-
SS-17	50' LT	929+00	23.6-25.1	A-1-b	NEM	NEM	91.2	3.2	0.5	5.0	384	53	23	-	-
S-3A	60' RT	930+00	0.0-1.0	A-7-6(29)	63	35	2.8	23.2	23.6	50.4	100	99	78	-	-
S-4A	60' RT	930+00	11.0-20.0	A-1-b(0)	18	NP	81.7	10.9	1.4	6.0	97	41	8	-	-
S-5A	100' LT	932+00	0.0-1.0	A-2-4(0)	27	8	80.6	6.7	4.6	8.1	57	18	8	-	-
S-6A	100' LT	932+00	11.0-15.0	A-7-5(43)	95	59	20.0	5.6	13.9	60.5	90	75	69	-	-
SS-18	CL	934+50	0.0-1.5	A-6(6)	35	17	16.1	34.1	13.5	36.3	100	95	59	-	-
SS-19	CL	934+50	8.6-10.1	A-6(7)	40	19	28.0	21.2	20.6	30.2	100	85	54	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-222	86' LT	942+15	0.0-1.5	A-7-6(13)	45	17	8.7	24.4	36.7	30.2	100	98	73	-	-
SS-221	86' LT	942+15	3.8-5.3	A-2-4(0)	31	NP	14.1	73.2	8.7	4.0	99	98	15	-	-
SS-223	86' LT	942+15	8.8-10.3	A-2-4(0)	27	NP	59.9	31.0	5.0	4.0	100	72	11	-	-
SS-224	86' LT	942+15	13.0-14.5	A-2-4(0)	29	3	0.6	75.8	5.4	18.1	100	100	28	-	-
SS-226	86' LT	942+15	23.0-24.5	A-2-4(0)	26	NP	1.0	80.6	8.3	10.1	100	100	22	-	-
SS-228	86' LT	942+15	33.0-34.5	A-6(3)	35	12	1.2	57.9	14.7	26.2	100	100	48	-	-
SS-230	86' LT	942+15	43.0-44.5	A-7-5(78)	104	68	1.2	4.6	17.5	76.6	100	100	95	-	-
SS-232	86' LT	942+15	53.0-54.5	A-7-6(13)	49	30	5.8	43.3	12.5	38.3	100	99	55	-	-
SS-233	86' LT	942+15	58.0-59.5	A-7-6(12)	47	30	3.6	45.4	8.7	42.3	100	100	53	-	-
SS-234	86' LT	942+15	63.0-64.5	A-7-5(70)	96	64	0.6	10.3	20.6	68.5	100	100	93	-	-
SS-235	86' LT	942+15	68.0-69.5	A-2-4(0)	28	NP	2.8	83.1	8.1	6.0	99	98	20	-	-
SS-236	86' LT	942+15	73.0-74.5	A-7-6(50)	65	58	3.6	7.1	18.8	70.6	100	98	91	-	-
SS-254	47' LT	944+30	0.0-1.5	A-6(3)	38	13	22.9	33.2	23.7	20.1	94	81	47	-	8.5
SS-256	47' LT	944+30	8.2-9.4	A-2-4(0)	25	5	35.6	38.5	11.7	14.0	81	67	23	-	-
SS-257	47' LT	944+30	12.1-13.6	A-2-4(0)	29	6	0.8	75.3	7.4	16.5	100	100	29	-	-
SS-258	47' LT	944+30	17.1-18.6	A-7-6(10)	41	21	0.2	47.7	15.0	37.0	100	100	59	-	-
SS-260	47' LT	944+30	29.1-29.6	A-3(0)	26	NP	67.9	23.7	4.3	4.1	100	70	9	-	-
SS-261	47' LT	944+30	33.1-34.6	A-7-5(57)	82	52	1.6	9.3	25.3	63.8	100	99	93	-	-
SS-263	47' LT	944+30	43.1-44.6	A-2-6(0)	33	11	69.1	16.5	6.2	8.2	88	41	14	-	-
SS-267	47' LT	944+30	63.5-64.6	A-4(0)	30	5	13.8	56.6	13.2	16.5	96	91	36	-	-
SS-268	47' LT	944+30	68.1-69.6	A-2-4(0)	26	NP	3.9	78.4	11.5	6.2	95	93	25	-	-
SS-20	30' RT	951+50	0.0-1.5	A-4(0)	29	NP	15.3	48.0	14.5	22.2	100	97	40	-	-
SS-21	30' RT	951+50	3.5-5.0	A-3(0)	19	NP	66.9	27.2	1.8	4.0	100	64	7	-	-

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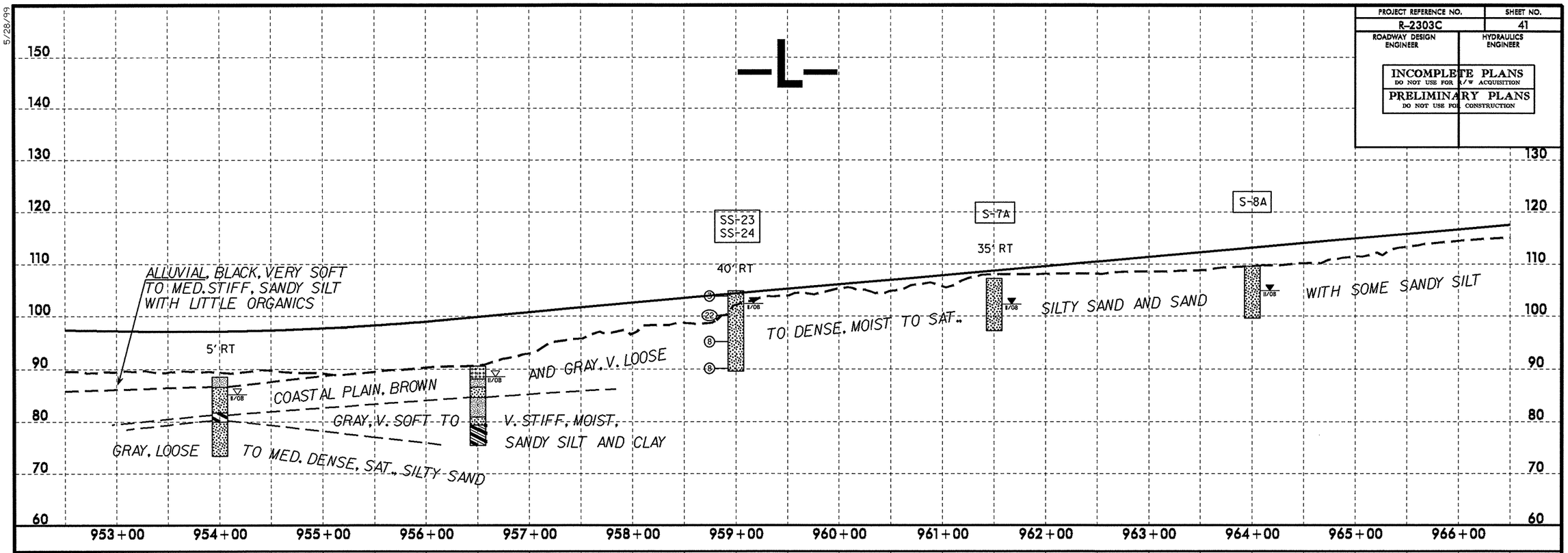
5/28/99

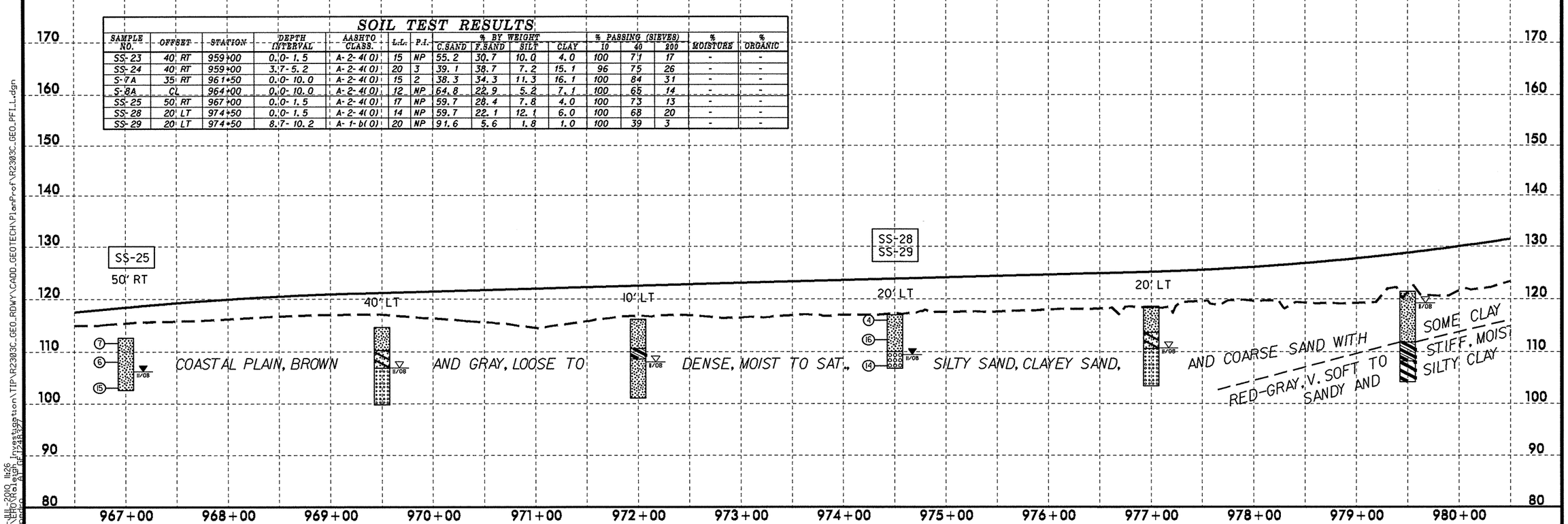
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-23	40' RT	959+00	0.0- 1.5	A-2-4(0)	15	NP	55.2	30.7	10.0	4.0	100	71	17	-	-
SS-24	40' RT	959+00	3.7- 5.2	A-2-4(0)	20	3	39.1	38.7	7.2	15.1	96	75	26	-	-
S-7A	35' RT	961+50	0.0- 10.0	A-2-4(0)	15	2	38.3	34.3	11.3	16.1	100	84	31	-	-
S-8A	CL	964+00	0.0- 10.0	A-2-4(0)	12	NP	64.8	22.9	5.2	7.1	100	65	14	-	-
SS-25	50' RT	967+00	0.0- 1.5	A-2-4(0)	17	NP	59.7	28.4	7.8	4.0	100	73	13	-	-
SS-28	20' LT	974+50	0.0- 1.5	A-2-4(0)	14	NP	59.7	22.1	12.1	6.0	100	68	20	-	-
SS-29	20' LT	974+50	8.7- 10.2	A-1-b(0)	20	NP	91.6	5.6	1.8	1.0	100	39	3	-	-



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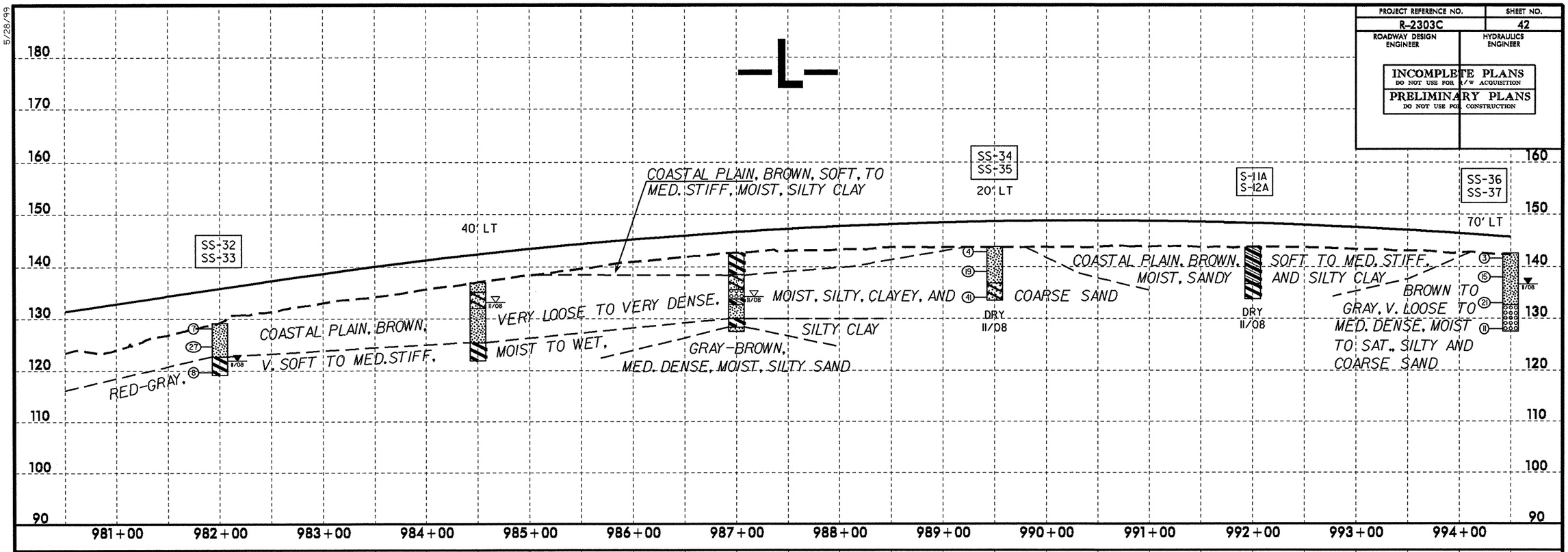
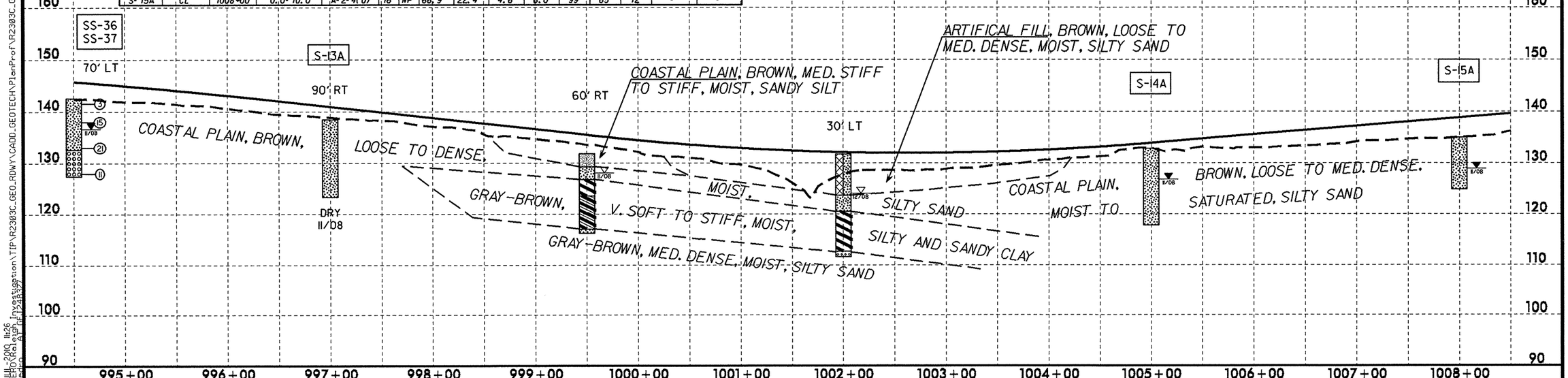
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-32	CL	982+00	0.0- 1.5	A-2-4(0)	14	1	55.6	20.9	9.4	14.1	100	68	26	-	-
SS-33	CL	982+00	8.5- 10.0	A-7-6(4)	41	19	5.6	55.2	7.0	32.1	100	97	41	-	-
SS-34	20 LT	989+50	0.0- 1.5	A-2-4(0)	19	8	43.4	24.1	12.4	20.1	100	81	35	-	-
SS-35	20 LT	989+50	8.8- 10.3	A-2-6(0)	29	11	74.7	11.4	1.8	12.0	100	46	15	-	-
S-11A	CL	992+00	0.0-7.0	A-6(2)	31	17	39.8	26.4	9.6	24.2	100	84	36	-	-
S-12A	CL	992+00	7.0- 10.0	A-7-6(3)	41	24	46.2	18.5	7.1	28.2	99	80	36	-	-
SS-36	70 LT	994+50	0.0- 1.5	A-2-4(0)	12	NP	56.0	24.5	9.4	10.0	100	76	21	-	-
SS-37	70 LT	994+50	8.6- 10.1	A-1-b(0)	23	NP	79.8	12.2	1.9	6.0	93	32	8	-	-
S-13A	90 RT	997+00	0.0- 15.0	A-2-4(0)	20	7	53.1	22.8	5.9	18.1	99	73	26	-	-
S-14A	CL	1005+00	0.0- 15.0	A-2-4(0)	18	NP	56.0	29.8	2.0	12.1	100	75	16	-	-
S-15A	CL	1008+00	0.0- 10.0	A-2-4(0)	16	NP	66.9	22.4	4.6	6.0	99	65	12	-	-



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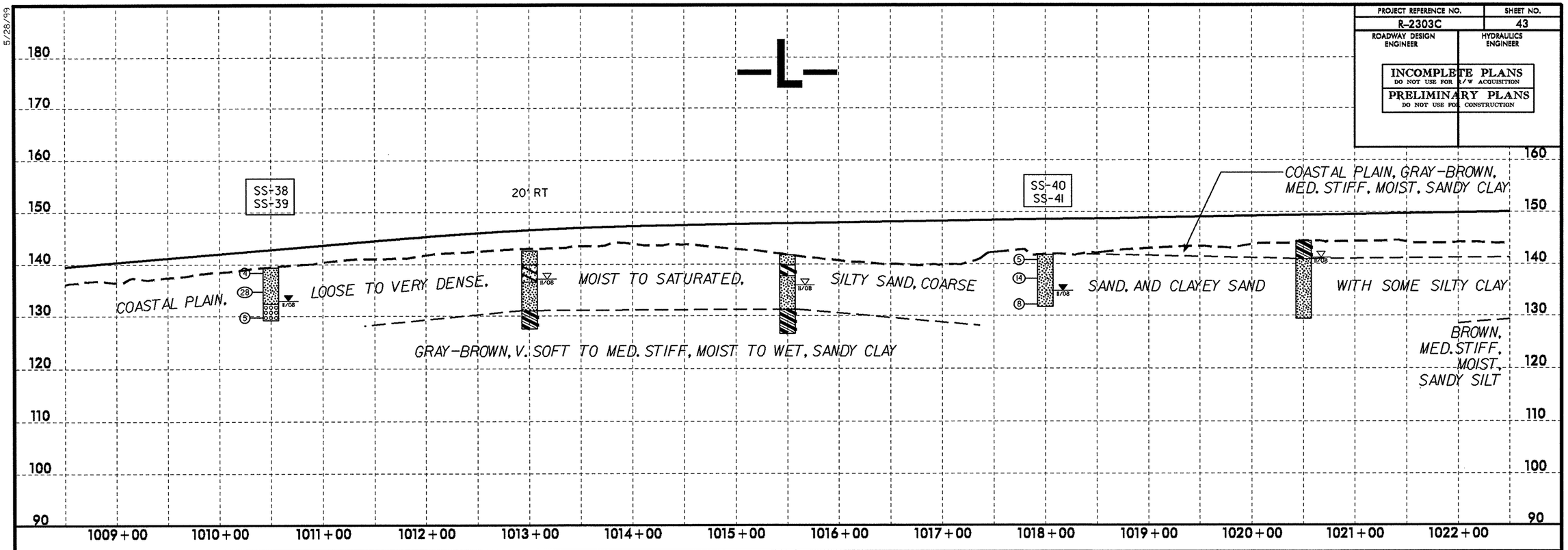
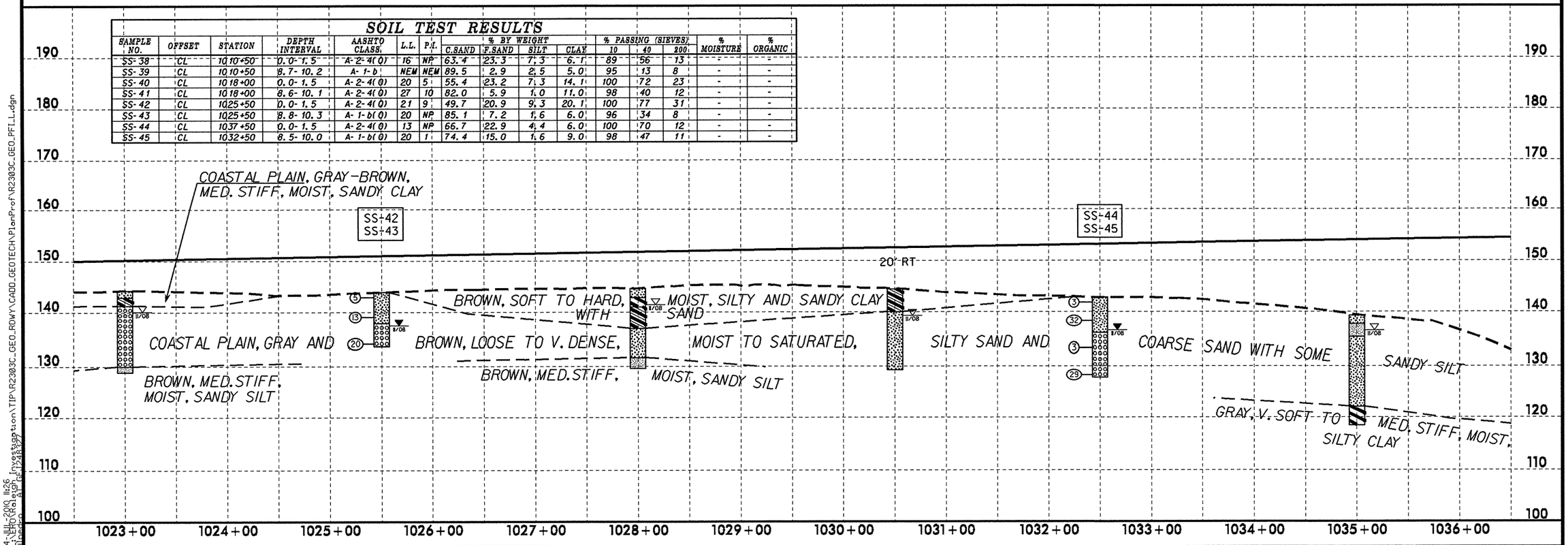
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-38	CL	1010+50	0.0-1.5	A-2-4(0)	16	NP	63.4	23.3	7.3	6.1	89	56	13	-	-
SS-39	CL	1010+50	8.7-10.2	A-1-b	NEM	NEM	89.5	2.9	2.5	5.0	95	13	8	-	-
SS-40	CL	1018+00	0.0-1.5	A-2-4(0)	20	5	55.4	23.2	7.3	14.1	100	72	23	-	-
SS-41	CL	1018+00	8.6-10.1	A-2-4(0)	27	10	82.0	5.9	1.0	11.0	98	40	12	-	-
SS-42	CL	1025+50	0.0-1.5	A-2-4(0)	21	9	49.7	20.9	9.3	20.1	100	77	31	-	-
SS-43	CL	1025+50	8.8-10.3	A-1-b(0)	20	NP	85.1	7.2	1.6	6.0	96	34	8	-	-
SS-44	CL	1037+50	0.0-1.5	A-2-4(0)	13	NP	66.7	22.9	4.4	6.0	100	70	12	-	-
SS-45	CL	1032+50	8.5-10.0	A-1-b(0)	20	1	74.4	15.0	1.6	9.0	98	47	11	-	-



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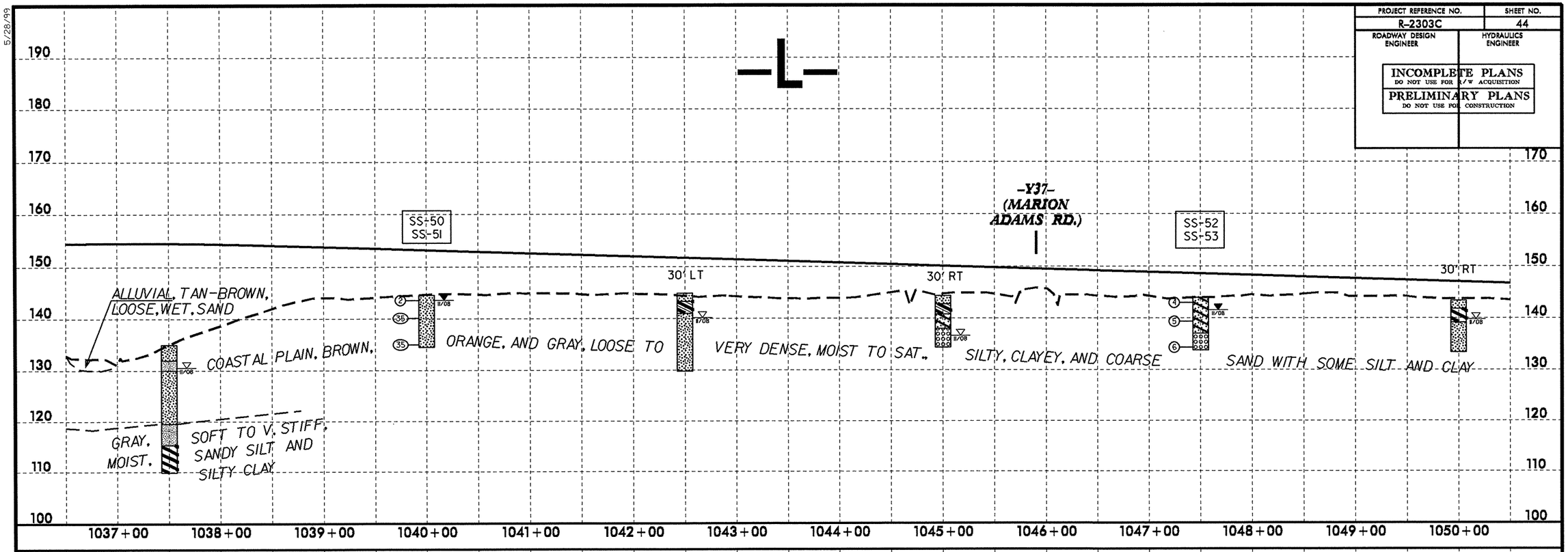
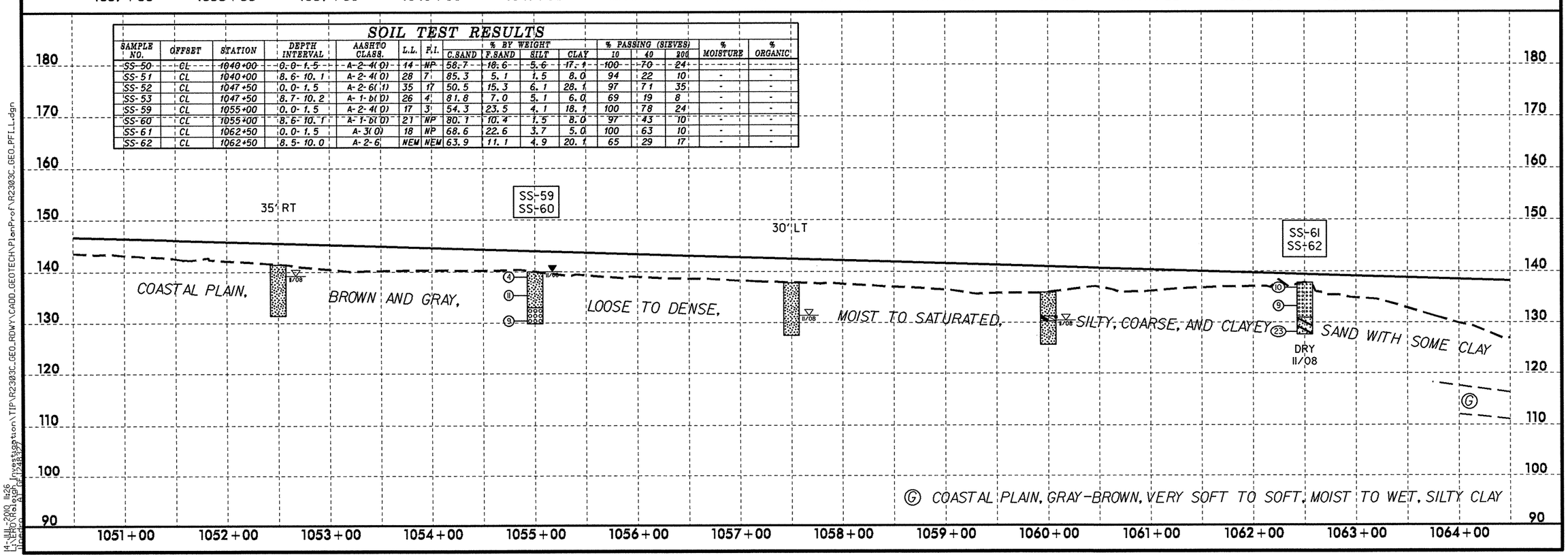
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-50	CL	1040+00	0.0-1.5	A-2-4(0)	14	NP	58.7	18.6	5.6	17.1	100	70	24	-	-
SS-51	CL	1040+00	8.6-10.1	A-2-4(0)	28	7	85.3	5.1	1.5	8.0	94	22	10	-	-
SS-52	CL	1047+50	0.0-1.5	A-2-6(1)	35	17	50.5	15.3	6.1	28.1	97	71	35	-	-
SS-53	CL	1047+50	8.7-10.2	A-1-b(0)	26	4	81.8	7.0	5.1	6.0	69	19	8	-	-
SS-59	CL	1055+00	0.0-1.5	A-2-4(0)	17	3	54.3	23.5	4.1	18.1	100	78	24	-	-
SS-60	CL	1055+00	8.6-10.1	A-1-b(0)	21	NP	80.1	10.4	1.5	8.0	97	43	10	-	-
SS-61	CL	1062+50	0.0-1.5	A-3(0)	18	NP	68.6	22.6	3.7	5.0	100	63	10	-	-
SS-62	CL	1062+50	8.5-10.0	A-2-6	NEM	NEM	63.9	11.1	4.9	20.1	65	29	17	-	-



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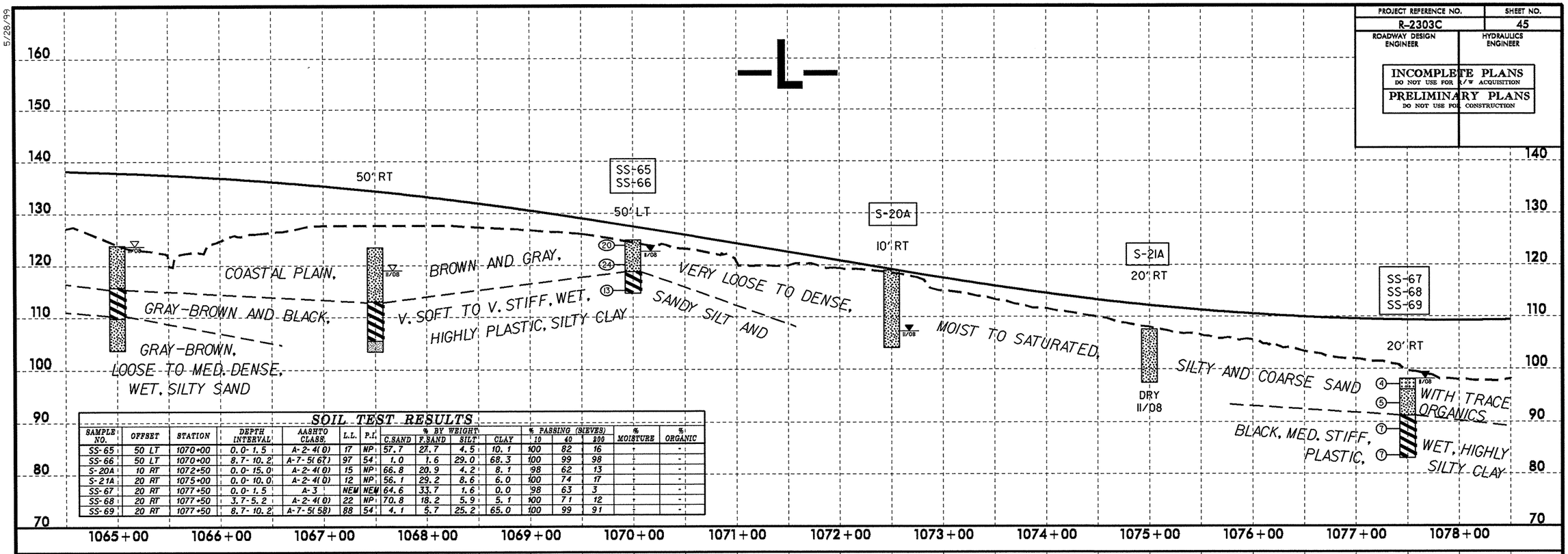
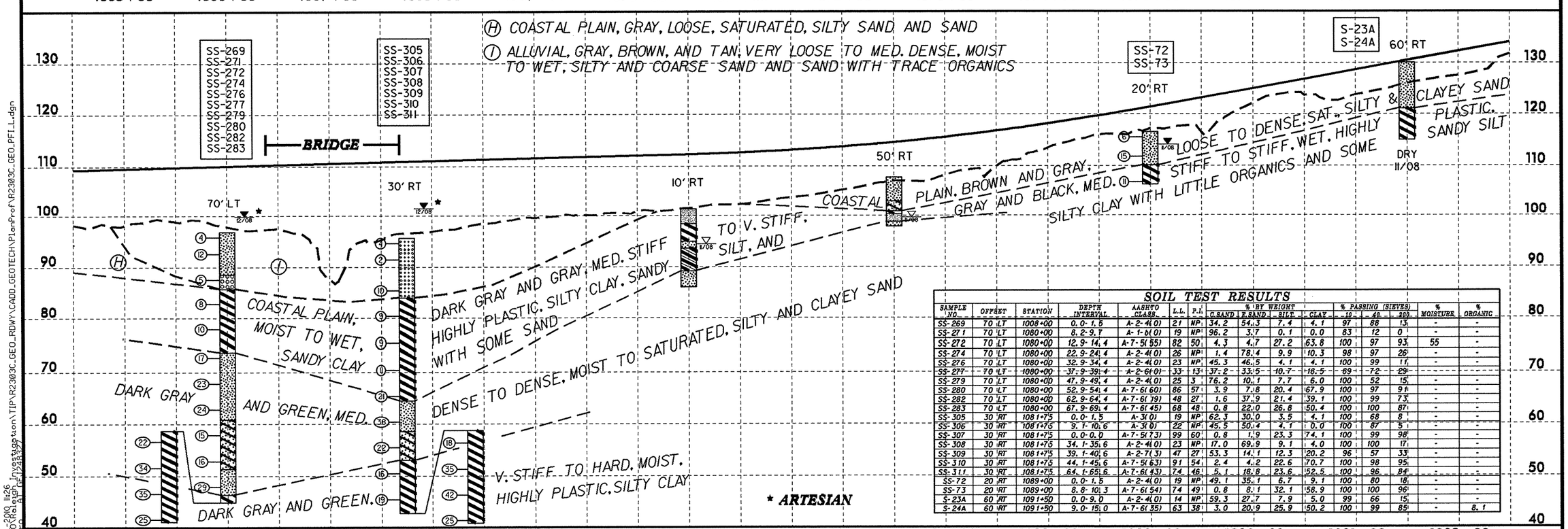
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-65	50 LT	1070+00	0.0-1.5	A-2-4(0)	17	NP	57.7	27.7	4.5	10.1	100	82	16	-	-
SS-66	50 LT	1070+00	8.7-10.2	A-7-5(67)	97	54	1.0	1.6	29.0	68.3	100	99	98	-	-
S-20A	10 RT	1072+50	0.0-15.0	A-2-4(0)	15	NP	66.8	20.9	4.2	8.1	98	62	13	-	-
S-21A	20 RT	1075+00	0.0-10.0	A-2-4(0)	12	NP	56.1	29.2	8.6	6.0	100	74	17	-	-
SS-67	20 RT	1077+50	0.0-1.5	A-3	NEM	NEM	64.6	33.7	1.6	0.0	98	63	3	-	-
SS-68	20 RT	1077+50	3.7-5.2	A-2-4(0)	22	NP	70.8	18.2	5.9	5.1	100	71	12	-	-
SS-69	20 RT	1077+50	8.7-10.2	A-7-5(58)	88	54	4.1	5.7	25.2	65.0	100	99	91	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-269	70 LT	1008+00	0.0-1.5	A-2-4(0)	21	NP	34.2	54.3	7.4	4.1	97	88	13	-	-
SS-271	70 LT	1080+00	8.2-9.7	A-1-b(0)	19	NP	96.2	3.7	0.1	0.0	83	12	0	-	-
SS-272	70 LT	1080+00	12.9-14.4	A-7-5(55)	82	50	4.3	4.7	27.2	63.8	100	97	93	55	-
SS-274	70 LT	1080+00	22.9-24.4	A-2-4(0)	26	NP	1.4	78.4	9.9	10.3	98	97	26	-	-
SS-276	70 LT	1080+00	32.9-34.4	A-2-4(0)	23	NP	45.3	46.5	4.1	4.1	100	99	11	-	-
SS-277	70 LT	1080+00	37.9-39.4	A-2-6(0)	33	13	37.2	33.5	10.7	18.5	89	72	29	-	-
SS-279	70 LT	1080+00	47.9-49.4	A-2-4(0)	25	3	76.2	10.1	7.7	6.0	100	52	15	-	-
SS-280	70 LT	1080+00	52.9-54.4	A-7-6(60)	86	57	3.9	7.8	20.4	67.9	100	97	91	-	-
SS-282	70 LT	1080+00	62.9-64.4	A-7-6(39)	48	27	1.6	37.9	21.4	39.1	100	99	73	-	-
SS-283	70 LT	1080+00	67.9-69.4	A-7-6(45)	68	48	0.8	22.0	26.8	50.4	100	100	87	-	-
SS-305	30 RT	1081+75	0.0-1.5	A-3(0)	19	NP	62.3	30.0	3.5	4.1	100	68	8	-	-
SS-306	30 RT	1081+75	9.1-10.6	A-3(0)	22	NP	45.5	50.4	4.1	0.0	100	87	5	-	-
SS-307	30 RT	1081+75	0.0-0.0	A-7-5(73)	99	60	0.8	1.9	23.3	74.1	100	99	98	-	-
SS-308	30 RT	1081+75	34.1-35.6	A-2-4(0)	23	NP	17.0	69.9	9.1	4.0	100	100	17	-	-
SS-309	30 RT	1081+75	39.1-40.6	A-2-7(3)	47	27	53.3	14.1	12.3	20.2	96	57	33	-	-
SS-310	30 RT	1081+75	44.1-45.6	A-7-5(63)	91	54	2.4	4.2	22.6	70.7	100	98	95	-	-
SS-311	30 RT	1081+75	64.1-65.6	A-7-6(43)	74	46	5.1	18.8	23.6	52.5	100	96	84	-	-
SS-72	20 RT	1089+00	0.0-1.5	A-2-4(0)	19	NP	49.1	35.1	6.7	9.1	100	80	18	-	-
SS-73	20 RT	1089+00	8.8-10.3	A-7-6(54)	74	49	0.8	8.1	32.1	58.9	100	100	96	-	-
S-23A	60 RT	1091+50	0.0-9.0	A-2-4(0)	14	NP	59.3	27.7	7.9	5.0	99	66	15	-	-
S-24A	60 RT	1091+50	9.0-15.0	A-7-6(35)	63	38	3.0	20.9	25.9	50.2	100	99	85	-	8.1

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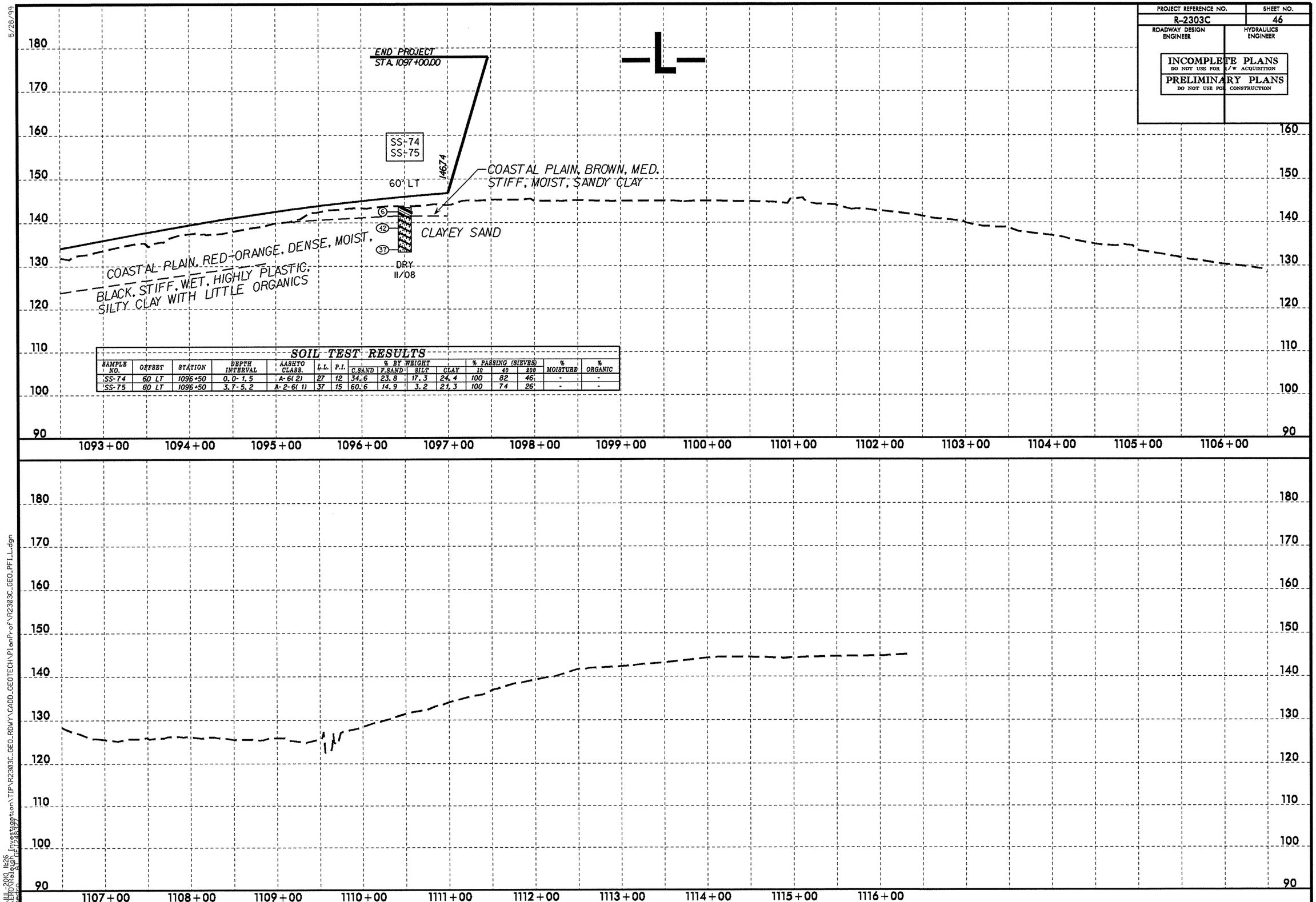
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-74	60 LT	1096+50	0.0-1.5	A-6(2)	27	12	34.6	23.8	17.3	24.4	100	82	46	-	-
SS-75	60 LT	1096+50	3.7-5.2	A-2-6(1)	37	15	60.6	14.9	3.2	21.3	100	74	26	-	-

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PROJECT REFERENCE NO.	SHEET NO.
R-2303C	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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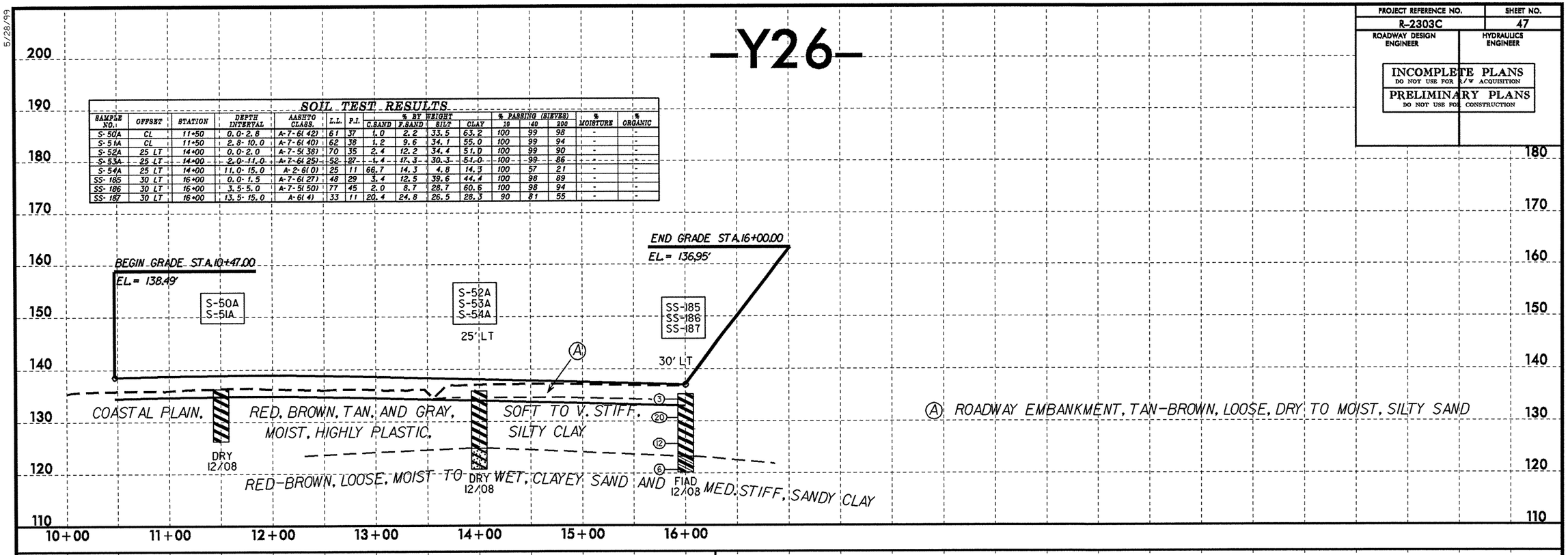
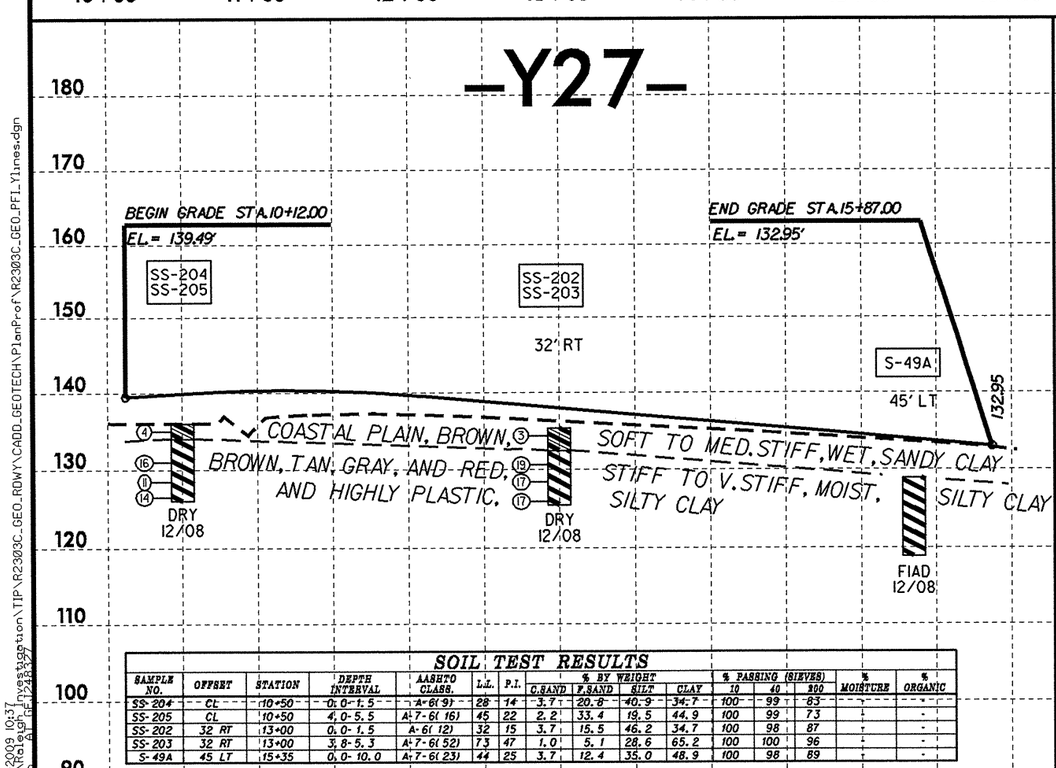


SOIL TEST RESULTS

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-50A	CL	11+50	0.0-2.8	A-7-6(42)	61	37	1.0	2.2	33.5	63.2	100	99	98	-	-
S-51A	CL	11+50	2.8-10.0	A-7-6(40)	62	38	1.2	9.6	34.1	55.0	100	99	94	-	-
S-52A	25 LT	14+00	0.0-2.0	A-7-5(38)	70	35	2.4	12.2	34.4	51.0	100	99	90	-	-
S-53A	25 LT	14+00	2.0-11.0	A-7-6(25)	52	27	1.4	17.3	30.3	51.0	100	99	86	-	-
S-54A	25 LT	14+00	11.0-15.0	A-2-6(0)	25	11	66.7	14.3	4.8	14.3	100	57	21	-	-
SS-185	30 LT	16+00	0.0-1.5	A-7-6(27)	48	29	3.4	12.5	39.6	44.4	100	98	89	-	-
SS-186	30 LT	16+00	3.5-5.0	A-7-5(50)	77	45	2.0	8.7	28.7	60.6	100	98	94	-	-
SS-187	30 LT	16+00	13.5-15.0	A-6(4)	33	11	20.4	24.8	26.5	28.3	90	81	55	-	-

-Y27-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-204	CL	10+50	0.0-1.5	A-6(9)	28	14	3.7	20.8	40.9	34.7	100	99	83	-	-
SS-205	CL	10+50	4.0-5.5	A-7-6(16)	45	22	2.2	33.4	19.5	44.9	100	99	73	-	-
SS-202	32 RT	13+00	0.0-1.5	A-6(12)	32	15	3.7	15.5	46.2	34.7	100	98	87	-	-
SS-203	32 RT	13+00	3.8-5.3	A-7-6(52)	73	47	1.0	5.1	28.6	65.2	100	100	96	-	-
S-49A	45 LT	15+35	0.0-10.0	A-7-6(23)	44	25	3.7	12.4	35.0	48.9	100	98	89	-	-

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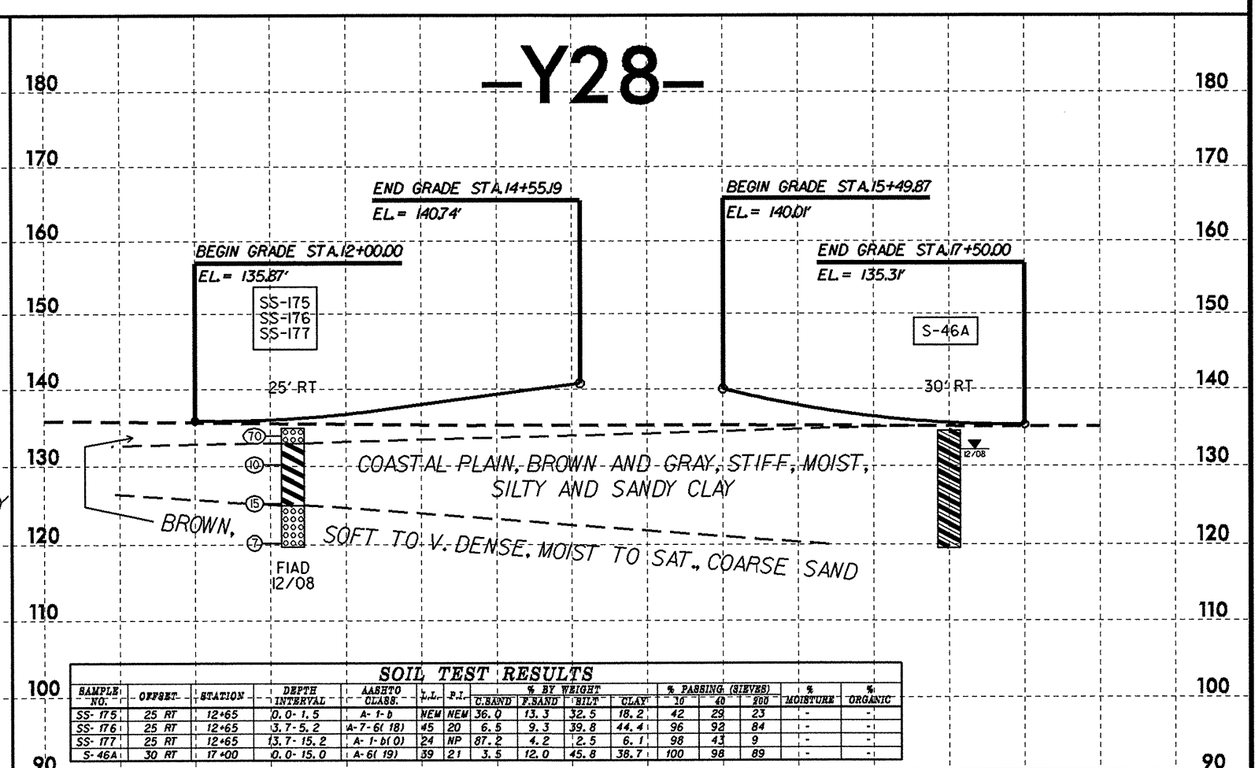

SOIL TEST RESULTS

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
SS-175	25 RT	12+65	0.0-1.5	A-1-b	NEM	NEM	36.0	13.3	32.5	18.2	42	29	23	-	-
SS-176	25 RT	12+65	3.7-5.2	A-7-6(18)	45	20	6.5	9.3	39.8	44.4	96	92	84	-	-
SS-177	25 RT	12+65	13.7-15.2	A-1-b(0)	24	NP	87.2	4.2	2.5	6.1	98	43	9	-	-
S-46A	30 RT	17+00	0.0-15.0	A-6(19)	39	21	3.5	12.0	45.8	38.7	100	98	89	-	-

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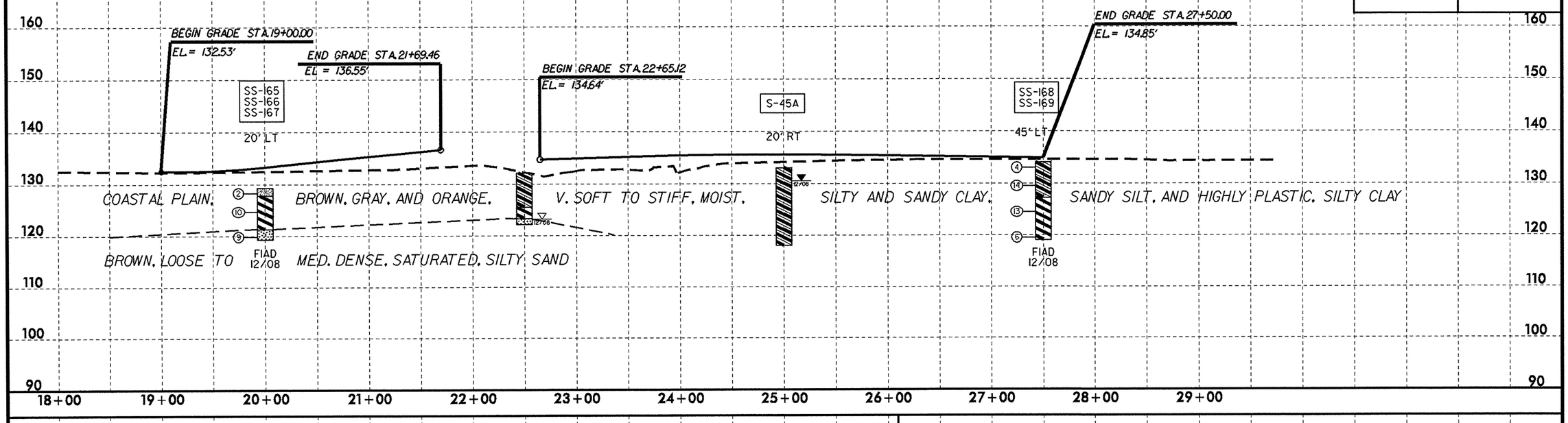
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y29-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-165	20 LT	20+00	0.0-1.5	A-4(0)	22	3	7.7	23.4	48.7	20.2	100	97	77	-	-
SS-166	20 LT	20+00	3.5-5.0	A-7-6(27)	52	30	4.0	16.2	31.3	48.5	100	99	86	-	-
SS-167	20 LT	20+00	8.5-10.0	A-2-4(0)	19	NP	58.0	23.6	8.3	10.1	100	64	21	-	-
S-45A	20 RT	25+00	0.0-15.0	A-6(18)	40	22	4.5	17.3	41.5	36.7	100	98	85	-	-
SS-168	45 LT	27+50	0.0-1.5	A-6(16)	33	20	4.4	16.2	39.0	40.4	100	98	86	-	-
SS-169	45 LT	27+50	8.5-10.0	A-7-6(16)	44	24	6.3	26.1	23.2	44.4	100	99	73	-	-



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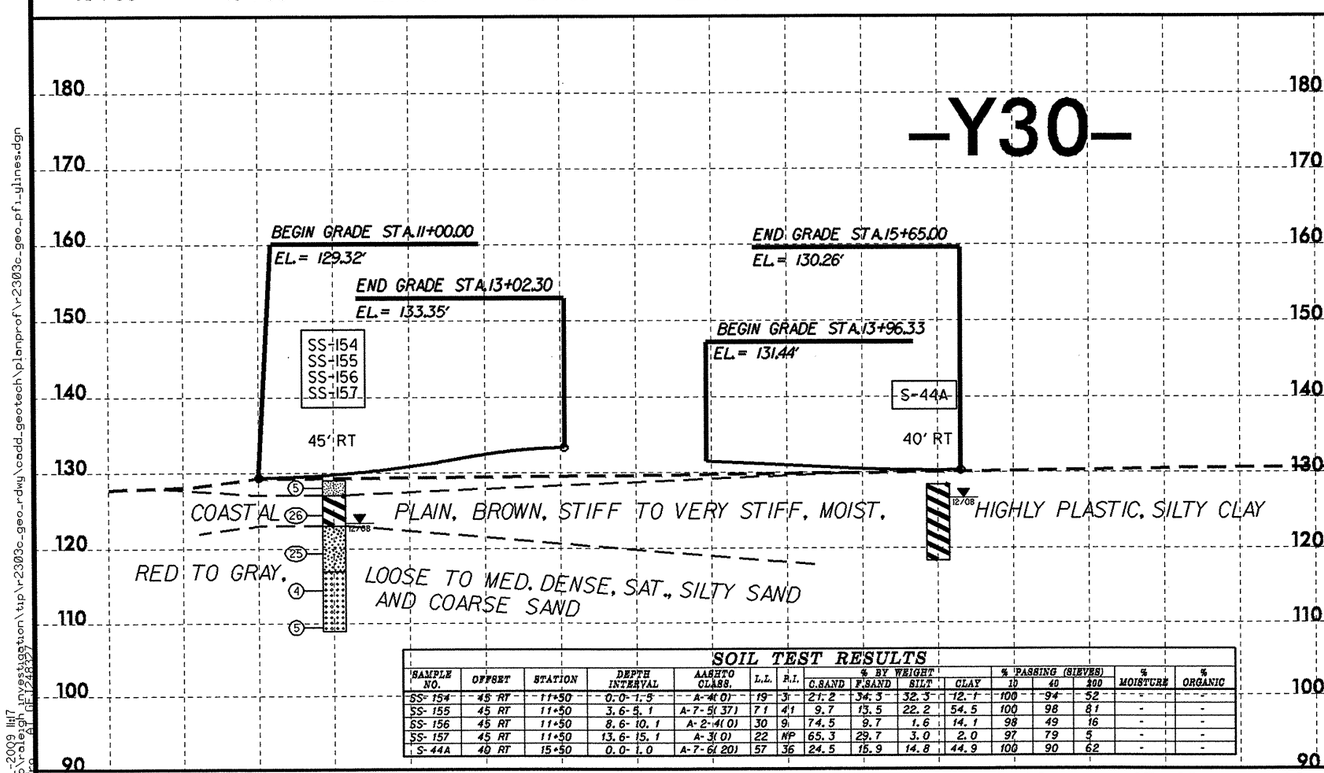

SOIL TEST RESULTS

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
SS-154	45 RT	11+50	0.0-1.5	A-4(0)	19	3	21.2	34.3	32.3	12.1	100	94	52	-	-
SS-155	45 RT	11+50	3.6-5.1	A-7-5(37)	71	41	9.7	13.5	22.2	54.5	100	98	81	-	-
SS-156	45 RT	11+50	8.6-10.1	A-2-4(0)	30	9	74.5	9.7	1.6	14.1	98	49	16	-	-
SS-157	45 RT	11+50	13.6-15.1	A-3(0)	22	NP	65.3	29.7	3.0	2.0	97	79	5	-	-
S-44A	40 RT	15+50	0.0-1.0	A-7-6(20)	57	36	24.5	15.9	14.8	44.9	100	90	62	-	-

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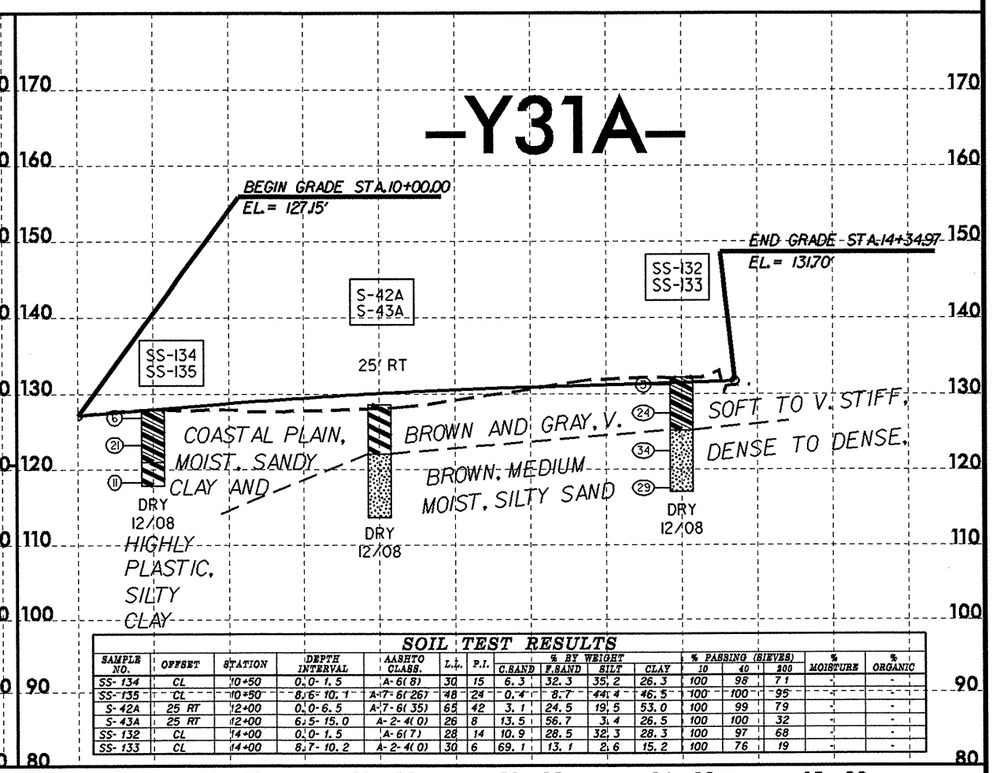

SOIL TEST RESULTS

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
SS-134	CL	10+50	0.0-1.5	A-6(8)	30	15	6.3	32.3	35.2	26.3	100	98	71	-	-
SS-135	CL	10+50	8.6-10.1	A-7-6(26)	48	24	0.4	8.7	44.4	46.5	100	100	95	-	-
S-42A	25 RT	12+00	0.0-6.5	A-7-6(35)	65	42	3.1	24.5	19.5	53.0	100	99	79	-	-
S-43A	25 RT	12+00	6.5-15.0	A-2-4(0)	26	8	13.5	56.7	3.4	26.5	100	100	32	-	-
SS-132	CL	14+00	0.0-1.5	A-6(7)	28	14	10.9	28.5	32.3	28.3	100	97	68	-	-
SS-133	CL	14+00	8.7-10.2	A-2-4(0)	30	6	69.1	13.1	2.6	15.2	100	76	19	-	-

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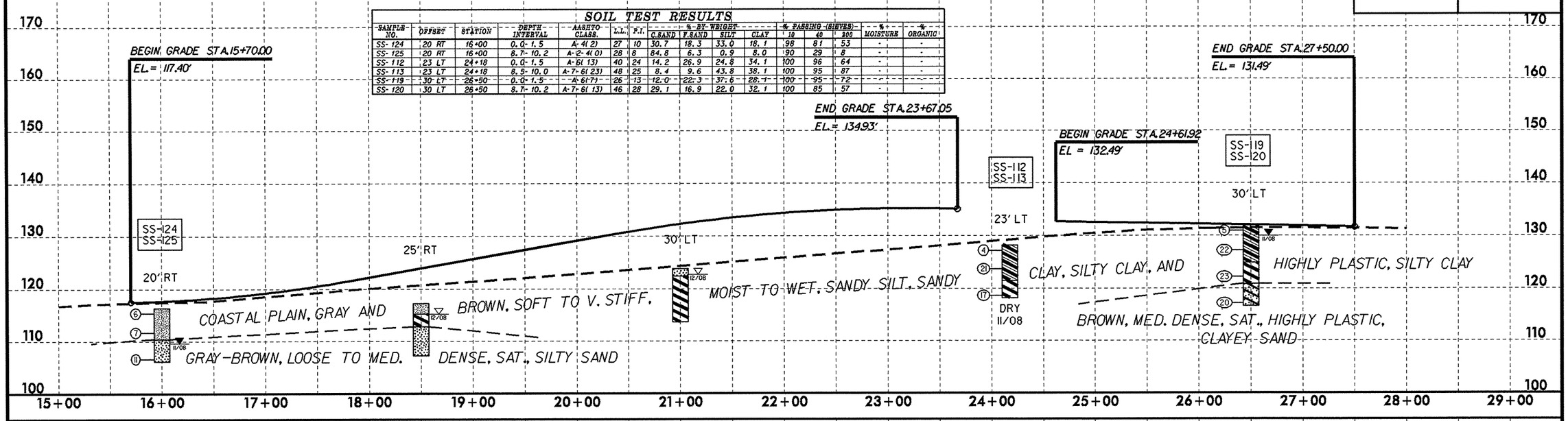
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y31-

SOIL TEST RESULTS

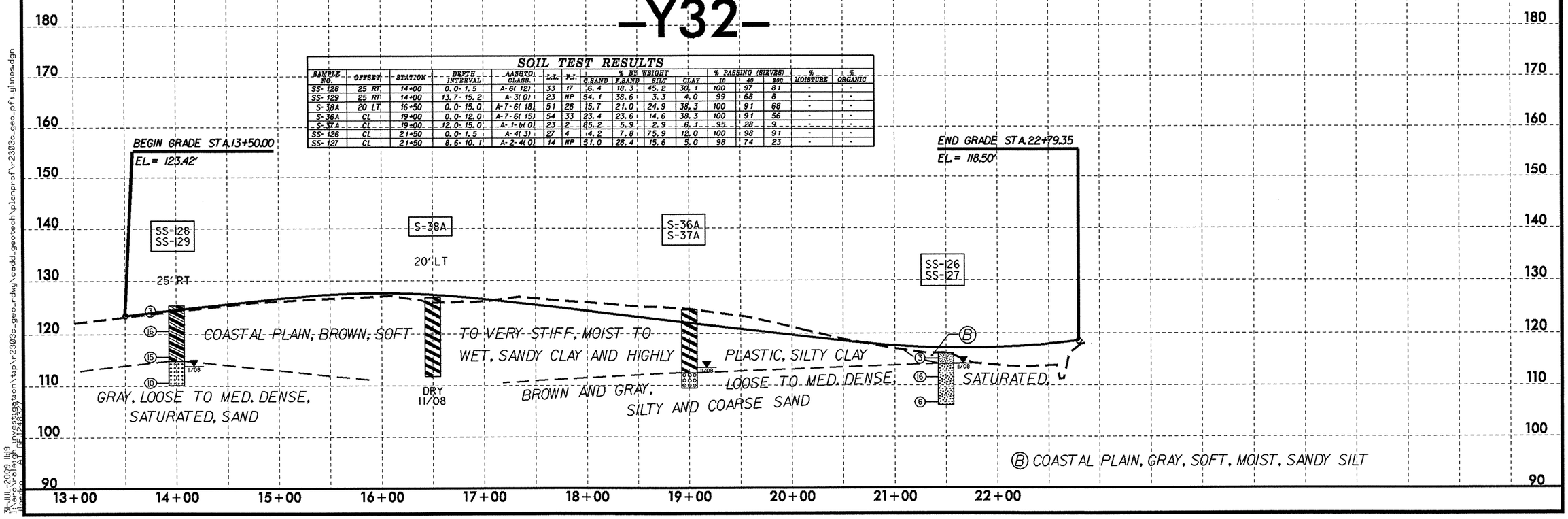
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-124	20 RT	16+00	0.0-1.5	A-4(2)	27	10	30.7	18.3	33.0	18.1	98	81	53	-	-
SS-125	20 RT	16+00	8.7-10.2	A-2-4(0)	28	8	84.8	6.3	0.9	8.0	90	29	8	-	-
SS-112	23 LT	24+18	0.0-1.5	A-6(13)	40	24	14.2	26.9	24.8	34.1	100	96	64	-	-
SS-113	23 LT	24+18	8.5-10.0	A-7-6(23)	48	25	8.4	9.6	43.8	38.1	100	95	87	-	-
SS-119	30 LT	26+50	0.0-1.5	A-6(7)	26	13	12.0	22.3	37.6	28.1	100	95	72	-	-
SS-120	30 LT	26+50	8.7-10.2	A-7-6(13)	46	28	29.1	16.9	22.0	32.1	100	85	57	-	-



-Y32-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-128	25 RT	14+00	0.0-1.5	A-6(12)	33	17	6.4	18.3	45.2	30.1	100	97	81	-	-
SS-129	25 RT	14+00	13.7-15.2	A-3(0)	23	NP	54.1	38.6	3.3	4.0	99	68	8	-	-
S-38A	20 LT	16+50	0.0-15.0	A-7-6(18)	51	28	15.7	21.0	24.9	38.3	100	91	68	-	-
S-36A	CL	19+00	0.0-12.0	A-7-6(15)	54	33	23.4	23.6	14.6	38.3	100	91	56	-	-
S-37A	CL	19+00	12.0-15.0	A-3-6(0)	23	2	85.2	5.9	2.9	6.1	95	28	9	-	-
SS-126	CL	21+50	0.0-1.5	A-4(3)	27	4	14.2	7.8	75.9	12.0	100	98	91	-	-
SS-127	CL	21+50	8.6-10.1	A-2-4(0)	14	NP	51.0	28.4	15.6	5.0	98	74	23	-	-



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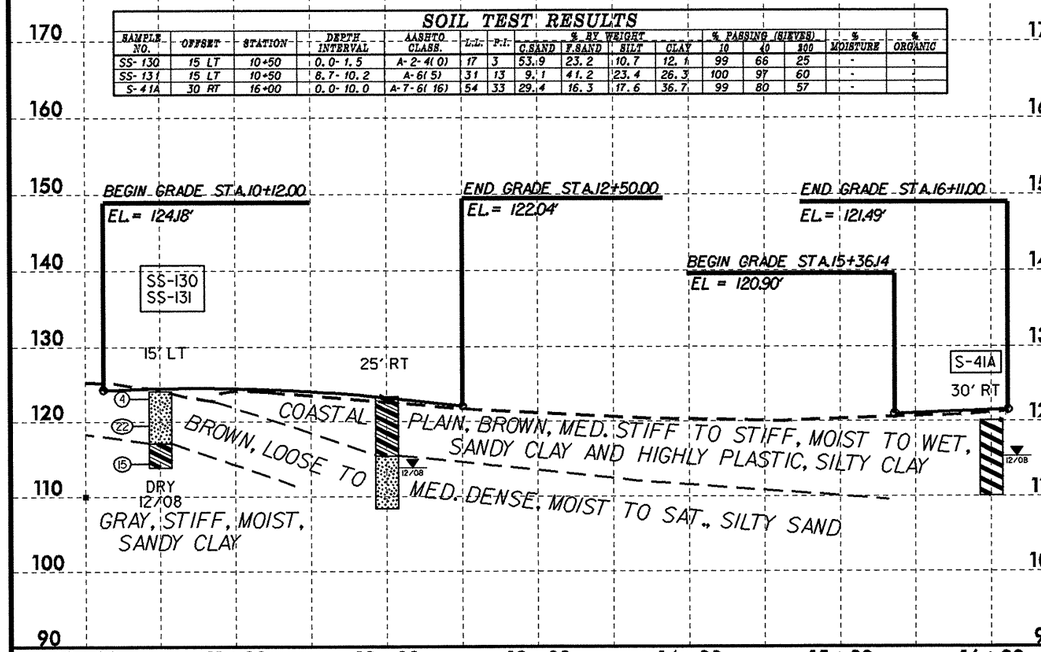
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

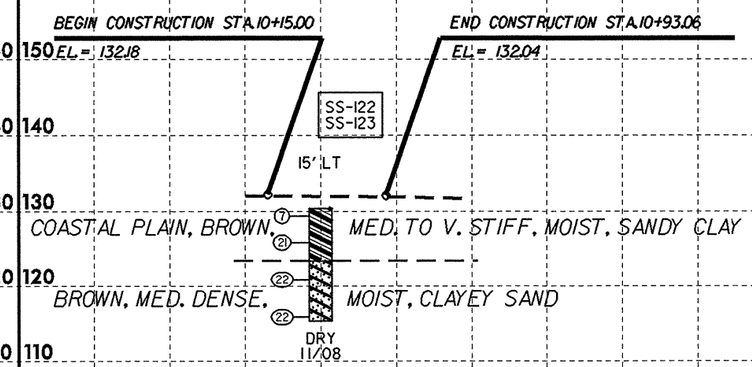
-Y32A-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-130	15 LT	10+50	0.0-1.5	A-2-4(0)	17	3	53.9	23.2	10.7	12.1	99	66	25	-	-
SS-131	15 LT	10+50	8.7-10.2	A-6(5)	31	13	9.1	41.2	23.4	26.3	100	97	60	-	-
S-41A	30 RT	16+00	0.0-10.0	A-7-6(16)	54	33	29.4	16.3	17.6	36.7	99	80	57	-	-

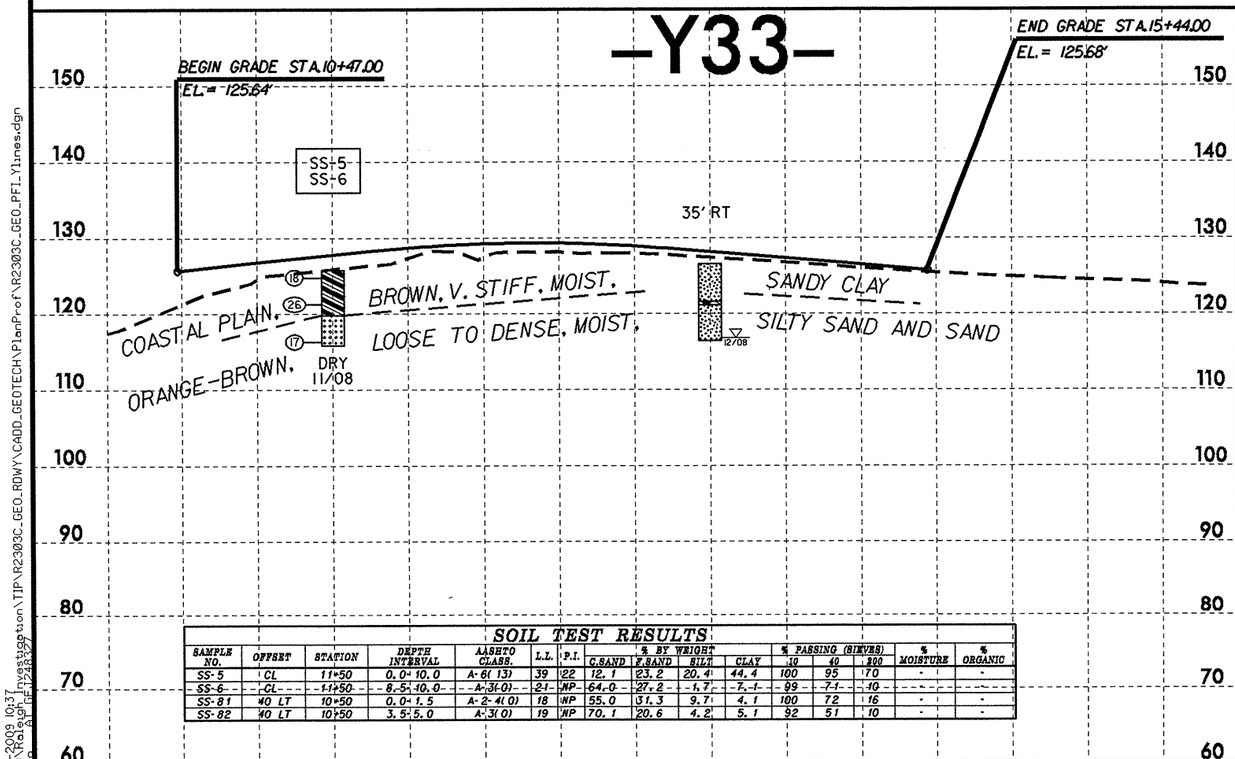
-Y32B-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-122	15 LT	10+50	0.0-1.5	A-6(8)	29	15	11.2	20.5	38.2	30.1	98	94	72	-	-
SS-123	15 LT	10+50	8.5-10.0	A-2-6(0)	30	11	64.1	14.8	4.0	17.1	100	74	22	-	-

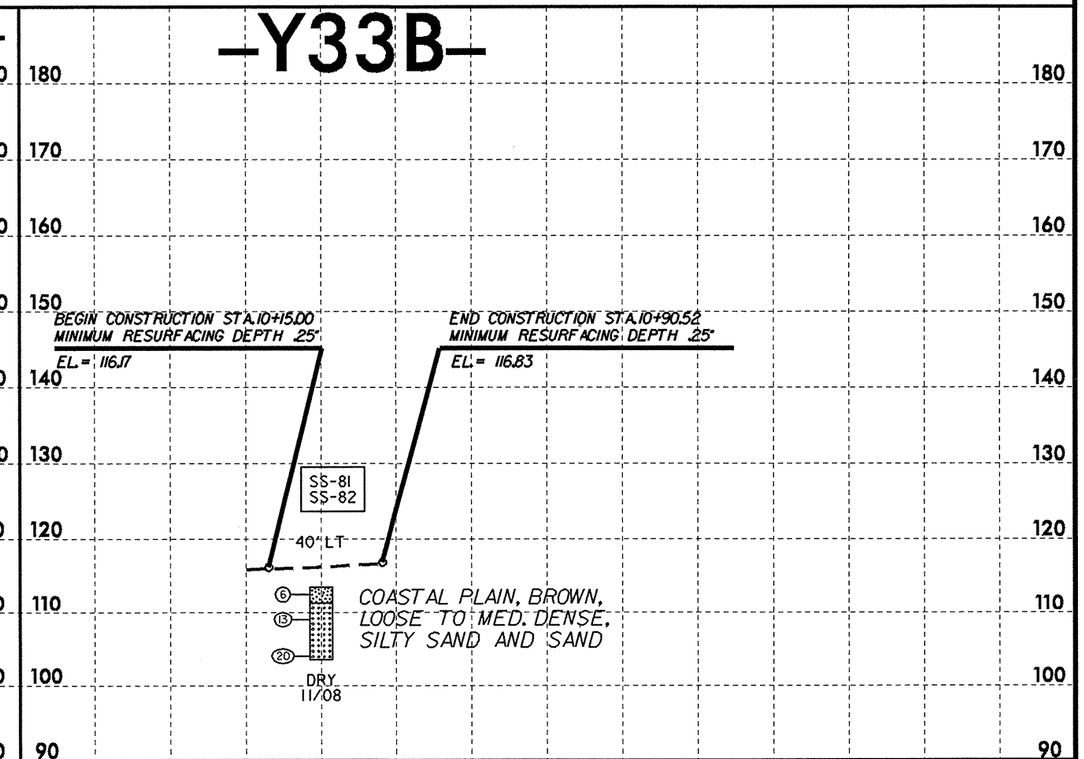
-Y33-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-5	CL	11+50	0.0-10.0	A-6(13)	39	22	12.1	23.2	20.4	44.4	100	95	70	-	-
SS-6	CL	11+50	8.5-10.0	A-3(0)	21	NP	64.0	27.2	1.7	7.1	99	71	10	-	-
SS-81	40 LT	10+50	0.0-1.5	A-2-4(0)	18	NP	55.0	31.3	9.7	4.1	100	72	16	-	-
SS-82	40 LT	10+50	3.5-5.0	A-3(0)	19	NP	70.1	20.6	4.2	5.1	92	51	10	-	-

-Y33B-



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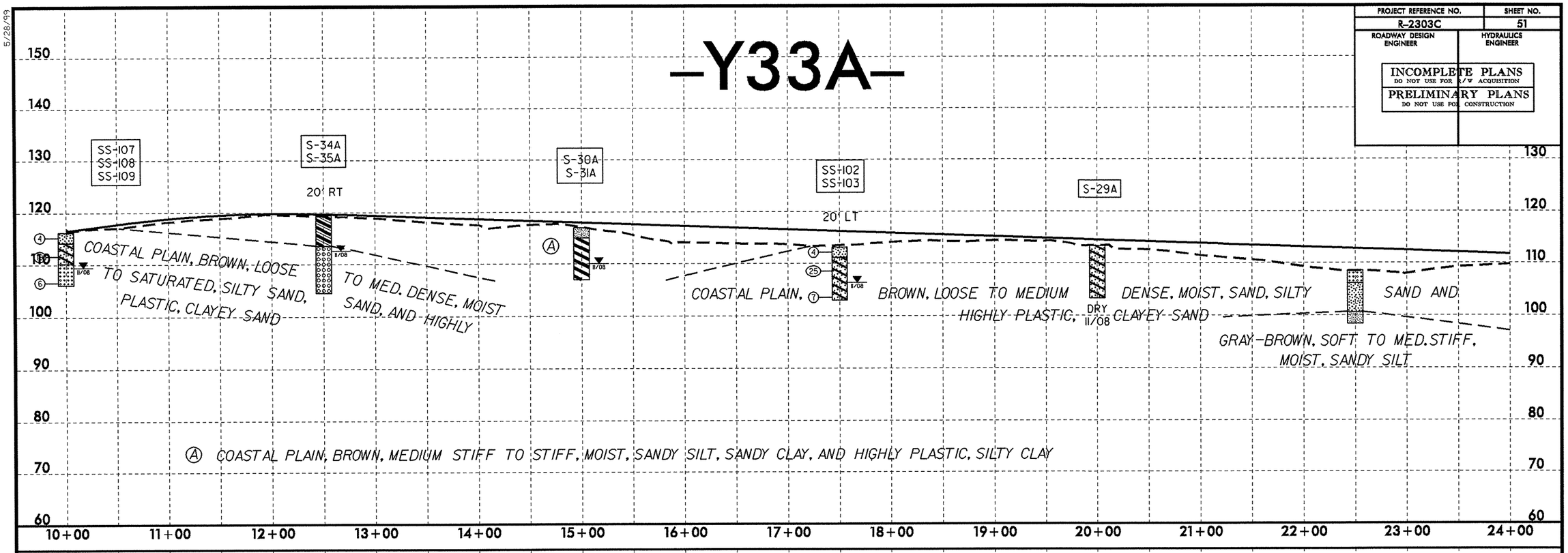
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

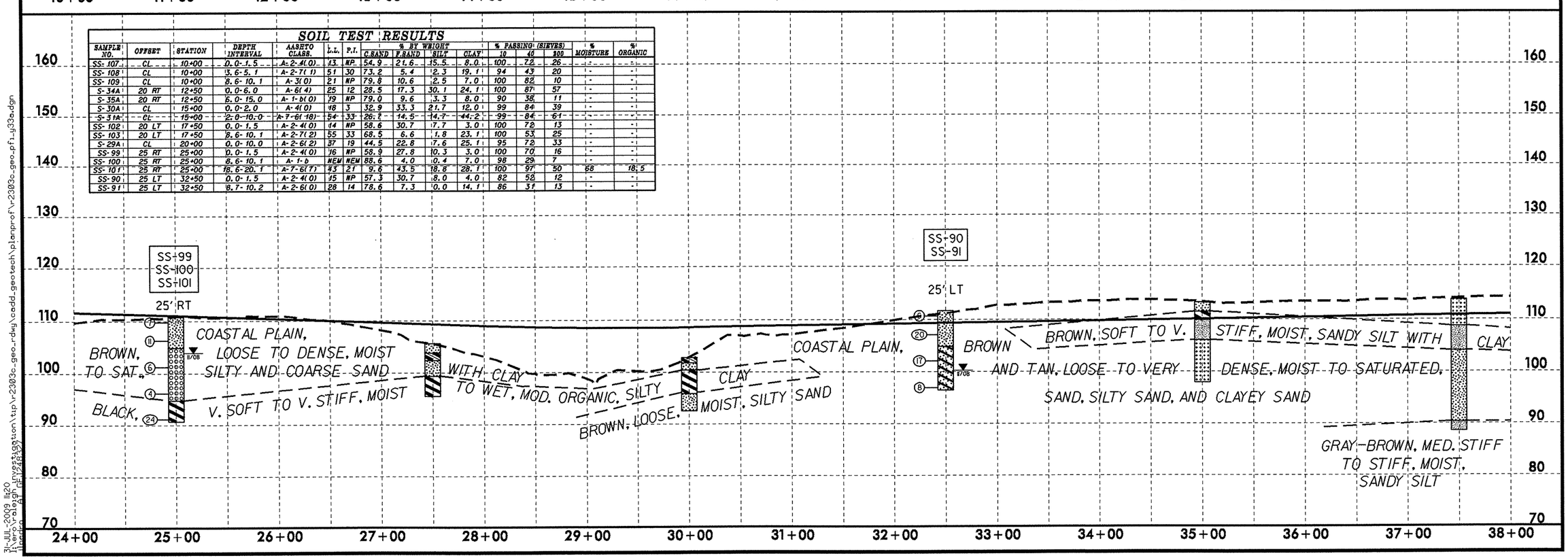
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y33A-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-107	CL	10+00	0.0-1.5	A-2-4(0)	43	NP	54.9	21.6	15.5	8.0	100	72	26	-	-
SS-108	CL	10+00	3.6-5.1	A-2-7(1)	51	30	73.2	5.4	12.3	19.1	94	43	20	-	-
SS-109	CL	10+00	8.6-10.1	A-3(0)	21	NP	79.8	10.6	12.5	7.0	100	82	10	-	-
S-34A	20 RT	12+50	0.0-6.0	A-6(4)	25	12	28.5	17.3	30.1	24.1	100	87	57	-	-
S-35A	20 RT	12+50	6.0-15.0	A-1-b(0)	19	NP	79.0	9.6	3.3	8.0	90	38	11	-	-
S-30A	CL	15+00	0.0-2.0	A-4(0)	18	3	32.9	33.3	21.7	12.0	99	84	39	-	-
S-31A	CL	15+00	2.0-10.0	A-7-6(18)	54	33	26.7	14.5	14.7	44.2	99	84	61	-	-
SS-102	20 LT	17+50	0.0-1.5	A-2-4(0)	14	NP	58.6	30.7	7.7	3.0	100	72	13	-	-
SS-103	20 LT	17+50	3.6-10.1	A-2-7(2)	55	33	68.5	6.6	1.8	23.1	100	53	25	-	-
S-29A	CL	20+00	0.0-10.0	A-2-6(2)	37	19	44.5	22.8	7.6	25.1	95	72	33	-	-
SS-99	25 RT	25+00	0.0-1.5	A-2-4(0)	16	NP	58.9	27.8	10.3	3.0	100	70	16	-	-
SS-100	25 RT	25+00	3.6-10.1	A-1-b	NEM	NEM	88.6	4.0	0.4	7.0	98	29	7	-	-
SS-101	25 RT	25+00	18.6-20.1	A-7-6(7)	43	21	9.6	43.5	18.8	28.1	100	97	50	68	18.5
SS-90	25 LT	32+50	0.0-1.5	A-2-4(0)	15	NP	57.3	30.7	8.0	4.0	82	52	12	-	-
SS-91	25 LT	32+50	3.7-10.2	A-2-6(0)	28	14	78.6	7.3	10.0	14.1	86	51	13	-	-



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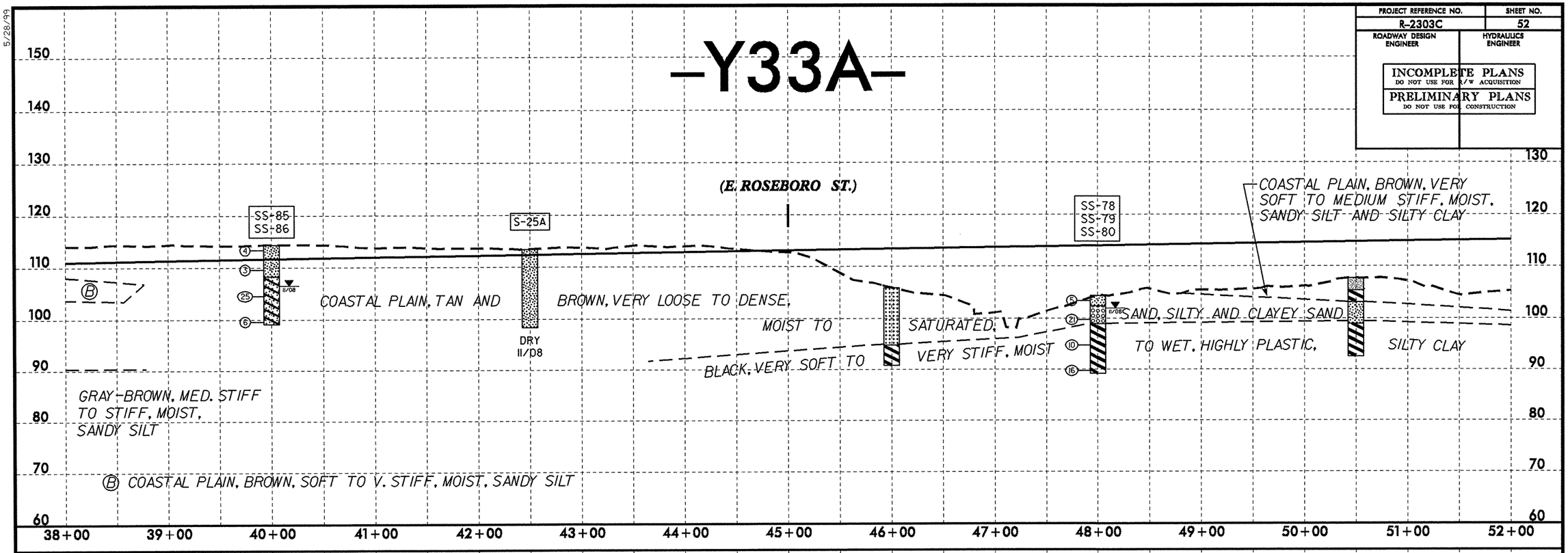
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

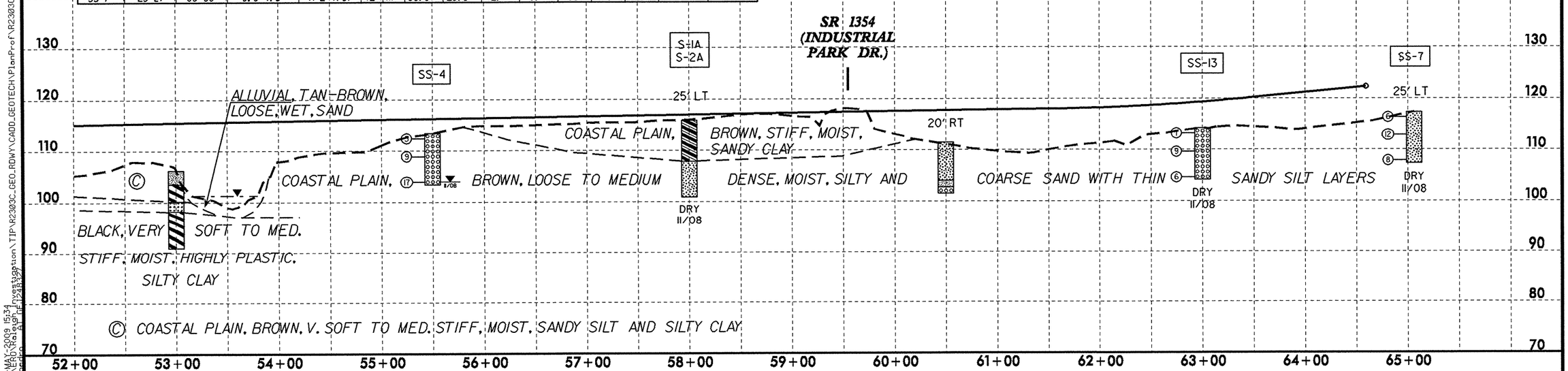
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y33A-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-85	CL	40+00	0.0-1.5	A-2-4(0)	22	NP	43.9	46.0	6.0	4.1	100	80	13	-	-
SS-86	CL	40+00	8.7-10.2	A-2-6(0)	29	13	76.2	9.7	1.9	12.2	97	33	15	-	-
S-25A	CL	42+50	0.0-15.0	A-1-b(0)	16	NP	69.9	17.8	5.3	7.0	94	47	13	-	-
SS-78	CL	48+00	0.0-1.5	A-2-4	NEM	NEM	50.6	21.0	14.1	14.2	85	53	27	-	-
SS-79	CL	48+00	3.7-5.2	A-1-a	NEM	NEM	82.4	11.8	2.7	3.0	45	12	3	-	-
SS-80	CL	48+00	8.7-10.2	A-7-5(36)	66	36	2.6	14.6	33.9	48.8	100	100	88	-	-
SS-4	CL	55+50	3.5-5.0	A-1-b	NEM	NEM	79.2	9.9	2.8	8.1	100	45	12	-	-
S-1A	25 LT	58+00	0.0-8.0	A-6(7)	39	19	10.5	40.9	12.3	36.3	100	95	53	-	-
S-2A	25 LT	58+00	8.0-15.0	A-2-4(0)	22	NP	57.1	27.7	3.1	12.1	99	73	16	-	-
SS-13	CL	63+00	3.6-5.1	A-1-b(0)	25	5	85.5	4.7	0.7	9.1	98	34	10	-	-
SS-7	25 LT	65+06	0.0-1.5	A-2-4(0)	12	NP	53.6	25.6	12.7	8.1	100	78	23	-	-



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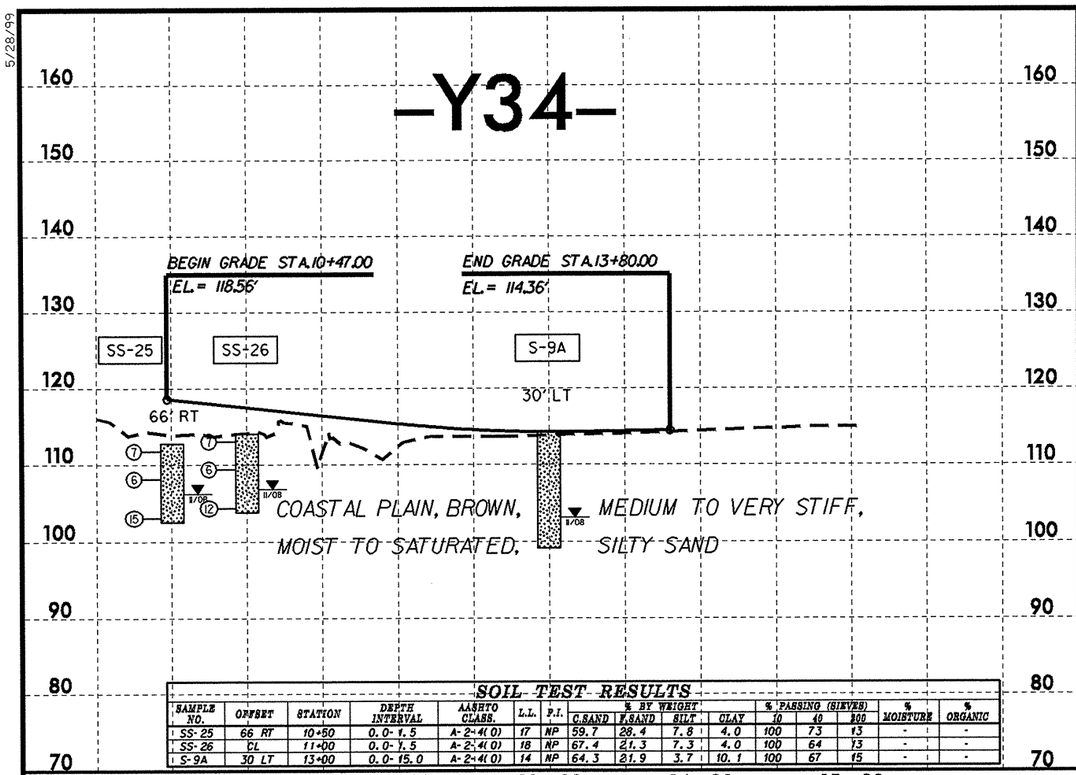
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

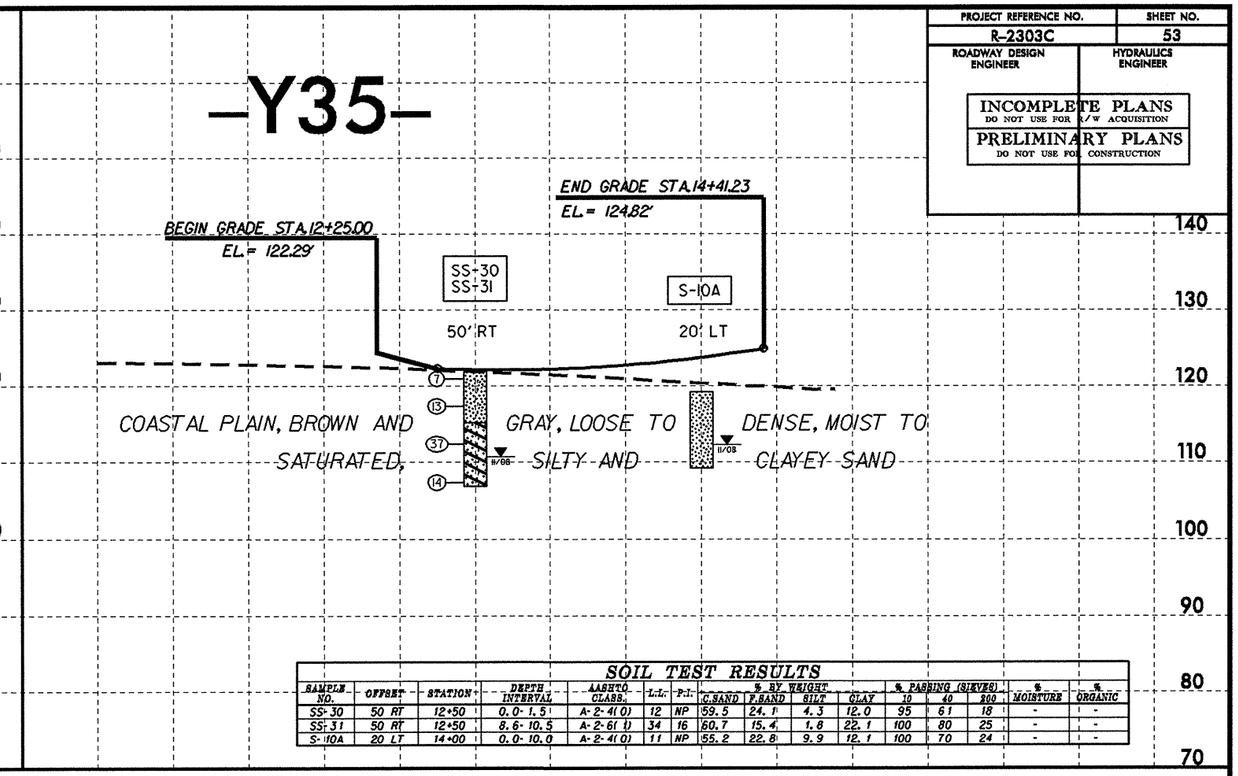
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



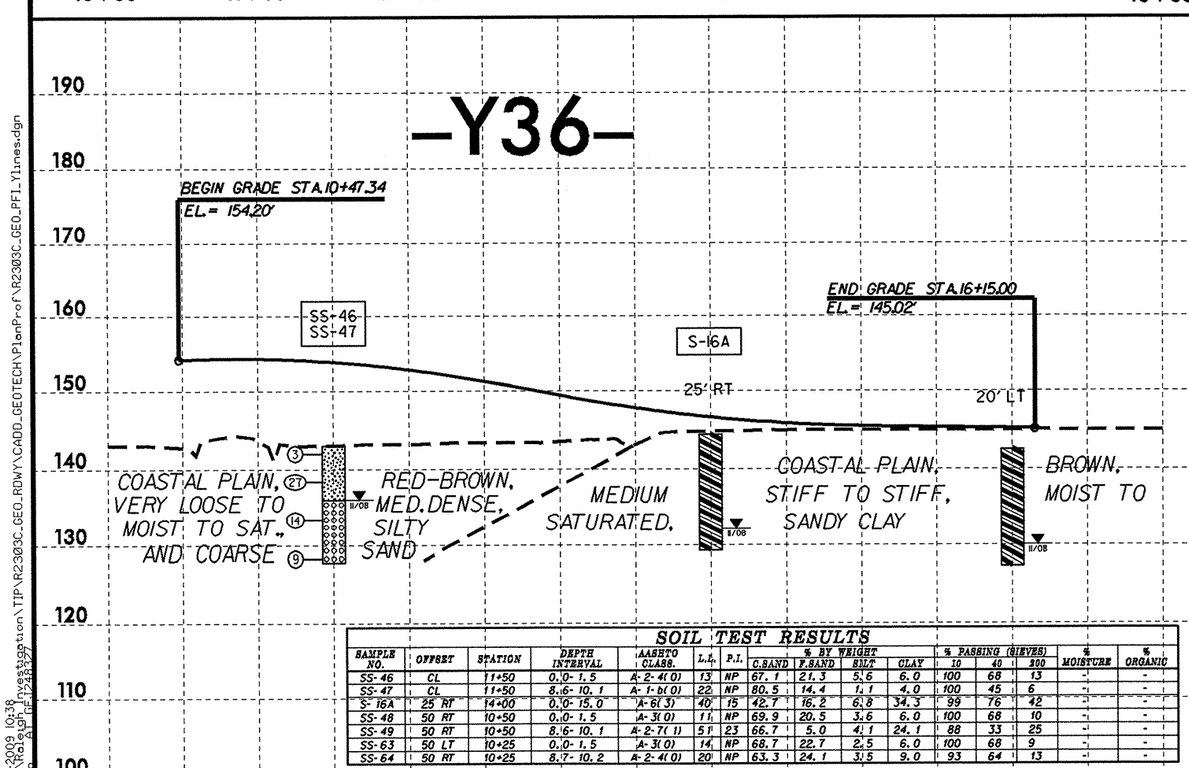
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-25	66 RT	10+50	0.0-1.5	A-2-4(0)	17	NP	59.7	28.4	7.8	4.0	100	73	13	-	-
SS-26	CL	11+00	0.0-1.5	A-2-4(0)	18	NP	67.4	21.3	7.3	4.0	100	64	13	-	-
S-9A	30 LT	13+00	0.0-15.0	A-2-4(0)	14	NP	64.3	21.9	3.7	10.1	100	67	15	-	-



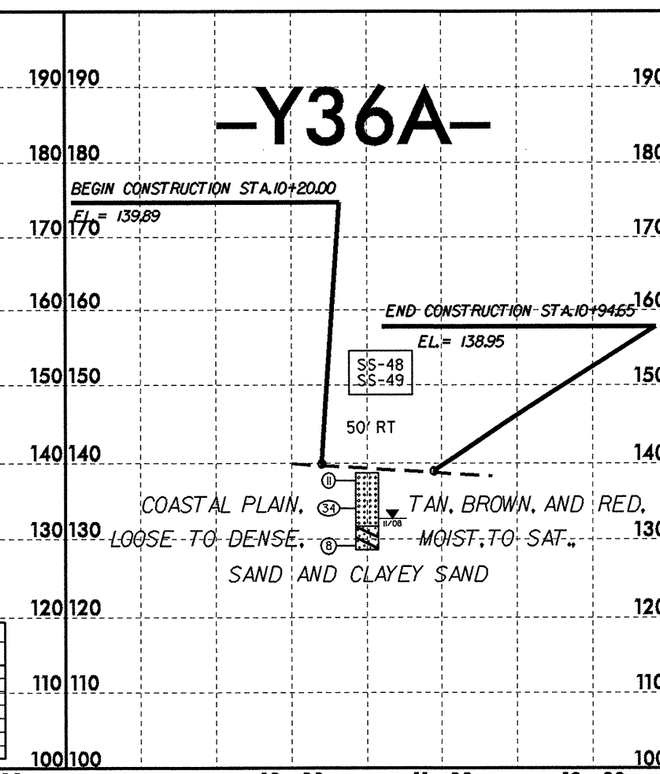
SOIL TEST RESULTS

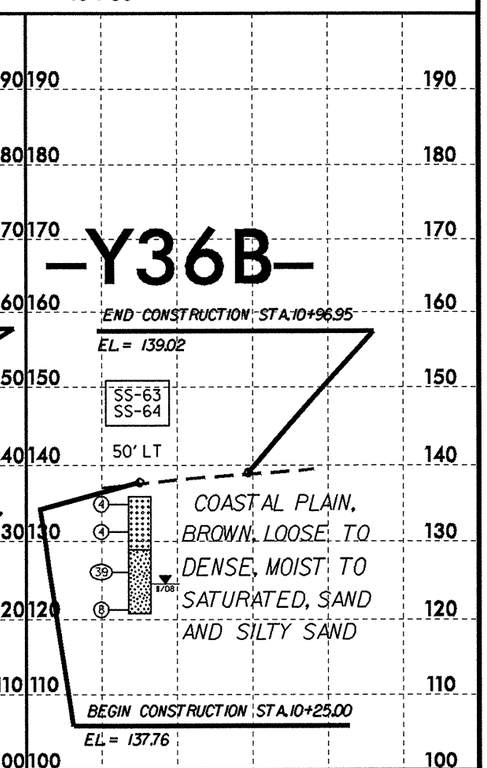
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-30	50 RT	12+50	0.0-1.5	A-2-4(0)	12	NP	59.5	24.1	4.3	12.0	95	61	18	-	-
SS-31	50 RT	12+50	8.6-10.5	A-2-6(1)	34	16	60.7	15.4	1.8	22.1	100	80	25	-	-
S-10A	20 LT	14+00	0.0-10.0	A-2-4(0)	11	NP	55.2	22.8	9.9	12.1	100	70	24	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-46	CL	11+50	0.0-1.5	A-2-4(0)	13	NP	67.1	21.3	5.6	6.0	100	68	13	-	-
SS-47	CL	11+50	8.6-10.1	A-1-b(0)	22	NP	80.5	14.4	1.1	4.0	100	45	6	-	-
S-16A	25 RT	14+00	0.0-15.0	A-6(3)	40	15	42.7	16.2	6.8	34.3	99	76	42	-	-
SS-48	50 RT	10+50	0.0-1.5	A-3(0)	11	NP	69.9	20.5	3.6	6.0	100	68	10	-	-
SS-49	50 RT	10+50	8.6-10.1	A-2-7(1)	51	23	66.7	5.0	4.1	24.1	88	33	25	-	-
SS-63	50 LT	10+25	0.0-1.5	A-3(0)	14	NP	68.7	22.7	2.5	6.0	100	68	9	-	-
SS-64	50 RT	10+25	8.7-10.2	A-2-4(0)	20	NP	63.3	24.1	3.5	9.0	93	64	13	-	-





5/28/99

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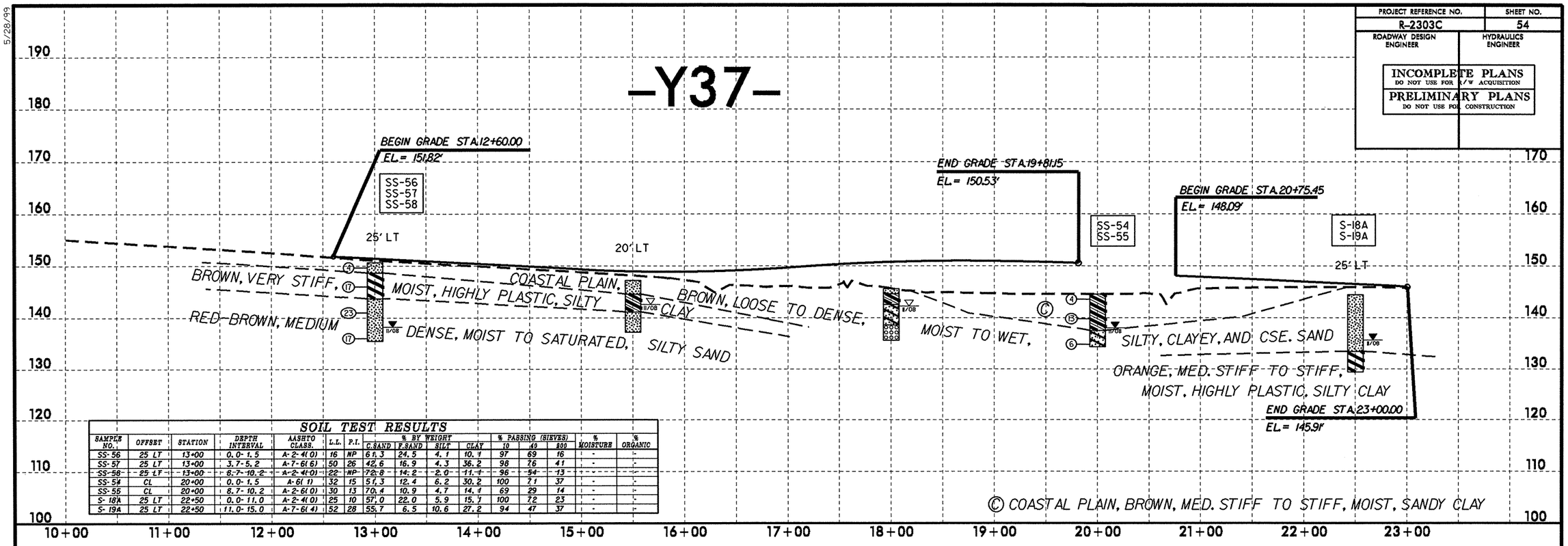
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

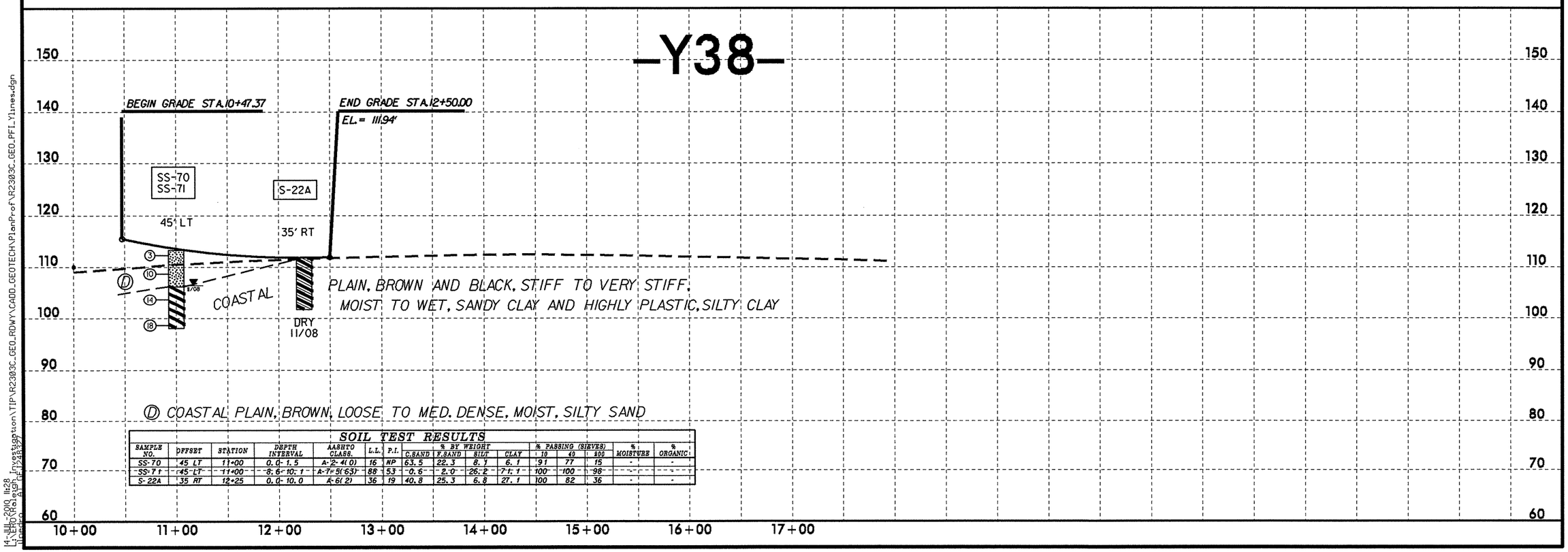
-Y37-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-56	25 LT	13+00	0.0-1.5	A-2-4(0)	16	NP	61.3	24.5	4.1	10.1	97	69	16	-	-
SS-57	25 LT	13+00	3.7-5.2	A-7-6(6)	50	26	42.6	16.9	4.3	36.2	98	76	41	-	-
SS-58	25 LT	13+00	8.7-10.2	A-2-4(0)	22	NP	72.8	14.2	2.0	11.1	96	54	13	-	-
SS-54	CL	20+00	0.0-1.5	A-6(1)	32	15	51.3	12.4	6.2	30.2	100	71	37	-	-
SS-55	CL	20+00	8.7-10.2	A-2-6(0)	30	13	70.4	10.9	4.7	14.1	69	29	14	-	-
S-18A	25 LT	22+50	0.0-11.0	A-2-4(0)	25	10	57.0	22.0	5.9	15.1	100	72	23	-	-
S-19A	25 LT	22+50	11.0-15.0	A-7-6(4)	52	28	55.7	6.5	10.6	27.2	94	47	37	-	-

-Y38-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-70	45 LT	11+00	0.0-1.5	A-2-4(0)	16	NP	63.5	22.3	8.1	6.1	91	77	15	-	-
SS-71	45 LT	11+00	8.6-10.1	A-7-5(63)	88	53	0.6	2.0	26.2	71.1	100	100	98	-	-
S-22A	35 RT	12+25	0.0-10.0	A-6(2)	36	19	40.8	25.3	6.8	27.1	100	82	36	-	-

5/28/99

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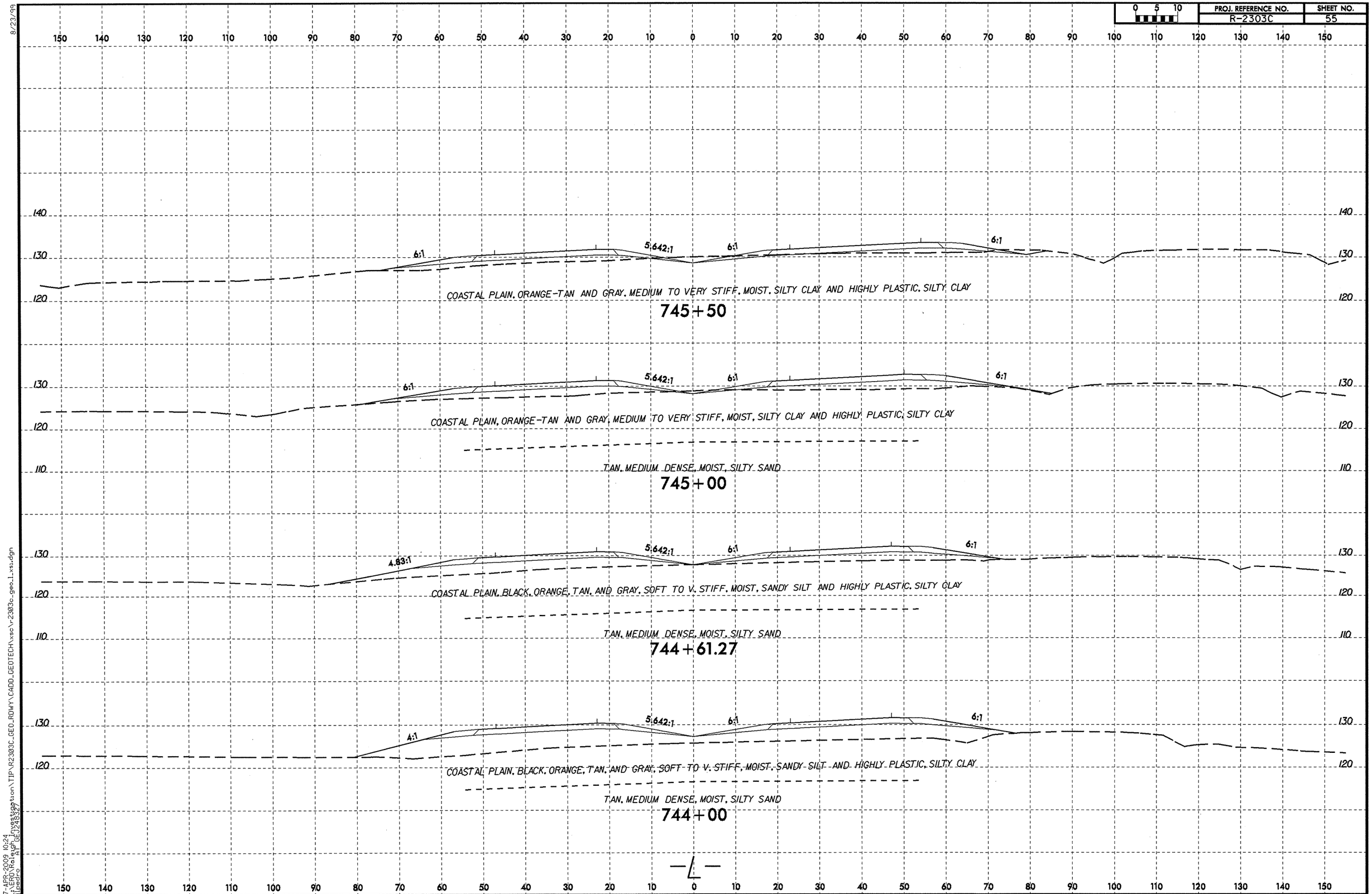

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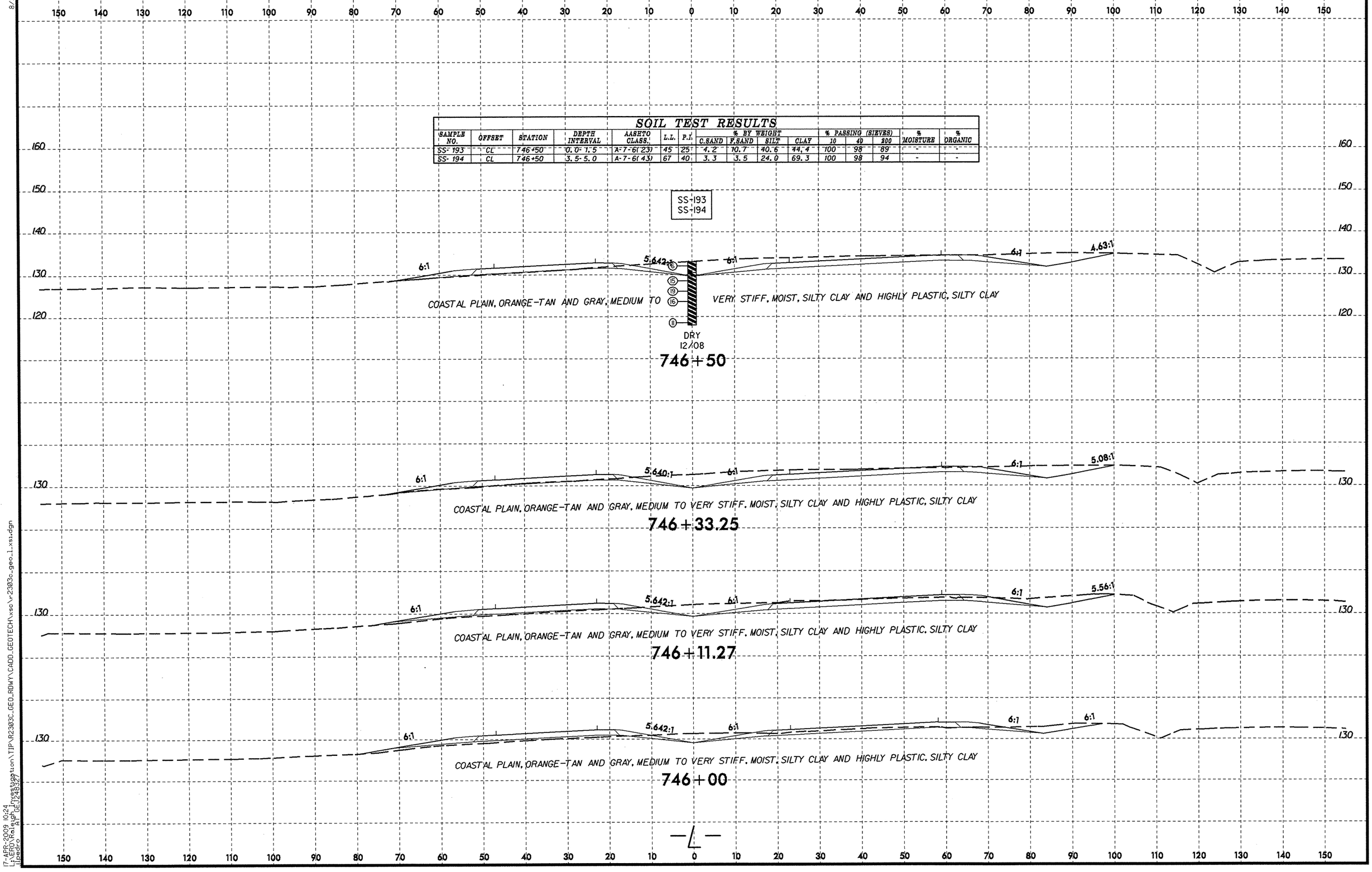
jlpedro AT GEJ248327

PROJ. REFERENCE NO.	SHEET NO.
R-2303C	56

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-193	CL	746+50	0.0-1.5	A-7-6(23)	45	25	4.2	10.7	40.6	44.4	100	98	89	-	-
SS-194	CL	746+50	3.5-5.0	A-7-6(43)	67	40	3.3	3.5	24.0	69.3	100	98	94	-	-



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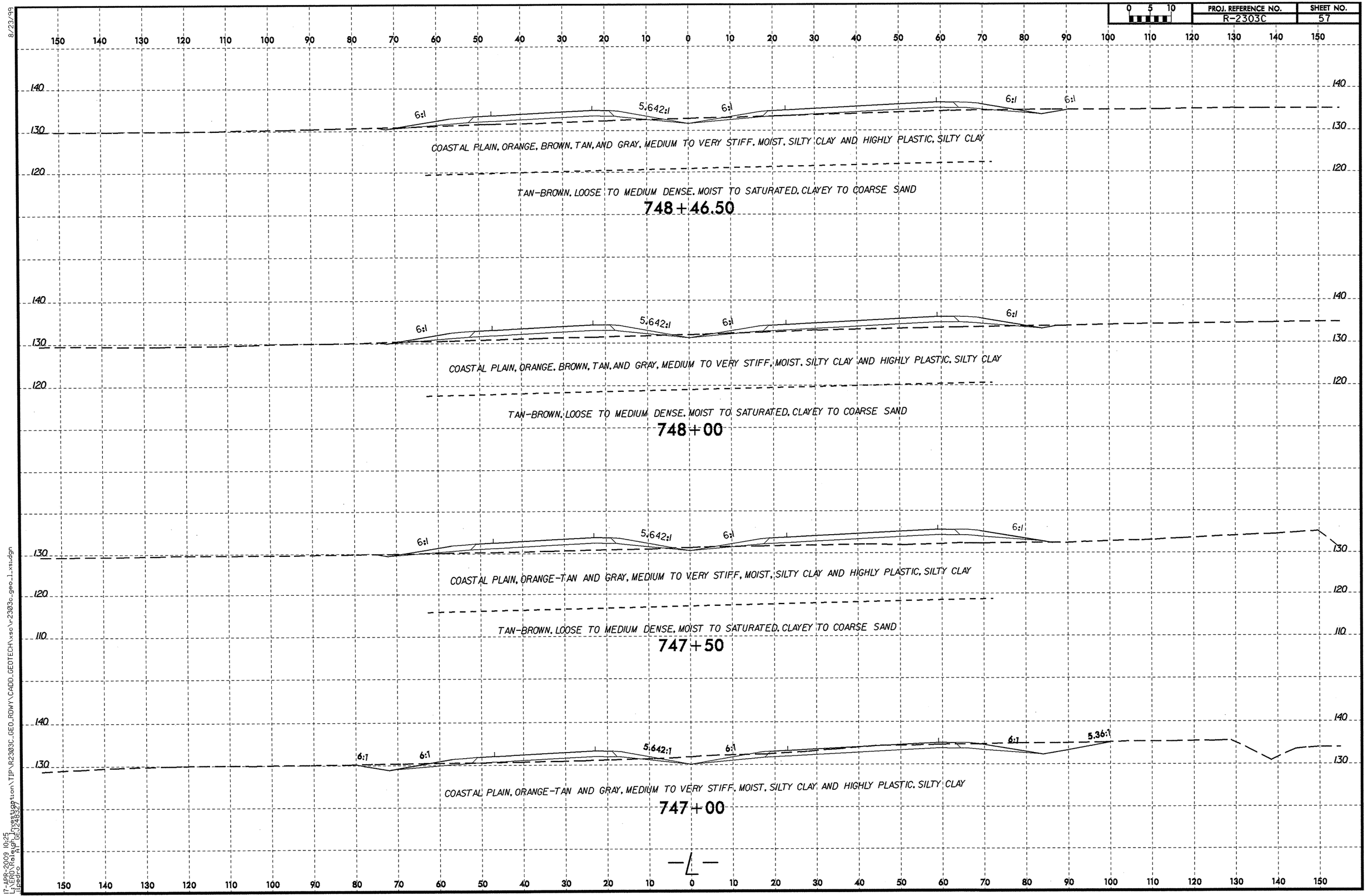

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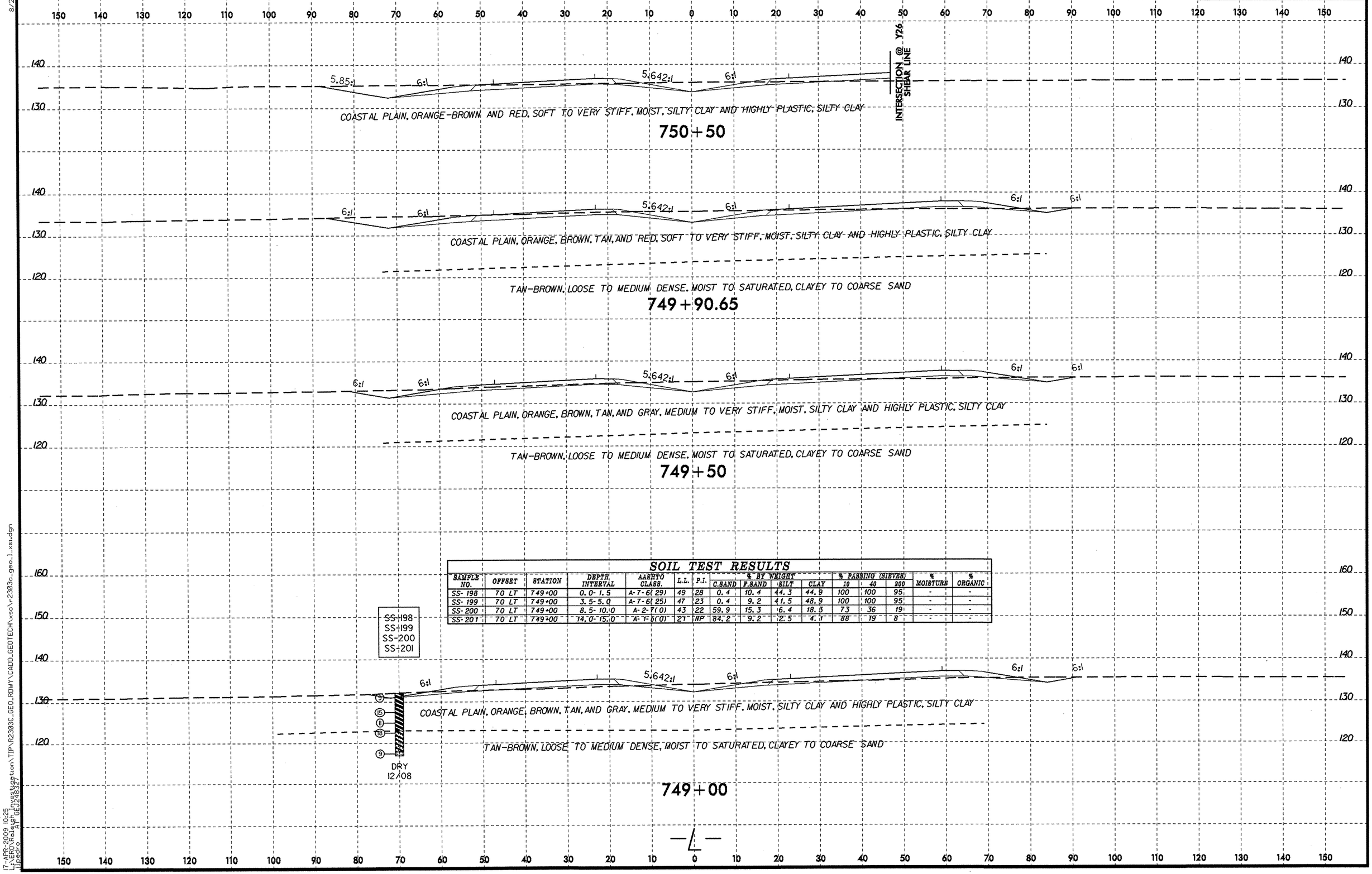
PROJ. REFERENCE NO. R-2303C | SHEET NO. 58



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-198	70 LT	749+00	0.0-1.5	A-7-6(29)	49	28	0.4	10.4	44.3	44.9	100	100	95	-	-
SS-199	70 LT	749+00	3.5-5.0	A-7-6(25)	47	23	0.4	9.2	41.5	48.9	100	100	95	-	-
SS-200	70 LT	749+00	8.5-10.0	A-2-7(0)	43	22	59.9	15.3	6.4	18.3	73	36	19	-	-
SS-201	70 LT	749+00	14.0-15.0	A-1-b(0)	21	NP	84.2	9.2	2.5	4.1	88	19	8	-	-

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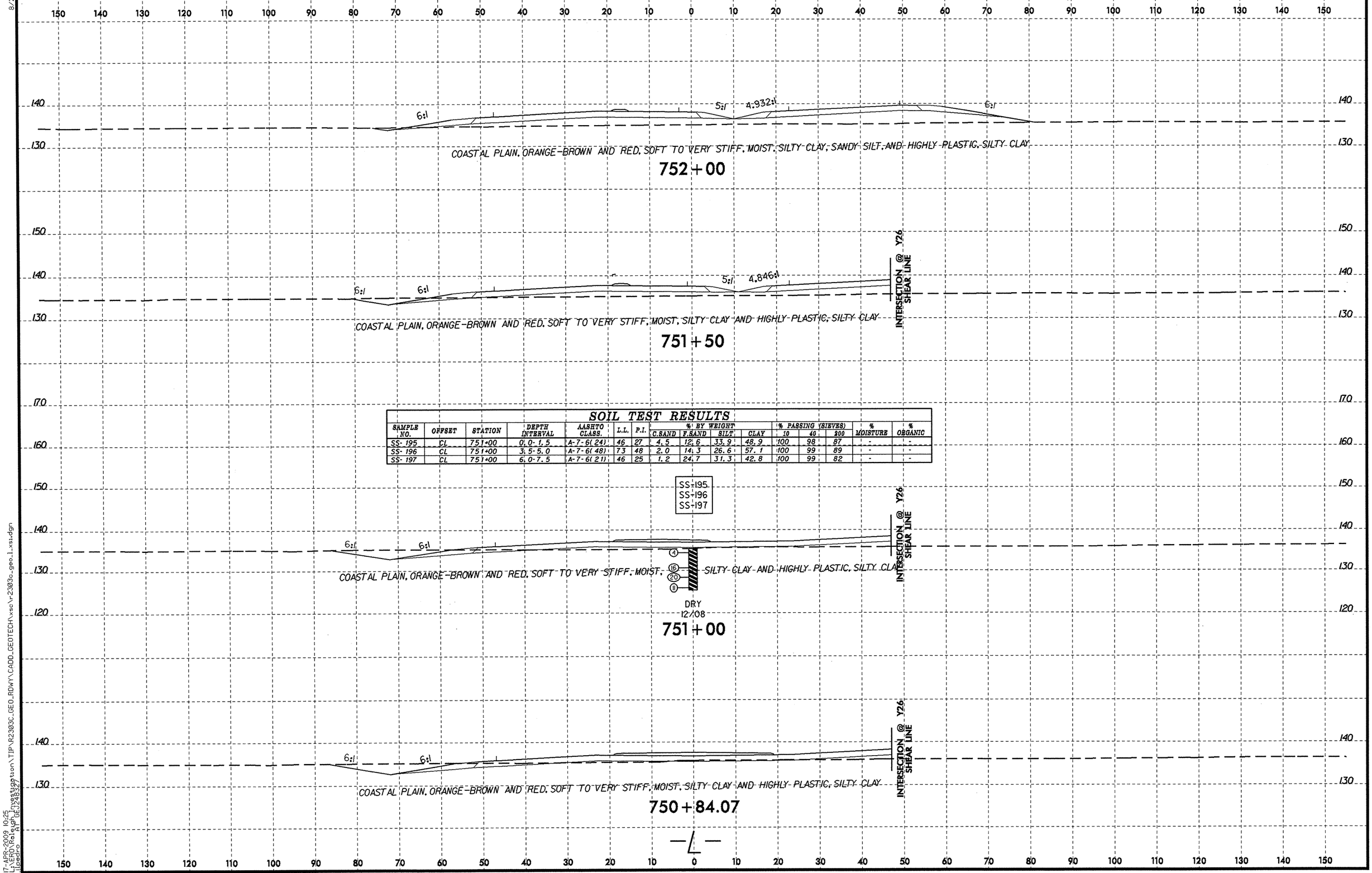
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	59



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-195	CL	751+00	0.0-1.5	A-7-6(24)	46	27	4.5	12.6	33.9	48.9	100	98	87	-	-
SS-196	CL	751+00	3.5-5.0	A-7-6(48)	73	48	2.0	14.3	26.6	57.1	100	99	89	-	-
SS-197	CL	751+00	6.0-7.5	A-7-6(21)	46	25	1.2	24.7	31.3	42.8	100	99	82	-	-

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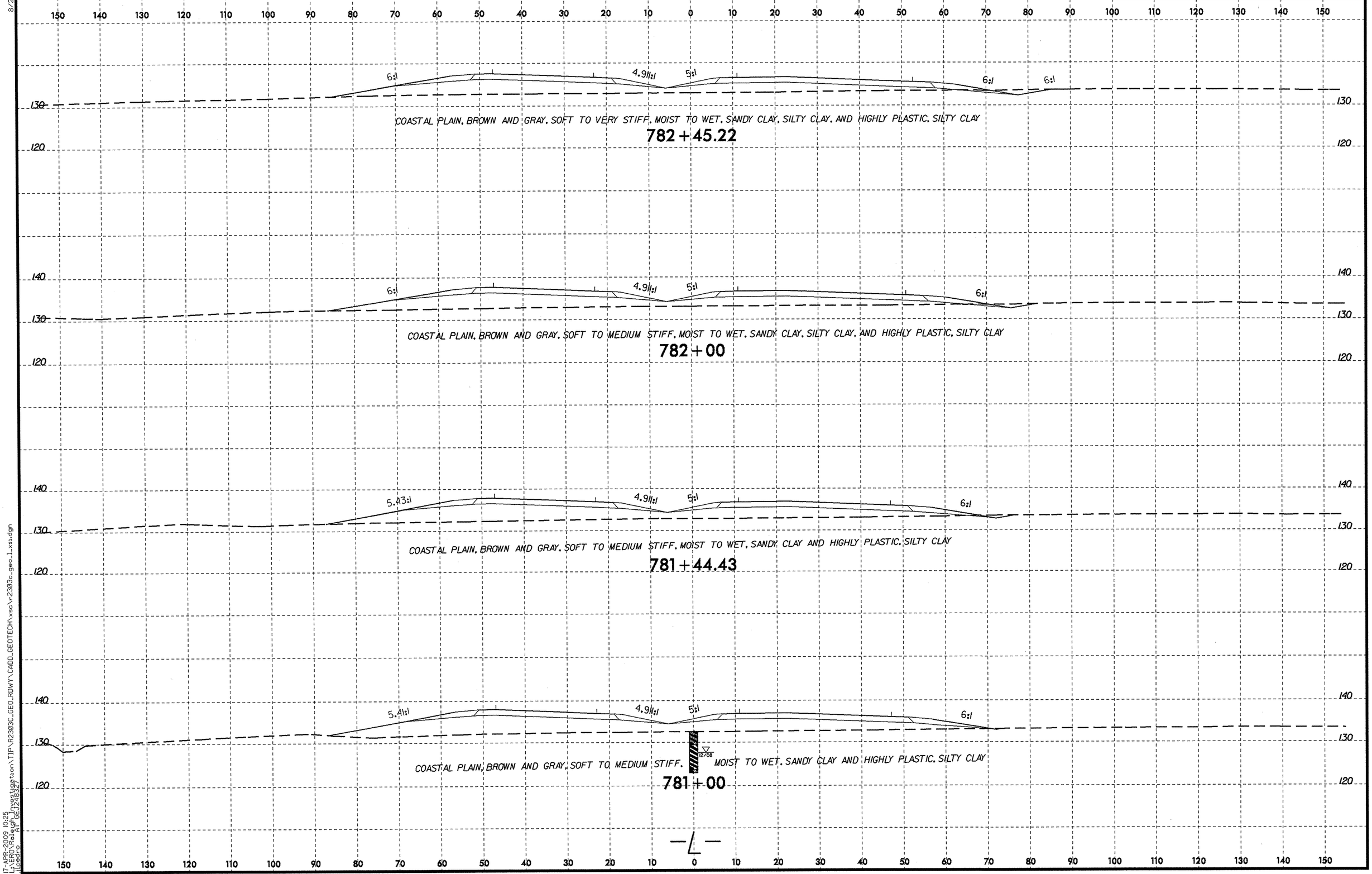

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PROJ. REFERENCE NO.	SHEET NO.
R-2303C	61

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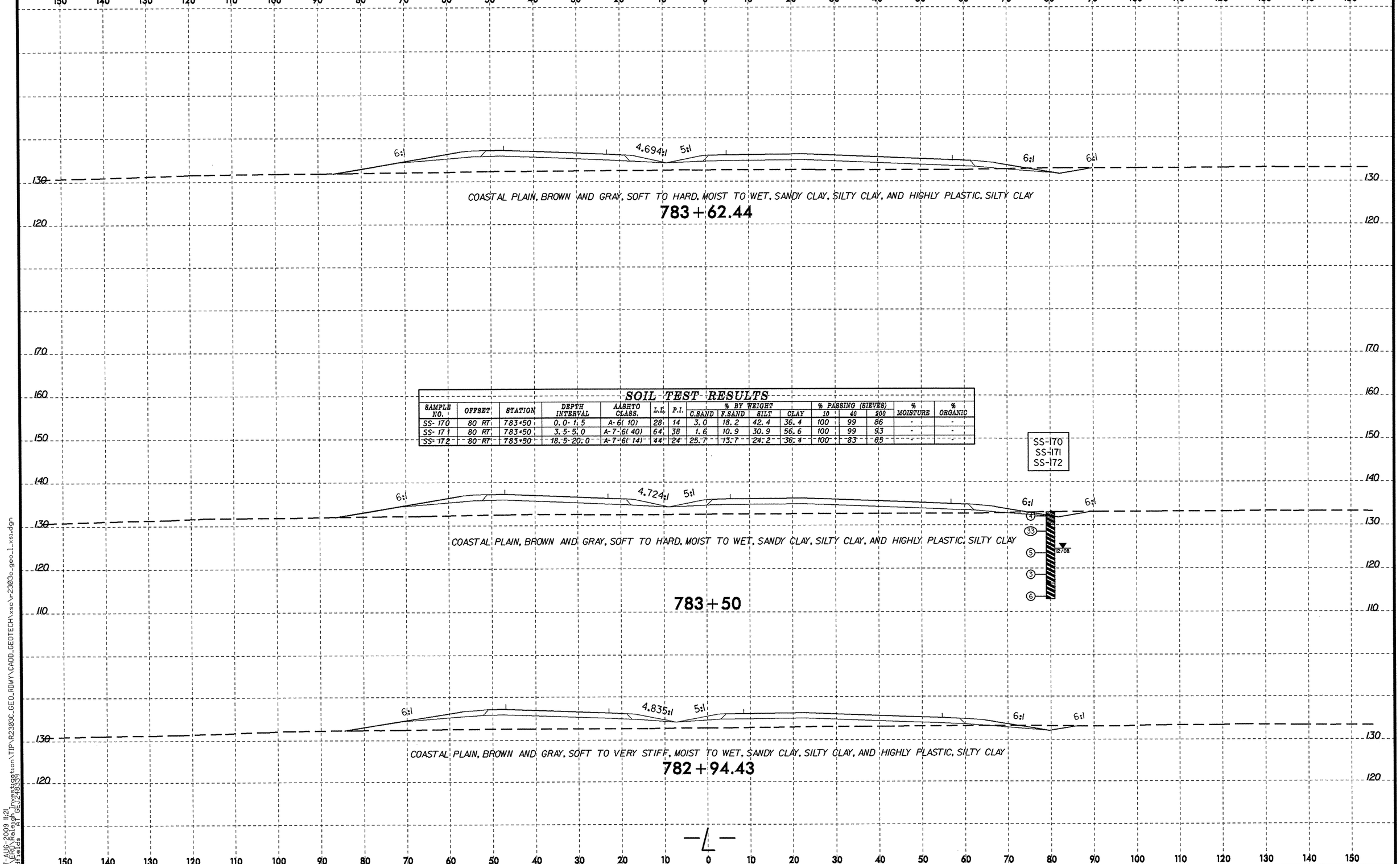

SOIL TEST RESULTS

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
SS-170	80 RT	783+50	0.0-1.5	A-6(10)	28	14	3.0	18.2	42.4	36.4	100	99	86	-	-
SS-171	80 RT	783+50	3.5-5.0	A-7-6(40)	64	38	1.6	10.9	30.9	56.6	100	99	93	-	-
SS-172	80 RT	783+50	18.5-20.0	A-7-6(14)	44	24	25.7	13.7	24.2	36.4	100	83	65	-	-

8/23/99

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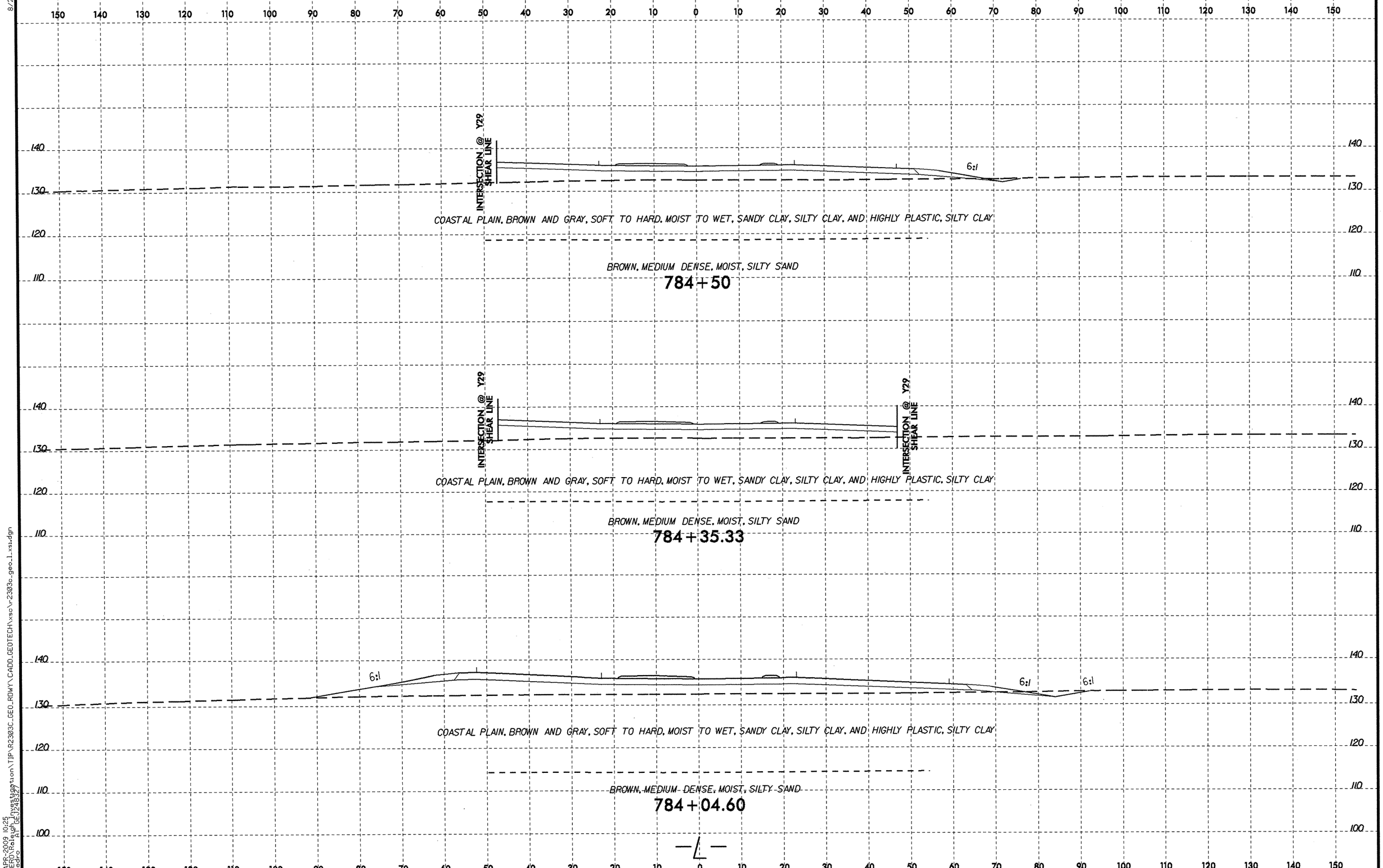

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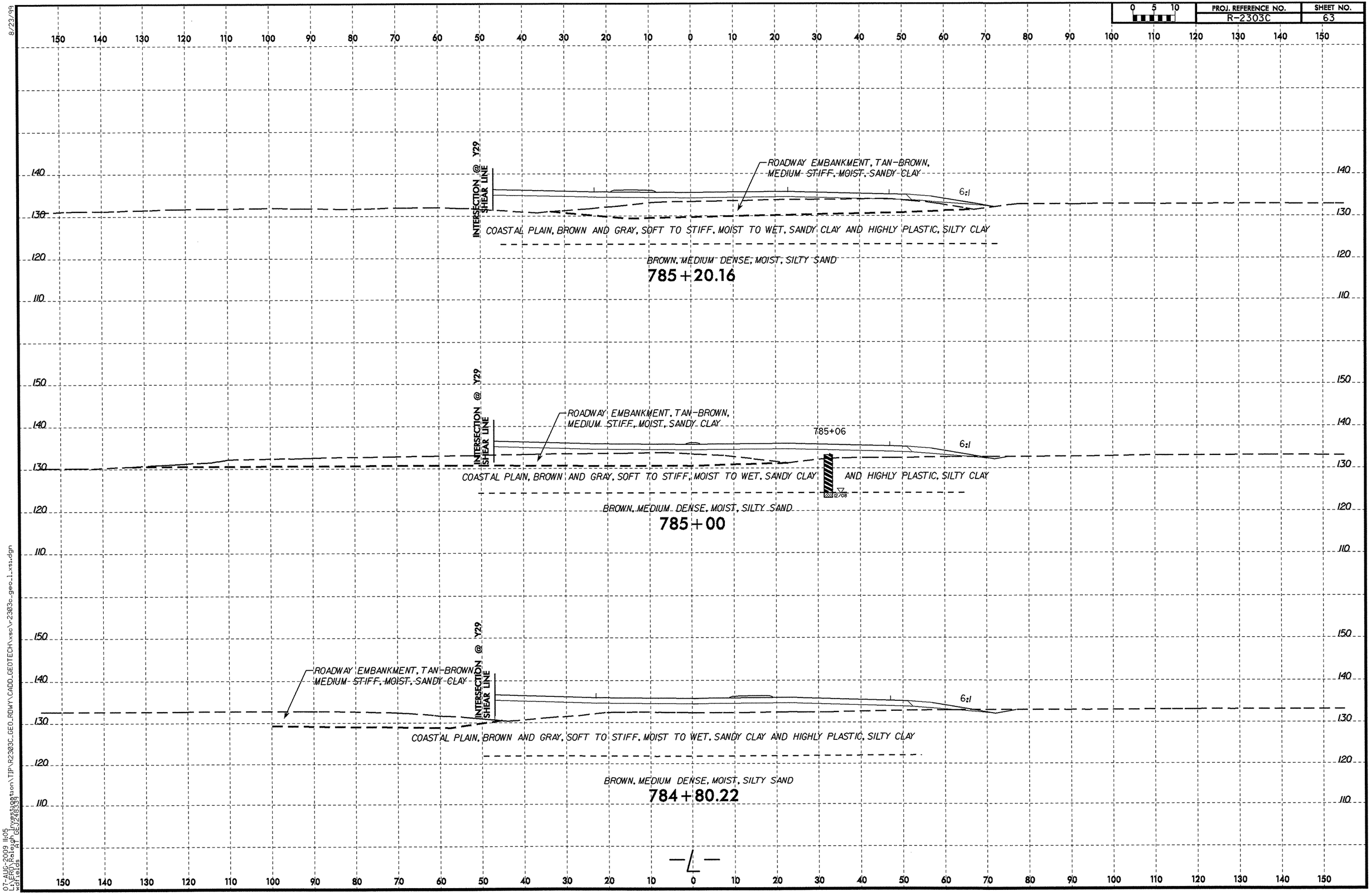

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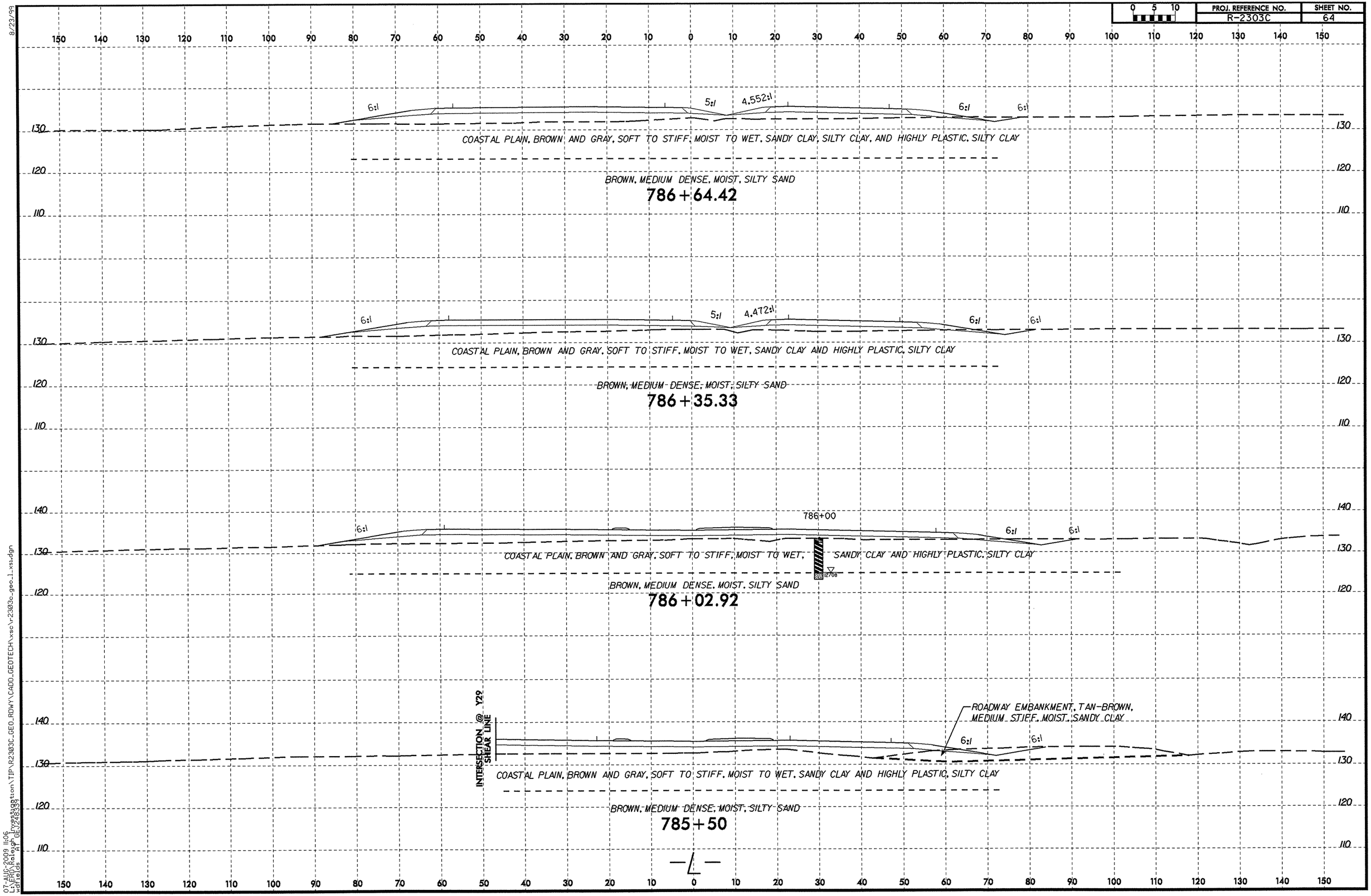

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R-2303C
SHEET NO.
64
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5:1
4.552:1
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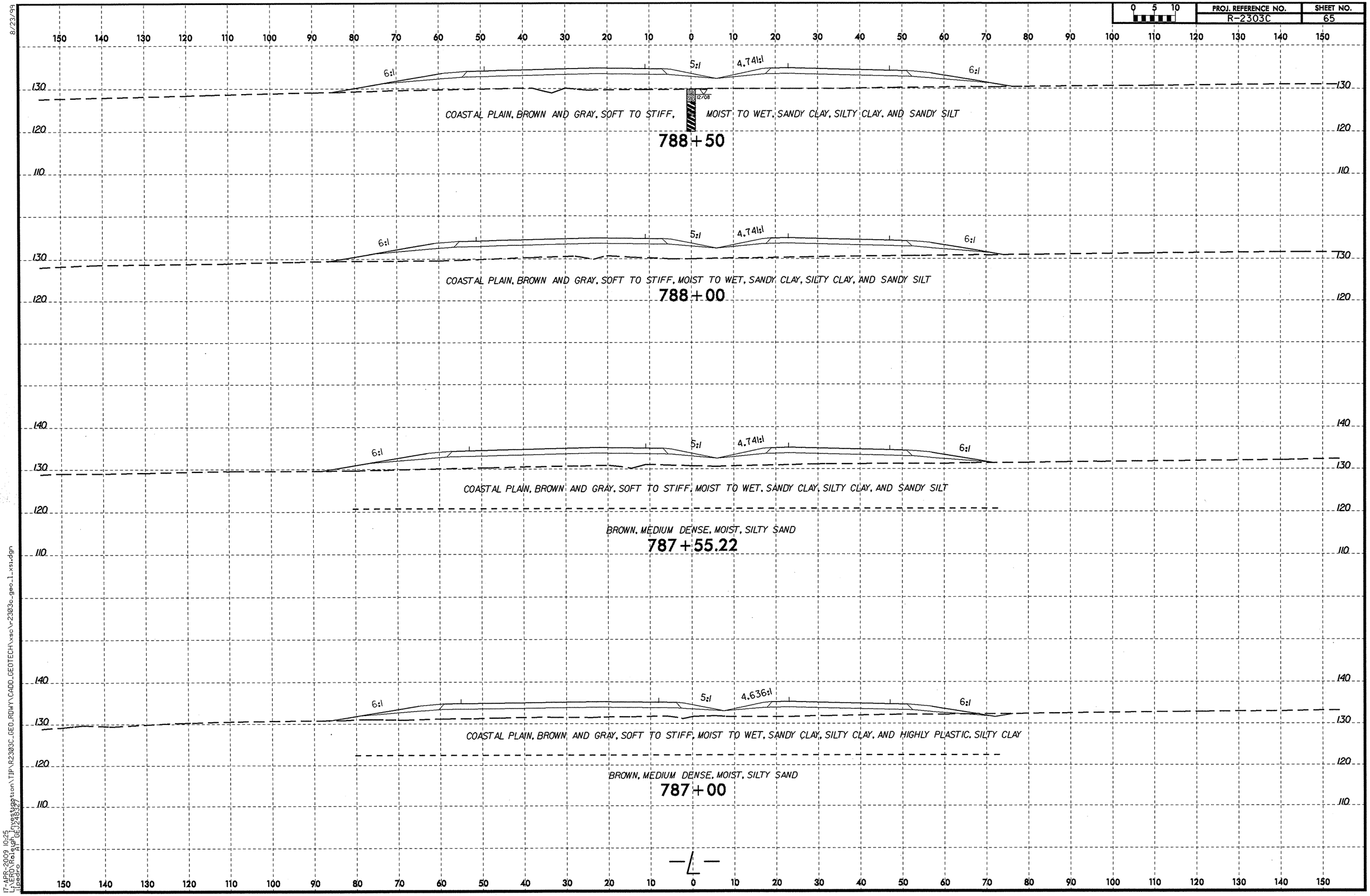
BROWN, MEDIUM DENSE, MOIST, SILTY SAND
786+64.42
4.472:1
COASTAL PLAIN, BROWN AND GRAY, SOFT TO STIFF, MOIST TO WET, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY
BROWN, MEDIUM DENSE, MOIST, SILTY SAND
786+35.33
786+00
COASTAL PLAIN, BROWN AND GRAY, SOFT TO STIFF, MOIST TO WET, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY
BROWN, MEDIUM DENSE, MOIST, SILTY SAND
786+02.92
INTERSECTION @ Y29 SHEAR LINE
ROADWAY EMBANKMENT, TAN-BROWN, MEDIUM STIFF, MOIST, SANDY CLAY
COASTAL PLAIN, BROWN AND GRAY, SOFT TO STIFF, MOIST TO WET, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY
BROWN, MEDIUM DENSE, MOIST, SILTY SAND
785+50



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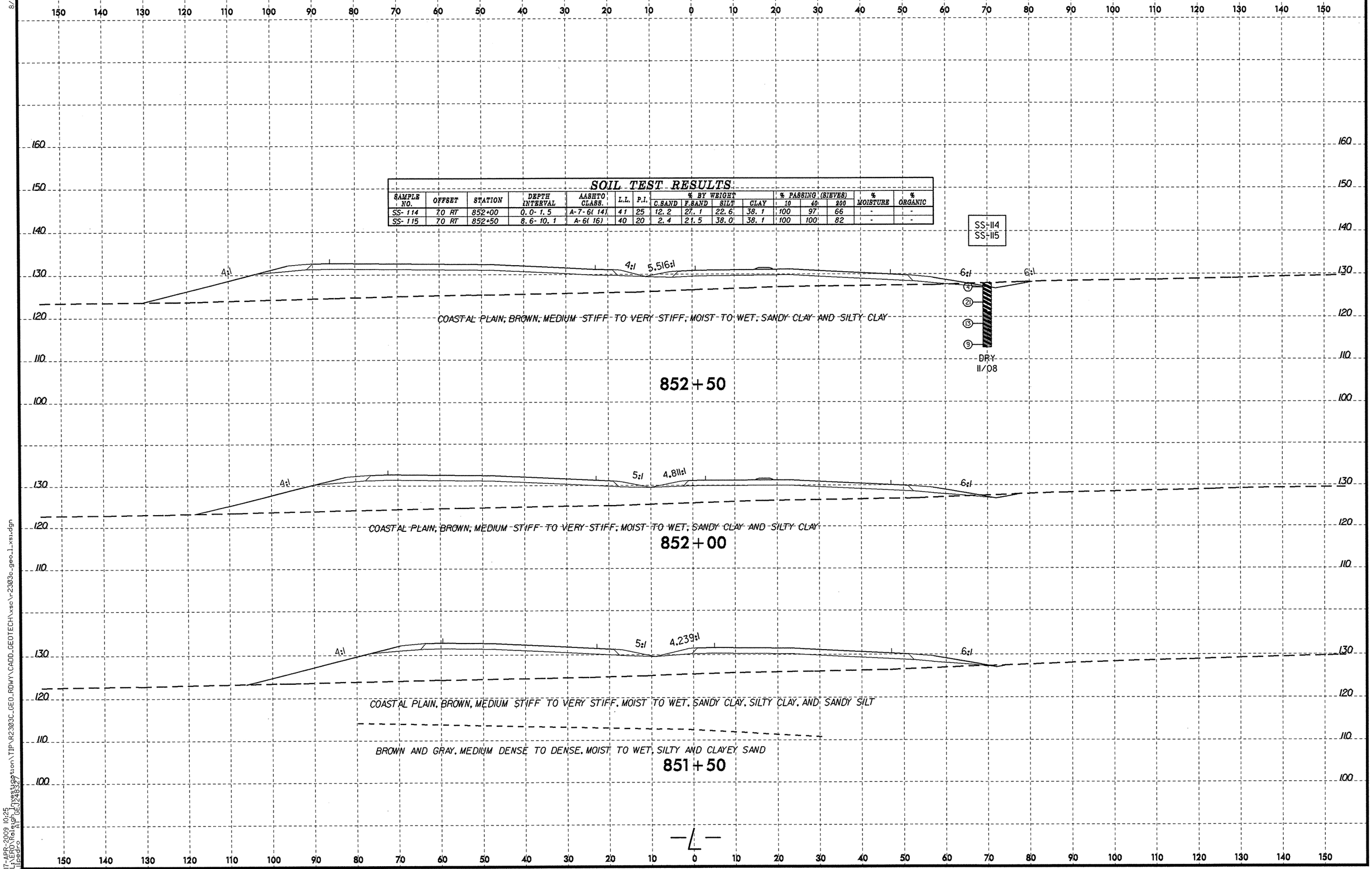
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	66



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-114	70 RT	852+00	0.0-1.5	A-7-6(14)	41	25	12.2	27.1	22.6	38.1	100	97	66	-	-
SS-115	70 RT	852+50	8.6-10.1	A-6(16)	40	20	2.4	21.5	38.0	38.1	100	100	82	-	-

8/23/99

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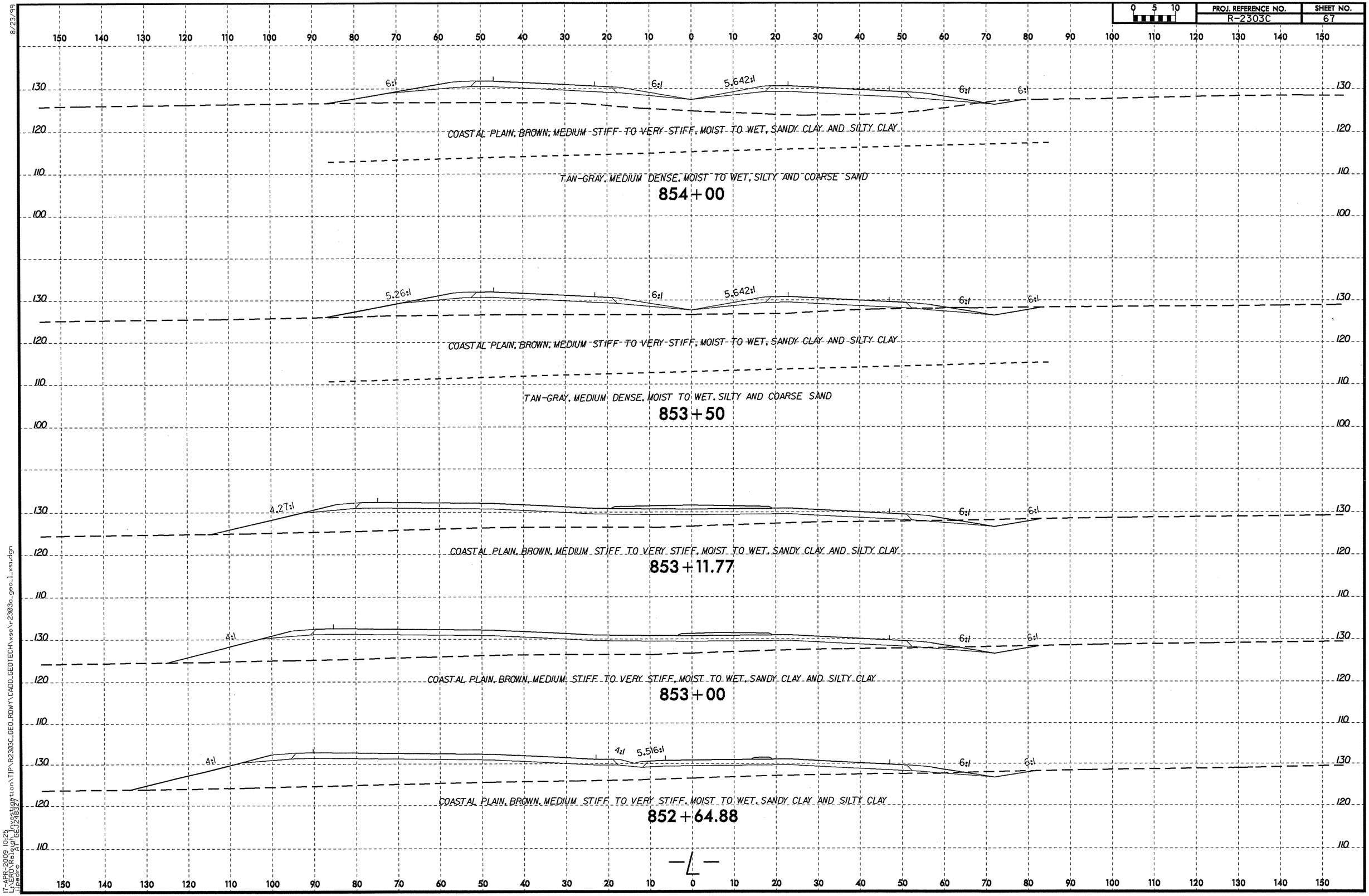

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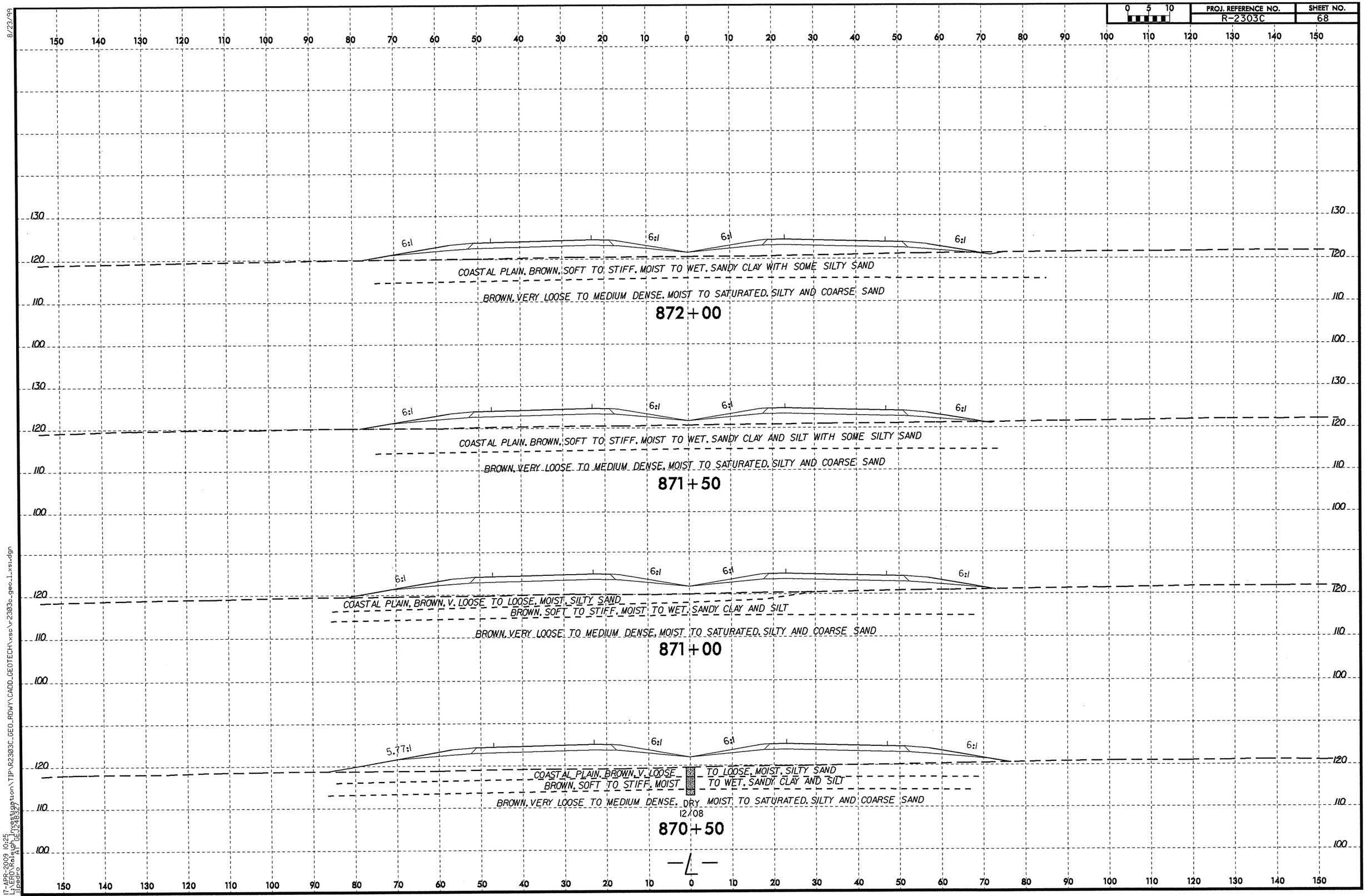
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	68



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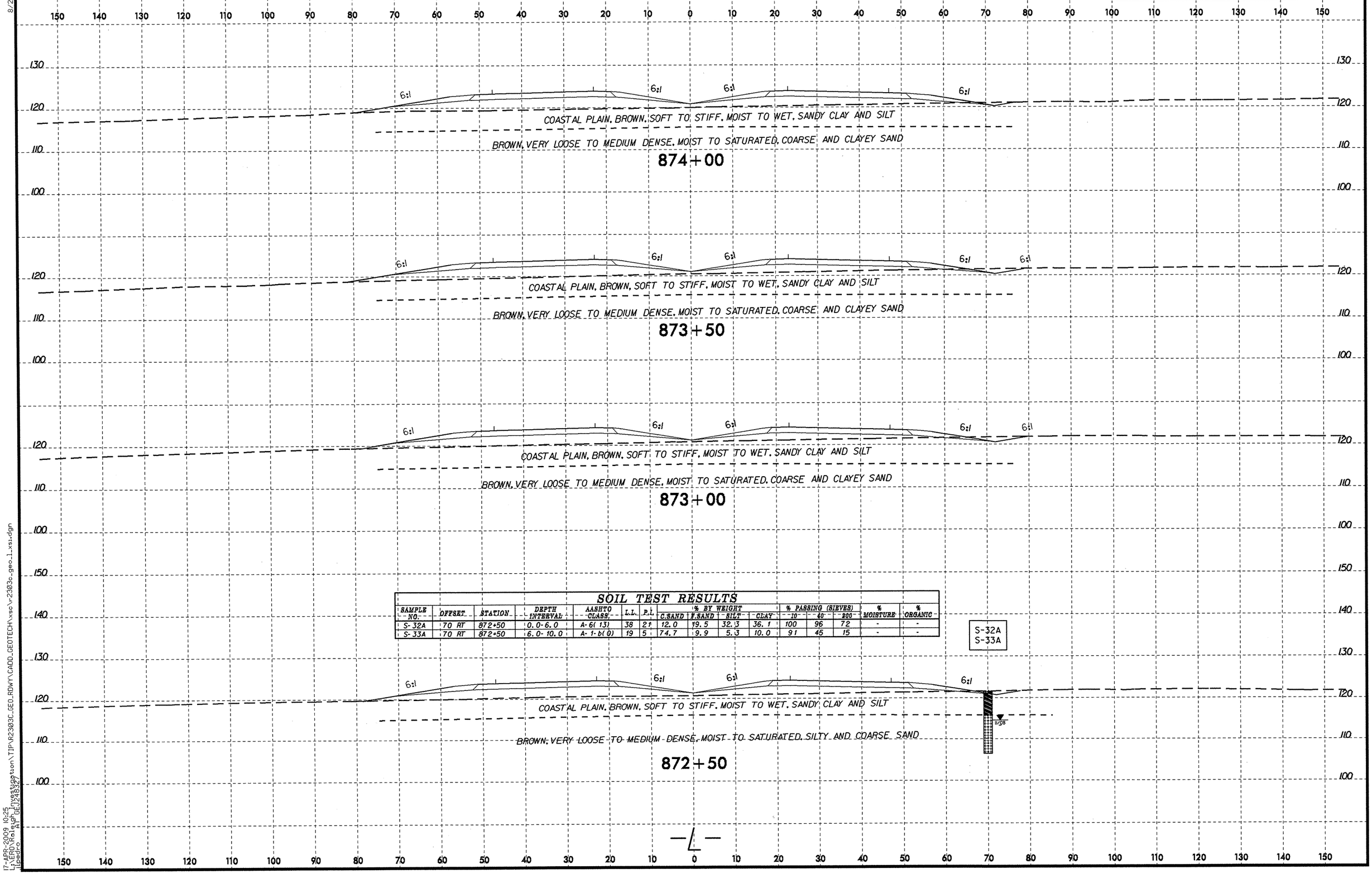
PROJ. REFERENCE NO. R-2303C
SHEET NO. 69



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-32A	70 RT	872+50	0.0-6.0	A-6(13)	38	21	12.0	19.5	32.3	36.1	100	96	72	-	-
S-33A	70 RT	872+50	6.0-10.0	A-1-b(0)	19	5	74.7	9.9	5.3	10.0	91	45	15	-	-

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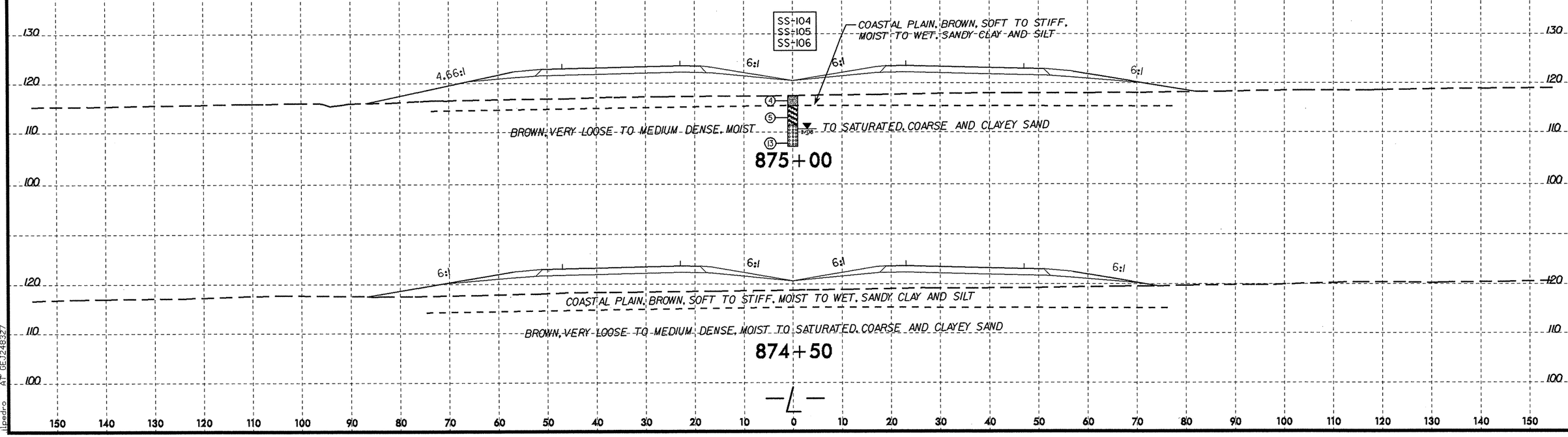
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	70

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-104	CL	875+00	0.0-1.5	A-4(0)	14	NP	26.9	33.3	27.8	12.0	99	88	44	-	-
SS-105	CL	875+00	3.5-5.0	A-2-6(0)	26	11	42.3	25.5	14.1	18.1	100	78	35	-	-
SS-106	CL	875+00	8.5-10.0	A-1-b(0)	24	NP	80.5	12.9	1.5	5.0	99	39	7	-	-



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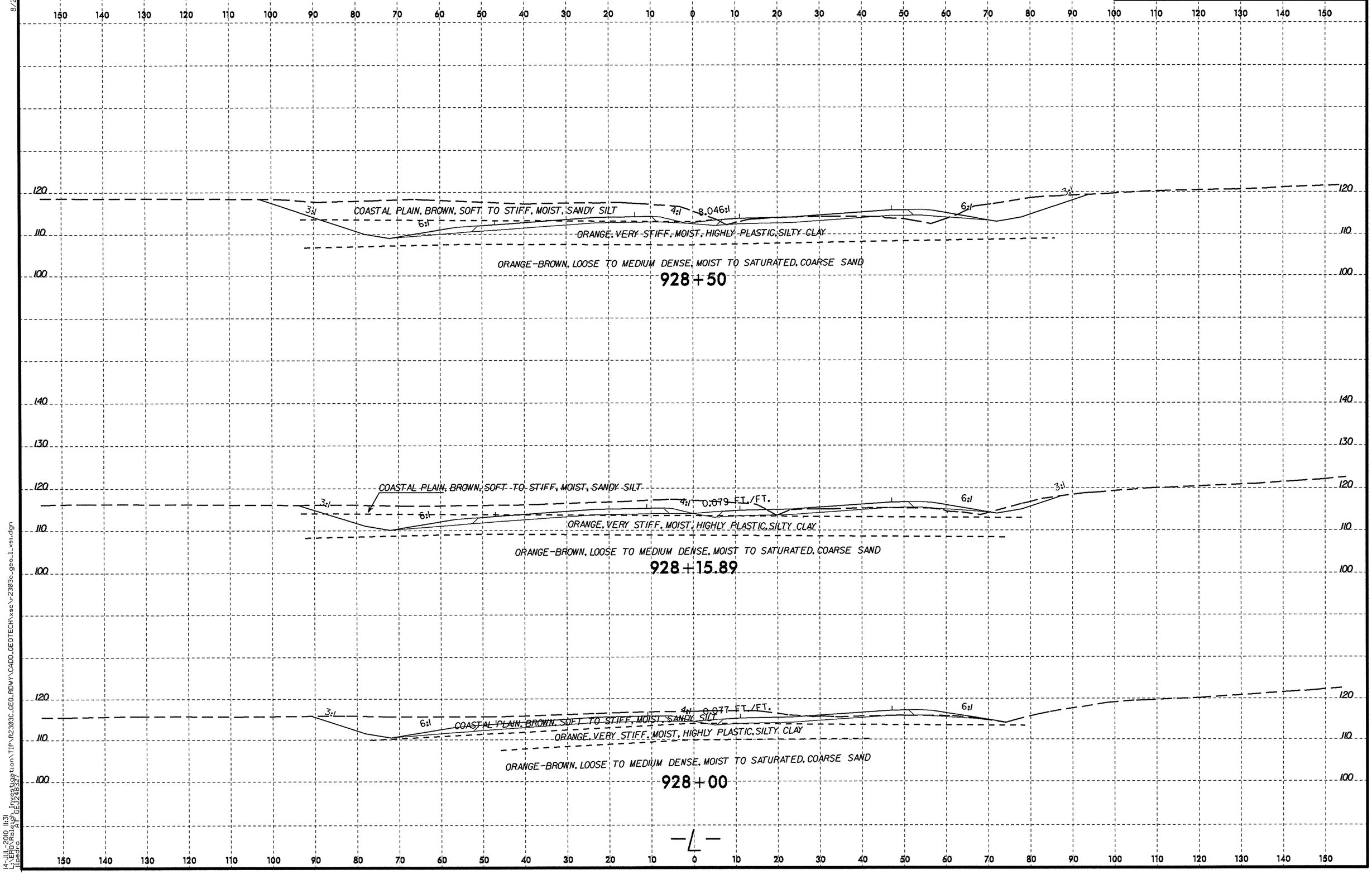

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PROJ. REFERENCE NO.	SHEET NO.
R-2303C	72

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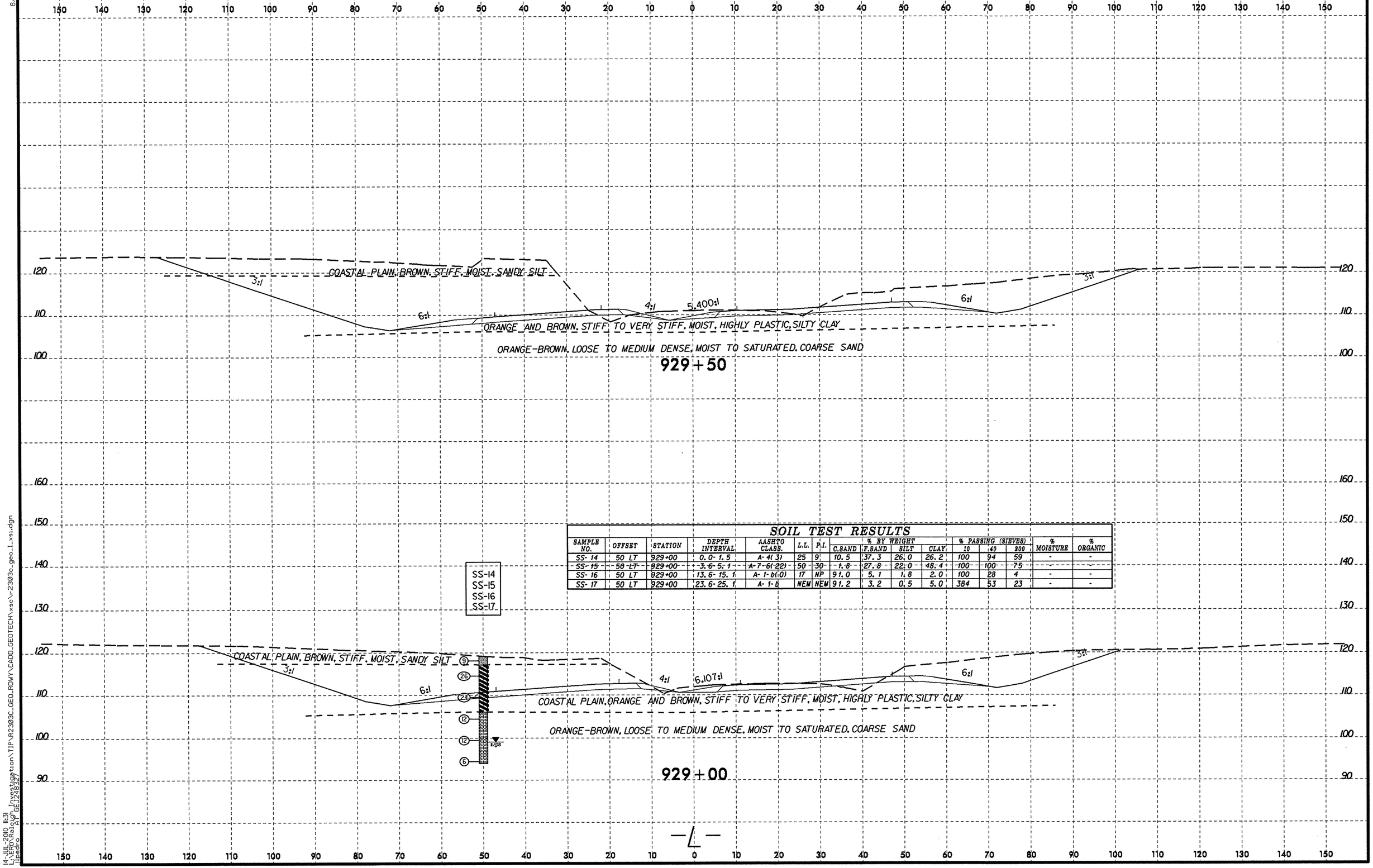


SOIL TEST RESULTS

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
SS-14	50 LT	929+00	0.0-1.5	A-4(3)	25	9	10.5	37.3	26.0	26.2	100	94	59	-	-
SS-15	50 LT	929+00	3.6-5.1	A-7-6(22)	50	30	1.8	27.8	22.0	48.4	100	100	75	-	-
SS-16	50 LT	929+00	13.6-15.1	A-1-b(0)	17	NP	91.0	5.1	1.8	2.0	100	28	4	-	-
SS-17	50 LT	929+00	23.6-25.1	A-1-b	NEW	NEW	91.2	3.2	0.5	5.0	384	53	23	-	-

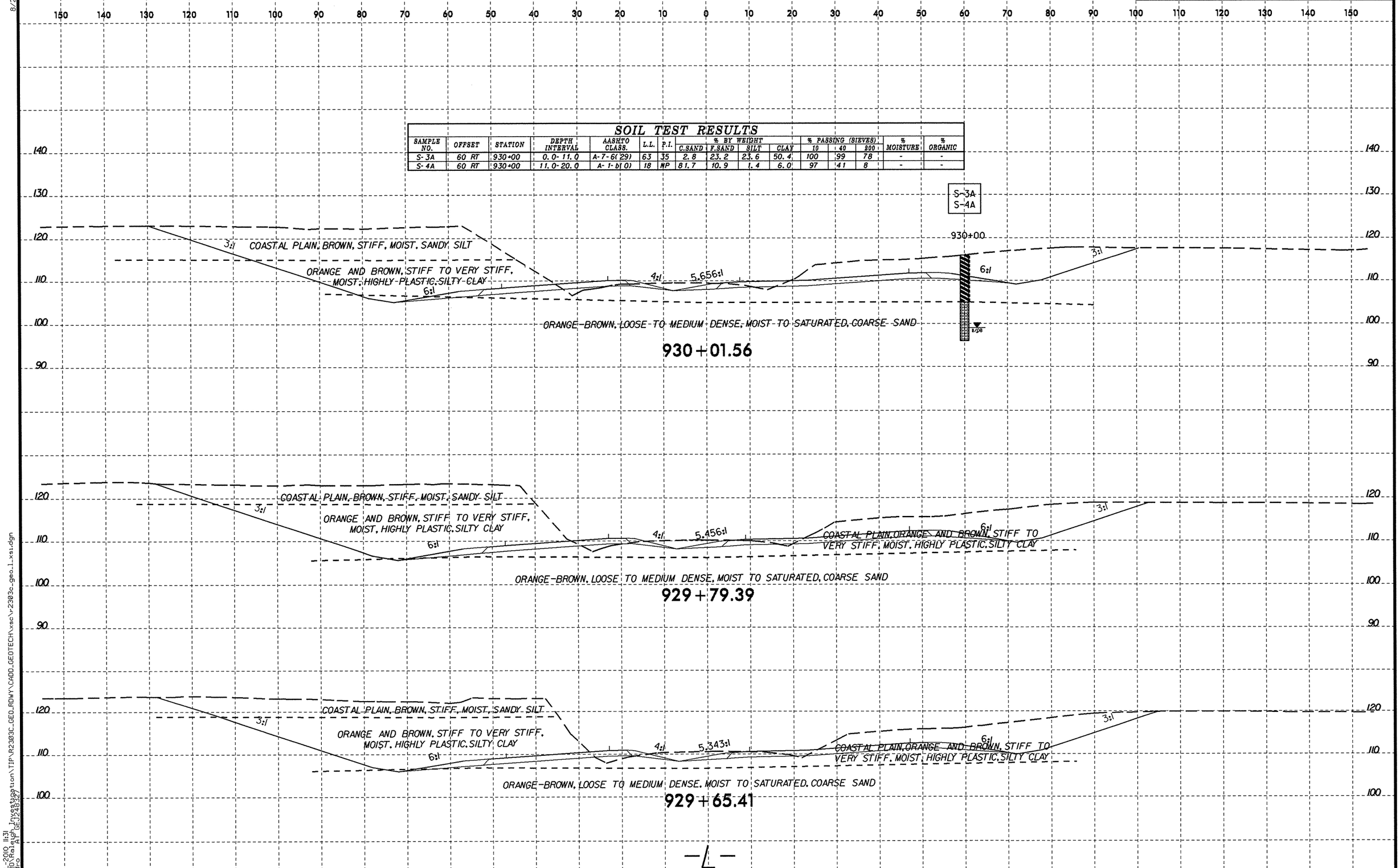
8/23/99

14-JUL-2000 11:31
Level Rail GP GE12483
Lisa Poe

PROJ. REFERENCE NO.	SHEET NO.
R-2303C	73

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-3A	60 RT	930+00	0.0-11.0	A-7-6(29)	63	35	2.8	23.2	23.6	50.4	100	99	78	-	-
S-4A	60 RT	930+00	11.0-20.0	A-1-b(0)	18	NP	81.7	10.9	1.4	6.0	97	41	8	-	-



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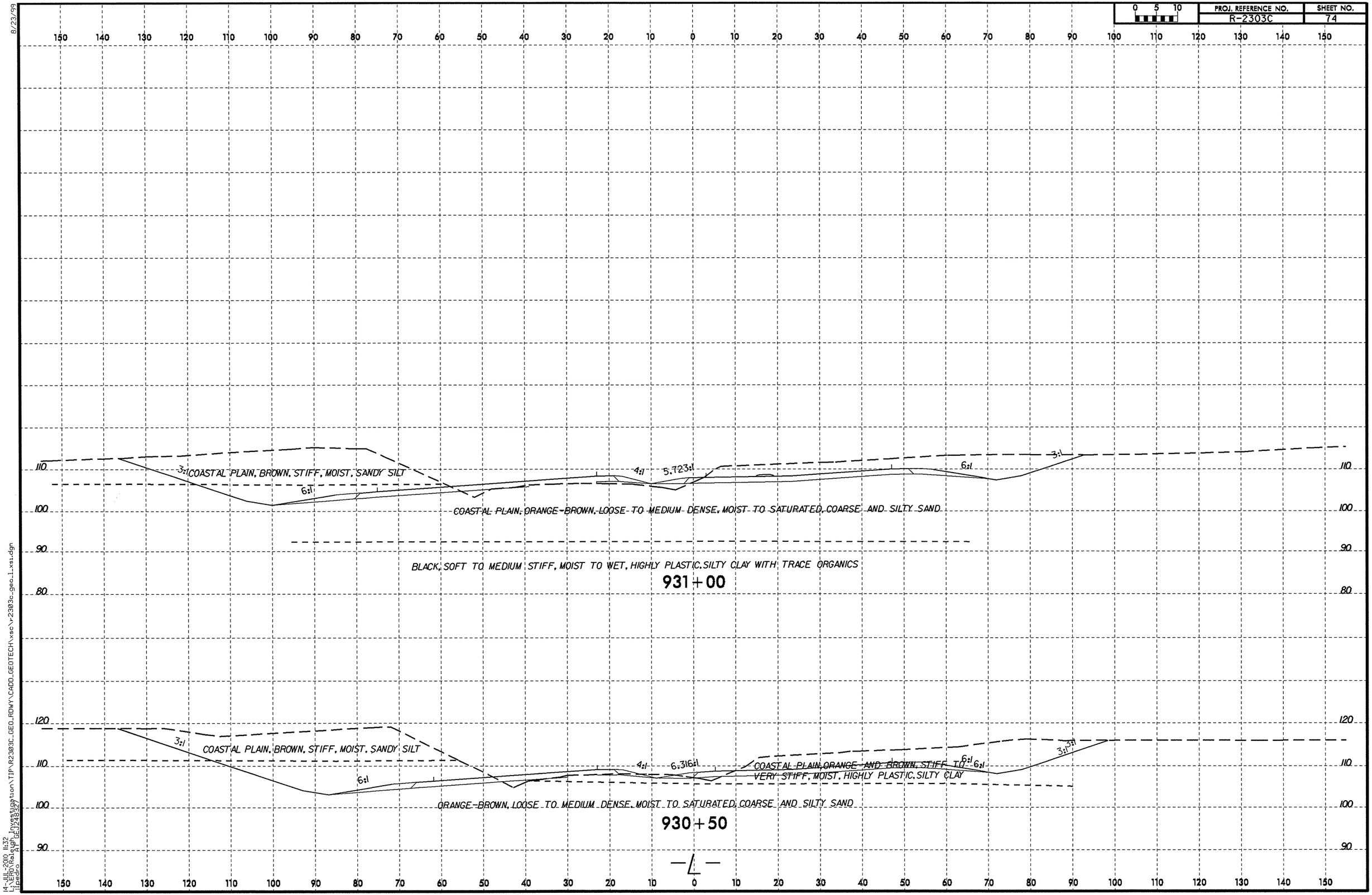

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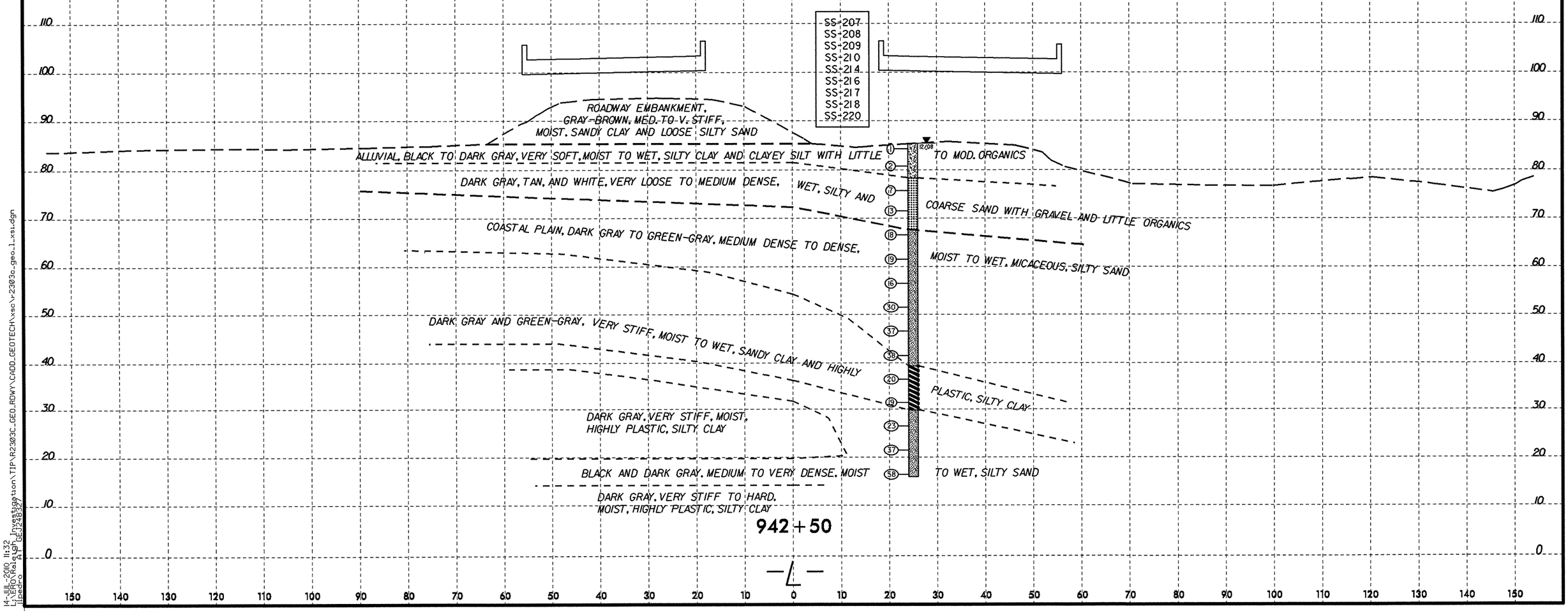
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	75

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-207	25 RT	942+50	3.5-5.0	A-5(3)	55	5	18.5	35.3	32.1	14.1	100	93	52	-	-
SS-208	25 RT	942+50	8.5-10.0	A-3(0)	25	NP	85.8	13.0	1.2	0.0	100	58	1	-	-
SS-209	25 RT	942+50	12.8-14.5	A-3(0)	25	NP	71.6	24.0	2.4	2.0	95	83	5	-	-
SS-210	25 RT	942+50	17.8-19.3	A-2-4(0)	29	4	0.8	73.0	6.0	20.2	100	100	31	-	-
SS-214	25 RT	942+50	37.8-39.3	A-2-4(0)	26	NP	2.6	82.5	6.9	8.1	100	100	18	-	-
SS-216	25 RT	942+50	47.8-49.3	A-7-6(17)	53	36	6.5	41.7	13.5	38.3	100	97	58	-	-
SS-217	25 RT	942+50	52.8-54.3	A-7-6(37)	66	47	2.4	24.2	14.9	58.5	100	99	77	-	-
SS-218	25 RT	942+50	57.8-59.3	A-2-4(0)	30	9	3.2	67.7	8.9	20.2	100	99	32	-	-
SS-220	25 RT	942+50	67.8-69.3	A-2-4(0)	27	NP	1.2	81.3	9.5	8.1	100	100	22	-	-



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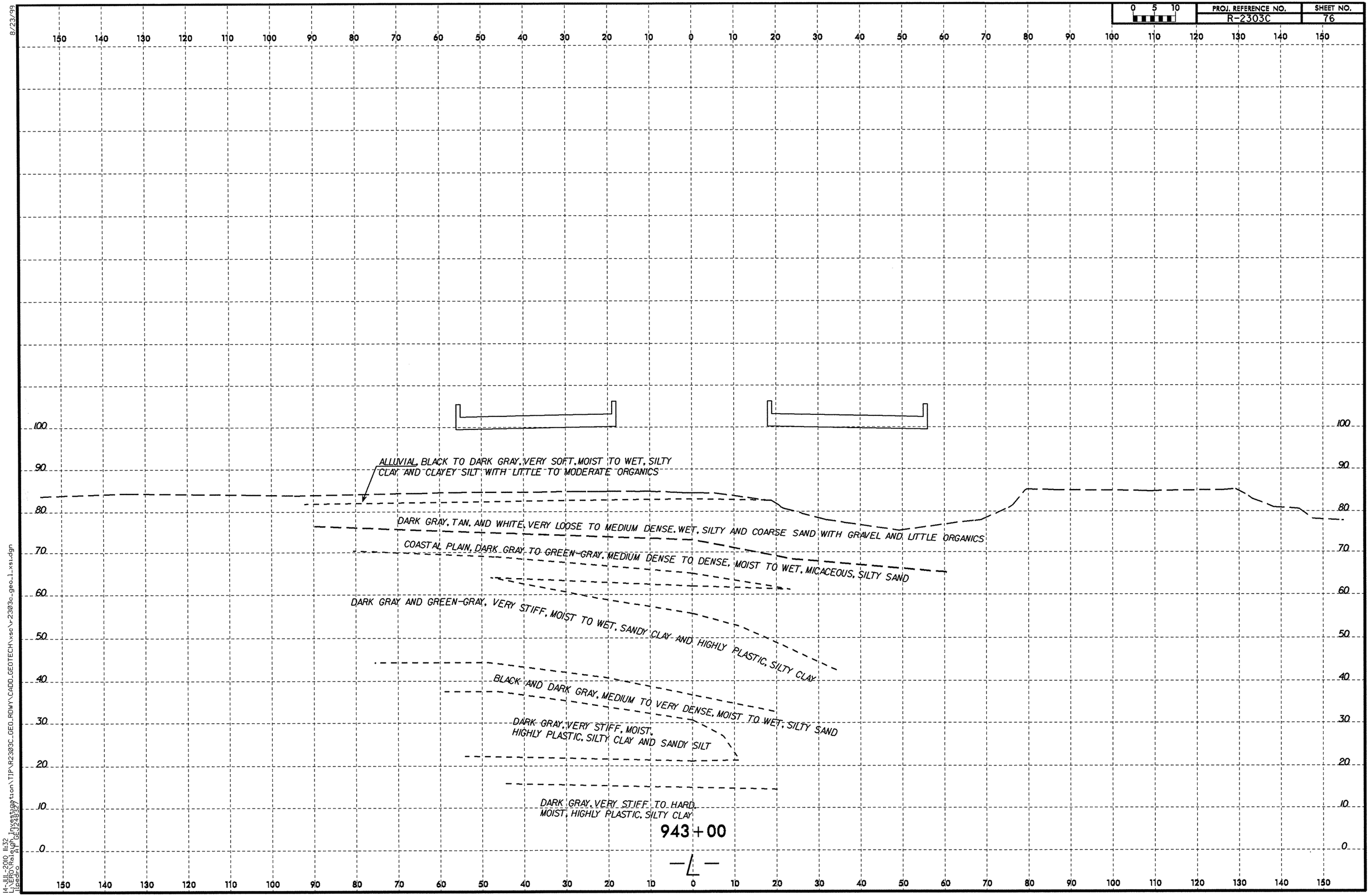

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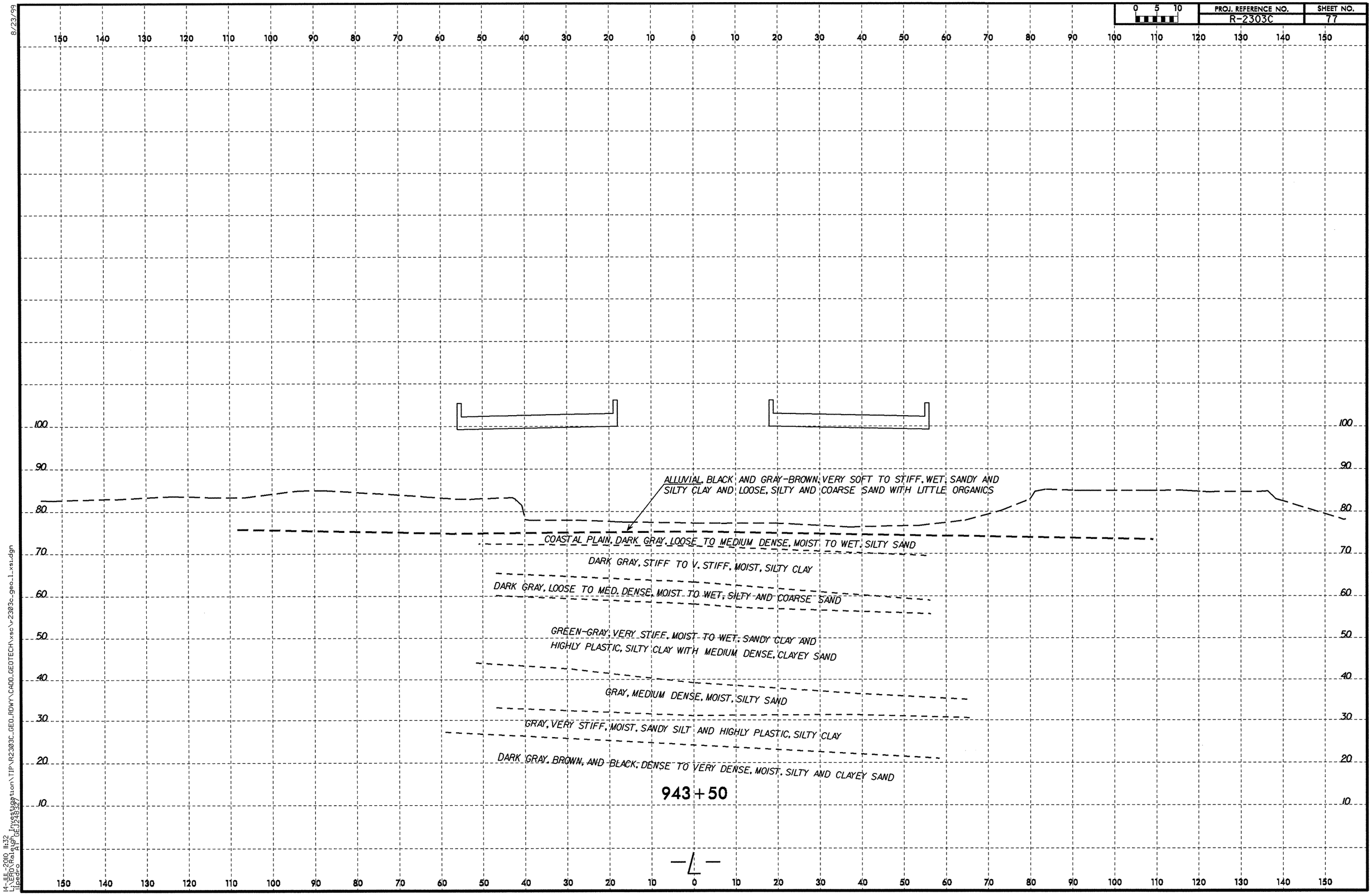
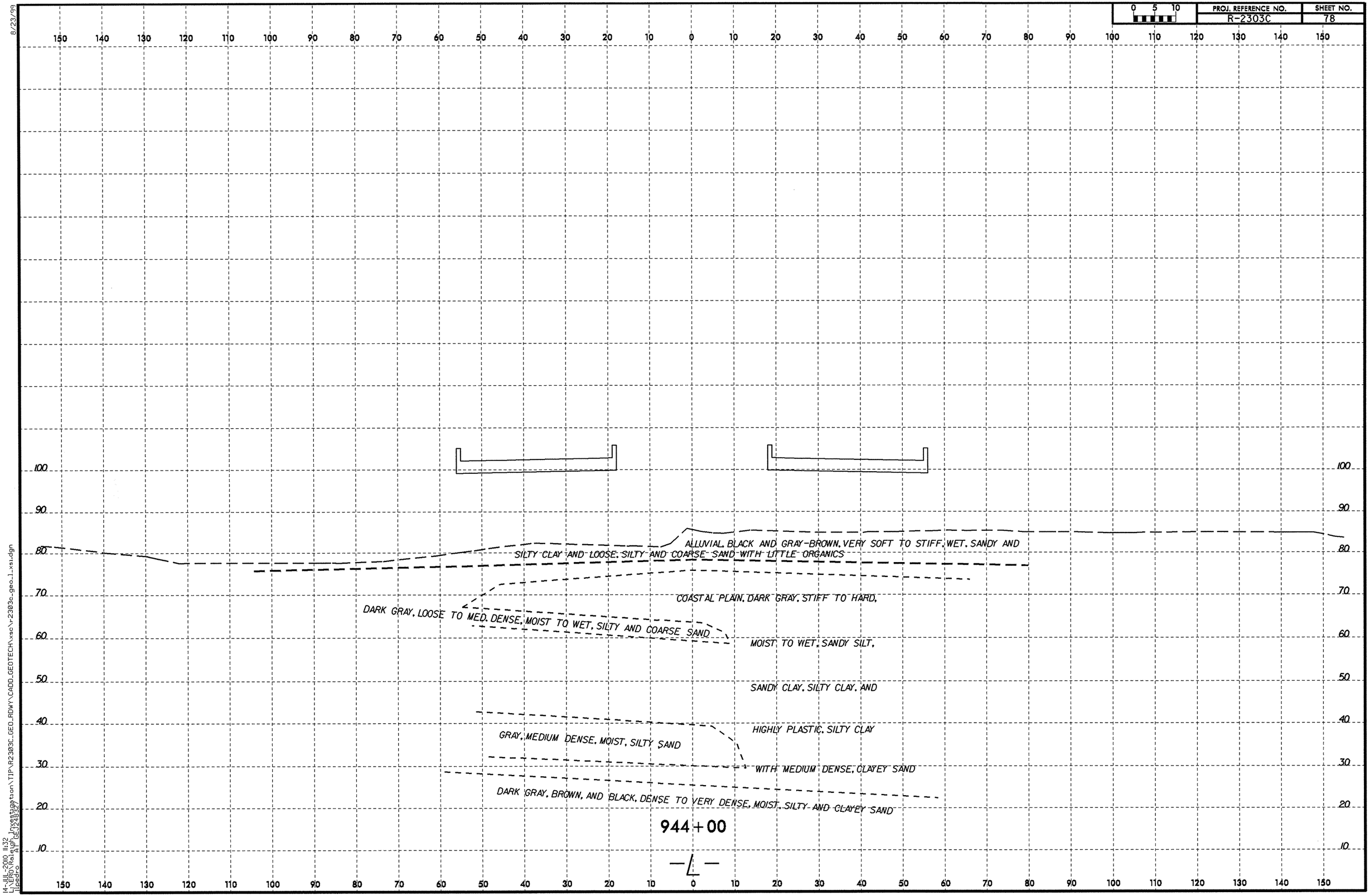


PROJ. REFERENCE NO.
R-2303C
SHEET NO.
77
0 5 10
ALLUVIAL, BLACK AND GRAY-BROWN, VERY SOFT TO STIFF, WET, SANDY AND SILTY CLAY AND LOOSE, SILTY AND COARSE SAND WITH LITTLE ORGANICS
COASTAL PLAIN, DARK GRAY, LOOSE TO MEDIUM DENSE, MOIST TO WET, SILTY SAND
DARK GRAY, STIFF TO V. STIFF, MOIST, SILTY CLAY
DARK GRAY, LOOSE TO MED. DENSE, MOIST TO WET, SILTY AND COARSE SAND
GREEN-GRAY, VERY STIFF, MOIST TO WET, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY WITH MEDIUM DENSE, CLAYEY SAND
GRAY, MEDIUM DENSE, MOIST, SILTY SAND
GRAY, VERY STIFF, MOIST, SANDY SILT AND HIGHLY PLASTIC, SILTY CLAY
DARK GRAY, BROWN, AND BLACK, DENSE TO VERY DENSE, MOIST, SILTY AND CLAYEY SAND
943+50
-L-



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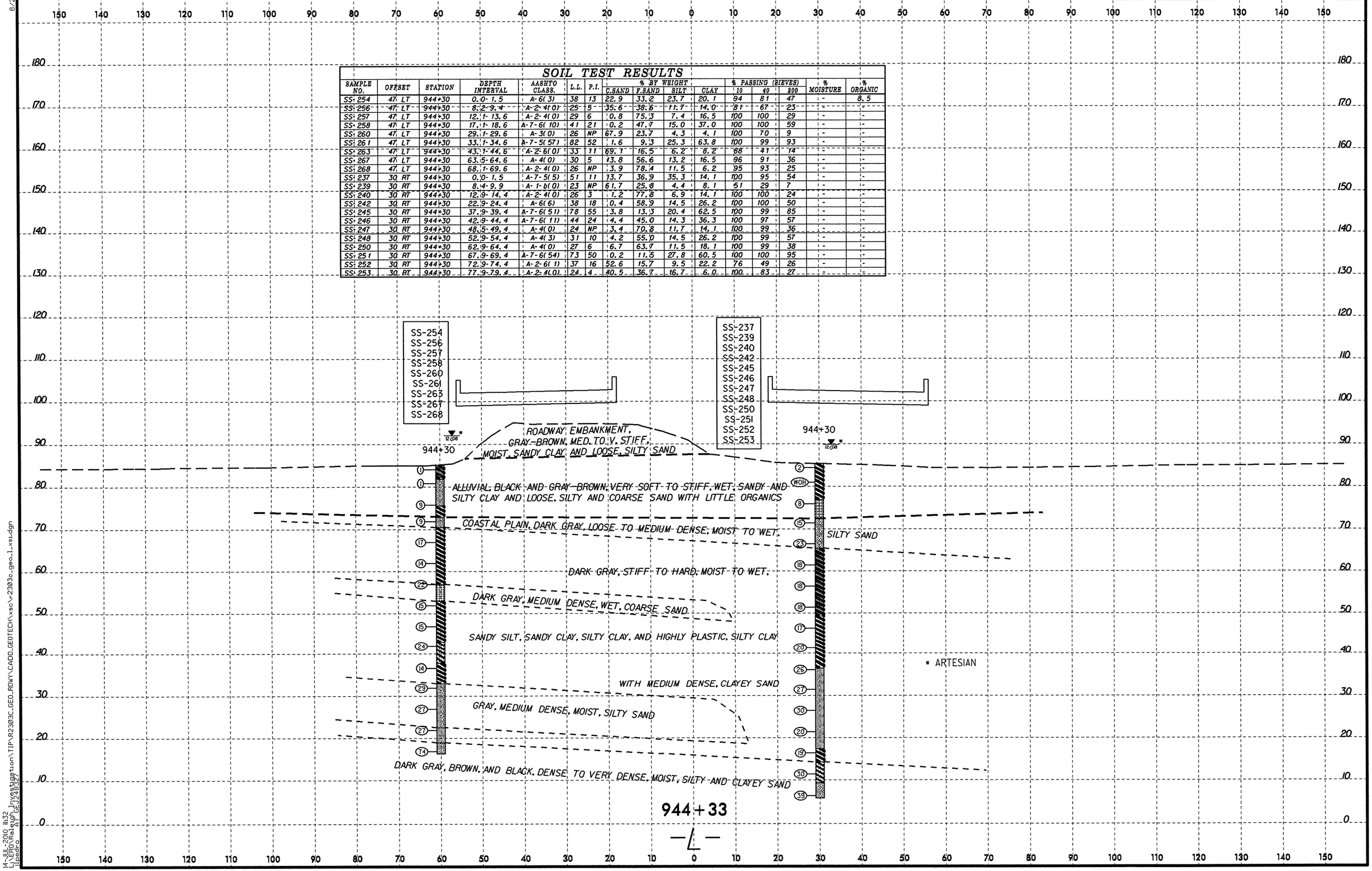
lipedro AT GEJ248327

PROJ. REFERENCE NO.	SHEET NO.
R-2303C	79

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-254	47 LT	944+30	0.0- 1.5	A-6(3)	38	13	22.9	33.2	23.7	20.1	94	81	47	-	8.5
SS-256	47 LT	944+30	8.2- 9.4	A-2-4(0)	25	5	35.6	38.6	11.7	14.0	81	67	23	-	-
SS-257	47 LT	944+30	12.1- 13.6	A-2-4(0)	29	6	0.8	75.3	7.4	16.5	100	100	29	-	-
SS-258	47 LT	944+30	17.1- 18.6	A-7-6(10)	41	21	0.2	47.7	15.0	37.0	100	100	59	-	-
SS-260	47 LT	944+30	29.1- 29.6	A-3(0)	26	NP	67.9	23.7	4.3	4.1	100	70	9	-	-
SS-261	47 LT	944+30	33.1- 34.6	A-7-5(57)	82	52	1.6	9.3	25.3	63.8	100	99	93	-	-
SS-263	47 LT	944+30	43.1- 44.6	A-2-6(0)	33	11	69.1	16.5	6.2	8.2	88	41	14	-	-
SS-267	47 LT	944+30	63.5- 64.6	A-4(0)	30	5	13.8	56.6	13.2	16.5	96	91	36	-	-
SS-268	47 LT	944+30	68.1- 69.6	A-2-4(0)	26	NP	3.9	78.4	11.5	6.2	95	93	25	-	-
SS-237	30 RT	944+30	0.0- 1.5	A-7-5(5)	51	11	13.7	36.9	35.3	14.1	100	95	54	-	-
SS-239	30 RT	944+30	8.4- 9.9	A-1-b(0)	23	NP	61.7	25.8	4.4	8.1	51	29	7	-	-
SS-240	30 RT	944+30	12.9- 14.4	A-2-4(0)	26	3	1.2	77.8	6.9	14.1	100	100	24	-	-
SS-242	30 RT	944+30	22.9- 24.4	A-6(6)	38	18	0.4	58.9	14.5	26.2	100	100	50	-	-
SS-245	30 RT	944+30	37.9- 39.4	A-7-6(51)	78	55	3.8	13.3	20.4	62.5	100	99	85	-	-
SS-246	30 RT	944+30	42.9- 44.4	A-7-6(11)	44	24	4.4	45.0	14.3	36.3	100	97	57	-	-
SS-247	30 RT	944+30	48.5- 49.4	A-4(0)	24	NP	3.4	70.8	11.7	14.1	100	99	36	-	-
SS-248	30 RT	944+30	52.9- 54.4	A-4(3)	31	10	4.2	55.0	14.5	26.2	100	99	57	-	-
SS-250	30 RT	944+30	62.9- 64.4	A-4(0)	27	6	6.7	63.7	11.5	18.1	100	99	38	-	-
SS-251	30 RT	944+30	67.9- 69.4	A-7-6(54)	73	50	0.2	11.5	27.8	60.5	100	100	95	-	-
SS-252	30 RT	944+30	72.9- 74.4	A-2-6(1)	37	16	52.6	15.7	9.5	22.2	76	49	26	-	-
SS-253	30 RT	944+30	77.9- 79.4	A-2-4(0)	24	4	40.5	36.7	16.7	6.0	100	83	27	-	-



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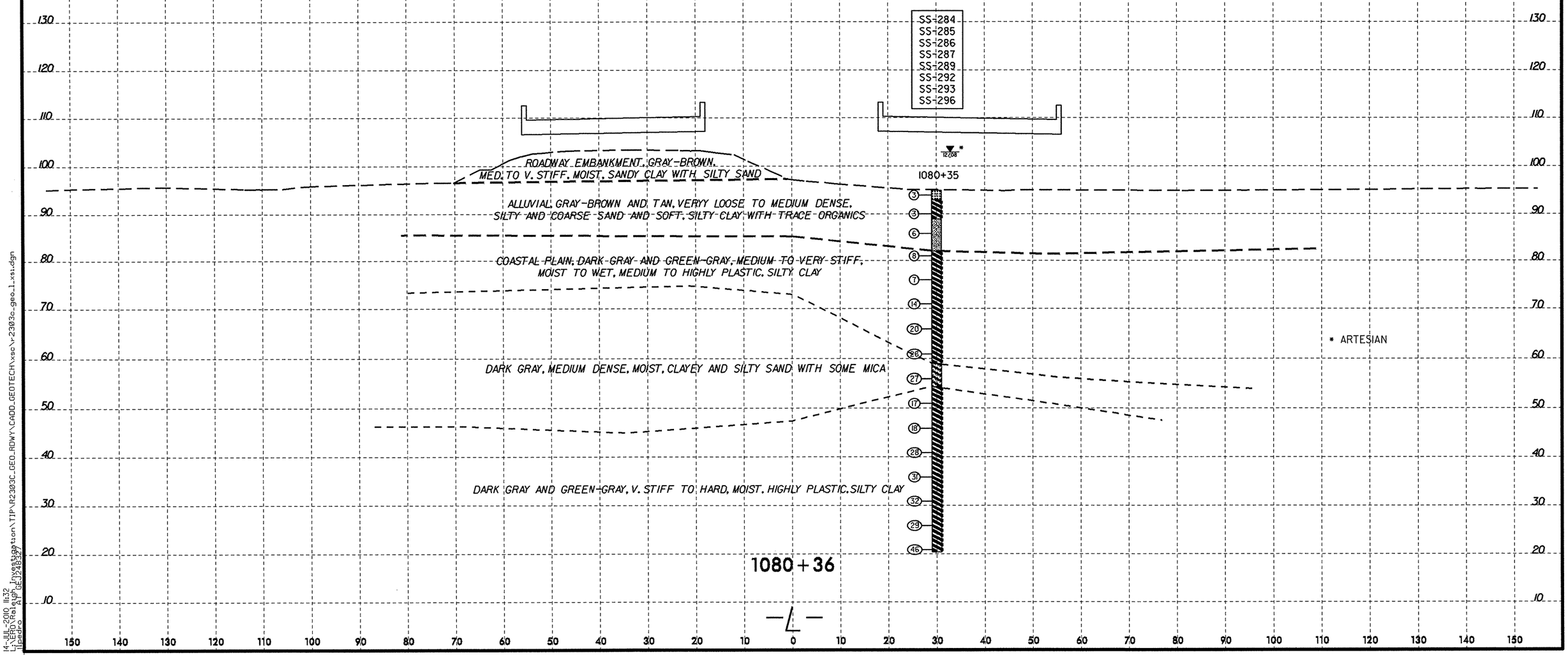
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	80

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) 20	40	200	% MOISTURE	% ORGANIC
SS-284	30 RT	1080+35	0.0-1.5	A-3(0)	22	NP	67.7	27.6	4.6	0.0	100	68	5	-	-
SS-285	30 RT	1080+35	3.9-5.4	A-7-6(4)	43	17	32.7	25.5	15.0	26.7	100	86	43	-	-
SS-286	30 RT	1080+35	8.0-9.5	A-2-4(0)	23	NP	43.4	43.6	8.8	4.1	97	75	15	-	-
SS-287	30 RT	1080+35	13.0-14.5	A-7-5(51)	78	45	0.8	6.6	28.8	63.8	100	100	94	-	-
SS-289	30 RT	1080+35	23.0-24.5	A-7-6(11)	46	24	3.9	47.1	16.0	32.9	100	98	56	-	-
SS-292	30 RT	1080+35	38.0-39.5	A-2-7(2)	41	20	53.3	17.5	8.6	20.6	100	77	31	-	-
SS-293	30 RT	1080+35	43.0-44.5	A-7-6(47)	76	55	0.6	22.0	19.8	57.6	100	100	81	-	-
SS-296	30 RT	1080+35	58.0-59.5	A-7-6(28)	62	42	1.6	32.1	16.9	49.4	100	99	70	-	-



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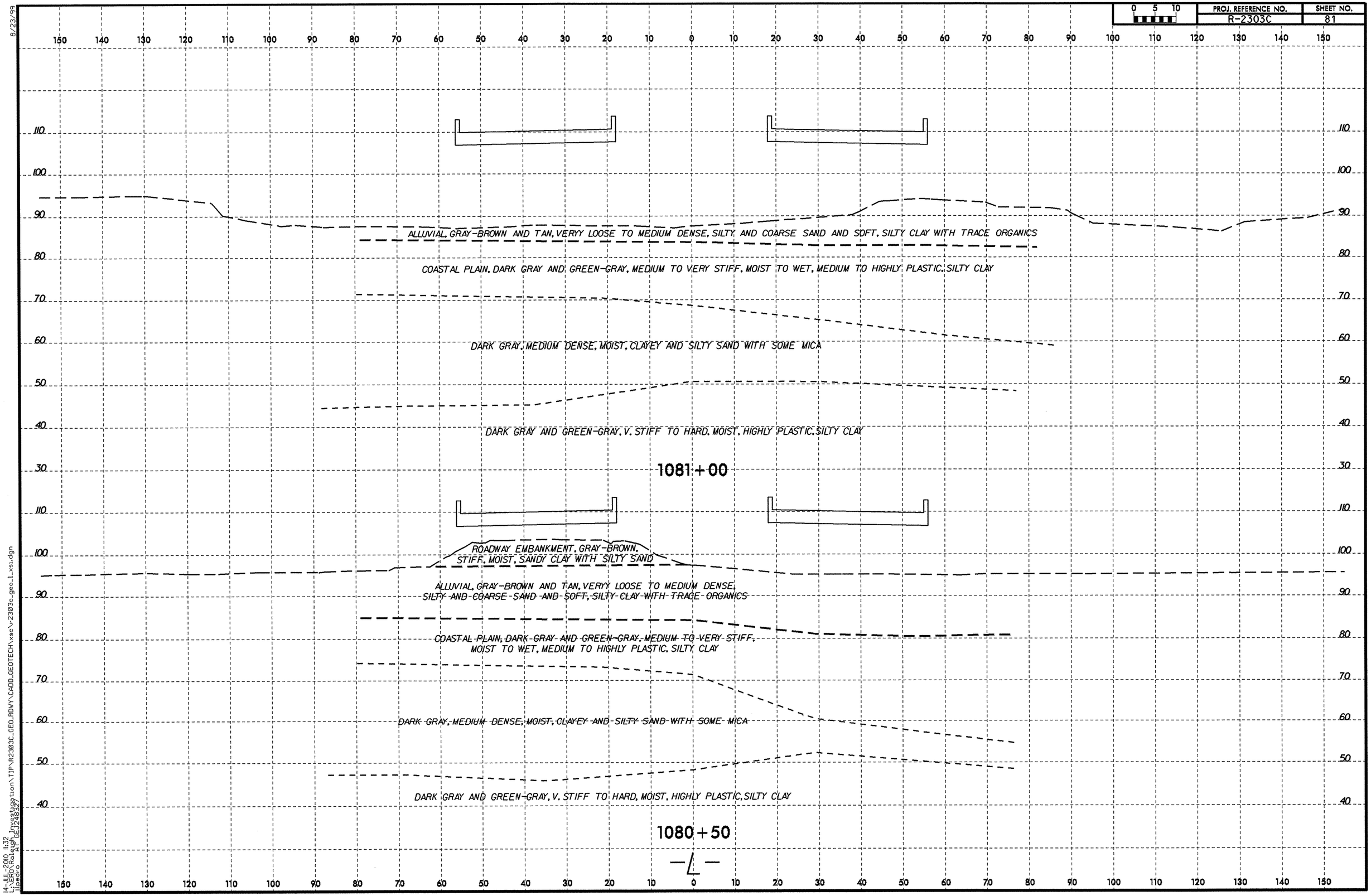

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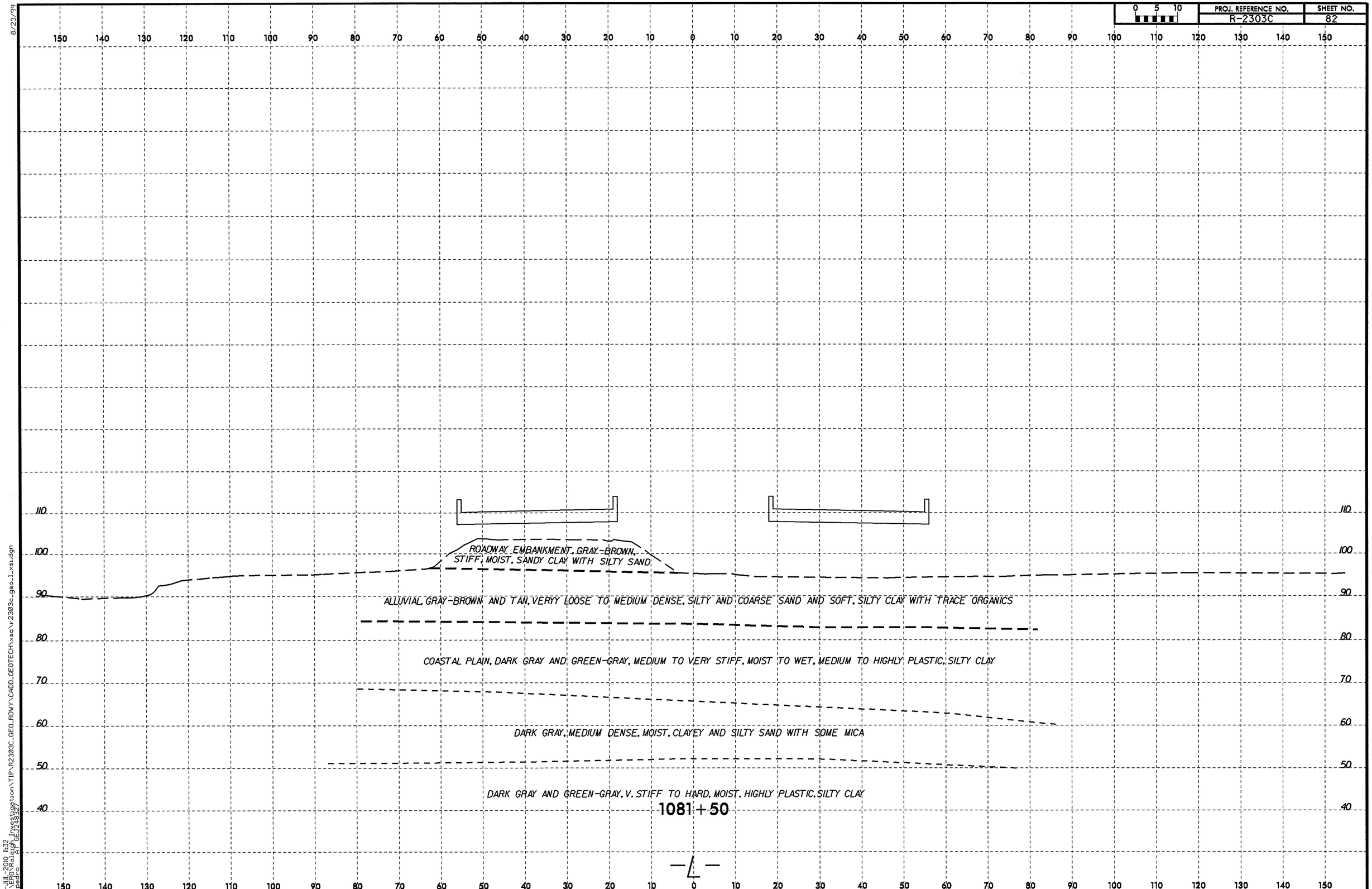

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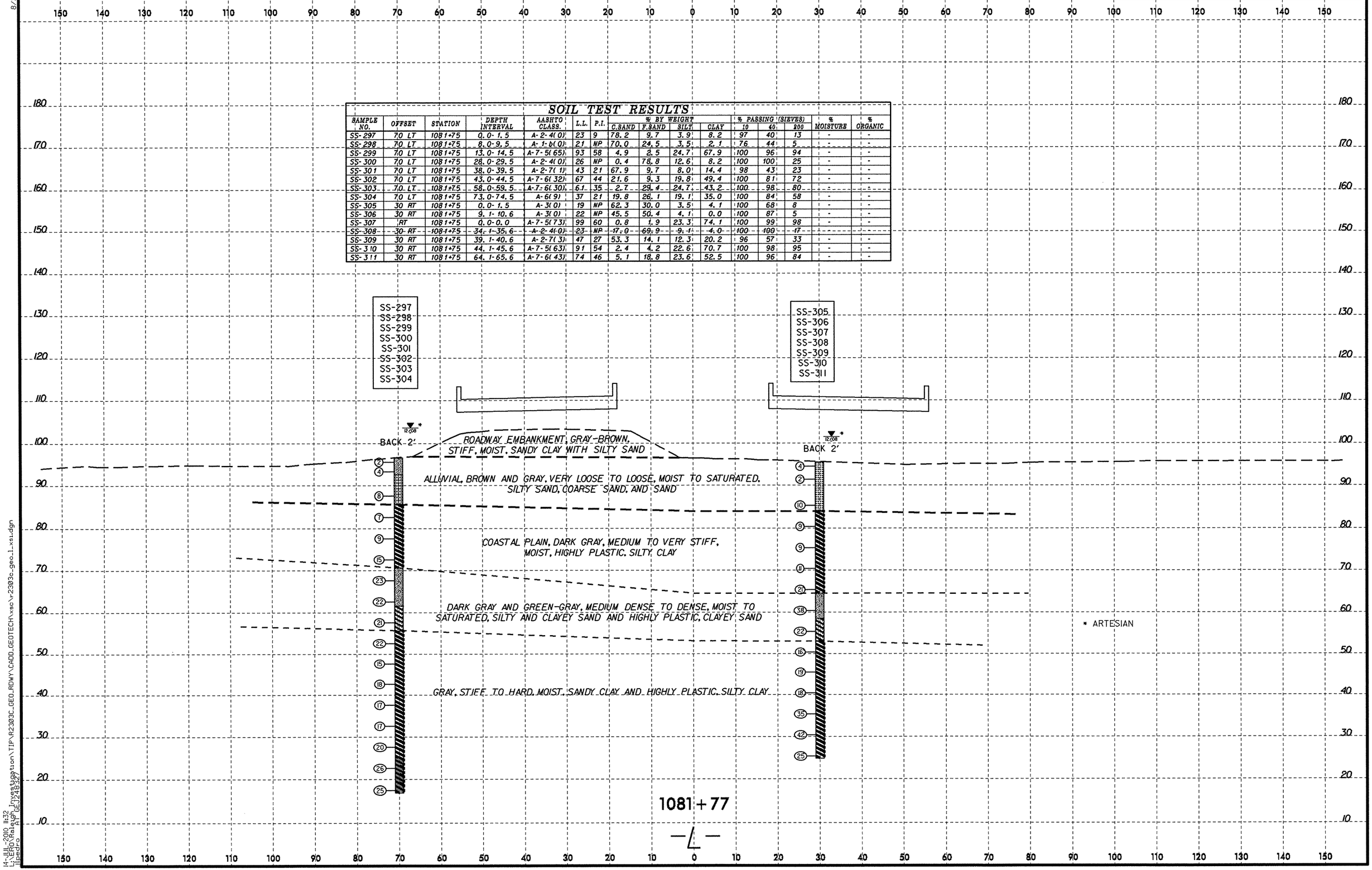
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	83

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-297	70 LT	1081+75	0.0-1.5	A-2-4(0)	23	9	78.2	9.7	3.9	8.2	97	40	13	-	-
SS-298	70 LT	1081+75	8.0-9.5	A-1-b(0)	21	NP	70.0	24.5	3.5	2.1	76	44	5	-	-
SS-299	70 LT	1081+75	13.0-14.5	A-7-5(65)	93	58	4.9	2.5	24.7	67.9	100	96	94	-	-
SS-300	70 LT	1081+75	28.0-29.5	A-2-4(0)	26	NP	0.4	78.8	12.6	8.2	100	100	25	-	-
SS-301	70 LT	1081+75	38.0-39.5	A-2-7(1)	43	21	67.9	9.7	8.0	14.4	98	43	23	-	-
SS-302	70 LT	1081+75	43.0-44.5	A-7-6(32)	67	44	21.6	9.3	19.8	49.4	100	81	72	-	-
SS-303	70 LT	1081+75	58.0-59.5	A-7-6(30)	61	35	2.7	29.4	24.7	43.2	100	98	80	-	-
SS-304	70 LT	1081+75	73.0-74.5	A-6(9)	37	21	19.8	26.1	19.1	35.0	100	84	58	-	-
SS-305	30 RT	1081+75	0.0-1.5	A-3(0)	19	NP	62.3	30.0	3.5	4.1	100	68	8	-	-
SS-306	30 RT	1081+75	9.1-10.6	A-3(0)	22	NP	45.5	50.4	4.1	0.0	100	87	5	-	-
SS-307	RT	1081+75	0.0-0.0	A-7-5(73)	99	60	0.8	1.9	23.3	74.1	100	99	98	-	-
SS-308	30 RT	1081+75	34.1-35.6	A-2-4(0)	23	NP	17.0	69.9	9.1	4.0	100	100	17	-	-
SS-309	30 RT	1081+75	39.1-40.6	A-2-7(3)	47	27	53.3	14.1	12.3	20.2	96	57	33	-	-
SS-310	30 RT	1081+75	44.1-45.6	A-7-5(63)	91	54	2.4	4.2	22.6	70.7	100	98	95	-	-
SS-311	30 RT	1081+75	64.1-65.6	A-7-6(43)	74	46	5.1	18.8	23.6	52.5	100	96	84	-	-



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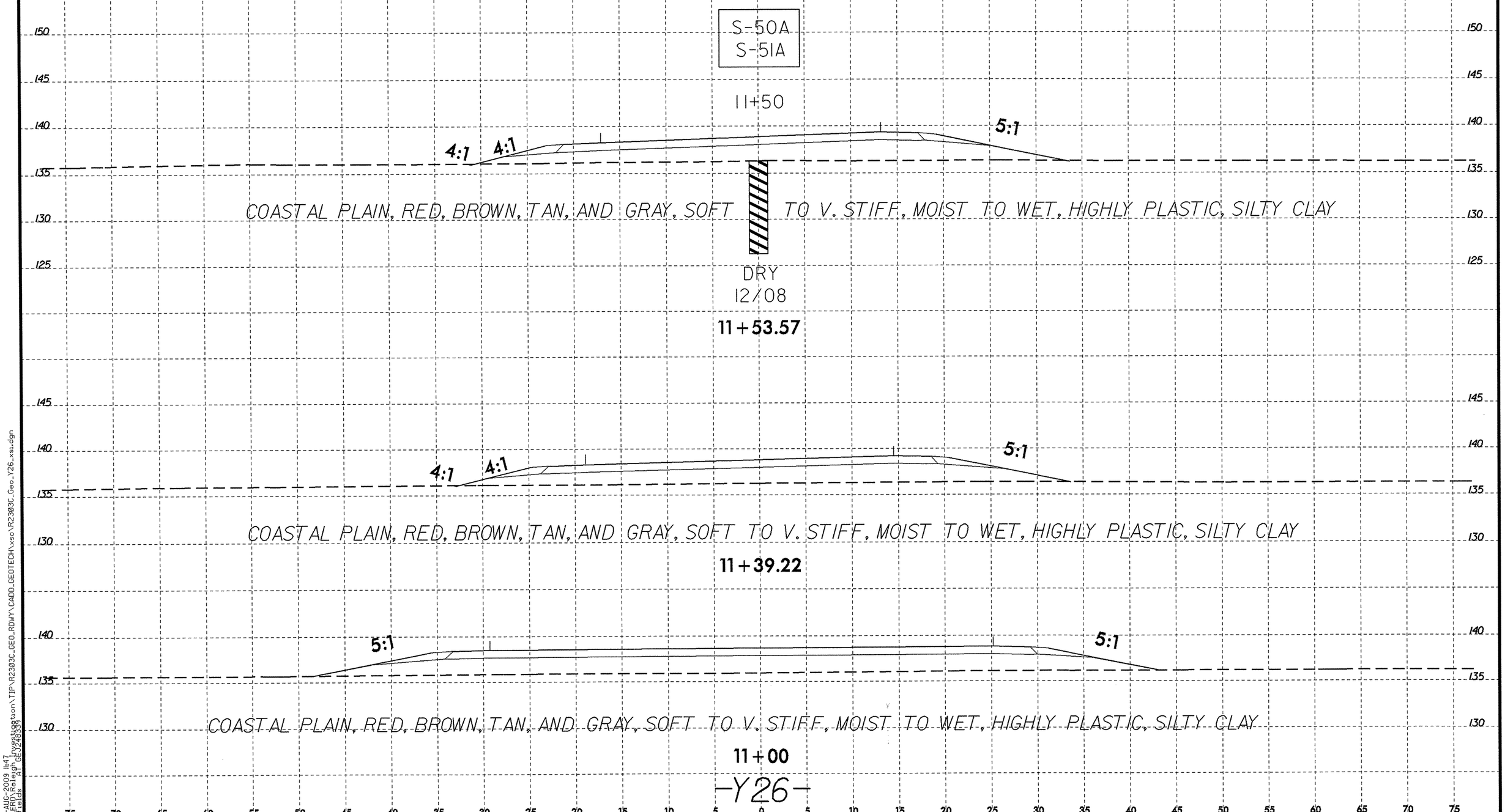
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	84

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-50A	CL	11+50	0.0-2.8	A-7-6(42)	61	37	1.0	2.2	33.5	63.2	100	99	98	-	-
S-51A	CL	11+50	2.8-10.0	A-7-6(40)	62	38	1.2	9.6	34.1	55.0	100	99	94	-	-



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PROJ. REFERENCE NO.	SHEET NO.
R-2303C	85

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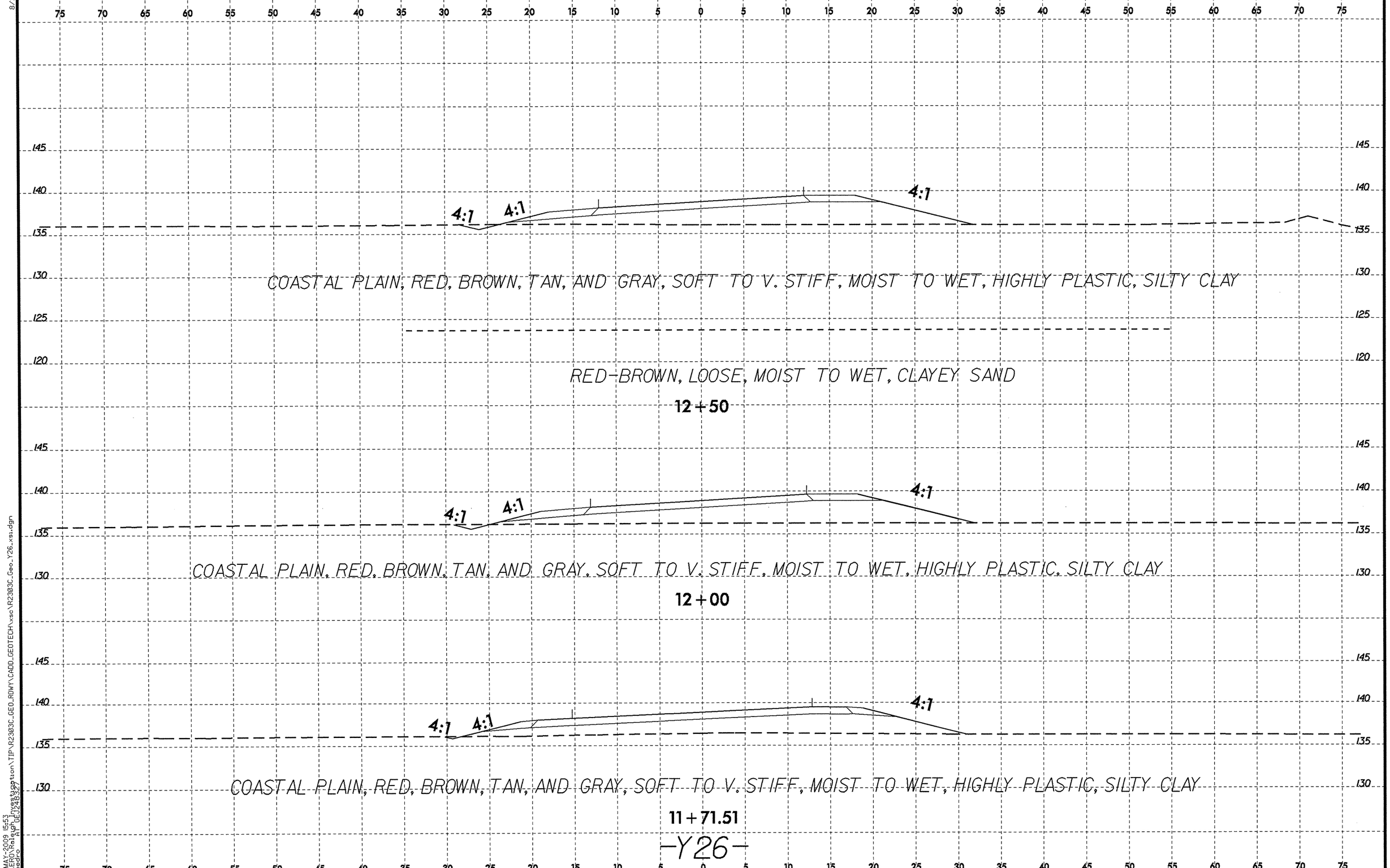

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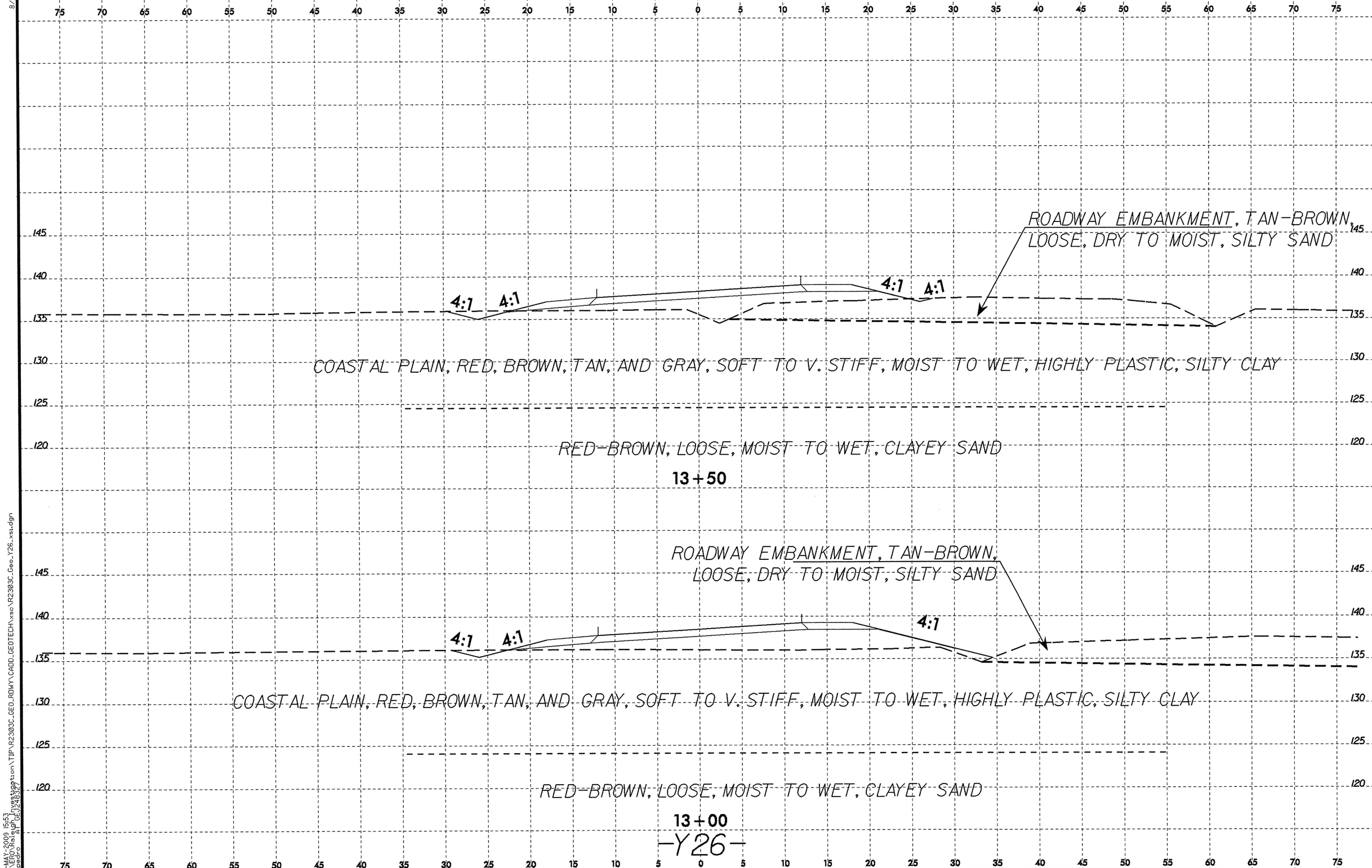
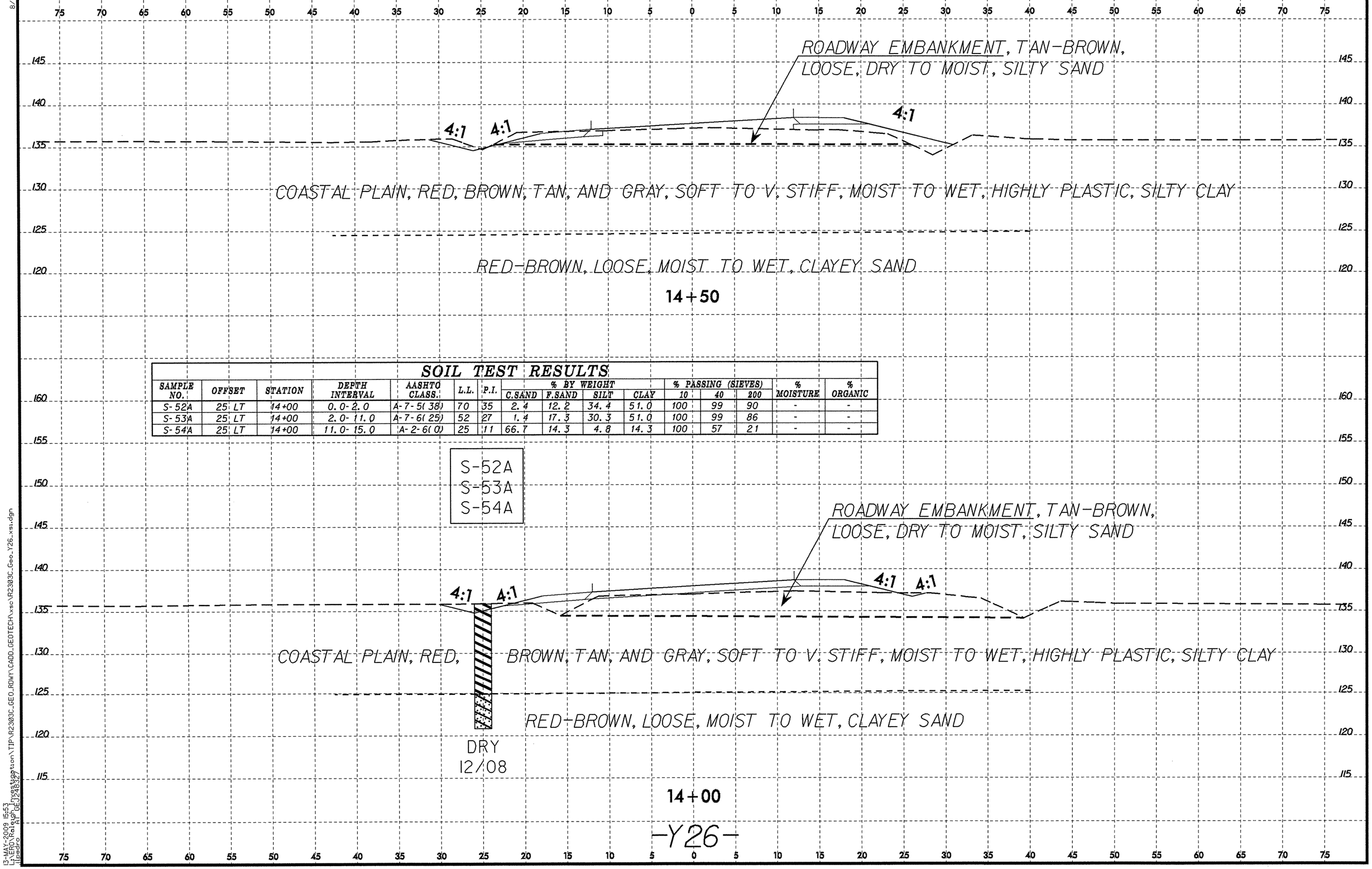


PROJ. REFERENCE NO.
R-2303C
SHEET NO.
86
0 2.5 5
ROADWAY EMBANKMENT, TAN-BROWN, LOOSE, DRY TO MOIST, SILTY SAND
4:1
4:1
4:1
4:1
COASTAL PLAIN, RED, BROWN, TAN, AND GRAY, SOFT TO V. STIFF, MOIST TO WET, HIGHLY PLASTIC, SILTY CLAY
RED-BROWN, LOOSE, MOIST TO WET, CLAYEY SAND
13+50
ROADWAY EMBANKMENT, TAN-BROWN, LOOSE, DRY TO MOIST, SILTY SAND
4:1
4:1
4:1
COASTAL PLAIN, RED, BROWN, TAN, AND GRAY, SOFT TO V. STIFF, MOIST TO WET, HIGHLY PLASTIC, SILTY CLAY
RED-BROWN, LOOSE, MOIST TO WET, CLAYEY SAND
13+00
-Y26-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	R-2303C	87



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-52A	25' LT	14+00	0.0-2.0	A-7-5(38)	70	35	2.4	12.2	34.4	51.0	100	99	90	-	-
S-53A	25' LT	14+00	2.0-11.0	A-7-6(25)	52	27	1.4	17.3	30.3	51.0	100	99	86	-	-
S-54A	25' LT	14+00	11.0-15.0	A-2-6(0)	25	11	66.7	14.3	4.8	14.3	100	57	21	-	-

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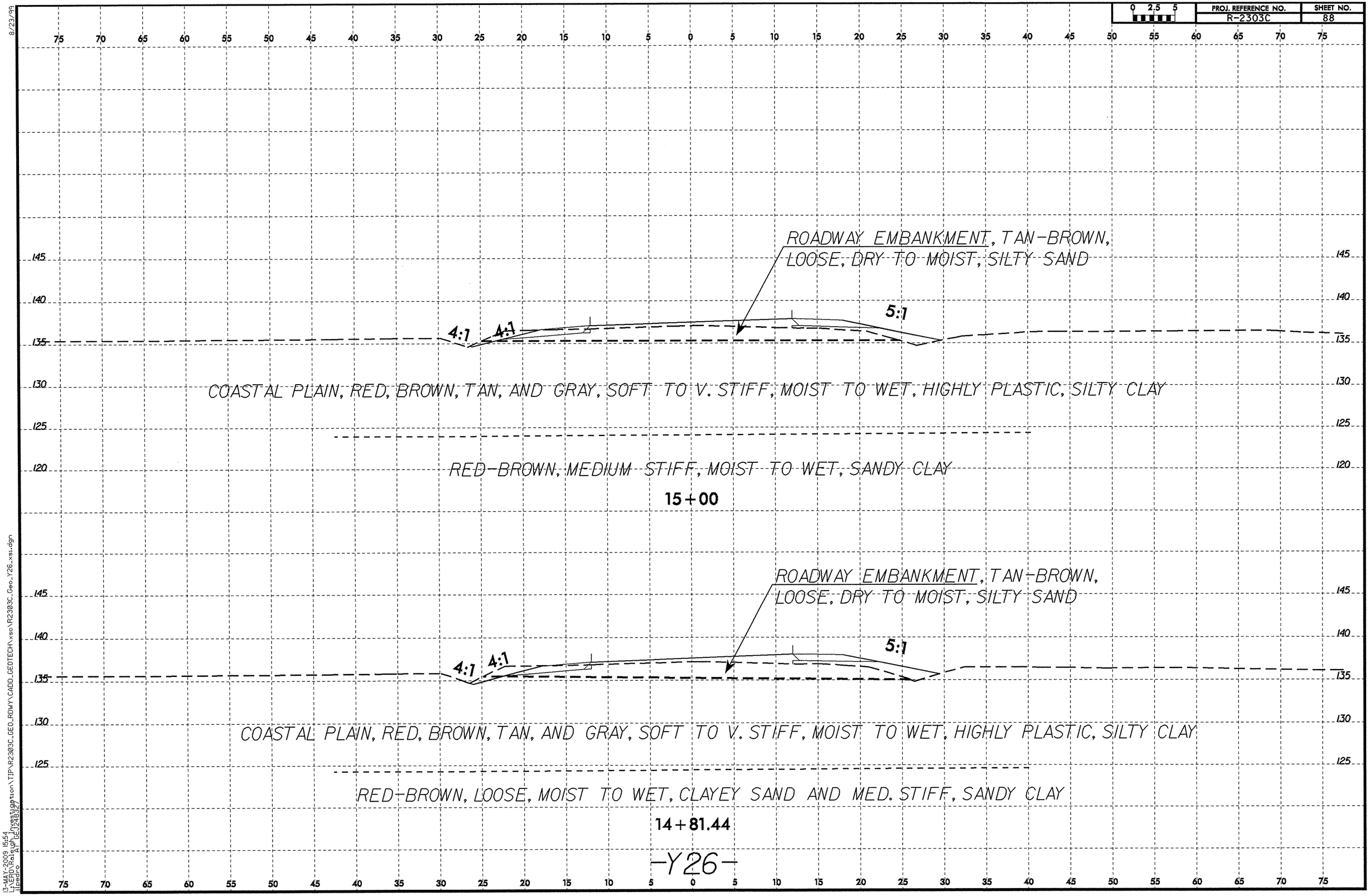
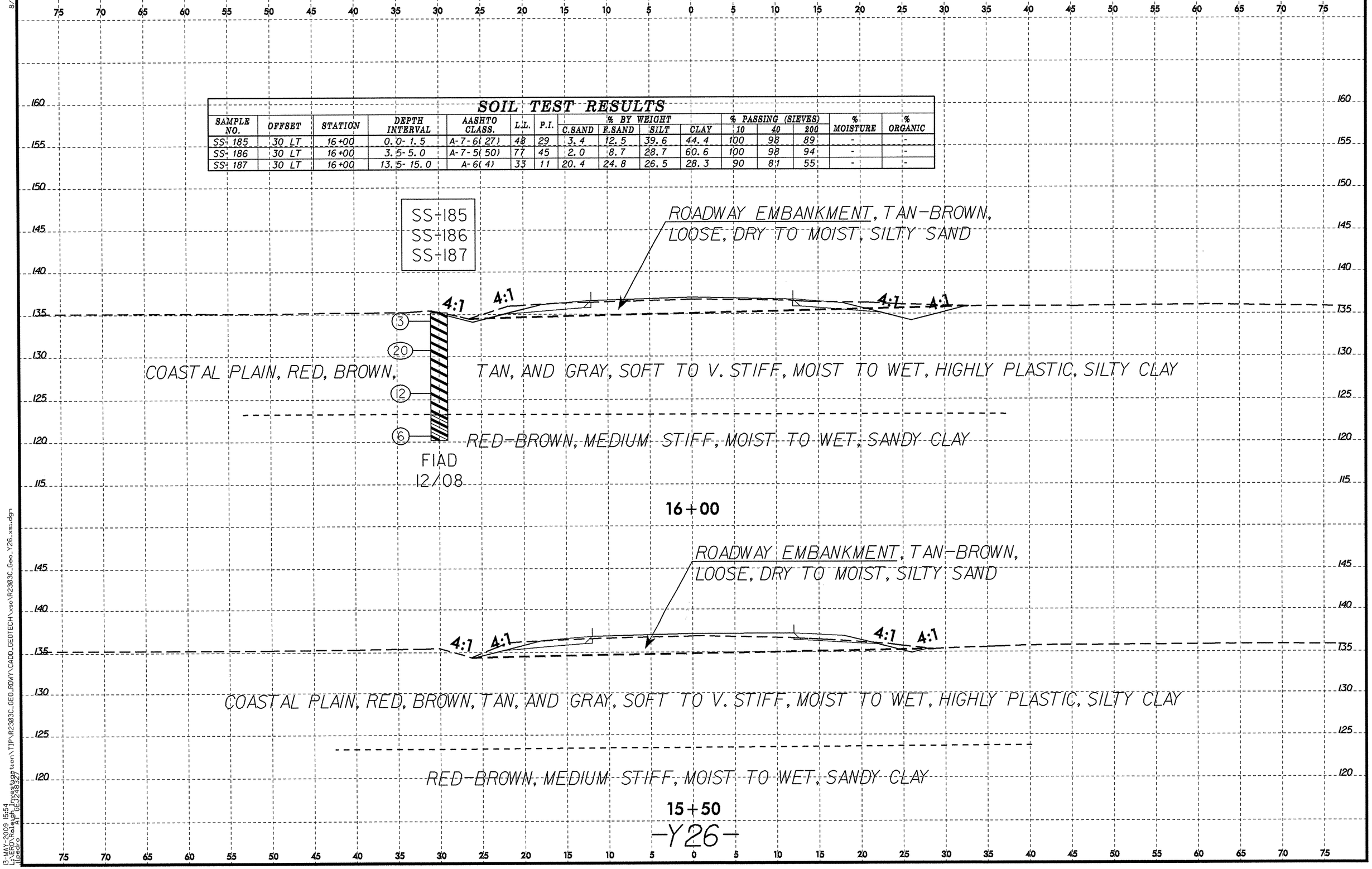


PROJ. REFERENCE NO.
R-2303C
SHEET NO.
88
ROADWAY EMBANKMENT, TAN-BROWN, LOOSE, DRY TO MOIST, SILTY SAND
4:1
4:1
5:1
COASTAL PLAIN, RED, BROWN, TAN, AND GRAY, SOFT TO V. STIFF, MOIST TO WET, HIGHLY PLASTIC, SILTY CLAY
RED-BROWN, MEDIUM STIFF, MOIST TO WET, SANDY CLAY
15+00
ROADWAY EMBANKMENT, TAN-BROWN, LOOSE, DRY TO MOIST, SILTY SAND
4:1
4:1
5:1
COASTAL PLAIN, RED, BROWN, TAN, AND GRAY, SOFT TO V. STIFF, MOIST TO WET, HIGHLY PLASTIC, SILTY CLAY
RED-BROWN, LOOSE, MOIST TO WET, CLAYEY SAND AND MED. STIFF, SANDY CLAY
14+81.44
-Y26-

PROJ. REFERENCE NO.	SHEET NO.
R-2303C	89

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-185	30 LT	16+00	0.0-1.5	A-7-6(27)	48	29	3.4	12.5	39.6	44.4	100	98	89	-	-
SS-186	30 LT	16+00	3.5-5.0	A-7-5(50)	77	45	2.0	8.7	28.7	60.6	100	98	94	-	-
SS-187	30 LT	16+00	13.5-15.0	A-6(4)	33	11	20.4	24.8	26.5	28.3	90	81	55	-	-



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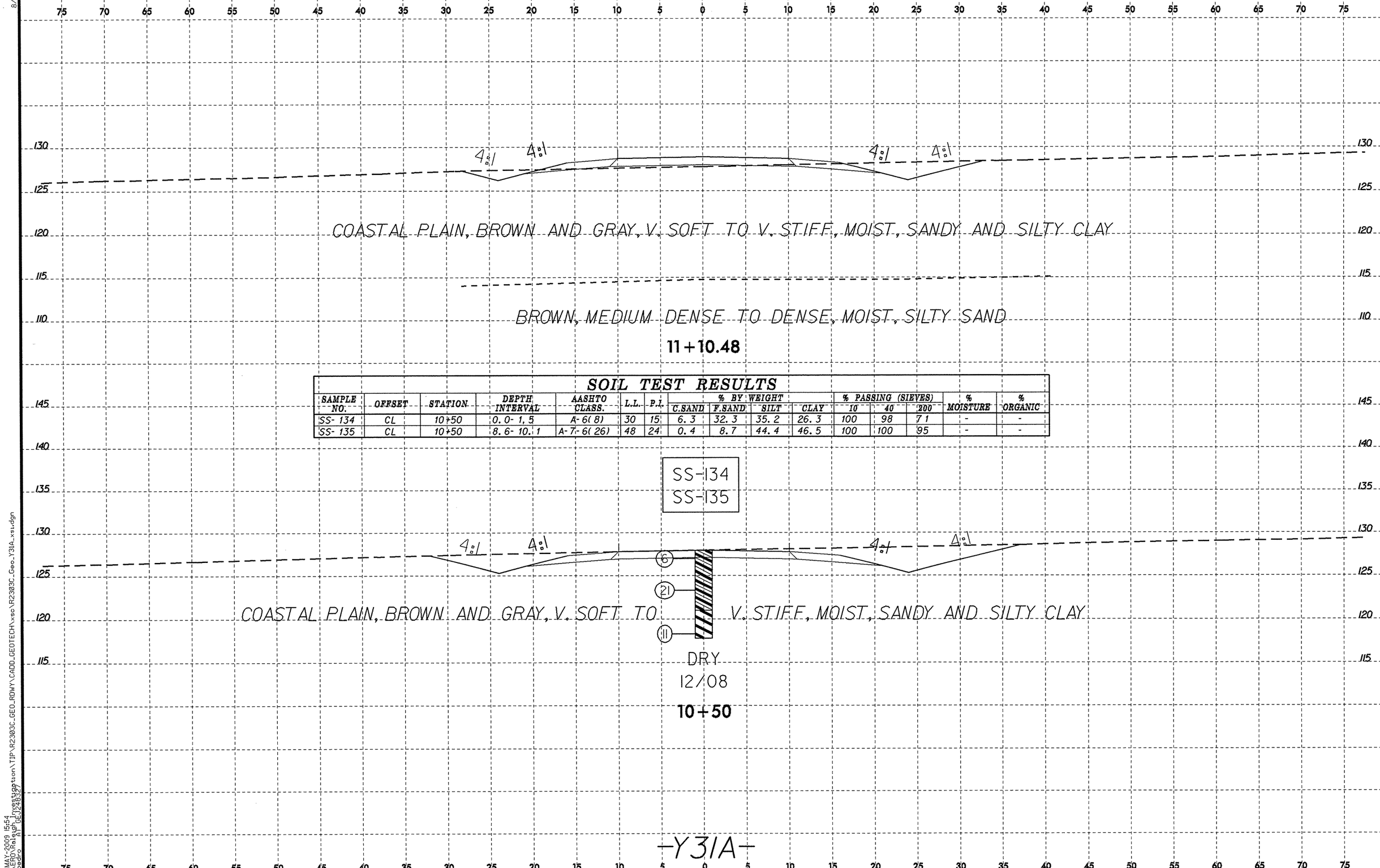
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	90

0 2.5 5



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-134	CL	10+50	0.0-1.5	A-6(8)	30	15	6.3	32.3	35.2	26.3	100	98	71	-	-
SS-135	CL	10+50	8.6-10.1	A-7-6(26)	48	24	0.4	8.7	44.4	46.5	100	100	95	-	-

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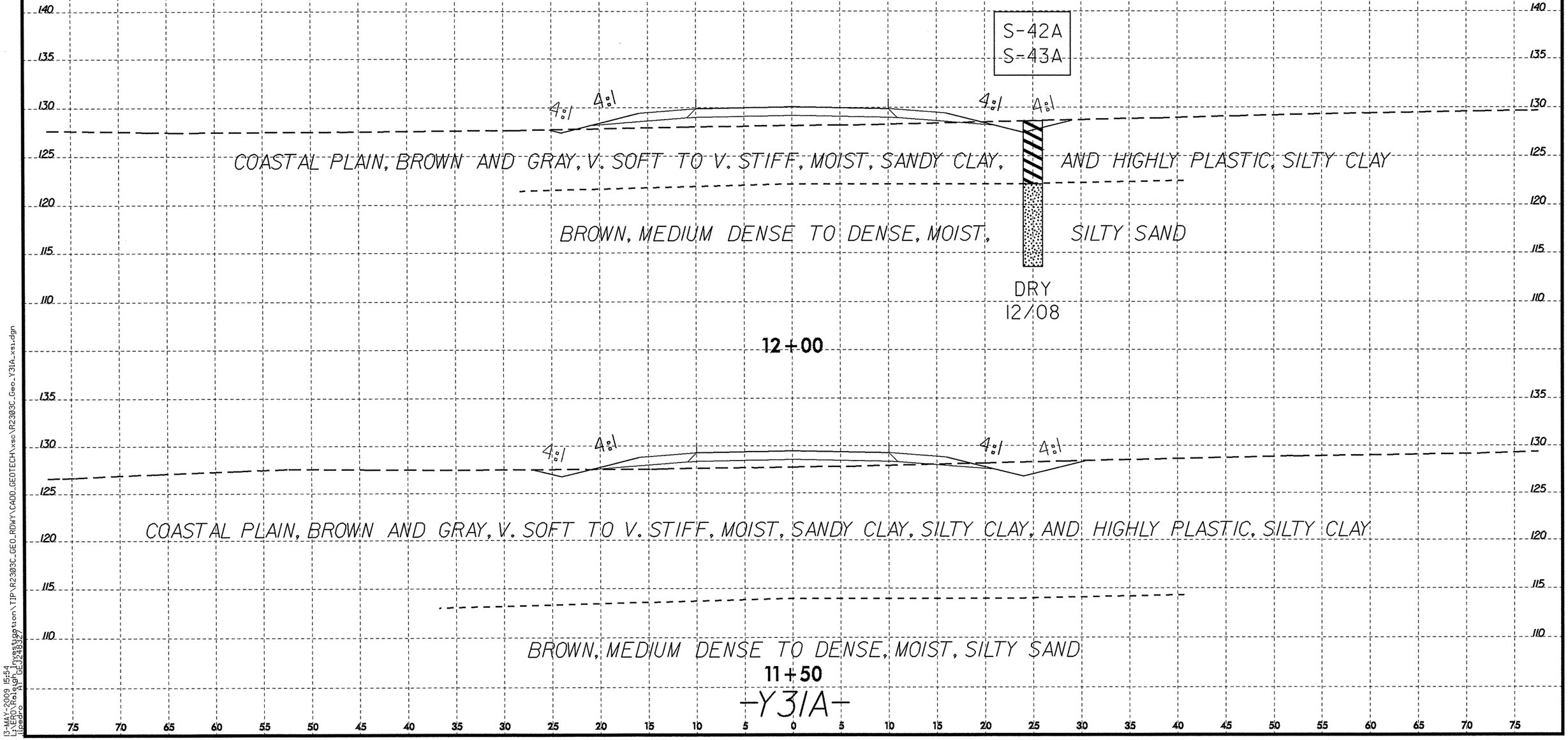
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	91

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-42A	25 RT	12+00	0.0-6.5	A-7-6(35)	65	42	3.1	24.5	19.5	53.0	100	99	79	-	-
S-43A	25 RT	12+00	6.5-15.0	A-2-4(0)	26	8	13.5	56.7	3.4	26.5	100	100	32	-	-



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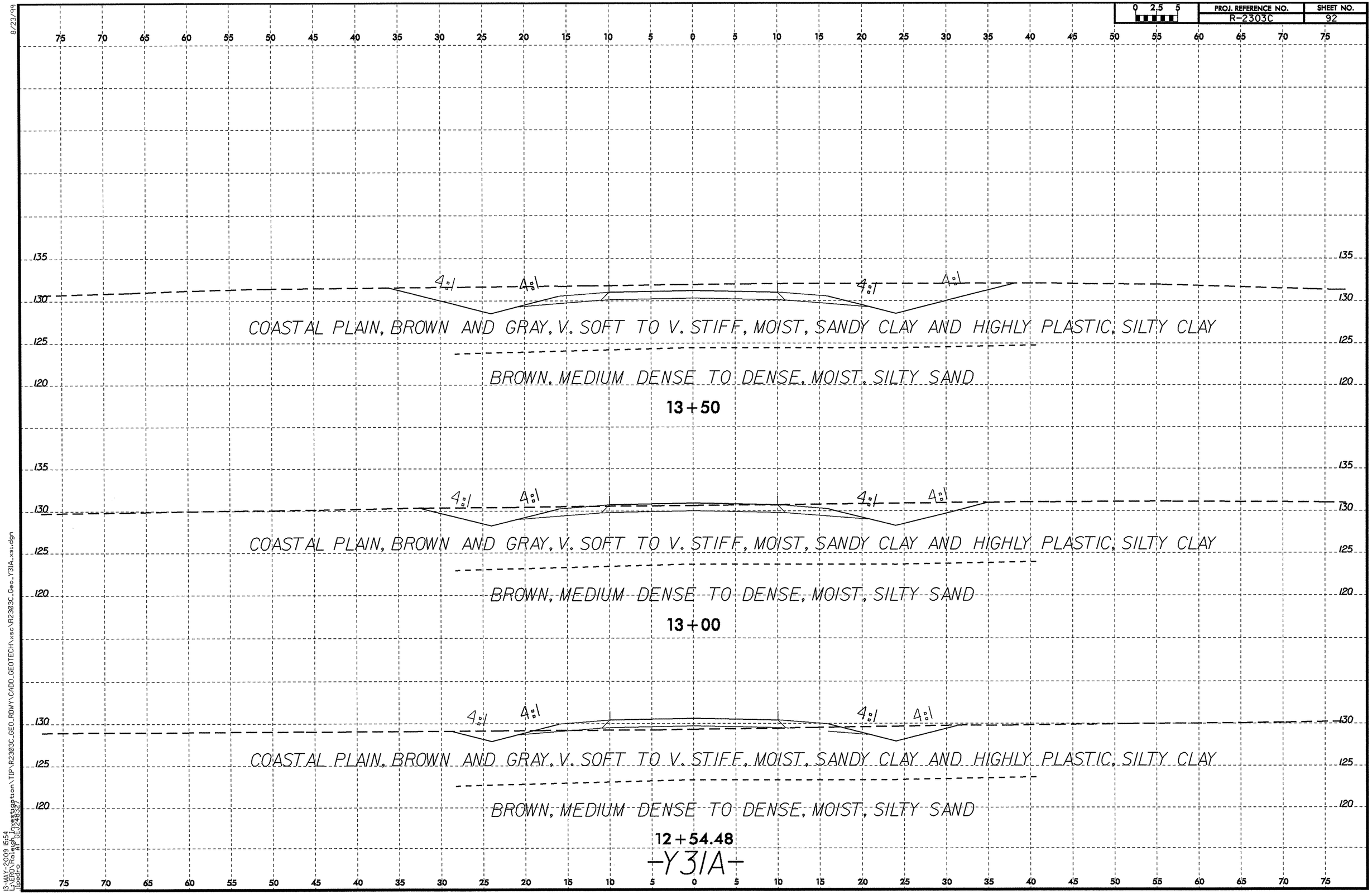

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R-2303C
SHEET NO.
92
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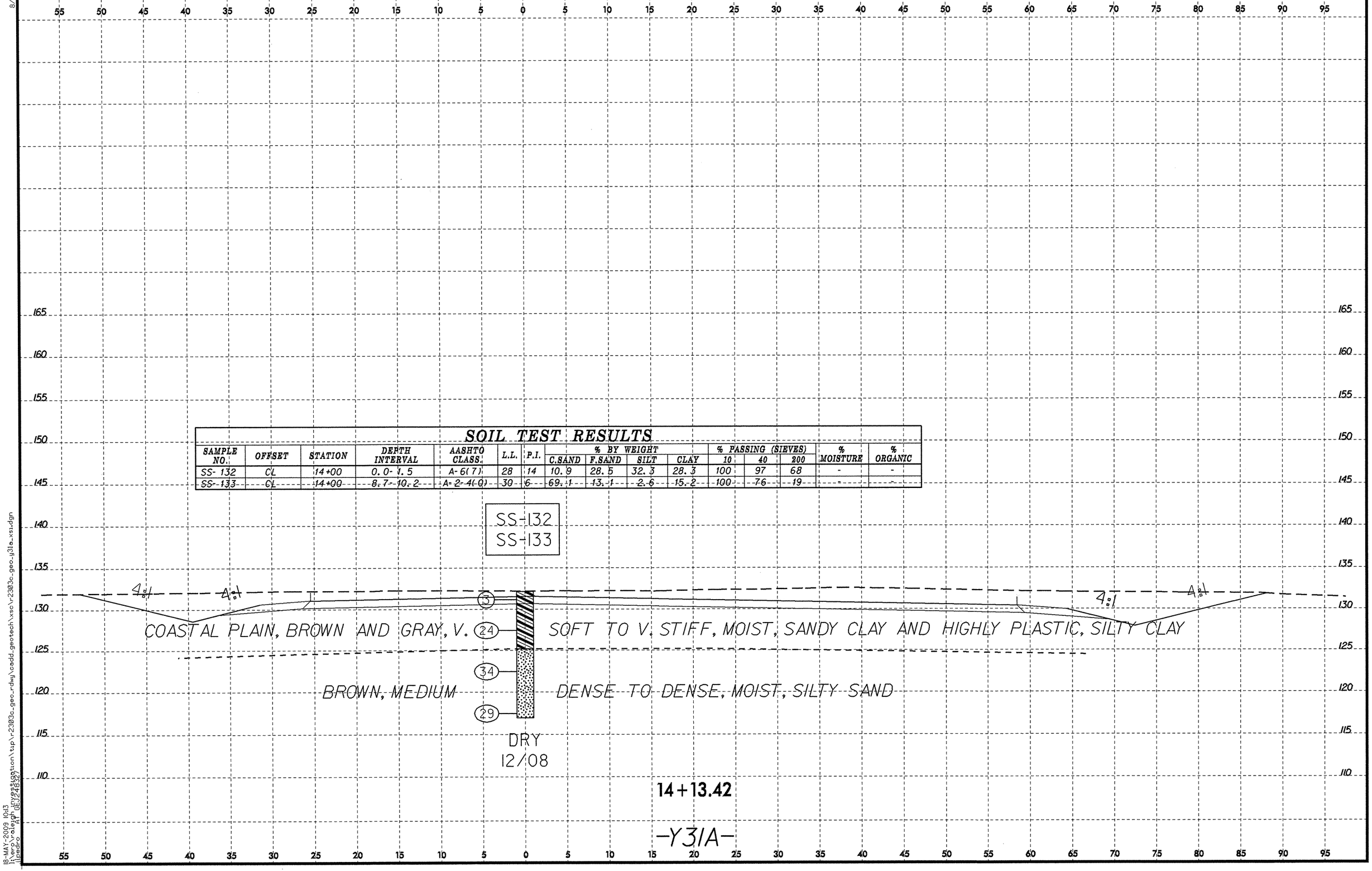
BROWN, MEDIUM DENSE TO DENSE, MOIST, SILTY SAND
13+50
13+00
12+54.48
-Y31A-

PROJ. REFERENCE NO.	SHEET NO.
R-2303C	93



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-132	CL	14+00	0.0-1.5	A-6(7)	28	14	10.9	28.5	32.3	28.3	100	97	68	-	-
SS-133	CL	14+00	8.7-10.2	A-2-4(0)	30	6	69.1	13.1	2.6	15.2	100	76	19	-	-

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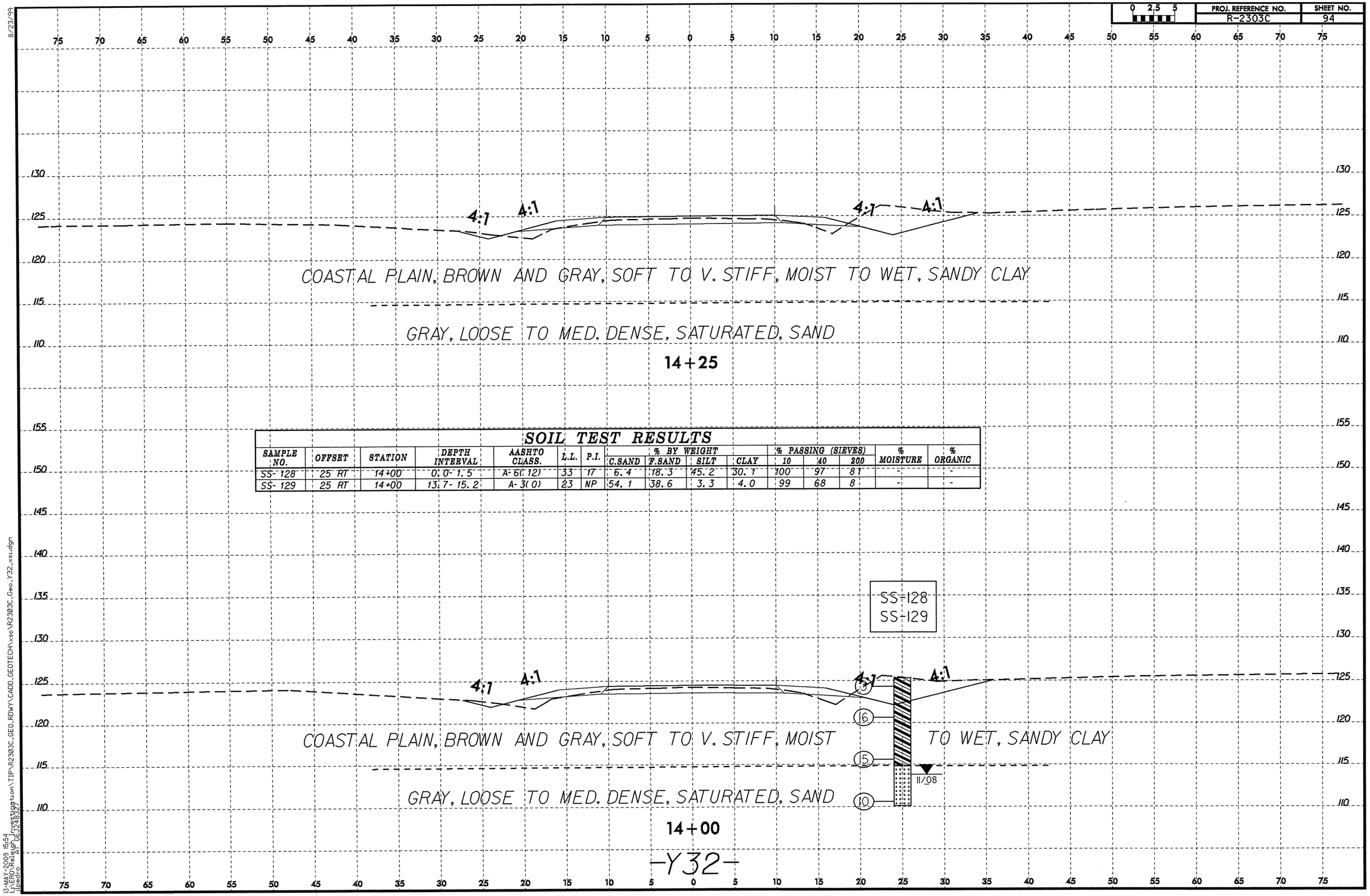

SOIL TEST RESULTS

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
SS-128	25 RT	14+00	0.0-1.5	A-6(12)	33	17	6.4	18.3	45.2	30.1	100	97	81	-	-
SS-129	25 RT	14+00	13.7-15.2	A-3(0)	23	NP	54.1	38.6	3.3	4.0	99	68	8	-	-

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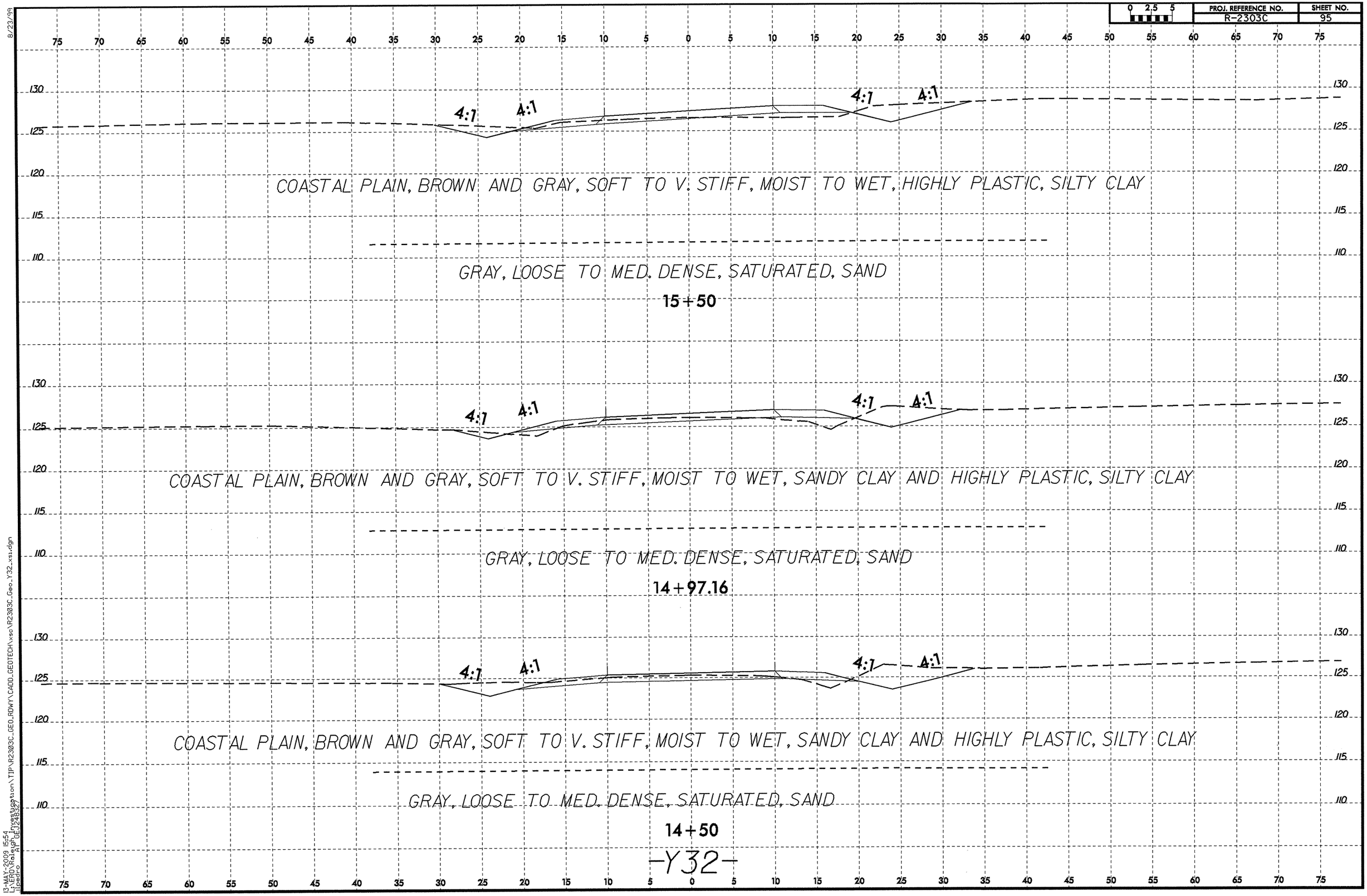

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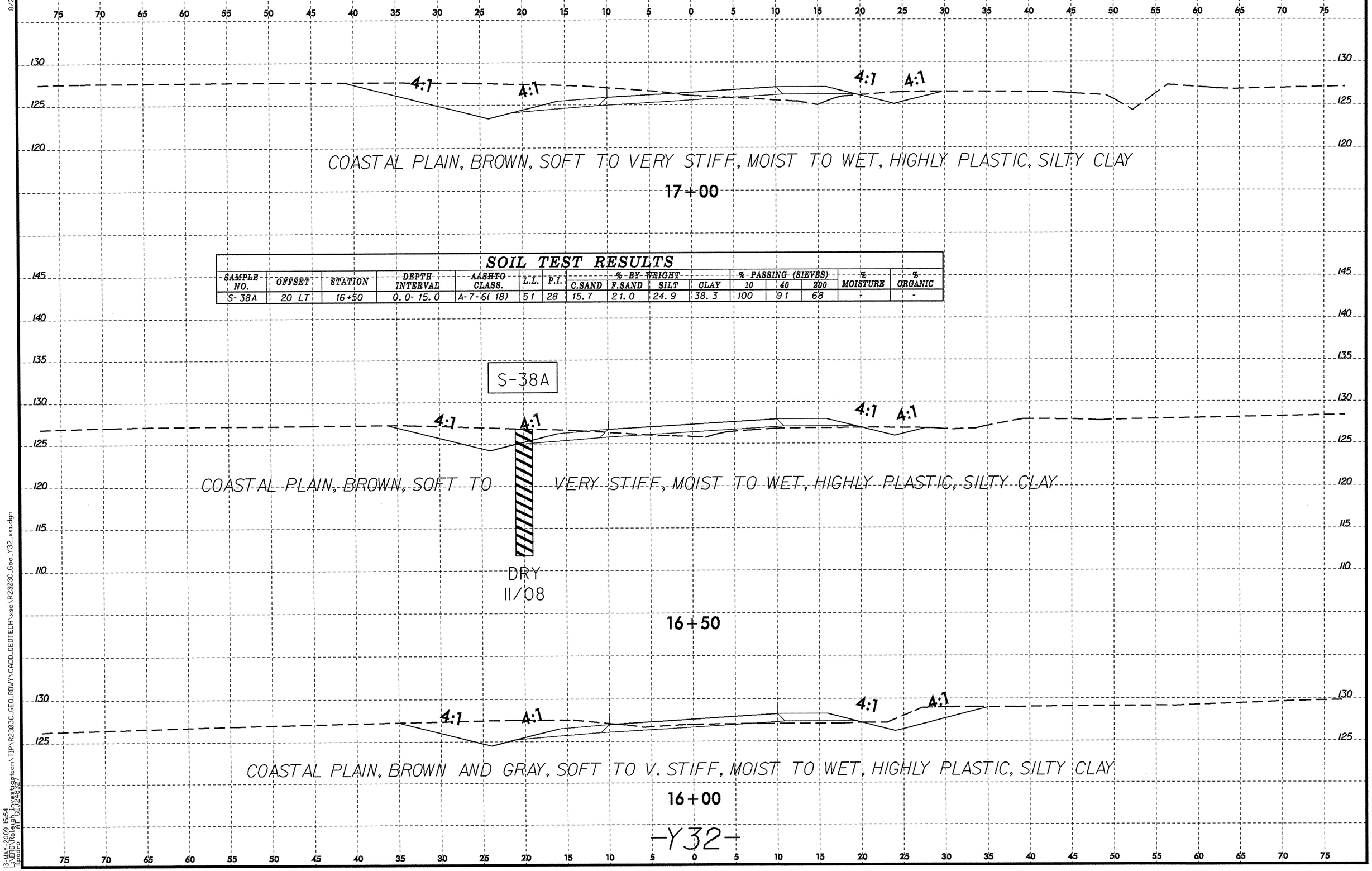

SOIL TEST RESULTS

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-38A	20 LT	16+50	0.0-15.0	A-7-6(18)	51	28	15.7	21.0	24.9	38.3	100	91	68	-	-

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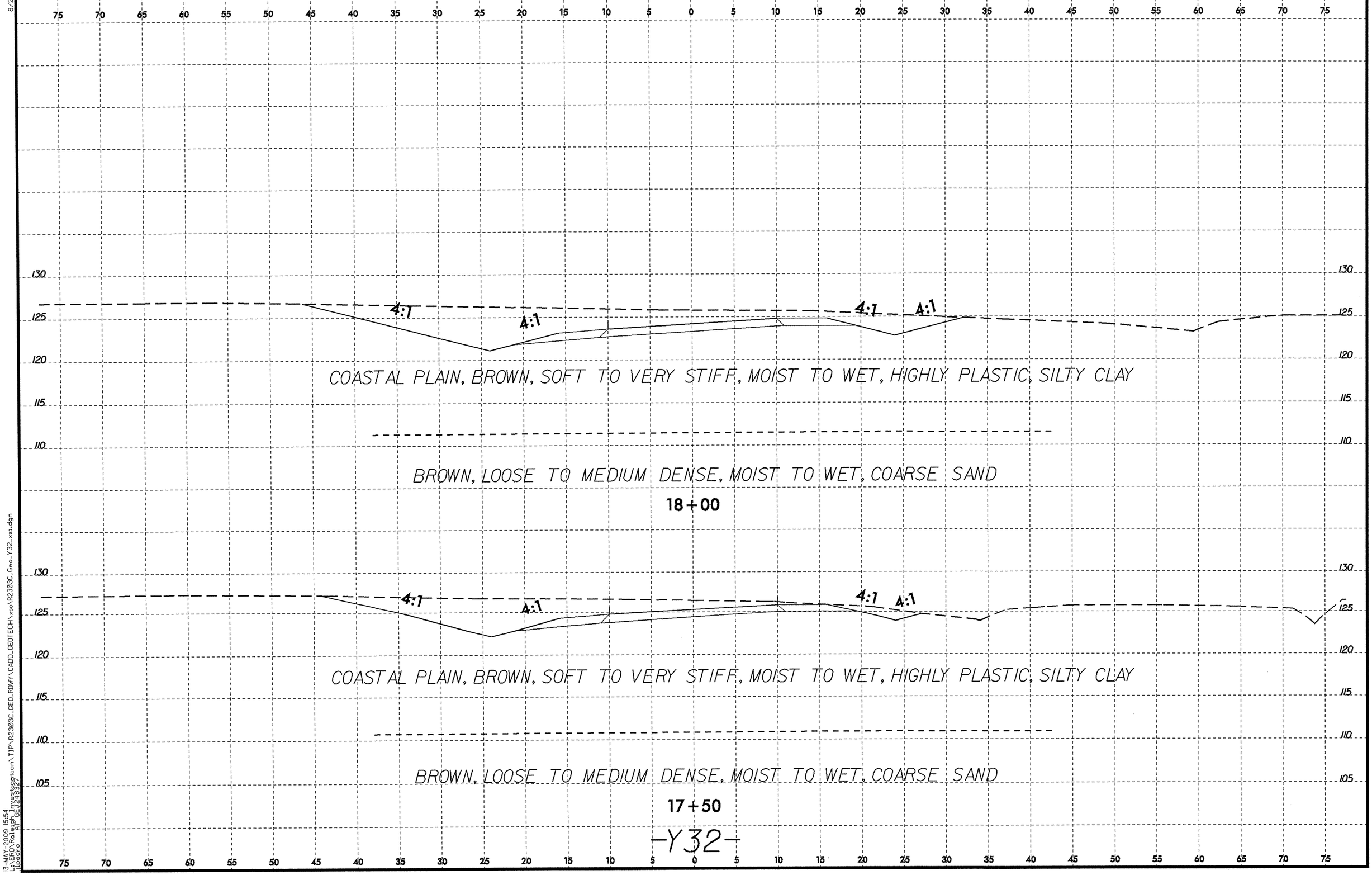

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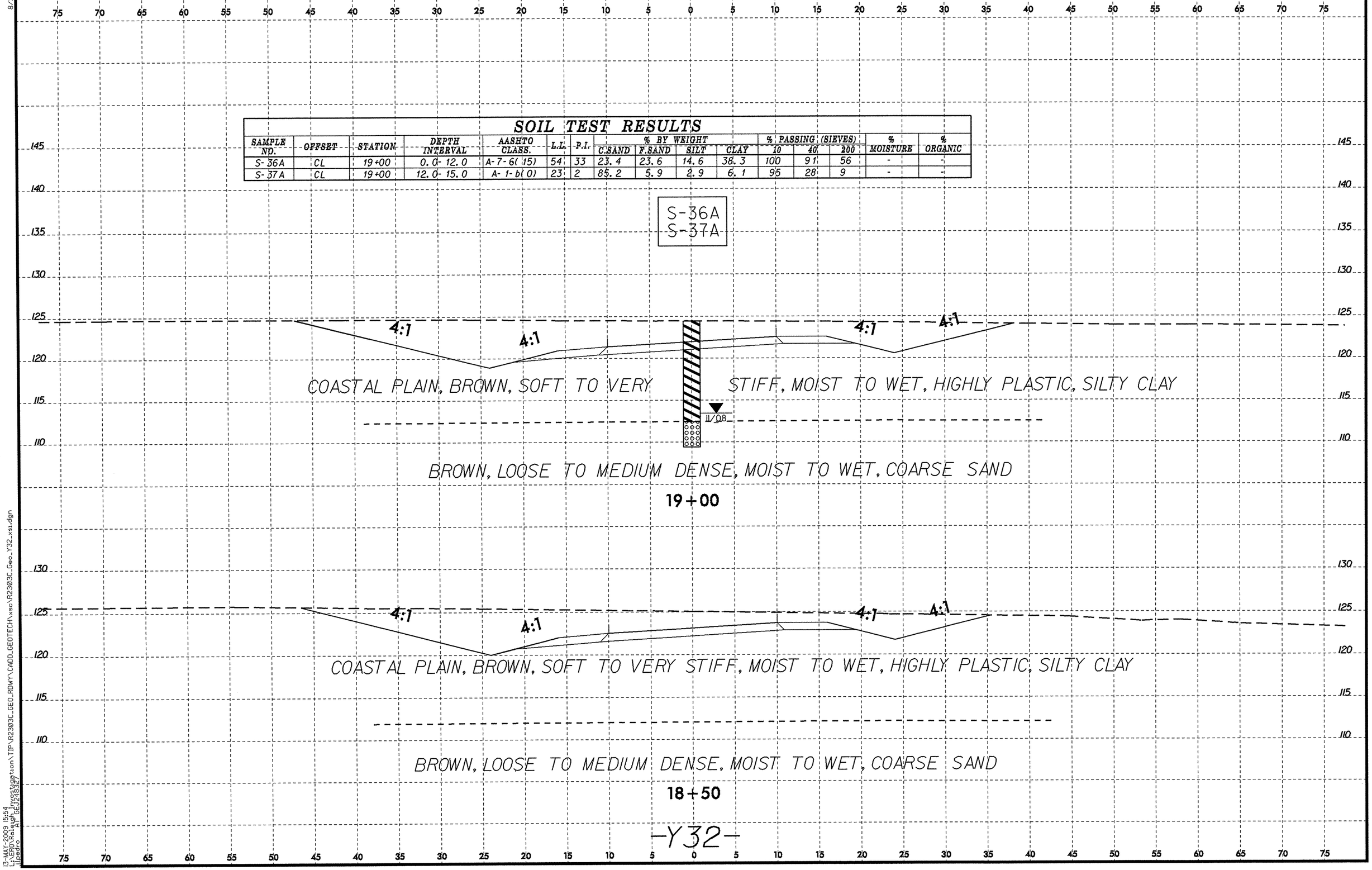
PROJ. REFERENCE NO. R-2303C | SHEET NO. 98

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-36A	CL	19+00	0.0-12.0	A-7-6(15)	54	33	23.4	23.6	14.6	38.3	100	91	56	-	-
S-37A	CL	19+00	12.0-15.0	A-1-b(0)	23	2	85.2	5.9	2.9	6.1	95	28	9	-	-



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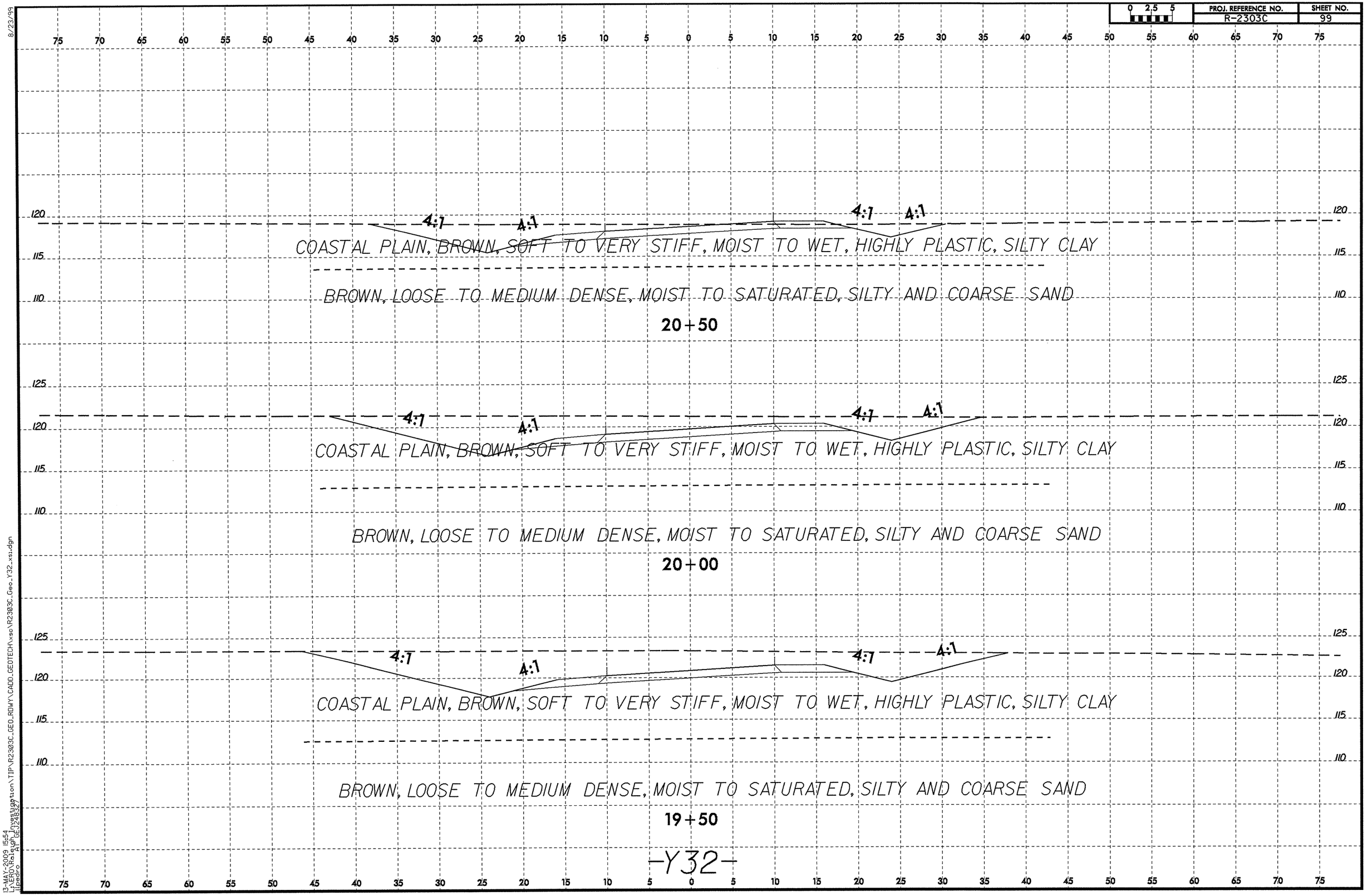

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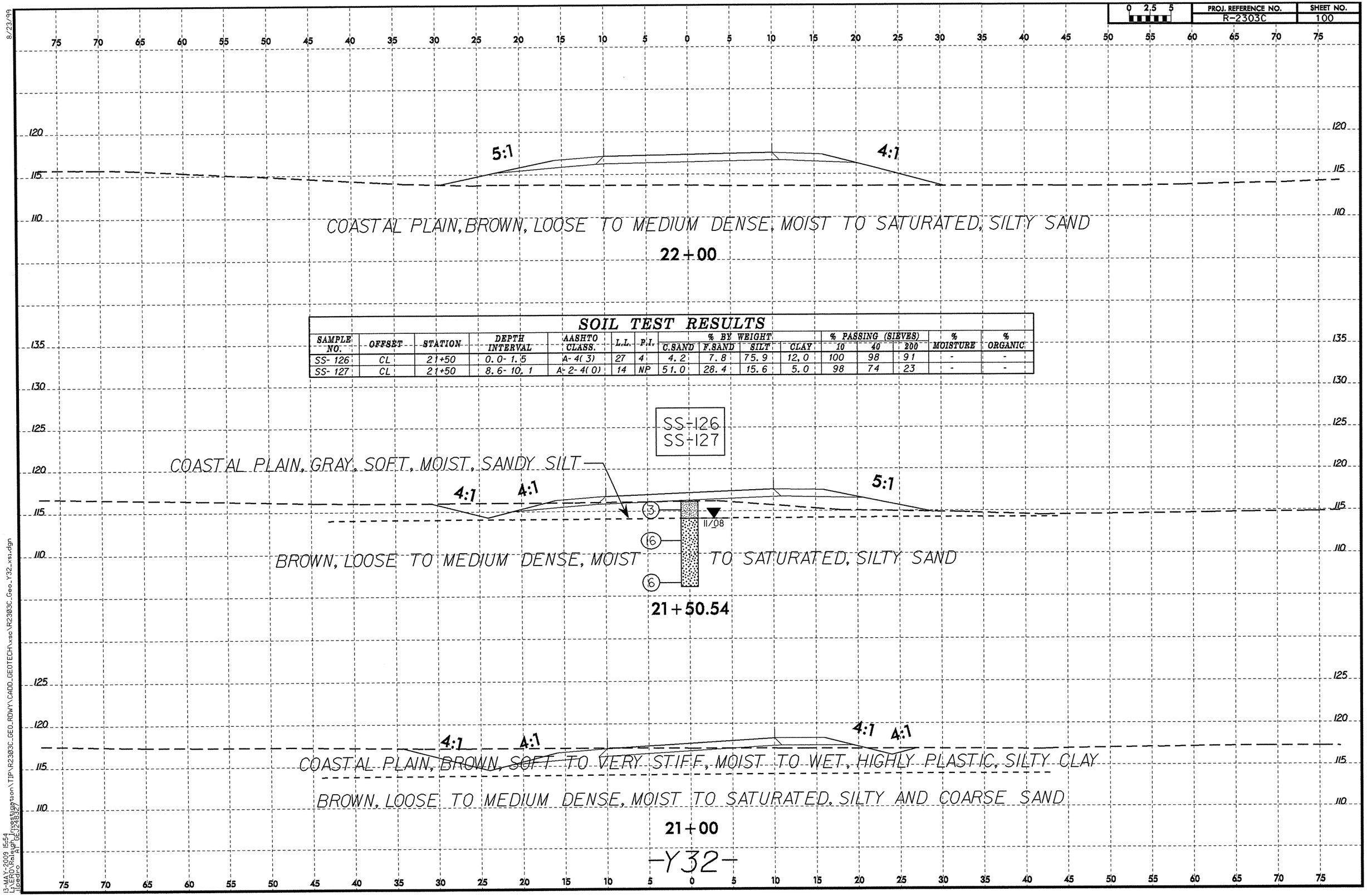

SOIL TEST RESULTS

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
SS-126	CL	21+50	0.0-1.5	A-4(3)	27	4	4.2	7.8	75.9	12.0	100	98	91	-	-
SS-127	CL	21+50	8.6-10.1	A-2-4(0)	14	NP	51.0	28.4	15.6	5.0	98	74	23	-	-

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APPENDIX A:

CONSULTANT CPT LOGS

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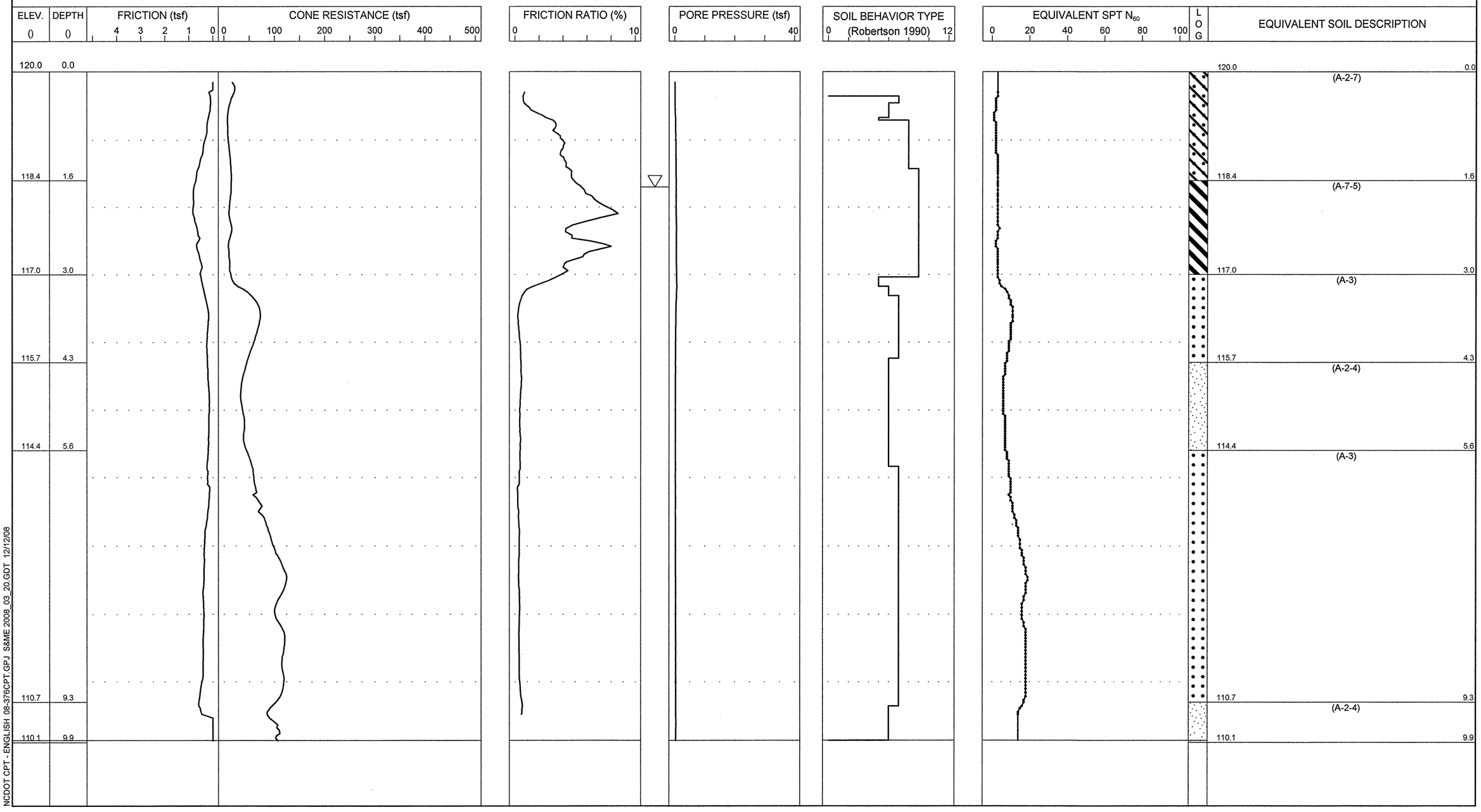
N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 733+00 -L-	**BORING LOCATION** 733+00	**OFFSET** 10 LT	**ALIGNMENT** -L-	**0 HR.** 1.7	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 120.0	**NORTHING** 443,807.0	**EASTING** 2,135,768.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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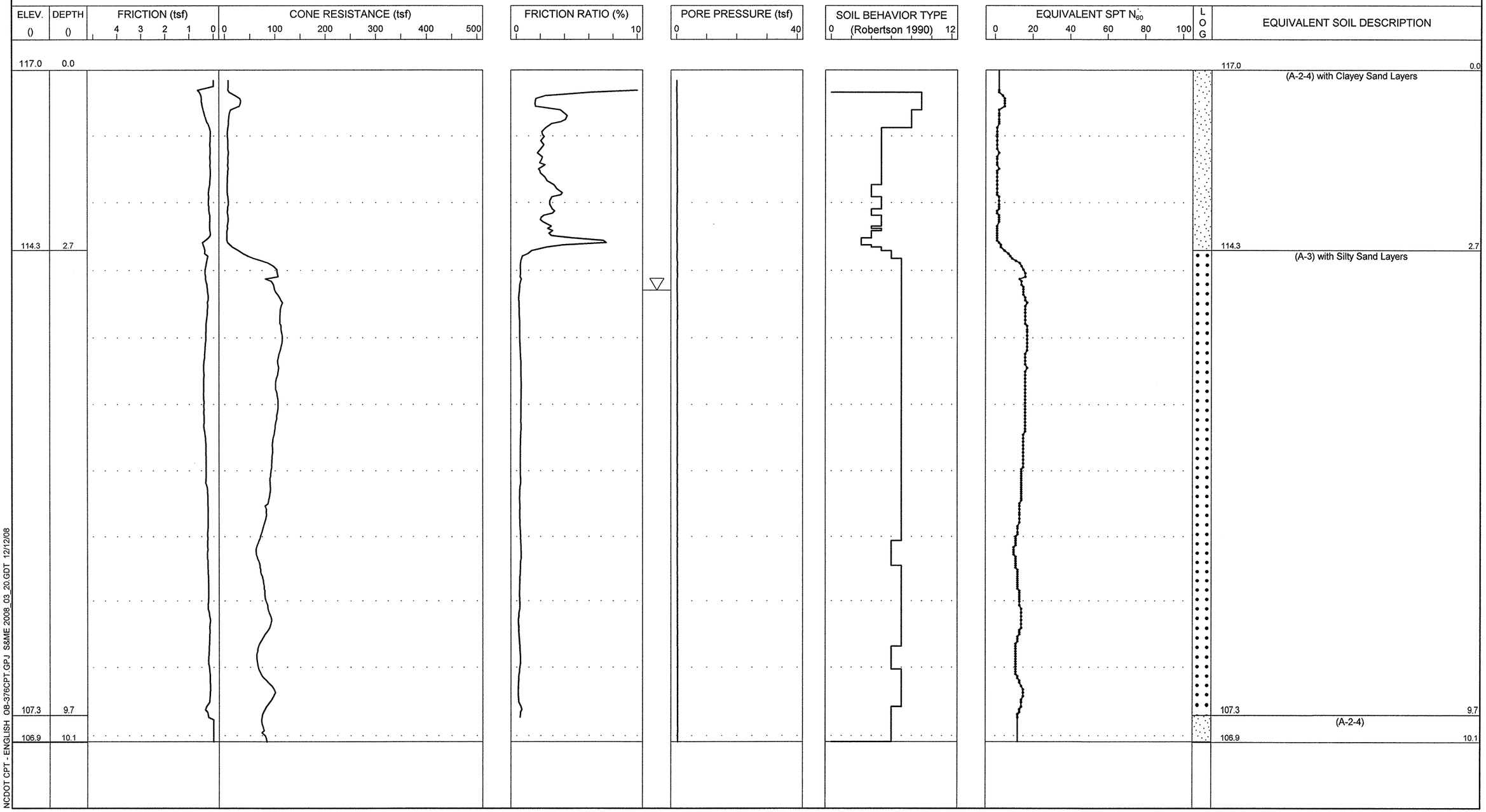
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 736+00 -L-	**BORING LOCATION** 736+00	**OFFSET** 20 LT	**ALIGNMENT** -L-	**0 HR.** 3.3	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 117.0	**NORTHING** 443,711.0	**EASTING** 2,136,053.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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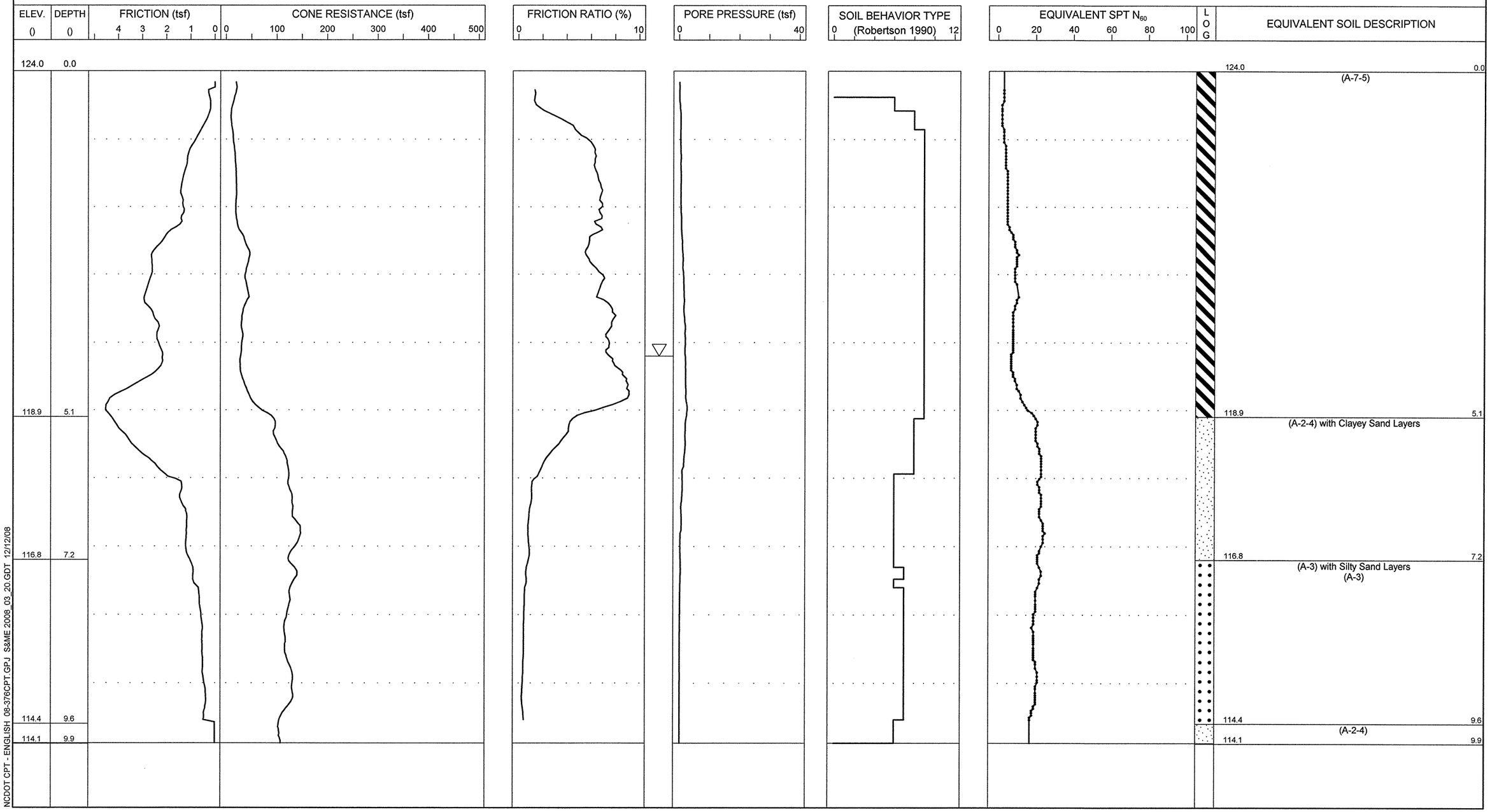
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 741+00 -L-	**BORING LOCATION** 741+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 4.2	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.0	**NORTHING** 443,530.0	**EASTING** 2,136,518.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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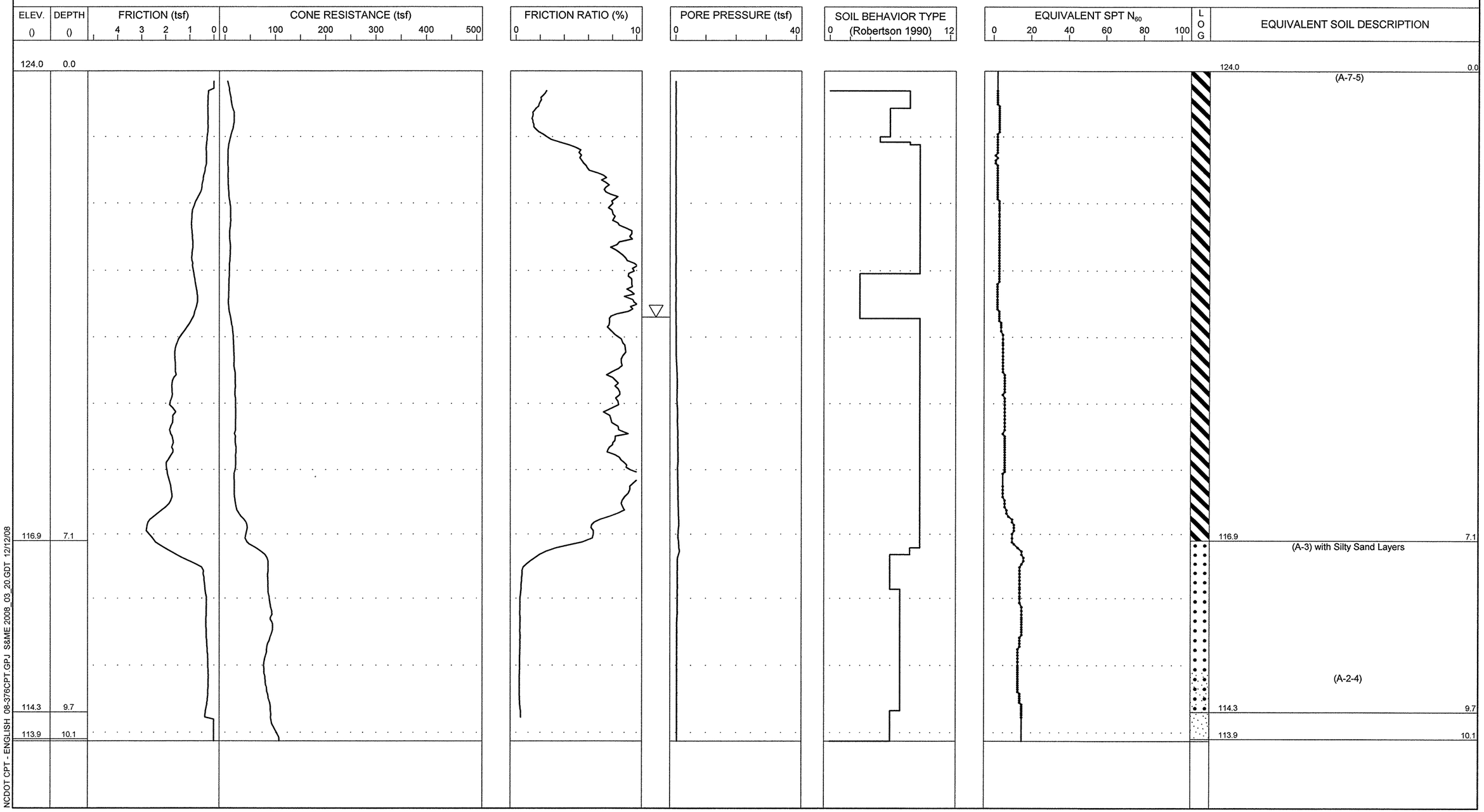
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 743+50 -L-	**BORING LOCATION** 743+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.7	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.0	**NORTHING** 443,474.0	**EASTING** 2,136,762.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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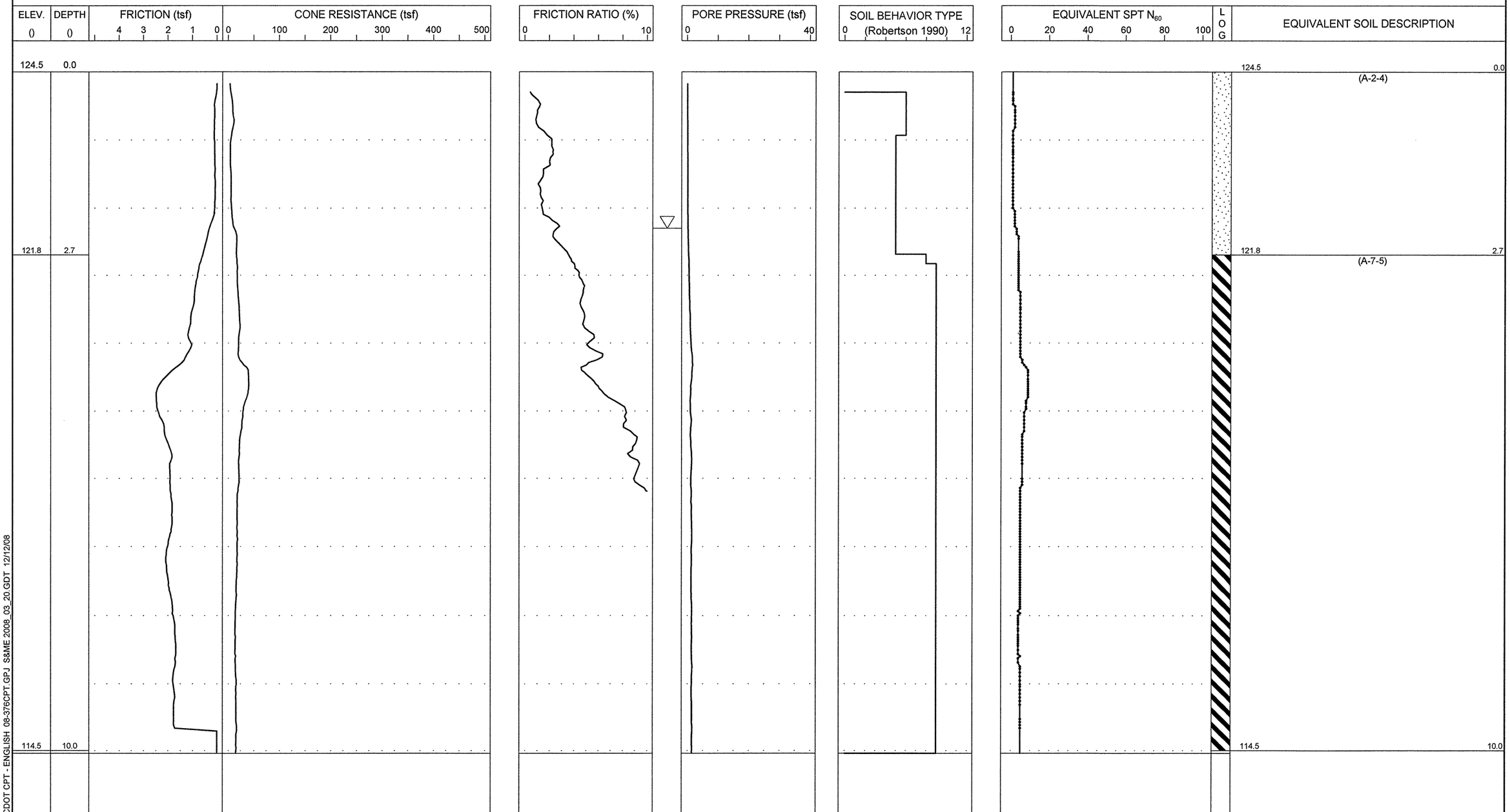
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 753+00 -L-	**BORING LOCATION** 753+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.3	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.5	**NORTHING** 443,459.0	**EASTING** 2,137,757.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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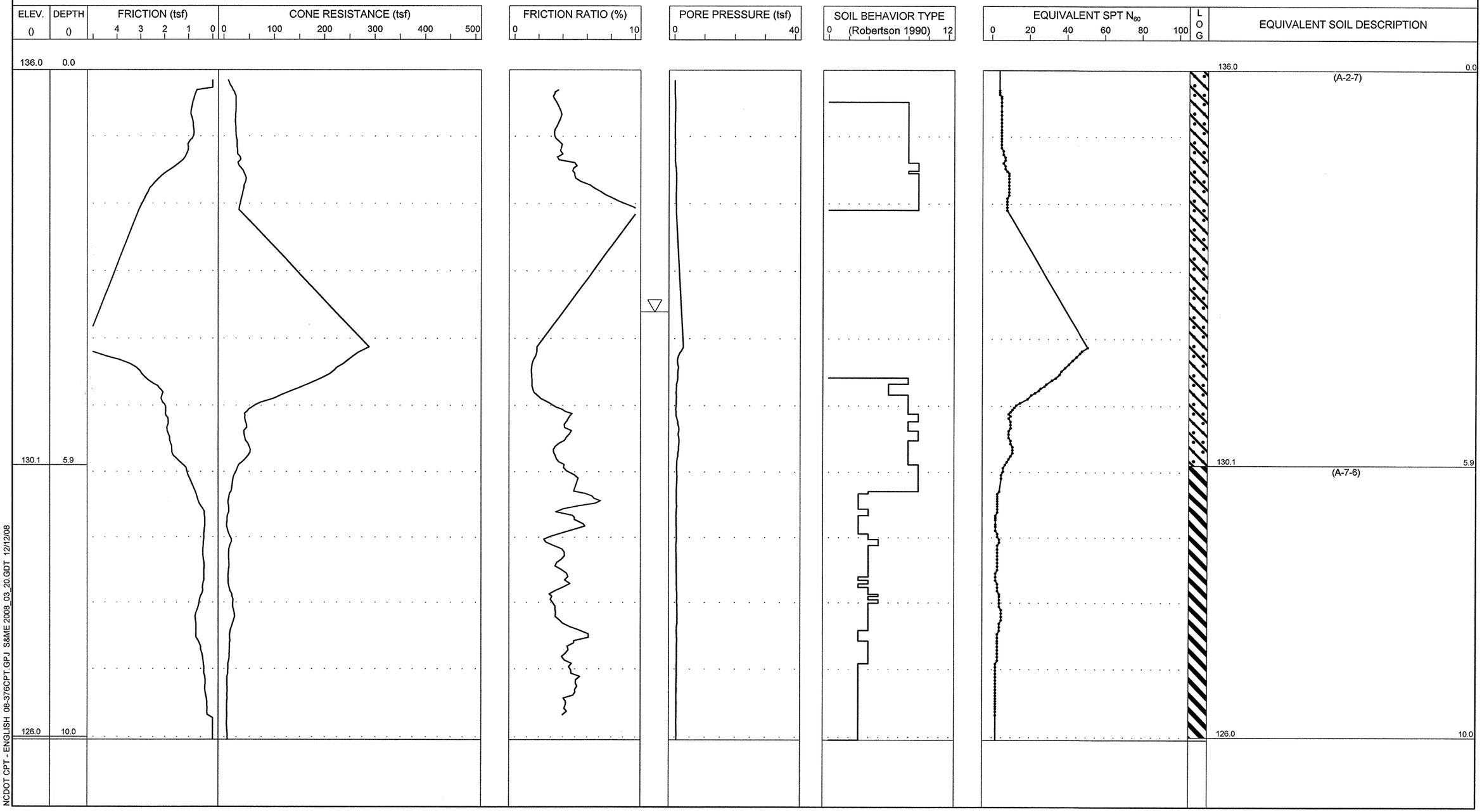
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 756+00 -L-	**BORING LOCATION** 756+00	**OFFSET** 0 CL / **ALIGNMENT** -L-	**0 HR.** 3.6	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 136.0	**NORTHING** 443,508.0	**EASTING** 2,138,002.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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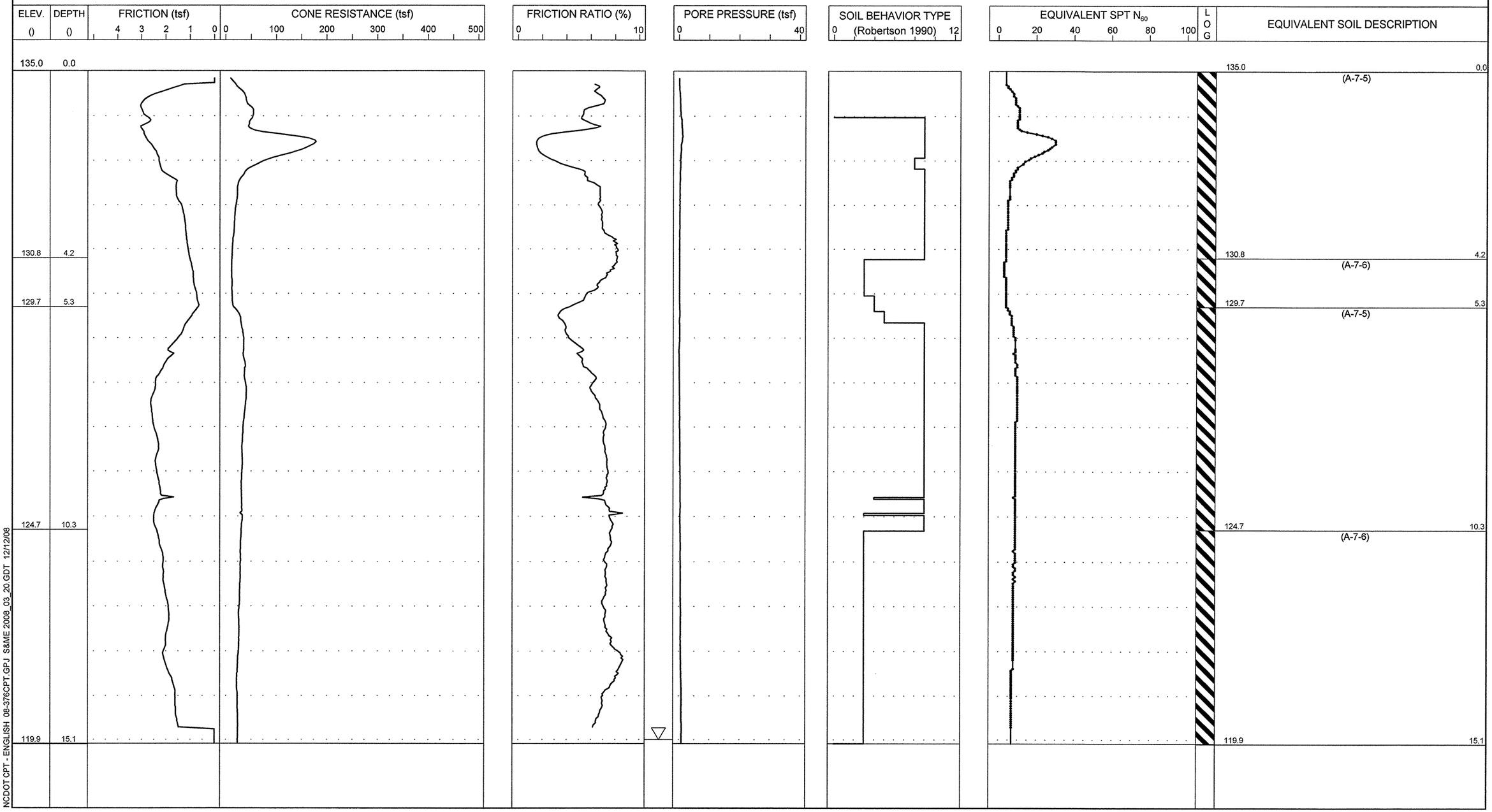
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 761+00 -L-	**BORING LOCATION** 761+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 15.0	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 135.0	**NORTHING** 443,667.0	**EASTING** 2,138,475.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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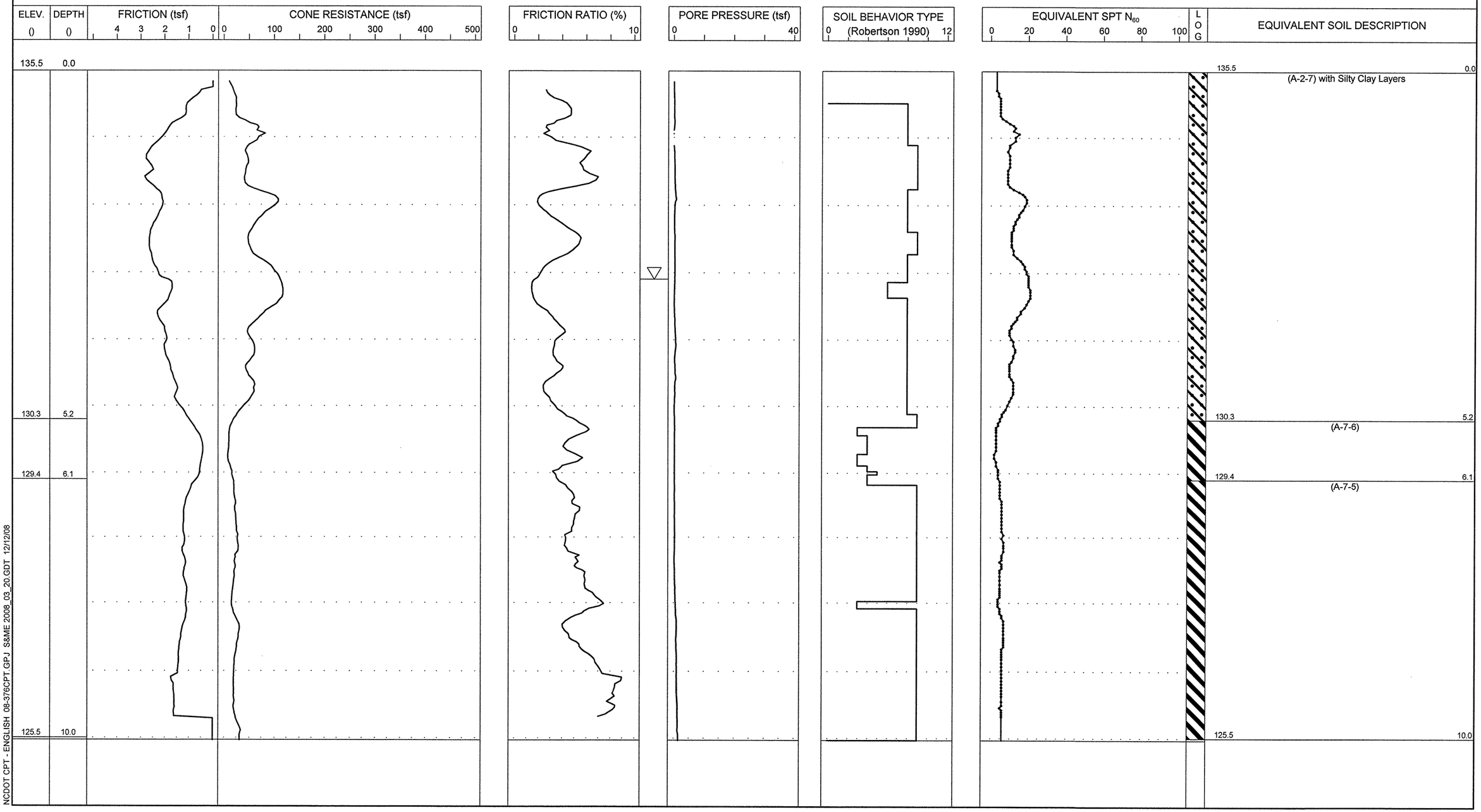
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 763+50 -L-	**BORING LOCATION** 763+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.1	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 135.5	**NORTHING** 443,775.0	**EASTING** 2,138,700.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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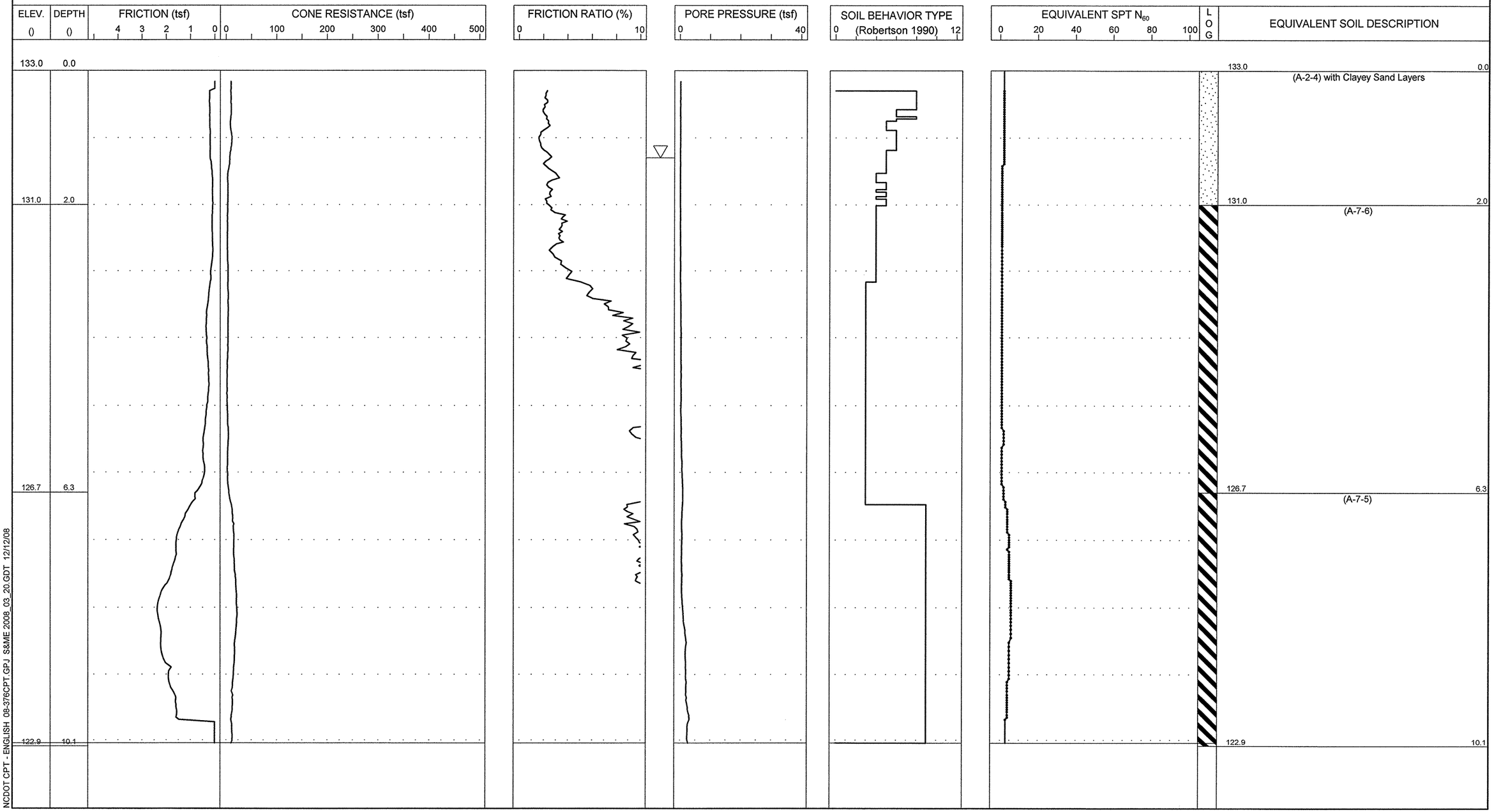
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 771+00 -L-	**BORING LOCATION** 771+00	**OFFSET** 0 CL / **ALIGNMENT** -L-	**0 HR.** 1.3	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,158.0	**EASTING** 2,139,345.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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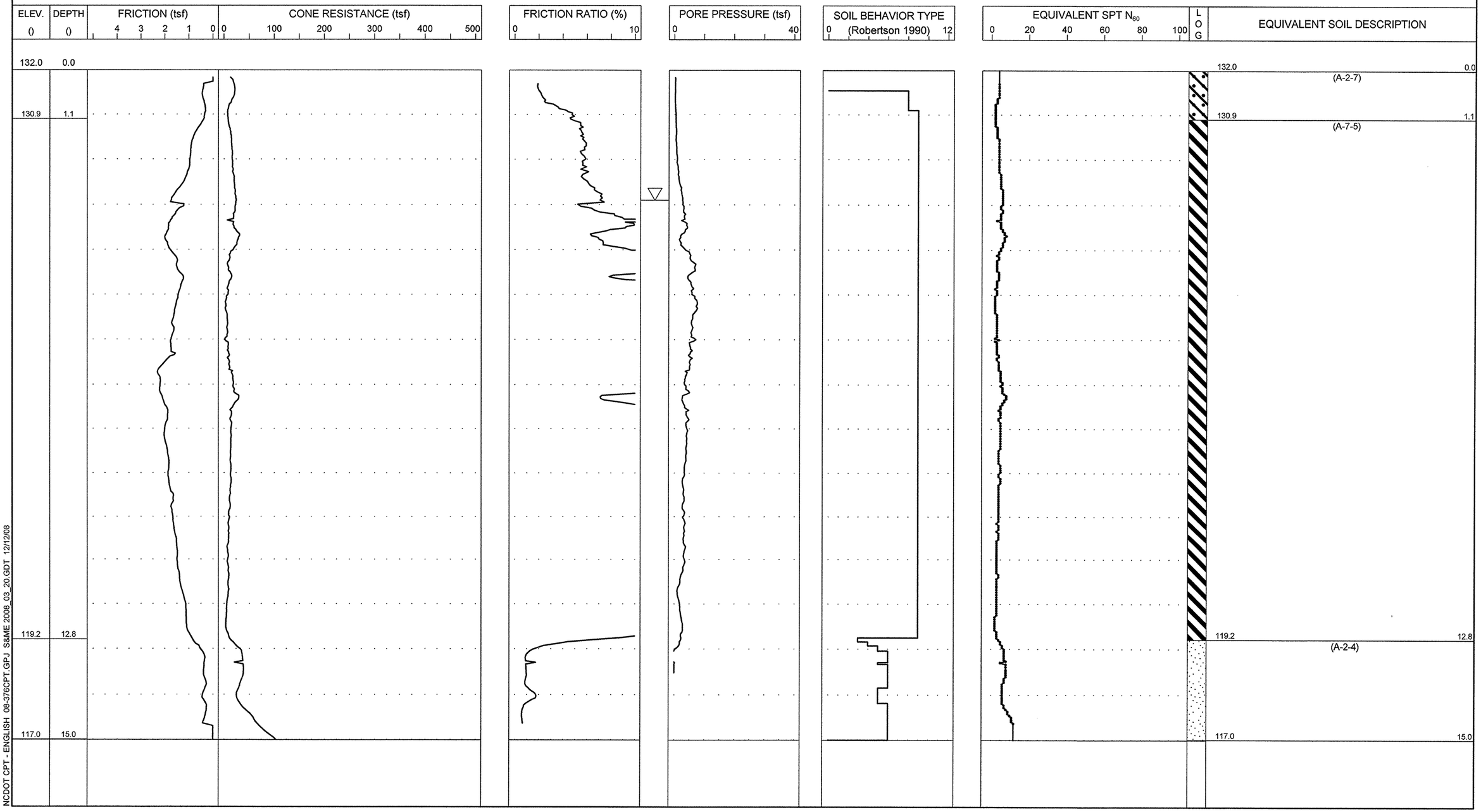
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 773+00 -L-	**BORING LOCATION** 773+00	**OFFSET** 20 LT	**ALIGNMENT** -L-	**0 HR.** 2.9	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 132.0	**NORTHING** 444,293.0	**EASTING** 2,139,558.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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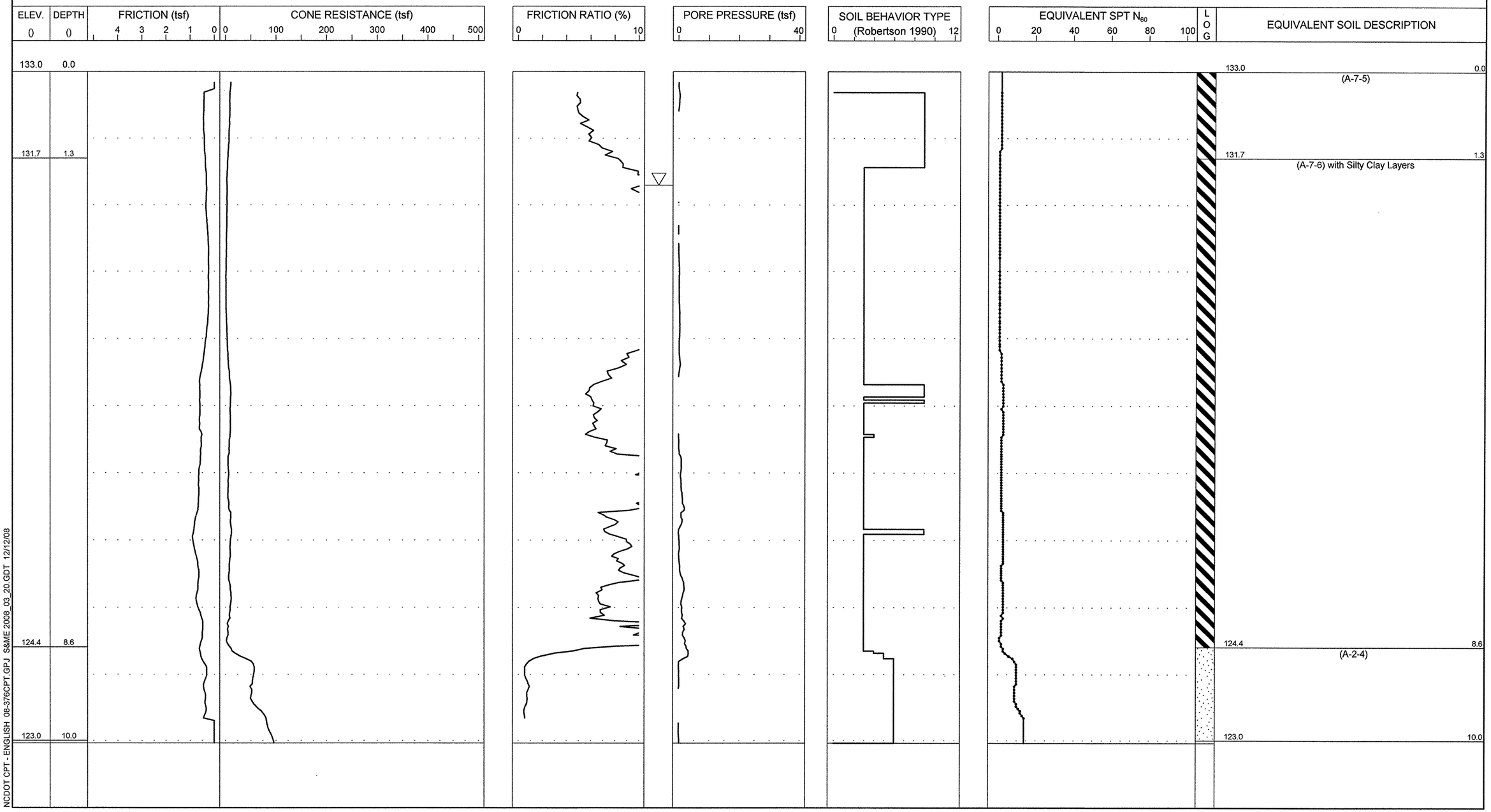
N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 778+50 -L-	**BORING LOCATION** 778+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 1.7	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,464.0	**EASTING** 2,140,029.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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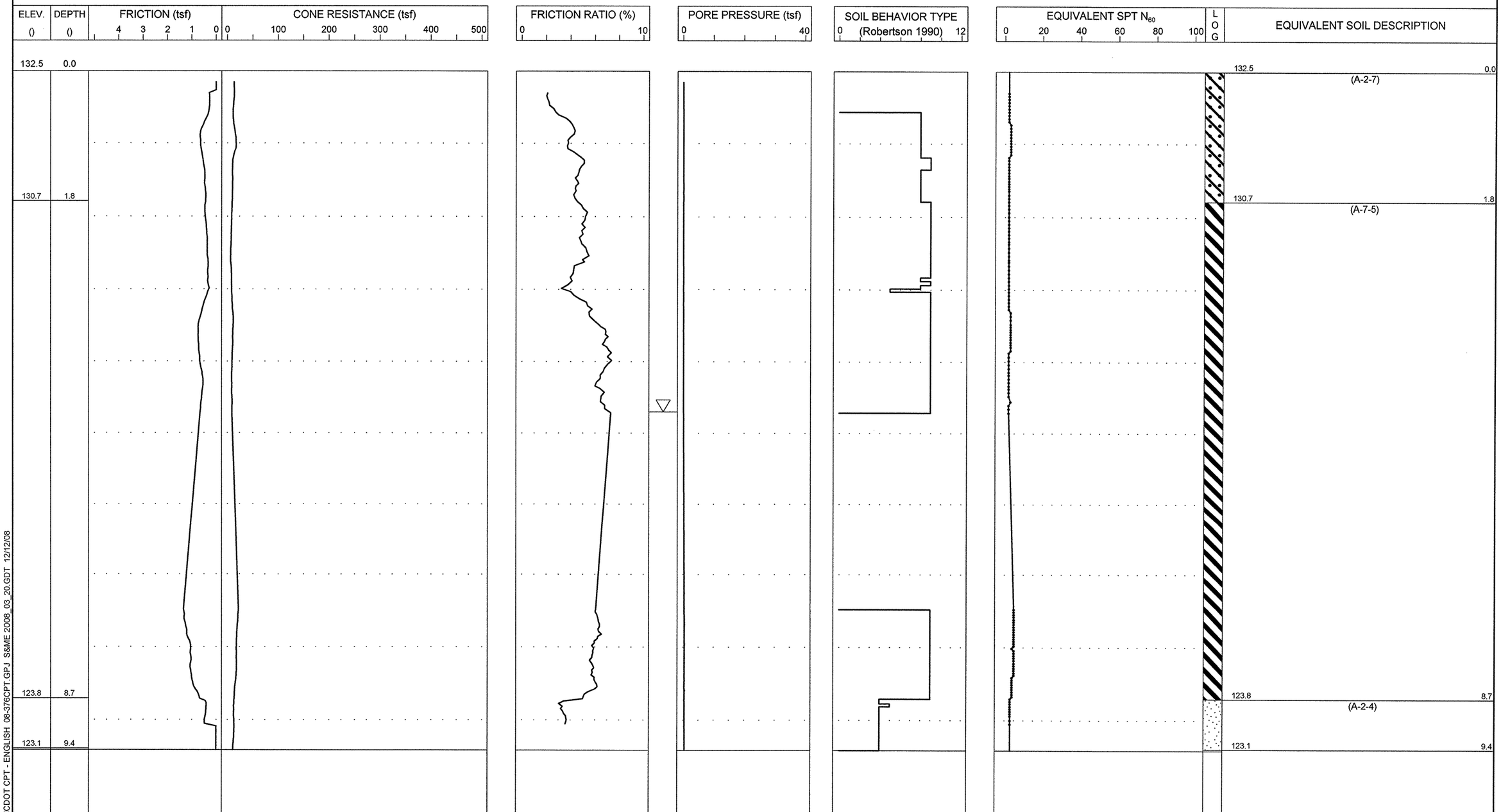
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.4	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 781+00 -L-	**BORING LOCATION** 781+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 4.7	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 132.5	**NORTHING** 444,537.0	**EASTING** 2,140,268.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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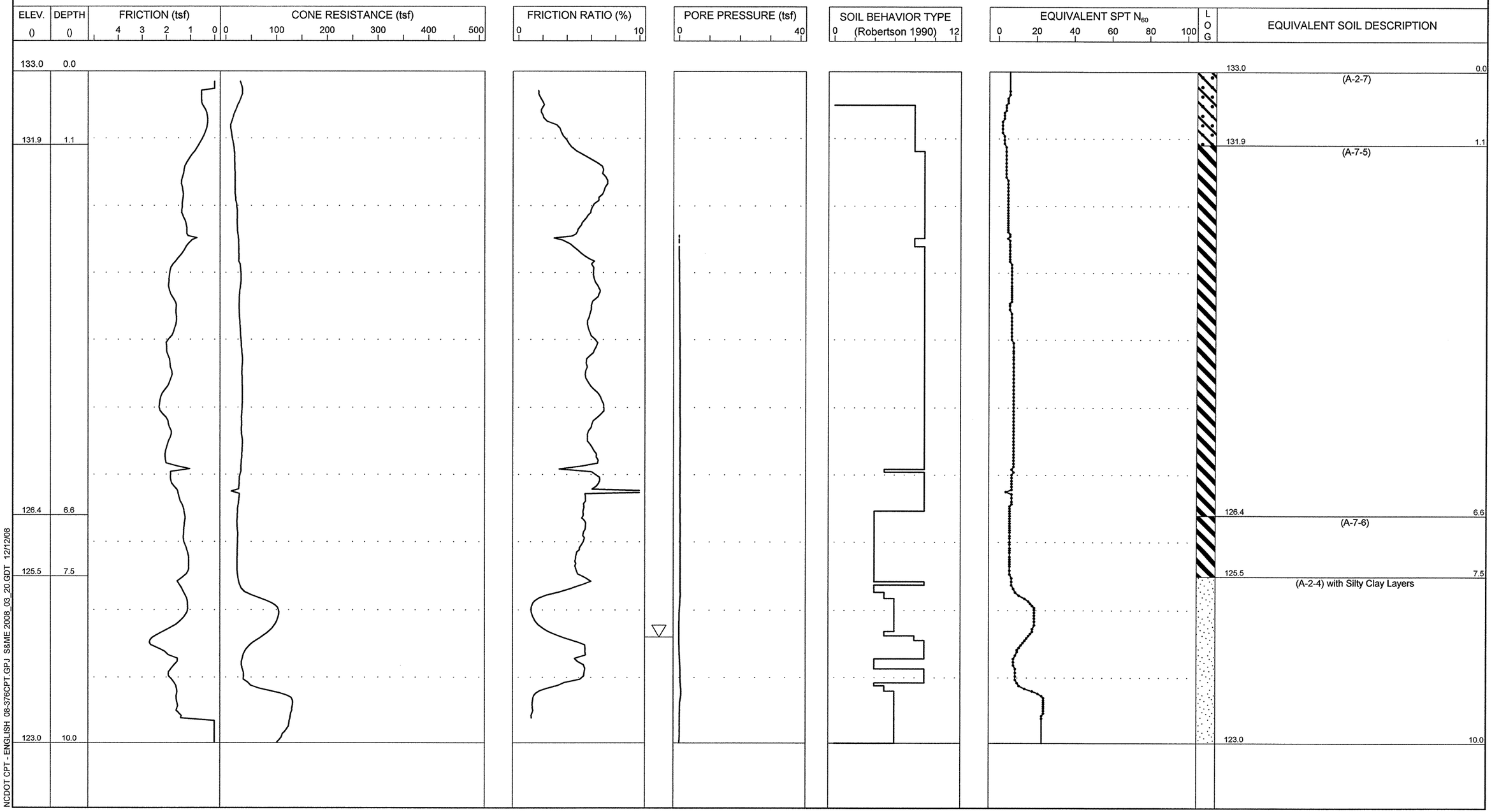
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 786+00 -L-	**BORING LOCATION** 786+00	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 8.4	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,605.0	**EASTING** 2,140,762.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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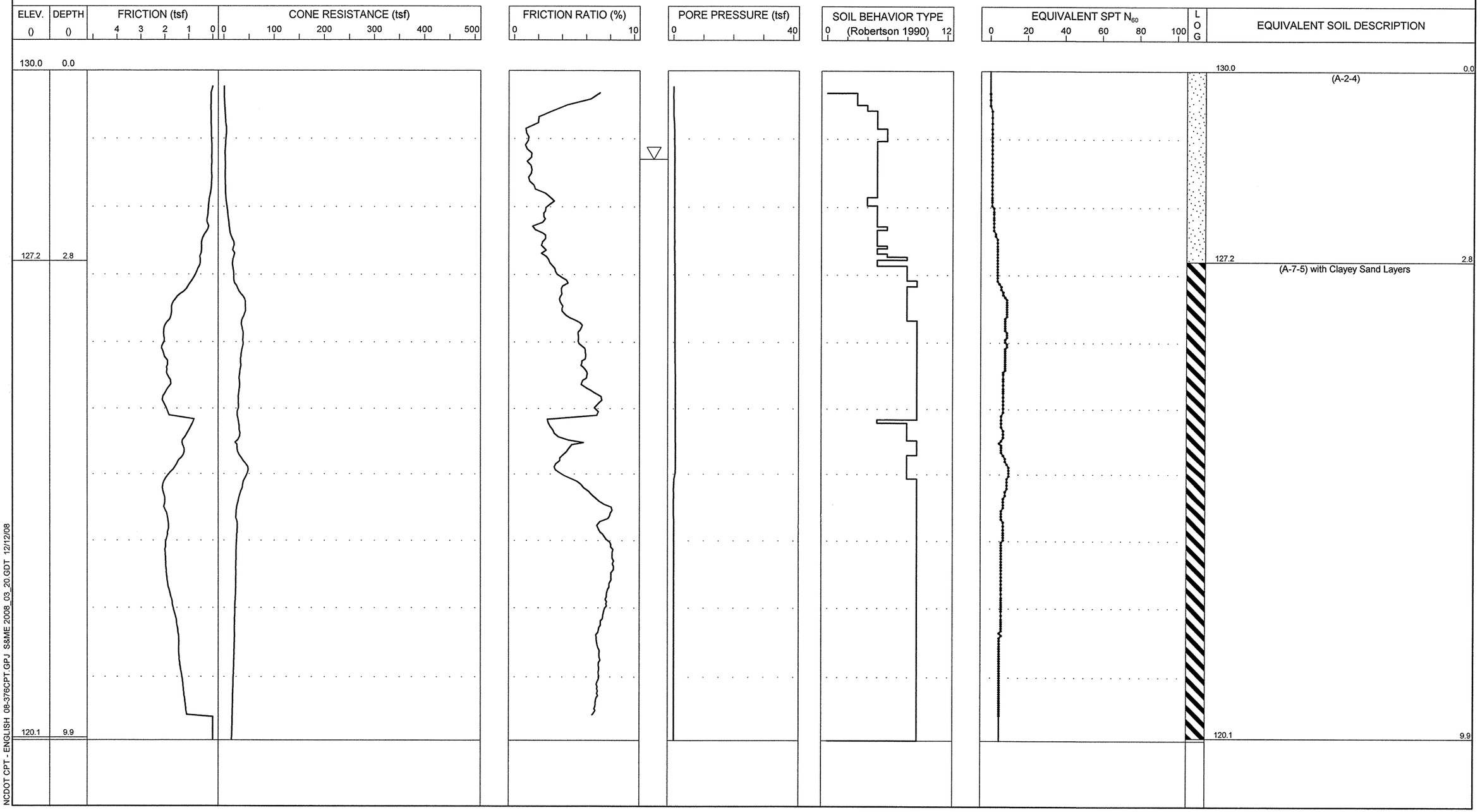
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 788+50 -L-	**BORING LOCATION** 788+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 1.3	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 130.0	**NORTHING** 444,672.0	**EASTING** 2,141,005.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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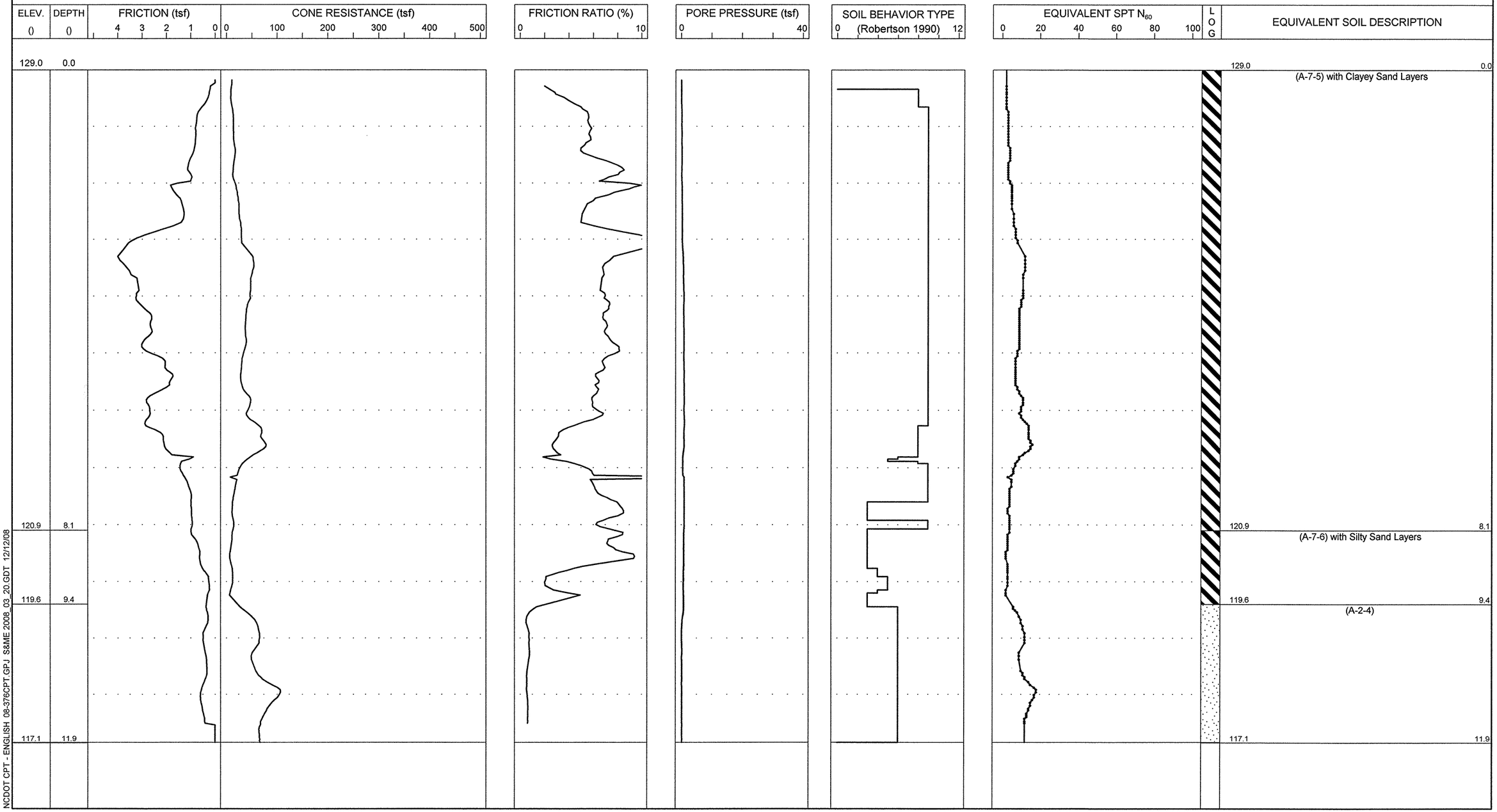
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 11.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 793+50 -L-	**BORING LOCATION** 793+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.**	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 129.0	**NORTHING** 444,746.0	**EASTING** 2,141,500.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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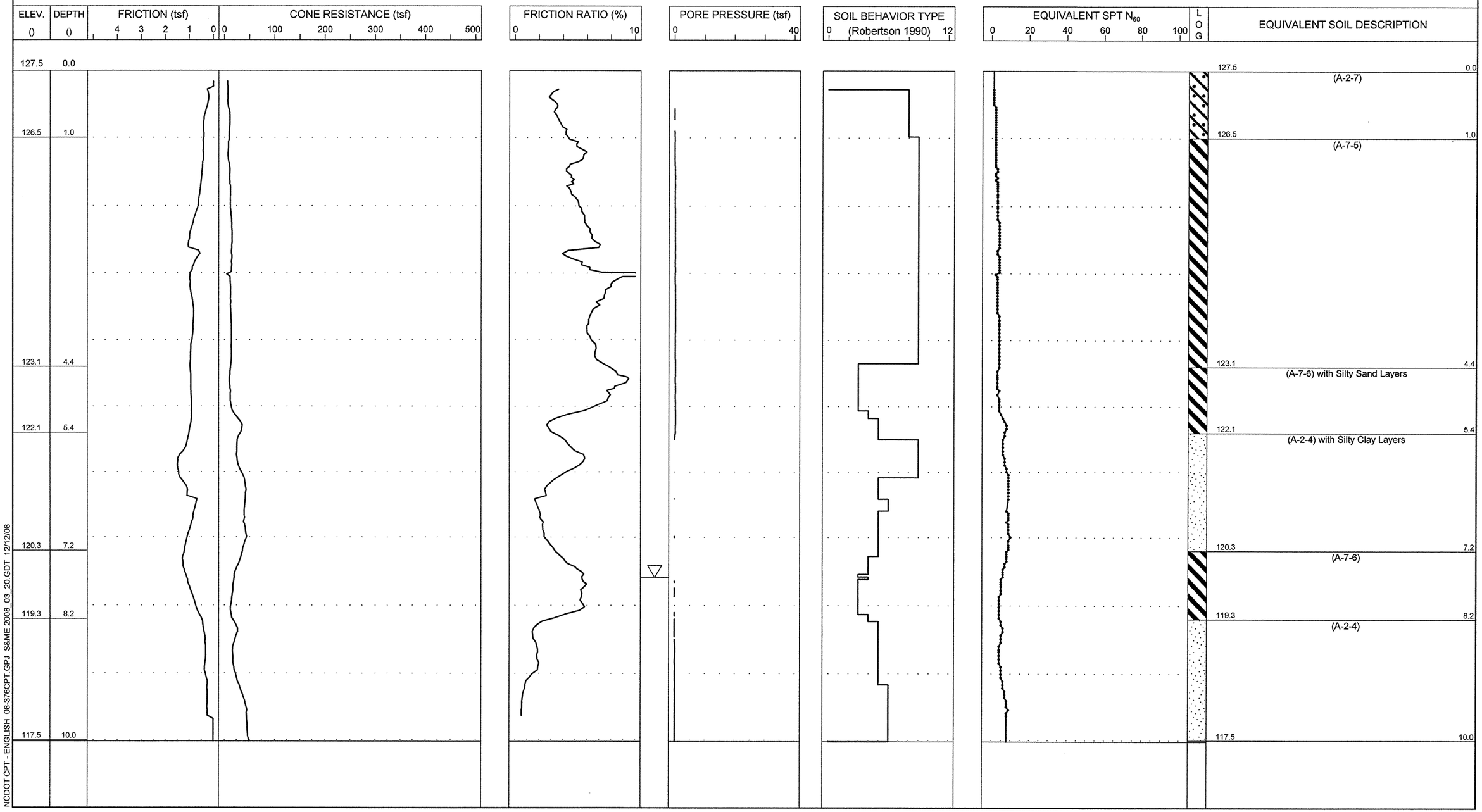
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 796+00 -L-	**BORING LOCATION** 796+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 7.6	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 127.5	**NORTHING** 444,778.0	**EASTING** 2,141,748.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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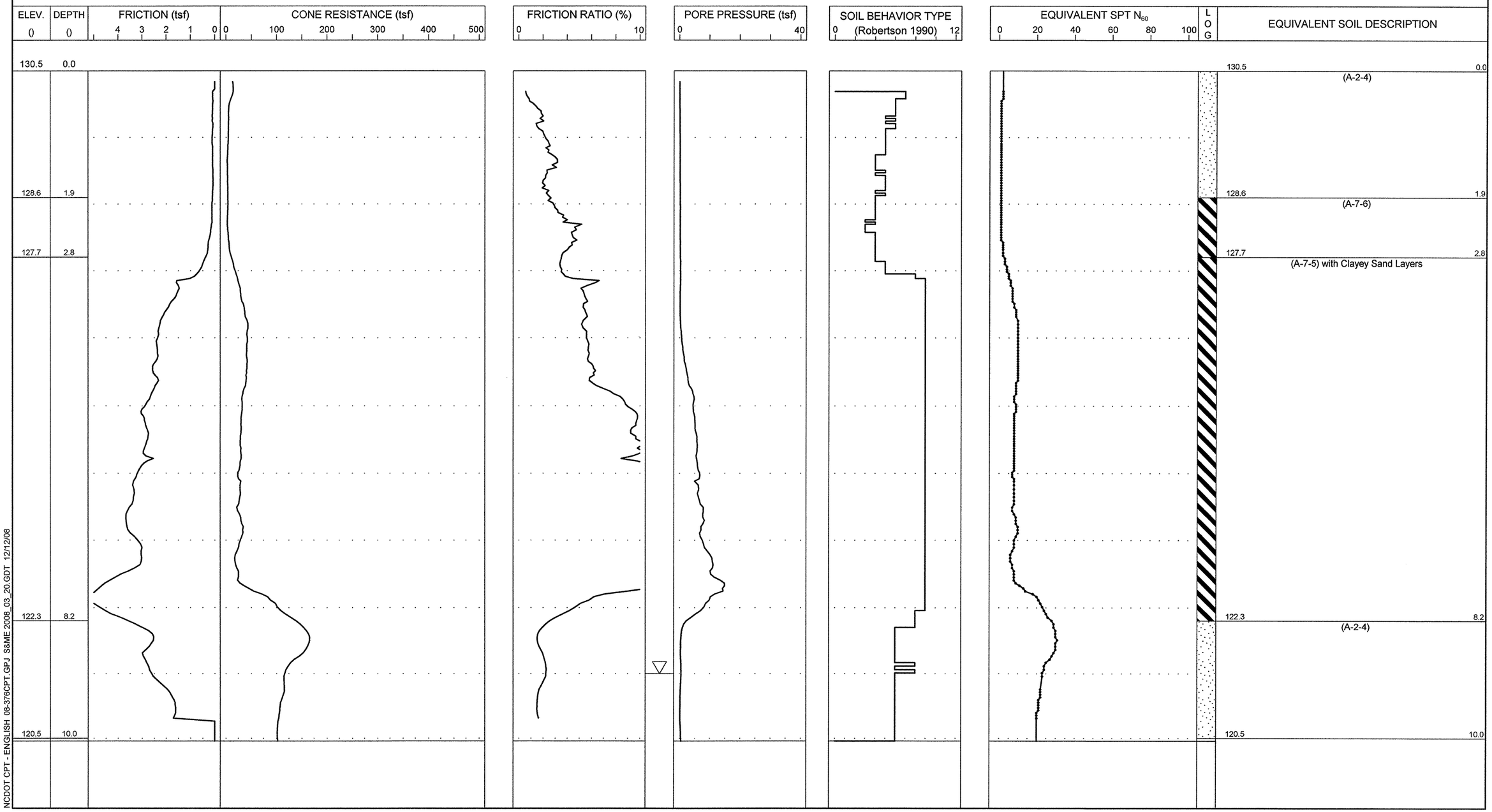
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 801+00 -L-	**BORING LOCATION** 801+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 9.0	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 130.5	**NORTHING** 444,794.0	**EASTING** 2,142,247.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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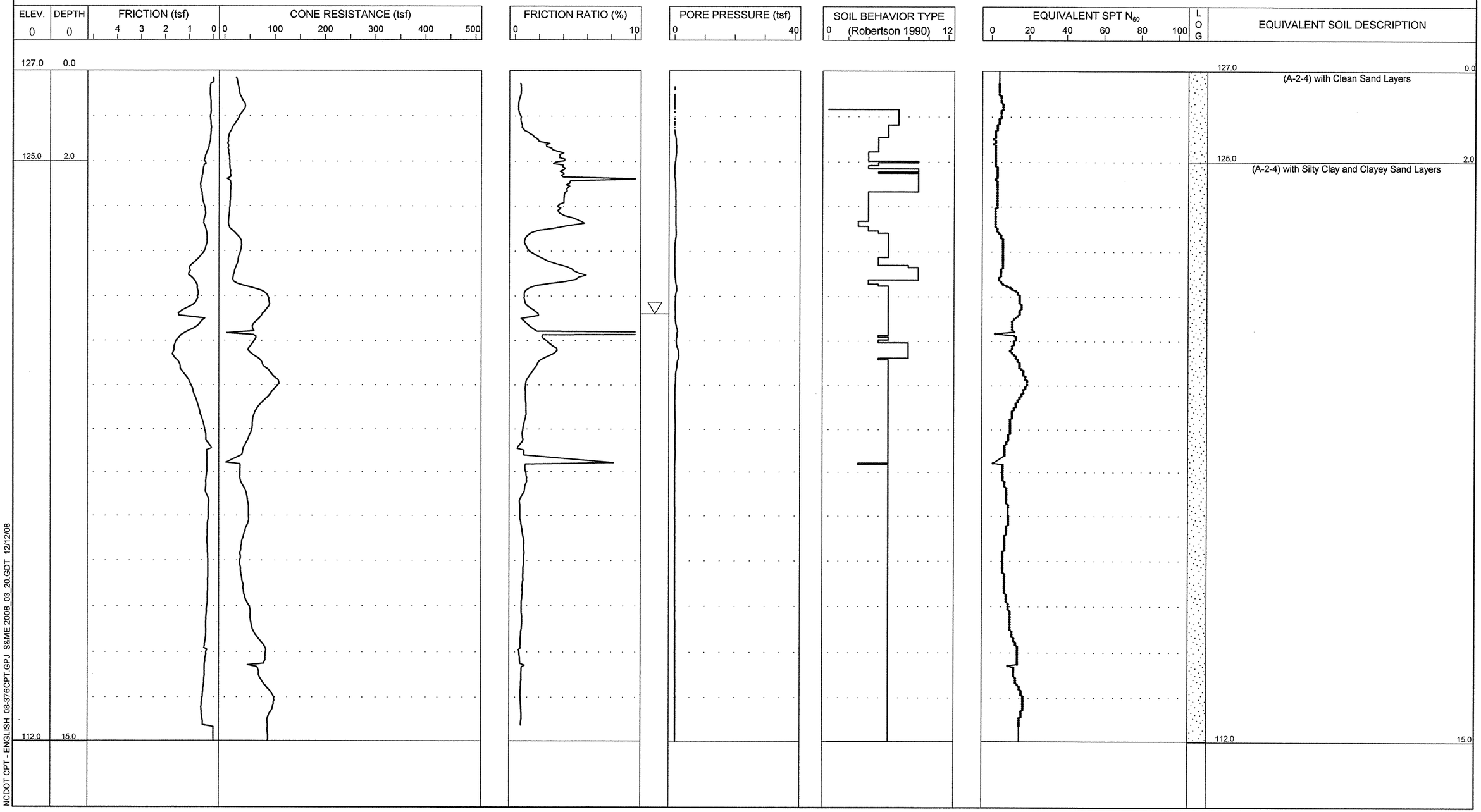
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 803+50 -L-	**BORING LOCATION** 803+50	**OFFSET** 20 RT	**ALIGNMENT** -L-	**0 HR.** 5.4	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 127.0	**NORTHING** 444,758.0	**EASTING** 2,142,495.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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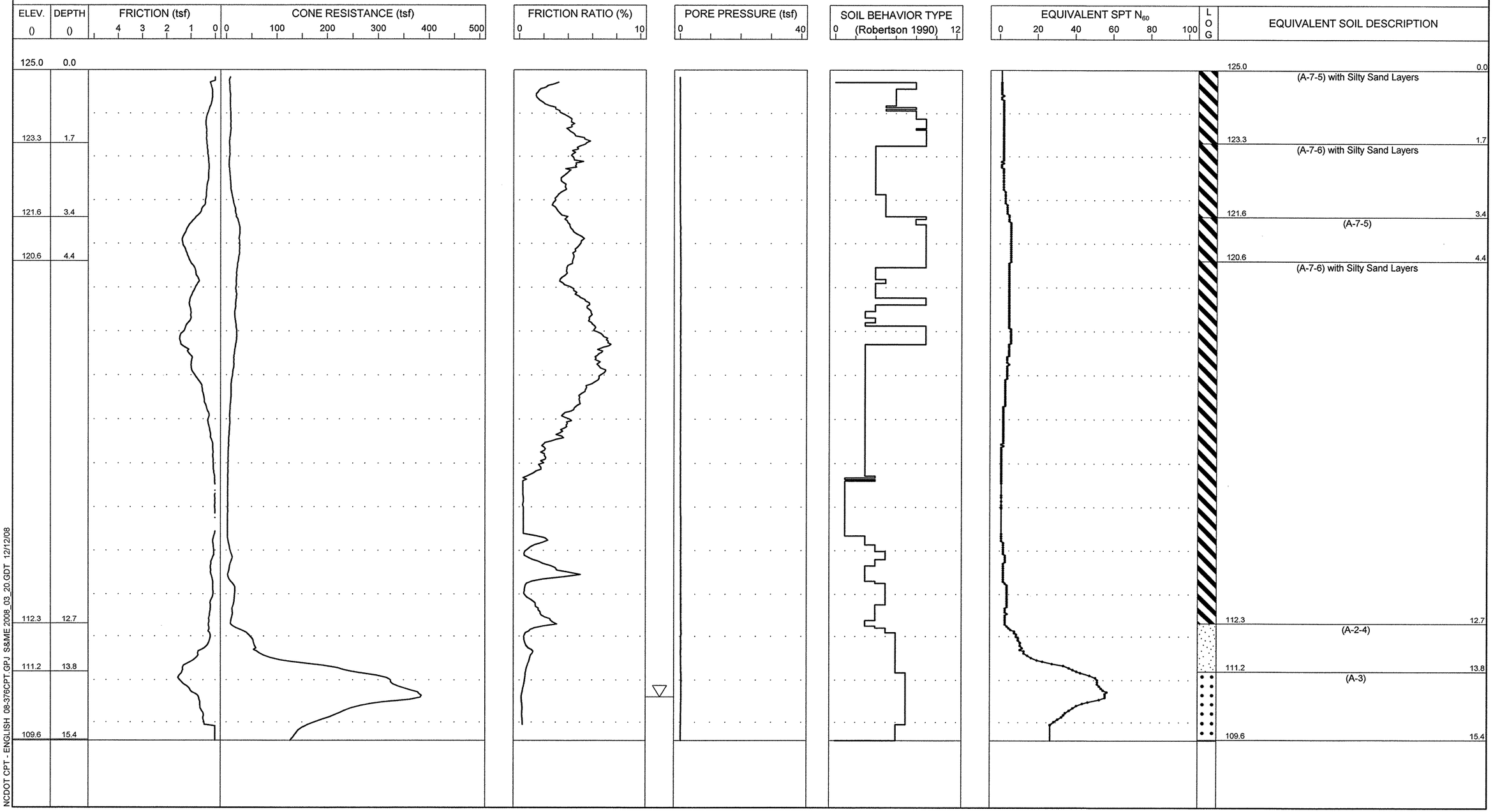
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.4	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 808+50 -L-	**BORING LOCATION** 808+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 14.4	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 125.0	**NORTHING** 444,703.0	**EASTING** 2,142,991.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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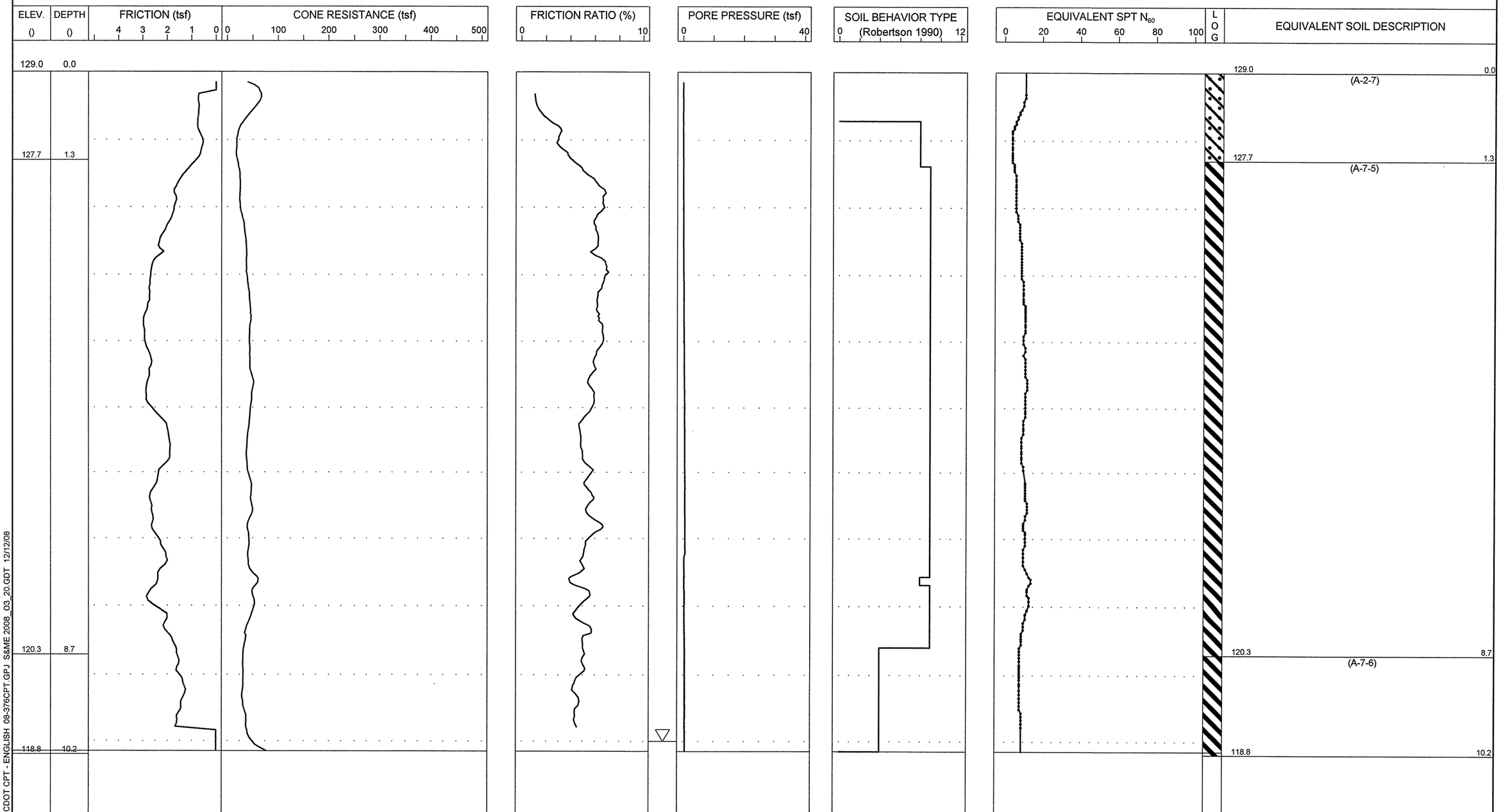
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 811+00 -L-	**BORING LOCATION** 811+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 129.0	**NORTHING** 444,658.0	**EASTING** 2,143,237.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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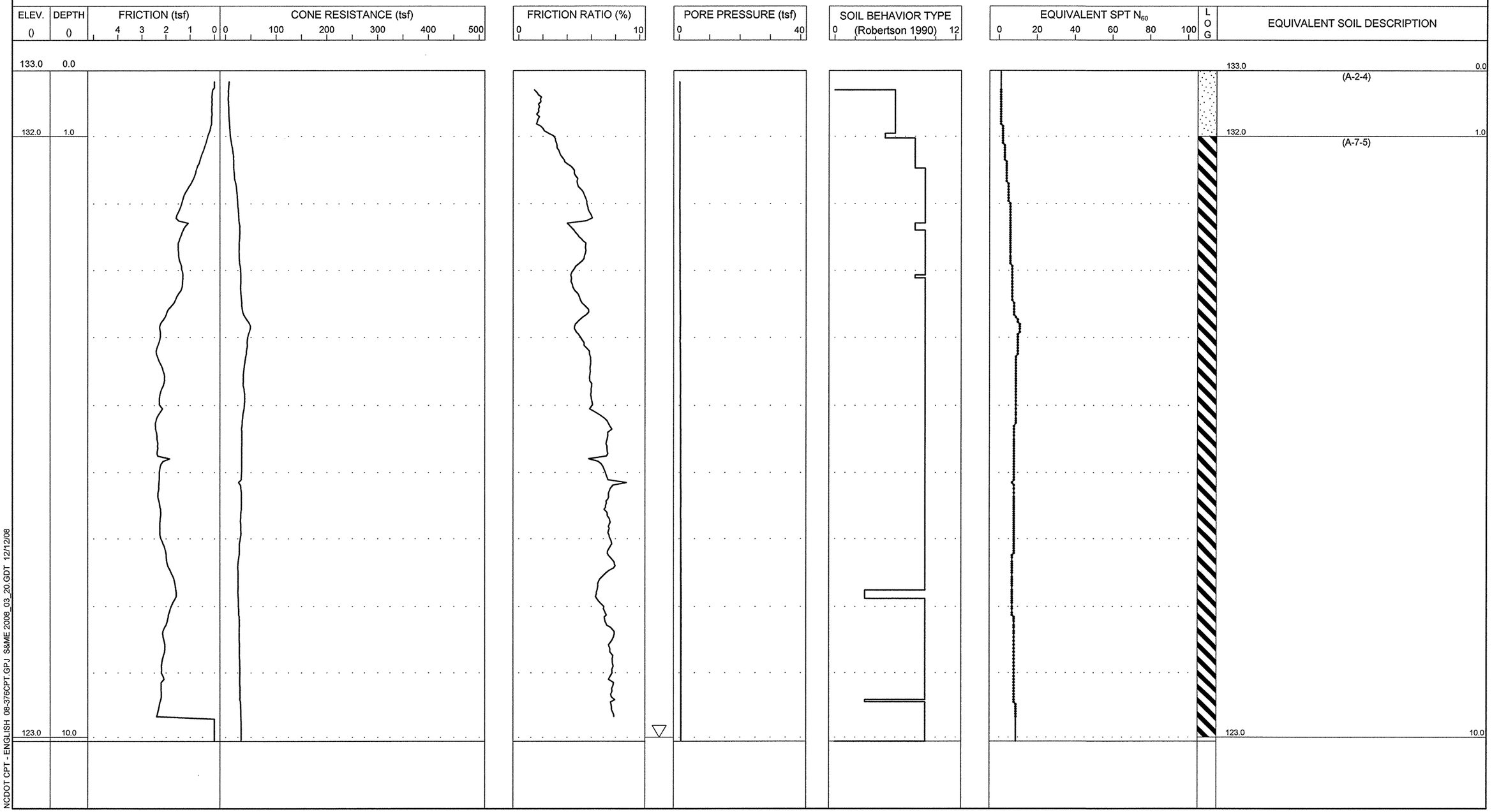
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 816+00 -L-	**BORING LOCATION** 816+00	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,539.0	**EASTING** 2,143,723.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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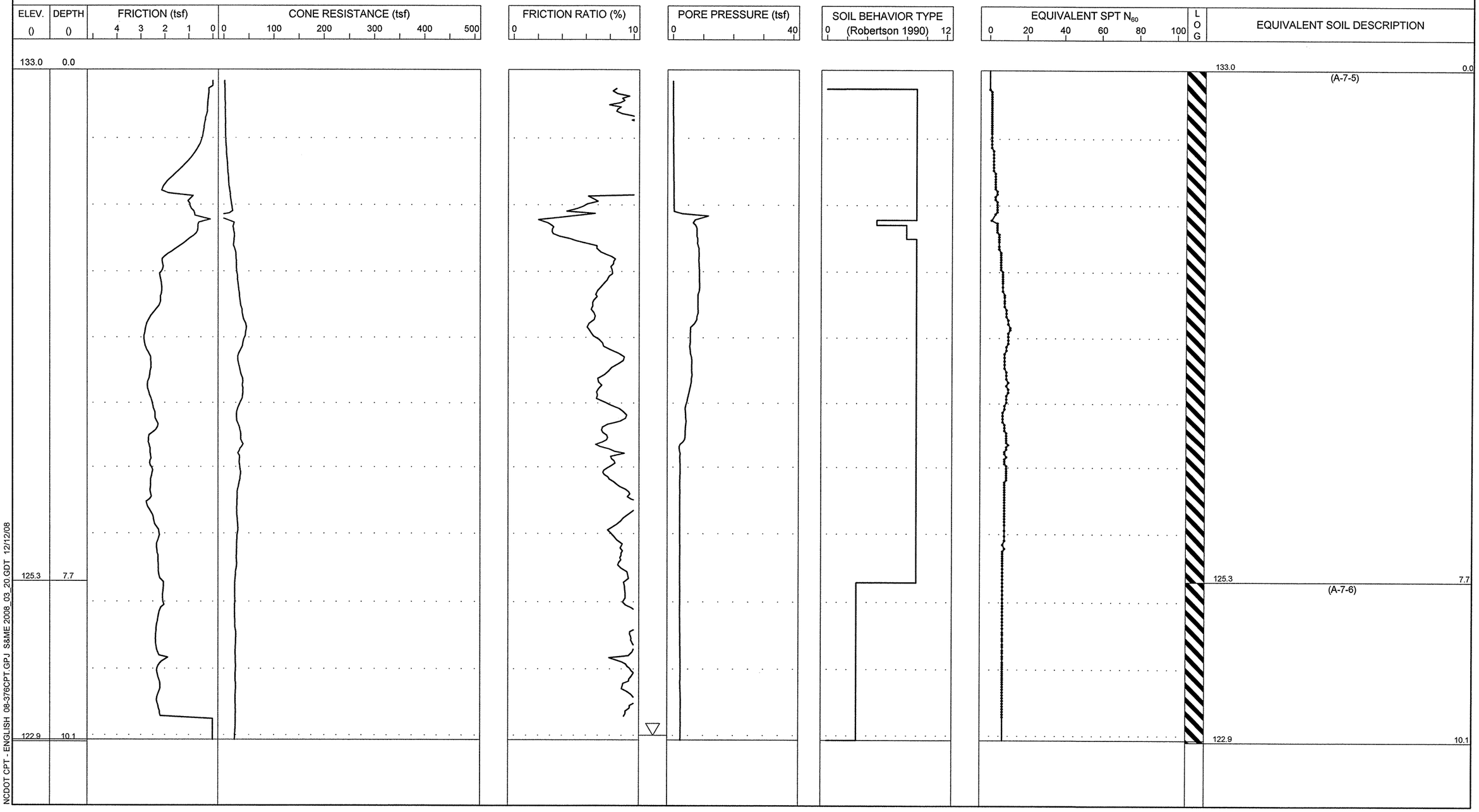
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 818+50 -L-	**BORING LOCATION** 818+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,524.0	**EASTING** 2,143,974.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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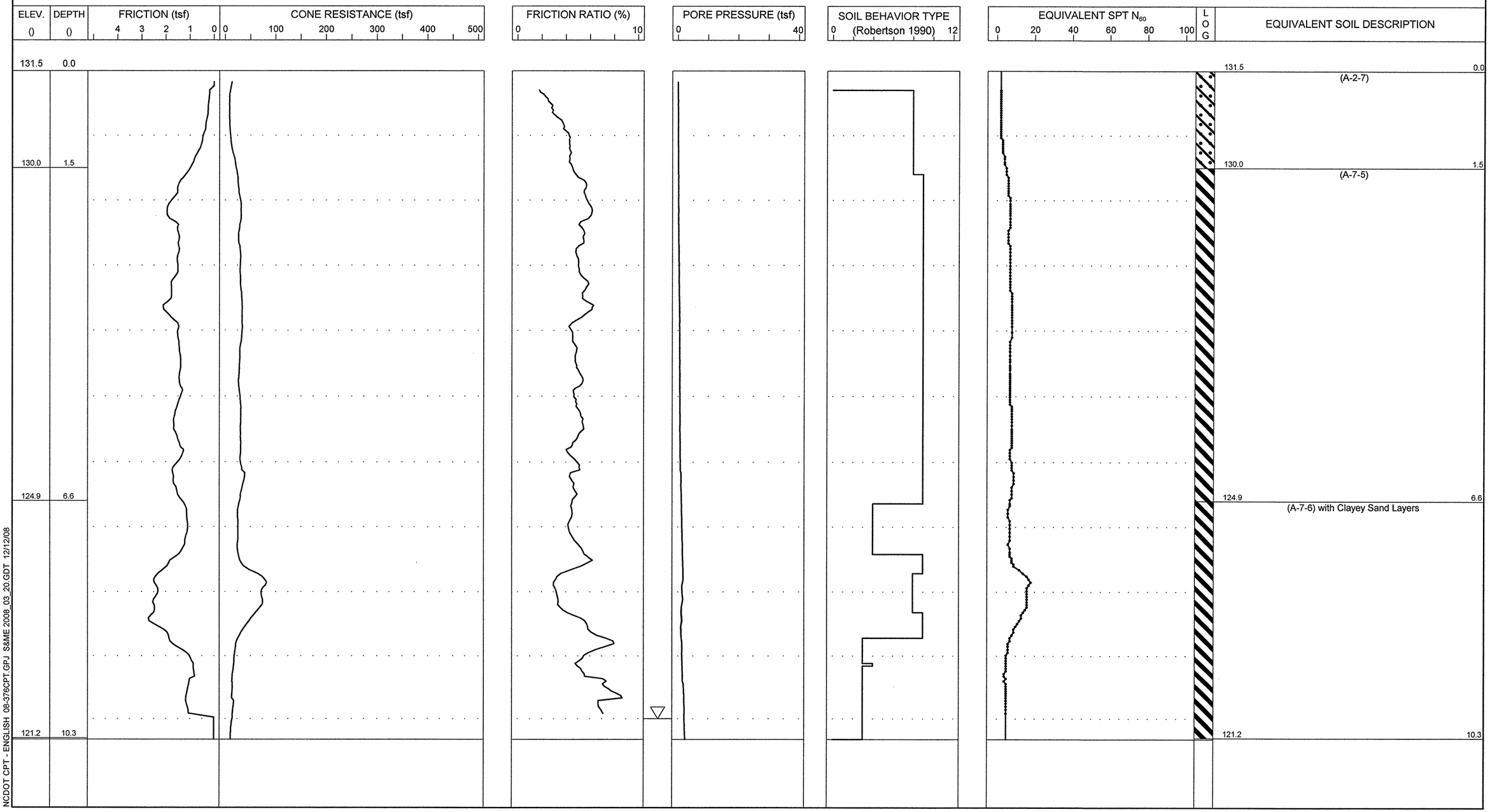
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.3	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 823+50 -L-	**BORING LOCATION** 823+50	**OFFSET** 20 LT	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 131.5	**NORTHING** 444,455.0	**EASTING** 2,144,470.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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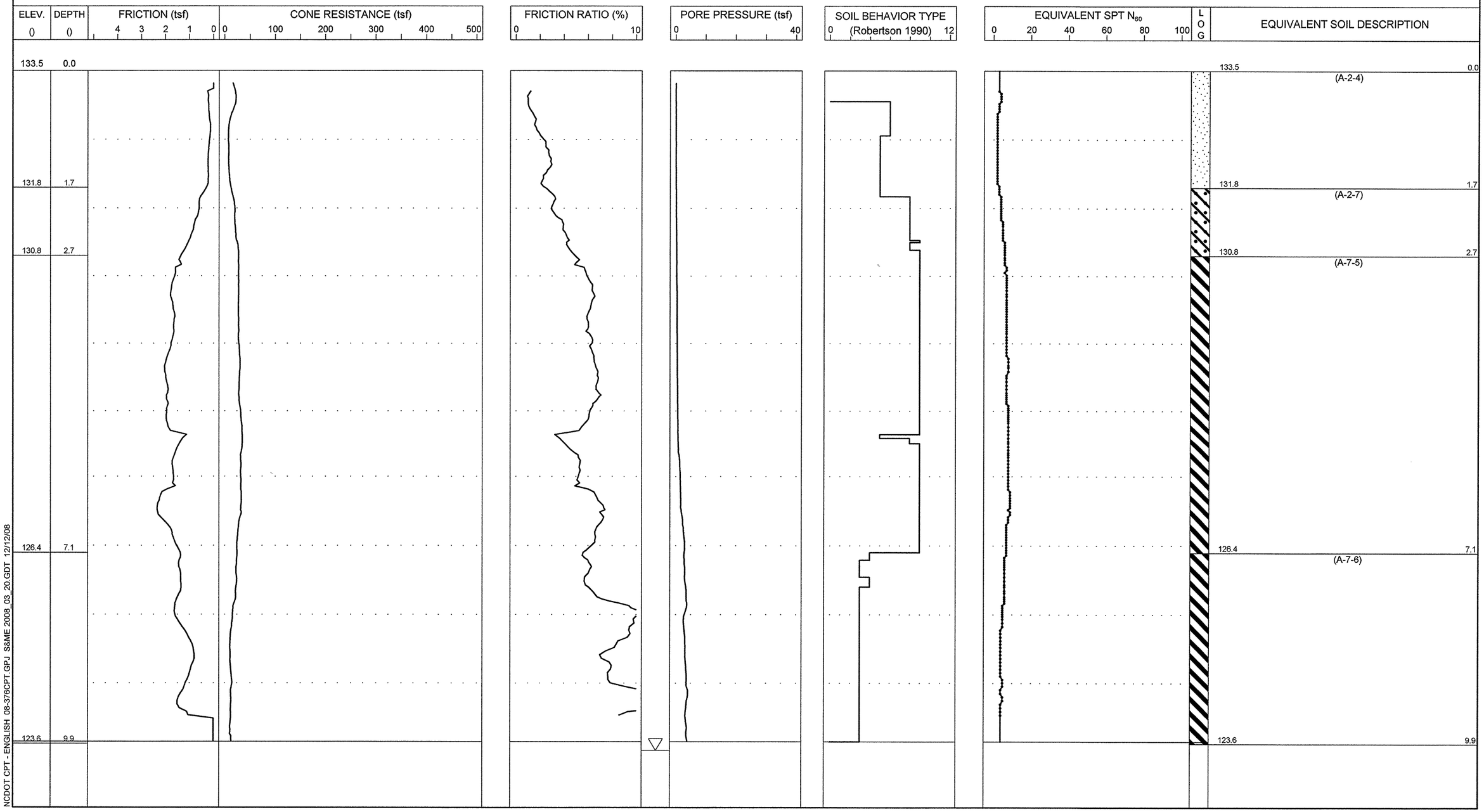
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 826+00 -L-	**BORING LOCATION** 826+00	**OFFSET** 20 RT	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.5	**NORTHING** 444,371.0	**EASTING** 2,144,709.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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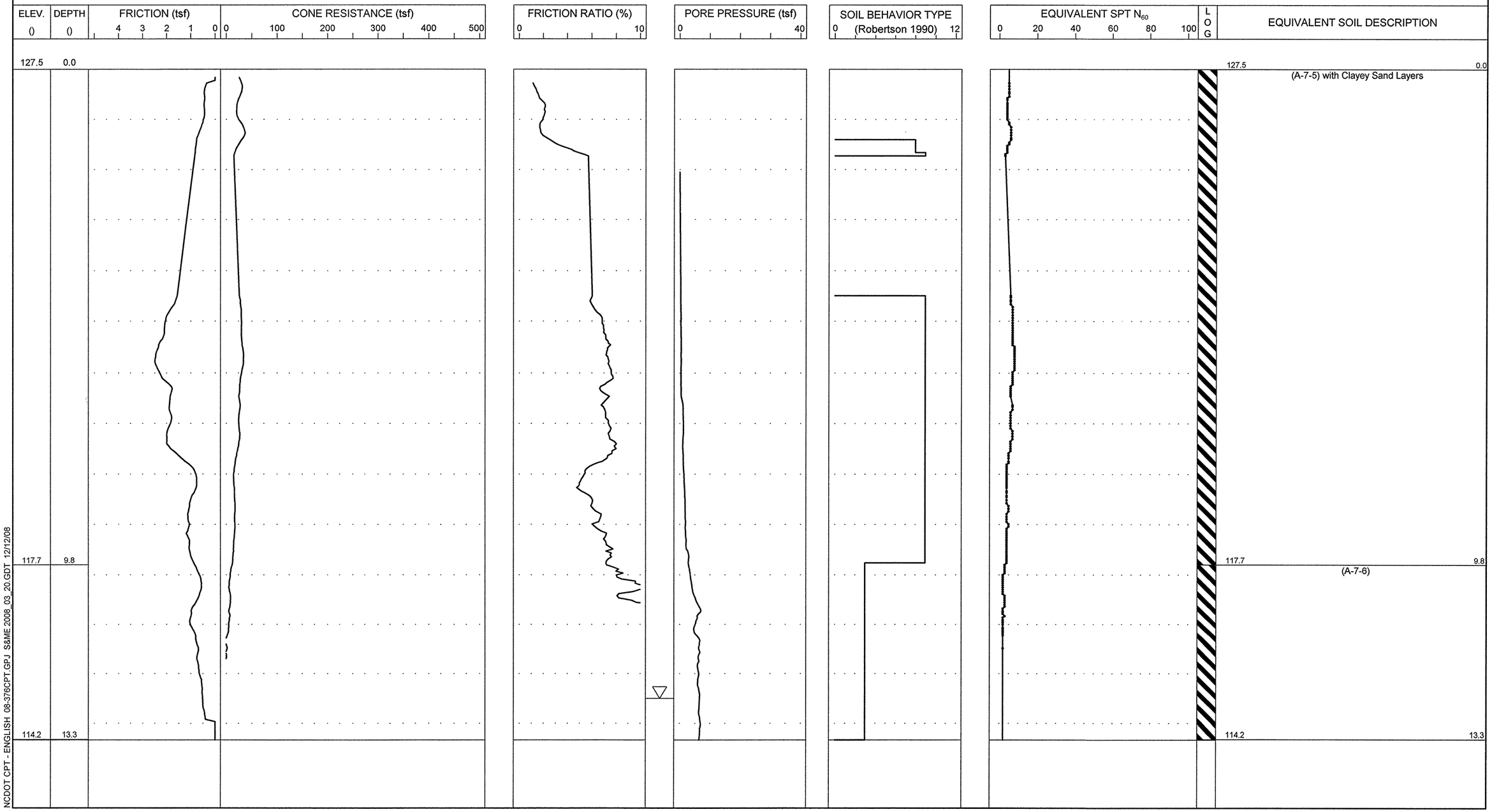
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 13.3	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 831+00 -L-	**BORING LOCATION** 831+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 12.5	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 127.5	**NORTHING** 444,301.0	**EASTING** 2,145,204.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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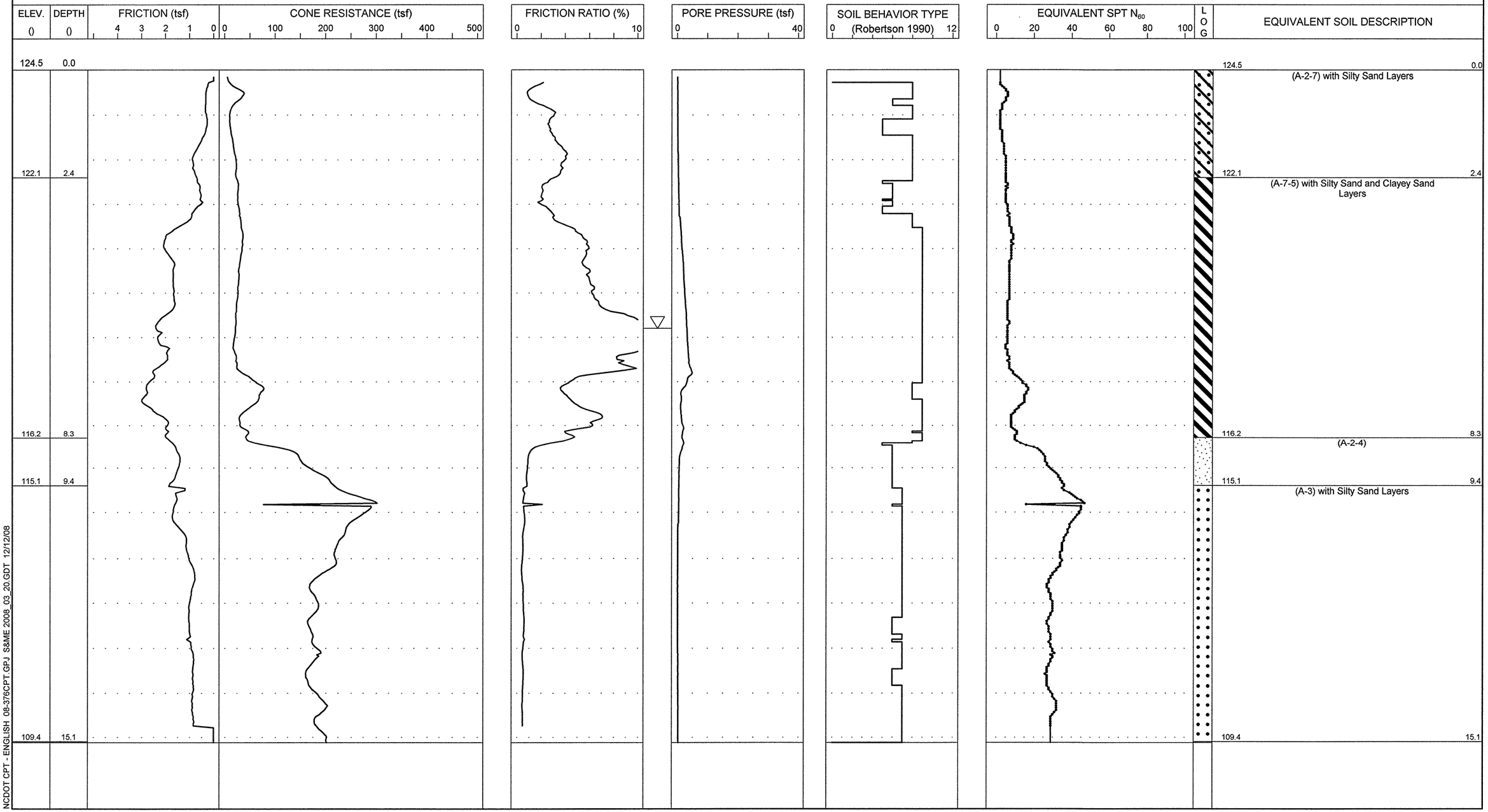
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 833+50 -L-	**BORING LOCATION** 833+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.8	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.5	**NORTHING** 444,256.0	**EASTING** 2,145,450.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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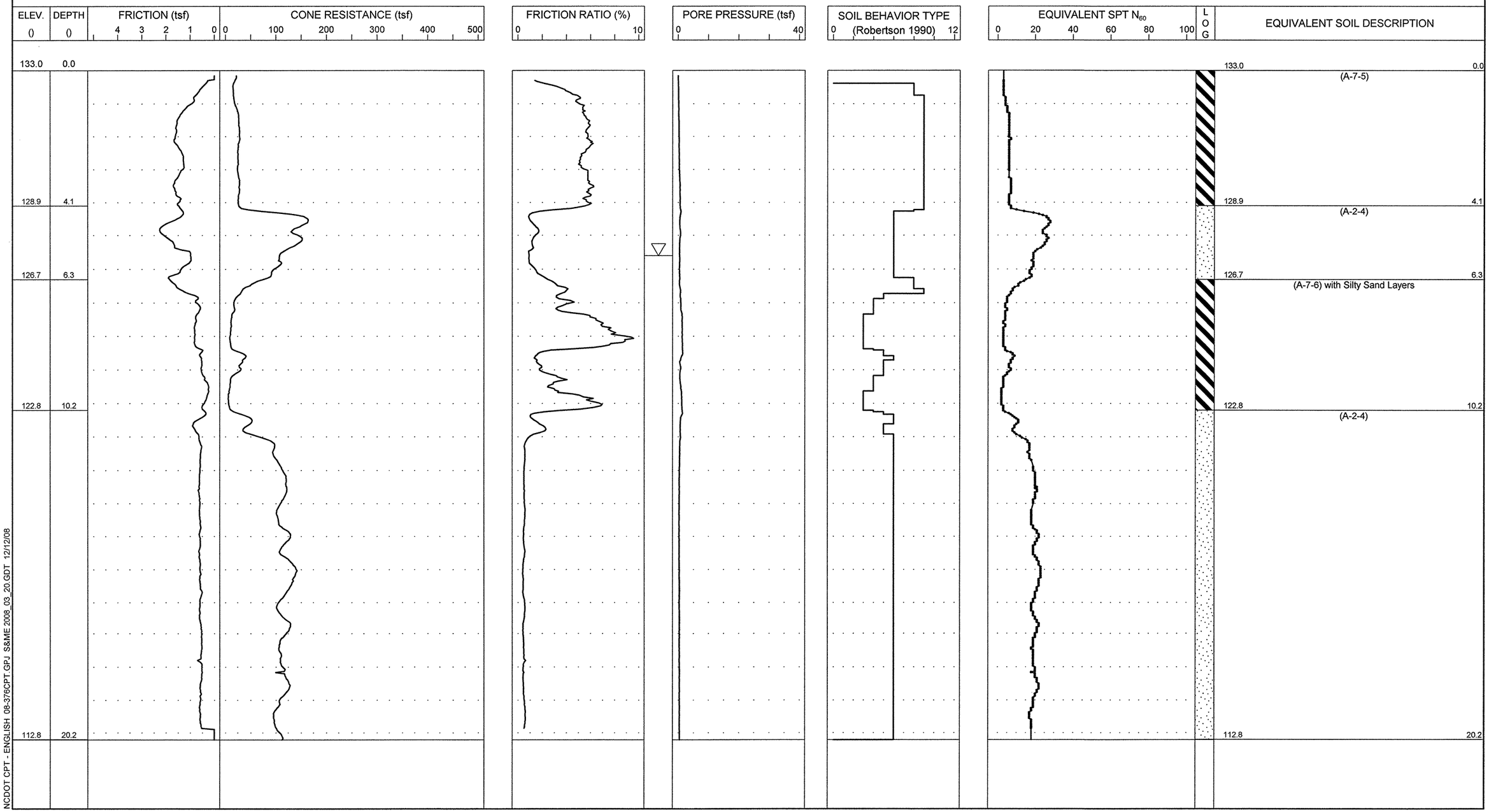
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 20.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 838+50 -L-	**BORING LOCATION** 838+50	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 5.6	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 133.0	**NORTHING** 444,125.0	**EASTING** 2,145,931.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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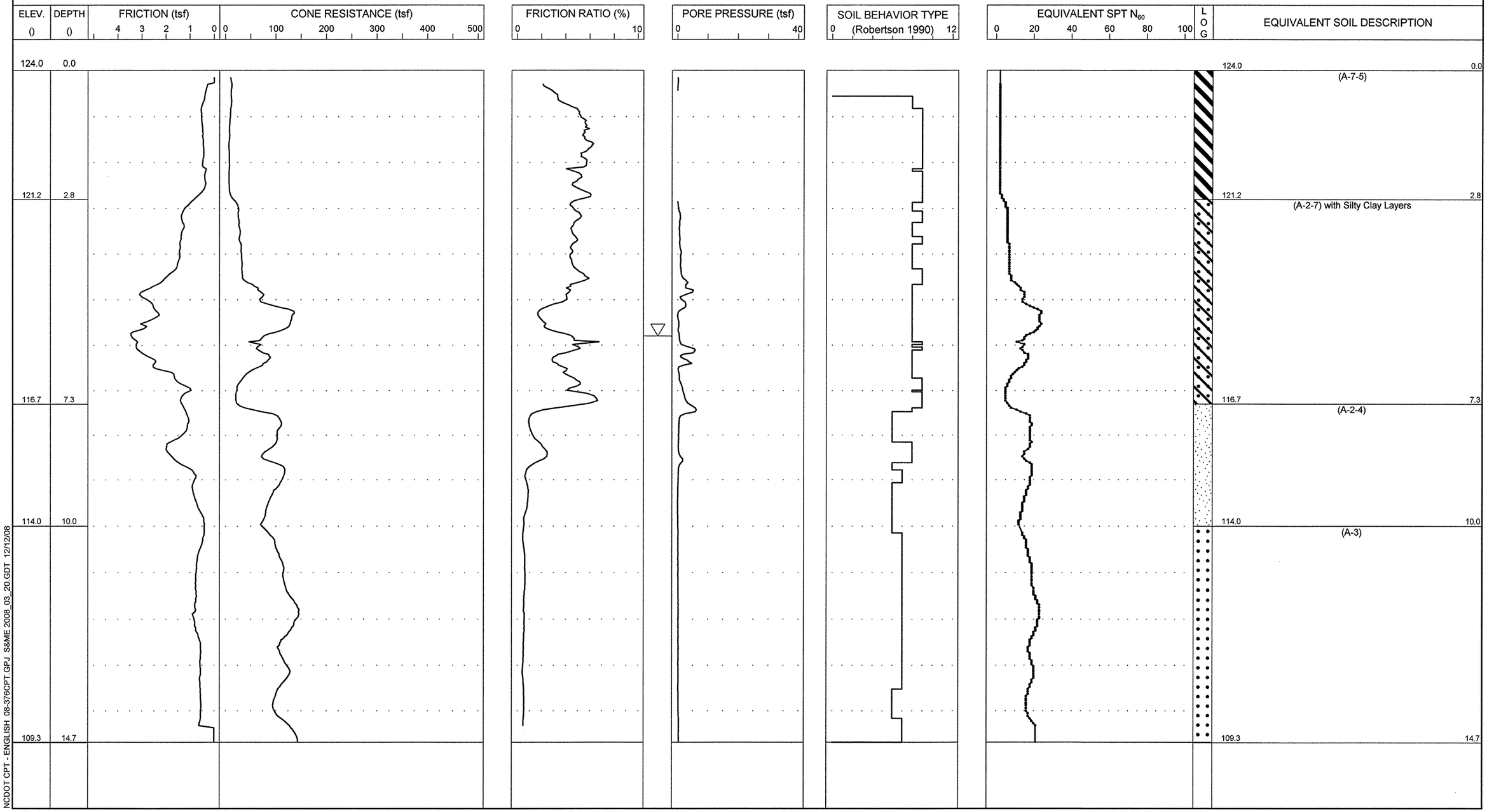
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 14.7	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 841+00 -L-	**BORING LOCATION** 841+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.8	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.0	**NORTHING** 444,078.0	**EASTING** 2,146,178.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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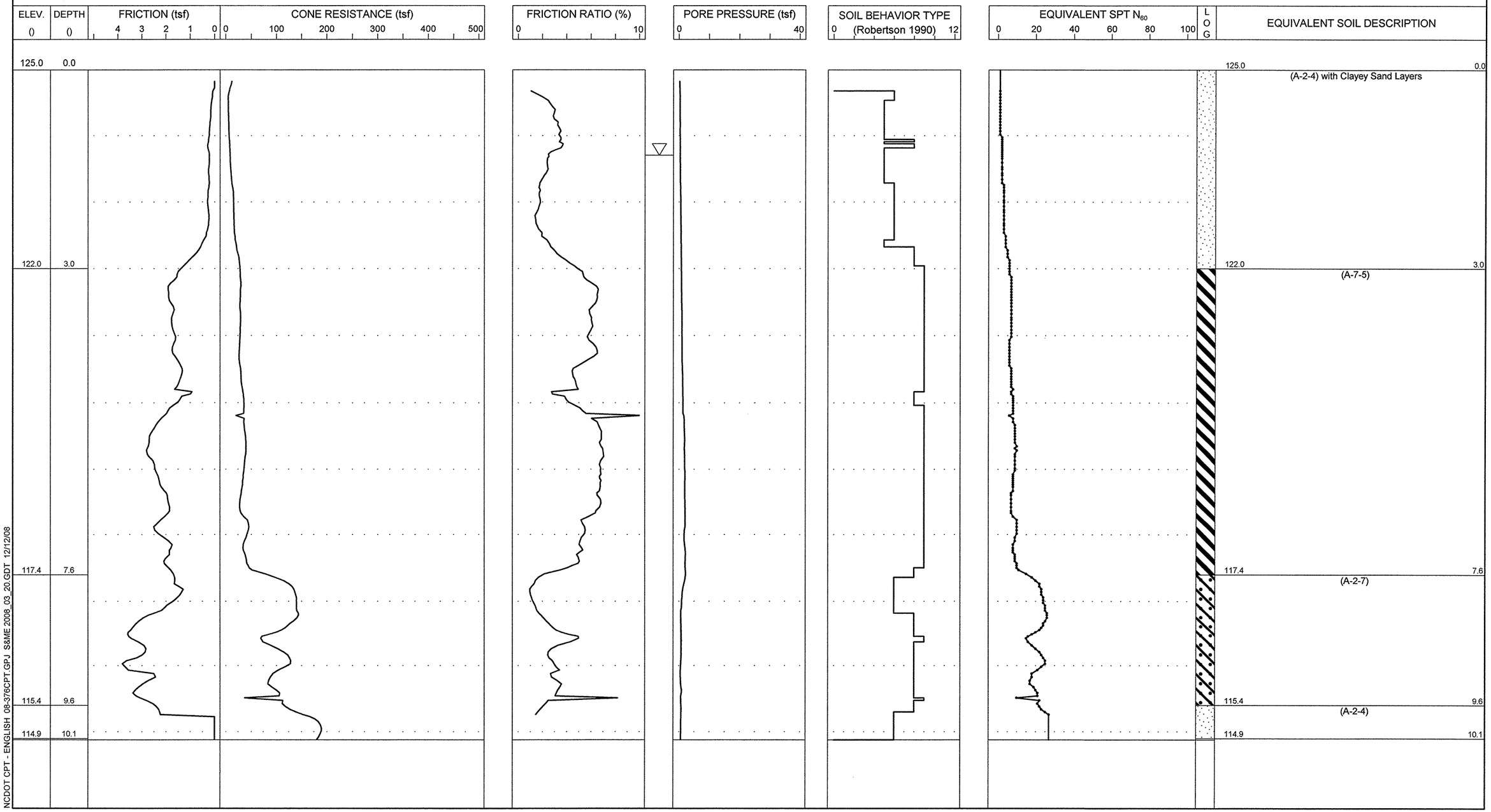
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 847+50 -L-	**BORING LOCATION** 847+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 1.3	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 125.0	**NORTHING** 443,799.0	**EASTING** 2,146,764.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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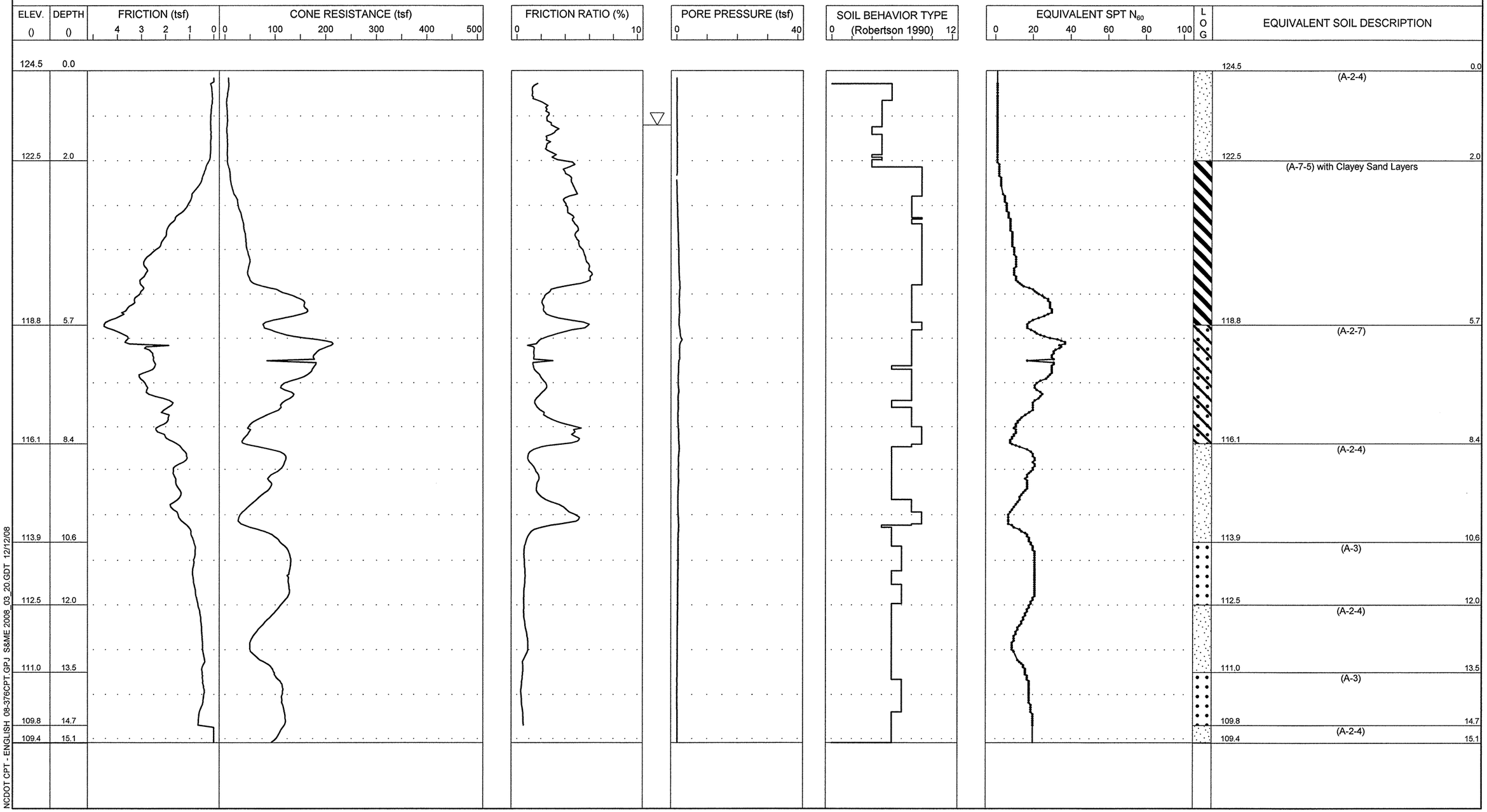
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 850+00 -L-	**BORING LOCATION** 850+00	**OFFSET** 30 LT	**ALIGNMENT** -L-	**0 HR.** 1.2	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.5	**NORTHING** 443,687.0	**EASTING** 2,146,990.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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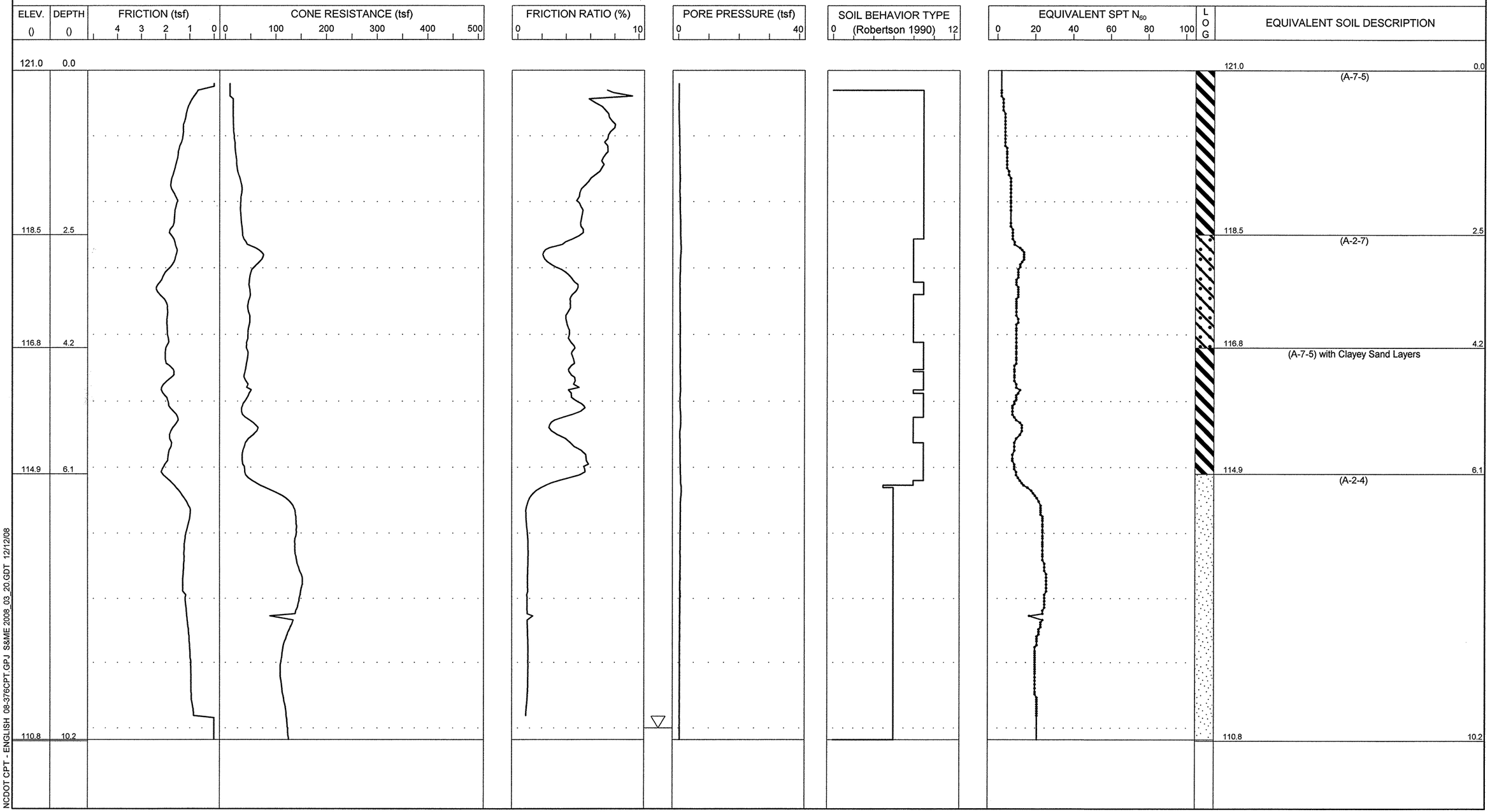
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 855+00 -L-	**BORING LOCATION** 855+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 10.0	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 121.0	**NORTHING** 443,343.0	**EASTING** 2,147,357.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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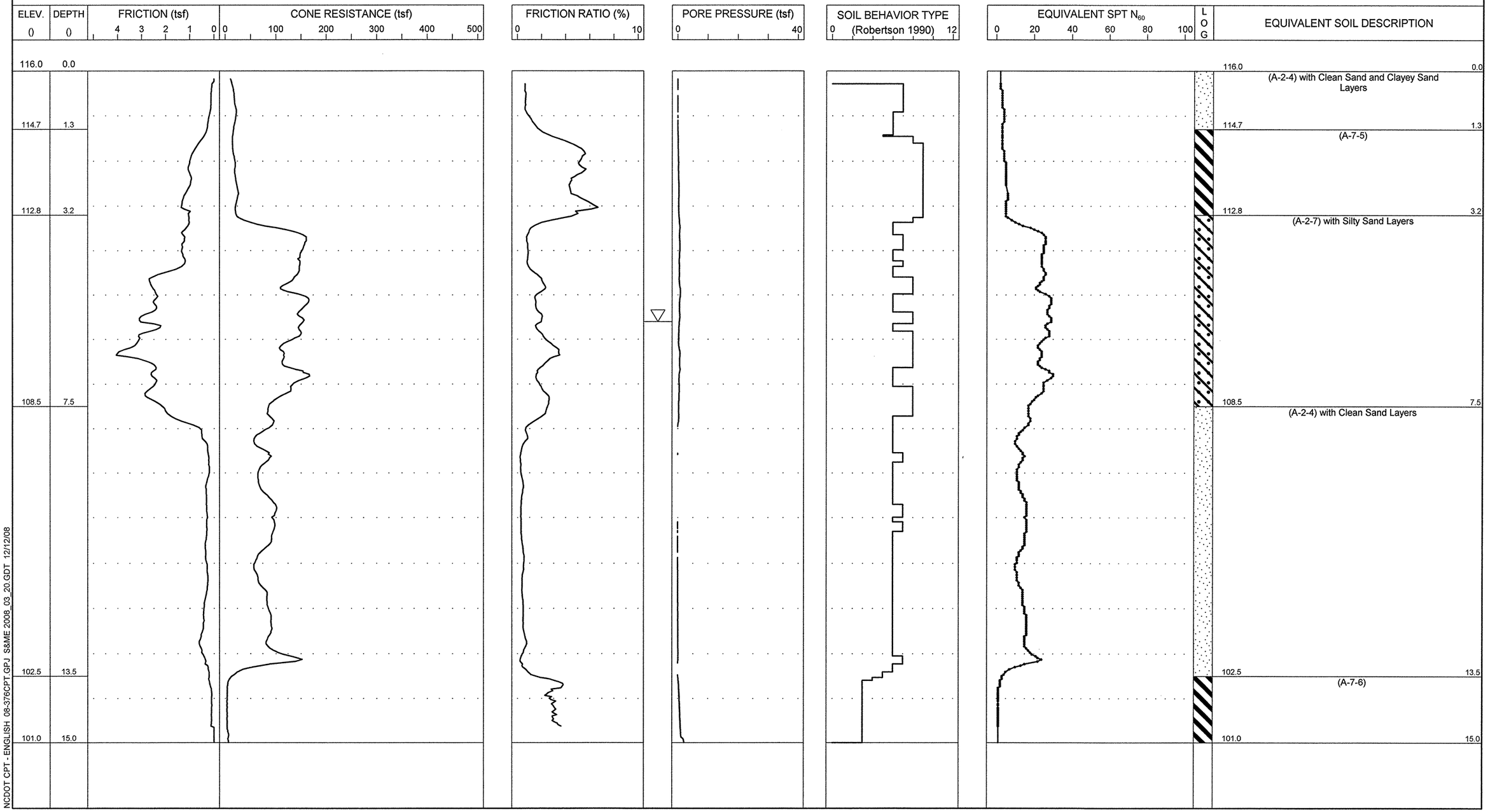
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 857+50 -L-	**BORING LOCATION** 857+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.6	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 116.0	**NORTHING** 443,162.0	**EASTING** 2,147,529.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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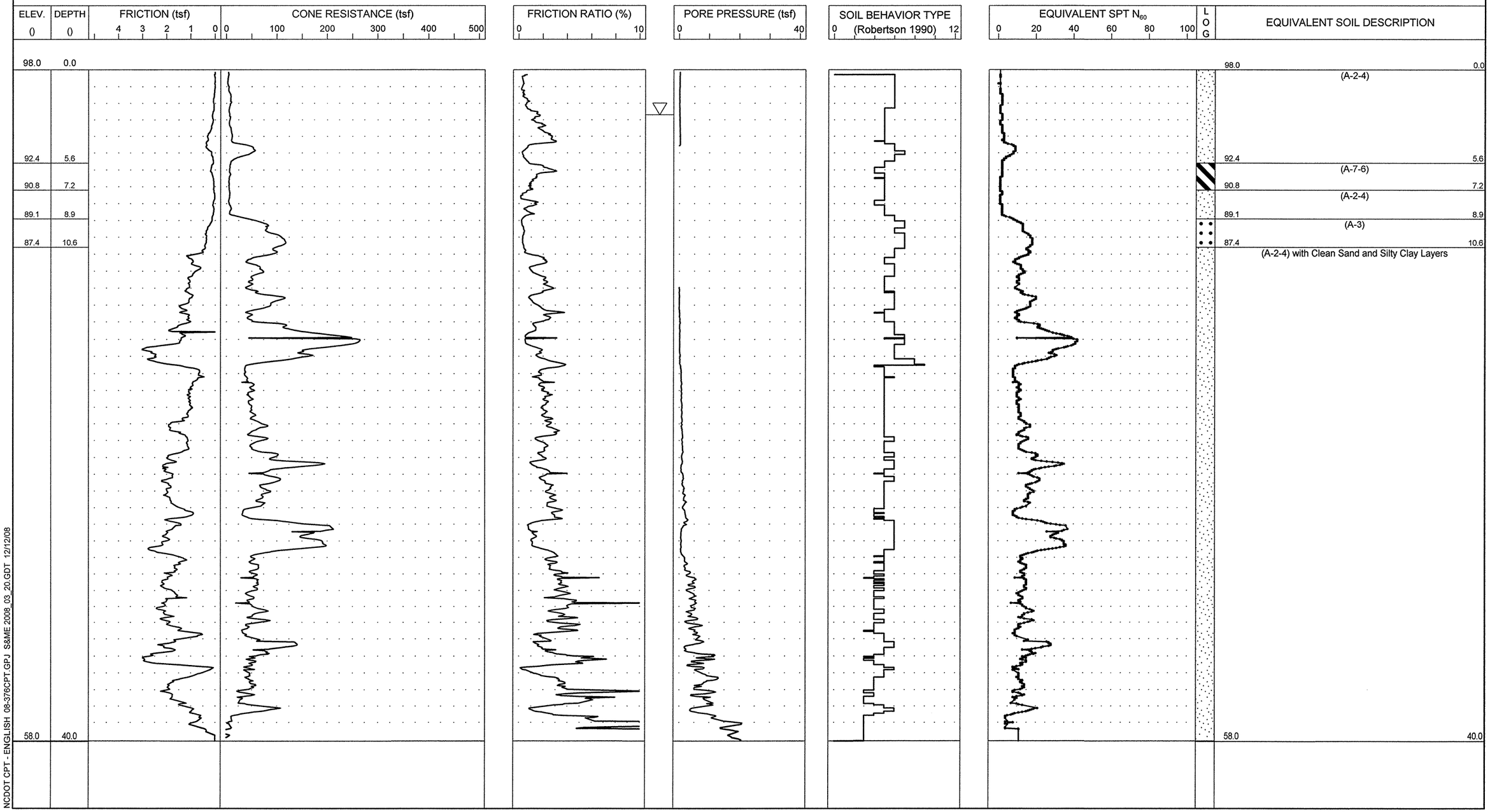
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 40.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 862+50 -L-	**BORING LOCATION** 862+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.7	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 98.0	**NORTHING** 442,764.0	**EASTING** 2,147,831.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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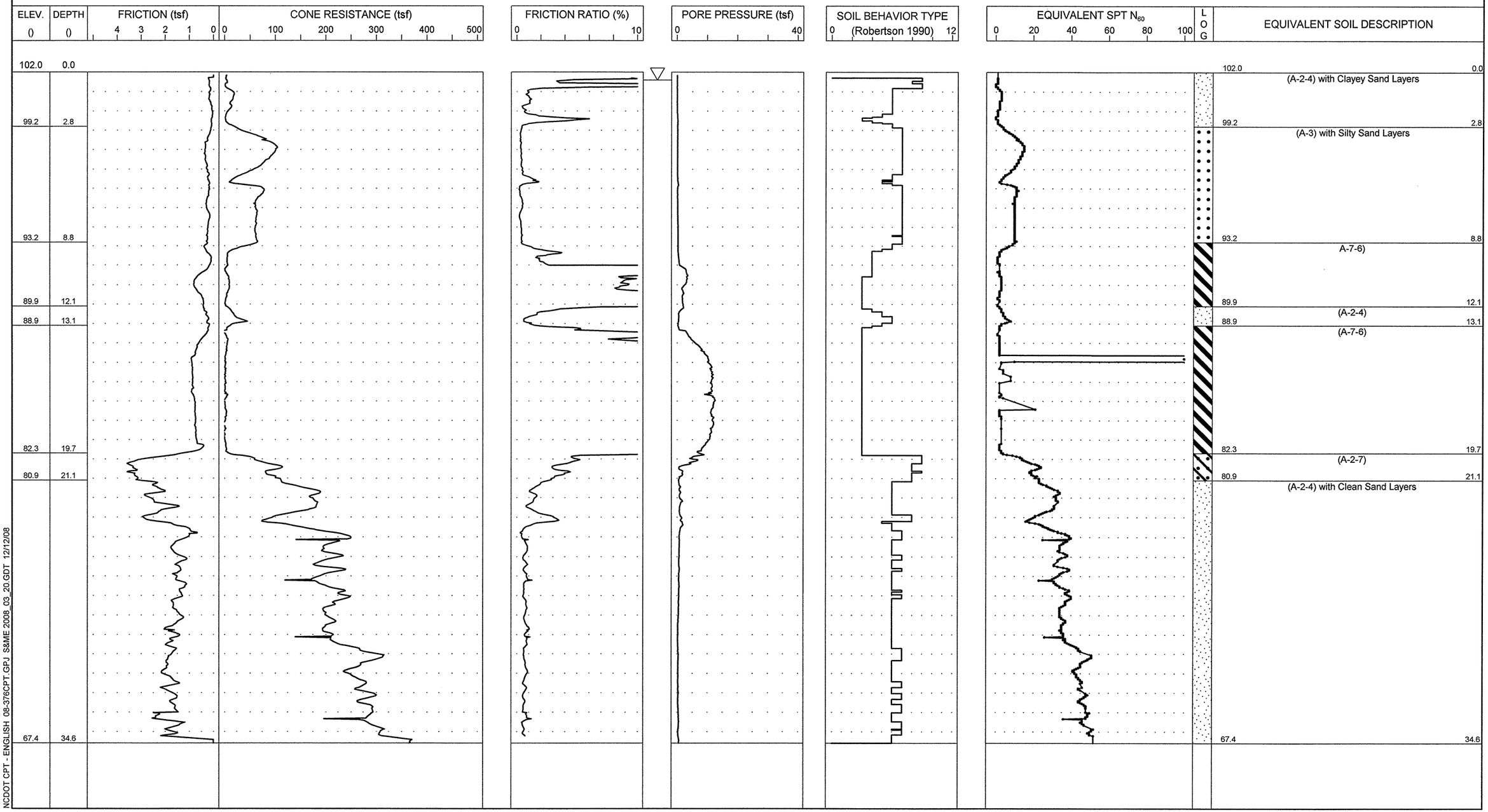
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 34.6	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 865+00 -L-	**BORING LOCATION** 865+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 0.4	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 102.0	**NORTHING** 442,554.0	**EASTING** 2,147,967.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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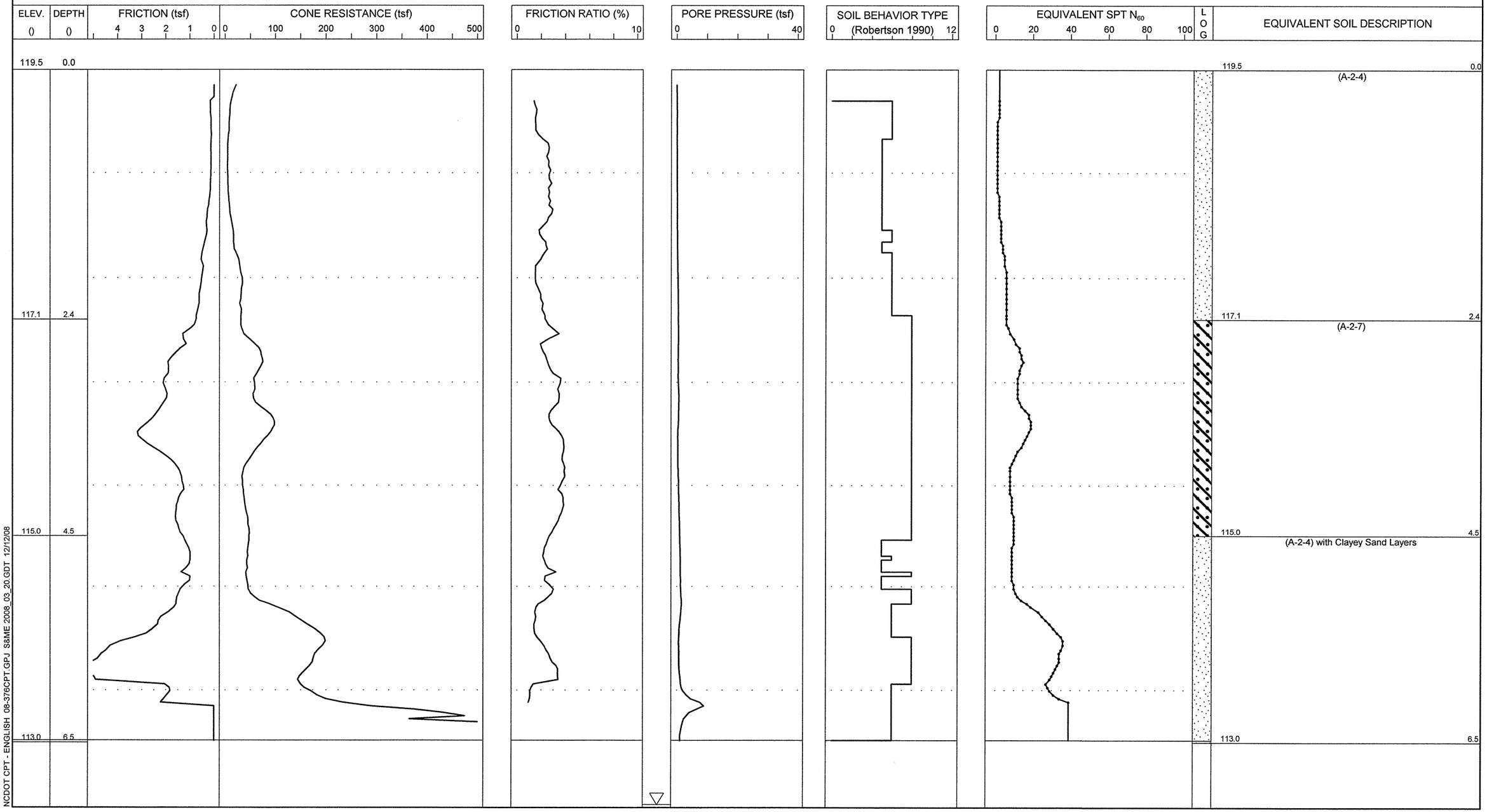
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 6.5	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 870+50 -L-	**BORING LOCATION** 870+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 7.1	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 119.5	**NORTHING** 442,092.0	**EASTING** 2,148,265.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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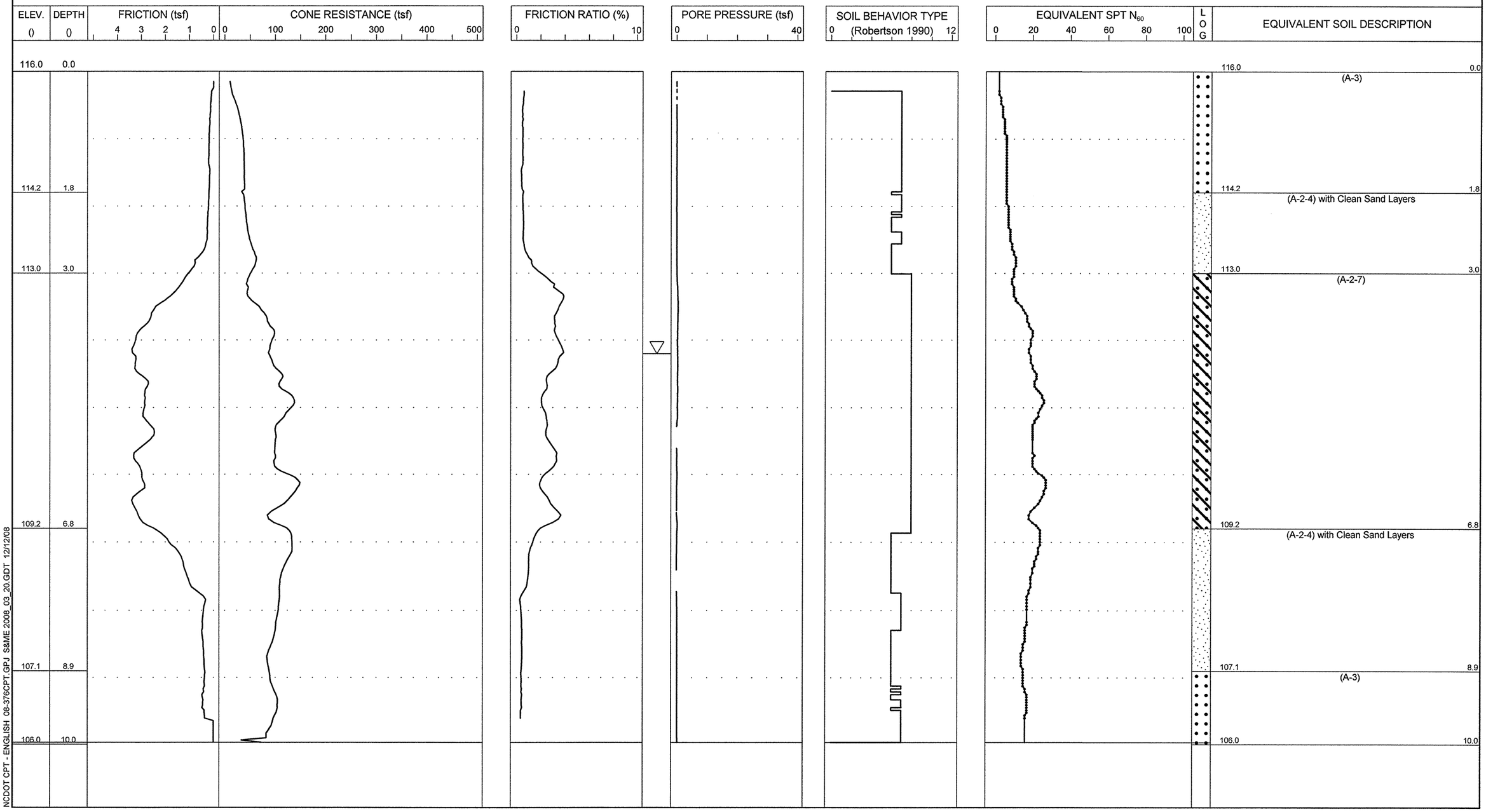
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 877+50 -L-	**BORING LOCATION** 877+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 4.2	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 116.0	**NORTHING** 441,504.0	**EASTING** 2,148,645.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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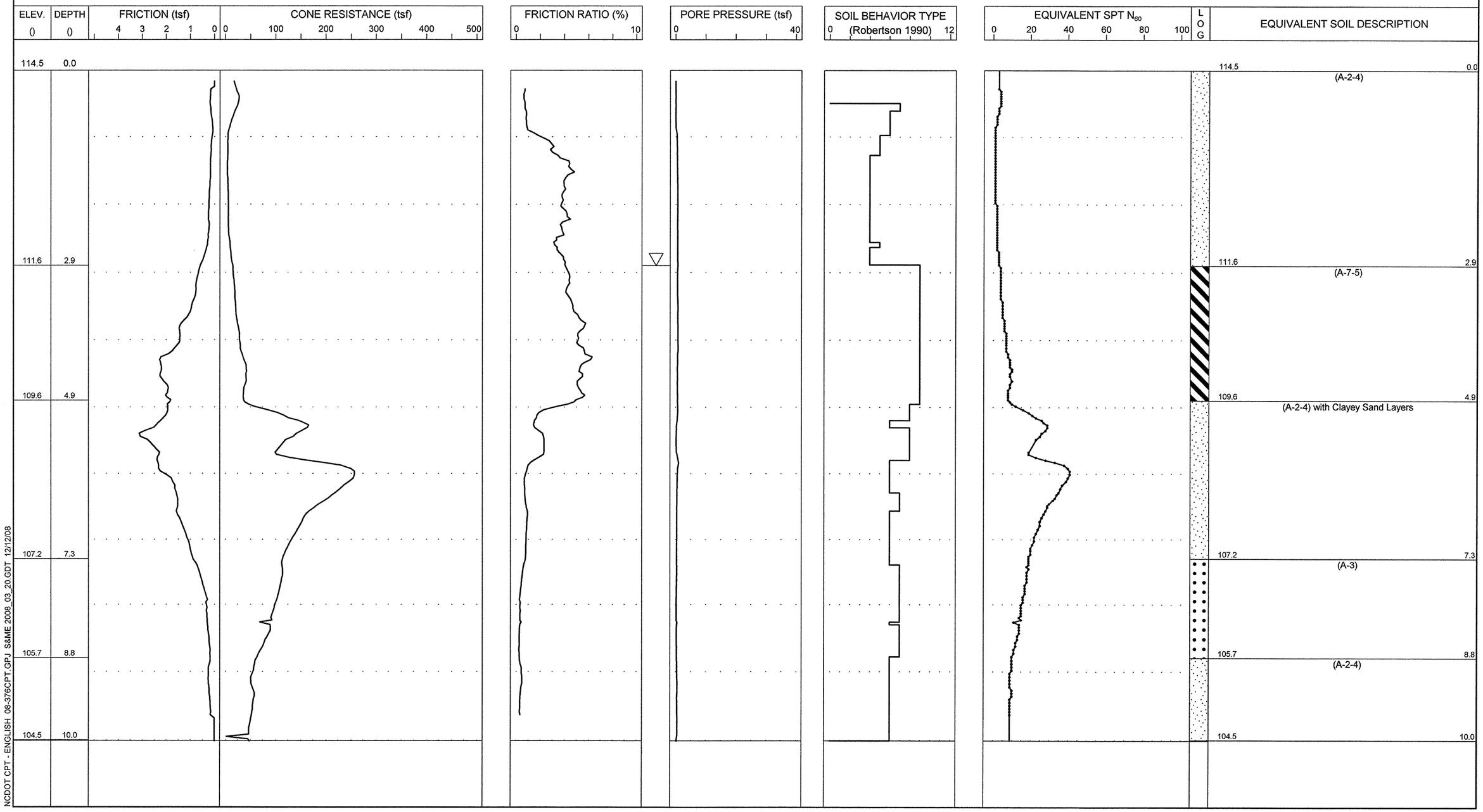
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 880+00 -L-	**BORING LOCATION** 880+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.9	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 114.5	**NORTHING** 441,294.0	**EASTING** 2,148,781.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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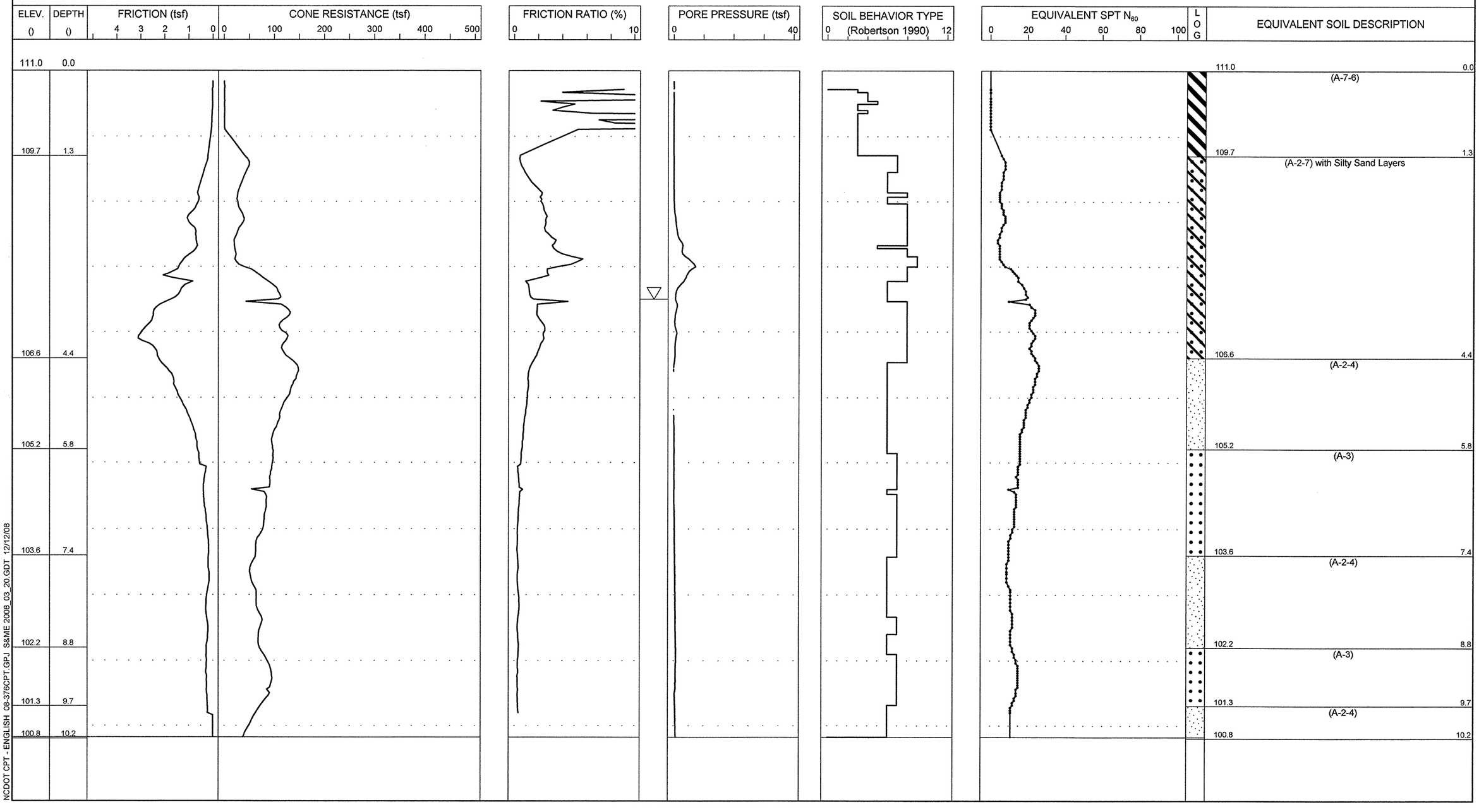
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 885+00 -L-	**BORING LOCATION** 885+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.5	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 111.0	**NORTHING** 440,874.0	**EASTING** 2,149,052.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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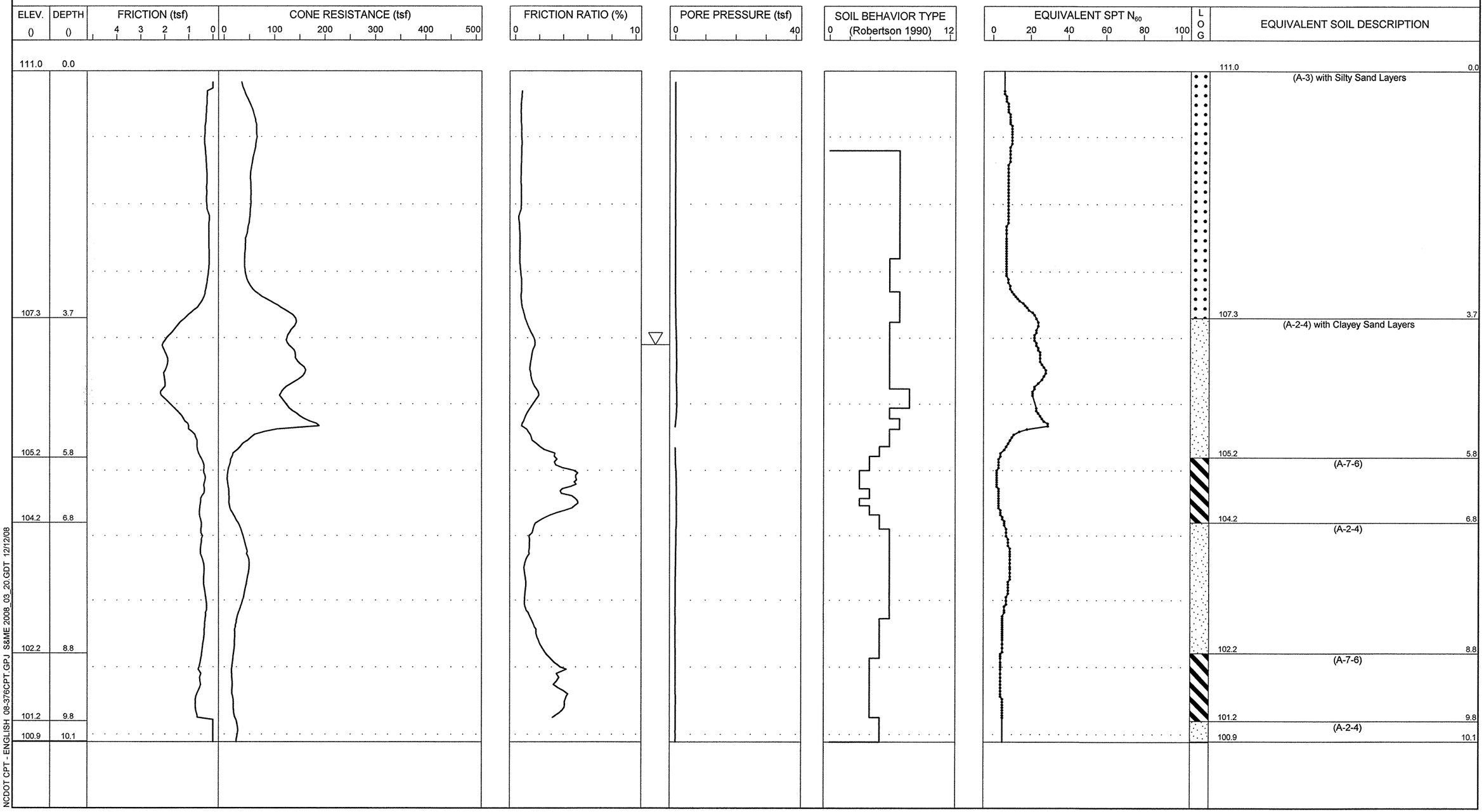
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 887+50 -L-	**BORING LOCATION** 887+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 4.1	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 111.0	**NORTHING** 440,664.0	**EASTING** 2,149,188.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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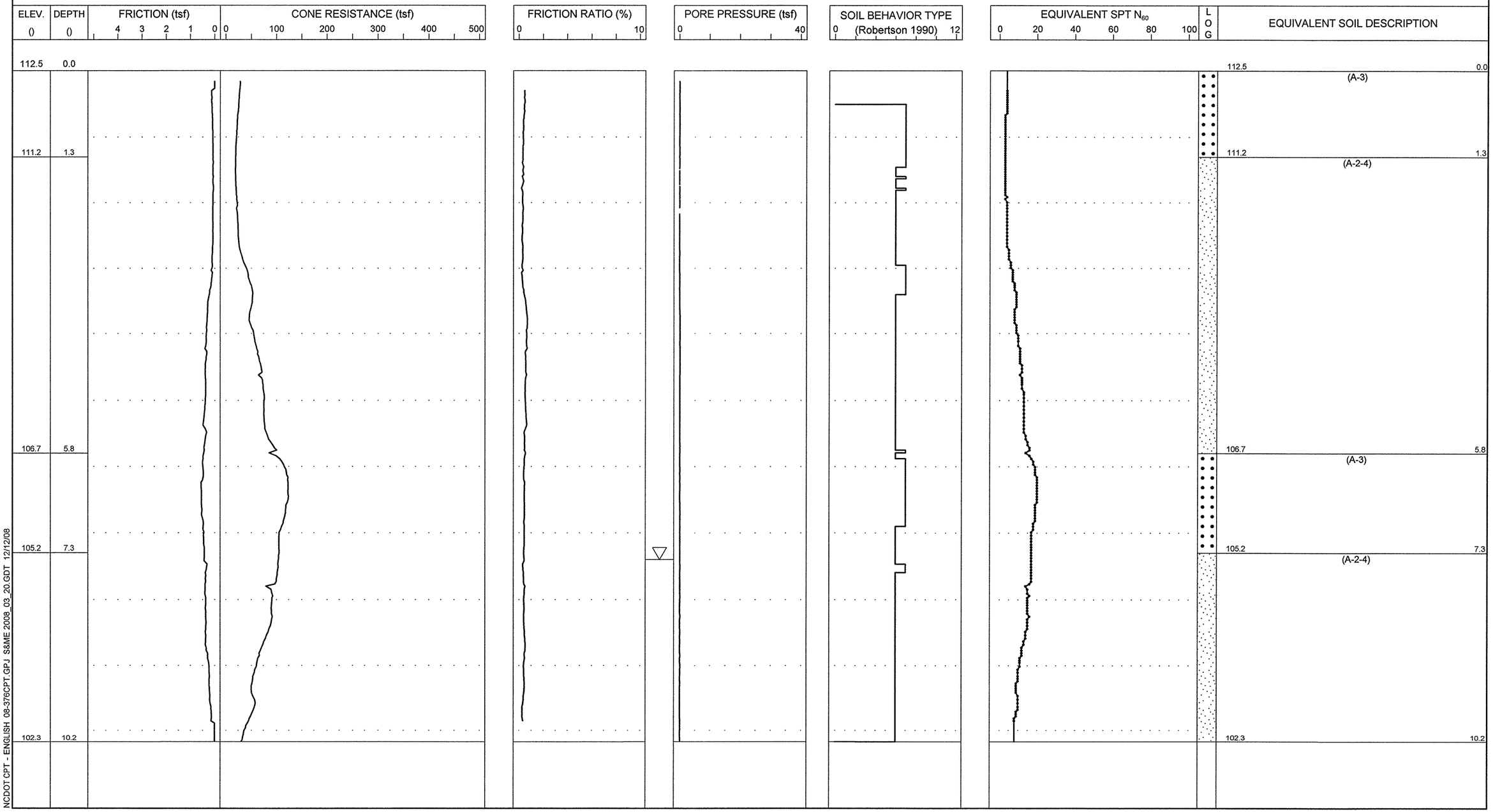
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 892+50 -L-	**BORING LOCATION** 882+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 7.4	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 112.5	**NORTHING** 440,244.0	**EASTING** 2,149,459.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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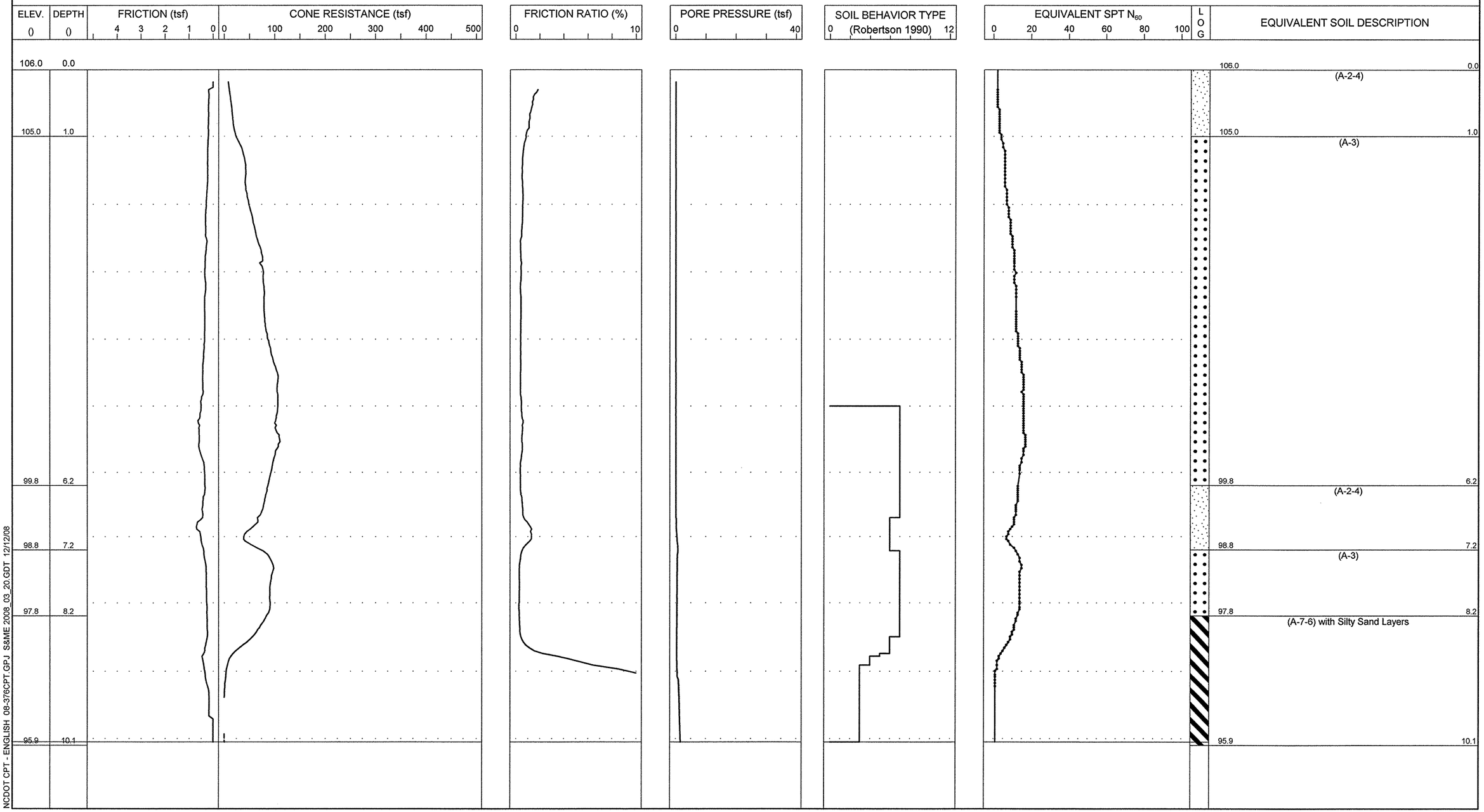
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 907+00 -L-	**BORING LOCATION** 907+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.**	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 106.0	**NORTHING** 439,026.0	**EASTING** 2,150,246.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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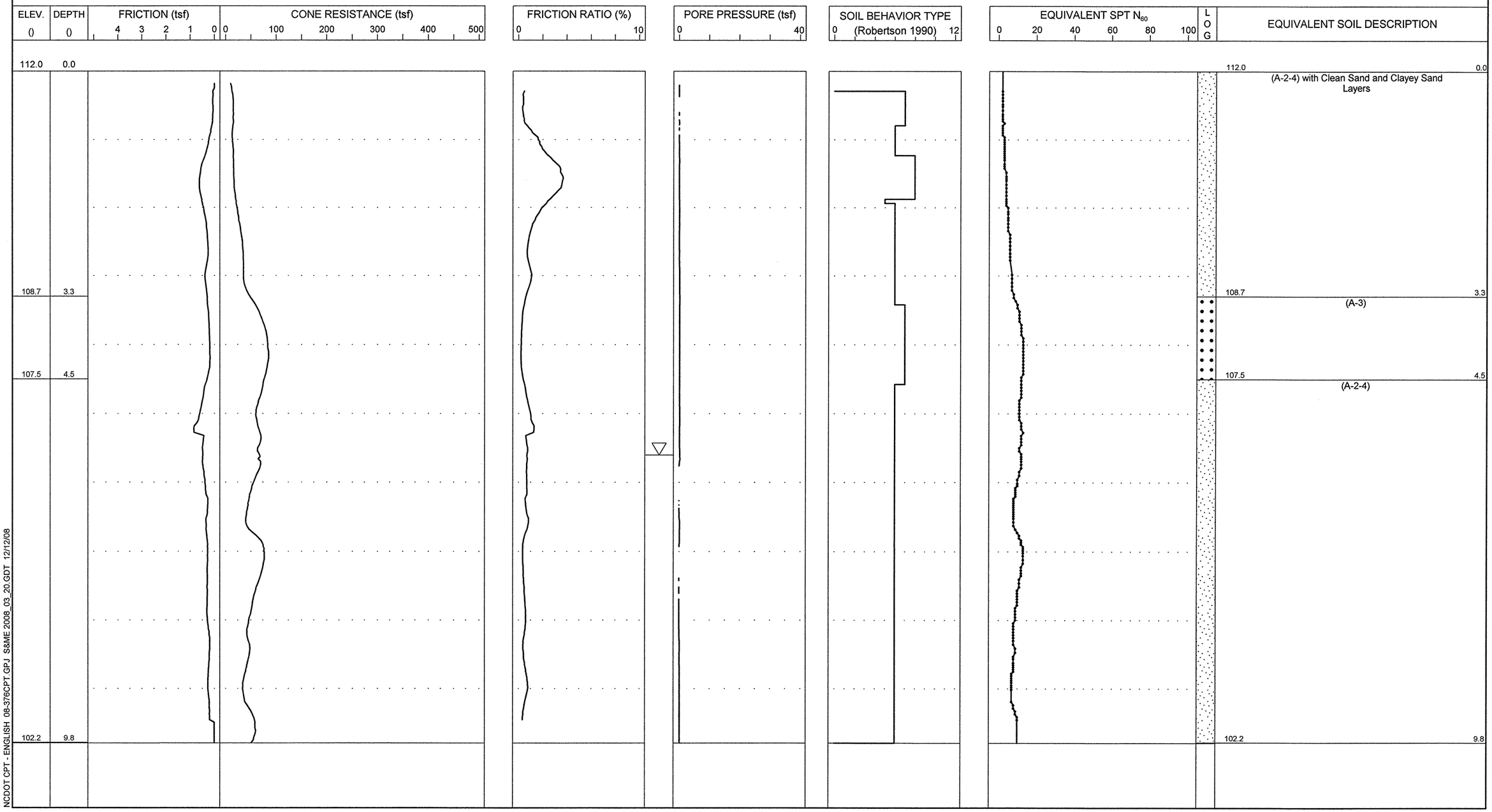
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 9.8	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 909+50 -L-	**BORING LOCATION** 909+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.6	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 112.0	**NORTHING** 438,821.0	**EASTING** 2,150,389.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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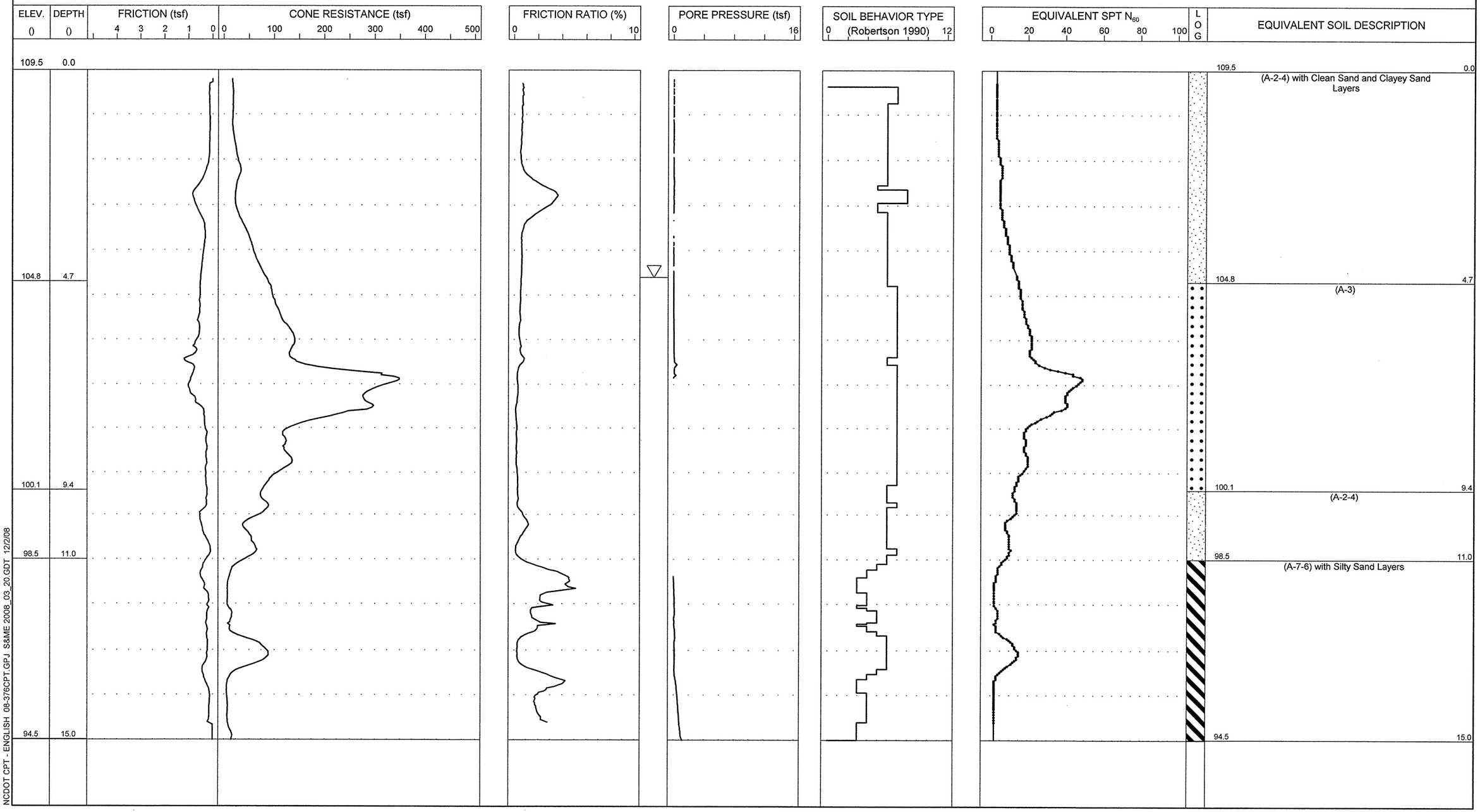
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 914+50 -L-	**BORING LOCATION** 914+50	**OFFSET** 30 LT	**ALIGNMENT** -L-	**0 HR.** 4.6	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 109.5	**NORTHING** 438,494.0	**EASTING** 2,150,761.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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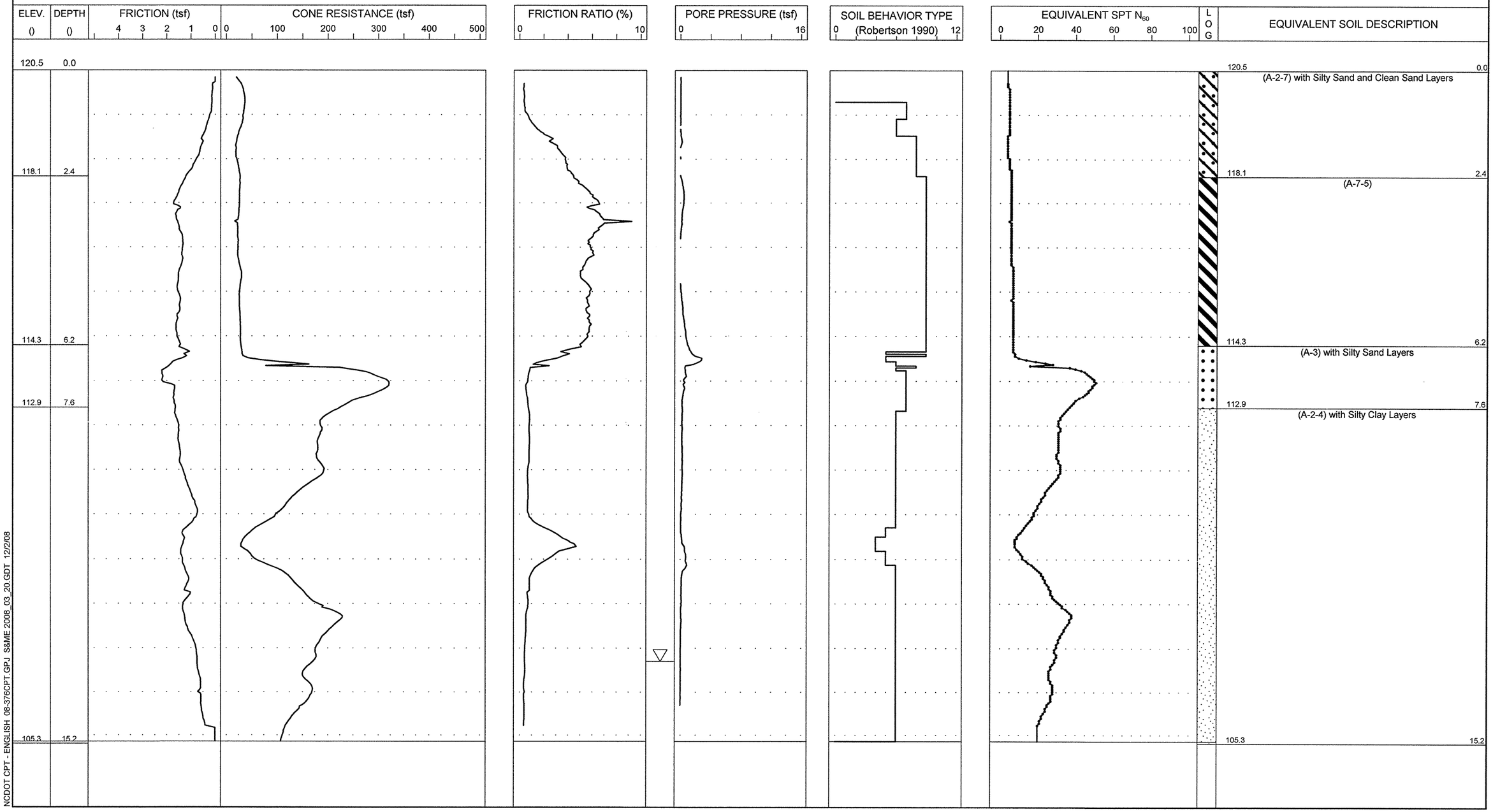
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 917+00 -L-	**BORING LOCATION** 917+00	**OFFSET** 70 RT	**ALIGNMENT** -L-	**0 HR.** 13.3	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 120.5	**NORTHING** 438,271.0	**EASTING** 2,150,916.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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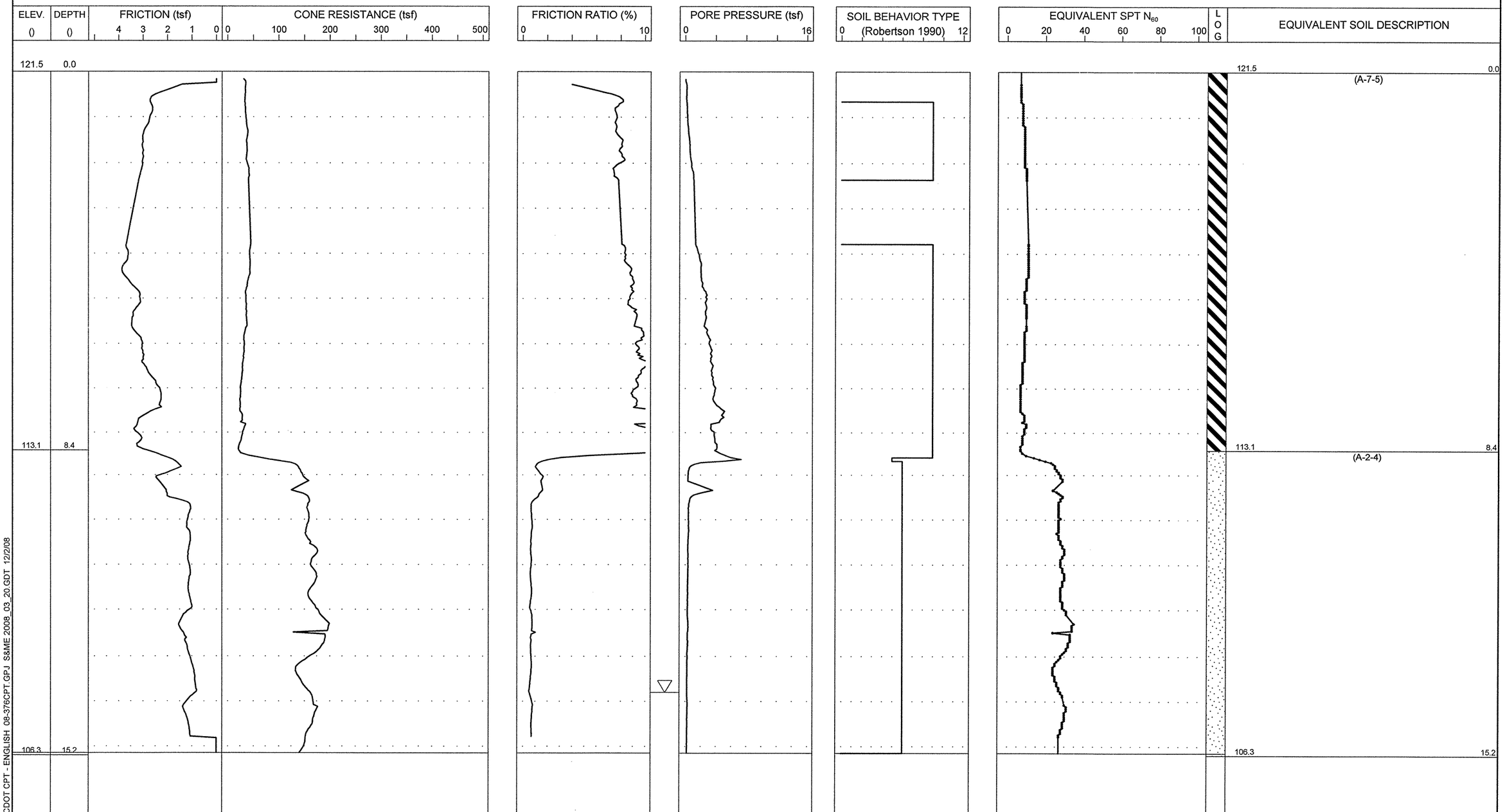
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 922+00 -L-	**BORING LOCATION** 922+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 13.8	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 121.5	**NORTHING** 438,142.0	**EASTING** 2,151,412.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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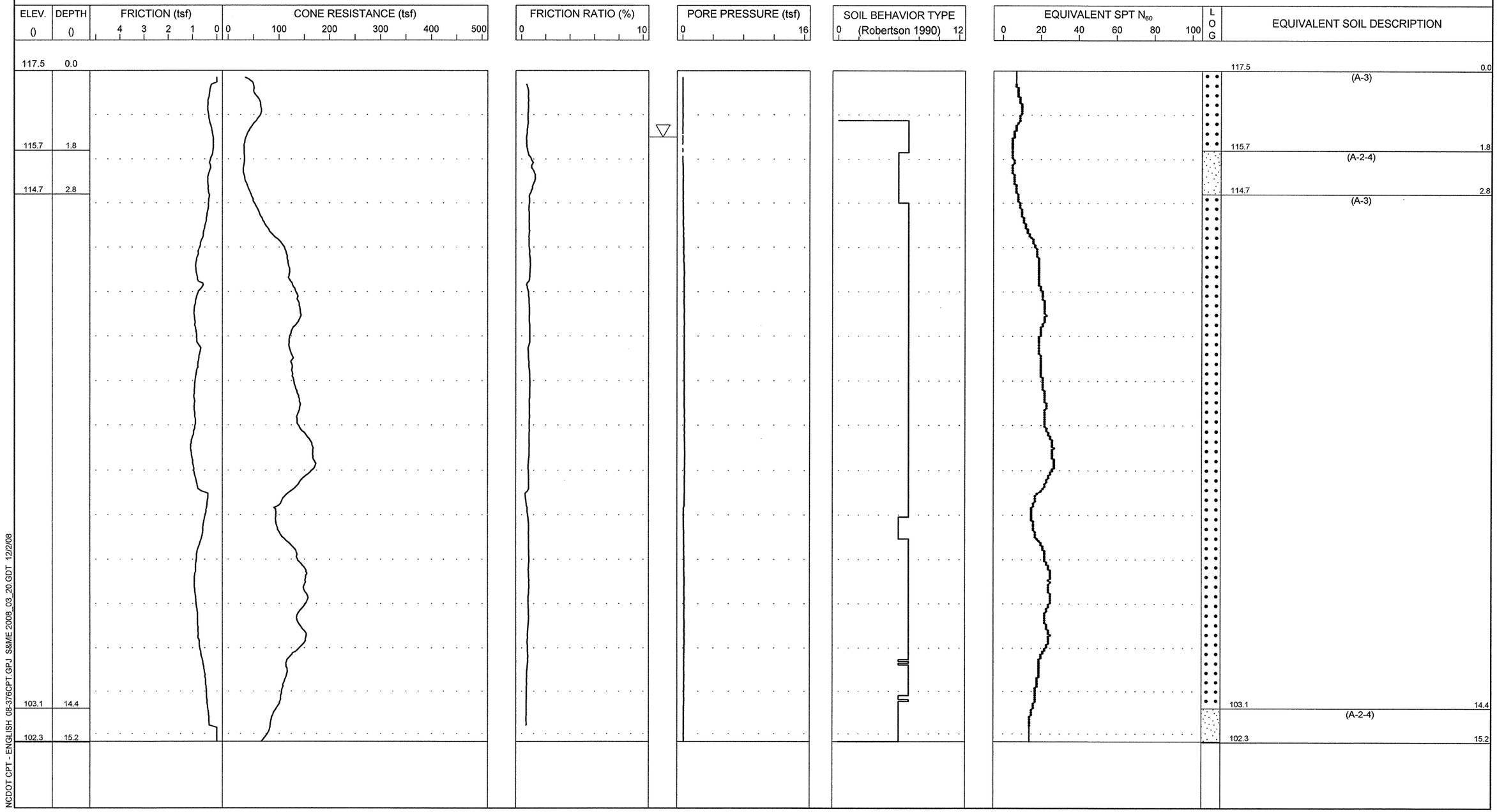
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 924+00 -L-	**BORING LOCATION** 924+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 1.5	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 117.5	**NORTHING** 438,101.0	**EASTING** 2,151,608.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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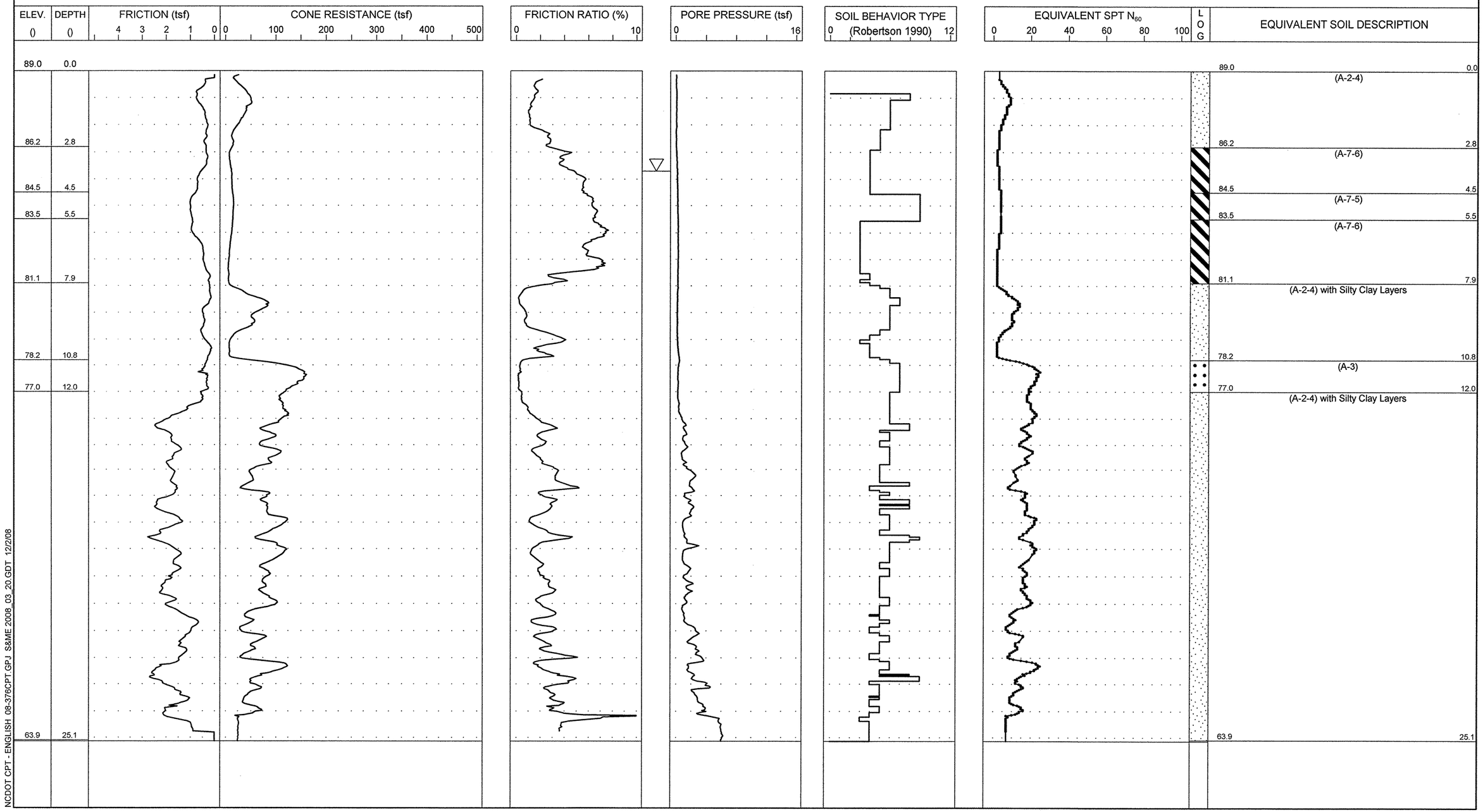
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 25.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 937+00 -L-	**BORING LOCATION** 937+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.7	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 89.0	**NORTHING** 438,326.0	**EASTING** 2,152,866.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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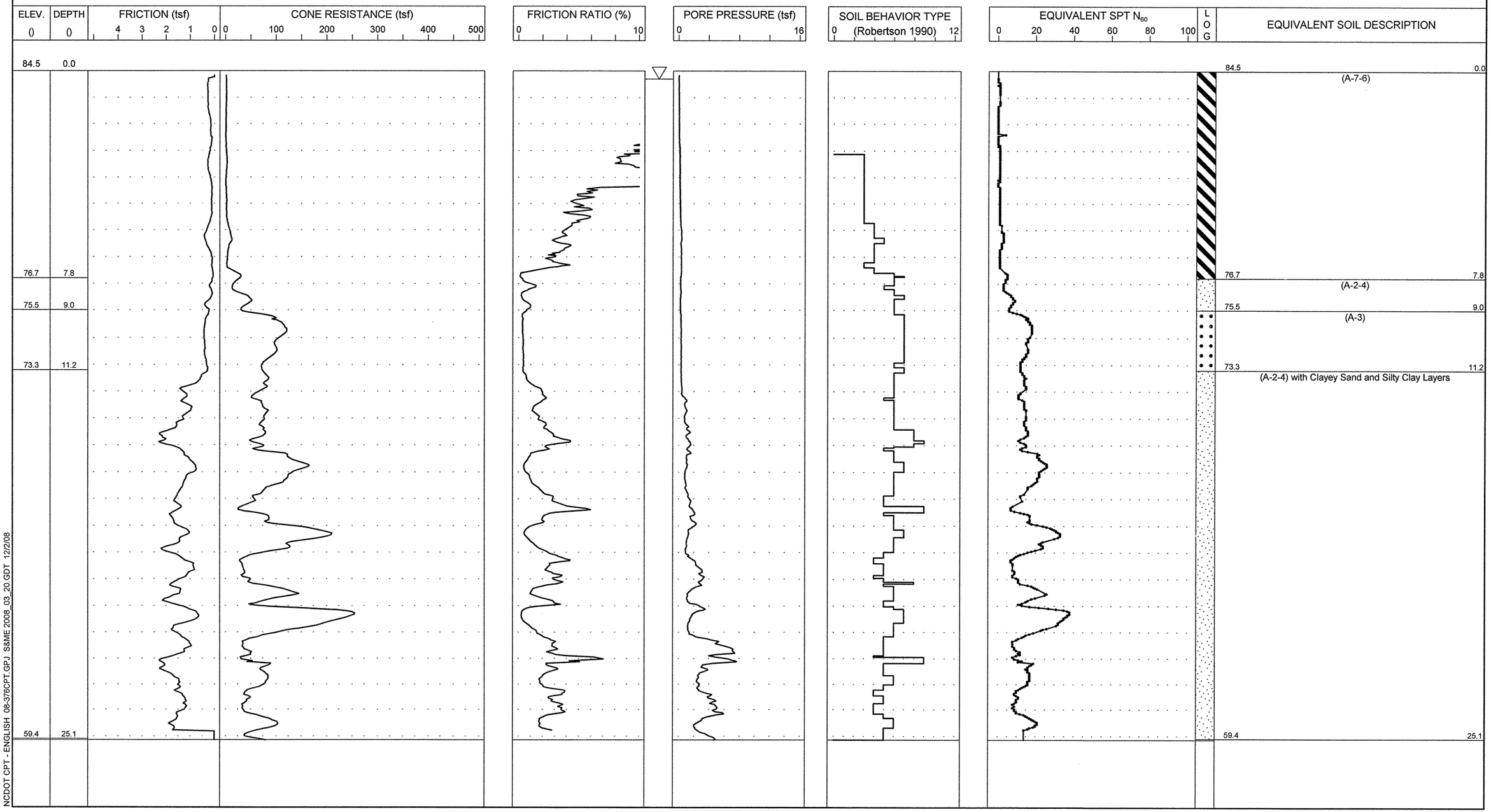
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 25.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 939+35 -L-	**BORING LOCATION** 939+35	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 0.3	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 84.5	**NORTHING** 438,392.0	**EASTING** 2,153,093.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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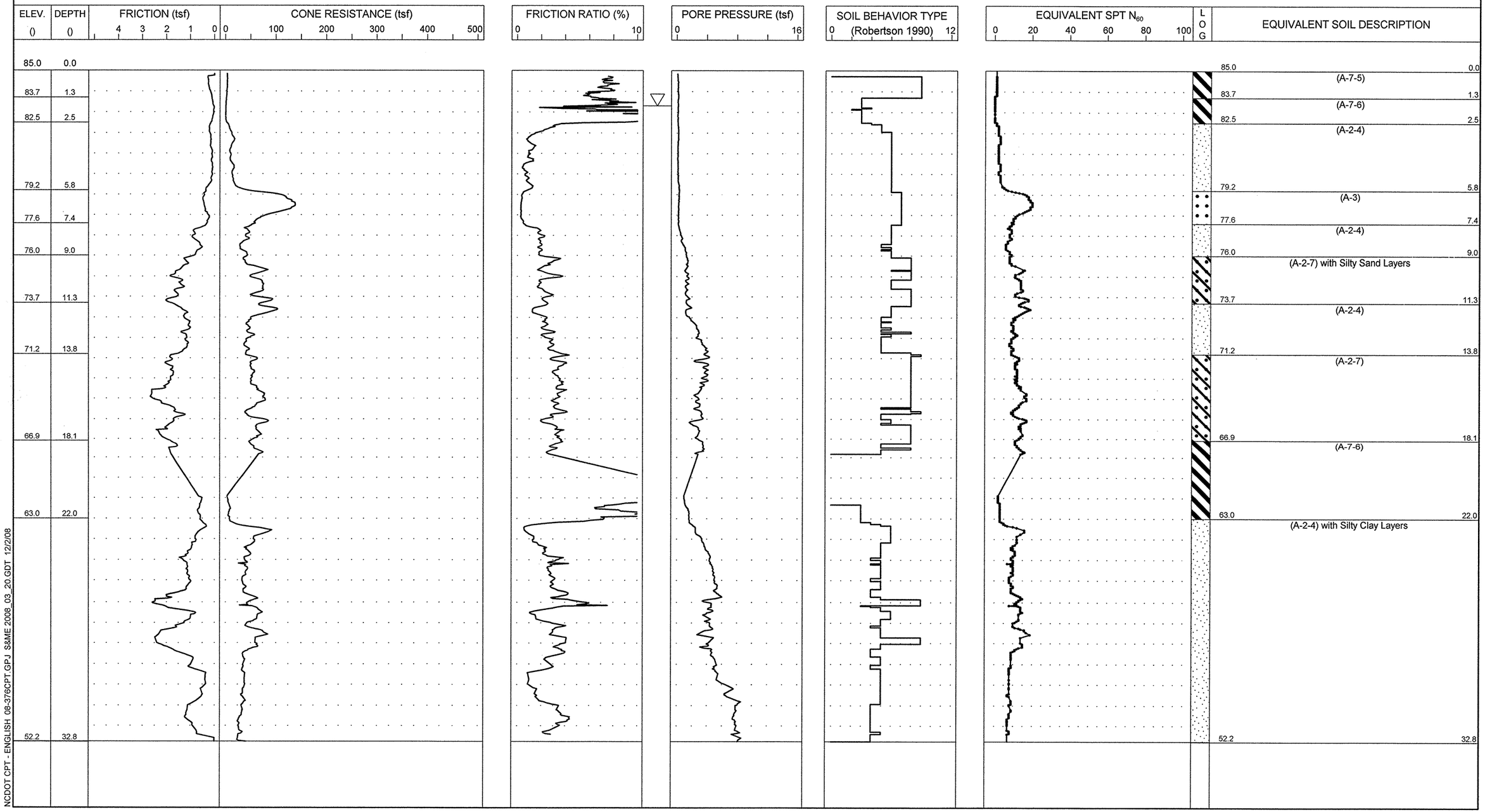
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 32.8	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 946+50 -L-	**BORING LOCATION** 946+50	**OFFSET** 40 RT / **ALIGNMENT** -L-	**0 HR.** 1.7	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 85.0	**NORTHING** 438,671.0	**EASTING** 2,153,752.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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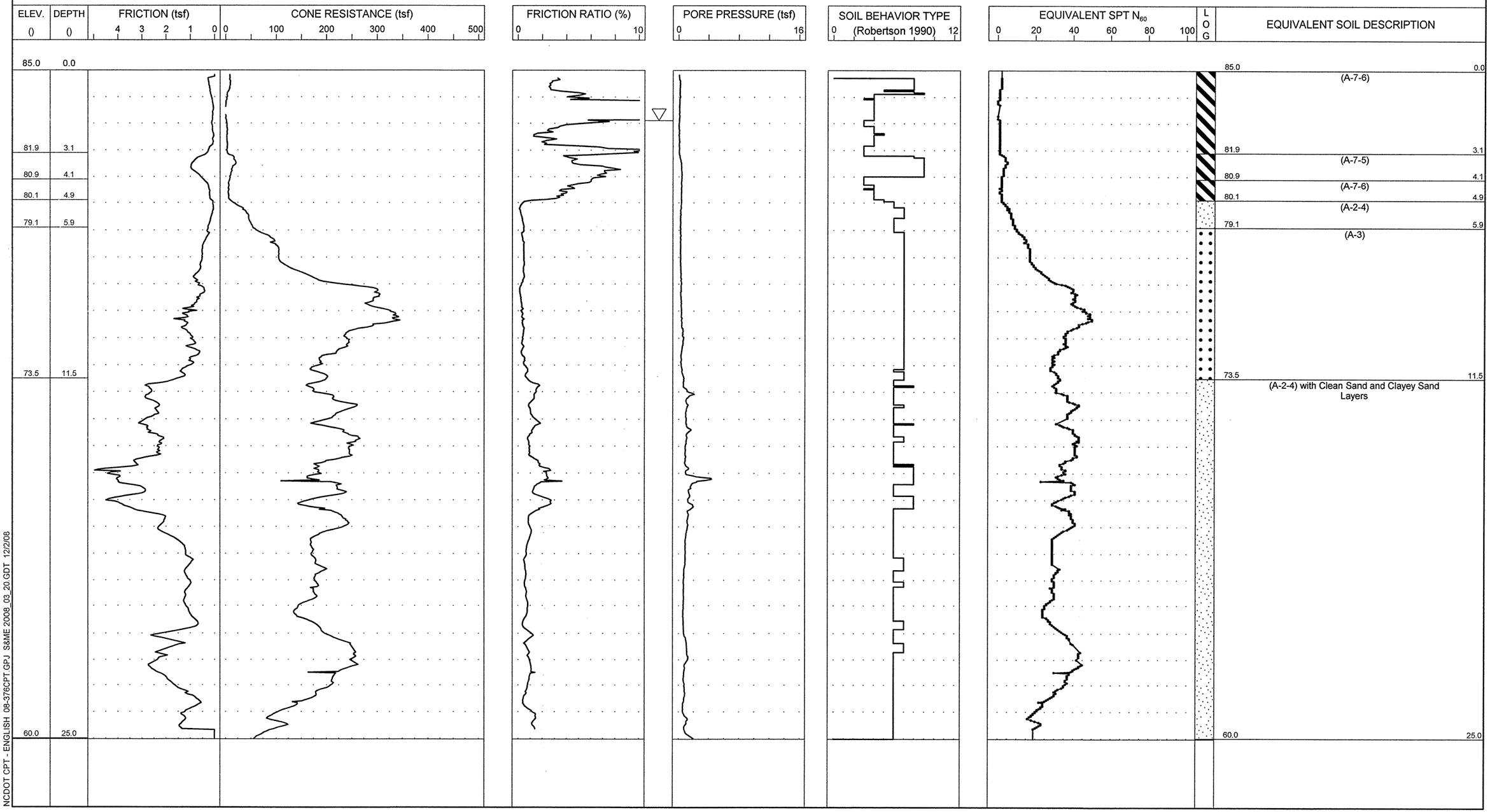
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 25.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 949+00 -L-	**BORING LOCATION** 949+00	**OFFSET** 20 RT	**ALIGNMENT** -L-	**0 HR.** 1.9	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 85.0	**NORTHING** 438,790.0	**EASTING** 2,153,973.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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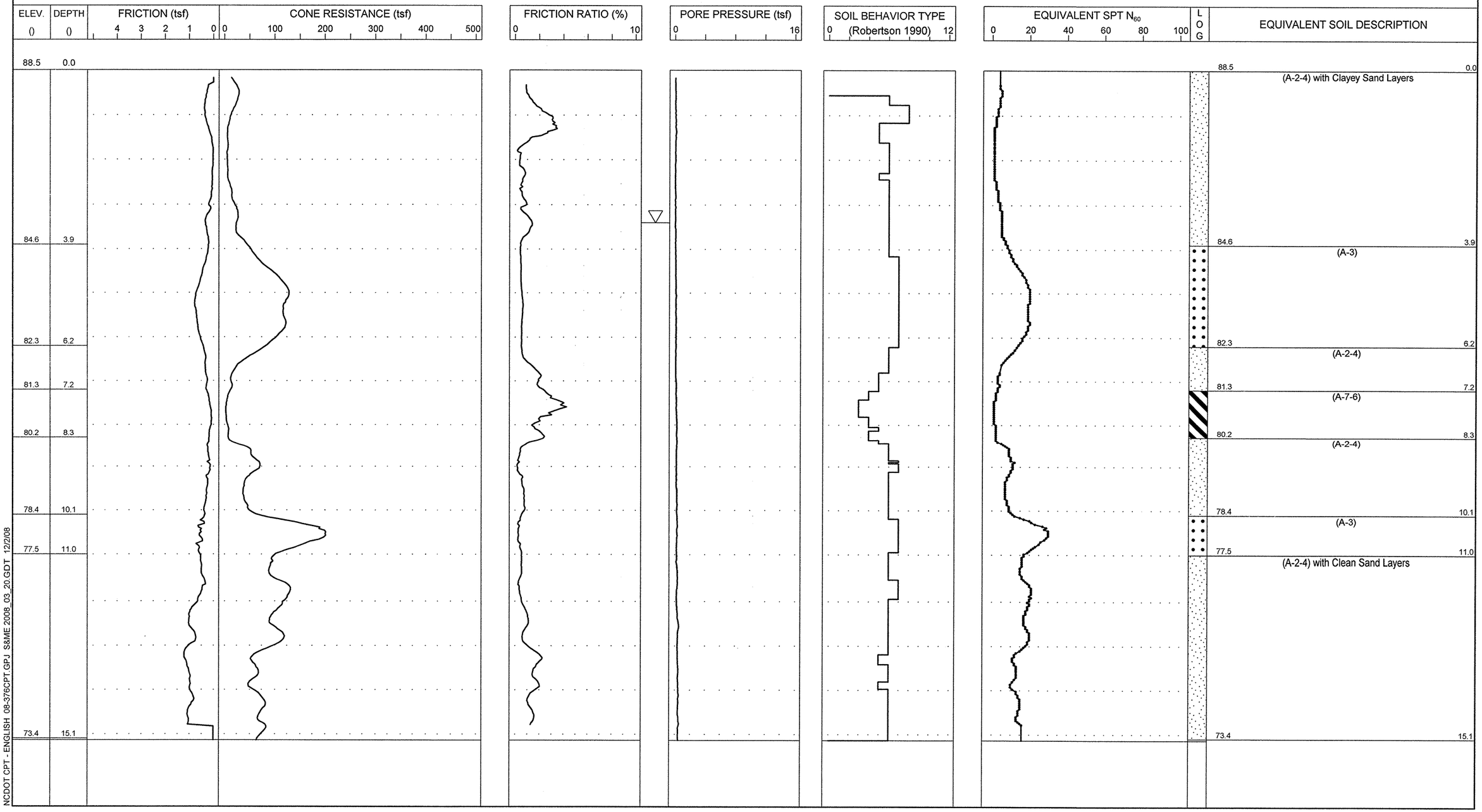
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 954+00 -L-	**BORING LOCATION** 954+00	**OFFSET** 5 RT	**ALIGNMENT** -L-	**0 HR.** 3.4	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 88.5	**NORTHING** 439,005.0	**EASTING** 2,154,425.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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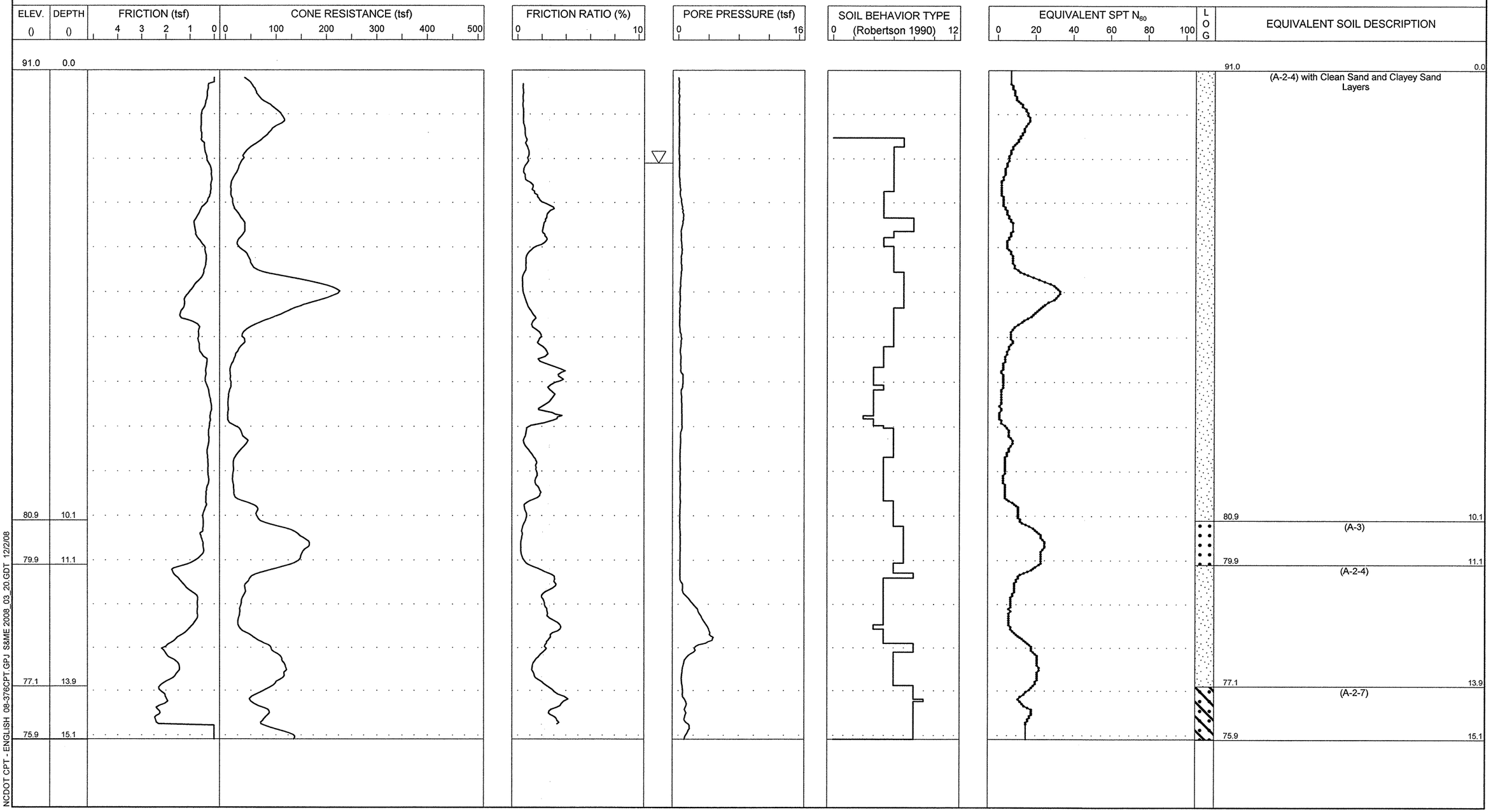
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 956+50 -L-	**BORING LOCATION** 956+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.1	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 91.0	**NORTHING** 439,110.0	**EASTING** 2,154,652.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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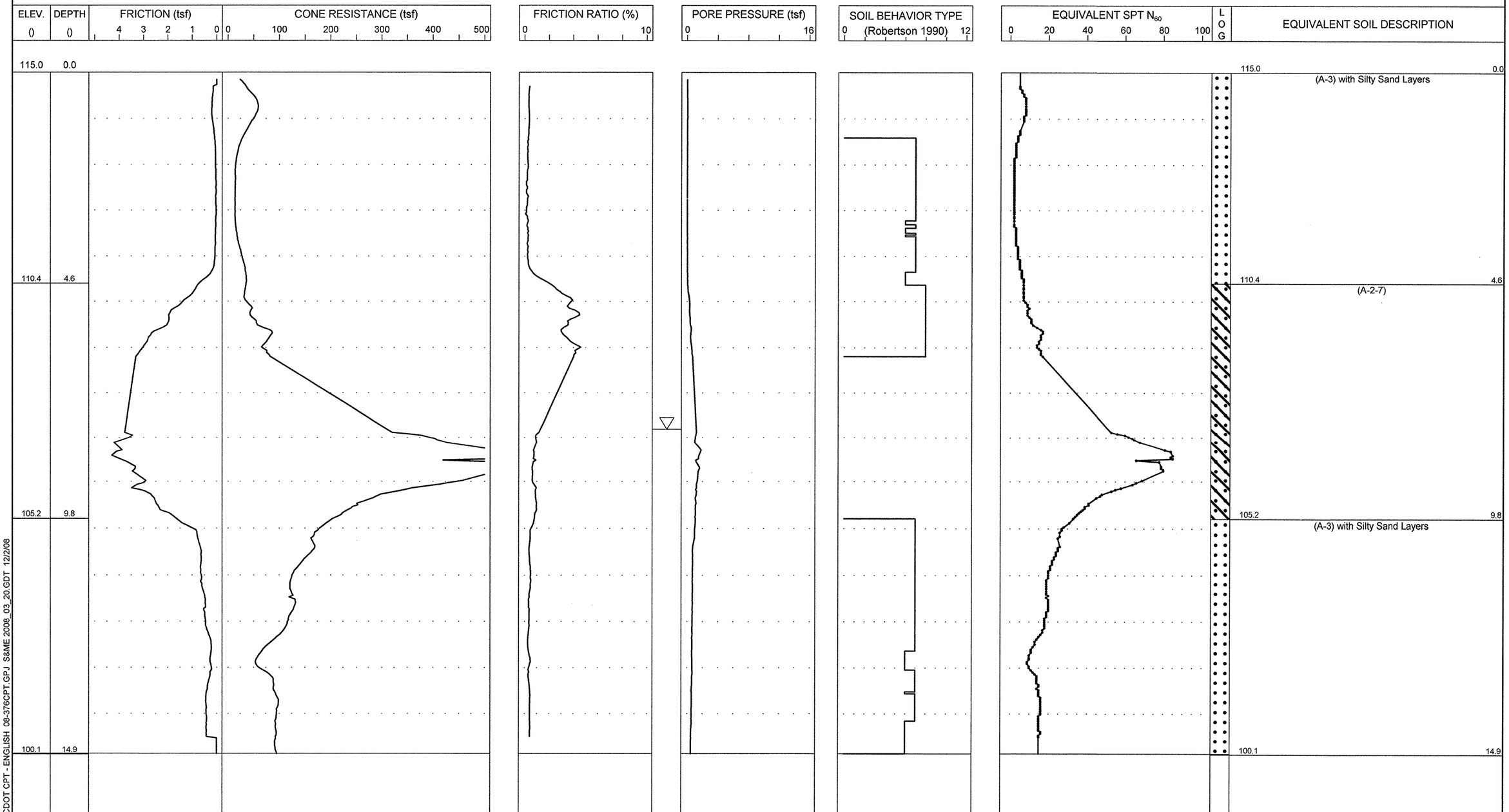
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 14.9	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 969+50 -L-	**BORING LOCATION** 969+50	**OFFSET** 40 LT	**ALIGNMENT** -L-	**0 HR.** 7.8	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 115.0	**NORTHING** 439,649.0	**EASTING** 2,155,839.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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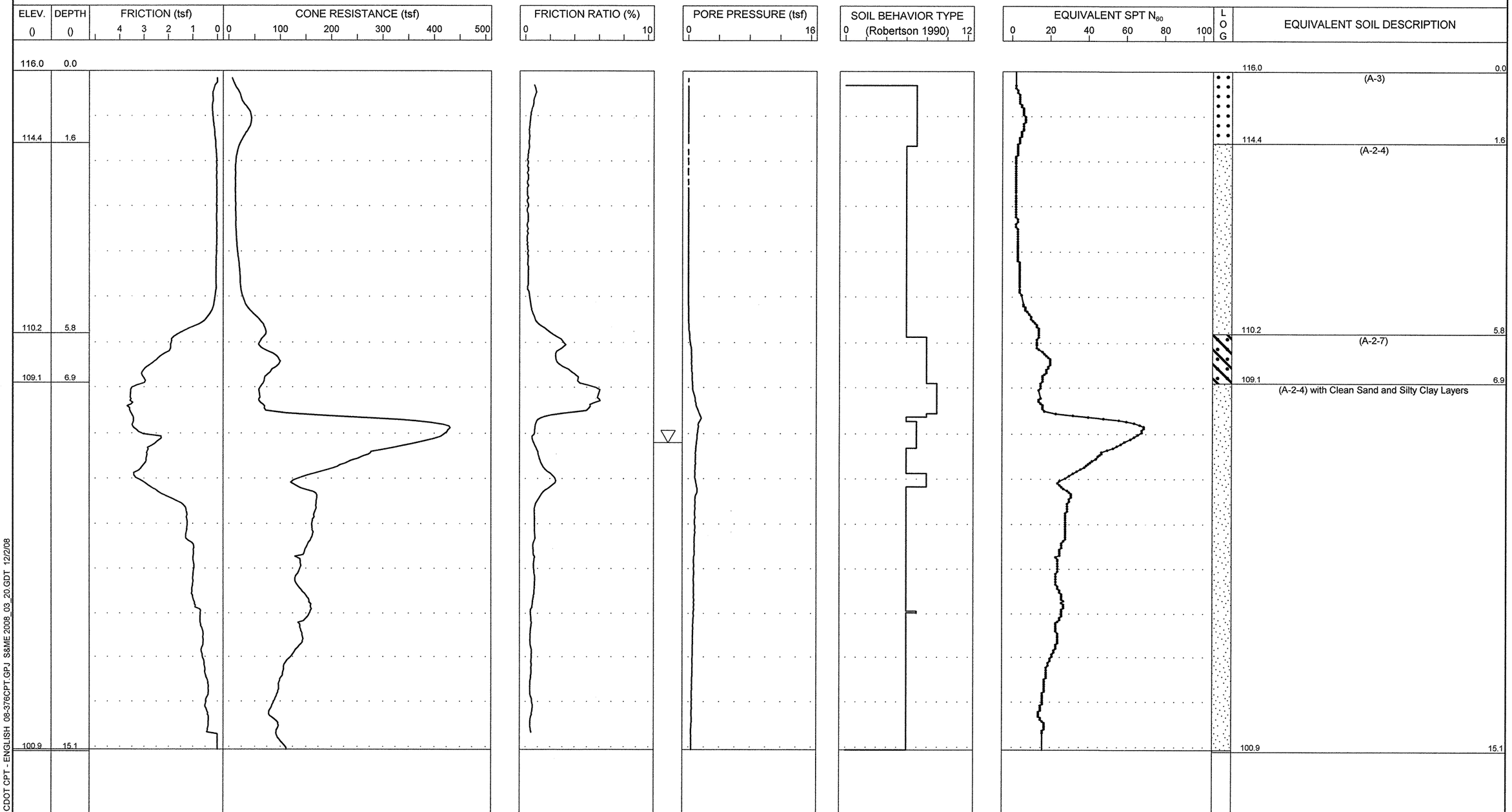
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 972+00 -L-	**BORING LOCATION** 972+00	**OFFSET** 10 LT / **ALIGNMENT** -L-	**0 HR.** 8.2	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 116.0	**NORTHING** 439,688.0	**EASTING** 2,156,089.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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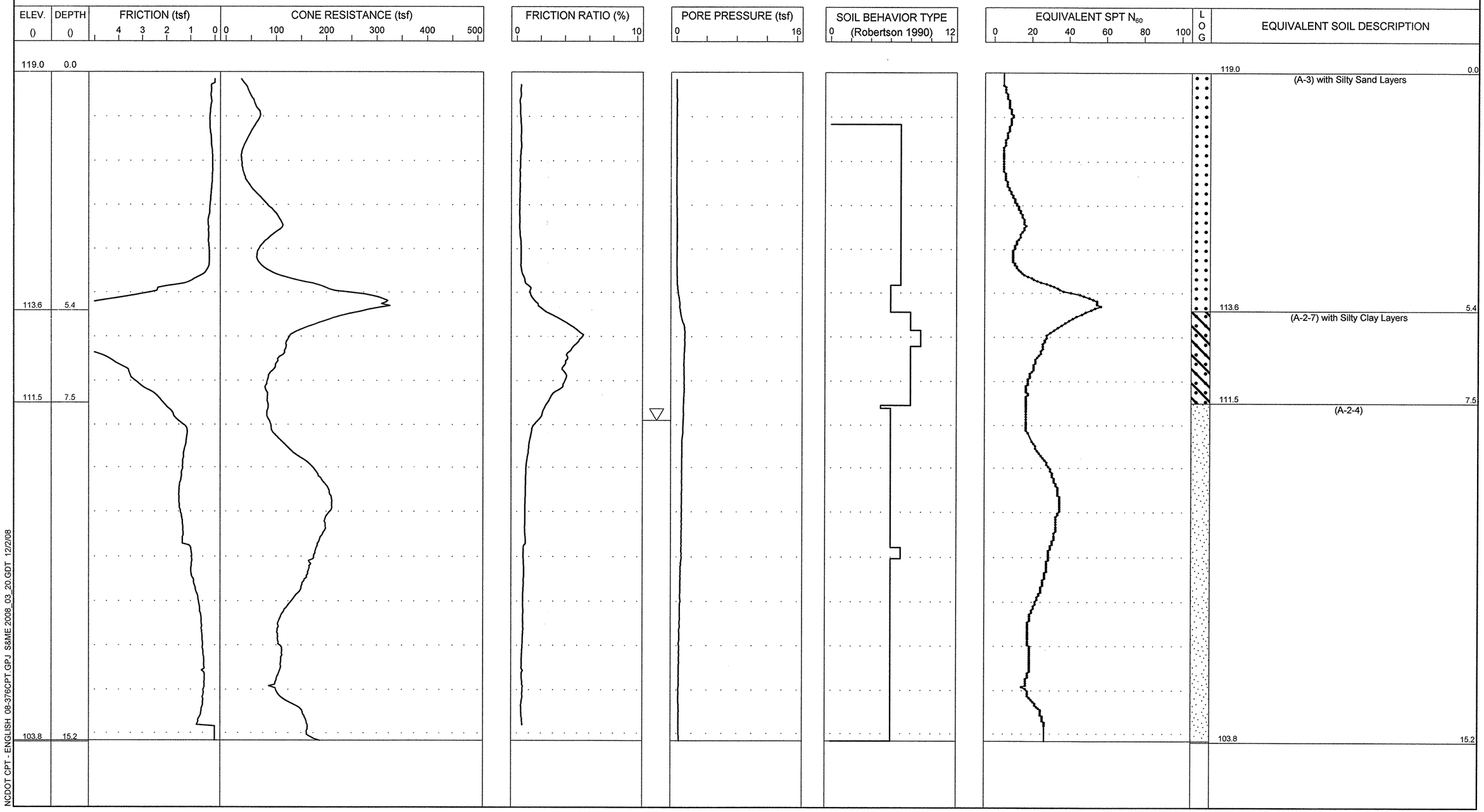
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 977+00 -L-	**BORING LOCATION** 977+00	**OFFSET** 20 LT	**ALIGNMENT** -L-	**0 HR.** 7.9	**DATE STARTED** 11/11/2008	**COMPLETED** 11/11/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 119.0	**NORTHING** 439,800.0	**EASTING** 2,156,577.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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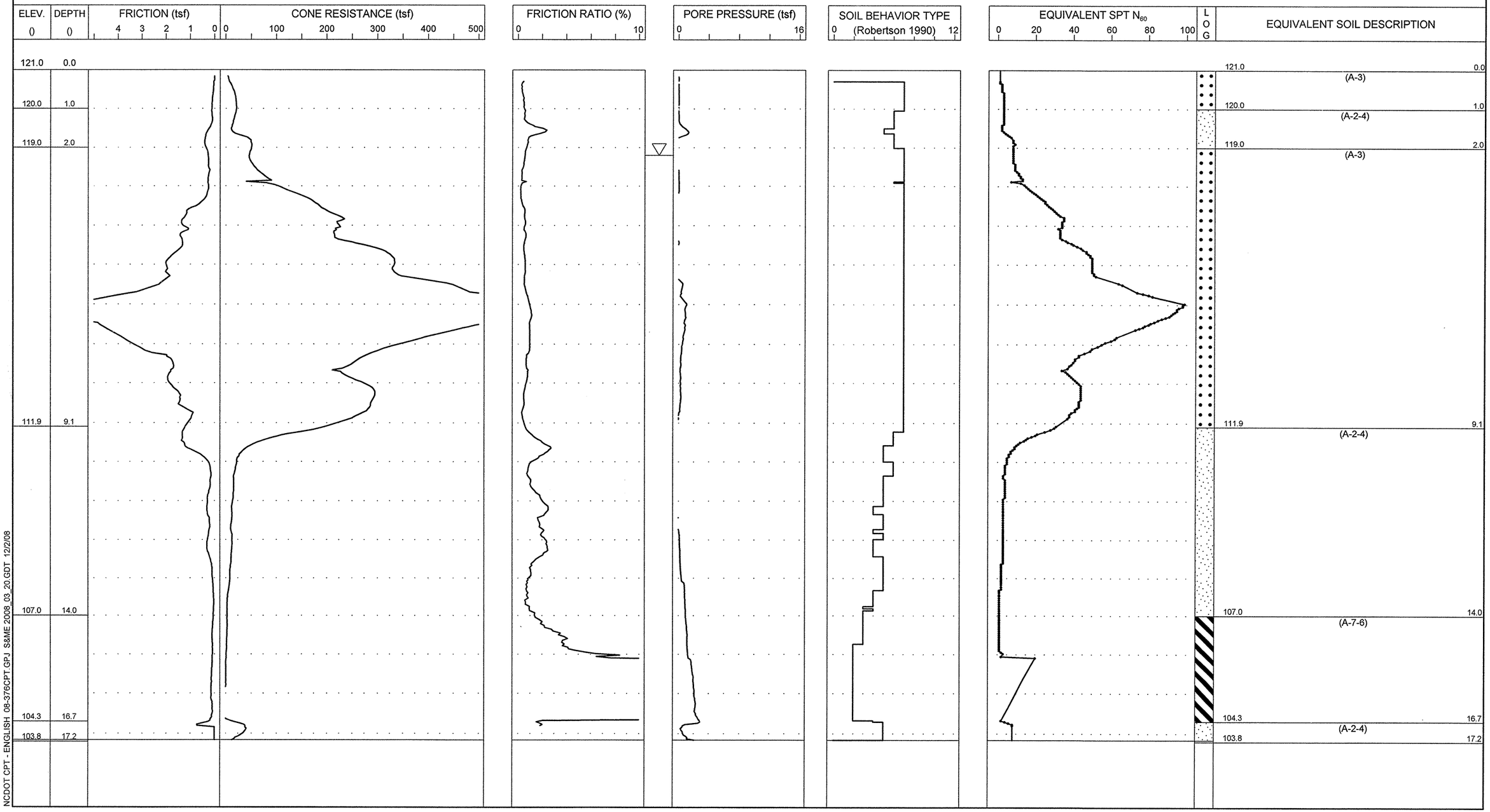
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 17.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 979+50 -L-	**BORING LOCATION** 979+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.2	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 121.0	**NORTHING** 439,829.0	**EASTING** 2,156,826.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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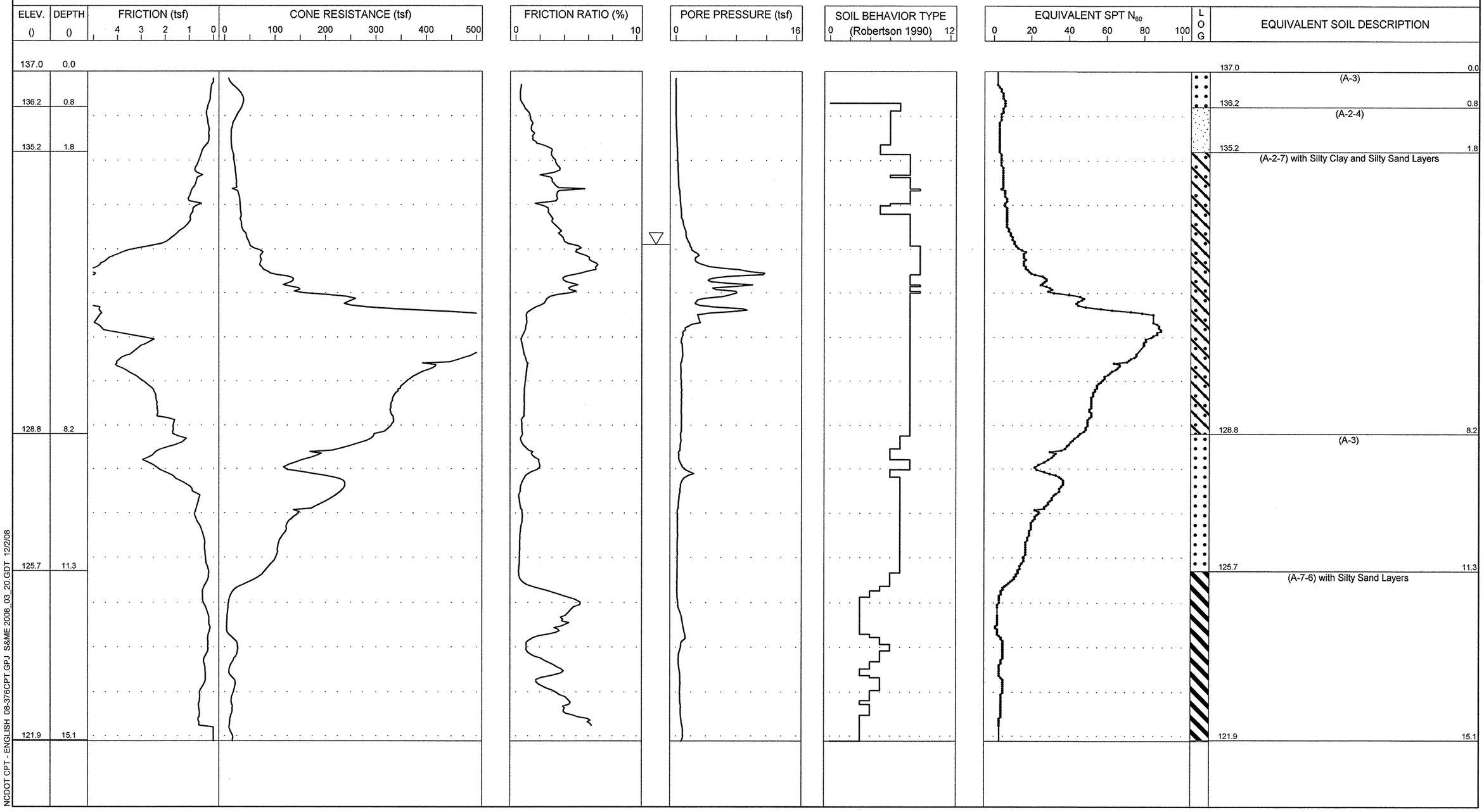
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 984+50 -L-	**BORING LOCATION** 984+50	**OFFSET** 40 LT	**ALIGNMENT** -L-	**0 HR.** 3.9	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 137.0	**NORTHING** 439,966.0	**EASTING** 2,157,308.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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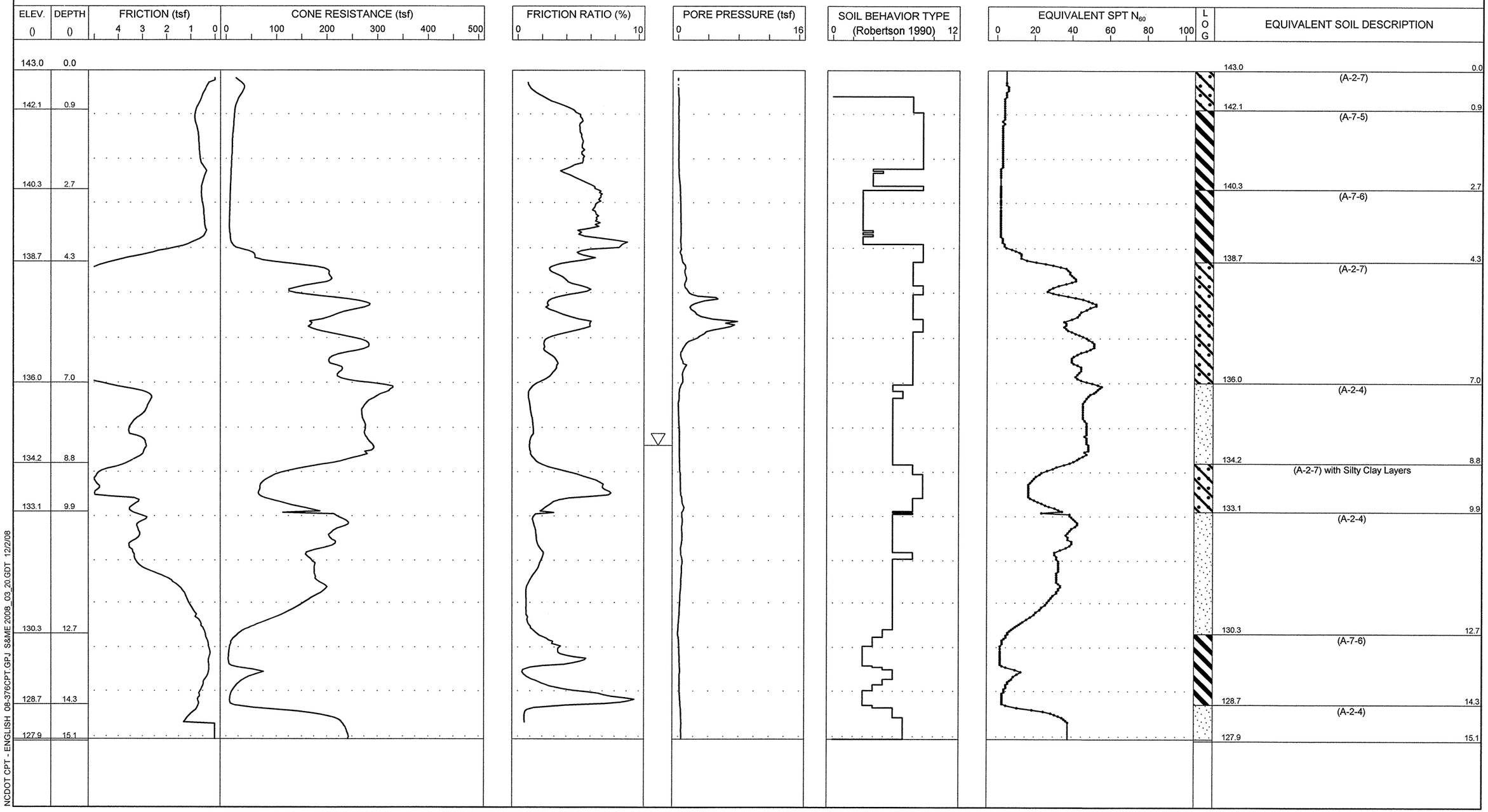
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 987+00 -L-	**BORING LOCATION** 987+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 8.4	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 143.0	**NORTHING** 439,976.0	**EASTING** 2,157,561.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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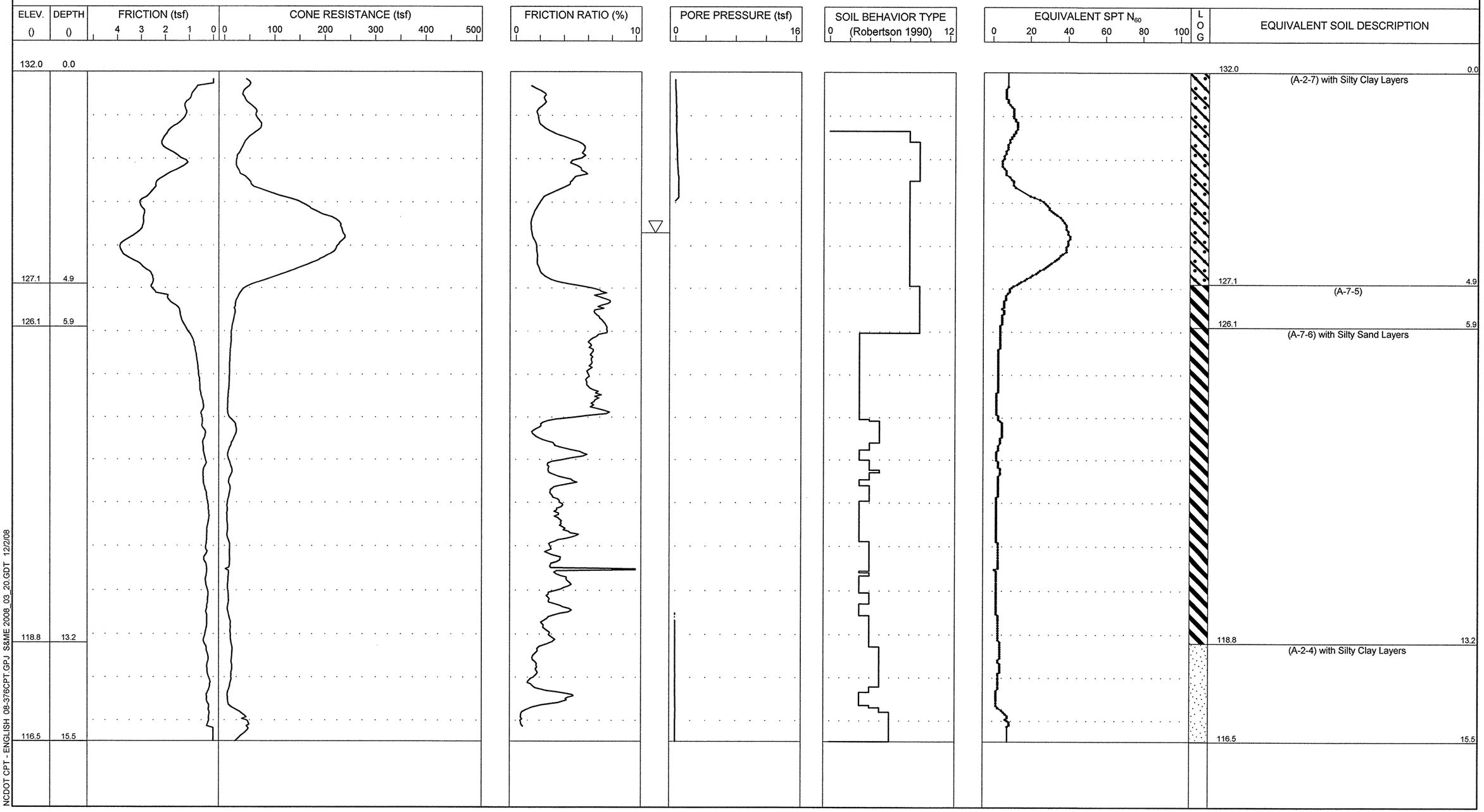
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.5	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 999+50 -L-	**BORING LOCATION** 999+50	**OFFSET** 60 RT	**ALIGNMENT** -L-	**0 HR.** 3.7	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 132.0	**NORTHING** 440,162.0	**EASTING** 2,158,799.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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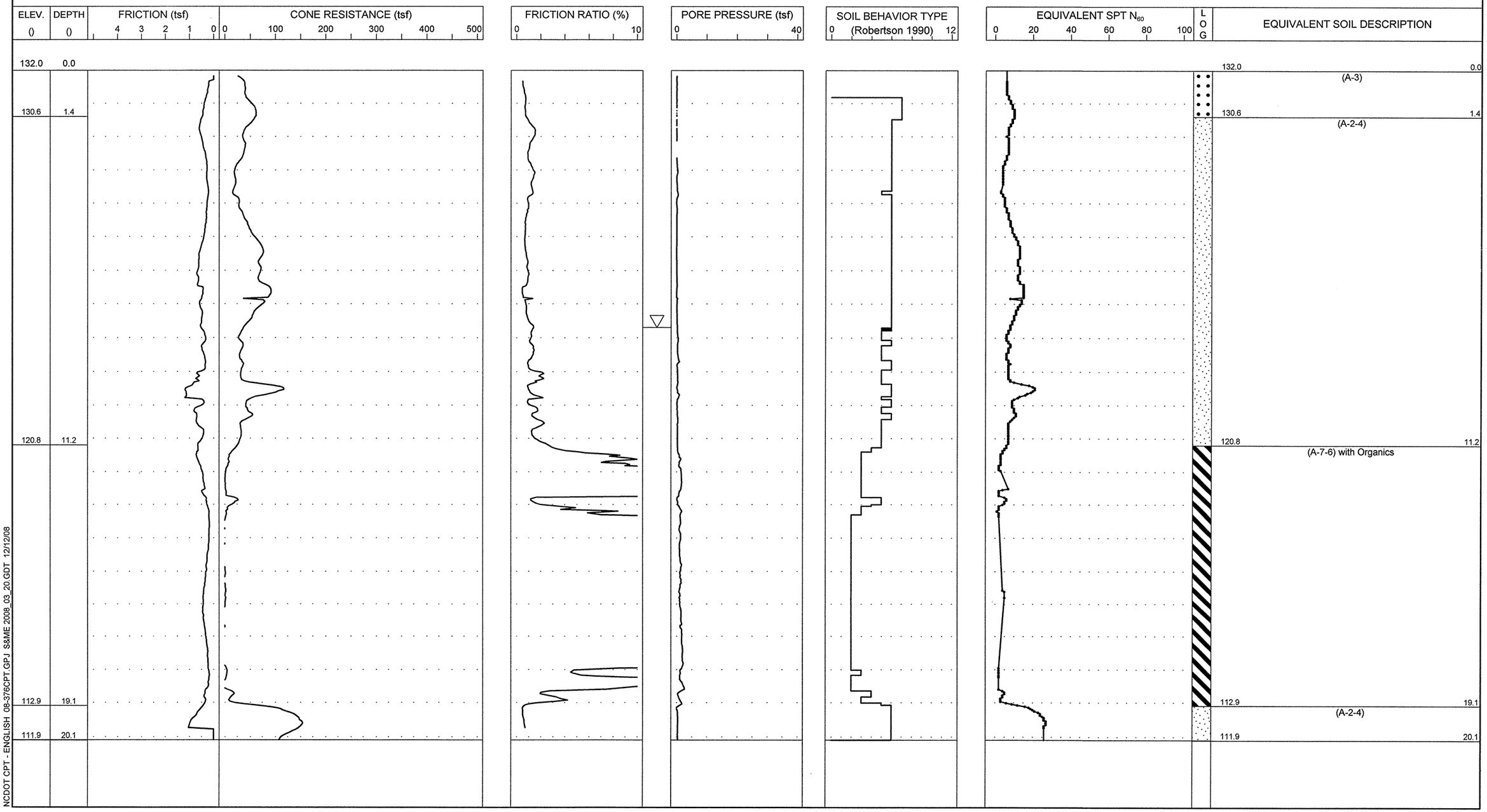
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 20.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1002+00 -L-	**BORING LOCATION** 100200	**OFFSET** 30 LT	**ALIGNMENT** -L-	**0 HR.** 7.7	**DATE STARTED** 12/5/2008	**COMPLETED** 12/5/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 132.0	**NORTHING** 440,299.0	**EASTING** 2,159,027.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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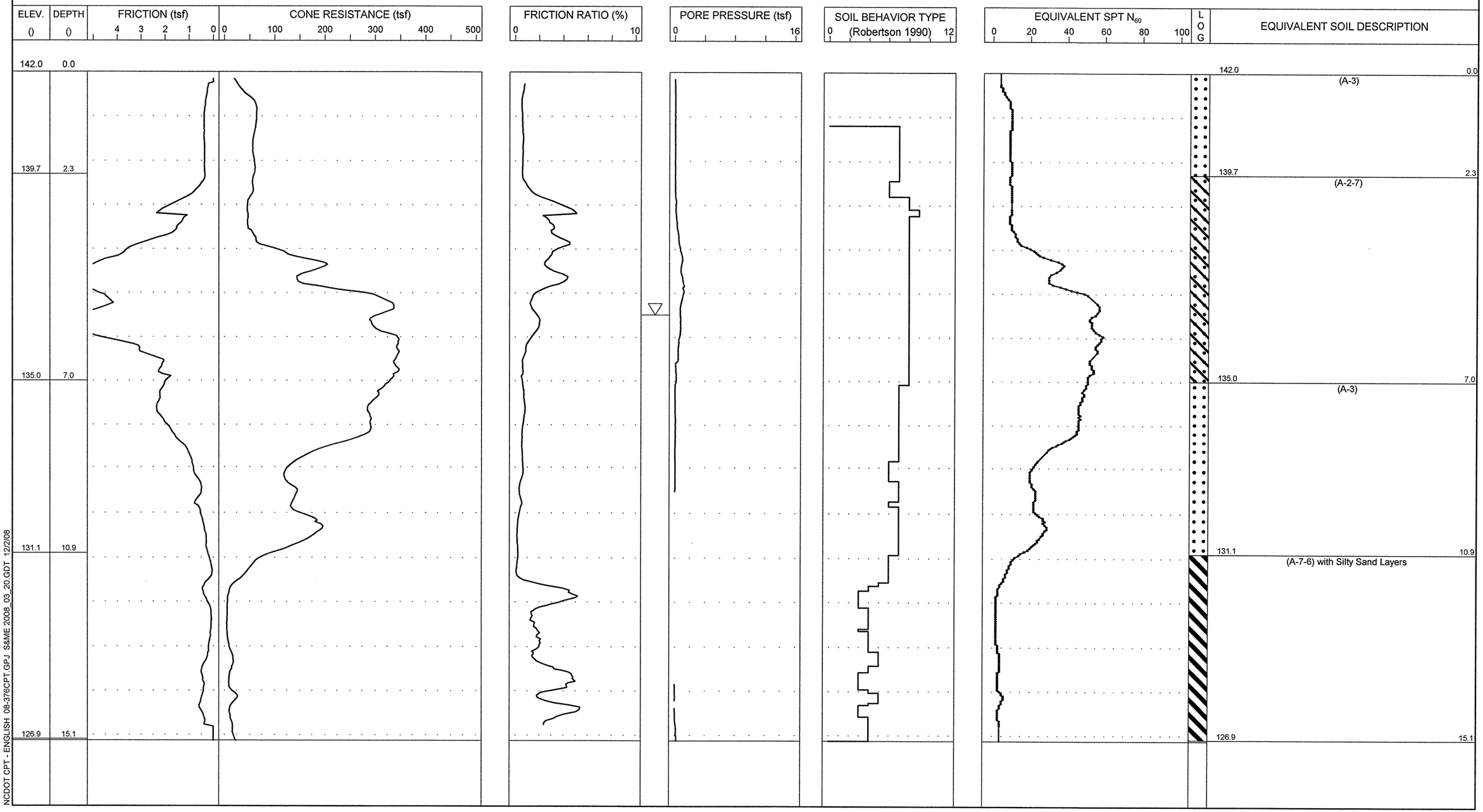
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 1013+00 -L-	**BORING LOCATION** 1013+00	**OFFSET** 20 RT / **ALIGNMENT** -L-	**0 HR.** 5.5	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 142.0	**NORTHING** 440,425.0	**EASTING** 2,160,121.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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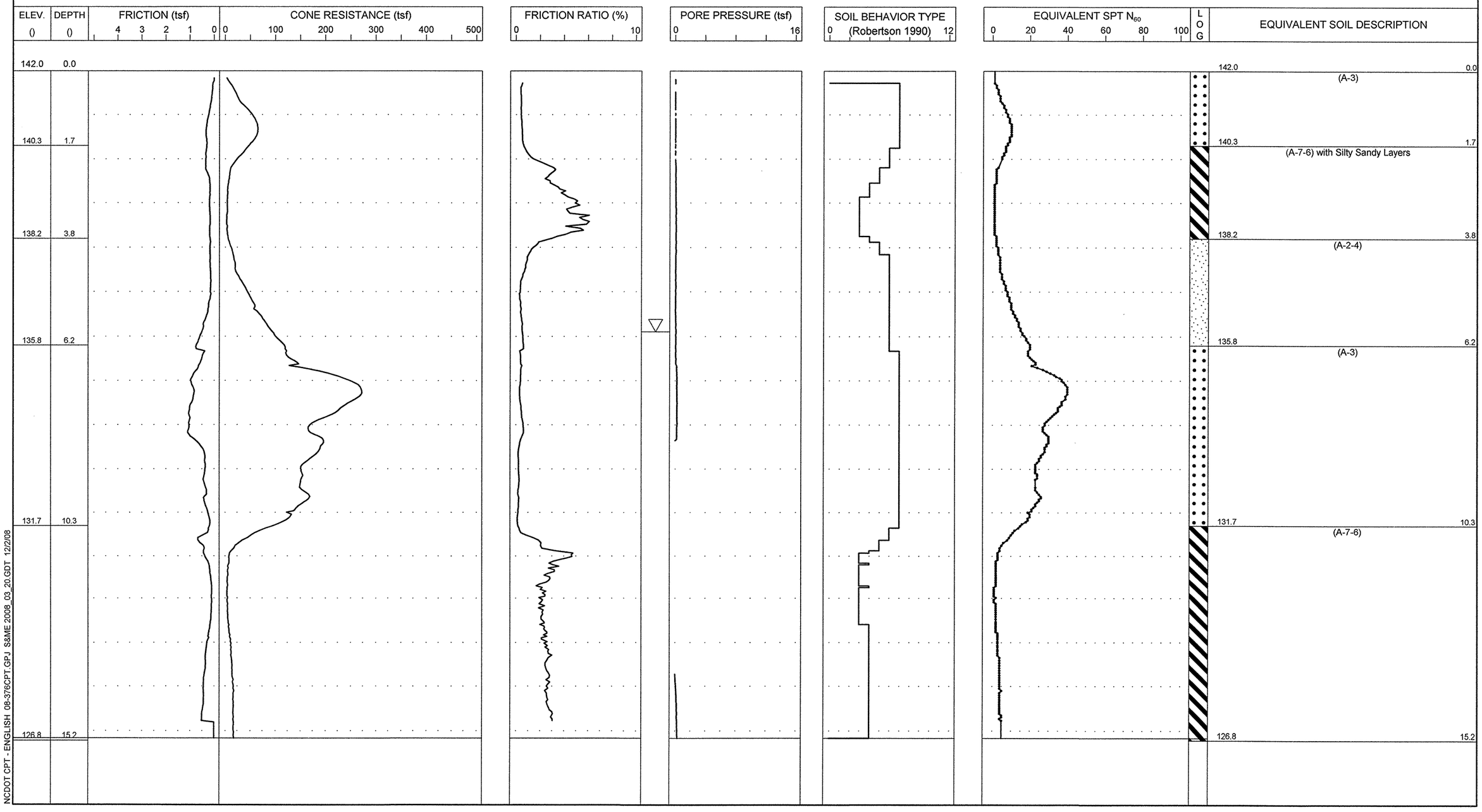
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1015+50 -L-	**BORING LOCATION** 1015+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.9	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 142.0	**NORTHING** 440,483.0	**EASTING** 2,160,365.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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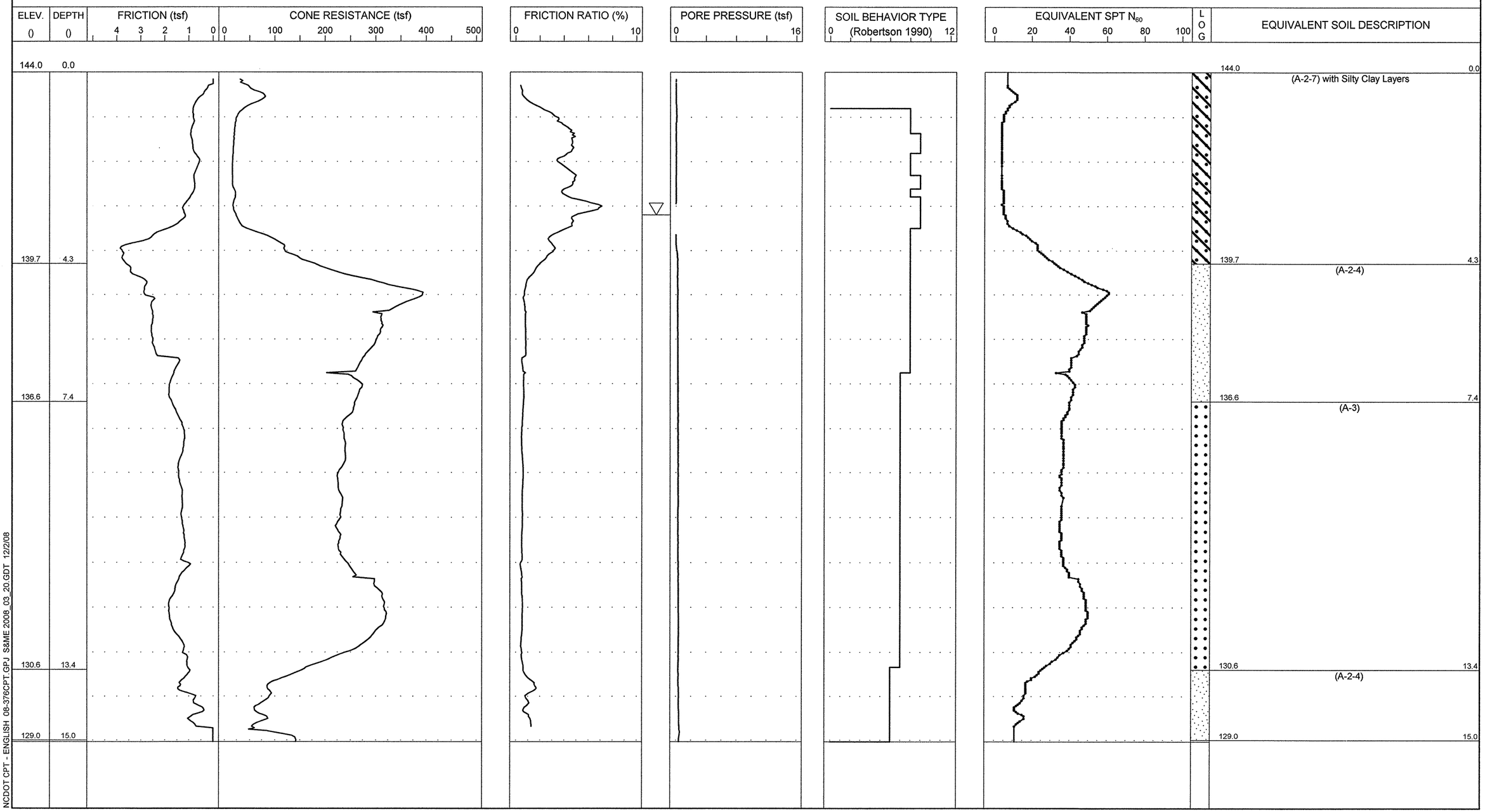
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1020+50 -L-	**BORING LOCATION** 1020+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.2	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 144.0	**NORTHING** 440,560.0	**EASTING** 2,160,859.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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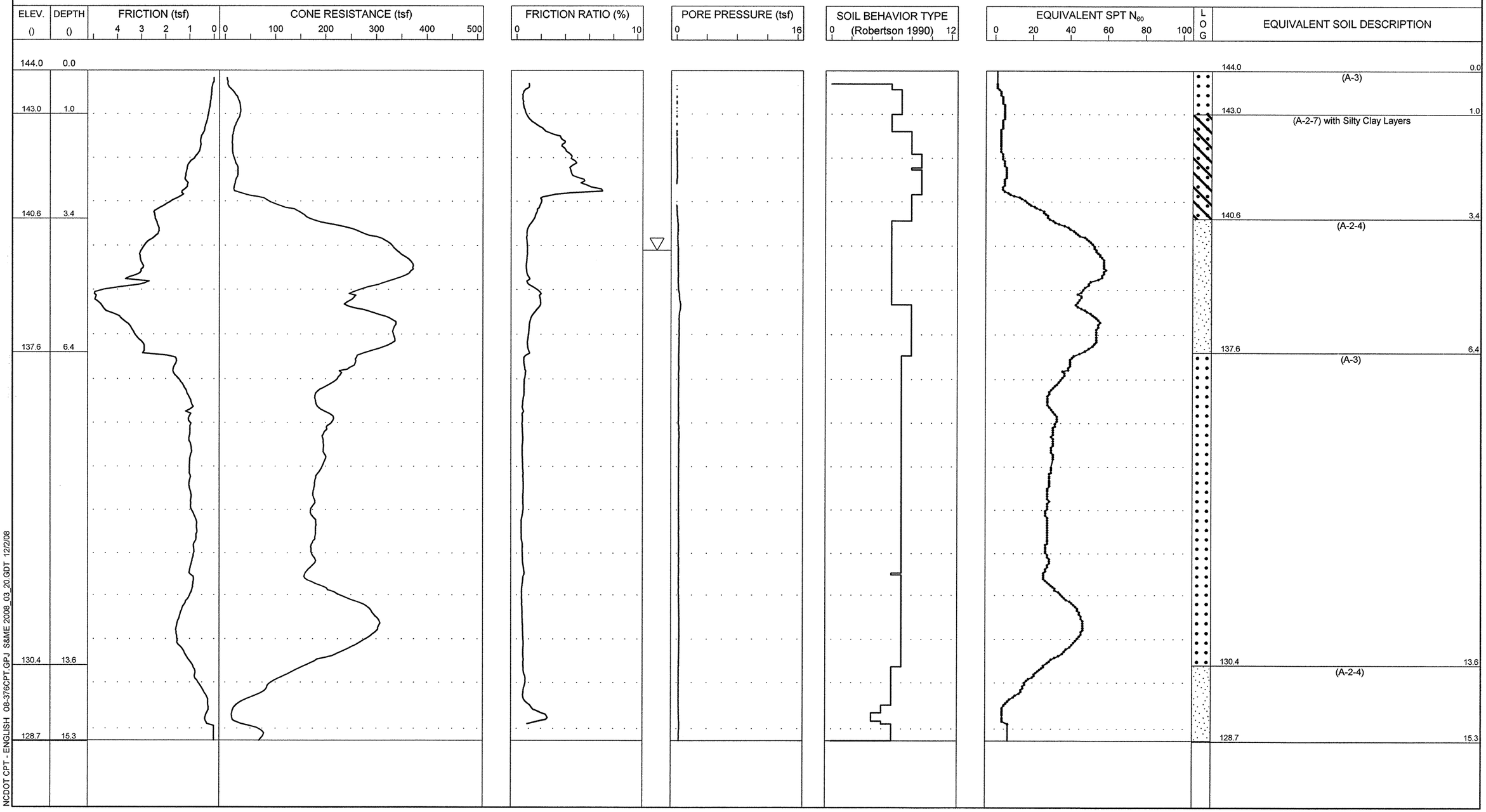
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.3	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 1023+00 -L-	**BORING LOCATION** 1023+00	**OFFSET** 0 CL / **ALIGNMENT** -L-	**0 HR.** 4.1	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 144.0	**NORTHING** 440,598.0	**EASTING** 2,161,106.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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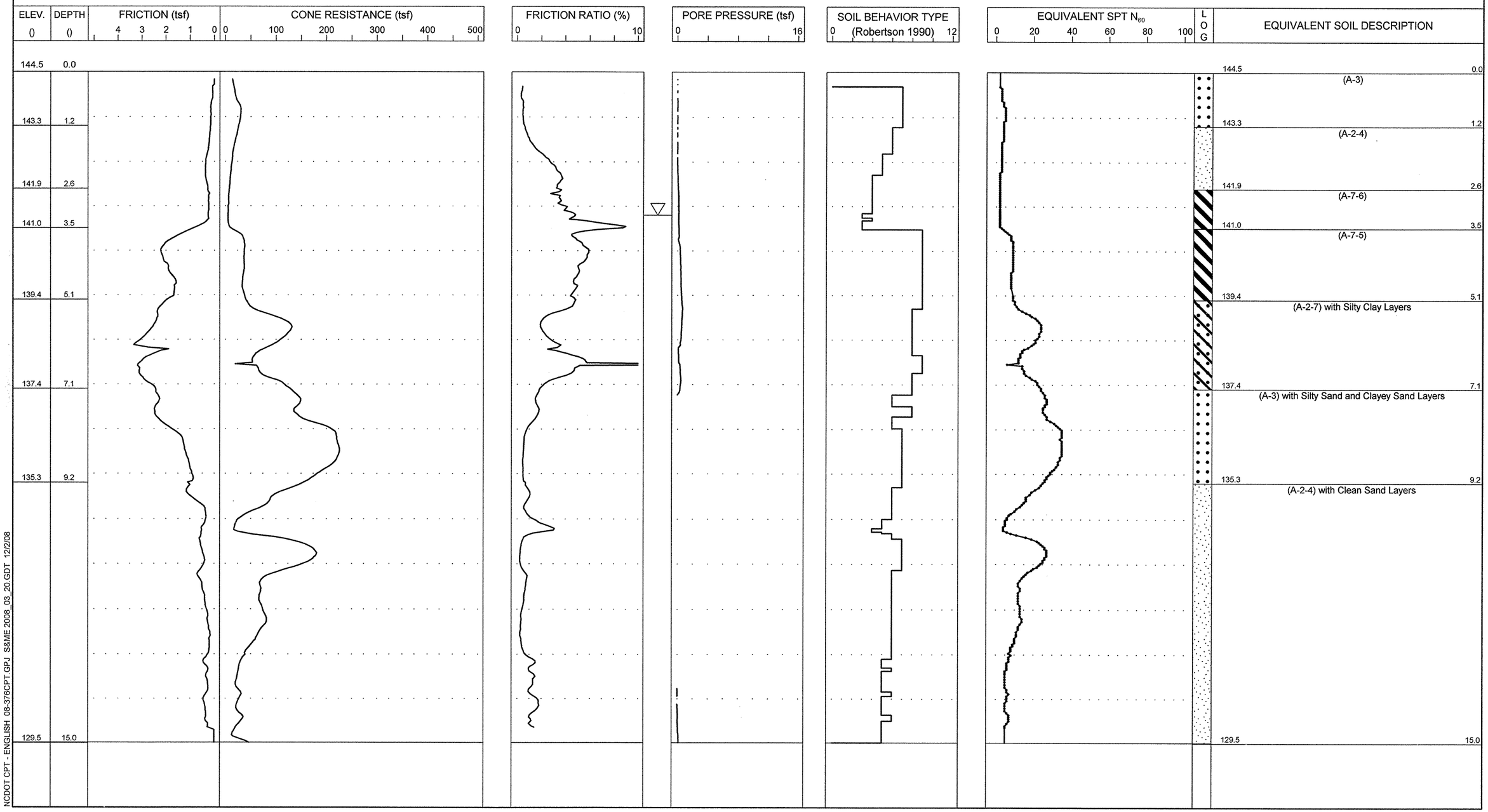
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1028+00 -L-	**BORING LOCATION** 1028+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 3.2	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 144.5	**NORTHING** 440,682.0	**EASTING** 2,161,599.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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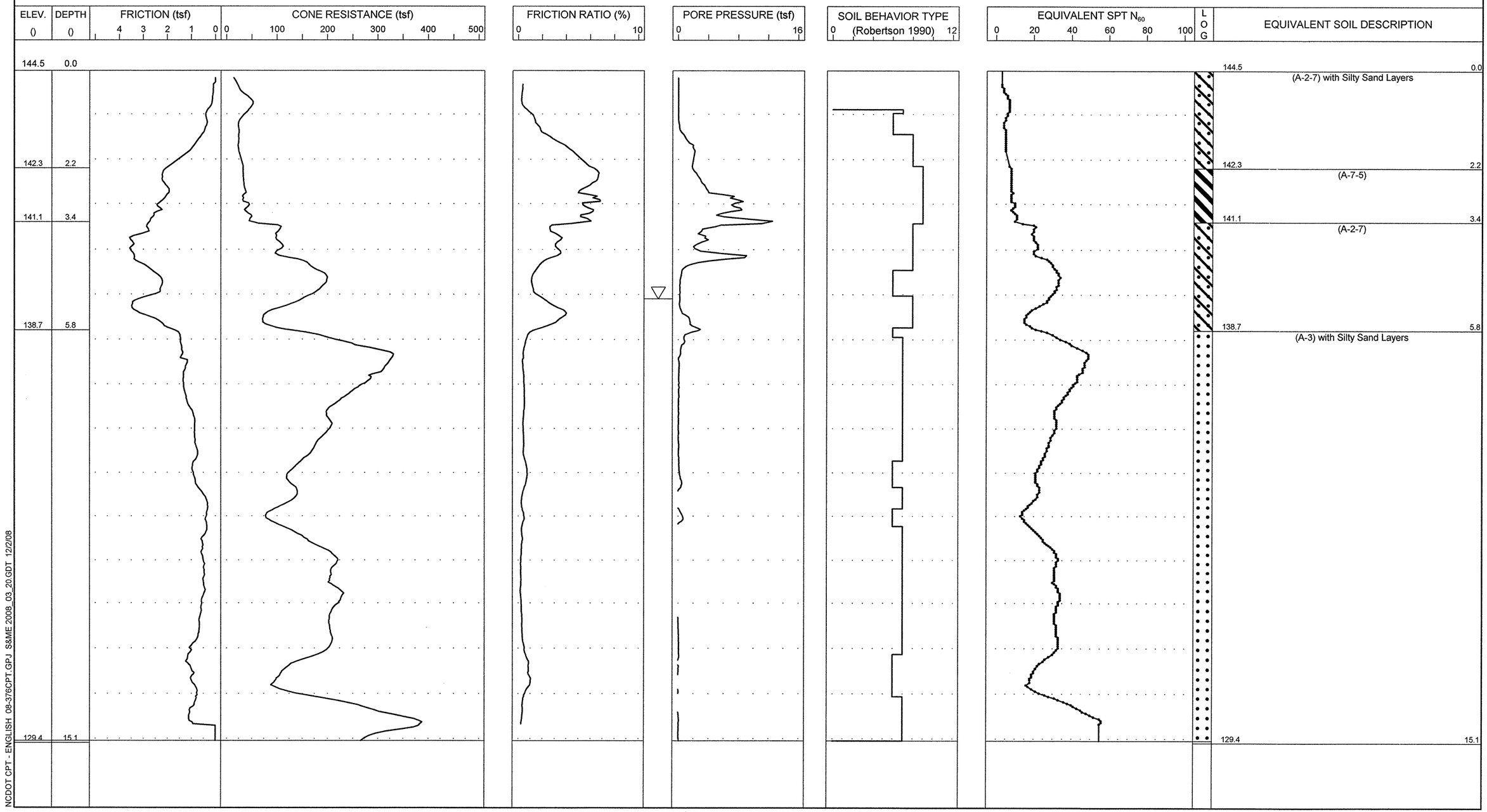
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1030+50 -L-	**BORING LOCATION** 1030+50	**OFFSET** 20 RT	**ALIGNMENT** -L-	**0 HR.** 5.1	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 144.5	**NORTHING** 440,727.0	**EASTING** 2,161,847.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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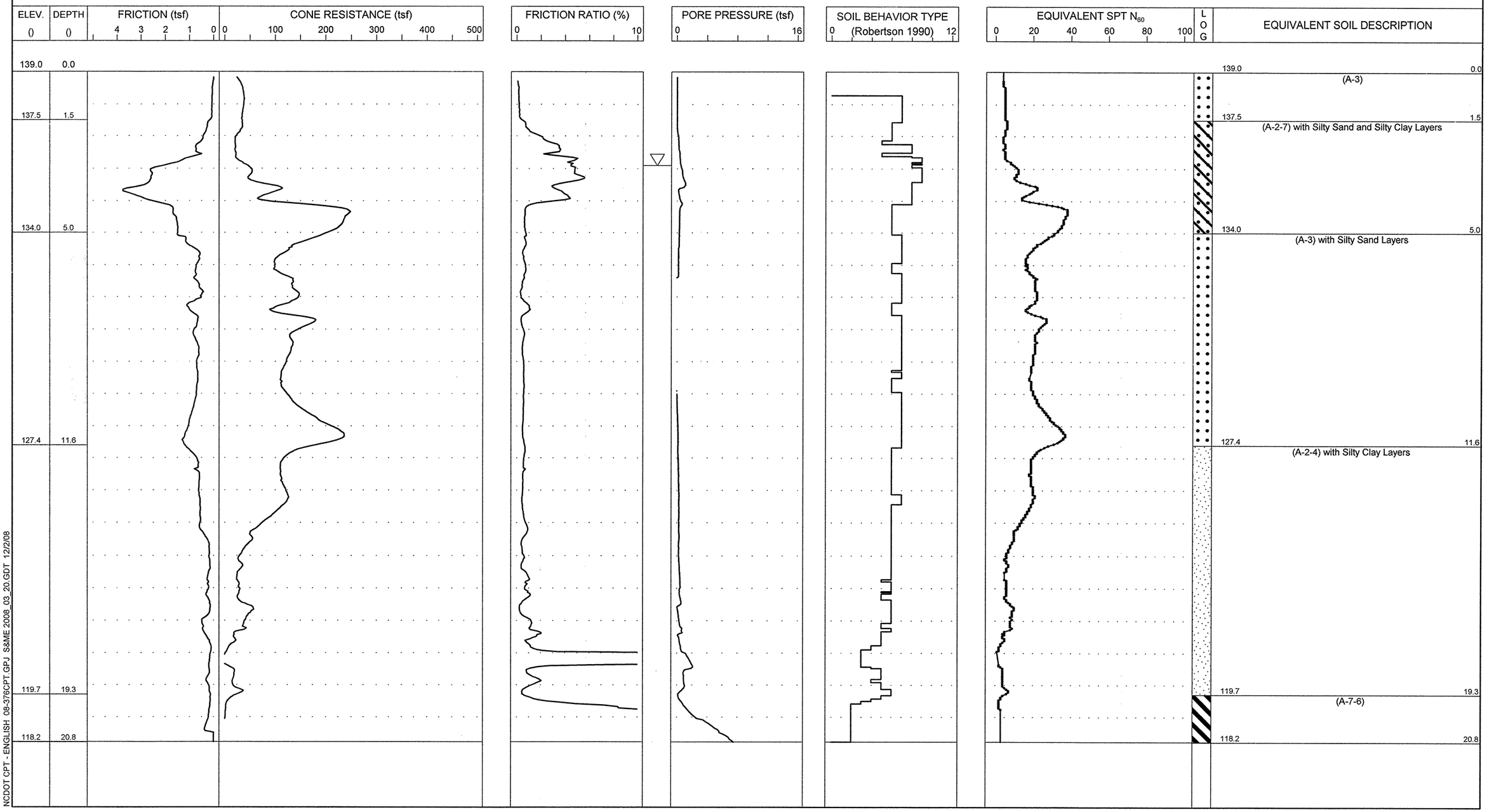
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 20.8	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1035+00 -L-	**BORING LOCATION** 1035+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 2.9	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 139.0	**NORTHING** 440,911.0	**EASTING** 2,162,259.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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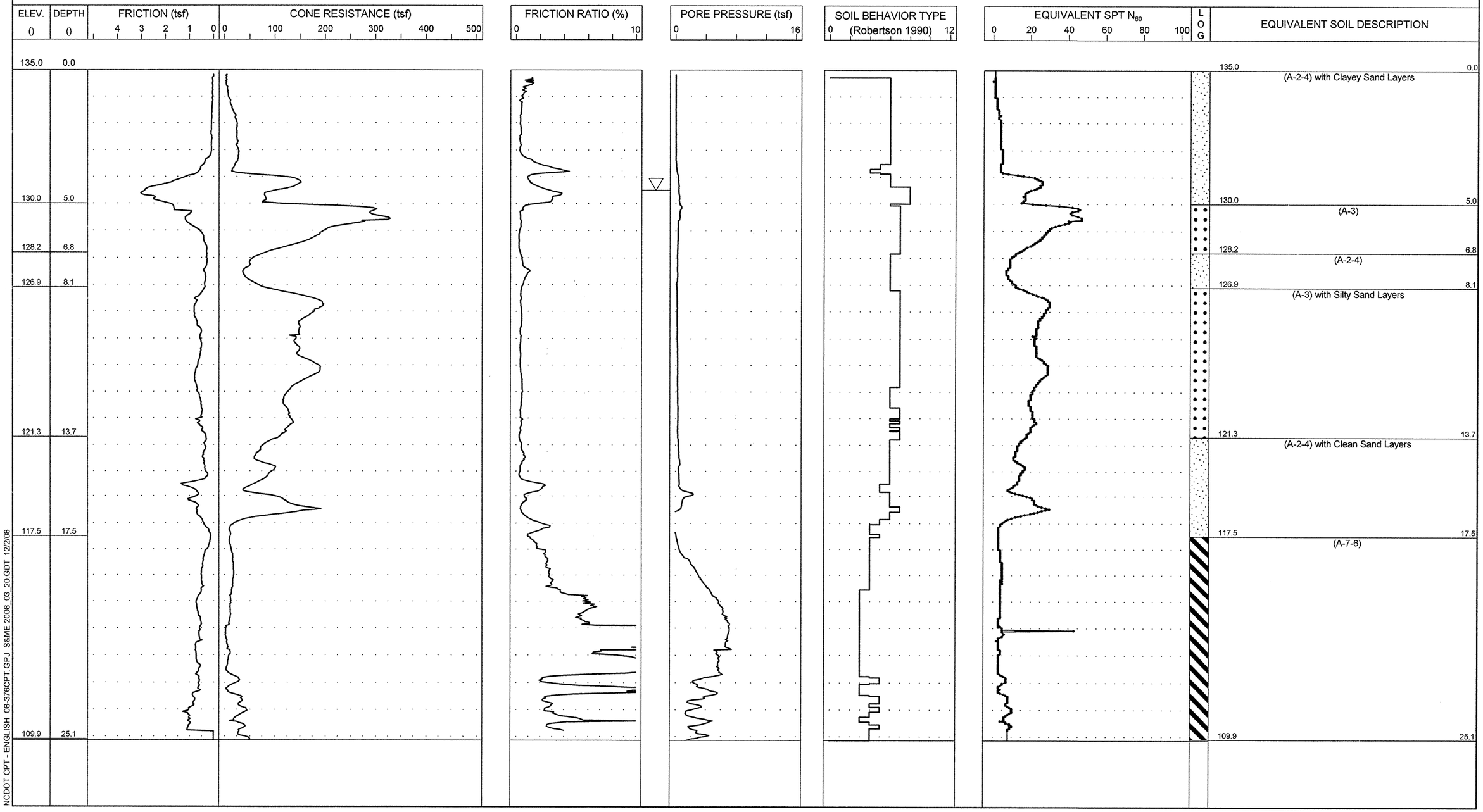
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 25.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1037+50 -L-	**BORING LOCATION** 1037+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 4.5	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 135.0	**NORTHING** 441,016.0	**EASTING** 2,162,486.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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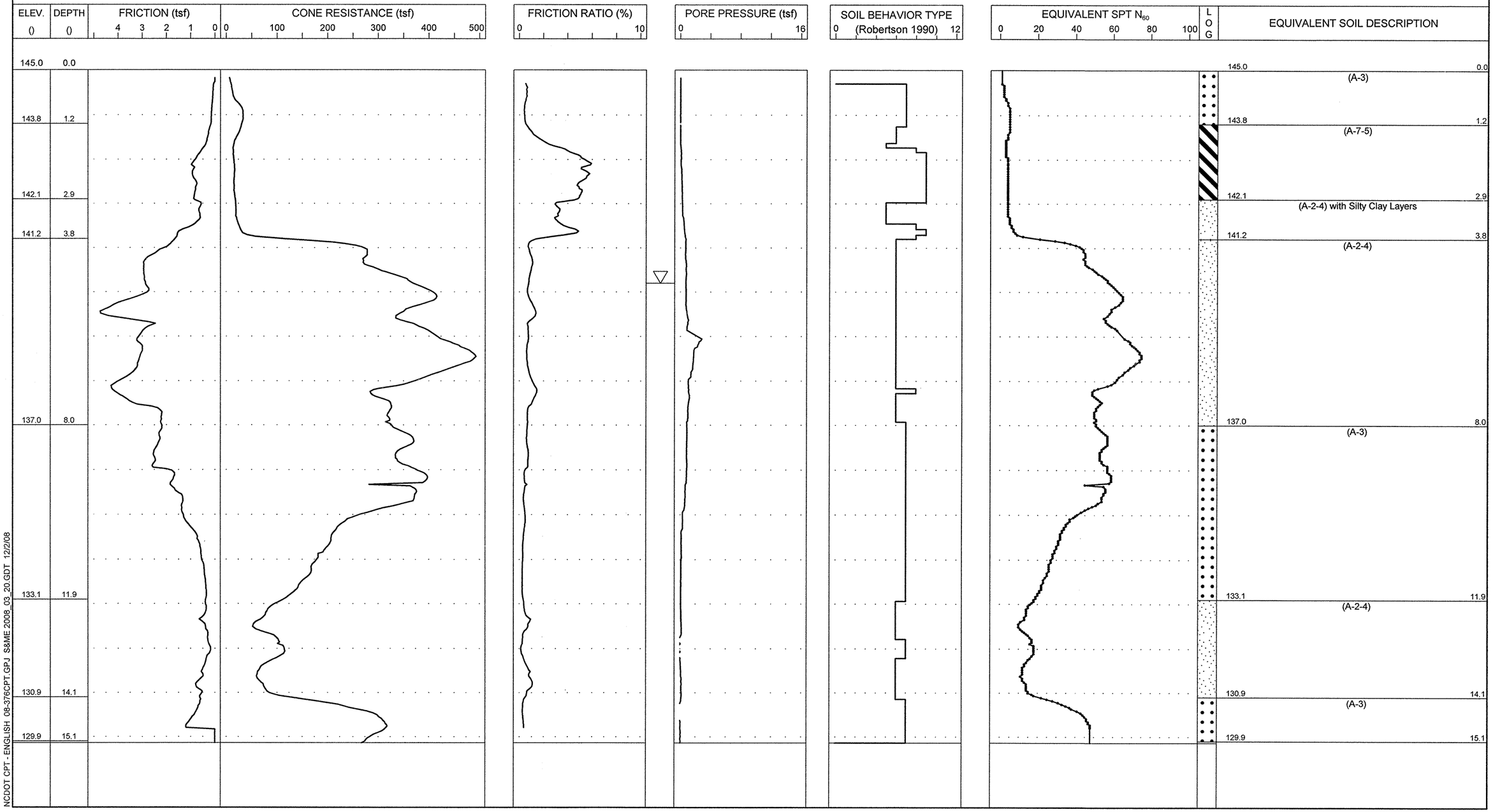
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1042+50 -L-	**BORING LOCATION** 1042+50	**OFFSET** 30 LT	**ALIGNMENT** -L-	**0 HR.** 4.8	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 145.0	**NORTHING** 441,252.0	**EASTING** 2,162,929.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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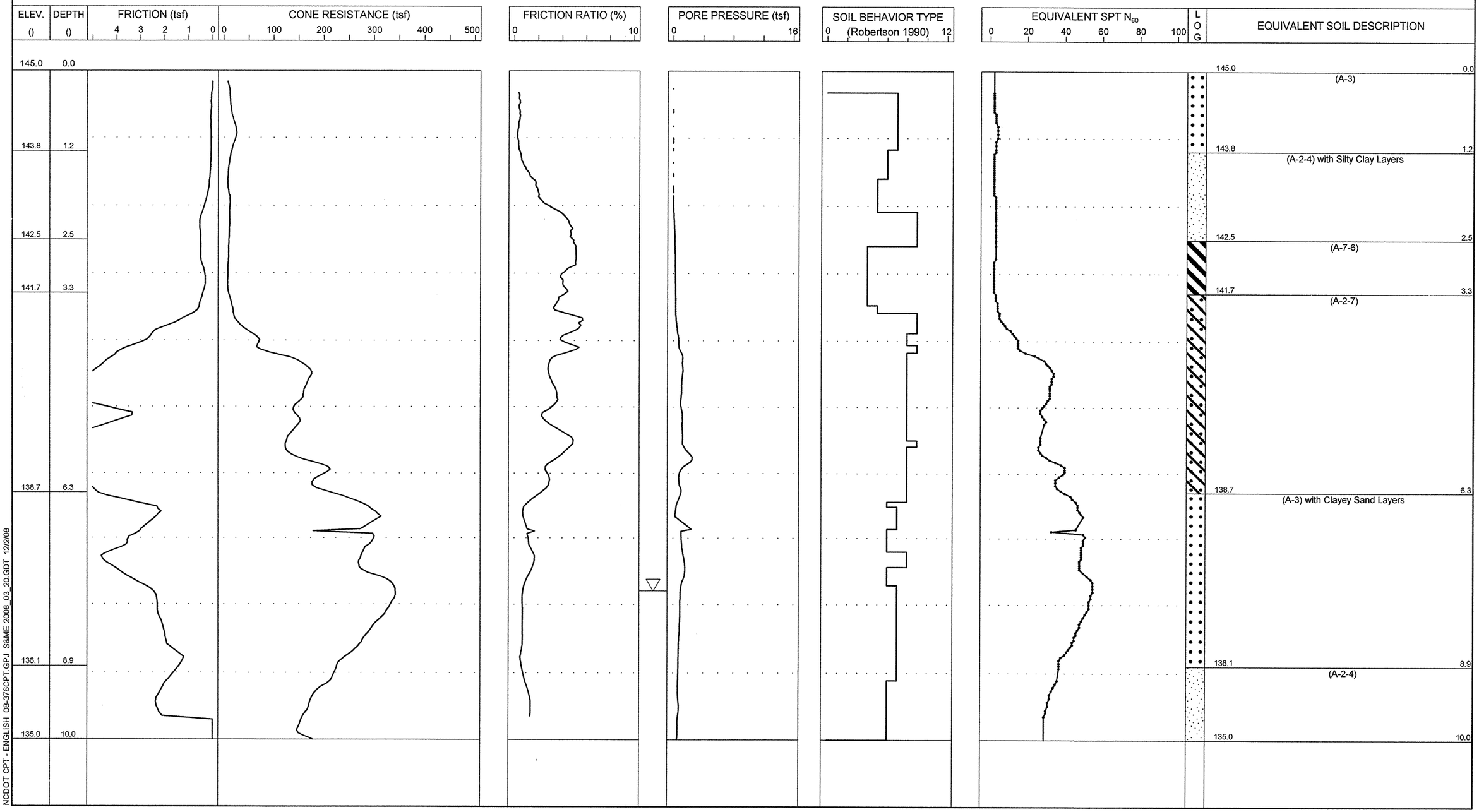
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1045+00 -L-	**BORING LOCATION** 1045+00	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 7.8	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 145.0	**NORTHING** 441,282.0	**EASTING** 2,163,184.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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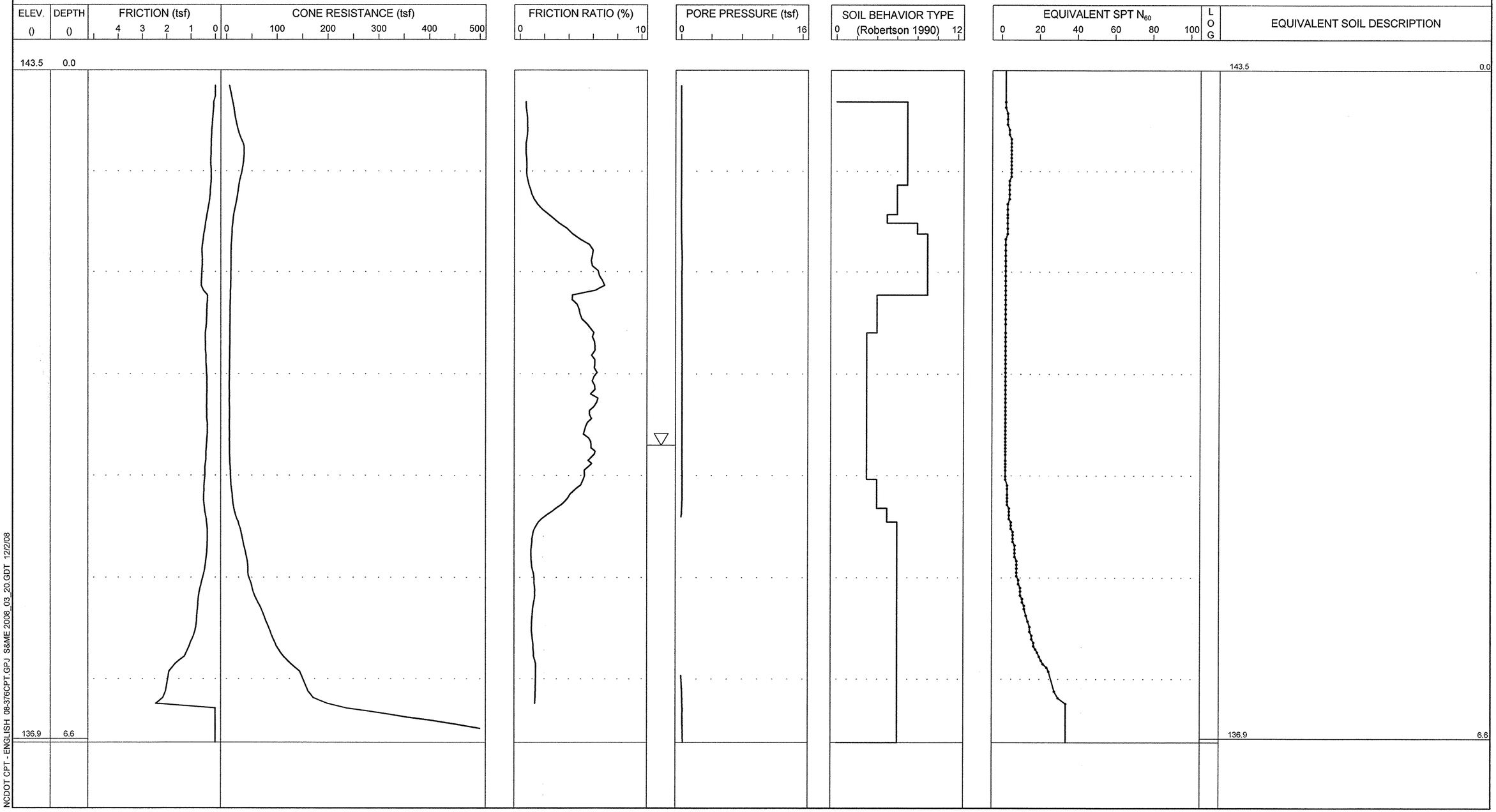
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 6.6	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1050+00 -L-	**BORING LOCATION** 1050+00	**OFFSET** 30 RT	**ALIGNMENT** -L-	**0 HR.** 3.7	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 143.5	**NORTHING** 441,391.0	**EASTING** 2,163,666.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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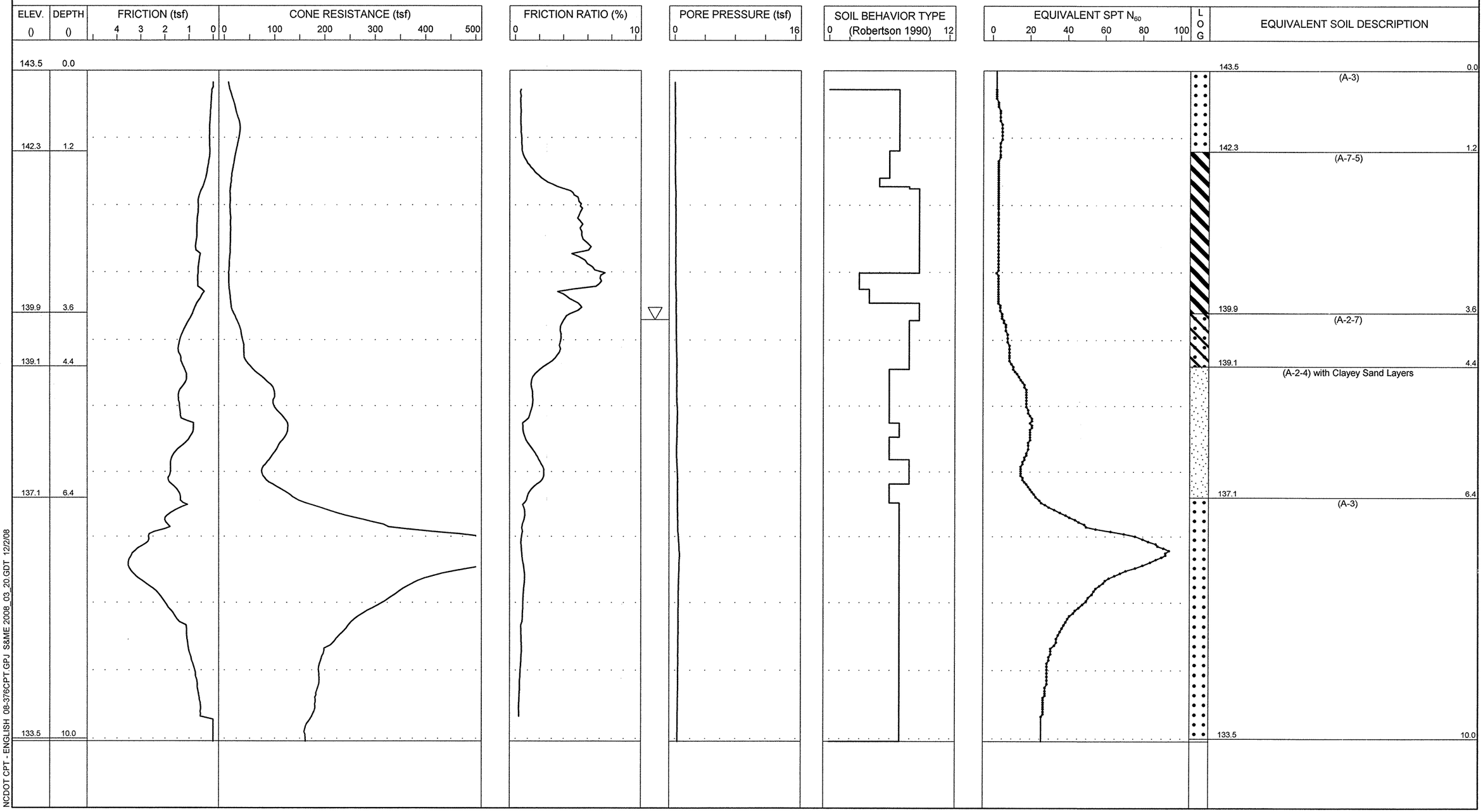
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1050+00 -L- #2	**BORING LOCATION** 1050+00	**OFFSET** 35 RT	**ALIGNMENT** -L-	**0 HR.** 3.7	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 143.5	**NORTHING** 441,386.0	**EASTING** 2,163,667.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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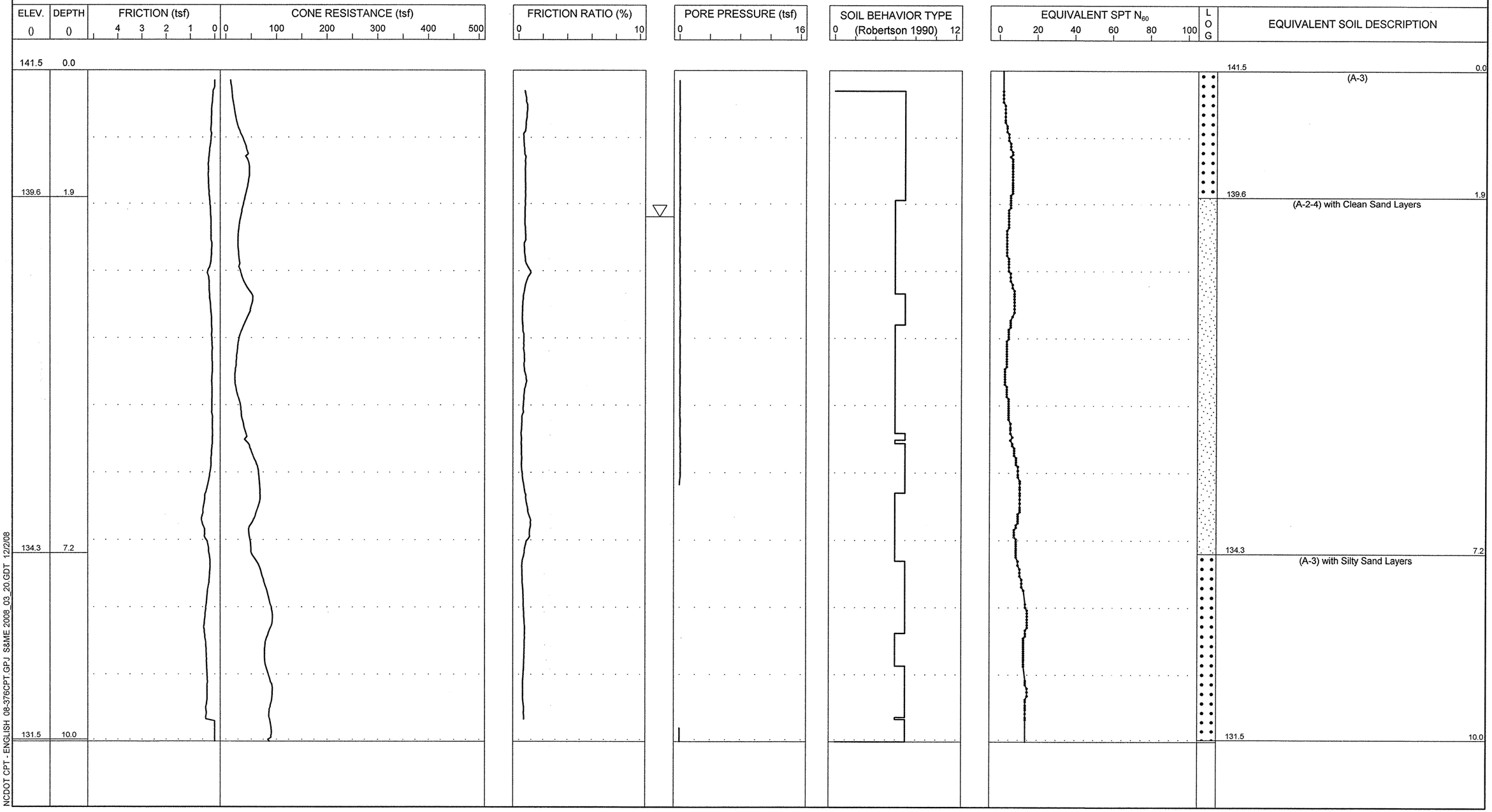
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1052+50 -L-	**BORING LOCATION** 1052+50	**OFFSET** 30 LT	**ALIGNMENT** -L-	**0 HR.** 2.2	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 141.5	**NORTHING** 441,475.0	**EASTING** 2,163,909.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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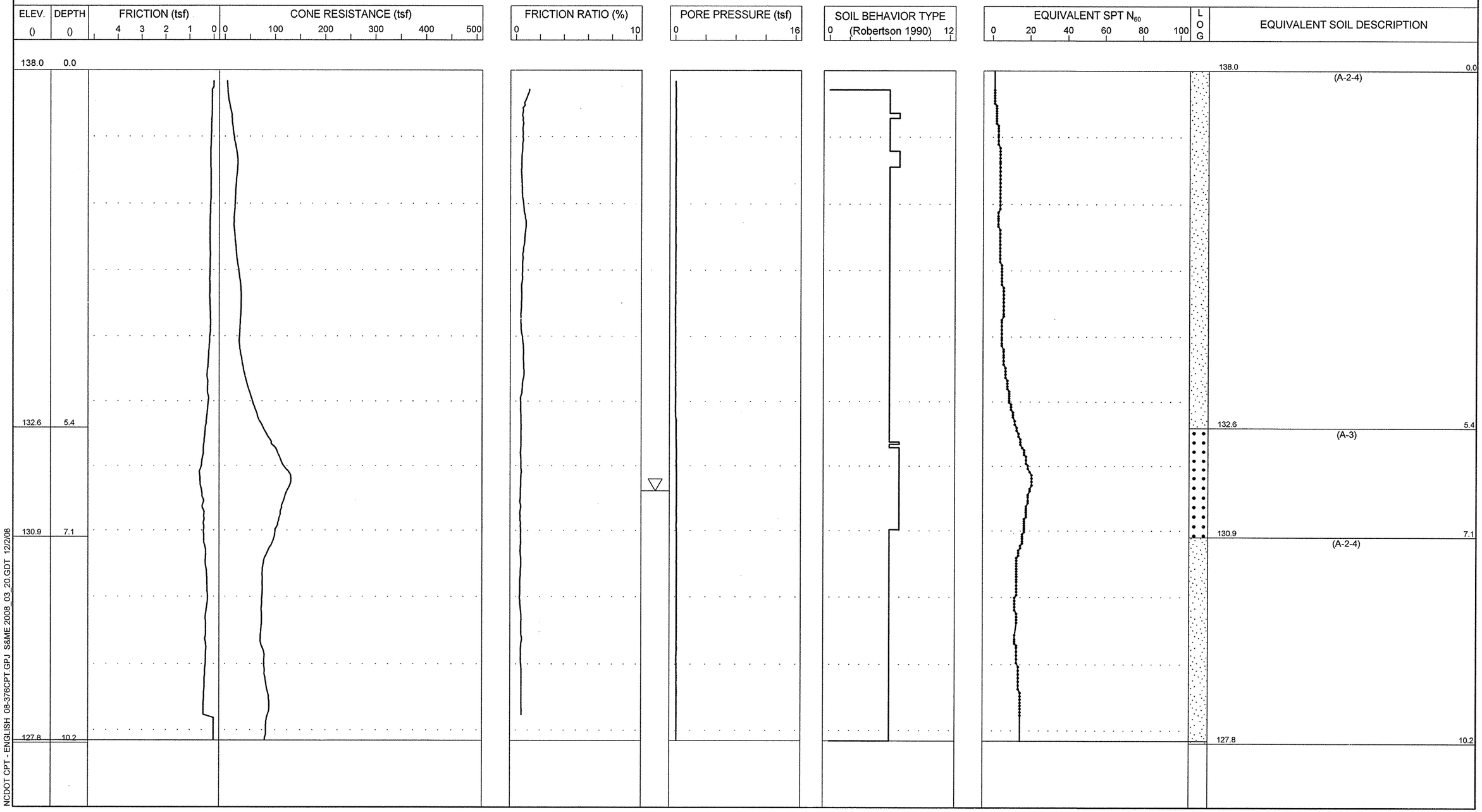
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1057+50 -L-	**BORING LOCATION** 1057+50	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 6.4	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 138.0	**NORTHING** 441,464.0	**EASTING** 2,164,410.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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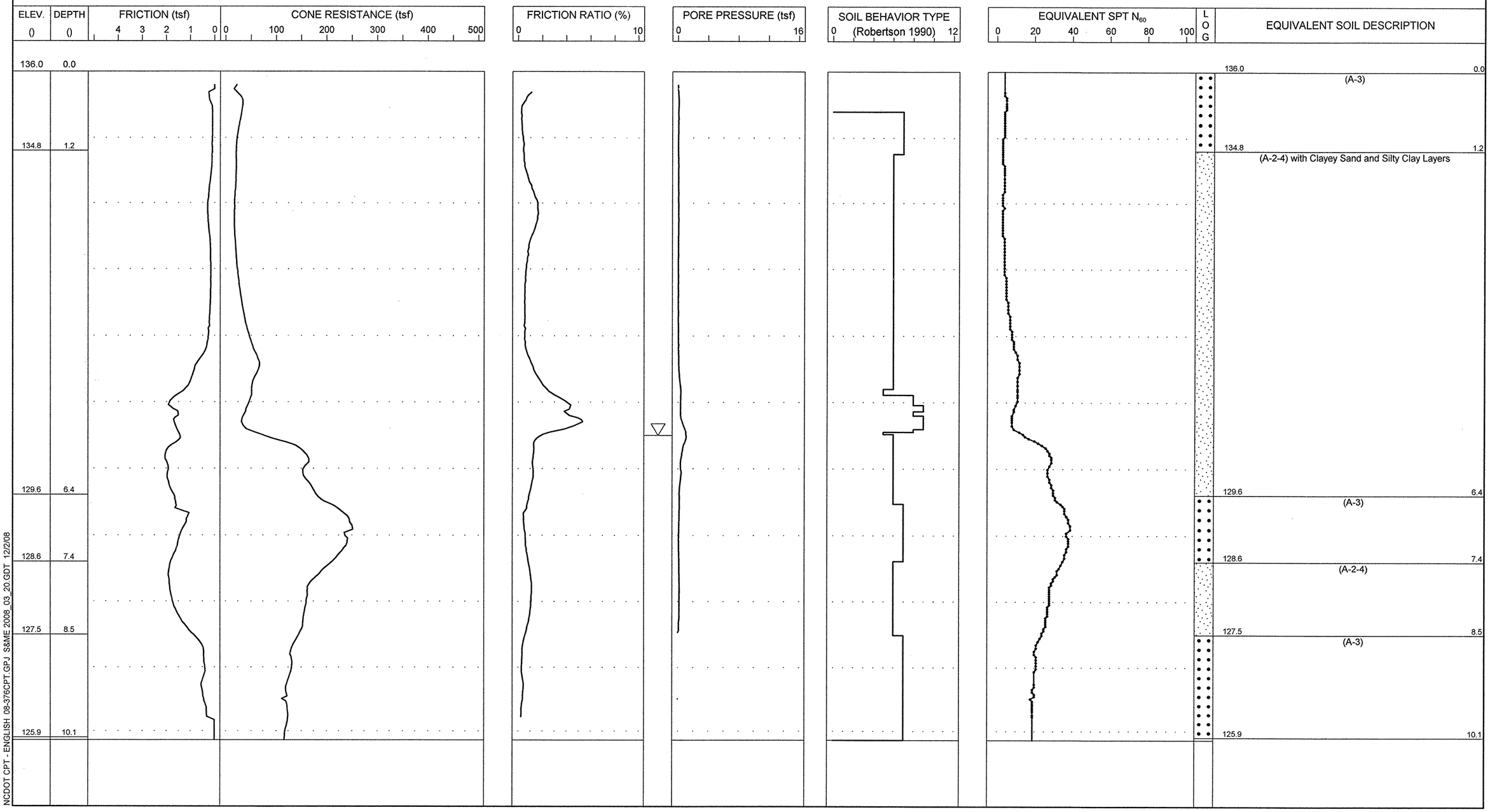
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1060+00 -L-	**BORING LOCATION** 1060+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 5.5	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 136.0	**NORTHING** 441,483.0	**EASTING** 2,164,660.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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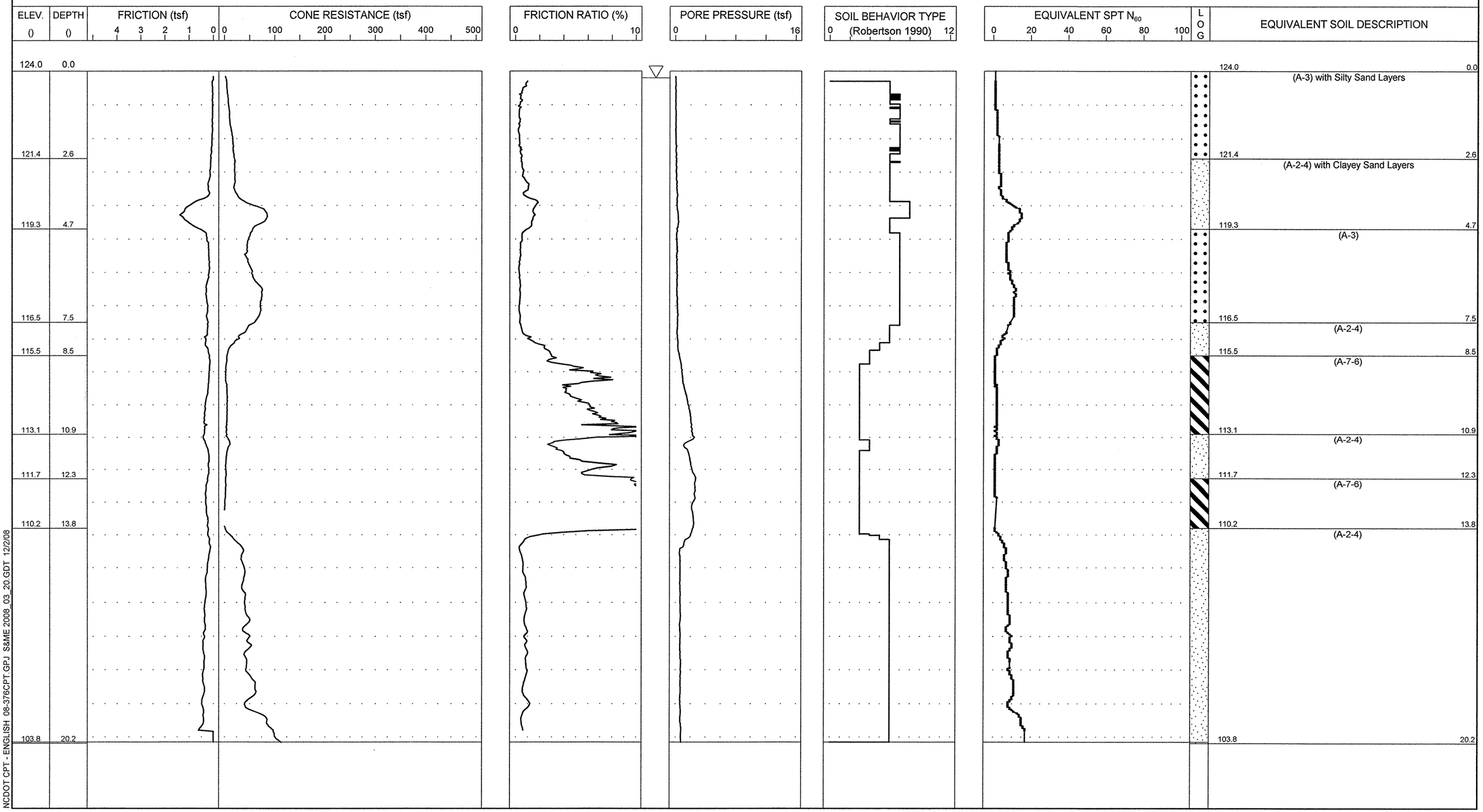
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 20.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1065+00 -L-	**BORING LOCATION** 1065+00	**OFFSET** 0 CL	**ALIGNMENT** -L-	**0 HR.** 0.2	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 124.0	**NORTHING** 441,581.0	**EASTING** 2,165,149.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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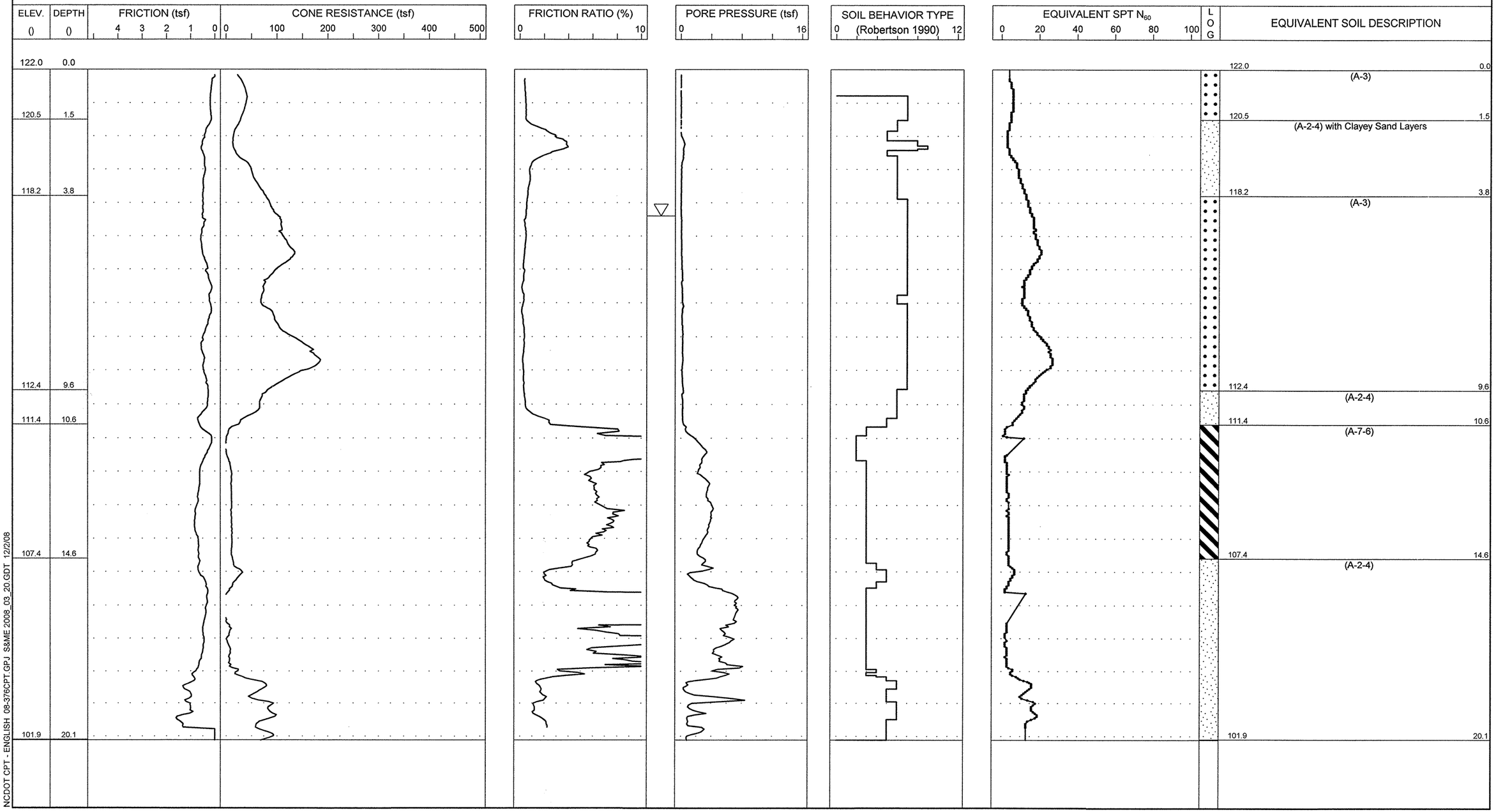
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 20.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1067+50 -L-	**BORING LOCATION** 1067+50	**OFFSET** 50 RT	**ALIGNMENT** -L-	**0 HR.** 4.4	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 122.0	**NORTHING** 441,614.0	**EASTING** 2,165,404.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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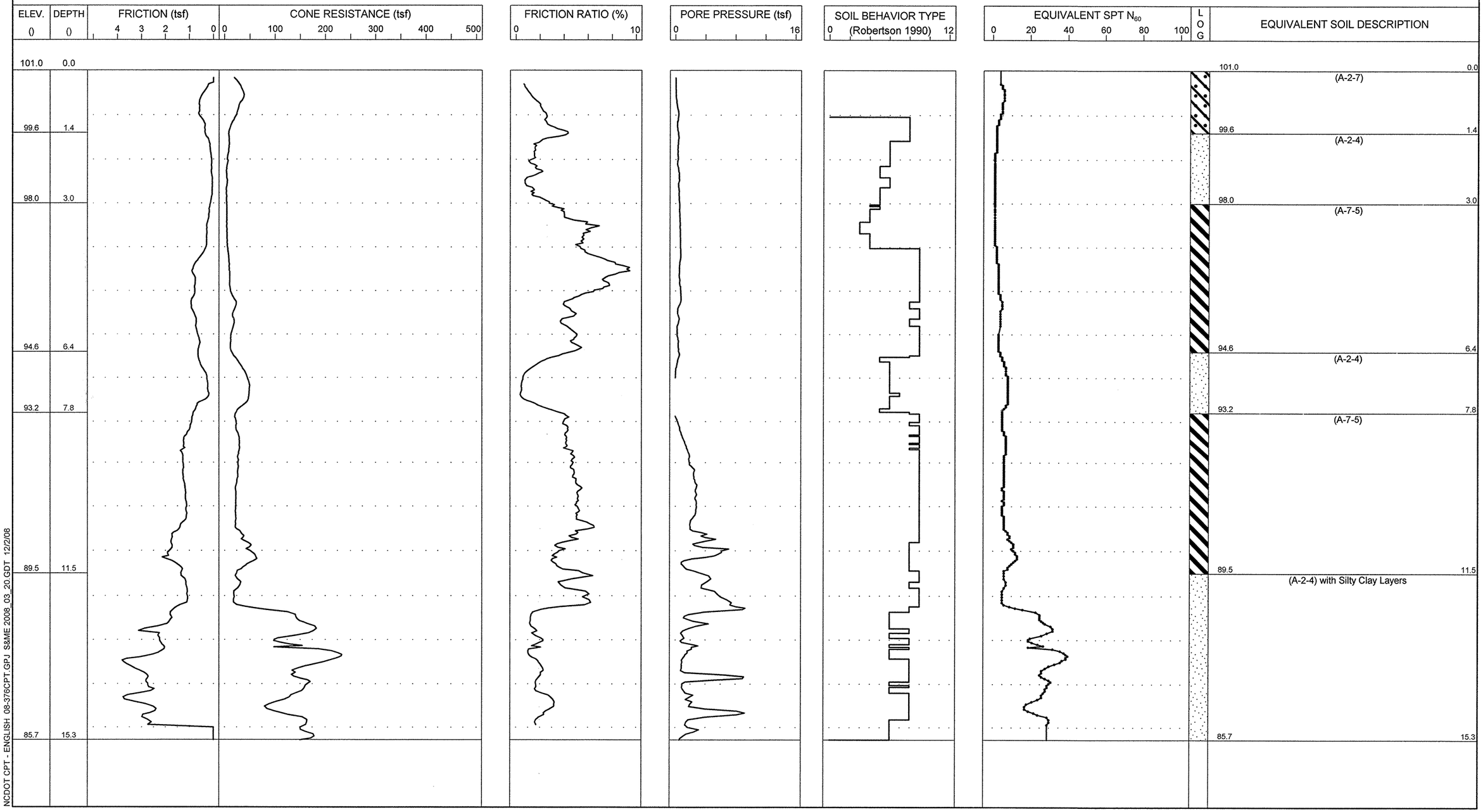
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.3	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 1084+50 -L-	**BORING LOCATION** 1084+50	**OFFSET** 10 RT	**ALIGNMENT** -L-	**0 HR.**	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 101.0	**NORTHING** 442,484.0	**EASTING** 2,166,871.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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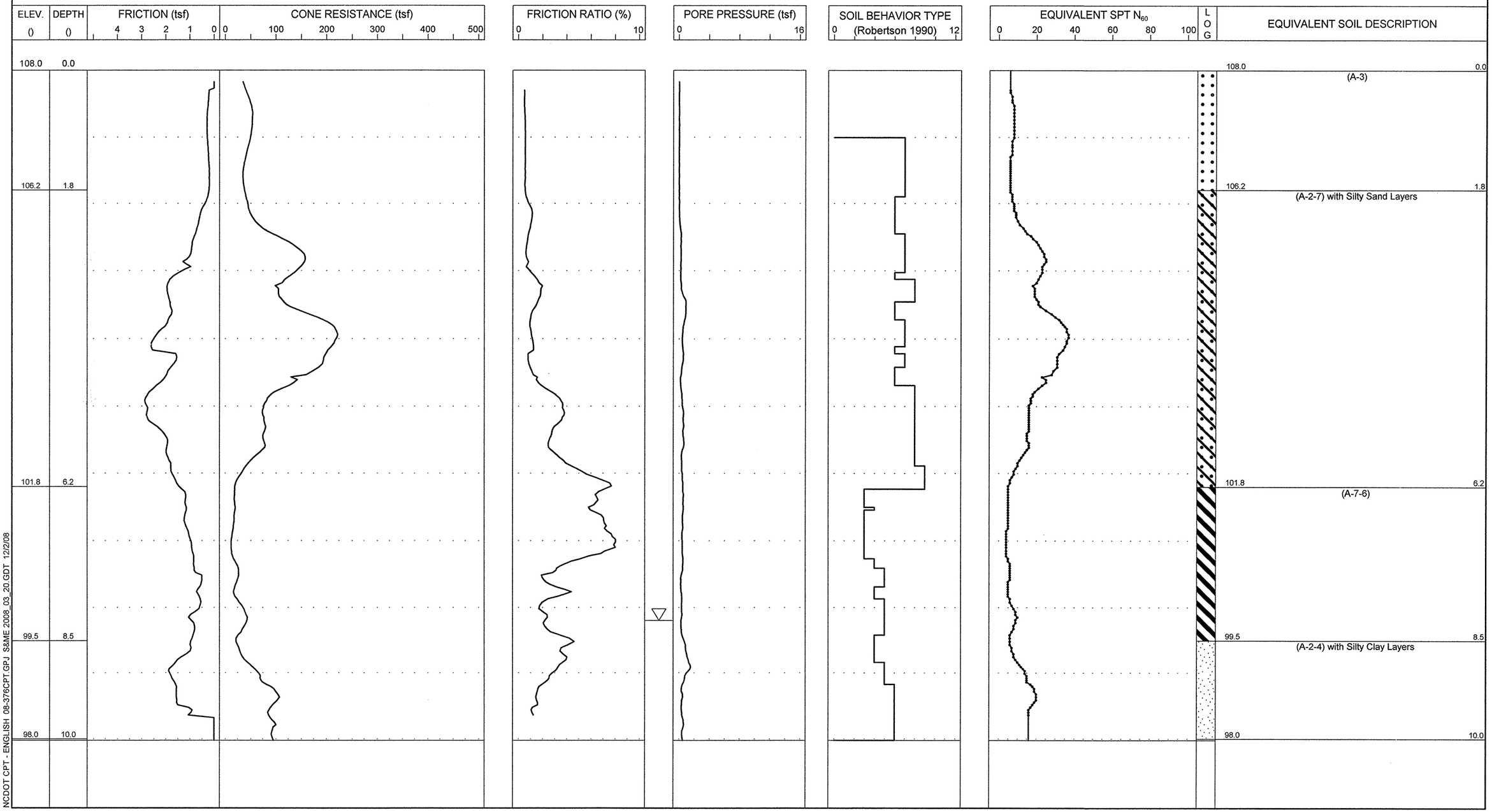
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 1086+50 -L-	**BORING LOCATION** 1086+50	**OFFSET** 50 RT / **ALIGNMENT** -L-	**0 HR.** 8.2	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 108.0	**NORTHING** 442,552.0	**EASTING** 2,167,064.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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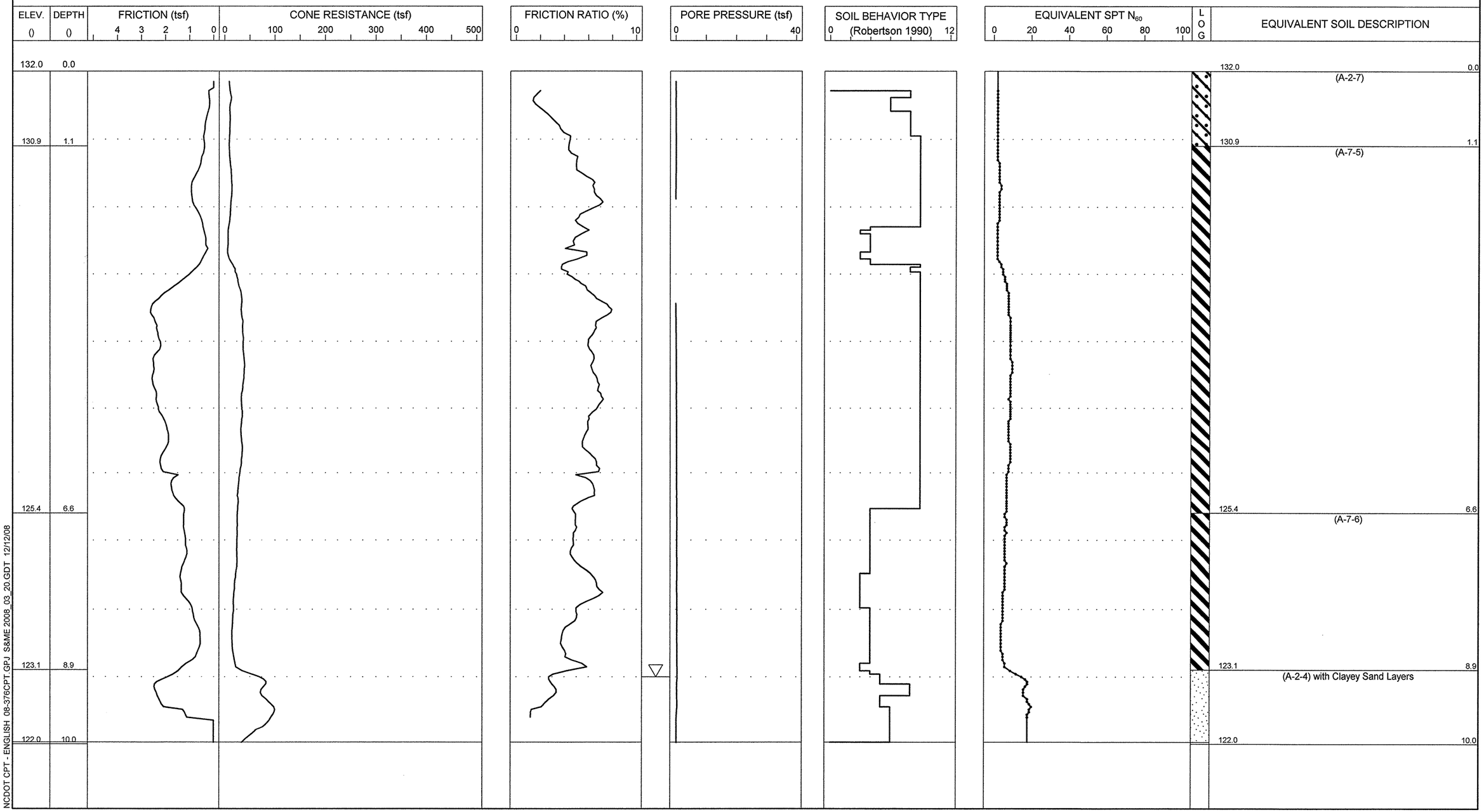
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 22+50 -Y29-	**BORING LOCATION** 22+50	**OFFSET** 0 CL	**ALIGNMENT** -Y29-	**0 HR.** 9.0	**DATE STARTED** 12/3/2008	**COMPLETED** 12/3/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 132.0	**NORTHING** 444,589.0	**EASTING** 2,140,671.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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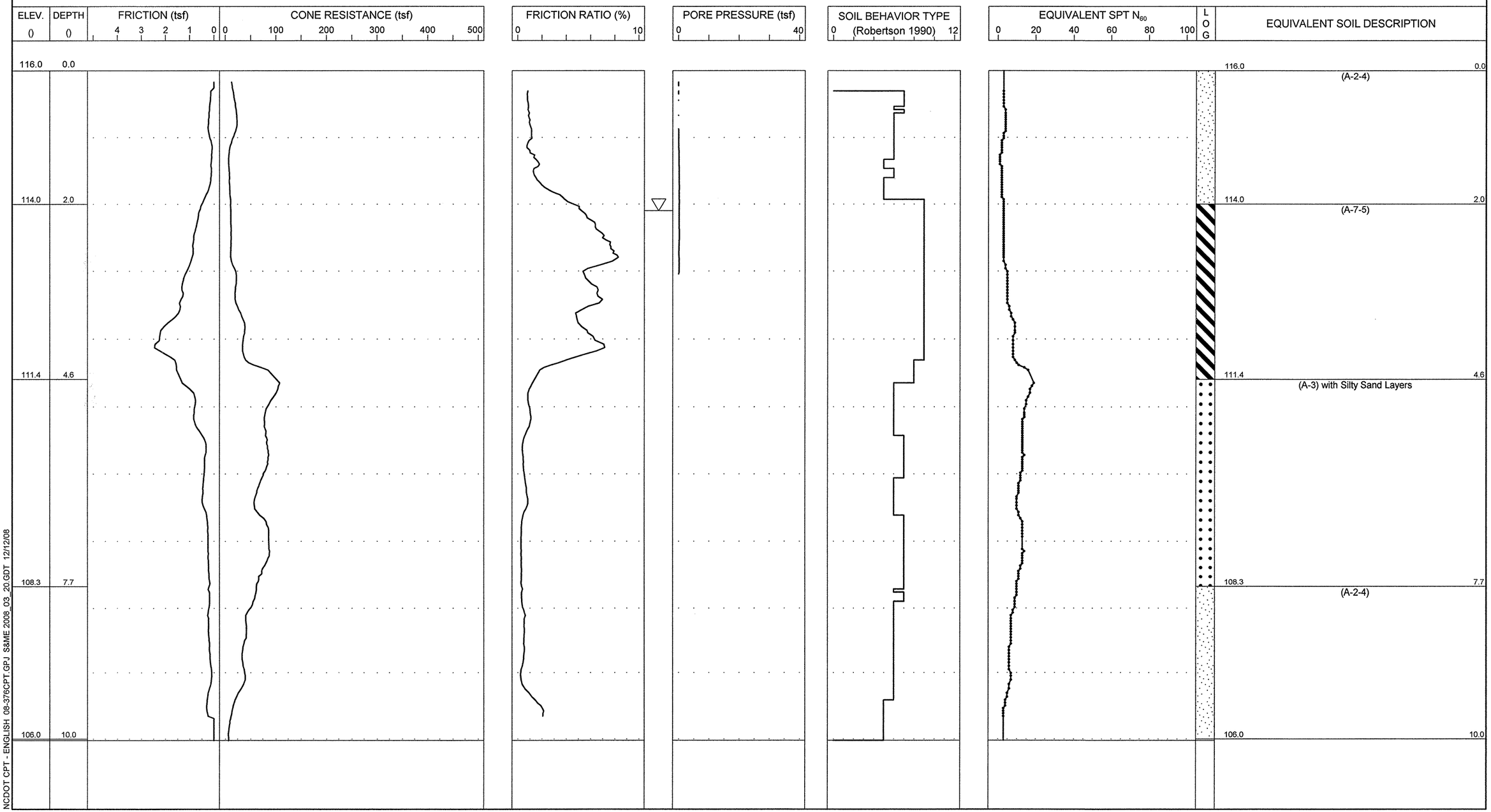
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 18+50 -Y31-	**BORING LOCATION** 18+50	**OFFSET** 25 RT	**ALIGNMENT** -Y31-	**0 HR.** 2.1	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 116.0	**NORTHING** 444,516.0	**EASTING** 2,146,695.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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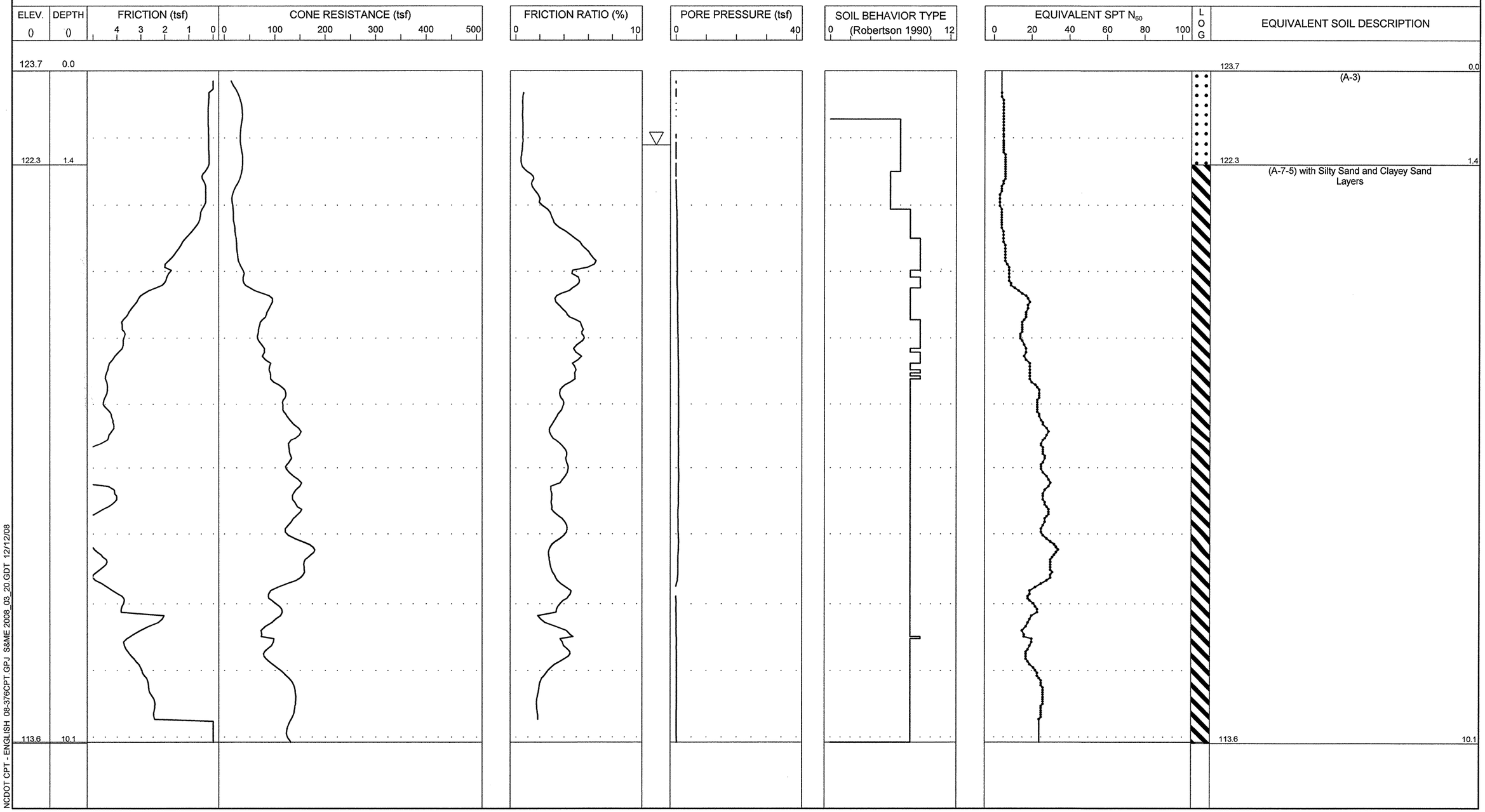
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 21+00 -Y31-	**BORING LOCATION** 21+00	**OFFSET** 30 LT	**ALIGNMENT** -Y31-	**0 HR.** 1.1	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 123.7	**NORTHING** 444,219.0	**EASTING** 2,146,653.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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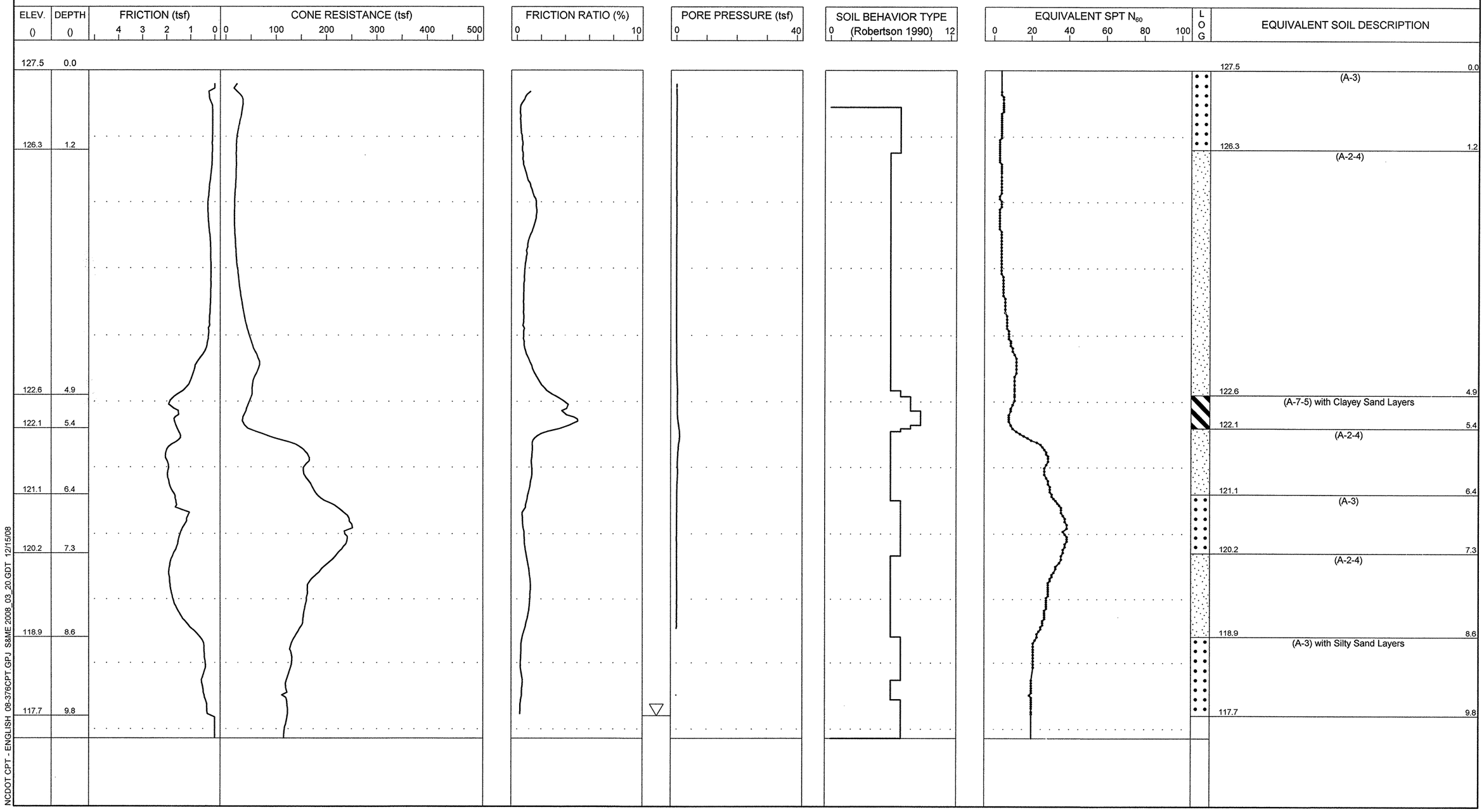
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf
SITE DESCRIPTION N.C.24 from S.R.1404(Dowdy Road) to S.R.1303(Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push / **HAMMER TYPE** N/A
BORING NO. 14+00 -Y33-	**BORING LOCATION** 14+00	**OFFSET** 35 RT / **ALIGNMENT** -Y33-	**0 HR.** 9.8	**DATE STARTED** 12/12/2008	**COMPLETED** 12/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 127.5	**NORTHING** 437,814.0	**EASTING** 2,151,367.0	**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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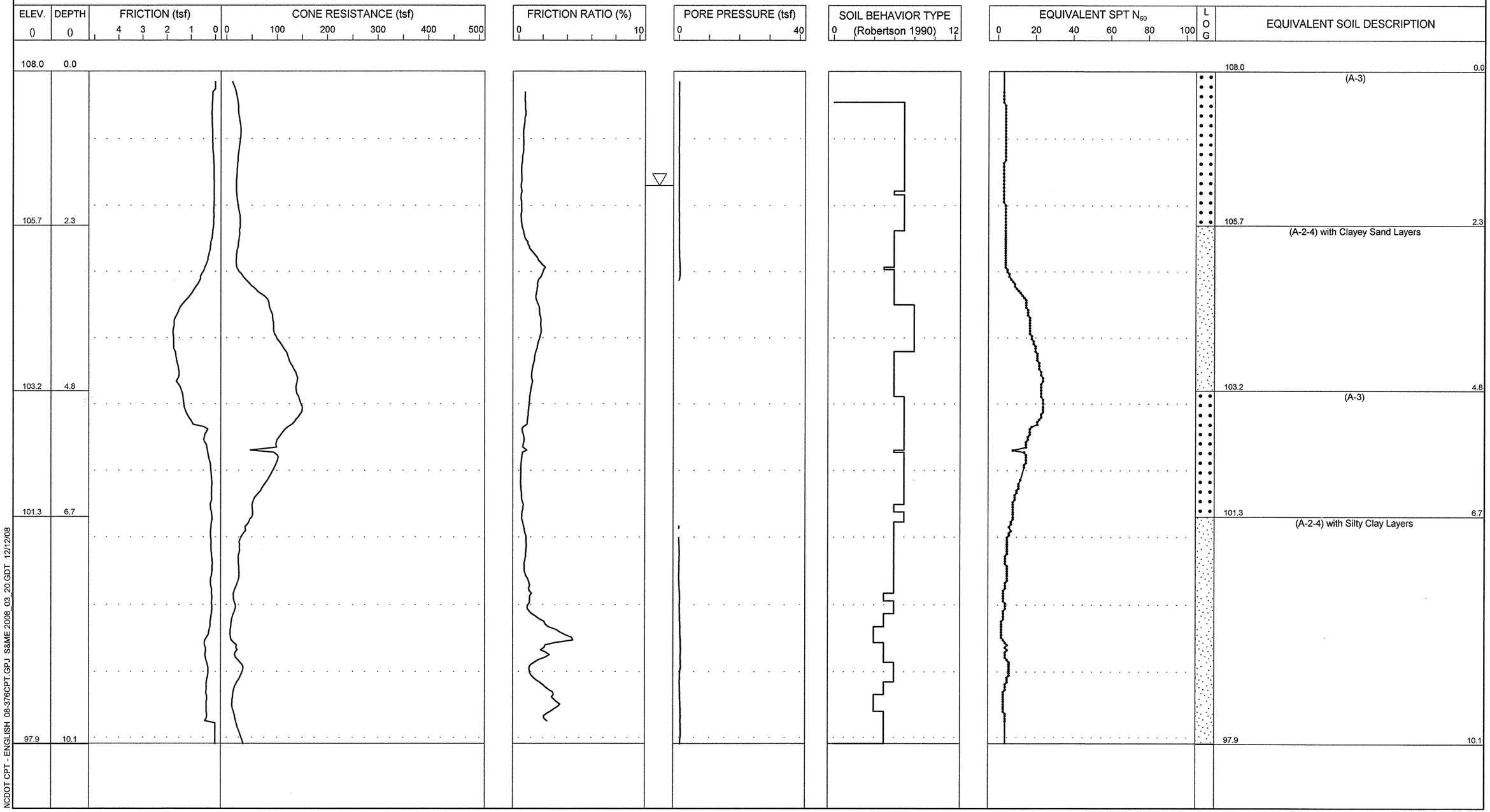
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 22+50 -Y33A-	**BORING LOCATION** 22+50	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 1.7	**DATE STARTED** 12/2/2008	**COMPLETED** 12/2/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 108.0	**NORTHING** 441,193.0	**EASTING** 2,148,997.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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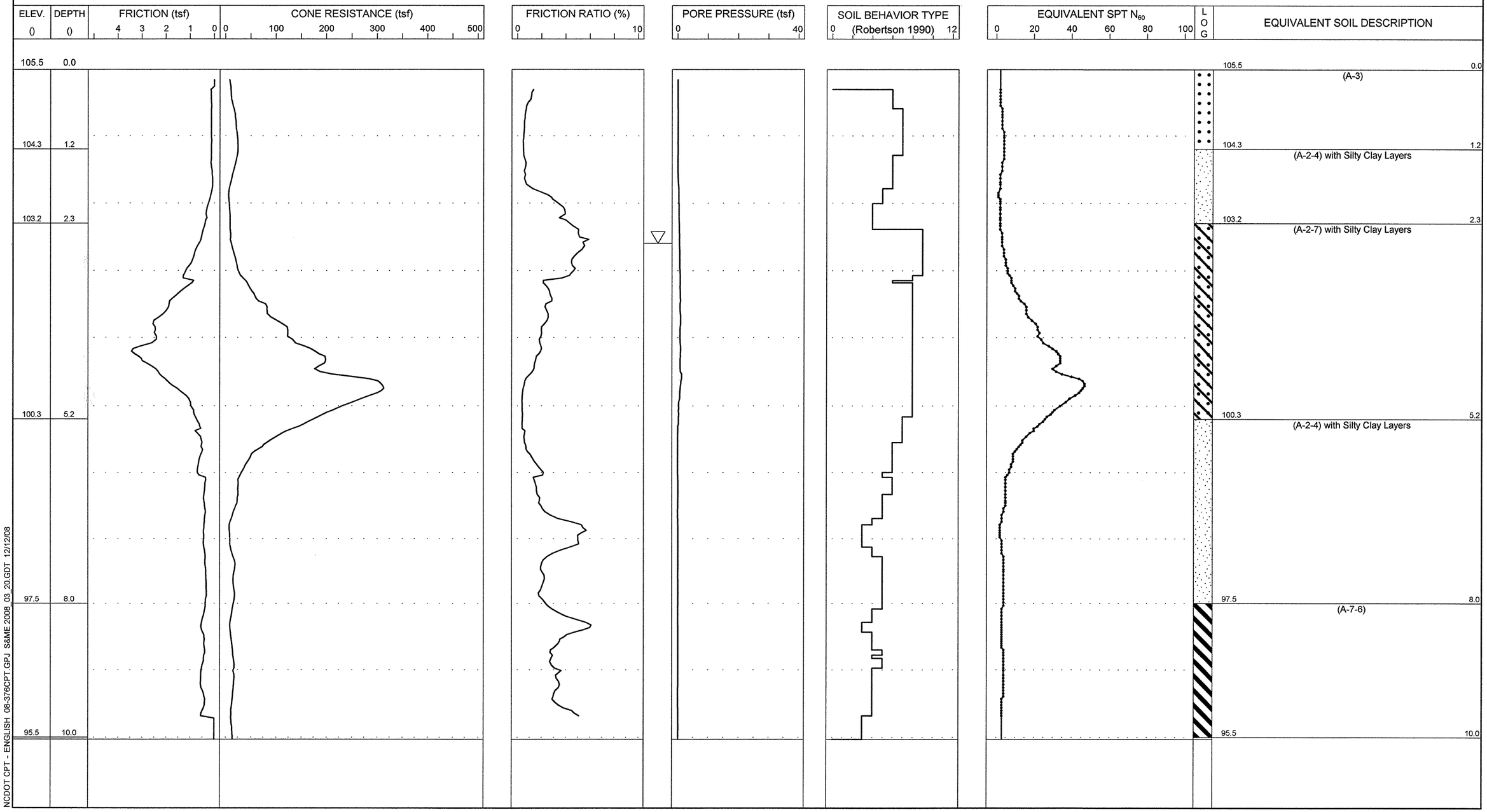
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 27+50 -Y33A-	**BORING LOCATION** 27+50	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 2.6	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 105.5	**NORTHING** 440,773.0	**EASTING** 2,149,268.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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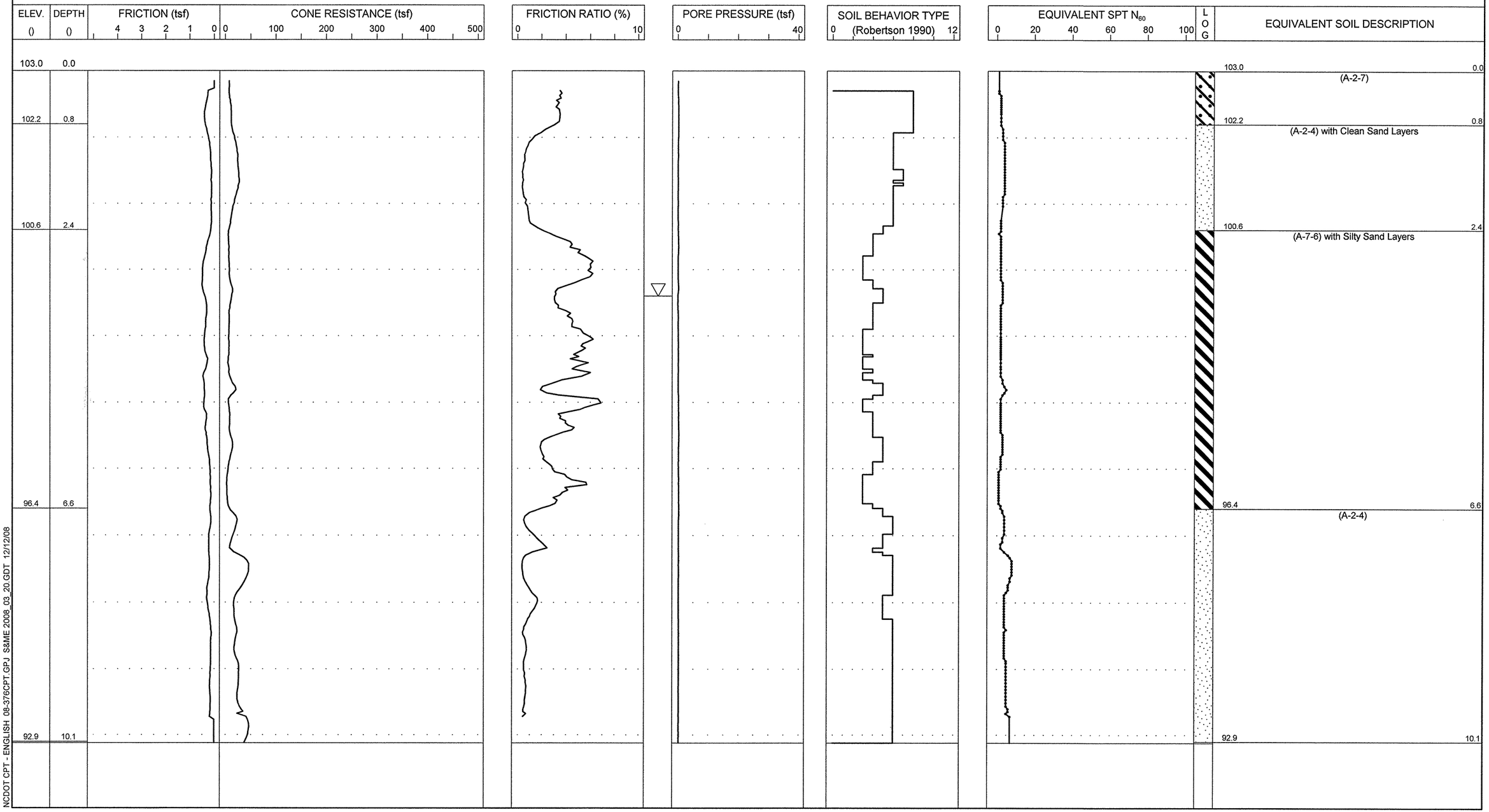
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 30+00 -Y33A-	**BORING LOCATION** 30+00	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 3.4	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 103.0	**NORTHING** 440,562.0	**EASTING** 2,149,403.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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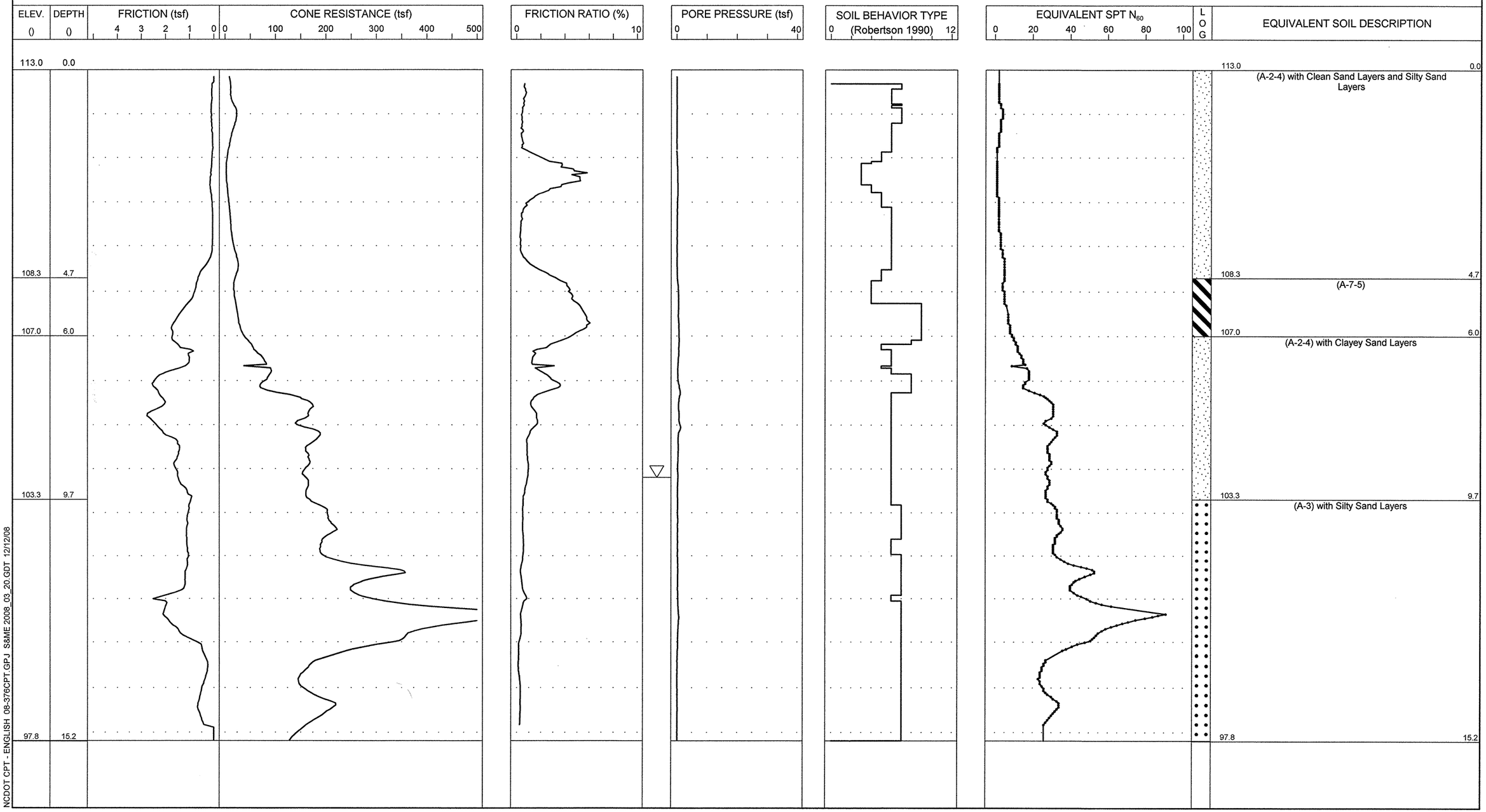
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 35+00 -Y33A-	**BORING LOCATION** 35+00	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 9.2	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 113.0	**NORTHING** 440,142.0	**EASTING** 2,149,674.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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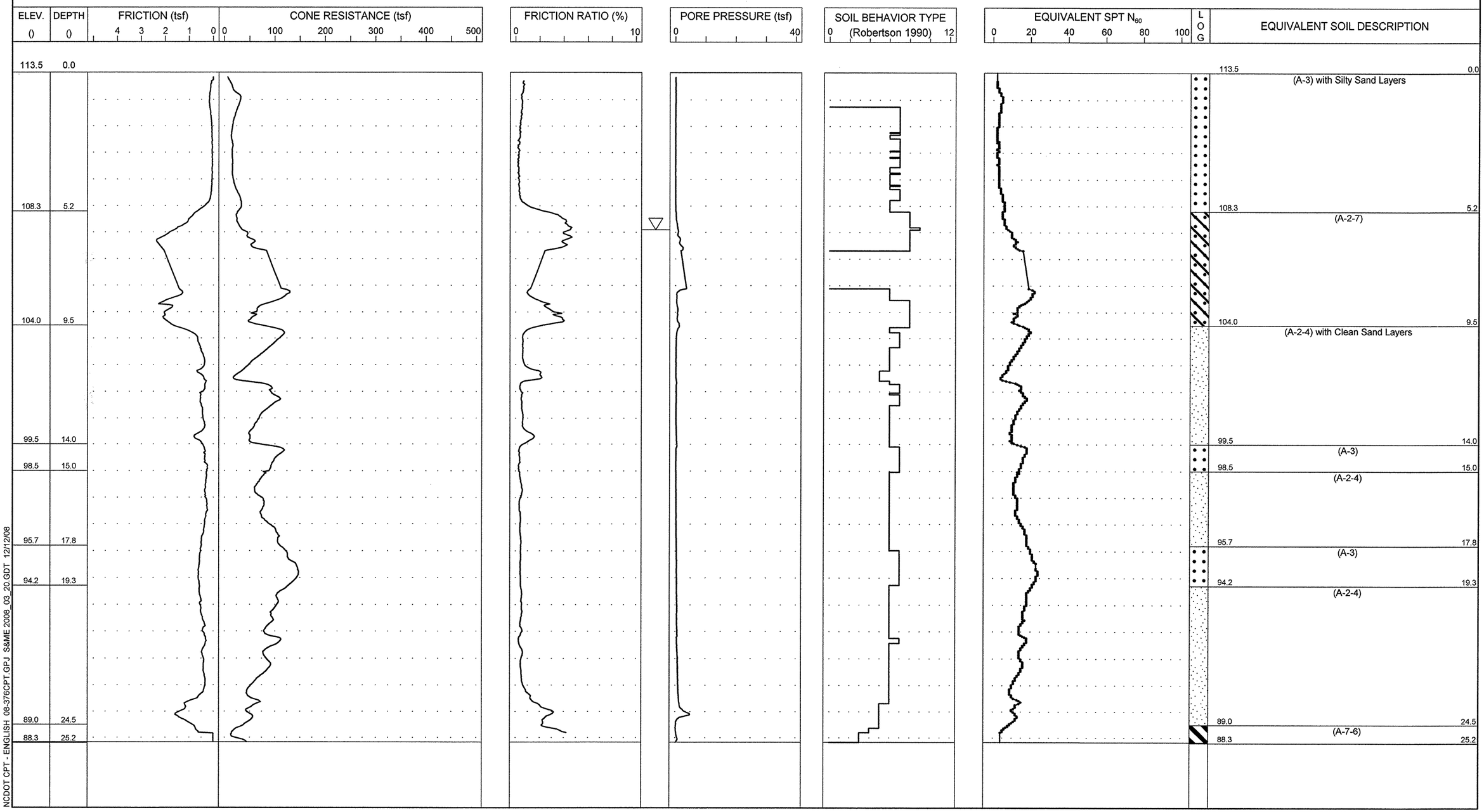
PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 25.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 37+50 -Y33A-	**BORING LOCATION** 37+50	**OFFSET** 25 LT	**ALIGNMENT** -Y33A-	**0 HR.** 5.9	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 113.5	**NORTHING** 439,946.0	**EASTING** 2,149,831.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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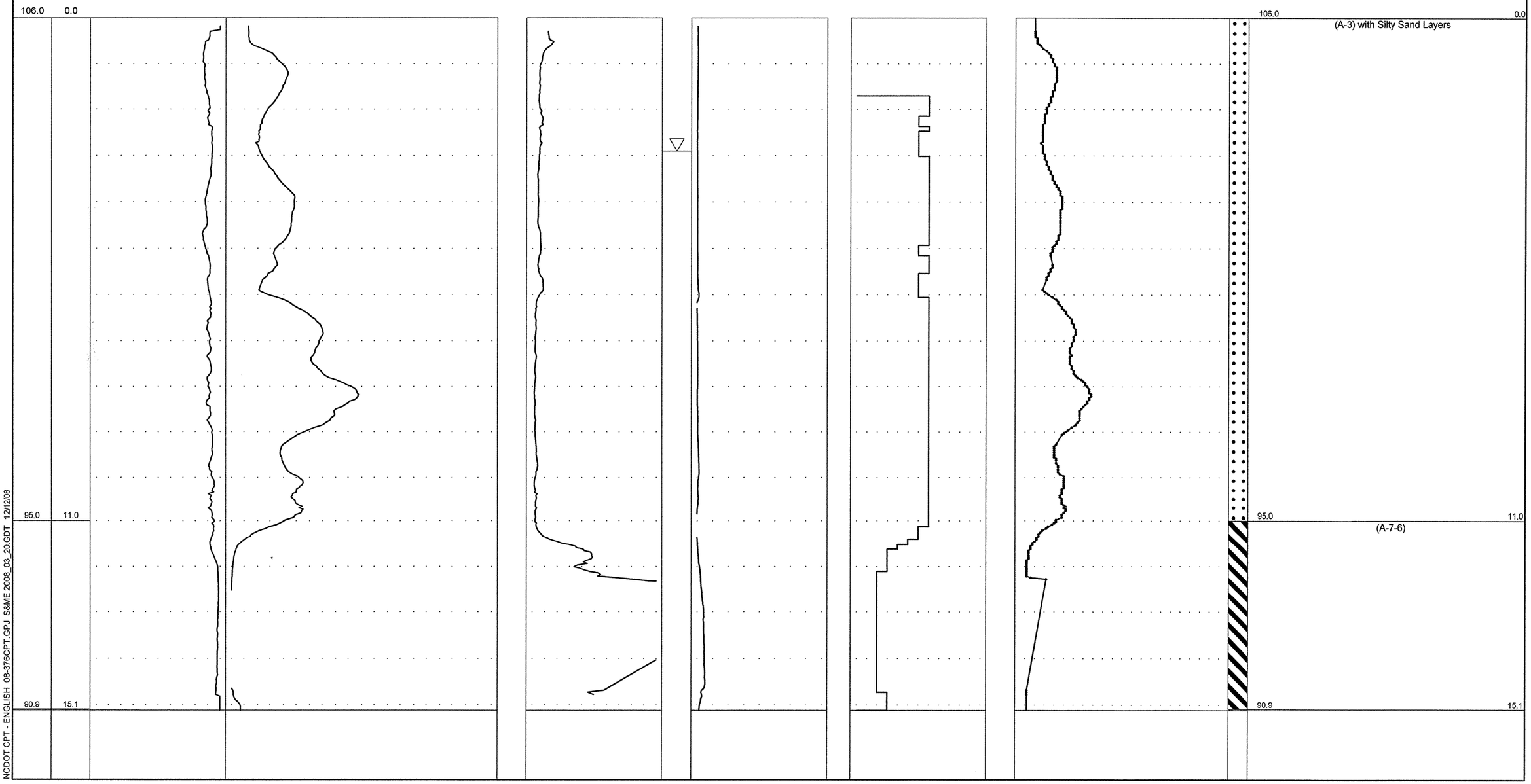
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 46+00 -Y33A-	**BORING LOCATION** 46+00	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 2.9	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 106.0	**NORTHING** 439,218.0	**EASTING** 2,150,270.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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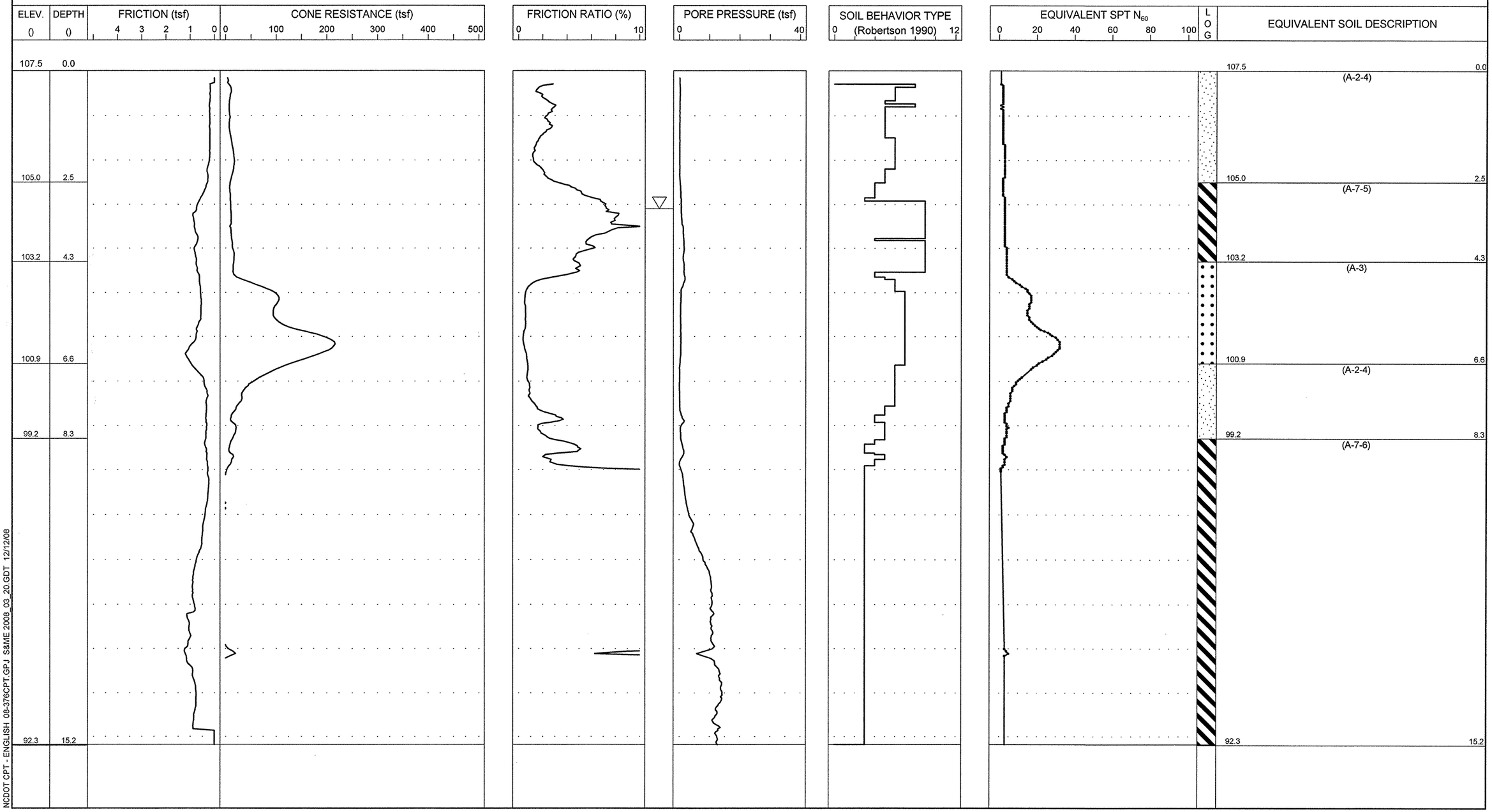
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 50+50 -Y33A-	**BORING LOCATION** 50+50	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 3.1	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 107.5	**NORTHING** 438,854.0	**EASTING** 2,150,534.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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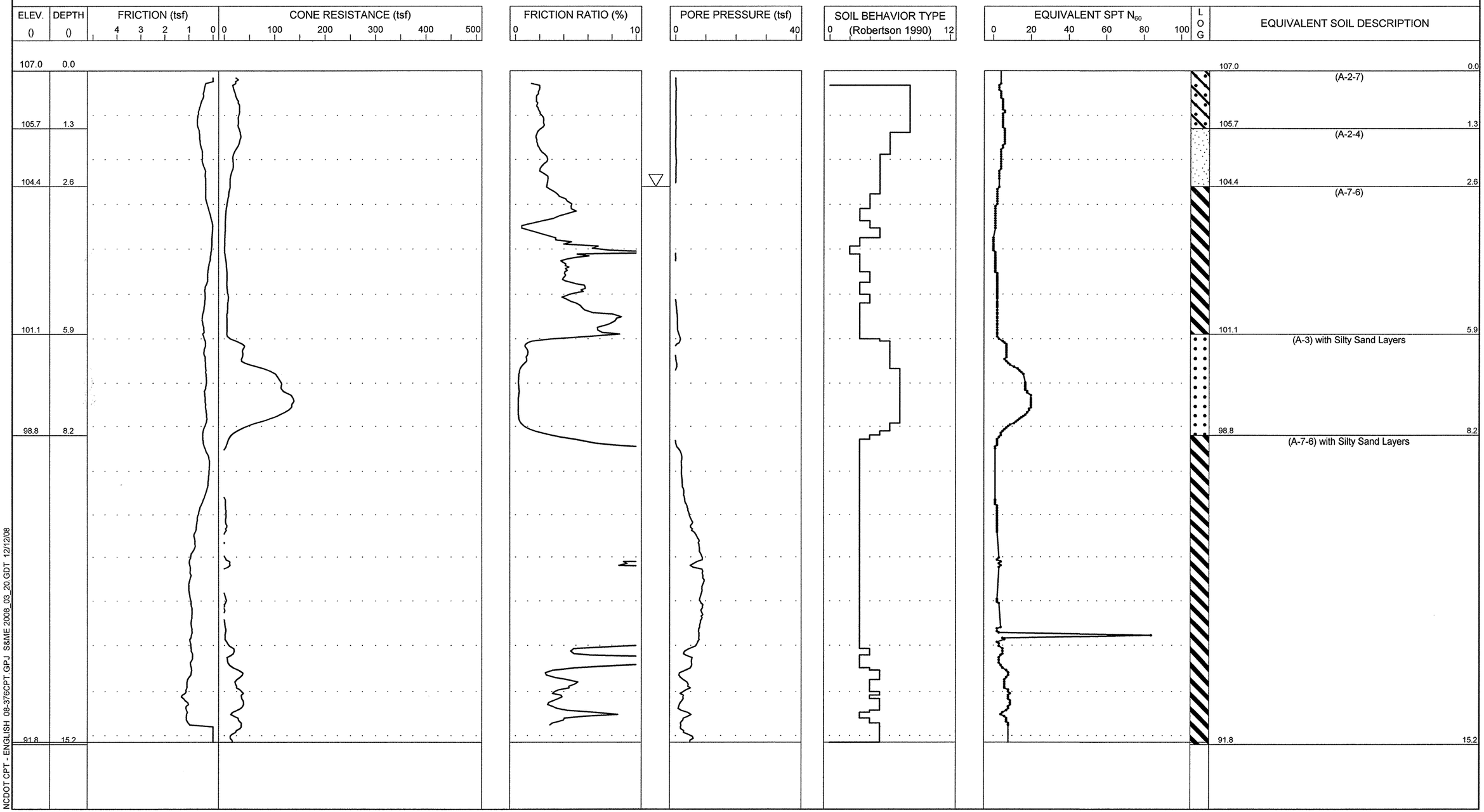
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST**	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 15.2	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 53+00 -Y33A-	**BORING LOCATION** 53+00	**OFFSET** 0 CL	**ALIGNMENT** -Y33A-	**0 HR.** 2.6	**DATE STARTED** 12/1/2008	**COMPLETED** 12/1/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 107.0	**NORTHING** 438,679.0	**EASTING** 2,150,712.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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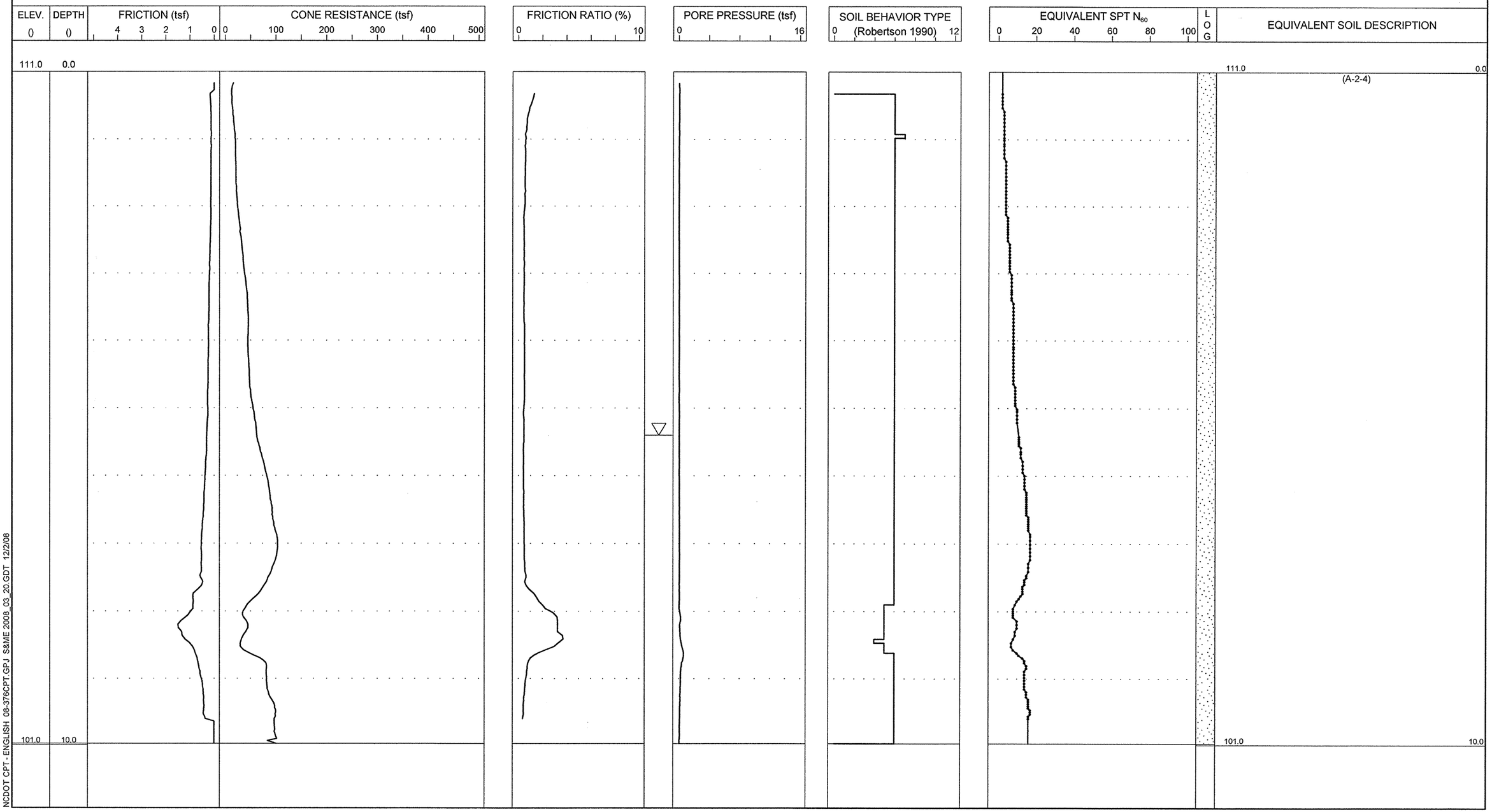
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 60+50 -Y33A -	**BORING LOCATION** 60+50	**OFFSET** 20 RT	**ALIGNMENT** -Y33A-	**0 HR.** 5.4	**DATE STARTED** 11/13/2008	**COMPLETED** 11/13/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 111.0	**NORTHING** 438,358.0	**EASTING** 2,151,376.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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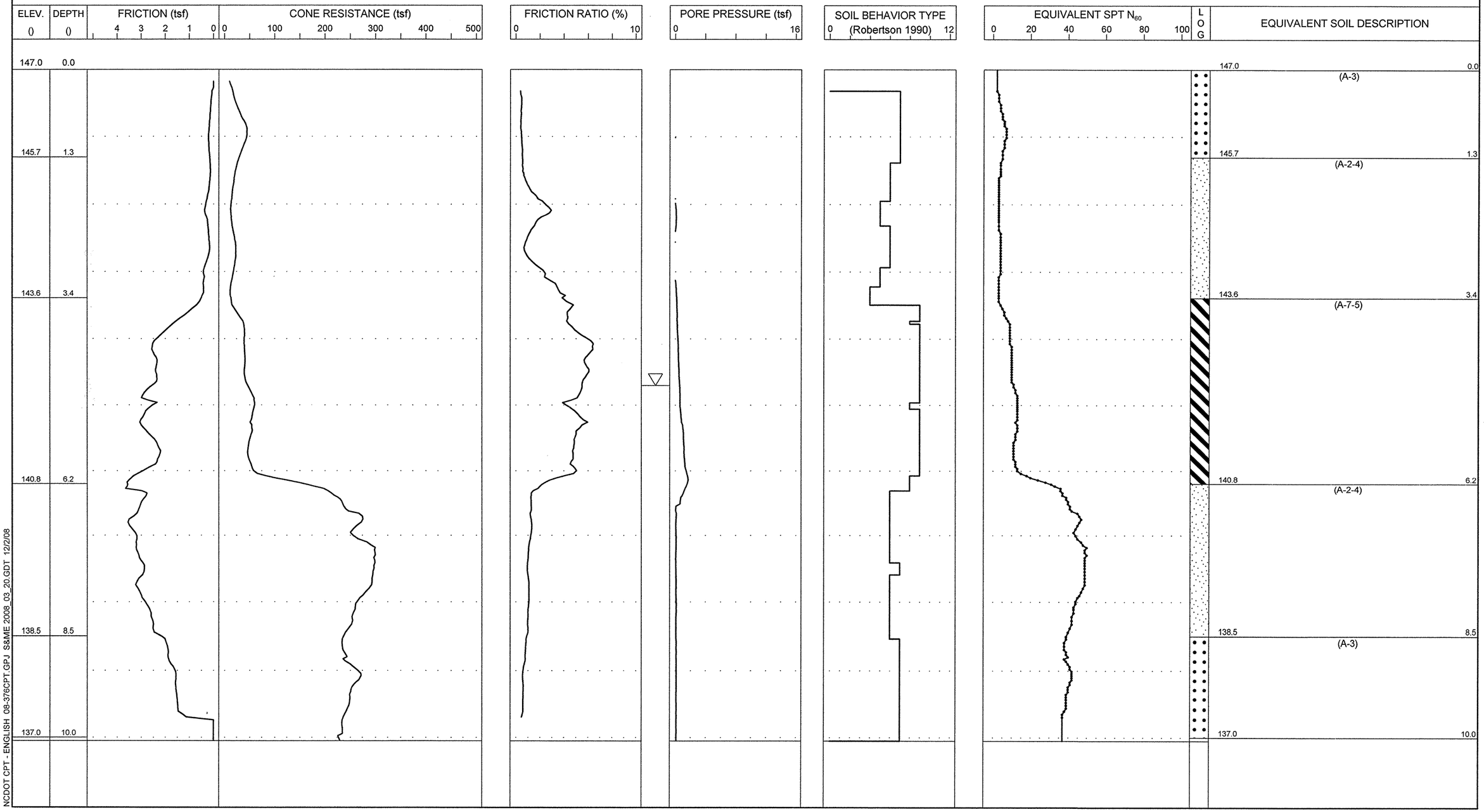
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.1	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 15+50 -Y37-	**BORING LOCATION** 15+50	**OFFSET** 20 LT	**ALIGNMENT** -Y37-	**0 HR.** 4.7	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 147.0	**NORTHING** 441,704.0	**EASTING** 2,162,994.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



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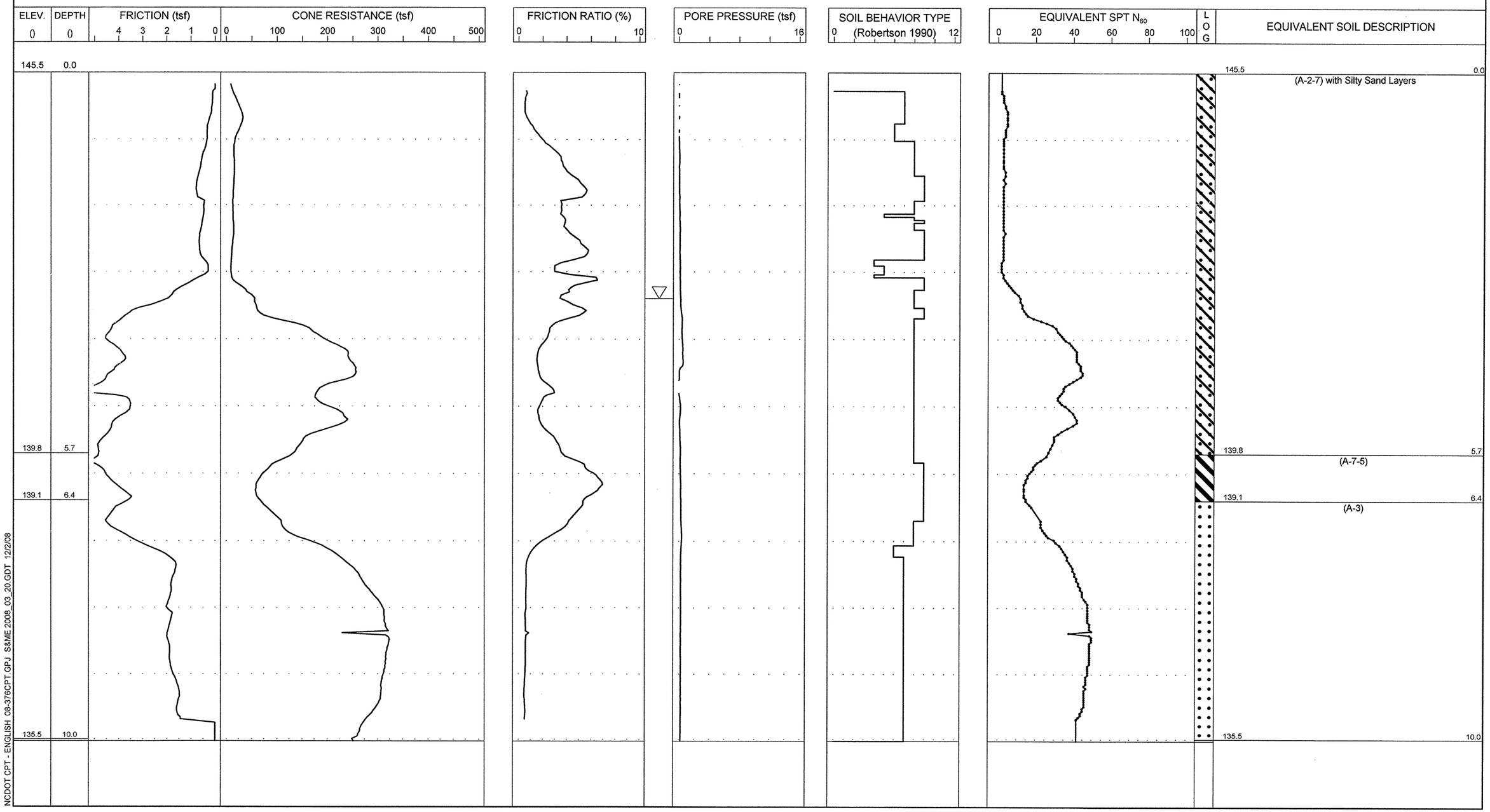
BORING LOG

PROJECT NO. 34416.1.1	**ID.** R-2303C	**COUNTY** Sampson	**GEOLOGIST** N. Bradley	**TYPE OF CONE** 1.75 In. PEIZO CONE	**ROD TYPE** 1.75 in Dia.	**MAXIMUM DOWN PRESSURE** Approximately 920 tsf	
SITE DESCRIPTION NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)			**GROUND WATER ()**	**TOTAL DEPTH** 10.0	**DRILL MACHINE** CPT-ATV	**DRILL METHOD** Direct Push	**HAMMER TYPE** N/A
BORING NO. 18+00 -Y37-	**BORING LOCATION** 18+00	**OFFSET** 0 CL	**ALIGNMENT** -Y37-	**0 HR.** 3.4	**DATE STARTED** 11/12/2008	**COMPLETED** 11/12/2008	**SURFACE WATER DEPTH** N/A
COLLAR ELEV. 145.5	**NORTHING** 441,539.0	**EASTING** 2,163,179.0		**24 HR.** N/M	**DRILLER:** R. Schubert	**TECHNICIAN** J. Walker	



NCDOT CPT - ENGLISH 08-376CPT.GPJ S&ME 2008_03_20.GDT 12/2/08

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34416.1.1 (R-2303C)	1	22

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
		P.E.
		R/W & UTIL.

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS:

LINE	STATION	SHEET NUMBERS PLAN	PROFILE	X-SECTS.
-L-	924+50 to 938+50	4	5	
-L-	938+50 to 952+50	4	5	6-22

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34416.1.1 (R-2303C) F.A. PROJ. STPNHF-F-8-2(17)

COUNTY SAMPSON

PROJECT DESCRIPTION NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303 (MITCHELL LOOP ROAD)

INVENTORY ADDENDUM

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

PERSONNEL

O. B. OTI

CONSULTANT: S&ME

INVESTIGATED BY J. L. PEDRO

CHECKED BY N. T. ROBERSON

SUBMITTED BY J. L. PEDRO

DATE NOVEMBER 2012

NORTH CAROLINA LICENSED SEAL 2157 GEOLOGIST JAIME LOVE PEDRO

Jaime Love Pedro 11-29-12

CONTRACT: ID: R-2303C

DRAWN BY: J. L. PEDRO, W. D. FIELDS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

PROJECT REFERENCE NO.	SHEET NO.
34416.1.1 (R-2303C)	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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
# 40	30 MX	50 MX	51 MN											
# 200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A 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 0.50 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
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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 CPT 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 W/ CORE
- SPT N-VALUE
- REF SPT REFUSAL

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:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [ ] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [X] D-50

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

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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:

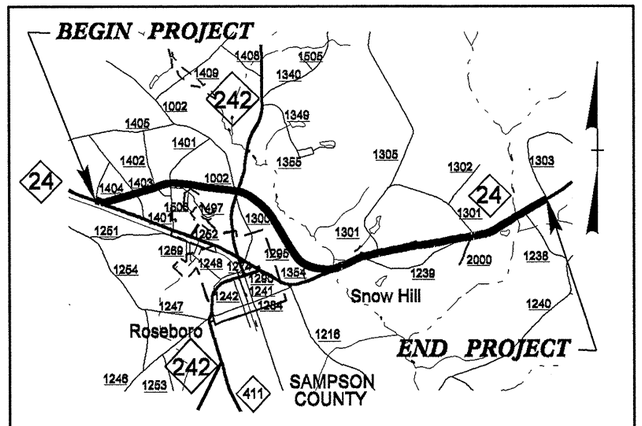
ELEVATION: FT.

NOTES:

TIP PROJECT: R-2303C

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SAMPSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2303C	2A	22

STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION
34416.1.1	STPNHF-F-8-2(17)	PE
34416.2.4		ROW & UTL.

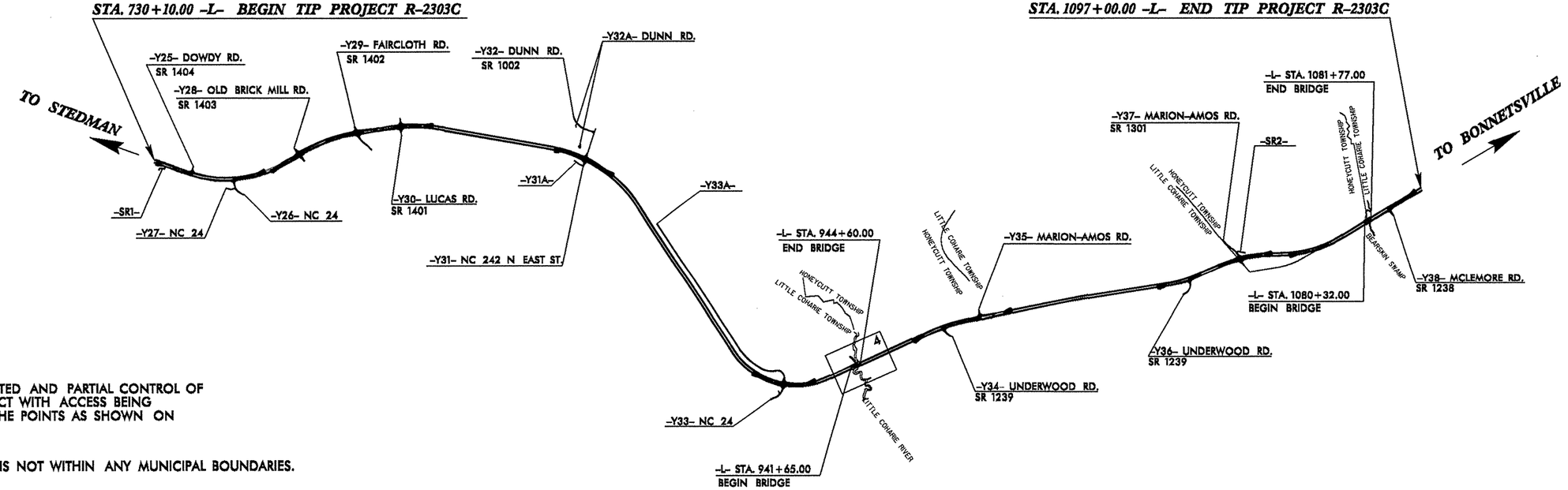
LOCATION: NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303 (MITCHELL LOOP ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

NAD 83/95

STA. 730+10.00 -L- BEGIN TIP PROJECT R-2303C

STA. 1097+00.00 -L- END TIP PROJECT R-2303C



THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE POINTS AS SHOWN ON THE PLANS.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

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 2013 = 13,296
ADT 2033 = 19,536
DHV = 11 %
D = 55 %
T = 8 % *
V = 60 MPH
FUNC CLASS = ARTERIAL
* (TTST 5% + DUAL 3%)
CLASS = STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2303C = 6.866 MILES
LENGTH STRUCTURES TIP PROJECT R-2303C = 0.083 MILES
TOTAL LENGTH TIP PROJECT R-2303C = 6.949 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 27, 2011

LETTING DATE: JUNE 18, 2013

G. E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 29, 2012

STATE PROJECT: 34416.1.1 (R-2303C)
FEDERAL PROJECT: STPNHF-F-8-2(17)
COUNTIES: Sampson
DESCRIPTION: NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)

SUBJECT: Geotechnical Report - Inventory Addendum

****This report is an addendum to the original inventory report dated June 1, 2009.****

Project Description

The Geotechnical Engineering Unit conducted an investigation in the vicinity of Little Coharie Creek to delineate an area of soft alluvial deposits. The investigation was performed during September 2012 by the consultant group: S&ME. A track mounted D-50 drill machine, with an automatic hammer, was used during the investigation. Standard Penetration Tests were performed at selected locations. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit. Shelby tubes were also collected for consolidation and triaxial testing.

The following area was investigated. Subsurface profiles and cross sections of this area are included in this report.

Line	Stations
-L-	937+00 to 949+00

Areas of Special Geotechnical Interest

1) Organic soils: Little to highly organic soils were encountered at the following location:

Line	Stations	Offsets (ft)
-L-	938+50 to 952+50	LT to RT

A discussion of these organic soils is located below in the section titled "Soil Properties".

Physiography and Geology

The project is located in the central Coastal Plain Physiographic Province. The terrain is relatively flat with gently rolling hills. Little Coharie Creek flows across the project in a southerly direction. A mixture of family dwellings, farmland, and woods occur along this area of the project.

Geologically, the project is located within the Coastal Plain Province. Soils within the project are Cretaceous-age Coastal Plain sediments that are derived from the Black Creek formation. Black Creek material is clays interbedded with thin laminae of micaceous sand and thick lenses of cross-bedded sand.

Soil Properties

Soils encountered during this investigation are separated into three categories based on their origin. They consist of roadway embankment, alluvial, and Coastal Plain soils.

Roadway Embankment soils are present along existing NC 24 corridor. These soils consist of tan, orange, gray, and brown, loose to medium dense, dry to moist, silty sand (A-2-4) and soft to stiff, moist, silty and sandy clay (A-7-6 and A-6). They are derived from the soils encountered near the embankments on the project.

Alluvial soils are present in the floodplain of Little Coharie Creek. These soils consist primarily of black, dark gray, tan, and brown, very soft to medium stiff, moist to wet, sandy and silty clay and sandy and clayey silt (A-4, A-5, A-6, and A-7-6) with little to high organic material (5.4% to 30.9%). Also, dark gray, tan, and brown, very loose to medium dense, wet to saturated, silty and coarse sand (A-2-4 and A-1-b) with trace to moderate organic material (2.6% to 6.6%).

Coastal Plain soils are deposited on top of Pre-Mesozoic basement materials. These soils consist of tan, gray, black, brown, and green, very stiff to hard, moist to wet, sandy and silty clay, and highly plastic, silty clay (A-6, A-7-6), and sandy silt (A-4) with trace lignite. Equal amounts of tan, brown, black, green, and gray, loose to very dense, moist to wet, silty sand, coarse sand and sand (A-2-4, A-1-b, A-3) are interbedded with the clays. The silty clays and clayey sands exhibit moderate to high plastic indices from 26 to 59.

Groundwater

Groundwater was encountered within 10.0 feet of the ground surface in all of the borings in the vicinity of Little Coharie Creek. Artesian conditions are present in borings terminated deeper than elevation 30.0 feet with a potentiometric surface elevation of approximately 92.0 feet.

Prepared by,

Jaime Love Pedro

Jaime Love Pedro, LG
Project Geological Engineer

BULK SAMPLES

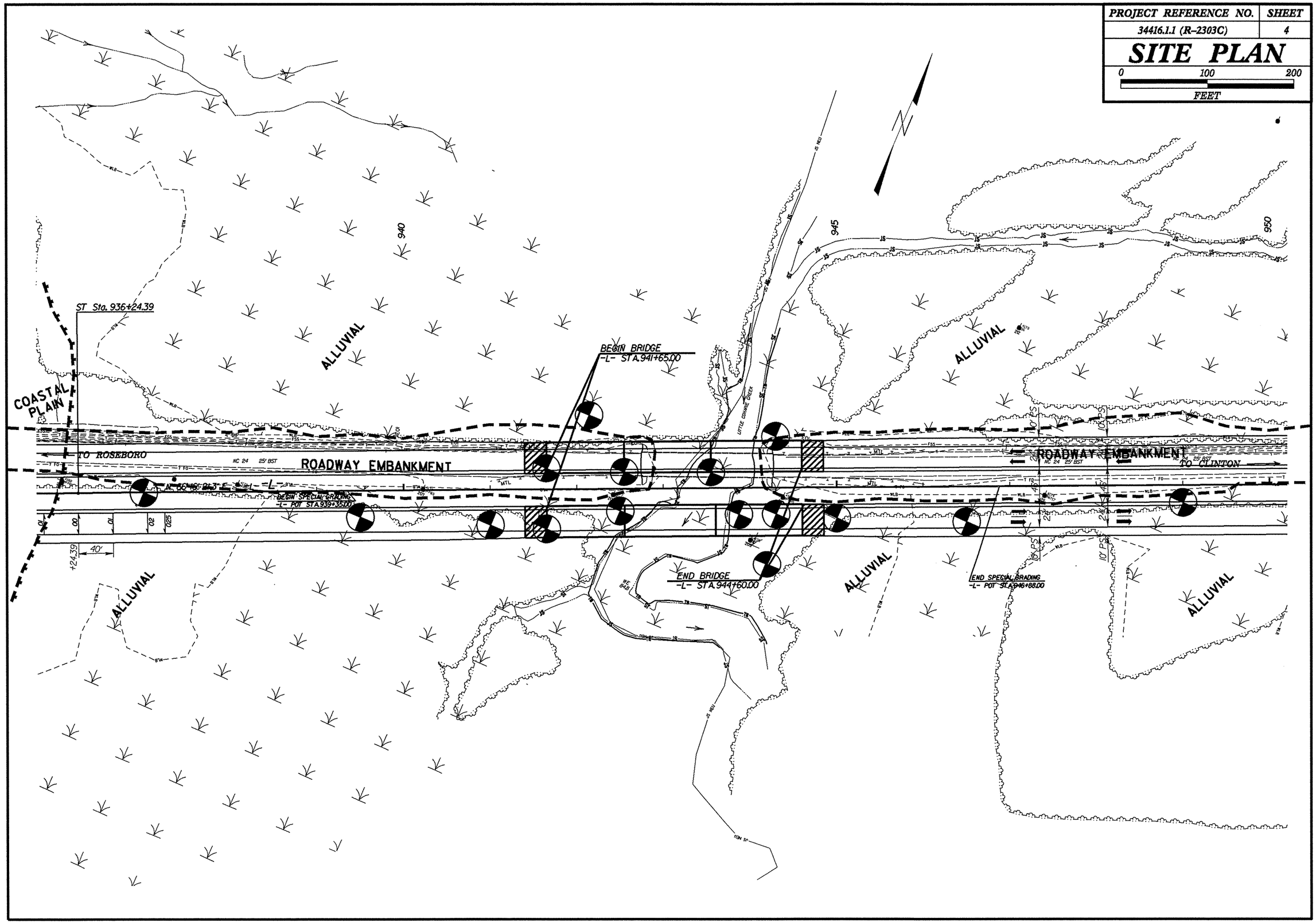
The following bulk samples were taken for tests to determine the engineering properties of the soil:

Sample No.	Location	Depth (ft)	Test
ST-1	-L-, 937+00, CL	6.0-8.0	Consolidation
ST-2	-L-, 939+50, 30' RT	6.0-8.0	Consolidation
ST-3	-L-, 945+00, 35' RT	8.5-10.5	Consolidation, Triaxial CU
ST-4	-L-, 946+50, 40' RT	8.5-10.5	Consolidation

PROJECT REFERENCE NO.	SHEET
34416.1.1 (R-2303C)	4

SITE PLAN

0 100 200
FEET



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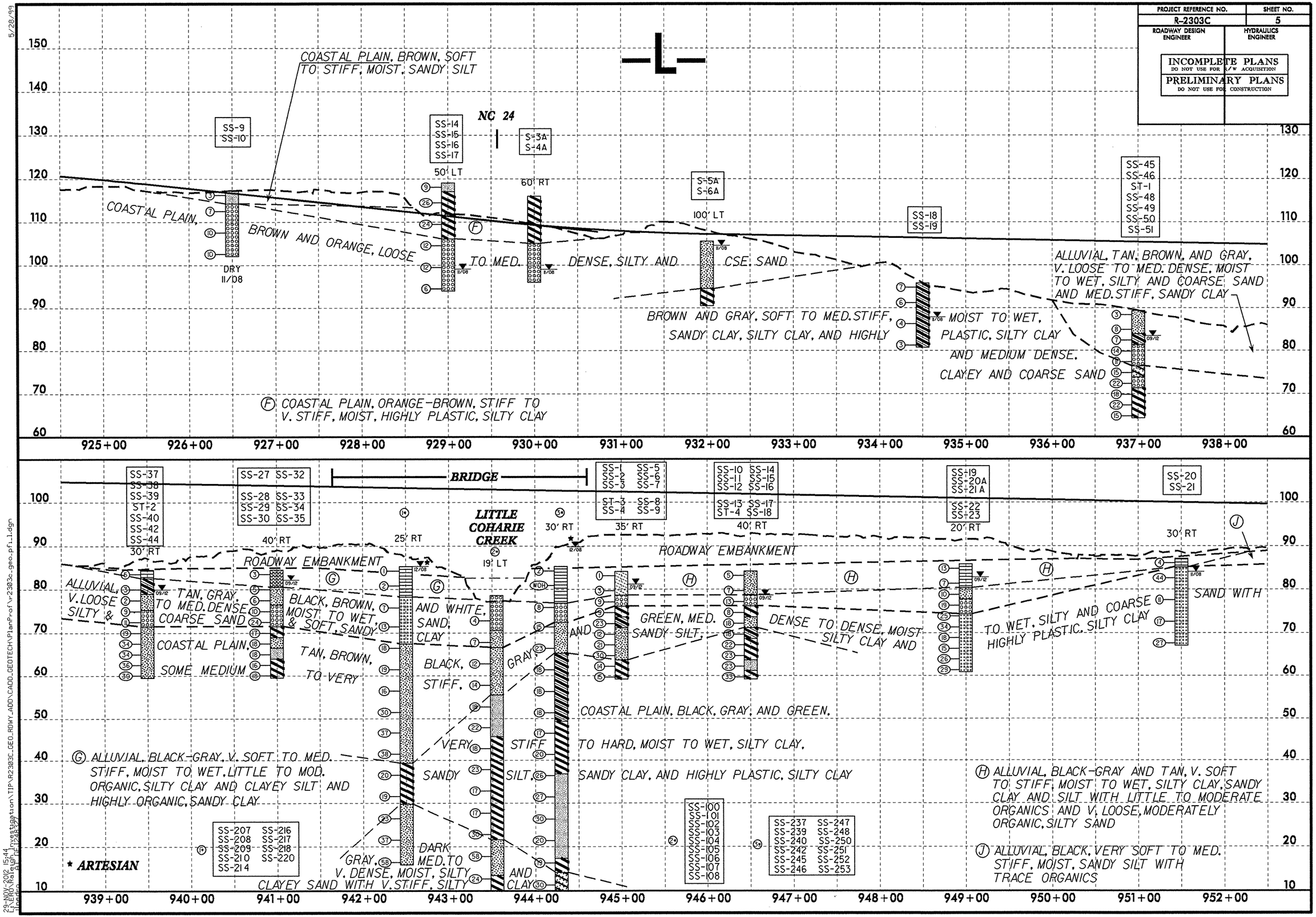
PROJECT REFERENCE NO.	SHEET NO.
R-2303C	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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Hoadley, Alan

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2303C	5A

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-9	CL	926+50	0.0-1.5	A-4(0)	16	1	43.0	24.6	20.3	12.1	100	71	37	-	-
SS-10	CL	926+50	3.7-5.2	A-1-b(0)	20	NP	85.3	6.5	0.2	8.1	100	37	9	-	-
SS-14	50 LT	929+00	0.0-1.5	A-4(3)	25	9	10.5	37.3	26.0	26.2	100	94	59	-	-
SS-15	50 LT	929+00	3.6-5.1	A-7-6(22)	50	30	1.8	27.8	22.0	48.4	100	100	75	-	-
SS-16	50 LT	929+00	13.6-15.1	A-1-b(0)	17	NP	91.0	5.1	1.8	2.0	100	28	4	-	-
SS-17	50 LT	929+00	23.6-25.1	A-1-b	NEM	NEM	91.2	3.2	0.5	5.0	384	53	23	-	-
S-3A	60 RT	930+00	0.0-11.0	A-7-6(29)	63	35	2.8	23.2	23.6	50.4	100	99	78	-	-
S-4A	60 RT	930+00	11.0-20.0	A-1-b(0)	18	NP	81.7	10.9	1.4	6.0	97	41	8	-	-
S-5A	100 LT	932+00	0.0-11.0	A-2-4(0)	27	8	80.6	6.7	4.6	8.1	57	18	8	-	-
S-6A	100 LT	932+00	11.0-15.0	A-7-5(43)	95	59	20.0	5.6	13.9	60.5	90	75	69	-	-
SS-18	CL	934+50	0.0-1.5	A-6(6)	35	17	16.1	34.1	13.5	36.3	100	95	55	-	-
SS-19	CL	934+50	8.6-10.1	A-6(7)	40	19	28.0	21.2	20.6	30.2	100	85	54	-	-
SS-45	CL	937+00	0.0-1.5	A-2-4(0)	6	23	46.3	25.0	14.3	14.3	97	69	32	-	-
SS-46	CL	937+00	6.0-7.5	A-6(11)	37	19	8.2	30.9	28.1	32.8	100	97	70	25.9	-
ST-1	CL	937+00	6.0-7.6	A-6(12)	36	20	11.1	26.0	26.8	36.2	100	95	70	-	4.1
SS-48	CL	937+00	13.5-15.0	A-2-6(1)	36	15	51.6	17.4	10.5	20.5	94	67	30	-	5.8
SS-49	CL	937+00	16.0-17.5	A-1-b(0)	28	NP	69.1	18.9	2.9	9.2	92	49	12	-	-
SS-50	CL	937+00	18.5-20.0	A-7-6(19)	56	35	26.0	14.5	18.4	41.0	100	88	61	50.4	-
SS-51	CL	937+00	21.0-22.5	A-7-6(51)	75	53	4.1	13.1	23.4	59.4	100	98	88	47.4	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-37	30 RT	939+50	0.0-1.5	A-7-5(9)	44	14	17.2	21.1	33.0	28.7	100	91	66	-	9.7
SS-38	30 RT	939+50	3.5-5.0	A-6(11)	38	18	13.1	24.6	25.4	36.9	100	92	68	31.5	-
SS-39	30 RT	939+50	6.0-7.5	A-2-4(0)	24	NP	39.3	41.4	8.0	11.3	99	87	22	-	-
ST-2	30 RT	939+50	6.0-7.9	A-6(6)	31	15	6.8	42.3	22.7	28.2	100	99	57	-	3.4
SS-40	30 RT	939+50	8.5-9.2	A-2-4(0)	20	NP	56.5	34.5	3.9	5.1	99	81	11	-	-
SS-42	30 RT	939+50	13.5-15.0	A-2-4(0)	22	NP	61.9	23.5	4.4	10.2	96	68	15	-	-
SS-27	40 RT	941+00	0.0-1.5	A-6(3)	35	13	5.5	45.7	26.4	22.4	100	99	55	-	30.9
SS-28	40 RT	941+00	4.0-5.0	A-2-4(0)	27	NP	13.8	68.7	11.4	6.1	100	99	22	-	3.1
SS-29	40 RT	941+00	6.0-7.5	A-2-4(0)	25	NP	24.5	66.0	5.5	4.1	100	97	12	-	-
SS-30	40 RT	941+00	8.5-10.0	A-1-b(0)	23	NP	74.1	20.4	1.4	4.1	87	47	6	-	-
SS-32	40 RT	941+00	13.5-15.0	A-7-6(15)	48	29	31.8	7.2	16.0	45.1	100	94	62	50.6	-
SS-33	40 RT	941+00	16.0-17.5	A-2-4(0)	24	NP	74.0	14.0	3.8	8.2	100	88	13	-	-
SS-34	40 RT	941+00	18.5-20.0	A-4(1)	35	9	1.2	59.7	11.4	27.7	100	100	44	40.4	-
SS-35	40 RT	941+00	21.0-22.5	A-7-6(12)	45	23	1.0	43.4	18.6	36.9	100	100	61	39.2	-
SS-207	25 RT	942+50	3.5-5.0	A-5(3)	55	5	18.5	35.3	32.1	14.1	100	93	52	-	17.5
SS-208	25 RT	942+50	8.5-10.0	A-3(0)	25	NP	85.8	13.0	1.2	0.0	100	58	1	-	-
SS-209	25 RT	942+50	12.8-14.3	A-3(0)	25	NP	71.6	24.0	2.4	2.0	95	83	5	-	-
SS-210	25 RT	942+50	17.8-19.3	A-2-4(0)	29	4	0.8	73.0	6.0	20.2	100	100	31	-	-
SS-214	25 RT	942+50	37.8-39.3	A-2-4(0)	26	NP	2.6	82.5	6.9	8.1	100	100	18	-	-
SS-216	25 RT	942+50	47.8-49.3	A-7-6(17)	53	36	6.5	41.7	13.5	38.3	100	97	58	-	-
SS-217	25 RT	942+50	52.8-54.3	A-7-6(37)	66	47	2.4	24.2	14.9	58.5	100	99	77	-	-
SS-218	25 RT	942+50	57.8-59.3	A-2-4(0)	30	9	3.2	67.7	8.9	20.2	100	99	32	-	-
SS-220	25 RT	942+50	67.8-69.3	A-2-4(0)	27	NP	1.2	81.3	9.5	8.1	100	100	22	-	10.5
SS-100	19 LT	943+55	4.8-6.3	A-1-b(0)	25	NP	74.7	21.0	1.2	3.1	96	49	5	-	-
SS-101	19 LT	943+55	9.8-11.3	A-2-4(0)	27	1	0.8	77.8	9.2	12.2	100	100	25	-	-
SS-102	19 LT	943+55	14.8-16.3	A-2-4(0)	26	1	0.6	78.0	7.1	14.3	100	100	26	-	-
SS-103	19 LT	943+55	24.8-26.3	A-4(0)	28	1	0.8	70.0	8.8	20.4	100	100	36	-	-
SS-104	19 LT	943+55	34.8-36.3	A-7-6(50)	78	50	2.9	13.3	22.7	61.2	100	98	88	-	-
SS-105	19 LT	943+55	44.8-46.3	A-7-6(30)	60	40	0.8	29.4	14.7	55.1	100	100	75	-	-
SS-106	19 LT	943+55	59.8-60.3	A-2-4(0)	25	NP	21.3	66.0	5.5	7.1	99	91	16	-	-
SS-107	19 LT	943+55	64.8-66.3	A-7-6(37)	62	38	1.6	13.3	25.9	59.2	100	99	88	-	-
SS-108	19 LT	943+55	74.8-76.3	A-2-6(0)	31	13	59.0	17.7	10.1	13.3	100	65	25	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-237	30 RT	944+30	0.0-1.5	A-7-5(5)	51	11	13.7	36.9	35.3	14.1	100	95	54	-	14.4
SS-239	30 RT	944+30	8.4-9.9	A-1-b(0)	23	NP	61.7	25.8	4.4	8.1	51	29	7	-	-
SS-240	30 RT	944+30	12.9-14.4	A-2-4(0)	26	3	1.2	77.8	6.9	14.1	100	100	24	-	-
SS-242	30 RT	944+30	22.9-24.4	A-6(6)	38	18	0.4	58.9	14.5	26.2	100	100	50	-	-
SS-245	30 RT	944+30	37.9-39.4	A-7-6(51)	78	55	3.8	13.3	20.4	62.5	100	99	85	-	-
SS-246	30 RT	944+30	42.9-44.4	A-7-6(11)	44	24	4.4	45.0	14.3	36.3	100	97	57	-	-
SS-247	30 RT	944+30	48.5-49.4	A-4(0)	24	NP	3.4	70.8	11.7	14.1	100	99	36	-	-
SS-248	30 RT	944+30	52.9-54.4	A-4(3)	31	10	4.2	55.0	14.5	26.2	100	99	57	-	-
SS-250	30 RT	944+30	62.9-64.4	A-4(0)	27	6	6.7	63.7	11.5	18.1	100	99	38	-	-
SS-251	30 RT	944+30	67.9-69.4	A-7-6(54)	73	50	0.2	11.5	27.8	60.5	100	100	95	-	-
SS-252	30 RT	944+30	72.9-74.4	A-2-6(1)	37	16	52.6	15.7	9.5	22.2	76	49	26	-	-
SS-253	30 RT	944+30	77.9-79.4	A-2-4(0)	24	4	40.5	36.7	16.7	6.0	100	83	27	-	-
SS-1	35 RT	945+00	3.5-5.0	A-2-4(0)	30	NP	25.2	50.4	14.2	10.2	100	93	29	-	6.6
SS-2	35 RT	945+00	6.0-7.5	A-1-b(0)	22	NP	65.2	26.7	5.0	3.0	91	50	9	-	-
SS-3	35 RT	945+00	8.5-10.0	A-7-6(36)	64	39	7.9	9.6	27.6	54.9	100	95	85	52.0	-
ST-3	35 RT	945+00	8.5-10.5	A-7-6(18)	49	33	14.1	24.5	22.6	38.8	100	90	64	-	7.0
SS-4	35 RT	945+00	11.0-12.5	A-6(1)	33	12	27.4	37.2	11.0	24.4	97	82	37	74.6	-
SS-5	35 RT	945+00	13.5-15.0	A-2-4(0)	28	NP	2.8	72.4	10.6	14.2	100	98	28	-	-
SS-6	35 RT	945+00	16.0-17.5	A-2-4(0)	28	NP	1.2	77.4	9.1	12.2	100	99	26	30.0	-
SS-7	35 RT	945+00	18.0-19.5	A-2-4(0)	27	NP	1.2	76.0	10.6	12.2	100	99	27	31.5	-
SS-8	35 RT	945+00	21.0-22.5	A-7-6(16)	48	27	0.4	40.7	16.3	42.7	100	100	66	34.0	-
SS-9	35 RT	945+00	23.5-25.0	A-7-6(12)	45	26	0.4	50.4	12.6	36.6	100	100	57	33.3	-
SS-10	35 RT	946+50	0.0-1.5	A-2-4(0)	22	9	38.8	30.3	12.6	18.3	99	79	33	-	-
SS-11	35 RT	946+50	3.5-5.0	A-2-4(0)	18	NP	34.6	44.9	2.2	18.3	99	84	25	-	-
SS-12	35 RT	946+50	6.0-7.5	A-1-b(0)	19	NP	74.8	16.7	4.5	4.1	74	39	7	-	-
SS-13	35 RT	946+50	8.5-10.0	A-7-6(40)	67	14	5.1	12.2	29.9	52.8	100	97	87	49.8	-
ST-4	35 RT	946+50	8.5-10.5	A-7-6(14)	53	30	27.6	18.3	17.6	36.5	98	81	57	-	7.8
SS-14	35 RT	946+50	11.0-12.5	A-2-4(0)	28	NP	15.2	61.1	11.5	12.2	100	89	31	39.1	-
SS-15	35 RT	946+50	13.5-15.0	A-6(7)	39	13	4.9	51.8	20.9	22.4	100	99	65	-	-
SS-16	35 RT	946+50	16.0-17.5	A-7-6(16)	49	25	4.1	43.3	26.2	26.4	100	98	69	40.5	12.9
SS-17	35 RT	946+50	21.0-22.5	A-4(1)	39	4	8.9	51.6	18.1	21.3	100	96	54	39.4	-
SS-18	35 RT	946+50	23.5-25.0	A-7-6(12)	47	23	10.0	37.0	24.6	28.5	100	97	62	-	-
SS-19	20 RT	949+00	0.0-1.5	A-6(4)	31	13	20.3	30.5	18.7	30.5	100	92	52	-	5.4
SS-20A	20 RT	949+00	6.0-7.5	A-2-4(0)	21	NP	21.3	55.7	12.8	10.2	99	92	27	-	2.6
SS-21A	20 RT	949+00	8.5-10.0	A-1-b(0)	23	NP	49.3	37.8	5.8	7.1	60	38	9	-	-
SS-22	20 RT	949+00	11.0-12.5	A-3(0)	28	NP	31.9	60.2	4.9	3.0	81	64	7	-	-
SS-23	20 RT	949+00	13.5-15.0	A-3(0)	29	NP	15.2	77.3	4.4	3.0	96	92	9	-	-
SS-20	30 RT	951+50	0.0-1.5	A-4(0)	29	NP	15.3	48.0	14.5	22.2	100	97	40	-	10.5
SS-21	30 RT	951+50	3.5-5.0	A-3(0)	19	NP	66.9	27.2	1.8	4.0	100	64	7	-	-

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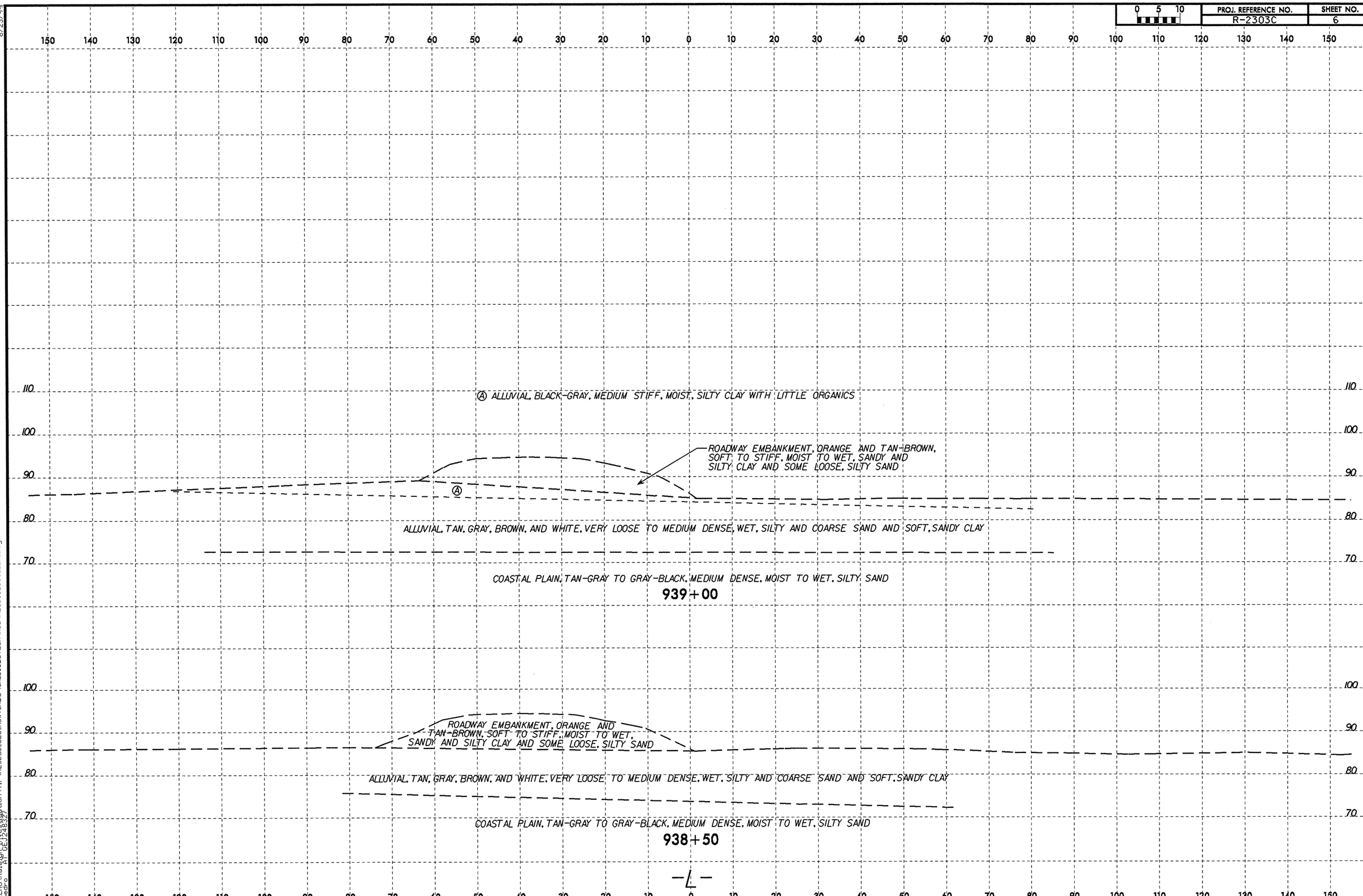

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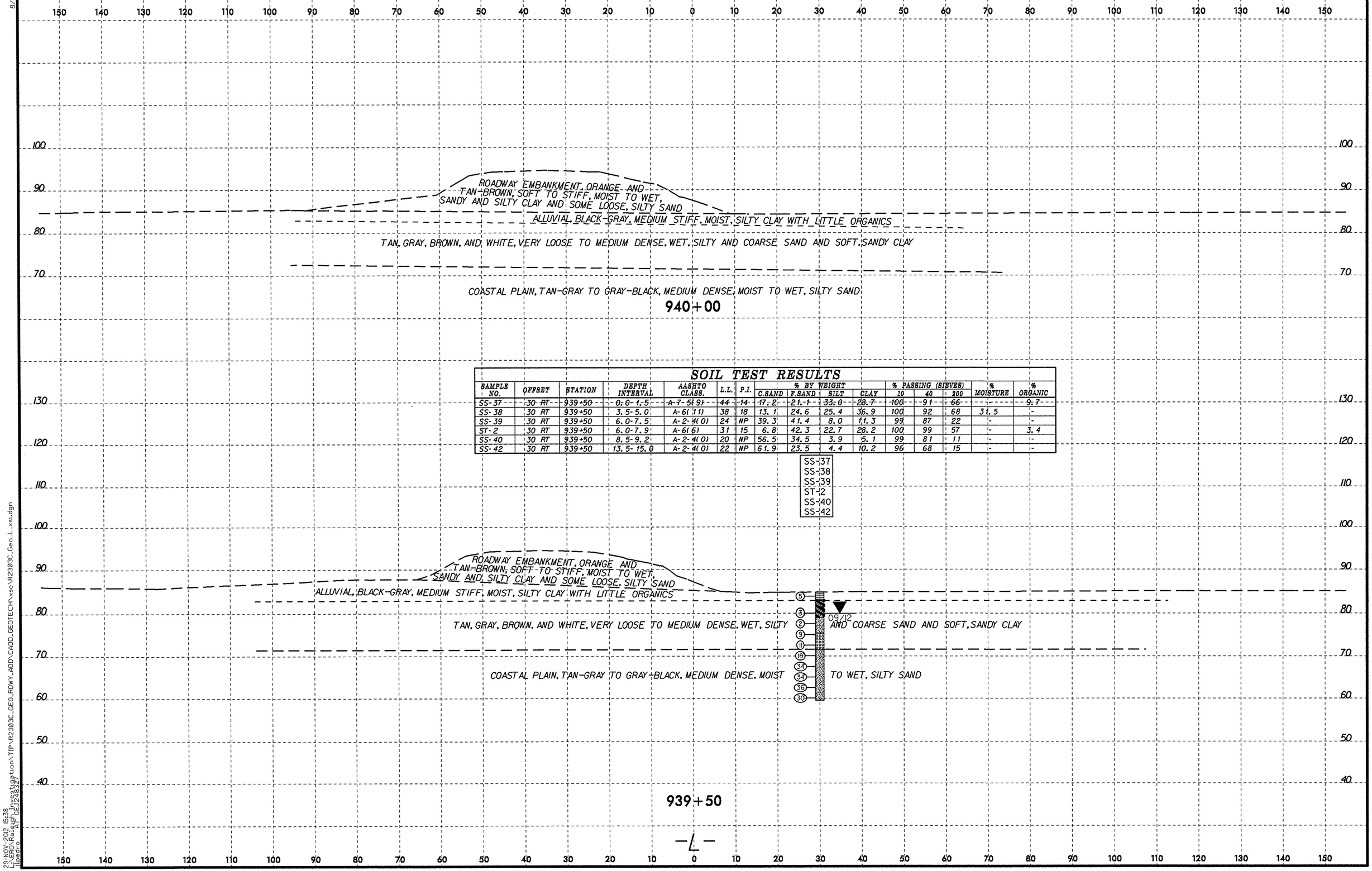

SOIL TEST RESULTS

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
SS-37	30 RT	939+50	0.0-1.5	A-7-5(9)	44	14	17.2	21.1	33.0	28.7	100	91	66	-	9.7
SS-38	30 RT	939+50	3.5-5.0	A-6(11)	38	18	13.1	24.6	25.4	36.9	100	92	68	31.5	-
SS-39	30 RT	939+50	6.0-7.5	A-2-4(0)	24	NP	39.3	41.4	8.0	11.3	99	87	22	-	-
ST-2	30 RT	939+50	6.0-7.9	A-6(6)	31	15	6.8	42.3	22.7	28.2	100	99	57	-	3.4
SS-40	30 RT	939+50	8.5-9.2	A-2-4(0)	20	NP	56.5	34.5	3.9	5.1	99	81	11	-	-
SS-42	30 RT	939+50	13.5-15.0	A-2-4(0)	22	NP	61.9	23.5	4.4	10.2	96	68	15	-	-

SS-37
SS-38
SS-39
ST-2
SS-40
SS-42

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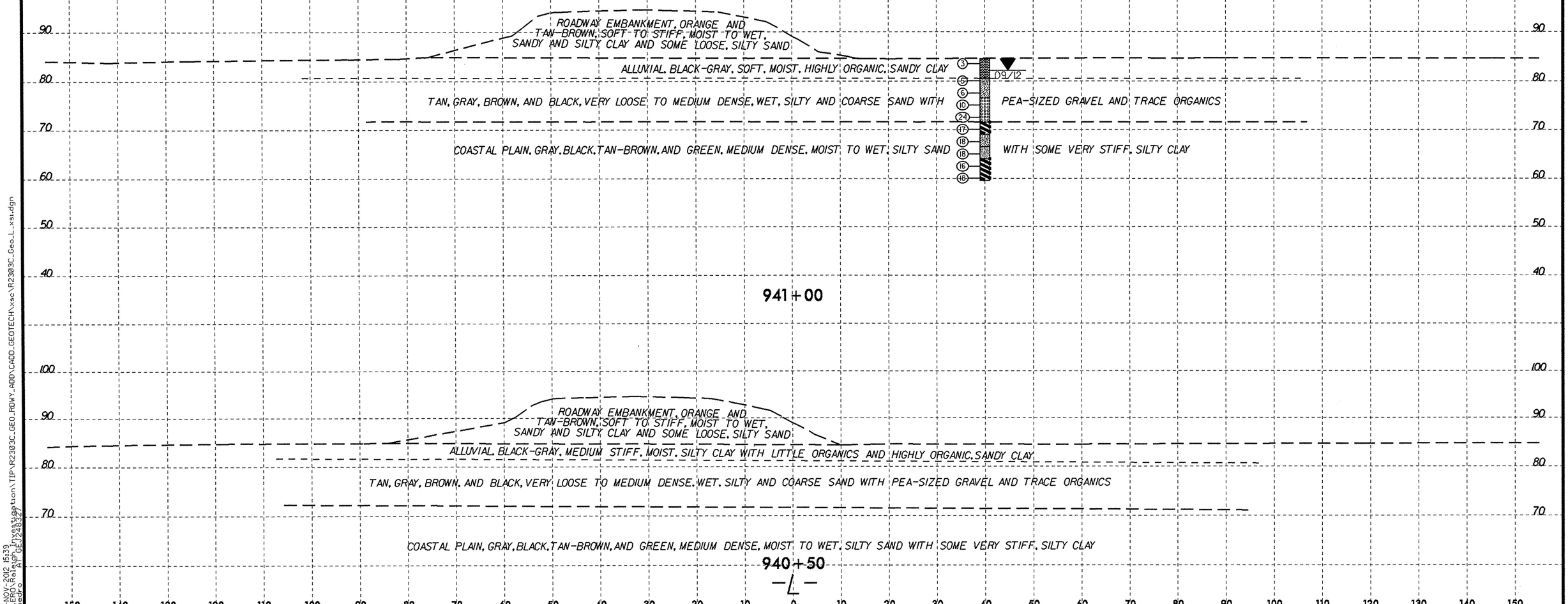
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	8

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-27	40' RT	941+00	0.0-1.5	A-6(3)	35	13	5.5	45.7	26.4	22.4	100	99	55	-	30.9
SS-28	40' RT	941+00	4.0-5.0	A-2-4(0)	27	NP	13.8	68.7	11.4	6.1	100	99	22	-	3.1
SS-29	40' RT	941+00	6.0-7.5	A-2-4(0)	25	NP	24.5	66.0	5.5	4.1	100	97	12	-	-
SS-30	40' RT	941+00	8.5-10.0	A-1-b(0)	23	NP	74.1	20.4	1.4	4.1	87	47	6	-	-
SS-32	40' RT	941+00	13.5-15.0	A-7-6(19)	48	29	31.8	7.2	16.0	45.1	100	94	62	50.6	-
SS-33	40' RT	941+00	16.0-17.5	A-2-4(0)	24	NP	74.0	14.0	3.8	8.2	100	88	13	-	-
SS-34	40' RT	941+00	18.5-20.0	A-4(1)	35	9	1.2	59.7	11.4	27.7	100	100	44	40.4	-
SS-35	40' RT	941+00	21.0-22.5	A-7-6(12)	45	23	1.0	43.4	18.6	36.9	100	100	61	39.2	-

SS-27 SS-32
SS-28 SS-33
SS-29 SS-34
SS-30 SS-35



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PROJ. REFERENCE NO.	SHEET NO.
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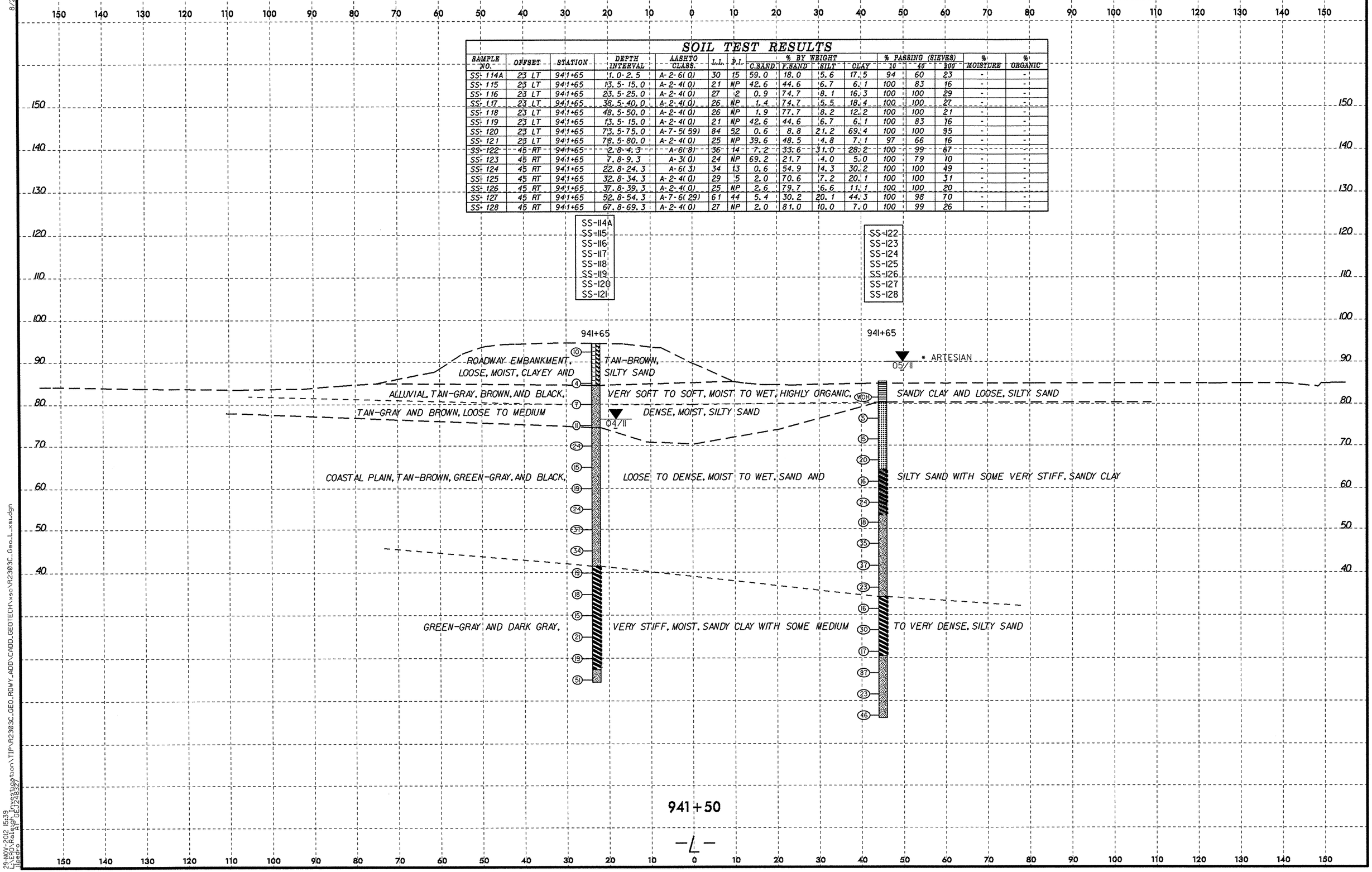
SOIL TEST RESULTS

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
SS-114A	23 LT	941+65	1.0-2.5	A-2-6(0)	30	15	59.0	18.0	5.6	17.5	94	60	23	-	-
SS-115	23 LT	941+65	13.5-15.0	A-2-4(0)	21	NP	42.6	44.6	6.7	6.1	100	83	16	-	-
SS-116	23 LT	941+65	23.5-25.0	A-2-4(0)	27	2	0.9	74.7	8.1	16.3	100	100	29	-	-
SS-117	23 LT	941+65	38.5-40.0	A-2-4(0)	26	NP	1.4	74.7	5.5	18.4	100	100	27	-	-
SS-118	23 LT	941+65	48.5-50.0	A-2-4(0)	26	NP	1.9	77.7	8.2	12.2	100	100	21	-	-
SS-119	23 LT	941+65	13.5-15.0	A-2-4(0)	21	NP	42.6	44.6	6.7	6.1	100	83	16	-	-
SS-120	23 LT	941+65	73.5-75.0	A-7-5(59)	84	52	0.6	8.8	21.2	69.4	100	100	95	-	-
SS-121	23 LT	941+65	78.5-80.0	A-2-4(0)	25	NP	39.6	48.5	4.8	7.1	97	66	16	-	-
SS-122	45 RT	941+65	2.8-4.3	A-6(8)	36	14	7.2	33.6	31.0	28.2	100	99	67	-	-
SS-123	45 RT	941+65	7.8-9.3	A-3(0)	24	NP	69.2	21.7	4.0	5.0	100	79	10	-	-
SS-124	45 RT	941+65	22.8-24.3	A-6(3)	34	13	0.6	54.9	14.3	30.2	100	100	49	-	-
SS-125	45 RT	941+65	32.8-34.3	A-2-4(0)	29	5	2.0	70.6	7.2	20.1	100	100	31	-	-
SS-126	45 RT	941+65	37.8-39.3	A-2-4(0)	25	NP	2.6	79.7	6.6	11.1	100	100	20	-	-
SS-127	45 RT	941+65	52.8-54.3	A-7-6(29)	61	44	5.4	30.2	20.1	44.3	100	98	70	-	-
SS-128	45 RT	941+65	67.8-69.3	A-2-4(0)	27	NP	2.0	81.0	10.0	7.0	100	99	26	-	-



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SS-222 SS-230
SS-221 SS-232
SS-223 SS-233
SS-224 SS-234
SS-226 SS-235
SS-228

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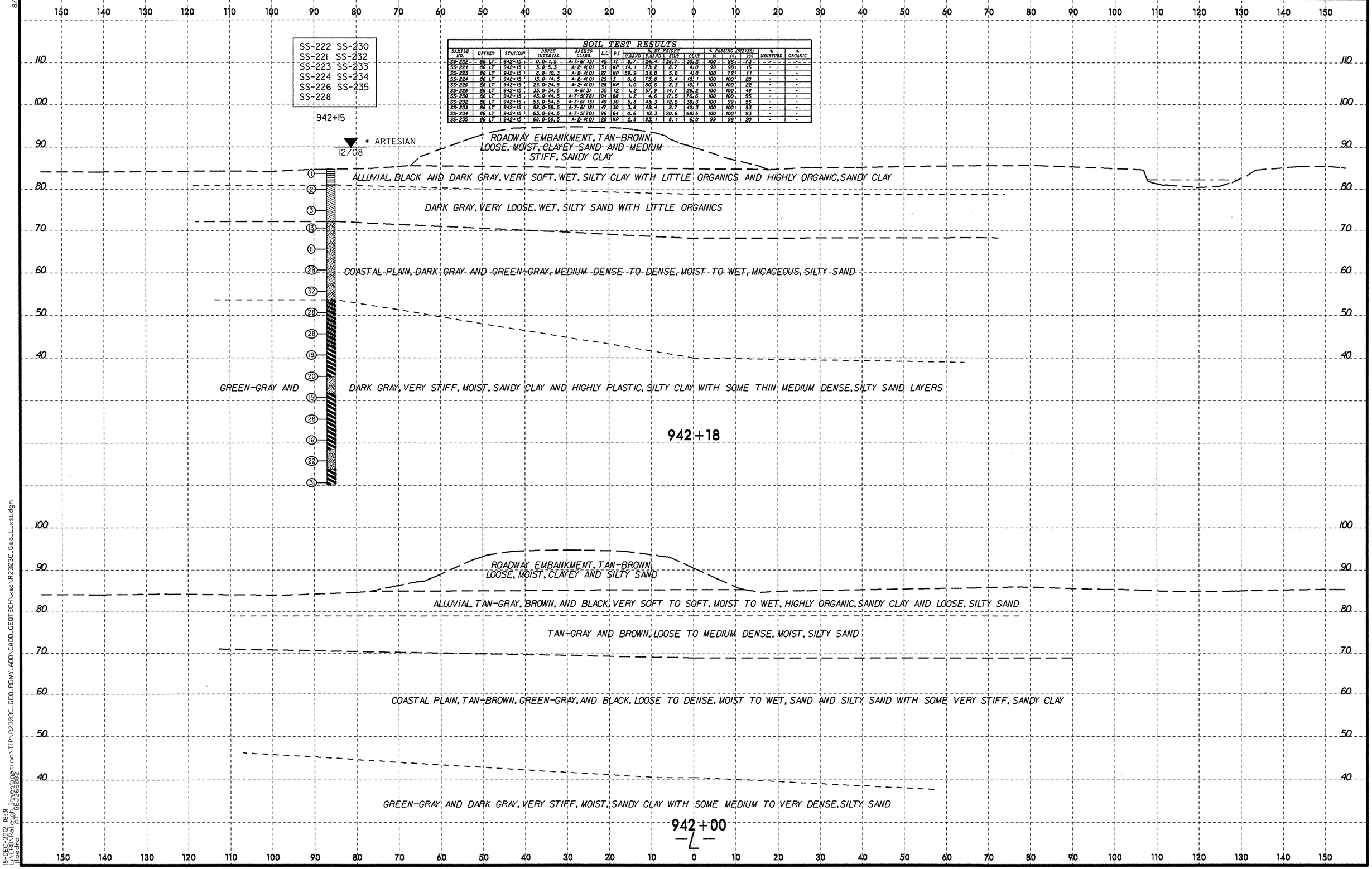
SOIL TEST RESULTS

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
SS-222	86 LT	942+15	0.0-1.5	A-7-6(13)	45	17	8.7	56.4	36.7	30.3	100	98	73	-	-
SS-221	86 LT	942+15	3.8-5.3	A-2-4(0)	31	NP	14.1	73.2	8.7	4.0	99	98	15	-	-
SS-223	86 LT	942+15	8.8-10.3	A-2-4(0)	27	NP	59.9	31.0	5.0	4.0	100	72	11	-	-
SS-224	86 LT	942+15	13.0-14.5	A-2-4(0)	29	3	0.6	75.8	5.4	18.1	100	100	28	-	-
SS-226	86 LT	942+15	23.0-24.5	A-2-4(0)	26	NP	1.0	80.6	8.3	10.1	100	100	22	-	-
SS-228	86 LT	942+15	33.0-34.5	A-6(3)	35	12	1.2	57.9	14.7	26.2	100	100	48	-	-
SS-230	86 LT	942+15	43.0-44.5	A-7-5(78)	104	68	1.2	4.6	17.5	76.6	100	100	95	-	-
SS-232	86 LT	942+15	53.0-54.5	A-7-6(13)	49	30	5.8	43.3	12.5	38.3	100	99	55	-	-
SS-233	86 LT	942+15	58.0-59.5	A-7-6(12)	47	30	3.6	45.4	8.7	42.3	100	100	53	-	-
SS-234	86 LT	942+15	63.0-64.5	A-7-5(70)	96	64	0.6	10.3	20.6	68.5	100	100	93	-	-
SS-235	86 LT	942+15	68.0-69.5	A-2-4(0)	28	NP	2.8	83.1	8.1	6.0	99	98	20	-	-



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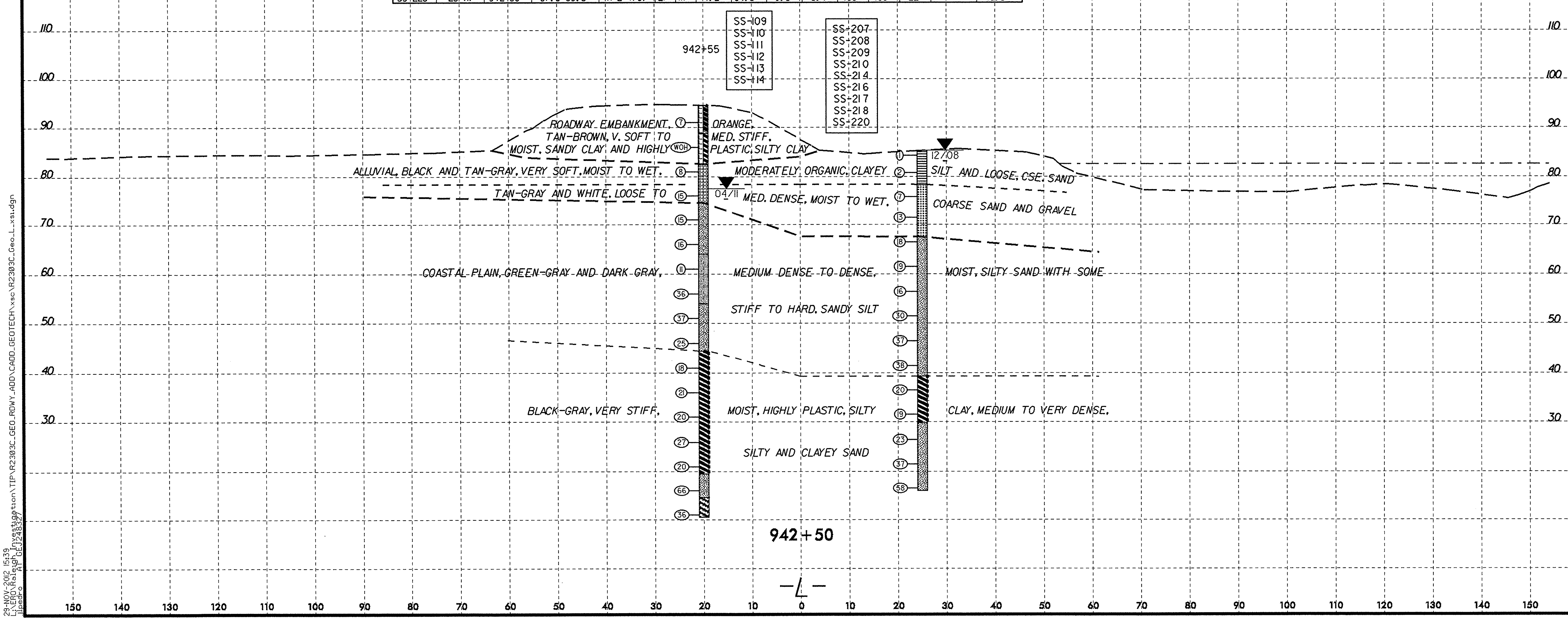
SOIL TEST RESULTS

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
SS-109	20 LT	942+55	2.5-4.0	A-6(2)	30	14	29.2	31.0	17.3	22.4	94	79	42	-	-
SS-110	20 LT	942+55	7.5-9.0	A-7-6(30)	60	33	2.2	19.4	23.3	55.1	100	99	83	-	-
SS-111	20 LT	942+55	42.5-44.0	A-2-4(0)	24	NP	1.2	81.6	6.9	10.2	100	100	20	-	-
SS-112	20 LT	942+55	52.5-54.0	A-7-6(57)	77	54	0.4	9.6	24.7	65.3	100	100	94	-	-
SS-113	20 LT	942+55	62.5-64.0	A-7-6(30)	62	44	1.4	31.2	16.3	51.0	100	99	71	-	-
SS-114	20 LT	942+55	77.5-79.0	A-2-4(0)	28	NP	4.1	87.6	4.3	4.1	91	90	12	-	-
SS-207	25 RT	942+50	3.5-5.0	A-5(3)	55	5	18.5	35.3	32.1	14.1	100	93	52	-	-
SS-208	25 RT	942+50	8.5-10.0	A-3(0)	25	NP	85.8	13.0	1.2	0.0	100	58	1	-	-
SS-209	25 RT	942+50	12.8-14.5	A-3(0)	25	NP	71.6	24.0	2.4	2.0	95	83	5	-	-
SS-210	25 RT	942+50	17.8-19.3	A-2-4(0)	29	4	0.8	73.0	6.0	20.2	100	100	31	-	-
SS-214	25 RT	942+50	37.8-39.3	A-2-4(0)	26	NP	2.6	82.5	6.9	8.1	100	100	18	-	-
SS-216	25 RT	942+50	47.8-49.3	A-7-6(17)	53	36	6.5	41.7	13.5	38.3	100	97	58	-	-
SS-217	25 RT	942+50	52.8-54.3	A-7-6(37)	66	47	2.4	24.2	14.9	58.5	100	99	77	-	-
SS-218	25 RT	942+50	57.8-59.3	A-2-4(0)	30	9	3.2	67.7	8.9	20.2	100	99	32	-	-
SS-220	25 RT	942+50	67.8-69.3	A-2-4(0)	27	NP	1.2	81.3	9.5	8.1	100	100	22	-	10.5



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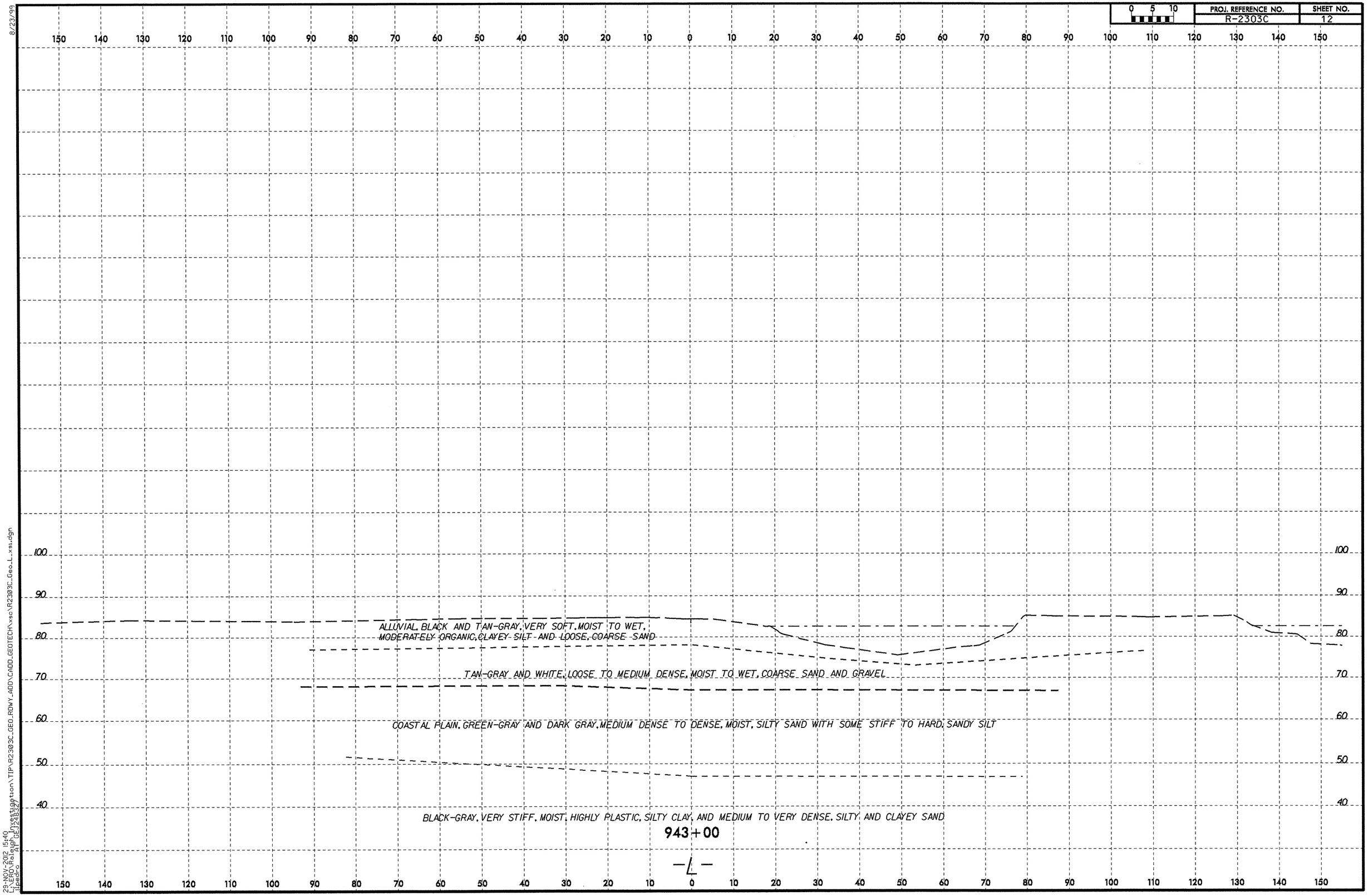

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PROJ. REFERENCE NO.	SHEET NO.
R-2303C	13

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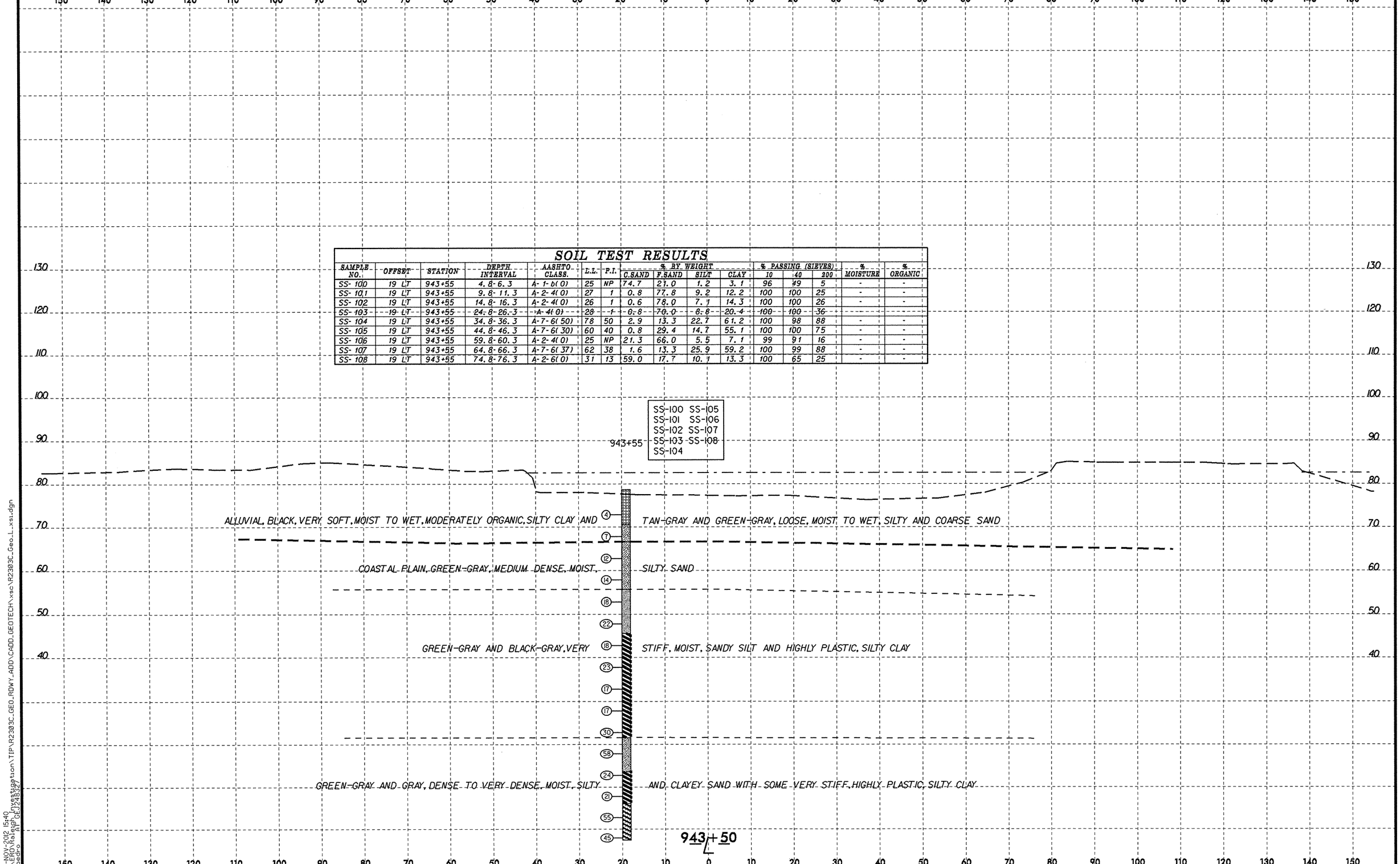
SOIL TEST RESULTS

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
SS- 100	19 LT	943+55	4.8- 6.3	A- 1- b(0)	25	NP	74.7	21.0	1.2	3.1	96	49	5	-	-
SS- 101	19 LT	943+55	9.8- 11.3	A- 2- 4(0)	27	1	0.8	77.8	9.2	12.2	100	100	25	-	-
SS- 102	19 LT	943+55	14.8- 16.3	A- 2- 4(0)	26	1	0.6	78.0	7.1	14.3	100	100	26	-	-
SS- 103	19 LT	943+55	24.8- 26.3	A- 4(0)	28	1	0.8	70.0	8.8	20.4	100	100	36	-	-
SS- 104	19 LT	943+55	34.8- 36.3	A- 7- 6(50)	78	50	2.9	13.3	22.7	61.2	100	98	88	-	-
SS- 105	19 LT	943+55	44.8- 46.3	A- 7- 6(30)	60	40	0.8	29.4	14.7	55.1	100	100	75	-	-
SS- 106	19 LT	943+55	59.8- 60.3	A- 2- 4(0)	25	NP	21.3	66.0	5.5	7.1	99	91	16	-	-
SS- 107	19 LT	943+55	64.8- 66.3	A- 7- 6(37)	62	38	1.6	13.3	25.9	59.2	100	99	88	-	-
SS- 108	19 LT	943+55	74.8- 76.3	A- 2- 6(0)	31	13	59.0	17.7	10.1	13.3	100	65	25	-	-



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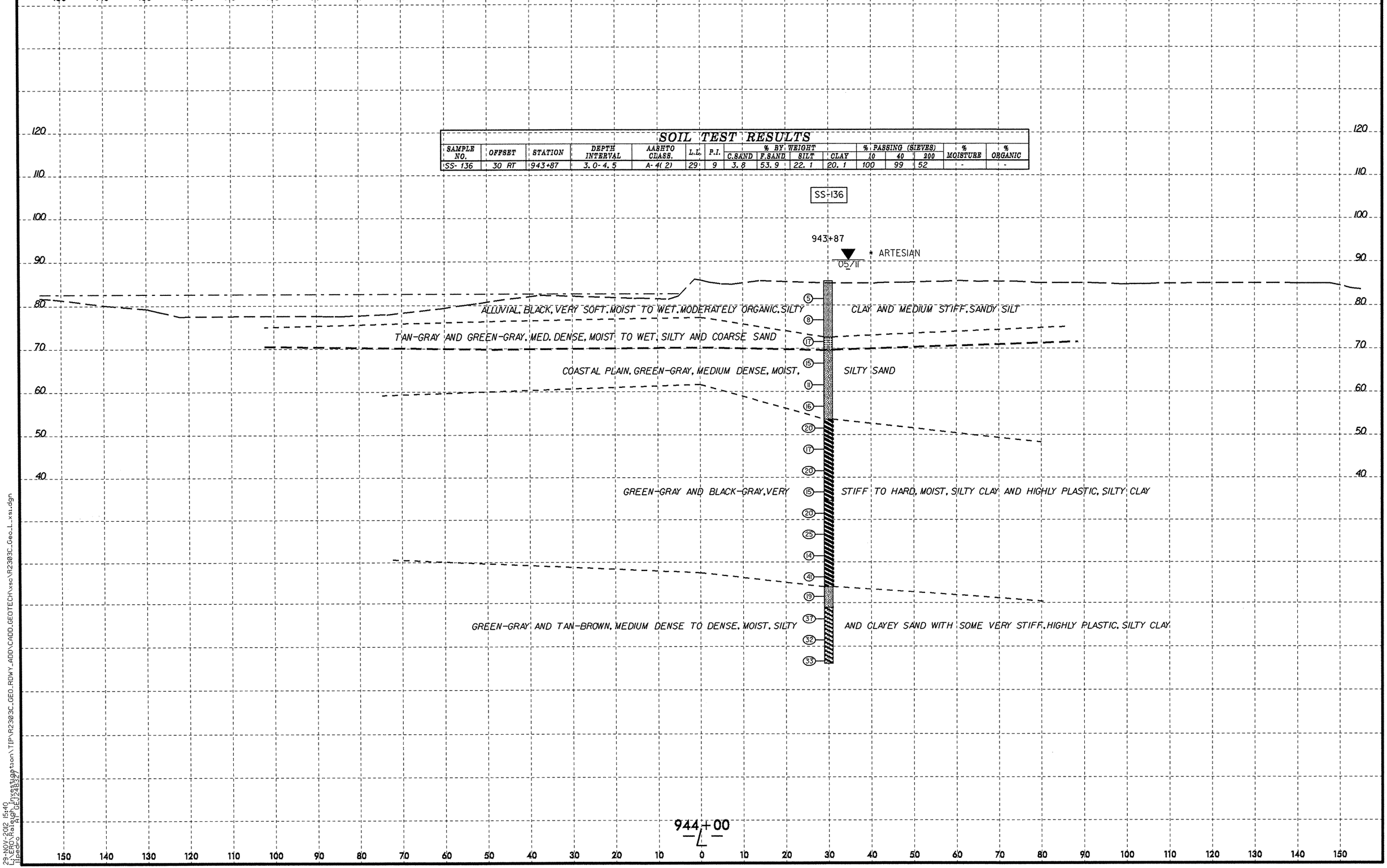
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	14



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-136	30 RT	943+87	3.0-4.5	A-4(2)	29	9	3.8	53.9	22.1	20.1	100	99	52	-	-

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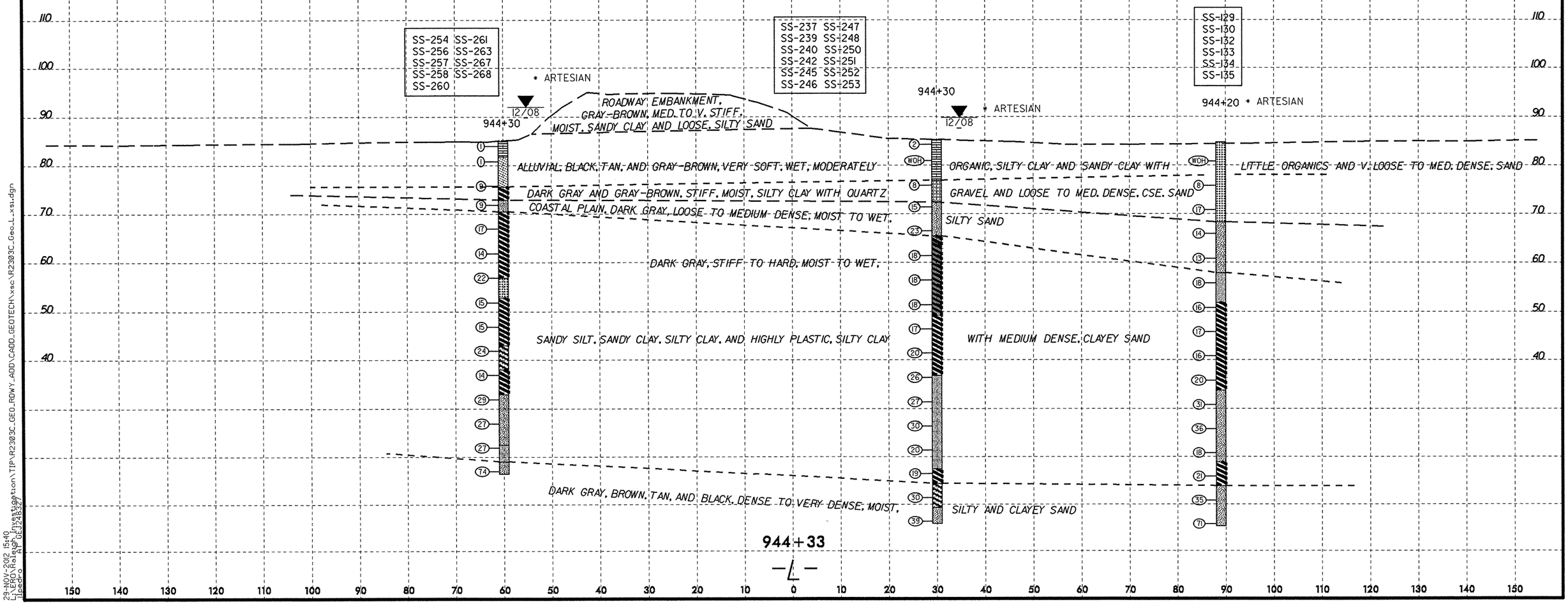
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	15

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-254	47 LT	944+30	0.0- 1.5	A-6(3)	38	13	22.9	33.2	23.7	20.1	94	81	47	-	8.5
SS-256	47 LT	944+30	8.2- 9.4	A-2-4(0)	25	5	35.6	38.6	11.7	14.0	81	67	23	-	-
SS-257	47 LT	944+30	12.1- 13.6	A-2-4(0)	29	6	0.8	75.3	7.4	16.5	100	100	29	-	-
SS-258	47 LT	944+30	17.1- 18.6	A-7-6(10)	41	21	0.2	47.7	15.0	37.0	100	100	59	-	-
SS-260	47 LT	944+30	29.1- 29.6	A-3(0)	26	NP	67.9	23.7	4.3	4.1	100	70	9	-	-
SS-261	47 LT	944+30	33.1- 34.6	A-7-5(57)	82	52	1.6	9.3	25.3	63.8	100	99	93	-	-
SS-263	47 LT	944+30	43.1- 44.6	A-2-6(0)	33	11	69.1	16.5	6.2	8.2	88	41	14	-	-
SS-267	47 LT	944+30	63.5- 64.6	A-4(0)	30	5	13.8	56.6	13.2	16.5	96	91	36	-	-
SS-268	47 LT	944+30	68.1- 69.6	A-2-4(0)	26	NP	3.9	78.4	11.5	6.2	95	93	25	-	-
SS-237	30 RT	944+30	0.0- 1.5	A-7-5(5)	51	11	13.7	36.9	35.3	14.1	100	95	54	-	14.4
SS-239	30 RT	944+30	8.4- 9.9	A-1-b(0)	23	NP	61.7	25.8	4.4	8.1	51	29	7	-	-
SS-240	30 RT	944+30	12.9- 14.4	A-2-4(0)	26	3	1.2	77.8	6.9	14.1	100	100	24	-	-
SS-242	30 RT	944+30	22.9- 24.4	A-6(6)	38	18	0.4	58.9	14.5	26.2	100	100	50	-	-
SS-245	30 RT	944+30	37.9- 39.4	A-7-6(51)	78	55	3.8	13.3	20.4	62.5	100	99	85	-	-
SS-246	30 RT	944+30	42.9- 44.4	A-7-6(11)	44	24	4.4	45.0	14.3	36.3	100	97	57	-	-
SS-247	30 RT	944+30	48.5- 49.4	A-4(0)	24	NP	3.4	70.8	11.7	14.1	100	99	36	-	-
SS-248	30 RT	944+30	52.9- 54.4	A-4(3)	31	10	4.2	55.0	14.5	26.2	100	99	57	-	-
SS-250	30 RT	944+30	62.9- 64.4	A-4(0)	27	6	6.7	63.7	11.5	18.1	100	99	38	-	-
SS-251	30 RT	944+30	67.9- 69.4	A-7-6(54)	73	50	0.2	11.5	27.8	60.5	100	100	95	-	-
SS-252	30 RT	944+30	72.9- 74.4	A-2-6(1)	37	16	52.6	15.7	9.5	22.2	76	49	26	-	-
SS-253	30 RT	944+30	77.9- 79.4	A-2-4(0)	24	4	40.5	36.7	16.7	6.0	100	83	27	-	-
SS-129	89 RT	944+20	18.0- 19.5	A-2-4(0)	26	NP	1.0	74.8	9.1	15.1	100	100	28	-	-
SS-130	89 RT	944+20	28.0- 29.5	A-4(0)	32	9	0.8	66.2	10.9	22.1	100	100	39	-	-
SS-132	89 RT	944+20	43.0- 44.5	A-7-6(20)	58	38	22.7	21.3	17.7	38.2	100	86	61	-	-
SS-133	89 RT	944+20	53.0- 54.5	A-2-4(0)	24	NP	18.3	53.4	10.2	18.1	99	95	32	-	-
SS-134	89 RT	944+20	68.0- 69.5	A-7-6(37)	63	44	4.8	19.7	19.1	56.3	100	96	81	-	-
SS-135	89 RT	944+20	73.0- 74.5	A-2-4(0)	21	NP	12.3	12.7	5.9	9.1	100	65	16	-	-



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PROJ. REFERENCE NO.	SHEET NO.
R-2303C	16

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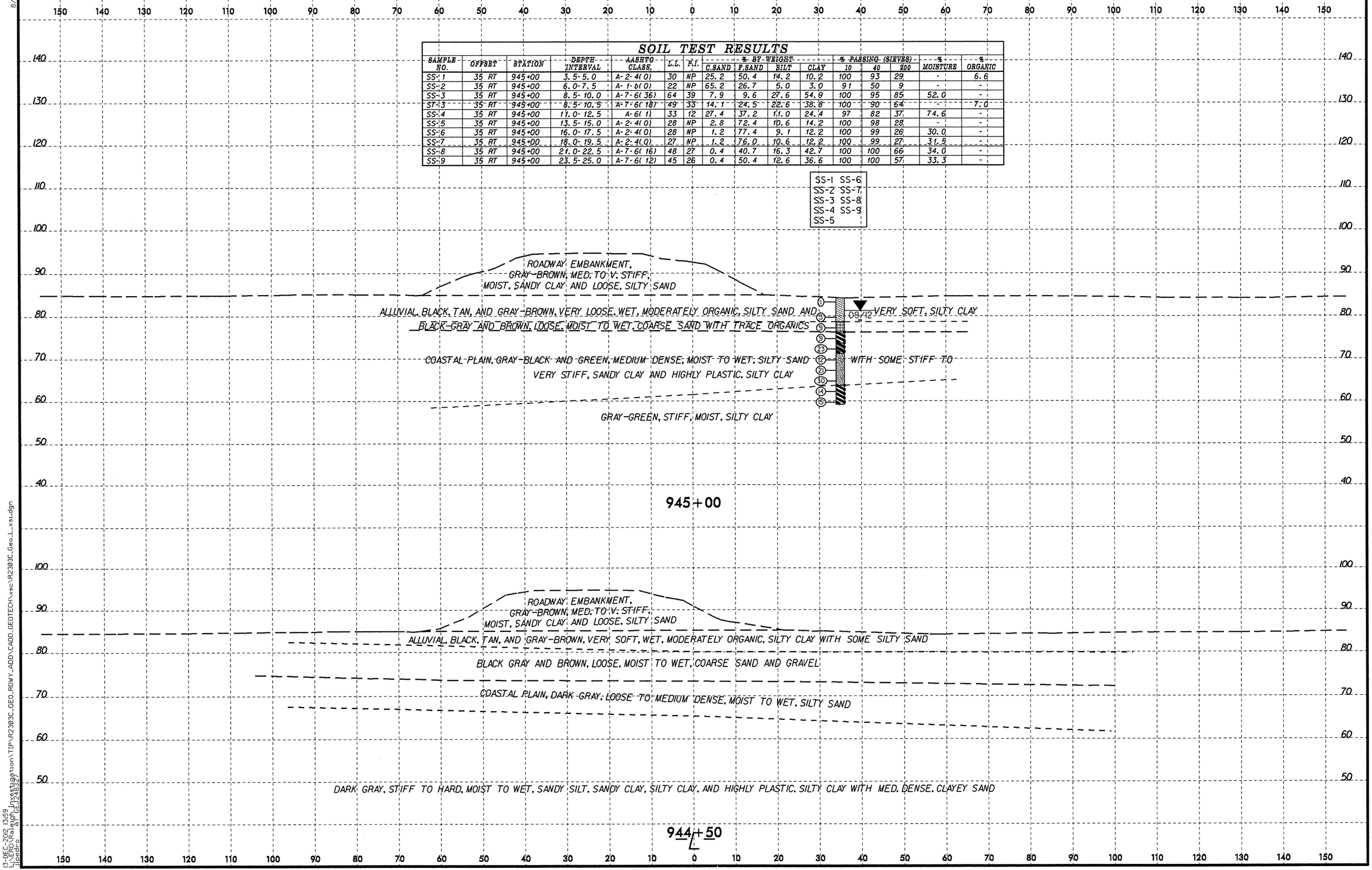
SOIL TEST RESULTS

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
SS-1	35 RT	945+00	3.5-5.0	A-2-4(0)	30	NP	25.2	50.4	14.2	10.2	100	93	29	-	6.6
SS-2	35 RT	945+00	6.0-7.5	A-1-b(0)	22	NP	65.2	26.7	5.0	3.0	91	50	9	-	-
SS-3	35 RT	945+00	8.5-10.0	A-7-6(36)	64	39	7.9	9.6	27.6	54.9	100	95	85	52.0	-
ST-3	35 RT	945+00	8.5-10.5	A-7-6(18)	49	33	14.1	24.5	22.6	38.8	100	90	64	-	7.0
SS-4	35 RT	945+00	11.0-12.5	A-6(1)	33	12	27.4	37.2	11.0	24.4	97	82	37	74.6	-
SS-5	35 RT	945+00	13.5-15.0	A-2-4(0)	28	NP	2.8	72.4	10.6	14.2	100	98	28	-	-
SS-6	35 RT	945+00	16.0-17.5	A-2-4(0)	28	NP	1.2	77.4	9.1	12.2	100	99	26	30.0	-
SS-7	35 RT	945+00	18.0-19.5	A-2-4(0)	27	NP	1.2	76.0	10.6	12.2	100	99	27	31.5	-
SS-8	35 RT	945+00	21.0-22.5	A-7-6(16)	48	27	0.4	40.7	16.3	42.7	100	100	66	34.0	-
SS-9	35 RT	945+00	23.5-25.0	A-7-6(12)	45	26	0.4	50.4	12.6	36.6	100	100	57	33.3	-

SS-1 SS-6
SS-2 SS-7
SS-3 SS-8
SS-4 SS-9
SS-5



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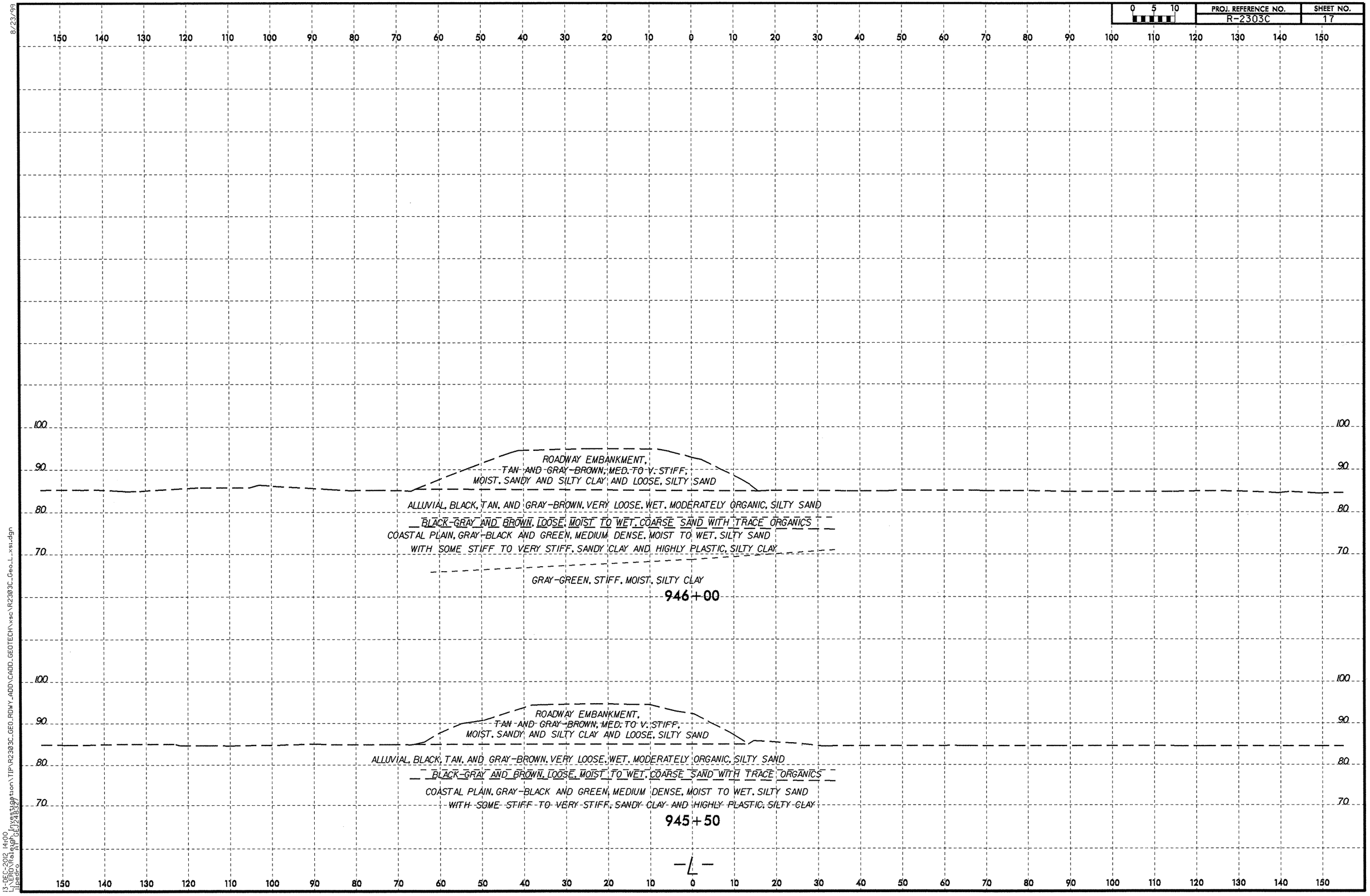

PROJ. REFERENCE NO.
R-2303C
SHEET NO.
17
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ROADWAY EMBANKMENT,
TAN AND GRAY-BROWN, MED. TO V. STIFF,
MOIST, SANDY AND SILTY CLAY AND LOOSE, SILTY SAND
ALLUVIAL, BLACK, TAN, AND GRAY-BROWN, VERY LOOSE, WET, MODERATELY ORGANIC, SILTY SAND
BLACK-GRAY AND BROWN, LOOSE, MOIST TO WET, COARSE SAND WITH TRACE ORGANICS
COASTAL PLAIN, GRAY-BLACK AND GREEN, MEDIUM DENSE, MOIST TO WET, SILTY SAND
WITH SOME STIFF TO VERY STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY
GRAY-GREEN, STIFF, MOIST, SILTY CLAY
946+00
ROADWAY EMBANKMENT,
TAN AND GRAY-BROWN, MED. TO V. STIFF,
MOIST, SANDY AND SILTY CLAY AND LOOSE, SILTY SAND
ALLUVIAL, BLACK, TAN, AND GRAY-BROWN, VERY LOOSE, WET, MODERATELY ORGANIC, SILTY SAND
BLACK-GRAY AND BROWN, LOOSE, MOIST TO WET, COARSE SAND WITH TRACE ORGANICS
COASTAL PLAIN, GRAY-BLACK AND GREEN, MEDIUM DENSE, MOIST TO WET, SILTY SAND
WITH SOME STIFF TO VERY STIFF, SANDY CLAY AND HIGHLY PLASTIC, SILTY CLAY
945+50
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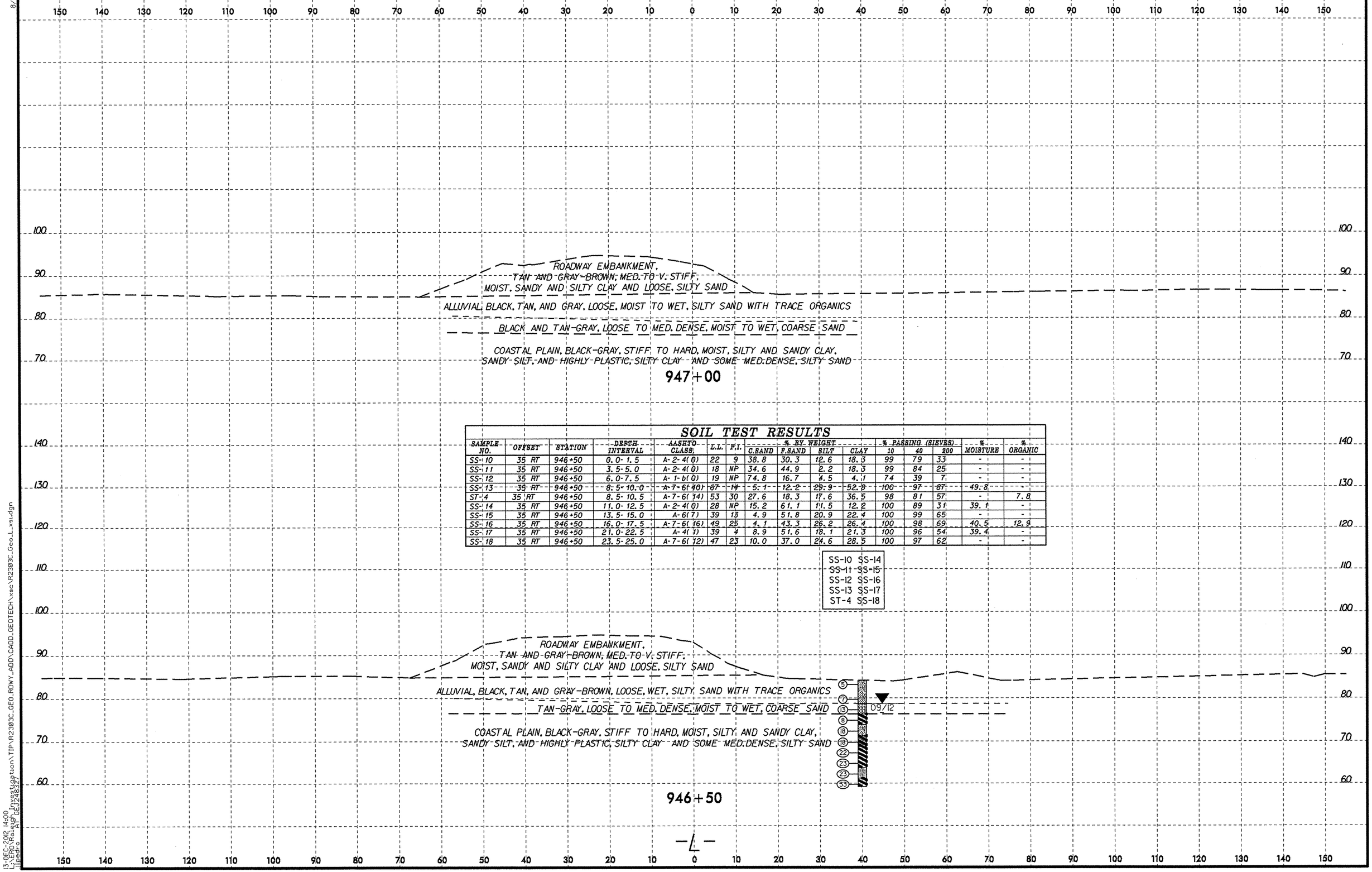
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	18



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-10	35 RT	946+50	0.0-1.5	A-2-4(0)	22	9	38.8	30.3	12.6	18.3	99	79	33	-	-
SS-11	35 RT	946+50	3.5-5.0	A-2-4(0)	18	NP	34.6	44.9	2.2	18.3	99	84	25	-	-
SS-12	35 RT	946+50	6.0-7.5	A-1-b(0)	19	NP	74.8	16.7	4.5	4.1	74	39	7	-	-
SS-13	35 RT	946+50	8.5-10.0	A-7-6(40)	67	14	5.1	12.2	29.9	52.8	100	97	87	49.8	-
ST-4	35 RT	946+50	8.5-10.5	A-7-6(14)	53	30	27.6	18.3	17.6	36.5	98	81	57	-	7.8
SS-14	35 RT	946+50	11.0-12.5	A-2-4(0)	28	NP	15.2	61.1	11.5	12.2	100	89	31	39.1	-
SS-15	35 RT	946+50	13.5-15.0	A-6(7)	39	13	4.9	51.8	20.9	22.4	100	99	65	-	-
SS-16	35 RT	946+50	16.0-17.5	A-7-6(16)	49	25	4.1	43.3	26.2	26.4	100	98	69	40.5	12.9
SS-17	35 RT	946+50	21.0-22.5	A-4(1)	39	4	8.9	51.6	18.1	21.3	100	96	54	39.4	-
SS-18	35 RT	946+50	23.5-25.0	A-7-6(12)	47	23	10.0	37.0	24.6	28.5	100	97	62	-	-

SS-10 SS-14
SS-11 SS-15
SS-12 SS-16
SS-13 SS-17
ST-4 SS-18

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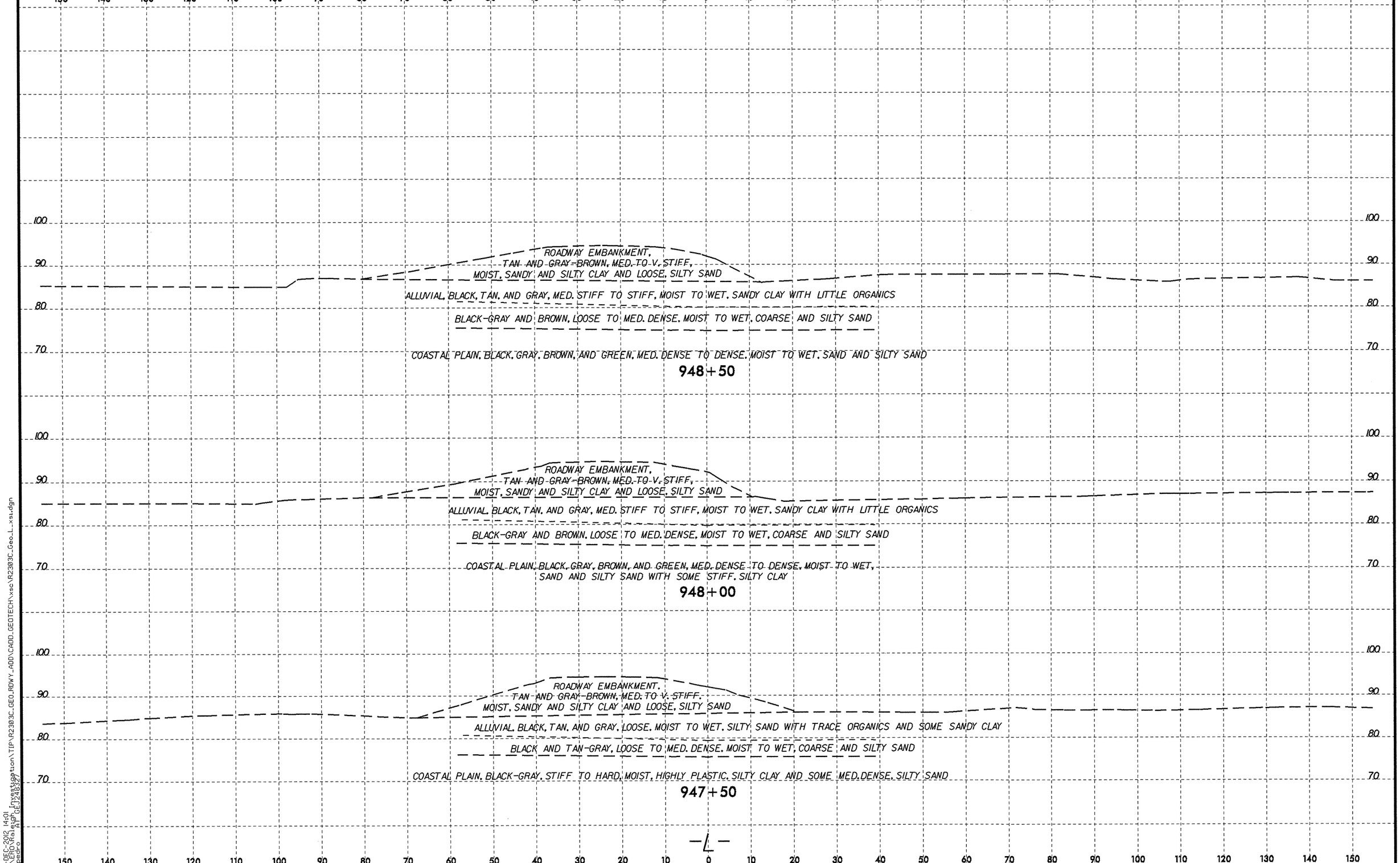

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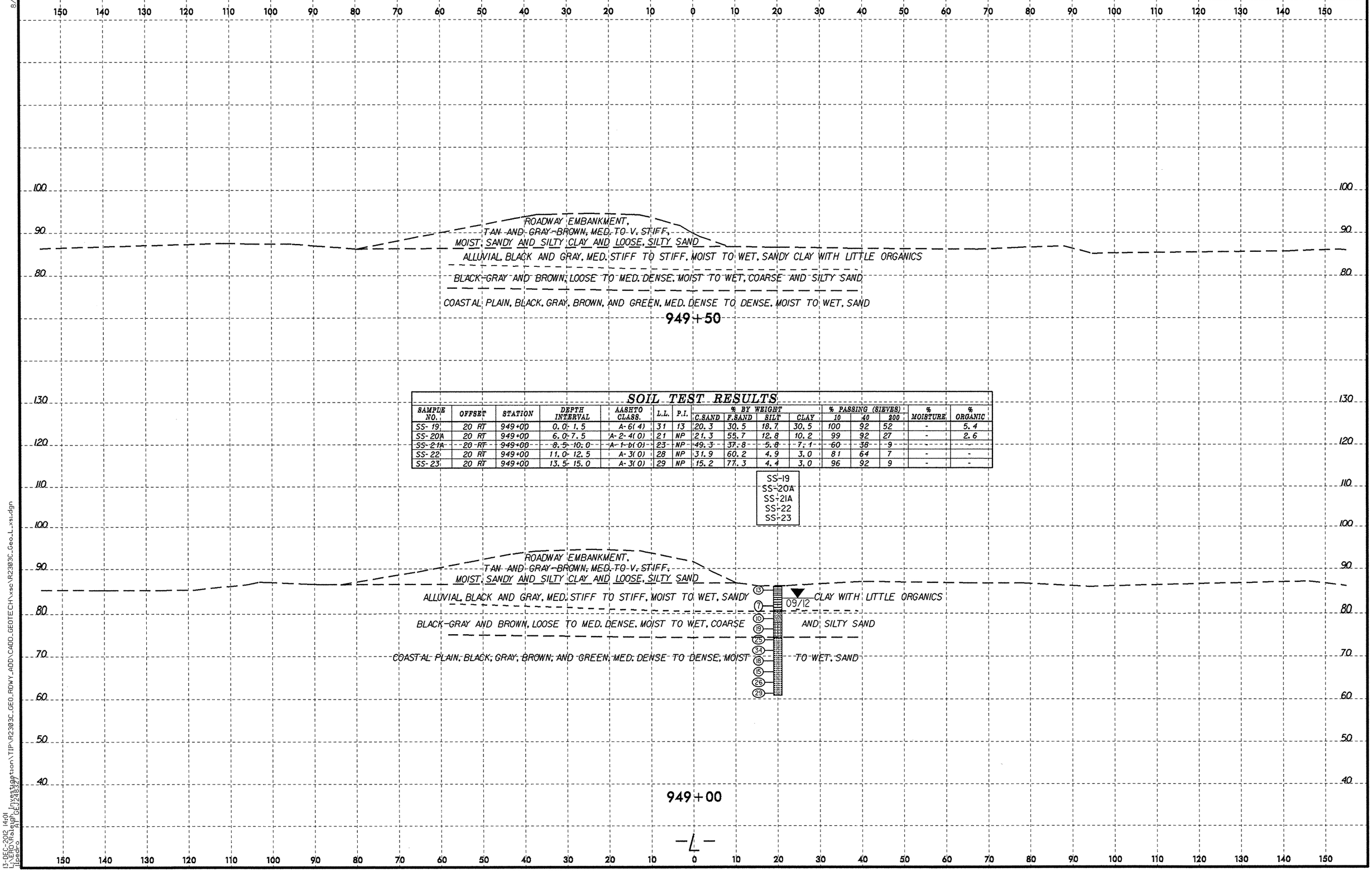
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	20



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-19	20 RT	949+00	0.0-1.5	A-6(4)	31	13	20.3	30.5	18.7	30.5	100	92	52	-	5.4
SS-20A	20 RT	949+00	6.0-7.5	A-2-4(0)	21	NP	21.3	55.7	12.8	10.2	99	92	27	-	2.6
SS-21A	20 RT	949+00	8.5-10.0	A-1-b(0)	23	NP	49.3	37.8	5.8	7.1	60	38	9	-	-
SS-22	20 RT	949+00	11.0-12.5	A-3(0)	28	NP	31.9	60.2	4.9	3.0	81	64	7	-	-
SS-23	20 RT	949+00	13.5-15.0	A-3(0)	29	NP	15.2	77.3	4.4	3.0	96	92	9	-	-

SS-19
SS-20A
SS-21A
SS-22
SS-23

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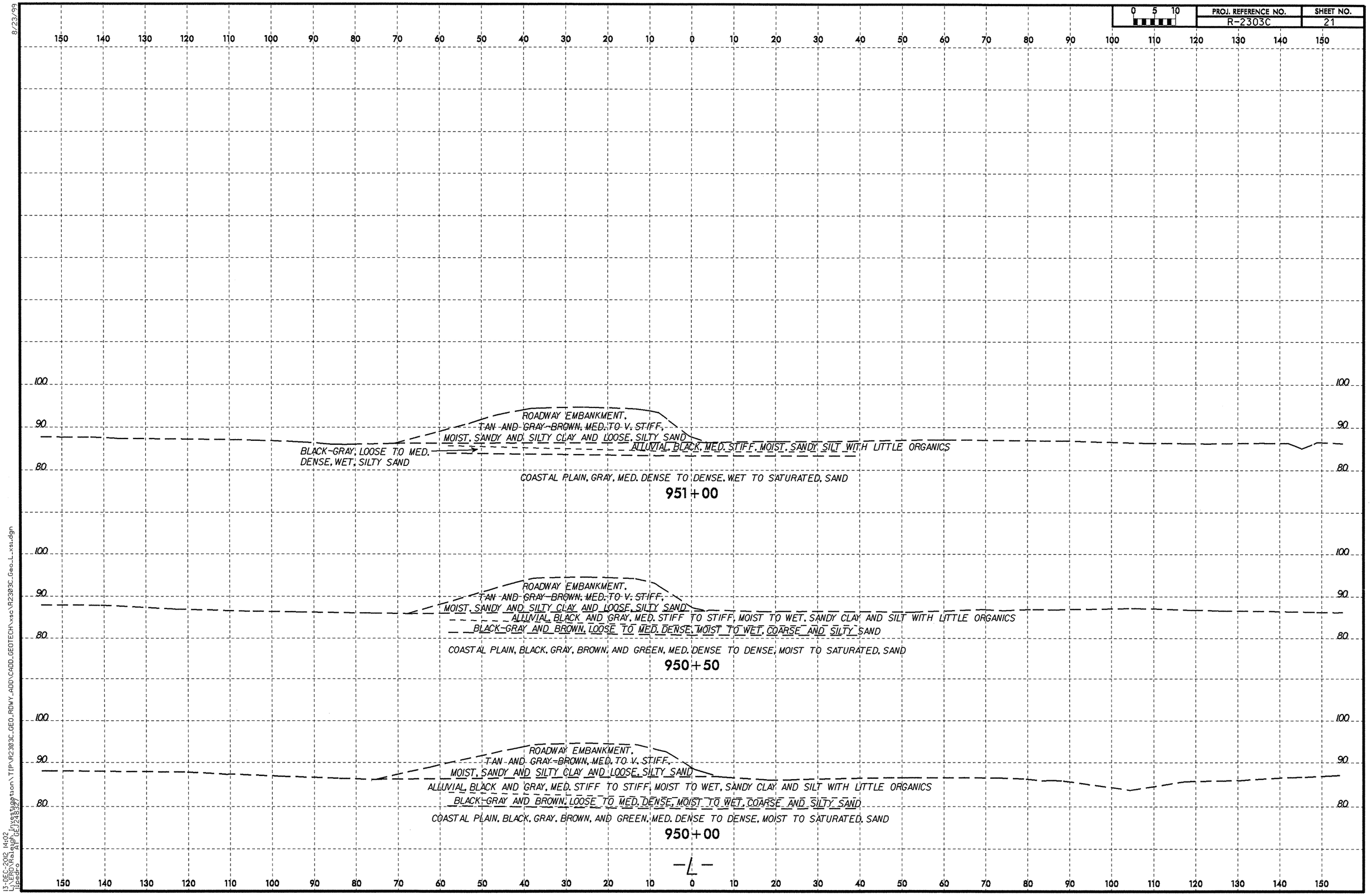

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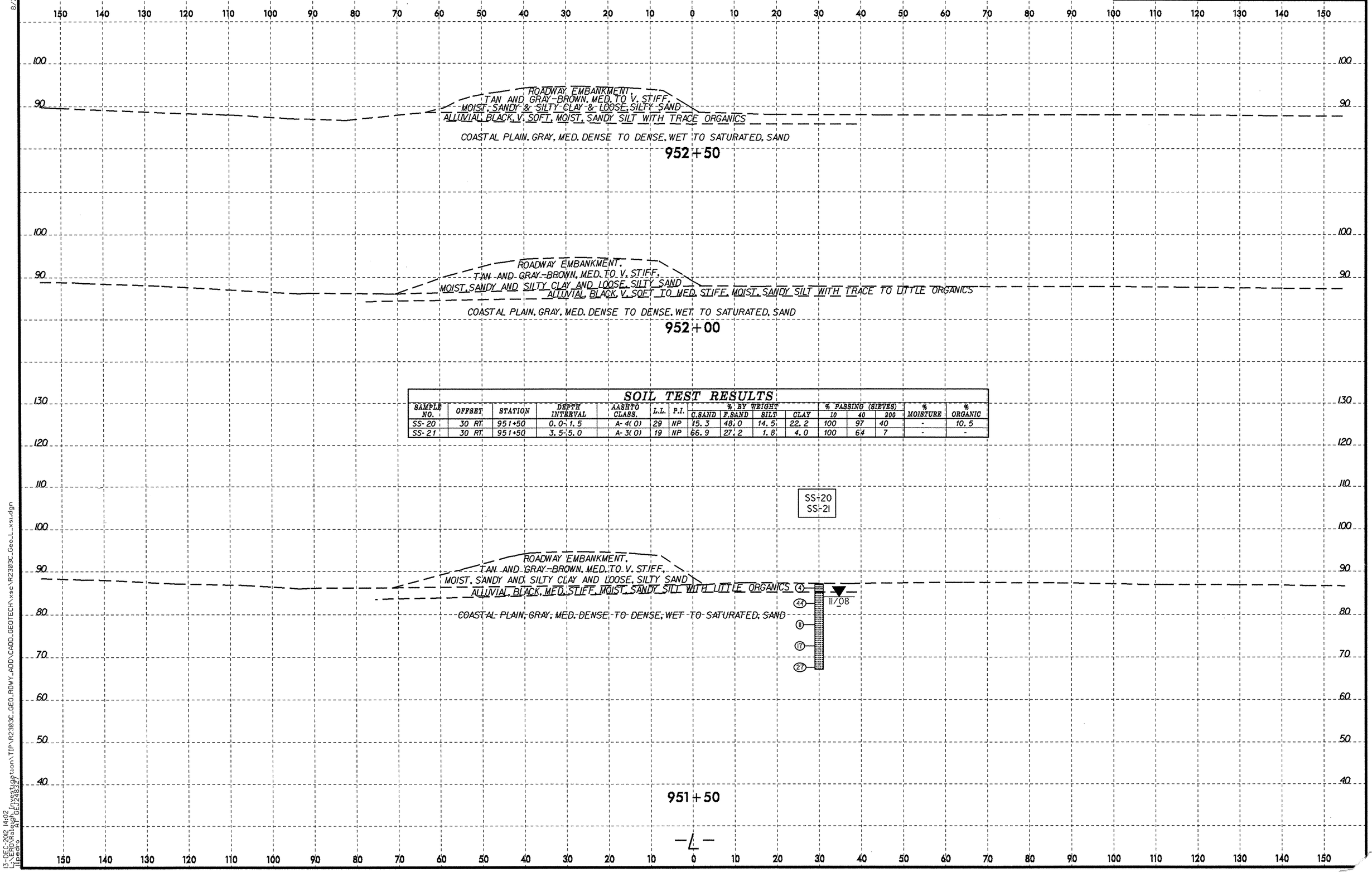
PROJ. REFERENCE NO.	SHEET NO.
R-2303C	22



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-20	30 RT	951+50	0.0-1.5	A-4(0)	29	NP	15.3	48.0	14.5	22.2	100	97	40	-	10.5
SS-21	30 RT	951+50	3.5-5.0	A-3(0)	19	NP	66.9	27.2	1.8	4.0	100	64	7	-	-

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