STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34548.1.1 (R-3620)	1	60

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34548.1.1	STP-000S(252)	P.E.
		R/W & UTIL.

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

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34548.1.1 (R-3620) F.A. PROJ. STP-000S(252)

COUNTY WASHINGTON

PROJECT DESCRIPTION NEW ROUTE FROM US 64 TO NC 32

INVENTORY - REVISED

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	12+00 TO 188+00	4-16	19-31
-Y-	10+40 TO 15+26	7	32
-Y1-	12+50 TO 28+70	15,17-18	33-34
-Y2-	10+00 TO 16+63	17	35

CROSS SECTIONS

LINE	STATION	SHEET
-L-	12+00 TO 17+50	36-37
-L-	45+00	38
-L-	85+00 TO 91+50	38-40
-L-	139+50 TO 140+00	41
-L-	141+50	41
-L-	143+00 TO 145+00	41-42
-L-	174+00 TO 178+00	43-44
-L-	182+00 TO 186+50	45-46
-Y-	10+40 TO 13+00	47-49
-Y1-	12+50 TO 16+50	50-52
-Y1-	19+50 TO 28+50	53-57
-Y2-	10+00 TO 14+50	58-60

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
J.P. DELOATCH
J.R. SWARTLEY
R.E. SMITH
J.M. EDMONDSON

INVESTIGATED BY J.L. STONE
CHECKED BY D.N. ARGENBRIGHT
SUBMITTED BY D.N. ARGENBRIGHT
DATE AUGUST 2013

DocuSigned by:
Joseph L. Stone
1330580A87A24F5...
2/13/2014

NORTH CAROLINA LICENSED SEAL 2007 GEOLOGIST JOSEPH L. STONE

DRAWN BY: J.L. STONE

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.

CONTRACT: ID: R-3620

PROJECT REFERENCE NO.	SHEET NO.
R-3620	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	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT DPT DMT VST PMT TEST BORING
- AUGER BORING
- CORE BORING
- MW MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING 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
- [X] CME-45B
- [ ] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

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

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

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

REVISED 09/23/09

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3620	2A	60

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34548.1.1	STP-000S(252)	PE

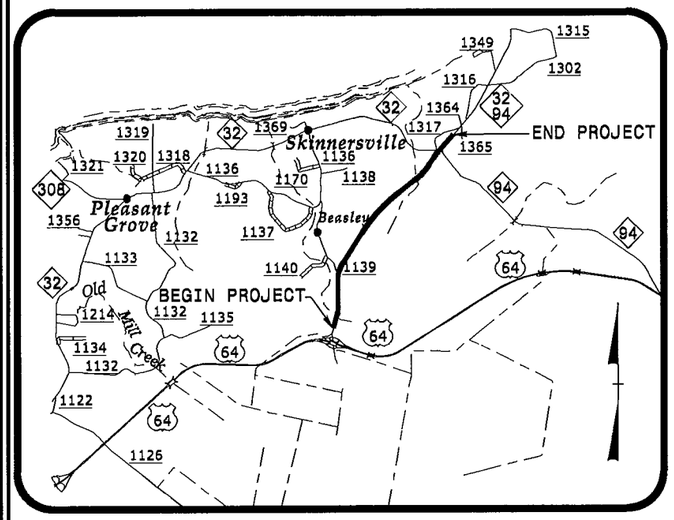
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

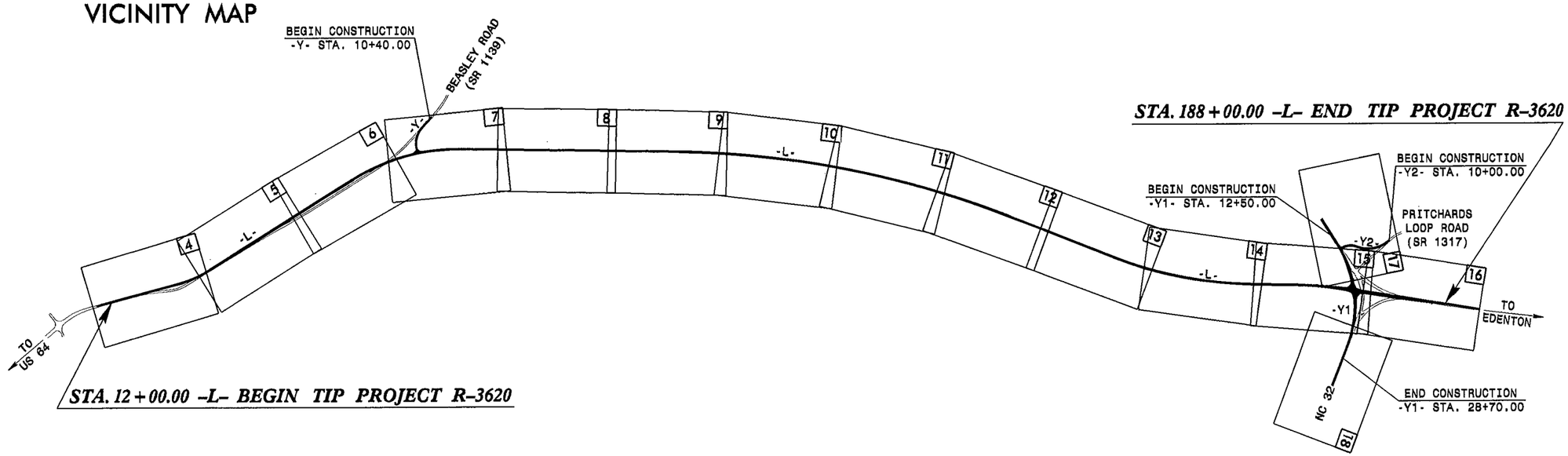
WASHINGTON COUNTY

LOCATION: NEW ROUTE FROM US. 64 TO NC 32

TYPE OF WORK: GRADING, PAVING, AND DRAINAGE



VICINITY MAP



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

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 2014 = 3250
ADT 2035 = 5200
DHV = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST = 3 DUAL 4
FUNC CLASS =
COLLECTOR
REGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT R-3620 = 3.33 miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 1, 2012

LETTING DATE:
JUNE 17, 2014

GARY LOVERING, PE
PROJECT ENGINEER

RICK DECOLA, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

TIP PROJECT: R-3620

CONTRACT:

09/08/99

12-AUG-2013 14:46
L:\ERD\Greenville Investigation\TIP\R3620_GEO_RDWY\CADD_GEOTECH\Site&Sub\Old Stuff_06113\R3620_GEO_TITLE.dgn
cbturner AT GEC25546

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 13, 2013

STATE PROJECT: 34548.1.1 (R-3620)
F.A. PROJECT: STP-000S(252)
COUNTY: Washington
DESCRIPTION: New Route from US 64 to NC 32

SUBJECT: Geotechnical Inventory Report-Revised

Project Description

This project begins approximately 800 feet north of the intersection of US 64 and Beasley Rd. in Washington County, and extends northward approximately 3 miles ending at a point along NC 94 / NC 32 approximately 1000 feet north of the NC 94/ NC 32 intersection. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork was conducted in March and April of 2011. Standard Penetration Test borings were advanced with a CME 45-B drill machine with an automatic hammer. Solid stem power auger and hand auger borings were also completed. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments were investigated. Subsurface profiles and selected cross sections of these alignments are included in this report.

Line	Station(±)
-L-	12+00 to 188+00
-Y-	10+40 to 15+26
-Y1-	12+50 to 28+70
-Y2-	10+00 to 16+63

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-707-6850
FAX: 919-250-4237

WEBSITE: WWW.NCDOT.ORG/DOH

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Areas of Special Geotechnical Interest

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

2) All but the following sections were found to exhibit cohesive soils which have the potential to cause embankment/subgrade and/or slope stability problems during construction.

Line	Station(±)
-L-	144+90 to 147+60
-L-	162+75 to 172+20
-Y1-	16+90 to 19+25

3) The following section contains organic soils which have the potential to cause embankment/subgrade and or slope stability problems during construction.

Line	Station(±)
-L-	150+60 to 153+85

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations ranged from 2± to 14± feet above sea level

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

Ground Water

Ground water data was collected in March and April of 2011, during a time of below normal precipitation. Ground water elevations ranged from 2± to 12± feet above sea level.

Soils

Soils encountered within this project area have been divided into three categories, undivided coastal plain soils, artificial fill soils and roadway embankment.

Soils classified as undivided coastal plain are comprised of 2± to 10± feet of very soft to stiff sandy and silty clay (A-6, A-7-6), 1± to 11± feet of very soft to very stiff clayey and sandy silt (A-4), 2± to 13 or more feet of very loose to medium dense sand (A-2-4, A-3) and 5± feet of stiff sandy silt with little organic matter. Laboratory analysis of these soils returned an organic content of 8.3%.

Soils classified as artificial fill are composed of 1± feet of dense gravel (A-1-b), and 2± to 3± feet of soft sandy silt (A-4)

Roadway embankment was encountered along Beasley Rd and NC 94/ NC 32 at the southern and northern most portions of this project. It was comprised of 1± feet of medium stiff sandy and silty clay (A-6), 2± feet of soft to medium stiff sandy silt (A-4), and 2± to 4± feet of medium dense sand (A-2-4).

Respectfully Submitted,

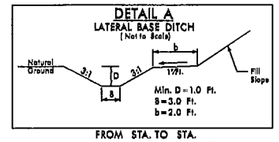
Joseph L. Stone, L.G.
Project Engineering Geologist

PROJECT REFERENCE NO.	SHEET NO.
R-3620	3B

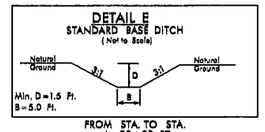
EARTHWORK BALANCE SHEET

PROJECT REFERENCE NO.	SHEET NO.
R-3620	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FROM STA. TO STA.
-L- 12+00 RT TO 17+50 RT

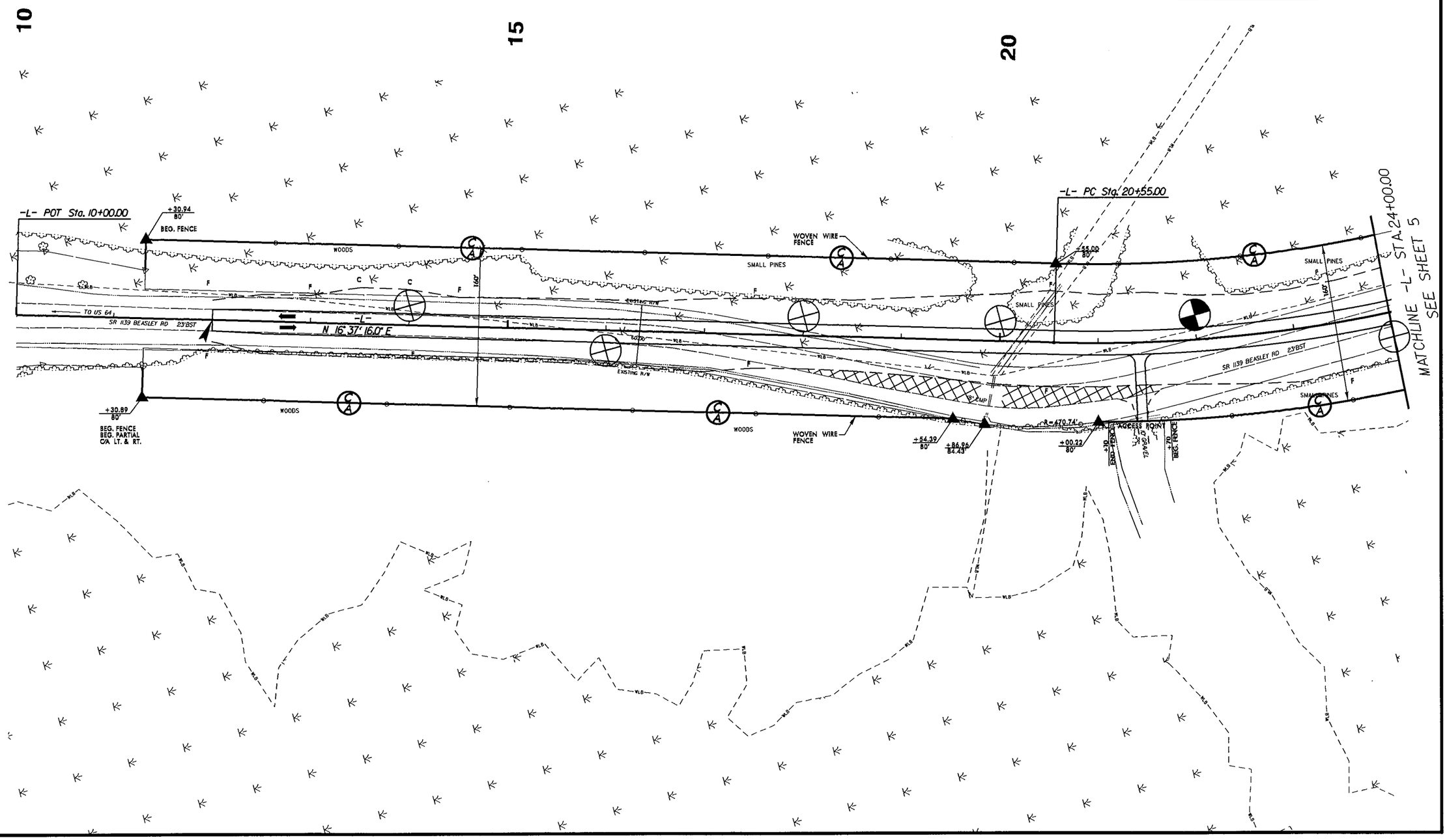


FROM STA. TO STA.
-L- 20+00 RT

-L- CURVE DATA
PI Sta 22+80.98
Δ = 17° 08' 04.7" (LT)
D = 3° 49' 11.0"
L = 448.58'
T = 225.98'
R = 1,500.00'

NAD 83

PAVEMENT REMOVAL



REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W AND PROPOSED R/W ON PARCEL 001

08-AUG-2013 06:52
L:\EHO\Greenville [Investigation\TIP\R3620_GEO_RDWY\CADD_GEOTECH\Site&Sub\R3620_Rdy_psh_04.dgn
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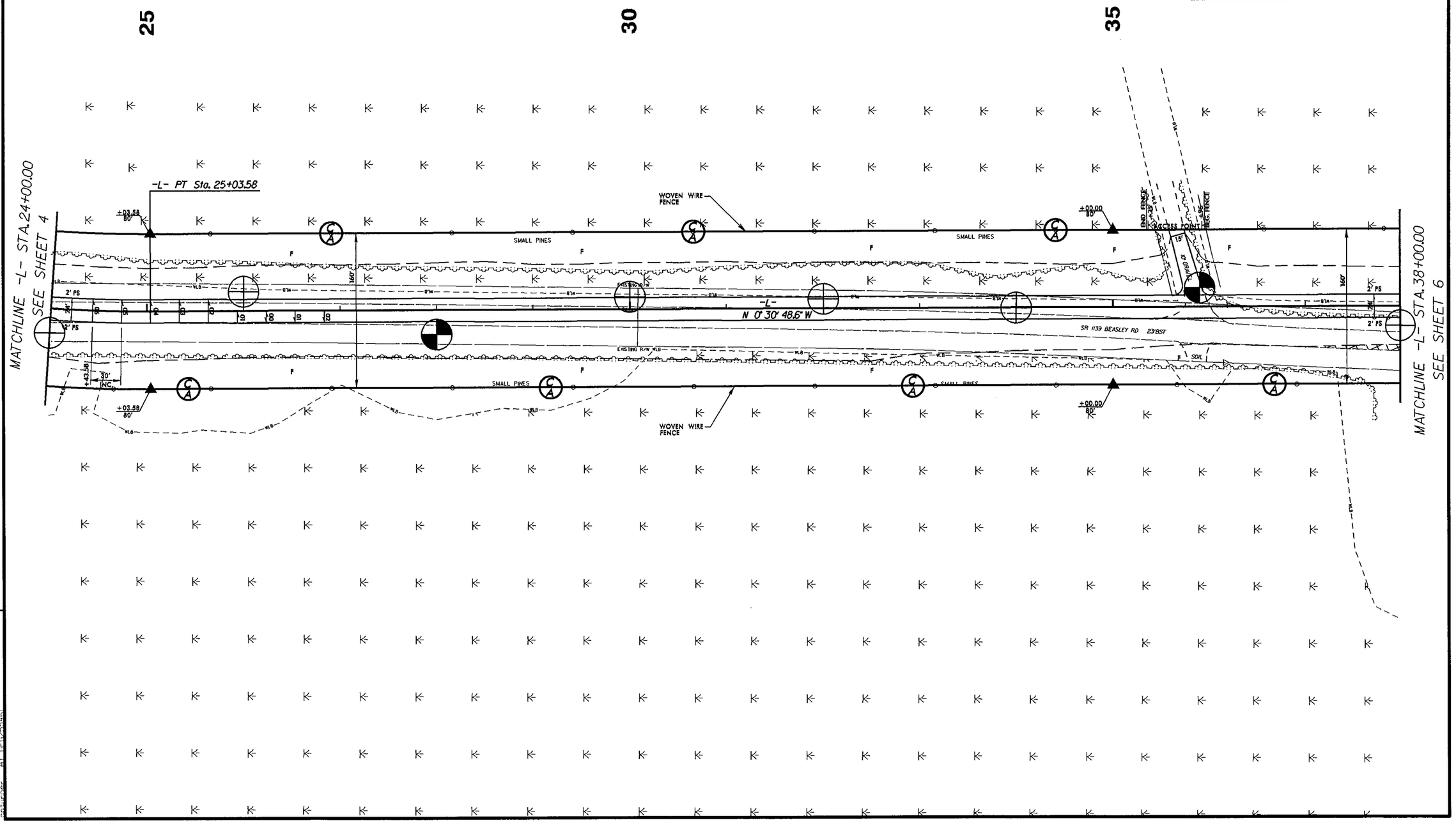
PROJECT REFERENCE NO.	SHEET NO.
R-3620	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

PAVEMENT REMOVAL

-L- CURVE DATA
PI Sta 22+80.98
Δ = 17° 08' 04.7" (LT)
D = 3° 49' 11.0"
L = 448.58'
T = 225.98'
R = 1,500.00'



REVISIONS
04/09/2013 R/W REVISION (KEM) - CHANGED NAME TO KATHLEEN V. SNELL ON PARCEL 02.

06-AUG-2013 06:52
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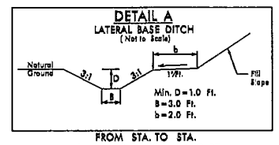
Pressure: 81 (PRESSURE)

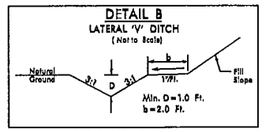
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3620	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FROM STA. TO STA.
-L- 47+50 RT TO 48+70 RT
-L- 51+44 RT TO 89+35 RT

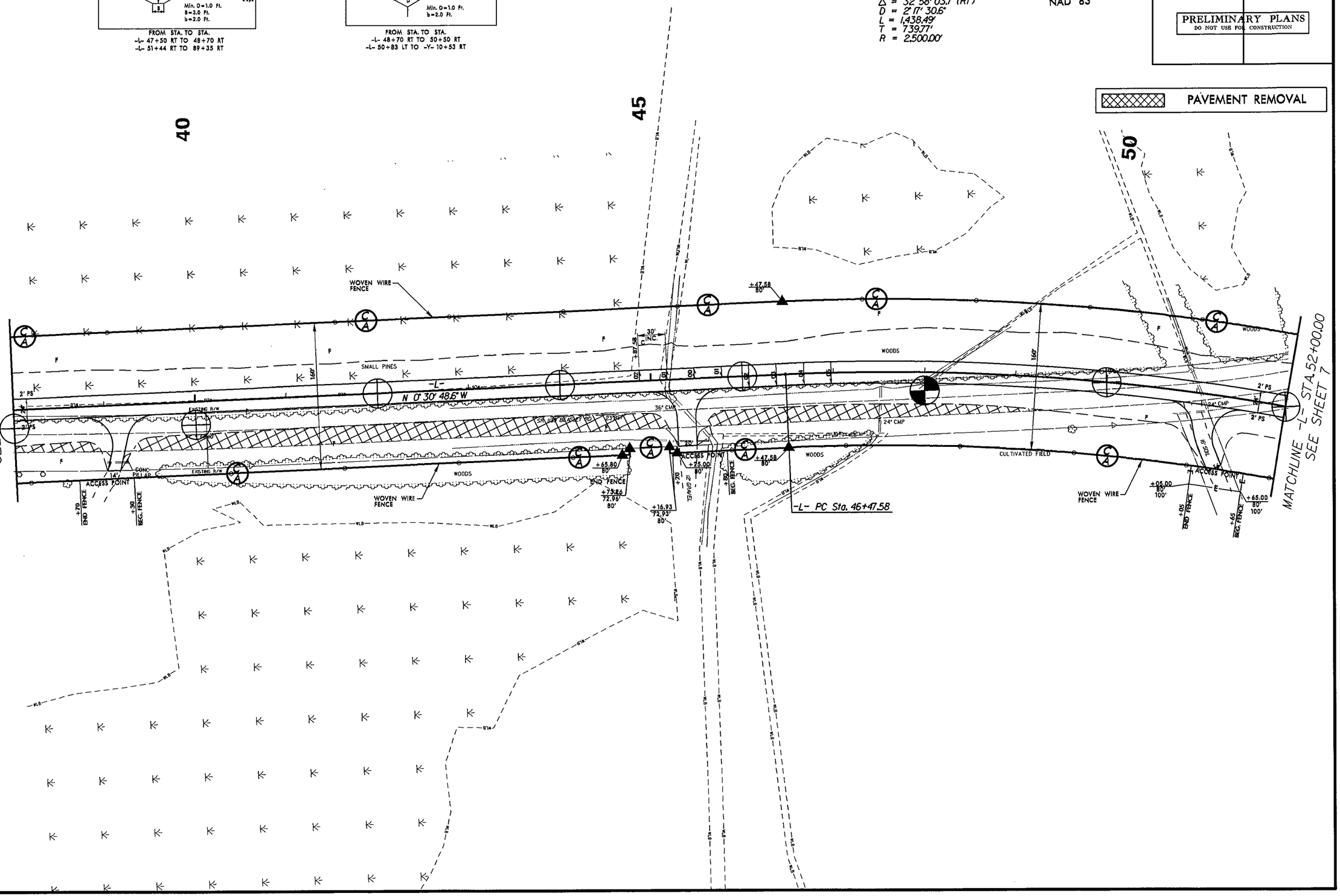


FROM STA. TO STA.
-L- 48+70 RT TO 50+50 RT
-L- 50+83 LT TO -Y- 10+53 RT

-L- CURVE DATA
PI Sta 53+87.35
Δ = 32° 58' 03.7" (RT)
D = 2° 17' 30.6"
L = 1,438.49'
T = 739.77'
R = 2,500.00'

NAD 83

PAVEMENT REMOVAL



04/09/2013 R/W REVISION (KEM) - CHANGED NAME TO KATHLEEN V. SNELL ON PARCEL 02.

REVISIONS

8/17/99

06-AUG-2013 06:52
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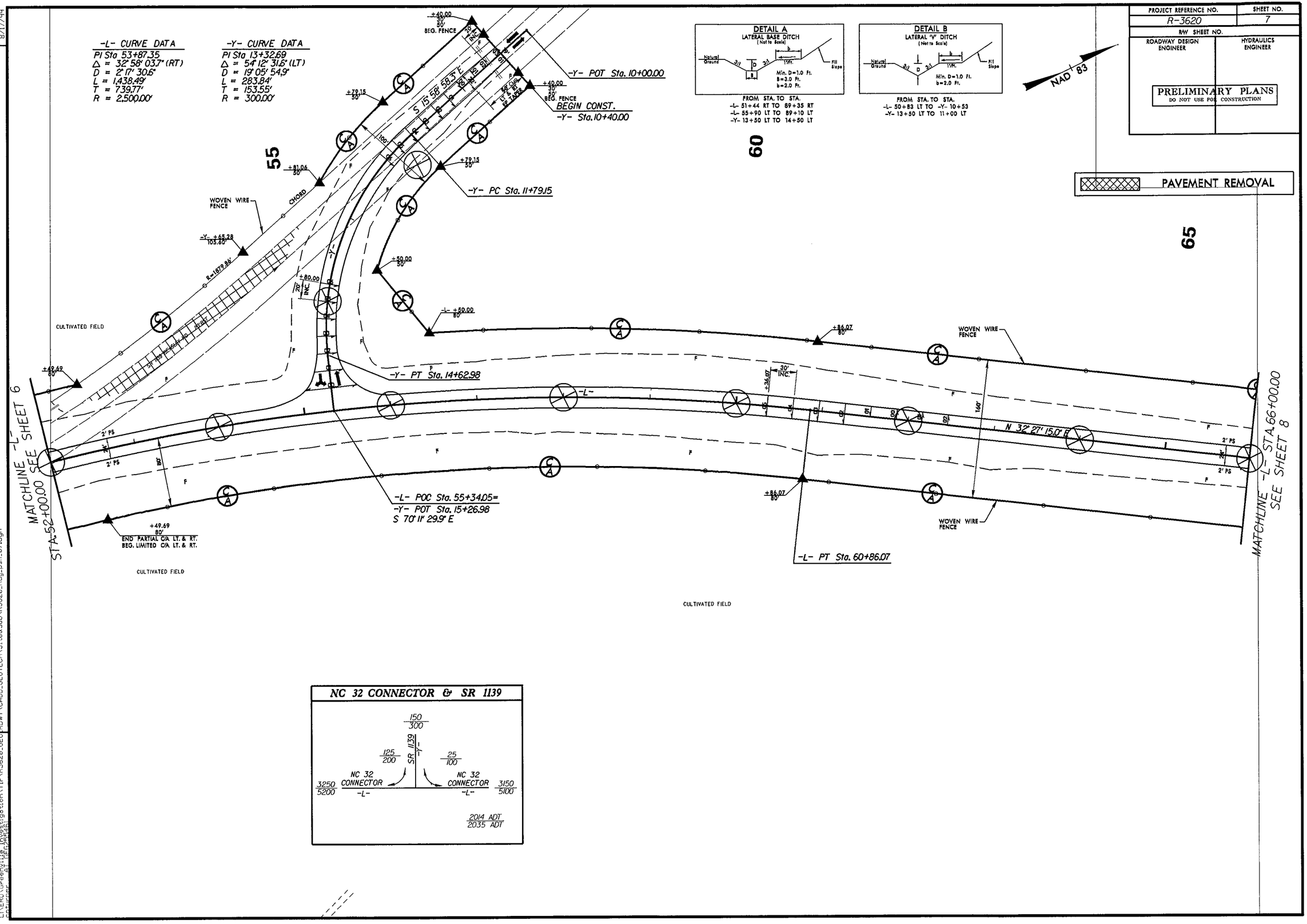
PROJECT REFERENCE NO.	SHEET NO.
R-3620	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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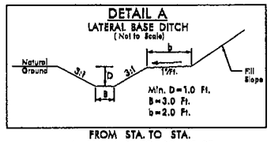
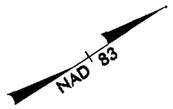
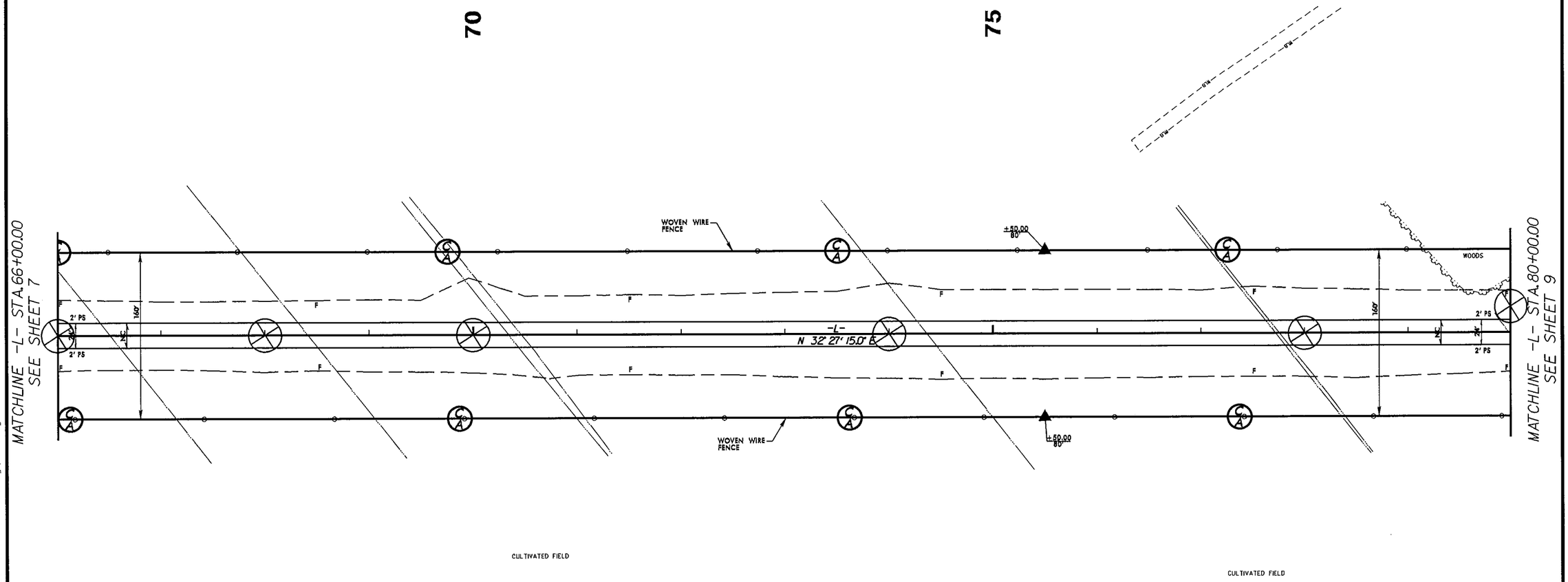
PROJECT REFERENCE NO.	SHEET NO.
R-3620	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT





REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3620	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,172.72'
R = 12,000.00'
SE = NC

NAD 83

85

90

16' DOUBLE GATES

8' 8'

WOVEN WIRE FENCE

±42.13
80'

12'

-L-
N 32° 27' 15.0" E

2' PS

160'

WOODS

NORTH CAROLINA POWER

MATCHLINE -L- STA. 80+00.00
SEE SHEET 8

MATCHLINE -L- STA. 94+00.00
SEE SHEET 10

-L- PC Sta. 88+42.13

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
3:1
D
B
3:1
b
1½ft.
Fill Slope

Min. D=1.0 Ft.
B=3.0 Ft.
b=2.0 Ft.

FROM STA. TO STA.
-L- 51+44 RT TO 89+35 RT
-L- 55+90 LT TO 89+10 LT

REVISIONS

05/28/2013 R/W REVISION (KEM) - ADDED 16' DOUBLE GATES AND DRIVEWAYS LEFT AND RIGHT OF -L- WITHIN THE UTILITY EASEMENT. NO CHANGE IN CONTROL OF ACCESS.

8/17/99

06-AUG-2013 06:52
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PROJECT REFERENCE NO.	SHEET NO.
R-3620	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,117.72'
R = 12,000.00'
SE = NC

NAD 83

95

100

105

WOVEN WIRE FENCE

±00.00
BD

-L-

2' PS

16.0'

MATCHLINE -L- STA. 94+00.00
SEE SHEET 9

MATCHLINE -L- STA. 108+00.00
SEE SHEET 11

REVISIONS

8/17/99

06-AUG-2013 06:52
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pattonpr AT REGPRK01

PROJECT REFERENCE NO.	SHEET NO.
R-3620	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,172.72'
R = 12,000.00'
SE = NC

NAD 83

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
3:1
D
2:1
B
b
17 Ft.
Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 2.0 Ft.
FOR Slope

FROM STA. TO STA.
-L- 119+00 LT TO 121+00 LT

110
115
120

WOODS
WOVEN WIRE FENCE
±50.00
80'
-L-
160'
2' PS
24" CMP
@ SOIL

MATCHLINE -L- STA. 108+00.00
SEE SHEET 10

MATCHLINE -L- STA. 122+00.00
SEE SHEET 12

REVISIONS

8/17/99

06-AUG-2013 06:52
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PROJECT REFERENCE NO.	SHEET NO.
R-3620	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- CURVE DATA
PI Sta 110+14.85
Δ = 20° 31' 32.0" (RT)
D = 0° 28' 38.9"
L = 4,298.86'
T = 2,172.72'
R = 12,000.00'
SE = NC

NAD 83

125

130

135

Natural Ground

WOVEN WIRE FENCE

WOODS

F

160'

2' PS

-L-

N 52° 58' 47.0" E

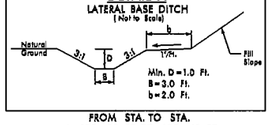
+41.00
80'

-L- PT Sta. 131+41.00

MATCHLINE -L- STA.122+00.00
SEE SHEET 11

MATCHLINE -L- STA.136+00.00
SEE SHEET 13

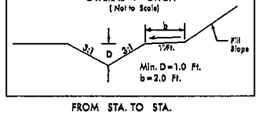
DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 2.0 Ft.

FROM STA.	TO STA.
-L- 123+00 RT	TO 127+45 RT
-L- 123+50 LT	TO 128+23 LT
-L- 130+00 RT	TO 134+58 RT
-L- 134+20 LT	TO 143+31 LT

DETAIL B
LATERAL "V" DITCH
(Not to Scale)



Min. D = 1.0 Ft.
b = 2.0 Ft.

FROM STA.	TO STA.
-L- 127+50 RT	TO 129+00 RT
-L- 128+26 LT	TO 129+50 LT

REVISIONS

8/17/99

06-AUG-2013 06:52
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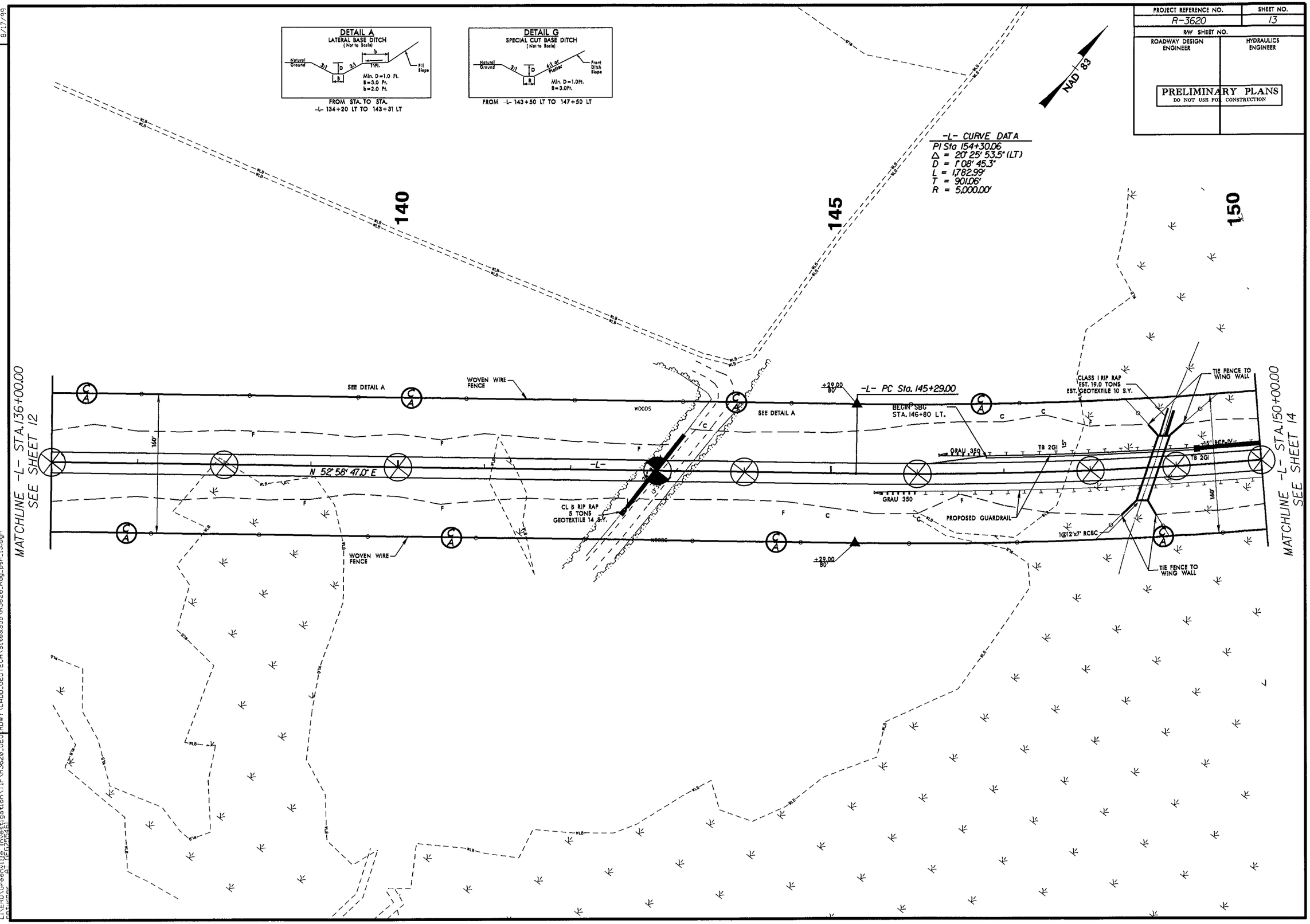
PROJECT REFERENCE NO.	SHEET NO.
R-3620	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

Design Revision 7-13-12 Revised ditch left of -L- according to Detail G.

8/17/99

12-AUG-2013 15:06
RDWY\CADD_GEOTECH\Site&Sub\R3620_Rdy_psh_13.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3620	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- CURVE DATA
PI Sta 154+30.06
Δ = 20° 25' 53.5" (LT)
D = 1° 08' 45.3"
L = 1,782.99'
T = 901.06'
R = 5,000.00'

NAD 83

155

160

MATCHLINE -L- STA. 150+00.00
SEE SHEET 13

-L- PT Sta. 163+11.98

MATCHLINE -L- STA. 164+00.00
SEE SHEET 15

±00.00
80'

±11.98
80'

WOVEN WIRE FENCE

GRAU 350

RT PS TAPER

-L-

N 32° 32' 53.5" E

2' PS

160'

30' INC.

WOODS

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
3:1
D
B
b
1:1 Min.
Fill Slope

Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 2.0 Ft.

FROM STA. TO STA.
-L- 157+50 LT TO 167+00 LT
-L- 158+00 RT TO 166+00 RT

REVISIONS

04/09/2013 R/W REVISION (KEM) - CHANGED NAME TO REBECCA PIERCE HEIRS ON PARCEL 05.

8/17/99

06-AUG-2013 06:52
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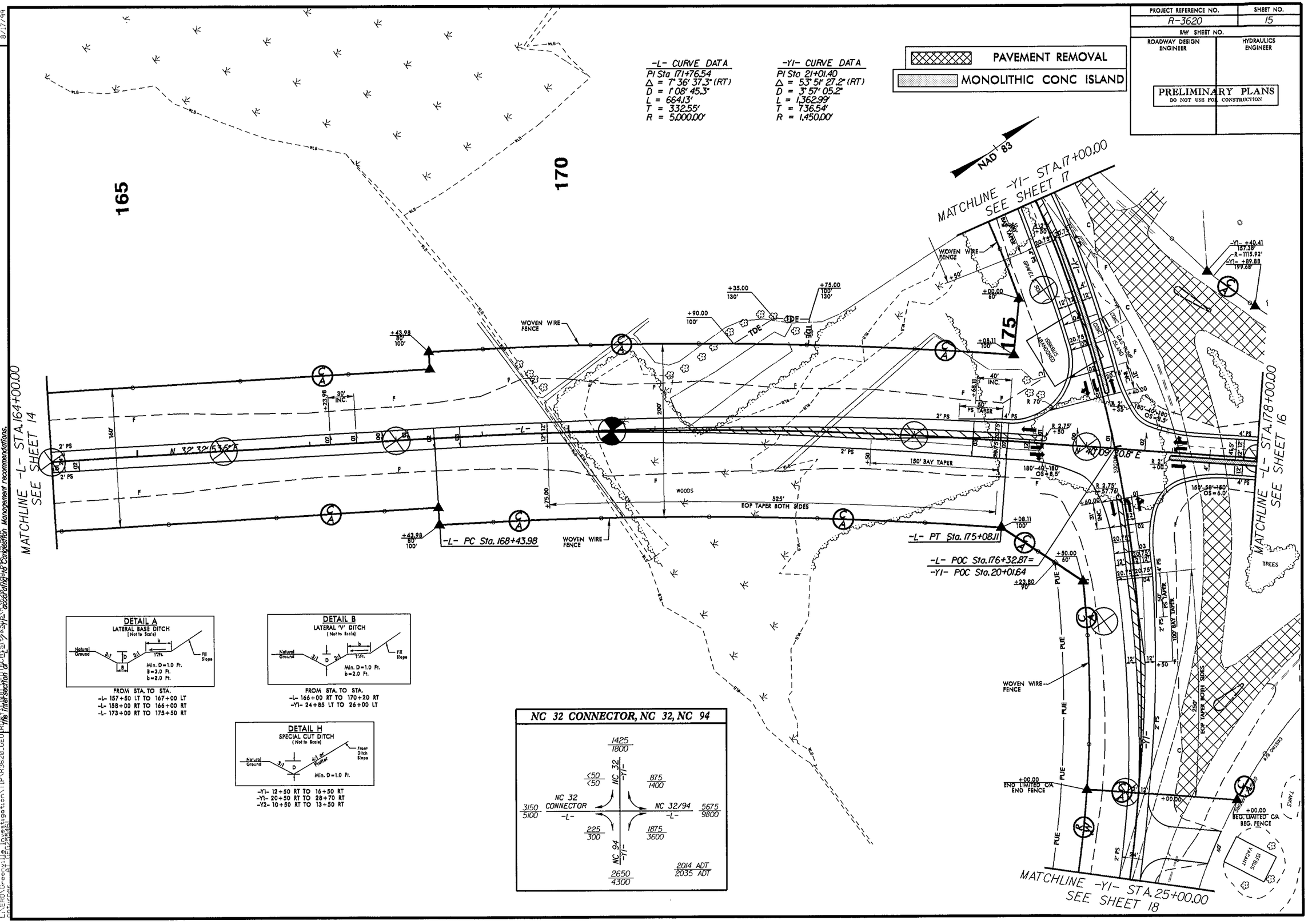
PROJECT REFERENCE NO.	SHEET NO.
R-3620	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT REMOVAL
MONOLITHIC CONC ISLAND

-L- CURVE DATA
PI Sta 171+76.54
Δ = 7° 36' 37.3" (RT)
D = 1° 08' 45.3"
L = 664.13'
T = 332.55'
R = 5,000.00'

-Y1- CURVE DATA
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'



DETAIL A
LATERAL BASE DITCH
(Not to Scale)

FROM STA. TO STA.
-L- 157+50 LT TO 167+00 LT
-L- 158+00 RT TO 166+00 RT
-L- 173+00 RT TO 175+50 RT

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

FROM STA. TO STA.
-L- 166+00 RT TO 170+20 RT
-Y1- 24+85 LT TO 26+00 LT

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

-Y1- 12+50 RT TO 16+50 RT
-Y1- 20+50 RT TO 28+70 RT
-Y2- 10+50 RT TO 13+50 RT

NC 32 CONNECTOR, NC 32, NC 94

REVISIONS

04/09/2013 R/W REVISION (KEM) - COMBINED PARCEL 07 WITH PARCEL 06.
07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W ON PARCELS 006,007, AND 008.
Design Revision 7-13-12 Revised ditches right of -Y1- according to Detail H. Revised the proposed EOP and lane geometry for the intersection of -L- & Sta. according to Composition Management recommendations.

8/17/99

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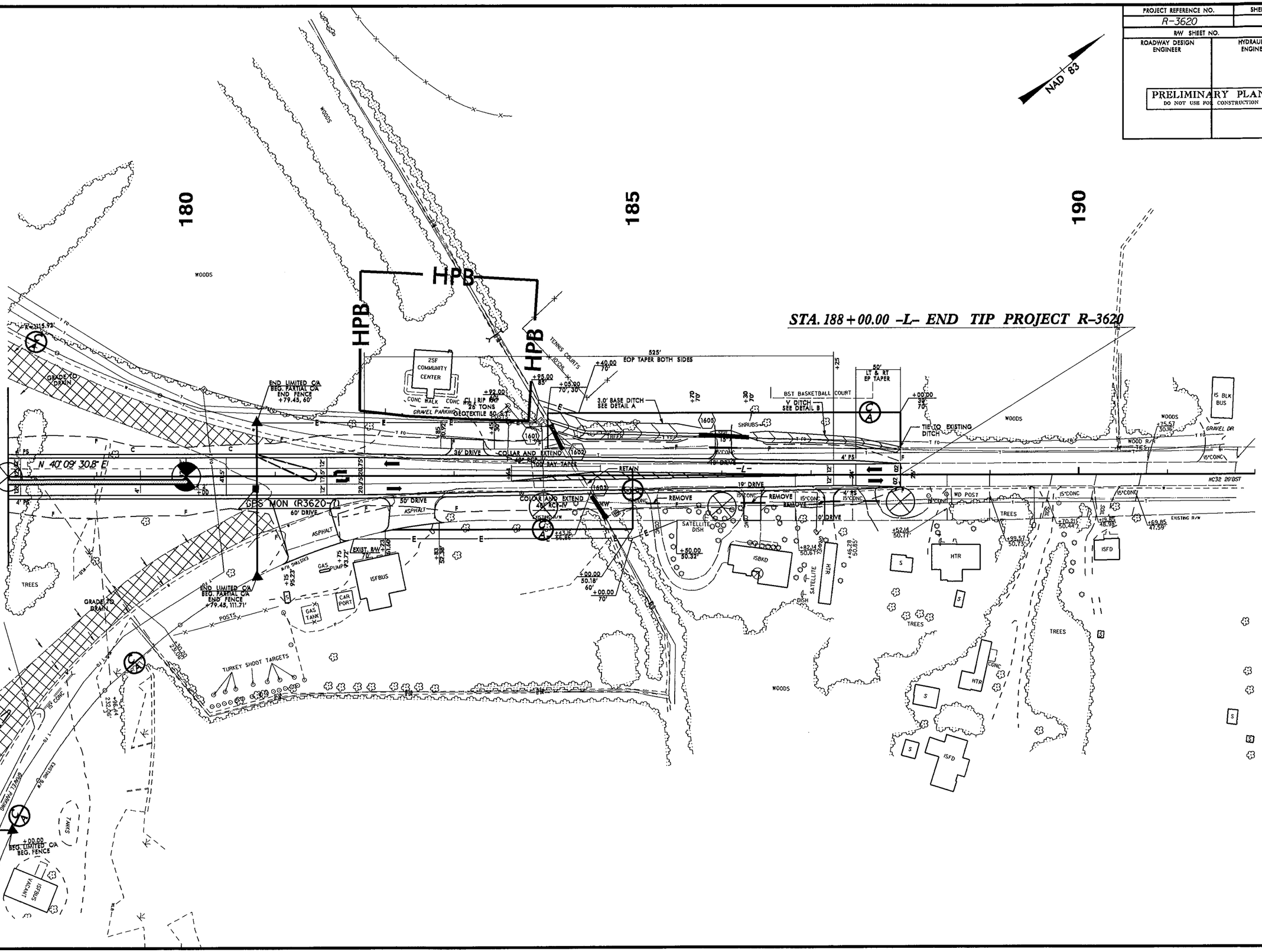
PROJECT REFERENCE NO.	SHEET NO.
R-3620	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

8/17/99

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Centerline
AT (NE)2(NAD)

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PROJECT REFERENCE NO.	SHEET NO.
R-3620	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

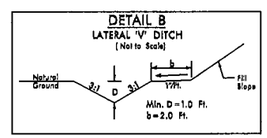
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1- CURVE DATA

PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'

-Y2- CURVE DATA

PI Sta 12+48.58	PI Sta 15+39.12
Δ = 63° 43' 07.1" (RT)	Δ = 50° 28' 38.2" (LT)
D = 14° 19' 26.2"	D = 28° 38' 52.4"
L = 444.84'	L = 176.20'
T = 248.58'	T = 94.28'
R = 400.00'	R = 200.00'

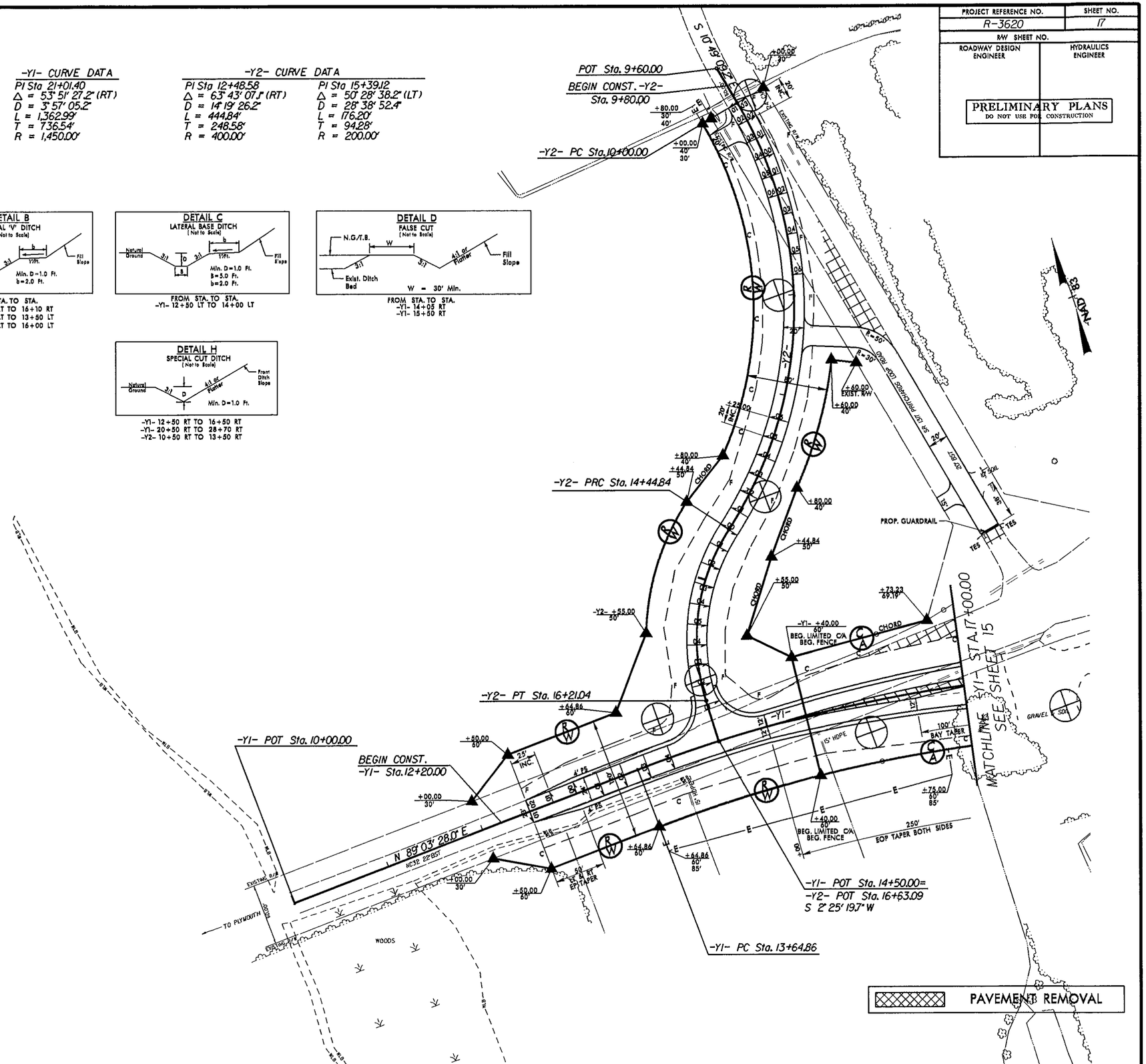


FROM STA. TO STA.
-Y2- 14+10 RT TO 16+10 RT
-Y2- 10+50 LT TO 13+50 LT
-Y2- 14+00 LT TO 16+00 LT

FROM STA. TO STA.
-Y1- 12+50 LT TO 14+00 LT

FROM STA. TO STA.
-Y1- 14+05 RT
-Y1- 15+50 RT

-Y1- 12+50 RT TO 16+50 RT
-Y1- 20+50 RT TO 28+70 RT
-Y2- 10+50 RT TO 13+50 RT



REVISIONS

07/24/2012 R/W REVISION (KEM) - MODIFIED EXISTING R/W ON PARCEL 006.
Design Revision 7-13-12 Revised ditches right of -Y1- and -Y2- according to Detail H.

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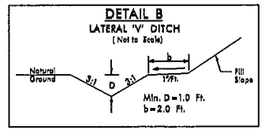
PROJECT REFERENCE NO.	SHEET NO.
R-3620	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

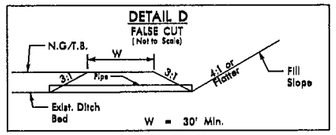


FROM STA. TO STA.
-Y1- 24+85 LT TO 26+00 LT

DETAIL H
SPECIAL CUT DITCH
(Not to Scale)

-Y1- 12+50 RT TO 16+50 RT
-Y1- 20+50 RT TO 28+70 RT
-Y2- 10+50 RT TO 13+50 RT

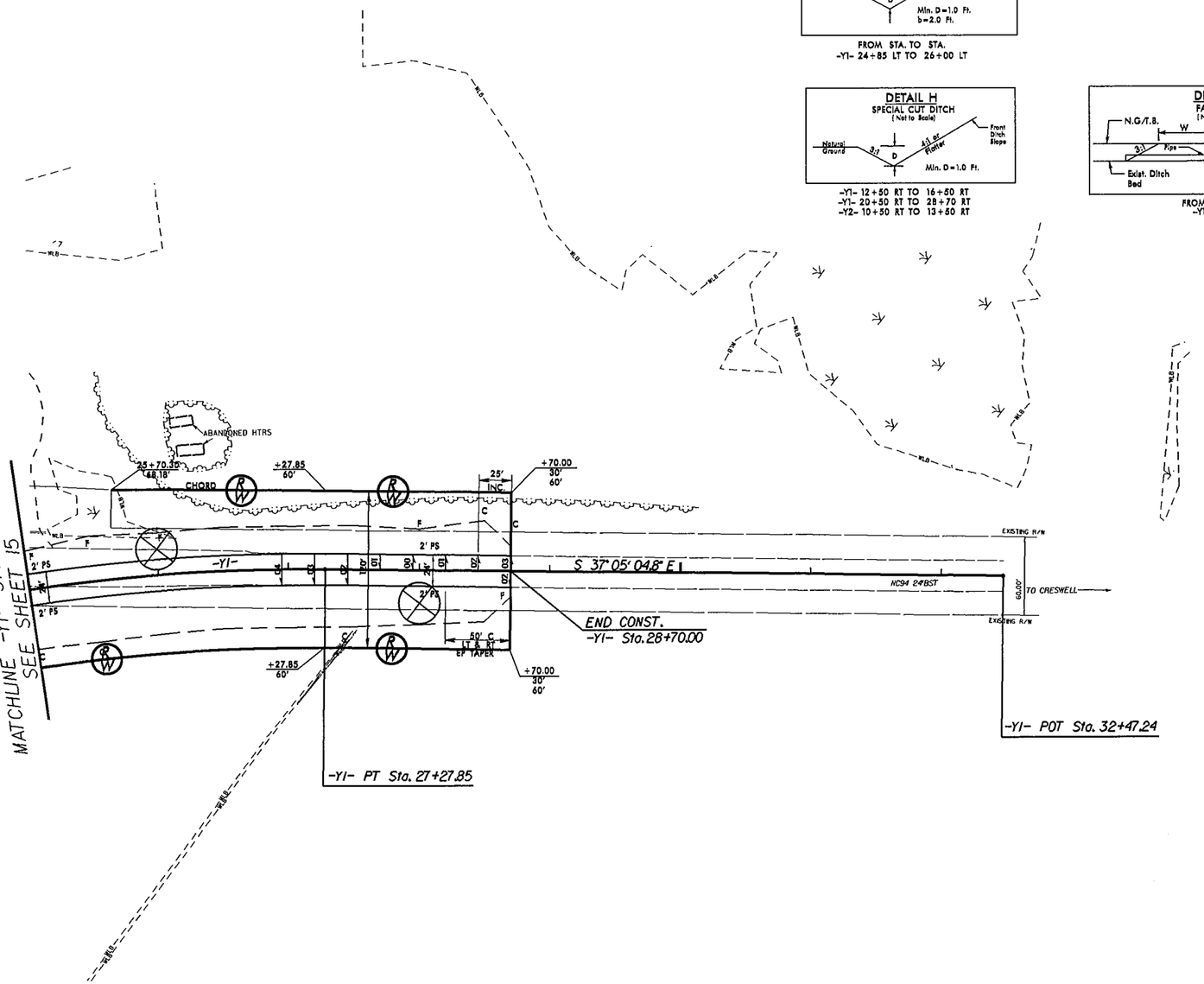
DETAIL D
FALSE CUT
(Not to Scale)



FROM STA. TO STA.
-Y1- 27+45 RT

-Y1-
PI Sta 21+01.40
Δ = 53° 51' 27.2" (RT)
D = 3° 57' 05.2"
L = 1,362.99'
T = 736.54'
R = 1,450.00'

NAD 83



REVISIONS

05/28/2013 R/W REVISION (KEM) - ADDED PERMANENT DRAINAGE EASEMENT ON PARCEL NO. 06.
04/09/2013 R/W REVISION (KEM) - COMBINED PARCEL 07 WITH PARCEL 06.
07/24/2012 R/W REVISION (KEM) - REVISED DITCH RIGHT OF -Y1-.NO R/W REVISION WAS MADE.

Design Revision: Revised ditch right of way according to Detail H.

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3620	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

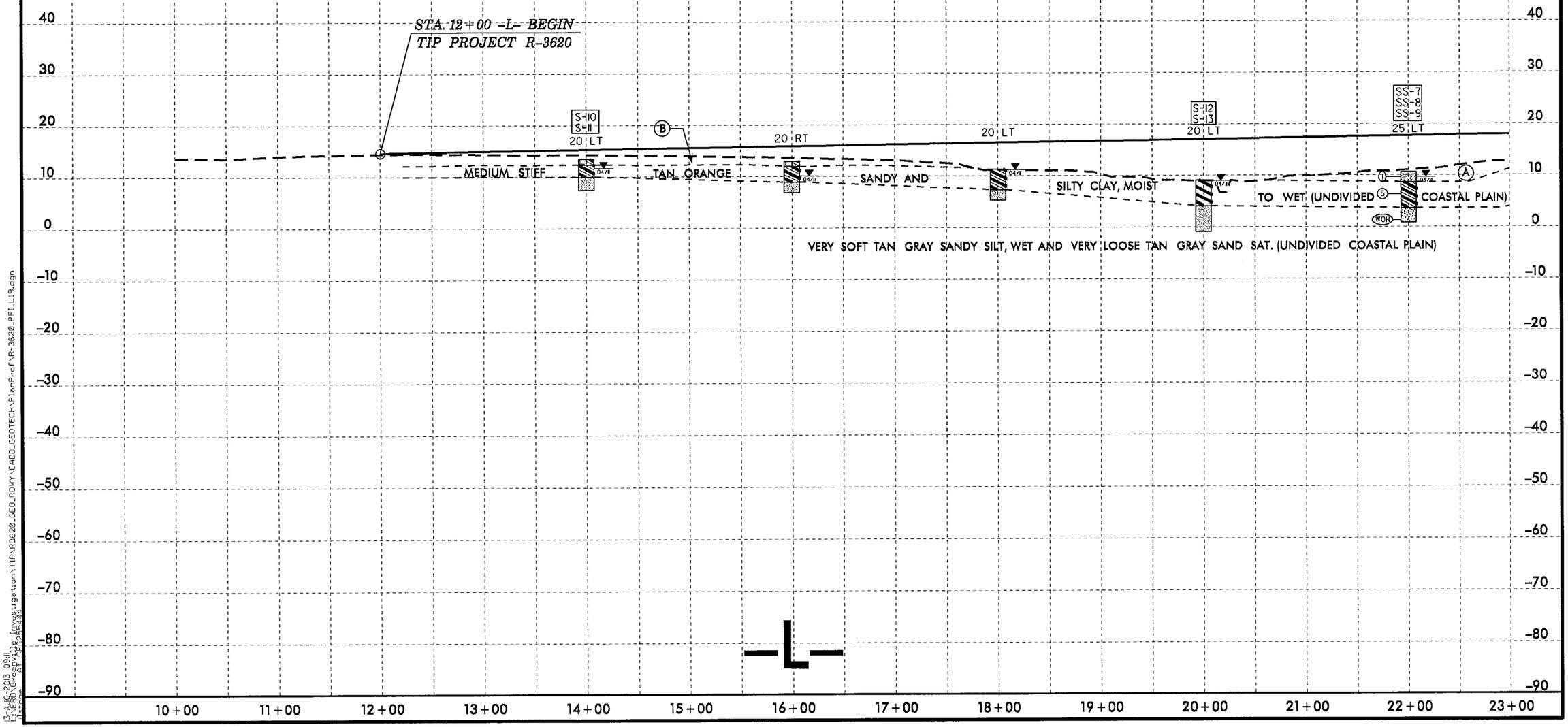
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-10	20 LT	14+00	0.0-3.5	A-6(12)	34	16	4.4	18.5	47.0	30.1	98	97	82	22.9	-
S-11	20 LT	14+00	3.5-6.0	A-4(0)	17	2	21.5	45.5	19.0	14.0	100	99	36	-	-
S-12	20 LT	20+00	0.0-5.0	A-7-6(22)	42	22	1.0	8.2	50.5	40.2	100	100	95	25.0	-
S-13	20 LT	20+00	5.0-10.0	A-4(0)	23	4	5.4	51.6	25.0	18.1	100	100	49	-	-
SS-7	25 LT	22+00	0.0-1.5	A-4(10)	38	10	3.6	13.5	56.7	26.2	99	98	87	32.5	-
SS-8	25 LT	22+00	3.3-4.8	A-6(12)	37	23	6.0	32.0	29.8	32.2	100	100	66	23.8	-
SS-9	25 LT	22+00	8.3-9.8	A-2-4(0)	19	NP	26.8	51.7	7.4	14.1	100	98	23	-	-

(A) VERY SOFT TAN CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

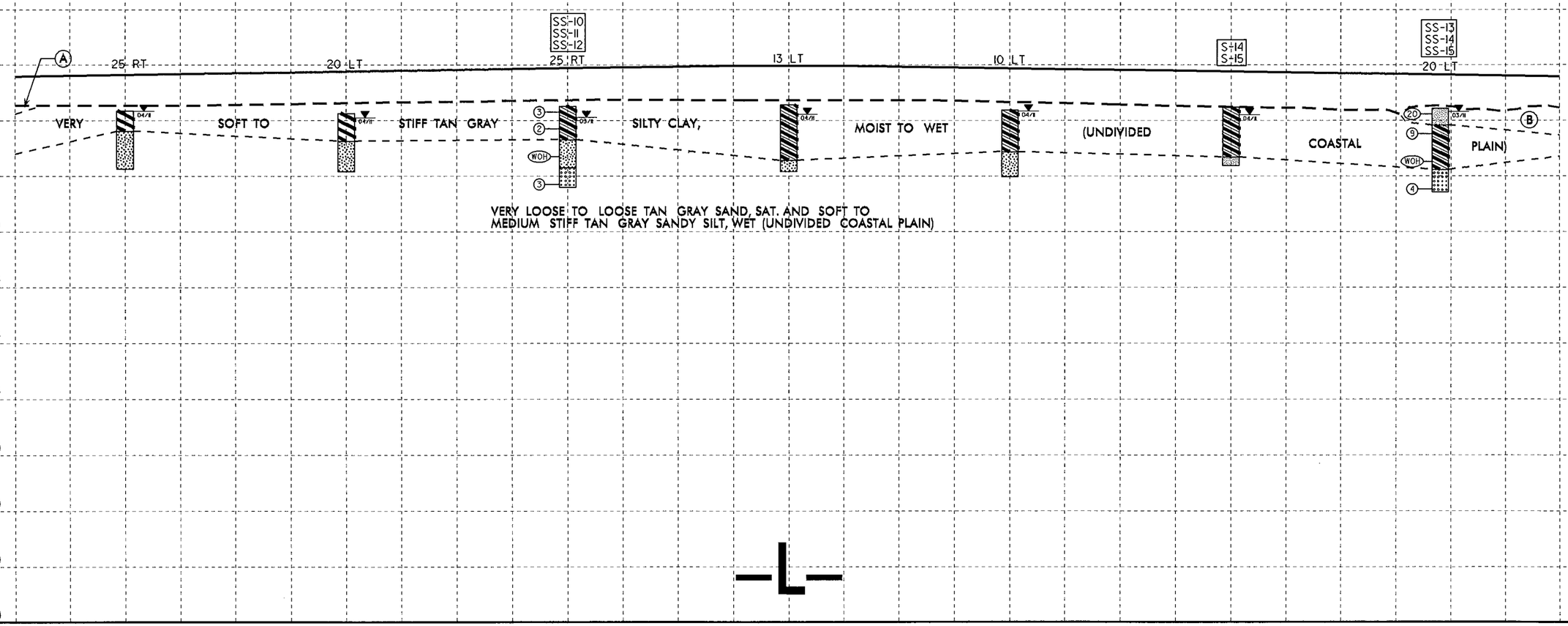
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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- 10	25 RT	28+00	0.0- 1.5	A-6(8)	32	14	7.6	24.1	40.2	28.1	96	94	73	27.9	-
SS- 11	25 RT	28+00	8.0- 9.5	A-2-4(0)	19	NP	12.5	65.5	7.9	14.0	100	98	24	-	-
SS- 12	25 RT	28+00	13.0- 14.5	A-3(0)	21	NP	25.2	68.9	1.9	4.0	100	93	8	-	-
S- 14	CL	34+00	0.0- 9.0	A-6(12)	32	15	4.2	15.6	52.1	28.1	100	99	87	24.1	-
S- 15	CL	34+00	9.0- 10.5	A-4(0)	17	2	18.7	48.5	16.8	16.0	100	98	36	27.3	-
SS- 13	20 LT	35+90	0.0- 1.5	A-4(0)	19	1	20.9	32.3	30.8	16.0	91	83	48	-	-
SS- 14	20 LT	35+90	3.5- 5.0	A-6(8)	29	11	2.2	23.7	48.0	26.1	100	100	87	21.5	-
SS- 15	20 LT	35+90	13.5- 15.0	A-3(0)	22	NP	20.0	71.8	4.2	4.0	100	96	10	-	-

(A) VERY SOFT TAN CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(B) VERY STIFF TAN SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

SOIL TEST RESULTS

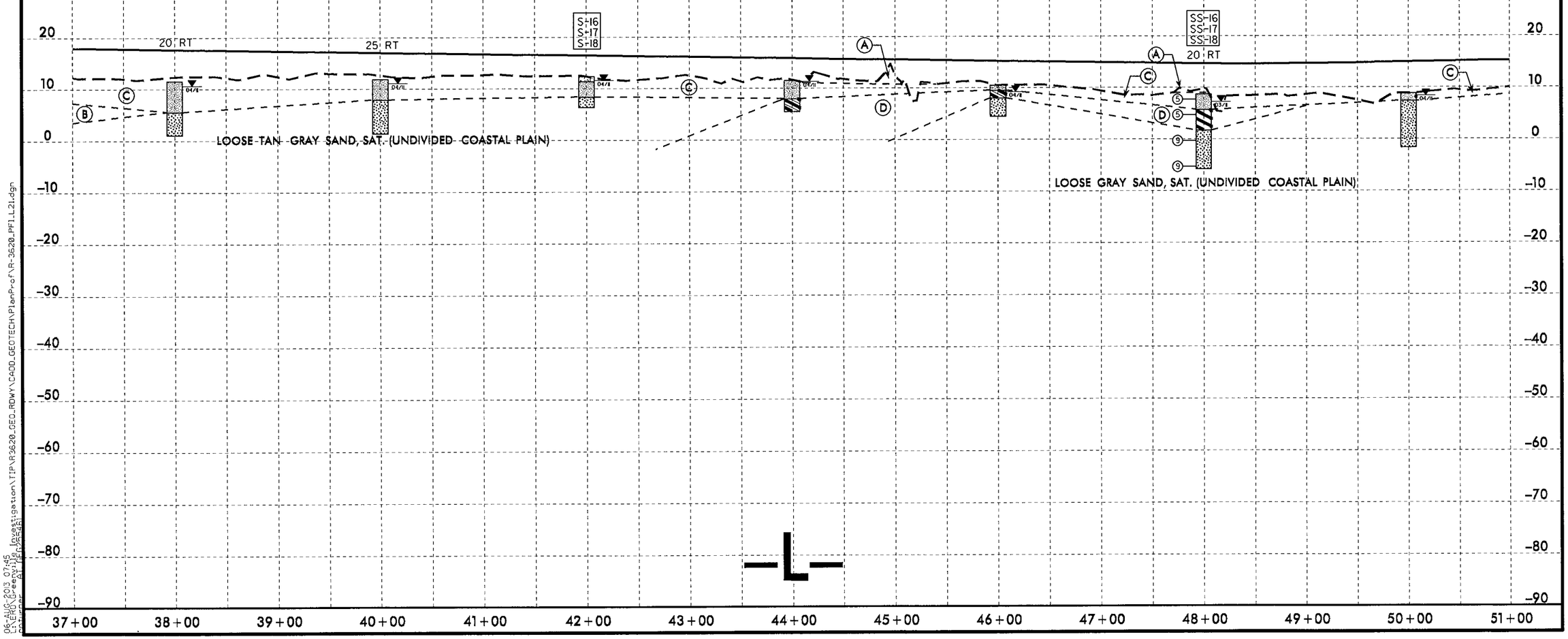
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-16	CL	42+00	0.0-1.0	A-5(4)	47	NP	10.4	19.5	62.1	8.0	98	93	76	54.9	-
S-17	CL	42+00	1.0-4.0	A-4(5)	24	8	3.4	13.2	53.3	30.1	100	100	90	22.5	-
S-18	CL	42+00	4.0-6.0	A-2-4(0)	16	NP	42.1	42.7	11.1	4.0	100	98	18	-	-
SS-16	20 RT	48+00	0.0-1.5	A-4(0)	20	2	21.1	37.5	29.4	12.0	97	91	47	-	-
SS-17	20 RT	48+00	3.0-4.5	A-7-6(19)	44	30	13.6	19.1	27.2	40.1	100	99	70	33.3	-
SS-18	20 RT	48+00	8.0-9.5	A-2-4(0)	22	NP	10.2	77.7	6.0	6.0	100	98	14	-	-

(A) SOFT TAN GRAY SILT, MOIST (ARTIFICIAL FILL)

(B) VERY SOFT TO STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

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

(D) MEDIUM STIFF TAN GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

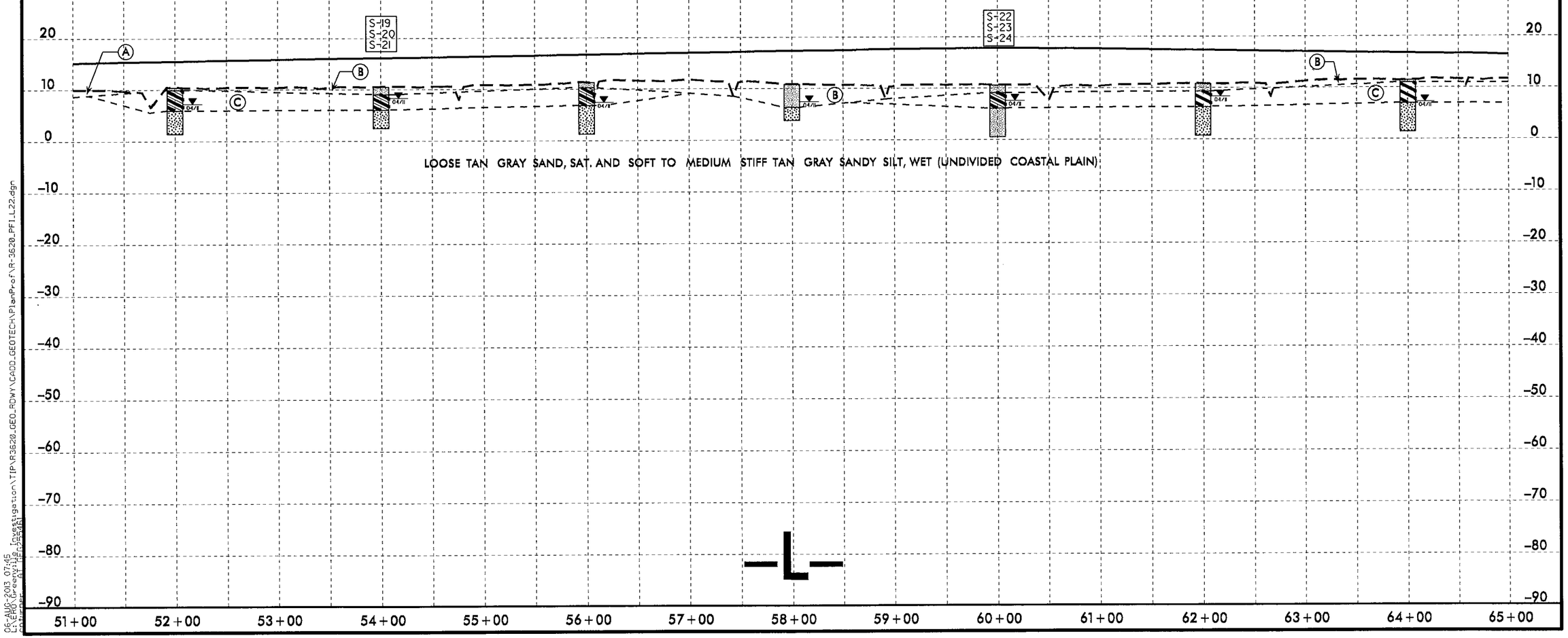
SOIL TEST RESULTS

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-19	CL	54+00	0.0-1.5	A-4(2)	25	3	3.0	15.0	63.7	18.3	100	100	90	22.8	-
S-20	CL	54+00	1.5-4.5	A-6(10)	33	17	9.3	24.1	32.0	34.5	100	100	72	24.0	-
S-21	CL	54+00	4.5-8.0	A-2-4(0)	20	NP	10.0	74.8	0.9	14.2	100	100	16	25.1	-
S-22	CL	60+00	0.0-1.5	A-4(4)	29	5	6.3	14.4	59.0	20.3	100	99	86	21.0	-
S-23	CL	60+00	1.5-3.5	A-6(17)	35	22	5.1	18.1	38.3	38.5	100	100	84	-	-
S-24	CL	60+00	3.5-10.0	A-4(0)	20	5	14.8	45.2	17.6	22.3	100	100	43	-	-

(A) MEDIUM STIFF TAN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) SOFT TAN BROWN SILT AND CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(C) MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

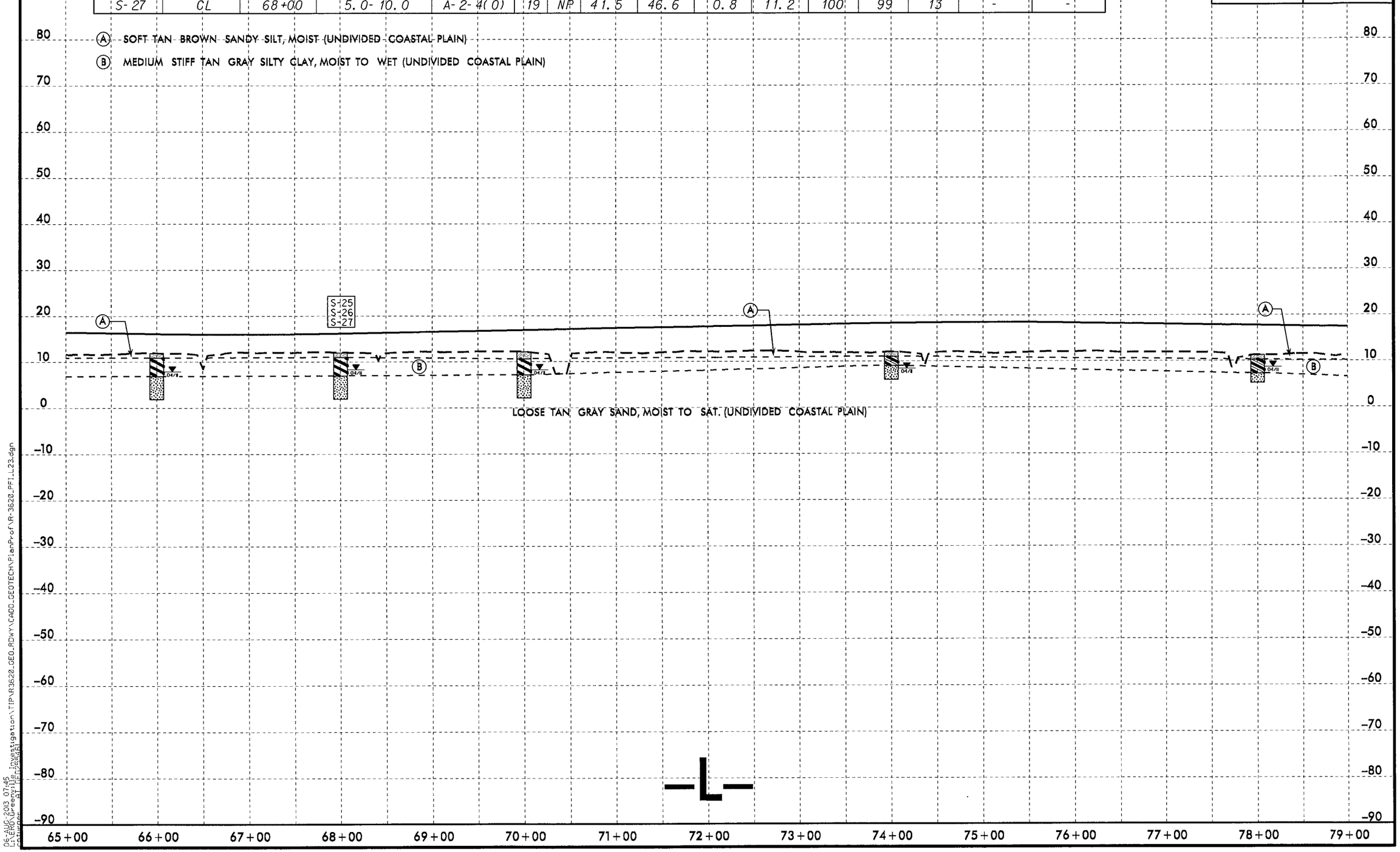
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-25	CL	68+00	0.0-1.0	A-4(1)	25	3	6.3	14.6	58.8	20.3	100	99	87	24.3	-
S-26	CL	68+00	1.0-5.0	A-7-6(20)	41	21	3.2	9.1	38.9	48.7	100	100	92	28.8	-
S-27	CL	68+00	5.0-10.0	A-2-4(0)	19	NP	41.5	46.6	0.8	11.2	100	99	13	-	-

(A) SOFT TAN BROWN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

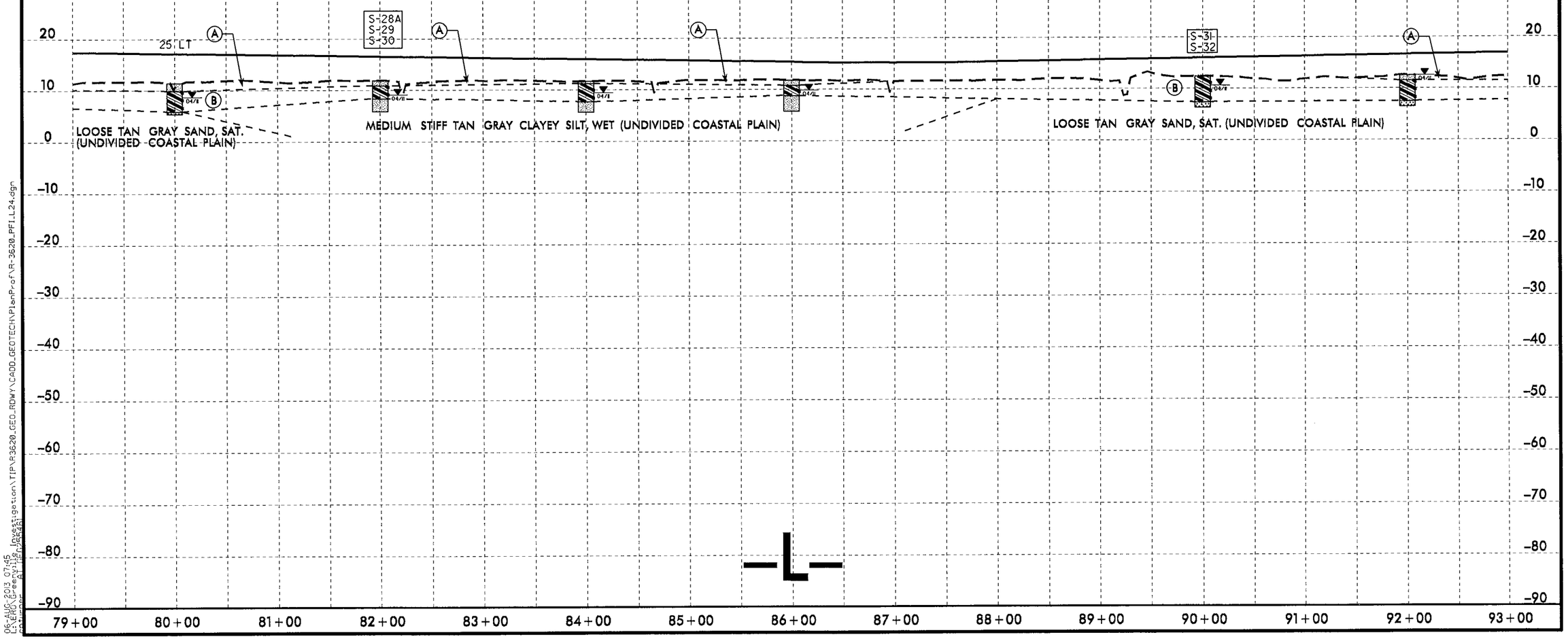
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-28A	CL	82+00	0.0-1.0	A-4(9)	32	10	0.8	11.8	50.6	36.7	100	100	94	-	-
S-29	CL	82+00	1.0-3.5	A-6(19)	37	19	0.4	9.0	43.7	46.9	100	100	96	-	-
S-30	CL	82+00	3.5-6.0	A-4(9)	30	10	0.4	19.4	49.6	30.6	100	100	92	-	-
S-31	CL	90+00	0.0-5.0	A-6(14)	35	15	1.2	9.2	45.4	44.1	100	100	94	-	-
S-32	CL	90+00	5.0-6.0	A-2-4(0)	19	NP	48.1	35.6	3.2	13.0	100	96	17	-	-

(A) SOFT TAN CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

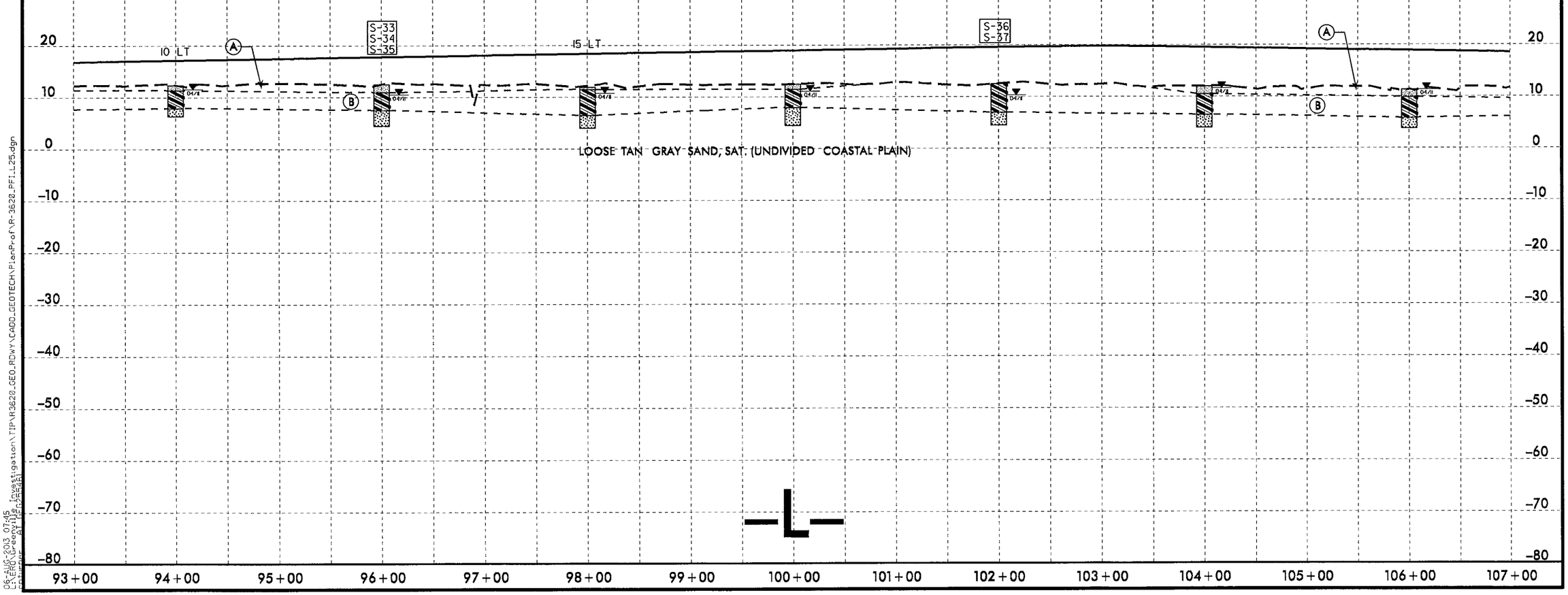
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-33	CL	96+00	0.0-1.5	A-4(3)	28	4	3.0	14.6	54.3	28.1	100	99	90	31.7	-
S-34	CL	96+00	1.5-3.5	A-6(8)	28	11	3.2	17.5	45.2	34.1	100	100	87	-	-
S-35	CL	96+00	5.0-8.0	A-2-4(0)	17	NP	35.9	47.4	4.6	12.0	100	96	17	-	-
S-36	CL	102+00	0.0-5.5	A-6(11)	30	12	1.2	7.0	51.7	40.1	100	100	96	24.6	-
S-37	CL	102+00	5.5-8.0	A-2-4(0)	15	1	31.1	36.9	15.9	16.0	100	96	34	-	-

(A) SOFT TAN CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

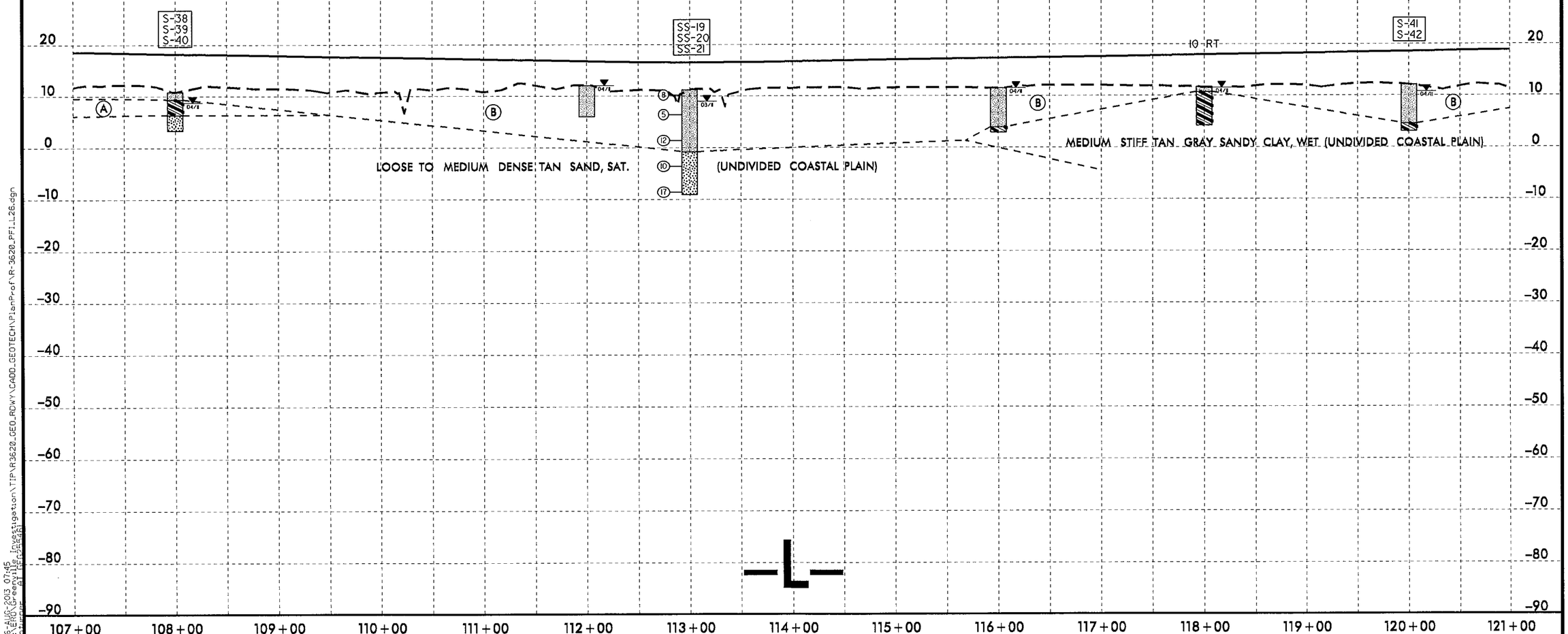
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-38	CL	108+00	0.0-1.5	A-4(1)	24	3	3.0	15.6	53.3	28.1	100	100	87	22.7	-
S-39	CL	108+00	1.5-4.5	A-6(14)	34	16	2.0	13.0	44.8	40.1	100	100	91	27.0	-
S-40	CL	108+00	4.5-7.5	A-2-4(0)	19	NP	23.8	63.7	6.5	6.0	100	97	13	-	-
SS-19	CL	113+00	0.5-1.5	A-4(3)	24	6	4.4	15.6	53.9	26.1	98	96	84	-	-
SS-20	CL	113+00	8.8-10.3	A-4(0)	16	1	12.2	46.1	21.6	20.1	99	97	44	-	-
SS-21	CL	113+00	18.8-20.3	A-2-4(0)	20	NP	16.0	72.9	4.0	7.0	100	96	13	-	-
S-41	CL	120+00	0.0-7.5	A-4(3)	25	5	1.4	12.2	60.3	26.1	100	100	92	26.9	-
S-42	CL	120+00	7.5-9.0	A-6(4)	25	13	9.6	36.5	17.8	36.1	100	99	56	-	-

(A) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TO STIFF TAN GRAY SANDY AND CLAYEY SILT, MOSIT TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

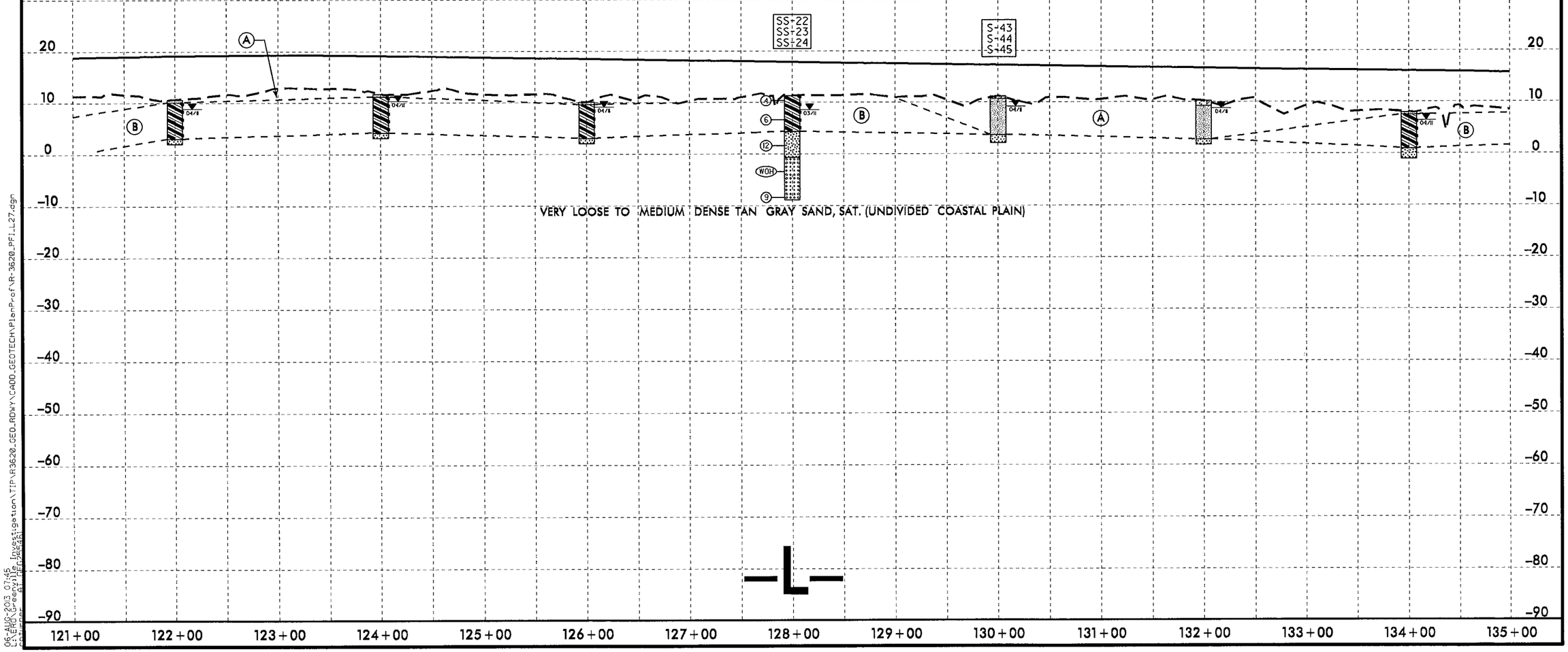
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-22	CL	128+00	0.0-1.5	A-6(17)	39	18	1.2	15.4	45.2	38.1	100	100	90	-	-
SS-23	CL	128+00	8.7-10.2	A-2-4(0)	19	NP	18.7	67.9	8.4	5.0	100	99	15	-	-
SS-24	CL	128+00	18.7-20.2	A-3(0)	19	NP	36.1	57.1	2.8	4.0	100	96	8	-	-
S-43	CL	130+00	0.0-0.5	A-5(6)	47	4	10.2	18.3	53.5	18.1	99	91	78	48.1	-
S-44	CL	130+00	0.5-7.0	A-4(2)	22	5	1.0	19.3	51.7	28.1	100	100	88	18.6	-
S-45	CL	130+00	7.5-10.0	A-2-4(0)	19	NP	6.1	74.7	8.1	11.0	100	100	22	-	-

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

(B) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

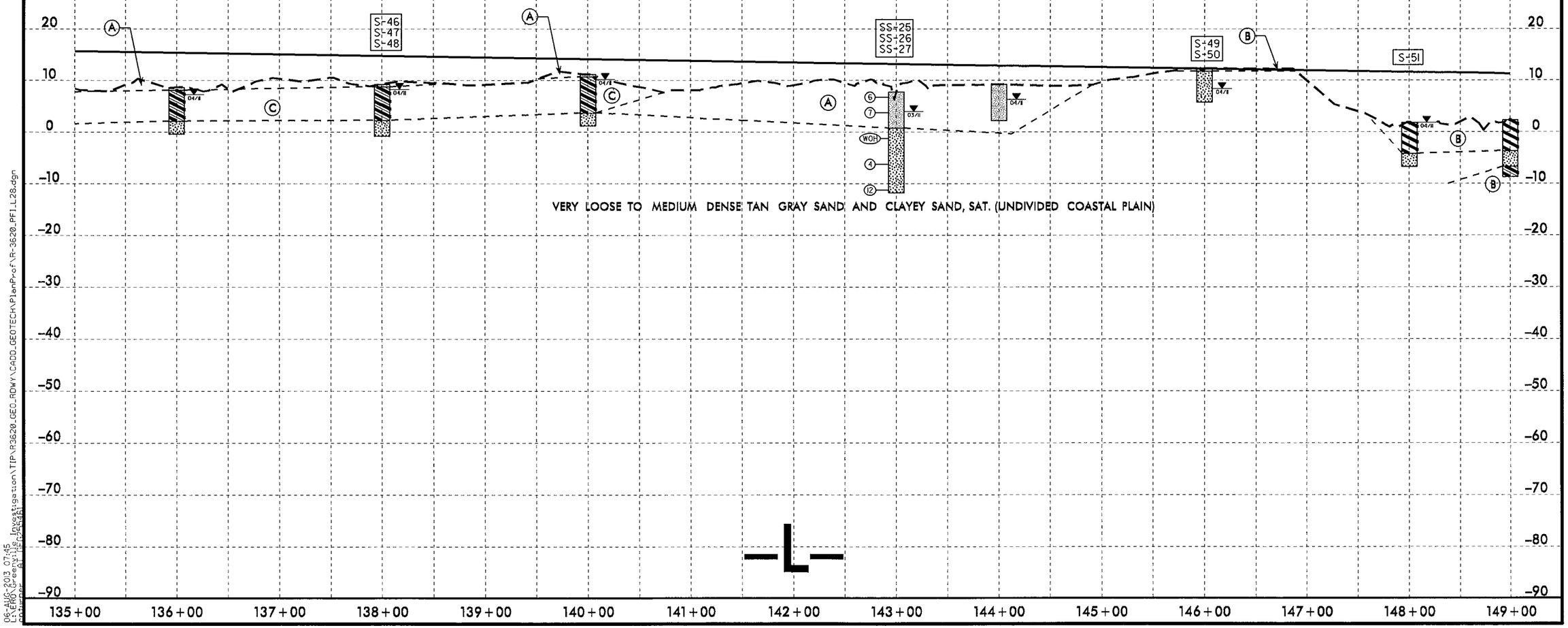
SOIL TEST RESULTS

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-46	CL	138+00	0.0-0.5	A-4(5)	39	5	6.4	18.3	57.3	18.1	99	97	79	41.9	-
S-47	CL	138+00	0.5-7.0	A-6(9)	30	12	3.4	18.9	43.6	34.1	100	100	84	36.9	-
S-48	CL	138+00	7.0-10.0	A-2-4(0)	22	NP	5.6	75.2	5.1	14.0	100	100	21	-	-
SS-25	CL	143+00	0.0-1.5	A-4(6)	25	10	3.8	25.1	43.0	28.1	100	100	80	-	-
SS-26	CL	143+00	8.0-9.5	A-2-4(0)	17	NP	17.6	63.8	5.6	13.0	100	93	21	-	-
SS-27	CL	143+00	18.0-19.5	A-2-4(0)	20	NP	19.5	72.3	4.2	4.0	100	96	11	-	-
S-49	CL	146+00	0.5-5.5	A-7-6(34)	55	37	2.6	13.2	34.0	50.2	100	100	87	28.6	-
S-50	CL	146+00	5.5-6.5	A-2-4(0)	21	4	13.6	56.0	6.3	24.1	100	99	31	-	-
S-51	CL	148+00	0.0-6.0	A-7-6(58)	81	53	1.4	4.8	25.6	68.2	100	100	94	59.5	-

(A) SOFT TO MEDIUM STIFF TAN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) STIFF GRAY SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)

(C) MEDIUM STIFF TAN GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

SOIL TEST RESULTS

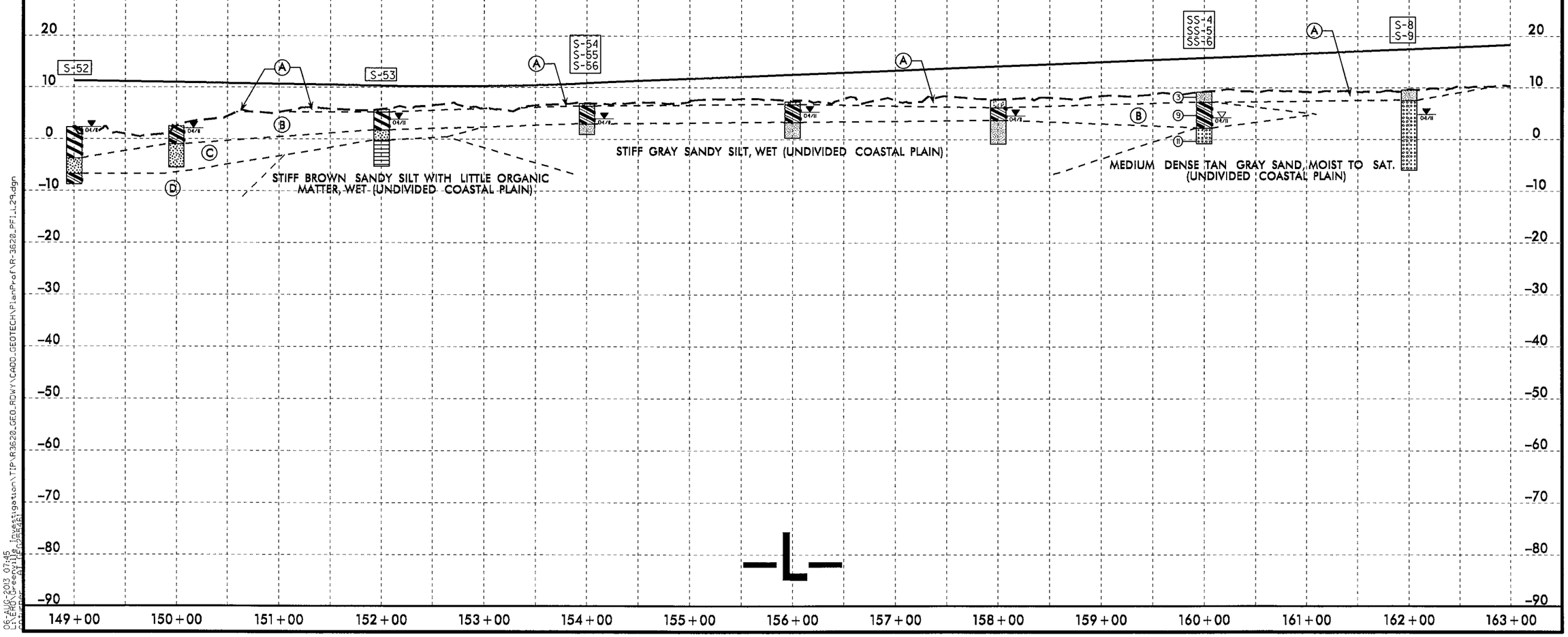
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-52	CL	149+00	9.0-11.0	A-6(13)	36	20	9.8	18.5	31.6	40.1	100	99	75	28.7	-
S-53	CL	152+00	7.0-11.0	A-7-5(11)	47	16	8.2	33.3	42.2	16.3	100	95	67	-	8.3
S-54	CL	154+00	0.0-0.5	A-5(3)	44	4	6.9	39.0	35.7	18.4	98	93	61	65.5	-
S-55	CL	154+00	0.5-4.0	A-6(14)	38	20	0.4	30.2	22.4	46.9	100	100	77	30.8	-
S-56	CL	154+00	4.0-6.0	A-4(0)	19	2	0.6	63.9	15.1	20.4	100	100	45	-	-
SS-4	CL	160+00	0.0-1.5	A-4(0)	22	5	16.5	36.8	22.5	24.1	100	96	49	-	-
SS-5	CL	160+00	3.5-5.0	A-6(3)	27	13	16.5	38.4	12.9	32.2	100	96	47	-	-
SS-6	CL	160+00	8.5-10.0	A-3(0)	23	NP	44.4	52.6	1.0	2.0	100	95	4	-	-
S-8	CL	162+00	0.0-2.0	A-4(1)	25	10	18.5	40.9	14.5	26.1	100	95	42	21.7	-
S-9	CL	162+00	2.0-15.5	A-3(0)	24	NP	12.8	79.8	3.3	4.0	100	98	9	-	-

(A) SOFT TAN BROWN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF TAN GRAY SILTY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(C) MEDIUM DENSE TAN GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

(D) STIFF GRAY SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

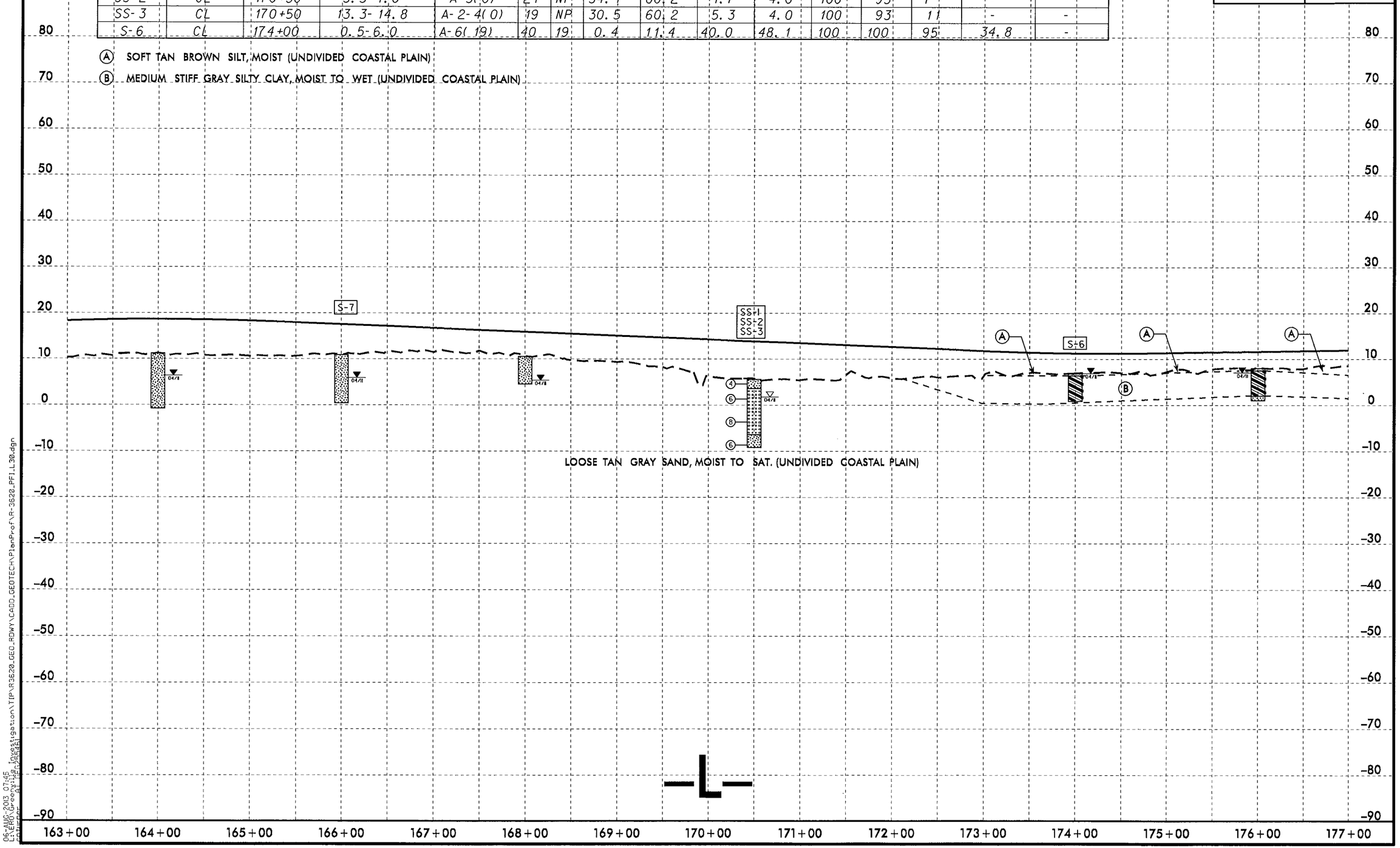
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-7	CL	166+00	0.0-10.5	A-2-4(0)	18	NP	38.9	51.2	2.9	7.0	100	90	11	-	-
SS-1	CL	170+50	1.0-1.5	A-2-4(0)	17	NP	33.3	47.3	11.3	8.0	100	94	21	-	-
SS-2	CL	170+50	3.3-4.0	A-3(0)	21	NP	34.1	60.2	1.7	4.0	100	95	7	-	-
SS-3	CL	170+50	13.3-14.8	A-2-4(0)	19	NP	30.5	60.2	5.3	4.0	100	93	11	-	-
S-6	CL	174+00	0.5-6.0	A-6(19)	40	19	0.4	11.4	40.0	48.1	100	100	95	34.8	-

(A) SOFT TAN BROWN SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM STIFF GRAY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

SOIL TEST RESULTS

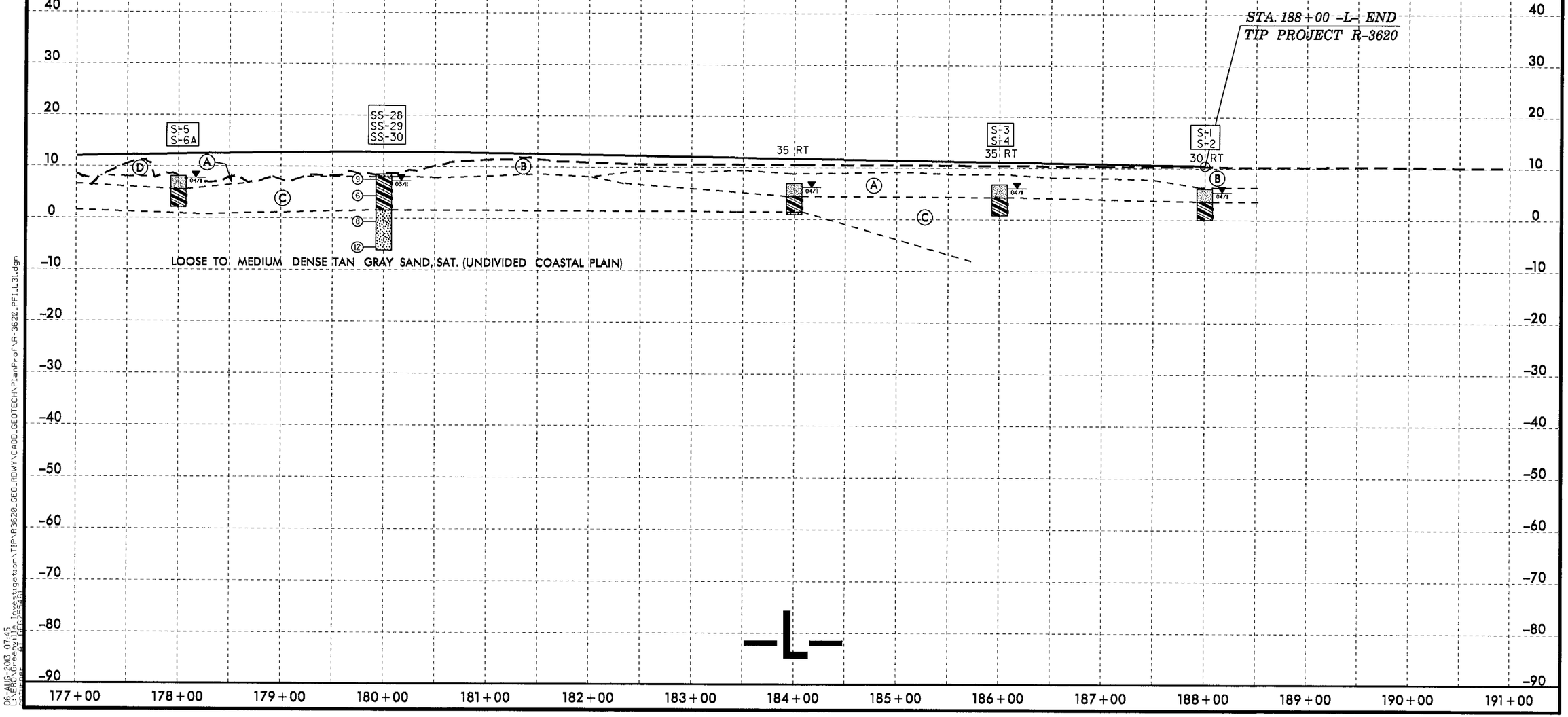
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-5	CL	178+00	1.0-2.5	A-4(0)	16	1	2.8	44.5	30.6	22.1	100	99	61	15.7	-
S-6A	CL	178+00	2.5-6.0	A-6(14)	39	22	1.6	34.3	24.0	40.1	100	100	71	-	-
SS-28	CL	180+00	0.0-0.5	A-2-4(0)	35	NP	35.1	38.2	17.7	9.0	87	78	25	-	-
SS-29	CL	180+00	0.5-1.5	A-6(4)	28	11	4.2	41.5	24.2	30.1	100	99	62	-	-
SS-30	CL	180+00	8.2-9.7	A-2-4(0)	23	NP	4.4	80.0	10.5	5.0	100	99	19	-	-
S-3	35 RT	186+00	1.0-2.5	A-4(0)	16	2	6.4	58.6	19.0	16.0	100	99	41	20.5	-
S-4	35 RT	186+00	2.5-6.0	A-6(5)	31	12	4.6	45.7	23.6	26.1	100	99	64	26.4	-
S-1	30 RT	188+00	1.0-2.5	A-4(1)	24	7	8.2	46.3	25.4	20.1	100	99	51	30.2	-
S-2	30 RT	188+00	2.5-6.0	A-6(4)	27	13	4.2	44.1	19.6	32.1	100	100	58	26.4	-

(A) SOFT TAN BROWN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) MEDIUM DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

(C) MEDIUM STIFF TO STIFF TAN GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

(D) SOFT TO MEDIUM STIFF TAN BROWN SANDY SILT, MOIST (ROADWAY EMBANKMENT)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

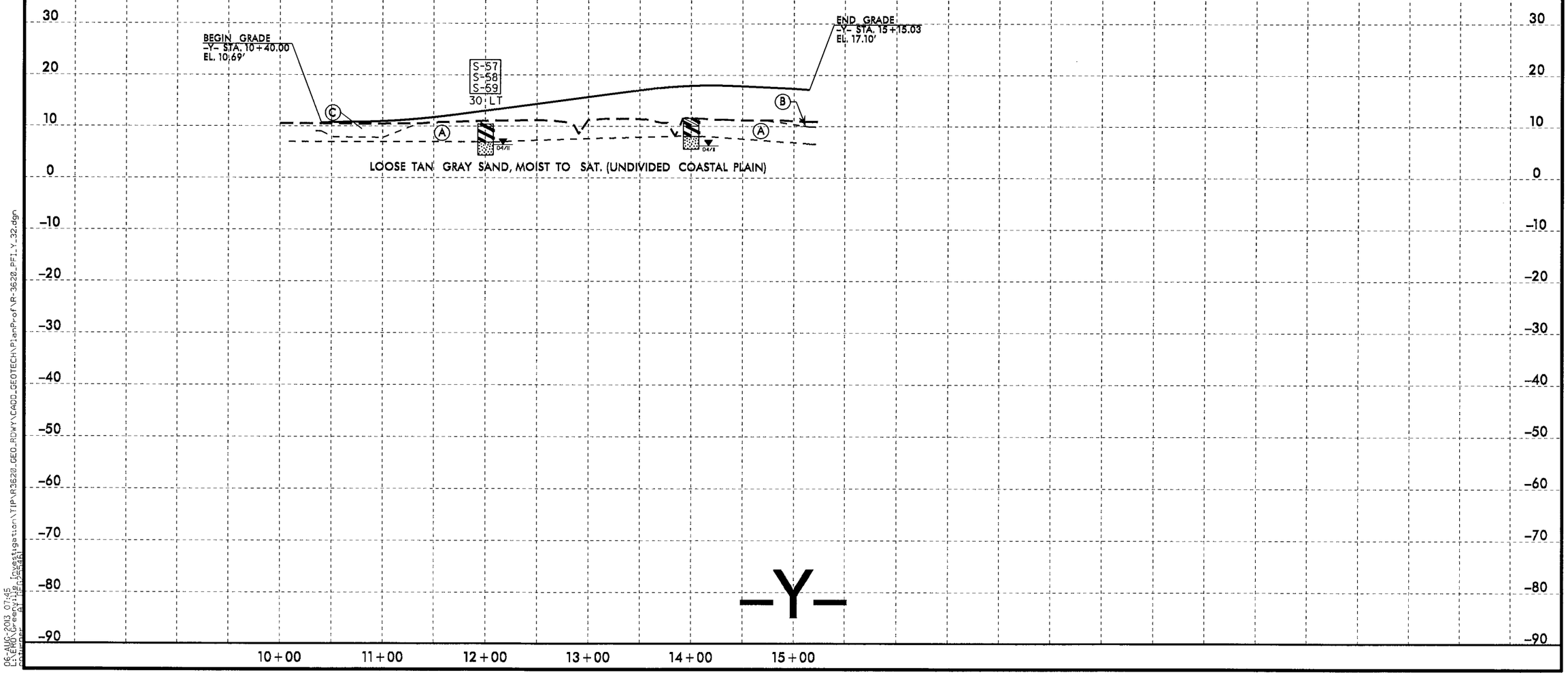
SOIL TEST RESULTS

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-57	30 LT	12+00	0.0-1.5	A-6(10)	30	12	2.0	14.9	50.4	32.7	100	100	92	-	-
S-58	30 LT	12+00	0.5-3.5	A-7-6(32)	49	30	0.2	9.8	45.1	44.9	100	100	97	-	-
S-59	30 LT	12+00	3.5-6.0	A-2-4(0)	19	NP	34.9	54.1	2.9	8.2	100	99	12	-	-

(A) MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(B) SOFT TAN BROWN SANDY AND CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(C) MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

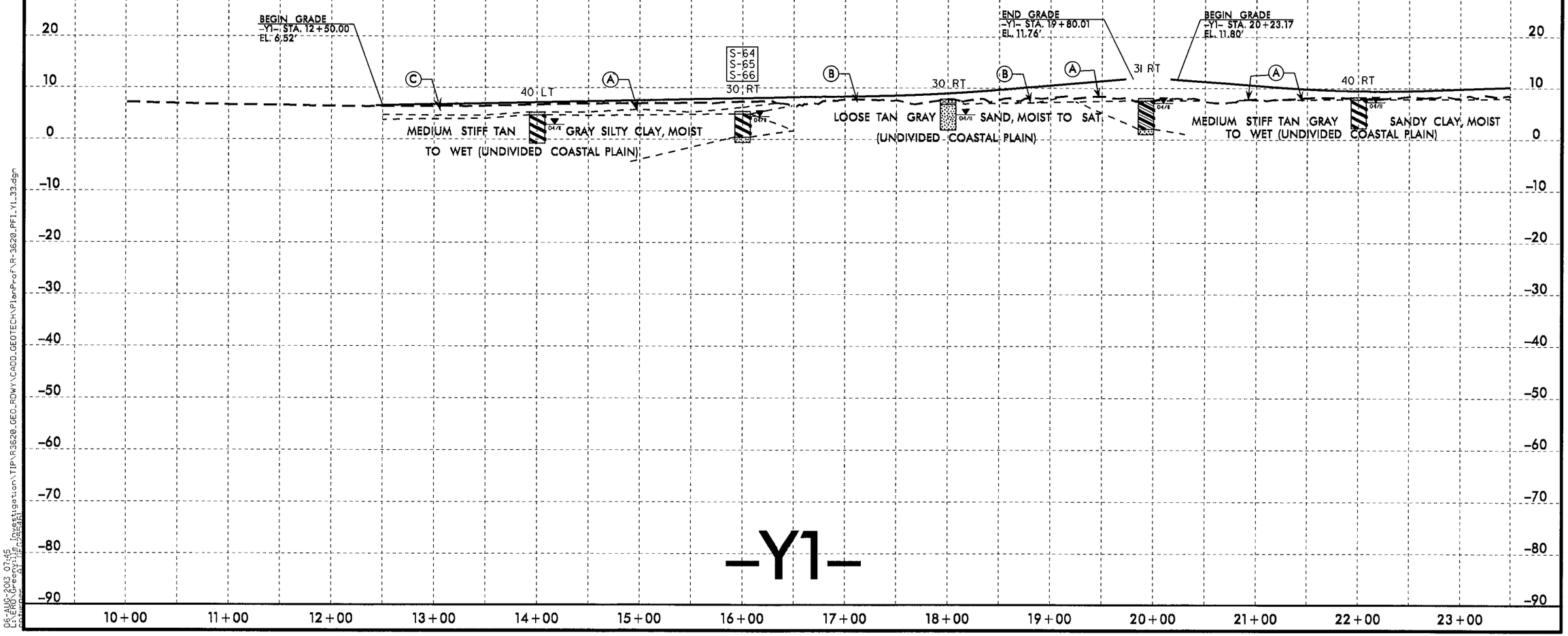
SOIL TEST RESULTS

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
S-64	30 RT	16+00	0.0-0.5	A-4(2)	25	4	2.9	25.9	44.7	26.5	100	99	81	14.7	
S-65	30 RT	16+00	0.5-5.0	A-7-6(42)	61	40	0.4	8.2	22.0	69.4	100	100	95	34.4	
S-66	30 RT	16+00	5.0-6.0	A-2-4(0)	20	NP	4.1	73.9	11.8	10.2	100	99	32	-	-

(A) SOFT TAN BROWN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) DENSE GRAVEL, MOIST (ARTIFICIAL FILL)

(C) SOFT TO MEDIUM STIFF TAN BROWN SANDY SILT, MOIST (ROADWAY EMBANKMENT)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

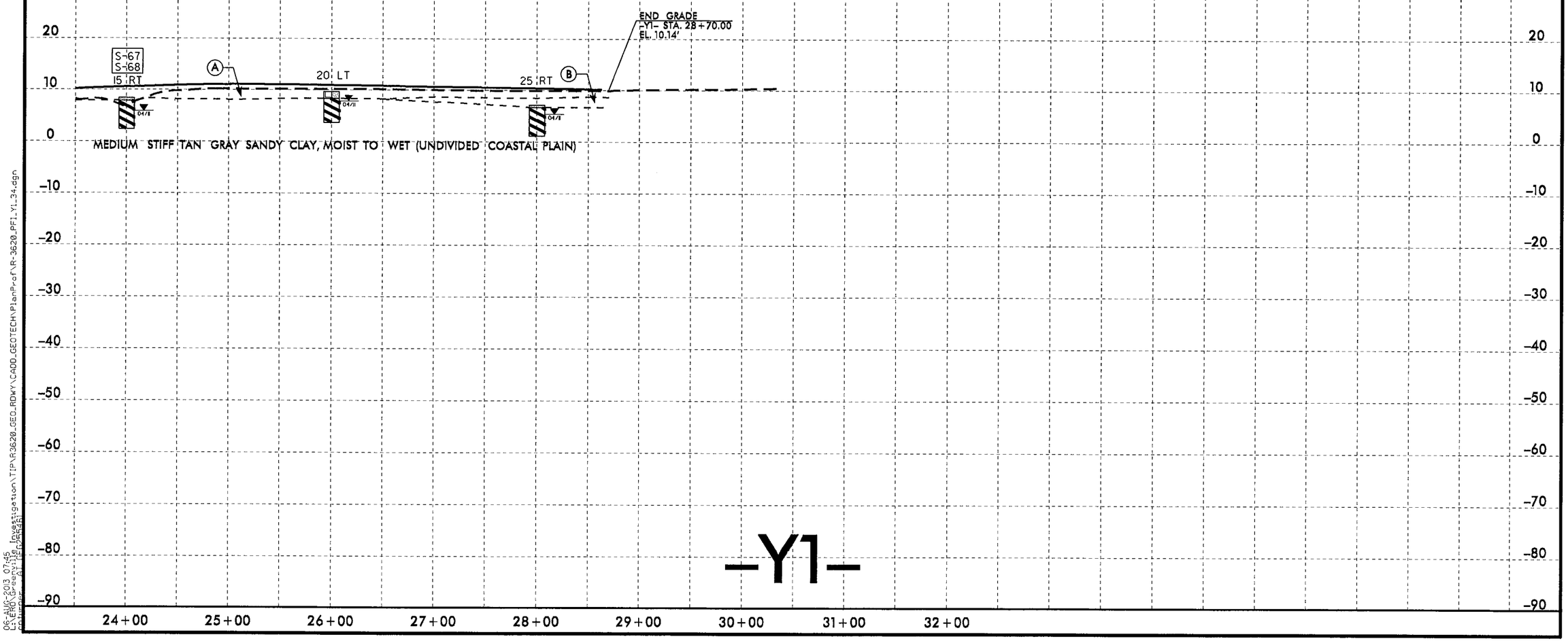
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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
S-67	15 RT	24+00	0.0-0.5	A-4(0)	24	4	3.9	49.8	30.0	16.3	100	99	57	24.2	
S-68	15 RT	24+00	0.5-5.0	A-7-6(18)	47	29	2.0	37.3	13.7	46.9	100	100	68	25.1	

(A) SOFT TAN BROWN SANDY SILT, MOIST (ROADWAY EMBANKMENT)

(B) SOFT TAN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



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PROJECT REFERENCE NO.	SHEET NO.
R-3620	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

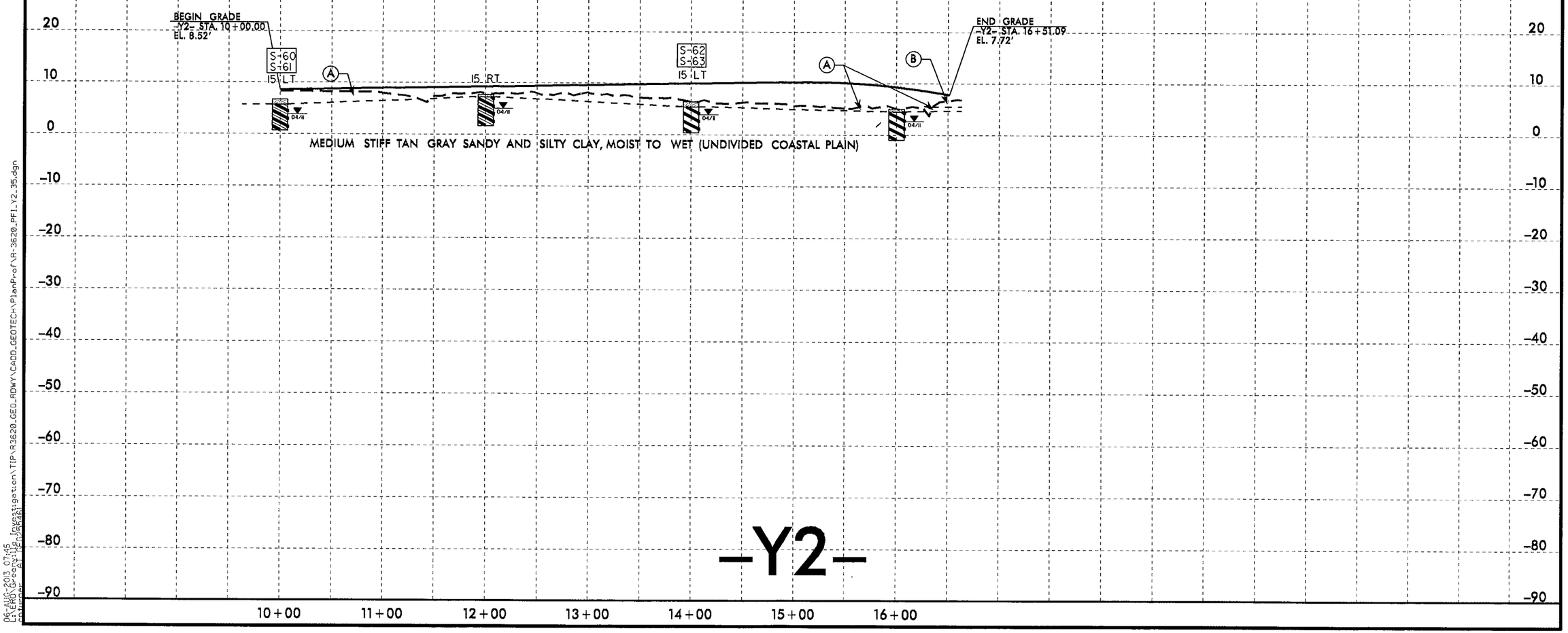
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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
S-60	15 LT	10+00	0.0-1.0	A-4(5)	26	8	2.9	22.4	46.1	28.6	100	99	84	-	-
S-61	15 LT	10+00	1.0-6.0	A-6(14)	38	22	3.9	28.8	14.3	53.1	100	99	72	23.3	
S-62	15 RT	14+00	0.0-1.0	A-4(3)	25	6	2.0	28.2	45.3	24.5	100	100	80	17.9	
S-63	15 RT	14+00	1.0-6.0	A-7-6(40)	61	38	0.4	8.4	28.0	63.3	100	100	94	30.4	

(A) SOFT TAN BROWN SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(B) SOFT TO MEDIUM STIFF TAN BROWN SANDY SILT, MOIST (ROADWAY EMBANKMENT)



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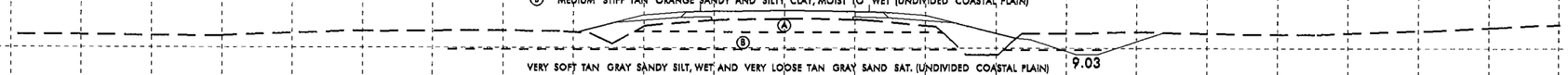
Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



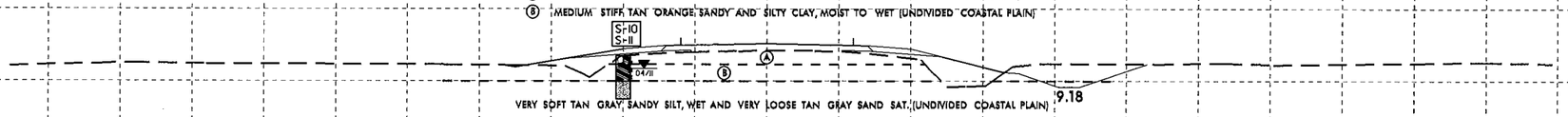
VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

14 + 50.00

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-10	20 LT	14+00	0.0-3.5	A-6(12)	34	16	4.4	18.5	47.0	30.1	98	97	82	22.9	-
S-11	20 LT	14+00	3.5-6.0	A-4(0)	17	2	21.5	45.5	19.0	14.0	100	99	36	-	-

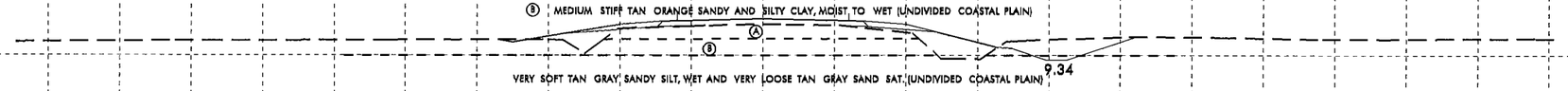
Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

14 + 00.00

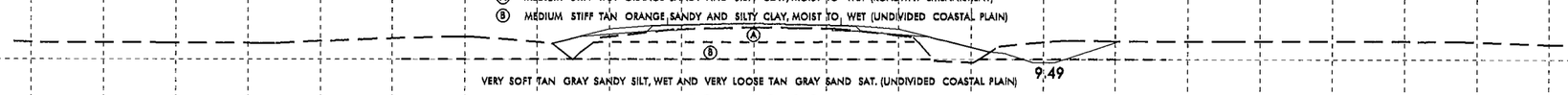
Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

13 + 50.00

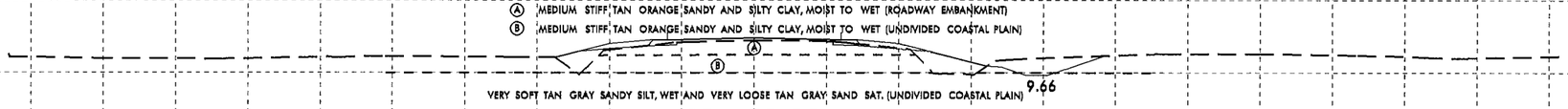
Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

13 + 00.00

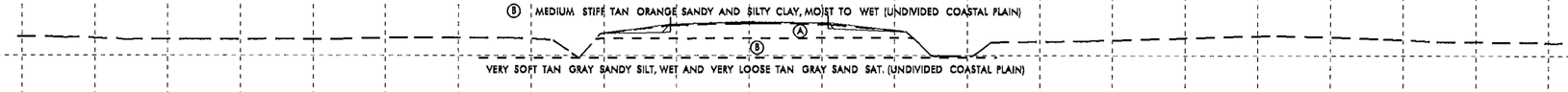
Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

12 + 50.00

Ⓐ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
Ⓑ MEDIUM STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



VERY SOFT TAN GRAY SANDY SILT, WET AND VERY LOOSE TAN GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

12 + 00.00

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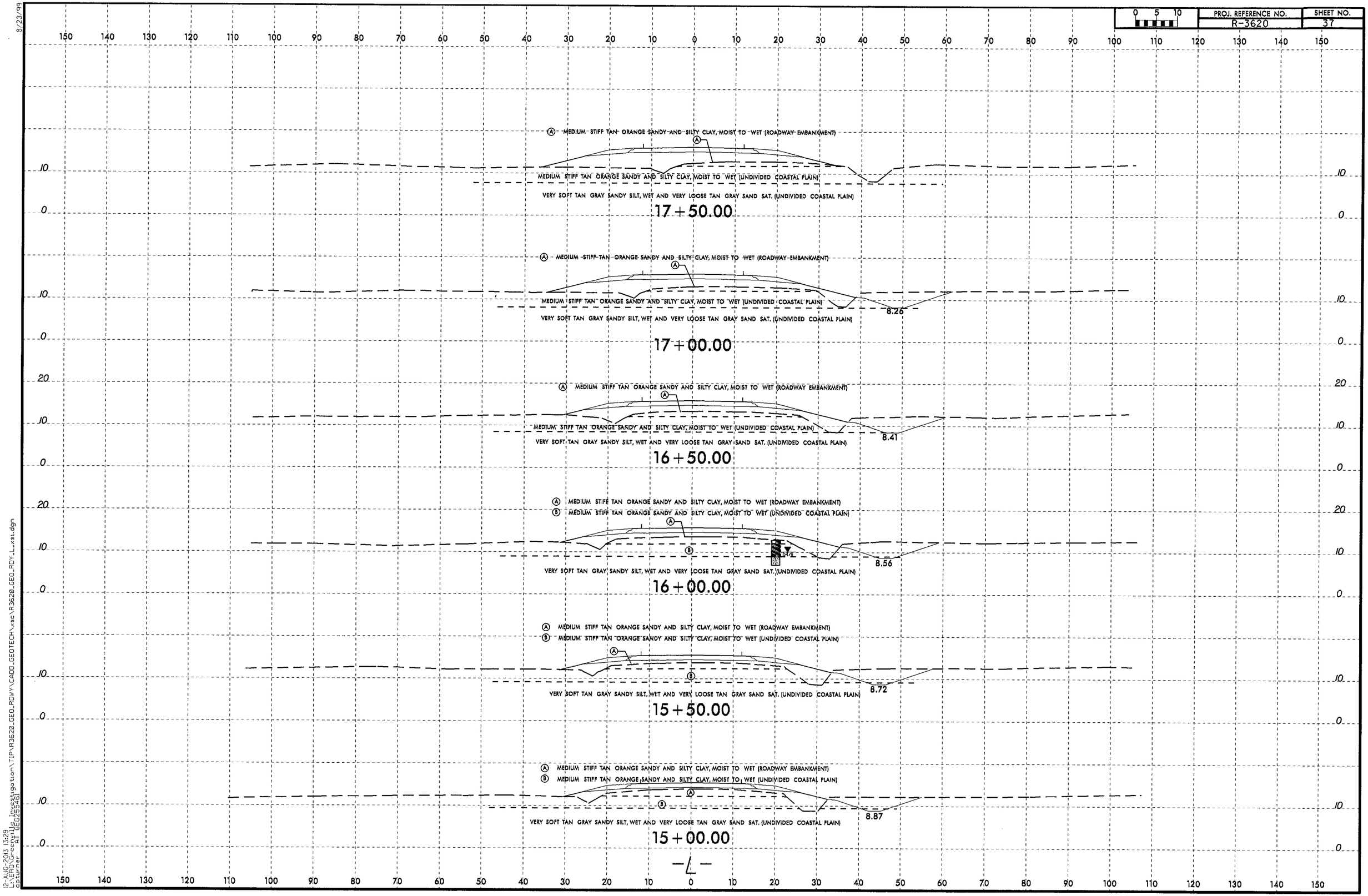

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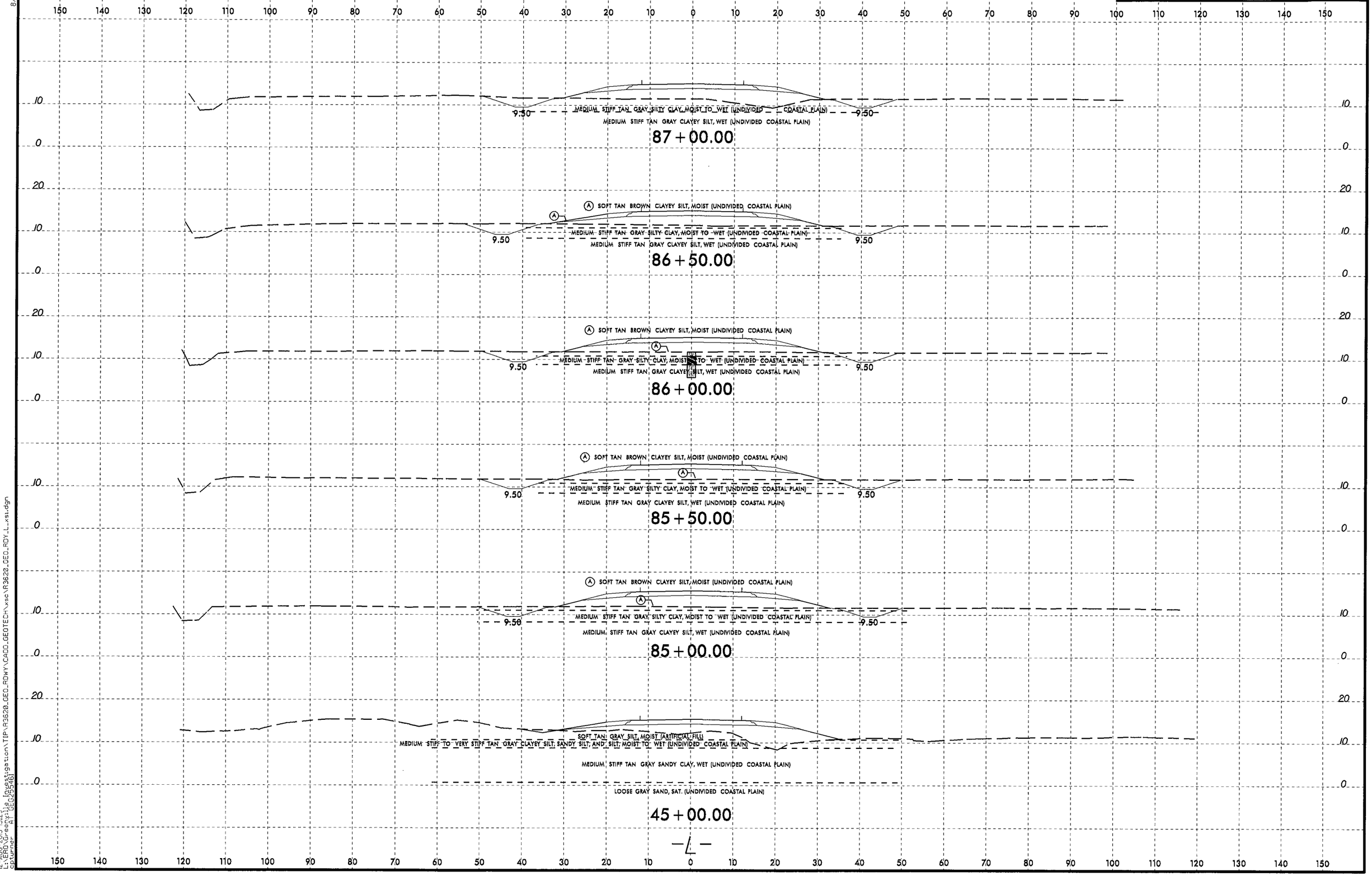

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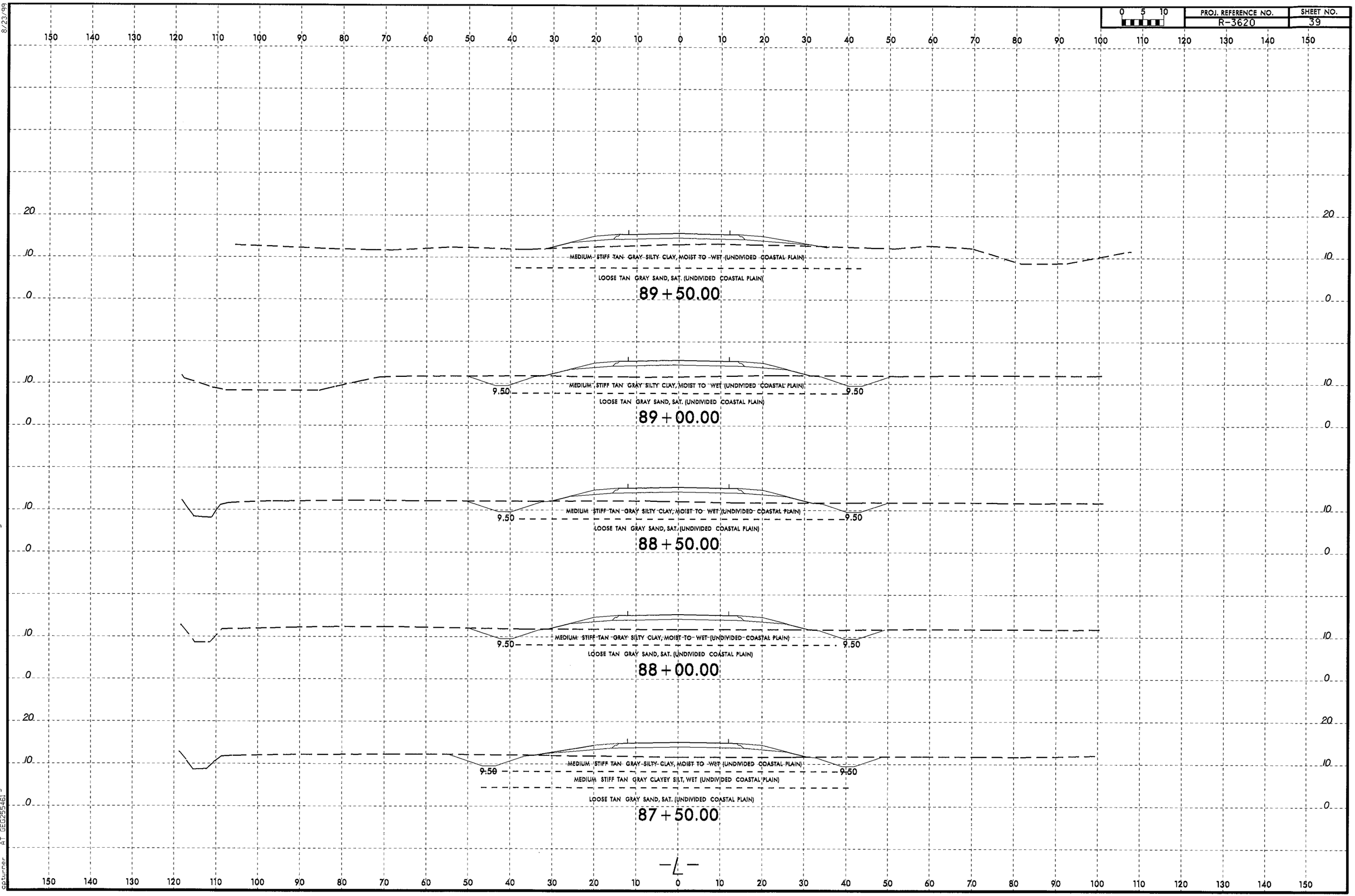

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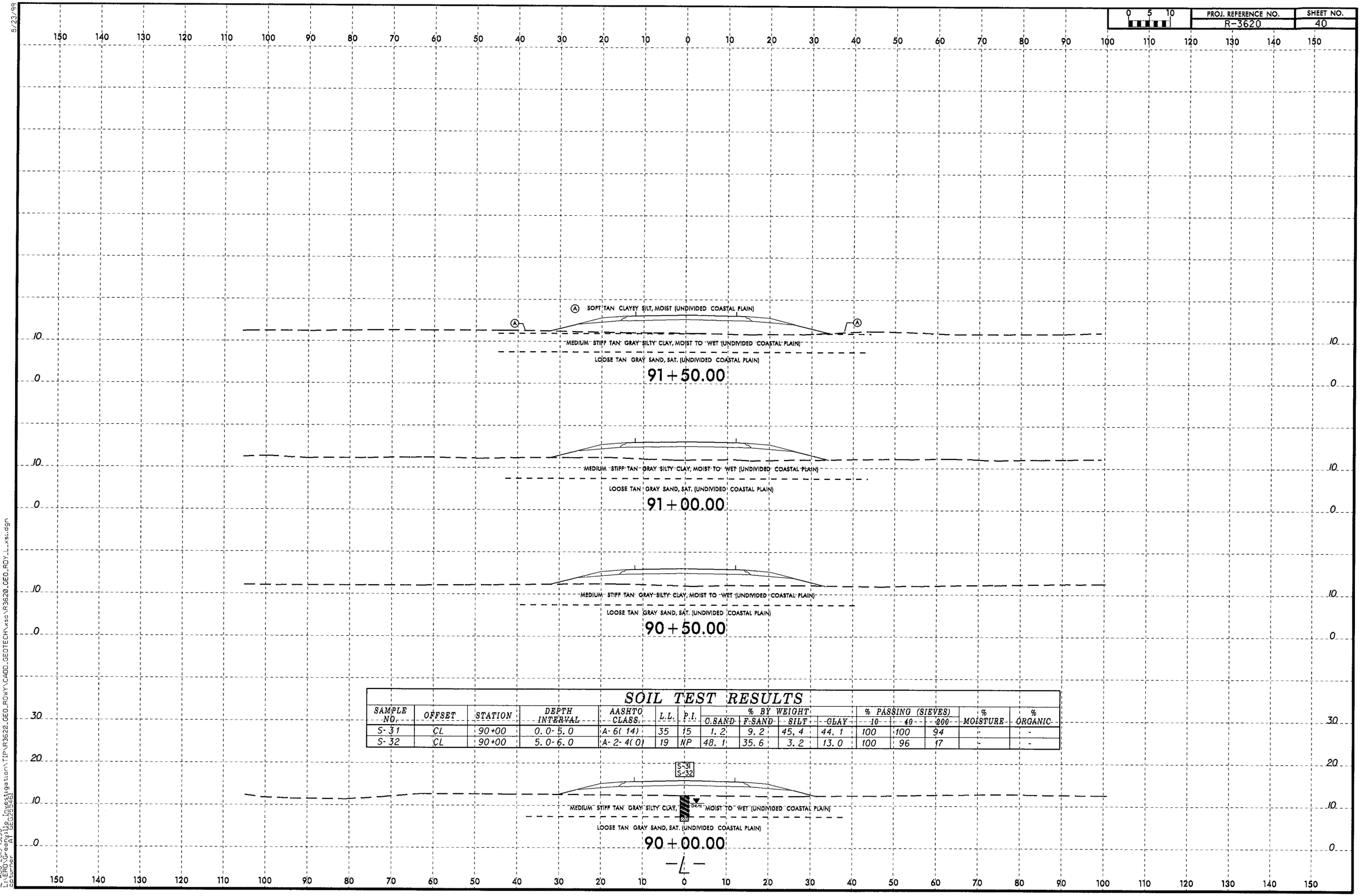

SOIL TEST RESULTS

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-31	CL	90+00	0.0-5.0	A-6(14)	35	15	1.2	9.2	45.4	44.1	100	100	94	-	-
S-32	CL	90+00	5.0-6.0	A-2-4(0)	19	NP	48.1	35.6	3.2	13.0	100	96	17	-	-

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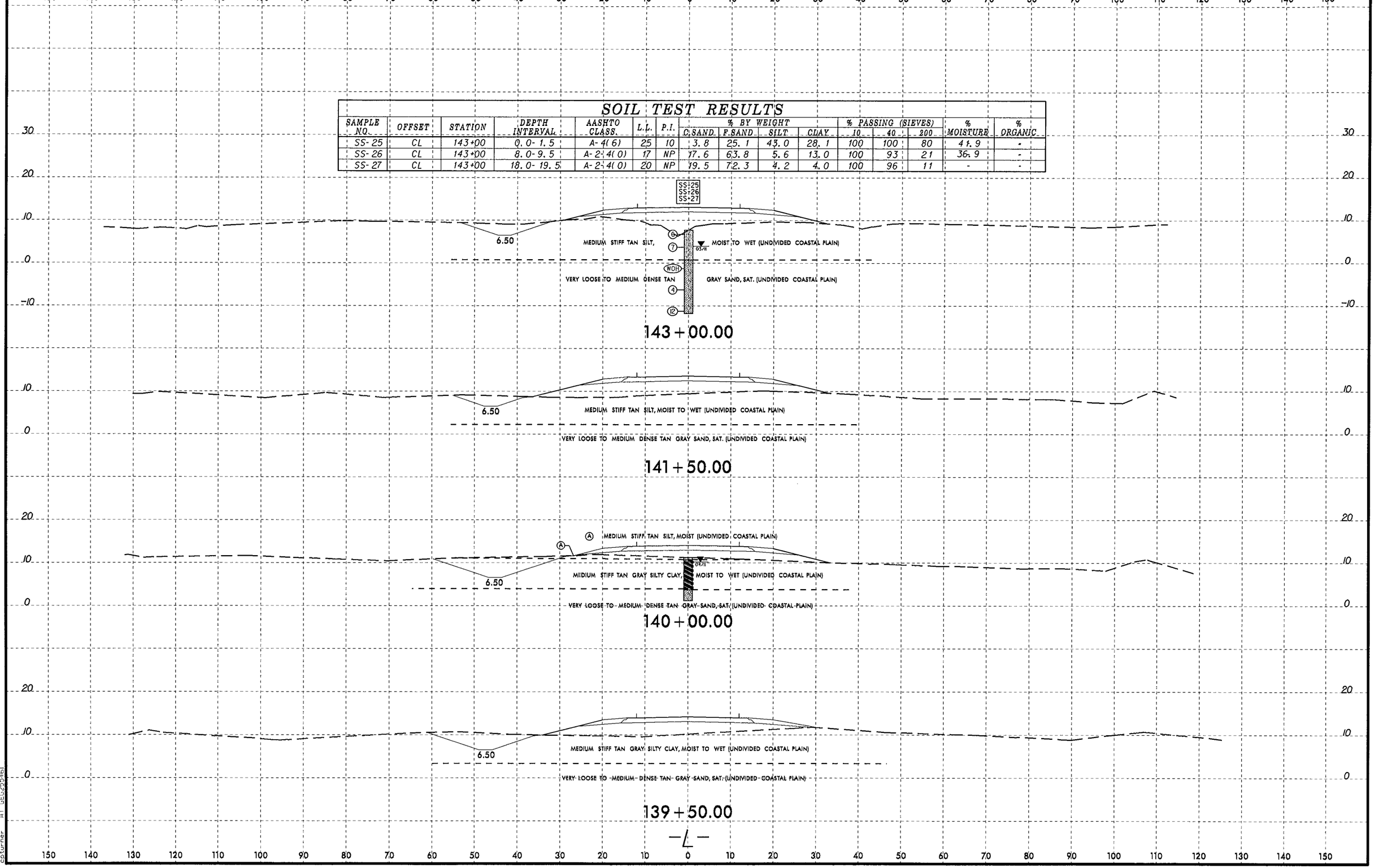
PROJ. REFERENCE NO.	SHEET NO.
R-3620	41

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	CL	143+00	0.0-1.5	A-4(6)	25	10	3.8	25.1	43.0	28.1	100	100	80	41.9	-
SS-26	CL	143+00	8.0-9.5	A-2-4(0)	17	NP	17.6	63.8	5.6	13.0	100	93	21	36.9	-
SS-27	CL	143+00	18.0-19.5	A-2-4(0)	20	NP	19.5	72.3	4.2	4.0	100	96	11	-	-



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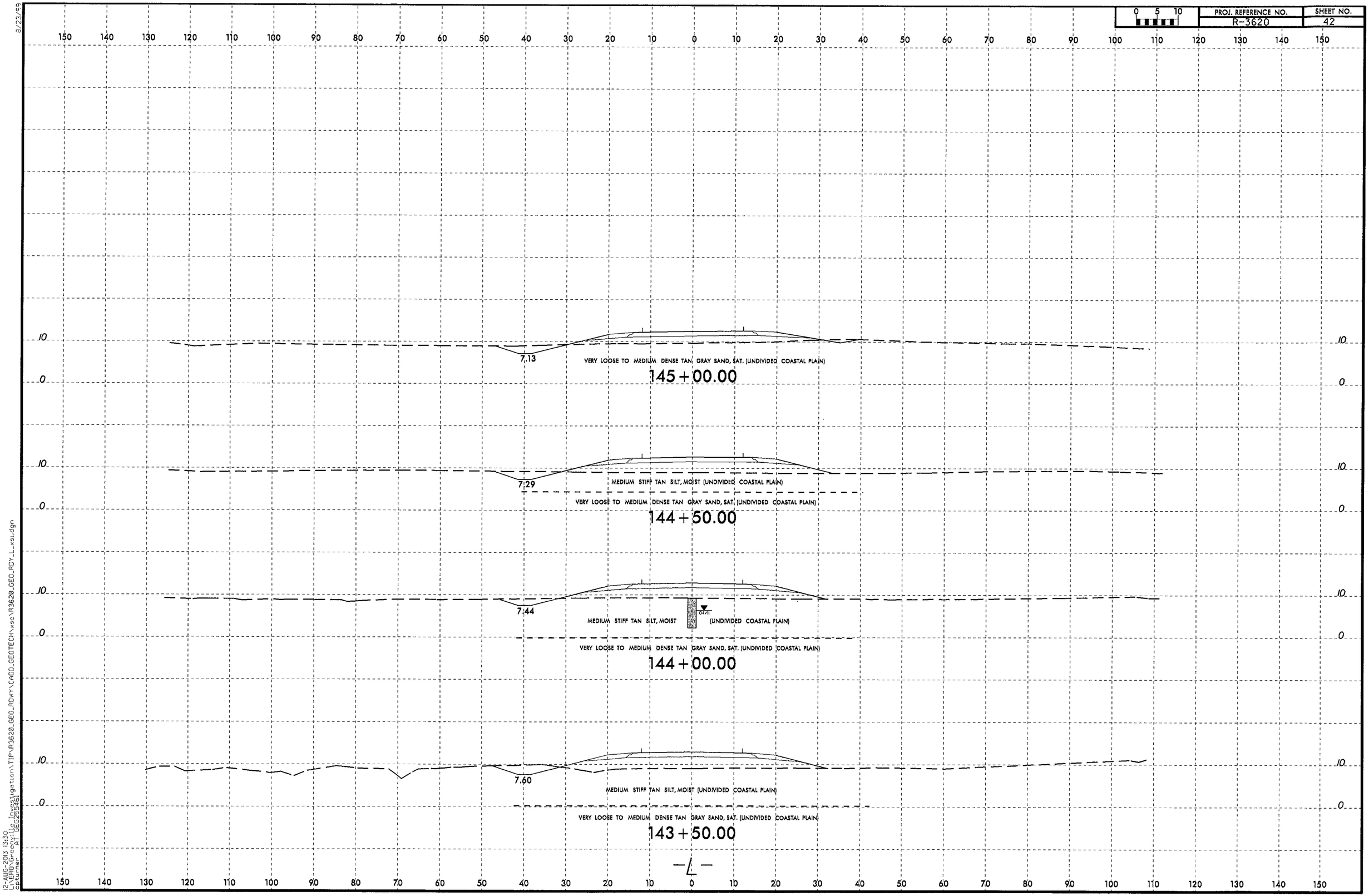

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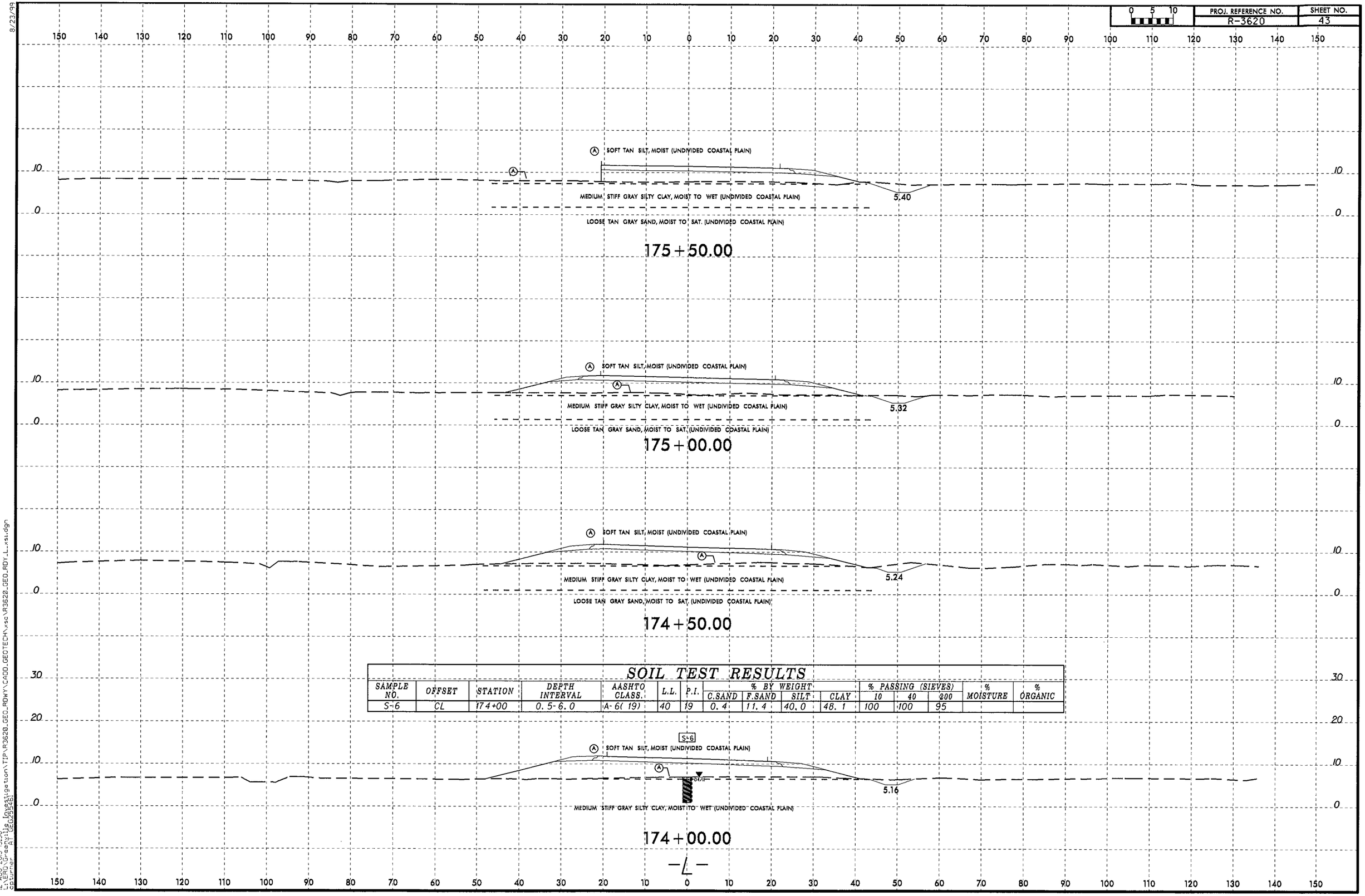

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-6	CL	174+00	0.5-6.0	A-6(19)	40	19	0.4	11.4	40.0	48.1	100	100	95		

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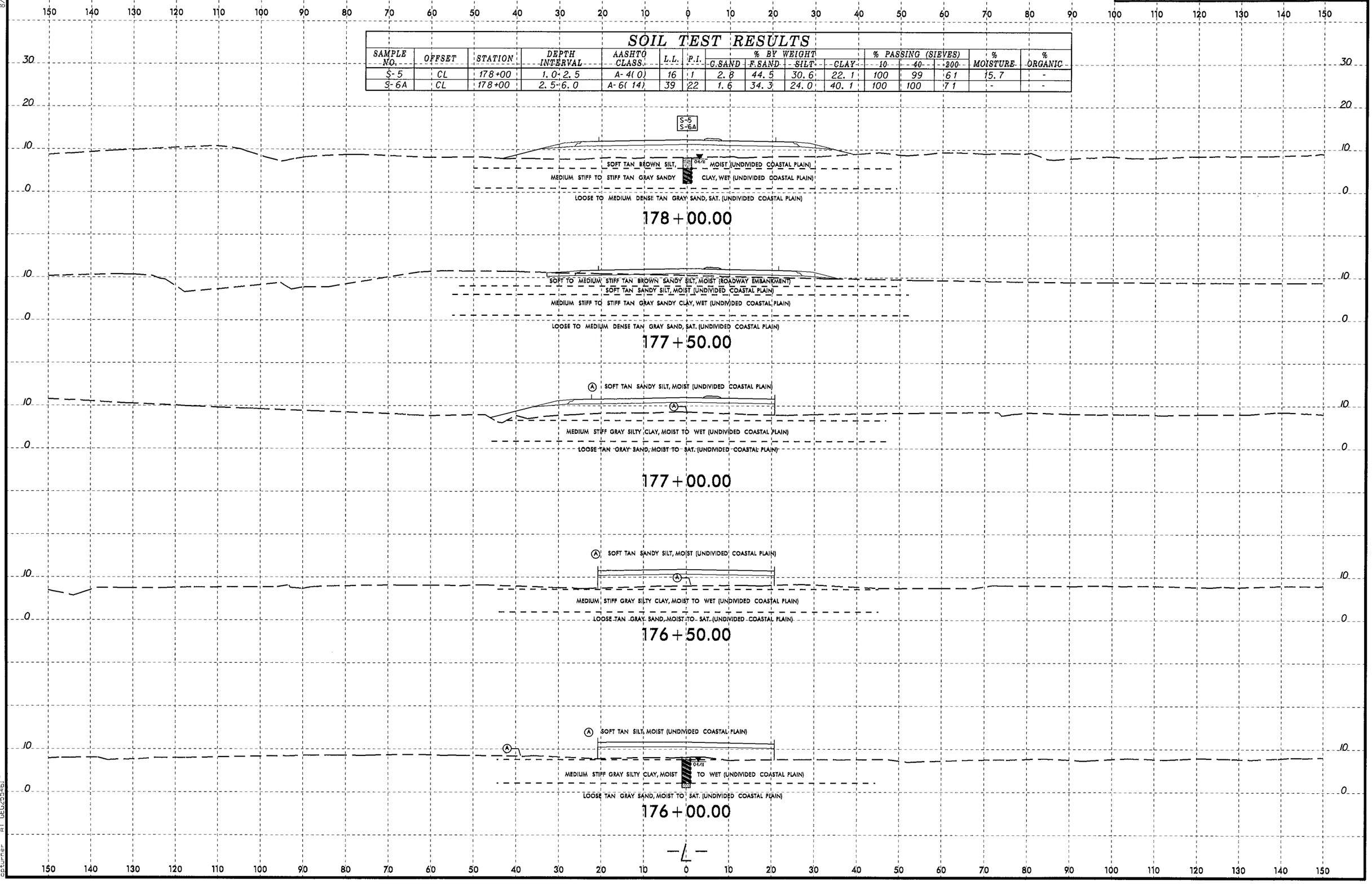
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT G.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-5	CL	178+00	1.0-2.5	A-4(0)	16	1	2.8	44.5	30.6	22.1	100	99	61	15.7	-
S-6A	CL	178+00	2.5-6.0	A-6(14)	39	22	1.6	34.3	24.0	40.1	100	100	71	-	-



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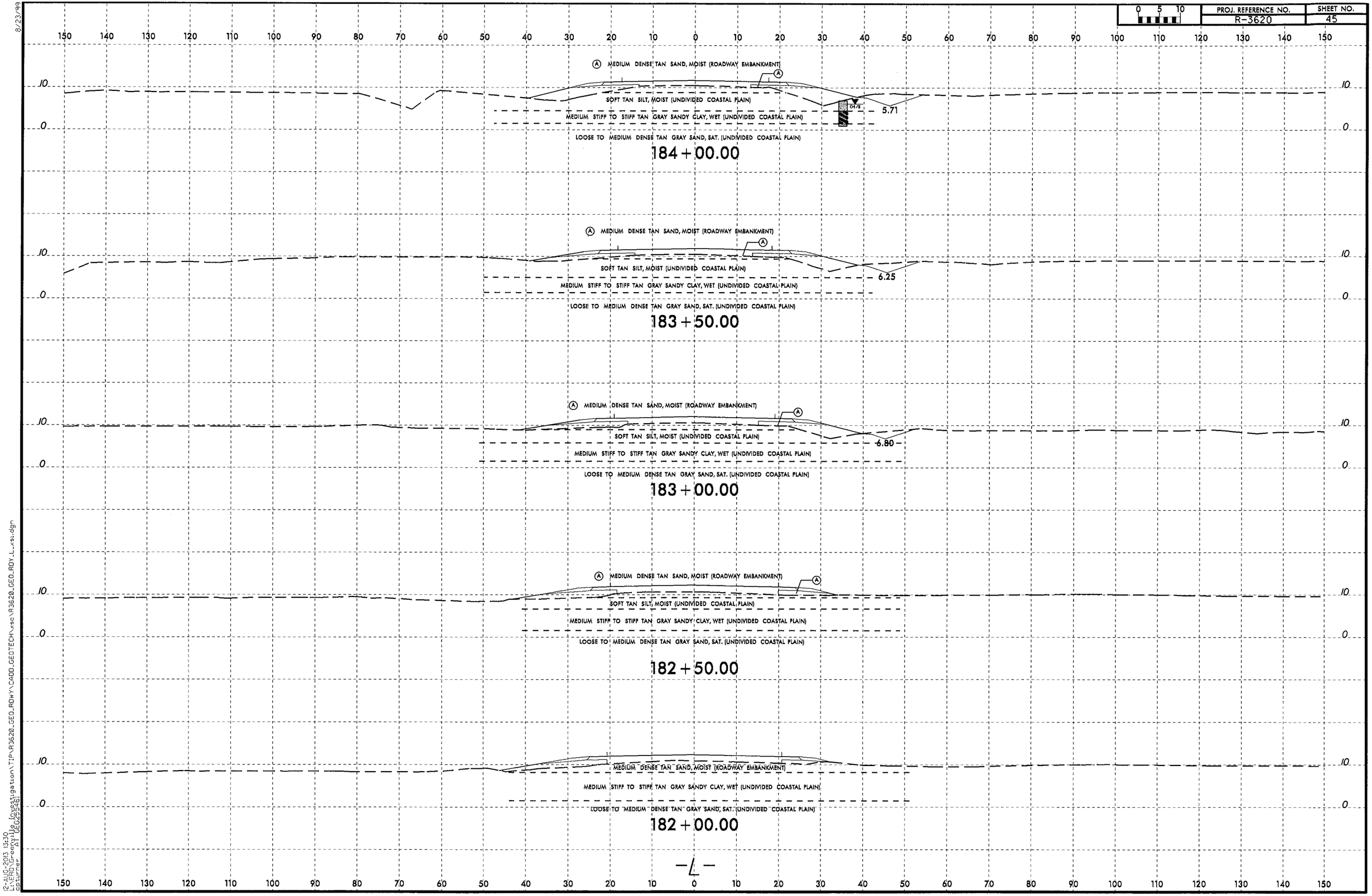

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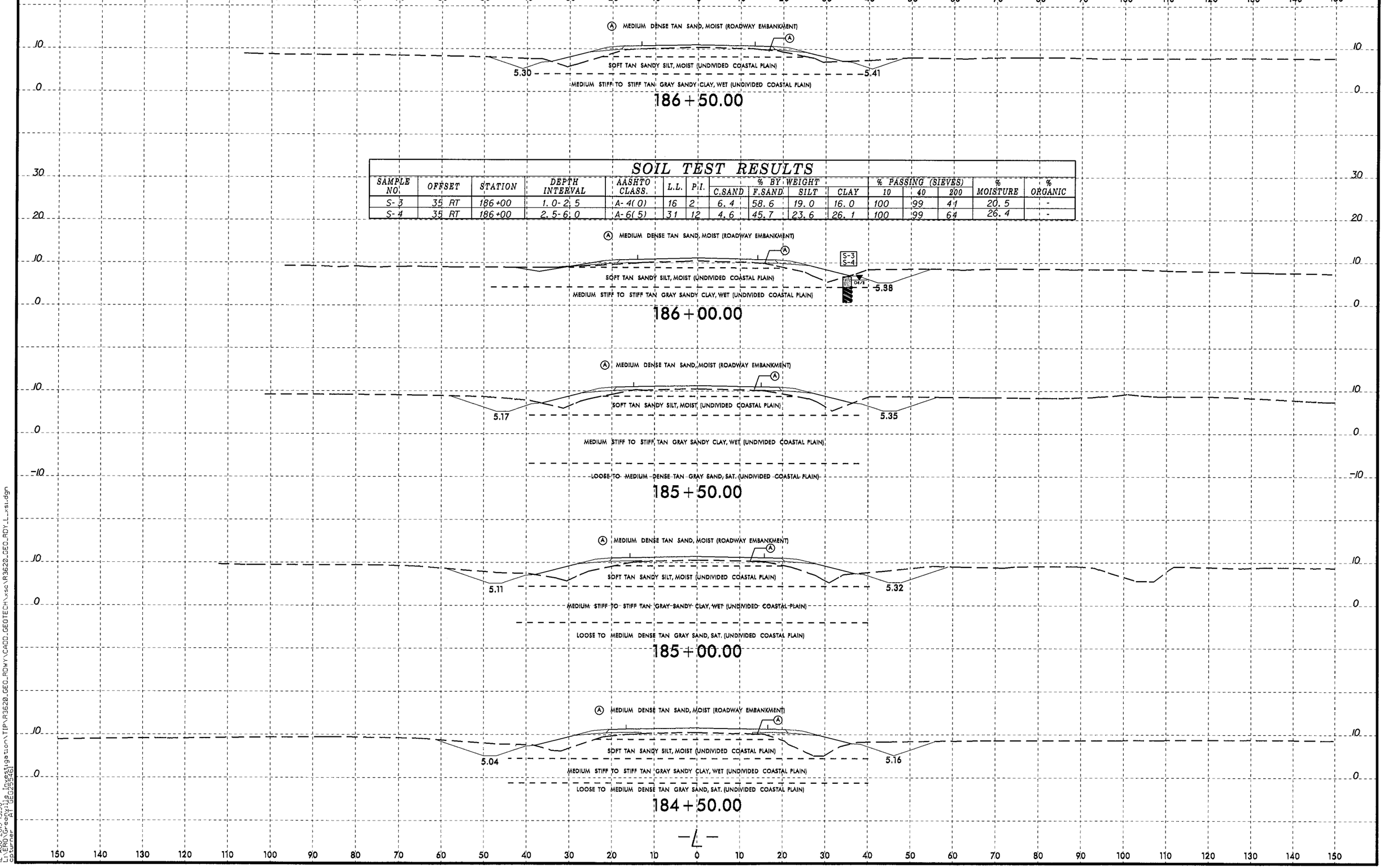

SOIL TEST RESULTS

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-3	35 RT	186+00	1.0-2.5	A-4(0)	16	2	6.4	58.6	19.0	16.0	100	99	41	20.5	-
S-4	35 RT	186+00	2.5-6.0	A-6(5)	31	12	4.6	45.7	23.6	26.1	100	99	64	26.4	-

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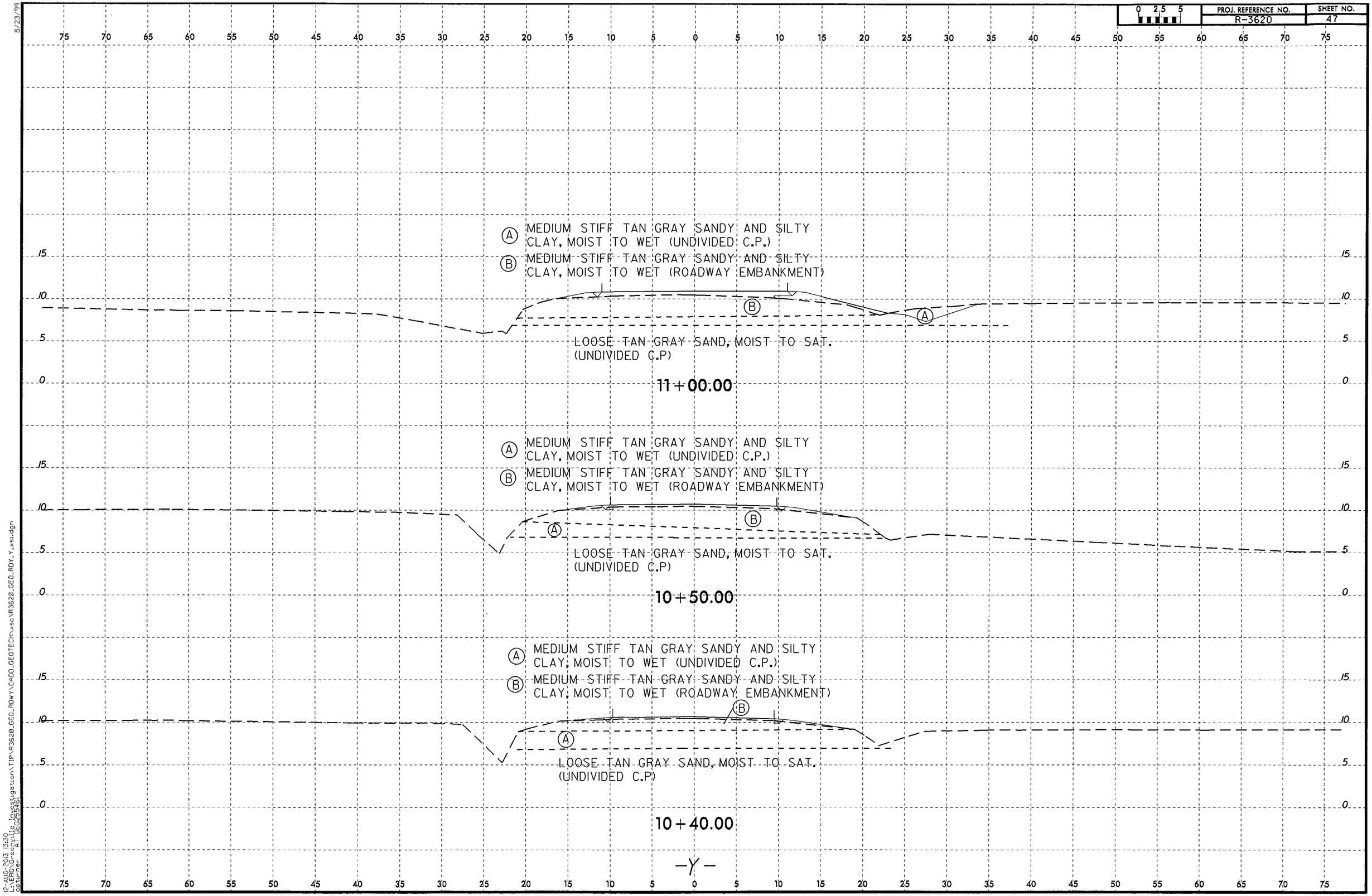
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SHEET NO.
47
Ⓐ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED C.P.)
Ⓑ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
LOOSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P)
11+00.00
Ⓐ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED C.P.)
Ⓑ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
LOOSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P)
10+50.00
Ⓐ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED C.P.)
Ⓑ MEDIUM STIFF TAN GRAY SANDY AND SILTY CLAY, MOIST TO WET (ROADWAY EMBANKMENT)
LOOSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P)
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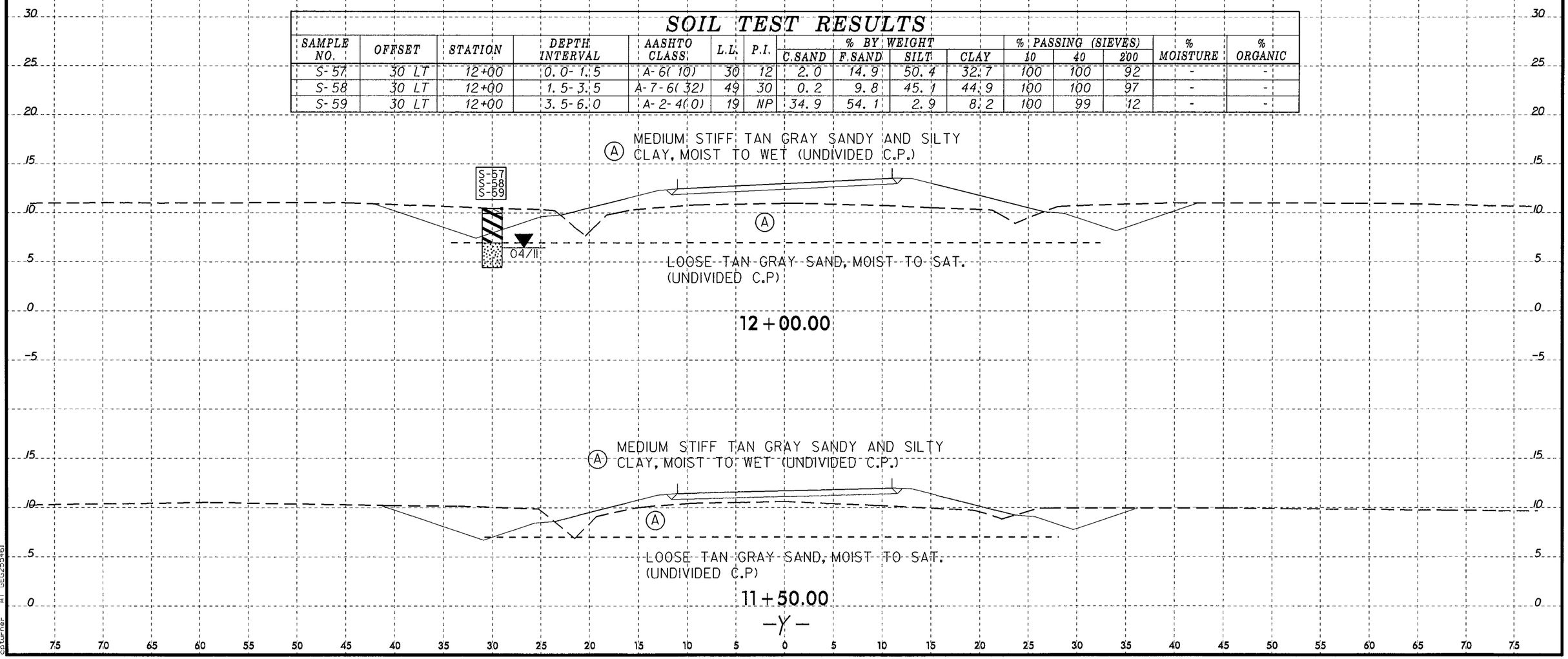
SOIL TEST RESULTS

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-57	30 LT	12+00	0.0-1.5	A-6(10)	30	12	2.0	14.9	50.4	32.7	100	100	92	-	-
S-58	30 LT	12+00	1.5-3.5	A-7-6(32)	49	30	0.2	9.8	45.1	44.9	100	100	97	-	-
S-59	30 LT	12+00	3.5-6.0	A-2-4(0)	19	NP	34.9	54.1	2.9	8.2	100	99	12	-	-



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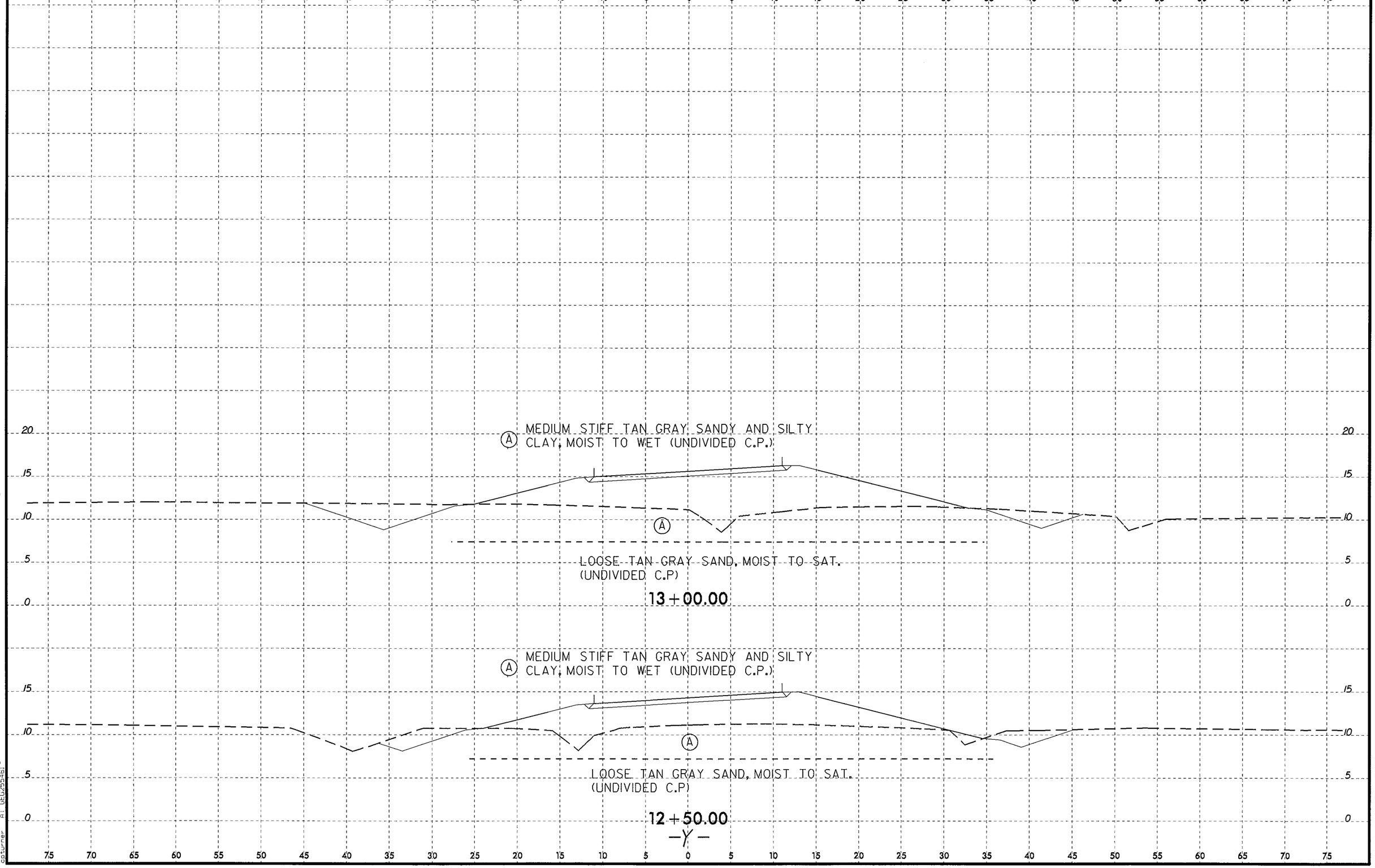

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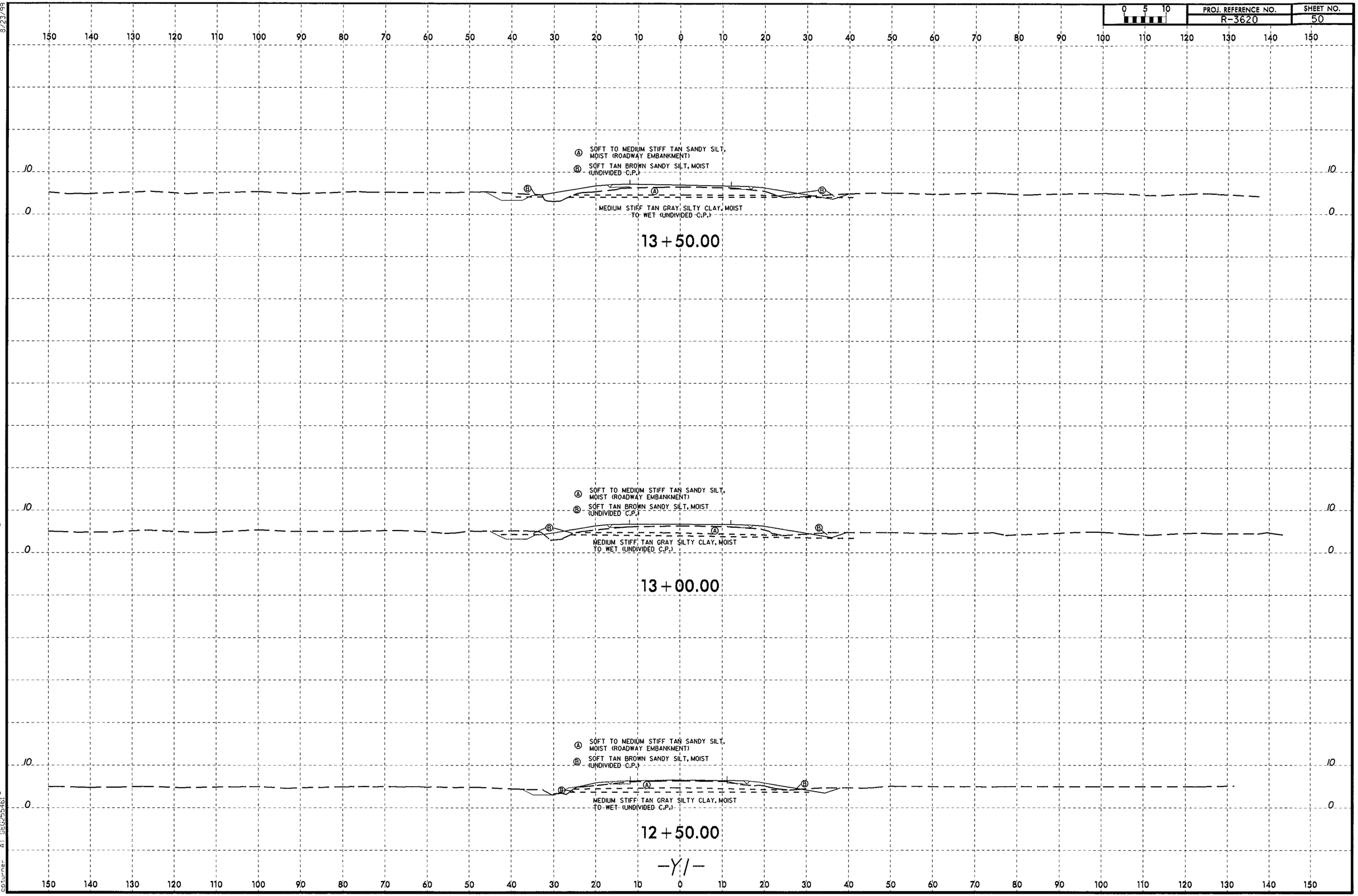

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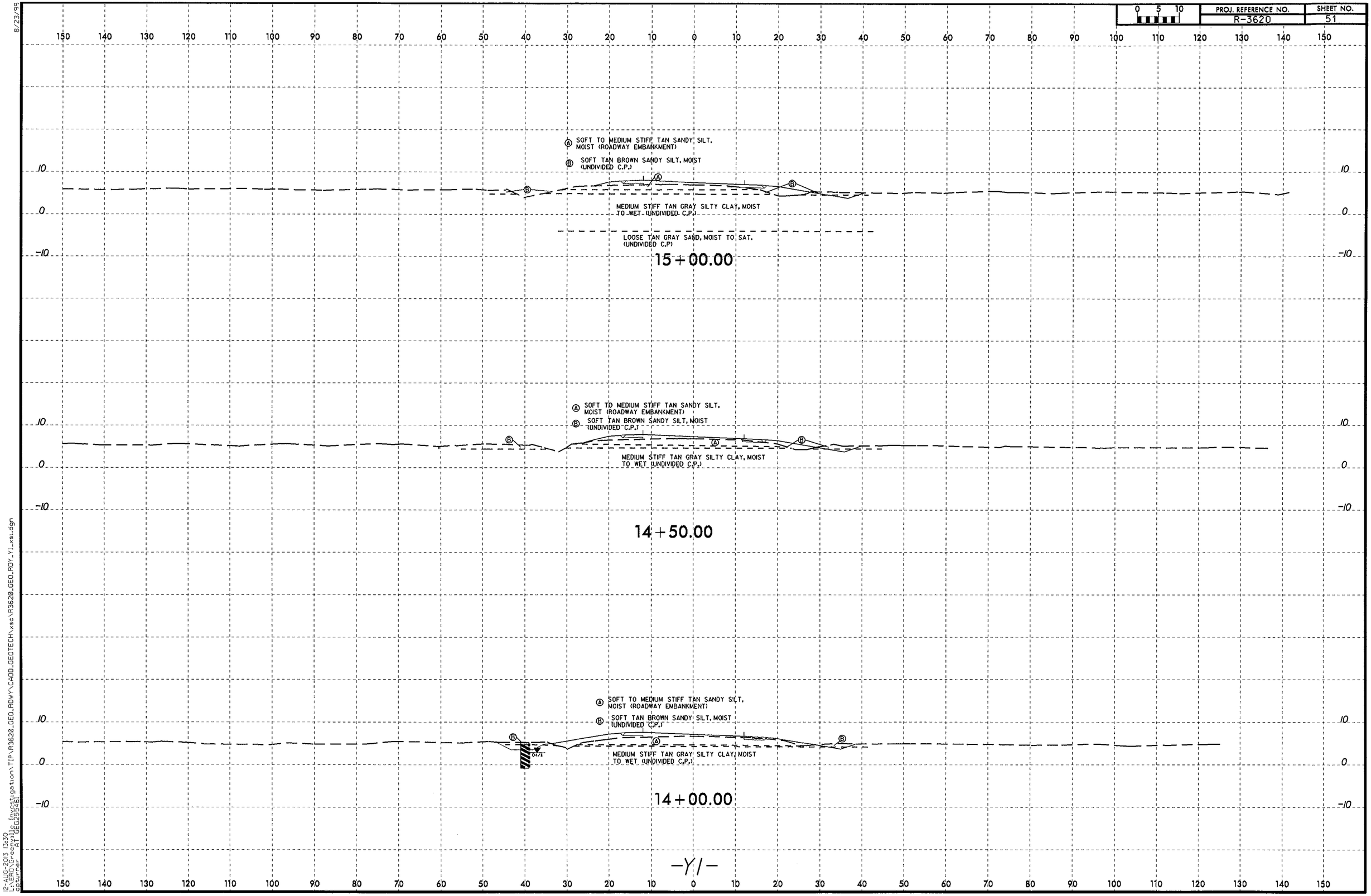

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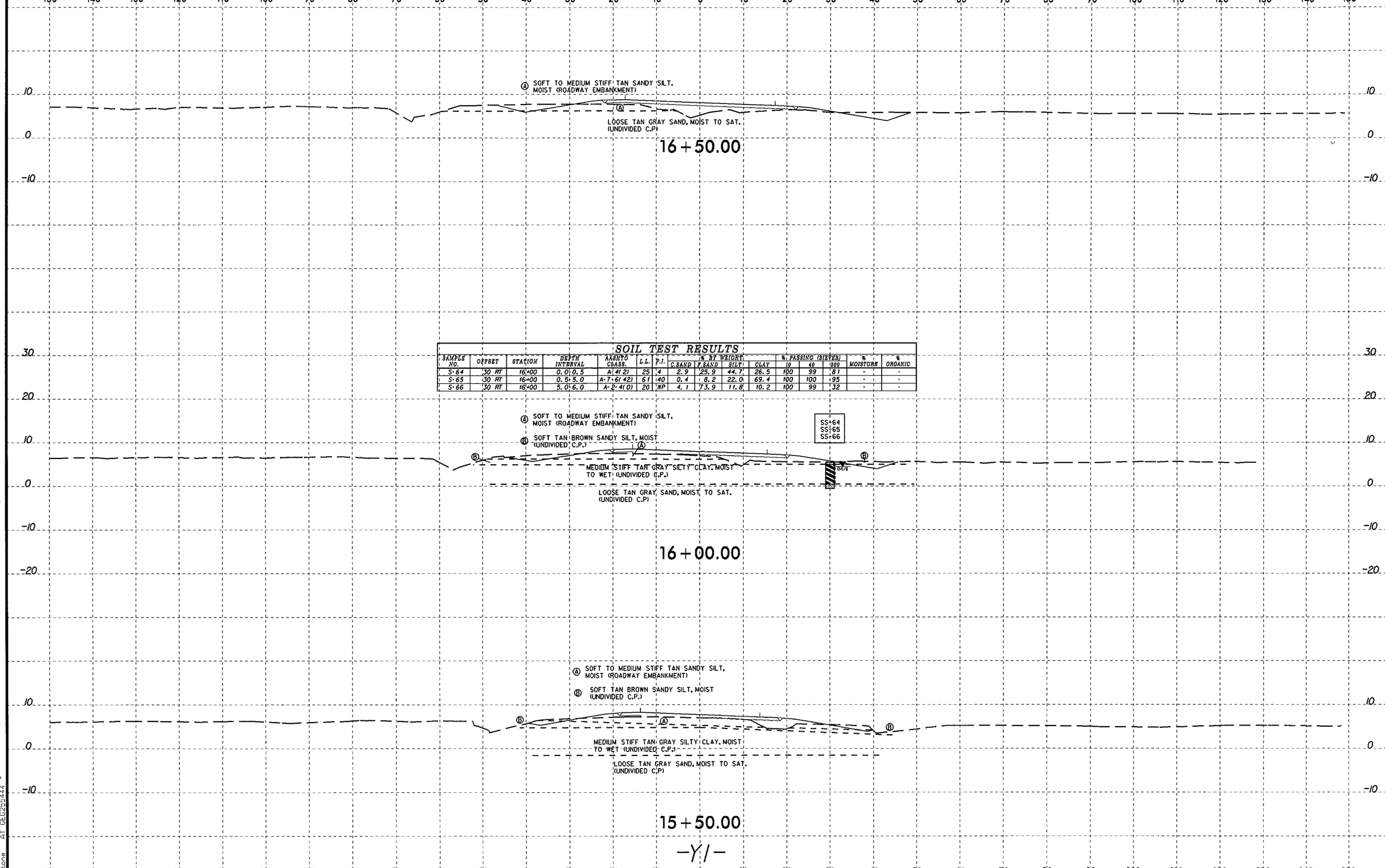
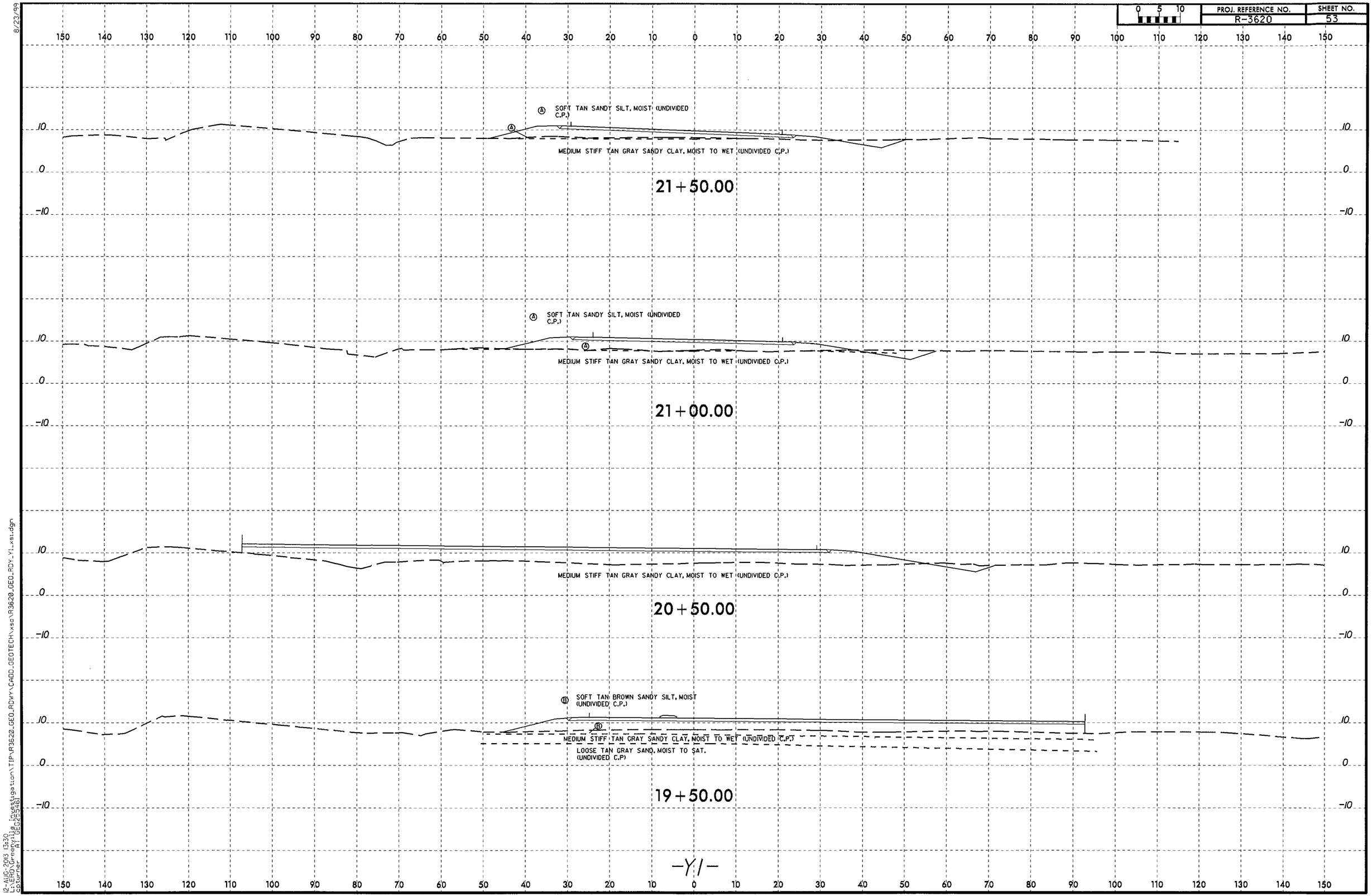


SOIL TEST RESULTS

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-64	30 RT	16+00	0.0-0.5	A-4(2)	25	4	2.9	25.9	44.7	26.5	100	99	81	-	-
S-65	30 RT	16+00	0.5-5.0	A-7-6(42)	61	40	0.4	8.2	22.0	69.4	100	100	95	-	-
S-66	30 RT	16+00	5.0-6.0	A-2-4(0)	20	NP	4.1	73.9	11.8	10.2	100	99	32	-	-



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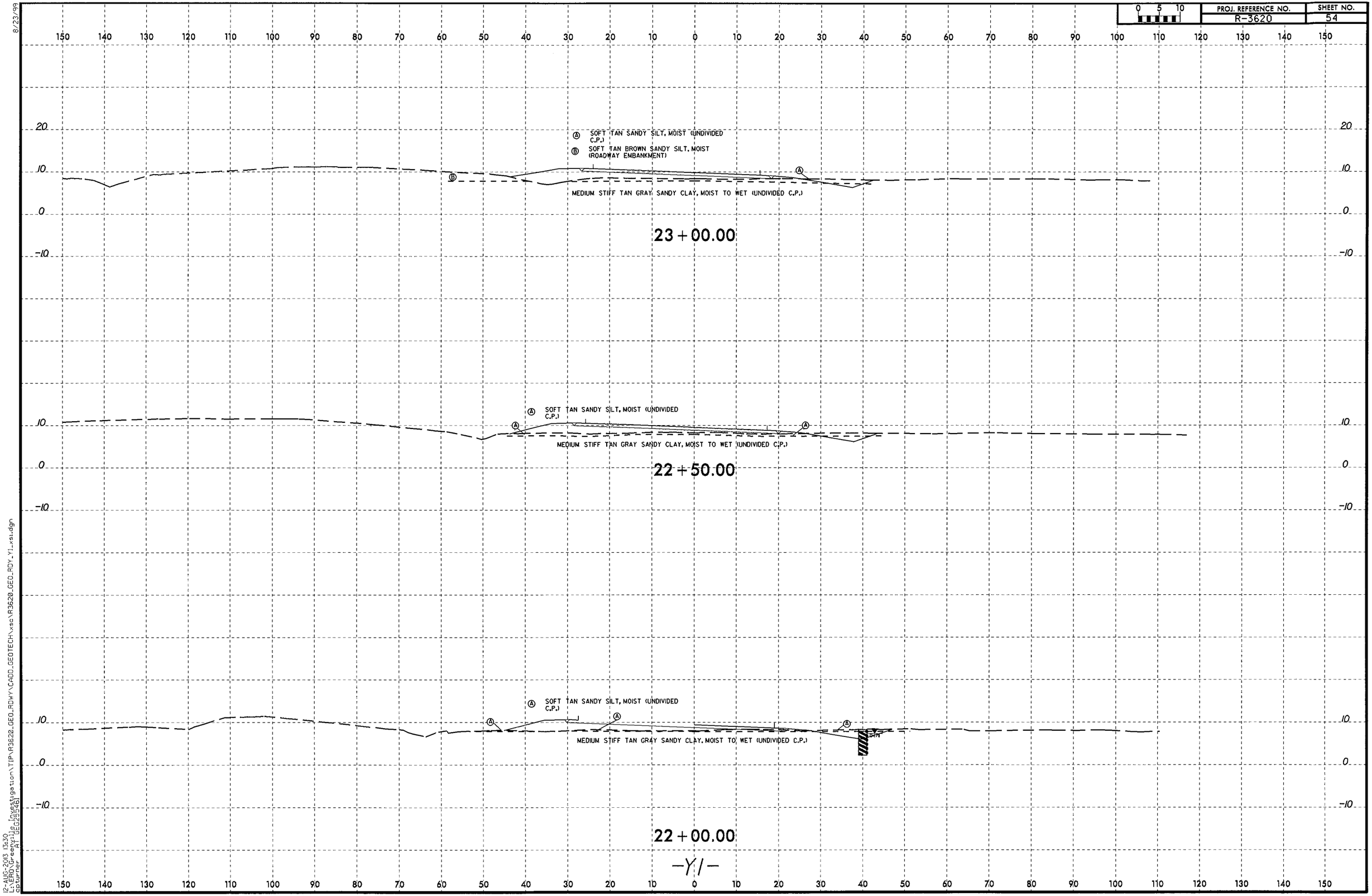

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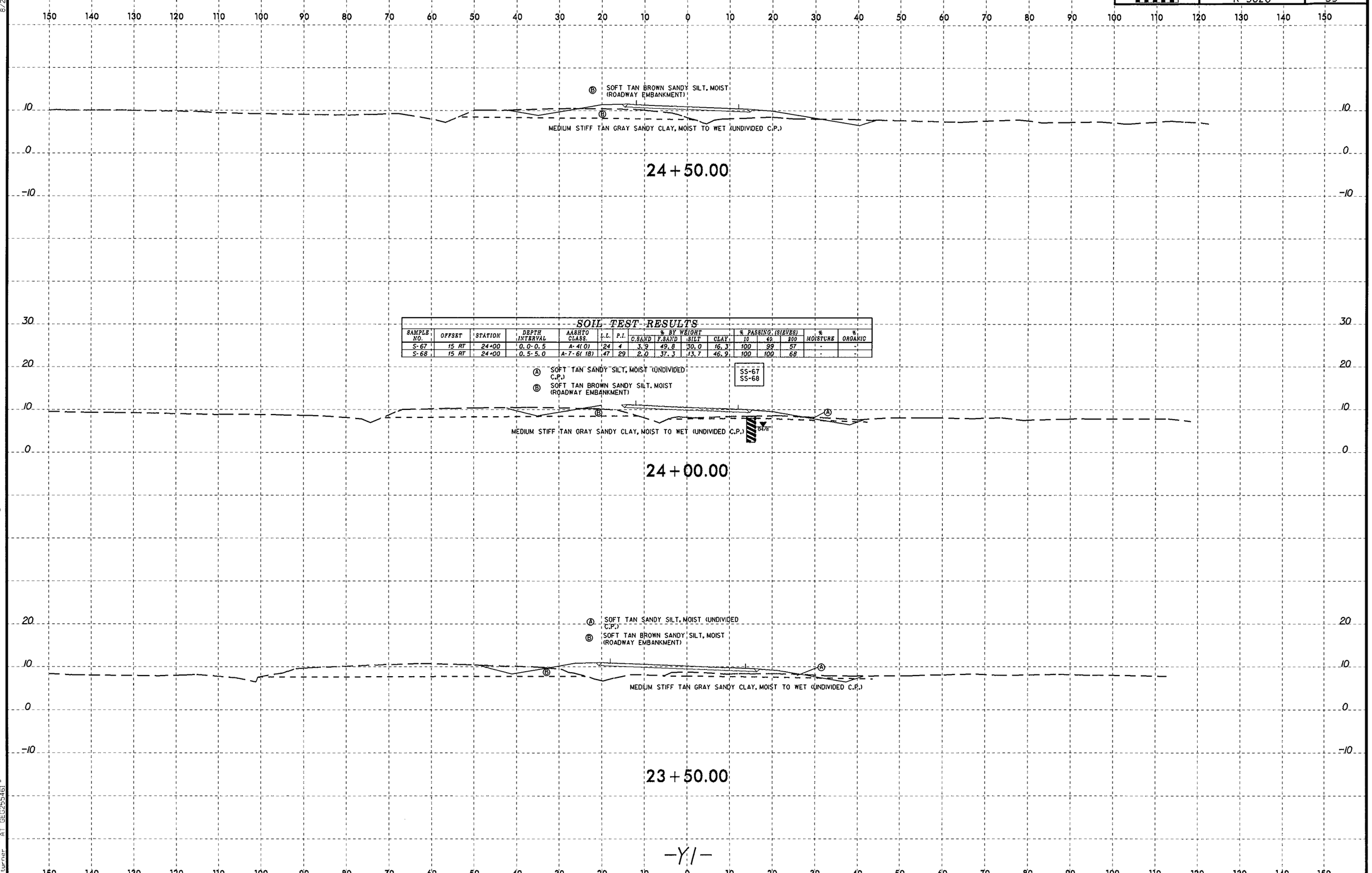

SOIL TEST RESULTS

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-67	15 RT	24+00	0.0-0.5	A-4(0)	24	4	3.9	49.8	30.0	16.3	100	99	57	-	-
S-68	15 RT	24+00	0.5-5.0	A-7-6(18)	47	29	2.0	37.3	13.7	46.9	100	100	68	-	-

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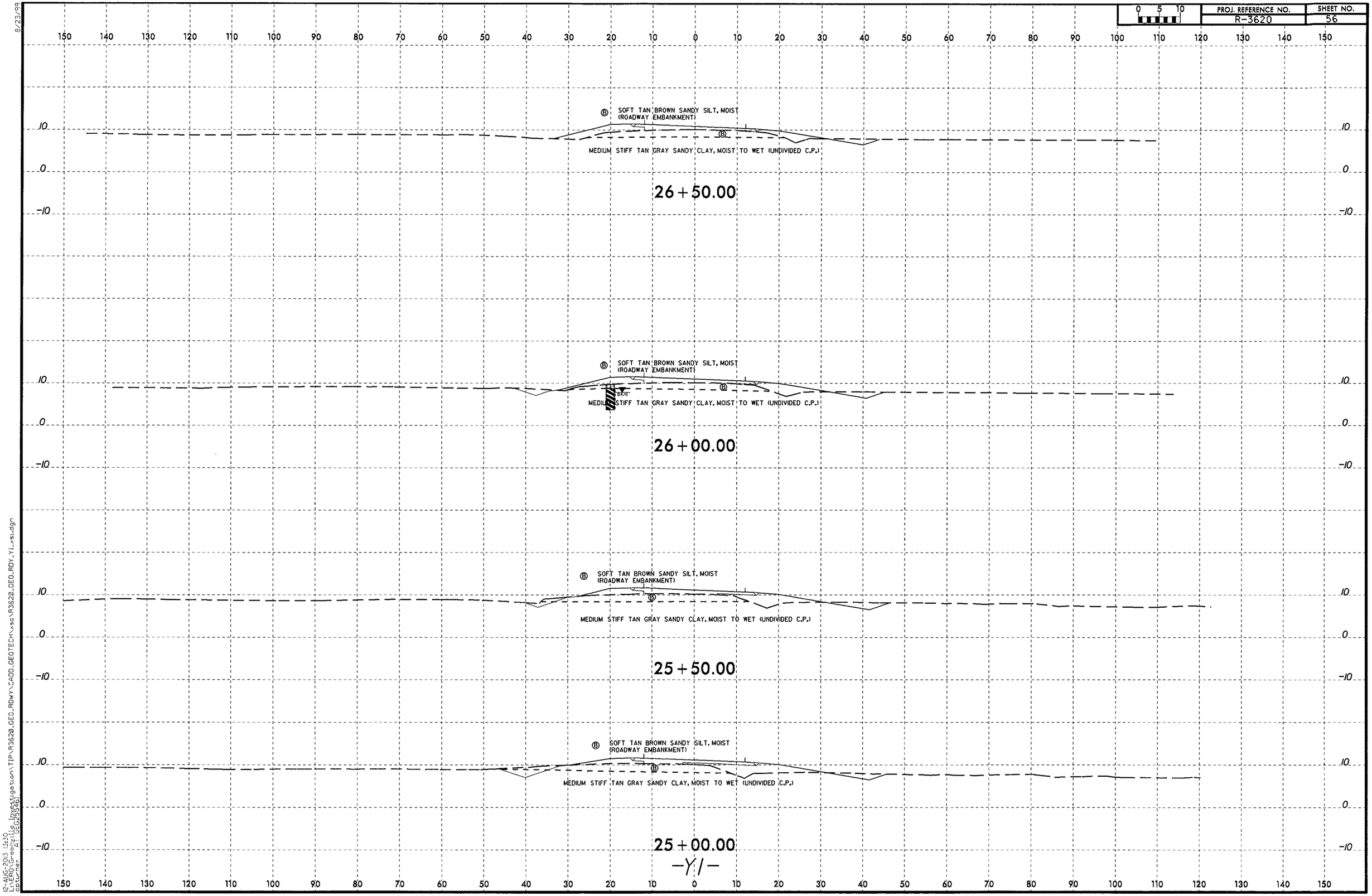
AT GEOPSSMB1

PROJ. REFERENCE NO.	SHEET NO.
R-3620	56



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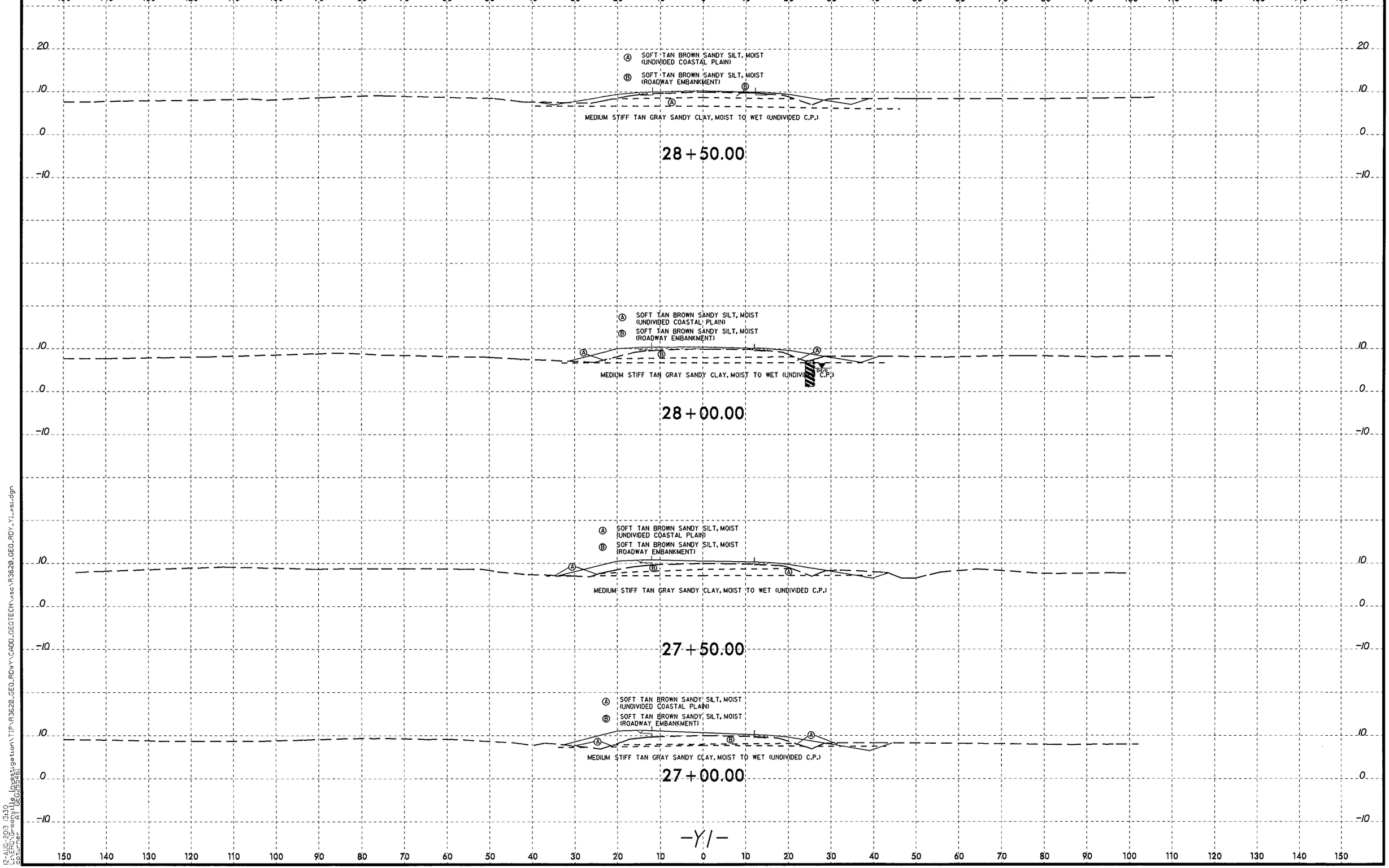

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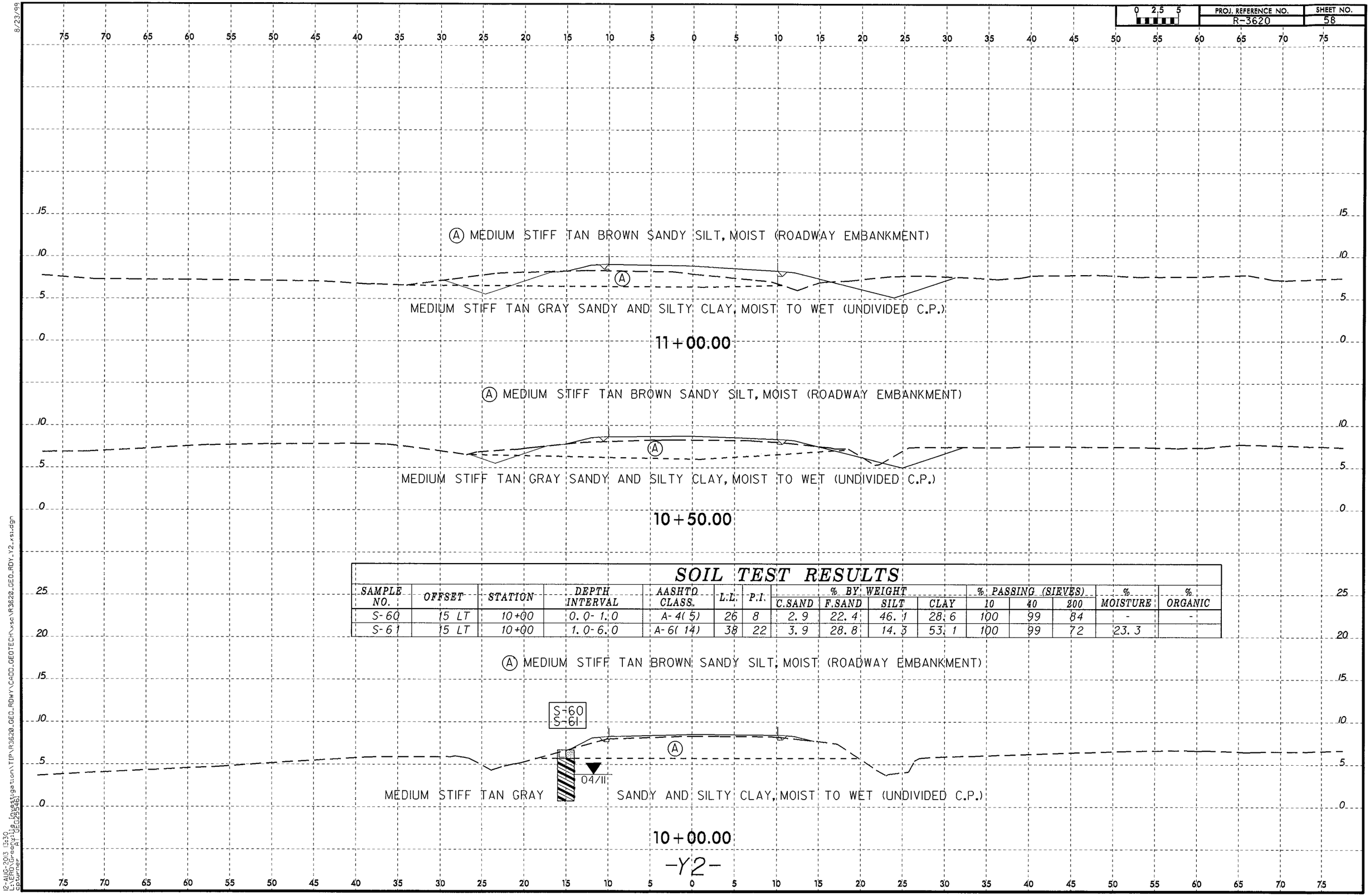

SOIL TEST RESULTS

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-60	15 LT	10+00	0.0-1.0	A-4(5)	26	8	2.9	22.4	46.1	28.6	100	99	84	-	-
S-61	15 LT	10+00	1.0-6.0	A-6(14)	38	22	3.9	28.8	14.3	53.1	100	99	72	23.3	

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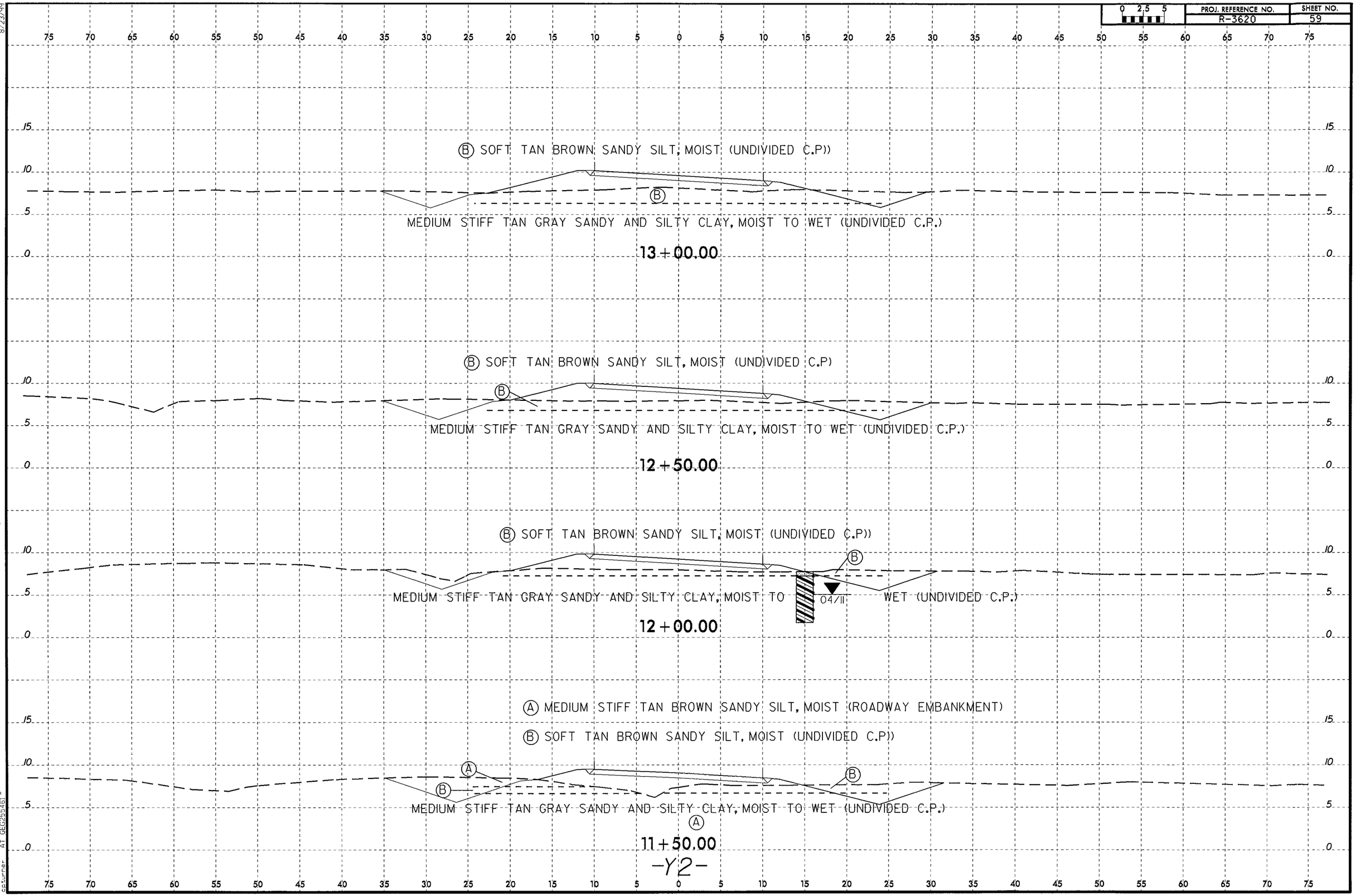

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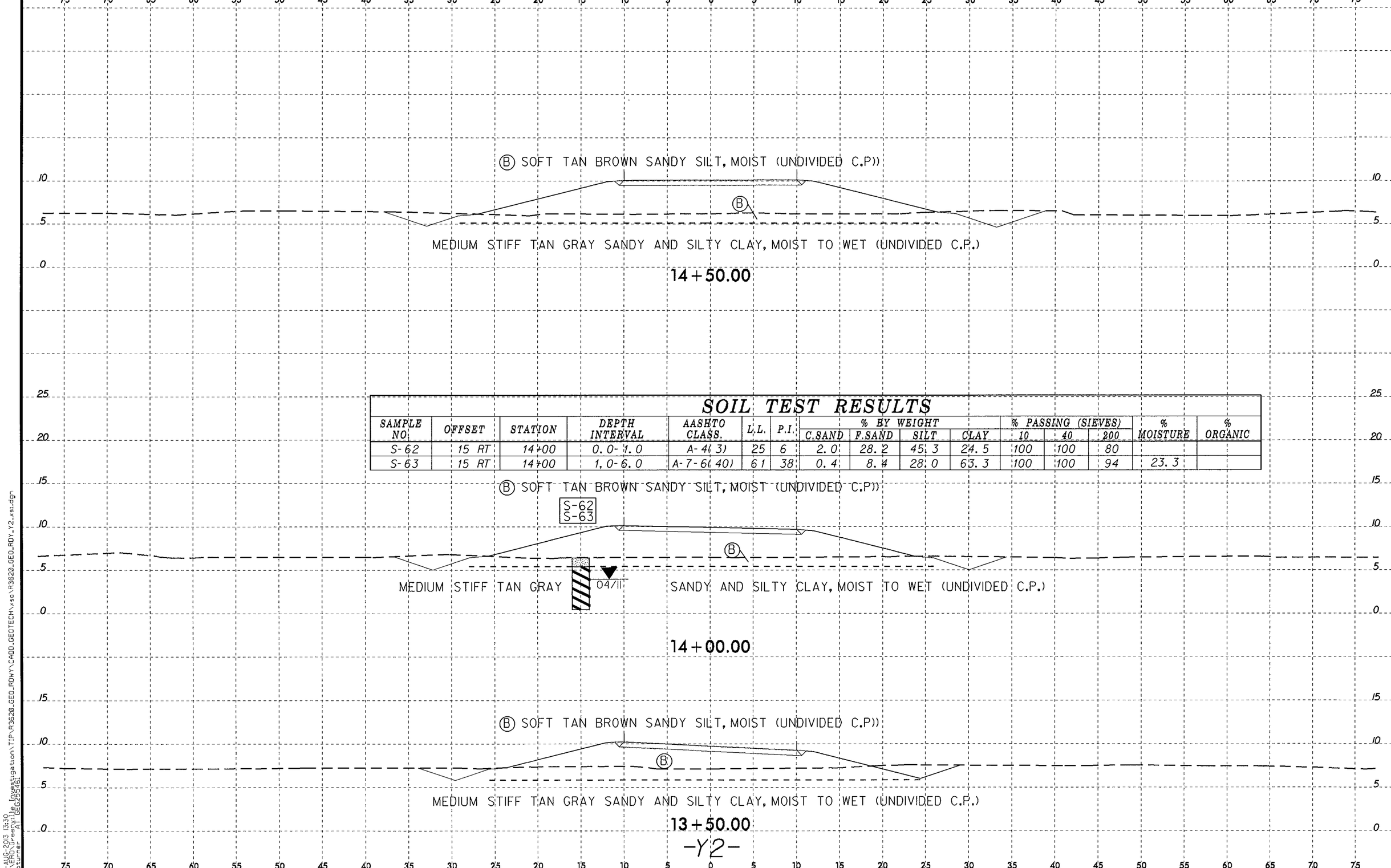

SOIL TEST RESULTS

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-62	15 RT	14+00	0.0-1.0	A-4(3)	25	6	2.0	28.2	45.3	24.5	100	100	80		
S-63	15 RT	14+00	1.0-6.0	A-7-6(40)	61	38	0.4	8.4	28.0	63.3	100	100	94	23.3	

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