ID: R-2241A

CONTRACT: C202960

CONTENTS

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

LINE	STATION	PLAN	PROFILE	XSECTS
-L-	10+00 – 26+00	4-8	28	40-66
-L-	26+00 – 28+20	8,9	28	–
-L-	28+20 – 34+00	9,10	28,29	67-76
-L-	34+00 – 36+00	10,11	29	–
-L-	36+00 – 50+40	11-15	29-31	77-99
-L-	50+40 – 51+80	15	31	–
-L-	51+80 – 55+60	15,16	31,32	100-106
-L-	55+60 – 58+20	16,17	32	–
-L-	58+20 – 62+20	17,18	32,33	107-112
-L-	62+20 – 63+60	18	33	–
-L-	63+60 – 65+60	19	33	113-116
-L-	65+60 – 70+20	19,20	33,34	–
-L-	70+20 – 71+00	20,21	34	117,118
-L-	71+00 – 73+20	21	34	–
-L-	73+20 – 79+60	21-23	34,35	119-127
-Y1-	12+15 – 13+54	4,24	–	–
-Y2-	14+36 – 14+60	4	–	–
-Y4-	10+31 – 11+20	4	–	–
-Y5-	10+32 – 10+90	6	–	–
-Y6-	10+20 – 11+41	6	–	–
-Y7-	10+75 – 13+66	9,24	36	–
-Y8-	15+44 – 16+40	9,25	37	–
-Y9-	10+27 – 16+75	9,10,26	38	–
-Y10-	10+21 – 10+76	25	–	–
-Y11-	10+40 – 10+93	25	–	–
-Y12-	10+30 – 10+87	14	–	–
-Y13-	11+65 – 12+00	14	–	–
-Y14-	10+14 – 10+86	18	39	128, 129
-Y15-	11+59 – 12+10	18	39	130
-Y17-	10+80 – 12+82	22,27	39	131, 132

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

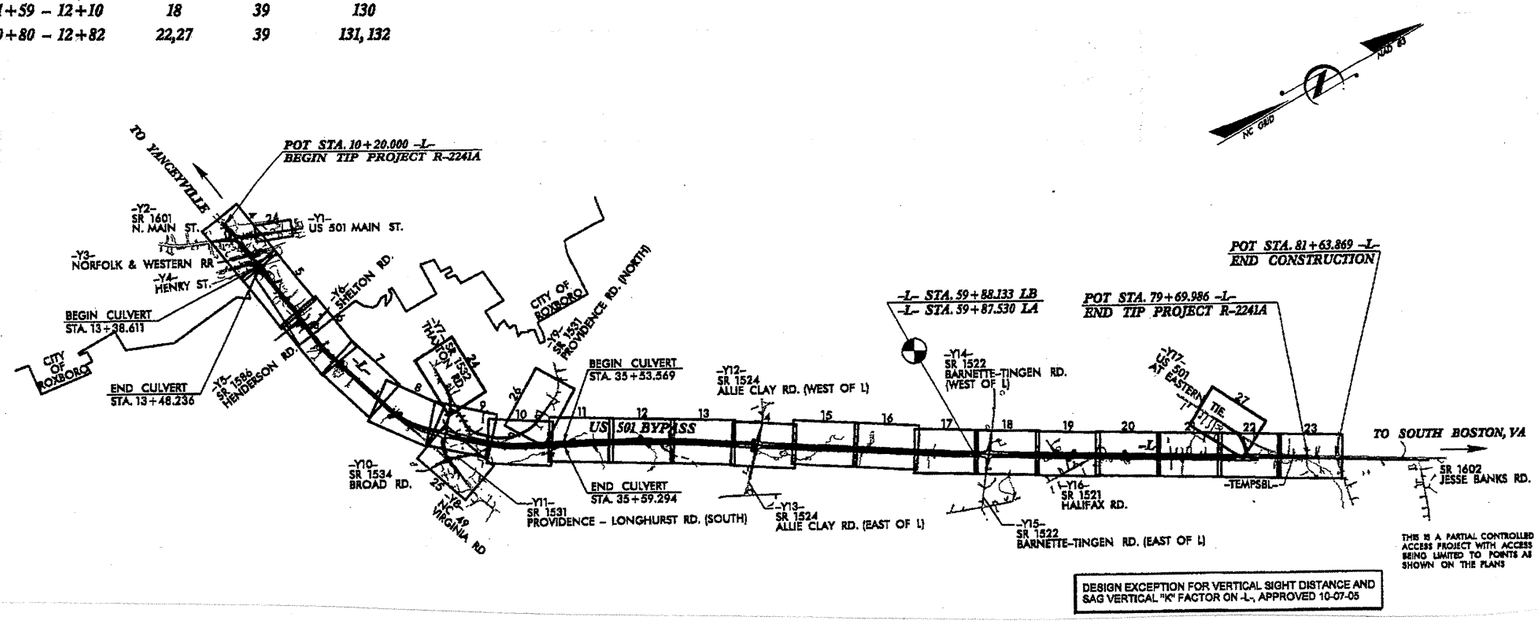
ROADWAY SUBSURFACE INVESTIGATION

STATE PROJ. 34406.1.1 I.D. R-2241A F.A. PROJ. MA-STP-501

COUNTY PERSON

PROJECT DESCRIPTION US 501 FROM NC 49 IN ROXBORO TO SOUTH OF SR 1602

INVENTORY



METRIC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2241A	1	132

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34406.1.1	MA-STP-501 (1)	PE
34406.2.3	STP-0501 (11)	R/W & UTILITY
34406.3.2	HPP-0501 (25)	CONST.

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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

J.I. MILKOVITS, JR.

H.R. CONLEY

D.W. DIXON

S&ME, INC

INVESTIGATED BY J.I. MILKOVITS, JR.

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE MAY 2006

NORTH CAROLINA LICENSED SEAL 1912 GEOLOGIST NEIL T. ROBERSON 1-4-2012

DRAWN BY: T.T. WALKER

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:

TIP PROJECT: R-2241A

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2241A	2A	132

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34406.1.1	MA-STP-501	PE

METRIC

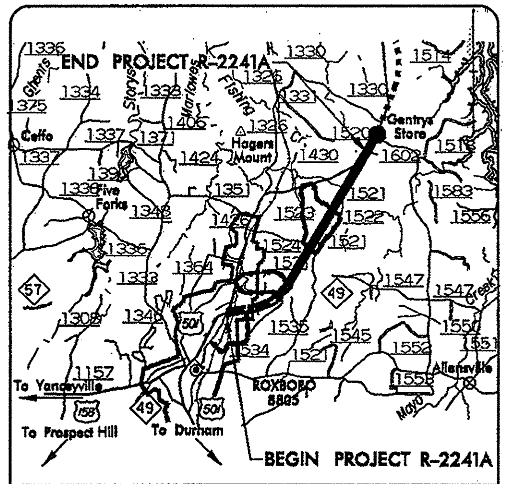
ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

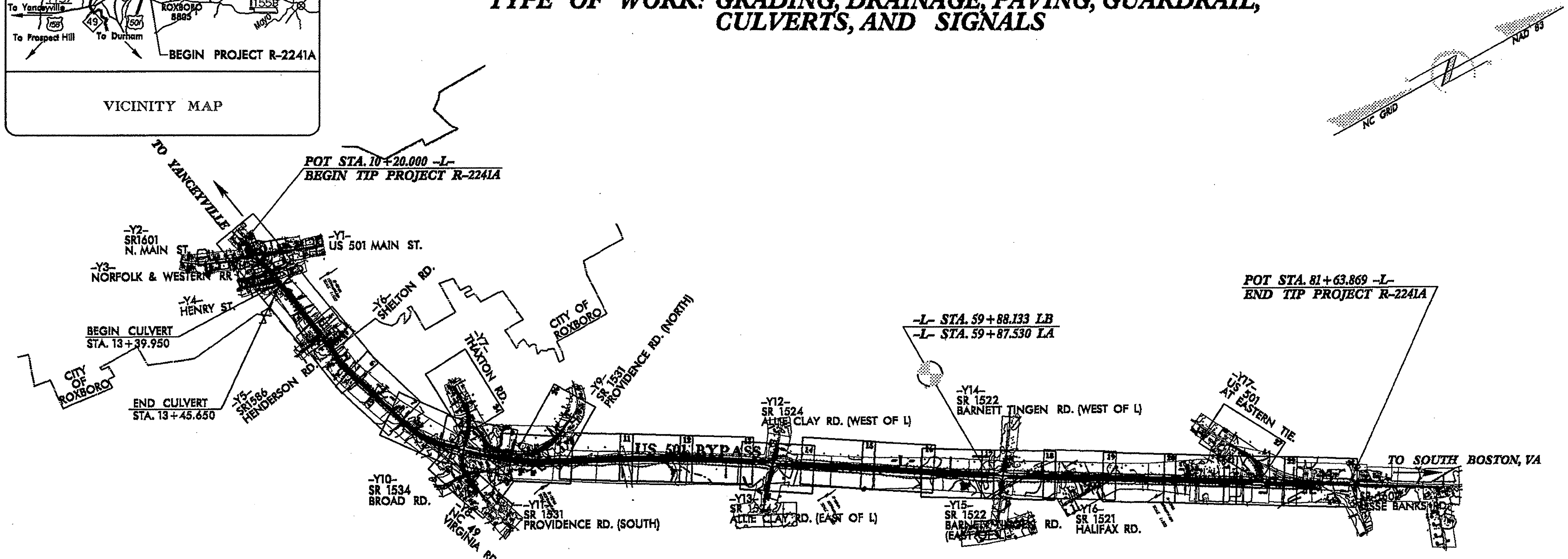
PERSON COUNTY

LOCATION: US 501 FROM NC 49 IN ROXBORO TO SOUTH OF SR 1602

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, CULVERTS, AND SIGNALS



VICINITY MAP



0.833 KM OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDARIES OF ROXBORO

NCDOT CONTACTS: ROBERT STROUP, P.E.
ROADWAY DESIGN PROJECT DESIGN ENGINEER-ENGINEERING COORDINATION
CATHY HOUSER, P.E.
ROADWAY DESIGN PROJECT ENGINEER-ENGINEERING COORDINATION

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

PARTIAL CONTROL OF ACCESS IS DEFINED AS ONE ACCESS POINT PER PARCEL. FOR PROPERTIES WITH LARGE ROAD FRONTAGE (FOR EXAMPLE, 2000 FEET OR MORE), AN ADDITIONAL ACCESS POINT MAY BE CONSIDERED. FOR PROPERTIES THAT HAVE ALTERNATE ACCESS, SUCH AS VIA A SIDE ROAD, ACCESS TO US 501 MAY BE ELIMINATED.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALE

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

	5 LANE C&G	4 LANE DIVIDED
ADT 2007	=21,725	10,500
ADT 2027	=34,142	17,500
DHV	=10%	10 %
D =	60%	60%
T =	11%*	6%**
V =	65 km/h	100 km/h

* TTST 3% + DUAL 8%
** TTST 2% + DUAL 4%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2241A = 7.138 km

LENGTH OF STRUCTURES TIP PROJECT R-2241A = 0.006 km

TOTAL LENGTH OF TIP PROJECT R-2241A = 7.144 km

Prepared In the Office of:

RALPH WHITEHEAD ASSOCIATES, INC.

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUG. 19, 2005

LETTING DATE:
JUNE 19, 2007

JOHN E. ALFORD, P.E.
PROJECT ENGINEER

GERALD M. BARBOUR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

ID	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
R-2241A	34406.1.1	2	132

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 WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER 30 cm ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND 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 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS
LIQUID LIMIT	6 MX		N.P.	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

P.I. OF A-7-5 ≤ L.L. - 30 ; P.I. OF A-7-6 > L.L. - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (kN/m^2)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<25
	SOFT	2 TO 4	25 TO 50
	MEDIUM STIFF	4 TO 8	50 TO 100
	STIFF	8 TO 15	100 TO 200
	VERY STIFF	15 TO 30	200 TO 400
	HARD	>30	>400

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.0	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, YEL-BRN, 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 ARE 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 30
MODERATELY COMPRESSIBLE	LIQUID LIMIT 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 SEEPAGE

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS
- INFERRED SOIL BOUNDARIES
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP/DIP DIRECTION OF ROCK STRUCTURES
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS
S- BULK SAMPLE
SS- SPLIT SPOON SAMPLE
ST- SHELBY TUBE SAMPLE
RS- ROCK SAMPLE
RT- RECOMPACTED TRIAXIAL SAMPLE
CBR - CBR SAMPLE

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
FRAGS. - FRAGMENTS
MED. - MEDIUM
PMT - PRESSUREMETER TEST
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT
W - MOISTURE CONTENT
V. - VERY
VST - VANE SHEAR TEST

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [■] MOBILE B-57
- [ ] BK-51
- [■] CME-45C
- [■] CME-550
- [ ] PORTABLE HOIST
- [ ] OTHER _____
- [ ] OTHER _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [■] 152 mm CONTINUOUS FLIGHT AUGER
- [■] 203 mm HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____ mm STEEL TEETH
- [ ] TRICONE _____ mm TUNG.-CARB.
- [ ] CORE BIT
- [ ] OTHER _____

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

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

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN 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 2.5 cm 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 FOLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT YIELDS SPT N VALUES > 100 BLOWS PER 30 cm.
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 2.5 cm. 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 ROCKS 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 BLOWS PER 30 cm.*
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 BLOWS PER 30 cm.*
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 GEOLOGISTS 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 6 mm DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGISTS PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 1 mm DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 25 mm MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGISTS PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL CENTIMETERS 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 25 mm OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 3 m
WIDE	1 TO 3 m
MODERATELY CLOSE	30 TO 100 cm
CLOSE	5 TO 30 cm
VERY CLOSE	LESS THAN 5 cm

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 1 m
THICKLY BEDDED	0.5 - 1 m
THINLY BEDDED	0.05 - 0.5 m
VERY THINLY BEDDED	10 - 50 mm
THICKLY LAMINATED	2.5 - 10 mm
THINLY LAMINATED	< 2.5 mm

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 WHICH 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 IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS WHICH 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 (F.P.) - 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 SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL WHICH 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, WHICH 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) OF A 63.5 kg HAMMER FALLING 0.76 METERS REQUIRED TO PRODUCE A PENETRATION OF 30 cm INTO SOIL WITH A 5 cm OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 2.5 cm PENETRATION WITH 50 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 (S.R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: N/A

ELEVATION: N/A

NOTES:

REVISED 09/15/00

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

May 26, 2006

STATE PROJECT: 34406.1.1 (R-2241A)
FEDERAL PROJECT: MA-STP-501
COUNTY: Person

DESCRIPTION: US 501 from NC 49 in Roxboro to south of SR 1602

SUBJECT: Geotechnical Report - Inventory

Project Description

This project consists of the widening of the existing roadway (five lanes) and construction on new location (four-lane divided roadway) of US 501 (-L-) in Roxboro and extends northward toward SR 1602 (Jesse Banks Road). The project also includes intersections and tie-in improvements at several locations throughout the project.

A geotechnical investigation was conducted during April and May 2005. Borings were advanced utilizing ATV-mounted CME-550 and CME 45 drill machines with automatic hammers and a B-57 drill machine with a manual hammer. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers. 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. The following alignments were investigated.

Line	Stations
-L-	10+20.000 to 81+28.436
-Y1-	12+05.000 to 13+53.504
-Y2-	14+36.273 to 14+75.000
-Y4-	10+30.718 to 11+30.000
-Y5-	10+30.853 to 11+00.000
-Y6-	10+10.000 to 11+40.646
-Y7-	10+75.000 to 13+66.462
-Y8-	14+43.162 to 16+50.000
-Y9-	10+26.540 to 16+85.000
-Y10-	10+20.714 to 10+86.000
-Y11-	9+93.905 to 10+93.412
-Y12-	10+10.000 to 10+59.716
-Y13-	11+37.308 to 12+00.000
-Y14-	10+00.000 to 10+86.318
-Y15-	11+58.842 to 12+20.000
-Y17-	10+70.000 to 12+81.569

Areas of Special Geotechnical Interest

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

Line	Stations
-L-	10+00 to 13+90
-L-	15+10 to 15+70
-L-	19+50 to 20+55
-L-	21+30 to 21+90
-L-	22+90 to 24+50
-L-	26+00 to 27+35
-L-	28+50 to 33+95
-L-	34+70 to 35+03
-L-	36+30 to 37+15
-L-	40+70 to 44+10
-L-	44+30 to 44+70
-L-	48+70 to 50+36
-L-	51+80 to 53+15
-L-	53+50 to 55+50
-L-	58+40 to 61+90
-L-	63+80 to 65+50
-L-	70+30 to 70+90
-L-	73+30 to 73+90
-L-	74+50 to 75+70
-L-	76+30 to 77+70
-L-	78+10 to 79+60
-Y7-	10+75 to 13+66
-Y8-	14+43 to 16+50
-Y9-	10+26 to 16+85
-Y14-	10+20 to 11+00
-Y15-	11+38 to 12+00
-Y17-	12+50 to 13+03

2) Crystalline Rock: Crystalline rock was encountered at the following intervals:

Line	Stations
-L-	14+60 to 15+60
-L-	20+20 to 27+60
-L-	36+00 to 36+80
-L-	38+80 to 46+60
-L-	50+20 to 55+60
-L-	59+80 to 59+90
-L-	65+20 to 68+80

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

Line	Stations
-L-	17+40 to 19+80
-L-	42+00 to 42+65
-L-	44+10 to 44+60
-L-	48+30 to 49+30
-L-	54+00 to 56+90
-L-	67+40 to 68+85
-L-	72+80 to 73+30
-L-	77+00 to 78+00

4) Water Wells: Water wells within or in close proximity to the right of way or construction easement were noted at the following locations:

Line	Station	Offset (m)
-L-	11+20	24 LT
-L-	11+60	21 RT
-L-	11+69	11 LT
-L-	11+75	22 LT
-L-	11+78	23 RT
-L-	11+90	10 LT
-L-	12+08	26 LT
-L-	23+85	58 LT
-L-	33+30	23 LT
-Y1-	12+53	16 LT
-Y2-	14+04	19 LT
-Y2-	14+37	25 LT
-Y8-	16+15	20 LT
-Y9-	10+95	19 LT
-Y9-	11+10	15 RT
-Y9-	13+38	1 LT
-Y9-	13+93	39 LT
-Y9-	16+42	20 RT
-Y10-	10+69	30 LT

Water levels in the wells could not be determined. Other wells may be present along the project that went undetected.

5) Lakes and Ponds: Lakes or ponds within or in close proximity of right of way are noted at the following locations.

Line	Station	Offset (m)
-L-	51+80	55 LT
-L-	64+90	30 LT

Physiography and Geology

The project is located in the northern portion of the Piedmont Physiographic Province. Land use along the project corridor consists of a combination of businesses, homes, wooded land, and farmland. The project is drained by several unnamed tributaries of Marlowes Creek and Mayo Reservoir. Geologically, metavolcanic rocks of the Carolina Slate Belt underlie the project with some areas containing metamorphosed granitic rocks. Soils are derived from the weathering of the underlying metavolcanic and granitic rocks.

Soil Properties

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

Roadway Embankment soils were encountered in small amounts associated with several existing roadways on the project. These soils consist of brown to red-brown, moist, very soft to medium stiff, sandy silt and red-brown and tan-brown, moist, medium stiff, silty clay.

Alluvial soils are present in the floodplains of several small creeks and streams that cross the project corridor and are typically less than 3.5 meters thick. These soils consist primarily of tan to gray, moist, loose, silty sands (A-2-4) and red-brown to gray, moist, medium stiff, sandy and silty clay (A-6, A-7). Tan-brown to gray, moist, very soft to medium stiff, sandy silt (A-4) is also present.

Residual soils are derived from the in-place weathering of the underlying rock. They consist primarily of tan-brown and red-brown, moist, medium stiff to very stiff, sandy and silty clay (A-6, A-7). Residual, highly plastic "cap" clays occur at the ground surface over several areas of the project. Areas containing highly plastic soils (plasticity indices greater than 25) are listed above in the section "Areas of Special Geotechnical Interest". Lessor amounts of tan-brown and tan-gray, moist to wet, loose to very dense, silty and clayey sand (A-2-4, A-2-7) and tan-brown to gray-brown and red-brown, moist, medium stiff to hard, sandy and clayey silt (A-4, A-5) are also present. Residual soils grade into weathered rock.

Rock Properties

Weathered rock is derived from the underlying metavolcanic and metamorphosed granite. Weathered rock grades into crystalline rock.

Crystalline Rock consists of Metavolcanic and metamorphosed granitic rock of the Carolina Slate Belt. The areas from -L- Sta. 36+80 to 40+20 and -L- Sta. 59+20 to 59+80 were found to contain massive boulders up to 3 meters or larger. Areas of crystalline rock yielding either SPT or auger refusal are outlined in "Areas of Special Geotechnical Interest."

Respectfully submitted,

Joseph I. Milkovits, Jr.
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 (m)	Test
RT-1	38+20, CL, -L-	3.00 - 7.18 m	Recompacted Triaxial CU
RT-2	60+00, CL, -L-	2.00 - 7.00 m	Recompacted Triaxial CU
CBR-1	38+20, CL, -L-	3.00 - 7.18 m	California Bearing Ratio
CBR-2	60+00, CL, -L-	2.00 - 7.00 m	California Bearing Ratio

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT R-2241A COUNTY: Person DATE: 2/21/2013 COMPILED BY: SCS SHEET 1 OF 3 SHEETS

CHAIN	STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
			TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- LEFT	10+40.000	19+40.000	3,315				3,315	6,625		6,625	7,950	4,635				
-DET1-	12+66.000	15+21.390	131				131	1,180		1,180	1,416	1,285				
-Y6-	10+20.000	11+60.408	1,817				1,817	2		2	3			1,814		1,814
		SUBTOTAL 1	5,263				5,263	7,807		7,807	9,369	5,920		1,814		1,814
-L- LEFT	19+40.000	23+60.000	5,291		367	525	4,766	8,428		8,428	10,114	5,348			892	892
-Y7-	10+75.000	13+85.662	1,273				1,273	2,420		2,420	2,904	1,631				
-Y8-	14+19.662	16+40.000	6,901				6,901	1,068		1,068	1,282			5,619		5,619
-Y9-	10+04.500	16+70.000	10,489				10,489	486		486	584			9,905		9,905
-DET2-	10+39.270	12+60.280	943				943	4,299		4,299	5,159	4,216				
		SUBTOTAL 2	24,897		367	525	24,372	16,701		16,701	20,043	11,195		15,524	892	16,416
-L-	23+60.000	32+60.000	46,406	163		52	46,191	15,030	163	14,867	18,003			28,351	52	28,403
		SUBTOTAL 3	46,406	163		52	46,191	15,030	163	14,867	18,003			28,351	52	28,403
-L-	32+60.000	41+60.000	115,932	8,056	1,058	18,341	89,535	46,791	8,056	38,735	54,538			43,053	19,399	62,452
-Y12-	10+20.000	11+10.060	1,361				1,361	11		11	14			1,347		1,347
-Y13-	11+41.332	13+25.000	36				36	3,329		3,329	3,995	3,959				
		SUBTOTAL 4	117,329	8,056	1,058	18,341	90,932	50,131	8,056	42,075	58,547	3,959		44,400	19,399	63,799
-L-	41+60.000	50+60.000	76,864	33	2,263	19,547	57,284	12,891	33	12,858	15,463			41,854	21,810	63,664
		SUBTOTAL 5	76,864	33	2,263	19,547	57,284	12,891	33	12,858	15,463			41,854	21,810	63,664
-L-	50+60.000	64+40.000	129,388	297	5,818	42,236	86,855	67,127	297	66,830	80,493			6,659	48,054	54,713
		SUBTOTAL 6	129,388	297	5,818	42,236	86,855	67,127	297	66,830	80,493			6,659	48,054	54,713
-L-	64+40.000	73+40.000	6,163		575	821	5,342	40,263		40,263	48,316	42,974			1,396	1,396
		SUBTOTAL 7	6,163		575	821	5,342	40,263		40,263	48,316	42,974			1,396	1,396
		SHEET 1 TOTAL	406,310	8,549	10,081	81,522	316,239	209,950	8,549	201,401	250,234	64,048		138,602	91,603	230,205

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.

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT R-2241A COUNTY: Person DATE: 2/21/2013 COMPILED BY: SCS SHEET 2 OF 3 SHEETS

CHAIN	STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
			TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L-	73+40.000	78+00.000	4,059		3,162	2,334	1,725	6,501		6,501	7,802	6,077			5,496	5,496
-TEMPSBL-	78+00.000	79+70.000	178		440	38	140	650		650	780	640			478	478
		SUBTOTAL 8	4,237		3,602	2,372	1,865	7,151		7,151	8,582	6,717			5,974	5,974
-L-RIGHT	10+40.000	19+40.000	1,067				1,067	9,317		9,317	11,181	10,114				
-Y1-	12+15.000	13+88.749	167				167	184		184	221	54				
-Y2-	14+10.883	14+60.000	46				46	49		49	59	13				
-Y4-	10+10.318	11+20.000	15				15	2,361		2,361	2,834	2,819				
-Y5-	10+02.485	10+85.000	242				242	480		480	576	334				
		SUBTOTAL 9	1,537				1,537	12,391		12,391	14,871	13,334				
-L-RIGHT	19+40.000	23+60.000	1,583		367	525	1,058	6,553		6,553	7,864	6,806			892	892
-Y10-	10+00.000	10+76.000	41				41	544		544	653	612				
-Y11-	10+40.000	11+12.948	645				645	1		1	2			643		643
-Y14-	10+14.000	11+22.580	236			202	34	1,048		1,048	1,258	1,224			202	202
-Y15-	11+22.580	12+10.000	954			629	325	15		15	18			307	629	936
-Y17-	10+80.000	13+18.495	3,866		701	1,074	2,792	862		862	1,035			1,757	1,775	3,532
		SUBTOTAL 10	7,325		1,068	2,430	4,895	9,023		9,023	10,830	8,642		2,707	3,498	6,205
		SHEET 2 TOTAL	13,099		4,670	4,802	8,297	28,565		28,565	34,283	28,693		2,707	9,472	12,179

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.

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT: R-2241A COUNTY: Person DATE: 2/21/2013 COMPILED BY: SCS SHEET _3_ OF _3_ SHEETS

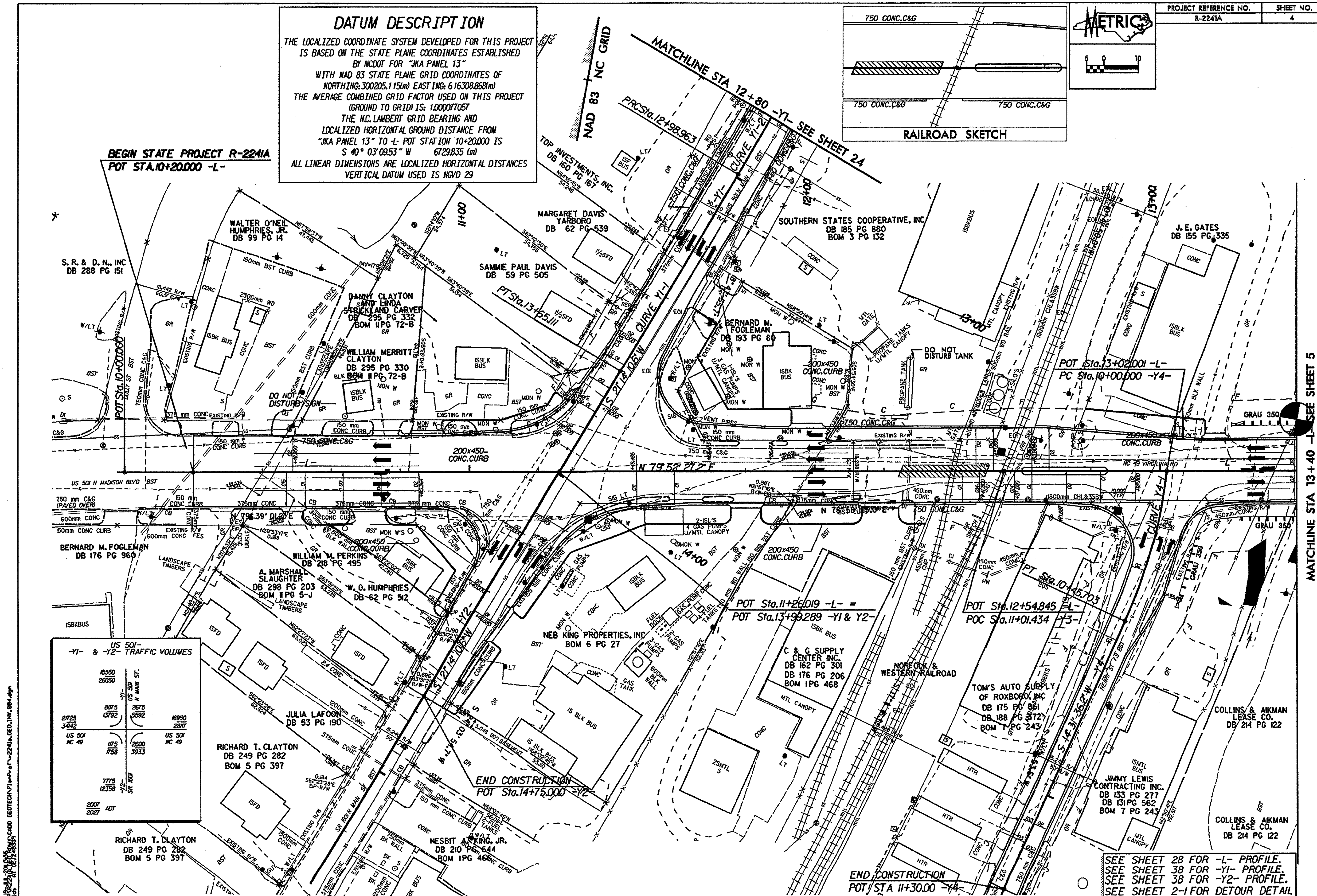
STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL
	TOTAL FROM SHEET 1	406310	8549	10081	81522	316239	209950	8549	201401	250234	64048		138602	91603	230205
	TOTAL FROM SHEET 2	13099		4670	4802	8297	28565		28565	34283	28693		2707	9472	12179
PROJECT SUBTOTALS		419,409	8,549	14,751	86,324	324,536	238,515	8,549	229,966	284,517	92,741		141,309	101,075	242,384
LOSS DUE TO CLEARING & GRUBBING		-16,000				-16,000							-16,000		-16,000
ADDITIONAL UNDERCUT				6,100			6,100		6,100	7,320	7,320			6,100	6,100
SELECT MATERIAL TO REPLACE BORROW									-29,500	-35,400	-35,400				
WASTE IN LIEU OF BORROW											-64,661		-64,661		-64,661
PROJECT TOTAL		403,409	8,549	20,851	86,324	308,536	244,615	8,549	206,566	256,437			60,648	107,175	167,823
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT															
GRAND TOTAL		403,409		20,851	86,324	308,536	244,615	8,549	206,566	256,437			60,648	107,175	167,823
SAY		405,000		22,000											
SHALLOW UNDERCUT EXCAVATION		300													
DRAINAGE DITCH EXCAVATION		2,240													
EXCAVATION, HAULING, DISPOSAL OF CONTAMINATED SOIL		2,500													
CLASS IV SUBGRADE STABILIZATION		700													
SHOULDER BORROW MATERIAL		9,230													
PAVEMENT STRUCTURE VOLUME= m3		27,600													

ALTERNATE PAVEMENT EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT SUBTOTALS	419,409	8,549	14,751	86,324	324,536	238,515	8,549	229,966	284,517	92,741		141,309	101,075	242,384
ADJUSTMENT FOR ALTERNATE PAVEMENT DESIGN	-4,885			-1,005	-3,880	5,014		5,014	6,017	9,897			-1,005	-1,005
ADJUSTED PROJECT SUBTOTALS	414,524	8,549	14,751	85,319	320,656	243,529	8,549	234,980	290,534	102,638		141,309	100,070	241,379
LOSS DUE TO CLEARING & GRUBBING	-16,000				-16,000							-16,000		-16,000
ADDITIONAL UNDERCUT			6,100			6,100		6,100	7,320	7,320			6,100	6,100
SELECT MATERIAL TO REPLACE BORROW								-29,500	-35,400	-35,400				
WASTE IN LIEU OF BORROW										-74,558		-64,661		-64,661
PROJECT TOTAL	398,524	8,549	20,851	85,319	304,656	249,629	8,549	211,580	262,454			60,648	106,170	166,818
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT														
GRAND TOTAL	398,524	8,549	20,851	85,319	304,656	249,629	8,549	211,580	262,454			60,648	106,170	166,818
SAY	400,000		22,000											
SHALLOW UNDERCUT EXCAVATION	300													
DRAINAGE DITCH EXCAVATION	2,240													
EXCAVATION, HAULING, DISPOSAL OF CONTAMINATED SOIL	2,500													
CLASS IV SUBGRADE STABILIZATION	700													
SHOULDER BORROW MATERIAL	9,230													
PAVEMENT STRUCTURE VOLUME= m3	22,715													

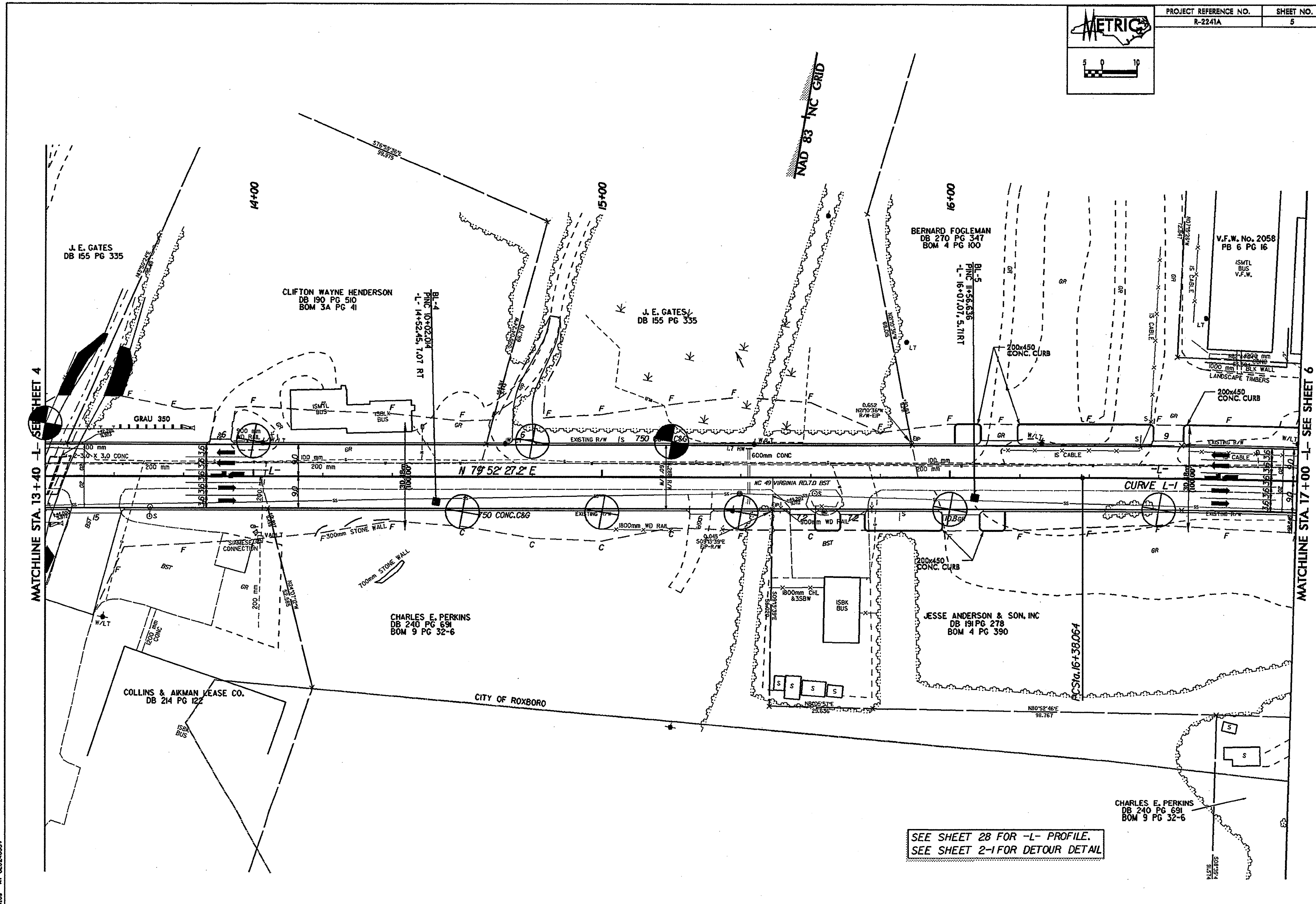
NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.



PROJECT REFERENCE NO. R-2241A
SHEET NO. 4
METRIC
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR "JKA PANEL 13"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 300205.115(m) EASTING: 616308.868(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000077057
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "JKA PANEL 13" TO -L- POT STATION 10+20.000 IS S 40° 03' 09.53" W 6729.835 (m)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29
BEGIN STATE PROJECT R-2241A
POT STA.10+20.000 -L-
NAD 83 NC GRID
MATCHLINE STA 12+80 -Y1- SEE SHEET 24
MATCHLINE STA 13+40 -L- SEE SHEET 5
RAILROAD SKETCH
750 CONC.C&G
PRC Sta.12+98.963
PT Sta.13+65.111
CURVE Y1-1
CURVE Y1-2
CURVE Y4-1
S. R. & D. N., INC DB 288 PG 151
WALTER O'NEIL HUMPHRIES, JR. DB 99 PG 14
DANNY CLAYTON AND LINDA STRICKLAND CARVER DB 295 PG 332 BOM 11 PG 72-B
WILLIAM MERRITT CLAYTON DB 295 PG 330 BOM 11 PG 72-B
TOP INVESTMENTS, INC. DB 160 PG 167
MARGARET DAVIS YARBORO DB 62 PG 539
SAMMIE PAUL DAVIS DB 59 PG 505
SOUTHERN STATES COOPERATIVE, INC DB 185 PG 880 BOM 3 PG 132
J. E. GATES DB 155 PG 335
BERNARD M. FOGLEMAN DB 193 PG 80
DO NOT DISTURB TANK
DO NOT DISTURB SIGN
POT Sta.13+02.001 -L-
PC Sta.10+00.000 -Y4-
US 501 N MADISON BLVD
N 79°58' 27.2" E
NC 49 VIRGILIWARD
BERNARD M. FOGLEMAN DB 176 PG 960
WILLIAM M. PERKINS DB 218 PG 495
A. MARSHALL SLAUGHTER DB 298 PG 203 BOM 11 PG 5-J
W. D. HUMPHRIES DB 62 PG 512
NEB KING PROPERTIES, INC BOM 6 PG 27
POT Sta.11+26.019 -L- =
POT Sta.13+99.289 -Y1 & Y2-
POT Sta.12+54.845 -L-
POC Sta.11+01.434 -Y3-
PT Sta.10+45.703
C & G SUPPLY CENTER INC. DB 162 PG 301 DB 176 PG 206 BOM 1 PG 468
NORFOLK & WESTERN RAILROAD
TOM'S AUTO SUPPLY OF ROXBORO, INC DB 175 PG 861 DB 188 PG 372 BOM 7 PG 243
COLLINS & AIKMAN LEASE CO. DB 214 PG 122
JIMMY LEWIS CONTRACTING INC. DB 133 PG 277 DB 131 PG 562 BOM 7 PG 243
JULIA LAFOON DB 53 PG 190
RICHARD T. CLAYTON DB 249 PG 282 BOM 5 PG 397
NESBIT A. KING, JR. DB 210 PG 644 BOM 1 PG 468
END CONSTRUCTION POT Sta.14+75.000 -Y2-
END CONSTRUCTION POT STA 11+30.00 -Y4-
SR 1601 MAIN ST
US 501 -Y1- & -Y2- TRAFFIC VOLUMES
15550 26050
8875 13792
2675 5592
16950 28117
21725 34142
1175 1758
2600 3933
7775 12358
2007 2027 ADT
US 501 NC 49
SEE SHEET 28 FOR -L- PROFILE.
SEE SHEET 38 FOR -Y1- PROFILE.
SEE SHEET 38 FOR -Y2- PROFILE.
SEE SHEET 2-1 FOR DETOUR DETAIL

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	5



SEE SHEET 28 FOR -L- PROFILE.
SEE SHEET 2-1 FOR DETOUR DETAIL

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	6

METRIC

5 0 10

BEGIN CONSTRUCTION
POC 10+10.00 -Y6-

RICHARD T. CLAYTON
DB 249 PG 282
BOM 9 PG 65-4

WOODY & ANDERSON PROPERTIES
DB 241PG 713

ROBERT LANDIS CLAYTON
DB 289 PG 396
BOM 3A PG 44

S 19° 22' 10.4" E

ROBERT L CLAYTON
DB 264 PG 170

RITA W. ALLEN
DB 212 PG 614
BOM 3A PG 44

PC Sta.10+48.33

WOODY & ANDERSON PROPERTIES
DB 241PG 713

BY5-2
PINC 5+83.505
-Y6- 10+85.088, 4.053 LT

BL-6 PINC 13+06.081=
BY5 12+20.787
BY4 5+00.000
-L- 17+56.80, 6.67 RT

V.F.W. No. 2058
PB 6 PG 16

FELTEN E. CARVER
DB 174 PG 842

CURVE Y6-1

11+00

PT Sta.10+98.476

NAD 83 NC GRID

19+00

20+00

TSSta.18+66.212

SCSta.19+06.212

CSSta.19+91.414

STSta.20+31.414

-N 72° 04' 26.6" E

WOODY & ANDERSON PROPERTIES
DB 241PG 713

MATCHLINE STA. 20+60 -L- SEE SHEET 7

ISBLK
BUS.
V.F.W.

KAREN WHITFIELD
BOM-1PG-41

ONIE PERKINS LIFE ESTATE
DB 219 PG 328
BOM 1PG 41

FRANCIS S. CARVER
DB 180 PG 790

ROBERT H. ELLIOTT
DB 91PG 356

CITY OF ROXBORO

POT Sta.17+38.929 -L- =
POT Sta.10+02.485 -Y5-

BERNARD FOGLEMAN
DB 270 PG 347
BOM 4 PG 100

RT Sta.17+23.679

MATCHLINE STA. 17+00 -L- SEE SHEET 5

S 9° 30' 33.4" E

N 82° 19' 36.9" E

CURVE Y5-1

PC Sta.10+44.972

JESSE ANDERSON & SON, INC
DB 191PG 278
BOM 4 PG 390

BONNIE GILLIS RIMMER
DB 292 PG 726

PT Sta.10+67.159

S 8° 14' 09" E

CHARLES E. PERKINS
DB 240 PG 691
BOM 9 PG 32-6

BY4-1
PINC 5+88.313
-Y5- 10+87.721, 5.044 RT

CITY OF ROXBORO

ESTELLE P. WADE
DB 120 PG 159
DB IIIPG 616
BOM 12 PG III

END CONSTRUCTION
POC 11+00.000 -Y5-

11+00

BY5-3
PINC 6+56.816
-Y6- 11+58.309, 3.707 LT

VENNIE LOU CLAYTON AND DOROTHY C. WATSON
DB 212 PG 559
BOM 6 PG 14
BOM 7 PG 266

POT Sta.18+16.673 -L- =
POT Sta.11+60.408 -Y6-

ESTELLE P. WADE
DB 58 PG 470

CURVE L-2

BL-7 PINC 15+45.190
-L- 19+93.61, 58.05 RT

NATHANIEL CALL
DB 109 PG 267

WALTER LOVE WADE JR.
DB 198 PG 322
BOM 5 PG 118

ESTELLE P. WADE
DB 120 PG 159
DB IIIPG 616
BOM 12 PG III

LOYD MOORE MITCHELL
DB 223 PG 115
BOM 4 PG 63

US 501
-Y5- TRAFFIC VOLUMES

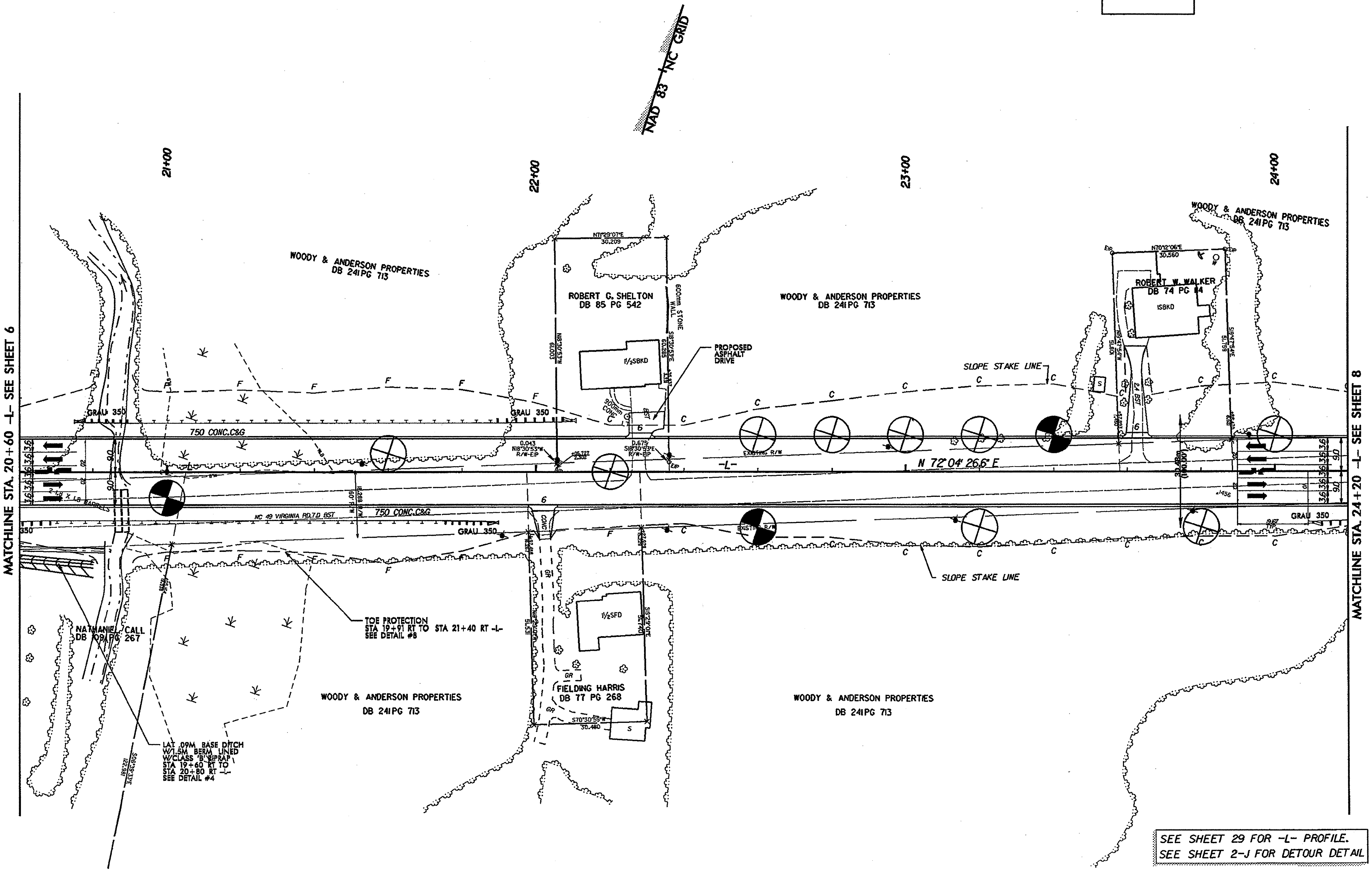
US 501 NO 49 -L-		US 501 NO 49 -L-	
11200 / 18533	1725 / 2808	1025 / 1775	10500 / 17500
-Y5- HENDERSON ROAD			
2750 / 4585			
2007 ADT / 2027 ADT			

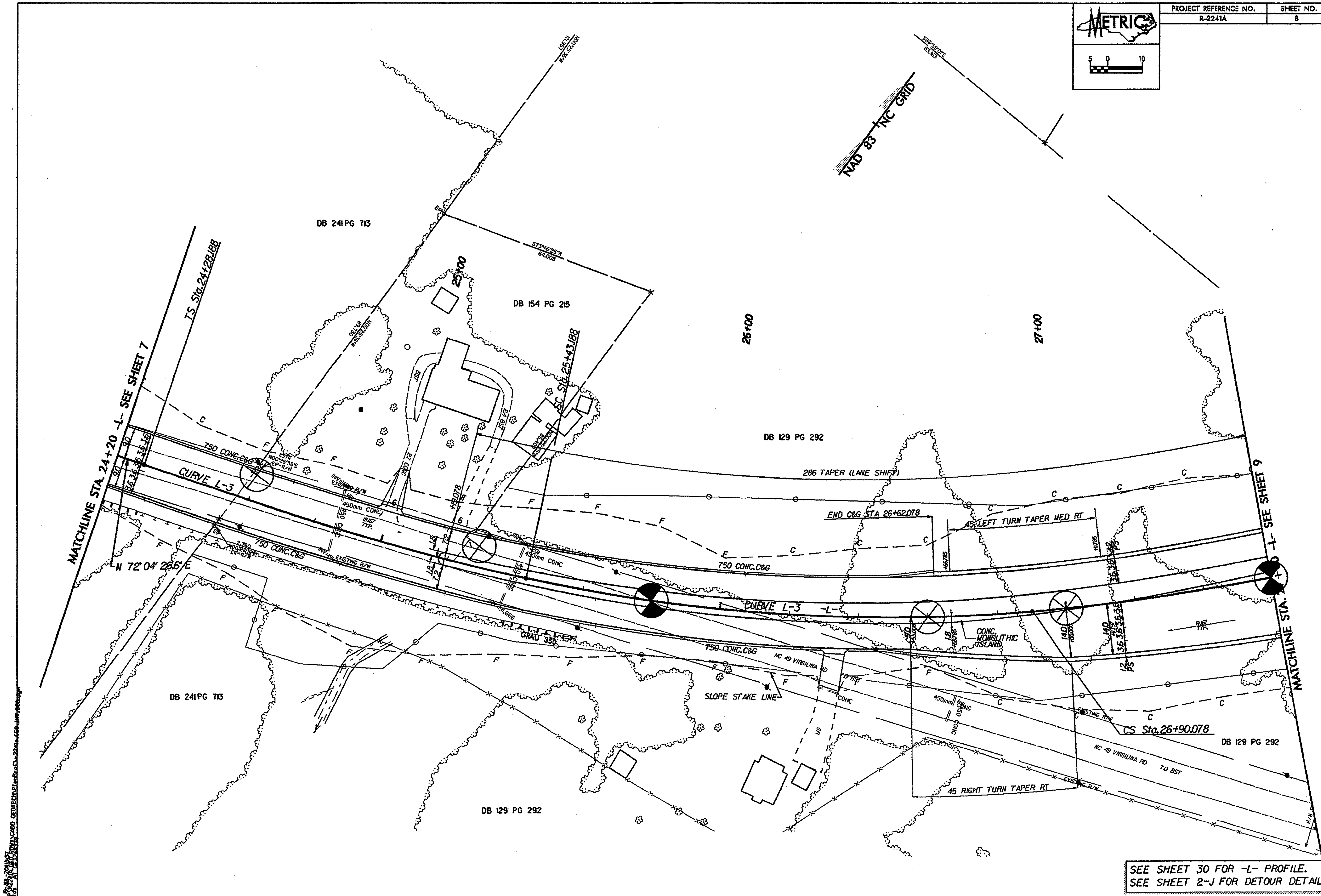
SEE SHEET 29 FOR -L- PROFILE.
SEE SHEET 39 FOR -Y5- PROFILE.
SEE SHEET 39 FOR -Y6- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235

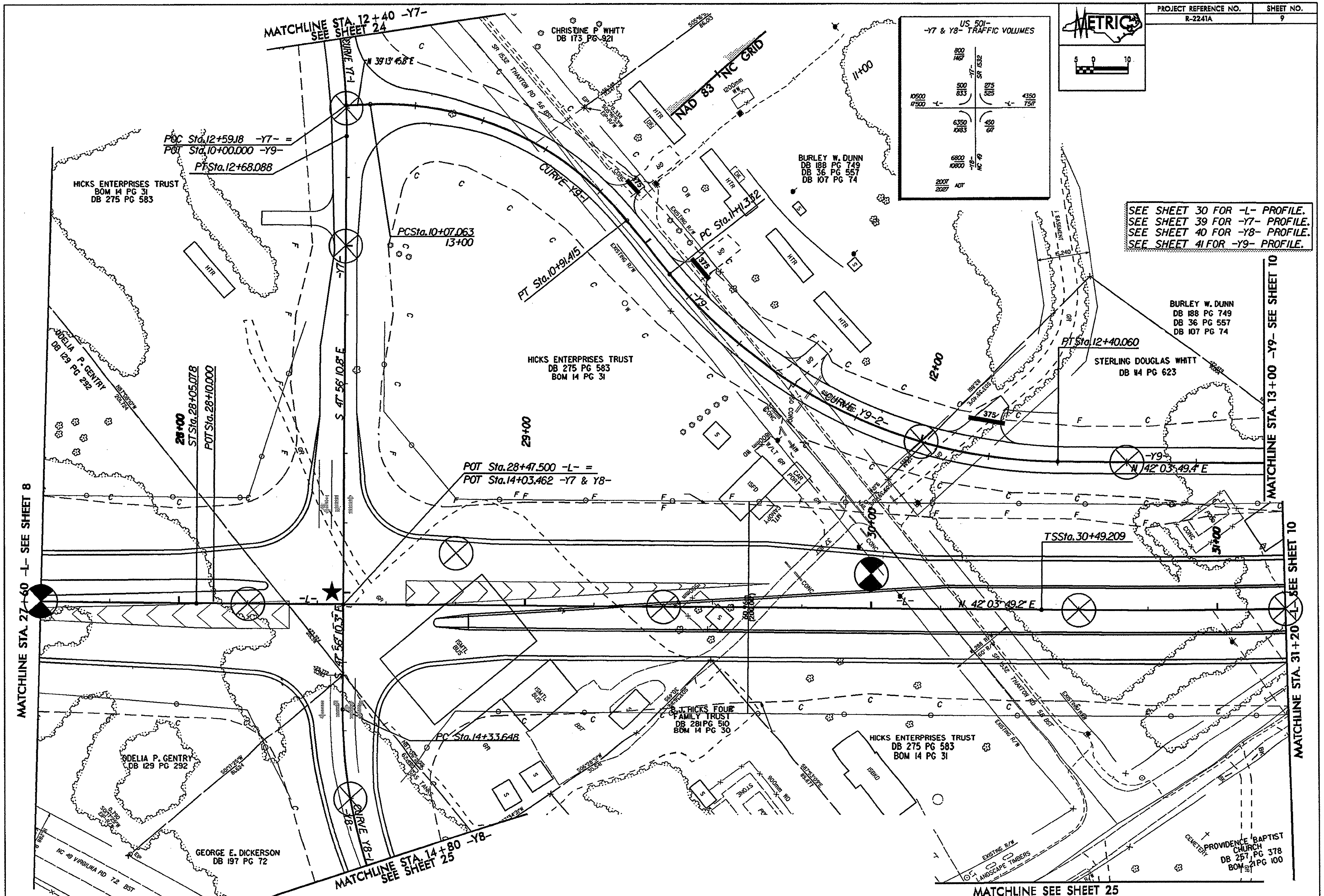
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	7

METRIC





SEE SHEET 30 FOR -L- PROFILE.
SEE SHEET 2-J FOR DETOUR DETAIL.



PROJECT REFERENCE NO. R-2241A
SHEET NO. 9
METRIC
US 501- -Y7 & Y8- TRAFFIC VOLUMES
SEE SHEET 30 FOR -L- PROFILE.
SEE SHEET 39 FOR -Y7- PROFILE.
SEE SHEET 40 FOR -Y8- PROFILE.
SEE SHEET 41 FOR -Y9- PROFILE.
MATCHLINE STA. 12+40 -Y7- SEE SHEET 24
MATCHLINE STA. 27+60 -L- SEE SHEET 8
MATCHLINE STA. 13+00 -Y9- SEE SHEET 10
MATCHLINE STA. 31+20 -L- SEE SHEET 10
MATCHLINE STA. 14+80 -Y8- SEE SHEET 25
MATCHLINE SEE SHEET 25
NAD 83 NC GRID
CHRISTINE P WHITT DB 173 PG 921
HICKS ENTERPRISES TRUST BOM 14 PG 31 DB 275 PG 583
BURLEY W. DUNN DB 188 PG 749 DB 36 PG 557 DB 107 PG 74
STERLING DOUGLAS WHITT DB 114 PG 623
HICKS ENTERPRISES TRUST DB 275 PG 583 BOM 14 PG 31
ODELIA P. GENTRY DB 129 PG 292
GEORGE E. DICKERSON DB 197 PG 72
B.J. HICKS FOUR FAMILY TRUST DB 281 PG 510 BOM 14 PG 30
PROVIDENCE BAPTIST CHURCH DB 257 PG 378 BOM 10 PG 100
POC Sta.12+59.18 -Y7- =
POT Sta.10+00.000 -Y9-
PT Sta.12+68.088
PC Sta.10+07.063
PT Sta.10+91.415
PC Sta.11+11.332
PT Sta.12+40.060
POT Sta.28+47.500 -L- =
POT Sta.14+03.462 -Y7 & Y8-
ST Sta.28+05.078
POT Sta.28+10.000
TS Sta.30+49.209
PC Sta.14+33.648
CURVE Y7-1
CURVE Y8-1
CURVE Y9-1
CURVE Y9-2
N 42° 03' 49.2" E
N 42° 03' 49.4" E
S 47° 56' 10.8" E
SR 1532 THAXTON RD
NC 49 VIRGINIA RD

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26684
CHARLOTTE, NORTH CAROLINA 28213

METRIC 5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	10

NAD 83 NC GRID

MATCHLINE STA. 15+20 -Y9- SEE SHEET 26

MATCHLINE STA. 13+00 -Y9- SEE SHEET 9

MATCHLINE STA. 31+20 SEE SHEET 9

MATCHLINE STA. 34+80 -L- SEE SHEET 11

PCSta.13+13.649

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557
DB 107 PG 74

ISRD ABAND

ISRD

SLOPE STAKE LINE

EXISTING R/W

-Y9- REMOVE

CURVE Y9-3

68' ISRD PROVIDENCE RD 63 BST

STD. BERM DITCH
STA. 32+80 LT TO 34+10 LT

BDO

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557

NELLIE R. PENTECOST
DB 176 PG 86
DB 80 PG 469
BOM 7 PG 335
BOM 1 PG 143

BYT-4
PINC 9+04.955
-L- 32+26.573, 89.898 LT

STERLING DOUGLAS WHITE
DB 114 PG 623

-L- SCSta.31+29.209

-L- SSSta.32+47.514

-L- STSta.33+57.914

REMOVE

68' ISRD PROVIDENCE

CURVE L-4

2GI

FS

SLOPE STAKE LINE

PREFORMED SCOUR HOLE
BASE=1.4M
SEE DETAIL SHEET # 2H

N 27° 30' 14.5" E

GRAU 350

BL-17
PINC 30+00.651
-L- 34+36.94, 20.66 RT

BEGIN SHOULDER
BERM GUTTER
STA 34+60 -L-

TRANSITION STONE
CLASS 'B' RIP RAP
EST=4.0 METERS

TROY L. CAMPBELL
DB 121 PG 151

BL-15
PINC 27+54.235
-L- 31+95.59, 125.98 RT

BL-16
PINC 28+82.348
-L- 33+19.06, 21.59 RT

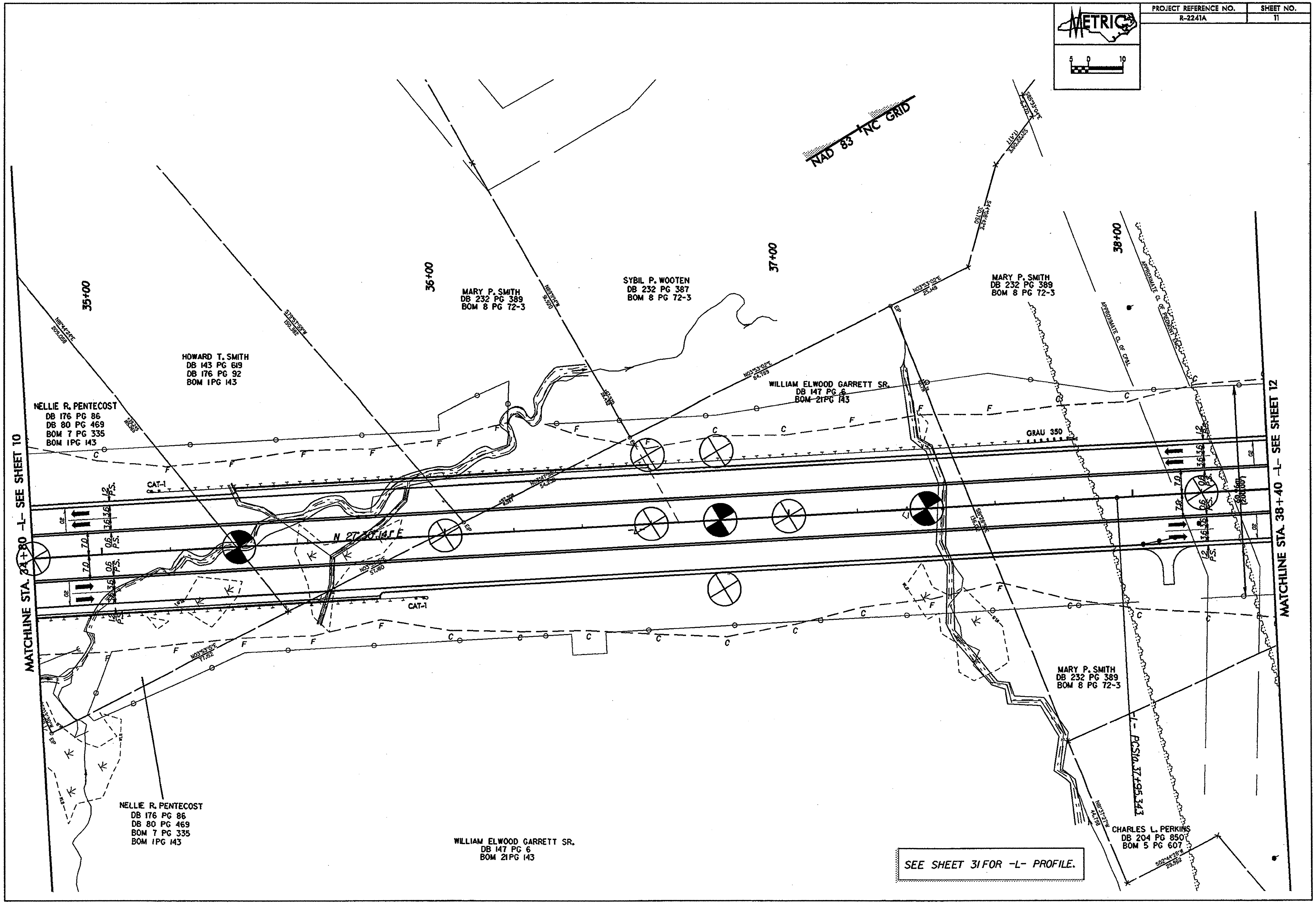
STEPHEN D. GARRETT
DB 278 PG 896
BOM 11 PG 13-B

PROVIDENCE BAPTIST CHURCH
DB 257 PG 378
BOM 21 PG 100

BL-14 PINC 26+81.064=
BY7 PINC 10+13.486
-L- 31+27.77, 16.68 RT

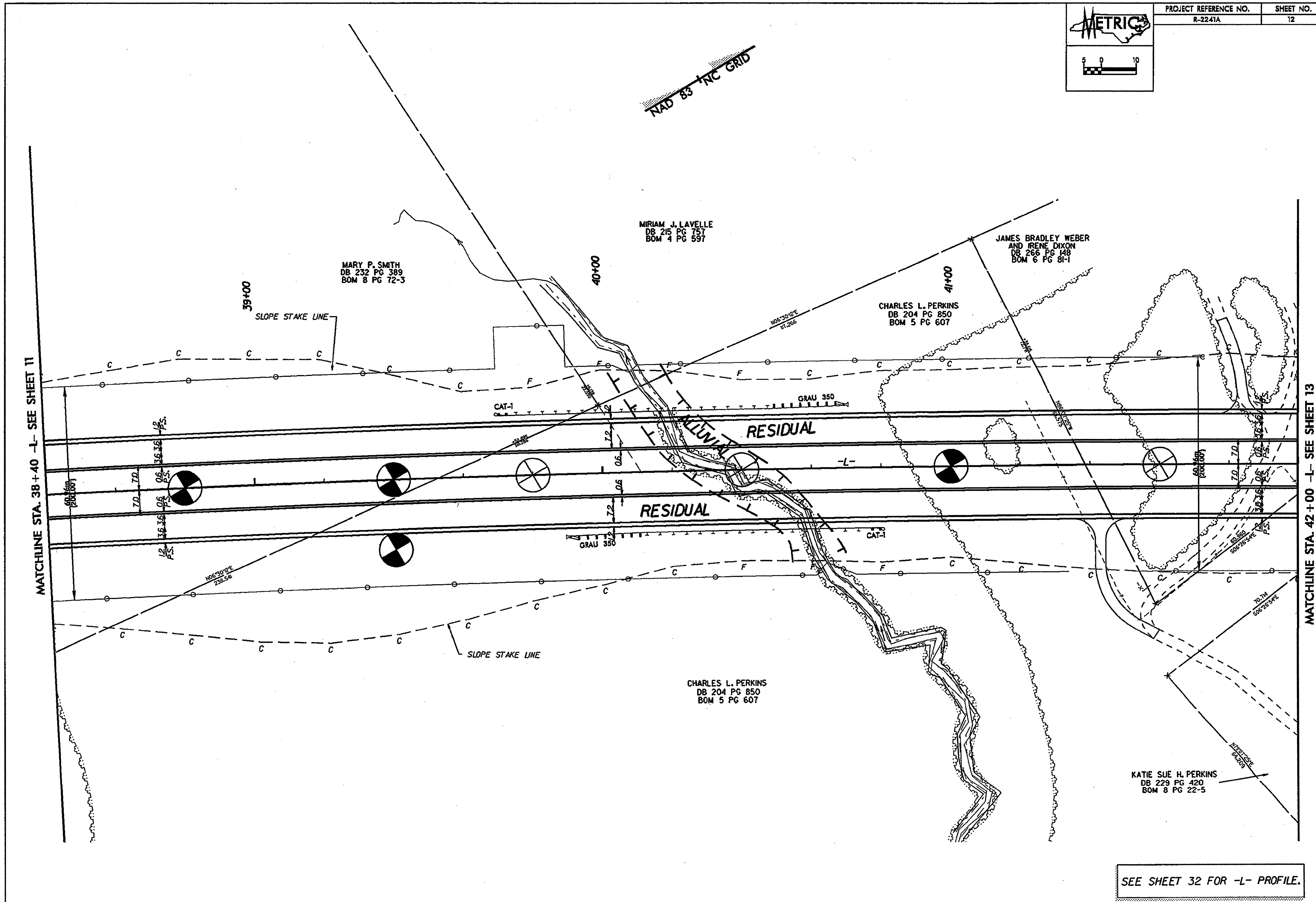
WILLIAM ELWOOD GARRETT SR.
DB 147 PG 6
BOM 21 PG 143

SEE SHEET 31 FOR -L- PROFILE.
SEE SHEET 41 FOR -Y9- PROFILE.



METRIC
PROJECT REFERENCE NO.
R-2241A
SHEET NO.
11
NAD 83 NC GRID
35+00
36+00
37+00
38+00
MARY P. SMITH
DB 232 PG 389
BOM 8 PG 72-3
SYBIL P. WOOTEN
DB 232 PG 387
BOM 8 PG 72-3
HOWARD T. SMITH
DB 143 PG 619
DB 176 PG 92
BOM 1PG 143
NELLIE R. PENTECOST
DB 176 PG 86
DB 80 PG 469
BOM 7 PG 335
BOM 1PG 143
WILLIAM ELWOOD GARRETT SR.
DB 147 PG 6
BOM 21PG 143
GRAU 350
CAT-1
N 27°30'14.5" E
MATCHLINE STA. 34+80 -L- SEE SHEET 10
MATCHLINE STA. 38+40 -L- SEE SHEET 12
APPROXIMATE CL OF CP&L
APPROXIMATE CL OF PIEDMONT EMC
-L- PCS 37+95.343
CHARLES L. PERKINS
DB 204 PG 850
BOM 5 PG 607
SEE SHEET 31 FOR -L- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235



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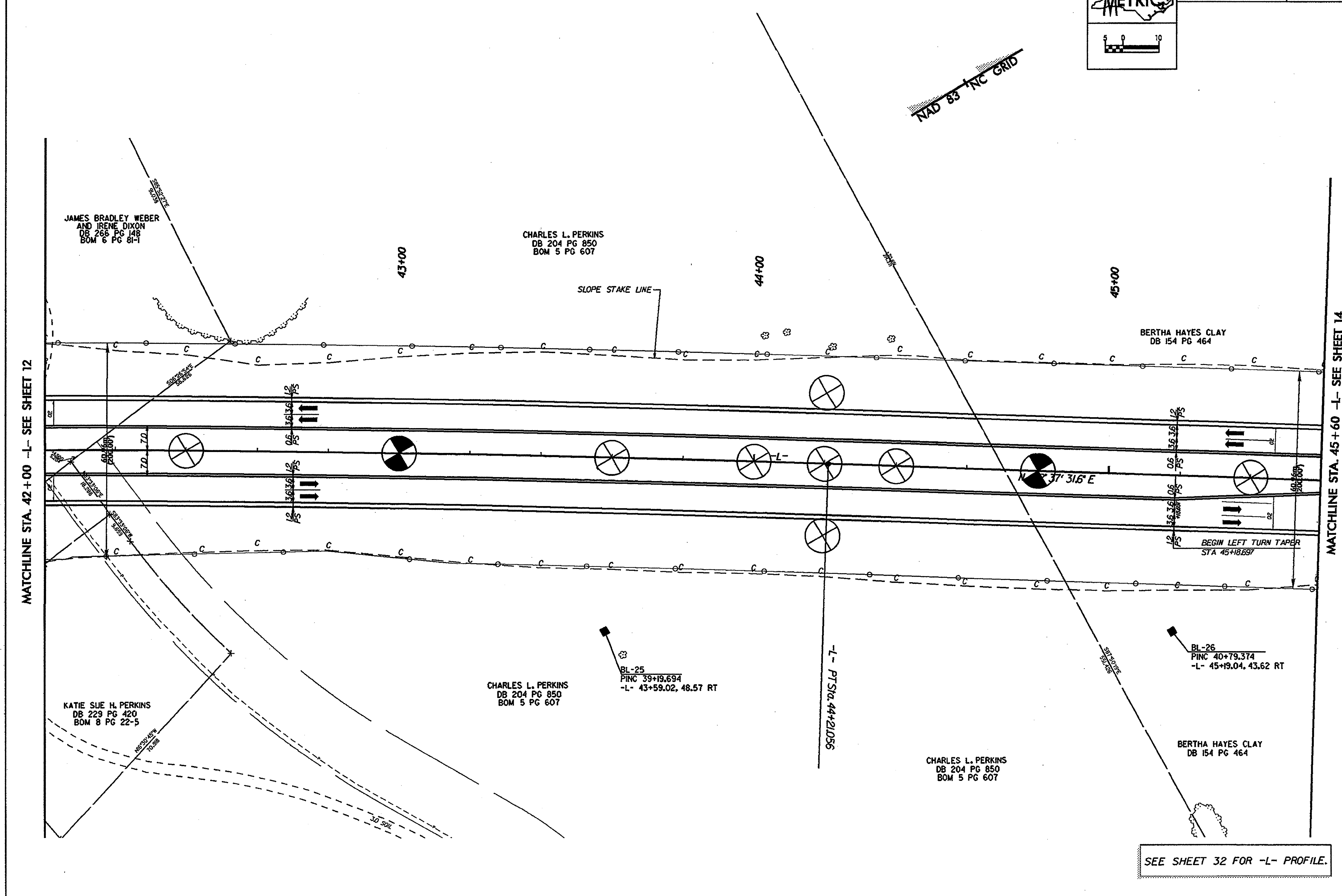
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	13



SEE SHEET 32 FOR -L- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36464
CHARLOTTE, NORTH CAROLINA 28236

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	14

NAD 83 NC GRID

BEGIN CONST.
POT Sta. 10+20.000 -Y12-

END CONST.
POT Sta. 13+25.000 -Y13-

GEORGE LEON CLAY
DB 115 PG 626

CHARLIE V. JEFFERS
DB 197 PG 435
BOM 5 PG 40

MATCHLINE STA. 12+20 -Y13-
SEE BELOW

EXISTING R/W

ALLIE CLAY RD SB BST

-Y13-

S 41° 24' 32.8" E

POT Sta. 13+30.000

JAMES B. CLAY
DB 116 PG 71
BOM 14 PG 185

BERTHA HAYES CLAY
DB 154 PG 464

46+00

47+00

48+00

49+00

11+00

12+00

-L-

-Y12-

-Y13-

POT Sta. 47+01.527 -L- =
POT Sta. 11+25.696 -Y12- & -Y13-

N 32° 31.6" E

BERTHA HAYES CLAY
DB 154 PG 464

CHARLIE V. JEFFERS
DB 197 PG 435
BOM 5 PG 40

GEORGE LEON CLAY
DB 115 PG 626

N43°05'04"E
54.653

MATCHLINE STA. 45+60 -LREV- SEE SHEET 13

MATCHLINE STA. 49+20 -L- SEE SHEET 15

MATCHLINE STA. 12+20 -Y13-
SEE INSET THIS SHEET

US 501
-Y12- & -Y13- TRAFFIC VOLUMES

875 / 1458	-Y12-	
4125 / 7206 US 501	300 / 630 — 150 / 317	3950 / 6783 US 501
	-100 / -100 — -100 / 200	
	400 / 725 -Y13-	
2001 / 2027 ADT		

SEE SHEET 33 FOR -L- PROFILE.
SEE SHEET 42 FOR -Y12- PROFILE.
SEE SHEET 42 FOR -Y13- PROFILE.

PLOT: 20NOV98
c:\projects\2241a\dgn\2241a_GEO_INT_014.dgn
MSTN: 5.06 DGN: 2241A_GEO_INT_014.DGN
USER: 2241A_GEOTECH
LEVELS: 63

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26824
CHARLOTTE, NORTH CAROLINA 28213

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	15

NAD 83 NC GRID

MATCHLINE STA. 49+20 -L- SEE SHEET 14

MATCHLINE STA. 52+80 -L- SEE SHEET 16

50+00

51+00

52+00

AUSTIN B. CLAY
DB 180 PG 829

JOHN D. CLAY
DB 180 PG 825

POND

BREEZEWOOD
SUBDIVISION

CAT-1

GRAU 350

RESIDUAL

ALLUVIAL

32° 37' 6.8"

70.70

60.16m (200.00')

BL-29
PINC 46+26.044
-L- 50+65.48, 27.91RT

BL-30
PINC 47+73.450
-L- 52+12.64, 19.30 RT

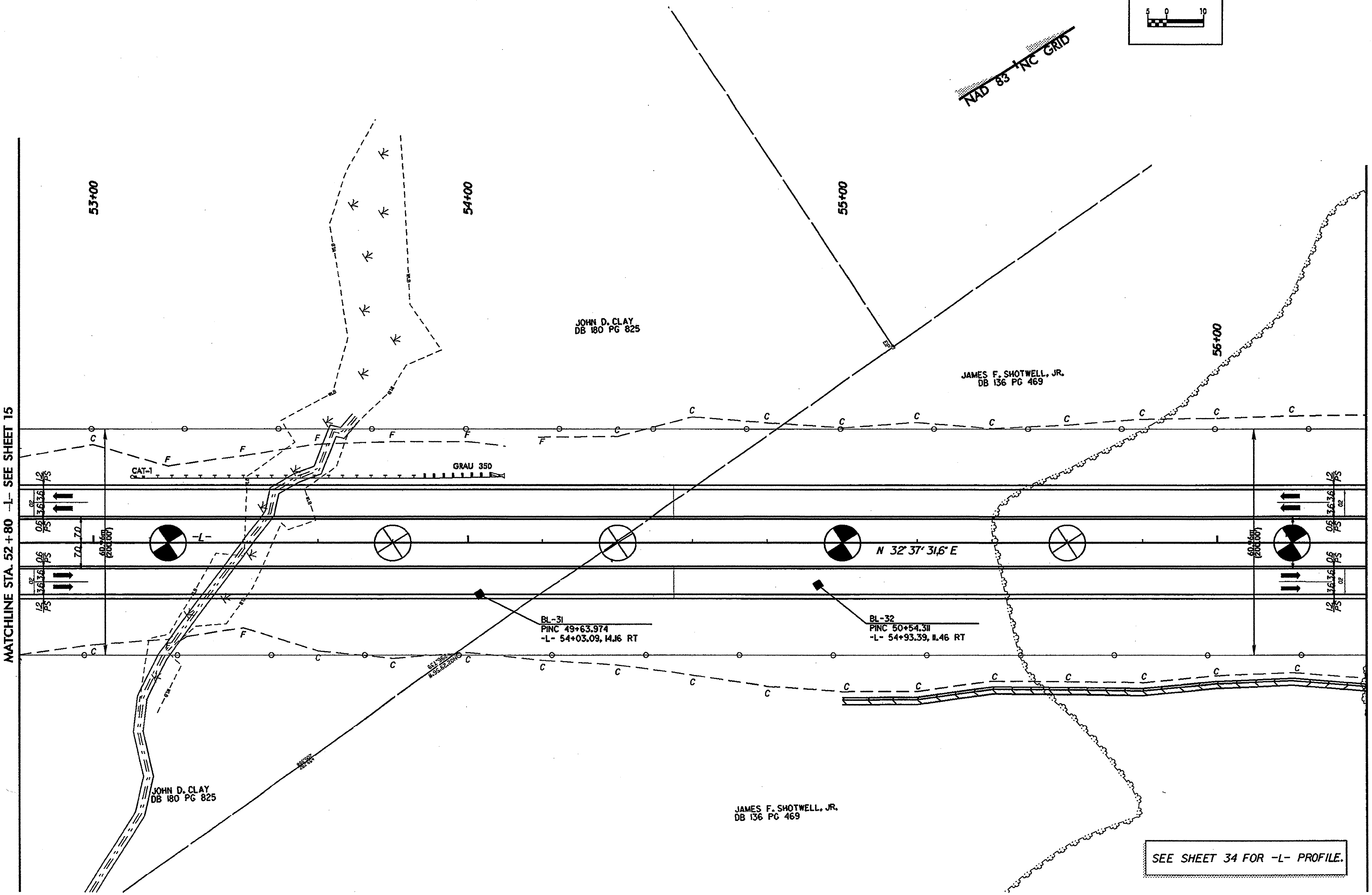
CHARLIE V. JEFFERS
DB 197 PG 435
BOM 5 PG 40

ALPHA (NMN) GENTRY
DB 154 PG 437
BOM 21PG 272

LONZY C. DIXON
DB 154 PG 439
BOM 21PG 272

SEE SHEET 33 FOR -L- PROFILE.

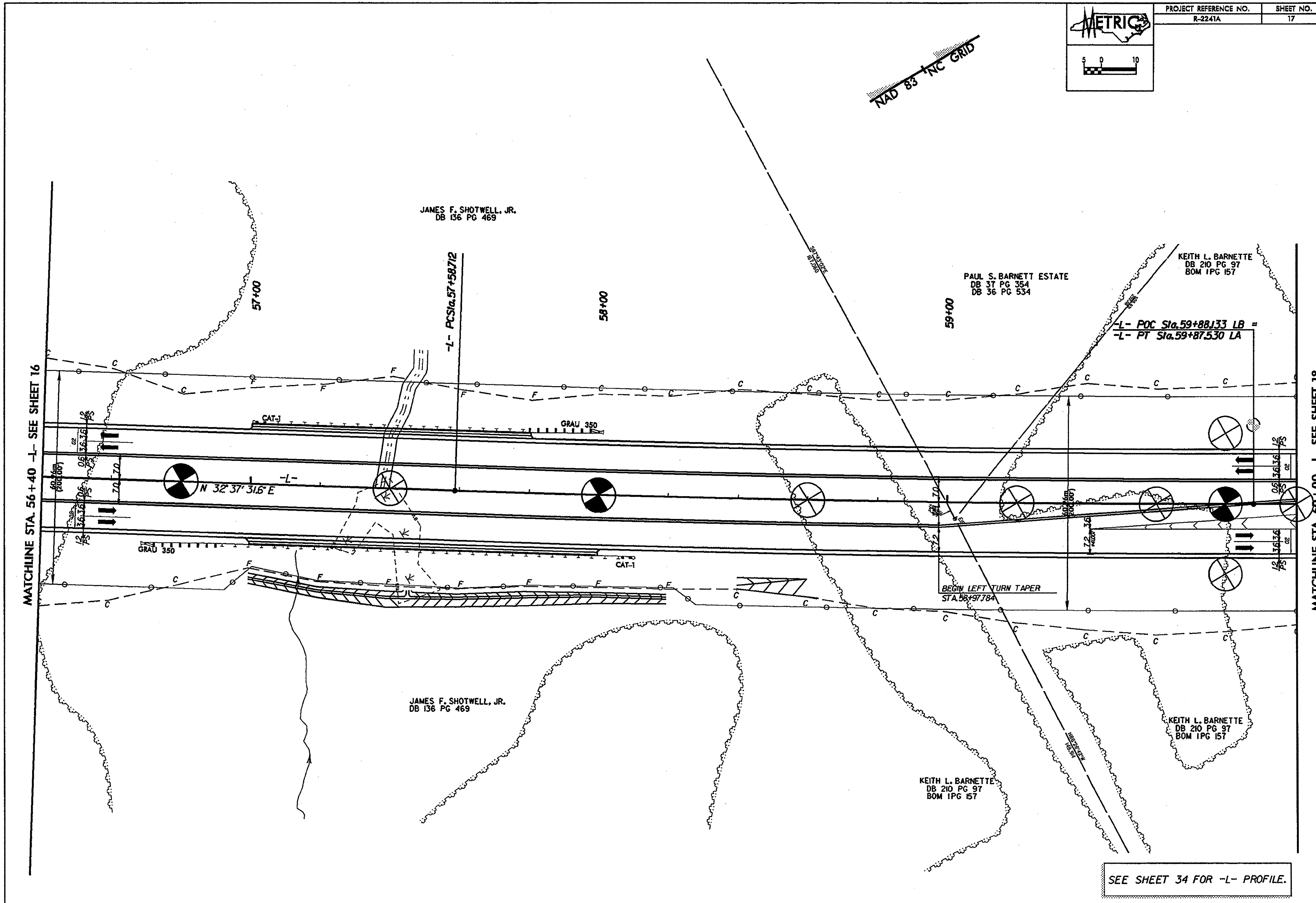
RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235



SEE SHEET 34 FOR -L- PROFILE.

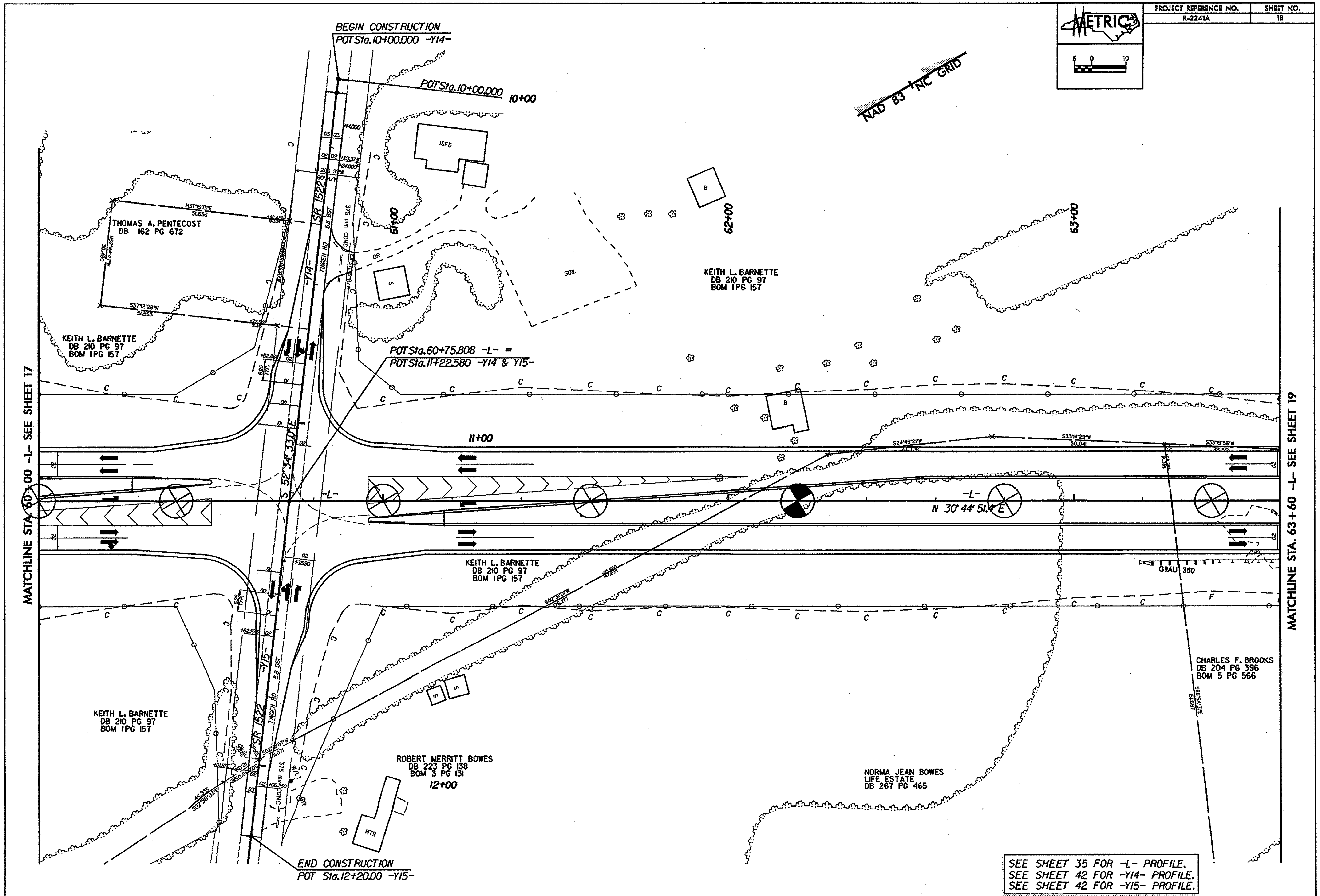
RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	17



RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	18



SEE SHEET 35 FOR -L- PROFILE.
SEE SHEET 42 FOR -Y14- PROFILE.
SEE SHEET 42 FOR -Y15- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 16024
CHARLOTTE, NORTH CAROLINA 28255

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	19

NAD 83 NC GRID

KEITH L. BARNETTE
DB 210 PG 97
BOM 1PG 157

ROY R. POWELL
DB 221PG 707
DB 193 PG 154
BOM 4 PG 532

RUBY D. EVANS
TM A-58 PAR 34

ROBIN EVANS-WRENN
DB 204 PG 998
BOM 5 PG 625

64+00 65+00 66+00 67+00

SLOPE STAKE LINE

POND

ISFD

ISBKD

N 30° 44' 51.4" E

N 1° 32' 01.5" E

BEGIN CONSTRUCTION
POT STA.10+95.51 -Y16-

POT STA.11+72.360

POT STA.11+19.022 -Y16-, 7.62 LT
CENTER OF CUL-DE-SAC

MONTWOOD BAPTIST CHURCH
DB 143 PG 285
BOM 12 PG 79

CHARLES F. BROOKS
DB 204 PG 396
BOM 5 PG 566

ROY R. POWELL
DB 221PG 707
DB 193 PG 154
BOM 4 PG 532

GEORGE RAYMOND CARTER
DB 153 PG 163

COLLINS & AIKMAN CORP.
DB 214 PG 124

ELMER MERRITT BOWES
DB 282 PG 570

GRAU 350

107.7 R

50.0 R

SR 1521 HALIFAX RD

375 mm CONC

450 mm CONC

EXISTING R/W

MATCHLINE STA. 63+60 -L- SEE SHEET 18

MATCHLINE STA. 67+20 -L- SEE SHEET 20

SEE SHEET 35 FOR -L- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 1454
CHARLOTTE, NORTH CAROLINA 28201

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	20

METRIC

0 10

NAD 83 NC GRID

68+00

69+00

70+00

ROBIN EVANS WRENN
DB 205 PG 98
BOM 5 PG 615

2SFD

STONE

CULVERT CHANGES TO
1200 mm CONC UNDER ROAD
(CHANGEOVER POINT
NOT VISIBLE)

RUBY D. EVANS
TM A-58 PAR 34

SLOPE STAKE LINE

BL-43
PINC 64+43.220
-L- 68+79.82, 10.45 LT

375 mm CONC

1200 mm CONC

EXISTING R/W

SR 1521 HALIFAX RD S.R. RST

SR 1521 HALIFAX RD

1.2 X 1.2 CONC

1500 mm

N 30°44'51.4" E

COLLINS & AIKMAN CORP.
DB 214 PG 124

COLLINS & AIKMAN CORP.
DB 214 PG 124

MATCHLINE STA. 67+20 -L- SEE SHEET 19

MATCHLINE STA. 70+80 -L- SEE SHEET 21

SEE SHEET 36 FOR -L- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 2824
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	21

METRIC
5 0 10

NAD 83 NC GRID

EMILY BOHANNON
DB 138 PG 399
BOM II PG 34

ROXBORO SAVINGS BANK, SSB
DB 290 PG 628

ALISSA K. CHAPMAN
DB 119 PG 313
BOM II PG 34

GLENDA HUDSON BOWES
DB 142 PG 12
BOM II PG 34

RUBY D. EVANS
TM A-58 PAR 34

FRIENDSHIP FREEWILL BAPTIST CHURCH
DB 145 PG 69
BOM II PG 34

ROY R. POWELL
DB 123 PG 462
BOM II PG 34

DOYLE T. WILSON
DB 141 PG 17
BOM II PG 34

RAINEY BANKS BRIGGS, JR.
DB 150 PG 38
BOM 10 PG 70

COLLINS & AIKMAN CORP.
DB 214 PG 124

NOTE: DO NOT DISTURB TREE

71+00 72+00 73+00 74+00

SLOPE STAKE LINE

EXISTING R/W

GOSPEL LN (SR)

300 mm CONC 375 mm CONC 1500 mm CHL 2000 mm WD 600 mm CHL

ISBKD ISFD

SR 1521 HALIFAX RD T.O. BST

BK-44
PINC 67+67.766
-L- 72+04.32, 5.16 LT

BEGIN LEFT TURN TAPER
STA. 74+32.612

N 30° 44' 51.4" E

SEE SHEET 36 FOR -L- PROFILE.

MATCHLINE STA. 70+80 -L- SEE SHEET 20

MATCHLINE STA. 74+40 -L- SEE SHEET 22

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 35684
CHARLOTTE, NORTH CAROLINA 28235

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	22

NAD 83 NC GRID

MATCHLINE STA. 12+20 -Y17- SEE SHEET 27

MATCHLINE STA. 74+40 -L- SEE SHEET 21

MATCHLINE STA. 78+00 -L- SEE SHEET 23

RAINEY BANKS BRIGGS, JR.
DB 150 PG 38
BOM 10 PG 70

WINFRED CARLTON CLAYTON
DB 155 PG 140
DB 120 PG 46
BOM 10 PG 70

ANNE SHOTWELL
LIFE ESTATE
DB 261PG 486

COLLINS & AIKMAN CORP.
DB 214 PG 124

END CONSTRUCTION SOUTHBOUND LANE
STA.78+00.000 -L-

PTSta.13+03.279

POTSta.76+06.312 -L- =
POTSta.13+18.495 -Y17-

POT Sta.76+44.834 -L-, 8.800 RT.=
PC Sta.76+44.834 -XI-

SR 1521 HALIFAX RD T.D BST

US 501-
-Y17- TRAFFIC VOLUMES

4550
9050
-Y17-
1300
2967
3250
6083
4950
6117
6900
11233
-L-
-L-
2007
2027
ADT

SEE SHEET 37 FOR -L- PROFILE.
SEE SHEET 43 FOR -Y17- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 16641
CHARLOTTE, NORTH CAROLINA 28213

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	23

NAD 83 NC GRID

MATCHLINE STA. 78+00 -L- SEE SHEET 22

ANNE SHOTWELL
LIFE ESTATE
DB 261PG 486

MICHAEL E. VICKERS
DB 214 PG 647
BOM 4 PG 794

ELSIE W. SHOTWELL
DB 139 PG 539
BOM 3A PG 34

BESSIE JANE WALKER
DB 121PG 68

BLAKE E. THORNBURG
DB 231PG 407

WESLEY BROWN
DB 251PG 180
BOM 9 PG 91-7

ANDREW L. HOLEMAN
DB 157 PG 184
BOM 23 PG 102

COLLINS & AIKMAN CORP.
DB 214 PG 124

ADDIE T. WADE
DB 179 PG 387

SAM EDWARD THOMAS
DB 146 PG 645
DB 179 PG 749

JIMMIE H. HAWKINS
DB 115 PG 598
BOM 14 PG 155

END CONSTRUCTION SOUTHBOUND LANE
BEGIN TEMP SBL
STA.78+00.000 -L- =
STA.78-00.000 -TEMP SBL-

END STATE PROJECT R-2241A
POT Sta.81+63.869 -L-.10.564 LT.
POT Sta.81+64.386 -XI-

END TEMP SBL
STA 79+69.997 -TEMP SBL-
STA 79+69.986 -L-

PT Sta.81+28.953 -XI-
POT Sta.81+28.436 -L-.10.552 LT.

PT Sta.78+75.404 -XI-

PC Sta.78+96.771 -XI-

END CONSTRUCTION NORTHBOUND LANE
Sta.79+30.000 -L-

170 SHIFT TAPER

TEMP ALIGNMENT N 30°05'06.8" E

TEMP PAINT STRIPING

N 26°20'38.6" E

PAINTED ISLAND CURVE XI-2

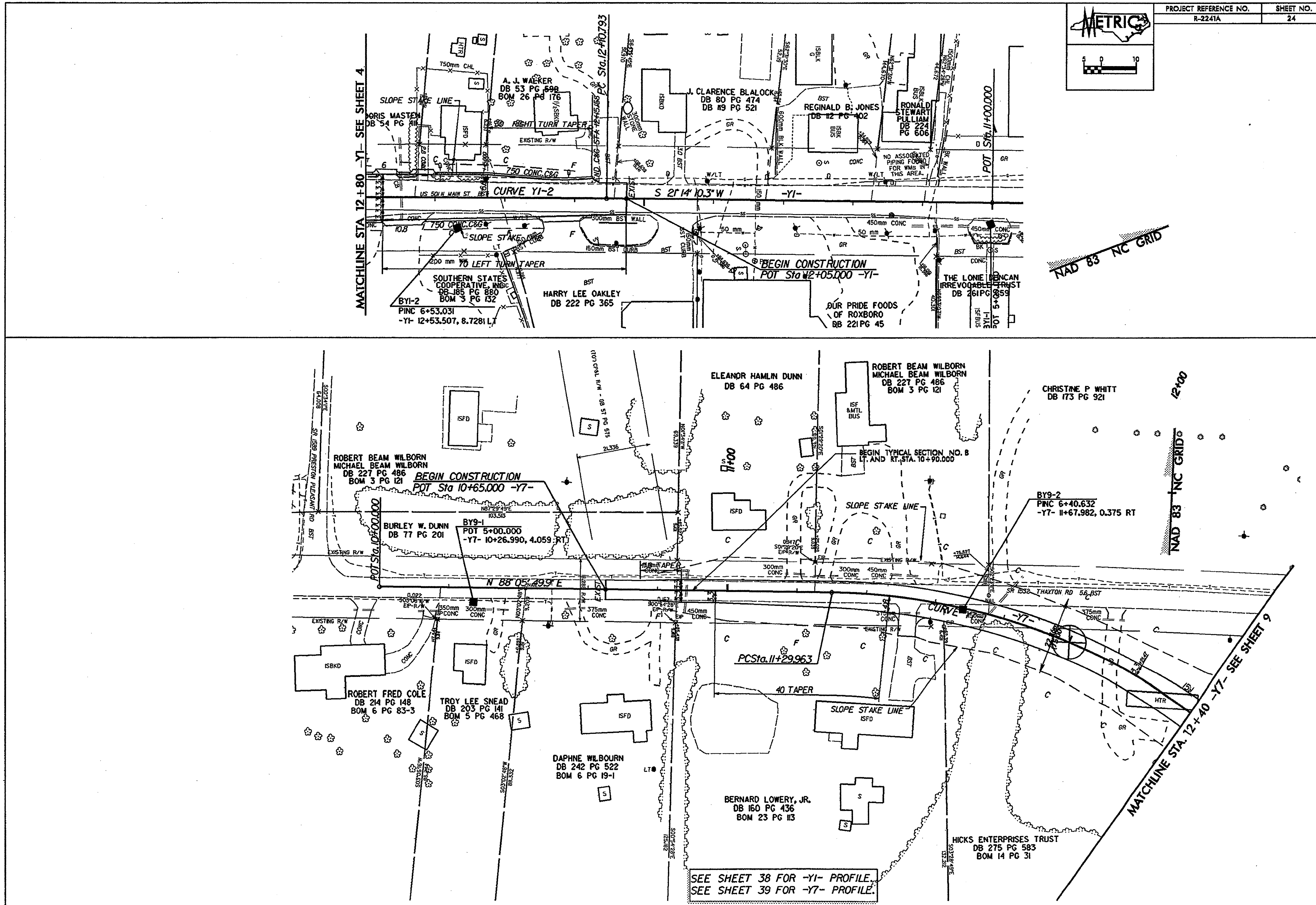
N 30°46'42.2" E

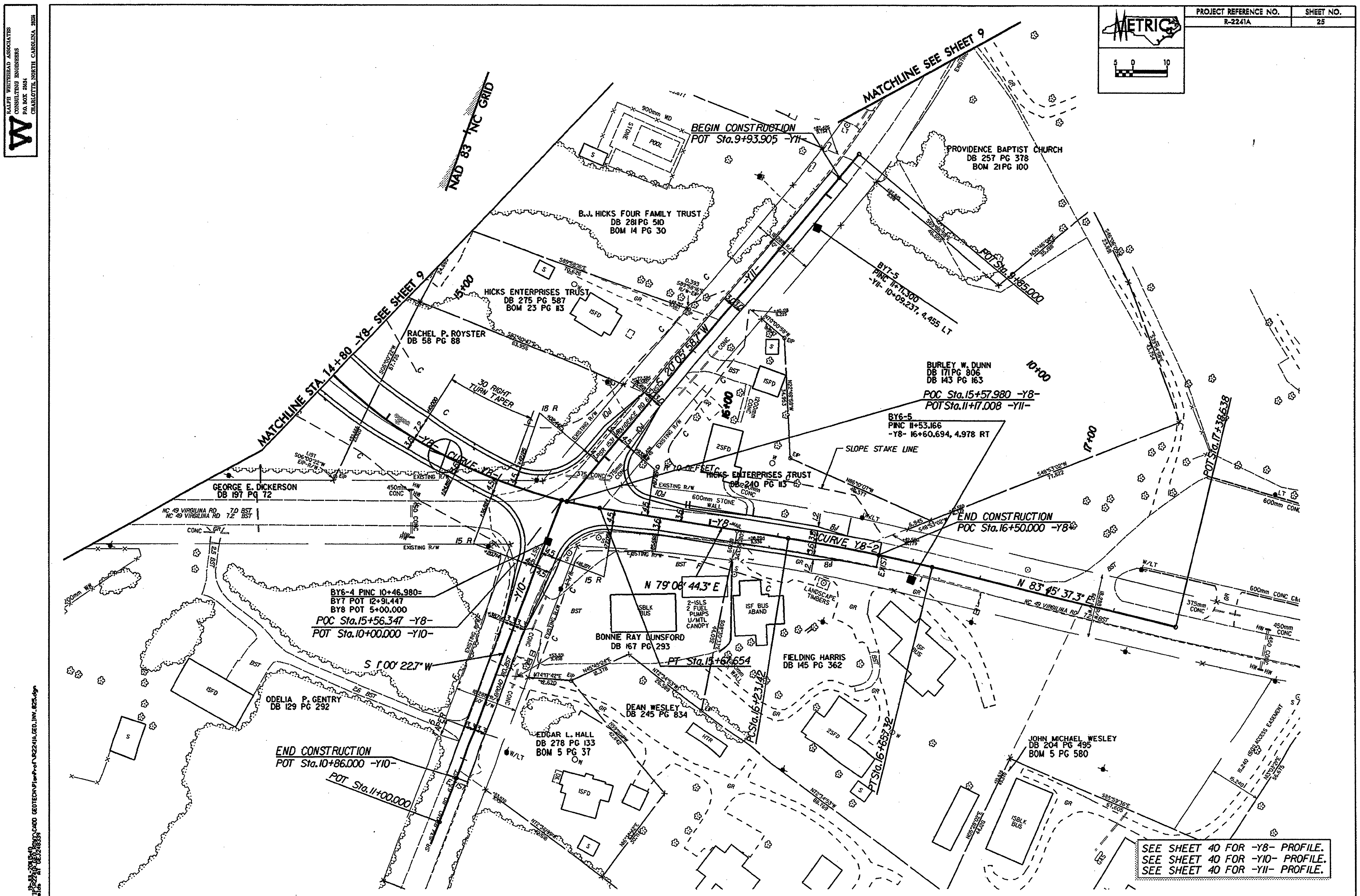
N 30°44'51.4" E

79+00

81+00

SEE SHEET 37 FOR -L- PROFILE.
SEE SHEET 43 FOR -XI- PROFILE.


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
24
METRIC
MATCHLINE STA 12+80 -Y1- SEE SHEET 4
A. J. WALKER
DB 53 PG 598
BOM 26 PG 176
DORIS MASTEN
DB 54 PG 411
SLOPE STAKE LINE
RIGHT TURN TAPER
EXISTING R/W
750 CONC C&G
US 501N MAIN ST
CURVE Y1-2
S 21°14' 10.3" W
-Y1-
J. CLARENCE BLALOCK
DB 80 PG 474
DB 119 PG 521
REGINALD B. JONES
DB 112 PG 402
RONALD STEWART PULLIAM
DB 224
PG 606
NO ASSOCIATED PIPING FOUND FOR WMS IN THIS AREA.
POT Sta. 11+00.000
300mm BST WALL
SLOPE STAKE
LEFT TURN TAPER
SOUTHERN STATES COOPERATIVE, INC.
DB 185 PG 880
BOM 5 PG 132
BY1-2
PINC 6+53.031
-Y1- 12+53.507, 8.7281 LT
HARRY LEE OAKLEY
DB 222 PG 365
BEGIN CONSTRUCTION
POT Sta 12+05.000 -Y1-
OUR PRIDE FOODS OF ROXBORO
DB 221 PG 45
THE LONIE DUNCAN IRREVOCABLE TRUST
DB 261 PG 859
NAD 83 NC GRID
ELEANOR HAMLIN DUNN
DB 64 PG 486
ROBERT BEAM WILBORN
MICHAEL BEAM WILBORN
DB 227 PG 486
BOM 3 PG 121
CHRISTINE P WHITT
DB 173 PG 921
BEGIN TYPICAL SECTION NO. 8
LT. AND RT. STA. 10+90.000
BEGIN CONSTRUCTION
POT Sta 10+65.000 -Y7-
SR 1588 PRESTON PLEASANT RD
BURLEY W. DUNN
DB 77 PG 201
BY9-1
POT 5+00.000
-Y7- 10+26.990, 4.059 RT
SLOPE STAKE LINE
BY9-2
PINC 6+40.632
-Y7- 11+67.982, 0.375 RT
POT Sta. 10+00.000
N 88°05'49.9" E
SR 1532 THAXTON RD
CURVE -Y7-
PC Sta. 11+29.963
40 TAPER
ROBERT FRED COLE
DB 214 PG 148
BOM 6 PG 83-3
TROY LEE SNEAD
DB 203 PG 141
BOM 5 PG 468
DAPHNE WILBOURN
DB 242 PG 522
BOM 6 PG 19-1
BERNARD LOWERY, JR.
DB 160 PG 436
BOM 23 PG 113
HICKS ENTERPRISES TRUST
DB 275 PG 583
BOM 14 PG 31
MATCHLINE STA. 12+40 -Y7- SEE SHEET 9
SEE SHEET 38 FOR -Y1- PROFILE.
SEE SHEET 39 FOR -Y7- PROFILE.



PROJECT REFERENCE NO.
SHEET NO.
R-2241A
25
METRIC
MATCHLINE SEE SHEET 9
NAD 83 NC GRID
BEGIN CONSTRUCTION
POT Sta.9+93.905 -Y11-
PROVIDENCE BAPTIST CHURCH
DB 257 PG 378
BOM 21 PG 100
B.J. HICKS FOUR FAMILY TRUST
DB 281 PG 510
BOM 14 PG 30
HICKS ENTERPRISES TRUST
DB 275 PG 587
BOM 23 PG 113
RACHEL P. ROYSTER
DB 58 PG 88
MATCHLINE STA.14+80 -Y8- SEE SHEET 9
BURLEY W. DUNN
DB 171 PG 806
DB 143 PG 163
POC Sta.15+57.980 -Y8-
POT Sta.11+17.008 -Y11-
BY6-5
PINC 11+53.166
-Y8- 16+60.694, 4.978 RT
SLOPE STAKE LINE
HICKS ENTERPRISES TRUST
DB 240 PG 113
GEORGE E. DICKERSON
DB 197 PG 72
END CONSTRUCTION
POC Sta.16+50.000 -Y8-
N 83° 45' 37.3" E
N 79° 06' 44.3" E
BY6-4 PINC 10+46.980=
BY7 POT 12+91.447
BY8 POT 5+00.000
POC Sta.15+56.347 -Y8-
POT Sta.10+00.000 -Y10-
S 1° 00' 22.7" W
BONNIE RAY DUNSFORD
DB 167 PG 293
PT Sta.15+67.654
FIELDING HARRIS
DB 145 PG 362
ODELIA P. GENTRY
DB 129 PG 292
DEAN WESLEY
DB 245 PG 834
EDGAR L. HALL
DB 278 PG 133
BOM 5 PG 37
JOHN MICHAEL WESLEY
DB 204 PG 495
BOM 5 PG 580
END CONSTRUCTION
POT Sta.10+86.000 -Y10-
POT Sta.11+00.000
POT Sta.17+38.638
SEE SHEET 40 FOR -Y8- PROFILE.
SEE SHEET 40 FOR -Y10- PROFILE.
SEE SHEET 40 FOR -Y11- PROFILE.
RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
CHARLOTTE, NORTH CAROLINA

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 3434
CHARLOTTE, NORTH CAROLINA 28234

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	26

METRIC
5 0 10

NAD 83 NC GRID

MATCHLINE STA. 15+20 -Y9- SEE SHEET 10

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557
DB 107 PG 74

SLOPE STAKE LINE

CURVE Y9-3 -Y9-

BY7-3
PINC 7+80.473
-Y9- 15+23.635, 5.154 RT

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557

16+00

PT Sta.16+32.058

THOMAS ALLEN CASTLE
DB 238 PG 612
BOM 9 PG 21-2

17+00

END CONSTRUCTION
POT Sta.16+85.000 -Y9-

40 TAPER

15 TAPER

N 24° 16' 34.3" W

SR 1531 PROVIDENCE RD (SR1531)

EXISTING R/W

BY7-2
PINC 6+24.044
-Y9- 16+79.532, 4.087 RT

HOWARD T. SMITH
DB 143 PG 619
DB 176 PG 92
BOM 1PG 143

NELLIE R. PENTECOST
DB 176 PG 86
DB 80 PG 469
BOM 7 PG 335
BOM 1PG 143

JOEL DEAN SMITH
DB 280 PG 838
BOM 8 PG 72-3

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557
DB 107 PG 74

POT Sta.17+53.051

SAMUEL KEITH WRENN
DB 274 PG 95
BOM 9 PG 34-10

BURLEY W. DUNN
DB 188 PG 749
DB 36 PG 557
DB 107 PG 74

SYBIL PENTECOST WOOTEN
DB 176 PG 90
DB 77 PG 98
BOM 7 PG 104
BOM 5 PG 607

BY7-1
PRT 5+00.000

BAXTER M. BUCHANAN
DB 295 PG 770
BOM 3A PG 31
BOM 1PG 143

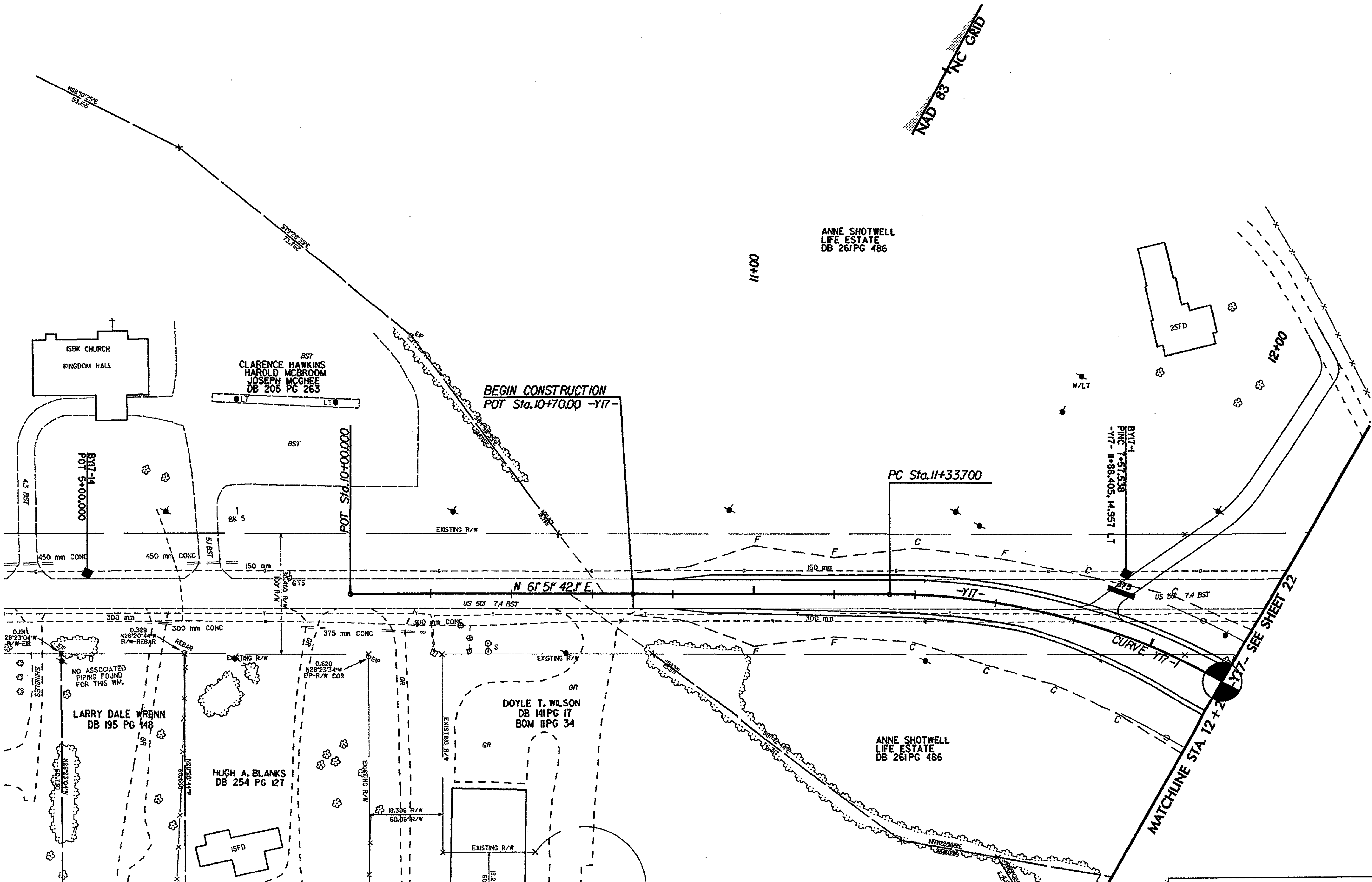
LANDSCAPE TIMBERS

SEE SHEET 41 FOR -Y9- PROFILE.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36624
CHARLOTTE, NORTH CAROLINA 28235

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	27

METRIC

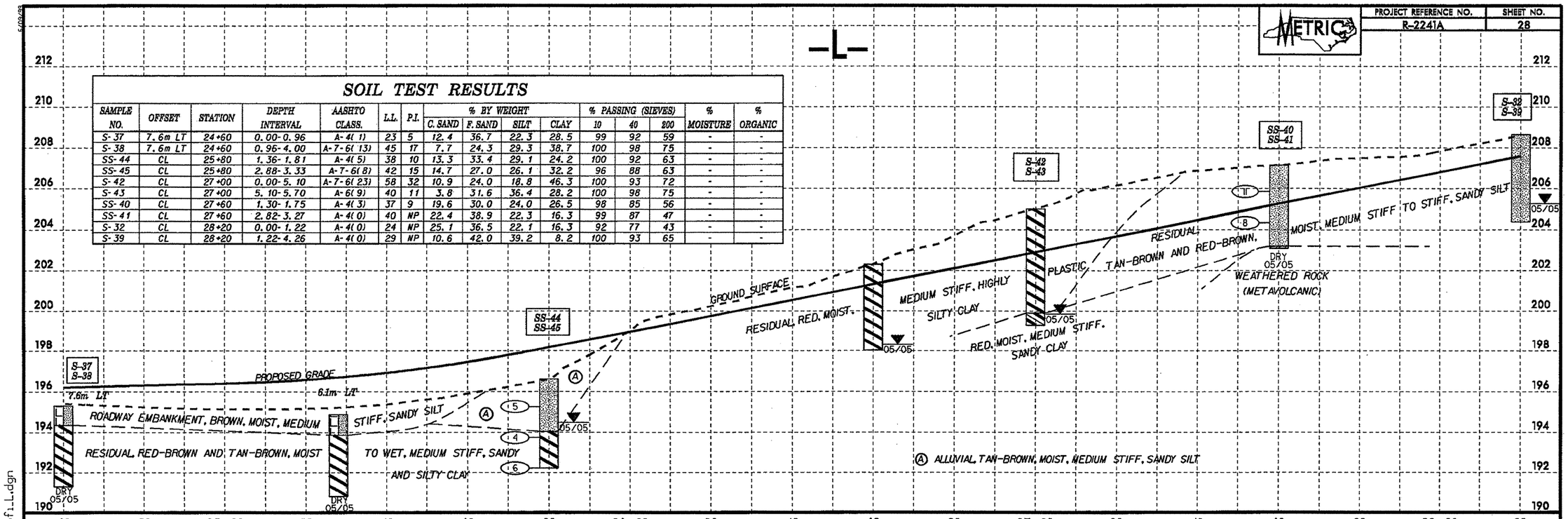


SEE SHEET 43 FOR -Y17- PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	28

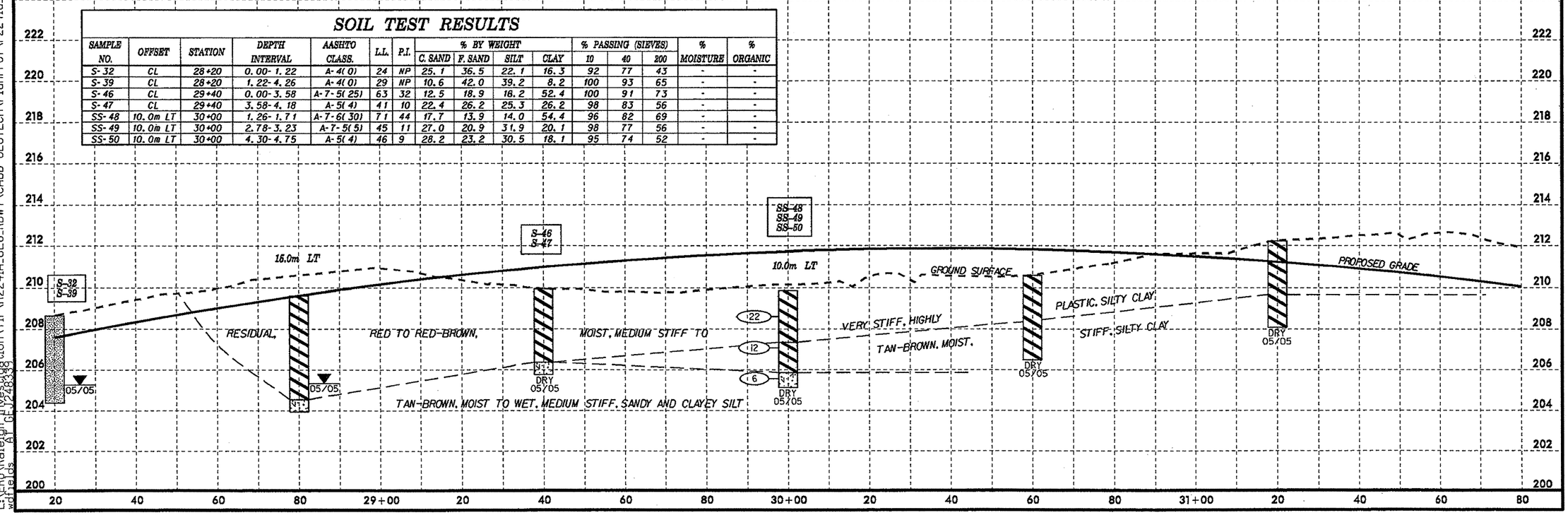
SOIL TEST RESULTS

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-37	7.6m LT	24+60	0.00-0.96	A-4(1)	23	5	12.4	36.7	22.3	28.5	99	92	59	-	-
S-38	7.6m LT	24+60	0.96-4.00	A-7-6(13)	45	17	7.7	24.3	29.3	38.7	100	98	75	-	-
SS-44	CL	25+80	1.36-1.81	A-4(5)	38	10	13.3	33.4	29.1	24.2	100	92	63	-	-
SS-45	CL	25+80	2.88-3.33	A-7-6(8)	42	15	14.7	27.0	26.1	32.2	96	88	63	-	-
S-42	CL	27+00	0.00-5.10	A-7-6(23)	58	32	10.9	24.0	18.8	46.3	100	93	72	-	-
S-43	CL	27+00	5.10-5.70	A-6(9)	40	11	3.8	31.6	36.4	28.2	100	98	75	-	-
SS-40	CL	27+60	1.30-1.75	A-4(3)	37	9	19.6	30.0	24.0	26.5	98	85	56	-	-
SS-41	CL	27+60	2.82-3.27	A-4(0)	40	NP	22.4	38.9	22.3	16.3	99	87	47	-	-
S-32	CL	28+20	0.00-1.22	A-4(0)	24	NP	25.1	36.5	22.1	16.3	92	77	43	-	-
S-39	CL	28+20	1.22-4.26	A-4(0)	29	NP	10.6	42.0	39.2	8.2	100	93	65	-	-



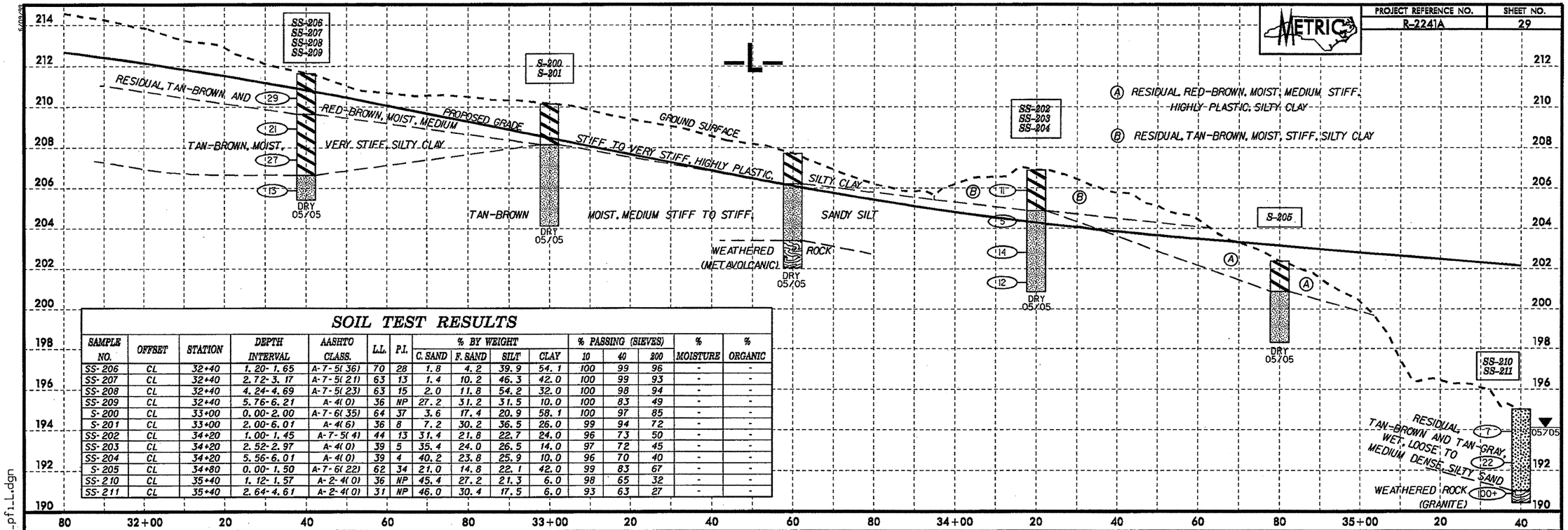
SOIL TEST RESULTS

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-32	CL	28+20	0.00-1.22	A-4(0)	24	NP	25.1	36.5	22.1	16.3	92	77	43	-	-
S-39	CL	28+20	1.22-4.26	A-4(0)	29	NP	10.6	42.0	39.2	8.2	100	93	65	-	-
S-46	CL	29+40	0.00-3.58	A-7-5(25)	63	32	12.5	18.9	16.2	52.4	100	91	73	-	-
S-47	CL	29+40	3.58-4.18	A-5(4)	41	10	22.4	26.2	25.3	26.2	98	83	56	-	-
SS-48	10.0m LT	30+00	1.26-1.71	A-7-6(30)	71	44	17.7	13.9	14.0	54.4	96	82	69	-	-
SS-49	10.0m LT	30+00	2.78-3.23	A-7-5(5)	45	11	27.0	20.9	31.9	20.1	98	77	56	-	-
SS-50	10.0m LT	30+00	4.30-4.75	A-5(4)	46	9	28.2	23.2	30.5	18.1	95	74	52	-	-



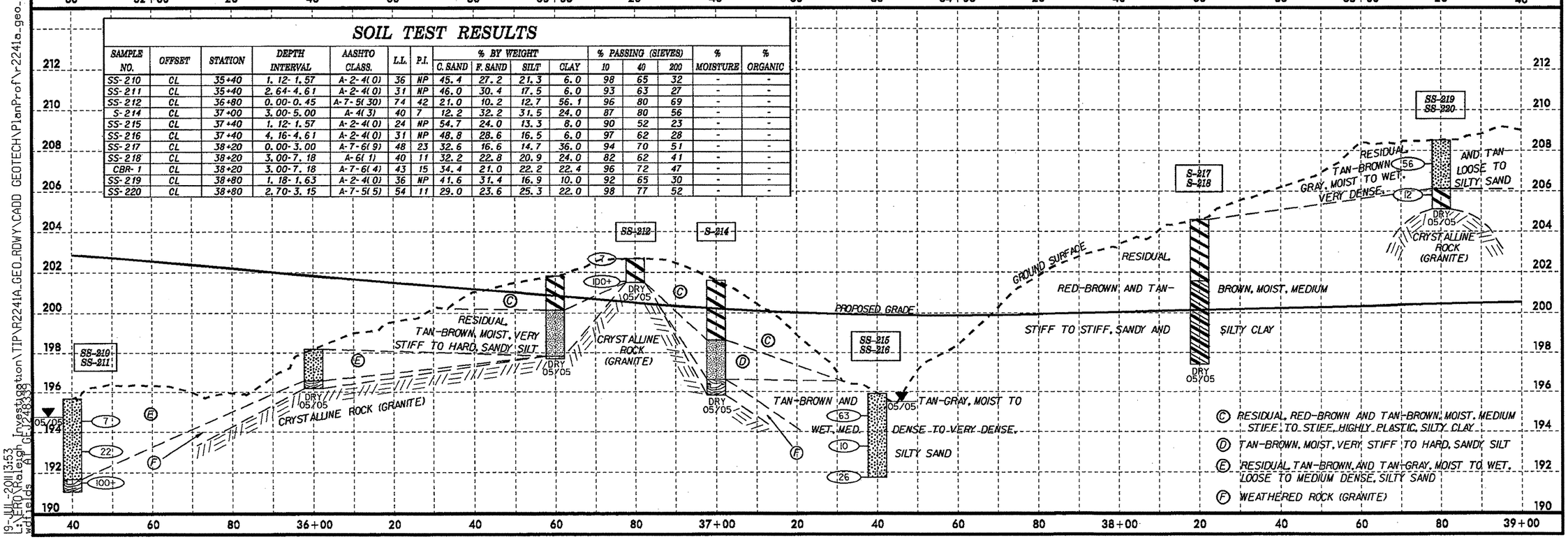
SOIL TEST RESULTS

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-206	CL	32+40	1.20-1.65	A-7-5(36)	70	28	1.8	4.2	39.9	54.1	100	99	96	-	-
SS-207	CL	32+40	2.72-3.17	A-7-5(21)	63	13	1.4	10.2	46.3	42.0	100	99	93	-	-
SS-208	CL	32+40	4.24-4.69	A-7-5(23)	63	15	2.0	11.8	54.2	32.0	100	98	94	-	-
SS-209	CL	32+40	5.76-6.21	A-4(0)	36	NP	27.2	31.2	31.5	10.0	100	83	49	-	-
S-200	CL	33+00	0.00-2.00	A-7-6(35)	64	37	3.6	17.4	20.9	58.1	100	97	85	-	-
S-201	CL	33+00	2.00-6.01	A-4(6)	36	8	7.2	30.2	36.5	26.0	99	94	72	-	-
SS-202	CL	34+20	1.00-1.45	A-7-5(4)	44	13	31.4	21.8	22.7	24.0	96	73	50	-	-
SS-203	CL	34+20	2.52-2.97	A-4(0)	39	5	35.4	24.0	26.5	14.0	97	72	45	-	-
SS-204	CL	34+20	5.56-6.01	A-4(0)	39	4	40.2	23.8	25.9	10.0	96	70	40	-	-
S-205	CL	34+80	0.00-1.50	A-7-6(22)	62	34	21.0	14.8	22.1	42.0	99	83	67	-	-
SS-210	CL	35+40	1.12-1.57	A-2-4(0)	36	NP	45.4	27.2	21.3	6.0	98	65	32	-	-
SS-211	CL	35+40	2.64-4.61	A-2-4(0)	31	NP	46.0	30.4	17.5	6.0	93	63	27	-	-



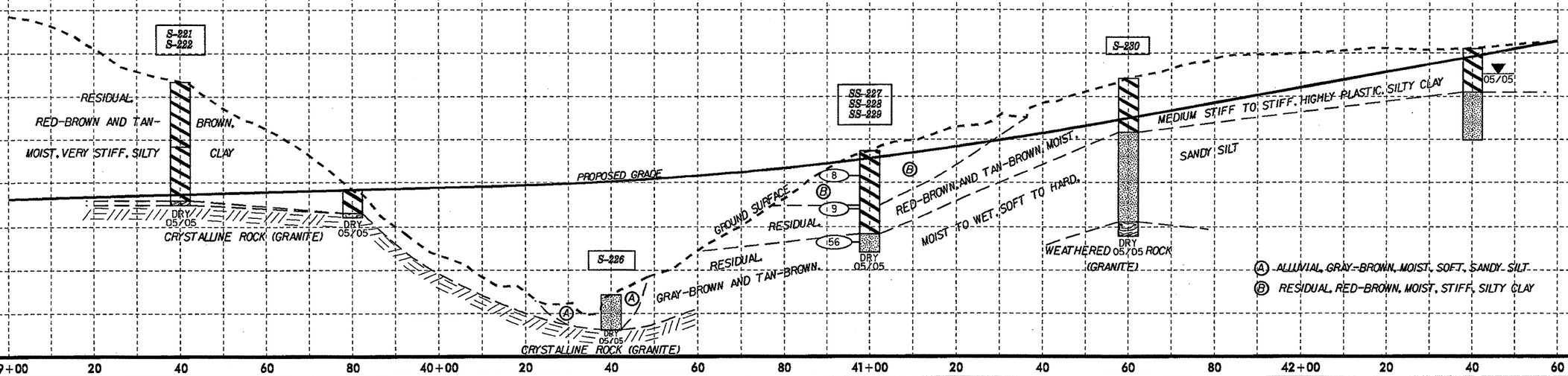
SOIL TEST RESULTS

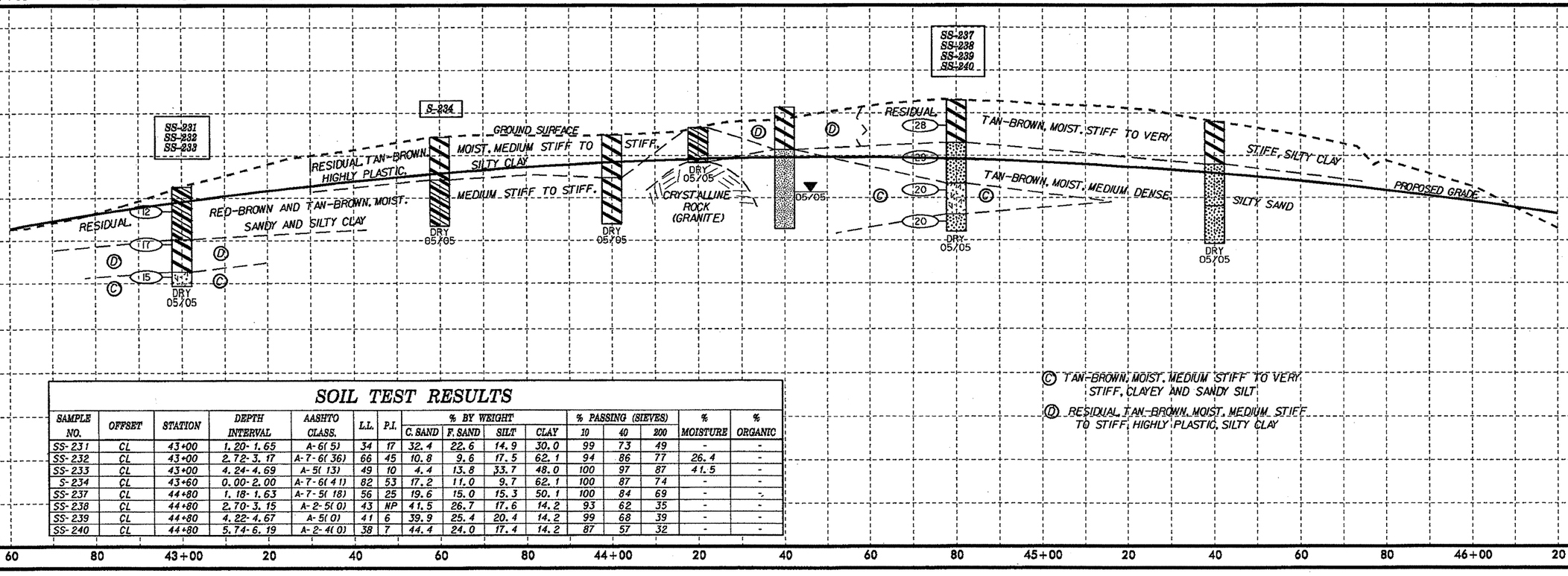
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-210	CL	35+40	1.12-1.57	A-2-4(0)	36	NP	45.4	27.2	21.3	6.0	98	65	32	-	-
SS-211	CL	35+40	2.64-4.61	A-2-4(0)	31	NP	46.0	30.4	17.5	6.0	93	63	27	-	-
SS-212	CL	36+80	0.00-0.45	A-7-5(30)	74	42	21.0	10.2	12.7	56.1	96	80	69	-	-
S-214	CL	37+00	3.00-5.00	A-4(3)	40	7	12.2	32.2	31.5	24.0	87	80	56	-	-
SS-215	CL	37+40	1.12-1.57	A-2-4(0)	24	NP	54.7	24.0	13.3	8.0	90	52	23	-	-
SS-216	CL	37+40	4.16-4.61	A-2-4(0)	31	NP	48.8	28.6	16.5	6.0	97	62	28	-	-
SS-217	CL	38+20	0.00-3.00	A-7-6(9)	48	23	32.6	16.6	14.7	36.0	94	70	51	-	-
SS-218	CL	38+20	3.00-7.18	A-6(11)	40	11	32.2	22.8	20.9	24.0	82	62	41	-	-
CBR-1	CL	38+20	3.00-7.18	A-7-6(4)	43	15	34.4	21.0	22.2	22.4	96	72	47	-	-
SS-219	CL	38+80	1.18-1.63	A-2-4(0)	36	NP	41.6	31.4	16.9	10.0	92	65	30	-	-
SS-220	CL	38+80	2.70-3.15	A-7-5(5)	54	11	29.0	23.6	25.3	22.0	98	77	52	-	-



SOIL TEST RESULTS

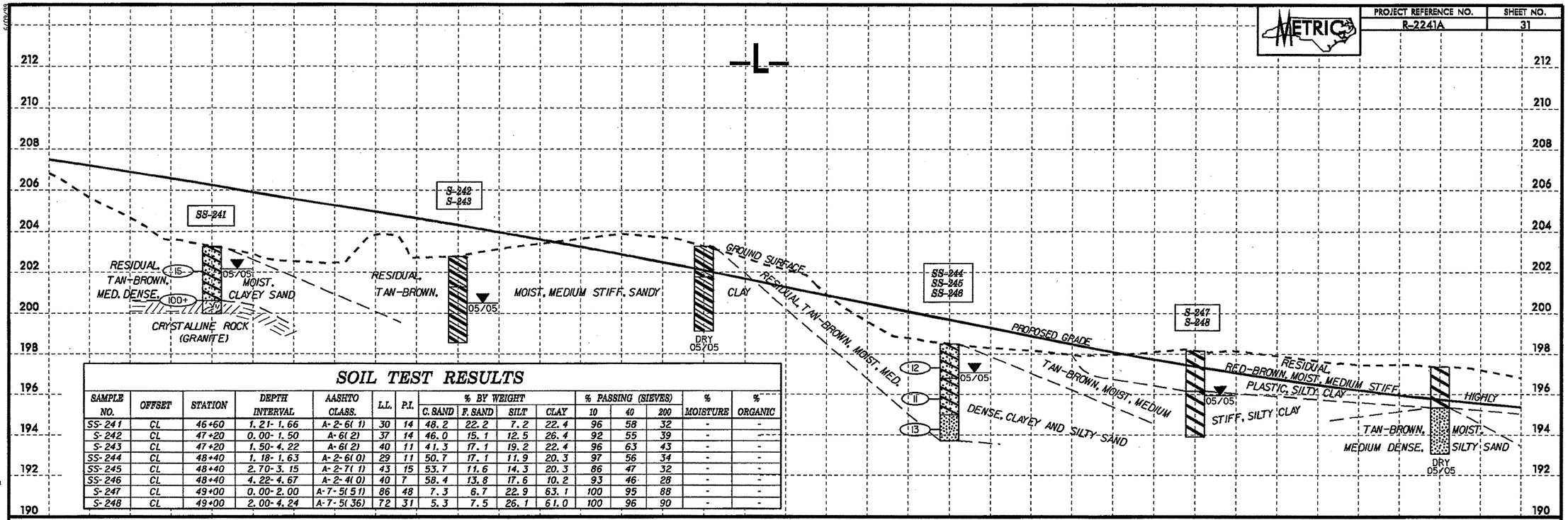
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-221	CL	39+40	0.00-3.00	A-7-5(8)	55	19	29.0	22.0	22.9	26.0	98	77	53	-	-
S-222	CL	39+40	3.00-5.50	A-7-6(13)	49	23	20.2	17.2	22.2	40.4	94	80	63	-	-
S-226	CL	40+40	0.00-1.60	A-4(0)	24	5	27.6	33.6	18.7	20.0	96	80	43	-	-
SS-227	CL	41+00	1.14-1.59	A-7-5(17)	51	14	2.0	14.8	45.1	38.0	100	99	90	-	-
SS-228	CL	41+00	2.66-3.11	A-7-5(30)	57	27	2.0	6.8	39.1	52.1	100	99	94	48.3	-
SS-229	CL	41+00	4.18-4.63	A-4(5)	39	3	5.0	13.4	51.6	30.0	98	95	84	40.0	-
S-230	CL	41+60	0.00-2.50	A-7-6(23)	54	30	12.8	9.0	24.1	54.1	93	84	75	-	-





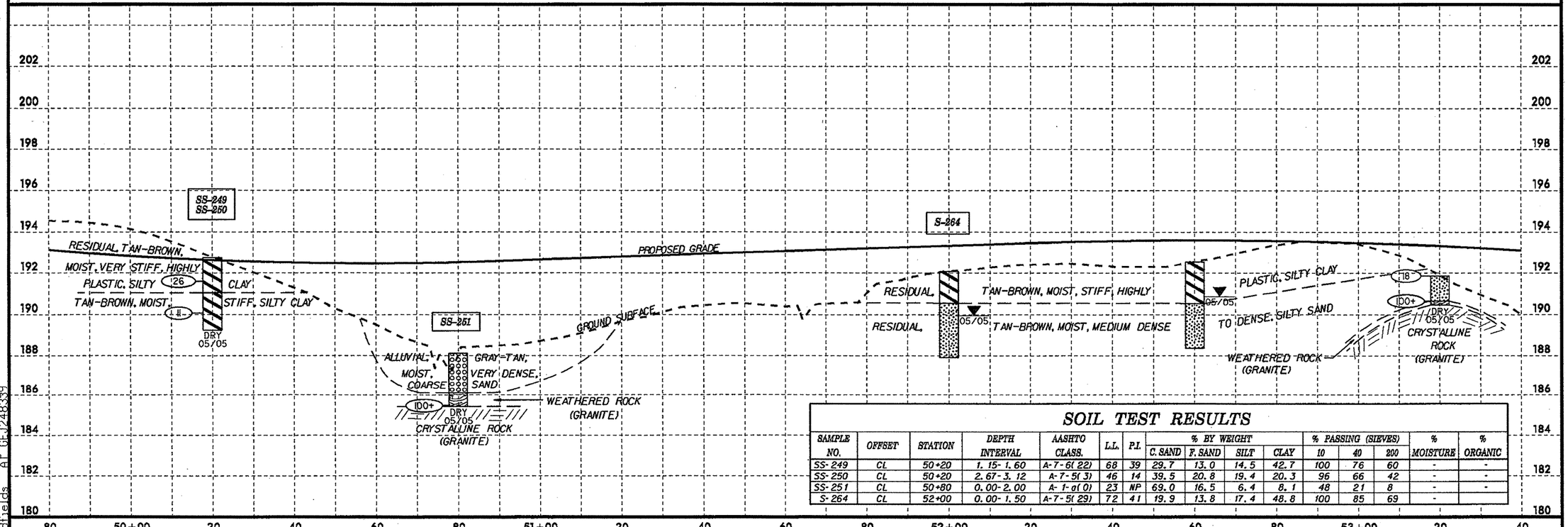
SOIL TEST RESULTS

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-231	CL	43+00	1.20-1.65	A-6(5)	34	17	32.4	22.6	14.9	30.0	99	73	49	-	-
SS-232	CL	43+00	2.72-3.17	A-7-6(36)	66	45	10.8	9.6	17.5	62.1	94	86	77	26.4	-
SS-233	CL	43+00	4.24-4.69	A-5(13)	49	10	4.4	13.8	33.7	48.0	100	97	87	41.5	-
S-234	CL	43+60	0.00-2.00	A-7-6(41)	82	53	17.2	11.0	9.7	62.1	100	87	74	-	-
SS-237	CL	44+80	1.18-1.63	A-7-5(18)	56	25	19.6	15.0	15.3	50.1	100	84	69	-	-
SS-238	CL	44+80	2.70-3.15	A-2-5(0)	43	NP	41.5	26.7	17.6	14.2	93	62	35	-	-
SS-239	CL	44+80	4.22-4.67	A-5(0)	41	6	39.9	25.4	20.4	14.2	99	68	39	-	-
SS-240	CL	44+80	5.74-6.19	A-2-4(0)	38	7	44.4	24.0	17.4	14.2	87	57	32	-	-



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-241	CL	46+60	1.21-1.66	A-2-6(1)	30	14	48.2	22.2	7.2	22.4	96	58	32	-	-
S-242	CL	47+20	0.00-1.50	A-6(2)	37	14	46.0	15.1	12.5	26.4	92	55	39	-	-
S-243	CL	47+20	1.50-4.22	A-6(2)	40	11	41.3	17.1	19.2	22.4	96	63	43	-	-
SS-244	CL	48+40	1.18-1.63	A-2-6(0)	29	11	50.7	17.1	11.9	20.3	97	56	34	-	-
SS-245	CL	48+40	2.70-3.15	A-2-7(1)	43	15	53.7	11.6	14.3	20.3	86	47	32	-	-
SS-246	CL	48+40	4.22-4.67	A-2-4(0)	40	7	58.4	13.8	17.6	10.2	93	46	28	-	-
S-247	CL	49+00	0.00-2.00	A-7-5(51)	86	48	7.3	6.7	22.9	63.1	100	95	88	-	-
S-248	CL	49+00	2.00-4.24	A-7-5(36)	72	31	5.3	7.5	26.1	61.0	100	96	90	-	-



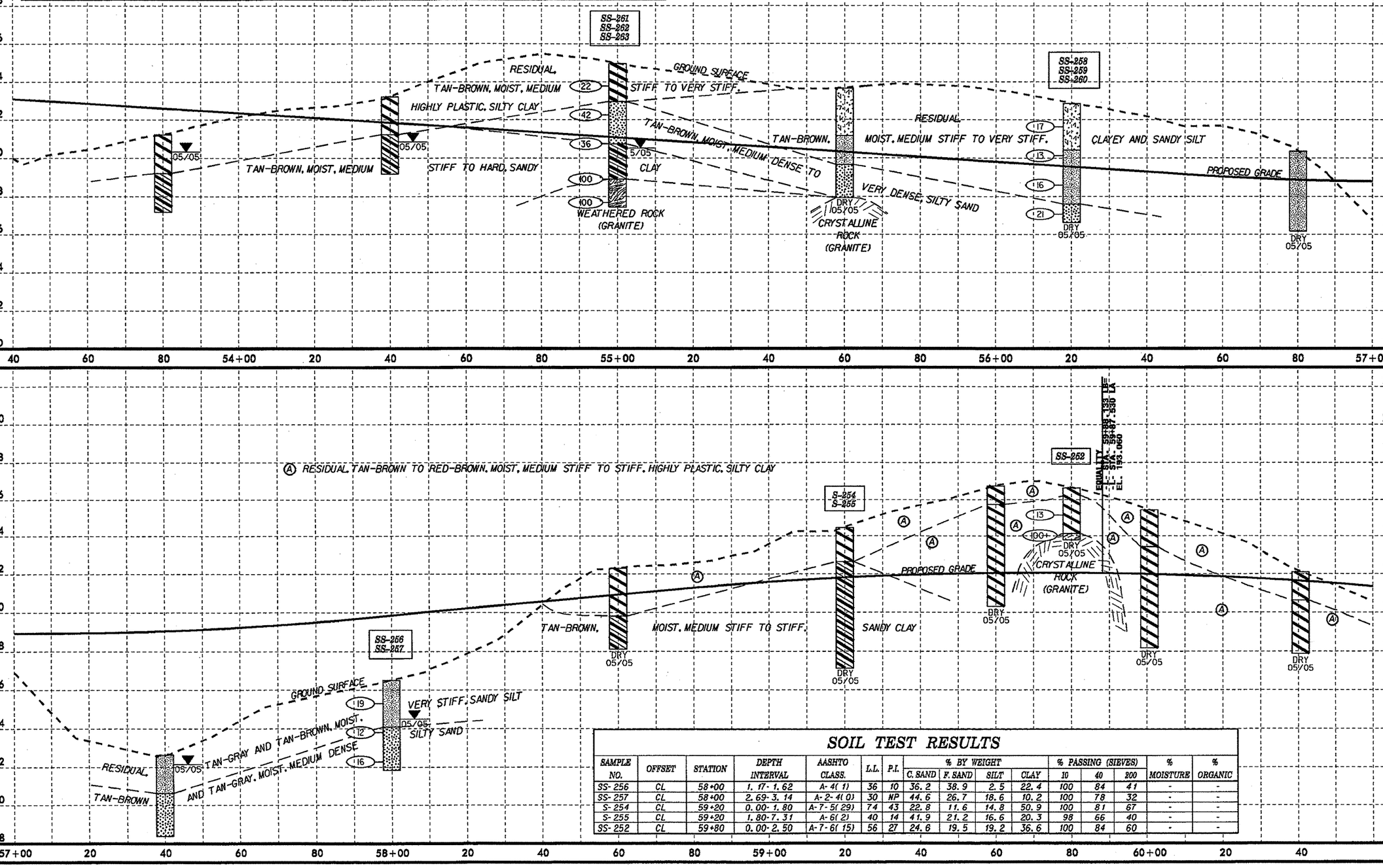
SOIL TEST RESULTS

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-249	CL	50+20	1.15-1.60	A-7-6(22)	68	39	29.7	13.0	14.5	42.7	100	76	60	-	-
SS-250	CL	50+20	2.67-3.12	A-7-5(3)	46	14	39.5	20.8	19.4	20.3	96	66	42	-	-
SS-251	CL	50+80	0.00-2.00	A-1-a(0)	23	NP	69.0	16.5	6.4	8.1	48	21	8	-	-
S-264	CL	52+00	0.00-1.50	A-7-5(29)	72	41	19.9	13.8	17.4	48.8	100	85	69	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	32

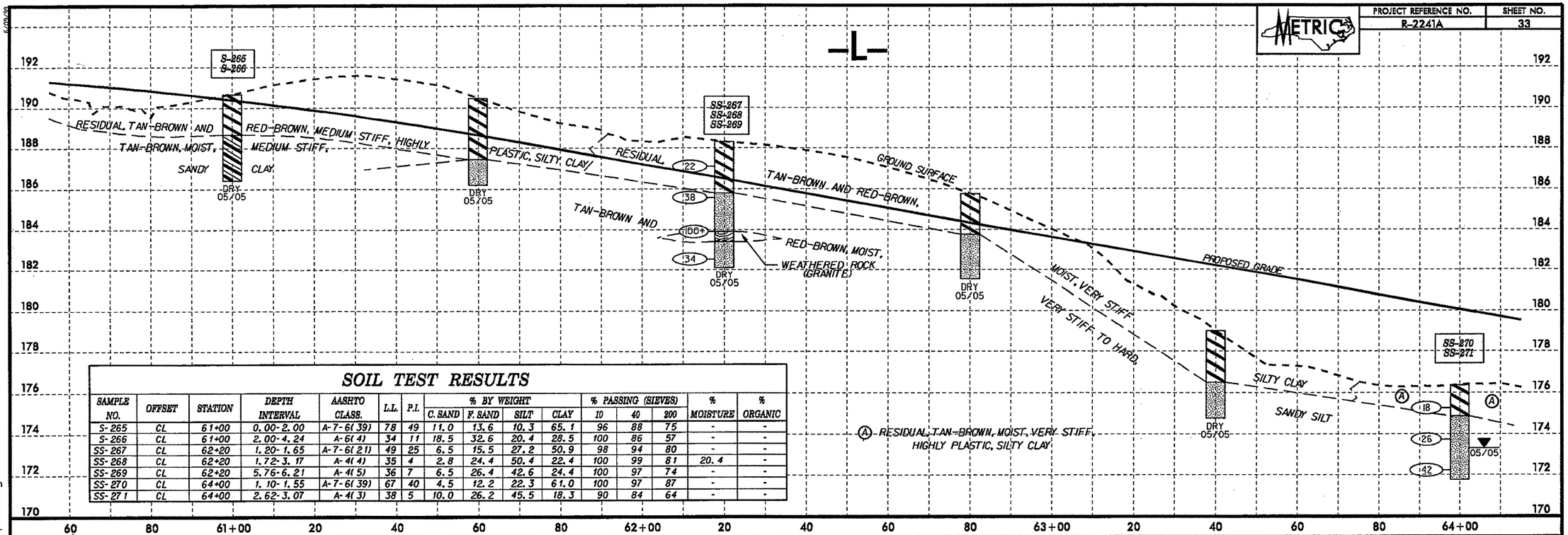
SOIL TEST RESULTS

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-261	CL	55+00	1.19-1.64	A-7-6(21)	68	40	28.5	14.4	16.4	40.7	97	74	58	-	-
SS-262	CL	55+00	2.71-3.16	A-2-4(0)	31	NP	27.5	47.4	17.0	8.1	100	89	32	-	-
SS-263	CL	55+00	4.23-4.68	A-6(3)	37	15	35.8	23.2	14.5	26.4	100	75	45	-	-
SS-258	CL	56+20	1.23-1.68	A-5(3)	44	10	35.4	18.7	23.5	22.4	98	69	49	-	-
SS-259	CL	56+20	2.75-3.20	A-4(0)	39	8	42.5	22.4	20.9	14.2	98	64	39	-	-
SS-260	CL	56+20	5.79-6.24	A-2-4(0)	34	5	52.5	17.9	17.4	12.2	97	56	32	-	-



SOIL TEST RESULTS

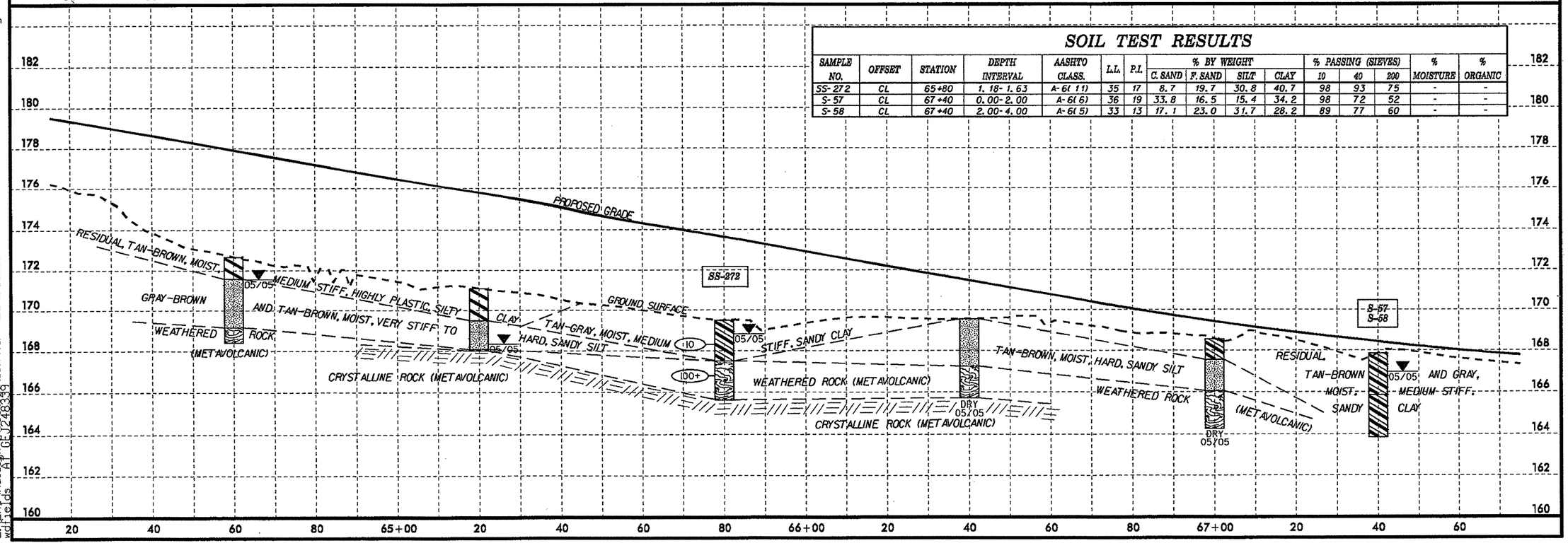
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-256	CL	58+00	1.17-1.62	A-4(1)	36	10	36.2	38.9	2.5	22.4	100	84	41	-	-
SS-257	CL	58+00	2.69-3.14	A-2-4(0)	30	NP	44.6	26.7	18.6	10.2	100	78	32	-	-
S-254	CL	59+20	0.00-1.80	A-7-5(29)	74	43	22.8	11.6	14.8	50.9	100	81	67	-	-
S-255	CL	59+20	1.80-7.31	A-6(2)	40	14	41.9	21.2	16.6	20.3	98	66	40	-	-
SS-252	CL	59+80	0.00-2.50	A-7-6(15)	56	27	24.6	19.5	19.2	36.6	100	84	60	-	-



Ⓐ RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

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-265	CL	61+00	0.00-2.00	A-7-6(39)	78	49	11.0	13.6	10.3	65.1	96	88	75	-	-
S-266	CL	61+00	2.00-4.24	A-6(4)	34	11	18.5	32.6	20.4	28.5	100	86	57	-	-
SS-267	CL	62+20	1.20-1.65	A-7-6(21)	49	25	6.5	15.5	27.2	50.9	98	94	80	-	-
SS-268	CL	62+20	1.72-3.17	A-4(4)	35	4	2.8	24.4	50.4	22.4	100	99	81	20.4	-
SS-269	CL	62+20	5.76-6.21	A-4(5)	36	7	6.5	26.4	42.6	24.4	100	97	74	-	-
SS-270	CL	64+00	1.10-1.55	A-7-6(39)	67	40	4.5	12.2	22.3	61.0	100	97	87	-	-
SS-271	CL	64+00	2.62-3.07	A-4(3)	38	5	10.0	26.2	45.5	18.3	90	84	64	-	-

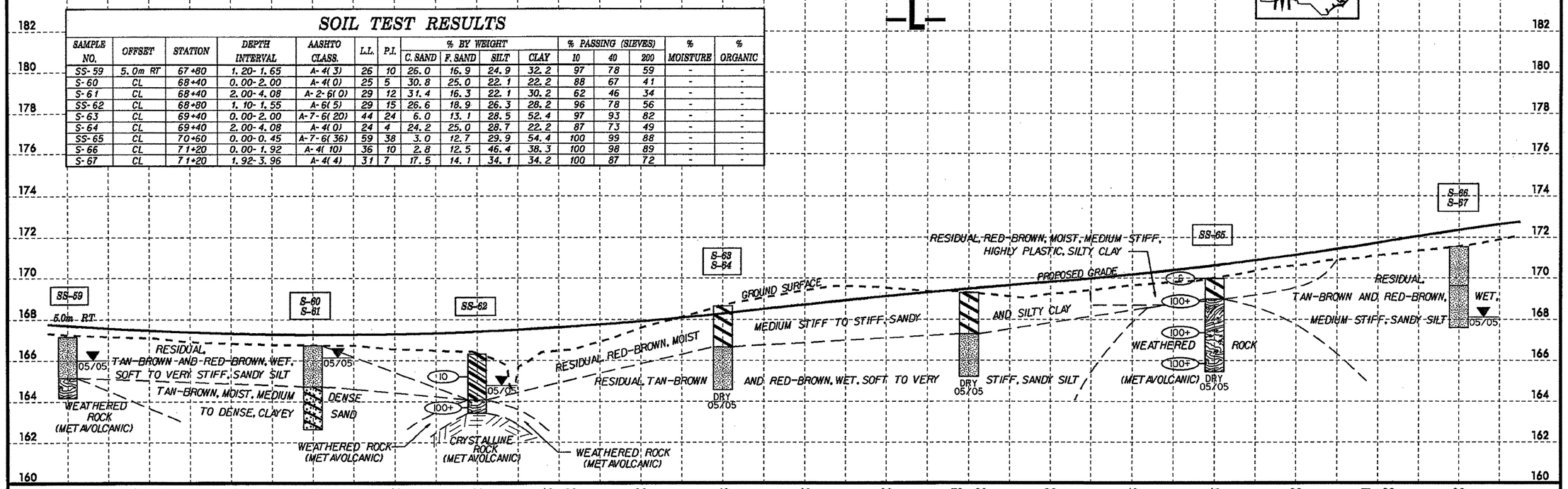


SOIL TEST RESULTS

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-272	CL	65+80	1.18-1.63	A-6(11)	35	17	8.7	19.7	30.8	40.7	98	93	75	-	-
S-57	CL	67+40	0.00-2.00	A-6(6)	36	19	33.8	16.5	15.4	34.2	98	72	52	-	-
S-58	CL	67+40	2.00-4.00	A-6(5)	33	13	17.1	23.0	31.7	28.2	89	77	60	-	-

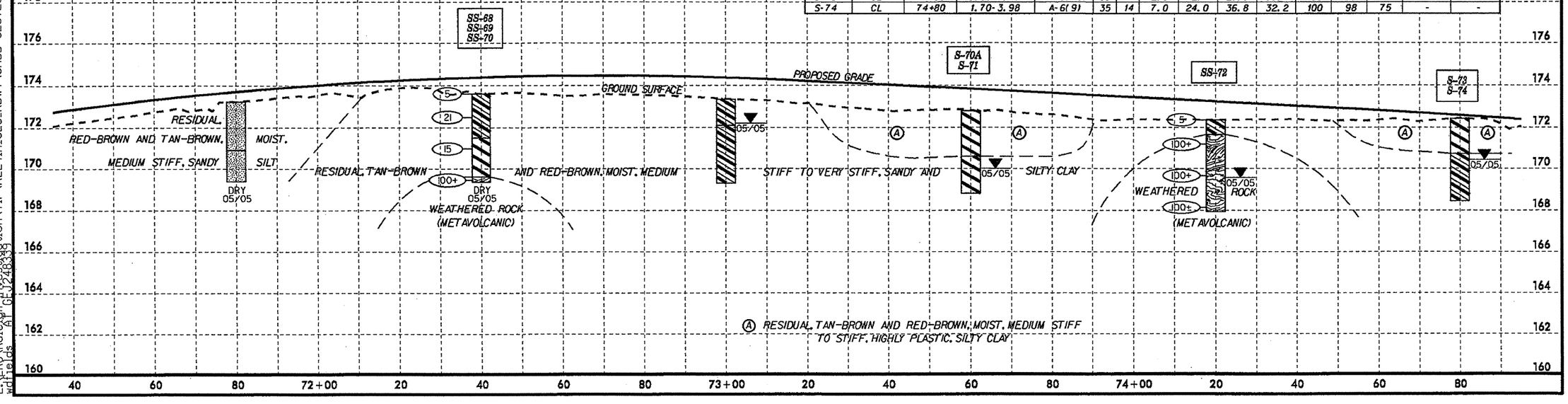
SOIL TEST RESULTS

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-59	5.0m RT	67+80	1.20-1.65	A-4(3)	26	10	26.0	16.9	24.9	32.2	97	78	59	-	-
S-60	CL	68+40	0.00-2.00	A-4(0)	25	5	30.8	25.0	22.1	22.2	88	67	41	-	-
S-61	CL	68+40	2.00-4.08	A-2-6(0)	29	12	31.4	16.3	22.1	30.2	62	46	34	-	-
SS-62	CL	68+80	1.10-1.55	A-6(5)	29	15	26.6	18.9	26.3	28.2	96	78	56	-	-
S-63	CL	69+40	0.00-2.00	A-7-6(20)	44	24	6.0	13.1	28.5	52.4	97	93	82	-	-
S-64	CL	69+40	2.00-4.08	A-4(0)	24	4	24.2	25.0	28.7	22.2	87	73	49	-	-
SS-65	CL	70+60	0.00-0.45	A-7-6(36)	59	38	3.0	12.7	29.9	54.4	100	99	88	-	-
S-66	CL	71+20	0.00-1.92	A-4(10)	36	10	2.8	12.5	46.4	38.3	100	98	89	-	-
S-67	CL	71+20	1.92-3.96	A-4(4)	31	7	17.5	14.1	34.1	34.2	100	87	72	-	-



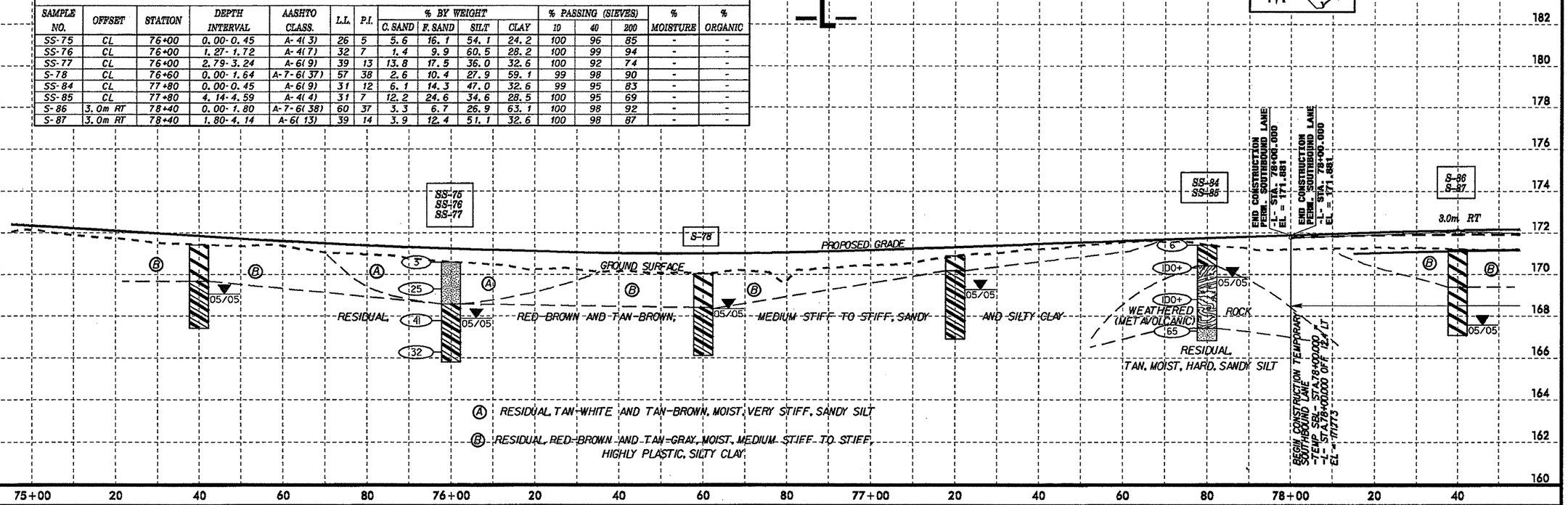
SOIL TEST RESULTS

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-68	CL	72+40	0.00-0.45	A-6(14)	36	19	7.3	16.1	38.4	38.3	97	93	79	-	-
SS-69	CL	72+40	1.11-1.56	A-6(7)	32	11	4.6	27.6	39.6	28.2	100	99	75	-	-
SS-70	CL	72+40	2.63-3.08	A-7-6(19)	42	24	4.4	19.5	33.7	42.3	100	99	82	24.5	-
S-70A	CL	73+60	0.00-2.21	A-7-6(36)	59	38	3.2	11.9	30.5	54.4	99	97	88	-	-
S-71	CL	73+60	2.21-3.98	A-7-6(15)	43	15	3.8	15.7	46.2	34.2	100	98	86	-	-
SS-72	CL	74+20	0.00-0.45	A-6(14)	35	17	4.6	12.5	40.6	42.3	98	97	85	-	-
S-73	CL	74+80	0.00-1.70	A-7-6(43)	63	44	2.0	12.1	29.5	56.4	100	99	90	-	-
S-74	CL	74+80	1.70-3.98	A-6(9)	35	14	7.0	24.0	36.8	32.2	100	98	75	-	-



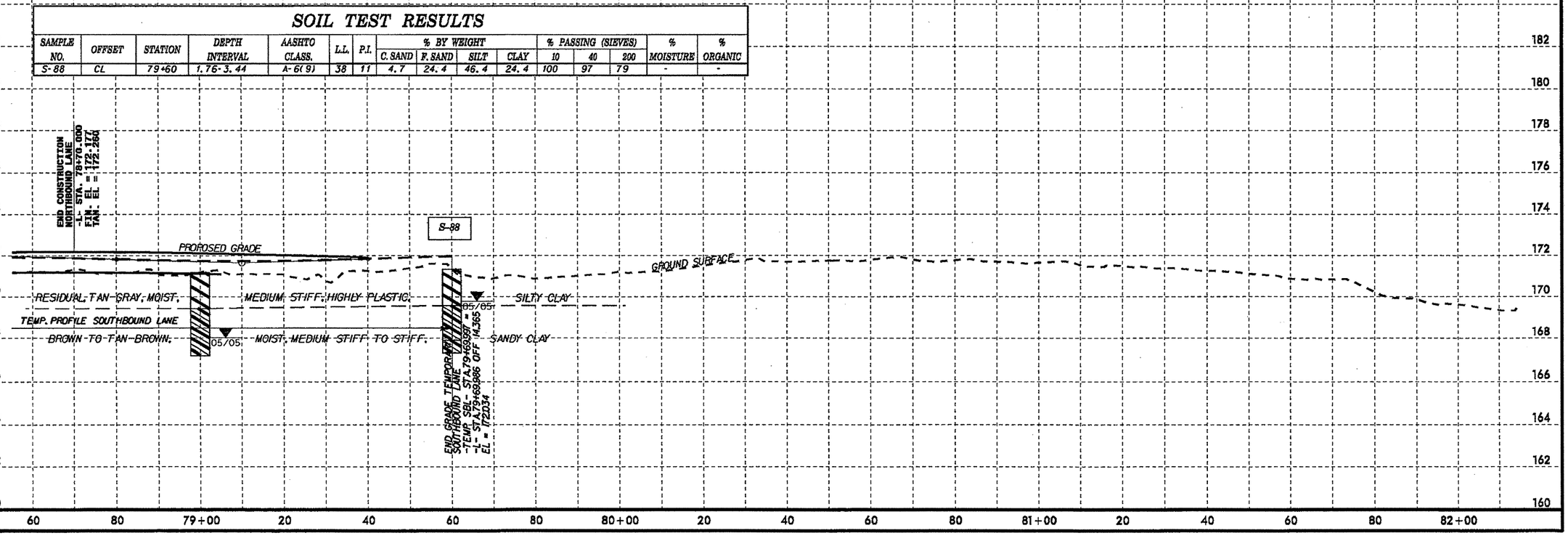
SOIL TEST RESULTS

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-75	CL	76+00	0.00-0.45	A-4(3)	26	5	5.6	16.1	54.1	24.2	100	96	85	-	-
SS-76	CL	76+00	1.27-1.72	A-4(7)	32	7	1.4	9.9	60.5	28.2	100	99	94	-	-
SS-77	CL	76+00	2.79-3.24	A-6(9)	39	13	13.8	17.5	36.0	32.6	100	92	74	-	-
S-78	CL	76+60	0.00-1.64	A-7-6(37)	57	38	2.6	10.4	27.9	59.1	99	98	90	-	-
SS-84	CL	77+80	0.00-0.45	A-6(9)	31	12	6.1	14.3	47.0	32.6	99	95	83	-	-
SS-85	CL	77+80	4.14-4.59	A-4(4)	31	7	12.2	24.6	34.6	28.5	100	95	69	-	-
S-86	3.0m RT	78+40	0.00-1.80	A-7-6(38)	60	37	3.3	6.7	26.9	63.1	100	98	92	-	-
S-87	3.0m RT	78+40	1.80-4.14	A-6(13)	39	14	3.9	12.4	51.1	32.6	100	98	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-88	CL	79+60	1.76-3.44	A-6(9)	38	11	4.7	24.4	46.4	24.4	100	97	79	-	-



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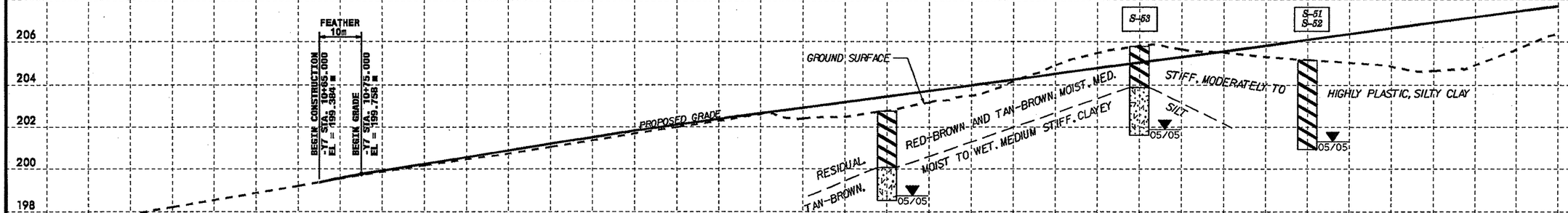
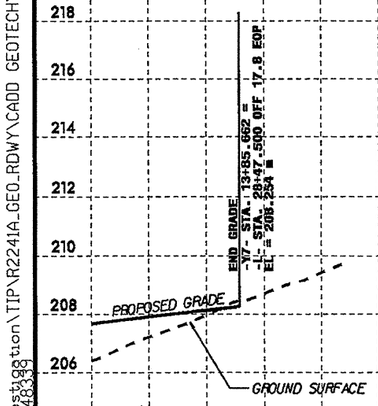


SOIL TEST RESULTS

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-53	CL	12+60	1.90-4.18	A-5(7)	42	10	10.5	30.0	31.3	28.2	99	93	68	-	-
S-51	CL	13+00	0.00-2.00	A-7-6(19)	57	32	20.1	19.9	19.6	40.3	98	82	63	-	-
S-52	CL	13+00	2.00-4.21	A-7-6(12)	51	22	23.8	19.1	22.9	34.2	97	78	60	-	-

-Y7-



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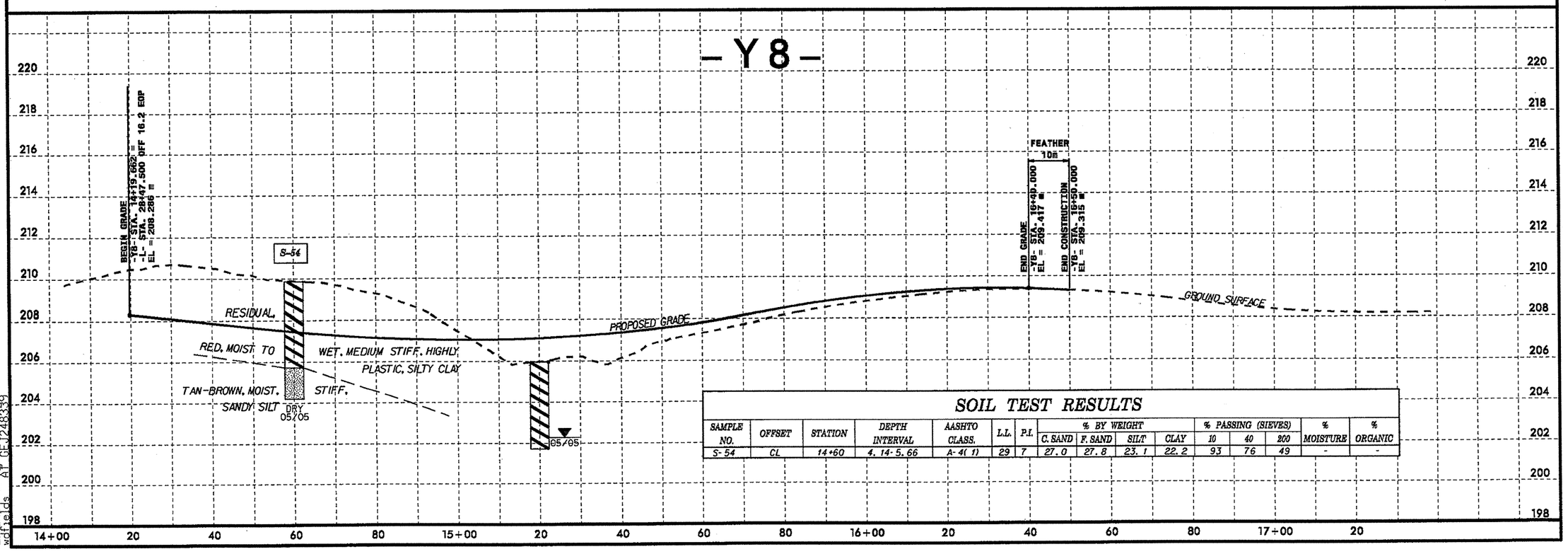
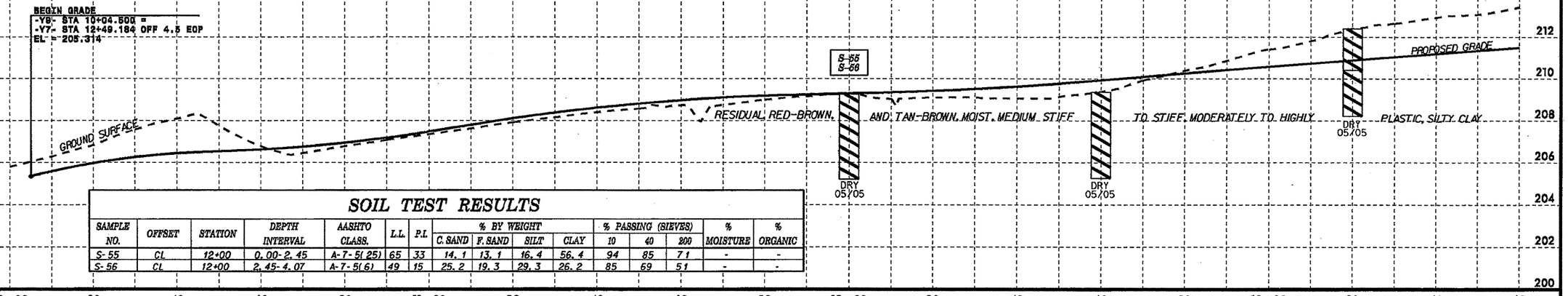


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-54	CL	14+60	4. 14- 5. 66	A-4(1)	29	7	27. 0	27. 8	23. 1	22. 2	93	76	49	-	-

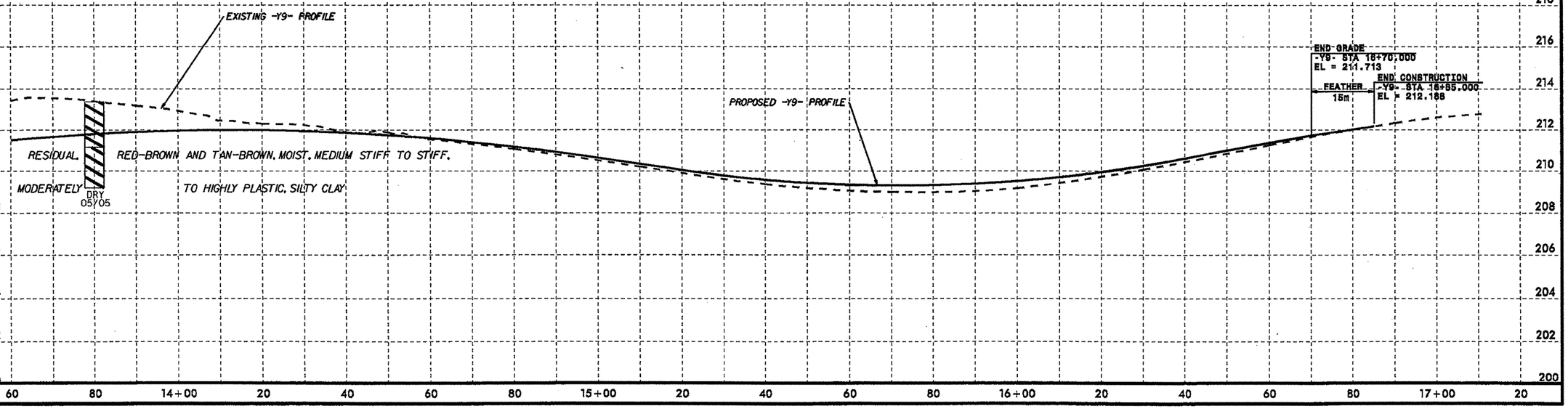
-Y9-



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-55	CL	12+00	0.00-2.45	A-7-5(25)	65	33	14.1	13.1	16.4	56.4	94	85	71	-	-
S-56	CL	12+00	2.45-4.07	A-7-5(6)	49	15	25.2	19.3	29.3	26.2	85	69	51	-	-

-Y9-



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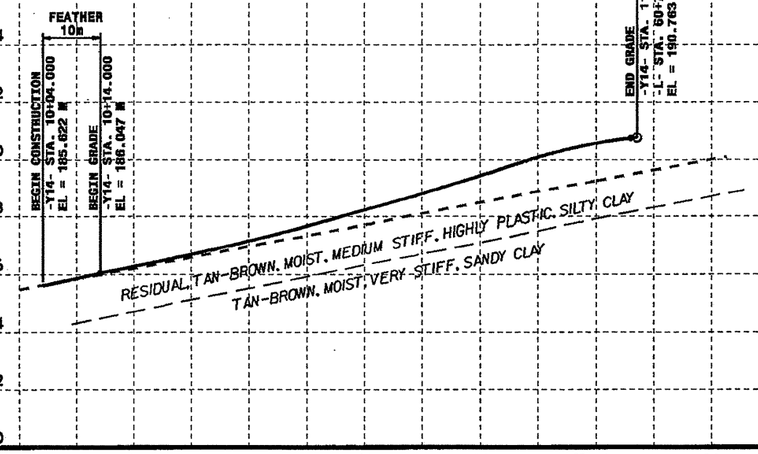

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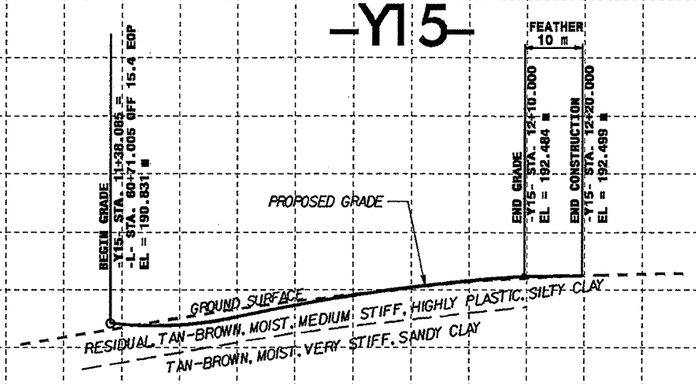

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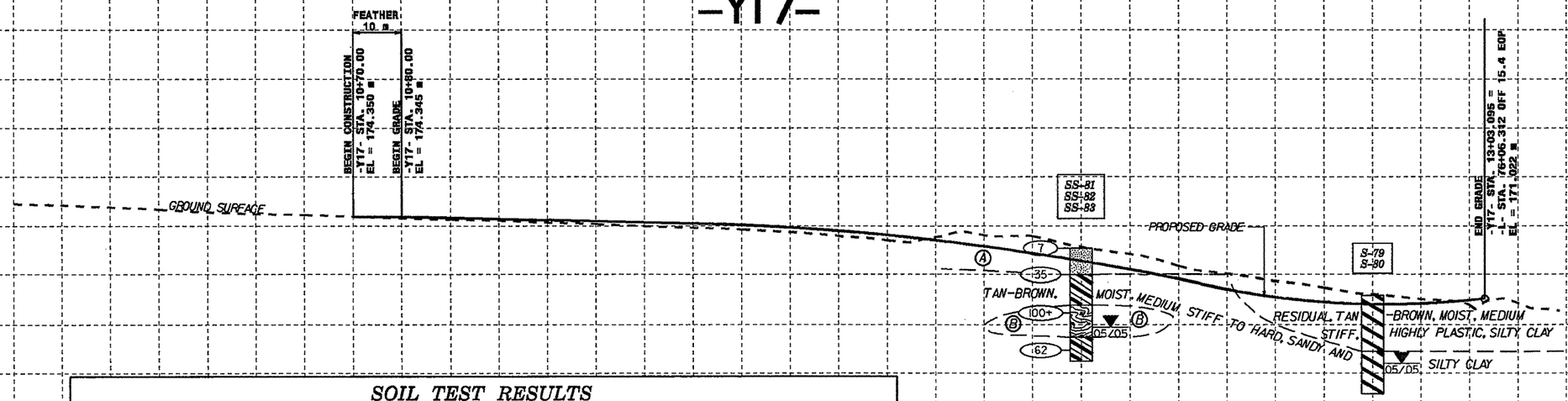
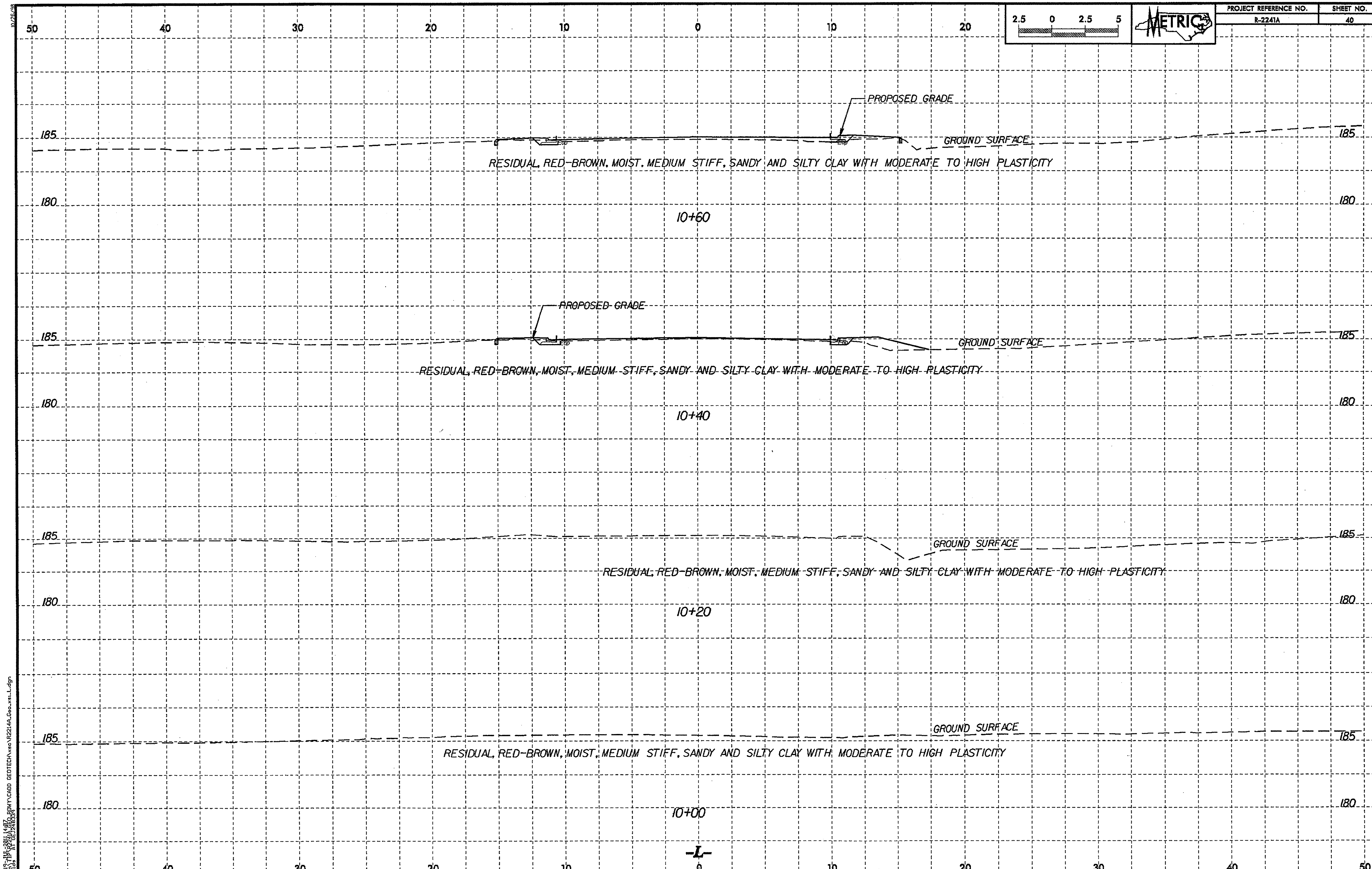


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-81	CL	12+20	0.00-0.45	A-4(6)	26	10	7.3	17.1	40.9	34.6	100	96	82	-	-
SS-82	CL	12+20	1.10-1.55	A-6(10)	36	12	10.2	12.4	40.7	36.7	99	92	81	-	-
SS-83	CL	12+20	4.14-4.59	A-6(5)	34	11	26.5	14.9	30.1	28.5	100	79	62	-	-
S-79	CL	12+80	0.00-2.30	A-7-6(36)	56	39	3.1	13.0	31.0	53.0	100	99	88	-	-
S-80	CL	12+80	2.30-4.04	A-7-5(15)	45	15	4.3	16.1	36.9	42.8	100	98	85	-	-

(A) RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT

(B) WEATHERED ROCK (METAVOLCANIC)


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
40
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY
10+60
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY
10+40
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY
10+20
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY
10+00
-L-
185
180
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	41

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

185
180

PROPOSED GRADE
GROUND SURFACE
Eop
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

11+40

PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

11+20

PROPOSED GRADE
GROUND SURFACE
Eop
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

11+00

PROPOSED GRADE
GROUND SURFACE
Eop
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

10+80

-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	42

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

185 180

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

12+20

185 180

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

12+00

185 180

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

11+80

185 180

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

11+60

-L-

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10/26/98

15-JUL-2011 14:06
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PROJECT REFERENCE NO.	SHEET NO.
R-2241A	43

2.5 0 2.5 5

50 40 30 20 10 0 10 20

185
180
175

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

12+80

185
180

ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

12+60

185
180

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

12+40

-L-

50 40 30 20 10 0 10 20 30 40 50

10/26/98

18-JUN-2011 14:08
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10/26/98

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	44

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

185

180

175

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

13+20

185

180

175

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY AND SILTY CLAY WITH MODERATE TO HIGH PLASTICITY

13+00

-L-

50 40 30 20 10 0 10 20 30 40 50

19-JUN-2001 11:08
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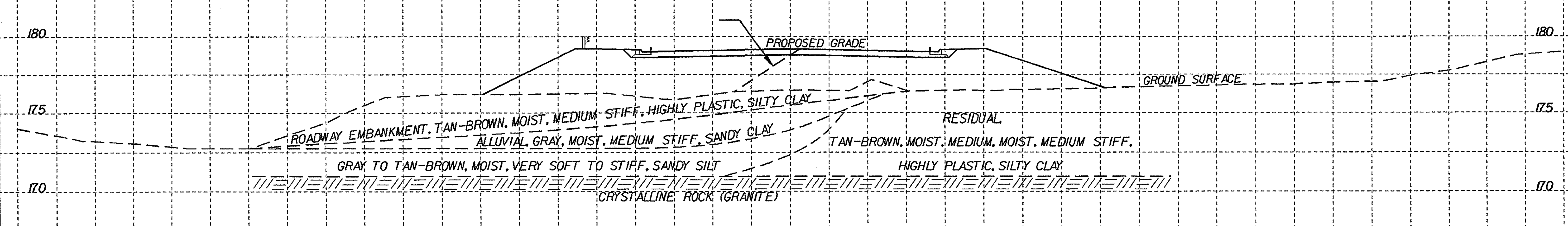
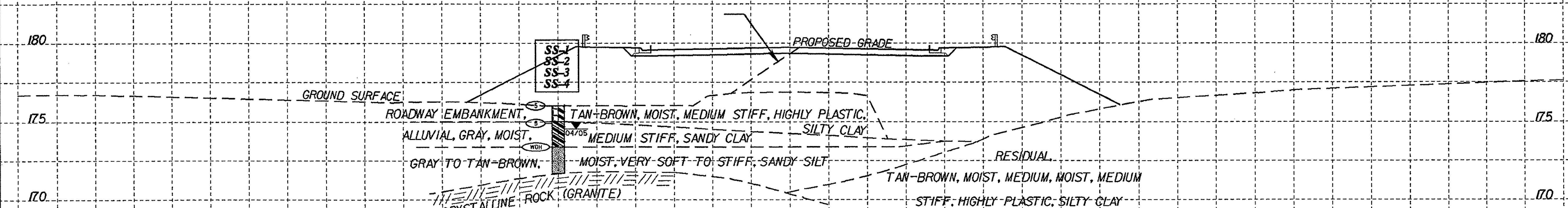
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	45

METRIC



13+60



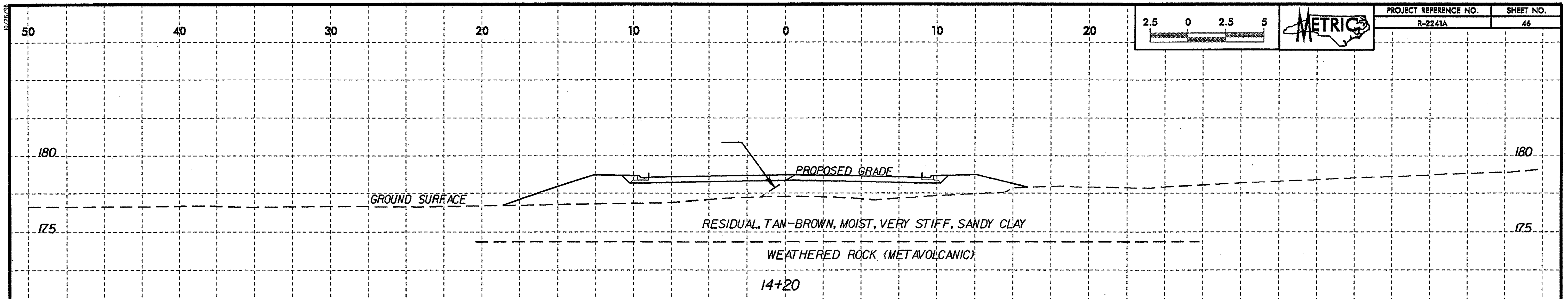
13+40

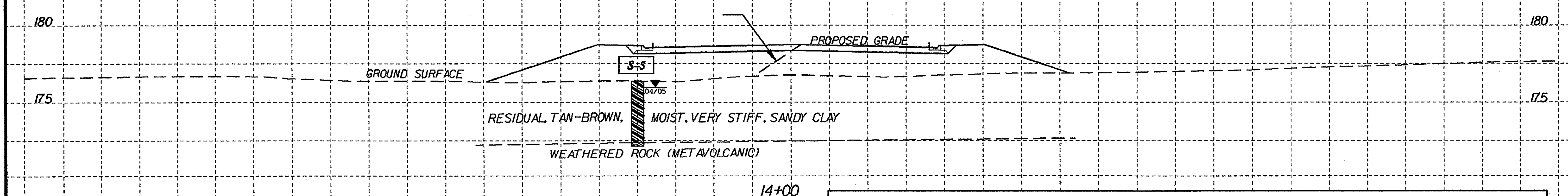
SOIL TEST RESULTS

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-1	15.0m LT	13+40	0.00 - 0.45	A-7-6(14)	49	27	16.0	19.6	21.9	42.5	89	79	61	-	-
SS-2	15.0m LT	13+40	1.11- 1.56	A-6(8)	39	18	21.9	20.9	24.9	32.4	94	78	59	-	-
SS-3	15.0m LT	13+40	2.63-3.08	A-4(5)	29	7	8.1	13.6	39.9	38.5	97	92	80	-	-
SS-4	15.0m LT	13+40	4.15-4.34	A-4(0)	24	NP	23.3	22.9	37.7	16.2	96	86	56	-	-

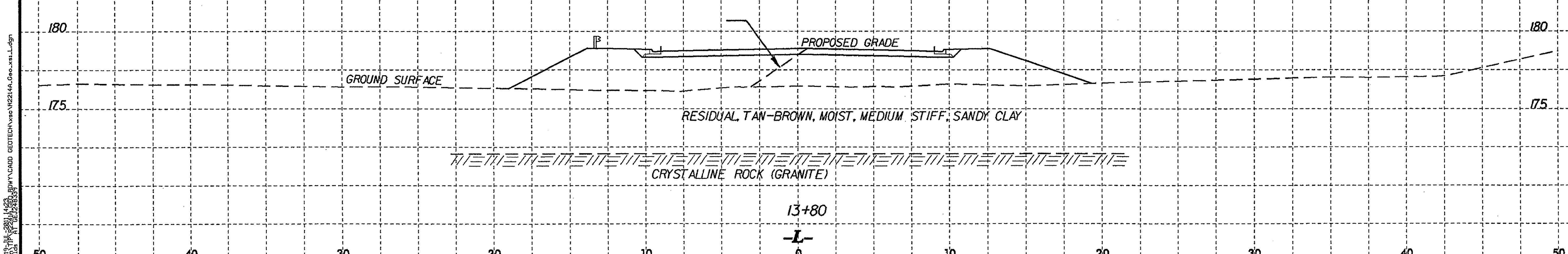
-L-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	46





SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-5	10.0m LT	14+00	0.00 - 4.00	A-6(7)	33	15	13.0	28.9	19.6	38.5	93	87	61	-	-

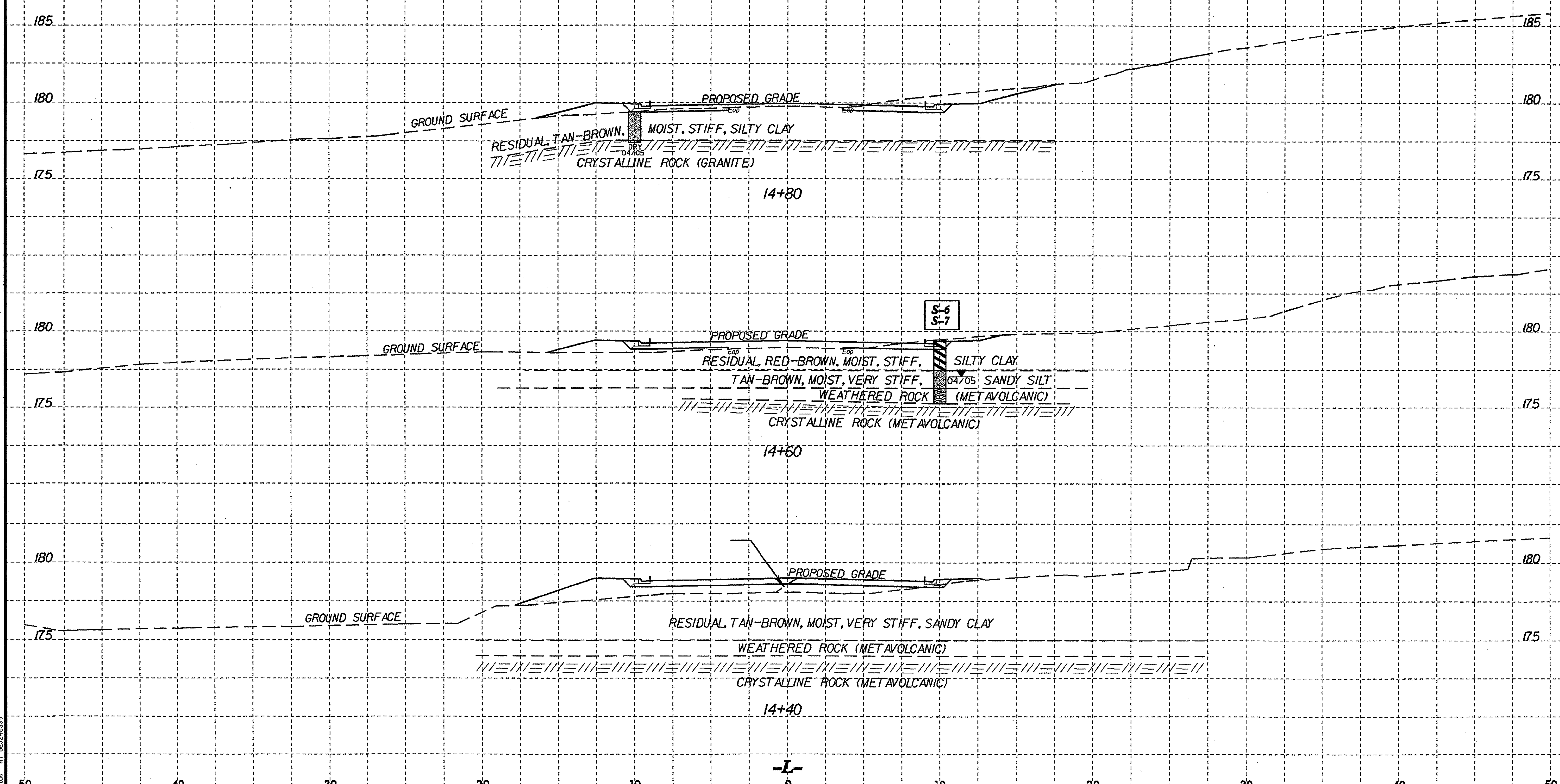


PROJECT REFERENCE NO.	SHEET NO.
R-2241A	47

METRIC

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-6	10.0m RT	14+60	0.00-2.00	A-7-6(20)	50	23	3.4	24.5	29.6	42.5	99	97	81	-	-
S-7	10.0m RT	14+60	2.00-3.16	A-4(2)	30	3	5.3	35.0	41.5	18.2	100	98	73	-	-

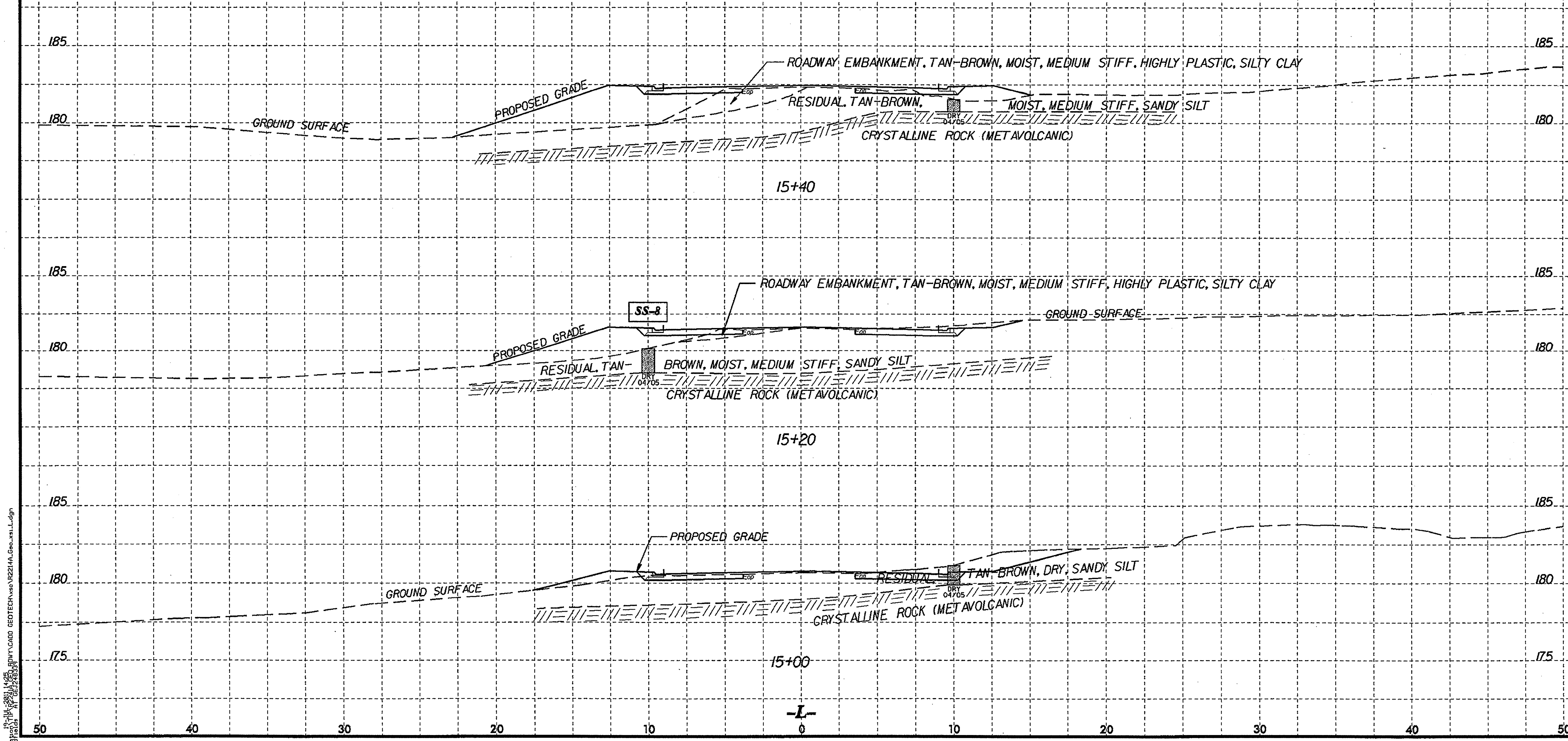


PROJECT REFERENCE NO.	SHEET NO.
R-2241A	48

METRIC

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-8	10.0m LT	15+20	0.92-1.37	A-4(0)	31	NP	31.6	37.3	16.8	14.3	98	78	38	-	-

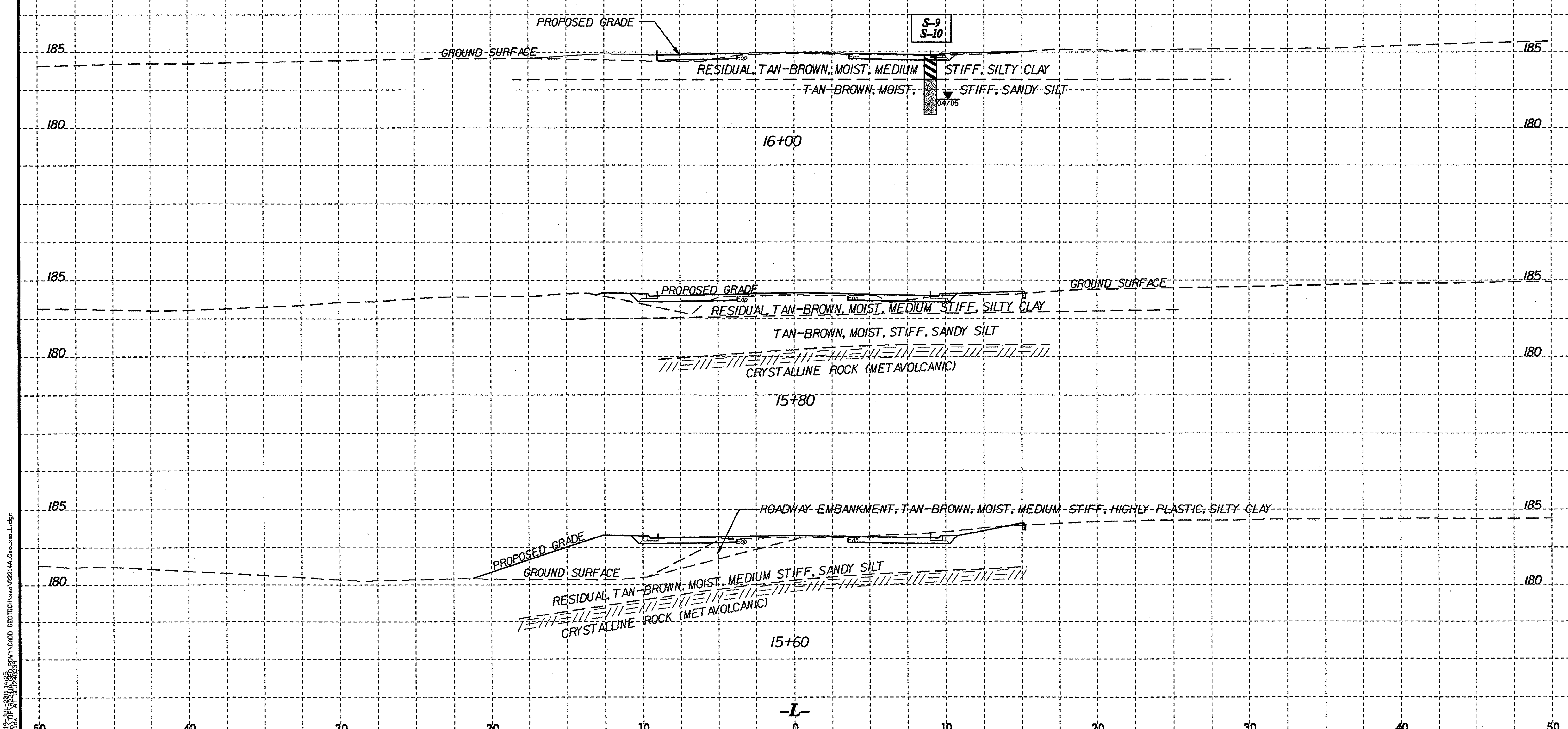


METRIC

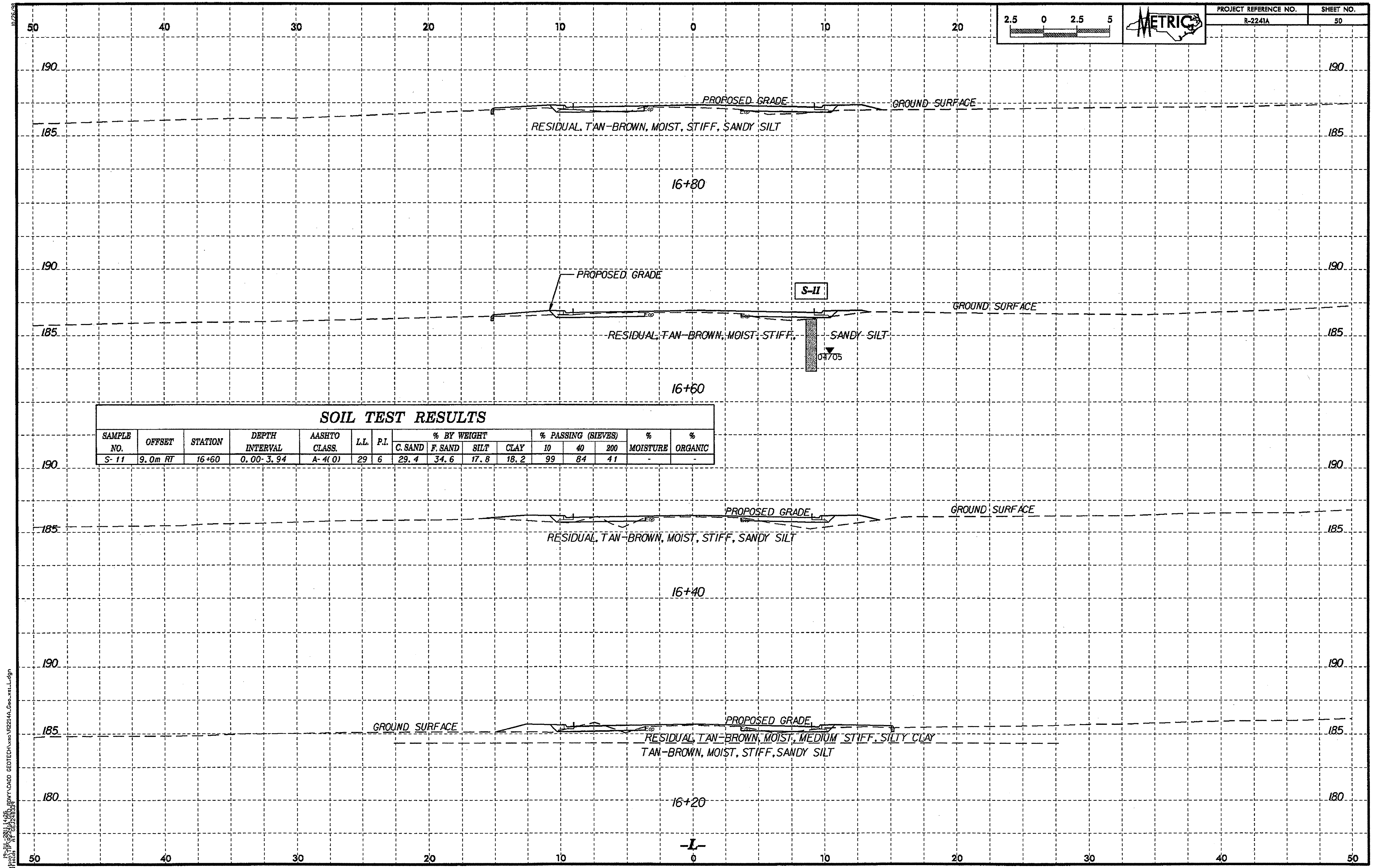
2.5 0 2.5 5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-9	9.0m RT	16+00	0.00-1.60	A-7-5(8)	46	14	12.8	28.8	17.9	40.5	96	90	63	-	-
S-10	9.0m RT	16+00	1.60-3.90	A-4(1)	32	8	23.9	38.1	15.8	22.3	96	86	43	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	50



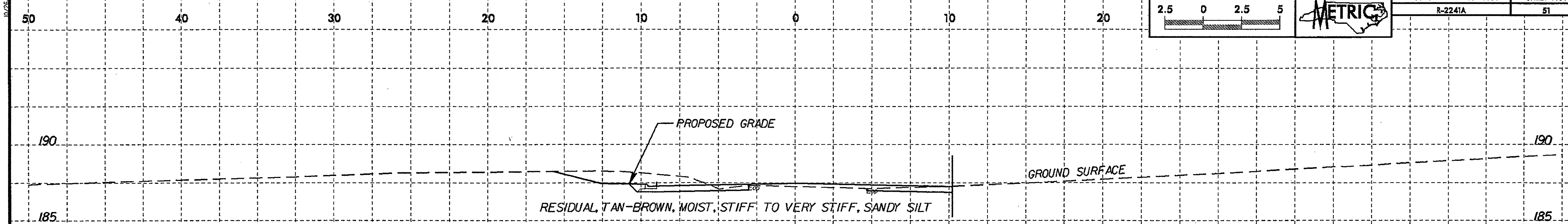
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S- 11	9.0m RT	16+60	0.00- 3.94	A- 4(0)	29	6	29.4	34.6	17.8	18.2	99	84	41	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	51

METRIC

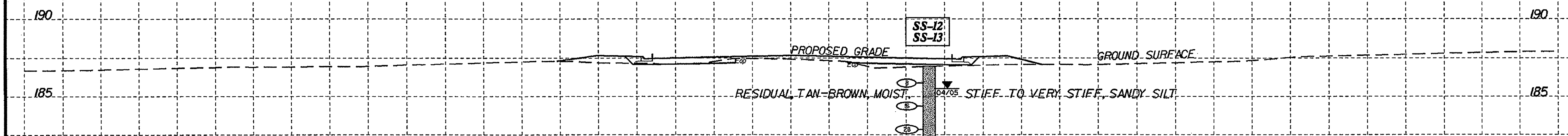
2.5 0 2.5 5



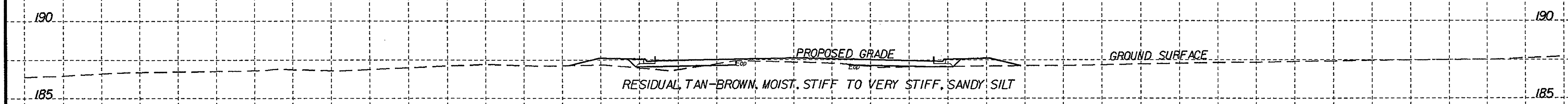
17+40

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- 12	9.0m RT	17+20	1.08- 1.53	A- 4(0)	32	NP	12.2	36.7	36.8	14.3	100	96	60	-	-
SS- 13	9.0m RT	17+20	2.60- 3.05	A- 4(0)	37	NP	11.9	42.7	37.2	8.1	100	96	56	28.1	-



17+20



17+00

-L-

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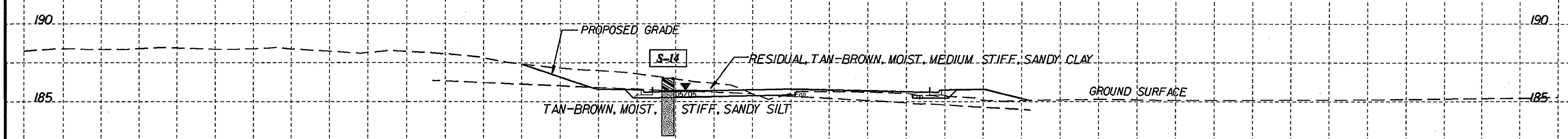
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	52

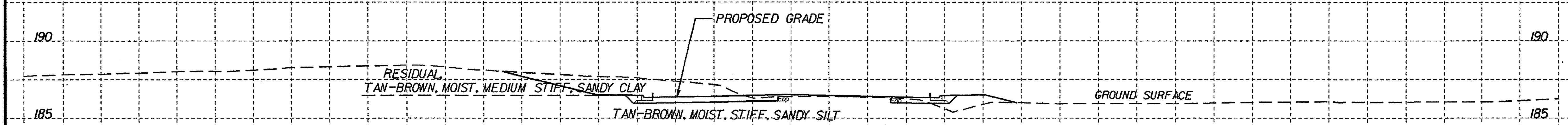
METRIC



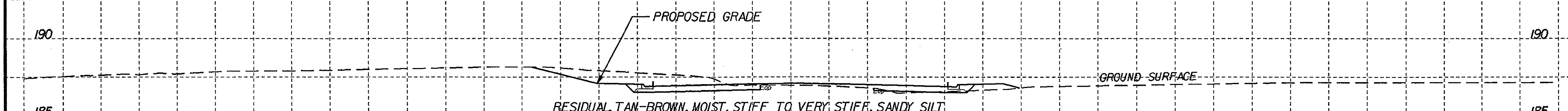
18+00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S- 14	8. 0m LT	18+00	0. 00- 0. 80	A- 6(10)	38	18	10. 0	30. 4	18. 9	40. 8	97	91	66	-	-



17+80

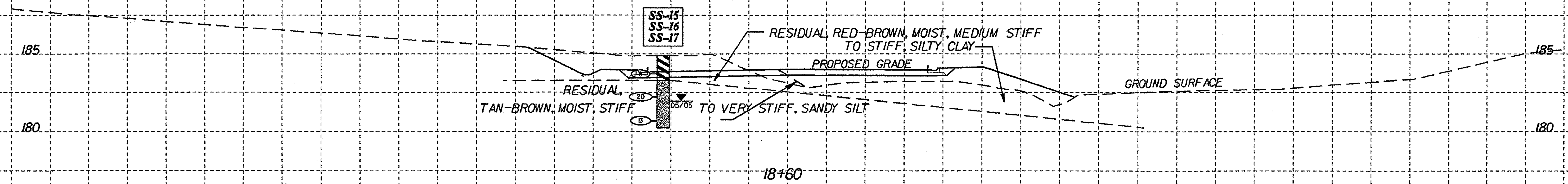


17+60

-L-

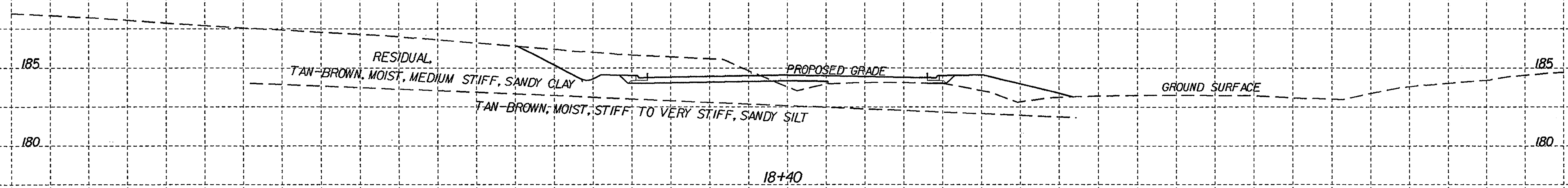
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	53

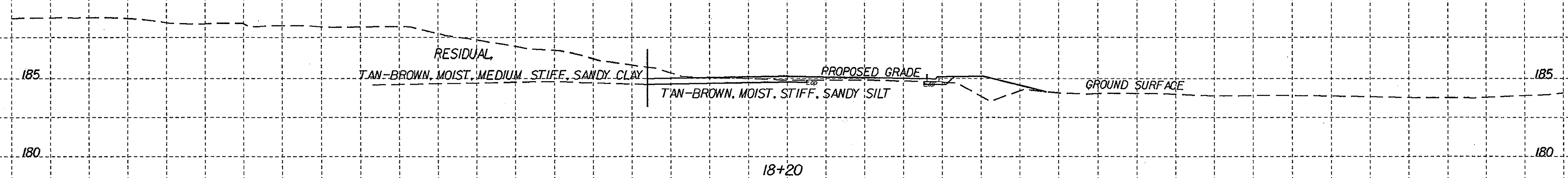
METRIC



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-15	8.0m LT	18+60	1.14-1.59	A-7-6(9)	42	13	10.0	31.4	32.1	26.5	100	93	70	-	-
SS-16	8.0m LT	18+60	2.66-3.11	A-4(0)	33	NP	19.2	39.8	35.0	6.1	98	87	51	26.3	-
SS-17	8.0m LT	18+60	4.18-4.63	A-4(0)	31	NP	7.5	42.0	38.2	12.2	98	96	62	26.6	-





-L-

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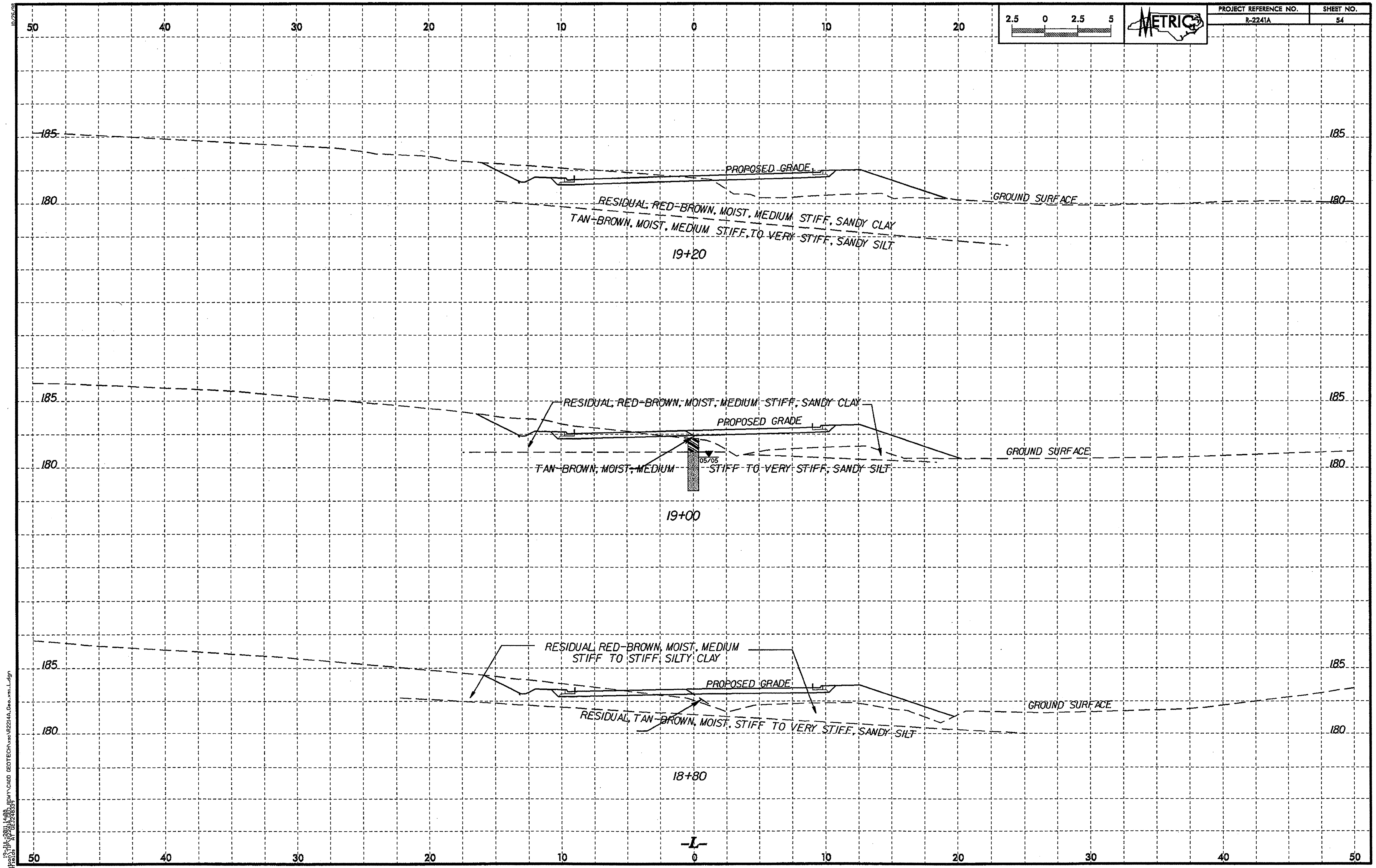
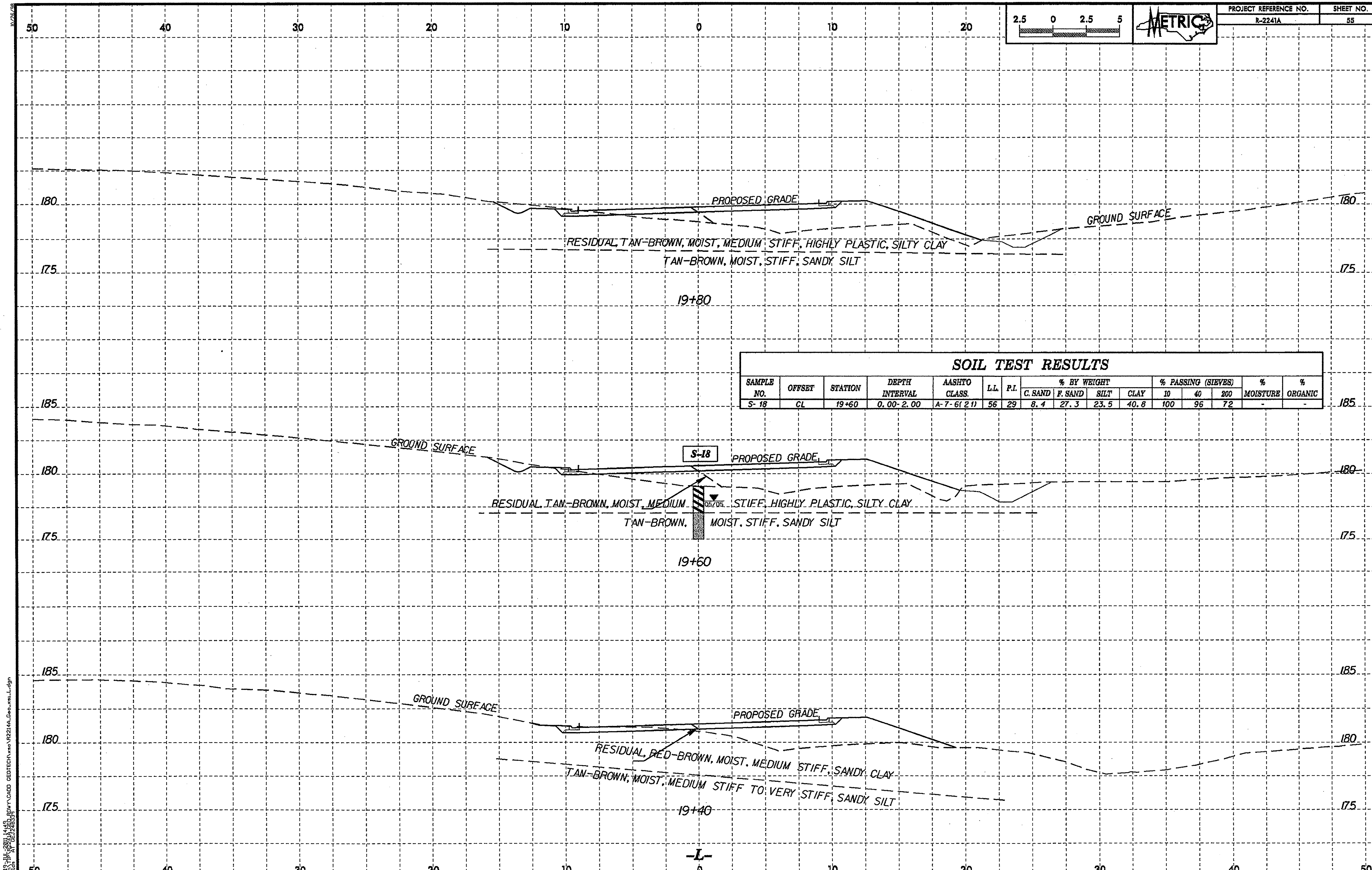


PROJECT REFERENCE NO. R-2241A
SHEET NO. 54
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY SILT
19+20
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY
PROPOSED GRADE
GROUND SURFACE
TAN-BROWN, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY SILT
19+00
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF TO VERY STIFF, SANDY SILT
18+80
-L-
185
180
50 40 30 20 10 0 10 20 30 40 50

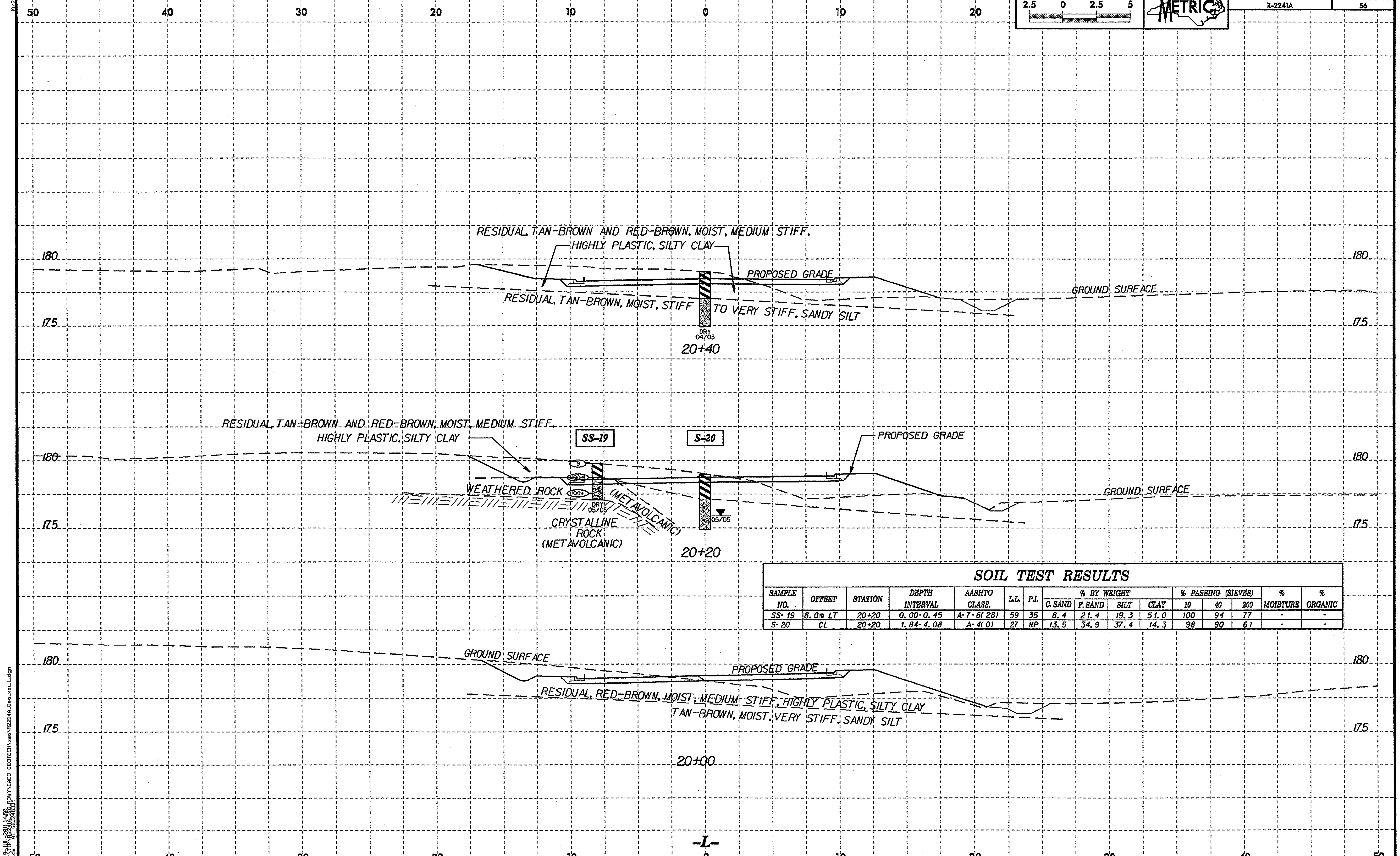
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	55



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-18	CL	19+60	0.00-2.00	A-7-6(21)	56	29	8.4	27.3	23.5	40.8	100	96	72	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	56

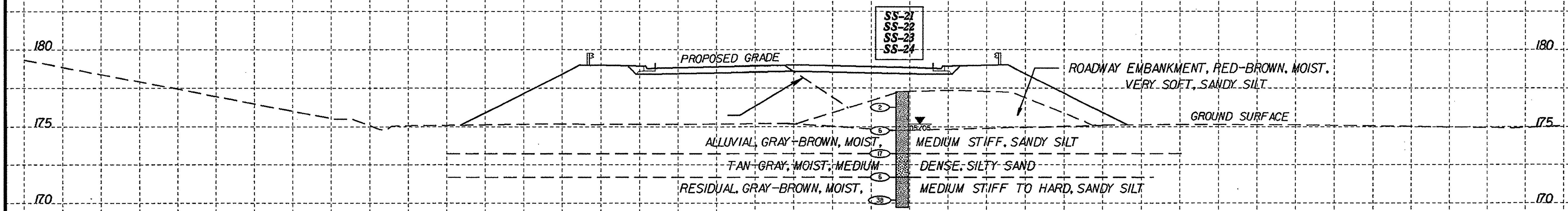


SOIL TEST RESULTS

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-19	8.0m LT	20+20	0.00-0.45	A-7-6(28)	59	35	8.4	21.4	19.3	51.0	100	94	77	-	-
S-20	CL	20+20	1.84-4.08	A-4(0)	27	NP	13.5	34.9	37.4	14.3	98	90	61	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	57

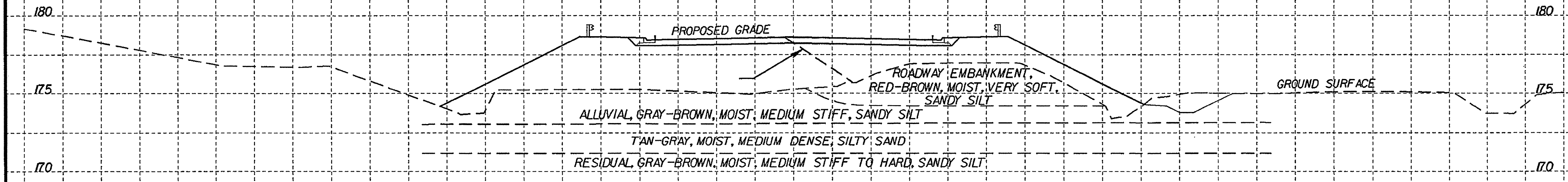
METRIC



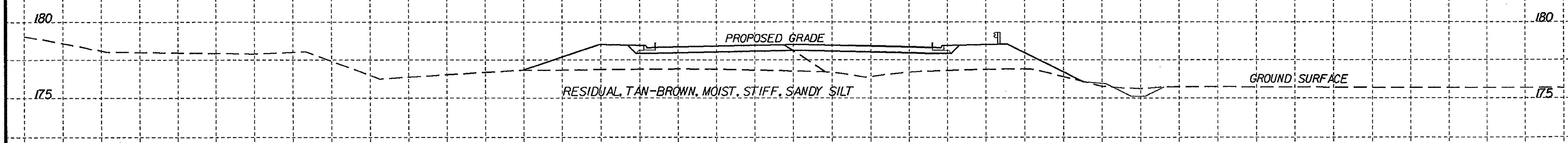
21+00

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-21	7.0m RT	21+00	1.00-1.45	A-4(5)	40	9	10.8	24.7	38.0	26.5	89	84	63	-	-
SS-22	7.0m RT	21+00	2.52-2.97	A-4(0)	21	2	2.4	43.0	36.2	18.3	100	99	70	-	-
SS-23	7.0m RT	21+00	4.04-4.49	A-2-4(0)	21	NP	19.3	58.5	14.1	8.2	96	90	30	-	-
SS-24	7.0m RT	21+00	5.56-6.01	A-4(1)	37	NP	4.9	37.5	49.4	8.2	100	98	71	-	-

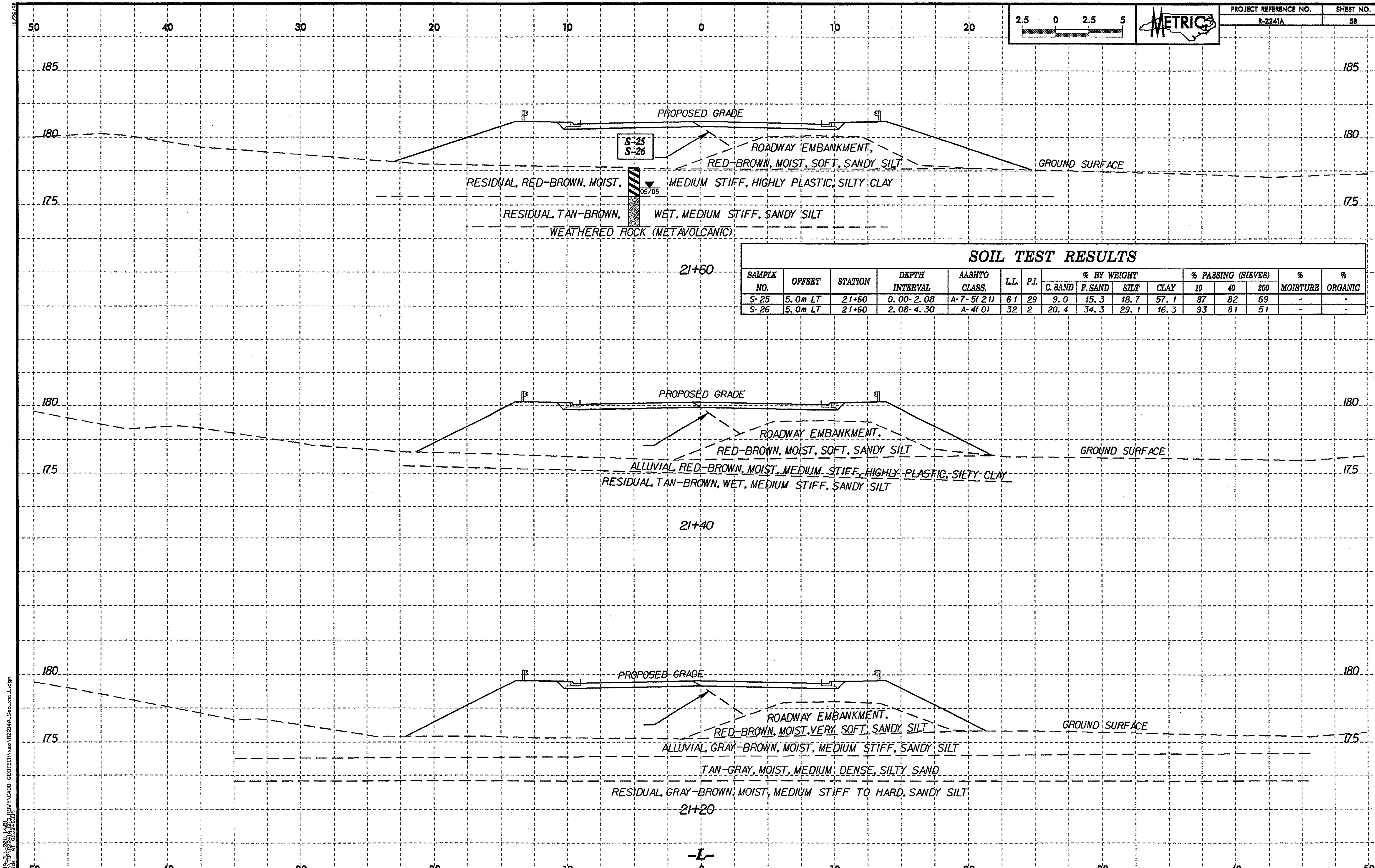


20+80



20+60

-L-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-25	5.0m LT	21+60	0.00-2.08	A-7-5(21)	61	29	9.0	15.3	18.7	57.1	87	82	69	-	-
S-26	5.0m LT	21+60	2.08-4.30	A-4(0)	32	2	20.4	34.3	29.1	16.3	93	81	51	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	59

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

185

180

GROUND SURFACE

PROPOSED GRADE

RESIDUAL, TAN-BROWN, MOIST TO WET, MEDIUM STIFF, SANDY SILT

WEATHERED ROCK (METAVOLCANIC)

DRY 05/05

22+20

185

180

185

PROPOSED GRADE

ROADWAY EMBANKMENT, BROWN, MOIST, SOFT, SANDY SILT

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST TO WET, MEDIUM STIFF, SANDY SILT

WEATHERED ROCK (METAVOLCANIC)

22+00

185

180

175

185

PROPOSED GRADE

ROADWAY EMBANKMENT, BROWN, MOIST, SOFT, SANDY SILT

GROUND SURFACE

RESIDUAL, TAN-BROWN, WET, MEDIUM STIFF, SANDY SILT

WEATHERED ROCK (METAVOLCANIC)

21+80

-L-

50 40 30 20 10 0 10 20 30 40 50

10/26/98

19-JUL-2011 14:09
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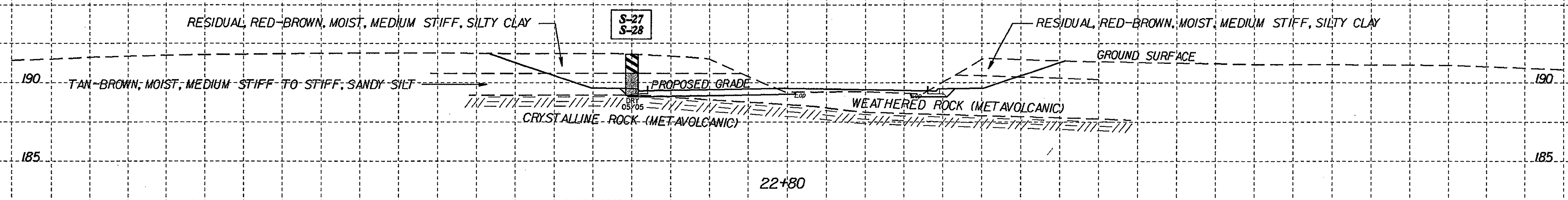
$$PLOT_LAYER_VIEWPORT_CLIPPING_BOUNDARY_VERTEX_COORDINATE_VALUE_TYPES$$
$$PLOT_LAYER_VIEWPORT_CLIPPING_BOUNDARY_VERTEX_COORDINATE_VALUE_VALUES$$

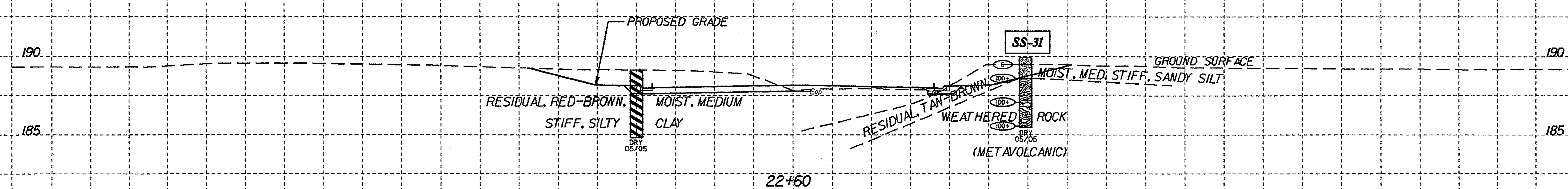
METRIC

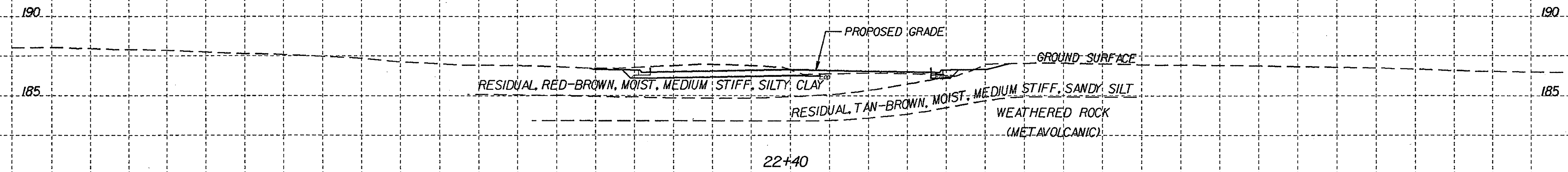
2.5 0 2.5 5

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-31	15.0m RT	22+60	0.00-0.45	A-4(0)	30	NP	15.7	39.6	24.4	20.4	96	87	54	-	-
S-27	10.0m LT	22+80	0.00-1.20	A-7-6(16)	46	25	10.2	28.1	22.9	38.7	99	93	70	-	-
S-28	10.0m LT	22+80	1.20-2.60	A-4(0)	28	3	16.9	34.3	26.4	22.4	94	84	55	-	-





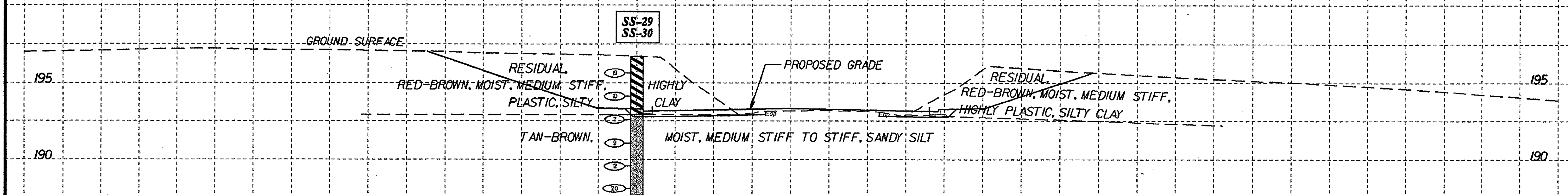


-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	61

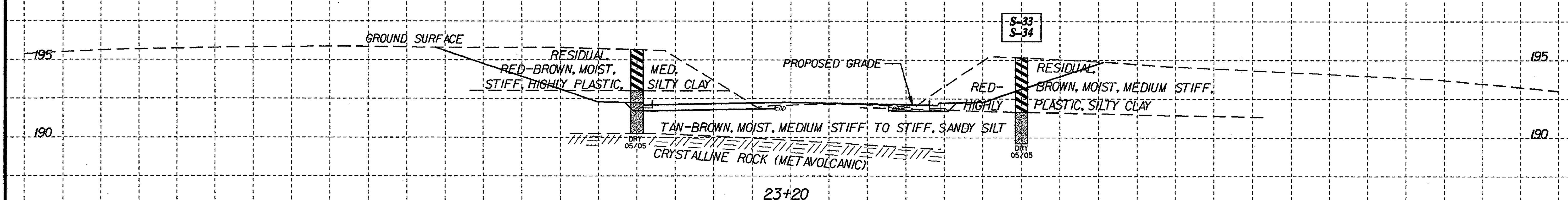
METRIC



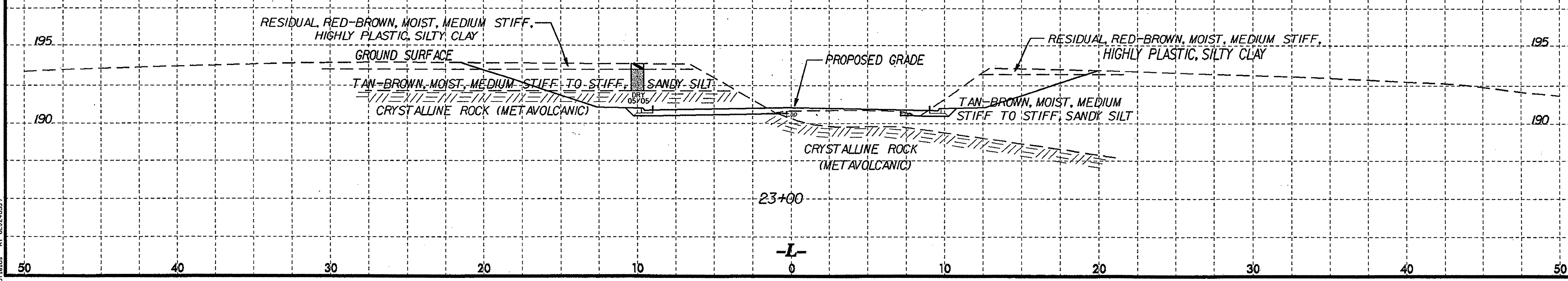
23+40

SOIL TEST RESULTS

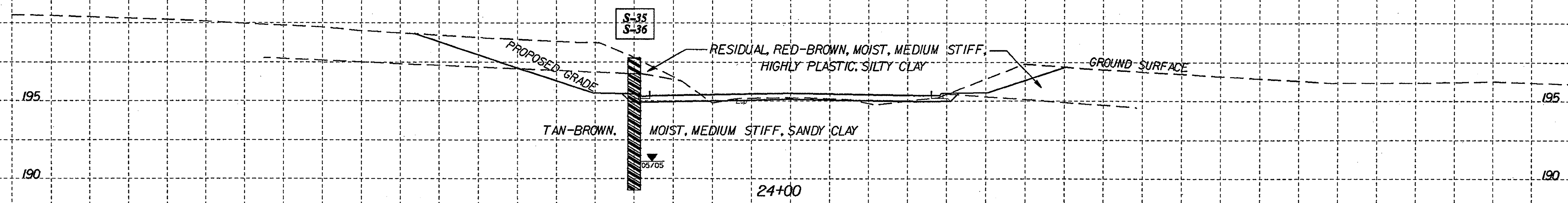
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-33	15.0m RT	23+20	0.00-3.51	A-7-5(21)	55	22	3.3	21.0	28.8	46.9	100	98	82	-	-
S-34	15.0m RT	23+20	3.51-5.53	A-4(4)	39	5	6.1	32.8	40.7	20.4	100	97	71	-	-
SS-29	10.0m LT	23+40	1.07-1.52	A-7-5(28)	62	32	7.1	18.6	23.3	51.0	99	95	79	-	-
SS-30	10.0m LT	23+40	4.11-4.56	A-4(0)	37	NP	10.6	46.9	32.3	10.2	99	95	56	-	-



23+20

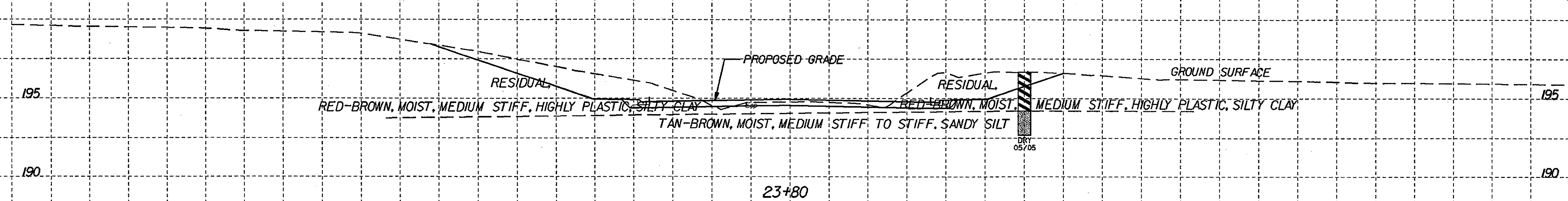


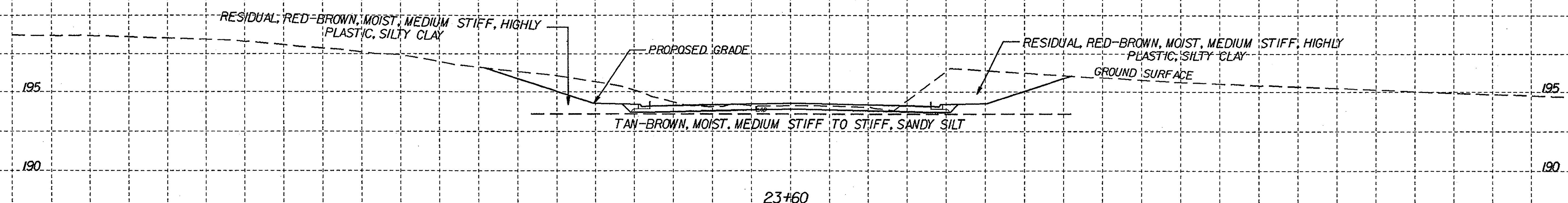
METRIC



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-35	10.0m LT	24+00	0.00-1.00	A-7-5(28)	63	30	5.1	18.6	19.3	57.1	99	96	81	-	-
S-36	10.0m LT	24+00	1.00-8.52	A-6(8)	40	12	7.1	30.8	37.6	24.5	99	96	71	-	-

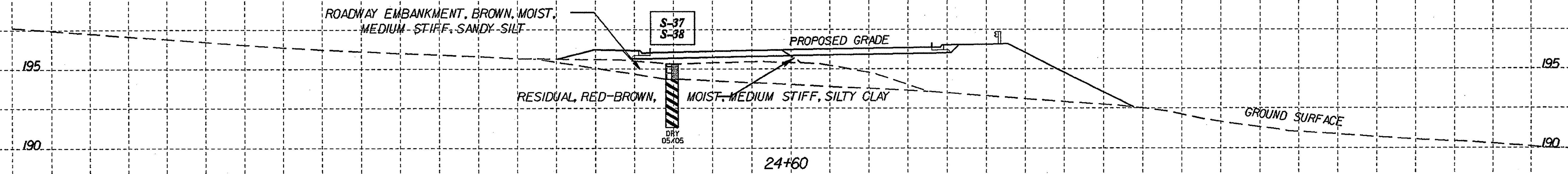




-L-

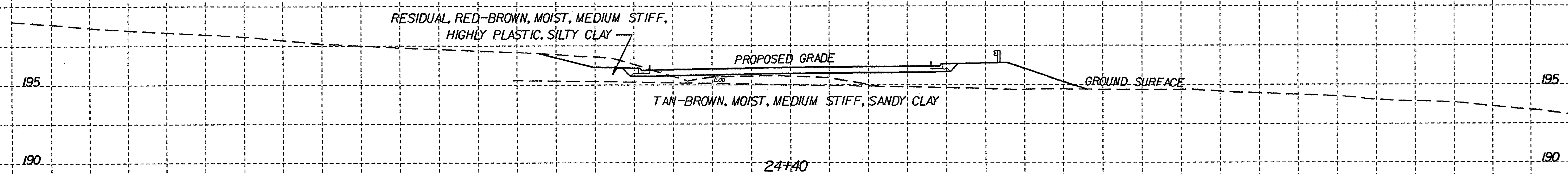
METRIC

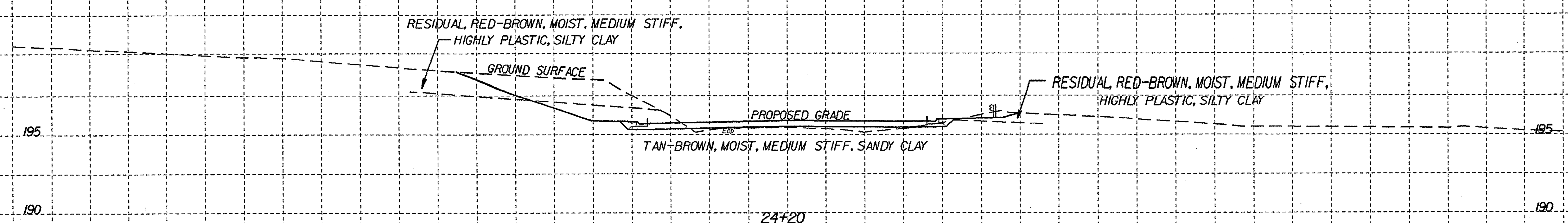
2.5 0 2.5 5



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
S-37	7.6m LT	24+60	0.00-0.96	A-4(1)	23	5	12.4	36.7	22.3	28.5	99	92	59	-	-
S-38	7.6m LT	24+60	0.96-4.00	A-7-6(13)	45	17	7.7	24.3	29.3	38.7	100	98	75	-	-





-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	64

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

195
190

GROUND SURFACE
PROPOSED GRADE
ROADWAY EMBANKMENT
BROWN, MOIST, MED. STIFF, SANDY SILT
RESIDUAL, RED+
BROWN, MOIST, MEDIUM STIFF, SILTY CLAY
DRY
05/05

25+20

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF, SANDY SILT
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

25+00

ROADWAY EMBANKMENT, BROWN, MOIST, MEDIUM STIFF, SANDY SILT
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

24+80

-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	65

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

200

195

GROUND SURFACE

PROPOSED GRADE

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

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

25+60

195

190

PROPOSED GRADE

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

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

GROUND SURFACE

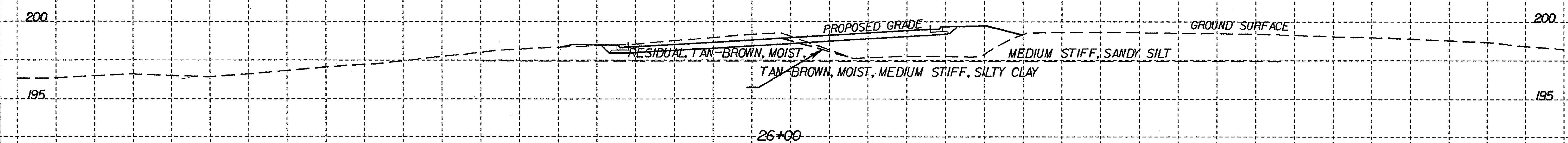
25+40

-L-

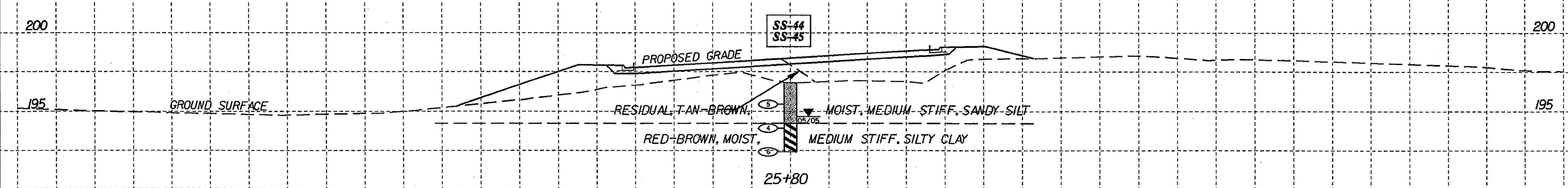
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	66

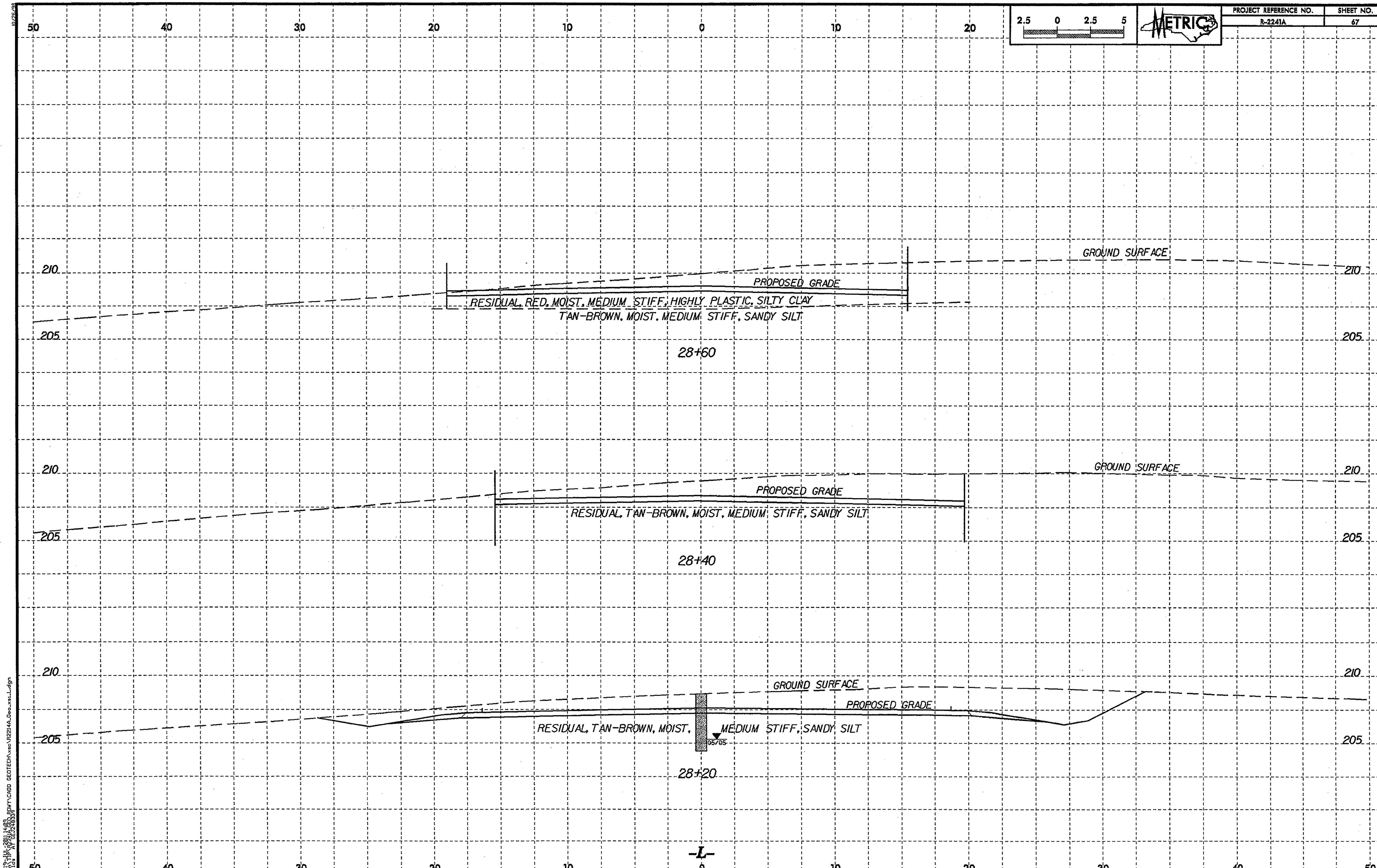
METRIC



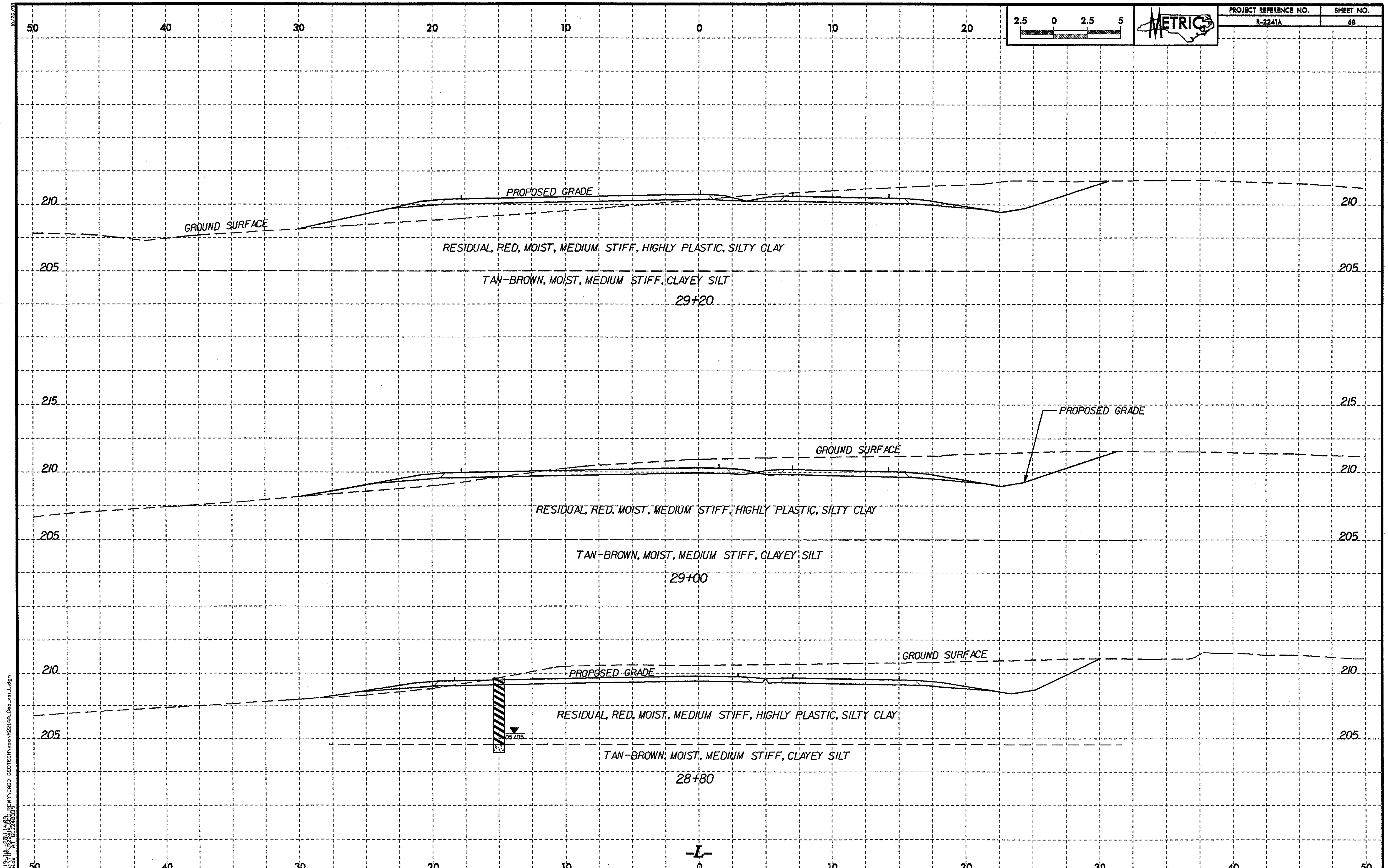
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-44	CL	25+80	1.36-1.81	A-4(5)	38	10	13.3	33.4	29.1	24.2	100	92	63	-	-
SS-45	CL	25+80	2.88-3.33	A-7-6(8)	42	15	14.7	27.0	26.1	32.2	96	88	63	-	-



-L-



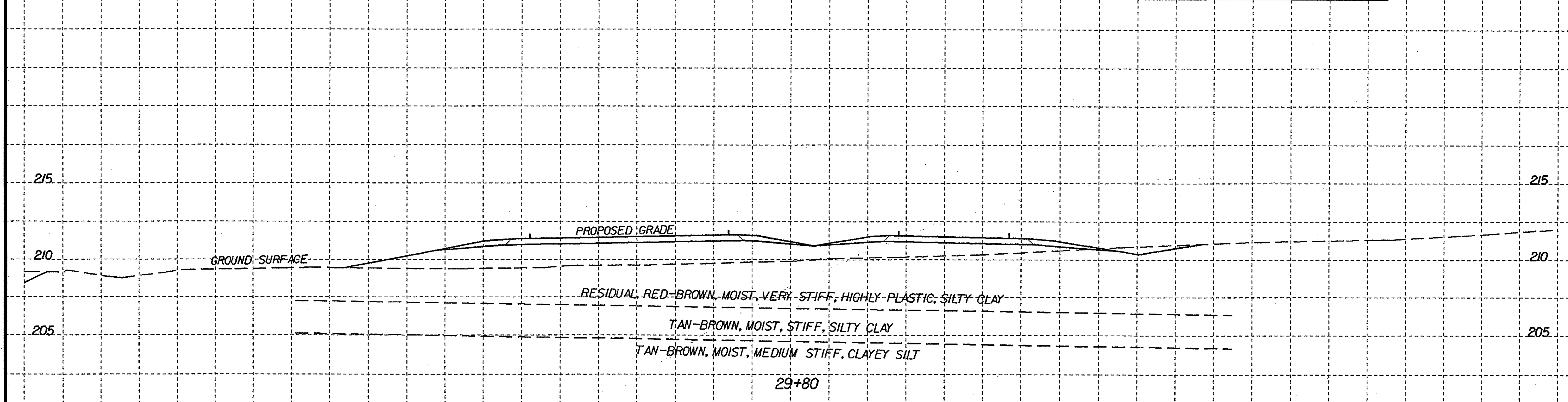
METRIC
PROJECT REFERENCE NO.
R-2241A
SHEET NO.
67
2.5 0 2.5 5
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, RED, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT
28+60
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT
28+40
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT
05/05
28+20
-L-
210
205
50 40 30 20 10 0 10 20 30 40 50

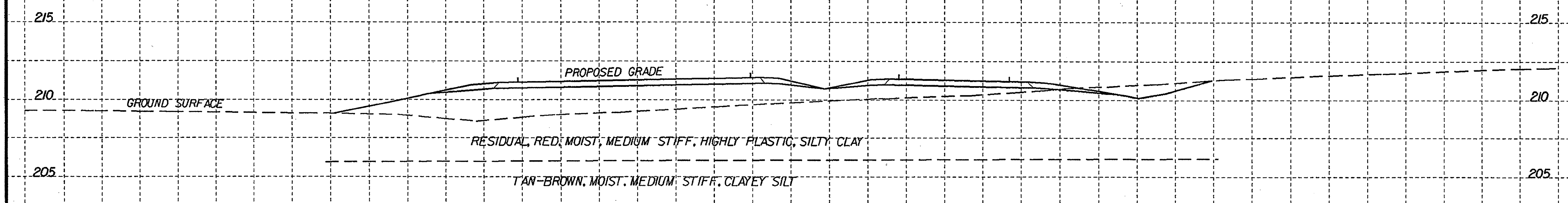


PROJECT REFERENCE NO. R-2241A
SHEET NO. 68
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
29+20
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
29+00
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, RED, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
28+80
-L-

METRIC

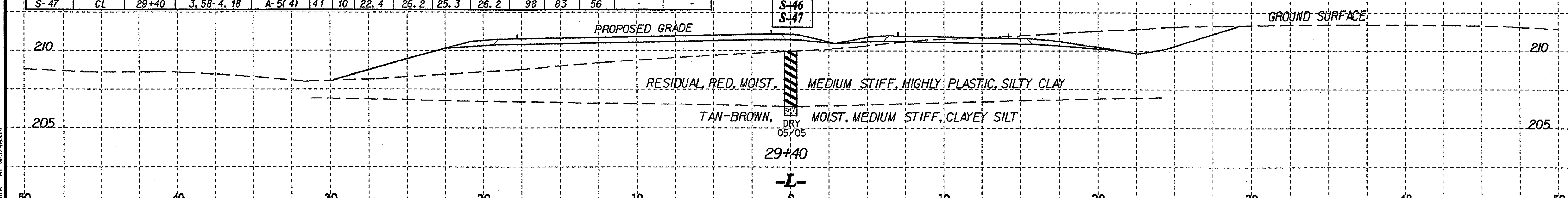
2.5 0 2.5 5





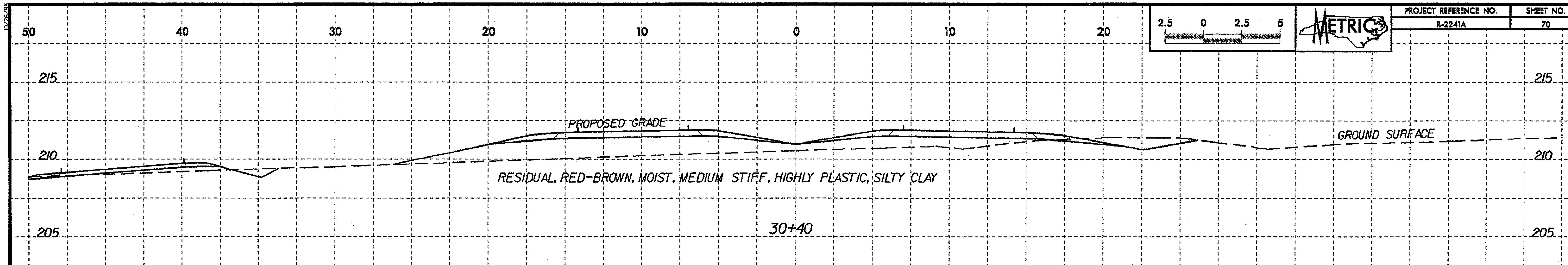
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-46	CL	29+40	0.00-3.58	A-7-5(25)	63	32	12.5	18.9	16.2	52.4	100	91	73	-	-
S-47	CL	29+40	3.58-4.18	A-5(4)	41	10	22.4	26.2	25.3	26.2	98	83	56	-	-



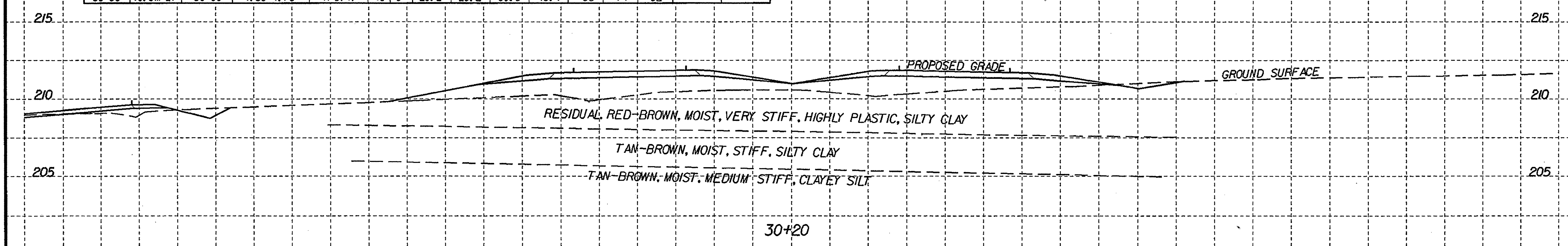
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	70

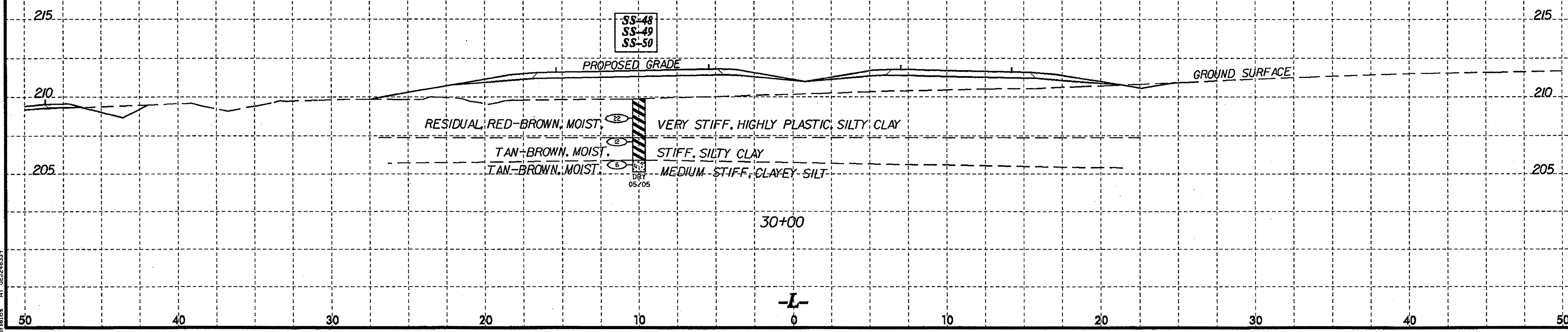
METRIC



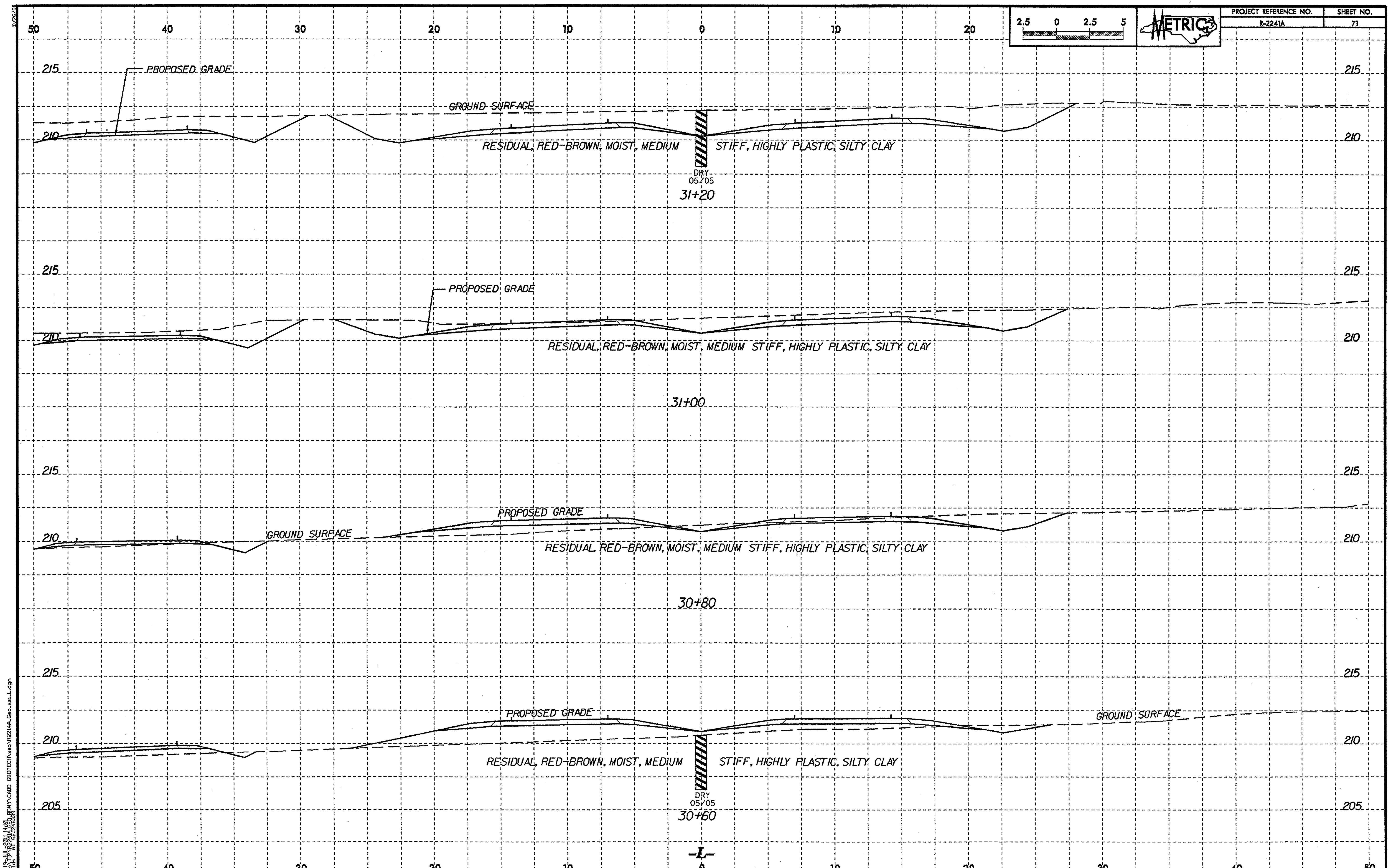
SOIL TEST RESULTS

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-48	10.0m LT	30+00	1.26-1.71	A-7-6(30)	71	44	17.7	13.9	14.0	54.4	96	82	69	-	-
SS-49	10.0m LT	30+00	2.78-3.23	A-7-5(5)	45	11	27.0	20.9	31.9	20.1	98	77	56	-	-
SS-50	10.0m LT	30+00	4.30-4.75	A-5(4)	46	9	28.2	23.2	30.5	18.1	95	74	52	-	-





PROJECT REFERENCE NO.	SHEET NO.
R-2241A	71



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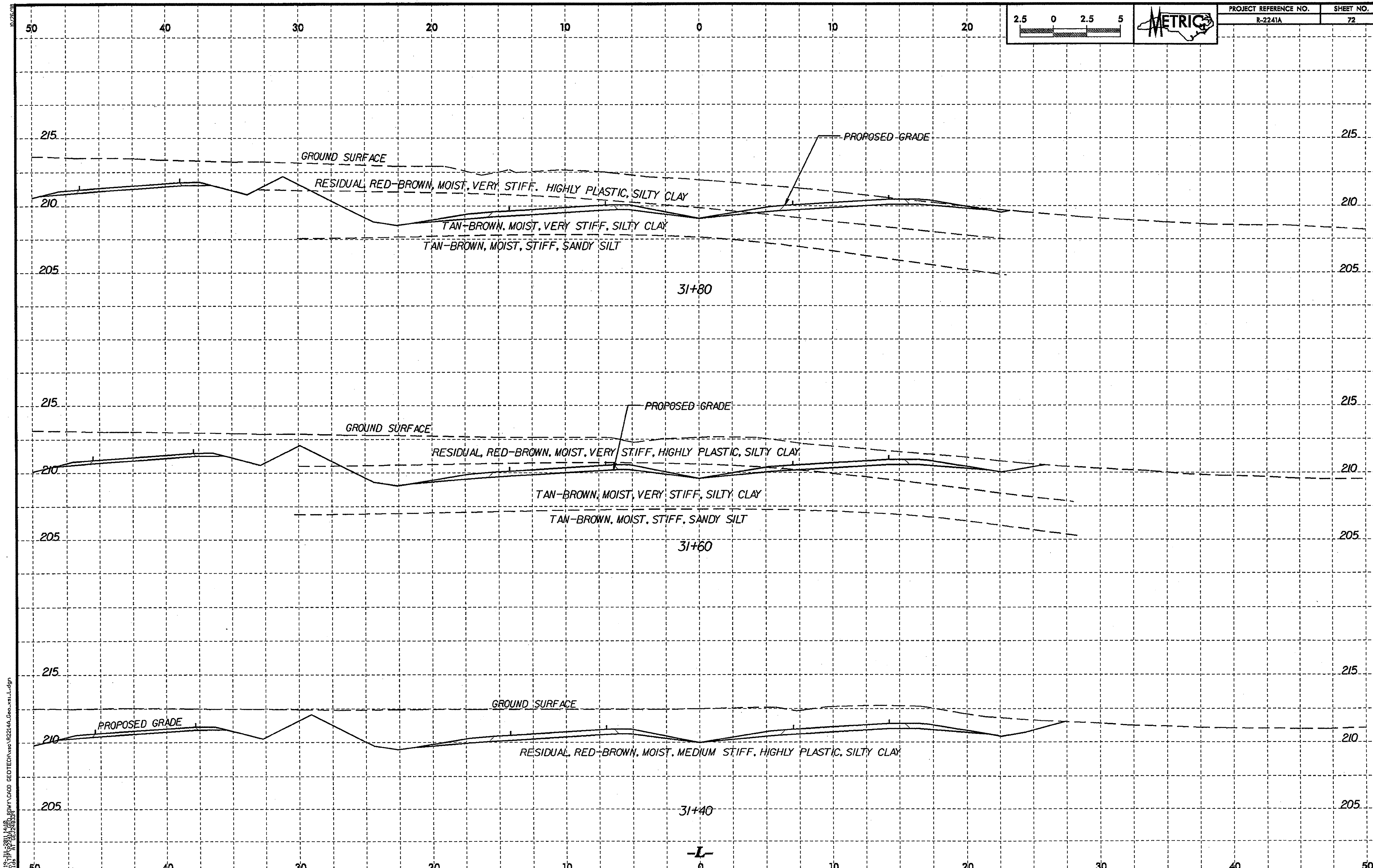
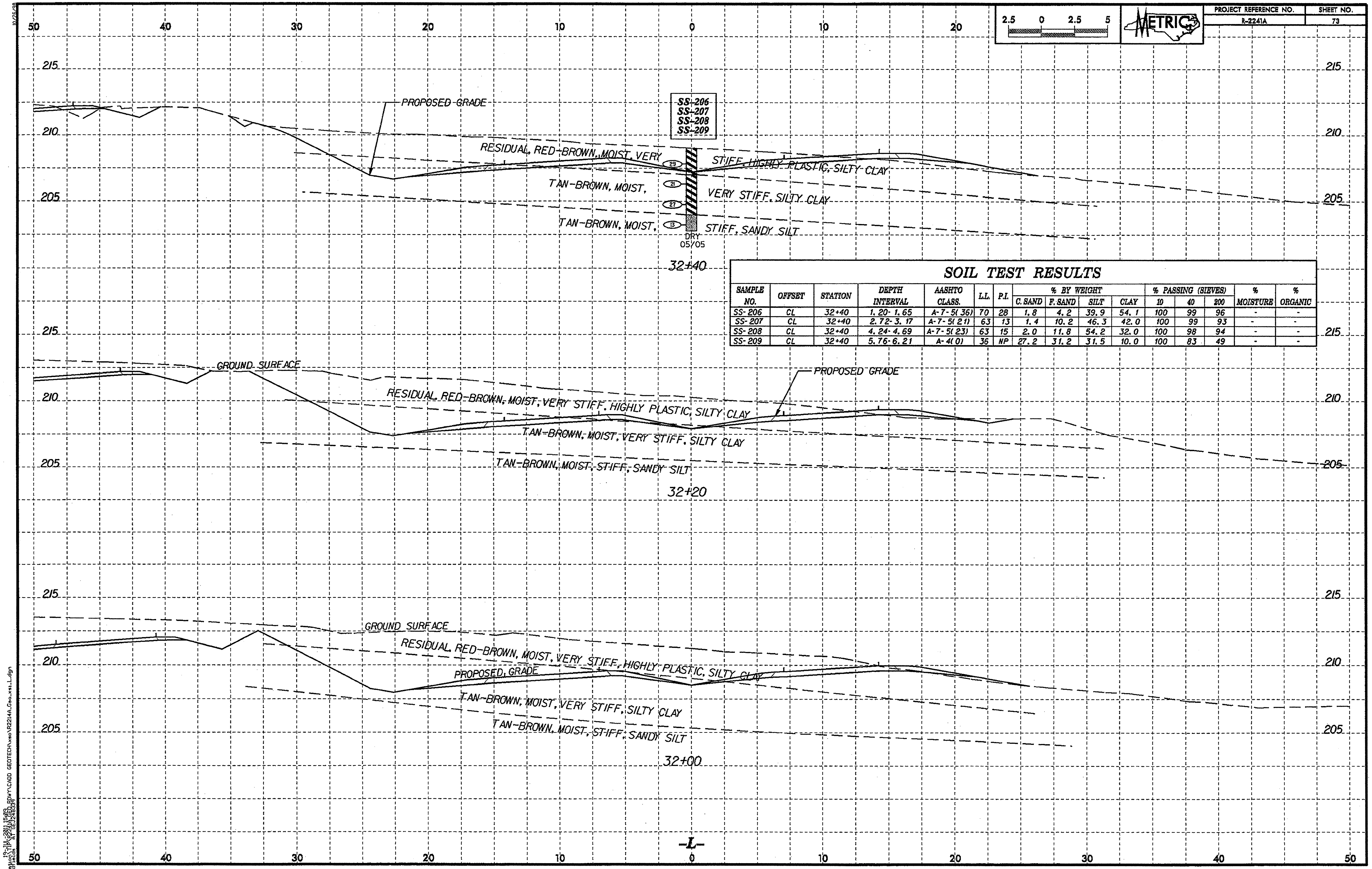
...\fields AT GEJ248339


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
72
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY SILT
31+80
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY SILT
31+60
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
31+40
-L-
215
210
205
50 40 30 20 10 0 10 20 30 40 50

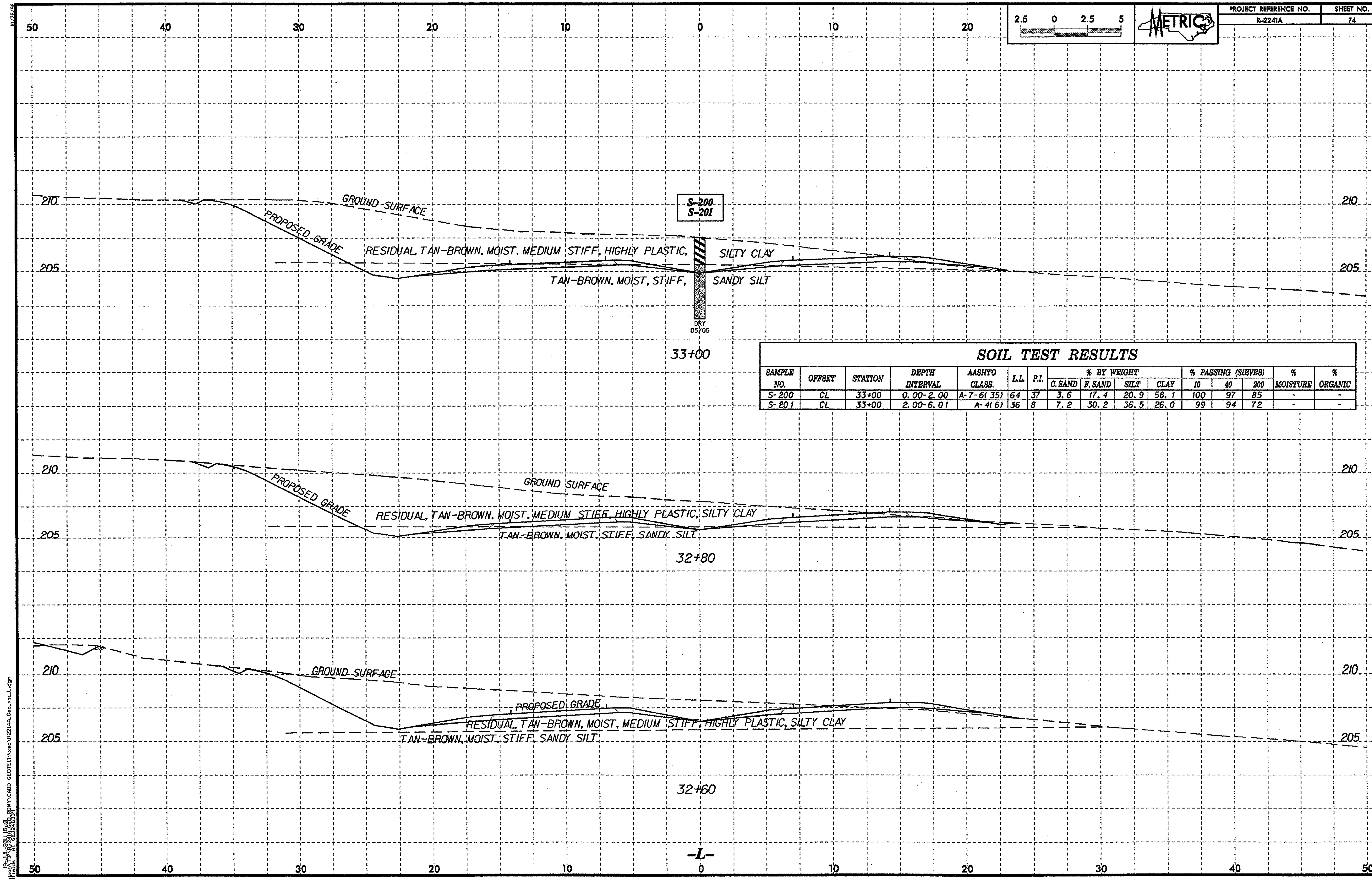
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	73



SOIL TEST RESULTS

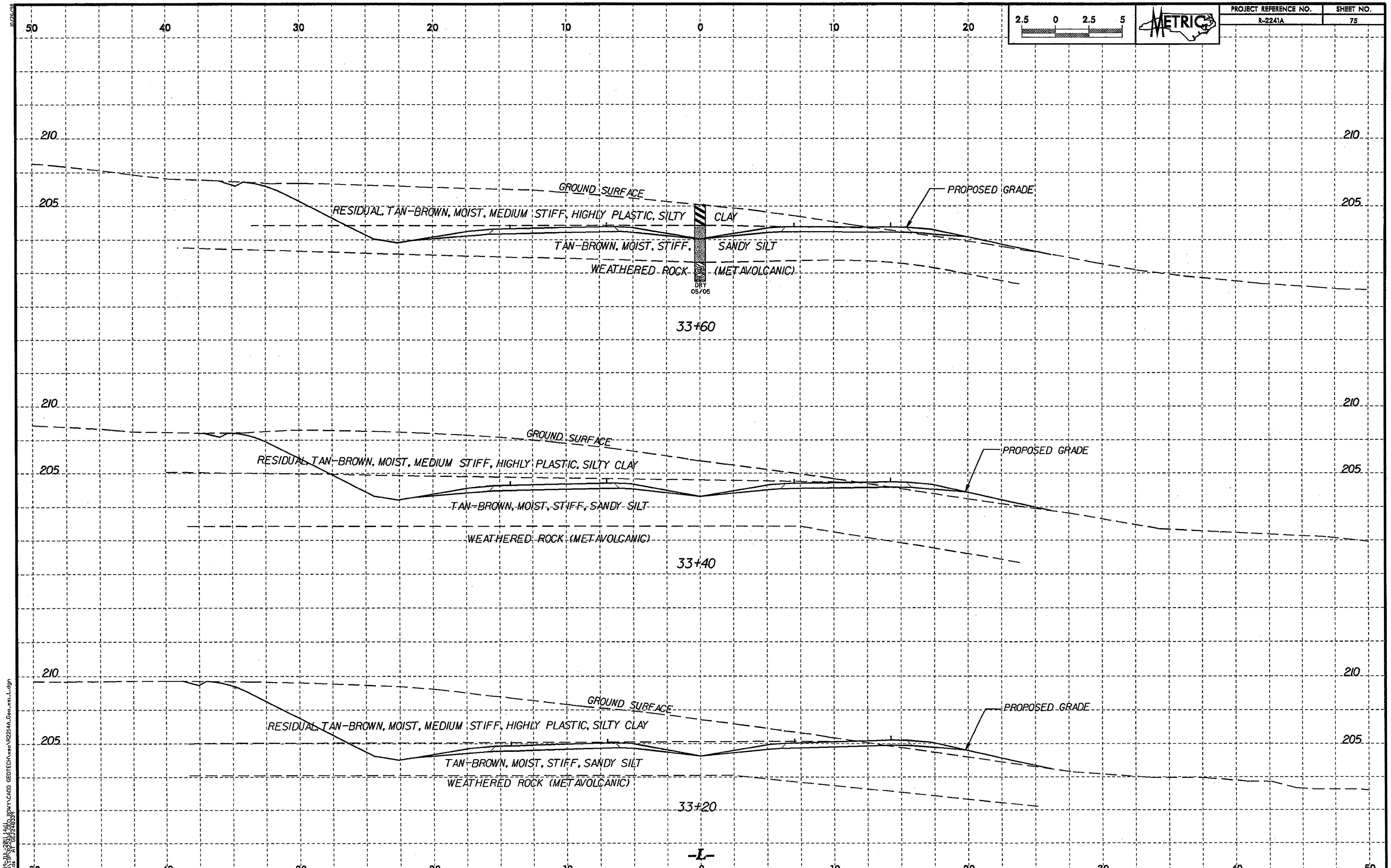
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-206	CL	32+40	1.20-1.65	A-7-5(36)	70	28	1.8	4.2	39.9	54.1	100	99	96	-	-
SS-207	CL	32+40	2.72-3.17	A-7-5(21)	63	13	1.4	10.2	46.3	42.0	100	99	93	-	-
SS-208	CL	32+40	4.24-4.69	A-7-5(23)	63	15	2.0	11.8	54.2	32.0	100	98	94	-	-
SS-209	CL	32+40	5.76-6.21	A-4(0)	36	NP	27.2	31.2	31.5	10.0	100	83	49	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	74



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-200	CL	33+00	0.00-2.00	A-7-6(35)	64	37	3.6	17.4	20.9	58.1	100	97	85	-	-
S-201	CL	33+00	2.00-6.01	A-4(6)	36	8	7.2	30.2	36.5	26.0	99	94	72	-	-


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
75
METRIC
2.5 0 2.5 5
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
DRY 05/05
33+60
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
33+40
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
33+20
-L-
210
205
50
40
30
20
10
0

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

210
205
200

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, STIFF, SILTY CLAY

TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT

34+00

210
205
200

GROUND SURFACE

PROPOSED GRADE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

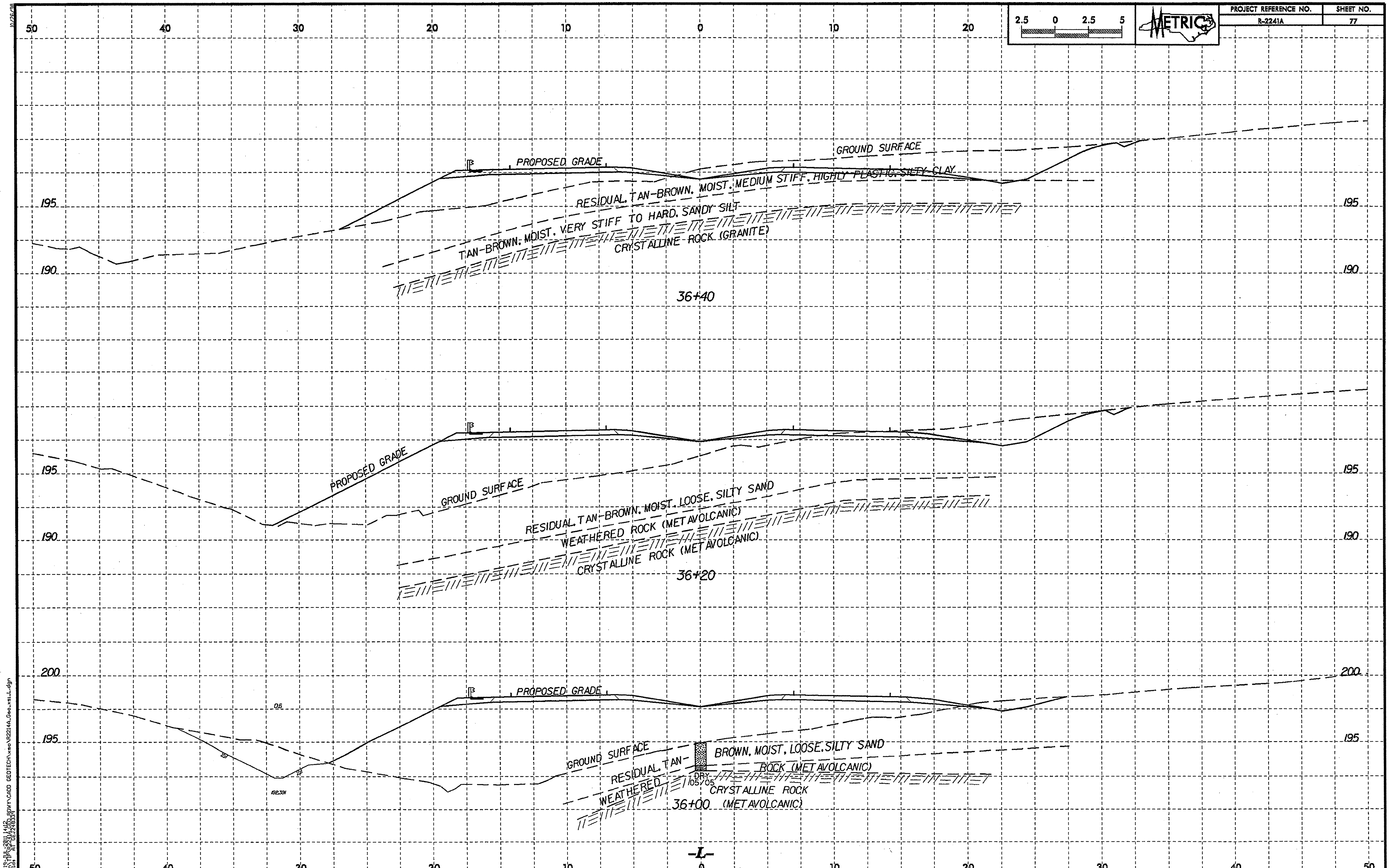
TAN-BROWN, MOIST, STIFF, SANDY SILT

WEATHERED ROCK (METAVOLCANIC)

33+80

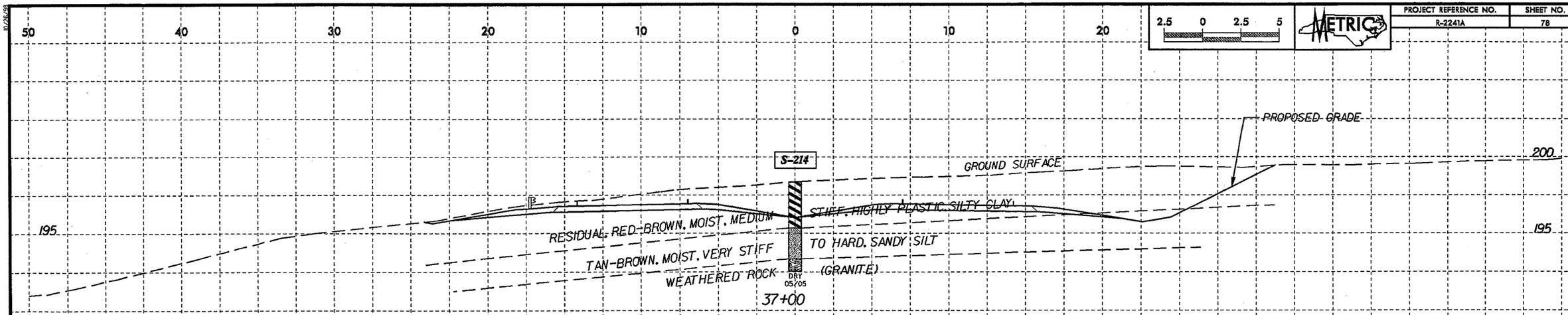
-L-

50 40 30 20 10 0 10 20 30 40 50



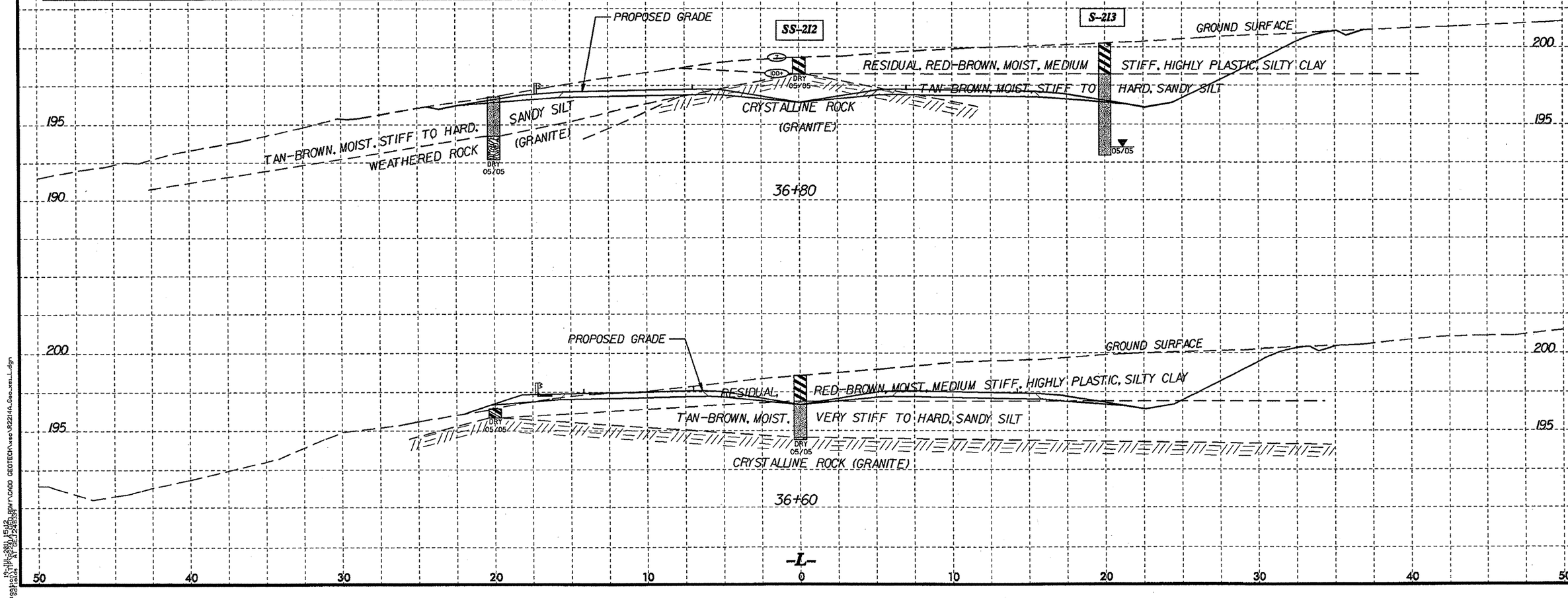
PROJECT REFERENCE NO.
R-2241A
SHEET NO.
77
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF TO HARD, SANDY SILT
CRYSTALLINE ROCK (GRANITE)
36+40
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, LOOSE, SILTY SAND
WEATHERED ROCK (METAVOLCANIC)
CRYSTALLINE ROCK (METAVOLCANIC)
36+20
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, LOOSE, SILTY SAND
WEATHERED ROCK (METAVOLCANIC)
DRY
CRYSTALLINE ROCK (METAVOLCANIC)
36+00
-L-
200
195
190
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	78

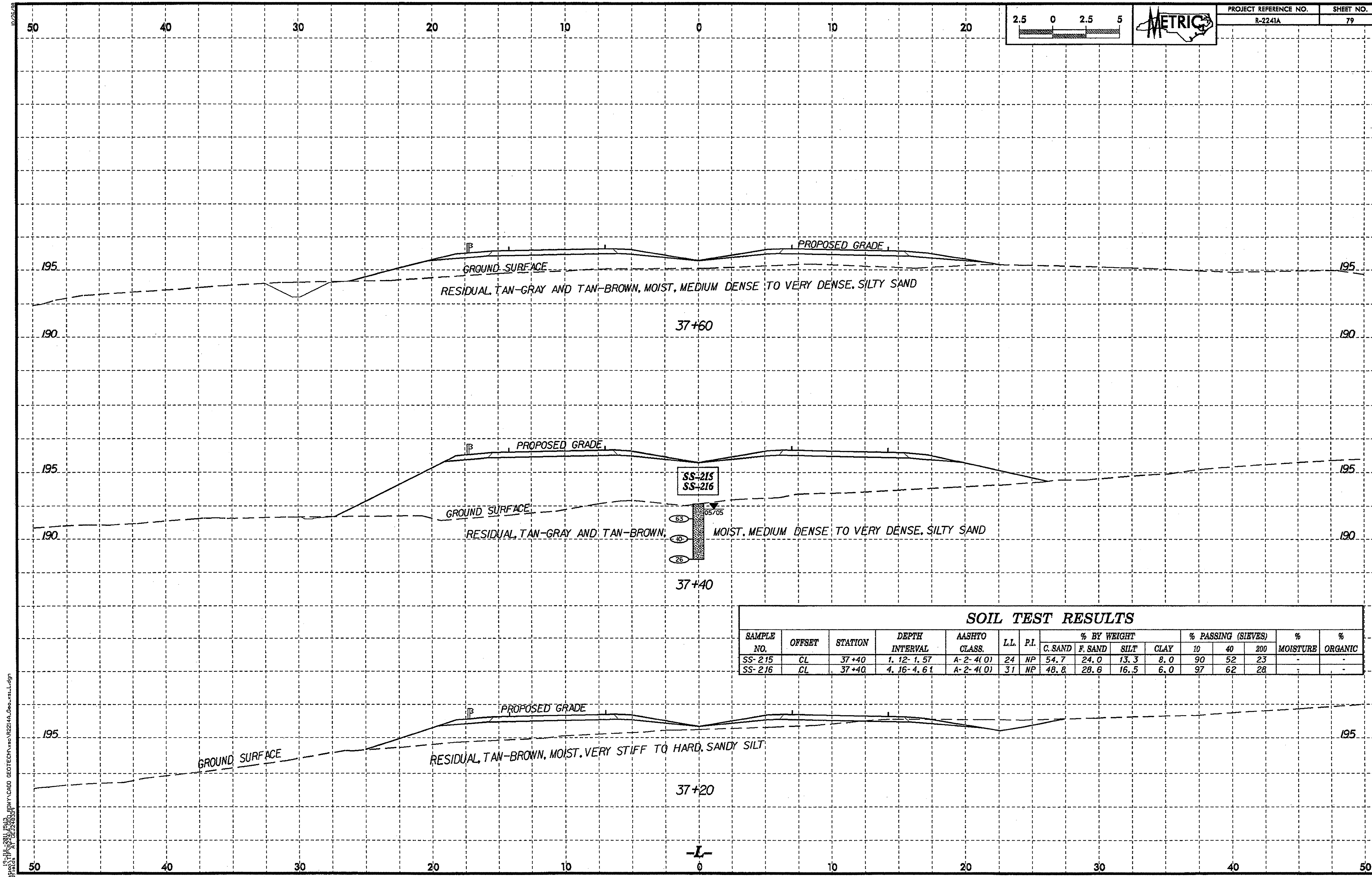


SOIL TEST RESULTS

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-212	CL	36+80	0.00-0.45	A-7-5(30)	74	42	21.0	10.2	12.7	56.1	96	80	69	-	-
S-213	20.0m RT	36+80	2.00-7.28	A-4(1)	33	9	38.8	22.6	22.5	16.0	97	70	42	-	-
S-214	CL	37+00	3.00-5.00	A-4(3)	40	7	12.2	32.2	31.5	24.0	87	80	56	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	79



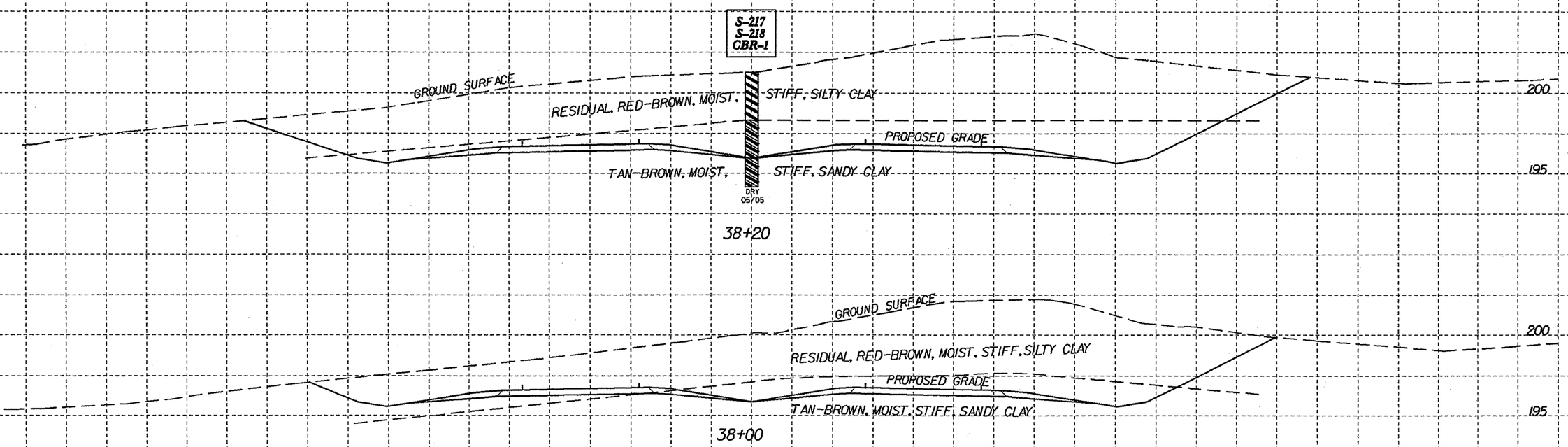
SOIL TEST RESULTS

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-215	CL	37+40	1.12-1.57	A-2-4(0)	24	NP	54.7	24.0	13.3	8.0	90	52	23	-	-
SS-216	CL	37+40	4.16-4.61	A-2-4(0)	31	NP	48.8	28.6	16.5	6.0	97	62	28	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	80

SOIL TEST RESULTS

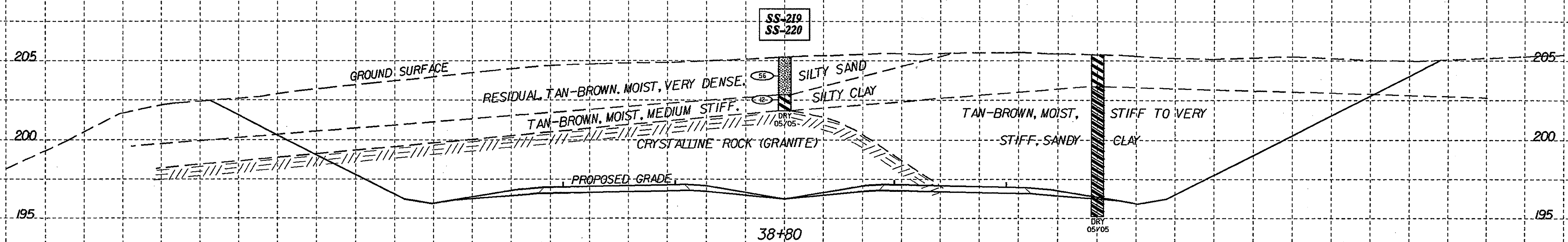
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-217	CL	38+20	0.00-3.00	A-7-6(9)	48	23	32.6	16.6	14.7	36.0	94	70	51	-	-
SS-218	CL	38+20	3.00-7.18	A-6(11)	40	11	32.2	22.8	20.9	24.0	82	62	41	-	-
CBR-1	CL	38+20	3.00-7.18	A-7-6(4)	43	15	34.4	21.0	22.2	22.4	96	72	47	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	81

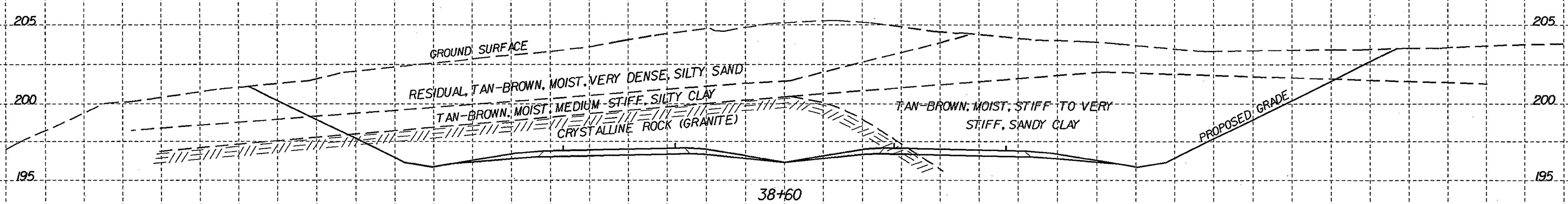
METRIC

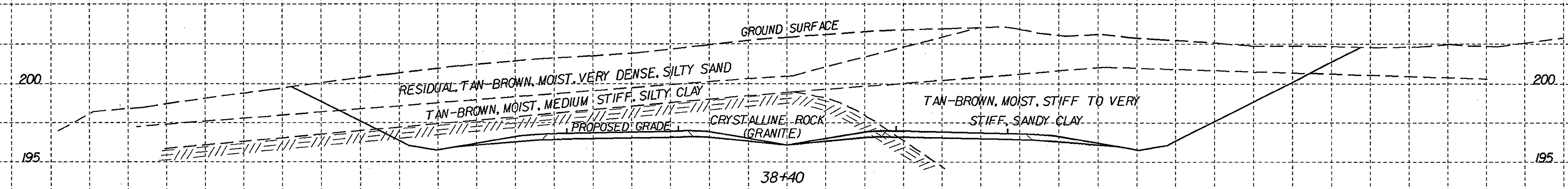
2.5 0 2.5 5



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-219	CL	38+80	1.18-1.63	A-2-4(0)	36	NP	41.6	31.4	16.9	10.0	92	65	30	-	-
SS-220	CL	38+80	2.70-3.15	A-7-5(5)	54	11	29.0	23.6	25.3	22.0	98	77	52	-	-

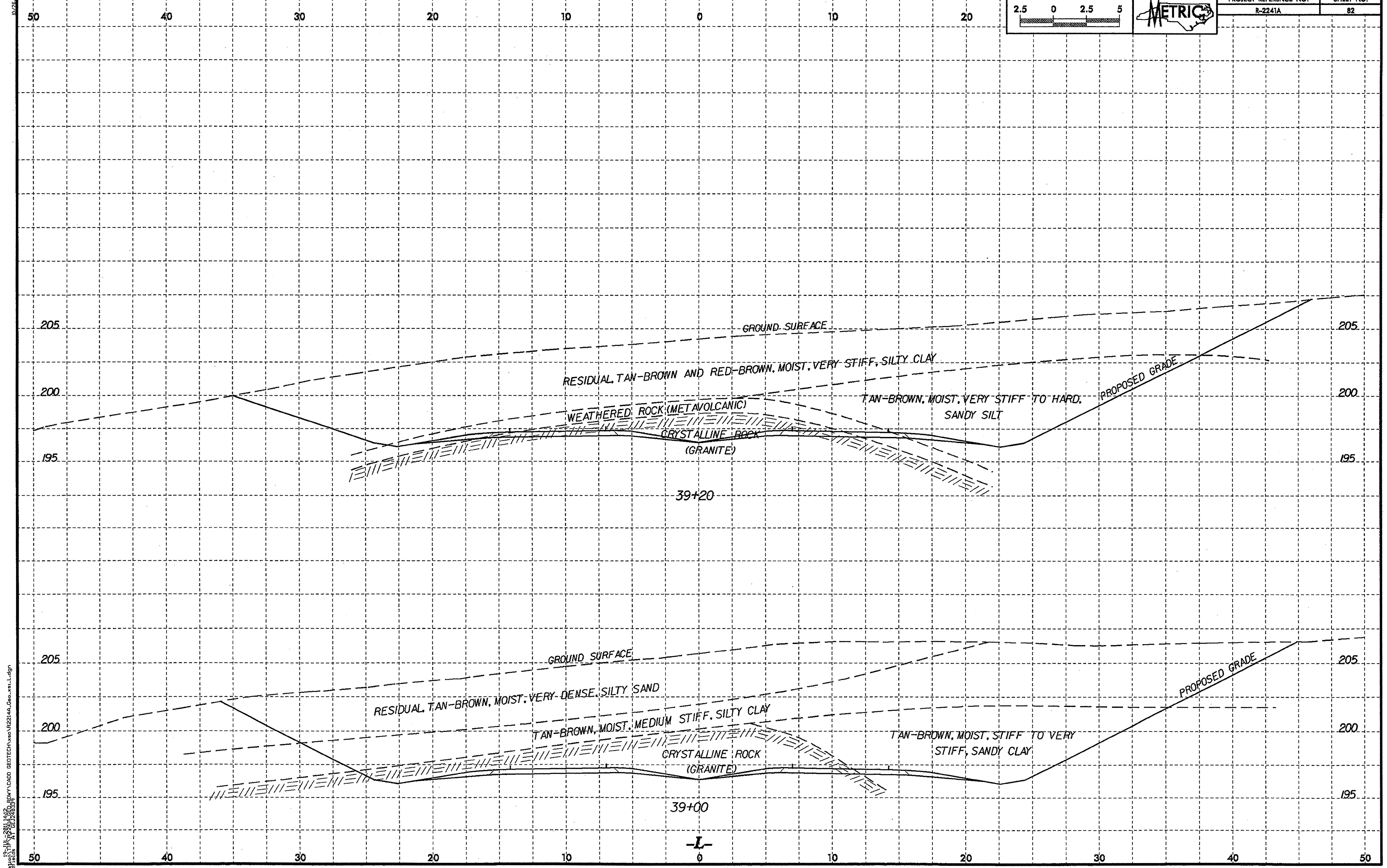




-L-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	82

METRIC



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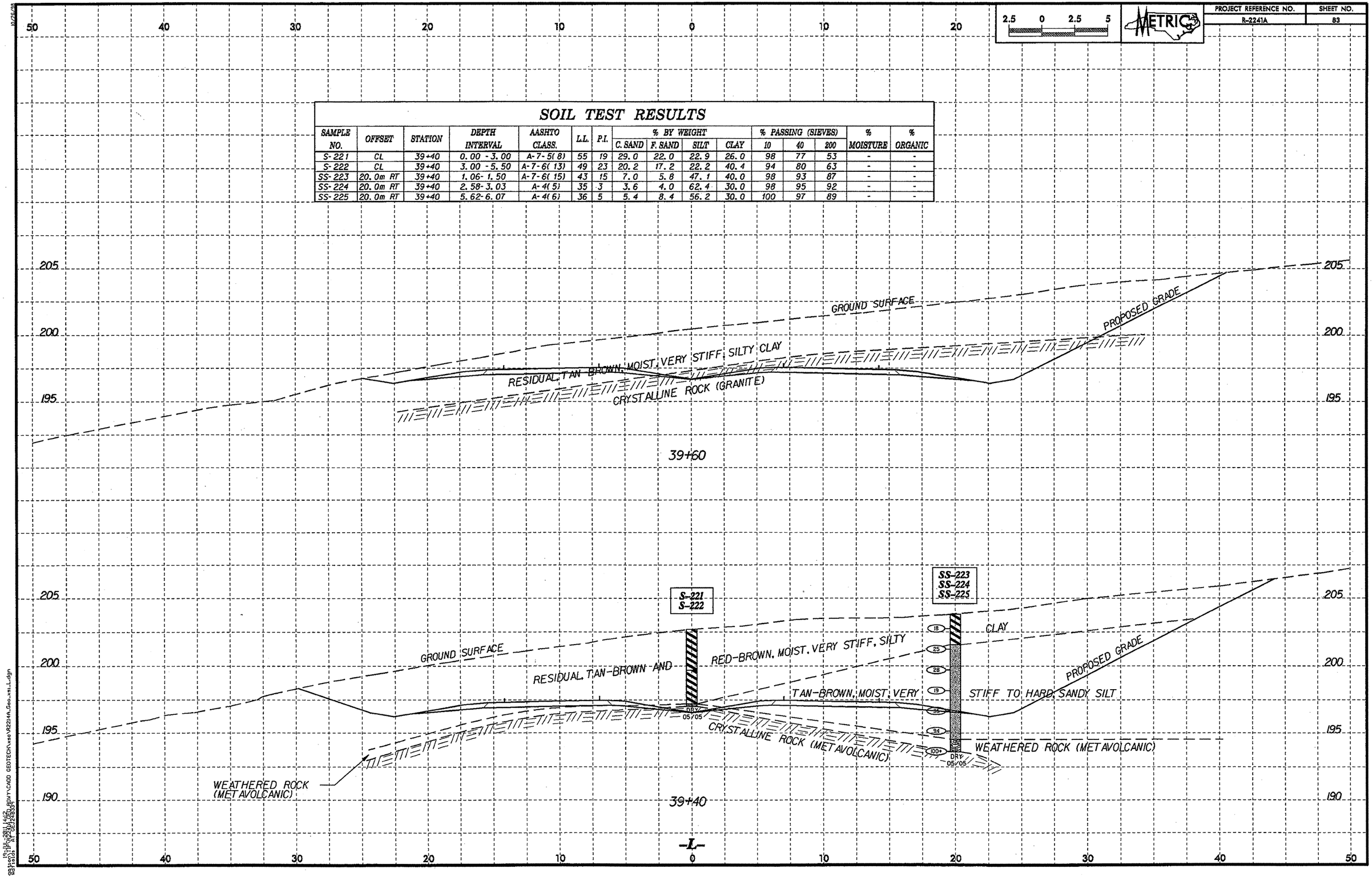
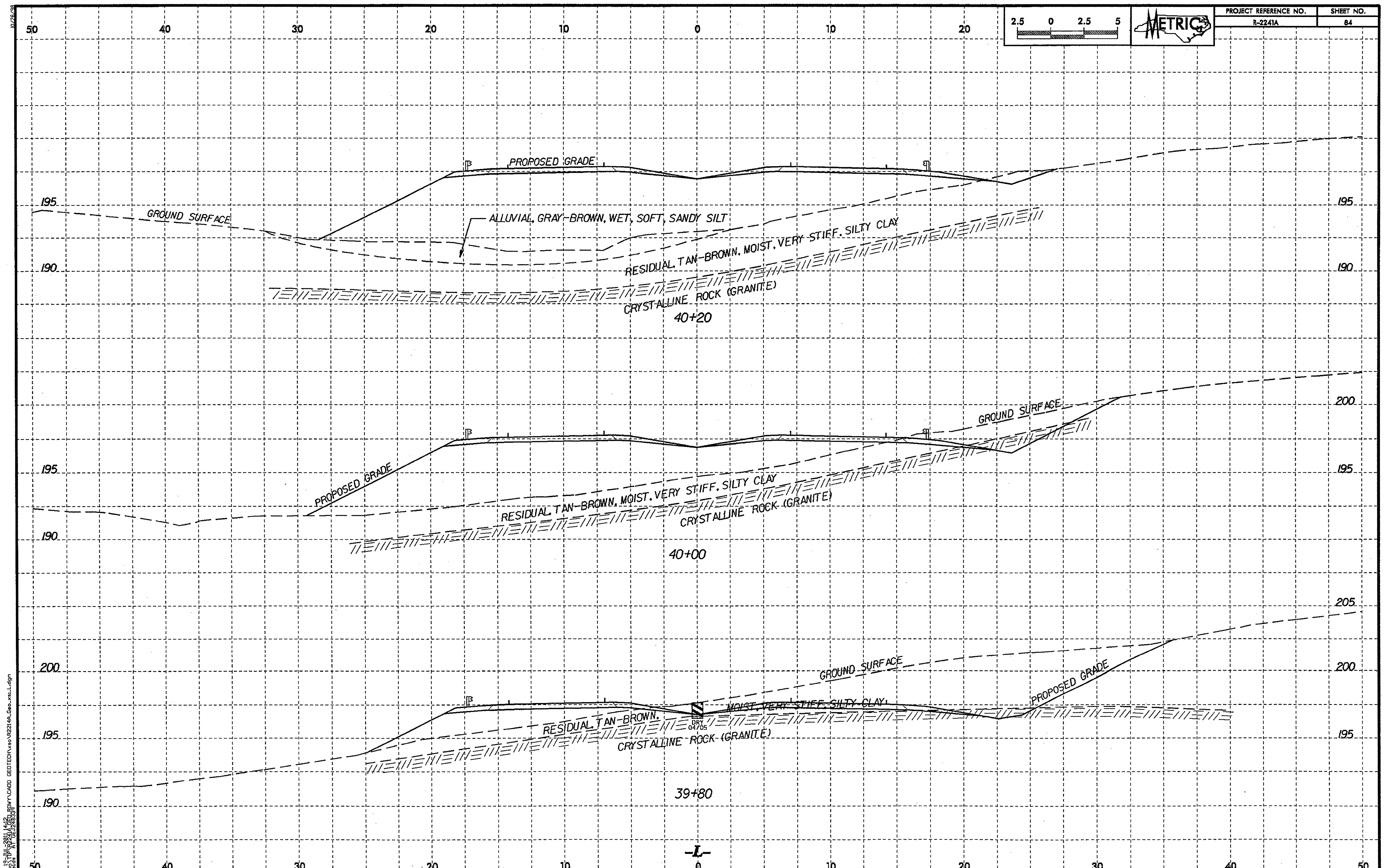
wdfields AT GEJ24B339

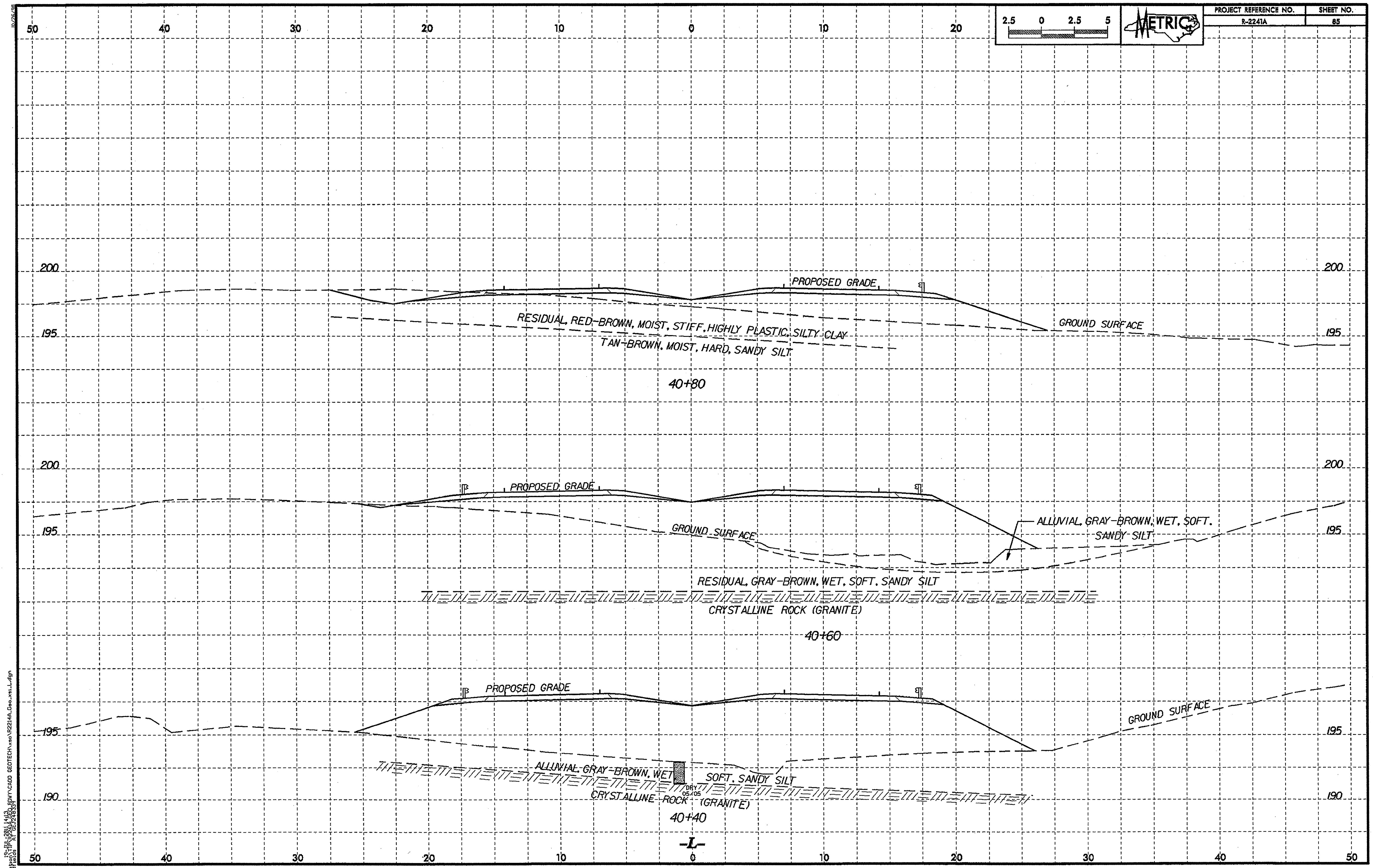
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	83

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-221	CL	39+40	0.00 - 3.00	A-7-5(8)	55	19	29.0	22.0	22.9	26.0	98	77	53	-	-
S-222	CL	39+40	3.00 - 5.50	A-7-6(13)	49	23	20.2	17.2	22.2	40.4	94	80	63	-	-
SS-223	20.0m RT	39+40	1.06- 1.50	A-7-6(15)	43	15	7.0	5.8	47.1	40.0	98	93	87	-	-
SS-224	20.0m RT	39+40	2.58- 3.03	A-4(5)	35	3	3.6	4.0	62.4	30.0	98	95	92	-	-
SS-225	20.0m RT	39+40	5.62- 6.07	A-4(6)	36	5	5.4	8.4	56.2	30.0	100	97	89	-	-




PROJECT REFERENCE NO.
R-2241A
SHEET NO.
84
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
ALLUVIAL, GRAY-BROWN, WET, SOFT, SANDY SILT
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
40+20
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, SILTY CLAY
CRYSTALLINE ROCK (GRANITE)
40+00
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, SILTY CLAY
DRY 04/05
CRYSTALLINE ROCK (GRANITE)
39+80
-L-
50 40 30 20 10 0 10 20 30 40 50
195 190 200 205

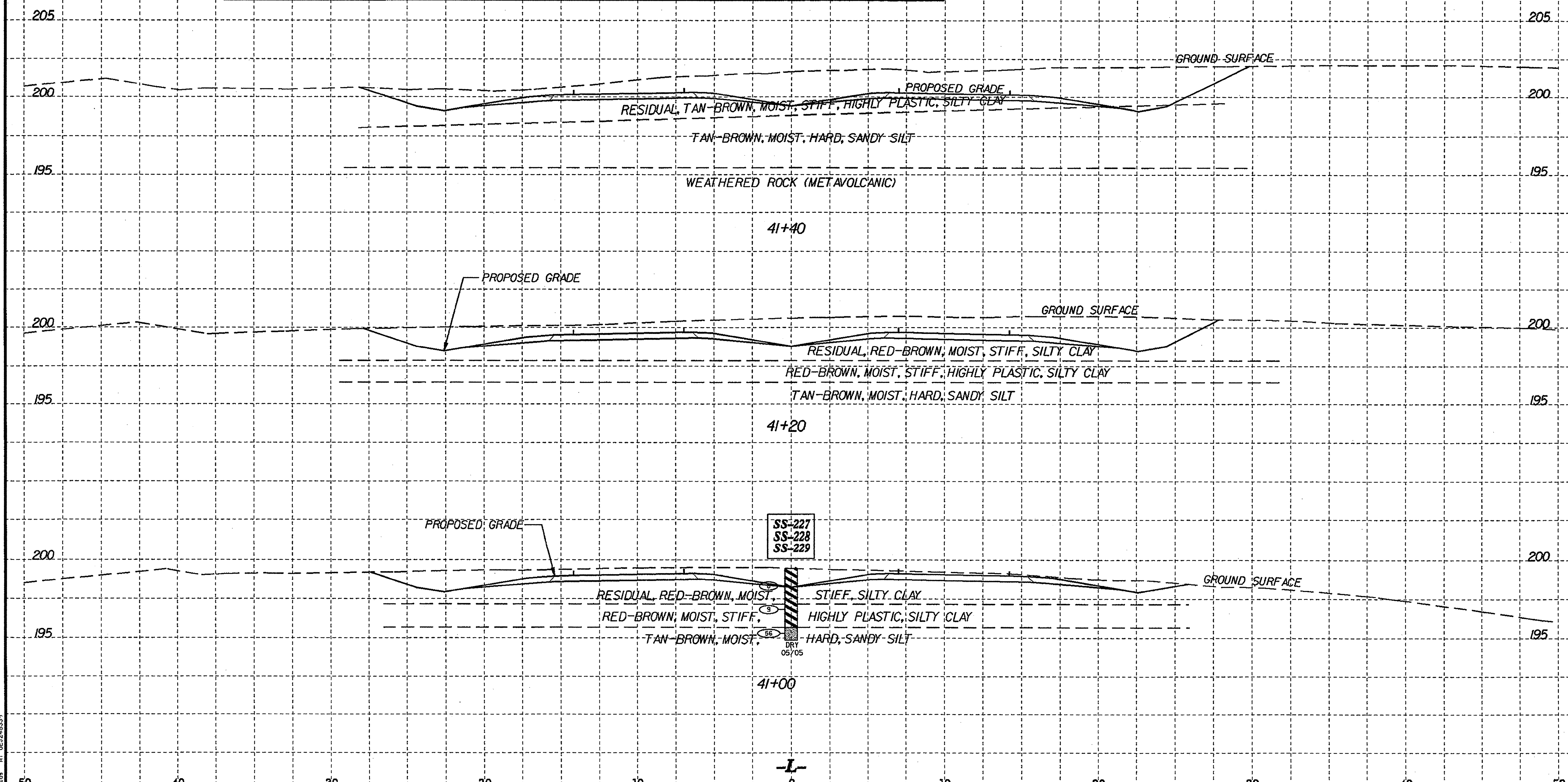


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
85
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, HARD, SANDY SILT
40+80
PROPOSED GRADE
GROUND SURFACE
ALLUVIAL, GRAY-BROWN, WET, SOFT, SANDY SILT
RESIDUAL, GRAY-BROWN, WET, SOFT, SANDY SILT
CRYSTALLINE ROCK (GRANITE)
40+60
PROPOSED GRADE
GROUND SURFACE
ALLUVIAL, GRAY-BROWN, WET, SOFT, SANDY SILT
CRYSTALLINE ROCK (GRANITE)
40+40
-L-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	86

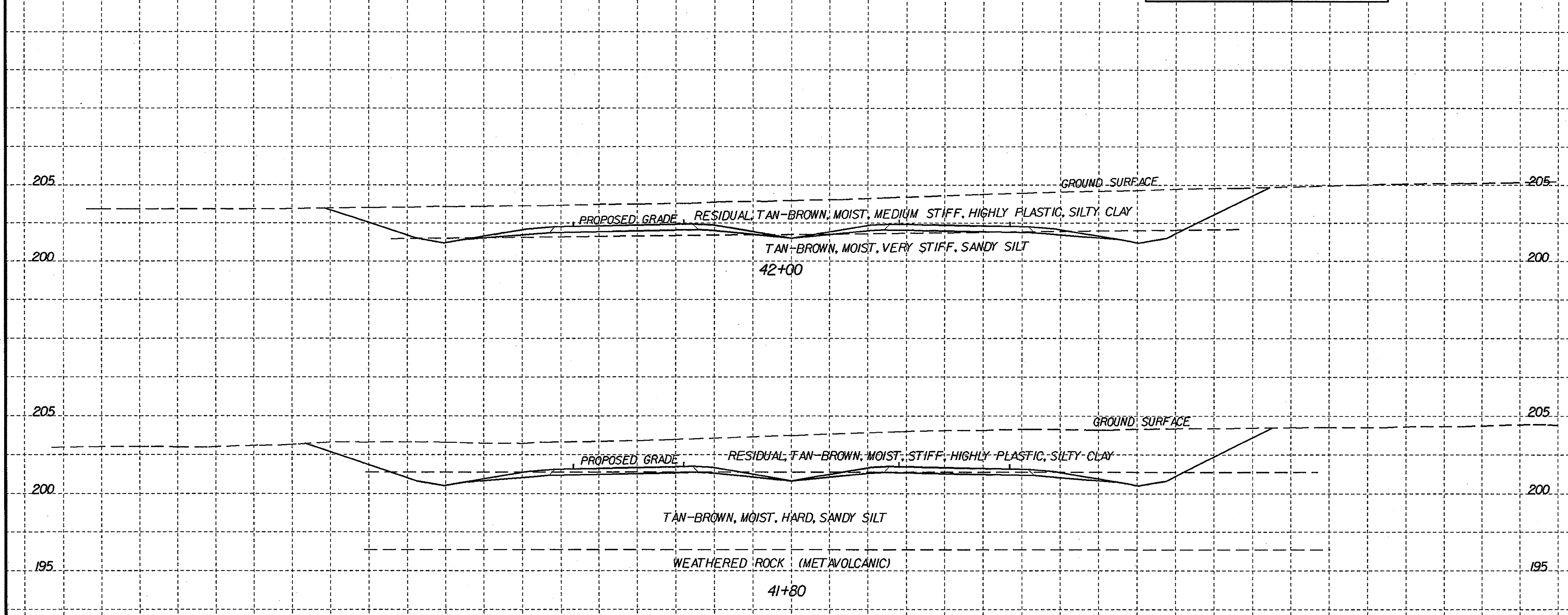
SOIL TEST RESULTS

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-227	CL	41+00	1.14-1.59	A-7-5(17)	51	14	2.0	14.8	45.1	38.0	100	99	90	-	-
SS-228	CL	41+00	2.66-3.11	A-7-5(30)	57	27	2.0	6.8	39.1	52.1	100	99	94	48.3	-
SS-229	CL	41+00	4.18-4.63	A-4(5)	39	3	5.0	13.4	51.6	30.0	98	95	84	40.0	-



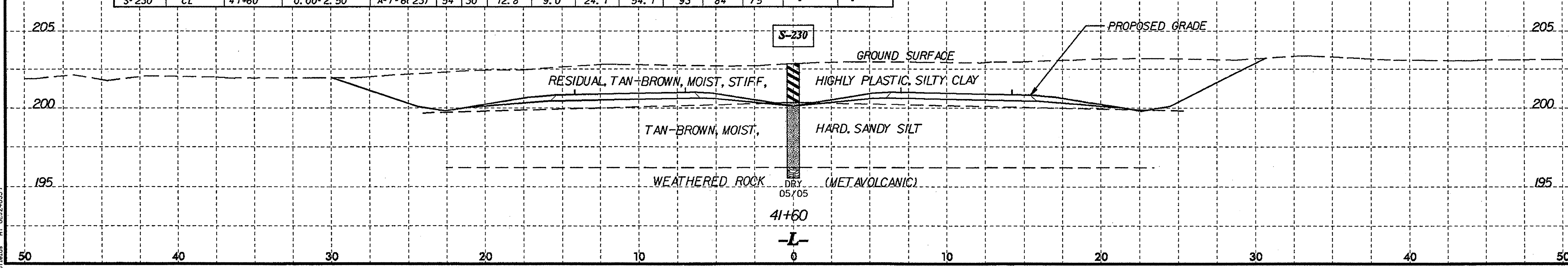
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	87

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-230	CL	41+60	0.00-2.50	A-7-6(23)	54	30	12.8	9.0	24.1	54.1	93	84	75	-	-



10/26/98

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	88

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

205
200

PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SANDY SILT
42+80

PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SANDY SILT
42+60

PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SANDY SILT
42+40

GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY, PROPOSED GRADE,
TAN-BROWN, MOIST, VERY STIFF, SANDY SILT
42+20

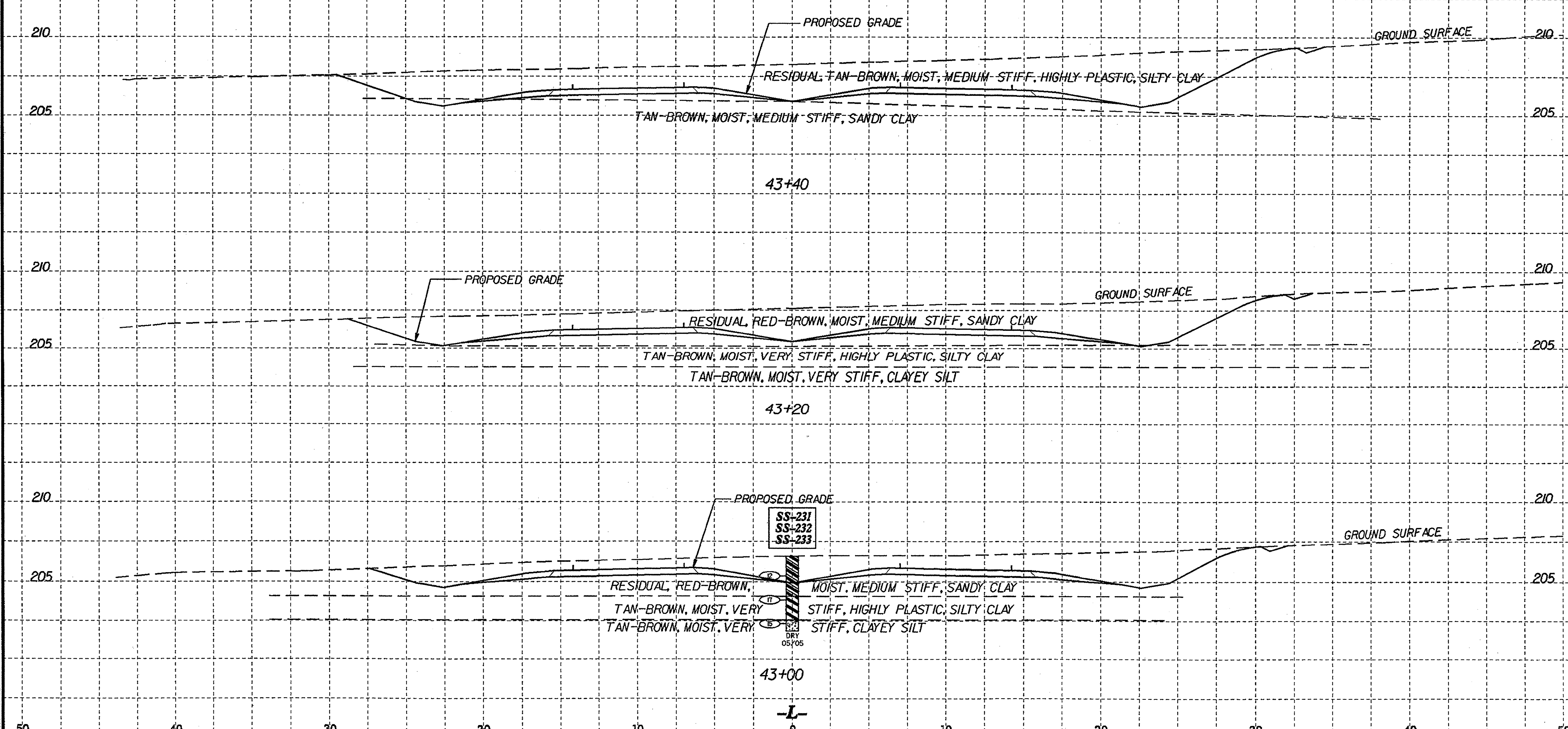
-L-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	89

METRIC

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-231	CL	43+00	1.20-1.65	A-6(5)	34	17	32.4	22.6	14.9	30.0	99	73	49	-	-
SS-232	CL	43+00	2.72-3.17	A-7-6(36)	66	45	10.8	9.6	17.5	62.1	94	86	77	26.4	-
SS-233	CL	43+00	4.24-4.69	A-5(13)	49	10	4.4	13.8	33.7	48.0	100	97	87	41.5	-



-L-

10/26/98

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	90

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

210

205

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST,

MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

PROPOSED GRADE

TAN-BROWN, MOIST.

MEDIUM STIFF, SILTY CLAY

44+00

210

205

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

PROPOSED GRADE

TAN-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

43+80

210

205

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST. MEDIUM STIFF, SANDY CLAY

DRY
05/05

43+60

-L-

50 40 30 20 10 0 10 20 30 40 50

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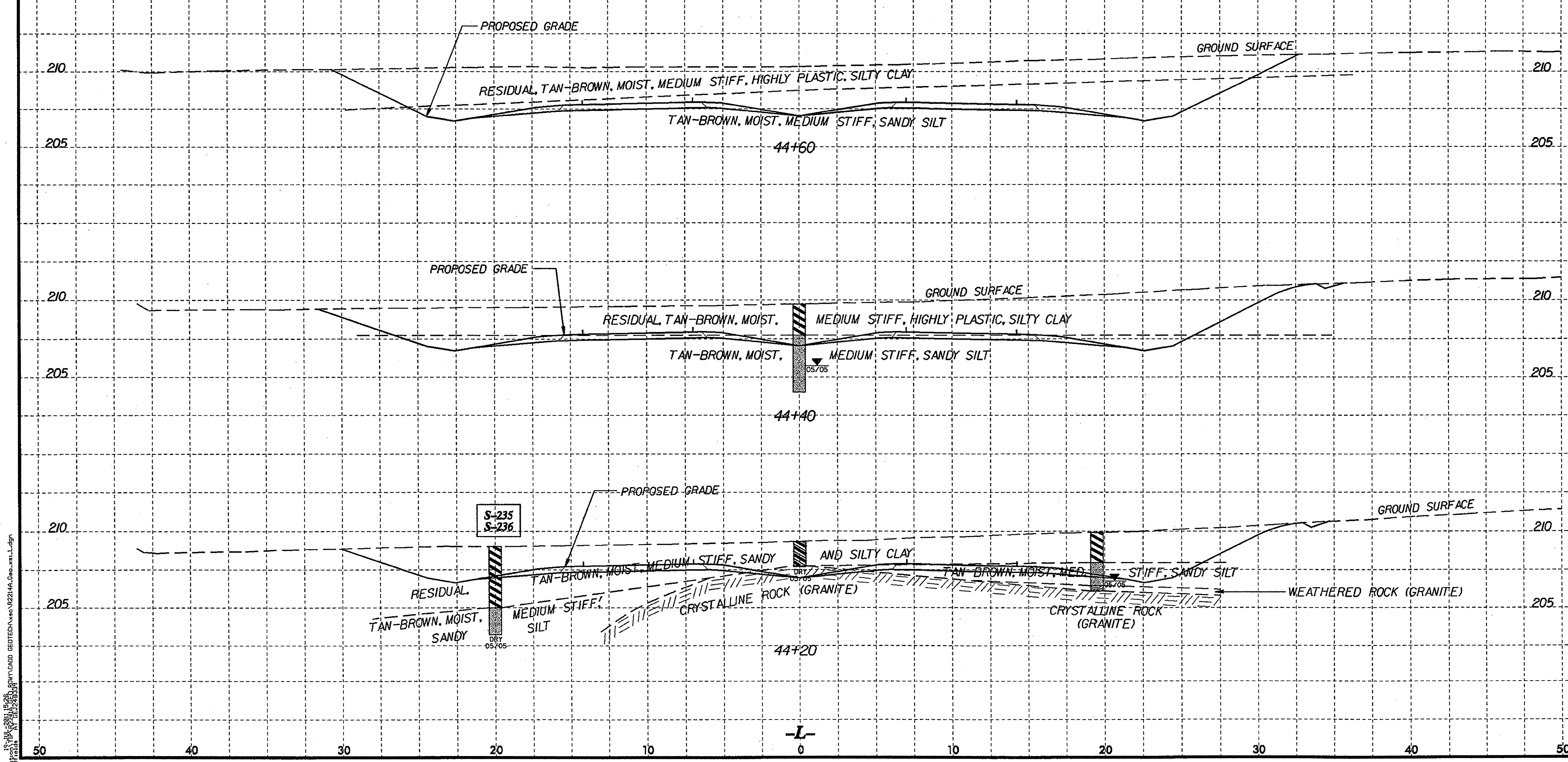
Preset #1 SCALE=1:50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	91

METRIC

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-235	20.0m LT	44+20	0.00-4.00	A-7-6(11)	50	24	28.8	20.2	16.9	34.0	100	76	55	-	-
S-236	20.0m LT	44+20	4.00-5.76	A-4(1)	35	10	38.8	22.8	18.3	20.0	99	68	43	-	-

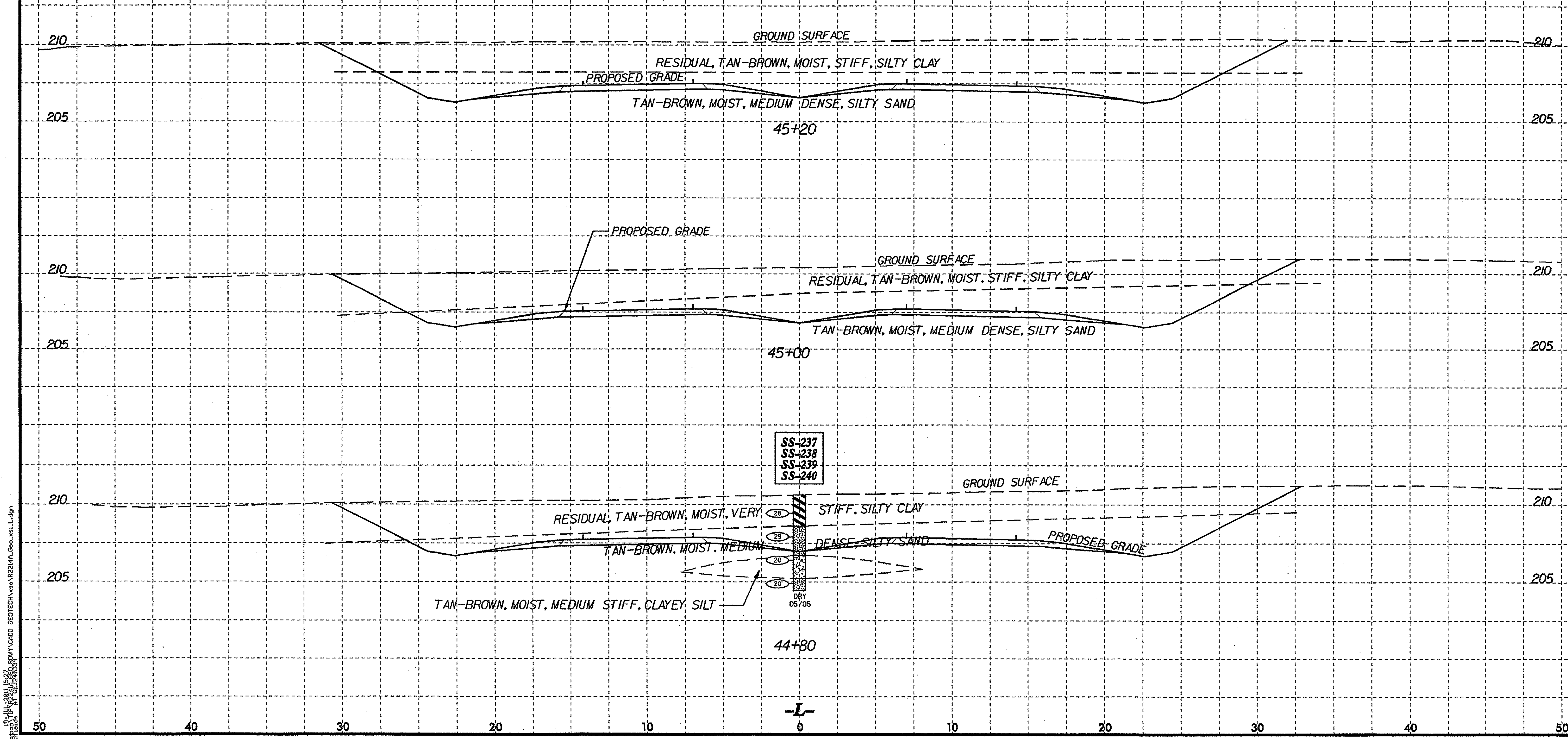


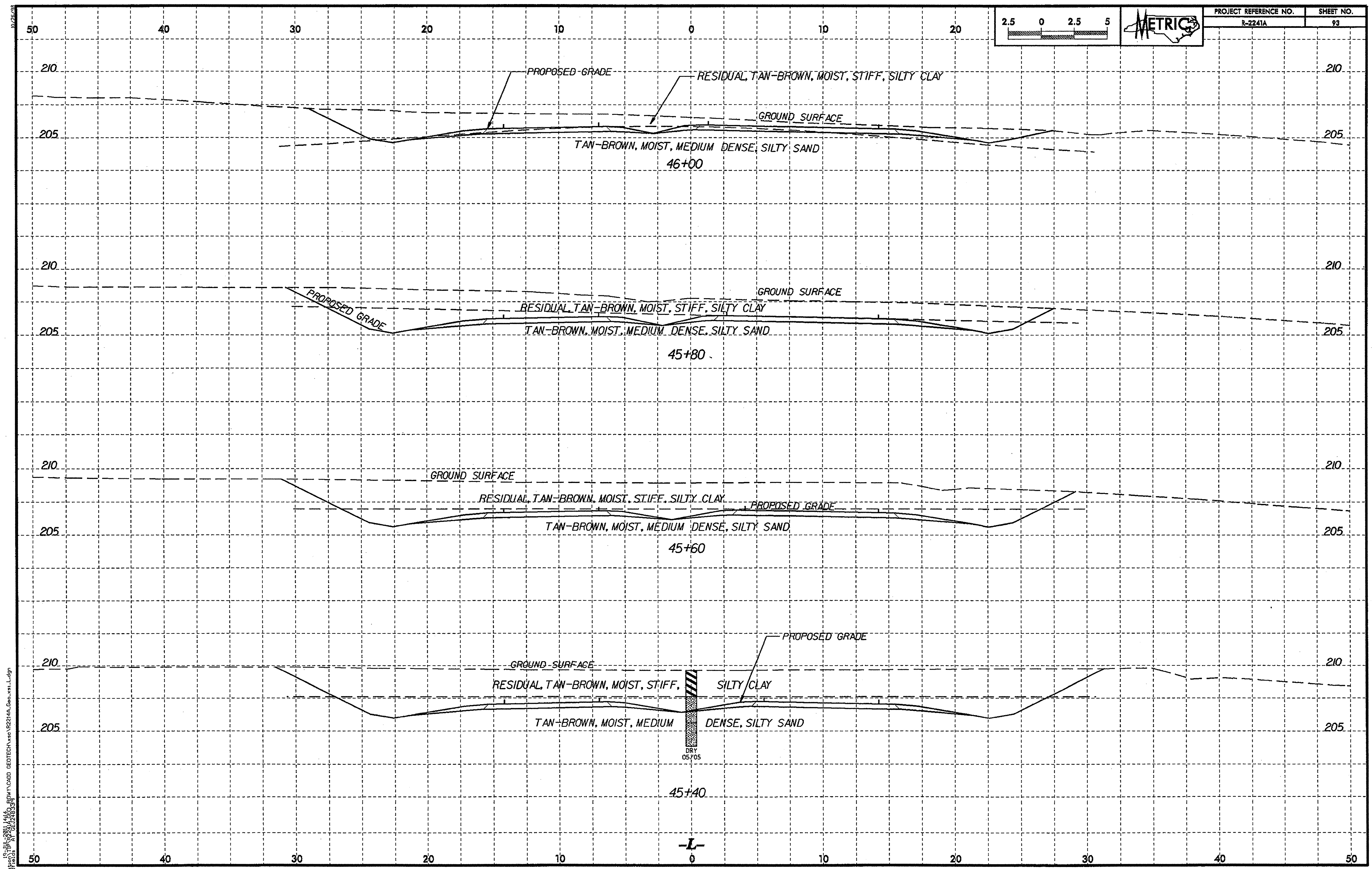
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	92

METRIC

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	CL	44+80	1.18-1.63	A-7-5(18)	56	25	19.6	15.0	15.3	50.1	100	84	69	-	-
SS-238	CL	44+80	2.70-3.15	A-2-5(0)	43	NP	41.5	26.7	17.6	14.2	93	62	35	-	-
SS-239	CL	44+80	4.22-4.67	A-5(0)	41	6	39.9	25.4	20.4	14.2	99	68	39	-	-
SS-240	CL	44+80	5.74-6.19	A-2-4(0)	38	7	44.4	24.0	17.4	14.2	87	57	32	-	-




PROJECT REFERENCE NO.
R-2241A
SHEET NO.
93
METRIC
2.5 0 2.5 5
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, STIFF, SILTY CLAY
GROUND SURFACE
TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND
46+00
45+80
45+60
DRY
05/05
45+40
-L-
210
205
50
40
30
20
10
0

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	94

2.5 0 2.5 5

50 40 30 20 10 0 10 20

205

200

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND

15 05/05

100+ 25

CRYSTALLINE ROCK (GRANITE)

46+60

205

200

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND

CRYSTALLINE ROCK (GRANITE)

46+40

210

205

GROUND SURFACE

PROPOSED GRADE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND

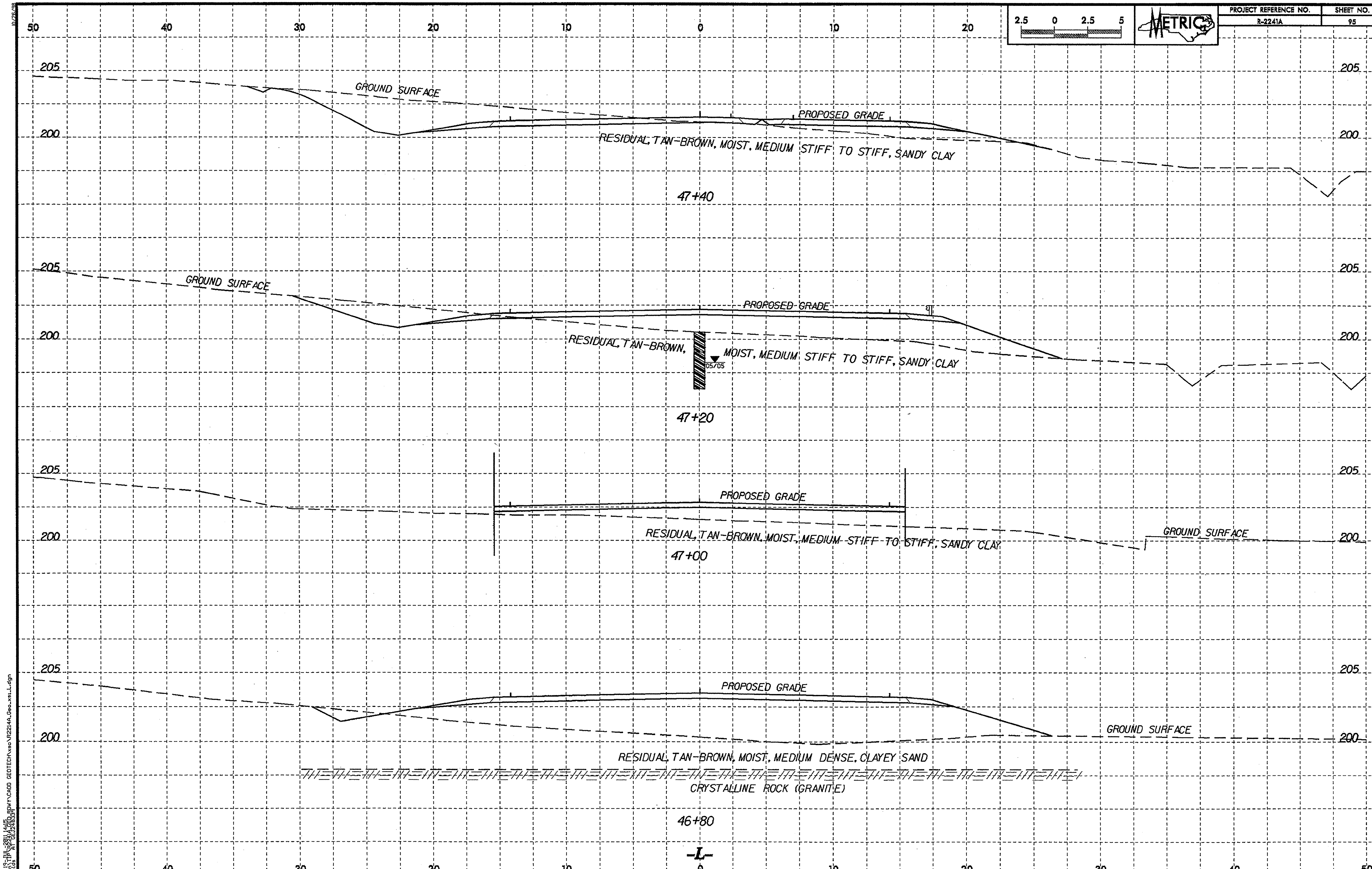
CRYSTALLINE ROCK (GRANITE)

46+20

-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	95



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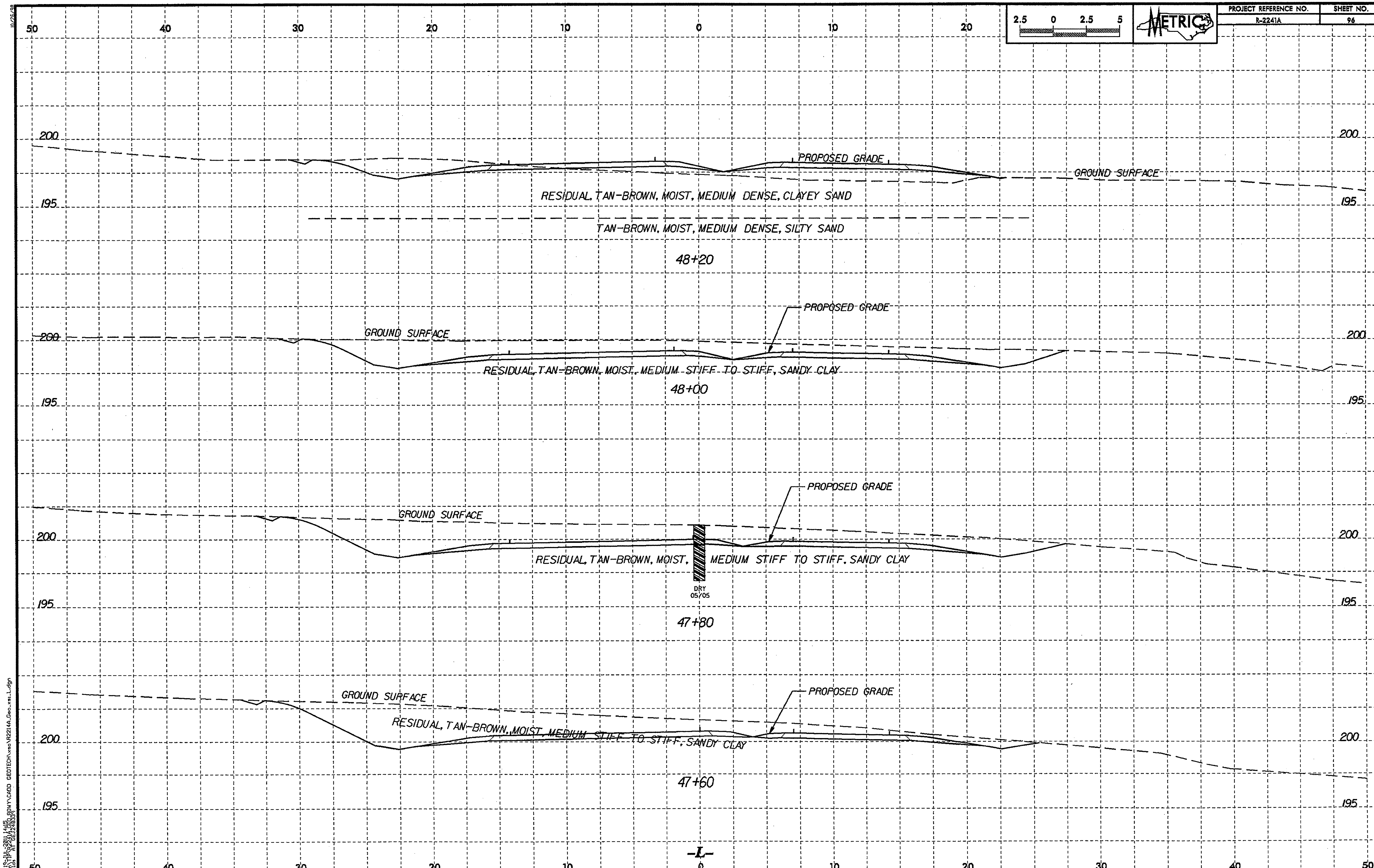
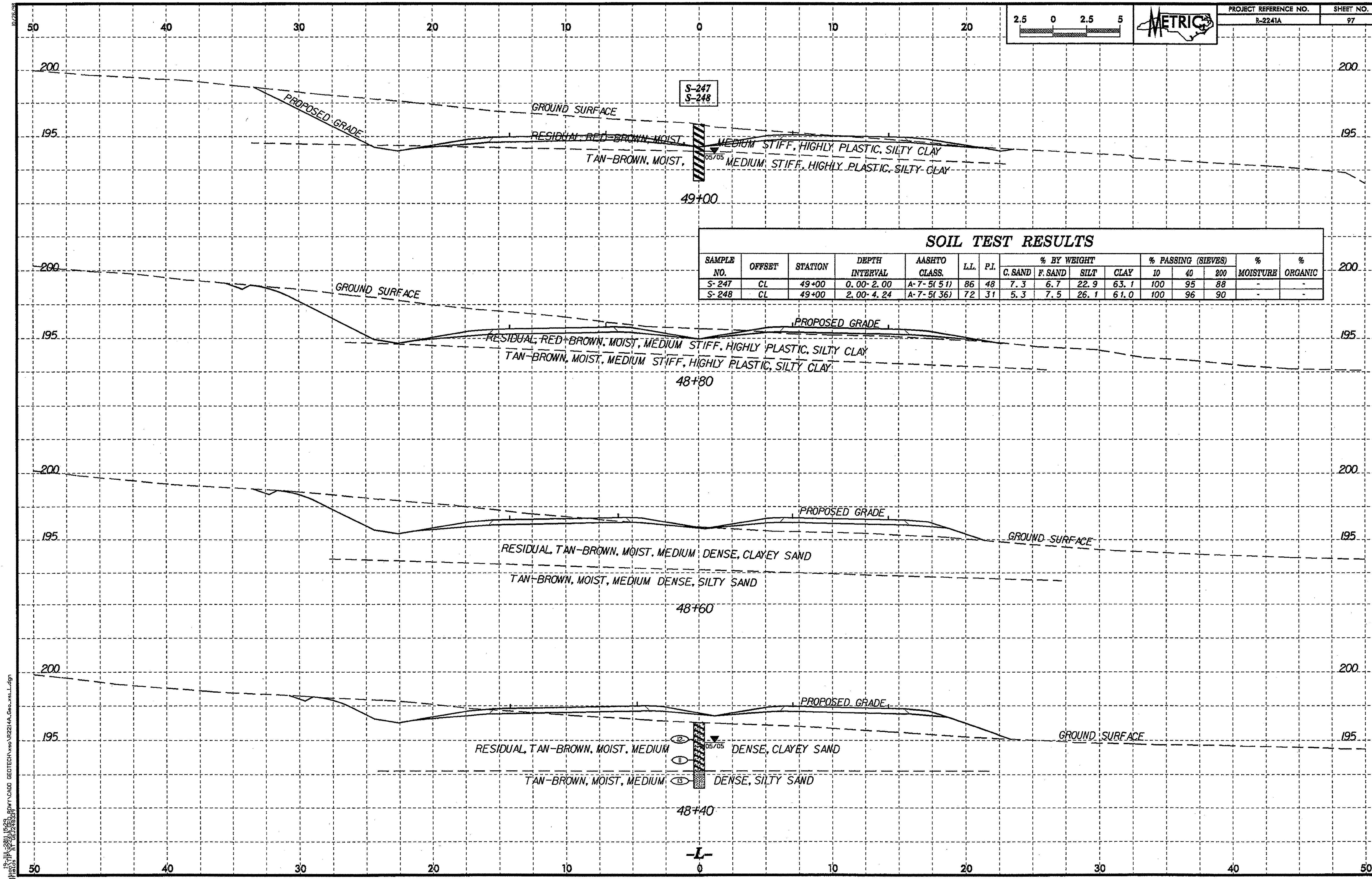

PROJECT REFERENCE NO.
R-2241A
SHEET NO.
96
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND
TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND
48+20
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
48+00
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
DRY
05/05
47+80
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY
47+60
-L-
50 40 30 20 10 0 10 20 30 40 50
200
195

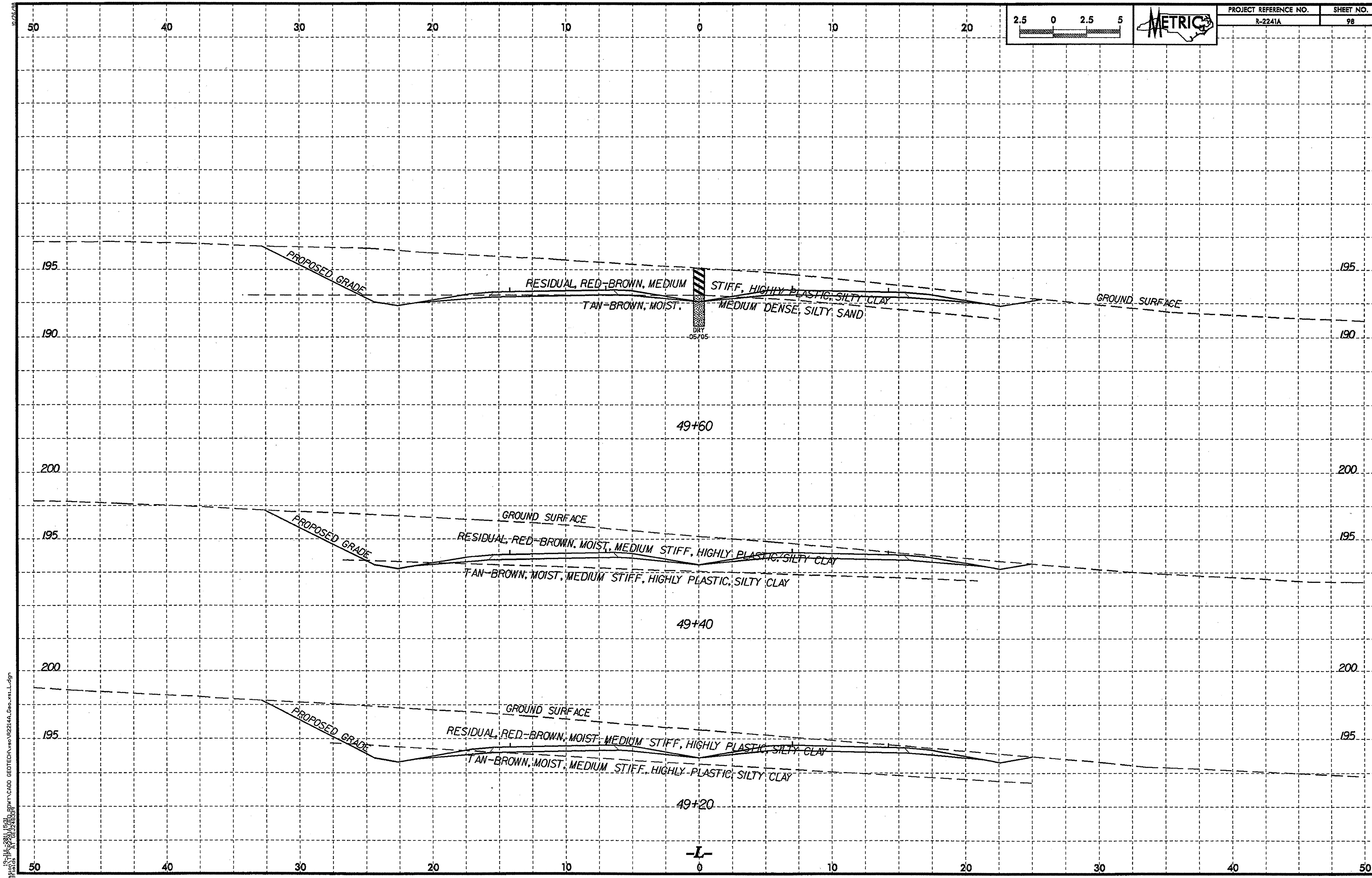
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	97



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-247	CL	49+00	0.00-2.00	A-7-5(51)	86	48	7.3	6.7	22.9	63.1	100	95	88	-	-
S-248	CL	49+00	2.00-4.24	A-7-5(36)	72	31	5.3	7.5	26.1	61.0	100	96	90	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	98



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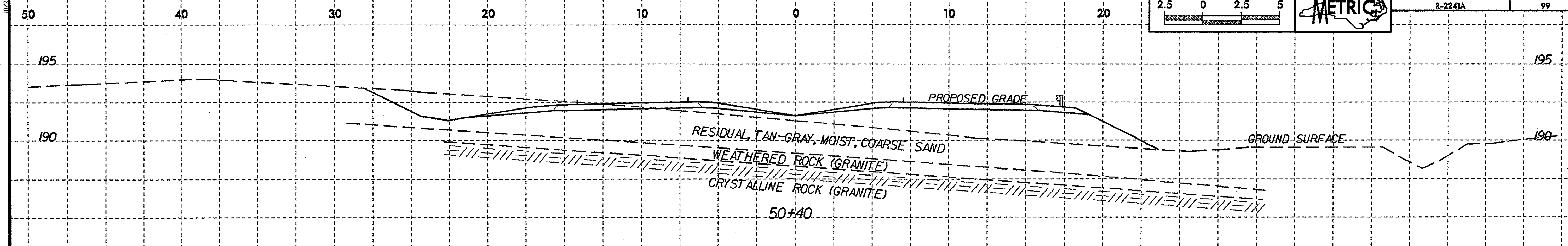
rdfields AT GEJ2483339

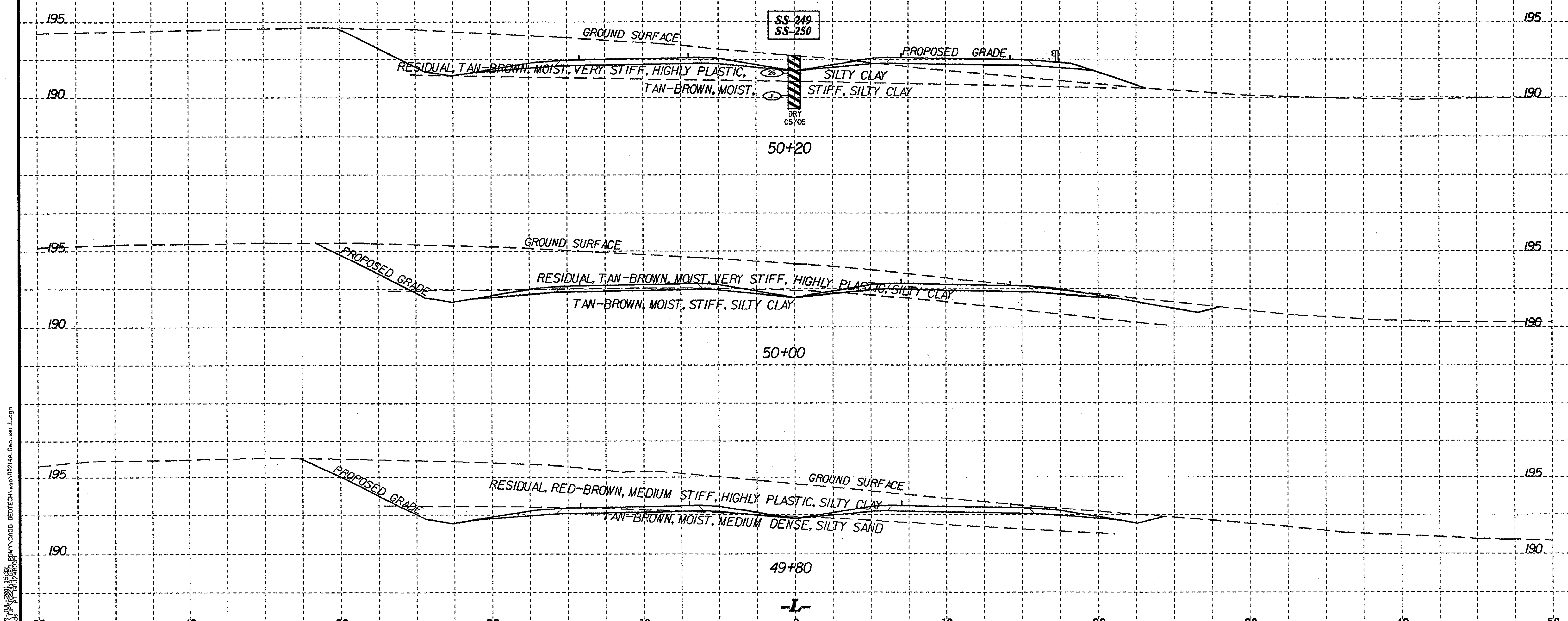
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	99

METRIC



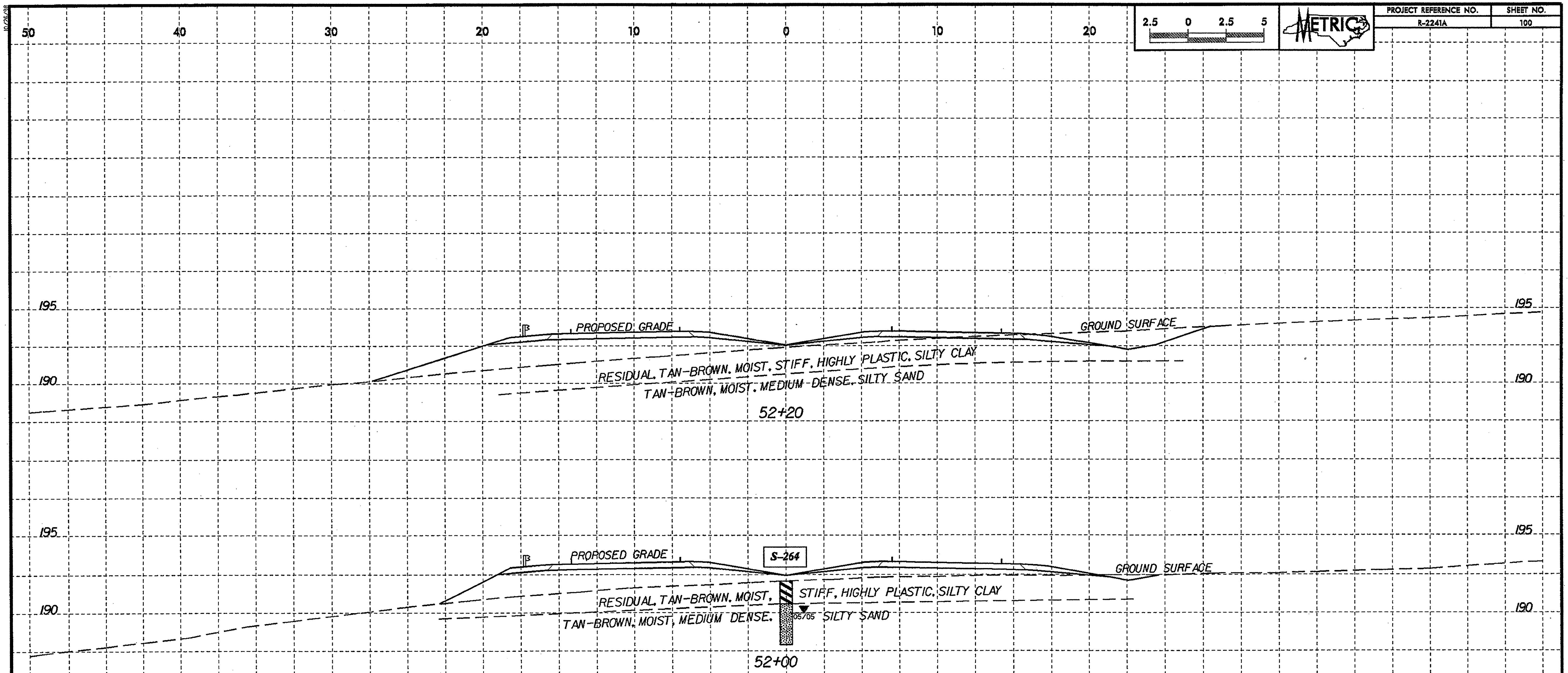
SOIL TEST RESULTS

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-249	CL	50+20	1.15-1.60	A-7-6(22)	68	39	29.7	13.0	14.5	42.7	100	76	60	-	-
SS-250	CL	50+20	2.67-3.12	A-7-5(3)	46	14	39.5	20.8	19.4	20.3	96	66	42	-	-



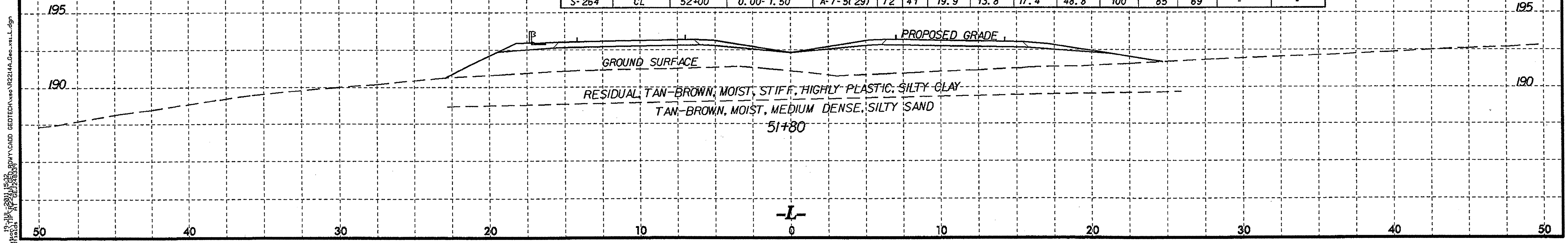
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	100

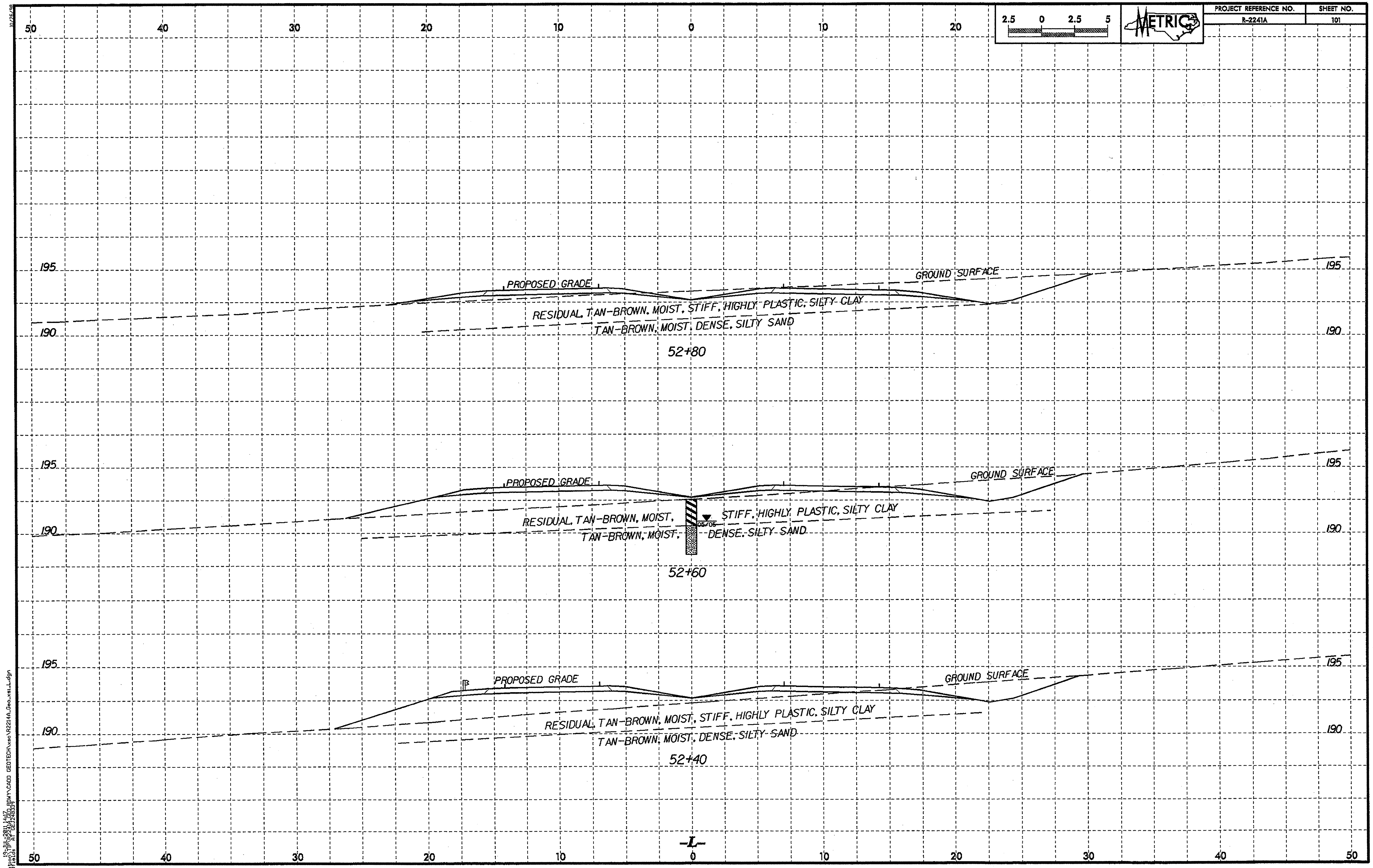
METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-264	CL	52+00	0.00-1.50	A-7-5(29)	72	41	19.9	13.8	17.4	48.8	100	85	69	-	-





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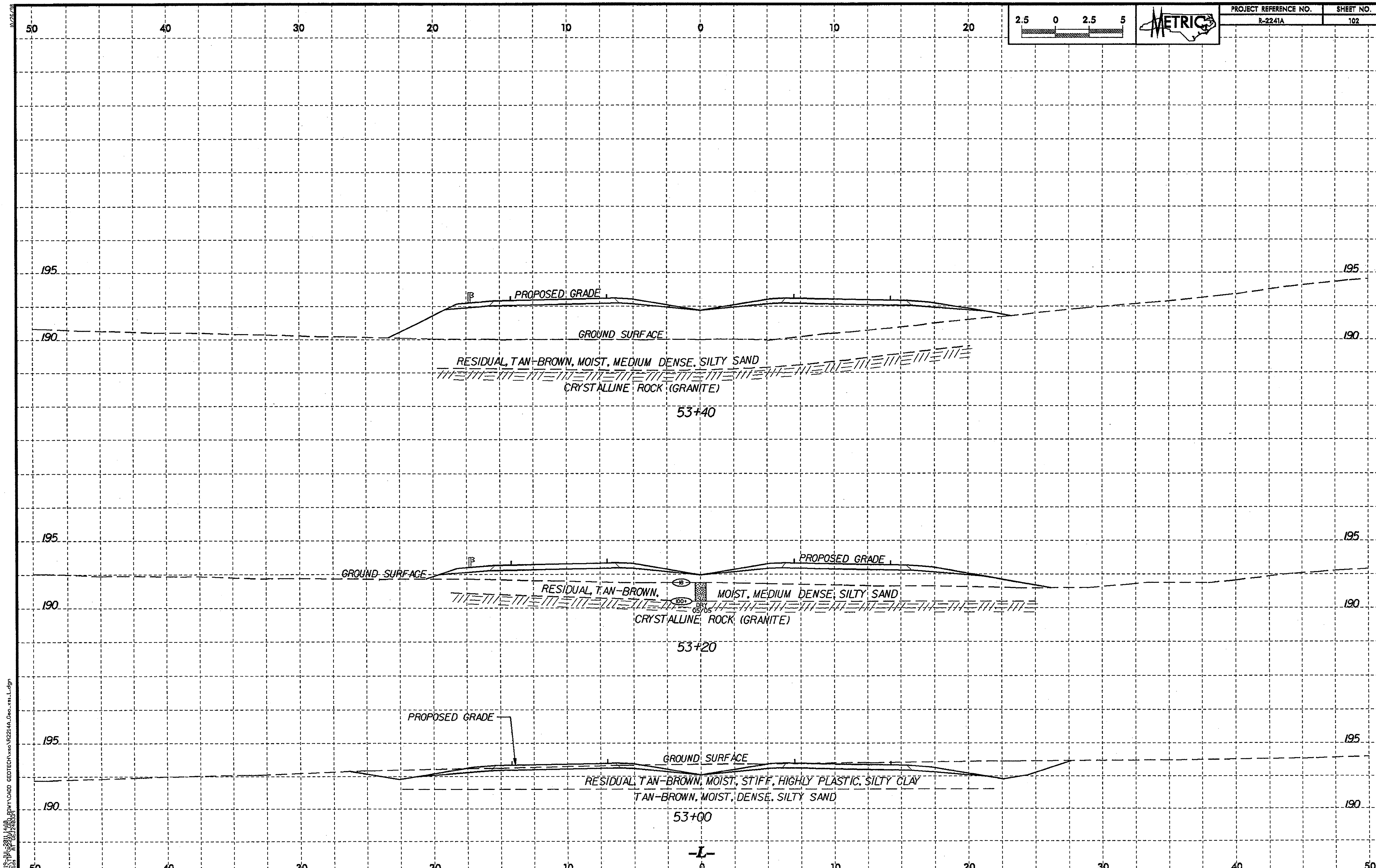

PROJECT REFERENCE NO.
R-2241A
SHEET NO.
102
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND
CRYSTALLINE ROCK (GRANITE)
53+40
GROUND SURFACE
PROPOSED GRADE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND
18
100+
DRY 05/05
CRYSTALLINE ROCK (GRANITE)
53+20
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, DENSE, SILTY SAND
53+00
-L-
195
190
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	103

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

195
190

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, STIFF, SANDY CLAY

54+00

195
190

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

05/05

TAN-BROWN, MOIST, STIFF, SANDY CLAY

53+80

195
190
185

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, STIFF, SANDY CLAY

53+60

-L-

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10/26/98

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2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

195
190

GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY CLAY
PROPOSED GRADE

54+60

GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, VERY
TAN-BROWN, MOIST,
STIFF, HIGHLY PLASTIC, SILTY CLAY
05/05 STIFF, SANDY CLAY
PROPOSED GRADE

54+40

PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, STIFF, SANDY CLAY

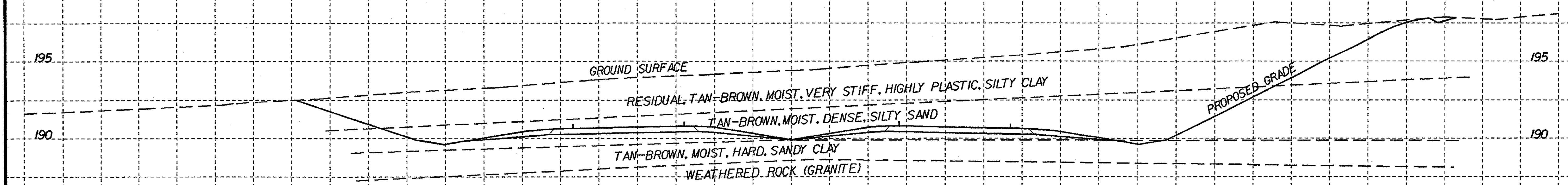
54+20

-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	105

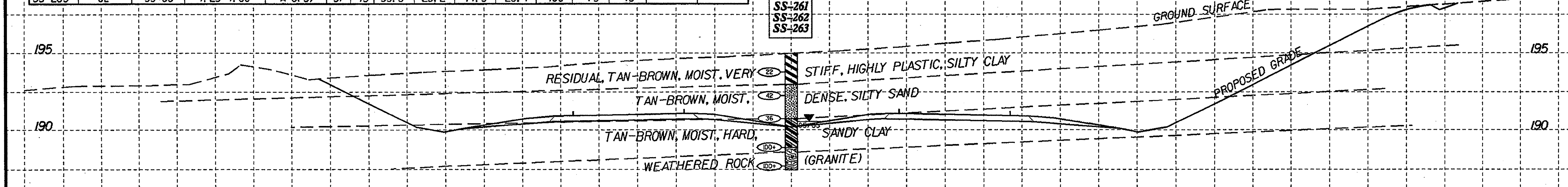
METRIC



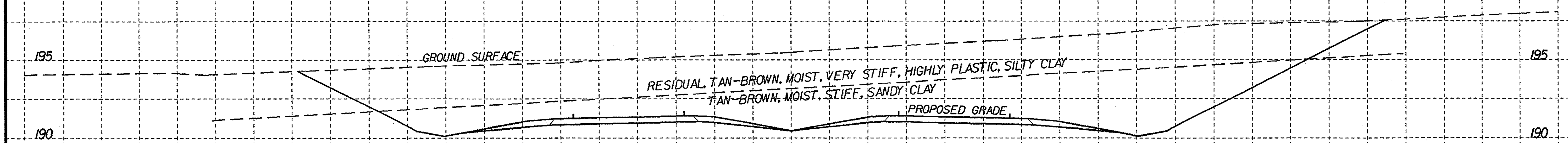
55+20

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-261	CL	55+00	1.19-1.64	A-7-6(21)	68	40	28.5	14.4	16.4	40.7	97	74	58	-	-
SS-262	CL	55+00	2.71-3.16	A-2-4(0)	31	NP	27.5	47.4	17.0	8.1	100	89	32	-	-
SS-263	CL	55+00	4.23-4.68	A-6(3)	37	15	35.8	23.2	14.5	26.4	100	75	45	-	-

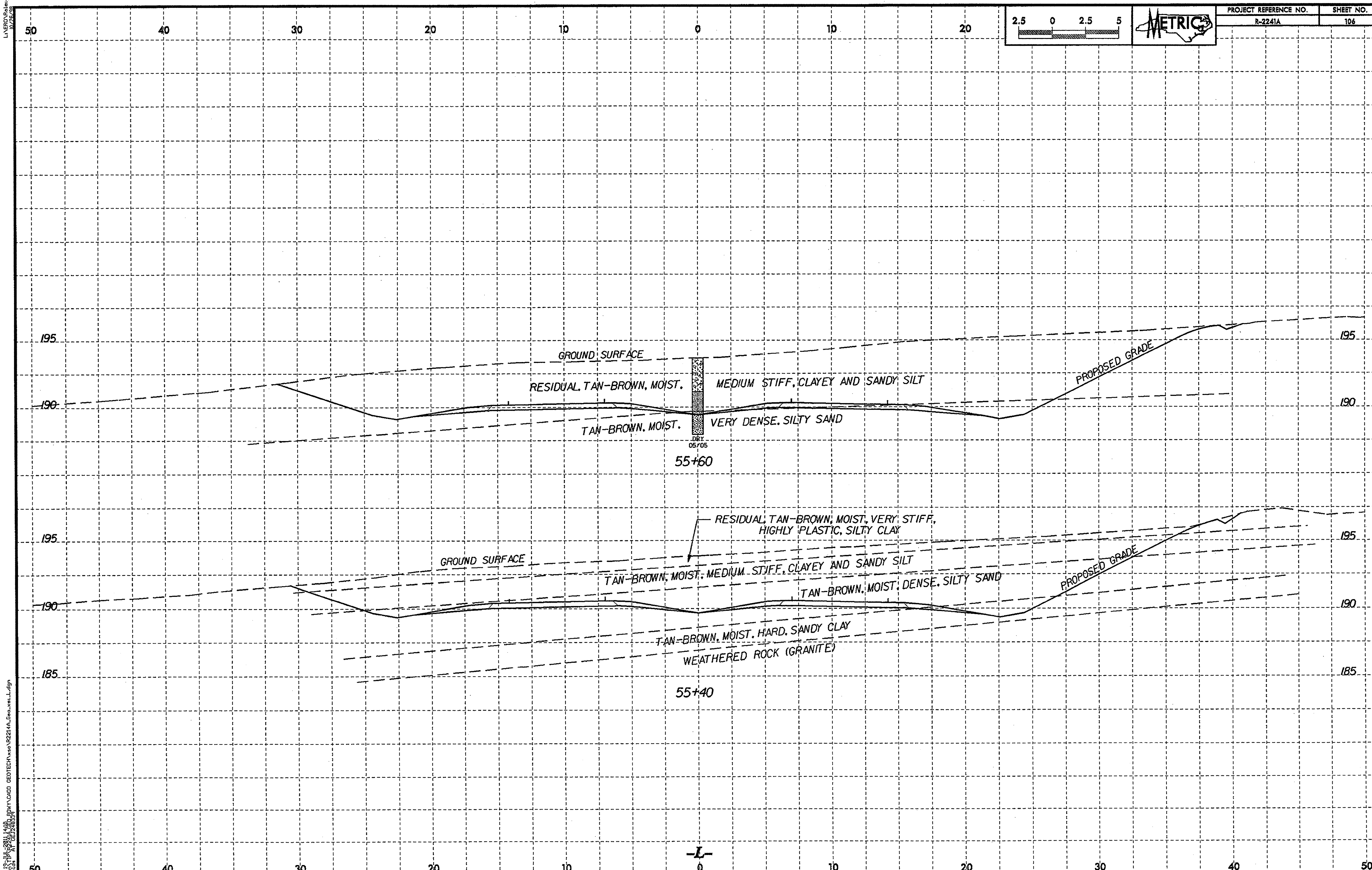


55+00



54+80

-L-


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
106
METRIC
2.5 0 2.5 5
50 40 30 20 10 0 10 20
195
190
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY AND SANDY SILT
TAN-BROWN, MOIST, VERY DENSE, SILTY SAND
PROPOSED GRADE
DRY 05/05
55+60
195
190
185
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
GROUND SURFACE
TAN-BROWN, MOIST, MEDIUM STIFF, CLAYEY AND SANDY SILT
TAN-BROWN, MOIST, DENSE, SILTY SAND
PROPOSED GRADE
TAN-BROWN, MOIST, HARD, SANDY CLAY
WEATHERED ROCK (GRANITE)
55+40
-L-
50 40 30 20 10 0 10 20 30 40 50

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

195 190

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

58+80

195 190

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

DRY 05-05

58+60

190 185

PROPOSED GRADE

GROUND SURFACE

TAN-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

58+40

190 185

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, SANDY SILT

TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND

58+20

-L-

50 40 30 20 10 0 10 20 30 40 50

10/26/98

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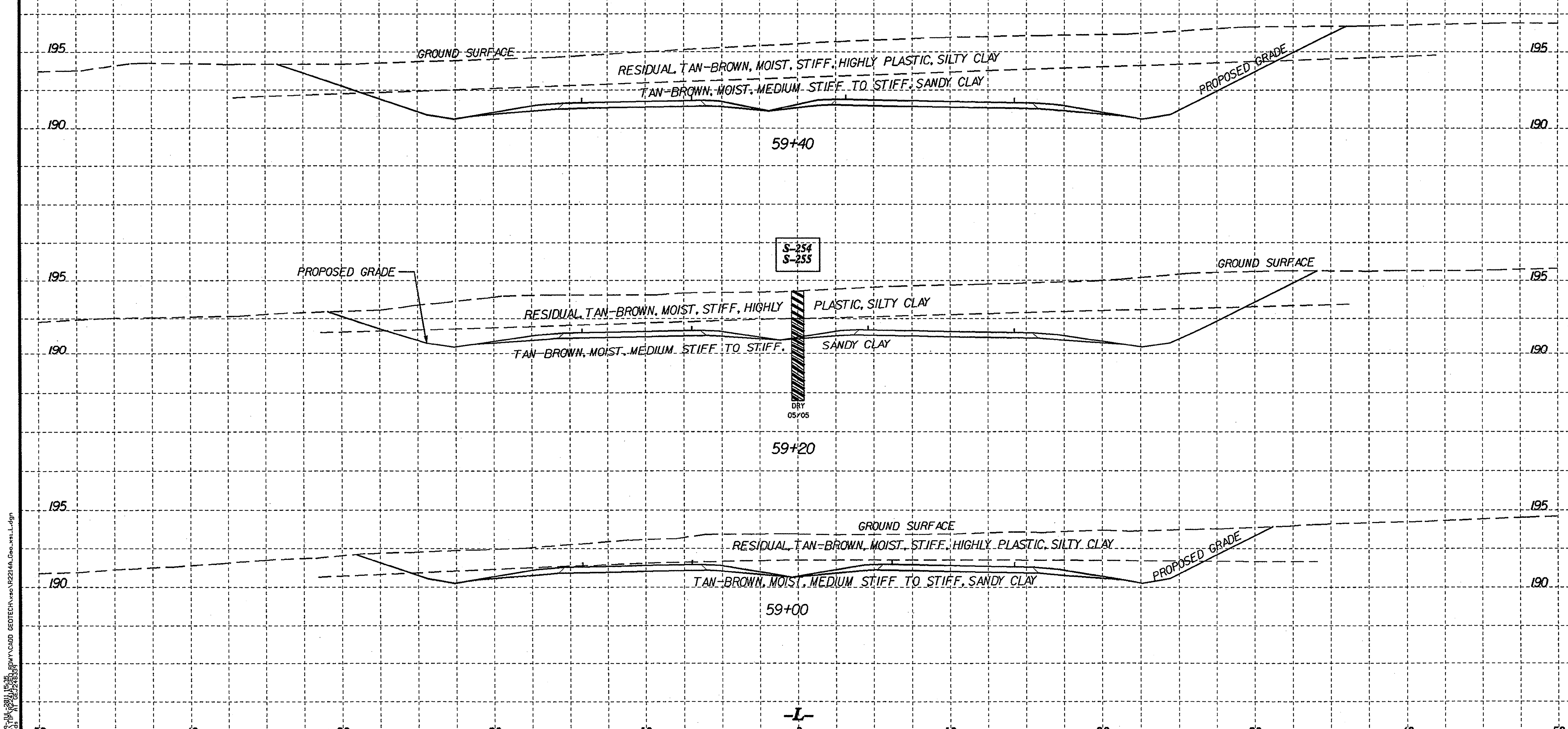
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	108

METRIC

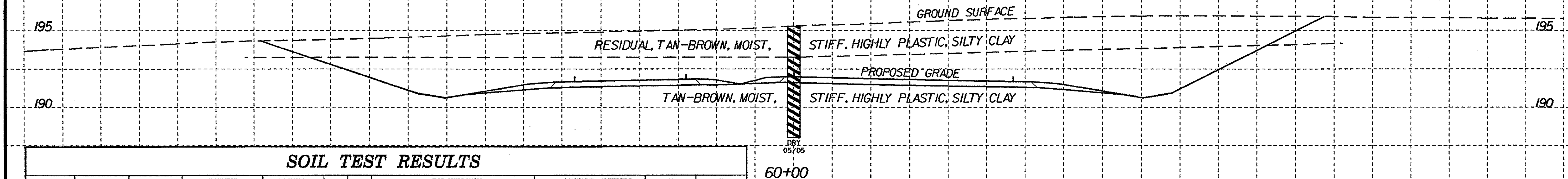
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-254	CL	59+20	0.00-1.80	A-7-5(29)	74	43	22.8	11.6	14.8	50.9	100	81	67	-	-
S-255	CL	59+20	1.80-7.31	A-6(2)	40	14	41.9	21.2	16.6	20.3	98	66	40	-	-



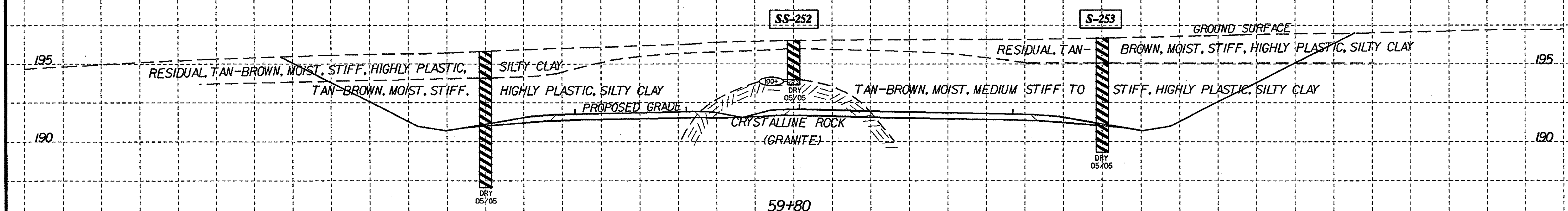
METRIC

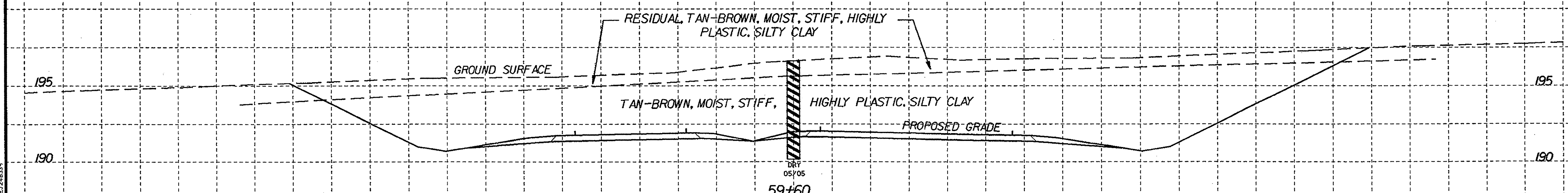
2.5 0 2.5 5



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-252	CL	59+80	0.00-2.50	A-7-6(15)	56	27	24.6	19.5	19.2	36.6	100	84	60	-	-
S-253	20.0m RT	59+80	0.00-1.70	A-7-6(31)	71	42	17.3	13.0	14.8	54.9	100	88	72	-	-
CBR-2	CL	60+00	2.00-7.00	A-4(1)	27	8	26.3	31.7	15.8	26.3	100	83	48	-	-





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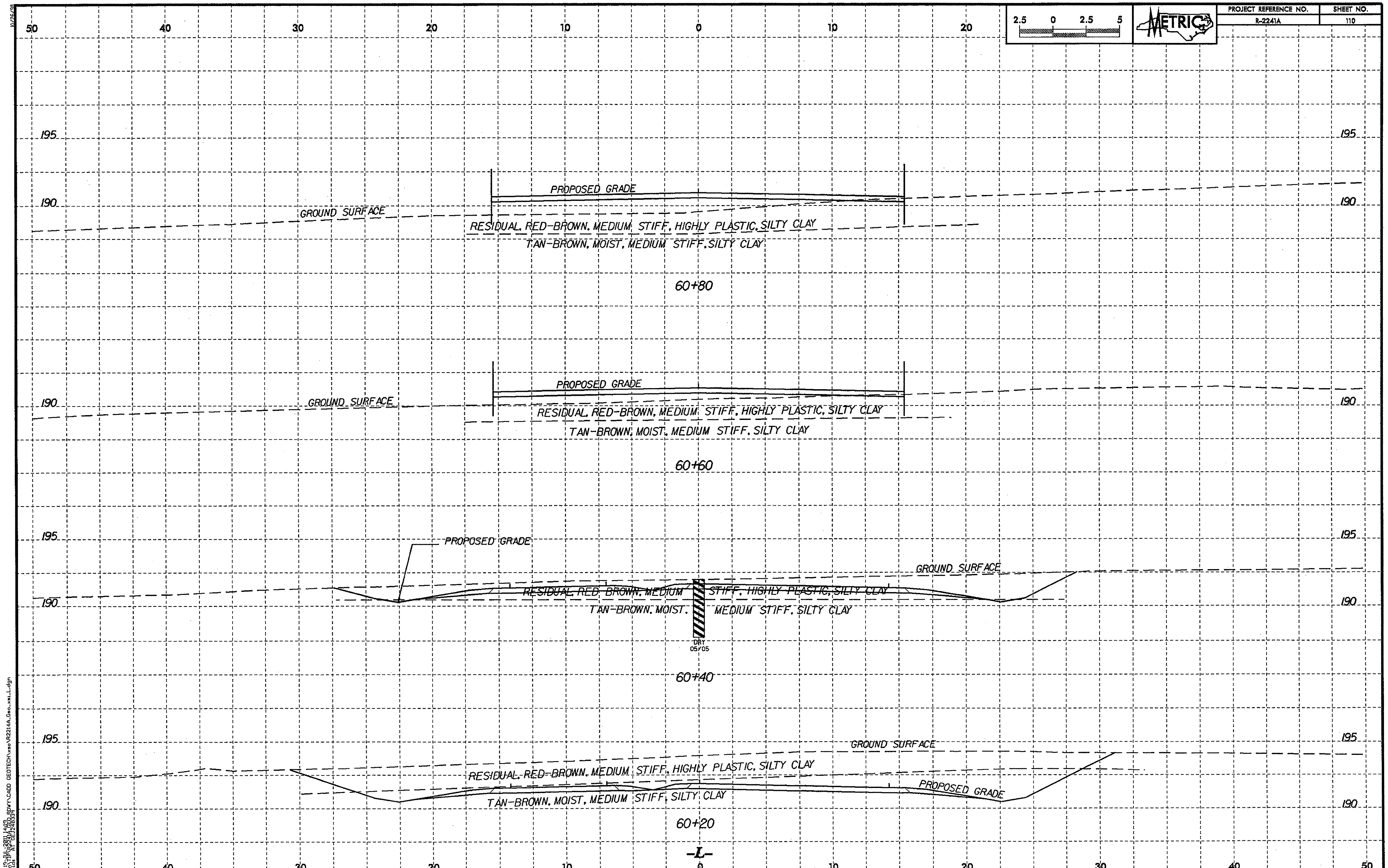
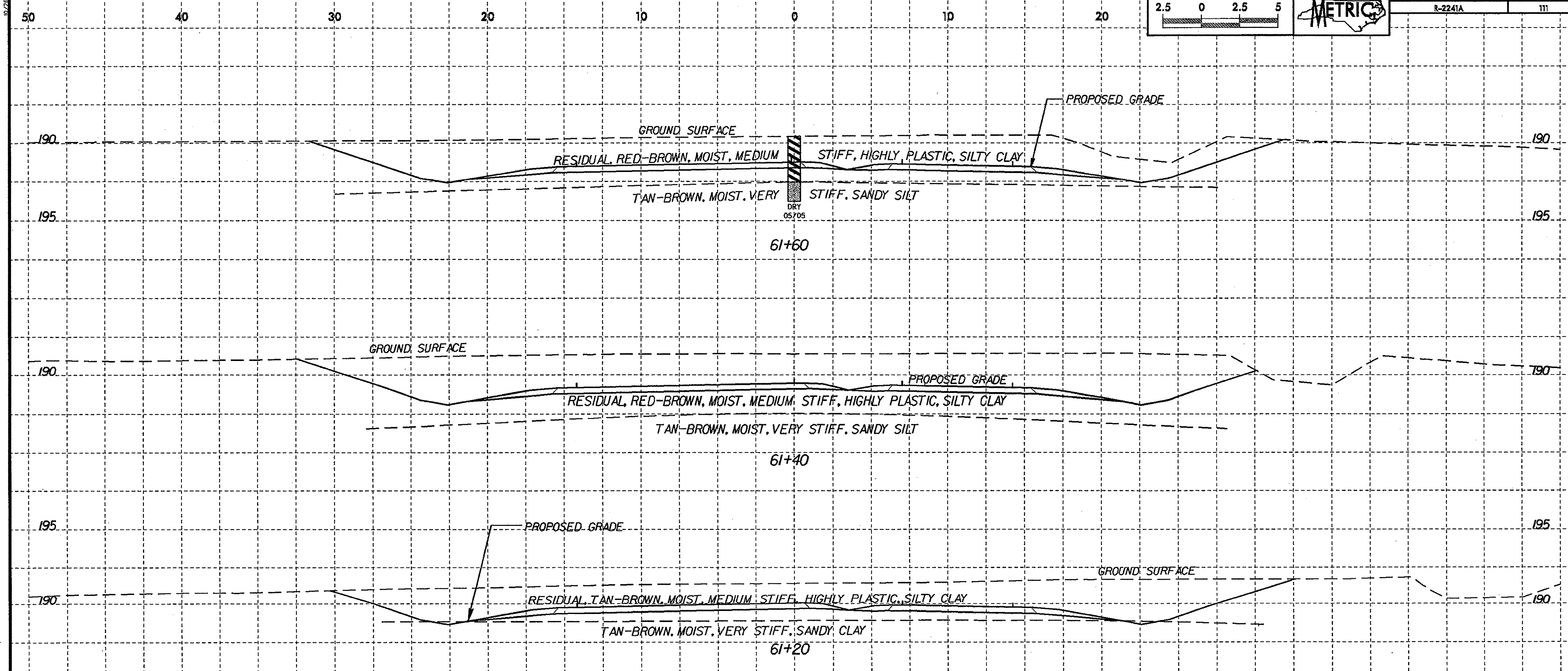

PROJECT REFERENCE NO.
R-2241A
SHEET NO.
110
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY
60+80
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED-BROWN, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY
60+60
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, RED BROWN, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY
DRY
05/05
60+40
GROUND SURFACE
RESIDUAL, RED-BROWN, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
PROPOSED GRADE
TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY
60+20
-L-
50 40 30 20 10 0 10 20 30 40 50
195
190

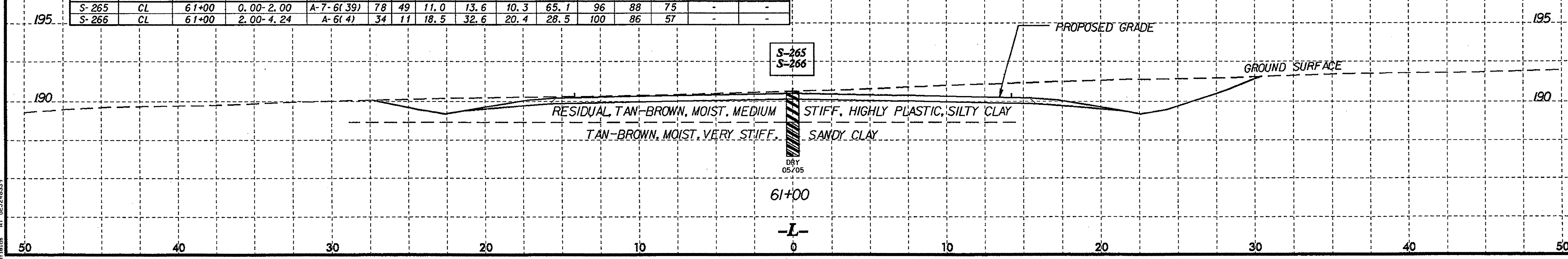
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	111

METRIC

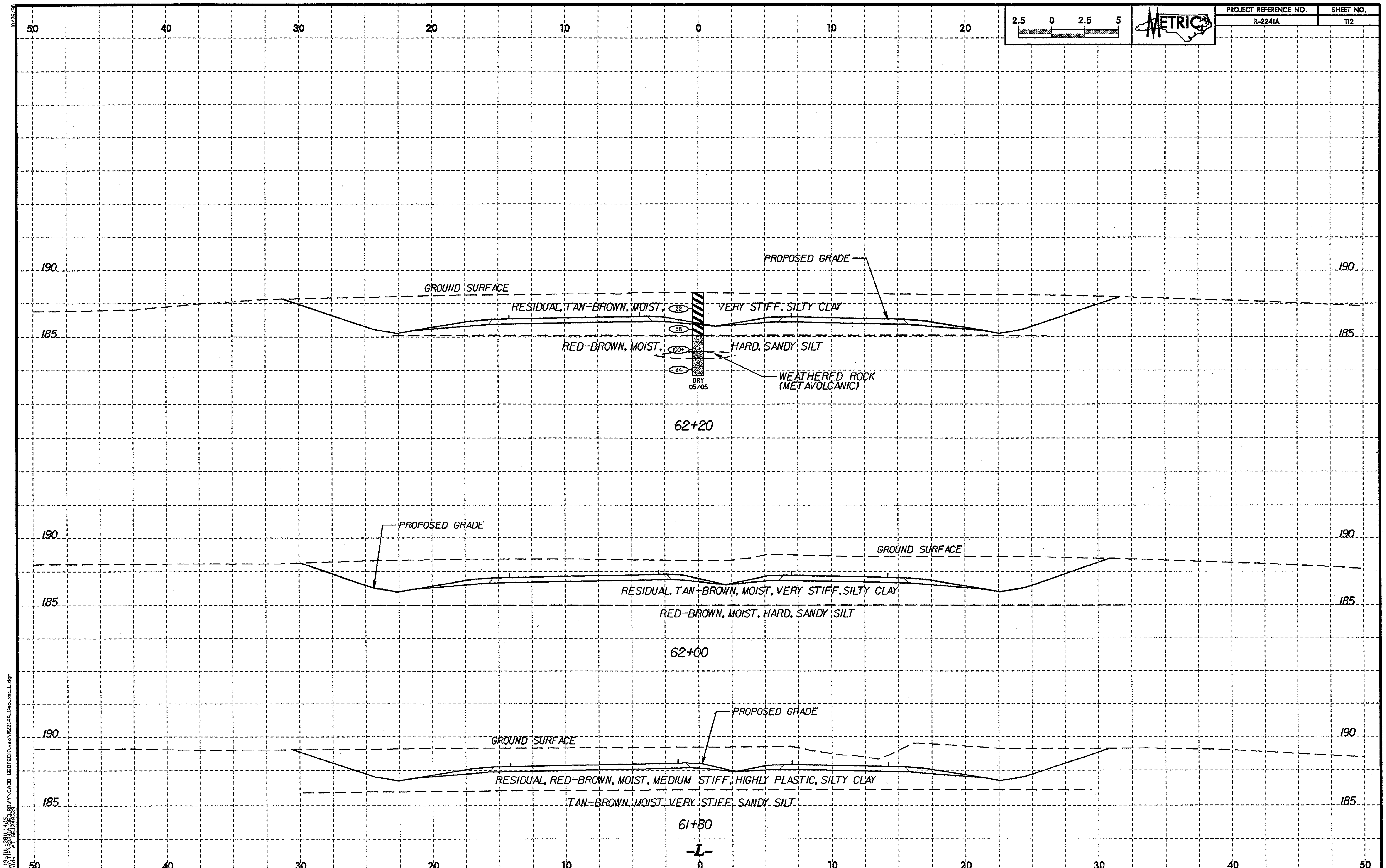


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-265	CL	61+00	0.00-2.00	A-7-6(39)	78	49	11.0	13.6	10.3	65.1	96	88	75	-	-
S-266	CL	61+00	2.00-4.24	A-6(4)	34	11	18.5	32.6	20.4	28.5	100	86	57	-	-



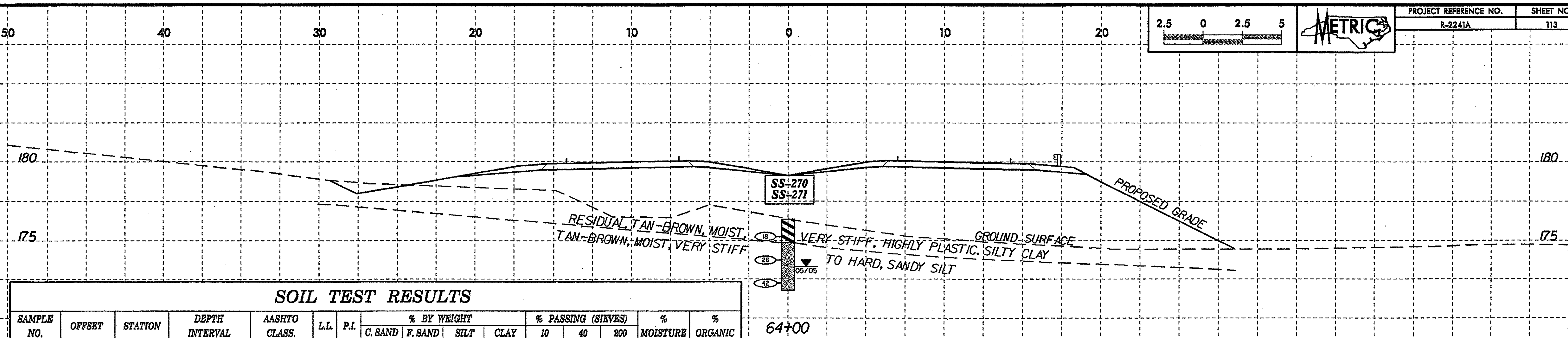
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	112



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	113

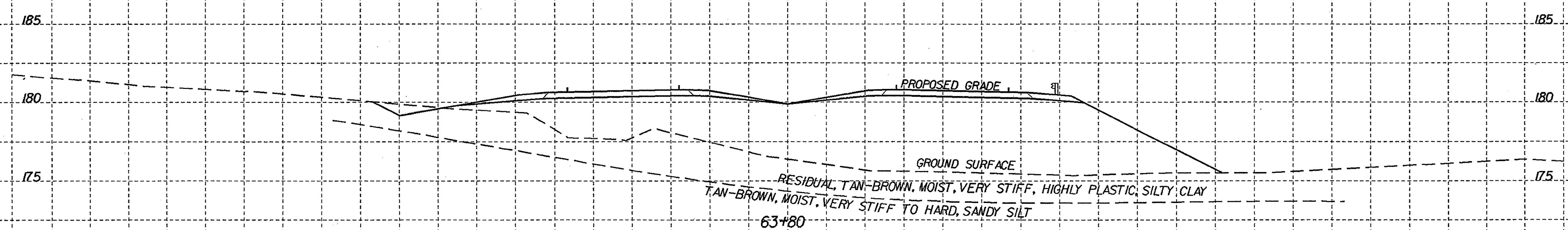
METRIC

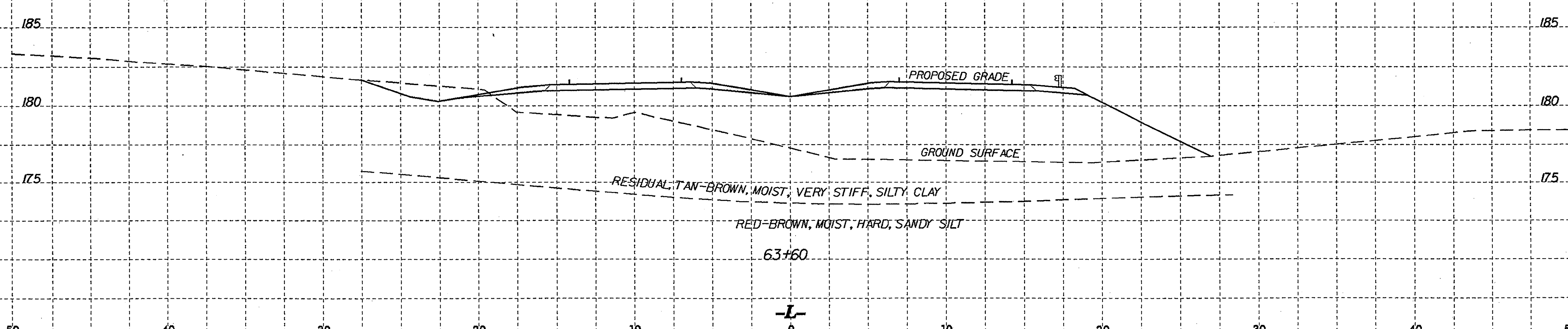
10/26/98



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-270	CL	64+00	1.10-1.55	A-7-6(39)	67	40	4.5	12.2	22.3	61.0	100	97	87	-	-
SS-271	CL	64+00	2.62-3.07	A-4(3)	38	5	10.0	26.2	45.5	18.3	90	84	64	-	-





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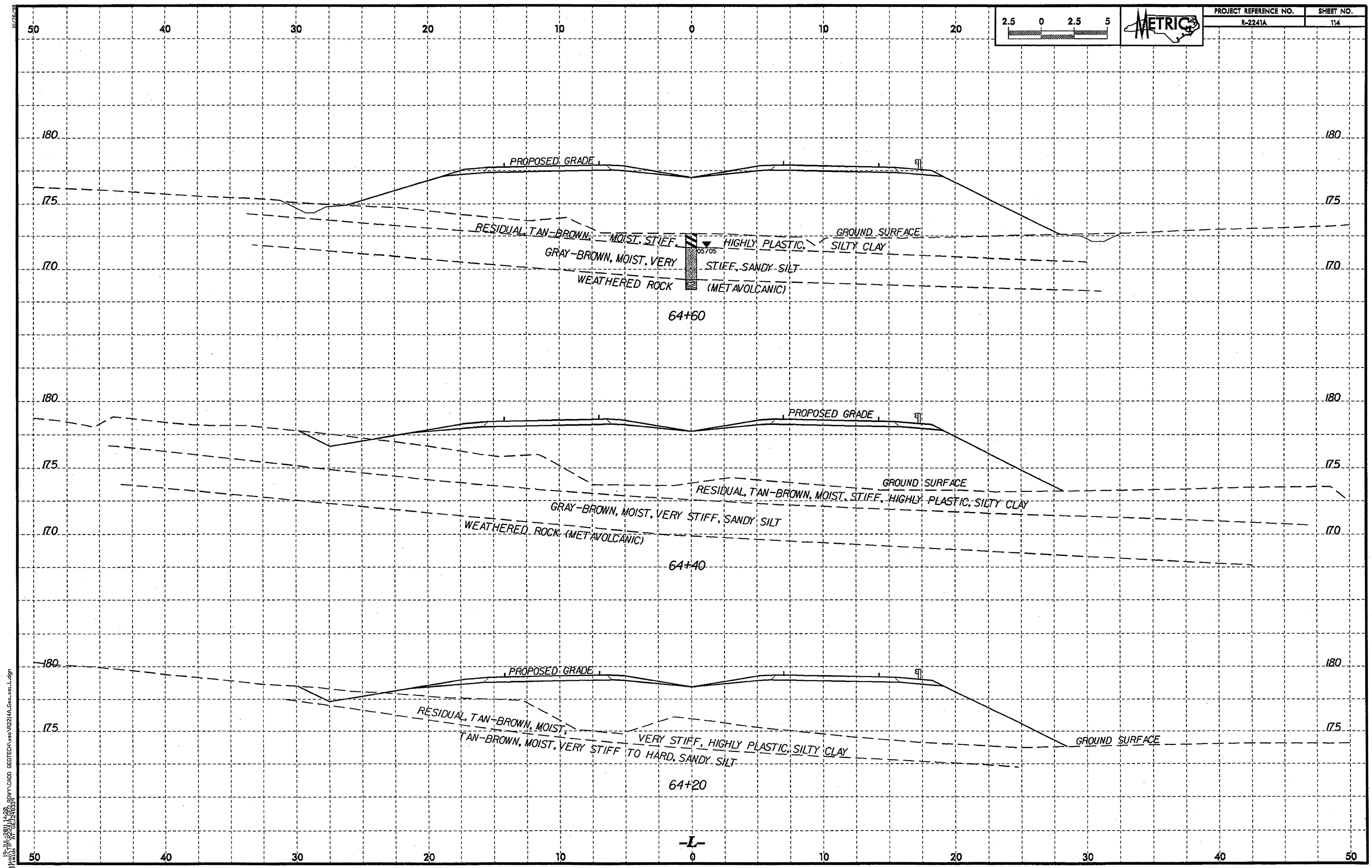
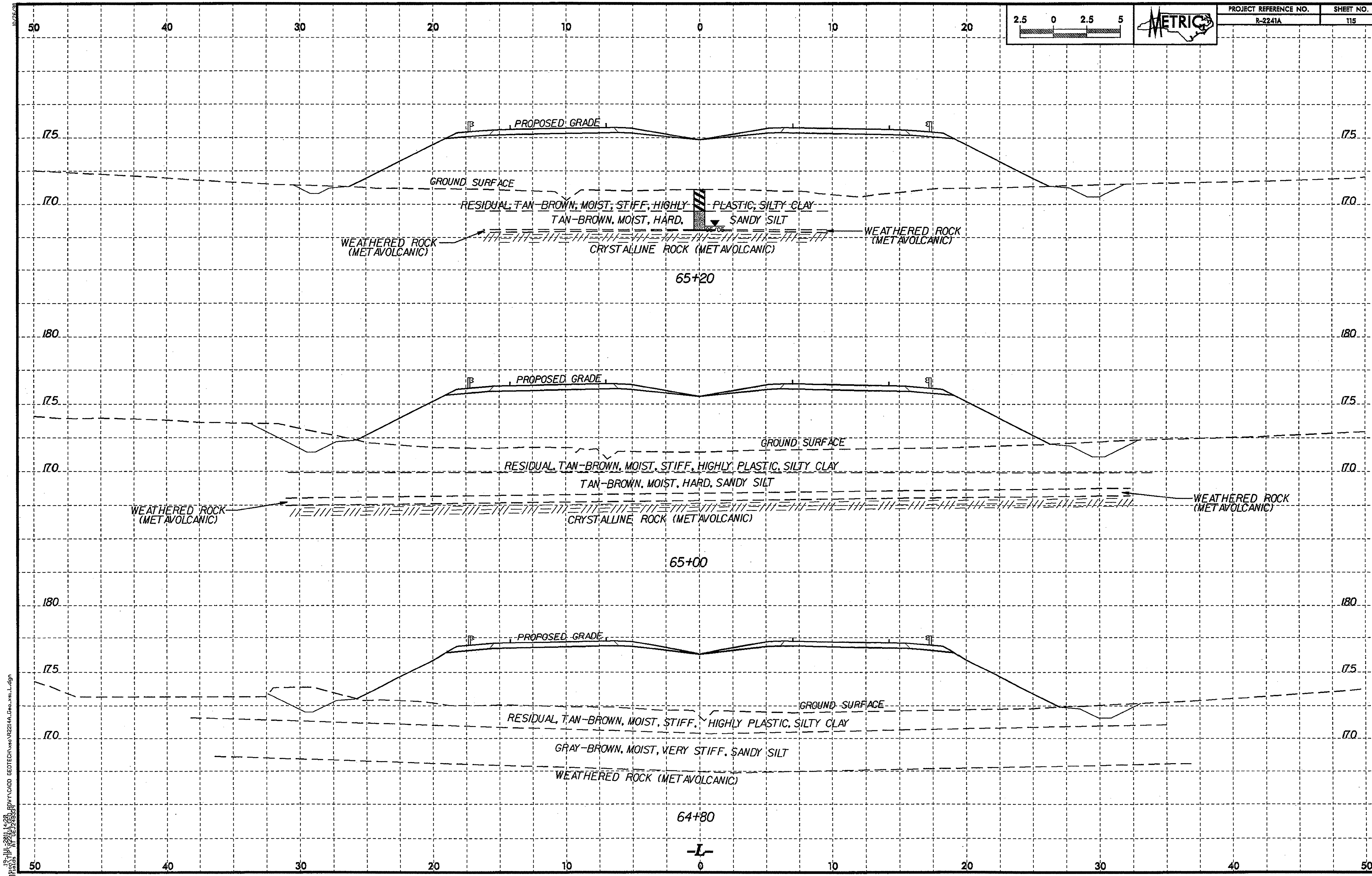


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
114
METRIC
2.5 0 2.5 5
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
GRAY-BROWN, MOIST, VERY STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
64+60
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
GRAY-BROWN, MOIST, VERY STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
64+40
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF TO HARD, SANDY SILT
64+20
-L-


PROJECT REFERENCE NO.
R-2241A
SHEET NO.
115
METRIC
2.5 0 2.5 5
50 40 30 20 10 0 10 20
175
170
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, HARD, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
WEATHERED ROCK (METAVOLCANIC)
CRYSTALLINE ROCK (METAVOLCANIC)
65+20
180
175
170
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, HARD, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
WEATHERED ROCK (METAVOLCANIC)
CRYSTALLINE ROCK (METAVOLCANIC)
65+00
180
175
170
PROPOSED GRADE
GROUND SURFACE
RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY
GRAY-BROWN, MOIST, VERY STIFF, SANDY SILT
WEATHERED ROCK (METAVOLCANIC)
64+80
-L-
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	116

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

175
170
165

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-GRAY, MOIST, MEDIUM STIFF, SANDY CLAY

WEATHERED ROCK (METAVOLCANIC)

CRSYATLLINE ROCK (METAVOLCANIC)

65+60

PROPOSED GRADE

GROUND SURFACE

RESIDUAL, TAN-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, HARD, SANDY SILT

WEATHERED ROCK (METAVOLCANIC)

CRYSTALLINE ROCK (METAVOLCANIC)

WEATHERED ROCK (METAVOLCANIC)

65+40

-L-

50 40 30 20 10 0 10 20 30 40 50

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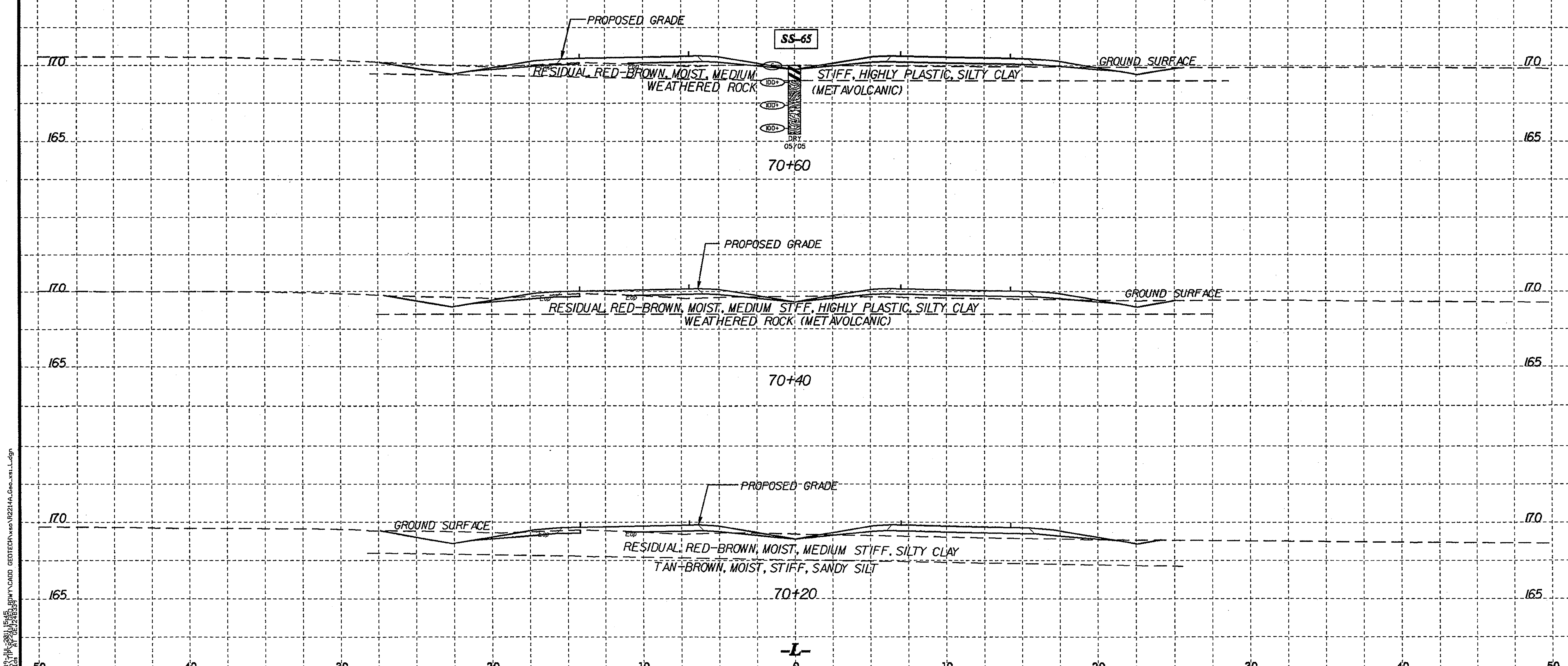
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	117

METRIC

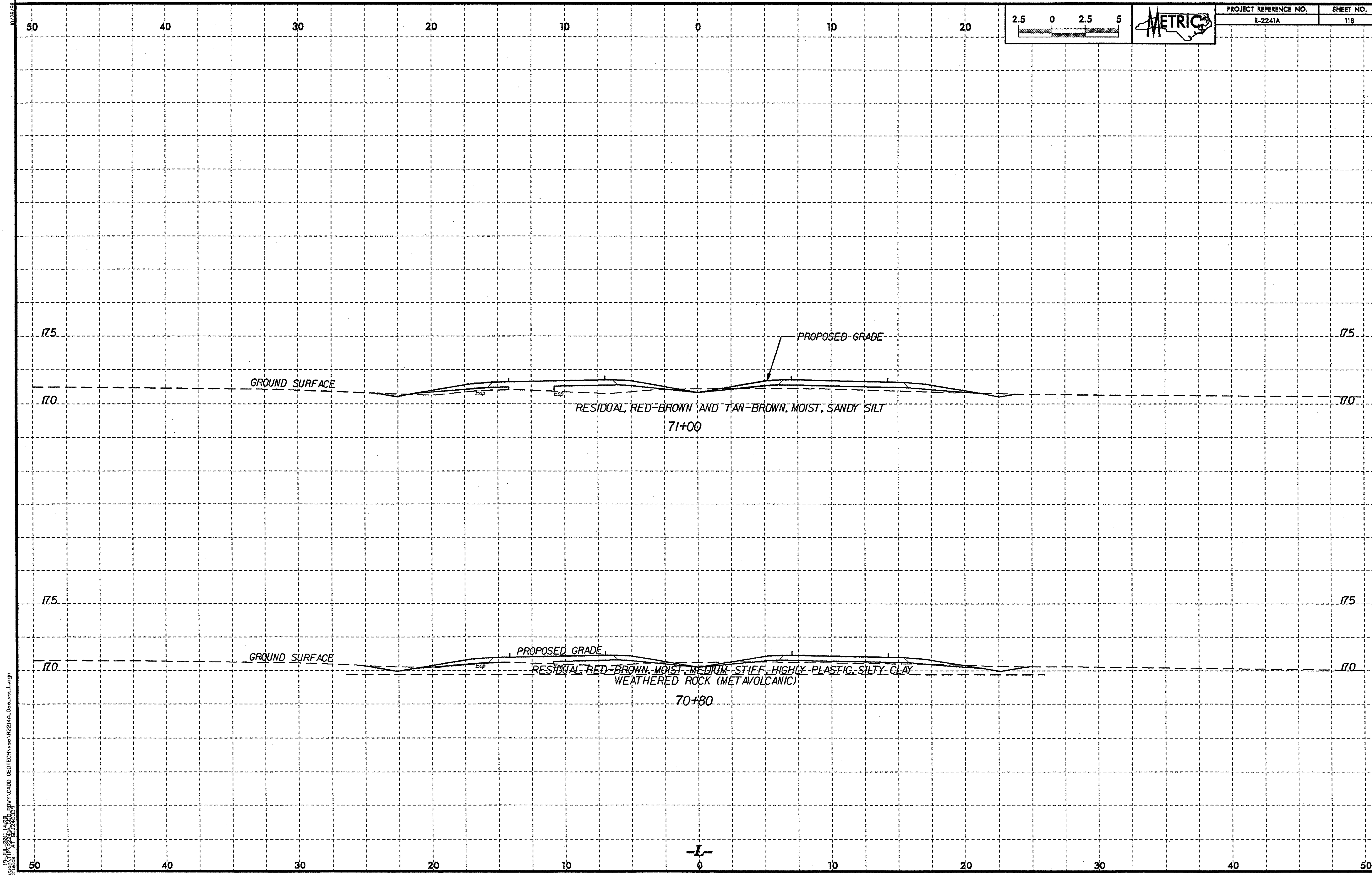
SOIL TEST RESULTS

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-65	CL	70+60	0.00-0.45	A-7-6(36)	59	38	3.0	12.7	29.9	54.4	100	99	88	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	118

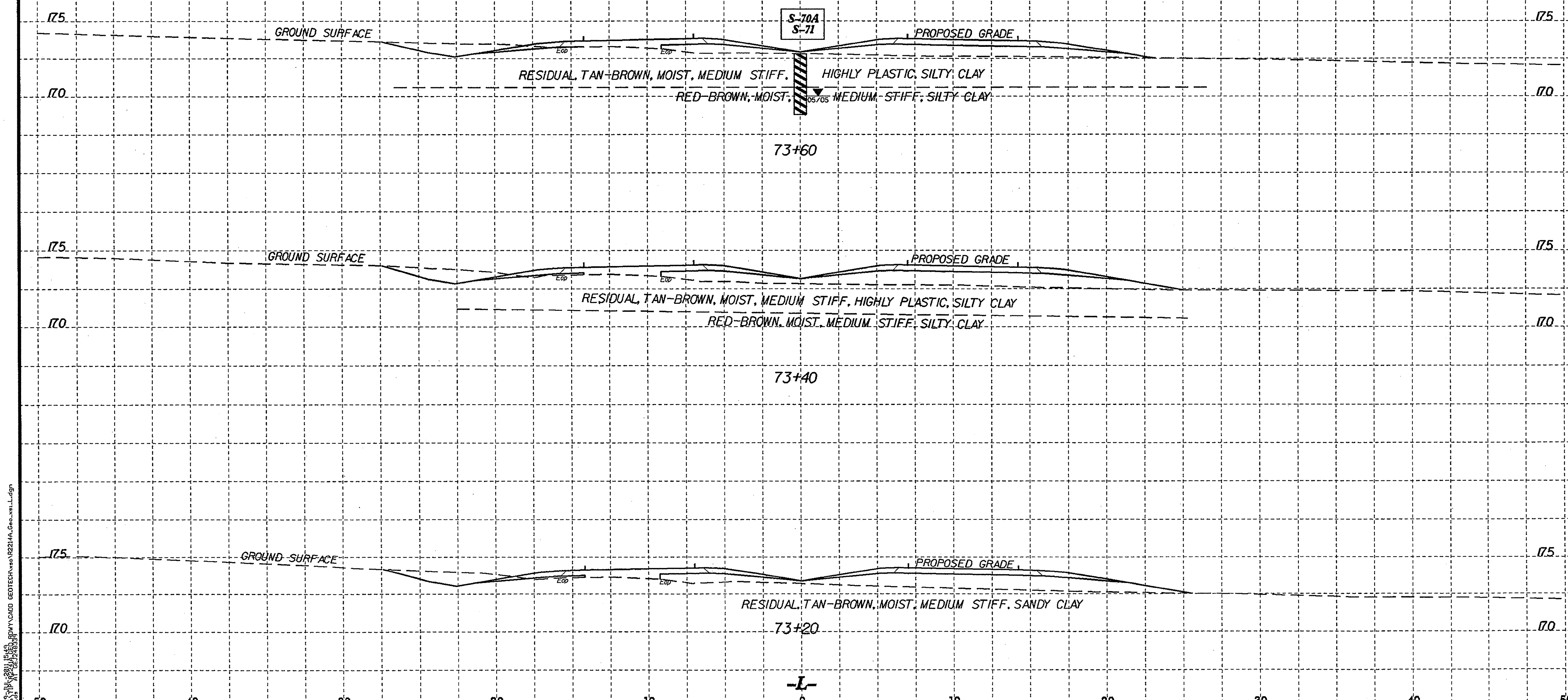
METRIC



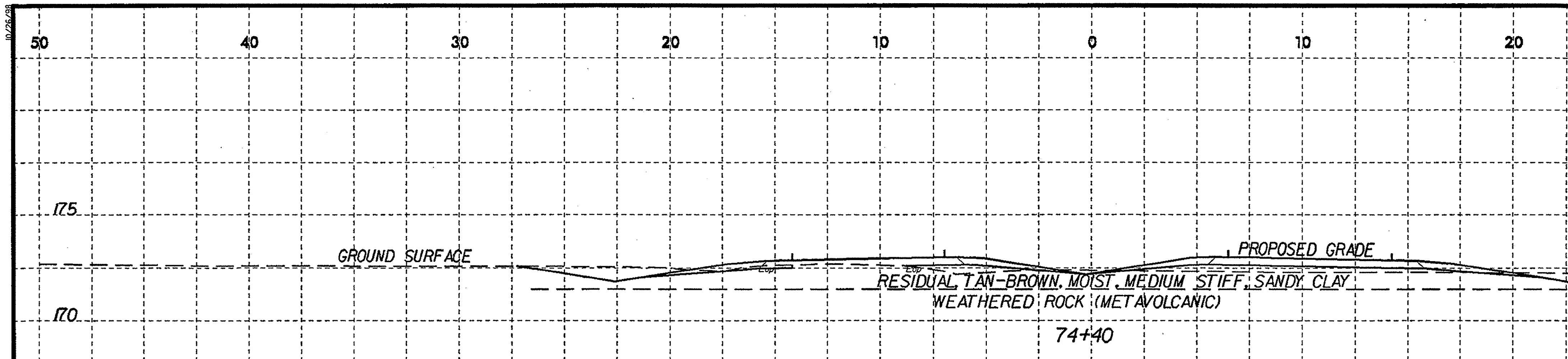
METRIC

SOIL TEST RESULTS

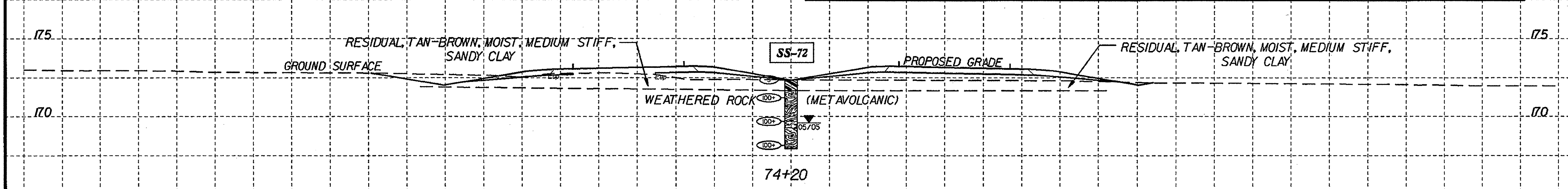
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-70A	CL	73+60	0.00-2.21	A-7-6(36)	59	38	3.2	11.9	30.5	54.4	99	97	88	-	-
S-71	CL	73+60	2.21-3.98	A-7-6(15)	43	15	3.8	15.7	46.2	34.2	100	98	86	-	-

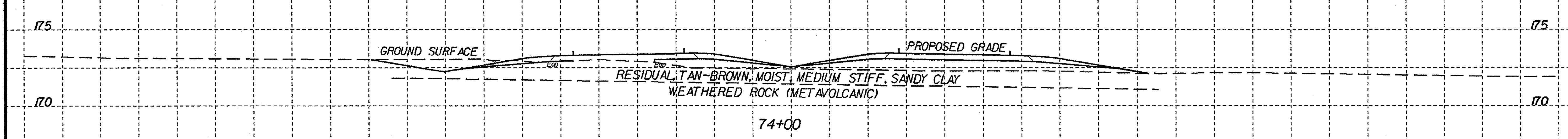


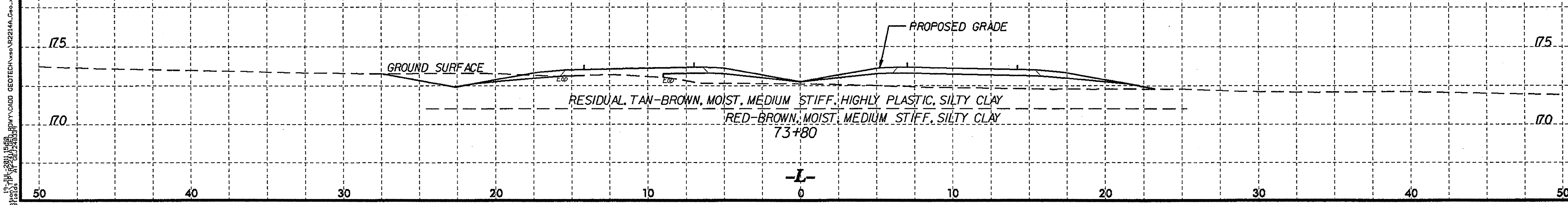
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	120



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-72	CL	74+20	0.00-0.45	A-6(14)	35	17	4.6	12.5	40.6	42.3	98	97	85	-	-

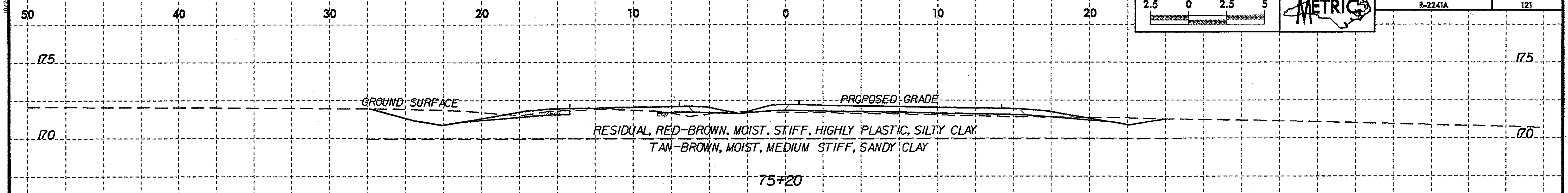


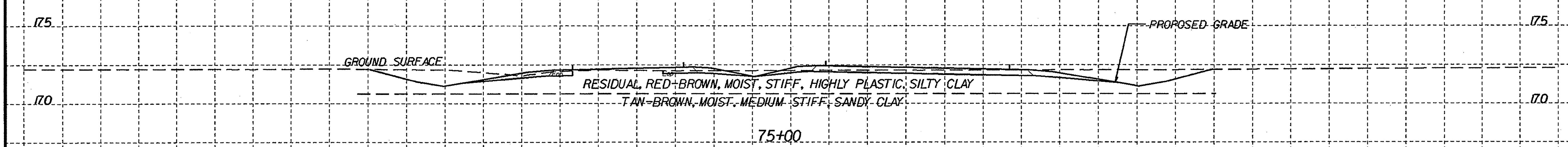


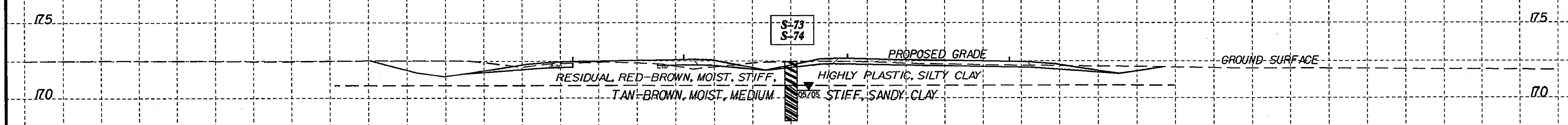


PROJECT REFERENCE NO.	SHEET NO.
R-2241A	121

METRIC

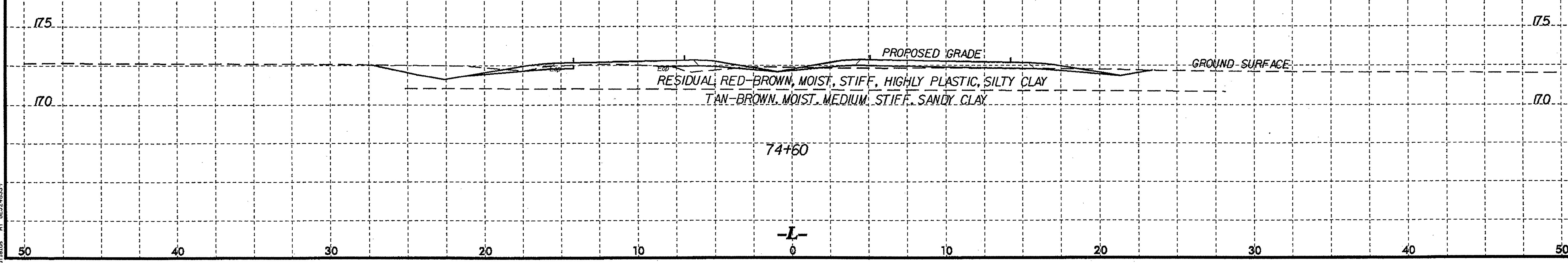




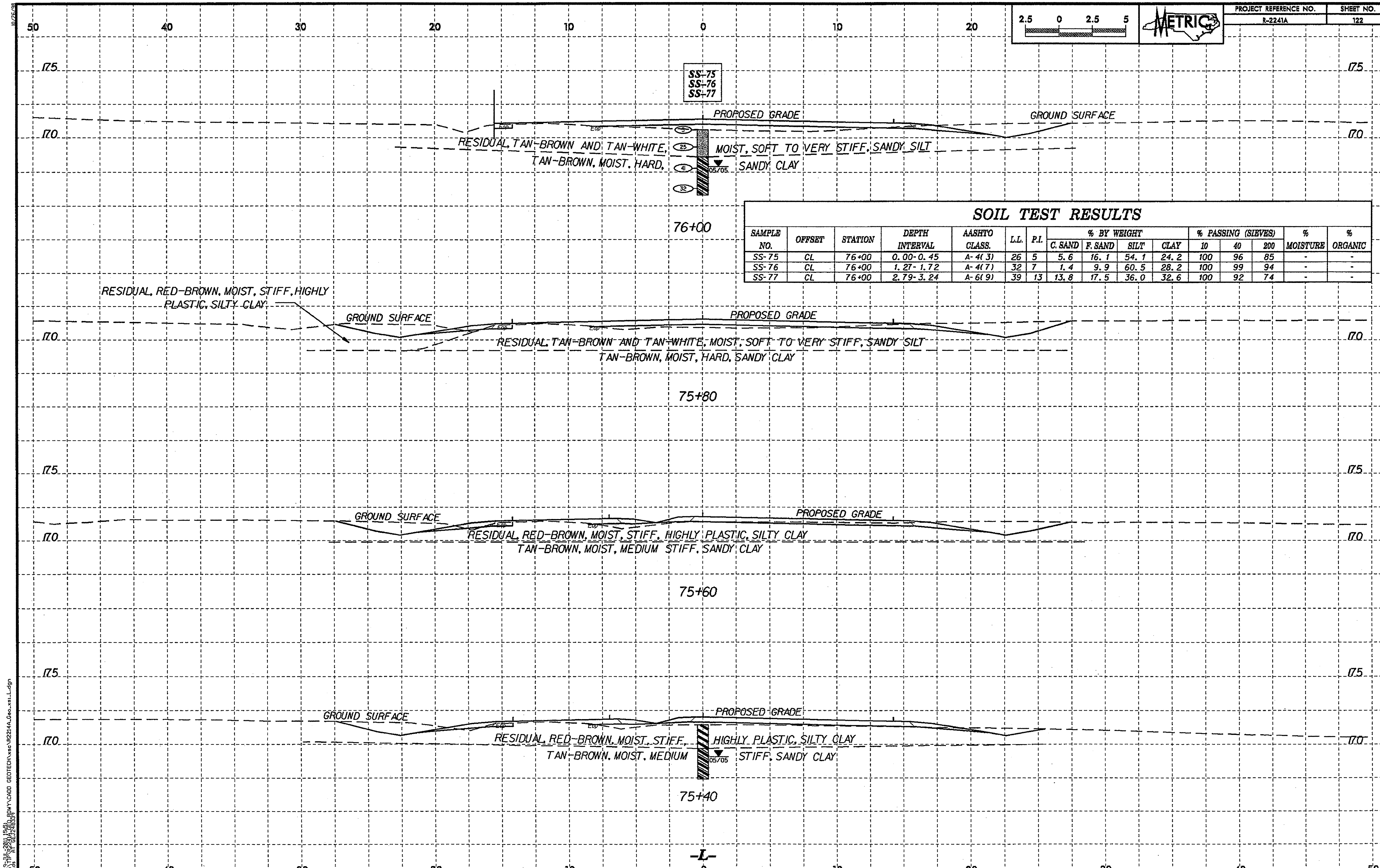


SOIL TEST RESULTS

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-73	CL	74+80	0.00-1.70	A-7-6(43)	63	44	2.0	12.1	29.5	56.4	100	99	90	-	-
S-74	CL	74+80	1.70-3.98	A-6(9)	35	14	7.0	24.0	36.8	32.2	100	98	75	-	-



PROJECT REFERENCE NO.	SHEET NO.
R-2241A	122

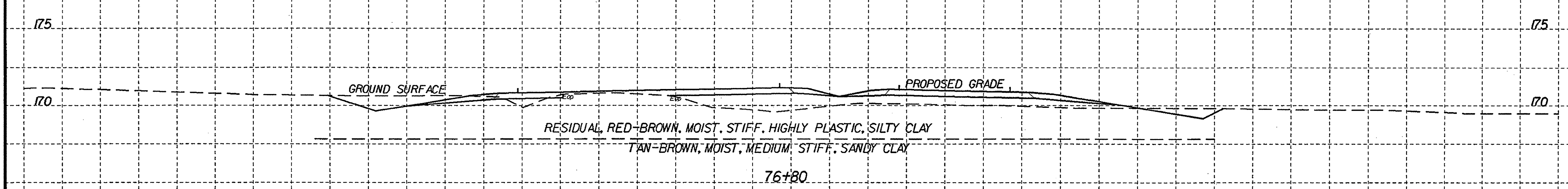


SOIL TEST RESULTS

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-75	CL	76+00	0.00-0.45	A-4(3)	26	5	5.6	16.1	54.1	24.2	100	96	85	-	-
SS-76	CL	76+00	1.27-1.72	A-4(7)	32	7	1.4	9.9	60.5	28.2	100	99	94	-	-
SS-77	CL	76+00	2.79-3.24	A-6(9)	39	13	13.8	17.5	36.0	32.6	100	92	74	-	-

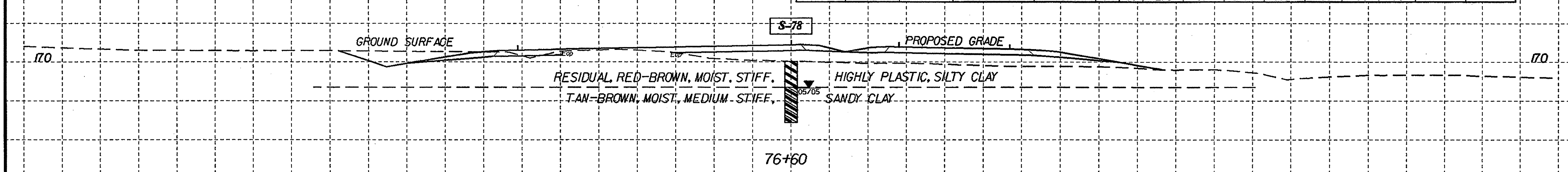
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	123

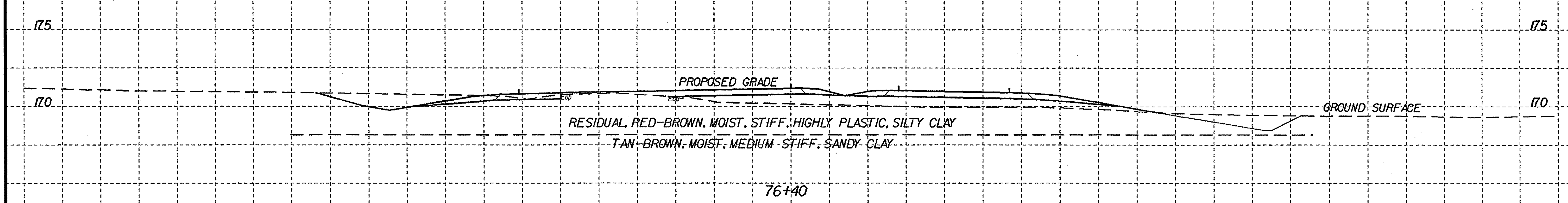
METRIC

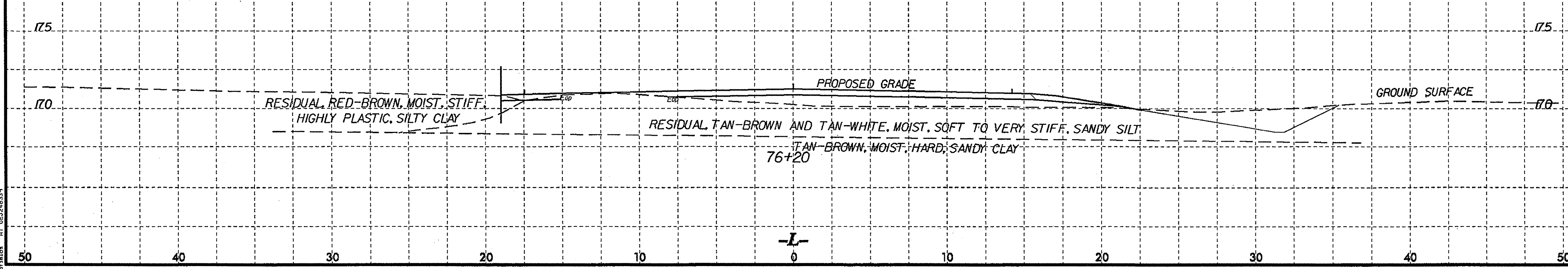


SOIL TEST RESULTS

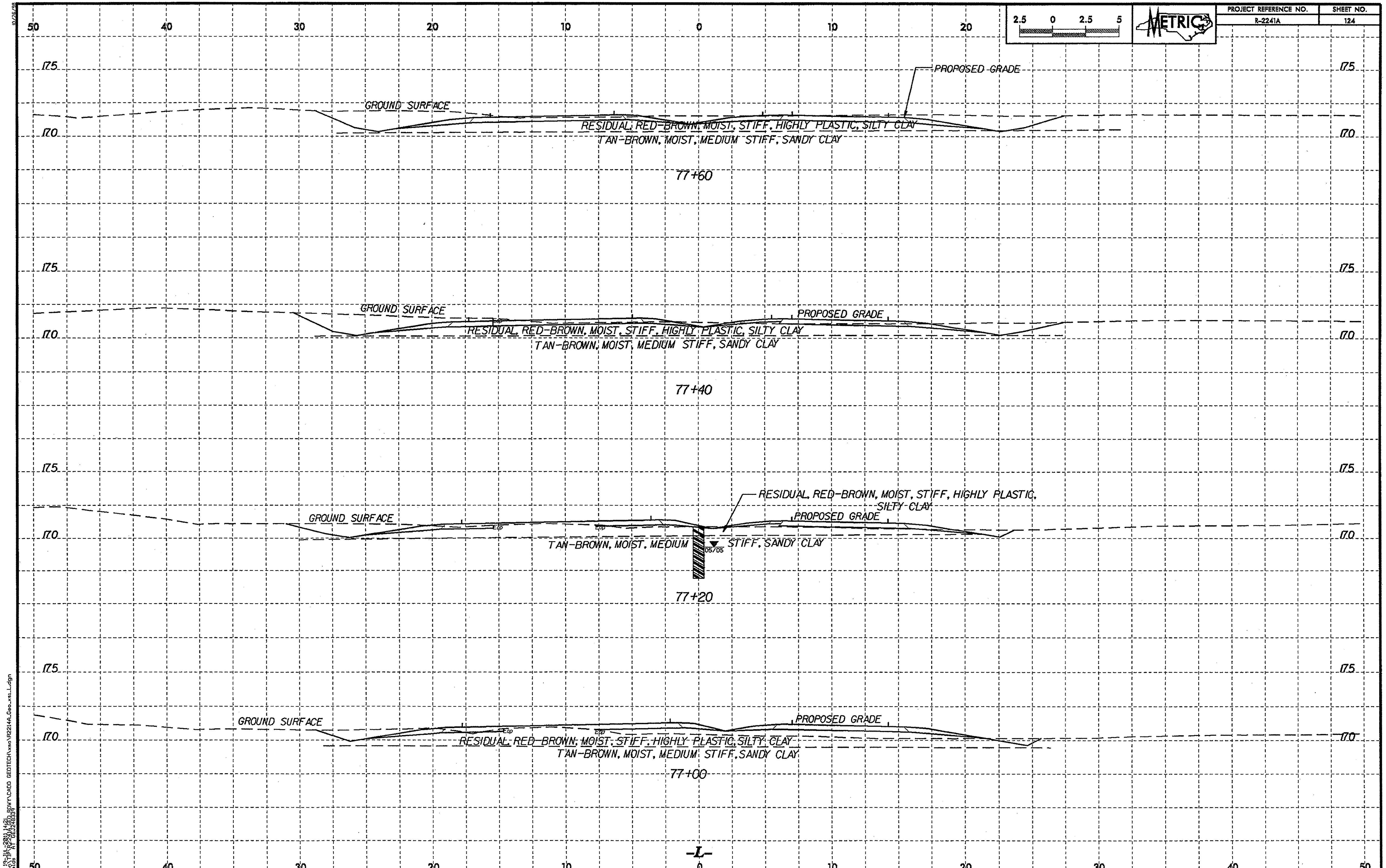
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-78	CL	76+60	0.00-1.64	A-7-6(37)	57	38	2.6	10.4	27.9	59.1	99	98	90	-	-



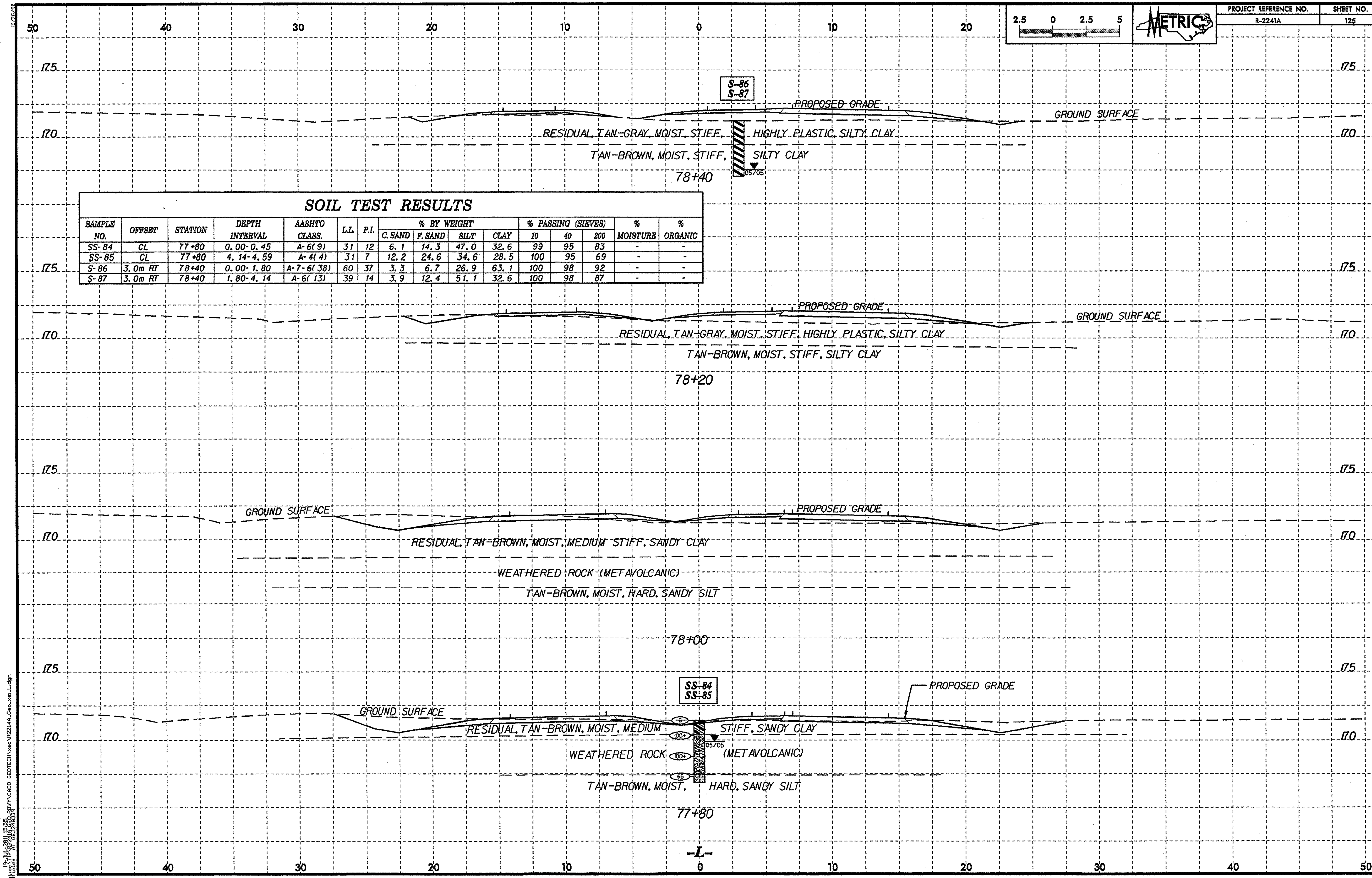




PROJECT REFERENCE NO.	SHEET NO.
R-2241A	124



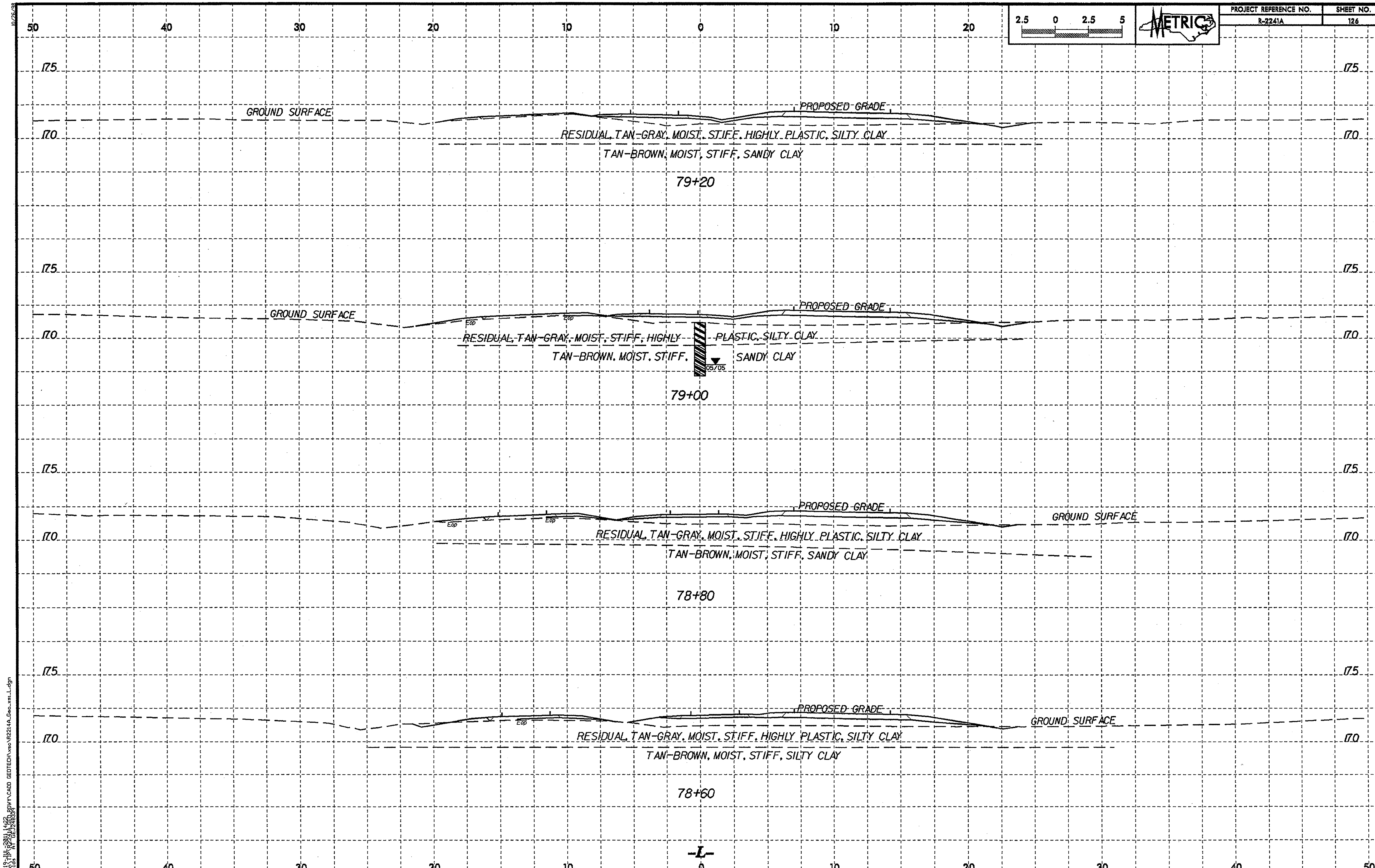
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	125



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-84	CL	77+80	0.00-0.45	A-6(9)	31	12	6.1	14.3	47.0	32.6	99	95	83	-	-
SS-85	CL	77+80	4.14-4.59	A-4(4)	31	7	12.2	24.6	34.6	28.5	100	95	69	-	-
S-86	3.0m RT	78+40	0.00-1.80	A-7-6(38)	60	37	3.3	6.7	26.9	63.1	100	98	92	-	-
S-87	3.0m RT	78+40	1.80-4.14	A-6(13)	39	14	3.9	12.4	51.1	32.6	100	98	87	-	-

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	126



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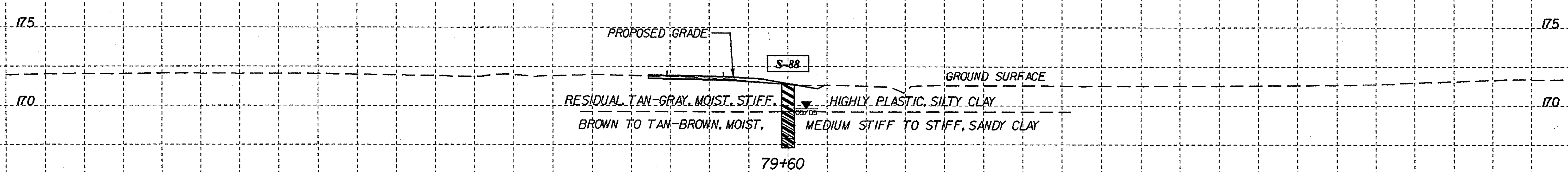
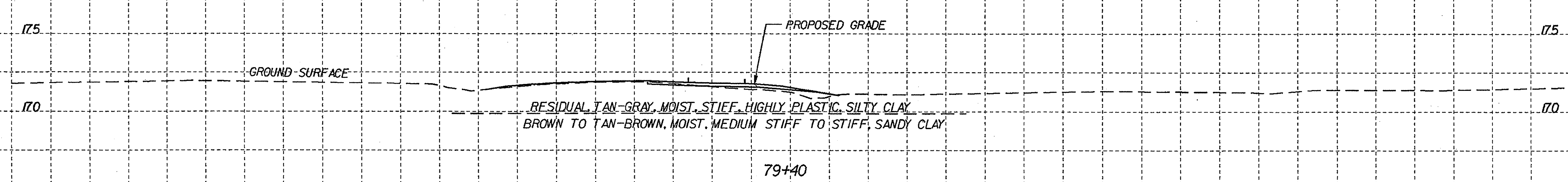
wdfields AT GEJ24B339

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	127

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-88	CL	79+60	1.76-3.44	A-6(9)	38	11	4.7	24.4	46.4	24.4	100	97	79	-	-





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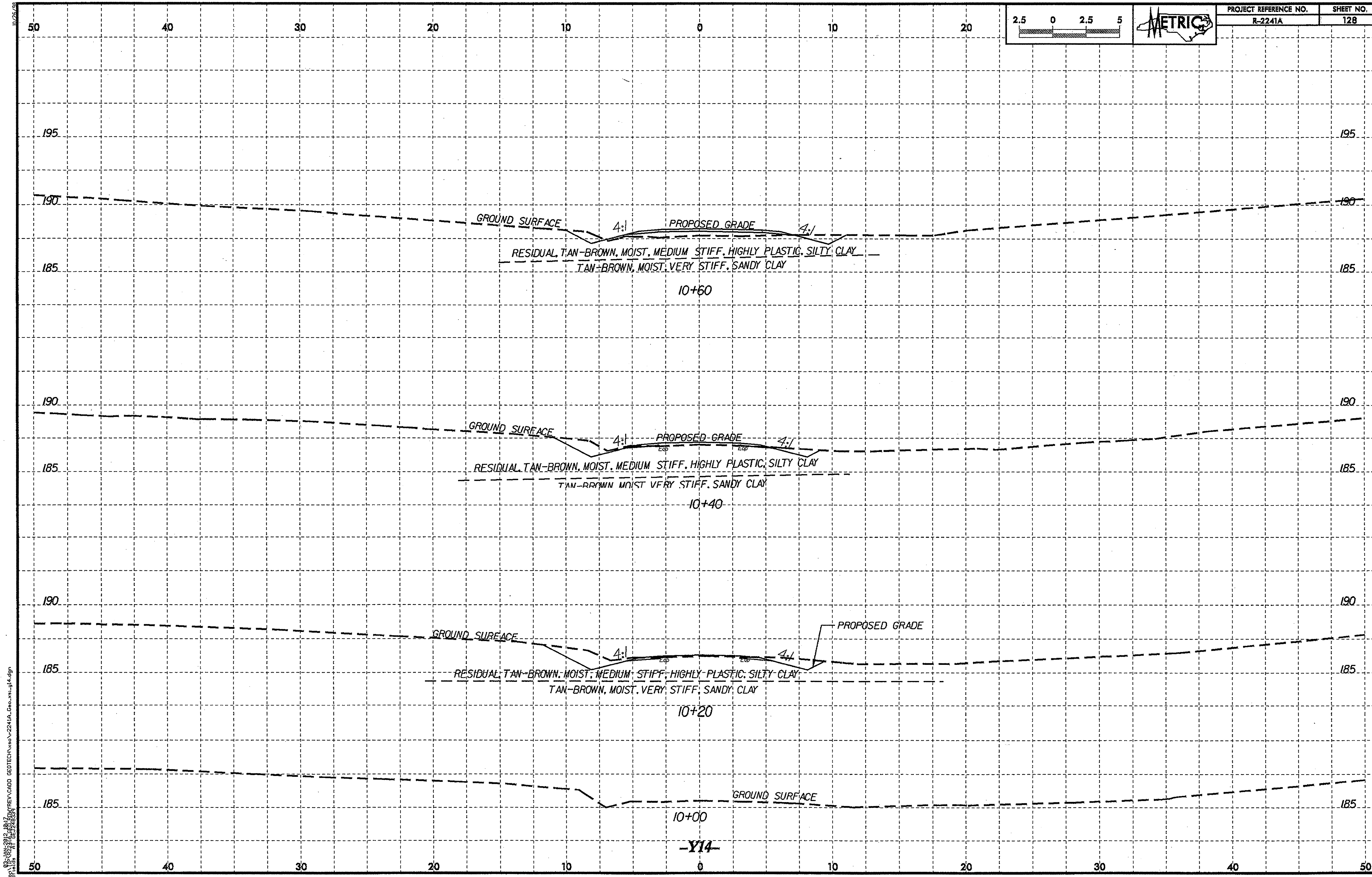
PROJECT REFERENCE NO.	SHEET NO.
R-2241A	128



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wdfields AT GEJ2488339

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20

195

190

GROUND SURFACE

PROPOSED GRADE

4:1

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, VERY STIFF, SANDY CLAY

11+00

195

190

GROUND SURFACE

4:1

PROPOSED GRADE

4:1

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN-BROWN, MOIST, VERY STIFF, SANDY CLAY

10+80

-Y14-

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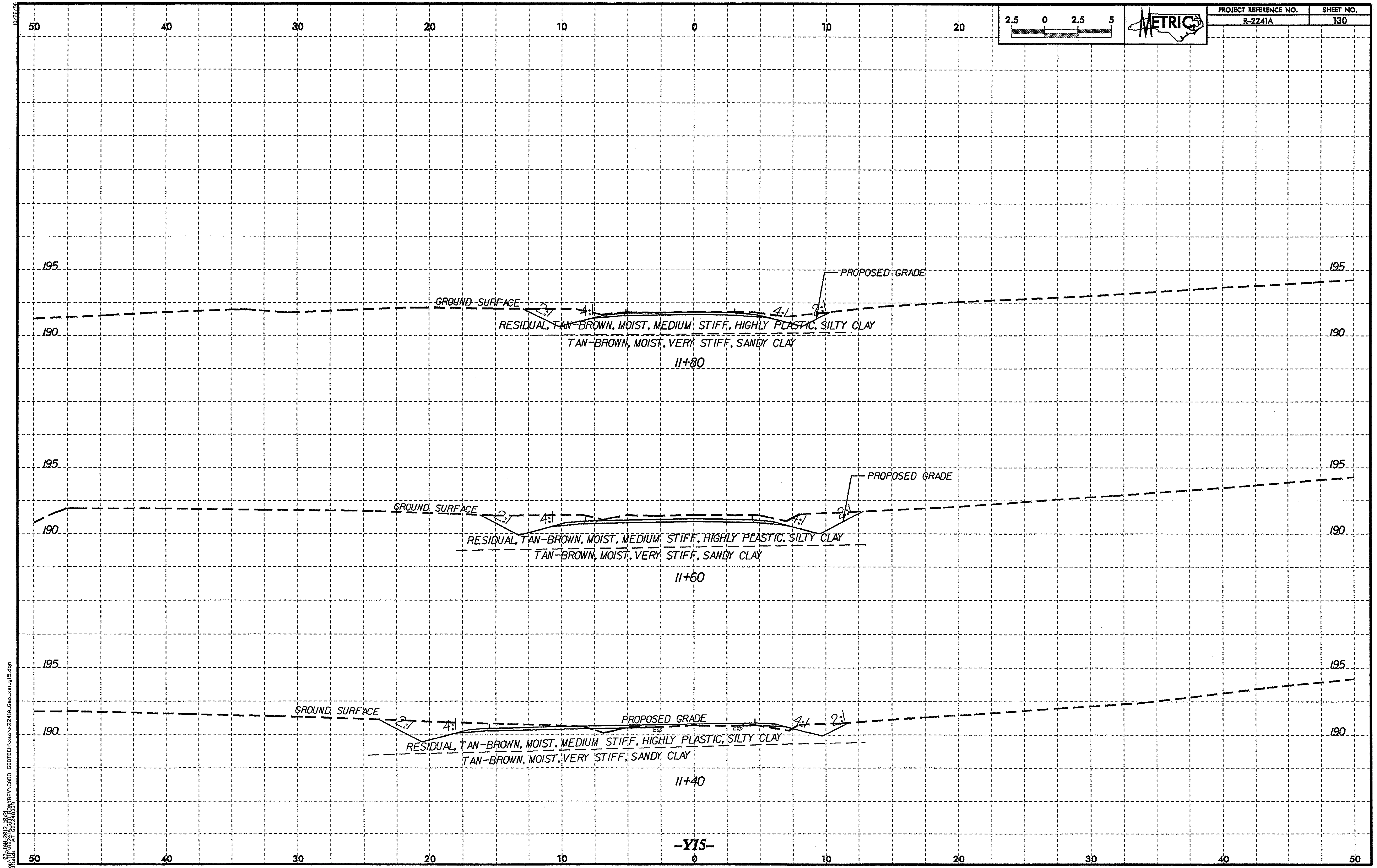
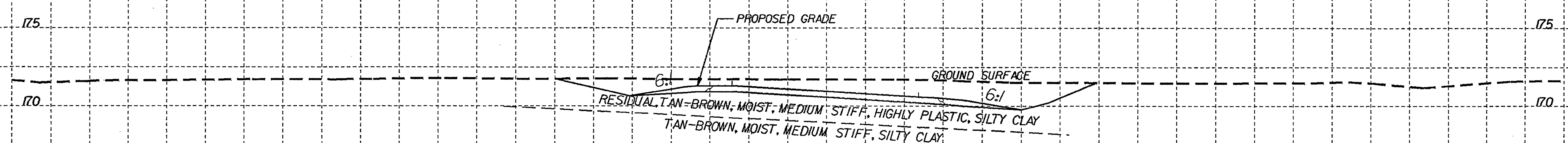


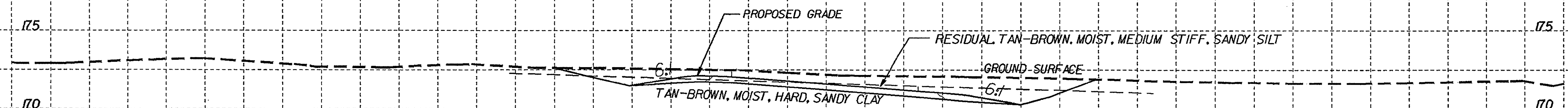
PROJECT REFERENCE NO.
R-2241A
SHEET NO.
130
METRIC
2.5 0 2.5 5
50 40 30 20 10 0 10 20
195
190
PROPOSED GRADE
GROUND SURFACE
2:1
4:1
RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN-BROWN, MOIST, VERY STIFF, SANDY CLAY
11+80
11+60
11+40
-Y15-
50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
R-2241A	131

METRIC



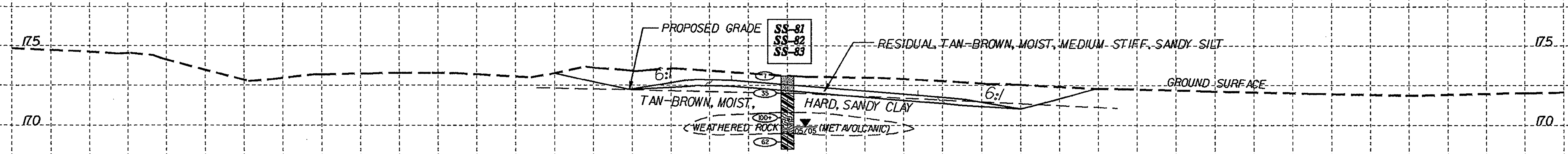
12+60



12+40

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-81	CL	12+20	0.00-0.45	A-4(6)	26	10	7.3	17.1	40.9	34.6	100	96	82	-	-
SS-82	CL	12+20	1.10-1.55	A-6(10)	36	12	10.2	12.4	40.7	36.7	99	92	81	-	-
SS-83	CL	12+20	4.14-4.59	A-6(5)	34	11	26.5	14.9	30.1	28.5	100	79	62	-	-



12+20

-Y17-

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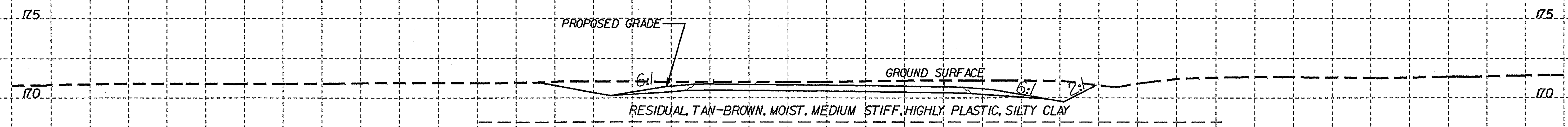
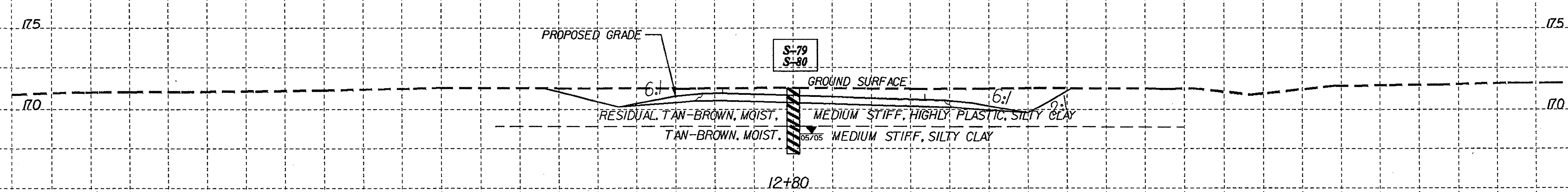
METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-79	CL	12+80	0.00-2.30	A-7-6(36)	56	39	3.1	13.0	31.0	53.0	100	99	88	-	-
S-80	CL	12+80	2.30-4.04	A-7-5(15)	45	15	4.3	16.1	36.9	42.8	100	98	85	-	-



-Y17-

50 40 30 20 10 0 10 20 30 40 50