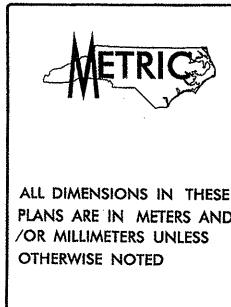


**TIP: R-2533CC**  
  
**CONTRACT: C202596**

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2533CC *	1	64
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34448.1.1	NHF-28-1(5)	PE	
34448.2.1	NHF-28-1(5)	RW, UTIL	
34448.3.9	NHS-0049(26)	CONST	

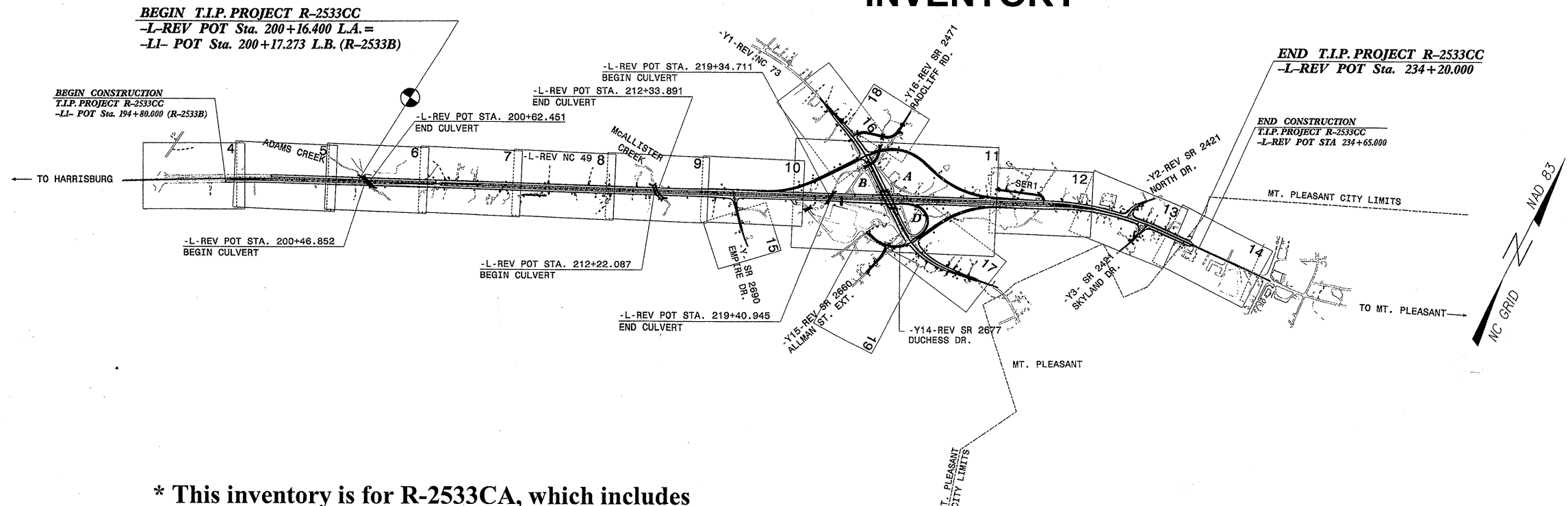
CONTENTS:

LINE	STATION	SHEET NUMBERS		
		PLAN	PROFILE	X-SECTS.
-LREV-	200+16.400-288+00.000	4-26	33-44	54-64
-Y-	10+10.537-11+62.500	8-27	44	
-YIREV-	9+71.685-19.47.500	9-28-29	48-49	
-RAMP A-	0+00.000-6+69.063	9-10	45	
-RAMP B-	0+00.000-4+69.107	8-9	46	58-60
-RAMP D-	0+00.000-4+24.305	9-10	47	
-LOOP D-	0+00.000-2+66.690	9	47	
-Y2REV-	10+52.500-11+57.832	11	49	
-Y3REV-	10+01.541-11+07.500	11	49	
-Y4-	10+25.500-12+92.177	13-27	49-50	
-Y5-	10+75.500-12+22.865	13	50	
-Y6-	10+00.000-10+57.500	13	50	
-Y7-	10+42.500-11+31.594	15	50	
-Y8-	10+10.635-11+07.500	18-30	50	
-Y9REV-	9+72.500-11+52.468	18	50	
-Y10REV-	10+70.506-11+96.739	21	51	
-Y11REV-	9+92.500-11+48.041	24	51	
-Y12REV-	10+00.000-14+84.731	25-32	51-52	
-Y13REV-	10+72.500-12+52.110	25	52	
-Y14REV-	10+00.000-12+05.253	9	52	
-Y15REV-	10+46.651-11+92.001	9-31	52	
-Y16REV-	10+92.500-13+39.080	28-30	53	
-SER1-	10+11.018-11+62.166	10	53	

# SUBSURFACE INVESTIGATION INVENTORY

STATE PROJECT 8.1661001 I.D. NO. R-2533CA  
 F.A. PROJECT NHF-28-1(5)  
 COUNTY CABARRUS  
 DESCRIPTION NC 49 EAST OF SR 2630 TO EAST OF SR 2444

## INVENTORY



**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.

**BEGIN T.I.P. PROJECT R-2533CC**  
 -L-REV POT Sta. 200+16.400 L.A.=  
 -L- POT Sta. 200+17.273 L.B. (R-2533B)

**END T.I.P. PROJECT R-2533CC**  
 -L-REV POT Sta. 234+20.000

INVESTIGATED BY C.C. MURRAY PERSONNEL C.C. MURRAY  
 CHECKED BY C.B. LITTLE C.L. SMITH  
 SUBMITTED BY C.B. LITTLE B.J. CRYSTAL  
 DATE APRIL 2000 J.D. PRIVOTT  
J.A. NEWBERRY

\* This inventory is for R-2533CA, which includes R-2533CC. Please refer to the respective portions for your needs. The Earthwork Balance Sheet is for R-2533CC only.

DRAWN BY: J.K. McCLURE

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.

**NORTH CAROLINA**  
**LICENSED**  
**SEAL**  
**1104**  
**GEOLOGIST**  
**CLINTON B. LITTLE**

SEAL  
  
 SIGNATURE

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL UNIT**

ID	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
R-2533CA	8J661001	2	64

**SUBSURFACE INVESTIGATION**

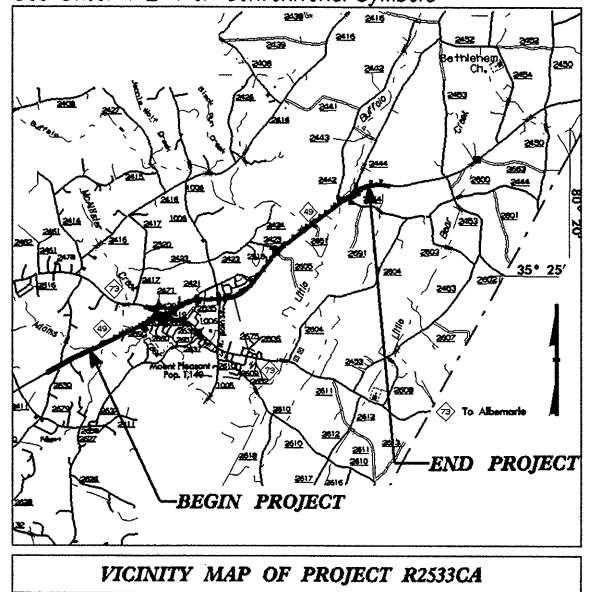
**SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

<p><b>SOIL DESCRIPTION</b></p> <p>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 ACCORDING TO STANDARD PENETRATION TEST (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: <i>VERY STIFF, GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6.</i></p>		<p><b>GRADATION</b></p> <p>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.</p> <p align="center"><b>ANGULARITY OF GRAINS</b></p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS ARE DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p><b>TERMS AND DEFINITIONS</b></p> <p>ALLUVIUM (ALLUV.) - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER. APPARENT DIP - THE DIP OF ROCK STRATA NOT PERPENDICULAR TO STRIKE. AQUIFER - A WATER BEARING FORMATION OR STRATA. AUGER REFUSAL (A.R.) - POINT AT WHICH POWER AUGERS WILL NOT PENETRATE. BEDDED - SOIL OR ROCK LYING IN A POSITION ESSENTIALLY PARALLEL. BEDROCK - ROCK OF RELATIVELY GREAT THICKNESS AND EXTENT IN ITS ORIGINAL LOCATION. CALCAREOUS (CALC.) - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COHESIVE SOIL - A SOIL THAT WHEN UNCONFINED HAS CONSIDERABLE DRY STRENGTH AND SIGNIFICANT COHESION WHEN SUBMERGED. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (% REC.) - TOTAL LENGTH OF ALL ROCK DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. COQUINA - A ROCK TYPE COMPOSED ESSENTIALLY OF MARINE SHELLS CEMENTED BY CALCIUM CARBONATE. DIKE - IGNEOUS ROCK INTRUSION WHICH IS NARROW COMPARED WITH ITS OTHER DIMENSIONS. DIP - THE ANGLE BETWEEN A BEDDING PLANE, JOINT PLANE OR FAULT PLANE AND THE HORIZONTAL, MEASURED PERPENDICULAR TO THE STRIKE. DUMPS - UNCOVERED DEPOSITS OF WASTE MATERIAL SUCH AS WOOD, MASONRY DEBRIS OR GARBAGE. FAULT - A BREAK IN THE CONTINUITY OF A BODY OF ROCK, ATTENDED BY A MOVEMENT ON EITHER OR BOTH SIDES OF THE BREAK. FINES - PORTIONS OF A SOIL FINER THAN NO. 200 U.S. STANDARD SIEVE. FISSILITY OR FISSILE - A PROPERTY OF SPLITTING EASILY ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOODPLAIN - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION - A MAPPABLE UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. FRACTURE - A CRACK LARGE ENOUGH TO BE VISIBLE TO THE UNAIDED EYE. FRIABLE - EASY TO BREAK OR CRUMBLE. GRANULAR MATERIAL - SOIL THAT WHEN UNCONFINED HAS LITTLE OR NO DRY STRENGTH AND HAS LITTLE OR NO COHESION WHEN SUBMERGED. GROUNDWATER (G.W.) - WATER THAT IS FREE TO MOVE THROUGH SOIL MASS UNDER THE INFLUENCE OF GRAVITY. GROUNDWATER LEVEL - LEVEL OF WATER WITH RESPECT TO EXISTING GROUND SURFACE. HARDPAN - A GENERAL TERM USED TO DESCRIBE A HARD CEMENTED SOIL LAYER WHICH DOES NOT SOFTEN WHEN WET. INDURATED - EARTH MATERIAL HARDENED BY HEAT, PRESSURE OR CEMENTATION. INTERBEDDED - ALTERNATING LENSES OR LAYERS OF SOIL AND/OR ROCK MATERIALS. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LAMINATED - VERY THIN ALTERNATING LAYERS LESS THAN INCH. LAYER - SUBJECT MATERIAL GREATER THAN INCH IN THICKNESS. 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. MARL - A NON-INDURATED, CALCAREOUS DEPOSIT OF CLAYS, SILTS AND SANDS, OFTEN CONTAINING SHELLS. MICACEOUS SOIL (MIC.) - A SOIL OR ROCK TYPE CONTAINING AN APPRECIABLE AMOUNT OF MICA. MUCK (MK.) - A HIGHLY ORGANIC SOIL OF VERY SOFT CONSISTENCY, GENERALLY FOUND ON TIDAL FLATS, LAKE OR STREAM FLOODPLAINS. PEAT (PT.) - A FIBROUS MASS OF ORGANIC MATTER IN VARIOUS STAGES OF DECOMPOSITION. 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 - SEE LEGEND ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN EXPRESSED AS A PERCENTAGE. SANITARY LANDFILLS - COMPACTED AND/OR COVERED LAYERS OF SOIL AND WASTE PRODUCTS. SAPROLITE (SAP.) - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLAIN. SILL - AN IGNEOUS SHEET OF INTRUSIVE ROCK WHOSE THICKNESS IS SLIGHT COMPARED TO ITS LATERAL EXTENT. SOME - PRESENCE OF 5% TO 30% OF SUBJECT MATERIAL. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR B.P.F.) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL PENETRATION RESISTANCE OF LESS THAN 1 INCH WITH 50 BLOWS. STRIKE - THE DIRECTION OR BEARING OF A HORIZONTAL LINE IN THE PLANE OF AN INCLINED STRATUM, JOINT, FAULT OR OTHER STRUCTURAL PLANE. SUBGRADE - THE SOIL PREPARED TO SUPPORT A STRUCTURE OR A PAVEMENT SYSTEM. TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. TRACE - PRESENCE OF LESS THAN 5% OF SUBJECT MATERIAL.</p>																																																																																																																																																																																																																																														
<p align="center"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="7">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="7">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th><th>A-2</th><th>A-3</th><th>A-4</th><th>A-5</th><th>A-6</th><th>A-7</th> <th>A-1</th><th>A-2</th><th>A-3</th><th>A-4</th><th>A-5</th><th>A-6</th><th>A-7</th> <th>A-1</th><th>A-2</th><th>A-3</th> <th>A-4</th><th>A-5</th><th>A-6</th><th>A-7</th> </tr> <tr> <td>GROUP CLASS.</td> <td colspan="7">A-1-A-1-B</td> <td colspan="7">A-2-A-2-B</td> <td colspan="3">A-2-A-2-7</td> <td colspan="3">A-3</td> <td colspan="3">A-4, A-5, A-6, A-7</td> </tr> <tr> <td>SYMBOL</td> <td colspan="7"></td> <td colspan="7"></td> <td colspan="3"></td> <td colspan="3"></td> <td colspan="3"></td> </tr> <tr> <td>% PASSING</td> <td colspan="7">50 MX 30 MX50 15 MX25 MX10 MX</td> <td colspan="7">40 MX41 MN 10 MX10 MN11 MN10 MX10 MN11 MN11 MN</td> <td colspan="3">4 MX 8 MX12 MX16 MX10 MX</td> <td colspan="3">GRANULAR SOILS</td> <td colspan="3">SILT-CLAY SOILS</td> <td colspan="3">MUCK, PEAT</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</td> <td colspan="7">6 MX</td> <td colspan="7">N.P.</td> <td colspan="3">4 MX</td> <td colspan="3">8 MX12 MX16 MX10 MX</td> <td colspan="3">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="3">HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td colspan="7">STONE FRAGS, GRAVEL AND SAND</td> <td colspan="7">FINE SAND</td> <td colspan="3">SILTY OR CLAYEY GRAVEL AND SAND</td> <td colspan="3">SILTY SOILS</td> <td colspan="3">CLAYEY SOILS</td> <td colspan="3">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="3">HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td colspan="7">EXCELLENT TO GOOD</td> <td colspan="7">FAIR TO POOR</td> <td colspan="3">FAIR TO POOR</td> <td colspan="3">POOR</td> <td colspan="3">UNSATURABLE</td> </tr> </table> <p align="center">P.I. OF A-7-5 ≤ L.L. - 30 + P.I. OF A-7-5 &gt; L.L. - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)							ORGANIC MATERIALS			A-1	A-2	A-3	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-2	A-3	A-4	A-5	A-6	A-7	GROUP CLASS.	A-1-A-1-B							A-2-A-2-B							A-2-A-2-7			A-3			A-4, A-5, A-6, A-7			SYMBOL																								% PASSING	50 MX 30 MX50 15 MX25 MX10 MX							40 MX41 MN 10 MX10 MN11 MN10 MX10 MN11 MN11 MN							4 MX 8 MX12 MX16 MX10 MX			GRANULAR SOILS			SILT-CLAY SOILS			MUCK, PEAT			LIQUID LIMIT PLASTIC INDEX	6 MX							N.P.							4 MX			8 MX12 MX16 MX10 MX			SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER			HIGHLY ORGANIC SOILS			USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL AND SAND							FINE SAND							SILTY OR CLAYEY GRAVEL AND SAND			SILTY SOILS			CLAYEY SOILS			SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER			HIGHLY ORGANIC SOILS			GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR							FAIR TO POOR			POOR			UNSATURABLE			<p><b>CONSISTENCY OR DENSENESS</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th rowspan="2">PRIMARY SOIL TYPE</th> <th rowspan="2">COMPACTNESS OR CONSISTENCY</th> <th colspan="2">RANGE OF STANDARD PENETRATION RESISTANCE (BLOWS)</th> <th rowspan="2">RANGE OF UNCONFINED COMPRESSIVE STRENGTH (KN/M<sup>2</sup>)</th> </tr> <tr> <th>&lt; 4</th> <th>4 TO 10</th> </tr> <tr> <td rowspan="3">GENERALLY GRANULAR MATERIAL</td> <td>VERY LOOSE</td> <td>4 TO 10</td> <td>&lt; 4</td> <td rowspan="3">N/A</td> </tr> <tr> <td>MEDIUM DENSE</td> <td>10 TO 30</td> <td>4 TO 8</td> </tr> <tr> <td>DENSE</td> <td>30 TO 50</td> <td>8 TO 15</td> </tr> <tr> <td rowspan="3">GENERALLY SILT-CLAY MATERIAL</td> <td>VERY SOFT</td> <td>&lt; 2</td> <td>&lt; 25</td> <td rowspan="3">25 TO 50 50 TO 100 100 TO 200 200 TO 400 &gt; 400</td> </tr> <tr> <td>SOFT</td> <td>2 TO 4</td> <td>2 TO 4</td> </tr> <tr> <td>MEDIUM STIFF</td> <td>4 TO 8</td> <td>8 TO 15</td> </tr> <tr> <td></td> <td>STIFF</td> <td>8 TO 15</td> <td>15 TO 30</td> <td></td> </tr> <tr> <td></td> <td>VERY STIFF</td> <td>15 TO 30</td> <td>&gt; 30</td> <td></td> </tr> <tr> <td></td> <td>HARD</td> <td>&gt; 30</td> <td>&gt; 400</td> <td></td> </tr> </table>		PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (BLOWS)		RANGE OF UNCONFINED COMPRESSIVE STRENGTH (KN/M <sup>2</sup> )	< 4	4 TO 10	GENERALLY GRANULAR MATERIAL	VERY LOOSE	4 TO 10	< 4	N/A	MEDIUM DENSE	10 TO 30	4 TO 8	DENSE	30 TO 50	8 TO 15	GENERALLY SILT-CLAY MATERIAL	VERY SOFT	< 2	< 25	25 TO 50 50 TO 100 100 TO 200 200 TO 400 > 400	SOFT	2 TO 4	2 TO 4	MEDIUM STIFF	4 TO 8	8 TO 15		STIFF	8 TO 15	15 TO 30			VERY STIFF	15 TO 30	> 30			HARD	> 30	> 400	
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R-2533CA

PROJECT: 8.1661001

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



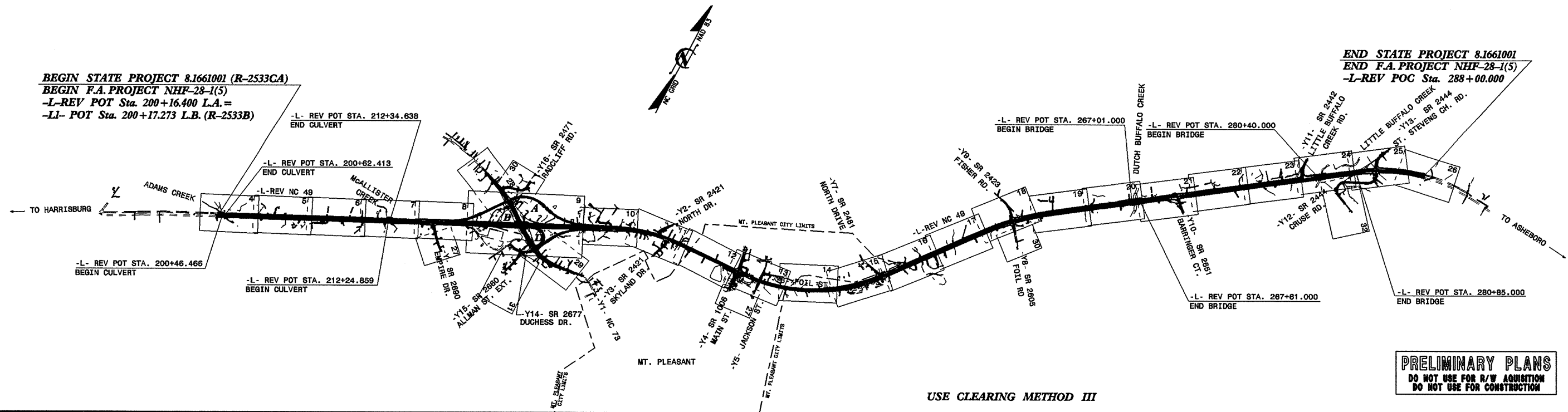
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS CABARRUS COUNTY

**LOCATION: NC-49 FROM EAST OF SR 2630 TO EAST OF SR 2444**

**TYPE OF WORK: GRADING, PAVING, STRUCTURES, CULVERTS,  
DRAINAGE, LONG LIFE PAVEMENT MARKINGS, SIGNALS,  
RAISED PAVEMENT MARKERS**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2533CA	3	64
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.1661001	NHF-28-1(5)	PE	
		ROW	



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

**GRAPHIC RATIO**

5 0 10  
PLANS

5 0 10  
PROFILE (HORIZONTAL)

1 0 2  
PROFILE (VERTICAL)

**DESIGN DATA**

ADT 2001 = 14,400  
ADT 2021 = 25,200

DHV = 10 %  
D = 55 %  
T = 21 %  
(TTST 13% + DUALS 8%)

-L-REV NBL V = 100 kmh  
-L-REV SBL V = 90 kmh  
RRR - DESIGN GUIDELINES

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 8.1661001 = 8.653

LENGTH STRUCTURES PROJECT 8.1661001 = 0.131 Km

TOTAL LENGTH STATE PROJECT 8.1661001 = 8.784 Km

**PLANS PREPARED FOR NCDOT  
DIVISION OF HIGHWAYS**

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
October 20, 2000

LETTING DATE:  
October 16, 2001

K. M. HAUGHEY, PE  
EARTH TECH PROJECT MANAGER

Z. R. SMITH, PE  
PROJECT ENGINEER  
NCDOT CONTACT

Prepared in the Office of:

**EARTH TECH**

A *tyco* INTERNATIONAL LTD. COMPANY

formerly:  
RUST ENVIRONMENT & INFRASTRUCTURE  
701 Corporate Center Dr.  
Suite 475  
Raleigh, N.C. 27607  
(919)-854-6200  
FAX (919)-854-6259

**HYDRAULICS ENGINEER**

J. MARK KAMPFRATH, P.E.  
SIGNATURE:

**ROADWAY DESIGN**

KEVIN M. HAUGHEY, P.E.  
SIGNATURE:

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

P.E.  
STATE HIGHWAY ENGINEER - DESIGN

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED FOR  
DIVISION ADMINISTRATOR

DATE

## EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

3a

PROJECT: R-2533CC COUNTY: CABARRAS DATE: 1/27/2011 COMP BY: CMKR CHK. BY: SHEET: 1 of 5

LINE	STATION	TO	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
				TOTAL UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE UNCLASSIFIED	SUITABLE UNCLASSIFIED	TOTAL EMBANKMENT	ROCK EMBANKMENT (25%)	EARTH EMBANKMENT	EMBANKMENT +20%		ROCK	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE
<b>PHASE 1</b>																	
XOVER1	10+56.949	TO	14+11.723	99				99	30	0	30	36	0	0	63	0	63
& -L1- (MED RT)	199+00.000	TO	199+30.000														
<b>SUBTOTAL SUMMARY 1</b>				99	0	0	0	99	30	0	30	36	0	0	63	0	63
-L1-/L-REV (RT)	199+95.000	TO	210+00.000	9155				9155	23767	0	23767	28520	19365	0	0	0	0
<b>SUBTOTAL SUMMARY 2</b>				9155	0	0	0	9155	23767	0	23767	28520	19365	0	0	0	0
-L-REV (RT)	210+00.000	TO	215+20.000	10001				10001	19639	0	19639	23567	13566	0	0	0	0
-L-REV (RT)	215+60.000	TO	217+60.000	27186	13189			13997	0	0	0	0	0	13189	13997	0	27186
-L-REV (OUT LT)	214+25.000	TO	217+45.000	4984	1191			3793	256	205	0	205	0	986	3793	0	4779
-L-REV (MED LT)	216+00.000	TO	217+45.000	32				32	92	0	92	110	78	0	0	0	0
RAMP B	0+00.000	TO	4+57.648	20098	6490			13608	8174	6490	62	6564	0	0	13534	0	13534
-Y14-REV	10+02.784	TO	11+00.000	3967				3967	0	0	0	0	0	0	3967	0	3967
XOVER2	11+05.080	TO	13+25.921	82				82	392	0	392	470	388	0	0	0	0
<b>SUBTOTAL SUMMARY 3</b>				66350	20870	0	0	45480	28553	6695	20185	30916	14032	14175	35291	0	49466
-L-REV (LT)	225+20.000	TO	231+00.000	1074				1074	1419	0	1419	1703	629	0	0	0	0
-L-REV (RT)	223+40.000	TO	231+00.000	14213				14213	17214	0	17214	20657	6444	0	0	0	0
RAMP D	0+00.000	TO	4+12.902	19260				19260	12972	0	12972	15566	0	0	3694	0	3694
LOOP D	1+60.000	TO	2+55.290	645				645	2470	0	2470	2964	2319	0	0	0	0
RAMP A	0+00.000	TO	5+60.000	52478				52478	809	0	809	971	0	0	51507	0	51507
-Y16-REV	11+60.000	TO	13+29.423	389				389	4719	0	4719	5663	5274	0	0	0	0
-SER1-	9+41.825	TO	11+47.960	2137				2137	495	0	495	594	0	0	1543	0	1543
TEMP1	10+03.595	TO	10+57.330	1				1	669	0	669	803	802	0	0	0	0
TEMP2	10+03.738	TO	11+03.315	662				662	17	0	17	20	0	0	642	0	642
TEMP RP A	13+71.000	TO	14+22.000	98				98	0	0	0	0	0	0	98	0	98
<b>SUBTOTAL SUMMARY 4</b>				90957	0	0	0	90957	40784	0	40784	48941	15468	0	57484	0	57484
-L-REV (LT)	231+00.000	TO	234+65.000	611				611	4528	0	4528	5434	4823	0	0	0	0
-L-REV (RT)	231+00.000	TO	234+40.000	3315				3315	6227	0	6227	7472	4157	0	0	0	0
-Y2-REV	10+52.500	TO	11+48.602	749				749	289	0	289	347	0	0	402	0	402
-Y3-	10+11.331	TO	11+07.500	914				914	318	0	318	382	0	0	532	0	532
<b>SUBTOTAL SUMMARY 5</b>				5589	0	0	0	5589	11362	0	11362	13635	8980	0	934	0	934
<b>PHASE 1 SUBTOTAL</b>				172150	20870	0	0	151280	104496	6695	96128	122048	57845	14175	93772	0	107947

Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

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.



3b

### EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT: R-2533CC

COUNTY: CABARRAS

DATE: 1/27/2011

COMP BY: CMKR

CHK. BY:

SHEET: 2 of 5

LINE	STATION	TO	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE				
				TOTAL UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE UNCLASSIFIED	SUITABLE UNCLASSIFIED	TOTAL EMBANKMENT	ROCK EMBANKMENT (25%)	EARTH EMBANKMENT	EMBANKMENT +20%		ROCK	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE	
<b>PHASE 2</b>																		
-L-REV (RT)	215+20.000	TO	215+60.000	576				576	2	0	2	2	0	0	574	0	574	
-L-REV (RT)	217+60.000	TO	218+60.000	144				144	5310	0	5310	6372	6228	0	0	0	0	
-Y-	10+25.013	TO	11+62.500	5558				5558	35	0	35	42	0	0	5516	0	5516	
-Y14-REV	11+00.000	TO	11+93.683	2170				2170	129	0	129	155	0	0	2015	0	2015	
-Y15-REV	10+46.651	TO	11+88.700	4985				4985	3	0	3	4	0	0	4981	0	4981	
<b>SUBTOTAL SUMMARY 6</b>				13433	0	0	0	13433	5479	0	5479	6575	6228	0	13086	0	13086	
-L-REV (RT)	222+60.000	TO	223+40.000	0				0	2422	0	2422	2906	2906	0	0	0	0	
RAMP A	6+04.000	TO	6+57.490	0				0	12500	0	12500	15000	15000	0	0	0	0	
LOOP D	0+44.726	TO	1+60.000	121				121	7636	0	7636	9163	9042	0	0	0	0	
-Y16-REV	10+92.500	TO	11+60.000	1540				1540	0	0	0	0	0	1540	0	1540		
-Y1-REV (LT)	9+71.685	TO	12+00.000	855				855	2560	0	2560	3072	2217	0	0	0	0	
-Y1-REV (LT)	12+00.000	TO	12+71.000	17				17	4022	0	4022	4826	4809	0	0	0	0	
-Y1-REV (RT)	12+00.000	TO	12+71.000	236				236	1998	0	1998	2398	2162	0	0	0	0	
-Y1-REV (LT)	13+00.000	TO	13+97.110 BEG BR	184				184	15968	0	15968	19161	18977	0	0	0	0	
-Y1-REV (RT)	13+00.000	TO	13+97.110 BEG BR	0				0	8799	0	8799	10559	10559	0	0	0	0	
-Y1-REV (LT)	14+62.310 END BR	TO	15+70.000	0				0	7025	0	7025	8430	8430	0	0	0	0	
-Y1-REV (RT)	14+62.310 END BR	TO	15+70.000	759				759	4611	0	4611	5534	4775	0	0	0	0	
-Y1-REV (LT)	15+82.000	TO	17+80.000	8556				8556	849	0	849	1019	0	0	7537	0	7537	
-Y1-REV	17+80.000	TO	19+47.500	2394				2394	1708	0	1708	2050	0	0	344	0	344	
TEMP LP D	LREV 221+76.000	TO	LP D 1+23.000	252				252	99	0	99	119	0	0	133	0	133	
TEMP Y1	11+28.000	TO	13+80.000	200				200	303	0	303	364	164	0	0	0	0	
<b>SUBTOTAL SUMMARY 7</b>				15114	0	0	0	15114	70501	0	70501	84601	79041	0	9554	0	9554	
<b>PHASE 2 SUBTOTAL</b>				28547	0	0	0	28547	75980	0	75980	91176	85269	0	22640	0	22640	

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

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

3c

PROJECT: R-2533CC

COUNTY: CABARRAS

DATE: 1/27/2011

COMP BY: CMKR

CHK. BY:

SHEET: 3 of 5

LINE	STATION	TO	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE					
				TOTAL UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE UNCLASSIFIED	SUITABLE UNCLASSIFIED	TOTAL EMBANKMENT	ROCK EMBANKMENT (25%)	EARTH EMBANKMENT	EMBANKMENT +20%		ROCK	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE		
<b>PHASE 3</b>																			
-L-REV (LT)	199+95.000	TO	210+00.000	1385				1385	3961	0	3961	4753	3368	0	0	0	0	0	0
<b>SUBTOTAL SUMMARY 8</b>				1385	0	0	0	1385	3961	0	3961	4753	3368	0	0	0	0	0	0
-L-REV (LT)	210+00.000	TO	214+25.000	303				303	5092	0	5092	6110	5807	0	0	0	0	0	0
-L-REV (RT)	218+60.000	TO	221+20.000	22138	13250			8888	6329	5063	0	5063	0	8187	8888	0	0	17075	17075
RAMP A	5+60.000	TO	6+04.000	32				32	7034	0	7034	8441	8409	0	0	0	0	0	0
-Y1-REV (LT)	12+71.000	TO	13+00.000	135				135	3375	0	3375	4050	3915	0	0	0	0	0	0
-Y1-REV (RT)	12+71.000	TO	13+00.000	0				0	1561	0	1561	1873	1873	0	0	0	0	0	0
-Y1-REV (LT)	15+70.000	TO	15+82.000	17				17	105	0	105	126	109	0	0	0	0	0	0
XOVER3	10+00.000	TO	13+20.903	45				45	396	0	396	475	430	0	0	0	0	0	0
TEMP1 REMOVAL				669				669	1	0	1	1	0	0	668	0	0	0	668
TEMP2 REMOVAL				17				17	662	0	662	794	777	0	0	0	0	0	0
TEMP RP A REMOVAL				89				89	84	0	84	101	12	0	0	0	0	0	0
<b>SUBTOTAL SUMMARY 9</b>				23445	13250	0	0	10195	24639	5063	18310	27034	21332	8187	9556	0	0	17743	17743
<b>PHASE 3 SUBTOTAL</b>				24830	13250	0	0	11580	28600	5063	22271	31787	24700	8187	9556	0	0	17743	17743
<b>PHASE 4</b>																			
-L-REV (RT)	221+20.000	TO	222+60.000	12762	2314			10448	655	524	0	524	0	1790	10448	0	0	12238	12238
-L-REV (LT)	217+45.000	TO	219+60.000	766				766	237	0	237	284	0	0	482	0	0	482	482
-L-REV (OUT LT)	219+60.000	TO	225+20.000	1529	1			1528	921	1	920	1105	0	0	424	0	0	424	424
LOOP D	0+00.000	TO	0+44.726	142				142	257	0	257	308	166	0	0	0	0	0	0
-Y1-REV (RT)	9+71.685	TO	12+00.000	619				619	1902	0	1902	2282	1663	0	0	0	0	0	0
-Y1-REV (RT)	15+70.000	TO	17+80.000	347				347	1253	0	1253	1504	1157	0	0	0	0	0	0
TEMP Y1 REMOVAL				5624				5624	0	0	0	0	0	0	5624	0	0	5624	5624
<b>SUBTOTAL SUMMARY 10</b>				21789	2315	0	0	19474	5225	525	4569	6007	2986	1790	16978	0	0	18768	18768
<b>PHASE 4 SUBTOTAL</b>				21789	2315	0	0	19474	5225	525	4569	6007	2986	1790	16978	0	0	18768	18768

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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.

3d

### EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT: R-2533CC

COUNTY: CABARRAS

DATE: 1/27/2011

COMP BY: CMKR

CHK. BY:

SHEET: 4 of 5

LINE	STATION	TO	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
				TOTAL UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE UNCLASSIFIED	SUITABLE UNCLASSIFIED	TOTAL EMBANKMENT	ROCK EMBANKMENT (25%)	EARTH EMBANKMENT	EMBANKMENT +20%		ROCK	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE
<b>PHASE 5</b>																	
-L1- (MED LT)	196+00.000	TO	199+95.000	615				615	2	0	2	2	0	0	0	613	
-L1- (MED RT)	194+60.000	TO	199+95.000	826				826	4	0	4	5	0	0	821	613	
<b>SUBTOTAL SUMMARY 11</b>				1441	0	0	0	1441	6	0	6	7	0	0	1434	0	1434
-L-REV (MED LT)	214+25.000	TO	216+00.000	111				111	59	0	59	71	0	0	40	0	40
-L-REV (MED RT)	209+60.000	TO	214+80.000	1065				1065	0	0	0	0	0	0	1065	0	1065
XOVER2 REMOVAL				394				394	0	0	0	0	0	0	394	0	394
<b>SUBTOTAL SUMMARY 12</b>				1570	0	0	0	1570	59	0	59	71	0	0	1499	0	1499
-L-REV (MED LT)	219+60.000	TO	225+20.000	615				615	276	0	276	331	0	0	284	0	284
-L-REV (MED RT)	218+60.000	TO	220+40.000	87				87	193	0	193	232	145	0	0	0	0
-L-REV (MED RT)	222+20.000	TO	223+00.000	146				146	0	0	0	0	0	0	146	0	146
XOVER3 REMOVAL				458				458	0	0	0	0	0	0	458	0	458
TEMP LP D REMOVAL				70				70	0	0	0	0	0	0	70	0	70
<b>SUBTOTAL SUMMARY 13</b>				1376	0	0	0	1376	469	0	469	563	145	0	958	0	958
<b>PHASE 5 SUBTOTAL</b>				4387	0	0	0	4387	534	0	534	641	145	0	3891	0	3891

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# EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

3e

## GRAND TOTALS

PROJECT: R-2533CC

COUNTY: CABARRUS

DATE: 1/27/2011

COMP BY: CMKR

CHK. BY:

SHEET: 5 of 5

	EXCAVATION					EMBANKMENT				BORROW	WASTE			
	TOTAL UNCLASSIFIED EXCAVATION	ROCK EXCAVATION	UNDERCUT EXCAVATION	UNSUITABLE EXCAVATION	SUITABLE EXCAVATION	TOTAL EMBANKMENT	ROCK EMBANKMENT (25%)	EARTH EMBANKMENT	EMBANKMENT +20%		ROCK WASTE	SUITABLE WASTE	UNSUITABLE WASTE	TOTAL WASTE
<b>SUBTOTALS</b>														
PHASE 1	172,150	20,870	0	0	151,280	104,496	6,695	96,128	122,048	57,845	14,175	93,772	0	107,947
PHASE 2	28,547	0	0	0	28,547	75,980	0	75,980	91,176	85,269	0	22,640	0	22,640
PHASE 3	24,830	13,250	0	0	11,580	28,600	5,063	22,271	31,787	24,700	8,187	9,556	0	17,743
PHASE 4	21,789	2,315	0	0	19,474	5,225	525	4,569	6,007	2,986	1,790	16,978	0	18,768
PHASE 5	4,387	0	0	0	4,387	534	0	534	641	145	0	3,891	0	3,891
<b>TOTALS</b>	<b>251,702</b>	<b>36,435</b>	<b>0</b>	<b>0</b>	<b>215,267</b>	<b>214,835</b>	<b>12,283</b>	<b>199,481</b>	<b>251,659</b>	<b>170,945</b>	<b>24,152</b>	<b>146,837</b>	<b>0</b>	<b>170,989</b>
<b>ADJUSTMENTS DUE TO</b>														
Est. Loss Due To Clearing And Grubbing	-12,500				-12,500					12,500				
Shoulder Material						9,600		9,600	11,520	11,520				
Rock Waste To Replace Borrow							24,152	-24,152		-24,152	-24,152			-24,152
Adjust For Rock Swell That Replaces Borrow								-6,038	-6,038	-6,038				
Eliminate Shrinkage For Material That Is Now Rock									-6,038	-6,038				
Earth Waste to Replace Borrow										-146,837		-146,837		-146,837
<b>PROJECT TOTAL</b>	<b>239,202</b>	<b>36,435</b>	<b>0</b>	<b>0</b>	<b>202,767</b>	<b>224,435</b>	<b>36,435</b>	<b>178,891</b>	<b>251,103</b>	<b>11,900</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Est. 5% to Replace Topsoil in Borrow Pits										595				
<b>GRAND TOTAL</b>	<b>239,202</b>									<b>12,495</b>				
<b>SAY</b>	<b>240,000</b>									<b>13,000</b>				
<b>EARTHWORK TOTALS FOR ALTERNATE 1 PAVEMENT DESIGN</b>														
<b>TOTALS</b>	<b>251,702</b>	<b>36,435</b>	<b>0</b>	<b>0</b>	<b>215,267</b>	<b>214,835</b>	<b>12,283</b>	<b>199,481</b>	<b>251,659</b>	<b>170,945</b>	<b>24,152</b>	<b>146,837</b>	<b>0</b>	<b>170,989</b>
<b>ADJUSTMENTS DUE TO</b>														
Adjust for Alternate Pavement Design	7,067				7,067	-6,020		-6,020	-7,224	-14,291				
Est. Loss Due To Clearing And Grubbing	-12,500				-12,500					12,500				
Shoulder Material						13,100		13,100	15,720	15,720				
Rock Waste to Replace Borrow							24,152	-24,152		-24,152	-24,152			-24,152
Adjust For Rock Swell That Replaces Borrow								-6,038	-6,038	-6,038				
Eliminate Shrinkage For Material That Is Now Rock									-6,038	-6,038				
Earth Waste to Replace Borrow										-146,837		-146,837		-146,837
<b>PROJECT TOTAL</b>	<b>246,269</b>	<b>36,435</b>	<b>0</b>	<b>0</b>	<b>209,834</b>	<b>221,915</b>	<b>36,435</b>	<b>176,371</b>	<b>248,079</b>	<b>1,809</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Est. 5% to Replace Topsoil in Borrow Pits										90				
<b>GRAND TOTAL</b>	<b>246,269</b>									<b>1,900</b>				
<b>SAY</b>	<b>247,000</b>									<b>2,500</b>				
Est. Drainage Ditch Excavation	4158	M3												
Select Granular Material	3000	M3												
Estimate Undercut	3000	M3												
Shallow Undercut	1000	M3												

PAVEMENT STRUCTURE VOLUMES	
-L-REV	532 M3
-Y1-REV	0 M3
ALL OTHER -Y- LINES RAMPS & LOOP	122 M3
	258 M3
<b>TOTAL</b>	<b>912 M3</b>
<b>SAY</b>	<b>920 M3</b>

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

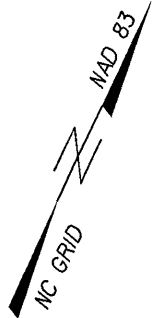
Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT NCGS "WILDLIFE" BRASS CAP IN A CONCRETE CYLINDER AT WILDLIFE PROTECTOR RESIDENCE 6 BELOW GROUND SURFACE AT DRIVEWAY WITH NAD83 STATE PLANE COORDINATES OF NORTHING 184169.039(m) EASTING 476477.123(m)

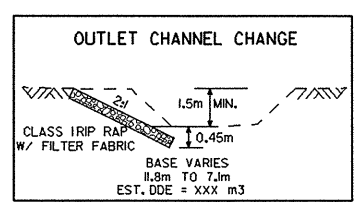
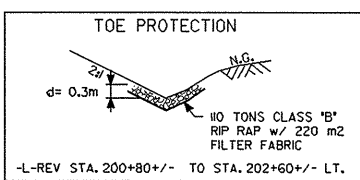
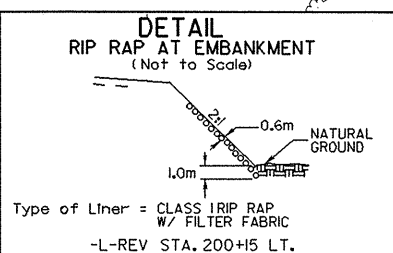
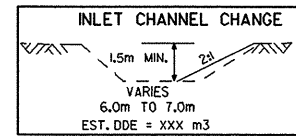
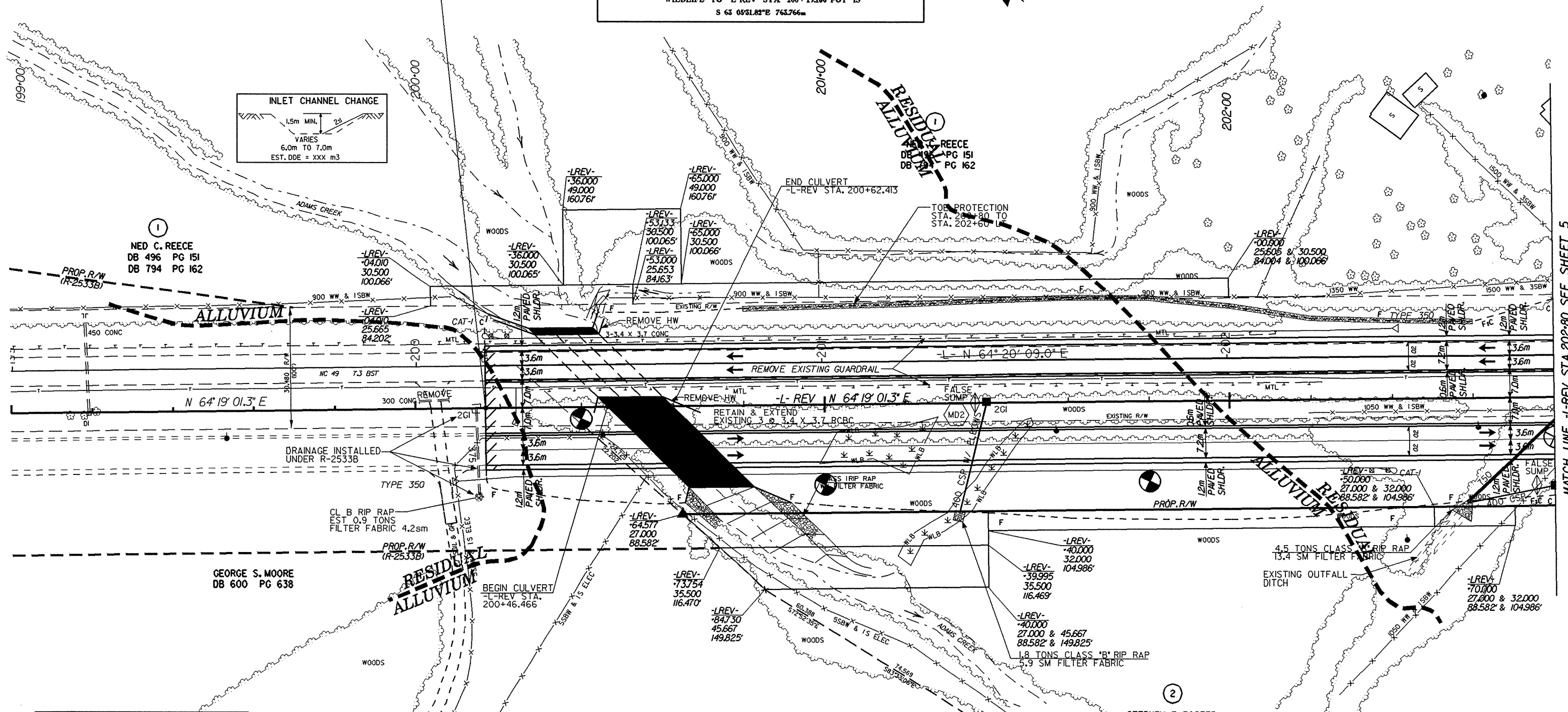
THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.9985209 (PROVIDED BY NCDOT)

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "WILDLIFE" TO -L-REV STA 200+19.136 POT IS S 65 05'18.2"E 763.766m



	PROJ. REFERENCE NO.	SHEET NO.
	R-2533CA	4
	HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION		
CONST. REV. R/W REV.	Prepared in the Office of: <b>EARTH TECH</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)	

BEGIN STATE PROJECT R-2533CA  
 BEGIN F.A. PROJECT NHF-28-1(5)  
 -L-REV POT Sta 200+16.400 L.A.  
 -L-REV POT Sta 200+17.273 L.B. (R-2533 B)

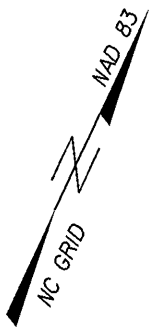
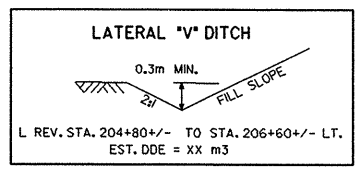


MATCH LINE -L-REV STA. 202+80 SEE SHEET 5

FOR -L- REV PROFILE, SEE SHEET 33



	PROJ. REFERENCE NO.	SHEET NO.
	R-2533CA	5
	HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of:		
CONST. REV. R/W REV.	701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)	



①  
 NED C. REECE  
 DB 496 PG 151  
 DB 794 PG 162

③  
 (60')  
 18.288 ACCESS EASEMENT  
 DB 719 PG 084

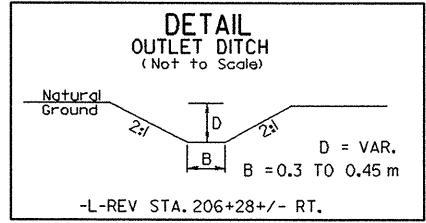
④  
 DEAN D. RANALLI  
 DB 877 PG 090

⑤  
 VIRGINIA MCALLISTER SMITH  
 DB 719 PG 084

②  
 STEPHEN E. FOSTER  
 PG 794 PG 0384

⑥  
 HARRY E. MOOSE  
 DB 254 PG 255

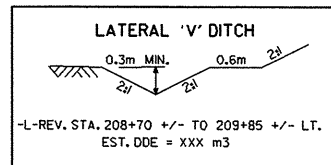
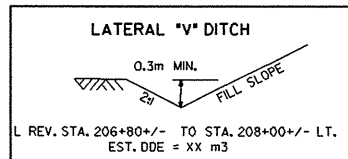
⑦  
 H.L. ROUSE  
 DB 282 PG 57



MATCH LINE -L-REV STA. 202+80 SEE SHEET 4

MATCH LINE -L-REV STA. 206+60 SEE SHEET 6

FOR -L- REV PROFILE, SEE SHEET 33



PROJ. REFERENCE NO. **R-2533CA** SHEET NO. **6**

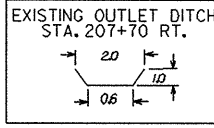
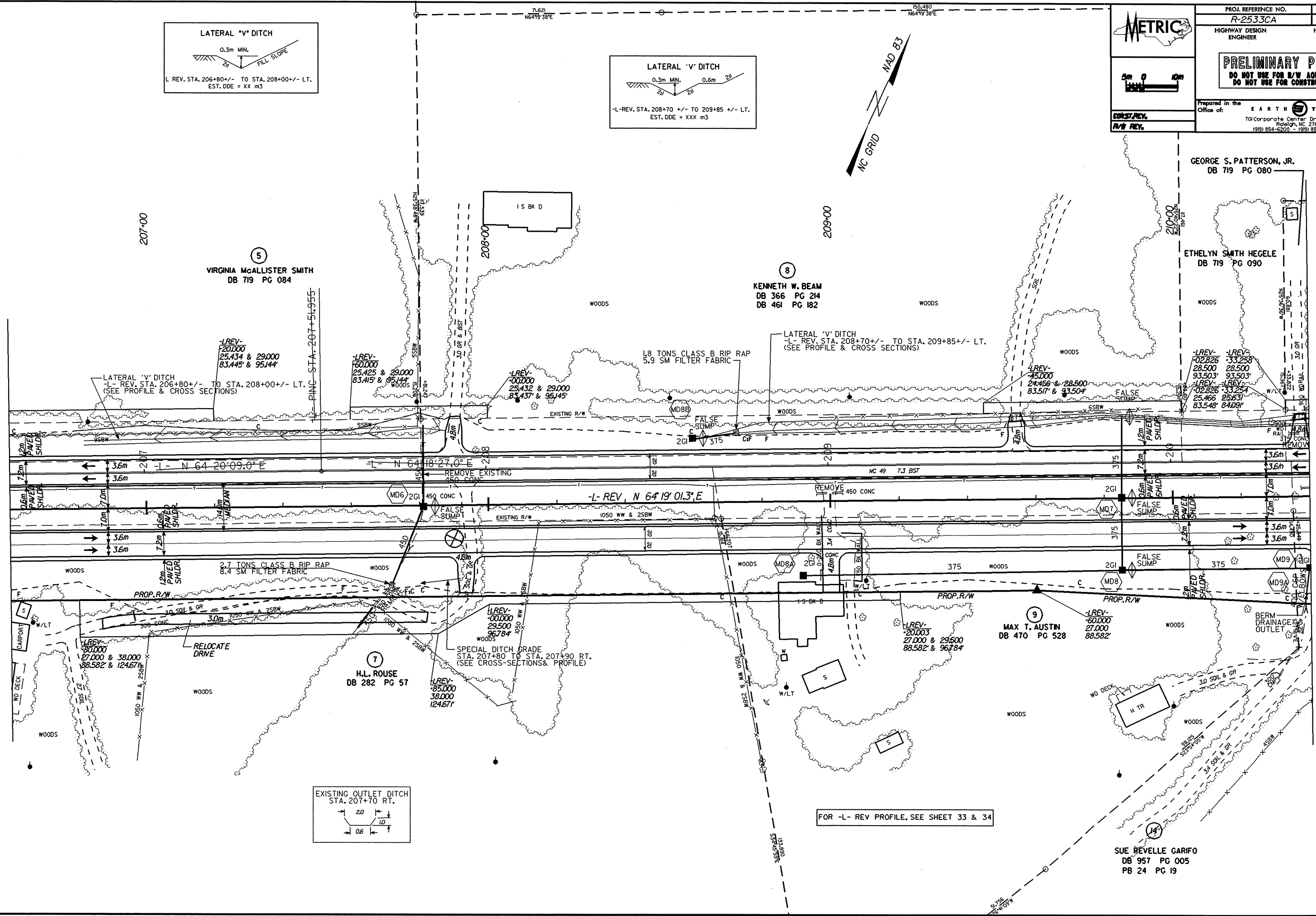
HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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

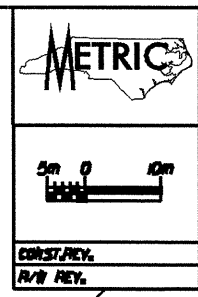
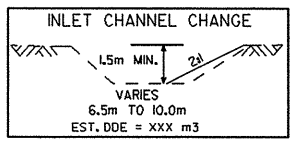
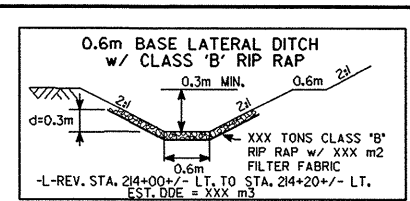
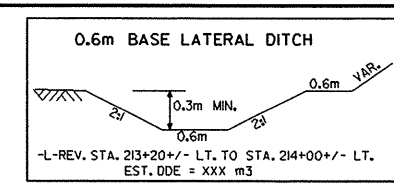
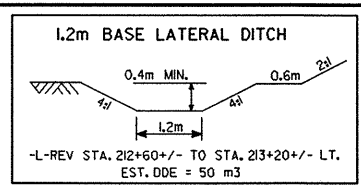
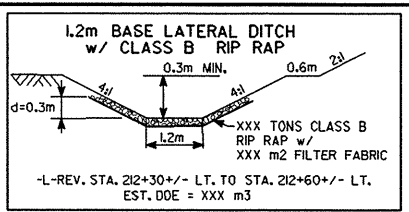
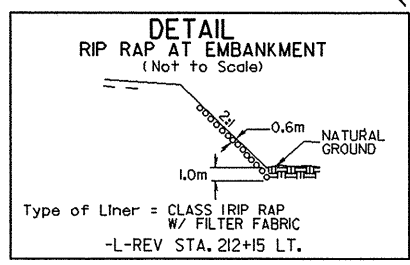
Prepared in the Office of: **EARTH TECH**  
70 Corporate Center Drive, Suite 475  
Raleigh, NC 27607  
(919) 854-6200 • (919) 854-6259(FAX)

MATCH LINE L-REV STA. 206+60 SEE SHEET 5

MATCH LINE L-REV STA. 210+40 SEE SHEET 7



FOR -L- REV PROFILE, SEE SHEET 33 & 34



ETHELYN SMITH HECELE  
DB 719 PG 090

MYRTIE FOIL McALLISTER, ESTATE  
DB 129 PG 520

JOHN RAY NOBLES, JR.  
DB 521 PG 561

GEORGE S. PATTERSON, JR.  
DB 719 PG 080

STEVEN B. COCHRANE  
DB 624 PG 497

LATERAL 'V' DITCH  
-L-REV. STA. 209+90 +/- TO STA. 212+15 +/- LT.  
(SEE PROFILE & CROSS SECTIONS)

BEGIN CULVERT  
-L-REV STA. 212+24.859

1.2m BASE LATERAL DITCH  
WITH CLASS 'B' RIP RAP & FILTER FABRIC  
STA. 212+30 +/- TO STA. 212+60 LT.  
(SEE PROFILE & CROSS-SECTIONS)

1.2m BASE LATERAL DITCH  
STA. 212+60 +/- TO STA. 213+20 LT.  
(SEE PROFILE & CROSS-SECTIONS)

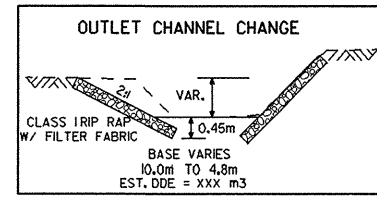
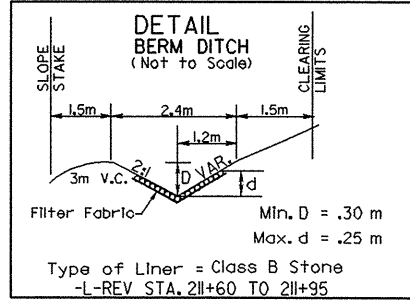
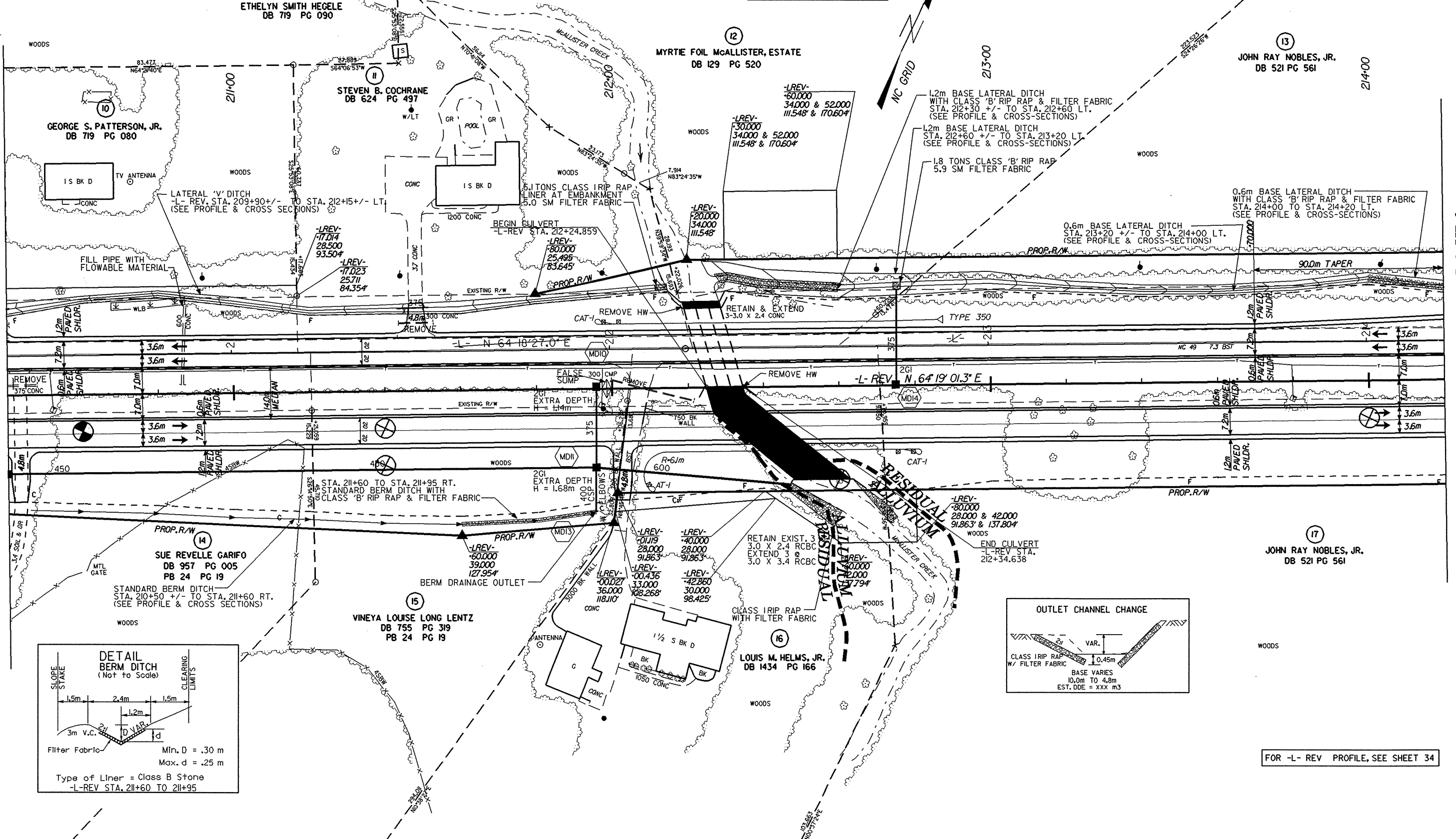
1.8 TONS CLASS 'B' RIP RAP  
5.9 SM FILTER FABRIC

0.6m BASE LATERAL DITCH  
STA. 213+20 +/- TO STA. 214+00 LT.  
(SEE PROFILE & CROSS-SECTIONS)

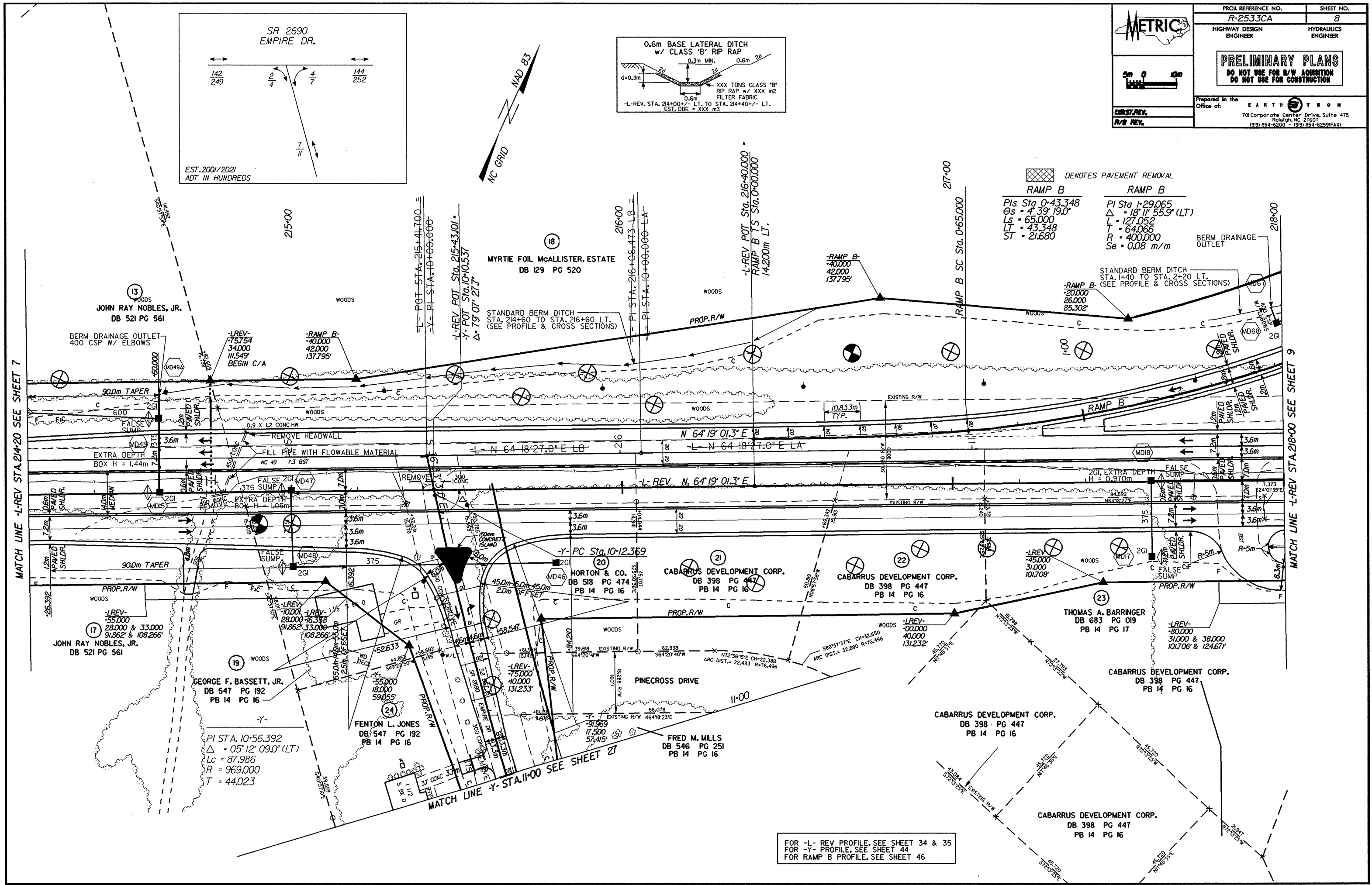
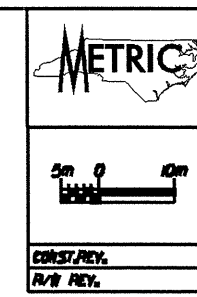
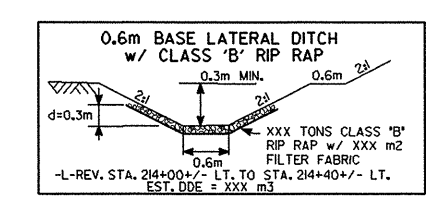
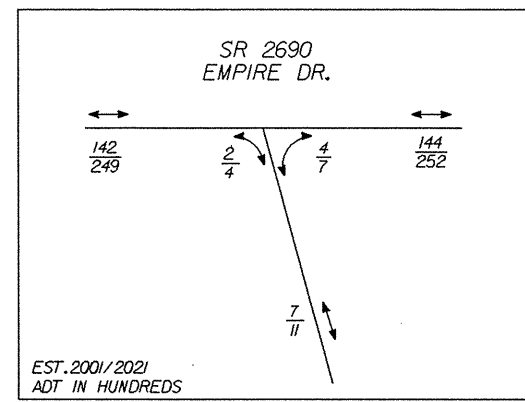
0.6m BASE LATERAL DITCH  
WITH CLASS 'B' RIP RAP & FILTER FABRIC  
STA. 214+00 TO STA. 214+20 LT.  
(SEE PROFILE & CROSS-SECTIONS)

MATCH LINE -L-REV STA. 210+40 SEE SHEET 6

MATCH LINE -L-REV STA. 214+20 SEE SHEET 8



FOR -L- REV PROFILE, SEE SHEET 34



RAMP B		RAMP B	
PIs Sta 0+43.348	PI Sta 1+29.065		
Os = 4' 39" 19.0"	Δ = 18" 11" 55.9" (LT)		
Ls = 65.000	L = 127.052		
LT = 43.348	T = 64.066		
ST = 21.680	R = 400.000		
	Se = 0.08 m/m		

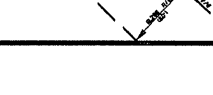
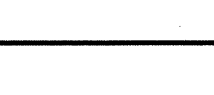
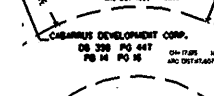
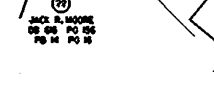
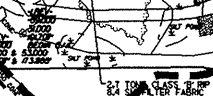
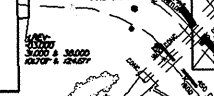
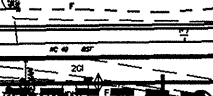
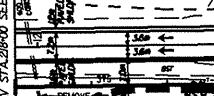
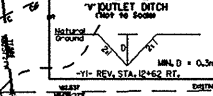
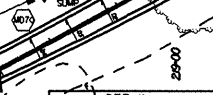
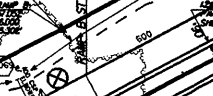
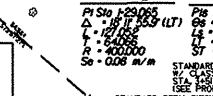
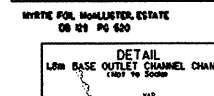
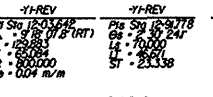
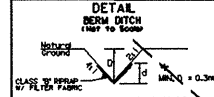
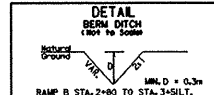
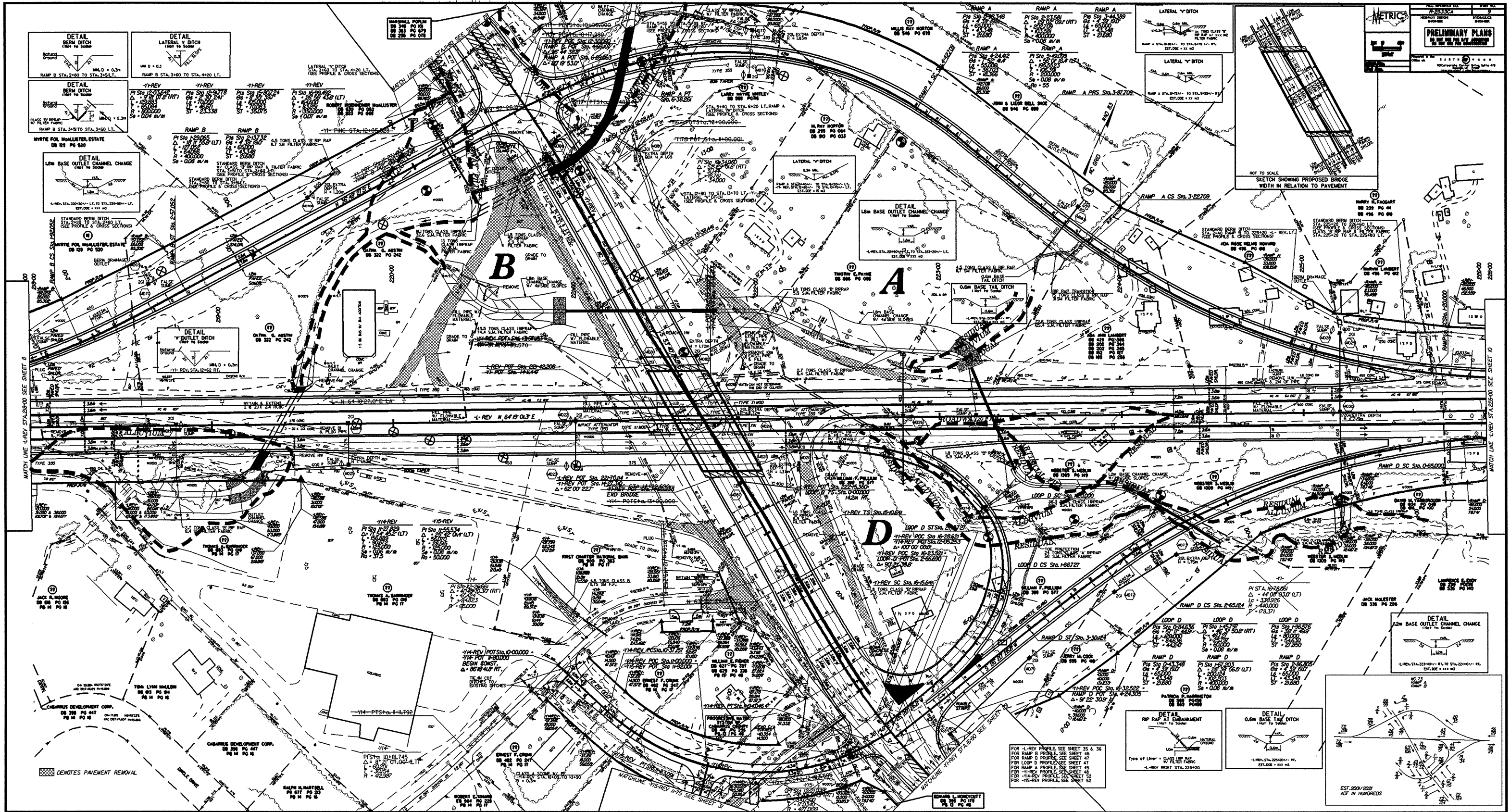
FOR -L- REV PROFILE, SEE SHEET 34 & 35  
FOR -Y- PROFILE, SEE SHEET 44  
FOR RAMP B PROFILE, SEE SHEET 46

MATCH LINE -L-REV STA. 214+20 SEE SHEET 7

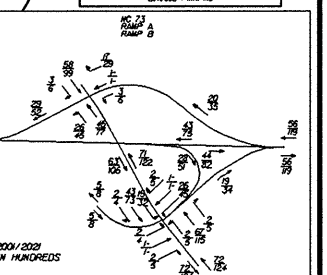
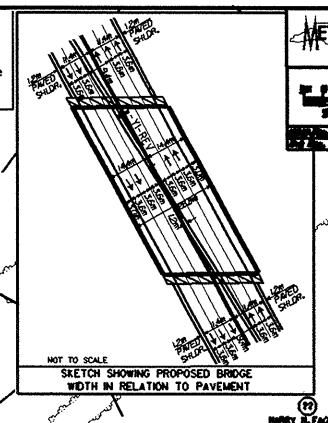
MATCH LINE -L-REV STA. 218+00 SEE SHEET 9

MATCH LINE -Y- STA. 11+00 SEE SHEET 27

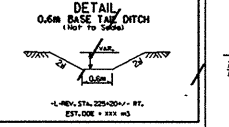
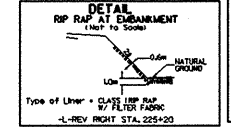




METRIC logo and project information including 'PRELIMINARY PLANS' and 'DATE: 10/15/09'.

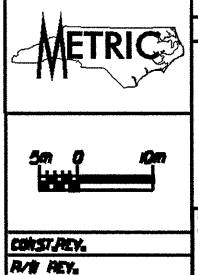


FOR L-REV PROFILE SEE SHEET 35 & 36  
FOR RAMP A PROFILE SEE SHEET 47  
FOR RAMP B PROFILE SEE SHEET 47  
FOR RAMP C PROFILE SEE SHEET 47  
FOR RAMP D PROFILE SEE SHEET 47  
FOR L-REV PROFILE SEE SHEET 48  
FOR L-REV PROFILE SEE SHEET 48  
FOR L-REV PROFILE SEE SHEET 48



EST. 2001/2009  
NOT IN HUNDREDS

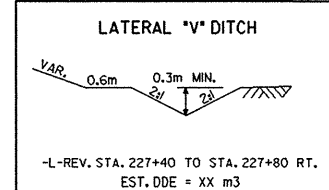
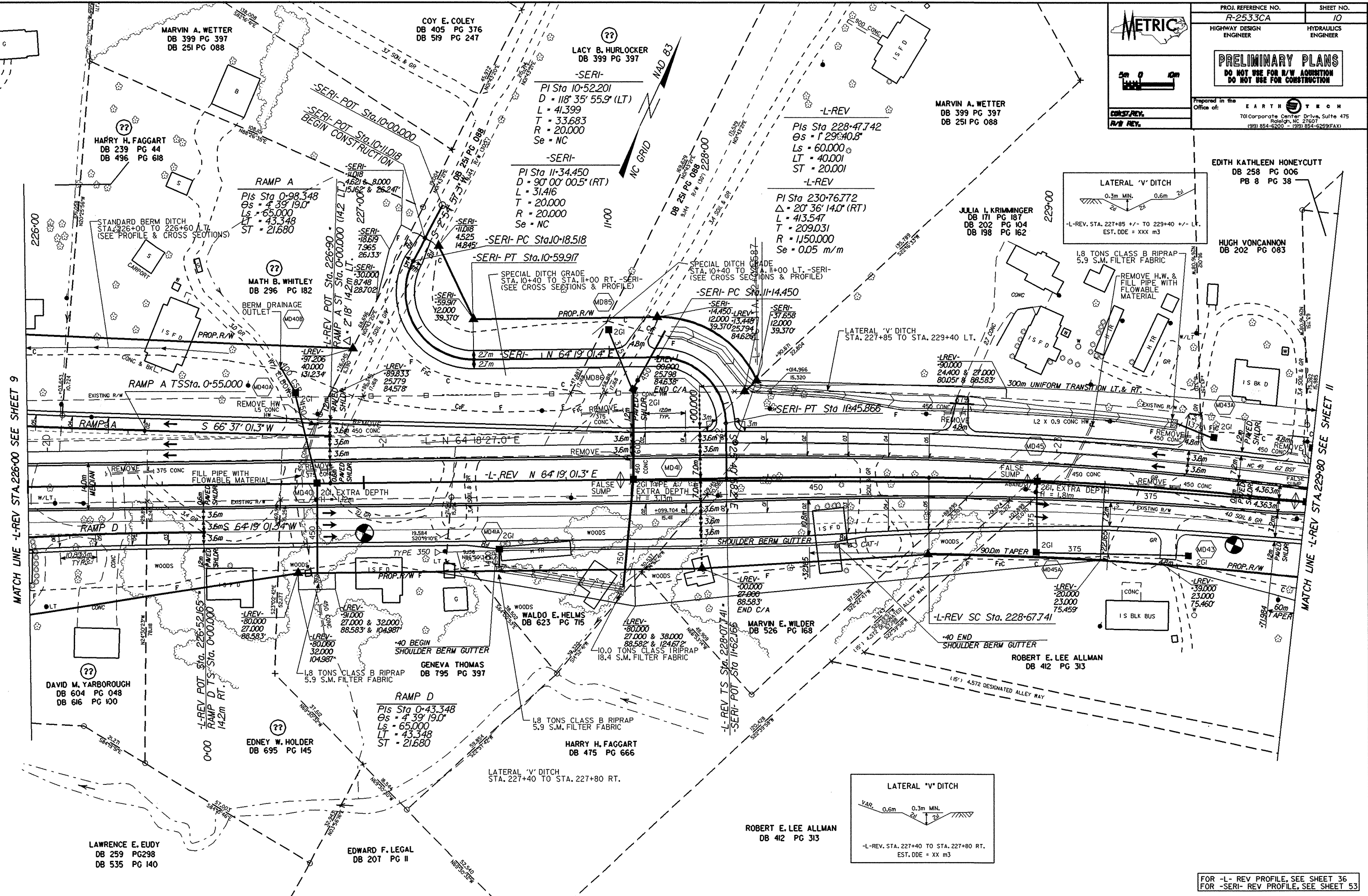




PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>10</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: <b>EARTH TECH</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6299 FAX	

MATCH LINE -L-REV STA. 226+00 SEE SHEET 9

MATCH LINE -L-REV STA. 229+80 SEE SHEET 11



FOR -L- REV PROFILE, SEE SHEET 36  
 FOR -S-REV PROFILE, SEE SHEET 53

HUGH VONCANNON  
DB 202 PG 083

-L-REV

PI Sta 230+76.772  
 $\Delta = 20' 36" 14.0" (RT)$   
L = 413.547  
T = 209.031  
R = 1150.000  
Se = 0.05 m/m

-L-REV

PIs Sta 233+01.289  
 $\Theta_s = 1' 29" 40.8"$   
Ls = 60.000  
L = 37.394  
R = 130.000  
ST = 20.001

-Y2-REV

PI Sta 10+65.358  
 $\Delta = 9' 19" 15.90" (LT)$   
L = 39.369  
T = 19.728  
R = 242.000  
Se = NC

-Y2-REV

PI Sta 11+22.394  
 $\Delta = 32' 05" 43.8" (LT)$   
L = 72.822  
T = 37.394  
R = 130.000  
Se = 0.06 m/m  
Ro = 30

-Y2-

PI STA 10+85.460  
 $\Delta = 18' 41" 33.0" (LT)$   
Lc = 78.952  
R = 242.000  
T = 39.830

THYRA E. DRYE  
DB 549 PG 184  
PB 8 PG 14

END CONSTRUCTION

-Y2-REV POC Sta.10+52.500

JOHN J. HILL  
DB 508 PG 618  
PB 8 PG 14

VANCE E. MILLER  
DB 409 PG 243  
PB 8 PG 14



PROJ. REFERENCE NO. R-2533CA	SHEET NO. 11
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	



CONST. REV.  
R/W REV.

JAMES D. HONEYCUTT  
DB 240 PG 335  
PB 8 PG 38

WILLIAM R. HONEYCUTT, JR.  
DB 258 PG 008  
PB 8 PG 38

-Y2-REV POC Sta.10+60.000

-Y2-REV POC Sta.10+45.630

GLORIA PETREA GRIFFIN  
DB 537 PG 012  
PB 8 PG 14

RETHFR FRICK  
DB 157 PG 072  
PB 8 PG 14

JEFFERY LEE ALLMAN  
DB 862 PG 008  
PB 8 PG 14

JAMES C. JOHNSON, III  
DB 605 PG 425  
PB 8 PG 14

JOHN HENRY McCLESTER  
DB 349 PG 98  
PB 8 PG 14

FRANKLIN L. EAGLE  
DB 199 PG 152  
PB 8 PG 38

PI STA. 24+47.789  
 $\Delta = 23' 36" 10.0" (RT)$   
Lc = 479.505  
R = 164.000  
T = 243.249

-L-REV-  
-31.000  
-20.039 & 25.000  
-65.746 & 82.021

-Y2-REV-  
-36.224  
-18.000  
-59.055

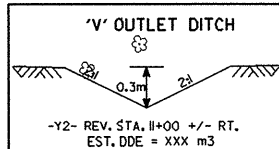
-Y2-REV-  
-32.000  
-15.000  
-49.213

-Y2-REV-  
-23.000  
-15.000  
-49.213

-L-REV-  
-23.773  
-21.000  
-68.898

-L-REV-  
-23.113  
-21.000  
-68.898

-L-REV-  
-30.000  
-15.240 & 26.000  
-49.998 & 85.302A



-Y2- REV. STA. 11+00 +/- RT.  
EST. DDE = XXX m3

300m UNIFORM TRANSITION LT. & RT.

EXISTING R/W

RAISED SHOULDER

CONCRETE ISLAND

WOODS

HIP RAP TRANSITION

60m TAPER ABAND

RAISED SHOULDER

EXISTING R/W

SOIL & GR

SOIL & GR

SOIL & GR

SOIL & GR

SOIL & GR

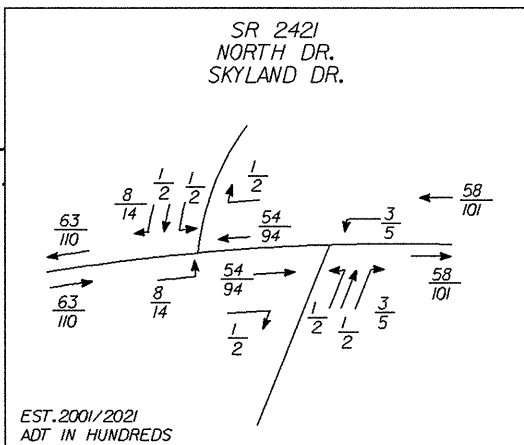
SOIL & GR

SOIL & GR

SOIL & GR

SOIL & GR

SOIL & GR



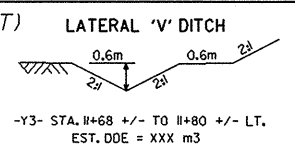
EST. 2001/2021  
ADT IN HUNDREDS

ROBERT E. LEE ALLMAN  
DB 412 PG 313

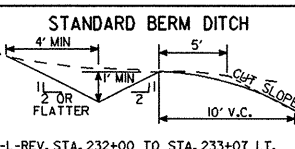
HOMER & OLA MAE McCLESTER  
DB 342 PG 244

KATHERINE B. EAGLE  
DB 208 PG 197  
PB 8 PG 14

PI STA. 11+26.766  
 $\Delta = 07' 05" 33.0" (RT)$   
Lc = 49.020  
R = 396.000  
T = 24.541



-Y3- STA. 11+68 +/- TO 11+80 +/- LT.  
EST. DDE = XXX m3



-L-REV. STA. 232+00 TO STA. 233+07 LT.

-L-REV POC Sta. 232+36.562 -  
-Y3- POT Sta. 10+01.541  
 $\Delta = 66' 54" 48.31"$

-L-REV CS Sta. 232+81.288

-L-REV-  
-60.000  
-19.356 & 22.000  
-63.490 & 72.178

-L-REV-  
-30.000  
-14.000  
-45.931

-L-REV-  
-23.000  
-18.002  
-59.055

-Y3-  
-30.000  
-14.000  
-45.931

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

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-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

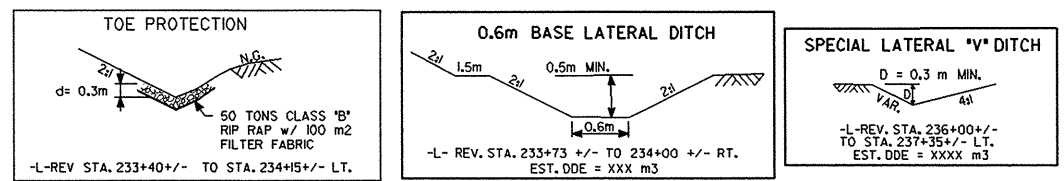
-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

-Y3-  
-23.000  
-18.002  
-59.055

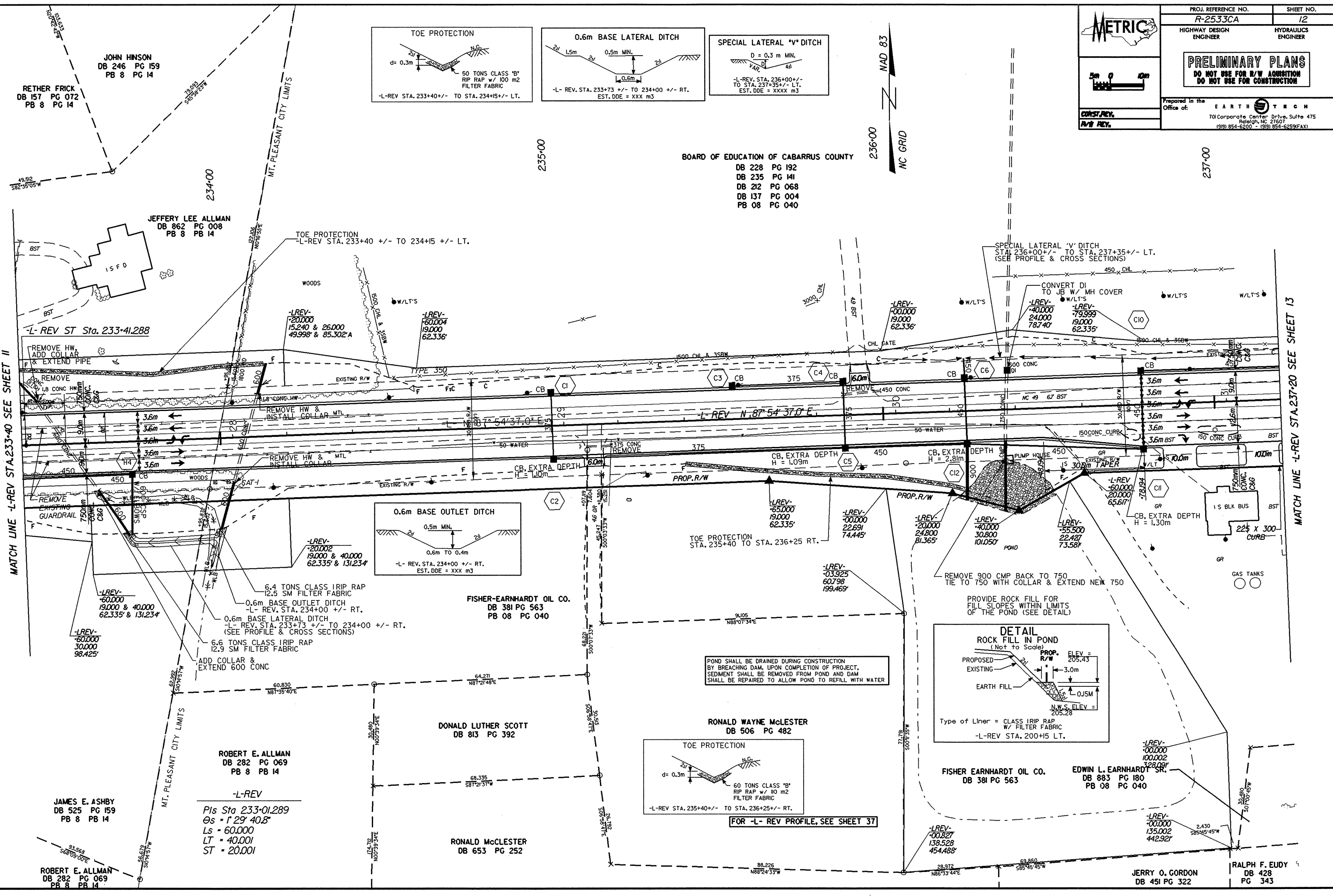
MATCH LINE -L-REV STA. 233+40 SEE SHEET 12

MATCH LINE -L-REV STA. 229+80 SEE SHEET 10



NAD 83  
236+00  
NC GRID

BOARD OF EDUCATION OF CABARRUS COUNTY  
DB 228 PG 192  
DB 235 PG 141  
DB 212 PG 068  
DB 137 PG 004  
PB 08 PG 040



MATCH LINE -L-REV STA.233+40 SEE SHEET 11

MATCH LINE -L-REV STA.237+20 SEE SHEET 13

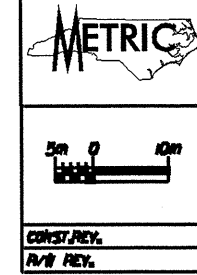
POND SHALL BE DRAINED DURING CONSTRUCTION BY BREACHING DAM. UPON COMPLETION OF PROJECT, SEDIMENT SHALL BE REMOVED FROM POND AND DAM SHALL BE REPAIRED TO ALLOW POND TO REFILL WITH WATER

FOR -L- REV PROFILE, SEE SHEET 37

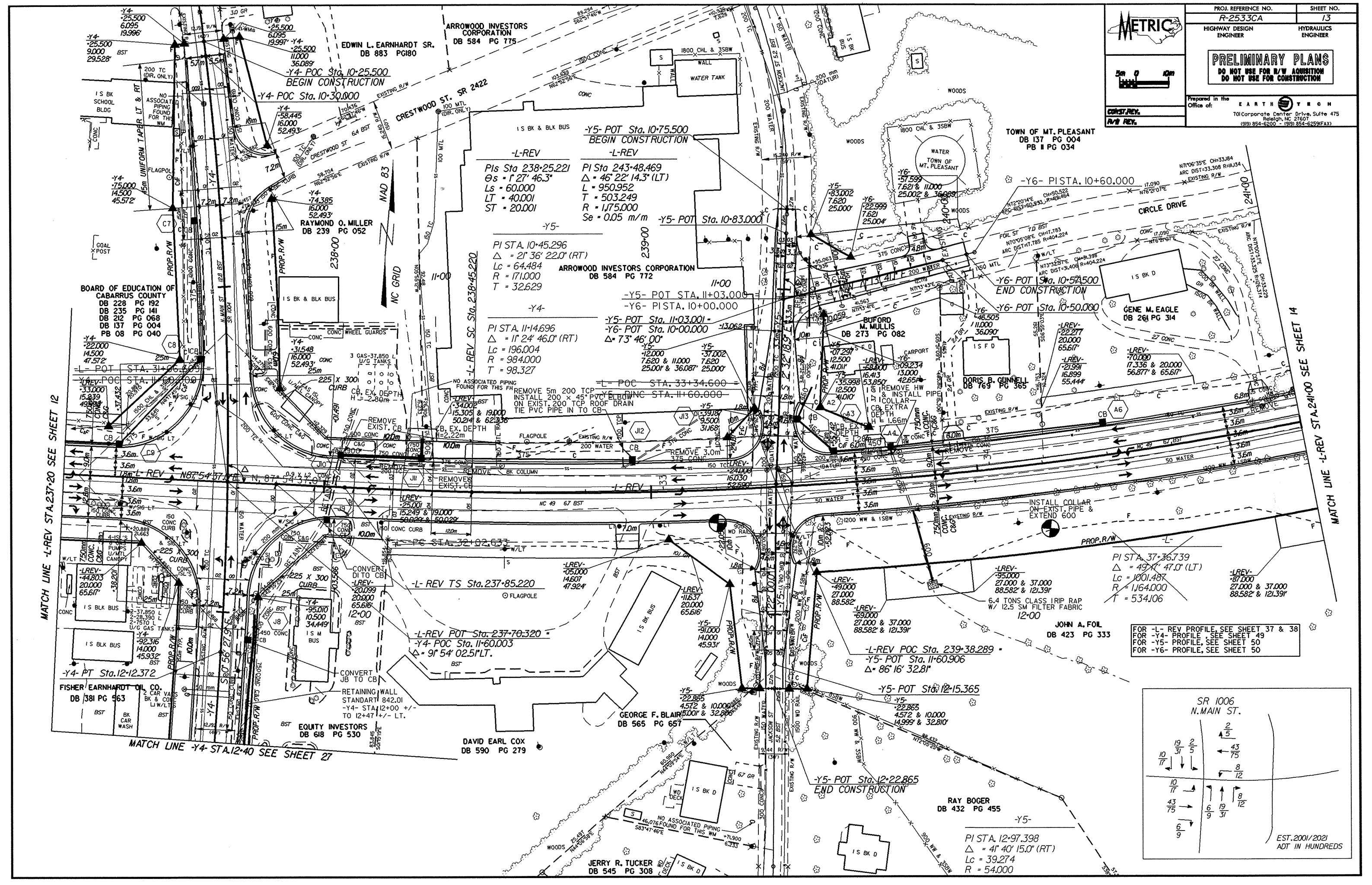
-L-REV  
Pis Sta 233+01.289  
Os = 1' 29" 40.8"  
Ls = 60.000  
LT = 40.001  
ST = 20.001

JERRY O. GORDON DB 451 PG 322  
RALPH F. EUDY DB 428 PG 343





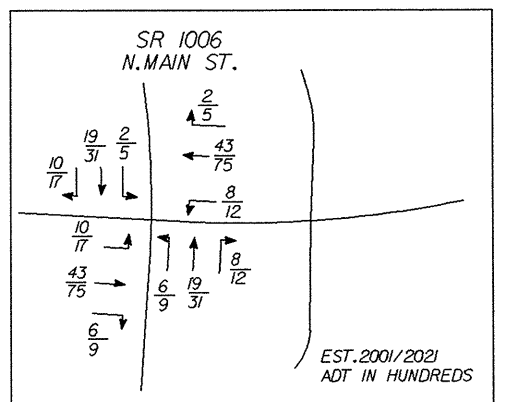
PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>13</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: <b>EARTH TECH</b>	
70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 FAX	



MATCH LINE -L-REV STA. 237+20 SEE SHEET 12

MATCH LINE -L-REV STA. 241+00 SEE SHEET 14

FOR -L-REV PROFILE, SEE SHEET 37 & 38  
FOR -Y4- PROFILE, SEE SHEET 49  
FOR -Y5- PROFILE, SEE SHEET 50  
FOR -Y6- PROFILE, SEE SHEET 50



**EDWIN L. EARNHARDT SR.**  
DB 883 PG 180  
-Y4- POC Sta. 10+25.500  
BEGIN CONSTRUCTION  
-Y4- POC Sta. 10+30.000

**ARROWOOD INVESTORS CORPORATION**  
DB 584 PG 775  
-Y5- POT Sta. 10+75.500  
BEGIN CONSTRUCTION

**TOWN OF MT. PLEASANT**  
DB 137 PG 004  
PB II PG 034

**-L-REV**  
PI Sta 238+25.221  
 $\Delta = 1' 27' 46.3"$   
Ls = 60.000  
LT = 40.001  
ST = 20.001

**ARROWOOD INVESTORS CORPORATION**  
DB 584 PG 772  
-Y5- POT Sta. 10+83.000  
-Y6- PISTA. 10+00.000

**-L-REV**  
PI STA. 11+4.696  
 $\Delta = 11' 24' 46.0" (RT)$   
Lc = 196.004  
R = 984.000  
T = 98.327

**-Y5- POT Sta. 11+03.000**  
**-Y6- PISTA. 10+00.000**  
PI STA. 11+03.001  
 $\Delta = 7' 3' 46.0"$   
Lc = 12.500  
R = 11.000  
T = 25.000

**-Y6- PISTA. 10+60.000**  
**-Y6- POT Sta. 10+50.000**  
**-Y6- POT Sta. 10+57.500**  
END CONSTRUCTION

**BOARD OF EDUCATION OF CABARRUS COUNTY**  
DB 228 PG 192  
DB 235 PG 141  
DB 212 PG 068  
DB 137 PG 004  
PB 08 PG 040

**-Y4- POT Sta. 11+00.000**  
**-Y4- POC Sta. 11+00.000**  
PI STA. 11+00.000  
 $\Delta = 11' 24' 46.0" (RT)$

**-L-REV TS Sta. 237+85.220**  
**-L-REV POT Sta. 237+70.320**  
**-Y4- POC Sta. 11+60.003**  
 $\Delta = 9' 54' 02.5" LT.$

**-L-REV POC Sta. 239+38.289**  
**-Y5- POT Sta. 11+60.906**  
 $\Delta = 86' 16' 32.8"$

**-Y5- POT Sta. 12+15.365**  
**-Y5- POT Sta. 12+22.865**  
END CONSTRUCTION

**RAY BOGER**  
DB 432 PG 455  
**-Y5-**  
PI STA. 12+97.398  
 $\Delta = 4' 40' 15.0" (RT)$   
Lc = 39.274  
R = 54.000

**JERRY R. TUCKER**  
DB 545 PG 308

**DAVID EARL COX**  
DB 590 PG 279

**EQUITY INVESTORS**  
DB 618 PG 530

**FISHER EARNHARDT OIL CO.**  
DB 381 PG 563

**-L-REV**  
PI STA. 37+36.739  
 $\Delta = 49' 11' 47.0" (LT)$   
Lc = 1001.487  
R = 1164.000  
T = 5341.06

**-L-REV**  
PI STA. 33+34.600  
 $\Delta = 11' 24' 46.0" (RT)$   
Lc = 196.004  
R = 984.000  
T = 98.327

**-L-REV**  
PI STA. 11+4.696  
 $\Delta = 11' 24' 46.0" (RT)$   
Lc = 196.004  
R = 984.000  
T = 98.327

**-Y5- POT Sta. 11+03.000**  
**-Y6- PISTA. 10+00.000**  
PI STA. 11+03.001  
 $\Delta = 7' 3' 46.0"$   
Lc = 12.500  
R = 11.000  
T = 25.000

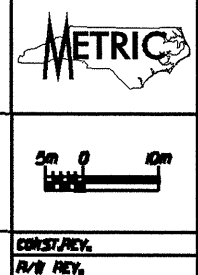
**-Y4- POT Sta. 11+00.000**  
**-Y4- POC Sta. 11+00.000**  
PI STA. 11+00.000  
 $\Delta = 11' 24' 46.0" (RT)$

**-Y4- POT Sta. 10+30.000**  
**-Y4- POC Sta. 10+25.500**  
BEGIN CONSTRUCTION

**EDWIN L. EARNHARDT SR.**  
DB 883 PG 180  
-Y4- POC Sta. 10+25.500  
BEGIN CONSTRUCTION  
-Y4- POC Sta. 10+30.000

**ARROWOOD INVESTORS CORPORATION**  
DB 584 PG 775  
-Y5- POT Sta. 10+75.500  
BEGIN CONSTRUCTION

**TOWN OF MT. PLEASANT**  
DB 137 PG 004  
PB II PG 034



PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>14</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
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TOWN OF MT. PLEASANT  
DB 137 PG 004  
PB II PG 034

EDWIN L. EARNHARDT  
DB 434 PG 477  
PB II PG 34

FRED E. MORRISON  
DB 279 PG 313  
DB 319 PG 187  
DB 504 PG 499  
PB 12 PG 62

LYDIA W. FOSTER  
DB 613 PG 373  
PB 12 PG 62

ERVIN L. McMURPHY  
DB 626 PG 438  
PB 15 PG 45

ERVIN L. McMURPHY  
DB 651 PG 281  
PB 15 PG 45

SIDNEY B. KLUTTZ, II  
DB 609 PG 562

MILLARD ANDRE CORRELL  
DB 458 PG 254  
PB 15 PG 45

GENE M. EAGLE  
DB 261 PG 314

TOWN OF MT. PLEASANT  
DB 236 PG 206  
DB 407 PG 482

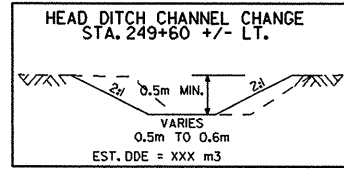
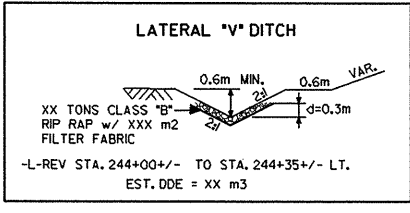
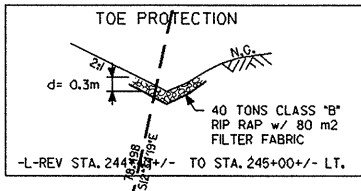
RUTH V. KLUTTZ  
DB 212 PG 037

JOHN A. FOIL  
DB 423 PG 333

REECE A. KLUTTZ  
DB 374 PG 279

RUTH KLUTTZ  
DB 307 PG 275

DONALD RAY WHITTINGTON  
DB 437 PG 513



**-L-REV**  
PI Sta 243+48.469  
 $\Delta = 46^{\circ} 22' 14.3" (LT)$   
L = 950.952  
T = 503.249  
R = 1,175.000  
Se = 0.05 m/m

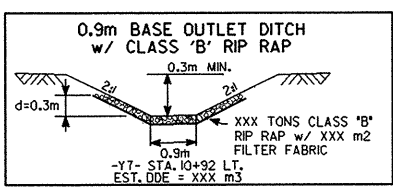
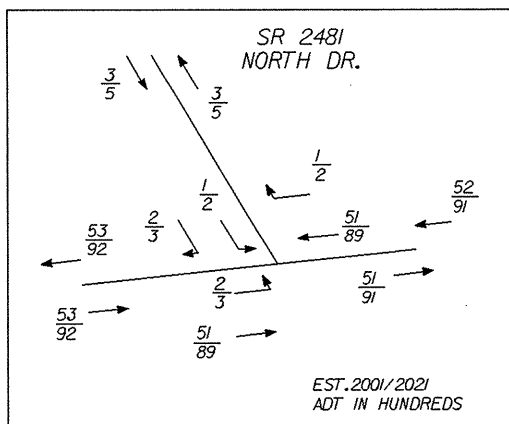
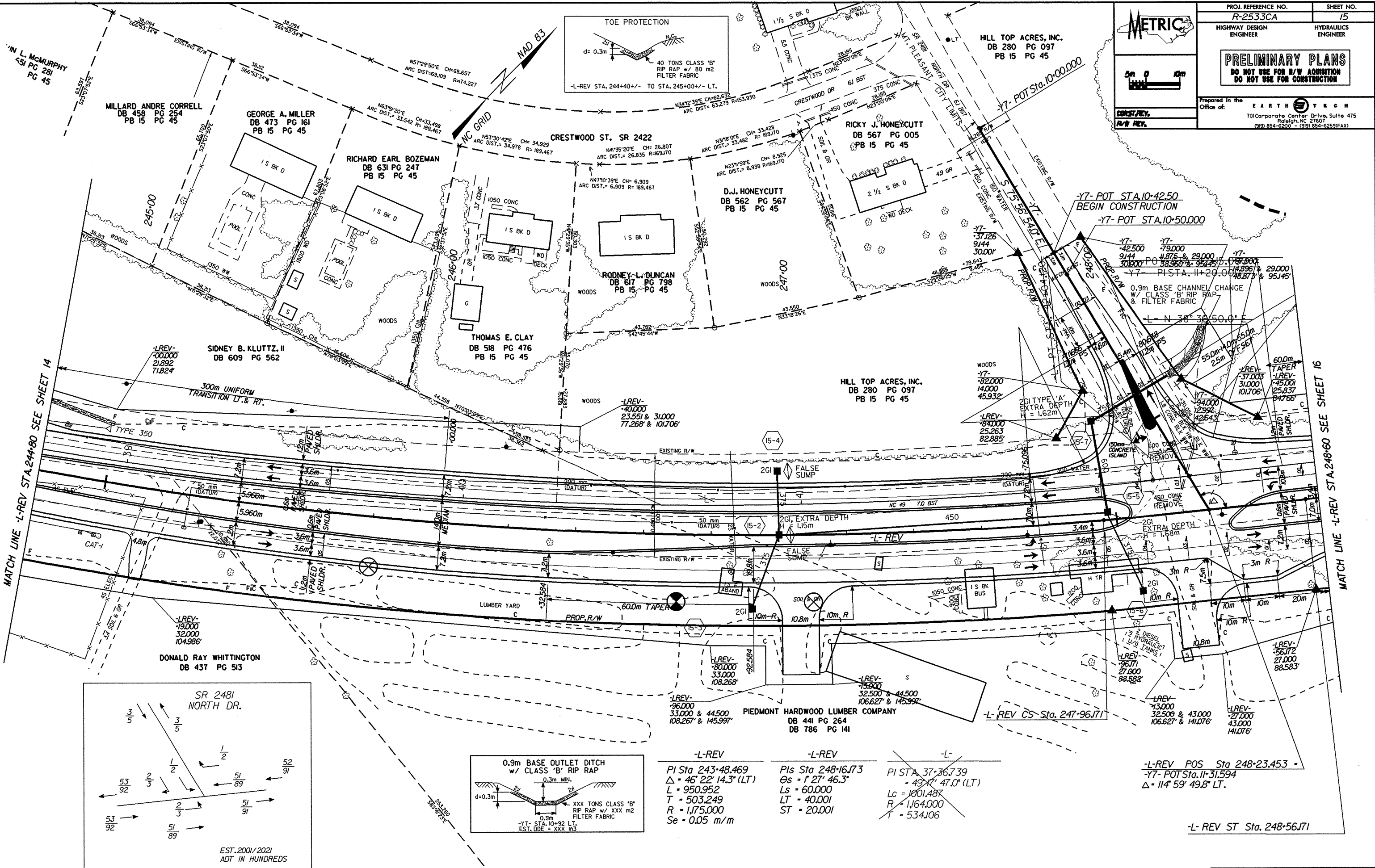
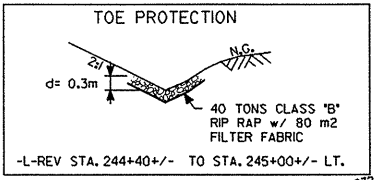
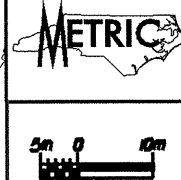
PI STA. 37+36.739  
 $\Delta = 49^{\circ} 47.0" (LT)$   
Lc = 1001.487  
R = 1,164.000  
T = 534.106

MATCH LINE -L-REV STA. 241+00 SEE SHEET 13

MATCH LINE -L-REV STA. 244+80 SEE SHEET 15

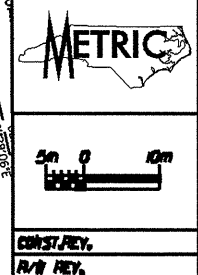
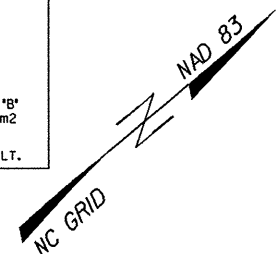
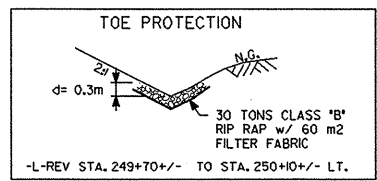
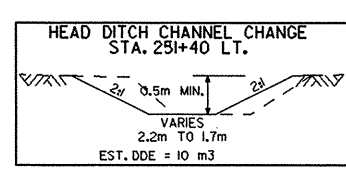
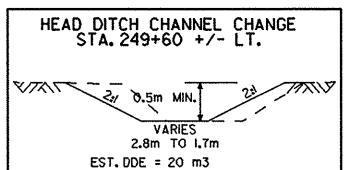
FOR -L- REV PROFILE, SEE SHEET 38





-L-REV	-L-REV	-L-
PI Sta 243+48.469	PIs Sta 248+16.73	PI STA. 37+36.739
Δ = 46° 22' 14.3" (LT)	Os = 1' 27' 46.3"	= 49' 17' 47.0" (LT)
L = 950.952	Ls = 60.000	Lc = 1001.487
T = 503.249	LT = 40.001	R = 1,164.000
R = 1,175.000	ST = 20.001	T = 534.106
Se = 0.05 m/m		

FOR -L- REV PROFILE, SEE SHEET 38.39  
 FOR -Y7- PROFILE, SEE SHEET 50



**CARL D. KLUTTZ**  
DB 228 PG 231

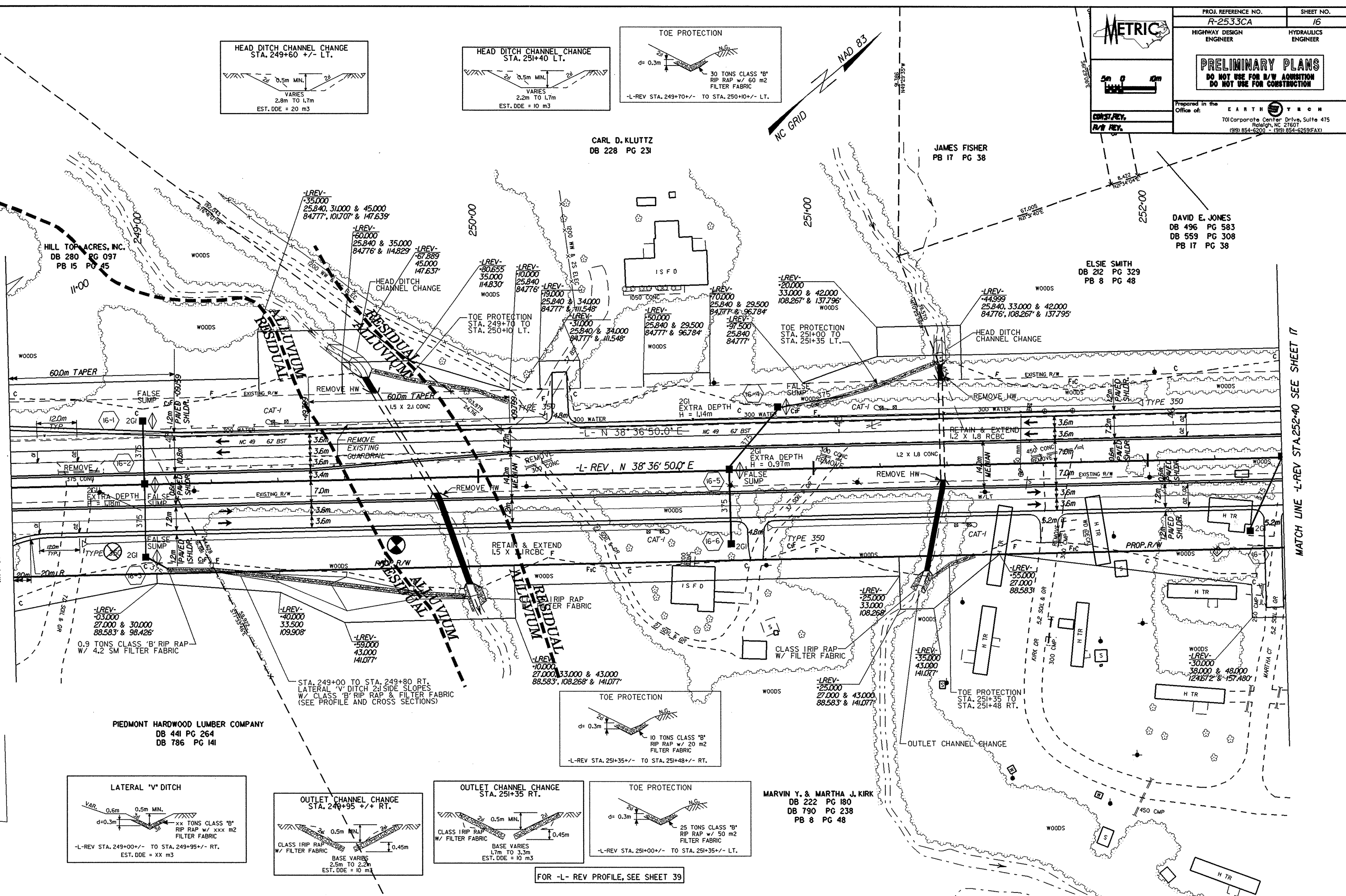
**JAMES FISHER**  
PB 17 PG 38

**DAVID E. JONES**  
DB 496 PG 583  
DB 559 PG 308  
PB 17 PG 38

**ELSIE SMITH**  
DB 212 PG 329  
PB 8 PG 48

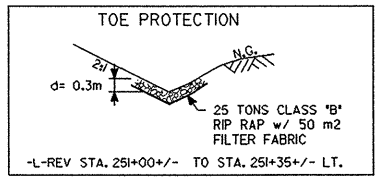
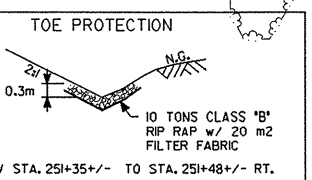
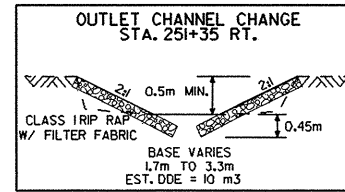
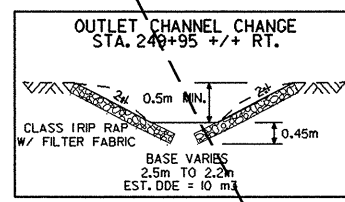
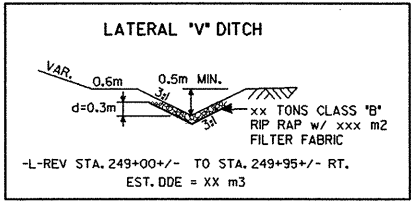
MATCH LINE -L-REV STA. 248+60 SEE SHEET 15

MATCH LINE -L-REV STA. 252+40 SEE SHEET 17



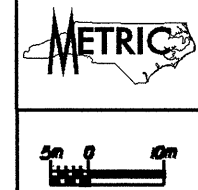
**PIEDMONT HARDWOOD LUMBER COMPANY**  
DB 441 PG 264  
DB 786 PG 141

**MARVIN Y. & MARTHA J. KIRK**  
DB 222 PG 180  
DB 790 PG 238  
PB 8 PG 48



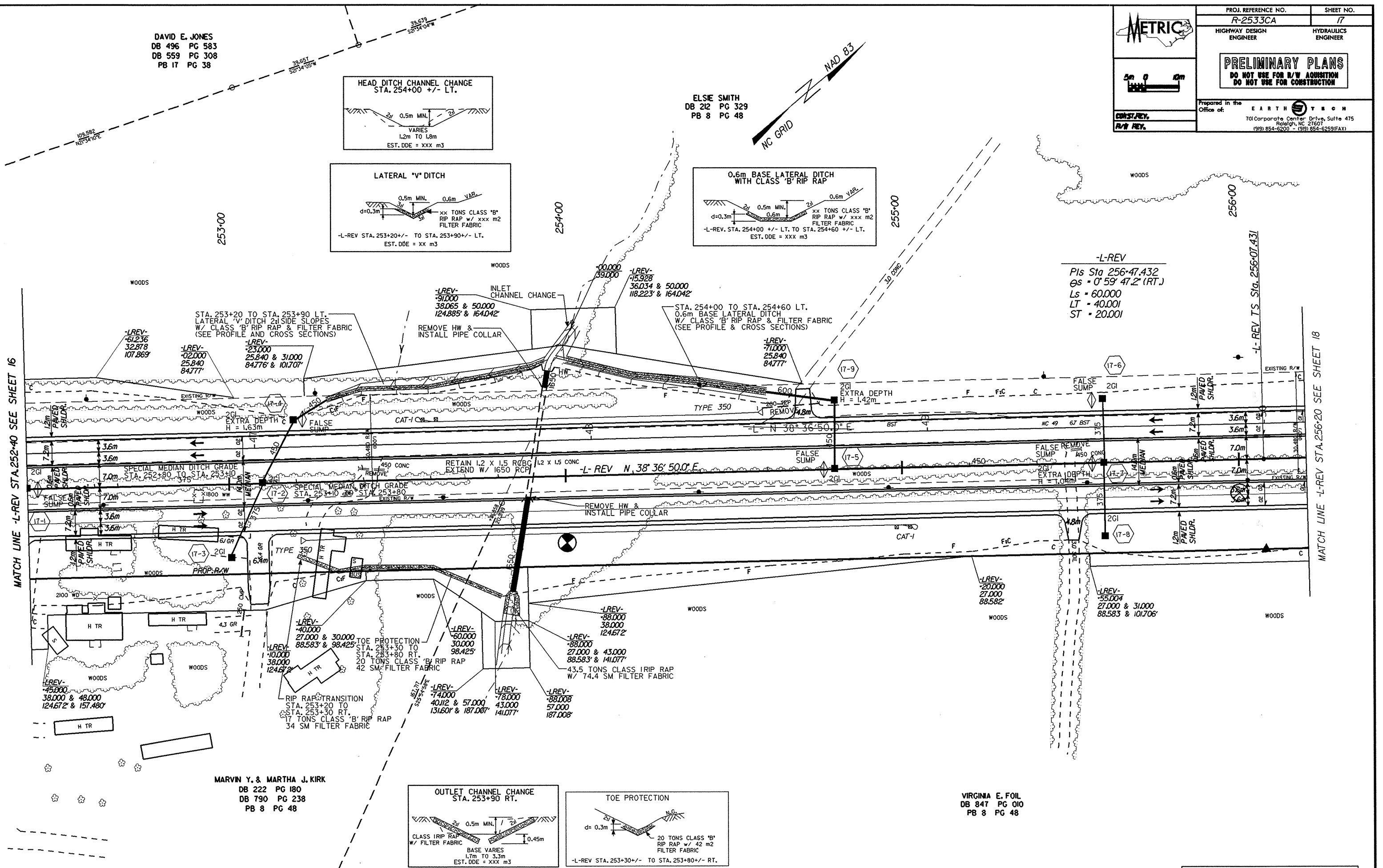
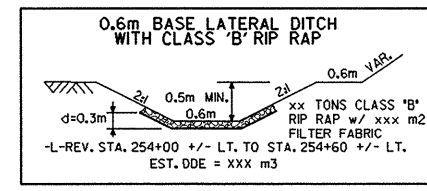
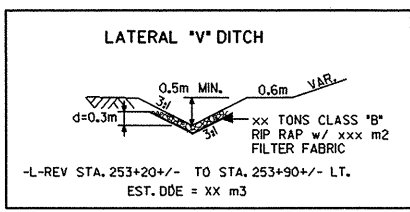
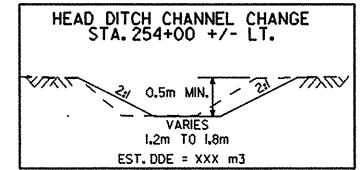
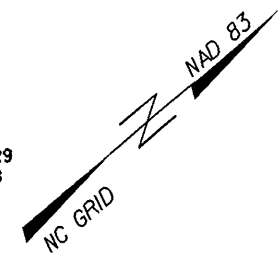
FOR -L- REV PROFILE, SEE SHEET 39

DAVID E. JONES  
DB 496 PG 583  
DB 559 PG 308  
PB 17 PG 38



PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>17</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
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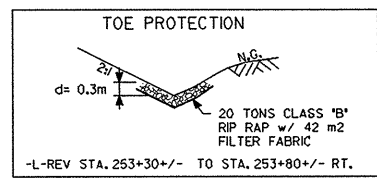
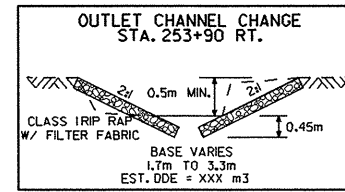
ELSIE SMITH  
DB 212 PG 329  
PB 8 PG 48



-L-REV  
Pls Sta 256+47.432  
@s = 0' 59' 47.2" (RT.)  
Ls = 60.000  
LT = 40.001  
ST = 20.001

MARVIN Y. & MARTHA J. KIRK  
DB 222 PG 180  
DB 790 PG 238  
PB 8 PG 48

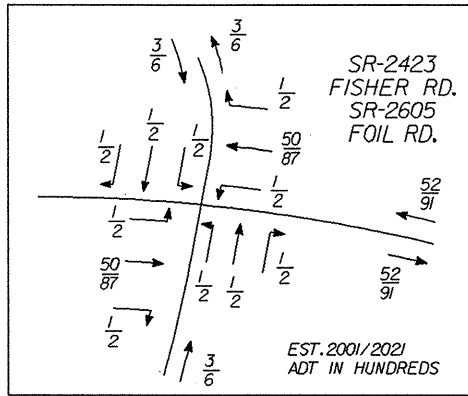
VIRGINIA E. FOIL  
DB 847 PG 010  
PB 8 PG 48



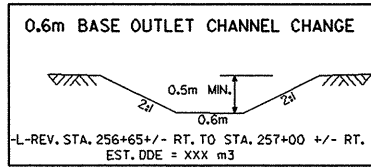
FOR -L- REV PROFILE, SEE SHEET 39 & 40

**-L-REV**  
 Pls Sta 256+47.432  
 $\Delta s = 0^{\circ} 59' 47.2" (RT)$   
 $Ls = 60.000$   
 $LT = 40.001$   
 $ST = 20.001$

**-L-REV**  
 Pls Sta 258+79.436  
 $\Delta = 14^{\circ} 00' 47.6" (RT)$   
 $L = 421.895$   
 $T = 212.005$   
 $R = 1725.000$   
 $Se = 0.03 \text{ m/m}$



STEVE L. MEDLIN  
DB 602 PG 294



MATCH LINE -L-REV STA. 256+20 SEE SHEET 17

MATCH LINE -L-REV STA. 280+00 SEE SHEET 19

**METRIC**

PROJ. REFERENCE NO. **R-2533CA** SHEET NO. **18**

HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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

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Raleigh, NC 27607  
(919) 854-6200 - (919) 854-6289(FAX)

CONST. REV.  
R/W REV.

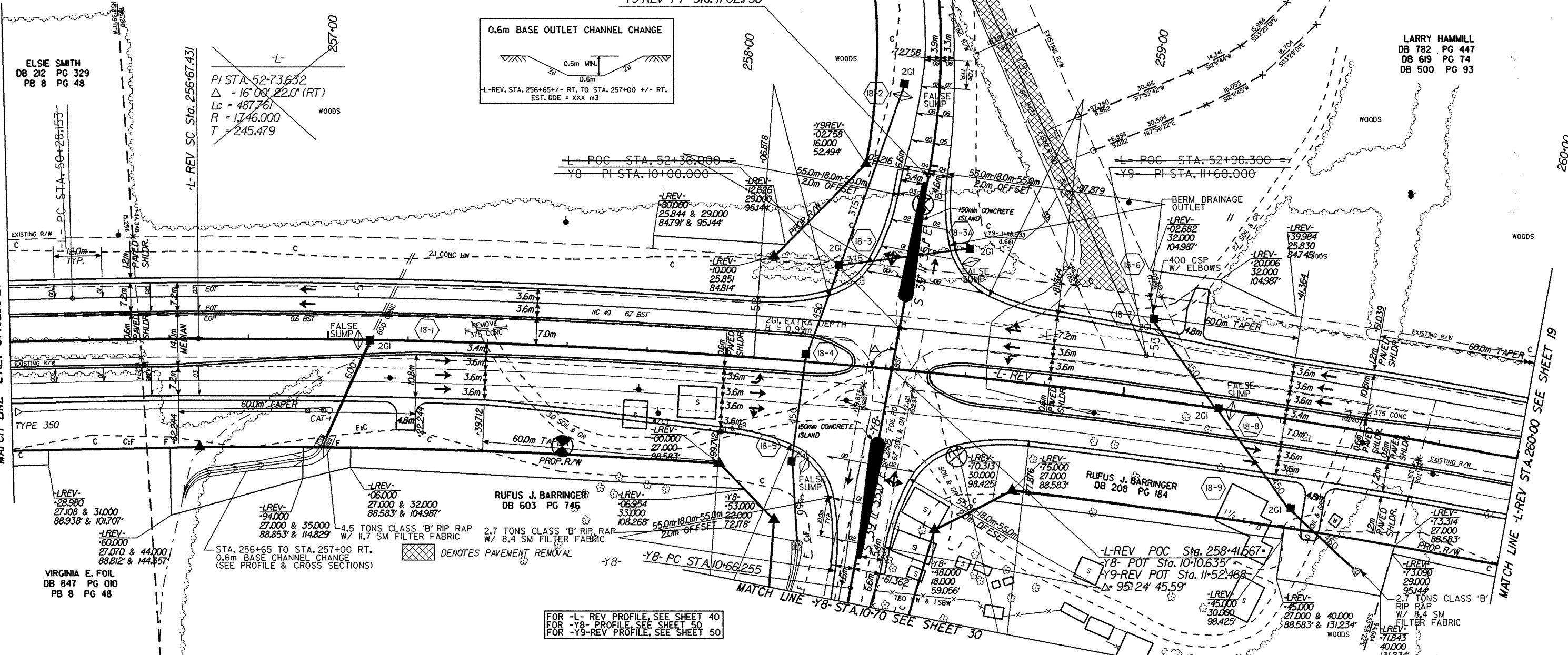
ROGER W. HARTSELL  
DB 1109 PG 003  
DB 1280 PG 294

**-Y9-REV**  
 Pls Sta 10+51.259  
 $\Delta = 34^{\circ} 50' 11.9" (RT)$   
 $L = 106.403$   
 $T = 54.903$   
 $R = 175.000$   
 $Se = 0.08 \text{ m/m}$   
 $Ro = 56.000$

LARRY HAMMILL  
DB 782 PG 447  
DB 619 PG 74  
DB 500 PG 93

LARRY HAMMILL  
DB 782 PG 447  
DB 619 PG 74  
DB 500 PG 93

FOR -L- REV PROFILE, SEE SHEET 40  
 FOR -Y8- PROFILE, SEE SHEET 50  
 FOR -Y9-REV PROFILE, SEE SHEET 50





ROGER W. HARTSELL  
DB 1109 PG 003  
DB 1280 PG 294

LULA SWINSON  
DB 393 PG 628

LARRY HAMMILL  
DB 782 PG 447  
DB 619 PG 74  
DB 500 PG 93

WEBSTER S. MEDLIN, ET. UX.  
DB 1309 PG 149 (TRACT # 10, 11, 12)

**METRIC**

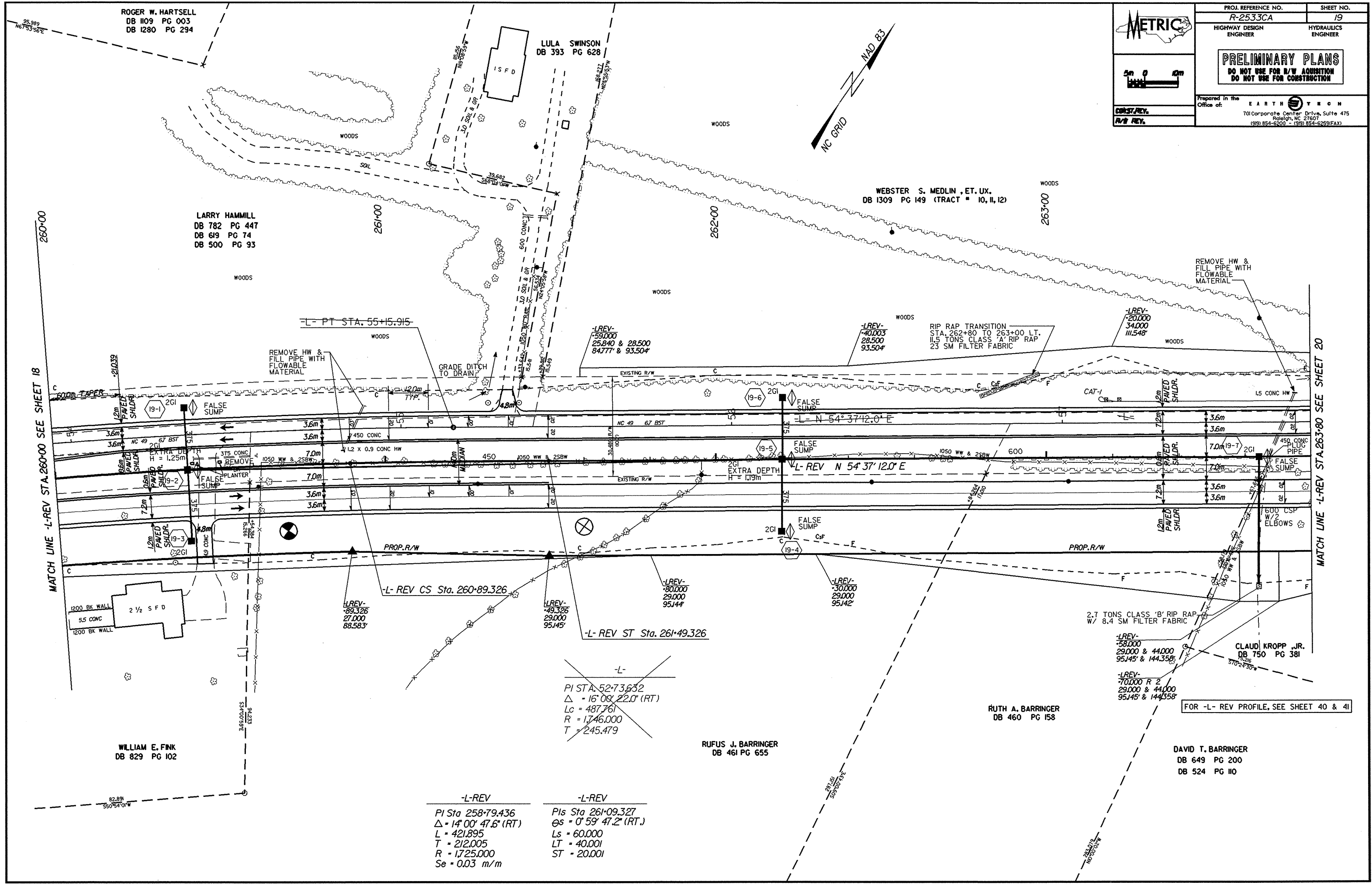
PROJ. REFERENCE NO. R-2533CA SHEET NO. 19

HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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

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CONST. REV. R/W REV.



MATCH LINE -L-REV STA. 260+00 SEE SHEET 18

MATCH LINE -L-REV STA. 263+80 SEE SHEET 20

~~-L-~~  
PI STA. 52+73.632  
Δ = 16° 00' 22.0" (RT)  
Lc = 487.761  
R = 1746.000  
T = 245.479

-L-REV	-L-REV
PI Sta 258+79.436	PIs Sta 261+09.327
Δ = 14° 00' 47.6" (RT)	∅s = 0° 59' 47.2" (RT)
L = 421.895	Ls = 60.000
T = 212.005	LT = 40.001
R = 1725.000	ST = 20.001
Se = 0.03 m/m	

RUTH A. BARRINGER  
DB 460 PG 158

RUFUS J. BARRINGER  
DB 461 PG 655

DAVID T. BARRINGER  
DB 649 PG 200  
DB 524 PG 110

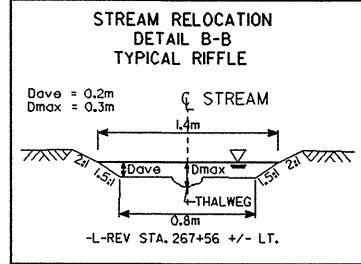
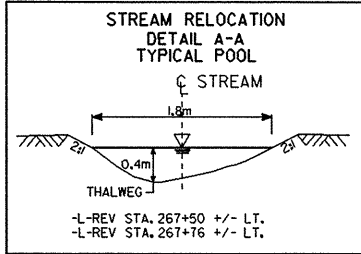
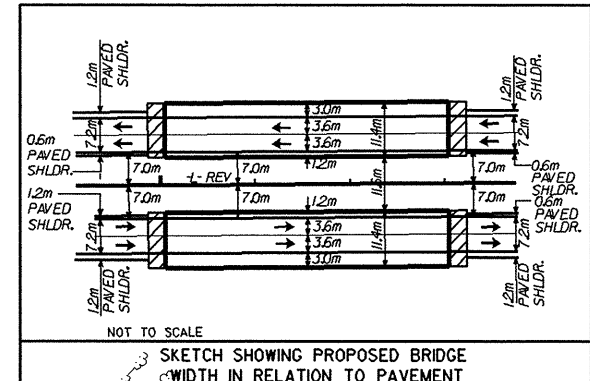
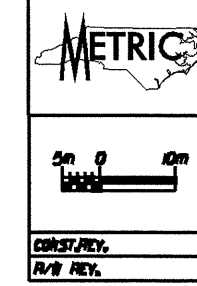
FOR -L- REV PROFILE, SEE SHEET 40 & 41

CLAUD KROPP, JR.  
DB 750 PG 381

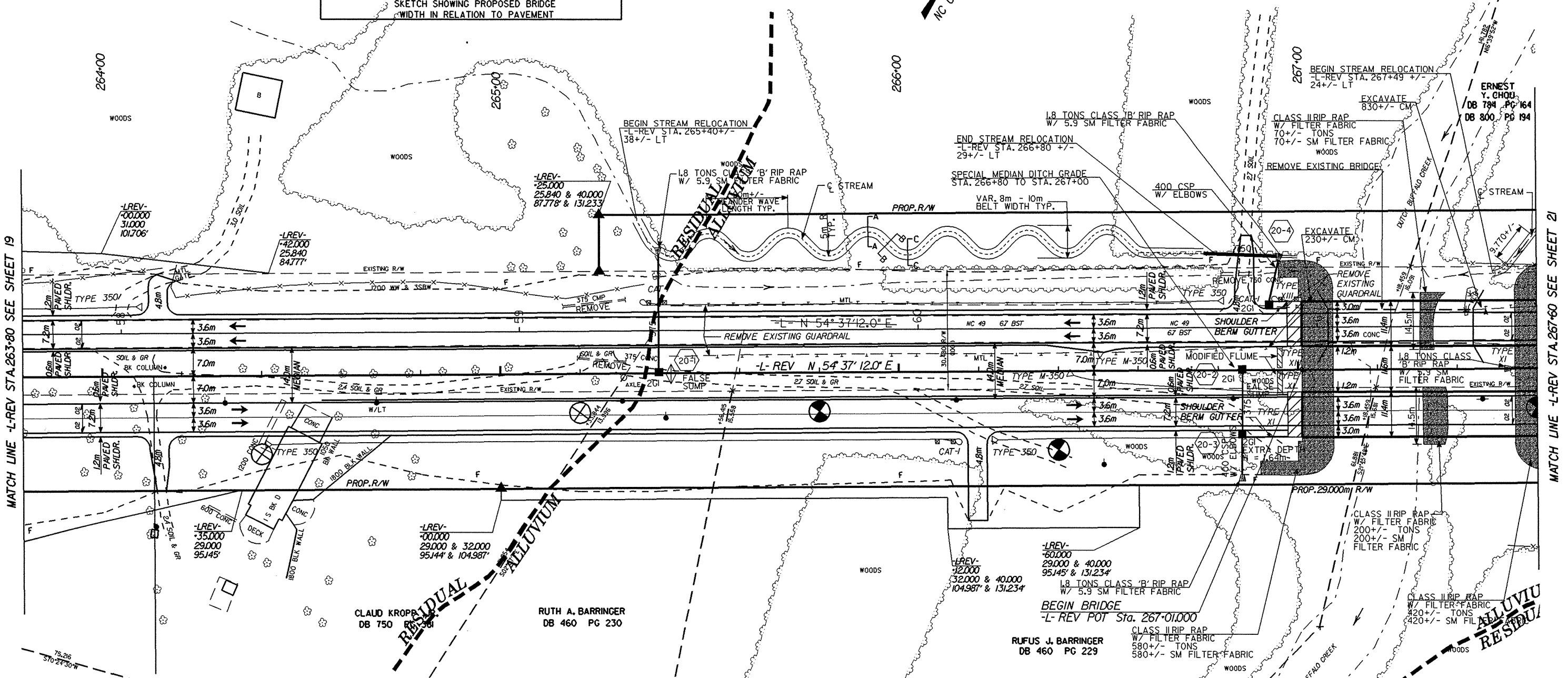
2.7 TONS CLASS 'B' RIP RAP  
W/ 8.4 SM FILTER FABRIC

RIP RAP TRANSITION  
STA. 262+80 TO 263+00 LT.  
11.5 TONS CLASS 'A' RIP RAP  
23 SM FILTER FABRIC



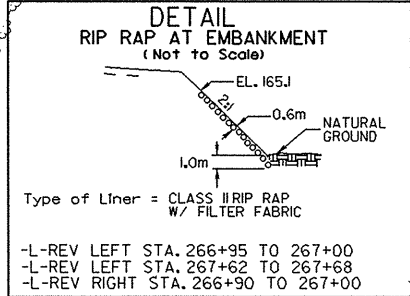
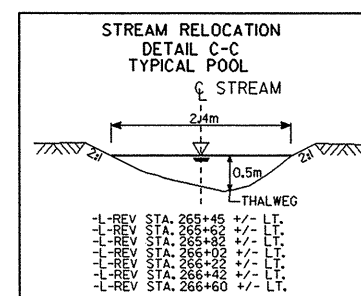
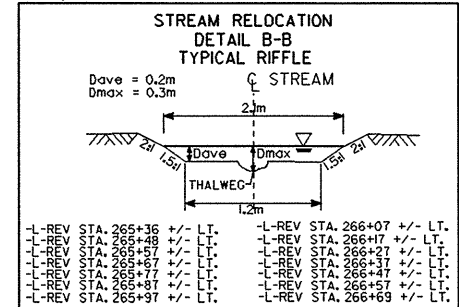
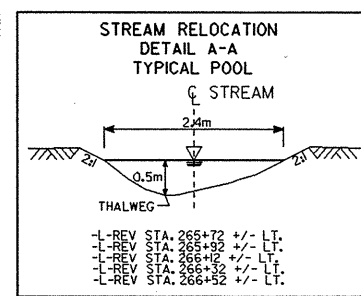


WEBSTER S. MEDLIN, ET. UX.  
DB 1309 PG 149 (TRACT # 10, 11, 12)



MATCH LINE -L-REV STA. 263+80 SEE SHEET 19

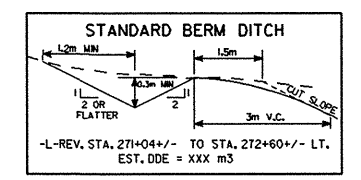
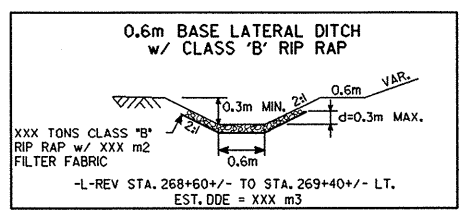
MATCH LINE -L-REV STA. 267+60 SEE SHEET 21



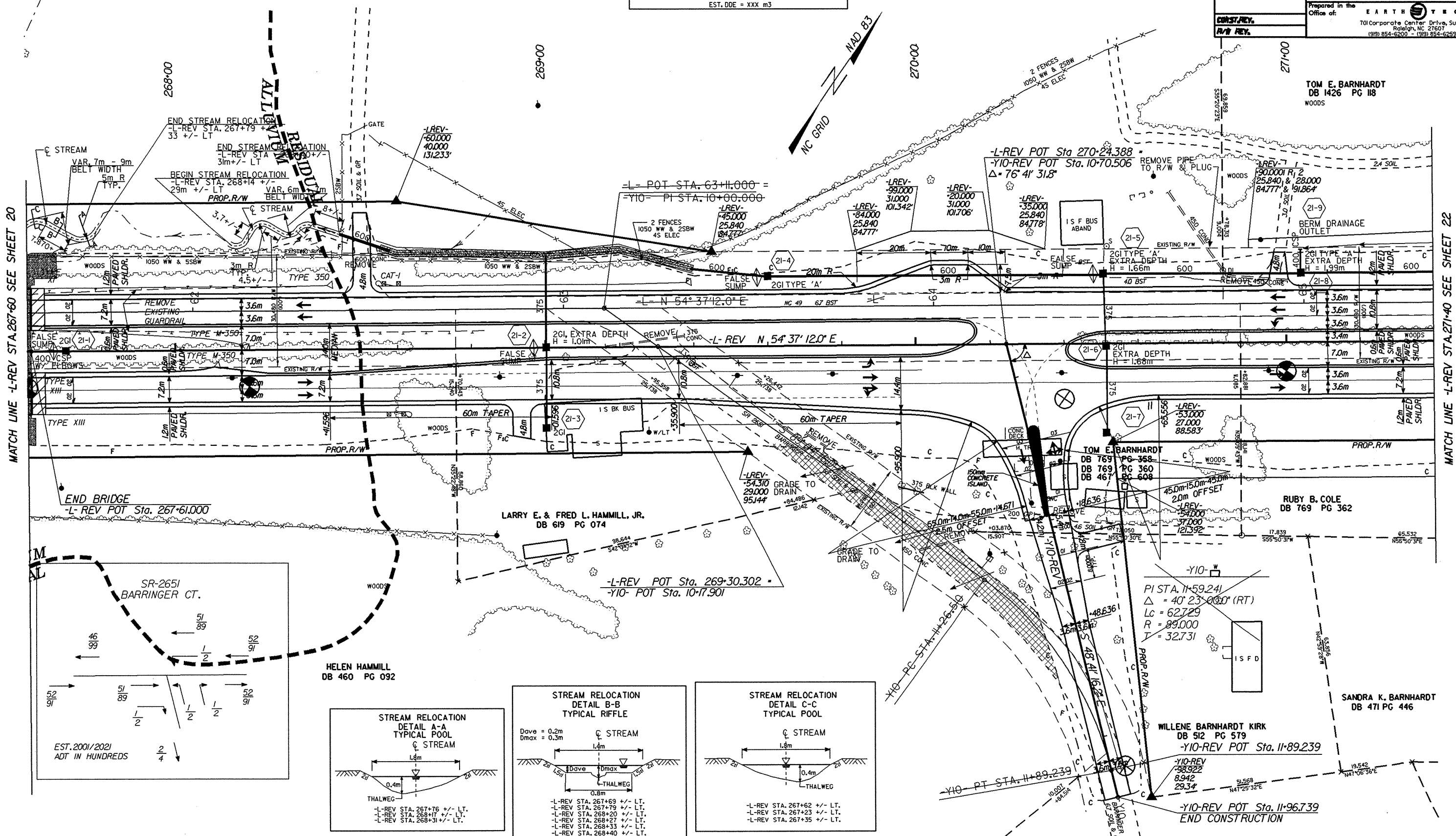
FOR -L REV PROFILE, SEE SHEET 41

DAVID T. BARRINGER  
DB 649 PG 200  
DB 524 PG 110

**TOM E. BARNHARDT**  
DB 1426 PG 118  
WOODS

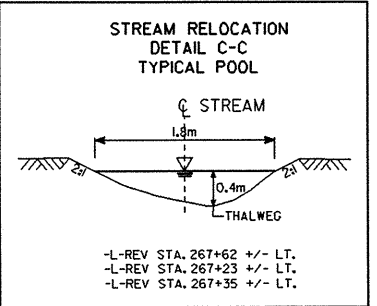
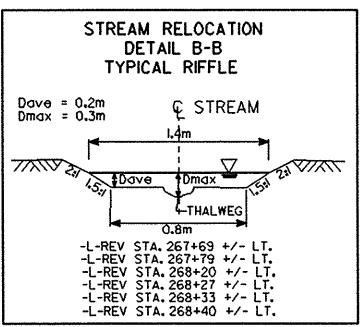
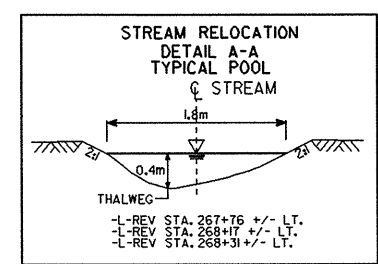


**ERNEST Y. CHOU**  
DB 784 PG 164  
DB 800 PG 194



MATCH LINE -L-REV STA. 267+60 SEE SHEET 20

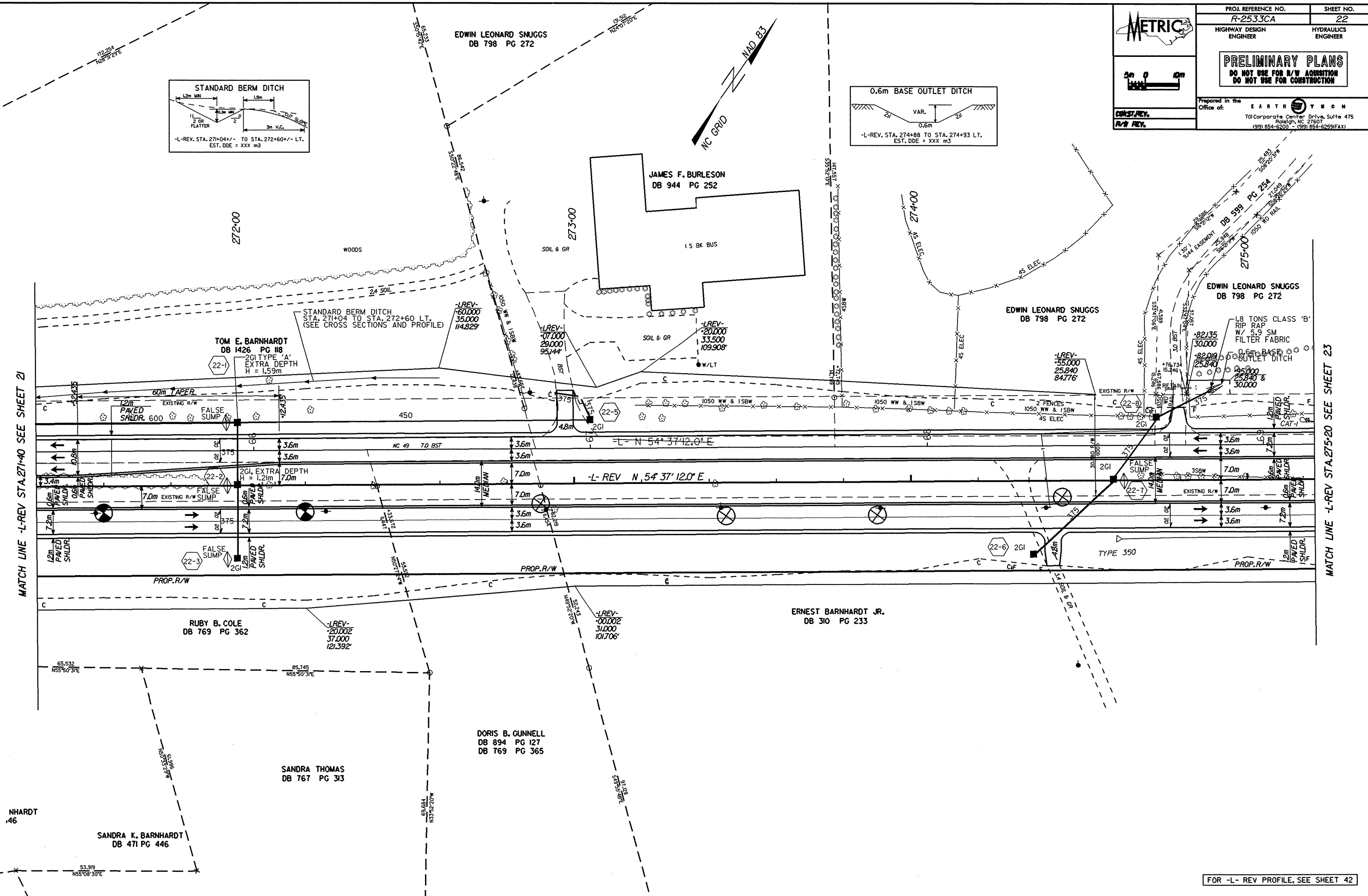
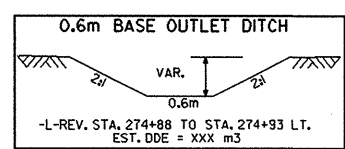
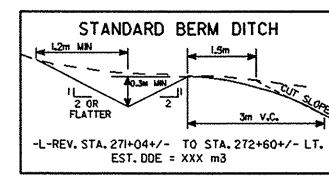
MATCH LINE -L-REV STA. 271+40 SEE SHEET 22



DENOTES PAVEMENT REMOVAL

FOR -L- REV PROFILE, SEE SHEET 41 & 42  
FOR -Y10- REV PROFILE, SEE SHEET 51

	PROJ. REFERENCE NO.	SHEET NO.
	R-2533CA	22
	HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION		
Prepared in the Office of:		
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 (919) 854-6253(FAX)		
CONST. REV.		
R/W REV.		



FOR -L- REV PROFILE, SEE SHEET 42

	PROJ. REFERENCE NO.	SHEET NO.
	R-2533CA	23
	HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION		
Prepared in the Office of:		
CONST. REV. R/W REV.	701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	

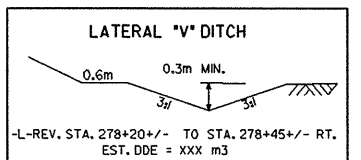
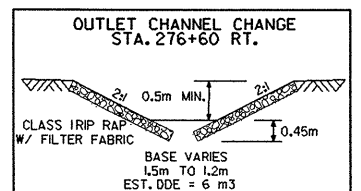
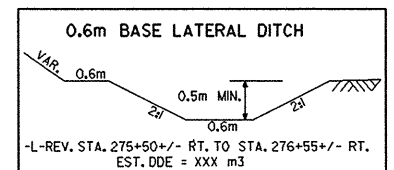
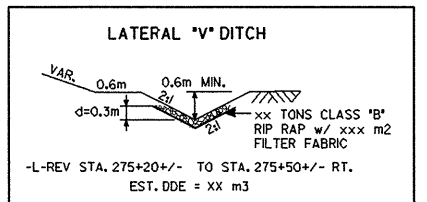
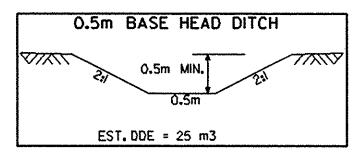
EDWIN LEONARD SNUGGS  
DB 798 PG 272

FRED N. COVINGTON III  
DB 792 PG 147

ELIZABETH PATTERSON COOK  
DB 472 PG 195

M. DWIGHT FURR  
DB 864 PG 132

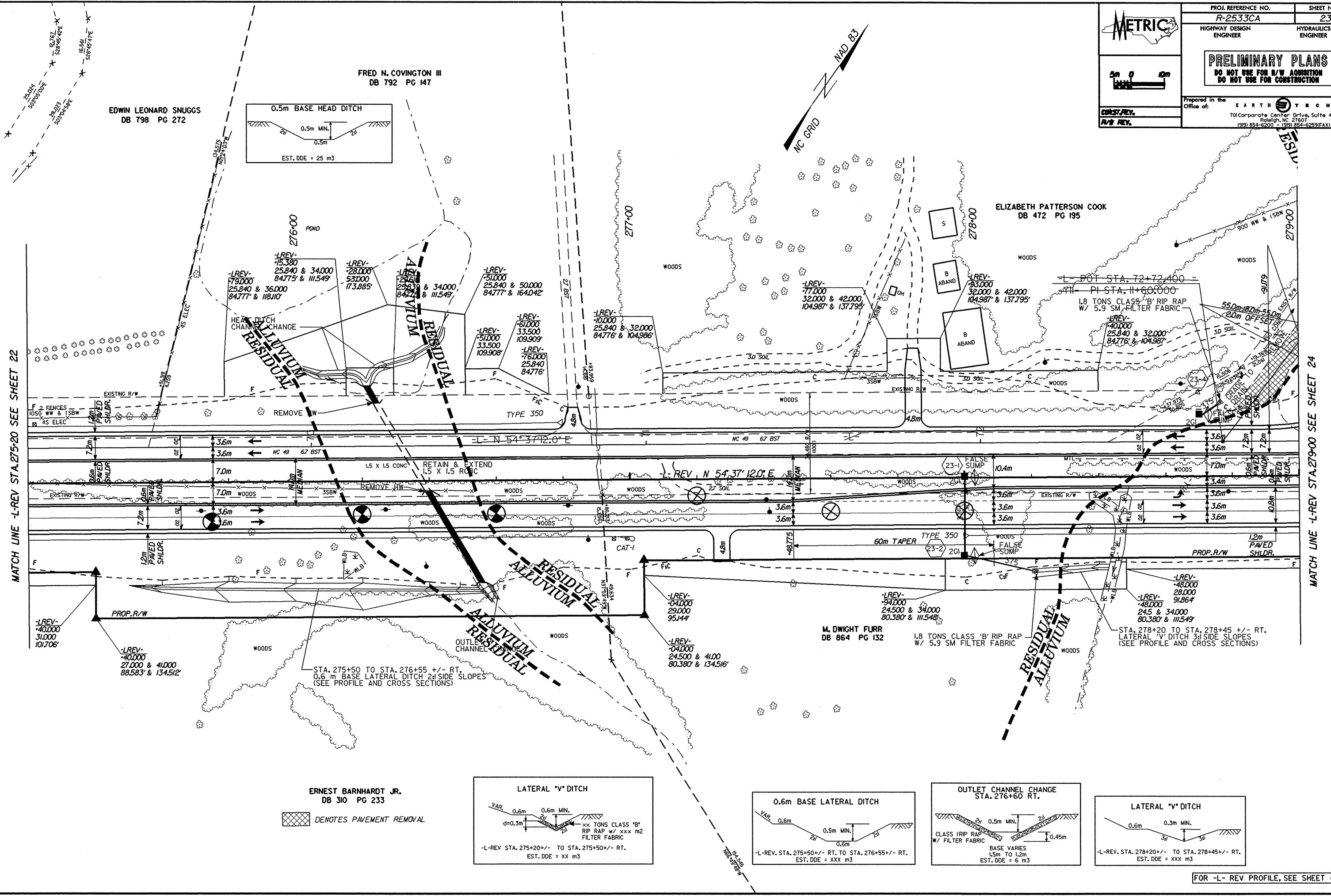
ERNEST BARNHARDT JR.  
DB 310 PG 233



FOR -L- REV PROFILE, SEE SHEET 42,43

MATCH LINE -L-REV STA. 275+20 SEE SHEET 22

MATCH LINE -L-REV STA. 279+00 SEE SHEET 24



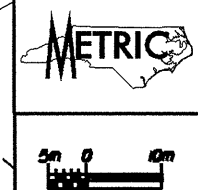




ELIZABETH PATTERSON COOK  
DB 472 PG 195

BUSBIN-WHEELER, INC.  
DB 752 PG 014

JOHN E. BUSBIN &  
EUGENE M. WHEELER, ET. UX.  
DB 1134 PG 026



PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>25</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ADJUSTMENT DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: <b>EARTH TECH</b> 701 Corporate Center Drive, Suite 415 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6265(FAX)	

BOBBY GARDNER  
DB 1308 PG 306

LEONARD A. RITCHIE  
DB 450 PG 509

-Y13-REV POT Sta. 10+72.50  
BEGIN CONSTRUCTION

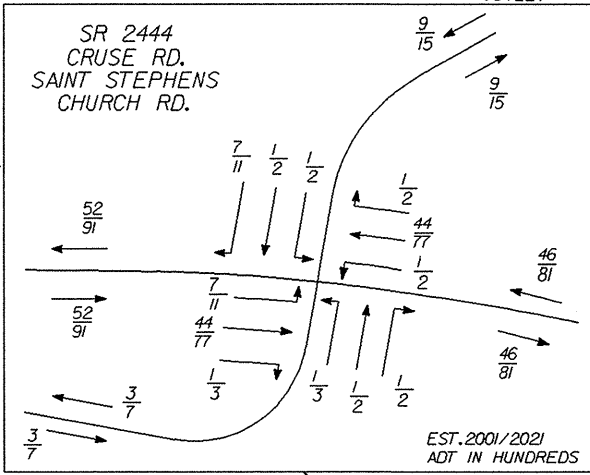
-Y13-REV POT Sta. 10+80.00

WILLIAM DEWEY CAULDE  
DB 589 PG 315

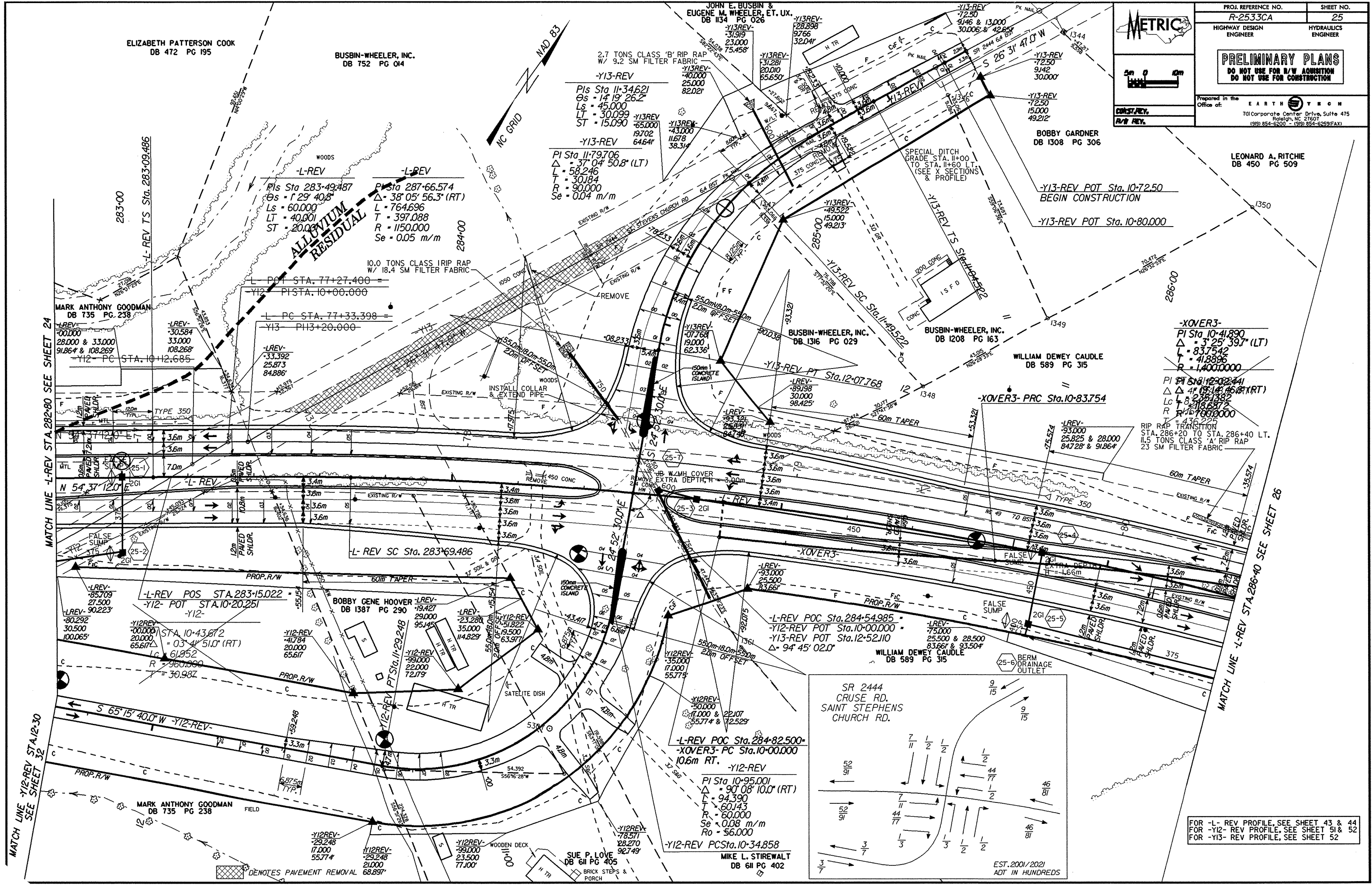
-XOVER3-  
PI Sta. 10+41.890  
 $\Delta = 3^{\circ} 25' 39.7''$  (LT)  
L = 83.7542  
T = 41.8896  
R = 1,400,000

PI Sta. 10+120.241  
 $\Delta = 4^{\circ} 18' 16.66''$  (RT)  
L = 235.1382  
T = 118.2875  
R = 1,700,000

RIP RAP TRANSITION  
STA. 286+20 TO STA. 286+40 LT.  
11.5 TONS CLASS 'A' RIP RAP  
23 SM FILTER FABRIC



FOR -L- REV PROFILE, SEE SHEET 43 & 44  
FOR -Y12- REV PROFILE, SEE SHEET 51 & 52  
FOR -Y13- REV PROFILE, SEE SHEET 52



MATCH LINE -L-REV STA. 282+80 SEE SHEET 24

MATCH LINE -Y12-REV STA. 12+30 SEE SHEET 32

MATCH LINE -L-REV STA. 286+40 SEE SHEET 26

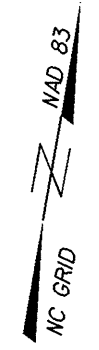
□ DENOTES PAVEMENT REMOVAL



PROJ. REFERENCE NO. <b>R-2533CA</b>	SHEET NO. <b>26</b>
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: <b>EARTH TECH</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)	



CONST. REV.  
R/W REV.



**-L-REV**  
PI Sta 287+66.574  
Δ = 38° 05' 56.3" (RT)  
L = 764.696  
T = 397.088  
R = 1150.000  
Se = 0.05 m/m

~~-L-~~  
~~PI STA. 81+69.623~~  
~~Δ = 41° 08' 18.0" (RT)~~  
~~Lc = 834.736~~  
~~R = 1164.000~~  
~~T = 436.225~~

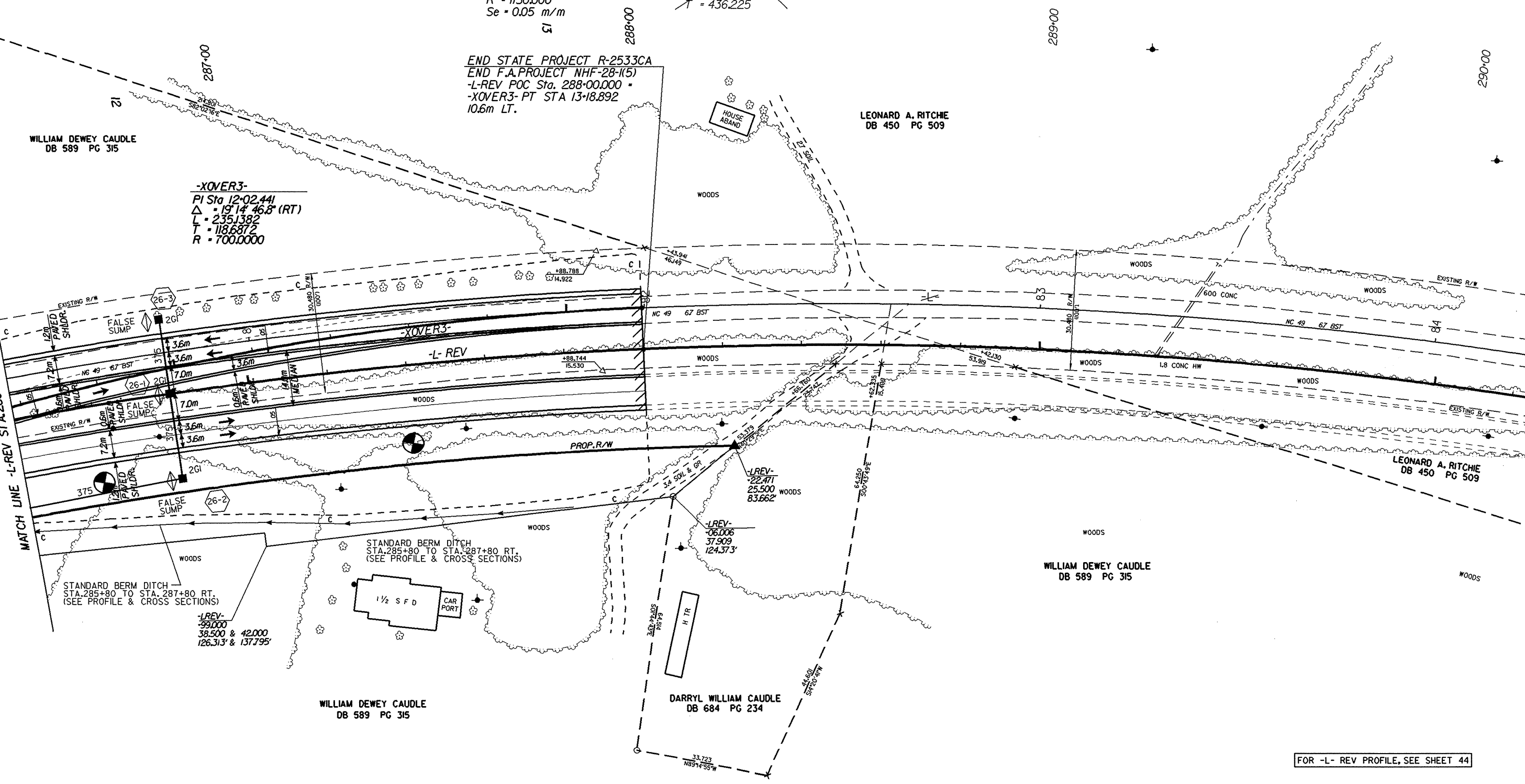
**END STATE PROJECT R-2533CA**  
**END F.A. PROJECT NHF-28-1(5)**  
**-L-REV POC Sta. 288+00.000**  
**-XOVER3- PT STA 13+18.892**  
**10.6m LT.**

**-XOVER3-**  
PI Sta 12+02.441  
Δ = 19° 14' 46.8" (RT)  
L = 235.1382  
T = 118.6872  
R = 700.0000

WILLIAM DEWEY CAUDLE  
DB 589 PG 315

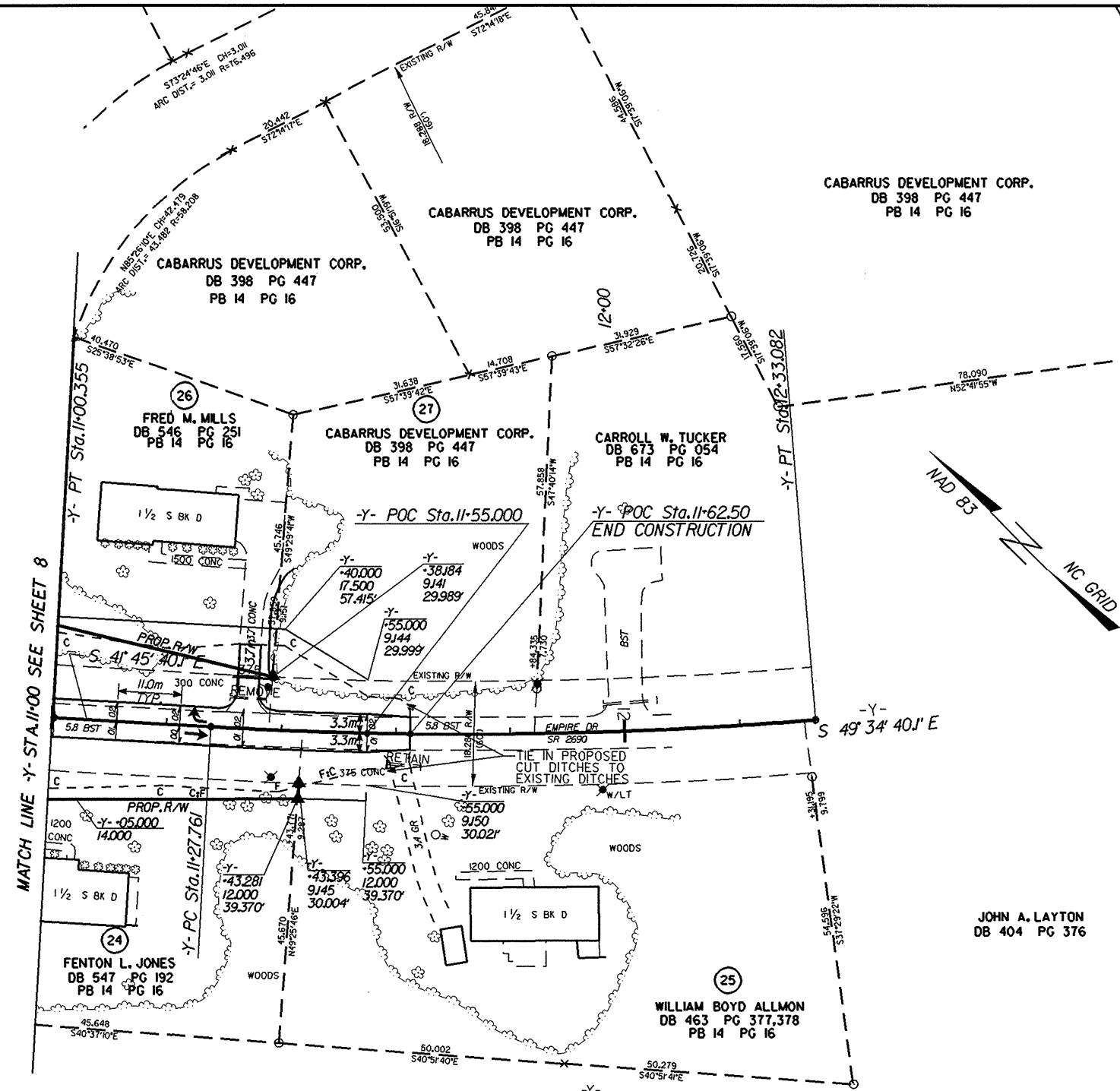
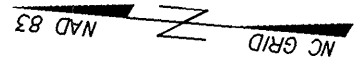
LEONARD A. RITCHE  
DB 450 PG 509

MATCH LINE -L-REV STA. 286+40 SEE SHEET 27

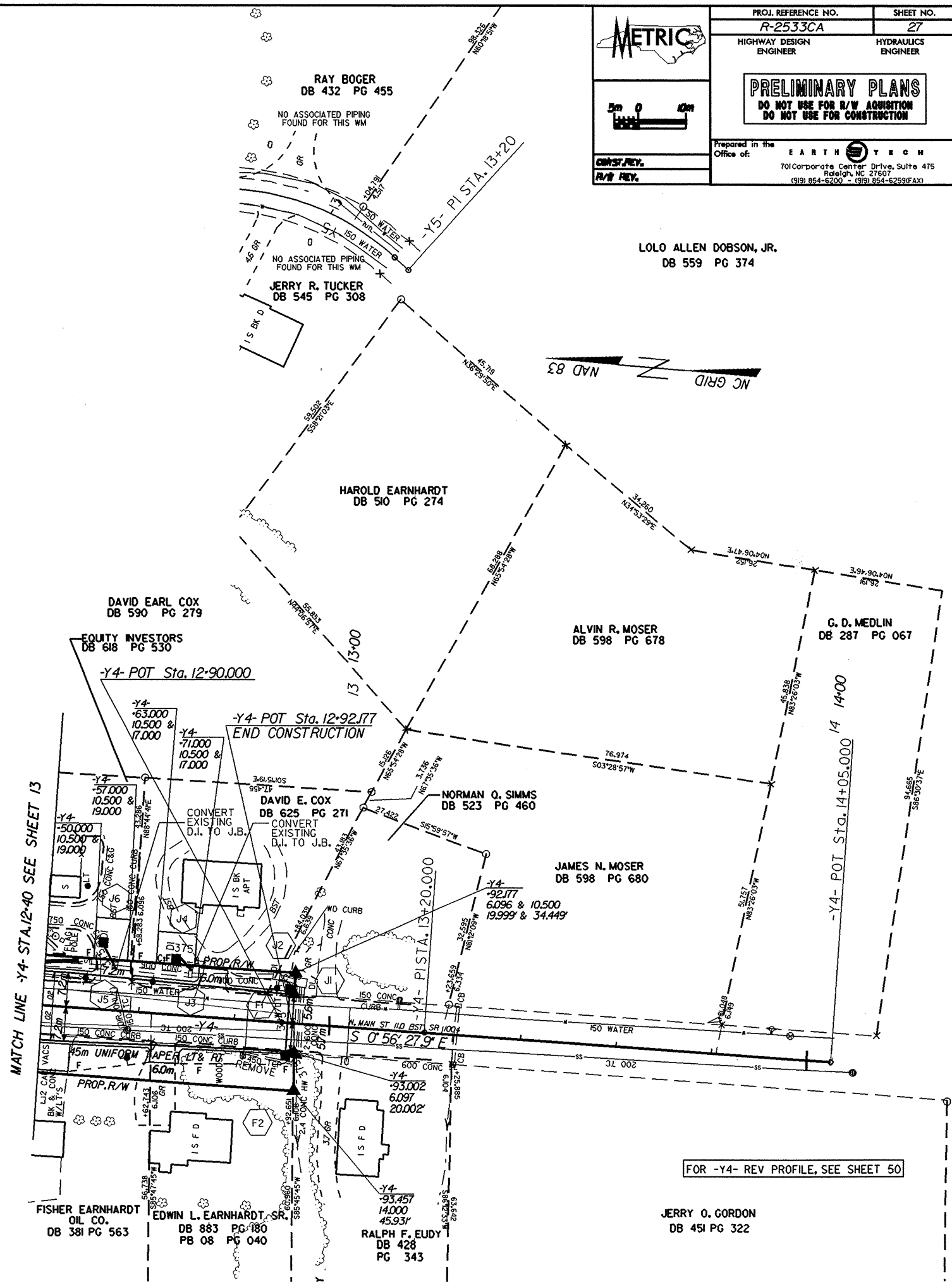


FOR -L- REV PROFILE, SEE SHEET 44

LOLO ALLEN DOBSON, JR.  
DB 559 PG 374



FOR -Y- PROFILE, SEE SHEET 44



FOR -Y4- REV PROFILE, SEE SHEET 50





**METRIC**

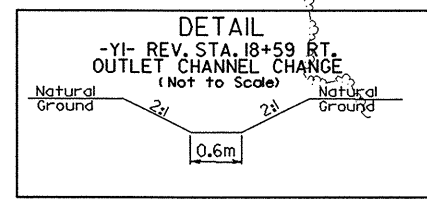
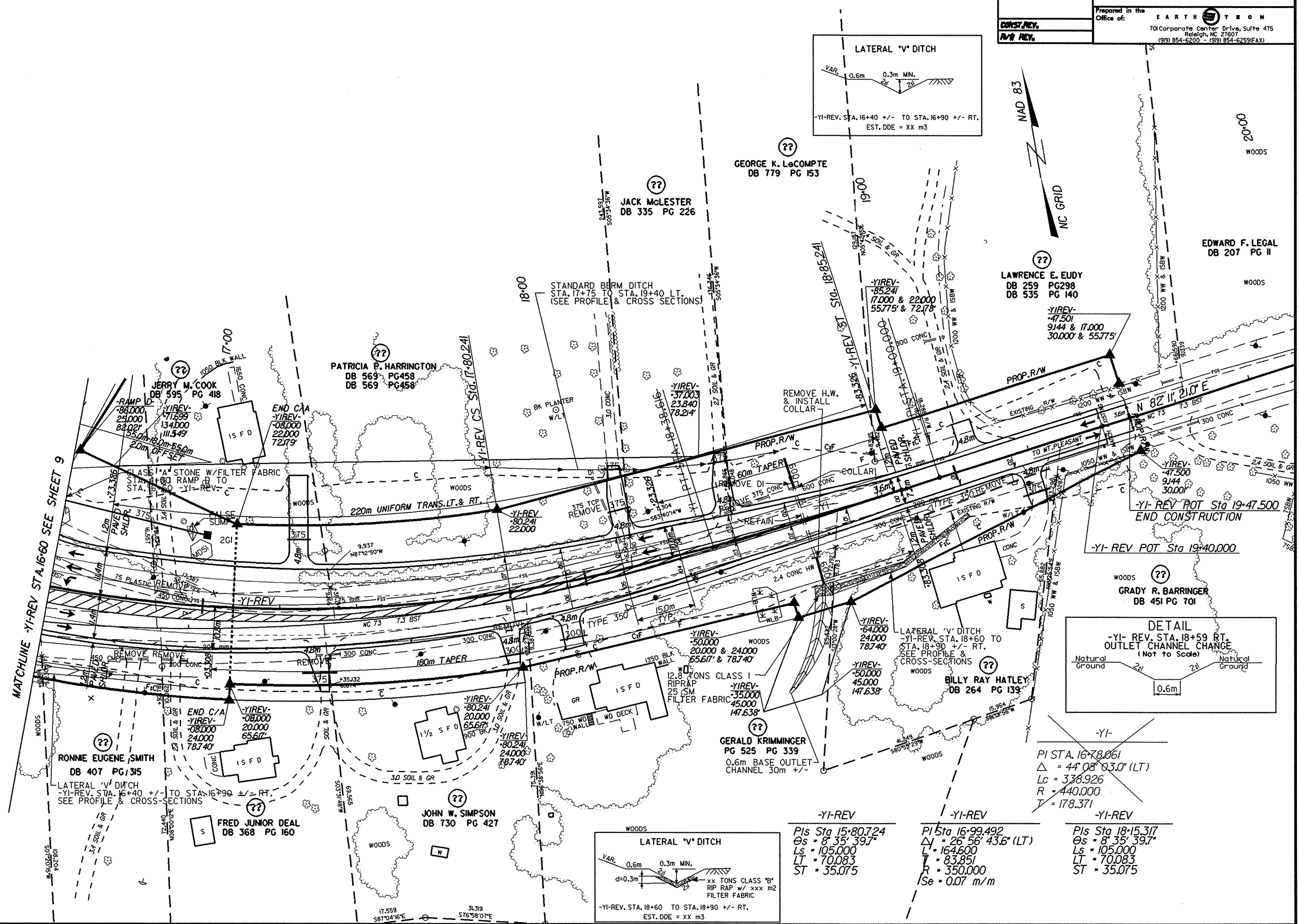
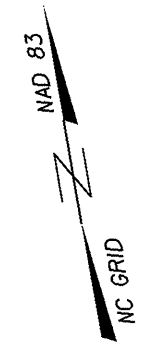
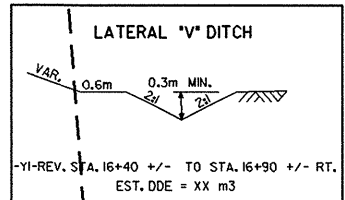
PROJ. REFERENCE NO. R-2533CA SHEET NO. 29

HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER

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

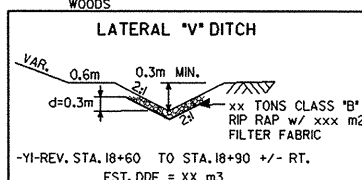
Prepared in the Office of: **EARTH TECH**  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27607  
(919) 854-6200 (919) 854-6259(FAX)

CONST. REV. R/W REV.

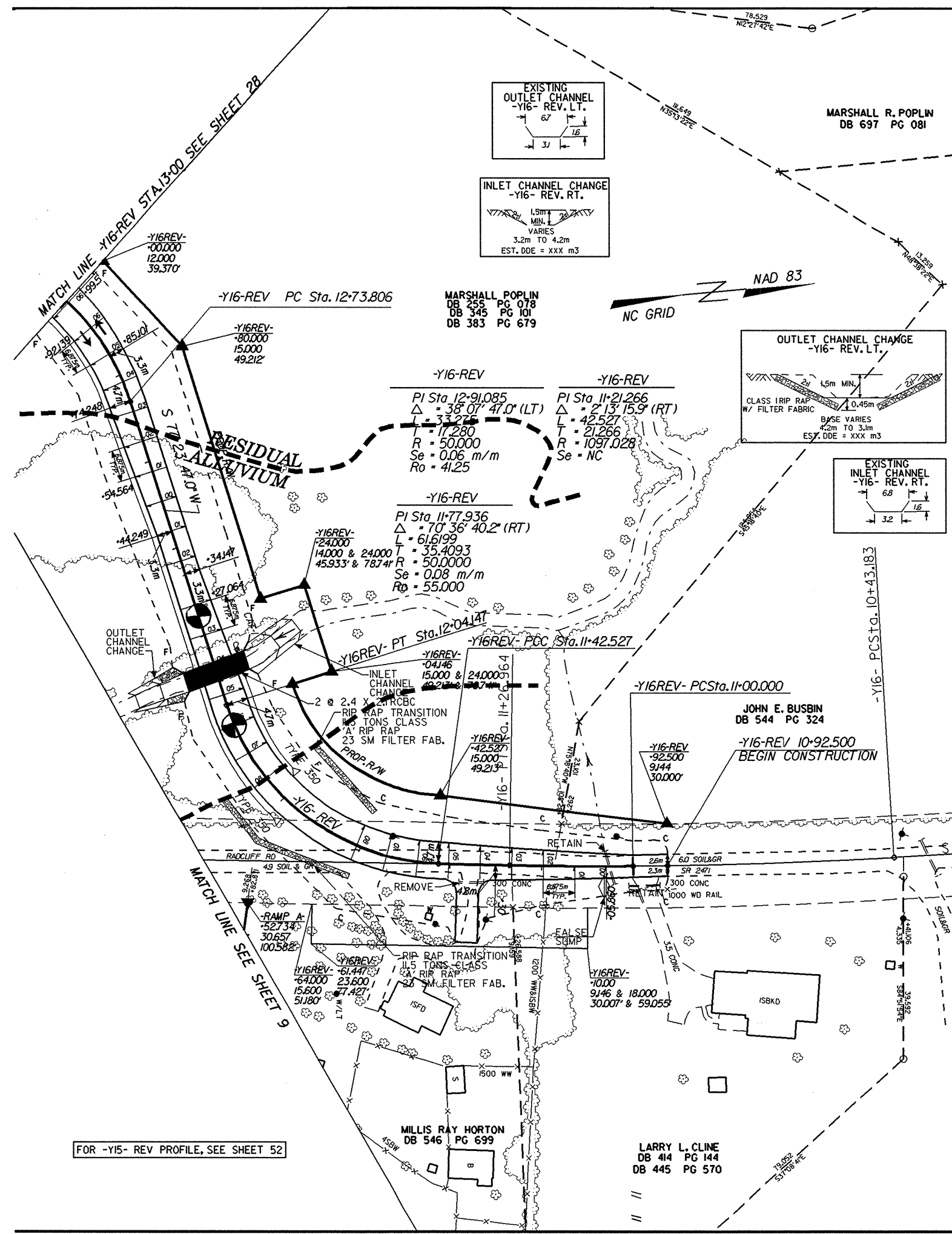


-YI-  
PI STA. 16+80.61  
 $\Delta = 44^{\circ} 08' 03.0''$  (LT)  
Lc = 338.926  
R = 440.000  
T = 178.371

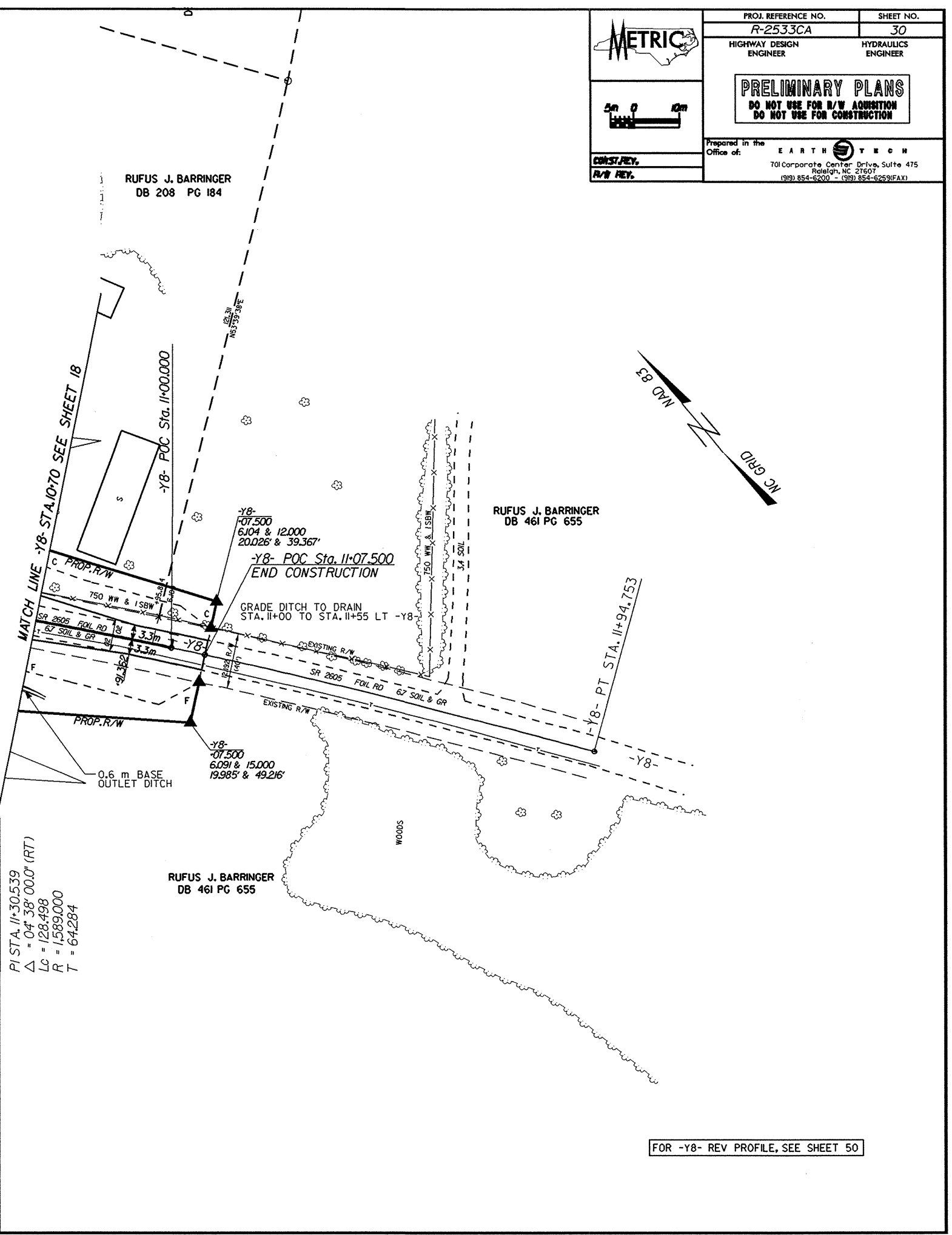
-YI-REV	-YI-REV	-YI-REV
Pis Sta 15+80.724	PI Sta 16+99.492	Pis Sta 18+15.317
$\Theta_s = 8^{\circ} 35' 39.7''$	$\Delta = 26^{\circ} 56' 43.6''$ (LT)	$\Theta_s = 8^{\circ} 35' 39.7''$
Ls = 105.000	L = 164.600	Ls = 105.000
LT = 70.083	T = 83.851	LT = 70.083
ST = 35.075	R = 350.000	ST = 35.075
	Se = 0.07 m/m	



FOR -YI- REV PROFILE, SEE SHEET 49



FOR -Y15- REV PROFILE, SEE SHEET 52



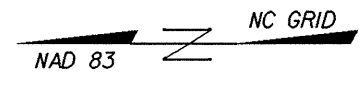
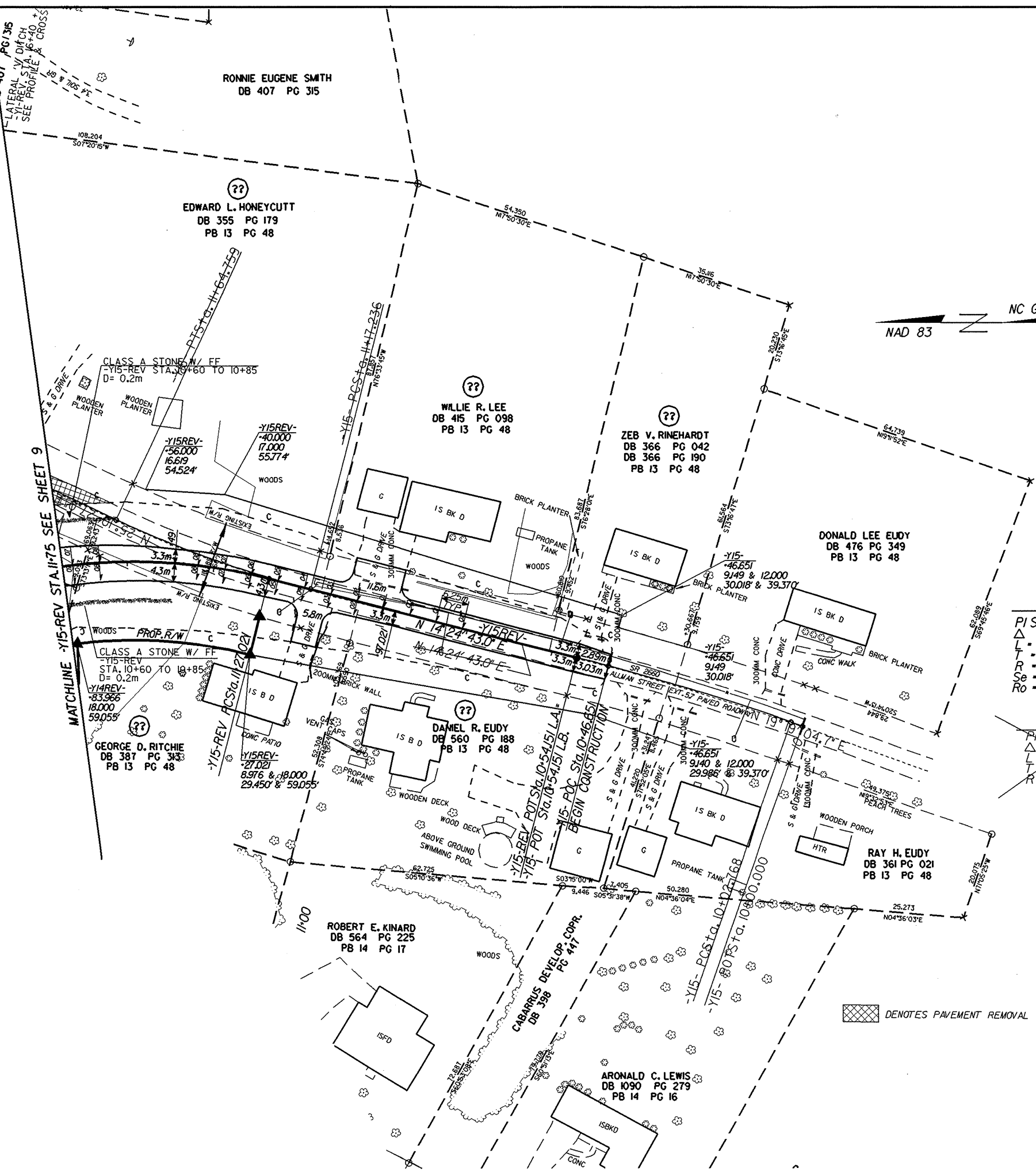
FOR -Y8- REV PROFILE, SEE SHEET 50



PROJ. REFERENCE NO. R-2533CA	SHEET NO. 31
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of:	<b>EARTH TECH</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-5200 - (919) 854-5259(FAX)



CONSTR. REV.  
R/W REV.



**-Y15-REV**  
 PI Sta 11+55.534  
 $\Delta = 25' 42'' 01.4''$  (LT)  
 L = 56.070  
 T = 28.515  
 R = 125.000  
 Se = 0.08 m/m  
 Ro = 50.000

~~**-Y15-**  
 PI Sta 10+28.475  
 $\Delta = 4' 54'' 24.4''$  (LT)  
 L = 51.3825  
 T = 25.7070  
 R = 599.9871~~



~~**-Y15-**  
 PI Sta 11+41.068  
 $\Delta = 10' 48'' 43.50''$  (RT)  
 L = 47.523  
 T = 23.832  
 R = 253.004~~

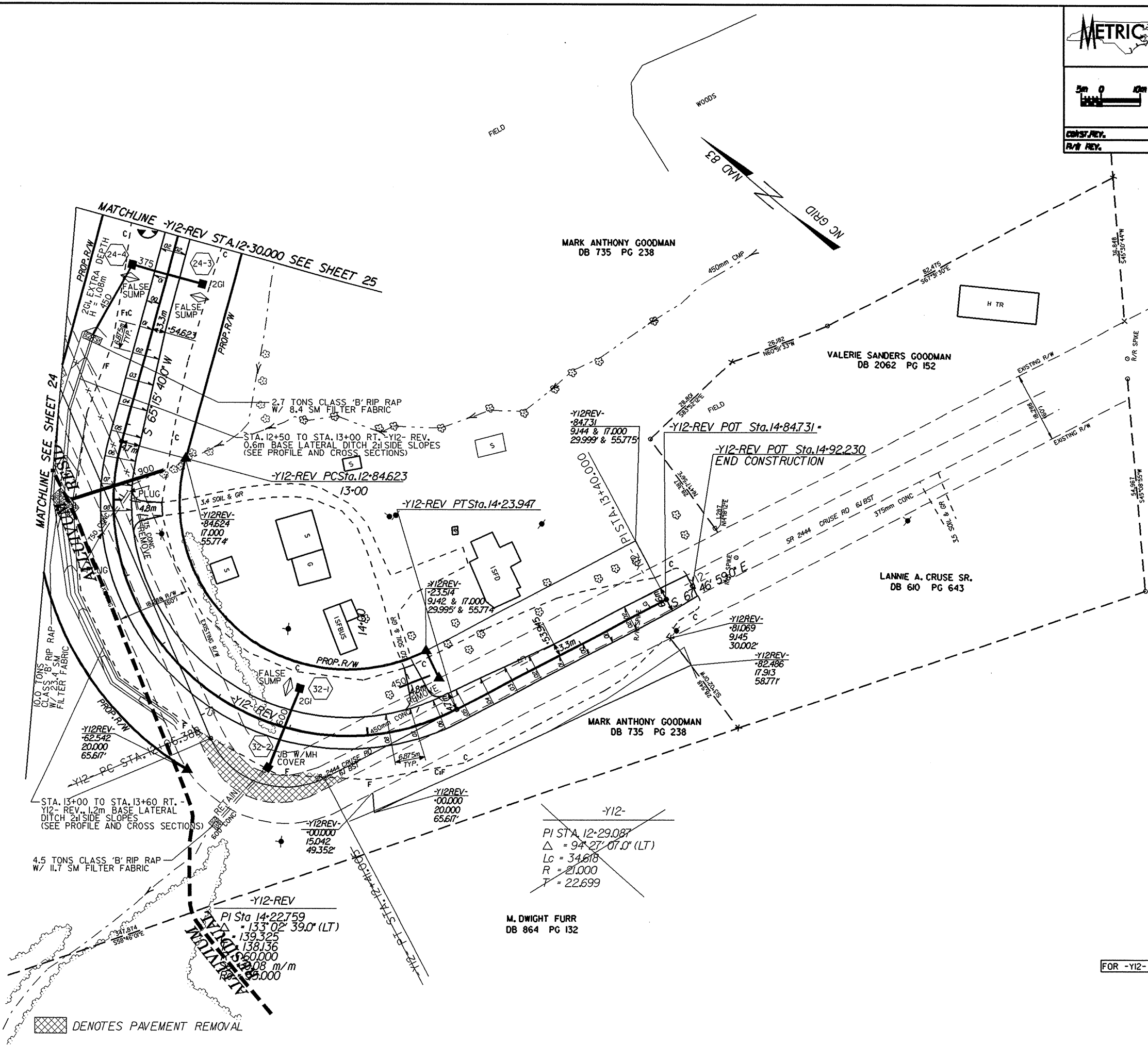
~~**-Y15-**  
 PI Sta 12+21.029  
 $\Delta = 4' 34'' 07.3''$  (RT)  
 L = 34.0500  
 T = 17.0340  
 R = 427.0199~~

DENOTES PAVEMENT REMOVAL

FOR -Y15- REV PROFILE, SEE SHEET 52



	PROJ. REFERENCE NO.	SHEET NO.
	R-2533CA	32
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR R/W ACQUISITION DO NOT USE FOR CONSTRUCTION		
Prepared in the Office of: 	701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-5200 - (919) 854-5259(FAX)	



 DENOTES PAVEMENT REMOVAL

FOR -Y12- REV PROFILE, SEE SHEET 51 & 52

-Y12-  
 PI STA. 12+29.087  
 $\Delta = 94^{\circ} 27' 07.0''$  (LT)  
 $Lc = 34.618$   
 $R = 21.000$   
 $T = 22.699$

M. DWIGHT FURR  
 DB 864 PG 132

MARK ANTHONY GOODMAN  
 DB 735 PG 238

LANNIE A. CRUSE SR.  
 DB 610 PG 643

VALERIE SANDERS GOODMAN  
 DB 2062 PG 152

MARK ANTHONY GOODMAN  
 DB 735 PG 238

MATCHLINE -Y12-REV STA. 12+30.000 SEE SHEET 25

MATCHLINE SEE SHEET 24

STA. 13+00 TO STA. 13+60 RT. -  
 Y12- REV. 1.2m BASE LATERAL  
 DITCH 2:1 SIDE SLOPES  
 (SEE PROFILE AND CROSS SECTIONS)

4.5 TONS CLASS 'B' RIP RAP  
 W/ 11.7 SM FILTER FABRIC

-Y12-REV  
 PI Sta 14+22.759  
 $\Delta = 133^{\circ} 02' 39.0''$  (LT)  
 $Lc = 139.325$   
 $R = 138.136$   
 $T = 22.000$   
 $T = 22.000$

-Y12REV-  
 62.542  
 20.000  
 65.617

-Y12REV-  
 84.624  
 17.000  
 55.774

-Y12-REV PT Sta. 14+23.947

-Y12REV-  
 23.514  
 9.442 & 17.000  
 29.999 & 55.774

-Y12REV-  
 84.731  
 9.444 & 17.000  
 29.999 & 55.775

-Y12-REV POT Sta. 14+84.731 -  
 -Y12-REV POT Sta. 14+92.230  
 END CONSTRUCTION

-Y12REV-  
 81.069  
 9.445  
 30.002

-Y12REV-  
 82.486  
 17.913  
 58.771

-Y12-REV PC Sta. 12+84.623

2.7 TONS CLASS 'B' RIP RAP  
 W/ 8.4 SM FILTER FABRIC  
 STA. 12+50 TO STA. 13+00 RT. -Y12- REV.  
 0.6m BASE LATERAL DITCH 2:1 SIDE SLOPES  
 (SEE PROFILE AND CROSS SECTIONS)

20' EXTRA DEPTH  
 H=1.08m  
 450

10.0 TONS CLASS 'B' RIP RAP  
 W/ 11.7 SM FILTER FABRIC

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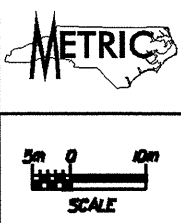
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PROJ. REFERENCE NO. R-2533CA SHEET NO. 33  
 HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION

Prepared in the Office of: EARTH TECH  
 701 Corporate Center Drive, Suite 475  
 Raleigh, NC 27607  
 (919) 854-6200 • (919) 854-6259(FAX)

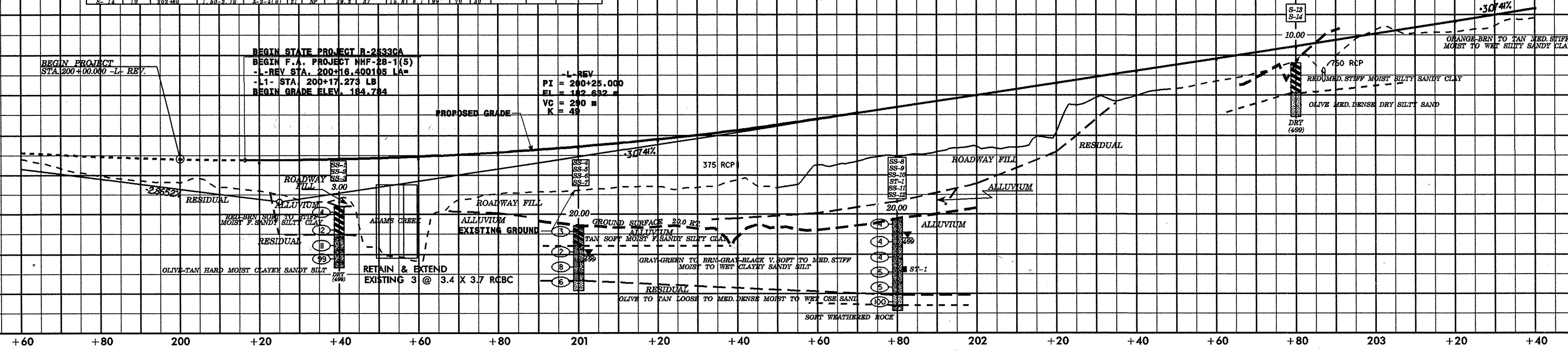
**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTHO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC	UNIT WT. (lb)	VOID RATIO
							C. SAND	F. SAND	SILT	CLAY	10	40				
SS-1	3	200+40	0.30-0.75	A-7-6(21)	52	27	13.7	16.8	19.6	60.5	100	92	75			
SS-2	3	200+40	1.30-1.65	A-7-6(16)	42	28	16	21	28.7	34.3	100	91	69			
SS-3	3	200+40	2.65-3.07	A-4(1)	28	8	26.7	24.2	26.1	30.9	95	75	61			
SS-4	20	201+90	0.30-0.75	A-6(6)	30	11	14.7	25.7	31.3	28.3	100	92	66			
SS-5	20	201+90	1.30-1.75	A-4(3)	24	7	5.3	33.9	33.5	28.3	100	99	69			
SS-6	20	201+90	2.05-2.51	A-4(0)	21	4	17.6	41.2	21	20.2	100	95	47			
SS-7	20	201+90	3.22-3.27	A-2-4(0)	20	NP	57.4	32.7	6.5	4	80	62	13			
SS-8	20	201+90	0.30-0.75	A-4(1)	28	10	41.4	23.2	18.2	16.2	99	88	40			
SS-9	20	201+90	1.15-1.63	A-4(0)	24	8	38.1	24.4	16.8	12.2	98	70	44			
SS-10	20	201+90	1.84-2.32	A-4(0)	24	5	35.6	23.2	24.4	16.2	100	73	47			
ST-1	20	201+90	2.40-2.70	A-4(4)	28	10	14.7	29.9	31.7	24.2	100	92	63	21.90	1653.97	0.6382
SS-11	20	201+90	2.70-3.15	A-4(2)	24	8	23	25.4	31.5	20.2	99	85	57			
SS-12	20	201+90	3.45-3.91	A-4(1)	28	9	29.4	27	27.4	16.1	93	75	44			
S-13	10	202+80	0.00-1.50	A-7-6(8)	42	19	24.2	20.4	25.7	30.8	98	80	60			
S-14	10	202+80	1.50-2.70	A-2-4(0)	27	NP	59.2	37	15.2	8.7	95	70	30			

-L- REV

BEGIN PROJECT STA. 200+00.000 -L- REV.  
 BEGIN STATE PROJECT R-2533CA  
 BEGIN F.A. PROJECT MHF-28-1(5)  
 -L-REV STA. 200+16.400105 LA=  
 -L-1- STA. 200+17.273 LB  
 BEGIN GRADE ELEV. 184.784

-L- REV  
 PI = 200+25.000  
 EI = 182.632 f  
 VC = 290 m  
 K = 49



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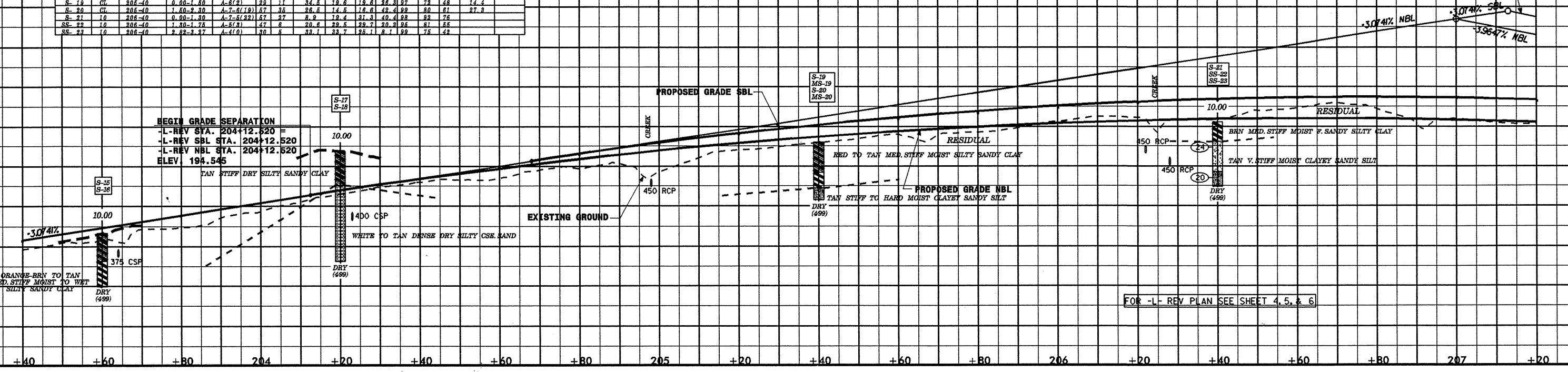
**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTHO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC		
							C. SAND	F. SAND	SILT	CLAY	10	40			200	
S-15	10	203+60	0.00-1.40	A-6(2)	29	17	35.2	21	15.6	28.3	92	78	47			
S-16	10	203+60	1.40-2.70	A-7-6(14)	11	36	24.2	17.2	26.3	32.3	100	81	68			
S-17	10	204+20	0.00-1.70	A-6(3)	31	14	38.5	24.6	17.6	24.9	94	70	46			
S-18	10	204+20	1.70-5.60	A-1-3(0)	22	NP	51.9	24.6	15.4	8.1	83	47	22			
S-19	CL	204+20	0.00-1.80	A-6(2)	29	11	34.5	19.6	19.6	28.8	97	72	48	14.4		
S-20	CL	204+20	1.80-2.30	A-7-6(10)	17	35	28.5	14.5	15.6	28.4	99	80	61	27.2		
S-21	10	206+10	0.00-1.30	A-7-6(22)	17	37	6.9	19.4	31.3	40.4	98	92	76			
SS-22	10	206+10	1.30-1.75	A-5(3)	47	8	20.6	28.5	29.7	20.2	95	81	55			
SS-23	10	206+10	2.22-3.27	A-4(0)	30	5	33.1	33.7	25.1	8.1	99	75	42			

-L- REV

-L-REV SBL  
 PI = 207+13.000  
 EI = 203.782 m  
 VC = 490 m  
 K = 68

-L-REV NBL  
 PI = 207+00.020  
 EI = 203.383 m  
 VC = 575 m  
 K = 82



FOR -L- REV PLAN SEE SHEET 4, 5, & 6



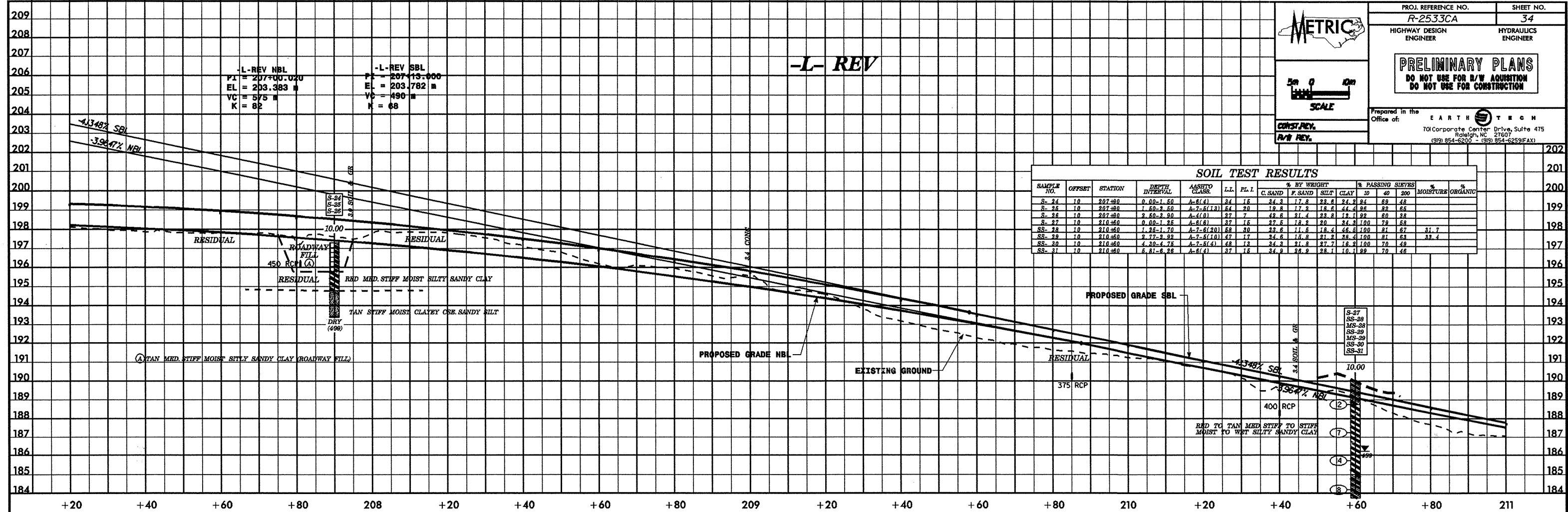
CONST. REV.  
R/W REV.

-L-REV NBL  
 PI = 207+00.000  
 EL = 203.383 m  
 VC = 575 m  
 K = 82

-L-REV SBL  
 PI = 207+15.000  
 EL = 203.782 m  
 VC = 490 m  
 K = 68

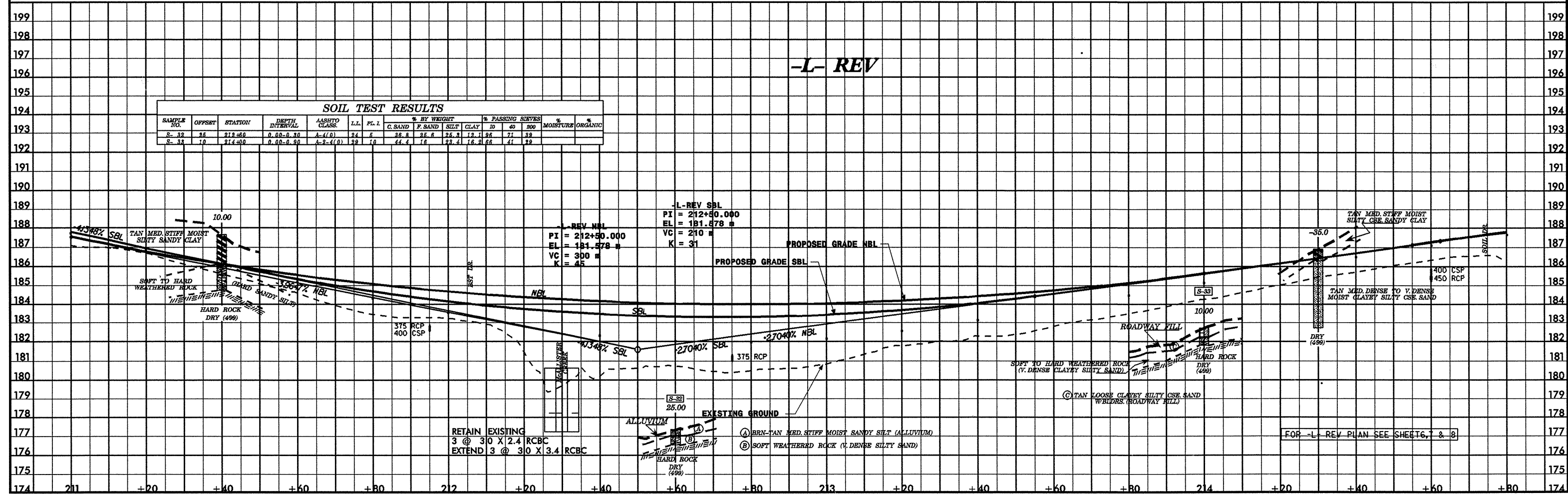
### -L- REV

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#200		
S-24	10	207+90	0.00-1.50	A-6(4)	84	16	34.3	17.8	38.8	24.2	84	68	48	
S-25	10	207+90	1.50-3.00	A-7-6(13)	54	20	19.8	17.8	18.7	44.4	88	88	85	
S-26	10	207+90	3.00-4.50	A-1(0)	27	7	48.8	31.4	28.8	12.1	92	80	88	
S-27	10	210+60	0.00-1.25	A-6(0)	37	16	27.6	18.2	20	34.8	100	79	88	
S-28	10	210+60	1.25-1.75	A-7-6(20)	61	20	28.8	11.6	18.4	46.8	100	81	67	
SS-29	10	210+60	2.75-3.92	A-7-6(10)	47	17	24.6	15.8	21.2	36.4	100	81	63	
SS-30	10	210+60	4.30-4.75	A-7-6(4)	48	18	34.3	21.8	27.7	16.2	100	70	49	
SS-31	10	210+60	5.81-6.38	A-6(4)	37	16	34.9	28.9	28.1	10.1	89	70	46	



SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#200		
S-32	25	212+60	0.00-0.30	A-4(0)	24	7	38.8	25.8	25.8	12.1	98	71	38	
S-33	10	214+00	0.00-0.90	A-2-4(0)	29	10	44.4	18	23.4	16.2	88	41	28	

### -L- REV

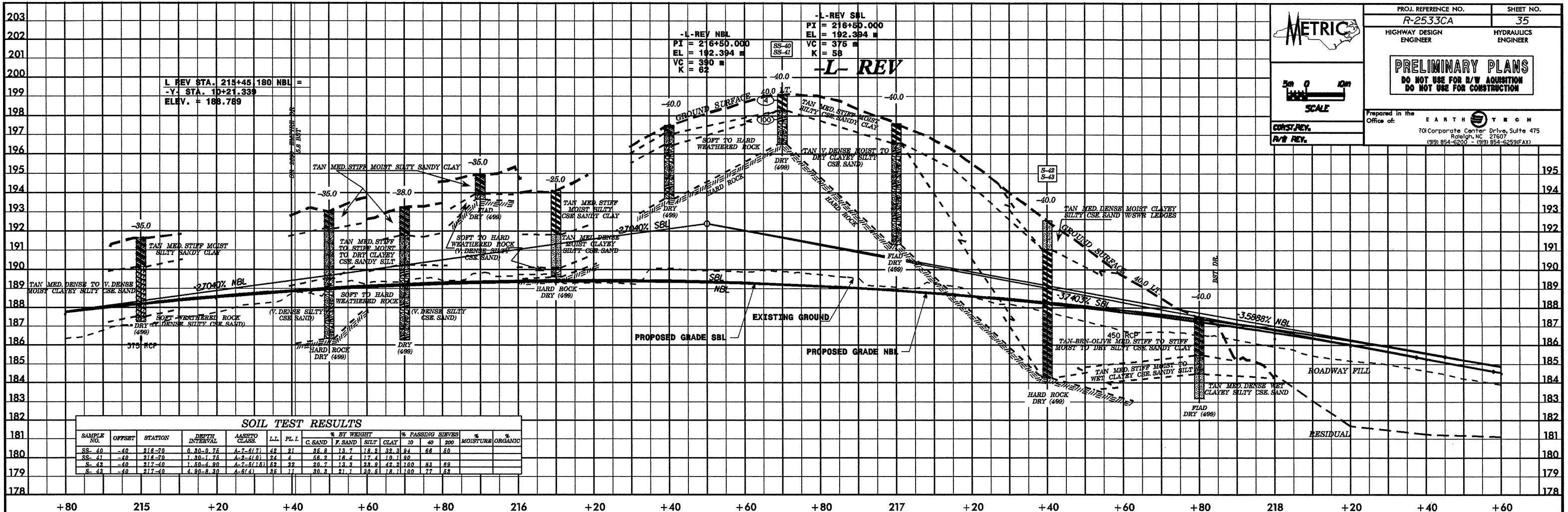
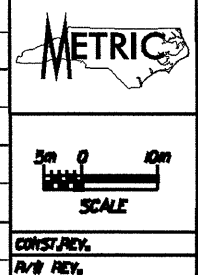


RETAIN EXISTING  
 3 @ 30 X 2.4 RCBC  
 EXTEND 3 @ 30 X 3.4 RCBC

ALLUVIUM  
 (A) BRN-TAN MED. STIFF MOIST SANDY SILT (ALLUVIUM)  
 (B) SOFT WEATHERED ROCK (V. DENSE SILTY SAND)

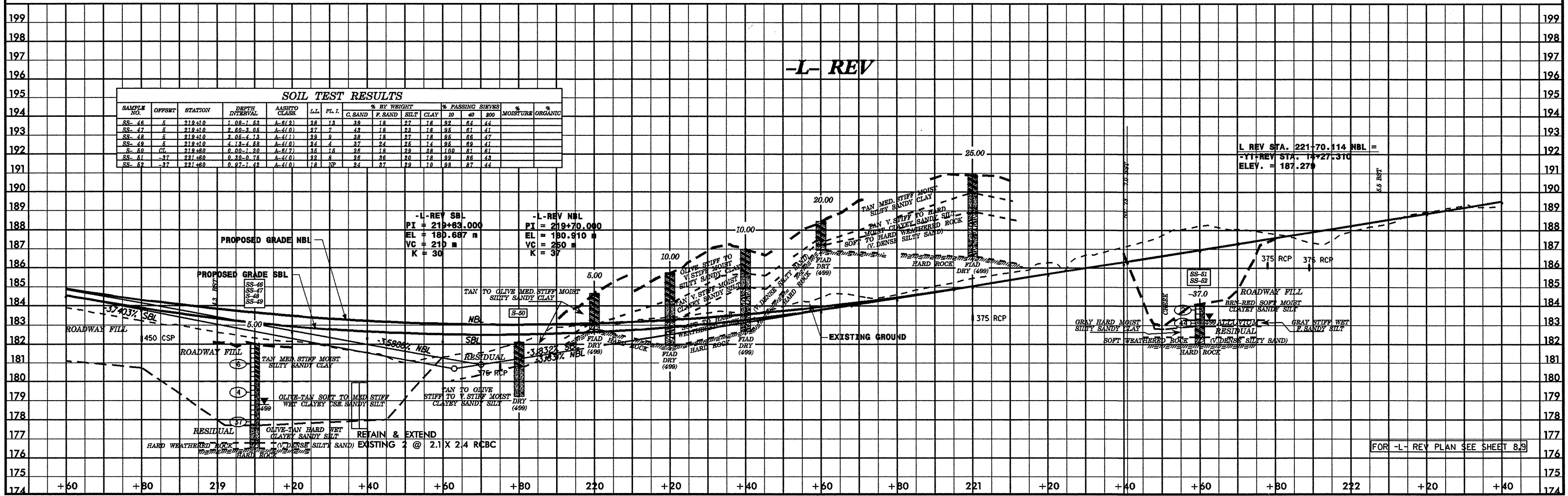
FOR -L- REV PLAN SEE SHEETS 7 & 8





SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASSTO CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-40	-40	218-70	0.30-0.75	A-7.6(17)	42	21	35.8	13.7	18.2	32.3	24	68	50		
SS-41	-40	218-70	1.30-1.75	A-2.4(10)	24	2	56.2	16.4	17.4	19.1	30				
S-42	-40	217-40	1.50-4.00	A-7.6(18)	52	22	20.7	13.3	13.9	42.9	100	83	62		
S-43	-40	217-40	4.90-8.30	A-6(4)	135	11	30.3	21.1	30.5	18.1	100	77	52		

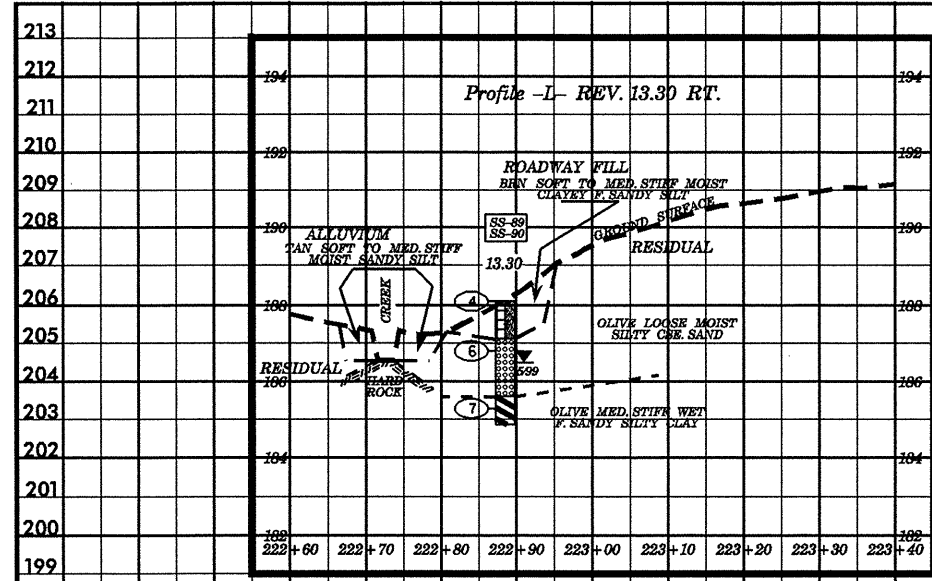
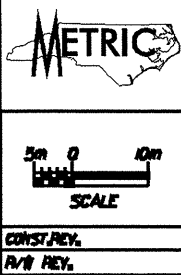


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASSTO CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-46	5	219+10	1.00-1.50	A-6(2)	38	18	38	18	27	18	92	64	44		
SS-47	5	219+10	2.00-3.05	A-6(0)	27	7	43	18	23	16	95	61	41		
SS-48	5	219+10	3.05-4.18	A-6(1)	29	9	38	18	27	18	95	66	47		
SS-49	5	219+10	4.18-4.58	A-6(0)	24	4	37	24	25	14	95	62	41		
S-50	CL	219+80	0.00-1.30	A-8(7)	35	16	26	18	29	28	100	81	67		
SS-51	-37	221+60	0.30-0.75	A-6(0)	32	2	26	26	20	18	92	88	49		
SS-52	-37	221+60	0.97-1.48	A-6(0)	18	NP	24	37	29	10	98	87	44		

FOR -L- REV PLAN SEE SHEET 8.3





**-I- REV**

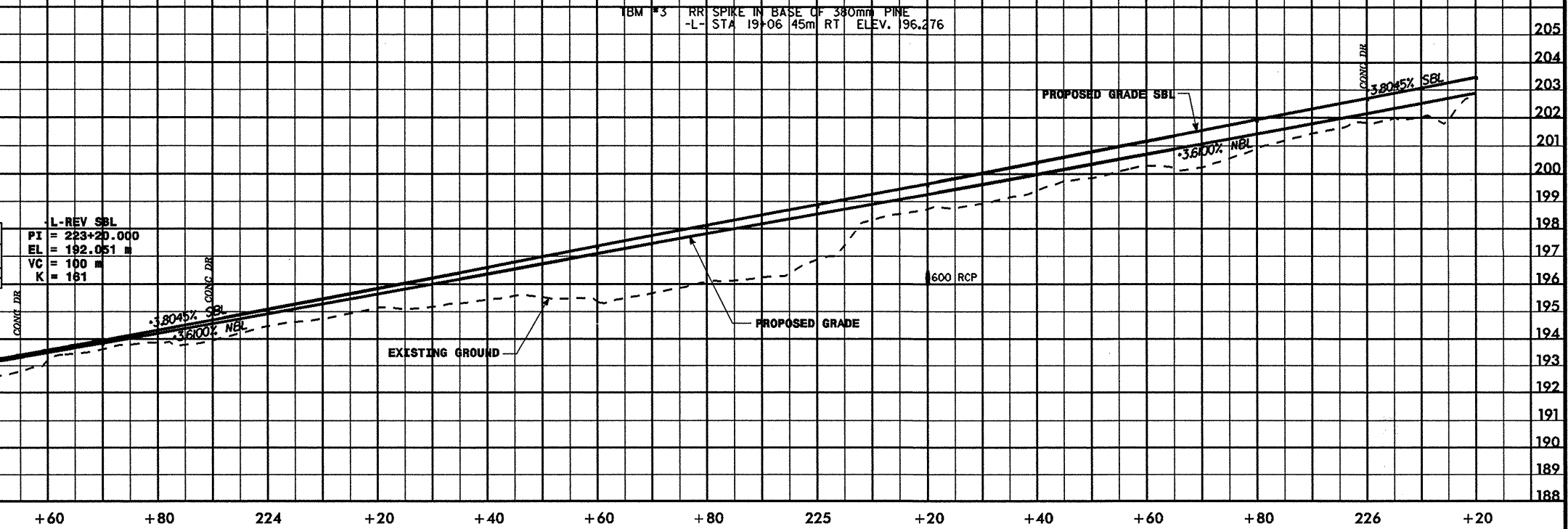
TBM #3 RR SPIKE IN BASE OF 380mm PINE  
 -L- STA 19+06.45m RT ELEV. 196.276

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-89	1.3	222+82	0.60-0.45	A-4(1)	25	7	22	27	32	20	92	78	53		
SS-90	1.3	222+82	2.80-3.25	A-7-6(18)	49	18	2	22	47	24	100	99	84		

**-L-REV SBL**  
 PI = 223+20.000  
 EL = 192.051 m  
 VC = 100 m  
 K = 161

**-L-REV NBL**  
 PI = 223+20.000  
 EL = 192.051 m  
 VC = 100 m  
 K = 234



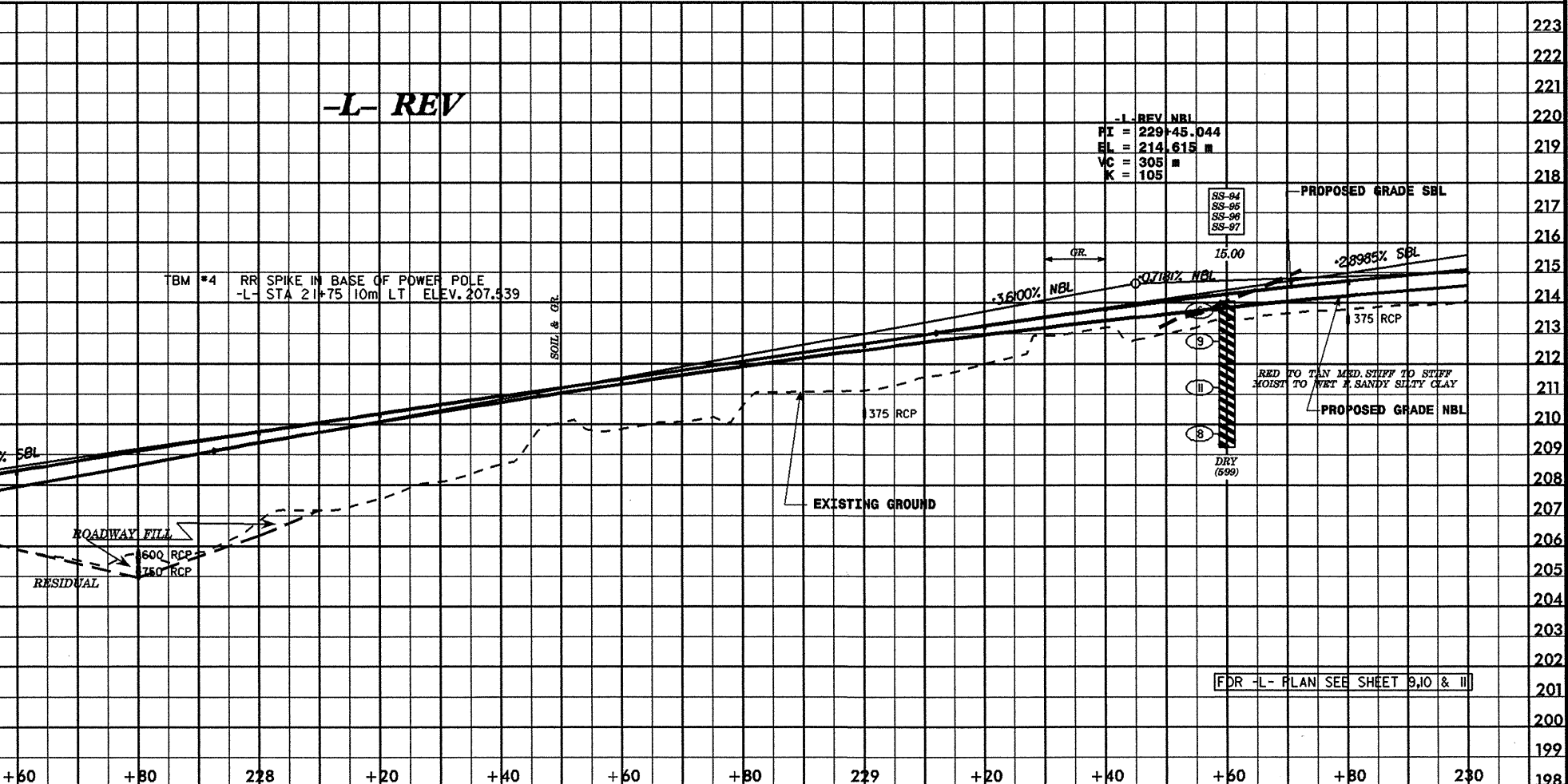
**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-91	1.6	227+00	0.30-0.75	A-8(6)	33	12	15	24	22	26	97	80	62	21.9	
SS-92	1.6	227+00	1.80-1.75	A-7-6(28)	64	35	12	15	20	65	100	94	75	28.9	
SS-93	1.6	227+00	2.80-3.27	A-7-6(16)	44	21	12	16	24	49	95	82	73		
SS-94	1.6	228+00	0.30-0.75	A-7-6(67)	88	54	3	9	22	85	100	98	80		
SS-95	1.6	228+00	1.80-1.75	A-7-6(26)	66	34	2	12	31	55	100	99	88		
SS-96	1.6	228+00	2.80-3.27	A-7-6(12)	42	16	10	18	42	30	92	86	71		
SS-97	1.6	228+00	4.34-4.79	A-7-6(12)	42	17	11	21	24	24	97	94	72		

**-L-REV SBL**  
 PI = 227+40.000  
 EL = 208.030 m  
 VC = 200 m  
 K = 221

**-I- REV**

TBM #4 RR SPIKE IN BASE OF POWER POLE  
 -L- STA 21+75.10m LT ELEV. 207.539



FDR -L- PLAN SEE SHEET 9.10 & 11

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**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHFORD CLASS.	L.L.	P.L.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							G. SAND	F. SAND	SILT	CLAY	20	40	200		
SS-88	25	230+82	1.80-1.75	A-8(6)	37	8	14	32	17	20	88	82	82		
SS-89	25	230+82	4.84-4.79	A-2-1(0)	24	14	43	28	19	12	74	62	62		

**-L- REV**

TBM #5 RR SPIKE IN BASE OF POWER POLE  
-L- STA 25+50 10m LT ELEV. 217.201

PROJ. REFERENCE NO.  
**R-2533CA**

HIGHWAY DESIGN ENGINEER

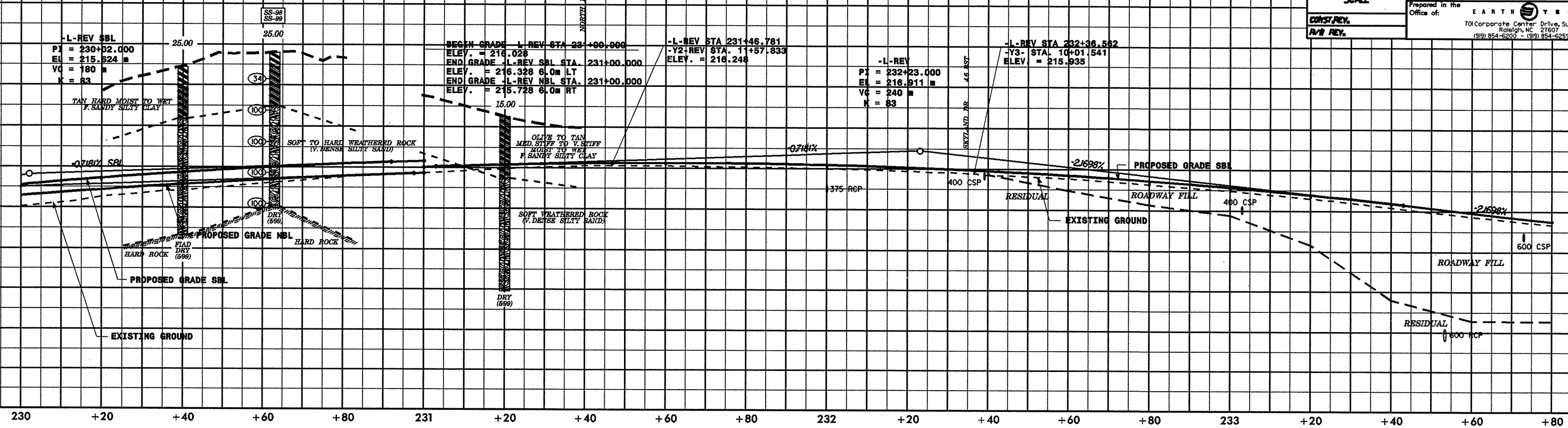
SHEET NO.  
**37**

HYDRAULICS ENGINEER

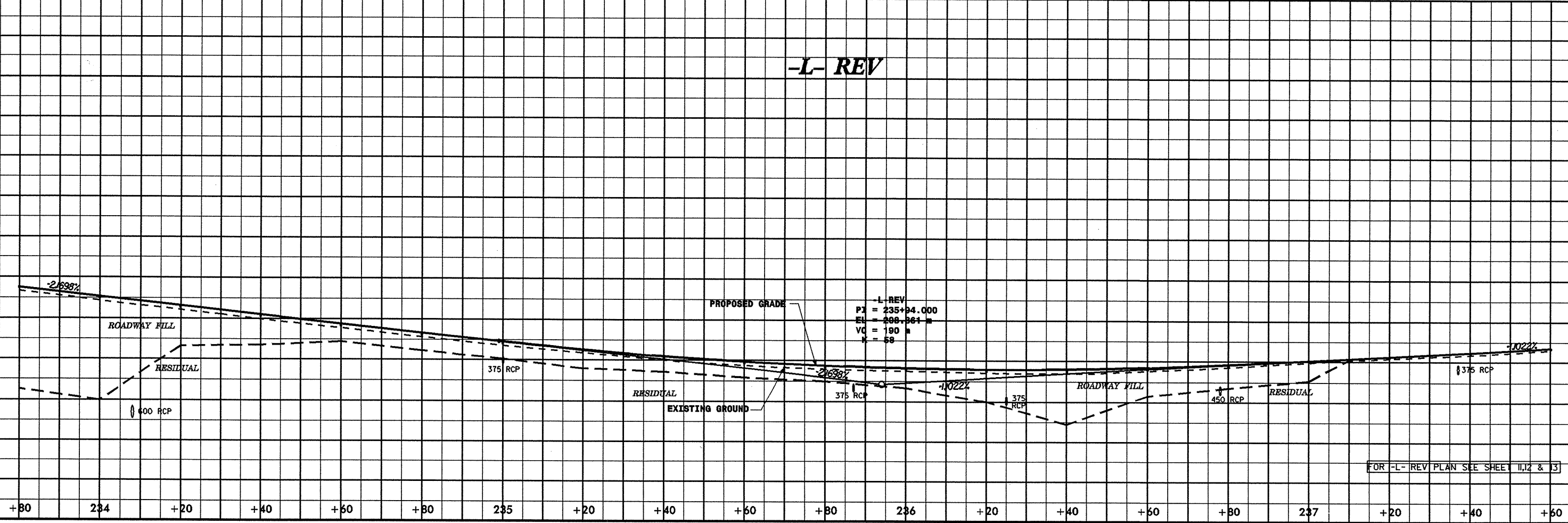
**PRELIMINARY PLANS**

DO NOT USE FOR B/W ACQUISITION  
DO NOT USE FOR CONSTRUCTION

Prepared in the Office of: **EARTH TECH**  
701 Corporate Center Drive, Suite 475  
Raleigh, NC 27607  
(919) 854-6200 • (919) 854-6259(FAX)

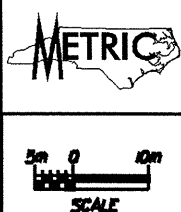


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FOR -L- REV PLAN SEE SHEET 11, 12 & 13

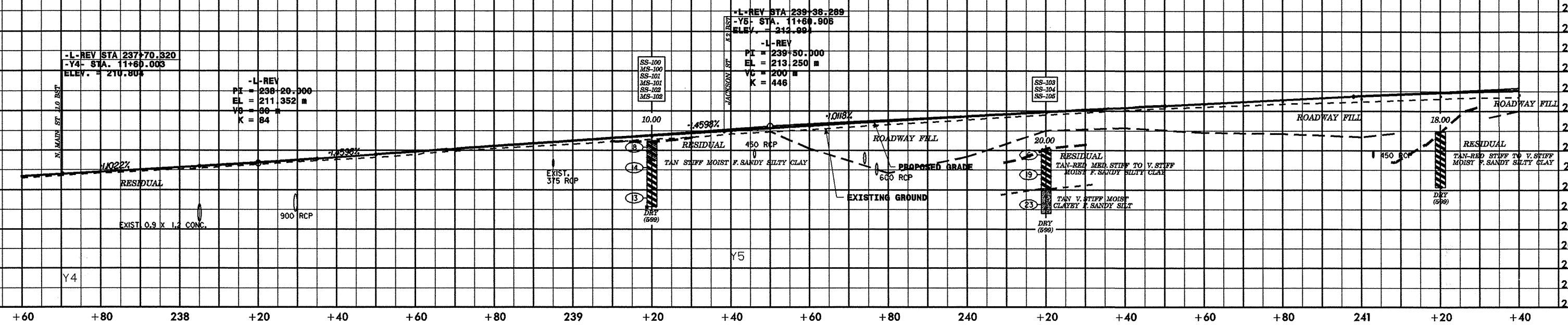
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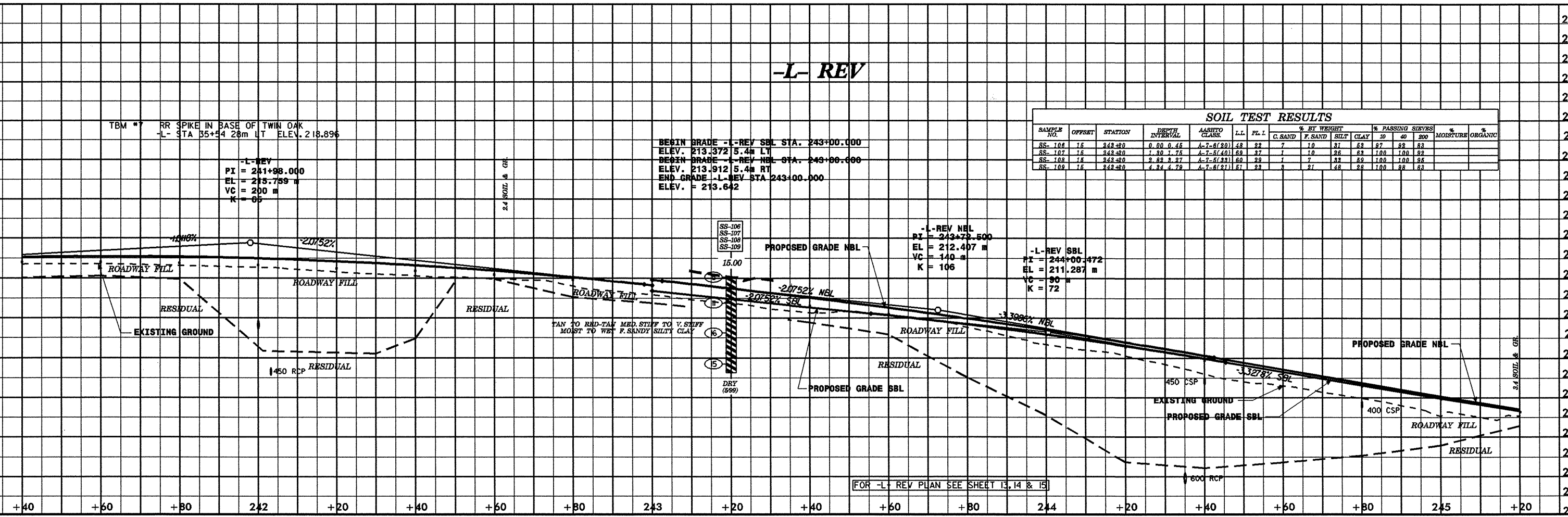
**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-100	10	238+20	0.30 0.75	A-6(11)	39	14	11	16	41	32	100	93	78	86.9	
SS-107	10	238+20	1.35 1.80	A-7-R(20)	48	19	6	10	45	40	100	97	89	21.5	
SS-109	10	238+20	2.87 3.32	A-7-R(13)	44	15	18	13	36	38	100	90	79	84.3	
SS-108	20	240+20	0.30 0.75	A-7-R(21)	58	29	7	14	18	61	100	92	80		
SS-104	20	240+20	1.30 1.75	A-7-R(21)	58	29	7	14	31	49	100	92	81		
SS-105	20	240+20	2.80 3.25	A-7-R(1)	44	7	18	22	39	14	99	91	59		

**-L- REV**



**-L- REV**



**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-106	15	242+20	0.00 0.45	A-7-R(20)	48	22	7	10	31	63	87	92	83		
SS-107	15	243+20	1.30 1.75	A-7-R(20)	69	37	7	10	26	63	100	100	82		
SS-108	15	243+20	2.82 3.27	A-7-R(23)	60	29	1	7	33	59	100	100	95		
SS-109	15	243+20	4.34 4.79	A-7-R(21)	51	23	8	21	48	38	100	98	83		





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

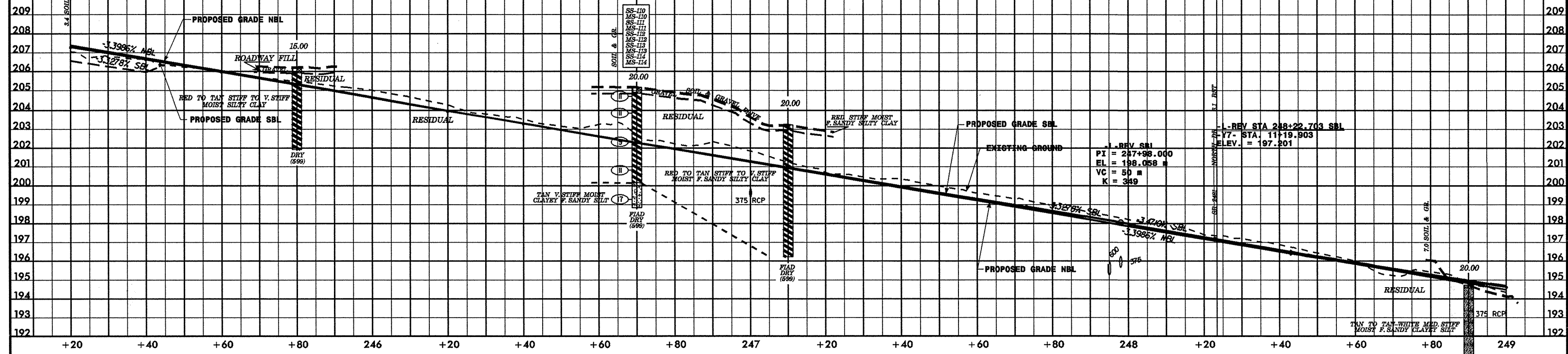


Prepared in the Office of: **EARTH TECH**  
 70 Corporate Center Drive, Suite 475  
 Raleigh, NC 27607  
 (919) 854-6200 - (919) 854-6259(FAX)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-110	30	248+70	0.45-0.90	A-7-6(26)	69	26	4	16	21	69	100	68	82	25.2	
SS-111	30	248+70	1.30-1.75	A-7-6(20)	67	23	6	19	27	49	87	94	77	26.3	
SS-112	30	248+70	2.82-3.27	A-7-6(38)	80	48	4	28	41	26	100	99	74	22.7	
SS-113	30	248+70	4.34-4.79	A-7-6(52)	81	63	6	27	42	24	100	88	72	19.2	
SS-114	30	248+70	5.86-6.31	A-6(8)	42	8	9	39	50	18	100	99	78	21.1	

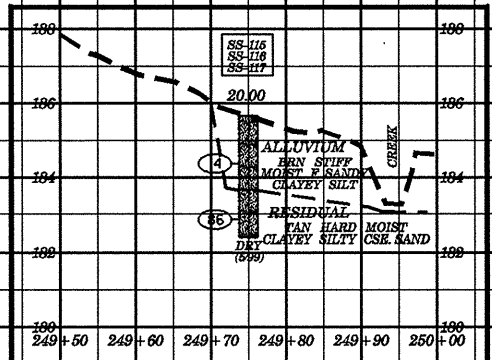
**-L- REV**

TBM #8 RR SPIKE IN BASE OF 200mm PINE  
 -L- STA 40+26 30m LT ELEV. 204.34



L-REV SBL  
 PI = 247+98.000  
 EL = 198.058 m  
 VC = 50 m  
 K = 349

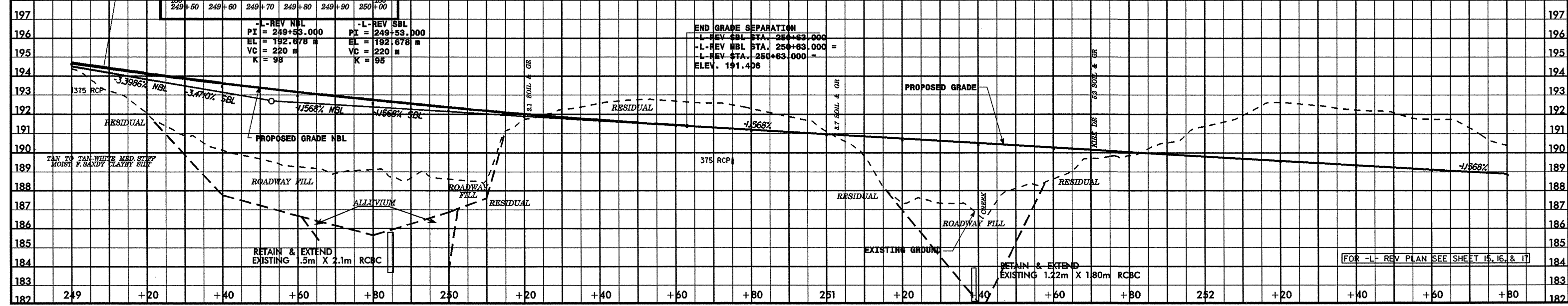
L-REV STA 248+22.703 SBL  
 V77- STA. 11+19.903  
 ELEV. = 197.201



**-L- REV**

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-115	20	249-75	0.00-1.30	A-4(8)	35	10	8	13	40	38	89	93	81		
SS-116	20	249-75	1.30-1.75	A-4(1)	30	8	31	18	24	28	88	68	46		
SS-117	20	249-75	2.82-3.27	A-4(0)	24	NP	40	18	33	10	86	66	45		

TBM #9 RR SPIKE IN BASE OF 450mm PINE  
 -L- STA 45+01 37m RT ELEV. 189.138



-L-REV NBL  
 PI = 249+53.000  
 EL = 192.678 m  
 VC = 220 m  
 K = 95

-L-REV SBL  
 PI = 249+53.000  
 EL = 192.678 m  
 VC = 220 m  
 K = 95

END GRADE SEPARATION  
 L-REV SBL STA. 250+63.000  
 -L-REV NBL STA. 250+63.000 =  
 -L-REV STA. 250+63.000 =  
 ELEV. 191.406

RETAIN & EXTEND EXISTING 1.22m X 180m RCBC

FOR -L- REV PLAN SEE SHEET 15, 16, & 17

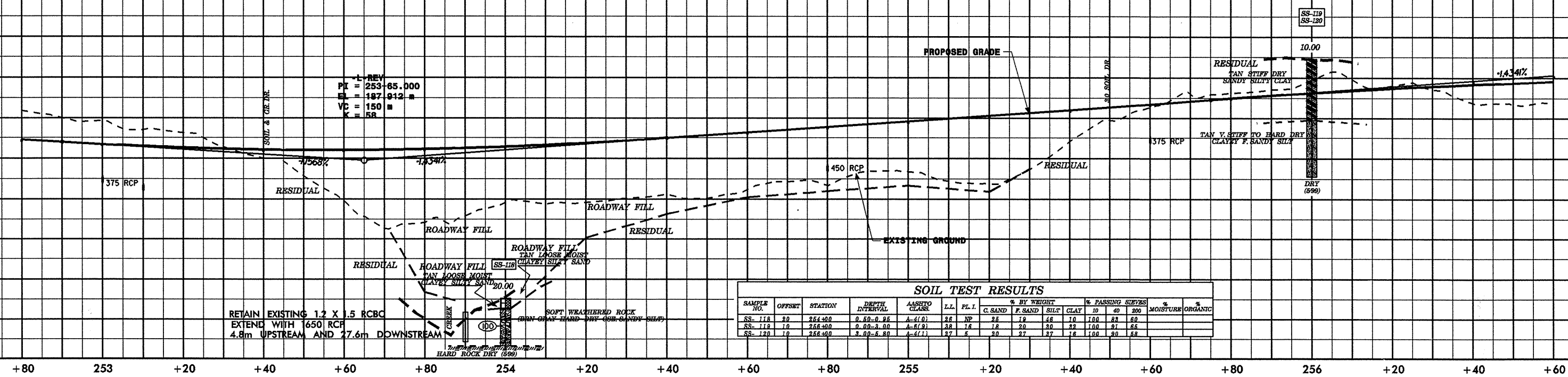


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PROJ. REFERENCE NO. R-2533CA SHEET NO. 40  
 HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR B/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION  
 Prepared in the Office of: EARTH TECH  
 70 Corporate Center Drive, Suite 475  
 Raleigh, NC 27607  
 (919) 854-6200 - (919) 854-6253(FAX)

**-L- REV**

TBM #10 RR SPIKE IN BASE OF POWER POLE  
 1 - STA 49+35.19m LT ELEV. 190.467

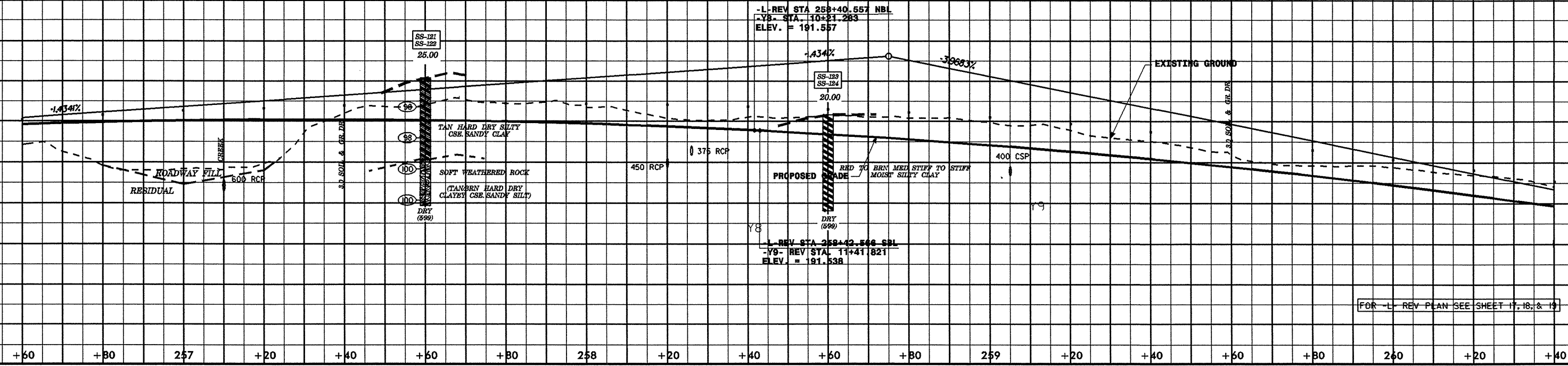


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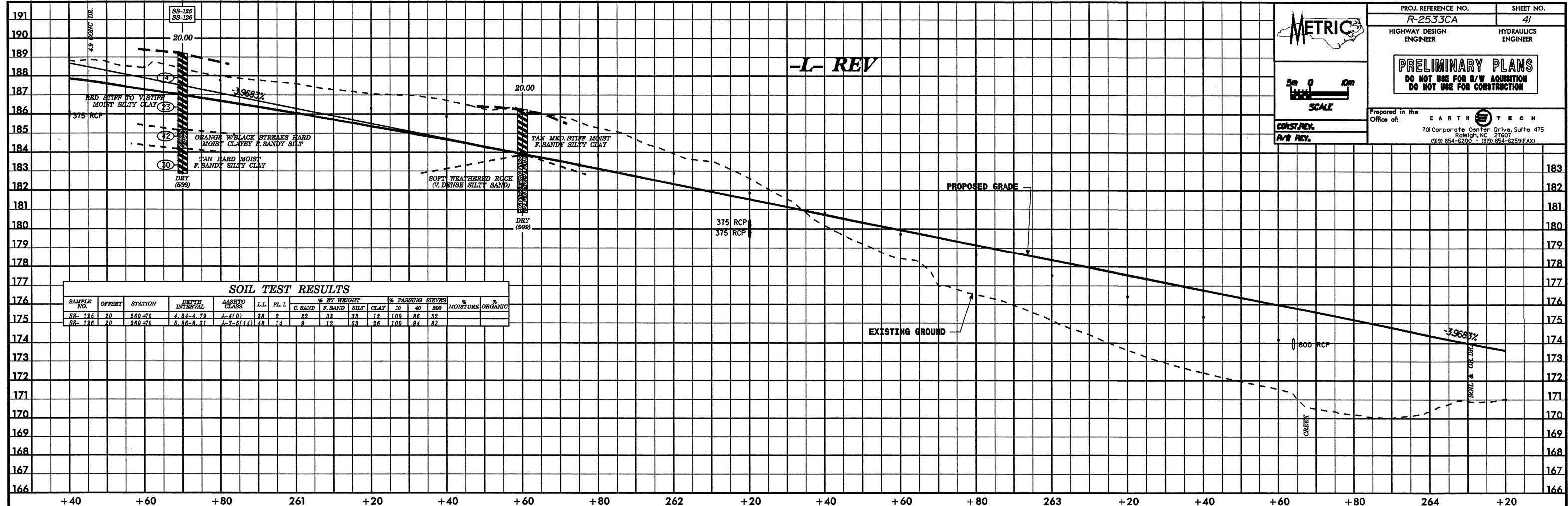
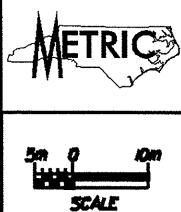
**-L- REV**

TBM #11 RR SPIKE IN BASE OF POWER POLE  
 1 - STA 52+92.38m RT ELEV. 194.164

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-121	25	257+460	1.45-1.80	A-6(3)	34	13	40	9	28	22	92	60	49		
SS-122	25	257+460	3.49-4.84	A-4(1)	35	10	29	11	34	26	99	75	62		
SS-123	20	258+460	0.00-1.86	A-2-B(1)	42	8	9	28	73	97	94	92			
SS-124	20	258+460	1.25-4.70	A-7.5(35)	68	30	1	10	32	57	100	89	92		

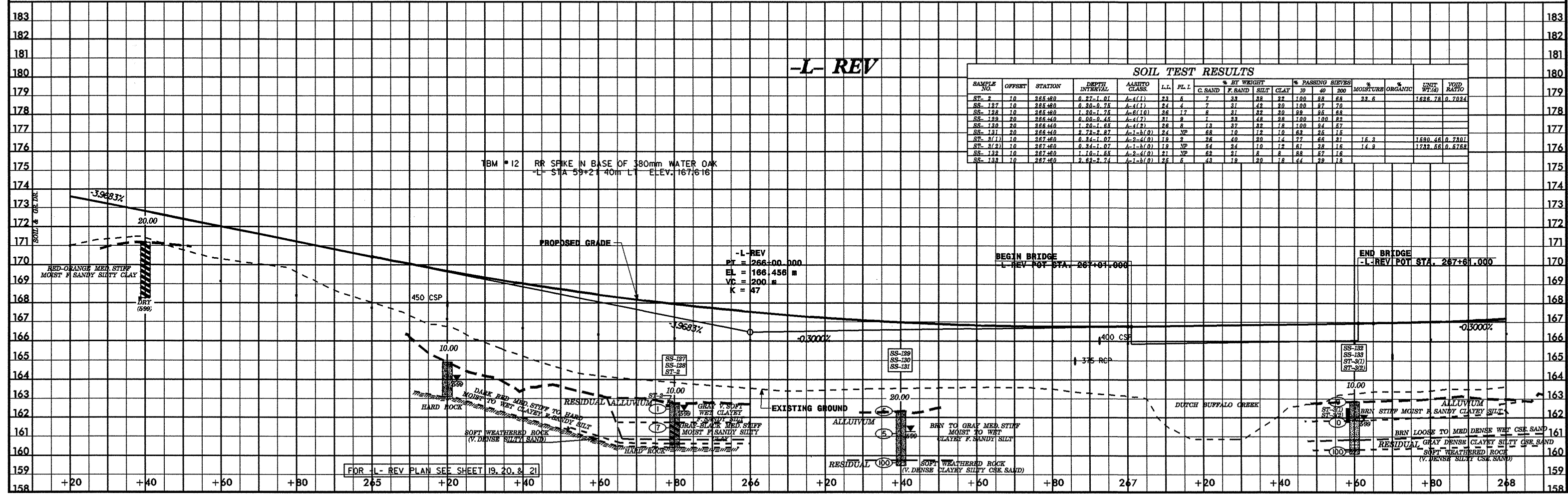


FOR -L- REV PLAN SEE SHEET 17, 18, & 19



**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	20	40	200		
SS-126	20	262+76	4.34-4.79	A-4(0)	88	2	22	32	32	12	100	88	52		
SS-128	20	262+76	6.86-6.37	A-7-5(14)	48	14	9	12	68	28	100	84	82		



**SOIL TEST RESULTS**

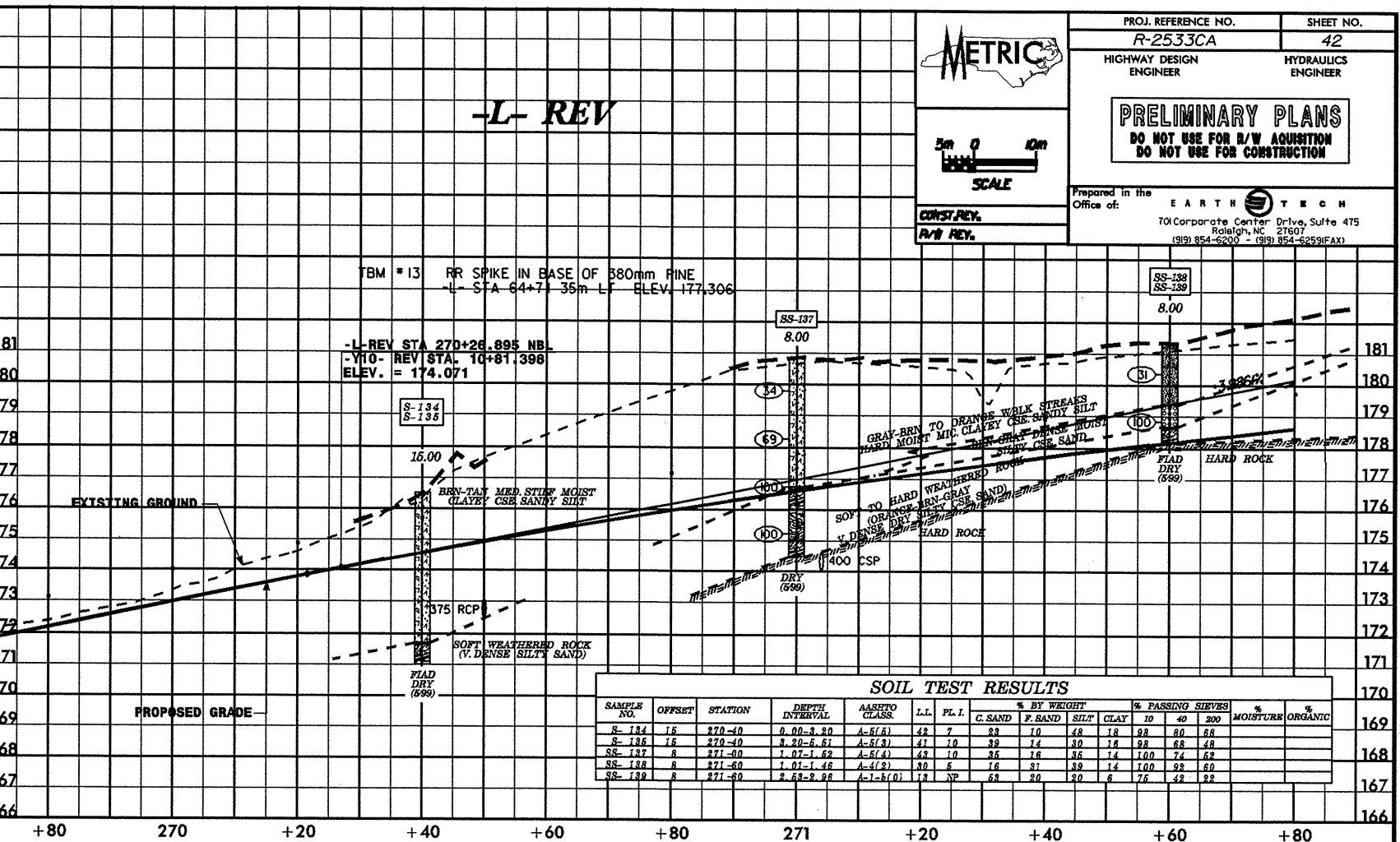
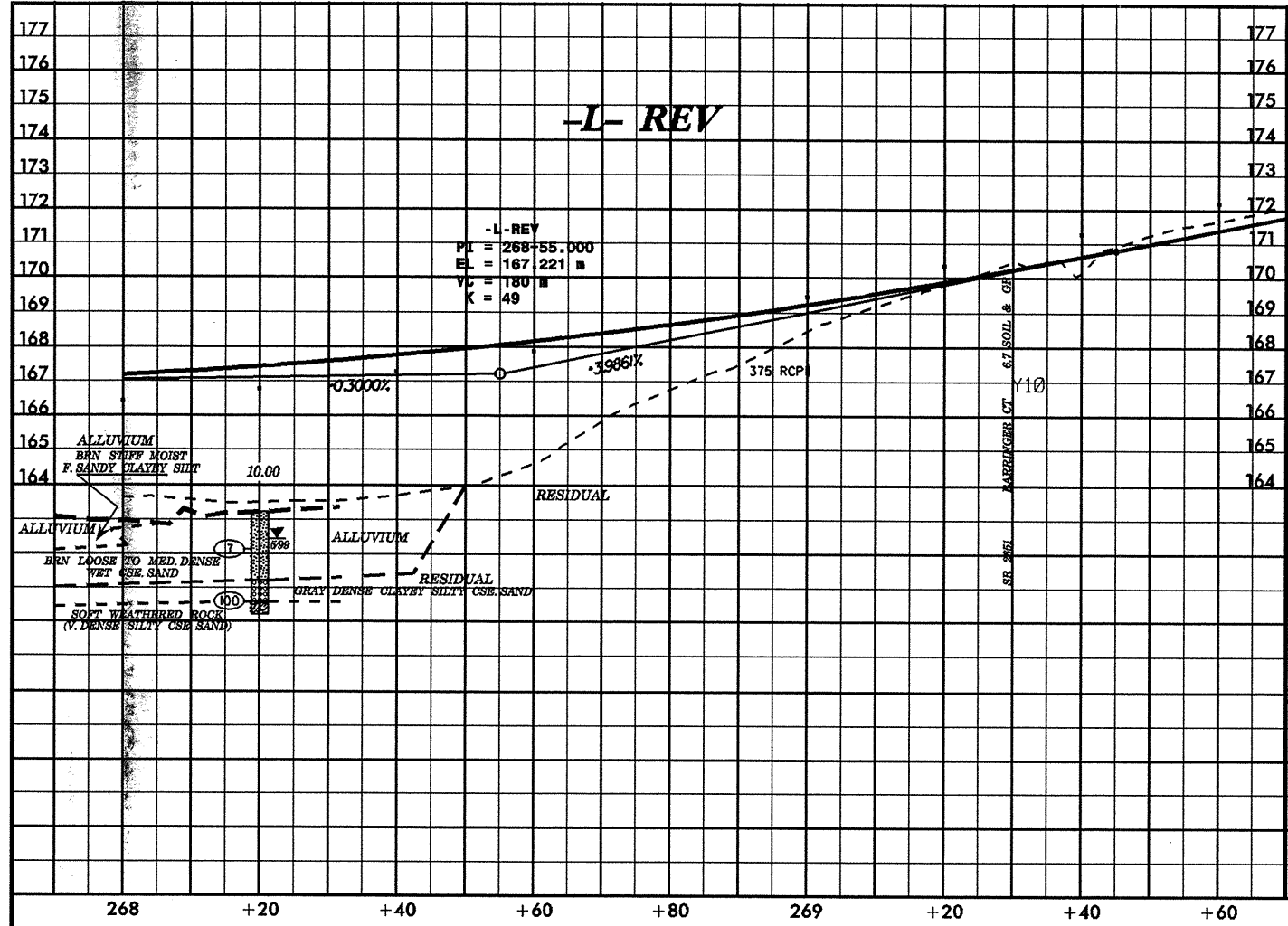
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC	UNIT WT (90)	VOID RATIO
							C. SAND	F. SAND	SILT	CLAY	20	40	200				
ST-2	10	265+80	0.27-1.01	A-4(1)	23	6	7	33	22	100	92	68	23.6	1625.78	0.7024		
SS-127	10	265+80	0.30-0.75	A-4(1)	24	4	7	31	22	100	97	70					
SS-128	10	265+80	1.20-1.75	A-6(10)	36	17	8	31	32	100	99	68					
SS-129	20	265+40	0.00-0.45	A-4(7)	31	9	7	32	28	100	100	82					
SS-130	20	265+40	1.20-1.65	A-4(2)	28	8	12	37	32	100	94	57					
SS-131	20	265+40	2.72-2.87	A-1-h(0)	12	NP	62	10	12	10	62	15					
ST-3(1)	10	267+60	0.34-1.07	A-3-h(0)	18	2	36	40	14	27	66	31	15.3	1590.46	0.7301		
ST-3(2)	10	267+60	0.34-1.07	A-1-h(0)	19	NP	64	10	12	81	38	16	14.2	1722.55	0.6768		
SS-132	10	267+60	1.10-1.65	A-2-h(0)	21	NP	62	11	8	88	57	16					
SS-133	10	267+60	2.82-2.74	A-1-h(0)	25	6	43	19	20	18	44	18					



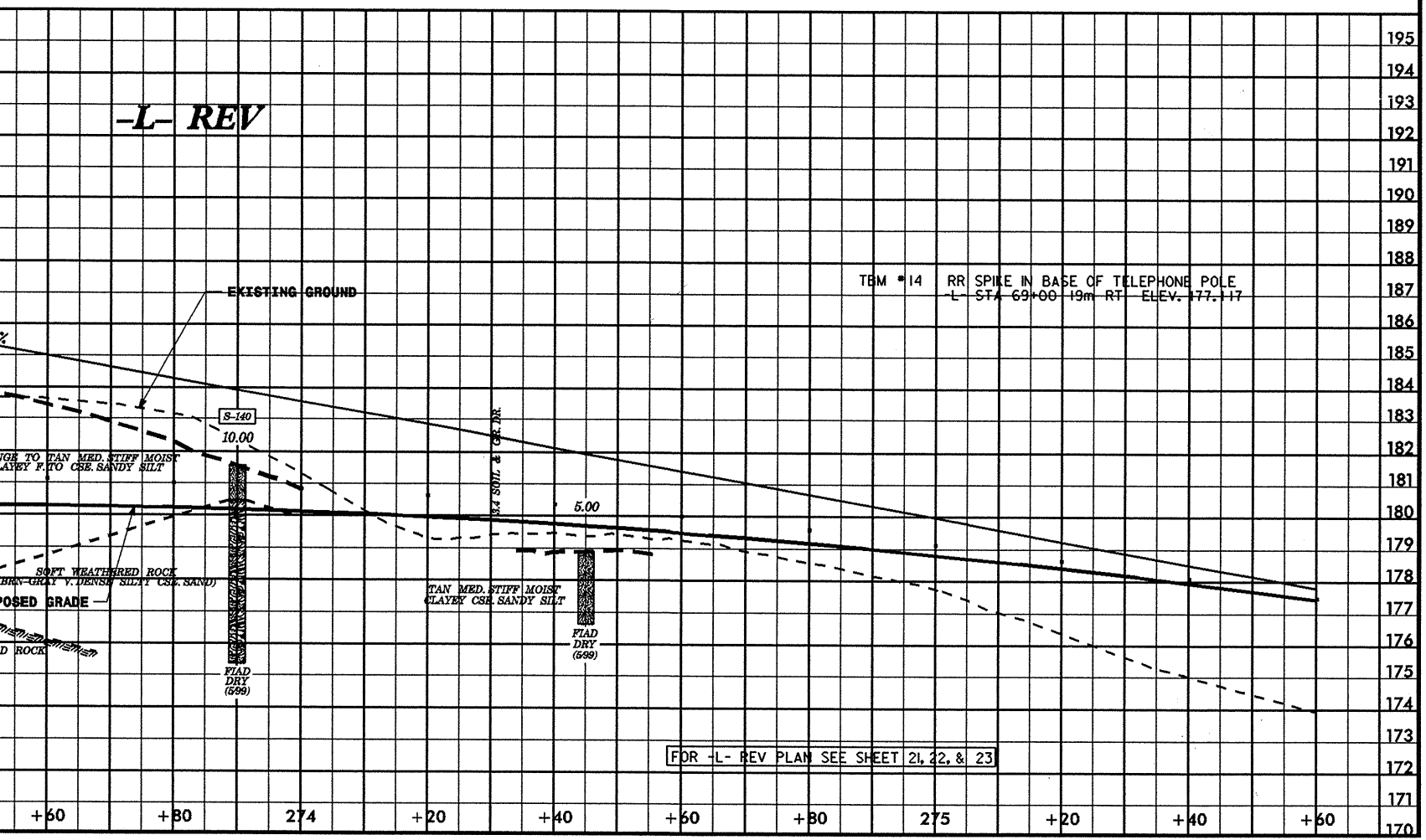
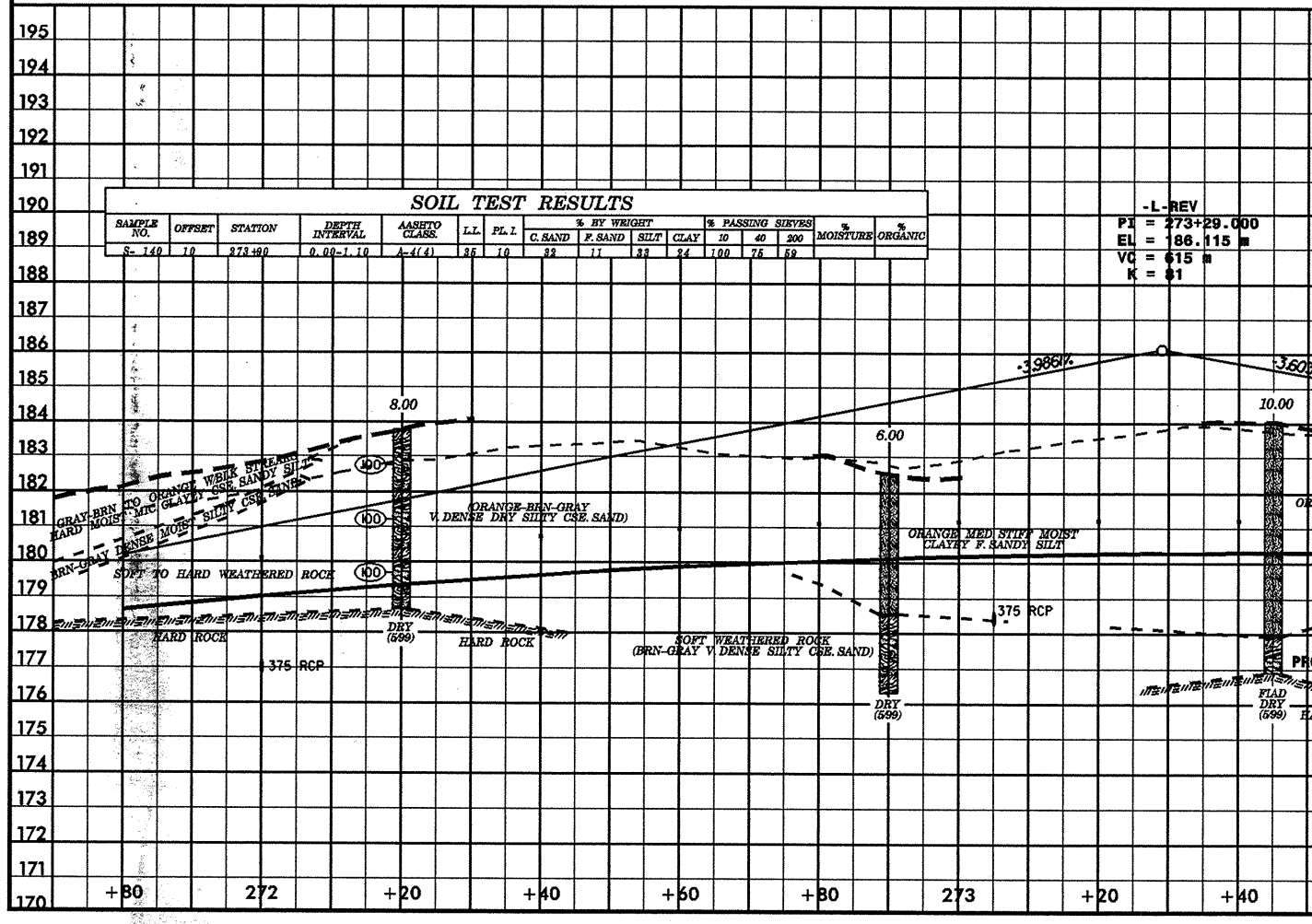
**PRELIMINARY PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION



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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#20	#40		
S-134	1.5	270-40	0.00-2.90	A-5(8)	42	7	21	10	42	7	21	10	42	7
S-135	1.5	270-40	3.20-5.61	A-5(8)	41	7	32	14	30	16	32	16	32	16
SS-137	8	271-00	1.07-1.62	A-5(8)	43	10	35	16	35	16	100	74	62	
SS-138	8	271-00	1.01-1.46	A-5(8)	80	5	16	81	39	14	100	92	60	
SS-139	8	271-00	2.63-2.98	A-1-2(0)	13	NP	63	20	20	8	75	42	22	



SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS	LL	PL	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#20	#40		
S-140	7.0	272+00	0.00-1.10	A-4(4)	35	10	32	11	33	24	100	76	59	

FOR -L- REV PLAN SEE SHEET 21, 22, & 23

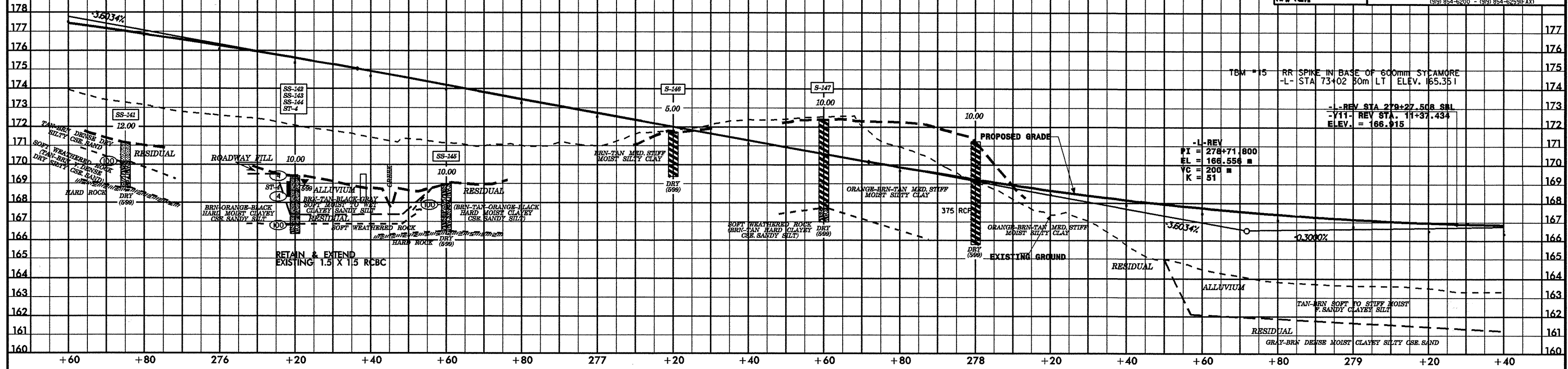




CONST. REV.  
R/W REV.

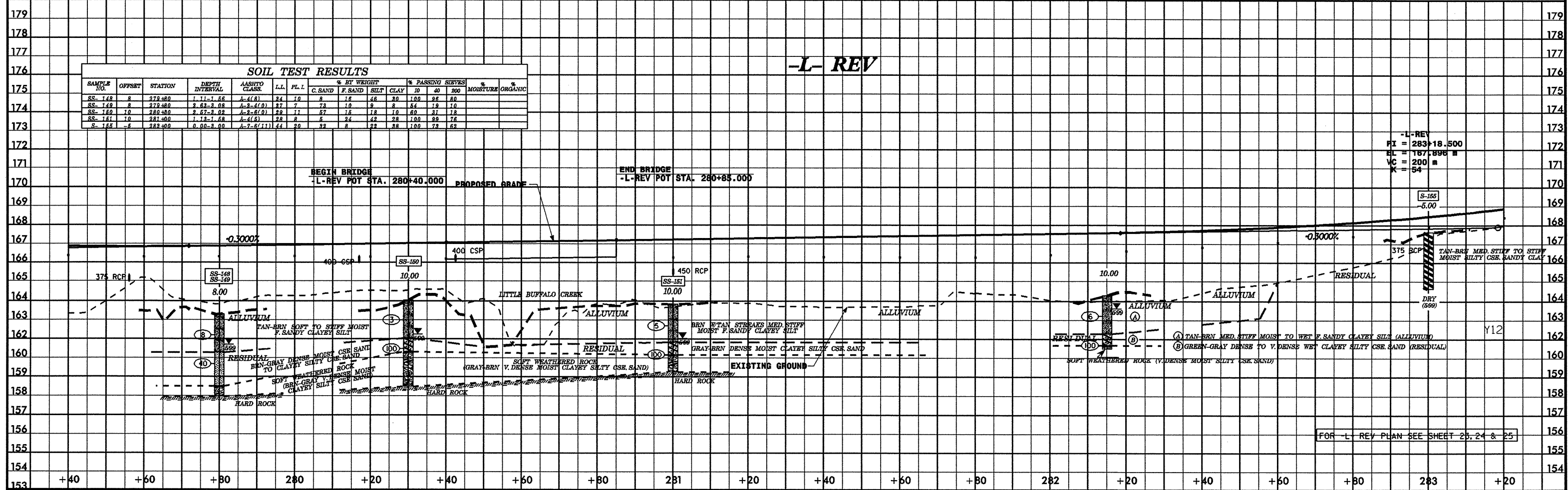
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC	UNIT WT. (G)	VOID RATIO
							C. SAND	F. SAND	SILT	CLAY	#10	#40				
SS-141	12	272+278	1.00-1.38	A-2-4(1)	28	5	58	17	19	8	80	48	27			
SS-142	10	272+280	0.00-0.45	A-1(2)	38	8	33	13	34	26	92	69	63			
ST-4	10	272+280	0.30-1.04													
SS-143	10	272+280	1.07-1.52	A-1(1)	27	NP	1	5	71	23	100	99	28			
SS-144	10	272+280	2.52-3.04	A-1(6)	38	10	33	10	39	28	88	70	60			
SS-145	10	272+280	1.10-1.34	A-2-4(1)	28	8	57	17	16	16	47	21	14			
S-146	6	277+280	0.00-2.37	A-7-6(14)	43	12	3	7	42	49	100	88	82			
S-147	10	277+280	0.00-2.48	A-7-6(29)	67	23	7	3	34	63	100	100	123			

-L- REV

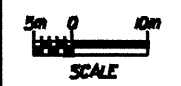


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	#10	#40			#200
SS-148	8	272+280	1.11-1.56	A-1(1)	34	10	2	18	48	20	100	86	80		
SS-149	8	272+280	3.62-3.08	A-2-4(1)	27	7	73	10	9	2	54	19	10		
SS-150	10	280+280	3.67-3.02	A-2-6(1)	29	11	57	16	18	10	60	37	12		
SS-151	10	281+280	1.12-1.58	A-1(5)	38	8	5	26	42	28	100	99	76		
S-152	6	282+280	0.00-2.00	A-7-6(11)	44	20	32	8	22	38	100	73	62		

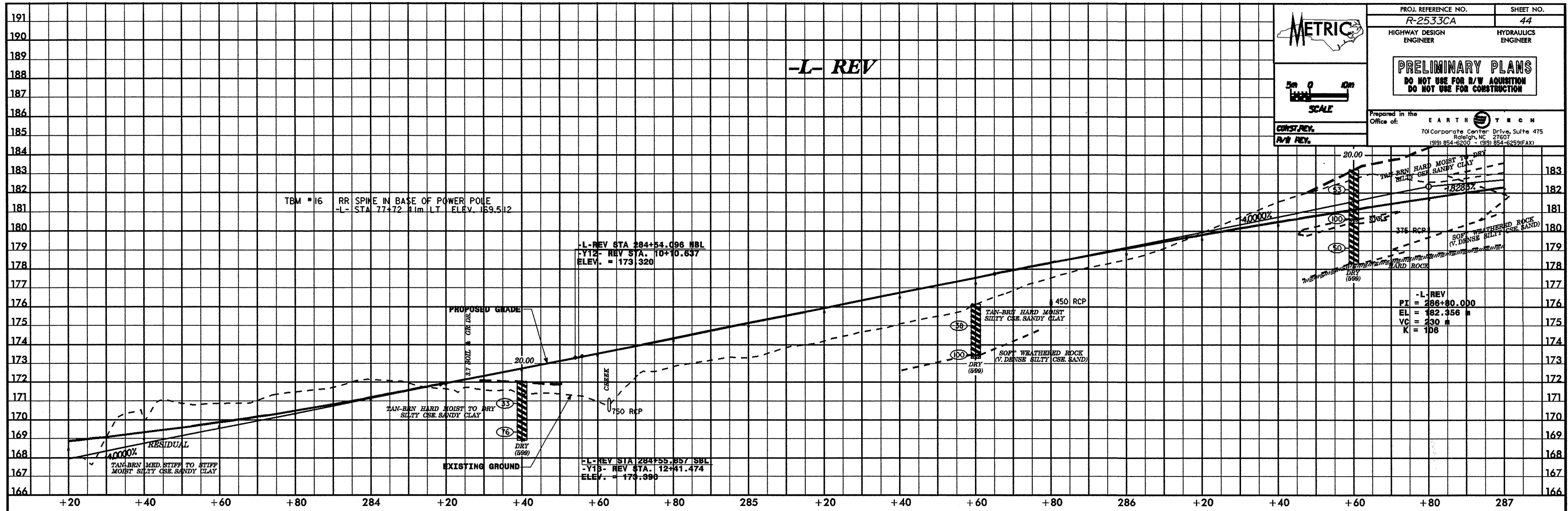
-L- REV





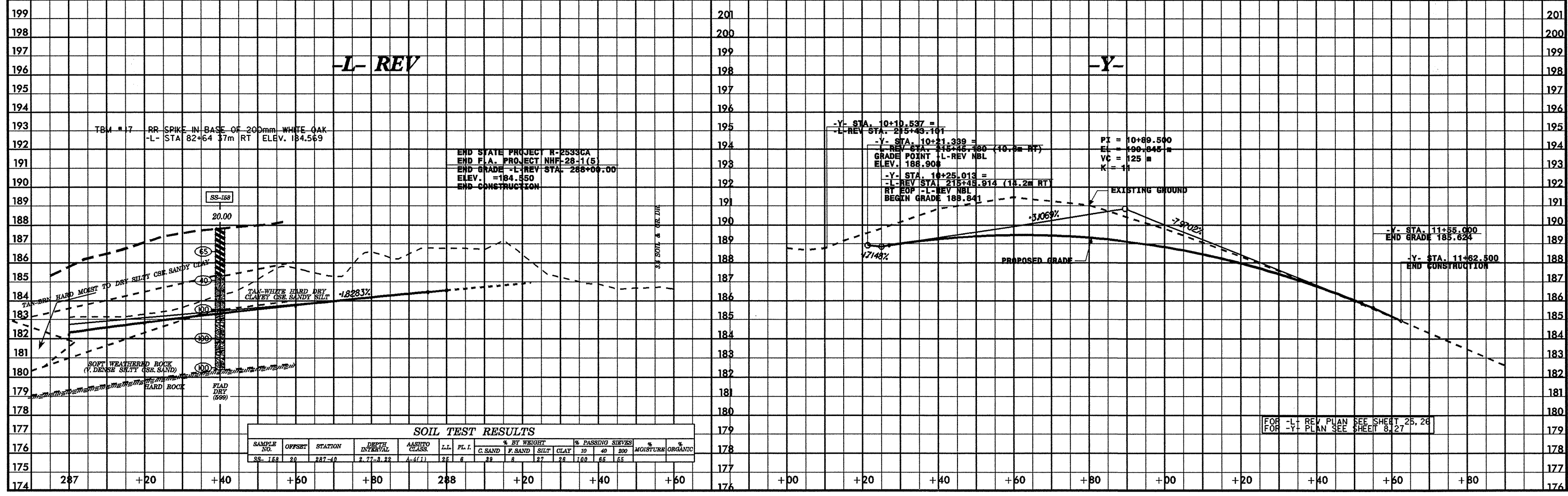


# -L- REV



# -L- REV

# -Y-



### SOIL TEST RESULTS


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	20	40	200		
SS-168	20	287+40	2.77-3.22	A-4(1)	25	8	82	8	27	28	100	65	65		

FOR -L- REV PLAN SEE SHEET 25, 28  
 FOR -Y- PLAN SEE SHEET 8, 27

RAMP A STA. 0+00.000 =  
 -L-REV STA. 225+90.000 14.2m LT  
 BEGIN GRADE ELEV 205.998

PI = 0+48.000  
 EL = 204.282 m  
 VC = 95 m  
 K = 113

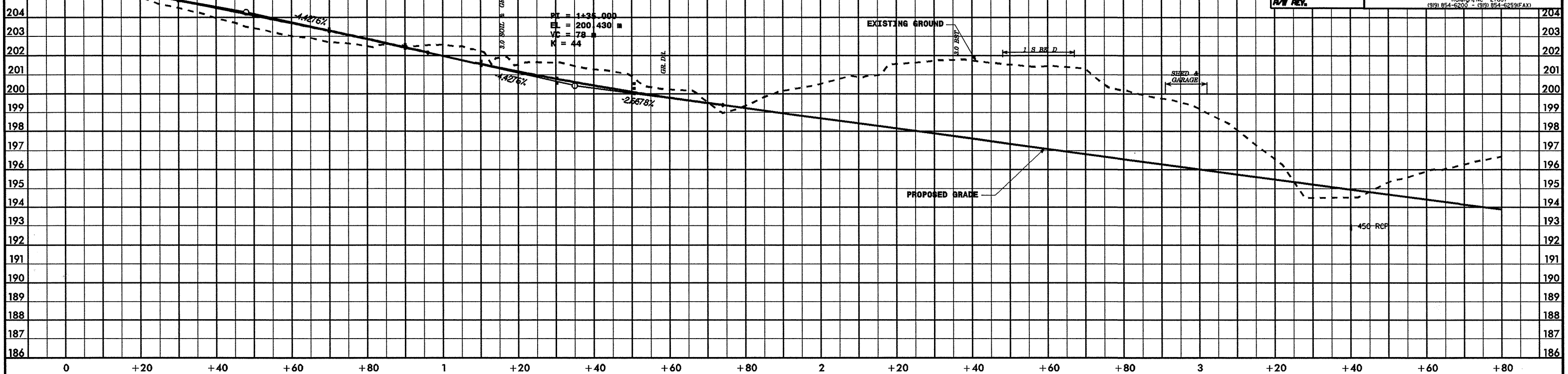
### RAMP A @ -Y1-REV



5m 0 10m  
 SCALE

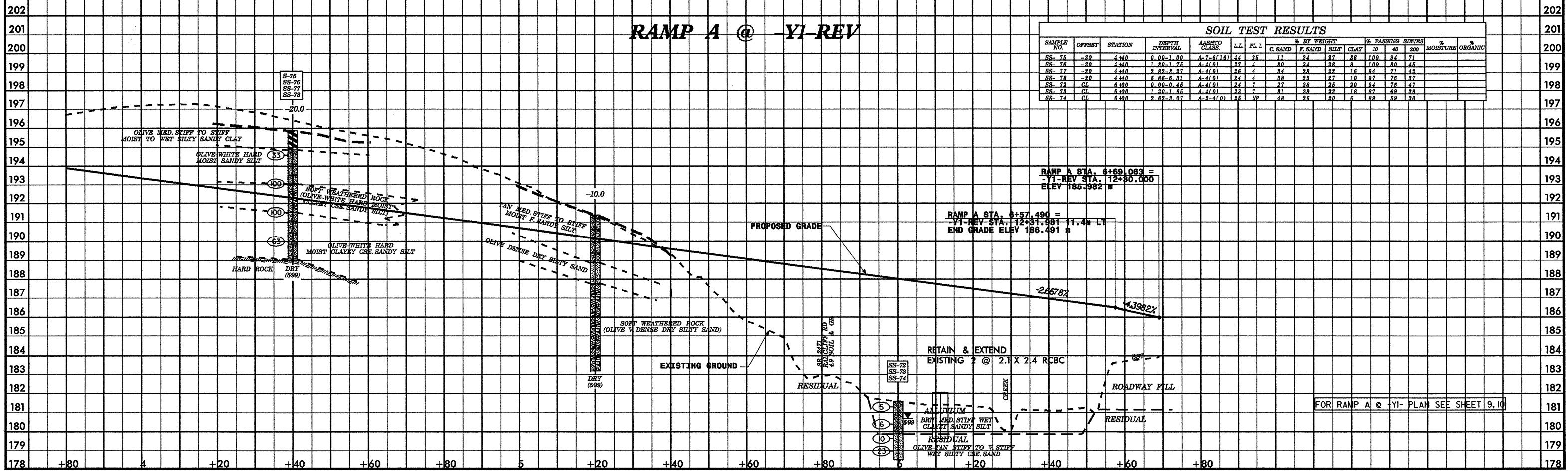
CONST. REV.  
 A11 REV.

PROJ. REFERENCE NO. R-2533CA	SHEET NO. 45
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	



### RAMP A @ -Y1-REV

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT			% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT CLAY	20	40	200		
SS-75	-20	4+40	0.00-1.00	A-7-R(18)	44	26	77	24	27	28	100	84	71	
SS-76	-20	4+40	1.00-1.75	A-6(0)	27	4	30	34	28	8	100	80	46	
SS-77	-20	4+40	2.25-3.27	A-6(0)	26	4	34	28	29	16	94	71	42	
SS-78	-20	4+40	5.86-6.31	A-6(0)	24	4	38	26	27	10	87	76	37	
SS-79	CL	6+00	0.00-0.45	A-6(0)	24	7	27	28	25	20	84	76	47	
SS-73	CL	6+00	1.20-1.65	A-6(0)	22	7	37	29	22	18	87	69	38	
SS-74	CL	6+00	2.82-3.07	A-2-3(0)	26	NP	48	28	20	6	82	69	30	



FOR RAMP A @ -Y1- PLAN SEE SHEET 9, 10



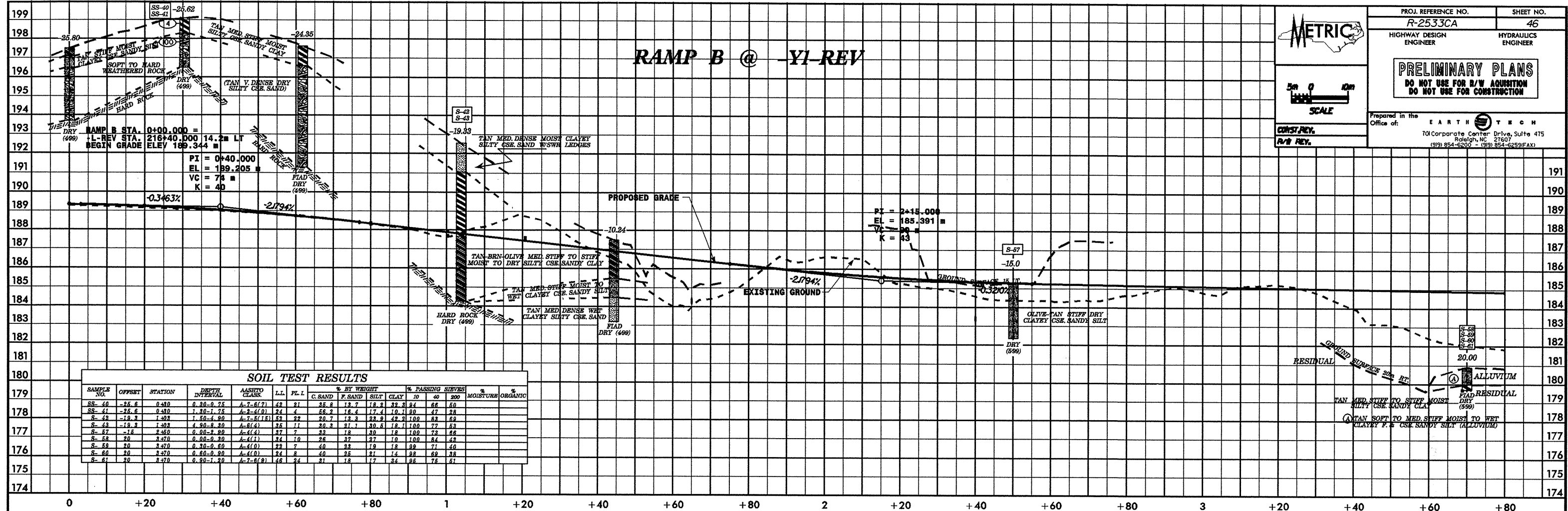
PRELIMINARY PLANS  
DO NOT USE FOR R/W ACQUISITION  
DO NOT USE FOR CONSTRUCTION



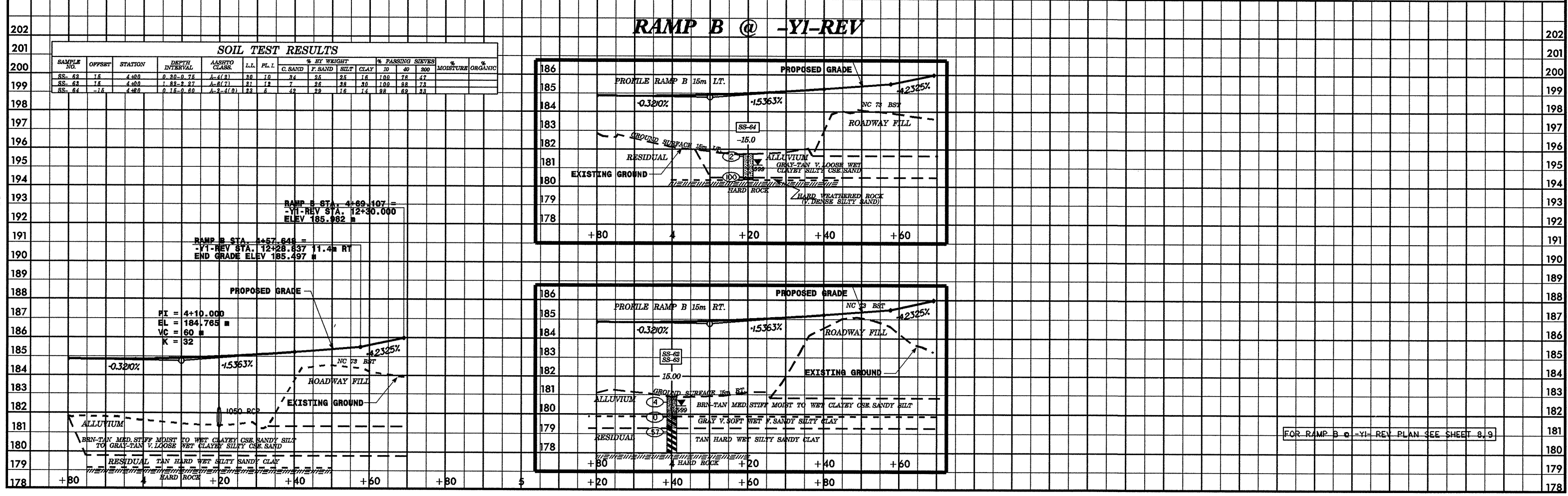
CONST. REV.  
R/W REV.

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### RAMP B @ -YI-REV

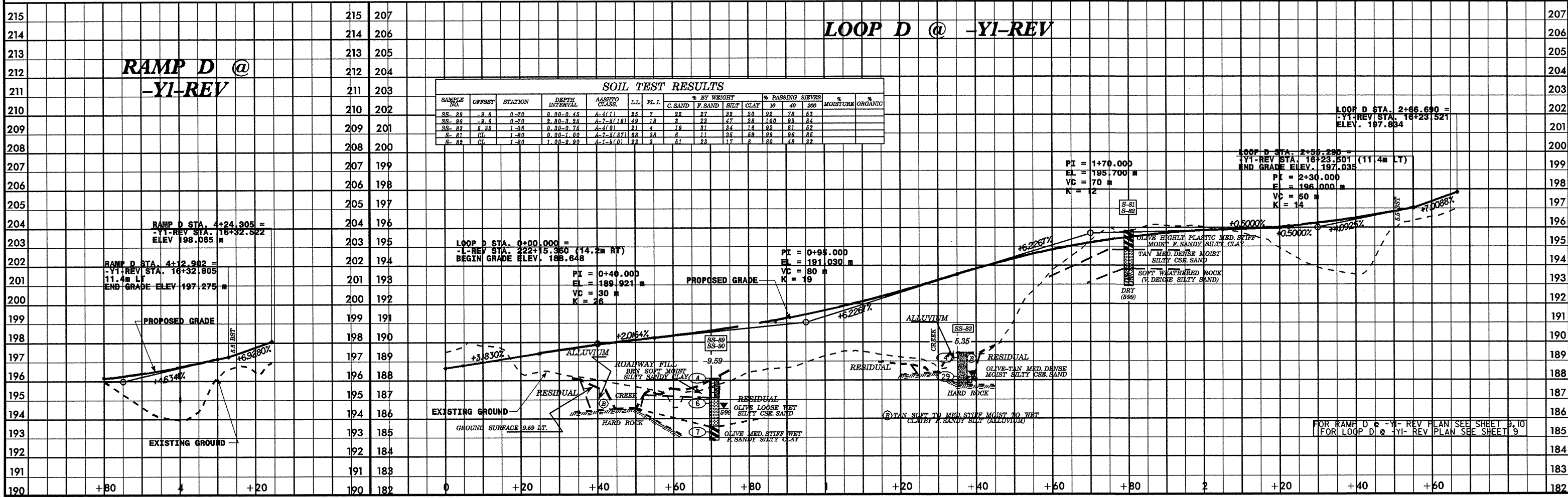
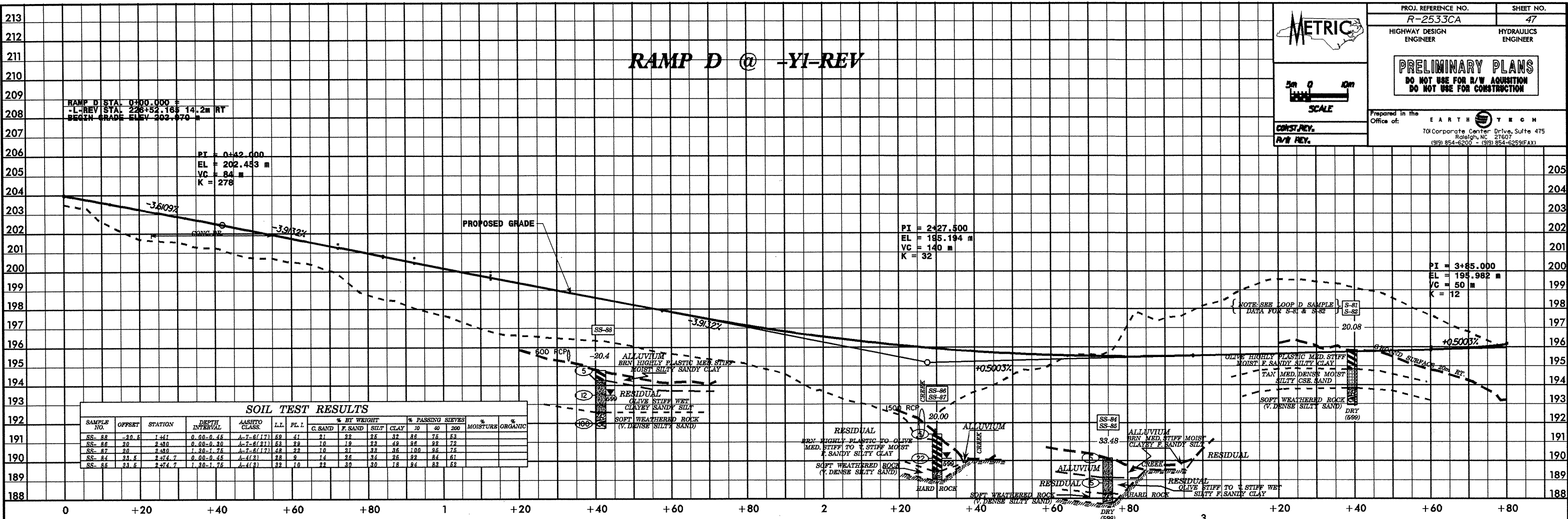


### RAMP B @ -YI-REV

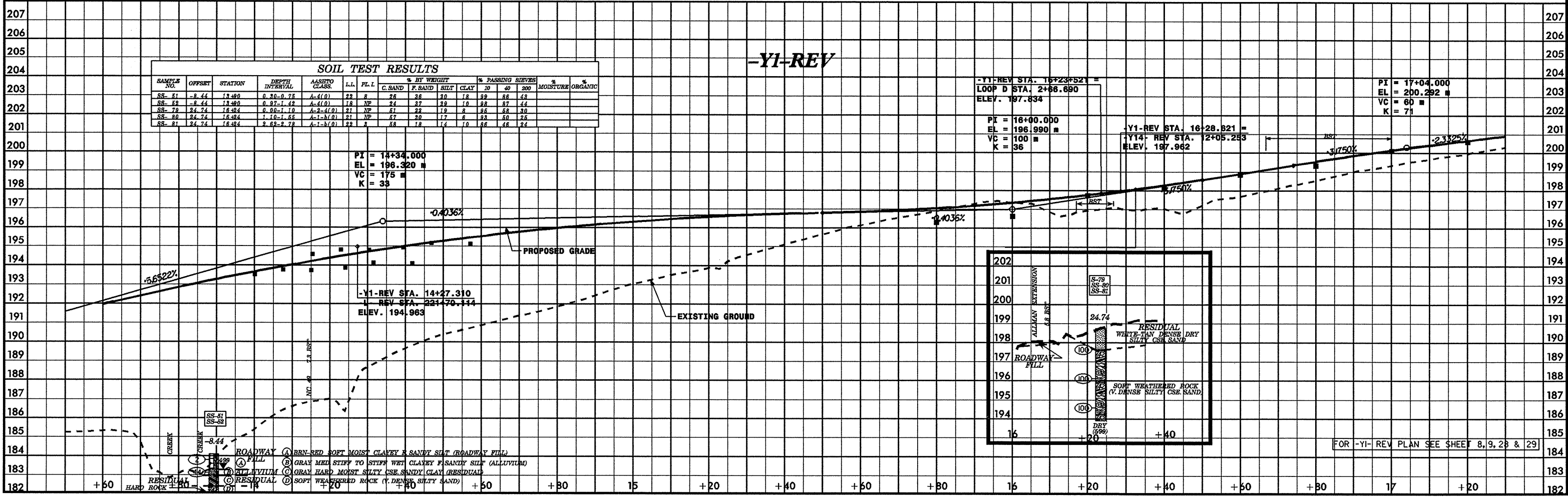
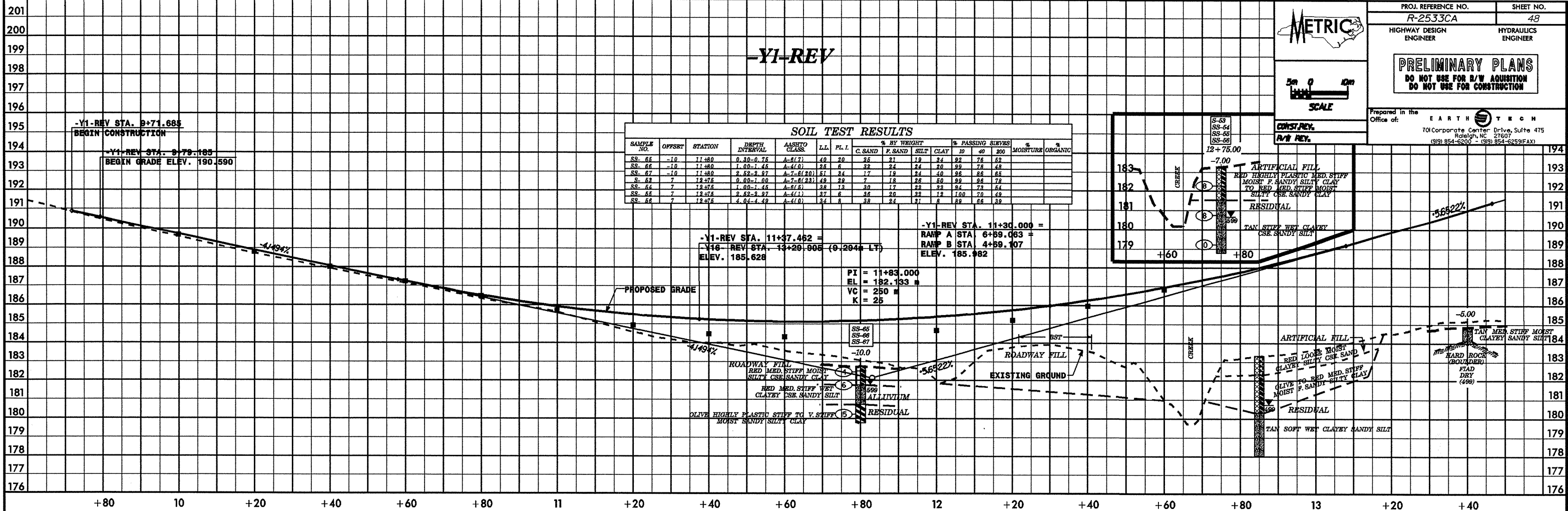


FOR RAMP B @ -YI-REV PLAN SEE SHEET 8-9

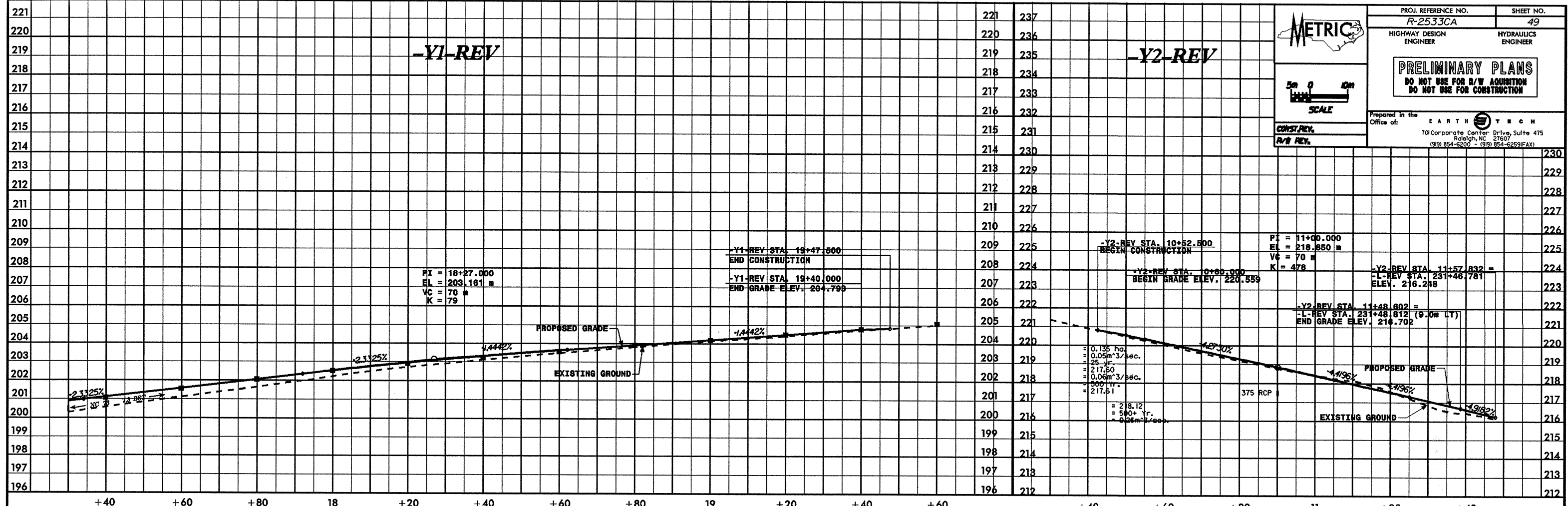








FOR -Y1-REV PLAN SEE SHEET 8, 9, 28 & 29



**METRIC**  
 HIGHWAY DESIGN ENGINEER

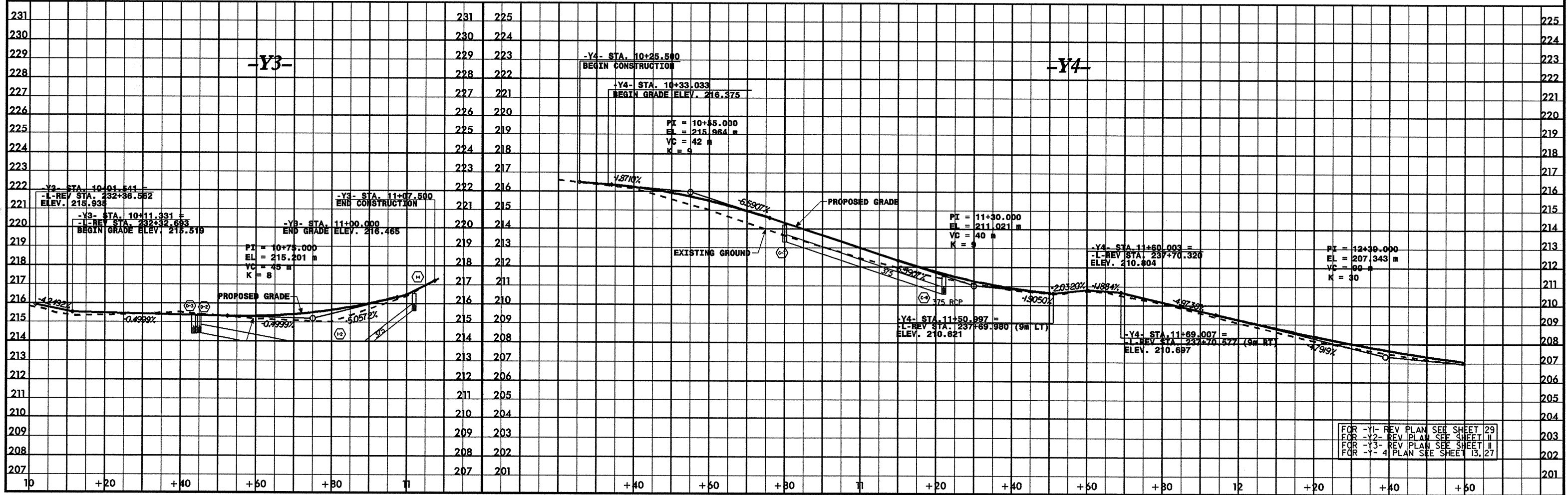
PROJ. REFERENCE NO. R-2533CA  
 SHEET NO. 49

HYDRAULICS ENGINEER

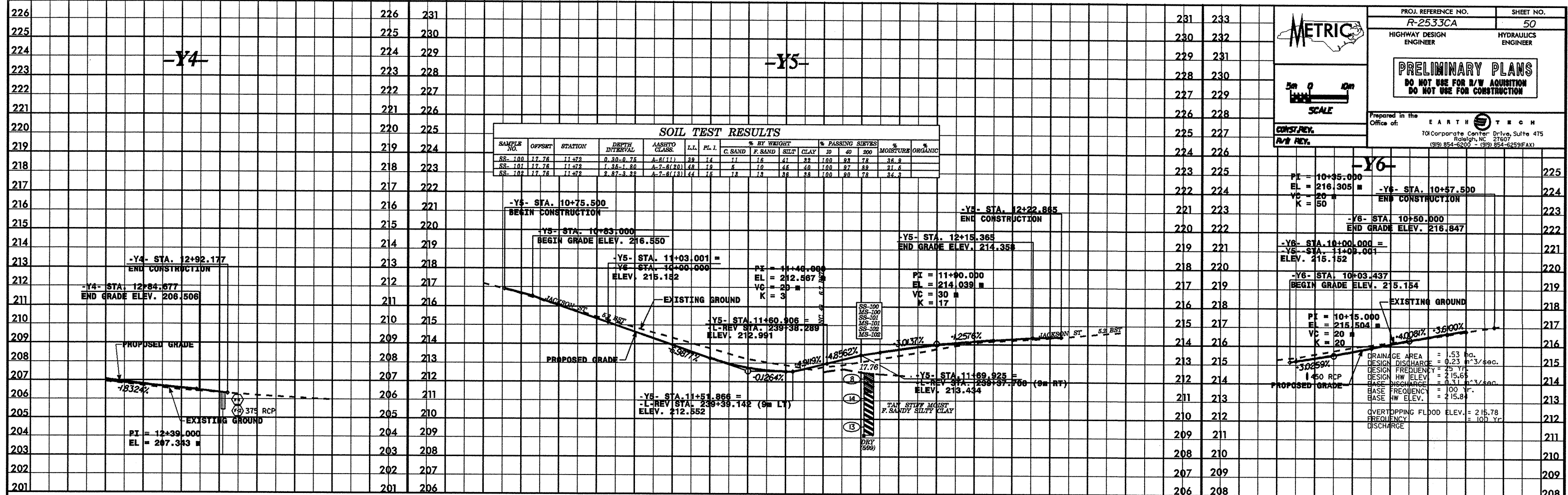
**PRELIMINARY PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION

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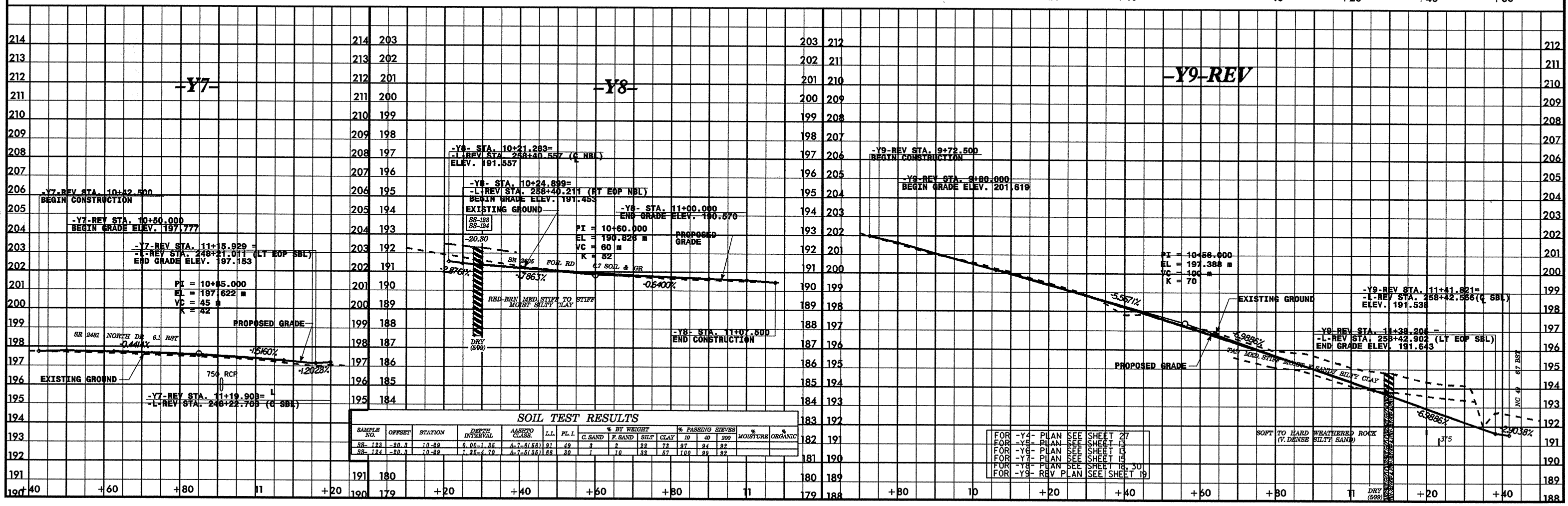
SCALE  
 CONST. REV.  
 R/W REV.



FOR -Y1- REV PLAN SEE SHEET 29  
 FOR -Y2- REV PLAN SEE SHEET 11  
 FOR -Y3- REV PLAN SEE SHEET 11  
 FOR -Y4- PLAN SEE SHEET 13, 27



PROJ. REFERENCE NO. R-2533CA SHEET NO. 50  
 METRIC  
 HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION  
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FOR -Y4- PLAN SEE SHEET 27  
 FOR -Y5- PLAN SEE SHEET 13  
 FOR -Y6- PLAN SEE SHEET 13  
 FOR -Y7- PLAN SEE SHEET 19  
 FOR -Y8- PLAN SEE SHEET 18, 30  
 FOR -Y9- REV PLAN SEE SHEET 19

SOFT TO HARD WEATHERED ROCK  
 (V. DENSE SILTY SAND)

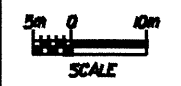


**-Y10- REV**

**-Y11- REV**



PROJ. REFERENCE NO. R-2533CA SHEET NO. 51  
 HIGHWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
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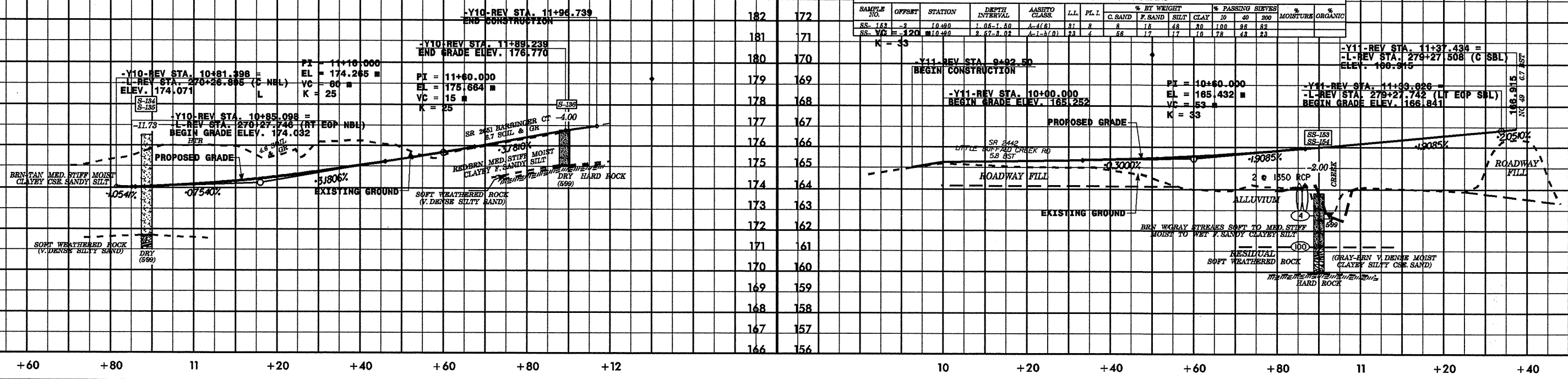


**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-134	-11	10+882	0.00-0.30	A-1(E)	47	7	22	10	48	18	22	26	88		
S-135	-11	10+882	0.30-0.61	A-1(E)	47	7	22	14	30	16	22	22	48		
S-136	-4	11+892	0.00-1.70	A-1(E)	22	7	14	22	47	22	24	26	87		

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-153	-2	10+280	1.00-1.50	A-1(E)	37	2	8	15	48	30	100	26	82		
SS-152	-120	10+280	2.57-2.92	A-1(E)	23	2	28	17	17	10	72	24	23		



-Y12-REV STA. 10+10.637 =  
 -L-REV STA. 284+54.096 (C NBL)  
 ELEV. 173.320

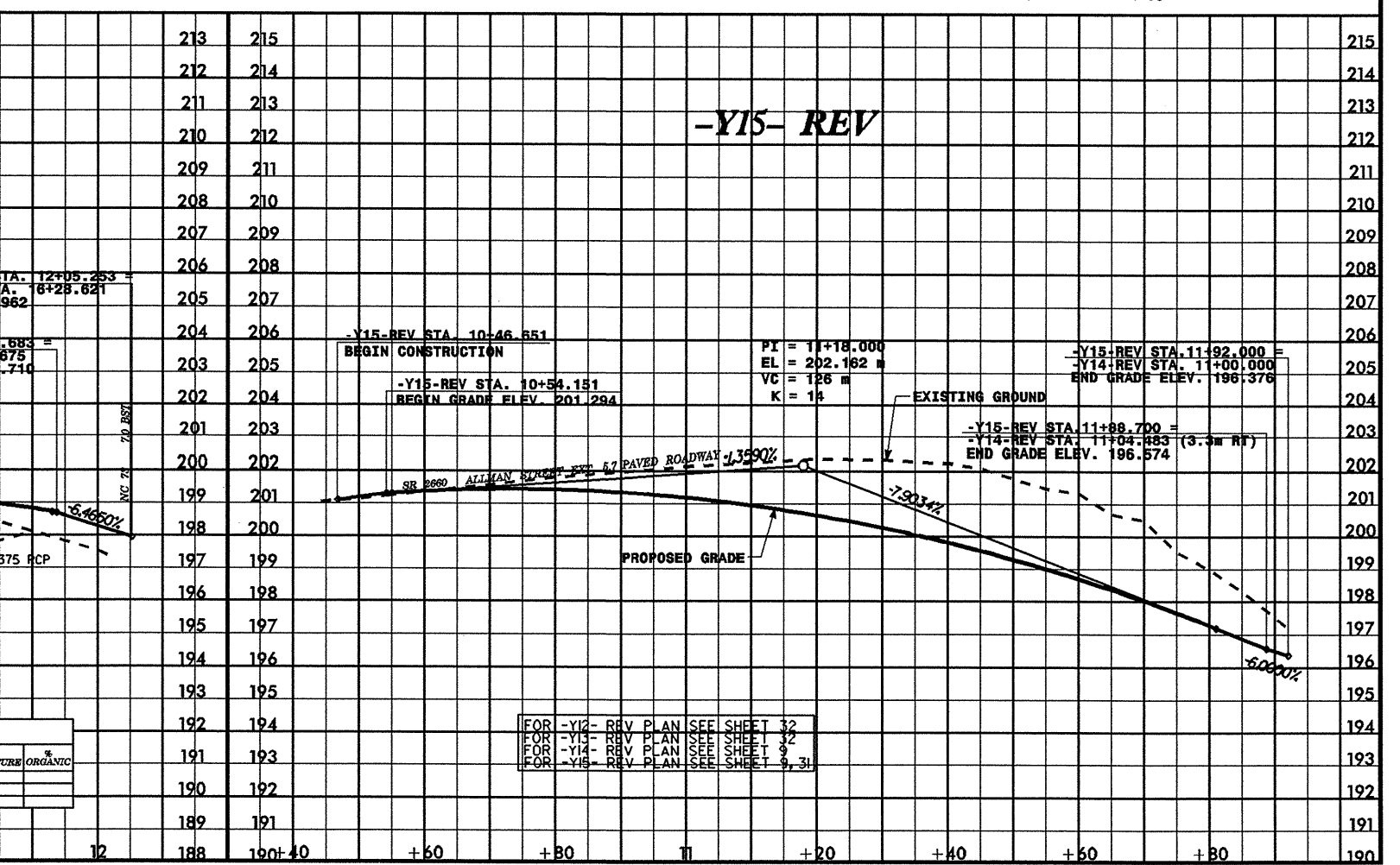
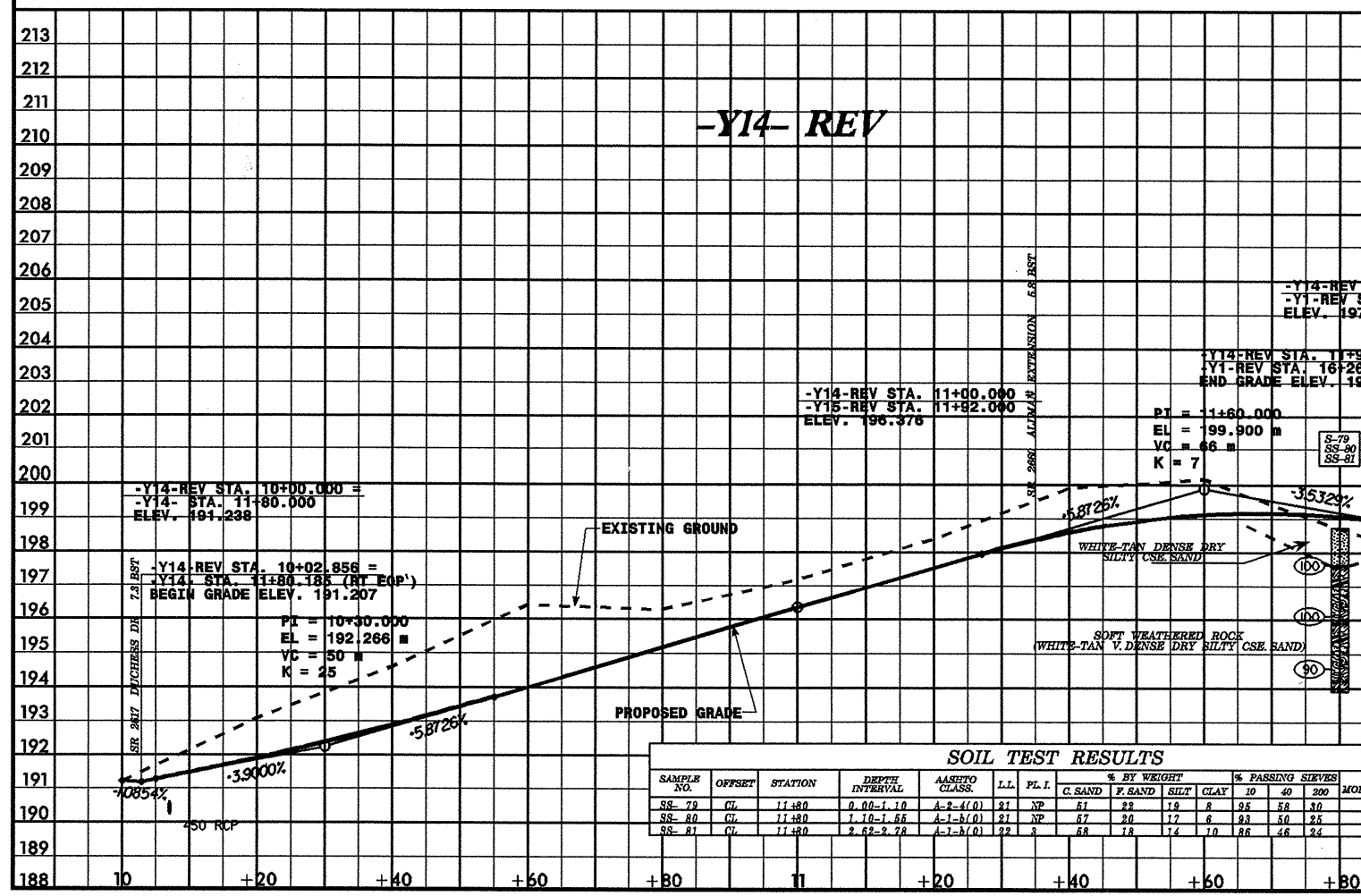
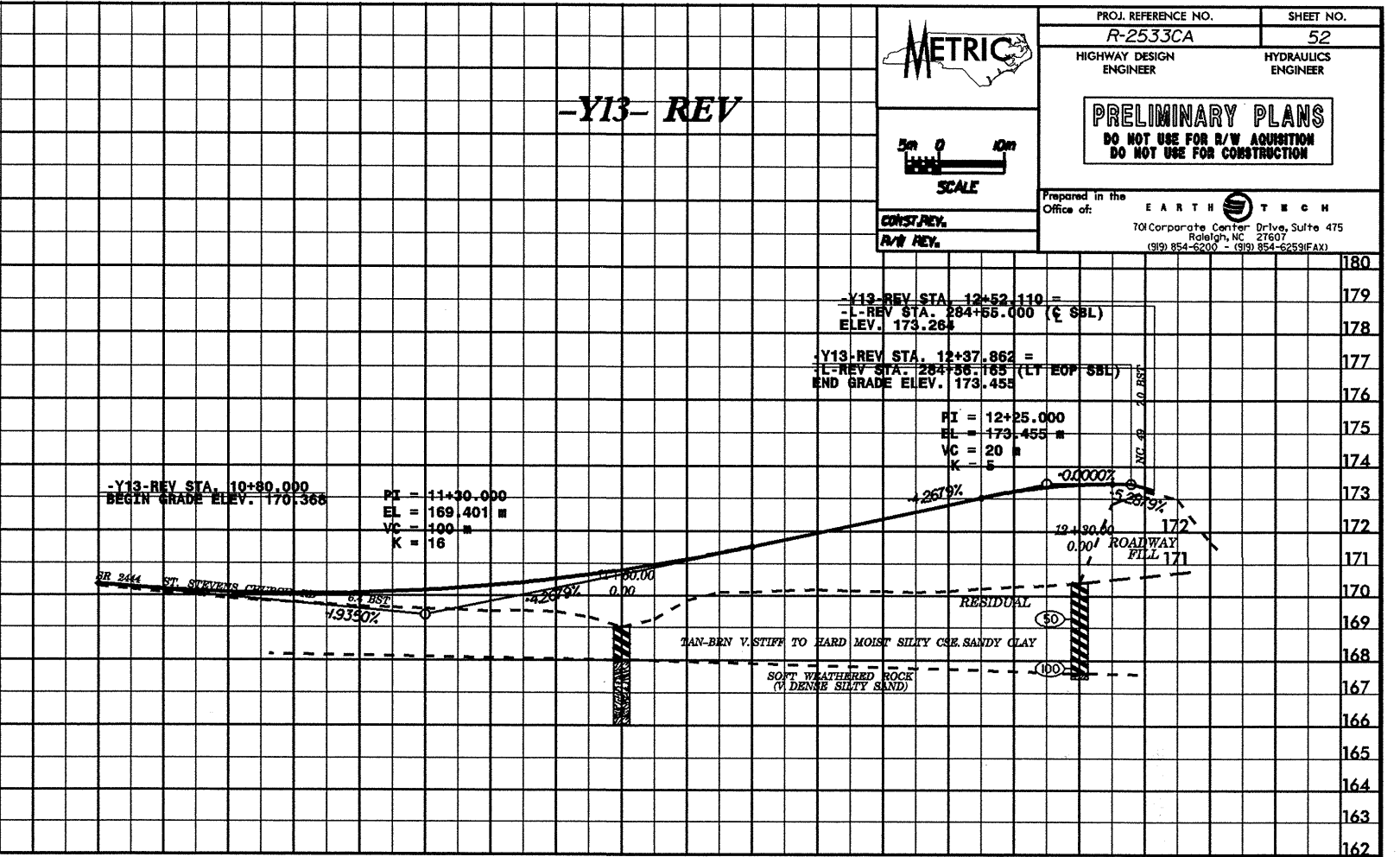
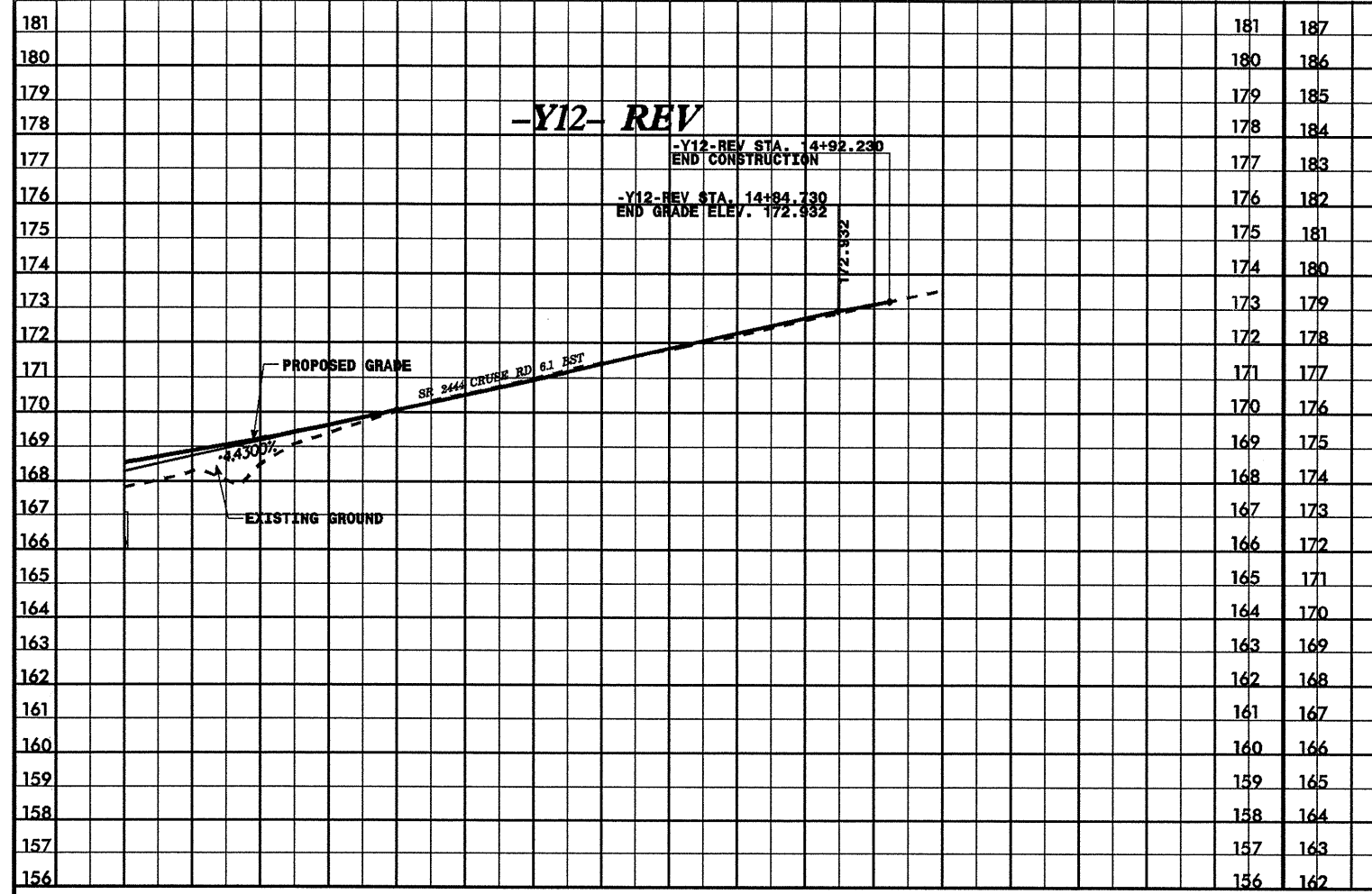
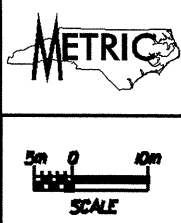
-Y12-REV STA. 10+18.250 =  
 -L-REV STA. 284+53.790 (RT EOP NBL)  
 BEGIN GRADE ELEV. 173.128

**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PL.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SR-156	8	11+880	0.00-1.40	A-1-E(1)	52	19	12	7	40	40	100	91	82		
SR-157	8	11+880	2.47-2.92	A-1(E)	38	14	26	10	22	28	22	78	88		

FOR -Y10- REV PLAN SEE SHEET 21  
 FOR -Y11- REV PLAN SEE SHEET 24  
 FOR Y-2- REV PLAN SEE SHEET 25, 32





**SOIL TEST RESULTS**

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE		ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200	W	L	
SR-79	CL	11+80	0.00-1.10	A-2-4(0)	21	NP	61	22	19	2	35	58	50			
SR-80	CL	11+80	1.10-1.65	A-1-h(0)	21	NP	67	20	17	8	33	50	55			
SR-81	CL	11+80	2.62-2.78	A-1-h(0)	22	2	68	18	14	10	26	46	24			

FOR -Y12- REV PLAN SEE SHEET 32  
 FOR -Y13- REV PLAN SEE SHEET 32  
 FOR -Y14- REV PLAN SEE SHEET 32  
 FOR -Y15- REV PLAN SEE SHEET 31

**-Y16- REV**

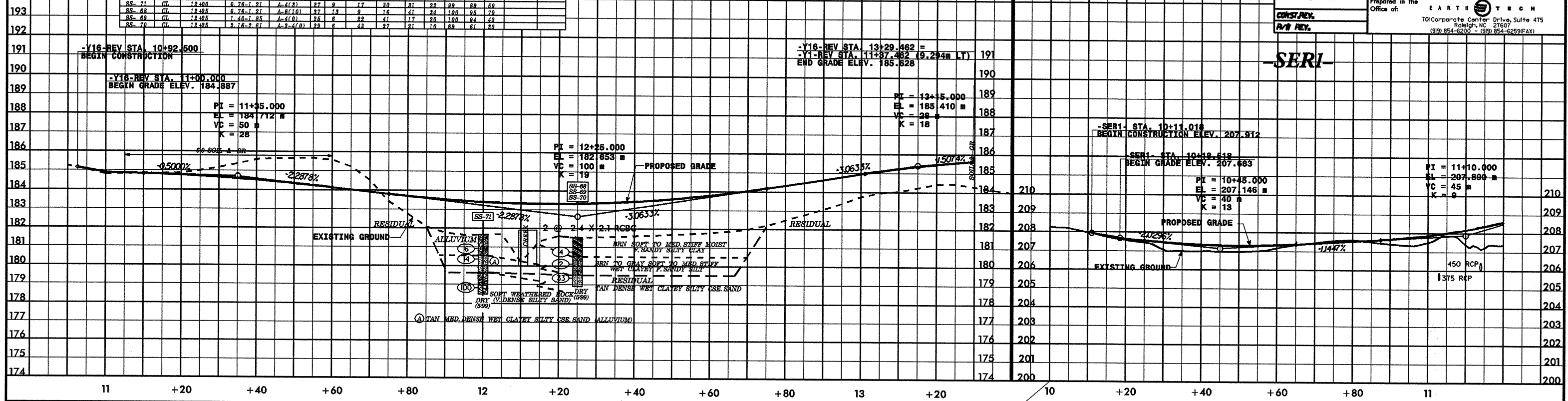


**PRELIMINARY PLANS**  
 DO NOT USE FOR R/W ACQUISITION  
 DO NOT USE FOR CONSTRUCTION



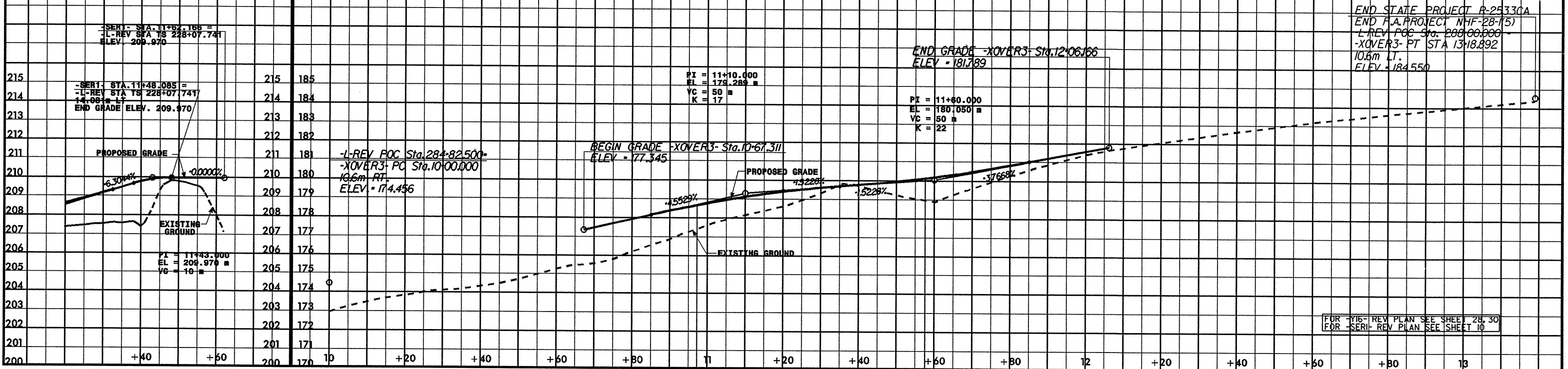
Prepared in the Office of: **EARTH TECH**  
 701 Corporate Center Drive, Suite 475  
 Raleigh, NC 27607  
 (919) 854-6200 (919) 854-6259(FAX)

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASTO CLASS.	L.L.	P.L.L.	% BY WEIGHT				% PASSING SIEVES			MOISTURE	ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-71	CL	12+300	0.78-1.31	A-1(1)	27	9	17	30	31	32	88	89	59		
SS-68	CL	12+35	0.78-1.31	A-1(1)	27	13	9	16	41	34	100	95	79		
SS-69	CL	12+38E	1.40-1.85	A-1(1)	22	8	22	41	17	20	100	84	43		
SS-70	CL	12+35	2.16-2.61	A-2-4(1)	29	6	43	27	31	10	89	67	32		



**-SER1-**

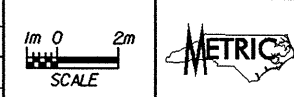
**-XOVER3-**



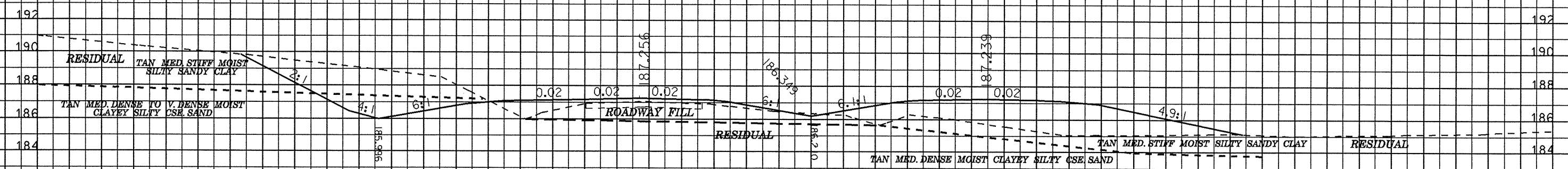
END STATE PROJECT R-2533CA  
 END P.A. PROJECT NHF-28-1(5)  
 L-REV FOC Sta. 288+00.000  
 -XOVER3- PT STA 13+18.892  
 10.8m LT.  
 ELEV. = 184.550

FOR -Y16-REV PLAN SEE SHEET 28.30  
 FOR -SER1-REV PLAN SEE SHEET 10

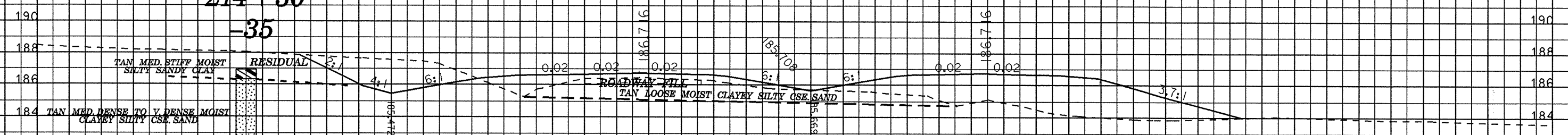
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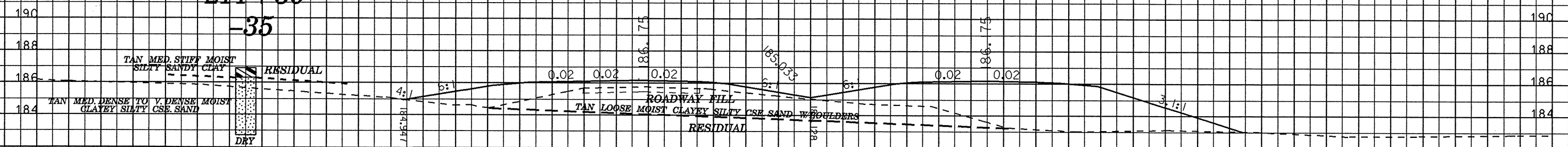
STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	54	64
-L-REV NC 49			



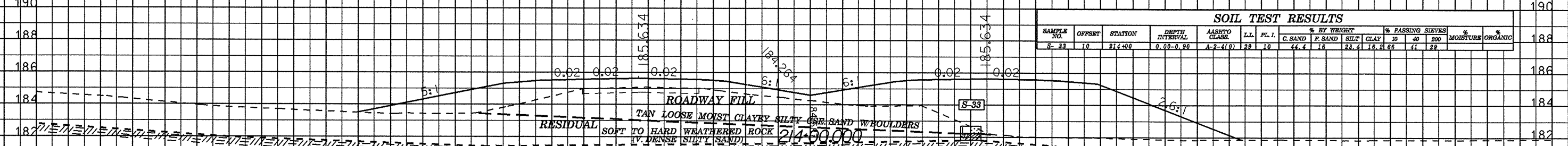
214+60.000



NR  
214+40.000



214+20.000



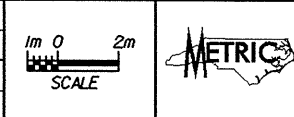
214+00.000

SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASPTO CLASS.	LL	PL	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	20	40		
S-33	1.0	214+00	0.00-0.90	A-2-(1)	29	10	44.4	16	23.2	16.2	86	41	28	

50 40 30 20 10 0 10 20 30 40



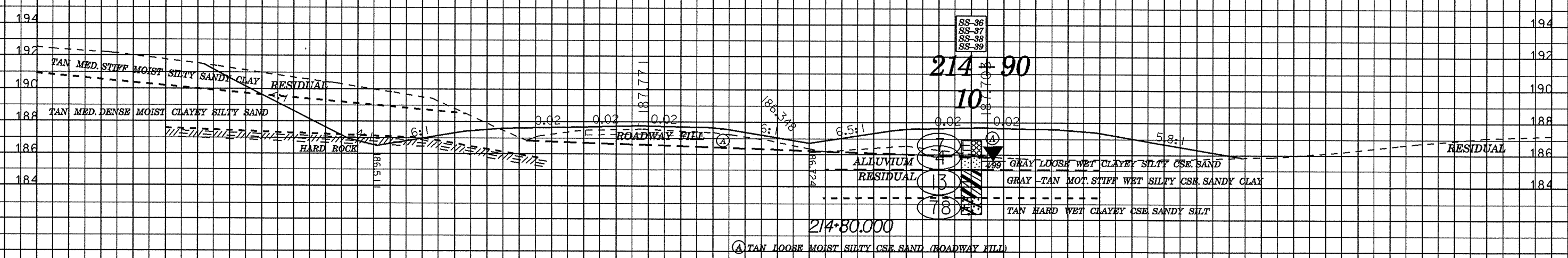
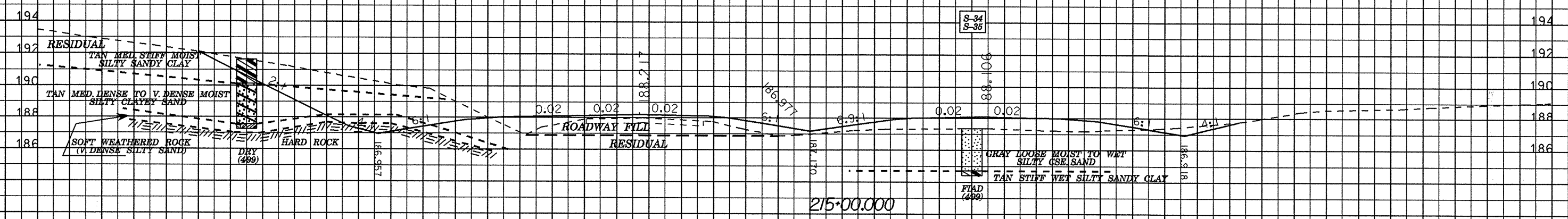
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STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	55	64

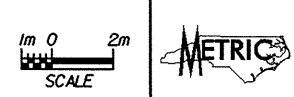
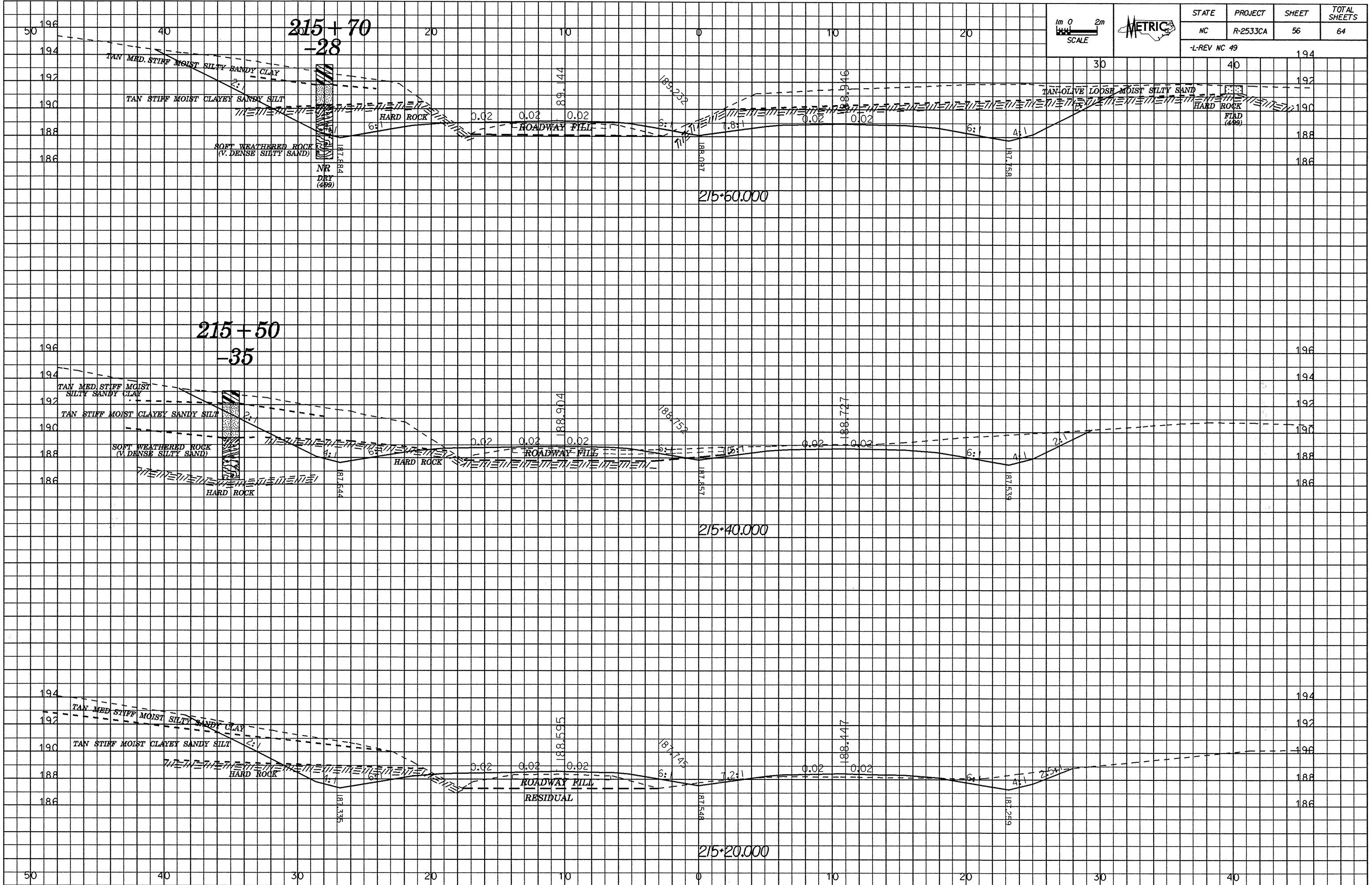
-L-REV NC 49

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-36	10	214+80	0.30 0.75	A-1-b(0)	20	NP	62.8	17.8	11.3	8.1	96	47	21		
SS-37	10	214+80	1.08 1.53	A-2-4(0)	18	3	45.9	22.2	16.8	14.1	87	61	34		
SS-38	10	214+80	2.50 3.05	A-6(1)	22	11	34.2	18.6	17	22.2	89	67	41		
SS-39	10	214+80	4.13 4.58	A-2-6(0)	27	11	47.3	16	15.6	18.9	87	62	34		
S-34	10	215+00	0.00 1.50	A-2-4(0)	17	2	58.8	23	10.1	8.1	96	51	20		
S-35	10	215+00	1.50 2.50	A-2-4(0)	16	NP	49.1	21.6	19.2	10.1	98	62	32		



50 40 30 20 10 0 10 20 30 40





STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	56	64

-L-REV NC 49

215+70  
-28

215+50  
-35

215+20.000

215+40.000

215+60.000

194

192

190

188

186

196

194

192

190

188

186

194

192

190

188

186

TAN MED. STIFF MOIST SILTY SANDY CLAY

TAN STIFF MOIST CLAYEY SANDY SILT

SOFT WEATHERED ROCK  
(V. DENSE SILTY SAND)

NR  
DRT  
(489)

HARD ROCK

ROADWAY FILL

TAN-OLIVE LOOSE MOIST SILTY SAND

HARD ROCK  
FIAD  
(489)

TAN MED. STIFF MOIST SILTY SANDY CLAY

TAN STIFF MOIST CLAYEY SANDY SILT

SOFT WEATHERED ROCK  
(V. DENSE SILTY SAND)

HARD ROCK

HARD ROCK

ROADWAY FILL

TAN MED. STIFF MOIST SILTY SANDY CLAY

TAN STIFF MOIST CLAYEY SANDY SILT

HARD ROCK

ROADWAY FILL

RESIDUAL

188.595

187.745

188.447

187.644

187.657

187.539

187.335

187.548

187.259

187.884

188.087

187.758

188.904

188.753

188.727

189.144

189.232

188.946

6:1

0.02

0.02

0.02

6:1

1.8:1

0.02

0.02

6:1

4:1

4:1

6:1

0.02

0.02

6:1

5:1

0.02

0.02

6:1

4:1

2:1

4:1

6:1

0.02

0.02

6:1

7.2:1

0.02

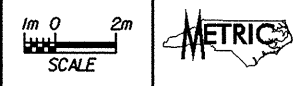
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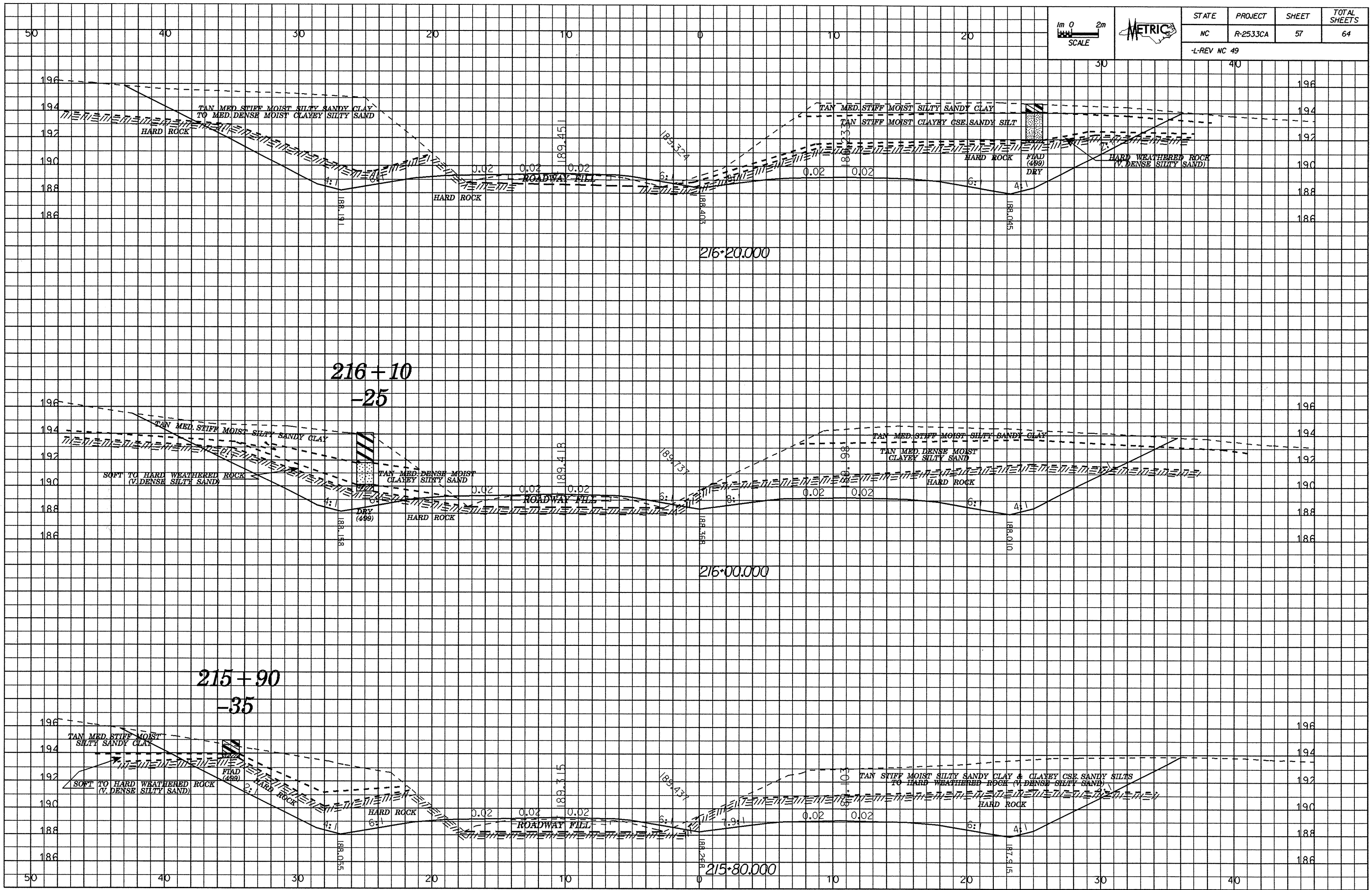
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2.5:1

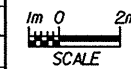
STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	57	64



-L-REV NC 49



50 40 30 20 10 0 10 20

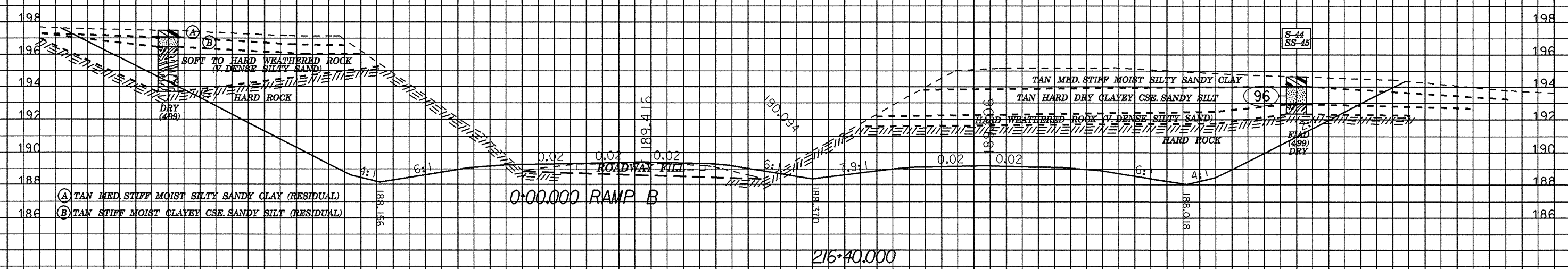
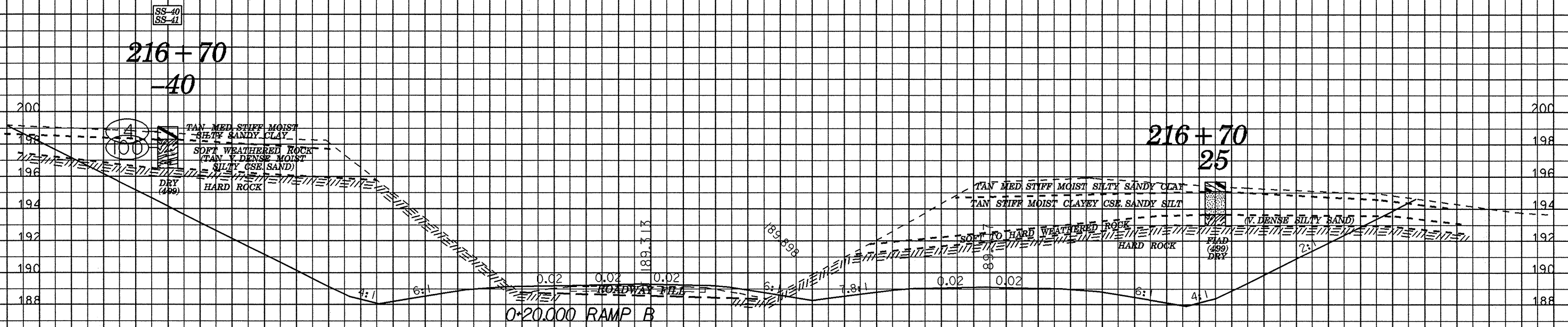


STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	58	64

-L-REV NC 49

30 40

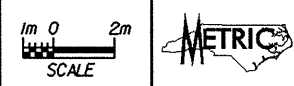
SOIL TEST RESULTS														
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES		% MOISTURE	% ORGANIC
							C SAND	F SAND	SILT	CLAY	#20	#60		
S-44	30	216+40	0.00-0.60	A-2(6)	38	17	27.5	14.7	25.7	32.1	98	75	60	
SS-45	30	216+40	1.20-1.90	A-1(0)	26	8	41.5	19.9	26.1	13	98	65	49	
SS-40	-40	216+70	0.30-0.75	A-7-6(7)	42	21	35.8	12.7	18.2	32.8	94	86	50	
SS-41	-40	216+70	1.30-1.75	A-2-4(0)	24	4	66.2	16.4	17.4	10.1	99			



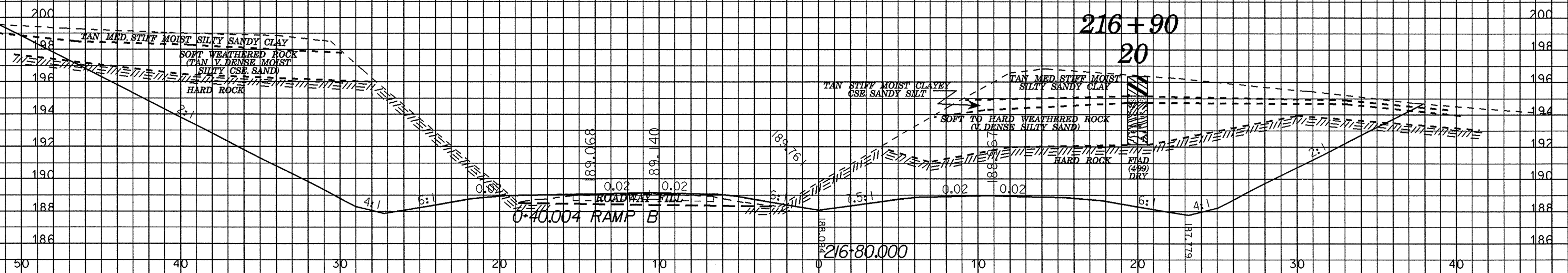
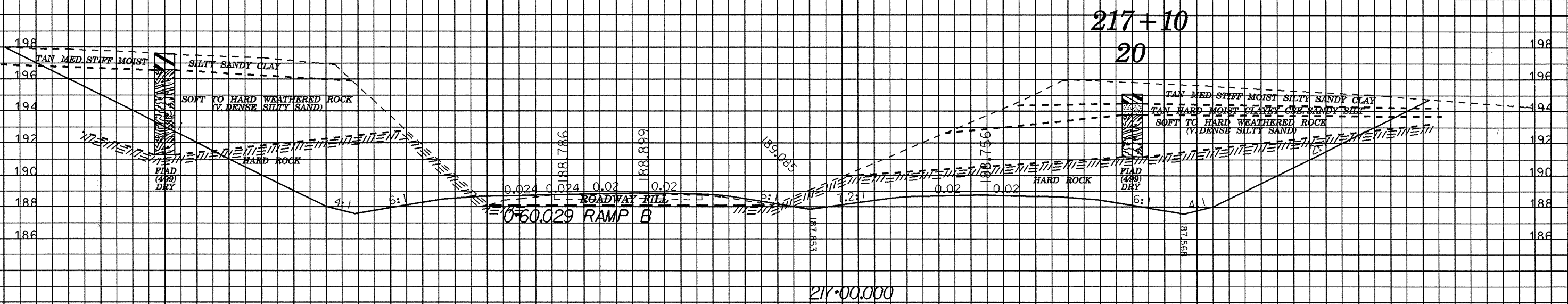
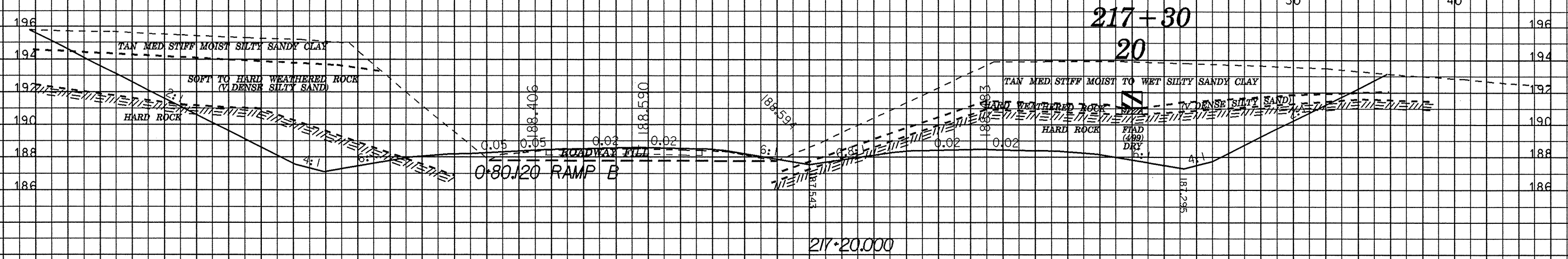
- (A) TAN MED STIFF MOIST SILTY SANDY CLAY (RESIDUAL)
- (B) TAN STIFF MOIST CLAYEY CSE SANDY SILT (RESIDUAL)



50 40 30 20 10 0 10 20 30 40

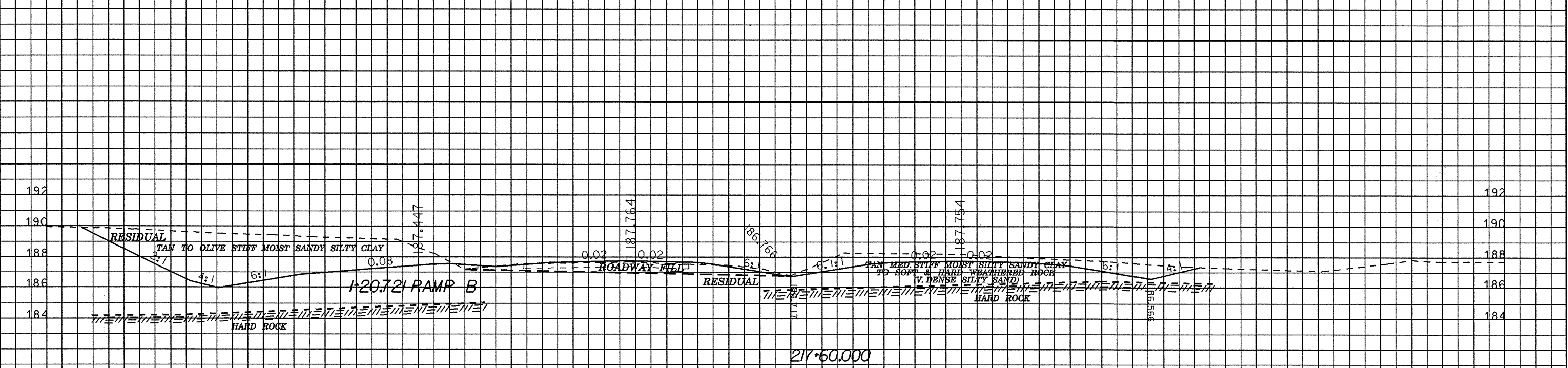
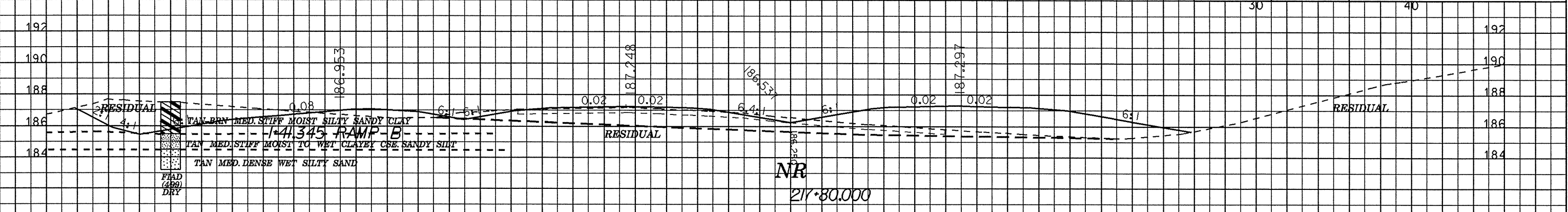


STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	59	64
-L-REV NC 49			



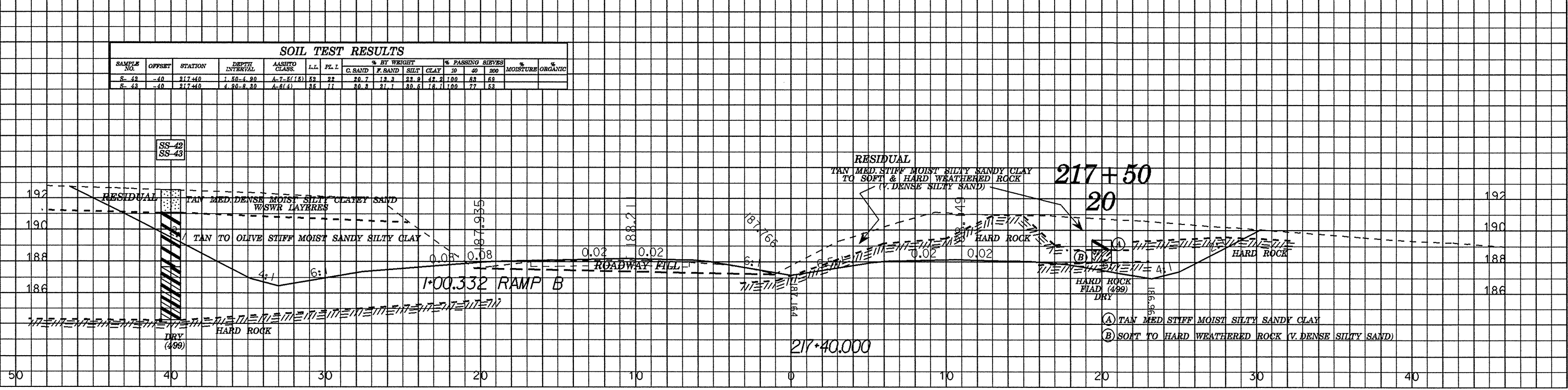
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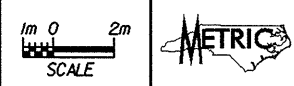


**SOIL TEST RESULTS**

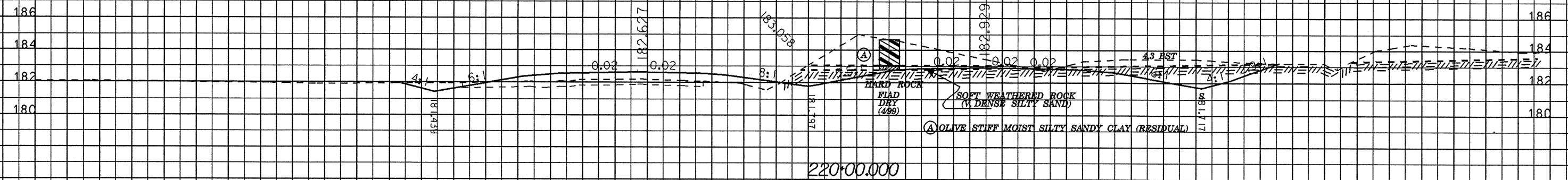
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S- 32	-40	217+40	1.50-2.50	A-7-R(18)	52	32	26.7	13.2	23.2	42.2	100	55	63		
S- 43	-40	217+40	4.50-6.50	A-8(4)	136	77	30.2	21.7	30.6	16.1	100	77	53		



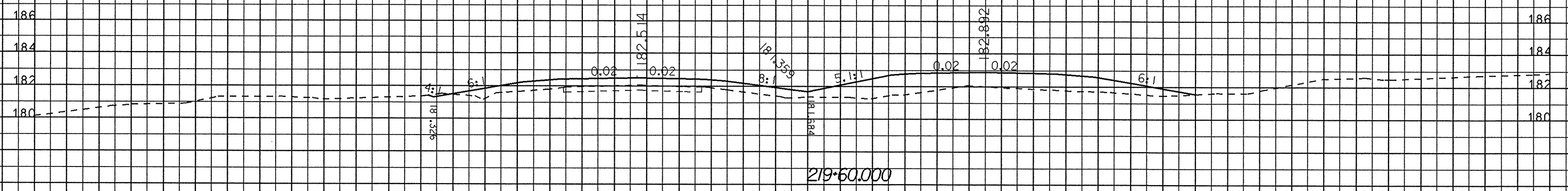
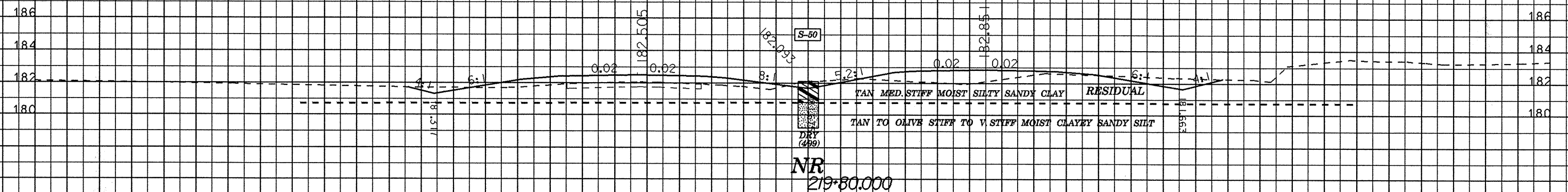
50 40 30 20 10 0 10 20



STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	61	64
-L-REV NC 49			

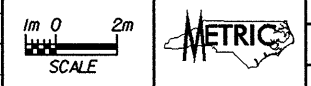


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-50	GL	219+80	0.00-1.30	A-6(7)	56	16	26	18	22	28	100	81	61		

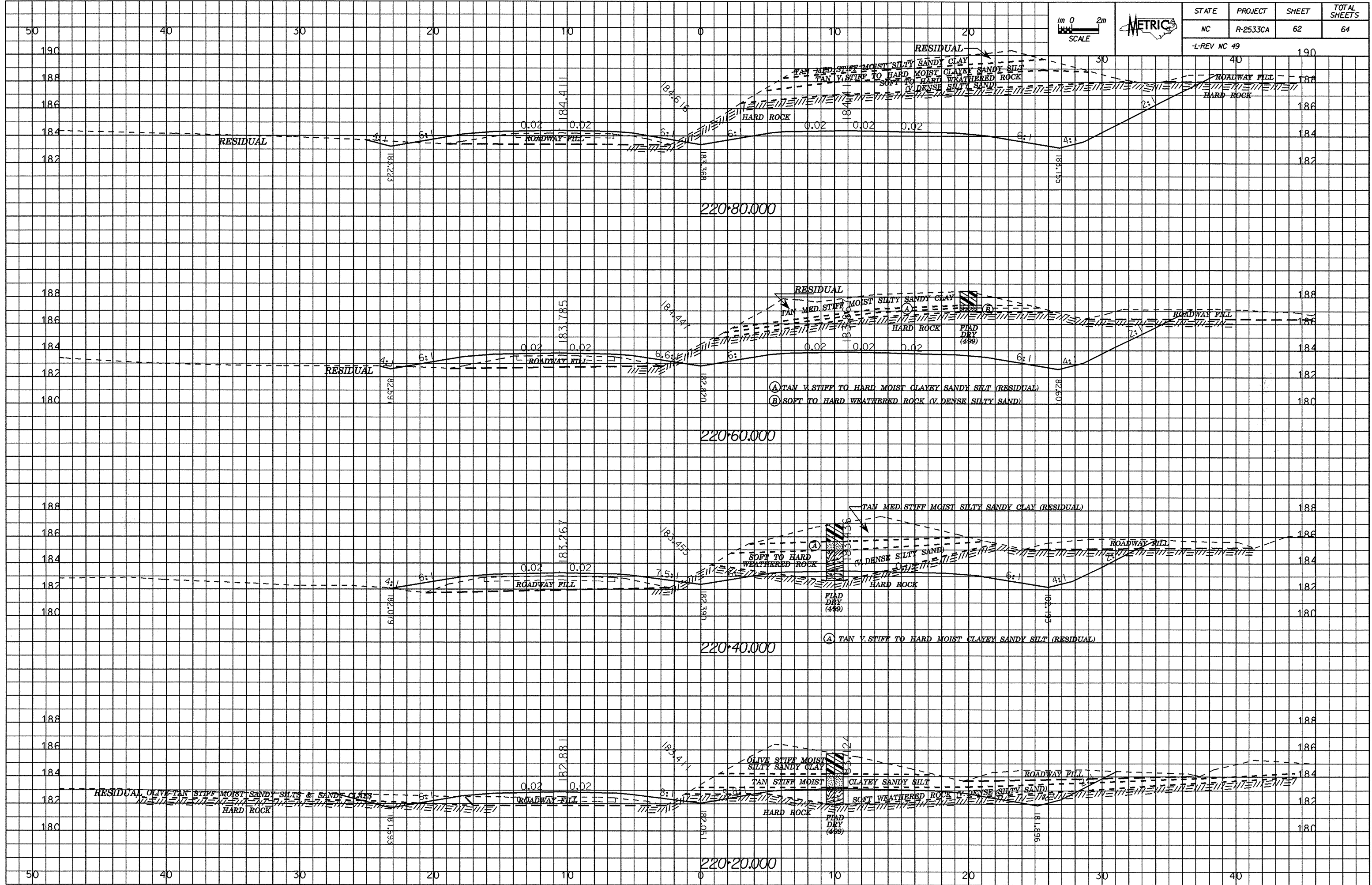


50 40 30 20 10 0 10 20 30 40

STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	62	64



-L-REV NC 49



220+80.000

220+60.000

220+40.000

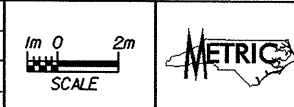
220+20.000

- (A) TAN V. STIFF TO HARD MOIST CLAYEY SANDY SILT (RESIDUAL)
- (B) SOFT TO HARD WEATHERED ROCK (V. DENSE SILTY SAND)

(A) TAN V. STIFF TO HARD MOIST CLAYEY SANDY SILT (RESIDUAL)

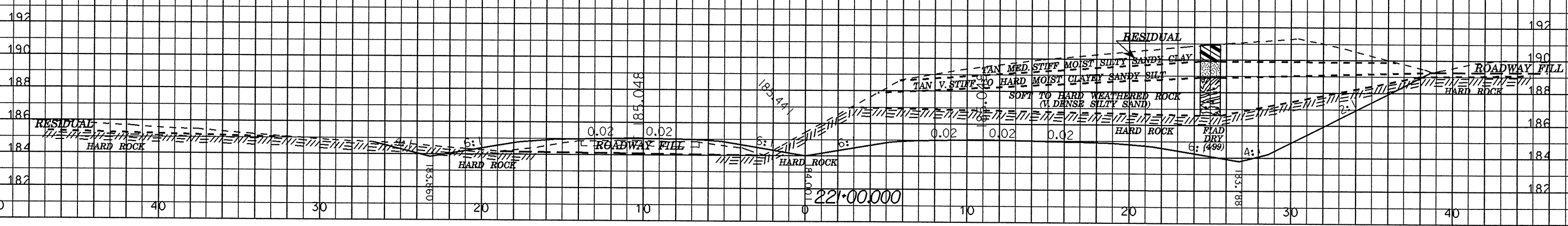
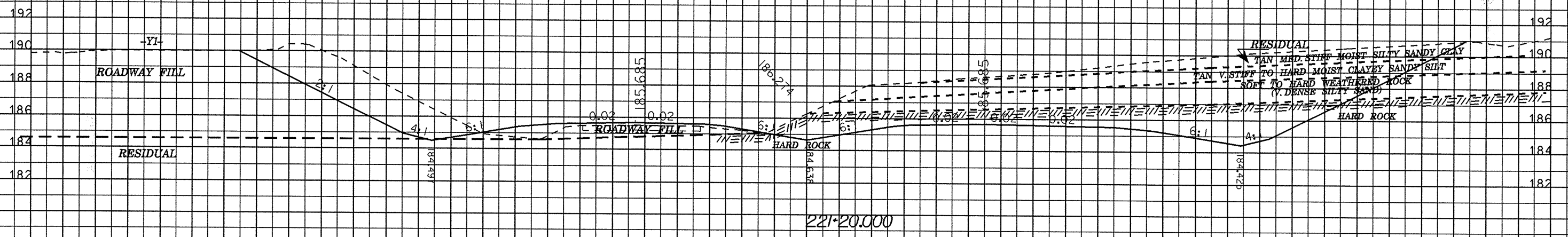
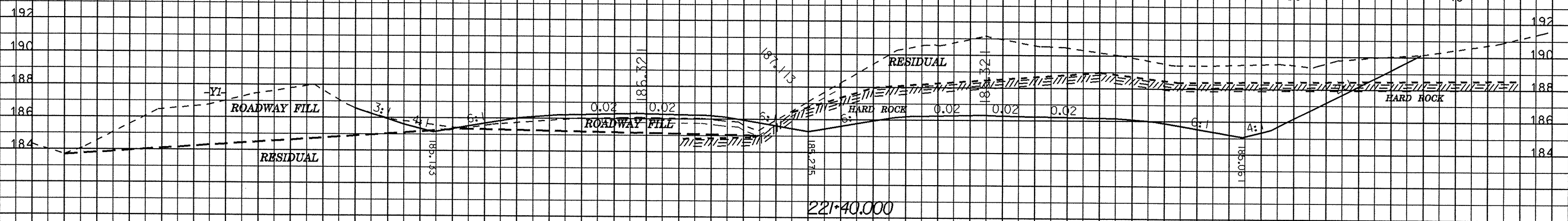


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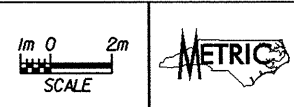
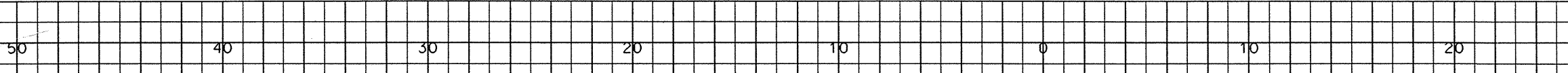


STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	63	64

-L-REV NC 49

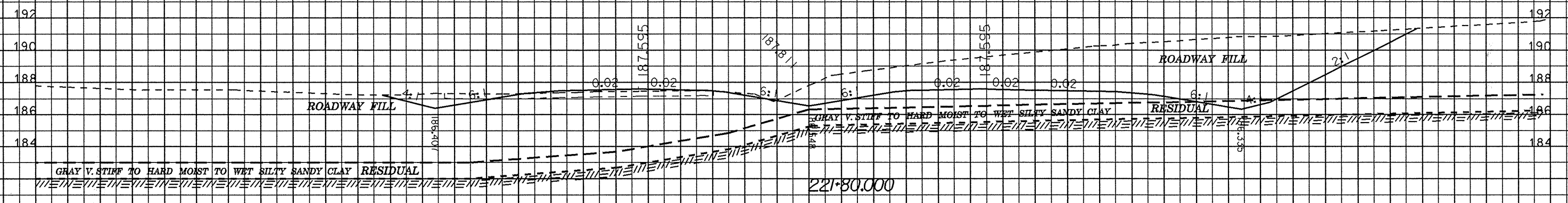
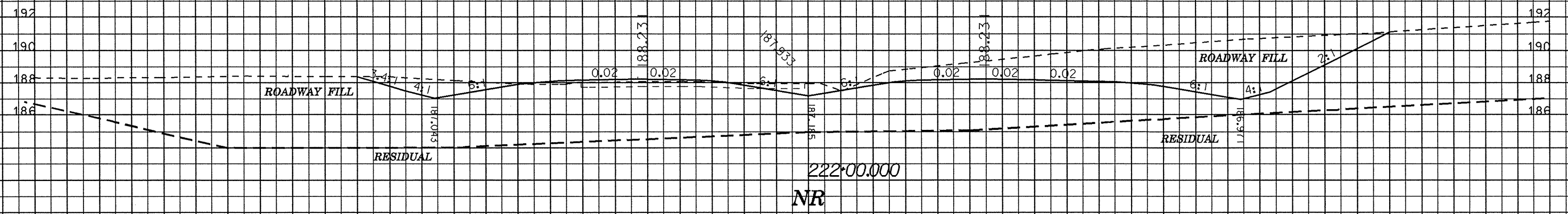




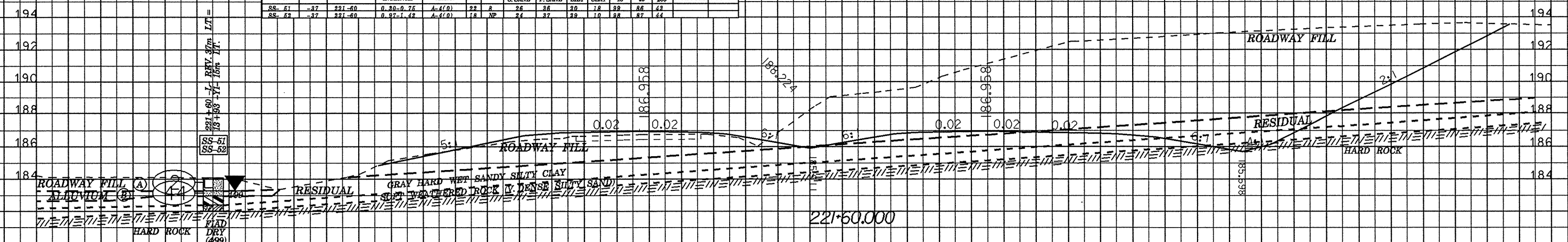


STATE	PROJECT	SHEET	TOTAL SHEETS
NC	R-2533CA	64	64

-L-REV NC 49



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.L.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	30	60	200		
SS-61	-37	221+60	0.30-0.75	A-4(D)	22	8	26	26	22	12	22	86	42		
SS-62	-37	221+60	0.87-1.42	A-6(D)	18	NP	24	37	29	10	28	87	44		



- (A) BRN-RED SOFT MOIST CLAYEY F. SANDY SILT (ROADWAY FILL)
- (B) GRAY STIFF MOIST TO WET F. SANDY SILT (ALLUVIUM)