

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

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

Table with columns: STATE, STATE PROJECT REFERENCE NO., SHEET NO., TOTAL SHEETS, and DESCRIPTION. Values include N.C., R-2233AB, 1, 80, and P.E., RW, UTIL., CONST.

CONTENTS

Table with columns: LINE, STATION, PLAN, PROFILE, XSECT. Lists various line items from -L to -DR3 with corresponding station and profile data.

SOIL TEST RESULTS

79 - 80

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. R-2233AB F.A. PROJ. NHF - 221(9)
COUNTY RUTHERFORD
PROJECT DESCRIPTION US 221 FROM SOUTH OF FLOYD'S CREEK TO NORTH OF US 74 BYPASS

INVENTORY

CAUTION NOTICE

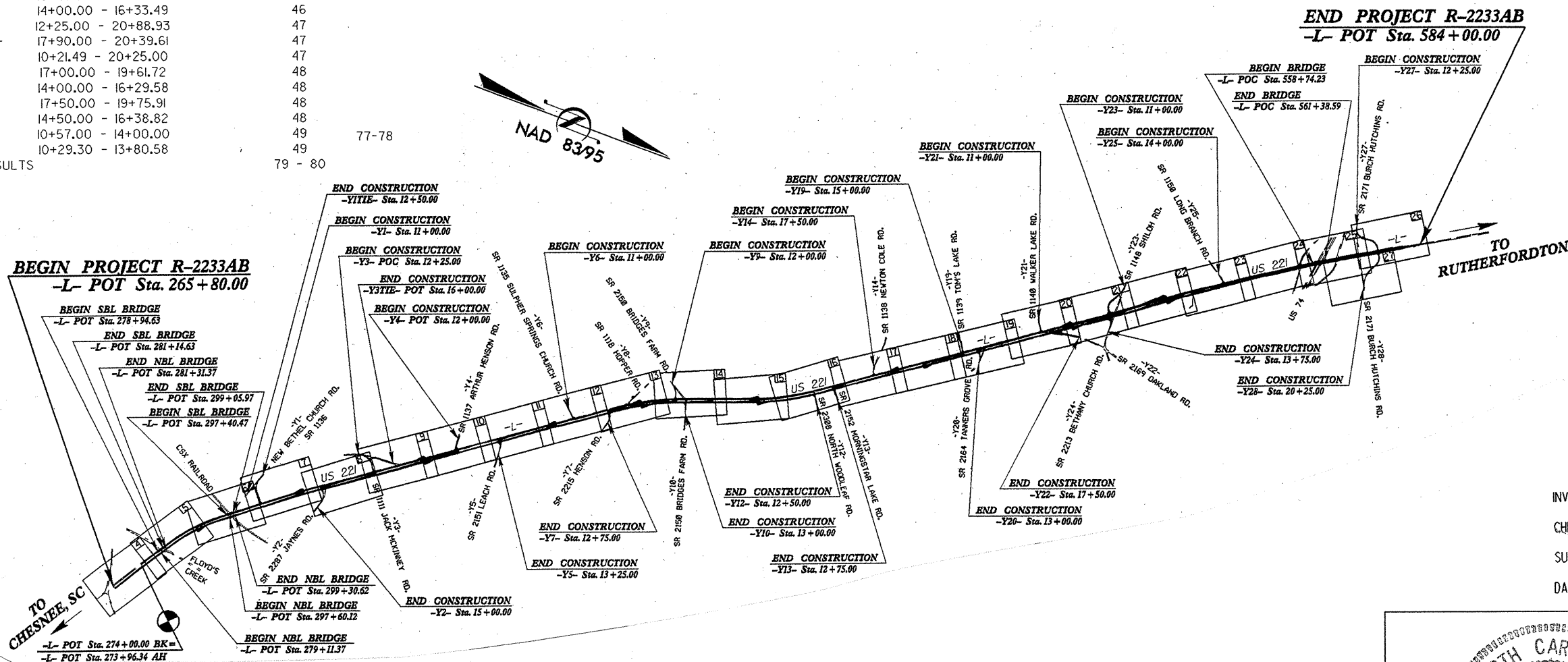
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN AND NOT FOR CONSTRUCTION OR PAY PURPOSES.

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 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.

ID: R-2233AB

CONTRACT: C202265



PERSONNEL
R. W. TODD

M. L. SMITH

A. C. SMITH

INVESTIGATED BY J. P. ROGERS

CHECKED BY C. B. LITTLE

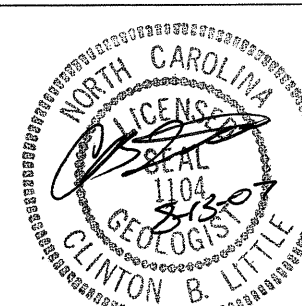
SUBMITTED BY C. B. LITTLE

DATE

DRAWN BY: C. E. BURRIS/JP ROGERS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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.



09/08/99

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

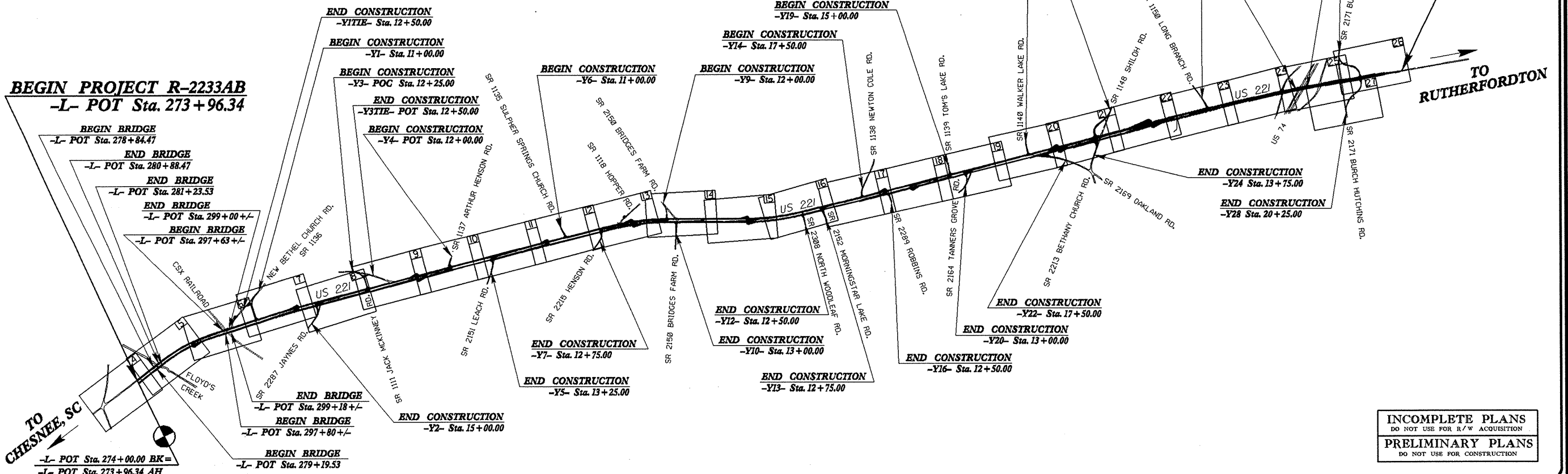
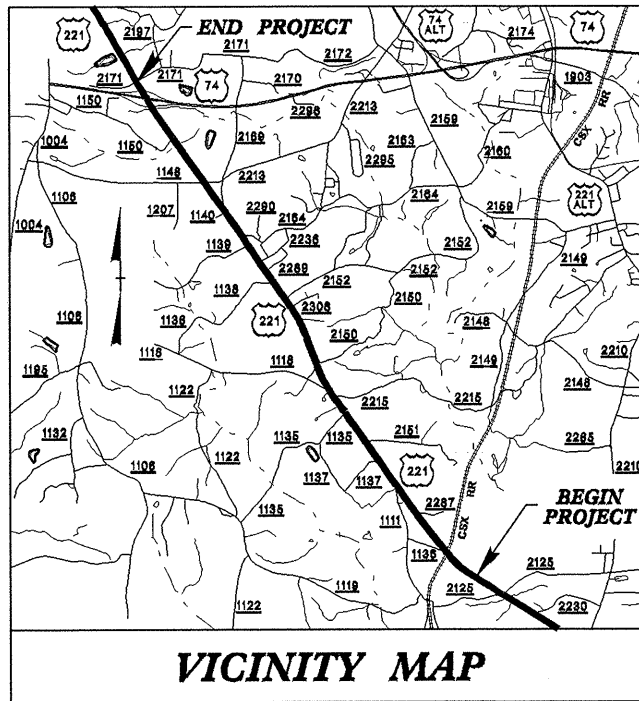
**RUTHERFORD COUNTY**

LOCATION: US 221 FROM SOUTH OF FLOYD'S CREEK TO  
NORTH OF US 74 BYPASS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2233AB	1A	78
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
34400.1.1		P.E.	

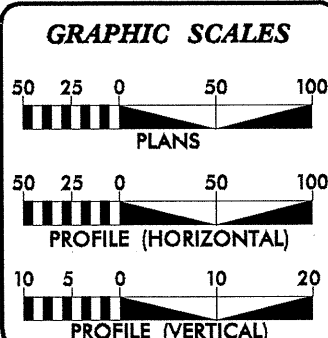
**TIP PROJECT: R-2233AB**



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

06-MAR-2007 08:51  
g:\projects\12233ab\geo\_rdw\_rutherford\cadd\geotech\planproj\12233ab\_geo\_rdw\_rutherford.tsh.dgn  
cburris AT 6H226157

**CONTRACT:**



**DESIGN DATA**

ADT 2005 =	10,900
ADT 2030 =	19,000
DHV =	11 %
D =	55 %
T =	12 % *
V =	60 MPH
FUNC. CLASS =	ARTERIAL
* TTST 7%	DUAL 5%

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT R-2233AB =	X.XXX MILES
LENGTH STRUCTURE PROJECT R-2233AB =	X.XXX MILES
TOTAL LENGTH PROJECT R-2233AB =	5.872 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 2007

LETTING DATE: JUNE 16, 2009

ROGER D. THOMAS, PE  
PROJECT ENGINEER

BRIAN P. ROBINSON  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

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

**SUBSURFACE INVESTIGATION**

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

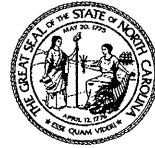
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SATY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i>	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. THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)	<b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>ADJUFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. <b>ARTESIAN</b> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (ROD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. <b>STRATA CORE RECOVERY (SREC)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>	<b>MINERALOGICAL COMPOSITION</b>	<b>WEATHERING</b>	
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH, OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT, SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF COMPLETE ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS ALSO AN EXAMPLE.	
<b>COMPRESSIONIBILITY</b>	<b>PERCENTAGE OF MATERIAL</b>		
SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50	<b>ORGANIC MATERIAL</b> TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC > 10%		
	<b>GROUND WATER</b> WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP		
	<b>MISCELLANEOUS SYMBOLS</b> ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD		
<b>TEXTURE OR GRAIN SIZE</b>	<b>ABBREVIATIONS</b>		
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.75 2.00 0.42 0.25 0.075 0.053	AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HL - HIGHLY MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - VERY VST - VANE SHEAR TEST WEA. - WEATHERED w - UNIT WEIGHT w <sub>d</sub> - DRY UNIT WEIGHT		
<b>TEXTURE OR GRAIN SIZE</b>		<b>ROCK HARDNESS</b>	
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.)		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	<b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. <b>STRATA CORE RECOVERY (SREC)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>	<b>EQUIPMENT USED ON SUBJECT PROJECT</b>	<b>FRACTURE SPACING</b>	<b>BEDDING</b>
SOIL MOISTURE SCALE (ATTEBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE * STEEL TEETH TRICONE * TUNG-CARB. CORE BIT HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED > 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.009 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	<b>BENCH MARK:</b> ELEVATION: FT. <b>NOTES:</b>
<b>PLASTICITY</b>		<b>INDURATION</b>	
NONPLASTIC PLASTICITY INDEX (PI) DRY STRENGTH LOW PLASTICITY 0-5 VERY LOW MED. PLASTICITY 6-15 SLIGHT HIGH PLASTICITY 16-25 MEDIUM 26 OR MORE HIGH		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	
<b>COLOR</b>			
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.			











STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

May 1, 2007

STATE PROJECT: 34400.1.1 (R-2233AB)  
FEDERAL PROJECT: NHF – 221(9)  
COUNTY: Rutherford  
DESCRIPTION: US 221 from South Carolina State Line to South of Floyd's Creek

SUBJECT: Geotechnical Report - Inventory

**PROJECT DESCRIPTION**

This widening project is located in southern Rutherford County, starting from South of Floyd's Creek to north of US 74 Bypass. The Harrisburg Field Office initially investigated this project in August – October 2006. Please refer to the Roadway plans for a breakdown of all the –L- and –Y- line typicals. The following alignments were investigated:

- L- 274+00.00 to 584+00.00 (5.87 miles)
- DET- 564+76.91 to 577+23.37 (0.24 miles)
- Y1- 11+00.00 to 18+27.34 (0.14 miles)
- Y1TIE- 10+11.00 to 15+34.92 (0.10 miles)
- Y2- 10+47.00 to 15+00.00 (0.09 miles)
- Y3- 12+25.00 to 18+16.61 (0.11 miles)
- Y3TIE- 10+12.00 to 12+50.00 (0.05 miles)
- Y4- 12+00.00 to 14+50.74 (0.05 miles)
- Y5- 10+47.00 to 13+25.00 (0.05 miles)
- Y6- 11+00.00 to 13+29.82 (0.04 miles)
- Y7- 10+48.27 to 12+75.00 (0.04 miles)
- Y8- 13+37.55 to 14+30.12 (0.02 miles)
- Y9- 12+00.00 to 15+79.58 (0.07 miles)

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

TELEPHONE: 919-250-4088  
FAX: 919-250-4237  
WEBSITE: WWW.DOH.DOT.STATE.NC.US

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

- Y10- 10+47.02 to 13+00.00 (0.05 miles)
- Y12- 10+46.99 to 12+50.00 (0.04 miles)
- Y13- 10+47.49 to 12+75.00 (0.04 miles)
- Y14- 17+50.00 to 19+38.90 (0.04 miles)
- Y16- 10+47.10 to 12+50.00 (0.04 miles)
- Y18- 11+35.51 to 12+29.24 (0.02 miles)
- Y19- 15+00.00 to 16+98.17 (0.04 miles)
- Y20- 10+47.00 to 13+00.00 (0.05 miles)
- Y21- 11+00.00 to 13+52.25 (0.05 miles)
- Y22- 11+28.54 to 17+50.00 (0.12 miles)
- DR1- 10+00.00 to 12+15.49 (0.04 miles)
- Y23- 11+00.00 to 18+61.07 (0.14 miles)
- Y24- 10+47.00 to 13+75.00 (0.06 miles)
- Y25- 14+00.00 to 16+33.49 (0.04 miles)
- Y27- 12+25.00 to 20+88.93 (0.16 miles)
- Y27TEMP- 17+90.00 to 20+39.61 (0.05 miles)
- Y28- 10+21.49 to 20+25.00 (0.19 miles)
- RAMP A- 17+00.00 to 19+61.72 (0.05 miles)
- RAMP B- 14+00.00 to 16+29.58 (0.04 miles)
- RAMP C- 17+50.00 to 19+75.91 (0.04 miles)
- RAMP D- 14+50.00 to 16+38.82 (0.04 miles)
- DR2- 10+57.00 to 14+00.00 (0.06 miles)
- DR3- 10+29.30 to 13+80.58 (0.07 miles)

The total length of lines investigated is 8.34 miles.

Borings were conducted with a CME-550 drill machine with an automatic hammer. Standard Penetration Tests were conducted at selected locations utilizing hollow stem augers and additional borings were advanced with 6" continuous flight augers. Various hand tools (hand auger, drive rods) and visual reconnaissance completed the investigation. Numerous soil samples were submitted to the Materials and Tests Unit for laboratory analysis.

**AREAS OF SPECIAL GEOTECHNICAL INTEREST**

**Alluvial Soils:** There are two named creeks (Long Branch and Floyd's) providing drainage within the project corridor. Floyd's Creek is located on the southern end of the project (app. Station 279+00 – L-) while Long Branch is on the northern end (app. Station 534+00 – L-). Alluvial soils associated with Long Branch Creek are approximately five to six feet thick and consist of medium stiff sandy silt (A-4) overlying medium dense sand and gravel (A-1-b). The alluvial soils in the Floyd's Creek floodplain will be investigated during the structure investigation at that location.

Several ephemeral streams cross existing US 221 throughout the project corridor. The alluvial soils associated with these features are generally two to five feet thick and consist primarily of medium stiff sandy clay (A-6, A-7) and very loose to loose silty sand (A-2-4). The attached Inventory plans and profiles delineate horizontally and vertically any alluvial soils encountered within the project corridor.



**Artificial Fill/Roadway Embankment:**

Artificial fill soils were encountered in numerous locations throughout the project corridor. These soils were generally two to eight feet thick and consist primarily of soft to stiff sandy clay (A-7, A-6). The artificial fill soils encountered near Station 362+00 -L- were not delineated due to hydrocarbon odors coming from the boring performed right of Station 362+00 -L-. Our investigation of the artificial fill soils near Stations 343+00, 399+00, and 411+50 -L- revealed wood, bricks, household trash, and concrete intermingled with the fill soils. An engineered, Artificial Fill was encountered between 529+65 -L- to 533+00 -L-. Please refer to the attached plan sheets and profiles to view all these areas in detail.

Due to the presence of overhead/underground utilities and high traffic volumes, only a very limited number of borings were obtained in the existing US 221 roadway embankment. Where encountered, these soils consist of medium stiff to stiff micaceous sandy clay (A-7). No problems were observed with the existing roadway soils except for some minor erosion on the steeper side slopes.

**Water Wells:** Domestic Water Wells were encountered within 100' of the slope stake lines at the following locations:

<u>Line</u>	<u>Station</u>	<u>Offset</u>
-L-	310+30	170' LT.
-L-	396+55	100' RT.
-L-	405+25	110' RT.
-L-	450+30	115' RT.
-L-	463+30	130' RT.
-L-	469+90	110' RT.
-L-	471+40	110' RT.
-L-	474+50	140' RT.
-L-	476+10	135' RT.
-L-	477+45	50' RT.
-L-	479+00	175' LT.
-L-	483+20	175' LT. (2 wells at this location)
-L-	493+35	40' RT.
-L-	493+90	130' RT.
-Y18-	18+30	50' RT. (2 wells at this location)

**Active Borrow Pit:** An active borrow pit was encountered within the project corridor at the following location:

<u>Line</u>	<u>Station</u>	<u>Offset</u>
-L-	393+50 to 394+30	10' RT.

**Plastic Clays:** The following samples had plasticity indices of 26 or greater:

<u>Sample</u>	<u>Line</u>	<u>Station(s)</u>	<u>Offset</u>
SS-222	-L-	290+00	80' RT.
SS-225	-L-	294+50	40' RT.
SS-229	-Y1-	14+00	C.L.
S-253	-L-	316+00	120' LT.
SS-267	-L-	322+00	40' RT.
SS-271	-L-	323+00	65' RT.
SS-272	-L-	329+00	60' RT.
S-279	-L-	334+00	50' RT.
SS-281	-L-	341+50	30' RT.
S-284	-Y3-	16+50	C.L.
SS-297	-L-	374+00	50' RT.
S-302	-L-	384+00	10' RT.
S-306	-L-	389+50	80' RT.
SS-312	-L-	400+00	25' RT.
SS-314	-Y9-	14+50	C.L.
SS-317	-L-	414+50	35' RT.
S-318	-L-	425+00	80' LT.
SS-320	-L-	428+00	70' LT.
SS-343	-L-	481+00	40' RT.
SS-344	-L-	487+50	50' RT.
SS-348	-L-	494+00	50' RT.
SS-352	-L-	500+50	70' RT.
S-357	-L-	514+00	80' LT.
S-359	-L-	518+00	60' RT.
SS-373	-L-	536+50	50' RT.
S-374	-L-	541+00	60' LT.
SS-376	-L-	544+00	30' LT.
S-384	-L-	581+00	60' LT.
S-392	-Y28-	14+00	C.L.
S-393	-Y27-	15+50	25' LT.
S-404	-L-	450+00	30' RT.
S-407	-L-	467+50	30' RT.
S-411	-L-	514+00	25' RT.
S-412	-L-	516+00	30' RT.
S-413	-L-	520+00	30' RT.

**Crystalline Rock:** Crystalline rock was encountered within six feet of proposed grade at the following location:

<u>Line</u>	<u>Station</u>
-DR2-	12+00 to 14+00

## PHYSIOGRAPHY AND GEOLOGY

The project is located in the southwestern piedmont region of North Carolina. The terrain is rolling hills and steep valleys with generally narrow floodplains at stream crossings. Elevation relief (from highest point to lowest point) within the entire project corridor is approximately 330'. The majority of the project is in areas where homes and businesses will be affected to some degree. Most of the wooded areas encountered in our investigation had not been logged. The entire project is within the southwestern Inner Piedmont Geological Belt.

## SOIL PROPERTIES

### *Residual Soils*

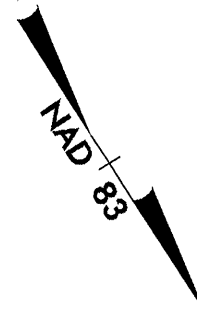
Residual soils on the project are derived from Biotite Gneiss/Mica Schist rocks prevalent to this area. The dominant soil types encountered are sandy clay (A-6, A-7), silty sand (A-2-4, A-1-b, A-1-A) and sandy silts (A-4, A-5). The clays tended to be cap clays that can extend up to 30' below the ground surface. A majority of the residual soils (sands, silts, and clays) encountered on this project were observed to be micaceous. Please refer to the soil descriptions on the attached profiles/cross-sections to view these areas in detail.

Respectfully submitted,



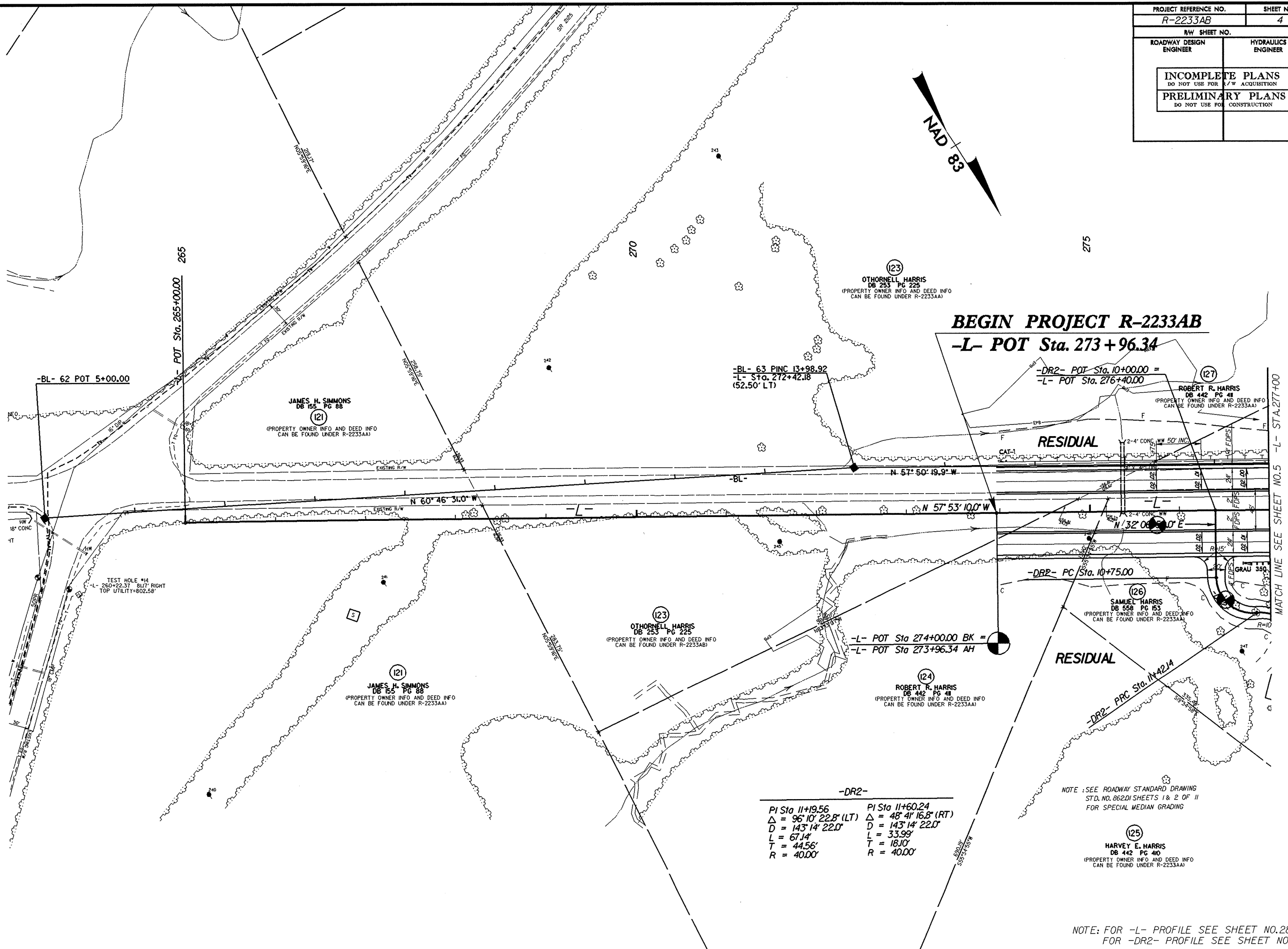
John P. Rogers  
Project Geological Engineer

PROJECT REFERENCE NO.		SHEET NO.	
R-2233AB		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



**BEGIN PROJECT R-2233AB**

**-L- POT Sta. 273+96.34**



-DR2-	
PI Sta 11+19.56	PI Sta 11+60.24
$\Delta = 96^{\circ} 10' 22.8''$ (LT)	$\Delta = 48^{\circ} 41' 16.8''$ (RT)
D = 143' 14" 22.0"	D = 143' 14" 22.0"
L = 67.14'	L = 33.99'
T = 44.56'	T = 18.10'
R = 40.00'	R = 40.00'

NOTE: SEE ROADWAY STANDARD DRAWING STD. NO. 862DI SHEETS 1 & 2 OF 11 FOR SPECIAL MEDIAN GRADING

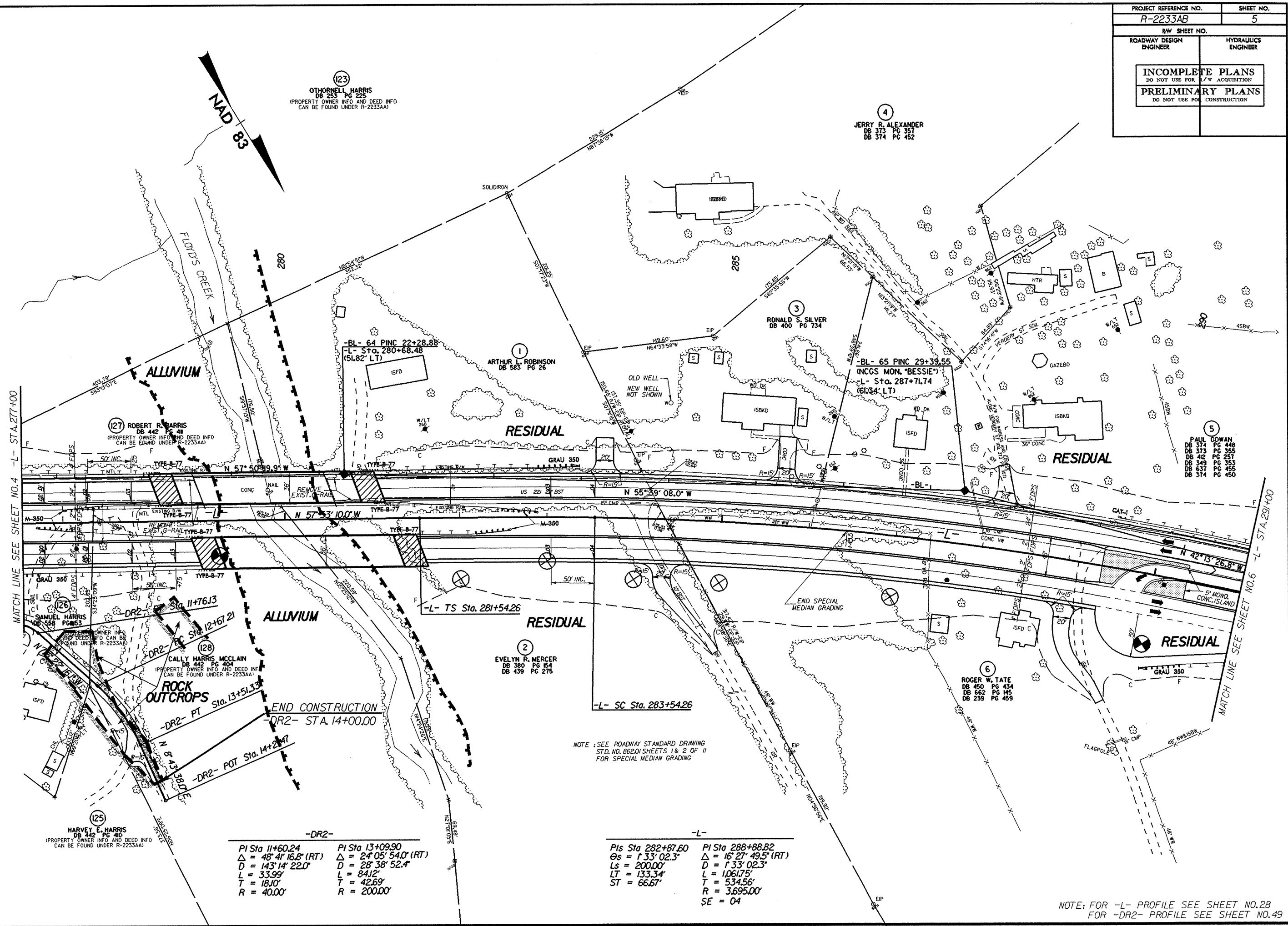
NOTE: FOR -L- PROFILE SEE SHEET NO.28  
FOR -DR2- PROFILE SEE SHEET NO.49

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 8/17/99

MATCH LINE SEE SHEET NO.5 -L- STA.277+00

09-AUG-2007 08:47  
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 8/17/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



PI Sta 11+60.24 Δ = 48' 4" 16.8" (RT) D = 143' 14" 22.0" L = 33.99' T = 18.10' R = 40.00'	PI Sta 13+09.90 Δ = 24' 05" 54.0" (RT) D = 28' 38" 52.4" L = 84.12' T = 42.69' R = 200.00'
--	---

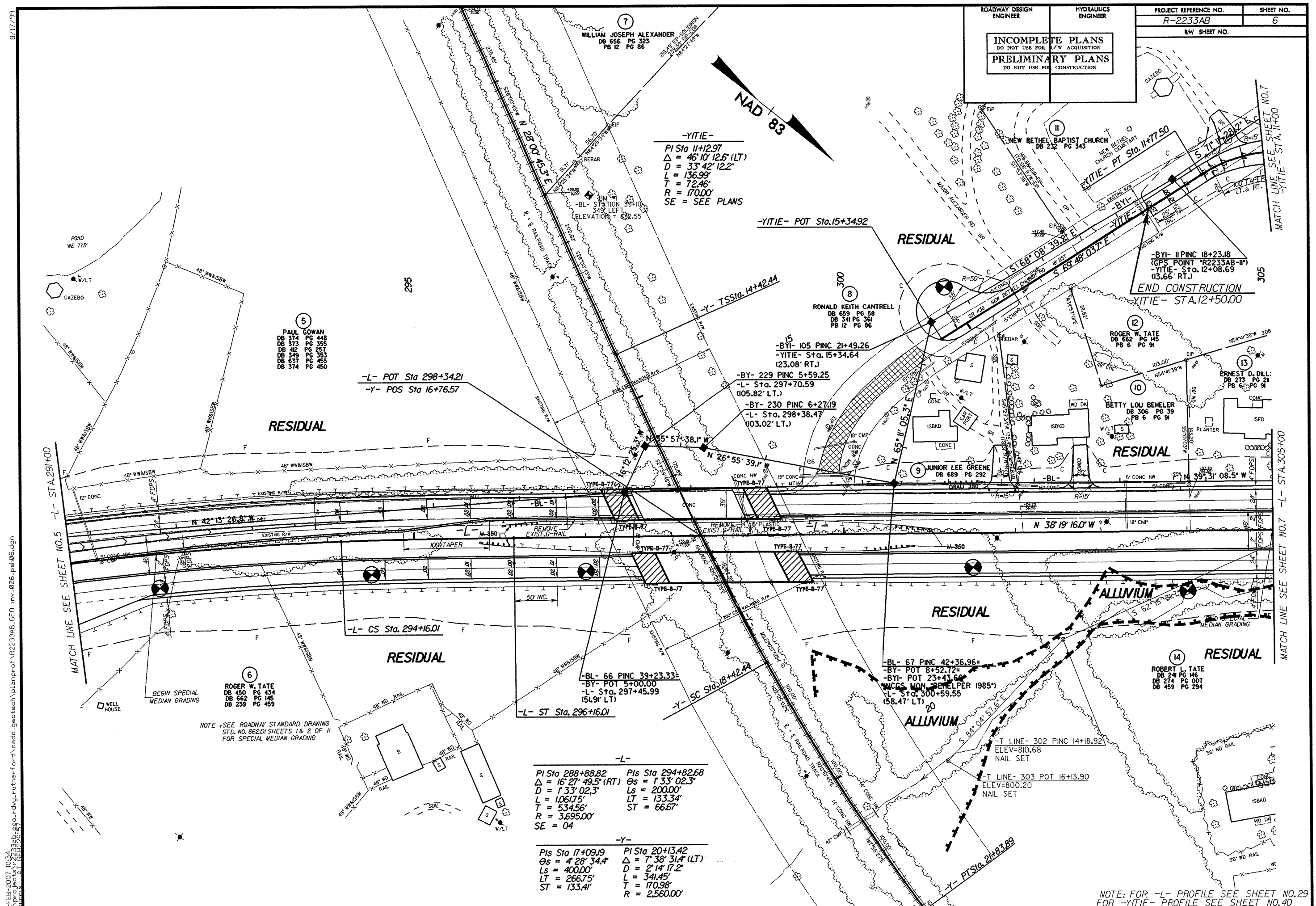
PIs Sta 282+87.60 Δs = 1' 33" 02.3" Ls = 200.00' LT = 133.34' ST = 66.67'	PI Sta 288+88.82 Δ = 16' 27" 49.5" (RT) D = 1' 33" 02.3" L = 106.175' T = 534.56' R = 3,695.00' SE = 04
---	---

NOTE: SEE ROADWAY STANDARD DRAWING STD. NO. 862DI SHEETS 1 & 2 OF 11 FOR SPECIAL MEDIAN GRADING

NOTE: FOR -L- PROFILE SEE SHEET NO.28 FOR -DR2- PROFILE SEE SHEET NO.49

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 8/17/99  
 PROJECT NO. R-2233AB

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	PROJECT REFERENCE NO.	SHEET NO.
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		R-2233AB	6
		RW SHEET NO.	



-YITIE-  
 PI Sta 11+12.97  
 $\Delta = 46^\circ 10' 12.6''$  (LT)  
 $D = 33^\circ 42' 12.2''$   
 $L = 136.99'$   
 $T = 72.46'$   
 $R = 170.00'$   
 SE = SEE PLANS

-YITIE- POT Sta. 15+34.92

-L- POT Sta 298+34.21  
 -Y- POS Sta 16+76.57

-BYI- 105 PINC 21+49.26  
 -YITIE- Sta. 15+34.64 (23.08' RT.)

-BY- 229 PINC 5+59.25  
 -L- Sta. 297+70.59 (105.82' LT.)

-BY- 230 PINC 6+27.19  
 -L- Sta. 298+38.47 (103.02' LT.)

-L- CS Sta. 294+16.01

-BL- 66 PINC 39+23.33=  
 -BY- POT 5+00.00  
 -L- Sta. 297+45.99 (51.9' LT)  
 -L- ST Sta. 296+16.01

-L-  
 PIs Sta 288+88.82  
 $\Delta = 16^\circ 27' 49.5''$  (RT)  
 $D = 1^\circ 33' 02.3''$   
 $L = 1061.75'$   
 $T = 534.56'$   
 $R = 3,695.00'$   
 SE = 04

PIs Sta 294+82.68  
 $\Delta = 1^\circ 33' 02.3''$   
 $Ls = 200.00'$   
 $LT = 133.34'$   
 $ST = 66.67'$

-Y-  
 PIs Sta 17+09.19  
 $\Delta = 4^\circ 28' 34.4''$   
 $Ls = 400.00'$   
 $LT = 266.75'$   
 $ST = 133.41'$

PIs Sta 20+13.42  
 $\Delta = 7^\circ 38' 31.4''$  (LT)  
 $D = 2^\circ 14' 17.2''$   
 $L = 341.45'$   
 $T = 170.98'$   
 $R = 2,560.00'$

RESIDUAL

-BYI- 11 PINC 18+23.18  
 (GPS POINT R2233AB-11)  
 -YITIE- Sta. 12+08.69 (13.66' RT.)  
 END CONSTRUCTION  
 -YITIE- Sta. 12+50.00

RESIDUAL

RESIDUAL

RESIDUAL

ALLUVIUM

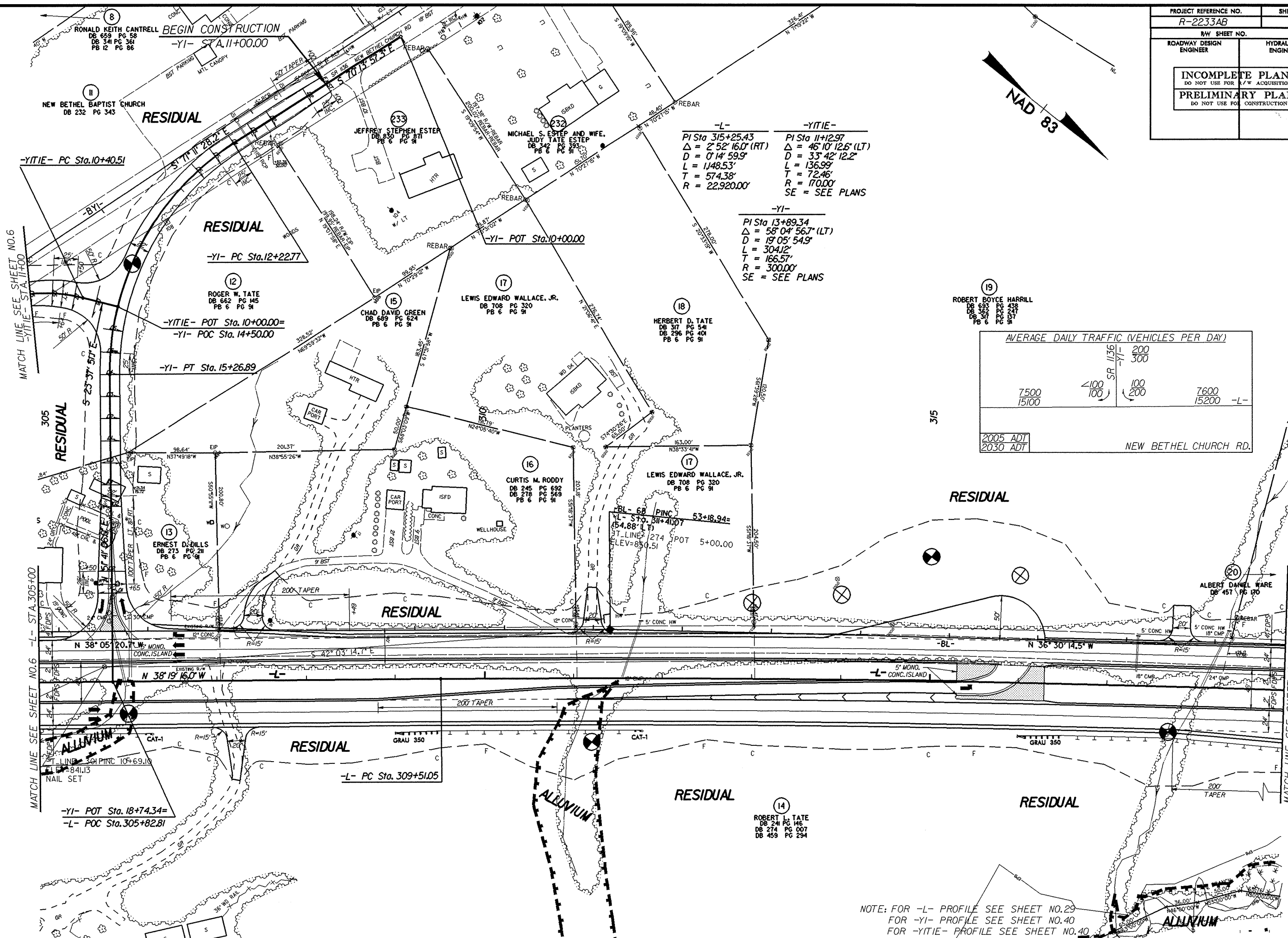
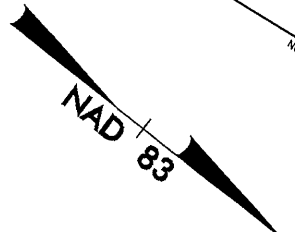
NOTE: SEE ROADWAY STANDARD DRAWING  
 STD. NO. 862.D1 SHEETS 1 & 2 OF 11  
 FOR SPECIAL MEDIAN GRADING

NOTE: FOR -L- PROFILE SEE SHEET NO. 29  
 FOR -YITIE- PROFILE SEE SHEET NO. 40

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sheet AT BEH2233AB

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**-L-**  
 PI Sta 315+25.43  
 $\Delta = 2^\circ 52' 16.0''$  (RT)  
 $D = 0' 14' 59.9''$   
 $L = 1,148.53'$   
 $T = 574.38'$   
 $R = 22,920.00'$

**-YITIE-**  
 PI Sta 11+12.97  
 $\Delta = 46^\circ 10' 12.6''$  (LT)  
 $D = 33^\circ 42' 12.2''$   
 $L = 136.99'$   
 $T = 72.46'$   
 $R = 170.00'$   
 SE = SEE PLANS

**-YI-**  
 PI Sta 13+89.34  
 $\Delta = 58^\circ 04' 56.7''$  (LT)  
 $D = 19^\circ 05' 54.9''$   
 $L = 304.12'$   
 $T = 166.57'$   
 $R = 300.00'$   
 SE = SEE PLANS

(19)  
 ROBERT BOYCE HARRILL  
 DB 693 PG 438  
 DB 362 PG 247  
 DB 341 PG 157  
 PB 6 PG 91

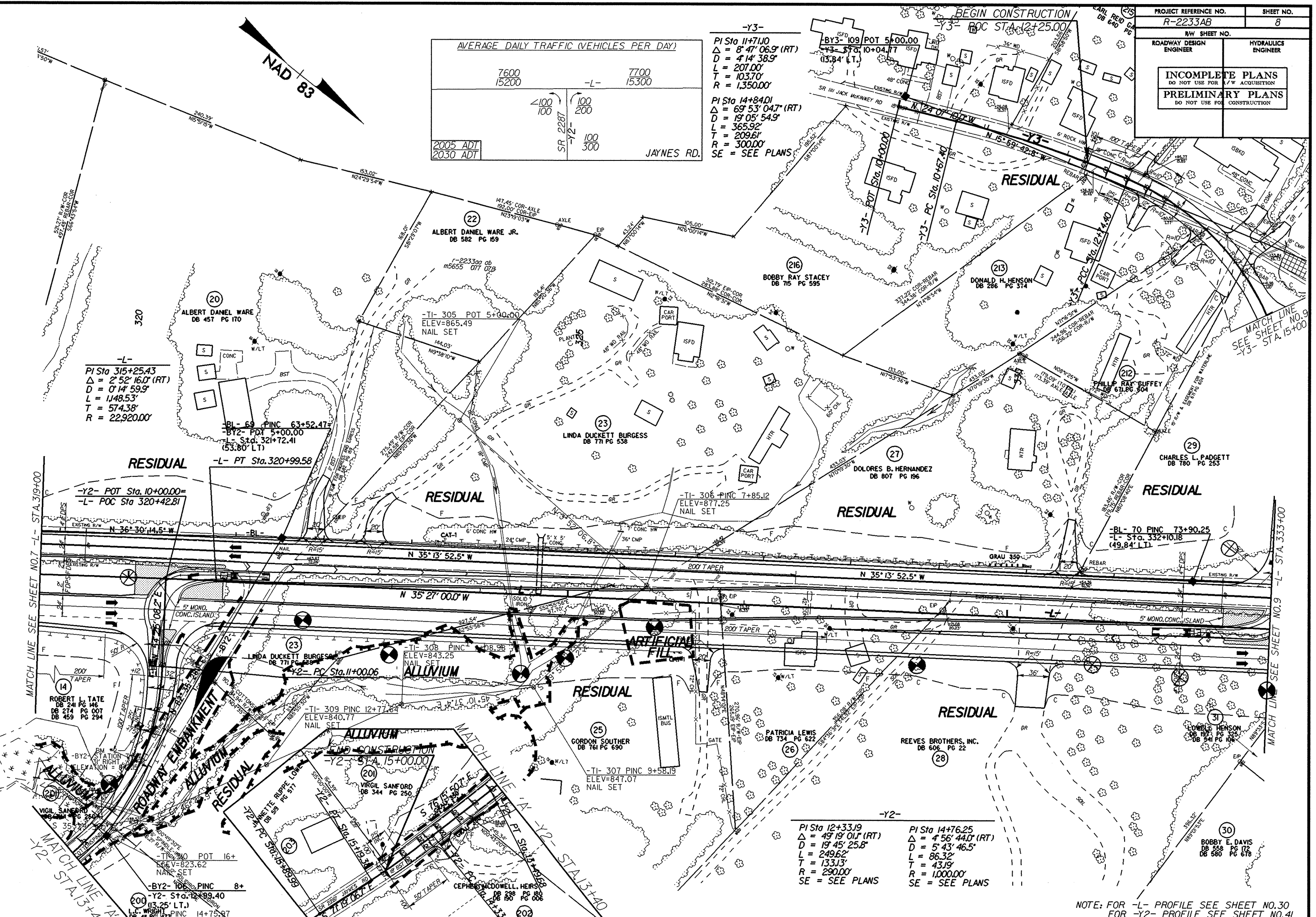
AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)			
	SR 1136		
	200	300	
7500	<100	100	7600
15100	100	200	15200
			-L-
2005 ADT			
2030 ADT			

NOTE: FOR -L- PROFILE SEE SHEET NO.29  
 FOR -YI- PROFILE SEE SHEET NO.40  
 FOR -YITIE- PROFILE SEE SHEET NO.40

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)	
7600 15200	7700 15300
-L-	
100 100	100 200
-Y2-	
100 100	300 300
2005 ADT	2030 ADT

-Y3-  
 PI Sta 11+71.0  
 $\Delta = 8' 47" 06.9" (RT)$   
 $D = 4' 14" 38.9"$   
 $L = 207.00'$   
 $T = 103.70'$   
 $R = 1,350.00'$

PI Sta 14+84.01  
 $\Delta = 69' 53" 04.7" (RT)$   
 $D = 19' 05" 54.9"$   
 $L = 365.92'$   
 $T = 209.61'$   
 $R = 300.00'$   
 SE = SEE PLANS



-L-  
 PI Sta 315+25.43  
 $\Delta = 2' 52" 16.0" (RT)$   
 $D = 0' 14" 59.9"$   
 $L = 1148.53'$   
 $T = 574.38'$   
 $R = 22,920.00'$

-Y2- POT Sta. 10+00.00=  
 -L- POC Sta 320+42.81

-Y2-  
 PI Sta 12+33.9  
 $\Delta = 49' 19" 01.7" (RT)$   
 $D = 19' 45" 25.8"$   
 $L = 249.62'$   
 $T = 133.13'$   
 $R = 290.00'$   
 SE = SEE PLANS

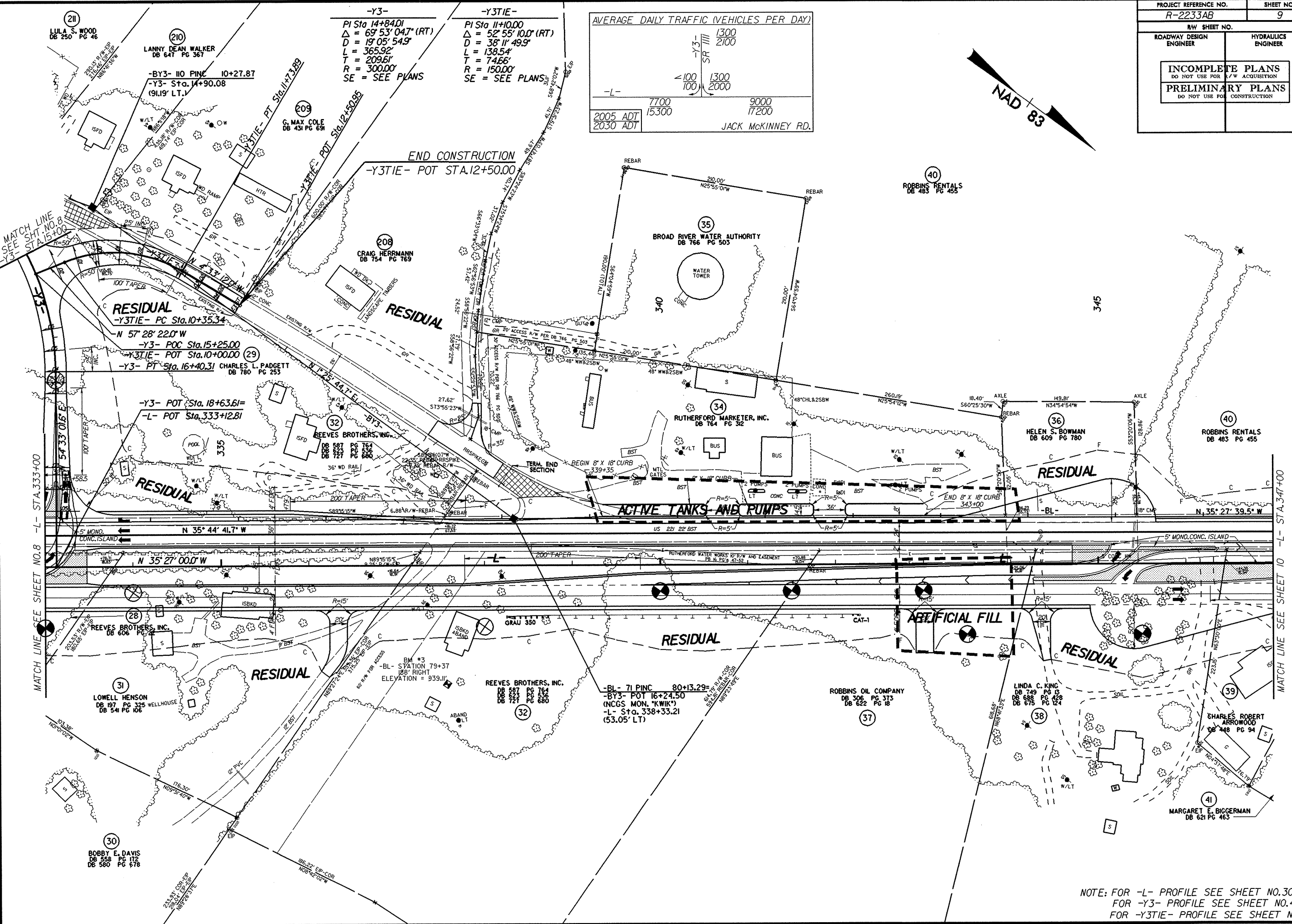
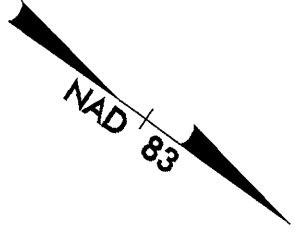
PI Sta 14+76.25  
 $\Delta = 4' 56" 44.0" (RT)$   
 $D = 5' 43" 46.5"$   
 $L = 86.32'$   
 $T = 43.19'$   
 $R = 1,000.00'$   
 SE = SEE PLANS

NOTE: FOR -L- PROFILE SEE SHEET NO.30  
 FOR -Y2- PROFILE SEE SHEET NO.41  
 FOR -Y3- PROFILE SEE SHEET NO.41

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PROJECT REFERENCE NO.		SHEET NO.	
R-2233AB		9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)			
	-Y3-	-Y3TIE-	
	1300	1300	
	2100	2000	
	7700	9000	
	15300	17200	
2005 ADT			
2030 ADT			
JACK MCKINNEY RD.			



**-Y3-**  
 PI Sta 14+84.01  
 $\Delta = 69^\circ 53' 04.7''$  (RT)  
 $D = 19' 05' 54.9''$   
 $L = 365.92'$   
 $T = 209.61'$   
 $R = 300.00'$   
 SE = SEE PLANS

**-Y3TIE-**  
 PI Sta 11+10.00  
 $\Delta = 52^\circ 55' 10.0''$  (RT)  
 $D = 38' 11' 49.9''$   
 $L = 138.54'$   
 $T = 74.66'$   
 $R = 150.00'$   
 SE = SEE PLANS

MATCH LINE SEE SHEET NO. 8  
 -Y3- STA. 15+00

MATCH LINE SEE SHEET NO. 8  
 -L- STA. 333+00

MATCH LINE SEE SHEET NO. 10  
 -L- STA. 347+00

23-FEB-2007 09:53  
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 8/17/09

NOTE: FOR -L- PROFILE SEE SHEET NO. 30  
 FOR -Y3- PROFILE SEE SHEET NO. 41  
 FOR -Y3TIE- PROFILE SEE SHEET NO. 41



8/17/99

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)			
-L-	9000 17200	100 200	200 300
			9100 17300

2005 ADT  
2030 ADT

ARTHUR HENSON RD.

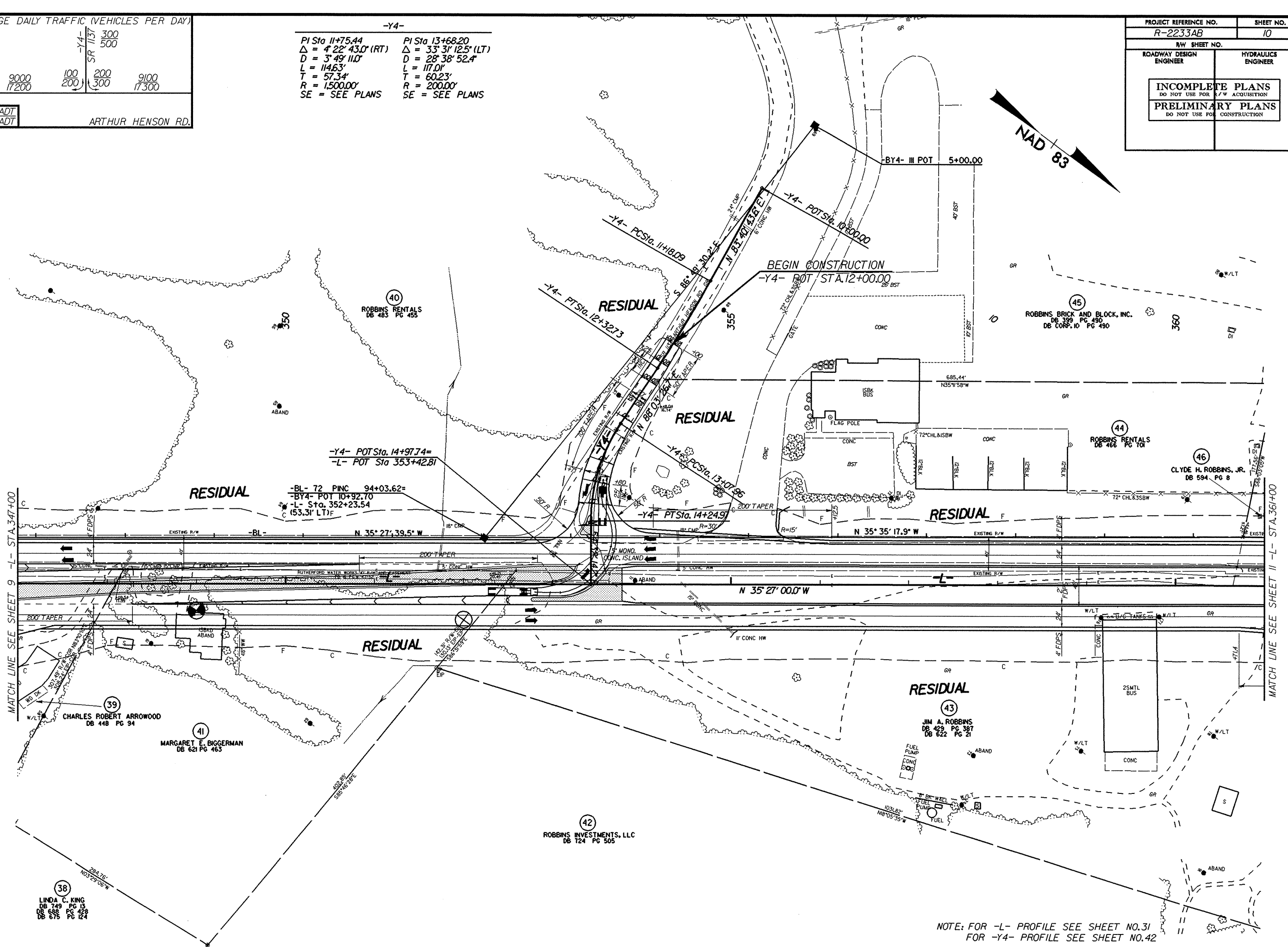
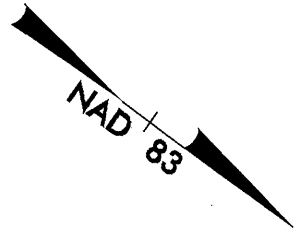
-Y4-

PI Sta 11+75.44	PI Sta 13+68.20
$\Delta = 4^{\circ}22'43.0''$ (RT)	$\Delta = 33^{\circ}31'12.5''$ (LT)
$D = 3^{\circ}49'11.0''$	$D = 28^{\circ}38'52.4''$
$L = 114.63'$	$L = 117.01'$
$T = 57.34'$	$T = 60.23'$
$R = 1500.00'$	$R = 200.00'$
SE = SEE PLANS	SE = SEE PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2233AB	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**INCOMPLETE PLANS**  
DO NOT USE FOR A/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



MATCH LINE SEE SHEET 9 -L- STA. 347+00

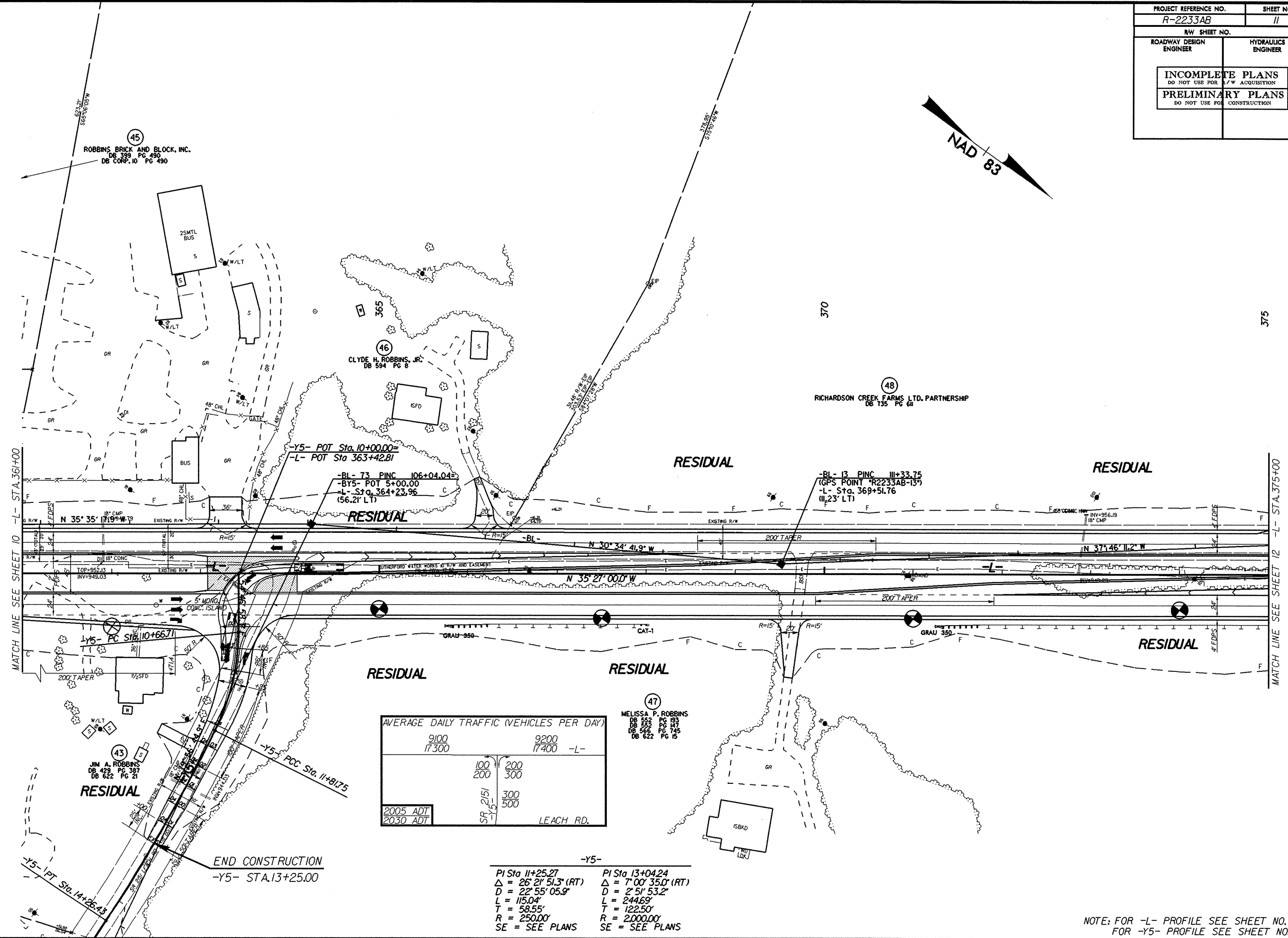
MATCH LINE SEE SHEET 11 -L- STA. 361+00

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NOTE: FOR -L- PROFILE SEE SHEET NO.31  
FOR -Y4- PROFILE SEE SHEET NO.42

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PROJECT REFERENCE NO. R-2233AB		SHEET NO. II	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

9100	9200	
17300	17400	-L-
	100	200
	200	300
	300	500
	500	
2005 ADT		
2030 ADT		

LEACH RD.

-Y5-

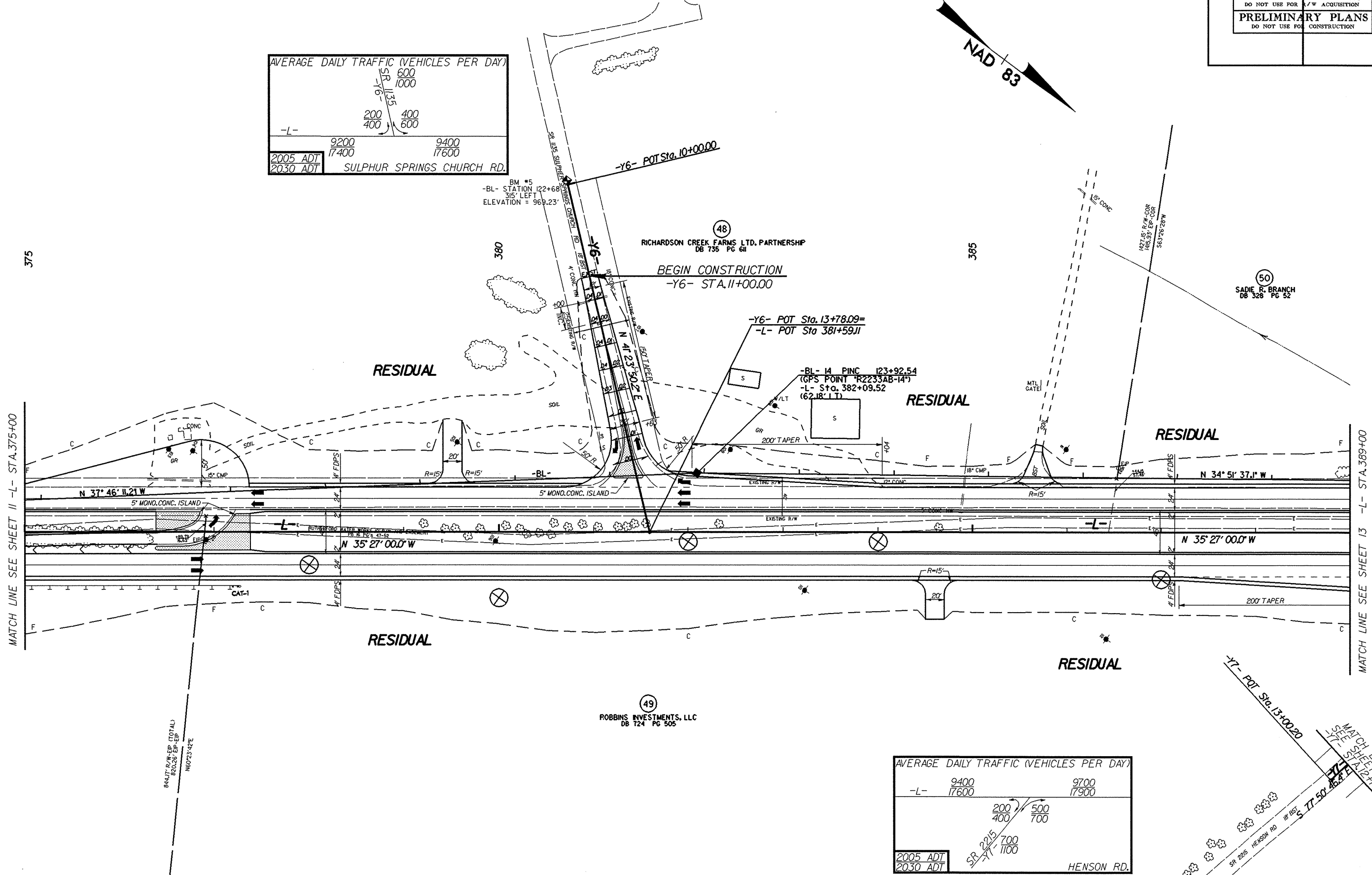
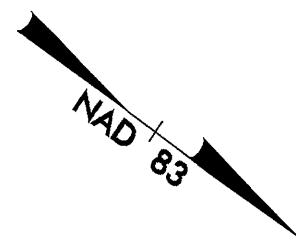
PI Sta 11+25.27	PI Sta 13+04.24
Δ = 26° 21' 51.3" (RT)	Δ = 7° 00' 35.0" (RT)
D = 22° 55' 05.9"	D = 2° 51' 53.2"
L = 115.04'	L = 244.69'
T = 58.55'	T = 122.50'
R = 250.00'	R = 2000.00'
SE = SEE PLANS	SE = SEE PLANS

NOTE: FOR -L- PROFILE SEE SHEET NO.31  
 FOR -Y5- PROFILE SEE SHEET NO.42

8/17/99  
 21-FEB-2007 14:57  
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 CHIEF: BT 02/28/07

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)		
	SR 135	SR 135
	600	1000
-L-	200	400
	400	600
2005 ADT	9200	9400
2030 ADT	17400	17600
	SULPHUR SPRINGS CHURCH RD.	



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)		
	SR 2215	SR 2215
	9400	9700
-L-	200	500
	400	700
2005 ADT	17600	17900
2030 ADT	700	1100
	HENSON RD.	

NOTE: FOR -L- PROFILE SEE SHEET NO.32  
 FOR -Y6- PROFILE SEE SHEET NO.42  
 FOR -Y7- PROFILE SEE SHEET NO.42

21-FEB-2007 15:45  
c:\projects\2233AB\cadd\geotech\plan\p\o\2233AB\_GEO\_rv\_013\_psh13.dgn  
8/17/99

-Y7-		-Y8-
PI Sta 10+91.99	PI Sta 12+03.38	PI Sta 15+20.90
$\Delta = 7' 14'' 58.4''$ (RT)	$\Delta = 27' 11'' 16.0''$ (RT)	$\Delta = 16' 29'' 29.4''$ (LT)
$D = 9' 18'' 59.0''$	$D = 19' 05'' 54.9''$	$D = 8' 48'' 53.0''$
$L = 77.82'$	$L = 142.35'$	$L = 187.09'$
$T = 38.96'$	$T = 72.54'$	$T = 94.20'$
$R = 615.00'$	$R = 300.00'$	$R = 650.00'$
SE = SEE PLANS	SE = SEE PLANS	

-L-	
PIs Sta 392+02.51	PI Sta 398+98.69
$\theta_s = 0' 59'' 59.7''$	$\Delta = 12' 32'' 20.5''$ (RT)
$L_s = 200.00'$	$D = 0' 59'' 59.7''$
$LT = 133.34'$	$L = 1254.00'$
$ST = 66.67'$	$T = 629.5'$
	$R = 5730.00'$
	$SE = 03$

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

9700	9500
17900	17700

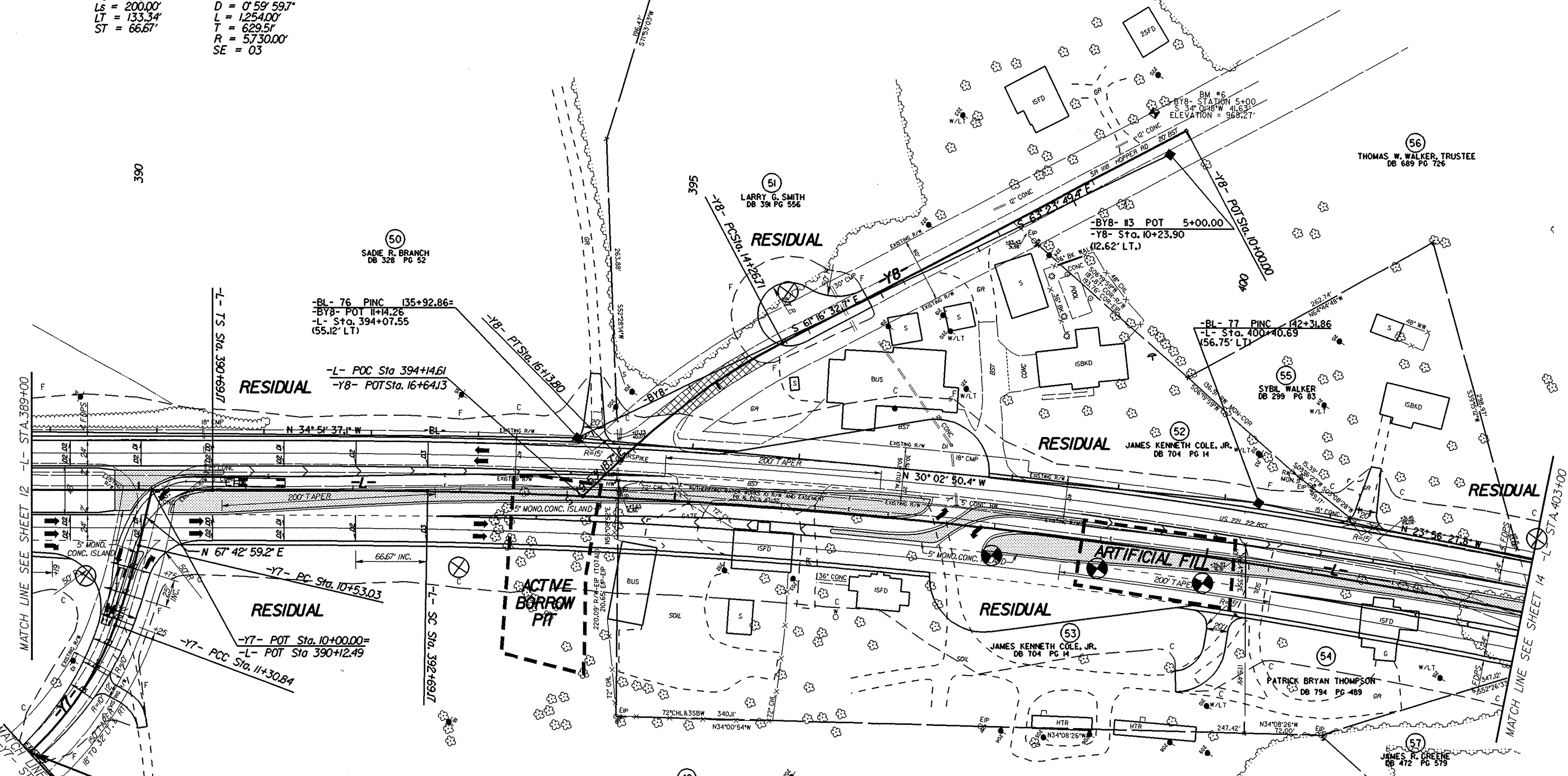
2005 ADT  
2030 ADT

HOPPER RD.

PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>13</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

9400	9700
17600	17900

2005 ADT  
2030 ADT

NOTE: FOR -L- PROFILE SEE SHEET NO.32  
FOR -Y7- PROFILE SEE SHEET NO.42  
FOR -Y8- PROFILE SEE SHEET NO.40

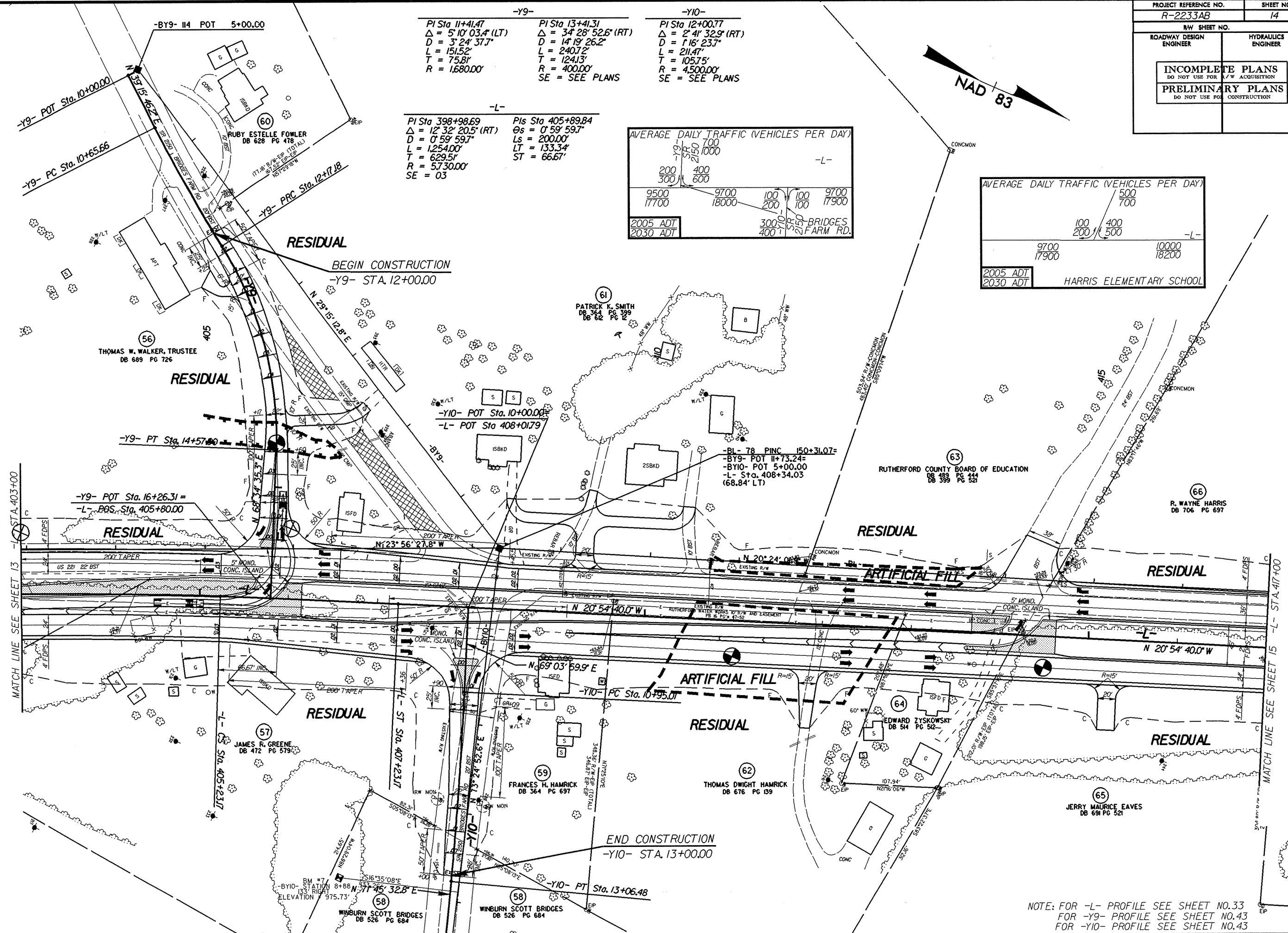
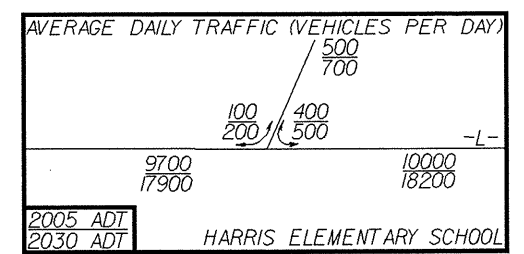
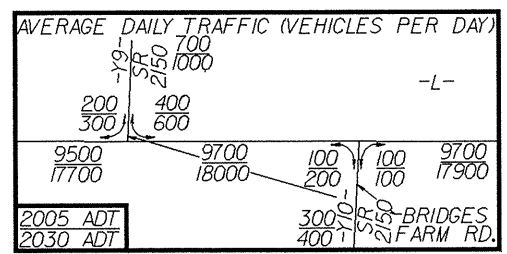
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8/17/99

8/17/99  
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PROJECT REFERENCE NO. R-2233AB		SHEET NO. 14	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-Y9-		-Y10-	
PI Sta 11+41.47	PI Sta 13+41.31	PI Sta 12+00.77	
$\Delta = 5^{\circ} 10' 03.4" (LT)$	$\Delta = 34^{\circ} 28' 52.6" (RT)$	$\Delta = 2^{\circ} 41' 32.9" (RT)$	
$D = 3^{\circ} 24' 37.7"$	$D = 14^{\circ} 19' 26.2"$	$D = 1^{\circ} 16' 23.7"$	
$L = 151.52'$	$L = 240.72'$	$L = 211.47'$	
$T = 75.81'$	$T = 124.13'$	$T = 105.75'$	
$R = 1,680.00'$	$R = 400.00'$	$R = 4,500.00'$	
	SE = SEE PLANS	SE = SEE PLANS	

-L-	
PI Sta 398+98.69	PIs Sta 405+89.84
$\Delta = 12^{\circ} 32' 20.5" (RT)$	$\Theta s = 0^{\circ} 59' 59.7"$
$D = 0^{\circ} 59' 59.7"$	$Ls = 200.00'$
$L = 1,254.00'$	$LT = 133.34'$
$T = 629.51'$	$ST = 66.67'$
$R = 5,730.00'$	
SE = 03	



MATCH LINE SEE SHEET 13 -L- STA. 403+00

MATCH LINE SEE SHEET 15 -L- STA. 417+00

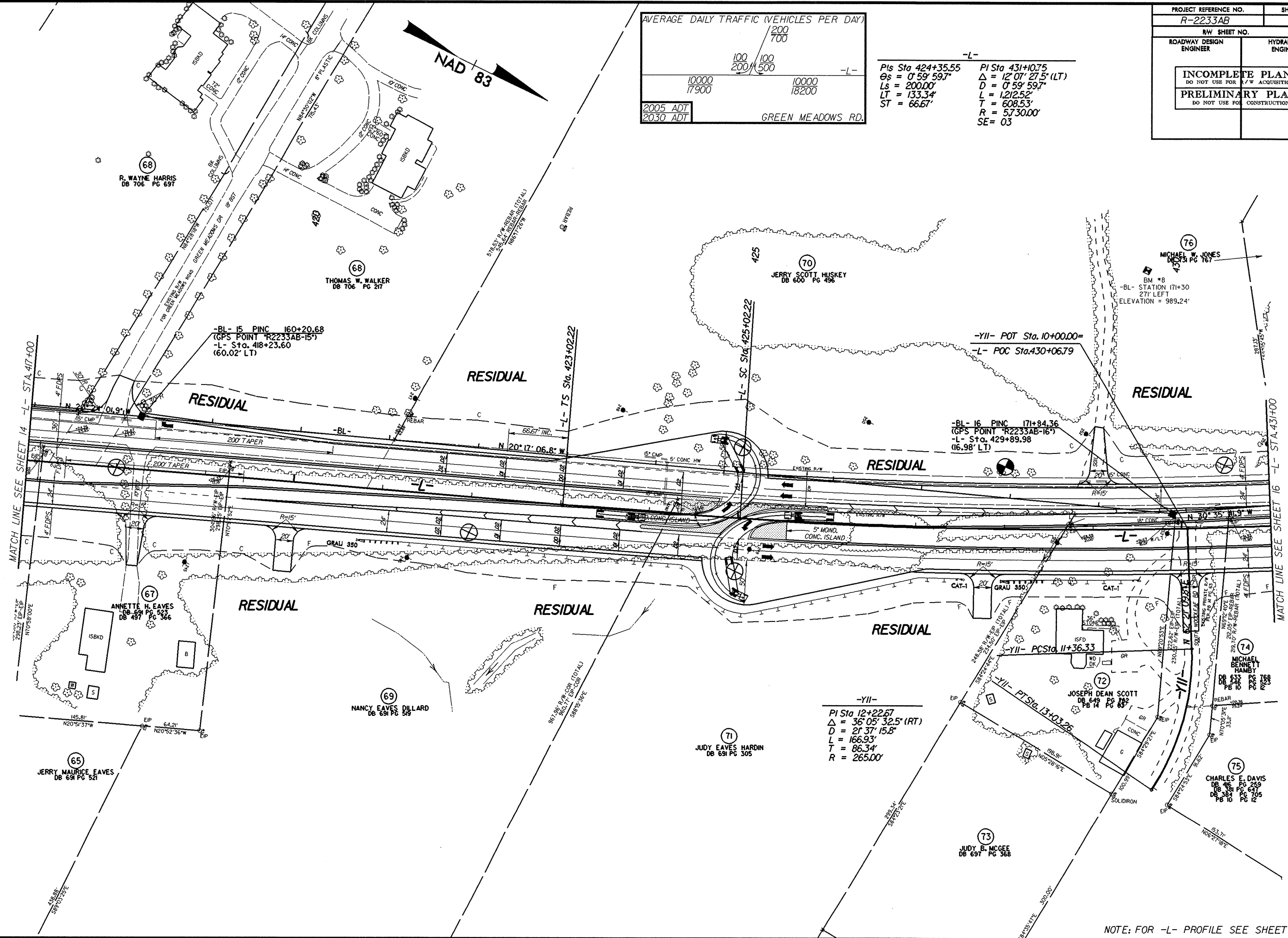
NOTE: FOR -L- PROFILE SEE SHEET NO.33  
 FOR -Y9- PROFILE SEE SHEET NO.43  
 FOR -Y10- PROFILE SEE SHEET NO.43

22-FEB-2007 08:54  
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 sheet 81 of 81

PROJECT REFERENCE NO.		SHEET NO.	
R-2233AB		15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION			
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)	
10000	10000
17900	18200
2005 ADT	2030 ADT
GREEN MEADOWS RD.	

-L-  
 PIs Sta 424+35.55    PI Sta 431+10.75  
 $\Delta s = 0^{\circ} 59' 59.7''$      $\Delta = 12^{\circ} 07' 27.5''$  (LT)  
 Ls = 200.00'    D = 0' 59' 59.7"  
 LT = 133.34'    L = 1212.52'  
 ST = 66.67'    T = 608.53'  
                                  R = 57300.00'  
                                  SE = 03



-YII-  
 PI Sta 12+22.67  
 $\Delta = 36^{\circ} 05' 32.5''$  (RT)  
 D = 21' 37' 15.8"  
 L = 166.93'  
 T = 86.34'  
 R = 265.00'

NOTE: FOR -L- PROFILE SEE SHEET NO.33

8/17/99

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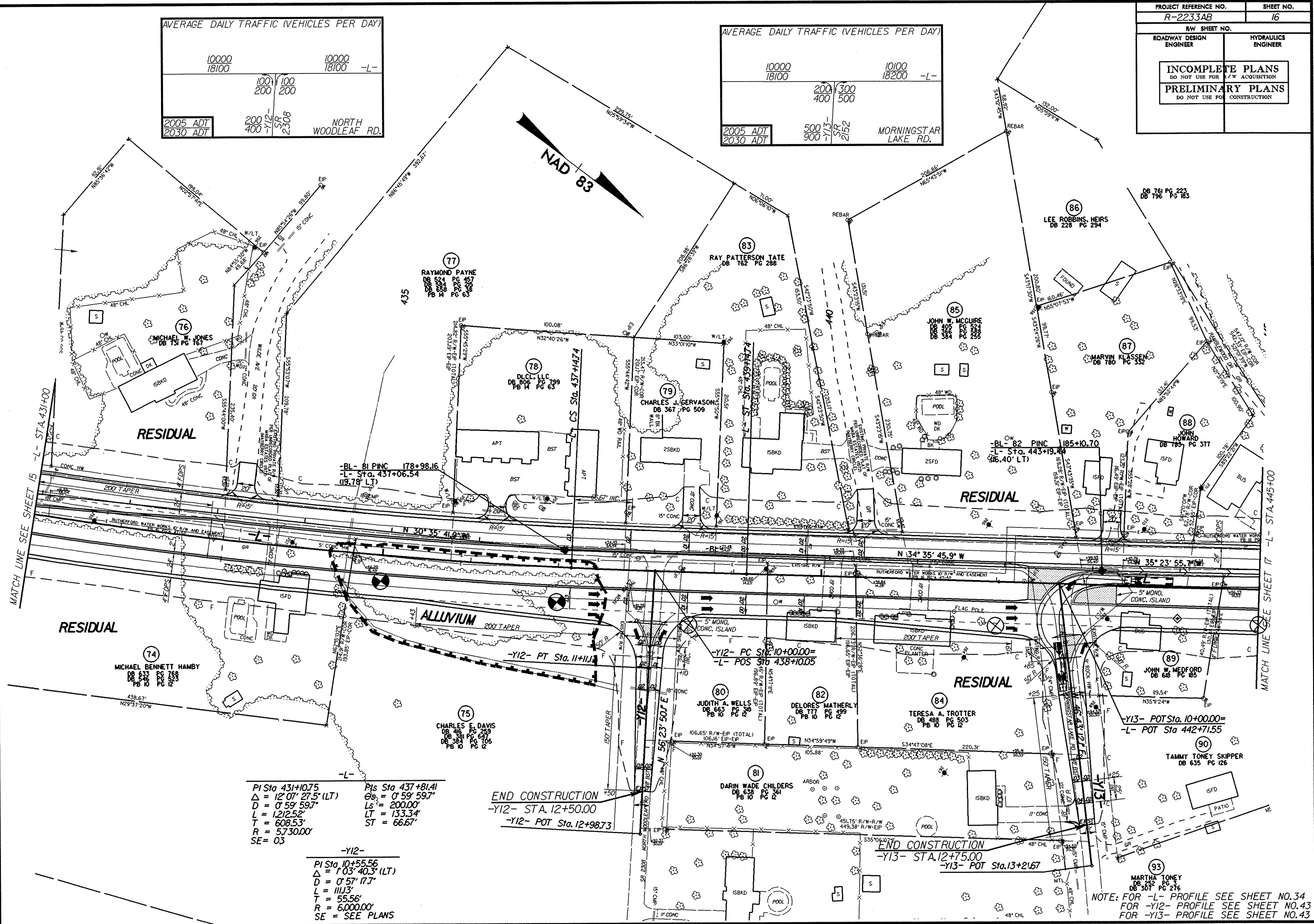
PROJECT REFERENCE NO. R-2233AB		SHEET NO. 16	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION			
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

10000 18100	10000 18100	-L-
2005 ADT 2030 ADT	100 200	100 200
	200 400	SR 2,308
NORTH WOODLEAF RD.		

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

10000 18100	10100 18200	-L-
2005 ADT 2030 ADT	200 400	300 500
	500 900	SR 2,152
MORNINGSTAR LAKE RD.		



END CONSTRUCTION  
-Y12- STA. 12+50.00  
-Y12- POT Sta. 12+98.73

PI Sta 431+10.75	PIs Sta 437+81.41
$\Delta = 12^{\circ} 07' 27.5" (LT)$	$\Theta_s = 0^{\circ} 59' 59.7"$
$D = 0^{\circ} 59' 59.7"$	$L_s = 200.00'$
$L = 1,212.52'$	$LT = 133.34'$
$T = 608.53'$	$ST = 66.67'$
$R = 5,730.00'$	
$SE = 03$	

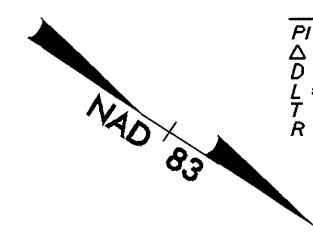
  

-Y12-

PI Sta 10+55.56
$\Delta = 1^{\circ} 03' 40.3" (LT)$
$D = 0^{\circ} 57' 17.7"$
$L = 1,111.3'$
$T = 55.56'$
$R = 6,000.00'$
$SE = \text{SEE PLANS}$

NOTE: FOR -L- PROFILE SEE SHEET NO.34  
FOR -Y12- PROFILE SEE SHEET NO.43  
FOR -Y13- PROFILE SEE SHEET NO.43

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 8/17/99



-Y14-

PI Sta 16+56.13	PI Sta 17+55.42	PI Sta 18+54.03
$\Delta = 1^{\circ} 33' 20.1''$ (LT)	$\Delta = 1^{\circ} 27' 41.4''$ (LT)	$\Delta = 2^{\circ} 30' 39.5''$ (LT)
$D = 1^{\circ} 54' 35.5''$	$D = 1^{\circ} 27' 33.0''$	$D = 2^{\circ} 22' 56.8''$
$L = 81.45'$	$L = 116.60'$	$L = 80.02'$
$T = 40.73'$	$T = 58.57'$	$T = 40.58'$
$R = 3,000.00'$	$R = 500.00'$	$R = 195.00'$

SE = SEE PLANS

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

10100	10500
18200	18600

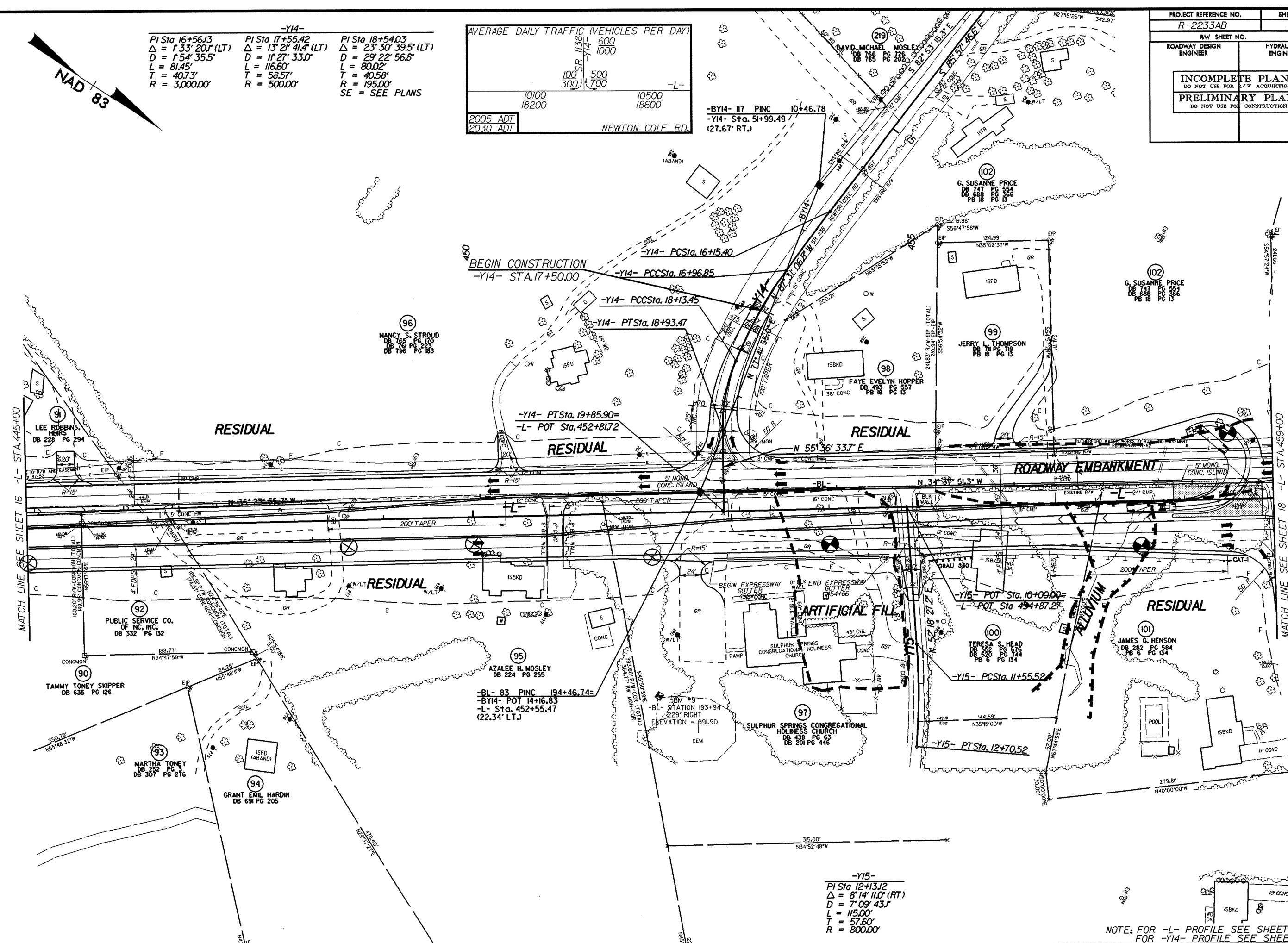
2005 ADT  
2030 ADT

NEWTON COLE RD.

PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>17</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



**BEGIN CONSTRUCTION**  
 -Y14- STA. 17+50.00

-BL- 83 PINC 194+46.74=  
 -BY14- POT 14+16.83  
 -L- Sta. 452+55.47  
 (22.34' LT.)

-Y15-

PI Sta 12+13.12
$\Delta = 8^{\circ} 14' 11.0''$ (RT)
$D = 7^{\circ} 09' 43.1''$
$L = 115.00'$
$T = 57.60'$
$R = 800.00'$

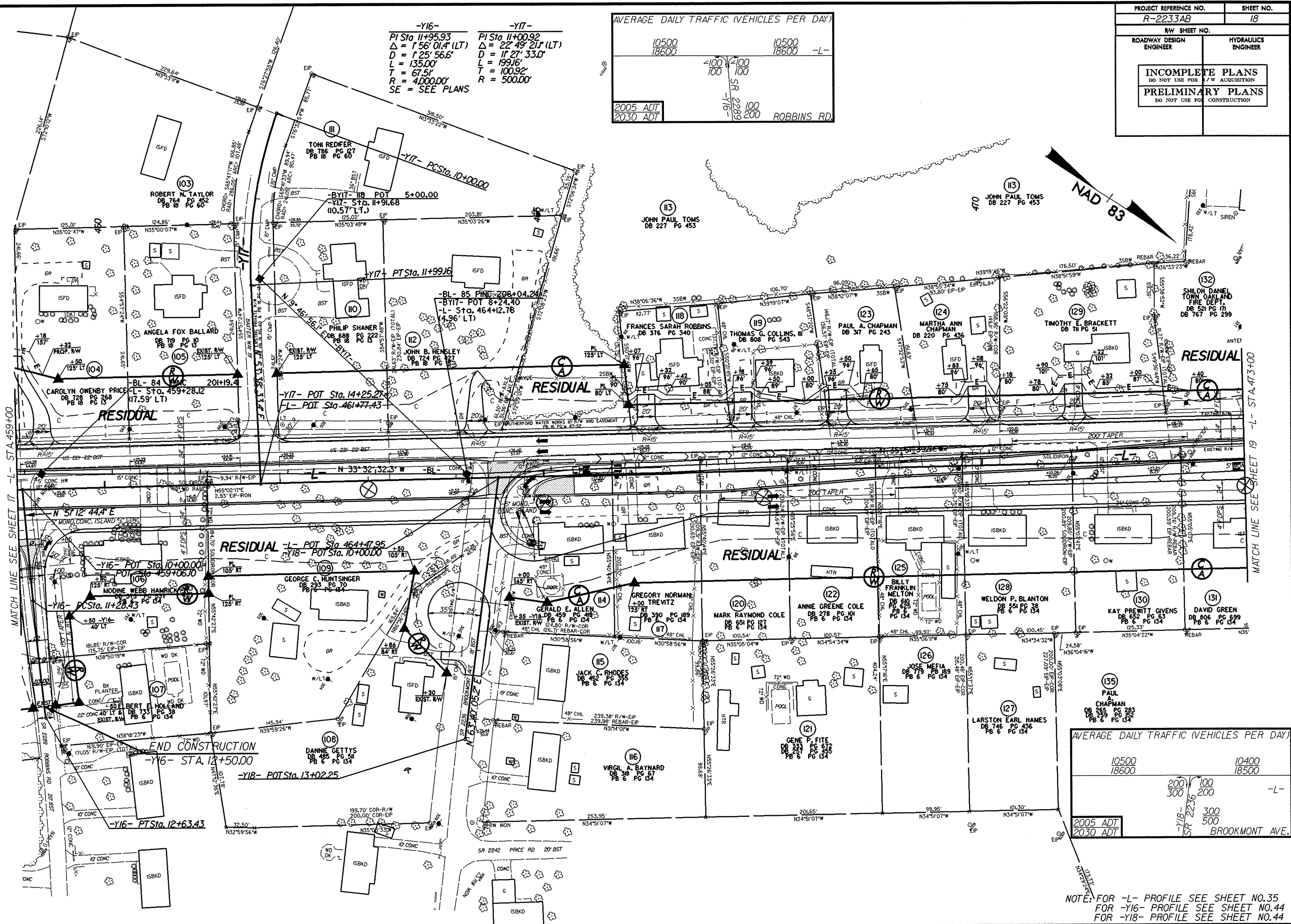
NOTE: FOR -L- PROFILE SEE SHEET NO.34  
FOR -Y14- PROFILE SEE SHEET NO.44



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)		
10500 18600	10500 18600	-L-
2005 ADT 2030 ADT	100 200	SR 2289 ROBBINS RD.

**-Y16-**  
 PI Sta 11+95.93  
 $\Delta = 1^{\circ}56'01.4" (LT)$   
 $D = 1^{\circ}25'56.6"$   
 $L = 135.00'$   
 $T = 67.5'$   
 $R = 4,000.00'$   
 SE = SEE PLANS

**-Y17-**  
 PI Sta 11+00.92  
 $\Delta = 2^{\circ}49'21.7" (LT)$   
 $D = 1^{\circ}27'33.0"$   
 $L = 199.16'$   
 $T = 100.92'$   
 $R = 500.00'$



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)		
10500 18600	10400 18500	-L-
2005 ADT 2030 ADT	200 300	SR 2236 BROOKMONT AVE.

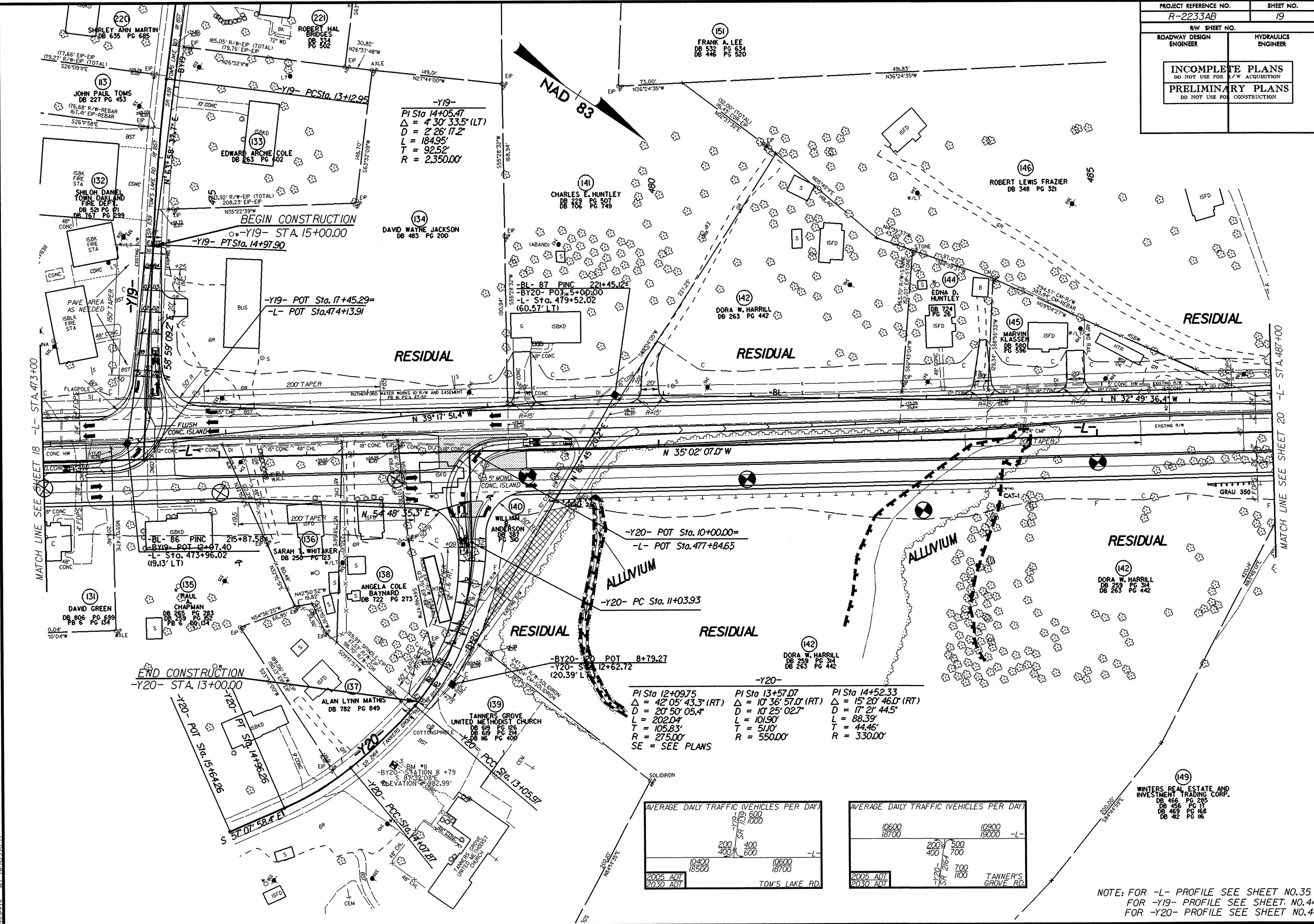
NOTE: FOR -L- PROFILE SEE SHEET NO.35  
 FOR -Y16- PROFILE SEE SHEET NO.44  
 FOR -Y18- PROFILE SEE SHEET NO.44

8/17/99  
 23-FEB-2007 09h  
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PROJECT REFERENCE NO. R-2233AB	SHEET NO. 19
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

8/17/99

23-FEB-2007 09:08  
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 created at R2233AB



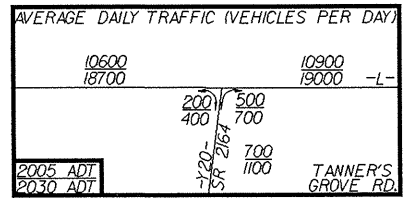
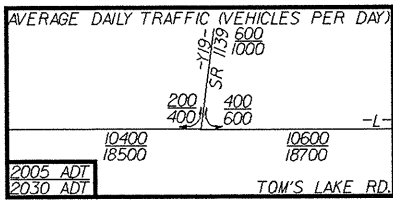
-Y19-  
 PI Sta 14+05.47  
 $\Delta = 4^\circ 30' 33.5" (LT)$   
 $D = 2^\circ 26' 17.2"$   
 $L = 184.95'$   
 $T = 92.52'$   
 $R = 2350.00'$

-Y20- POT Sta. 10+00.00 =  
 -L- POT Sta. 477+84.65

-Y20- PC Sta. 11+03.93

-BY20- POT 8+79.27  
 -Y20- STA. 12+62.72  
 (20.39' L)

PI Sta 12+09.75 $\Delta = 42^\circ 05' 43.3" (RT)$ $D = 20^\circ 50' 05.4"$ $L = 202.04'$ $T = 105.83'$ $R = 275.00'$ SE = SEE PLANS	PI Sta 13+57.07 $\Delta = 10^\circ 36' 57.0" (RT)$ $D = 10^\circ 25' 02.7"$ $L = 101.90'$ $T = 51.0'$ $R = 550.00'$	PI Sta 14+52.33 $\Delta = 15^\circ 20' 46.0" (RT)$ $D = 17^\circ 21' 44.5"$ $L = 88.39'$ $T = 44.46'$ $R = 330.00'$
--	--	--

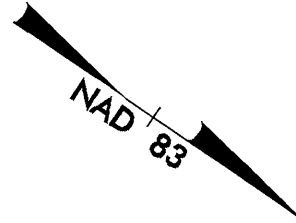
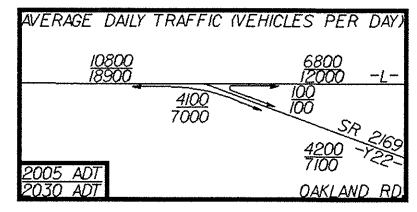


NOTE: FOR -L- PROFILE SEE SHEET NO.35  
 FOR -Y19- PROFILE SEE SHEET NO.44  
 FOR -Y20- PROFILE SEE SHEET NO.44

8/17/99  
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AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)			
10900	1000	1000	-L-
1000	1000	1000	-L-
2005 ADT	1000	1000	WALKER LAKE RD. & ROYAL BLUE RD.
2030 ADT	1000	1000	

-Y21-  
PI Sta 11+54.69  
 $\Delta = 11' 04" 01.2" (LT)$   
 $D = 8' 11" 06.4"$   
 $L = 135.21'$   
 $T = 67.82'$   
 $R = 700.00'$



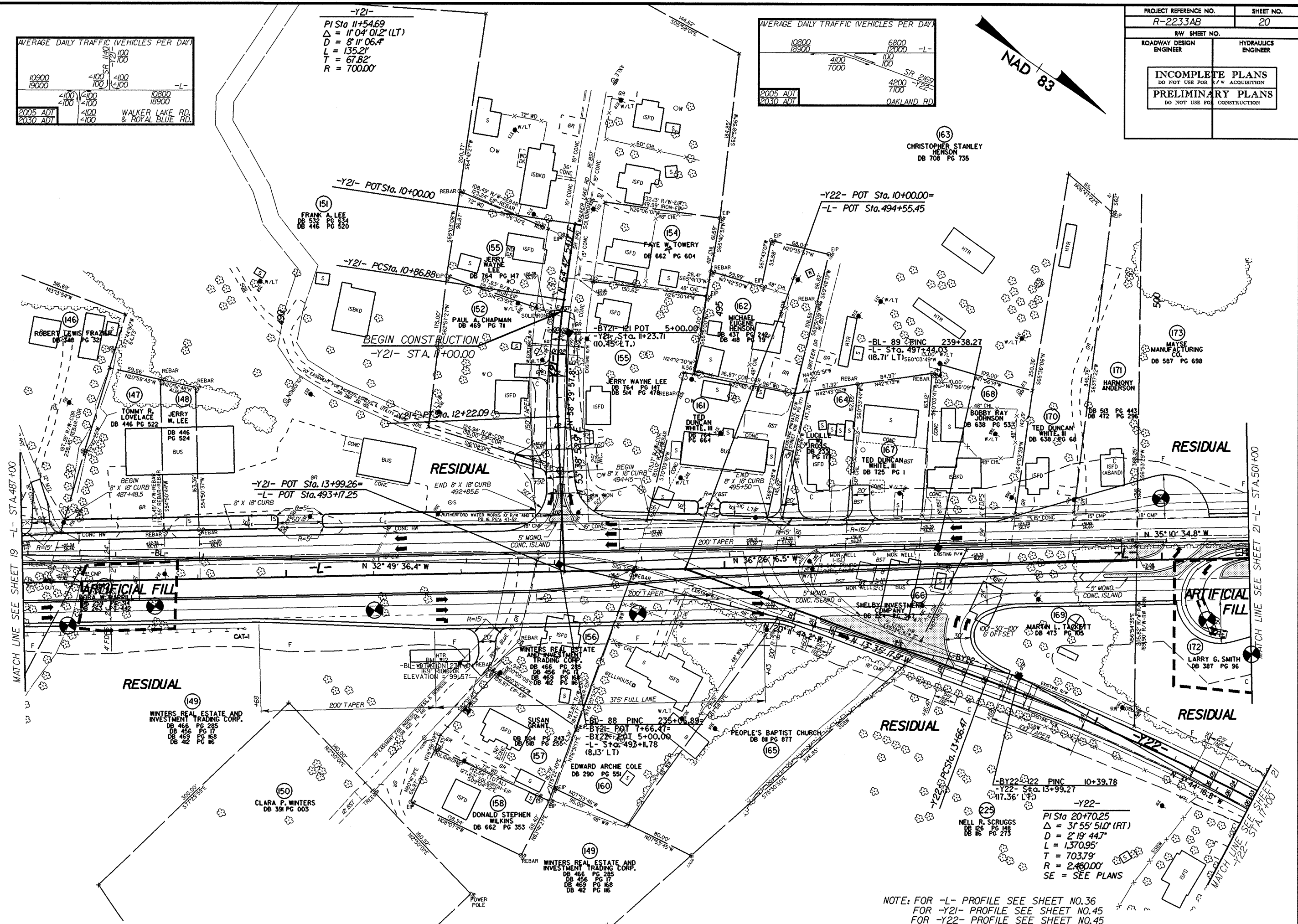
PROJECT REFERENCE NO.	SHEET NO.
R-223348	20

R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

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



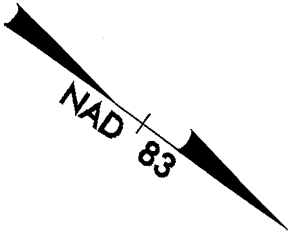
NOTE: FOR -L- PROFILE SEE SHEET NO.36  
FOR -Y21- PROFILE SEE SHEET NO.45  
FOR -Y22- PROFILE SEE SHEET NO.45

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

6800 12000	900 1300	700 1800	6900 13500	-L-
400 600	700 1600	2700 4700		

2005 ADT  
2030 ADT

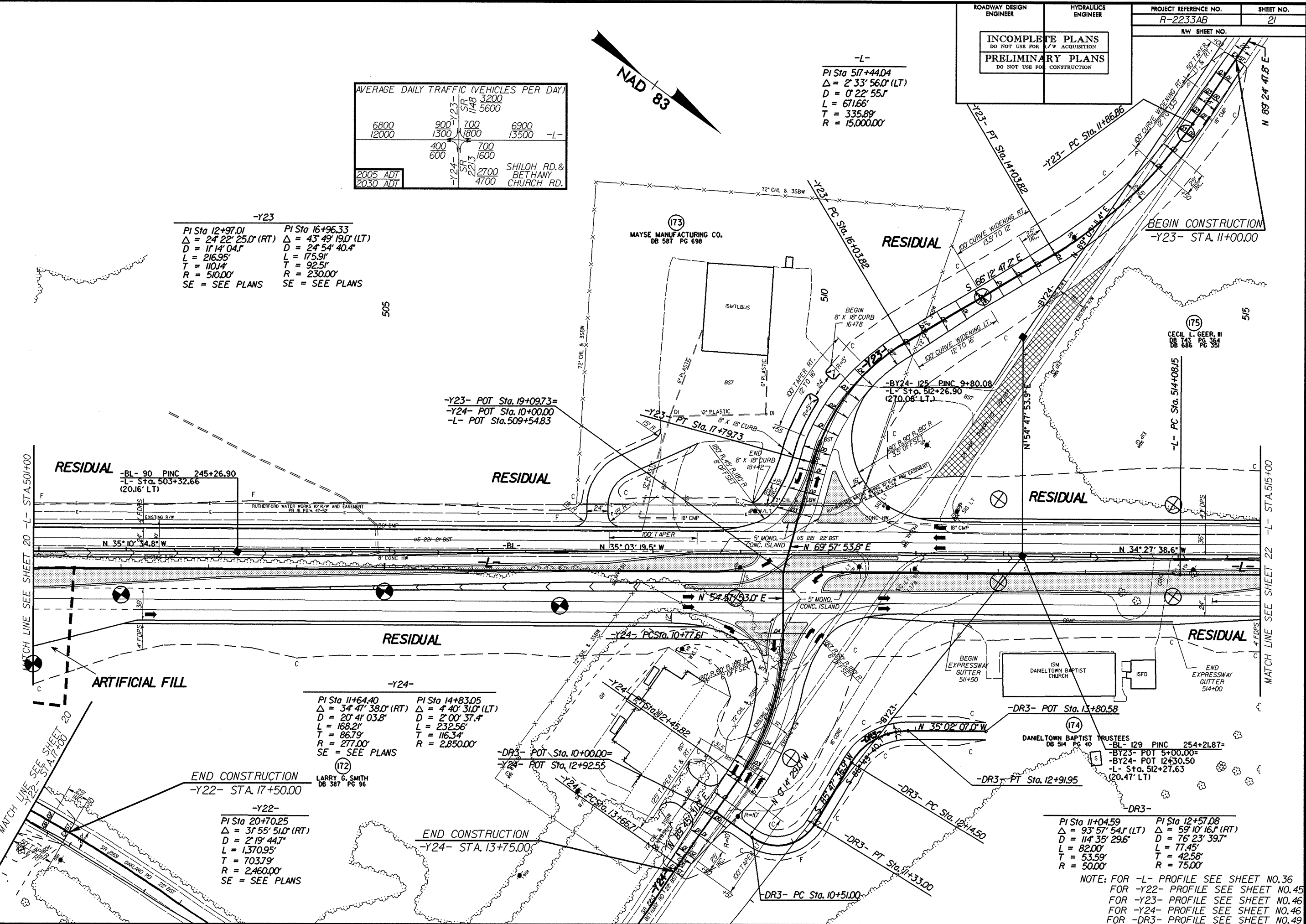
SHILOH RD. & BETHANY CHURCH RD.



-L-  
 PI Sta 517+44.04  
 $\Delta = 2' 33' 56.0''$  (LT)  
 $D = 0' 22' 55.1''$   
 $L = 671.66'$   
 $T = 335.89'$   
 $R = 15,000.00'$

-Y23  
 PI Sta 12+97.01  $\Delta = 24' 22' 25.0''$  (RT)  
 $D = 11' 14' 04.1''$   
 $L = 216.95'$   
 $T = 110.14'$   
 $R = 510.00'$   
 SE = SEE PLANS

PI Sta 16+96.33  $\Delta = 43' 49' 19.0''$  (LT)  
 $D = 24' 54' 40.4''$   
 $L = 175.91'$   
 $T = 92.51'$   
 $R = 230.00'$   
 SE = SEE PLANS



MATCH LINE SEE SHEET 20 -L- STA. 501+00

MATCH LINE SEE SHEET 22 -L- STA. 515+00

-Y24-  
 PI Sta 11+64.40  $\Delta = 34' 47' 38.0''$  (RT)  
 $D = 20' 41' 03.8''$   
 $L = 168.21'$   
 $T = 86.79'$   
 $R = 277.00'$   
 SE = SEE PLANS

PI Sta 14+83.05  $\Delta = 4' 40' 31.0''$  (LT)  
 $D = 2' 00' 37.4''$   
 $L = 232.56'$   
 $T = 116.34'$   
 $R = 2,850.00'$

END CONSTRUCTION  
 -Y22- STA. 17+50.00

-Y22-  
 PI Sta 20+70.25  $\Delta = 31' 55' 51.0''$  (RT)  
 $D = 2' 19' 44.7''$   
 $L = 1,370.95'$   
 $T = 703.79'$   
 $R = 2,460.00'$   
 SE = SEE PLANS

END CONSTRUCTION  
 -Y24- STA. 13+75.00

PI Sta 11+04.59  $\Delta = 93' 57' 54.1''$  (LT)  
 $D = 114' 35' 29.6''$   
 $L = 82.00'$   
 $T = 53.59'$   
 $R = 50.00'$

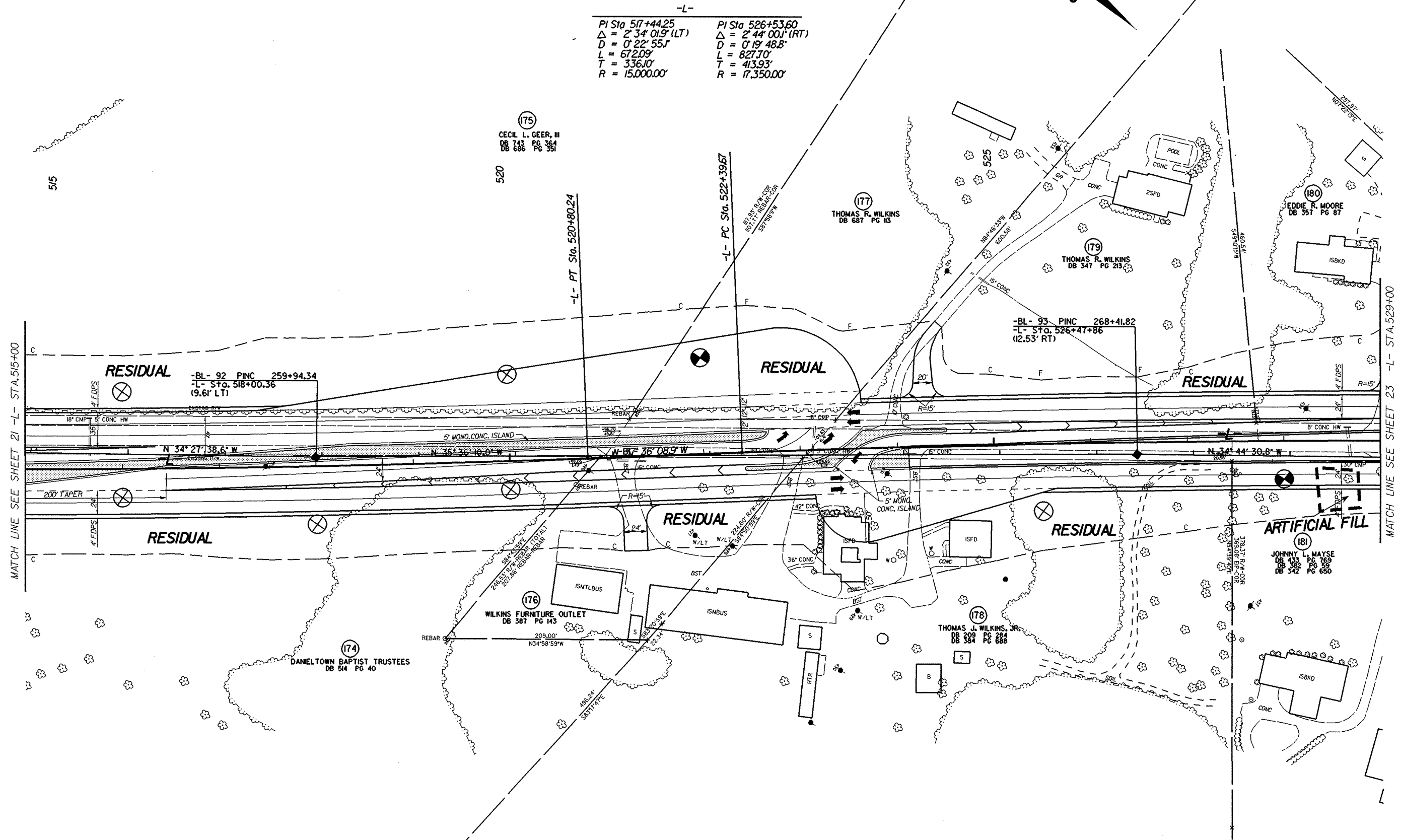
PI Sta 12+57.08  $\Delta = 59' 10' 16.1''$  (RT)  
 $D = 76' 23' 39.7''$   
 $L = 77.45'$   
 $T = 42.58'$   
 $R = 75.00'$

NOTE: FOR -L- PROFILE SEE SHEET NO. 36  
 FOR -Y22- PROFILE SEE SHEET NO. 45  
 FOR -Y23- PROFILE SEE SHEET NO. 46  
 FOR -Y24- PROFILE SEE SHEET NO. 46  
 FOR -DR3- PROFILE SEE SHEET NO. 49

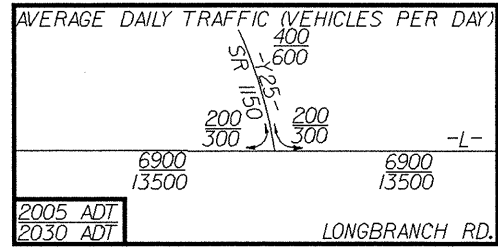
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8/17/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 22
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



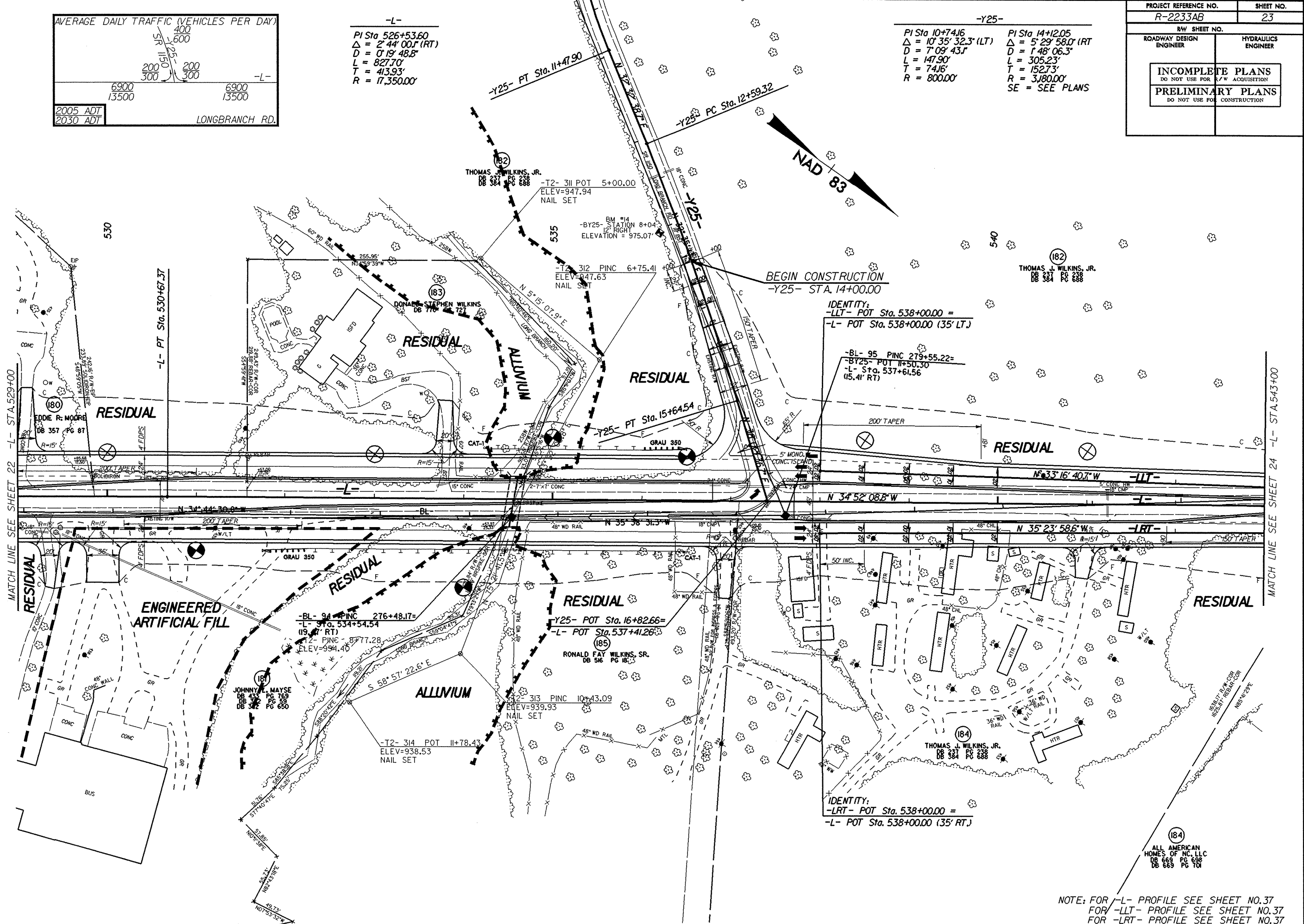
NOTE: FOR -L- PROFILE SEE SHEET NO. 37



-L-  
 $PI\ Sta\ 526+53.60$   
 $\Delta = 2' 44'' 00.1 (RT)$   
 $D = 0' 19'' 48.8$   
 $L = 827.70'$   
 $T = 413.93'$   
 $R = 17,350.00'$

-Y25-  
 $PI\ Sta\ 10+74.16$   
 $\Delta = 10' 35'' 32.3 (LT)$   
 $D = 7' 09'' 43.1$   
 $L = 147.90'$   
 $T = 74.16'$   
 $R = 800.00'$

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



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NOTE: FOR -L- PROFILE SEE SHEET NO.37  
 FOR -LT- PROFILE SEE SHEET NO.37  
 FOR -LRT- PROFILE SEE SHEET NO.37  
 FOR -Y25- PROFILE SEE SHEET NO.46

8/17/99

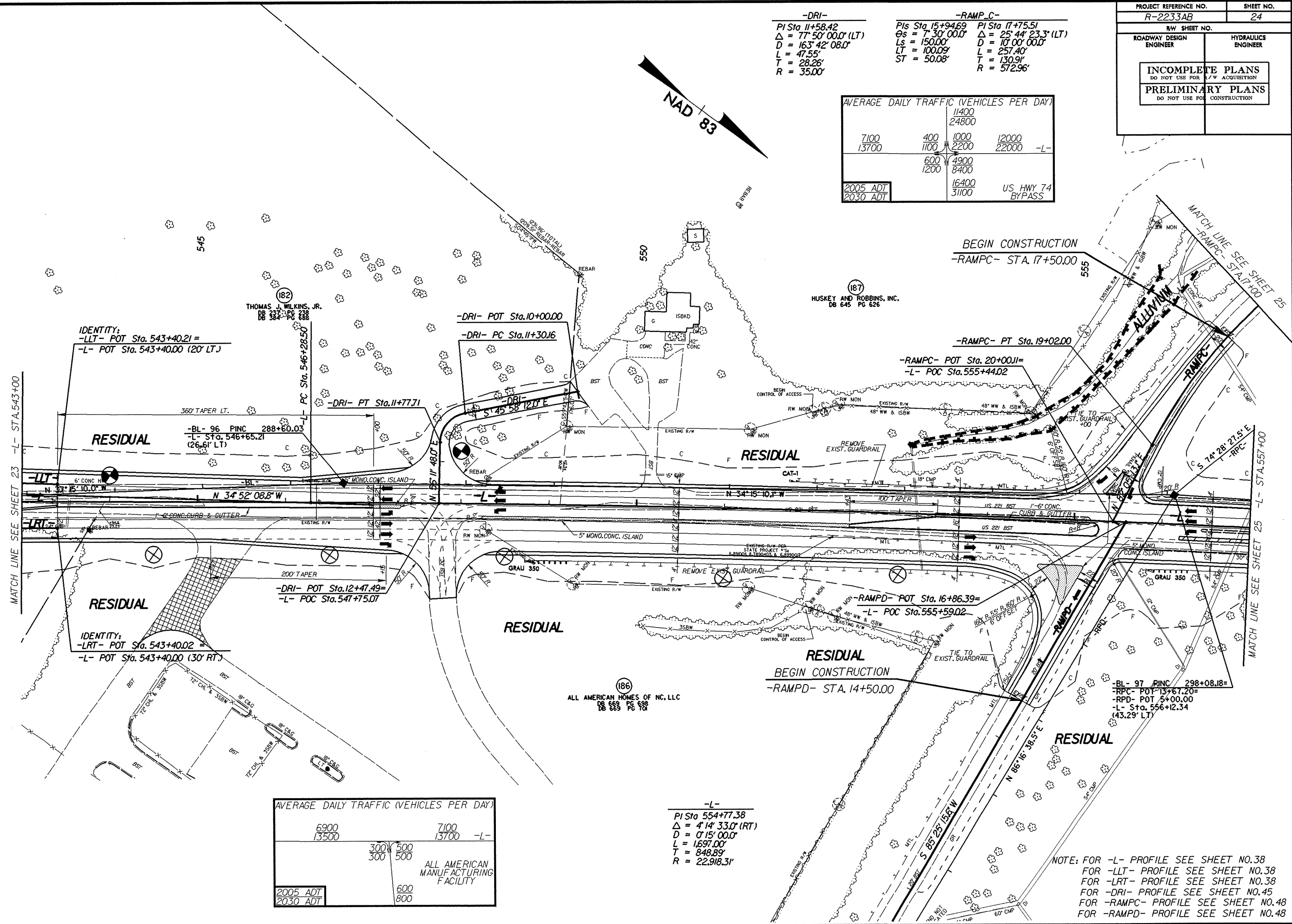
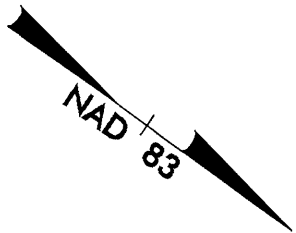
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Checked AT 08:22:15

PROJECT REFERENCE NO. R-2233AB		SHEET NO. 24	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

-DRI-		-RAMP_C-	
PI Sta 11+58.42	$\Delta = 77^{\circ} 50' 00.0''$ (LT)	PIs Sta 15+94.69	$\Delta = 25^{\circ} 44' 23.3''$ (LT)
D = 163' 42' 08.0"	L = 47.55'	Ls = 150.00'	D = 10' 00' 00.0"
T = 28.26'	R = 35.00'	LT = 100.09'	L = 257.40'
		ST = 50.08'	T = 130.9'
			R = 572.96'

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)				
7100	400	1000	12000	-L-
13700	1100	2200	22000	
	600	4900	8400	
	1200	16400	31100	
2005 ADT				
2030 ADT				

US HWY 74 BYPASS



IDENTITY:  
-LLT- POT Sta. 543+40.21 =  
-L- POT Sta. 543+40.00 (20' LT)

RESIDUAL  
-BL- 96 PINC 288+60.03  
-L- Sta. 546+65.21  
(26.61' LT)

RESIDUAL  
IDENTITY:  
-LRT- POT Sta. 543+40.02 =  
-L- POT Sta. 543+40.00 (30' RT)

-DRI- POT Sta. 10+00.00  
-DRI- PC Sta. 11+30.16

-DRI- POT Sta. 12+47.49 =  
-L- POC Sta. 547+75.07

-RAMP- PT Sta. 19+02.00  
-RAMP- POT Sta. 20+00.11 =  
-L- POC Sta. 555+44.02

-RAMPD- POT Sta. 16+86.39 =  
-L- POC Sta. 555+59.02

-BL- 97 PINC 298+08.18 =  
-RPC- POT 13+67.20 =  
-RPD- POT 5+00.00  
-L- Sta. 556+12.34  
(43.29' LT)

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)				
6900		7100		-L-
13500		13700		
	300	500		
	300	500		
		600		
		800		
2005 ADT				
2030 ADT				

ALL AMERICAN MANUFACTURING FACILITY

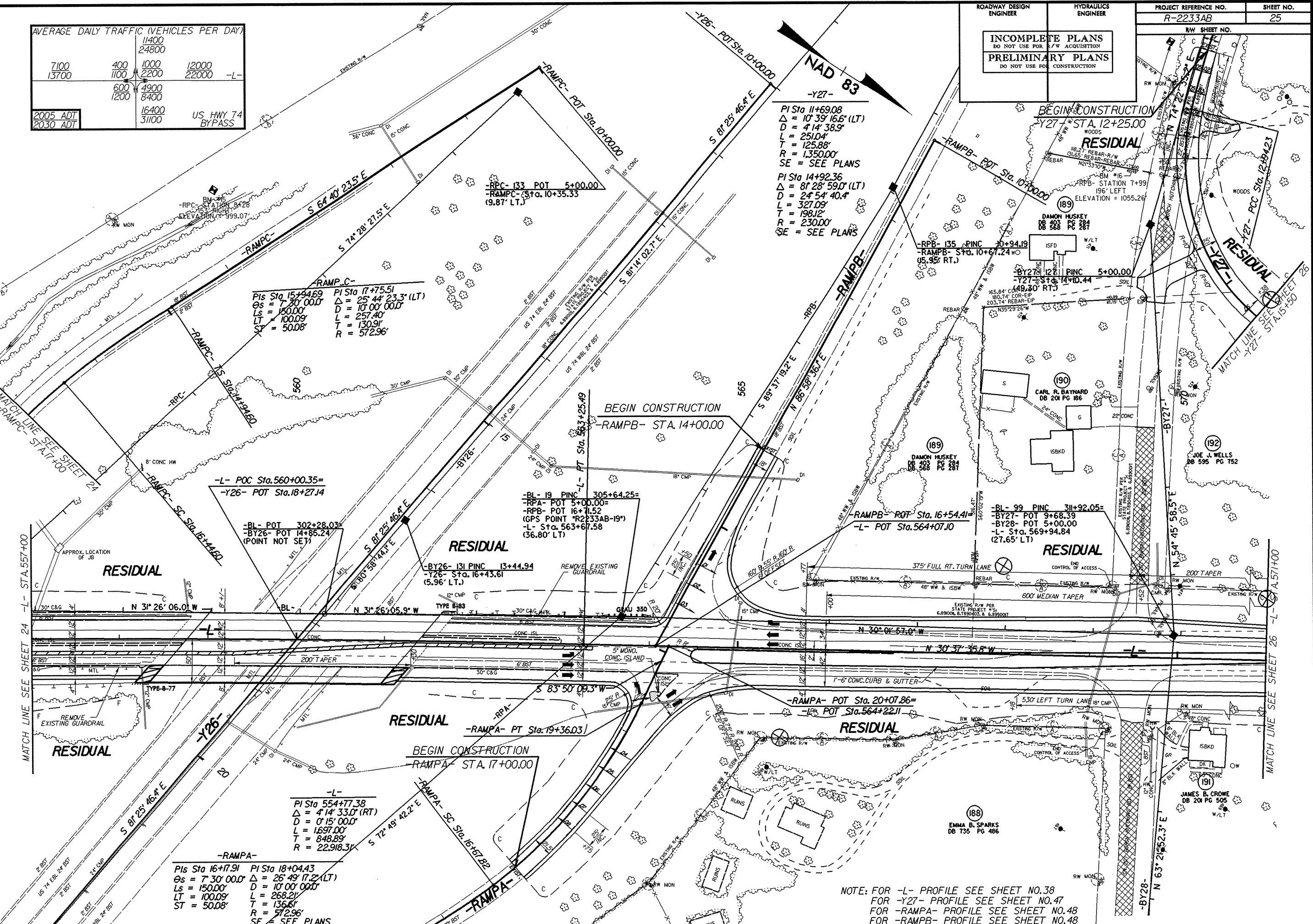
-L-  
PI Sta 554+77.38  
 $\Delta = 4^{\circ} 14' 33.0''$  (RT)  
D = 0' 15' 00.0"  
L = 1,697.00'  
T = 848.89'  
R = 22,918.31'

NOTE: FOR -L- PROFILE SEE SHEET NO.38  
FOR -LLT- PROFILE SEE SHEET NO.38  
FOR -LRT- PROFILE SEE SHEET NO.38  
FOR -DRI- PROFILE SEE SHEET NO.45  
FOR -RAMP- PROFILE SEE SHEET NO.48  
FOR -RAMPD- PROFILE SEE SHEET NO.48

23-FEB-2007 10:36  
 d:\projects\2233ab\geo-rdwj-rutherford\cadd\geotech\planproj\2233ab-geo.rdwj-025.psh.25.dgn  
 8.17.99

AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)			
7100	400	1000	12000
13700	1100	2200	22000
	600	4900	
	1200	8400	
2005 ADT		16400	US HWY 74
2030 ADT		31100	BYPASS

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	PROJECT REFERENCE NO.	SHEET NO.
		R-2233AB	25
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		RW SHEET NO.	



**RAMP C-**  
 PIs Sta 15+94.69 PI Sta 17+75.51  
 Δ = 7° 30' 00.0" Δ = 25° 44' 23.3" (LT)  
 Ls = 150.00' L = 10' 00' 00.0"  
 LT = 100.09' L = 257.40'  
 ST = 50.08' T = 130.91'  
 R = 572.96'

**PI Sta 11+69.08**  
 Δ = 10° 39' 16.6" (LT)  
 D = 4' 14' 38.9"  
 L = 251.04'  
 T = 125.88'  
 R = 1,350.00'  
 SE = SEE PLANS

**PI Sta 14+92.36**  
 Δ = 8° 28' 59.0" (LT)  
 D = 2' 54' 40.4"  
 L = 327.09'  
 T = 198.12'  
 R = 2,300.00'  
 SE = SEE PLANS

**BL-19 PINC 305+64.25=**  
 -RPA- POT 5+00.00=  
 -RPB- POT 16+71.52=  
 (GPS POINT "R2233AB-19")  
 -L- Sta. 563+67.58  
 (36.80' LT)

**-L- POT 302+28.03=**  
 -BY26- POT 14+85.24=  
 (POINT NOT SET)

**-BL-99 PINC 311+92.05=**  
 -BY27- POT 9+68.39  
 -BY28- POT 5+00.00  
 -L- Sta. 569+94.84  
 (27.65' LT)

**-RAMP A-**  
 PIs Sta 16+17.91 PI Sta 18+04.43  
 Δ = 7° 30' 00.0" Δ = 26° 49' 17.2" (LT)  
 Ls = 150.00' L = 10' 00' 00.0"  
 LT = 100.09' L = 268.21'  
 ST = 50.08' T = 136.61'  
 R = 572.96'  
 SE = SEE PLANS

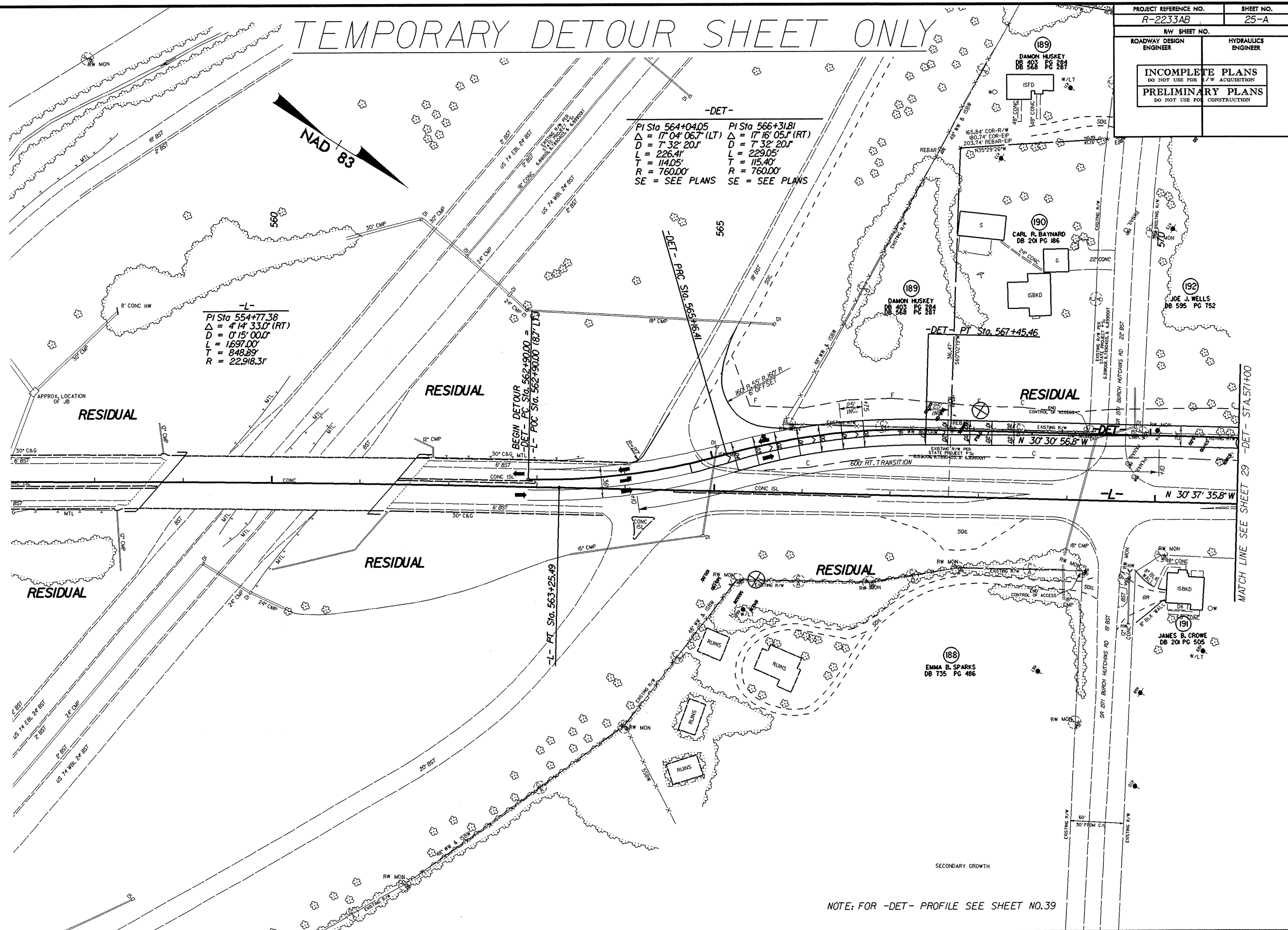
NOTE: FOR -L- PROFILE SEE SHEET NO.38  
 FOR -Y27- PROFILE SEE SHEET NO.47  
 FOR -RAMP A- PROFILE SEE SHEET NO.48  
 FOR -RAMP B- PROFILE SEE SHEET NO.48



8/17/99

# TEMPORARY DETOUR SHEET ONLY

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 25-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



-L-  
 PI Sta 554+77.38  
 $\Delta = 4^{\circ} 14' 33.0''$  (RT)  
 $D = 0^{\circ} 15' 00.0''$   
 $L = 1697.00'$   
 $T = 848.89'$   
 $R = 22,918.31'$

-DET-  
 PI Sta 564+04.05    PI Sta 566+31.81  
 $\Delta = 17^{\circ} 04' 06.7''$  (LT)     $\Delta = 17^{\circ} 16' 05.7''$  (RT)  
 $D = 7^{\circ} 32' 20.7''$      $D = 7^{\circ} 32' 20.7''$   
 $L = 226.41'$      $L = 229.05'$   
 $T = 114.05'$      $T = 115.40'$   
 $R = 760.00'$      $R = 760.00'$   
 SE = SEE PLANS    SE = SEE PLANS

BEGIN DETOUR  
 -DET- PC Sta. 562+90.00 = 187.17  
 -L- PC Sta. 562+90.00 = 187.17

-L- PT Sta. 563+25.49

(188)  
 EMMA B. SPARKS  
 DB 735 PG 486

(191)  
 JAMES B. CROWE  
 DB 201 PG 505

(189)  
 DAMON HUSKEY  
 DB 403 PG 287

(190)  
 CARL R. BAYNARD  
 DB 201 PG 186

(192)  
 JOE J. WELLS  
 DB 595 PG 752

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

NOTE: FOR -DET- PROFILE SEE SHEET NO. 39

23-FEB-2007 10:38 d:\projects\2233ab\geo\_rdw\rdw\_rutherford\cadd\geotech\planprof\VR2233AB\_GEO.inv\_25A\_psh25a.dgn

MATCH LINE SEE SHEET 29 -DET- STA. 571+00

23-FEB-2007 14:3  
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 8/17/99  
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PROJECT REFERENCE NO. R-2233AB		SHEET NO. 26	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

-Y27-

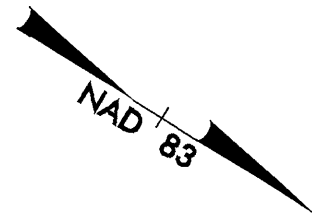
PI Sta 14+92.36	PI Sta 19+11.99
$\Delta = 81^{\circ} 28' 59.0"$ (LT)	$\Delta = 68^{\circ} 44' 58.0"$ (RT)
D = 24' 54' 40.4"	D = 24' 54' 40.4"
L = 327.09'	L = 275.98'
T = 198.12'	T = 157.34'
R = 230.00'	R = 230.00'
SE = SEE PLANS	SE = SEE PLANS

-Y28-

PI Sta 12+31.36
$\Delta = 59^{\circ} 27' 56.1"$ (RT)
D = 24' 54' 40.4"
L = 238.71'
T = 131.36'
R = 230.00'
SE = SEE PLANS

-L-

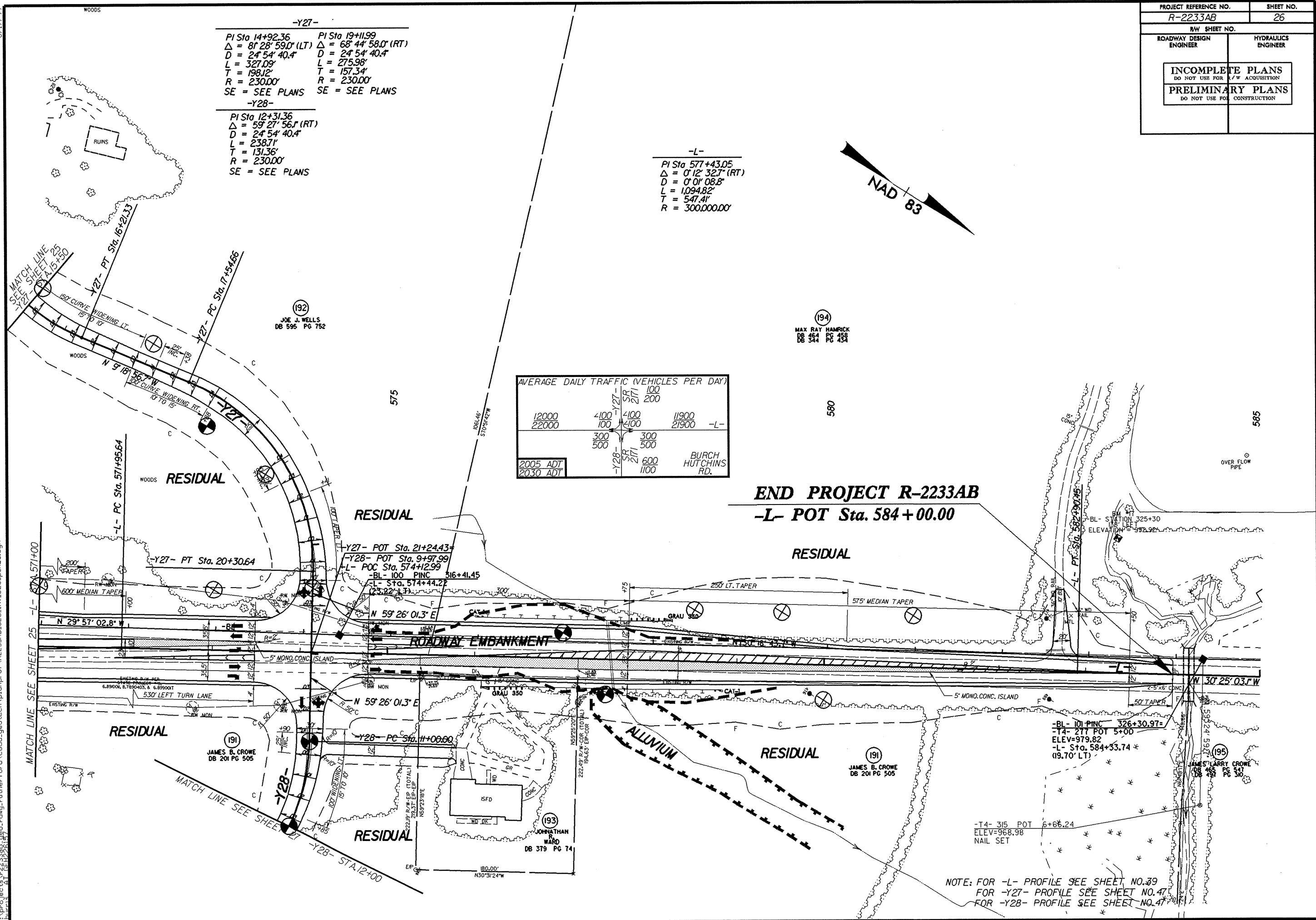
PI Sta 577+43.05
$\Delta = 0^{\circ} 12' 32.7"$ (RT)
D = 0' 01' 08.8"
L = 1,094.82'
T = 547.41'
R = 300,000.00'



AVERAGE DAILY TRAFFIC (VEHICLES PER DAY)

12000	400	400	11900	-L-
22000	100	100	21900	
	300	300		
	500	500		
2005 ADT	-Y28-	2005 ADT		
2030 ADT	ST	ST		
	577	577		
	577	577		
	600	600		
	1100	1100		
				BURCH HUTCHINS RD.

**END PROJECT R-2233AB**  
**-L- POT Sta. 584+00.00**

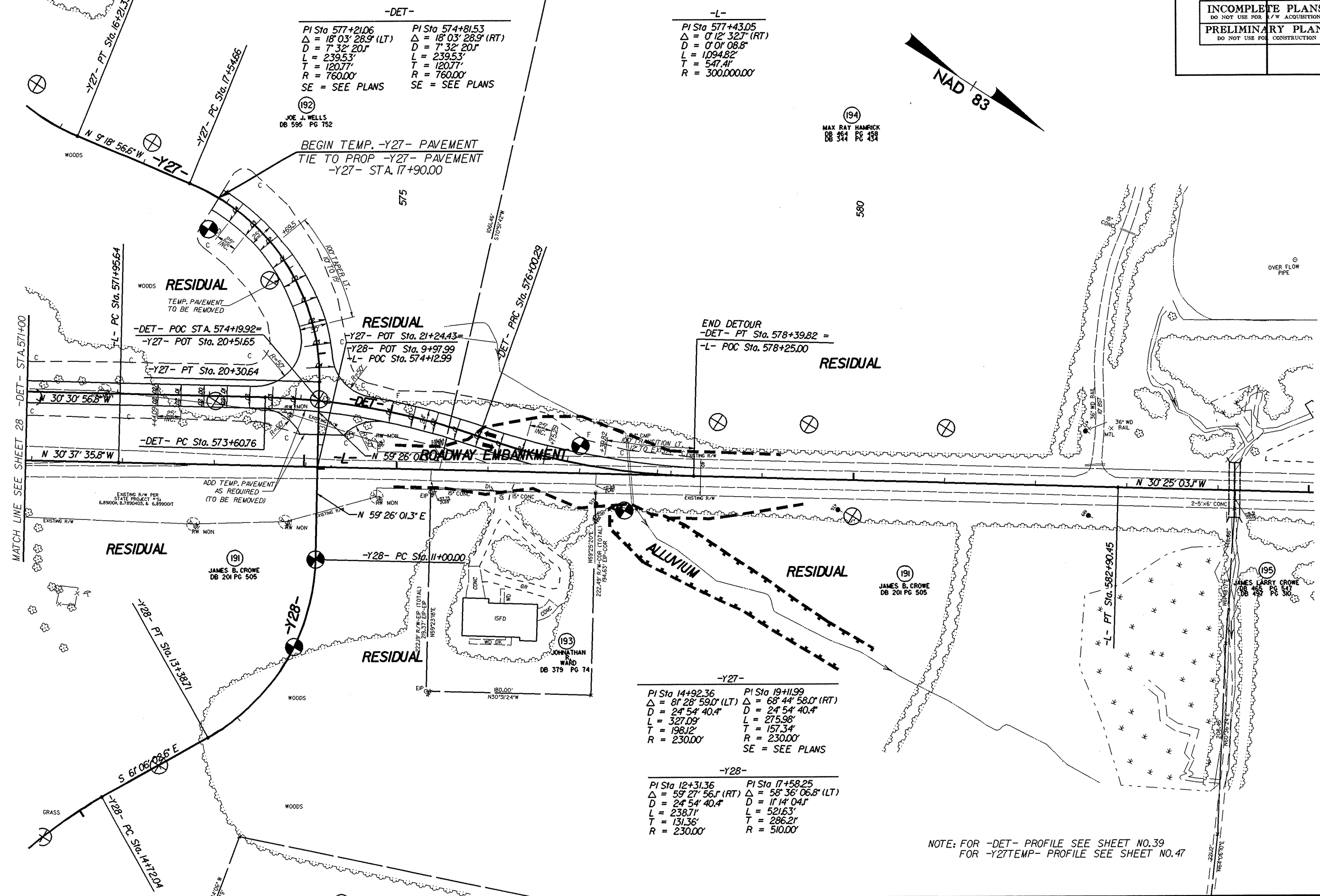


NOTE: FOR -L- PROFILE SEE SHEET NO. 39  
 FOR -Y27- PROFILE SEE SHEET NO. 47  
 FOR -Y28- PROFILE SEE SHEET NO. 47

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 8/17/99

# TEMPORARY DETOUR SHEET ONLY

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 26-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

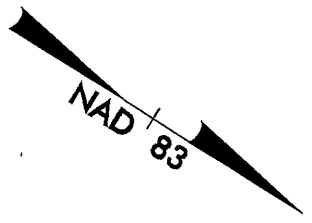


-DET-

PI Sta 577+21.06 $\Delta = 18^\circ 03' 28.9''$ (LT) D = 7' 32' 20.1" L = 239.53' T = 120.77' R = 760.00' SE = SEE PLANS	PI Sta 574+81.53 $\Delta = 18^\circ 03' 28.9''$ (RT) D = 7' 32' 20.1" L = 239.53' T = 120.77' R = 760.00' SE = SEE PLANS
--	--

-L-

PI Sta 577+43.05 $\Delta = 0^\circ 12' 32.7''$ (RT) D = 0' 01' 08.8" L = 1.094.82' T = 547.41' R = 300.000.00'
---



BEGIN TEMP. -Y27- PAVEMENT  
TIE TO PROP -Y27- PAVEMENT  
-Y27- STA. 17+90.00

END DETOUR  
-DET- PT Sta. 578+39.82 =  
-L- POC Sta. 578+25.00

-Y27-

PI Sta 14+92.36 $\Delta = 81^\circ 28' 59.0''$ (LT) D = 24' 54' 40.4" L = 327.09' T = 198.12' R = 230.00'	PI Sta 19+11.99 $\Delta = 68^\circ 44' 58.0''$ (RT) D = 24' 54' 40.4" L = 275.98' T = 157.34' R = 230.00' SE = SEE PLANS
--	--

-Y28-

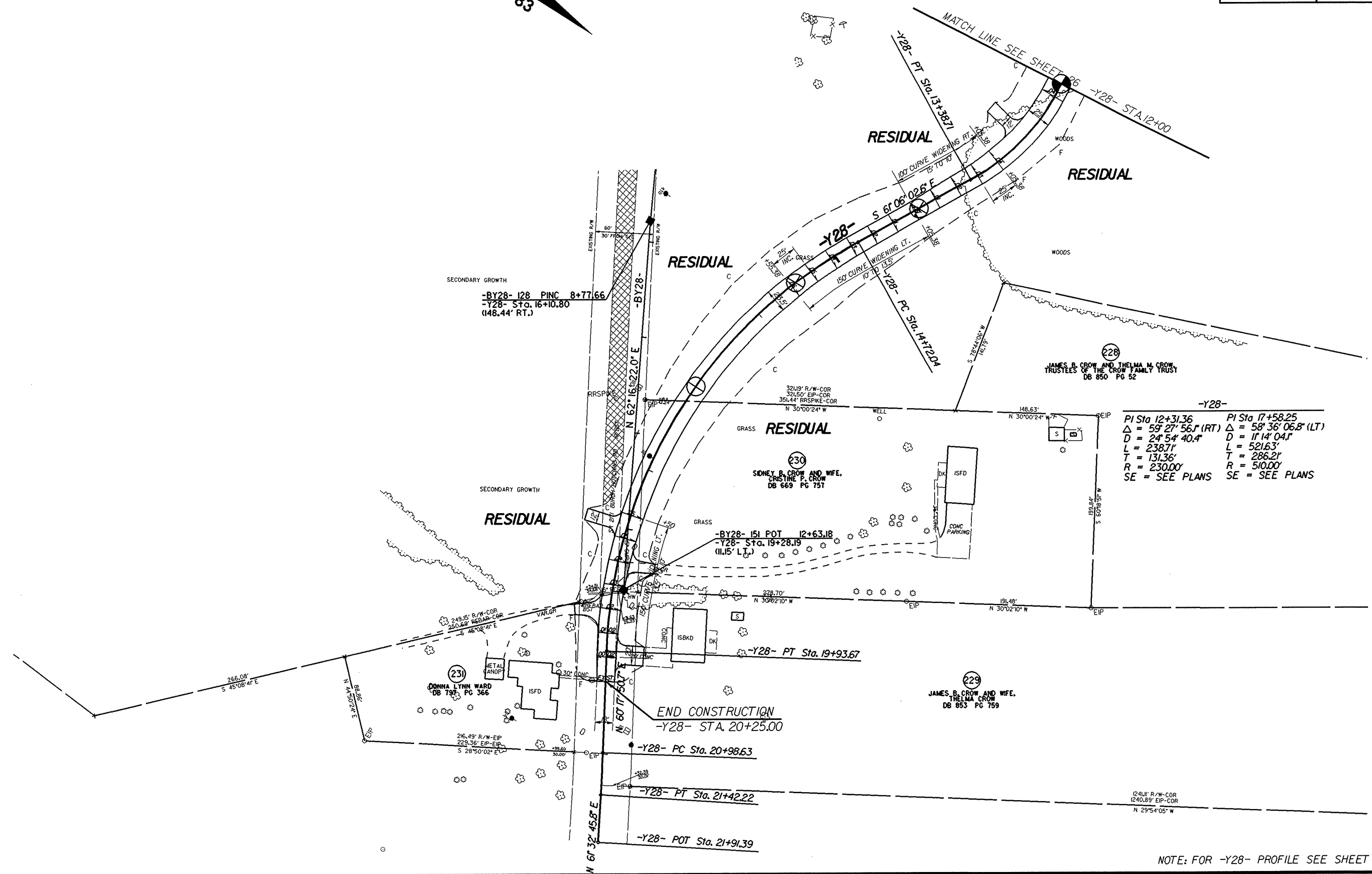
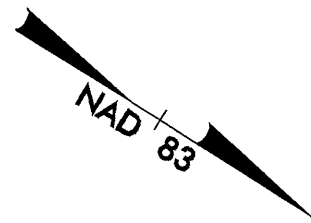
PI Sta 12+31.36 $\Delta = 59^\circ 27' 56.1''$ (RT) D = 24' 54' 40.4" L = 238.71' T = 131.36' R = 230.00'	PI Sta 17+58.25 $\Delta = 58^\circ 36' 06.8''$ (LT) D = 11' 14' 04.1" L = 521.63' T = 286.21' R = 510.00'
--	--

NOTE: FOR -DET- PROFILE SEE SHEET NO.39  
FOR -Y27TEMP- PROFILE SEE SHEET NO.47

8/17/99

23-FEB-2007 11:11  
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PROJECT REFERENCE NO. R-2233AB	SHEET NO. 27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



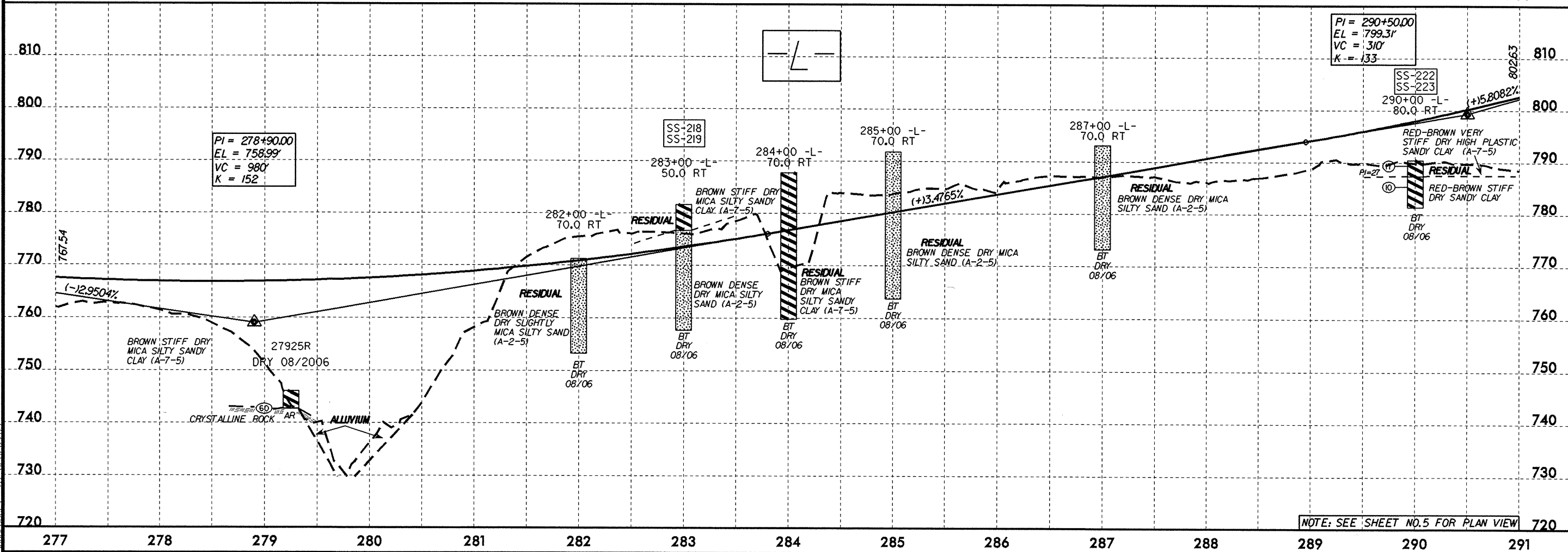
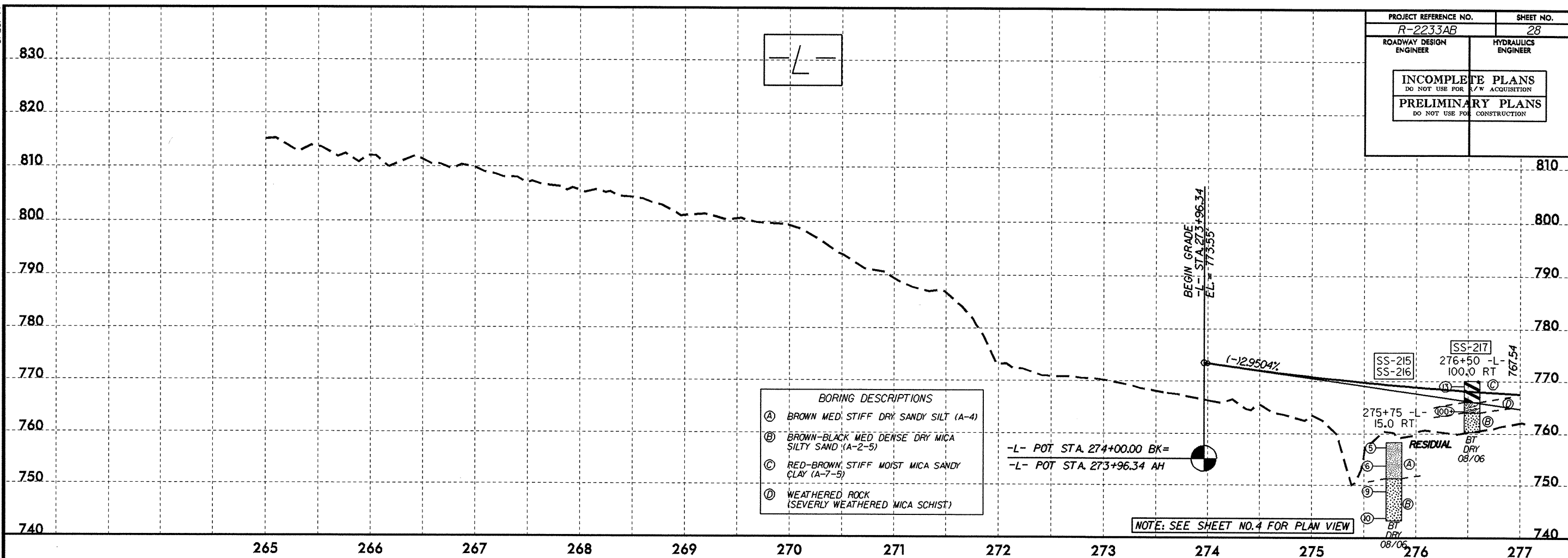
-Y28-

PI Sta 12+31.36	PI Sta 17+58.25
$\Delta = 59^{\circ}27'56.1"$ (RT)	$\Delta = 58^{\circ}36'06.8"$ (LT)
D = 24'54"40.4"	D = 11'14"04.1"
L = 238.71'	L = 521.63'
T = 131.36'	T = 286.21'
R = 230.00'	R = 510.00'
SE = SEE PLANS	SE = SEE PLANS

NOTE: FOR -Y28- PROFILE SEE SHEET NO.47

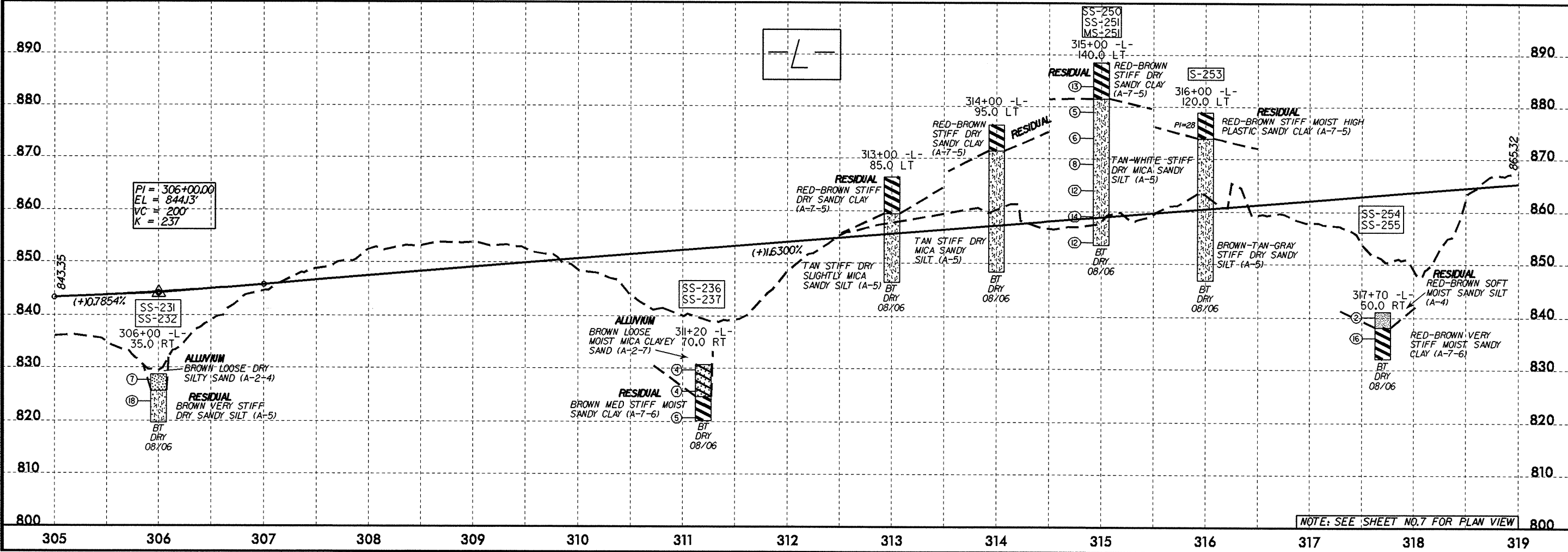
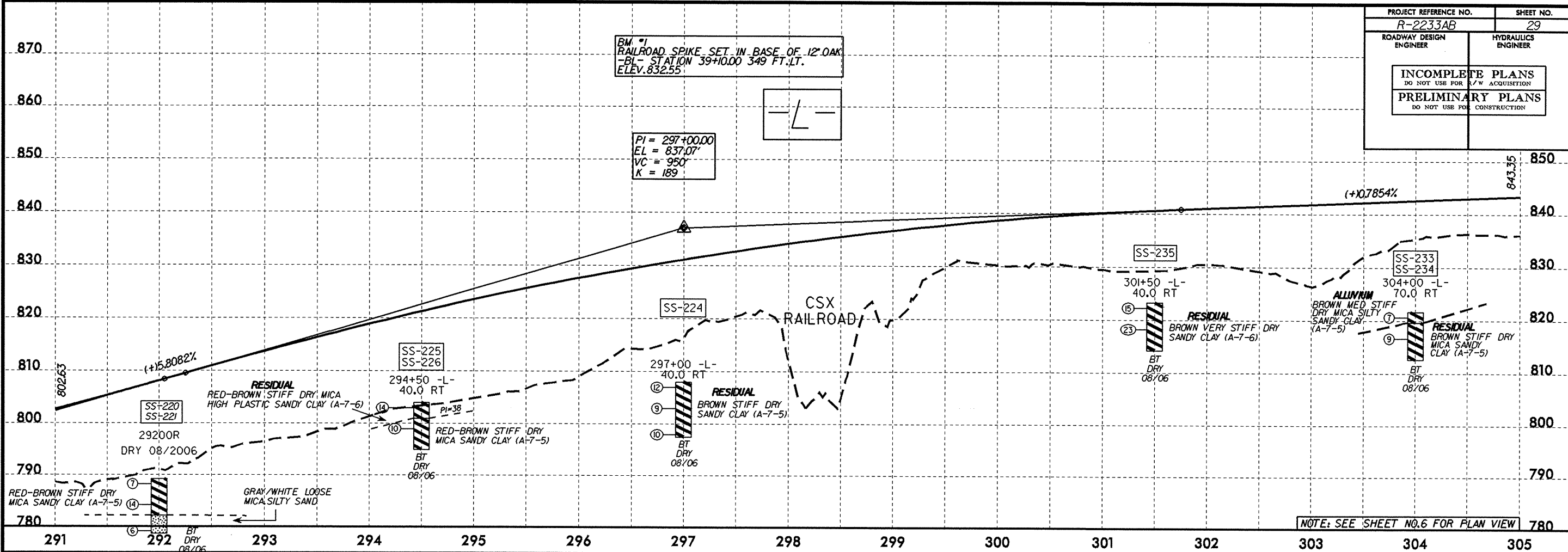
5/28/99  
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PROJECT REFERENCE NO. R-2233AB	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR E/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



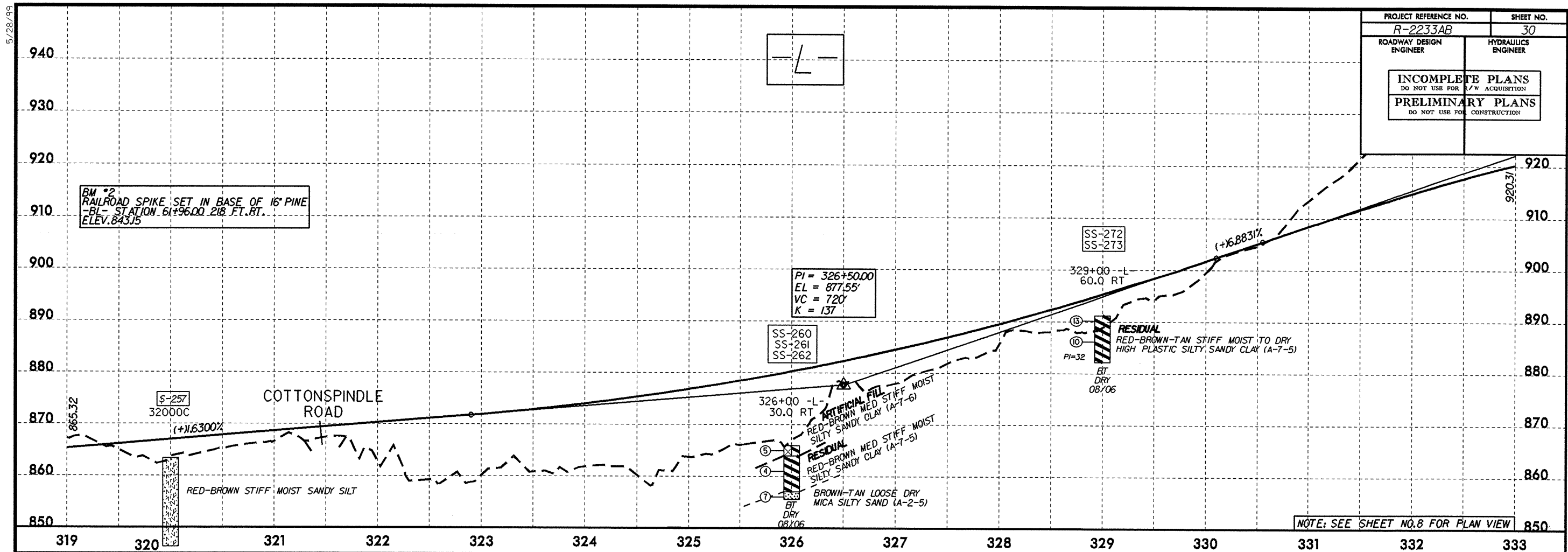
5/28/99

PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>29</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

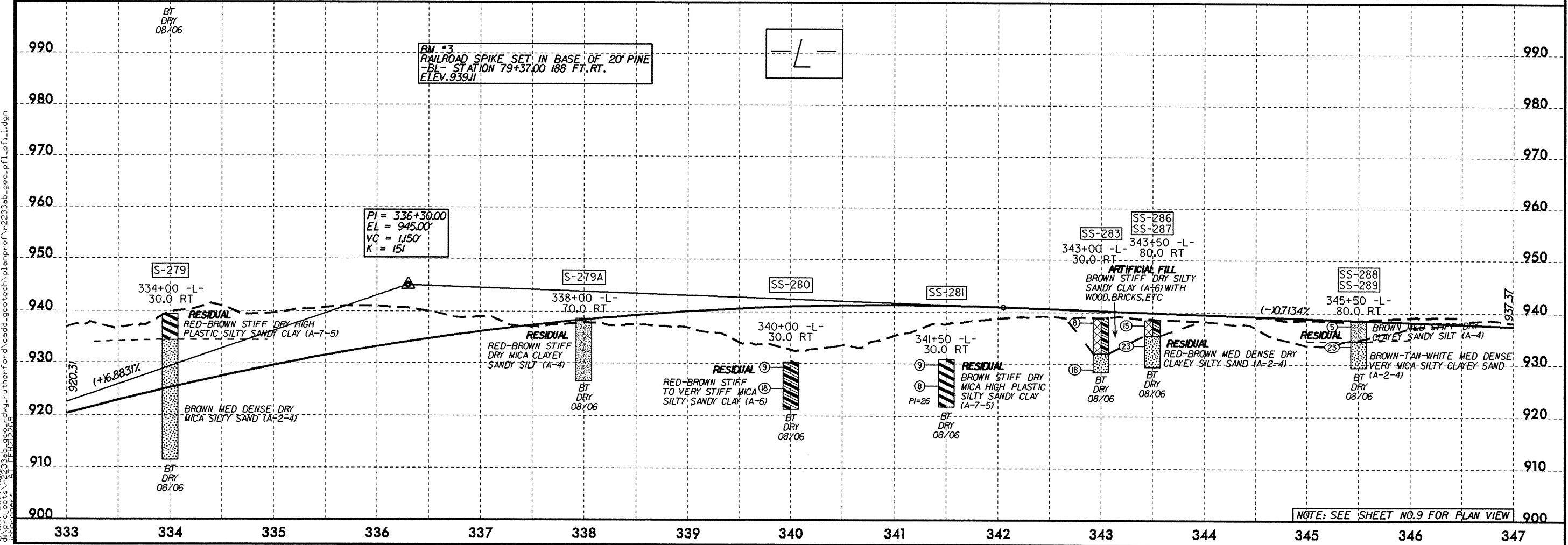


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PROJECT REFERENCE NO. R-2233AB	SHEET NO. 30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



NOTE: SEE SHEET NO.8 FOR PLAN VIEW



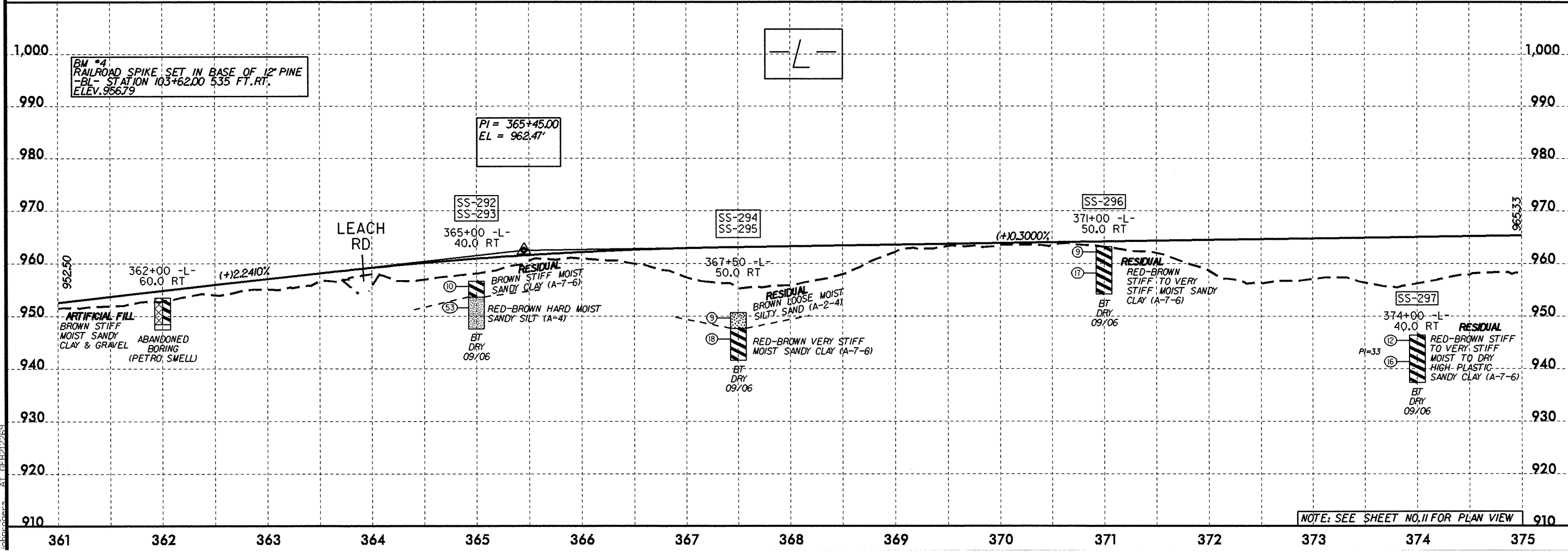
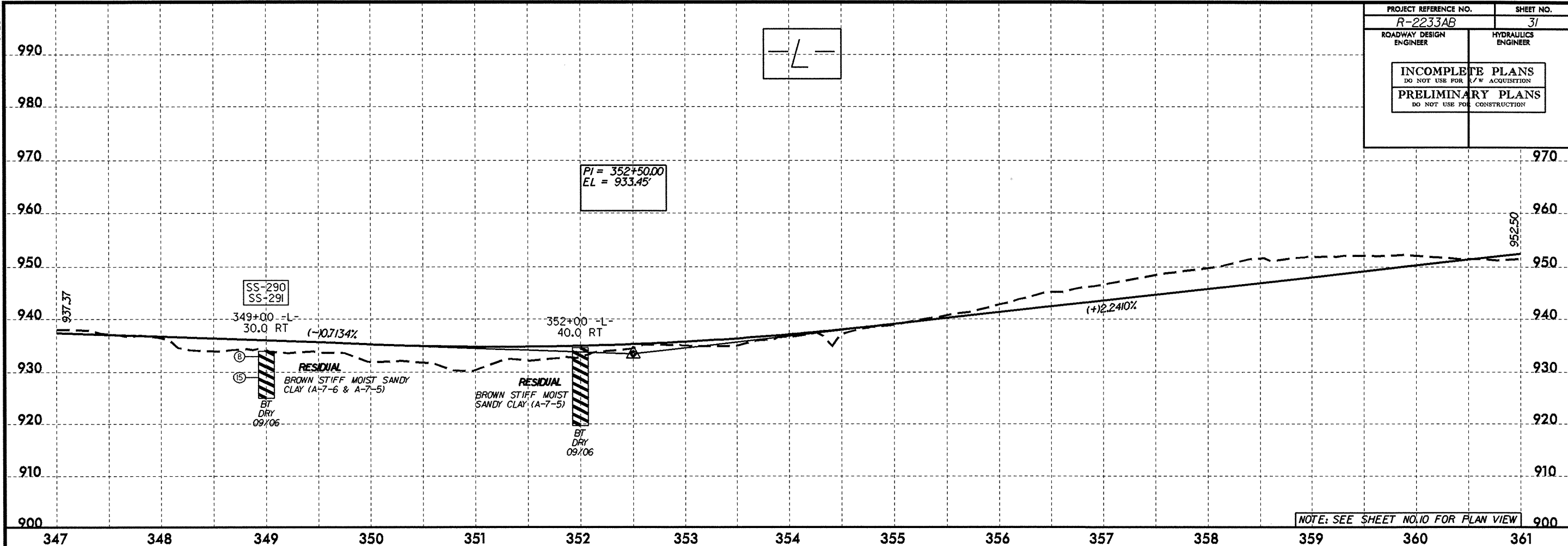
NOTE: SEE SHEET NO.9 FOR PLAN VIEW

5/28/99  
 01 MAY 2007 10:10  
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5/28/99

30-JUL-2007 10:58:33AB GEO\_BDWY\_Rutherford-for-d\CADD\_GEO\TECH\Plan\Prof\Y-2233ab-geo-pf1-l.dgn

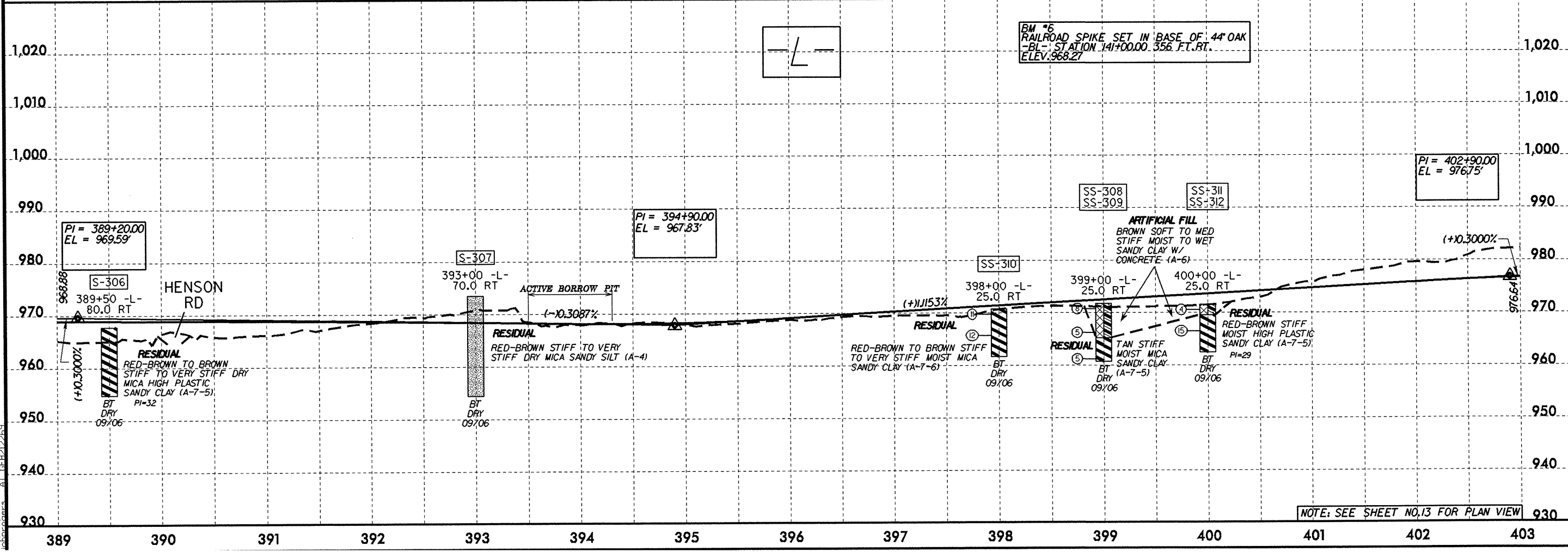
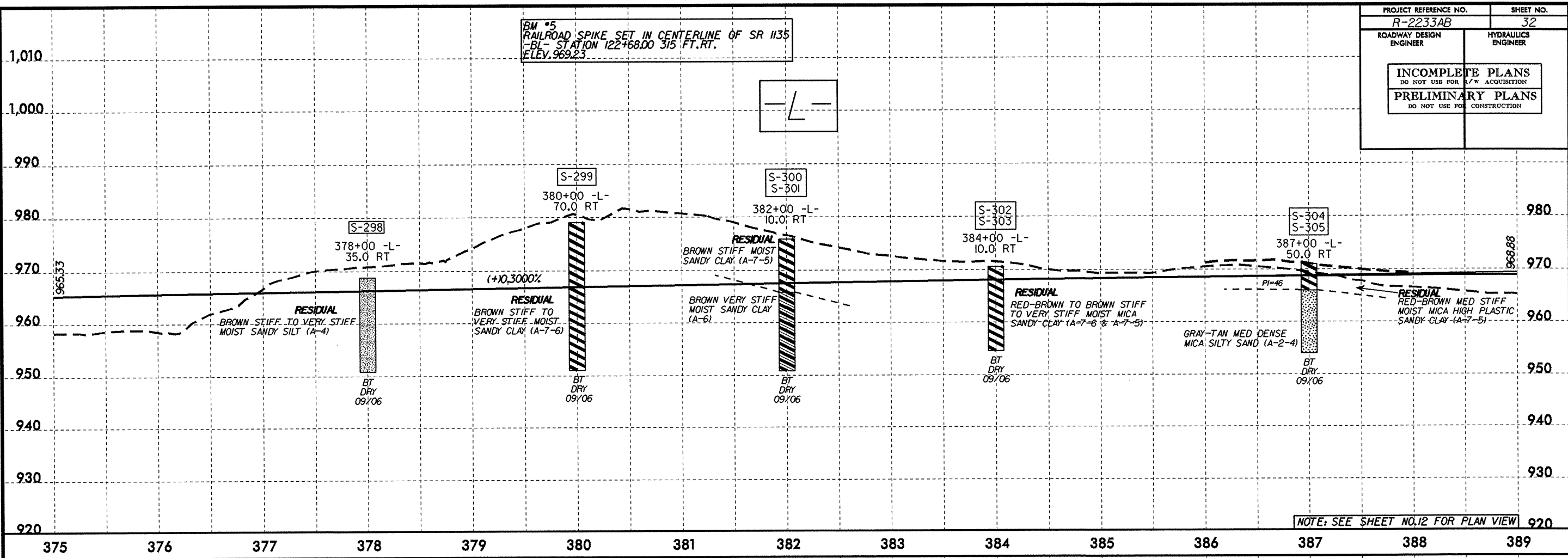
PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>31</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	





5/28/09  
30-JUL-2007 10:29 AM  
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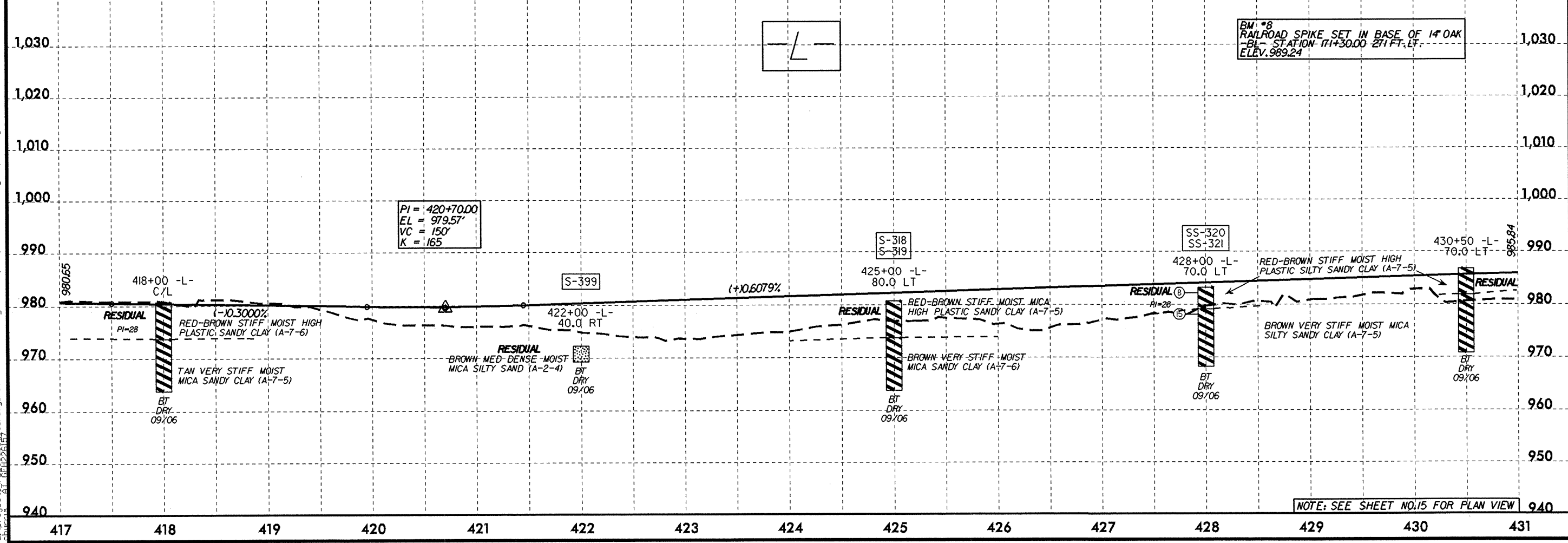
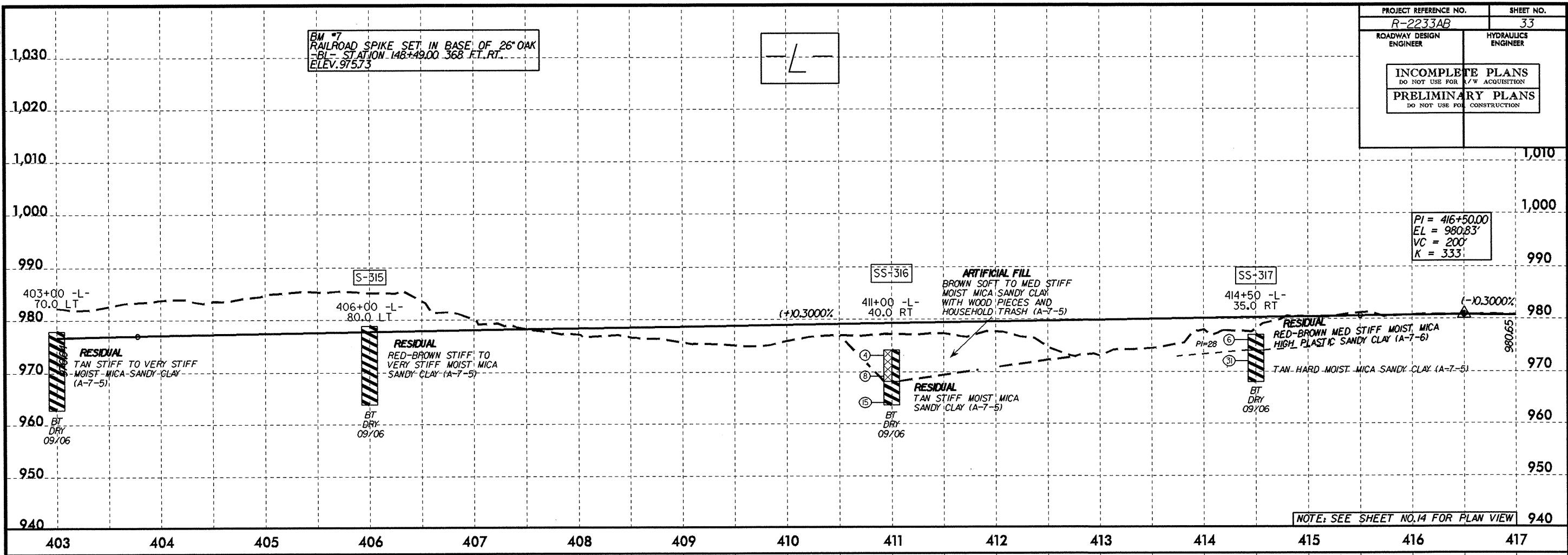
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



5/28/99

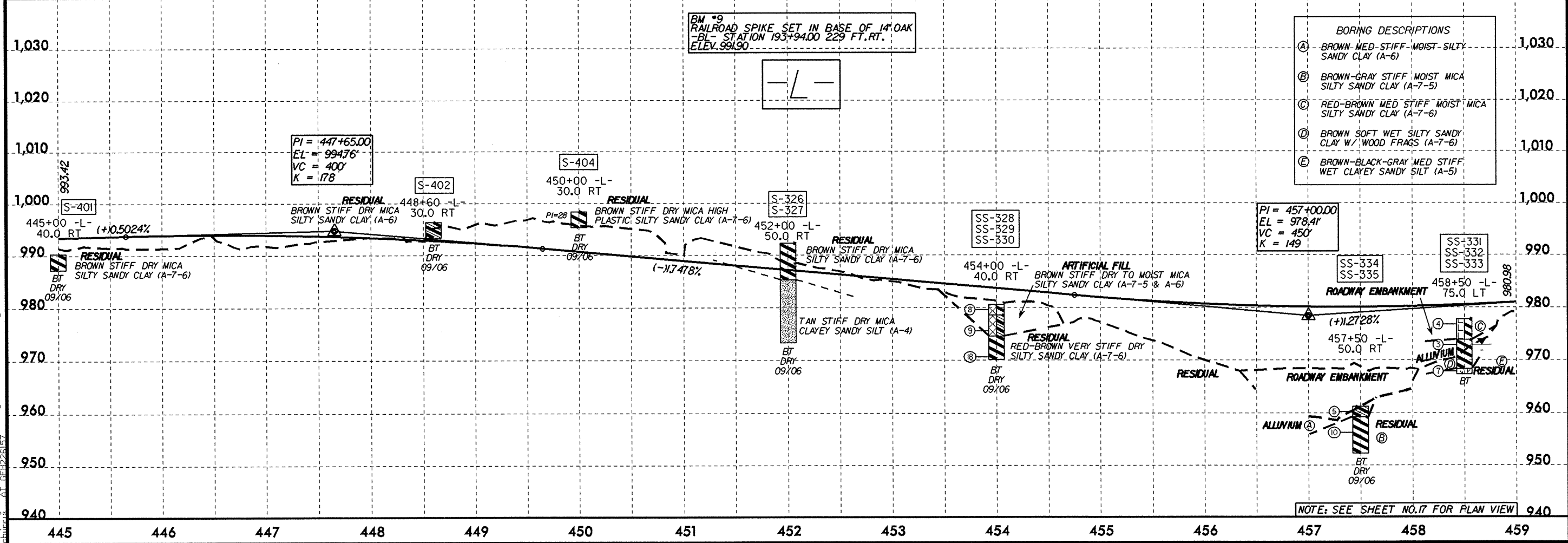
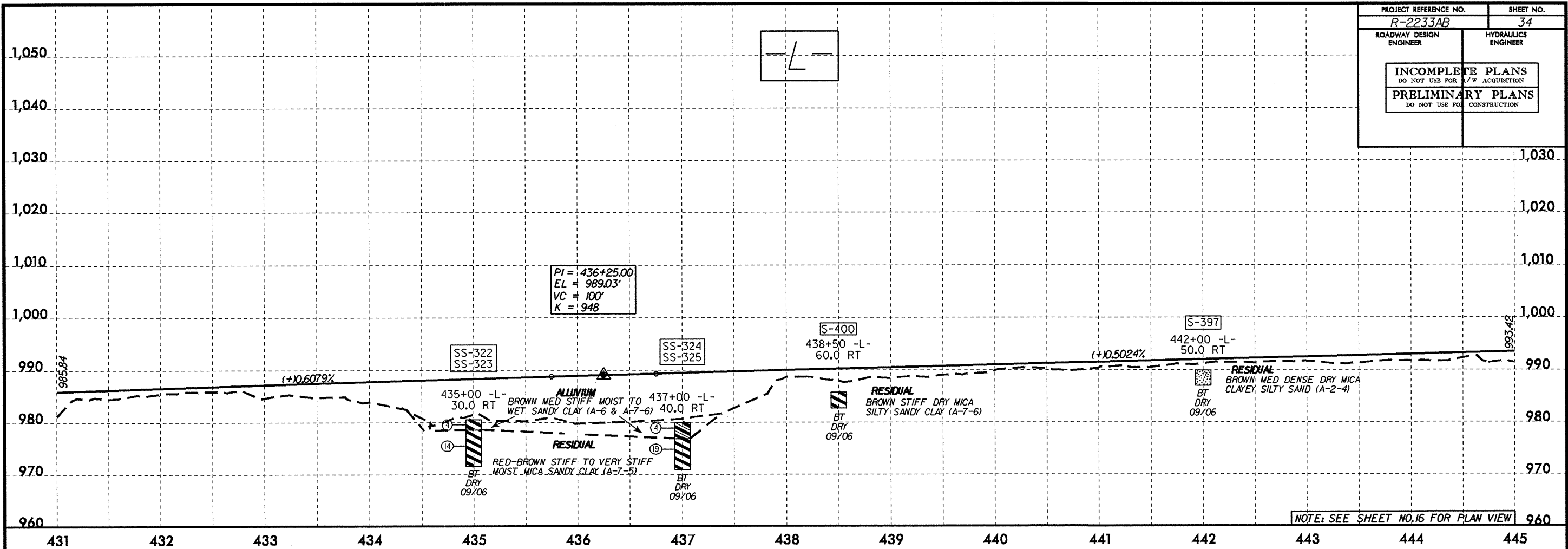
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PROJECT REFERENCE NO. R-2233AB	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



5/28/99  
 20-FEB-2007 15:23:33 h:\geo\_rdw\ruetherford\cadd\proj\2233ab\geo-pfl1.dgn

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



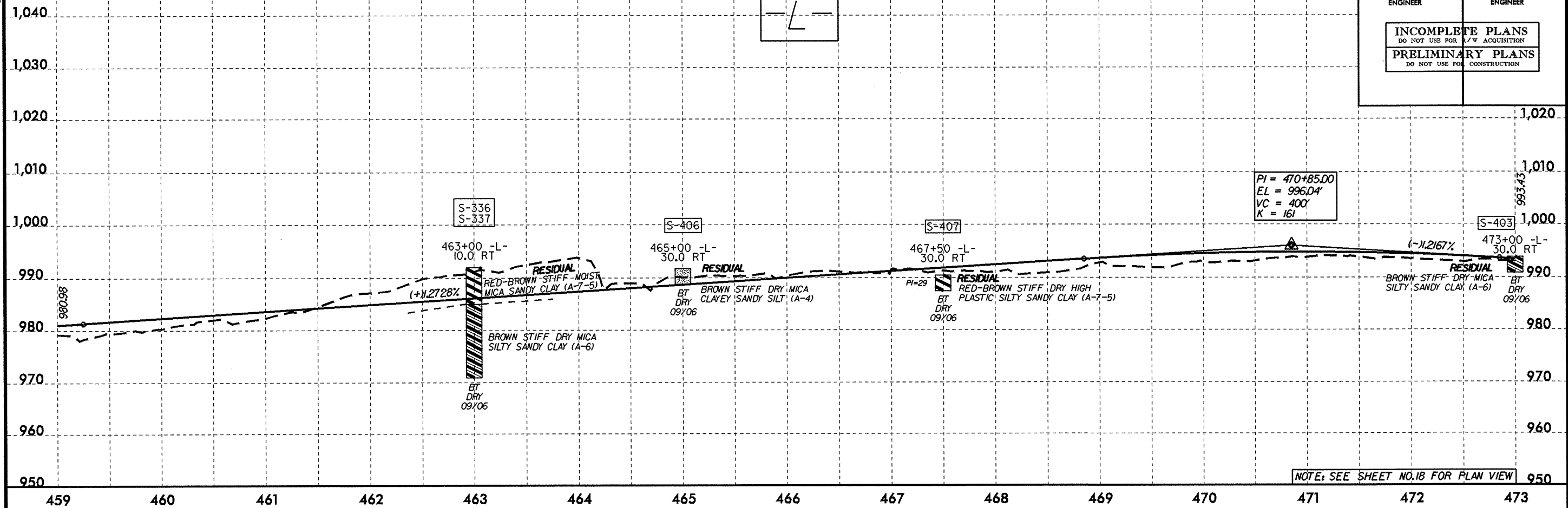
**BORING DESCRIPTIONS**

(A)	BROWN-MED STIFF-MOIST-SILTY SANDY CLAY (A-6)
(B)	BROWN-GRAY STIFF-MOIST MICA SILTY SANDY CLAY (A-7-5)
(C)	RED-BROWN MED STIFF-MOIST MICA SILTY SANDY CLAY (A-7-6)
(D)	BROWN SOFT WET SILTY SANDY CLAY W/ WOOD FRAGS (A-7-6)
(E)	BROWN-BLACK-GRAY-MED STIFF WET CLAYEY SANDY SILT (A-5)

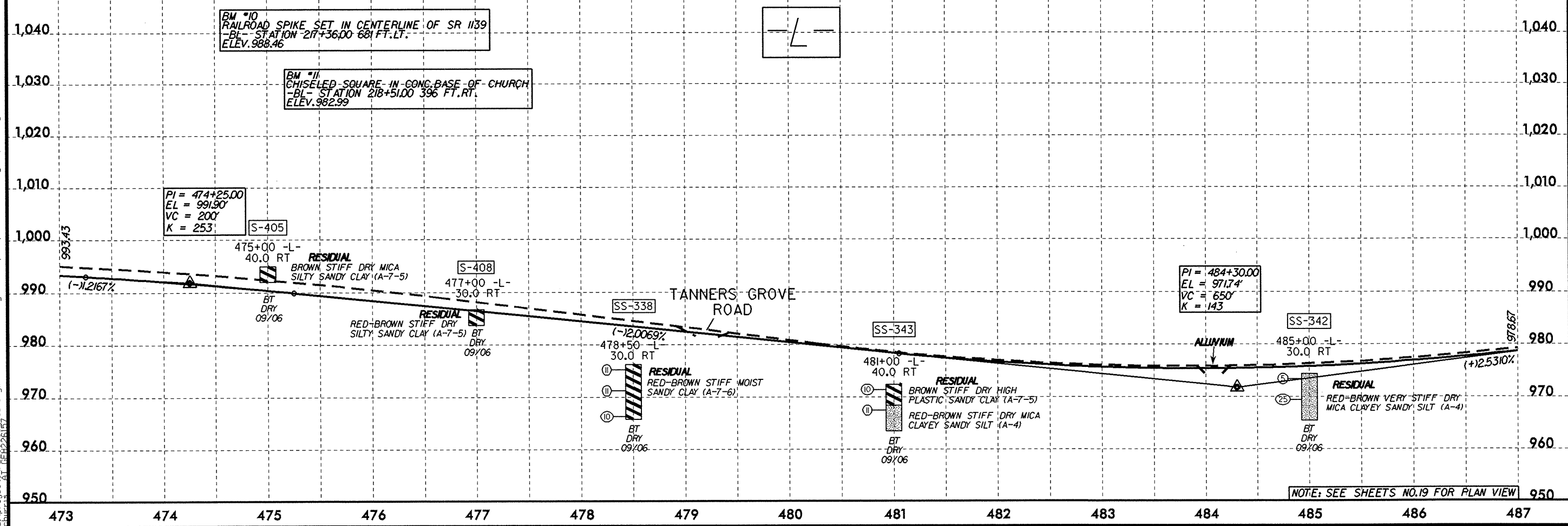
BM #9  
 RAILROAD SPIKE SET IN BASE OF 14" OAK  
 AT STATION 193+94.00 229 FT. RT.  
 ELEV. 991.90

5/28/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



NOTE: SEE SHEET NO.18 FOR PLAN VIEW



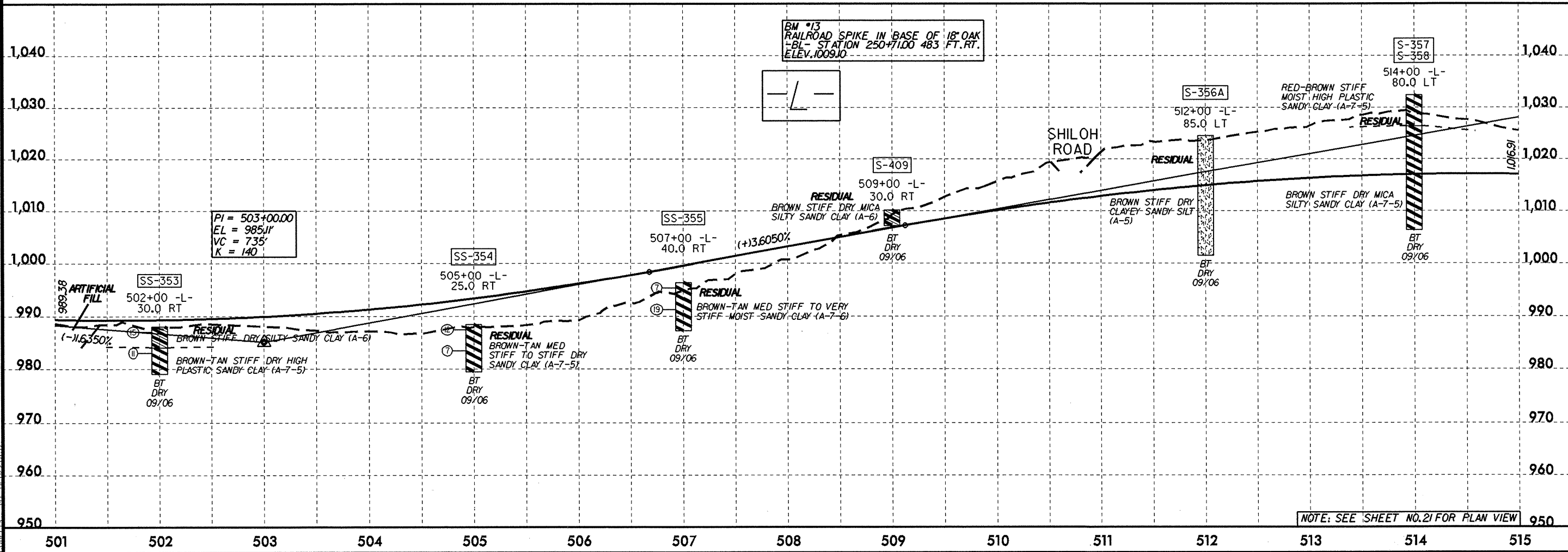
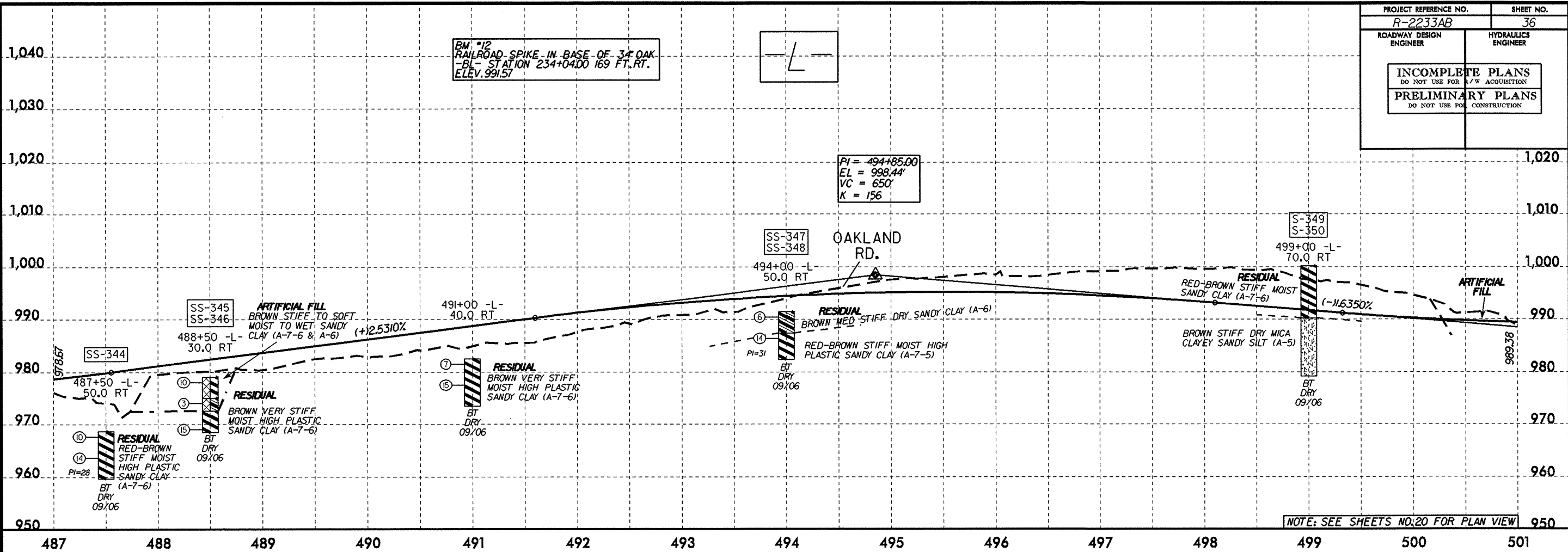
NOTE: SEE SHEETS NO.19 FOR PLAN VIEW

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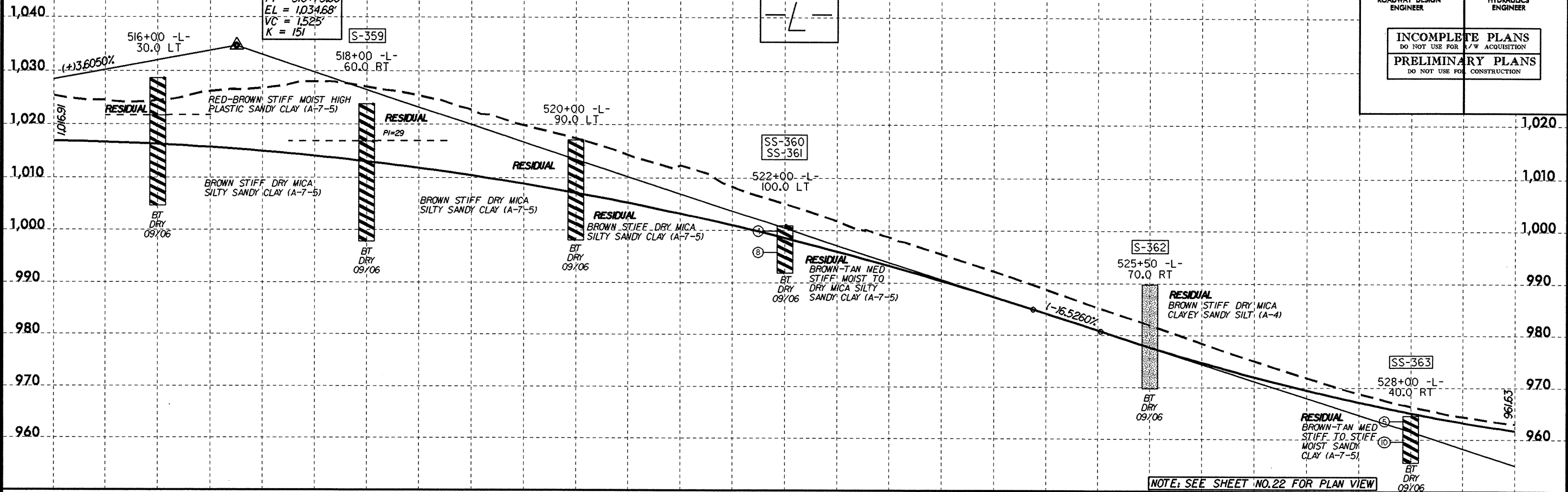
5/28/99

05-MAR-2007 10:45  
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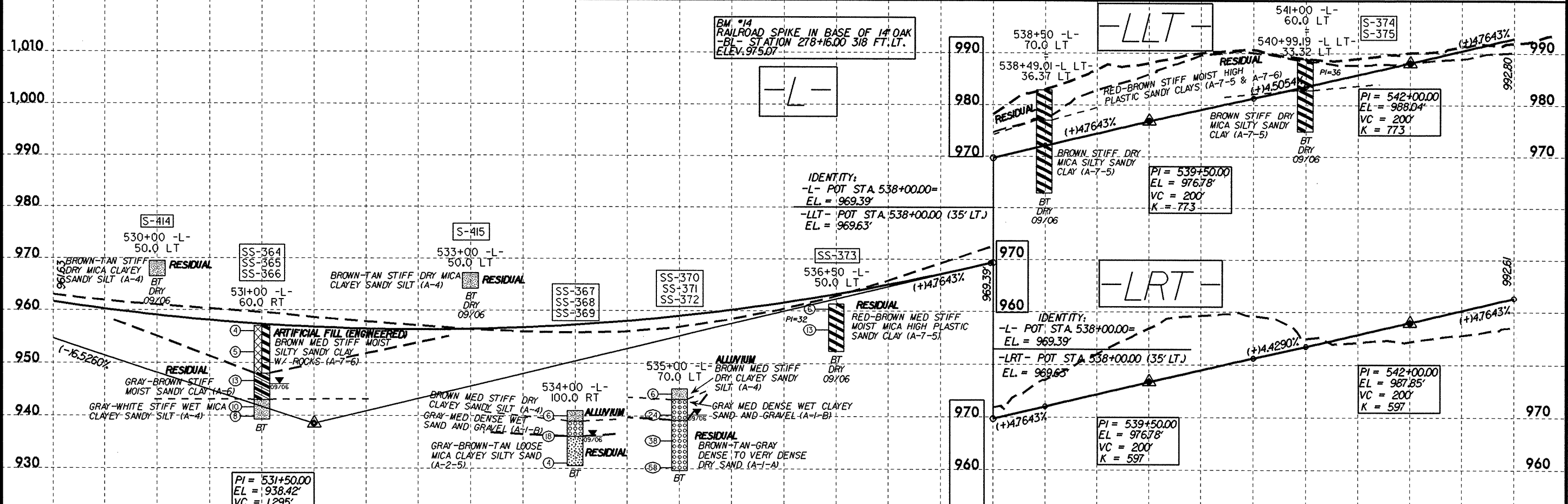
PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>36</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



5/28/99



515 516 517 518 519 520 521 522 523 524 525 526 527 528 529

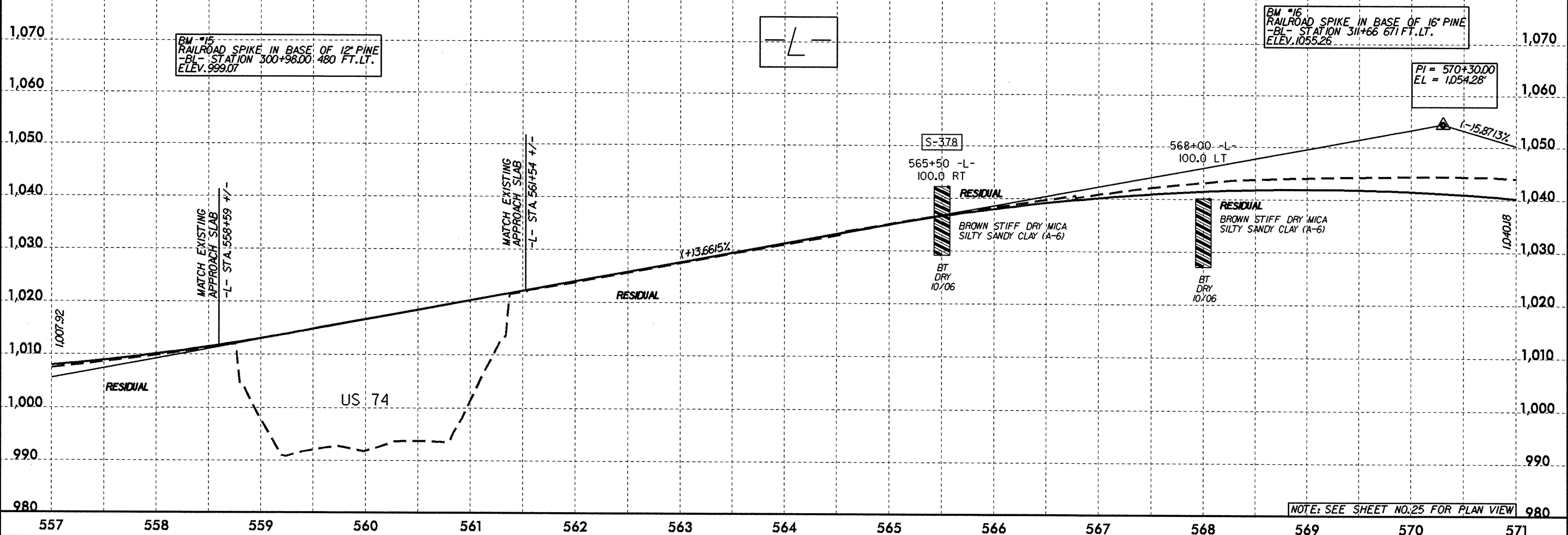
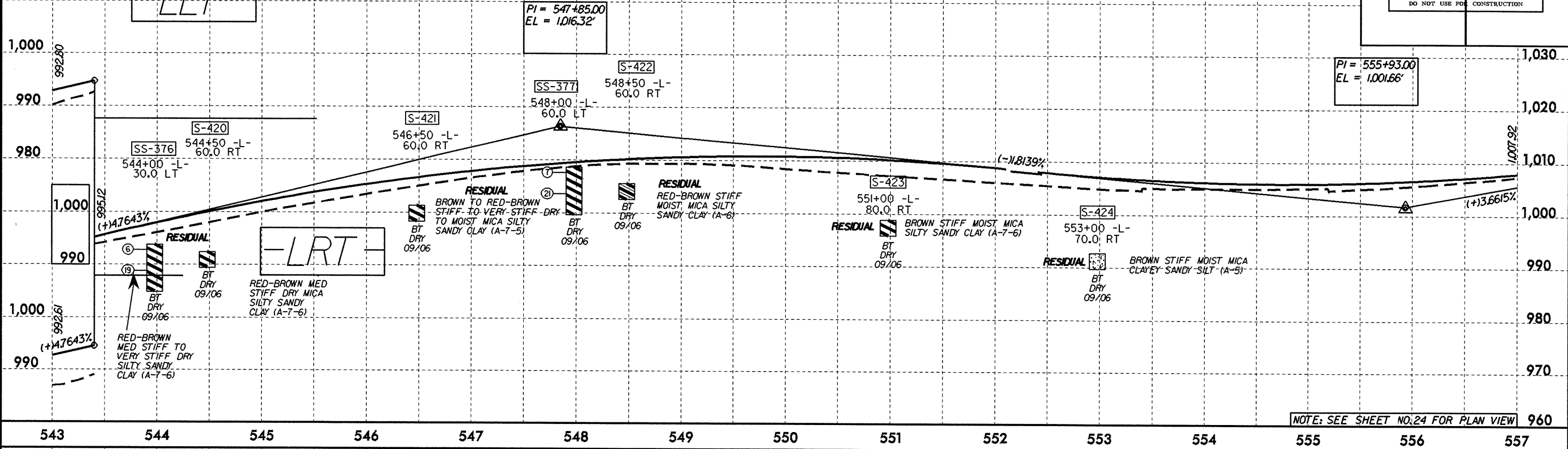


529 530 531 532 533 534 535 536 537 538 539 540 541 542 543

05-MAR-2007 09:32 gb:\proj\05001\05001.dgn

5/28/99

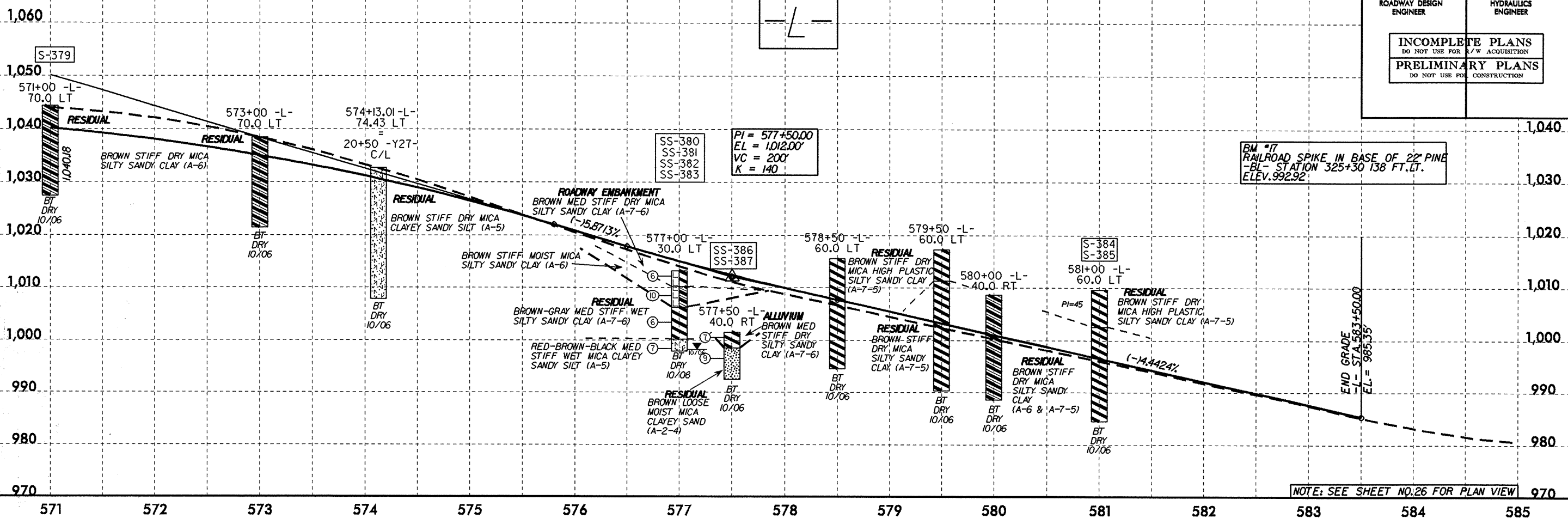
PROJECT REFERENCE NO. R-2233AB	SHEET NO. 38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Q:\MAY-2007\114\2333b\geoproc\dwg\rdwy\_rutherford\cadd\geotech\pl\mpro\p\2233ab-geo-pl-1.dgn

5/28/99

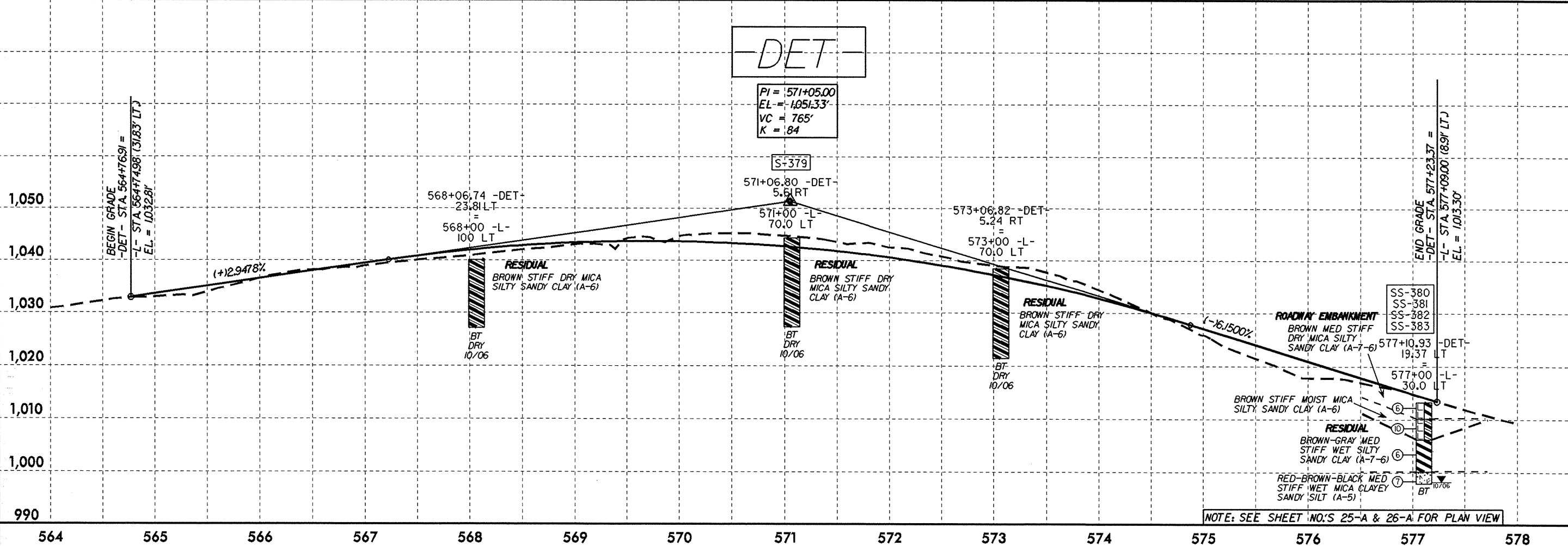
PROJECT REFERENCE NO. <b>R-2233AB</b>	SHEET NO. <b>39</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



NOTE: SEE SHEET NO. 26 FOR PLAN VIEW

# DET

PI = 571+05.00  
 EL = 1,051.33'  
 VC = 765'  
 K = 84



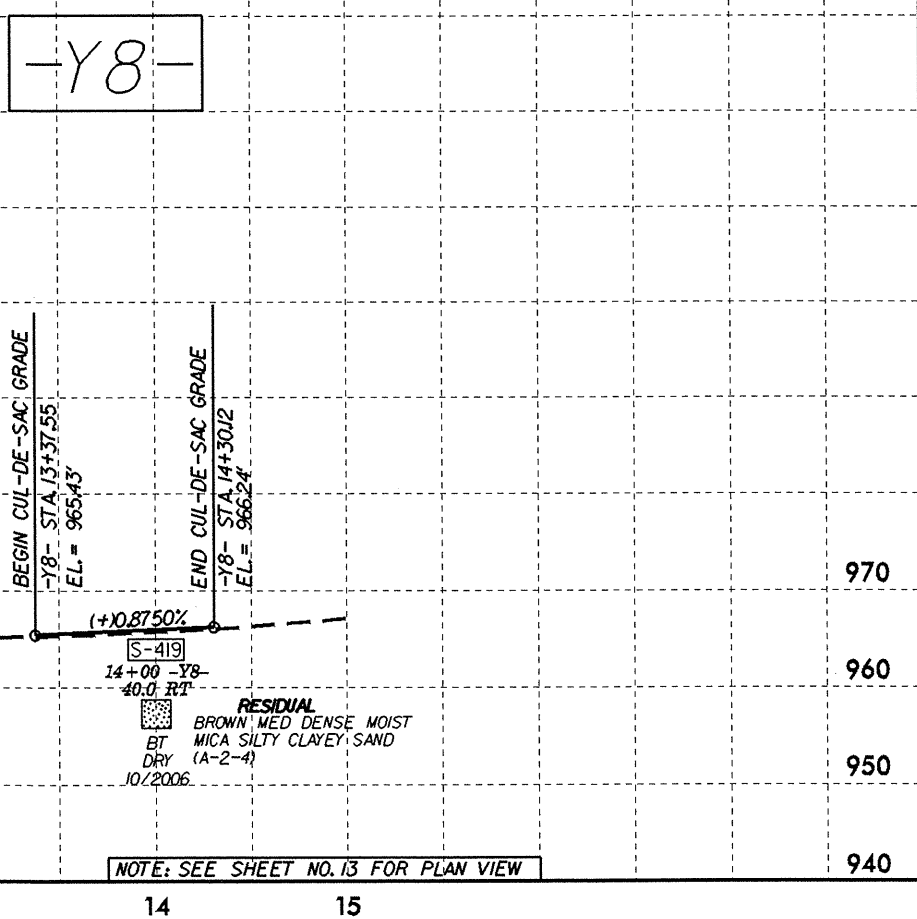
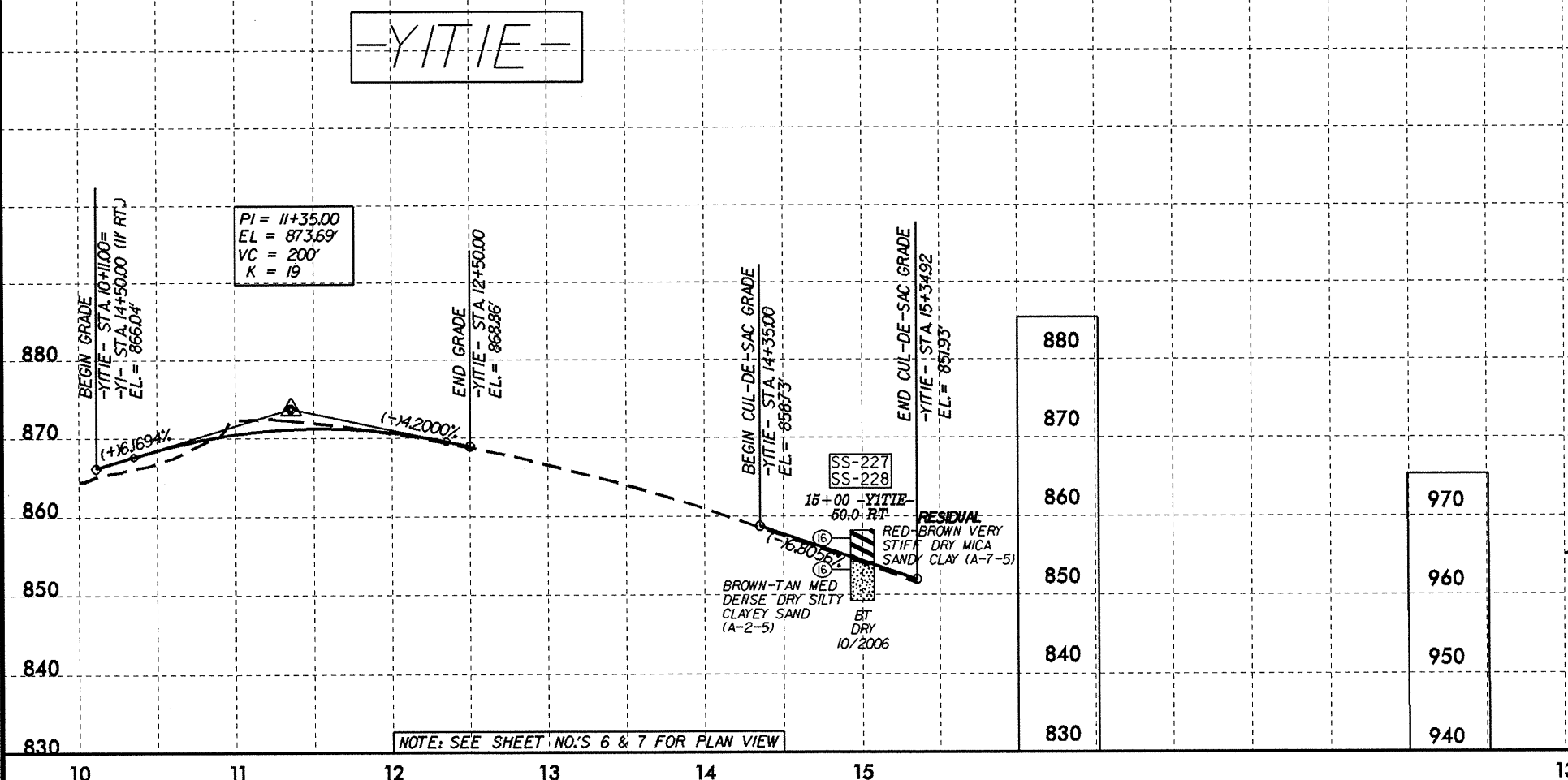
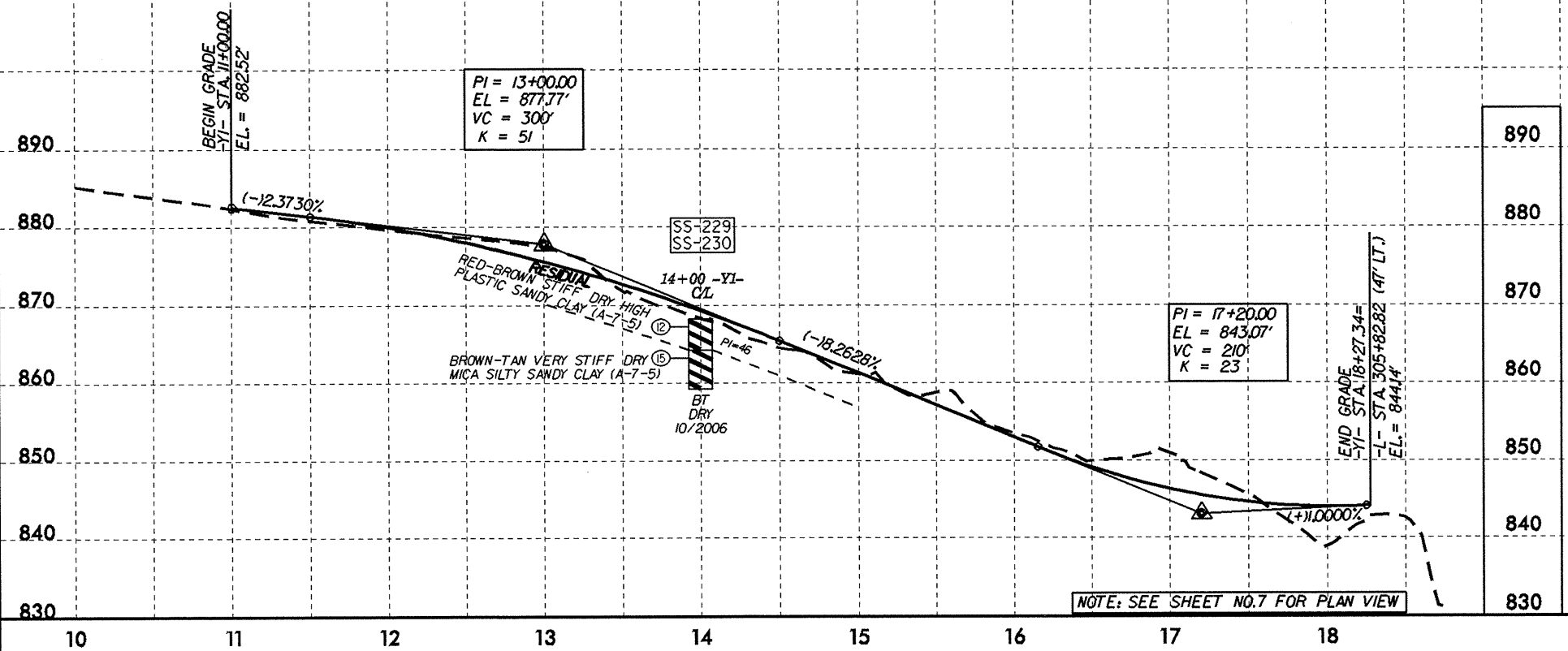
NOTE: SEE SHEET NO. S 25-A & 26-A FOR PLAN VIEW

G:\MAR-2007\_0938\h\_geo\_rdwg\_rutherford\cadd\geotech\planproj\2233ab\_geo.pfl.pfl.dgn  
 5/28/99 10:06 AM



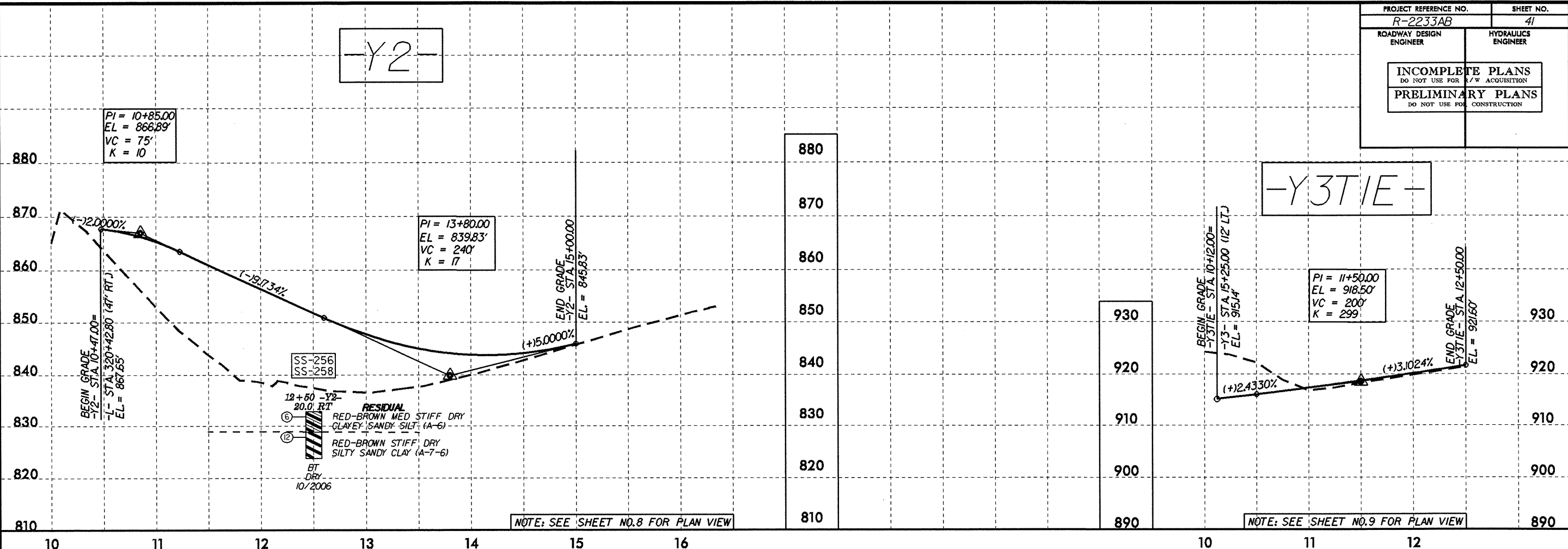
5/28/99  
 12-FEB-2007 08:29  
 C:\projects\2233ab\geo-rdwy-rutherford\cadd\geotech\planprof\2233ab\_geo-pl\_ylines.dgn  
 10/2006

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

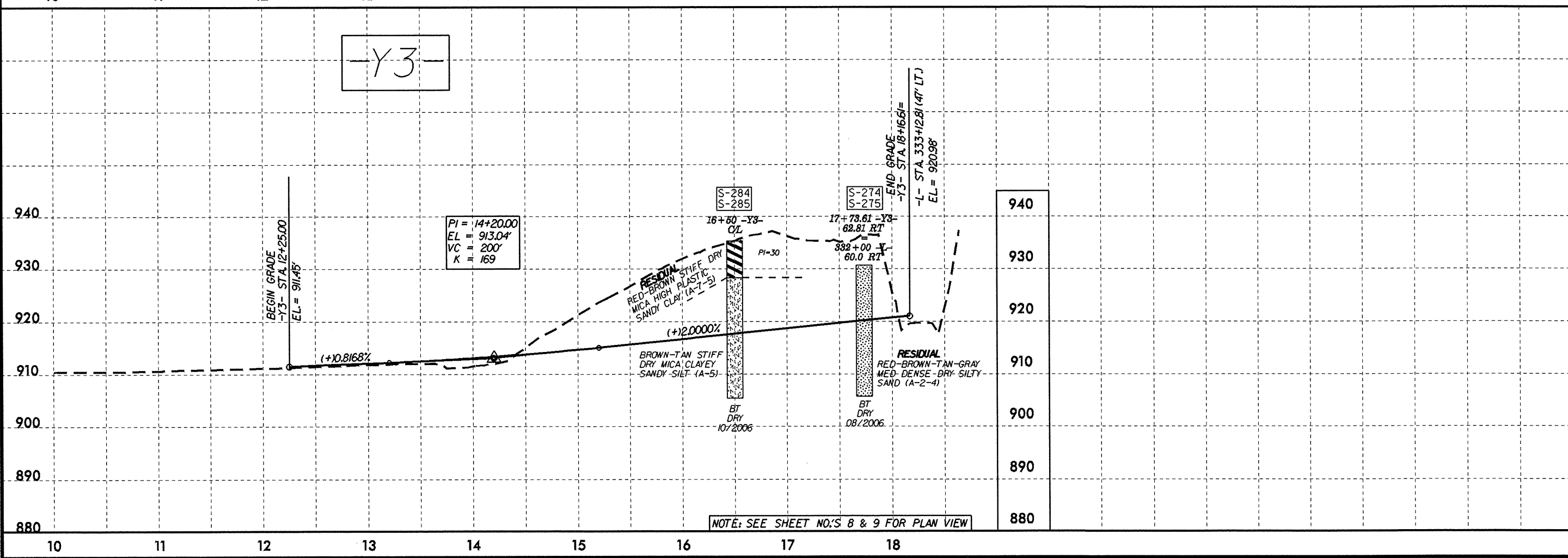


5/28/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



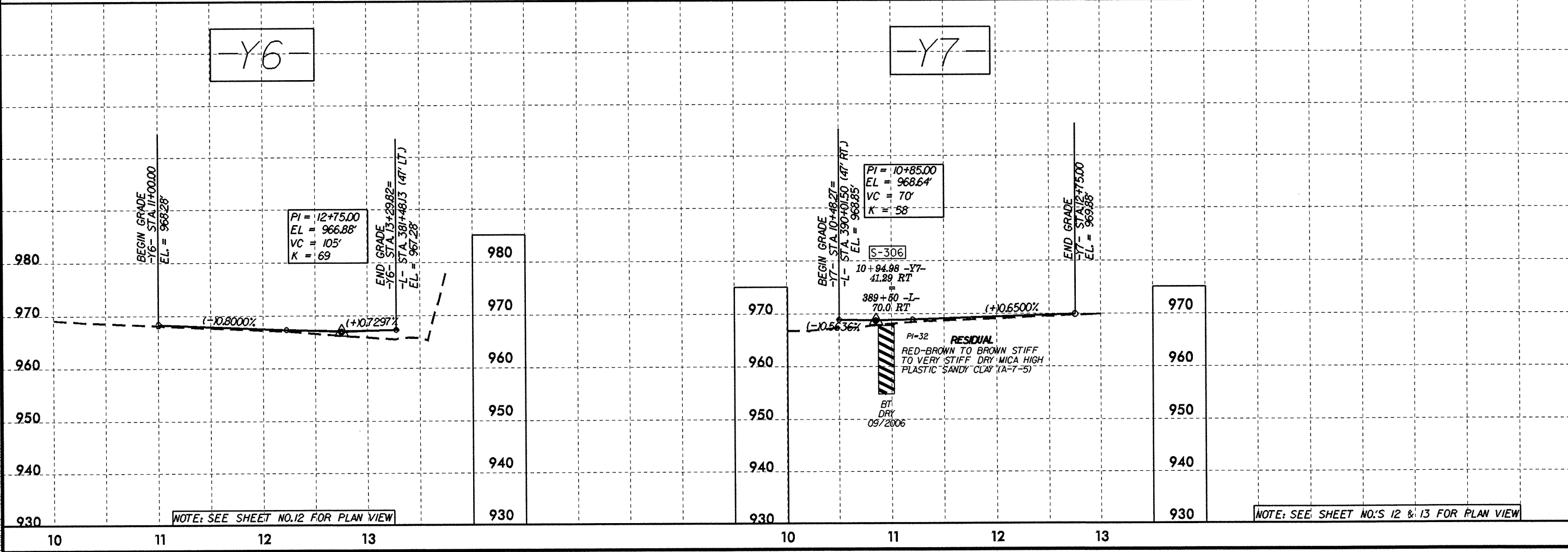
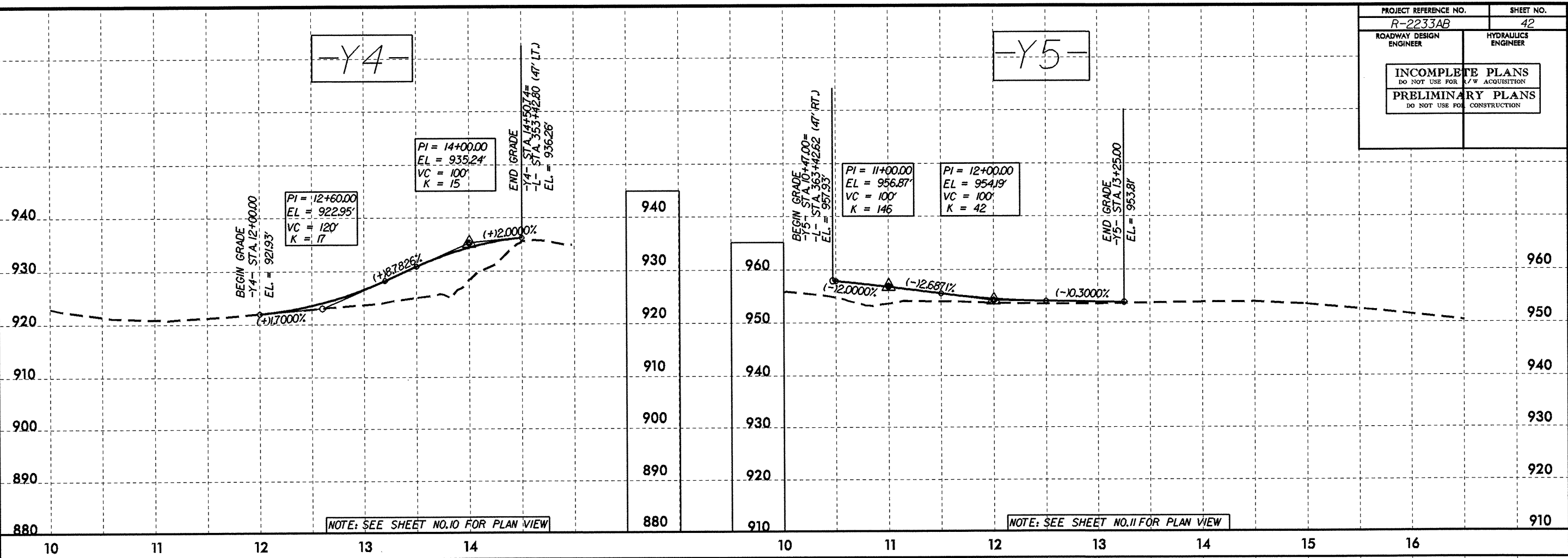
02-FEB-2007 08:32  
d:\projects\2233ab\geo-rdwy-rutherford\cadd\geotech\planprof\2233ab-geo-pfl-ylines.dgn



5/28/09

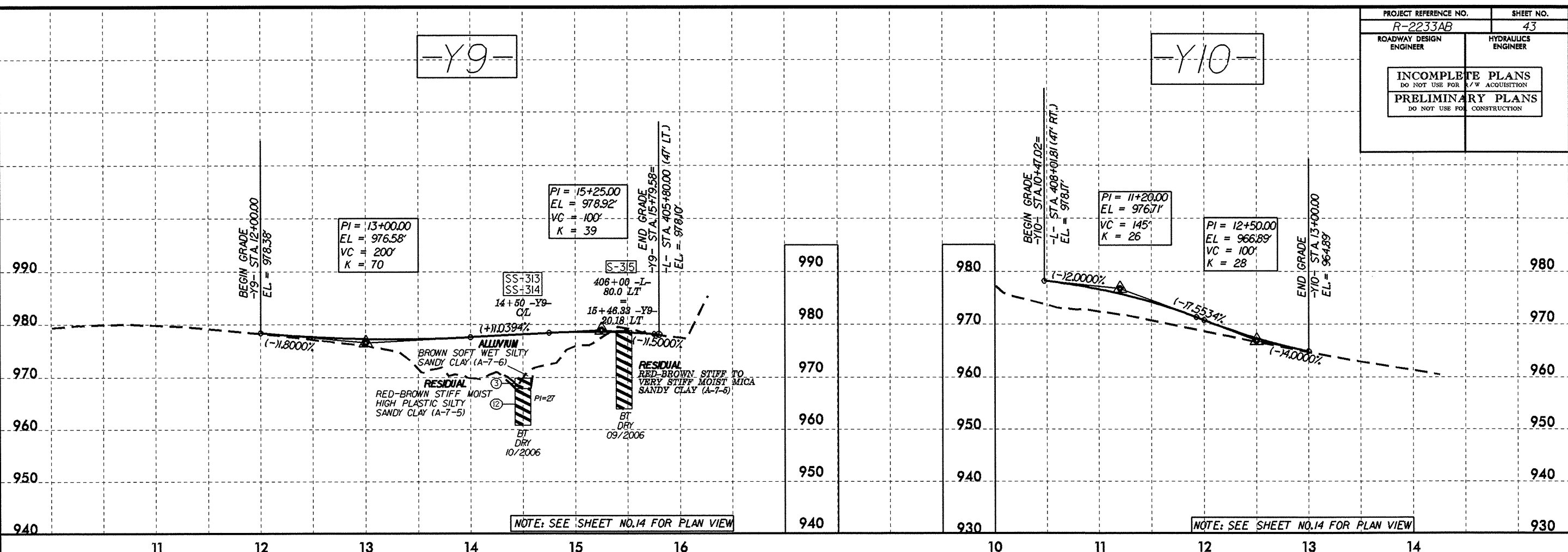
14-FEB-2007 13:19  
d:\proj\ecis\2233ab\geo\_rdwj\_ruther\ford\cadd\geotech\plan\prof\1-2233ab\_geo\_pf\_ljunes.dgn  
chris AT 11:52:57

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

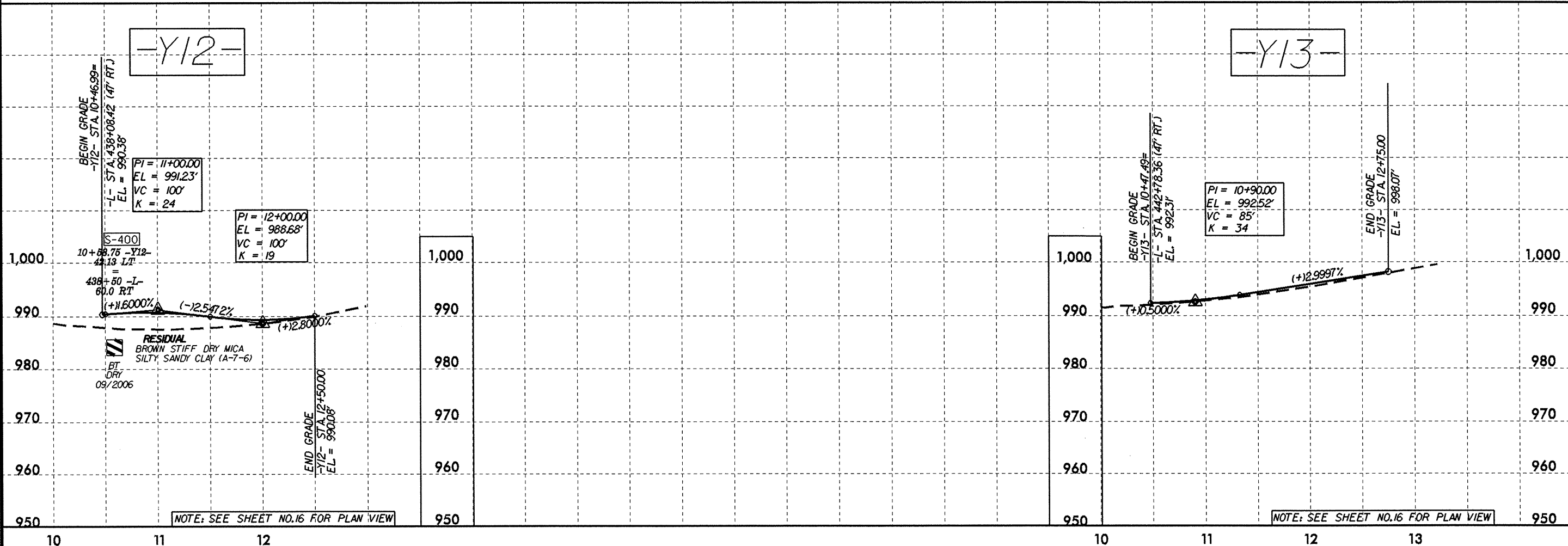


5/28/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



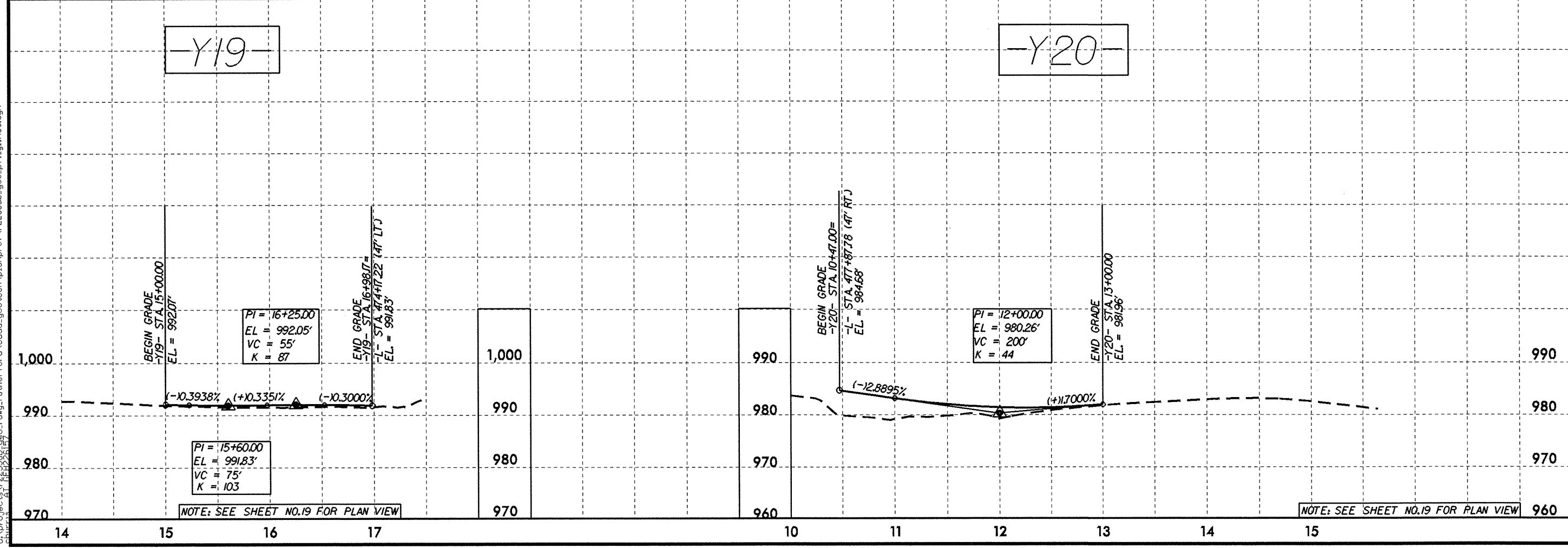
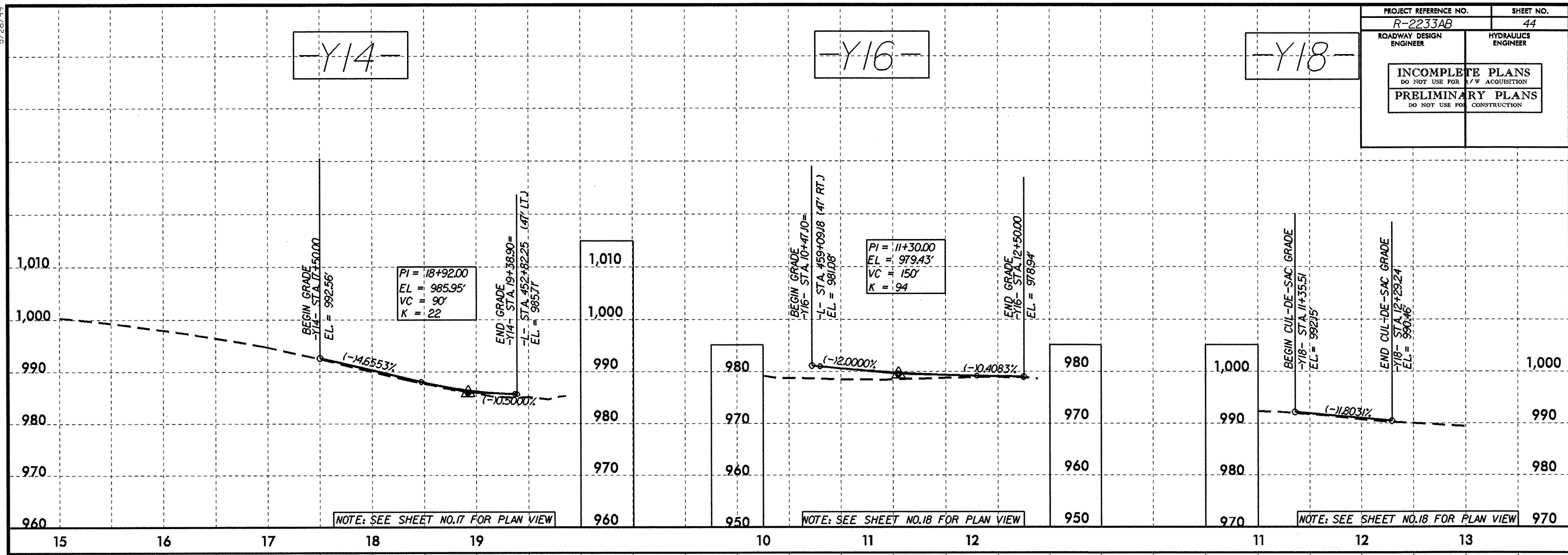
02-FEB-2007 09:37  
d:\projects\2233ab\g9-r\dwy\_rutherford\cadd\geotech\planproj\2233ab\_geo\_pf1\_lines.dgn



5/28/99

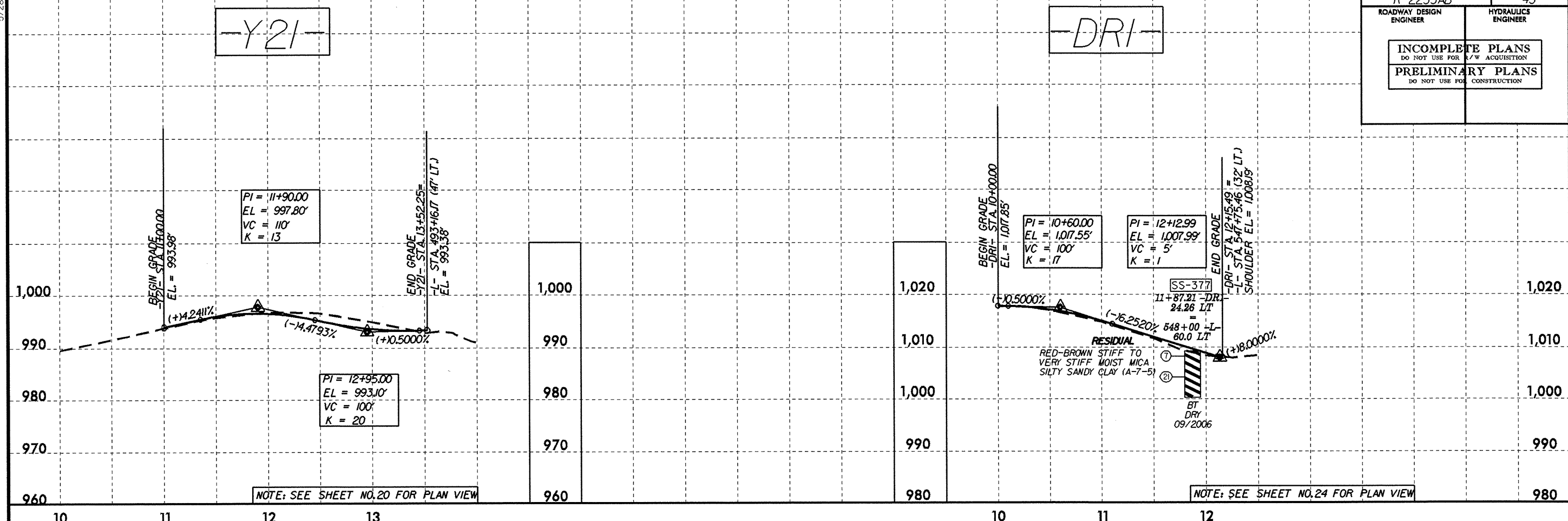
02-FEB-2007 08:38  
d:\projects\12233ab\geo\_rdw\utherford\cadd\geotech\planprof\12233ab\_geo\_pf1\_jlines.dgn

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

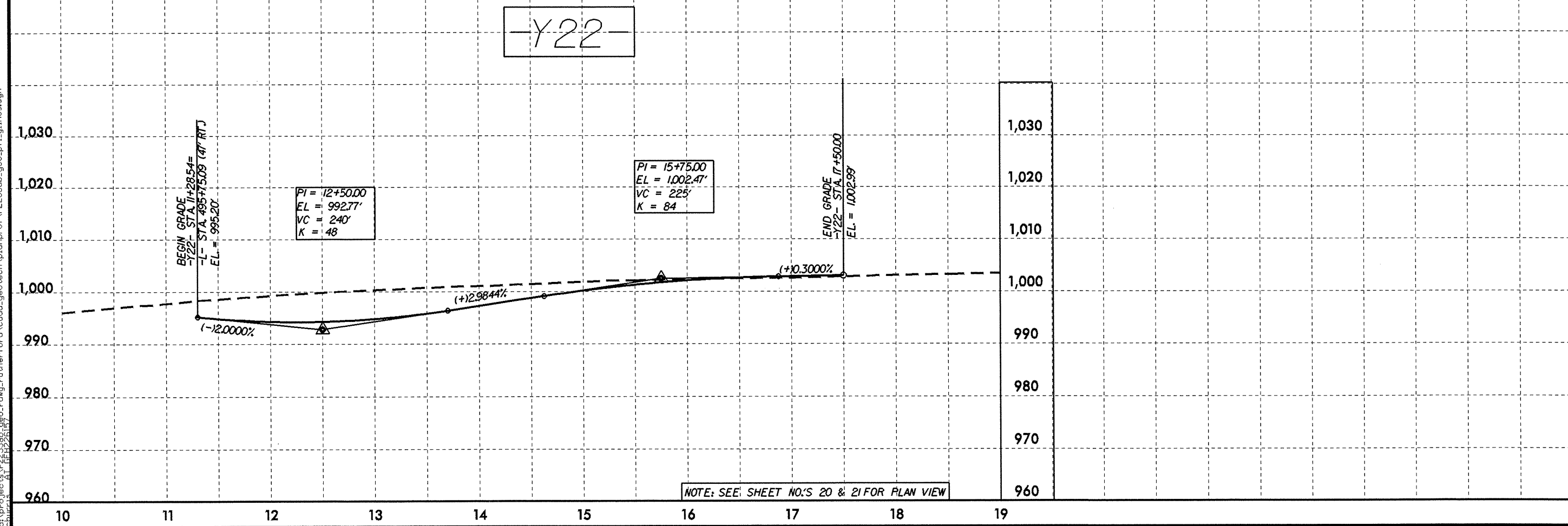


5/28/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



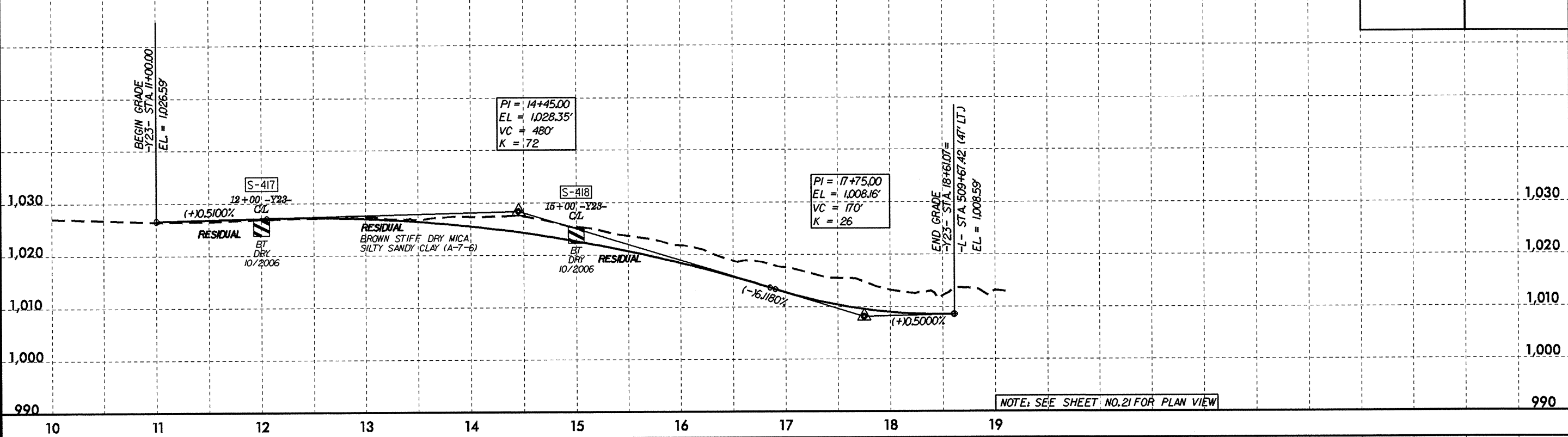
02-FEB-2007 08:47  
d:\projects\2233ab\ggo\_rdvj\_rutherford\cadd\geotech\planprof\2233ab\_geo-pl\_ljtimes.dgn



5/28/99  
 15-MAR-2007 13:47  
 I:\projects\2233ab-geo-rdwy\rdwy\_rutherford\road\geotech\plmprof\2233ab-geo-pl1.plt.glines.dgn

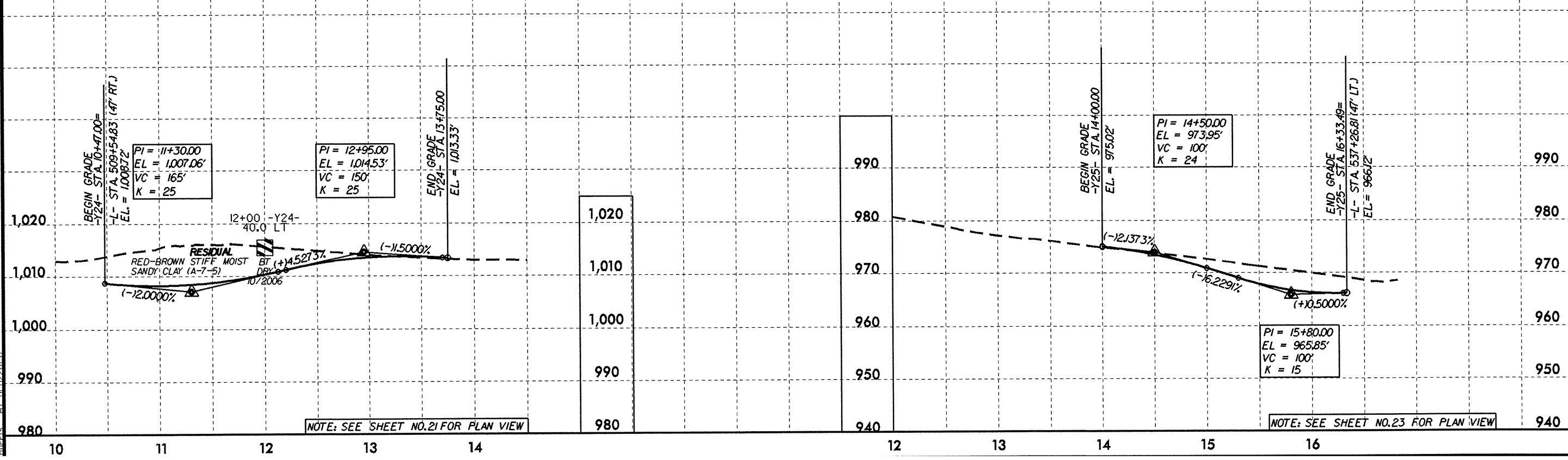
PROJECT REFERENCE NO. R-2233AB	SHEET NO. 46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

-Y23-



-Y24-

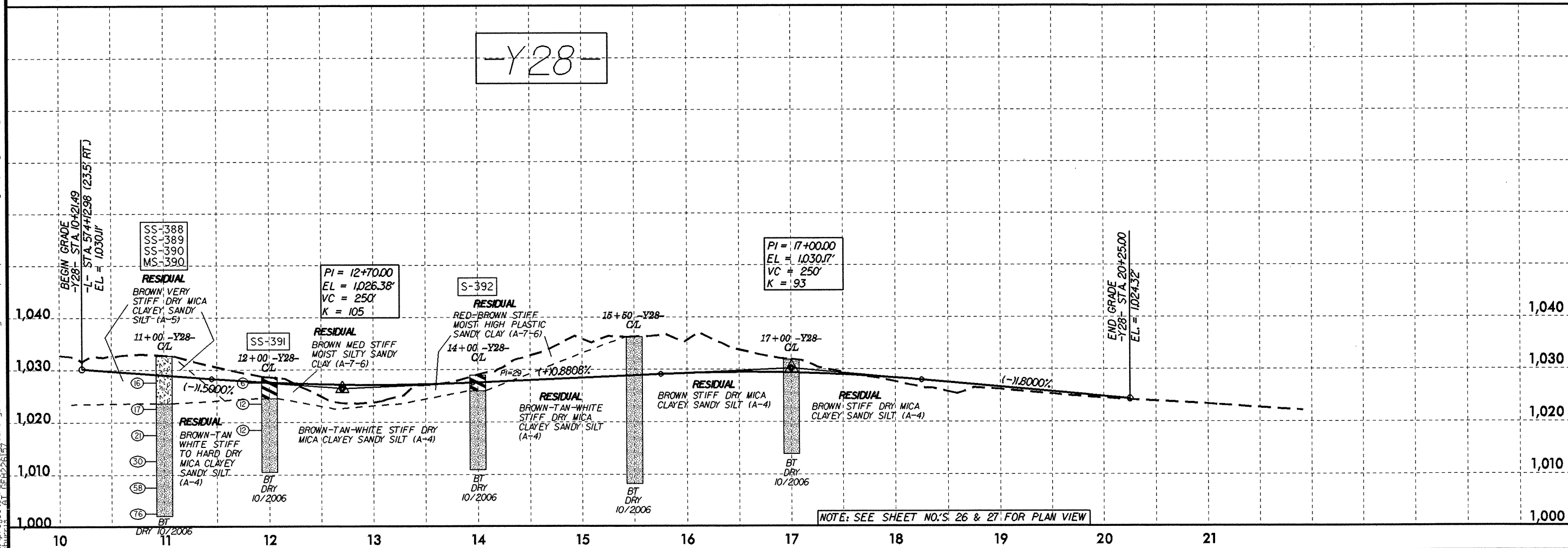
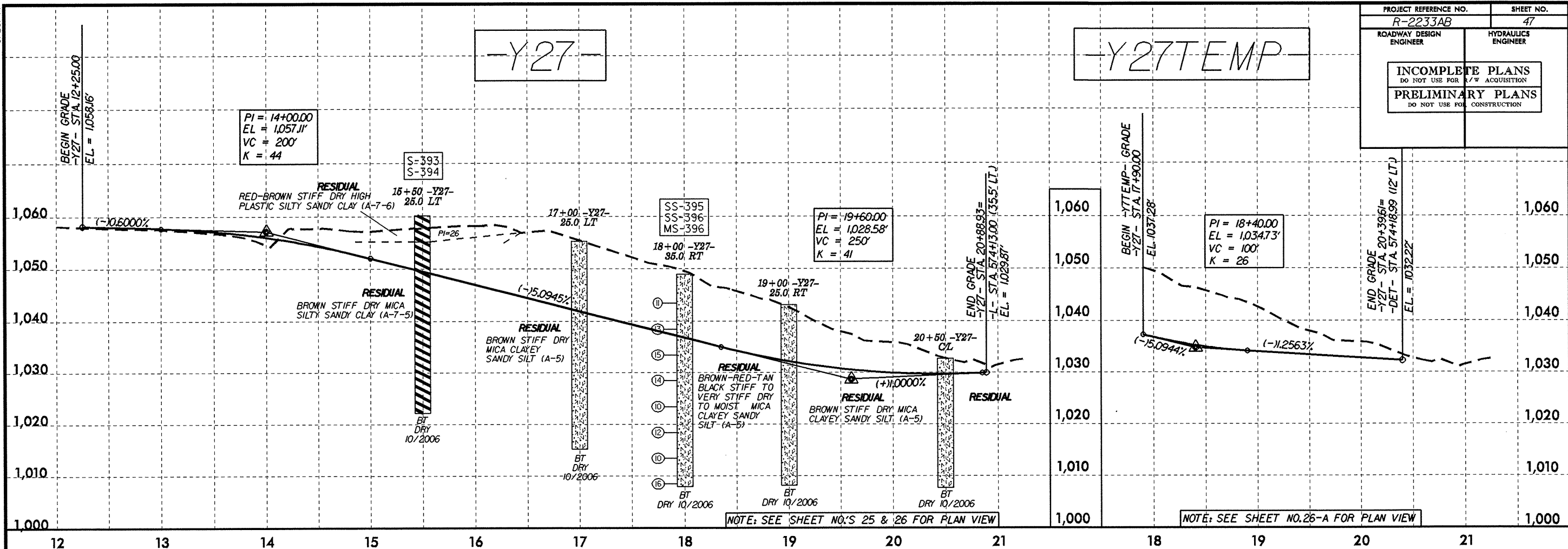
-Y25-



5/28/09

02-FEB-2007 09:53  
C:\projects\2233ab\p\proj\dwg\rdwg\_rutherford\cadd\geotech\plan\prof\2233ab-geo-pf1.dwg

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



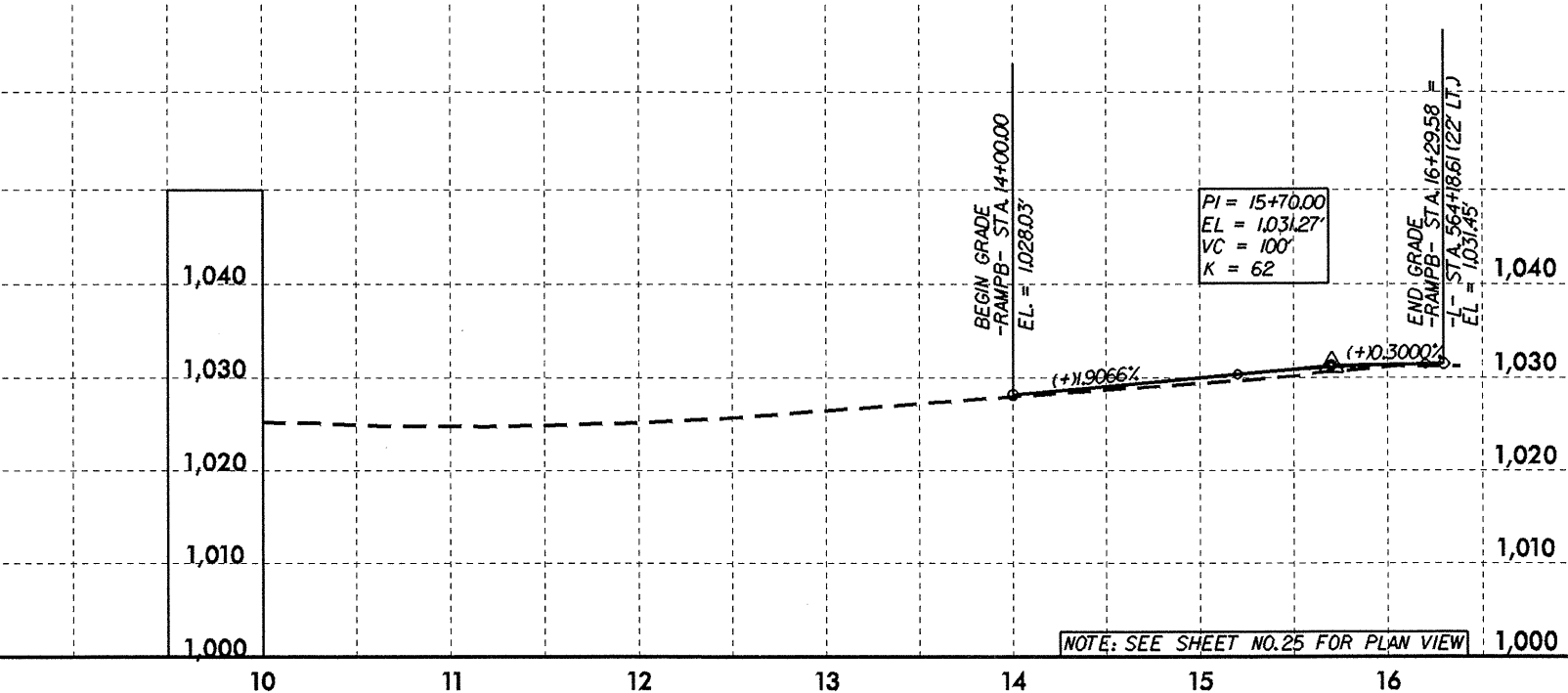
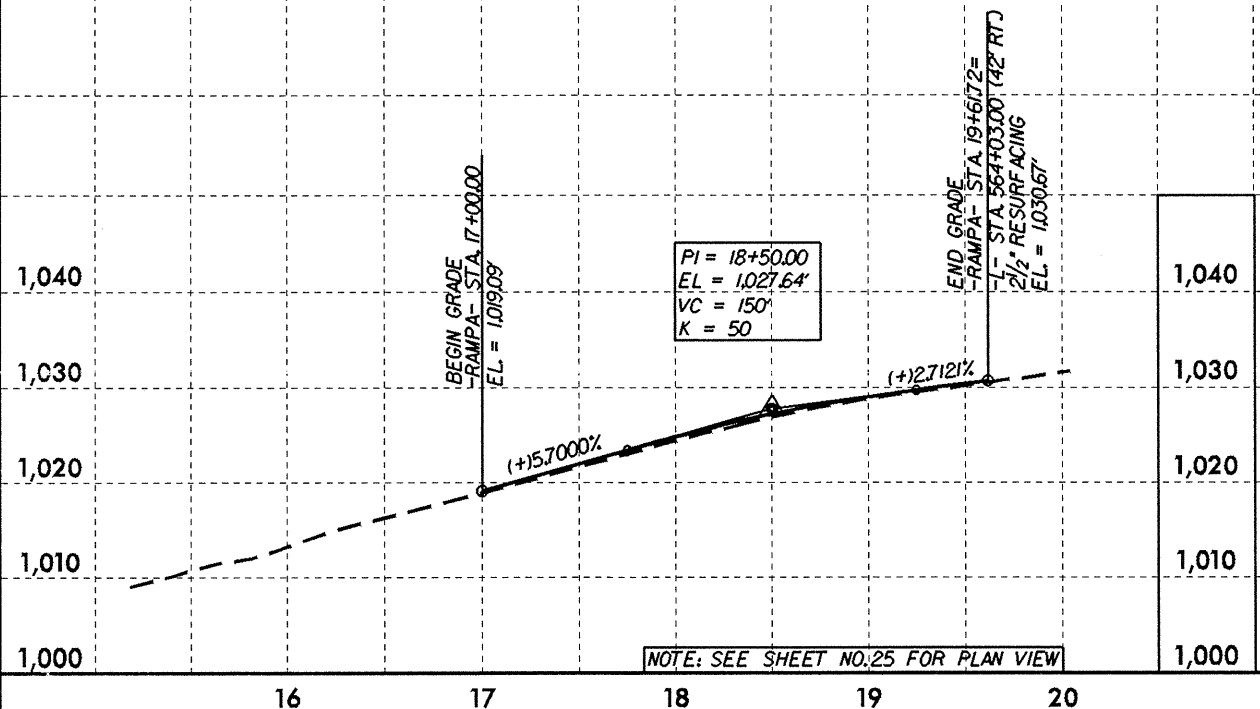


5/28/99

PROJECT REFERENCE NO. R-2233AB	SHEET NO. 48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

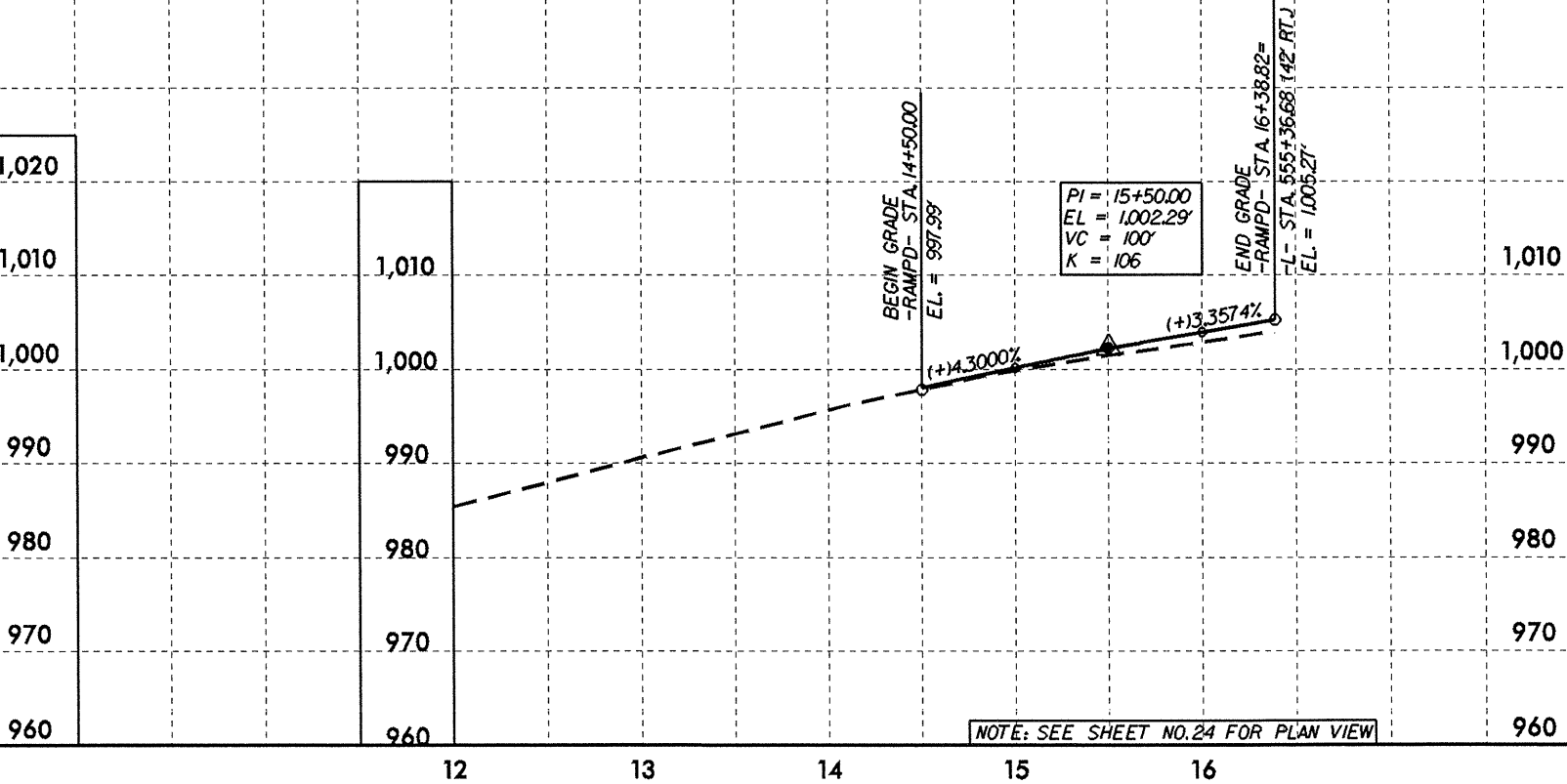
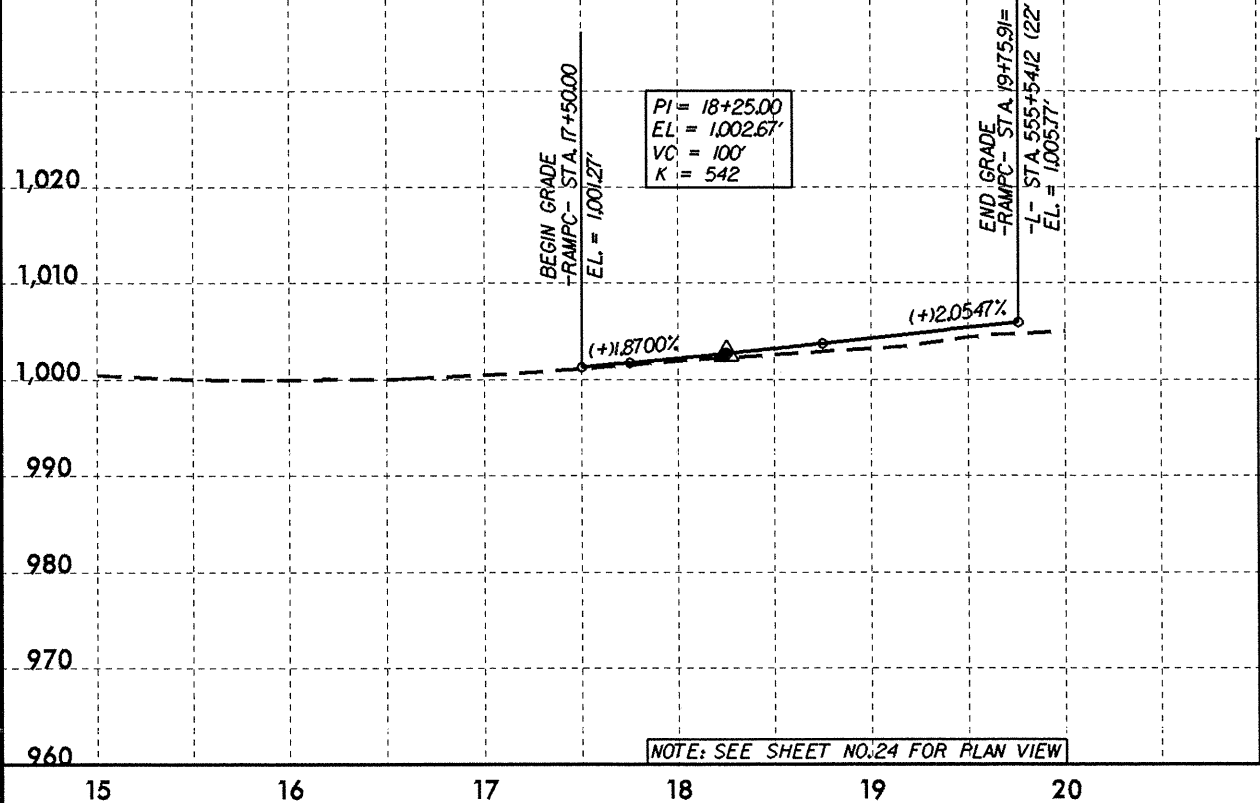
# -RAMPA-

# -RAMPB-



# -RAMPC-

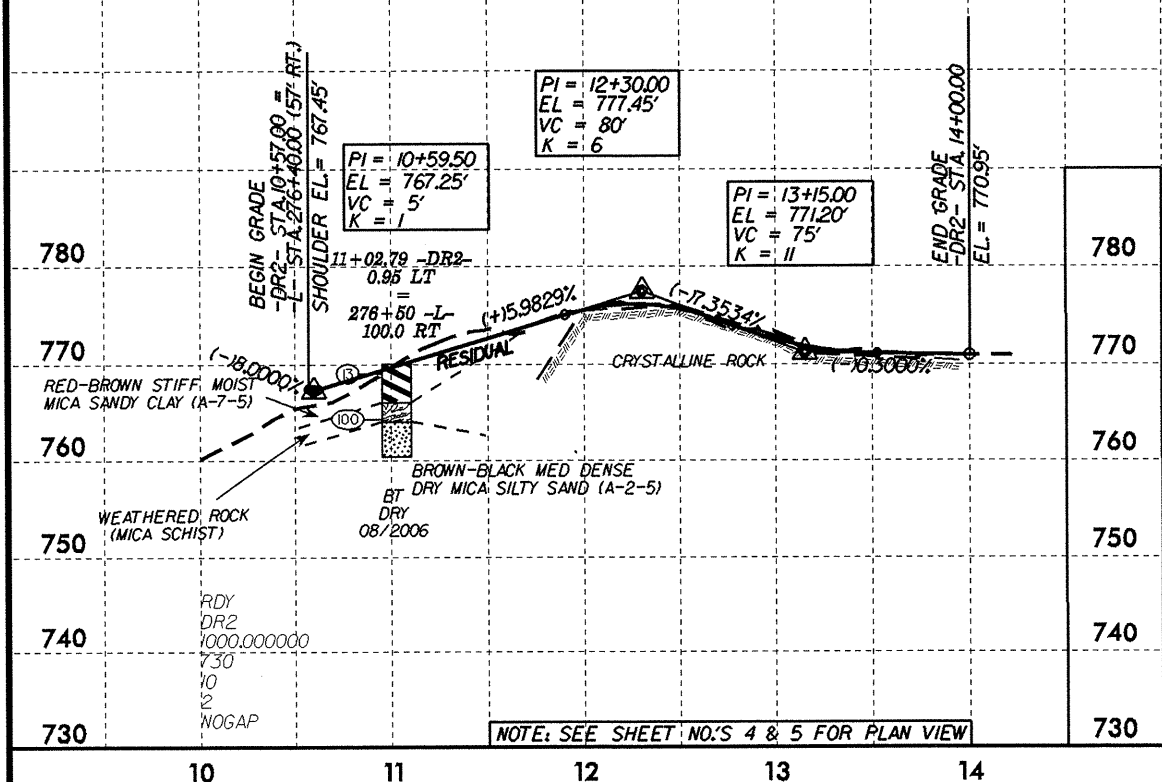
# -RAMPD-



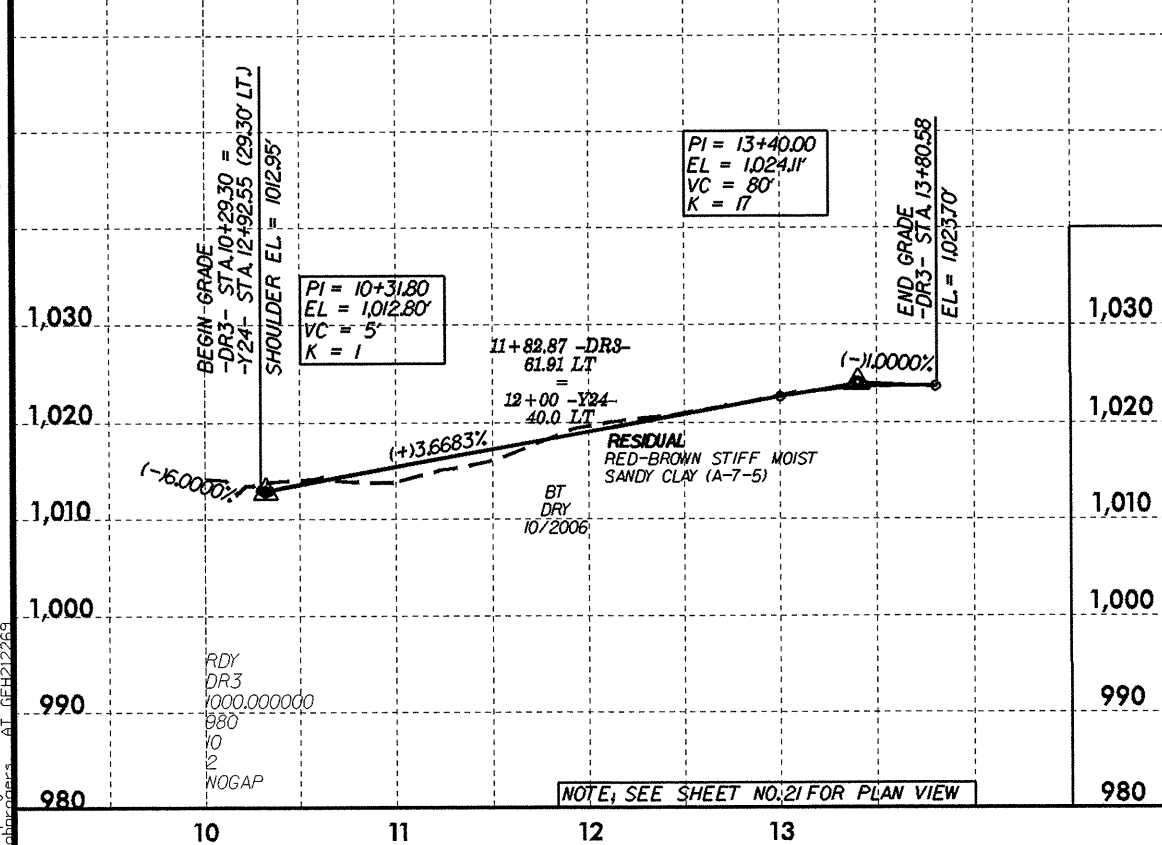
02-FEB-2007 09:57  
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02-FEB-2007 09:57  
d:\projects\2233ab\geo\rdwy\_rutherford\cadd\geotech\plan\prof\2233ab\_geo\_pf1.dwg

5/28/99

DR2

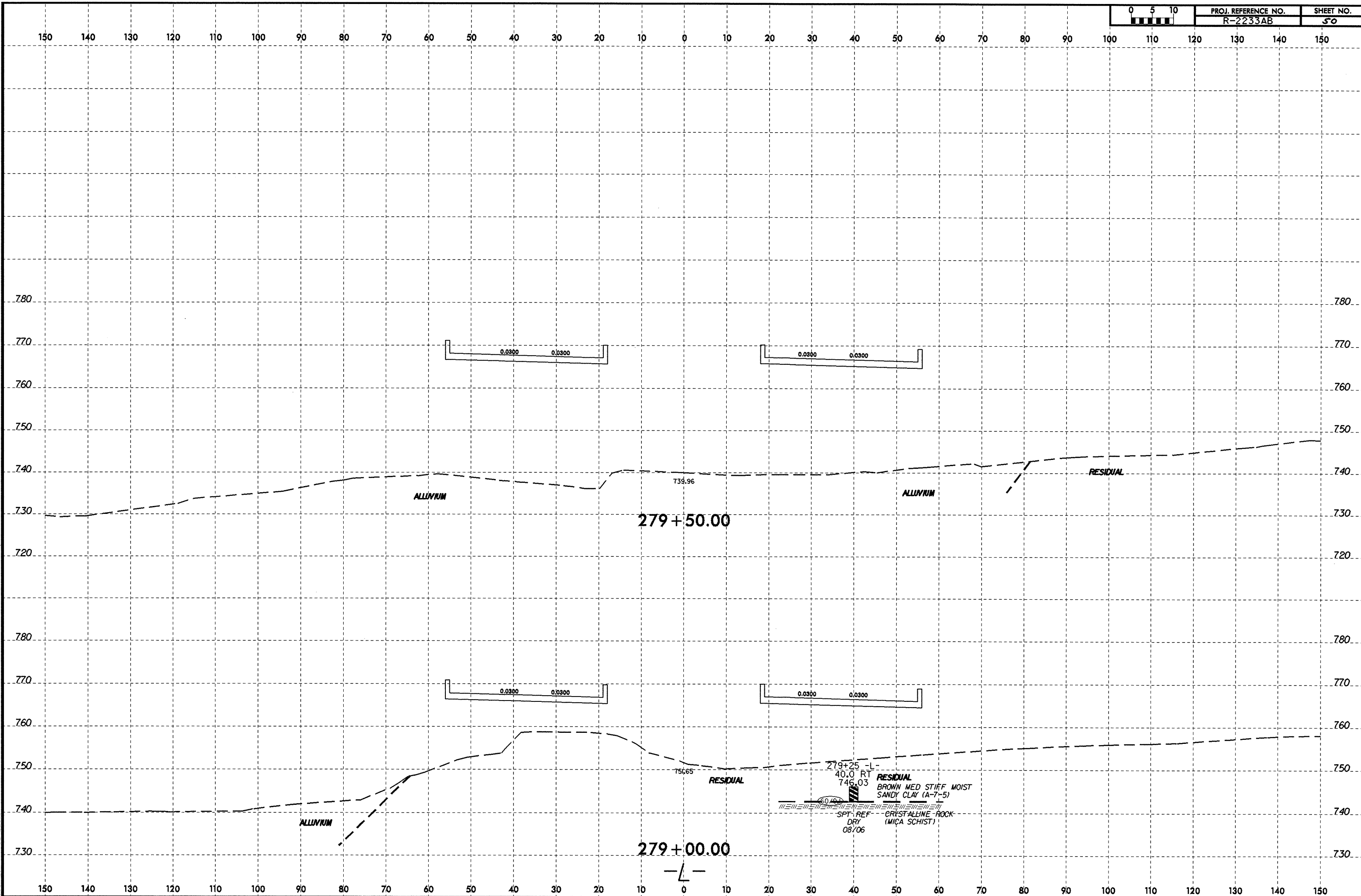


DR3

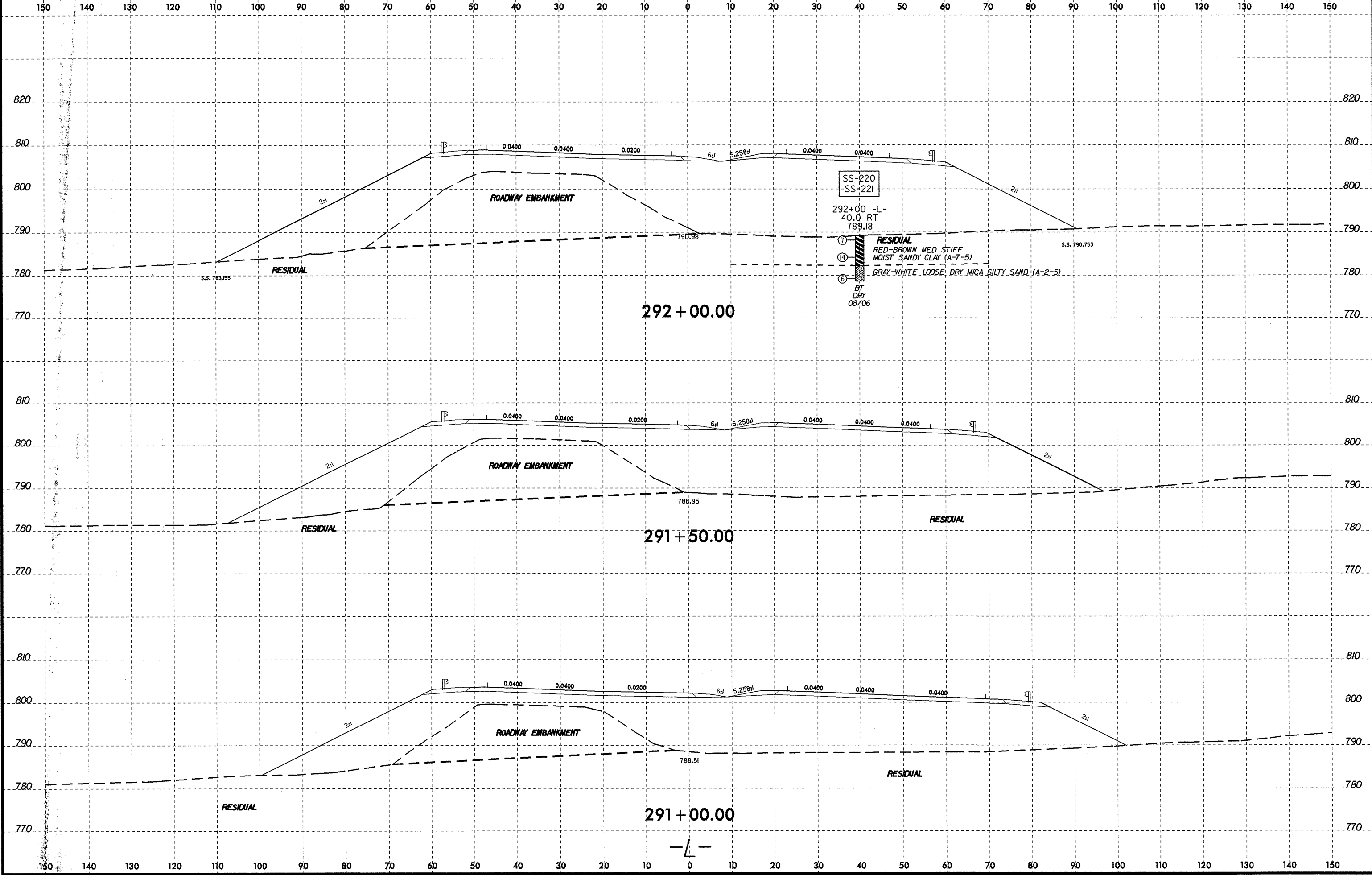


09-AUG-2007 09:55:08 GEO, RDY, RUTHERFORD\CADD\GEO\DR3\DR3.dwg, geo.pfl, jlines.dgn  
 09-AUG-2007 09:55:08 GEO, RDY, RUTHERFORD\CADD\GEO\DR3\DR3.dwg, geo.pfl, jlines.dgn

02-MAR-2007 10:12  
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cburris AT GEPH2233AB

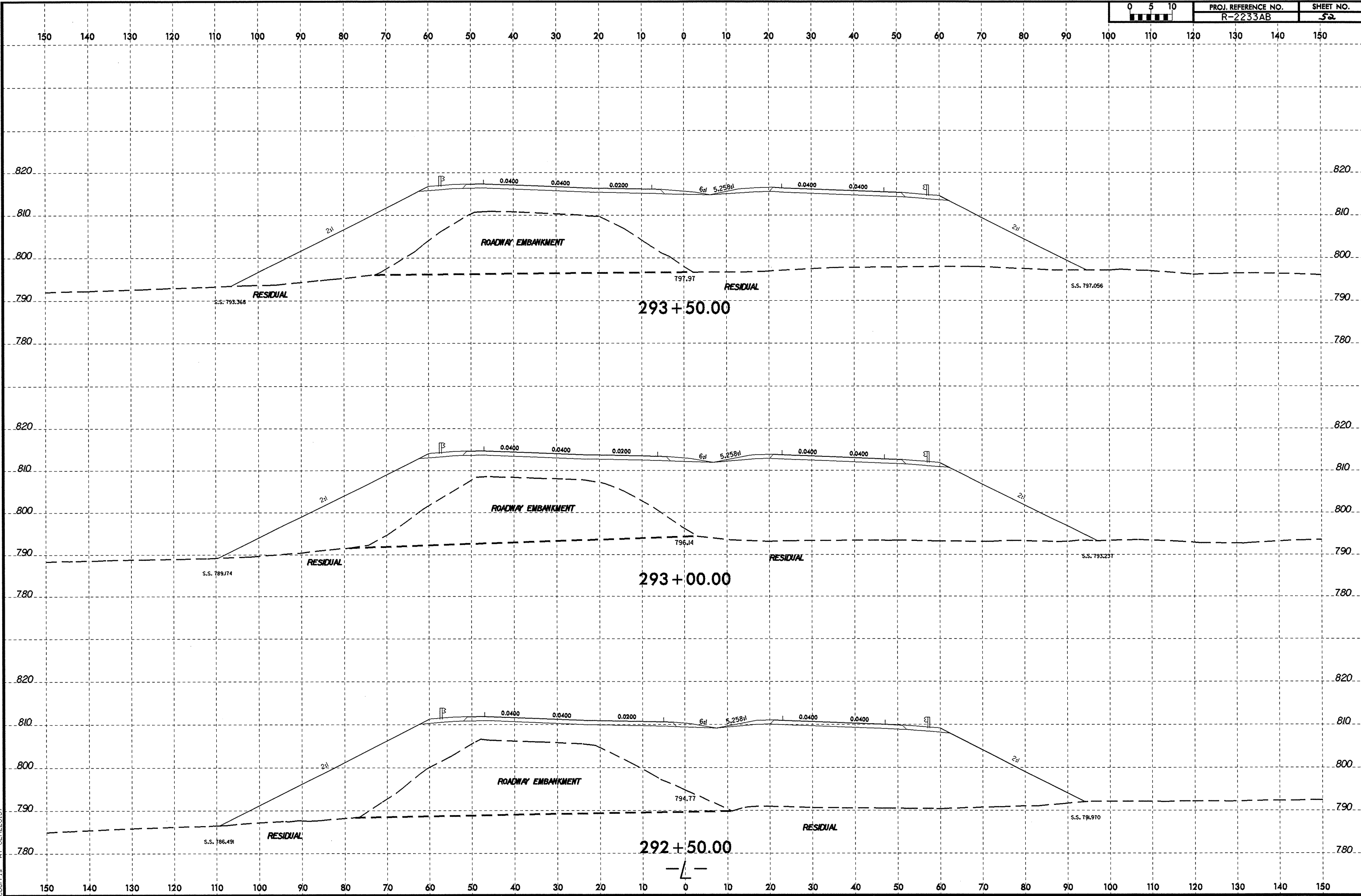


8/23/99

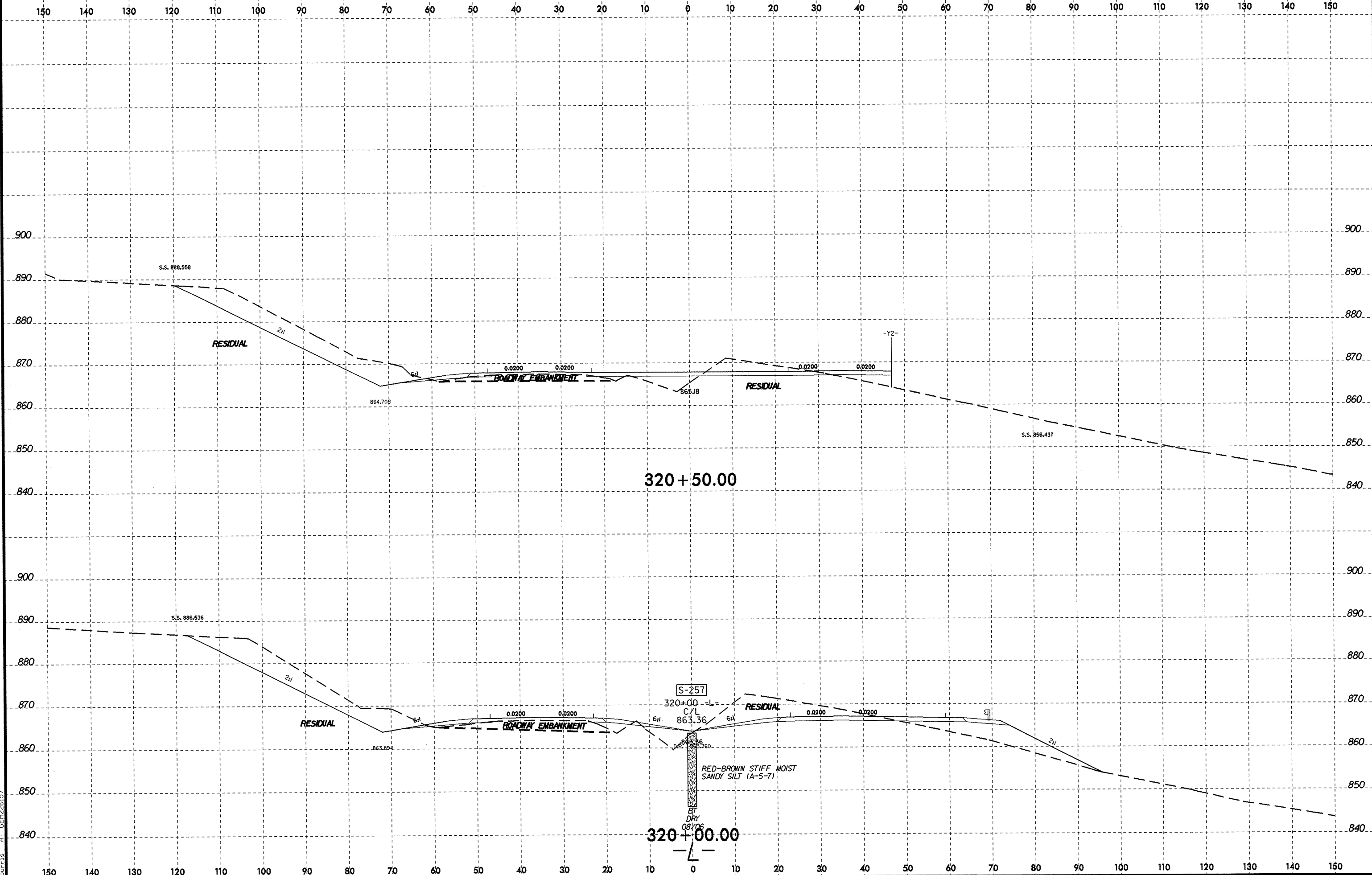


26-FEB-2007 12:55  
d:\projects\2233ab\geo\_rdw\_rutherford\cadd\geotech\ssc\2233ab\_geo\_xsi\_1.dgn  
cburns AT 08/22/07

26-FEB-2007 12:59  
C:\Users\jgibson\Documents\2233ab\geo-rdwy\_rutherford\codd\geotech\asc\2233ab\geo\_xst\_1.dgn  
2233ab\geo-rdwy\_rutherford\codd\geotech\asc\2233ab\geo\_xst\_1.dgn  
2233ab\geo-rdwy\_rutherford\codd\geotech\asc\2233ab\geo\_xst\_1.dgn

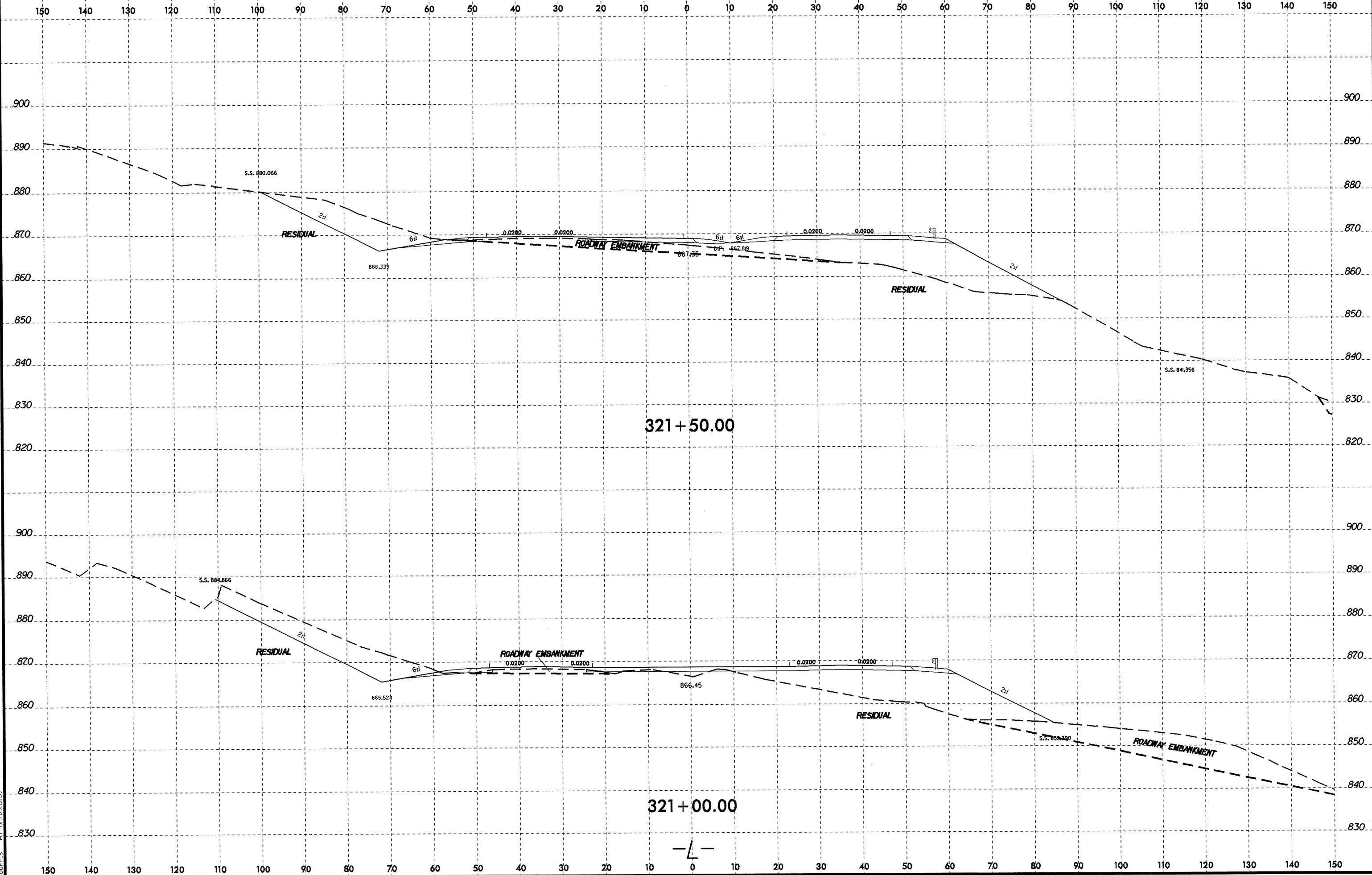


8/23/99



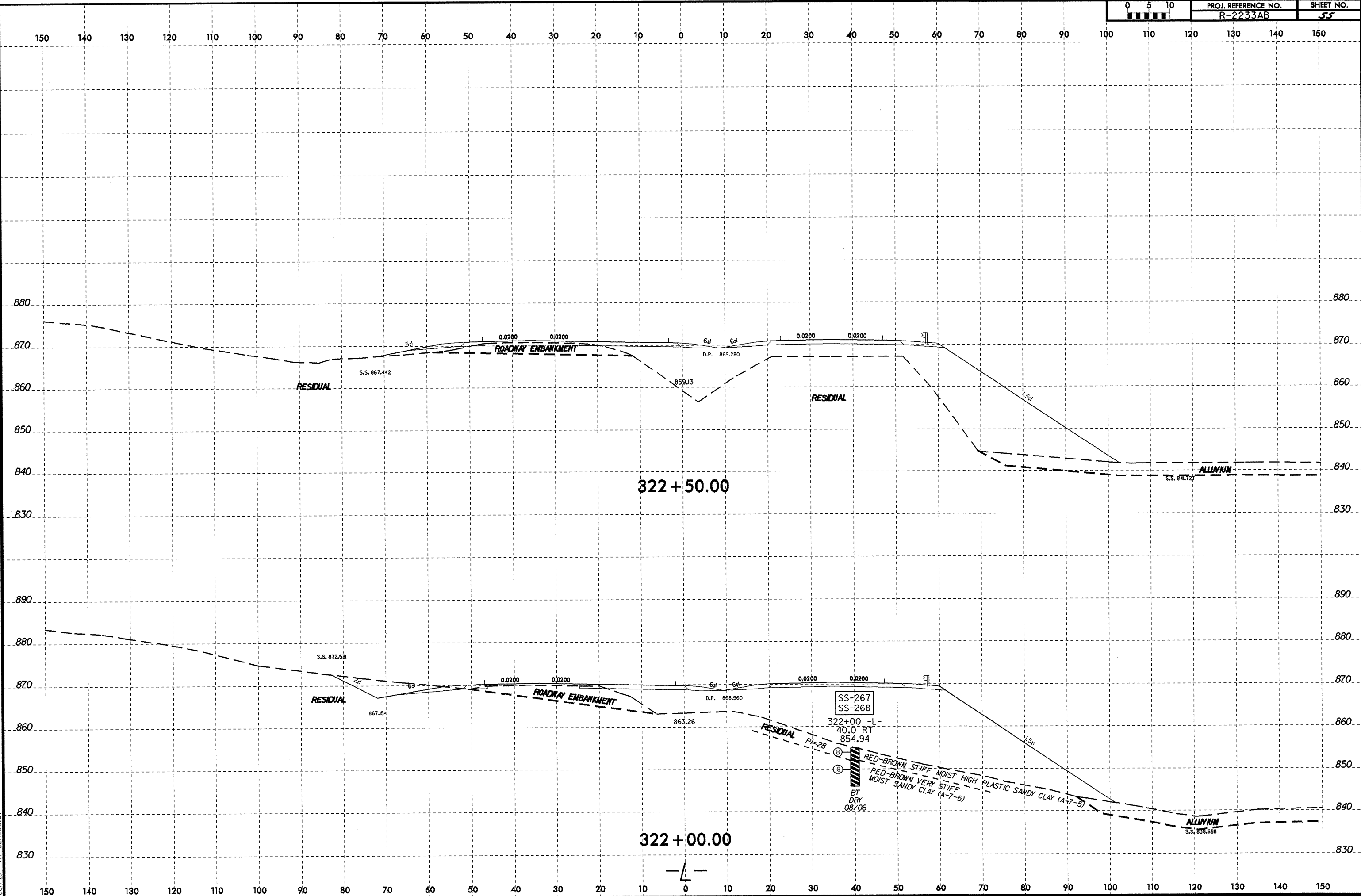
23-FEB-2007 15:40 d:\projects\2233ab\geo\_rdw\rdw\_rutherford\cadd\geotech\use\2233ab\_geo\_x31.lxdgm

8/23/99



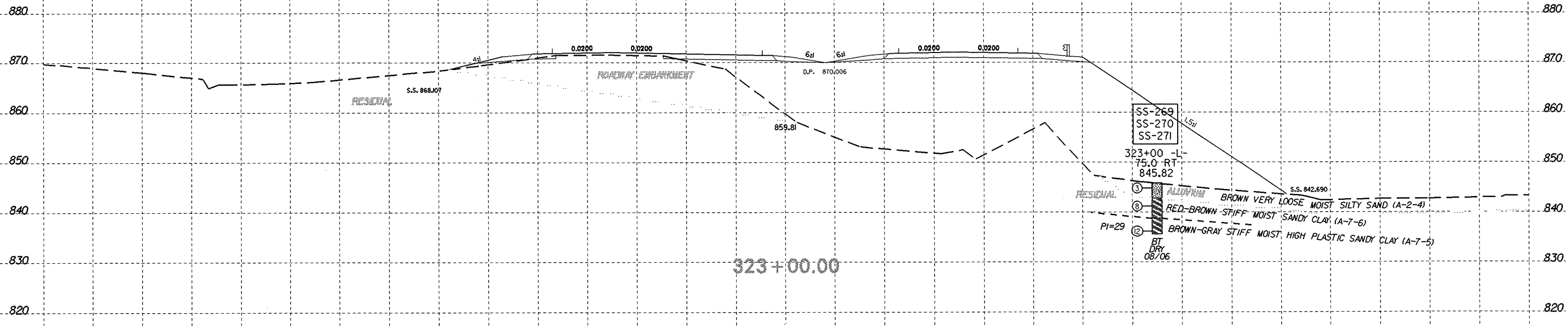
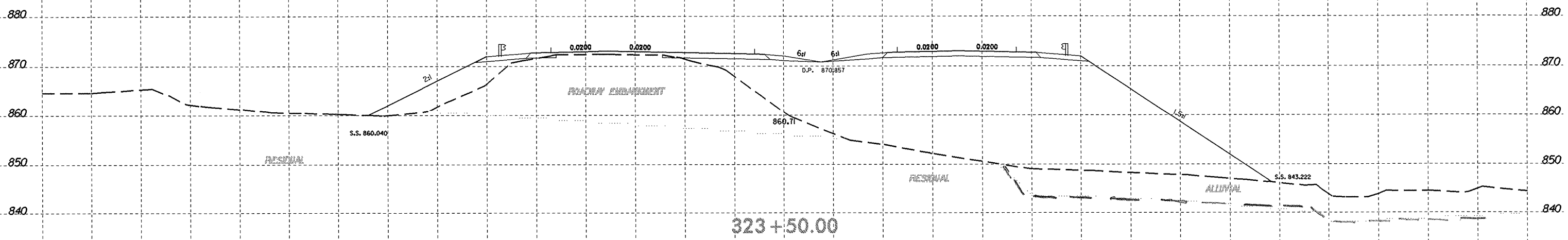
23-FEB-2007 14:32:34 g:\rdwy\_rutherford\cadd\geotech\isc\2233ab\_geo\_xst1.dgn

23-FEB-2007 14:33  
C:\projects\2233ab\geo-rdwj.rutherford\cadd\geotech\ssc\2233ab-geo-ssi.ltdgn  
C:\projects\2233ab\geo-rdwj.rutherford\cadd\geotech\ssc\2233ab-geo-ssi.ltdgn  
C:\projects\2233ab\geo-rdwj.rutherford\cadd\geotech\ssc\2233ab-geo-ssi.ltdgn





150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

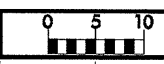


SS-269  
 SS-270  
 SS-271  
 323+00 -L-  
 75.0 -RT-  
 845.82  
 ③  
 ⑧  
 PI-29  
 ⑫  
 BT  
 DRY  
 08/06

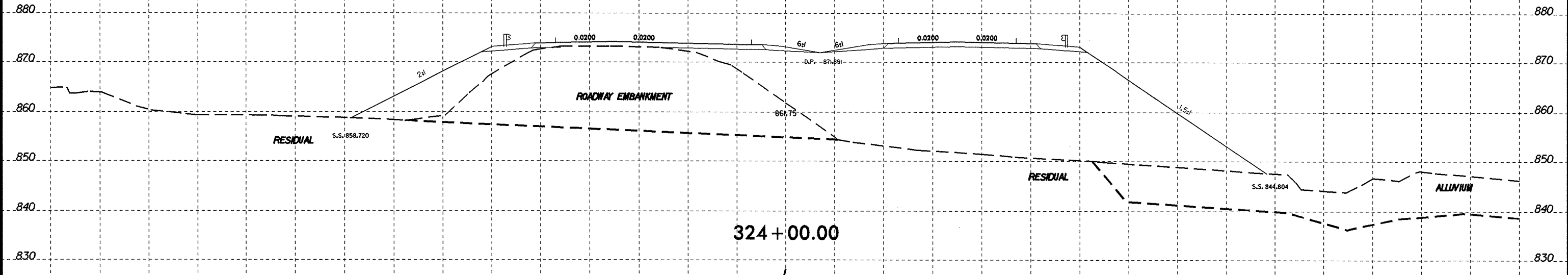
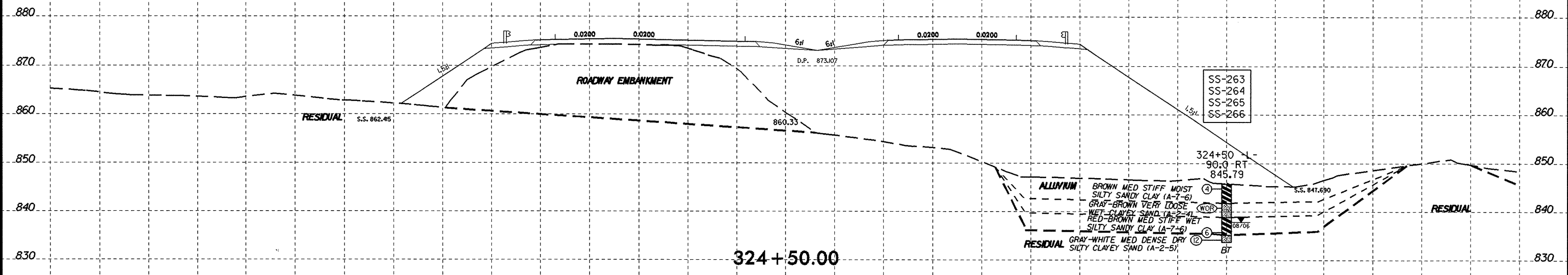
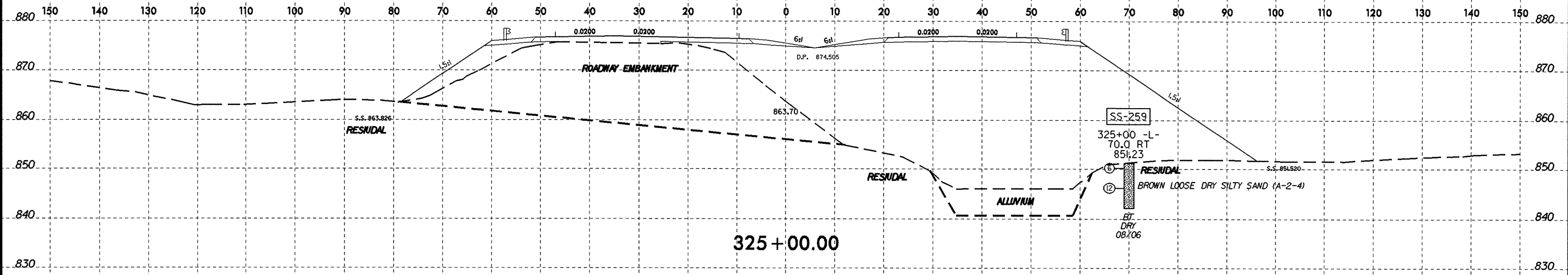
BROWN VERY LOOSE MOIST SILTY SAND (A-2-4)  
 RED-BROWN STIFF MOIST SANDY CLAY (A-7-6)  
 BROWN-GRAY STIFF MOIST HIGH PLASTIC SANDY CLAY (A-7-5)

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
R-2233AB	57



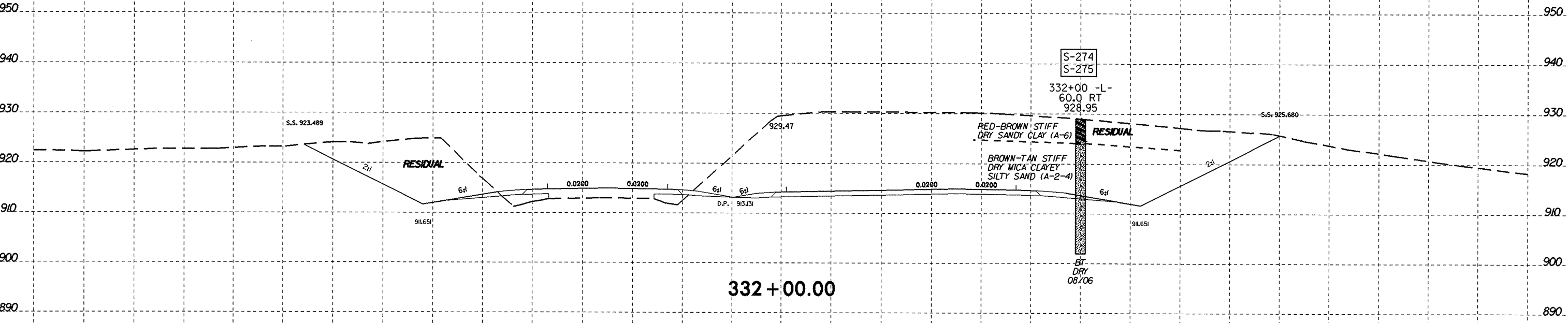
02-MAR-2007 10:30  
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cburns AL 08/22/07

8/23/99

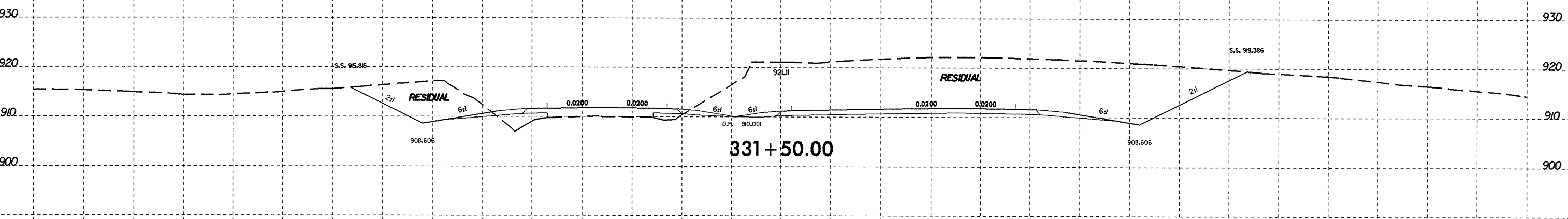


PROJ. REFERENCE NO.	SHEET NO.
R-2233AB	58

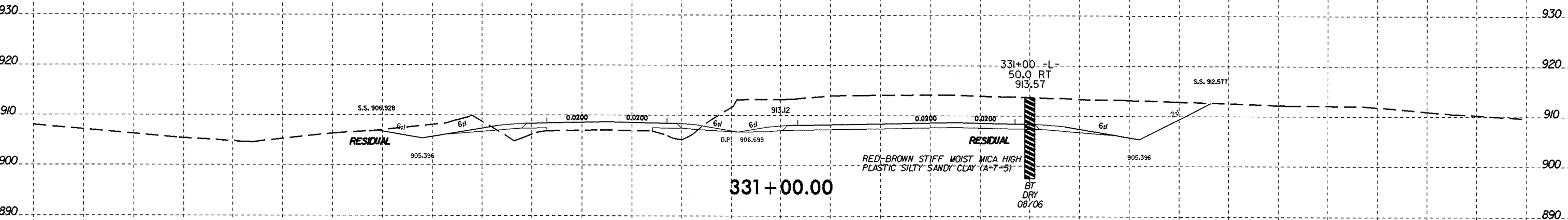
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



332+00.00



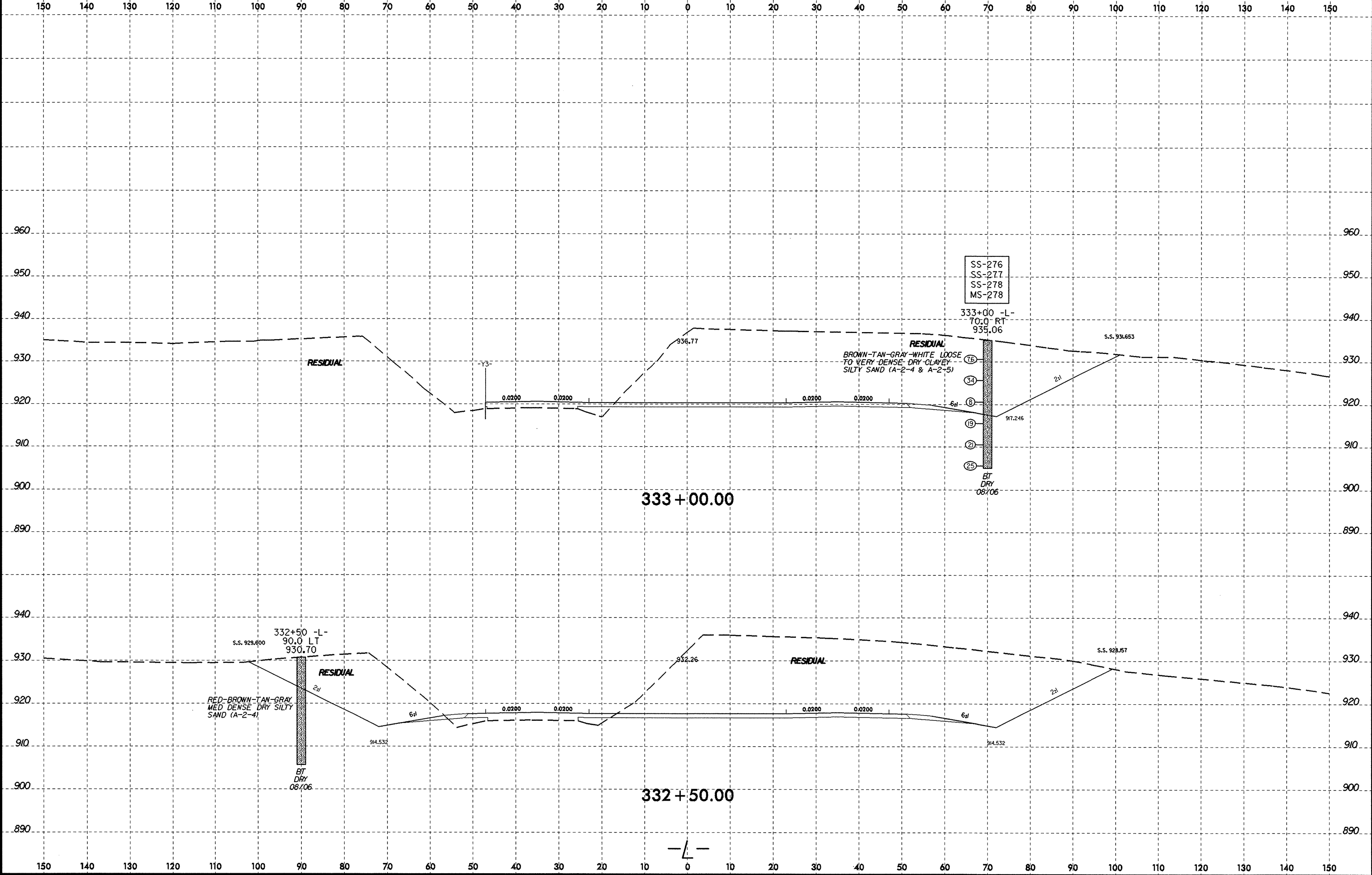
331+50.00



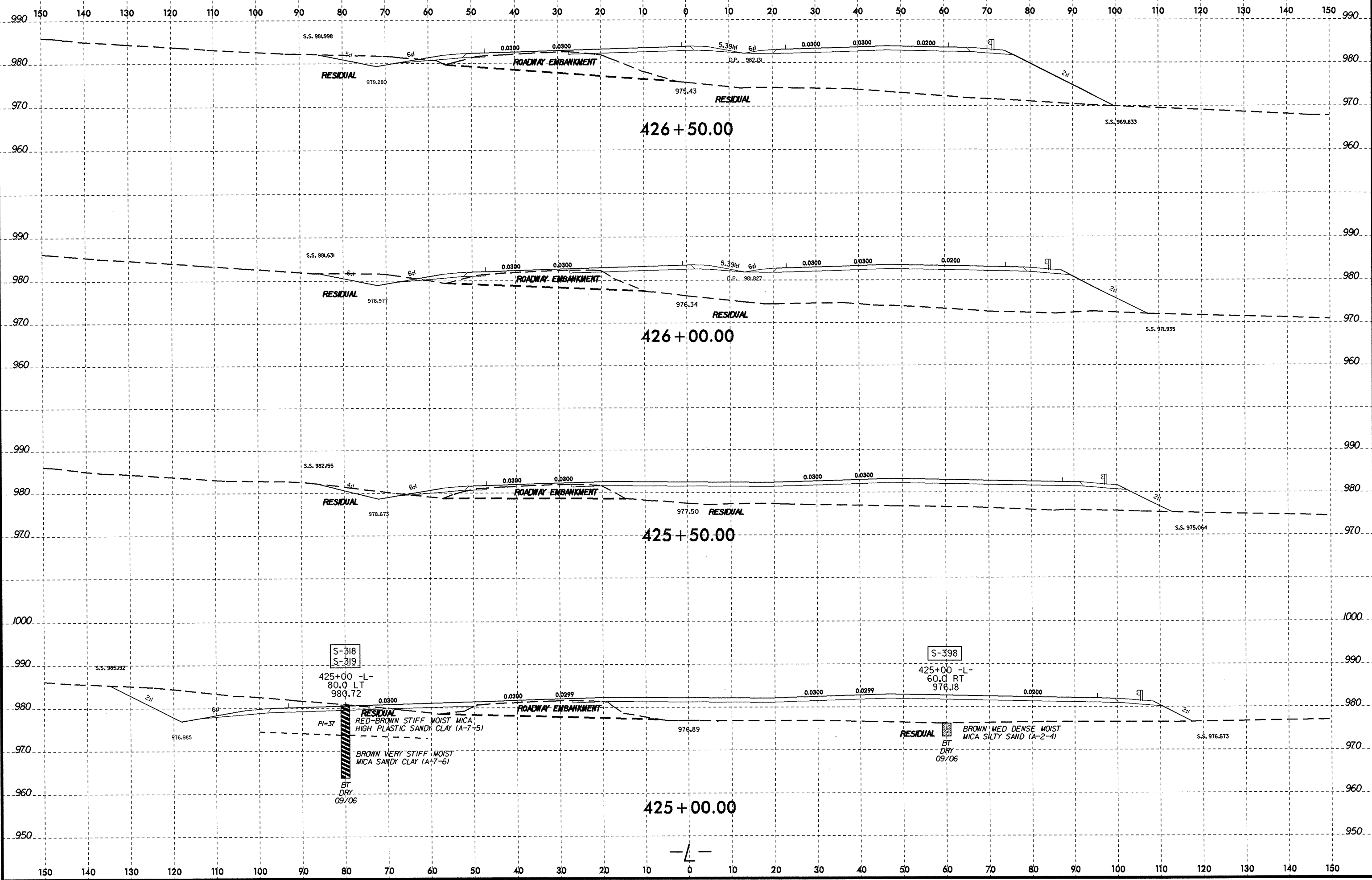
331+00.00

02-MAR-2007 10:40:00  
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Author: BT BEH26157

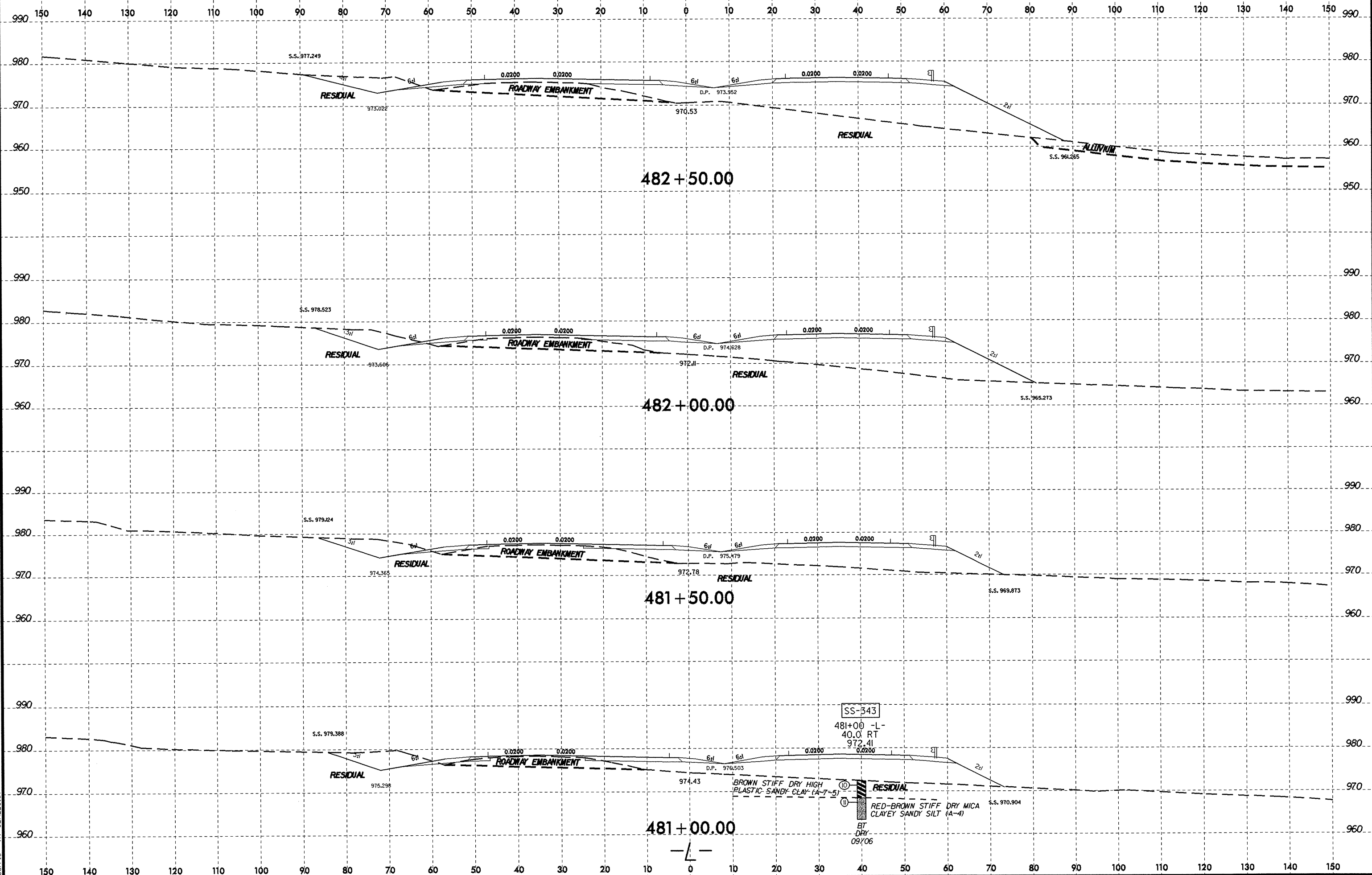
8/23/99  
02-MAR-2007 11:05  
d:\projects\22333\33b\geo\rdwy-rutherford\cadd\geotech\22333\33b\geo\_xsi\_1.dgn  
dburris AT 08/26/07



8/23/99  
26-FEB-2007 07:57  
c:\projects\2233ab\geo\_rdwj-rutherford\cadd\geotech\2233ab-geo\_xsi.lidgm  
cburris AT BEH226187



8/23/99  
26-FEB-2007 10:42:33 ab.gco\_rdky\_rutherford\cadd\_geotech\ssc\2233ab\_geo\_xsi1.dgn  
46\projects\2233ab\ssc\2233ab\ssc\2233ab\_geo\_xsi1.dgn  
C:\projects\2233ab\ssc\2233ab\ssc\2233ab\_geo\_xsi1.dgn

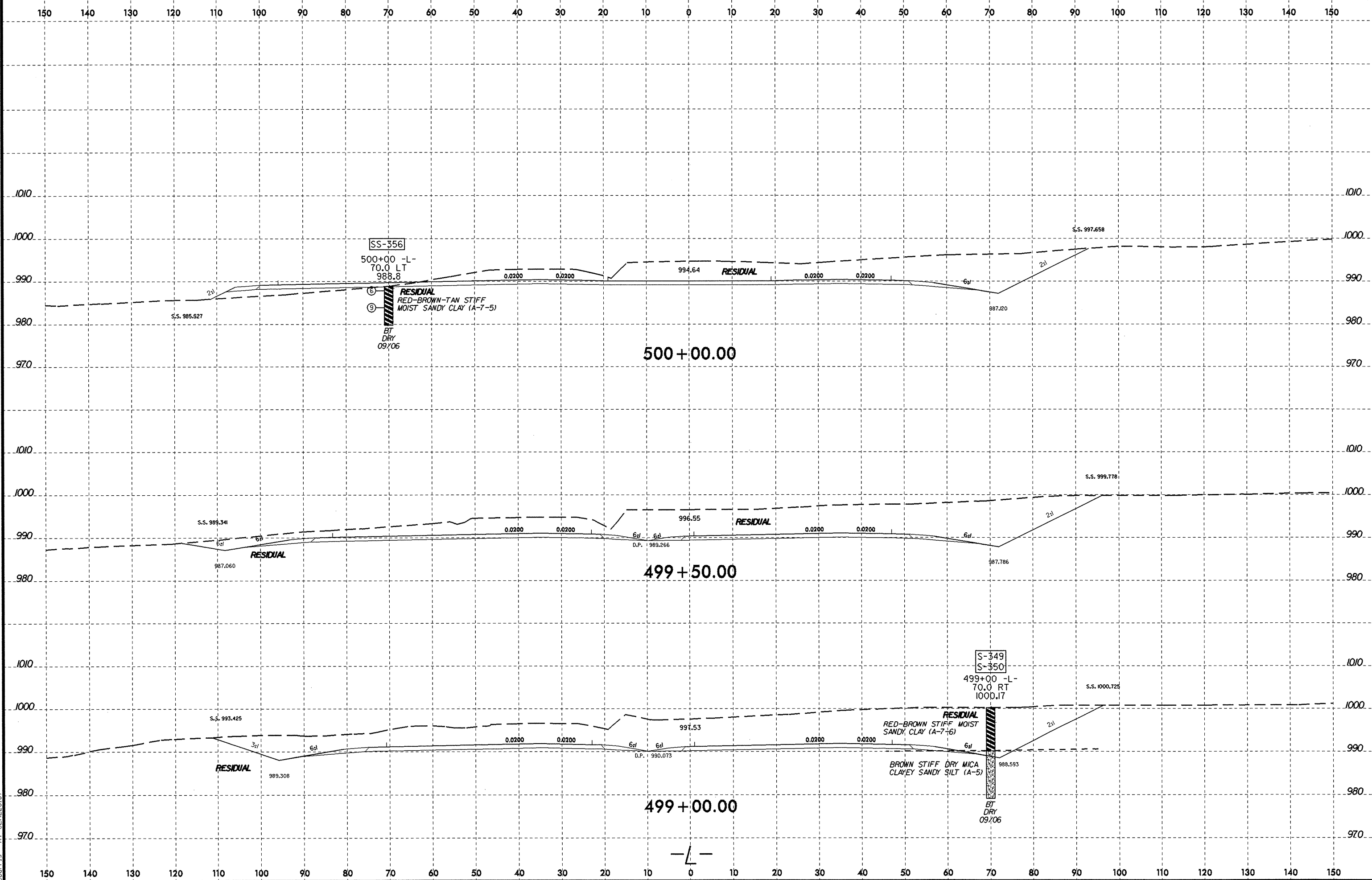




8/22/99  
28-FEB-2007 09:07  
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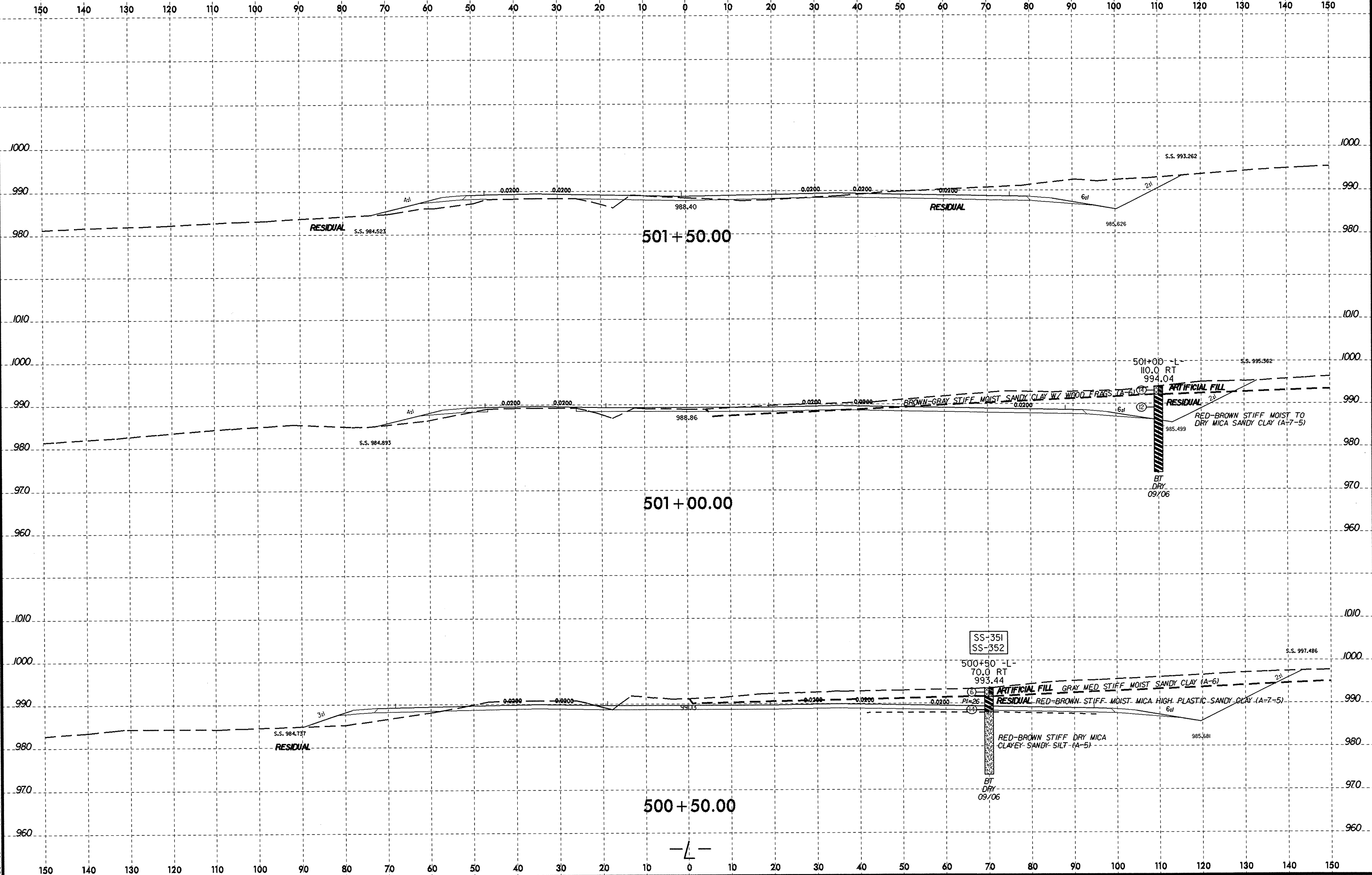


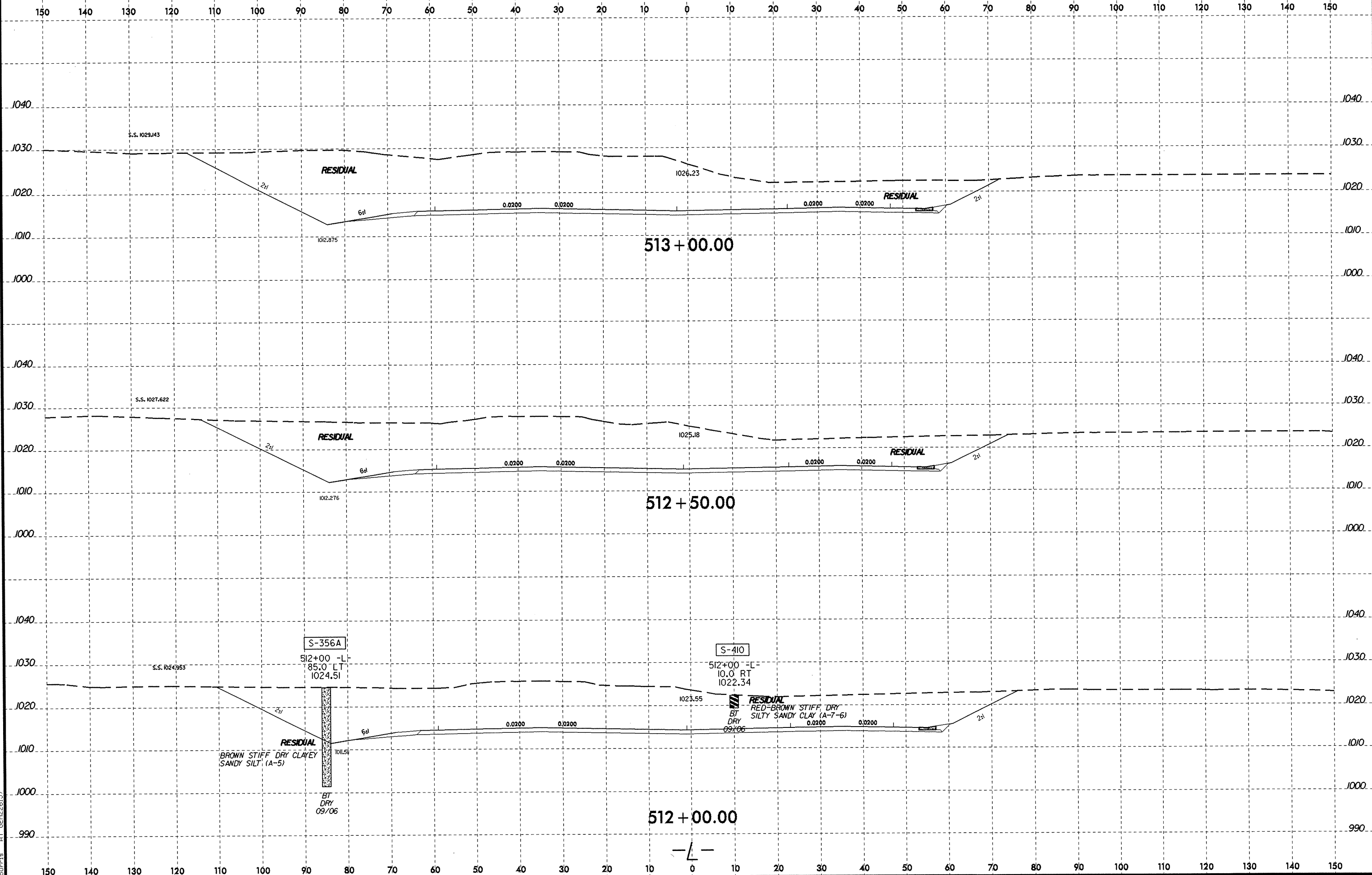
PROJ. REFERENCE NO.	SHEET NO.
R-2233AB	63



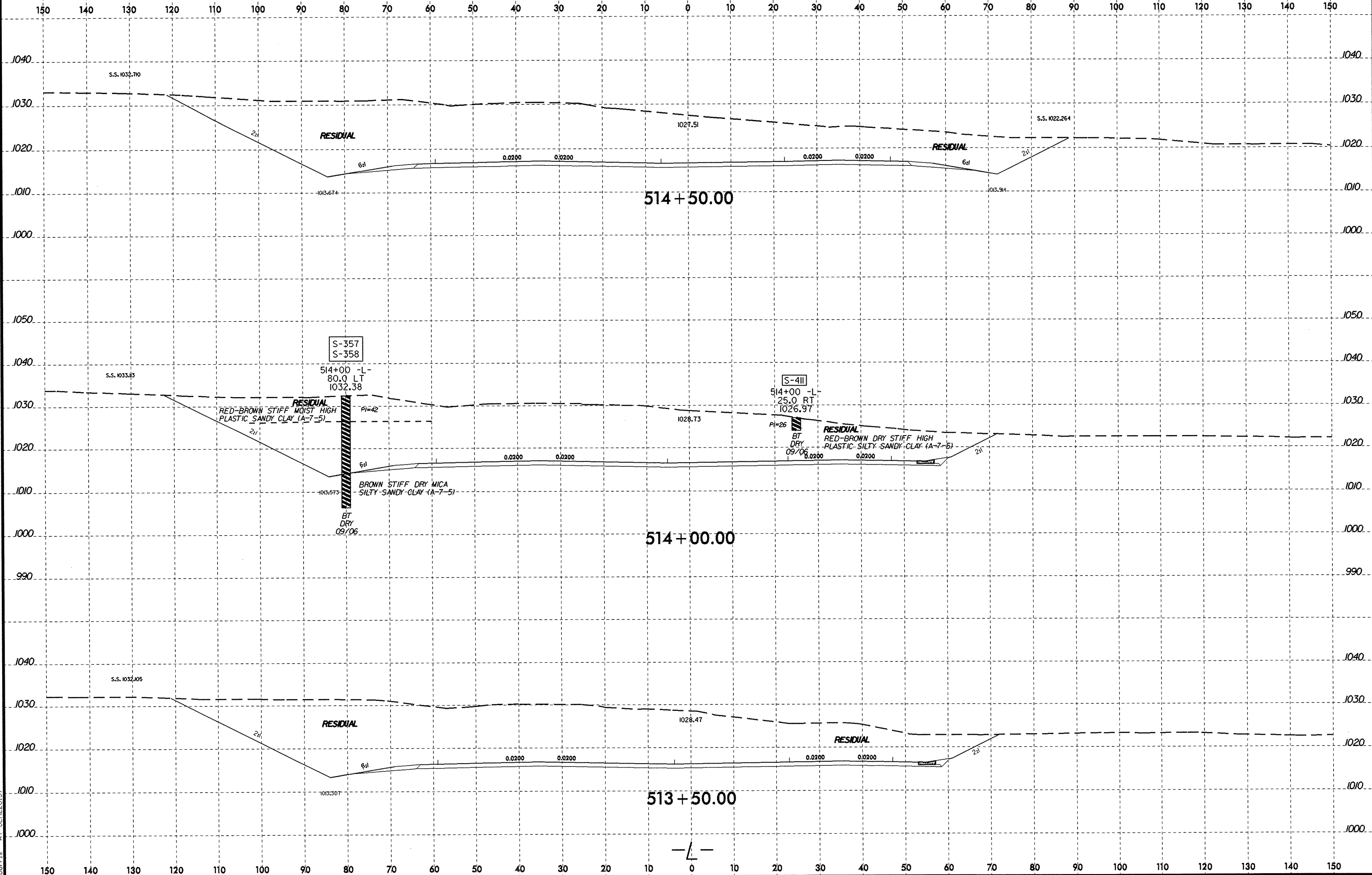


8/23/99  
26-FEB-2007 08:29  
d:\projects\2233ab\geo\_rdw\rdw\_rutherford\cadd\geotech\ssc\2233ab-geo-ssi.lldgn  
cburris AT GEH26157



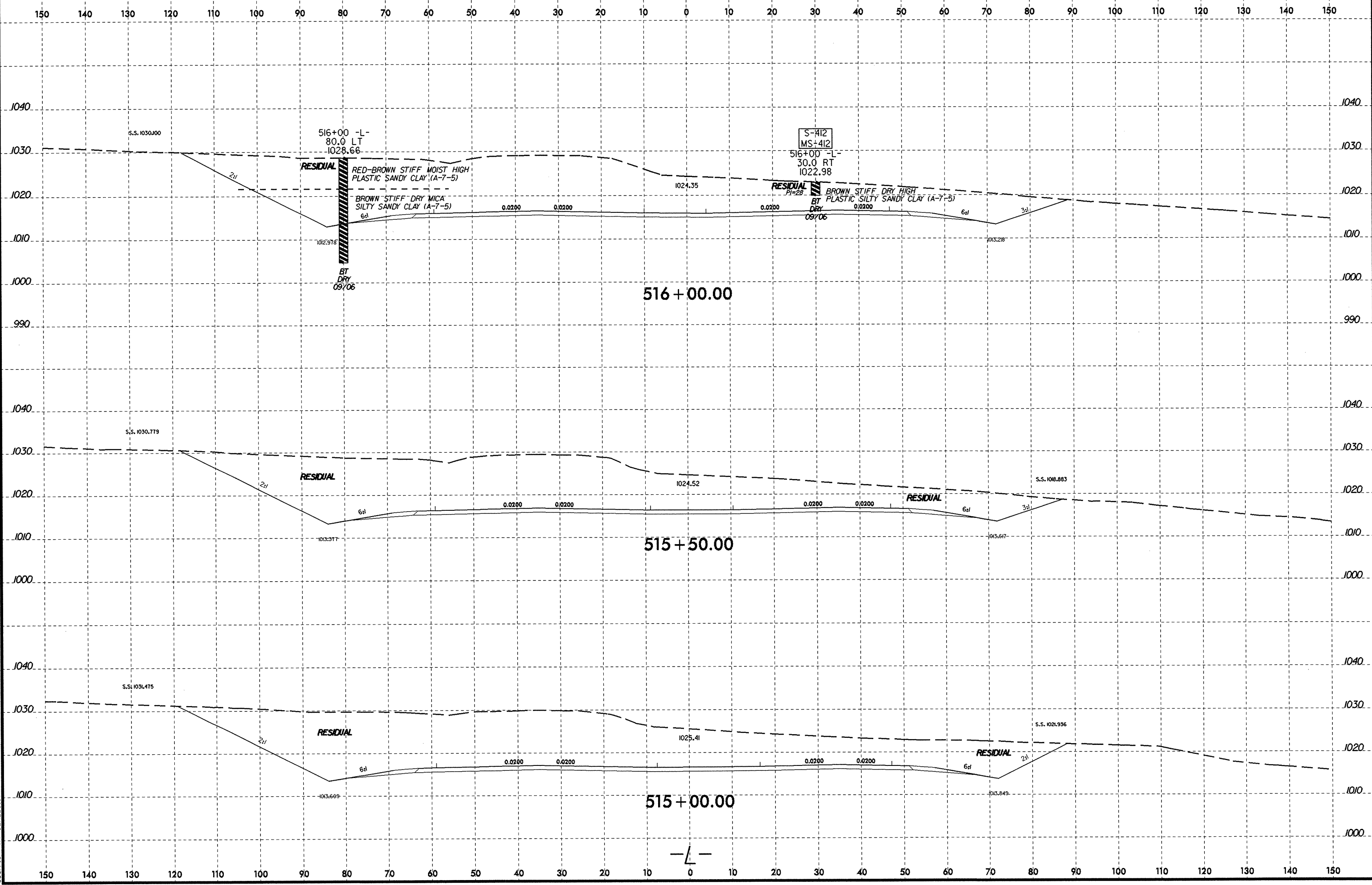


8/23/99

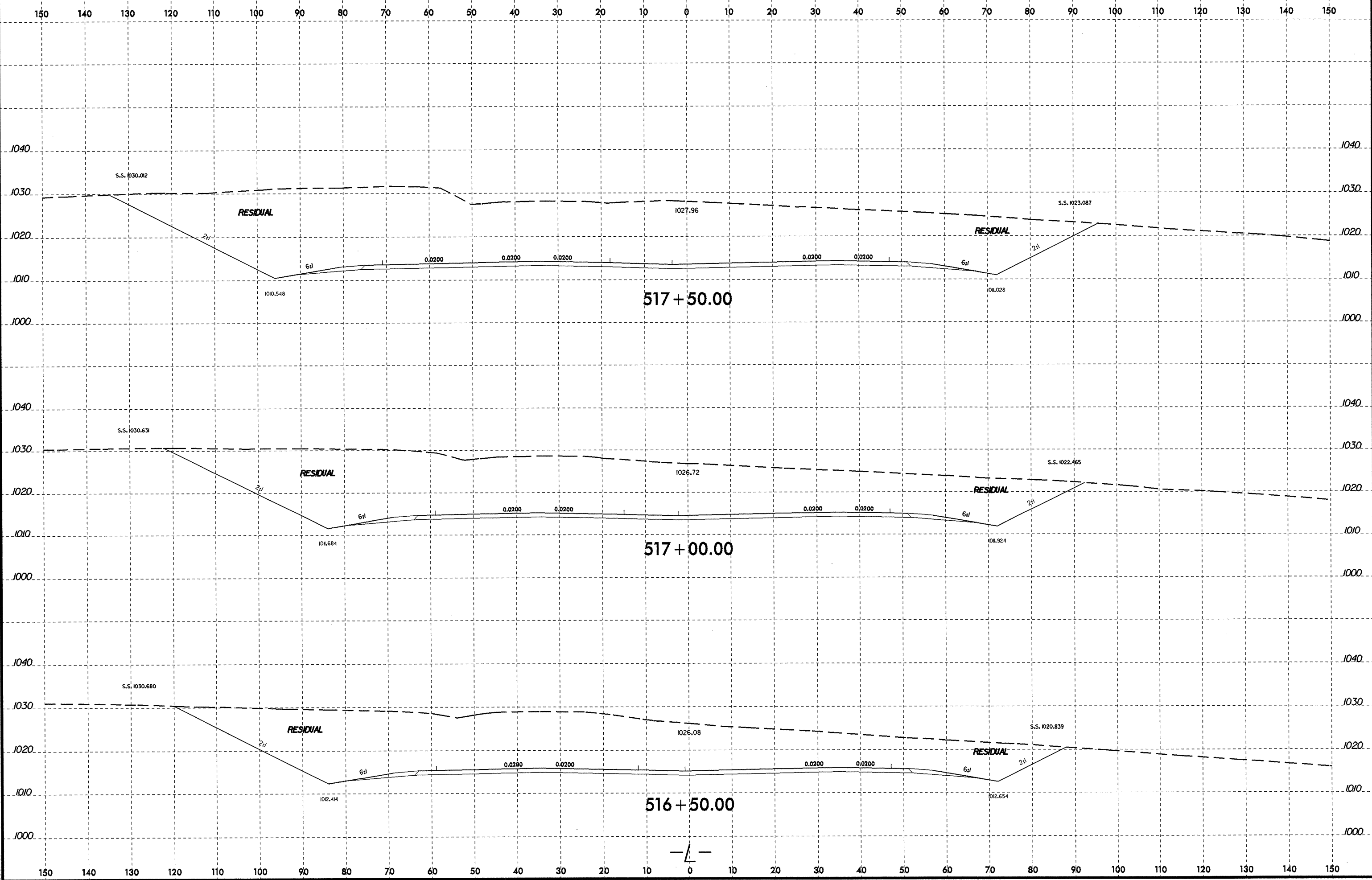


26-FEB-2007 09:54  
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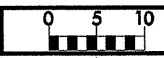
8/23/99  
06-MAP-2007 1049  
d:\projects\2233ab\geo\_rdw\rdw\_rutherford\cadd\_geotech\cadd\_geotech\cadd\_geo\_xsi\_1.dgn  
cburns AT BEH226167



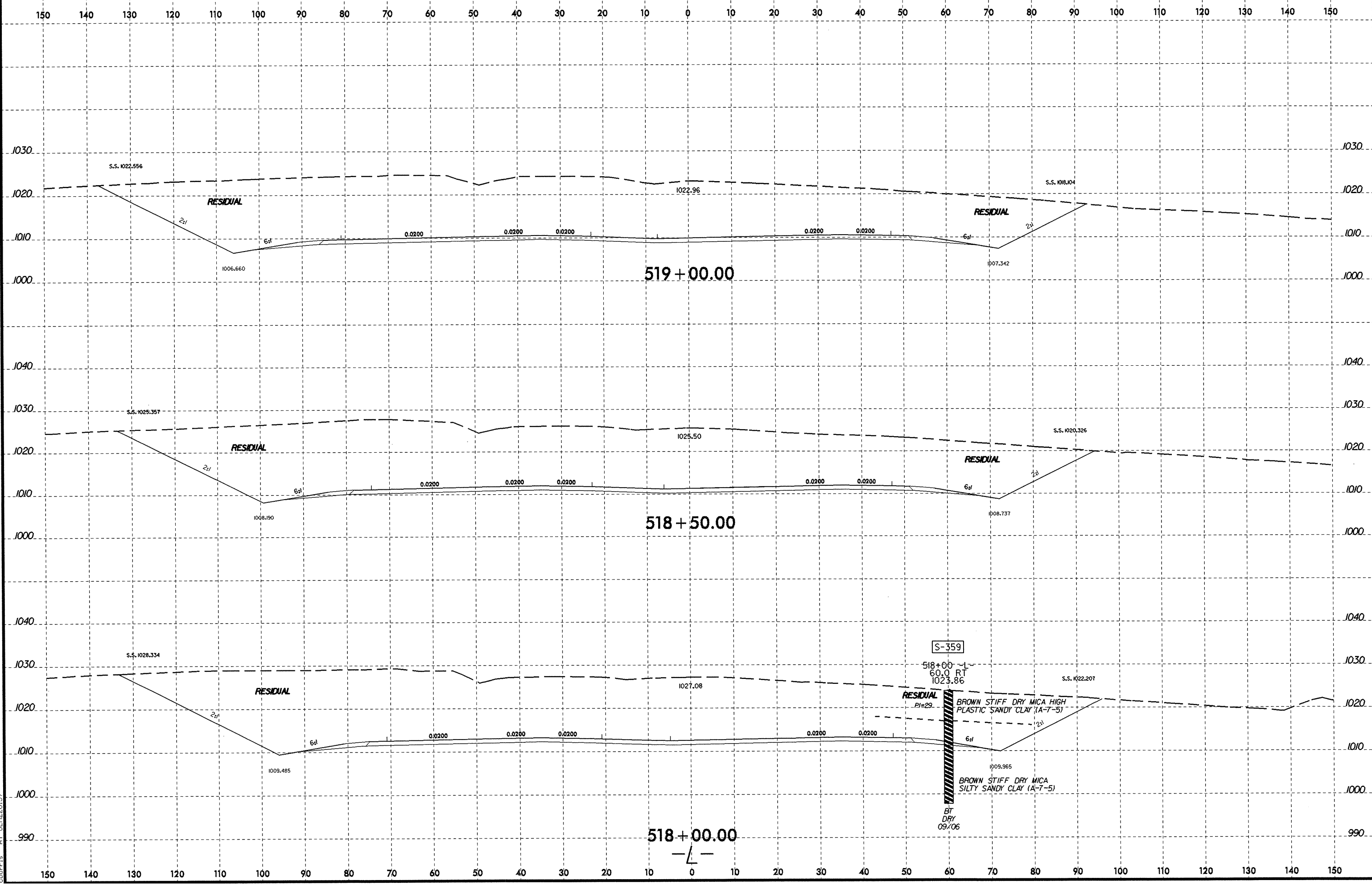
8/23/99  
26-FEB-2007 08:57  
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COURTIS AT BEH26187



8/23/99

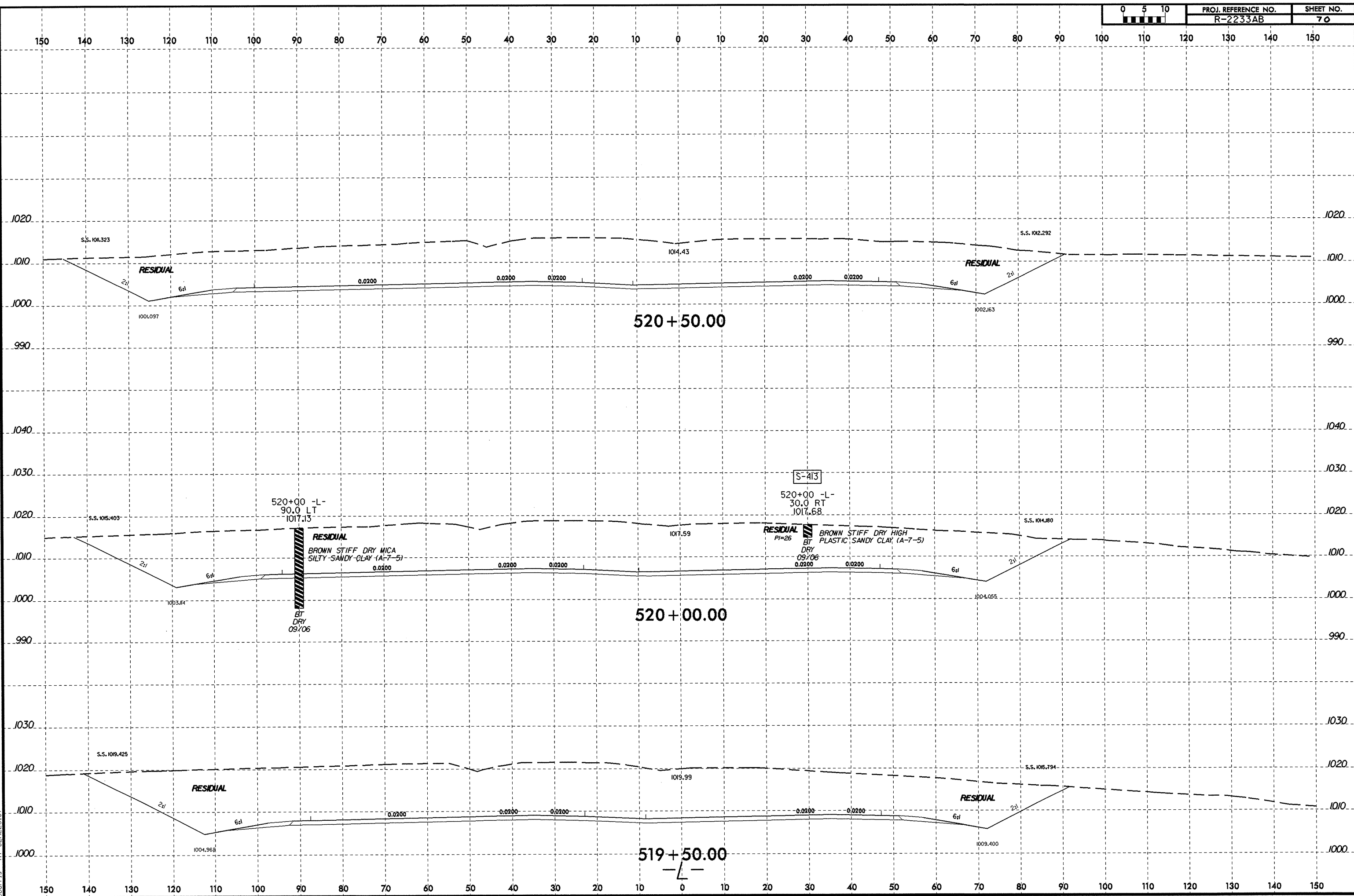


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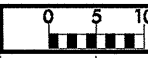


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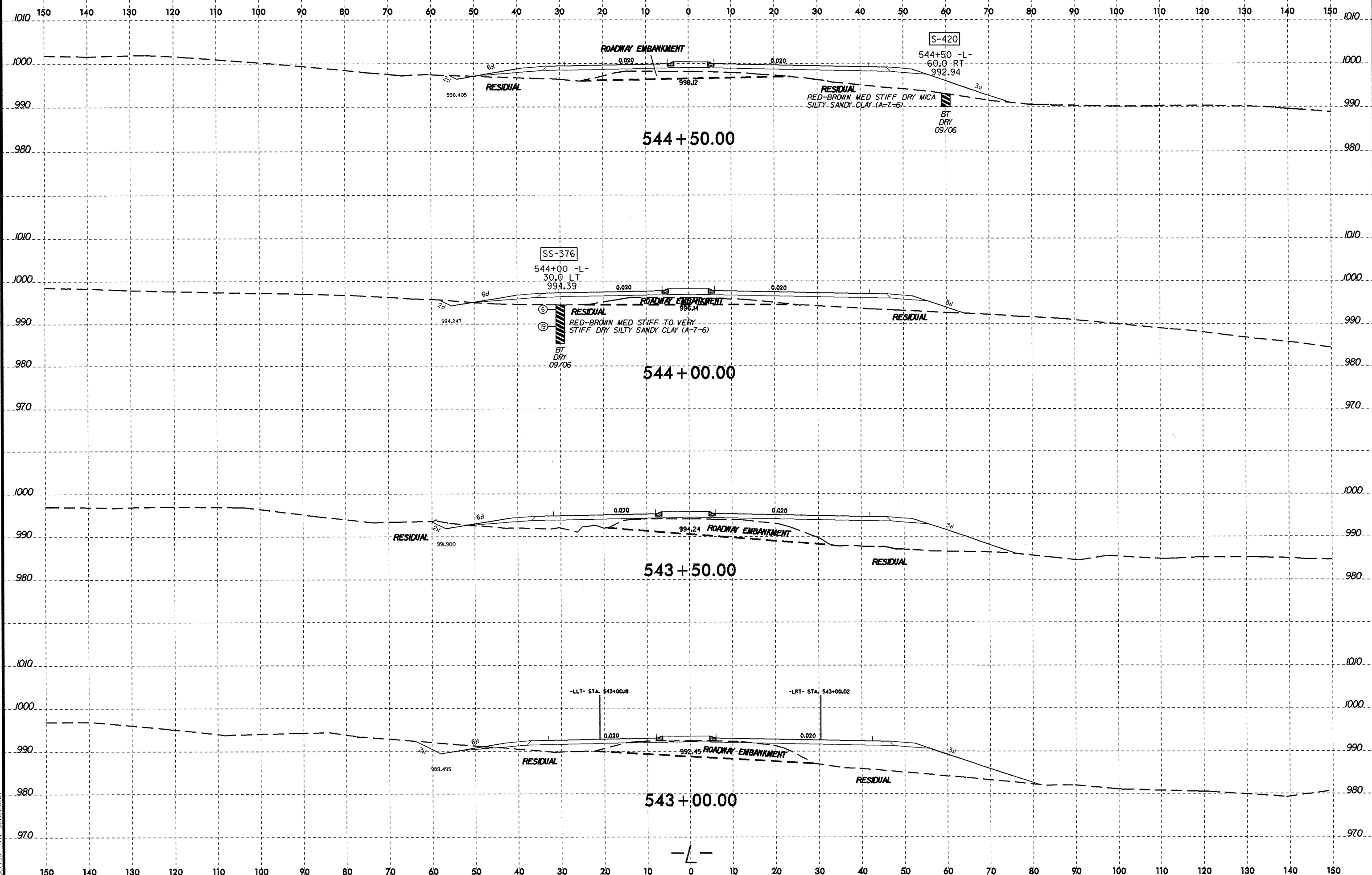
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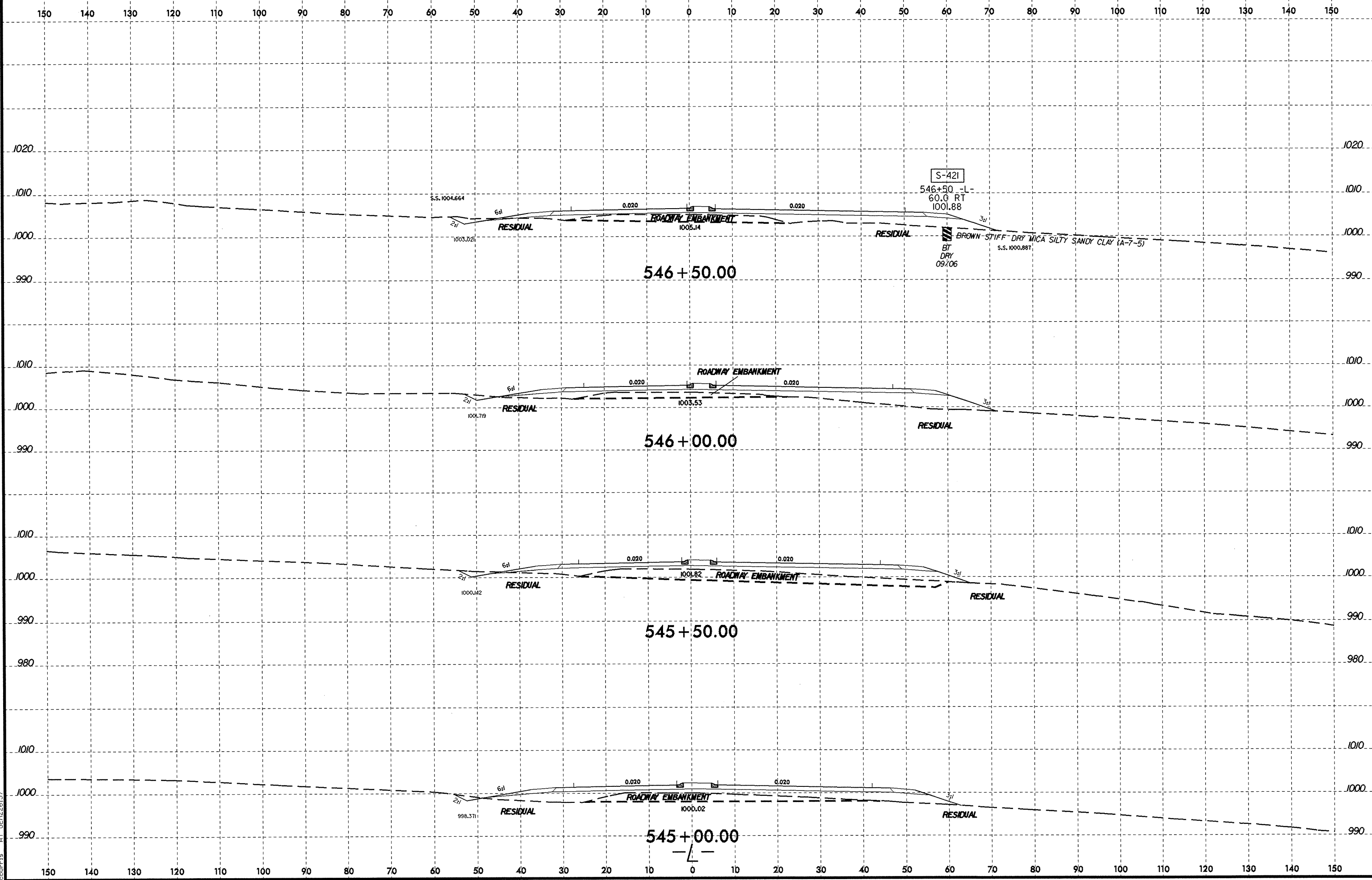
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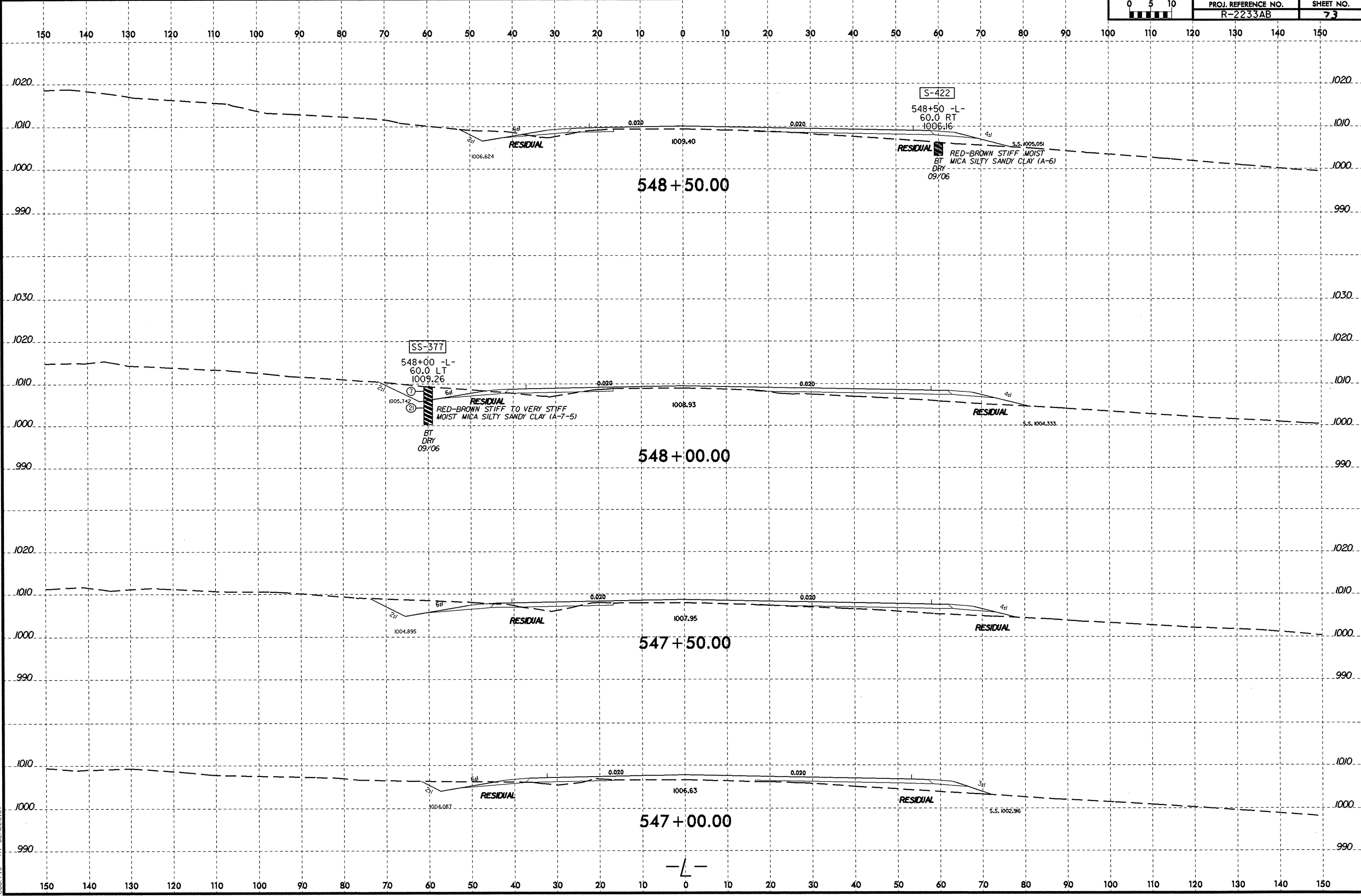
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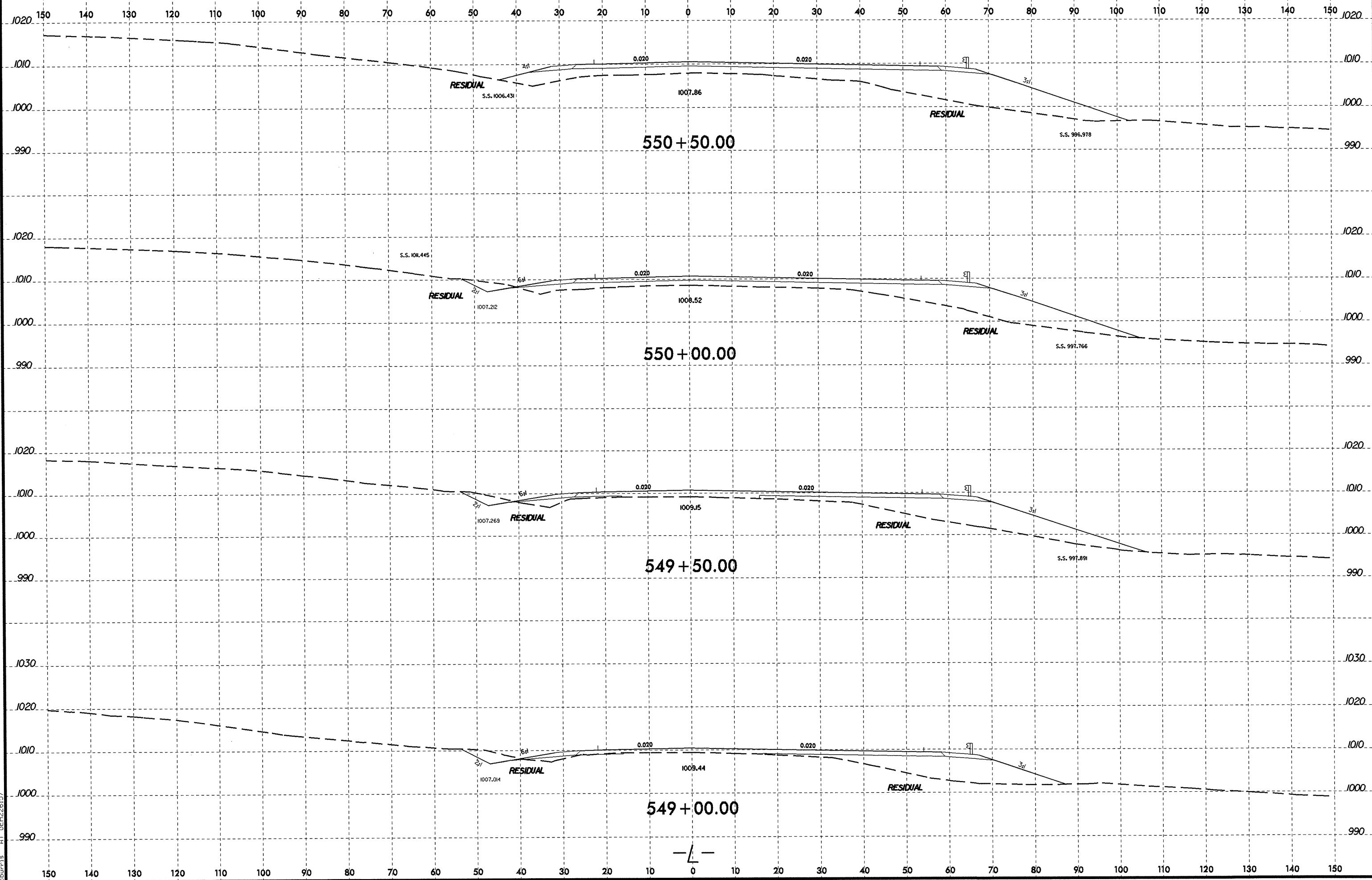
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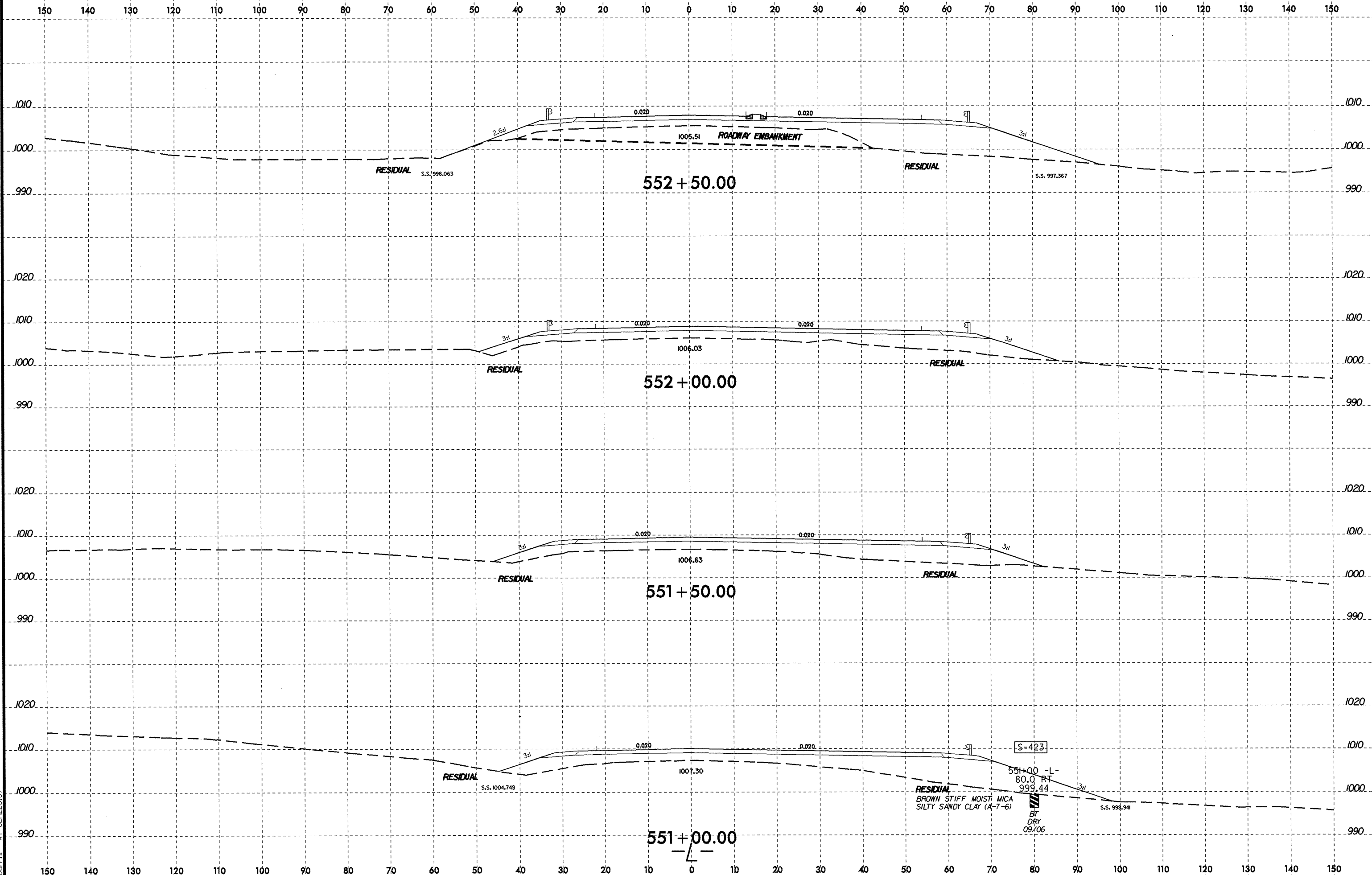
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552+50.00

552+00.00

551+50.00

551+00.00

BROWN STIFF MOIST MICA  
SILTY SANDY CLAY (A-7-6)  
BT  
DRY  
09/06

S=423

551+00 -L-  
80.0 RT  
999.44

S.S. 998.94

S.S. 998.063

S.S. 997.367

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1007.30

1006.63

1006.03

1005.51

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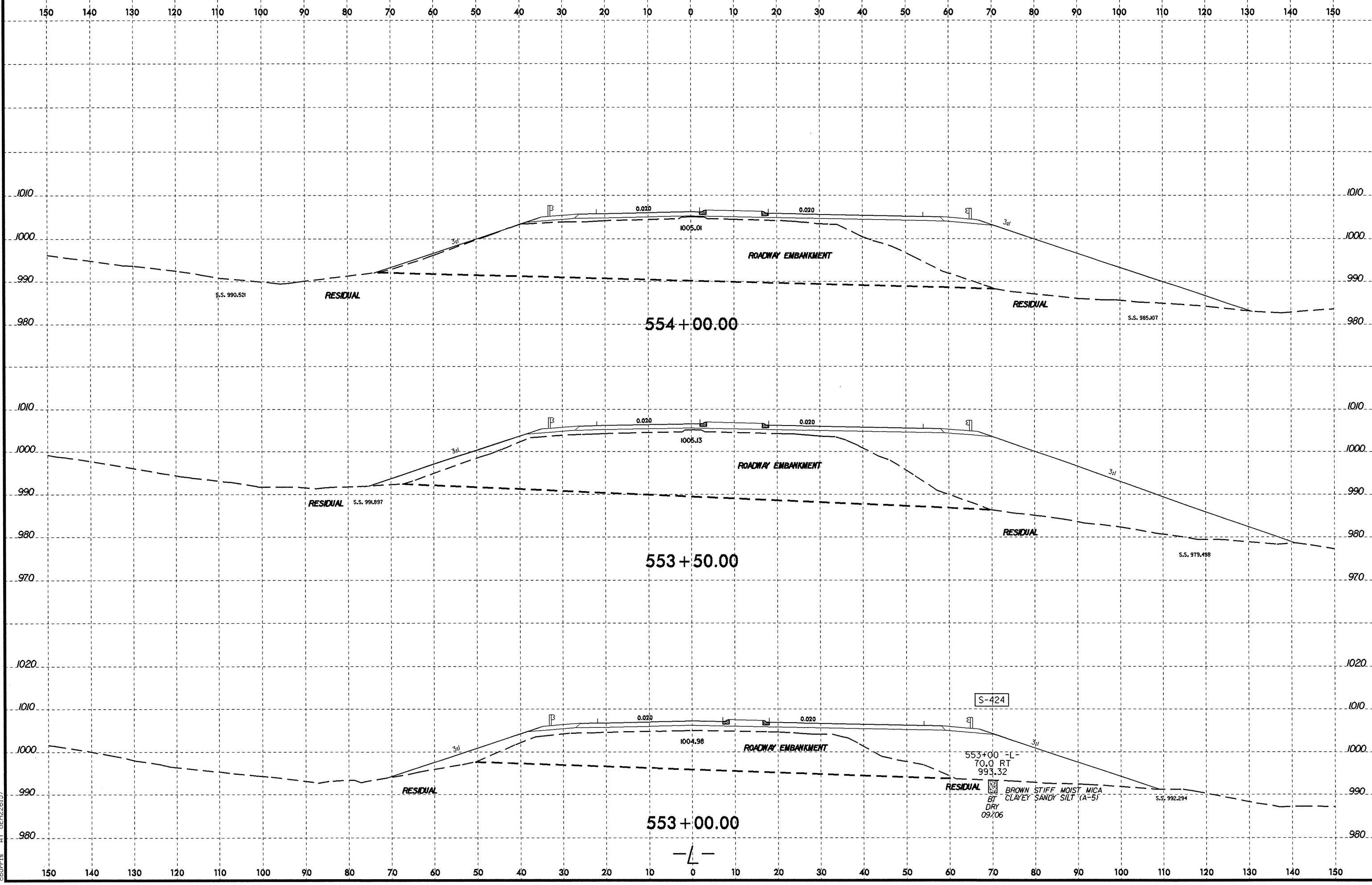
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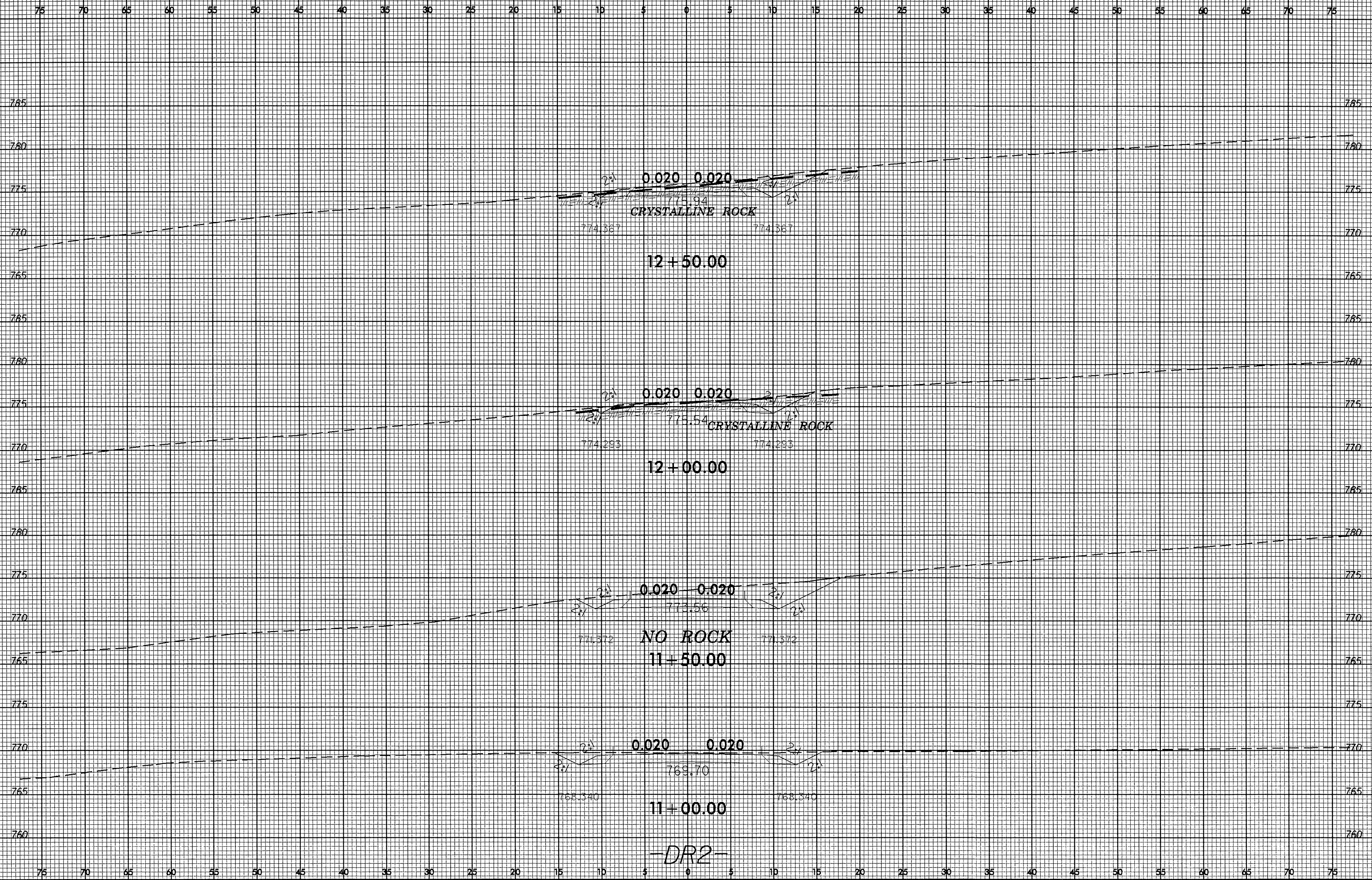
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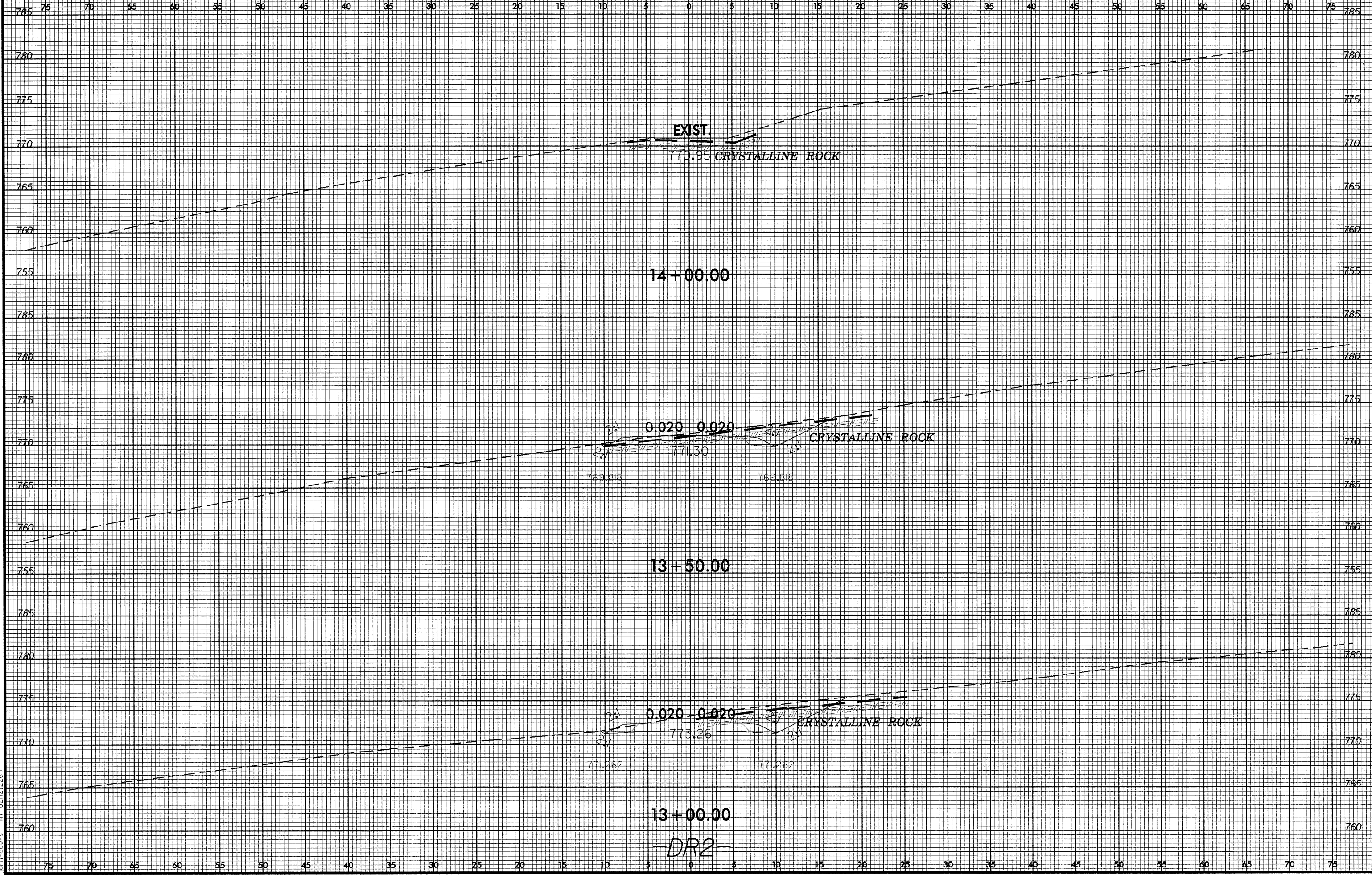


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SOIL TEST RESULTS

Table with columns: SAMPLE NO., OFFSET, STATION, DEPTH INTERVAL, AASHTO CLASS., L.L., P.I., % BY WEIGHT (C.SAND, F.SAND, SILT, CLAY), % PASSING (SIEVES) (10, 40, 200), % MOISTURE, % ORGANIC. Rows include samples SS-215 to SS-290 and MS-251, MS-278.

SOIL TEST RESULTS

Table with columns: SAMPLE NO., OFFSET, STATION, DEPTH INTERVAL, AASHTO CLASS., L.L., P.I., % BY WEIGHT (C.SAND, F.SAND, SILT, CLAY), % PASSING (SIEVES) (10, 40, 200), % MOISTURE, % ORGANIC. Rows include samples SS-291 to SS-355.



## SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-356	70 LT	500+00	0.00-1.50	A-7-5(7)	57	21	22.3	33.8	3.3	40.5	99	89	47	-	-
S-356A	85 LT	512+00	0.00-23.00	A-5(8)	44	10	8.9	27.8	28.8	34.5	100	95	73	-	-
S-357	80 LT	514+00	0.00-6.00	A-7-5(38)	78	42	3.7	19.1	2.2	75.1	100	98	80	-	-
S-358	80 LT	514+00	6.00-26.00	A-7-5(17)	62	22	15.6	18.7	17.0	48.7	100	92	68	-	-
S-359	60 RT	518+00	0.00-7.00	A-7-5(18)	62	29	13.8	20.5	8.9	56.8	92	85	64	-	-
SS-360	100 LT	522+00	0.00-1.50	A-7-5(21)	60	25	12.8	13.4	8.9	64.9	100	92	76	-	-
SS-361	100 LT	522+00	4.00-5.50	A-7-5(7)	56	12	20.7	27.4	17.4	34.5	98	85	57	-	-
S-362	70 RT	525+50	0.00-20.00	A-4(3)	38	10	27.2	29.4	19.1	24.3	99	80	50	-	-
SS-363	40 RT	528+00	0.00-1.50	A-7-5(6)	48	17	29.6	21.5	8.4	40.5	94	75	49	-	-
SS-364	60 RT	531+00	0.00-1.50	A-7-6(5)	41	15	24.1	26.7	10.6	38.5	89	76	49	-	-
SS-365	60 RT	531+00	9.40-10.90	A-6(1)	37	13	35.9	26.7	5.0	32.4	96	75	39	-	-
SS-366	60 RT	531+00	14.40-15.90	A-4(0)	34	3	31.0	37.7	21.2	10.1	98	83	38	-	-
SS-367	100 RT	534+00	0.00-1.50	A-4(2)	30	9	21.7	28.8	15.1	34.4	98	86	53	-	-
SS-368	100 RT	534+00	4.00-5.50	A-1-b(0)	20	NP	48.2	34.9	6.8	10.1	65	48	14	-	-
SS-369	100 RT	534+00	9.00-10.50	A-2-5(0)	43	5	38.9	32.4	18.5	10.1	98	74	35	-	-
SS-370	70 LT	535+00	0.00-1.50	A-4(2)	26	10	26.1	30.2	9.2	34.4	96	82	47	-	-
SS-371	70 LT	535+00	4.00-5.50	A-1-b(0)	26	4	40.3	32.0	9.4	18.2	52	38	17	-	-
SS-372	70 LT	535+00	9.00-10.50	A-1-a(0)	29	NP	56.3	24.9	10.6	8.1	49	27	12	-	-
SS-373	50 RT	536+50	0.00-1.50	A-7-5(25)	66	32	15.0	15.8	8.4	60.8	100	91	73	-	-
S-374	60 LT	541+00	0.00-6.00	A-7-6(15)	59	36	22.8	19.6	7.2	50.5	87	74	53	-	-
S-375	60 LT	541+00	6.00-14.00	A-7-5(8)	48	17	23.0	26.0	24.7	26.2	99	86	57	-	-
SS-376	30 LT	544+00	0.00-1.50	A-7-6(21)	57	29	15.1	16.5	13.8	54.5	99	90	71	-	-
SS-377	60 LT	548+00	0.00-1.50	A-7-5(10)	54	22	26.2	21.4	18.1	34.3	96	78	55	-	-
S-378	100 RT	565+50	0.00-13.00	A-6(4)	36	11	21.2	29.7	20.9	28.3	99	87	55	-	-
S-379	70 LT	571+00	0.00-17.00	A-6(7)	38	16	21.6	24.0	22.1	32.3	98	85	58	-	-
SS-380	30 LT	577+00	0.00-1.50	A-7-6(10)	48	22	22.4	24.0	17.3	36.3	97	84	57	-	-
SS-381	30 LT	577+00	3.80-5.30	A-6(7)	40	19	24.2	24.6	12.8	38.3	93	79	52	-	-
SS-382	30 LT	577+00	8.80-10.30	A-7-6(10)	51	25	28.1	23.6	10.0	38.3	99	82	52	-	-
SS-383	30 LT	577+00	13.80-15.30	A-5(3)	48	9	16.3	46.2	25.3	12.1	100	94	48	-	-
S-384	60 LT	581+00	0.00-7.00	A-7-5(38)	80	45	13.3	13.7	10.4	62.6	100	92	76	-	-
S-385	60 LT	581+00	7.00-25.00	A-7-5(4)	42	11	21.4	31.1	27.3	20.2	100	91	54	-	-
SS-386	40 RT	577+50	0.00-1.50	A-7-6(9)	41	17	22.2	16.3	21.1	40.4	99	85	64	-	-
SS-387	40 RT	577+50	4.00-5.50	A-2-4(0)	26	9	48.8	27.0	3.9	20.2	97	68	26	-	-
SS-388	30 LT	11+00	4.00-5.50	A-5(0)	44	2	19.6	40.6	23.7	16.1	100	90	48	-	-
SS-389	30 LT	11+00	9.00-10.50	A-4(0)	34	NP	30.3	37.7	19.9	12.1	98	79	40	-	-
MS-390	30 RT	11+00	19.00-20.50				0.0	0.0	0.0	0.0	0	0	0	15.2	-
SS-390	30 LT	11+00	19.00-20.50	A-4(0)	32	3	25.8	36.5	23.5	14.1	98	83	45	-	-
SS-391	CL	12+00	0.00-1.50	A-7-6(9)	43	20	20.8	23.6	15.2	40.4	95	83	57	-	-
S-392	CL	14+00	0.00-3.00	A-7-6(18)	57	29	15.1	17.4	9.0	58.5	92	84	65	-	-
S-393	25 LT	15+50	0.00-5.00	A-7-6(15)	54	26	19.4	23.4	18.9	38.3	100	90	62	-	-
S-394	25 LT	15+50	5.00-38.00	A-7-6(5)	43	14	27.6	24.4	21.7	26.2	99	83	52	-	-
SS-395	35 RT	18+00	4.50-6.00	A-5(2)	50	6	17.0	41.8	19.1	22.2	98	91	48	-	-
MS-396	35 RT	18+00	29.50-31.00				0.0	0.0	0.0	0.0	0	0	0	25.0	-
SS-396	35 RT	18+00	29.50-31.00	A-5(4)	47	9	25.6	28.7	27.5	18.2	97	81	52	-	-
S-397	50 RT	442+00	0.00-3.00	A-2-4(0)	26	4	37.3	39.9	12.7	10.0	86	69	23	-	-
S-398	60 RT	425+00	0.00-3.00	A-2-4(0)	24	7	36.9	32.9	18.2	12.0	87	69	30	-	-
S-399	40 RT	422+00	0.00-3.00	A-2-4(0)	19	3	37.7	35.1	9.1	18.1	94	76	29	-	-
S-400	60 RT	438+50	0.00-3.00	A-7-6(8)	44	18	17.7	24.7	27.6	30.1	93	86	56	-	-
S-401	40 RT	445+00	0.00-3.00	A-7-6(8)	43	16	20.1	20.3	19.6	40.1	95	86	59	-	-
S-402	30 RT	448+60	0.00-3.00	A-6(4)	31	12	23.3	26.3	18.4	32.1	96	84	53	-	-
S-403	30 RT	473+00	0.00-3.00	A-6(7)	40	16	24.5	17.9	15.5	42.1	97	83	59	-	-
S-404	30 RT	450+00	0.00-3.00	A-7-6(8)	47	28	25.9	29.9	12.1	32.1	90	77	45	-	-
S-405	40 RT	475+00	0.00-3.00	A-7-5(18)	56	25	11.6	20.3	15.9	52.2	98	92	71	-	-
S-406	30 RT	465+00	0.00-3.00	A-4(2)	38	9	29.9	30.1	20.0	26.1	97	81	45	-	-
S-407	30 RT	467+50	0.00-3.00	A-7-5(22)	61	29	11.4	20.9	15.5	52.2	99	93	72	-	-
S-408	30 RT	477+00	0.00-3.00	A-7-5(17)	53	23	11.4	20.9	15.5	52.2	100	95	72	-	-
S-409	30 RT	509+00	0.00-3.00	A-6(5)	35	15	17.9	31.5	14.5	36.1	93	84	51	-	-
S-410	10 RT	512+00	0.00-3.00	A-7-6(18)	53	24	10.6	18.9	14.3	56.2	99	93	73	-	-
S-411	25 RT	514+00	0.00-3.00	A-7-5(20)	58	26	10.8	19.1	13.9	56.2	99	93	72	-	-
MS-412	30 RT	516+00	0.00-3.00				0.0	0.0	0.0	0.0	0	0	0	30.2	-
S-412	30 RT	516+00	0.00-3.00	A-7-5(29)	72	28	6.2	12.0	13.5	68.2	99	96	82	-	-
S-413	30 RT	520+00	0.00-3.00	A-7-5(27)	68	26	5.8	12.6	9.3	72.2	100	98	83	-	-
S-414	30 LT	530+00	0.00-3.00	A-4(0)	32	NP	31.9	38.1	18.0	12.0	100	93	37	-	-
S-415	50 LT	533+00	0.00-3.00	A-4(0)	30	NP	28.7	41.3	18.0	12.0	100	85	38	-	-
S-416	40 LT	12+00	0.00-3.00	A-7-5(16)	54	20	11.0	19.1	9.7	60.2	100	93	73	-	-

## SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-417	CL	12+00	0.00-3.00	A-7-6(13)	50	21	7.8	28.3	13.7	50.2	96	93	65	-	-
S-418	CL	15+00	0.00-3.00	A-7-6(11)	45	18	8.4	30.3	17.2	44.1	99	95	65	-	-
S-419	40 RT	14+00	0.00-3.00	A-2-4(0)	18	4	44.6	26.8	11.5	17.1	77	52	25	-	-
S-420	60 RT	544+50	0.00-3.00	A-7-6(9)	41	20	19.3	21.6	14.8	44.3	94	84	59	-	-
S-421	60 RT	546+50	0.00-3.00	A-7-5(5)	42	11	19.9	28.4	31.5	20.1	95	84	56	-	-
S-422	60 RT	548+50	0.00-3.00	A-6(3)	32	16	29.4	30.4	28.1	12.1	95	78	44	-	-
S-423	80 RT	551+00	0.00-3.00	A-7-6(9)	46	19	19.7	26.0	20.0	34.2	95	84	57	-	-
S-424	70 RT	553+00	0.00-3.00	A-5(1)	44	7	25.6	34.4	25.9	14.1	94	79	45	-	-