

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	U-2579C	1	98
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34839.1.1		P.E.	
		RAW & UTIL.	

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

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

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	369+00.00 to 478+00.00	4-11	15-21	31-96
-Y1-	11+00.00 to 48+50.00	12,6,13	22-23	
-YIRPB-	10+00.00 to 32+88.63	5-6	24	
-YIRPC-	10+00.00 to 32+95.71	6	25-26	
-YIRPD-	10+00.00 to 32+31.74	8,7,6	27	
-YILPB-	10+00.00 to 22+19.35	6	28	
-Y2-	10+00.00 to 26+50.00	14,9	29	
-YIDET-	17+29.79 to 31+62.46	6,13	30	

SAMPLE SHEETS 97-98

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34839.1.1 (U-2579C) F.A. PROJ. _____
COUNTY FORSYTH
PROJECT DESCRIPTION WINSTON-SALEM NORTHERN BELTWAY
(EASTERN SECTION) FROM US 311 TO US 158 (FUTURE I-74)

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. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

CONTRACT: ID: U-2579C

PERSONNEL

C.C. MURRAY

J.E. ESTEP

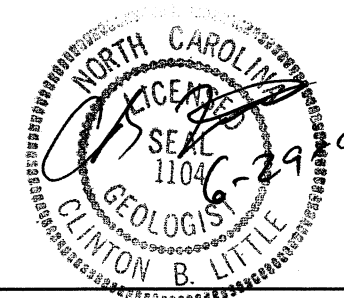
M.R. MOORE

INVESTIGATED BY R.Q. CALLAWAY

CHECKED BY C.B. LITTLE

SUBMITTED BY C.B. LITTLE

DATE JUNE 2010



DRAWN BY: J.K. McClURE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

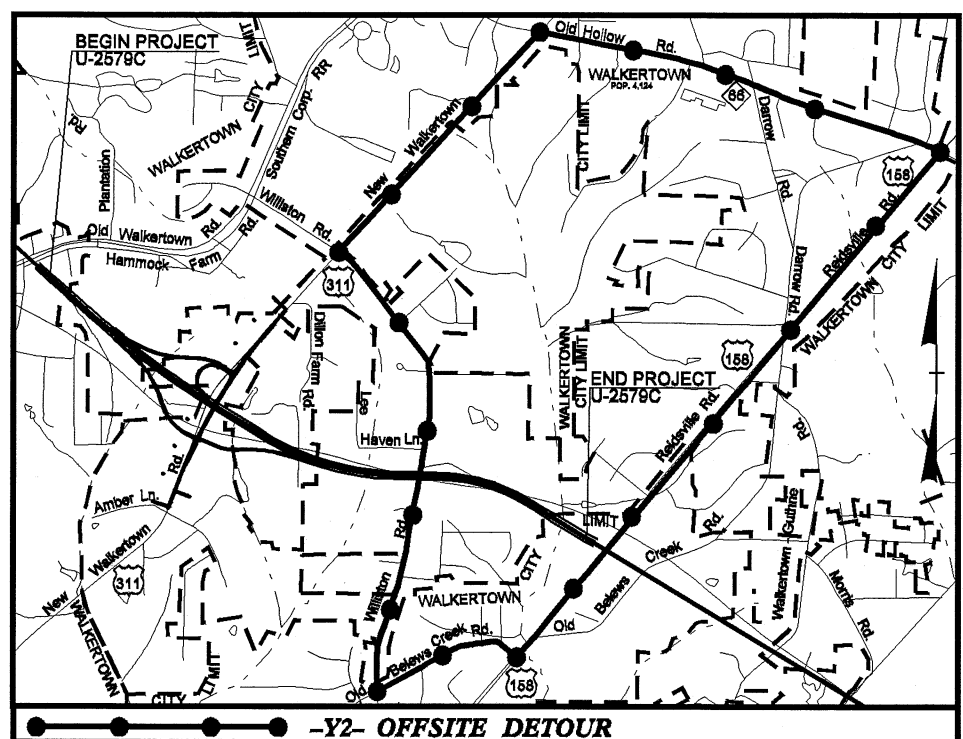
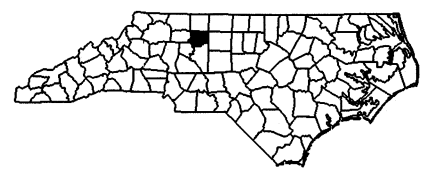
PROJECT REFERENCE NO. 34839.11 (U-2579C)	SHEET NO. 2
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SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASTM D1586, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE ASTM SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, MOISTURE CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR , SUBANGULAR , SUBROUNDED , OR ROUNDED .	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 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)	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN 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 60 BLOWS. STRATA CORE RECOVERY (SCREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 A-6, A-7 SYMBOL (see grid patterns)	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SILT - CLAY SOILS SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	WEATHERING FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> 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. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> 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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> 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.	
	GROUND WATER 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		
	MISCELLANEOUS SYMBOLS ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES	SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD	
CONSISTENCY OR DENSENESS PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²) GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE <4 4 TO 10 10 TO 30 30 TO 50 >50 N/A GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD <2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30 <0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4	ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST V - VOID RATIO F - FINE FOSS - FOSSILIFEROUS FRAC - FRACTURED, FRACTURES FRAGS - FRAGMENTS HI - HIGHLY MED - MEDIUM MICA - MICACEOUS MOD - MODERATELY NP - NON PLASTIC ORG - ORGANIC PMT - PRESSUREMETER TEST SAP - SAPROLITIC SD - SAND, SANDY SL - SILT, SILTY SLI - SLIGHTLY TCR - TRICONE REFUSAL M - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA - WEATHERED U - UNIT WEIGHT D - DRY UNIT WEIGHT S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO	ROCK HARDNESS VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE 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 FINGER NAIL.	
TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053 BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.) GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3			
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL LIQUID LIMIT - SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE			
PLASTICITY NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH			
COLOR DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.			
	EQUIPMENT USED ON SUBJECT PROJECT 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	FRACTURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET BEDDING TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	BENCH MARK: <hr/> ELEVATION: FT.
			NOTES: Soil Strata Shown Thru Borings.

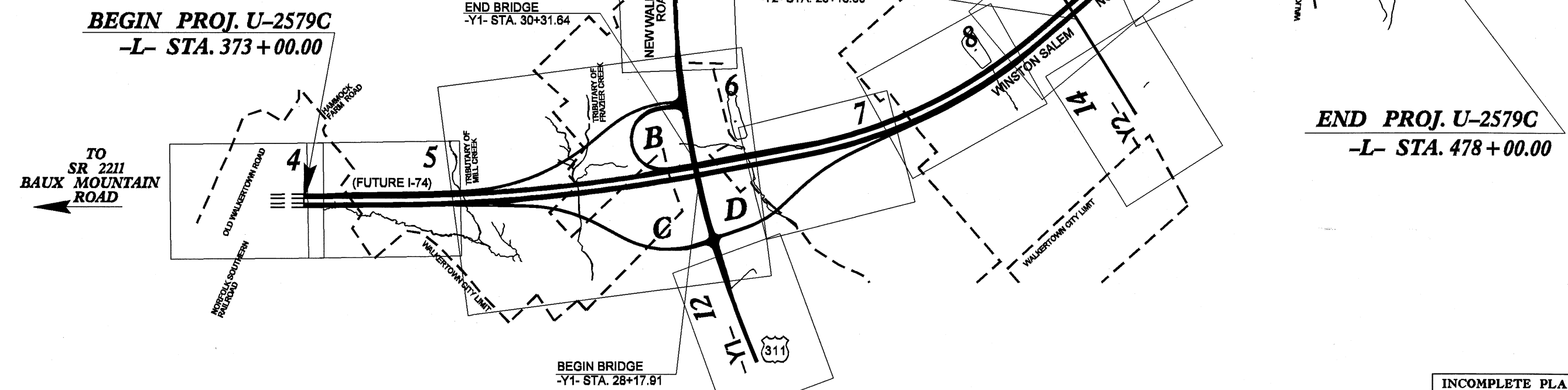
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579C	2A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34839.1.1	NA	PE	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
FORSYTH COUNTY

LOCATION: WINSTON - SALEM NORTHERN BELTWAY (EASTERN SECTION)
FROM US 311 TO US 158 (FUTURE I-74)
TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE, SIGNING, SIGNALS,
CULVERTS AND STRUCTURES.

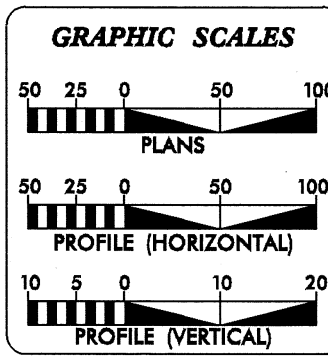


TIP PROJECT: U-2579C



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WALKERTOWN
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD

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



DESIGN DATA

ADT 2014 =	61464
ADT 2034 =	88984
DHV =	10 %
D =	60 %
T =	18 % *
V =	70 MPH
* TTST 12 %	DUAL 6 %

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT U-2579C	= 1.895 Miles.
LENGTH OF STRUCTURE PROJECT U-2579C	= 0.094 Miles.
TOTAL LENGTH OF PROJECT U-2579C	= 1.989 Miles.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 15, 2009

LETTING DATE:
JAN 20, 2015

TONY HOUSER, PE
PROJECT ENGINEER

LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____

ROADWAY DESIGN ENGINEER

SIGNATURE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

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CONTRACT:



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

STATE PROJECT: 34839.1.1 (U-2579C)
FEDERAL PROJECT: N.A.
COUNTY: FORSYTH
DESCRIPTION: WINSTON SALEM NORTHERN BELTWAY (EASTERN SECTION)
(FUTURE I-74) FROM US 311 TO US 158

SUBJECT: GEOTECHNICAL REPORT – Inventory

PROJECT DESCRIPTION

The U-2579C project is to the northwest of the U-2579B project and connects with it. The aggregate of the U-2579 projects are part of future I-74, and also the eastern half, more or less, of a future Winston-Salem beltway. Predictably enough, the northwest end of “C” will connect to the southeast end of U-2579D and so on, to the end at “F”.

From the beginning at station -L- 373+00 to -L- 401+00, the -L- line will be on embankment fill up to 70’ thick. This grade is required by a railroad crossing in the following segment: U-2579D. A small amount of alluvial soil was found adjacent to streams, but most of the soil is residual, produced by weathering rock. Where deeper drilling was done the residual soil is up to 50’ thick. A succession of soil types from fine to coarse is encountered from the surface to rock. A-7 and A-6 soil is found at the undisturbed surface, followed by A-5 or A-4 then A-2 above rock. Even with the development of the clayey or silty soils in the section, tests of the soil plasticity index (PI) returned values of less than 20. According to the geologic map, biotite gneiss is the rock that disintegrated to form the soil in the project area. The mica that is a constituent of this rock is highly resistant to weathering, contributes to low soil plasticity, and doesn’t pack very well.

The field investigation was conducted from July 1, 2008 to August 15, 2008, using a CME-550 drill machine with an automatic hammer. Standard Penetration Tests, (SPT), were performed through hollow stem augers at selected locations. Additional borings were conducted with solid augers for delineation of the limits of rock. Representative soil samples were collected and forwarded to the Materials and Tests Unit laboratory for soil quality analysis, moisture content and ASSHTO classification. All available drill-holes are plotted on the plan view and also appear projected into the profiles.

The following alignments, totaling 5.06 miles, were investigated.

Alignment	Station	to	Station	Length Feet
-L-	369+00.00		478+00	10,900
-Y1-	11+00.00		48+50	4,750
-Y1RPB-	10+00.00		32+88.63	2,288.63
-Y1RPC-	10+00.00		32+95.71	2,295.71
-Y1RPD-	10+00.00		32+31.74	2,231.74
-Y1LPB-	10+00.00		22+19.35	1,219.35
-Y2-	10+00.00		26+50	1,650
-Y1DET-	17+29.79		31+62.46	1,432.67

5.06 miles, or 26,768 feet.

ITEMS OF SPECIAL GEOTECHNICAL INTEREST

1.) Groundwater:

The 24 hr water level was found at or above planned grade in some borings for -L-, -Y1RPB- and -Y1LPB-. The locations are posted on a table in the Physiography and Geology section below.

2.) All-weather spring fed seeps or streams:

There are several streams, seeps and water crossings within the boundaries of this project. The locations are posted on a table in the Physiography and Geology section below.

3.) Wet soil.

Wet soil is adjacent to streams.

4.) Rock within 10’ of grade, or above grade.

Rock was found within 10’ below grade, or above grade on the project. The locations are posted on a table in the Physiography and Geology section below.

5.) High liquid limit, (LL) low Plasticity Index, (PI), soil.

The high LL, low PI soil test results of this project and the micaceous nature of the rock indicate much of the soil will be low strength and light weight.

6.) Wetlands posted on roadway plans.

The wetlands posted on the roadway plans are not within the National Wetland Inventory. It is possible that they are from a study to identify areas amenable to future wetland mitigation or creation.

7.) Artificial Fill

At -L- 437+50 a section of artificial fill is shown with the water table at the fill/residual soil interface. This location is a topographic low, possibly a wet weather run. There is 30 feet of embankment fill to be placed over 15’ of artificial fill soil containing trash, with water at the base.

PHYSIOGRAPHY AND GEOLOGY

Physiography

The project is in the Piedmont Physiographic Province, between the Coastal Plain and the Blue Ridge Provinces. The Piedmont physiographic province is characterized as a peneplane that was eroded flat,

then uplifted and is now being incised by the reenergized streams. The ridge tops are the remnants of the original planar surface that was continuous across the piedmont. In the eroding terrain of the piedmont, rock is more likely to be near land surface in the valleys than on the ridge tops.

The expectation is that the ridges and valleys would have a northeast – southwest trend, reflecting the “grain” of the underlying metamorphic rock. On the scale of this project, the gross topographic features have a north 20 east alignment rather than the north 45 to 55 east that would be expected. This may be an area of local structural grain. The –L- alignment crosses most of the little valleys at a 90 degree angle.

Geology

Throughout North Carolina the geologic provinces run northeast – southwest and are divided on the basis of metamorphic grade or dominant rock type. According to the 1985 Geologic Map of North America, this project is entirely within the Milton Belt. The Winston-Salem Geologic quadrangle map does not delineate the Milton Belt, and places Winston Salem within the Charlotte Belt. In either case it is mapped as micaceous schist and gneiss. The Sauratown Mountains Anticlinorium is the geologic belt to the northwest, and the granitic rock of the Charlotte belt is to the southeast.

Soil Properties

The first subdivision in the classification of soil is naming it as residual, embankment fill, or alluvial soil. After that the AASHTO classification is partly based on grain size, but is also an attempt to predict the soil behavior as a construction material.

Residual soil is a product of in-place chemical destruction of the original rock. Chemical weathering reduces rock strength making it more susceptible to physical erosion, transport, and removal by natural processes. The present residual soil thickness is influenced by the interaction between chemical weathering processes and physical weathering processes on the various rock types. For example, the preliminary boring for the U.S.311 bridge at –Y1-30+31 elevation 960’, (–L- 409), found 40’ of residual soil and ended in residual soil. The borings at –L- 406+25, elevation 970’, found rock at a depth of 35’. The dominant soil type encountered on the project was low plasticity A-2 micaceous sandy soil, the expected soil derived from weathering the gneiss and schist of this geologic province. Eventually, chemical weathering processes produce the red A-7 cap clay that appears most frequently on the ridge tops.

Alluvial Soil: Soil grains that have been transported by a natural process, water or wind and deposited away from their original location forms alluvial soil. This process of transport and deposition leaves visible layering in the soil defined by a physical characteristic such as color, grain size, density, or sorting. Alluvial soil was found in this project only associated with floodplain areas. Generally it was sand, tending toward A-1 to A-2-4, the clays staying in suspension and being transported downstream, while the sand dropped out.

Roadway Embankment, Construction may require addition of soil to bring the natural ground surface to the desired elevation. When soil is transported to a new site and compacted it is fill soil. If it is handled under the standards or aegis of the NCDOT, it becomes Roadway Embankment. If some other entity is responsible for the fill placement or the conditions are unknown, the fill is classed as Artificial Fill.

Artificial fill was identified on this project, from -L- 434+57 to -L- 438+00. The profile shows this fill to be on one side of an existing drainage with a steep slope at the base.

Rock Properties

This investigation is concerned with the depth to rock and the areal extent of rock at or above grade. Rock samples were not collected or analyzed in this investigation. Rock in this region is strongly foliated micaceous schist and gneiss.

All cross sections that contain a boring terminated on rock above grade, are included as part of this report. The depth to rock indicated by auger refusal is variable in cross section and profile. Rock was found less than 10’ below grade, or above grade in the following locations, extracted from an examination of the profile.

Rock at or near grade

Alignment	Station	to	Station	note
-L-	416+50		416+50	Single point
-L-	453+00		459+50	centerline

Groundwater Properties

Water was found less than 10’ below grade, or above grade in the following locations

Alignment	Station	to	Station	Location
-L-	404+00		411+00	
-L-	415+50		417+00	Single point
-L-	420+50		425+50	
-L-	446+00		498+00	Above Grade
-Y1RPB-	30+50		31+50	Below Grade
-Y1LPB-	10+50		12+00	Below Grade

All-weather spring fed seeps or streams:

The stations in the table below record the location of springs seeps or streams, some which may not have year round flow.

Line	Station			Size of stream: eg: 1 st order ¹ .
-L-	374+40		384+00	Wetland ² on right side.
-L-	387+50		388+50	1 st order stream, crosses left to right.
-L-	397+75		398+50	2 nd order stream, continues to Y1RPD & Y1RPB
-L-	414+25		414+50	1 st order, continues to –Y1-31+50
-L-	427+00		428+25	Wetland, (footnote 2)

¹ A stream without tributaries is first order. Two first order streams converge to make a second order stream. A third order stream requires two second order streams as tributaries.

² Wetland per Roadway Plan

-L-	438+00		438+25	1 st order stream, crosses left to right
-L-	473+25		473+75	2 nd or 3 rd order stream, Lower Mill Creek
-Y1RMPB-	20+75		21+25	2 nd order stream
-Y1RMPD-	19+75		20+25	2 nd order stream
-Y1RMPD-	27+25		27+75	2 nd order stream plus wetland, (footnote 2)

GEOTECHNICAL DESCRIPTIVE ANALYSIS

Because this project is neither very large nor very complex, it is not broken up and is described here as 1 “segment”.

Physical Description

This segment is 10,900' long, all new alignment, beginning at a grade separation over Norfolk Southern Railroad. Access will be provided to New Walkertown Road, (Y1), by an interchange with 3 ramps and a loop.

The Norfolk Southern grade separation requires that the initial 2850' of the -L- alignment be on embankment, much of it up to 80' thick. The 3000' following is built mostly on cut, then 1300' on embankment up to 50' thick, then 2600' on cut, mostly 40' thick, and then an 800' stream valley crossing mostly on fill up to 40' thick. This section ends at 478+50. Rock is encountered in some of the cut sections, as noted in the table below. There are several stream crossings.

-L-

This segment is mapped in plan on sheets 4 through 11, and profile sheets 15 through 21. Cross sections were printed for areas of shallow rock. The -L- alignment begins at station -L-373+00 elevation 1042, and then at station 375+00, it begins a descent to elevation 932 at station -L-415+00. From there, the road climbs back to elevation 948 at station 434+50, then drops to elevation 882' at station 478+00, and the end of this project.

Cuts and Fills

Alignment	Station	to	Station	Note
-L-	373+00		401+50	Fill, maximum 80' thick
-L-	400+50		413+00	Cut, 25 to 30' thick
-L-	413+00		415+50	Fill, one valley, 20' deep
-L-	415+50		427+50	Cut, 20' - 25' two hill tops
-L-	427+50		429+50	Fill, one valley with pond.
-L-	429+50		431+00	Cut, nearly at grade, one hilltop.
-L-	431+00		444+00	Fill, one valley up to 50' deep ³
-L-	444+00		470+00	Cut, 20' to 40'
-L-	470+00		478+00	Bridge approaches and Bridge

Geology

This area is not only covered by the state geologic map, but was also included in the 1° x 2° Winston Salem quadrangle mapping. The mapping shows that the project is on Cambrian age

metamorphic rocks of the Charlotte belt, northwest of a Pennsylvanian age granite body that intrudes the metamorphic rock.

Soil

Most of this project has residual soil at the surface, and most of the proposed excavation involves residual soil. It is most likely that the planned embankments will be built from the planned cut areas.

The distribution of soil type for the 226 samples is as follows:

alignment	AASHTO class	Number / total	percent	
-L-	A-2-4	61	27%	Sand
-L-	A-2-5	21	9%	Silty Sand
-L-	A-2-6	2	1%	Silty Sand with Clay
-L-	A-4	39	17%	Silt
-L-	A-5	41	18%	Silt with high LL
-L-	A-6	9	2%	Clayey Silt
-L-	A-7-5	36	16%	Clay
-L-	A-7-6	14	6%	Clay

The samples with less than 36% silt-clay, and PI values less than 11, fall to the sand side, (A-2-4, A-2-5): 36% of total. (Coarser grained, low plasticity)

The clayey or silty sand, (A-2-6, A-2-7) classification specifies no more than 35% silt-clay, and PI greater than 10: Only 2 samples fell in this group. (coarser grained, high plasticity)

Silt soil, (A-4, A-5), specifies more than 35% silt-clay size grains, (-200), and PI values no greater than 10: 35% of total. (Fine grained, low plasticity)

Clay soil, (A-6, A-7), specifies more than 35% clay and PI values above 10: 24% (fine grained, high plasticity)

The total population of soil sample results is skewed toward low PI values, (71%). Only 8 of the 226 samples are Highly Plastic with PI values above PI=30. High liquid limit values are found in 49% of the samples with LL above 41.

No settlement issues are anticipated from the undisturbed residual soil beneath the embankments. The alluvial soil that was encountered adjacent to stream crossings was thin, less than 10' thick, and either loose wet sand or very stiff clay.

When soil with a high liquid limit is compacted, a variation in soil moisture of 1 or 2 percent will not have much effect on the compacted density, but the optimum density (and strength) of this kind of soil, will be relatively low. Historically though, it has been acceptable.

Rock

³ Embankment will be over artificial fill that has unknown subgrade drainage system.

Within the cut section from -L- 444+00 to 470+00, from -L- 452+50 to 461+00, rock was found within 10' of grade. Only one boring found rock above grade.

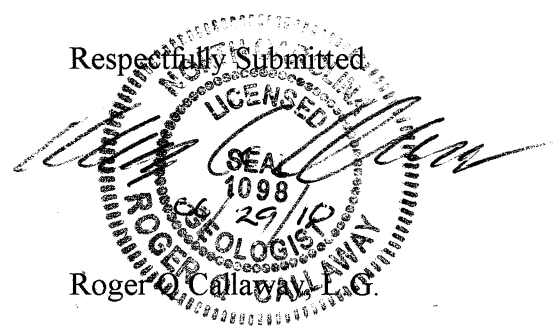
Groundwater

Static water levels measured during drilling indicate that groundwater will be encountered in much of the cut sections, at or near the planned grade elevation, during construction of this segment.

Align	Station	Grd Elevation	SWT ⁴ Elevation	Note
-L-	406+24, 84 Lt	952	948	
-L-	409+01, 110 Lt	942	940	
-L-	416+50, 125 Lt	936	936	
-L-	422+00, CL	939	935	
-L-	425+09, 91 Rt	941	936	
-L-	426+00, CL	942	933	
-L-	447+30, 112 Rt	929	924	
-L-	451+50, 110Rt	920	916	Artesian rise
-L-	453+50 CL	916	920	Artesian rise
-L-	456+50 CL	910	916	Artesian rise
-L-	457+25	908	911	
-L-	459+50	906	908	
-L-	462+75	901	900	
-L-	466+00	895	NM ⁵	
-L-	469+00	891	NM	

All-Weather Spring-Fed Seeps or Streams:

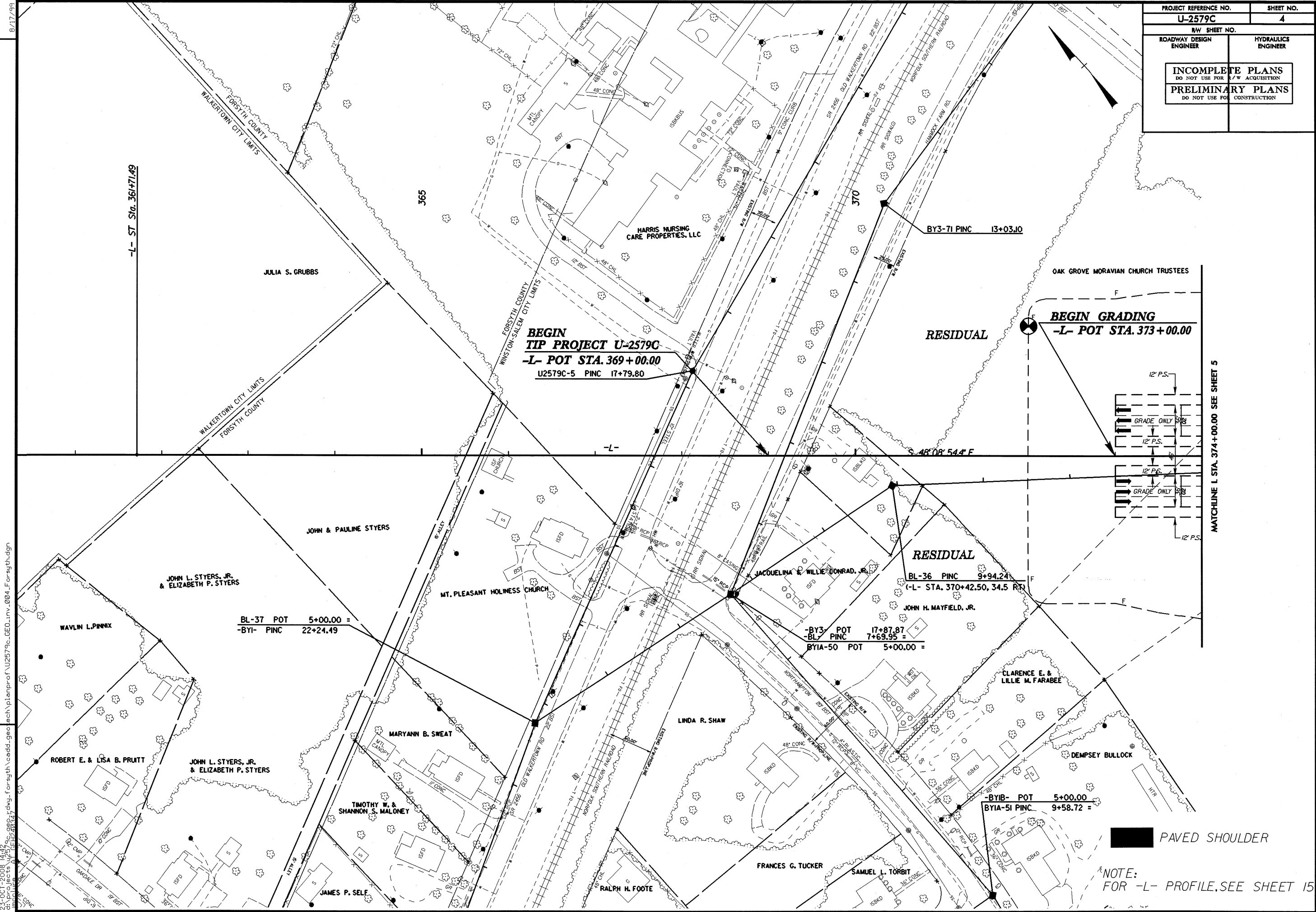
The locations of the water features are recorded in a table within the Physiography and Geology section above.



⁴ SWT: Static Water Table

⁵ NM = not measured

PROJECT REFERENCE NO.		SHEET NO.	
U-2579C		4	
RAW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



REVISIONS

23-OCT-2008 14:42
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-L- ST Sta. 361+71.49

BEGIN TIP PROJECT U-2579C
-L- POT STA. 369+00.00
 U2579C-5 PINC 17+79.80

BEGIN GRADING
-L- POT STA. 373+00.00

BL-37 POT 5+00.00 =
 -BYI- PINC 22+24.49

-BY3 POT 17+87.87
 -BL- PINC 7+69.95 =
 BY1A-50 POT 5+00.00 =

-BYIB- POT 5+00.00
 BY1A-51 PINC 9+58.72 =

PAVED SHOULDER

NOTE:
 FOR -L- PROFILE, SEE SHEET 15

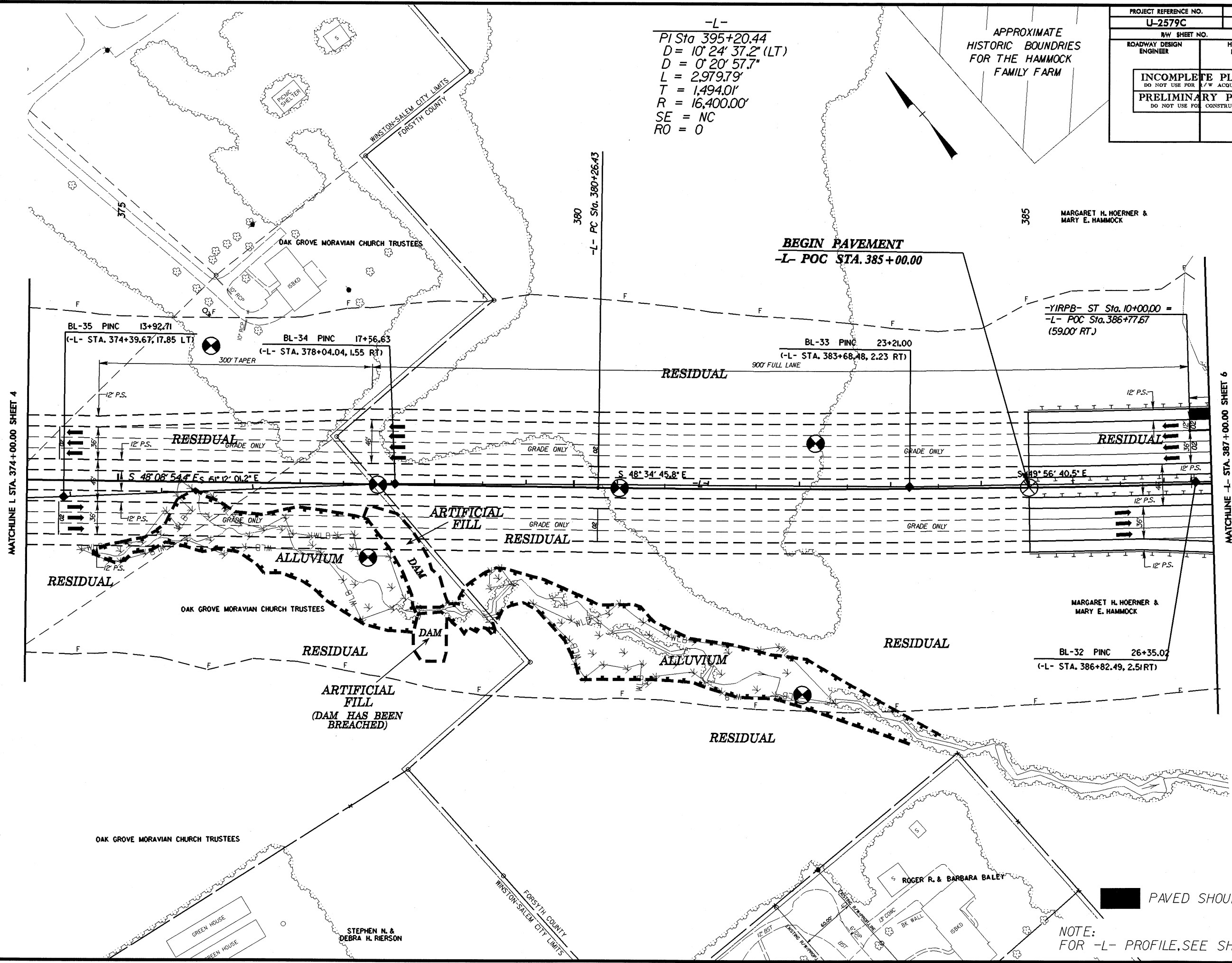
MATCHLINE I STA. 374+00.00 SEE SHEET 5

23-OCT-2008 14:43
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 MATCHLINE AT STA 374+00.00
 MATCHLINE AT STA 387+00.00
 REVISIONS
 8/17/99

PROJECT REFERENCE NO. U-2579C		SHEET NO. 5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

-L-
 PI Sta 395+20.44
 D = 10° 24' 37.2" (LT)
 D = 0° 20' 57.7"
 L = 2,979.79'
 T = 1,494.01'
 R = 16,400.00'
 SE = NC
 RO = 0

APPROXIMATE
 HISTORIC BOUNDARIES
 FOR THE HAMMOCK
 FAMILY FARM



BEGIN PAVEMENT
 -L- POC STA. 385+00.00

-YIRPB- ST Sta. 10+00.00 =
 -L- POC Sta. 386+77.67
 (59.00' RT.)

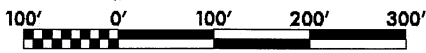
PAVED SHOULDER

NOTE:
 FOR -L- PROFILE, SEE SHEET 16

8/17/99

23-OCT-2008 14:49 d:\projects\12579c\add\tech\planprof\12579c_GEO_mv_006_FORSYTH.dgn

PROJECT REFERENCE NO.		SHEET NO.	
U-2579C		6	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

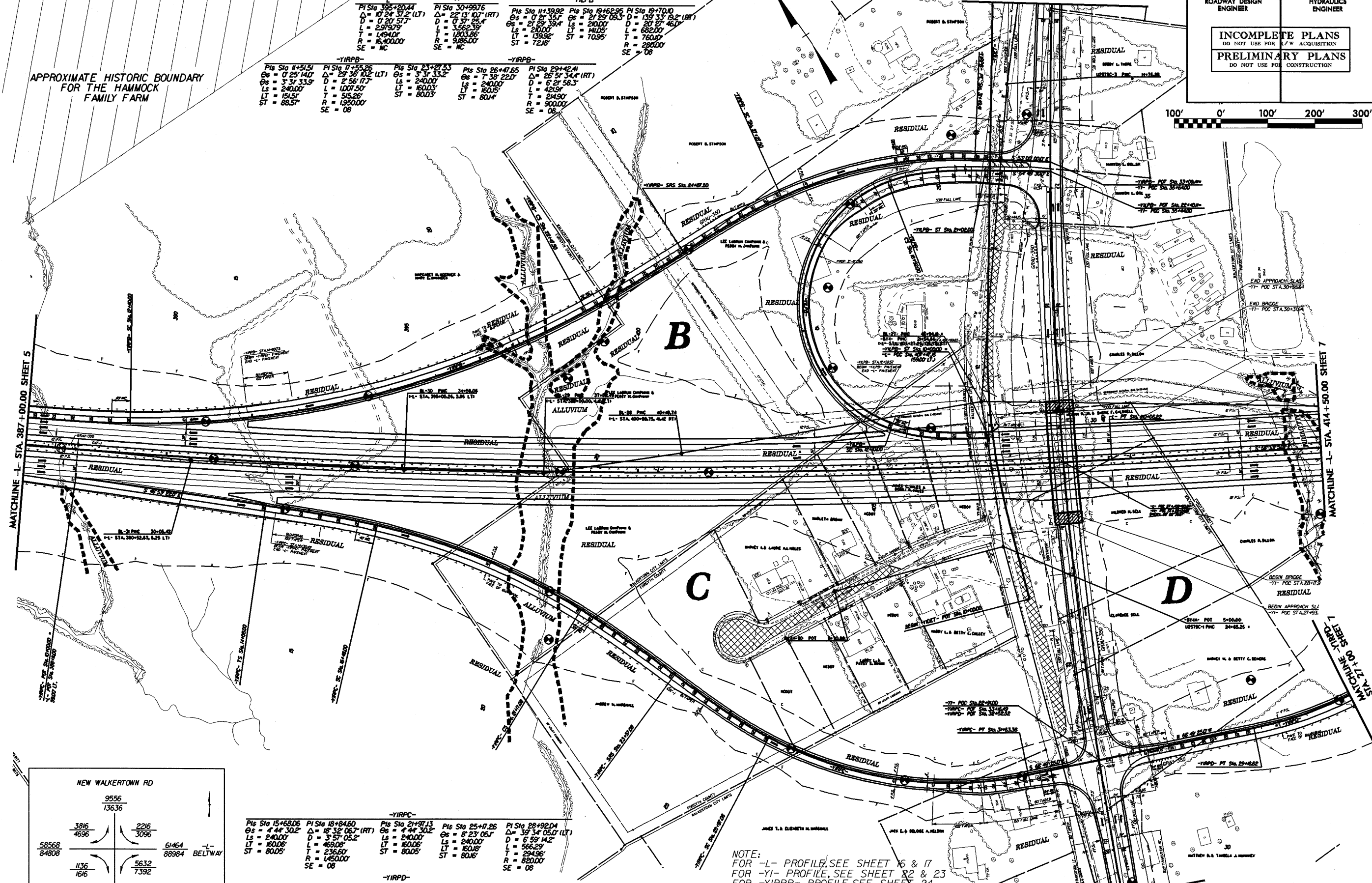


APPROXIMATE HISTORIC BOUNDARY FOR THE HAMMOCK FAMILY FARM

MATCHLINE -Y1- STA. 39+50.00 SHEET 13

MATCHLINE -L- STA. 387+00.00 SHEET 5

MATCHLINE -L- STA. 414+50.00 SHEET 7

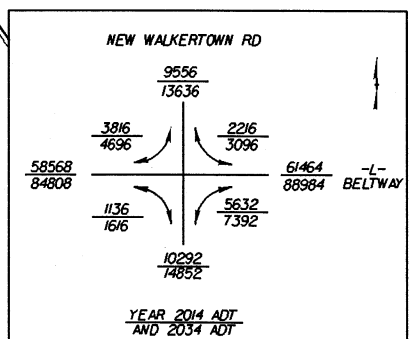


-L-		Y1		YILPB	
PI Sta 395+20.44	PI Sta 30+997.6	PI Sta 11+39.92	PI Sta 19+62.95	PI Sta 19+70.10	
Δ = 10° 24' 31.2" (LT)	Δ = 22° 13' 10.7" (RT)	Δ = 0° 24' 35.7"	Δ = 21° 29' 08.3"	Δ = 139° 33' 19.2" (RT)	
D = 0° 30' 57.7"	D = 0° 37' 25.4"	Δ = 21° 29' 39.4"	Δ = 21° 29' 08.3"	D = 20° 27' 46.0"	
L = 23° 59' 7.9"	L = 3° 52' 3.9"	Δ = 21° 29' 39.4"	Δ = 21° 29' 08.3"	L = 200.00'	D = 682.00'
T = 1494.00'	T = 1803.86'	L = 240.00'	L = 240.00'	LT = 140.5'	T = 780.00'
R = 16400.00'	R = 9285.00'	ST = 72.18'	ST = 70.95'	R = 2840.00'	SE = 08'
SE = NC	SE = NC				

-YIRPB-		-YIRPB-	
PI Sta 11+51.51	PI Sta 17+55.86	PI Sta 23+21.53	PI Sta 26+47.65
Δ = 0° 25' 14.0"	Δ = 29° 38' 10.2" (LT)	Δ = 3° 31' 33.2"	Δ = 7° 38' 22.0"
Δ = 3° 31' 33.9"	Δ = 2° 58' 17.7"	L = 240.00'	L = 240.00'
L = 240.00'	L = 1007.50'	LT = 160.03'	LT = 160.03'
LT = 151.5'	T = 535.28'	ST = 80.03'	ST = 80.14'
R = 19200.00'	R = 19200.00'	SE = 08'	SE = 08'

-YIRPC-		-YIRPD-	
PI Sta 15+68.06	PI Sta 18+84.60	PI Sta 21+97.13	PI Sta 25+17.26
Δ = 4° 44' 30.2"	Δ = 18° 32' 06.7" (RT)	Δ = 4° 44' 30.2"	Δ = 8° 23' 05.1"
L = 240.00'	L = 3° 57' 05.2"	L = 240.00'	L = 240.00'
LT = 160.03'	L = 469.08'	LT = 160.03'	LT = 160.03'
ST = 80.03'	T = 236.60'	ST = 80.03'	ST = 80.06'
SE = 08'	R = 14500.00'	SE = 08'	SE = 08'

PI Sta 17+40.03	PI Sta 20+14.52	PI Sta 22+87.78	PI Sta 26+07.93	PI Sta 28+02.93
Δ = 3° 31' 33.2"	Δ = 11° 23' 35.4" (LT)	Δ = 3° 31' 33.2"	Δ = 8° 23' 05.1"	Δ = 15° 59' 28.7" (RT)
L = 240.00'	D = 2° 58' 17.7"	L = 240.00'	L = 240.00'	D = 6° 59' 14.2"
LT = 160.03'	L = 387.75'	LT = 160.03'	LT = 160.18'	L = 228.86'
ST = 80.03'	T = 194.52'	ST = 80.03'	ST = 80.16'	T = 115.8'
SE = 08'	R = 19500.00'	SE = 08'	SE = 08'	R = 8200.00'



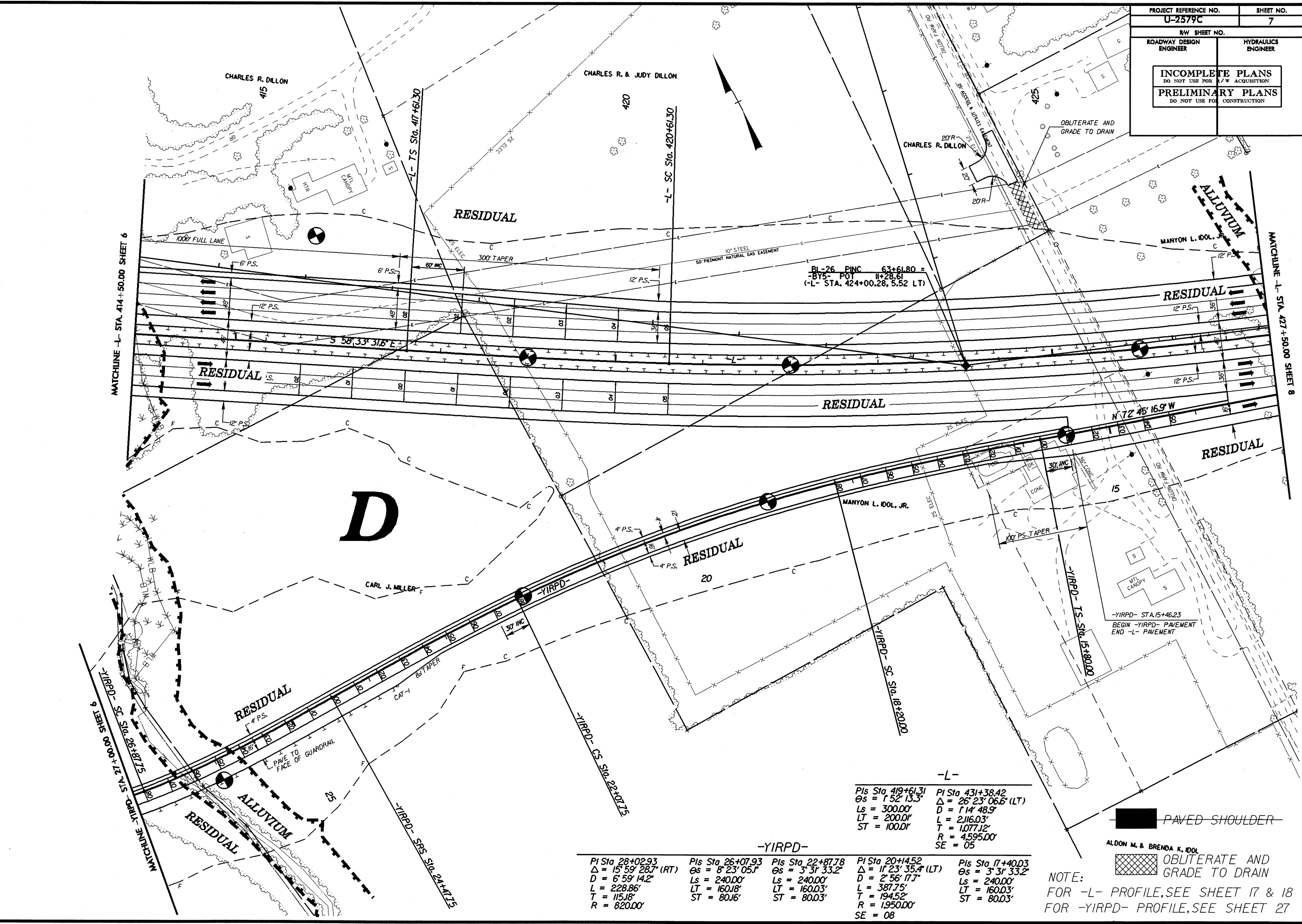
NOTE:
 FOR -L- PROFILE, SEE SHEET 16 & 17
 FOR -Y1- PROFILE, SEE SHEET 22 & 23
 FOR -YIRPB- PROFILE, SEE SHEET 24
 FOR -YIRPC- PROFILE, SEE SHEET 25 & 26
 FOR -YIRPD- PROFILE, SEE SHEET 27
 FOR -YILPB- PROFILE, SEE SHEET 28
 FOR -YIDET- PROFILE, SEE SHEET 30
 FOR -YIDET- PLAN, SEE SHEET 2F & 2G
 FOR BRIDGE SKETCH, SEE SHEET 2K

PROP. MONOLITHIC CONCRETE ISLAND
 PAVED SHOULDER

MATCHLINE -Y1- STA. 20+00.00 SHEET 12

PROJECT REFERENCE NO. U-2579C		SHEET NO. 7	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

8/17/99
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 9 LEHS YIRPD STA 21+00.00 SHEET 6



BI-26 PINC 63+61.80 =
 BY5- POT 11+28.61
 (-L- STA. 424+00.28, 5.52 LT)

PIs Sta. 419+61.31 $\Delta = 1^{\circ}52'13.3''$ $L_s = 300.00'$ $LT = 200.01'$ $ST = 100.01'$	PIs Sta. 431+38.42 $\Delta = 26^{\circ}23'06.6''$ (LT) $D = 114'48.9''$ $L = 2116.03'$ $T = 1077.12'$ $R = 4595.00'$ $SE = 05$
--	--

PIs Sta. 28+02.93 $\Delta = 15^{\circ}59'28.7''$ (RT) $D = 6^{\circ}59'14.2''$ $L = 228.86'$ $T = 115.18'$ $R = 620.00'$	PIs Sta. 26+07.93 $\Delta = 8^{\circ}23'05.1''$ $L_s = 240.00'$ $LT = 160.18'$ $ST = 80.16'$	PIs Sta. 22+87.78 $\Delta = 3^{\circ}31'33.2''$ $L_s = 240.00'$ $LT = 160.03'$ $ST = 80.03'$	PIs Sta. 20+14.52 $\Delta = 11^{\circ}23'35.4''$ (LT) $D = 2^{\circ}56'17.7''$ $L = 387.75'$ $T = 194.52'$ $R = 1950.00'$ $SE = 08$	PIs Sta. 17+40.03 $\Delta = 3^{\circ}31'33.2''$ $L_s = 240.00'$ $LT = 160.03'$ $ST = 80.03'$
---	--	--	---	--

■ PAVED SHOULDER
 ALDON M. & BRENDA K. IDOL
 [Cross-hatched symbol] OBLITERATE AND GRADE TO DRAIN

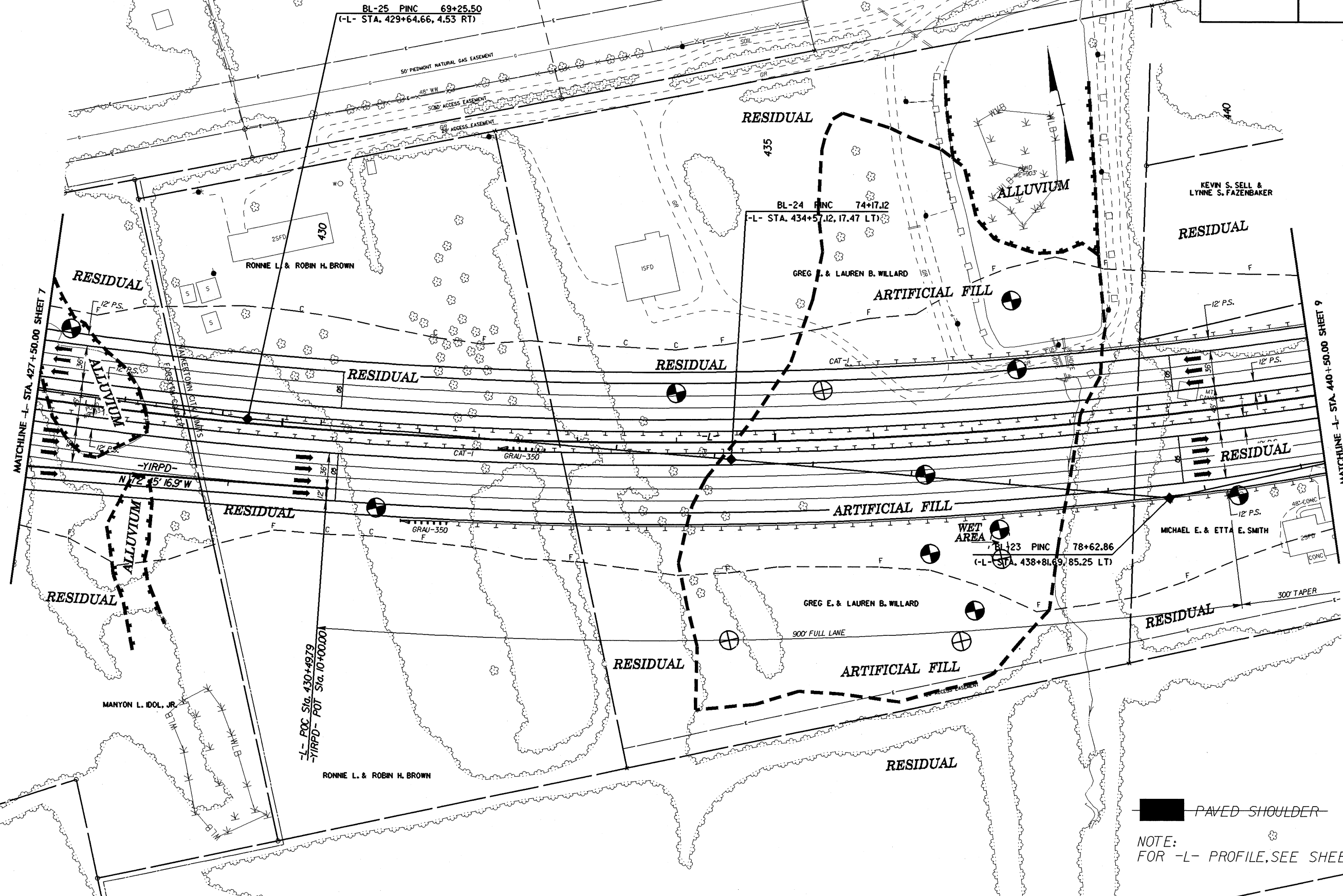
NOTE:
 FOR -L- PROFILE, SEE SHEET 17 & 18
 FOR -YIRPD- PROFILE, SEE SHEET 27

23-OCT-2008 14:53
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 8/17/99

PROJECT REFERENCE NO.		SHEET NO.	
U-2579C		8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

-L-

PI Sta 431+38.42
 $\Delta = 26^\circ 23' 06.6" (LT)$
 $D = 1' 14" 48.9"$
 $L = 2,116.03'$
 $T = 1,077.12'$
 $R = 4,595.00'$
 SE = 05



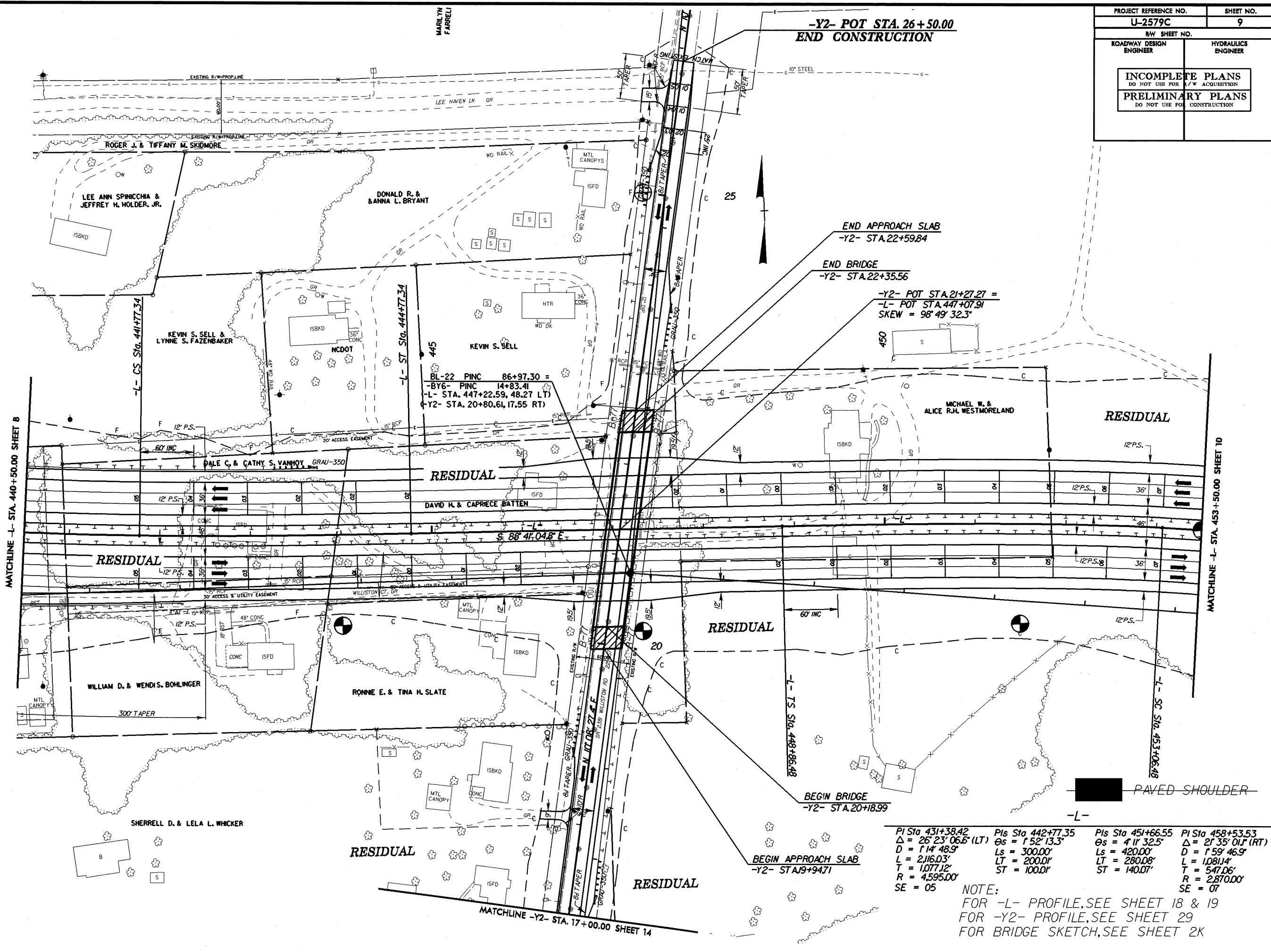
PAVED SHOULDER
 NOTE:
 FOR -L- PROFILE, SEE SHEET 18

8/17/99

23-OCT-2008 14:58
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mch

REVISIONS

PROJECT REFERENCE NO. U-2579C	SHEET NO. 9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BL-22 PINC 86+97.30 =
 -BY6- PINC 14+83.41
 -L- STA. 447+22.59, 48.27 LT)
 -Y2- STA. 20+80.61, 17.55 RT)

PI Sta 431+38.42 Δ = 26° 23' 06.6" (LT) D = 1' 14' 48.9" L = 2,116.03' T = 1,077.12' R = 4,595.00' SE = 05	PIs Sta 442+77.35 Os = 1' 52' 13.3" Ls = 300.00' LT = 200.0' ST = 100.0'	PIs Sta 451+66.55 Os = 4' 11' 32.5" Ls = 420.00' LT = 280.08' ST = 140.07'	PI Sta 458+53.53 Δ = 21° 35' 01.1" (RT) D = 1' 59' 46.9" L = 1,081.14' T = 547.06' R = 2,870.00' SE = 07
--	--	--	--

NOTE:
 FOR -L- PROFILE, SEE SHEET 18 & 19
 FOR -Y2- PROFILE, SEE SHEET 29
 FOR BRIDGE SKETCH, SEE SHEET 2K

PAVED SHOULDER

8/17/99

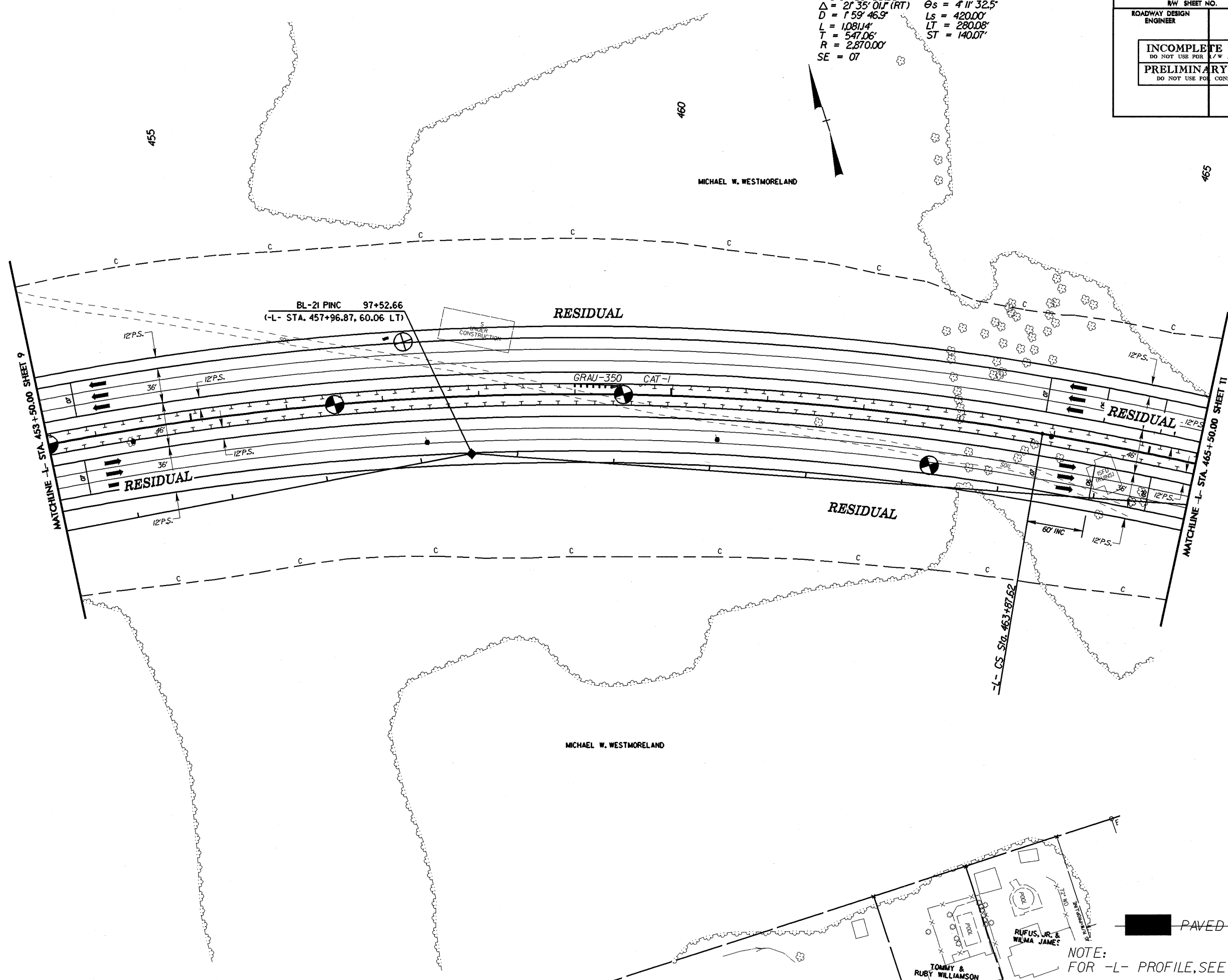
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mic@mic

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2579C	10
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-

PI Sta 458+53.53	PIs Sta 465+27.69
$\Delta = 21^{\circ} 35' 01''$ (RT)	$\Theta_s = 41^{\circ} 32' 5''$
$D = 1^{\circ} 59' 46.9''$	$L_s = 420.00'$
$L = 1,081.14'$	$LT = 280.08'$
$T = 547.06'$	$ST = 140.07'$
$R = 2,870.00'$	
$SE = 07$	

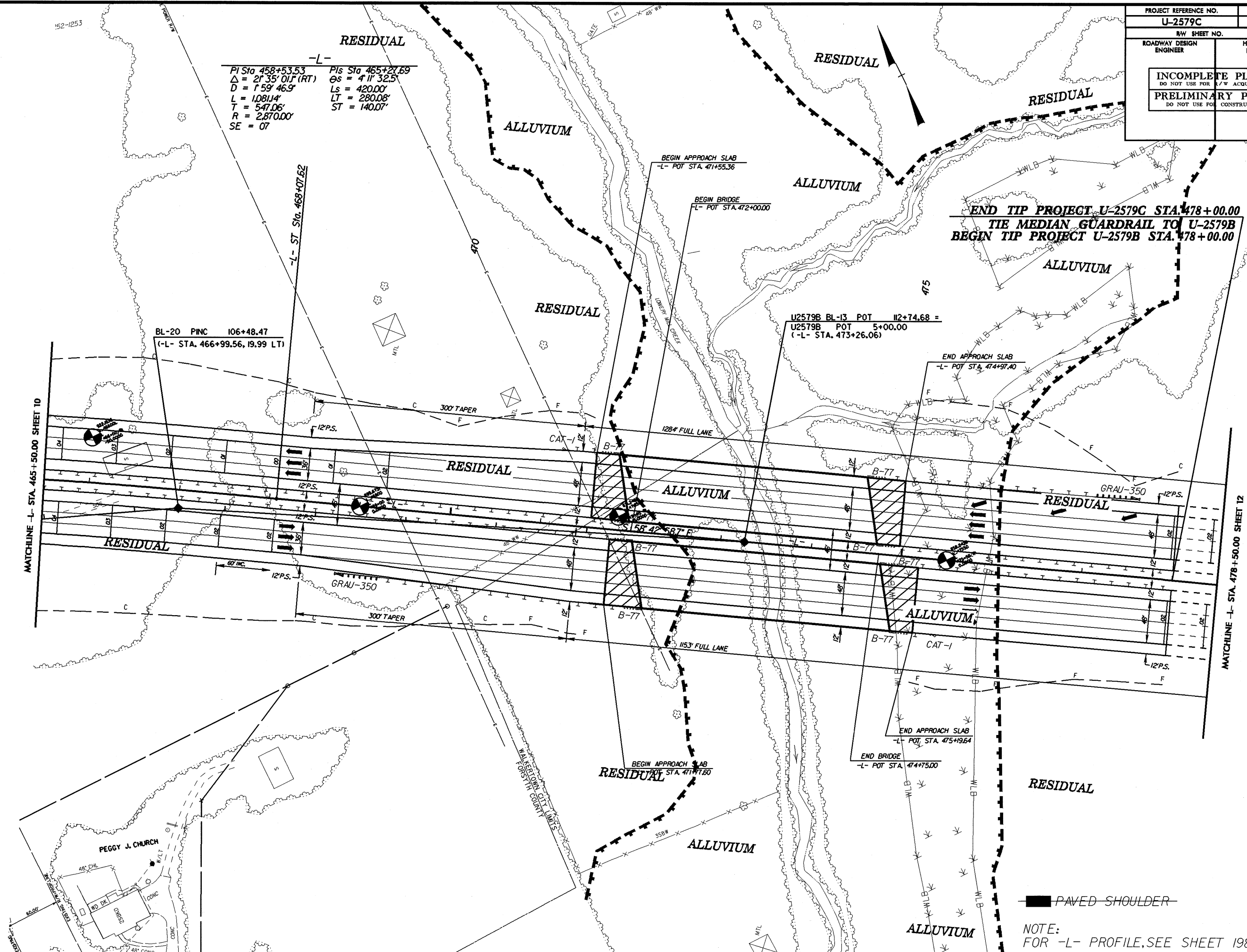


PAVED SHOULDER

NOTE: FOR -L- PROFILE, SEE SHEET 19

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 8/17/99

PROJECT REFERENCE NO. U-2579C		SHEET NO. 11	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-L-
 PIs Sta 458+53.53 PIs Sta 465+27.69
 $\Delta = 2^\circ 35' 01.7''$ (RT) $\Theta_s = 4^\circ 11' 32.5''$
 $D = 1^\circ 59' 46.9''$ $L_s = 420.00'$
 $L = 1,081.14'$ $LT = 280.08'$
 $T = 547.06'$ $ST = 140.07'$
 $R = 2,870.00'$
 $SE = 07$

BL-20 PINC 106+48.47
 (-L- STA. 466+99.56, 19.99 LT1)

U2579B BL-13 POT 112+74.68 =
 U2579B POT 5+00.00
 (-L- STA. 473+26.06)

END TIP PROJECT U-2579C STA. 478+00.00
TIE MEDIAN GUARDRAIL TO U-2579B
BEGIN TIP PROJECT U-2579B STA. 478+00.00

MATCHLINE -L- STA. 465+50.00 SHEET 10

MATCHLINE -L- STA. 478+50.00 SHEET 12

PAVED SHOULDER

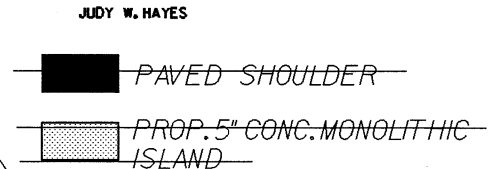
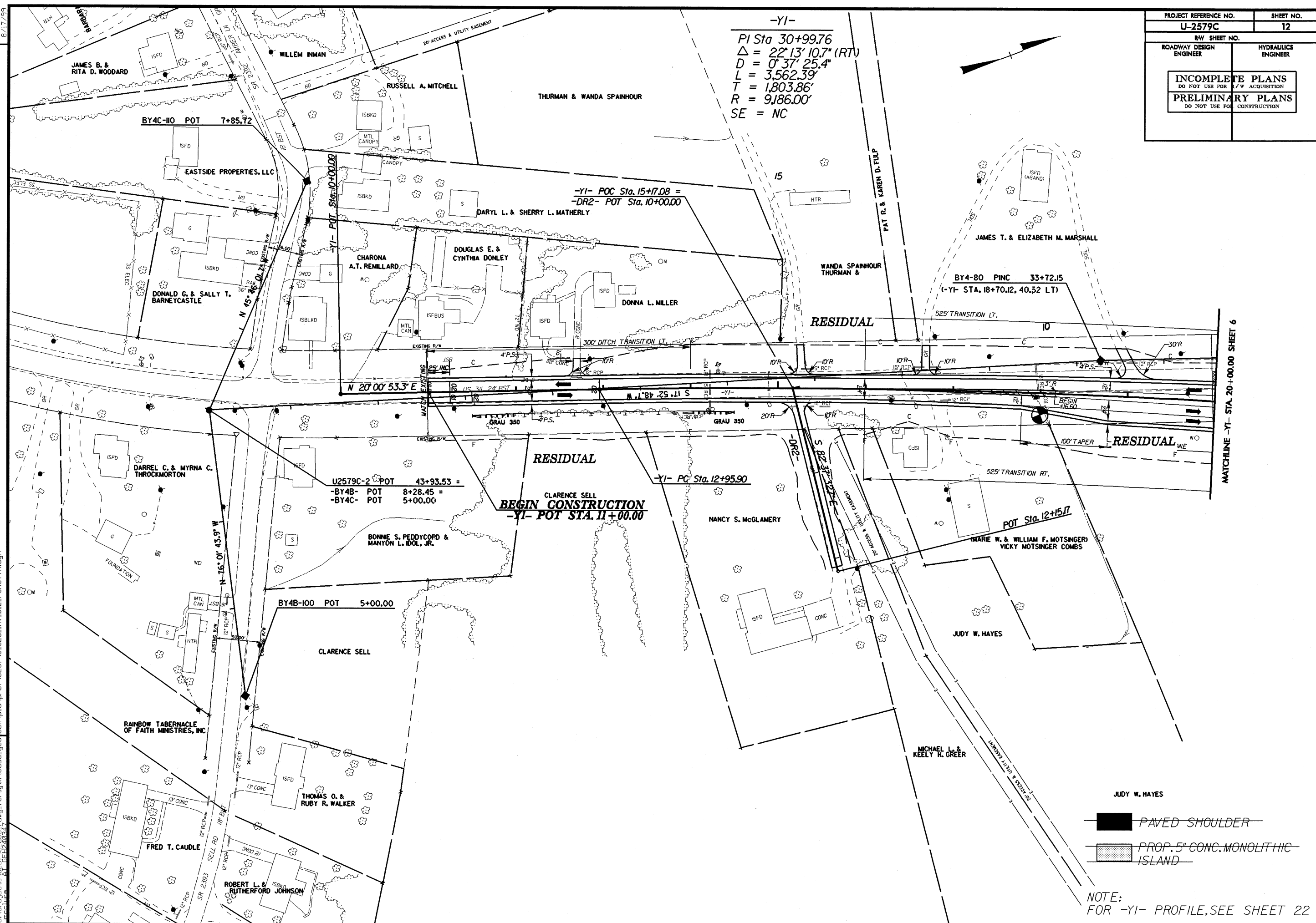
NOTE:
 FOR -L- PROFILE, SEE SHEET 19 & 20

8/17/99
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 U2579C-2

PROJECT REFERENCE NO.		SHEET NO.	
U-2579C		12	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

-YI-

PI Sta 30+99.76
 $\Delta = 22^{\circ} 13' 10.7" (RT)$
 $D = 0^{\circ} 37' 25.4"$
 $L = 3,562.39'$
 $T = 1,803.86'$
 $R = 9,186.00'$
 SE = NC

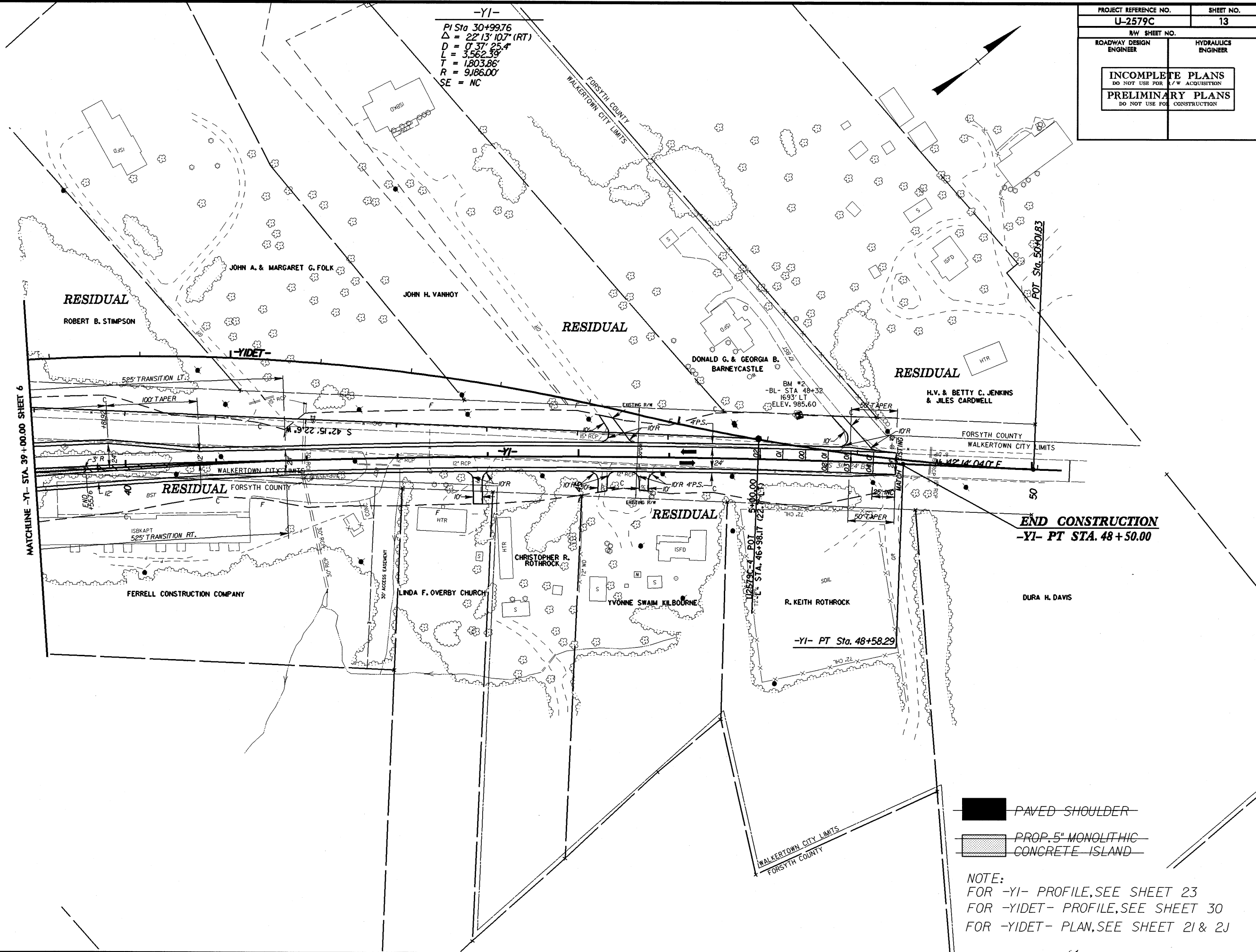


NOTE:
FOR -YI- PROFILE, SEE SHEET 22

8/17/99
 REVISIONS
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-YI-
 PI Sta 30+99.76
 $\Delta = 22'13''10.7'' (RT)$
 $D = 0'37''25.4''$
 $L = 3,562.39'$
 $T = 1,803.86'$
 $R = 9,186.00'$
 SE = NC

PROJECT REFERENCE NO. U-2579C	SHEET NO. 13
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



- PAVED SHOULDER
- PROP. 5" MONOLITHIC CONCRETE ISLAND

NOTE:
 FOR -YI- PROFILE, SEE SHEET 23
 FOR -YIDET- PROFILE, SEE SHEET 30
 FOR -YIDET- PLAN, SEE SHEET 21 & 2J

8/17/99

23-OCT-2008 15:11:23 d:\projects\12579c\add\geotech\planprof\12579c_GEO.inv_014_FORSYTH.dgn

REVISIONS

PROJECT REFERENCE NO. U-2579C		SHEET NO. 14	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BEGIN CONSTRUCTION
-Y2- POT STA. 10+00.00

LEWIS W. & ETHEL C. IDOL

KATHRYN R. LEWIS
THOMAS J. &

C. LORRAINE KEARNS
EARL W., III &

JULIA L. POWELL

DENNIS LEWIS
JERRY B. LEWIS &

RESIDUAL

RESIDUAL

BY6-131 POT 24+55.21
-Y2- STA. 11+09.55, (17.36 RT)
MCAH W. WOLFINGTON

DAVID M. EWALD

CHESTER D. STULTZ

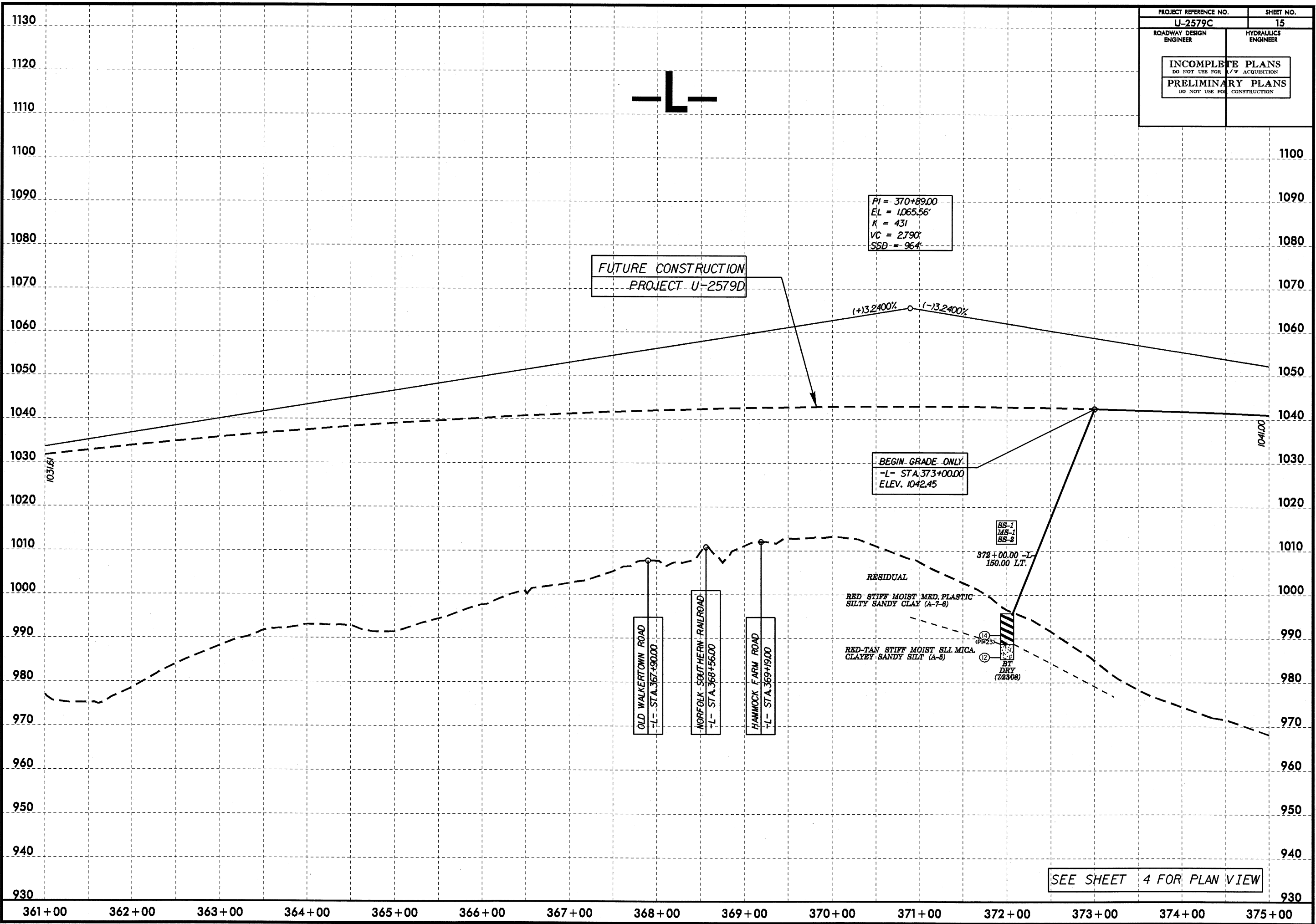
MATCHLINE -Y2- STA. 17+00.00 SHEET 9

PAVED SHOULDER

NOTE:
FOR -Y2- PROFILE, SEE SHEET 29

5/14/99
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PROJECT REFERENCE NO. U-2579C	SHEET NO. 15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

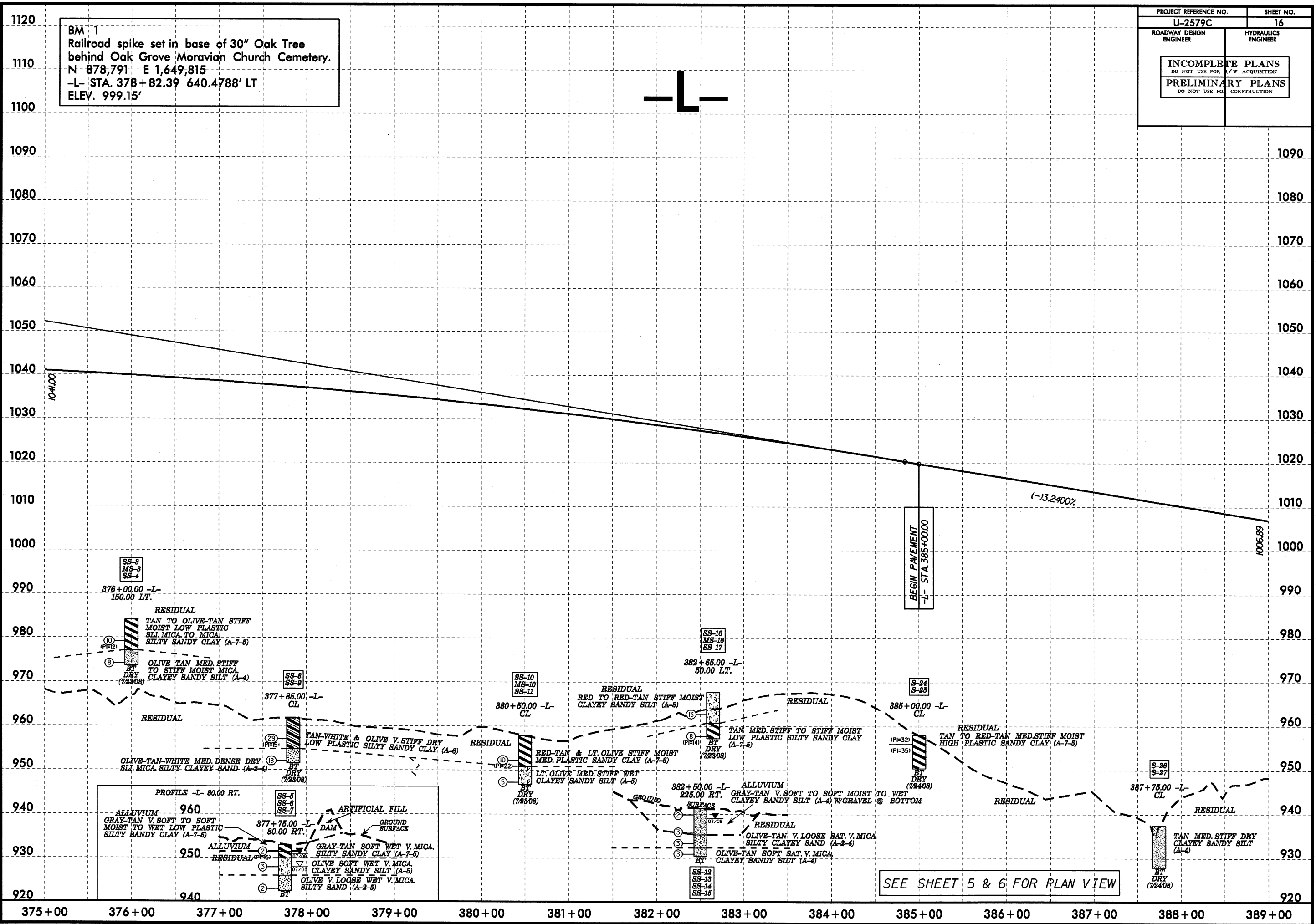


SEE SHEET 4 FOR PLAN VIEW

5/14/99
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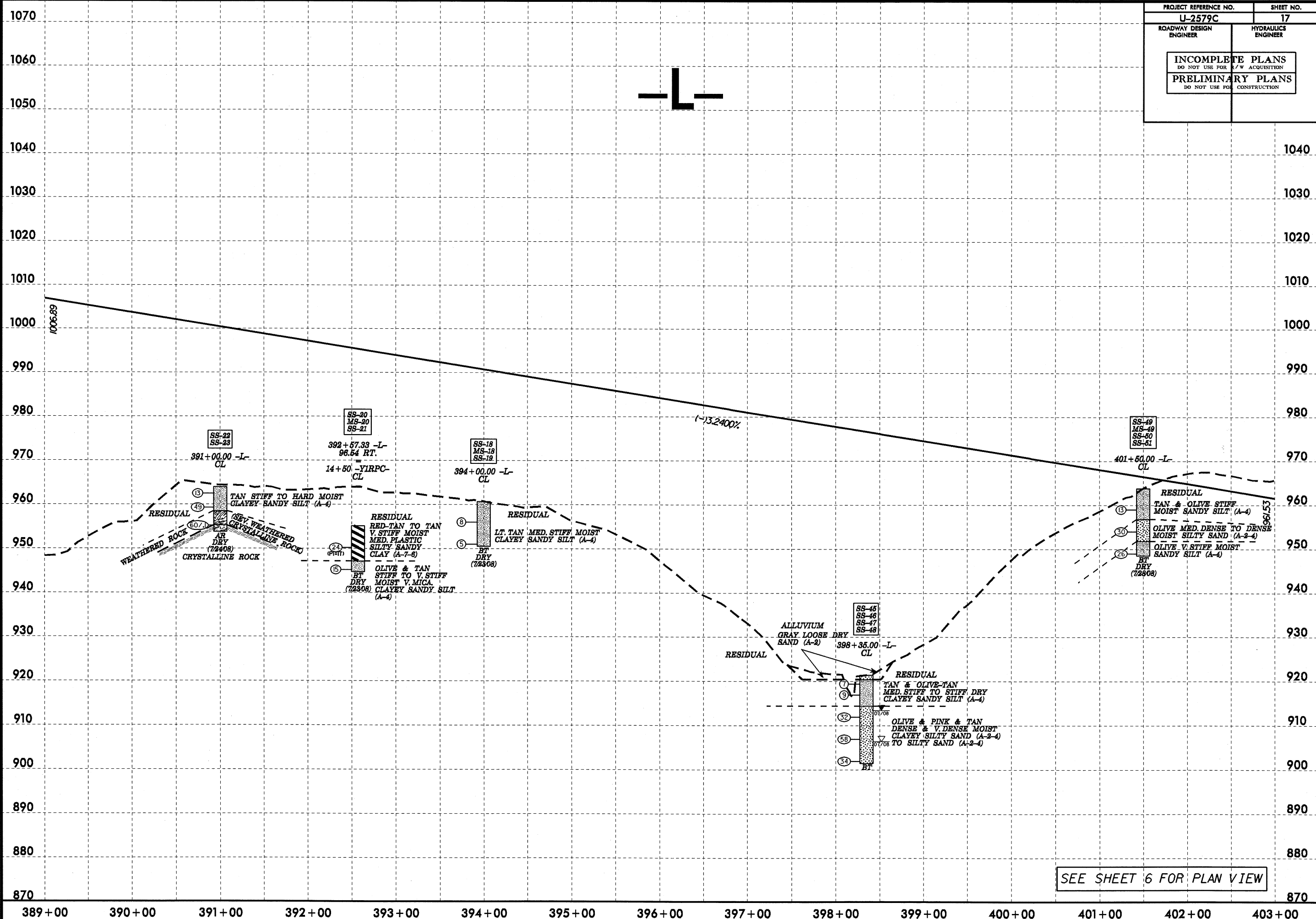
PROJECT REFERENCE NO.	SHEET NO.
U-2579C	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BM 1
Railroad spike set in base of 30" Oak Tree
behind Oak Grove Moravian Church Cemetery.
N - 878,791 E 1,649,815
-L- STA. 378+82.39 640.4788' LT
ELEV. 999.15'



5/14/99
 27-OCT-2008 10:18
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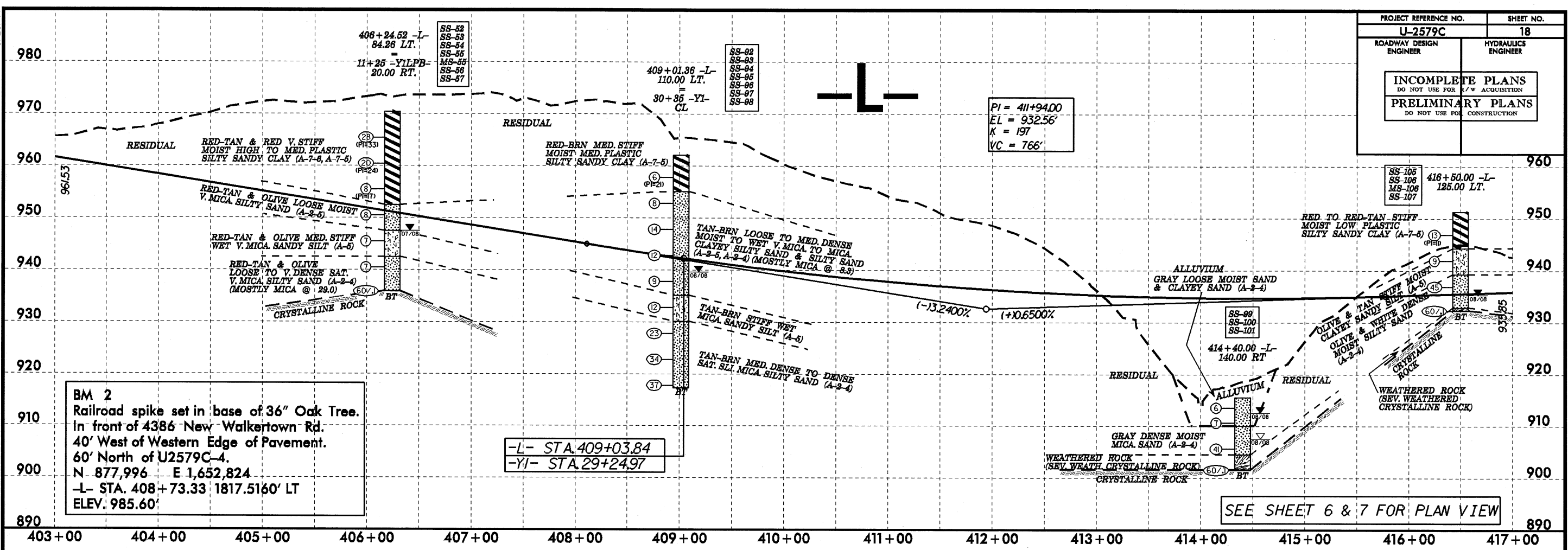
PROJECT REFERENCE NO. U-2579C	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE SHEET 6 FOR PLAN VIEW

5/28/09
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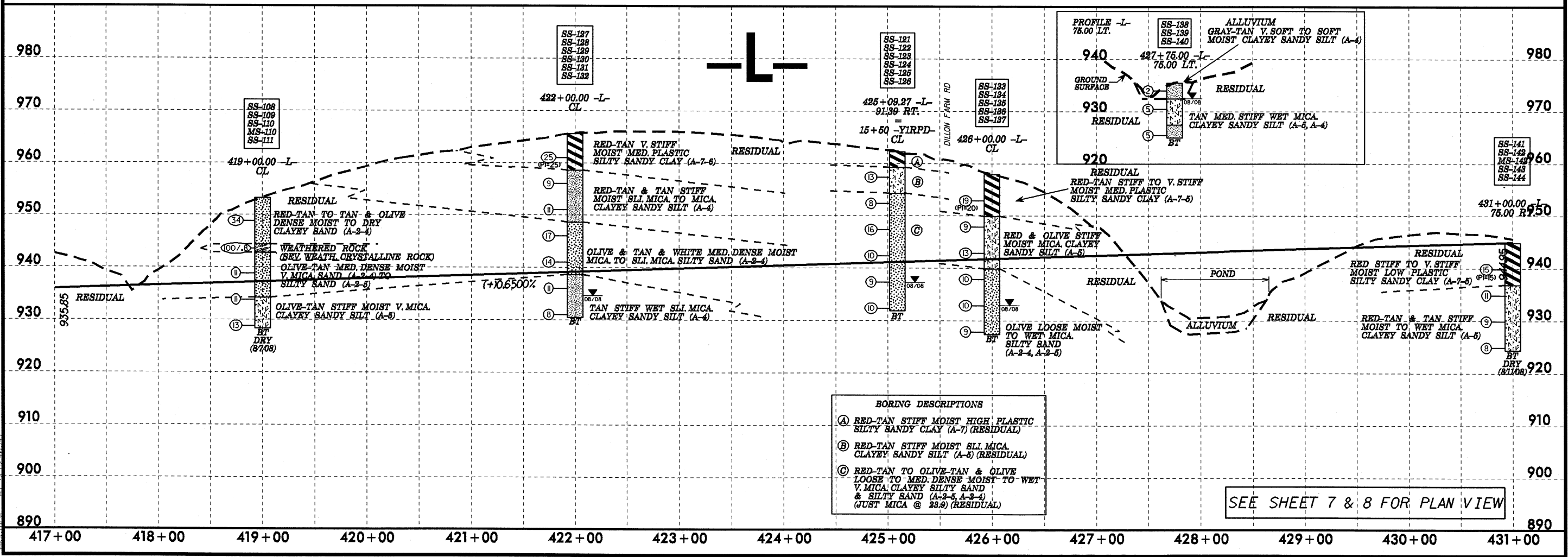
PROJECT REFERENCE NO. U-2579C	SHEET NO. 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



BM 2
 Railroad spike set in base of 36" Oak Tree.
 In front of 4386 New Walkertown Rd.
 40' West of Western Edge of Pavement.
 60' North of U2579C-4.
 N. 877,996 E. 1,652,824
 -L- STA. 408+73.33 1817.5160' LT
 ELEV. 985.60'

-L- STA. 409+03.84
 -YI- STA. 29+24.97

SEE SHEET 6 & 7 FOR PLAN VIEW



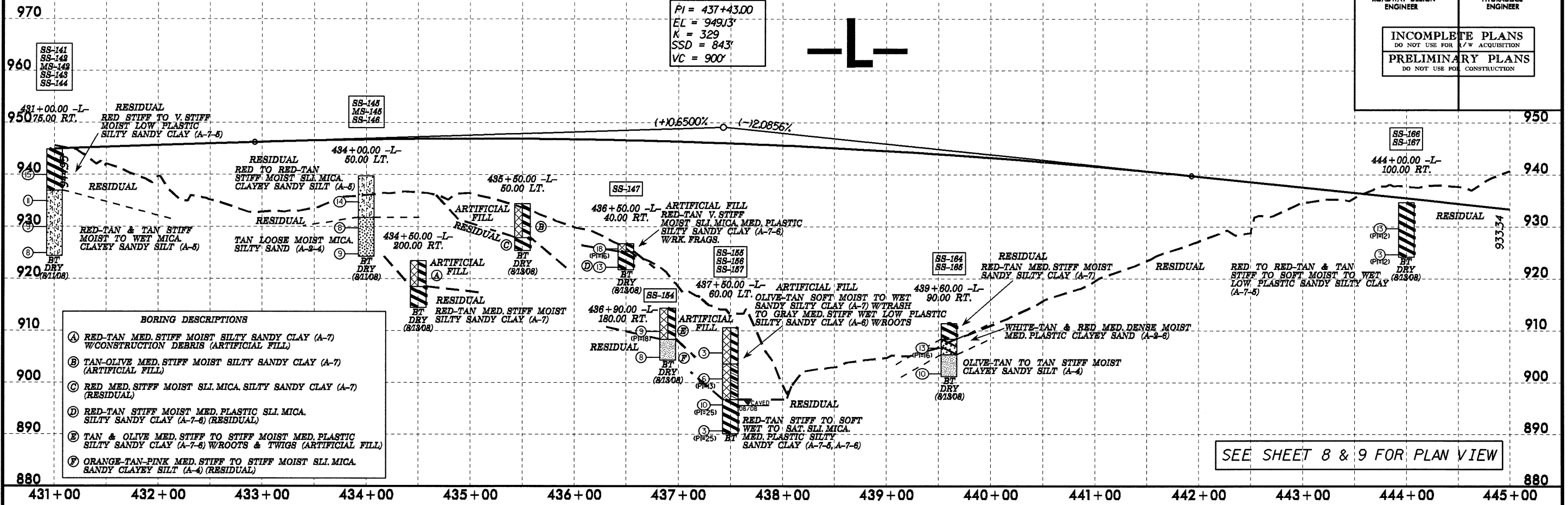
- BORING DESCRIPTIONS**
- (A) RED-TAN STIFF MOIST HIGH PLASTIC SILTY SANDY CLAY (A-7) (RESIDUAL)
 - (B) RED-TAN STIFF MOIST SILT. MICA. CLAYEY SANDY SILT (A-5) (RESIDUAL)
 - (C) RED-TAN TO OLIVE-TAN & OLIVE LOOSE TO MED. DENSE MOIST TO WET V. MICA. CLAYEY SILTY SAND & SILTY SAND (A-2-5, A-2-4) (JUST MICA @ 23.9) (RESIDUAL)

SEE SHEET 7 & 8 FOR PLAN VIEW

5/28/99

PROJECT REFERENCE NO. U-2579C	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

$PI = 437+43.00$
 $EL = 949.13'$
 $K = 329$
 $SSD = 843'$
 $VC = 900'$

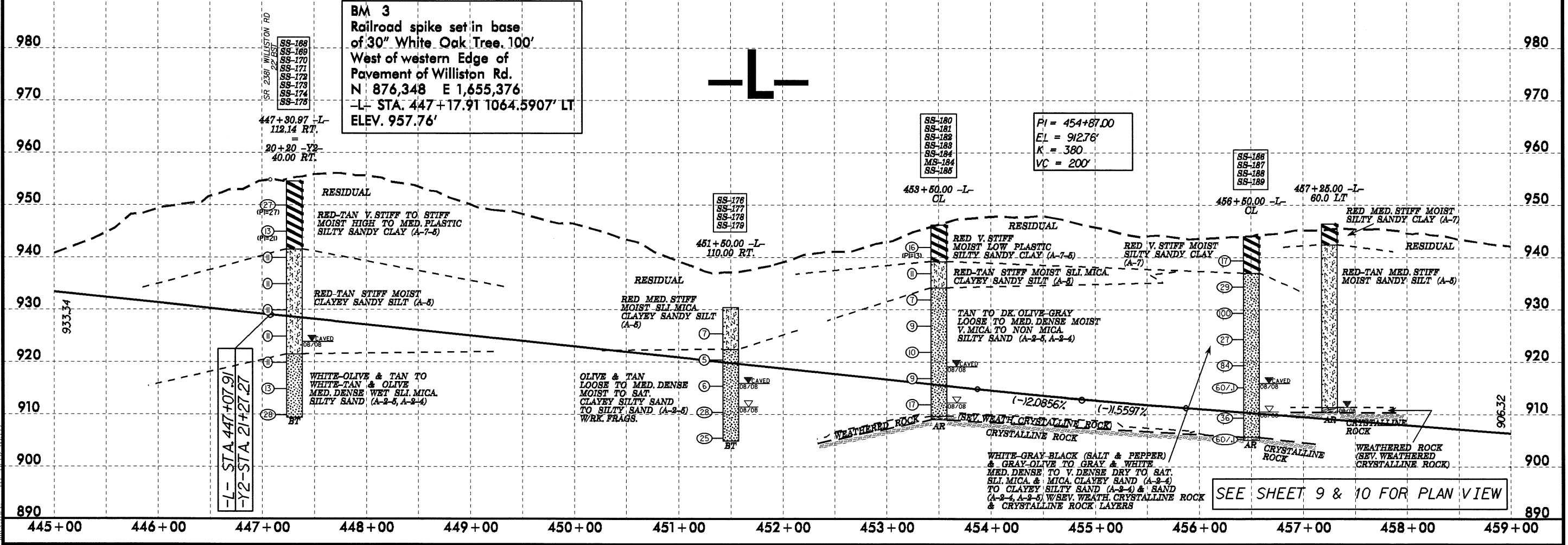


- BORING DESCRIPTIONS**
- (A) RED-TAN MED. STIFF MOIST SILTY SANDY CLAY (A-7) W/CONSTRUCTION DEBRIS (ARTIFICIAL FILL)
 - (B) TAN-OLIVE MED. STIFF MOIST SILTY SANDY CLAY (A-7) (ARTIFICIAL FILL)
 - (C) RED MED. STIFF MOIST SLI. MICA. SILTY SANDY CLAY (A-7) (RESIDUAL)
 - (D) RED-TAN STIFF MOIST MED. PLASTIC SLI. MICA. SILTY SANDY CLAY (A-7-8) (RESIDUAL)
 - (E) TAN & OLIVE MED. STIFF TO STIFF MOIST MED. PLASTIC SILTY SANDY CLAY (A-7-8) W/ROOTS & TWIGS (ARTIFICIAL FILL)
 - (F) ORANGE-TAN-PINK MED. STIFF TO STIFF MOIST SLI. MICA. SANDY CLAYEY SILT (A-4) (RESIDUAL)

SEE SHEET 8 & 9 FOR PLAN VIEW

BM 3
 Railroad spike set in base of 30" White Oak Tree, 100' West of western Edge of Pavement of Williston Rd.
 N 876,348 E 1,655,376
 -L- STA. 447+17.91 1064.5907' LT
 ELEV. 957.76'

$PI = 454+87.00$
 $EL = 912.76'$
 $K = 380$
 $VC = 200'$

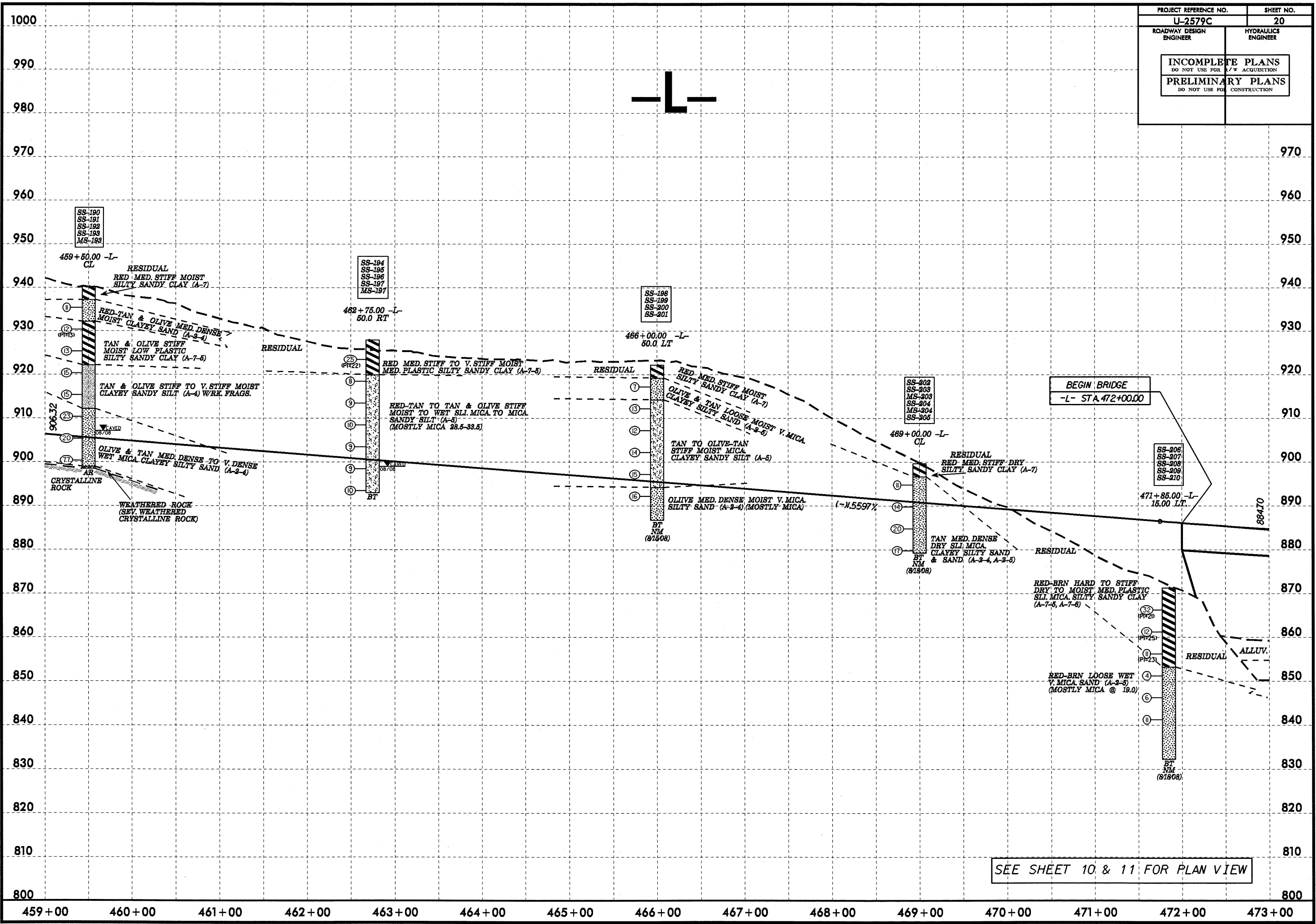


SEE SHEET 9 & 10 FOR PLAN VIEW

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5/14/99
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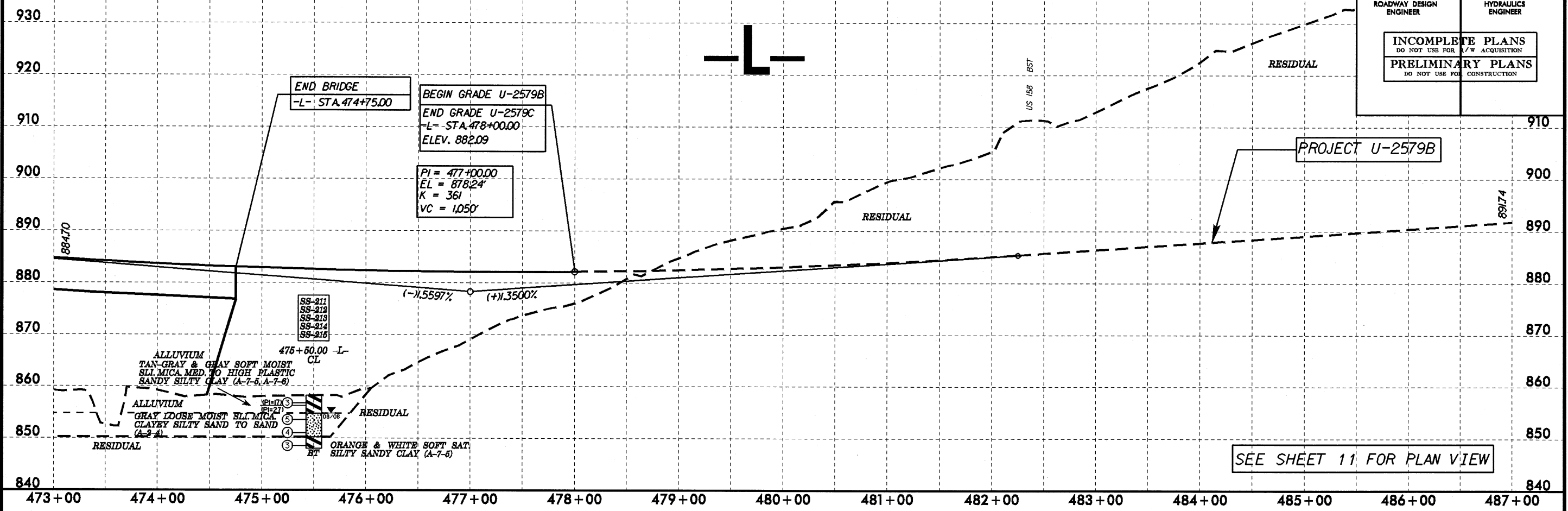
PROJECT REFERENCE NO. U-2579C	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



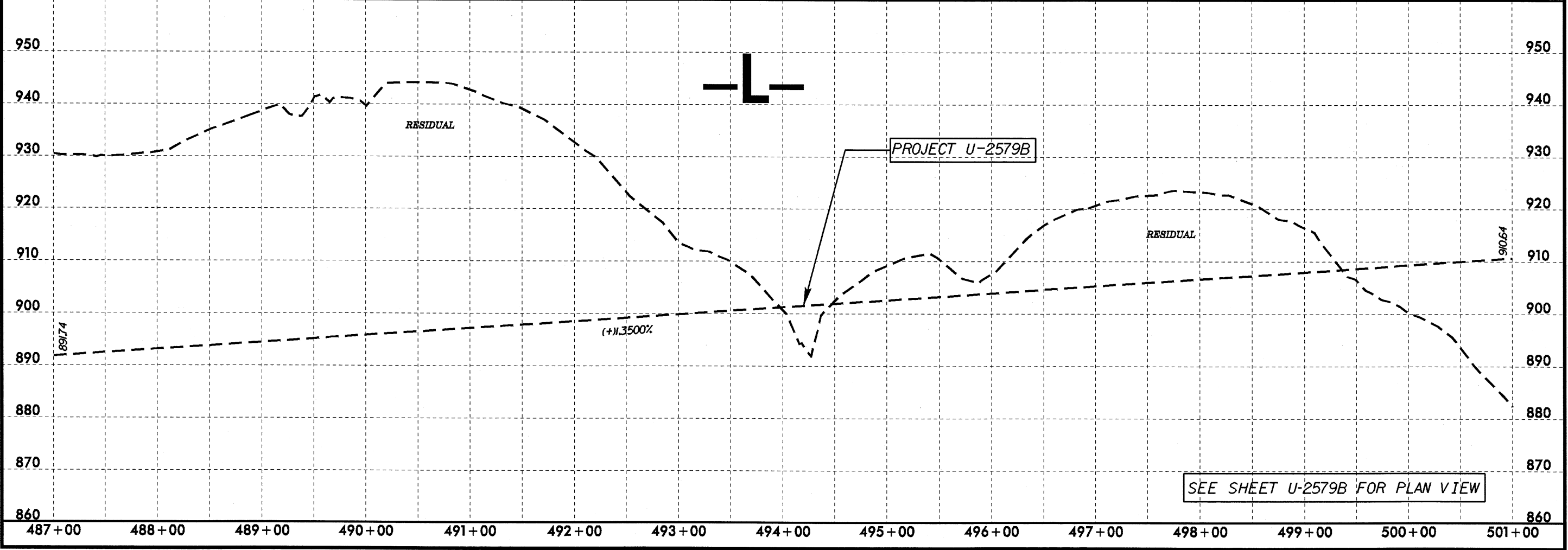
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PROJECT REFERENCE NO. U-2579C		SHEET NO. 21	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE SHEET 11 FOR PLAN VIEW

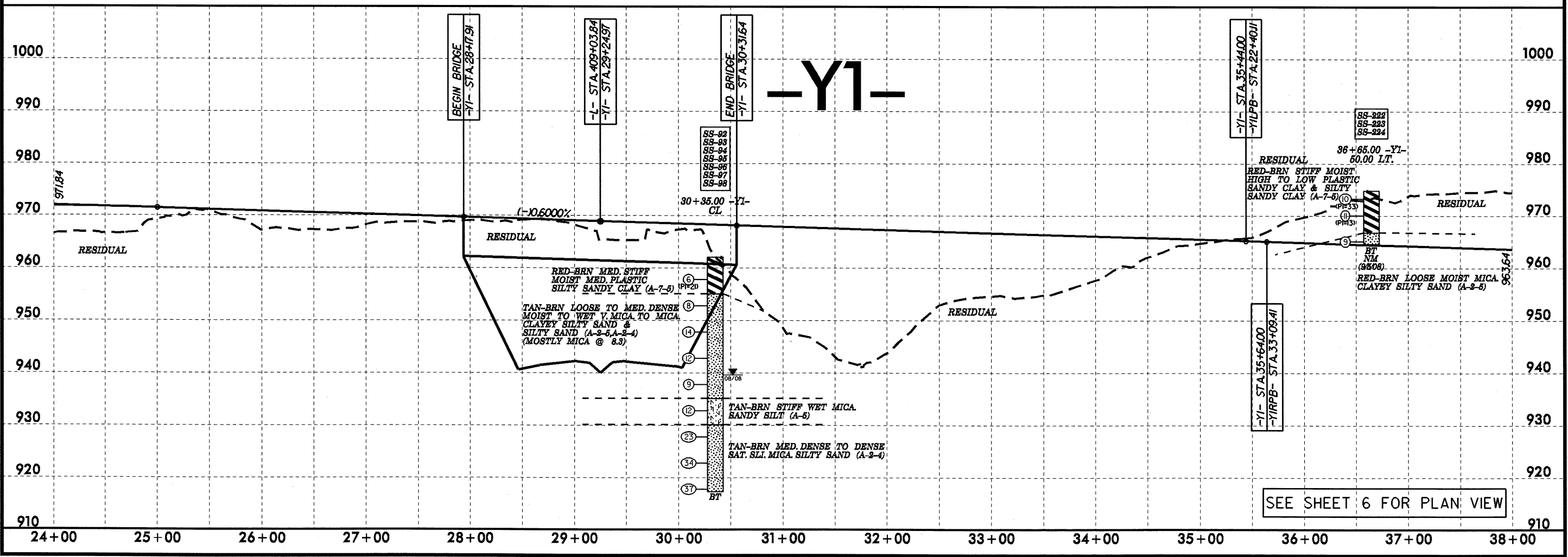
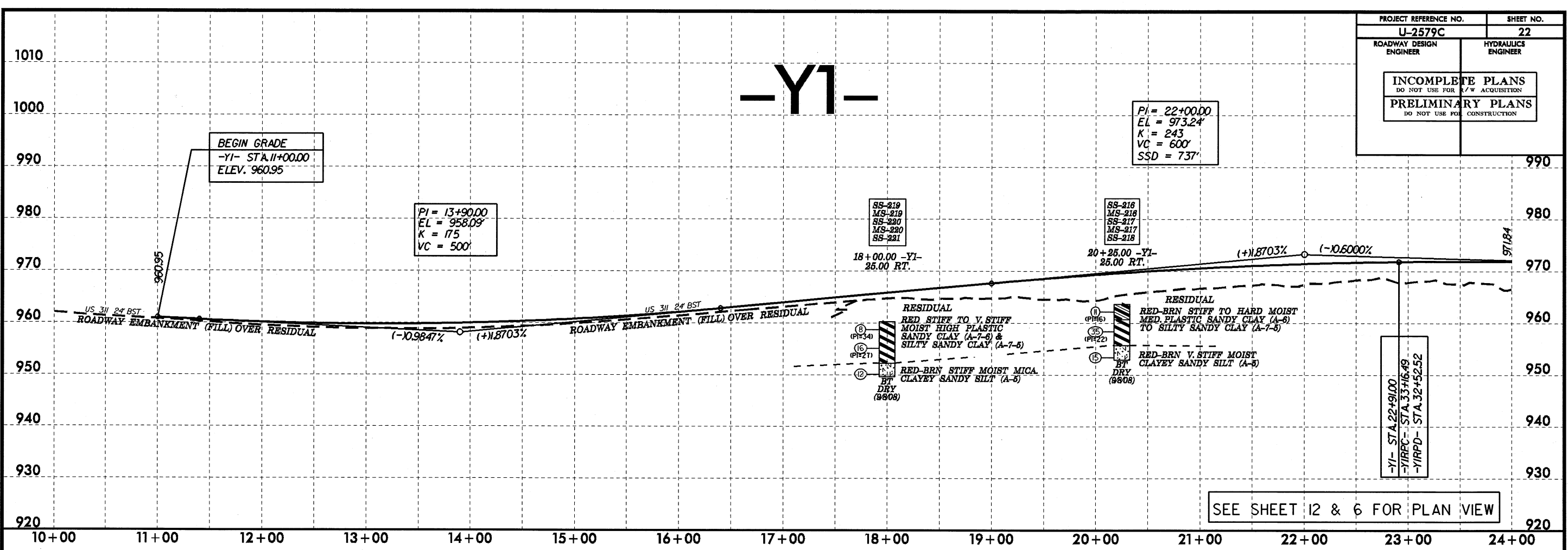


SEE SHEET U-2579B FOR PLAN VIEW

5/28/99

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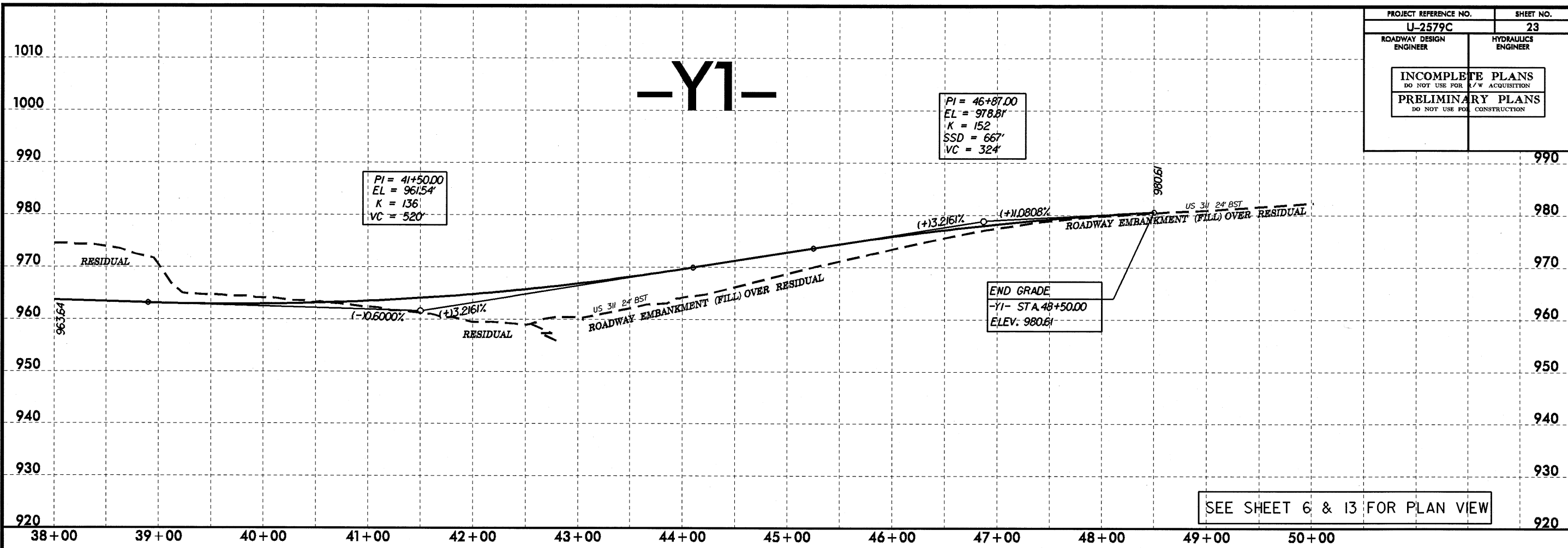
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U-2579C		22	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



5/28/99

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PROJECT REFERENCE NO. U-2579C	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

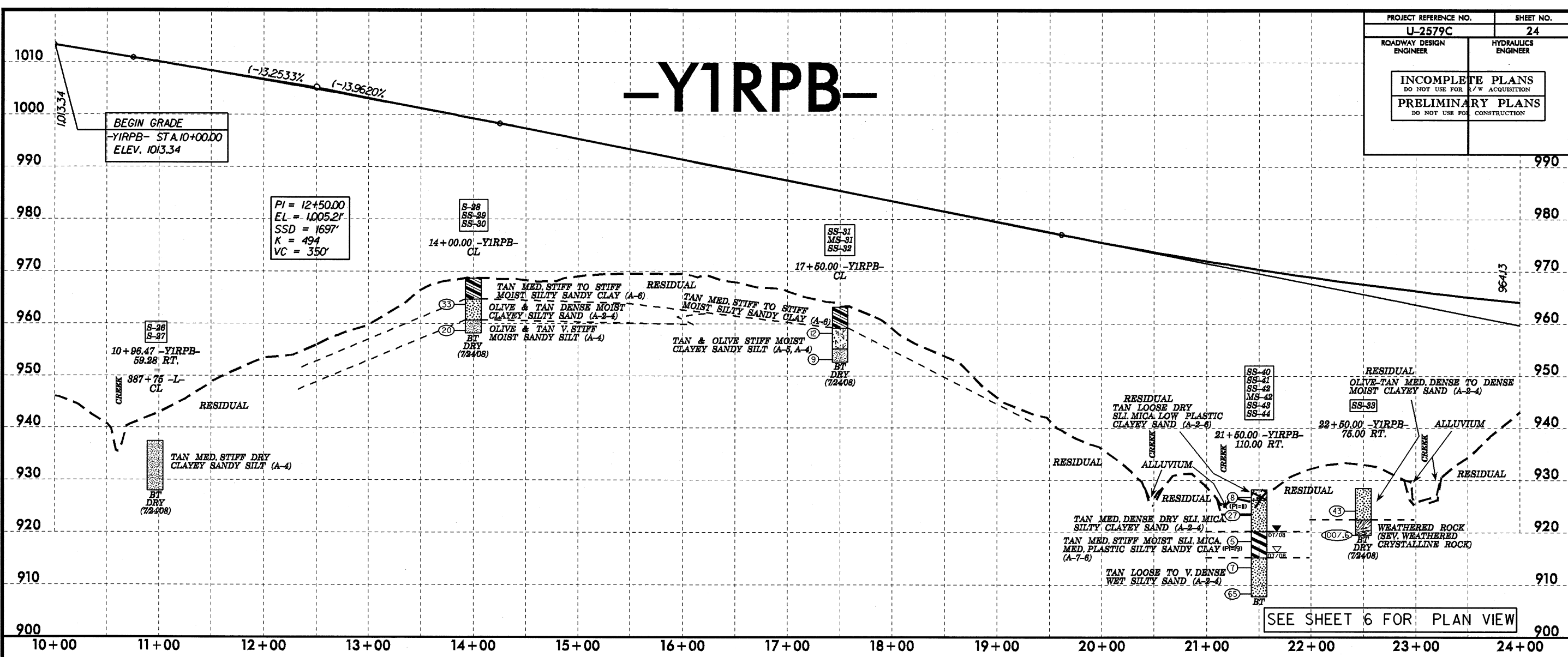


SEE SHEET 6 & 13 FOR PLAN VIEW

5/28/99

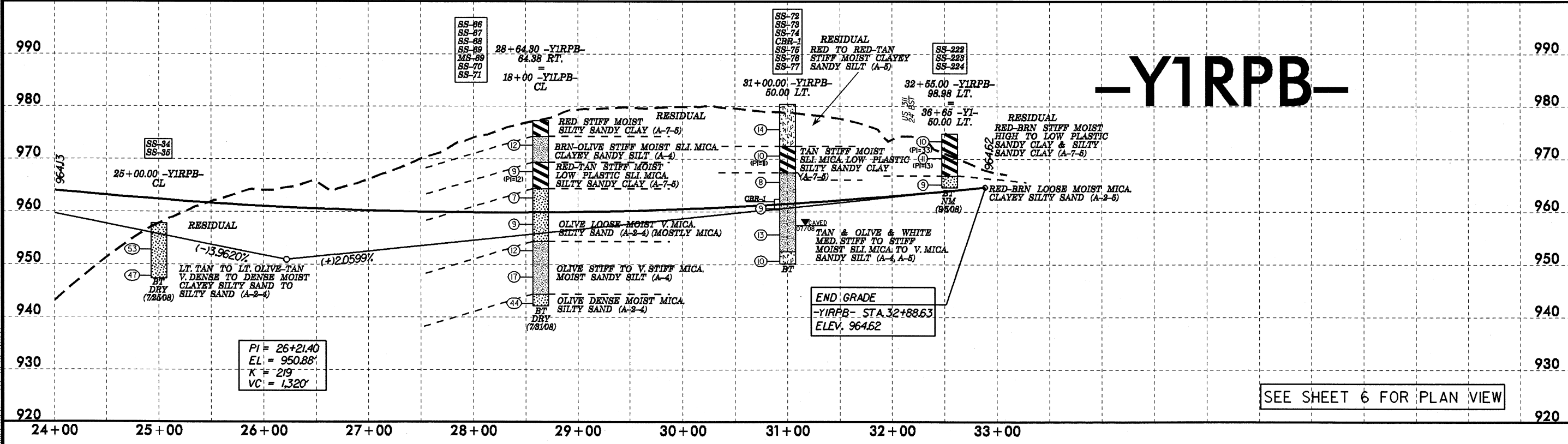
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PROJECT REFERENCE NO. U-2579C	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-YIRPB-

-YIRPB-



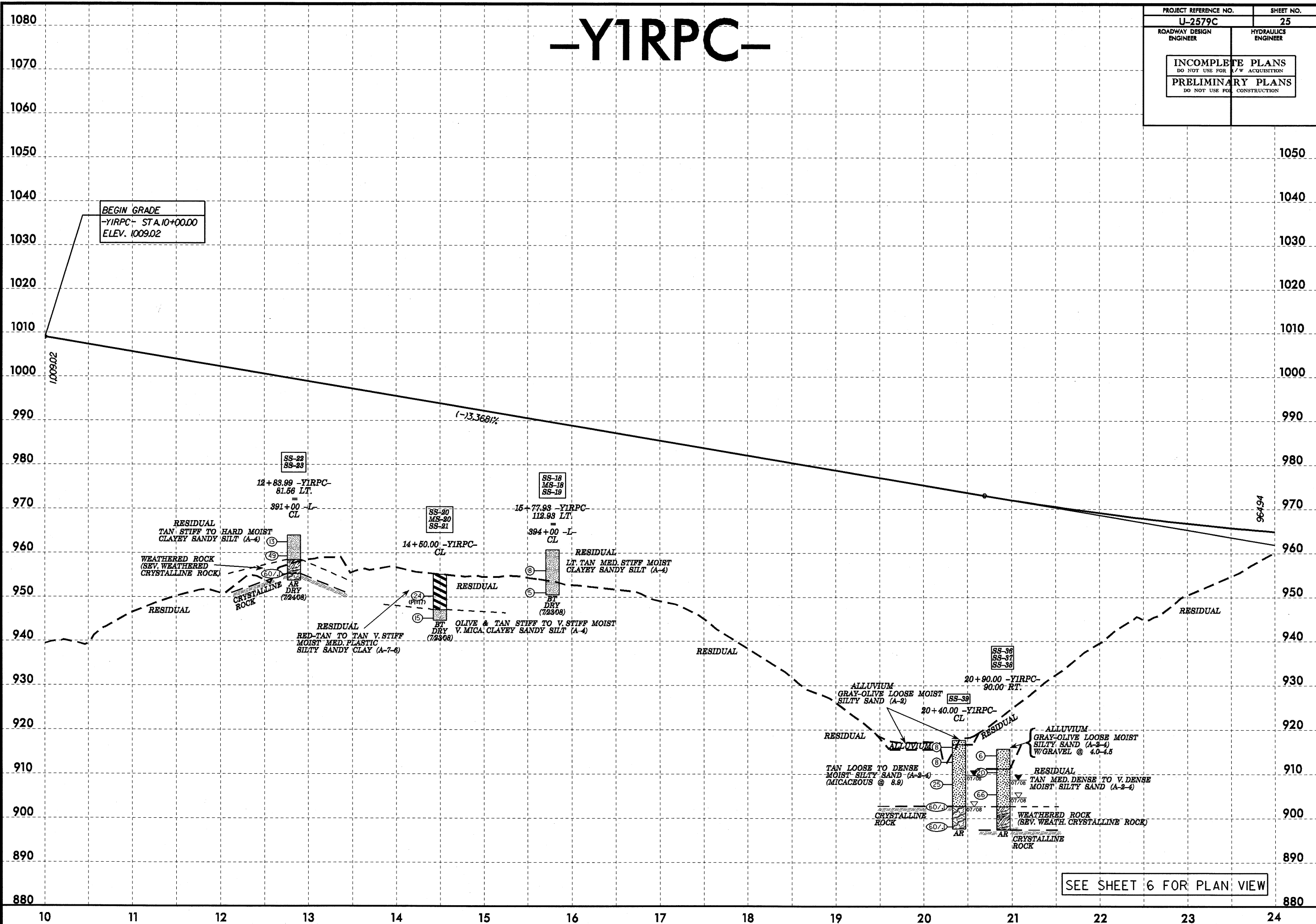
SEE SHEET 6 FOR PLAN VIEW

SEE SHEET 6 FOR PLAN VIEW

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5/14/99

-YIRPC-

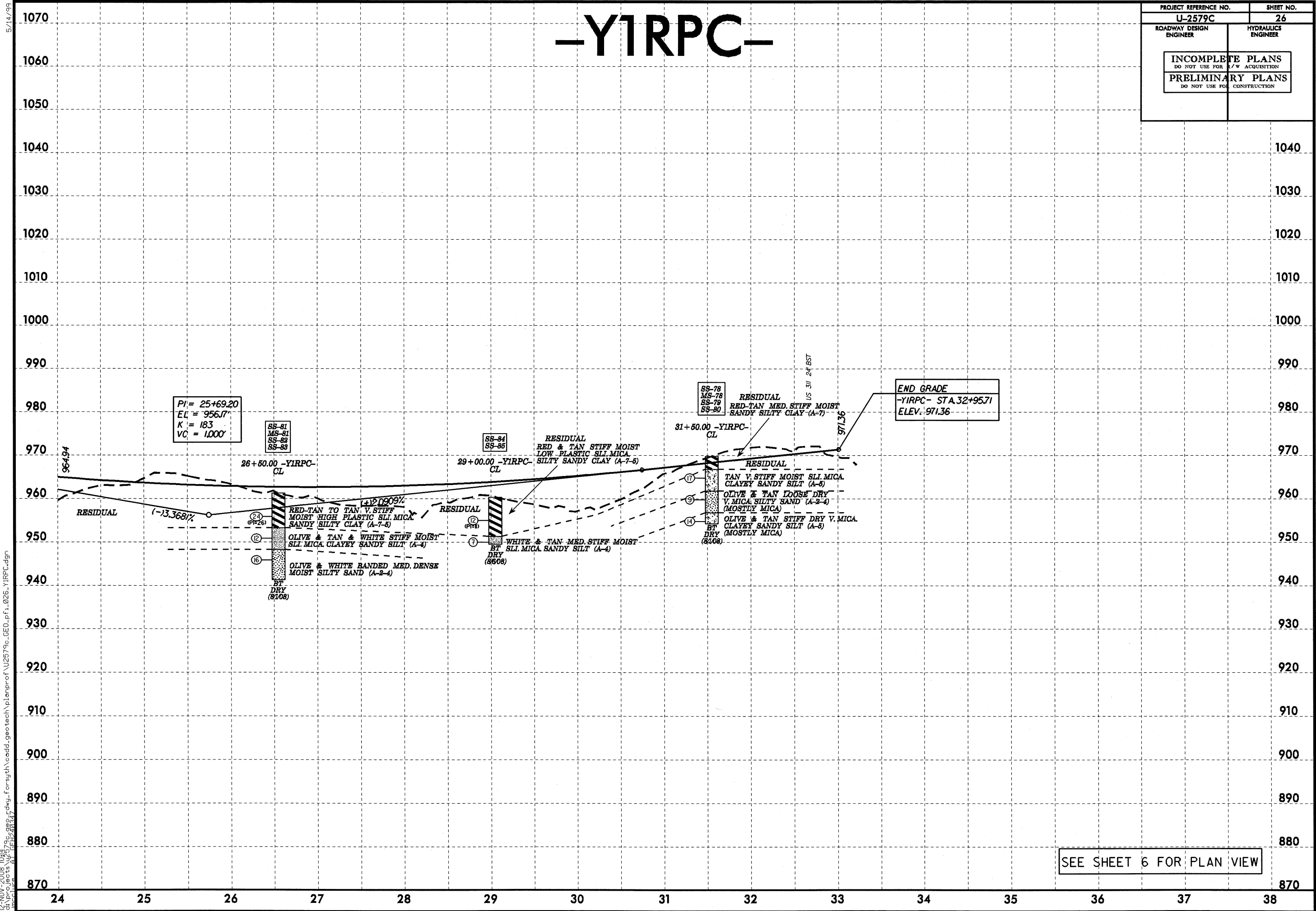
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE SHEET 6 FOR PLAN VIEW

-YIRPC-

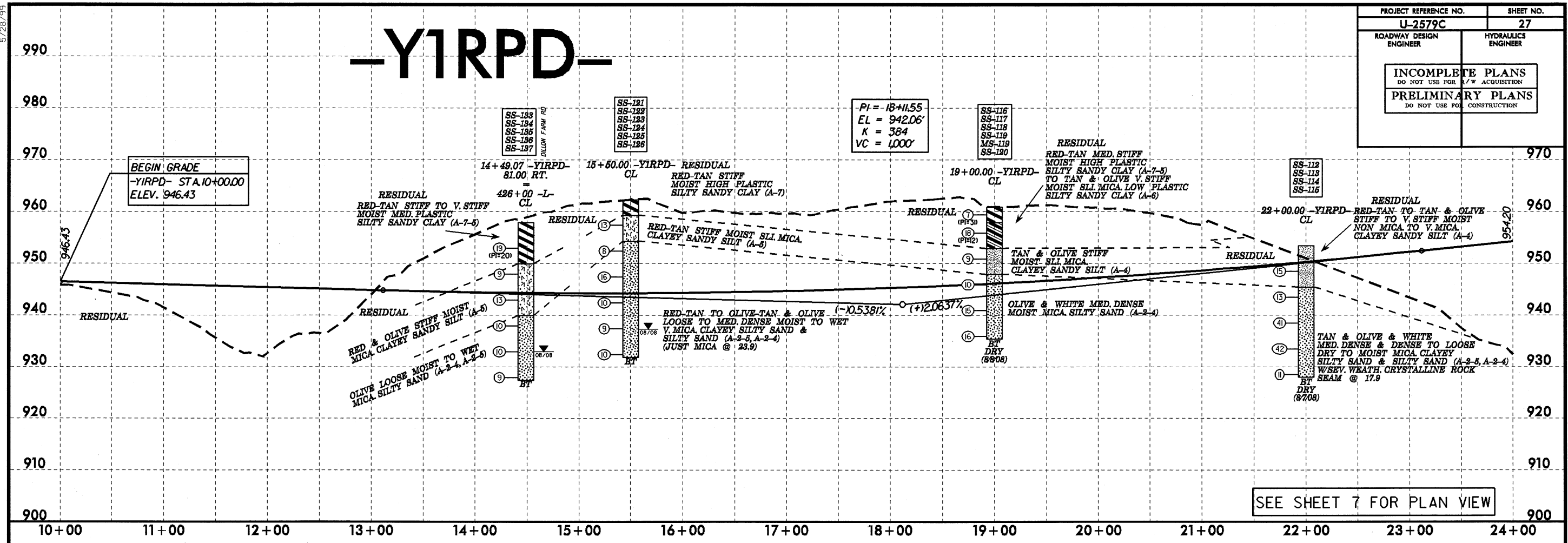
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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<div style="border: 1px solid black; padding: 2px; display: inline-block;"> PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION </div>	



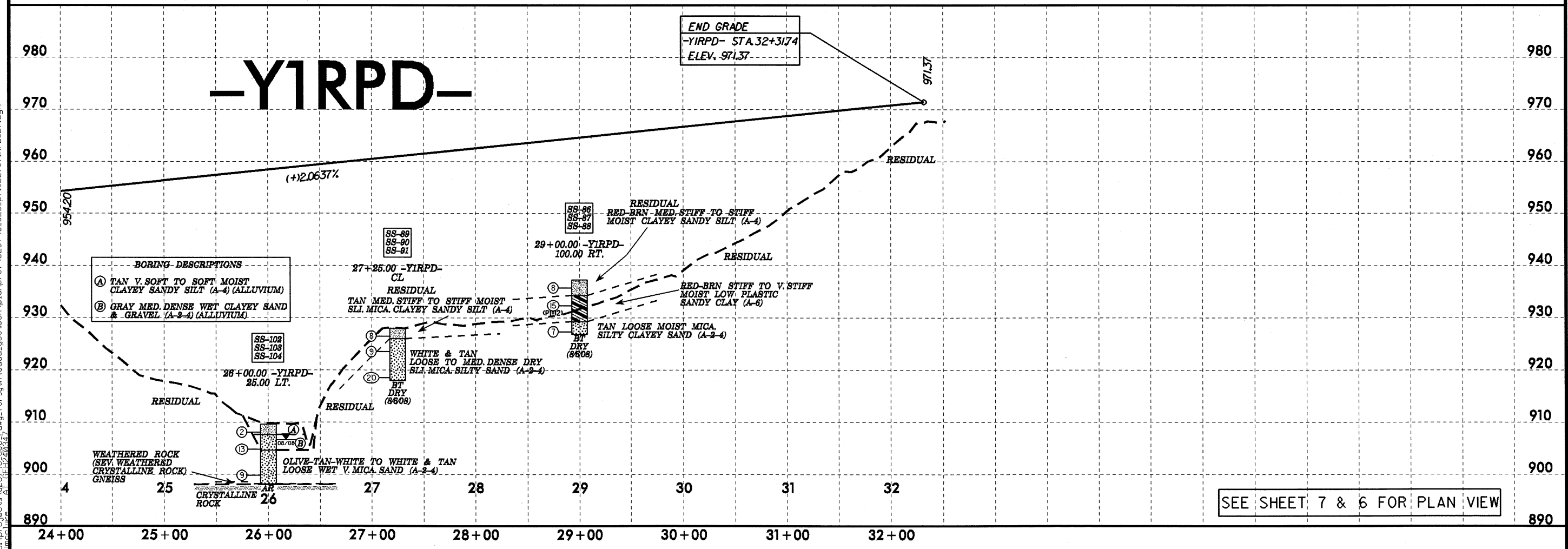
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5/28/99
14-NOV-2008 11:35:29
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PROJECT REFERENCE NO.	SHEET NO.
U-2579C	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR P/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SEE SHEET 7 FOR PLAN VIEW

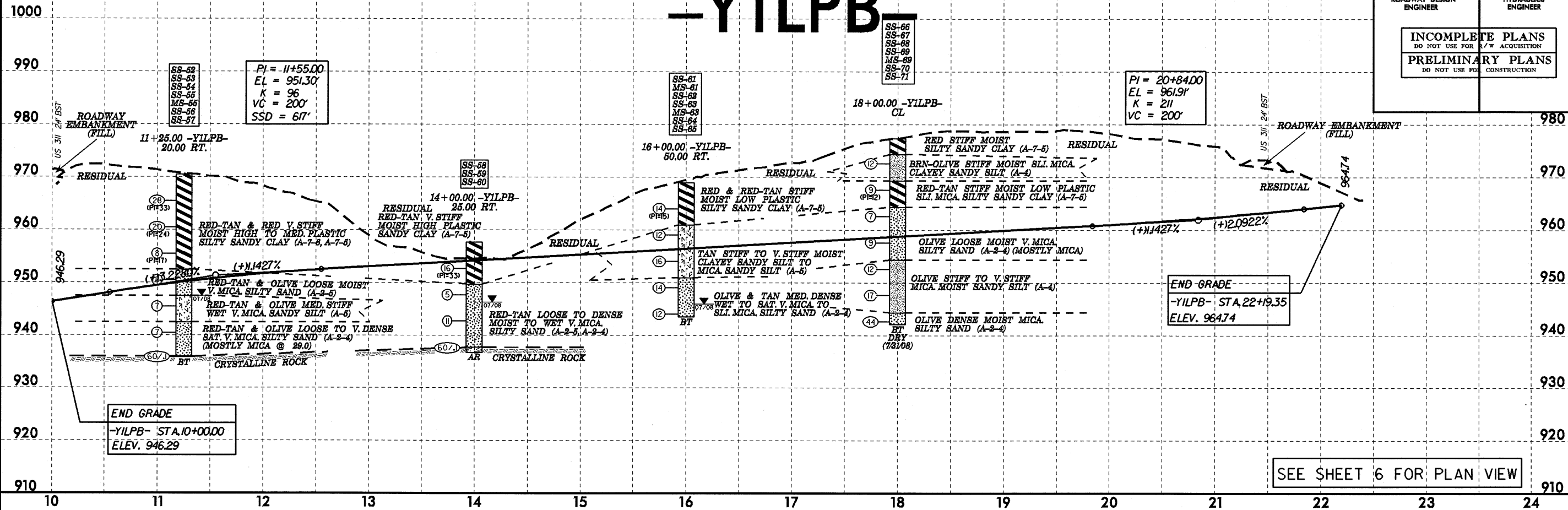


SEE SHEET 7 & 6 FOR PLAN VIEW

5/28/99

-YILPB-

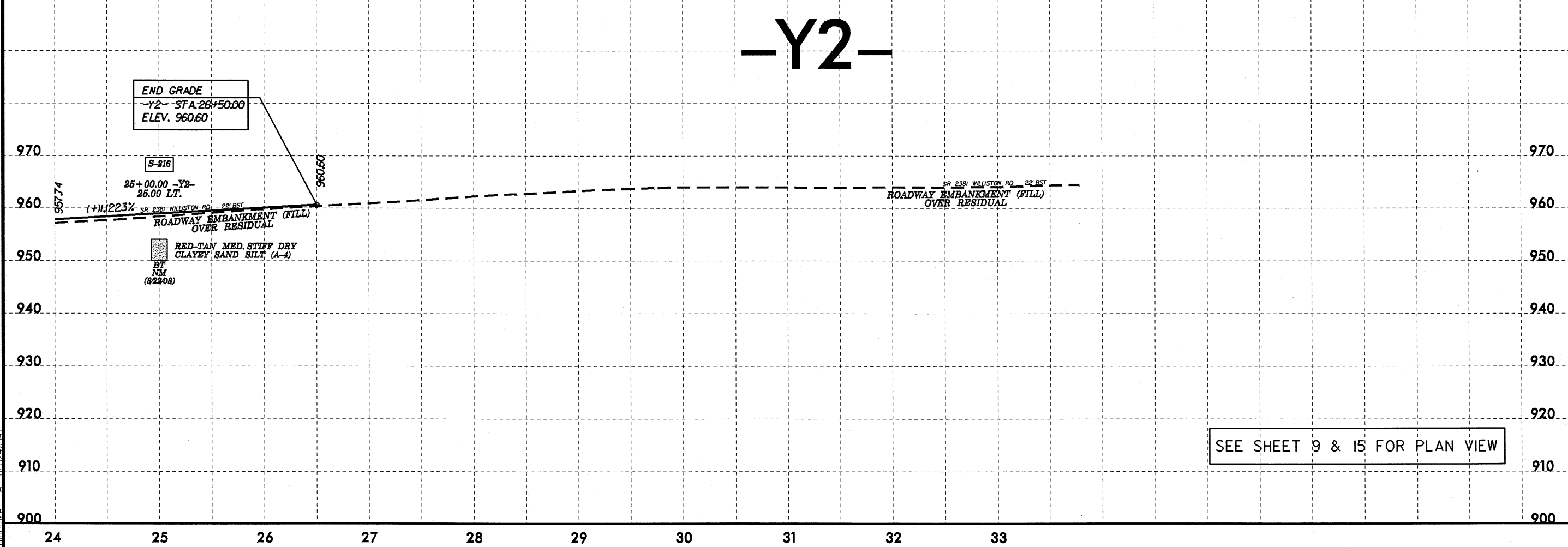
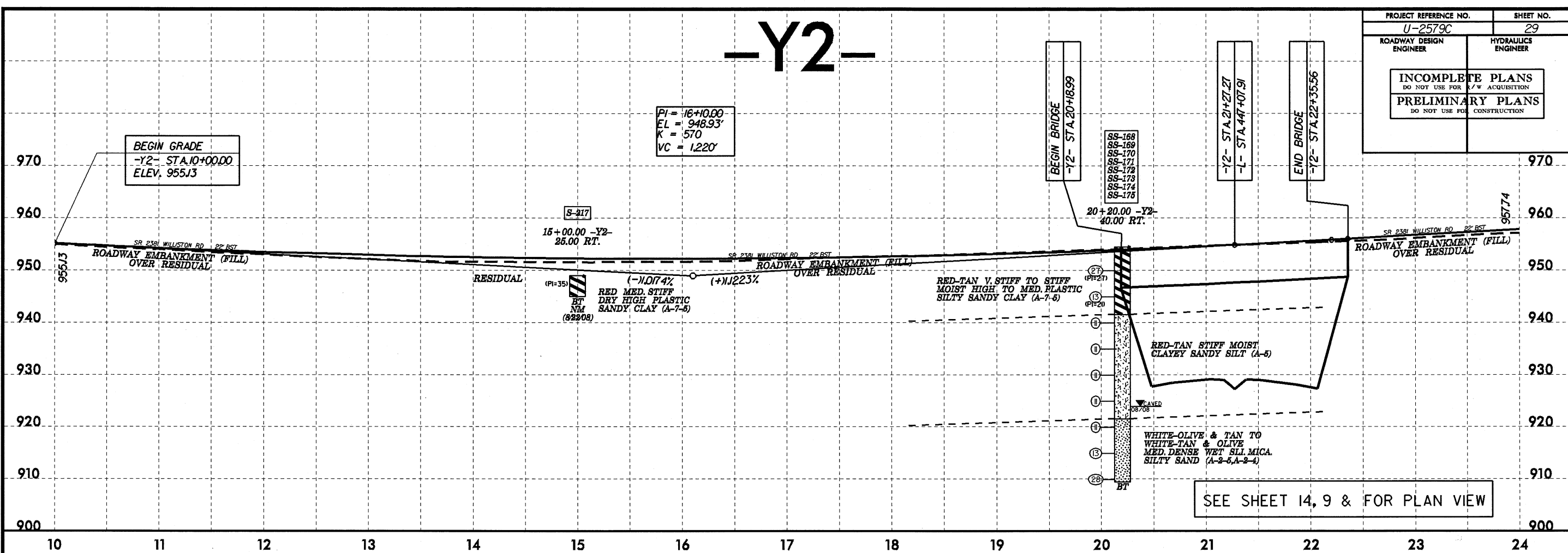
PROJECT REFERENCE NO.		SHEET NO.	
U-2579C		28	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



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5/28/99
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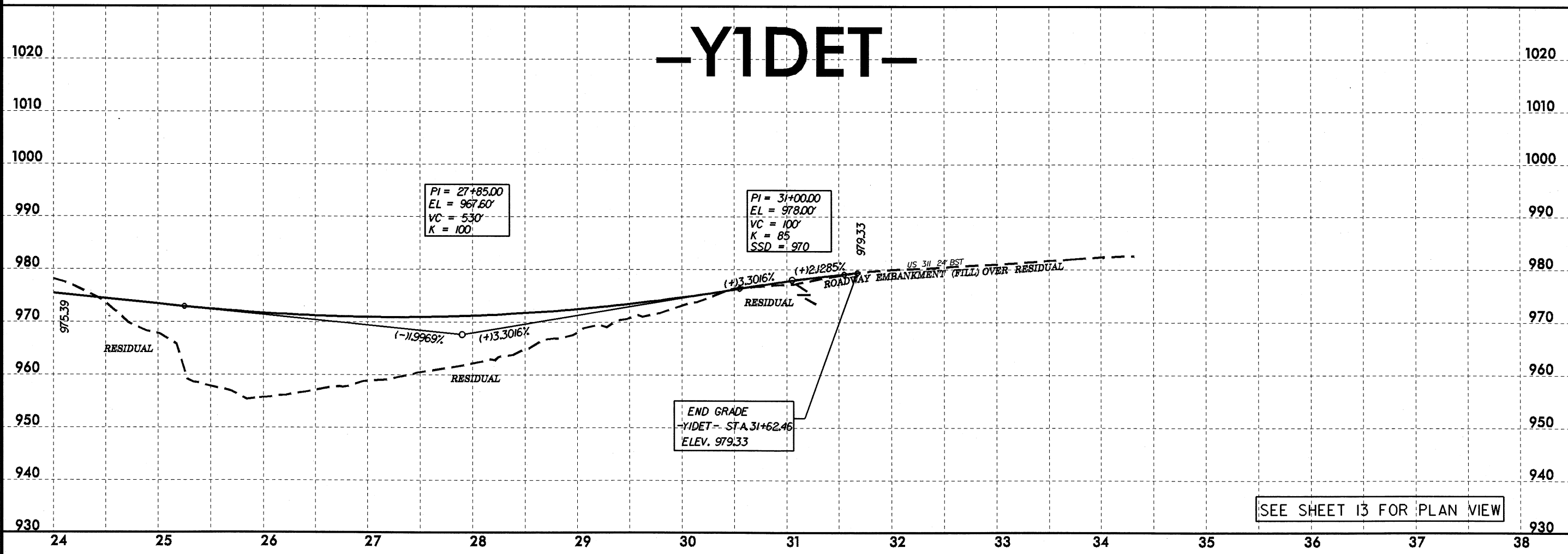
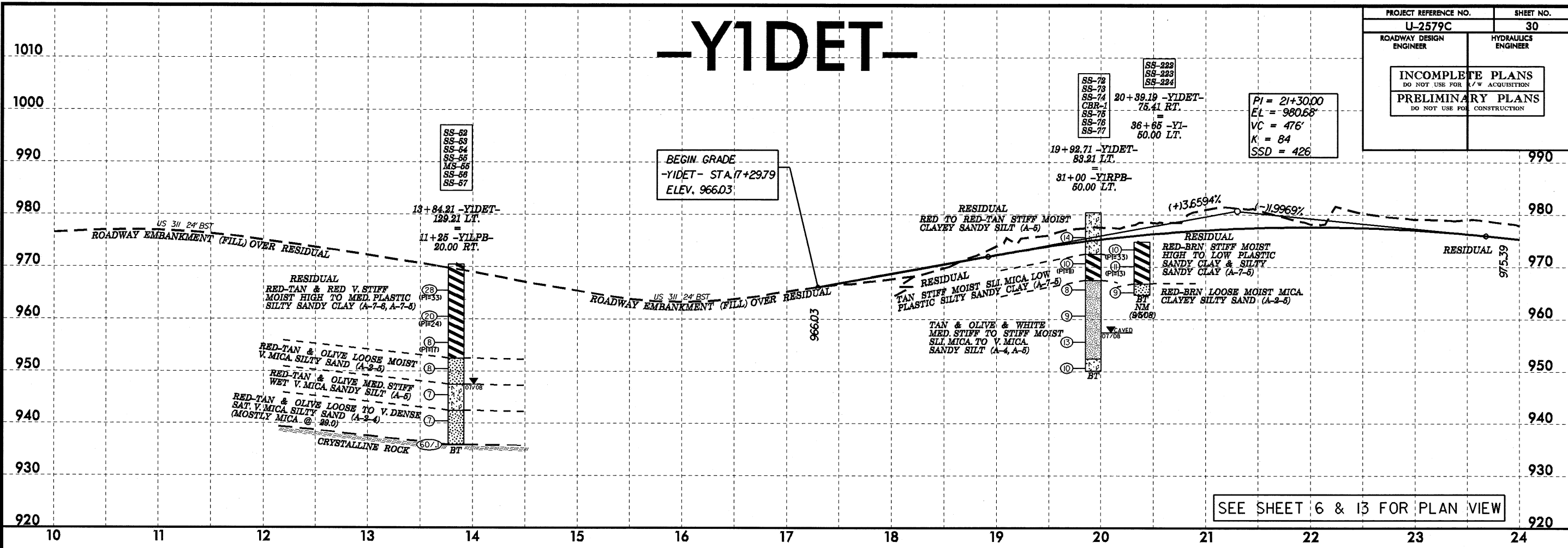
PROJECT REFERENCE NO. U-2579C	SHEET NO. 29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



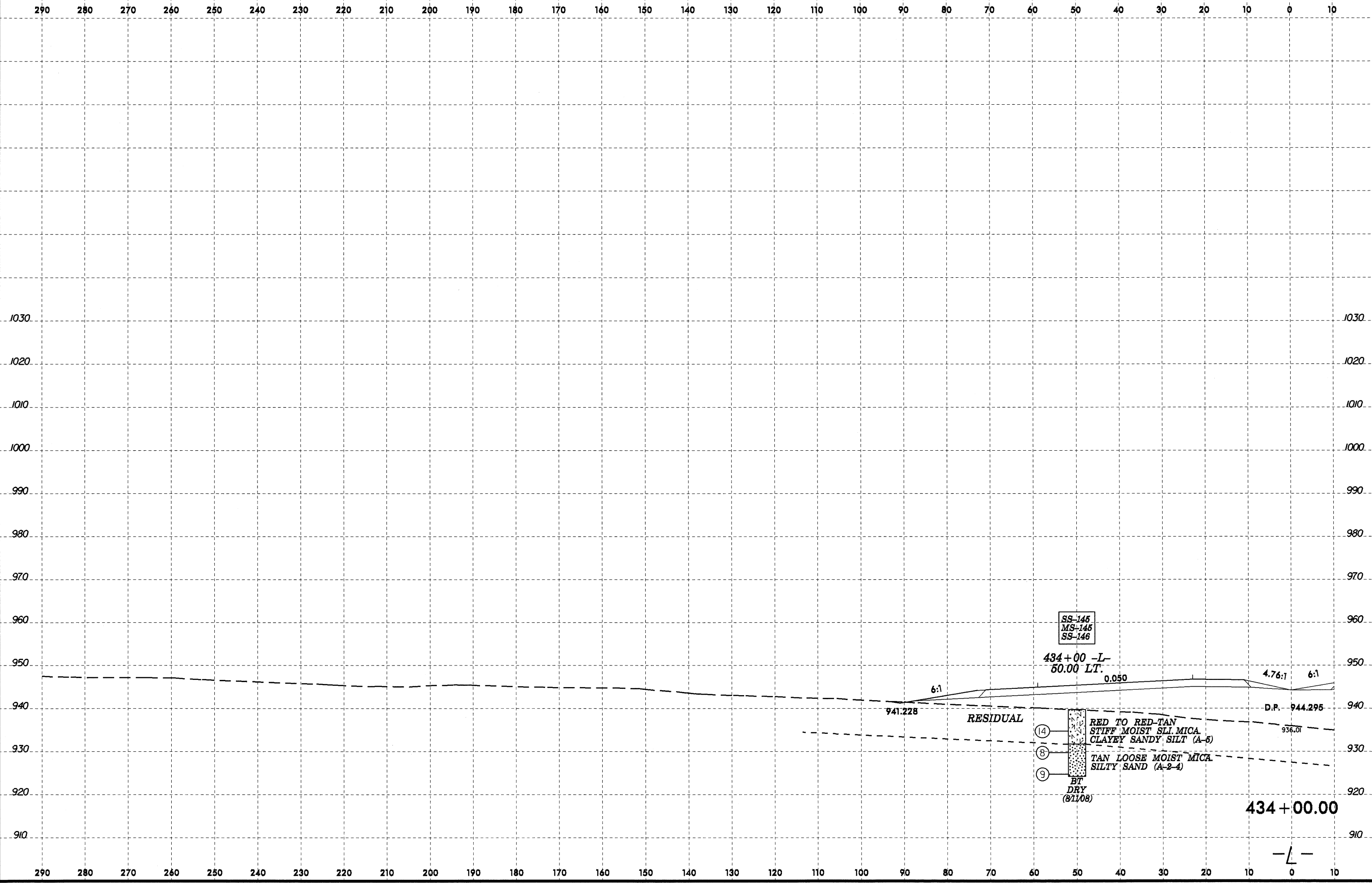
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PROJECT REFERENCE NO. U-2579C	SHEET NO. 30
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INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



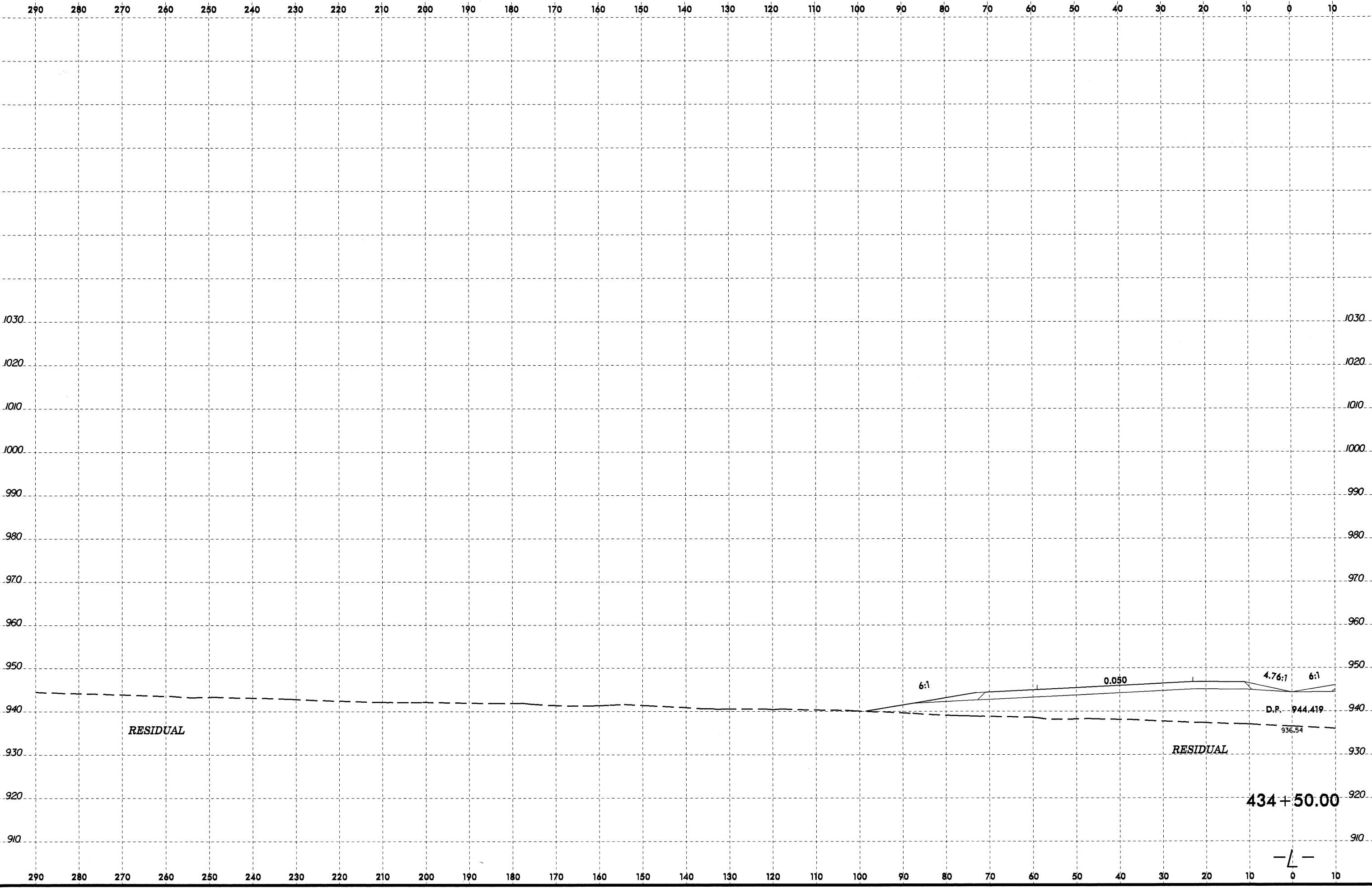
8/23/99



21-JUN-2010 15:44
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8/23/99

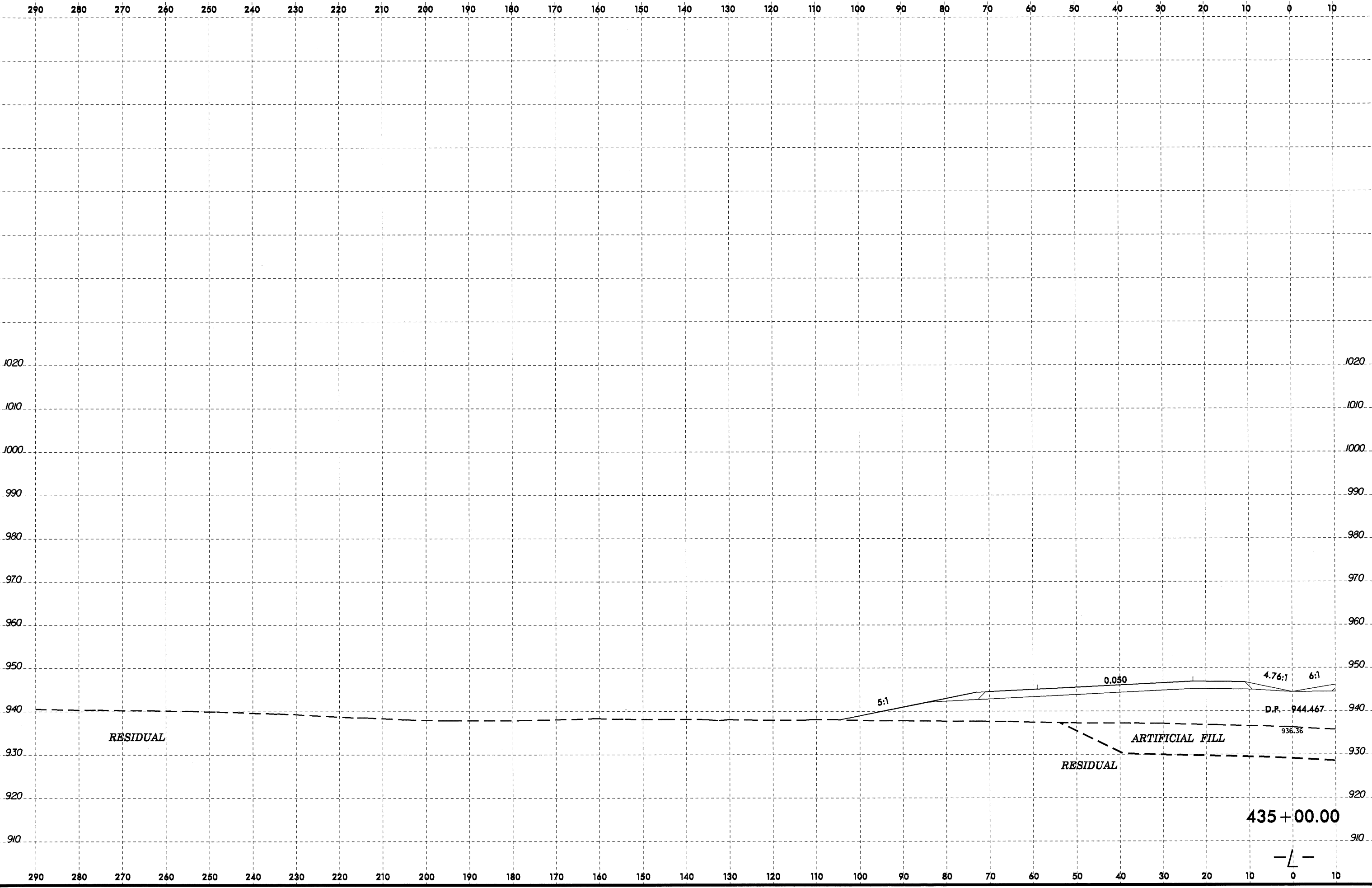
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	U-2579C	32



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8/23/99

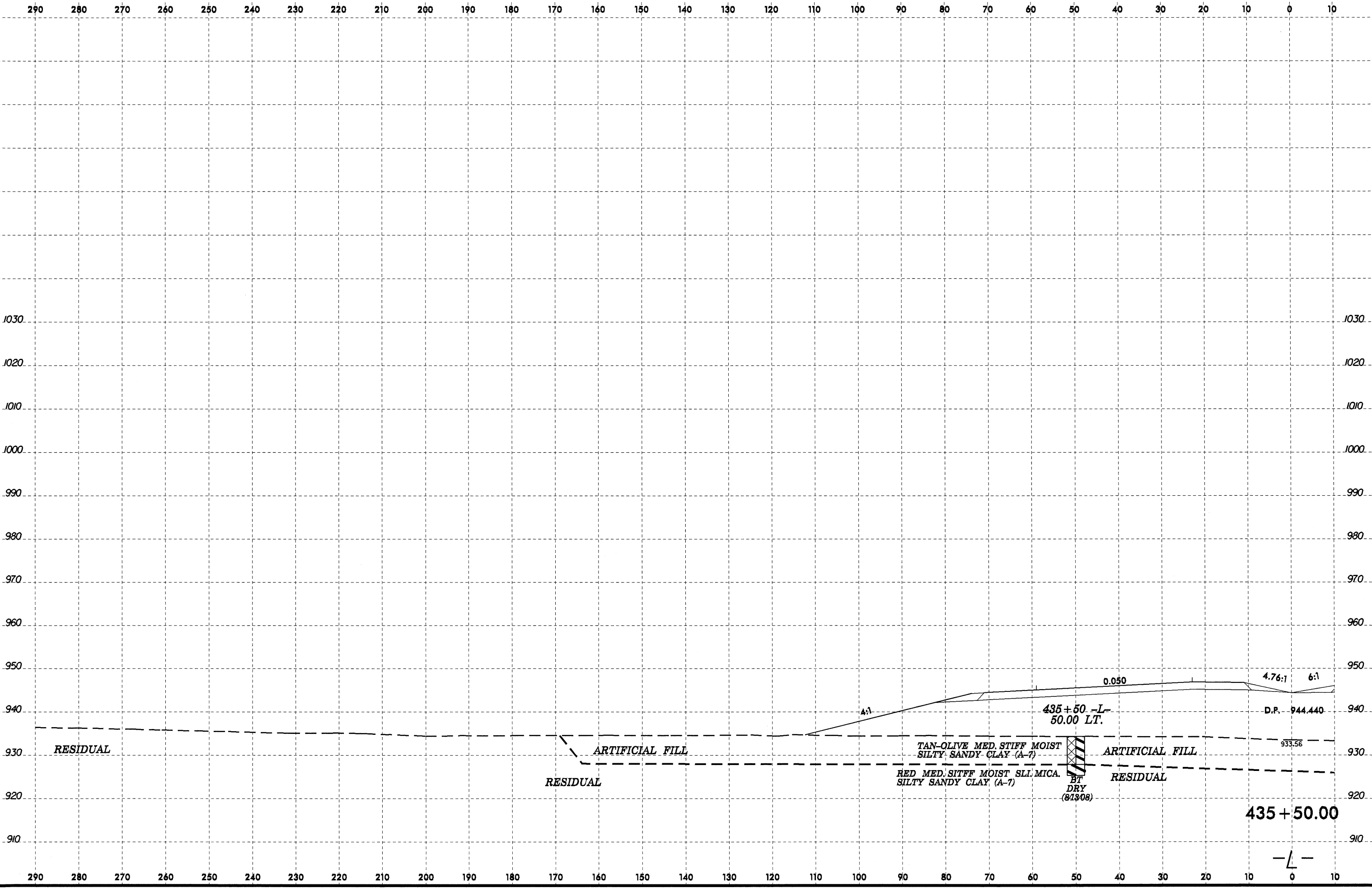
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	U-2579C	33



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8/23/99

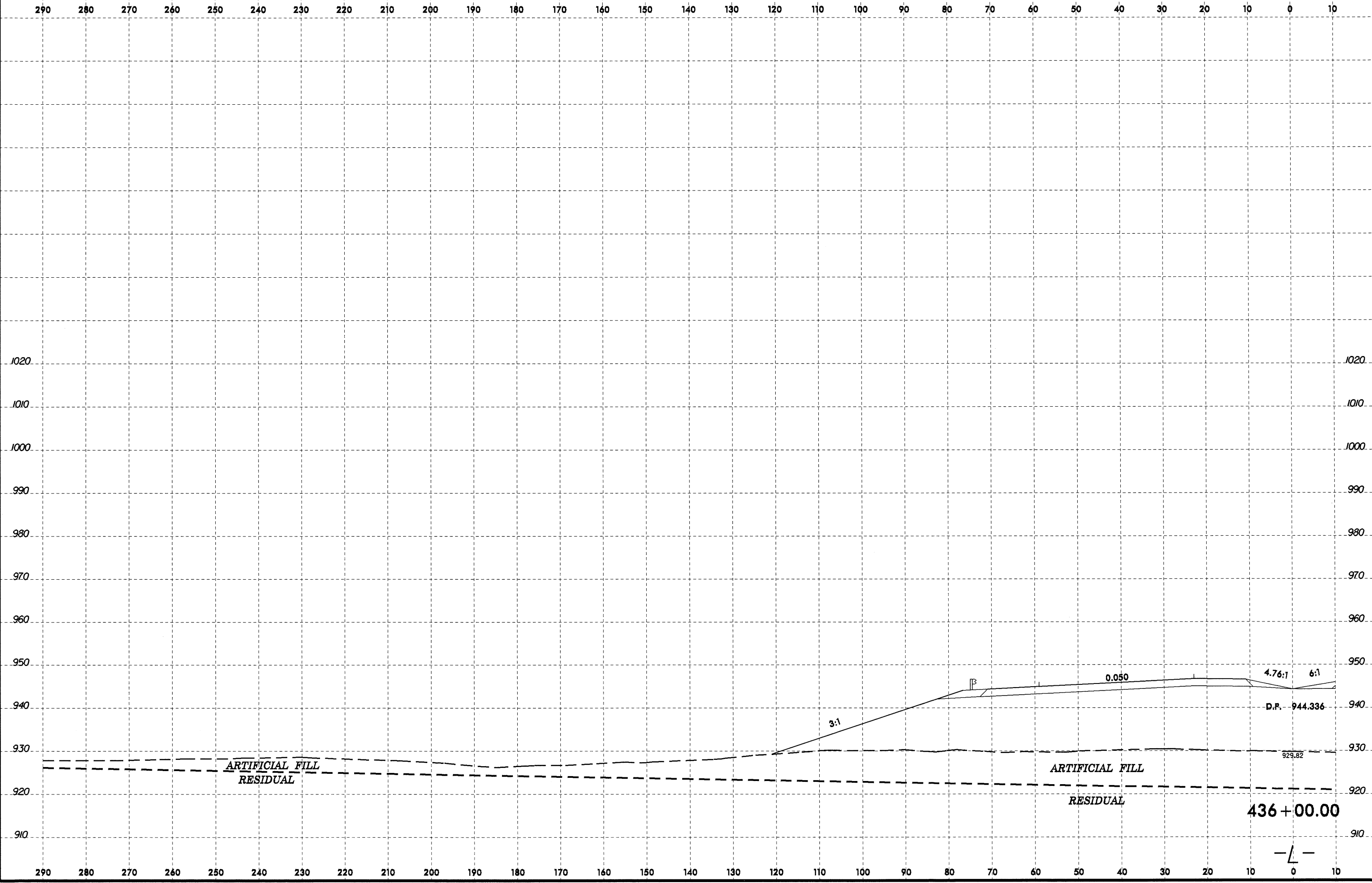
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8/23/99

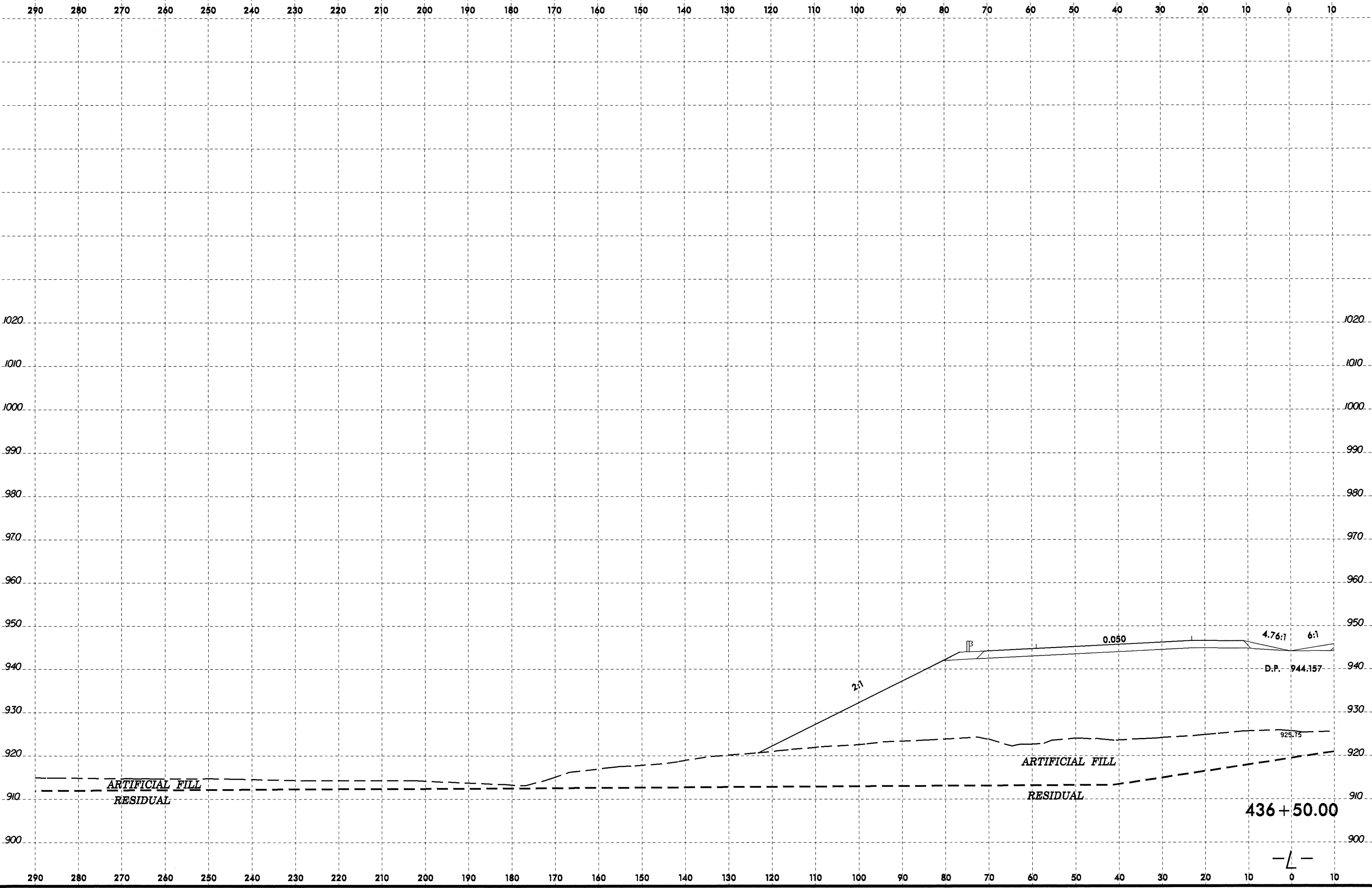
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	U-2579C	35



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8/23/99

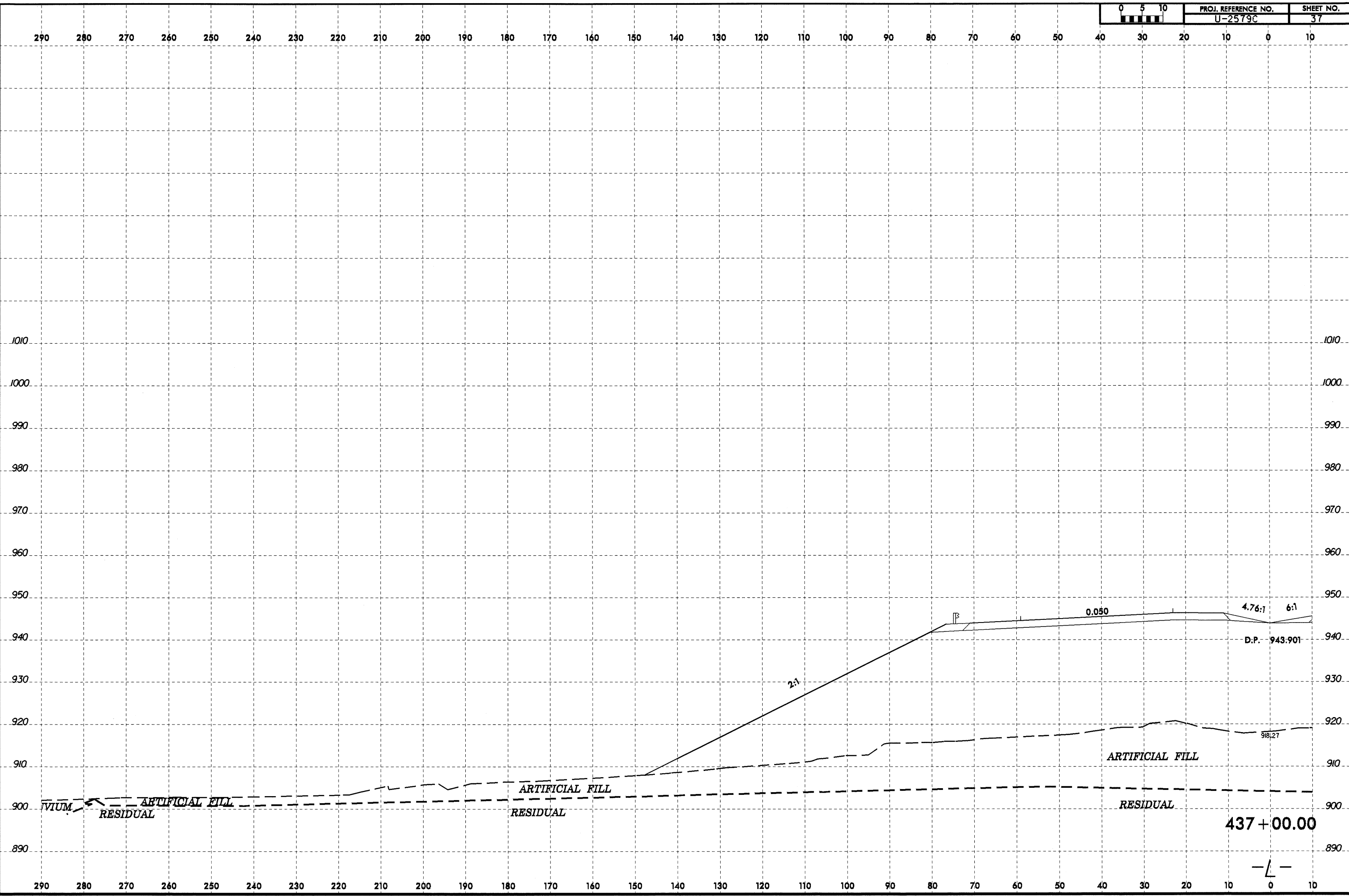
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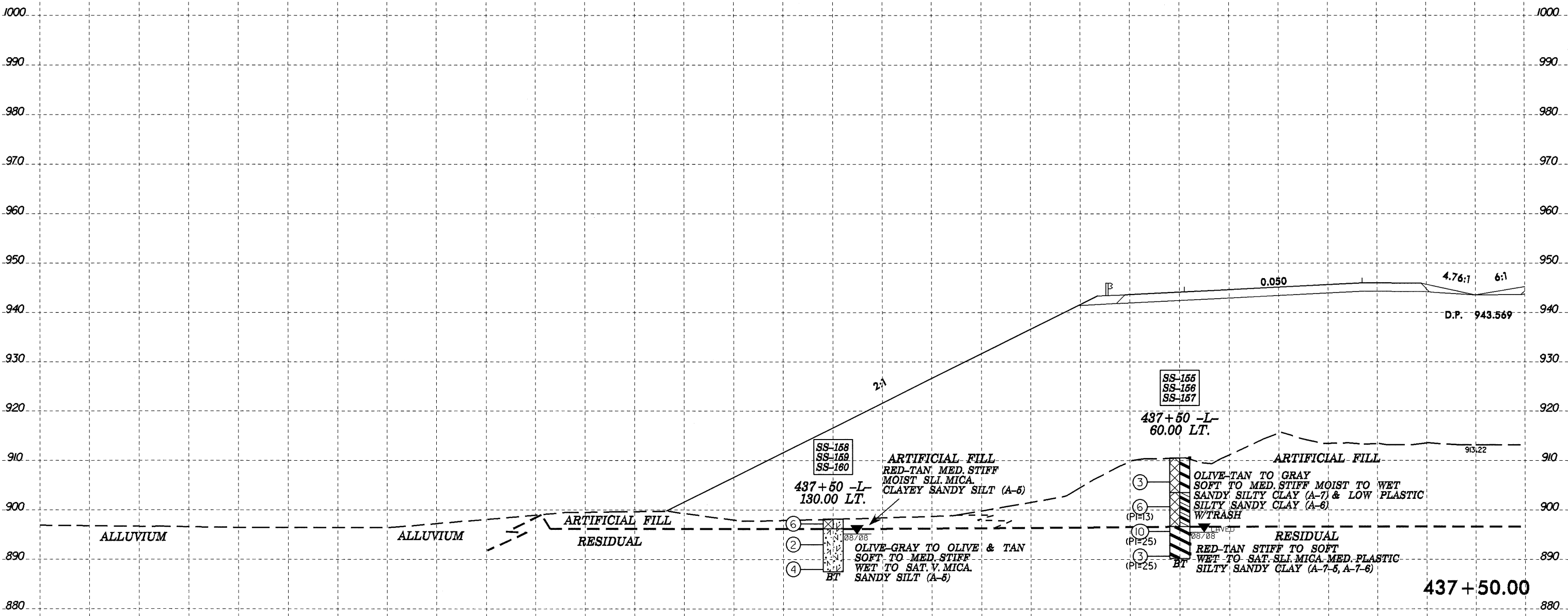
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8/23/99

0 5 10		PROJ. REFERENCE NO.	SHEET NO.
		U-2579C	38

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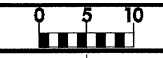
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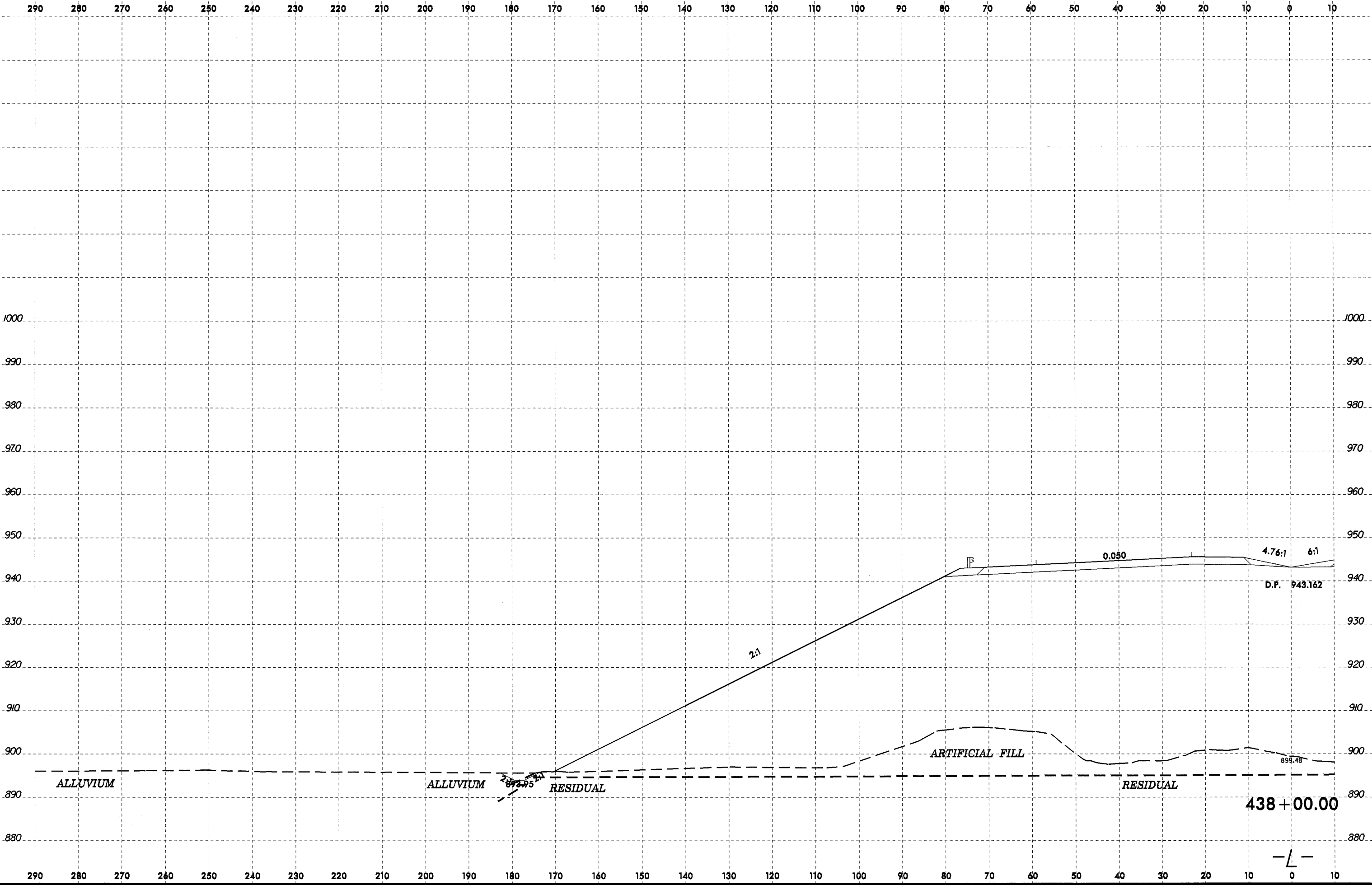
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8/23/99

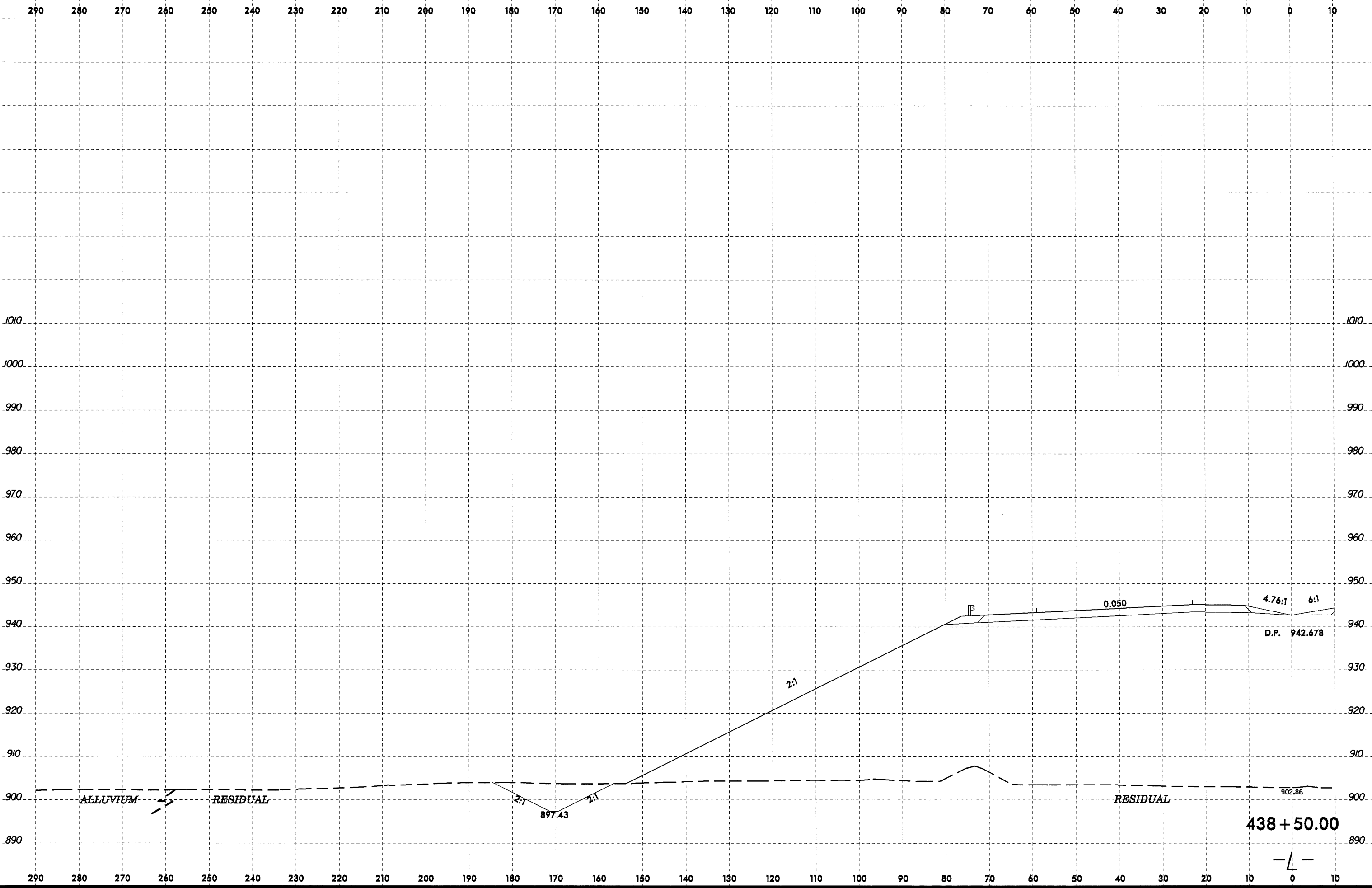


PROJ. REFERENCE NO. U-2579C	SHEET NO. 39
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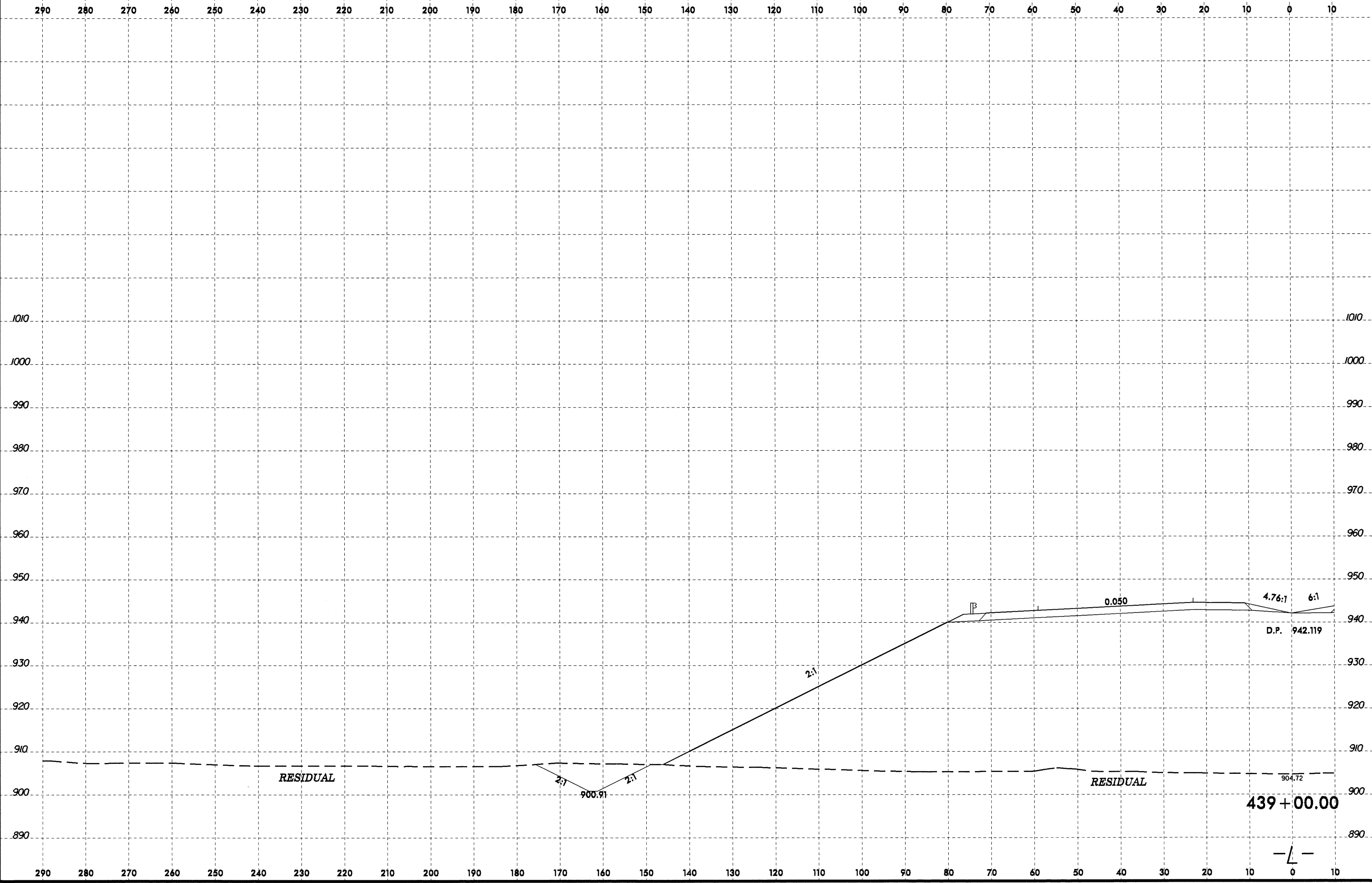
8/23/99



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8/23/99

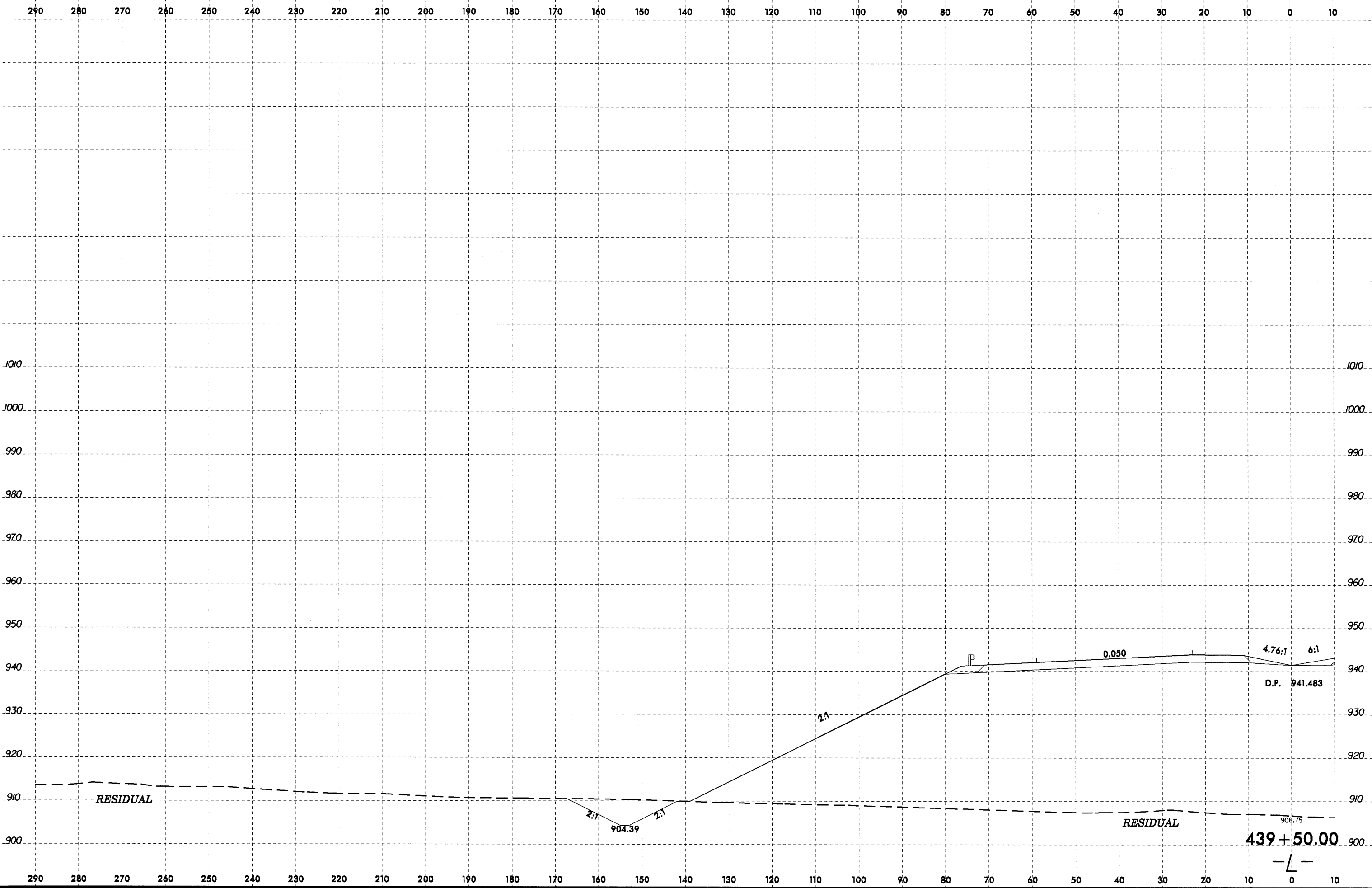
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8/23/99

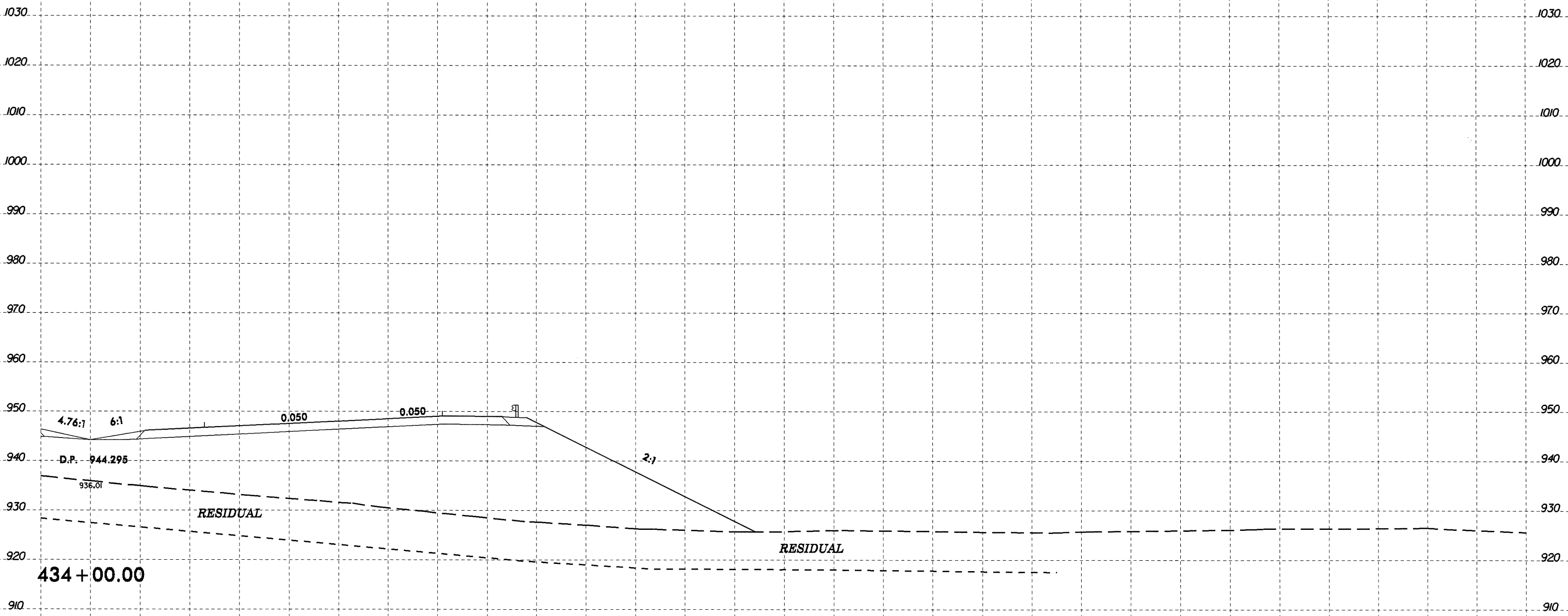
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8/23/99

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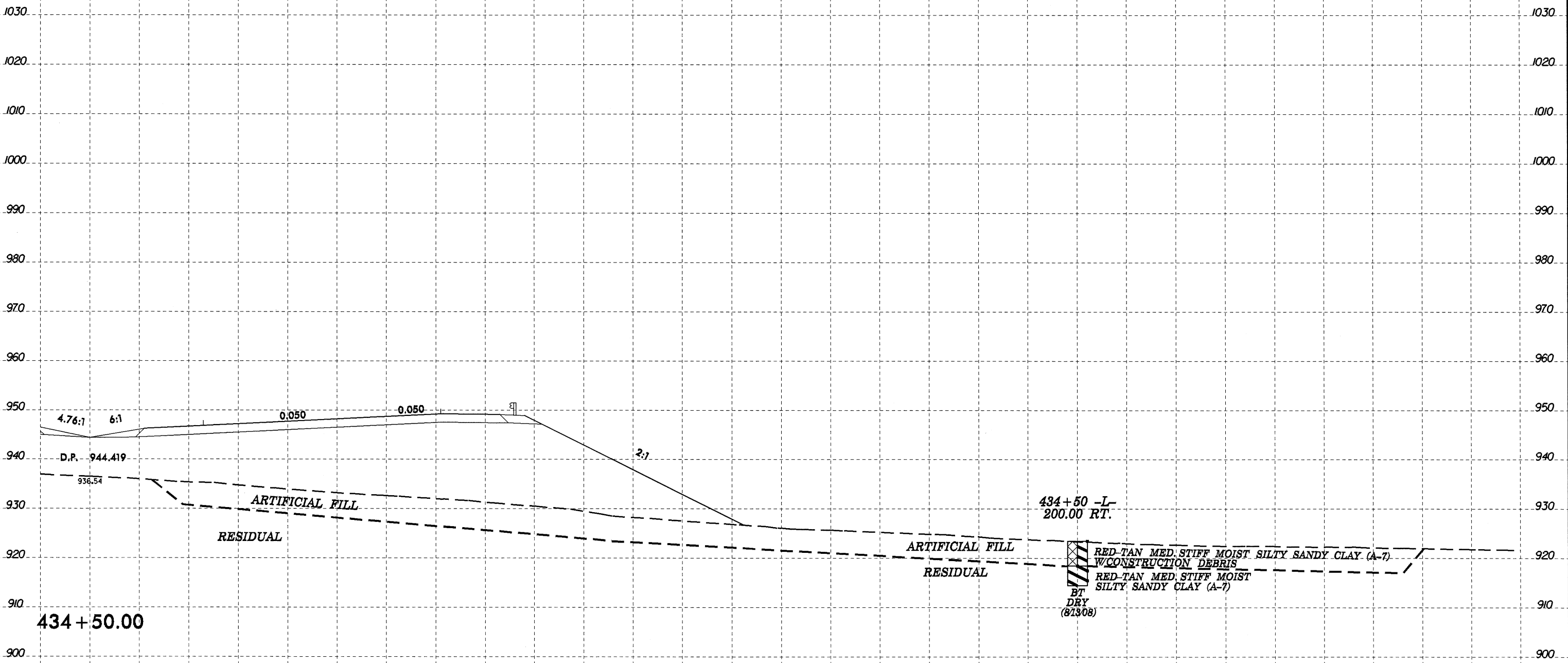


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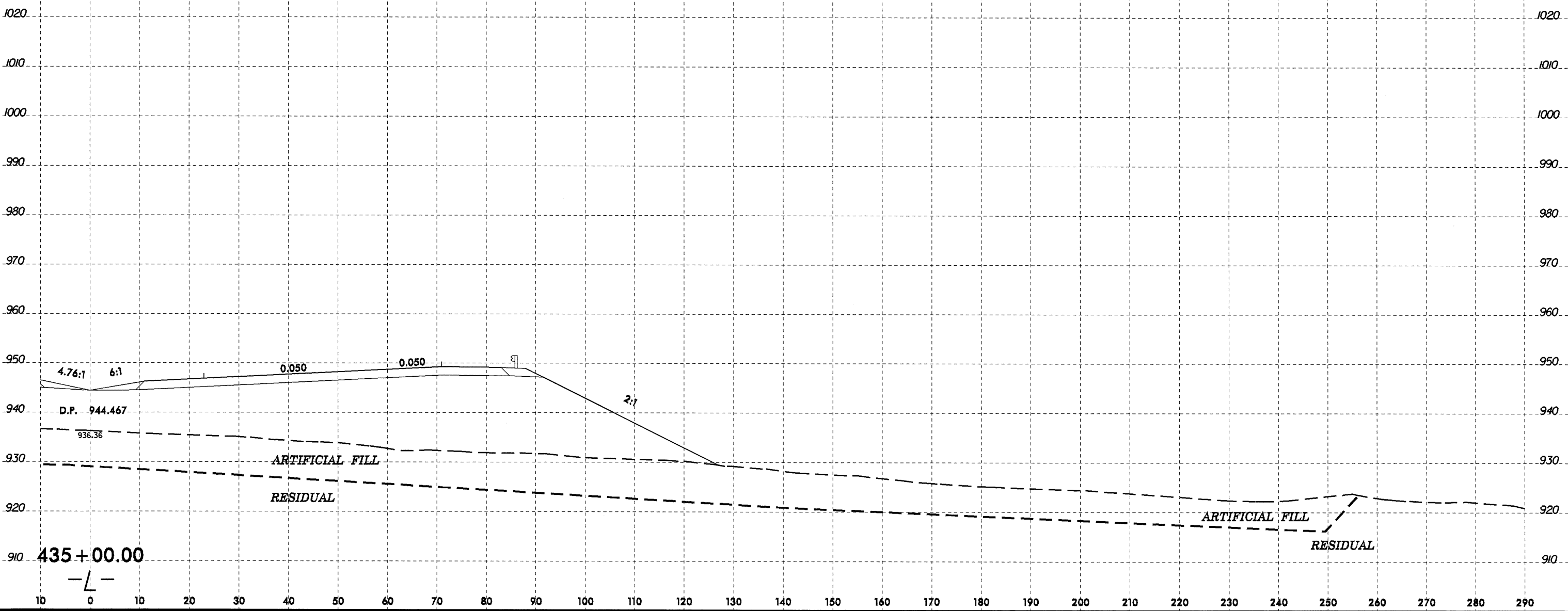


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8/23/99

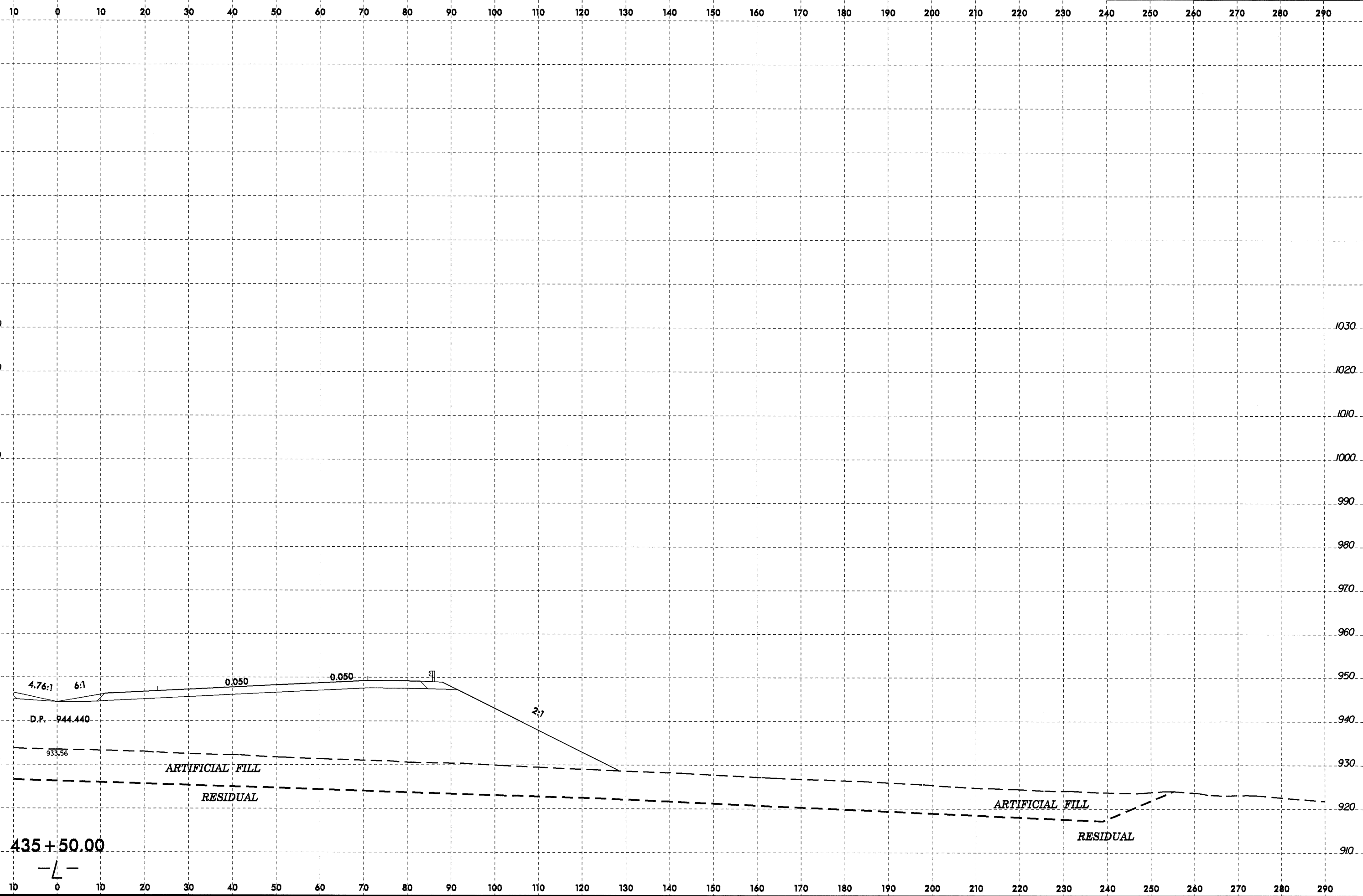
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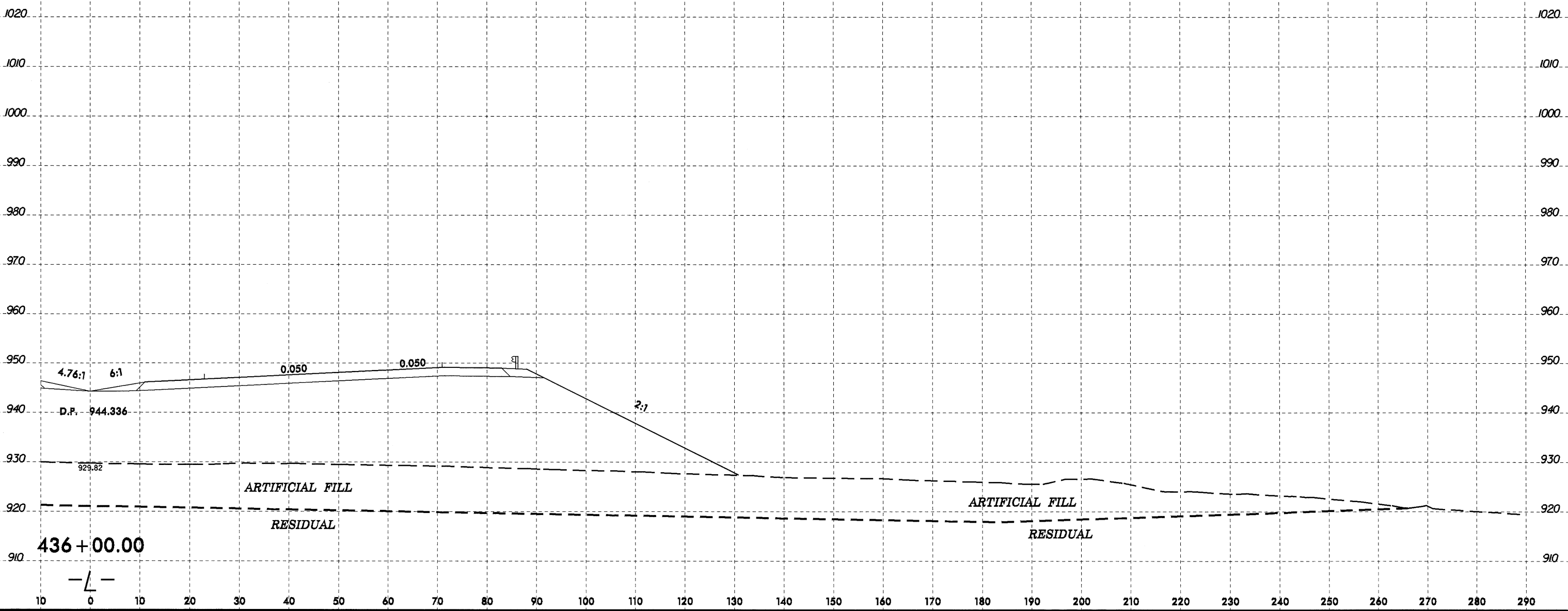
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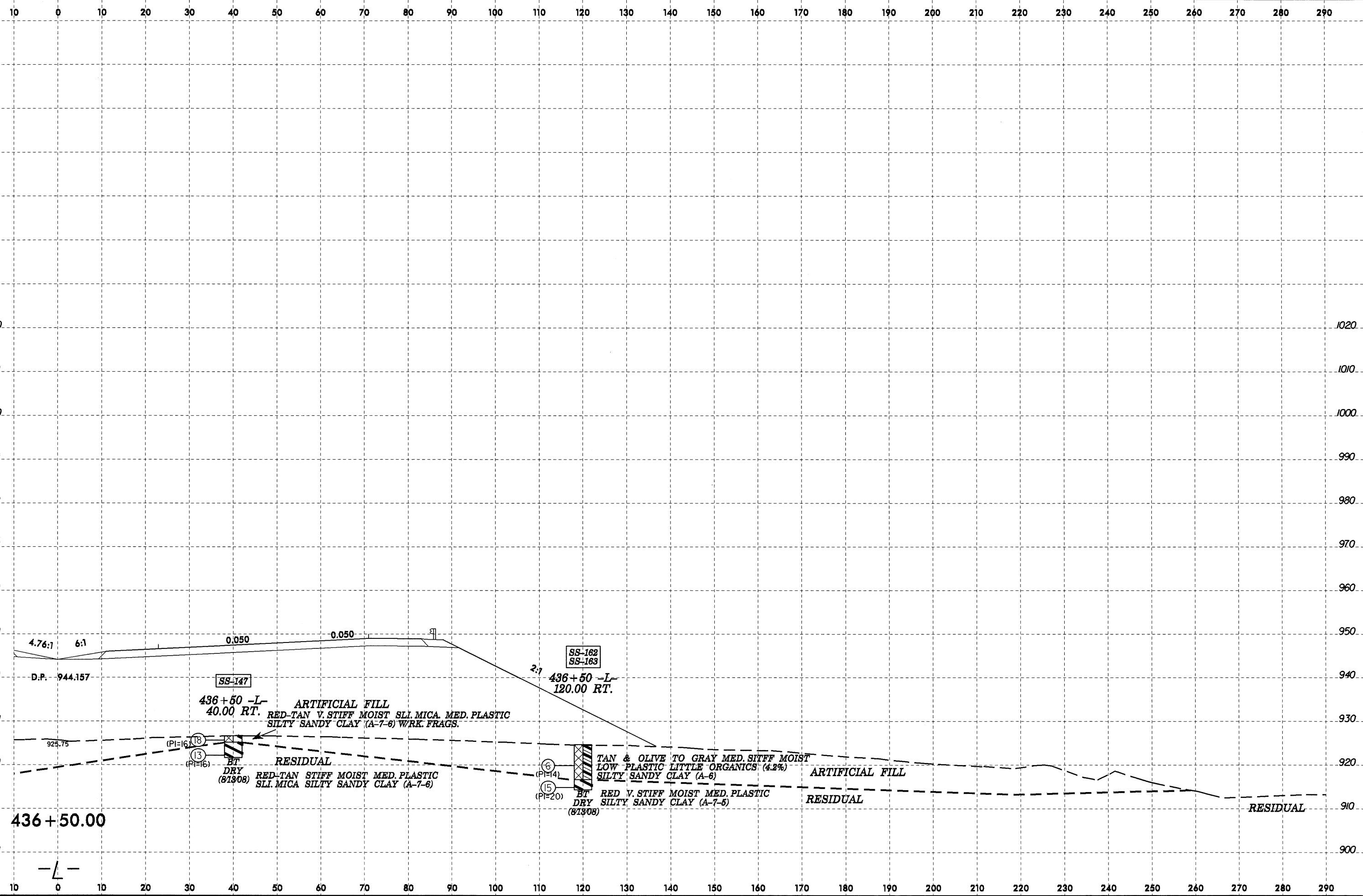
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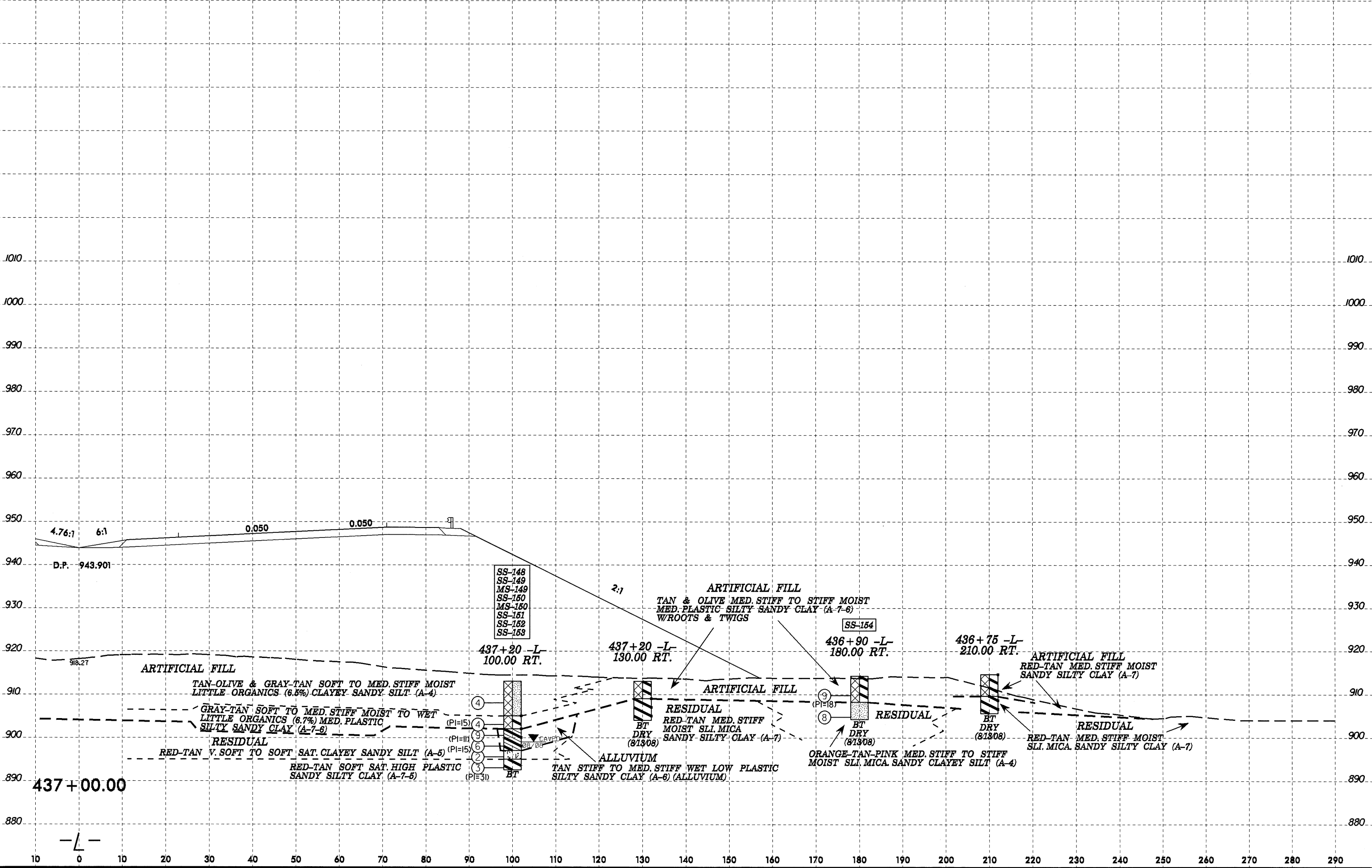
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 measure AT 40847

8/23/99

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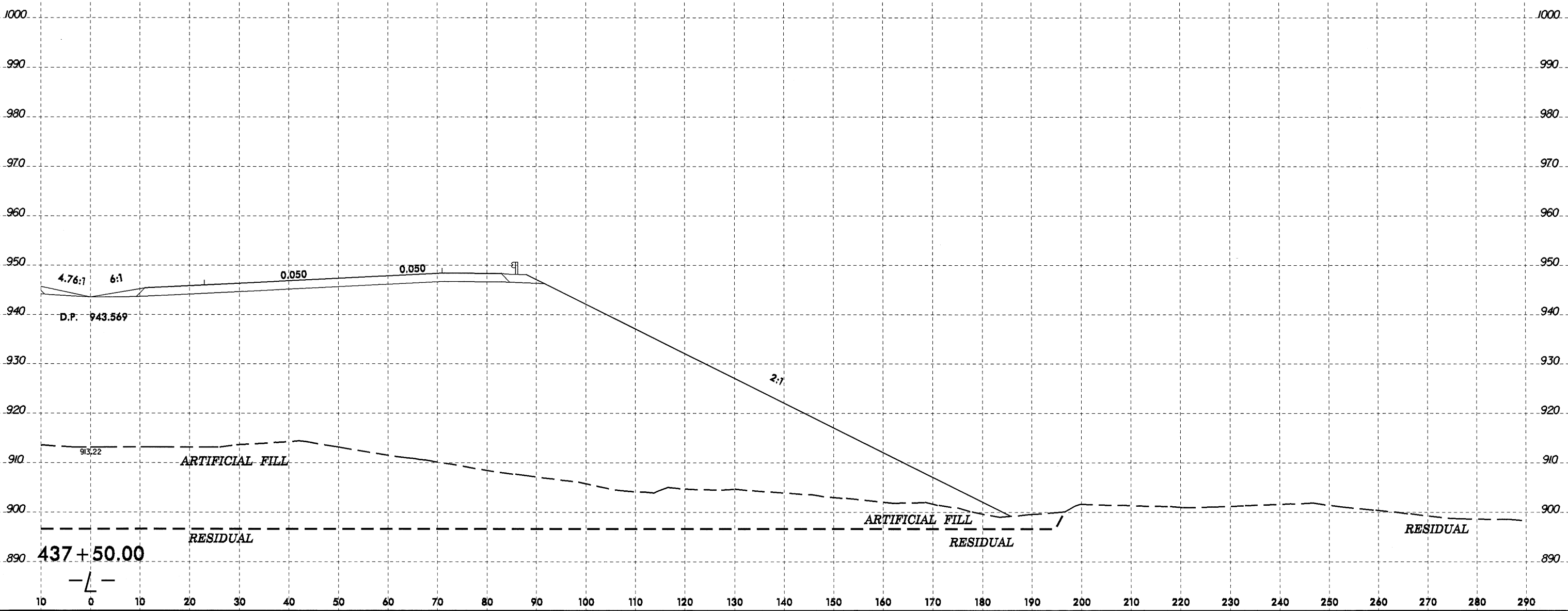


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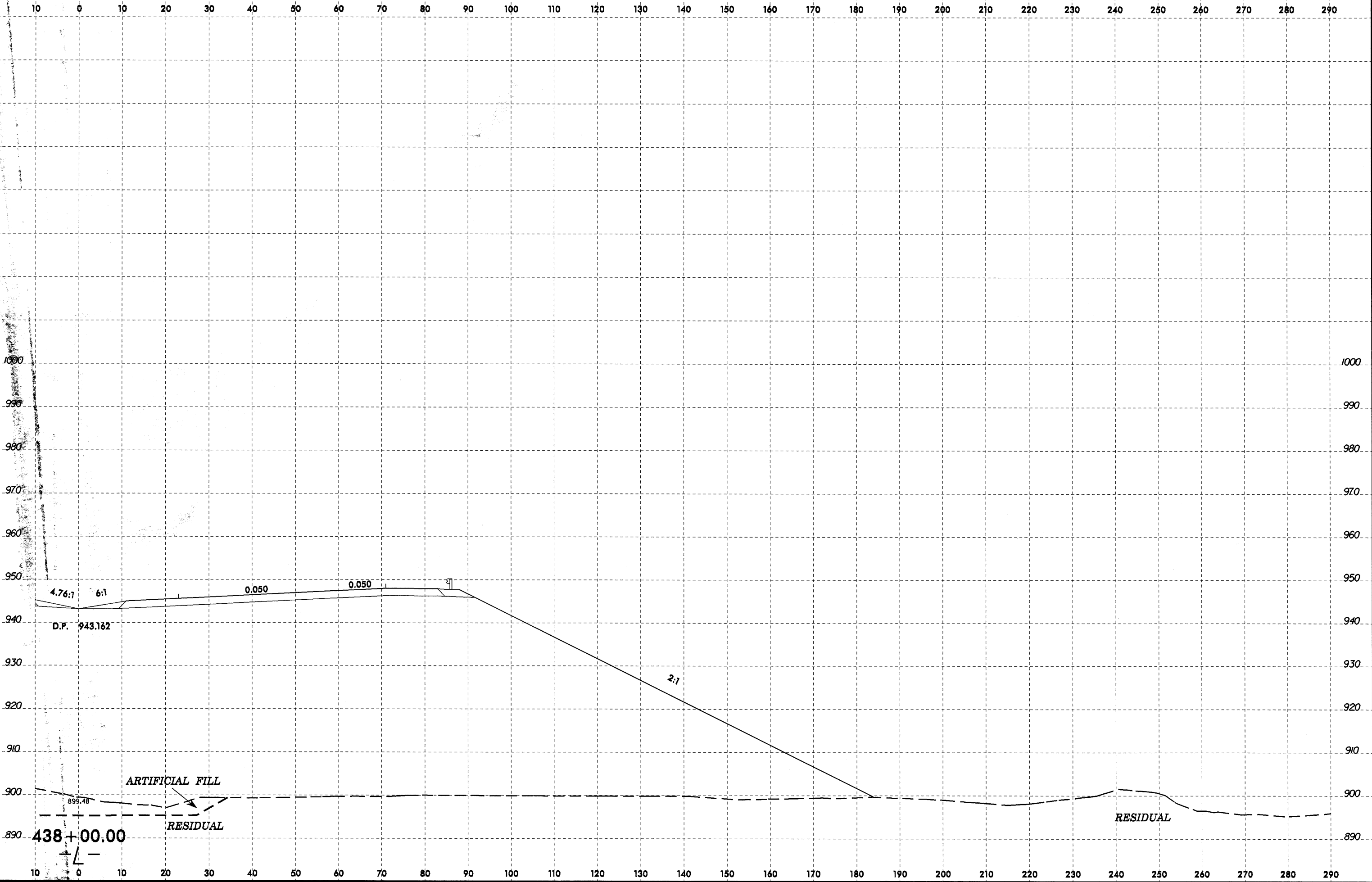
8/23/99

0 5 10	PROJ. REFERENCE NO. U-2579C	SHEET NO. 50
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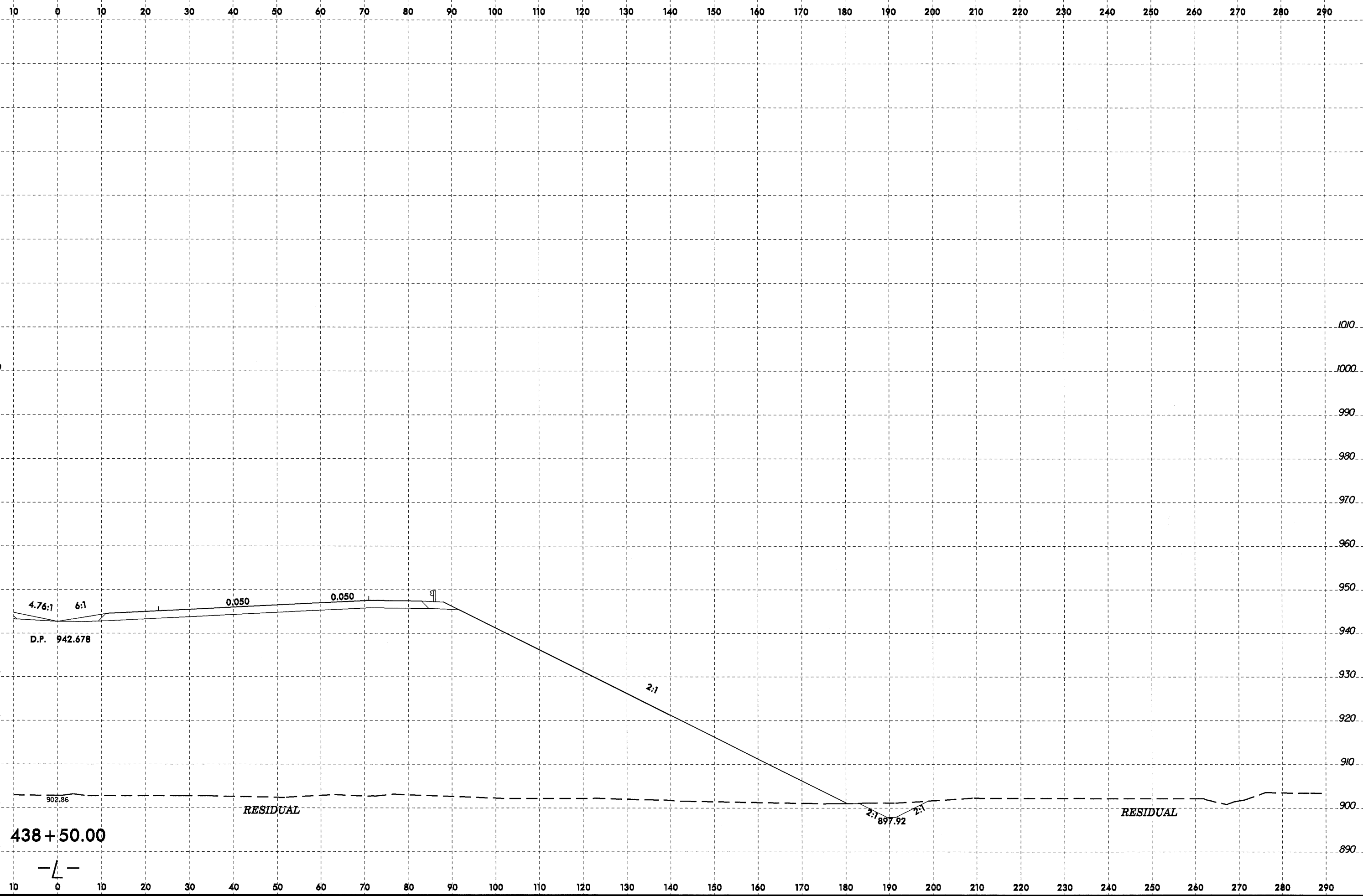


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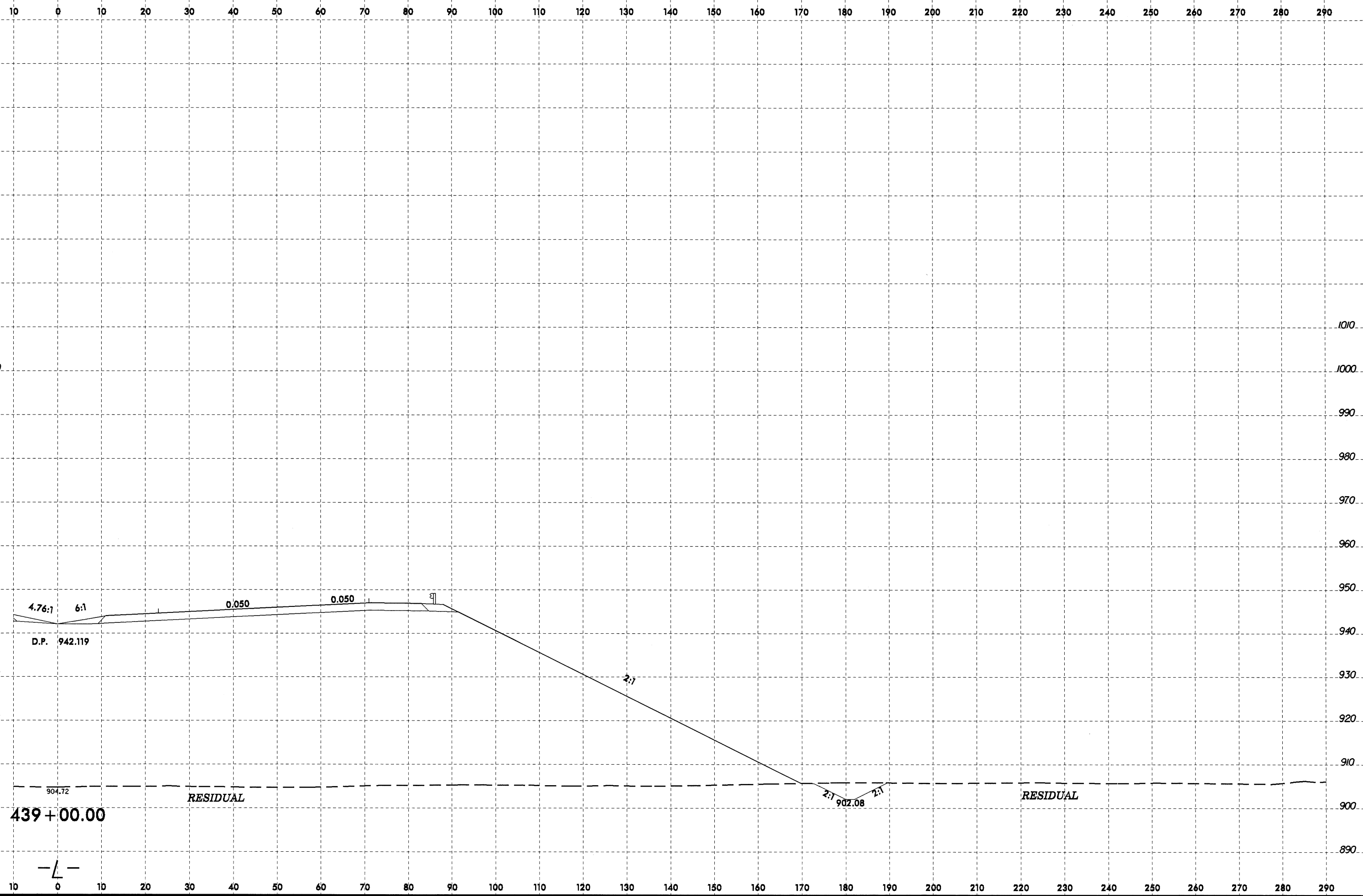
ARTIFICIAL FILL
RESIDUAL

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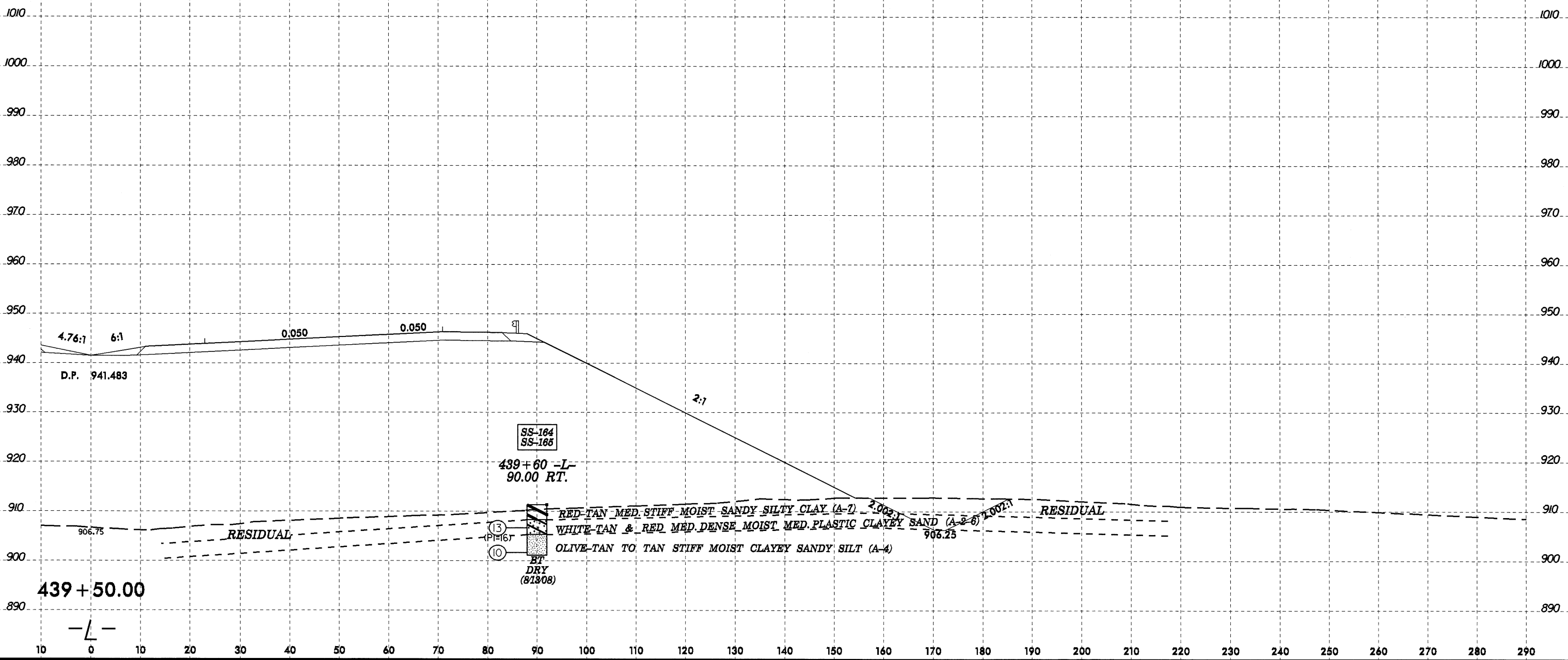
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RESIDUAL

RESIDUAL

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 Plotting AT 8/23/99

439+50.00

SS-164
 SS-165

439+60 -L-
 90.00 RT.

(13)

PI=167

(10)

BT
 DRY
 (81308)

RED-TAN MED. STIFF MOIST SANDY SILTY CLAY (A-1)

WHITE-TAN & RED MED. DENSE MOIST MED. PLASTIC CLAYEY SAND (A-2-B)

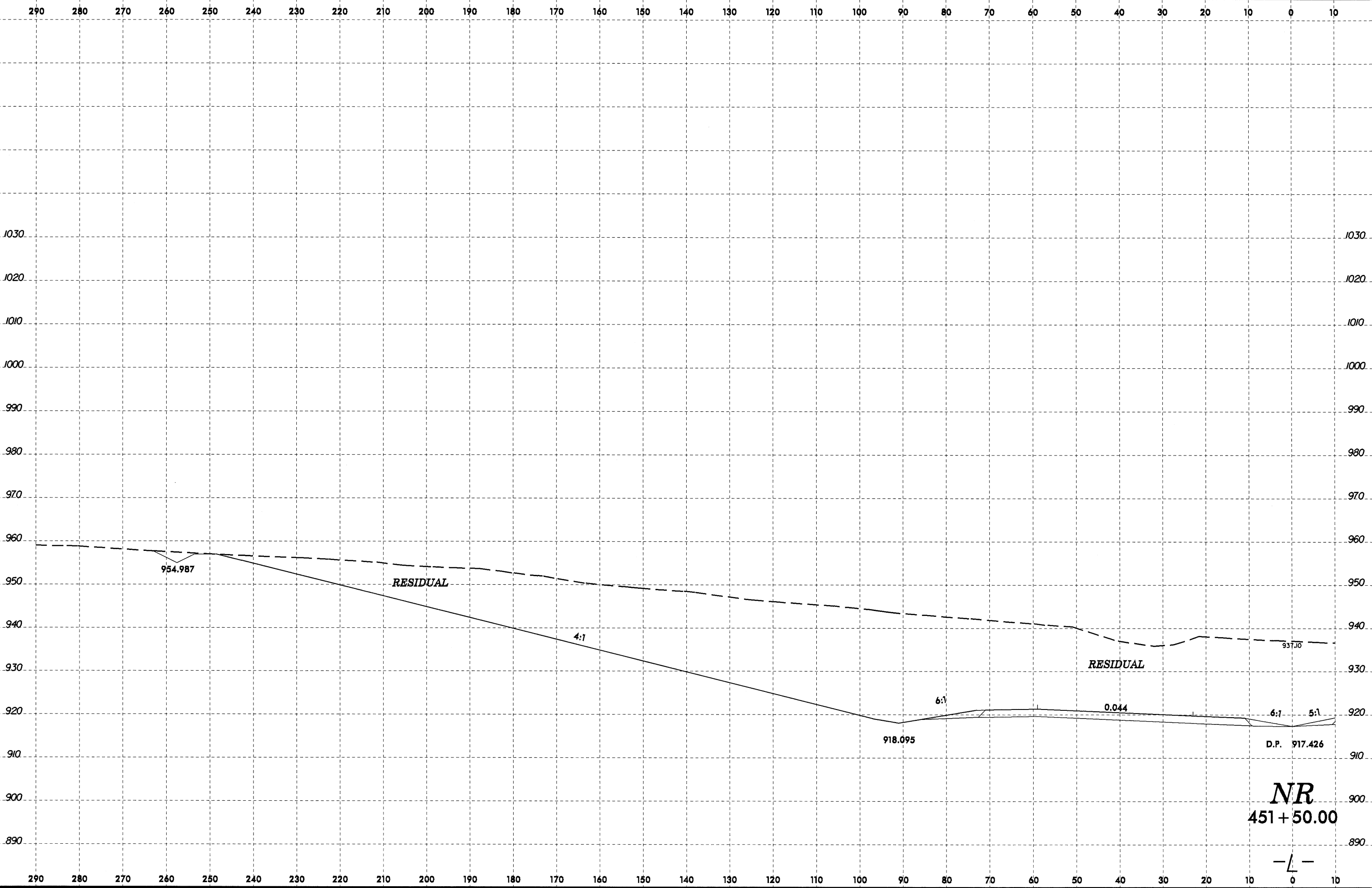
OLIVE-TAN TO TAN STIFF MOIST CLAYEY SANDY SILT (A-4)

RESIDUAL

RESIDUAL

RESIDUAL

8/23/99



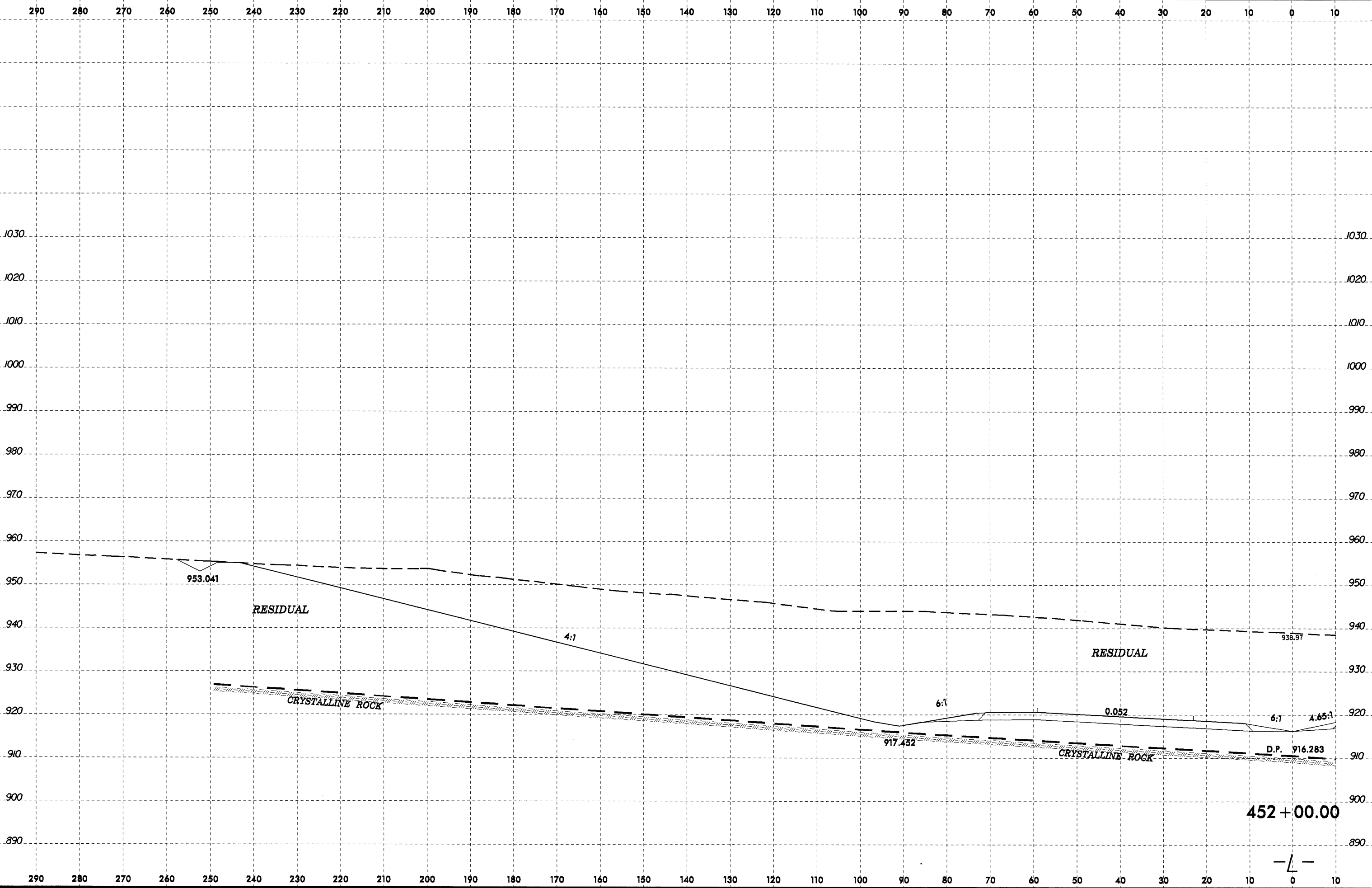
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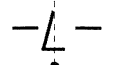
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579C	56

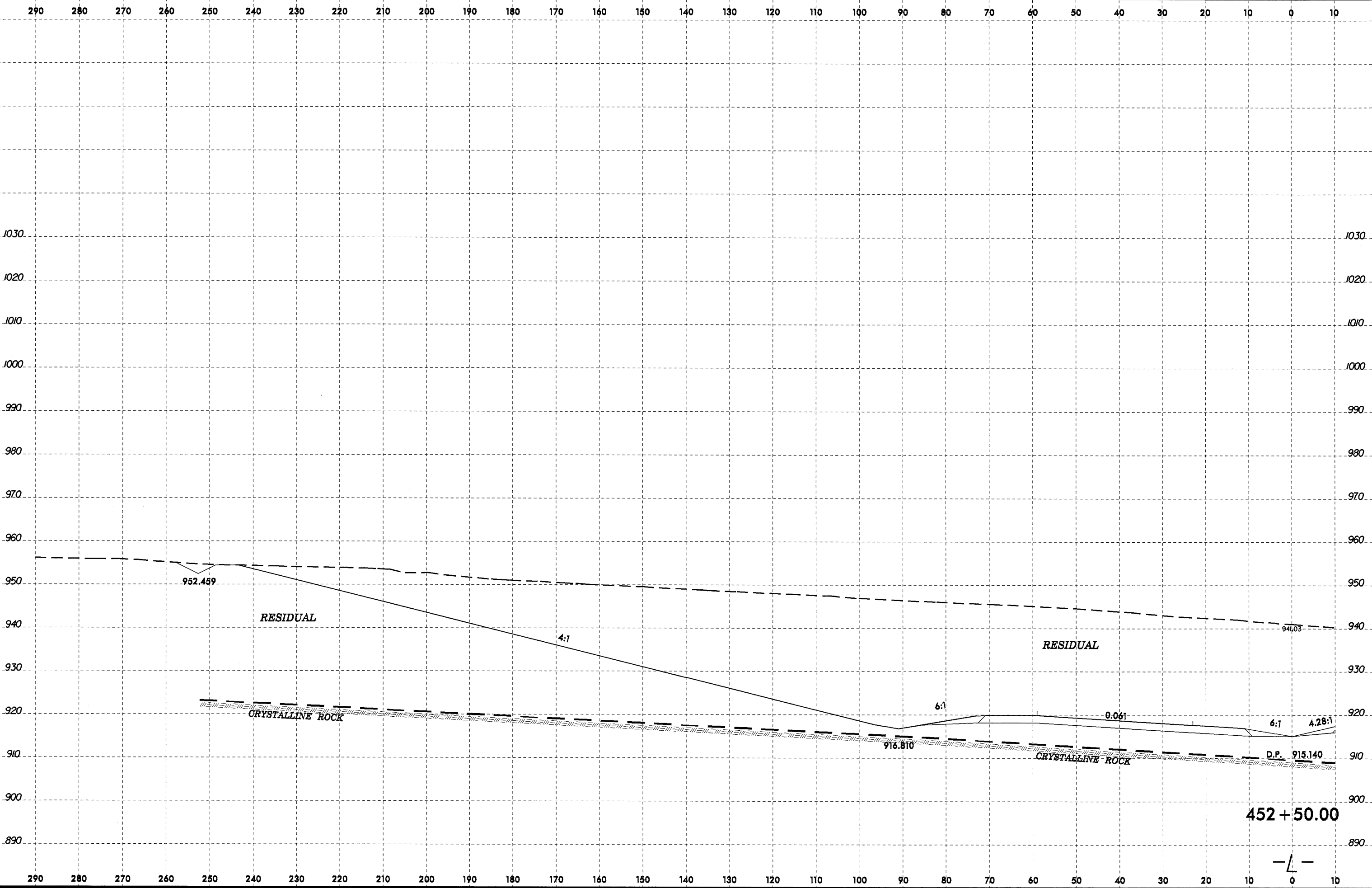


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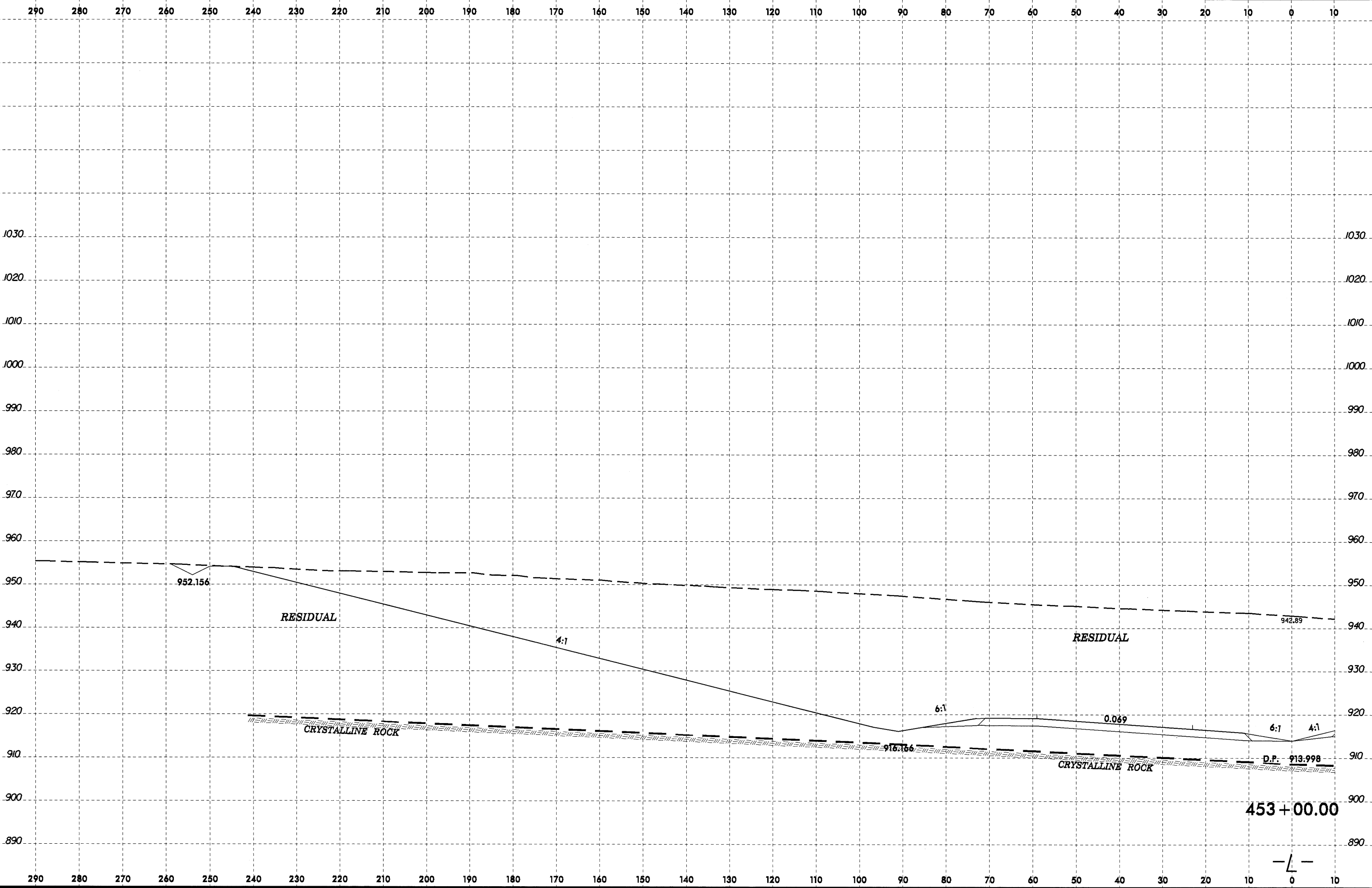
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0 5 10	PROJ. REFERENCE NO. U-2579C	SHEET NO. 57
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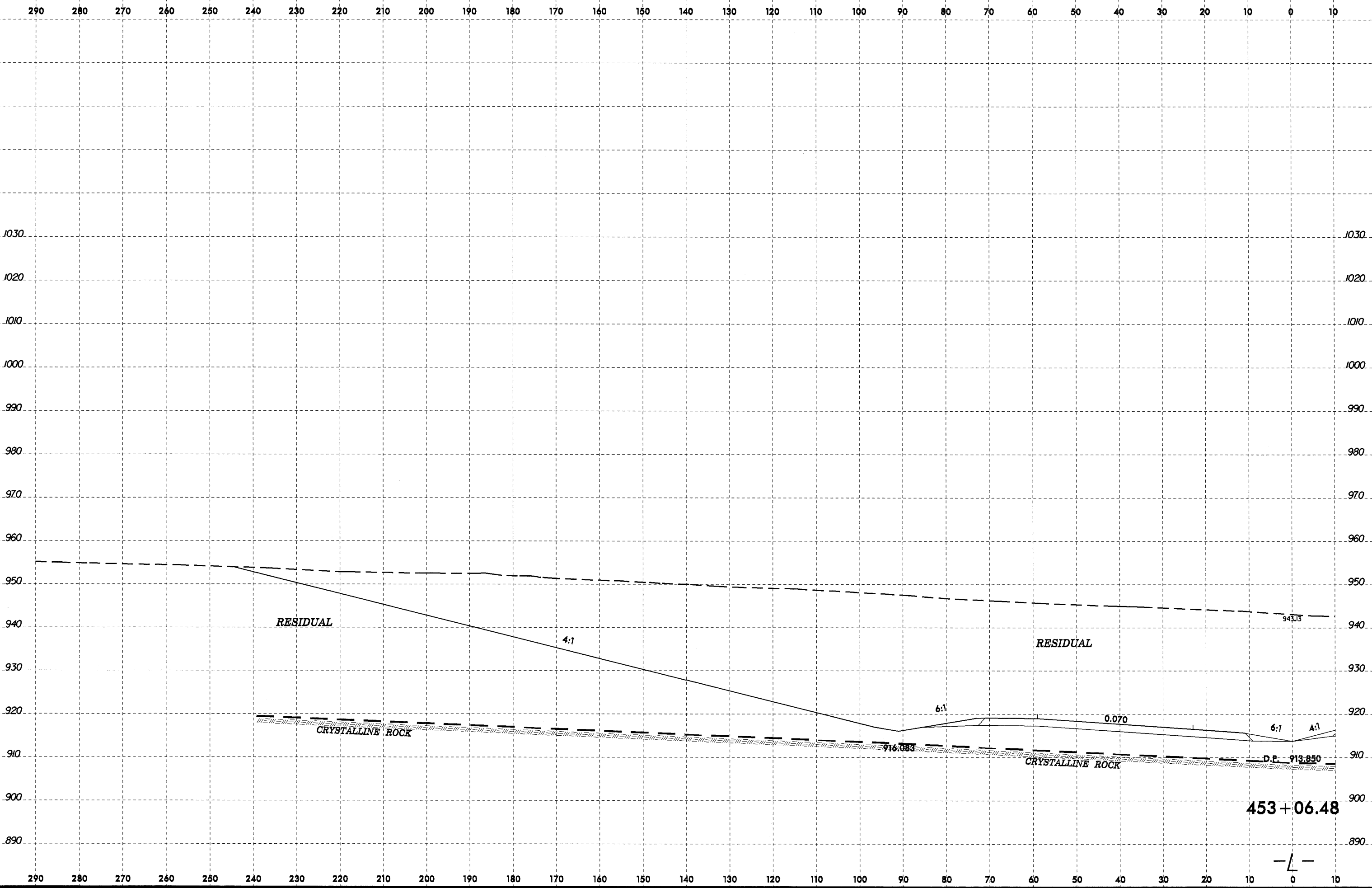
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21-JUN-2010 15:50
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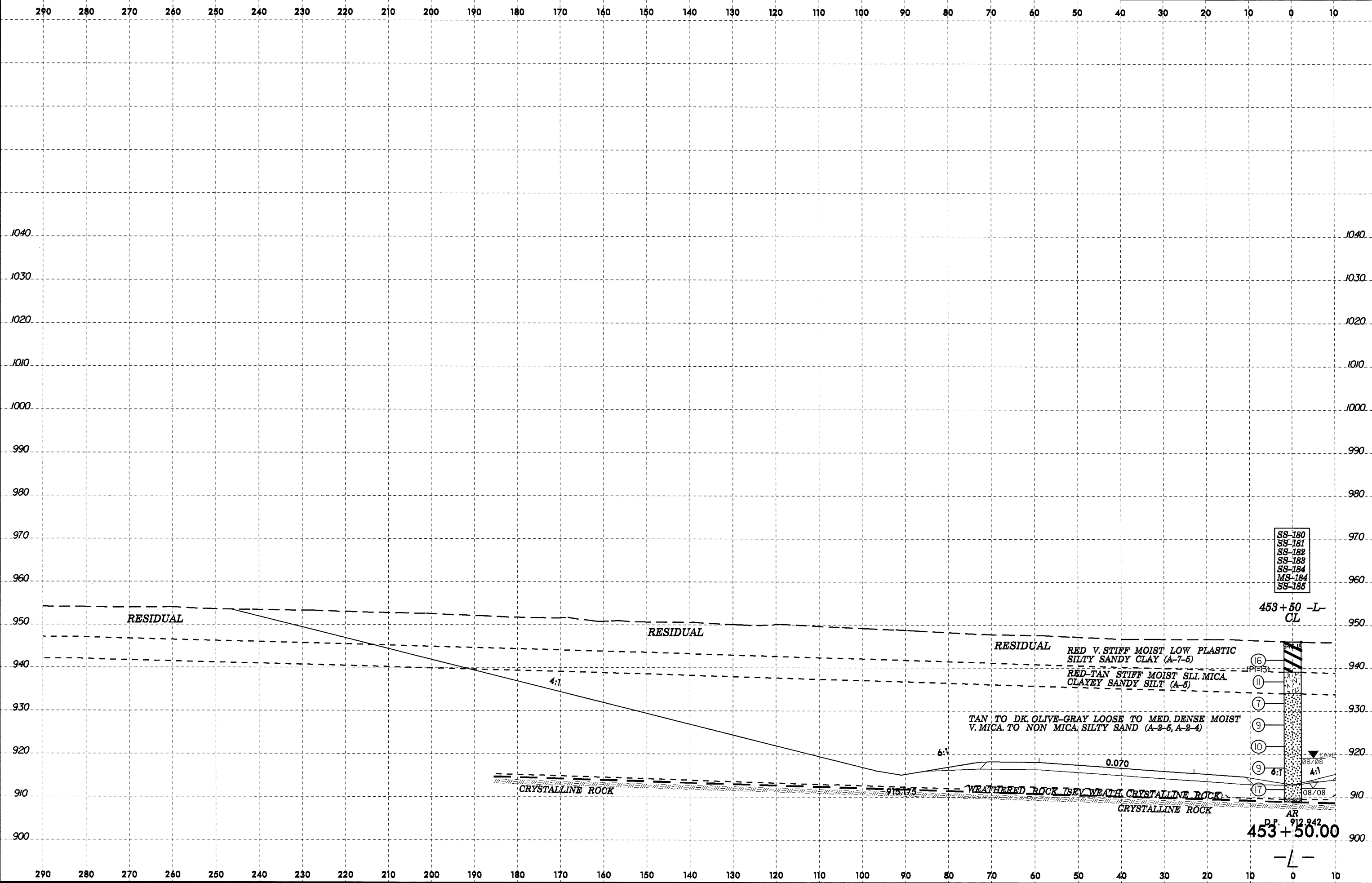
8/23/99



21-JUN-2010 15:50
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21-JUN-2010 15:50
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meclure

SS-180
SS-181
SS-182
SS-183
SS-184
MS-184
SS-185

453+50 -L-
CL

RED V. STIFF MOIST LOW PLASTIC
SILTY SANDY CLAY (A-7-5)
RED-TAN STIFF MOIST SLI. MICA
CLAYEY SANDY SILT (A-5)

TAN TO DK. OLIVE-GRAY LOOSE TO MED. DENSE MOIST
V. MICA TO NON MICA SILTY SAND (A-2-5, A-2-4)

(16)
(11)
(7)
(9)
(10)
(9)
(17)

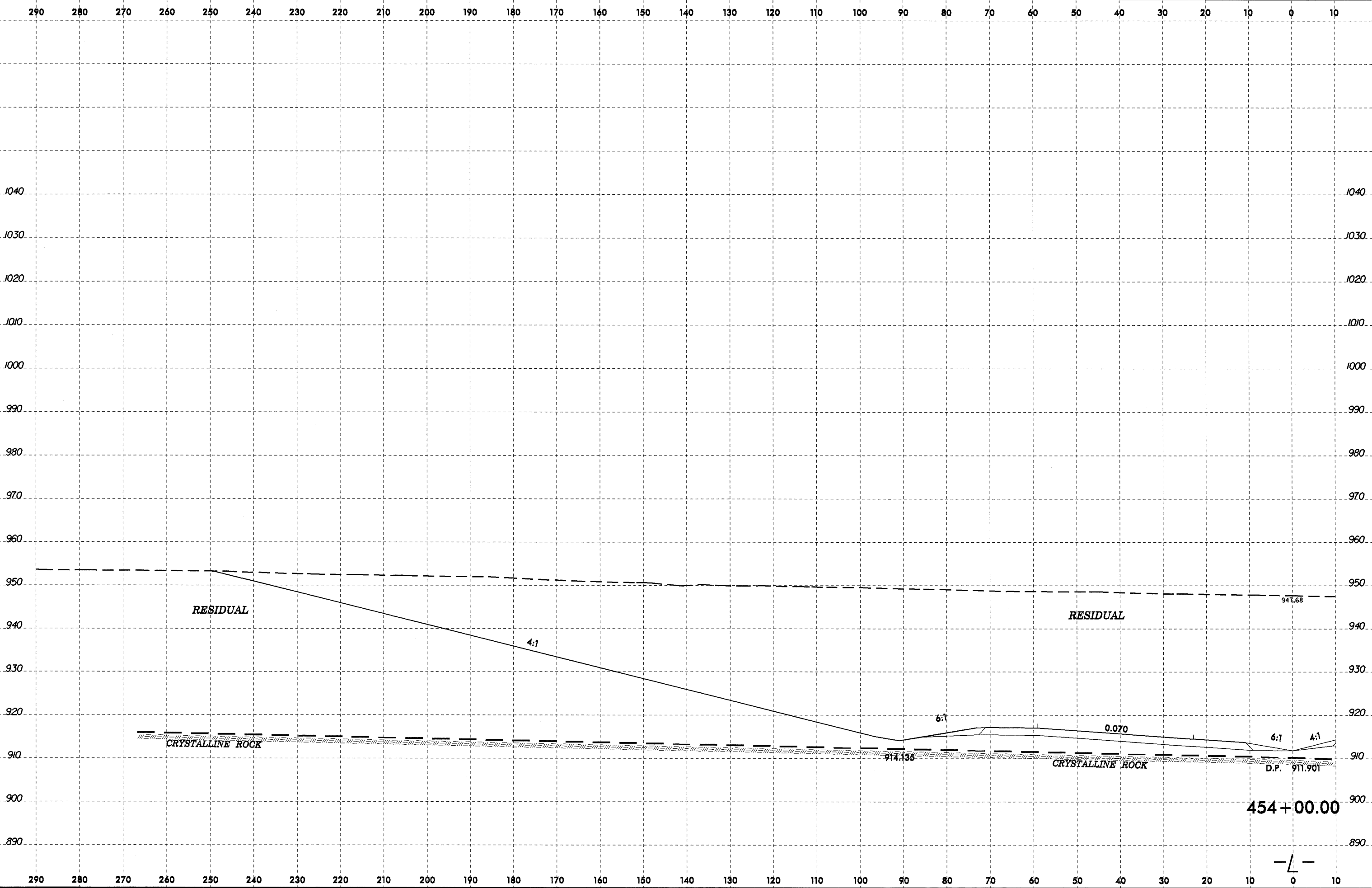
CAVE
08/08
4:1

AR
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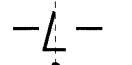
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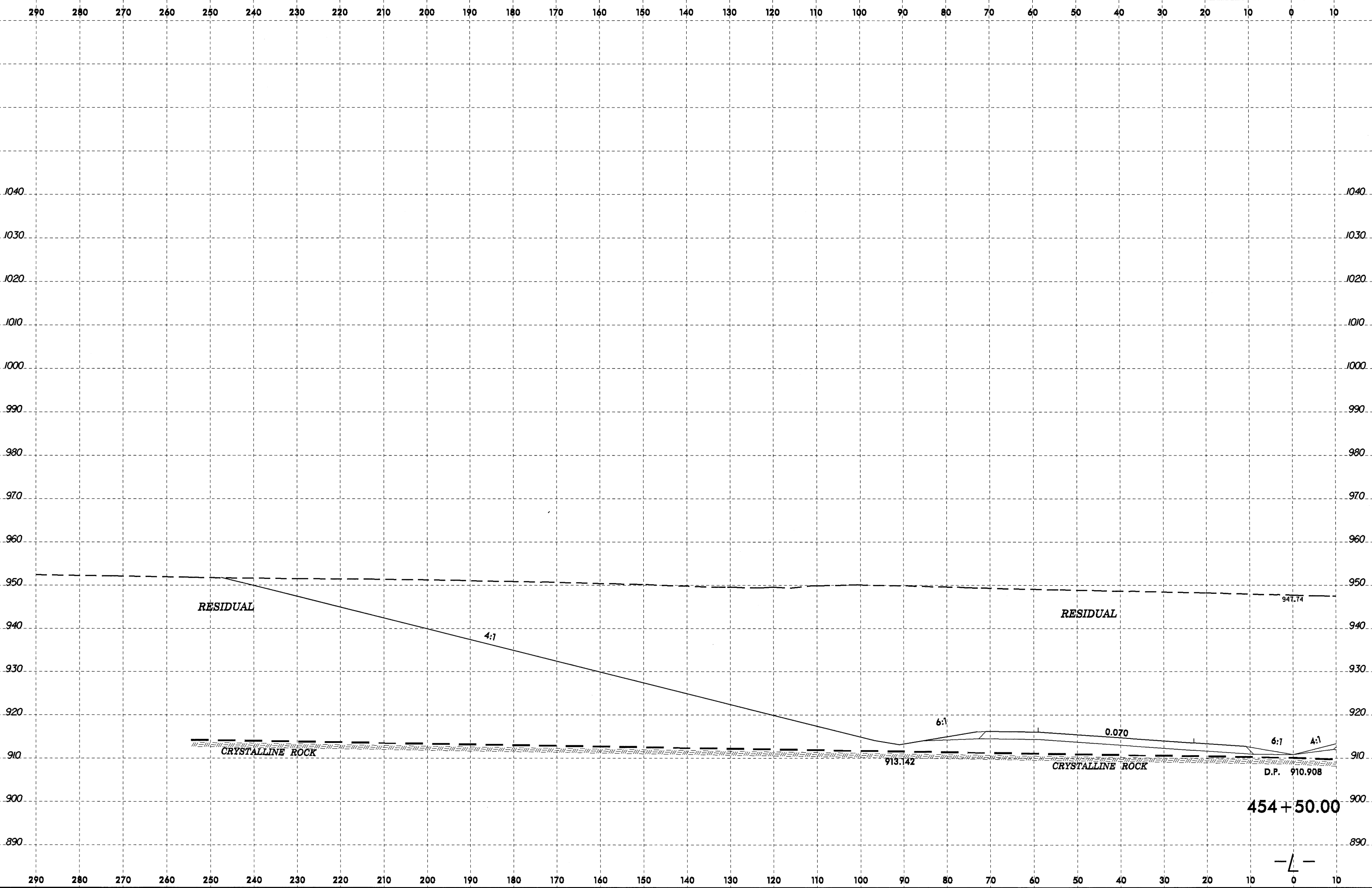


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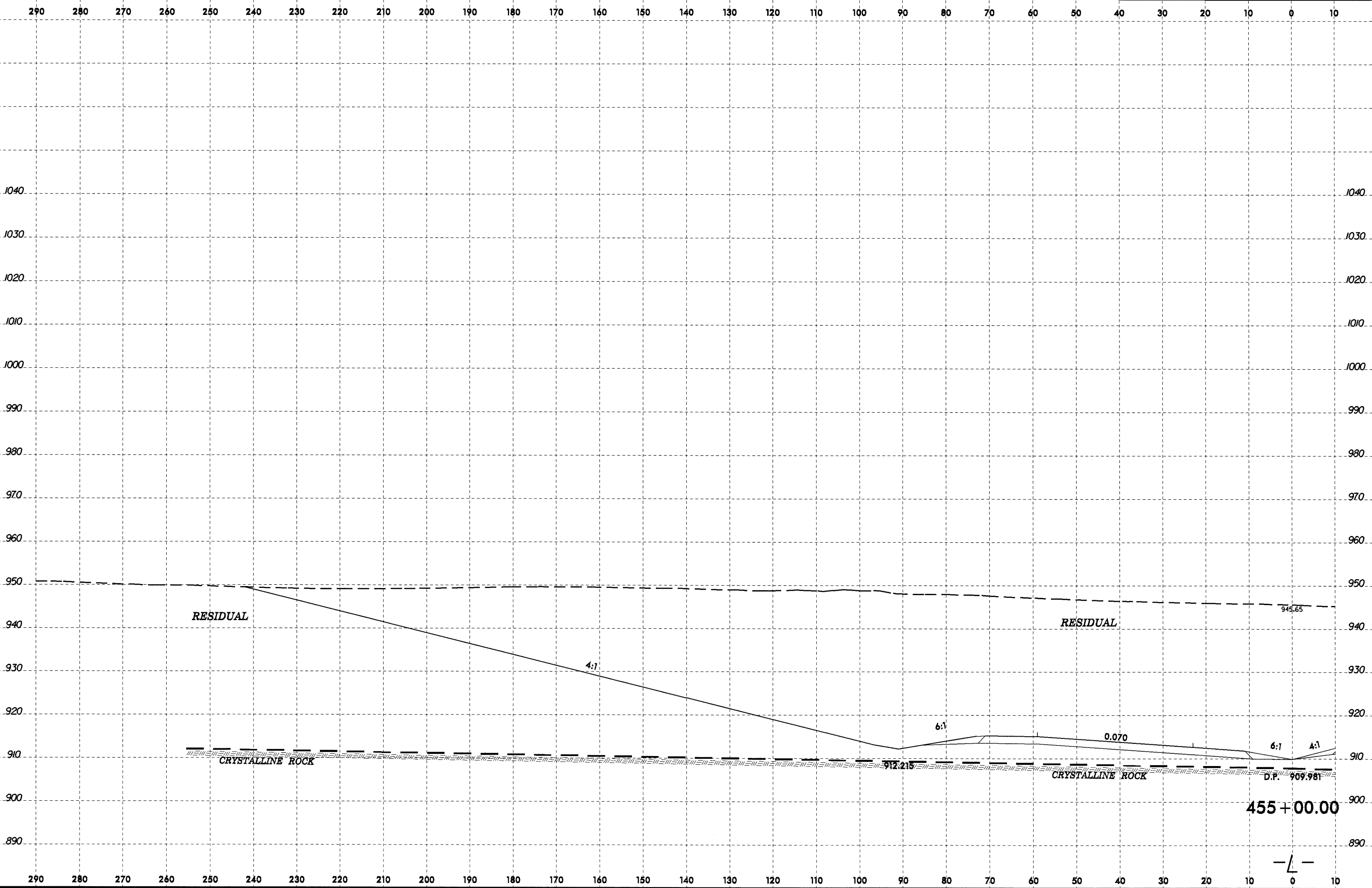
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	U-2579C	62



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 Measure At: 40847

8/23/99

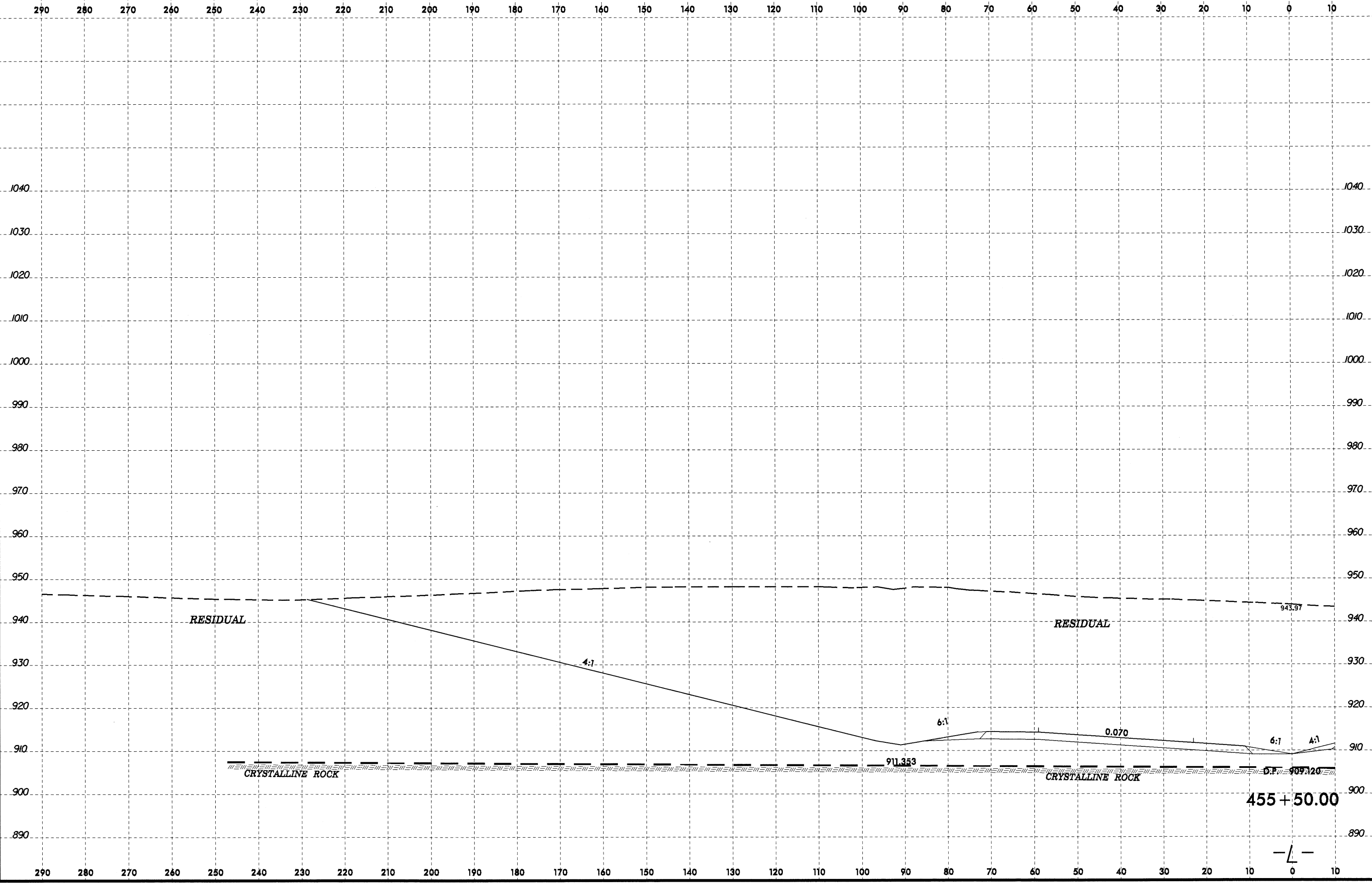
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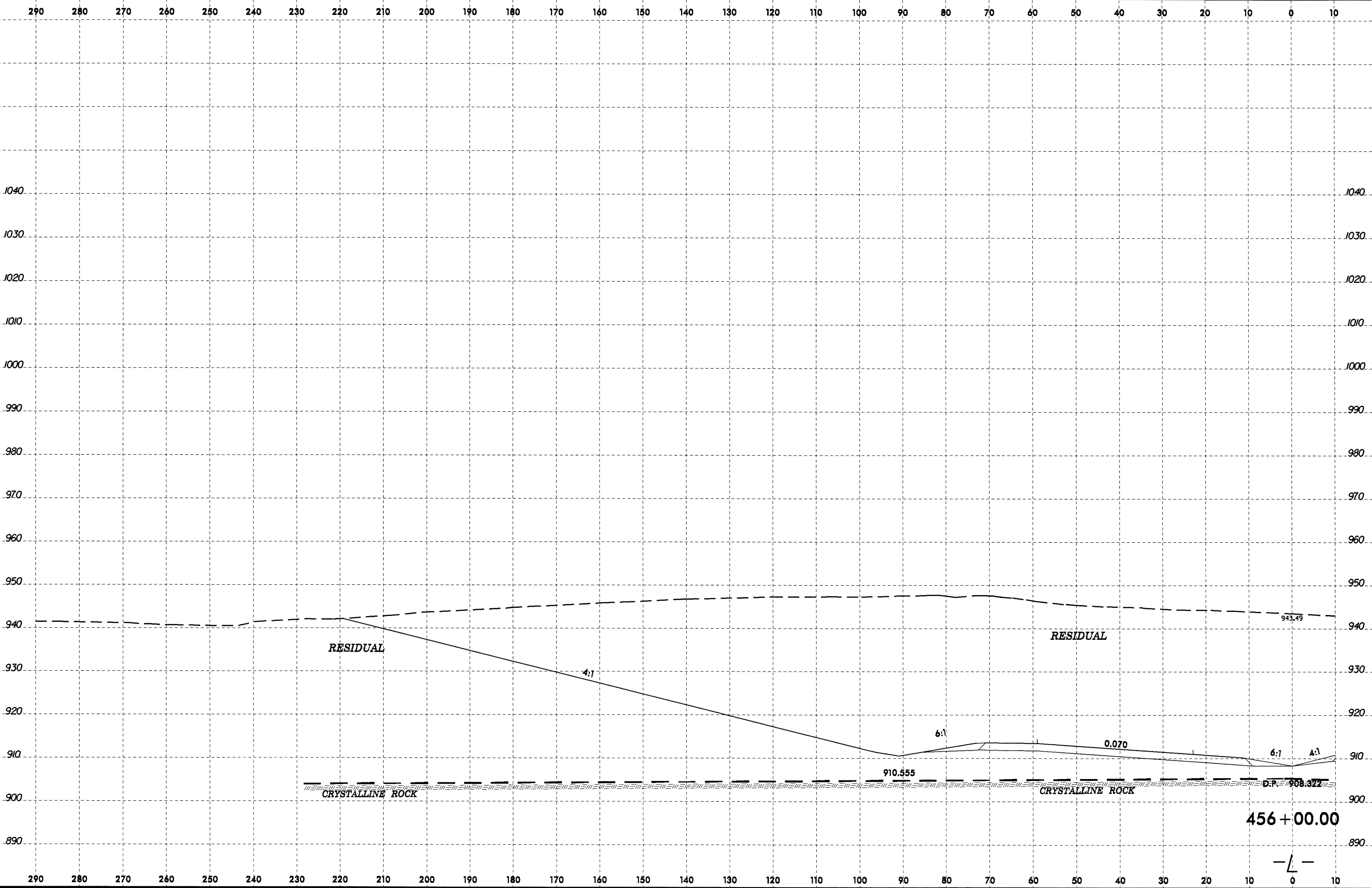
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8/23/99
21-JUN-2010 15:50
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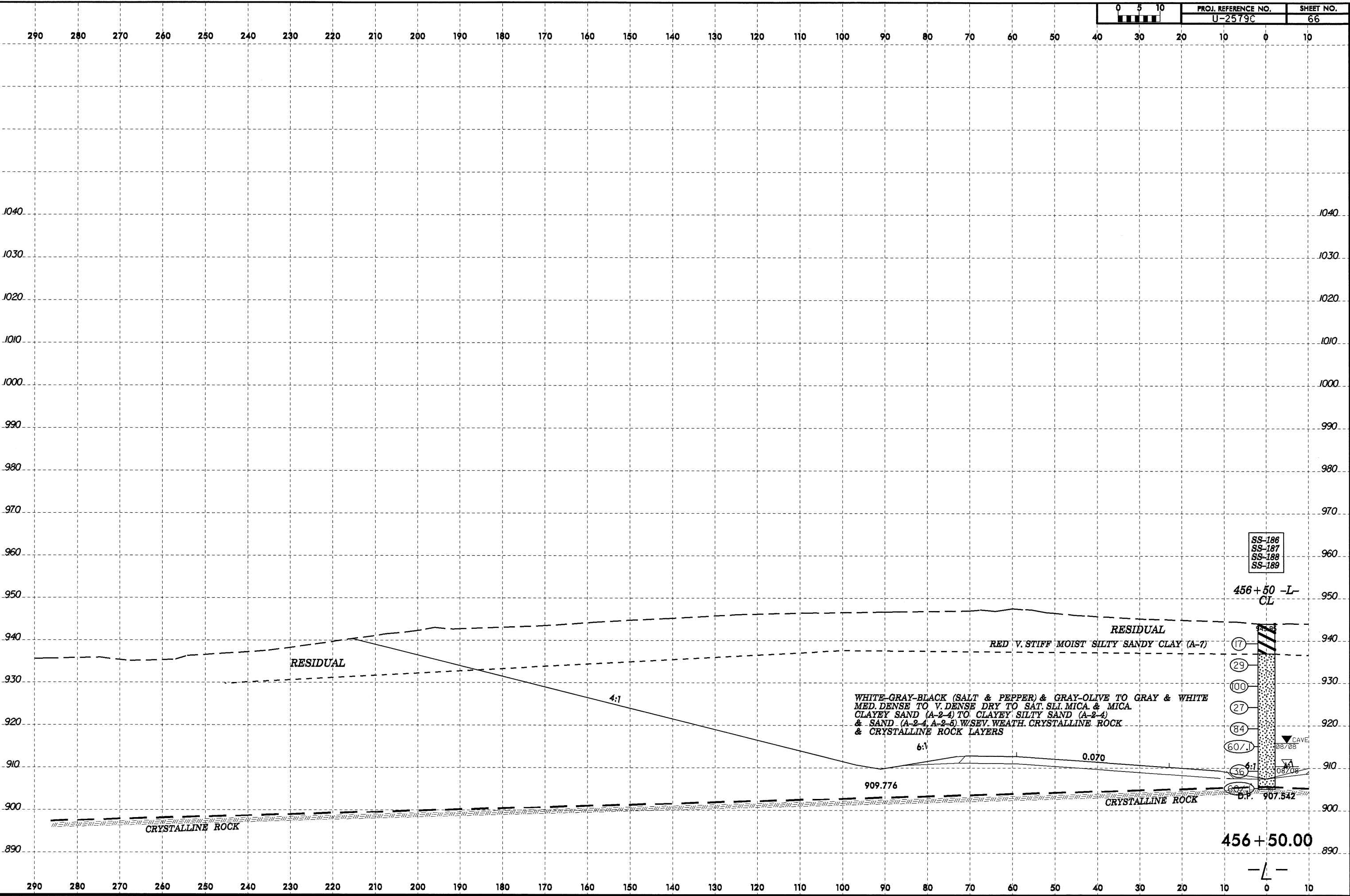
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	U-2579C	64



8/23/99



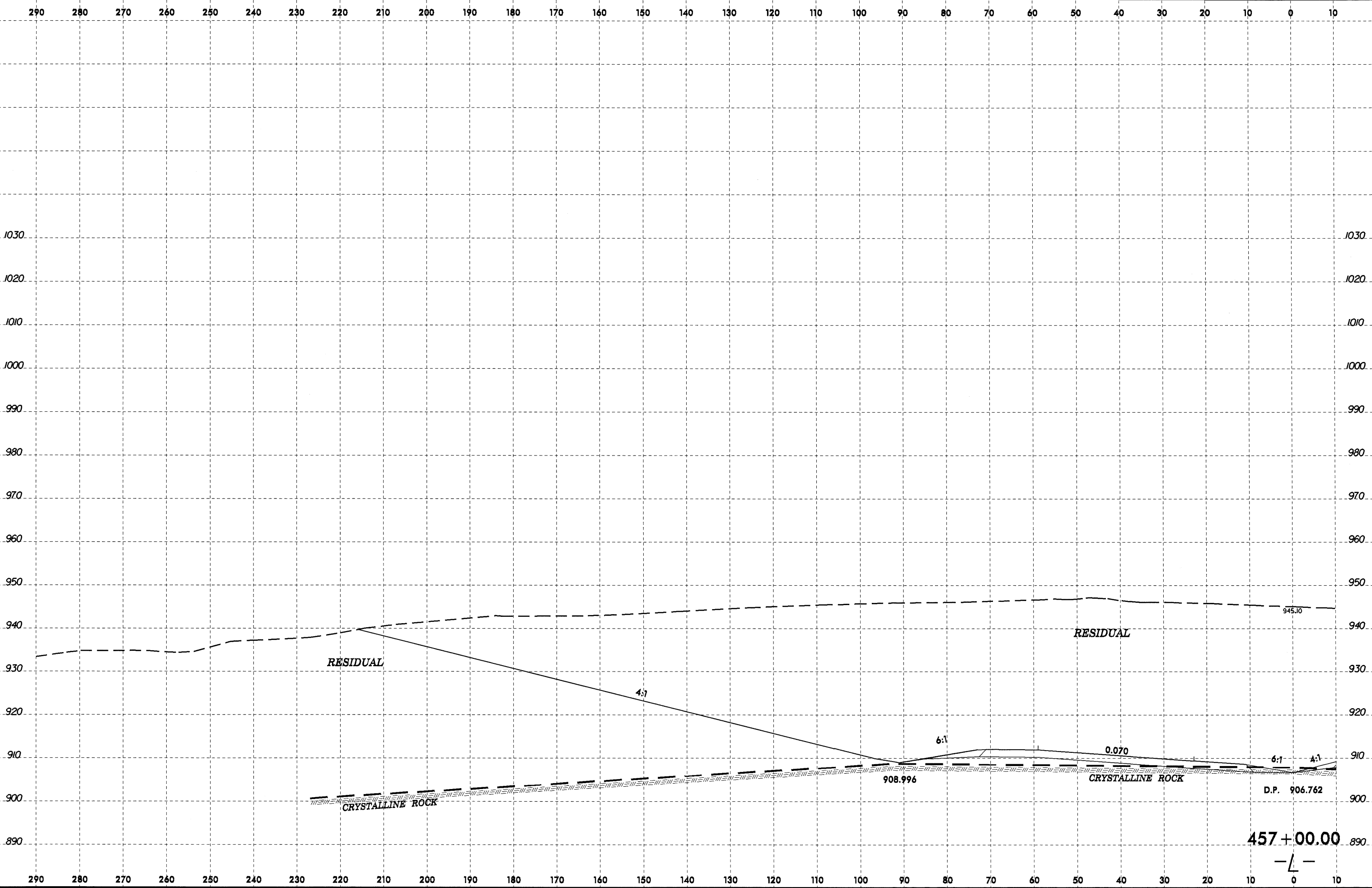
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DWY_FORSYTH



8/23/99
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8/23/99

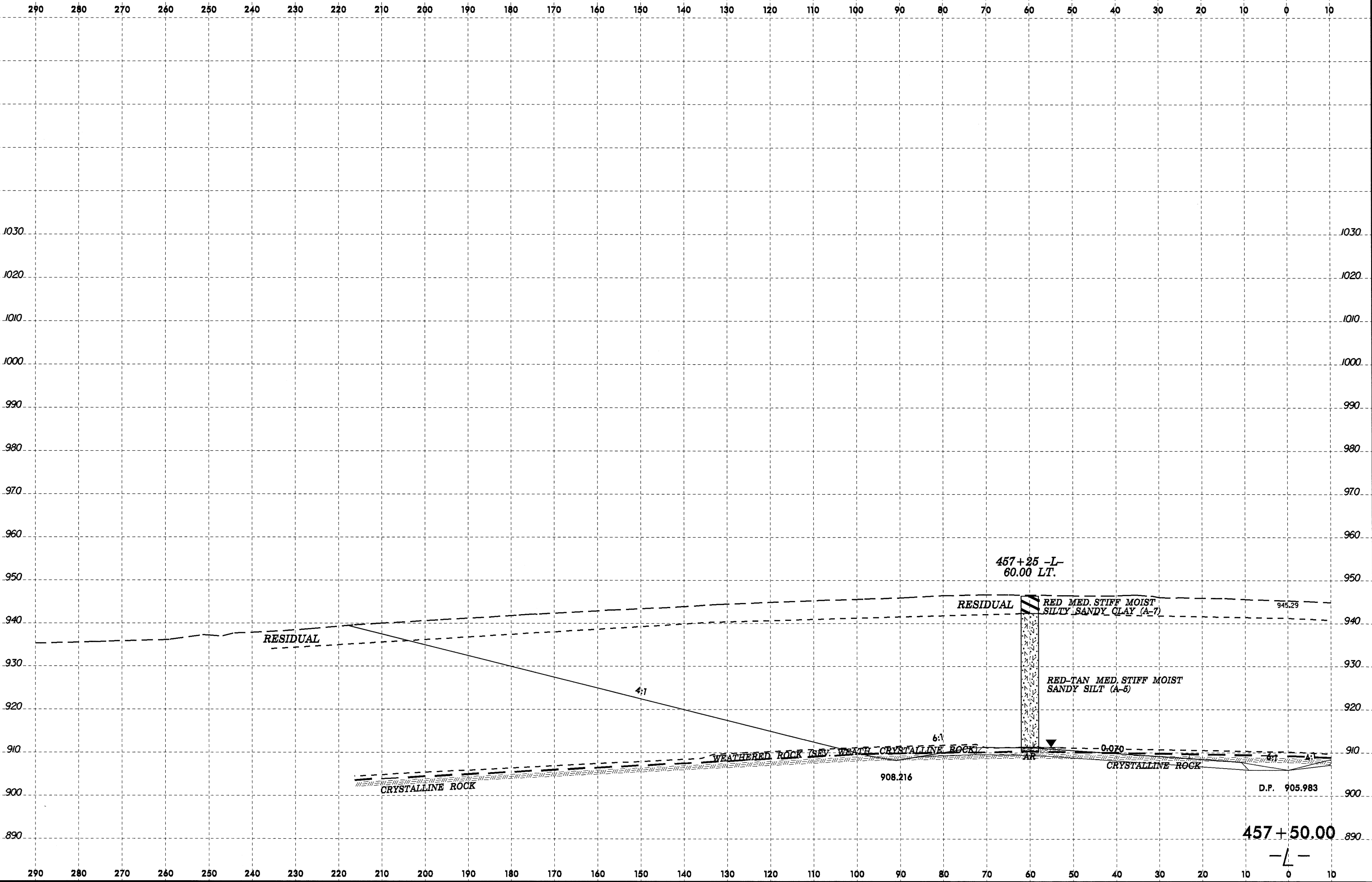
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22-JUN-2010 11:50
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User: jrb
Plot: 8/23/99

8/23/99

0 5 10	PROJ. REFERENCE NO. U-2579C	SHEET NO. 68
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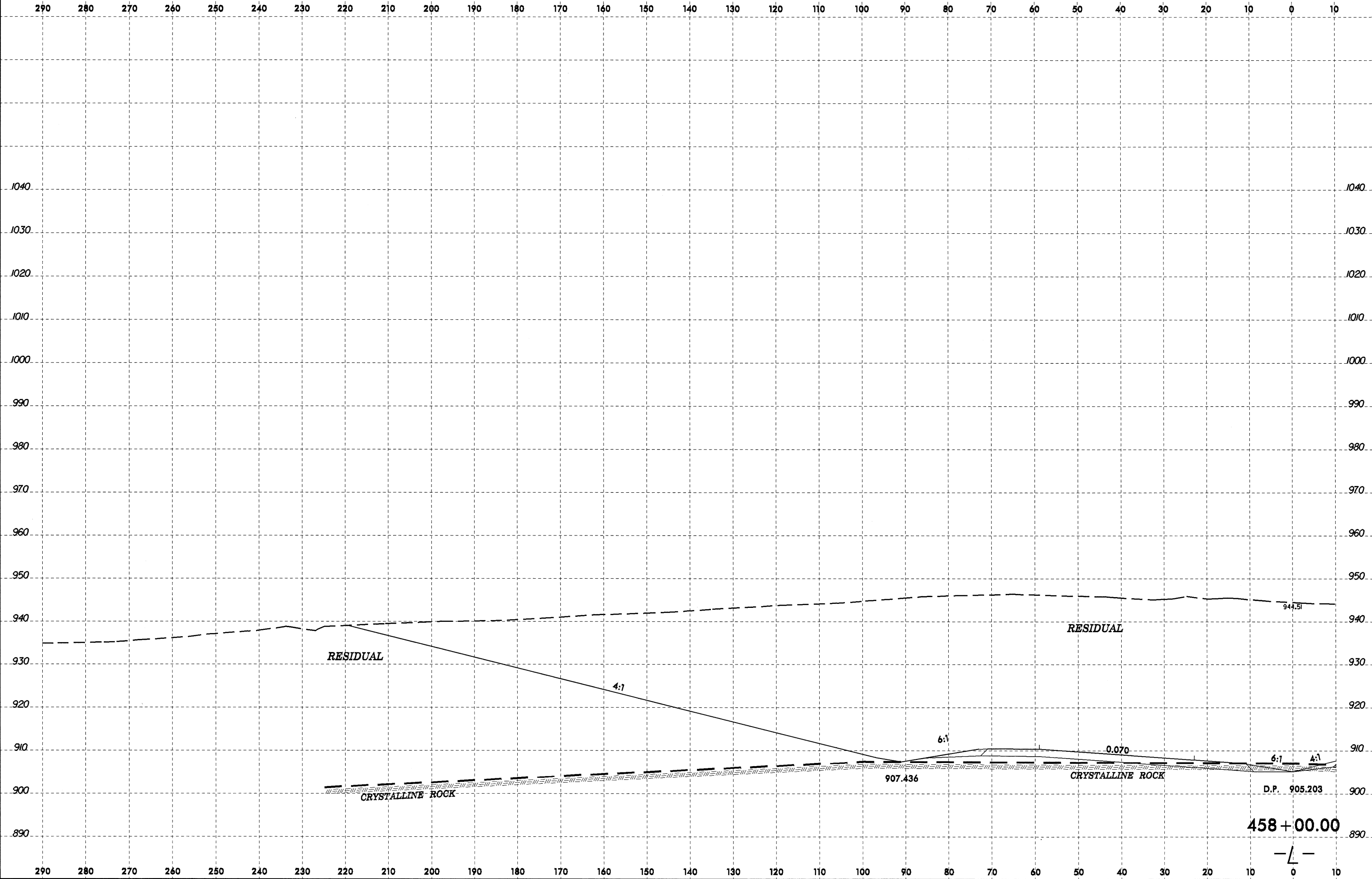


22-JUN-2010 11:50
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8/23/99



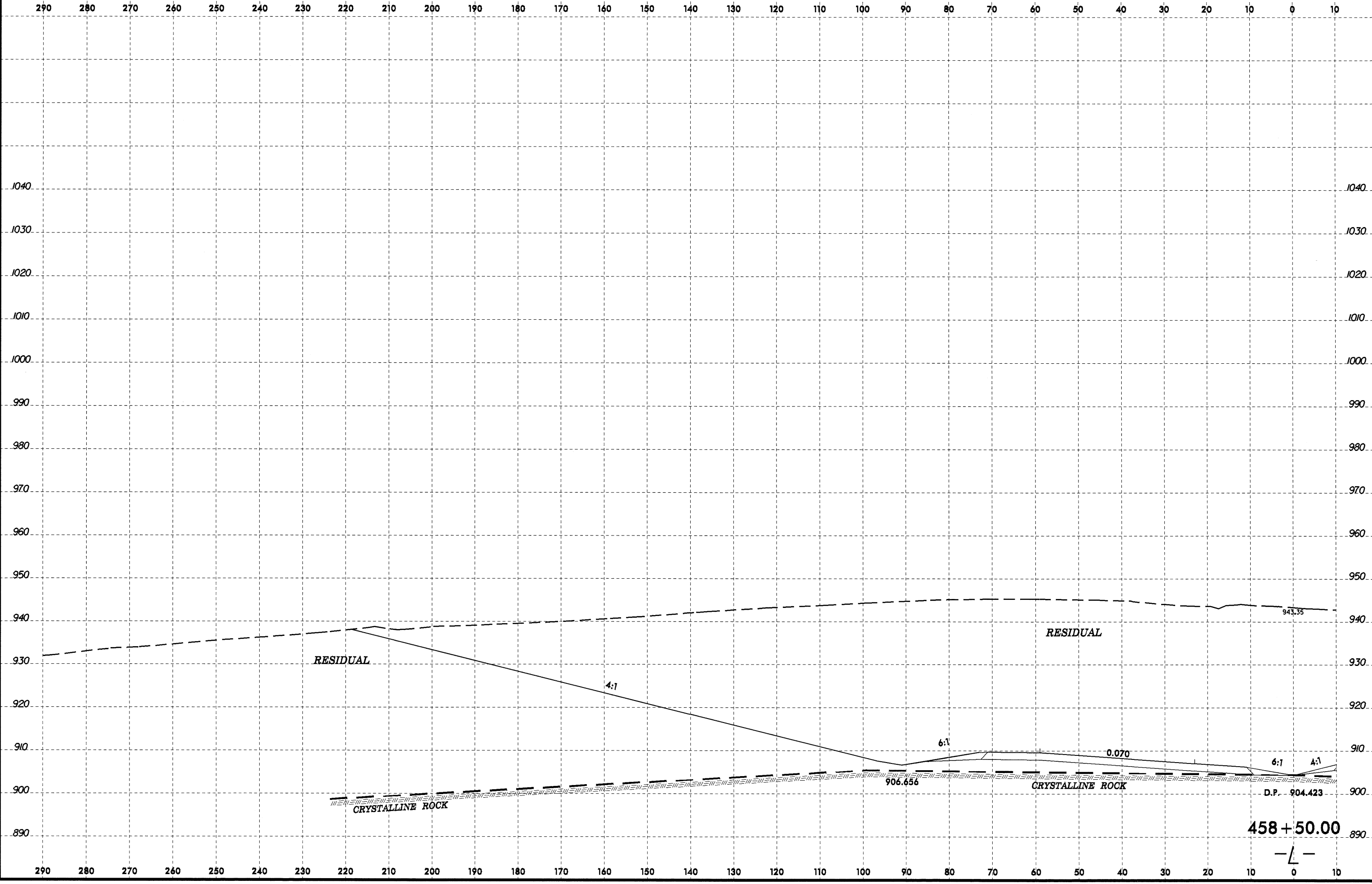
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U-2579C	69



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 mms@bentley.com

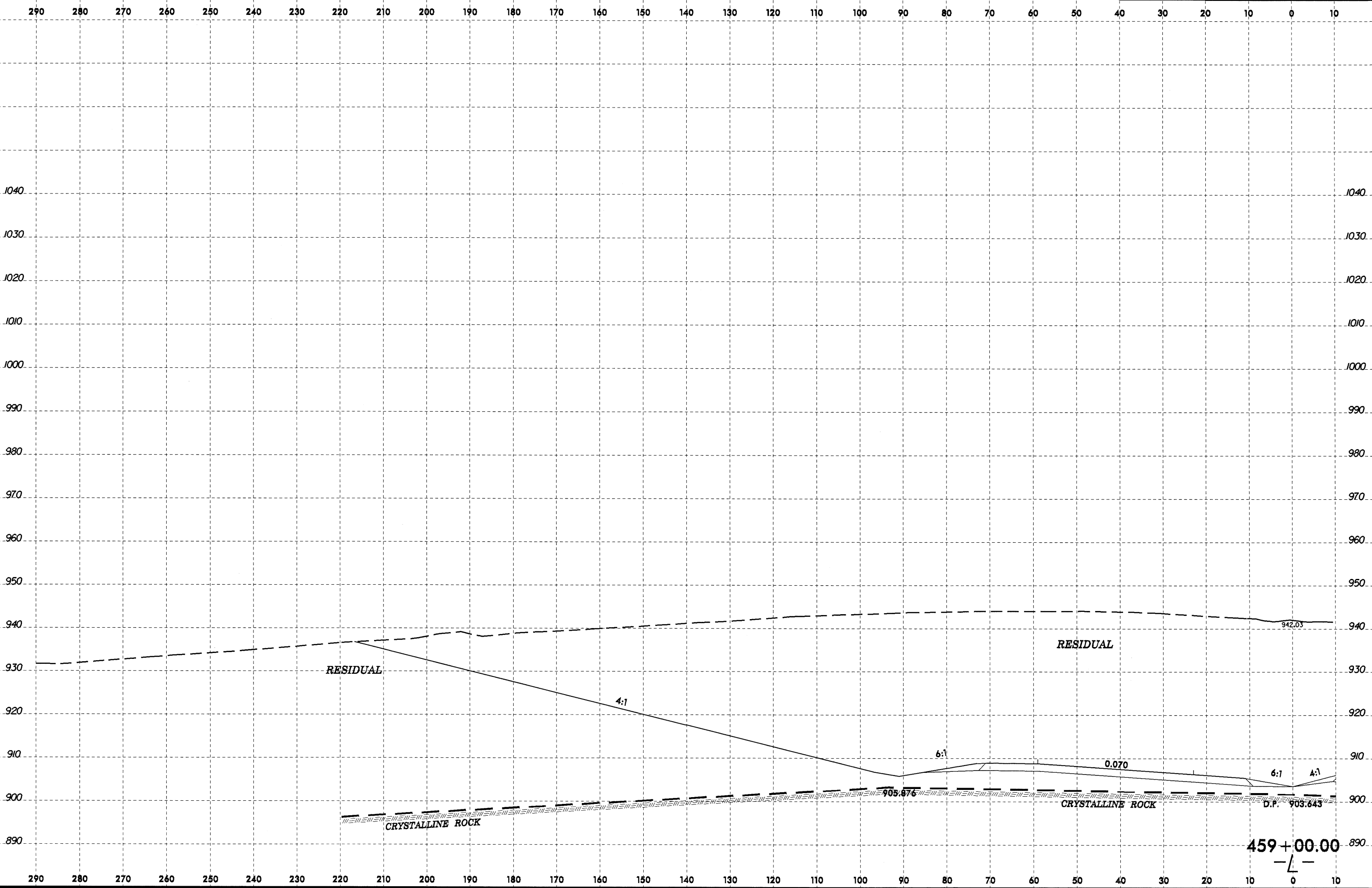
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579C	70



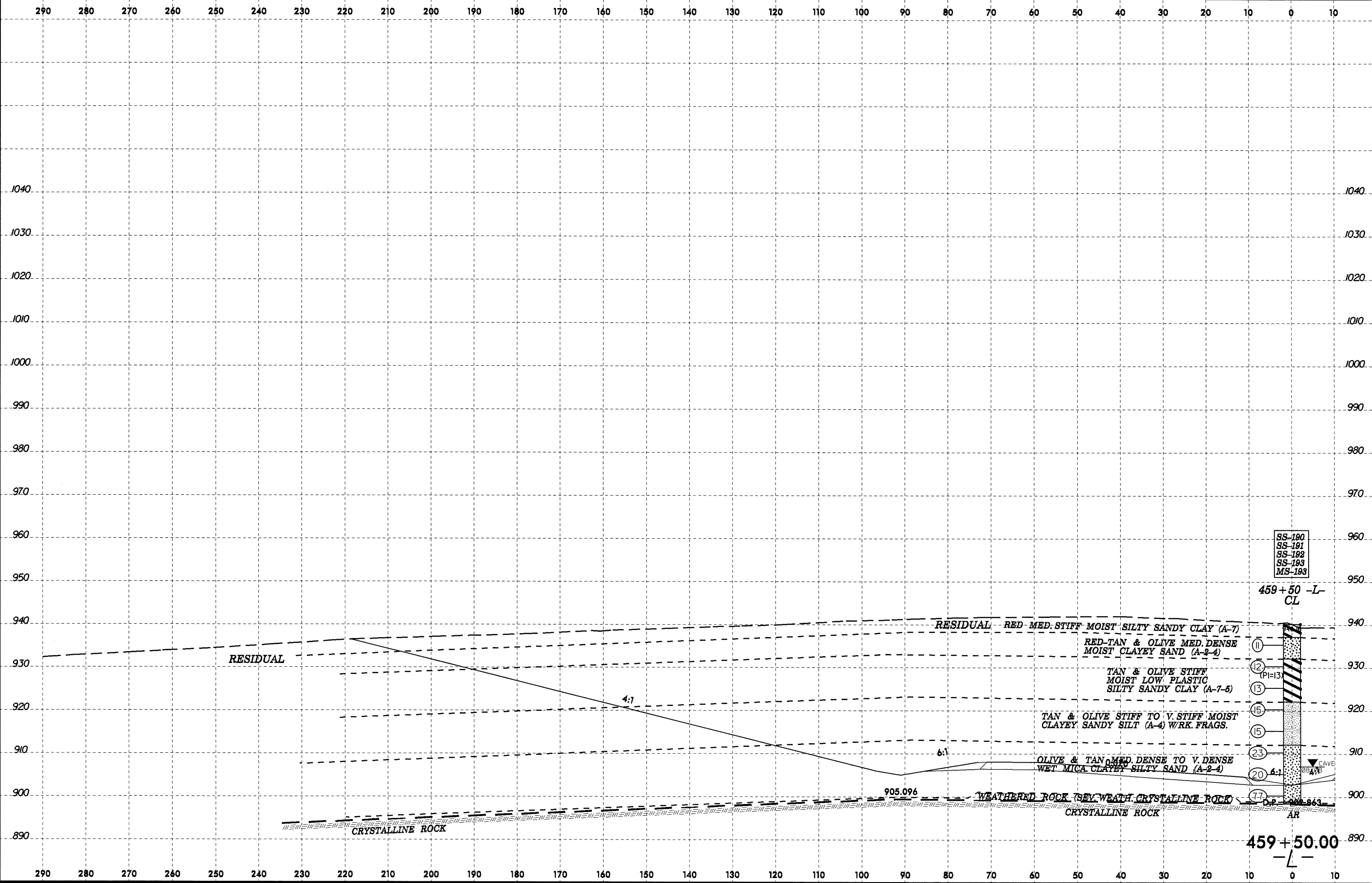
8/23/99

0 5 10	PROJ. REFERENCE NO. U-2579C	SHEET NO. 71
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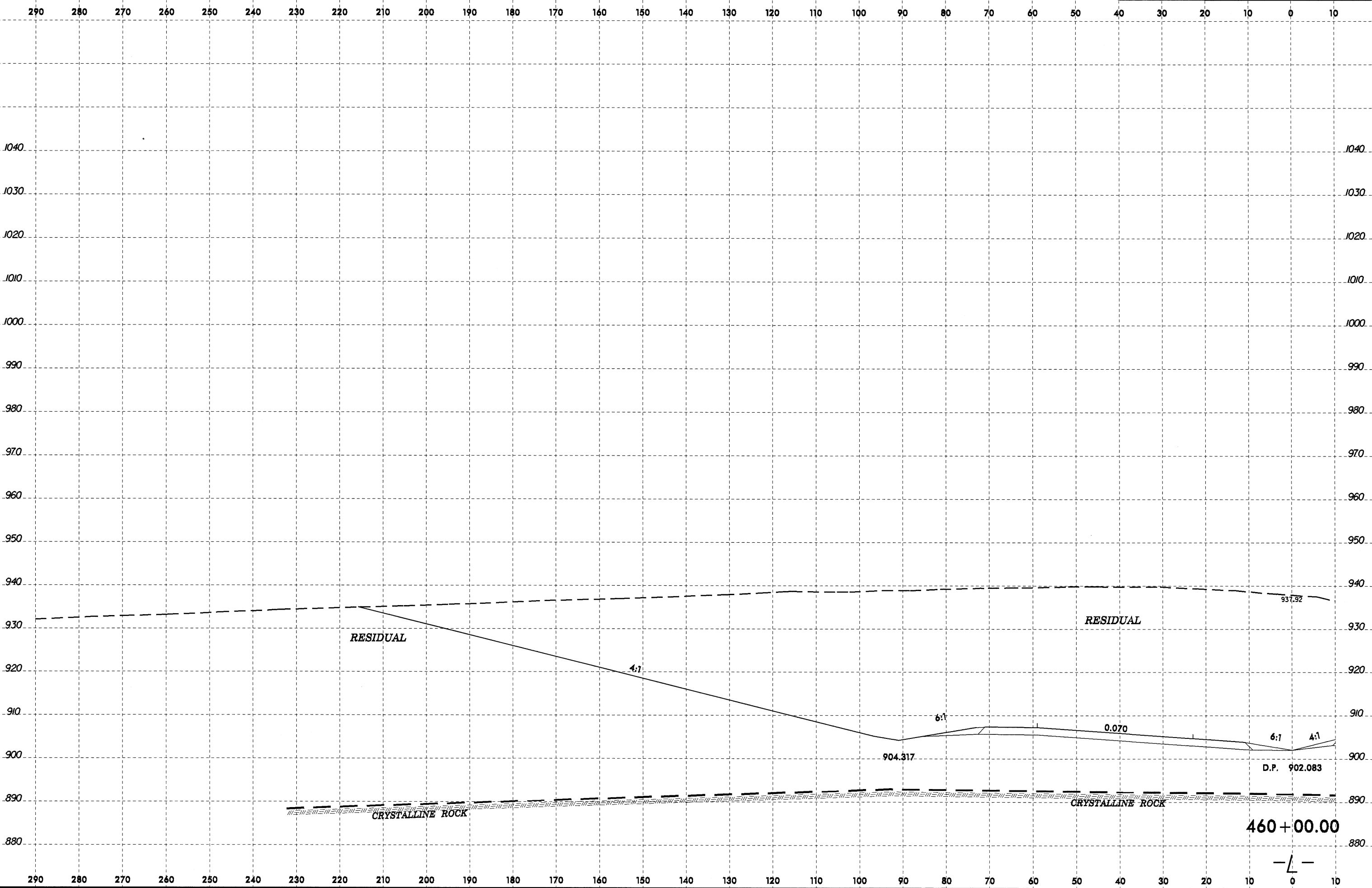
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ENCLOSURE AT 06/23/2010

8/23/99



21-JUN-2010 15:51:51 D:\Projects\2579C\DWY_FORSYTH\CADD_GEDTECH\XSEC\U2579C_GEO.XSL\FORSYTH.2.dgn

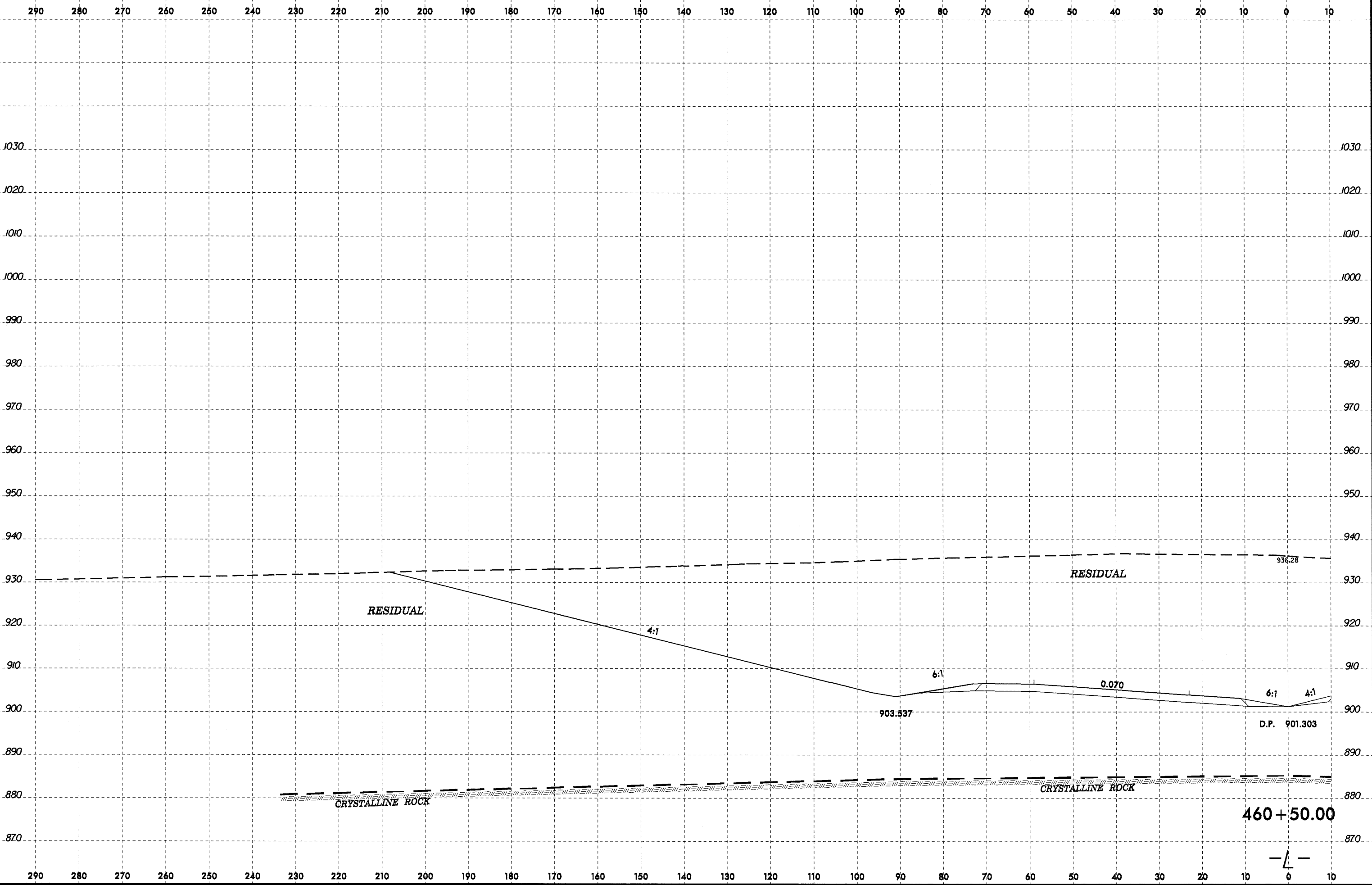
8/23/99



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8/23/99

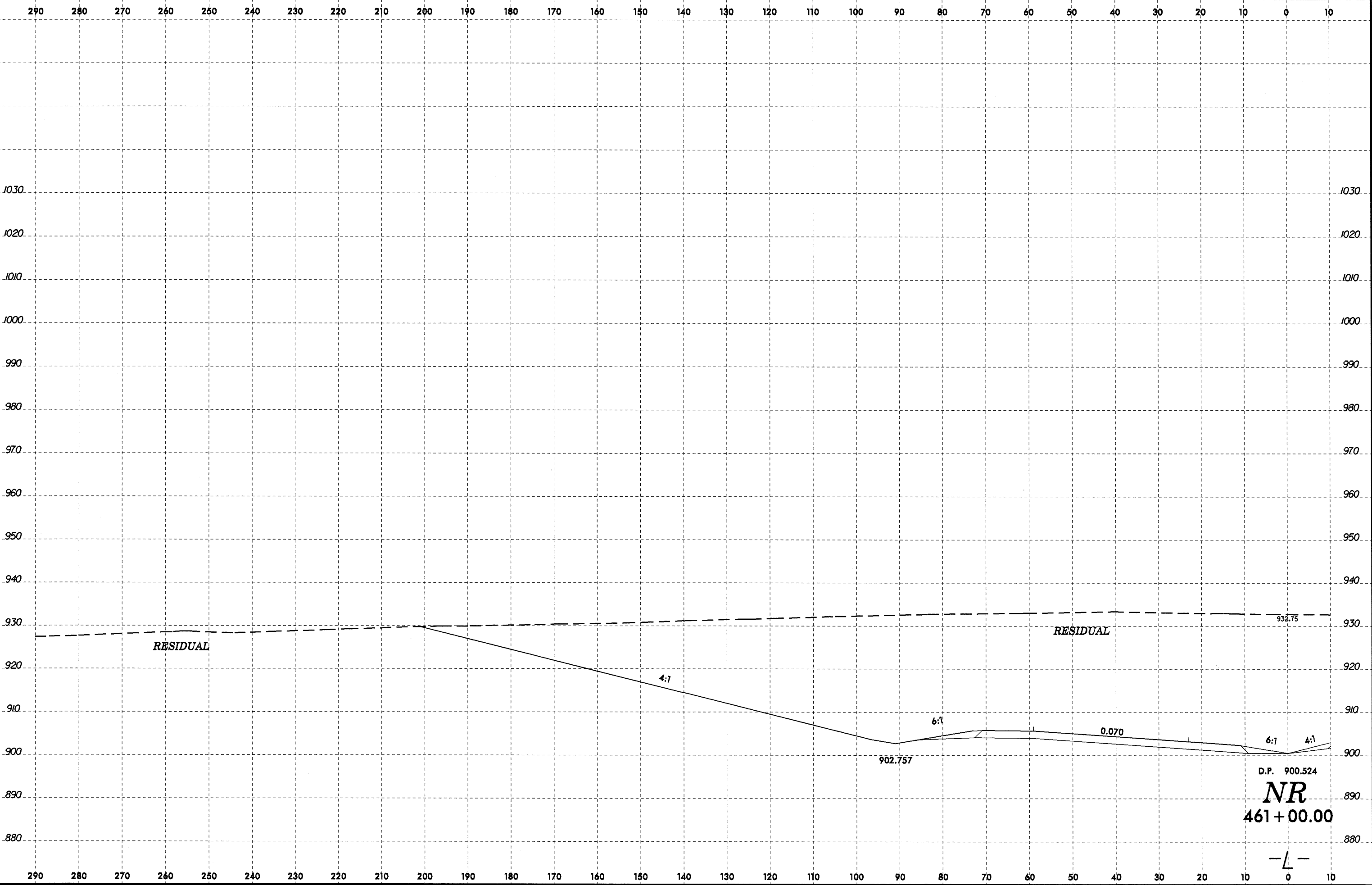
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8/23/99

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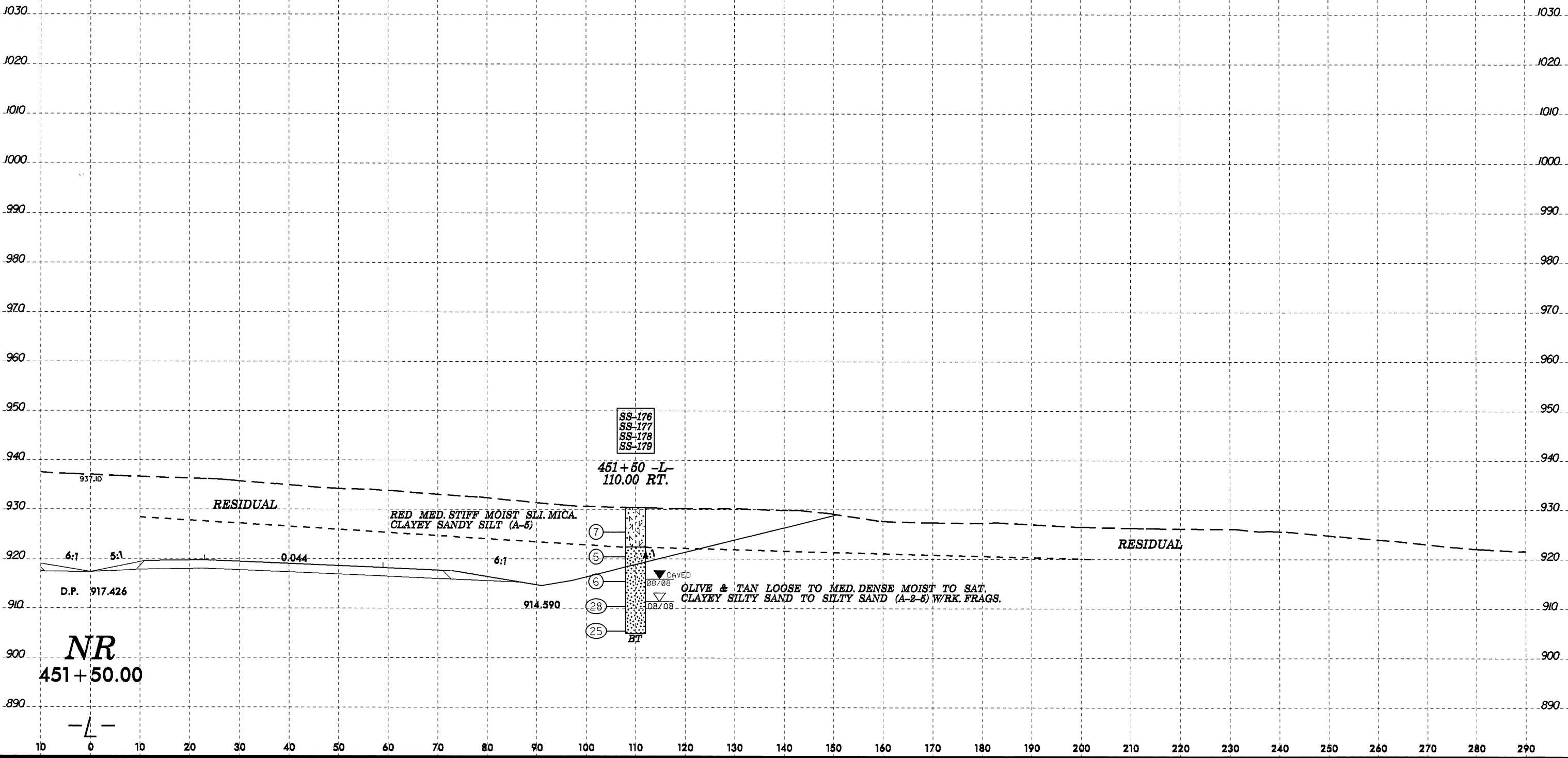
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D.P. 900.524
NR
461+00.00

-L-

8/23/99

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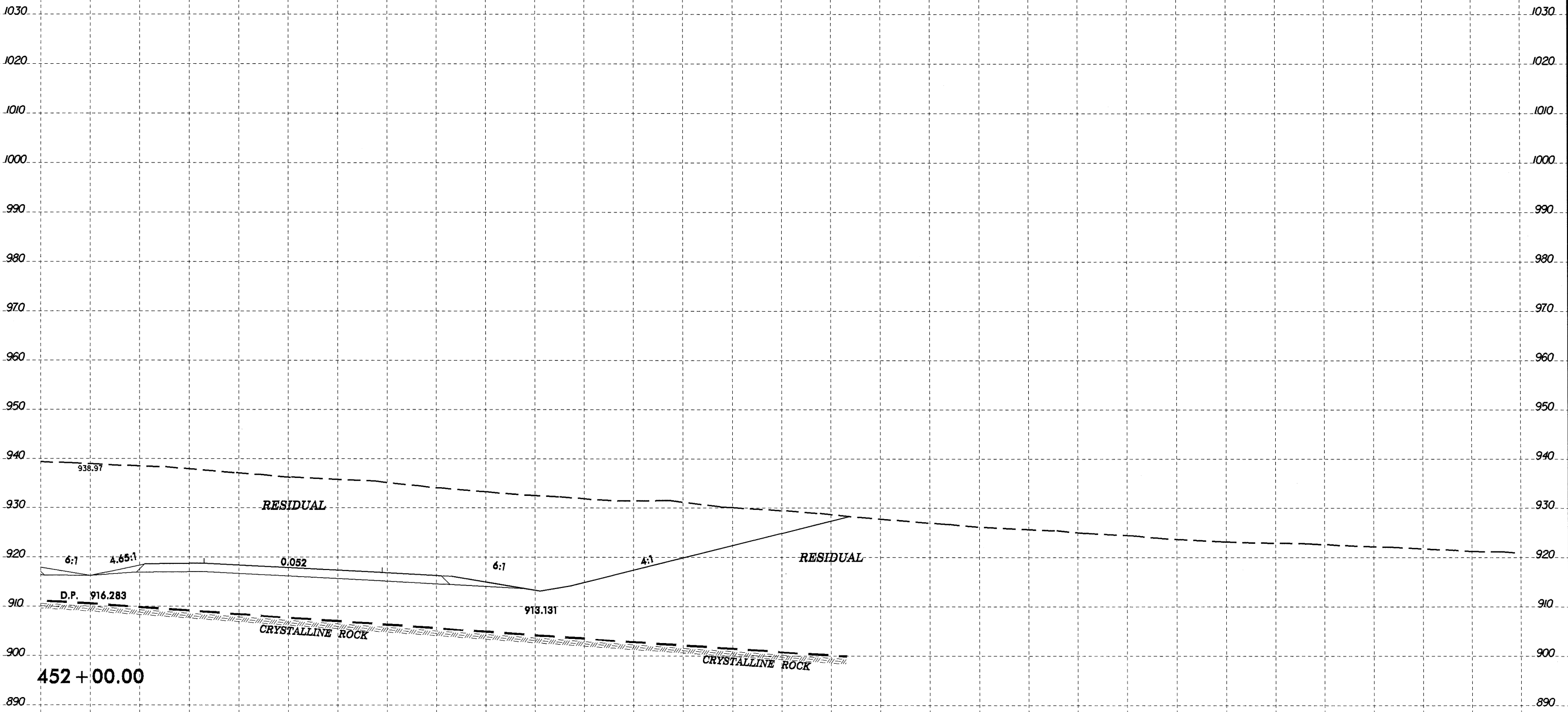


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msc

8/23/99

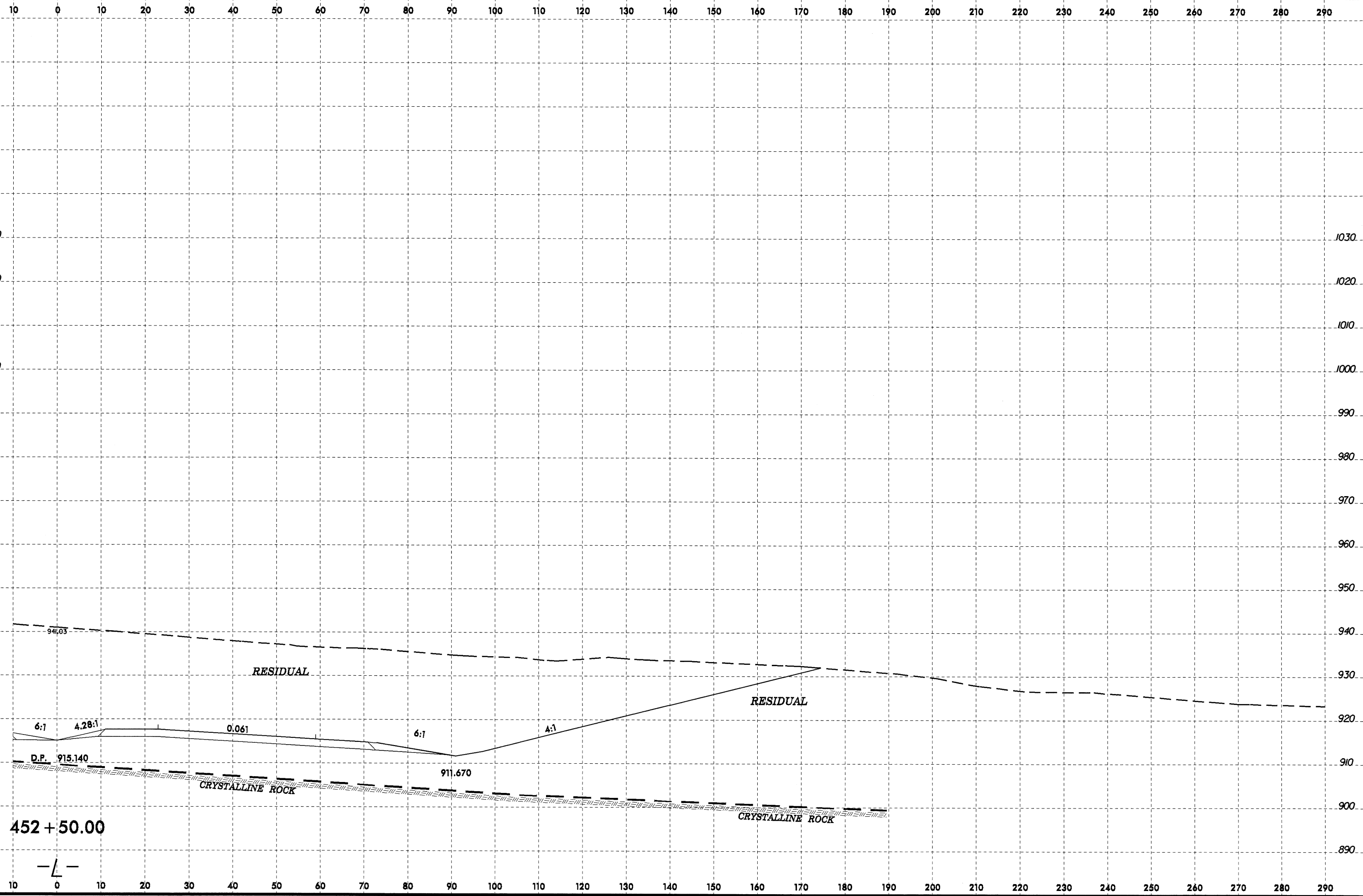
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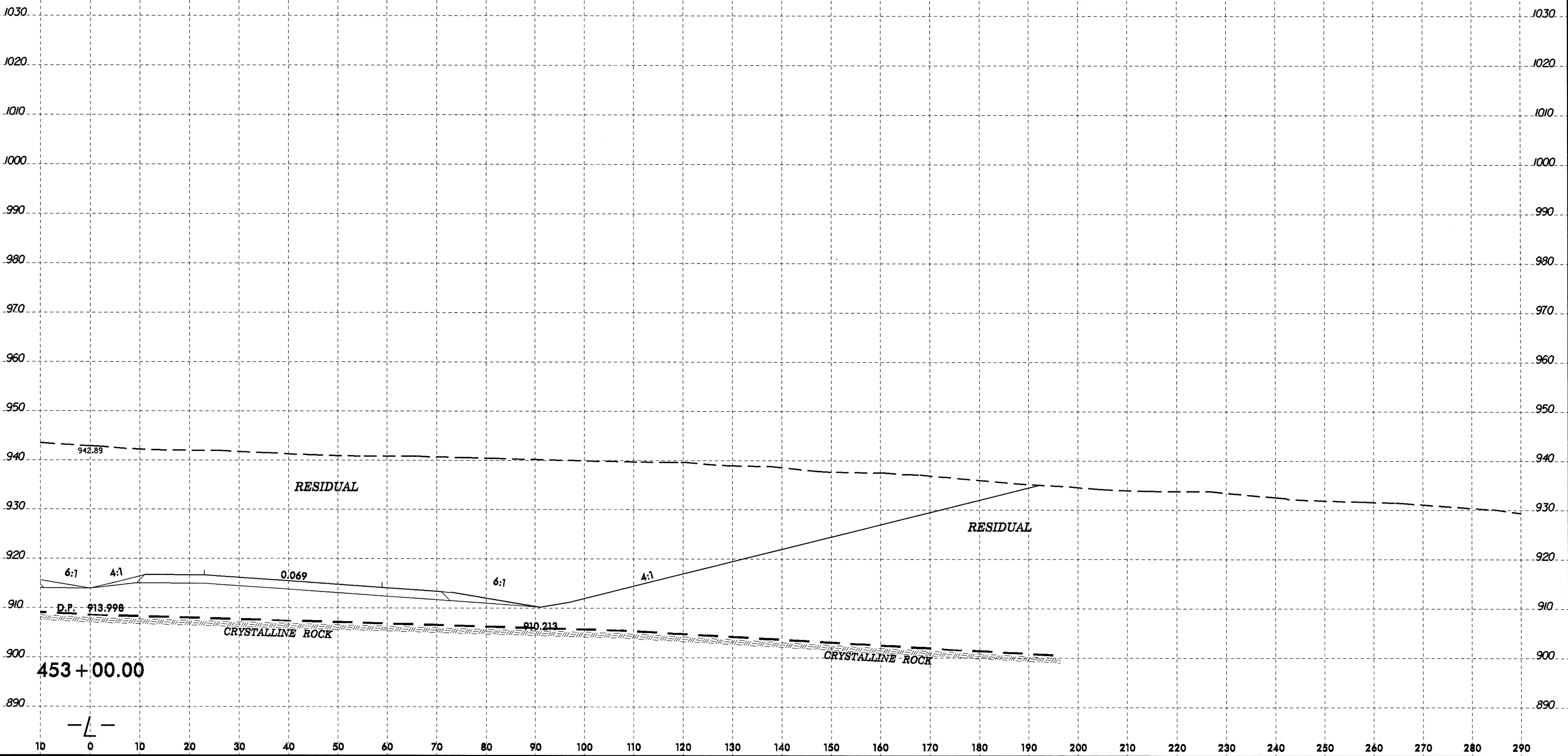
8/23/99



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 User: rdwy

8/23/99

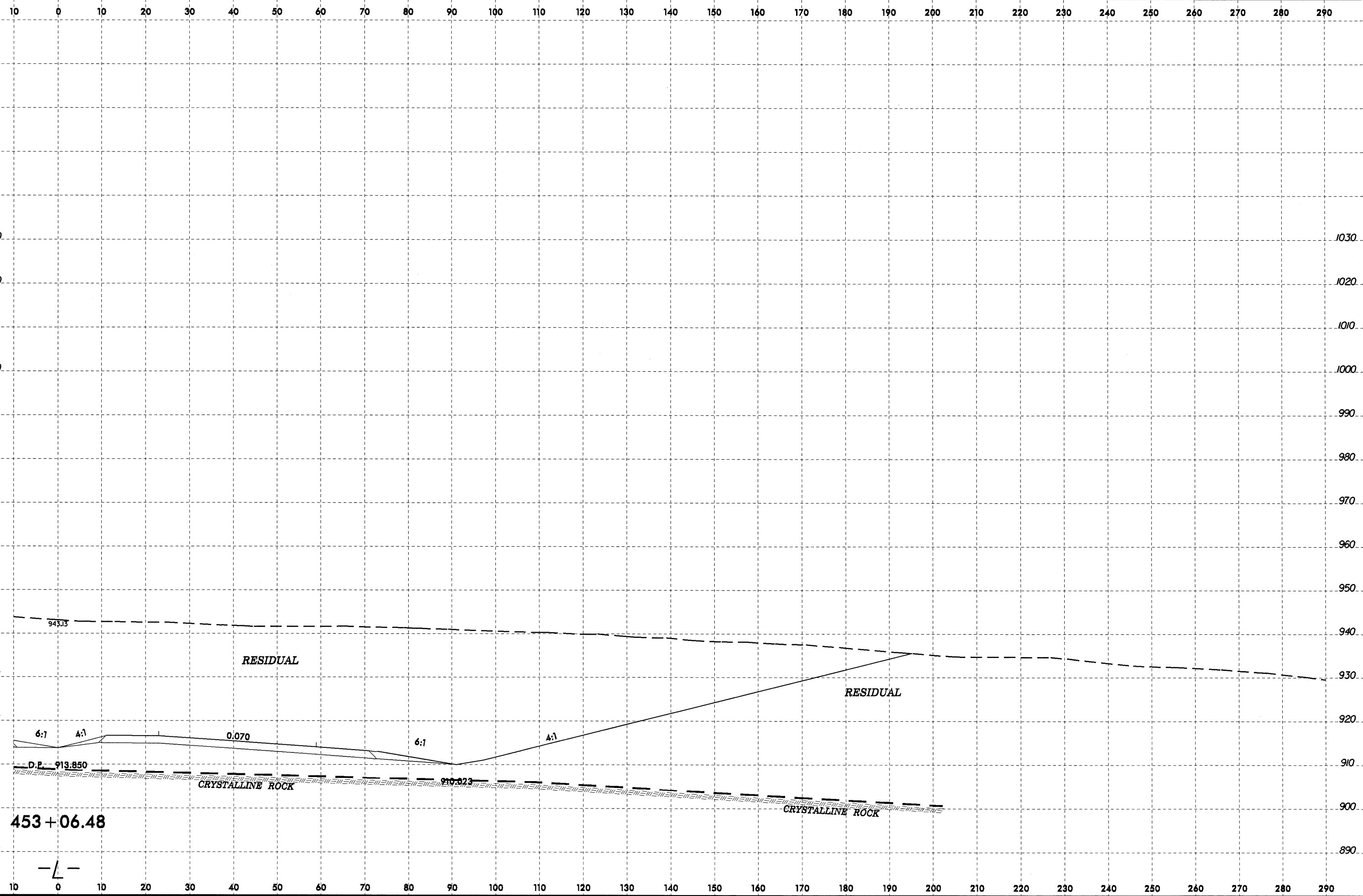
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8/23/99

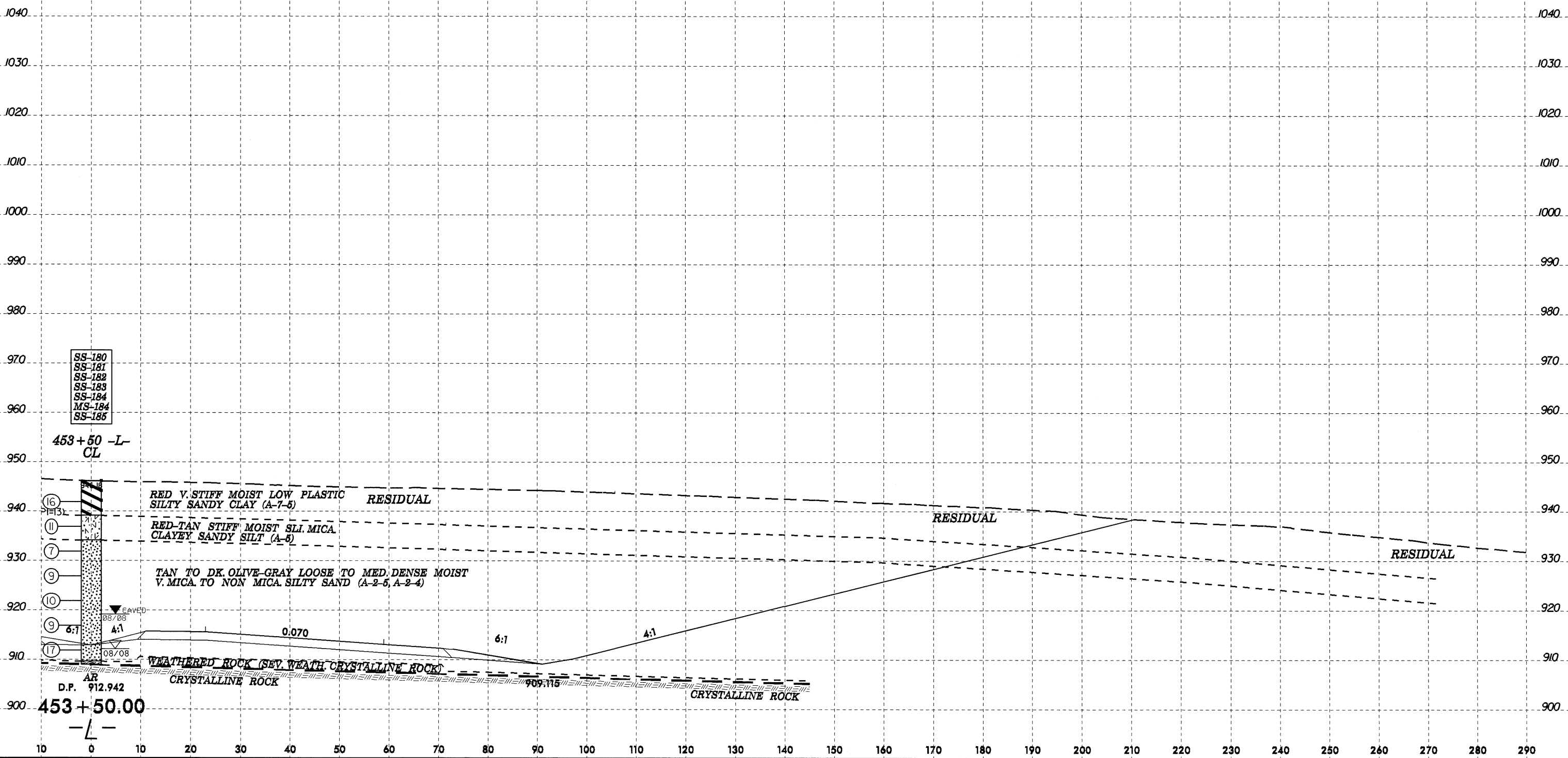
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 20100623.dwg

8/23/99

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SS-180
SS-181
SS-182
SS-183
SS-184
MS-184
SS-185

453+50 -L-
CL

16
11
7
9
10
9
17

RED V. STIFF MOIST LOW PLASTIC
SILTY SANDY CLAY (A-7-6) RESIDUAL

RED-TAN STIFF MOIST SILTY MICA
CLAYEY SANDY SILT (A-6)

TAN TO DK. OLIVE-GRAY LOOSE TO MED. DENSE MOIST
V. MICA TO NON MICA SILTY SAND (A-2-5, A-2-4)

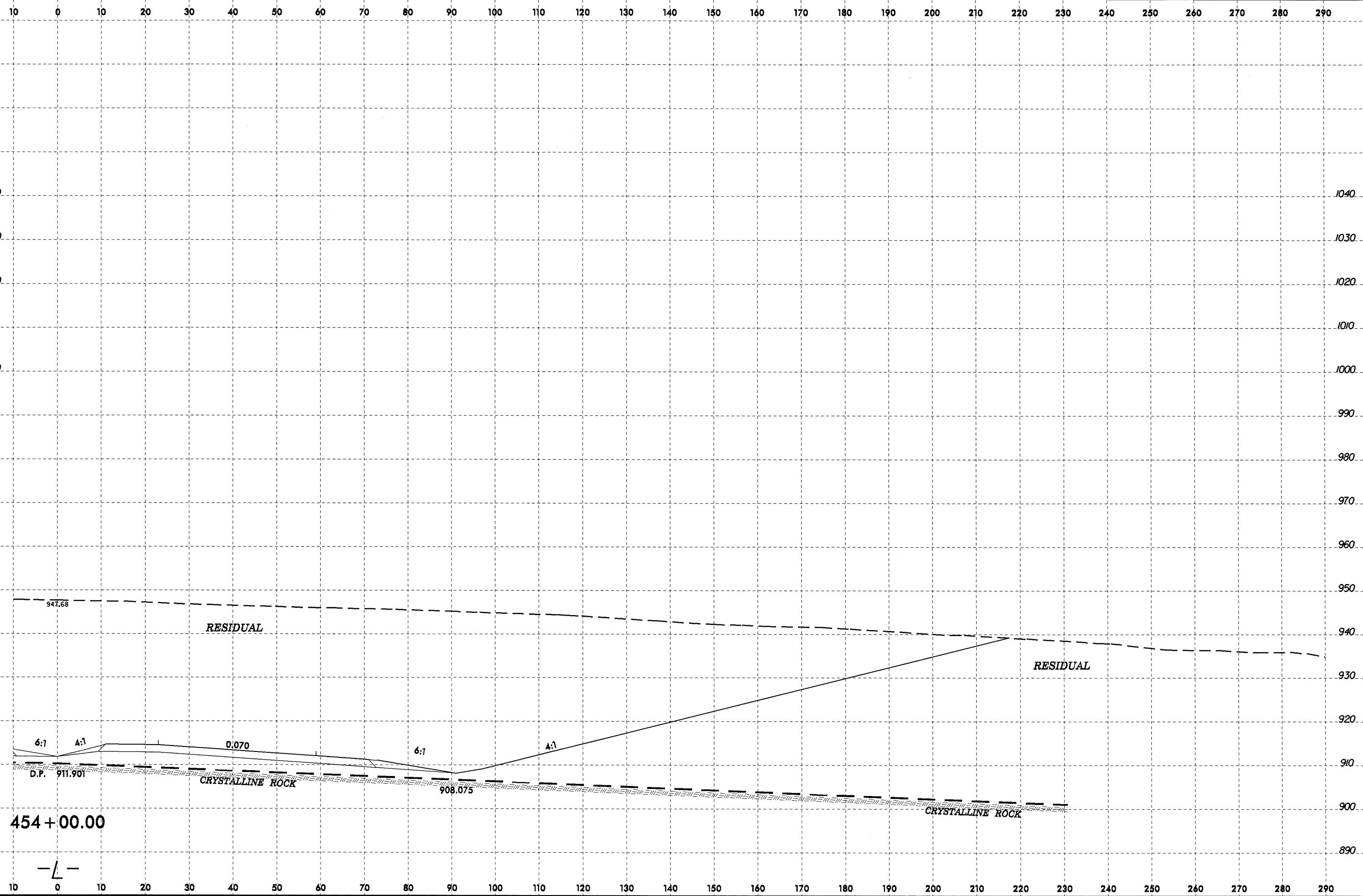
WEATHERED ROCK (SEV. WEATH. CRISTALINE ROCK)

CRISTALINE ROCK

AR
D.P. 912.942
453+50.00
-L-

21-JUN-2010 15:52
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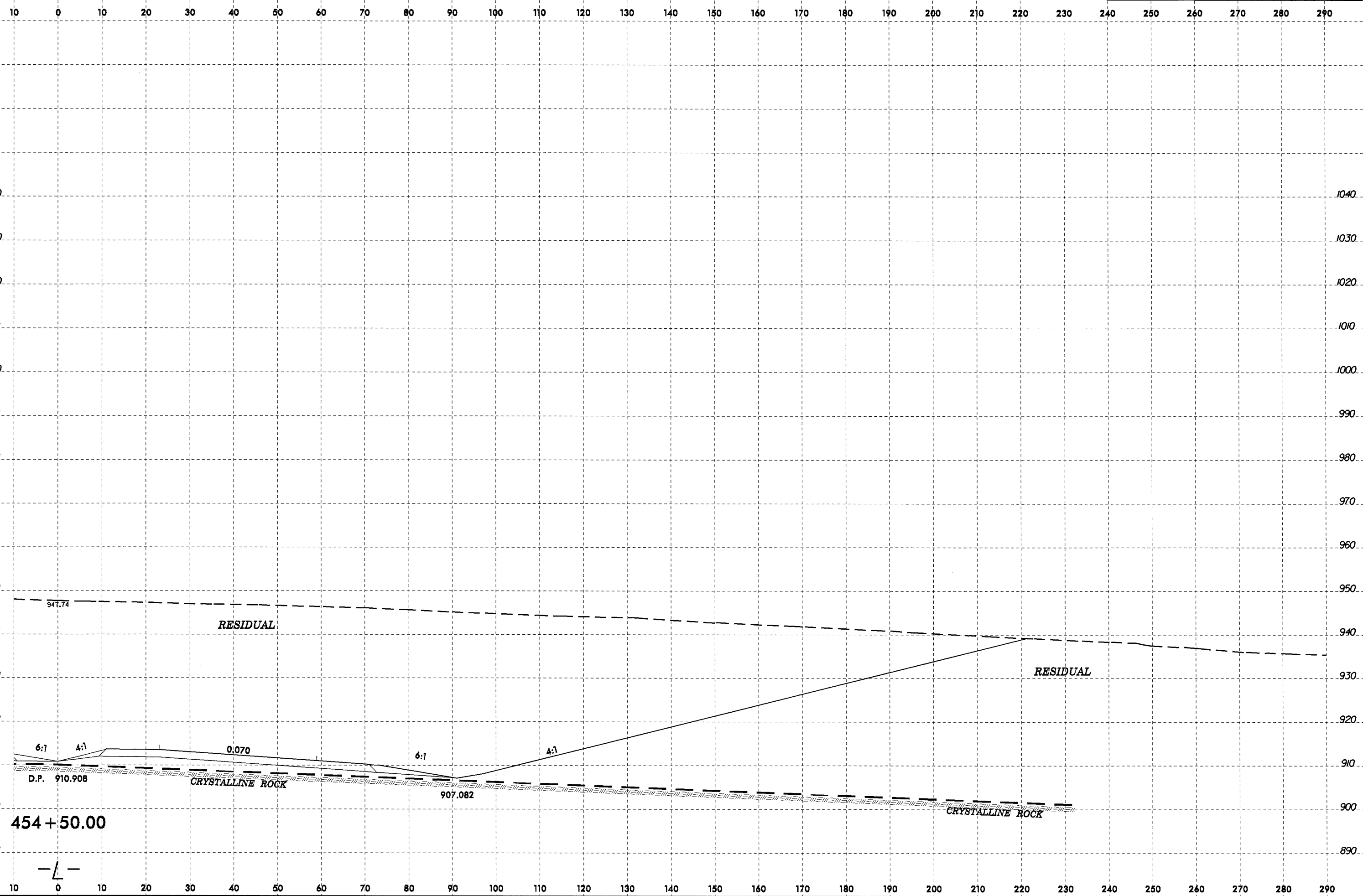
8/23/99



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8/23/99

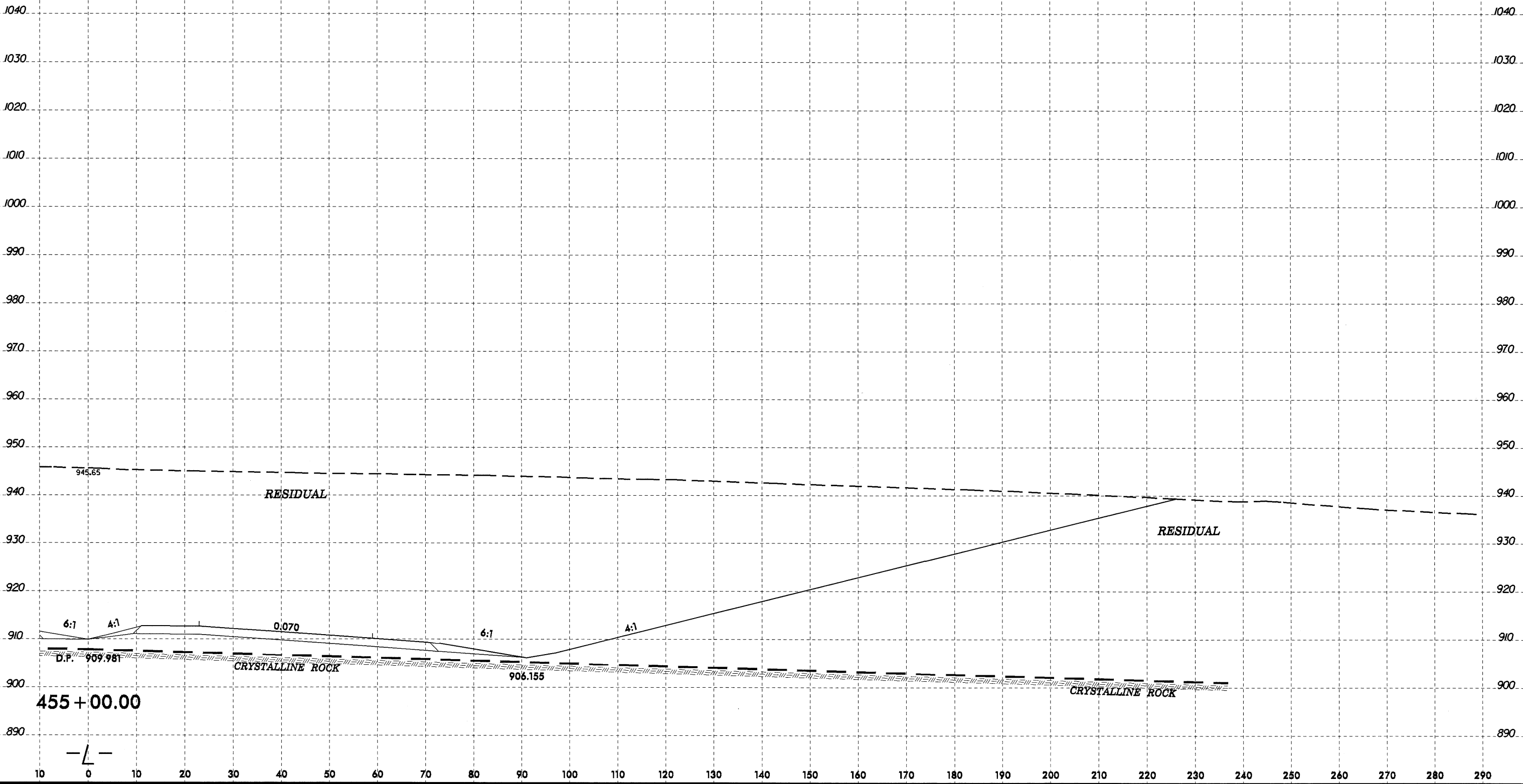
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 mdeslup

8/23/99

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21-JUN-2010 15:52
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 8/23/99

455 + 00.00

-L-

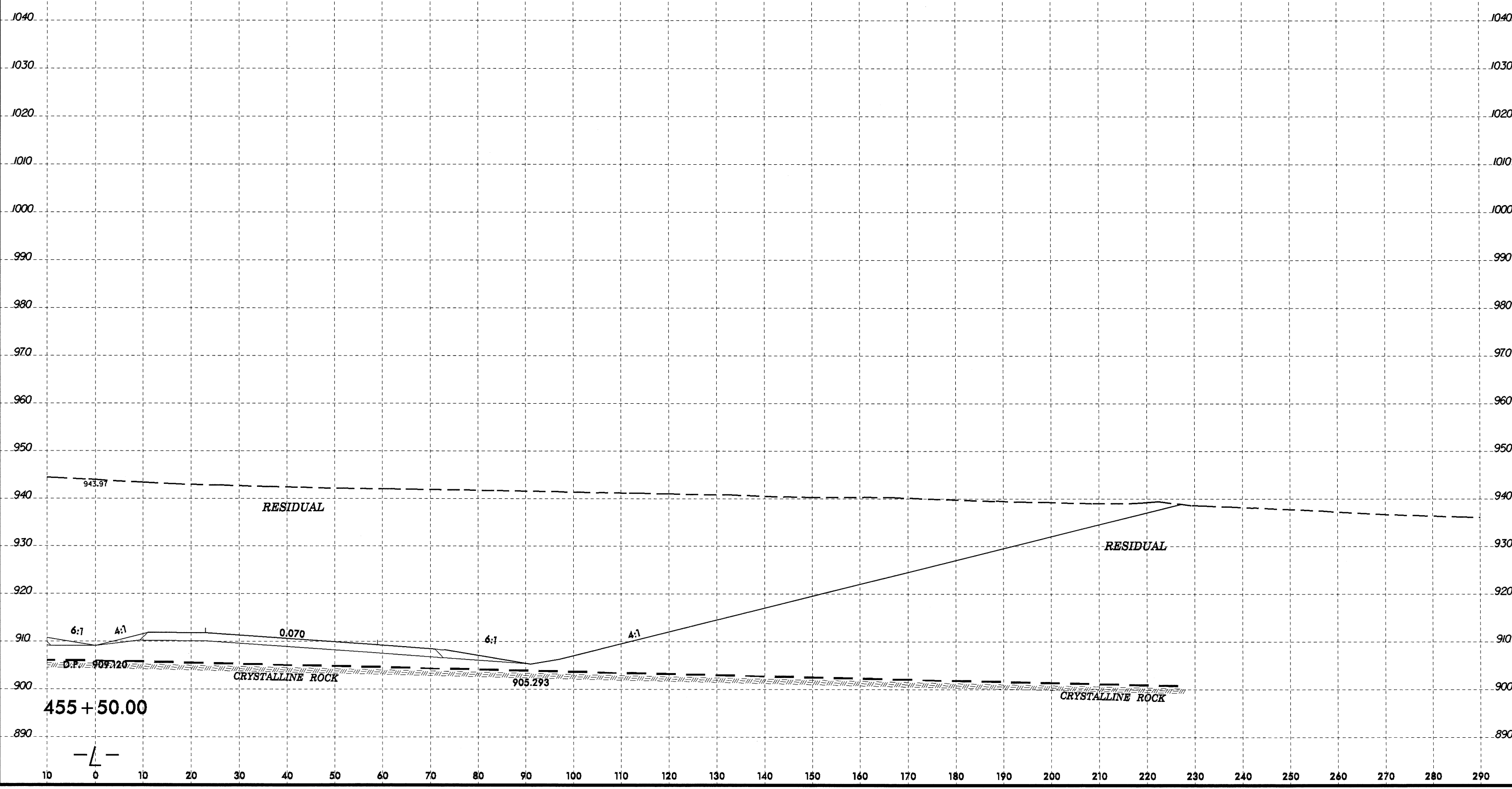
8/23/99



PROJ. REFERENCE NO.
U-2579C

SHEET NO.
85

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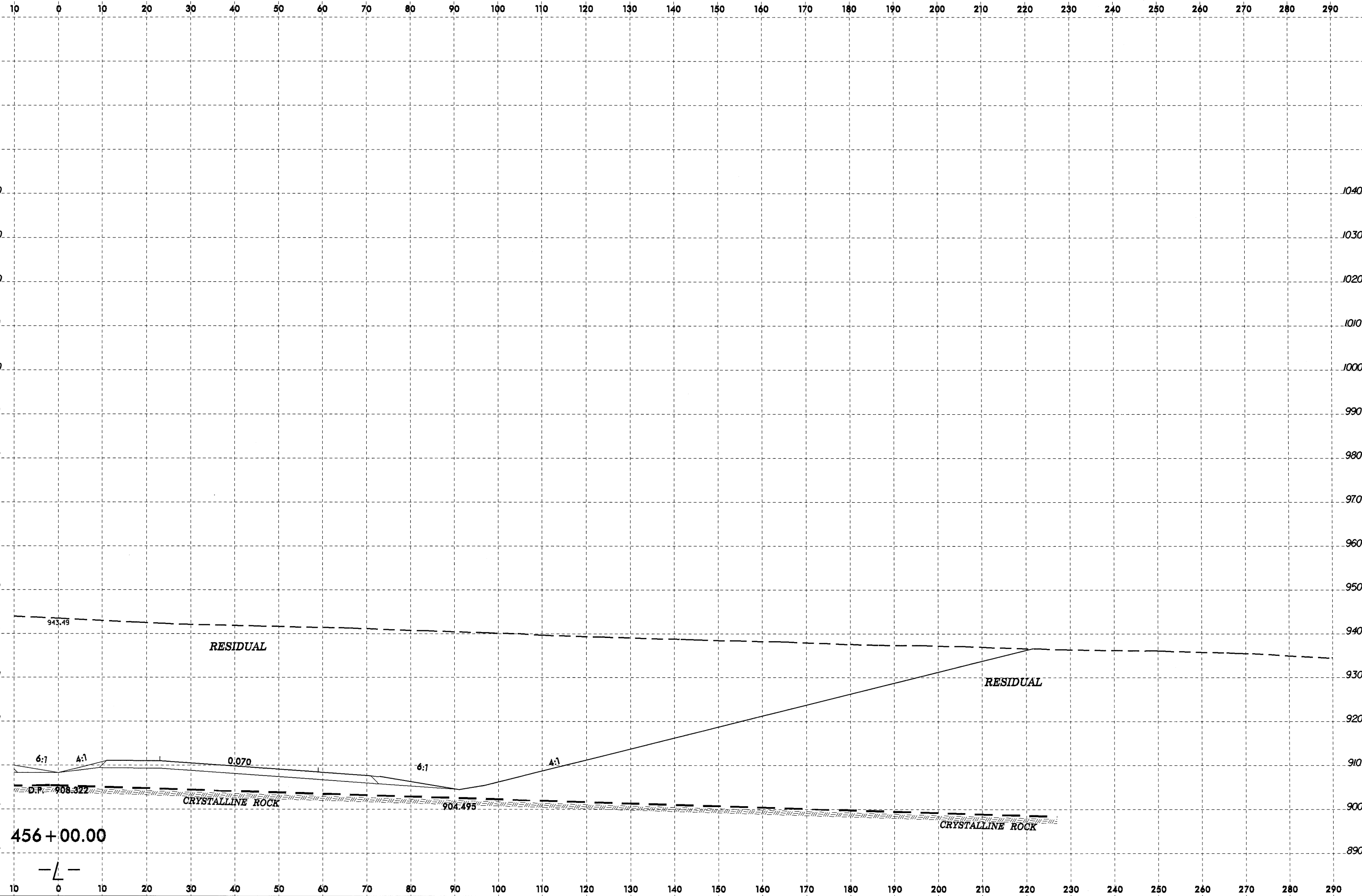
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 User: jec
 Plot: 8/23/99

8/23/99



PROJ. REFERENCE NO.
U-2579C

SHEET NO.
86

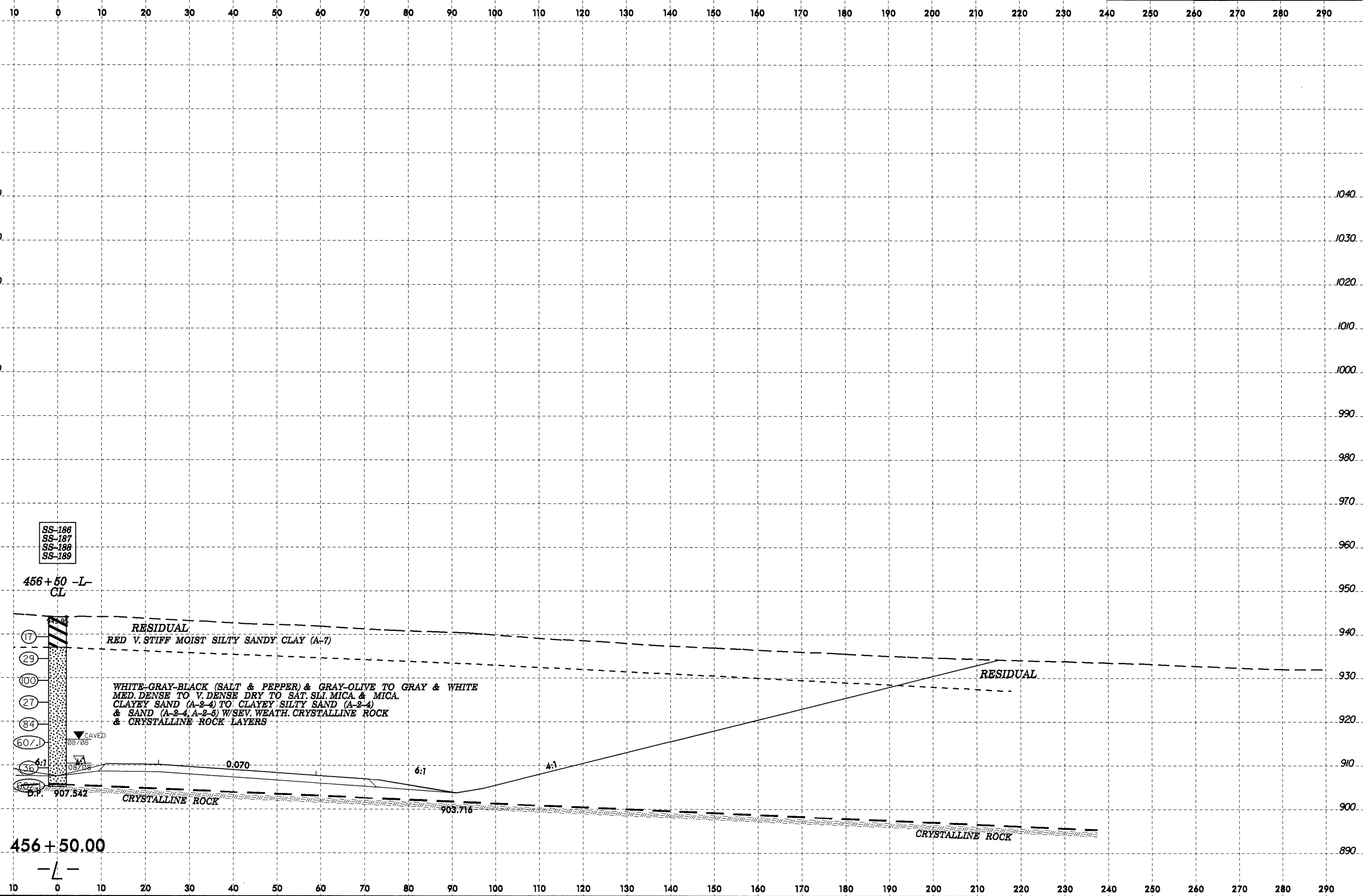


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456 + 00.00

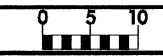
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8/23/99



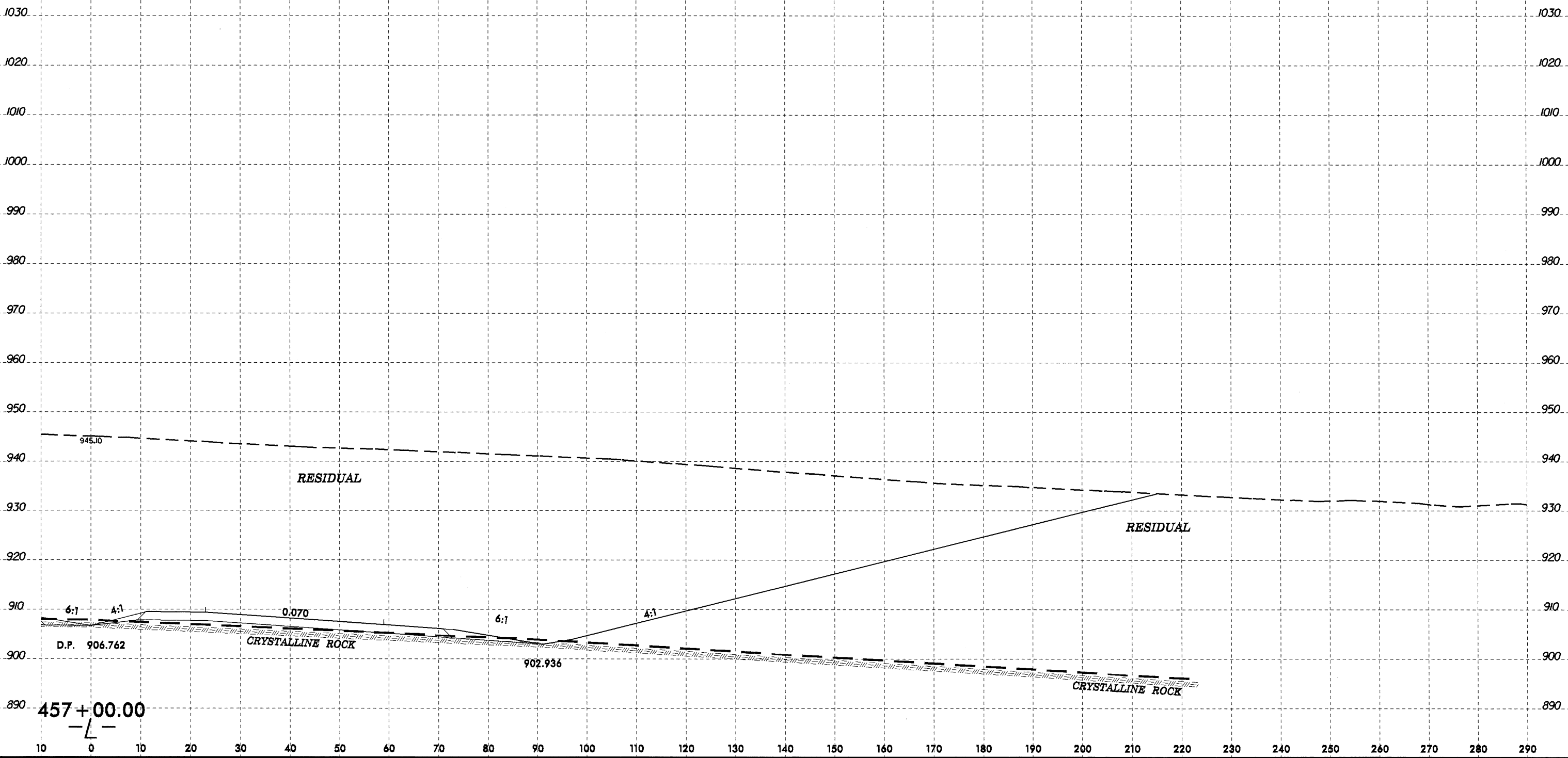
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 User: jg
 Title: 20100621

8/23/99



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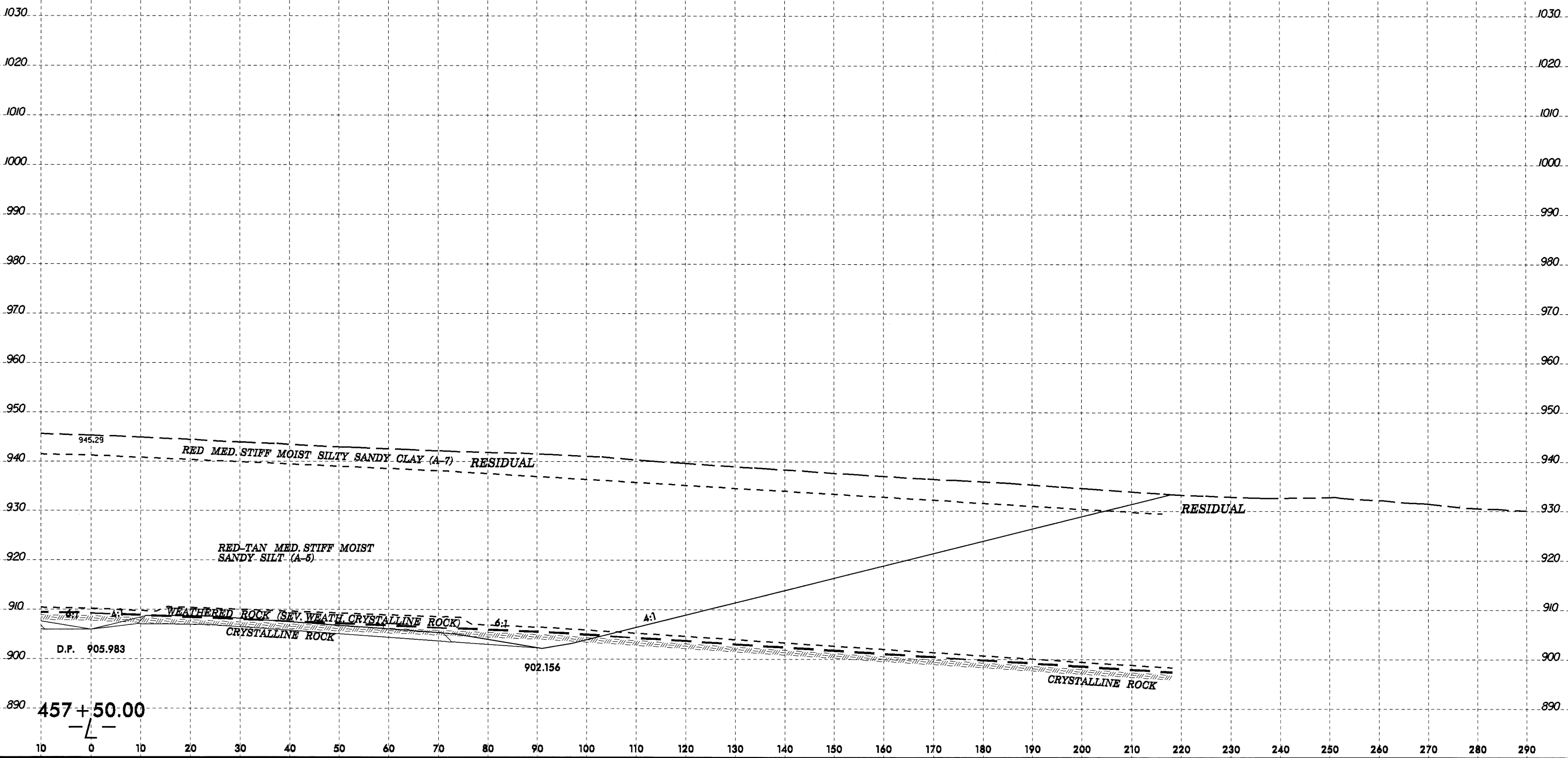


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 8/23/99

8/23/99

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	U-2579C	89

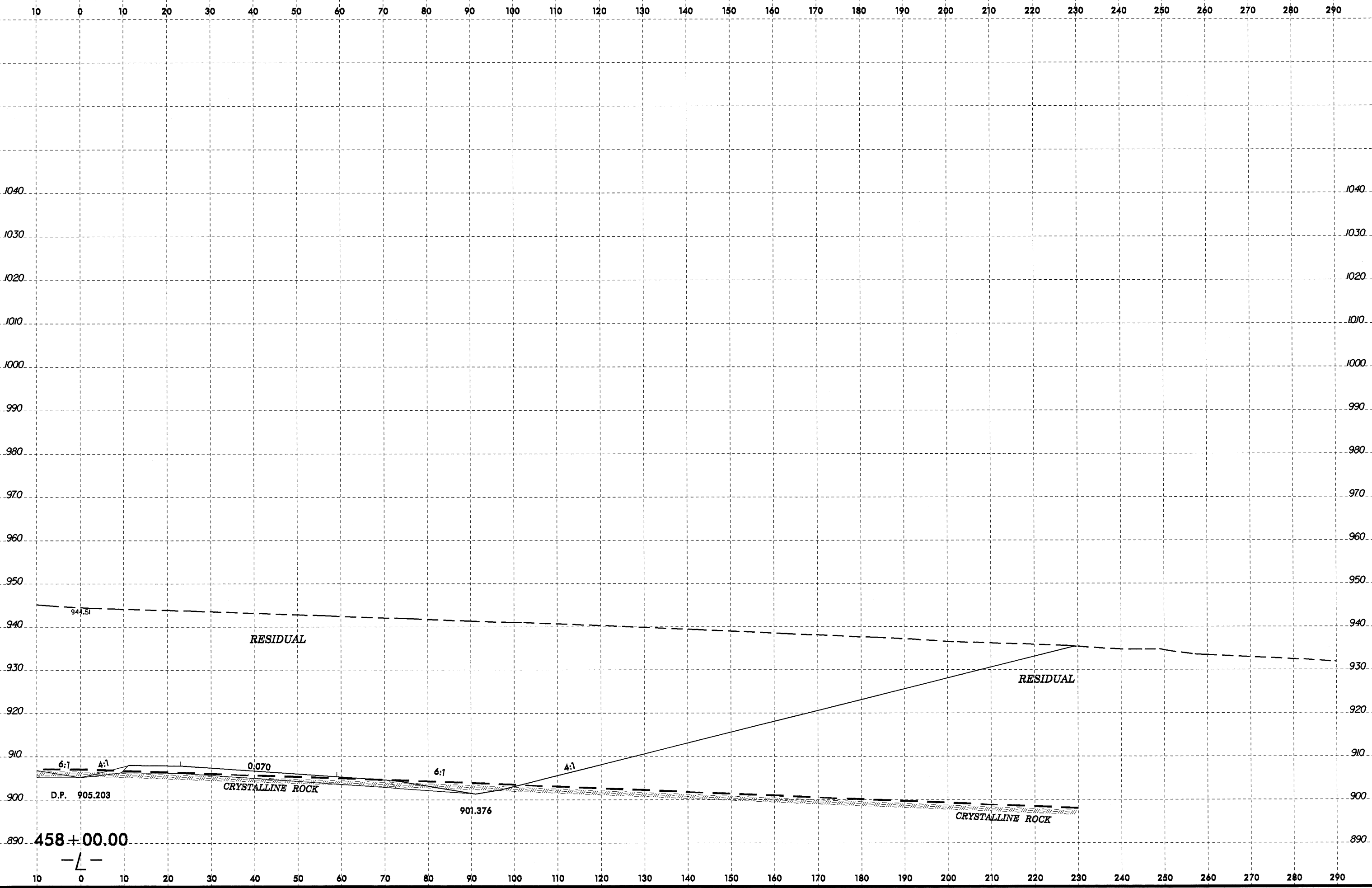
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User: geotek

8/23/99

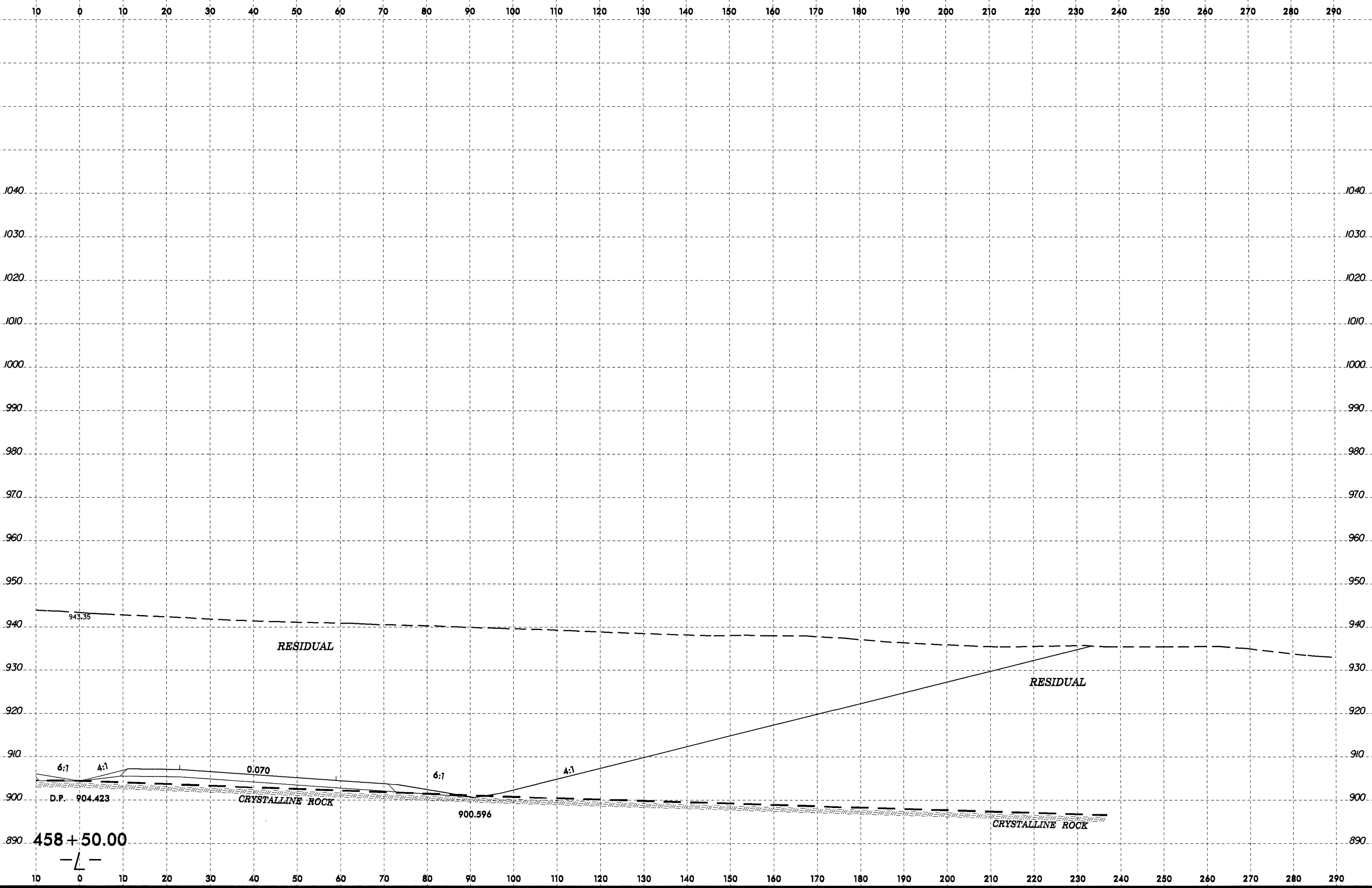
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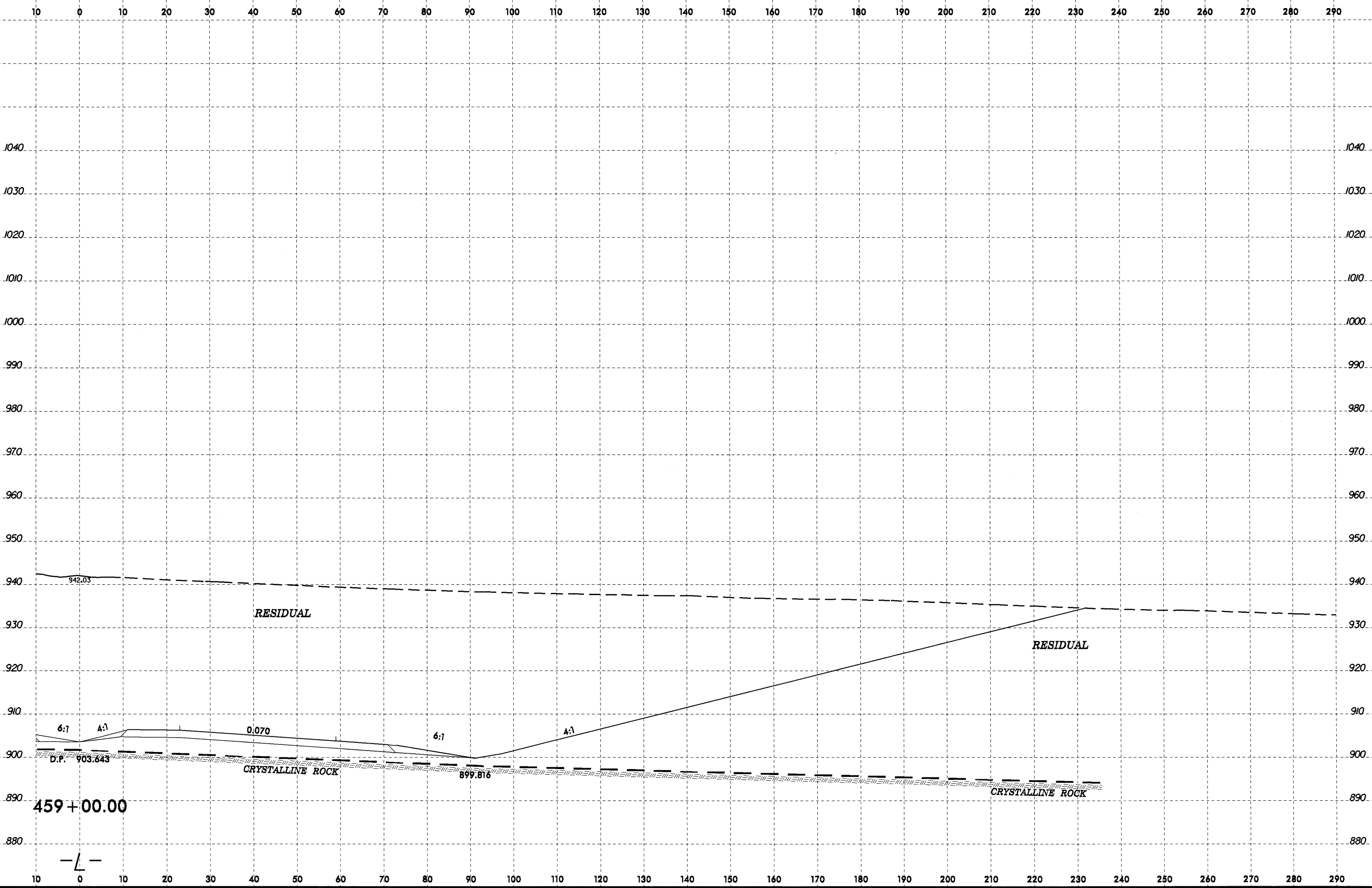
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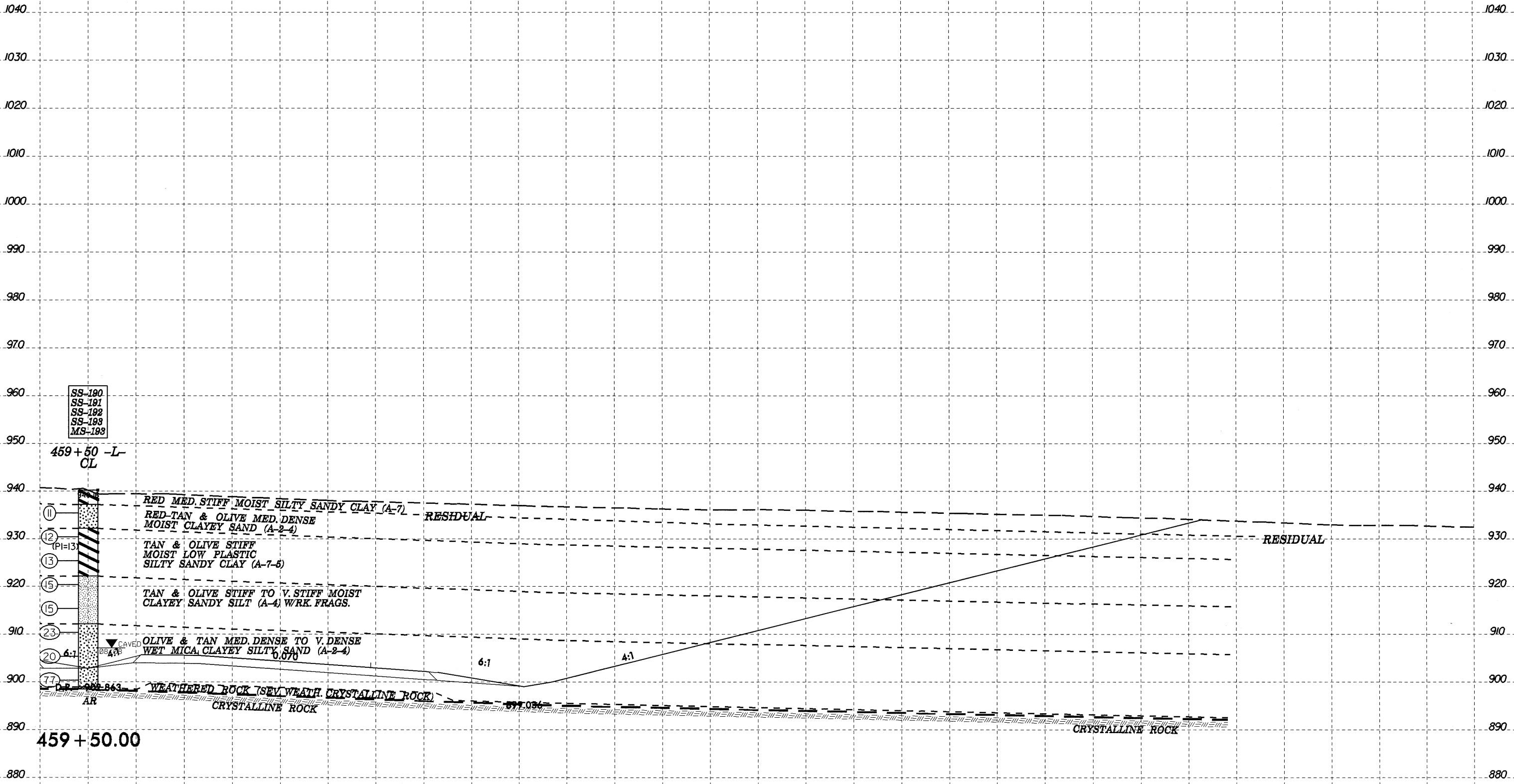
8/23/99



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mcclellan

8/23/99

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290



SS-190
SS-191
SS-192
SS-193
MS-193

459+50 -L-
CL

- 11
- 12
- 13
- 15
- 15
- 23
- 20
- 17

RED MED. STIFF MOIST SILTY SANDY CLAY (A-7)
RED-TAN & OLIVE MED. DENSE
MOIST CLAYEY SAND (A-2-4)
TAN & OLIVE STIFF
MOIST LOW PLASTIC
SILTY SANDY CLAY (A-7-5)
TAN & OLIVE STIFF TO V. STIFF MOIST
CLAYEY SANDY SILT (A-4) W/RE FRAGS.

RESIDUAL

RESIDUAL

OLIVE & TAN MED. DENSE TO V. DENSE
WET MICA CLAYEY SILTY SAND (A-2-4)
0.070

6:1

4:1

WEATHERED ROCK (SEV WEATH CRYSTALLINE ROCK)
CRYSTALLINE ROCK

CRYSTALLINE ROCK

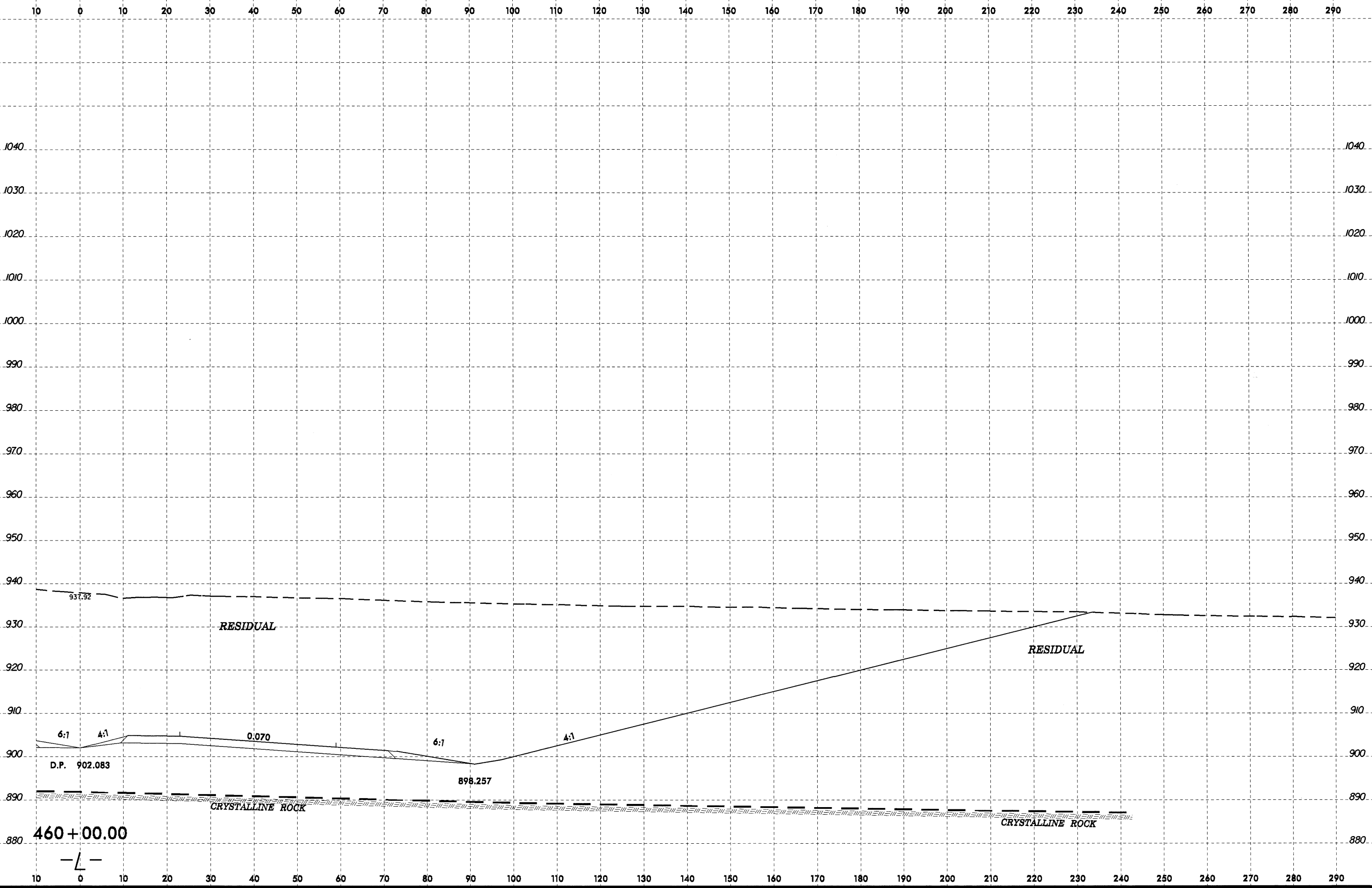
459+50.00

-L-

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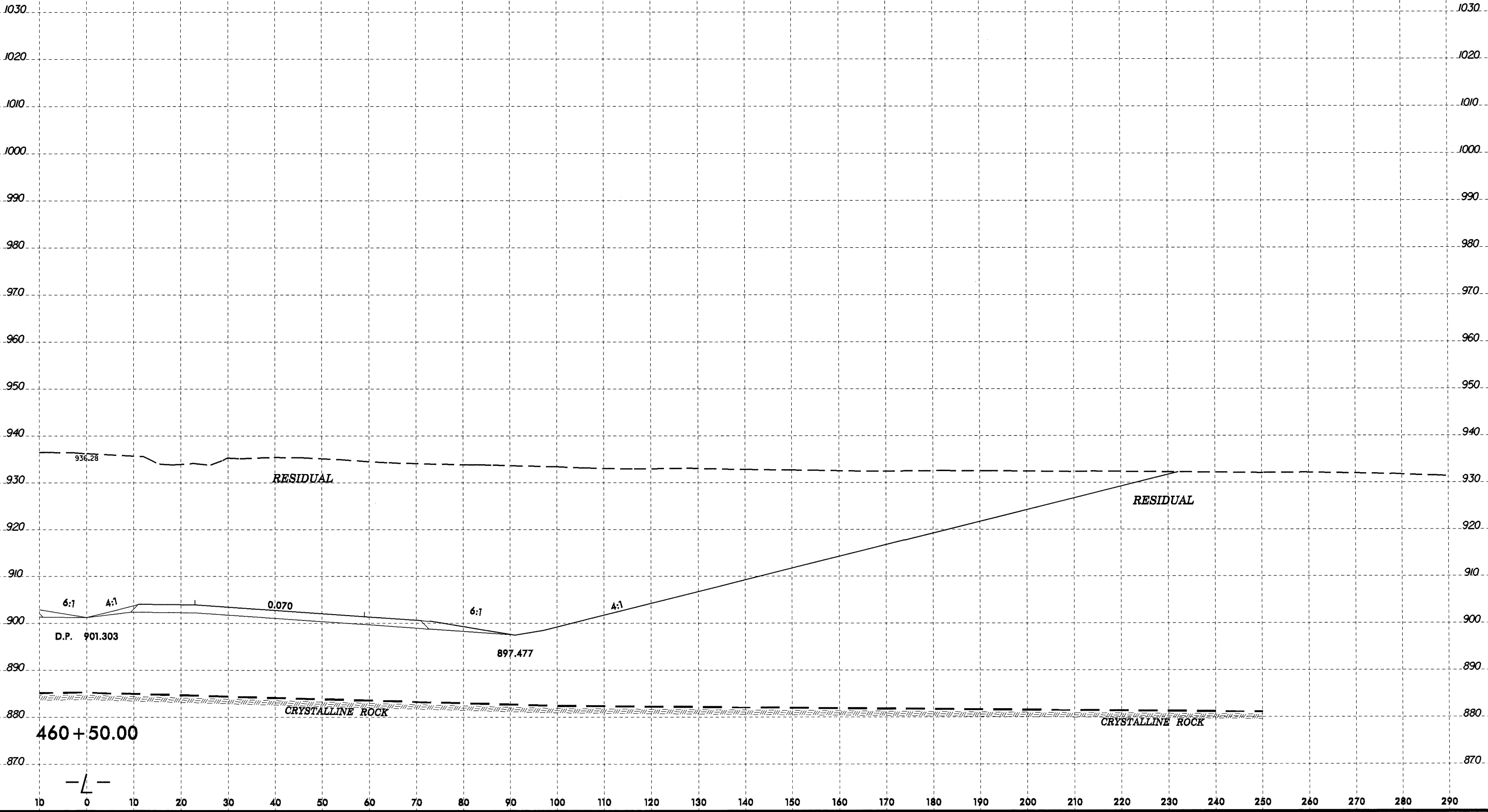
8/23/99



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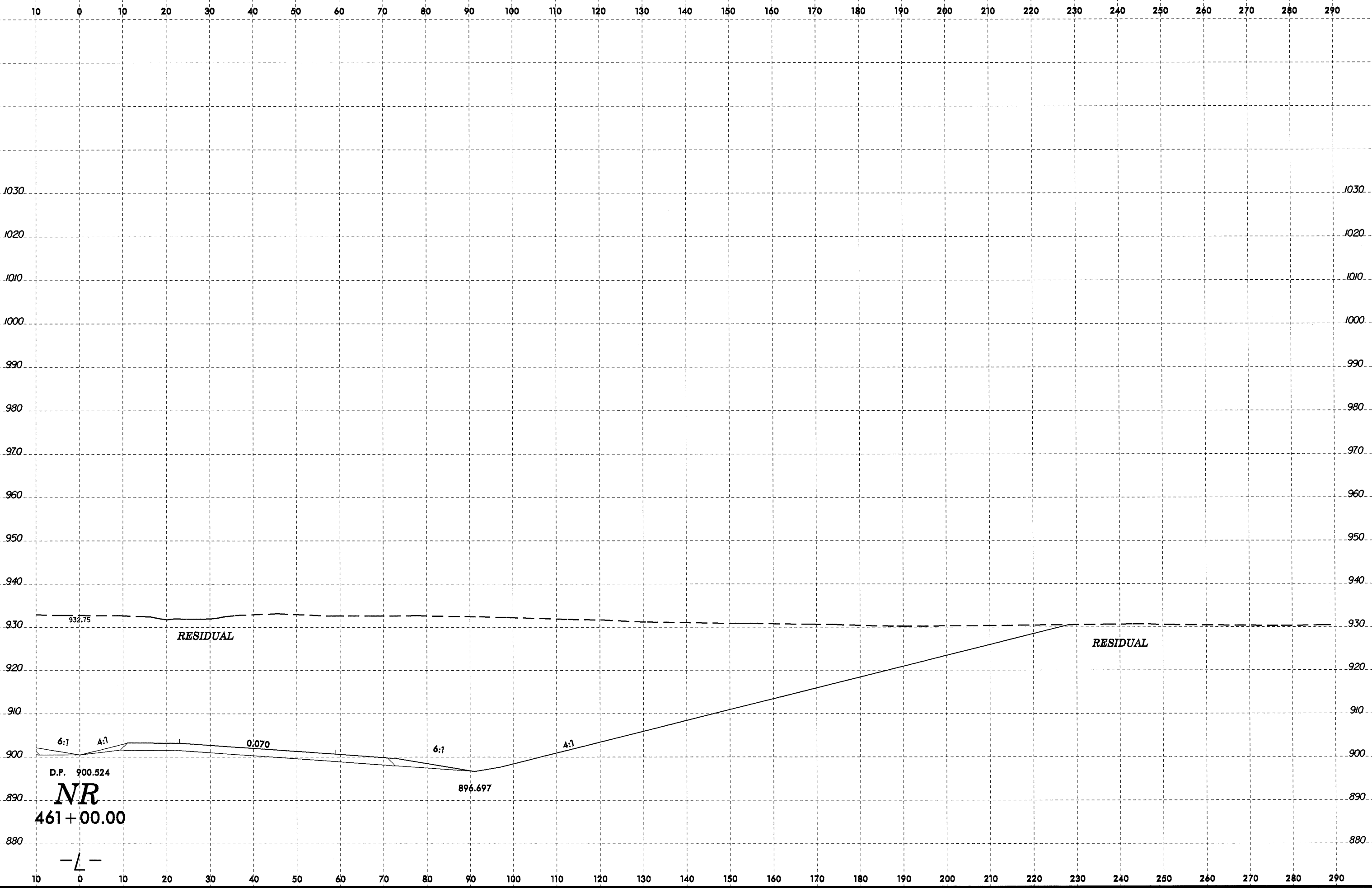
8/23/99

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8/23/99



21-JUN-2010 15:54
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mcclellan

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, Line or Boring ID. Rows 1-221.

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, Line or Boring ID. Rows 1-5.