CONTRACT: ID: R-2707C

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

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LINE	STATION	PLAN	PROFILE	XSECT
-L-	353+22.84-635+00.00	4-28	47-64	97-255
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RAMP D @ -Y1-	0+00.00-23+72.31	5-6	66	
LOOP A @ -Y1-	0+00.00-11+20.63	5	67	259-263
LOOP D @ -Y1-	0+00.00-11+72.36	5	67	264
RAMP A @ -Y9-	0+00.00-20+93.98	19-20	68	
RAMP B @ -Y9-	0+00.00-19+96.30	18-19	69	
RAMP C @ -Y9-	0+00.00-16+26.54	18-19	70	
RAMP D @ -Y9-	0+00.00-16+16.51	19-20	71	
LOOP B @ -Y9-	0+00.00-12+88.76	19	72	
RAMP A @ -Y14-	0+00.00-18+05.44	25-26	73	
RAMP A1@ -Y14-	2+01.97-5+95.56	25	74	
RAMP B @ -Y14-	0+00.00-12+78.33	24-25	75	
RAMP B1@ -Y14-	1+09.68-6+69.55	25	75	
RAMP C @ -Y14-	0+00.00-12+89.44	24-25	76	
RAMP C1@ -Y14-	0+00.00-3+45.69	25	77	
RAMP D @ -Y14-	0+00.00-16+87.22	25-26	78	
RAMP D1@ -Y14-	1+47.61-3+98.6	25	79	
-Y1-	11+90.00-42+40.00	5, 28-29	80-81	
-Y2-	23+85.00-33+25.00	7, 30	82	
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-Y8A-	33+00.00-35+96.71	38	86	
-Y8- REV	10+32.02-36+00.00	36-38	85	
-Y9-	10+70.00-36+00.00	19, 35-36	87	
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-Y16A-	13+50.00-15+00.65	45	93	
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34497.1.2 (R-2707C)* F.A. PROJ. *NHF-74(14)*

COUNTY *CLEVELAND*

PROJECT DESCRIPTION *US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2707C	1	277

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34497.1.4	NHF-74(14)	P.E.
		R/W & UTIL.

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PERSONNEL

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INVESTIGATED BY *J. P. ROGERS*

CHECKED BY *C. B. LITTLE*

SUBMITTED BY *C. B. LITTLE*

DATE *NOVEMBER 2008*

DRAWN BY: *J. P. ROGERS & C.E. BURRIS*

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

VERY STIFF, GRAY, SETY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
LIQUID LIMIT PLASTIC INDEX	6 MX		NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT^2)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	<4 4 TO 10 10 TO 30 30 TO 50 >50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELOSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

SAMPLE DESIGNATIONS

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

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

EQUIPMENT USED ON SUBJECT PROJECT

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

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N Q
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELOSPARS 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 FELOSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELOSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK:

ELEVATION: FT.

NOTES:

REVISED 02/23/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 20, 2008

STATE PROJECT:	34497.1.2 (R-2707C)
FEDERAL PROJECT:	NHF-74(14)
COUNTY:	Cleveland
DESCRIPTION	US 74 Shelby Bypass from West of NC 226 to East of NC 150
SUBJECT:	Geotechnical Report - Inventory

PROJECT DESCRIPTION

This project is located in south central Cleveland County, approximately six miles north of the city of Shelby. The –L- line is on new location for the entire project. Typical sections for the proposed -L- line call for a four-lane roadway with paved shoulders. Median width is 34'. There are three proposed interchanges that will connect the -L- alignment with existing NC 226, existing NC 18, and existing NC 150. A total of seven bridges are included in the scope of this project. Four of these bridges will be required for grade separations at -Y2-, -Y3-, -Y4-, and -Y9- over -L-. A dual structure water crossing is proposed at –L- line over the Broad River. The last two bridges will be required for railroad separation (-L- and -Y11- over -Y13-, CSX RR). The -L- alignment runs generally west to east. The following alignments were investigated:

Line	Station(s)
-L-	351+75.00 to 635+00.00 (5.38 miles)
Ramp A (RP A1) at NC 226	0+00.00 to 21+11.85 (0.40 miles)
Ramp D (RP D1)at NC 226	0+00.00 to 23+72.31 (0.45 miles)
Loop A (LP A1) at NC 226	0+00.00 to 11+20.63 (0.21 miles)
Loop D (LP D1) at NC 226	0+00.00 to 11+72.36 (0.22 miles)
Ramp A (RP A2) at NC 18	0+00.00 to 20+93.98 (0.40 miles)
Ramp B (RP B2) at NC 18	0+00.00 to 19+96.30 (0.38 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

2 3A

Ramp C (RP C2) at NC 18	0+00 to 16+26.54 (0.31 miles)
Ramp D (RP D2) at NC 18	0+00 to 16+16.61 (0.31 miles)
Loop B (LP B2) at NC 18	0+00 to 12+88.76 (0.24 miles)
Ramp A (RP A3) at NC 150	0+00 to 13+93.46 (0.26 miles)
Ramp B (RP B3) at NC 150	0+00 to 14+14.00 (0.27 miles)
Ramp C (RP C3) at NC 150	0+00 to 13+94.92 (0. 26 miles)
Loop C (LP C3) at NC 150	0+00 to 8+66.03 (0. 16 miles)
-Y1-	11+90.00 to 42+40.00 (0.58 miles)
-Y2-	23+85.00 to 33+25.00 (0.18 miles)
-Y3-	17+90.00 to 25+54.02 (0.14 miles)
-Y4-	15+02.00 to 34+76.31 (0.37 miles)
-Y8-	10+32.02 to 36+00.00 (0.49 miles)
-Y9-	10+70.00 to 36+00.00 (0.48 miles)
-Y11-	26+00.00 to 69+75.00 (0.83 miles)
-Y14-	22+00.00 to 49+00.00 (0.51 miles)
-Y15-	17+65.30 to 26+96.37 (0.18 miles)
-Y17- at SR 1	10+20.47 to 38+40.15 (0.53 miles)

The total length of lines investigated is 13.54 miles.

The initial field investigation was conducted between October 2005 and April 2006. 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

Crystalline Rock: There is a considerable amount of hard rock on the project. Rock was encountered above or within 10' of the proposed grade at the following locations:

Line	Station(s)
-L-	355+00 to 358+00
-L-	360+50 to 362+50
-L-	377+00 to 379+00
-L-	388+00 to 402+50
-L-	412+50 to 413+00
-L-	417+00 to 421+50
-L-	423+00 to 424+00
-L-	428+50 to 438+50
-L-	439+50 to 446+50
-L-	447+50 to 450+00
-Loop A1-	1+50 to 4+50
-Ramp A1-	14+00 to 16+00
-Loop D1-	0+25 to 2+75

The rock lines depicted on the attached cross-sections and profiles are interpolated between borings and based primarily on 8" hollow stem auger and 6" standard auger refusal. Four core borings were performed in the rock cut encountered between Stations 388+00 to 402+50 –L-. The Mica Gneiss encountered in those borings had RQD's between 21% and 100%. These borings also confirmed what the Geologic map of North Carolina had indicated would be present in the area.
In addition, there are zones of weathered rock and/or layers with alternating very hard residual soils and weathered rock that occur above the depicted rock lines. According to the Geologic map of North Carolina and our core borings, the most likely rock type within the project corridor is Biotite/Mica Gneiss metamorphic rock (CZms & CZbg). These rocks are likely to become more schistose on the western end of the project near NC 226. The rock is described on the cross-sections and profiles as *Hard Crystalline Rock – Biotite/Mica Gneiss.* As stated previously, the hardness was determined on 8" hollow stem auger refusal, 6" standard auger refusal, and core borings. In addition, the pull down pressure on the feed cylinders on the CME-550 was observed to be 800 - 1000 psi in the areas of Hollow Stem/Standard Auger refusal.

Alluvial Soils; Areas with significant alluvial deposits are discussed below.

Station 365+65 to 366+35 –L-, Left; Alluvial soils present in this location are associated with a topographical low area that- serves as a drainage feature for the surrounding pasture. The deposit is approximately eight feet thick and contains very soft to medium stiff sandy silt (A-4) and very loose coarse sand (A-1-b). At the time of our investigation, groundwater was not encountered in the two borings performed in this area.

Station 382+90 to 386+05 -L-; The alluvial deposits in this segment are associated with the Broad River Floodplain. A dual four-lane structure has been proposed for this water crossing. No borings were performed in this interval during our Roadway investigation. These alluvial soils will be addressed in detail during the subsequent structure investigation.

Station 503+20 to 509+00 –L-, Left; Alluvial soils present in this location are associated with a small stream that intersects the -Y5- alignment near Station 17+00. The stream continues in an easterly direction running parallel to the -L- line at an offset of 50' - 120'. The deposit is eight to 10' thick and contains primarily very loose to loose, silty, coarse and fine sand (A-2-4). At the time of our investigation, groundwater was encountered in this area between elevations 840' and 845'.

Station 538+15 to 539+15 -L- and 6+70 to 7+40 -Ramp D2-; Alluvial soils present in this location are associated with a small stream that drains the area north of existing Carter Road. The stream moves in a southerly direction while bisecting the proposed -L- line and -Ramp D2-. The deposit is six to seven feet thick and contains medium stiff sandy silt (A-4), loose to medium dense silty sand (A-2-4), and soft sandy clay (A-6). At the time of our investigation, groundwater was encountered in this area between elevation 875' and 890'.

563+90 to 566+20 -L-; This pond is formed by an earthen dam located right of -L- centerline and fed by surface drainage from the northeast. It is also possible that a spring located outside the construction limits could be feeding the pond as well. Please refer to plan sheet 21 of the attached inventory plans for a graphical depiction of this area. The residual soils encountered in the immediate area around the pond consist of moderate to highly plastic, medium stiff to stiff sandy clays (A-7). No alluvial soils were encountered around the pond. Based on the residual soils immediately adjacent to the pond, we estimate up to three feet of wet plastic soils in the bottom of the pond.

Wells: Wells were encountered within 100' of the project corridor at the following locations:

Line	Station(s)	Offset
-L-	584+00	155' Rt.
-L-	584+75	115 Lt.
-L-	599+70	120 Rt.
-L-	608+90	55' Lt.

Plastic Clays: Highly Plastic clays (P1.≥ 26) were encountered with six feet of proposed grade at the following locations:

Line	Station(s)	P.I.
-L-	559+50 to 561+00	38
-L-	569+00 to 573+40	36
-L-	459+25 to 460+75	31-39
-L-	497+50 to 501+00	29-35
-L-	582+30 to 583+40	33
-Y4-	21+50 to 25+50	27
-RPB2-	15+35 to 17+35	34
-Y8REV-	10+75 to 14+15	31
-Y8REV-	18+50 to 26+10	26-43
-RPA3-	7+20 to 8+55	30
-RPC3-	11+50 to 14+00	36
-LPC3-	6+00 to 8+66	36
-Y11REV-	49+15 to-50+50	30

Highly Plastic cap clays (PI. ≥ 26) were encountered in the following cut sections:

Line	Station(s)	P.I.
-LPA1-	5+50,60' Lt.	29
-RPA1-	7+50 to 9+00	26
-L-	396+50 to 401+50	29
-L-	418+00 to 420+00	39
-L-	525+00 to 532+00	35
-L-	468+25 to 469+50	28
-L-	479+25 to 480+30	26
-L-	483+50 to 487+25	40

PHYSIOLOGRAPHY 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 245'. The majority of the project is open land but there are areas where homes and businesses will be affected. .Most of the wooded areas encountered in our investigation had not been logged. The entire project is within the southwestern Inner Piedmont Geological Belt. Please refer to the section above entitled "Crystalline Rock" for a more detailed description of anticipated rock types within the project corridor.

SOIL PROPERTIES

Residual Soils

All residual soils on the project are derived from the Biotite/Mica Gneiss rocks previously discussed. The dominant soil types encountered are silty and sandy clay (A-6, A-7), silty sand (A-2-4, A-l-b) and sandy silts (A-4, A-5). In areas where rock above grade was encountered, the clays tended to be cap clays extending up to 10' below the ground surface. It is in these areas of hard rock that the predominant soil is silty sand (A-2-4) with alternating zones of dense residual soil and weathered rock. A large majority of the residual silty sands encountered on this project were observed to be micaceous.

CULVERTS

Station 453+03 -L-

The proposed structure is a 2 @ 7' x 7" RCBC, Overall length = 3247. Five test borings were conducted in the vicinity of the proposed structure. The floor elevation, moving left to right, varies from 768.40' to 772.30'. The borings indicate that sandy residual soils are present near the proposed floor elevation. Weathered rock was encountered between elevation 761 '-766' in the three closest borings to the structure. Floodplain soils in the area consist of clayey and silty sands approximately ten feet or less in thickness.

Station 553+29 -L-

The proposed structure is a 2 @ 8' x 7' RCBC, Overall length = 330'. Two borings conducted in the vicinity indicate the top of residual soil between elevation 861 '- 866'. The proposed culvert has an inlet elevation = 864.8' and an outlet elevation = 861.0'. Three to nine feet of alluvial silts were present across this location. The culvert will be founded primarily on residual soil consisting of soft -to medium stiff sandy silt and very loose silty sand. We estimate very soft to soft alluvial silts extending down to elevation 860.50' at Station 553+50 -L-, 55' Lt. Neither weathered nor hard rock was encountered at this location.

Groundwater: Groundwater can occur at or very near the ground surface in floodplain areas. Groundwater will also be present in some of the cut sections. The profiles and cross-sections in the areas of rock above grade could be misleading because most of the auger borings did not penetrate deep enough to reach proposed grade. We anticipate that groundwater could occur above proposed grade in the following intervals:

6 of 36

Line	Station(s)
-L-	358+00 to 361+00
-L-	421+50 to 422+50
-L-	467+50 to 471+00
-L-	481+00 to 485+00
-L-	525+00 to 531+00
-Ramp A1-	1+00 to 8+00
-Loop Al-	4+00 to 8+00

Artificial Fill/Roadway Fill:

Station 613+ 15 to 616+75 —L-: This interval falls within the proposed interchange of alignment -L- and NC 150 at the easternmost portion of the project. The artificial fill soils encountered in this segment are approximately three to 11' thick and consist primarily of stiff to very stiff sandy clay (A-7, A-6). Please refer to Plan Sheet 25 of the attached Inventory Plans to view the extent of these soils left and right of centerline -L-. All other soils encountered in the immediate vicinity of these fill materials were residual clays. In addition, this area is currently being used by the NCDOT as a place to stockpile soil for use in road building activities. Due to the extremely dynamic nature of the materials that are either being taken out or brought in, none of the stockpiles we observered at the time of our investigation were mapped.

Due to the presence of utilities and high traffic volumes, none of the existing roadway fill soils along any of the proposed alignments were investigated by drilling. However, visual reconnaissance of side slopes and existing pavement was performed. No problems were observed with the existing roadway soils except for some minor erosion on the steeper side slopes.

Ponds: Three ponds were encountered within the project corridor at the following locations:

439+00 –L-, 160' right. This pond is approximately 60' south of the slope stake line at this location. The drainage outlet for this pond bisects the -L- line at Station 438+90 –L-. Alluvial soils associated with this drainage path are estimated to be five feet thick. Based on the rock line in the two cuts adjacent to this stream, we estimate that hard rock will be encountered below the stream between elevation 780' and 785'.

503+50 -L-, 100' right. At the time of our investigation, this pond had been drained. The water feeding into the pond appears to be coming primarily from surface drainage. It is also possible that a spring located outside the construction limits could be feeding the pond as well. Three to 11' of alluvial materials were encountered at the edge of the pond and downstream of the outlet, respectively. These materials consist of very loose silty sands (A-2-4) and very soft silt clays (A-7). Please refer to the attached profiles and cross-sections for a detailed, graphical depiction of this area.

Respectfully submitted,

JP Rogers

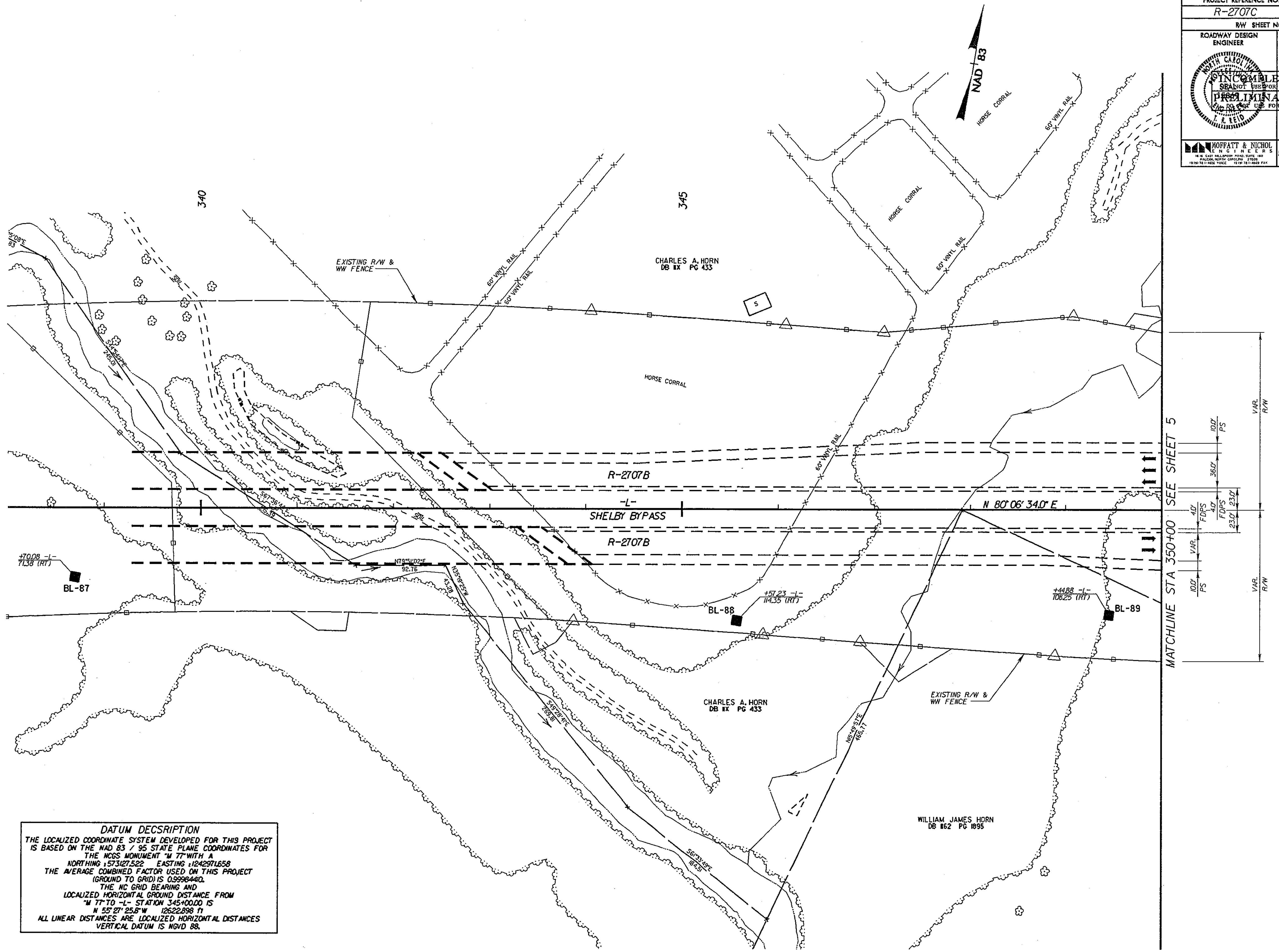
John P. Rogers
Project Geological Engineer

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	4
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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.



DATUM DECSRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE NAD 83 / 95 STATE PLANE COORDINATES FOR THE NCGS MONUMENT "M 77" WITH A
NORTHING : 573127.522 EASTING : 1242971.658
THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.99984410.
THE NC GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 77" TO -L- STATION 345+00.00 IS
N 55° 27' 25.8" W 12622.898 ft
ALL LINEAR DISTANCES ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM IS NGVD 88.

FOR -L- PROFILE SEE SHEET 47

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	5

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

PRELIMINARY PLANS

MOFFATT & NICHOL ENGINEERS

RAMP -A-

PI Sta 9+45.11
Δ = 25° 00' 57.7" (RT)
D = 3° 08' 53.2"
L = 7.30.0'
T = 370.55'
R = 1,820.00'
SE = .08

PIs Sta 13+85.70
θs = 3° 46' 39.5"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PIs Sta 16+79.13
θs = 7° 38' 22.0"
Ls = 200.00'
LT = 133.48'
ST = 66.78'

PI Sta 17+65.19
Δ = 5° 86' 21.9" (LT)
D = 7° 38' 22.0"
L = 45.02'
T = 22.54'
R = 750.00'
SE = .08

LOOP -A-

PIs Sta 1+05.60
θs = 0° 35' 37.7"
θs = 18° 20' 40.5"
Ls = 160.00'
LT = 105.60'
ST = 55.61'

PI Sta 6+38.82
Δ = 124° 51' 37.2" (LT)
D = 22° 55' 05.9"
L = 544.81
T = 478.82'
R = 250.00'
SE = .08

PIs Sta 7+58.57
θs = 18° 20' 04.3"
Ls = 160.00'
LT = 107.24'
ST = 53.86'

RAMP -D-

PI Sta 6+35.77
Δ = 24° 32' 11.4" (LT)
D = 3° 08' 53.2"
L = 779.40'
T = 395.77'
R = 1,820.00'
SE = .08

PIs Sta 10+99.43
θs = 3° 45' 39.5"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PIs Sta 13+92.86
θs = 7° 32' 20.1"
Ls = 200.00'
LT = 133.45'
ST = 66.78'

PI Sta 16+72.37
Δ = 57° 02' 15.0" (RT)
D = 7° 32' 20.1"
L = 756.58'
T = 412.58'
R = 760.00'
SE = .06

LOOP -D-

PIs Sta 1+07.24
θs = 18° 20' 04.3"
Ls = 160.00'
LT = 107.24'
ST = 53.86'

PI Sta 27+63.83
Δ = 165° 59' 21.8" (RT)
D = 22° 55' 05.9"
L = 737.36
T = 2,593.83'
R = 250.00'
SE = .06

PIs Sta 9+51.61
θs = 18° 20' 04.3"
Ls = 160.00'
LT = 107.24'
ST = 53.86'

-Y1-

PI Sta 24+03.61
Δ = 11° 46' 11.9" (RT)
D = 1° 00' 00.0"
L = 1,177.00'
T = 590.58'
R = 5,729.58'
SE = .02

PIs Sta 30+06.70
θs = 0° 15' 00.0"
Ls = 50.00'
LT = 33.33'
ST = 16.67'

-Y1T-

PI Sta 30+81.56
Δ = 30° 11' 26.5" (RT)
D = 3° 23' 25.0"
L = 890.51'
T = 455.85'
R = 1,690.00'
SE = .05
RO = 60'

-L-

PI Sta 362+42.83
Δ = 6° 49' 33.7" (LT)
D = 0° 45' 00.0"
L = 910.11'
T = 455.61'
R = 7,639.44'
SE = .03
RO = 100'

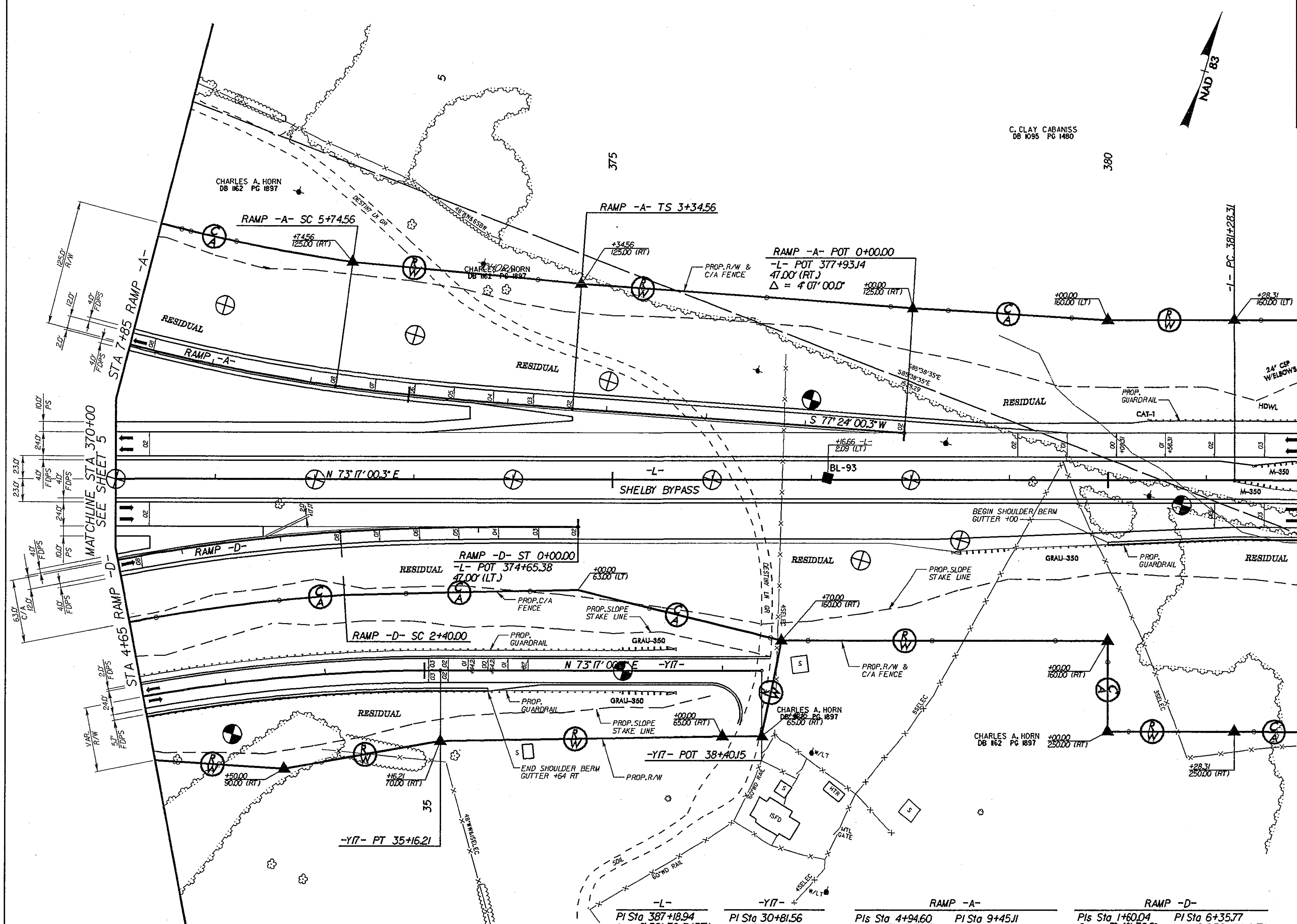
LOCATION:	INTERCHANGE AT -L- US 74 BYPASS AND -Y1- NC 226		
TIP NO.:	R-2707C	COUNTY:	CLEVELAND
DESIGNED BY:	T. HUFFMAN		
CHECKED BY:	T. REID	DATE:	5/29/02

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	6
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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.



-L-	-Y17-	RAMP -A-		RAMP -D-	
PI Sta 387+18.94	PI Sta 30+81.56	PIs Sta 4+94.60	PI Sta 9+45.11	PIs Sta 1+60.04	PI Sta 6+35.77
Δ = 8°50' 30.4" (RT)	Δ = 30°11' 26.3" (RT)	Θs = 3°46' 39.9"	Δ = 23°00' 57.7" (RT)	Θs = 3°46' 39.9"	Δ = 24°32' 11.4" (LT)
D = 0°45' 00.0"	D = 3°23' 25.0"	Ls = 240.00'	D = 3°08' 53.2"	Ls = 240.00'	D = 3°08' 53.2"
L = 1,178.90'	L = 890.51'	LT = 160.04'	L = 731.10'	LT = 160.04'	L = 779.40'
T = 590.62'	T = 455.85'	ST = 80.03'	T = 370.55'	ST = 80.03'	T = 395.77'
R = 7,639.44'	R = 1,690.00'		R = 1,820.00'		R = 1,820.00'
SE = .03	SE = .03		SE = .08		SE = .08
RO = 150'	RO = 60'		RO = 240'		RO = 240'

FOR -L- PROFILE SEE SHEET 48
FOR RAMP -A- PROFILE SEE SHEET 65
FOR RAMP -D- PROFILE SEE SHEET 66
FOR -Y17- PROFILE SEE SHEETS 94 & 95

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	7

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
T. R. REID	HENRY WELLS, JR.

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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.
215-A Jones Franklin Rd.
Raleigh, N.C. 27606

-L-
PI Sta 387+18.94
Δ = 8° 50′ 30.4″ (RT)
D = 0° 45′ 00.0″
L = 1,178.90′
T = 590.62′
R = 7,639.44′
SE = .03
RO = 150′

-Y2-
PI Sta 31+27.15
Δ = 96° 06′ 18.7″ (LT)
D = 6° 00′ 00.0″
L = 1,601.75
T = 1,062.52′
R = 954.93′
SE = .06
RO = 150′

HAZARDOUS SPILL BASIN No. 3, SEE DETAIL 26
TOTAL CAPACITY REQUIRED W/3.5′ DEPTH = 1,792 CY
TOTAL CAPACITY W/0.5′ FREEBOARD = 1,802 CY

SKETCH SHOWING BRIDGE RELATIVE TO PROPOSED PAVEMENT

FOR -L- PROFILE SEE SHEETS 48 & 49
FOR -Y2- PROFILE SEE SHEET 82

SKETCH SHOWING BRIDGE RELATIVE TO PROPOSED PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

INCOMPLETE PLANS
NOT TO BE USED FOR R/W ACQUISITION
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

T. E. REID — HENRY WELLS, JR.

MOFFATT & NICHOL ENGINEERS — SDG Sungate Design Group, P.A.

NAD 83

395

OLIVIA WITHROW
DB 1065 PG 243

S12°48'55"E 203.71

GARY ALSOBROOK
DB 1151 PG 2061

S79°02'50"E 126.76

N80°11'09"E 93.34

N40°38'55"E 136.43

FIRST BROAD RIVER

400

405

FRANK THOMAS HANNAH
DB 15C PG 170

+50.00 160.00 (LT)

+70.00 200.00 (LT)

+50.00 200.00 (LT)

+50.00 160.00 (LT)

EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC

TOE PROTECTION STA 402+50 TO 404+00 -L- LT, SEE DETAIL 5
EST _ SY FILTER FABRIC

EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
PLACE ON BANKS ONLY

BEGIN WW FENCE

TOE PROTECTION STA 405+00 TO 406+50 -L- LT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC

END WW FENCE

ALLUVIAL

OMAR MOLETTE
DB 1171 PG 150

PROP. SLOPE STAKE LINE

RESIDUAL

ROD AND LUG W/SLEEVE GASKET

BEGIN SHOULDER BERM GUTTER +50

CAT-1

PROP. GUARDRAIL

+85.45 -L- 23.73 (LT)

BL-99

-L- SHELBY BYPASS N 82° 07' 30.7" E

+49.35 -L- 38.46 (RT)

BL-98

+02.70 -L- 60.93 (RT)

BL-97

BEGIN SHOULDER BERM GUTTER +00

GRAU-350

INICE BROOKS
DB 13E PG 254

FRANK THOMAS HANNAH
DB 15C PG 170

+26.00 160.00 (LT)

TOE PROTECTION STA 403+50 TO 404+00 -L- RT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC

+00.00 270.00 (LT)

FRANK TOMS, JR.
DB 1269 PG 538

FRANCES LEDFORD
DB 18T PG 364

EXISTING R/W

MATCHLINE STA 394+00 SEE SHEET 7

MATCHLINE STA 406+00 SEE SHEET 9

VAR. R/W — 270.0' R/W — 160.0' R/W

10.0' PS — 24.0' — 23.0' — 40' FDPS — 23.0' — 24.0' — 9.7' PS

FOR -L- PROFILE SEE SHEETS 49 & 50

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	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

MOFFATT & NICHOL ENGINEERS — SDG Sungate Design Group, P.A.

NAD 83

FRANK THOMAS HANNAH
DB 15C PG 170

EST __ TONS CL I RIP RAP
EST __ SY FILTER FABRIC
PLACE ON BANKS ONLY

TOE PROTECTION STA 405+00 TO 406+50 -L- LT, SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC

TOE PROTECTION STA 413+50 TO 416+00 -L- LT, SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC

+40.00
180.00 (LT)

ALLUVIAL
RESIDUAL
PROP. GUARDRAIL
END SHOULDER BERM GUTTER +00 LT
PROP. SLOPE STAKE LINE
GRAU-350
BEGIN SHOULDER BERM GUTTER +00 LT
END SHOULDER BERM GUTTER +00 LT
CAT-1

+33.42 -L-
8.94 (RT)
+79.80 -L-
0.79 (LT)
+06.40 -L-
0.78 (RT)

BL-100
BL-101
BL-102

N 82° 07' 30.7" E
-L-
SHELBY BYPASS

END SHOULDER BERM GUTTER +50 RT

BEGIN WW FENCE
END WW FENCE

+00.00
180.00 (RT)

TOE PROTECTION STA 403+50 TO 407+00 -L- RT, SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC

+00.00
240.00 (RT)

+50.00
240.00 (RT)

+50.00
160.00 (RT)

PROP. R/W & C/A FENCE

SOIL

SEE SHEET 8 — MATCHLINE STA 406+00

SEE SHEET 10 — MATCHLINE STA 418+00

VAR. R/W — 160.0' R/W — 9.7' PS — 24.0' — 23.0' — 40' FDPS — 23.0' — 24.0' — 9.7' PS

VAR. R/W — 24.0' — 23.0' — 40' FDPS — 23.0' — 24.0' — 10.0' PS

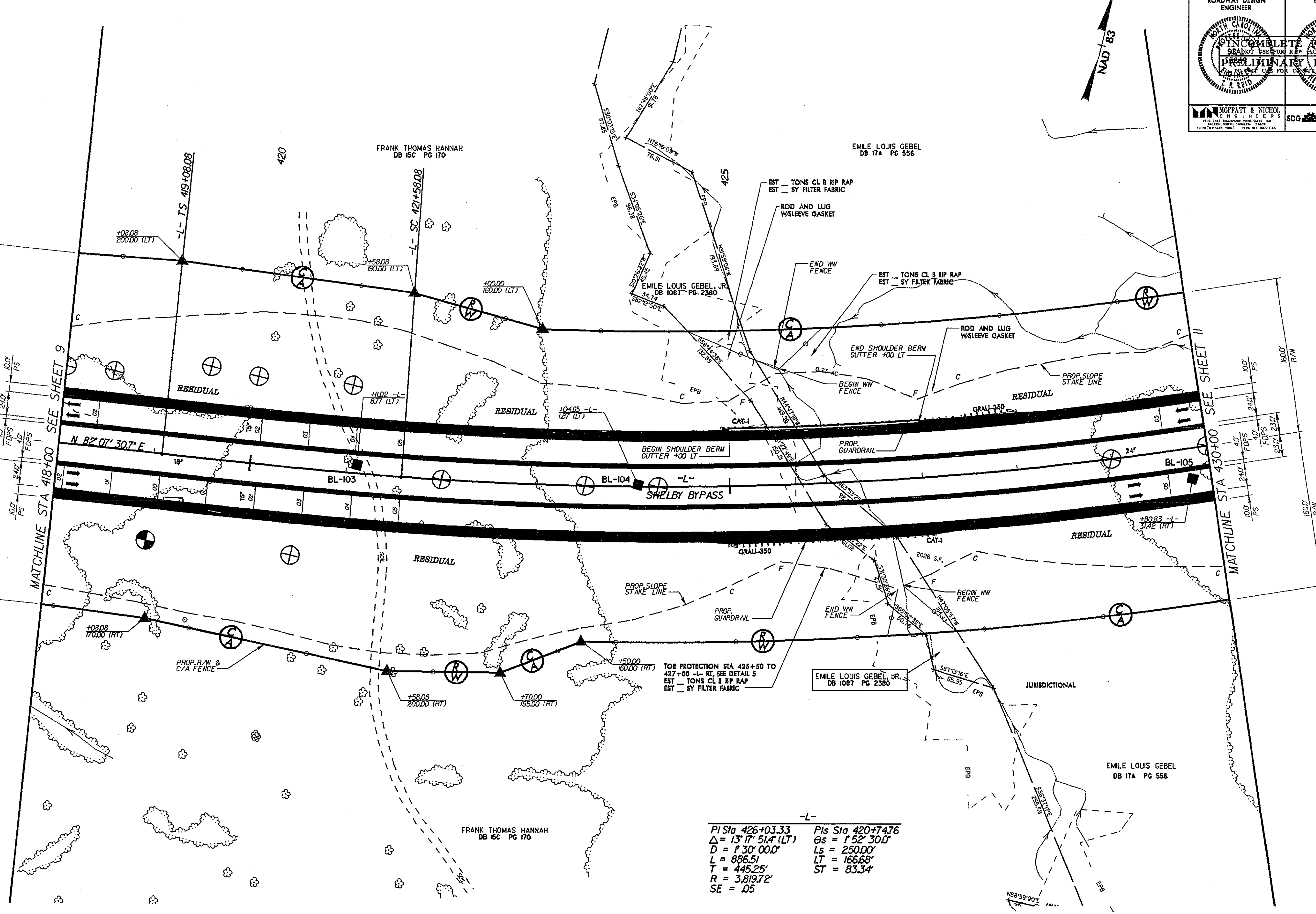
FOR -L- PROFILE SEE SHEETS 50 & 51

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	10
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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
FRANK THOMAS HANNAH
DB 15C PG 170
EMILE LOUIS GEBEL
DB 17A PG 556
-L- TS 419+08.08
-L- SC 421+58.08
+08.08
200.00 (LT)
+58.08
190.00 (LT)
+00.00
160.00 (LT)
EMILE LOUIS GEBEL, JR.
DB 1087 PG 2380
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
ROD AND LUG
W/SLEEVE GASKET
END WW FENCE
END SHOULDER BERM GUTTER +00 LT
BEGIN WW FENCE
PROP. SLOPE STAKE LINE
RESIDUAL
GRAU-350
CAT-1
BEGIN SHOULDER BERM GUTTER +00 LT
PROP. GUARDRAIL
+11.02 -L-
8.77 (LT)
+04.65 -L-
1.87 (LT)
N 82° 07' 30.7" E
BL-103
BL-104
BL-105
-L-
SHELBY BYPASS
MATCHLINE STA 418+00 SEE SHEET 9
MATCHLINE STA 430+00 SEE SHEET 11
+80.83 -L-
31.42 (RT)
2026 S.F.
+08.08
170.00 (RT)
PROP. R/W & C/A FENCE
+58.08
200.00 (RT)
+70.00
195.00 (RT)
+50.00
160.00 (RT)
TOE PROTECTION STA 425+50 TO 427+00 -L- RT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
JURISDICTIONAL
EMILE LOUIS GEBEL
DB 17A PG 556
FRANK THOMAS HANNAH
DB 15C PG 170
-L-
PI Sta 426+03.33
Δ = 13° 17' 51.4" (LT)
D = 1° 30' 00.0"
L = 886.51'
T = 445.25'
R = 3,819.72'
SE = .05
PIs Sta 420+74.76
θs = 1° 52' 30.0"
Ls = 250.00'
LT = 166.68'
ST = 83.34'

FOR -L- PROFILE SEE SHEETS 51 & 52

8/17/99

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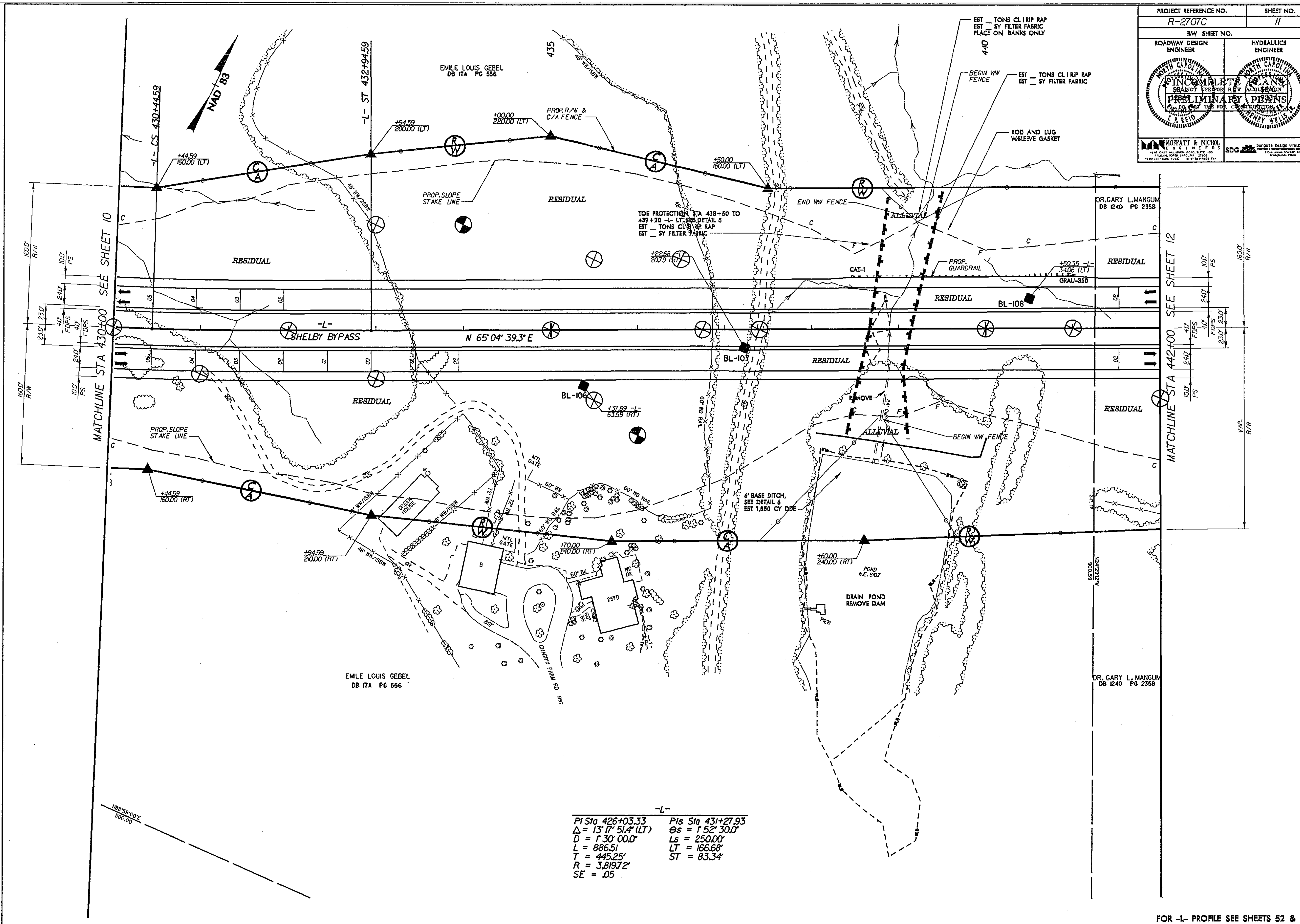
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

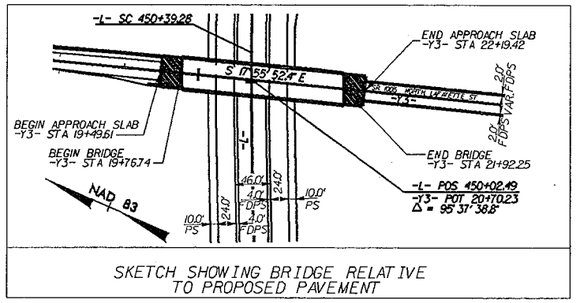


NAD 83
EMILE LOUIS GEBEL
DB 17A PG 556
-L- CS 430+44.59
-L- ST 432+94.59
435
440
+44.59
160.00' (LT)
+94.59
200.00' (LT)
+00.00
220.00' (LT)
PROP. R/W &
C/A FENCE
+50.00
160.00' (LT)
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
PLACE ON BANKS ONLY
BEGIN WW
FENCE
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
ROD AND LUG
W/SLEEVE GASKET
END WW FENCE
ALLUVIAL
DR. GARY L. MANGUM
DB 1240 PG 2358
PROP. SLOPE
STAKE LINE
RESIDUAL
TOE PROTECTION STA 438+50 TO
439+20 -L- LT SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
+22.68
20.79' (RT)
CAT-1
PROP.
GUARDRAIL
+50.35 -L-
34.05' (LT)
GRAU-350
BL-108
MATCHLINE STA 430+00 SEE SHEET 10
MATCHLINE STA 442+00 SEE SHEET 12
-L-
SHELBY BYPASS
N 65° 04' 39.3" E
BL-107
BL-106
+37.69 -L-
63.59' (RT)
REMOVE
BEGIN WW FENCE
GREEN HOUSE
MTL GATE
+44.59
160.00' (RT)
+94.59
210.00' (RT)
+70.00
240.00' (RT)
6' BASE DITCH,
SEE DETAIL 6
EST 1,850 CY DDE
+60.00
240.00' (RT)
POND
W.E. 810.7'
DRAIN POND
REMOVE DAM
PIER
2SFD
CHAGRIN FARM RD BST
DR. GARY L. MANGUM
DB 1240 PG 2358
EMILE LOUIS GEBEL
DB 17A PG 556
N88°59'00"E
500.00'

-L-

PI Sta 426+03.33	PIs Sta 431+27.93
Δ = 13° 17' 51.4" (LT)	θs = 1° 52' 30.0"
D = 1° 30' 00.0"	Ls = 250.00'
L = 886.51	LT = 166.68'
T = 445.25'	ST = 83.34'
R = 3,819.72'	
SE = .05	

FOR -L- PROFILE SEE SHEETS 52 & 53



PROJECT REFERENCE NO.	SHEET NO.
R-2707C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
T. R. REID	HENRY WELLS, JR.
MOFFATT & NICHOL ENGINEERS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4869 FAX	SDG Sungate Design Group, P.A. 215-A Jones Franklin Rd. Raleigh, N.C. 27606

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

-Y3-

Pls Sta 17+44.68
θs = 2° 30' 00.0"
Ls = 150.00'
LT = 100.01'
ST = 50.01'

Pls Sta 25+12.36
θs = 1° 52' 30.0"
Ls = 125.00'
LT = 83.34'
ST = 41.67'

-L-

Pls Sta 449+55.95
θs = 1° 52' 30.0"
Ls = 250.00'
LT = 166.68'
ST = 83.34'

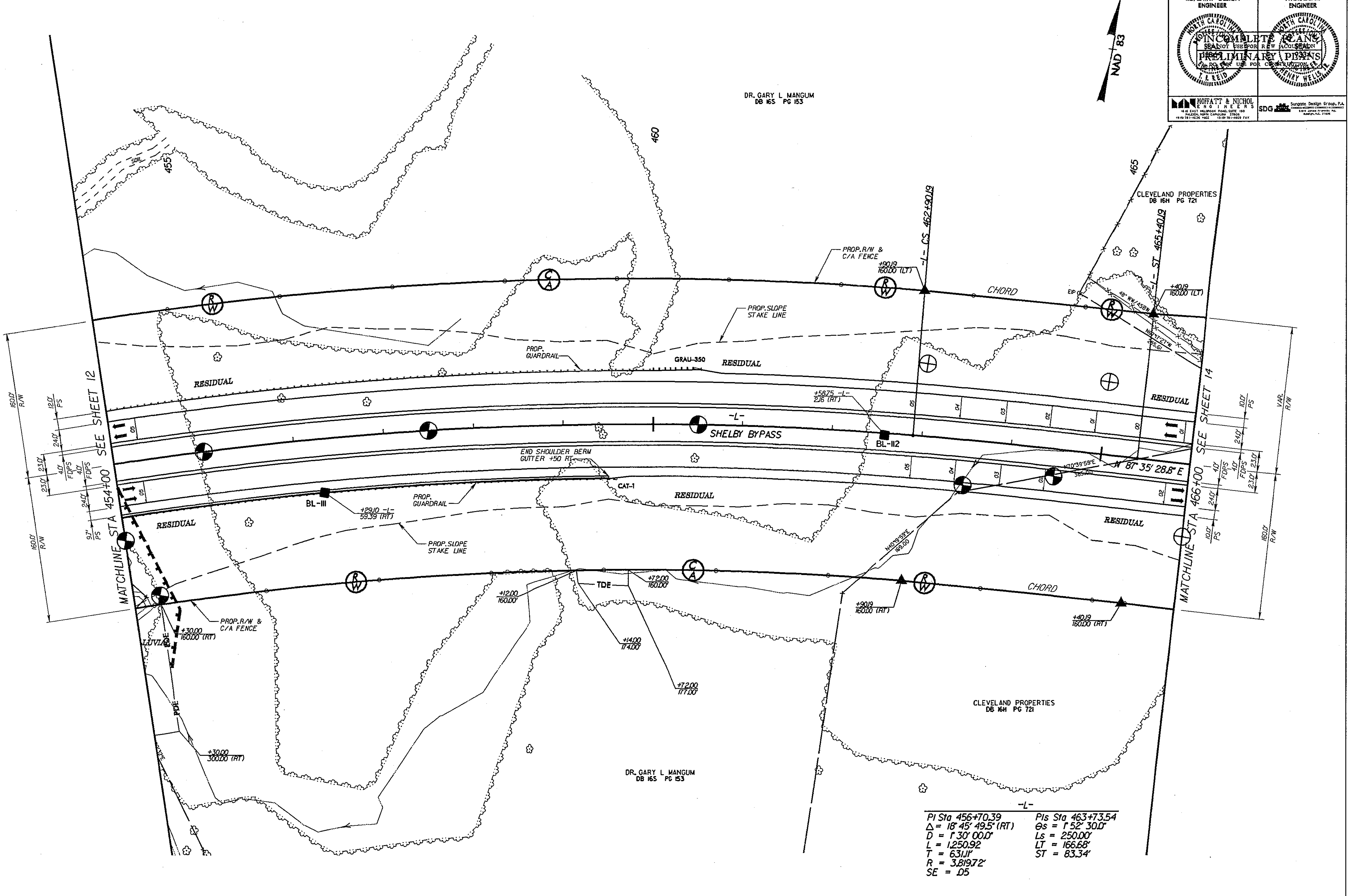
PI Sta 456+70.39
Δ = 18° 45' 49.5" (RT)
D = 1° 30' 00.0"
L = 1,250.92
T = 631.11'
R = 3,819.72'
SE = .05

FOR -L- PROFILE SEE SHEETS 53 & 54
FOR -Y3- PROFILE SEE SHEET 82

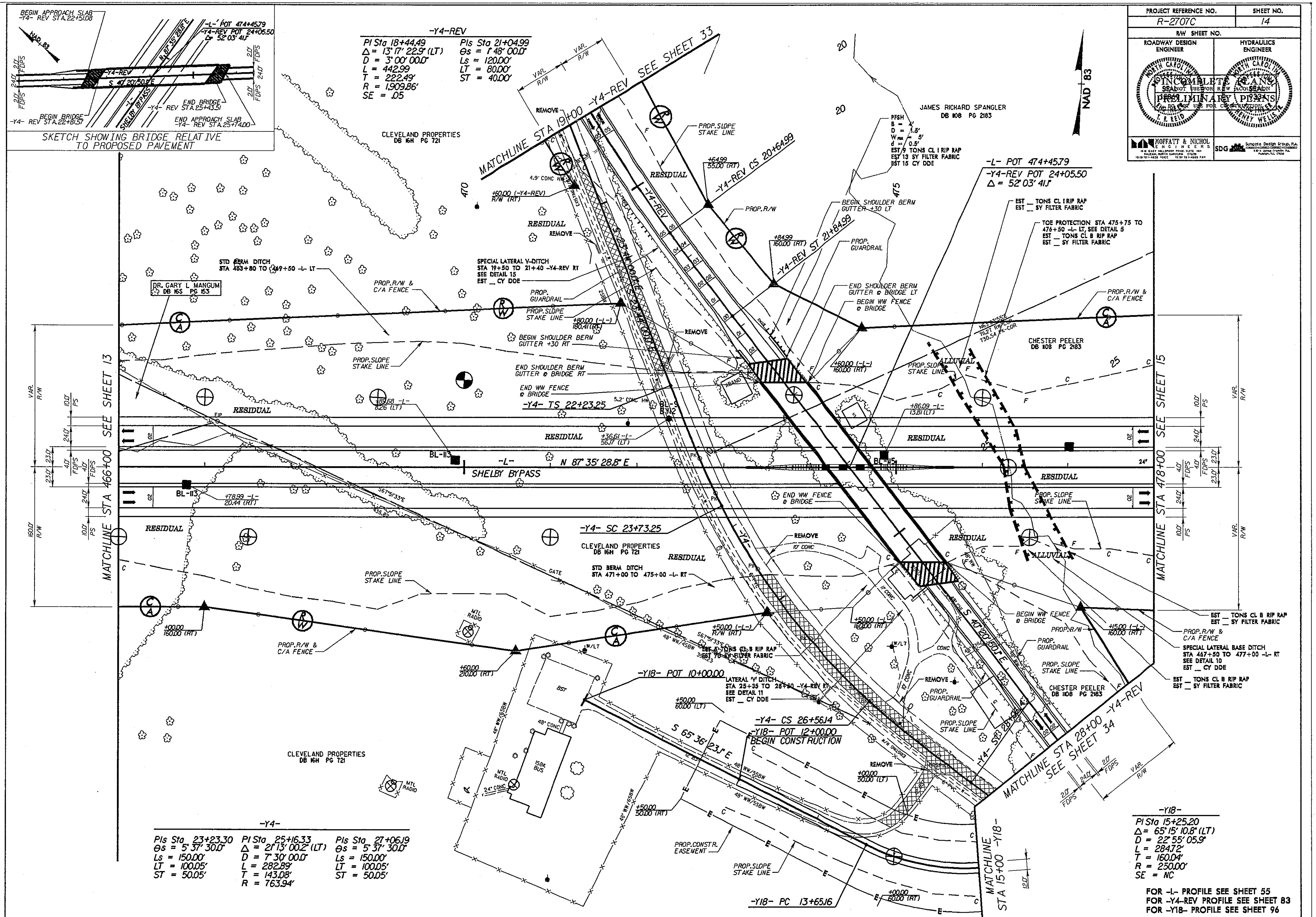
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.


NAD 83
DR. GARY L MANGUM
DB 165 PG 153
CLEVELAND PROPERTIES
DB 16H PG 721
-L- CS 462+90.19
-L- ST 465+40.19
PROP. R/W & C/A FENCE
+90.19
160.00' (LT)
+40.19
160.00' (LT)
CHORD
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
GRAU-350
RESIDUAL
+58.75 -L-
2.16 (RT)
-L-
SHELBY BYPASS
BL-112
BL-111
+29.10 -L-
59.39 (RT)
END SHOULDER BERM GUTTER +50 RT
CAT-1
N 87° 35' 28.8" E
SEE SHEET 12
SEE SHEET 14
MATCHLINE STA 454+00
MATCHLINE STA 466+00
TDE
PDE
+12.00
160.00'
+72.00
160.00'
+14.00
174.00'
+72.00
177.00'
+30.00
160.00' (RT)
+30.00
300.00 (RT)
+90.19
160.00 (RT)
+40.19
160.00 (RT)
455
460
465
-L-
PI Sta 456+70.39
Δ = 18° 45' 49.5" (RT)
D = 1° 30' 00.0"
L = 1,250.92
T = 631.11'
R = 3,819.72'
SE = .05
PIs Sta 463+73.54
θs = 1° 52' 30.0"
Ls = 250.00'
LT = 166.68'
ST = 83.34'

FOR -L- PROFILE SEE SHEETS 54 & 55



PROJECT REFERENCE NO. SHEET NO.
R-2707C 14
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.
SKETCH SHOWING BRIDGE RELATIVE TO PROPOSED PAVEMENT
BEGIN APPROACH SLAB -Y4- REV STA 22+51.08
-L- POT 474+45.79
-Y4-REV POT 24+05.50
Δ= 52° 03' 41.1"
BEGIN BRIDGE -Y4- REV STA 22+81.57
-Y4- REV STA 25+43.51
END BRIDGE
END APPROACH SLAB -Y4- REV STA 25+74.00
SHELBY BYPASS
-Y4-REV
PI Sta 18+44.49
Δ = 13° 17' 22.9" (LT)
D = 3° 00' 00.0"
L = 442.99
T = 222.49'
R = 1,909.86'
SE = .05
PIs Sta 21+04.99
θs = 1° 48' 00.0"
Ls = 120.00'
LT = 80.00'
ST = 40.00'
MATCHLINE STA 19+00 -Y4-REV SEE SHEET 33
JAMES RICHARD SPANGLER DB 1108 PG 2183
CLEVELAND PROPERTIES DB 16H PG 721
DR. GARY L MANGUM DB 16S PG 153
CHESTER PEELER DB 1108 PG 2183
NAD 83
-Y4-REV CS 20+64.99
-Y4-REV ST 21+84.99
-L- POT 474+45.79
-Y4-REV POT 24+05.50
Δ = 52° 03' 41.1"
-Y4- TS 22+23.25
-Y4- SC 23+73.25
-Y4- CS 26+56.14
-Y18- POT 10+00.00
-Y18- POT 12+00.00 BEGIN CONSTRUCTION
-Y18- PC 13+65.16
-L- N 87° 35' 28.8" E
SHELBY BYPASS
S 65° 36' 23" E
MATCHLINE STA 466+00 SEE SHEET 13
MATCHLINE STA 478+00 SEE SHEET 15
MATCHLINE STA 28+00 -Y4-REV SEE SHEET 34
MATCHLINE STA 15+00 -Y18-
STD BERM DITCH STA 463+80 TO 469+50 -L- LT
STD BERM DITCH STA 471+00 TO 475+00 -L- RT
SPECIAL LATERAL V-DITCH STA 19+50 TO 21+40 -Y4-REV RT SEE DETAIL 15 EST _ CY DDE
TOE PROTECTION STA 475+75 TO 476+50 -L- LT, SEE DETAIL 5 EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC
SPECIAL LATERAL BASE DITCH STA 467+50 TO 477+00 -L- RT SEE DETAIL 10 EST _ CY DDE
LATERAL "V" DITCH STA 25+35 TO 28+50 -Y4-REV RT SEE DETAIL 11 EST _ CY DDE
PROP. R/W & C/A FENCE
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
RESIDUAL
ALLUVIAL
REMOVE
-Y4-
PIs Sta 23+23.30
θs = 5° 37' 30.0"
Ls = 150.00'
LT = 100.05'
ST = 50.05'
PI Sta 25+16.33
Δ = 21° 13' 00.2" (LT)
D = 7° 30' 00.0"
L = 282.89'
T = 143.08'
R = 763.94'
PIs Sta 27+06.19
θs = 5° 37' 30.0"
Ls = 150.00'
LT = 100.05'
ST = 50.05'
-Y18-
PI Sta 15+25.20
Δ = 65° 15' 10.8" (LT)
D = 22° 55' 05.9"
L = 284.72'
T = 160.04'
R = 250.00'
SE = NC
FOR -L- PROFILE SEE SHEET 55
FOR -Y4-REV PROFILE SEE SHEET 83
FOR -Y18- PROFILE SEE SHEET 96

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR ROW ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.

NAD 83

JAMES RICHARD SPANGLER
DB 1108 PG 2183

JOE HAMRICK
DB 90E PG 556

CHESTER PEELER
DB 1108 PG 2183

480

485

+80.00
200.00 (RT)

PROP. R/W &
C/A FENCE

PROP. SLOPE
STAKE LINE

PROP. GUARDRAIL

TOE PROTECTION STA 488+50 TO
493+00 -L- LT, SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC

SEE SHEET 14

SEE SHEET 16

VAR. R/W

10.0' PS

24.0'

23.0'

40' FDPS

RESIDUAL

+87.44 -L-
36.22 (LT)

BL-116

+36.71 -L-
80.11 (LT)

BL-117

N 87° 35' 28.8" E

SHELBY BYPASS

-L-

CAT-1

BEGIN SHOULDER BERM
GUTTER +00 LT

BEGIN SHOULDER BERM
GUTTER +00 RT

GRAU-350

MATCHLINE STA 478+00

MATCHLINE STA 490+00

9.7' PS

SPECIAL 2' LATERAL BASE DITCH
STA 487+50 TO 488+50 -L- RT
SEE DETAIL 9
EST __ CY DDE

+70.00
190.00 (RT)

STD BERM DITCH LINED W/CL B RIP RAP
STA 484+00 TO 487+50 -L- RT, SEE DETAIL 1
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
EST __ CY DDE

EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC

2' LATERAL BASE DITCH LINED W/CL B RIP RAP
STA 488+50 TO 490+10 -L- RT, SEE DETAIL 7
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
EST __ CY DDE

JOE HAMRICK
DB 90E PG 556

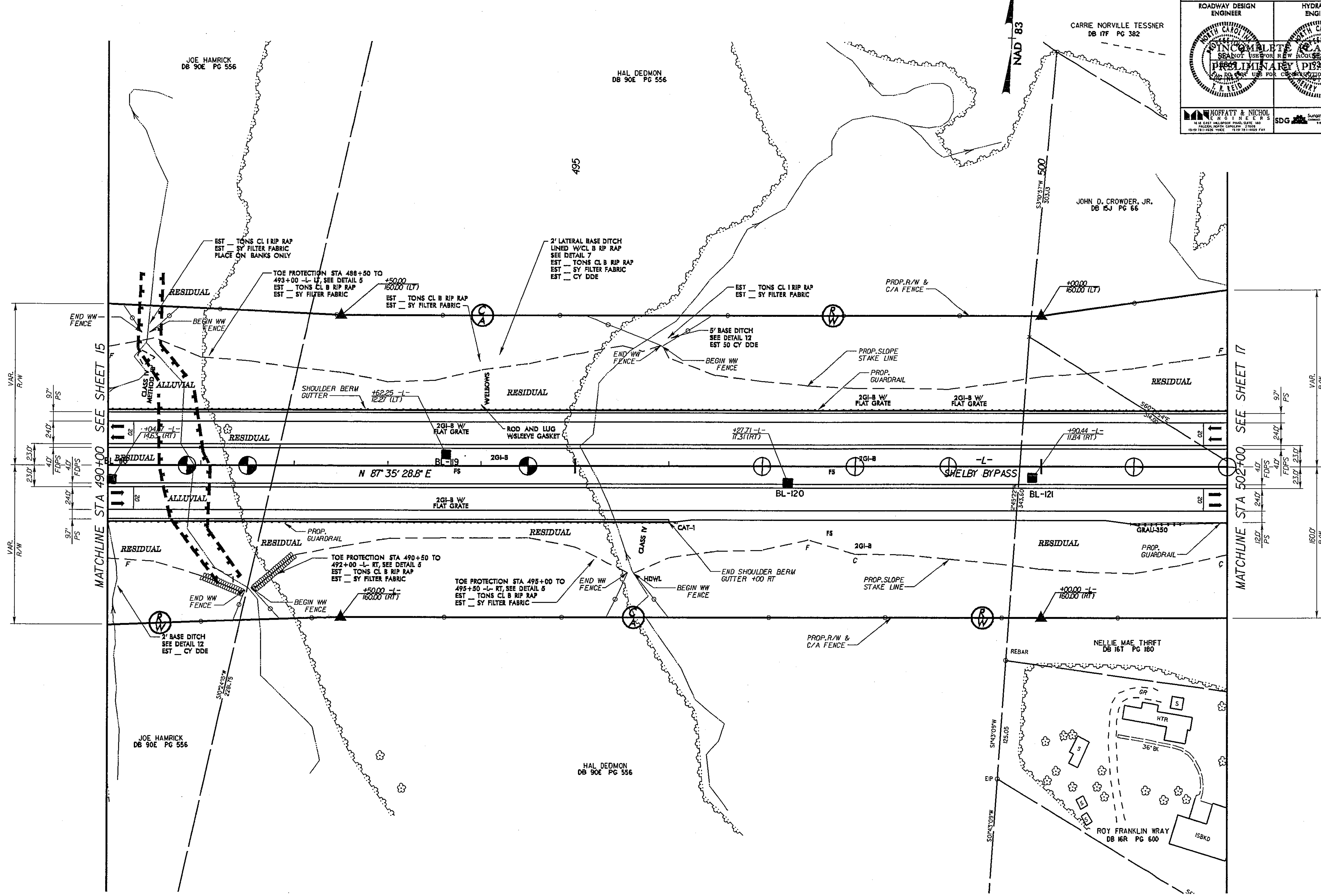
FOR -L- PROFILE SEE SHEET 56

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	16
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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
JOE HAMRICK
DB 90E PG 556
HAL DEDMON
DB 90E PG 556
CARRIE NORVILLE TESSNER
DB 17F PG 382
JOHN D. CROWDER, JR.
DB 15J PG 66
NELLIE MAE THRIFT
DB 16T PG 180
ROY FRANKLIN WRAY
DB 16R PG 600
495
500
MATCHLINE STA 490+00 SEE SHEET 15
MATCHLINE STA 502+00 SEE SHEET 17
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
PLACE ON BANKS ONLY
TOE PROTECTION STA 488+50 TO 493+00 -L- LT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
2' LATERAL BASE DITCH LINED W/CL B RIP RAP
SEE DETAIL 7
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST _ CY DDE
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
5' BASE DITCH
SEE DETAIL 12
EST 50 CY DDE
PROP. R/W & C/A FENCE
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
SHOULDER BERM GUTTER
ROD AND LUG W/SLEEVE GASKET
RESIDUAL
ALLUVIAL
END WW FENCE
BEGIN WW FENCE
2GI-B W/ FLAT GRATE
2GI-B
N 87° 35' 28.8" E
-L-
SHELBY BYPASS
BL-119
BL-120
BL-121
CAT-1
GRAU-350
HDWL
END SHOULDER BERM GUTTER +00 RT
TOE PROTECTION STA 490+50 TO 492+00 -L- RT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
TOE PROTECTION STA 495+00 TO 495+50 -L- RT, SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
2' BASE DITCH
SEE DETAIL 12
EST _ CY DDE
+50.00 160.00 (LT)
+00.00 160.00 (LT)
+50.00 -L- 160.00 (RT)
+00.00 -L- 160.00 (RT)
+62.25 -L- 12.27 (LT)
+27.71 -L- 11.31 (RT)
+90.44 -L- 11.84 (RT)
REBAR
EIP
CLASS IV
VAR. R/W
160.0' R/W

FOR -L- PROFILE SEE SHEETS 56 & 57

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

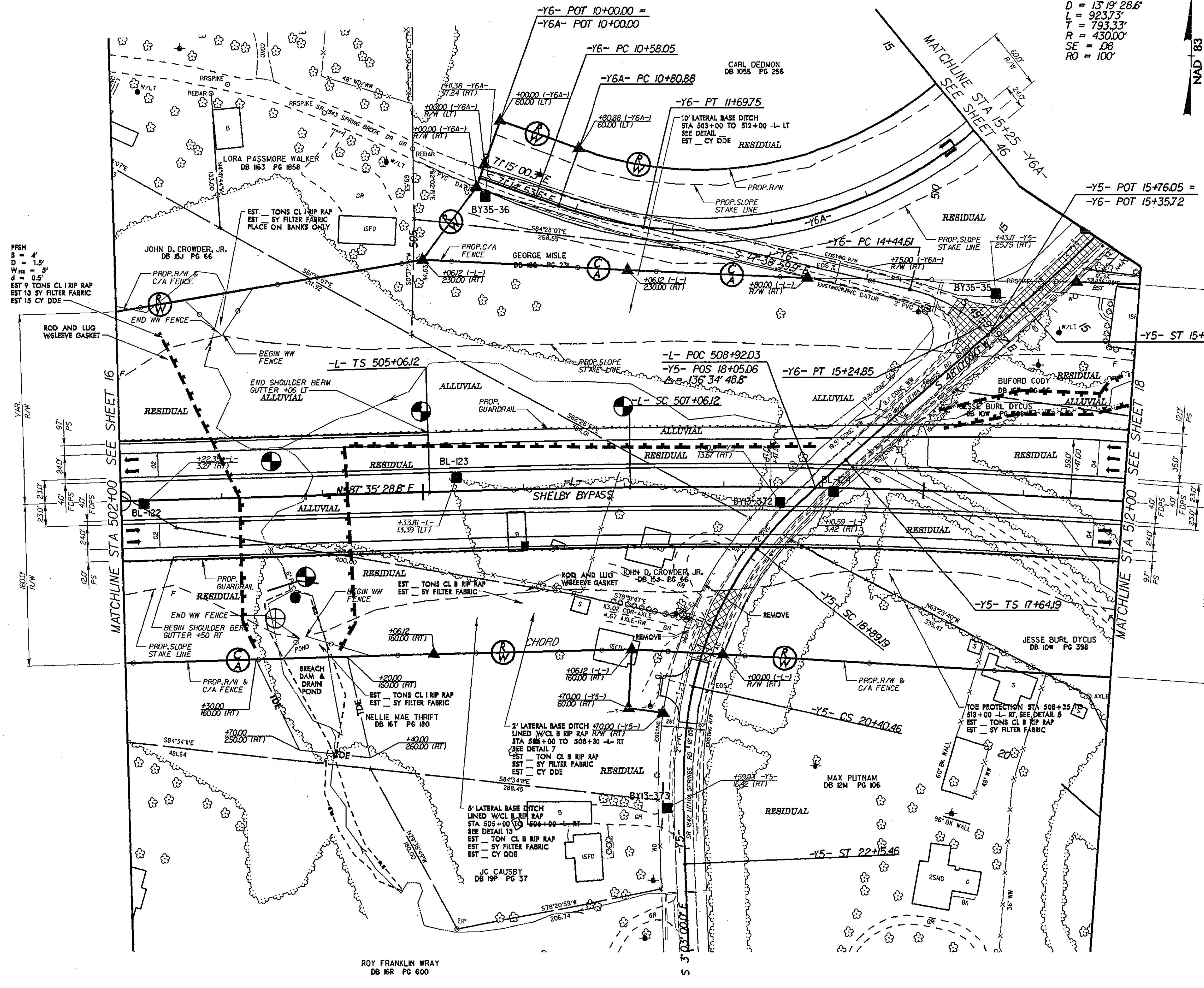
MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

NAD 83

-Y6A-

PI Sta 18+74.21
Δ = 123° 04' 59.2" (LT)
D = 13° 19' 28.6"
L = 923.73'
T = 793.33'
R = 430.00'
SE = .06
RO = 100'



-L-

PIs Sta 506+39.45	PI Sta 520+51.16
Θs = 1° 00' 00.0"	Δ = 26° 25' 21.1" (RT)
Ls = 200.00'	D = 1° 00' 00.0"
LT = 133.34'	L = 2,642.25
ST = 66.67'	T = 1,345.05'
	R = 5,729.58'
	SE = .04

-Y5-

PIs Sta 13+96.72	PI Sta 14+85.71
Θs = 21° 30' 00.0"	Δ = 30° 39' 00.8" (RT)
Ls = 200.00'	D = 38° 11' 49.9"
LT = 134.33'	L = 80.24'
ST = 67.57'	T = 41.11'
	R = 150.00'

PIs Sta 18+47.67	PI Sta 19+66.12
Θs = 10° 37' 30.0"	Δ = 25° 43' 00.0" (LT)
Ls = 125.00'	D = 17° 00' 00.0"
LT = 83.48'	L = 151.27
ST = 41.80'	T = 76.93'
	R = 337.03'

PIs Sta 20+99.17
Θs = 14° 52' 30.0"
Ls = 175.00'
LT = 117.08'
ST = 58.71'

-Y6-

PI Sta 11+13.95	PI Sta 14+85.71
Δ = 6° 23' 59.7" (LT)	Δ = 30° 39' 00.8" (RT)
D = 5° 43' 46.5"	D = 38° 11' 49.9"
L = 111.70'	L = 80.24'
T = 55.91'	T = 41.11'
R = 1,000.00'	R = 150.00'

FOR -L- PROFILE SEE SHEETS 57 & 58
FOR -Y6A- PROFILE SEE SHEET 84

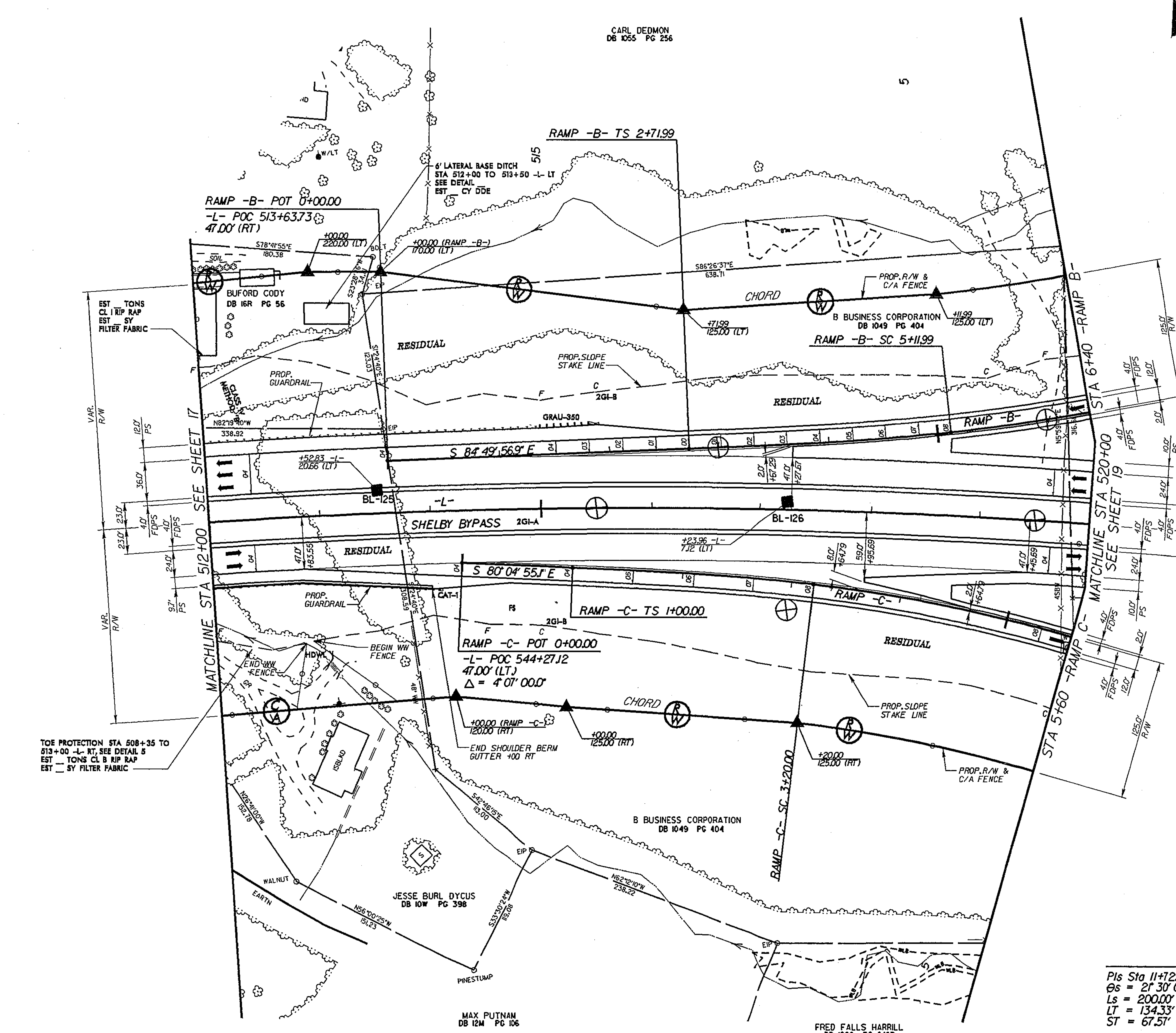
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

NAD 83



CARL DEDMON
DB 1055 PG 256
RAMP -B- TS 2+71.99
6' LATERAL BASE DITCH
STA 512+00 TO 513+50 -L- LT
SEE DETAIL
EST __ CY DDE
RAMP -B- POT 0+00.00
-L- POC 513+63.73
47.00' (RT)
BUFORD CODY
DB 16R PG 56
EST __ TONS
CL I RIP RAP
EST __ SY
FILTER FABRIC
RESIDUAL
PROP.SLOPE
STAKE LINE
PROP.
GUARDRAIL
CHORD
PROP.R/W &
C/A FENCE
B BUSINESS CORPORATION
DB 1049 PG 404
RAMP -B- SC 5+11.99
RAMP -B-
S 84° 49' 56.9" E
STA 6+40 -RAMP B-
MATCHLINE STA 520+00
SEE SHEET 19
MATCHLINE STA 512+00 SEE SHEET 17
BL-125
BL-126
-L-
SHELBY BYPASS
S 80° 04' 55.1" E
RAMP -C- TS 1+00.00
RAMP -C-
RAMP -C- POT 0+00.00
-L- POC 544+27.12
47.00' (LT)
△ = 4° 07' 00.0"
BEGIN WW FENCE
END WW FENCE
END SHOULDER BERM GUTTER +00 RT
TOE PROTECTION STA 508+35 TO 513+00 -L- RT, SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
RAMP -C- SC 3+20.00
STA 5+60 -RAMP C-
JESSE BURL DYCUS
DB 10W PG 398
MAX PUTNAM
DB 12M PG 106
FRED FALLS HARRILL
DB 1202 PG 2467

-L-

PI Sta 520+51.16
△ = 26° 25' 21.5" (RT)
D = 1° 00' 00.0"
L = 2,642.25
T = 1,345.05'
R = 5,729.58'
SE = .04

RAMP -B-

PIs Sta 4+32.03	PI Sta 7+59.93
θs = 3° 46' 39.9"	△ = 15° 30' 56.3" (LT)
Ls = 240.00'	D = 3° 08' 53.2"
LT = 160.04'	L = 492.85'
ST = 80.03'	T = 247.94'
	R = 1,820.00'
	SE = .08

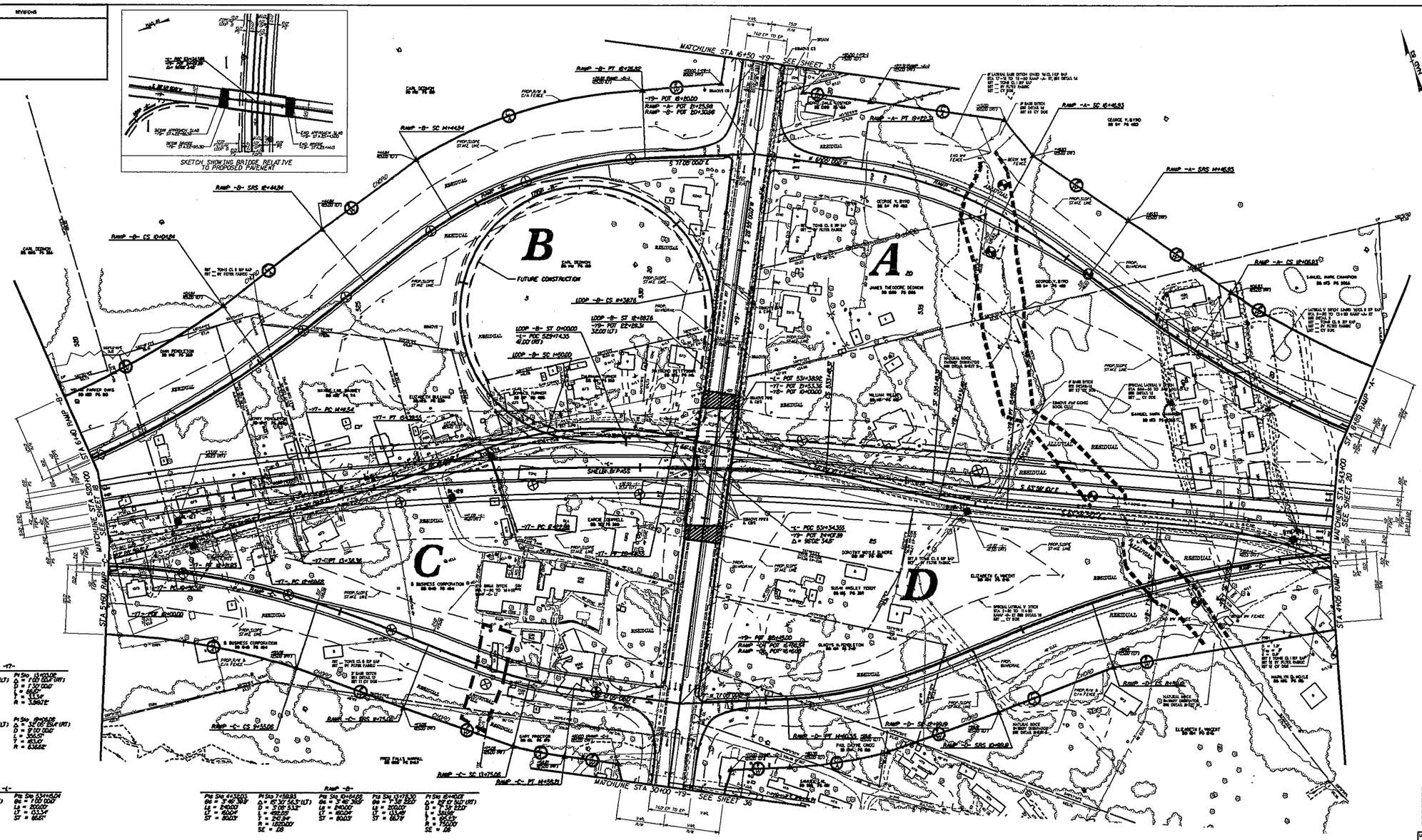
RAMP -C-

PIs Sta 2+46.71	PI Sta 6+42.46
θs = 4° 14' 38.9"	△ = 24° 30' 08.9" (RT)
Ls = 220.00'	D = 3° 51' 29.9"
LT = 146.71'	L = 635.06'
ST = 73.37'	T = 322.46'
	R = 1,485.00'
	SE = .08

-Y5-

PIs Sta 11+72.78	PI Sta 12+84.24	PIs Sta 13+96.72
θs = 2° 30' 00.0"	△ = 19° 29' 59.5" (RT)	θs = 2° 30' 00.0"
Ls = 200.00'	D = 2° 30' 00.0"	Ls = 200.00'
LT = 134.33'	L = 90.70	LT = 134.33'
ST = 67.51'	T = 45.79'	ST = 67.57'
	R = 266.49'	

FOR -L- PROFILE SEE SHEETS 58 & 59
FOR RAMP -B- PROFILE SEE SHEET 69
FOR RAMP -C- PROFILE SEE SHEET 70
FOR -Y6A- PROFILE SEE SHEET 84



PROJECT REFERENCE NO.	SHEET NO.
R-2707C	19

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

PRELIMINARY PLANS

MOFFATT & NICHOL ENGINEERS

REVISIONS

-Y7-

PI Sta 11+39.27
Δ = 2°04'00.4" (LT)
D = 1°15'00.0"
L = 165.34'
T = 82.68'
R = 4,583.66'

PI Sta 13+03.02
Δ = 1°00'00.4" (RT)
D = 1°30'00.0"
L = 66.67'
T = 33.34'
R = 3,819.72'

PI Sta 14+75.58
Δ = 4°48'00.0" (LT)
D = 3°45'00.0"
L = 128.00'
T = 64.04'
R = 1,527.89'

PI Sta 19+06.08
Δ = 32°05'25.4" (RT)
D = 9°00'00.0"
L = 356.57'
T = 183.07'
R = 636.62'

-L-

PI Sta 580+51.16
Δ = 26°25'21.1" (RT)
D = 1°00'00.0"
L = 2,642.25'
T = 1,345.05'
R = 5,729.58'
SE = .04

PIs Sta 634+15.04
θs = 1°00'00.0"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

RAMP -A-

PI Sta 6+93.91
Δ = 19°54'27.5" (RT)
D = 3°08'53.2"
L = 632.36'
T = 319.40'
R = 1,820.00'
SE = .08

PIs Sta 12+85.96
θs = 3°46'39.9"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PIs Sta 15+80.39
θs = 7°38'22.0"
Ls = 200.00'
LT = 133.46'
ST = 66.78'

PI Sta 17+86.19
Δ = 21°02'14.9" (LT)
D = 7°38'22.0"
L = 275.38'
T = 139.26'
R = 750.00'
SE = .06

RAMP -B-

PIs Sta 4+32.03
θs = 3°46'39.9"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PI Sta 7+59.95
Δ = 15°30'56.5" (LT)
D = 3°08'53.2"
L = 492.55'
T = 247.94'
R = 1,820.00'
SE = .08

PIs Sta 10+84.88
θs = 3°46'39.9"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PIs Sta 13+78.30
θs = 7°38'22.0"
Ls = 200.00'
LT = 133.48'
ST = 66.78'

PI Sta 16+40.07
Δ = 29°17'54.0" (RT)
D = 7°38'22.0"
L = 383.96'
T = 195.93'
R = 750.00'
SE = .06

RAMP -C-

PI Sta 6+42.45
Δ = 24°30'08.9" (RT)
D = 3°51'29.9"
L = 635.06'
T = 322.46'
R = 1,485.00'
SE = .06

PIs Sta 10+28.43
θs = 4°14'35.9"
Ls = 220.00'
LT = 146.71'
ST = 73.37'

PIs Sta 13+08.58
θs = 7°38'22.0"
Ls = 200.00'
LT = 133.46'
ST = 66.78'

PI Sta 14+16.68
Δ = 6°21'09.6" (LT)
D = 7°38'22.0"
L = 83.16'
T = 41.62'
R = 750.00'
SE = .06

RAMP -D-

PI Sta 5+52.62
Δ = 19°29'34.8" (LT)
D = 3°08'53.2"
L = 619.11'
T = 312.62'
R = 1,820.00'
SE = .08

PIs Sta 9+39.23
θs = 3°46'39.9"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PIs Sta 12+32.65
θs = 7°38'22.0"
Ls = 200.00'
LT = 133.46'
ST = 66.78'

PI Sta 13+80.09
Δ = 12°16'42.5" (RT)
D = 7°38'22.0"
L = 160.61'
T = 80.19'
R = 750.00'
SE = .06

FUTURE LOOP -B-

PIs Sta 1+00.54
θs = 18°17'09.2"
Ls = 150.00'
LT = 100.54'
ST = 50.49'

PI Sta 5+46.38
Δ = 240°04'16.5" (RT)
D = 24°22'52.3"
L = 986.76'
T = 396.38'
R = 235.00'
SE = .06

PIs Sta 11+89.25
θs = 18°17'09.2"
Ls = 150.00'
LT = 100.54'
ST = 50.49'

-Y9-

PIs Sta 31+11.21
θs = 1°48'00.0"
Ls = 180.00'
LT = 120.00'
ST = 60.01'

-Y8-

PI Sta 14+94.88
Δ = 8°25'26.2" (LT)
D = 6°40'00.0"
L = 126.60'
T = 63.42'
R = 859.44'

-Y8-

PIs Sta 19+43.63
θs = 5°45'00.0"
Ls = 150.00'
LT = 100.05'
ST = 50.05'

PI Sta 21+71.51
Δ = 26°47'34.0" (RT)
D = 7°40'00.0"
L = 349.47'
T = 177.99'
R = 747.34'

TRAFFIC DIAGRAM

FOR -L- PROFILE SEE SHEET 59
FOR -Y9- PROFILE SEE SHEET 87
FOR RAMP -A- PROFILE SEE SHEET 68
FOR RAMP -B- PROFILE SEE SHEET 69
FOR RAMP -C- PROFILE SEE SHEET 70
FOR RAMP -D- PROFILE SEE SHEET 71
FOR LOOP -B- PROFILE SEE SHEET 72

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: INTERCHANGE AT
-L- US 74 BYPASS
AND -Y9- NC 18

TIP NO.: R-2707C
COUNTY: CLEVELAND
DESIGNED BY: T. HUFFMAN
CHECKED BY: T. REID
DATE: 5/19/02

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	20
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

MOFFATT & NICHOL ENGINEERS — SDG

NAD 83

GEORGE V. BYRD DB 5V PG 493

MARION ROGERS DB 9K PG 544 PB 8 PG 47

BOBBY HULL DB 1166 PG 2049

TOMMY WAYNE COSTNER DB 1248 PG 0710

RAMP -A- SC 5+74.56

RAMP -A- TS 3+34.56

CHORD

LATERAL V-DITCH LINED W/CL B RIP RAP
STA 5+97 TO 8+30 RAMP -A- RT, SEE DETAIL 2
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
EST __ CY DDE

RAMP -A- POT 0+00.00
-L- POT 551+87.42
47.00' (RT)
Δ = 4° 07' 00.0"

-L- PC 554+11.59

6' BASE DITCH SEE DETAIL EST __ CY DDE

PROP. R/W

PROP. R/W & C/A FENCE

PROP. GUARDRAIL

PROP. SLOPE STAKE LINE

BEGIN SHOULDER BERM GUTTER +40 RAMP -A- RT

END SHOULDER BERM GUTTER +91 -L- LT

END WW FENCE @ WINGWALL

BEGIN WW FENCE @ WINGWALL

HENRY B. EDWARDS, JR. DB 1132 PG 827

SAMUEL MARK CHAMPION DB 873 PG 2256

MATCHLINE STA 543+00 SEE SHEET 19

MATCHLINE STA 555+00 SEE SHEET 21

STA 8+85 -RAMP A-

STA 4+05 RAMP -D-

-L-

SHELBY BYPASS

S 63° 59' 10.1" E

N 59° 52' 40.1" W

S 25° 38' 18.7" E

BL-129

BL-130

BL-131

ALLUVIAL

RESIDUAL

EST __ TONS CL I RIP RAP
EST __ SY FILTER FABRIC

PFSH
B = 4'
D = 1.5'
W_RR = 5'
d = 0.5'
EST 9 TONS CL I RIP RAP
EST 13 SY FILTER FABRIC
EST 15 CY DDE

6' BASE DITCH W/CL I RIP RAP
SEE DETAIL
EST __ TONS CL I RIP RAP
EST __ SY FILTER FABRIC
EST 420 CY DDE

ROD AND LUG W/SLEEVE GASKET

RETAIN

RAMP -D- SC 2+40.00

RAMP -D- ST 0+00.00
-L- POT 547+05.16
47.00' (LT)

-Y8- ST 24+93.05

MARILYN D. HOYLE DB 1166 PG 175

MARVIN GLENN QUEEN DB 992 PG 289

-L-	RAMP -A-		RAMP -D-		-Y8-	
PI Sta 563+32.45	PIs Sta 4+94.60	PI Sta 8+93.97	PIs Sta 1+60.04	PI Sta 5+52.62	PI Sta 21+71.57	PIs Sta 23+93.09
Δ = 13° 44' 47.7" (RT)	Θs = 3° 46' 39.9"	Δ = 19° 54' 27.3" (RT)	Θs = 3° 46' 39.9"	Δ = 19° 29' 34.6" (LT)	Δ = 26° 47' 34.0" (RT)	Θs = 5° 45' 00.0"
D = 0° 45' 00.0"	Ls = 240.00'	D = 3° 08' 53.2"	Ls = 240.00'	D = 3° 08' 53.2"	D = 7° 40' 00.0"	Ls = 150.00'
L = 1,832.88'	LT = 160.04'	L = 632.36'	LT = 160.04'	L = 619.19'	L = 349.47'	LT = 100.05'
T = 920.86'	ST = 80.03'	T = 319.40'	ST = 80.03'	T = 312.62'	T = 177.99'	ST = 50.05'
R = 7,639.44'		R = 1,820.00'		R = 1,820.00'	R = 747.34'	
SE = .03		SE = .08		SE = .08		
R0 = 150.00'						

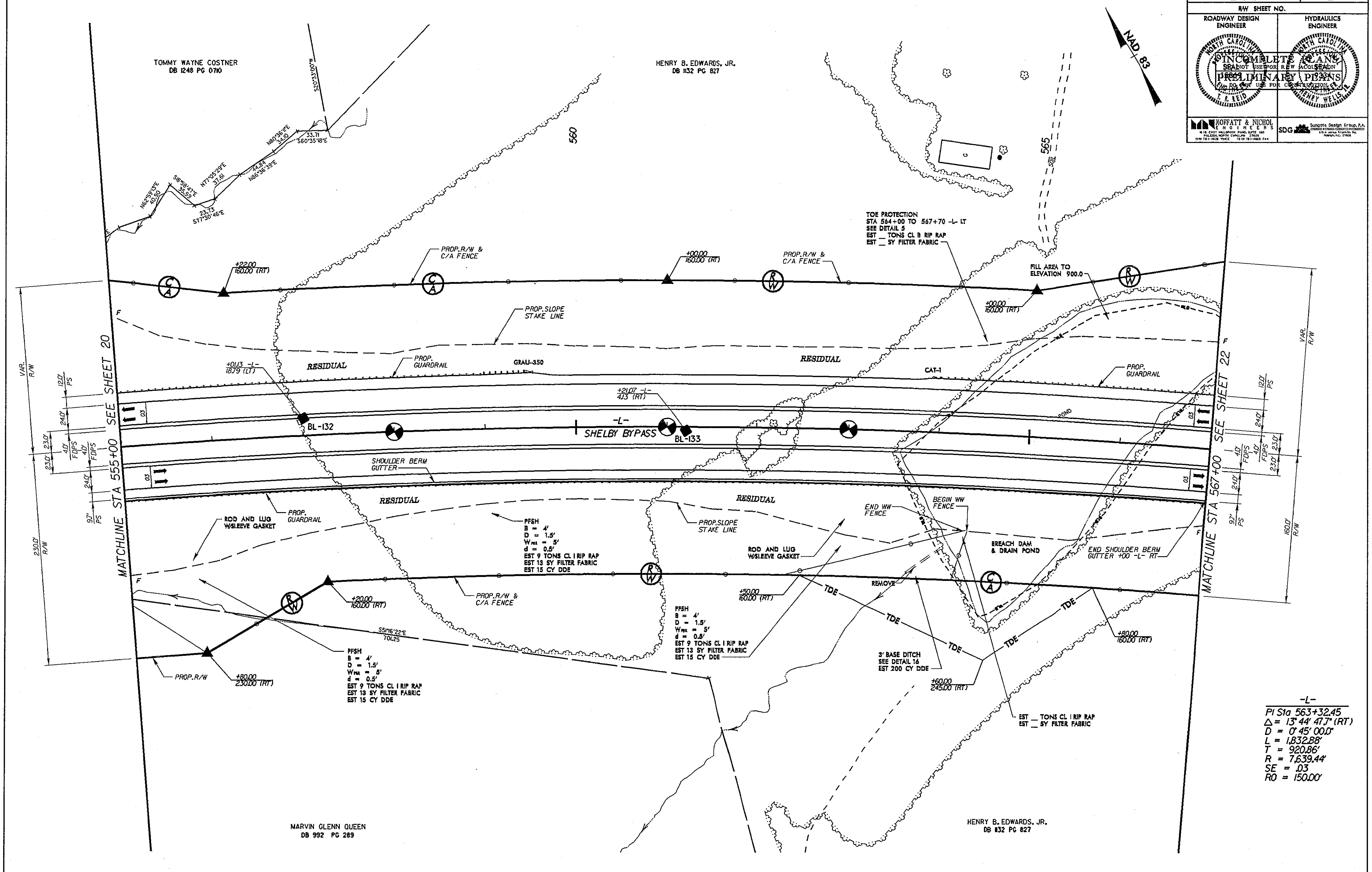
FOR -L- PROFILE SEE SHEETS 59 & 60
FOR RAMP -A- PROFILE SEE SHEET 68
FOR RAMP -D- PROFILE SEE SHEET 71

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	21
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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 180
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.
Raleigh, N.C. 27606



NAD 83
TOMMY WAYNE COSTNER
DB 1248 PG 0710
HENRY B. EDWARDS, JR.
DB 1132 PG 827
MARVIN GLENN QUEEN
DB 992 PG 289
HENRY B. EDWARDS, JR.
DB 1132 PG 827
560
565
TOE PROTECTION
STA 564+00 TO 567+70 -L- LT
SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
PROP. R/W & C/A FENCE
+22.00
160.00 (RT)
+00.00
160.00 (RT)
FILL AREA TO ELEVATION 900.0
PROP. SLOPE STAKE LINE
RESIDUAL
PROP. GUARDRAIL
GRAU-350
CAT-1
+01.13 -L-
18.79 (LT)
+21.07 -L-
4.13 (RT)
BL-132
BL-133
-L-
SHELBY BYPASS
MATCHLINE STA 555+00 SEE SHEET 20
MATCHLINE STA 567+00 SEE SHEET 22
SHOULDER BERM GUTTER
ROD AND LUG W/SLEEVE GASKET
PFSH
B = 4'
D = 1.5'
W = 5'
d = 0.5'
EST 9 TONS CL I RIP RAP
EST 13 SY FILTER FABRIC
EST 15 CY DDE
END WW FENCE
BEGIN WW FENCE
BREACH DAM & DRAIN POND
END SHOULDER BERM GUTTER +00 -L- RT
REMOVE
TDE
3' BASE DITCH
SEE DETAIL 16
EST 200 CY DDE
+50.00
160.00 (RT)
+20.00
160.00 (RT)
+80.00
230.00 (RT)
+60.00
245.00 (RT)
+80.00
160.00 (RT)
S51°16'22"E
701.25
PROP. R/W
EST __ TONS CL I RIP RAP
EST __ SY FILTER FABRIC
POND
VAR. R/W
230.0' R/W
150.0' R/W

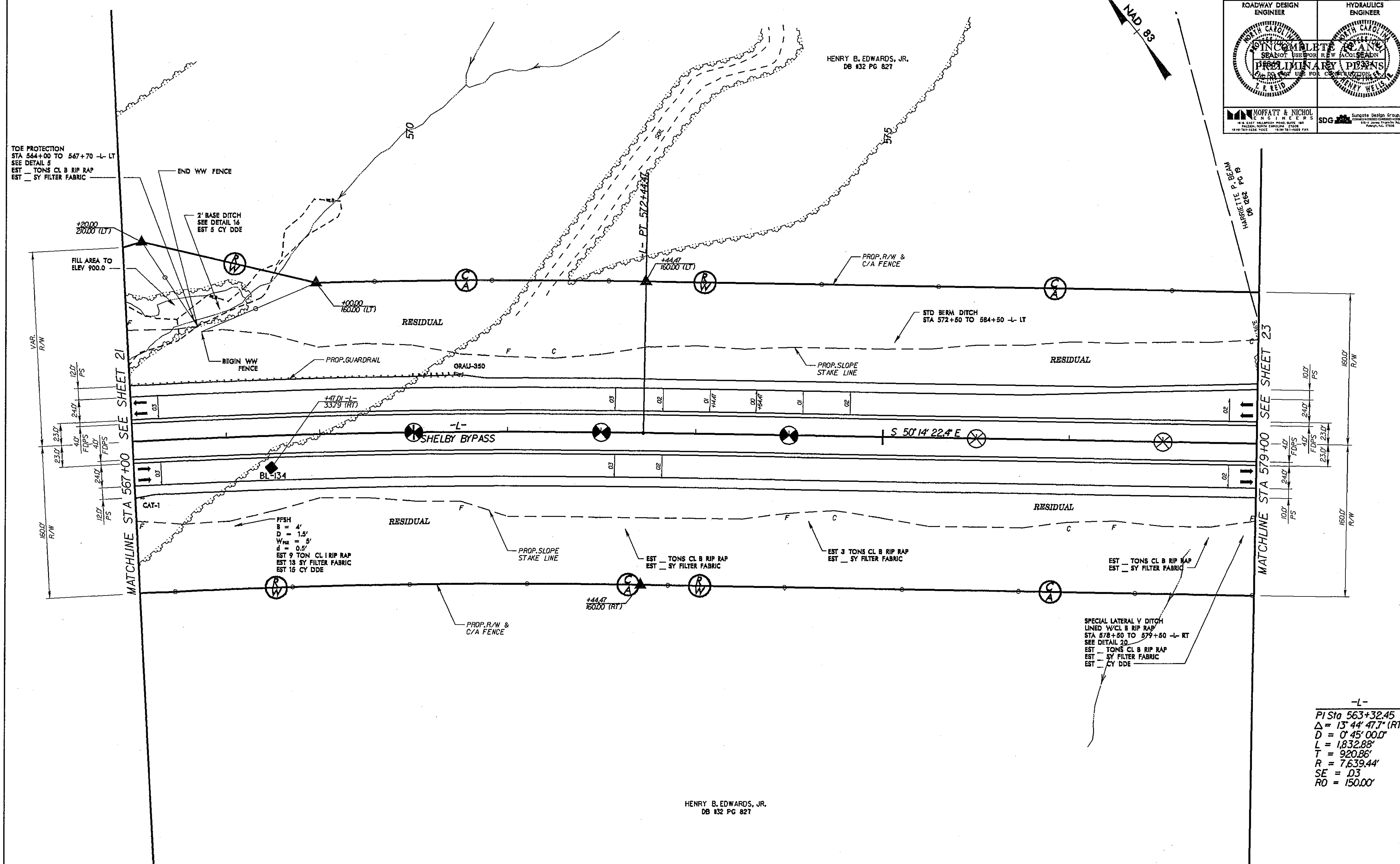
-L-
PI Sta 563+32.45
Δ = 13° 44' 47.7" (RT)
D = 0° 45' 00.0"
L = 1,832.88'
T = 920.86'
R = 7,639.44'
SE = .03
RO = 150.00'

FOR -L- PROFILE SEE SHEETS 60 & 61

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	22
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

MOFFATT & NICHOL ENGINEERS
Sungate Design Group, P.A.



NAD 83
HENRY B. EDWARDS, JR.
DB 132 PG 827
HARRIETTE P. BEAM
DB 1262 PG 19
TOE PROTECTION
STA 564+00 TO 567+70 -L- LT
SEE DETAIL 5
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
END WW FENCE
2' BASE DITCH
SEE DETAIL 16
EST 5 CY DDE
+20.00
210.00 (LT)
FILL AREA TO
ELEV 900.0
+00.00
160.00 (LT)
RESIDUAL
BEGIN WW
FENCE
PROP.GUARDRAIL
GRAU-350
-L- PT 572+44.47
+44.47
160.00 (LT)
PROP.R/W &
C/A FENCE
STD BERM DITCH
STA 572+50 TO 584+50 -L- LT
PROP.SLOPE
STAKE LINE
+47.01 -L-
33.79 (RT)
-L-
SHELBY BYPASS
S 50° 14' 22.4" E
BL-134
MATCHLINE STA 567+00 SEE SHEET 21
MATCHLINE STA 579+00 SEE SHEET 23
CAT-1
PFSH
B = 4'
D = 1.5'
W = 5'
d = 0.5'
EST 9 TON CL I RIP RAP
EST 13 SY FILTER FABRIC
EST 15 CY DDE
PROP.SLOPE
STAKE LINE
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST 3 TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
+44.47
160.00 (RT)
PROP.R/W &
C/A FENCE
SPECIAL LATERAL V DITCH
LINED W/CL B RIP RAP
STA 578+50 TO 579+50 -L- RT
SEE DETAIL 20
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST _ CY DDE
-L-
PI Sta 563+32.45
Δ = 13° 44' 47.7" (RT)
D = 0° 45' 00.0"
L = 1,832.88'
T = 920.86'
R = 7,639.44'
SE = .03
RO = 150.00'
HENRY B. EDWARDS, JR.
DB 132 PG 827

FOR -L- PROFILE SEE SHEETS 61 & 62

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	23
R/W SHEET NO.	

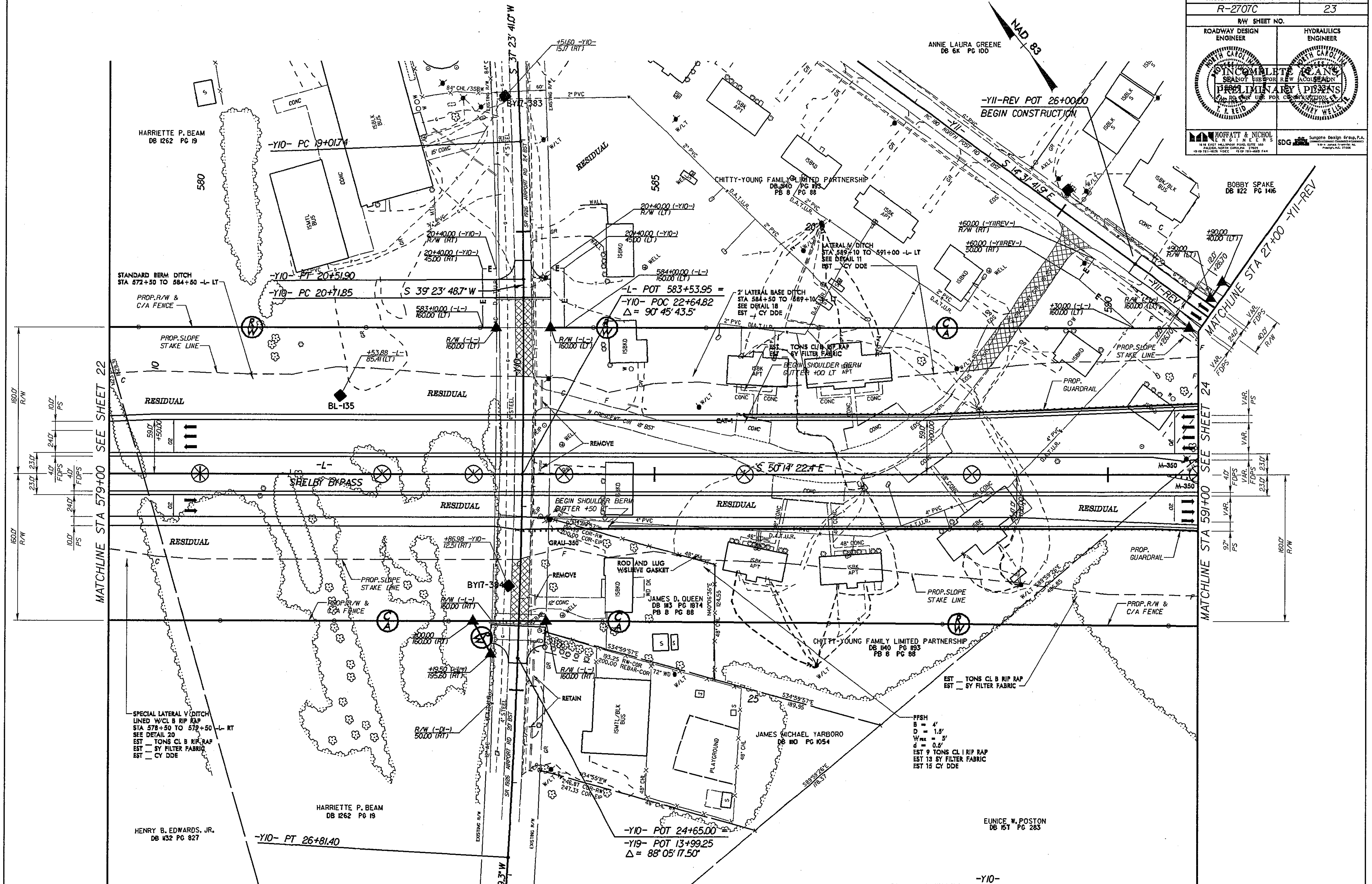
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

INCOMPLETE PLANS — DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS, 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.



NAD 83
ANNIE LAURA GREENE
DB 6K PG 100
-Y11-REV POT 26+00.00
BEGIN CONSTRUCTION
HARRIETTE P. BEAM
DB 1262 PG 19
-Y10- PC 19+01.74
CHITTY-YOUNG FAMILY LIMITED PARTNERSHIP
BOBBY SPAKE
DB 1122 PG 1416
STANDARD BERM DITCH
STA 572+50 TO 584+50 -L- LT
-Y10- PT 20+51.90
-Y10- PC 20+71.85
S 39° 23' 48.7" W
-L- POT 583+53.95 =
-Y10- POC 22+64.82
△ = 90° 45' 43.5"
MATCHLINE STA 579+00 SEE SHEET 22
MATCHLINE STA 591+00 SEE SHEET 24
MATCHLINE STA 27+00 -Y11-REV
RESIDUAL
-L-
SHELBY BYPASS
S 50° 14' 22.4" E
BL-135
BEGIN SHOULDER BERM GUTTER +50
PROP. SLOPE STAKE LINE
PROP. R/W & C/A FENCE
PROP. GUARDRAIL
JAMES D. QUEEN
DB 1113 PG 1874
PB 8 PG 88
JAMES MICHAEL YARBORO
DB 1110 PG 1054
EUNICE W. POSTON
DB 15T PG 283
HENRY B. EDWARDS, JR.
DB 1132 PG 827
-Y10- PT 26+81.40
-Y10- POT 24+65.00 =
-Y19- POT 13+99.25
△ = 88° 05' 17.50"
S 42° 57' 09.3" W
S 37° 23' 41.0" W
SPECIAL LATERAL V DITCH LINED W/CL B RIP RAP
STA 578+50 TO 579+50 -L- RT
SEE DETAIL 20
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
EST __ CY DDE
PLAYGROUND

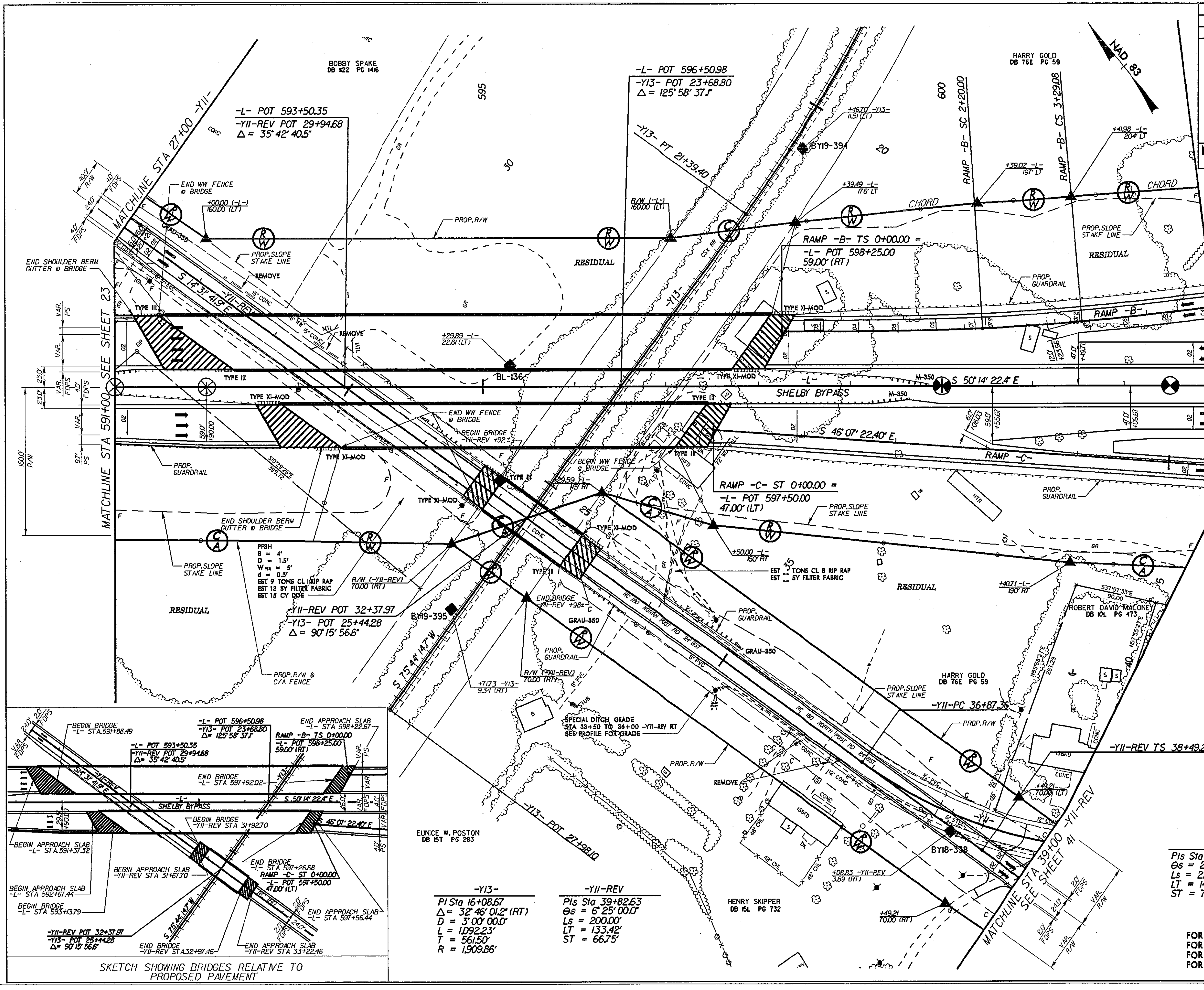
-Y10-	
PI Sta 19+76.83	PI Sta 23+76.72
△ = 2° 00' 07.7" (RT)	△ = 3° 33' 20.6" (RT)
D = 1° 20' 00.0"	D = 0° 35' 00.0"
L = 150.16'	L = 609.55'
T = 75.09'	T = 304.87'
R = 4,297.18'	R = 9,822.13'

FOR -L- PROFILE SEE SHEET 62
FOR -Y11-REV PROFILE SEE SHEETS 88 & 89

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	24
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

MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.



NAD 83
MATCHLINE STA 27+00 -Y11-
MATCHLINE STA 591+00 SEE SHEET 23
MATCHLINE STA 603+00 SEE SHEET 25
MATCHLINE STA 39+00 -Y11-REV SEE SHEET 41
STA 4+71 RAMP -B-
BOBBY SPAKE DB 1122 PG 1416
HARRY GOLD DB 76E PG 59
EUNICE W. POSTON DB 15T PG 283
HENRY SKIPPER DB 15L PG 732
ROBERT DAVID MALONEY DB 10L PG 473
-L- POT 593+50.35
-Y11-REV POT 29+94.68
Δ = 35° 42' 40.5"
-L- POT 596+50.98
-Y13- POT 23+68.80
Δ = 125° 58' 37.1"
-Y13- PT 21+39.40
RAMP -B- TS 0+00.00 = -L- POT 598+25.00 59.00' (RT)
RAMP -C- ST 0+00.00 = -L- POT 597+50.00 47.00' (LT)
-Y11-REV POT 32+37.97
-Y13- POT 25+44.28
Δ = 90° 15' 56.6"
-Y13- POT 27+98.10
-Y11-PC 36+87.36
-Y11-REV TS 38+49.21
RAMP -B- SC 2+20.00
RAMP -B- CS 3+29.08
SHELBY BYPASS
S 50° 14' 22.4" E
S 46° 07' 22.40" E
S 14° 31' 41.9" E
S 75° 44' 14.7" W
RAMP -B-
RAMP -C-
RESIDUAL
PROP. R/W
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
END WW FENCE @ BRIDGE
BEGIN WW FENCE @ BRIDGE
END SHOULDER BERM GUTTER @ BRIDGE
BEGIN BRIDGE -Y11-REV +92.±
END BRIDGE -Y11-REV +98±
TYPE III
TYPE XI-MOD
BL-136
BY19-394
BY19-395
BY18-338
GRAU-350
M-350
PFSH B = 4' D = 1.5' W = 5' d = 0.5' EST 9 TONS CL I RIP RAP EST 13 SY FILTER FABRIC EST 15 CY DDE
EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC
SPECIAL DITCH GRADE STA 33+50 TO 36+00 -Y11-REV RT SEE PROFILE FOR GRADE
NC 180 NORTH POST RD
CHORD
REMOVE
SKETCH SHOWING BRIDGES RELATIVE TO PROPOSED PAVEMENT
BEGIN BRIDGE -L- STA 591+88.49
END BRIDGE -L- STA 597+92.02
END APPROACH SLAB -L- STA 598+22.67
BEGIN BRIDGE -Y11-REV STA 31+92.70
BEGIN APPROACH SLAB -L- STA 591+37.32
BEGIN APPROACH SLAB -Y11-REV STA 31+67.70
BEGIN APPROACH SLAB -L- STA 592+67.44
BEGIN BRIDGE -L- STA 593+13.79
END BRIDGE -L- STA 597+26.68
END APPROACH SLAB -L- STA 597+56.44
END BRIDGE -Y11-REV STA 32+97.46
END APPROACH SLAB -Y11-REV STA 33+22.46

-Y13-
PI Sta 16+08.67
Δ = 32° 46' 01.2" (RT)
D = 3° 00' 00.0"
L = 1,092.23'
T = 561.50'
R = 1,909.86'

-Y11-REV
PIs Sta 39+82.63
θs = 6° 25' 00.0"
Ls = 200.00'
LT = 133.42'
ST = 66.75'

-Y11-
PI Sta 38+50.38
Δ = 36° 14' 03.9" (LT)
D = 11° 30' 00.0"
L = 315.08'
T = 163.01'
R = 498.22'

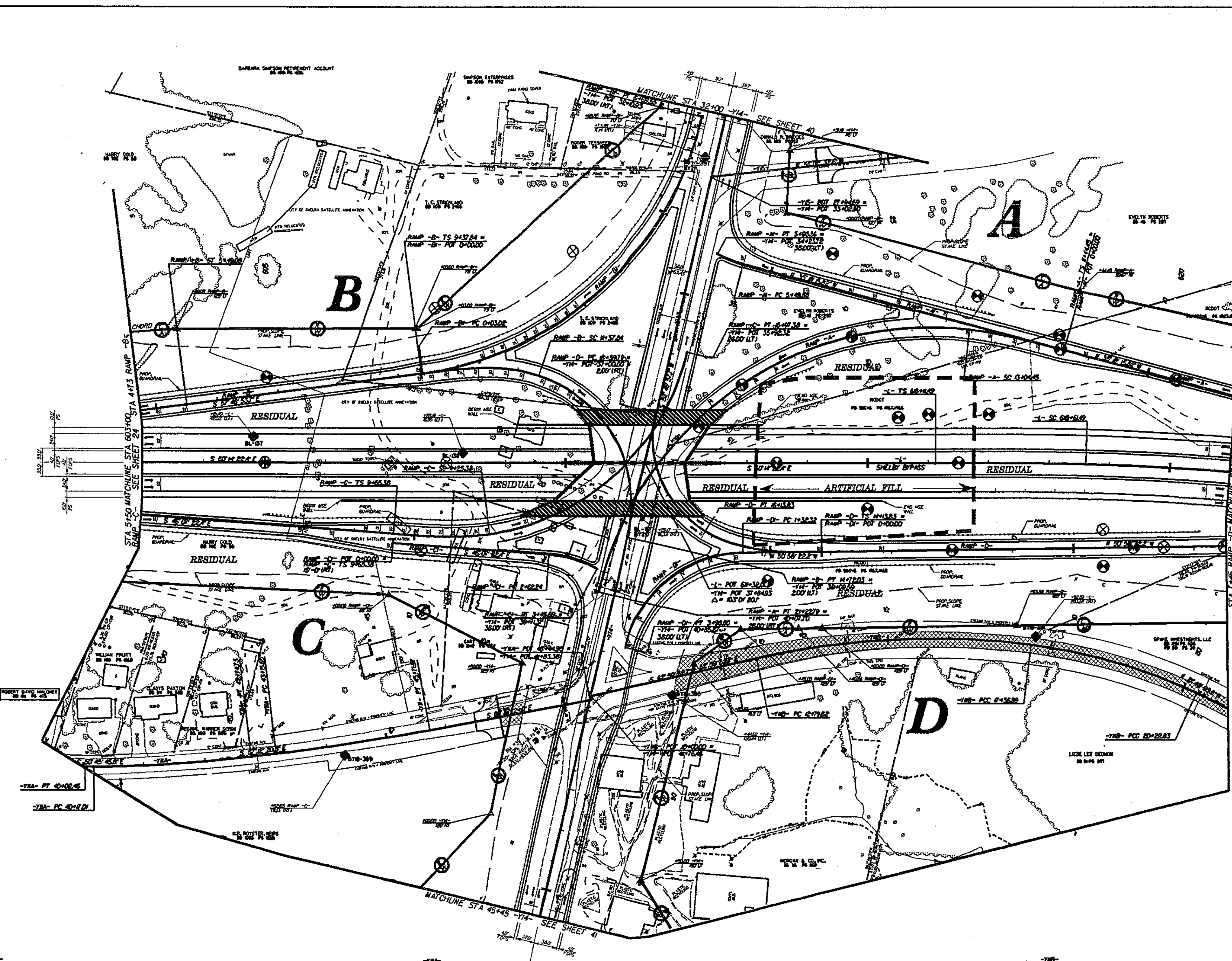
RAMP -B-

PIs Sta 1+46.68	PI Sta 2+74.55
θs = 2° 31' 15.7"	Δ = 2° 30' 00.0" (LT)
Ls = 220.00'	D = 2° 17' 30.6"
LT = 146.68'	L = 109.08'
ST = 73.35'	T = 54.55'
	R = 2,500.00'
	SE = .08

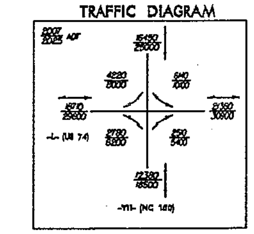
FOR -L- PROFILE SEE SHEETS 62 & 63
FOR RAMP B PROFILE SEE SHEET 75
FOR RAMP C PROFILE SEE SHEET 76
FOR -Y11-REV PROFILE SEE SHEETS 88 & 89

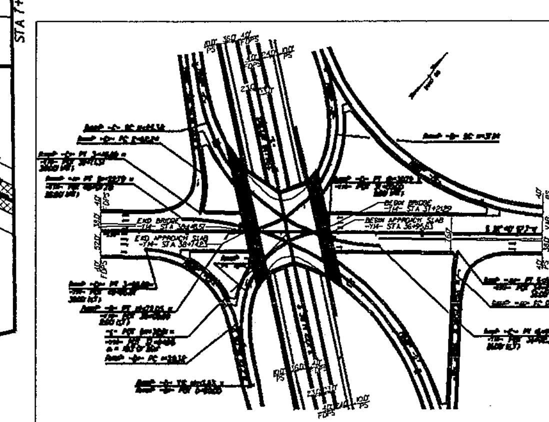
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	25



TRAFFIC DIAGRAM





SKETCH SHOWING BRIDGES RELATIVE TO PROPOSED PAVEMENT

FOR -L- PROFILE SEE SHEET 63
FOR -Y14- PROFILE SEE SHEETS 90 & 91
FOR RAMP -A- PROFILE SEE SHEET 73
FOR RAMP -A1- PROFILE SEE SHEET 74
FOR RAMP -B- PROFILE SEE SHEET 75
FOR RAMP -B1- PROFILE SEE SHEET 76
FOR RAMP -C- PROFILE SEE SHEET 76
FOR RAMP -C1- PROFILE SEE SHEET 77
FOR RAMP -D- PROFILE SEE SHEET 78
FOR RAMP -D1- PROFILE SEE SHEET 79

GRAPHIC SCALE
50 25 0 50 100
PLANS

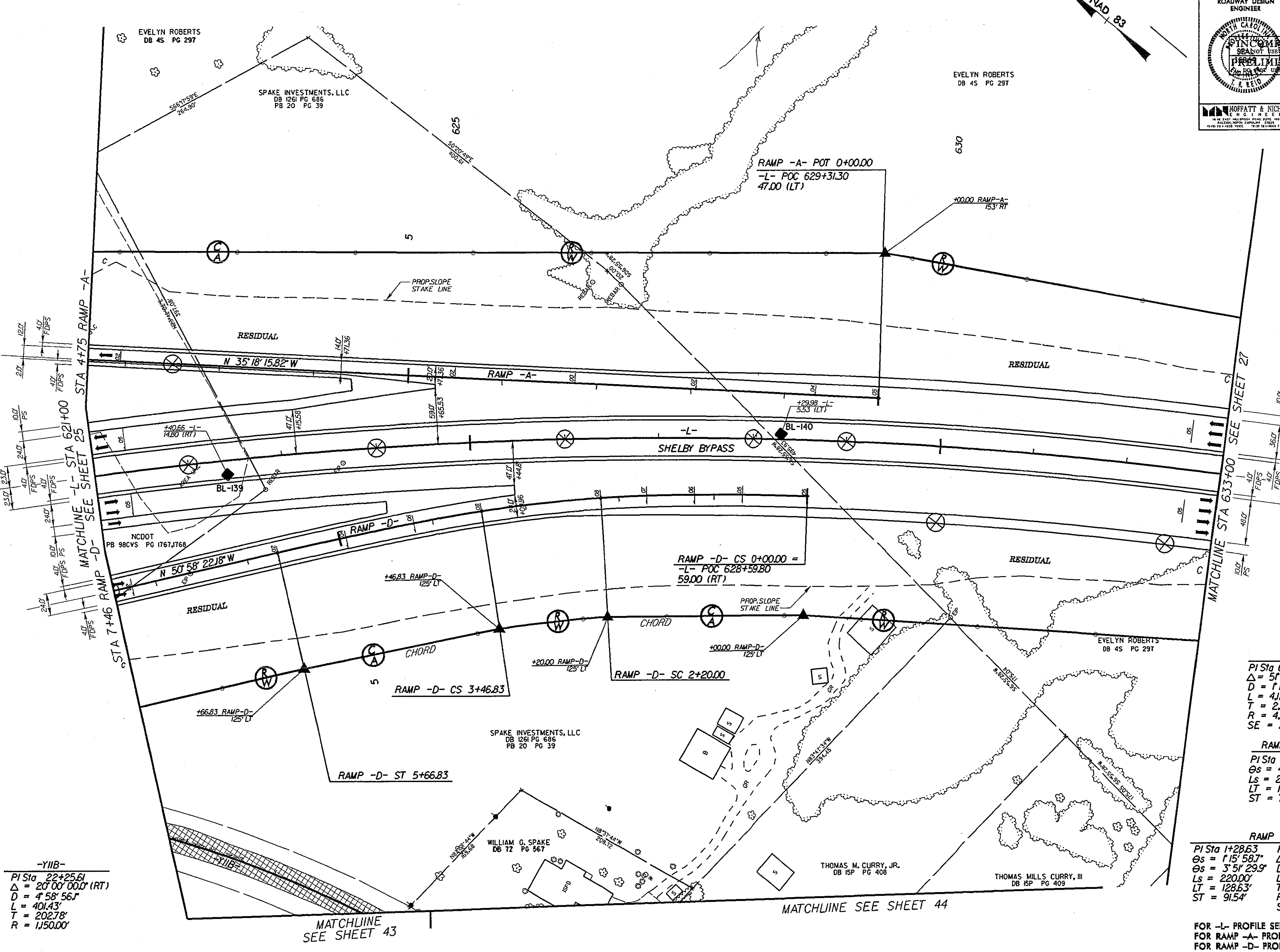
LOCATION:	INTERCHANGE AT -L- US 74 BYPASS AND -Y14- NC 150
TIP NO.: R-2707C	COUNTY: CLEVELAND
DESIGNED BY: T. HUFFMAN	
CHECKED BY: T. REID	DATE: 5/29/02

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	26
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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
EVELYN ROBERTS
DB 4S PG 297
SPAKE INVESTMENTS, LLC
DB 1261 PG 686
PB 20 PG 39
625
630
RAMP -A- POT 0+00.00
-L- POC 629+31.30
47.00 (LT)
+00.00 RAMP-A-
153' RT
PROP. SLOPE STAKE LINE
RESIDUAL
N 35° 18' 15.82" W
RAMP -A-
-L-
SHELBY BYPASS
BL-139
BL-140
+40.66 -L-
14.80 (RT)
+29.98 -L-
5.53 (LT)
NCDOT
PB 98CVS PG 1767,1768
RAMP -D-
N 50° 58' 22.18" W
RAMP -D- CS 0+00.00 =
-L- POC 628+59.80
59.00 (RT)
+46.83 RAMP-D-
125' LT
+20.00 RAMP-D-
125' LT
+00.00 RAMP-D-
125' LT
+66.83 RAMP-D-
125' LT
CHORD
RAMP -D- CS 3+46.83
RAMP -D- SC 2+20.00
RAMP -D- ST 5+66.83
MATCHLINE -L- STA 621+00 SEE SHEET 25
STA 4+75 RAMP -A-
STA 7+46 RAMP -D-
MATCHLINE STA 633+00 SEE SHEET 27
WILLIAM G. SPAKE
DB 72 PG 567
THOMAS M. CURRY, JR.
DB 15P PG 408
THOMAS MILLS CURRY, III
DB 15P PG 409
-YIIB-
MATCHLINE SEE SHEET 43
MATCHLINE SEE SHEET 44

-YIIB-

PI Sta 22+25.61
△ = 20° 00' 00.0" (RT)
D = 4° 58' 56.1"
L = 401.43'
T = 202.78'
R = 1,150.00'

-L-

PI Sta 640+73.56
△ = 51° 31' 25.8" (RT)
D = 1° 15' 00.0"
L = 4,121.91
T = 2,212.07'
R = 4,583.66'
SE = .05

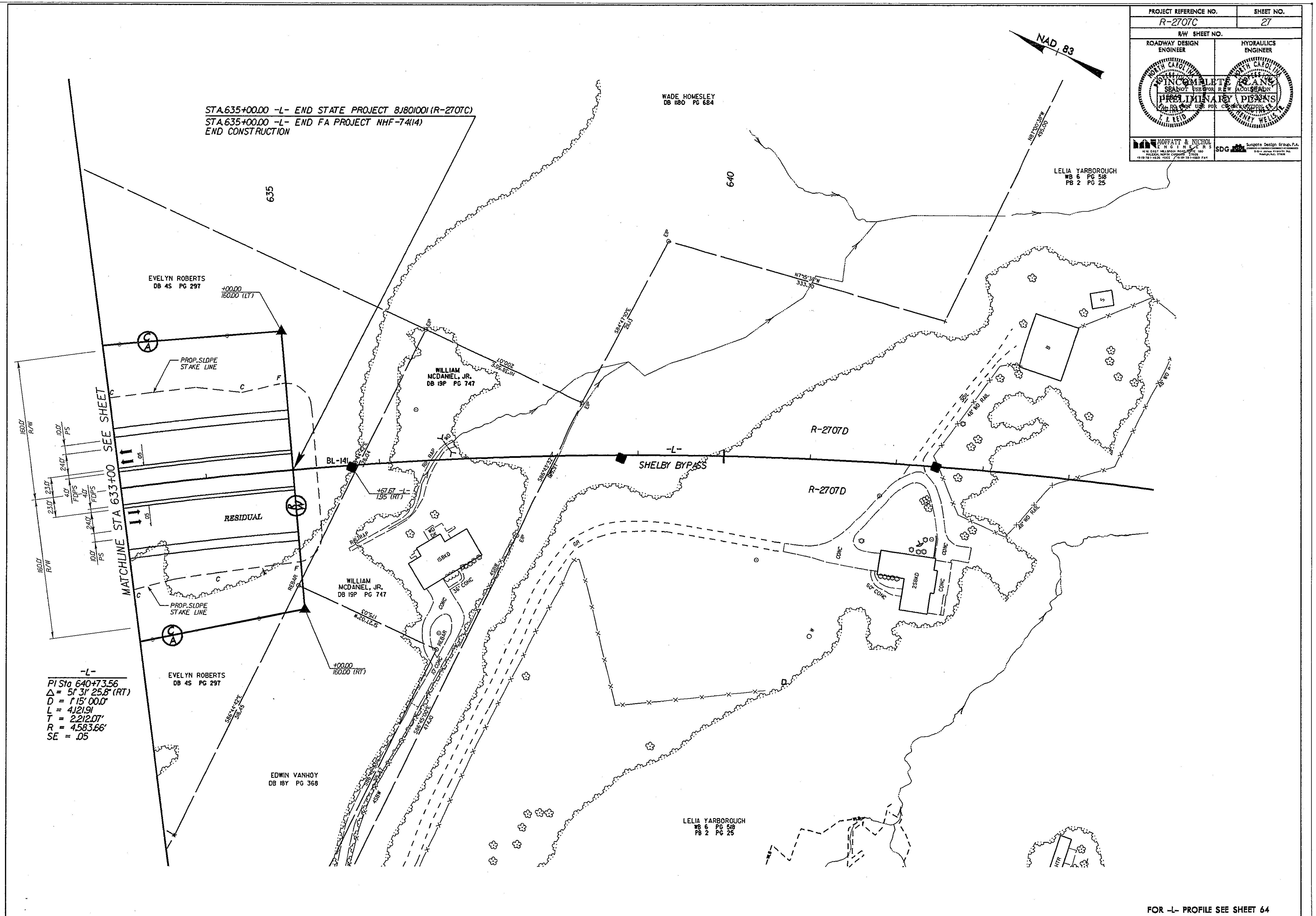
RAMP -D-

PI Sta 4+20.20
θs = 4° 14' 38.9"
Ls = 220.00'
LT = 146.71'
ST = 73.37'

RAMP -D-

PI Sta 1+28.63	PI Sta 2+83.45
θs = 1° 15' 58.7"	△ = 4° 53' 36.5" (LT)
θs = 3° 51' 29.9"	D = 3° 51' 29.9"
Ls = 220.00'	L = 126.83
LT = 128.63'	T = 63.45'
ST = 91.54'	R = 1,485.00'
	SE = .05

FOR -L- PROFILE SEE SHEETS 63 & 64
FOR RAMP -A- PROFILE SEE SHEET 73
FOR RAMP -D- PROFILE SEE SHEET 78

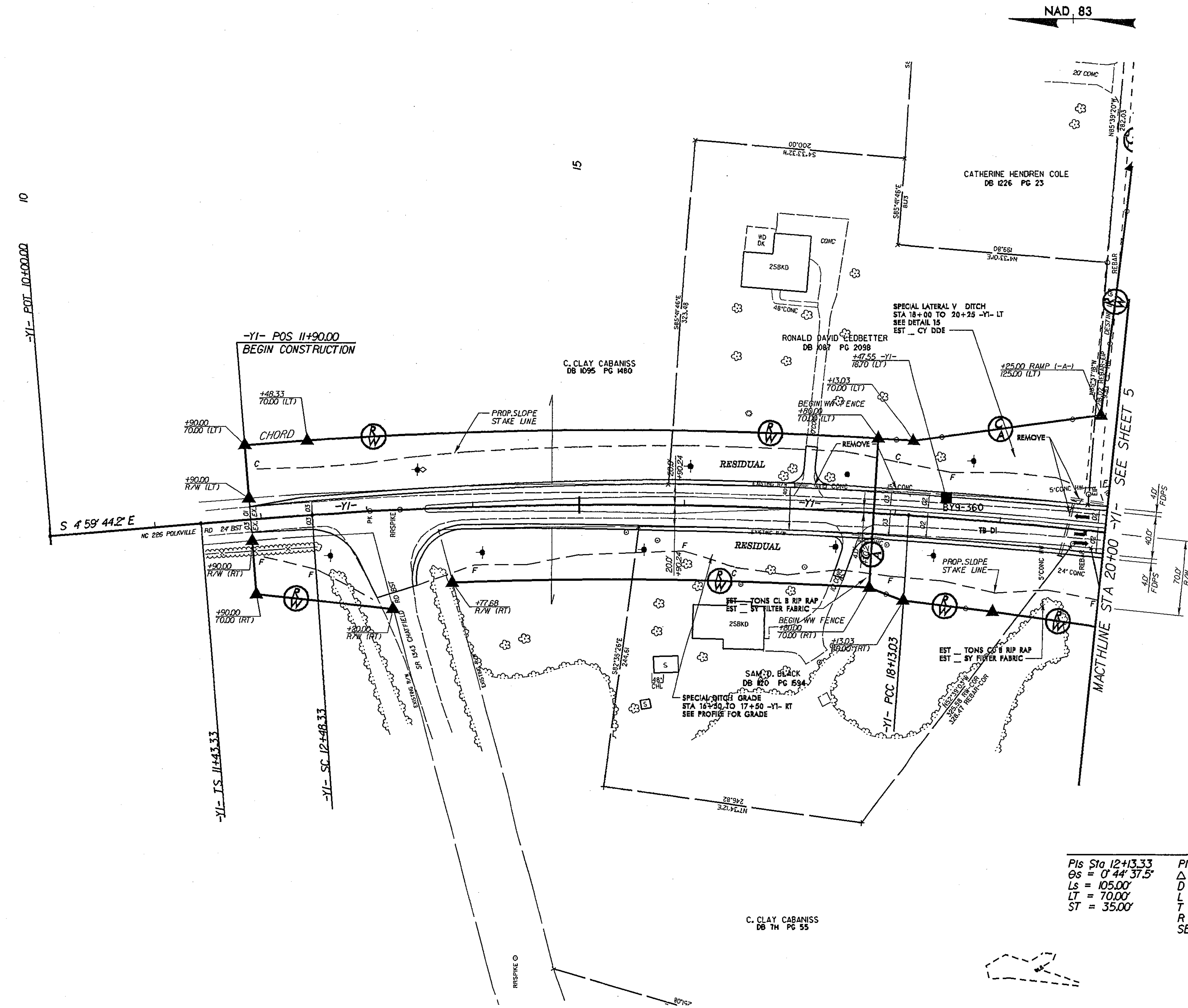

PROJECT REFERENCE NO.
R-2707C
SHEET NO.
27
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
MOFFATT & NICHOL ENGINEERS
SDG
NAD 83
STA.635+00.00 -L- END STATE PROJECT 8J801001 (R-2707C)
STA.635+00.00 -L- END FA PROJECT NHF-74(14)
END CONSTRUCTION
WADE HOMESLEY
DB 1180 PG 684
LELIA YARBOROUGH
WB 6 PG 518
PB 2 PG 25
EVELYN ROBERTS
DB 4S PG 297
WILLIAM MCDANIEL, JR.
DB 19P PG 747
PROP. SLOPE STAKE LINE
MATCHLINE STA 633+00 SEE SHEET
RESIDUAL
BL-141
-L-
SHELBY BYPASS
R-2707D
R-2707D
+00.00
160.00 (LT)
+00.00
160.00 (RT)
+67.67 -L-
1.95 (RT)
EDWIN VANHOY
DB 18Y PG 368
-L-
PI Sta 640+73.56
Δ = 51° 31' 25.8" (RT)
D = 1° 15' 00.0"
L = 4,121.91
T = 2,212.07'
R = 4,583.66'
SE = .05
FOR -L- PROFILE SEE SHEET 64

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
-Y1- POT 10+00.00
-Y1- POS 11+90.00
BEGIN CONSTRUCTION
S 4°59' 44.2" E
NC 226 POLKVILLE RD 24' BST
CHORD
PROP. SLOPE STAKE LINE
C. CLAY CABANISS
DB 1095 PG 1480
RONALD DAVID LEDBETTER
DB 1087 PG 2098
CATHERINE HENDREN COLE
DB 1226 PG 23
SPECIAL LATERAL V DITCH
STA 18+00 TO 20+25 -Y1- LT
SEE DETAIL 15
EST _ CY DDE
+25.00 RAMP (-A-)
125.00 (LT)
RESIDUAL
REMOVE
BEGIN WW FENCE
BY9-360
TB-DI
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
SAM D. BLACK
DB 120 PG 1594
SPECIAL DITCH GRADE
STA 16+50 TO 17+50 -Y1- RT
SEE PROFILE FOR GRADE
SR 1543 CHATFIELD RD
-Y1- TS 11+43.33
-Y1- SC 12+48.33
-Y1- PCC 18+13.03
MAINLINE STA 20+00 -Y1-
SEE SHEET 5
C. CLAY CABANISS
DB 7H PG 55
RRSPIKE

-Y1-

PIs Sta 12+13.33	PI Sta 15+31.14	PI Sta 24+03.61
Θs = 0° 44' 37.5"	Δ = 8° 00' 00.0" (RT)	Δ = 11° 46' 11.9" (RT)
Ls = 105.00'	D = 1° 25' 00.0"	D = 1° 00' 00.0"
LT = 70.00'	L = 564.71'	L = 1,177.00'
ST = 35.00'	T = 282.81'	T = 590.58'
	R = 4,044.41'	R = 5,729.58'
	SE = .03	SE = .02
		RO = 72'

FOR -Y1- PROFILE SEE SHEET 80

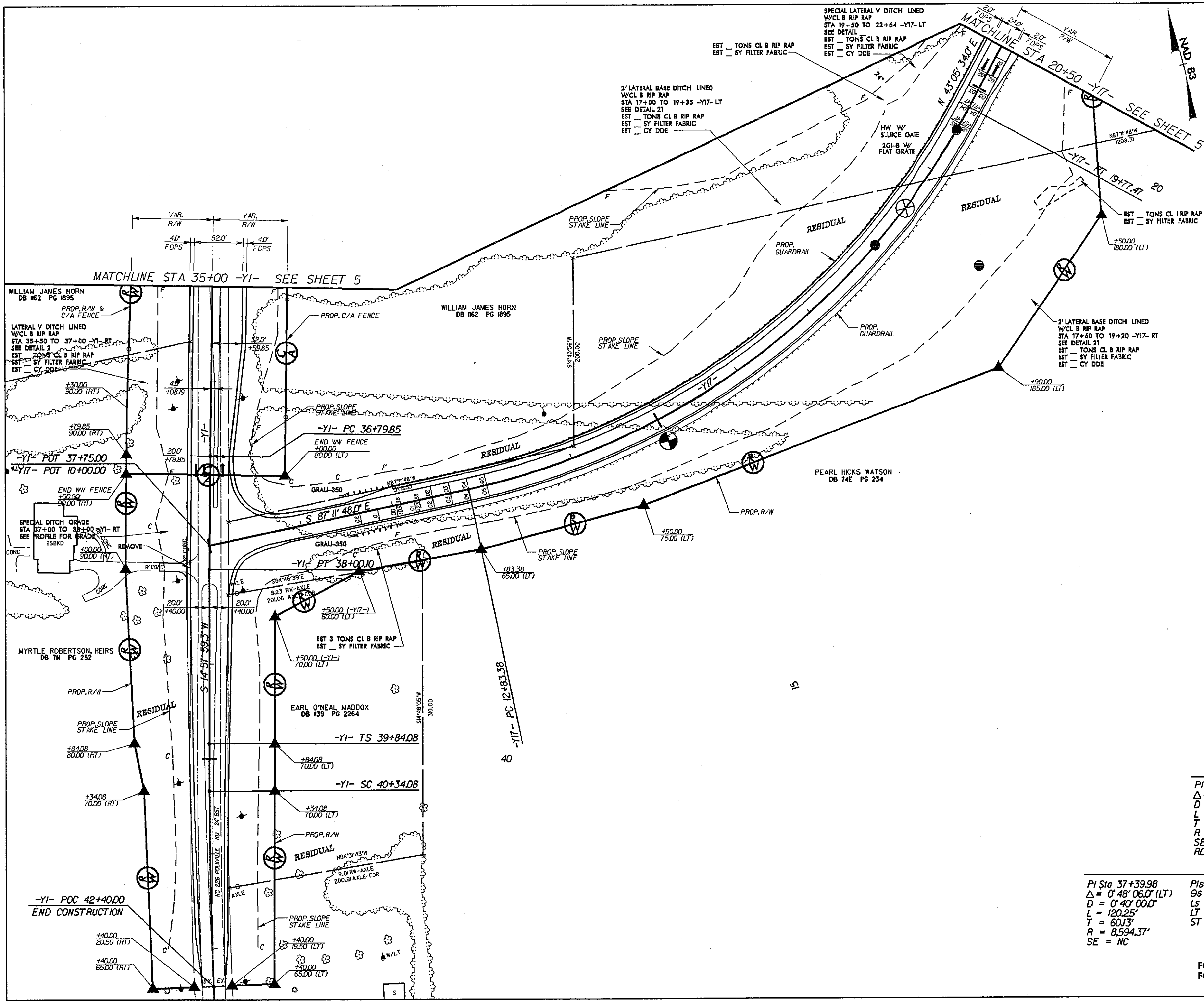
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
MATCHLINE STA 20+50 -Y17- SEE SHEET 5
MATCHLINE STA 35+00 -Y1- SEE SHEET 5
SPECIAL LATERAL V DITCH LINED W/CL B RIP RAP STA 19+50 TO 22+64 -Y17- LT SEE DETAIL EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC EST _ CY DDE
EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC
2' LATERAL BASE DITCH LINED W/CL B RIP RAP STA 17+00 TO 19+35 -Y17- LT SEE DETAIL 21 EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC EST _ CY DDE
HW W/ SLUICE GATE
2GI-B W/ FLAT GRATE
N 43° 05' 34.0" E
-Y17- PT 19+77.47
EST _ TONS CL I RIP RAP EST _ SY FILTER FABRIC
+50.00 180.00 (LT)
RESIDUAL
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
WILLIAM JAMES HORN DB 1162 PG 1895
PROP. R/W & C/A FENCE
LATERAL V DITCH LINED W/CL B RIP RAP STA 35+50 TO 37+00 -Y1- RT SEE DETAIL 2 EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC EST _ CY DDE
PROP. C/A FENCE
2' LATERAL BASE DITCH LINED W/CL B RIP RAP STA 17+60 TO 19+20 -Y17- RT SEE DETAIL 21 EST _ TONS CL B RIP RAP EST _ SY FILTER FABRIC EST _ CY DDE
+90.00 185.00 (LT)
+30.00 90.00 (RT)
+79.85 90.00 (RT)
-Y1- PC 36+79.85
END WW FENCE +00.00 80.00 (LT)
-Y1- POT 37+75.00
-Y17- POT 10+00.00
END WW FENCE +00.00 90.00 (RT)
GRAU-350
S 87° 11' 48.0" E
PEARL HICKS WATSON DB 74E PG 234
PROP. R/W
SPECIAL DITCH GRADE STA 37+00 TO 38+00 -Y1- RT SEE PROFILE FOR GRADE
REMOVE
+00.00 90.00 (RT)
-Y1- PT 38+00.10
+50.00 75.00 (LT)
+83.38 65.00 (LT)
+50.00 (-Y17-) 60.00 (LT)
EST 3 TONS CL B RIP RAP EST _ SY FILTER FABRIC
+50.00 (-Y1-) 70.00 (LT)
MYRTLE ROBERTSON, HEIRS DB 7N PG 252
S 14° 51' 59.3" W
-Y17- PC 12+83.38
EARL O'NEAL MADDOX DB 839 PG 2264
-Y1- TS 39+84.08
+84.08 80.00 (RT)
+84.08 70.00 (LT)
-Y1- SC 40+34.08
+34.08 70.00 (RT)
+34.08 70.00 (LT)
NC 226 POLKVILLE RD 24' BST
-Y1- POC 42+40.00
END CONSTRUCTION
+40.00 20.50 (RT)
+40.00 65.00 (RT)
+40.00 19.50 (LT)
+40.00 65.00 (LT)

-Y17-

PI Sta 16+53.97
Δ = 49° 42' 38.0" (LT)
D = 7° 09' 43.1"
L = 694.09'
T = 370.59'
R = 800.00'
SE = .05
RO = 100'

-Y1-

PI Sta 37+39.98	PIs Sta 40+17.41	PI Sta 42+29.87
Δ = 0° 48' 06.0" (LT)	θs = 0° 15' 00.0"	Δ = 3° 54' 51.5" (LT)
D = 0° 40' 00.0"	Ls = 50.00'	D = 1° 00' 00.0"
L = 120.25'	LT = 33.33'	L = 391.43
T = 60.13'	ST = 16.67'	T = 195.79'
R = 8,594.37'		R = 5,729.58'
SE = NC		SE = NC

FOR -Y1- PROFILE SEE SHEETS 80 & 81
FOR -Y17- PROFILE SEE SHEETS 94 & 95

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	30
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

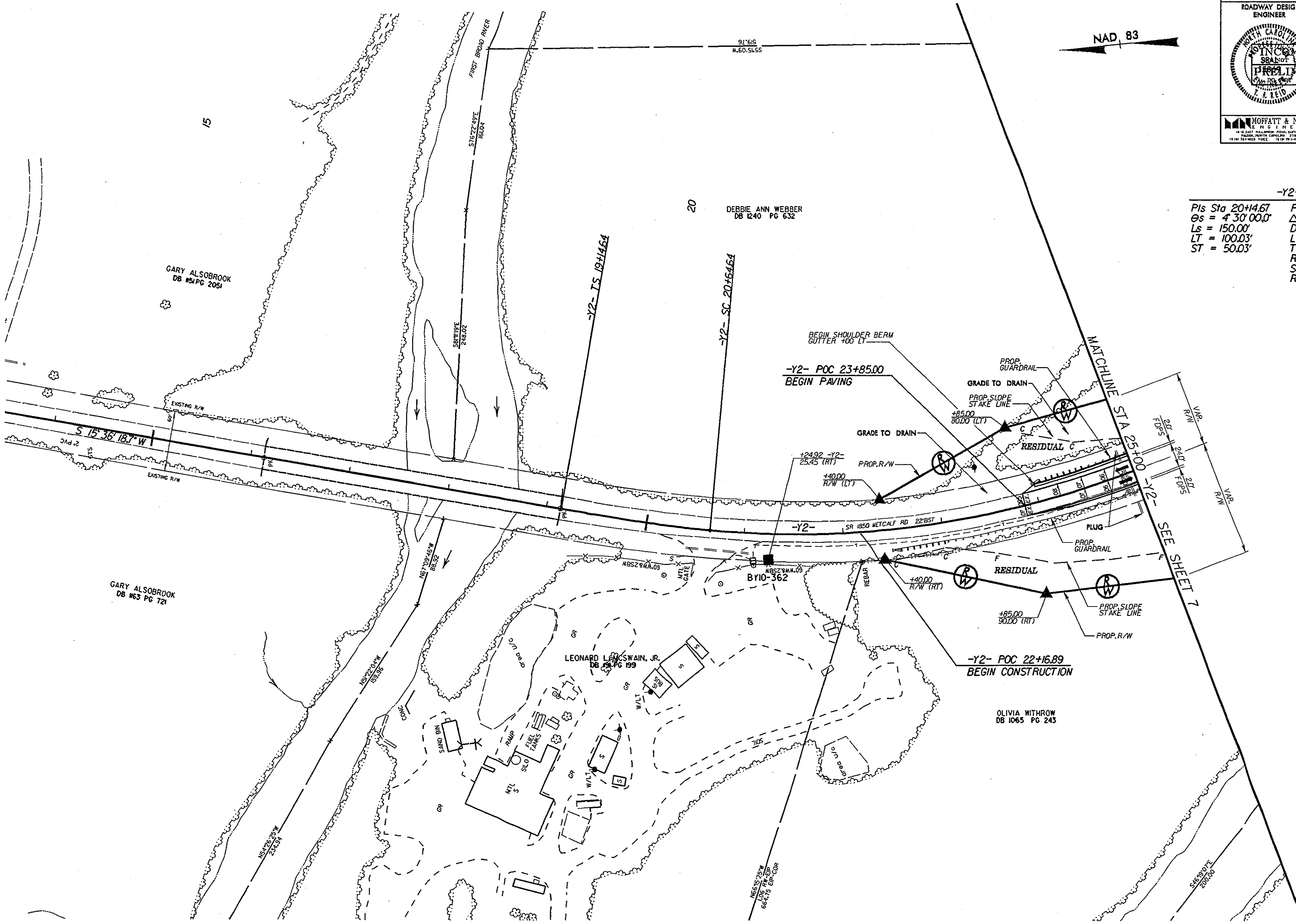
MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

NAD 83

-Y2-

PIs Sta 20+14.67	PI Sta 31+27.15
Θs = 4° 30' 00.0"	Δ = 96° 06' 18.7" (LT)
Ls = 150.00'	D = 6° 00' 00.0"
LT = 100.03'	L = 1,601.75
ST = 50.03'	T = 1,062.52'
	R = 954.93'
	SE = .06
	RO = 150'



FOR -Y2- PROFILE SEE SHEET 82

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	31
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

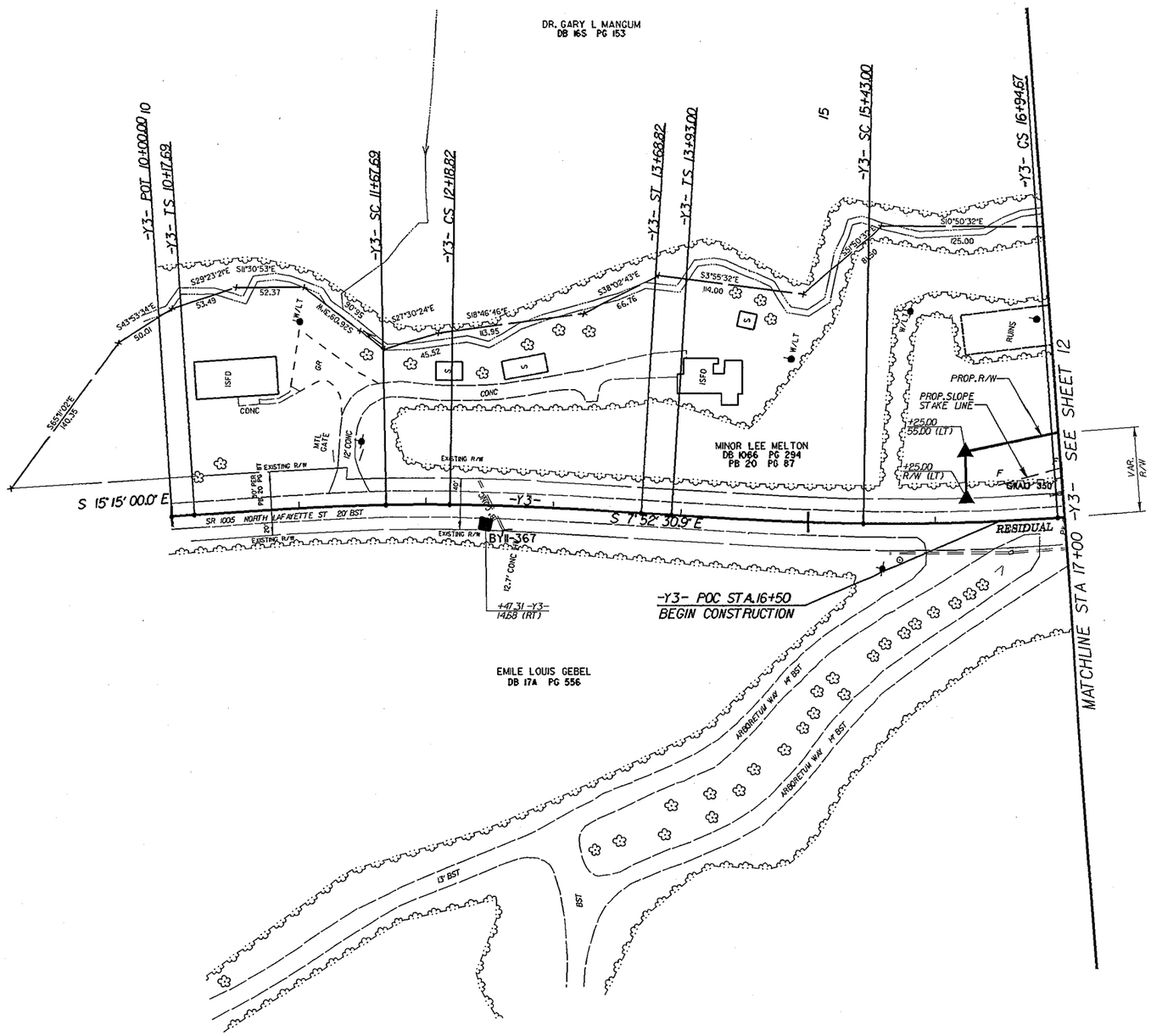
NORTH CAROLINA — SEAL — F. R. REID

NORTH CAROLINA — SEAL — JEFFREY WELLS

INCOMPLETE PLANS
SEAL NOT USED FOR R/W ACQUISITION
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.

NAD 83



-Y3-

Pls Sta 11+17.70 θs = 2° 45' 00.0" Ls = 150.00' LT = 100.01' ST = 50.01'	PI Sta 11+93.26 Δ = 1° 52' 29.1" (RT) D = 3° 40' 00.0" L = 511.3' T = 255.7' R = 1562.61'	Pls Sta 12+68.83 θs = 2° 45' 00.0" Ls = 150.00' LT = 100.01' ST = 50.01'
Pls Sta 14+93.01 θs = 2° 30' 00.0" Ls = 150.00' LT = 100.01' ST = 50.01'	Pls Sta 17+44.68 θs = 2° 30' 00.0" Ls = 150.00' LT = 100.01' ST = 50.01'	PI Sta 16+18.88 Δ = 5° 03' 21.5" (LT) D = 3° 20' 00.0" L = 151.68' T = 75.89' R = 1,718.87'

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	32

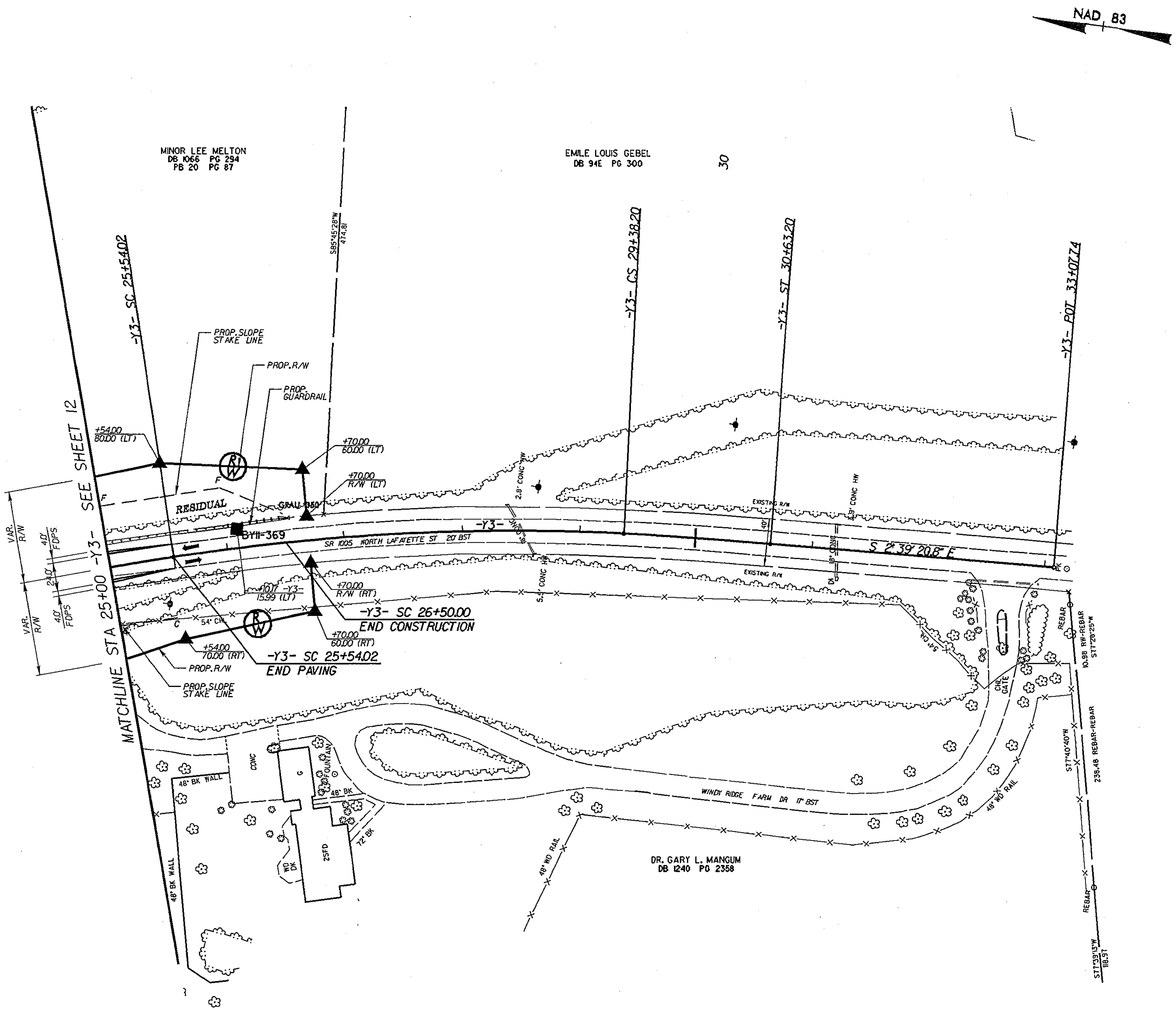
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL T. R. REID	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL HENRY WELLS, JR.

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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.



-Y3-

PIs Sta 25+12.36	PI Sta 27+46.76	PIs Sta 29+79.88
θs = 1° 52' 30.0"	Δ = 11° 31' 31.6" (RT)	θs = 1° 52' 30.0"
Ls = 125.00'	D = 3° 00' 00.0"	Ls = 125.00'
LT = 83.34'	L = 384.18	LT = 83.34'
ST = 41.67'	T = 192.74'	ST = 41.67'
	R = 1,909.86'	
	SE = .08	

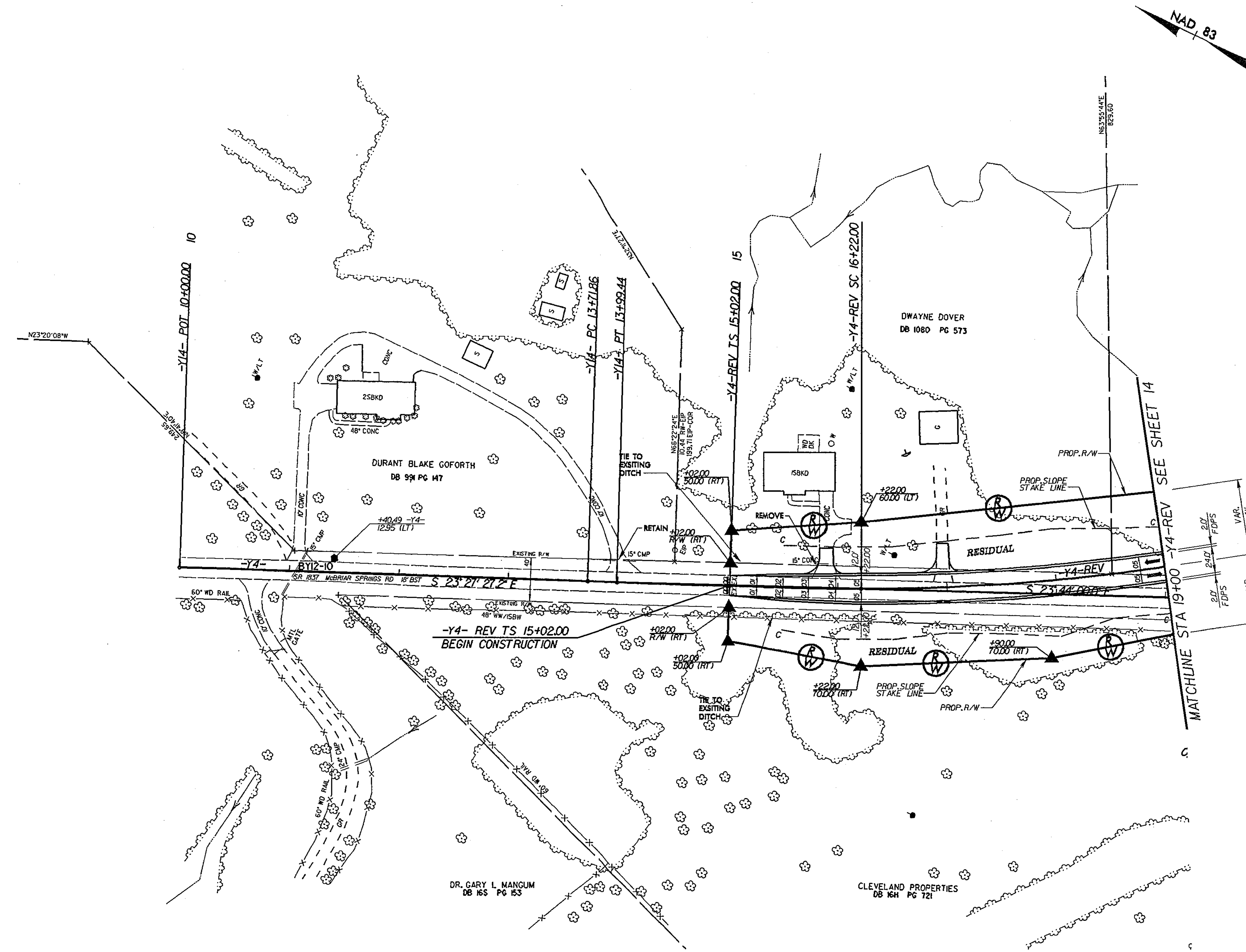
FOR -Y3- PROFILE SEE SHEET 82

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	33
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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
-Y4- POT 10+00.00
10
N23°20'08"W
DURANT BLAKE GOFORTH
DB 991 PG 147
2SBKD
48" CONC
+40.49 -Y4-
12.95 (LT)
-Y4-
BY12-10
SR 1837 McBRIAR SPRINGS RD 18' BST
S 23°21'27.2"E
EXISTING R/W
60" WD RAIL
48" WW/ISBW
-Y4- PC 13+71.86
-Y4- PT 13+99.44
TIE TO EXSITING DITCH
+02.00
50.00 (RT)
RETAIN
+02.00
R/W (RT)
15" CMP
-Y4- REV TS 15+02.00
BEGIN CONSTRUCTION
-Y4-REV TS 15+02.00
15
-Y4-REV SC 16+22.00
DWAYNE DOVER
DB 1080 PG 573
1SBKD
REMOVE
+22.00
60.00 (LT)
RESIDUAL
-Y4-REV
S 23°44'00.0"E
PROP. R/W
PROP. SLOPE STAKE LINE
+02.00
R/W (RT)
+02.00
50.00 (RT)
TIE TO EXSITING DITCH
+22.00
70.00 (RT)
+90.00
70.00 (RT)
RESIDUAL
PROP. SLOPE STAKE LINE
PROP. R/W
MATCHLINE STA 19+00 -Y4-REV SEE SHEET 14
VAR. R/W
2:1 FDPS
24.0'
N63°55'44"E
829.60
DR. GARY L MANGUM
DB 16S PG 153
CLEVELAND PROPERTIES
DB 16H PG 721
60" WD RAIL

-Y4-

PI Sta 13+85.65
Δ = 0°16' 32.7" (LT)
D = 1°00' 00.0"
L = 27.58'
T = 13.79'
R = 5,729.58'

-Y4-REV

PIs Sta 15+82.00	PI Sta 18+44.49
Θs = 1°48' 00.0"	Δ = 13°17' 22.9" (LT)
Ls = 120.00'	D = 3°00' 00.0"
LT = 80.00'	L = 442.99
ST = 40.00'	T = 222.49'
	R = 1,909.86'
	SE = .05

FOR -Y4-REV PROFILE SEE SHEET 83

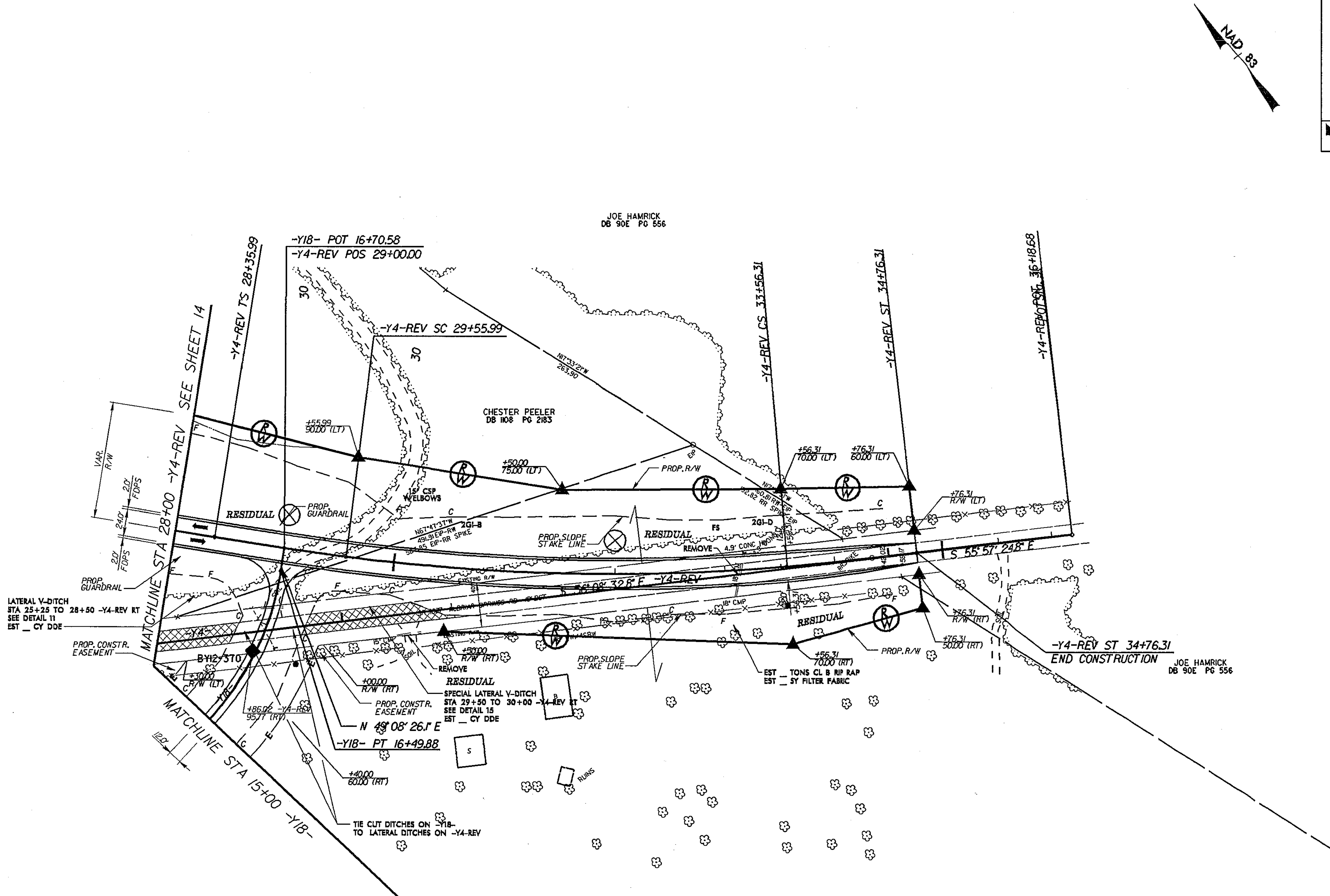
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	34
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID	NORTH CAROLINA PROFESSIONAL SEAL 9331 ENGINEER HENRY WELLS, JR.

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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.
915-A Jones Franklin Rd.
Raleigh, N.C. 27606



-Y4-REV			-Y18-
PIs Sta 29+15.99	PI Sta 31+56.89	PIs Sta 33+96.31	PI Sta 15+25.20
θs = 1°48' 00.0"	Δ = 12°00' 34.7" (LT)	θs. = 1°48' 00.0"	Δ = 65°15' 10.8" (LT)
Ls = 120.00'	D = 3°00' 00.0"	Ls = 120.00'	D = 22°55' 05.9"
LT = 80.00'	L = 400.32	LT = 80.00'	L = 284.72'
ST = 40.00'	T = 200.90'	ST = 40.00'	T = 160.04'
	R = 1,909.86'		R = 250.00'
	SE = .05		

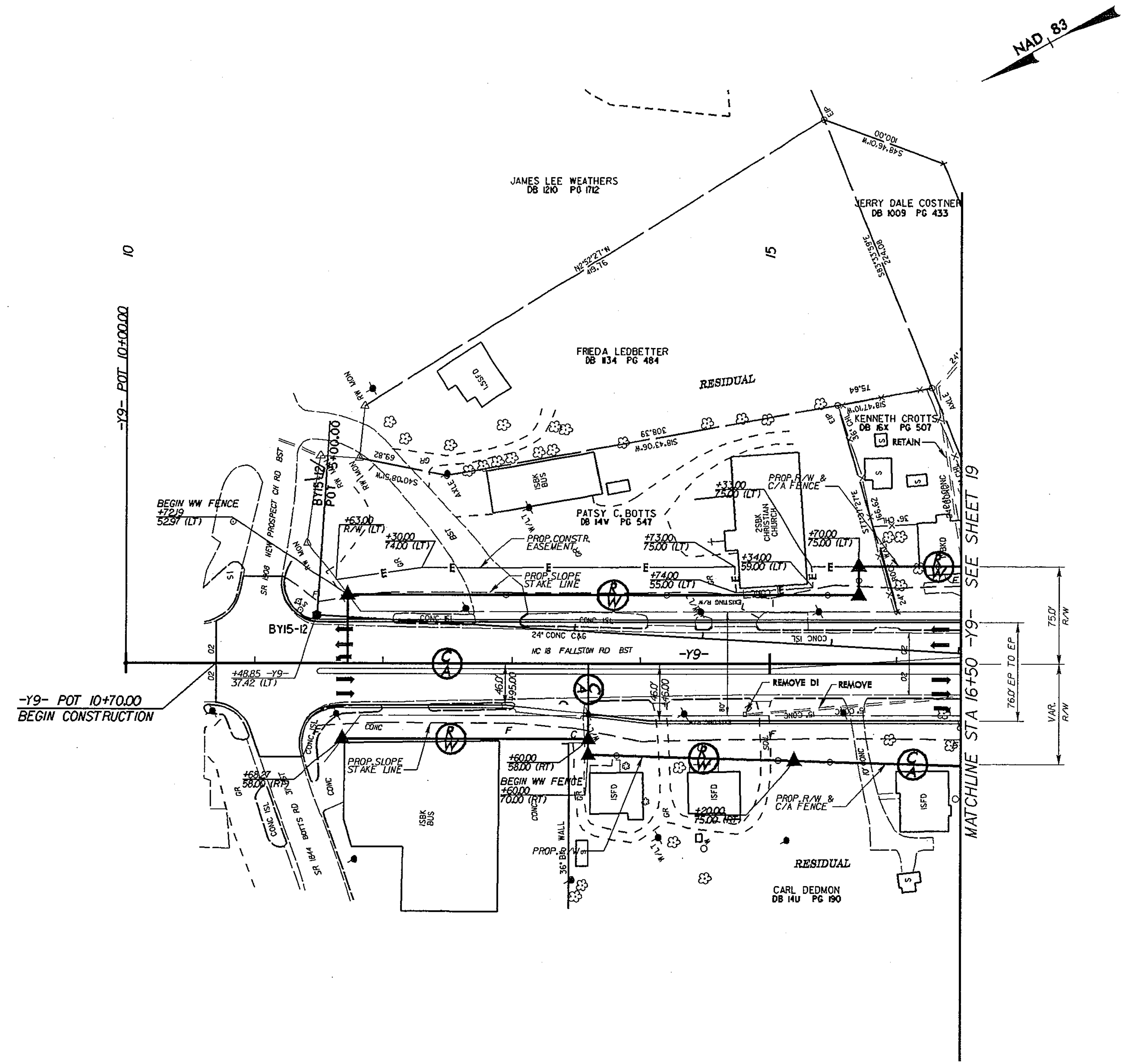
FOR -Y4-REV PROFILE SEE SHEET 83
FOR -Y18- PROFILE SEE SHEET 96

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
JAMES LEE WEATHERS
DB 1210 PG 1712
JERRY DALE COSTNER
DB 1009 PG 433
FREDA LEDBETTER
DB 1134 PG 484
RESIDUAL
KENNETH CROTTS
DB 16X PG 507
RETAIN
PATSY C. BOTTS
DB 14W PG 547
BEGIN WW FENCE
PROP. CONSTR. EASEMENT
PROP. SLOPE STAKE LINE
PROP. R/W & C/A FENCE
BY15-12
NC 18 FALLSTON RD BST
-Y9-
-Y9- POT 10+70.00
BEGIN CONSTRUCTION
-Y9- POT 10+00.00
REMOVE DI
REMOVE
MATCHLINE STA 16+50 -Y9- SEE SHEET 19
76.0' EP TO EP
CARL DEDMON
DB 14U PG 190
SR 1644 BOTTS RD
SR 1008 NEW PROSPECT CH RD BST

FOR -Y9- PROFILE SEE SHEET 87

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	36
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

NAD 83

MATCHLINE STA 15+00 -Y8-REV SEE SHEET 37

60.0' R/W
20' FDPS
24.0'
20' FDPS
RESIDUAL

PROP. R/W
PROP. SLOPE STAKE LINE
-Y8-REV S 58° 57' 38.0" E
RESIDUAL
35
JACK MORGAN DB 863 PG 377
-Y9- CS 36+74.49
-Y9- ST 38+54.49
-Y9- POT 39+05.43
DRAIN -Y8-REV CUT DITCH TO -Y9- DI
+50.00 (-Y8-REV) 60.00 (RT)
-Y9- POC 33+00.00
-Y8-REV POT 10+00.00
+50.00 56.00 (LT)
+00.00 50.00 (LT)
+00.00 R/W (LT)
PROP. R/W
PROP. SLOPE STAKE LINE
SAMUEL LAIL DB 993 PG 481
ROY L. BLACK DB 167 PG 151
FRANKLIN ANTHONY DB 177 PG 878
PROP. R/W C/A FENCE
END WW FENCE +50.00 (-Y8-REV) 60.00 (LT)
-Y9- SC 31+71.21
+71.21 80.00 (LT)
PLUG
REMOVE CB
REMOVE DI
RETAIN
CONVERT TO TB JB w/HH
BY15-376
CONVERT TO TB JB w/HH
COLLARS EXTEND
PROP. SLOPE STAKE LINE
+96.56 -Y9- 27.78 (RT)
RESIDUAL
+50.00 70.00 (RT)
-Y9- POC 36+00.00
END CONSTRUCTION
FRED FALLS HARRILL DB 1202 PG 2467
+00.00 70.00 (RT)
RESIDUAL
+00.00 50.00 (RT)
+00.00 R/W (RT)
PROP. R/W
END WW FENCE +50.00 150.00 (RT)
+71.21 150.00 (RT)
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
GARY PROCTOR DB 181 PG 179
MATCHLINE STA 30+00 -Y9- SEE SHEET 19
VAR. R/W
760' EP TO EP
VAR. R/W
NC 18 FAILSTON RD 48' BST
24" C&G
S 42° 34' 56.4" W
-Y9-

-Y8- REV
XXX / XXX
2005 ADT / 2025 ADT
XXX / XXX
XXX / XXX
XXX / XXX
XXX / XXX
-Y9-

NOTE: NO TRAFFIC DATA PROVIDED

-Y9-

PIs Sta 31+11.21	PI Sta 34+23.50	PIs Sta 37+34.50
θs = 1° 48' 00.0"	Δ = 10° 03' 56.4" (RT)	θs = 1° 48' 00.0"
Ls = 180.00'	D = 2° 00' 00.0"	Ls = 180.00'
LT = 120.01'	L = 503.28'	LT = 120.01'
ST = 60.01'	T = 252.29'	ST = 60.01'
	R = 2,864.79'	
	SE = .04	

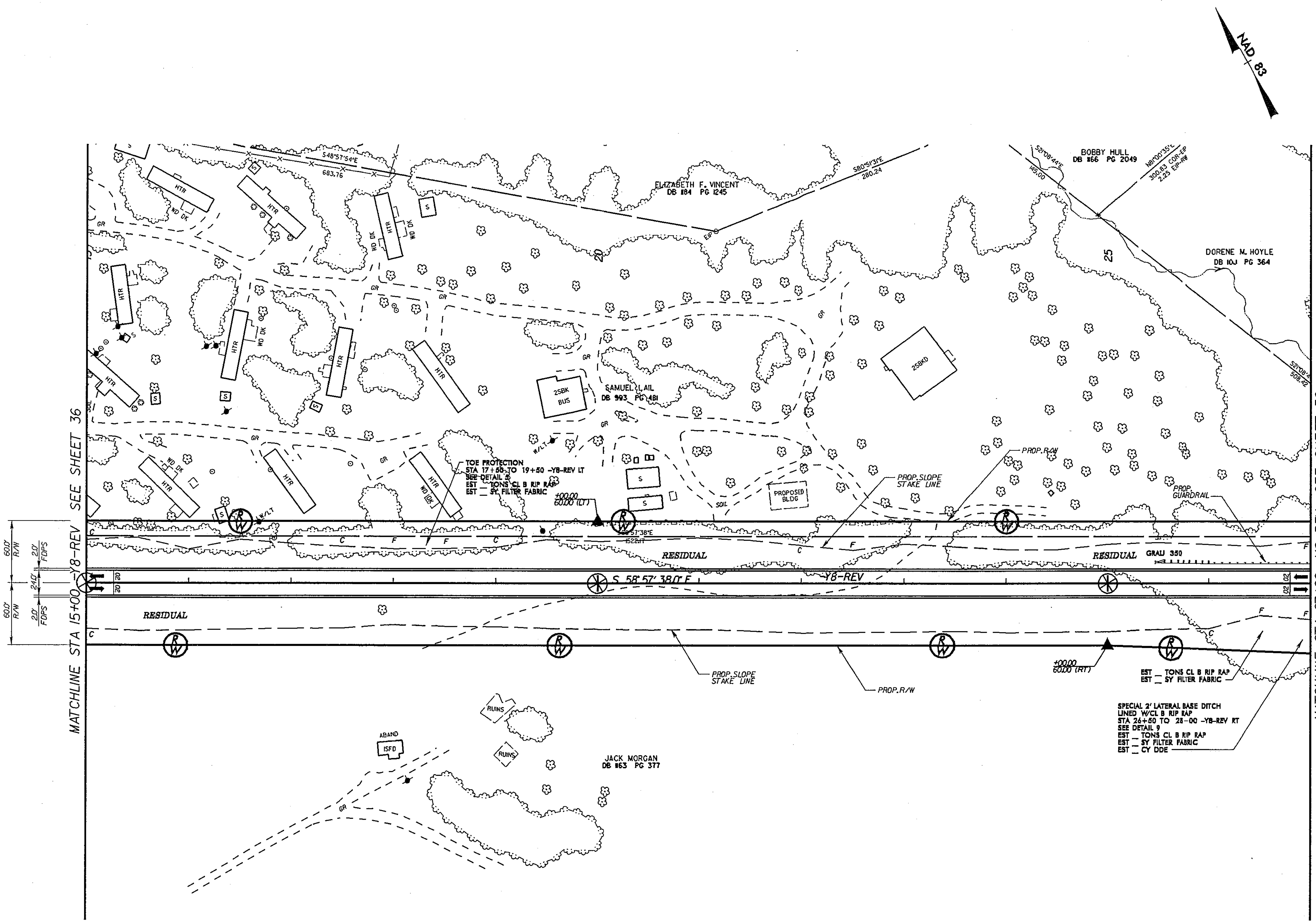
FOR -Y9- PROFILE SEE SHEET 87
FOR -Y8-REV PROFILE SEE SHEET 85

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	37
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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



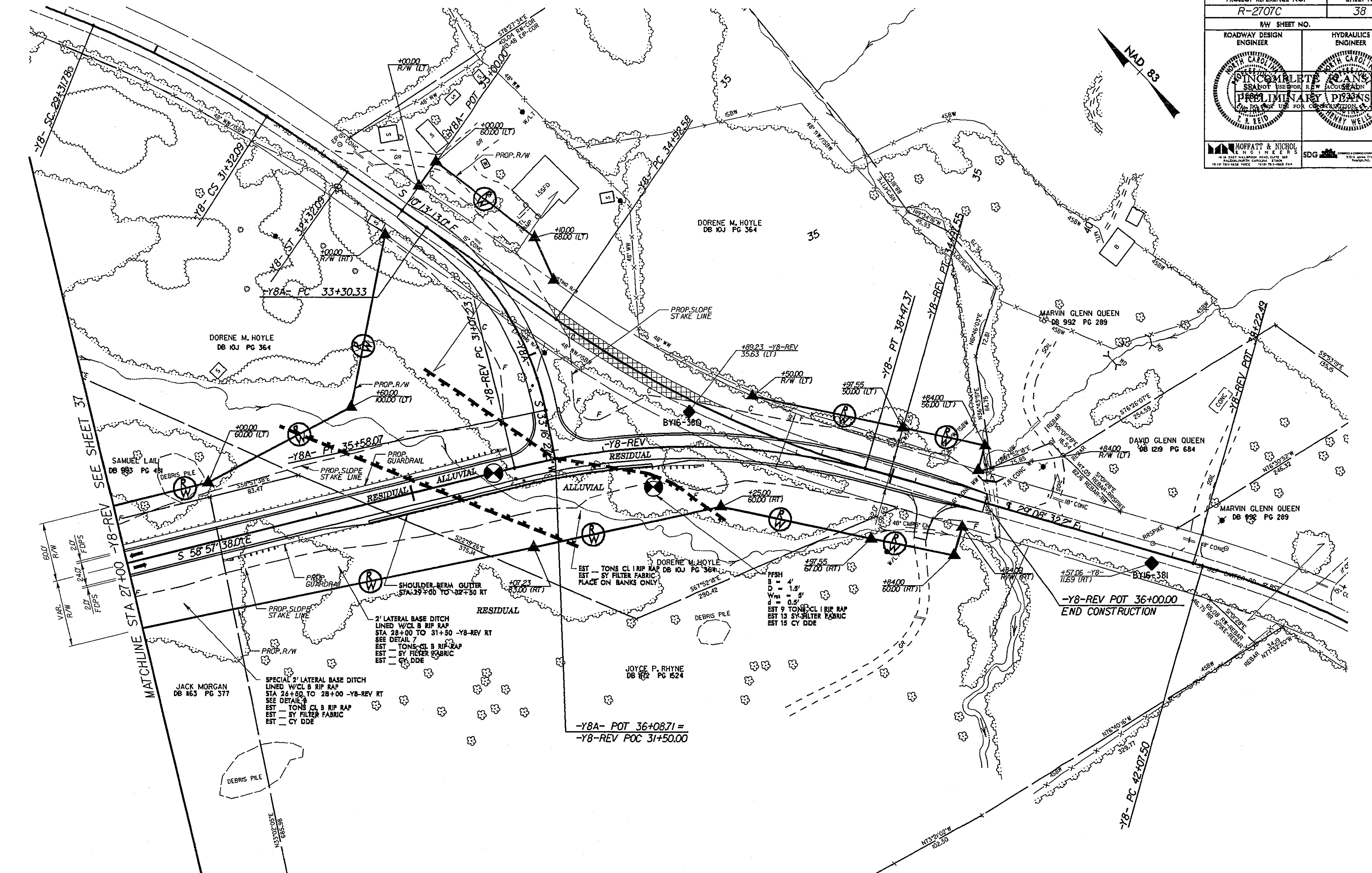
NAD 83
MATCHLINE STA 15+00 -Y8-REV SEE SHEET 36
MATCHLINE STA 27+00 -Y8-REV SEE SHEET 38
ELIZABETH F. VINCENT
DB 184 PG 1245
BOBBY HULL
DB 166 PG 2049
DORENE M. HOYLE
DB 10J PG 364
SAMUEL L. LAIL
DB 993 PG 481
JACK MORGAN
DB 163 PG 377
TOE PROTECTION
STA 17+50 TO 19+50 -Y8-REV LT
SEE DETAIL 5
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
+00.00
60.00 (LT)
+00.00
60.00 (RT)
PROP. R/W
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
RESIDUAL
GRAU 350
S 58°57' 38.0" E
-Y8-REV
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
SPECIAL 2' LATERAL BASE DITCH
LINED W/CL B RIP RAP
STA 26+80 TO 28+00 -Y8-REV RT
SEE DETAIL 9
EST __ TONS CL B RIP RAP
EST __ SY FILTER FABRIC
EST __ CY DDE
PROPOSED BLDG
HTR
25BK BUS
25BKD
RUINS
ABAND
ISFD
60.0' R/W
20' FDPS
24.0'
VAR. R/W

FOR -Y8-REV PROFILE SEE SHEET 85

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	38
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

MOFFATT & NICHOL ENGINEERS



NAD 83
MATCHLINE STA 27+00 -Y8-REV
SEE SHEET 37
DORENE M. HOYLE
DB 10J PG 364
MARVIN GLENN QUEEN
DB 992 PG 289
DAVID GLENN QUEEN
DB 1219 PG 684
SAMUEL LAIL
DB 983 PG 481
JACK MORGAN
DB 863 PG 377
JOYCE P. RHYNE
DB 872 PG 1524
-Y8A- PC 33+30.33
-Y8A- PI 35+58.07
-Y8A- POT 36+08.71 =
-Y8-REV POC 31+50.00
-Y8-REV POT 36+00.00
END CONSTRUCTION
S 58°57'38.0"E
RESIDUAL
ALLUVIAL
PROP. SLOPE STAKE LINE
PROP. R/W
PROP. GUARDRAIL
DEBRIS PILE
SHOULDER BERM GUTTER
STA 29+00 TO 32+50 RT
2' LATERAL BASE DITCH
LINED W/CL B RIP RAP
STA 28+00 TO 31+50 -Y8-REV RT
SEE DETAIL 7
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST _ CY DDE
SPECIAL 2' LATERAL BASE DITCH
LINED W/CL B RIP RAP
STA 26+50 TO 28+00 -Y8-REV RT
SEE DETAIL 8
EST _ TONS CL B RIP RAP
EST _ SY FILTER FABRIC
EST _ CY DDE
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
PLACE ON BANKS ONLY
PFSH
EST 9 TONS CL I RIP RAP
EST 13 SY FILTER FABRIC
EST 15 CY DDE
BY16-380
BY16-381

-Y8-		
PIs Sta 28+98.45	PI Sta 30+32.20	PIs Sta 31+65.43
θs = 2° 34' 01.3"	Δ = 10° 17' 03.1" (RT)	θs = 2° 34' 01.3"
Ls = 100.00'	D = 5° 08' 02.5"	Ls = 100.00'
LT = 66.67'	L = 200.31'	LT = 66.67'
ST = 33.34'	T = 100.43'	ST = 33.34'
	R = 1,116.00'	

-Y8-	-Y8-
PI Sta 36+71.61	PI Sta 43+89.21
Δ = 18° 55' 19.2" (LT)	Δ = 23° 17' 46.6" (RT)
D = 5° 20' 00.0"	D = 6° 30' 00.0"
L = 354.79'	L = 358.40'
T = 179.02'	T = 181.71'
R = 1,074.30'	R = 881.47'

-Y8A-	-Y8-REV
PI Sta 34+50.00	PI Sta 33+06.92
Δ = 43° 29' 40.5" (RT)	Δ = 29° 49' 05.8" (RT)
D = 19° 05' 54.9"	D = 7° 38' 22.0"
L = 227.74'	L = 390.32'
T = 119.67'	T = 199.69'
R = 300.00'	R = 750.00'
SE = .08	SE = .08
	RO = 200'

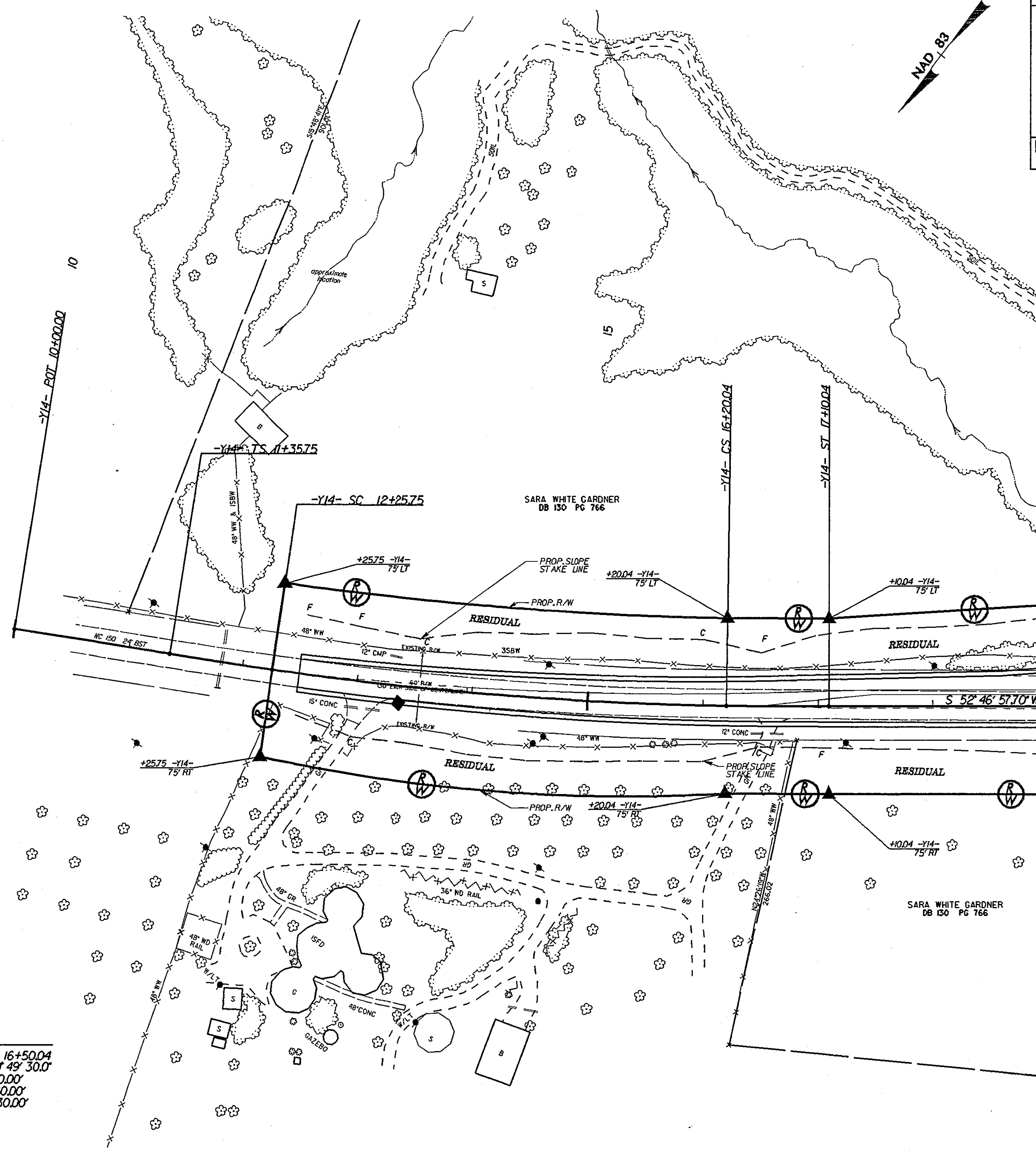
FOR -Y8A- PROFILE SEE SHEET 86
FOR -Y8-REV PROFILE SEE SHEET 85

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	39
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

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.
915-A Jones Franklin Rd.
Raleigh, N.C. 27606



-Y14-

PIs Sta 11+95.75	PI Sta 14+23.15	PIs Sta 16+50.04
θs = 0° 49' 30.0"	Δ = 7° 13' 43.1" (LT)	θs = 0° 49' 30.0"
Ls = 90.00'	D = 1° 50' 00.0"	Ls = 90.00'
LT = 60.00'	L = 394.29	LT = 60.00'
ST = 30.00'	T = 197.41'	ST = 30.00'
	R = 3,125.22'	

FOR -Y14- PROFILE SEE SHEET 90

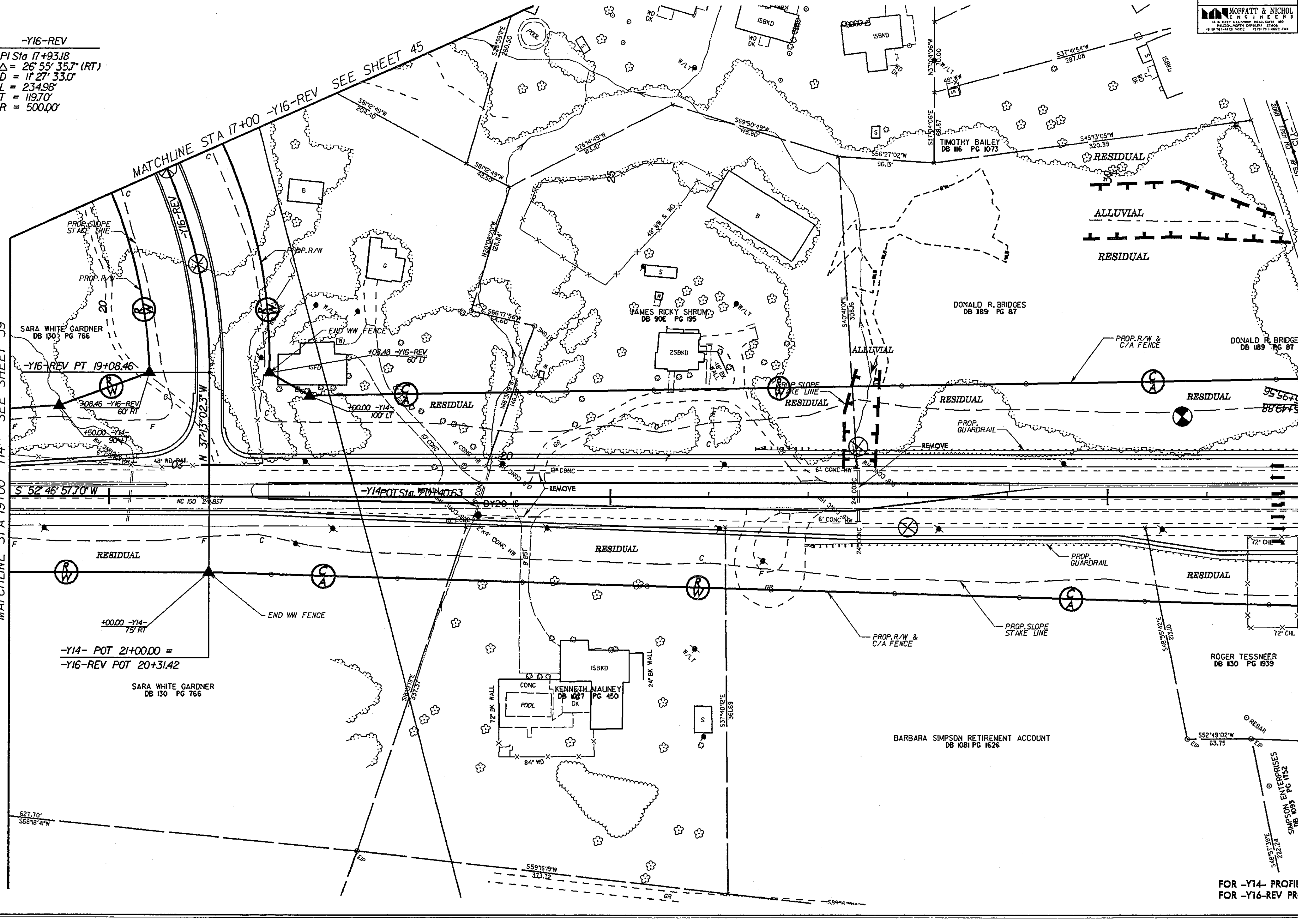
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

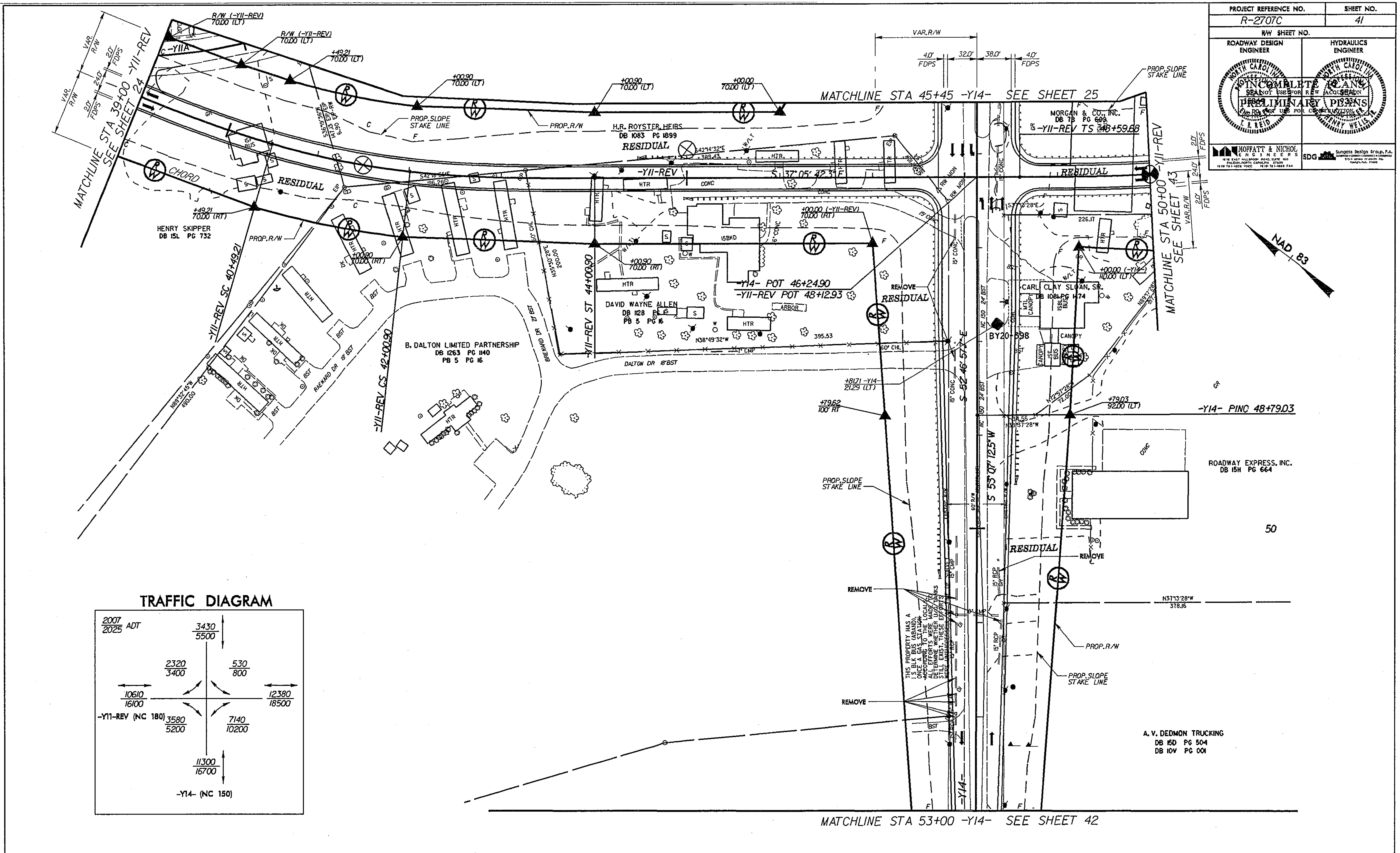
SDG Sungate Design Group, P.A.

NAD 83



-Y16-REV
PI Sta 17+93.18
Δ = 26° 55' 35.7" (RT)
D = 11° 27' 33.0"
L = 234.98'
T = 119.70'
R = 500.00'
MATCHLINE STA 17+00 -Y16-REV SEE SHEET 45
MATCHLINE STA 19+00 -Y14- SEE SHEET 39
MATCHLINE STA 32+00 -Y14- SEE SHEET 25
SARA WHITE GARDNER
DB 130 PG 766
-Y16-REV PT 19+08.46
+08.46 -Y16-REV 60' RT
+50.00 -Y14- 90' LT
+08.48 -Y16-REV 60' LT
+00.00 -Y14- 100' LT
END WW FENCE
PROP. SLOPE STAKE LINE
PROP. R/W
RESIDUAL
ALLUVIAL
TIMOTHY BAILEY
DB 116 PG 1073
JAMES RICKY SHRUM
DB 90E PG 195
DONALD R. BRIDGES
DB 1189 PG 87
PROP. R/W & C/A FENCE
PROP. GUARDRAIL
REMOVE
S 52° 46' 57.70" W
N 37° 13' 02.3" W
-Y14- POT Sta 20+40.63
+00.00 -Y14- 75' RT
-Y14- POT 21+00.00 =
-Y16-REV POT 20+31.42
KENNETH MAUNEY
DB 1027 PG 450
BARBARA SIMPSON RETIREMENT ACCOUNT
DB 1081 PG 1626
ROGER TESSNEER
DB 130 PG 1939
SIMPSON ENTERPRISES
DB 1093 PG 1752

FOR -Y14- PROFILE SEE SHEET 90
FOR -Y16-REV PROFILE SEE SHEET 92


PROJECT REFERENCE NO. R-2707C
SHEET NO. 41
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
DO NOT USE FOR R/W ACQUISITION
DO NOT USE FOR CONSTRUCTION
MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.
MATCHLINE STA 45+45 -Y14- SEE SHEET 25
MATCHLINE STA 39+00 -Y11-REV SEE SHEET 24
MATCHLINE STA 50+00 -Y11-REV SEE SHEET 43
MATCHLINE STA 53+00 -Y14- SEE SHEET 42
NAD 83
H.R. ROYSTER HEIRS
DB 1083 PG 1899
HENRY SKIPPER
DB 15L PG 732
MORGAN & CO., INC.
DB 7B PG 699
DAVID WAYNE ALLEN
DB 1128 PG 6
PB 5 PG 16
B. DALTON LIMITED PARTNERSHIP
DB 1263 PG 1140
PB 5 PG 16
CARL CLAY SLOAN, SR.
DB 1081 PG 1474
ROADWAY EXPRESS, INC.
DB 15H PG 664
A. V. DEDMON TRUCKING
DB 15D PG 504
DB 10V PG 001
RESIDUAL
PROP. R/W
PROP. SLOPE STAKE LINE
REMOVE
-Y11-REV
-Y14-
-Y11-REV SC 40+49.21
-Y11-REV CS 42+00.90
-Y11-REV ST 44+00.90
-Y11-REV TS 48+59.68
-Y14- POT 46+24.90
-Y11-REV POT 48+12.93
-Y14- PINC 48+79.03
DALTON DR
BY20+3.98
TRAFFIC DIAGRAM
2007
2025 ADT
3430
5500
2320
3400
530
800
10610
16100
12380
18500
-Y11-REV (NC 180)
3580
5200
7140
10200
11300
16700
-Y14- (NC 150)
THIS PROPERTY HAS A 1 S. BLK BUS (ABAND.) ONCE A GAS STATION. ACCORDING TO THE LOCALS, ALL EFFORTS WERE MADE TO DETERMINE WHETHER UST TANKS STILL EXIST. THESE EFFORTS WERE UNSUCCESSFUL.

-Y11-REV

PIs Sta 39+82.63	PI Sta 41+25.24	PIs Sta 42+67.65	PIs Sta 49+93.10
Θs = 6° 25' 00.0"	Δ = 9° 44' 00.4" (LT)	Θs = 6° 25' 00.0"	Θs = 6° 25' 00.0"
Ls = 200.00'	D = 6° 25' 00.0"	Ls = 200.00'	Ls = 200.00'
LT = 133.42'	L = 151.69	LT = 133.42'	LT = 133.42'
ST = 66.75'	T = 76.03'	ST = 66.75'	ST = 66.75'
	R = 892.92'		
	SE = .08		

FOR -Y11-REV PROFILE SEE SHEET 88
FOR -Y14- PROFILE SEE SHEET 91

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	42
R/W SHEET NO.	

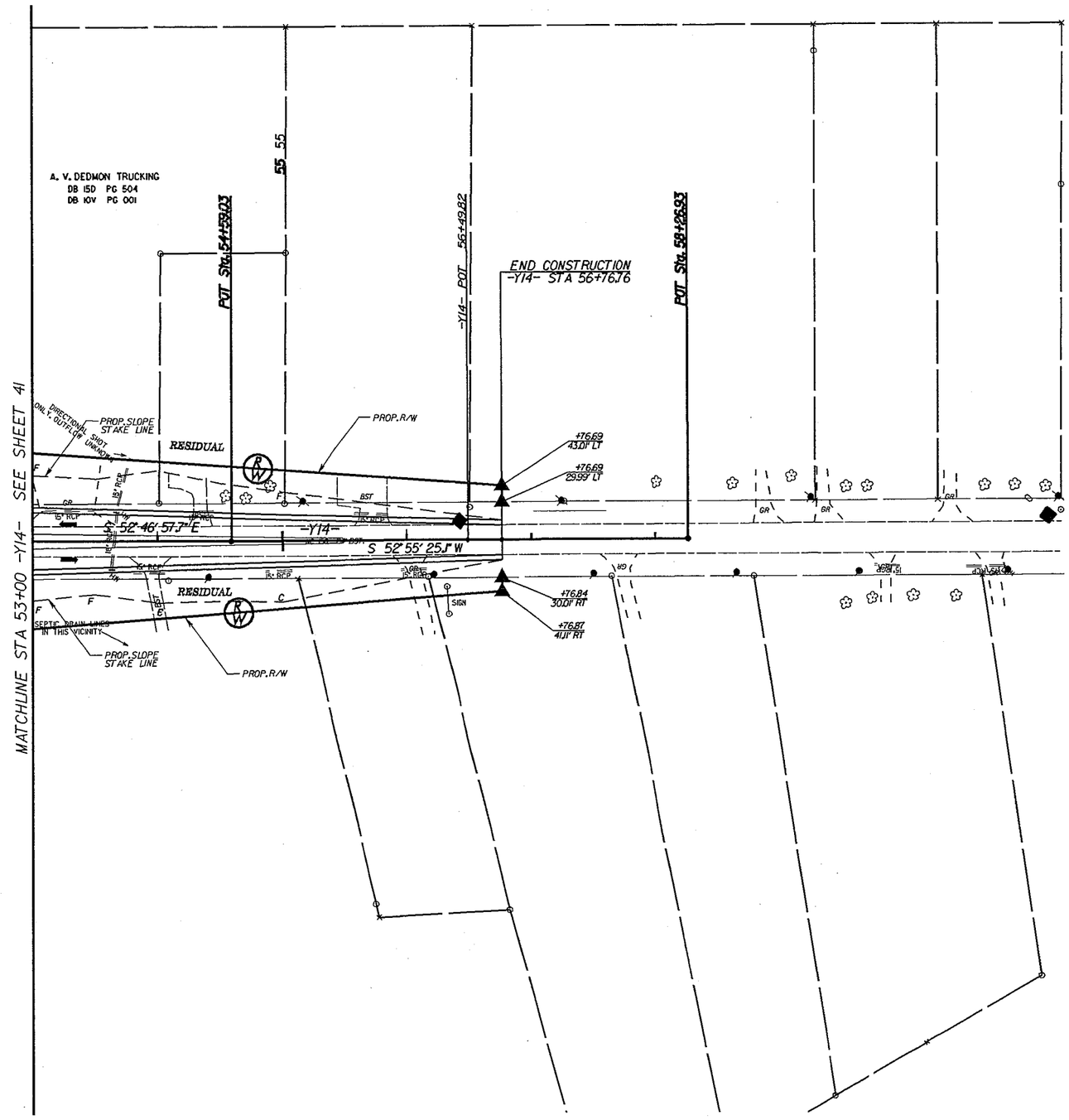
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83

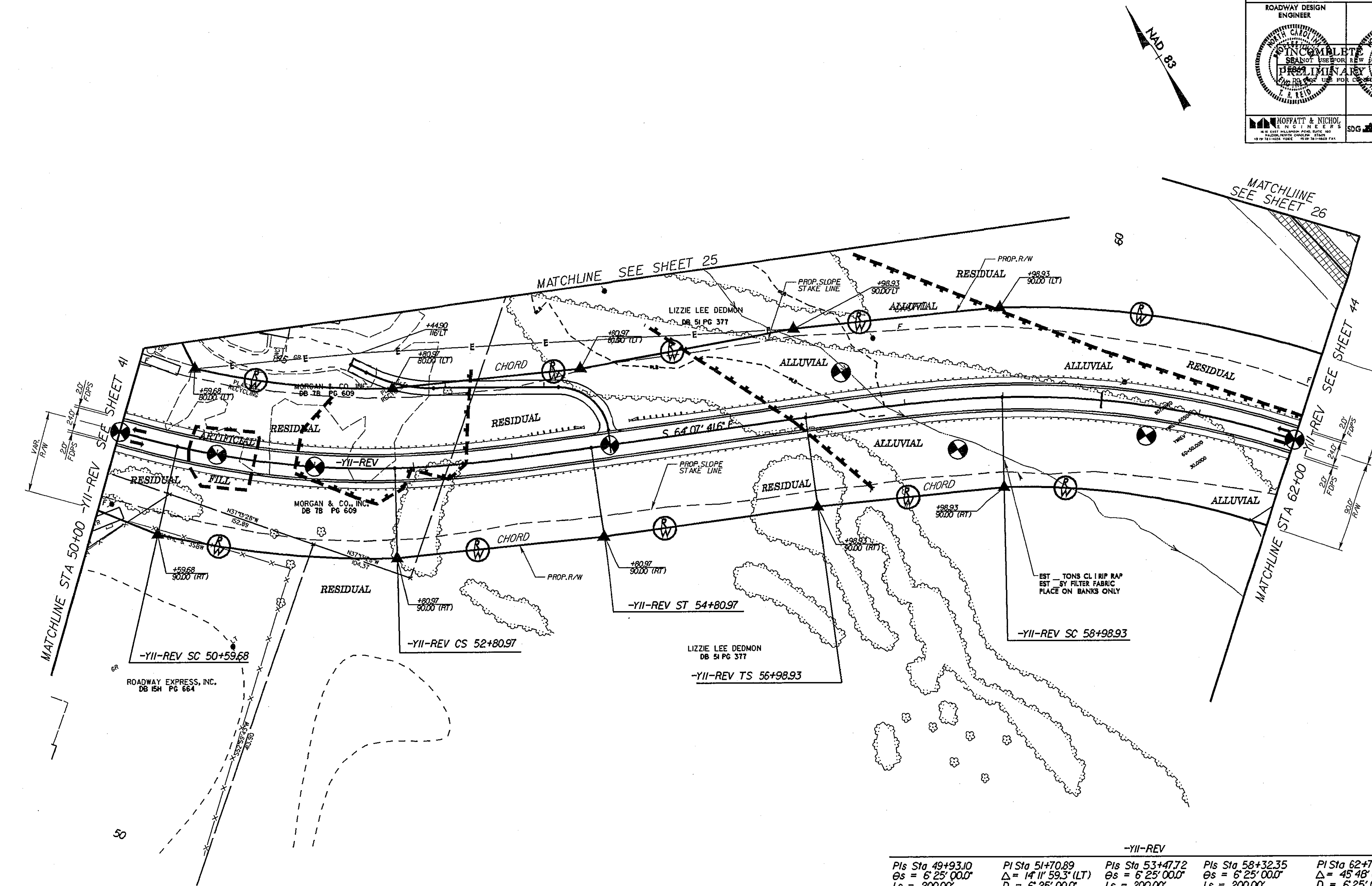
FOR -Y14- PROFILE SEE SHEET 91

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	43
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.



NAD 83
MATCHLINE SEE SHEET 25
MATCHLIINE SEE SHEET 26
MATCHLINE STA 50+00 -YII-REV SEE SHEET 41
MATCHLINE STA 62+00 -YII-REV SEE SHEET 44
LIZZIE LEE DEDMON DB 51 PG 377
MORGAN & CO., INC. DB 7B PG 609
ROADWAY EXPRESS, INC. DB 15H PG 664
RESIDUAL
ALLUVIAL
ARTIFICIAL FILL
CHORD
-YII-REV
PROP. SLOPE STAKE LINE
PROP. R/W
-YII-REV SC 50+59.68
-YII-REV CS 52+80.97
-YII-REV ST 54+80.97
-YII-REV TS 56+98.93
-YII-REV SC 58+98.93
EST _ TONS CL I RIP RAP
EST _ SY FILTER FABRIC
PLACE ON BANKS ONLY

-YII-REV

PIs Sta 49+93.10	PI Sta 51+70.89	PIs Sta 53+47.72	PIs Sta 58+32.35	PI Sta 62+76.12
θs = 6° 25′ 00.0″	Δ = 14° 11′ 59.3″ (LT)	θs = 6° 25′ 00.0″	θs = 6° 25′ 00.0″	Δ = 45° 48′ 01.2″ (RT)
Ls = 200.00′	D = 6° 25′ 00.0″	Ls = 200.00′	Ls = 200.00′	D = 6° 25′ 00.0″
LT = 133.42′	L = 221.30	LT = 133.42′	LT = 133.42′	L = 713.77
ST = 66.75′	T = 111.22′	ST = 66.75′	ST = 66.75′	T = 377.19′
	R = 892.92′			R = 892.92′
	SE = .08			SE = .08

FOR -YII-REV PROFILE SEE SHEETS 88 & 89

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	44
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16331 T. R. REID

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16331 HENRY WELLS, JR.

INCOMPLETE PLANS NOT TO BE USED FOR R/W ACQUISITION OR CONSTRUCTION PRELIMINARY PLANS

MOFFATT & NICHOL ENGINEERS

SDG Supporta Design Group, P.A.

NAD 83

MATCHLINE SEE SHEET 26

THOMAS MILLS CURRY, III DB 65P PG 409

EDWIN VANHOY DB 18Y PG 568

-Y11-REV CS 66+12.70

-Y11-REV ST 68+12.30

-Y11-REV POT 71+00.00

+63.11 -Y11B- 15.08 (RT)

PROP. R/W

+40 -Y11-REV 110' RT

WILLIAM G. SPAKE DB TZ PG 567

R/W -Y11B- 30 (RT)

+60 -Y11-REV 125' LT

+60 -Y11-REV 150' LT

R/W -Y11B- 30' LT

+85 -Y11-REV 115' LT

R/W -Y11B- 30' LT

PROP. SLOPE STAKE LINE

R/W -Y11B- 30' LT

+20.00 -Y11-REV 54' LT

REMOVE

+38.21 -Y11-REV 56' LT

REMOVE

+93.38 -Y11-REV 56' LT

+75.00 40.00 (LT)

+75.00 R/W (LT)

R/W -Y11B- 30' RT

-Y11-REV

RESIDUAL

S 5° 29' 40.4" E

NC 180 NORTH POST RD

+12.70 50.00 (RT)

+75.00 R/W (RT)

+75.00 50.00 (RT)

-Y11-REV POT 69+75.00 END CONSTRUCTION

SEE SHEET 43

-Y11-REV STA 62+00

ALLUVIAL

BILLY WRAY WILLIAMSON DB 1083 PG 281

HAZEL D. MCNEELY DB 7E PG 139

PROP. SLOPE STAKE LINE

PROP. R/W

RESIDUAL

MATCHLINE STA 62+00

LELIA YARBOROUGH WB 6 PG 518 PB 2 PG 25

-Y11-REV

PI Sta 62+76.12	PIs Sta 66+79.45
Δ = 45° 48' 01.2" (RT)	θs = 6° 25' 00.0"
D = 6° 25' 00.0"	Ls = 200.00'
L = 713.77'	LT = 133.42'
T = 377.19'	ST = 66.75'
R = 892.92'	
SE = .08	

FOR -Y11-REV PROFILE SEE SHEET 89

22-MAY-2008 09:55
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cburris AT GEH26157

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	45
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15682 T. R. REID	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15682 HENRY WELLS, JR.

INCOMPLETE PLANS
SEAL NOT USED FOR R/W ACQUISITION
PRELIMINARY PLANS
NOT FOR USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.

NAD 83

-Y16-REV PC 16+73.48
-Y16-REV PT 16+39.39
-Y16-REV STA 12+45.99 = -Y16A- STA 15+14.26
-Y16-REV PC 12+25.43
END CONSTRUCTION -Y16A- STA 13+75.00
END CONSTRUCTION -Y16-REV STA 10+00.00
POT Sta. 10+00.00
POT Sta. 17+00 -Y16-REV
SEE SHEET 40
T42-13096 ELEV=868.73'
T42-13089 ELEV=877.14'
T41-807 ELEV=848.4'
MARGARET DIANE MITCHELL
SECRETARY OF HOUSING & URBAN DEVELOPMENT
MARY CRAWLEY HARTSELL
THOMAS ERIC CLONINGER
ALLUVIUM
RESIDUAL
PROP. R/W
PROP. SLOPE STAKE LINE
-Y16-REV
-Y16A-
-L-
-T41A-
-T42-
-T43-
-EY12-
-EY16-
-EY16A-
-EY16B-
-EY16C-
-EY16D-
-EY16E-
-EY16F-
-EY16G-
-EY16H-
-EY16I-
-EY16J-
-EY16K-
-EY16L-
-EY16M-
-EY16N-
-EY16O-
-EY16P-
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-EY16ZS-
-EY16ZT-
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-EY16ZV-
-EY16ZW-
-EY16ZX-
-EY16ZY-
-EY16ZZ-

-Y16-REV

PI Sta 17+93.18	PI Sta 14+45.11
Δ = 26° 55' 35.7" (RT)	Δ = 47° 26' 10.4" (LT)
D = 11° 27' 33.0"	D = 11° 27' 33.0"
L = 234.98'	L = 413.96'
T = 119.70'	T = 219.67'
R = 500.00'	R = 500.00'

FOR -Y16-REV PROFILE SEE SHEET 92
FOR -Y16A- PROFILE SEE SHEET 93

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

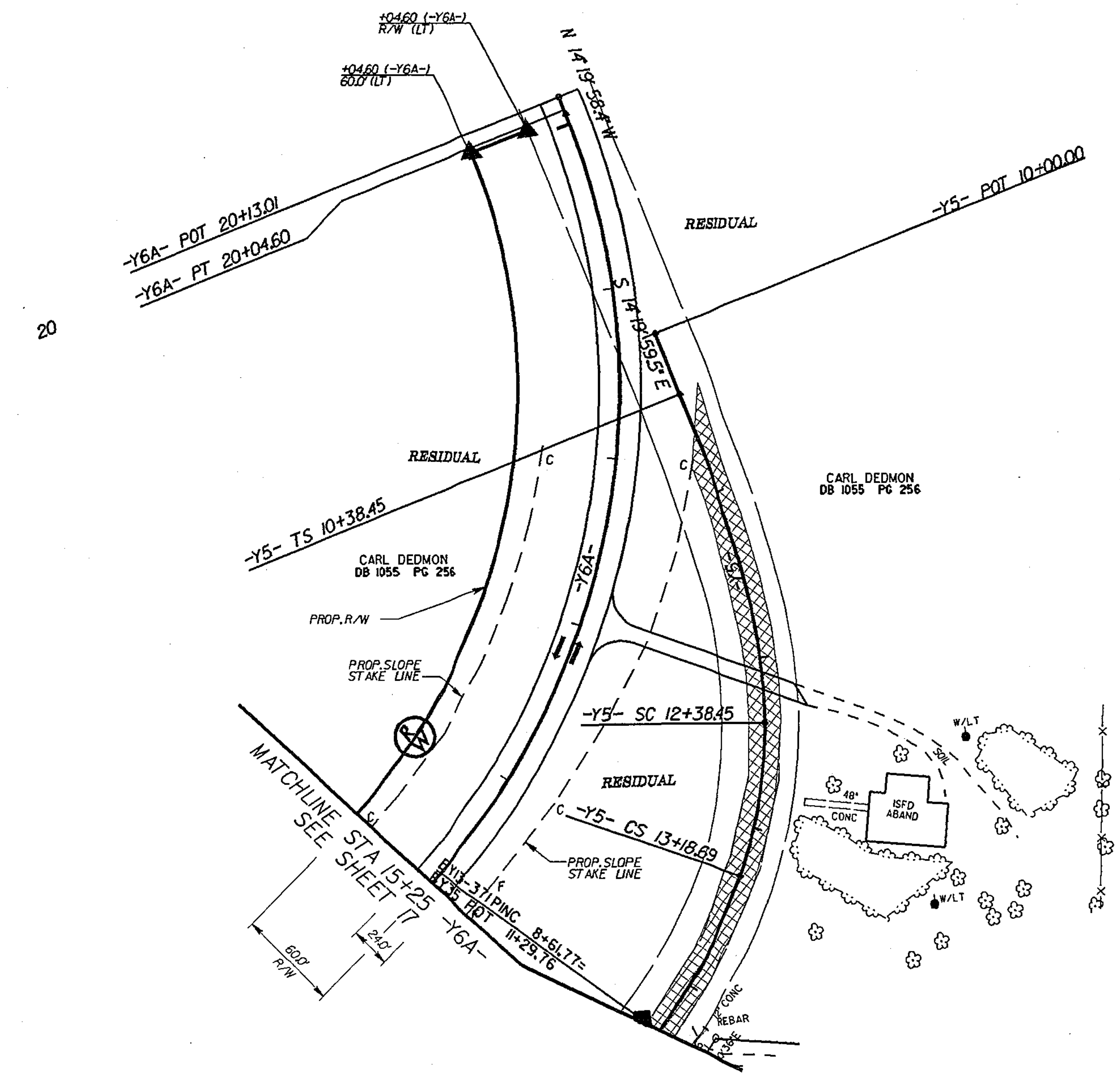
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

NAD 83

ADDITIONAL TOPO AND
DTM COVERAGE REQUIRED



-Y6A-

PI Sta 18+74.21
Δ = 123° 04' 59.2" (LT)
D = 13° 19' 28.6"
L = 923.73'
T = 793.33'
R = 430.00'

-Y5-

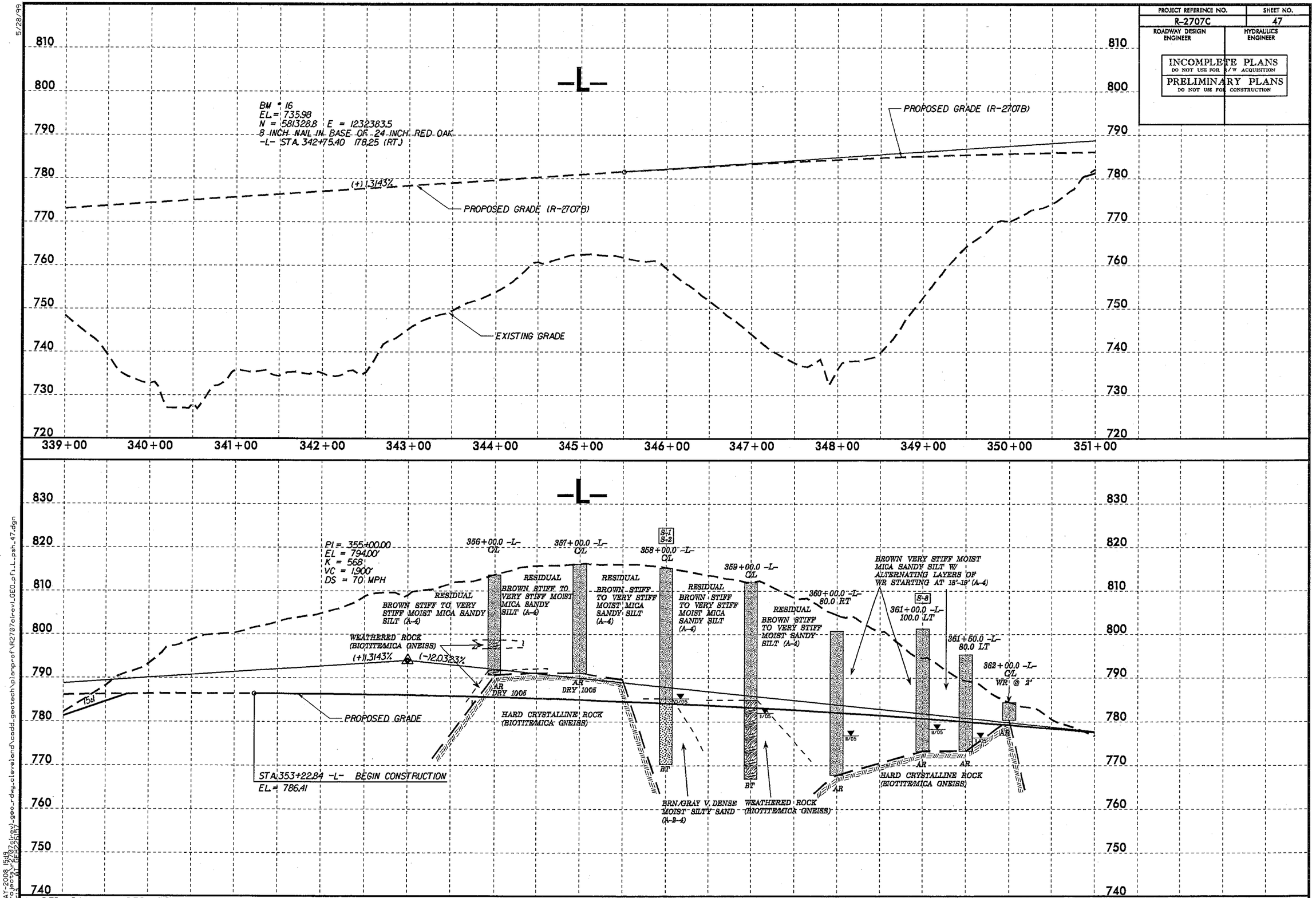
PIs Sta 13+96.72	PI Sta 14+85.71
Θs = 21° 30' 00.0"	Δ = 30° 39' 00.8" (RT)
Ls = 200.00'	D = 38° 11' 49.9"
LT = 134.33'	L = 80.24'
ST = 67.57'	T = 41.11'
	R = 150.00'

FOR -Y6A- PROFILE SEE SHEET 84

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 24 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 72 CFS
DESIGN HW ELEVATION	= 752.08 FT
100 YEAR DISCHARGE	= 84 CFS
100 YEAR HW ELEVATION	= 752.60 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +84 CFS
OVERTOPPING ELEVATION	= 764.70 FT

-L-

S-24
364+00.0 -L- C/L
RESIDUAL
BROWN STIFF TO VERY STIFF MOIST SANDY SILT (A-4)
BT DRY 11/05
(-)2.0323%
PROPOSED GRADE
ALLUVIAL BROWN VERY SOFT TO MED. STIFF MOIST SANDY SILT (A-4)
SS-27 SS-28 SS-29
366+26.0 -L- C/L
EXISTING GRADE
RESIDUAL
BT DRY 11/05
GRAY/BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-4)
368+50.0 -L- C/L
RESIDUAL
BROWN STIFF TO VERY STIFF MOIST SANDY SILT (A-4)
BT DRY 11/05
370+00.0 -L- C/L
RESIDUAL
BROWN STIFF TO VERY STIFF MOIST SANDY SILT (A-4)
BT DRY 11/05
PROPOSED GRADE
372+00.0 -L- C/L
RESIDUAL
BROWN MED. DENSE TO DENSE MOIST SILTY SAND (A-2-4)
BT DRY 11/05
(-)2.0323%
374+00.0 -L- C/L
RESIDUAL
BROWN- MED. DENSE TO DENSE MOIST SILTY SAND (A-4)
BT DRY 11/05

376+00.0 -L- C/L
RESIDUAL
BROWN MED. DENSE TO DENSE MOIST SILTY SAND (A-2-5)
BT DRY 11/05
SS-33 SS-34 MS-34
377+00.0 -L- 80.0 LT
377+50.0 -L- 80.0 RT
378+00.0 -L- C/L
BROWN MED. DENSE TO DENSE MOIST SILTY SAND (A-2-5)
WEATHERED ROCK (BIOTITE/MICA GNEISS)
378+50.0 -L- 60.0 RT
AR DRY 11/05
RESIDUAL
BROWN DENSE TO V. DENSE MOIST SILTY SAND (A-2-5)
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
EXISTING GRADE
PROPOSED GRADE
SS-41 SS-42 SS-43
380+75.0 -L- 25.0 RT
RESIDUAL
RED/BROWN MED. STIFF MOIST SANDY CLAY (A-6)
BT DRY 11/05
BROWN MED. DENSE MOIST CLAYEY SAND (A-2-6)
ALLUVIAL
RESIDUAL
ALLUVIAL
EXISTING GRADE
RESIDUAL

BM # 17
EL = 707.47'
N = 581328.8 E = 1236485.0
8 INCH NAIL IN BASE OF 20 INCH SYCAMORE
-L- STA. 385+52.11 93.83' (LT)

PI = 386+00.00
EL = 731.00'
K = 185
VC = 700'
DS = 70 MPH
(-)2.0323%
(+)1.7500%

363+00 364+00 365+00 366+00 367+00 368+00 369+00 370+00 371+00 372+00 373+00 374+00 375+00
375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00 387+00
720 730 740 750 760 770 780 790 800 810
690 700 710 720 730 740 750 760 770 780

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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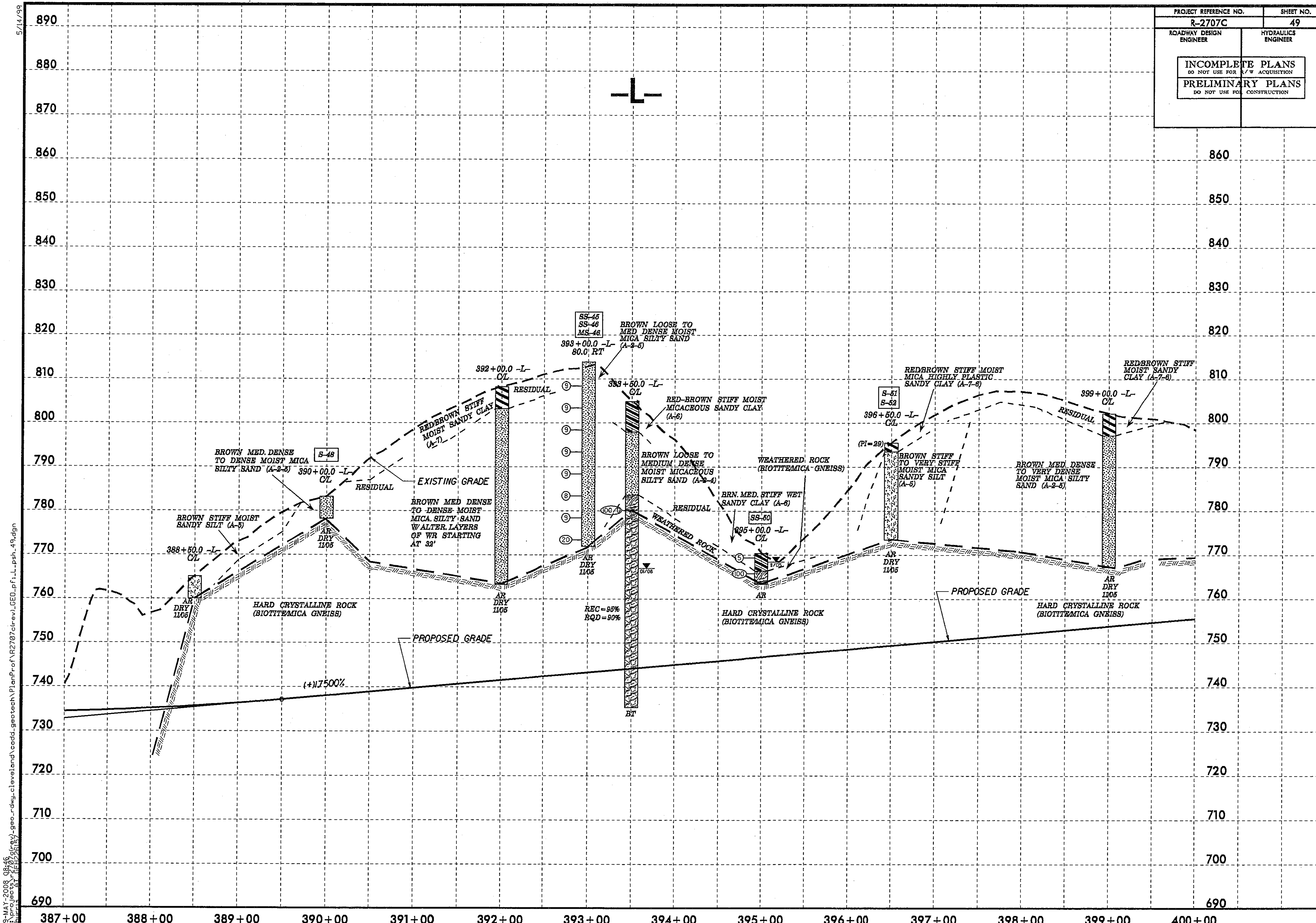

5/14/99
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
710
700
690
387+00
388+00
389+00
390+00
391+00
392+00
393+00
394+00
395+00
396+00
397+00
398+00
399+00
400+00
388+50.0 -L- C/L
AR DRY 11/05
BROWN STIFF MOIST SANDY SILT (A-5)
BROWN MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
S-48
390+00.0 -L- C/L
AR DRY 11/05
RESIDUAL
EXISTING GRADE
RED/BROWN STIFF MOIST SANDY CLAY (A-7)
BROWN MED DENSE TO DENSE MOIST MICA. SILTY SAND W/ALTER. LAYERS OF WR STARTING AT 32'
392+00.0 -L- C/L
AR DRY 11/05
RESIDUAL
SS-45
SS-46
MS-46
393+00.0 -L- 80.0' RT
AR DRY 11/05
BROWN LOOSE TO MED DENSE MOIST MICA SILTY SAND (A-2-5)
393+50.0 -L- C/L
RED-BROWN STIFF MOIST MICACEOUS SANDY CLAY (A-6)
BROWN LOOSE TO MEDIUM DENSE MOIST MICACEOUS SILTY SAND (A-2-4)
RESIDUAL
WEATHERED ROCK
REC=95%
RQD=90%
BT
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
PROPOSED GRADE
(+)1.7500%
WEATHERED ROCK (BIOTITE/MICA GNEISS)
BRN. MED. STIFF WET SANDY CLAY (A-6)
SS-50
395+00.0 -L- C/L
AR
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
S-51
S-52
396+50.0 -L- C/L
(PI=29)
RED/BROWN STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-6)
BROWN STIFF TO VERY STIFF MOIST MICA SANDY SILT (A-5)
AR DRY 11/05
PROPOSED GRADE
BROWN MED. DENSE TO VERY DENSE MOIST MICA SILTY SAND (A-2-5)
RESIDUAL
399+00.0 -L- C/L
RED/BROWN STIFF MOIST SANDY CLAY (A-7-6)
AR DRY 11/05
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
29-MAY-2008 08:46

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	50

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM # 19
EL. = 743.84
N = 5816442 E = 1238547.5
8 INCH NAIL IN BASE OF 15 INCH WHITE OAK
-L- STA. 406+30.34 85.93' (LT.)

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 67 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 175 CFS
DESIGN HW ELEVATION	= 736.0 FT
100 YEAR DISCHARGE	= 205 CFS
100 YEAR HW ELEVATION	= 737.0 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +205 CFS
OVERTOPPING ELEVATION	= 759.0 FT

EXISTING GRADE

(+)17500%

PROPOSED GRADE

RESIDUAL GRAY/WHITE LOOSE TO MED. DENSE MOIST TO WET SILTY SANDS

HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

BRN. MED. DENSE TO V. DENSE MOIST MIC. SILTY SAND

ALLUVIAL GRAY/BRN. VERY LOOSE SAT. SILTY SAND (A-2-4)

RESIDUAL

ALLUVIAL BROWN LOOSE WET FINE CLAYEY SAND W/BOULDERS (A-1-b)

66"

RESIDUAL

HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

408+60.0 -L- C/L

EXISTING GRADE

RESIDUAL

RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)

BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-6)

BT DRY 1205

410+00.0 -L- C/L

BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

BT DRY 1206

BROWN DENSE TO V. DENSE MOIST MICA SILTY SAND W/ALTER. LAYERS OF WR.

880 870 860 850 840 830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680

400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00 411+00 412+00

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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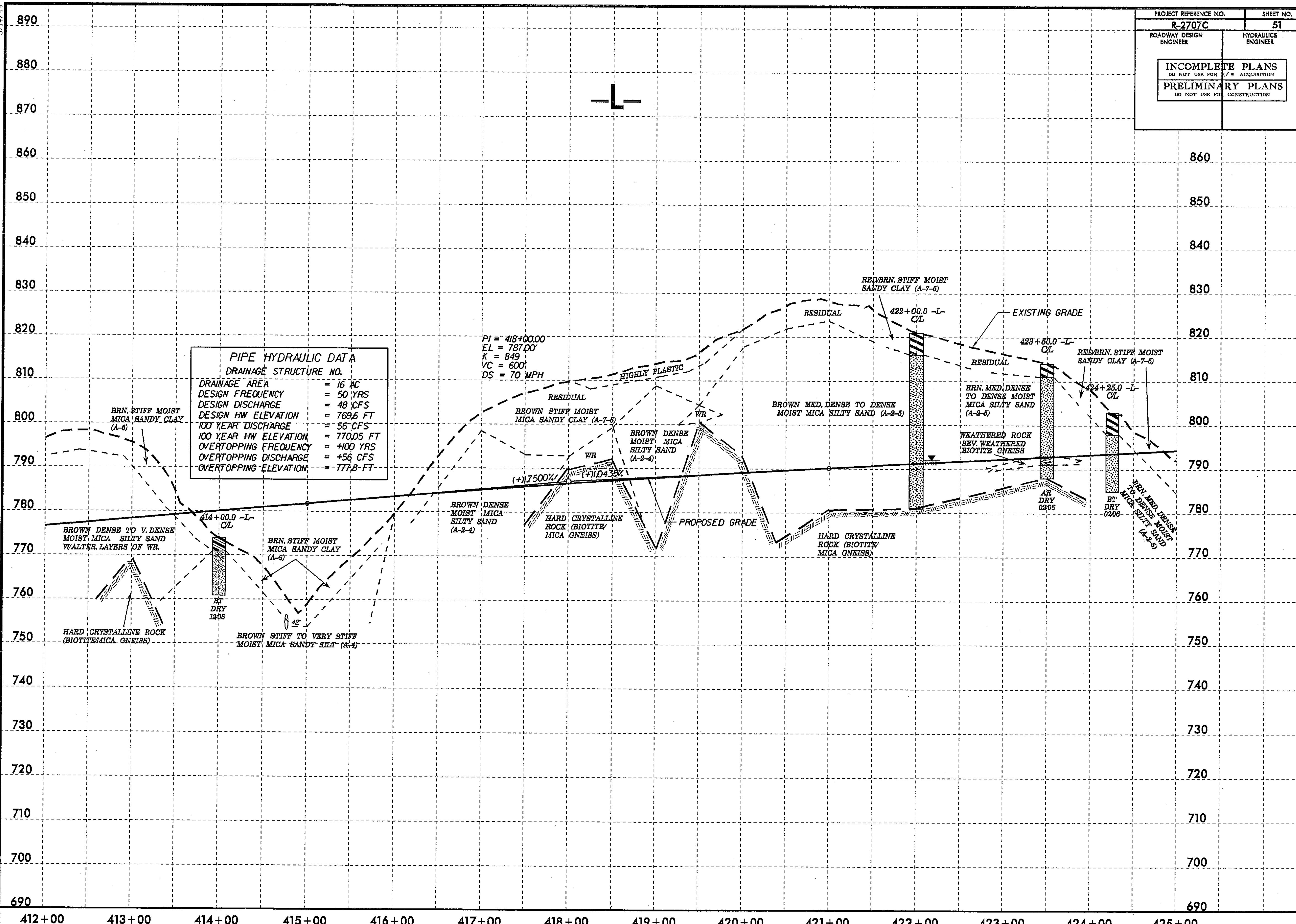

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 16 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 48 CFS
DESIGN HW ELEVATION = 769.6 FT
100 YEAR DISCHARGE = 56 CFS
100 YEAR HW ELEVATION = 770.05 FT
OVERTOPPING FREQUENCY = +100 YRS
OVERTOPPING DISCHARGE = +56 CFS
OVERTOPPING ELEVATION = 777.8 FT
PI = 418+00.00
EL = 787.00'
K = 849
VC = 600'
DS = 70 MPH
(+)1.7500%
(+)1.0435%
PROPOSED GRADE
EXISTING GRADE
RESIDUAL
HIGHLY PLASTIC
WR
BRN. STIFF MOIST MICA SANDY CLAY (A-6)
BROWN DENSE TO V. DENSE MOIST MICA SILTY SAND W/ALTER. LAYERS OF WR.
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
414+00.0 -L- C/L
BT DRY 12/05
BRN. STIFF MOIST MICA SANDY CLAY (A-6)
BROWN STIFF TO VERY STIFF MOIST MICA SANDY SILT (A-4)
42'
BROWN DENSE MOIST MICA SILTY SAND (A-2-4)
BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)
HARD CRYSTALLINE ROCK (BIOTITE/ MICA GNEISS)
BROWN DENSE MOIST MICA SILTY SAND (A-2-4)
BROWN MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
HARD CRYSTALLINE ROCK (BIOTITE/ MICA GNEISS)
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
422+00.0 -L- C/L
423+50.0 -L- C/L
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
WEATHERED ROCK SEV. WEATHERED BIOTITE GNEISS
AR DRY 02/06
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
424+25.0 -L- C/L
BT DRY 02/06
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
710
700
690
412+00
413+00
414+00
415+00
416+00
417+00
418+00
419+00
420+00
421+00
422+00
423+00
424+00
425+00

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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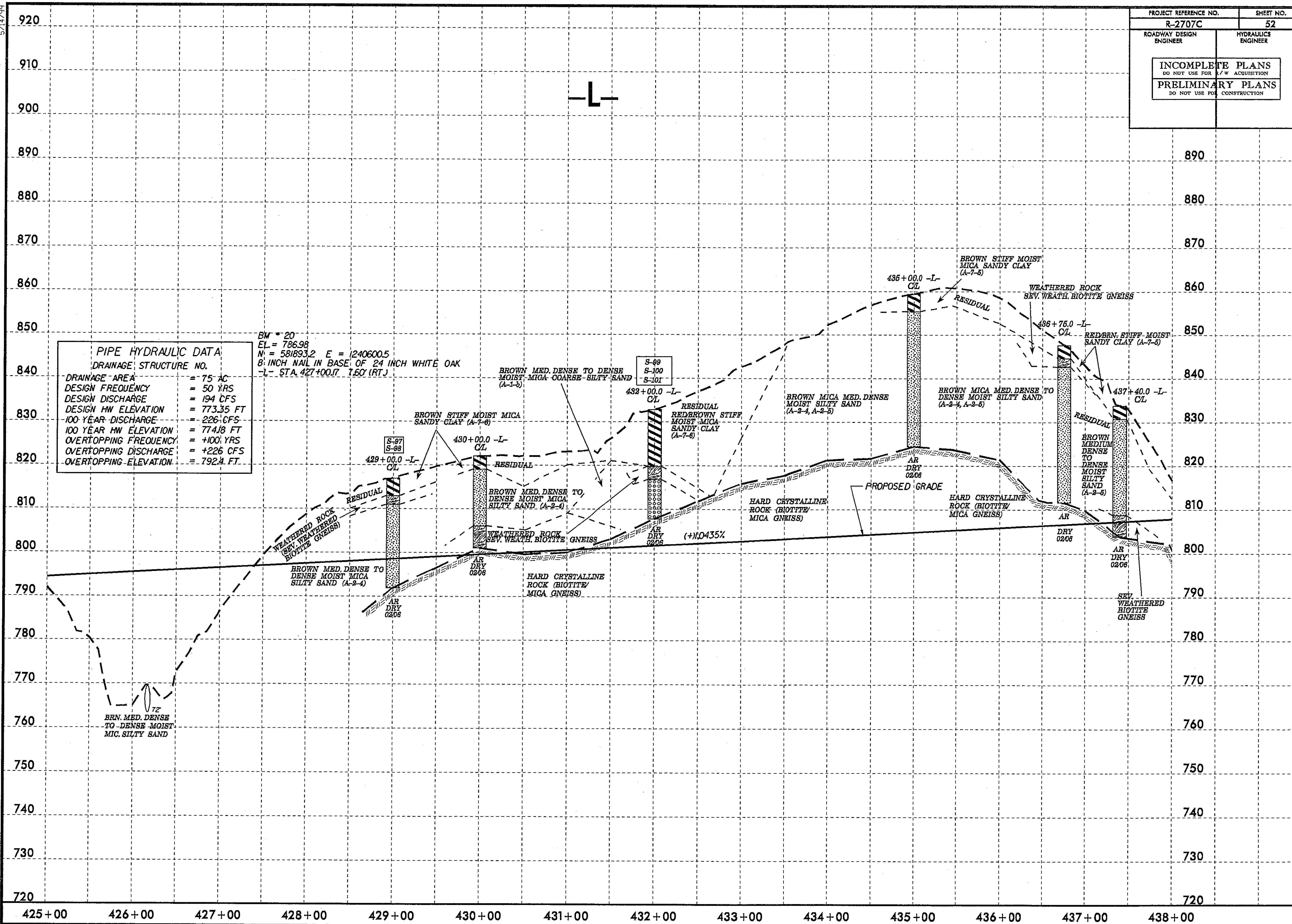

BM 20
EL = 786.98
N = 581893.2 E = 1240600.5
8 INCH NAIL IN BASE OF 24 INCH WHITE OAK
-L- STA. 427+00.17 7.60' (RT.)
429+00.0 -L- C/L
S-97
S-98
430+00.0 -L- C/L
432+00.0 -L- C/L
S-99
S-100
S-101
436+00.0 -L- C/L
436+75.0 -L- C/L
437+40.0 -L- C/L
BROWN STIFF MOIST MICA SANDY CLAY (A-7-6)
RESIDUAL
WEATHERED ROCK (SEV. WEATHERED BIOTITE GNEISS)
BROWN MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-4)
BROWN MED. DENSE TO DENSE MOIST MICA COARSE SILTY SAND (A-1-b)
WEATHERED ROCK SEV. WEATH. BIOTITE GNEISS
HARD CRYSTALLINE ROCK (BIOTITE/ MICA GNEISS)
RESIDUAL RED/BROWN STIFF MOIST MICA SANDY CLAY (A-7-6)
BROWN MICA MED. DENSE MOIST SILTY SAND (A-2-4, A-2-5)
BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)
WEATHERED ROCK SEV. WEATH. BIOTITE GNEISS
RED/BRN. STIFF-MOIST SANDY CLAY (A-7-5)
BROWN MICA MED. DENSE TO DENSE MOIST SILTY SAND (A-2-4, A-2-5)
BROWN MEDIUM DENSE TO DENSE MOIST SILTY SAND (A-2-5)
SEV. WEATHERED BIOTITE GNEISS
PROPOSED GRADE
(+)1.0435%
AR DRY 02/06
72"
BRN. MED. DENSE TO DENSE MOIST MIC. SILTY SAND
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
425+00
426+00
427+00
428+00
429+00
430+00
431+00
432+00
433+00
434+00
435+00
436+00
437+00
438+00

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	75 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	194 CFS
DESIGN HW ELEVATION	=	773.35 FT
100 YEAR DISCHARGE	=	226 CFS
100 YEAR HW ELEVATION	=	774.18 FT
OVERTOPPING FREQUENCY	=	+100 YRS
OVERTOPPING DISCHARGE	=	+226 CFS
OVERTOPPING ELEVATION	=	792.4 FT

5/14/99

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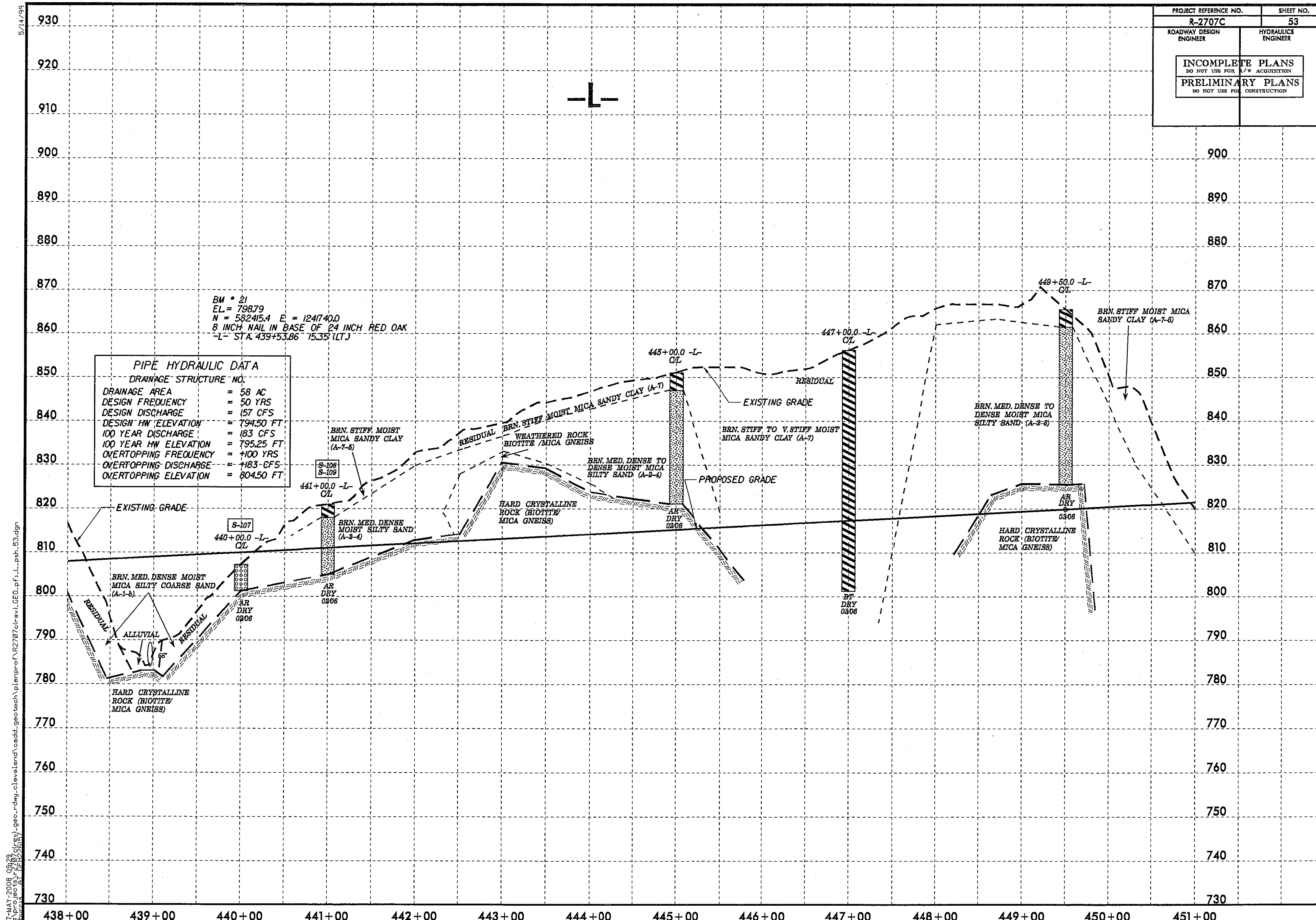
PROJECT REFERENCE NO.
R-2707C
SHEET NO.
53
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L-
BM • 21
EL.= 798.79
N = 582415.4 E = 1241740.0
8 INCH NAIL IN BASE OF 24 INCH RED OAK
-L- STA. 439+53.86 15.35' (LT.)
EXISTING GRADE
PROPOSED GRADE
RESIDUAL
ALLUVIAL
BRN. MED. DENSE MOIST MICA SILTY COARSE SAND (A-1-b)
HARD CRYSTALLINE ROCK (BIOTITE/ MICA GNEISS)
S-107
440+00.0 -L- C/L
AR DRY 02/06
S-108
S-109
441+00.0 -L- C/L
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST SILTY SAND (A-2-4)
BRN. STIFF MOIST MICA SANDY CLAY (A-7)
WEATHERED ROCK BIOTITE /MICA GNEISS
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-4)
445+00.0 -L- C/L
AR DRY 02/06
BRN. STIFF TO V. STIFF MOIST MICA SANDY CLAY (A-7)
447+00.0 -L- C/L
BT DRY 03/06
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
449+50.0 -L- C/L
BRN. STIFF MOIST MICA SANDY CLAY (A-7-6)
AR DRY 03/06
930
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
438+00
439+00
440+00
441+00
442+00
443+00
444+00
445+00
446+00
447+00
448+00
449+00
450+00
451+00
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PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

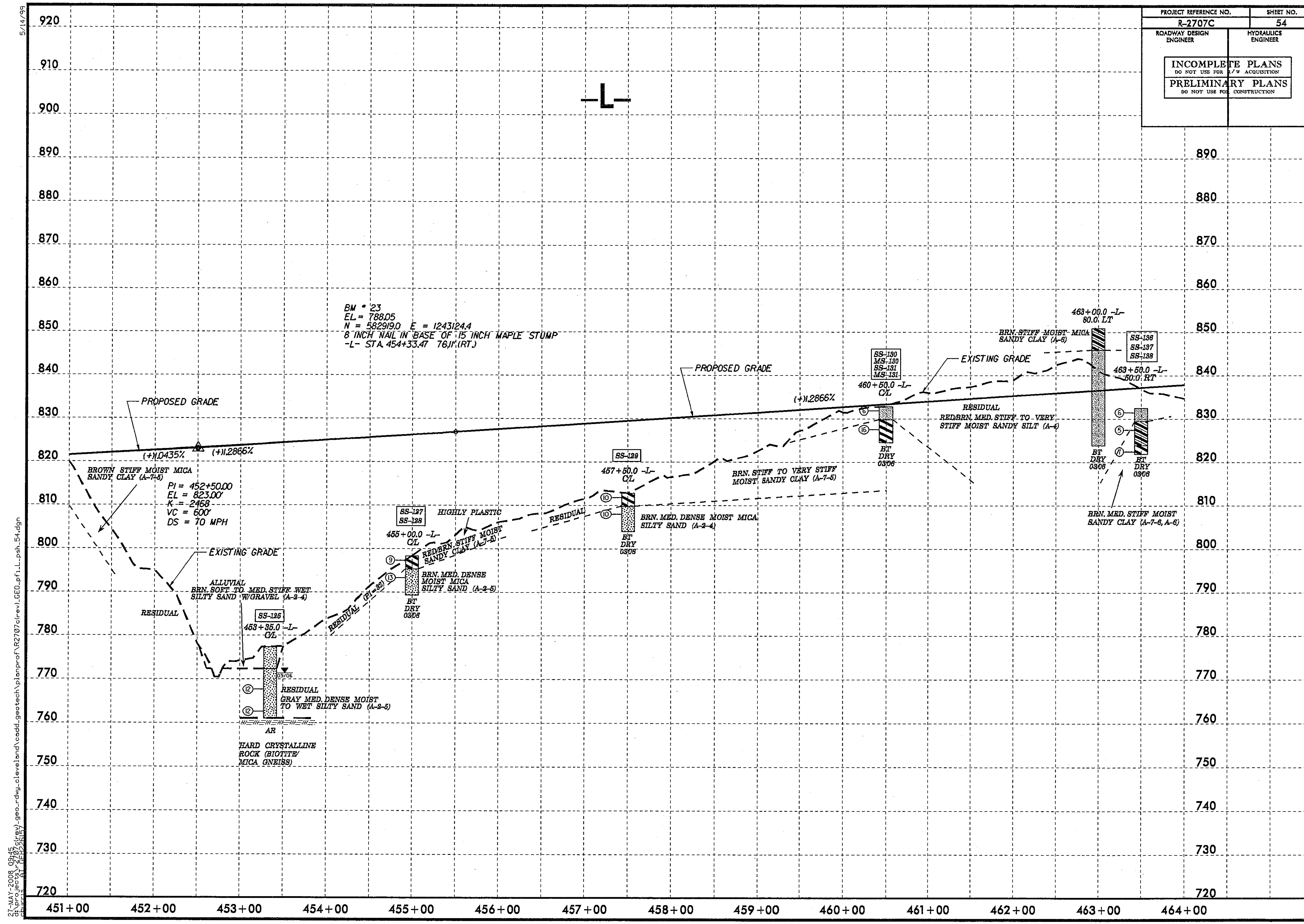
DRAINAGE AREA	= 58 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 157 CFS
DESIGN HW ELEVATION	= 794.50 FT
100 YEAR DISCHARGE	= 183 CFS
100 YEAR HW ELEVATION	= 795.25 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +183 CFS
OVERTOPPING ELEVATION	= 804.50 FT

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



5/14/99
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
BM * 23
EL= 788.05
N = 582919.0 E = 1243124.4
8 INCH NAIL IN BASE OF 15 INCH MAPLE STUMP
-L- STA. 454+33.47 76.11'(RT.)
PROPOSED GRADE
(+)1.0435%
(+)1.2866%
BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)
PI = 452+50.00
EL = 823.00'
K = 2468
VC = 600'
DS = 70 MPH
EXISTING GRADE
ALLUVIAL
BRN. SOFT TO MED. STIFF WET SILTY SAND W/GRAVEL (A-2-4)
RESIDUAL
SS-125
453+35.0 -L-
C/L
03/06
RESIDUAL
GRAY MED. DENSE MOIST TO WET SILTY SAND (A-2-5)
AR
HARD CRYSTALLINE ROCK (BIOTITE/ MICA GNEISS)
SS-127
SS-128
455+00.0 -L-
C/L
HIGHLY PLASTIC
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA SILTY SAND (A-2-5)
BT
DRY
03/06
RESIDUAL
(PI=32)
SS-129
457+50.0 -L-
C/L
BRN. MED. DENSE MOIST MICA SILTY SAND (A-2-4)
BT
DRY
03/06
BRN. STIFF TO VERY STIFF MOIST SANDY CLAY (A-7-5)
(+)1.2866%
SS-130
MS-130
SS-131
MS-131
460+50.0 -L-
C/L
BT
DRY
03/06
RESIDUAL
RED/BRN. MED. STIFF TO VERY STIFF MOIST SANDY SILT (A-4)
EXISTING GRADE
BRN. STIFF MOIST MICA SANDY CLAY (A-6)
463+00.0 -L-
80.0' LT
SS-136
SS-137
SS-138
463+50.0 -L-
50.0' RT
BT
DRY
03/06
BT
DRY
03/06
BRN. MED. STIFF MOIST SANDY CLAY (A-7-6, A-6)
451+00
452+00
453+00
454+00
455+00
456+00
457+00
458+00
459+00
460+00
461+00
462+00
463+00
464+00
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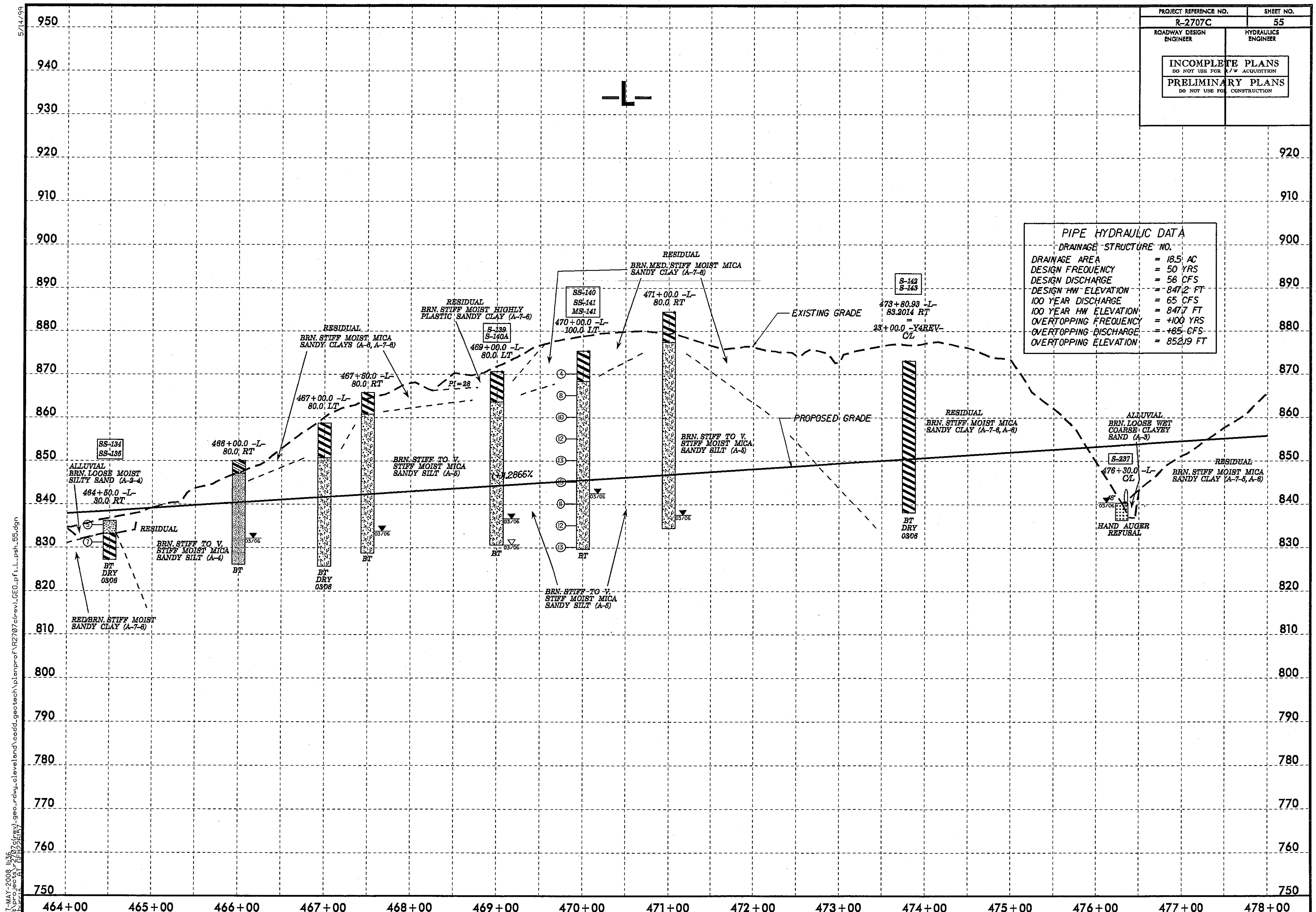

PROJECT REFERENCE NO.
R-2707C
SHEET NO.
55
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L-
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 18.5 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 56 CFS
DESIGN HW ELEVATION = 847.2 FT
100 YEAR DISCHARGE = 65 CFS
100 YEAR HW ELEVATION = 847.7 FT
OVERTOPPING FREQUENCY = +100 YRS
OVERTOPPING DISCHARGE = +65 CFS
OVERTOPPING ELEVATION = 852.19 FT
EXISTING GRADE
PROPOSED GRADE
SS-134
SS-135
ALLUVIAL
BRN. LOOSE MOIST SILTY SAND (A-2-4)
464+50.0 -L-
80.0 RT
RESIDUAL
BT DRY 03/06
RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)
BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-4)
466+00.0 -L-
80.0 RT
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAYS (A-6, A-7-6)
467+00.0 -L-
80.0 LT
467+50.0 -L-
80.0 RT
BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-5)
RESIDUAL
BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
S-139
S-140A
469+00.0 -L-
80.0 LT
PI=28
+1.2866%
SS-140
SS-141
MS-141
470+00.0 -L-
100.0 LT
BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-5)
RESIDUAL
BRN. MED. STIFF MOIST MICA SANDY CLAY (A-7-6)
471+00.0 -L-
80.0 RT
BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-5)
S-142
S-143
473+80.93 -L-
83.2014 RT
=
23+00.0 -Y4REV-
C/L
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-6, A-6)
BT DRY 03/06
ALLUVIAL
BRN. LOOSE WET COARSE CLAYEY SAND (A-3)
S-237
476+30.0 -L-
C/L
HAND AUGER REFUSAL
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5, A-6)
464+00
465+00
466+00
467+00
468+00
469+00
470+00
471+00
472+00
473+00
474+00
475+00
476+00
477+00
478+00
950
940
930
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
5/14/99
27-MAY-2008 11:36

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-L-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 6.2 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 19.6 CFS
DESIGN HW ELEVATION	= 851.3 FT
100 YEAR DISCHARGE	= 21.3 CFS
100 YEAR HW ELEVATION	= 851.65 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +35.0 CFS
OVERTOPPING ELEVATION	= 865.3 FT

970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770

S-144
S-145
480+00.0 -L-
C/L

PROPOSED GRADE

(+)1.2866%

RESIDUAL
BRN. STIFF TO V. STIFF MOIST MICA SANDY CLAY (A-7-6)

BT
DRY
03/06

482+00.0 -L-
80.0 LT

RESIDUAL
BRN. STIFF TO V. STIFF MOIST MICA SANDY CLAY (A-7-6)

BT
03/06

483+00.0 -L-
80.0 RT

RESIDUAL
BRN. STIFF TO V. STIFF MOIST MICA SANDY CLAY (A-7-6)

BT
03/06

BRN. MED. STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-6)

SS-146
SS-147
SS-148
MS-148

484+60.0 -L-
110.0 LT

4 8 9 11 12 12 13 19 18 19

TAN STIFF MOIST MICA SANDY SILT (A-5)

BT
03/06

TAN MED. DENSE MOIST MIC. SILTY SAND

EXISTING GRADE

486+00.0 -L-
C/L

RESIDUAL

BT
DRY
03/06

BROWN STIFF MOIST MICA SANDY SILT (A-5)

SS-149
SS-150
489+80.0 -L-
C/L

RESIDUAL
BRN. LOOSE MOIST MICA SILTY SAND (A-2-4, A-2-5)
4 5

BT
DRY
03/06

ALLUVIAL
BRN. V. LOOSE MOIST SILTY SAND (A-2-6)

SS-151
SS-152
490+85.0 -L-
C/L

30°

RESIDUAL
3 4

03/06

BRN. LOOSE WET MICA CLAYEY SAND (A-2-7)

BT

BRN. LOOSE MOIST CLAYEY SAND (A-2-6)

SS-153
SS-154
491+60.0 -L-
C/L

4 8

BT
DRY
03/06

BRN. LOOSE MOIST SILTY SAND (A-2-4)

478+00 479+00 480+00 481+00 482+00 483+00 484+00 485+00 486+00 487+00 488+00 489+00 490+00 491+00 492+00

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	57

ROADWAY DESIGN ENGINEER

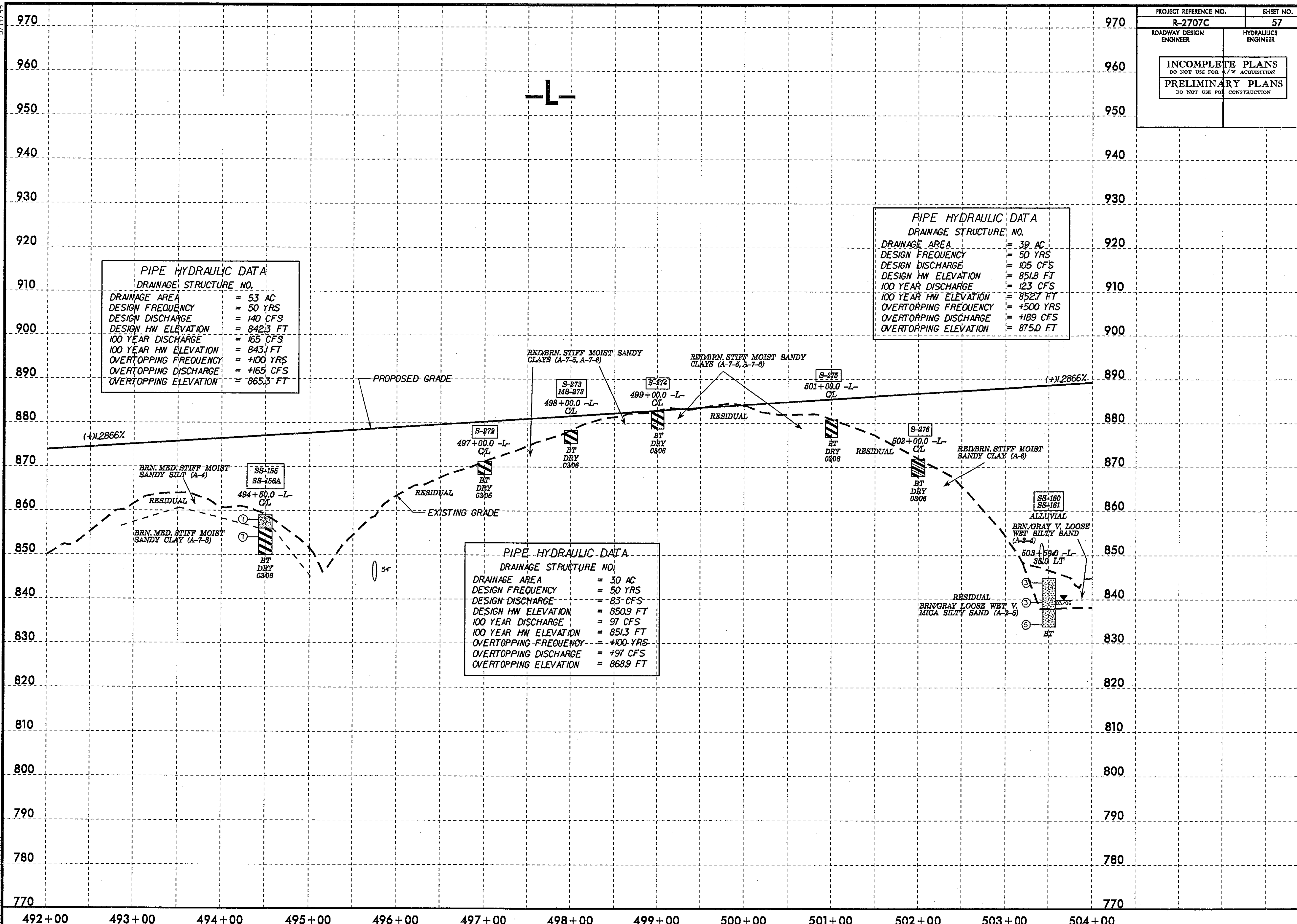
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

-L-



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 53 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 140 CFS
DESIGN HW ELEVATION	= 842.3 FT
100 YEAR DISCHARGE	= 165 CFS
100 YEAR HW ELEVATION	= 843.1 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +165 CFS
OVERTOPPING ELEVATION	= 865.3 FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 30 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 83 CFS
DESIGN HW ELEVATION	= 850.9 FT
100 YEAR DISCHARGE	= 97 CFS
100 YEAR HW ELEVATION	= 851.3 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +97 CFS
OVERTOPPING ELEVATION	= 868.9 FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 39 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 105 CFS
DESIGN HW ELEVATION	= 851.8 FT
100 YEAR DISCHARGE	= 123 CFS
100 YEAR HW ELEVATION	= 852.7 FT
OVERTOPPING FREQUENCY	= +500 YRS
OVERTOPPING DISCHARGE	= +189 CFS
OVERTOPPING ELEVATION	= 875.0 FT

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

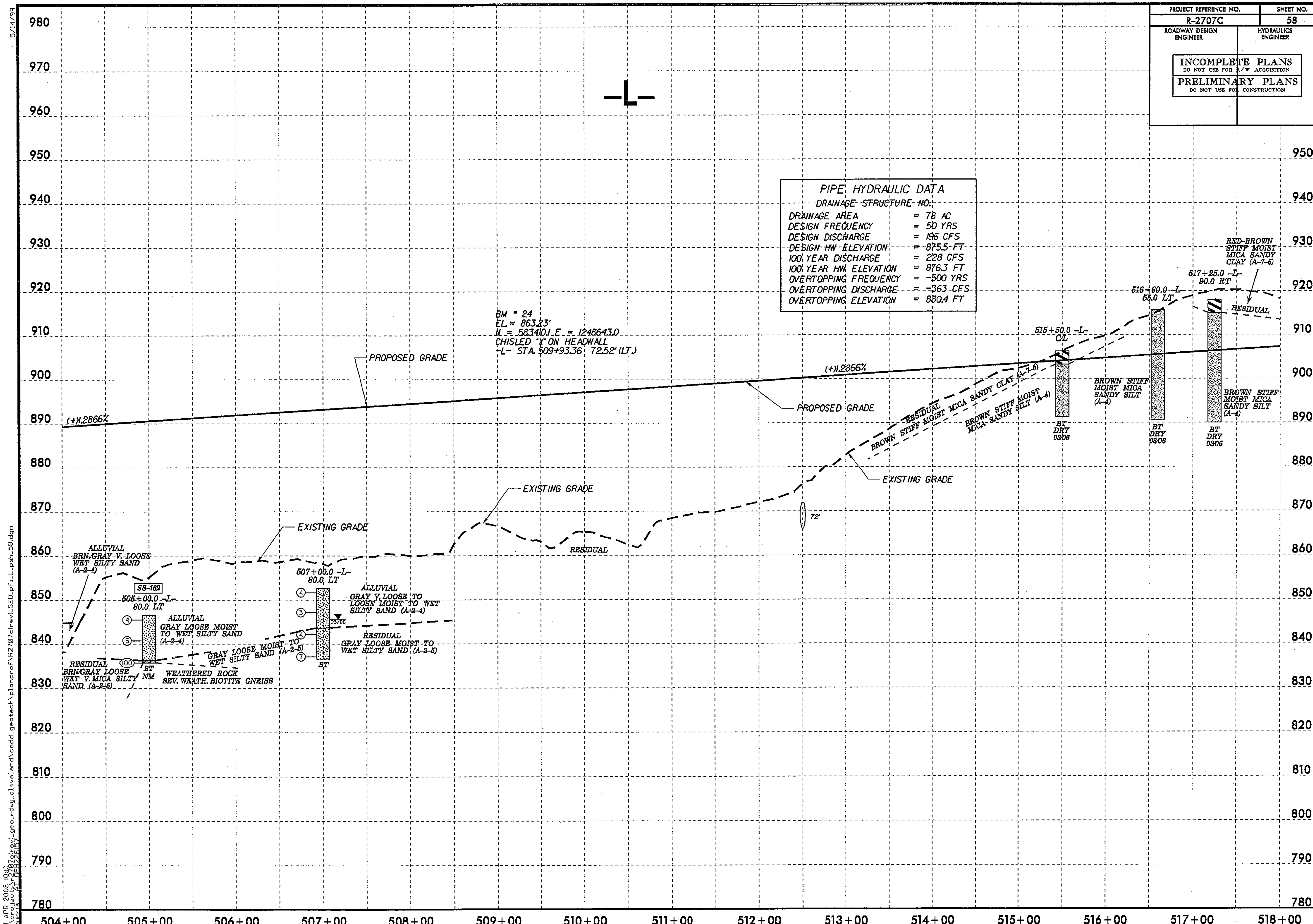
-L-

PIPE HYDRAULIC DATA

~~DRAINAGE STRUCTURE NO.~~

DRAINAGE AREA	= 78 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 196 CFS
~~DESIGN HW ELEVATION~~	~~= 875.5 FT~~
100 YEAR DISCHARGE	= 228 CFS
100 YEAR HW ELEVATION	= 876.3 FT
OVERTOPPING FREQUENCY	= -500 YRS
~~OVERTOPPING DISCHARGE~~	~~= -363 CFS~~
OVERTOPPING ELEVATION	= 880.4 FT

BM # 24
EL = 863.23'
N = 583410.1 E = 1248643.0
CHISLED "X" ON HEADWALL
-L- STA. 509+93.36 72.52' (LT.)



980
970
960
950
940
930
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
504+00
505+00
506+00
507+00
508+00
509+00
510+00
511+00
512+00
513+00
514+00
515+00
516+00
517+00
518+00
PROPOSED GRADE
(+)1.2866%
EXISTING GRADE
RESIDUAL
72"
ALLUVIAL
BRN/GRAY V. LOOSE WET SILTY SAND (A-2-4)
SS-162
505+00.0 -L- 80.0' LT
ALLUVIAL
GRAY LOOSE MOIST TO WET SILTY SAND (A-2-4)
GRAY LOOSE MOIST TO WET SILTY SAND (A-2-5)
RESIDUAL
BRN/GRAY LOOSE WET V. MICA SILTY SAND (A-2-5)
WEATHERED ROCK
SEV. WEATH. BIOTITE GNEISS
BT
NM
507+00.0 -L- 80.0' LT
ALLUVIAL
GRAY V. LOOSE TO LOOSE MOIST TO WET SILTY SAND (A-2-4)
RESIDUAL
GRAY LOOSE MOIST TO WET SILTY SAND (A-2-5)
03/06
BT
BROWN STIFF MOIST MICA SANDY CLAY (A-7-6)
BROWN STIFF MOIST MICA SANDY SILT (A-4)
515+50.0 -L-
C/L
BT
DRY
03/06
BROWN STIFF MOIST MICA SANDY SILT (A-4)
516+60.0 -L-
55.0' LT
517+25.0 -L-
90.0' RT
RED-BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)
BROWN STIFF MOIST MICA SANDY SILT (A-4)

5/14/99

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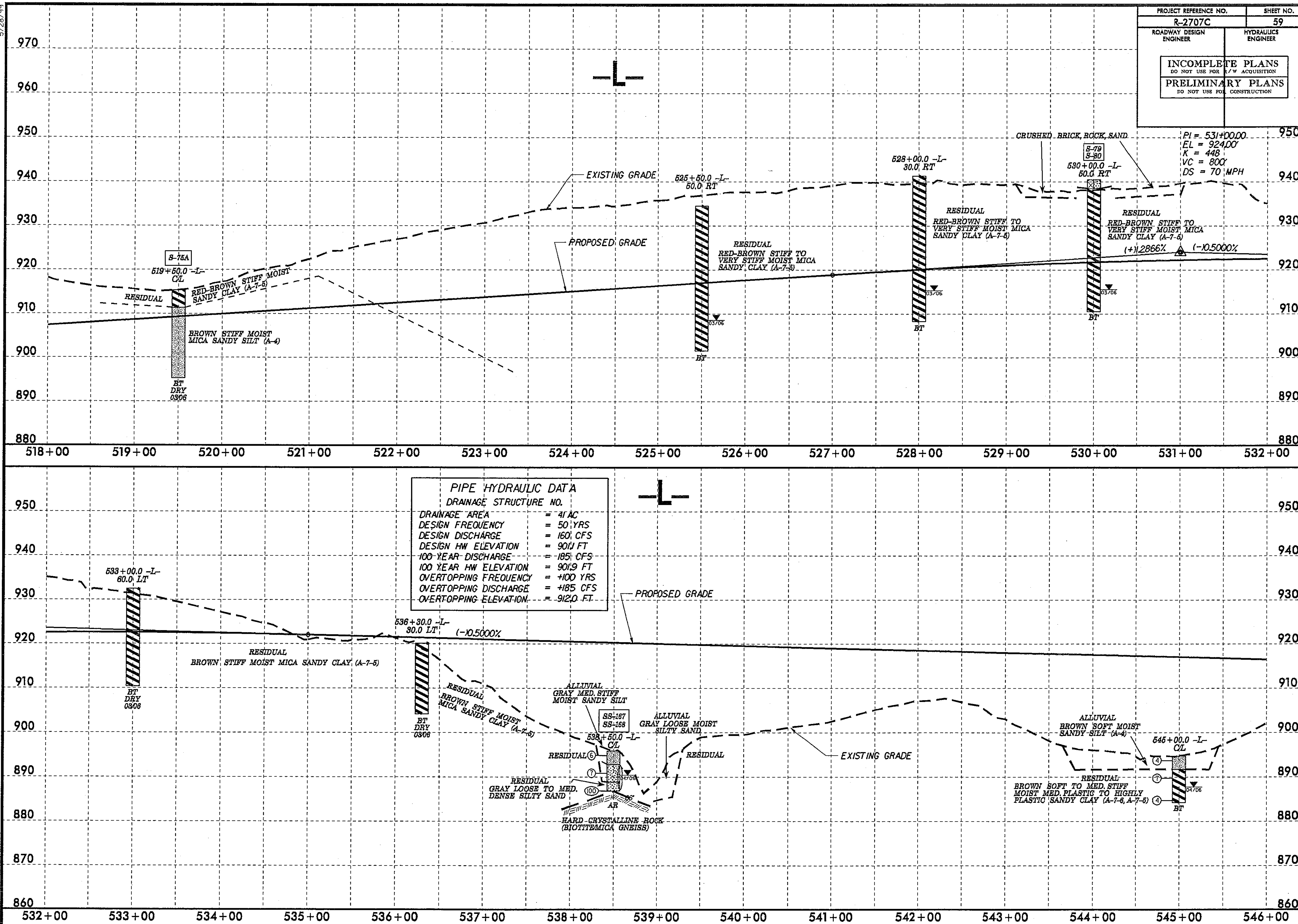
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	41 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	160 CFS
DESIGN HW ELEVATION	=	901.1 FT
100 YEAR DISCHARGE	=	185 CFS
100 YEAR HW ELEVATION	=	901.9 FT
OVERTOPPING FREQUENCY	=	+100 YRS
OVERTOPPING DISCHARGE	=	+185 CFS
OVERTOPPING ELEVATION	=	912.0 FT

5/28/99

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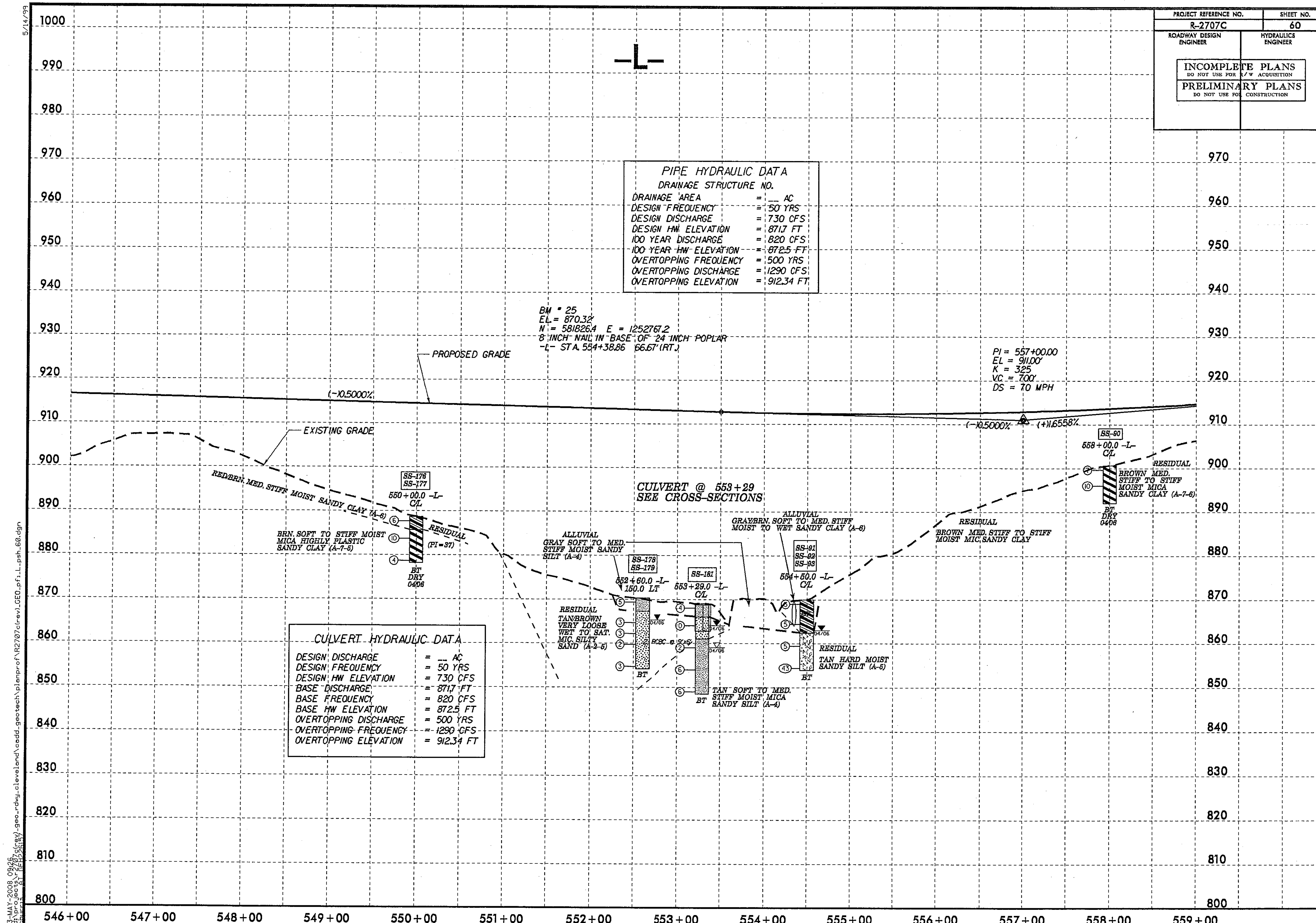
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



PROPOSED GRADE
EXISTING GRADE
(-)0.5000%
(-)0.5000%
(+)1.6558%
BM # 25
EL= 870.32'
N = 581826.4 E = 1252767.2
8 INCH NAIL IN BASE OF 24 INCH POPLAR
-L- STA. 554+38.86 66.67' (RT.)
PI = 557+00.00
EL = 911.00'
K = 325
VC = 700'
DS = 70 MPH
CULVERT @ 553+29
SEE CROSS-SECTIONS
RED/BRN. MED. STIFF MOIST SANDY CLAY (A-6)
SS-176
SS-177
550+00.0 -L-
C/L
BRN. SOFT TO STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-5)
RESIDUAL
(PI=37)
BT
DRY
04/06
ALLUVIAL
GRAY SOFT TO MED. STIFF MOIST SANDY SILT (A-4)
SS-178
SS-179
552+60.0 -L-
150.0 LT
RESIDUAL
TAN/BROWN VERY LOOSE WET TO SAT. MIC. SILTY SAND (A-2-5)
SS-181
553+29.0 -L-
C/L
2 RCBC @ 9'x6'
TAN SOFT TO MED. STIFF MOIST MICA SANDY SILT (A-4)
ALLUVIAL
GRAY/BRN. SOFT TO MED. STIFF MOIST TO WET SANDY CLAY (A-6)
SS-91
SS-92
SS-93
554+60.0 -L-
C/L
RESIDUAL
TAN HARD MOIST SANDY SILT (A-5)
RESIDUAL
BROWN MED. STIFF TO STIFF MOIST MIC. SANDY CLAY
SS-90
558+00.0 -L-
C/L
RESIDUAL
BROWN MED. STIFF TO STIFF MOIST MICA SANDY CLAY (A-7-6)
BT
DRY
0406
1000
990
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840
830
820
810
800
546+00
547+00
548+00
549+00
550+00
551+00
552+00
553+00
554+00
555+00
556+00
557+00
558+00
559+00
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PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	__ AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	730 CFS
DESIGN HW ELEVATION	=	871.7 FT
100 YEAR DISCHARGE	=	820 CFS
100 YEAR HW ELEVATION	=	872.5 FT
OVERTOPPING FREQUENCY	=	500 YRS
OVERTOPPING DISCHARGE	=	1290 CFS
OVERTOPPING ELEVATION	=	912.34 FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	__ AC
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	730 CFS
BASE DISCHARGE	=	871.7 FT
BASE FREQUENCY	=	820 CFS
BASE HW ELEVATION	=	872.5 FT
OVERTOPPING DISCHARGE	=	500 YRS
OVERTOPPING FREQUENCY	=	1290 CFS
OVERTOPPING ELEVATION	=	912.34 FT

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

5/14/99

-L-

PROPOSED GRADE

SS-88
SS-89
561+00.0 -L-
C/L
RESIDUAL
BROWN MED. STIFF TO STIFF MOIST MICA SANDY CLAY (A-7-5)
BT
DRY
0406

SS-96
SS-97
563+00.0 -L-
C/L
RESIDUAL
BROWN- MED. STIFF- TO STIFF MOIST MICA SANDY CLAY (A-7-6)
BT
DRY
0406

EXISTING GRADE
POND
50'

BRN. MED. STIFF TO STIFF MOIST MICA SANDY CLAY

SS-95
570+00.0 -L-
C/L
BT
DRY
0406

(+)1.6558%

PROPOSED GRADE

SS-88
572+00.0 -L-
C/L
RESIDUAL
BRN. MED. STIFF TO STIFF MOIST MICA SANDY CLAY (A-7-5)
BT
DRY
0406

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 44 AC
DESIGN FREQUENCY	= 50 YRS.
DESIGN DISCHARGE	= 120 CFS
DESIGN HW ELEVATION	= 902.5 FT
100 YEAR DISCHARGE	= 140 CFS
100 YEAR HW ELEVATION	= 903.2 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +140 CFS
OVERTOPPING ELEVATION	= 913.7 FT

1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820

990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820

559+00 560+00 561+00 562+00 563+00 564+00 565+00 566+00 567+00 568+00 569+00 570+00 571+00 572+00 573+00

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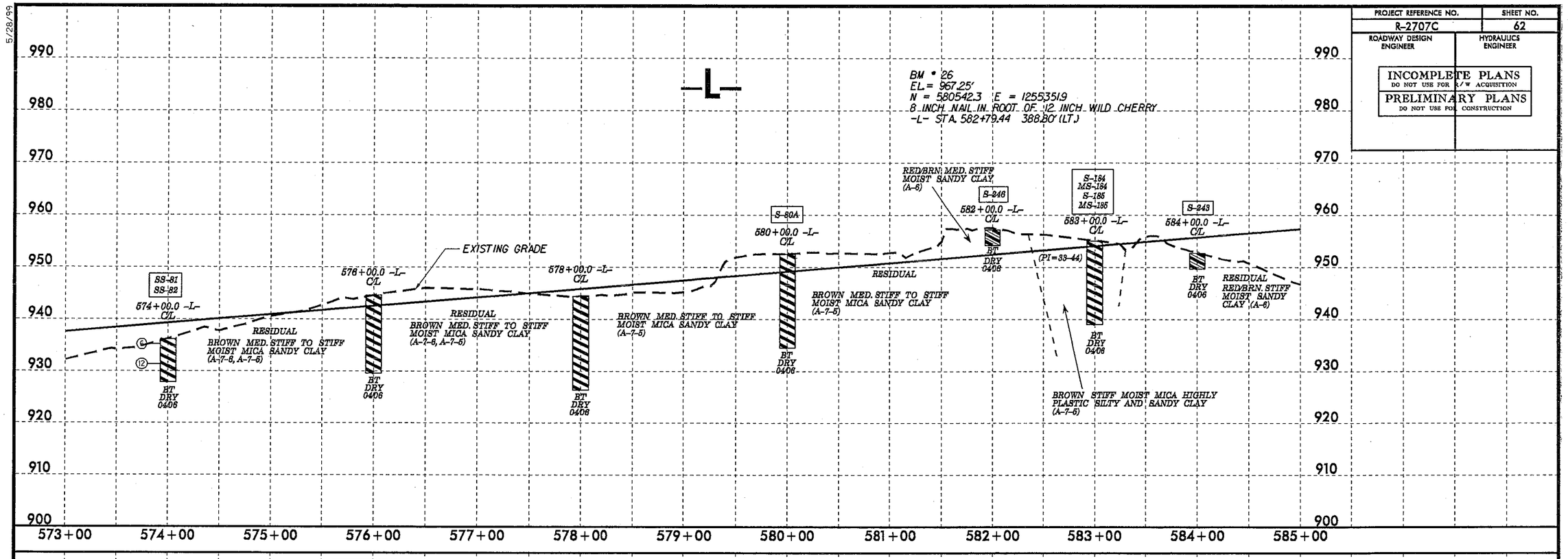
5/26/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

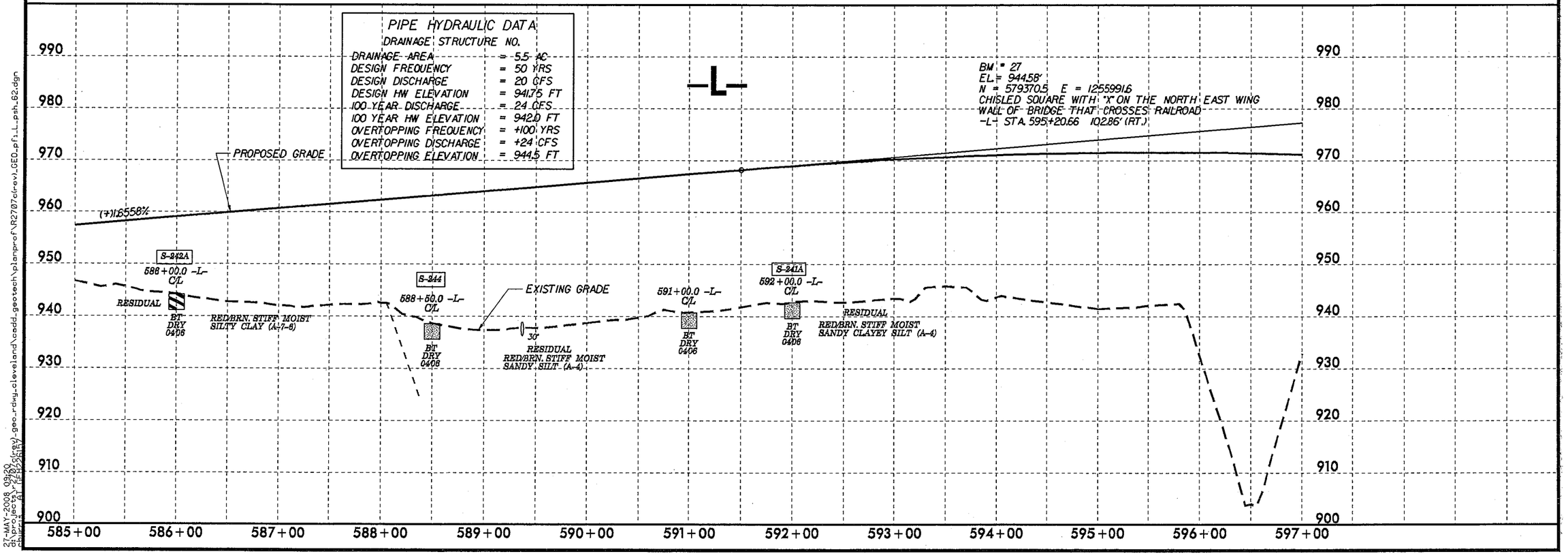
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 5.5 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 20 CFS
DESIGN HW ELEVATION	= 941.75 FT
100 YEAR DISCHARGE	= 24 CFS
100 YEAR HW ELEVATION	= 942.0 FT
OVERTOPPING FREQUENCY	= +100 YRS
OVERTOPPING DISCHARGE	= +24 CFS
OVERTOPPING ELEVATION	= 944.5 FT



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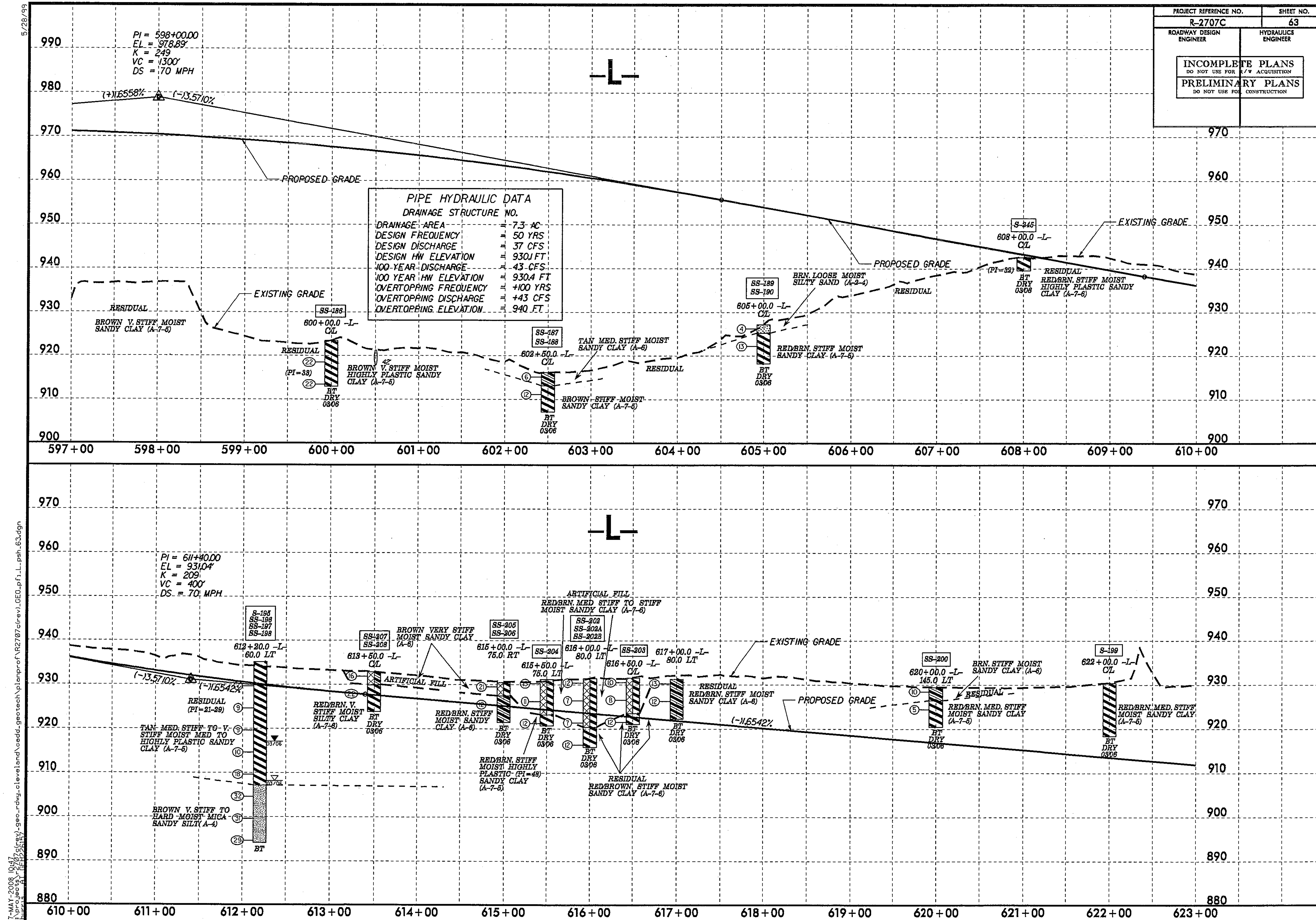

PROJECT REFERENCE NO.
R-2707C
SHEET NO.
63
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/28/99
-L-
PI = 598+00.00
EL = 978.89'
K = 249
VC = 1300'
DS = 70 MPH
(+)1.6558%
(-)3.5710%
PROPOSED GRADE
EXISTING GRADE
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 7.3 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 37 CFS
DESIGN HW ELEVATION = 930.1 FT
100 YEAR DISCHARGE = 43 CFS
100 YEAR HW ELEVATION = 930.4 FT
OVERTOPPING FREQUENCY = +100 YRS
OVERTOPPING DISCHARGE = +43 CFS
OVERTOPPING ELEVATION = 940 FT
RESIDUAL
BROWN V. STIFF MOIST SANDY CLAY (A-7-5)
SS-186
600+00.0 -L-
C/L
(PI=38)
BROWN V. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BT DRY 03/06
SS-187
SS-188
602+50.0 -L-
C/L
TAN MED. STIFF MOIST SANDY CLAY (A-6)
BROWN STIFF MOIST SANDY CLAY (A-7-5)
SS-189
SS-190
605+00.0 -L-
C/L
BRN. LOOSE MOIST SILTY SAND (A-2-4)
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
S-345
608+00.0 -L-
C/L
(PI=32)
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
597+00
598+00
599+00
600+00
601+00
602+00
603+00
604+00
605+00
606+00
607+00
608+00
609+00
610+00
PI = 611+40.00
EL = 931.04'
K = 209
VC = 400'
DS = 70 MPH
(-)3.5710%
(-)1.6542%
S-195
SS-196
SS-197
SS-198
612+20.0 -L-
60.0 LT
RESIDUAL
(PI=21-29)
TAN MED. STIFF TO V. STIFF MOIST MED TO HIGHLY PLASTIC SANDY CLAY (A-7-5)
BROWN V. STIFF TO HARD MOIST MICA SANDY SILT (A-4)
SS-207
SS-208
613+50.0 -L-
C/L
BROWN VERY STIFF MOIST SANDY CLAY (A-6)
ARTIFICIAL FILL
RED/BRN. V. STIFF MOIST SILTY CLAY (A-7-6)
SS-205
SS-206
615+00.0 -L-
75.0 RT
RED/BRN. STIFF MOIST SANDY CLAY (A-6)
SS-204
615+50.0 -L-
75.0 LT
RED/BRN. STIFF MOIST HIGHLY PLASTIC (PI=48) SANDY CLAY (A-7-5)
ARTIFICIAL FILL
RED/BRN. MED STIFF TO STIFF MOIST SANDY CLAY (A-7-6)
SS-202
SS-202A
SS-202B
616+00.0 -L-
80.0 LT
SS-203
616+50.0 -L-
C/L
617+00.0 -L-
80.0 LT
RESIDUAL
RED/BROWN STIFF MOIST SANDY CLAY (A-7-6)
RED/BRN. STIFF MOIST SANDY CLAY (A-6)
SS-200
620+00.0 -L-
145.0 LT
BRN. STIFF MOIST SANDY CLAY (A-6)
RED/BRN. MED. STIFF MOIST SANDY CLAY (A-7-5)
S-199
622+00.0 -L-
C/L
RED/BRN. MED. STIFF MOIST SANDY CLAY (A-7-5)
610+00
611+00
612+00
613+00
614+00
615+00
616+00
617+00
618+00
619+00
620+00
621+00
622+00
623+00
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-L-

S-8A
624+00.0 -L- C/L
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
RESIDUAL
(PI=38)
BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-6)
BT DRY 12/07

S-7A
626+00.0 -L- C/L
RESIDUAL
(PI=29)
BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-6)
BT DRY 01/08

S-8A
S-9A
628+00.0 -L- C/L
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6, A-7-5)
RESIDUAL
(PI=43)
RED-BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-6)
BT DRY 01/08

S-233
S-234
629+00.0 -L- C/L
RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)
RESIDUAL
TAN STIFF MOIST MICA SANDY SILT (A-4)
AR DRY 03/08

S-10A
S-11A
630+00.0 -L- 80.0' RT
(PI=37)
BROWN STIFF MOIST HIGHLY PLASTIC SANDY SILTY CLAY (A-7-6)
RESIDUAL
TAN STIFF TO VERY STIFF DRY CLAYEY SILTY SAND (A-2-4)
BT DRY 01/08

EXISTING GRADE

S-12A
632+50.0 -L- 80.0' RT
RED-BROWN TO BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-6, A-7-5)
RESIDUAL
TAN STIFF DRY MICACEOUS CLAYEY SILTY SAND (A-2-4)
BT DRY 01/08

PROPOSED GRADE

(-)1.6542%

STA.635+00.00 -L- END CONSTRUCTION
EL.= 892.00'

EXISTING GRADE

950 940 930 920 910 900 890 880 870 860
623+00 624+00 625+00 626+00 627+00 628+00 629+00 630+00 631+00 632+00 633+00 634+00 635+00 636+00 637+00

PROPOSED GRADE (R-2707D)

900 890 880 870 860 850 840 830 820 810
637+00 638+00 639+00 640+00 641+00 642+00 643+00 644+00 645+00 646+00 647+00 648+00 649+00 650+00 651+00

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pburris

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	65

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

RAMP A @ -Y1- (NC 226)

BEGIN GRADE STA. 0+00.00
EL = 746.92

-L- EOP STA. 377+93.14
47.00' (RT)

SS-33
SS-34
MS-34

0+95.27 -RPA1-
26.2288 RT
=
377+00.0 -L-
80.0 LT

1+89.27 -RPA1-
60.7436 LT
=
376+00.0 -L-
C/L

3+00.0 -RPA1-
30.0 RT

EXISTING GRADE

5+00.0 -RPA1-
60.0 RT

5+81.69 -RPA1-
95.4480 LT
=
372+00.0 -L-
C/L

7+00.0 -RPA1-
60.0 RT

HIGHLY PLASTIC

S-30
SS-31
MS-1
SS-32

8+00.0 -RPA1-
60.0 RT

BROWN STIFF MOIST MICA, HIGHLY PLASTIC SANDY CLAY (A-7-6)

PI = 11+25.00
EL = 767.50'
K = 192
VC = 500'
DS = 70 mph

SS-21
SS-22
SS-23

11+50.0 -RPA1-
C/L

13+00.0 -RPA1-
C/L

RESIDUAL
BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-5, A-2-4)

RESIDUAL
BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-4)

RESIDUAL
BROWN LOOSE TO DENSE MOIST MICA SILTY SAND (A-2-5)

PROPOSED GRADE

RESIDUAL
BROWN MED DENSE TO DENSE MOIST SILTY SAND (A-2-5)

RESIDUAL
BROWN LOOSE TO DENSE MOIST TO WET MICA SILTY SAND (A-2-5)

RESIDUAL
BRN. MED. STIFF WET CLAYEY SAND (A-2-5)

ARTIFICIAL FILL
BROWN- STIFF- MOIST SANDY SILT (A-4)

BROWN SOFT MOIST SANDY CLAY (A-7-5)

RESIDUAL
BRN. LOOSE WET CLAYEY SAND (A-2-5)

RESIDUAL
RED-BROWN STIFF MOIST MICA SANDY SILT (A-4)

(+)4.4327%
(+)11.8293%

BT
DRY 11/06

11/05

FOR PLAN SEE SHEET 5 & 6

RAMP A @ -Y1- (NC 226)

PI = 19+80.00
EL = 805.40'
K = 30
VC = 250'
DS = 35 mph

EXISTING GRADE

13+00.0 -RPA1-
C/L

14+00.0 -RPA1-
C/L

14+50.0 -RPA1-
80.0 LT

S-16

15+00.0 -RPA1-
C/L

16+00.0 -RPA1-
60.0 RT

18+00.0 -RPA1-
C/L

20+00.0 -RPA1-
C/L

(+)4.4327%
(-)13.9439%

END GRADE STA. 21+11.85
EL = 800.20 (-Y1- EOP)

RESIDUAL
RED-BROWN STIFF MOIST MICA SANDY SILT (A-4)

RESIDUAL
BROWN STIFF MOIST MICA SANDY SILT (A-4)

RESIDUAL
BROWN STIFF TO VERY STIFF MOIST MICA SANDY SILT (A-4)

RESIDUAL
BROWN STIFF TO VERY STIFF MOIST MICA SANDY SILT (A-4)

RESIDUAL
BROWN STIFF TO VERY STIFF MOIST MICA SANDY SILT (A-4)

SEVERELY WEATHERED CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

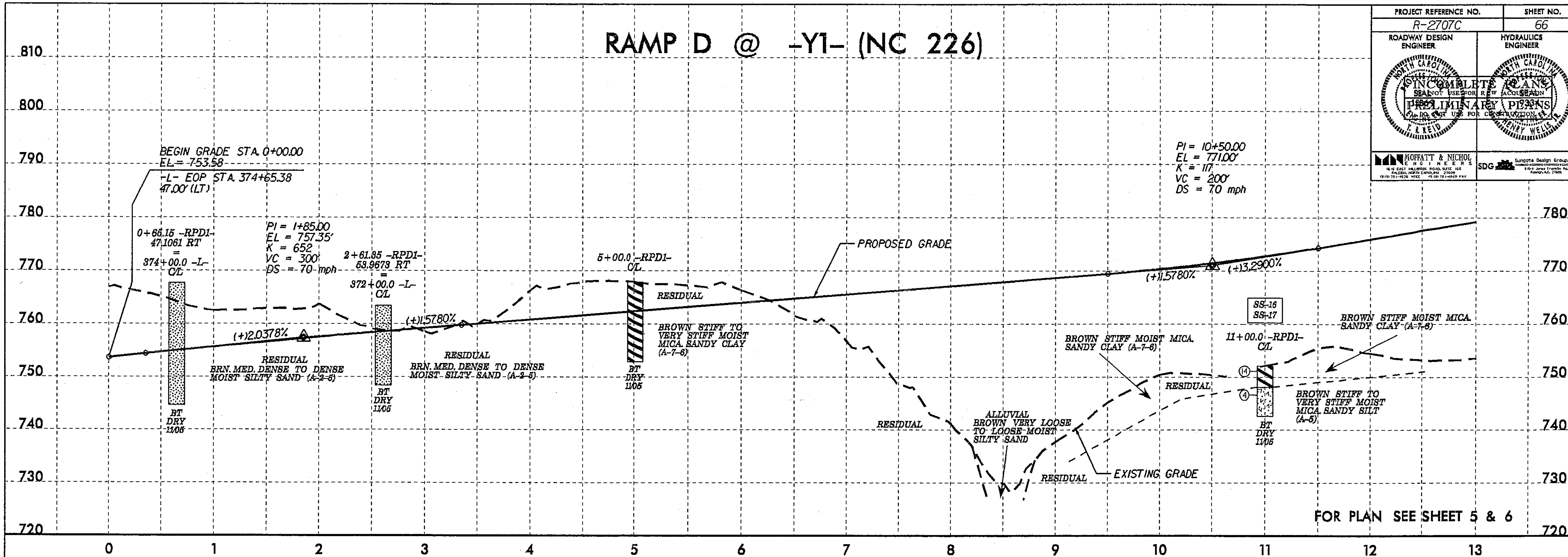
PROPOSED GRADE

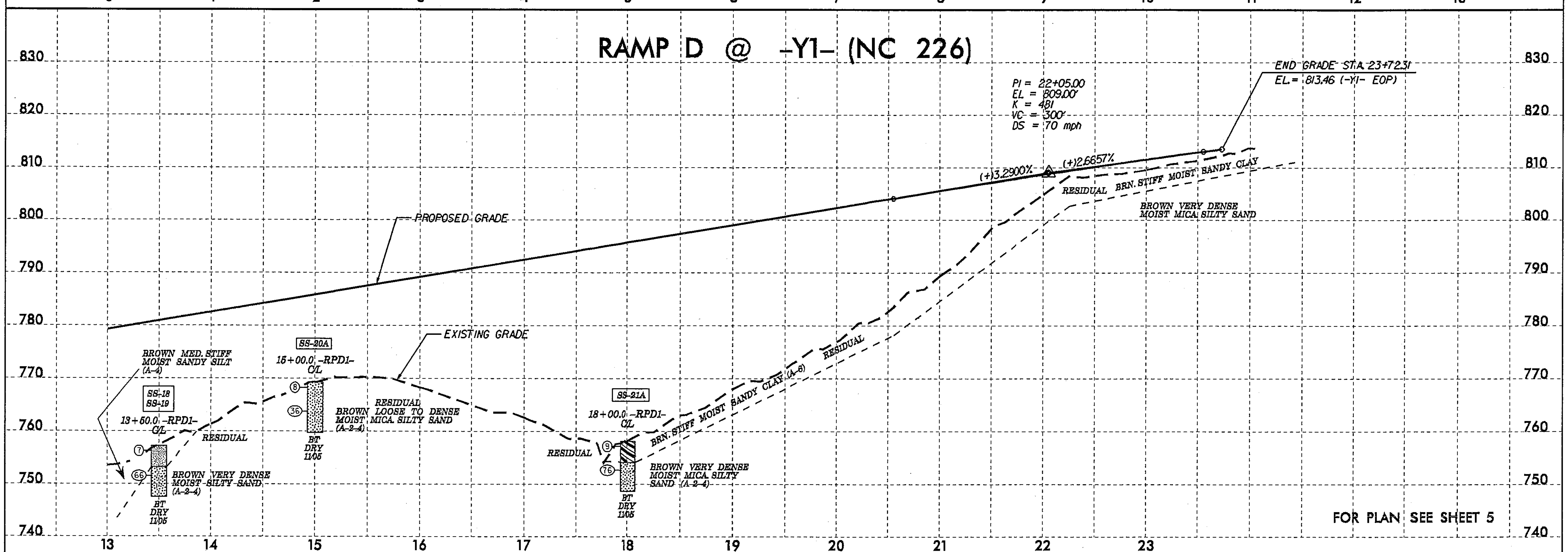
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

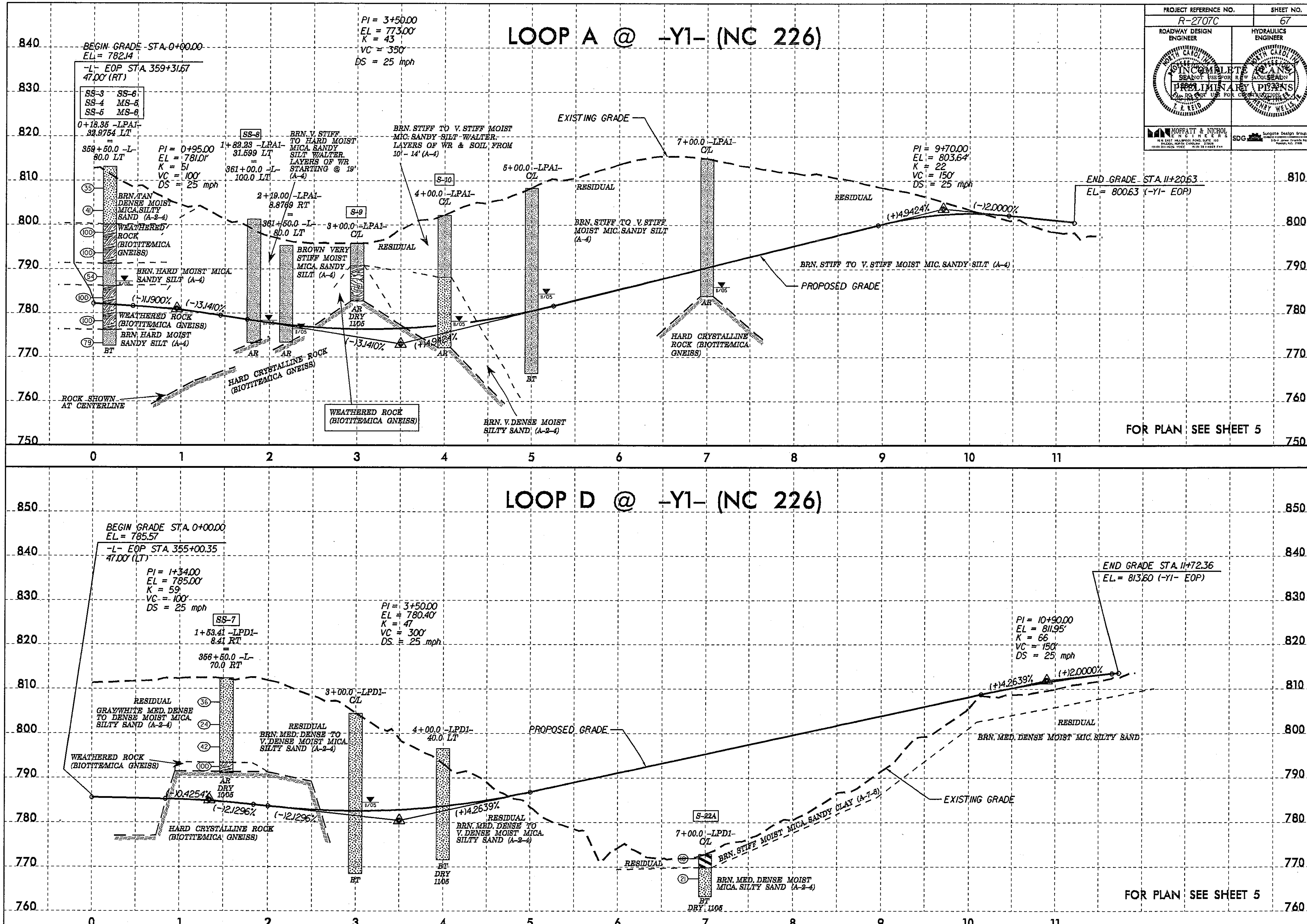
BT
DRY 11/06

AR
DRY 11/06

FOR PLAN SEE SHEET 5


RAMP D @ -Y1- (NC 226)
PROJECT REFERENCE NO.
R-2707C
SHEET NO.
66
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.
BEGIN GRADE STA. 0+00.00
EL.= 753.58
-L- EOP STA. 374+65.38
47.00' (LT)
0+66.15 -RPD1-
47.1061 RT
=
374+00.0 -L-
C/L
PI = 1+85.00
EL = 757.35'
K = 652
VC = 300'
DS = 70 mph
2+61.85 -RPD1-
63.9673 RT
=
372+00.0 -L-
C/L
5+00.0 -RPD1-
C/L
(+)2.0378%
(+)1.5780%
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST SILTY SAND (A-2-5)
BT DRY 11/05
BROWN STIFF TO VERY STIFF MOIST MICA. SANDY CLAY (A-7-6)
PROPOSED GRADE
PI = 10+50.00
EL = 771.00'
K = 117
VC = 200'
DS = 70 mph
(+)1.5780%
(+)3.2900%
SS-16
SS-17
11+00.0 -RPD1-
C/L
BROWN STIFF MOIST MICA. SANDY CLAY (A-7-6)
ALLUVIAL
BROWN VERY LOOSE TO LOOSE MOIST SILTY SAND
BROWN STIFF TO VERY STIFF MOIST MICA. SANDY SILT (A-5)
EXISTING GRADE
FOR PLAN SEE SHEET 5 & 6
810
800
790
780
770
760
750
740
730
720
0
1
2
3
4
5
6
7
8
9
10
11
12
13


RAMP D @ -Y1- (NC 226)
END GRADE STA. 23+72.31
EL.= 813.46 (-Y1- EOP)
PI = 22+05.00
EL = 809.00'
K = 481
VC = 300'
DS = 70 mph
(+)3.2900%
(+)2.6657%
PROPOSED GRADE
EXISTING GRADE
BROWN MED. STIFF MOIST SANDY SILT (A-4)
SS-18
SS-19
13+50.0 -RPD1-
C/L
RESIDUAL
BROWN VERY DENSE MOIST SILTY SAND (A-2-4)
BT DRY 11/05
SS-20A
15+00.0 -RPD1-
C/L
RESIDUAL
BROWN LOOSE TO DENSE MOIST MICA. SILTY SAND (A-2-4)
SS-21A
18+00.0 -RPD1-
C/L
BRN. STIFF MOIST SANDY CLAY (A-6)
BROWN VERY DENSE MOIST MICA. SILTY SAND (A-2-4)
BRN. STIFF MOIST SANDY CLAY
BROWN VERY DENSE MOIST MICA. SILTY SAND
FOR PLAN SEE SHEET 5
830
820
810
800
790
780
770
760
750
740
13
14
15
16
17
18
19
20
21
22
23



PROJECT REFERENCE NO.
R-2707C
SHEET NO.
67
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
MOFFATT & NICHOL ENGINEERS
SDG Sungate Design Group, P.A.
LOOP A @ -Y1- (NC 226)
BEGIN GRADE STA. 0+00.00
EL = 782.14
-L- EOP STA. 359+31.67
47.00' (RT)
SS-3 SS-6
SS-4 MS-5
SS-5 MS-6
0+18.35 -LPA1-
32.9754 LT
=
359+50.0 -L-
80.0 LT
PI = 0+95.00
EL = 781.01'
K = 51
VC = 100'
DS = 25 mph
SS-8
1+82.23 -LPA1-
31.599 LT
=
361+00.0 -L-
100.0 LT
BRN. V. STIFF TO HARD MOIST MICA. SANDY SILT W/ALTER. LAYERS OF WR STARTING @ 19' (A-4)
2+19.00 -LPA1-
8.8769 RT
=
361+50.0 -L-
80.0 LT
PI = 3+50.00
EL = 773.00'
K = 43
VC = 350'
DS = 25 mph
S-9
3+00.0 -LPA1-
C/L
RESIDUAL
BROWN VERY STIFF MOIST MICA. SANDY SILT (A-4)
BRN. STIFF TO V. STIFF MOIST MIC. SANDY SILT W/ALTER. LAYERS OF WR & SOIL FROM 10' - 14' (A-4)
S-10
4+00.0 -LPA1-
C/L
5+00.0 -LPA1-
C/L
RESIDUAL
EXISTING GRADE
7+00.0 -LPA1-
C/L
BRN. STIFF TO V. STIFF MOIST MIC. SANDY SILT (A-4)
PI = 9+70.00
EL = 803.64'
K = 22
VC = 150'
DS = 25 mph
RESIDUAL
END GRADE STA. 11+20.63
EL = 800.63 (-Y1- EOP)
(+)4.9424%
(-)2.0000%
BRN. STIFF TO V. STIFF MOIST MIC. SANDY SILT (A-4)
PROPOSED GRADE
BRN./TAN DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK (BIOTITE/MICA GNEISS)
BRN. HARD MOIST MICA. SANDY SILT (A-4)
(-)1.1900%
(-)3.1410%
WEATHERED ROCK (BIOTITE/MICA GNEISS)
BRN. HARD MOIST SANDY SILT (A-4)
BT
AR
AR
AR DRY 11/05
(-)3.1410%
(+)4.9424%
AR
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
ROCK SHOWN AT CENTERLINE
WEATHERED ROCK (BIOTITE/MICA GNEISS)
BRN. V. DENSE MOIST SILTY SAND (A-2-4)
BT
FOR PLAN SEE SHEET 5
LOOP D @ -Y1- (NC 226)
BEGIN GRADE STA. 0+00.00
EL = 785.57
-L- EOP STA. 355+00.35
47.00' (LT)
PI = 1+34.00
EL = 785.00'
K = 59
VC = 100'
DS = 25 mph
SS-7
1+53.41 -LPD1-
8.41 RT
=
356+50.0 -L-
70.0 RT
PI = 3+50.00
EL = 780.40'
K = 47
VC = 300'
DS = 25 mph
3+00.0 -LPD1-
C/L
4+00.0 -LPD1-
40.0 LT
RESIDUAL
GRAY/WHITE MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-4)
RESIDUAL
BRN. MED. DENSE TO V. DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK (BIOTITE/MICA GNEISS)
AR DRY 10/05
(-)0.4254%
(-)2.1296%
(-)2.1296%
HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
BT
(+)4.2639%
RESIDUAL
BRN. MED. DENSE TO V. DENSE MOIST MICA. SILTY SAND (A-2-4)
BT DRY 11/05
PROPOSED GRADE
S-22A
7+00.0 -LPD1-
C/L
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-6)
BRN. MED. DENSE MOIST MICA. SILTY SAND (A-2-4)
BT DRY 11/05
EXISTING GRADE
PI = 10+90.00
EL = 811.95'
K = 66
VC = 150'
DS = 25 mph
(+)4.2639%
(+)2.0000%
END GRADE STA. 11+72.36
EL = 813.60 (-Y1- EOP)
RESIDUAL
BRN. MED. DENSE MOIST MIC. SILTY SAND
FOR PLAN SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	68

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

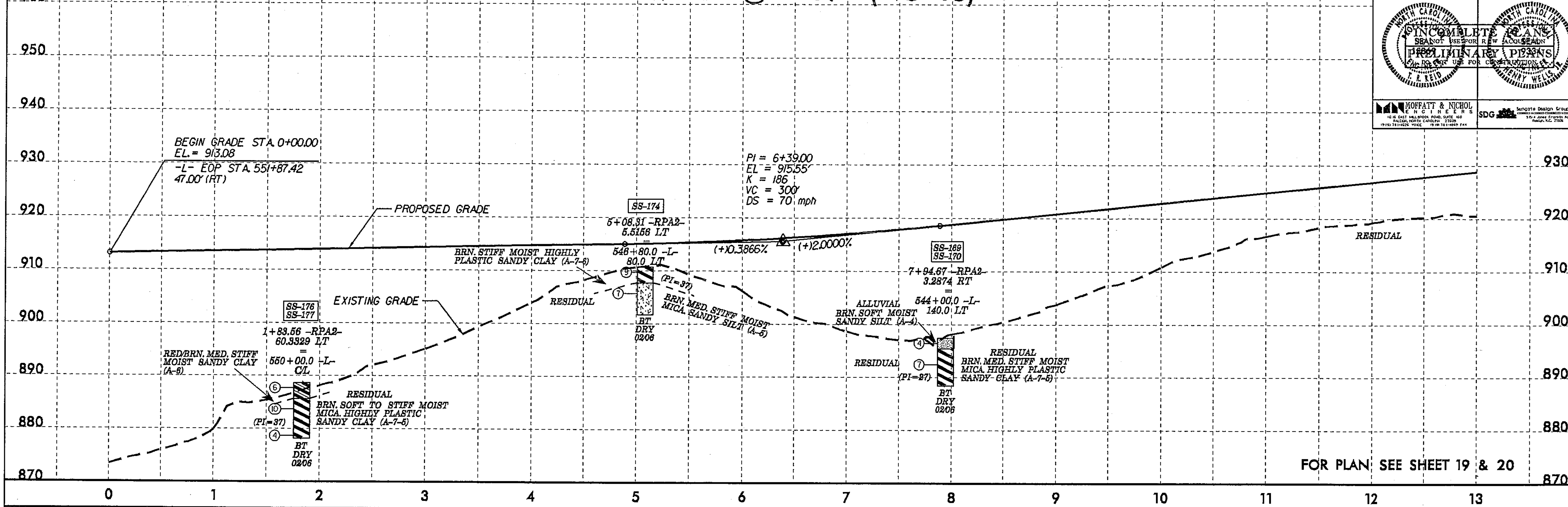
INCOMPLETE PLANS — DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

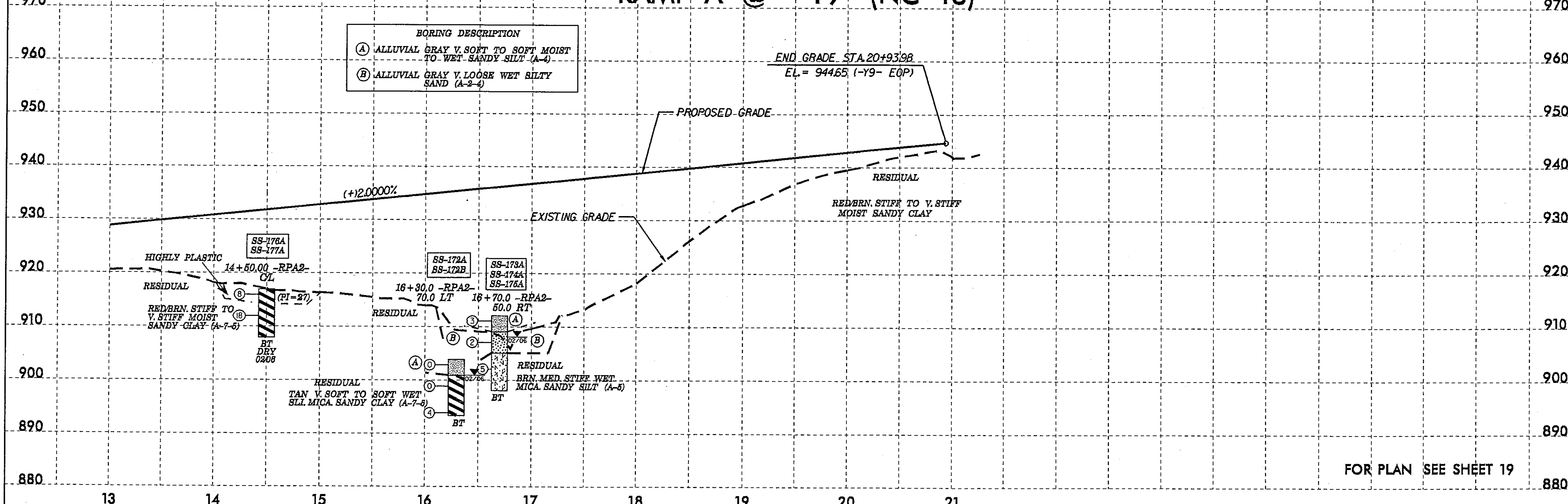
SDG Sungate Design Group, P.A.

RAMP A @ -Y9- (NC 18)



960
950
940
930
920
910
900
890
880
870
BEGIN GRADE STA. 0+00.00
EL.= 913.08
-L- EOP STA. 551+87.42
47.00' (RT)
PROPOSED GRADE
EXISTING GRADE
PI = 6+39.00
EL = 915.55'
K = 186
VC = 300'
DS = 70 mph
SS-174
6+08.31 -RPA2-
5.5156 LT
548+80.0 -L-
80.0 LT
BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
RESIDUAL
(PI=37)
BRN. MED. STIFF MOIST MICA. SANDY SILT (A-5)
BT
DRY
0206
(+)0.3866%
(+)2.0000%
SS-169
SS-170
7+94.67 -RPA2-
3.2874 RT
544+00.0 -L-
140.0 LT
ALLUVIAL
BRN. SOFT MOIST SANDY SILT (A-4)
RESIDUAL
(PI=37)
BRN. MED. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
SS-176
SS-177
1+83.66 -RPA2-
60.3329 LT
550+00.0 -L-
C/L
RED/BRN. MED. STIFF MOIST SANDY CLAY (A-6)
(PI=37)
BRN. SOFT TO STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
FOR PLAN SEE SHEET 19 & 20
0
1
2
3
4
5
6
7
8
9
10
11
12
13

RAMP A @ -Y9- (NC 18)



970
960
950
940
930
920
910
900
890
880
BORING DESCRIPTION
(A) ALLUVIAL GRAY V. SOFT TO SOFT MOIST TO WET SANDY SILT (A-4)
(B) ALLUVIAL GRAY V. LOOSE WET SILTY SAND (A-2-4)
END GRADE STA. 20+93.98
EL.= 944.65 (-Y9- EOP)
PROPOSED GRADE
(+)2.0000%
EXISTING GRADE
RESIDUAL
RED/BRN. STIFF TO V. STIFF MOIST SANDY CLAY
SS-176A
SS-177A
14+50.00 -RPA2-
C/L
HIGHLY PLASTIC
RED/BRN. STIFF TO V. STIFF MOIST SANDY CLAY (A-7-5)
(PI=27)
BT
DRY
0206
SS-172A
SS-172B
16+30.0 -RPA2-
70.0 LT
TAN V. SOFT TO SOFT WET SLI. MICA. SANDY CLAY (A-7-5)
SS-173A
SS-174A
SS-175A
16+70.0 -RPA2-
50.0 RT
BRN. MED. STIFF WET MICA. SANDY SILT (A-5)
BT
FOR PLAN SEE SHEET 19
13
14
15
16
17
18
19
20
21

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	69

ROADWAY DESIGN ENGINEER

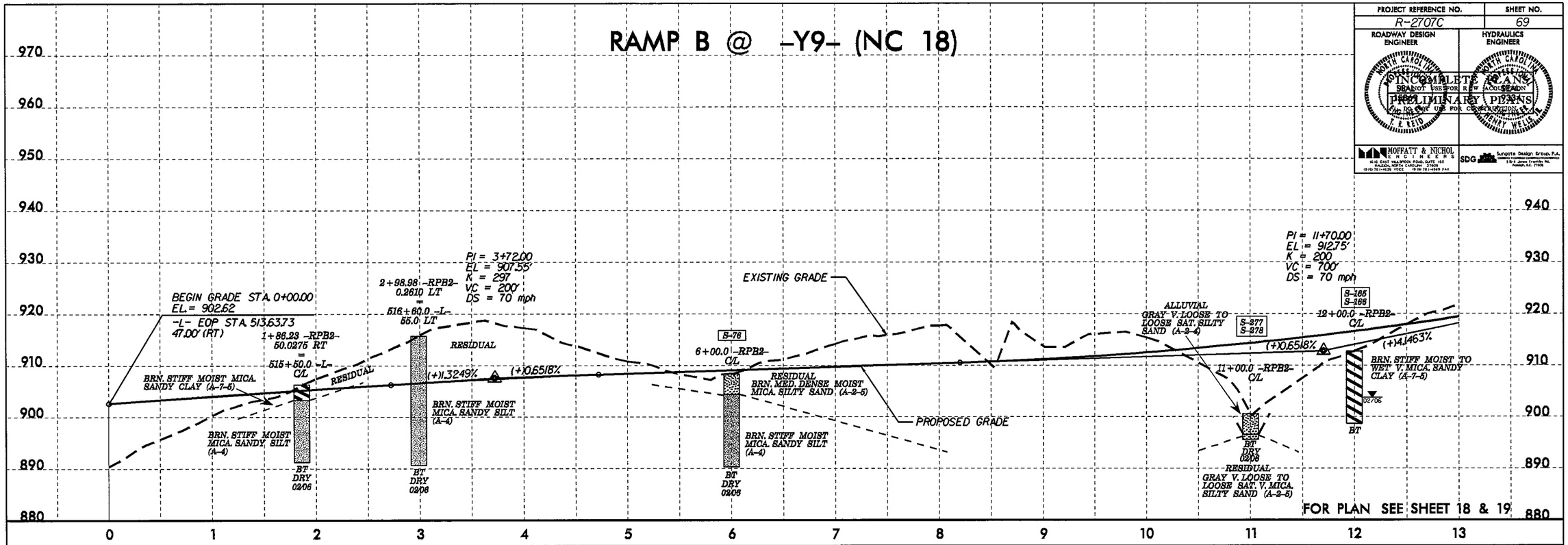
HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

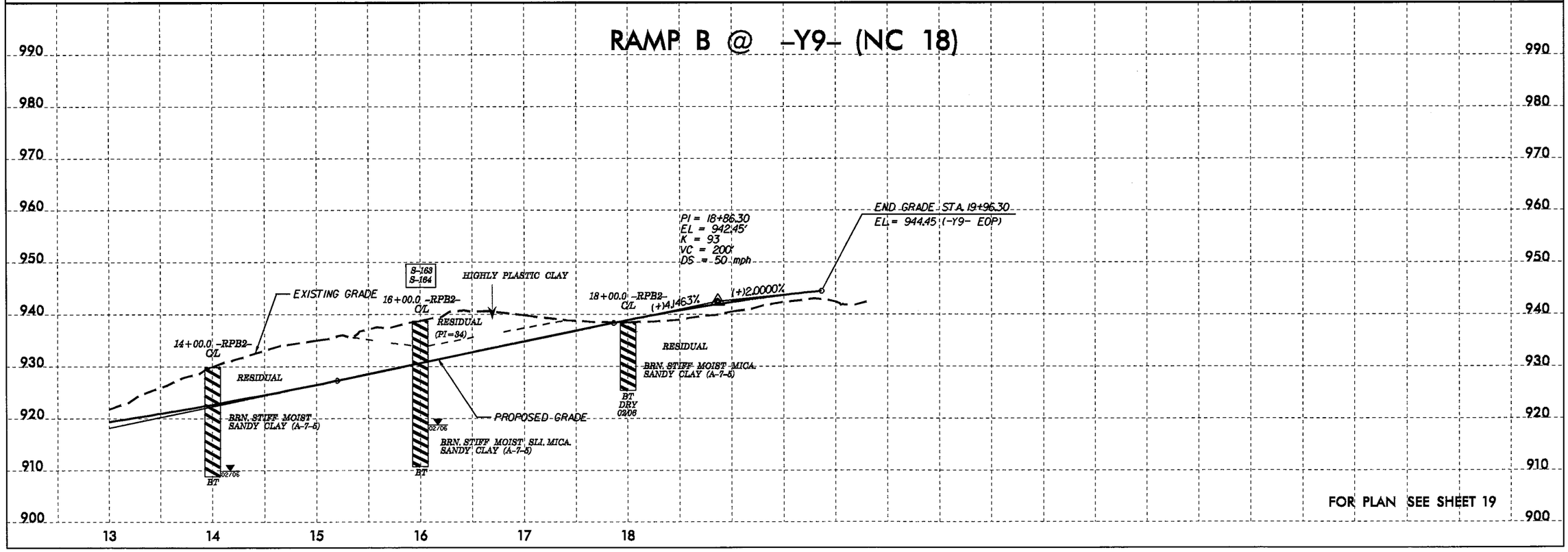
MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

RAMP B @ -Y9- (NC 18)



RAMP B @ -Y9- (NC 18)



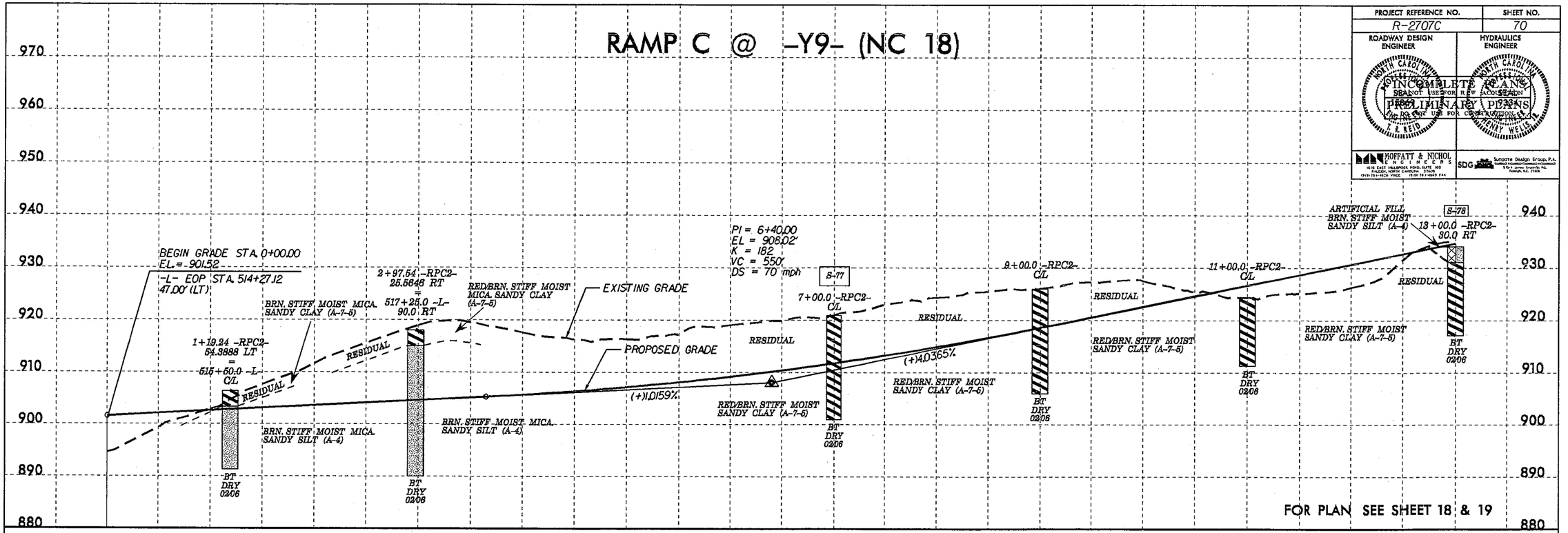
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	70

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

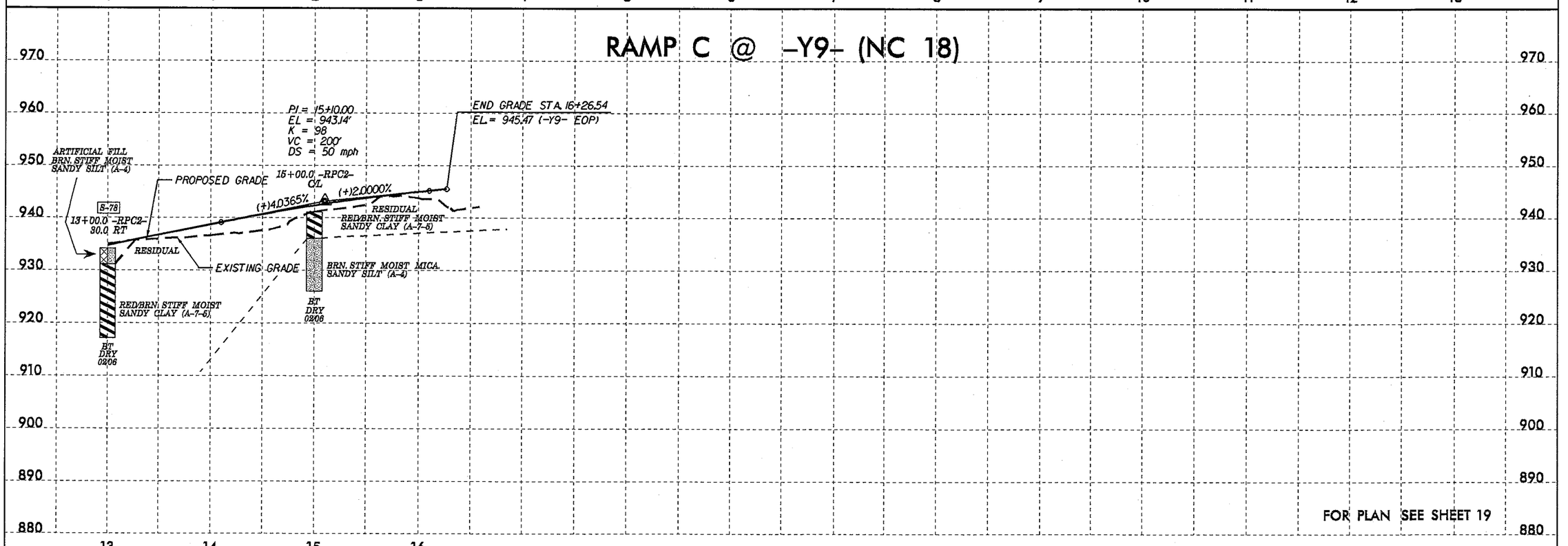
MOFFATT & NICHOL ENGINEERS — SDG Sungate Design Group, P.A.

RAMP C @ -Y9- (NC 18)



FOR PLAN SEE SHEET 18 & 19

RAMP C @ -Y9- (NC 18)



FOR PLAN SEE SHEET 19

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	71

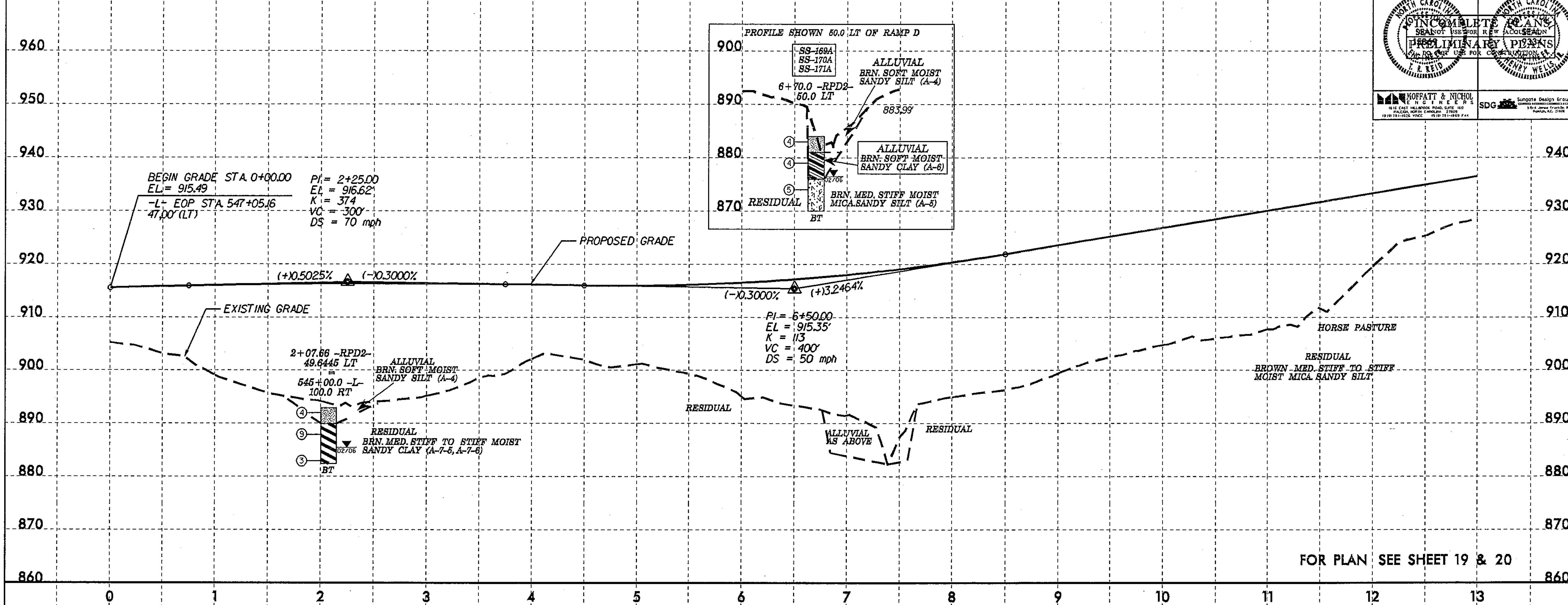
ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

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

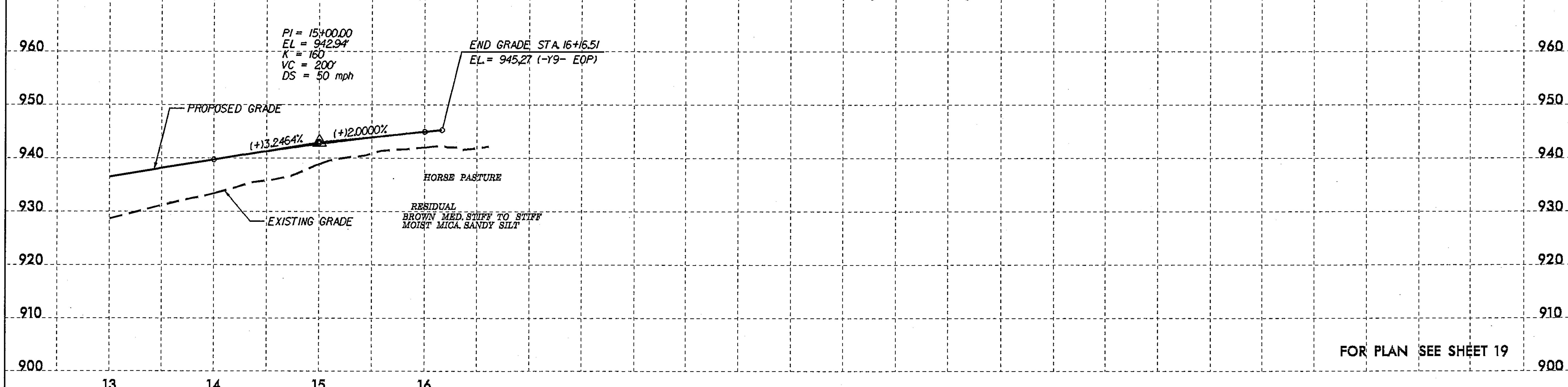
MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609

SDG Sungate Design Group, P.A.

RAMP D @ -Y9- (NC 18)



RAMP D @ -Y9- (NC 18)



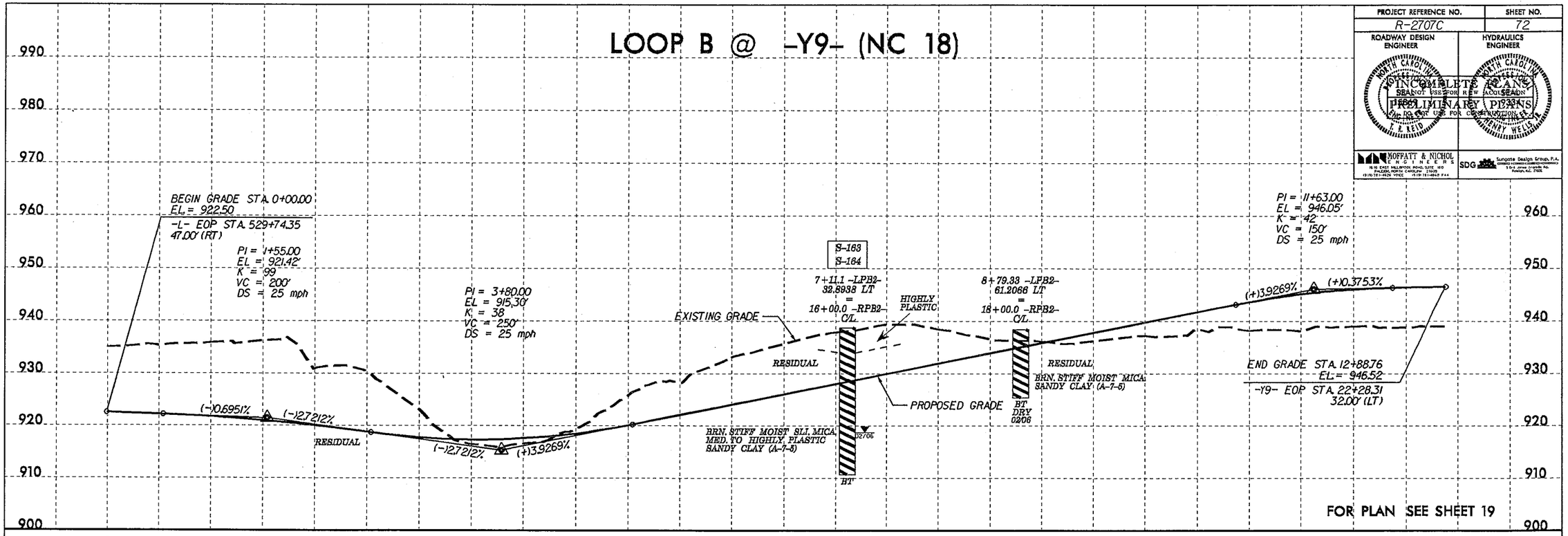
LOOP B @ -Y9- (NC 18)

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	72

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS
SDG Supporte Design Group, P.A.



5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RAMP –A– @–Y14– (NC 150)

BEGIN GRADE STA 0+00.00
EL = 902.61

PI = 1+20.00
EL = 904.63'
K = 1080
VC = 140'
DS = 70 mph

PI = 5+00.00
EL = 911.50'
K = 1924
VC = 420'
DS = 70 mph

PI = 9+40.00
EL = 918.50'
K = 173
VC = 460'
DS = 65 mph

S-8A
S-9A
1+31.28 –A3SP–
48.8804 LT
=
628+00.0 –L–
C/L

S-7A
3+31.01 –A3SP–
58.9678 LT
=
626+00.0 –L–
C/L

S-6A
5+30.11 –A3SP–
77.7675 LT
=
624+00.0 –L–
C/L

7+60.0 –A3SP–
C/L

S-13A
9+50.0 –A3SP–
C/L

SS-14A
SS-15B
11+50.0 –A3SP–
C/L

SS-212
SS-213
RPA3 950C
12+98.36 –A3SP–
56.1674 RT
=
1–61.03 –A3SPB–
48.906 RT

RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY SILTY CLAY (A-7-6)

RESIDUAL

EXISTING GRADE

PROPOSED GRADE

RED-BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-6)

RED-BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-6)

RESIDUAL
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)

BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-6)

RESIDUAL
BROWN-TAN STIFF MOIST SLIGHTLY MICACEOUS SILTY SANDY CLAY (A-7-6)

RESIDUAL
RED-BROWN STIFF DRY CLAYEY SANDY SILT (A-4)

RESIDUAL
TAN LOOSE DRY CLAYEY SILTY SAND (A-2-4)

RED-BROWN-TAN MEDIUM DENSE TO VERY DENSE DRY CLAYEY SILTY SAND (A-2-4)

BRN. MED. STIFF TO STIFF MOIST SANDY CLAY (A-7-6, A-7-5)

(+)1.6792%
(+)1.8092%
(+)1.5909%
(+)1.8092%
(+)1.5909%
(+)4.2494%

(PI=48)
(PI=29)
(PI=38)

BT DRY 01/08
BT DRY 12/07
BT DRY 01/08
BT DRY 01/08
BT DRY 01/08
BT DRY 02/06

FOR PLAN SEE SHEETS 25 & 26

0 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00

960 950 940 930 920 910 900 890 880 870

RAMP –A– @–Y14– (NC 150)

END GRADE STA 18+05.44
EL = 955.35

PI = 17+50.00
EL = 952.92'
K = 749
VC = 100'
DS = 70 mph

(+)4.2494%
(+)4.3830%

PROPOSED GRADE

EXISTING GRADE

S-15B SS-19T
SS-19B SS-19S
17+99.27 –A3SP–
8.7492 LT
=
612+20.0 –L–
60.0 LT

SS-15A
SS-16A
17+00.0 –A3SP–
C/L

15+00.0 –A3SP–
C/L

RED-BROWN MEDIUM STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)

RESIDUAL

RED-BROWN MEDIUM STIFF TO STIFF DRY TO MOIST SANDY SILTY CLAY (A-7-6)

(PI=33)

(PI=21-29)
TAN MED. STIFF TO V. STIFF MOIST SANDY CLAY (A-7-5)

BRN. V. STIFF TO HARD MOIST MICA SANDY SILT (A-4)

BT DRY 01/08
BT DRY 01/08
02/06
02/06
BT

FOR PLAN SEE SHEET 25

14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00

980 970 960 950 940 930 920 910 900 890

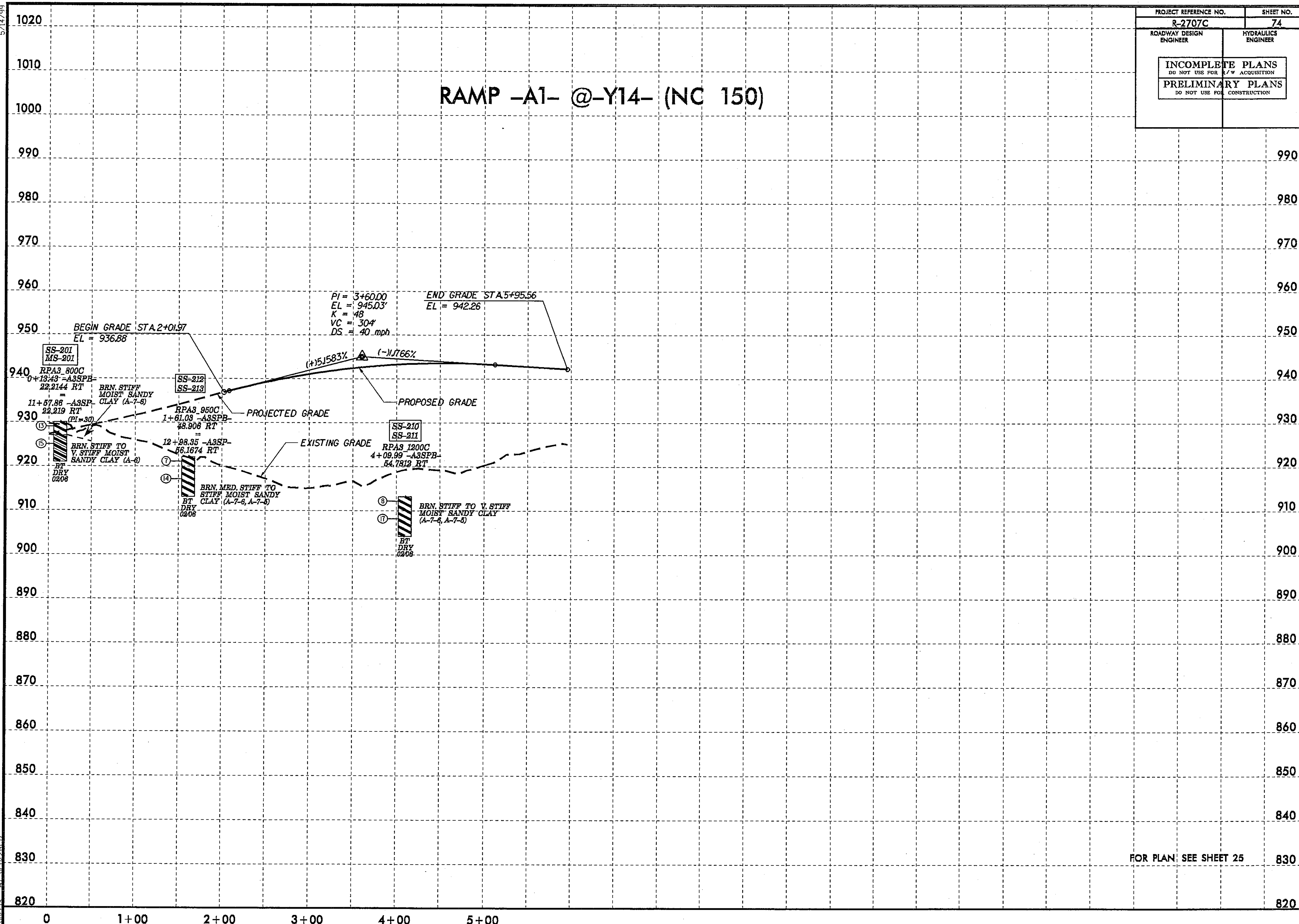
28-MAY-2008 14:05
d:\proj_geo\r_2707c\rev_geo_rdwy_cleveland\voddi_geotech\planprof\r-2707crevl_geo_pfl_spur-ramps_73-79.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RAMP -A1- @-Y14- (NC 150)



1020
1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840
830
820
PI = 3+60.00
EL = 945.03'
K = 48
VC = 304'
DS = 40 mph
END GRADE STA.5+95.56
EL = 942.26
BEGIN GRADE STA.2+01.97
EL = 936.88
(+)5.1583%
(-)1.1766%
PROPOSED GRADE
PROJECTED GRADE
EXISTING GRADE
SS-201
MS-201
RPA3_800C
0+13.43 -A3SPB-
22.2144 RT
=
11+57.86 -A3SP-
22.219 RT
(PI=30)
BRN. STIFF
MOIST SANDY
CLAY (A-7-6)
BRN. STIFF TO
V. STIFF MOIST
SANDY CLAY (A-6)
13
15
BT
DRY
02/08
SS-212
SS-213
RPA3_950C
1+61.03 -A3SPB-
48.908 RT
=
12+98.35 -A3SP-
56.1674 RT
7
14
BRN. MED. STIFF TO
STIFF MOIST SANDY
CLAY (A-7-6, A-7-5)
BT
DRY
02/08
SS-210
SS-211
RPA3_1200C
4+09.99 -A3SPB-
54.7812 RT
8
17
BRN. STIFF TO V. STIFF
MOIST SANDY CLAY
(A-7-6, A-7-5)
BT
DRY
02/08
0
1+00
2+00
3+00
4+00
5+00

FOR PLAN SEE SHEET 25

5/14/99

28-MAY-2008 11:34
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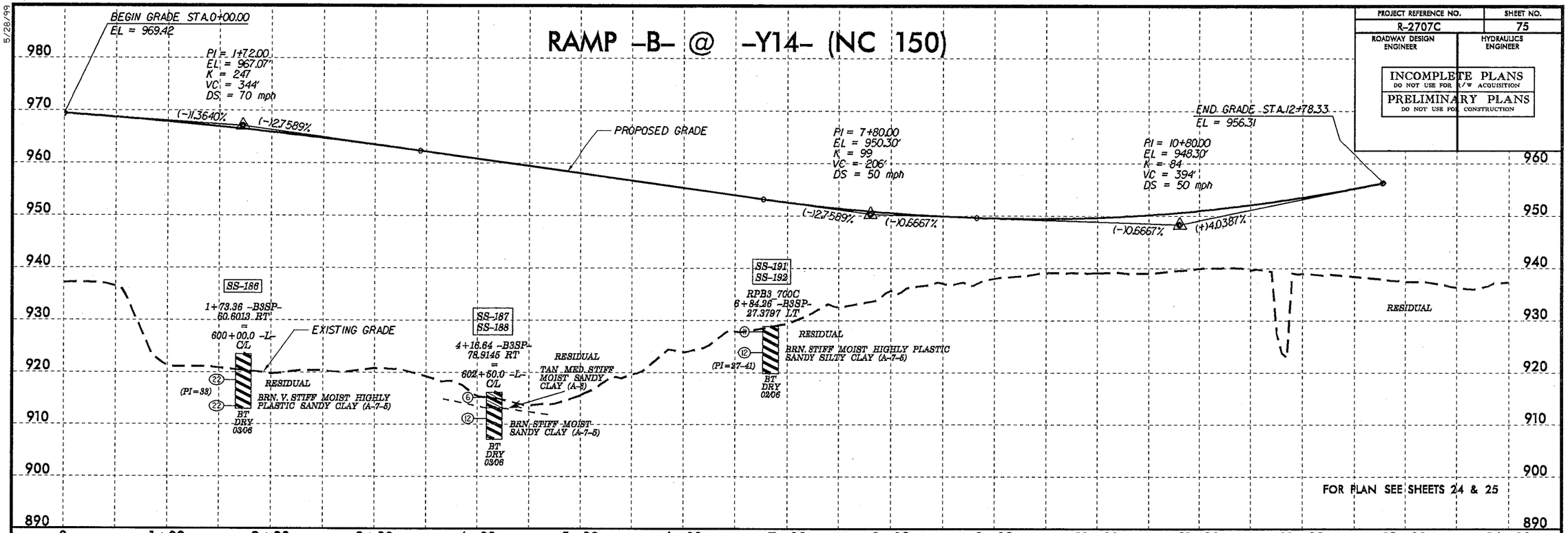
5/26/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

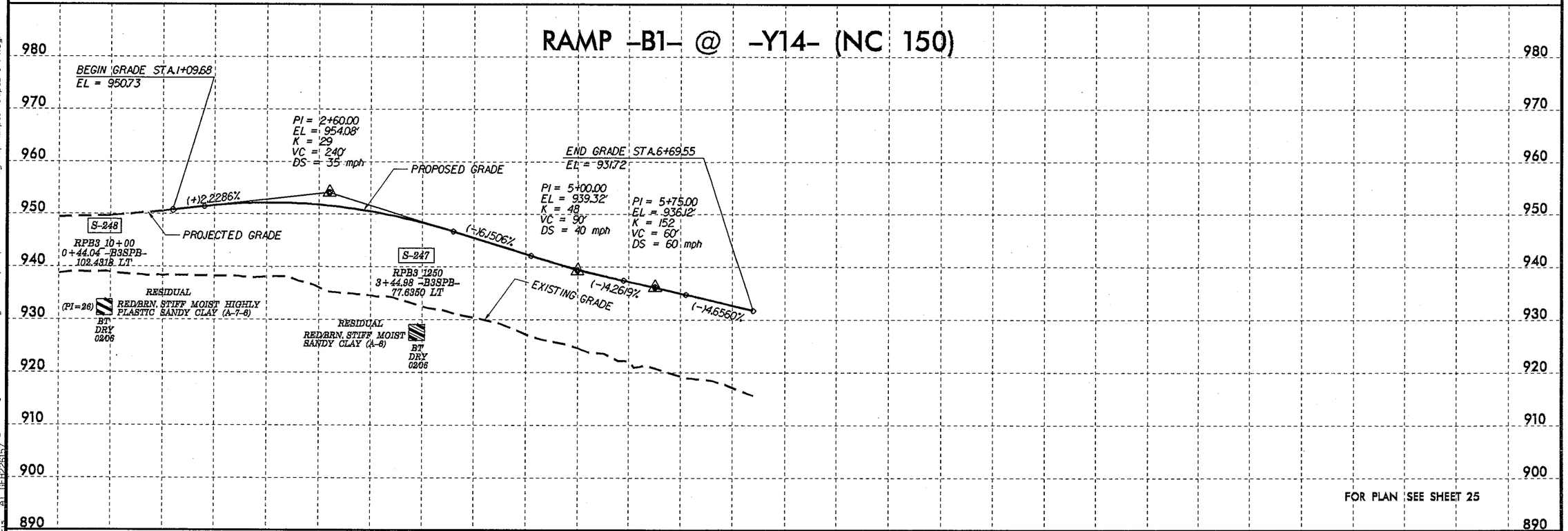
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RAMP –B– @ –Y14– (NC 150)



FOR PLAN SEE SHEETS 24 & 25

RAMP –B1– @ –Y14– (NC 150)



FOR PLAN SEE SHEET 25

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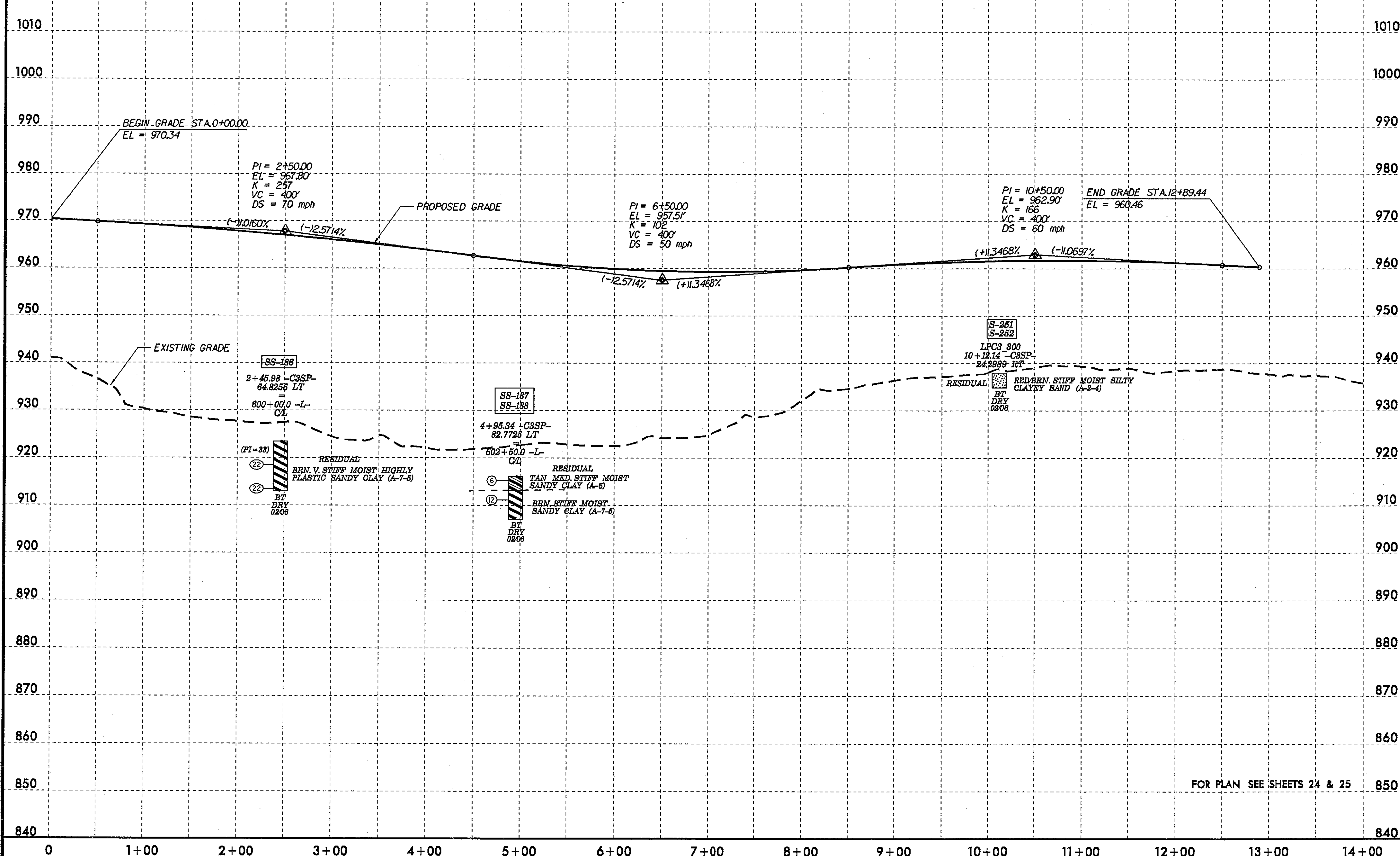
RAMP -C- @ -Y14- (NC 150)

PROJECT REFERENCE NO. R-2707C | SHEET NO. 76

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



BEGIN GRADE STA.0+00.00
EL = 970.34
PI = 2+50.00
EL = 967.80'
K = 257
VC = 400'
DS = 70 mph
(-)1.0160%
(-)2.5714%
PROPOSED GRADE
PI = 6+50.00
EL = 957.51'
K = 102
VC = 400'
DS = 50 mph
(-)2.5714%
(+)1.3468%
PI = 10+50.00
EL = 962.90'
K = 166
VC = 400'
DS = 60 mph
(+)1.3468%
(-)1.0697%
END GRADE STA.12+89.44
EL = 960.46
EXISTING GRADE
SS-186
2+45.98 -C3SP-
64.8256 LT
=
600+00.0 -L-
C/L
(PI=33)
RESIDUAL
BRN. V. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BT
DRY
02/08
SS-187
SS-188
4+95.34 -C3SP-
82.7725 LT
=
602+50.0 -L-
C/L
RESIDUAL
TAN MED. STIFF MOIST SANDY CLAY (A-6)
BRN. STIFF MOIST SANDY CLAY (A-7-5)
BT
DRY
02/08
S-251
S-252
LPC3_300
10+12.14 -C3SP-
24.2989 RT
RESIDUAL
RED/BRN. STIFF MOIST SILTY CLAYEY SAND (A-2-4)
BT
DRY
02/08
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840
0
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
FOR PLAN SEE SHEETS 24 & 25

5/14/99

28-MAY-2008 08:23
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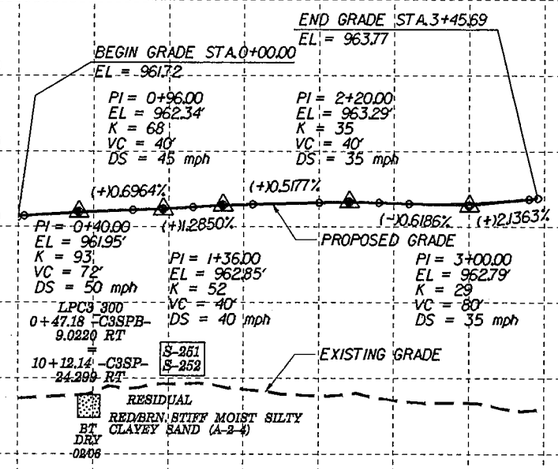
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RAMP –C1– @ –Y14– (NC 150)



FOR PLAN SEE SHEET 25

1030 1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830

0 1+00 2+00 3+00

28-MAY-2008 08:27
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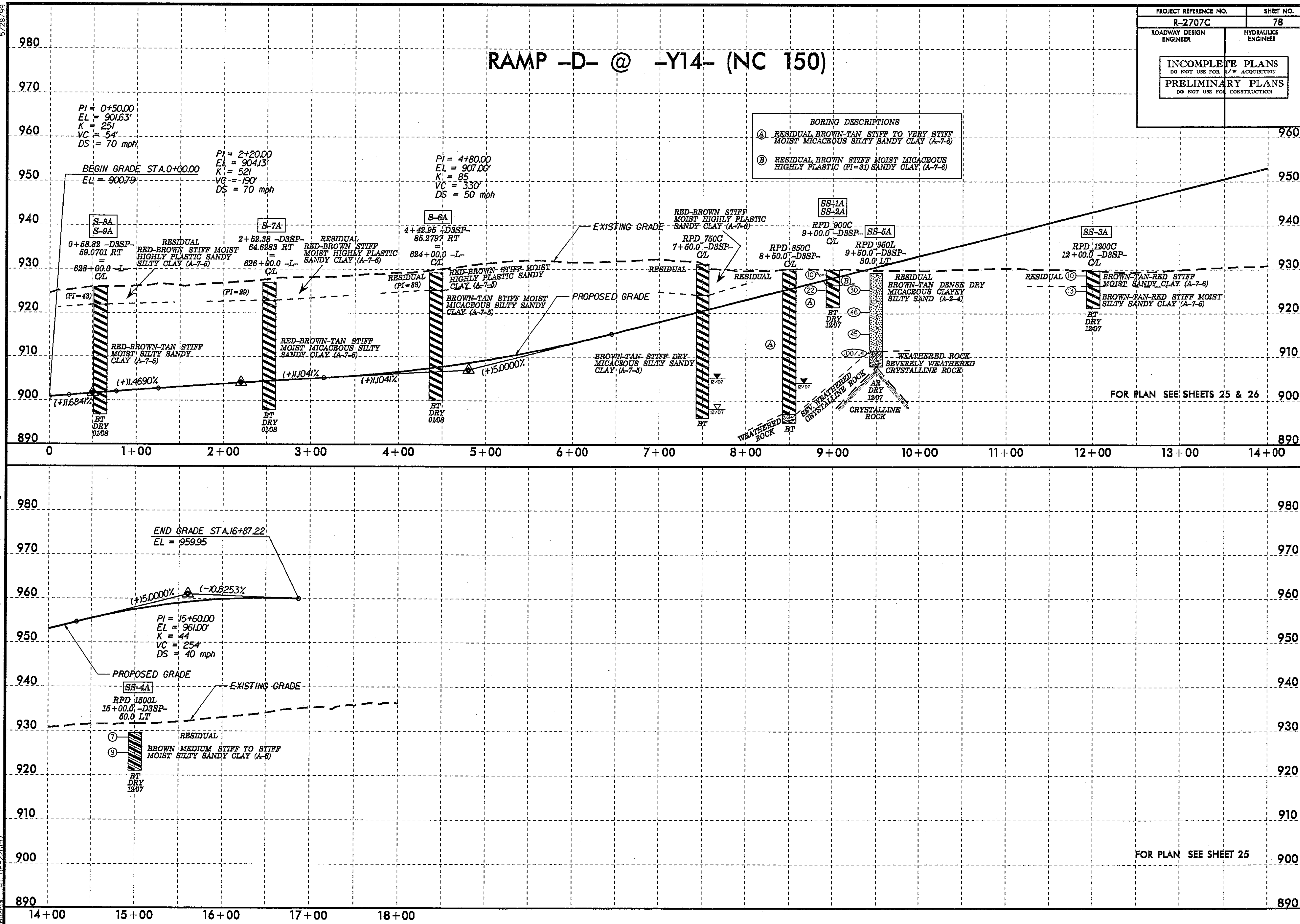


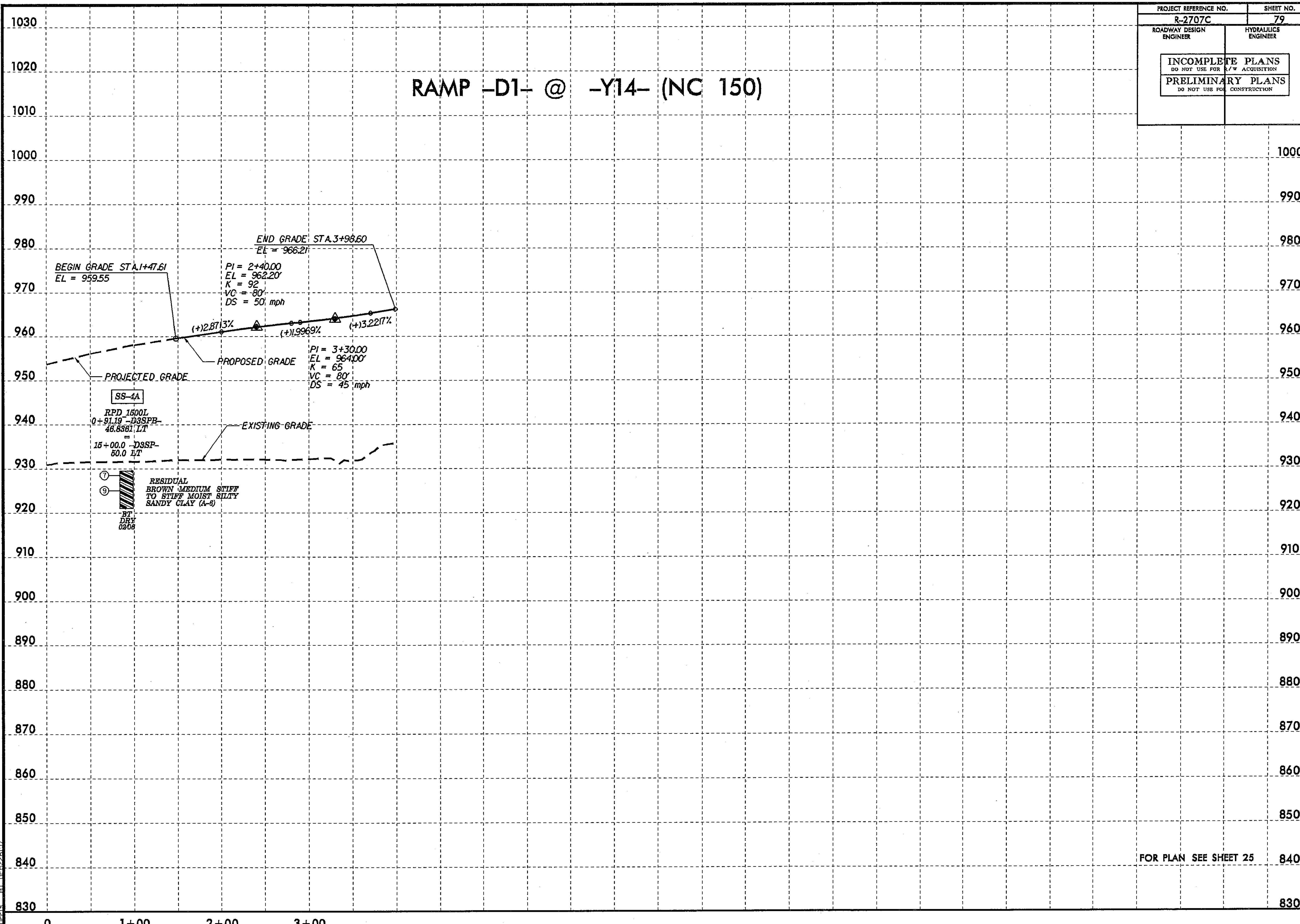
PROJECT REFERENCE NO. R-2707C
SHEET NO. 78
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
RAMP -D- @ -Y14- (NC 150)
BORING DESCRIPTIONS
(A) RESIDUAL BROWN-TAN STIFF TO VERY STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-5)
(B) RESIDUAL BROWN STIFF MOIST MICACEOUS HIGHLY PLASTIC (PI=31) SANDY CLAY (A-7-6)
PI = 0+50.00 EL = 901.63' K = 251 VC = 54' DS = 70 mph
BEGIN GRADE STA.0+00.00 EL = 900.79'
PI = 2+20.00 EL = 904.13' K = 521 VC = 190' DS = 70 mph
PI = 4+80.00 EL = 907.00' K = 85 VC = 330' DS = 50 mph
S-8A S-9A 0+68.82 -D3SP- 59.0701 RT = 628+00.0 -L- C/L
S-7A 2+52.38 -D3SP- 64.6283 RT = 626+00.0 -L- C/L
S-6A 4+42.95 -D3SP- 85.2797 RT = 624+00.0 -L- C/L
RESIDUAL RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY SILTY CLAY (A-7-5)
RESIDUAL RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
RESIDUAL (PI=38)
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-5)
(PI=43)
(PI=29)
RED-BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-5)
RED-BROWN-TAN STIFF MOIST MICACEOUS SILTY SANDY CLAY (A-7-6)
EXISTING GRADE
PROPOSED GRADE
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
RPD 750C 7+50.0 -D3SP- C/L
RESIDUAL
BROWN-TAN STIFF DRY MICACEOUS SILTY SANDY CLAY (A-7-5)
SS-1A SS-2A RPD 900C 9+00.0 -D3SP- C/L
RPD 850C 8+50.0 -D3SP- C/L
SS-5A RPD 950L 9+50.0 -D3SP- 30.0 LT
RESIDUAL BROWN-TAN DENSE DRY MICACEOUS CLAYEY SILTY SAND (A-2-4)
WEATHERED ROCK
SEVERELY WEATHERED CRYSTALLINE ROCK
SEV. WEATHERED CRYSTALLINE ROCK
WEATHERED ROCK
CRYSTALLINE ROCK
AR DRY 12/07
BT DRY 12/07
SS-3A RPD 1200C 12+00.0 -D3SP- C/L
RESIDUAL BROWN-TAN-RED STIFF MOIST SANDY CLAY (A-7-6)
BROWN-TAN-RED STIFF MOIST SILTY SANDY CLAY (A-7-5)
BT DRY 01/08
(+)1.6841% (+)1.4690% (+)1.1041% (+)1.1041% (+)5.0000%
FOR PLAN SEE SHEETS 25 & 26
0 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00
890 900 910 920 930 940 950 960 970 980
END GRADE STA.16+87.22 EL = 959.95
(+)5.0000% (-)0.8253%
PI = 15+60.00 EL = 961.00' K = 44 VC = 254' DS = 40 mph
PROPOSED GRADE
EXISTING GRADE
SS-4A RPD 1500L 15+00.0 -D3SP- 50.0 LT
RESIDUAL BROWN MEDIUM STIFF TO STIFF MOIST SILTY SANDY CLAY (A-5)
BT DRY 12/07
FOR PLAN SEE SHEET 25
14+00 15+00 16+00 17+00 18+00
5/28/99
28-MAY-2008 15:00

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	79
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RAMP -D1- @ -Y14- (NC 150)



FOR PLAN SEE SHEET 25

5/14/99
22-MAY-2008 13:46

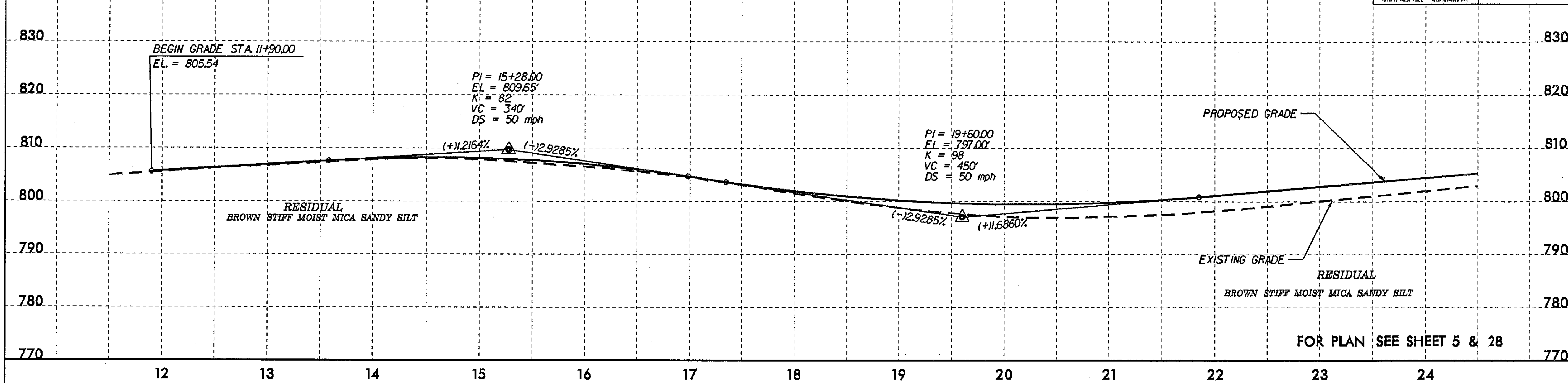
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

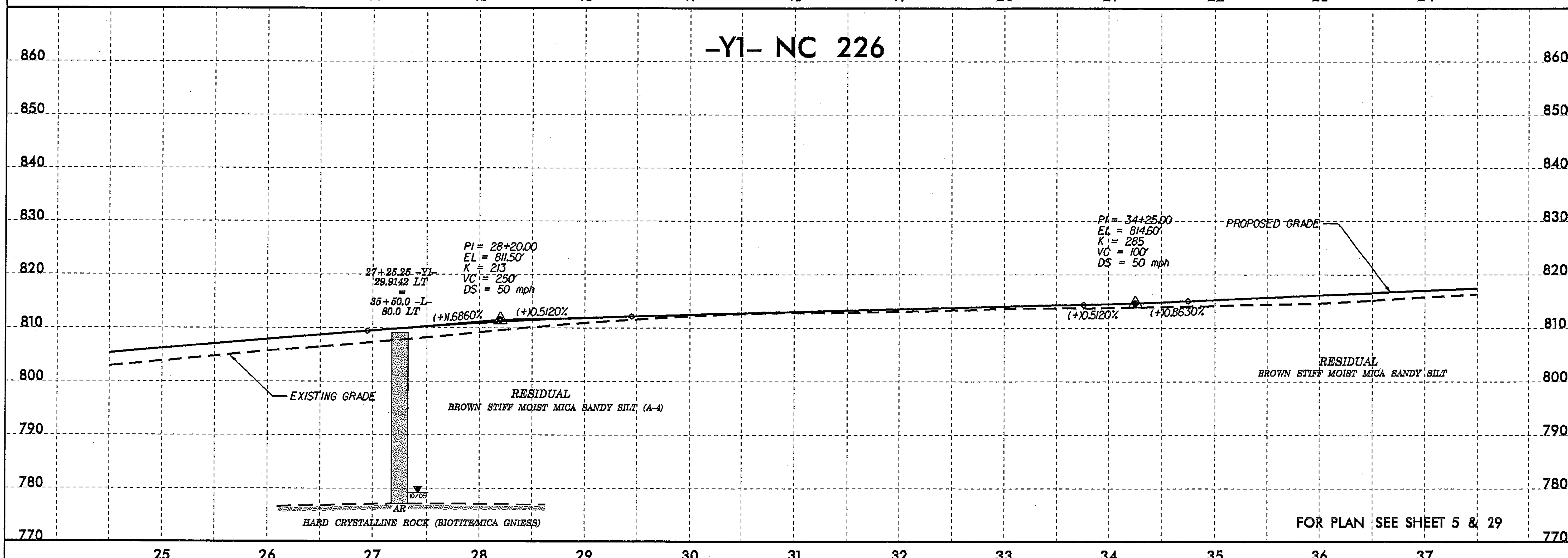
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

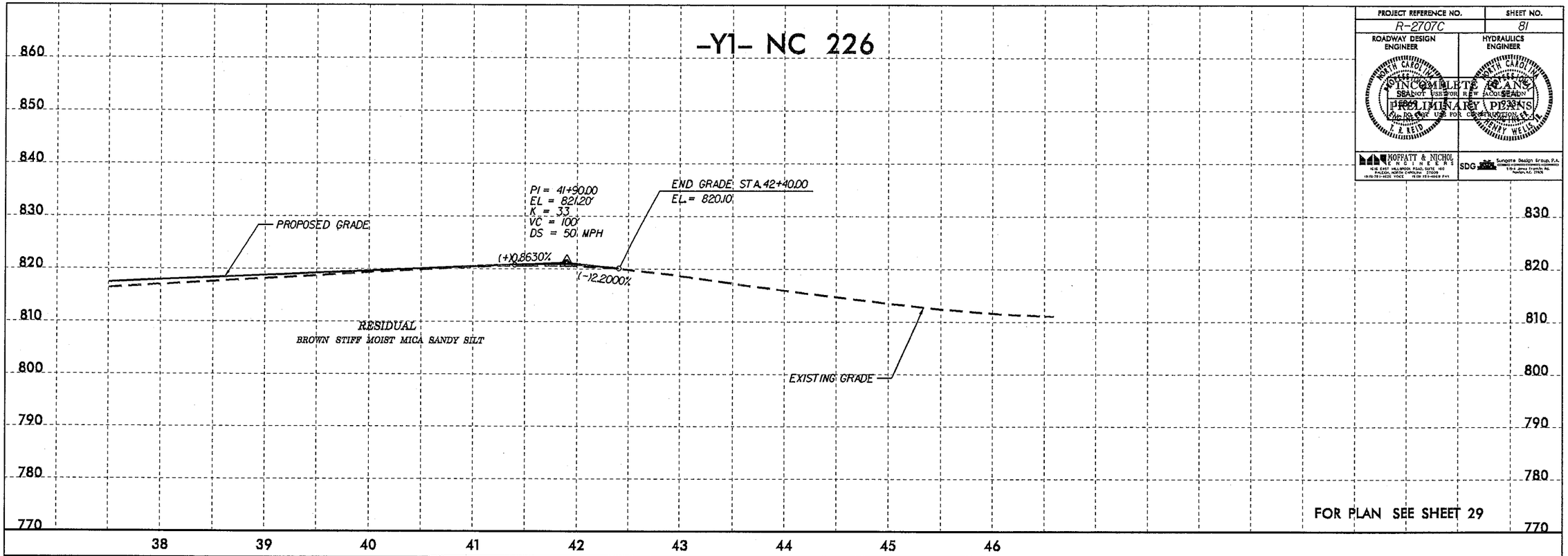
MOFFATT & NICHOL ENGINEERS

SDG





-Y1- NC 226



PROJECT REFERENCE NO.	SHEET NO.
R-2707C	81

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

FOR PLAN SEE SHEET 29

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	82

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19641 T. E. REID

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19641 HENRY WELTON

INCOMPLETE PLANS
SEAL NOT USED FOR R/W ACQUISITION
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4628 FAX

SDG Sungate Design Group, P.A.
Consulting Engineers
130 E. Jones Franklin Rd.
Raleigh, N.C. 27601

-Y2- SR 1850 METCALF ROAD

PROFILE AT 90.0' RT -Y2-

ALLUVIAL
GRAY V. LOOSE TO LOOSE SAT. SILTY SAND (A-2-4)

S-240A

27+00.0 -Y2- 90.0 RT

BT DRY 03/06

RESIDUAL

RESIDUAL BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-4)

BM # 18
EL.= 778.74'
N = 581169.5 E = 1236857.1
8 INCH NAIL IN BASE OF 20 INCH WHITE OAK
-Y2- STA. 30+98.41 28.12' (LT.)

END GRADE STA. 33+25.00
EL. = 780.81

33+00.0 -Y2- 60.0 LT

32+00.0 -Y2- 40.0 LT

RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY

BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-4)

PROPOSED GRADE

BEGIN GRADE STA. 23+85.00
EL. = 742.27

(+) 4.1000%

EXISTING GRADE

BT DRY 03/06

BT DRY 03/06

BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-4)

FOR PLAN SEE SHEET 7 & 30

-Y3- SR 1005 NORTH LAFAYETTE STREET

BM # 22
EL.= 830.34'
N = 583077.3 E = 1242588.9
8 INCH NAIL IN ROOT OF 10 INCH POPLAR
-Y3- STA. 18+12.62 31.46' (RT.)

PI = 21+04.00
EL = 851.50'
K = 85
VC = 350'
DS = 50 mph

S-120
S-121

22+00.0 -Y3- 46.0 RT
=
449+40 -L- 125.0 RT
867.17'

BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)

20+70.0 -Y3- 50.0 RT

BROWN STIFF MOIST MICA SANDY CLAY (A-7-5)

END GRADE STA. 25+54.02
EL.= 865.64

(+)3.1421%

PROPOSED GRADE

EXISTING GRADE

BEGIN GRADE STA. 17+90.00
EL. = 828.77

(+)7.2389%

BROWN MED. DENSE TO DENSE MICA SILTY SAND (A-2-4)

AR DRY 03/06

HARD CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

BROWN MED. DENSE TO DENSE MICA SILTY SAND. (A-2-4)

BT DRY 03/06

FOR PLAN SEE SHEET 12 & 32

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	83

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

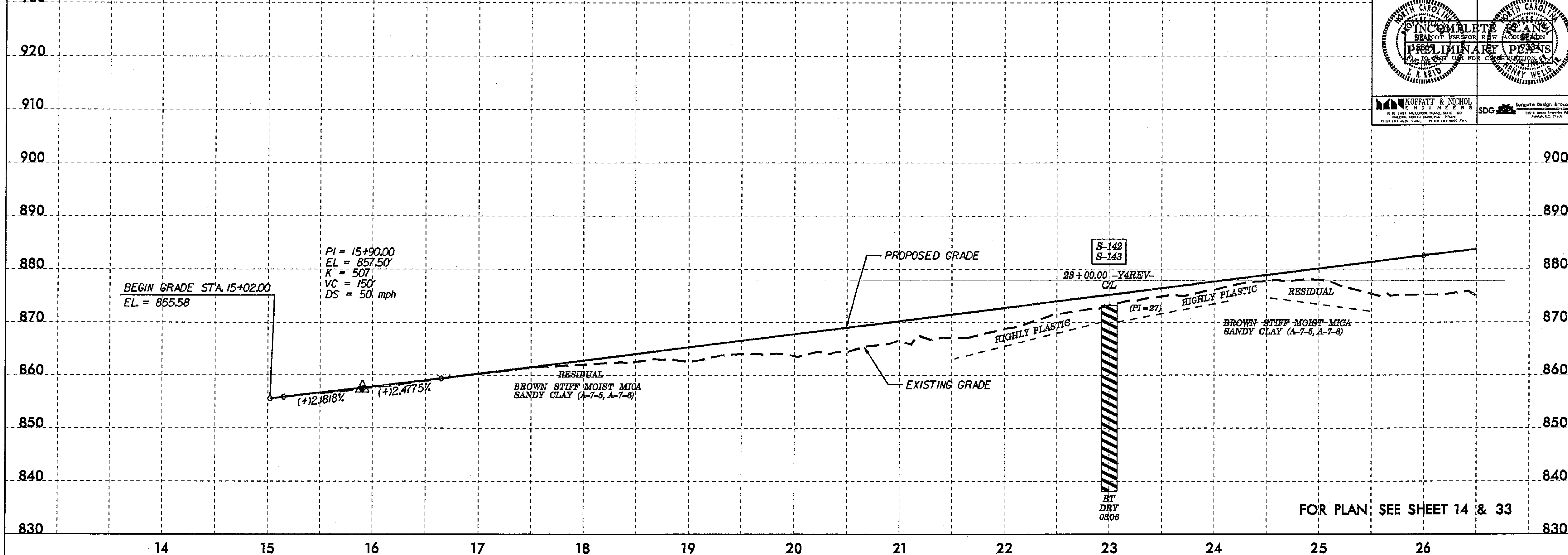
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

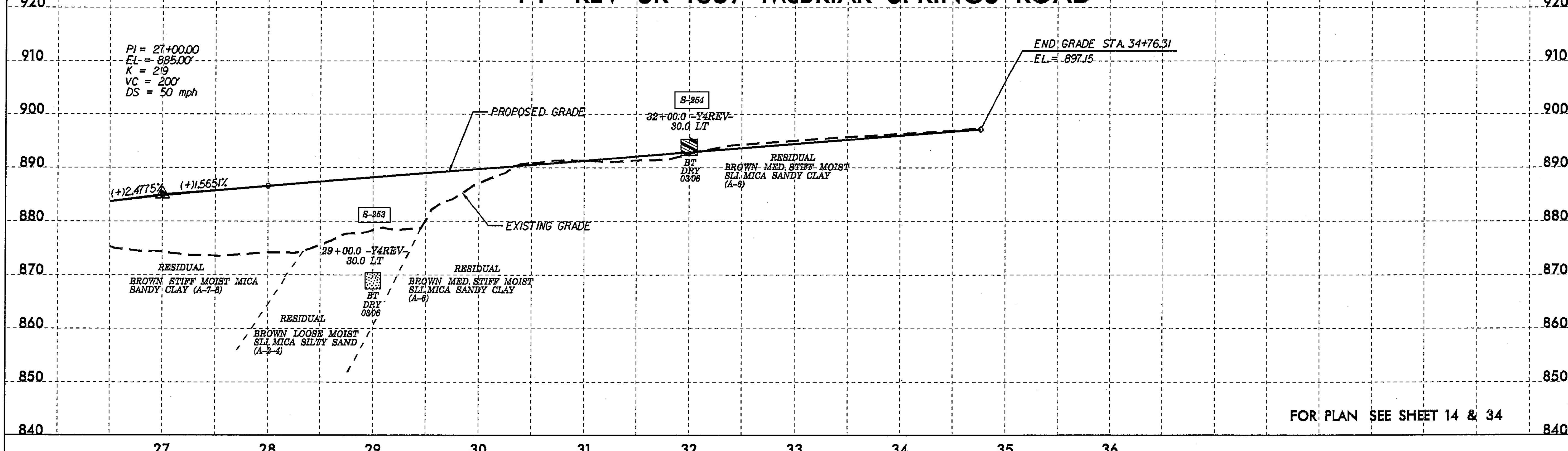
MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

-Y4- REV SR 1837 McBRIAR SPRINGS ROAD



-Y4- REV SR 1837 McBRIAR SPRINGS ROAD



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	84
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y6A- SR 1843 SPRING BROOK DRIVE

960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760

930 920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760

BEGIN GRADE STA. 10+00.00 =
STA. 10+00.00 (-Y6-)
EL. = 858.06

PI = 12+40.00
EL = 862.17'
K = 43.3
VC = 150'
DS = 30

(+)1.7140%

RESIDUAL

PROPOSED GRADE

(+)5.1821%

EXISTING GRADE

RESIDUAL

END GRADE STA. 19+41.19 =
STA. ??+??.?? (-Y5-)
EL. = 898.51

FOR PLAN SEE SHEETS 17 & 46

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

22-MAY-2008 14:13
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cburris

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	85

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

NOT COMPLETE FOR ANY PRELIMINARY PLANS

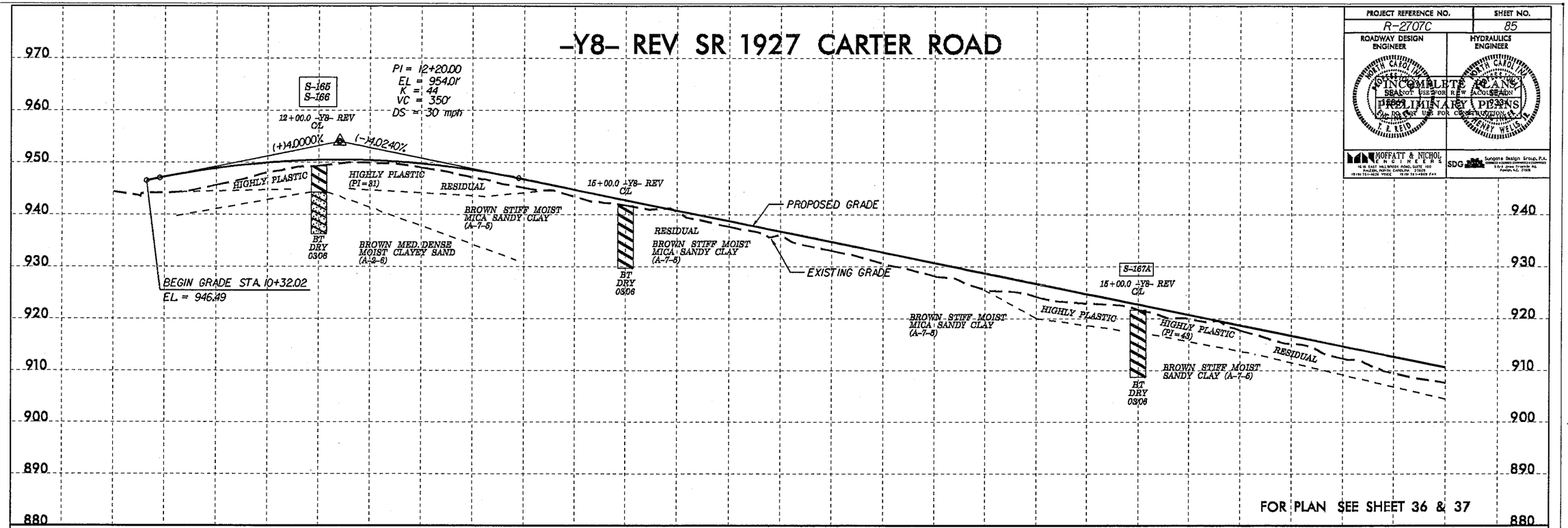
DO NOT USE FOR R/W ACQUISITION

DO NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL ENGINEERS

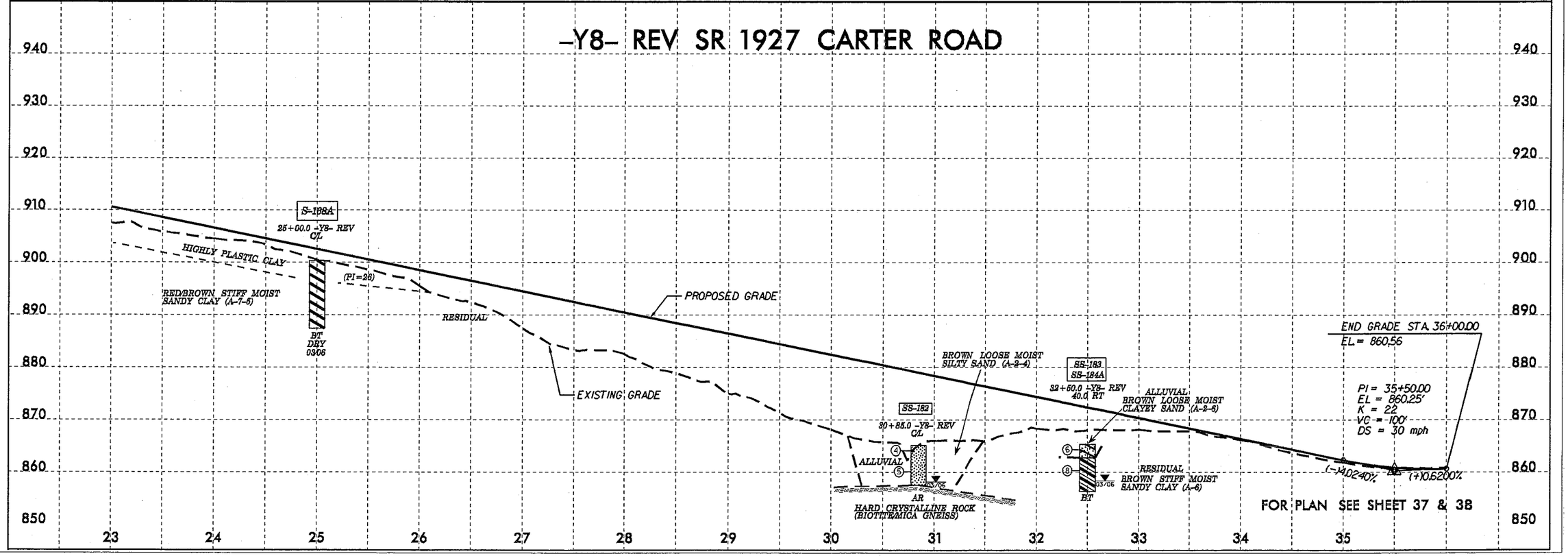
SDG Sungate Design Group, P.A.

-Y8- REV SR 1927 CARTER ROAD



FOR PLAN SEE SHEET 36 & 37

-Y8- REV SR 1927 CARTER ROAD



FOR PLAN SEE SHEET 37 & 38

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	86

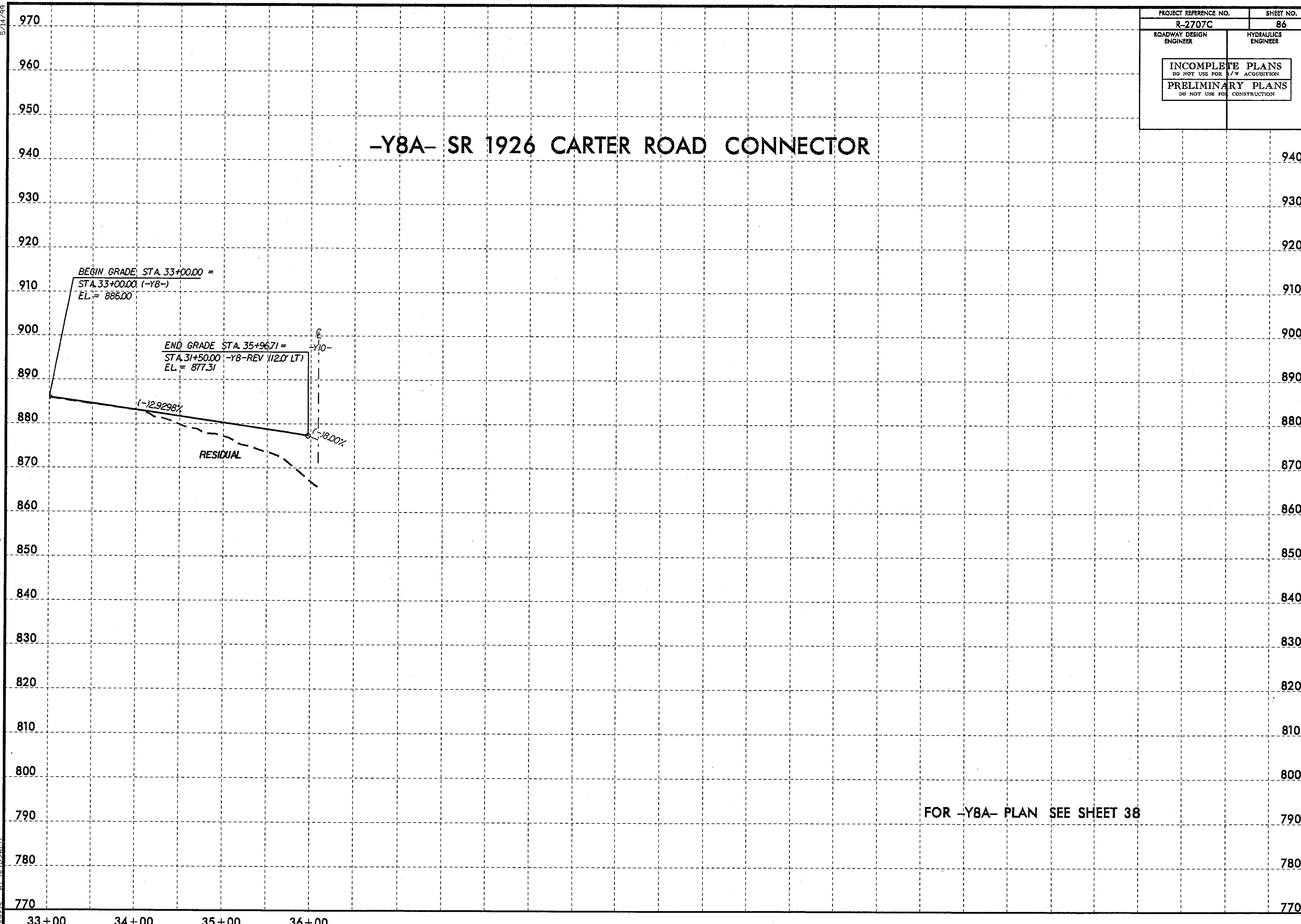
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y8A- SR 1926 CARTER ROAD CONNECTOR



FOR -Y8A- PLAN SEE SHEET 38

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2707C	87

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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

MOFFATT & NICHOL ENGINEERS

SDG Sungate Design Group, P.A.

-Y9- NC 18

BEGIN GRADE STA. 10+70.00
EL. = 947.36

P.I. = 12+90.00
EL = 946.70'
K = 643
VC = 200'
DS = 50 mph

P.I. = 16+50.00
EL = 944.50'
K = 186
VC = 200'
DS = 50 mph

(−)0.3000%
(−)0.6111%
(−)0.6111%
(+)0.4667%

PROPOSED GRADE

EXISTING GRADE

RED/BRN. MED. STIFF TO STIFF MOIST SANDY CLAY

RED/BRN. MED. STIFF TO STIFF MOIST SANDY CLAY

FOR PLAN SEE SHEET 19 & 35

1000 990 980 970 960 950 940 930 920 910

11 12 13 14 15 16 17 18 19 20 21 22 23

-Y9- NC 18

PI = 24+00.00
EL = 948.00'
K = 67.4
VC = 600'
DS = 50 mph

PI = 32+61.00
EL = 944.35'
K = 172
VC = 300'
DS = 50 mph

END GRADE STA. 36+00.00
EL = 948.81

(+)0.4667%
(−)0.4239%
(−)0.4239%
(+)1.3156%

PROPOSED GRADE

EXISTING GRADE

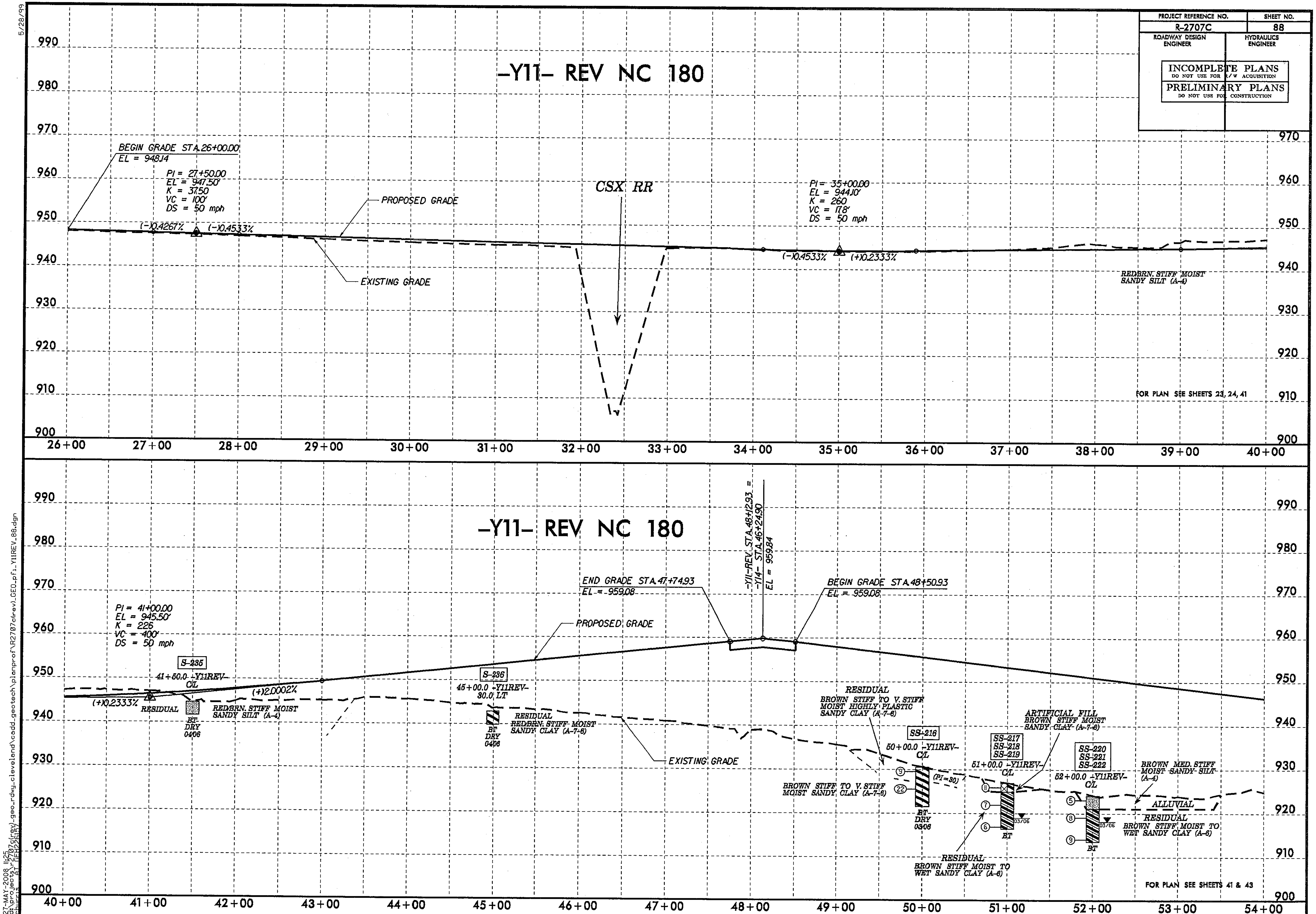
RED/BRN. MED. STIFF TO STIFF MOIST SANDY CLAY

RED/BRN. MED. STIFF TO STIFF MOIST SANDY CLAY

FOR PLAN SEE SHEET 19 & 36

1000 990 980 970 960 950 940 930 920 910

24 25 26 27 28 29 30 31 32 33 34 35 36



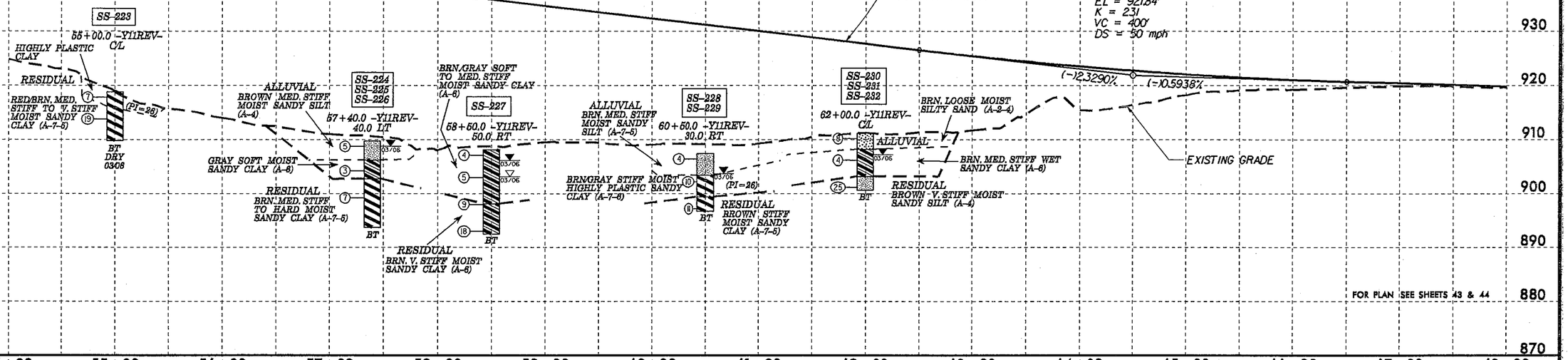
PROJECT REFERENCE NO.
R-2707C
SHEET NO.
88
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/28/99
-Y11- REV NC 180
BEGIN GRADE STA.26+00.00
EL = 948.14
PI = 27+50.00
EL = 947.50'
K = 37.50
VC = 100'
DS = 50 mph
(−)0.4267%
(−)0.4533%
PROPOSED GRADE
EXISTING GRADE
CSX RR
PI = 35+00.00
EL = 944.10'
K = 260
VC = 117.8'
DS = 50 mph
(−)0.4533%
(+)0.2333%
RED/BRN. STIFF MOIST SANDY SILT (A-4)
FOR PLAN SEE SHEETS 23, 24, 41
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
-Y11- REV NC 180
PI = 41+00.00
EL = 945.50'
K = 226
VC = 400'
DS = 50 mph
S-235
41+50.0 -Y11REV- C/L
(+)0.2333%
RESIDUAL
RED/BRN. STIFF MOIST SANDY SILT (A-4)
BT DRY 0406
(+)2.0002%
S-236
45+00.0 -Y11REV- 30.0' LT
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)
BT DRY 0406
PROPOSED GRADE
EXISTING GRADE
END GRADE STA.47+74.93
EL = 959.08
-Y11-REV- STA.48+12.93 = -Y14- STA.46+24.90
EL = 959.84
BEGIN GRADE STA.48+50.93
EL = 959.08
RESIDUAL
BROWN STIFF TO V. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
SS-216
50+00.0 -Y11REV- C/L
(PI=30)
BROWN STIFF TO V. STIFF MOIST SANDY CLAY (A-7-6)
BT DRY 0306
ARTIFICIAL FILL
BROWN STIFF MOIST SANDY CLAY (A-7-6)
SS-217
SS-218
SS-219
51+00.0 -Y11REV- C/L
BT
RESIDUAL
BROWN STIFF MOIST TO WET SANDY CLAY (A-6)
SS-220
SS-221
SS-222
52+00.0 -Y11REV- C/L
BT
BROWN MED. STIFF MOIST SANDY SILT (A-4)
ALLUVIAL
RESIDUAL
BROWN STIFF MOIST TO WET SANDY CLAY (A-6)
FOR PLAN SEE SHEETS 41 & 43
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
48+00
49+00
50+00
51+00
52+00
53+00
54+00
27-MAY-2008 11:25

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	89
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y11- REV NC 180



-Y11- REV NC 180

22-MAY-2008 14:41
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707C	90
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y14- NC 150

930 920 910 900 890 880 870 860 850 840

BEGIN GRADE STA 12+50.00
EL = 887.80'

(+)2.4569%

(−)2.5364%

PI = 14+75.00
EL = 893.33'
K = 84
VC = 420'
DS = 50 mph

EXISTING GRADE

PROPOSED GRADE

RESIDUAL
BRN, MED. STIFF MOIST TO WET SANDY CLAY

PI = 21+00.00
EL = 877.48'
K = 99
VC = 7.40'
DS = 50 mph

(−)2.5364%

(+)4.9512%

910 900 890 880 870 860 850 840

FOR PLAN SEE SHEETS 39 & 40

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-Y14- NC 150

960 950 940 930 920 910 900 890 880 870

PROPOSED GRADE

(+)4.9513%

EXISTING GRADE

S-257

28+00.0 -Y14-
30.0' RT

BT
DRY
03/06

RESIDUAL
RED/BRN, MED. STIFF MOIST SANDY CLAY (A-6)

ALLUVIAL
BROWN LOOSE SAT. SILTY SAND (A-2-4)

S-258

27+50.0 -Y14-
50.0' LT

03/06

RESIDUAL
BRN, MED, STIFF MOIST TO WET SANDY CLAY (A-6)

BT

30+75.0 -Y14-
80.0 LT

RESIDUAL

TAN STIFF MOIST SANDY CLAY (A-6)

RED/BRN, MED. DENSE MOIST SILTY SAND (A-2-4)

BT
DRY
03/06

S-195
SS-196
SS-197
SS-198

37+06.65 -Y14-
72.2115 LT
=
612+20.0 -L-
60.0 LT

RESIDUAL
TAN MED. STIFF TO VERY STIFF MED. TO HIGHLY PLASTIC SANDY CLAY (A-7-5)

(PI = 21-29)

03/06

03/06

RESIDUAL
BROWN VERY STIFF TO HARD MOIST MICA SANDY SILT (A-4)

BT

960 950 940 930 920 910 900 890 880 870

FOR PLAN SEE SHEETS 40 & 25

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

28-MAY-2008 15:07
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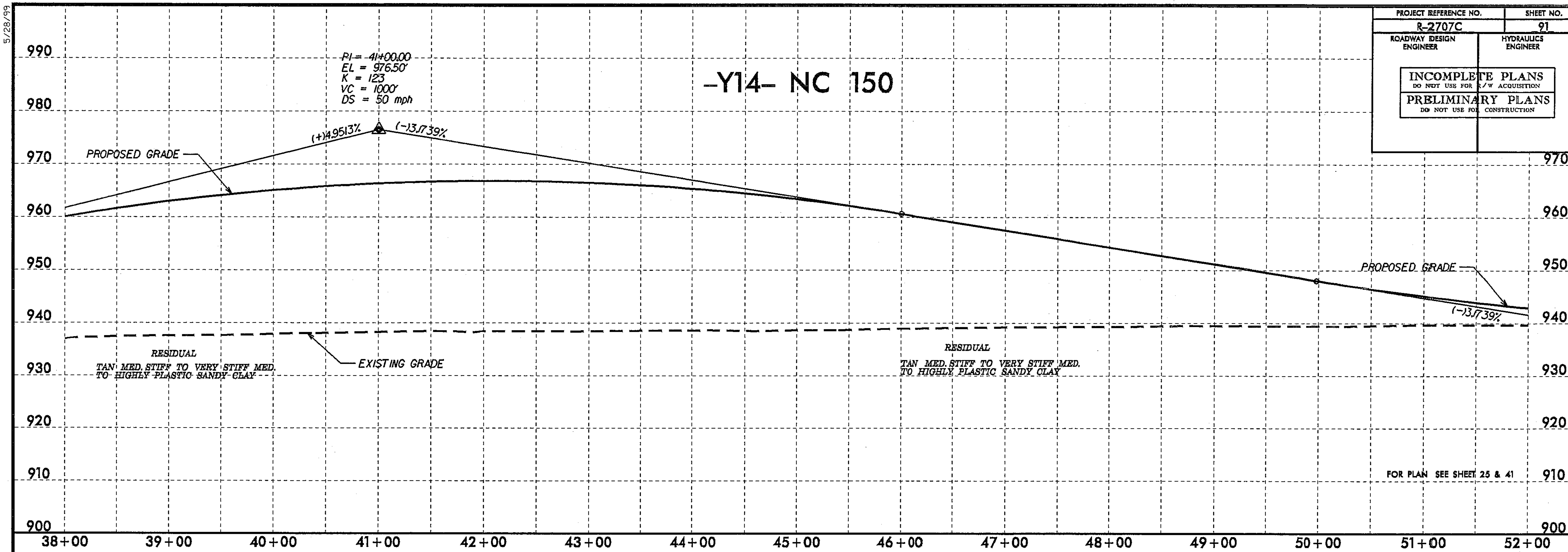
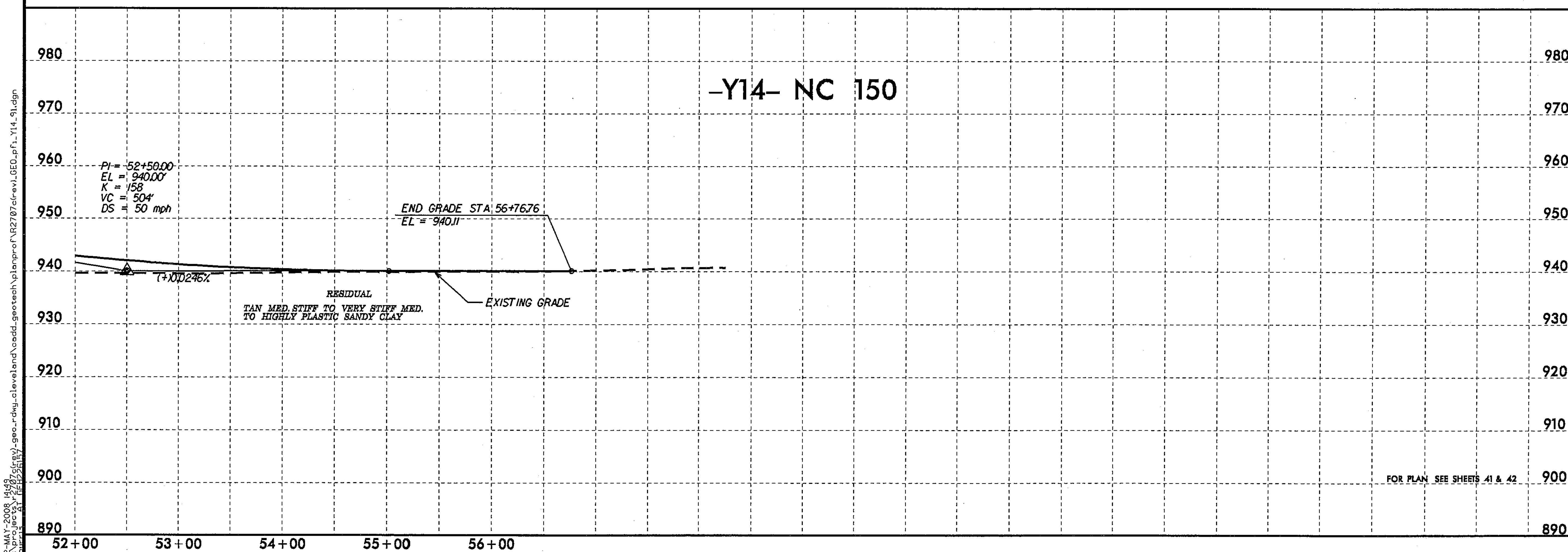
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	91
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



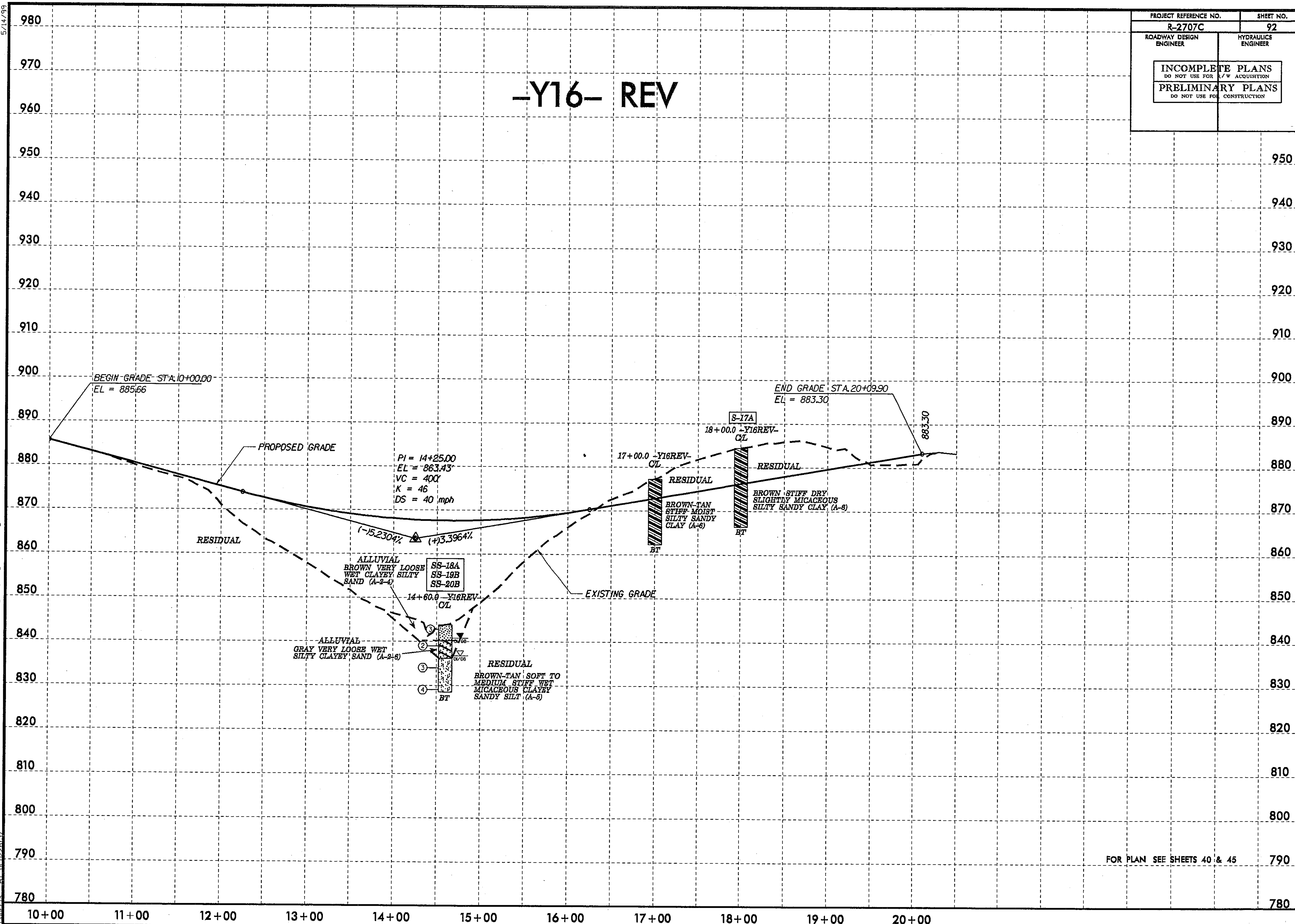


PROJECT REFERENCE NO.	SHEET NO.
R-2707C	92
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y16- REV



BEGIN GRADE STA.10+00.00
EL = 885.66
PROPOSED GRADE
PI = 14+25.00
EL = 863.43
VC = 400'
K = 46
DS = 40 mph
(-)5.2304%
(+)3.3964%
RESIDUAL
ALLUVIAL
BROWN VERY LOOSE WET CLAYEY SILTY SAND (A-2-4)
SS-18A
SS-19B
SS-20B
14+60.0 -Y16REV-
C/L
ALLUVIAL
GRAY VERY LOOSE WET SILTY CLAYEY SAND (A-2-6)
RESIDUAL
BROWN-TAN SOFT TO MEDIUM STIFF WET MICACEOUS CLAYEY SANDY SILT (A-5)
BT
EXISTING GRADE
17+00.0 -Y16REV-
C/L
RESIDUAL
BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-6)
BT
S-17A
18+00.0 -Y16REV-
C/L
RESIDUAL
BROWN STIFF DRY SLIGHTLY MICACEOUS SILTY SANDY CLAY (A-6)
BT
END GRADE STA.20+09.90
EL = 883.30
883.30
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00

FOR PLAN SEE SHEETS 40 & 45

5/14/99

23-MAY-2008 11:14

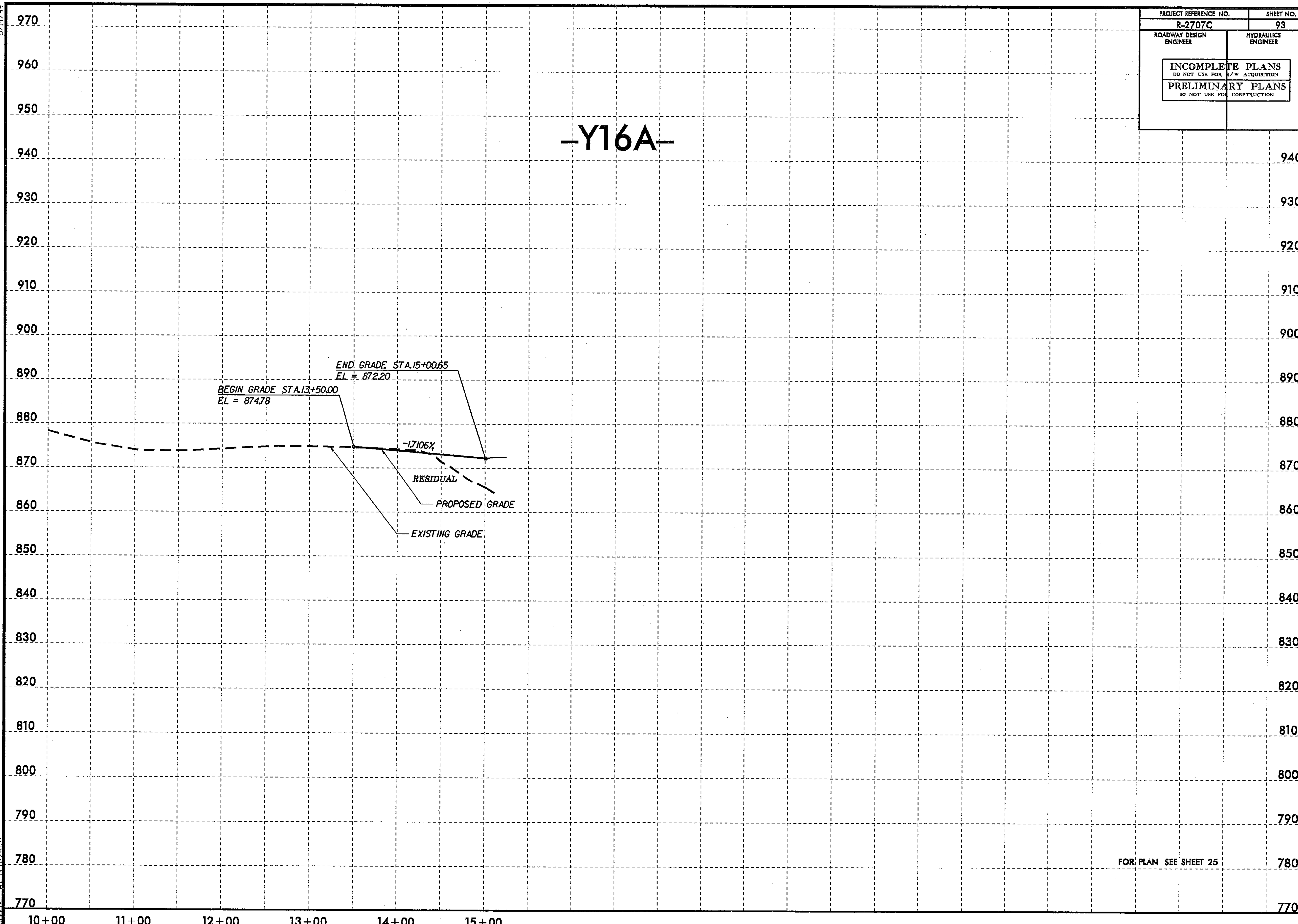
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	93

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y16A-



FOR PLAN SEE SHEET 25

5/14/99

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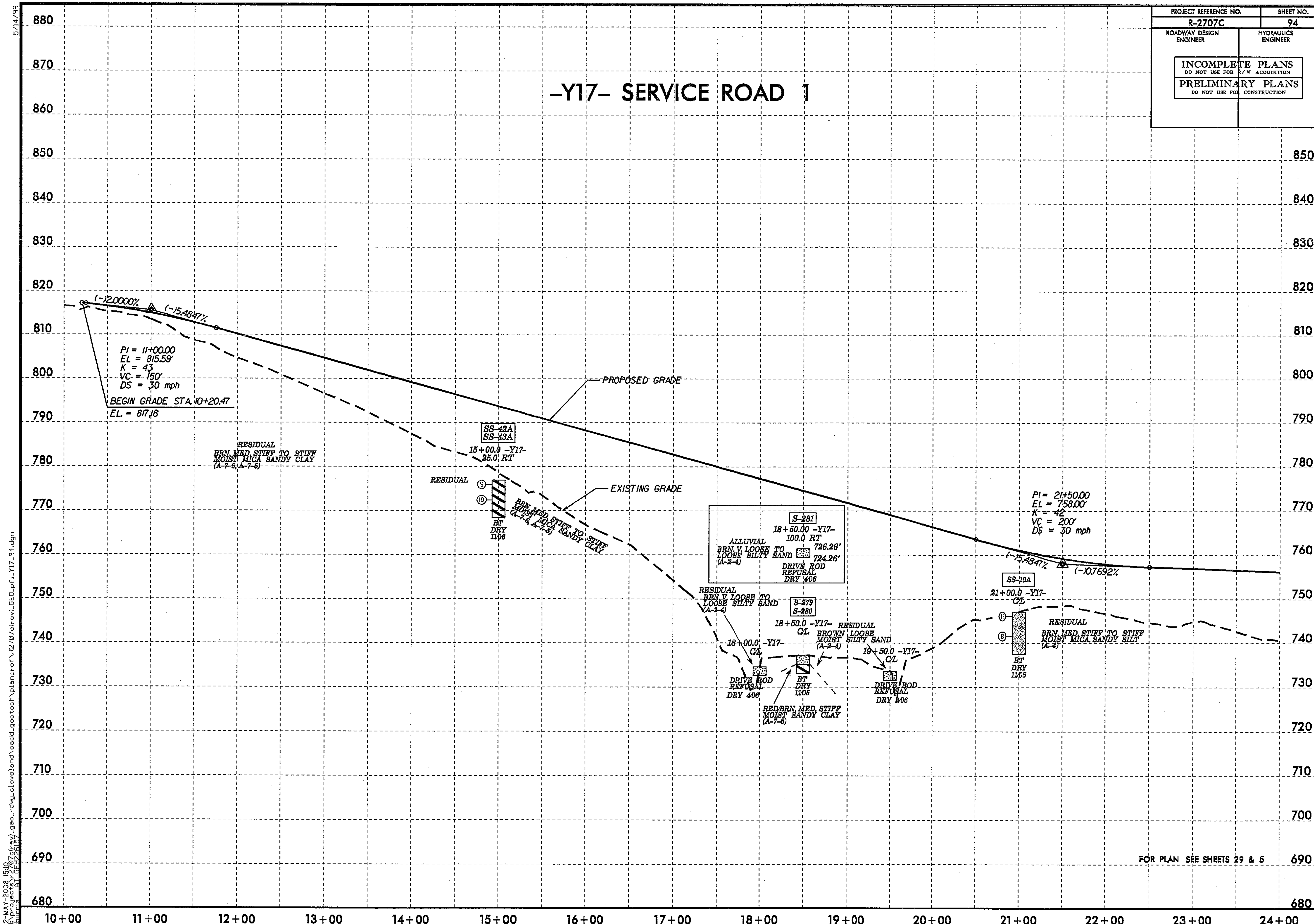
churris AT GFH226157

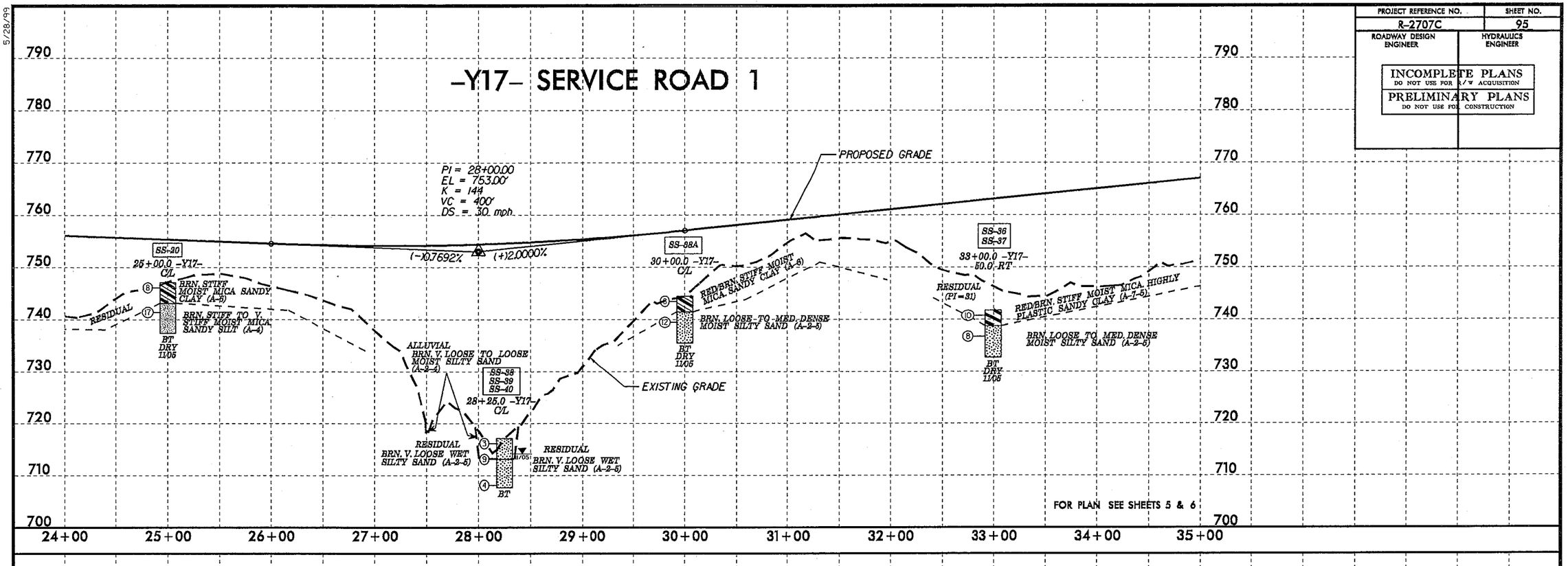

PROJECT REFERENCE NO.
R-2707C
SHEET NO.
94
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y17- SERVICE ROAD 1
(-)2.0000%
(-)5.4847%
PI = 11+00.00
EL = 815.59'
K = 43
VC = 150'
DS = 30 mph
BEGIN GRADE STA. 10+20.47
EL = 817.18
PROPOSED GRADE
EXISTING GRADE
RESIDUAL
BRN. MED. STIFF TO STIFF MOIST MICA SANDY CLAY (A-7-6, A-7-5)
SS-42A
SS-43A
15+00.0 -Y17- 25.0' RT
RESIDUAL
BT
DRY
11/06
BRN. MED. STIFF TO STIFF MOIST MICA SANDY CLAY (A-7-6, A-7-5)
S-281
18+50.00 -Y17- 100.0' RT
ALLUVIAL
BRN. V. LOOSE TO LOOSE SILTY SAND (A-2-4)
726.26'
724.26'
DRIVE ROD REFUSAL DRY 4/06
RESIDUAL
BRN. V. LOOSE TO LOOSE SILTY SAND (A-2-4)
S-279
S-280
18+50.0 -Y17- C/L
RESIDUAL
BROWN LOOSE MOIST SILTY SAND (A-2-4)
18+00.0 -Y17- C/L
DRIVE ROD REFUSAL DRY 4/06
BT
DRY
11/05
RED/BRN. MED. STIFF MOIST SANDY CLAY (A-7-6)
19+50.0 -Y17- C/L
DRIVE ROD REFUSAL DRY 4/06
PI = 21+50.00
EL = 758.00'
K = 42
VC = 200'
DS = 30 mph
(-)5.4847%
(-)0.7692%
SS-19A
21+00.0 -Y17- C/L
BT
DRY
11/05
RESIDUAL
BRN. MED. STIFF TO STIFF MOIST MICA SANDY SILT (A-4)
FOR PLAN SEE SHEETS 29 & 5
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
710
700
690
680
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
5/14/99

5/28/99

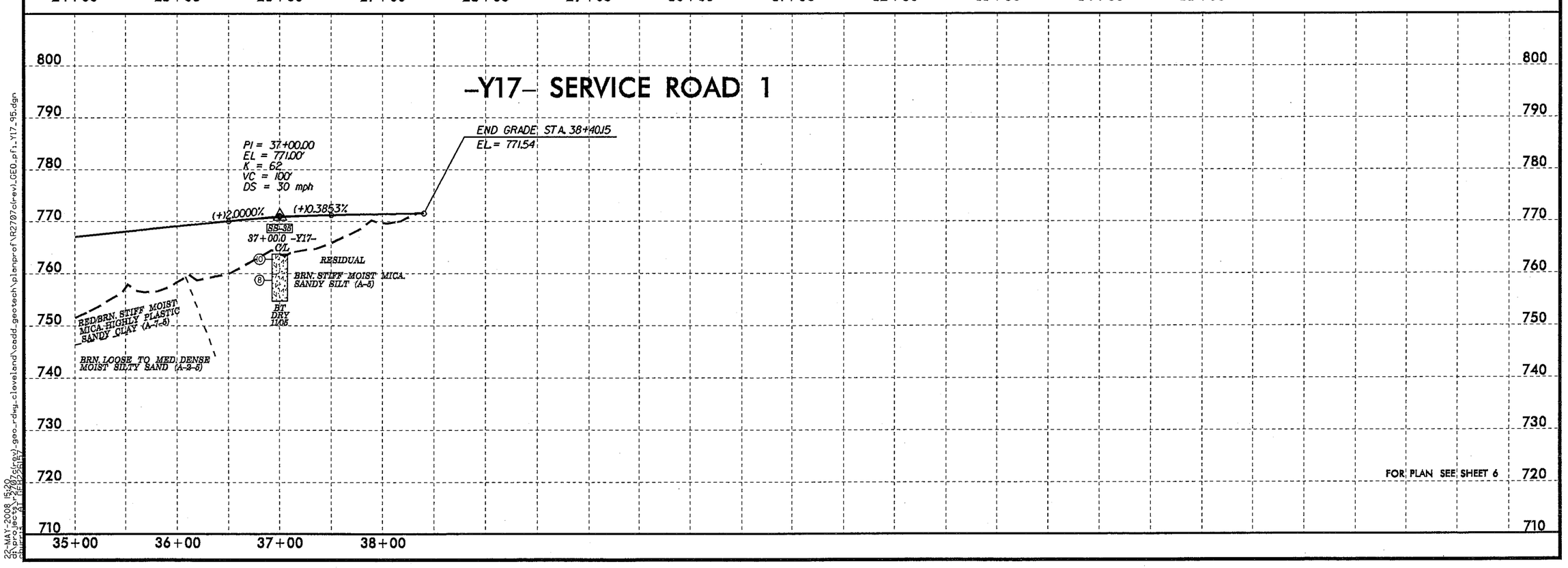
PROJECT REFERENCE NO.	SHEET NO.
R-2707C	95
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y17- SERVICE ROAD 1



-Y17- SERVICE ROAD 1



PROJECT REFERENCE NO.	SHEET NO.
R-2707C	96

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID — NORTH CAROLINA PROFESSIONAL SEAL 9331 ENGINEER HENRY WELLS, JR.

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

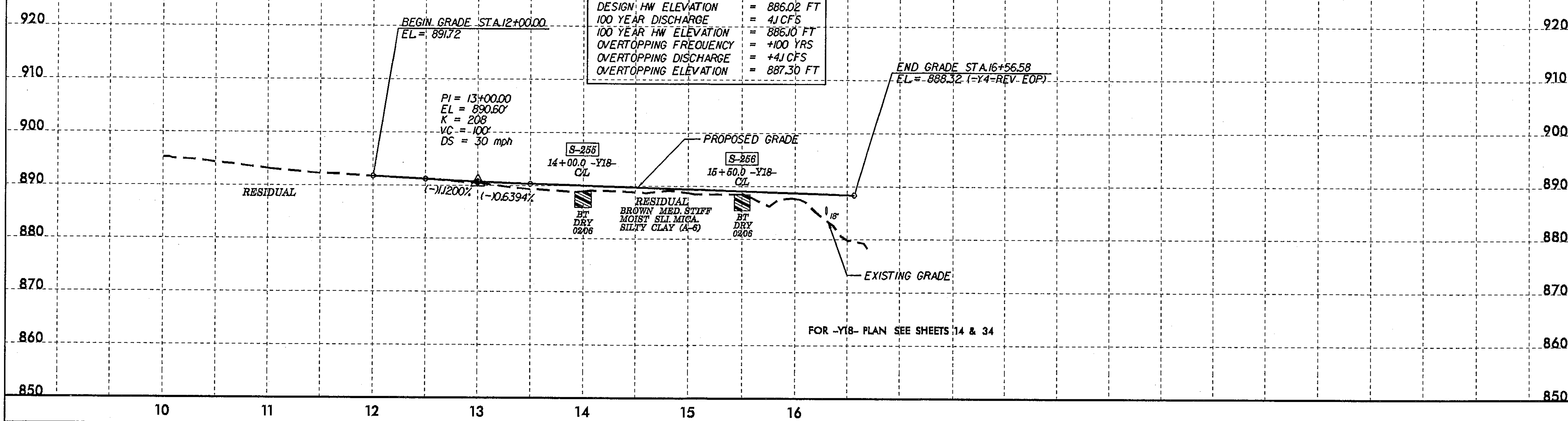
MOFFATT & NICHOL ENGINEERS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A.
915-A Jones Franklin Rd.
Raleigh, N.C. 27606

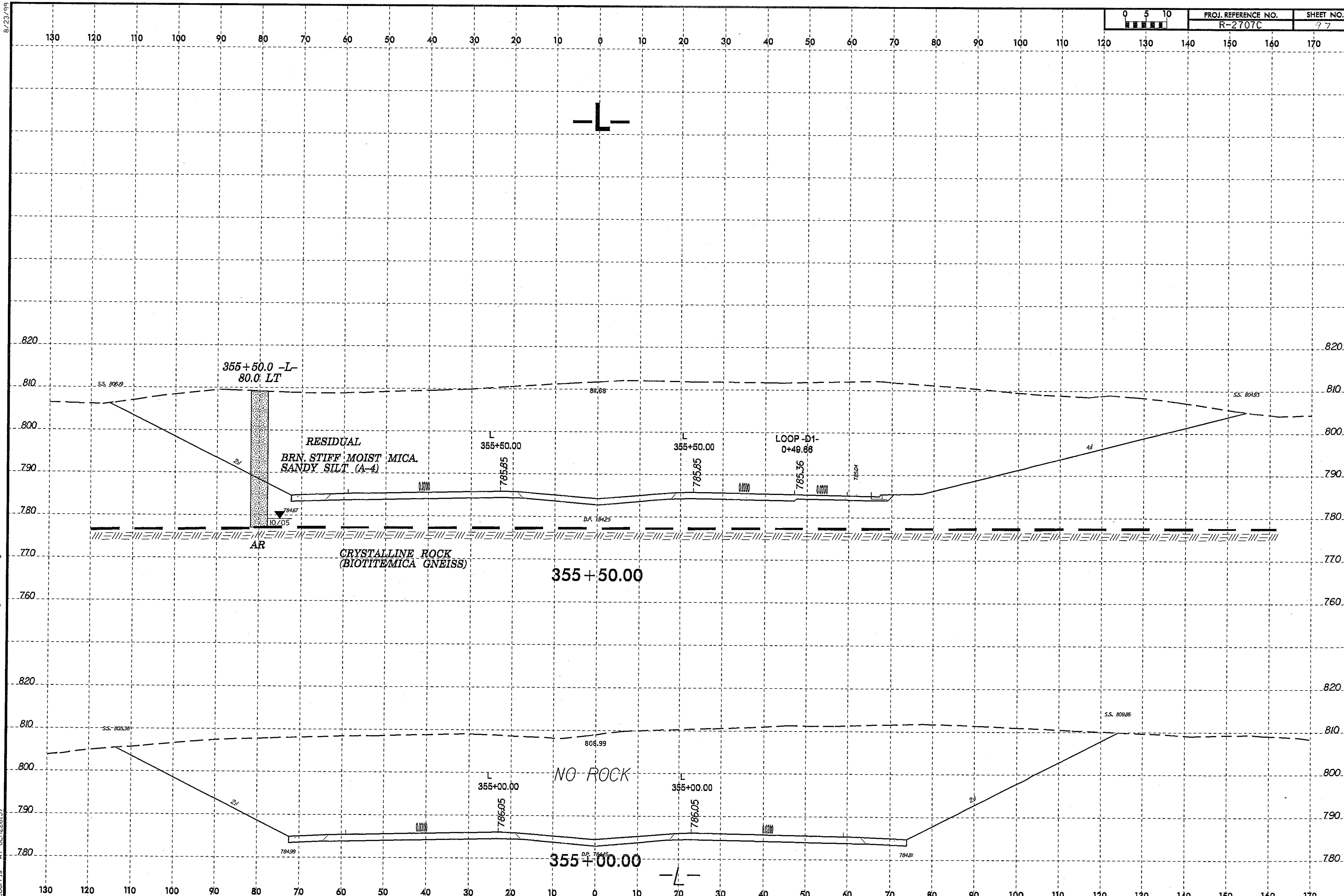
-Y18- SERVICE ROAD 2

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	0.96 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	3.5 CFS
DESIGN HW ELEVATION	=	886.02 FT
100 YEAR DISCHARGE	=	4.1 CFS
100 YEAR HW ELEVATION	=	886.10 FT
OVERTOPPING FREQUENCY	=	+100 YRS
OVERTOPPING DISCHARGE	=	+4.1 CFS
OVERTOPPING ELEVATION	=	887.30 FT



FOR -Y18- PLAN SEE SHEETS 14 & 34



8/23/99

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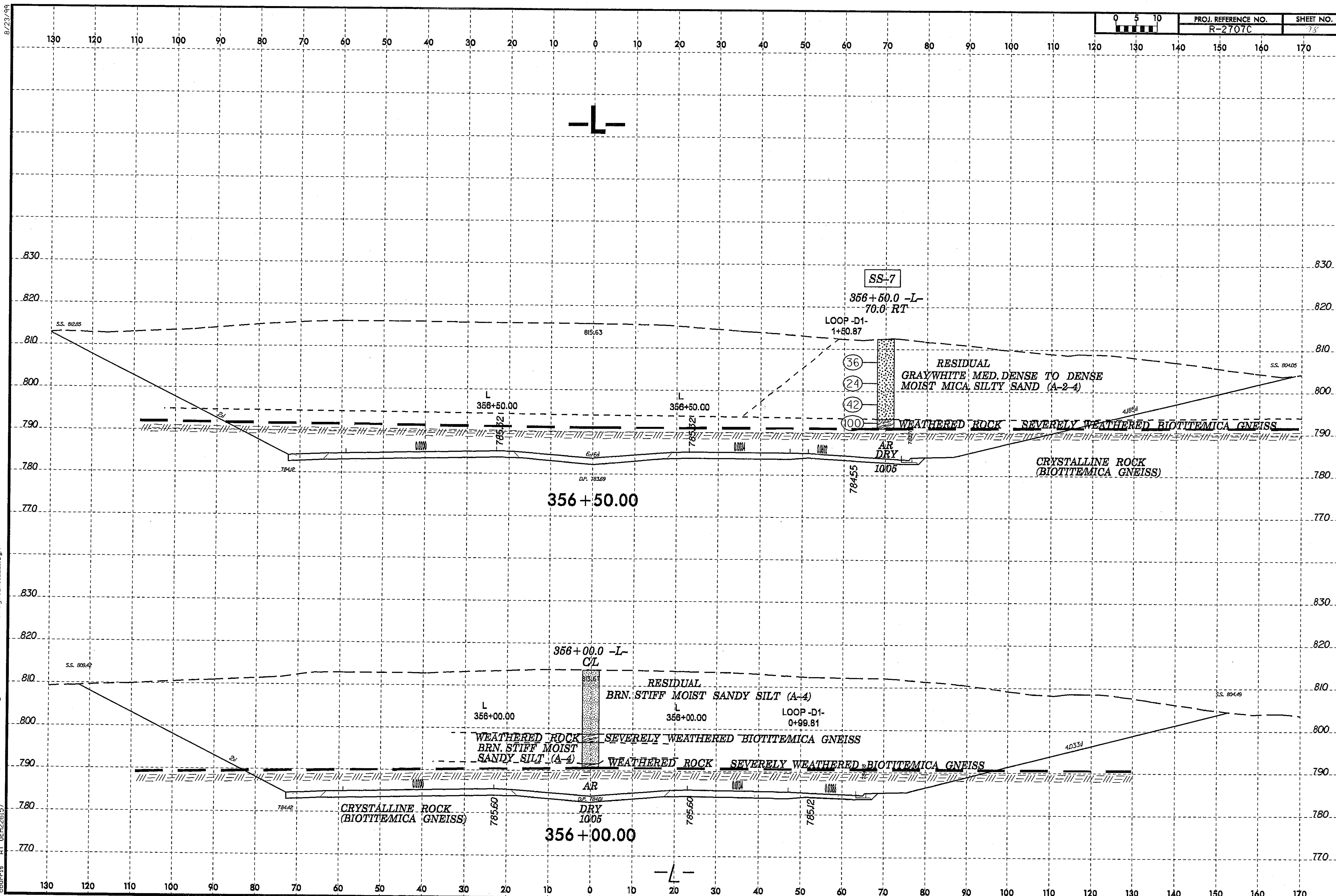
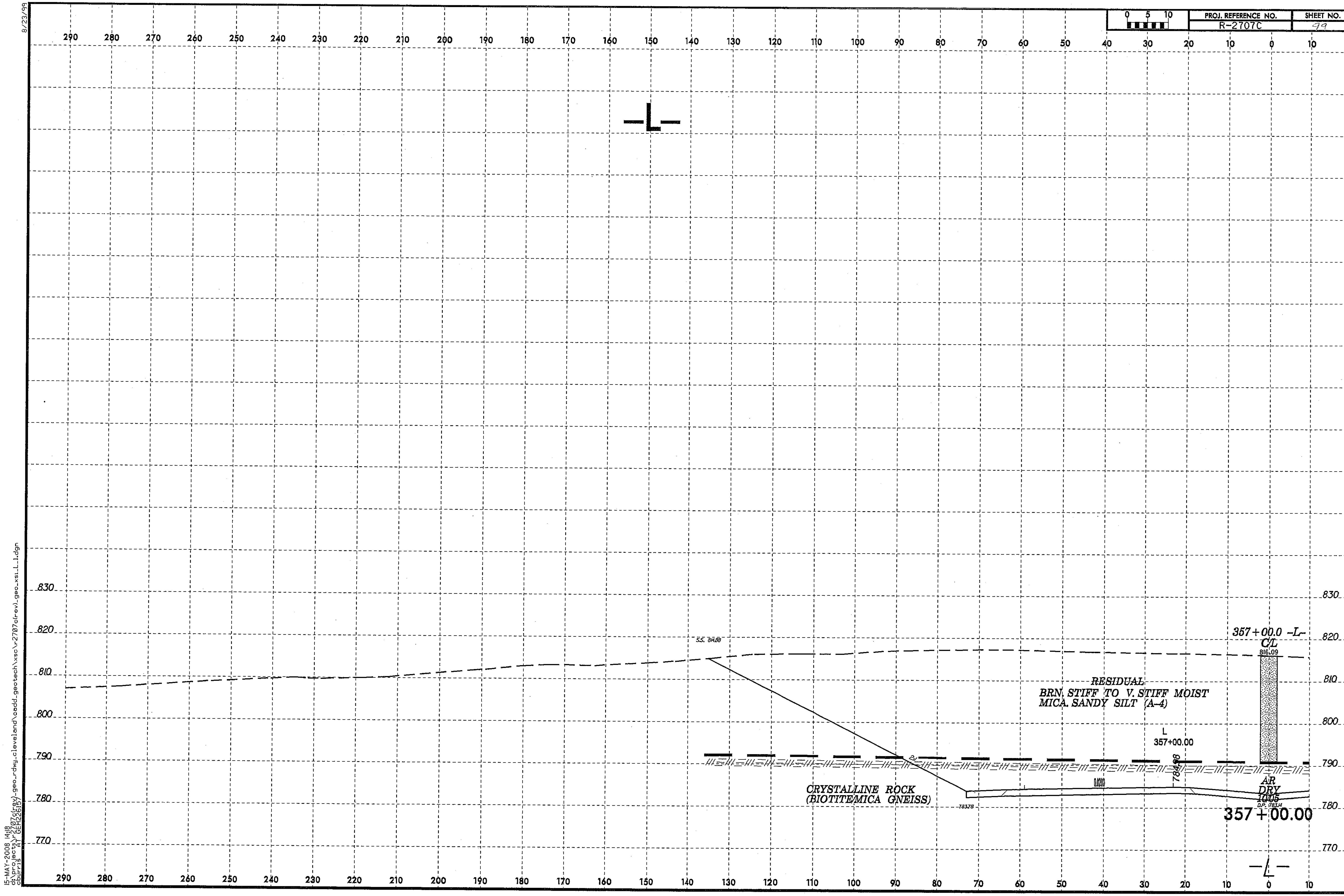
cburris AT DEH22615?



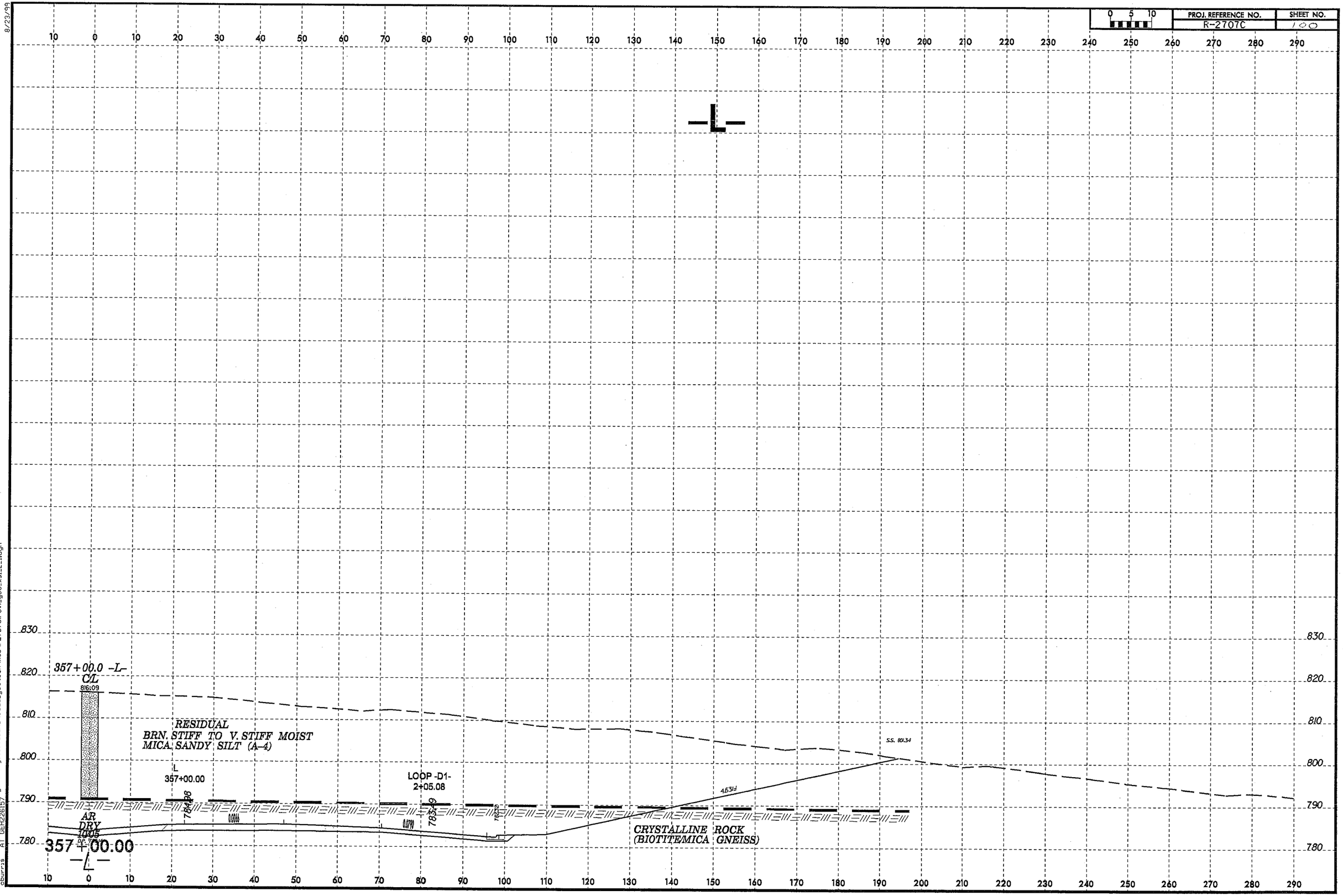
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
SS-7
356+50.0 -L-
70.0' RT
LOOP -D1-
1+50.87
RESIDUAL
GRAY/WHITE MED. DENSE TO DENSE
MOIST MICA SILTY SAND (A-2-4)
36
24
42
100
WEATHERED ROCK SEVERELY WEATHERED BIOTITE/MICA GNEISS
AR
DRY
10/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
356+50.00
356+00.0 -L-
C/L
RESIDUAL
BRN. STIFF MOIST SANDY SILT (A-4)
LOOP -D1-
0+99.81
WEATHERED ROCK SEVERELY WEATHERED BIOTITE/MICA GNEISS
BRN. STIFF MOIST
SANDY SILT (A-4)
WEATHERED ROCK SEVERELY WEATHERED BIOTITE/MICA GNEISS
AR
DRY
10/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
356+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
99
-L-
357+00.0 -L-
C/L
816.09
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
L
357+00.00
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
357+00.00
830
820
810
800
790
780
770

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	100



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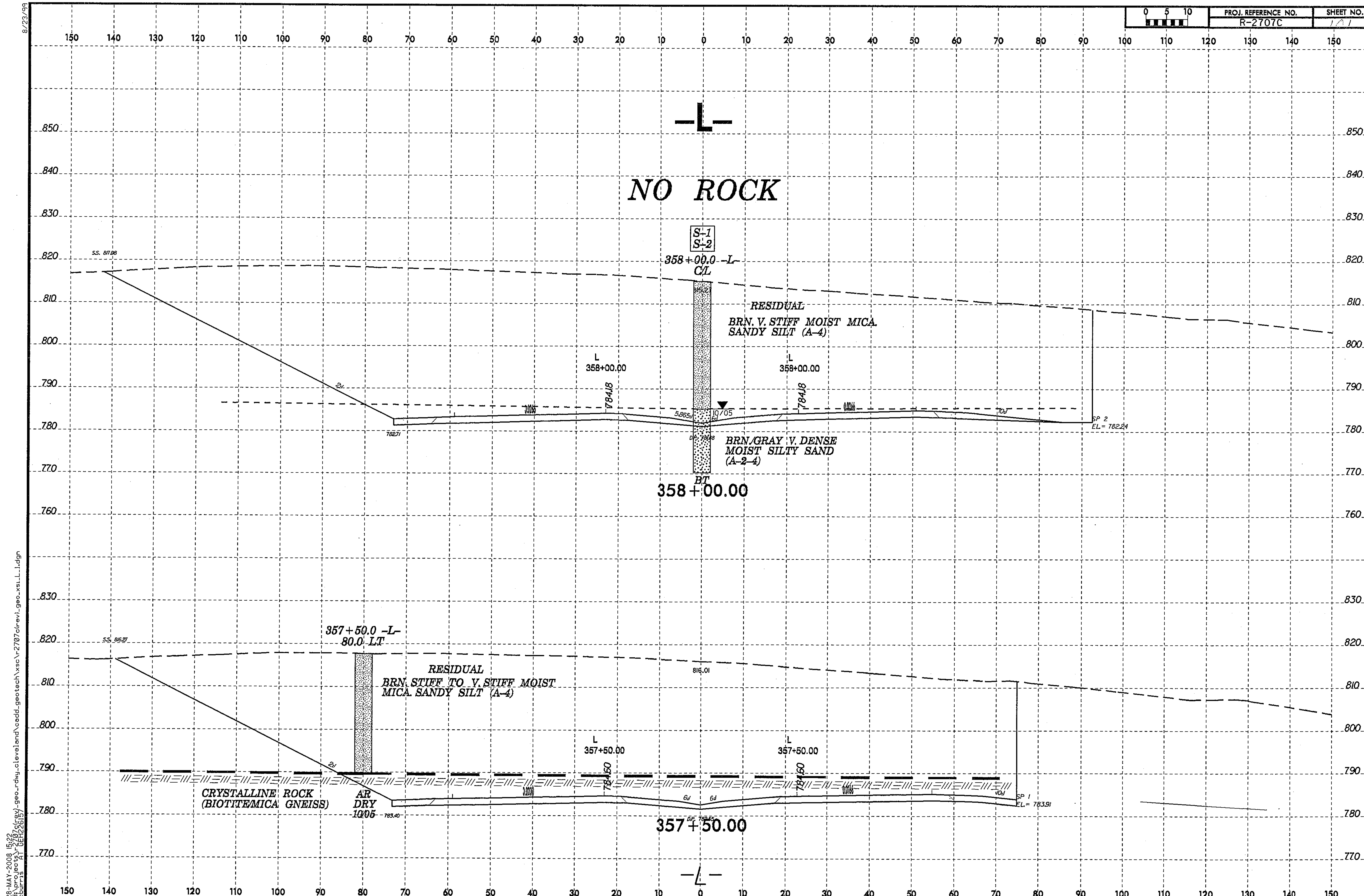

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
NO ROCK
S-1
S-2
358+00.0 -L-
C/L
RESIDUAL
BRN. V. STIFF MOIST MICA. SANDY SILT (A-4)
BRN/GRAY V. DENSE MOIST SILTY SAND (A-2-4)
BT
358+00.00
357+50.0 -L-
80.0 LT
RESIDUAL
BRN. STIFF TO V. STIFF MOIST MICA. SANDY SILT (A-4)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
DRY
10/05
357+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	102

359+00.0 -L-
C/L

RESIDUAL
BRN. STIFF TO V. STIFF
MOIST SANDY SILT (A-4)

WEATHERED ROCK
SEVERELY WEATHERED
BIOTITE/MICA GNEISS

BT
359+00.00

L
359+00.00

783.21

5.899J

6J

4J

SS. 816.83

81.79

78158

DP. 780.46

780.37

SP 4
EL= 792.98

RESIDUAL
BRN. V. STIFF MOIST MICA
SANDY SILT (A-4)

L
358+50.00

783.72

5.852J

6J

SS. 818.21

813.44

782.90

DP. 781.18

781.03

SP 3
EL= 783.52

BROWN/GRAY V. DENSE MOIST SILTY SAND (A-2-4)

358+50.00

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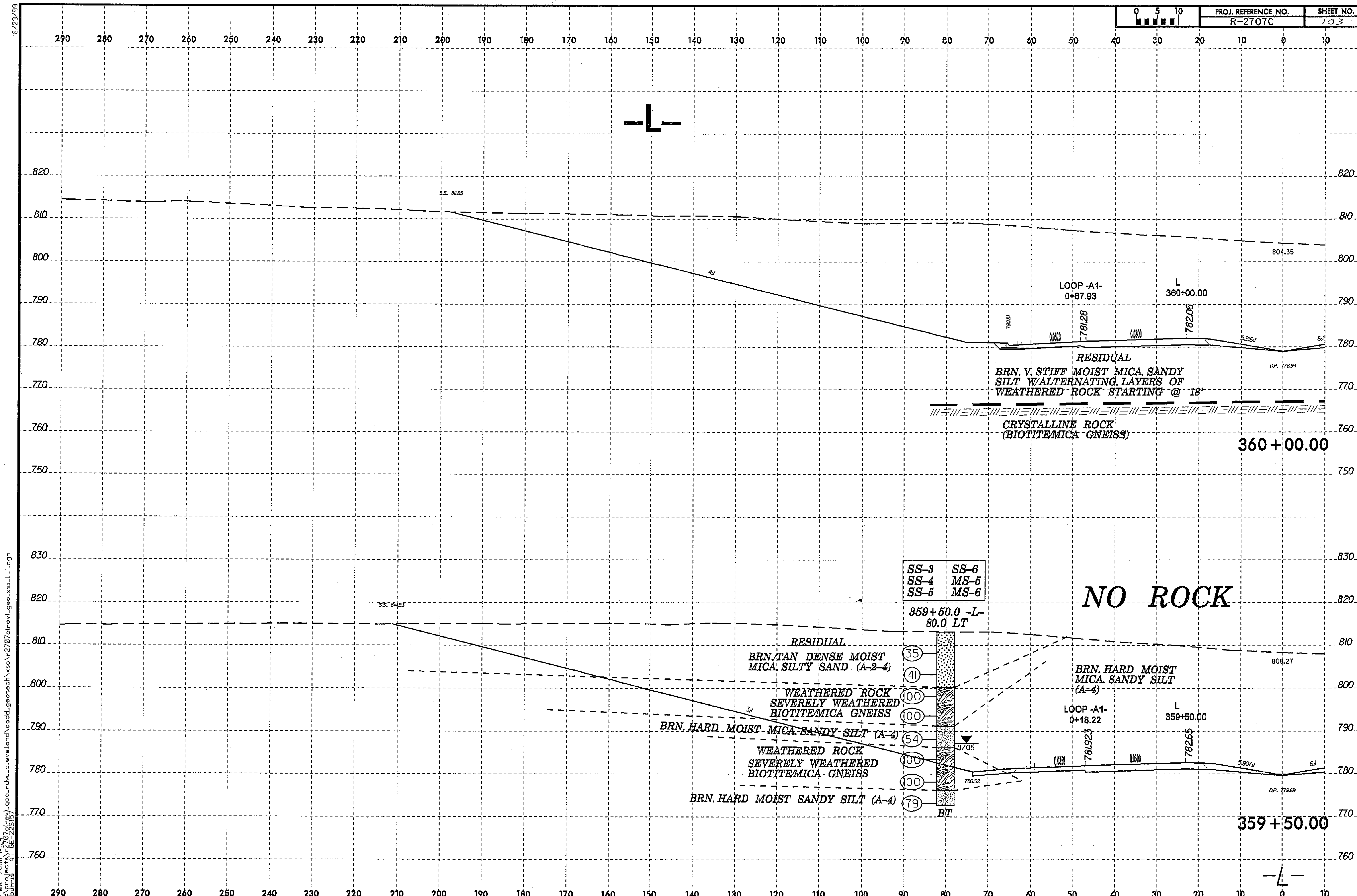
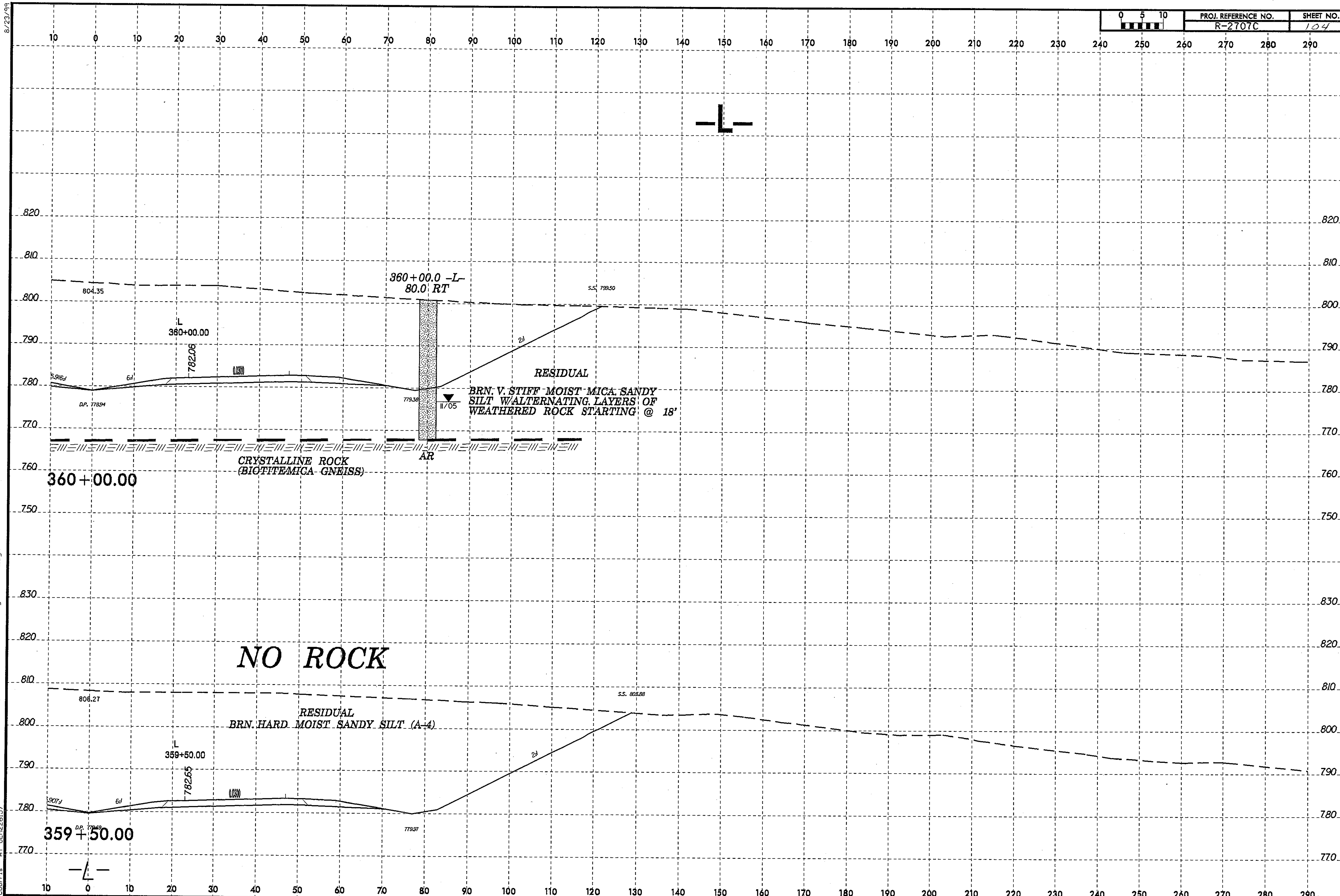
cburris
API DEH26157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
103
-L-
LOOP -A1-
0+67.93
L
360+00.00
804.35
781.28
782.06
RESIDUAL
BRN. V. STIFF MOIST MICA. SANDY SILT W/ALTERNATING LAYERS OF WEATHERED ROCK STARTING @ 18'
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
360+00.00
SS-3 SS-6
SS-4 MS-5
SS-5 MS-6
359+50.0 -L-
80.0 LT
NO ROCK
RESIDUAL
BRN./TAN DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK
SEVERELY WEATHERED BIOTITE/MICA GNEISS
BRN. HARD MOIST MICA. SANDY SILT (A-4)
WEATHERED ROCK
SEVERELY WEATHERED BIOTITE/MICA GNEISS
BRN. HARD MOIST SANDY SILT (A-4)
35
41
100
100
54
100
100
100
79
BT
BRN. HARD MOIST MICA. SANDY SILT (A-4)
LOOP -A1-
0+18.22
L
359+50.00
808.27
781.923
782.65
359+50.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
104
0 5 10
-L-
360+00.0 -L-
80.0 RT
804.35
S.S. 799.50
L
360+00.00
782.06
0.0300
6:1
2:1
5.916:1
D.P. 778.94
779.38
11/05
RESIDUAL
BRN. V. STIFF MOIST MICA SANDY SILT W/ALTERNATING LAYERS OF WEATHERED ROCK STARTING @ 18'
AR
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
360+00.00
NO ROCK
806.27
S.S. 803.88
RESIDUAL
BRN. HARD MOIST SANDY SILT (A-4)
L
359+50.00
782.65
0.0300
6:1
2:1
5.907:1
D.P. 779.49
779.97
359+50.00
-L-

8/23/99

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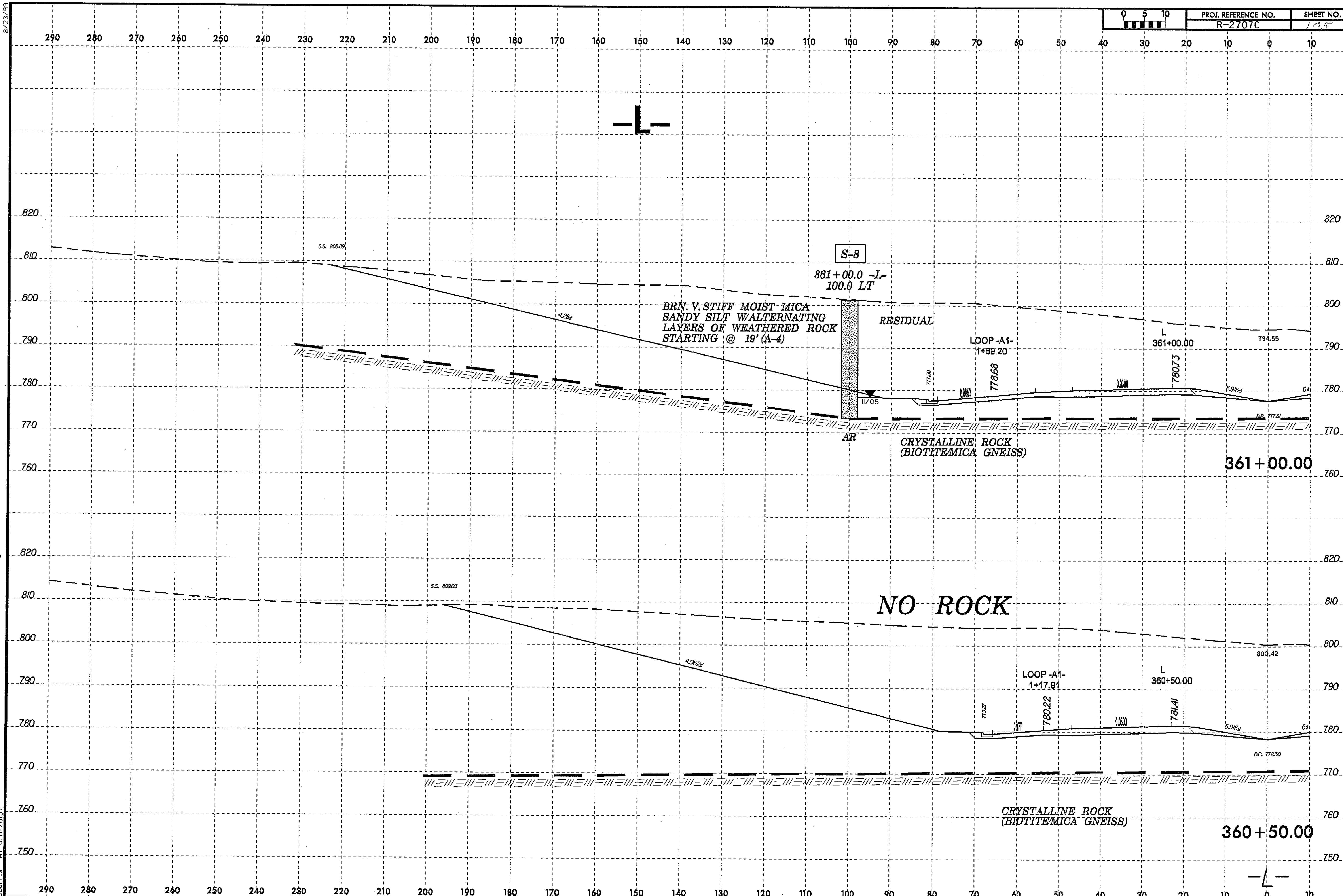
cburris AT DEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	105



8/23/99

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cburris AT GEH226157

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	106

0 5 10

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

810 800 790 780 770 760

794.55

361+00.00

℄

78073

5.916:1 6:1

DP. 77781

77805

SS. 785.81

2:1

RESIDUAL

BRN. V. STIFF MOIST MICA SANDY SILT W/ALTERNATING LAYERS OF WEATHERED ROCK STARTING @ 19' (A-4)

CRYSTALLINE ROCK (BIOTITEMICA GNEISS)

361+00.00

NO ROCK

800.42

360+50.00

℄

78141

5.916:1 6:1

DP. 77830

77873

SS. 792.56

2:1

CRYSTALLINE ROCK (BIOTITEMICA GNEISS)

360+50.00

℄

14-MAY-2008 13:36
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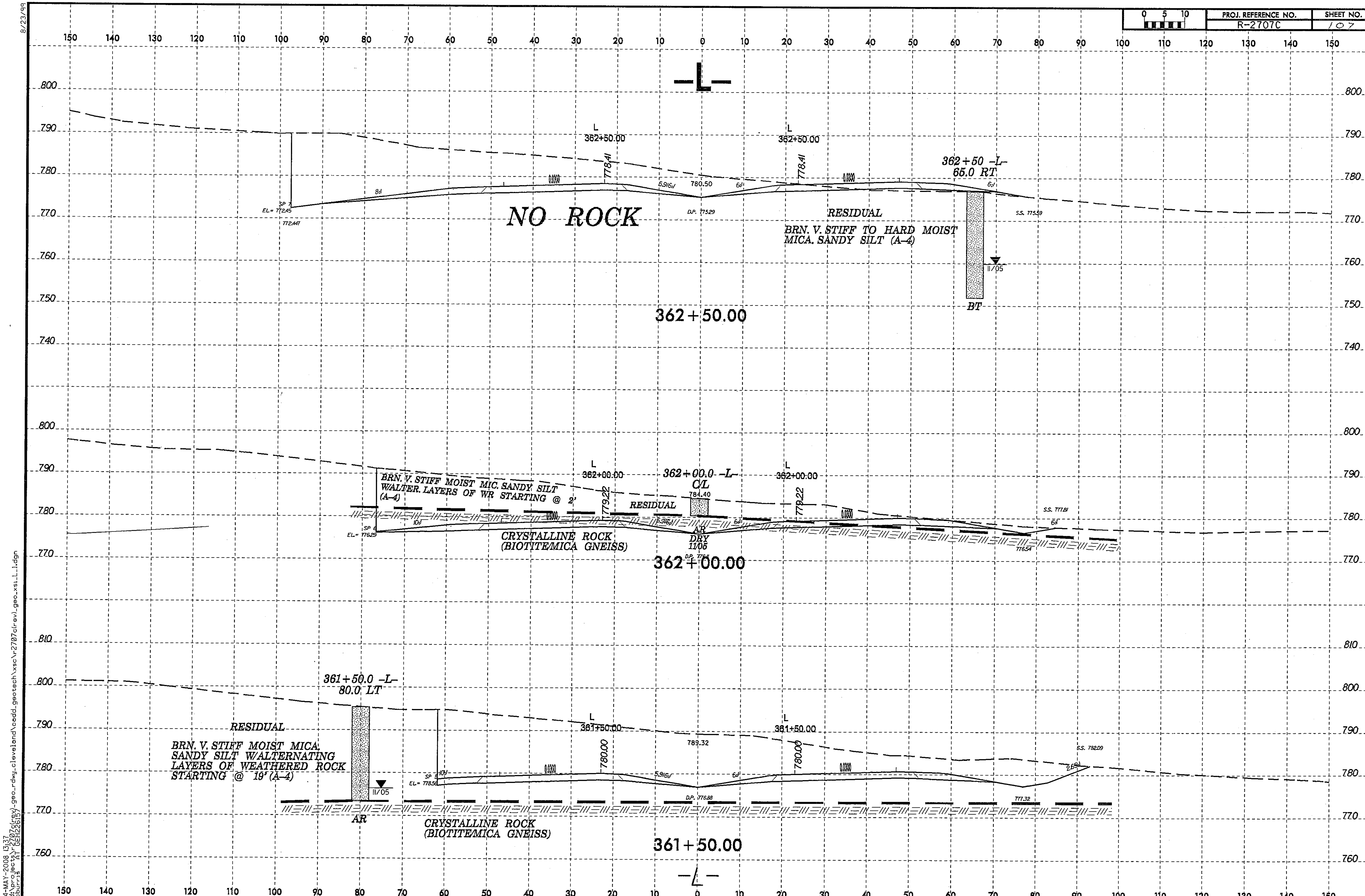
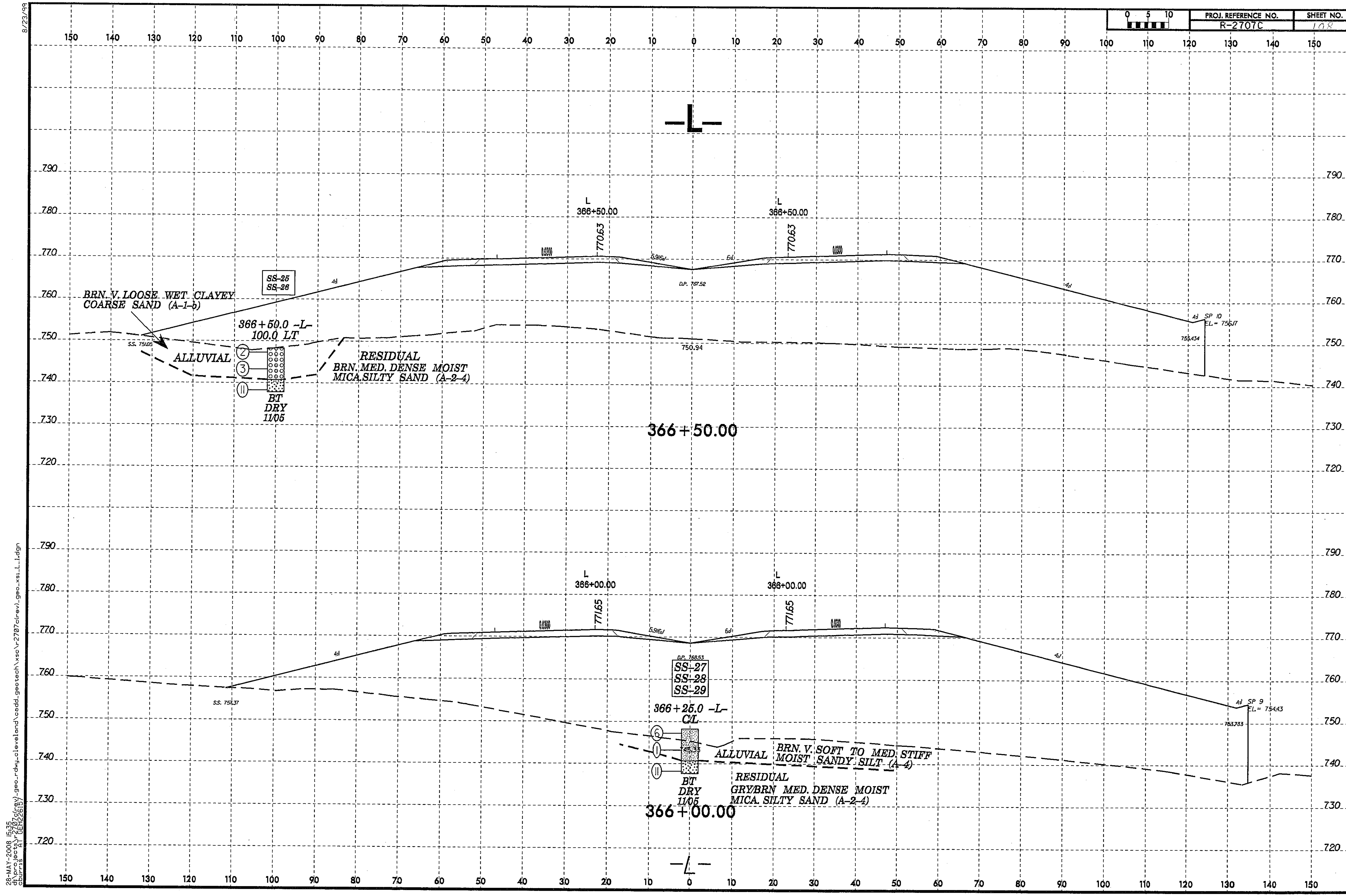
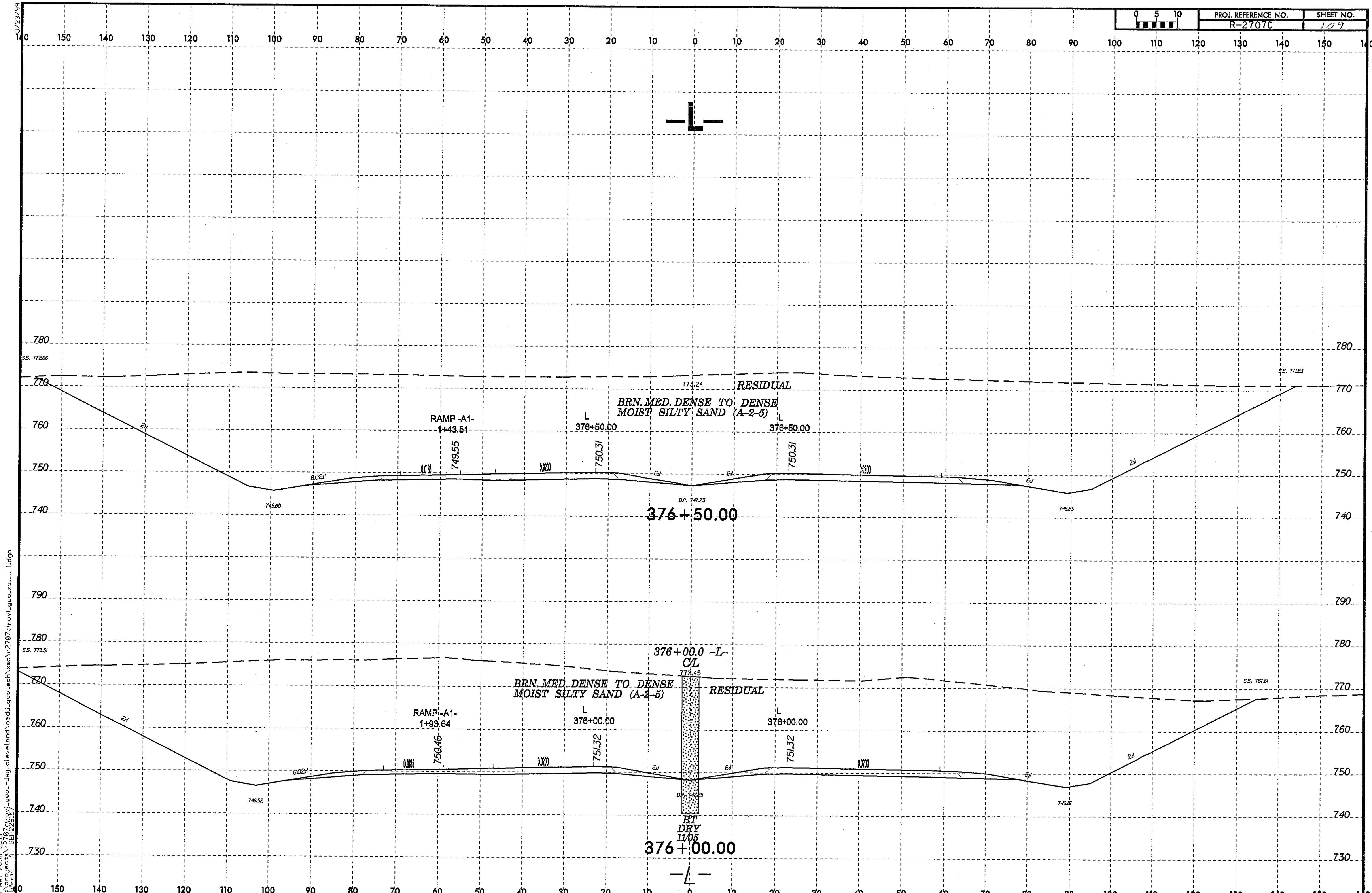


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
107
8/23/99
-L-
362+50.00
L
362+50.00
362+50 -L-
65.0 RT
NO ROCK
RESIDUAL
BRN. V. STIFF TO HARD MOIST MICA. SANDY SILT (A-4)
BT
11/05
362+00.0 -L-
C/L
784.40
BRN. V. STIFF MOIST MIC. SANDY SILT W/ALTER. LAYERS OF WR STARTING @ 2' (A-4)
RESIDUAL
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
DRY
11/05
362+00.00
361+50.0 -L-
80.0 LT
RESIDUAL
BRN. V. STIFF MOIST MICA. SANDY SILT W/ALTERNATING LAYERS OF WEATHERED ROCK STARTING @ 19' (A-4)
AR
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
361+50.00
-L-
14-MAY-2008 13:37



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
366+50.00
L
366+50.00
770.63
BRN. V. LOOSE WET CLAYEY
COARSE SAND (A-1-b)
SS-25
SS-26
366+50.0 -L-
100.0 LT
ALLUVIAL
RESIDUAL
BRN. MED. DENSE MOIST
MICA.SILTY SAND (A-2-4)
BT
DRY
11/05
750.94
366+00.00
L
366+00.00
771.65
SS-27
SS-28
SS-29
366+25.0 -L-
C/L
ALLUVIAL
BRN. V. SOFT TO MED. STIFF
MOIST SANDY SILT (A-4)
RESIDUAL
GRY/BRN MED. DENSE MOIST
MICA. SILTY SAND (A-2-4)
BT
DRY
11/05
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	109



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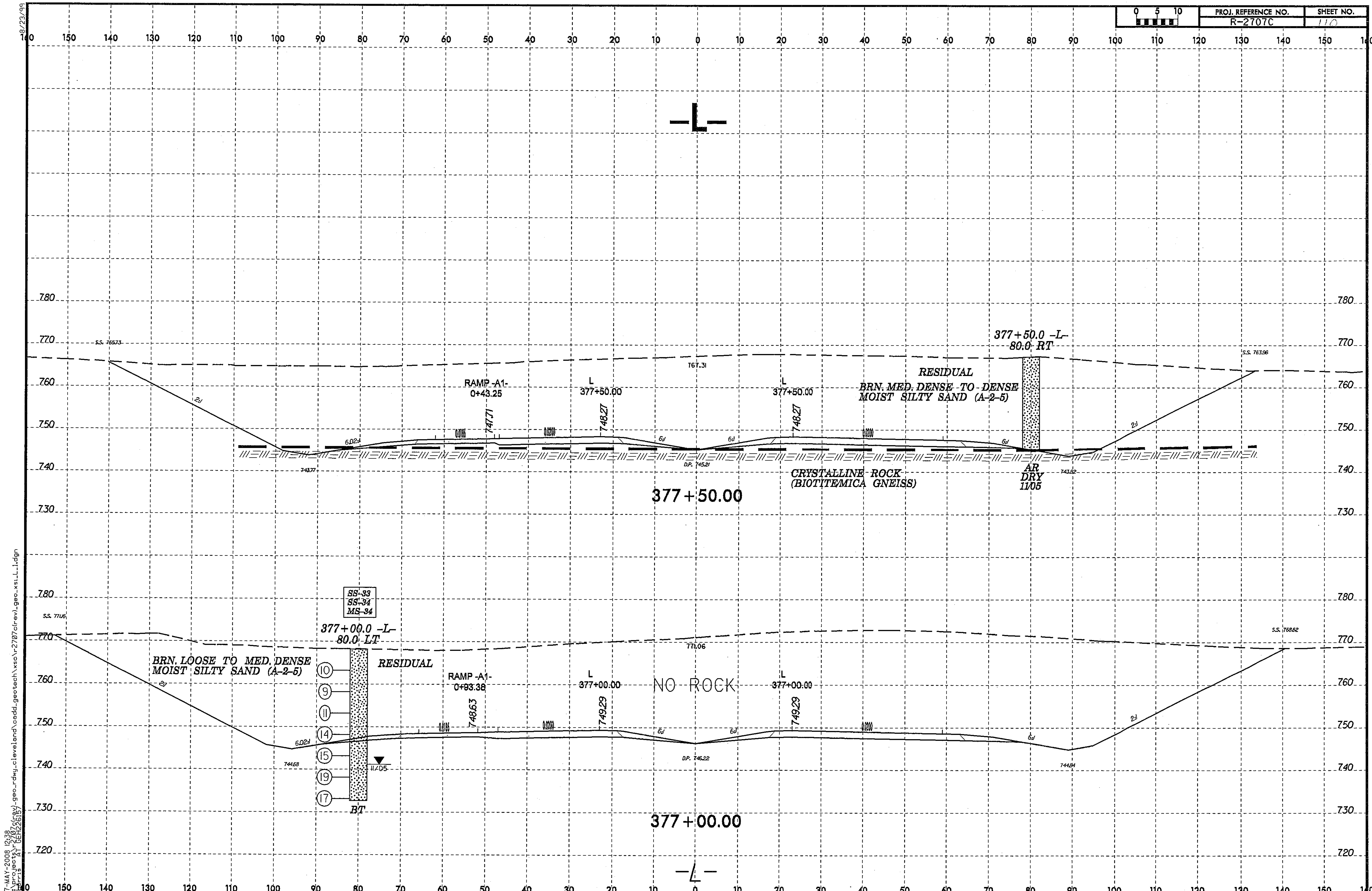
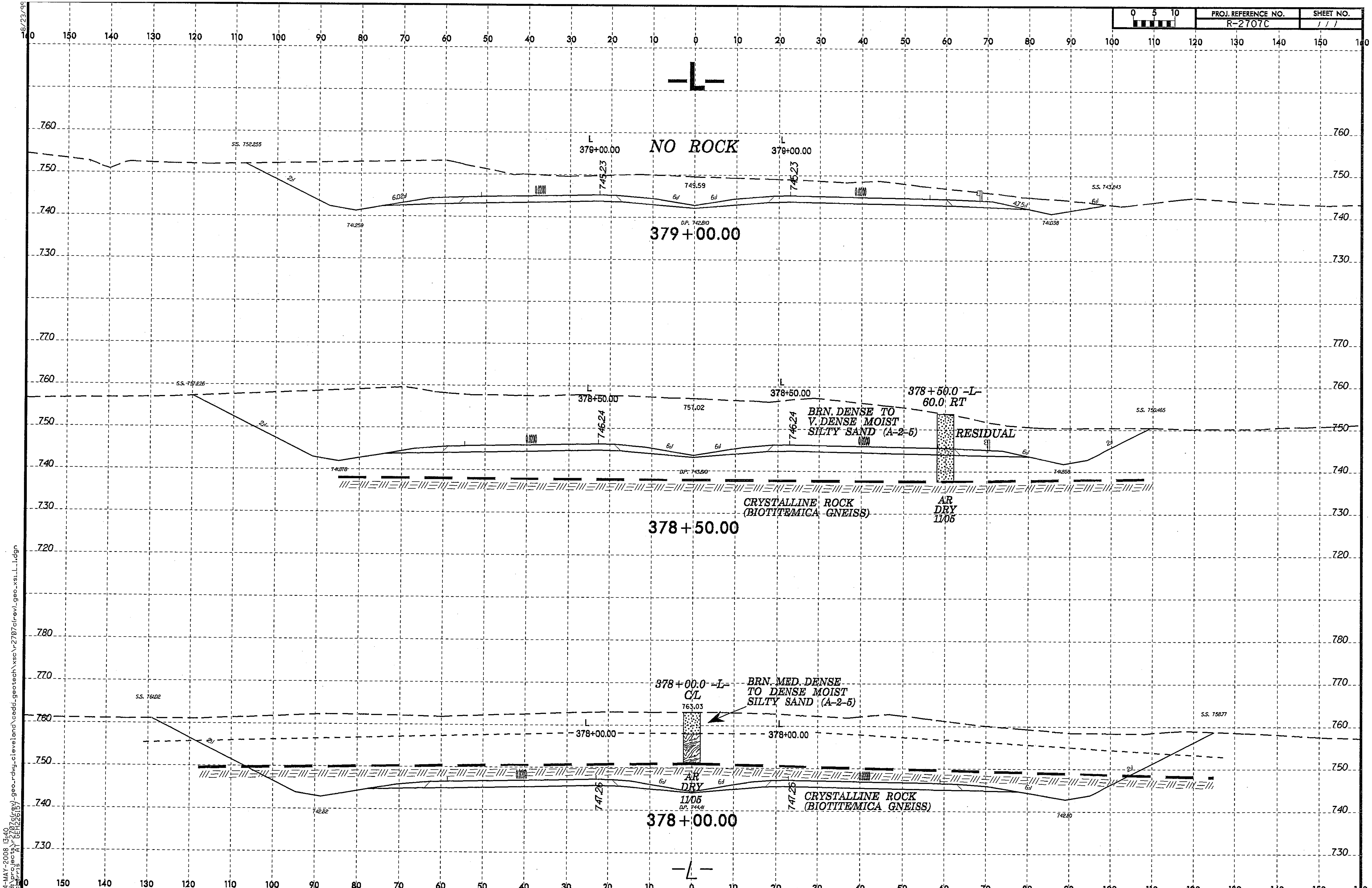
AT OEH226157

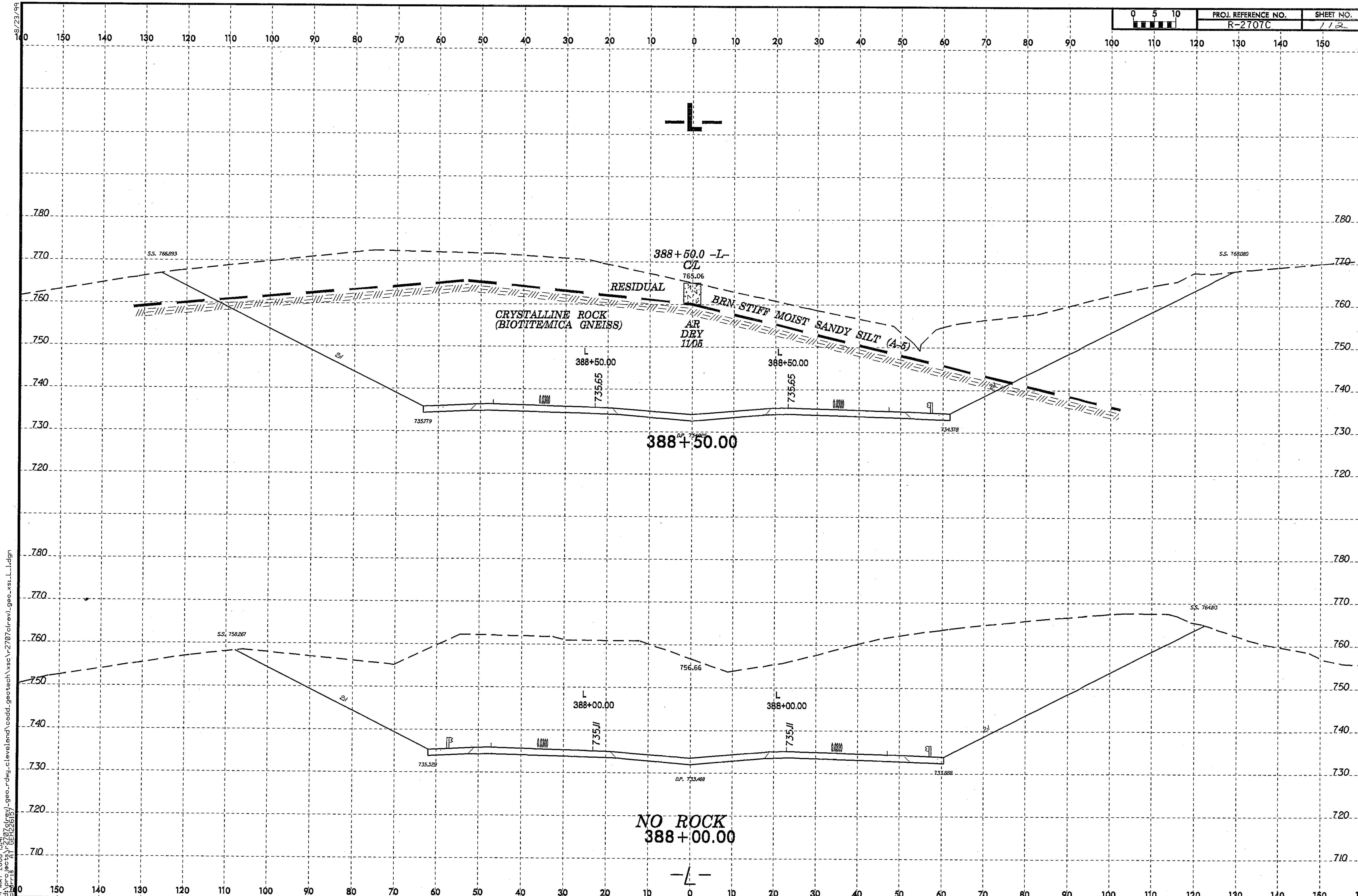


-L-
377+50.0 -L-
80.0 RT
RESIDUAL
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)
RAMP -A1-
0+43.25
L
377+50.00
747.71
748.27
767.31
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
11/05
377+50.00
SS-33
SS-34
MS-34
377+00.0 -L-
80.0 LT
BRN. LOOSE TO MED. DENSE
MOIST SILTY SAND (A-2-5)
RESIDUAL
RAMP -A1-
0+93.38
L
377+00.00
NO ROCK
748.63
749.29
771.06
10
9
11
14
15
19
17
BT
11/05
377+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
NO ROCK
379+00.00
745.23
749.59
379+00.00
378+50.0 -L-
60.0 RT
BRN. DENSE TO
V. DENSE MOIST
SILTY SAND (A-2-5)
RESIDUAL
746.24
757.02
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
11/05
378+50.00
378+00.0 -L-
C/L
763.03
BRN. MED. DENSE
TO DENSE MOIST
SILTY SAND (A-2-5)
747.26
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
11/05
378+00.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	112



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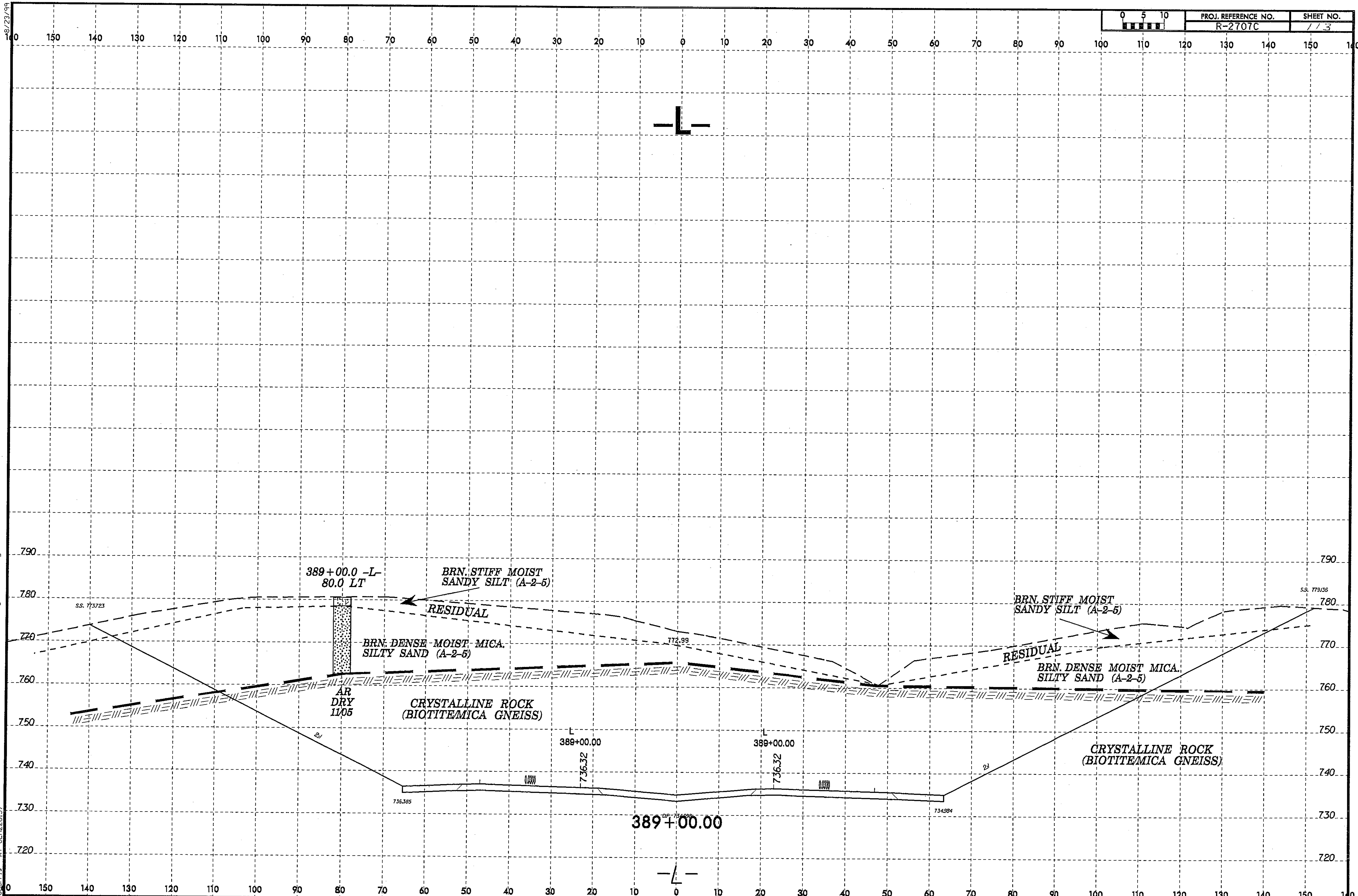
R-2707C	113



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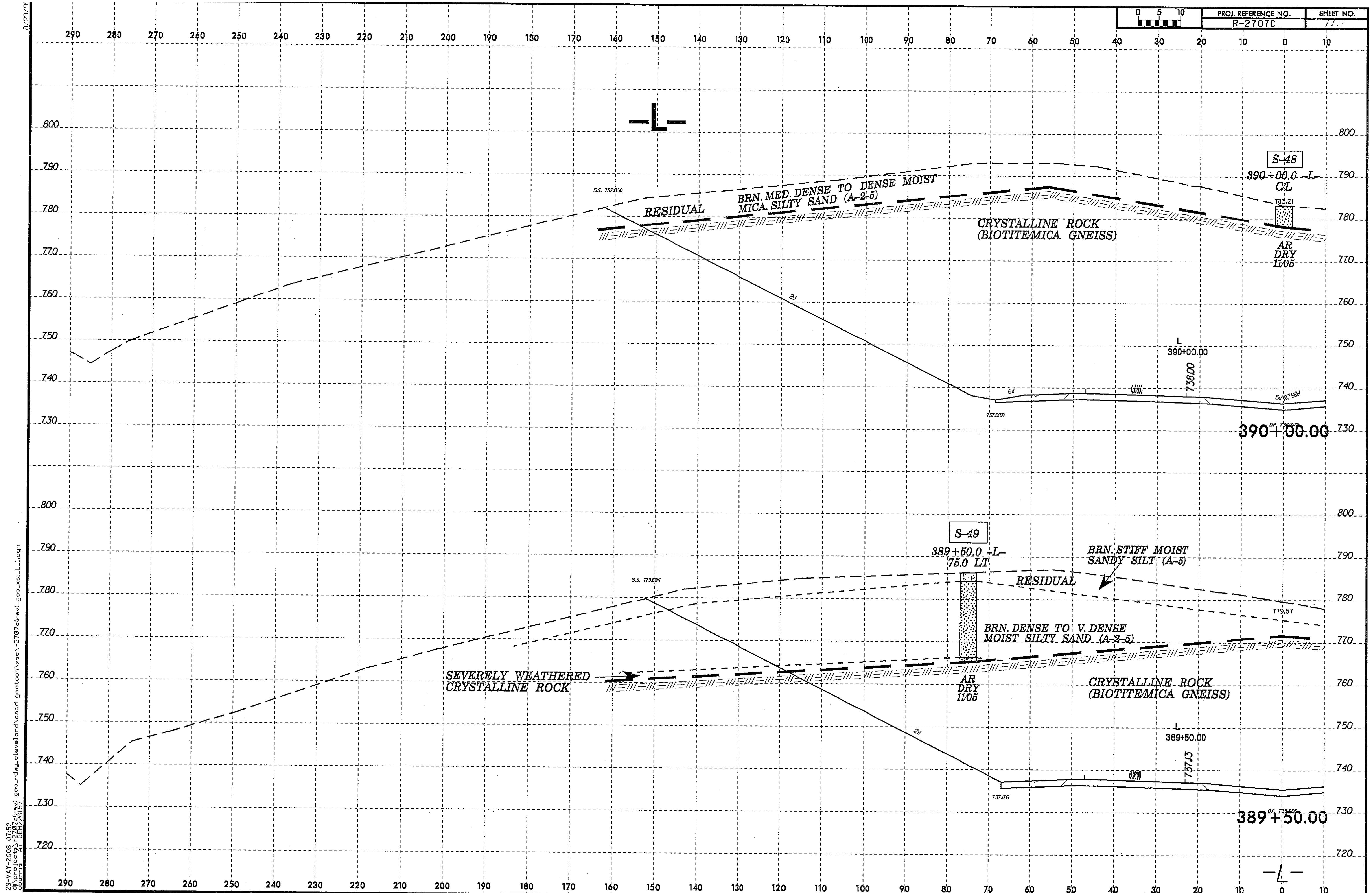
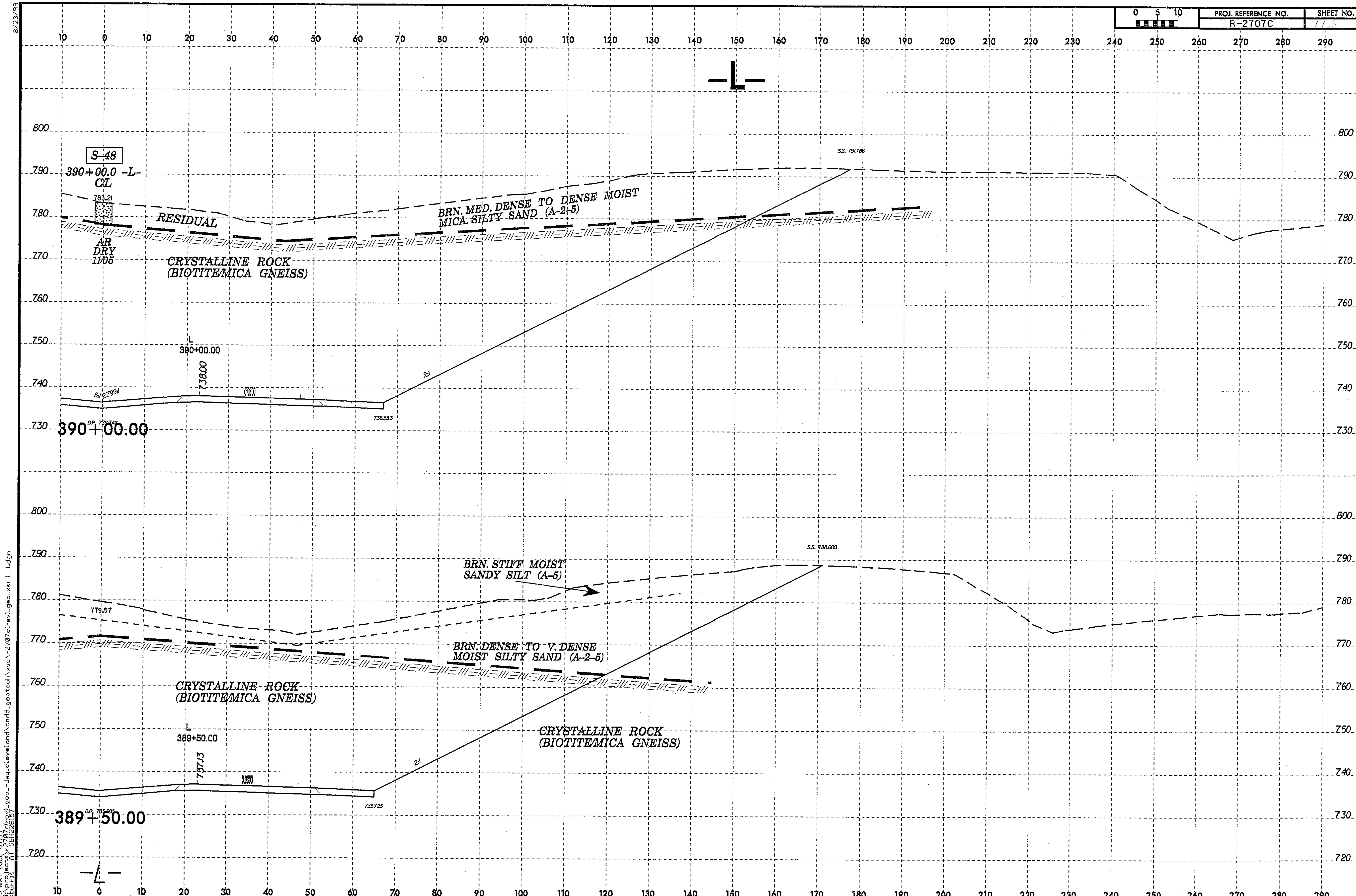

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S-48
390+00.0 -L-
C/L
783.21
BRN. MED. DENSE TO DENSE MOIST
MICA. SILTY SAND (A-2-5)
RESIDUAL
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
11/05
S.S. 782.050
L
390+00.00
738.00
737.038
390+00.00
S-49
389+50.0 -L-
75.0 LT
BRN. STIFF MOIST
SANDY SILT (A-5)
RESIDUAL
S.S. 779.594
779.57
BRN. DENSE TO V. DENSE
MOIST SILTY SAND (A-2-5)
SEVERELY WEATHERED
CRYSTALLINE ROCK
AR
DRY
11/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
389+50.00
737.13
737.126
389+50.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S-48
390+00.0 -L-
C/L
783.21
RESIDUAL
AR
DRY
11/05
BRN. MED. DENSE TO DENSE MOIST
MICA SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
S.S. 791.786
L
390+00.00
738.00
2:1
736.533
390+00.00
BRN. STIFF MOIST
SANDY SILT (A-5)
S.S. 788.600
779.57
BRN. DENSE TO V. DENSE
MOIST SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
389+50.00
737.13
2:1
735.725
389+50.00
-L-
8/23/99

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	116

RED/BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

798.63

SS. 786.59

BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)

CRYSTALLINE ROCK (MICA GNEISS)

L
391+00.00

739.75

737.90

391+00.00

RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

390+50 -L-
100.0 LT

390+50.0 -L-
75.0 LT

RESIDUAL
RED-BROWN STIFF MOIST SANDY CLAY (A-7-5)

791.96

BROWN MEDIUM DENSE TO DENSE MOIST MICACEOUS SILTY SAND (A-2-5)

SS. 783.873

BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)

100/.1
100/.4

SEVERELY WEATHERED MICA GNEISS

BT
DRY
12:05

01/.08

REC=98%
RQD=97%

CRYSTALLINE ROCK
GRAY SLIGHTLY TO VERY SLIGHTLY WEATHERED, HARD, MICA GNEISS

L
390+50.00

738.88

737.308

BT

390+50.00

14-MAY-2008 13:44
dlprojects\r2707c(rev)_geo_rdwy_cleveland\cadd_geotech\xsc\r2707c(rev)_geo_xsi_l_1.dgn
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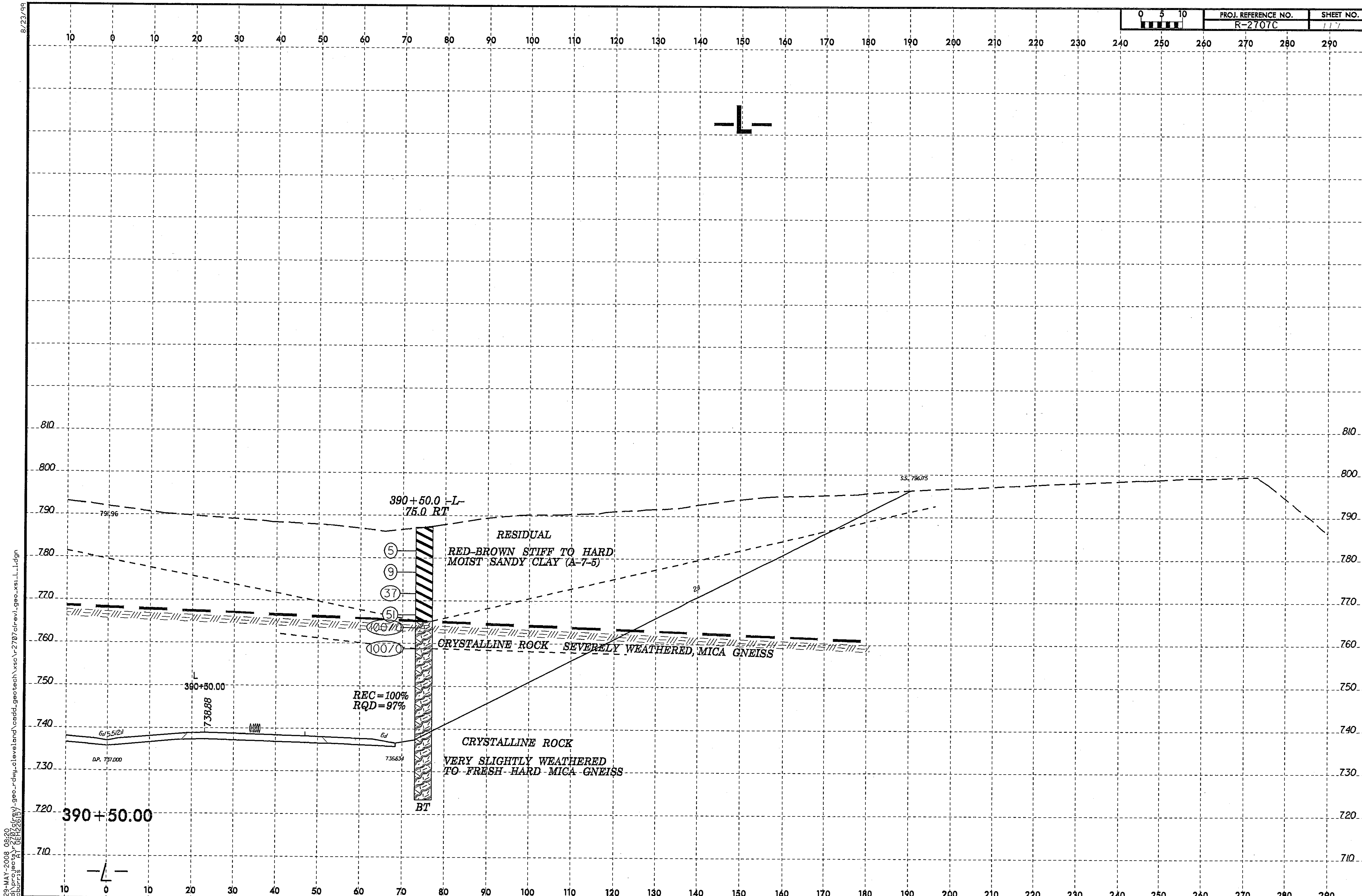
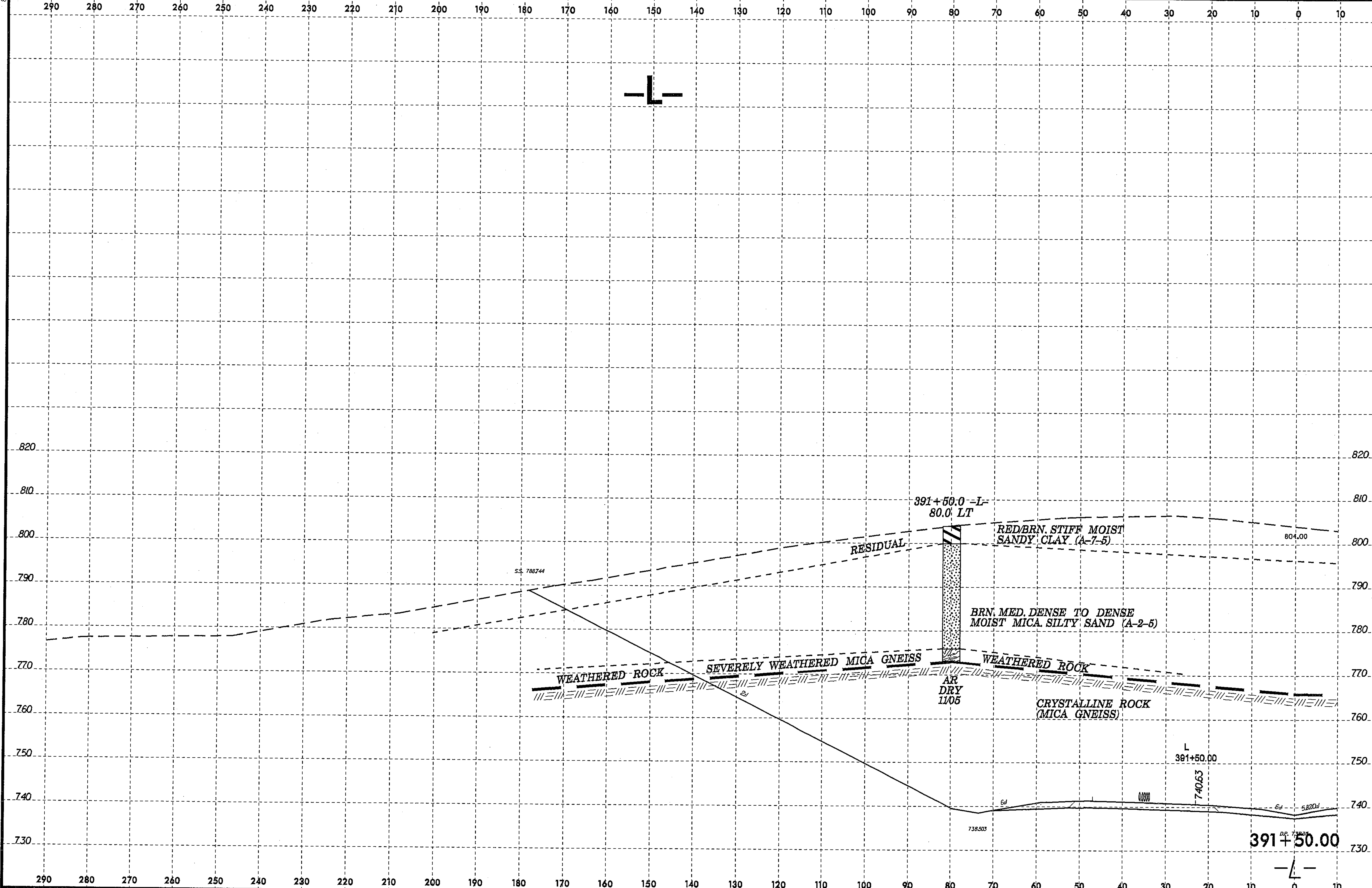


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
390+50.0 -L-
75.0 RT
RESIDUAL
RED-BROWN STIFF TO HARD
MOIST SANDY CLAY (A-7-5)
CRYSTALLINE ROCK SEVERELY WEATHERED, MICA GNEISS
REC=100%
RQD=97%
CRYSTALLINE ROCK
VERY SLIGHTLY WEATHERED
TO FRESH HARD MICA GNEISS
BT
L
390+50.00
738.88
390+50.00
-L-
8/23/99
29-MAY-2008 08:20

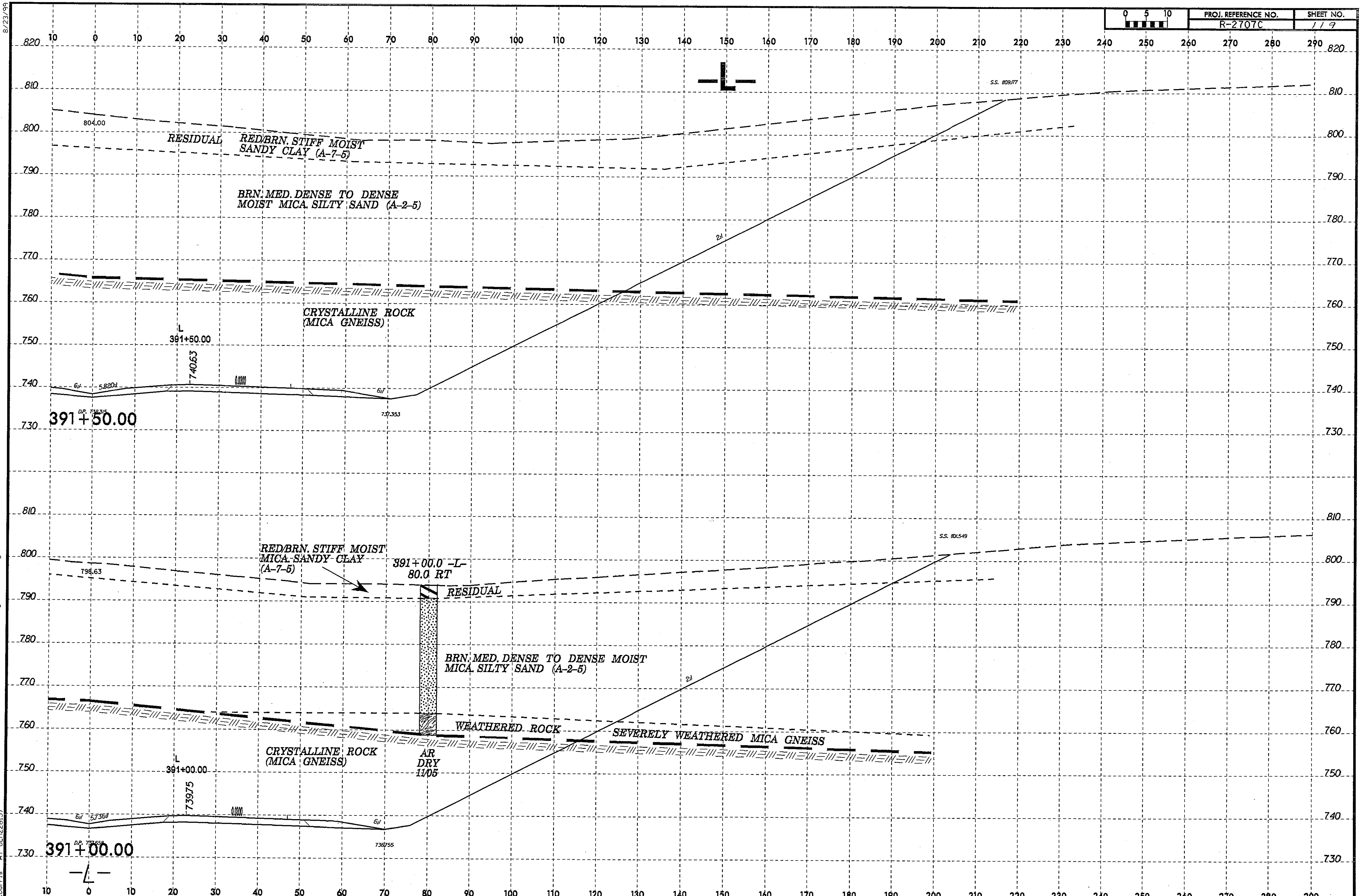
PROJ. REFERENCE NO.	SHEET NO.
R-2707C	118



-L-
391+50.0 -L-
80.0 LT
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
SEVERELY WEATHERED MICA GNEISS
WEATHERED ROCK
WEATHERED ROCK
AR
DRY
11/05
CRYSTALLINE ROCK (MICA GNEISS)
L
391+50.00
740.63
391+50.00
-L-
820
810
800
790
780
770
760
750
740
730
290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10
0 5 10

8/23/99

15-MAY-2008 14:37



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
119
-L-
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
CRYSTALLINE ROCK (MICA GNEISS)
L 391+50.00
740.63
391+50.00
RED/BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
391+00.0 -L- 80.0 RT
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
WEATHERED ROCK
SEVERELY WEATHERED MICA GNEISS
CRYSTALLINE ROCK (MICA GNEISS)
AR DRY 11/05
L 391+00.00
739.75
391+00.00
-L-
8/23/99
15-MAY-2008 14:47
cburris

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	120

RESIDUAL — RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND W/ALTERNATING. LAYERS OF WEATHERED ROCK STARTING @ 32' (A-2-5)

CRYSTALLINE ROCK (MICA GNEISS)

392+00.0 -L- C/L

808.25

S.S. 793.309

739.00

741.50

AR DRY 11/05

L 392+00.00

392+00.00

14-MAY-2008 13:46
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cburris AT GEH26157

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	121

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

-L-

830 820 810 800 790 780 770 760 750 740 730

392+00.0 -L-
C/L
808.25

RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND W/ALTERNATING LAYERS OF WEATHERED ROCK STARTING @ 32' (A-2-5)

AR
DRY
11/05

CRYSTALLINE ROCK
(MICA GNEISS)

L
392+00.00

741.50

6H 5.862d 6H

737.950

S.S. 815749

2H

D.P. 738.973

392+00.00

-L-

14-MAY-2008 14:09
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User:cburris
Plotted at 1"=10'

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	122

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

-L-

830 820 810 800 790 780 770 760 750 740 730

S-47

392+50.0 -L-
100.0 LT

RESIDUAL — RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)

BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)

AR
DRY
11/05

CRYSTALLINE ROCK
(MICA GNEISS)

SS. 800712

811.02

739.697

L
392+50.00

742.38

6d 0.83% 6d 5.889d

D.P. 739.637

392+50.00

-L-

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14-MAY-2008 13:47
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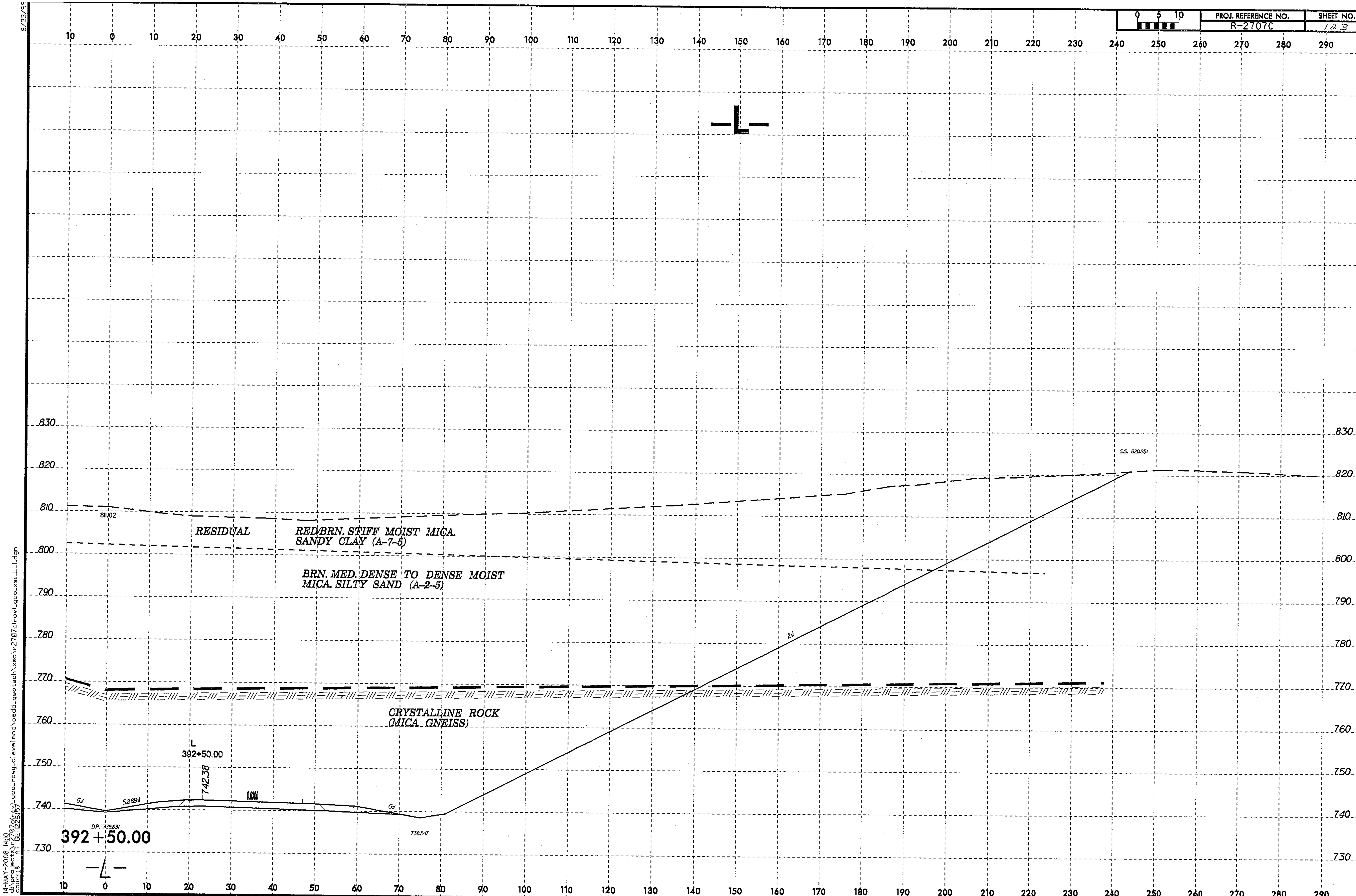

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
123
-L-
S.S. 820.851
811.02
RESIDUAL
RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK (MICA GNEISS)
2:1
L
392+50.00
742.38
6:1
5.889:1
0.0000
738.547
D.P. 739.831
392+50.00
-L-
830
820
810
800
790
780
770
760
750
740
730
8/23/99
14-MAY-2008 14:10
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cburris AT GEH22615

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	134

393+00.0 –L–
100.0 LT

RESIDUAL

BROWN LOOSE TO VERY DENSE
MOIST MICACEOUS SILTY SAND
(A-2-5)

9
7
8
63
100/.8
100/.5

WEATHERED ROCK

SEVERELY WEATHERED
MICA GNEISS

WEATHERED ROCK

CRYSTALLINE ROCK

REC=100%
RQD=94%

GRAY MODERATELY WEATHERED TO FRESH,
MODERATELY HARD TO HARD, MICA GNEISS

BT

L
393+00.00

393+00.00

15-MAY-2008 14:38
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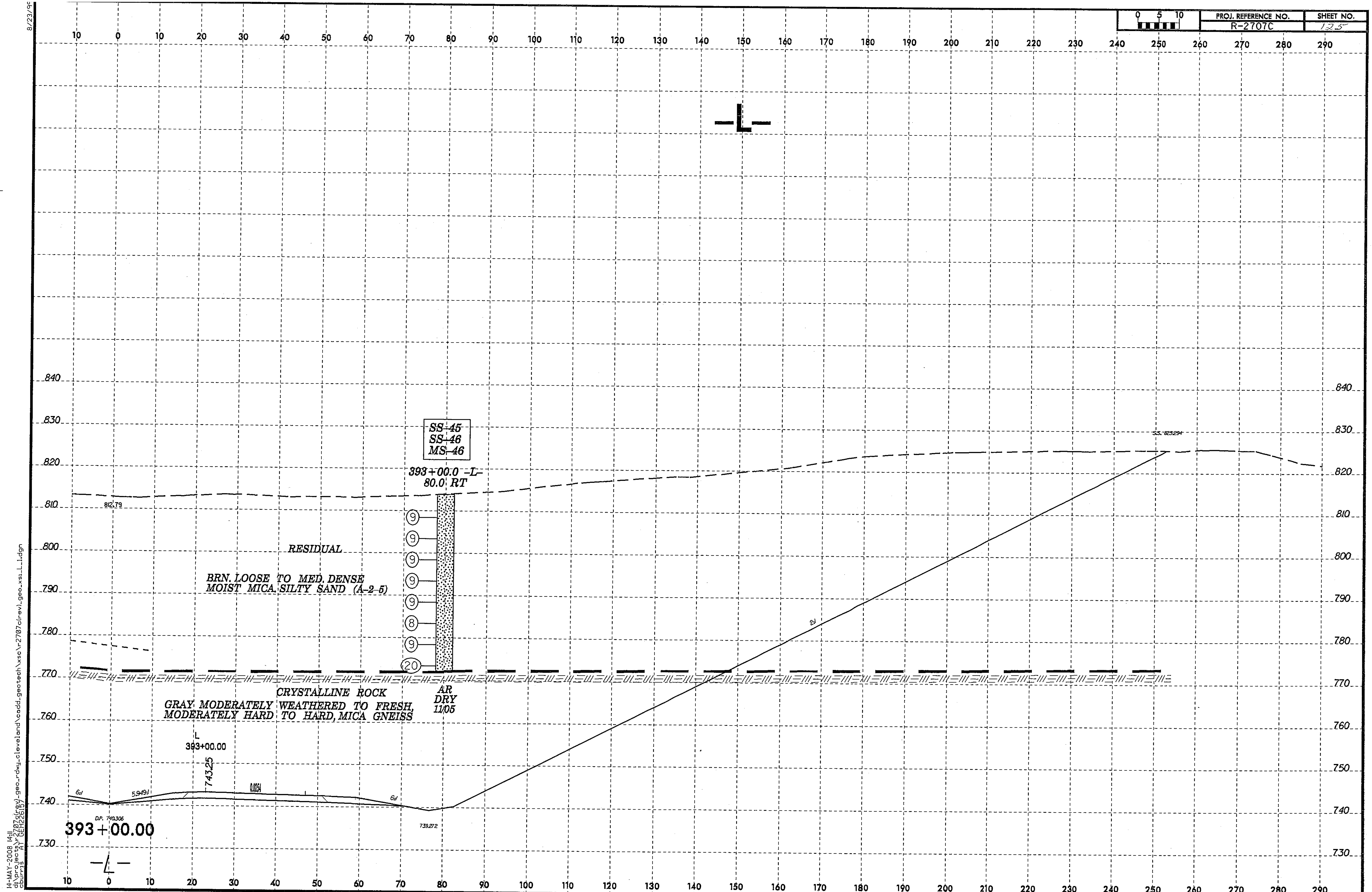
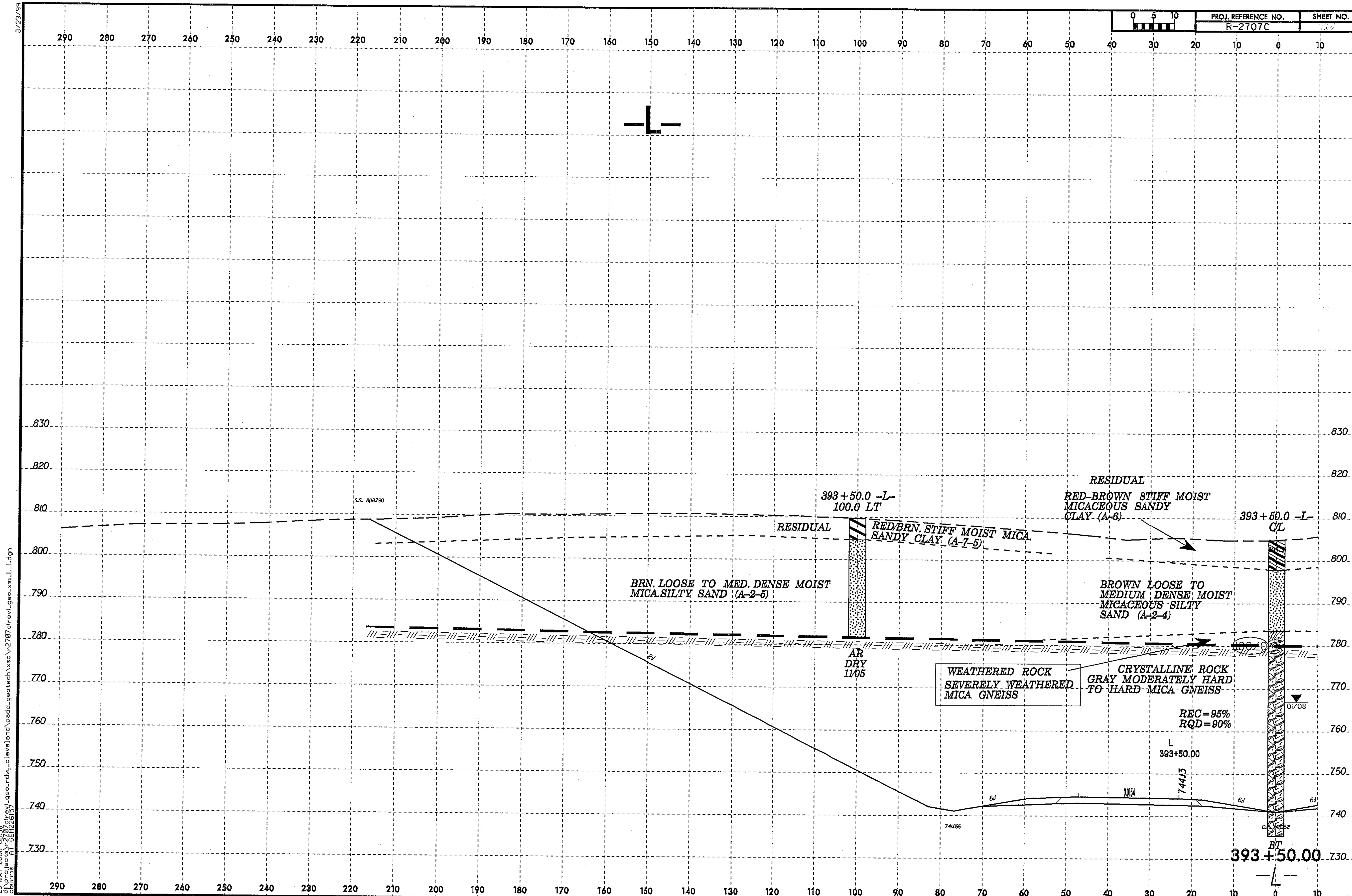
dburris (DEM2805)


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
125
-L-
SS-45
SS-46
MS-46
393+00.0 -L-
80.0 RT
RESIDUAL
BRN. LOOSE TO MED. DENSE
MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
GRAY MODERATELY WEATHERED TO FRESH,
MODERATELY HARD TO HARD, MICA GNEISS
AR
DRY
11/05
L
393+00.00
743.25
393+00.00
-L-
812.79
739.272
14-MAY-2008 14:11
cburris AT GEH22615

8/23/99



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
393+50.0 -L-
100.0 LT
RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. LOOSE TO MED. DENSE MOIST MICA. SILTY SAND (A-2-5)
AR
DRY
11/05
RESIDUAL
RED-BROWN STIFF MOIST MICACEOUS SANDY CLAY (A-6)
393+50.0 -L-
C/L
BROWN LOOSE TO MEDIUM DENSE MOIST MICACEOUS SILTY SAND (A-2-4)
WEATHERED ROCK
SEVERELY WEATHERED MICA GNEISS
CRYSTALLINE ROCK
GRAY MODERATELY HARD TO HARD MICA GNEISS
REC=95%
RQD=90%
01/08
L
393+50.00
BT
393+50.00
-L-

29-MAY-2008 08:36
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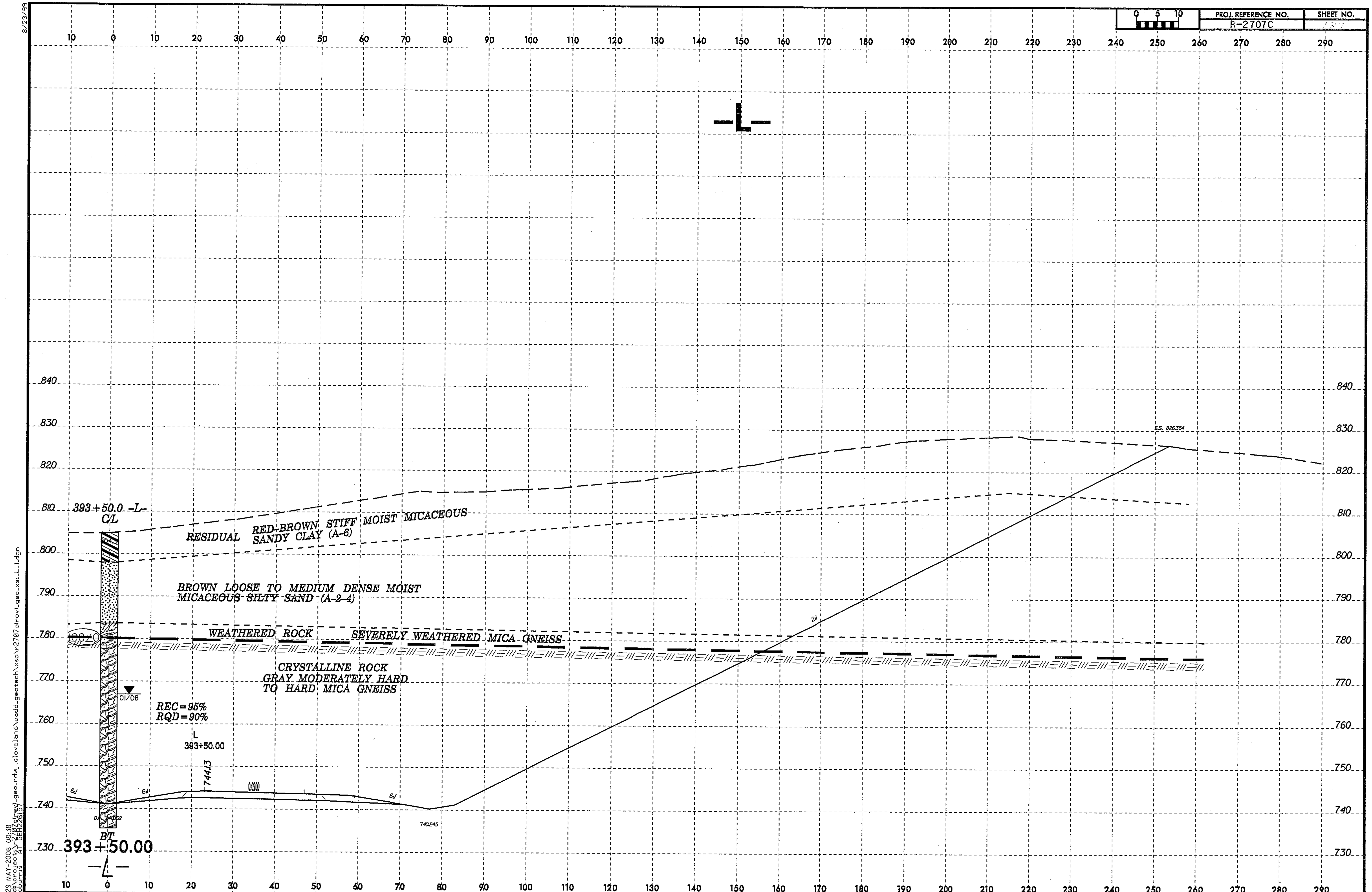
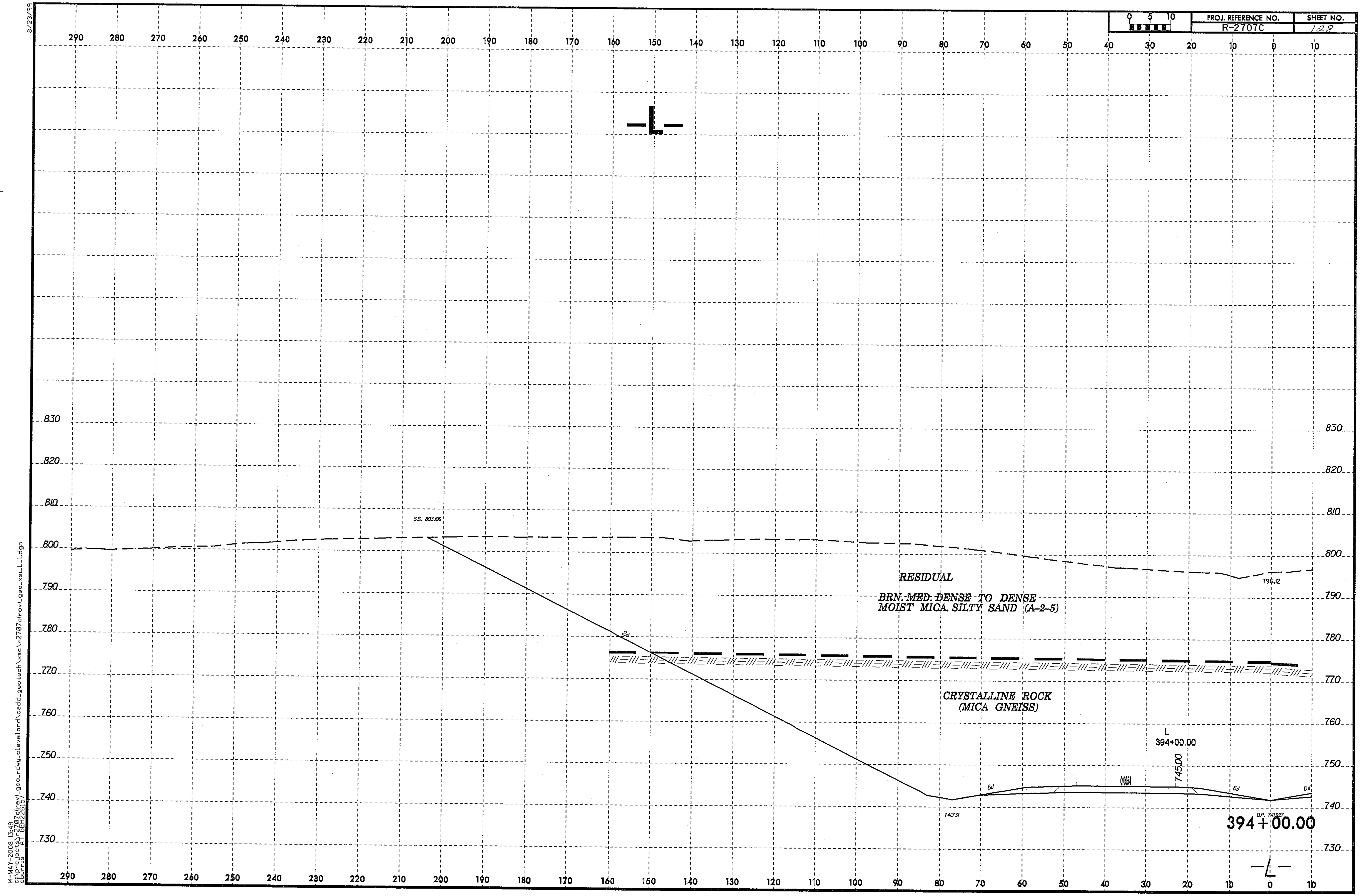
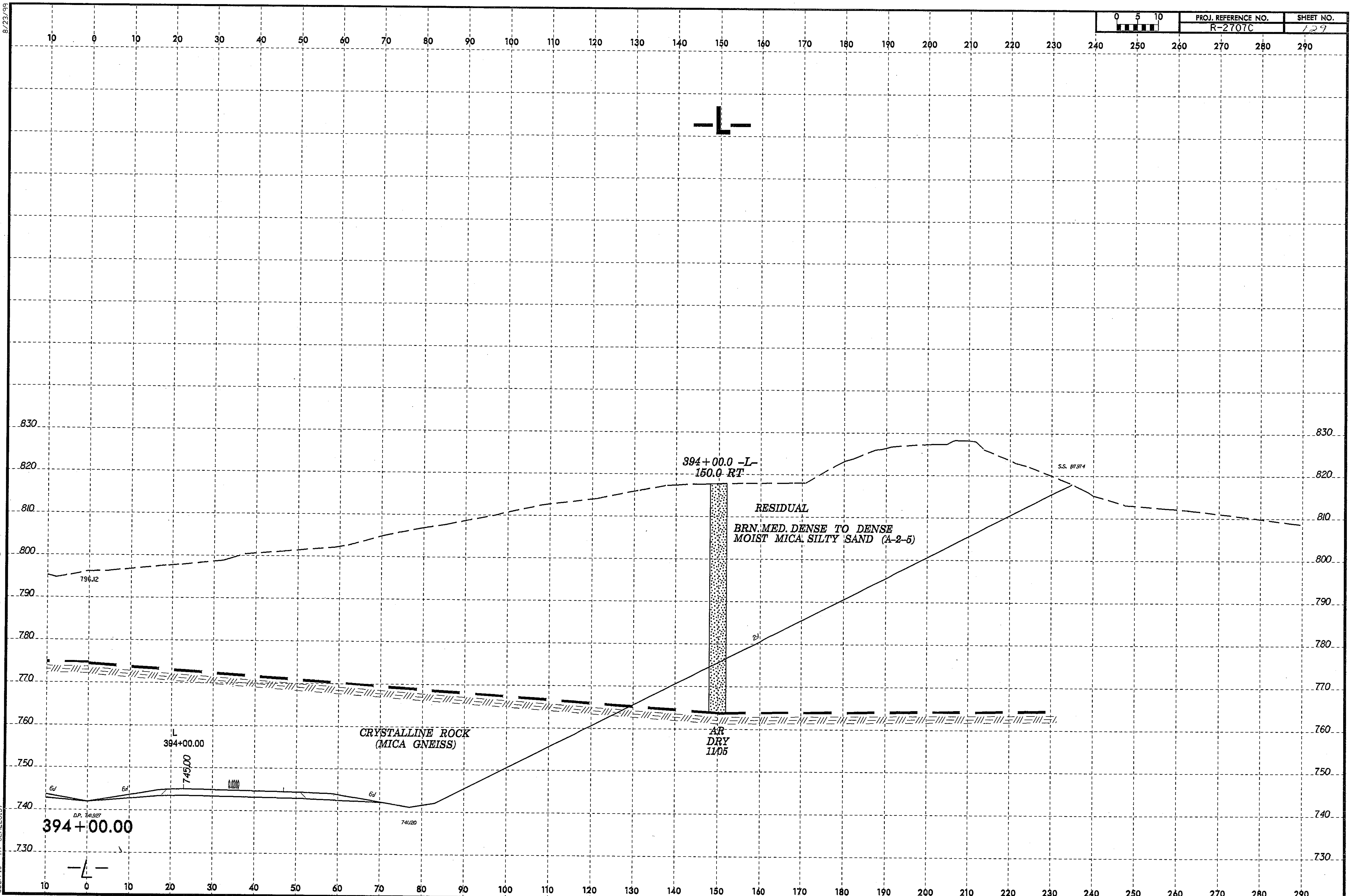
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
393+50.0 -L-
C/L
RESIDUAL RED-BROWN STIFF MOIST MICACEOUS SANDY CLAY (A-6)
BROWN LOOSE TO MEDIUM DENSE MOIST MICACEOUS SILTY SAND (A-2-4)
WEATHERED ROCK
SEVERELY WEATHERED MICA GNEISS
CRYSTALLINE ROCK
GRAY MODERATELY HARD TO HARD MICA GNEISS
01/08
REC=95%
RQD=90%
L
393+50.00
744.13
740.245
BT
393+50.00
-L-
29-MAY-2008 08:38
cburris
AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(MICA GNEISS)
L
394+00.00
745.00
796.12
394+00.00
-L-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
129
-L-
394+00.0 -L-
150.0 RT
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST MICA SILTY SAND (A-2-5)
CRYSTALLINE ROCK (MICA GNEISS)
AR
DRY
11/05
L
394+00.00
745.00
796.12
741.20
394+00.00
-L-
8/23/99

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	

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

830 820 810 800 790 780 770 760 750 740 730

S.S. 789.404

RESIDUAL

BRN. MED. DENSE TO DENSE
MOIST MICA SILTY SAND (A-2-5)

2d

CRYSTALLINE ROCK
(MICA GNEISS)

781.79

℄
394+50.00

745.88

0.004

6d 6d 6d

742.366

D.F. 742.202

394+50.00

℄

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

14-MAY-2008 13:50
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cburris

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	131

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

840 830 820 810 800 790 780 770 760 750 740 730

SS. 826732

781.79

RESIDUAL

BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)

2d

CRYSTALLINE ROCK
(MICA GNEISS)

℄
394+50.00

745.88

6d 6d 6d

BF. 742.802

741.995

394+50.00

℄

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

14-MAY-2008 14:46
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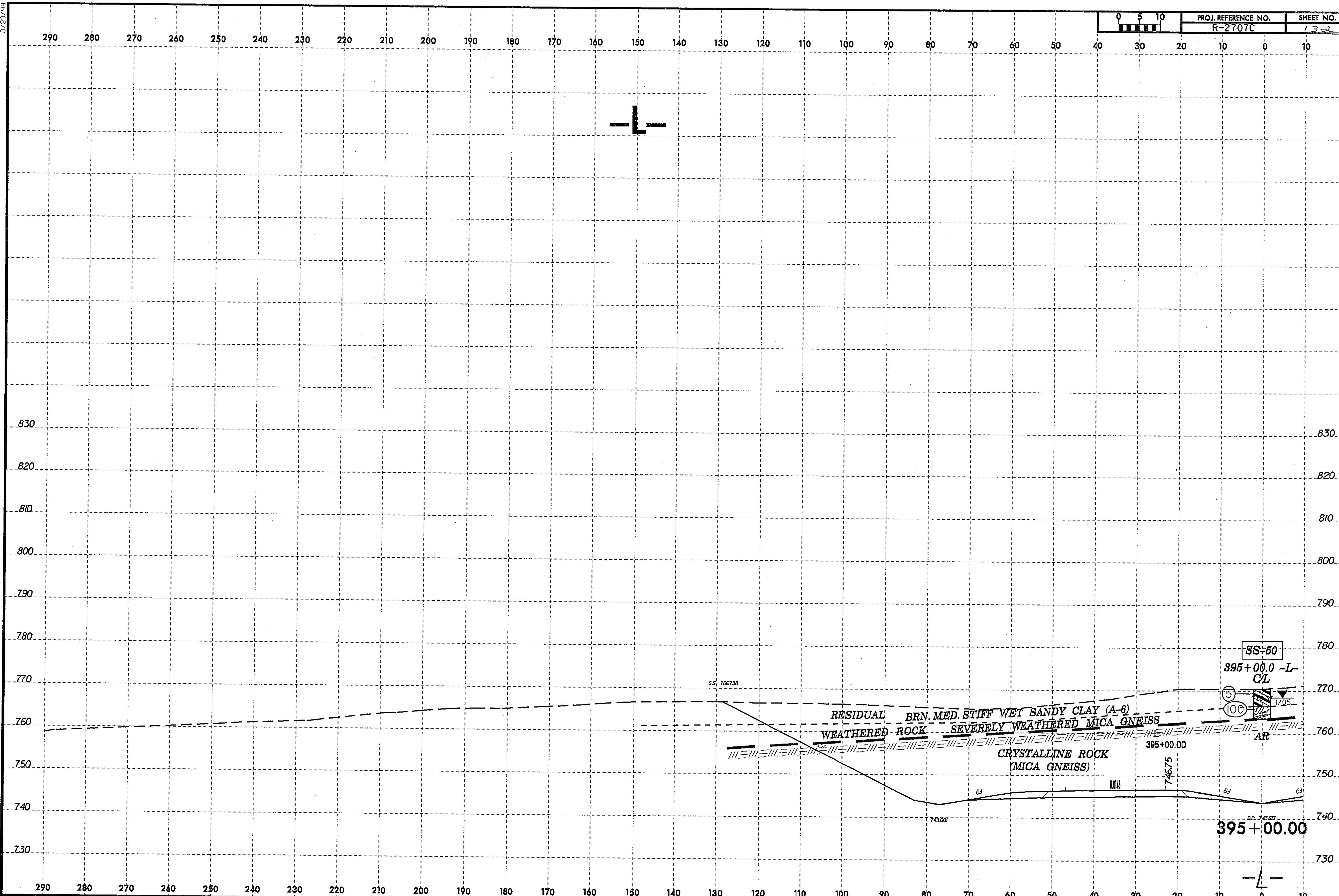
cburris
AT GEOPAK(26157)

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	132



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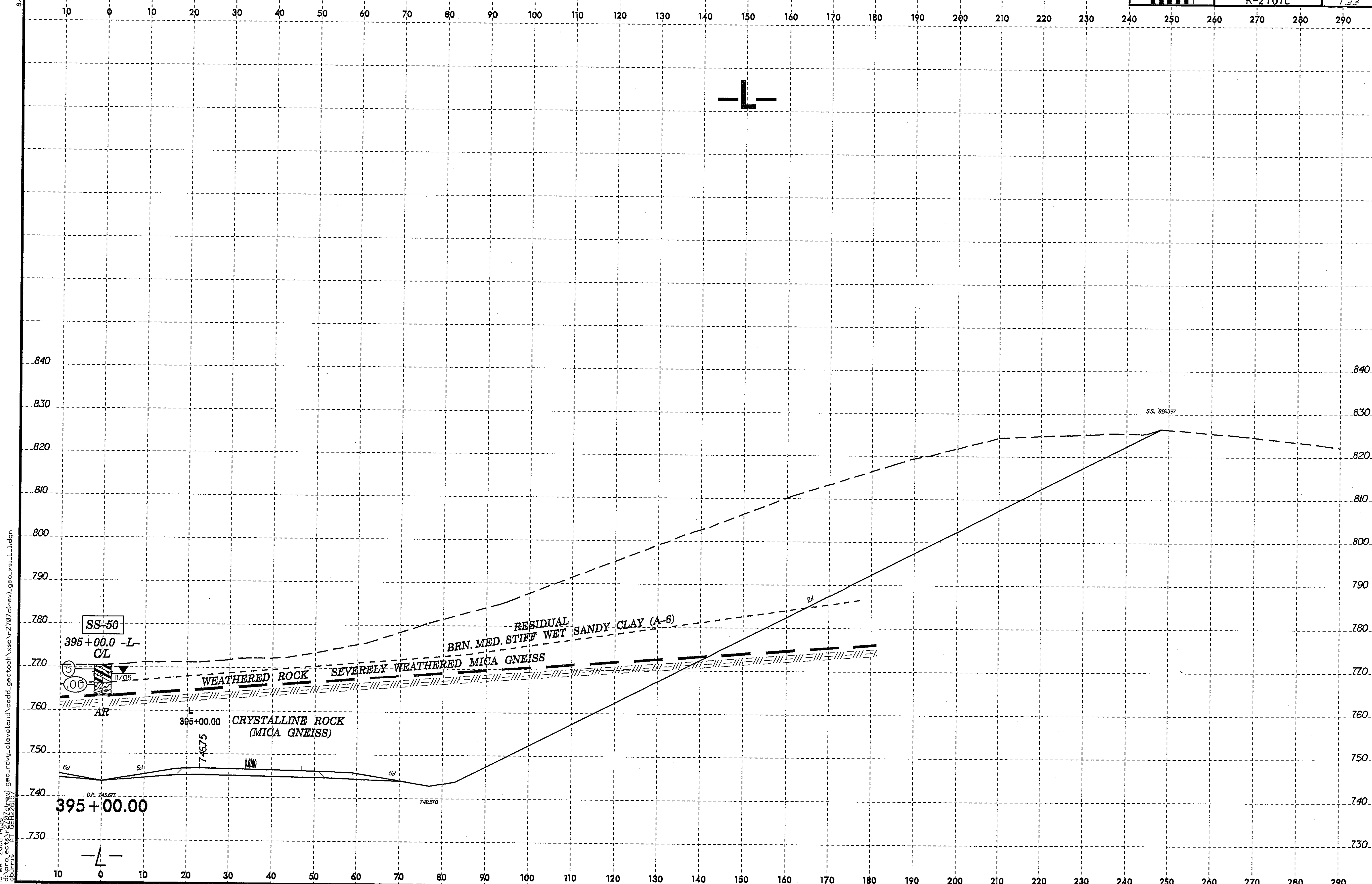
cburris AT GEH226157
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	133

8/23/99



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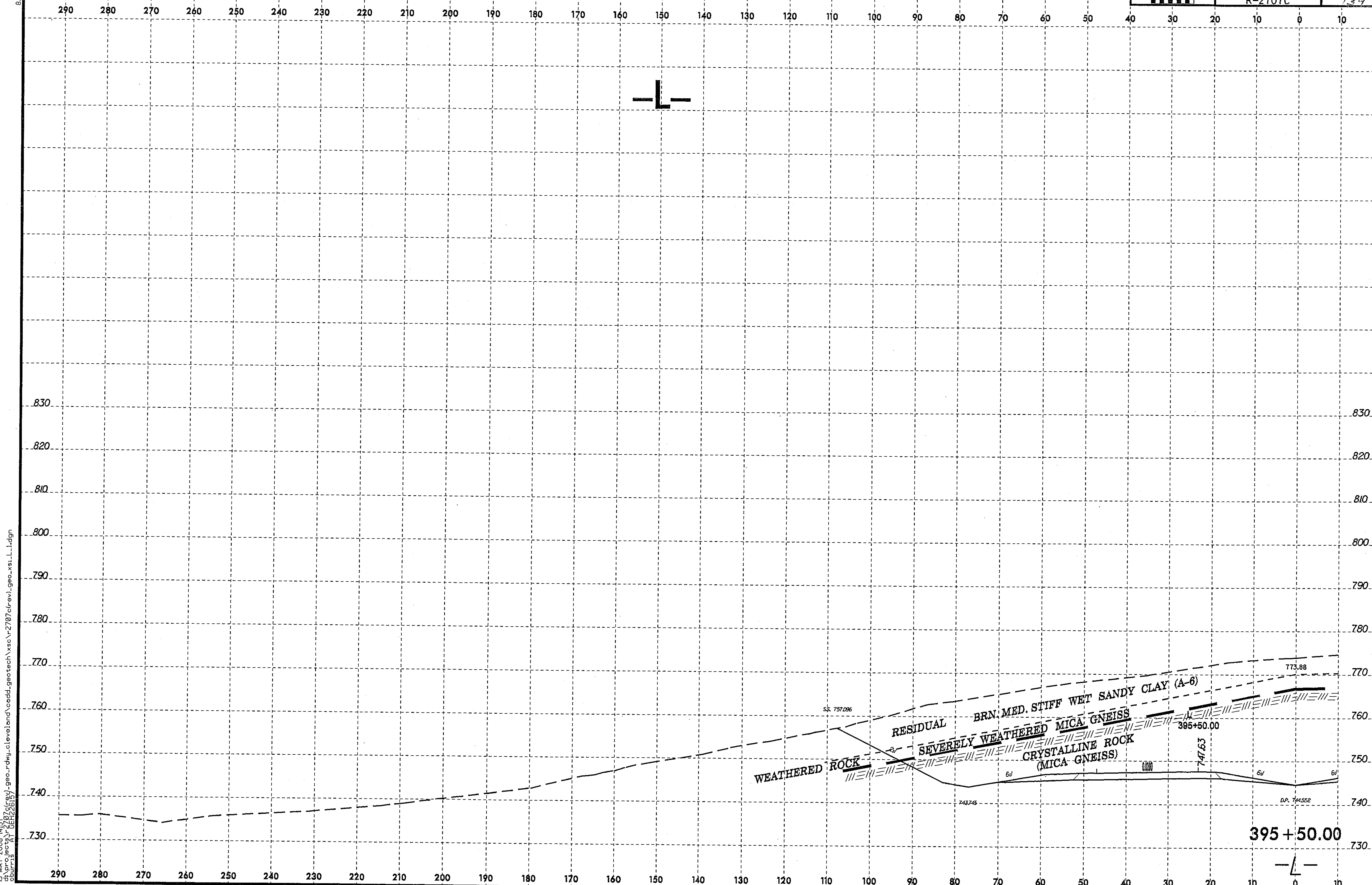
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	134



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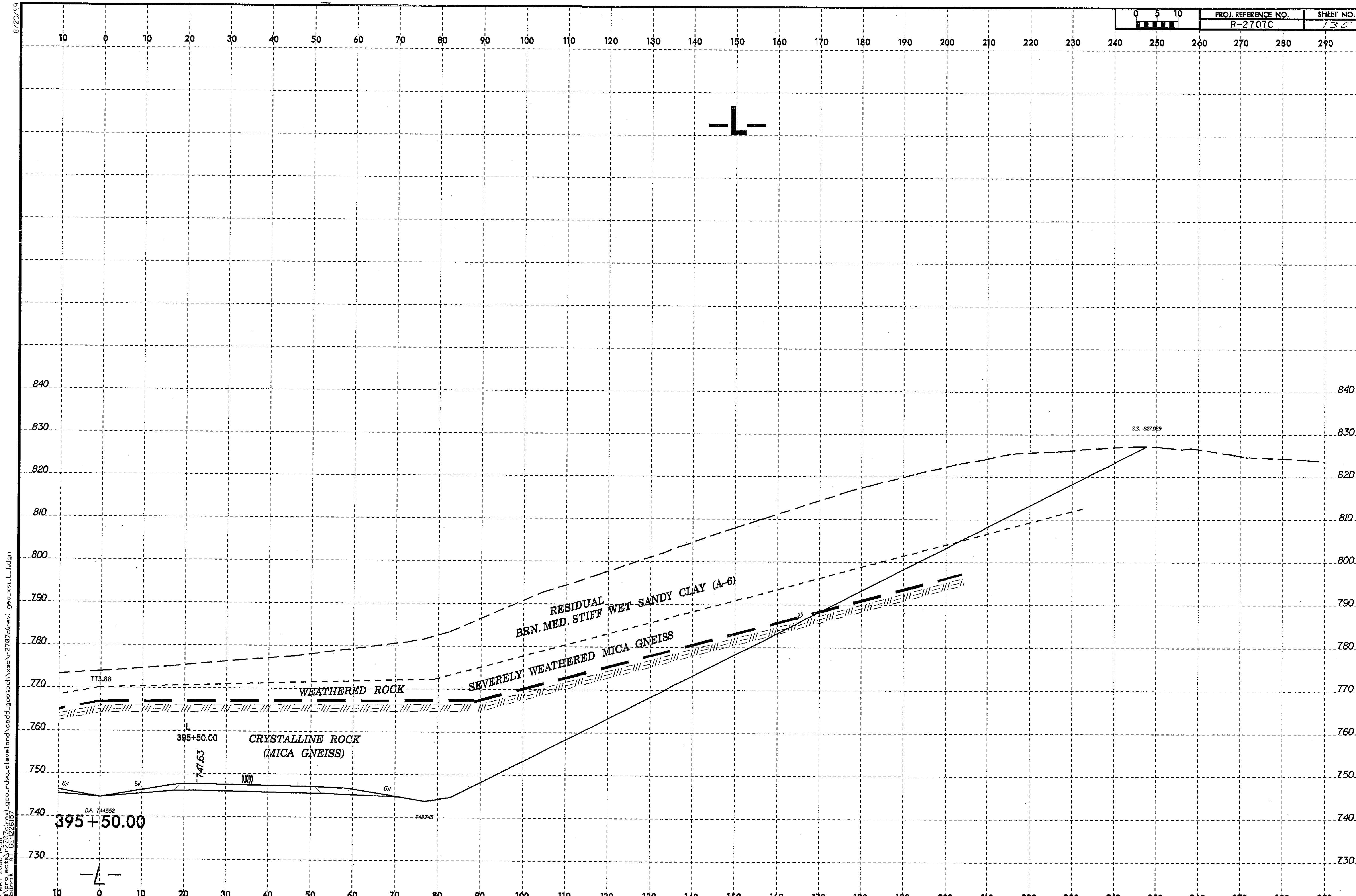
cburris AT GEH226157

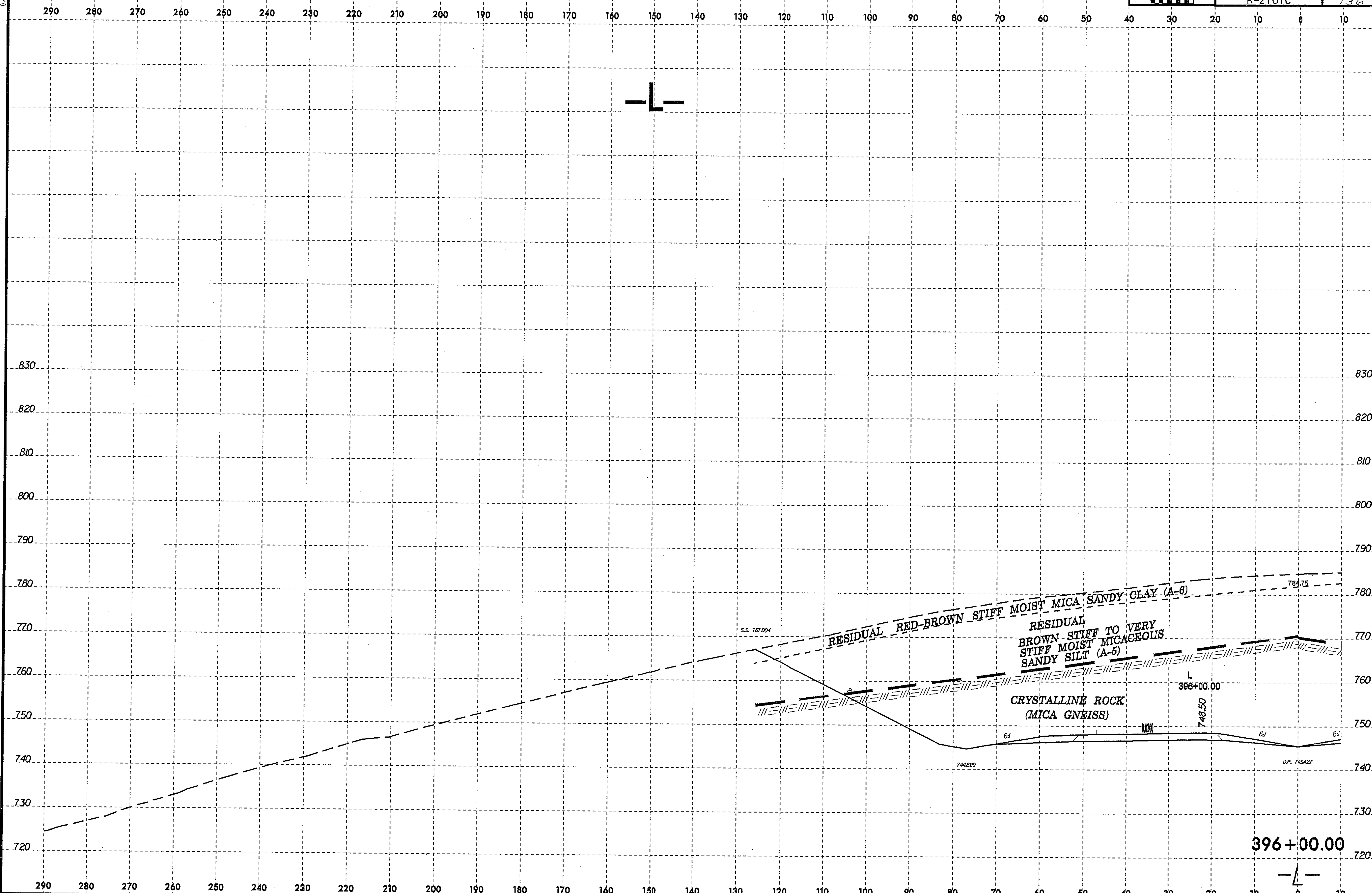
PROJ. REFERENCE NO.	SHEET NO.
R-2707C	135



8/23/99

15-MAY-2008 14:58

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	136



8/23/99

16-MAY-2008 14:35
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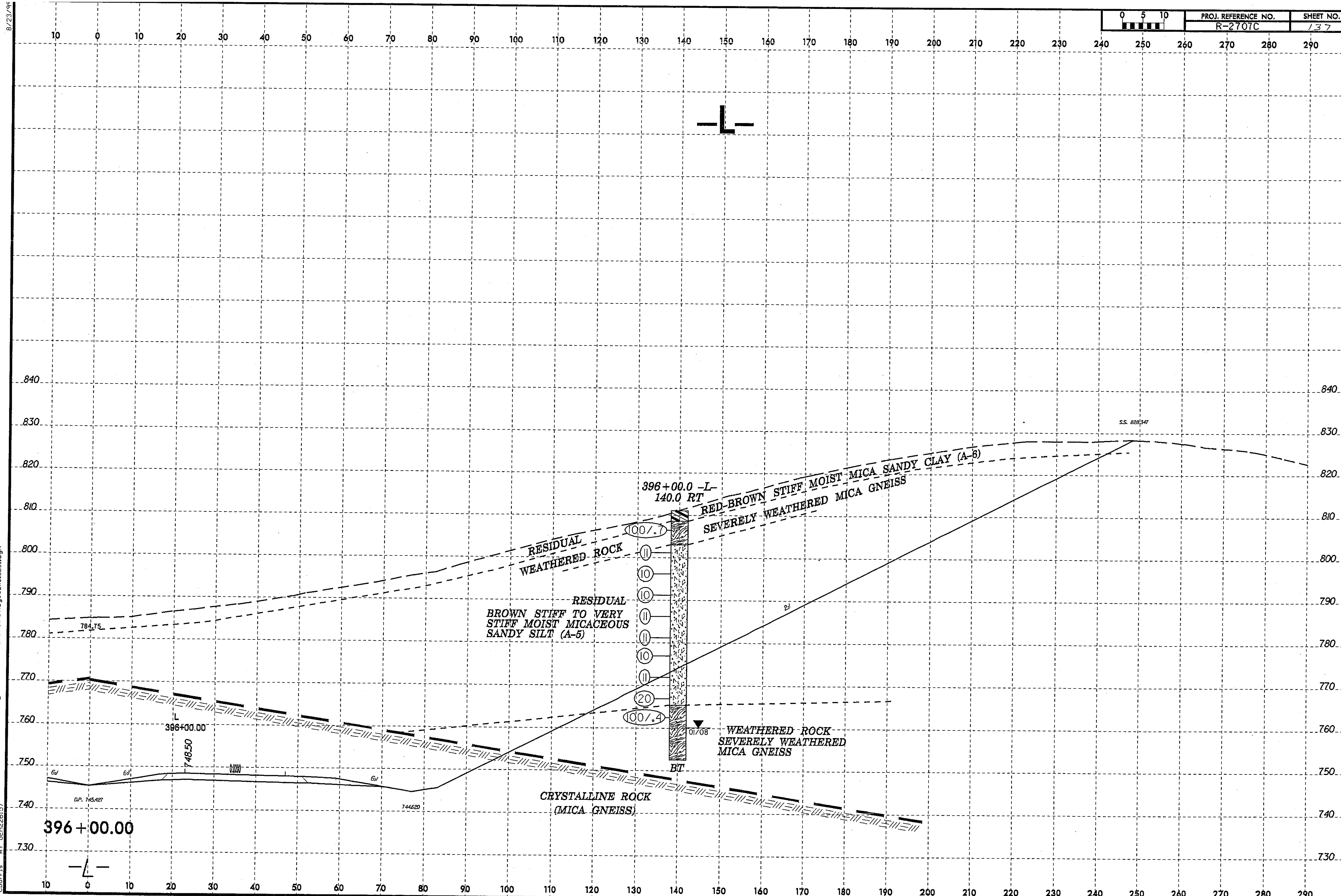
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
137
-L-
396+00.0 -L-
140.0 RT
RED-BROWN STIFF MOIST MICA SANDY CLAY (A-6)
SEVERELY WEATHERED MICA GNEISS
RESIDUAL
WEATHERED ROCK
RESIDUAL
BROWN STIFF TO VERY STIFF MOIST MICACEOUS SANDY SILT (A-5)
100/.7
11
10
10
11
11
10
11
20
100/.4
01/08
WEATHERED ROCK
SEVERELY WEATHERED MICA GNEISS
BT
CRYSTALLINE ROCK
(MICA GNEISS)
L
396+00.00
748.50
784.75
2:1
396+00.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	139

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

840 830 820 810 800 790 780 770 760 750 740 730

S-51
S-52

396+50.0 -L-
C/L

795.48

RESIDUAL
RED/BRN. STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-6)
(PI=29)

S.S. 775.812

BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-5)

AR
DRY
11:05

L
396+50.00

CRYSTALLINE ROCK
(MICA GNEISS)

749.38

745.495

D.P. 746.302

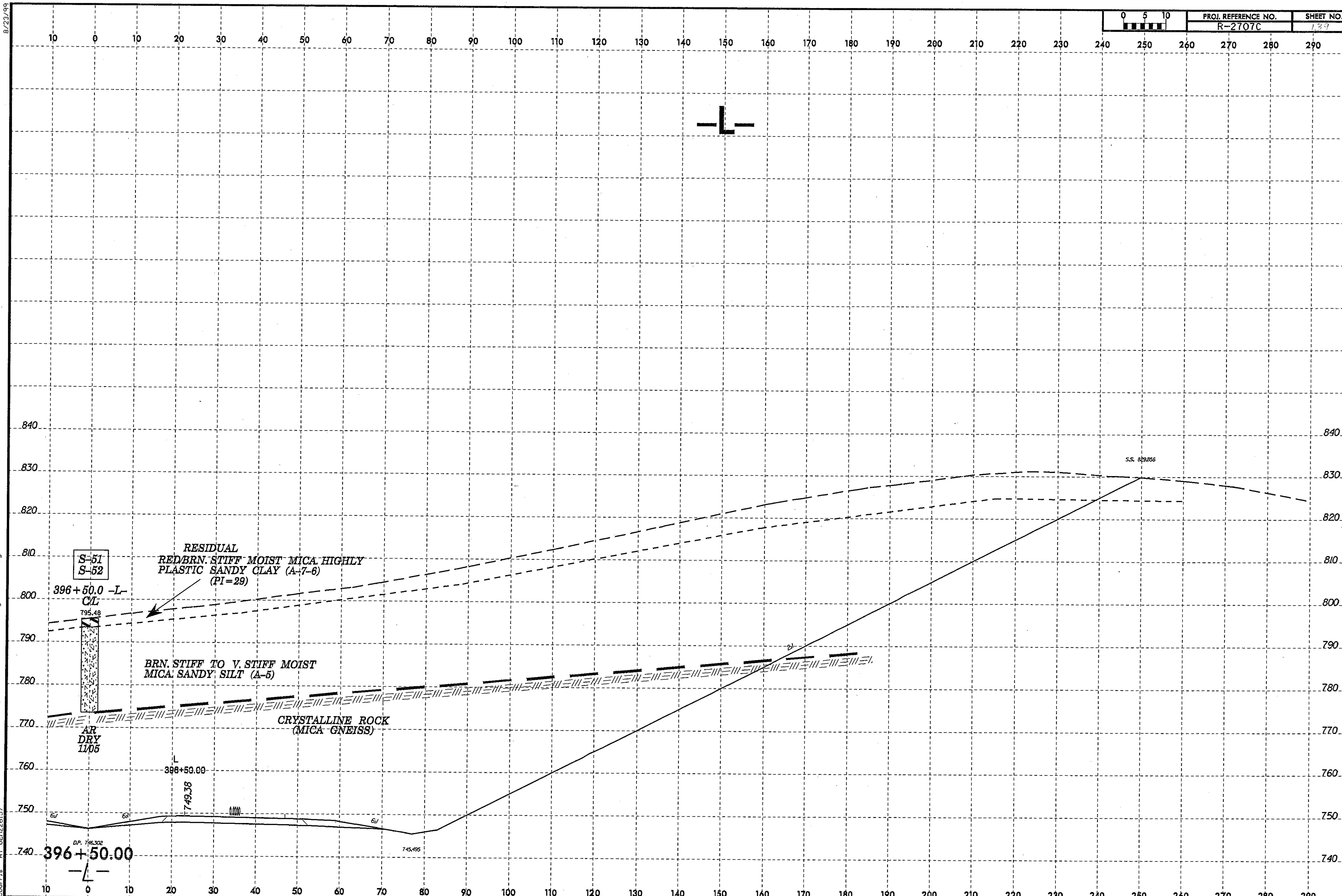
396+50.00

-L-

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

29-MAY-2008 09:01
d:\projects\2707(rev)_geo_rdwy_cleveland\vsdd_geotech\vsc\v-2707(rev)_geo_xs_L_1.dgn
bburris AT GEH22615

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	139



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cburris AT GEH22615
8/23/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	20

RESIDUAL
RED/BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-6)

801.86

S.S. 781.85

BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-5)

2d

L
397+00.00

CRYSTALLINE ROCK
(MICA GNEISS)

750.25

6d

6d

6d

746.370

D.P. 741.177

397+00.00
—L—

14-MAY-2008 13:54
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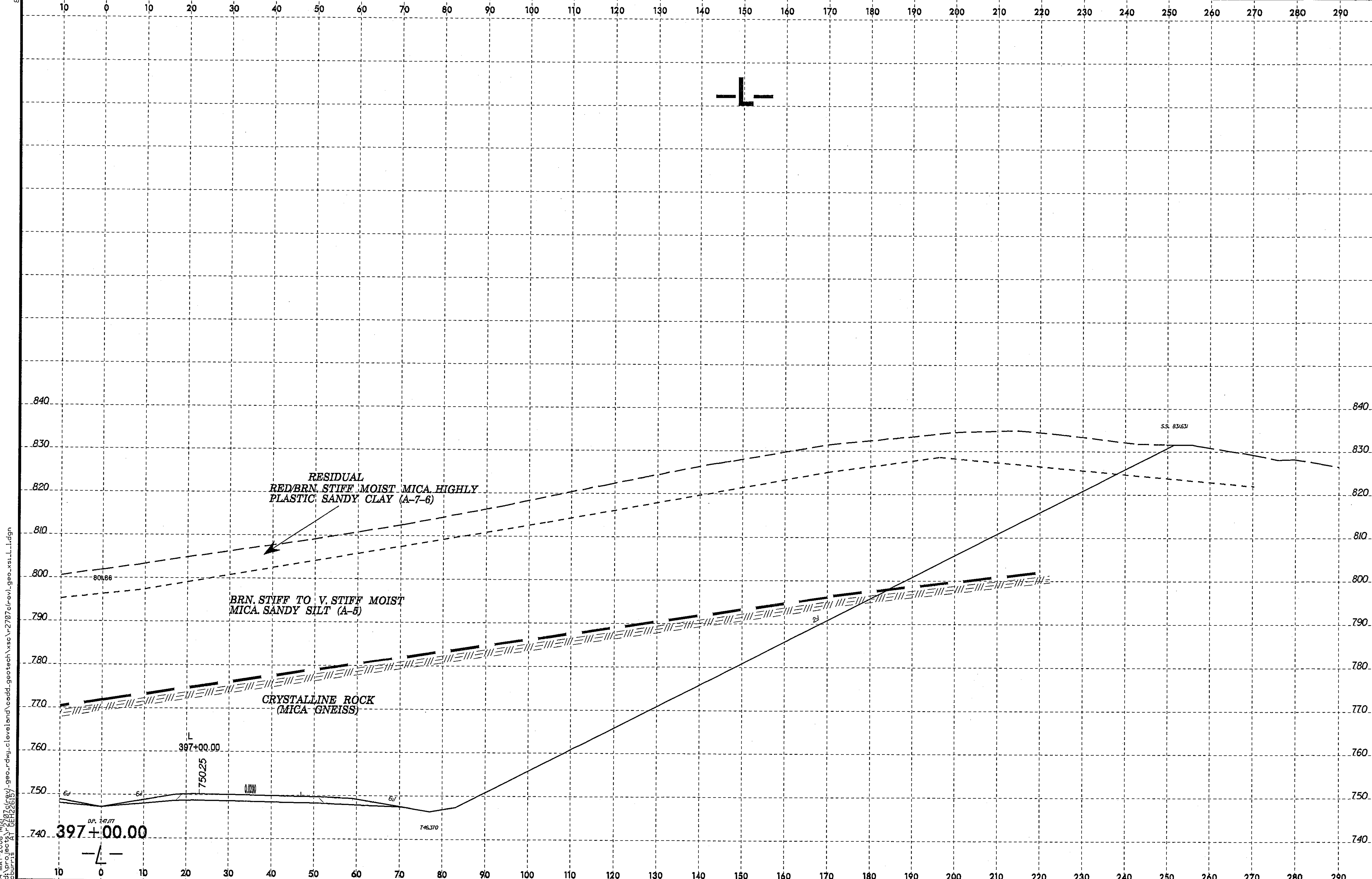
cburris
(GEH226187)

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	1411



8/23/99

14-MAY-2008 14:21
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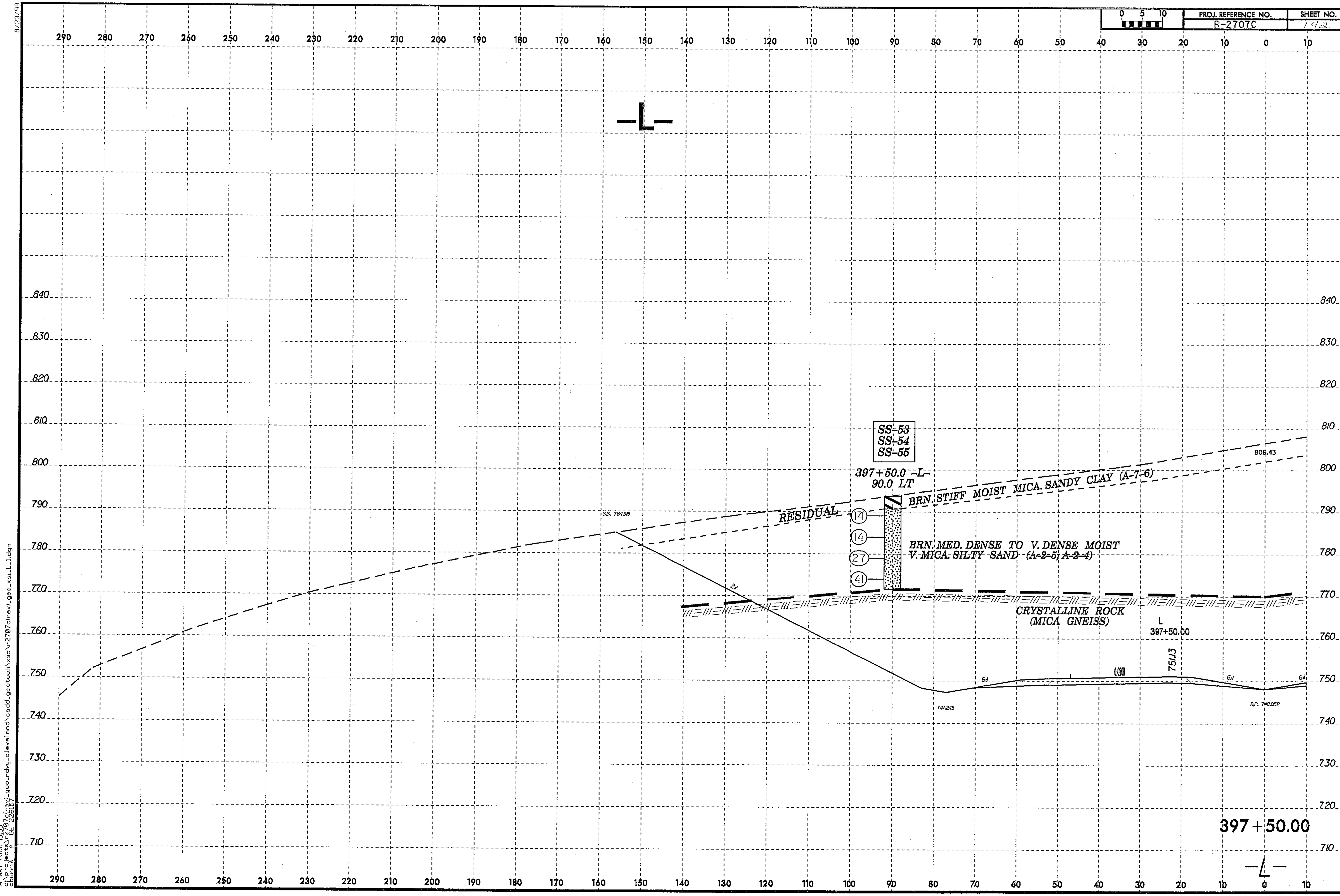
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
SS-53
SS-54
SS-55
397+50.0 -L-
90.0 LT
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-6)
RESIDUAL
BRN. MED. DENSE TO V. DENSE MOIST
V. MICA. SILTY SAND (A-2-5, A-2-4)
CRYSTALLINE ROCK
(MICA GNEISS)
L
397+50.00
751.3
808.43
14
14
27
41
397+50.00
-L-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	143

0 5 10

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

840 830 820 810 800 790 780 770 760 750 740

RESIDUAL

BRN. STIFF MOIST MICA SANDY CLAY (A-7-6)

806.43

BRN. MED. DENSE TO V. DENSE MOIST V. MICA SILTY SAND (A-2-5, A-2-4)

CRYSTALLINE ROCK (MICA GNEISS)

SS. 833.323

741.245

23

L
397+50.00

75/13

6d 6d 6d

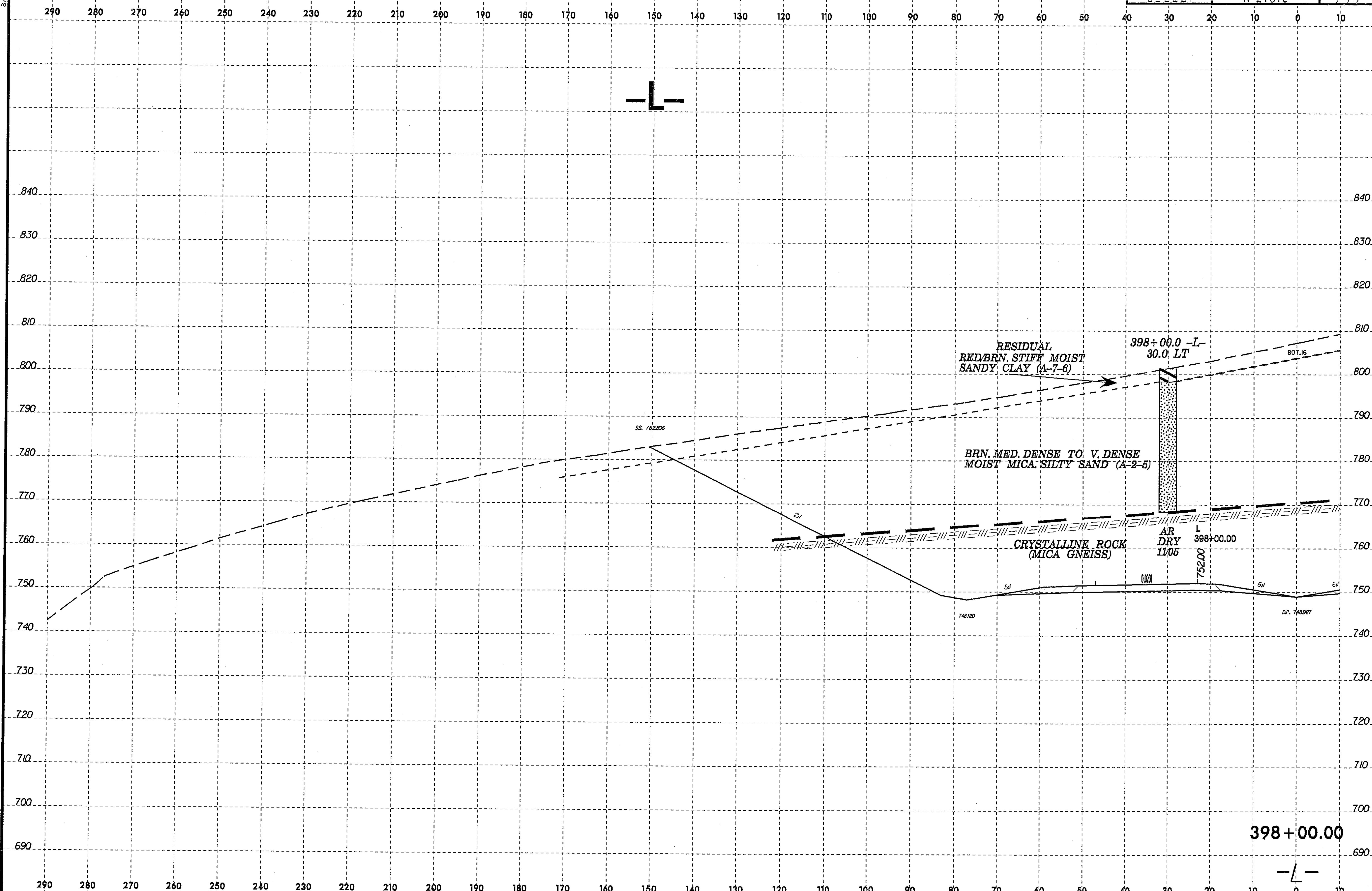
D.P. 748.052

397+50.00

-L-

14-MAY-2008 14:22
d:\projects\2007(rev)-geo-rdwg-cleveland\roadd-geotech\xsc\r2707cl-rev1_geo_xsL_1.dgn
dburris (ZEPHYR\DOT)

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	144



8/23/99
14-MAY-2008 13:56
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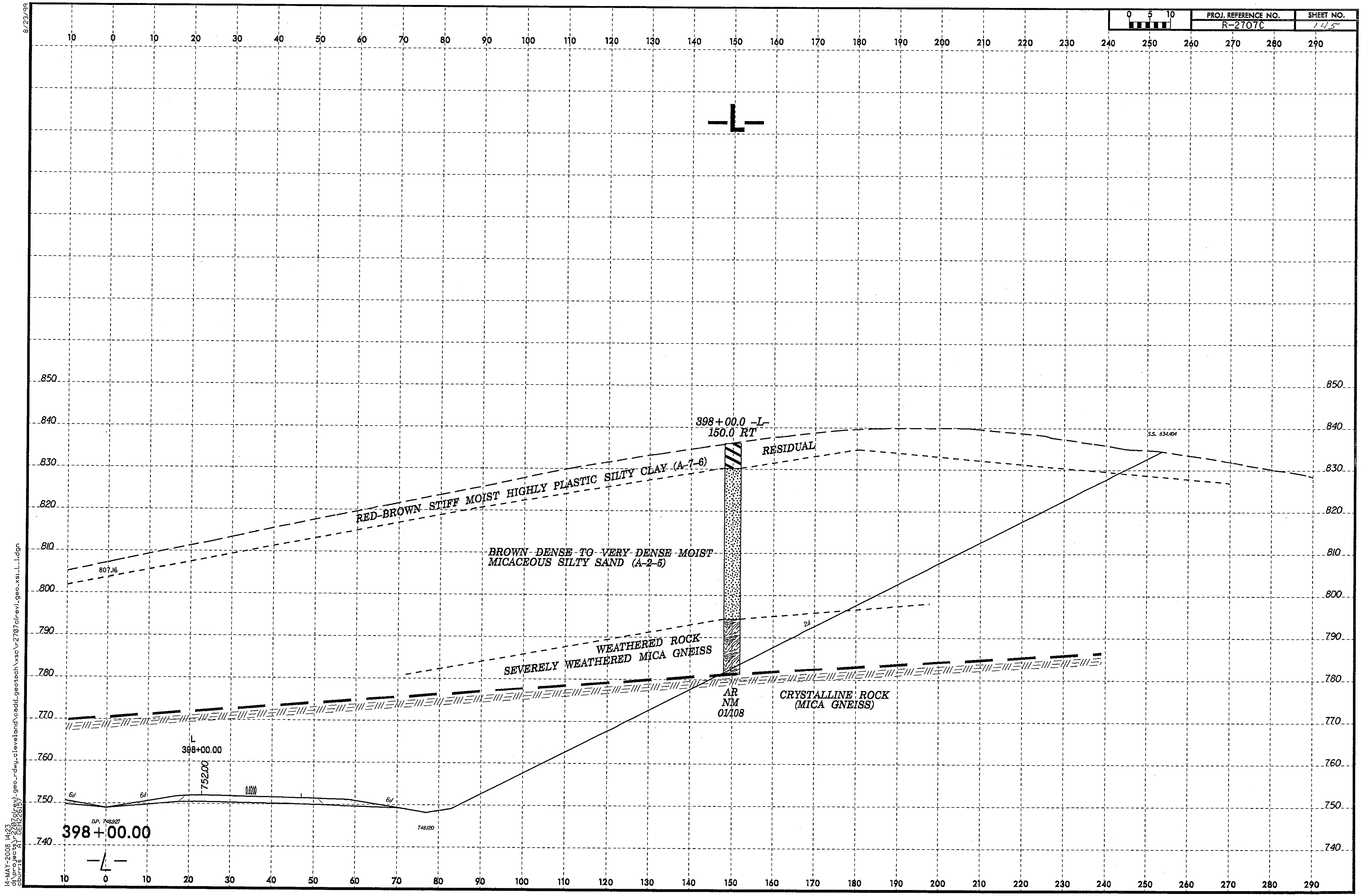
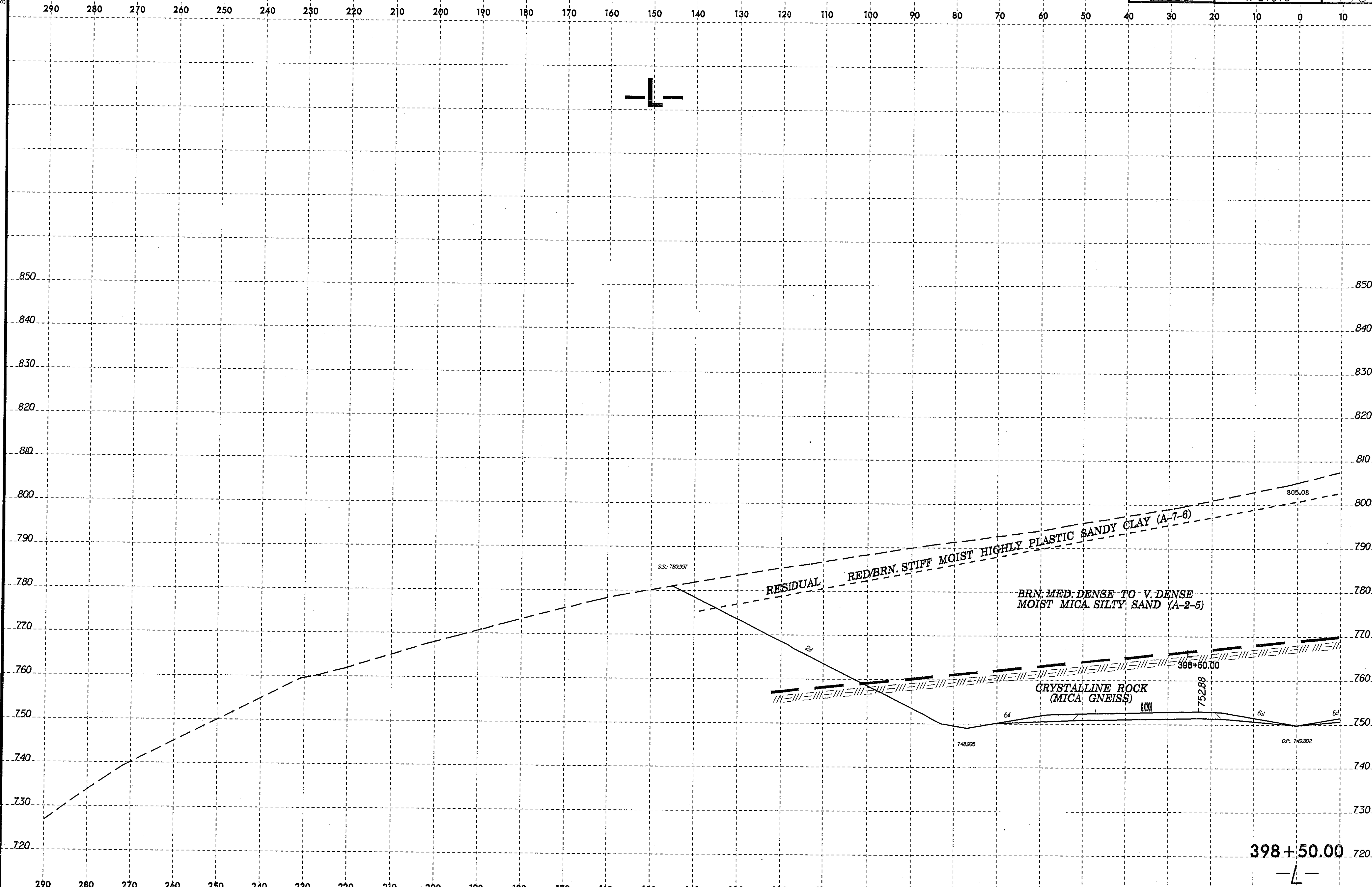
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
145
-L-
398+00.0 -L-
150.0 RT
RESIDUAL
RED-BROWN STIFF MOIST HIGHLY PLASTIC SILTY CLAY (A-7-6)
BROWN DENSE TO VERY DENSE MOIST MICACEOUS SILTY SAND (A-2-5)
WEATHERED ROCK
SEVERELY WEATHERED MICA GNEISS
CRYSTALLINE ROCK
(MICA GNEISS)
AR
NM
01/108
807.16
S.S. 834.404
L
398+00.00
752.00
748.20
398+00.00
-L-
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	146



8/23/99

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cburris AT GEH226157

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	147

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

850 840 830 820 810 800 790 780 770 760 750 740

RESIDUAL

RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)

805.08

S.S. 835718

BRN. MED. DENSE TO V. DENSE
MOIST MICA SILTY SAND (A-2-6)

2:1

398+50.00

CRYSTALLINE ROCK
(MICA GNEISS)

752.88

6:1 6:1 6:1

0.020

D.P. 749.802

748.995

398+50.00

14-MAY-2008 14:24
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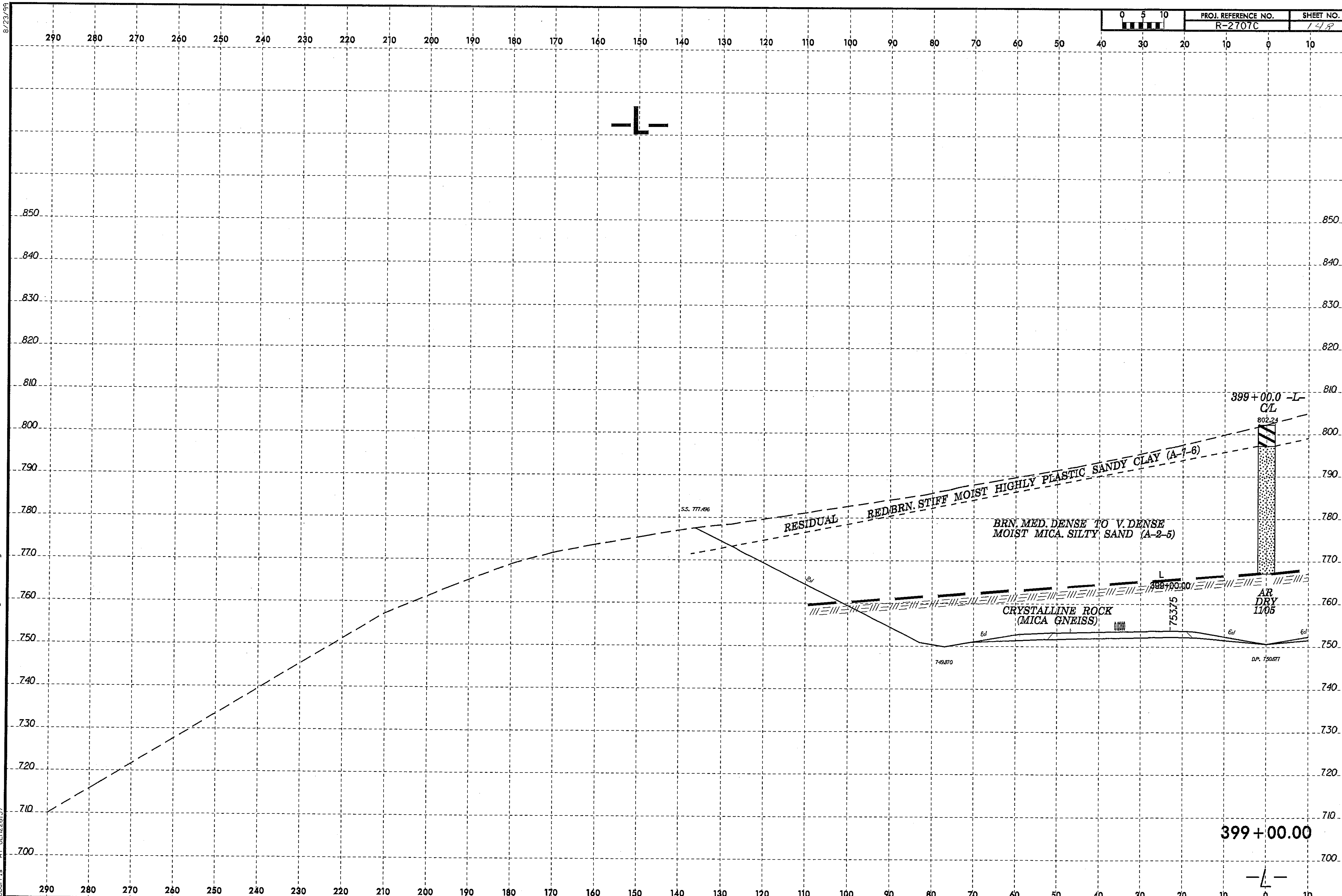
bburris (FT GEN226(5))


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
399+00.0 -L-
C/L
802.24
RESIDUAL RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
BRN. MED. DENSE TO V. DENSE
MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(MICA GNEISS)
753.75
AR
DRY
11/05
399+00.00

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	149

399+00.0 -L-
C/L
802.24

RESIDUAL

BRN. MED. DENSE TO V. DENSE
MOIST MICA SILTY SAND (A-2-5)

AR
DRY
11/05

399+00.00

CRYSTALLINE ROCK
(MICA GNEISS)

753.75

6d 6d 6d

DP. 760.677

749.870

399+00.00

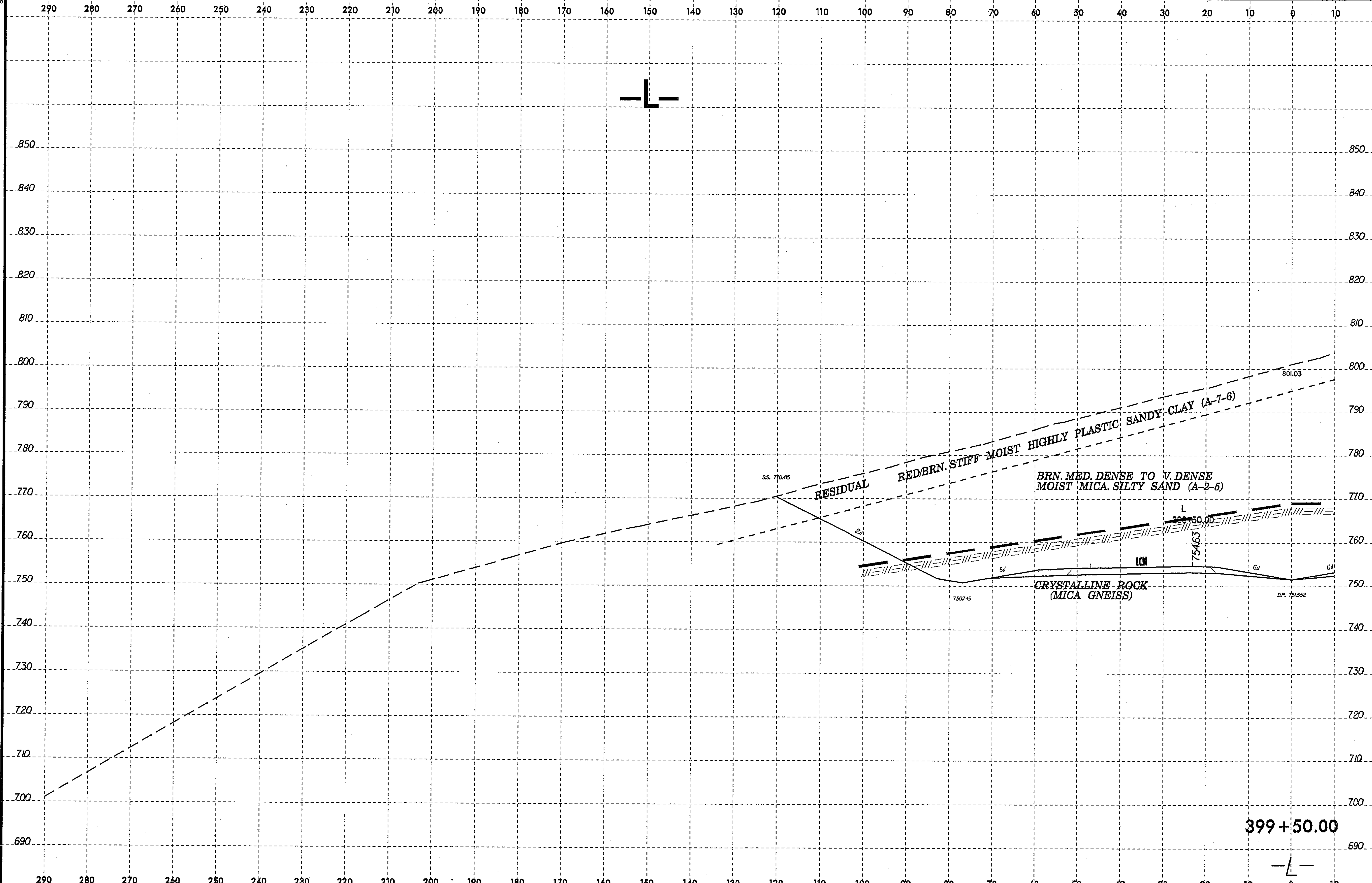
-L-

SS: 835.31'

2d

14-MAY-2008 14:25
d:\projects\r-2707c(rev)-geo_rdwy_cleveland\cadd_geotech\xsc\r-2707c(rev)_geo_xsi_L_1.dgn
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	150



399+50.00

-L-

8/23/99

14-MAY-2008 13:58
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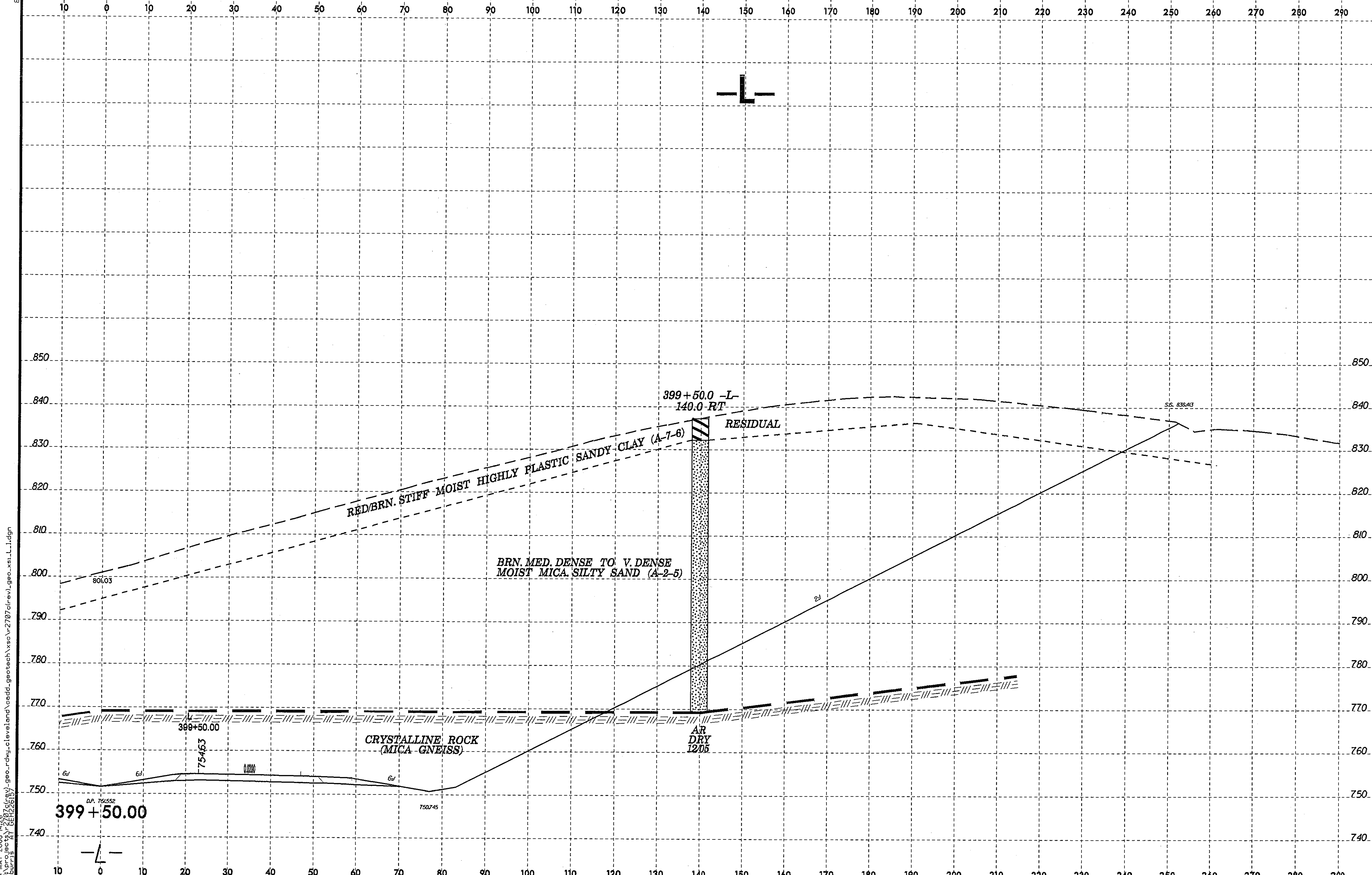
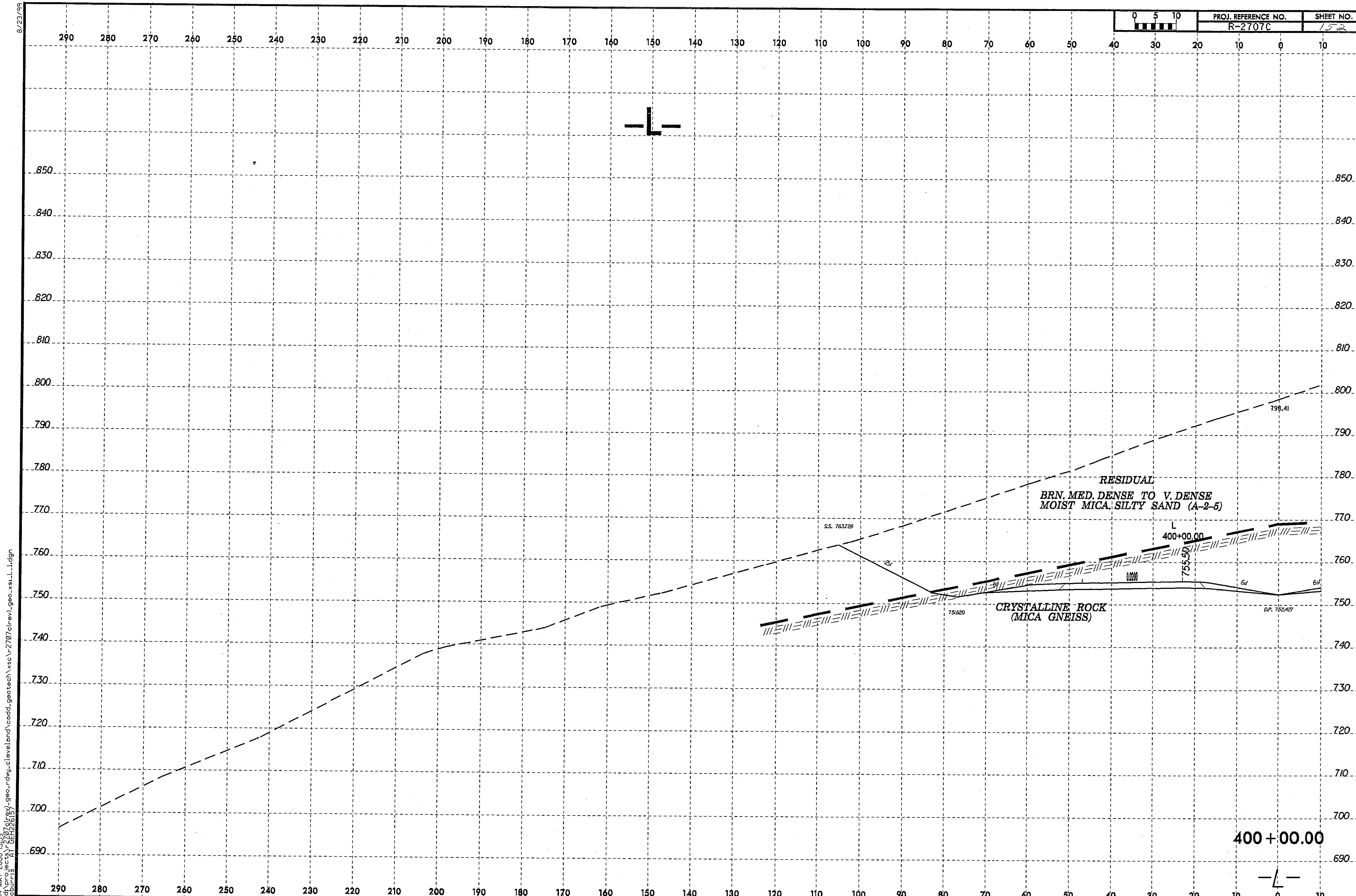
cburris AT DEH22615

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	15-1



PROJ. REFERENCE NO.	SHEET NO.
R-2707C	152



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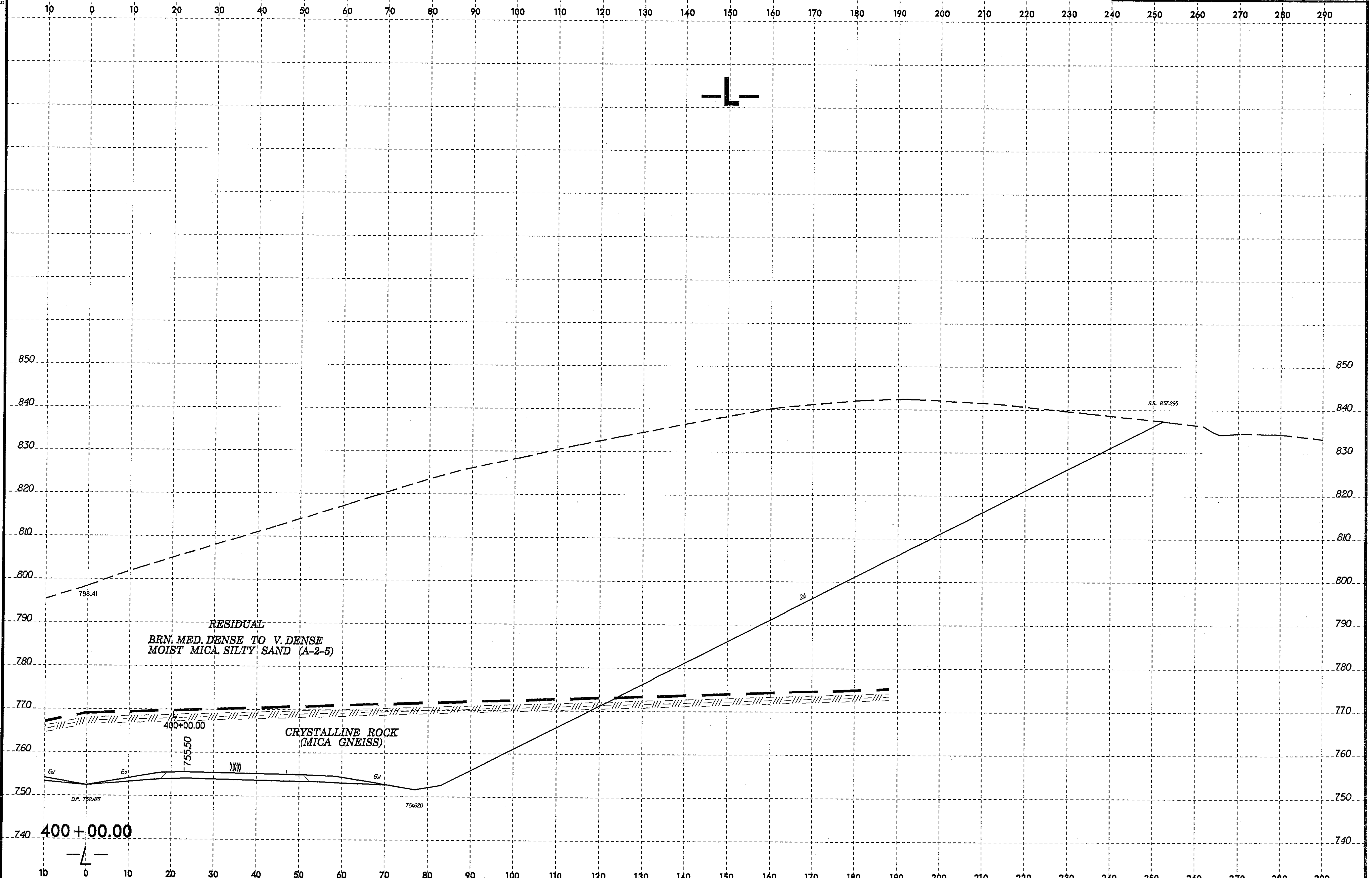
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	153



8/23/99

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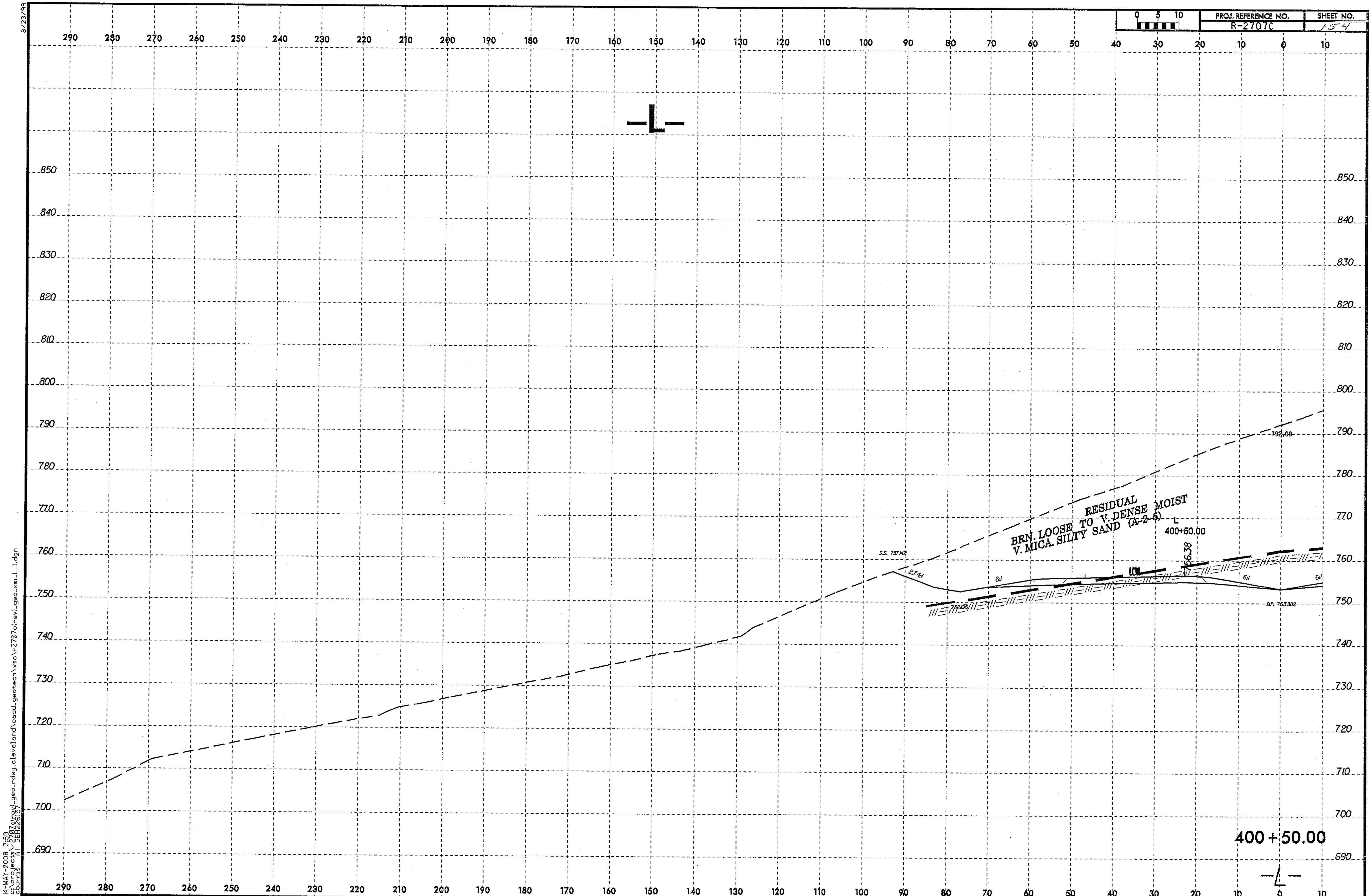
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
154
-L-
RESIDUAL
BRN. LOOSE TO V. DENSE MOIST
V. MICA. SILTY SAND (A-2-5)
L
400+50.00
756.38
S.S. 757.42
792.09
B.P. 753.302
400 + 50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	153

SS-56
SS-57
ST-1

400+50.0 -L-
130.0 RT

SS. 838.298

RESIDUAL
BRN. LOOSE TO V. DENSE MOIST
V. MICA. SILTY SAND (A-2-5)

9
7
8
9
14
21
21
31
25
100/.2
100/.2
100/.2

WEATHERED ROCK
(SEV. WEATH. BIOTITE GNEISS)

CRYSTALLINE ROCK
(WEATHERED BIOTITE GNEISS)

AR
DRY
12:05

792.09

-L-
400+50.00

CRYSTALLINE ROCK
(WEATHERED BIOTITE GNEISS)

6d
6d
6d
0.0020
BP: 753.302
752.495

400+50.00

-L-

850 840 830 820 810 800 790 780 770 760 750 740

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

14-MAY-2008 14:28
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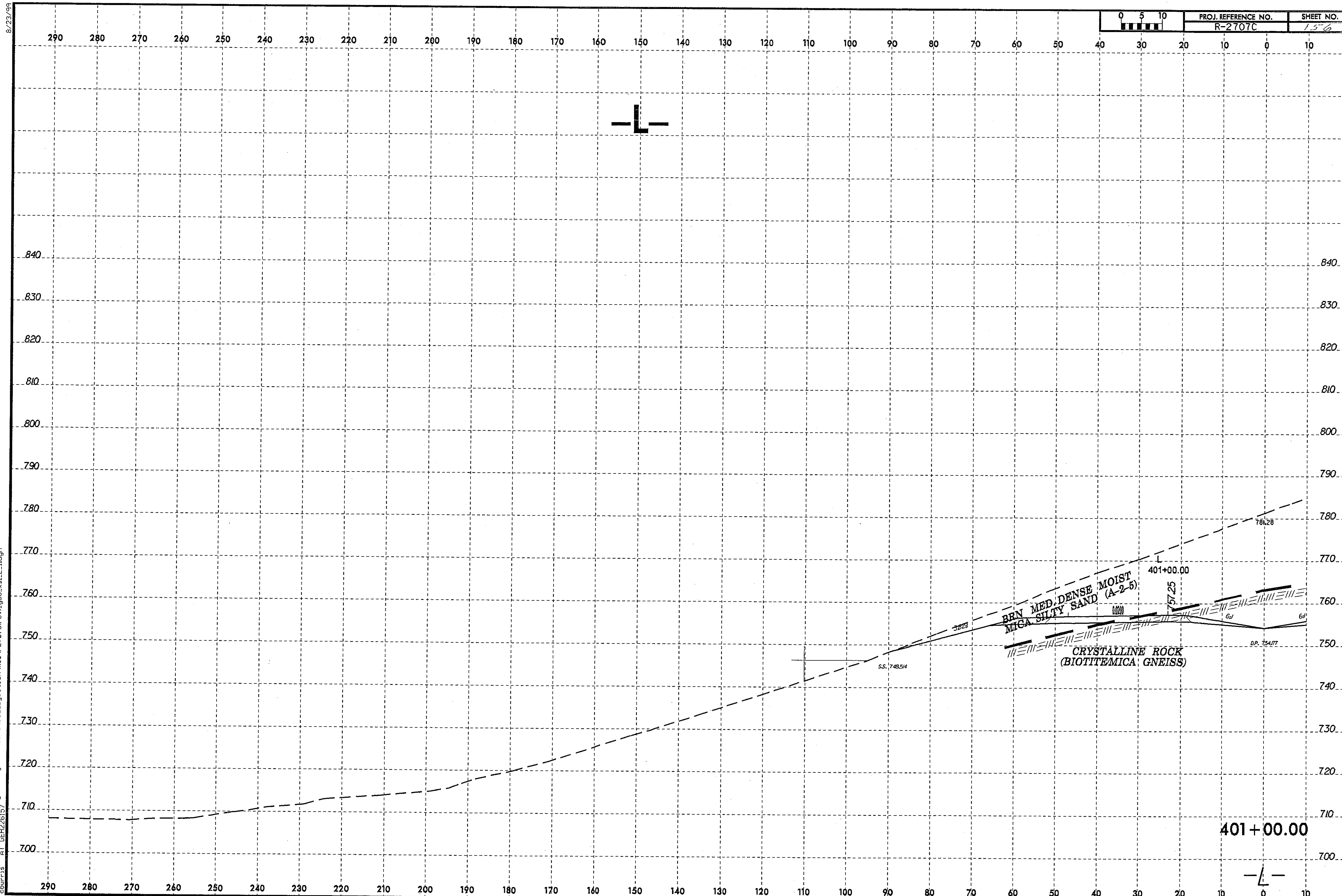
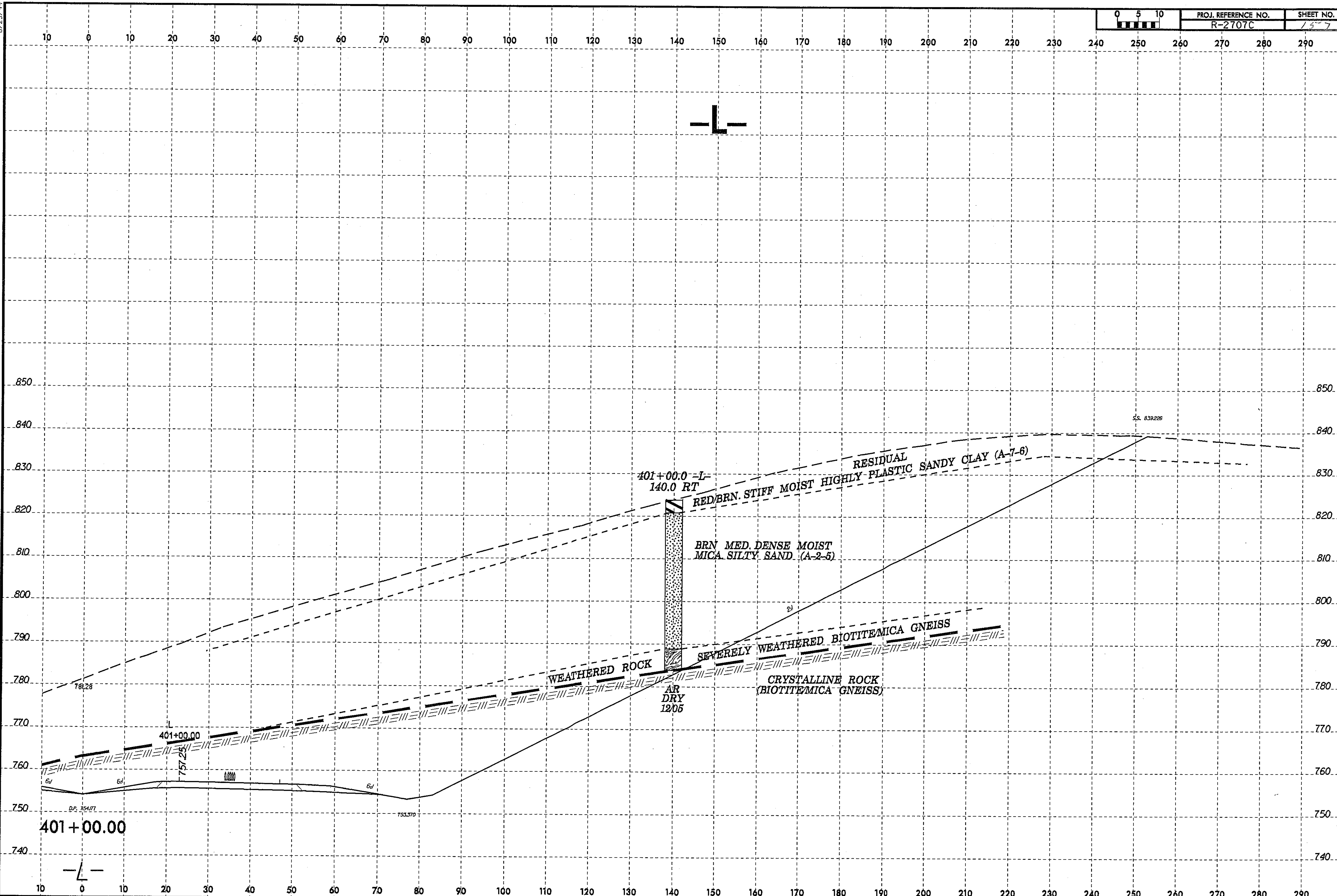
cburrage
RT 6ER2210.5


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
BRN MED. DENSE MOIST
MICA SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
401+00.00
757.25
786.28
S.S. 748.514
D.P. 754.177
401+00.00
-L-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	



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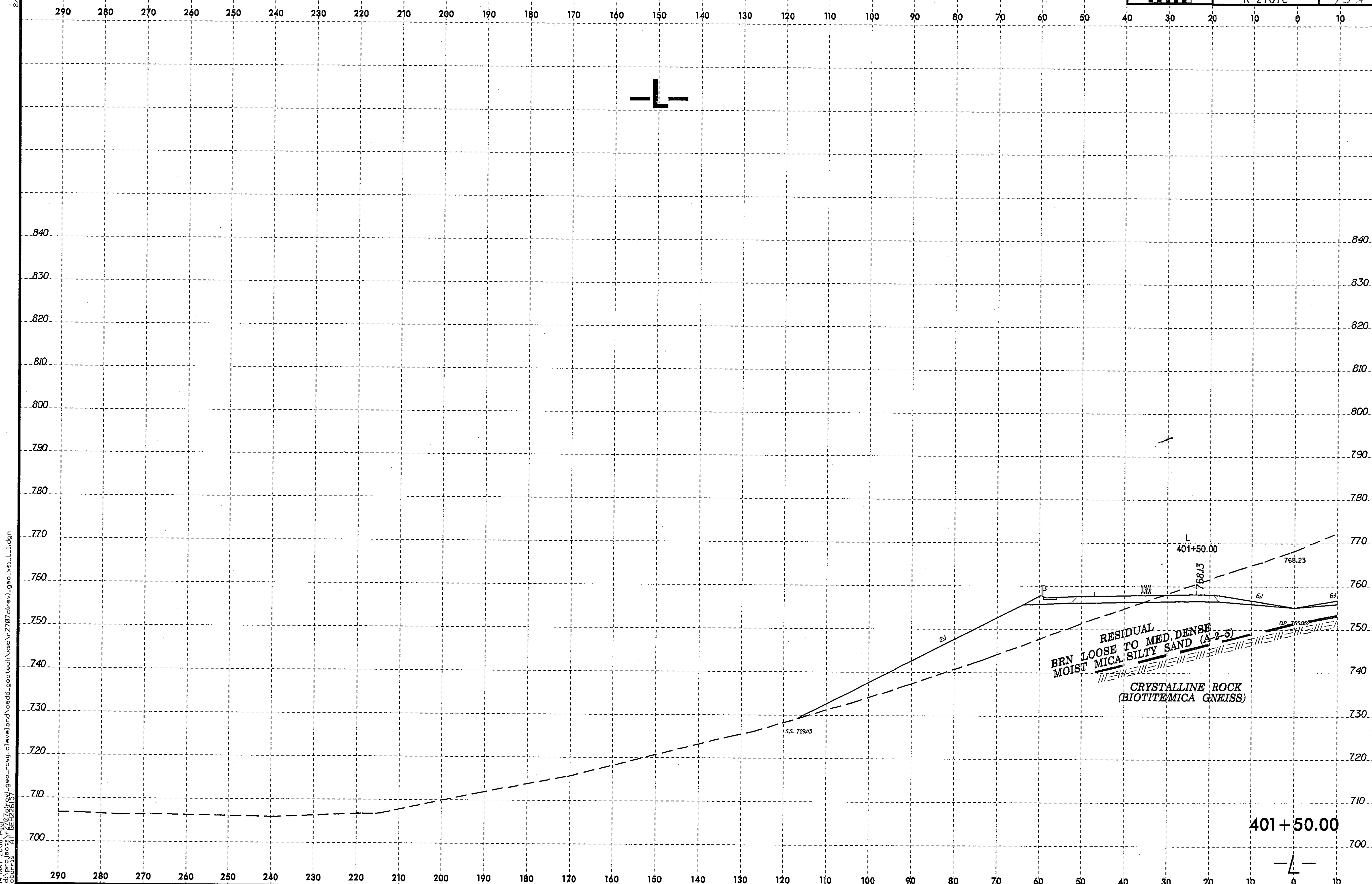
cburris AT OEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	158



8/23/99

14-MAY-2008 14:01
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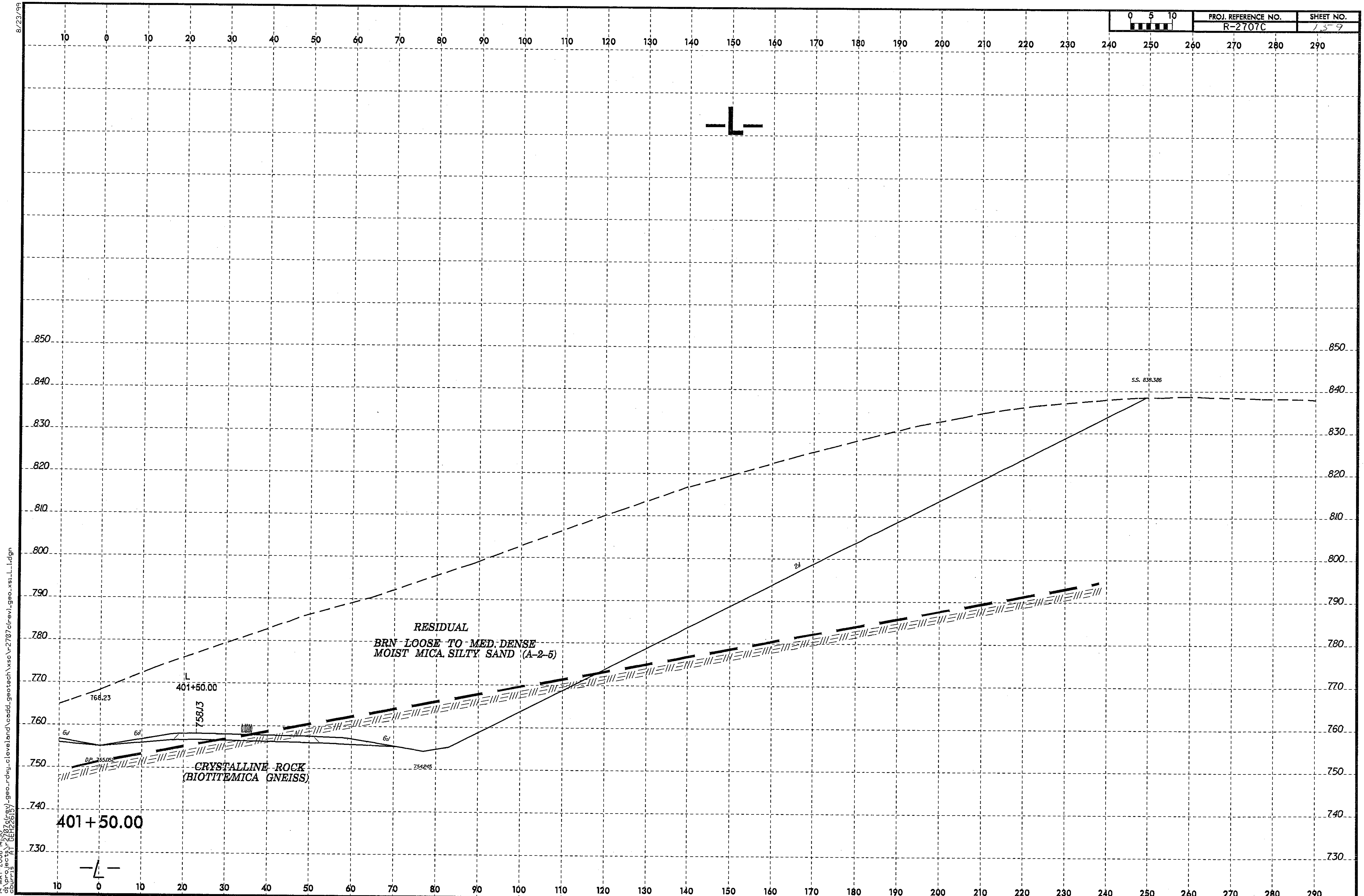
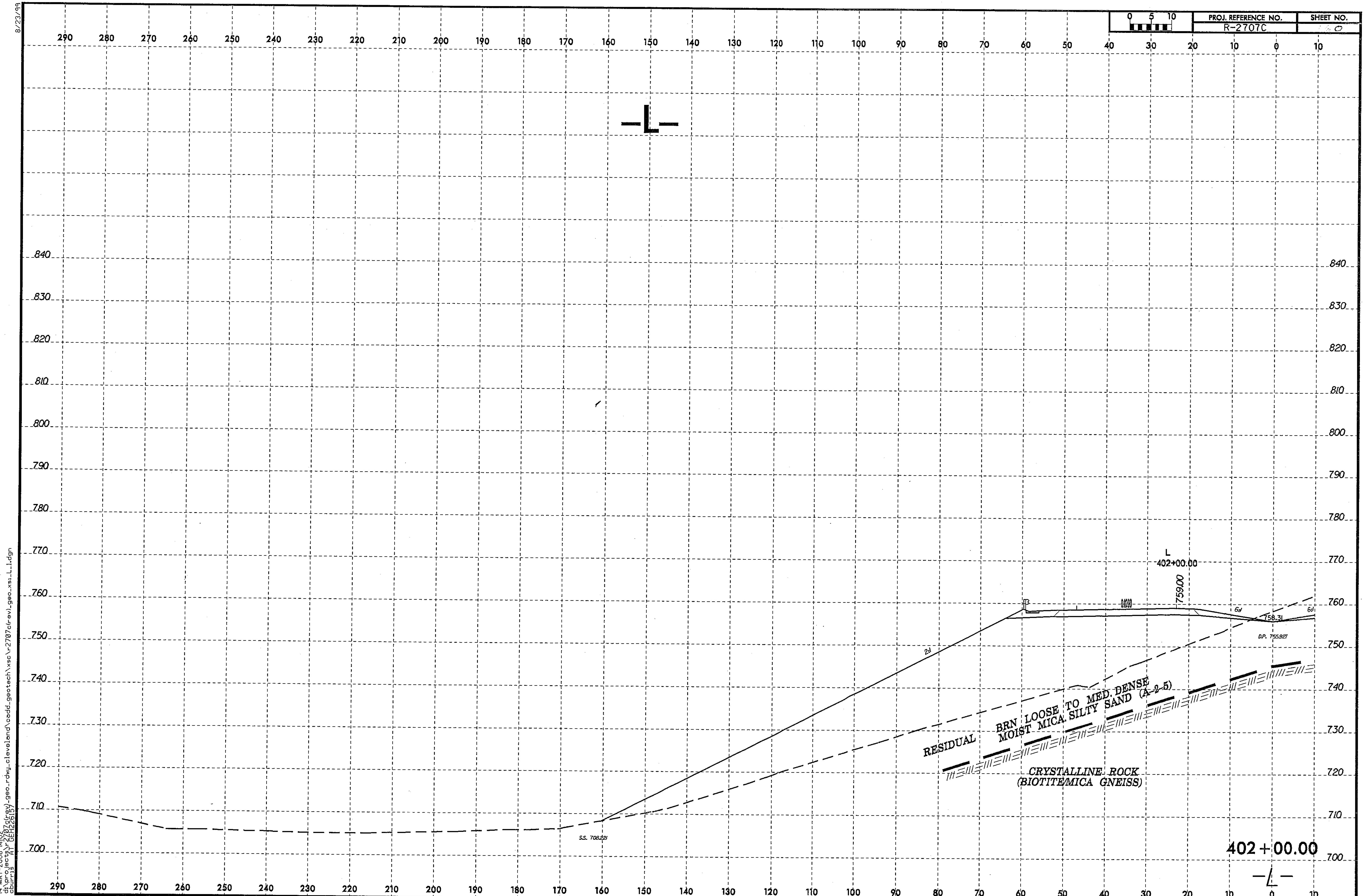
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
159
-L-
RESIDUAL
BRN LOOSE TO MED. DENSE
MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE-MICA GNEISS)
L
401+50.00
758.13
766.23
401+50.00
-L-
8/23/99
14-MAY-2008 14:30



14-MAY-2008 14:02
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cburris AT GEH226157

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	16

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

840 830 820 810 800 790 780 770 760 750 740 730 720 710 700

S.S. 833.04

RESIDUAL
BRN LOOSE TO MED. DENSE
MOIST MICA. SILTY SAND (A-2-5)

L
402+00.00
759.00

6d 6d 6d

758.31

D.P. 755.927

755.120

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

402+00.00

—L—

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

840 830 820 810 800 790 780 770 760 750 740 730 720 710 700

14-MAY-2008 14:31
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cburris RT 0EM226157

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	162

NO ROCK

L
402+50.00

759.88

D.P. 756.802

747.20

SS-62
SS-63
402+50.0 -L-
120.0 LT

12/05

SS. 707.295

ALLUVIAL BRN/GRAY V. SOFT WET TO SAT. SANDY CLAY (A-7-5)

RESIDUAL
GRAY/WHITE LOOSE WET
SILTY SAND (A-2-5)

RESIDUAL
BRN LOOSE TO MED. DENSE
MOIST MICA SILTY SAND (A-2-5)

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

BT

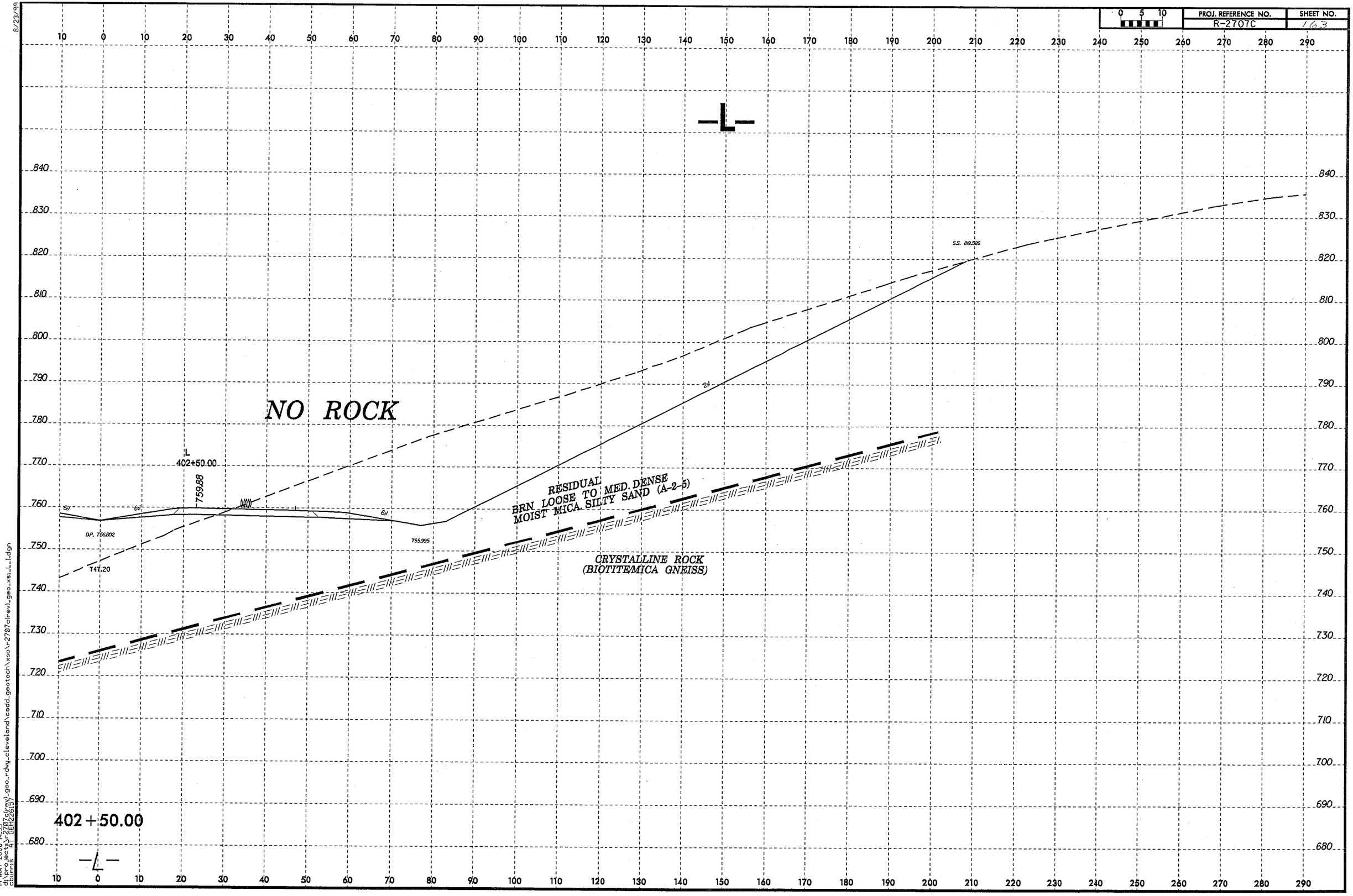
402+50.00

-L-

14-MAY-2008 14:02
d:\projects\r-2707c\rev\geo_rdwy_cleveland\caddd_geotech\xsc\r2707c(rev)_geo_xsLL_1.dgn
cburris
AT GEH25615

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	163



14-MAY-2008 14:33
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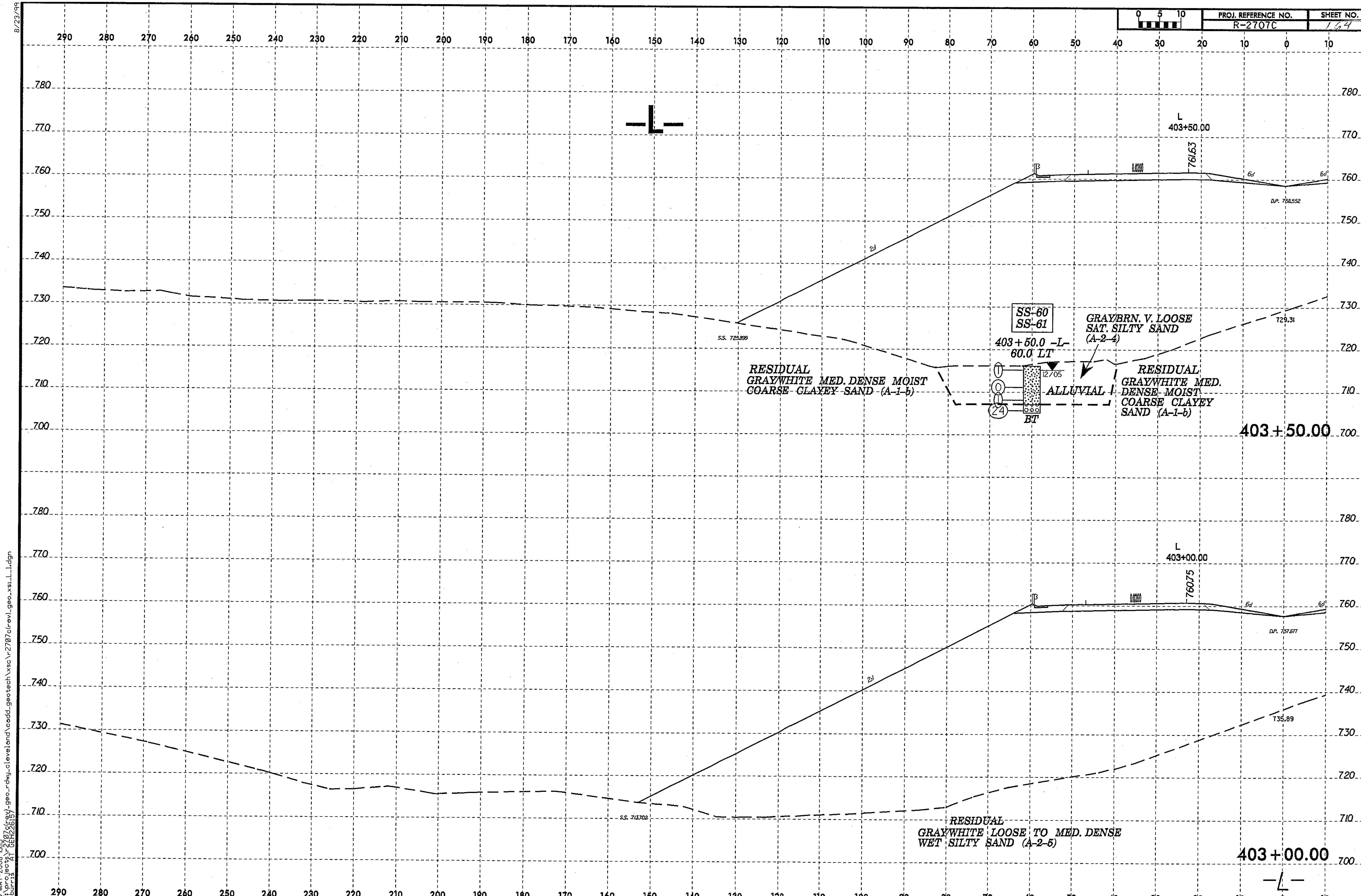
cburris AT GEN226157



15-MAY-2008 15:13
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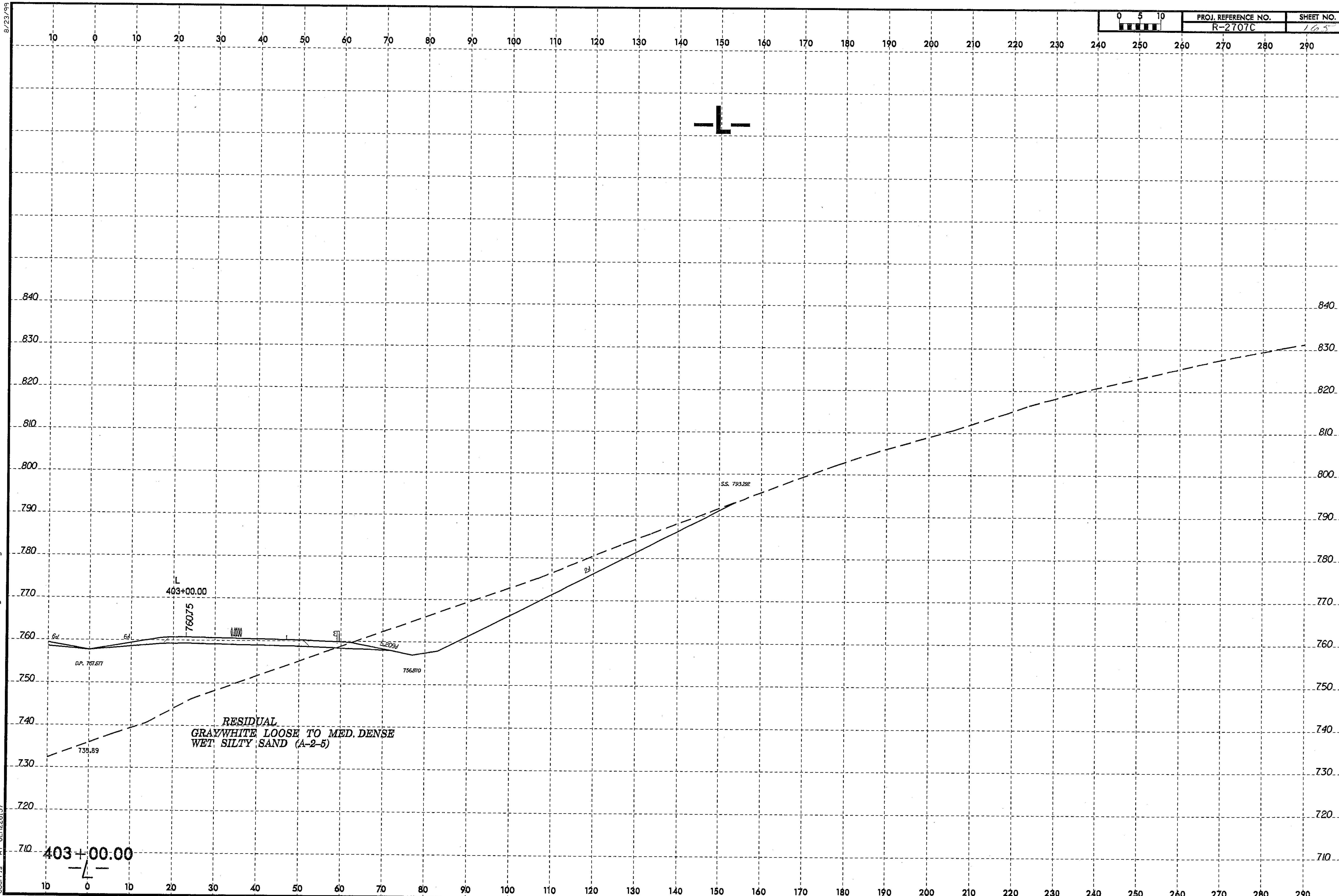
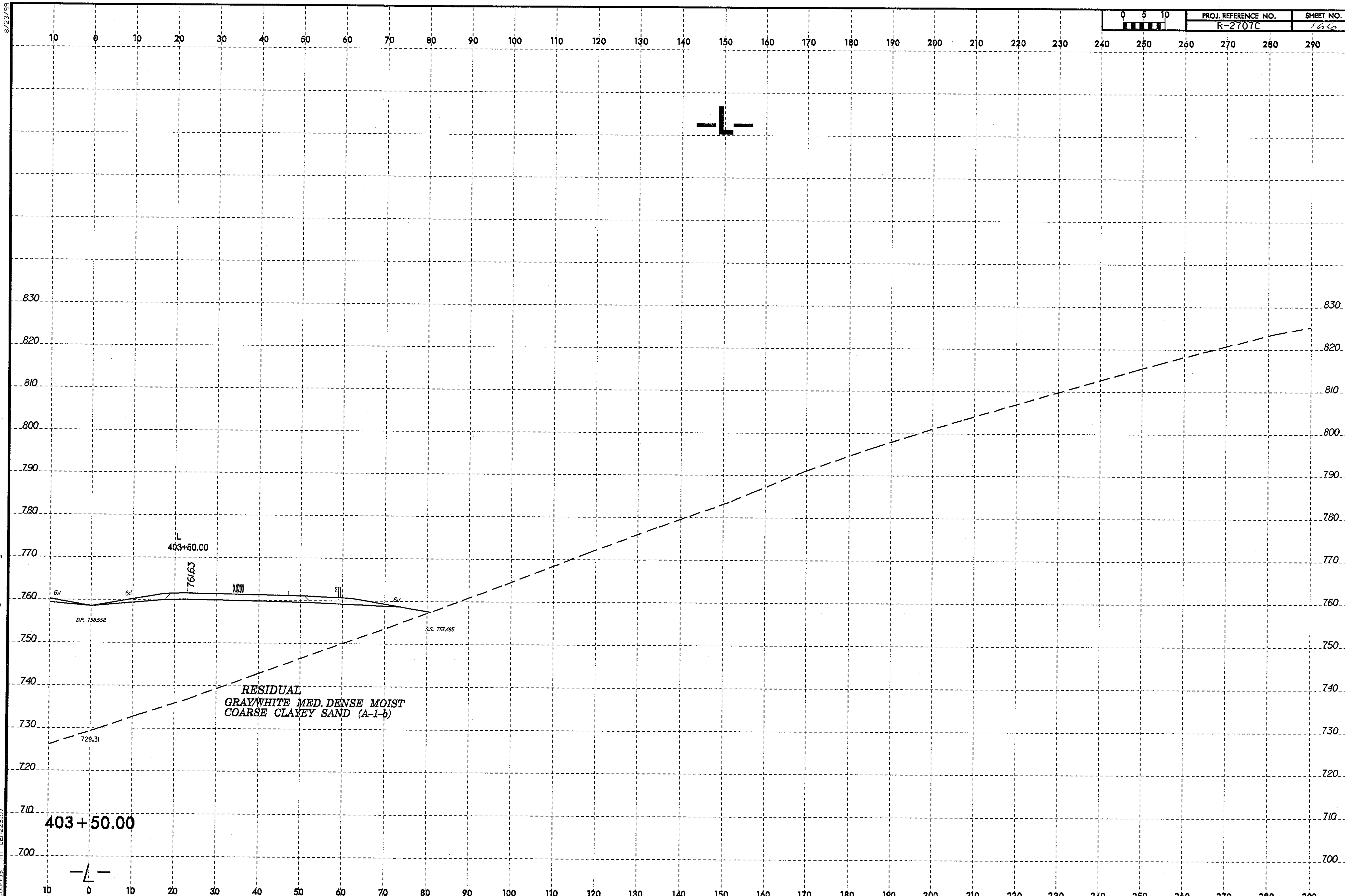
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
165
-L-
L
403+00.00
760.75
D.P. 757.671
756.870
S.S. 793.292
735.89
RESIDUAL
GRAY/WHITE LOOSE TO MED. DENSE
WET SILTY SAND (A-2-5)
403+00.00
-L-
14-MAY-2008 14:33
8/23/99

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	166



15-MAY-2008 15:14
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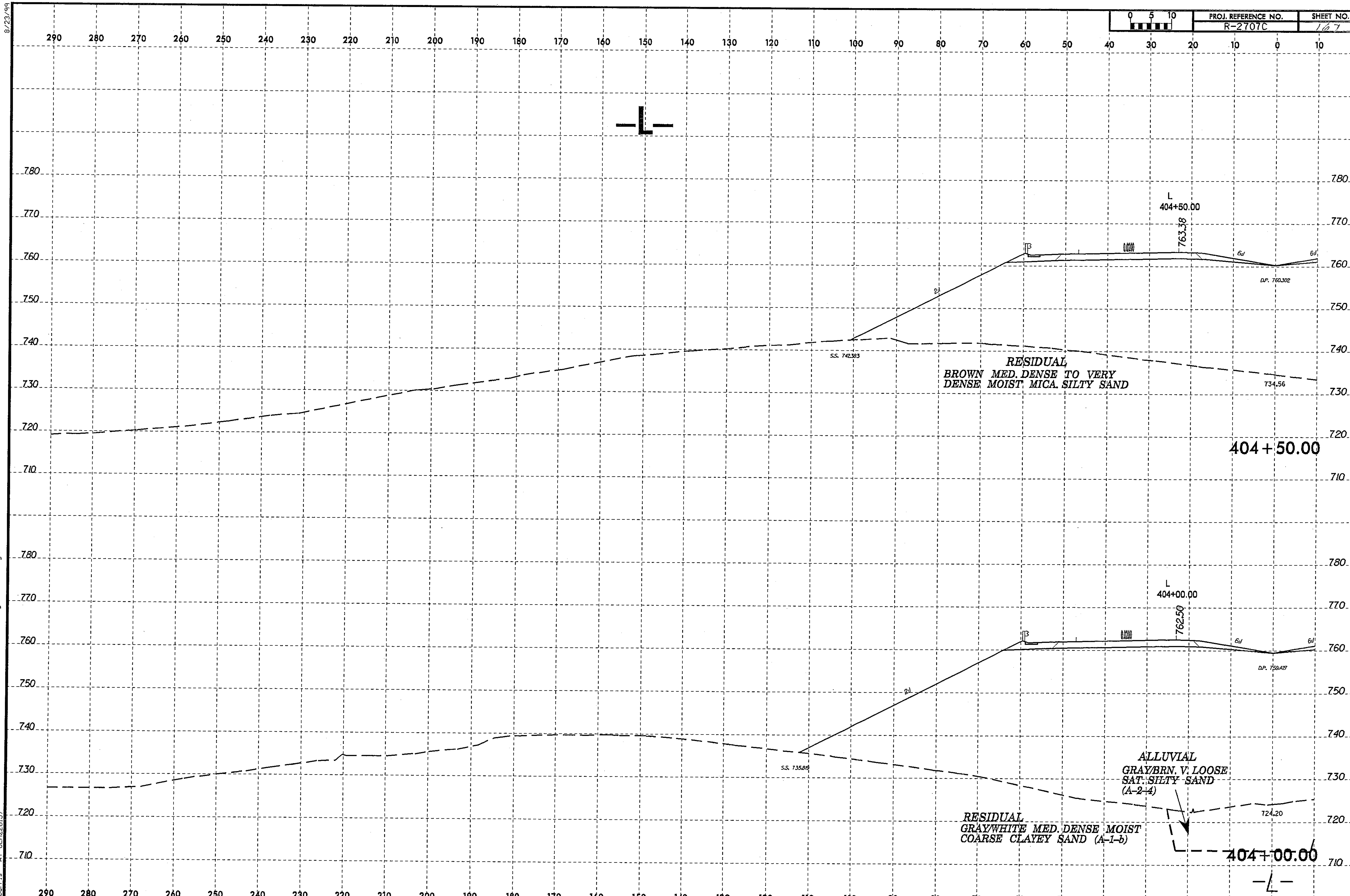
cburris AT GEH226157

8/23/99



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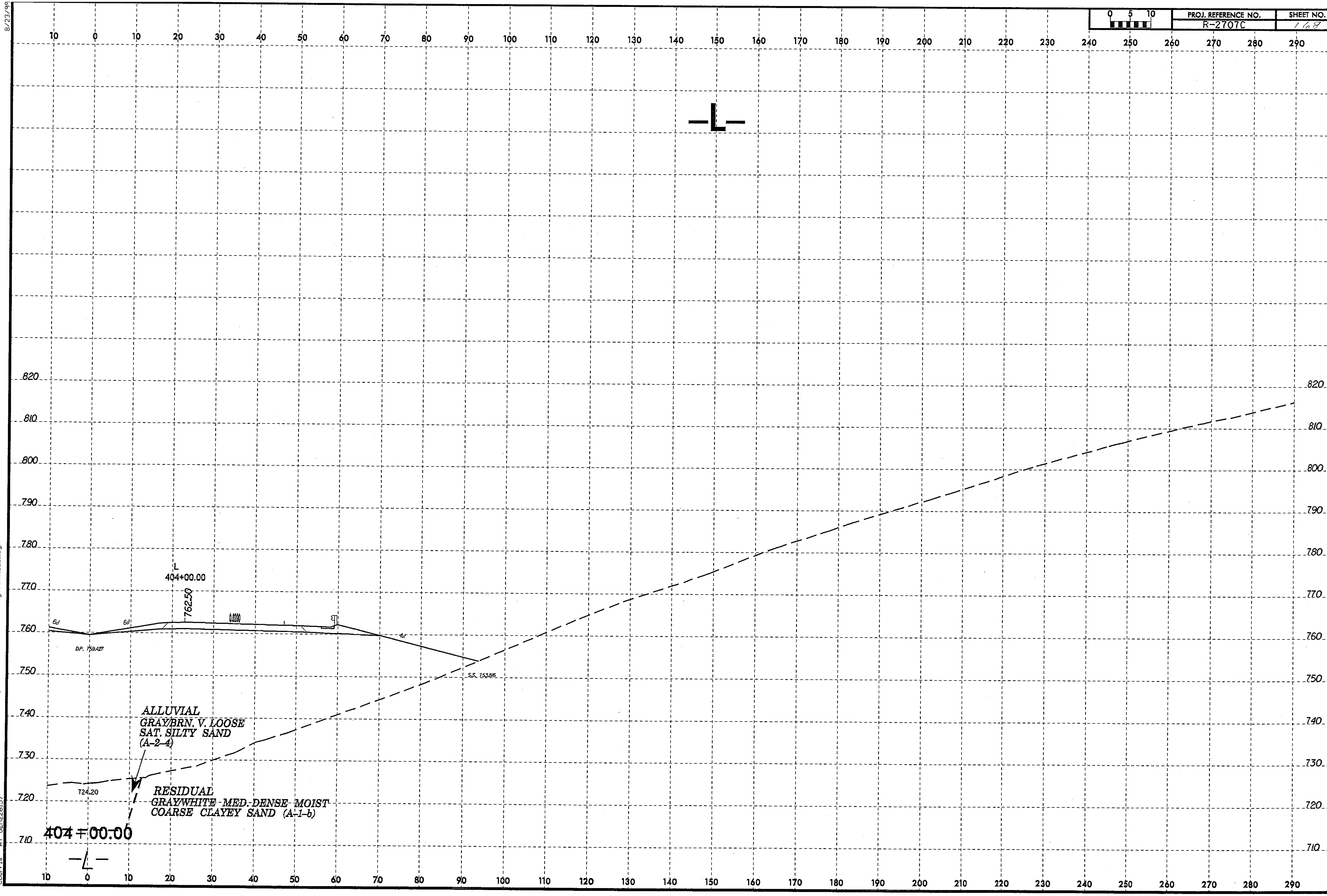
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	168



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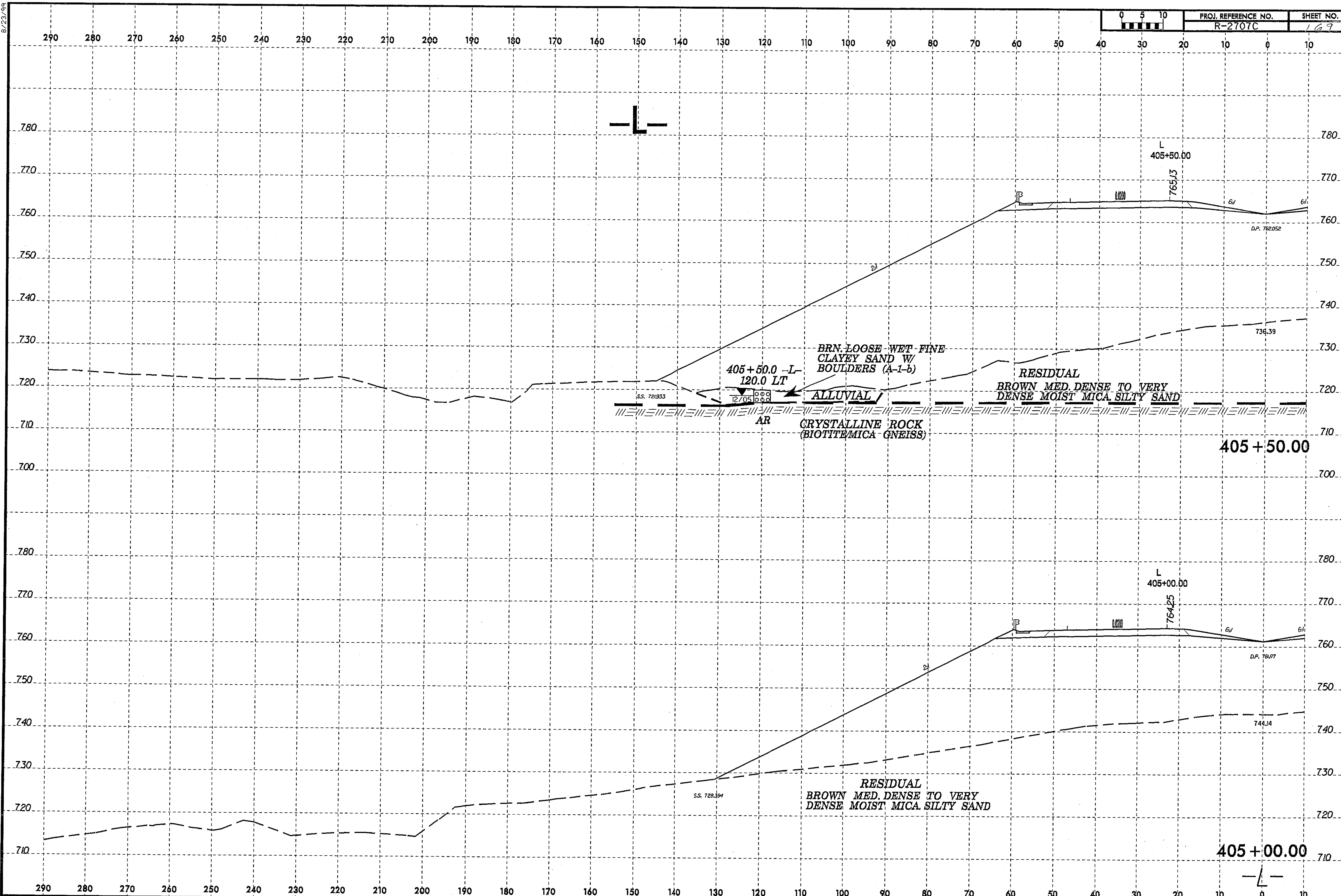
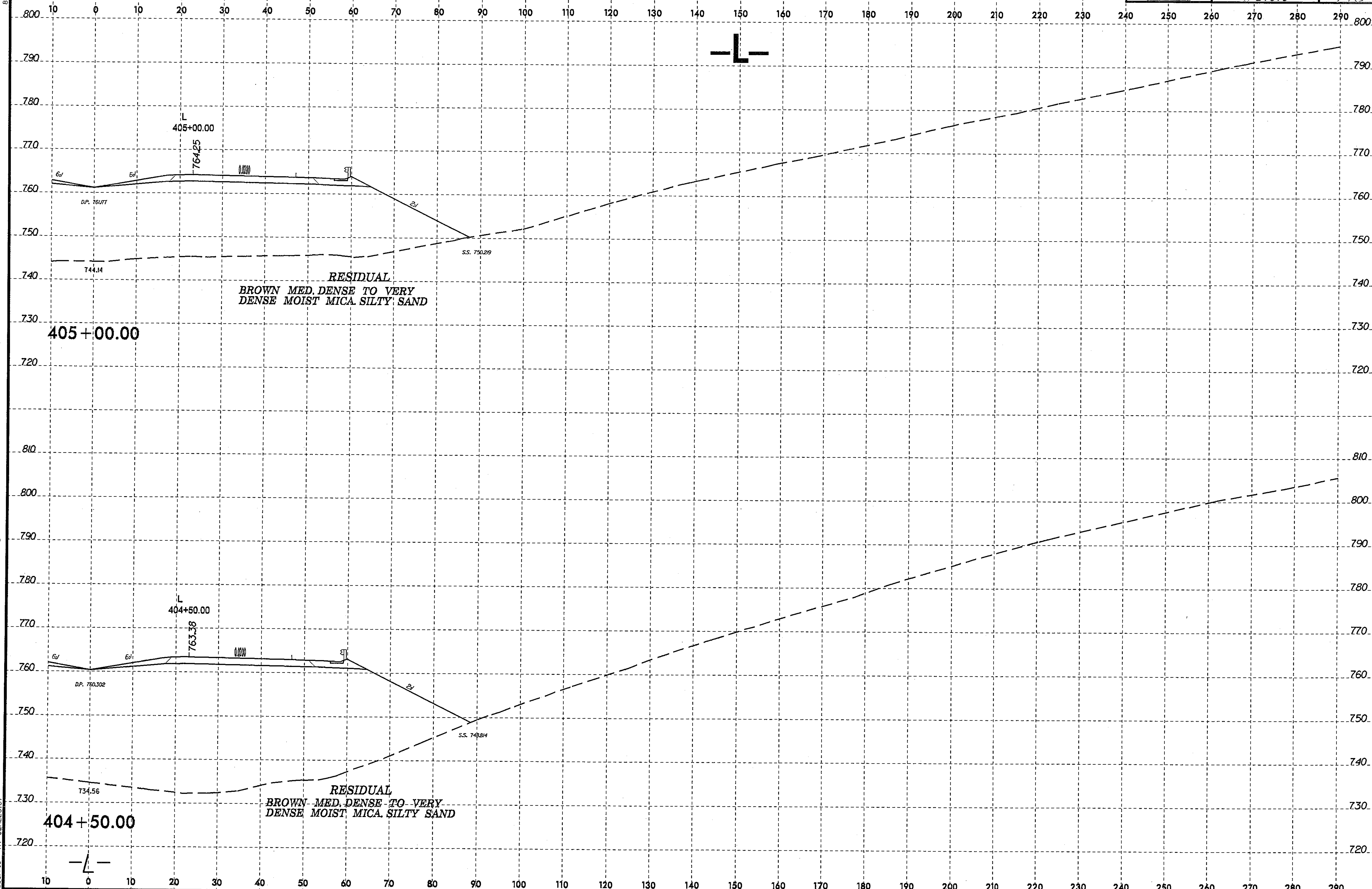
cburris AT GEH226157

8/23/99


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
169
0 5 10
-L-
L
405+50.00
765.13
D.P. 762.052
736.39
BRN. LOOSE WET FINE
CLAYEY SAND W/
BOULDERS (A-1-b)
405+50.0 -L-
120.0 LT
12/05
S.S. 721.933
ALLUVIAL
RESIDUAL
BROWN MED. DENSE TO VERY
DENSE MOIST MICA. SILTY SAND
AR
CRYSTALLINE ROCK
(BIOTITE MICA GNEISS)
405+50.00
L
405+00.00
764.25
D.P. 761.177
744.14
S.S. 728.394
RESIDUAL
BROWN MED. DENSE TO VERY
DENSE MOIST MICA. SILTY SAND
405+00.00
-L-

14-MAY-2008 14:05
d:\projects\r2707c(rev)-geo_rdwy_cleveland\cadd_geotech\xsc\r2707c(rev)_geo_xsc_L_1.dgn
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	170



14-MAY-2008 14:38
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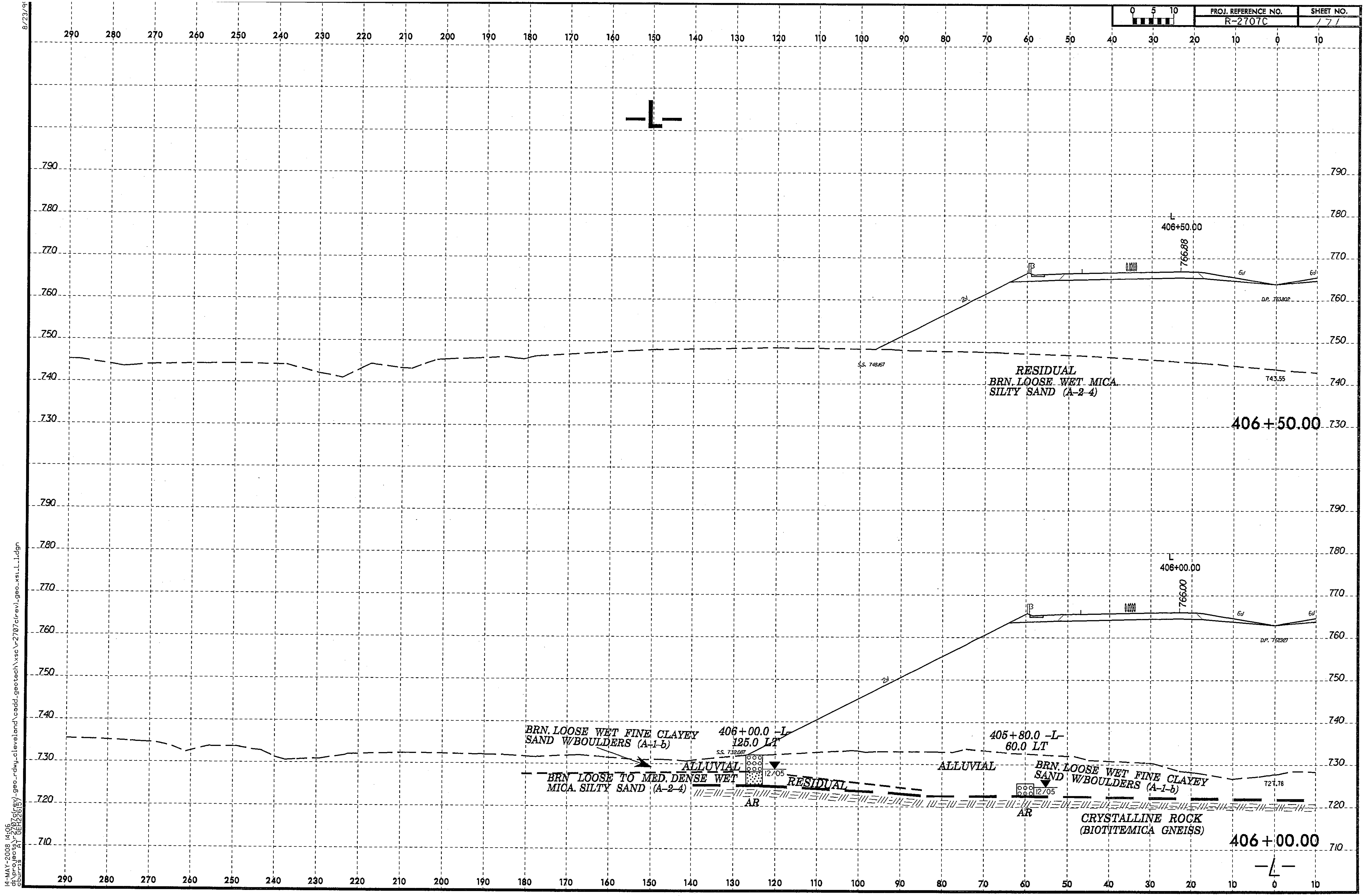
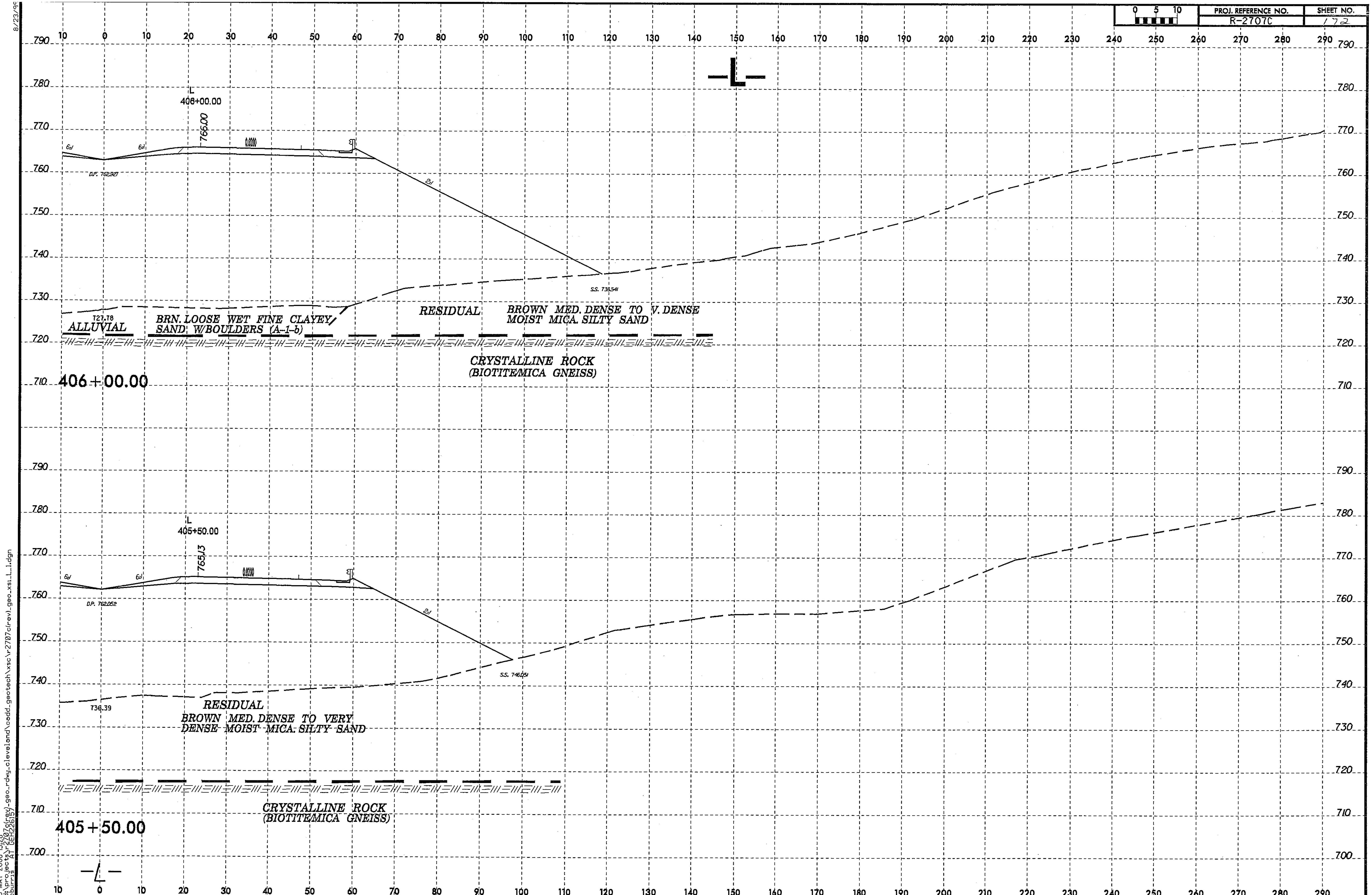
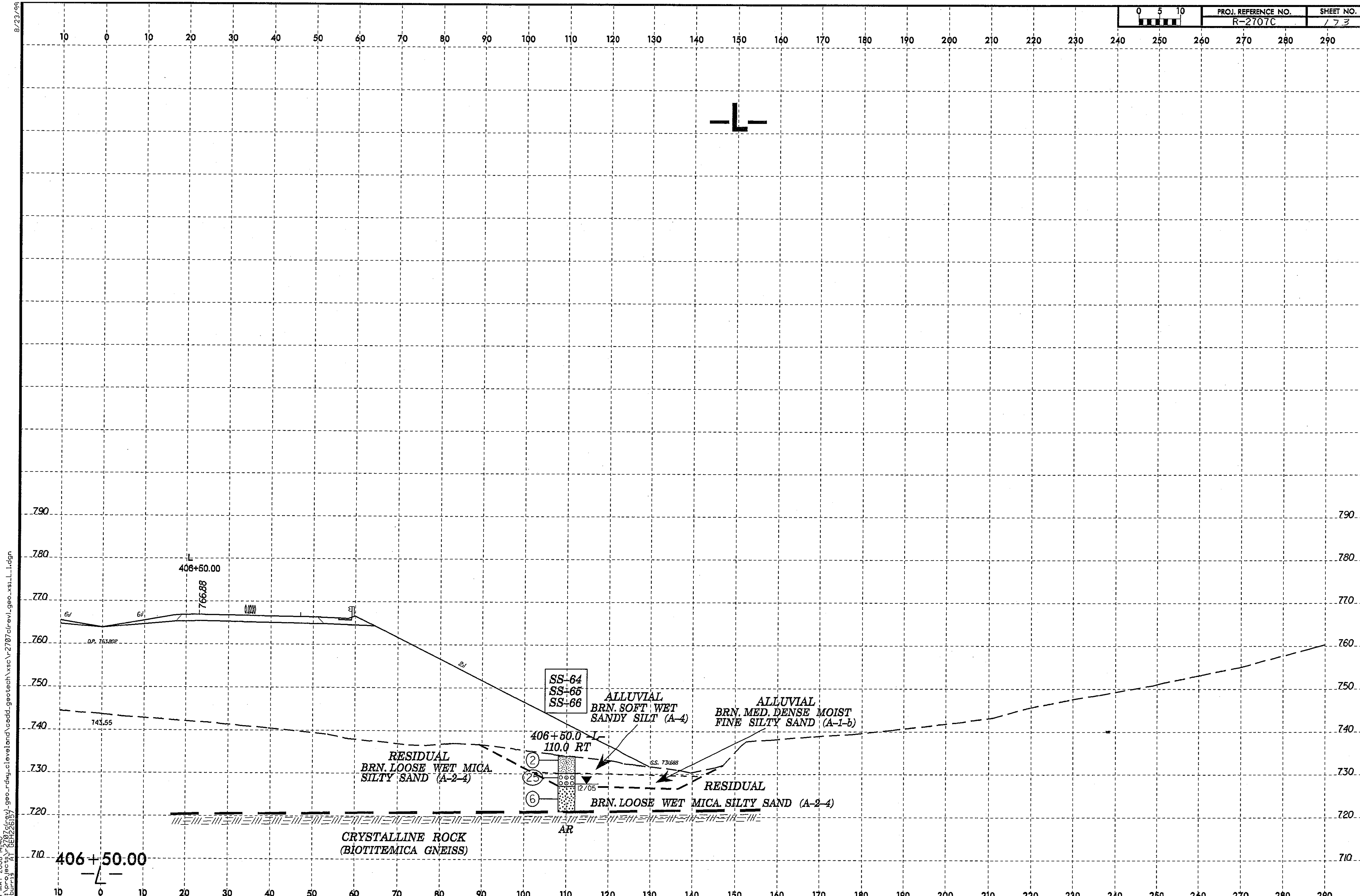
cburris AT GEH226157

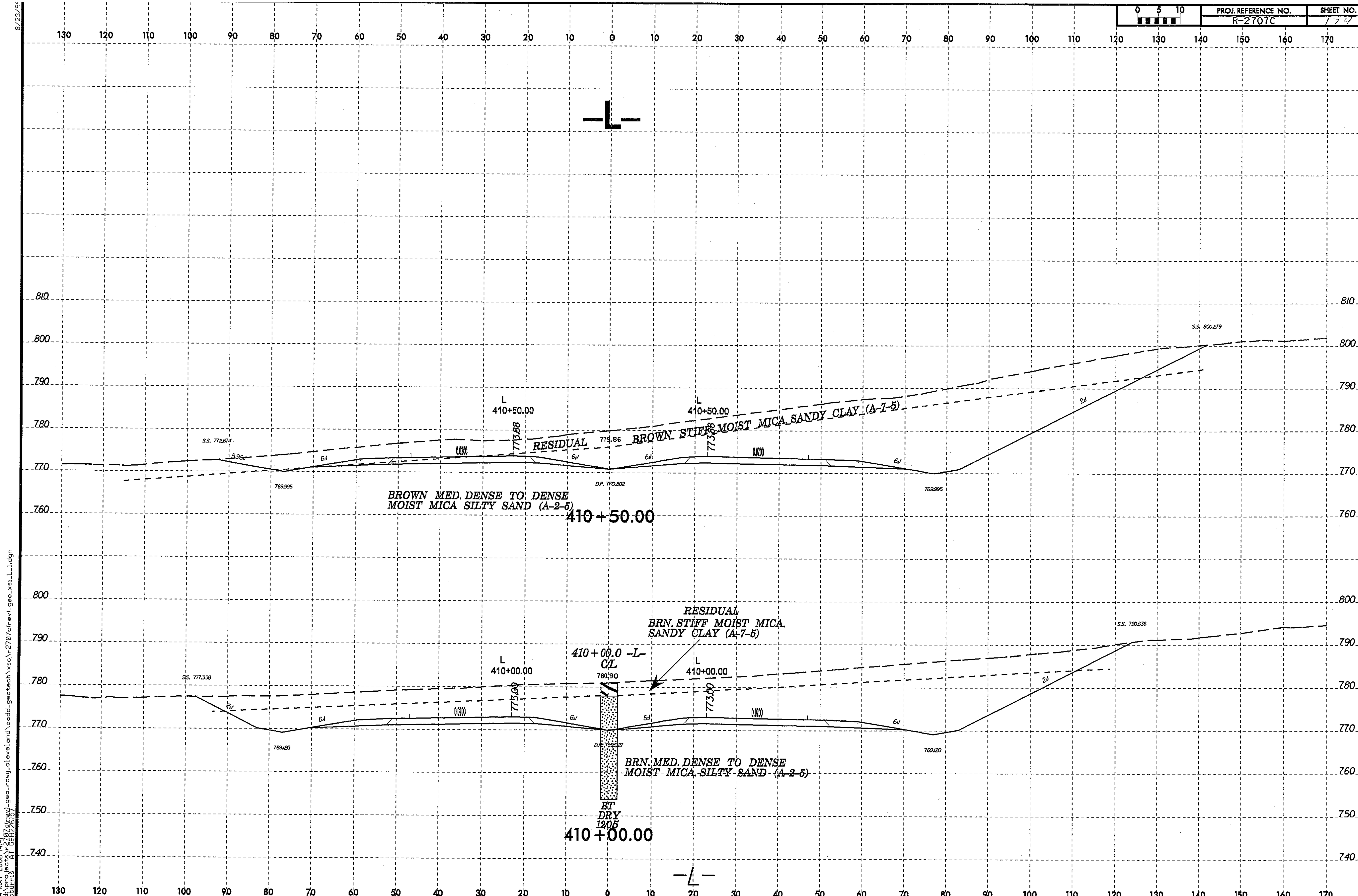

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
406+50.00
766.88
RESIDUAL
BRN. LOOSE WET MICA.
SILTY SAND (A-2-4)
743.55
406+00.00
766.00
BRN. LOOSE WET FINE CLAYEY
SAND W/BOULDERS (A-1-b)
406+00.0 -L-
125.0 LT
405+80.0 -L-
60.0 LT
ALLUVIAL
RESIDUAL
BRN. LOOSE TO MED. DENSE WET
MICA. SILTY SAND (A-2-4)
BRN. LOOSE WET FINE CLAYEY
SAND W/BOULDERS (A-1-b)
12/05
AR
721.78
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
14-MAY-2008 14:06
cburris

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	172


-L-
L
406+00.00
766.00
0.0200
D.P. 762.927
S.S. 736.541
727.78
ALLUVIAL
BRN. LOOSE WET FINE CLAYEY SAND W/BOULDERS (A-1-b)
RESIDUAL
BROWN MED. DENSE TO V. DENSE MOIST MICA. SILTY SAND
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
406+00.00
L
405+50.00
765.13
0.0200
D.P. 762.052
S.S. 746.051
736.39
RESIDUAL
BROWN MED. DENSE TO VERY DENSE MOIST MICA. SILTY SAND
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
405+50.00
-L-

15-MAY-2008 15:28
d:\projects\r2707c(rev)_geo_rdwy_cleveland\cadd_geotech\xsc\r2707c(rev)_geo_xsl_L_1.dgn
cburris AT 6EH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
173
-L-
L
406+50.00
766.88
SS-64
SS-65
SS-66
ALLUVIAL
BRN. SOFT WET
SANDY SILT (A-4)
ALLUVIAL
BRN. MED. DENSE MOIST
FINE SILTY SAND (A-1-b)
406+50.0 -L-
110.0 RT
RESIDUAL
BRN. LOOSE WET MICA.
SILTY SAND (A-2-4)
RESIDUAL
BRN. LOOSE WET MICA. SILTY SAND (A-2-4)
12/05
AR
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
743.55
406+50.00
-L-



14-MAY-2008 14:41
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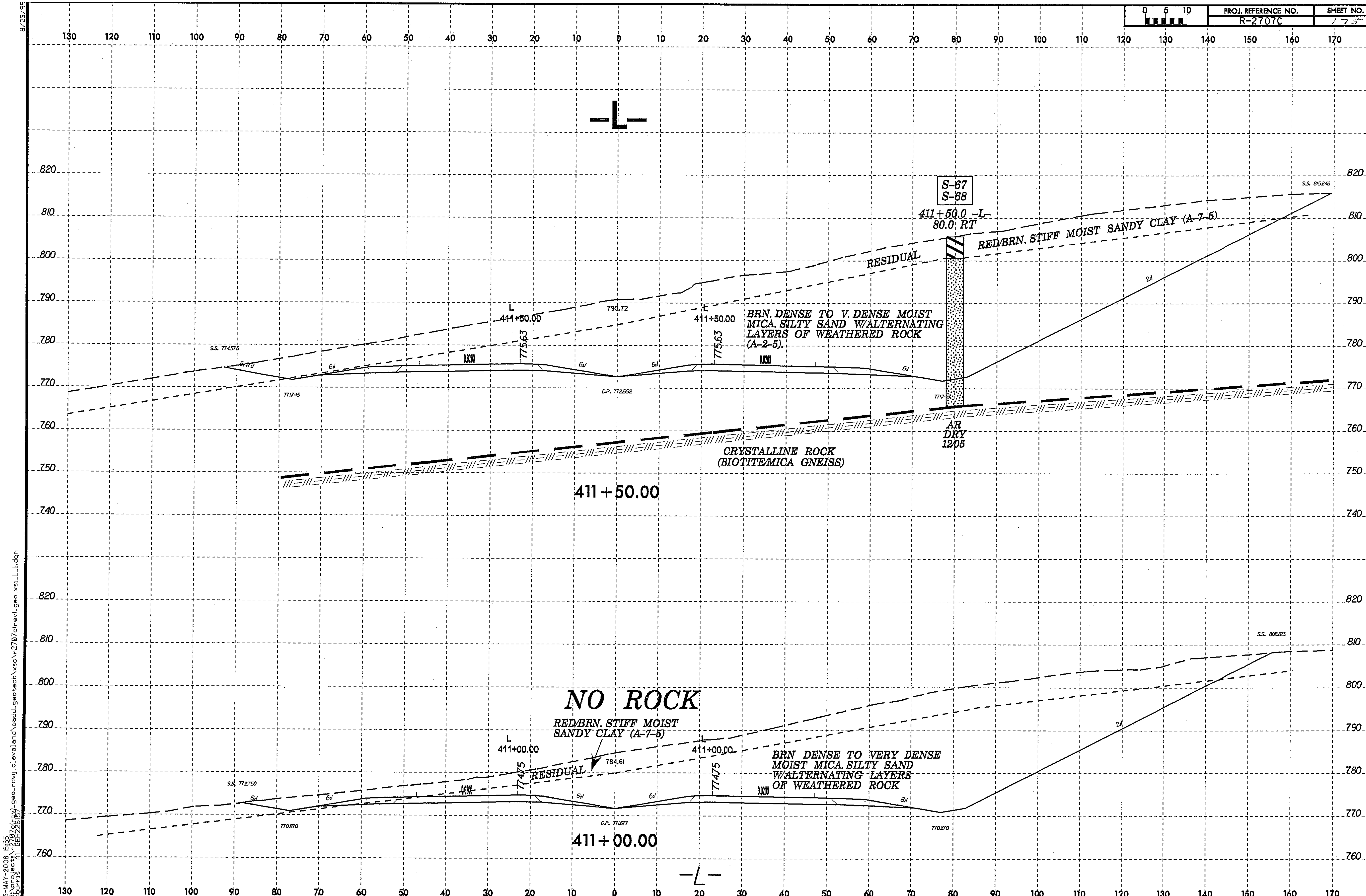
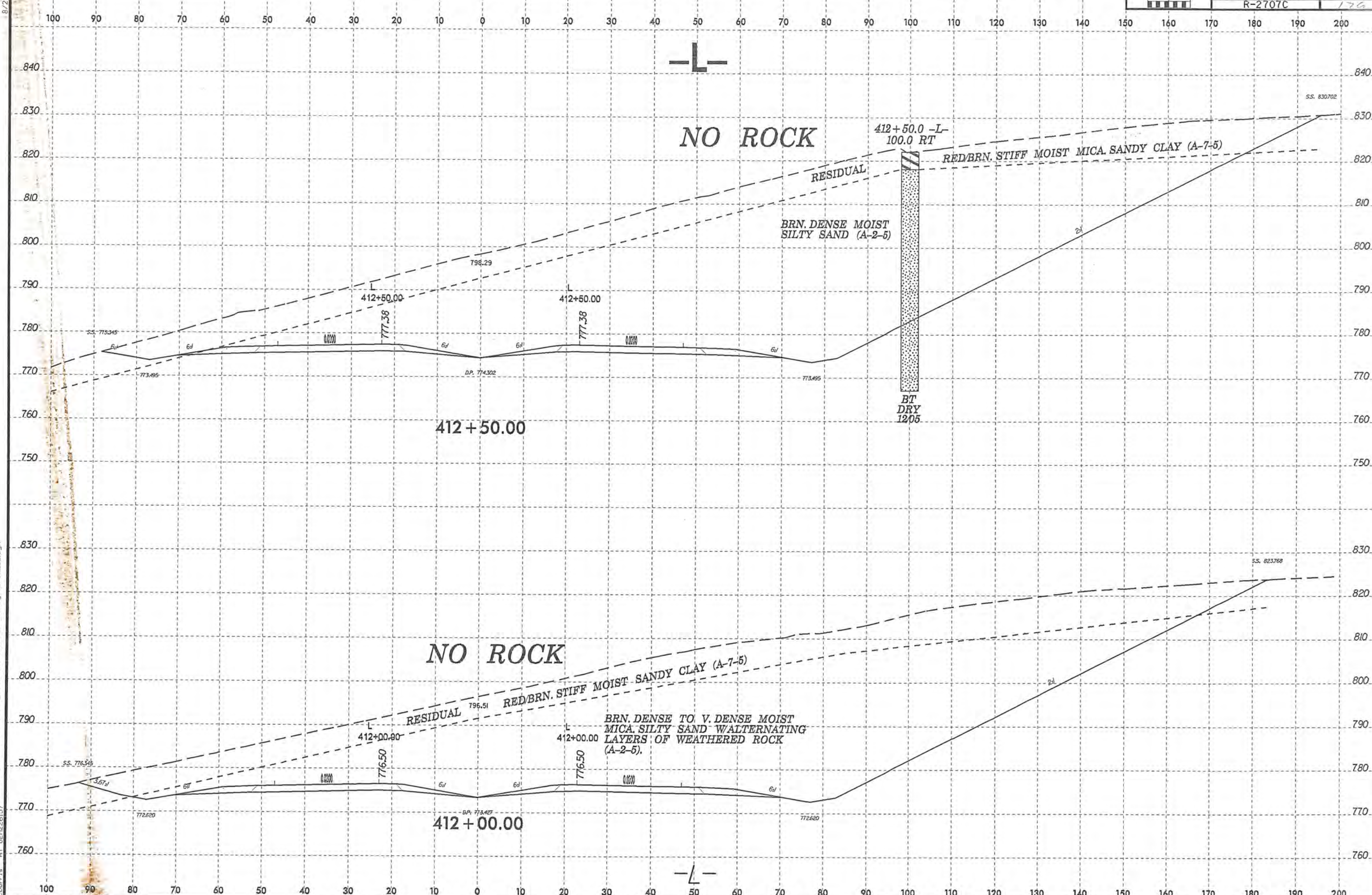
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
175
-L-
S-67
S-68
411+50.0 -L-
80.0 RT
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
RESIDUAL
BRN. DENSE TO V. DENSE MOIST MICA. SILTY SAND W/ALTERNATING LAYERS OF WEATHERED ROCK (A-2-5).
790.72
411+50.00
775.63
AR
DRY
12/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
411+50.00
NO ROCK
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
RESIDUAL
784.61
411+00.00
774.75
BRN DENSE TO VERY DENSE MOIST MICA. SILTY SAND W/ALTERNATING LAYERS OF WEATHERED ROCK
411+00.00
-L-
8/23/99
15-MAY-2008 15:35
d:\projects\r2707c(rev)-geo_rdwy-cleveland\cadd_geotech\xsc\r2707c(rev)_geo_xsl_L_1.dgn
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	176



16-MAY-2008 08:35
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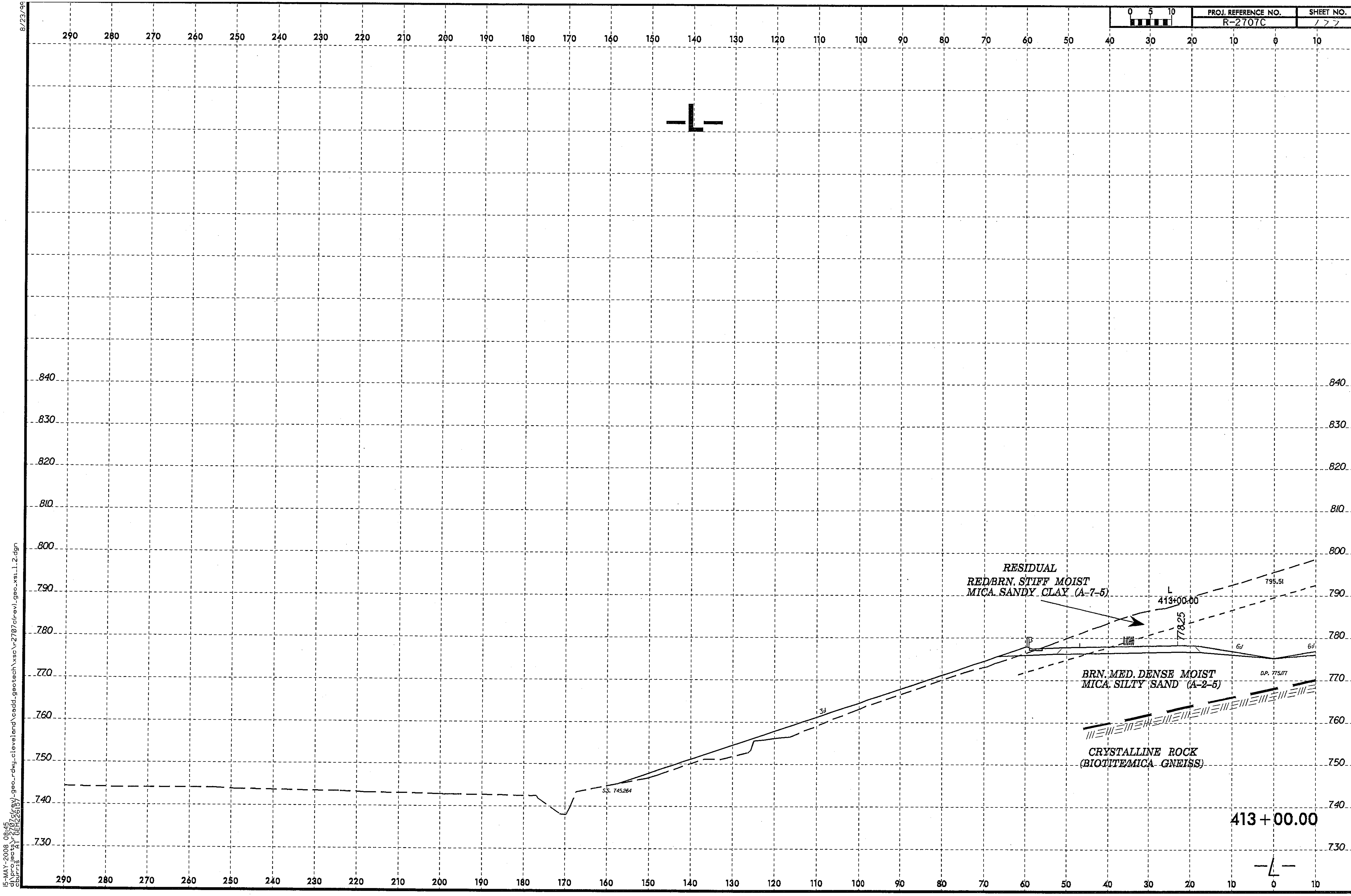
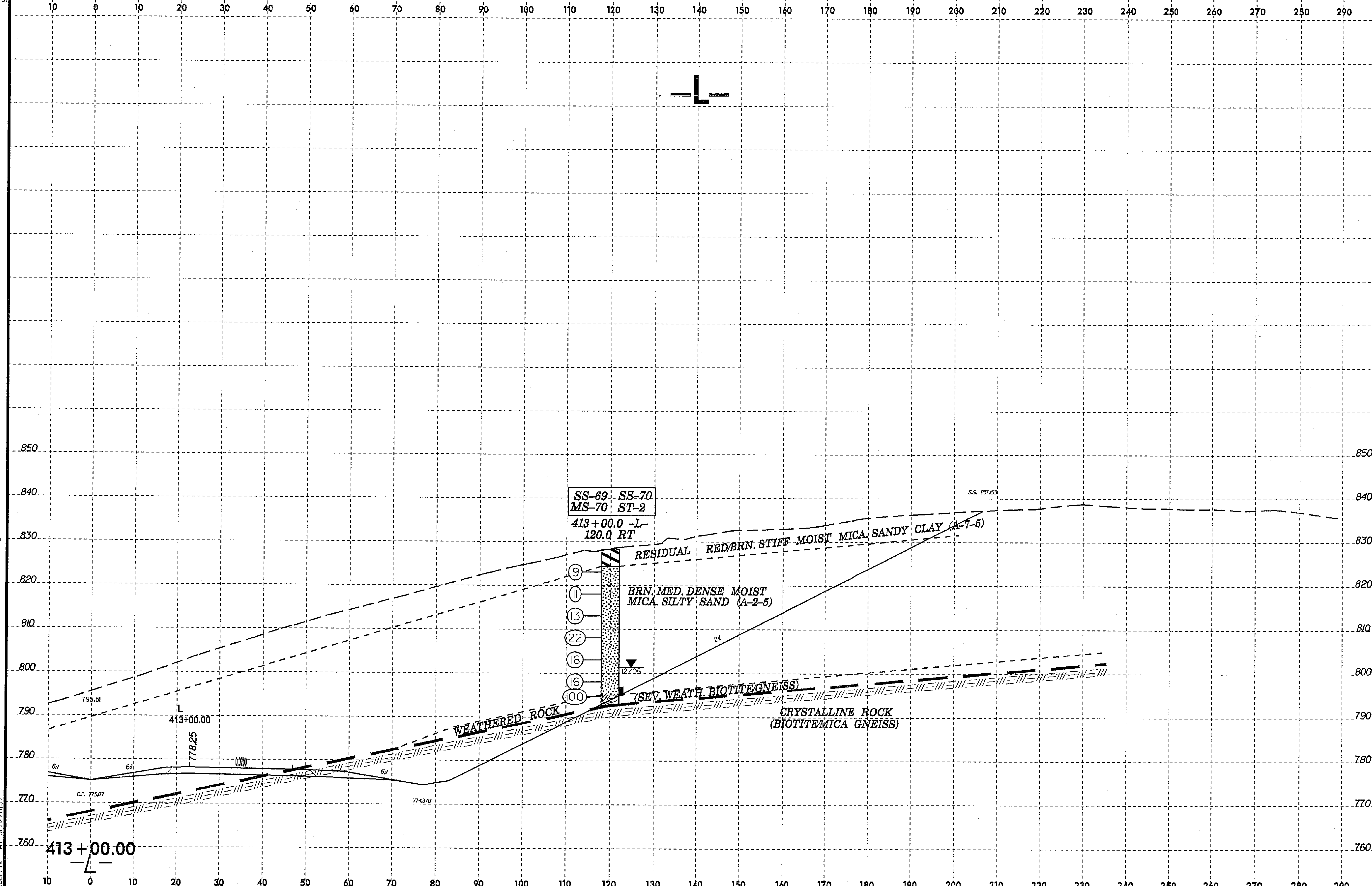

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
RED/BRN. STIFF MOIST
MICA. SANDY CLAY (A-7-5)
L
413+00.00
778.25
795.51
BRN. MED. DENSE MOIST
MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
413+00.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	178



27-MAY-2008 15:34
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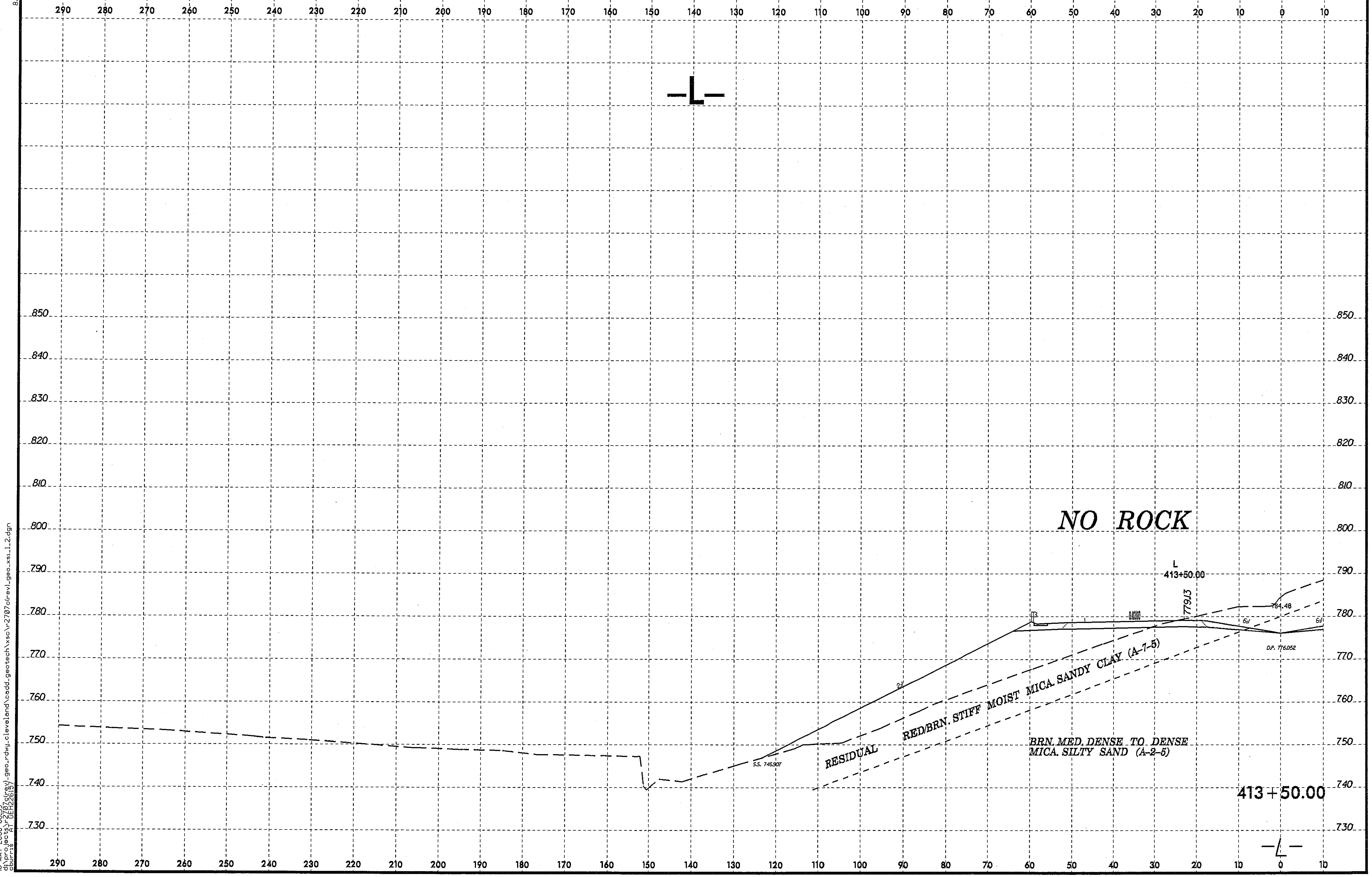
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	179



8/23/99

16-MAY-2008 08:39
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cburris AT GEH226157

8/23/94

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	

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

850 840 830 820 810 800 790 780 770 760 750

S.S. 841009

413+50.0 -L-
140.0 RT

RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)

RESIDUAL

NO ROCK

BRN. MED. DENSE TO DENSE
MICA. SILTY SAND (A-2-5)

AR
DRY
12/05

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

-L-
413+50.00

784.48

779.13

DP. 776052

775.245

413+50.00

-L-

29-MAY-2008 09:23
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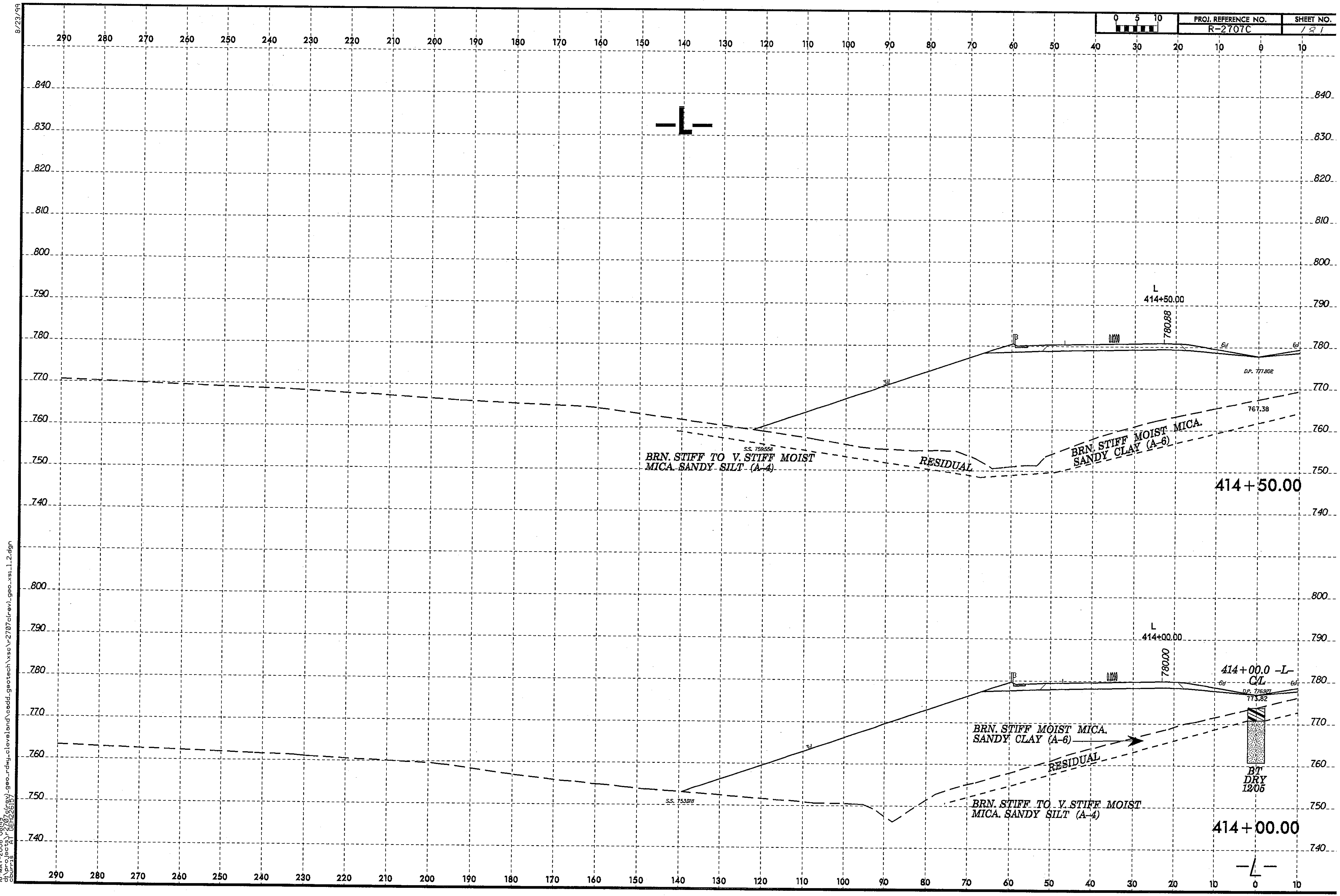
dburris AT GEH226157



8/23/99

16-MAY-2008 08:49
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cburris AT GEH226157

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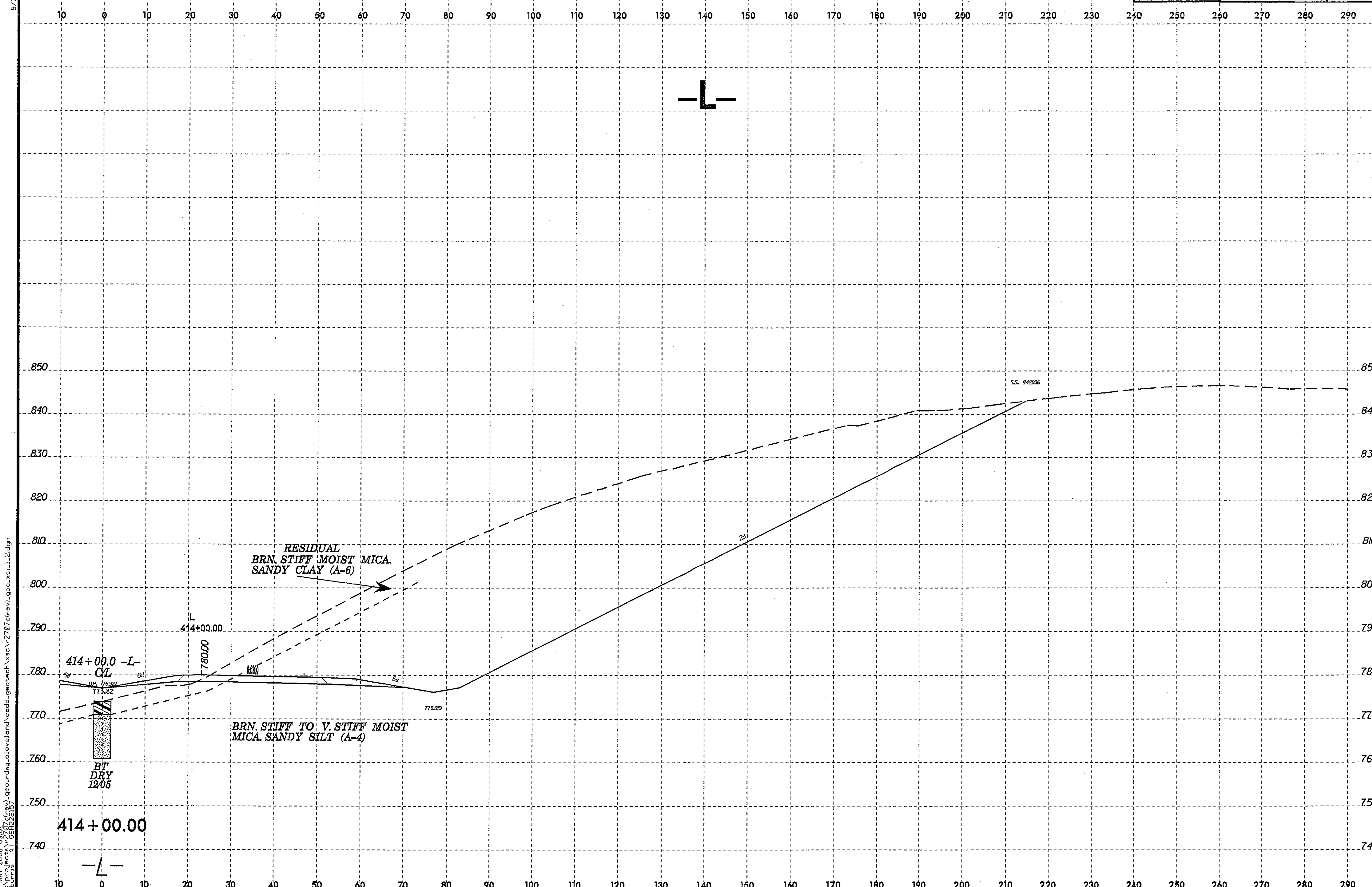
R-2707C	[illegible]



8/23/99

15-MAY-2008 09:02
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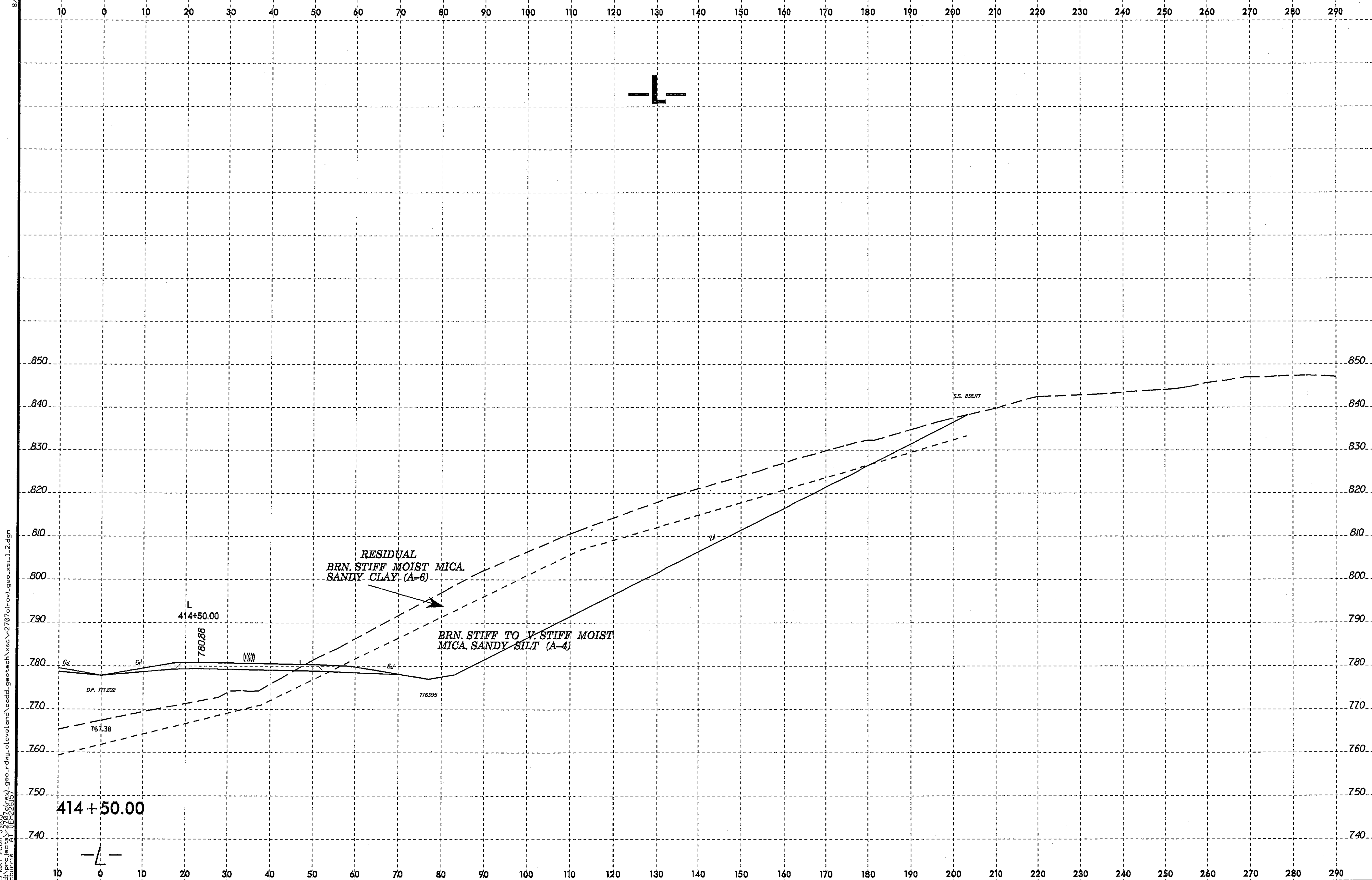
cburris AT GEH226157

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	183



8/23/99

15-MAY-2008 09:03
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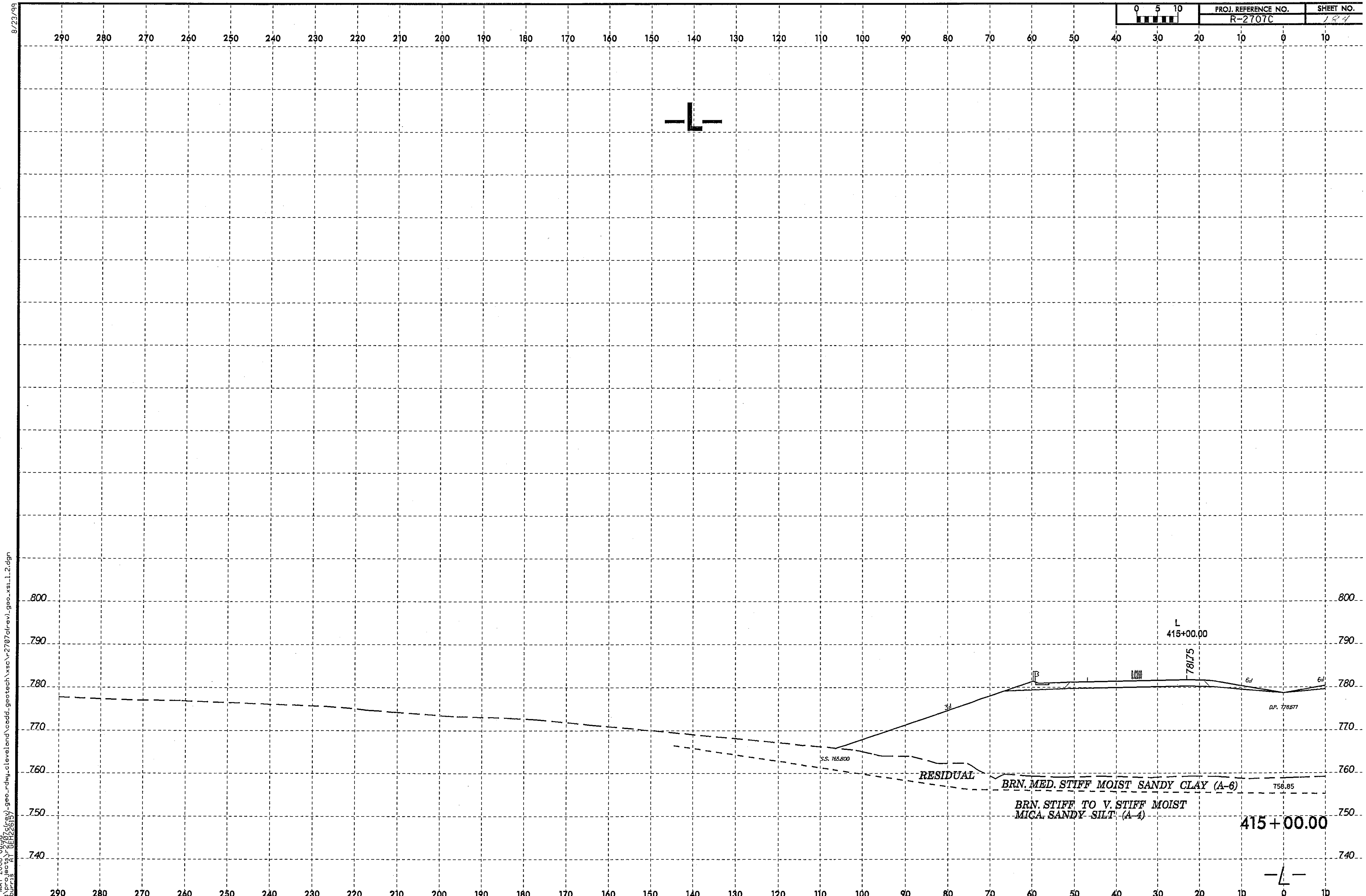
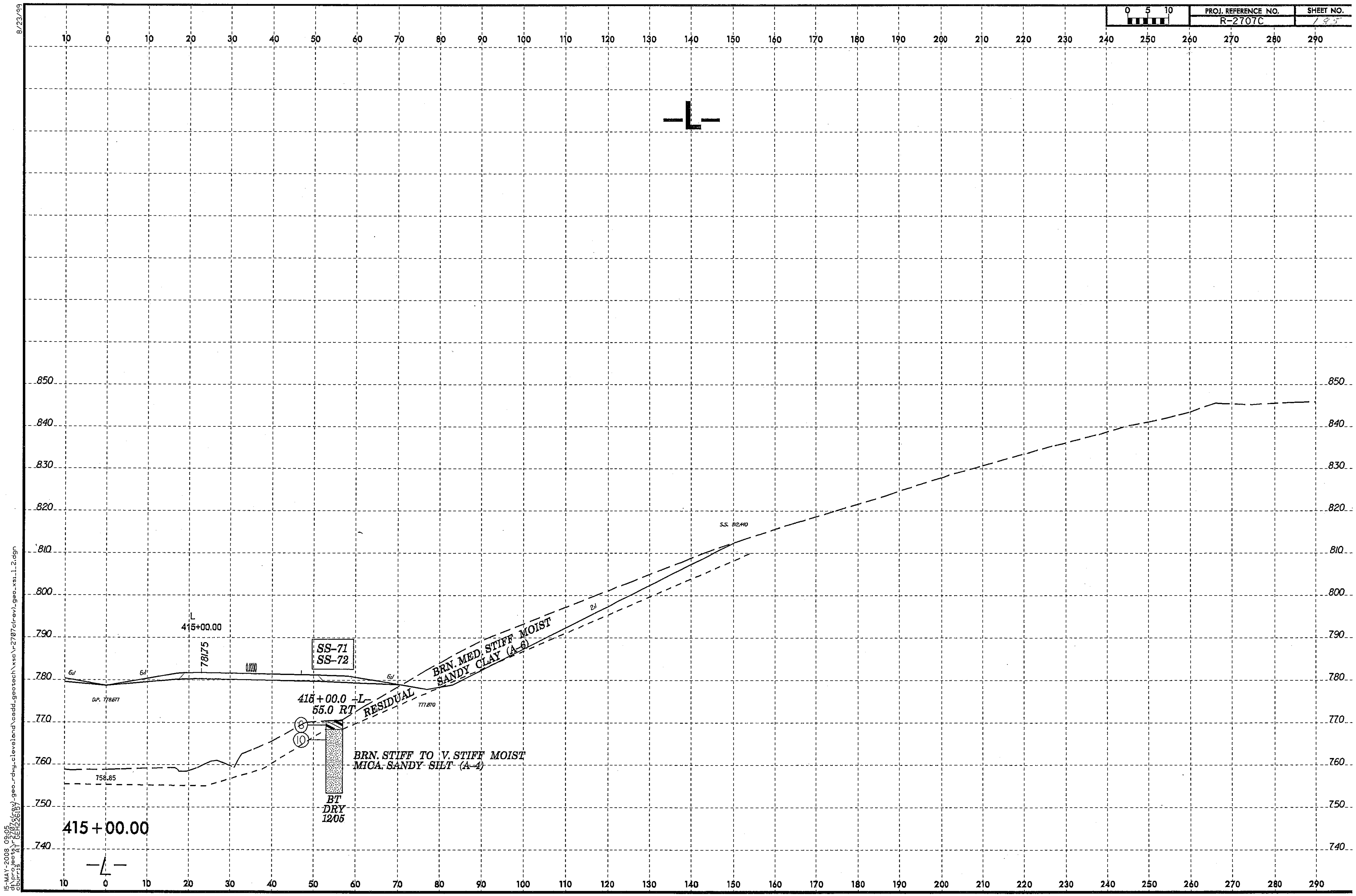
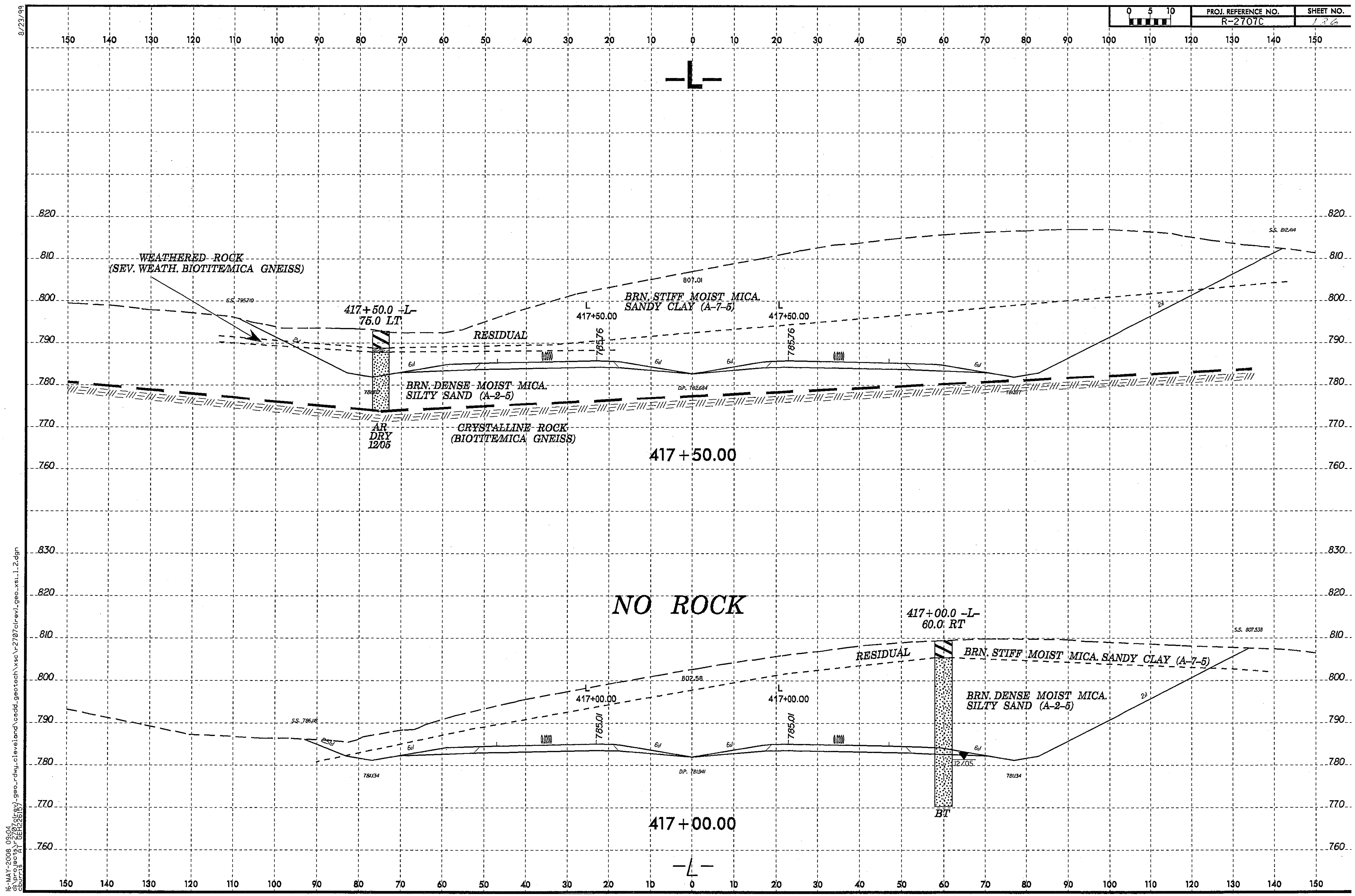
cburris AT GEH226157

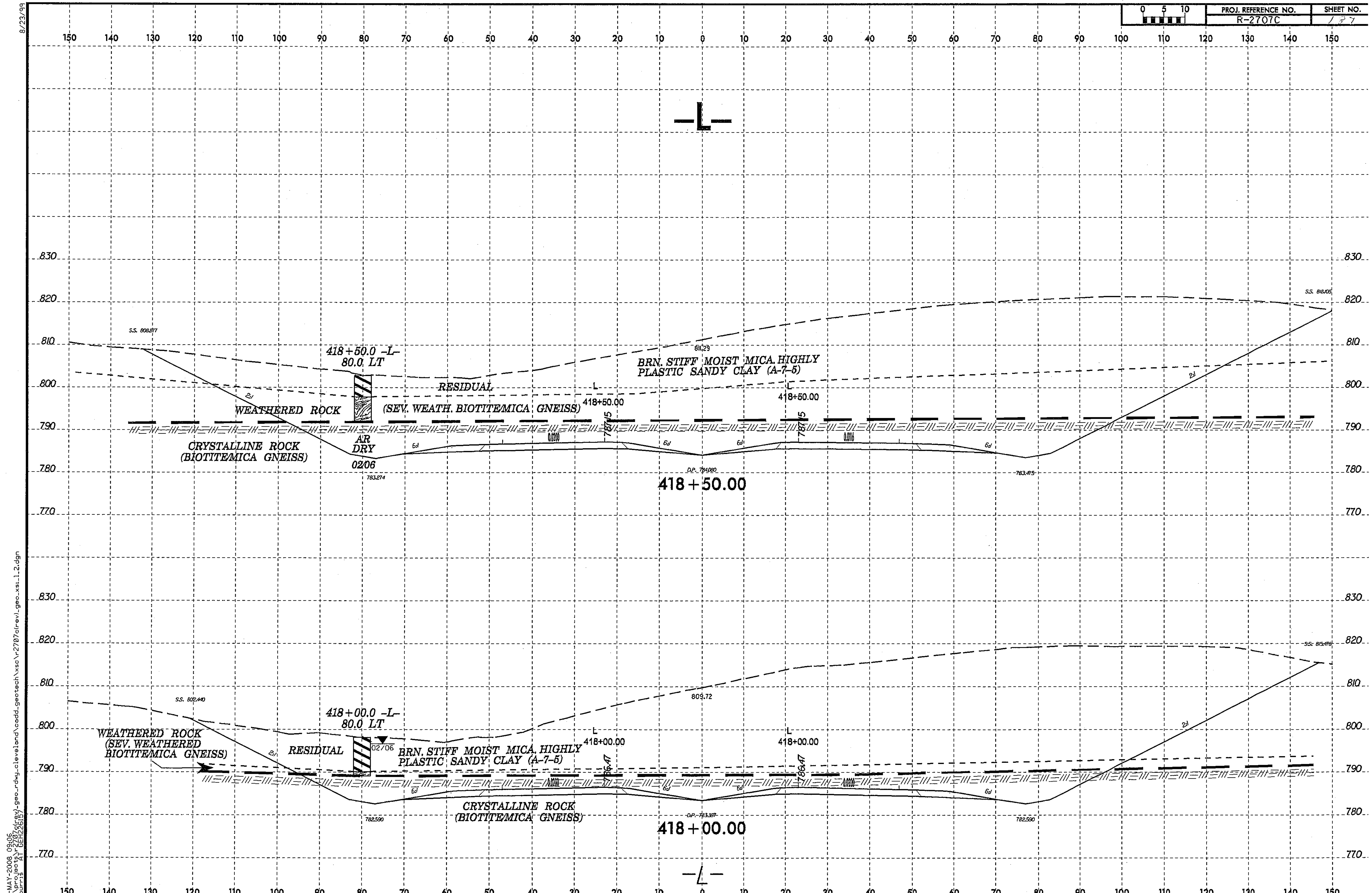

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
L
415+00.00
RESIDUAL
BRN. MED. STIFF MOIST SANDY CLAY (A-6)
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
758.85
415+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
L
415+00.00
781.75
SS-71
SS-72
415+00.0 -L-
55.0 RT
RESIDUAL
BRN. MED. STIFF MOIST
SANDY CLAY (A-6)
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
BT
DRY
12/05
758.85
415+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
WEATHERED ROCK
(SEV. WEATH. BIOTITE/MICA GNEISS)
417+50.0 -L-
75.0 LT
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
417+50.00
785.76
807.01
BRN. DENSE MOIST MICA SILTY SAND (A-2-5)
AR
DRY
12/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
417+50.00
NO ROCK
417+00.0 -L-
60.0 RT
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
802.58
417+00.00
785.01
BRN. DENSE MOIST MICA SILTY SAND (A-2-5)
12/05
BT
417+00.00
-L-
16-MAY-2008 09:04



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
BRN. STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-5)
418+50.0 -L- 80.0 LT
RESIDUAL
WEATHERED ROCK
(SEV. WEATH. BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR DRY 02/06
418+50.00
418+00.0 -L- 80.0 LT
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
RESIDUAL
BRN. STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-5)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
418+00.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	18

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

830 820 810 800 790 780

S.S. 816757

419+50.0 -L-
95.0 LT

RESIDUAL

BRN: STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-5)

WEATHERED ROCK (SEVERELY WEATHERED BIOTITE/MICA GNEISS)

AR
DRY
0206

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

816.41

419+50.00

788.43

6d

784553

D.P. 785359

419+50.00

840 830 820 810 800 790 780 770 760 750

NO ROCK

S.S. 813887

RESIDUAL
RED/BRN. STIFF MOIST MICA HIGHLY PLASTIC SANDY CLAY (A-7-5)

2d

813.76

L
419+00.00

BRN. LOOSE TO MED. DENSE MOIST SILTY SAND (A-2-5)

787.81

6d

783928

D.P. 784735

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

419+00.00

-L-

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

15-MAY-2008 03:08
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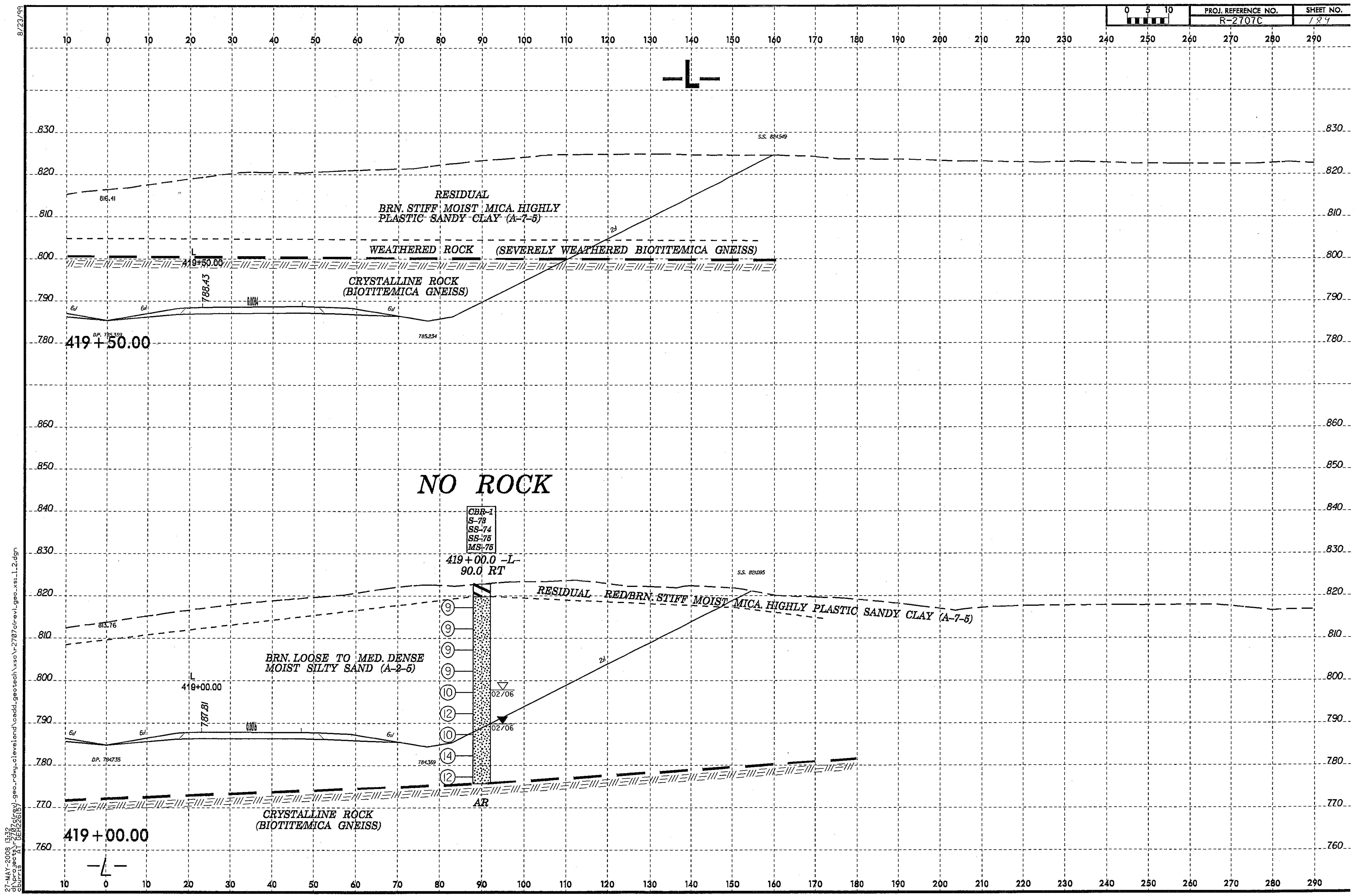
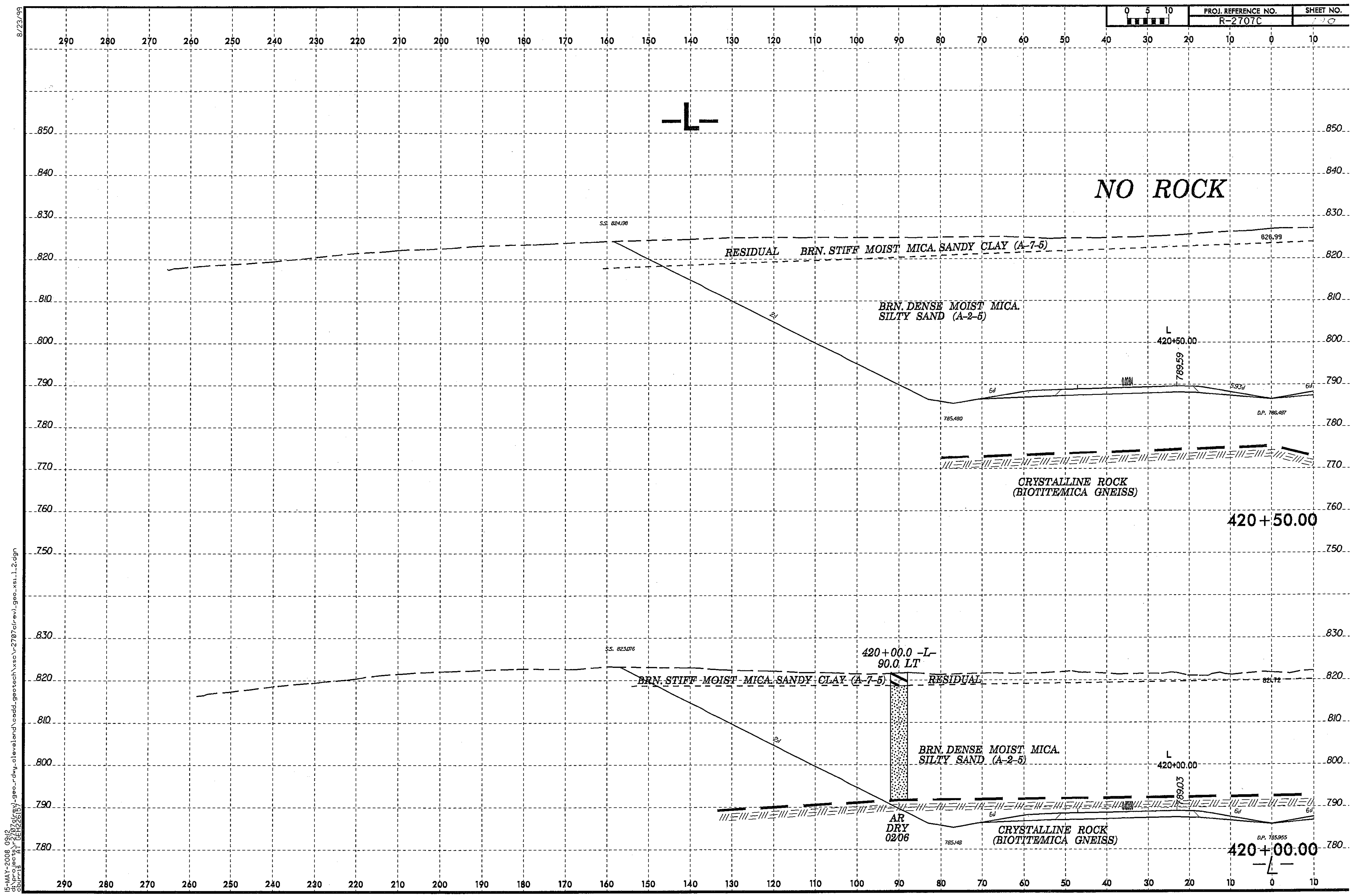
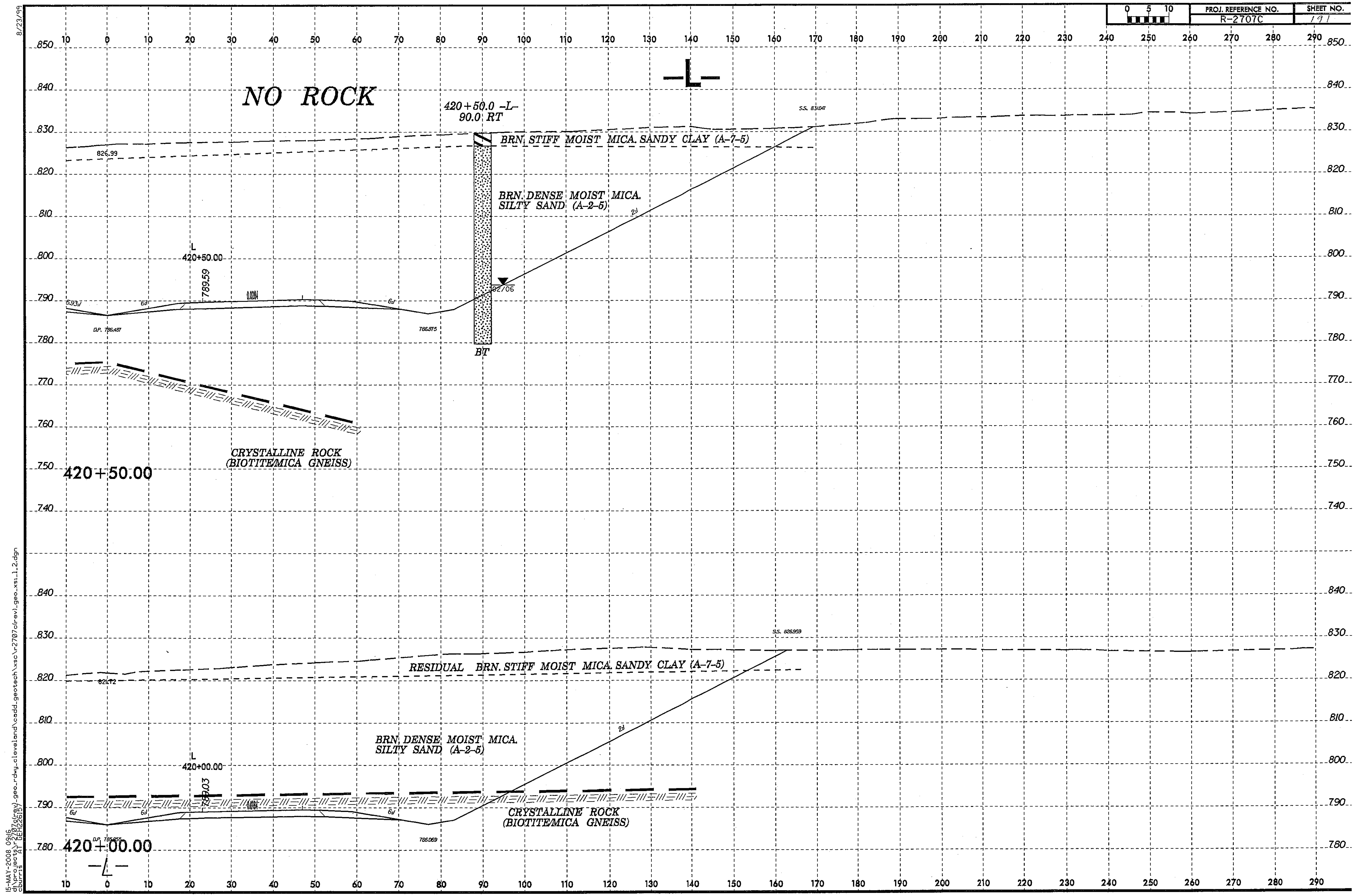
dburris

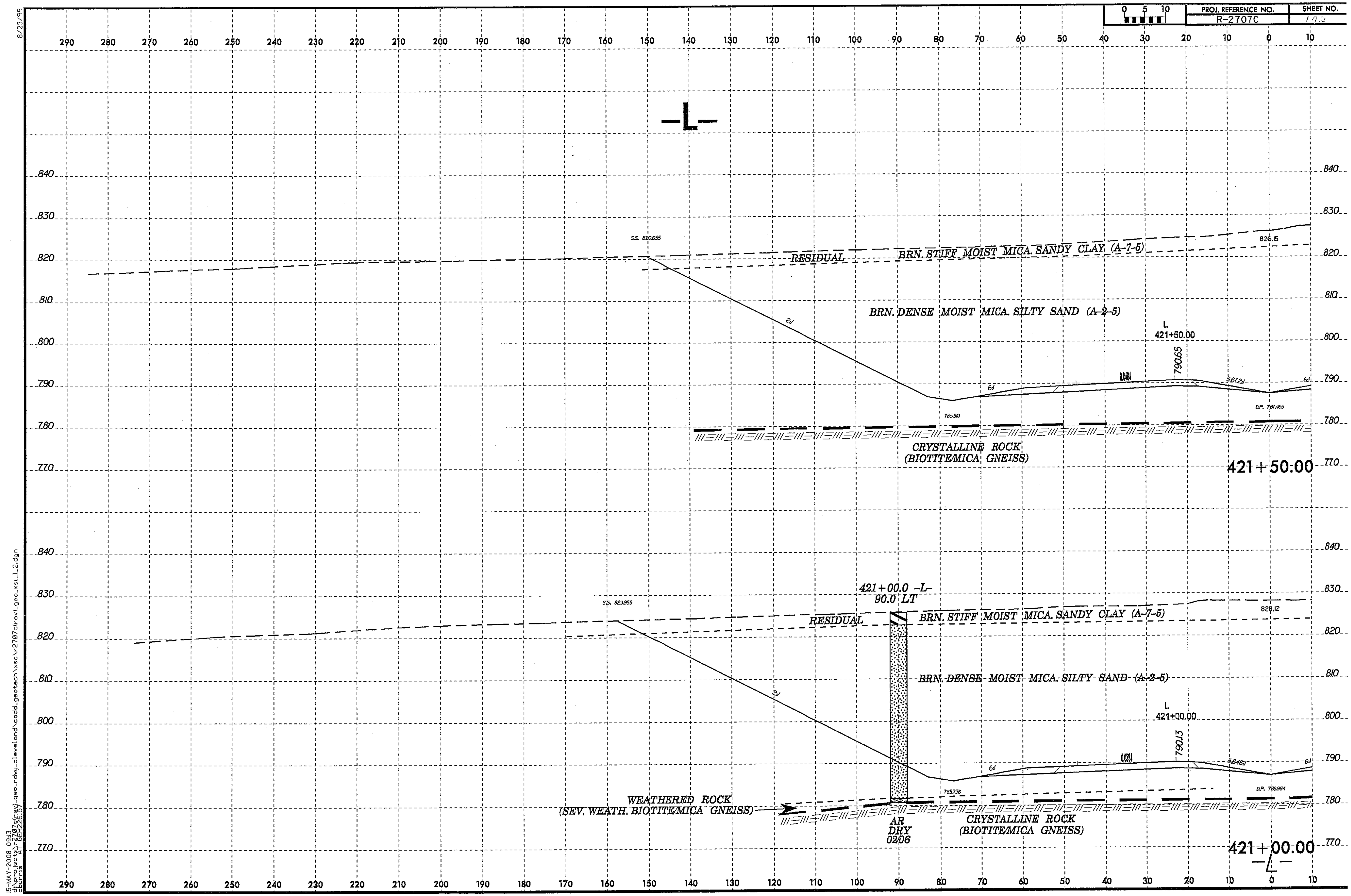


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
WEATHERED ROCK (SEVERELY WEATHERED BIOTITEMICA GNEISS)
CRYSTALLINE ROCK (BIOTITEMICA GNEISS)
419+50.00
NO ROCK
CBR-1
S-73
SS-74
SS-75
MS-76
419+00.0 -L-
90.0 RT
RESIDUAL RED/BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. LOOSE TO MED. DENSE MOIST SILTY SAND (A-2-5)
02/06
AR
CRYSTALLINE ROCK (BIOTITEMICA GNEISS)
419+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
NO ROCK
RESIDUAL BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. DENSE MOIST MICA SILTY SAND (A-2-5)
L
420+50.00
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
420+50.00
420+00.0 -L- 90.0 LT
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
RESIDUAL
BRN. DENSE MOIST MICA SILTY SAND (A-2-5)
L
420+00.00
AR
DRY
02/06
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
420+00.00
-L-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
NO ROCK
420+50.0 -L-
90.0' RT
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. DENSE MOIST MICA. SILTY SAND (A-2-5)
BT
CRYSTALLINE ROCK
(BIOTITE-MICA GNEISS)
420+50.00
RESIDUAL BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. DENSE MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE-MICA GNEISS)
420+00.00
-L-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. DENSE MOIST MICA. SILTY SAND (A-2-5)
L
421+50.00
790.65
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
421+50.00
421+00.0 -L-
90.0 LT
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. DENSE MOIST MICA. SILTY SAND (A-2-5)
L
421+00.00
790.13
WEATHERED ROCK
(SEV. WEATH. BIOTITE/MICA GNEISS)
AR
DRY
02/06
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
421+00.00
-L-

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	193

0 5 10

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

850 840 830 820 810 800 790 780 770

—L—

SS. 838836

826.15

RESIDUAL

BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

BRN. DENSE MOIST MICA SILTY SAND (A-2-5)

L
421+50.00

790.65

6:1

6:1

DP. 787.465

788532

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

421+50.00

SS. 836189

828.12

RESIDUAL

BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

BRN. DENSE MOIST MICA SILTY SAND (A-2-5)

L
421+00.00

790.13

6:1

6:1

DP. 786384

787652

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

421+00.00

—L—

15-MAY-2008 09:19
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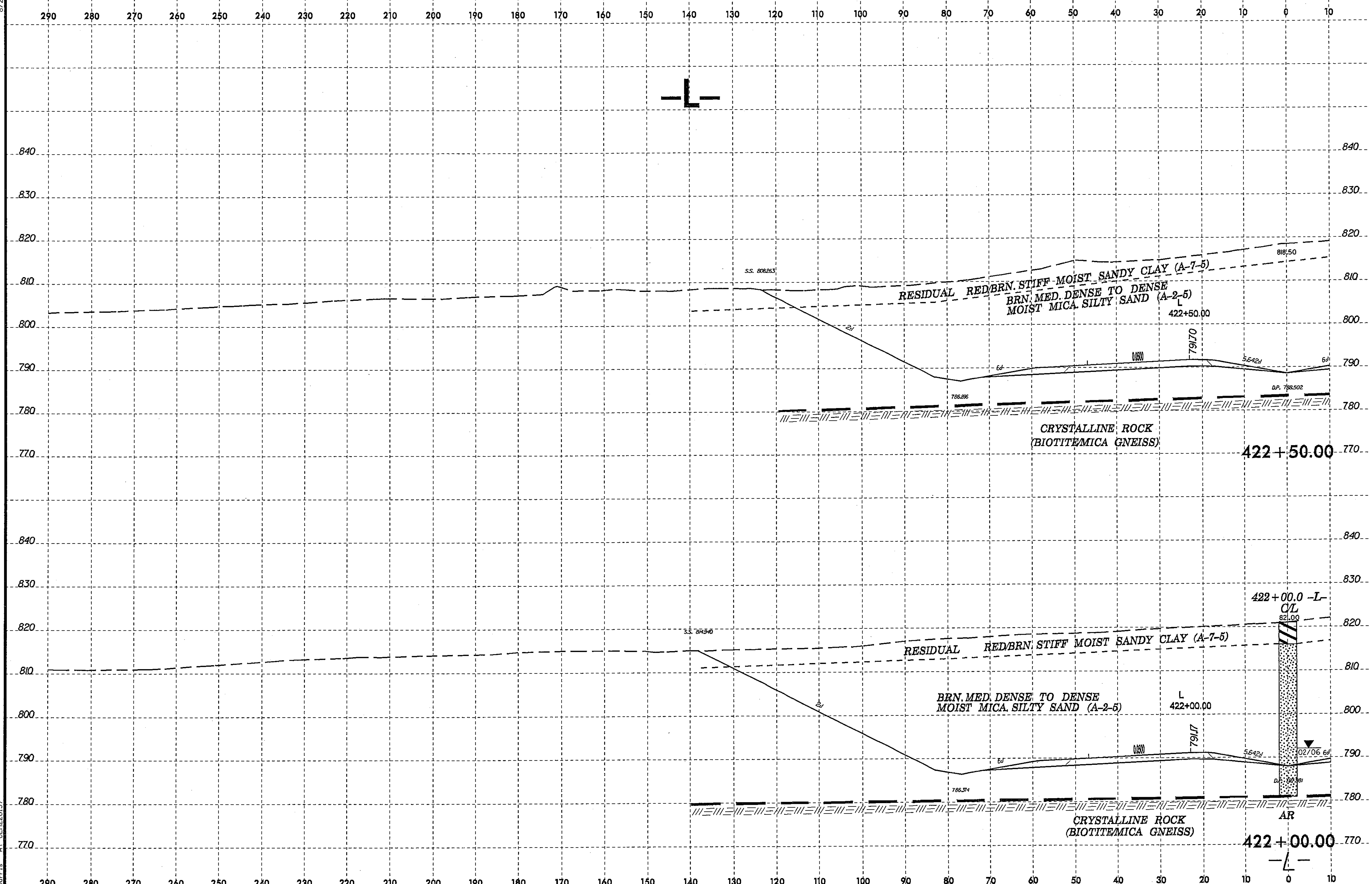
eburris AT GEH26157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	194



8/23/99

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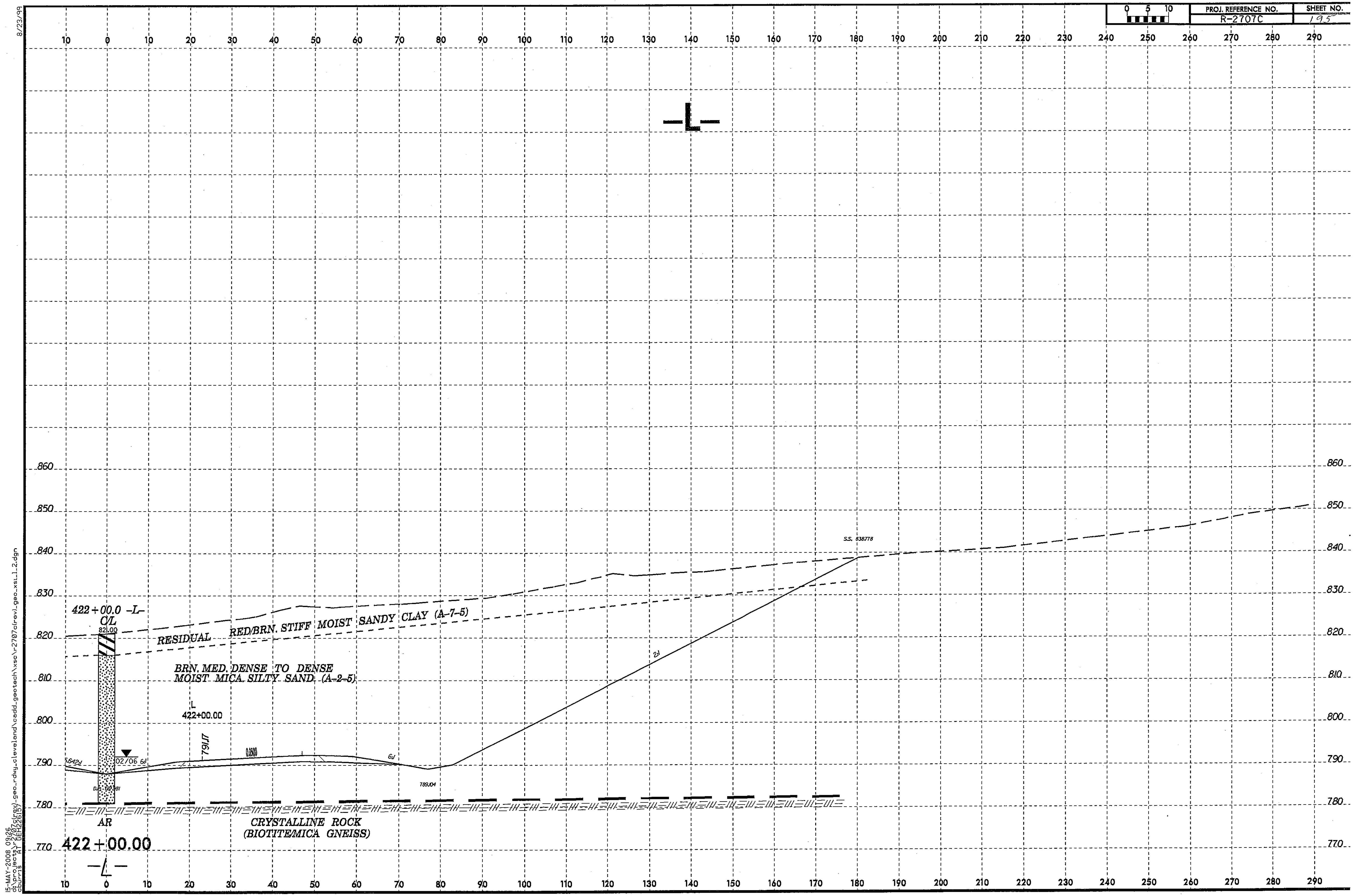
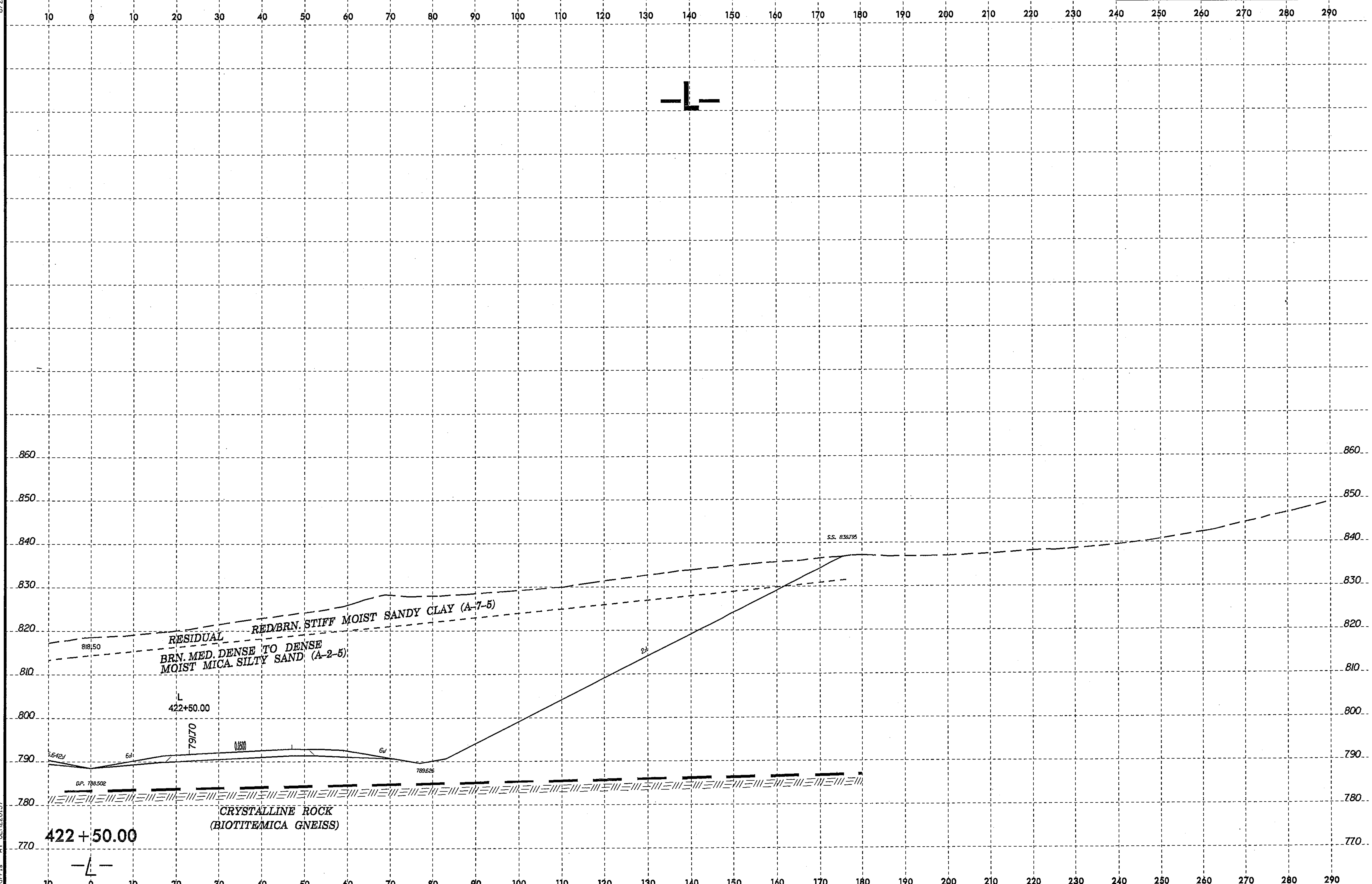
cburris AT GEH226157


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
195
-L-
422+00.0 -L-
C/L
821.00
RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
-L-
422+00.00
02/06
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
422+00.00
-L-
860
850
840
830
820
810
800
790
780
770
8/23/99
15-MAY-2008 09:26

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	196



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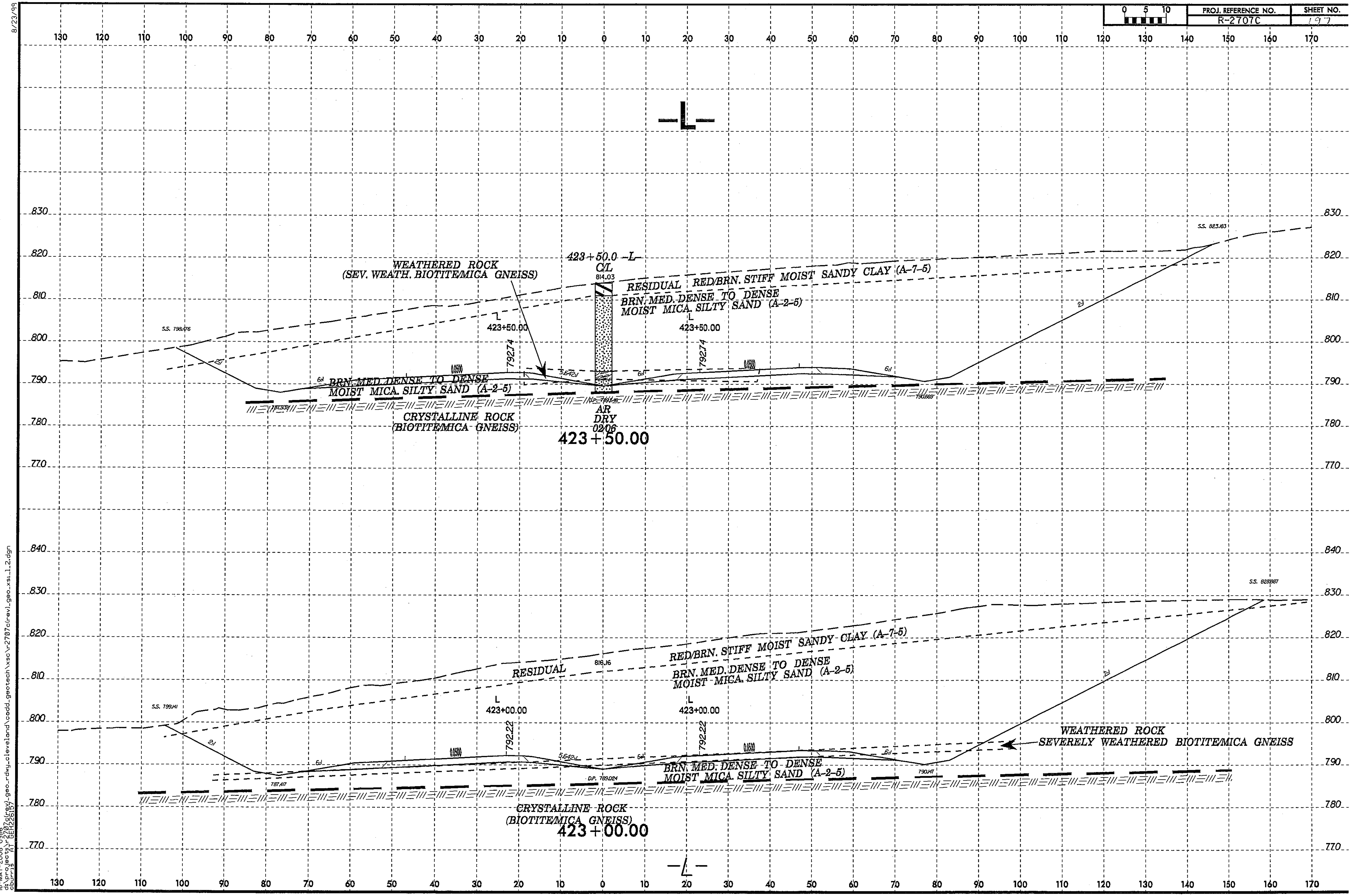
PROJ. REFERENCE NO.	SHEET NO.
R-2707C	197



0 5 10
-L-
423+50.0 -L-
C/L
814.03
WEATHERED ROCK
(SEV. WEATH. BIOTITE/MICA GNEISS)
RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
L
423+50.00
792.74
S.S. 823.83
S.S. 798.76
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
02/06
423+50.00
S.S. 828.87
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
816.16
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
L
423+00.00
792.22
S.S. 799.41
WEATHERED ROCK
SEVERELY WEATHERED BIOTITE/MICA GNEISS
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-5)
D.P. 789.024
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
423+00.00
-L-

8/23/99

16-MAY-2008 09:16
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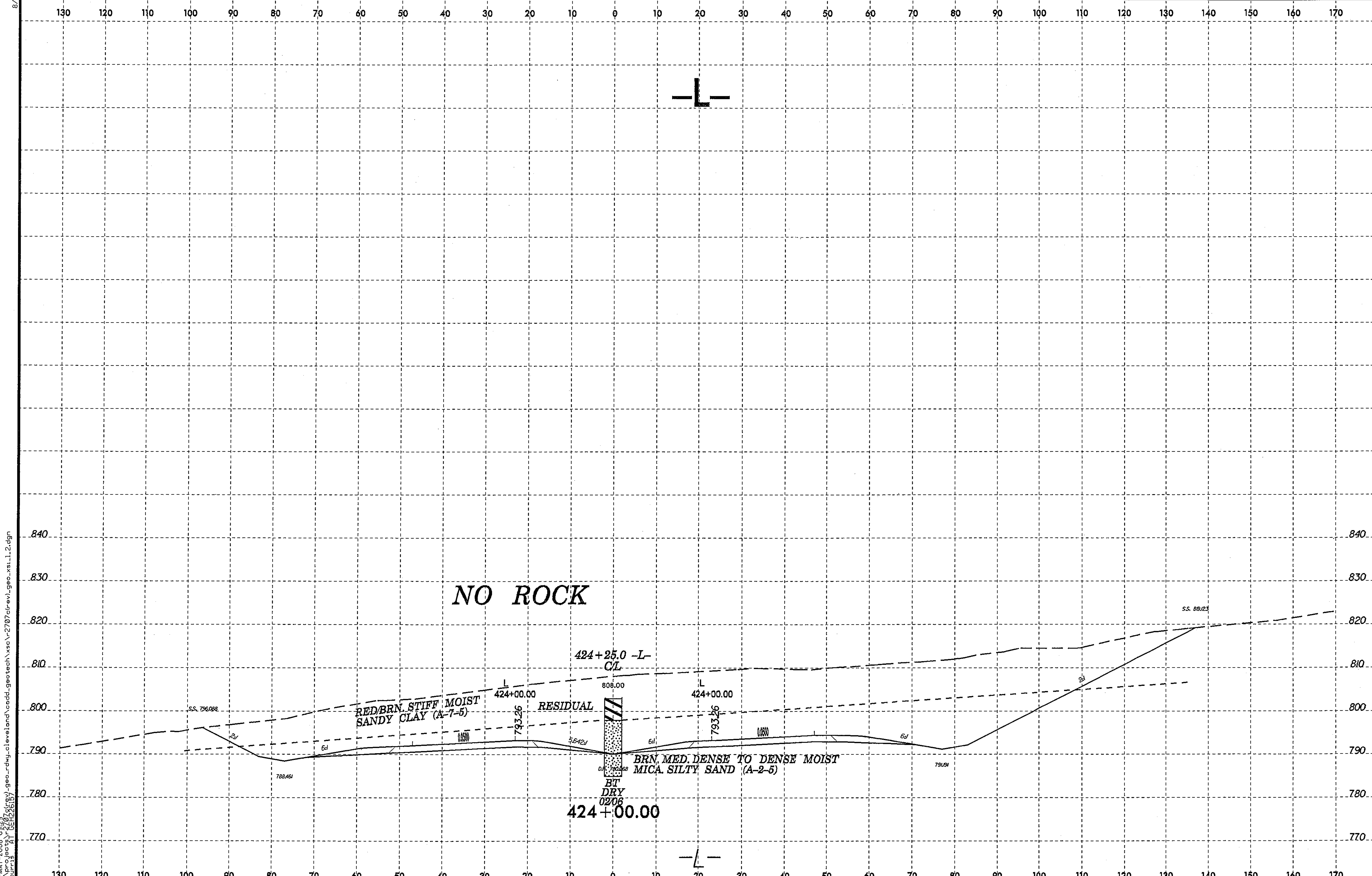
cburris AT BEH22657

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	198



8/23/99
15-MAY-2008 09:29
cburris AT GEH226157

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	194

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

840 830 820 810 800 790 780

S-97
S-98

429+00.00 -L-
C/L

RESIDUAL

BRN. STIFF MOIST MICA SANDY CLAY (A-7-6)
WEATHERED ROCK (SEV. WEATH. BIOTITE MICA GNEISS)

BRN. MED. DENSE TO DENSE
MOIST MICA SILTY SAND (A-2-4)

SS. 807.801

SS. 811.916

429+00.00 L
798.48

429+00.00 L
798.48

2d

6d

0.050

5.642d

793.618

796.408

AR
DRY
0206

CRYSTALLINE ROCK
(BIOTITE MICA GNEISS

429+00.00

NO ROCK

SS. 806.224

428+50.00 L
797.96

813.36

428+50.00 L
797.96

SS. 806.875

795.757

DP. 794.763

795.887

428+50.00

-L-

15-MAY-2008 09:30
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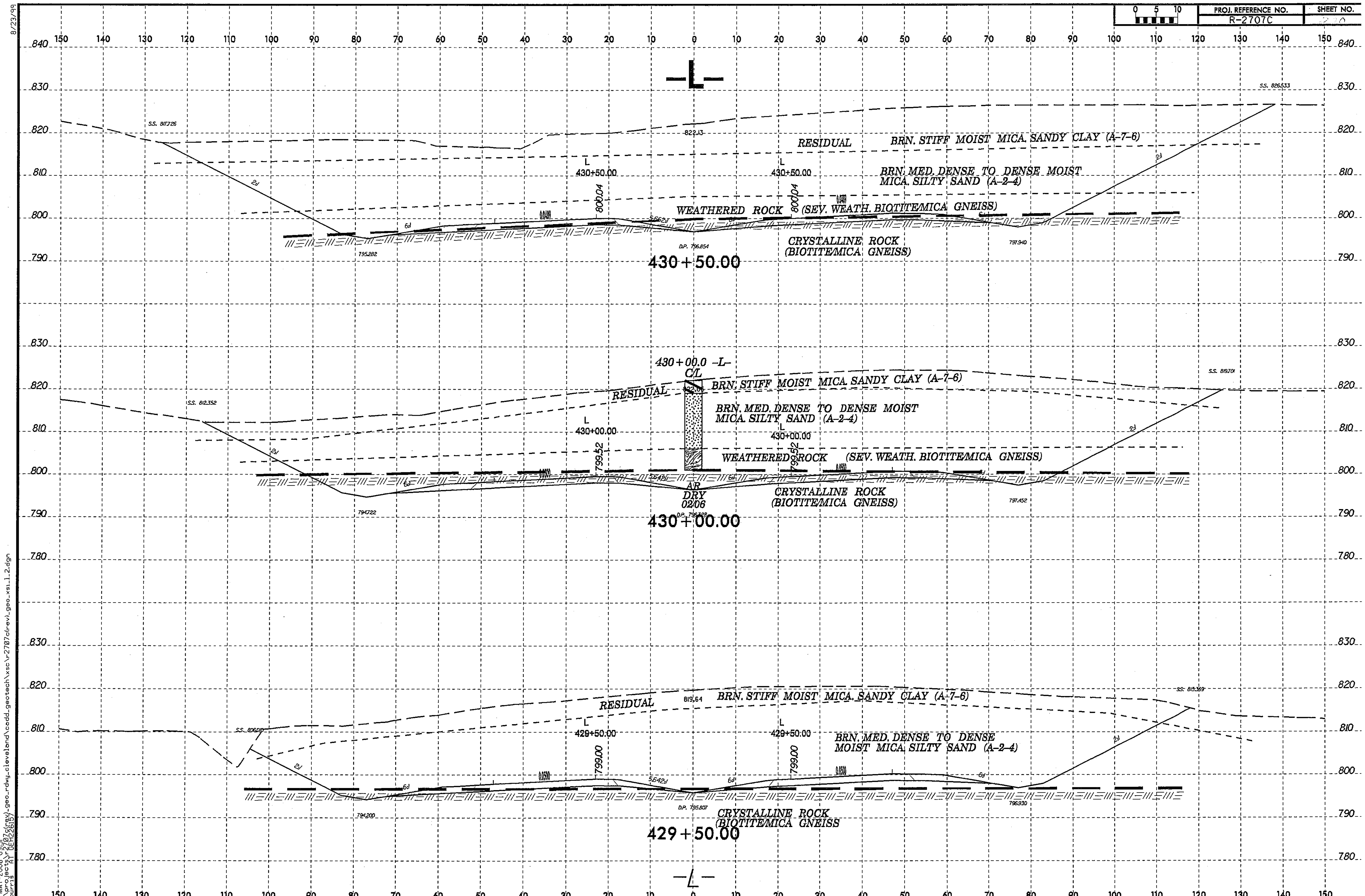
dburris



8/23/99
15-MAY-2008 09:31

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	201

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

840 830 820 810 800 790

S.S. 827.824

2:1

823.05

L
431+00.00

800.57

5.844

6:1

DP. 797.416

796.156

431+00.0 -L-
50.0 RT

RESIDUAL

RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)

BRN. MED. DENSE TO DENSE MOIST
MICA. SILTY SAND (A-2-4)

AR
DRY
02/06

WEATHERED ROCK

798.099

(SEV. WEATH. BIOTITE/MICA GNEISS)

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

S.S. 830.692

431+00.00
-L-

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

15-MAY-2008 09:26
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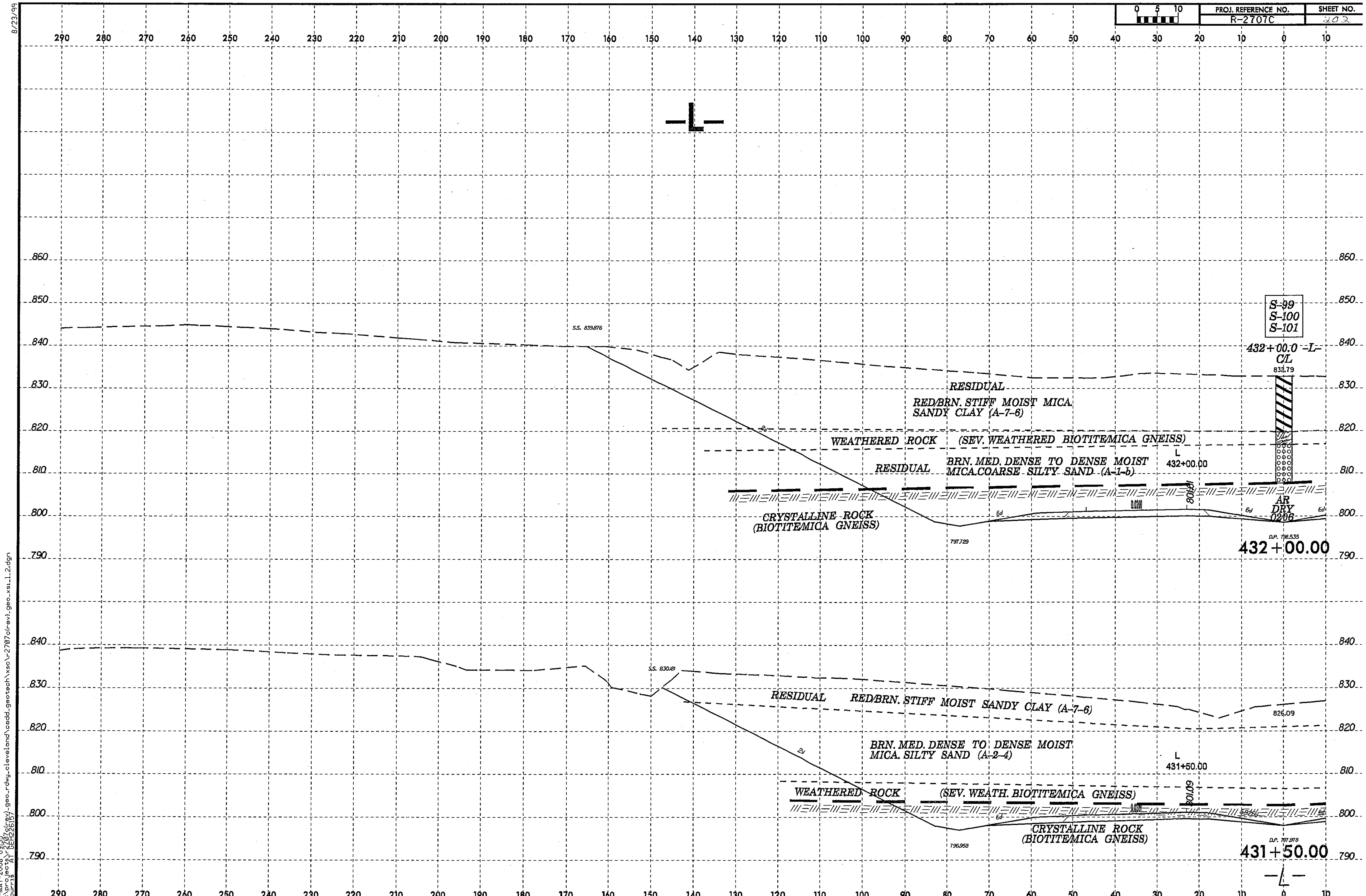

0 5 10
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
202
-L-
S-99
S-100
S-101
432+00.0 -L- C/L
832.79
RESIDUAL
RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-6)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
RESIDUAL BRN. MED. DENSE TO DENSE MOIST MICA.COARSE SILTY SAND (A-1-b)
L 432+00.00
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR DRY 0206
432+00.00
RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)
826.09
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-4)
L 431+50.00
WEATHERED ROCK (SEV. WEATH. BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
431+50.00
-L-

8/23/99
15-MAY-2008 09:35
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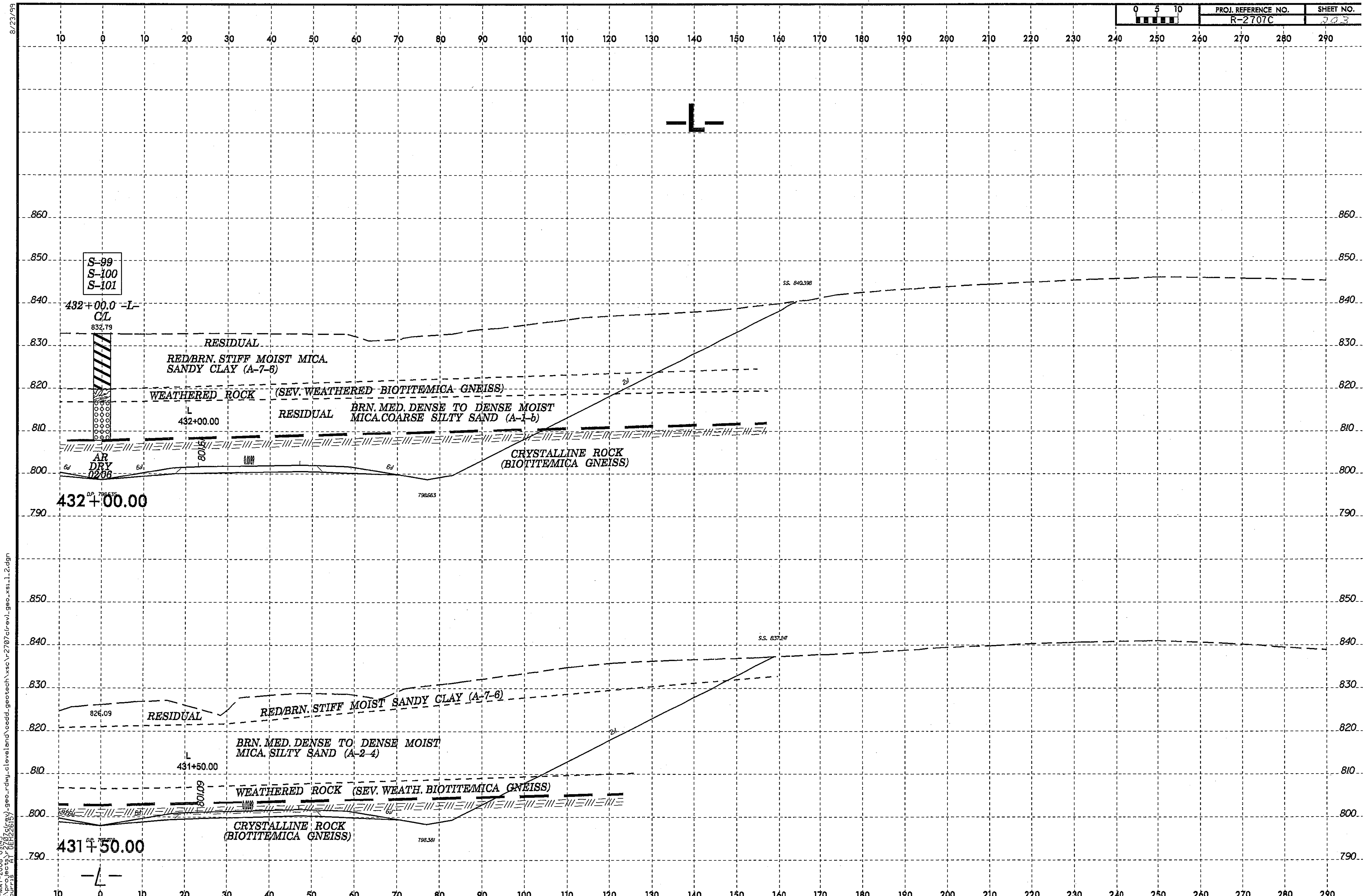
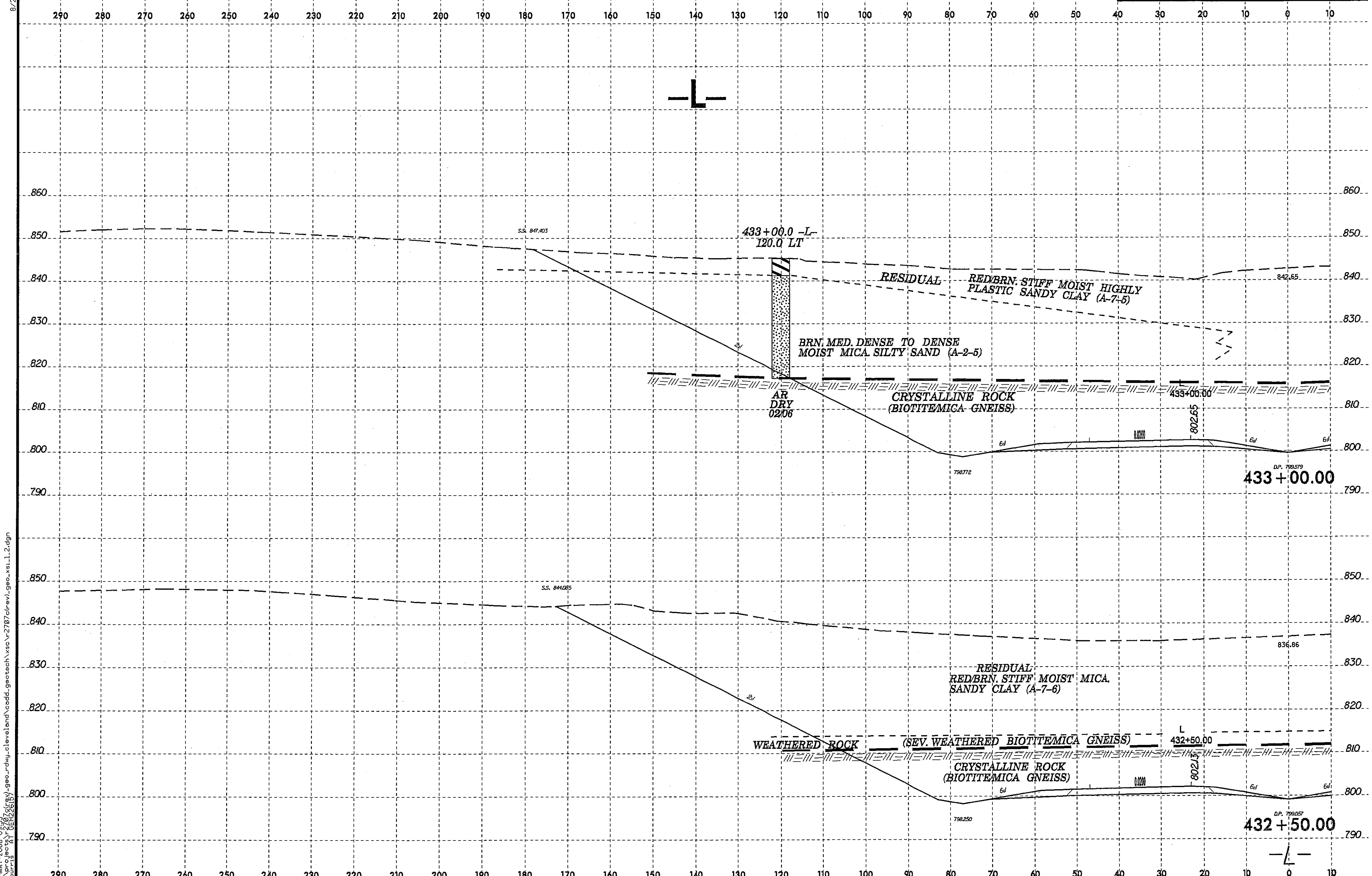
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
203
-L-
S-99
S-100
S-101
432+00.0 -L-
C/L
RESIDUAL
RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-6)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST MICA. COARSE SILTY SAND (A-1-b)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
DRY
02/06
432+00.00
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-6)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK (SEV. WEATH. BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
431+50.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	204



0 5 10
-L-
433+00.0 -L-
120.0 LT
S.S. 847.403
RESIDUAL
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
DRY
02/06
433+00.00
802.65
842.65
798.772
433+00.00
S.S. 844.085
RESIDUAL
RED/BRN. STIFF MOIST MICA. SANDY CLAY (A-7-6)
WEATHERED ROCK
(SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
L
432+50.00
836.86
798.250
432+50.00
-L-
860 850 840 830 820 810 800 790
290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

8/23/99

15-MAY-2008 09:35
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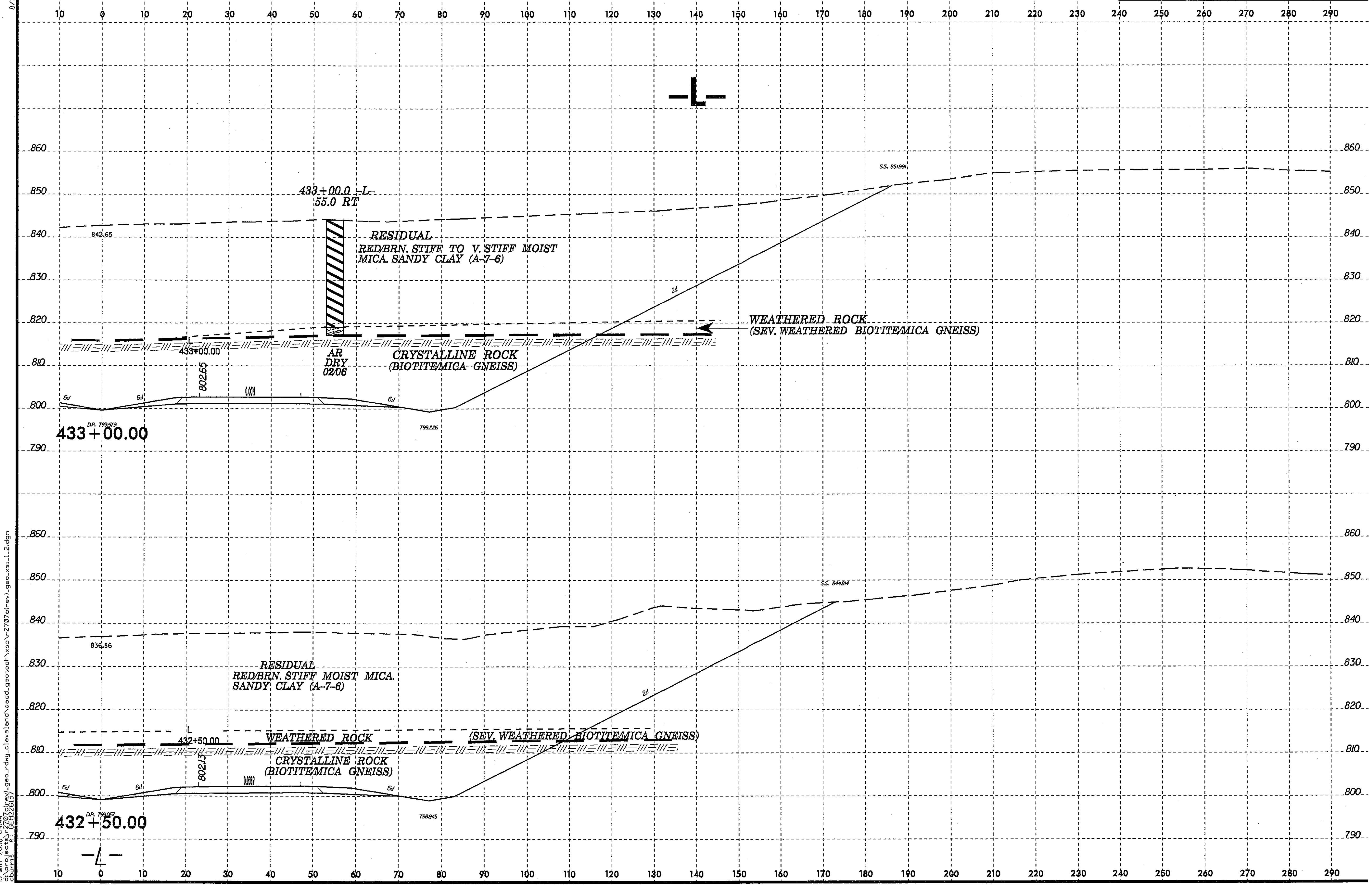
cburris AT GEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	205


-L-
433+00.0 -L-
55.0 RT
RESIDUAL
RED/BRN. STIFF TO V. STIFF MOIST
MICA. SANDY CLAY (A-7-6)
WEATHERED ROCK
(SEV. WEATHERED BIOTITE/MICA GNEISS)
AR
DRY
02/06
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
433+00.00
802.55
842.65
799.226
433+00.00
RESIDUAL
RED/BRN. STIFF MOIST MICA.
SANDY CLAY (A-7-6)
WEATHERED ROCK
(SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
432+50.00
836.86
798.945
432+50.00
-L-

8/23/99

15-MAY-2008 09:44
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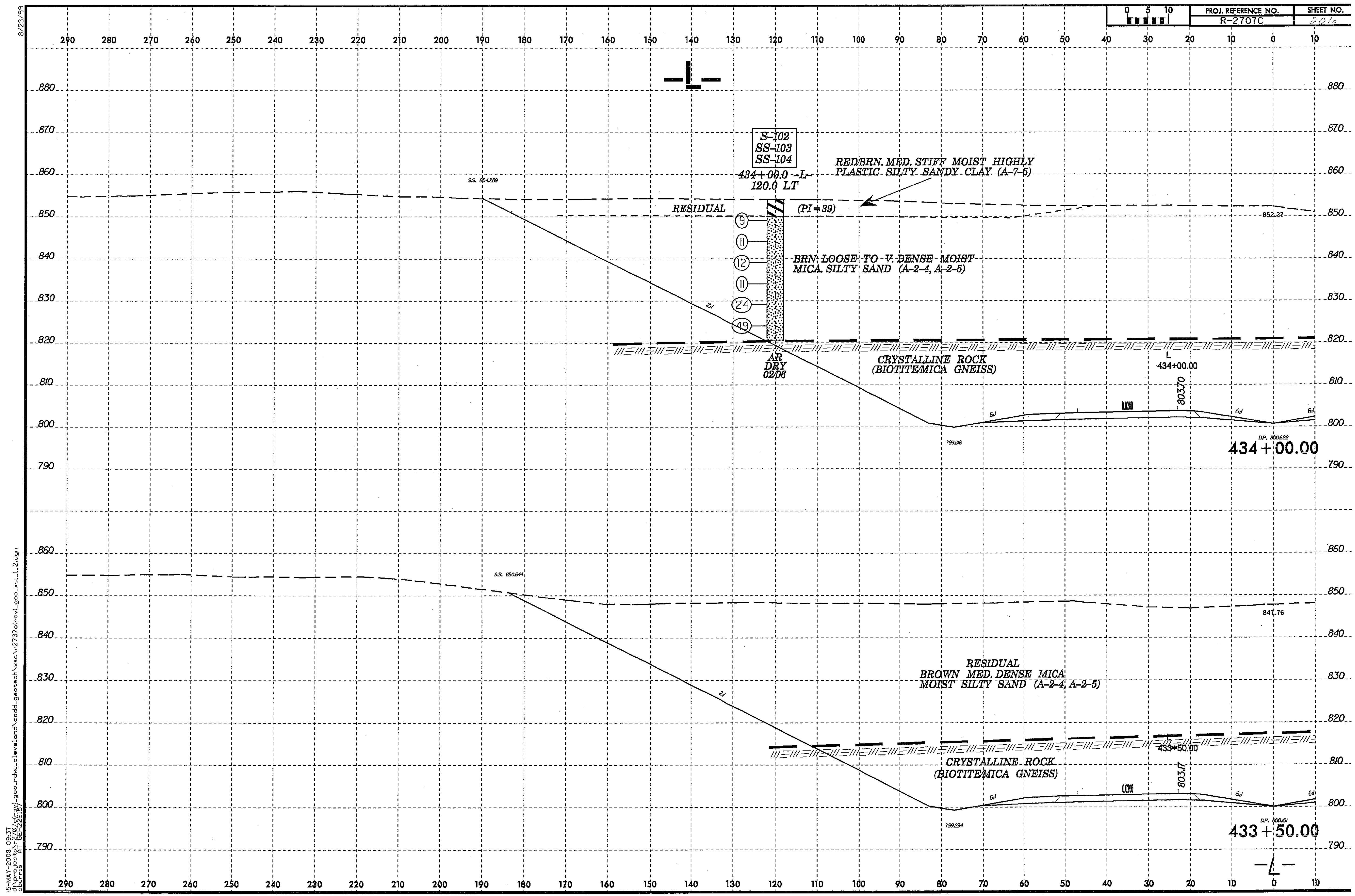
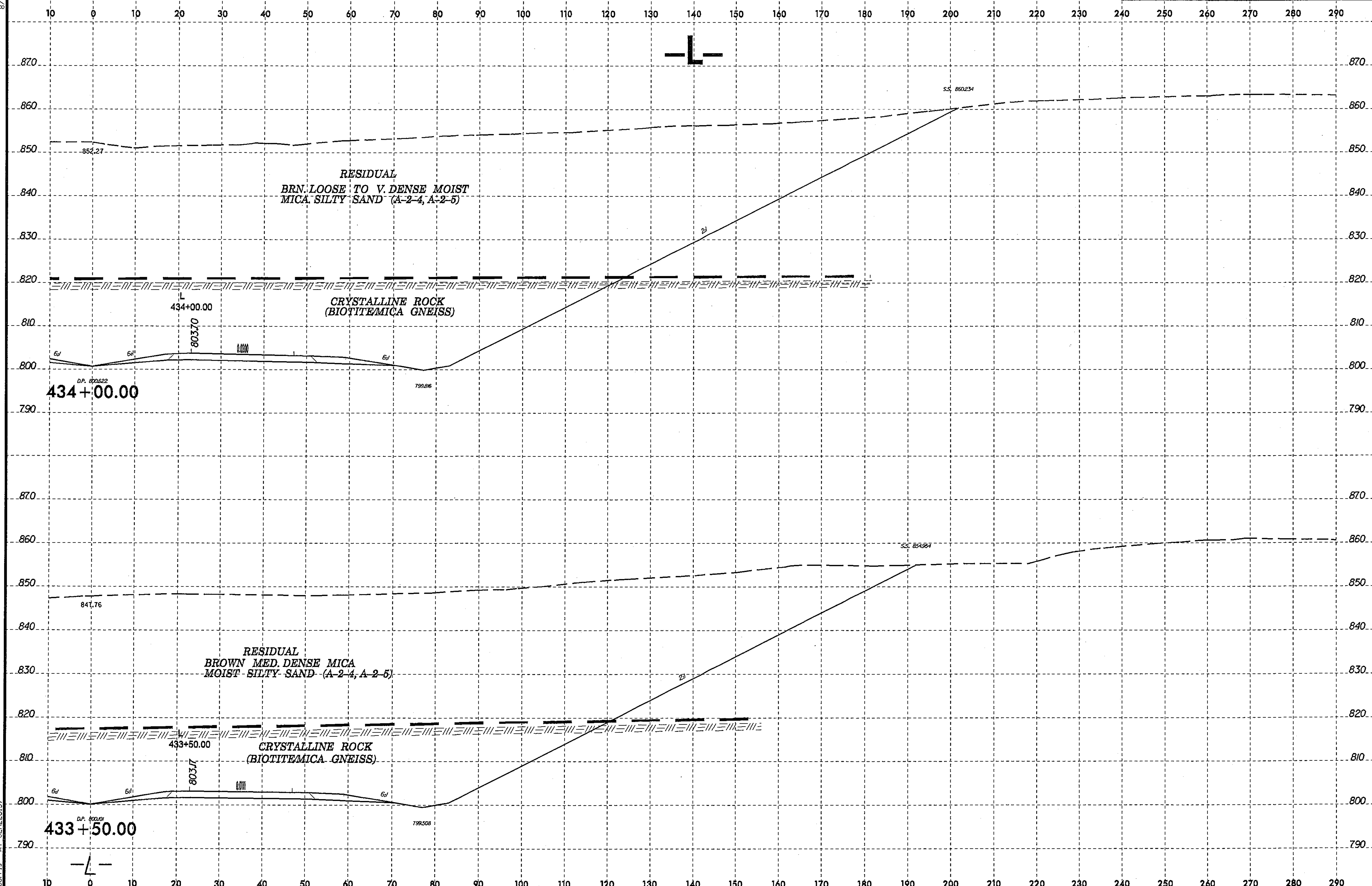
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S-102
SS-103
SS-104
434+00.0 -L-
120.0 LT
RED/BRN. MED. STIFF MOIST HIGHLY PLASTIC SILTY SANDY CLAY (A-7-5)
RESIDUAL
(PI=39)
BRN. LOOSE TO V. DENSE MOIST MICA. SILTY SAND (A-2-4, A-2-5)
AR
DRY
02/06
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
434+00.00
852.27
434+00.00
RESIDUAL
BROWN MED. DENSE MICA
MOIST SILTY SAND (A-2-4, A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
847.76
433+50.00
433+50.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	207



8/23/99

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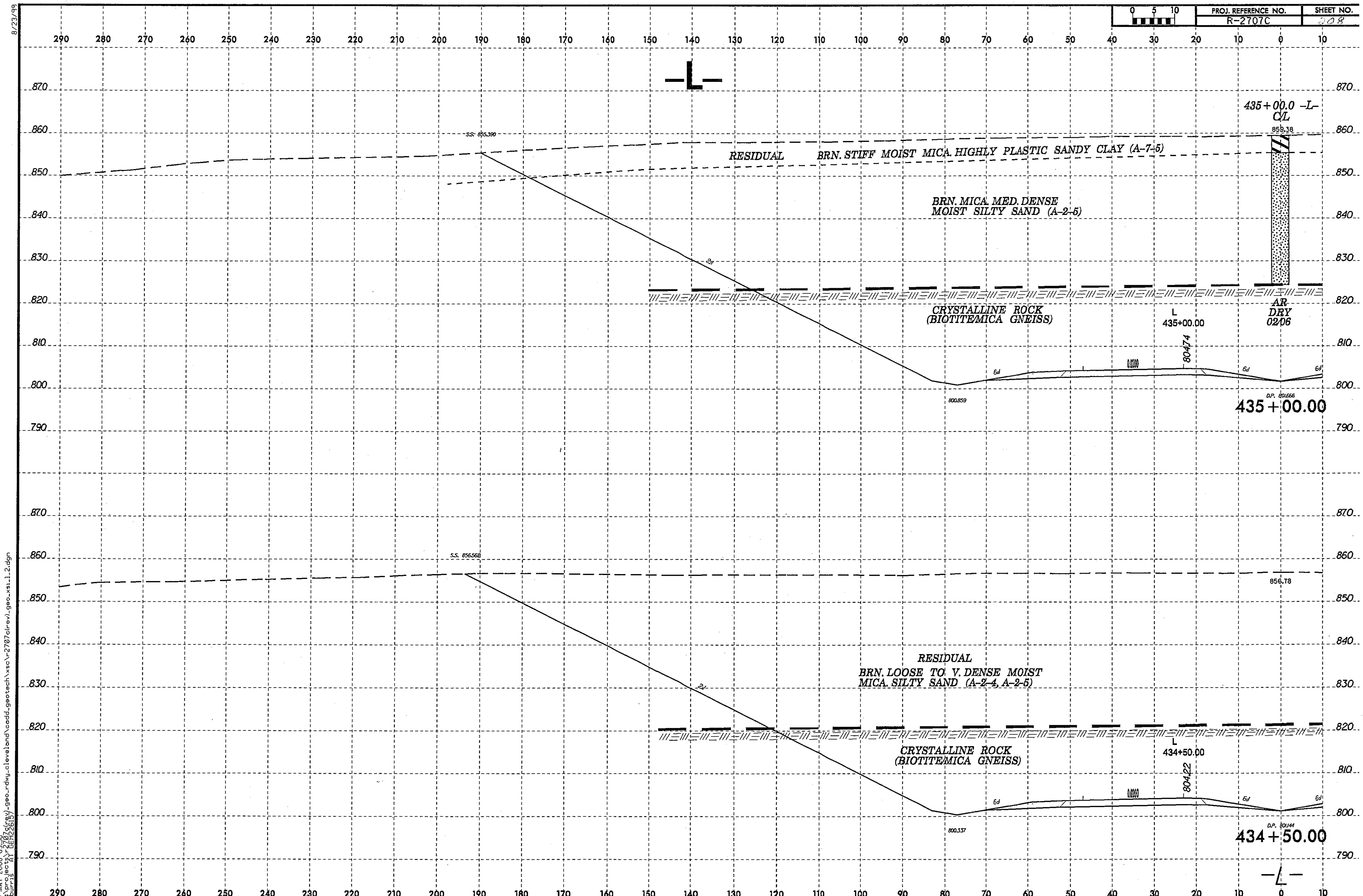
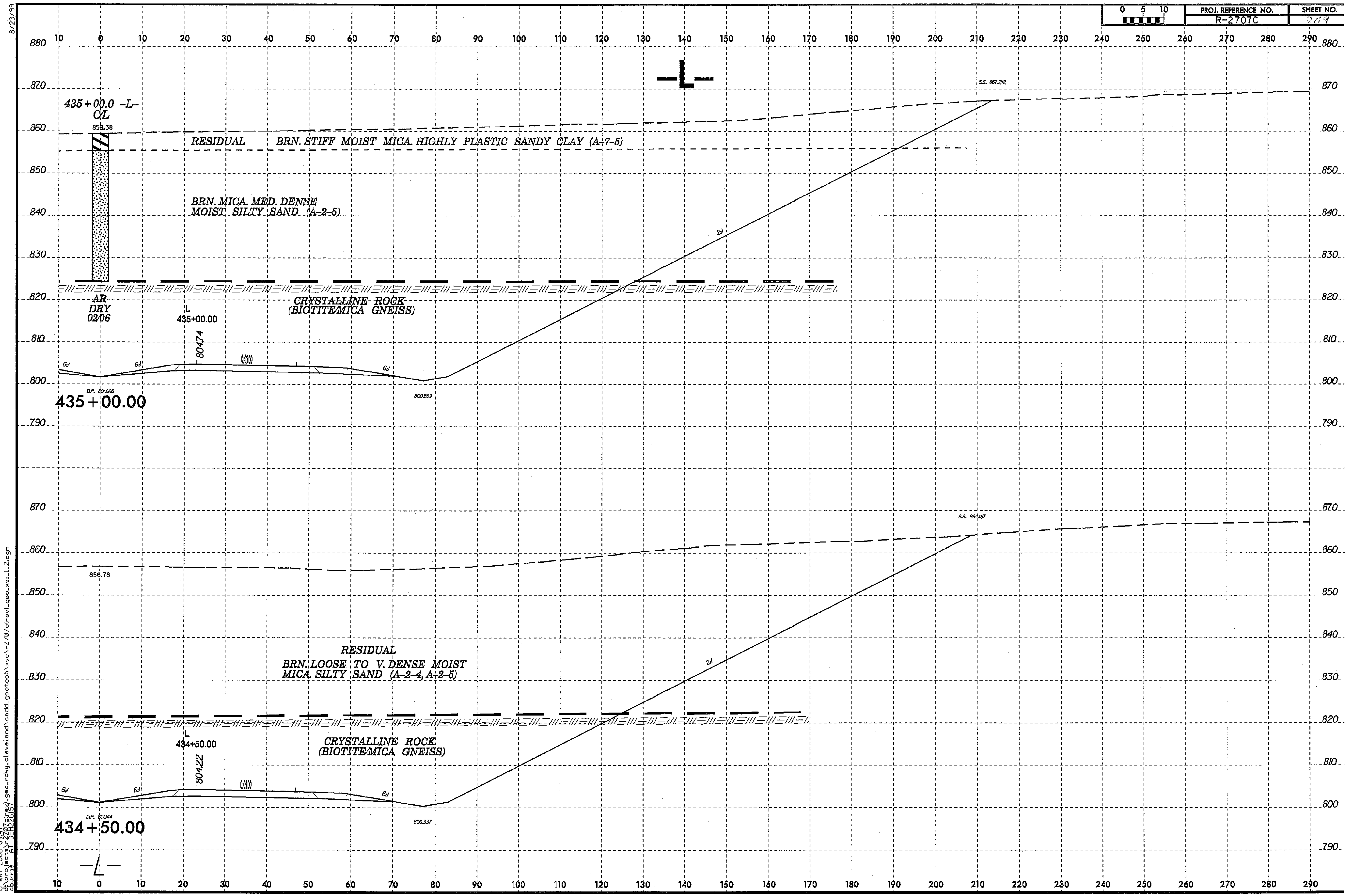
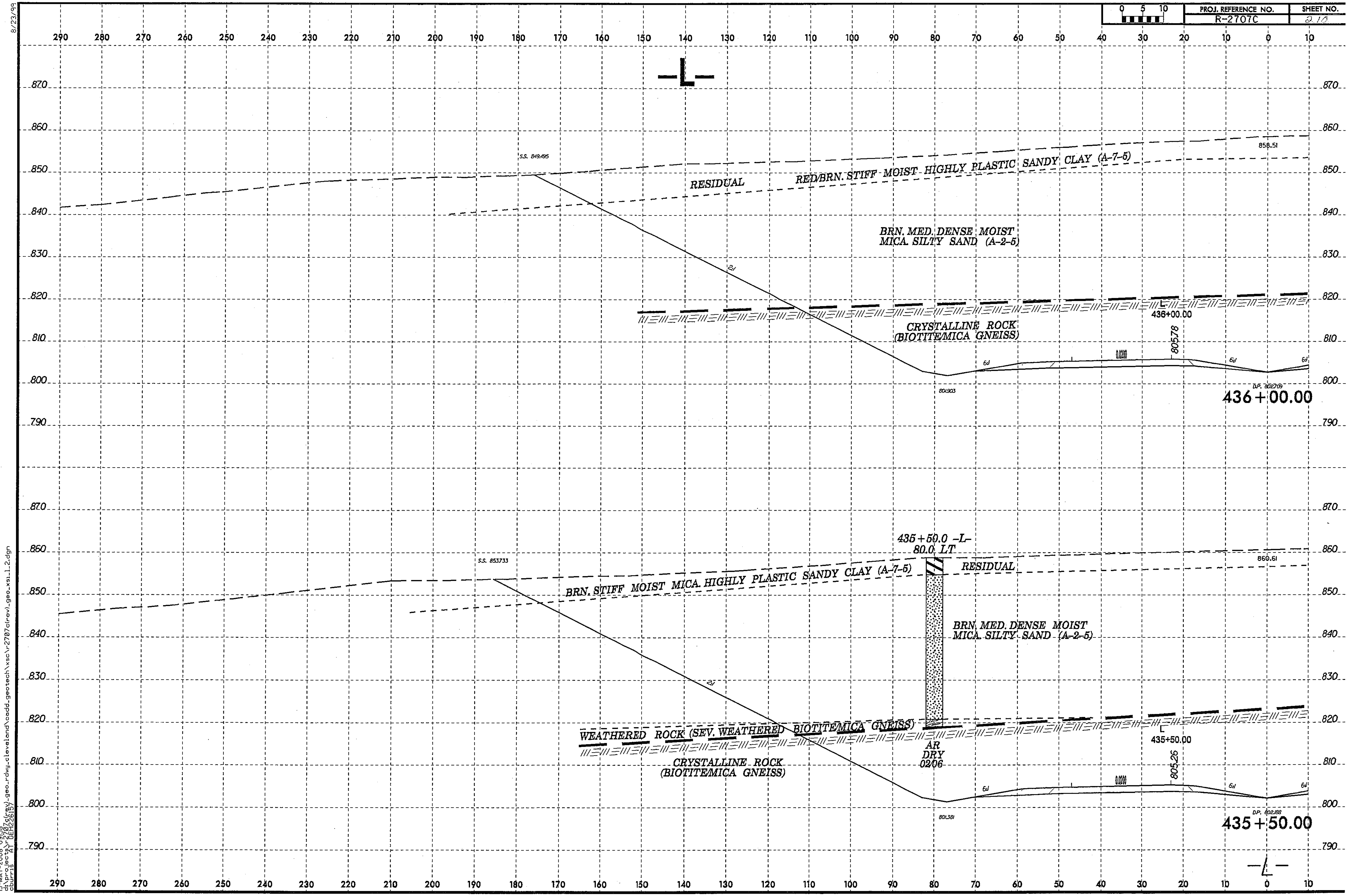
cburris AT GEH226157

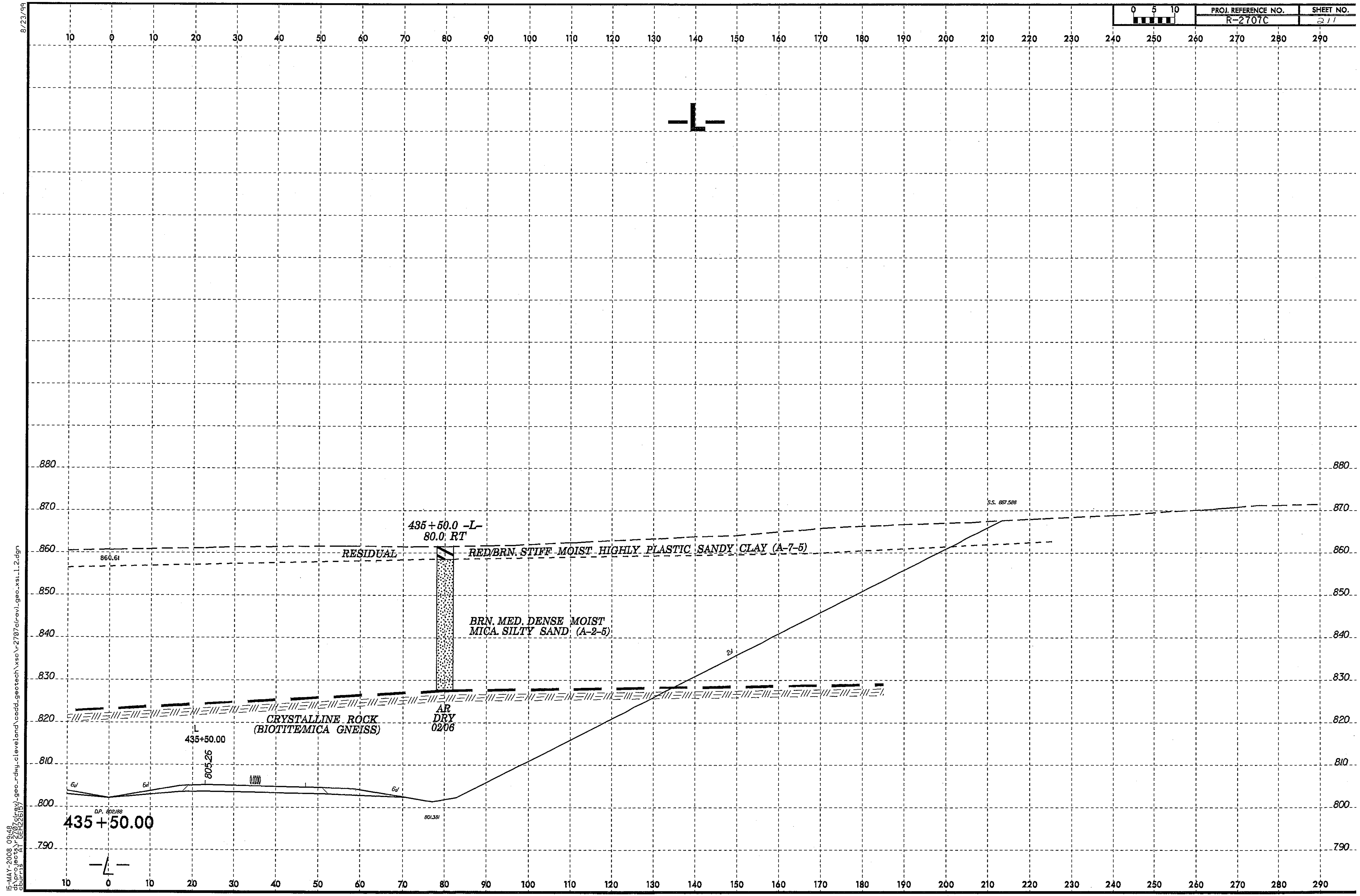

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
435+00.0 -L-
C/L
859.38
RESIDUAL
BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MICA. MED. DENSE
MOIST SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
435+00.00
804.74
AR
DRY
02/06
435+00.00
856.78
RESIDUAL
BRN. LOOSE TO V. DENSE MOIST
MICA. SILTY SAND (A-2-4, A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
434+50.00
804.22
434+50.00
-L-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
435+00.0 -L-
C/L
859.38
RESIDUAL
BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MICA. MED. DENSE
MOIST SILTY SAND (A-2-5)
AR
DRY
02/06
L
435+00.00
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
435+00.00
856.78
RESIDUAL
BRN. LOOSE TO V. DENSE MOIST
MICA. SILTY SAND (A-2-4, A-2-5)
L
434+50.00
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
434+50.00
-L-
8/23/99

8/23/99



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
436+00.00
435+50.0 -L- 80.0 LT
RESIDUAL
BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA. SILTY SAND (A-2-5)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
AR
DRY
02/06
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
435+50.00


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
435+50.0 -L-
80.0 RT
RESIDUAL
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST
MICA. SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
02/06
L
435+50.00
805.26
860.61
435+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	2

WEATHERED ROCK
(SEV. WEATHERED
BIOTITE/MICA GNEISS)

436+75.0 -L-
C/L

85LT

RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

RESIDUAL
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)

L
436+50.00

806.30

AR
DRY
02/06

D.F. 803.231

436+50.00

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

802.424

S.S. 855.887

S-105
SS-106
SS-107A

436+00.0 -L-
120.0 RT

858.51

RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)

9
11
12
12
25
35

BRN. MED. DENSE MOIST
MICA SILTY SAND (A-2-5)

L
436+00.00

805.78

CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)

AR
DRY
02/06

D.F. 802.768

436+00.00

801.903

S.S. 863.802

-L-

27-MAY-2008 13:45
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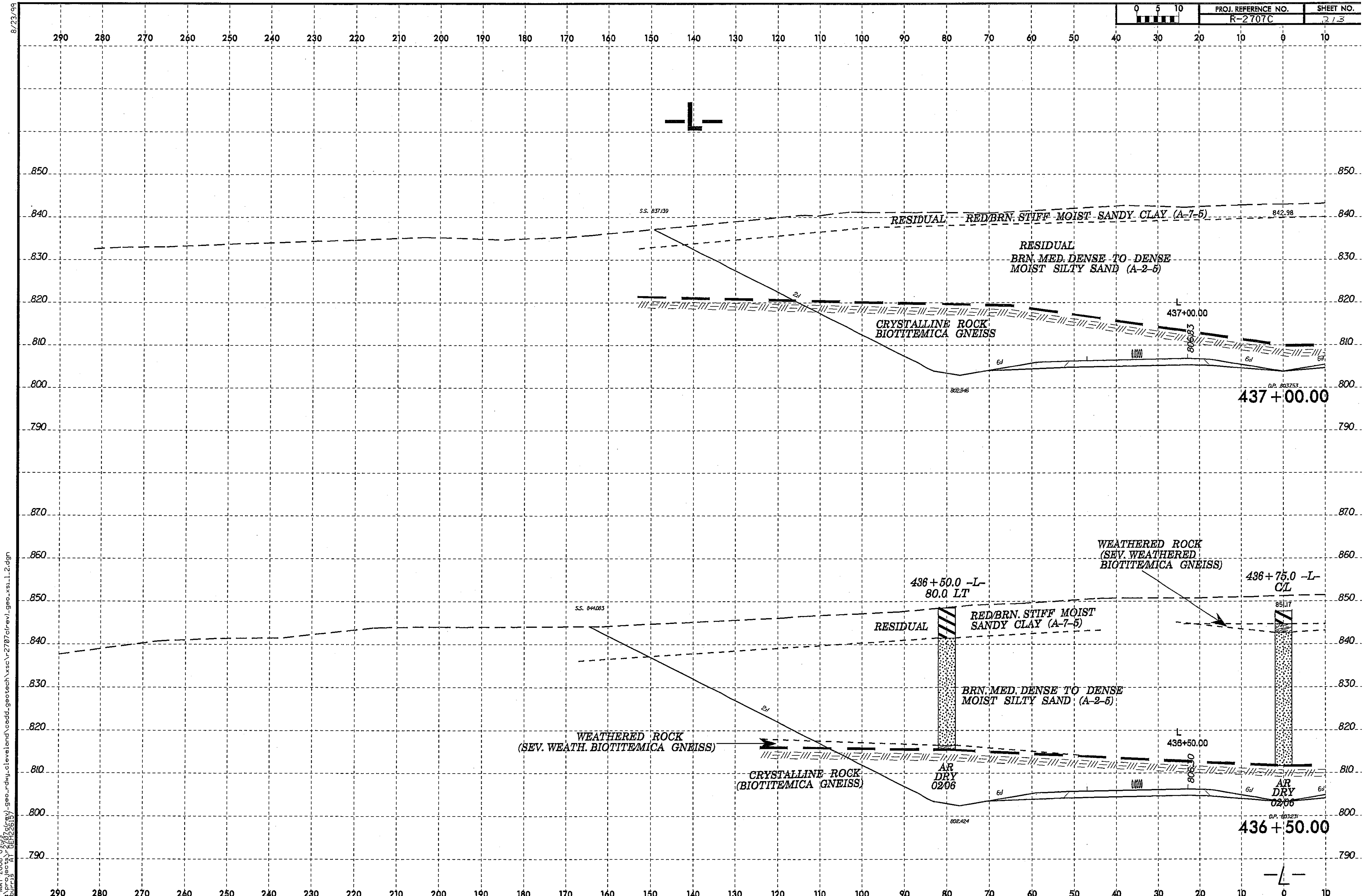
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
213
-L-
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
RESIDUAL
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)
CRYSTALLINE ROCK
BIOTITEMICA GNEISS
437+00.00
WEATHERED ROCK
(SEV. WEATHERED
BIOTITEMICA GNEISS)
436+50.0 -L-
80.0 LT
436+75.0 -L-
C/L
RESIDUAL
RED/BRN. STIFF MOIST
SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)
WEATHERED ROCK
(SEV. WEATH. BIOTITEMICA GNEISS)
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
AR
DRY
02/06
AR
DRY
02/06
436+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	2.14

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

850 840 830 820 810 800 790

437+40.0 -L-
C/L
832.81

S.S. 832.950

RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)

2:1

L
437+50.00
807.35

6:1 6:1

WEATHERED ROCK
(SEV. WEATHERED BIOTITEMICA GNEISS)

803.468

CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)

D.P. 804271
AR
DRY
0206

437+50.00

842.98

RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)

S.S. 846.892

RESIDUAL
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)

2:1

L
437+00.00
806.83

6:1 6:1 6:1

CRYSTALLINE ROCK
BIOTITEMICA GNEISS

802.546

D.P. 803253

437+00.00

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

16-MAY-2008 10:22
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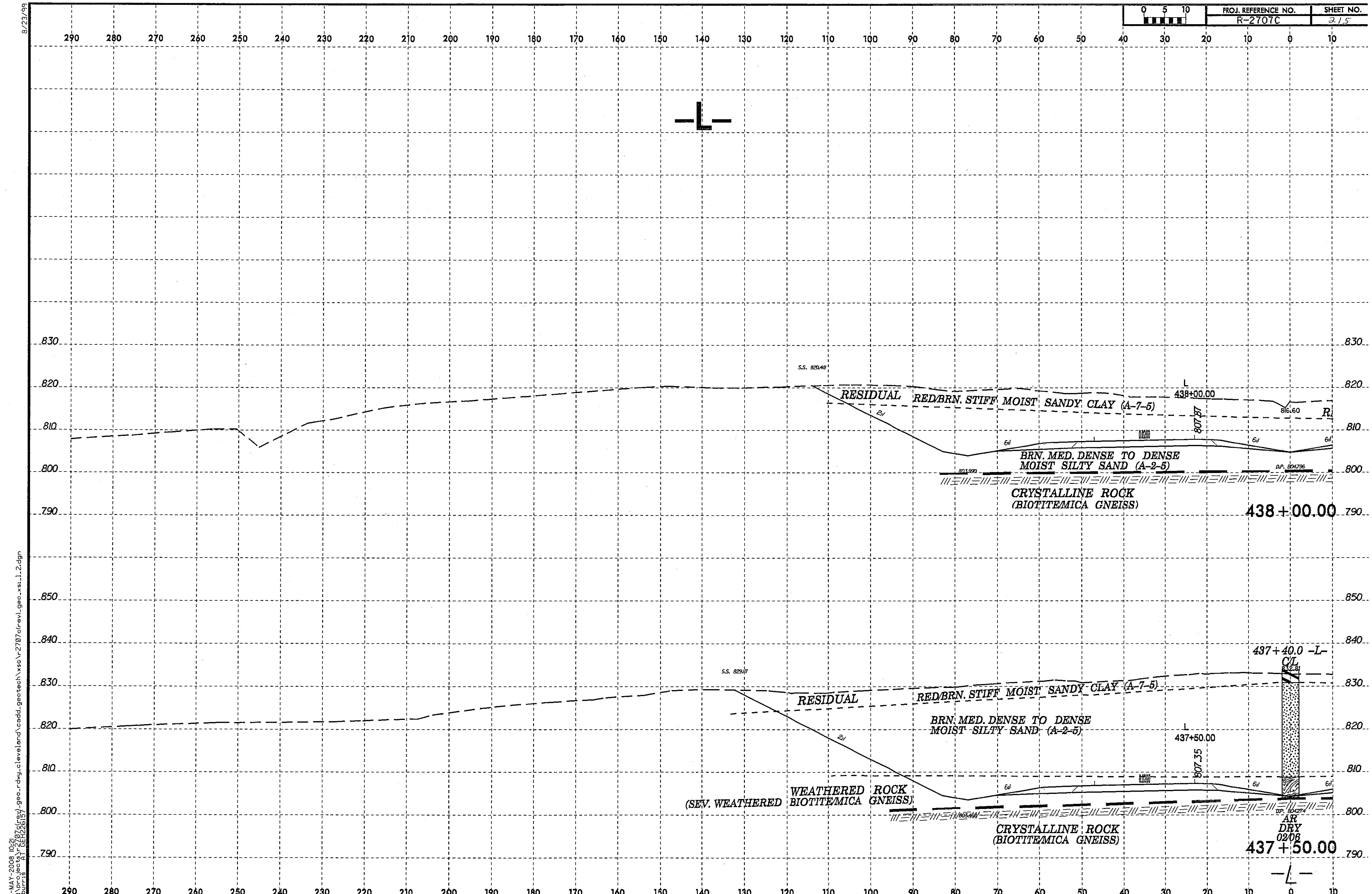
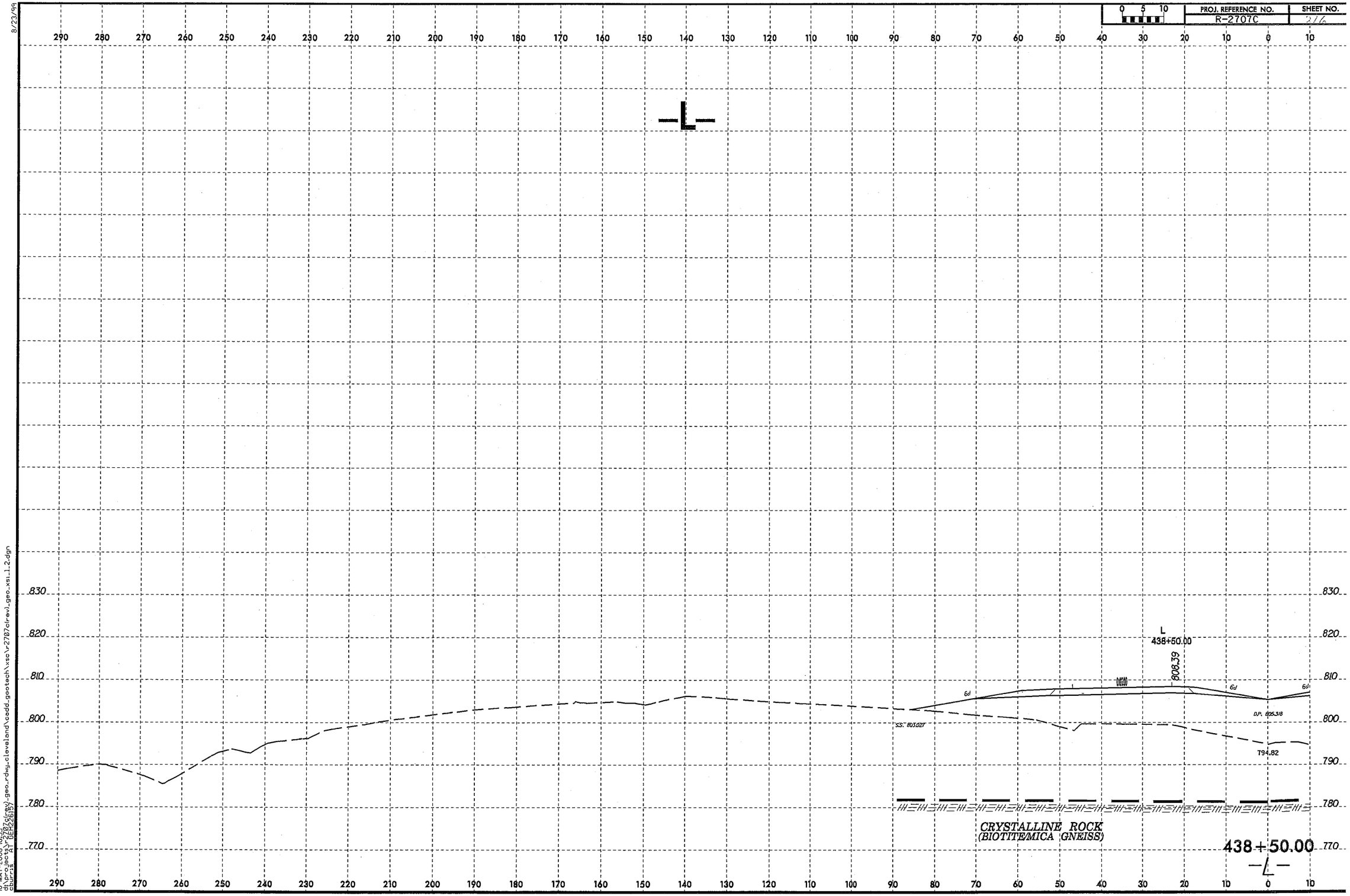
Courtesy of DGN2PDF(tm)


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
215
-L-
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
438+00.00
WEATHERED ROCK
(SEV. WEATHERED BIOTITE/MICA GNEISS)
437+40.0 -L-
C/L
AR
DRY
02/08
437+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	276

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



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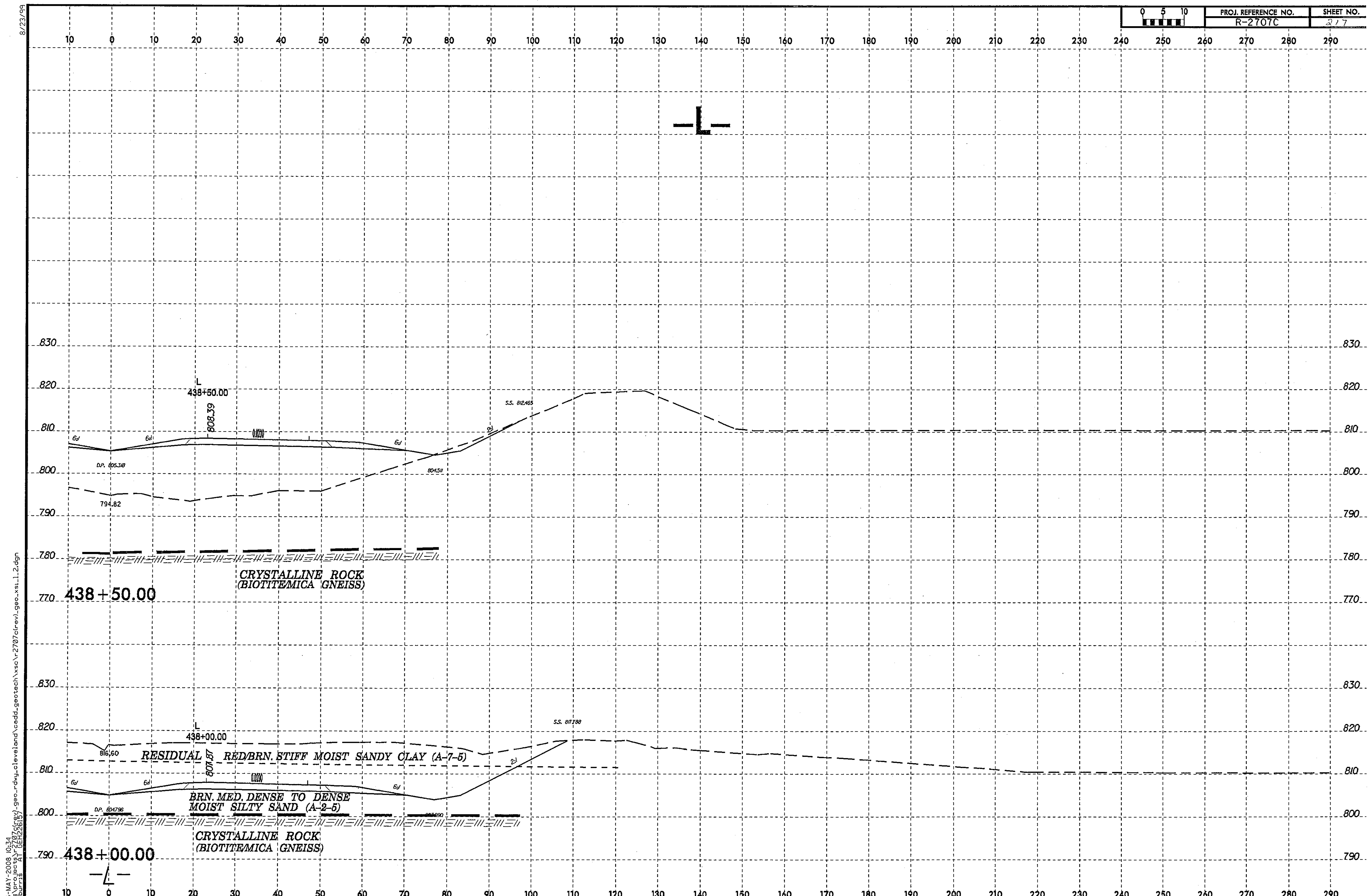
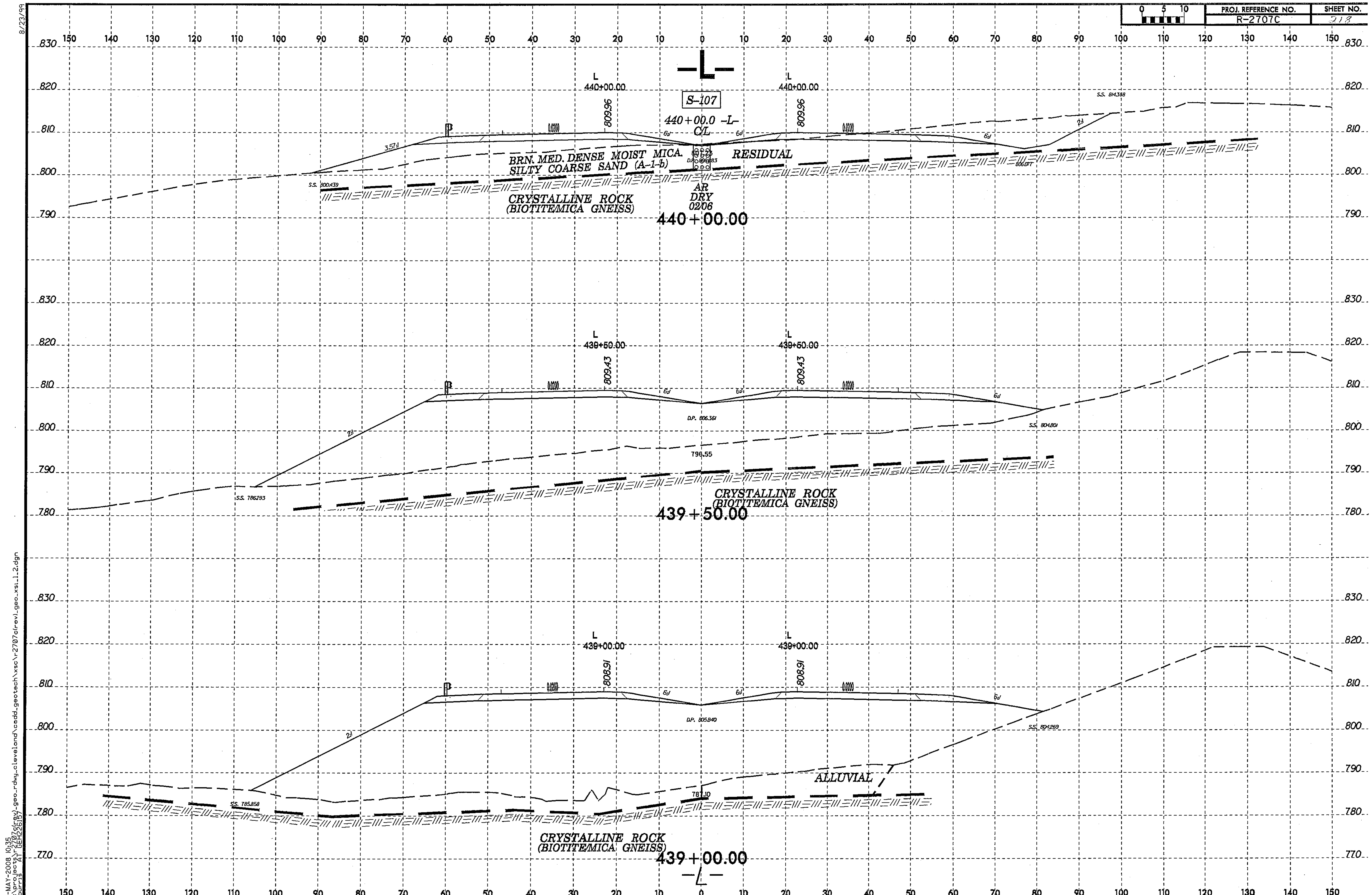


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
L
438+50.00
808.39
S.S. 812.465
D.P. 805.38
794.82
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
438+50.00
L
438+00.00
807.87
S.S. 817.788
816.60
RESIDUAL RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
438+00.00
-L-
8/23/99
16-MAY-2008 10:34


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S-107
440+00.0 -L-
C/L
L
440+00.00
809.96
BRN. MED. DENSE MOIST MICA.
SILTY COARSE SAND (A-1-b)
RESIDUAL
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
AR
DRY
02/06
440+00.00
L
439+50.00
809.43
798.55
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
439+50.00
L
439+00.00
808.91
ALLUVIAL
787.10
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
439+00.00
-L-
8/23/99
16-MAY-2008 10:35

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	21

441+50.00

S.S. 818.976

441+50.00

826.30

441+50.00

S.S. 836.595

RESIDUAL BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

BRN. MED. DENSE MOIST SILTY SAND (A-2-4)

811.52

811.52

807.842

D.P. 808.448

807.842

CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

441+00.0 -L- C/L

S-108
S-109

441+00.00

441+00.00

S.S. 815.704

RESIDUAL BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)

BRN. MED. DENSE MOIST SILTY SAND (A-2-4)

811.00

811.00

807.310

807.120

S.S. 828.816

CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

AR DRY 02/06

441+00.00

440+50.00

440+50.00

S.S. 809.248

RESIDUAL BROWN MED. DENSE MOIST SILTY SAND (A-2-4)

810.48

810.48

806.789

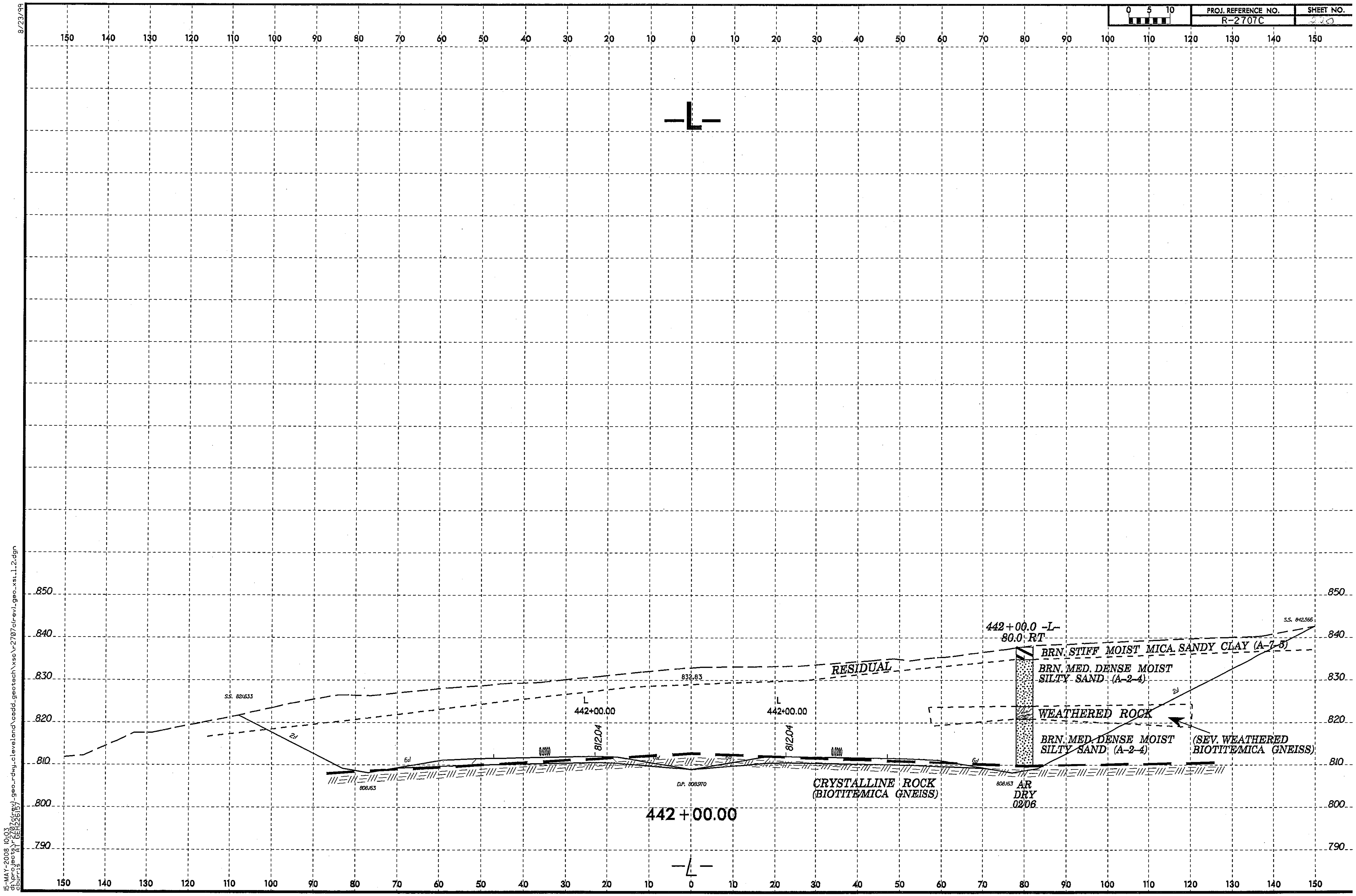
D.P. 807.405

807.258

S.S. 821.070

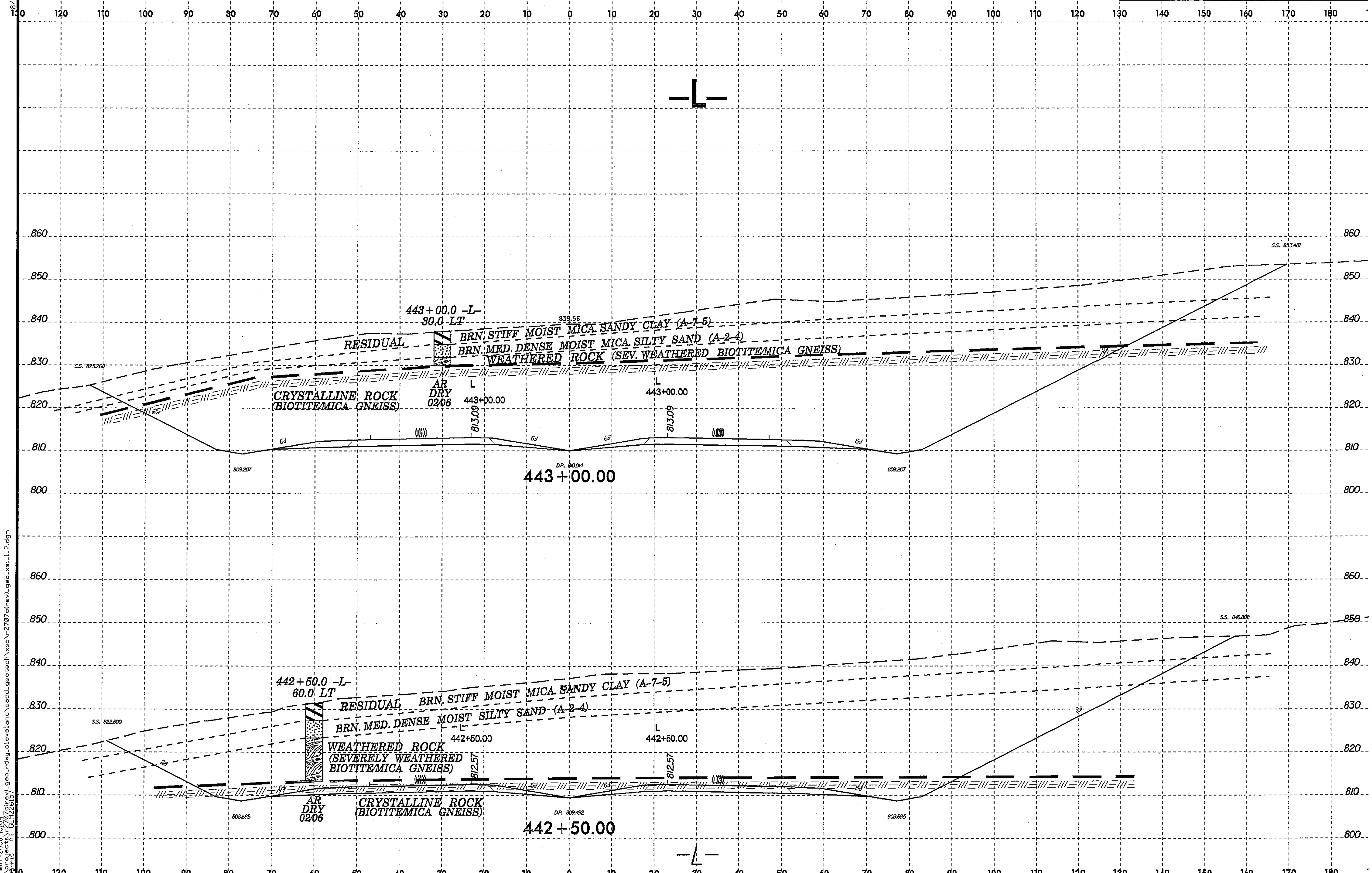
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)

440+50.00



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
442+00.0 -L-
80.0 RT
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST SILTY SAND (A-2-4)
RESIDUAL
WEATHERED ROCK
BRN. MED. DENSE MOIST SILTY SAND (A-2-4)
(SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
DRY
02/06
442+00.00
-L-
850
840
830
820
810
800
790

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	221



-L-
443+00.0 -L-
30.0 LT
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA SILTY SAND (A-2-4)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
02/06
443+00.00
813.09
443+00.00
442+50.0 -L-
60.0 LT
RESIDUAL
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST SILTY SAND (A-2-4)
WEATHERED ROCK
(SEVERELY WEATHERED
BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
02/06
442+50.00
812.57
442+50.00
-L-

15-MAY-2008 10:04
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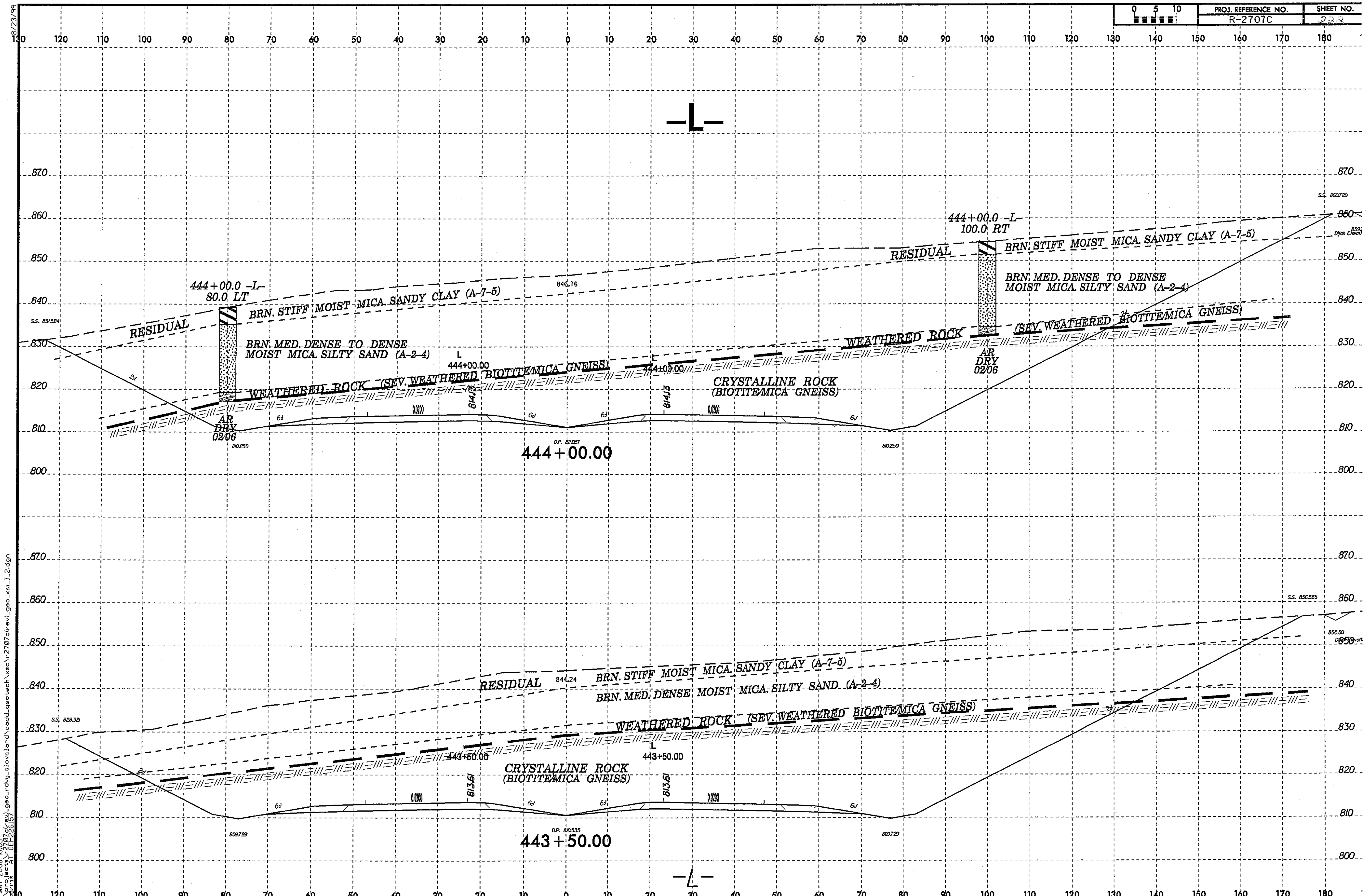
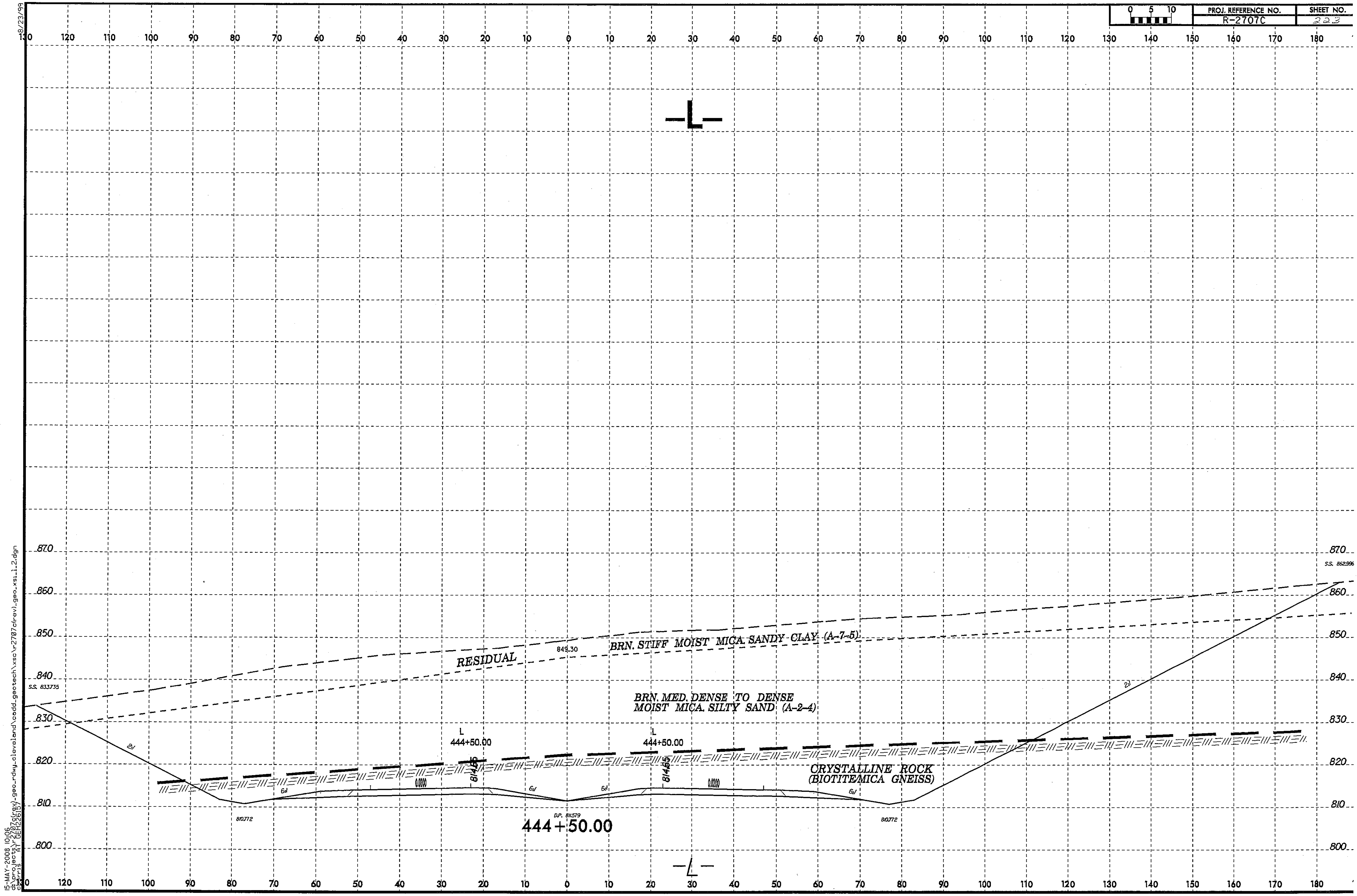
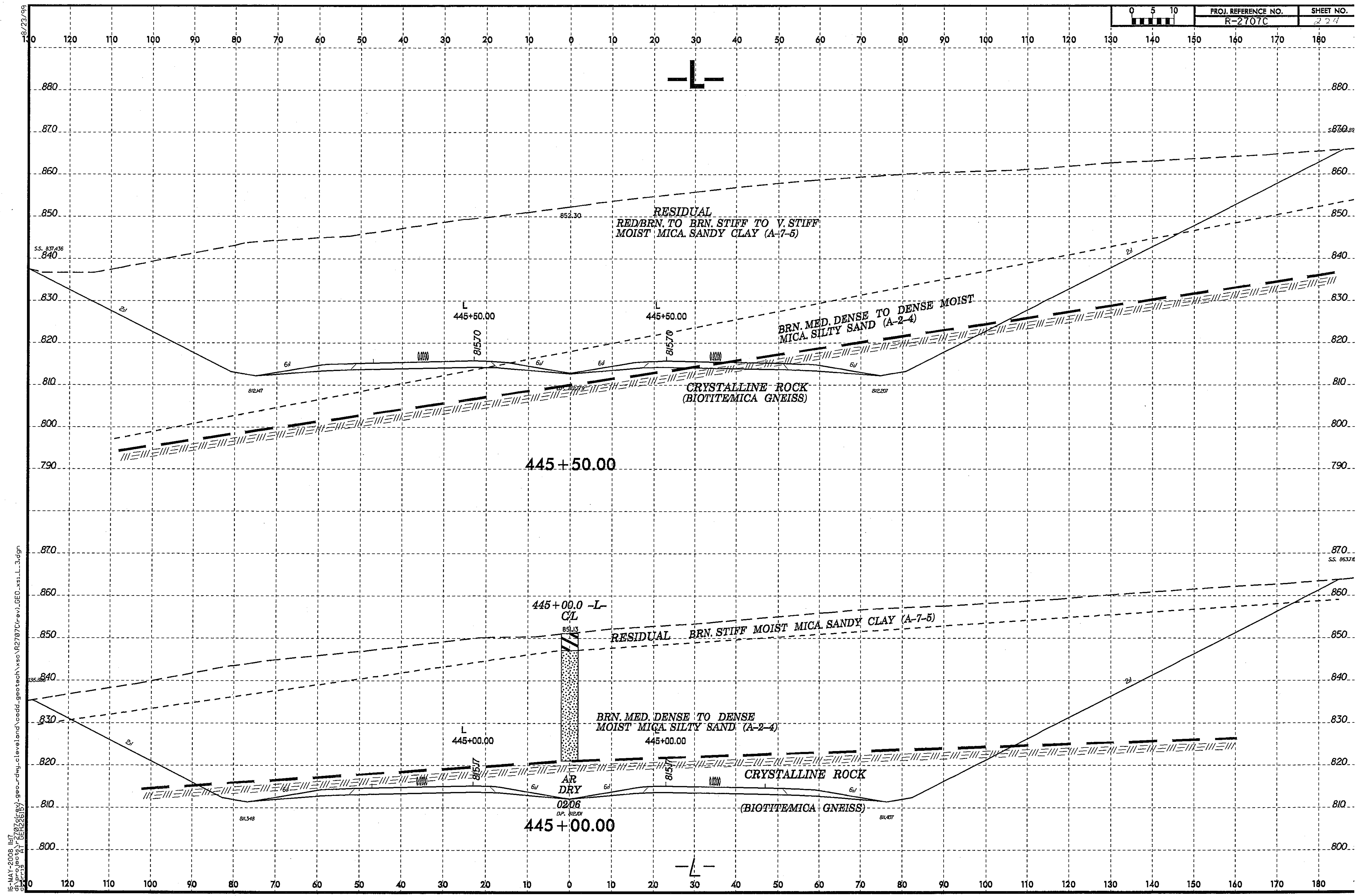
charris AT GEH226157

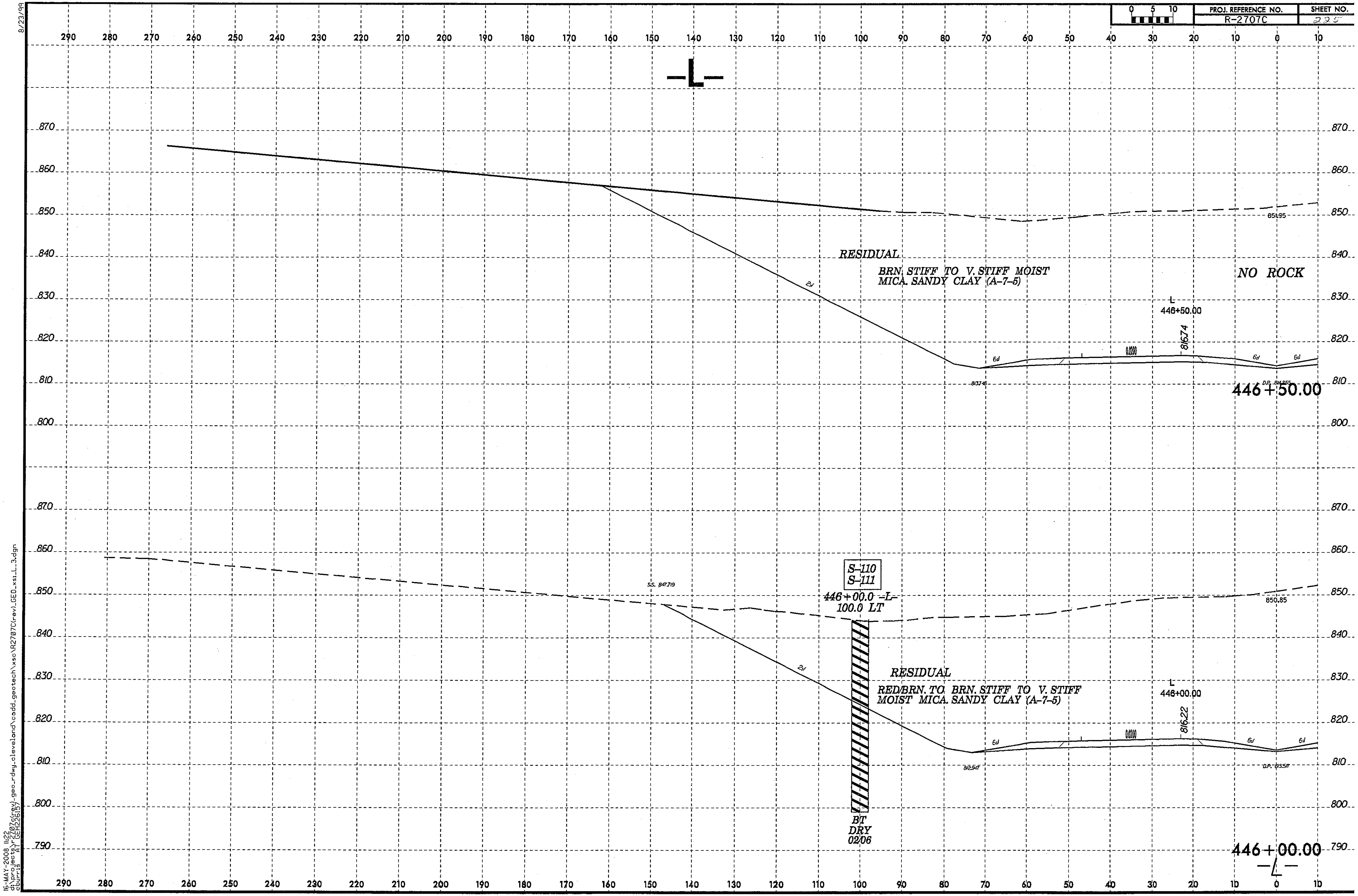


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
444+00.0 -L-
80.0 LT
444+00.0 -L-
100.0 RT
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR DRY 02/06
444+00.00
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA. SILTY SAND (A-2-4)
WEATHERED ROCK (SEV. WEATHERED BIOTITE/MICA GNEISS)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
443+50.00
-L-

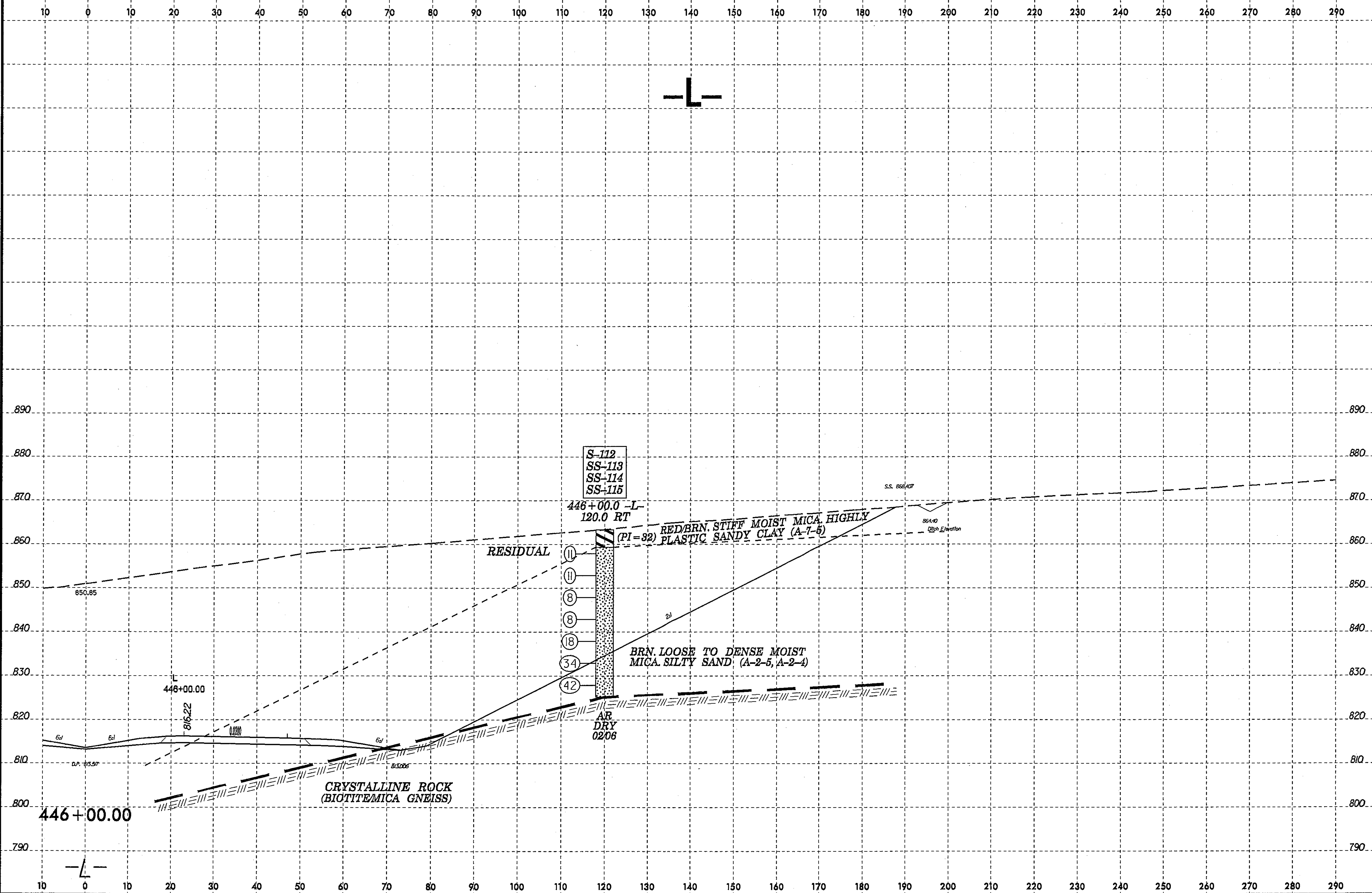


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
849.30
BRN. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST MICA SILTY SAND (A-2-4)
L
444+50.00
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
444+50.00
-L-
15-MAY-2008 10:06


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
RED/BRN. TO BRN. STIFF TO V. STIFF
MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST
MICA. SILTY SAND (A-2-4)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
445+50.00
445+50.00
445+00.0 -L-
C/L
RESIDUAL BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE
MOIST MICA. SILTY SAND (A-2-4)
L
445+00.00
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
02/06
445+00.00
-L-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY CLAY (A-7-5)
NO ROCK
446+50.00
S-110
S-111
446+00.0 -L-
100.0 LT
RESIDUAL
RED/BRN. TO BRN. STIFF TO V. STIFF
MOIST MICA. SANDY CLAY (A-7-5)
BT
DRY
02/06
446+00.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	



-L-
S-112
SS-113
SS-114
SS-115
446+00.0 -L-
120.0 RT
(PI=32) RED/BRN. STIFF MOIST MICA. HIGHLY PLASTIC SANDY CLAY (A-7-5)
RESIDUAL
BRN. LOOSE TO DENSE MOIST MICA. SILTY SAND (A-2-5, A-2-4)
AR
DRY
02/06
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
850.85
L
446+00.00
816.22
446+00.00
-L-
890
880
870
860
850
840
830
820
810
800
790
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

8/23/99

29-MAY-2008 09:43
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cburris AT GEH22615

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	227

447+00.0 -L- C/L

RESIDUAL

BRN. STIFF TO V. STIFF MOIST MICA. SANDY CLAY (A-7-5)

L 447+00.00

817.26

6d 6d 6d

2:1

S.S. 868.97

867.90 Ditch Elevation

BT DRY 0206

447+00.00

RESIDUAL

BRN. STIFF TO V. STIFF MOIST MICA. SANDY CLAY (A-7-5)

NO ROCK

L 446+50.00

816.74

6d 6d 6d

2:1

S.S. 869.89

867.70 Ditch Elevation

446+50.00

16-MAY-2008 11:27
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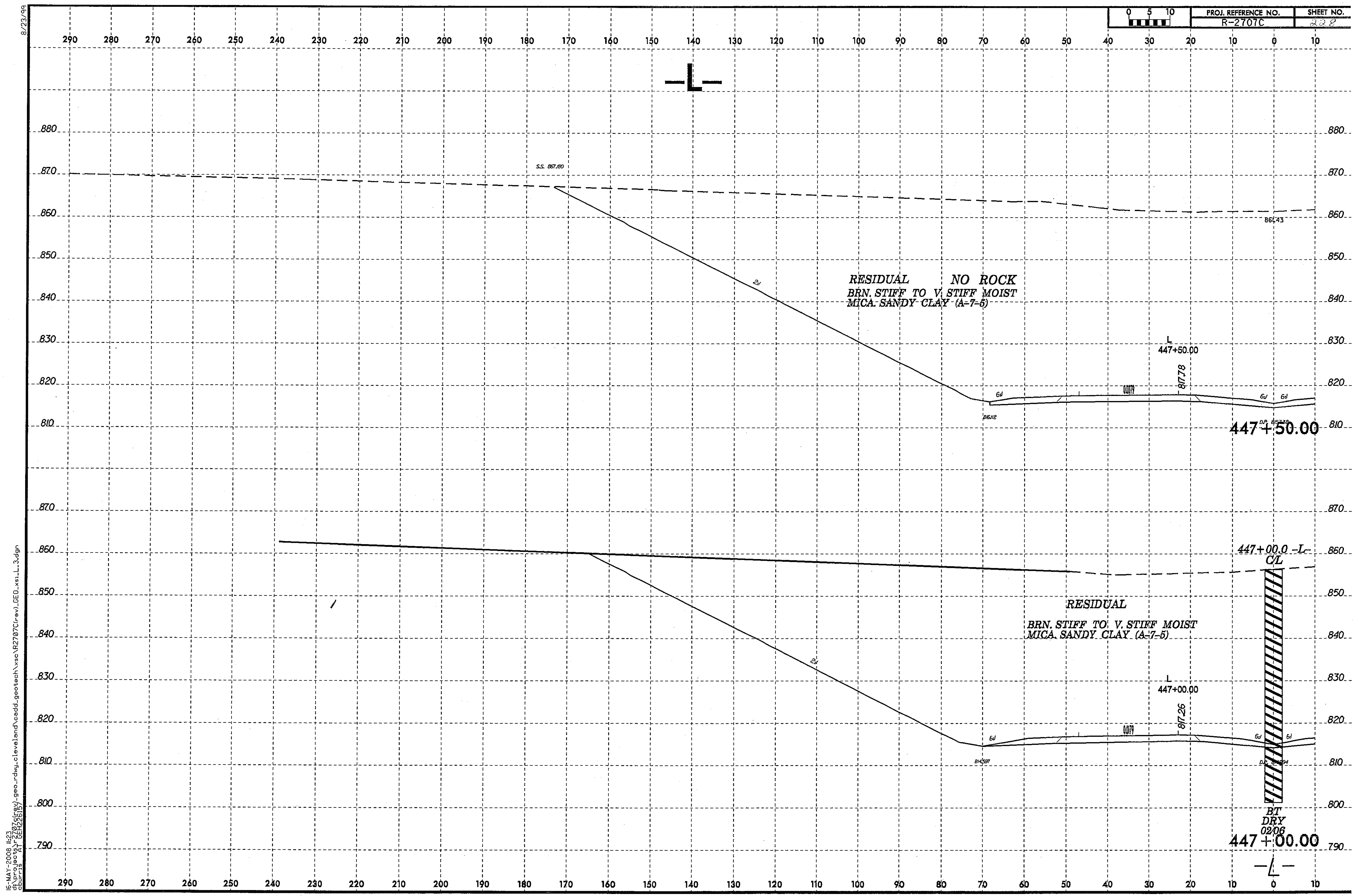
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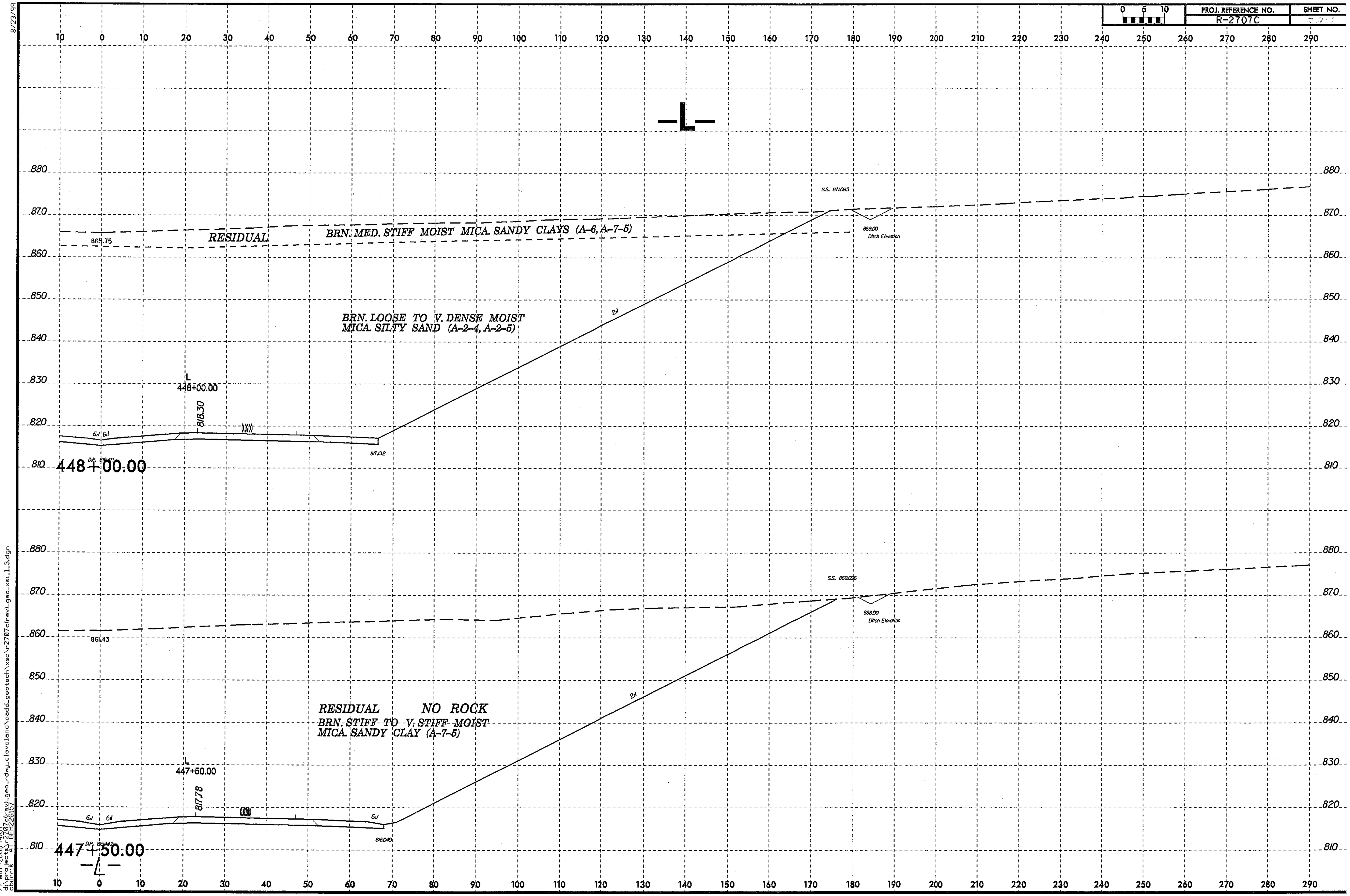
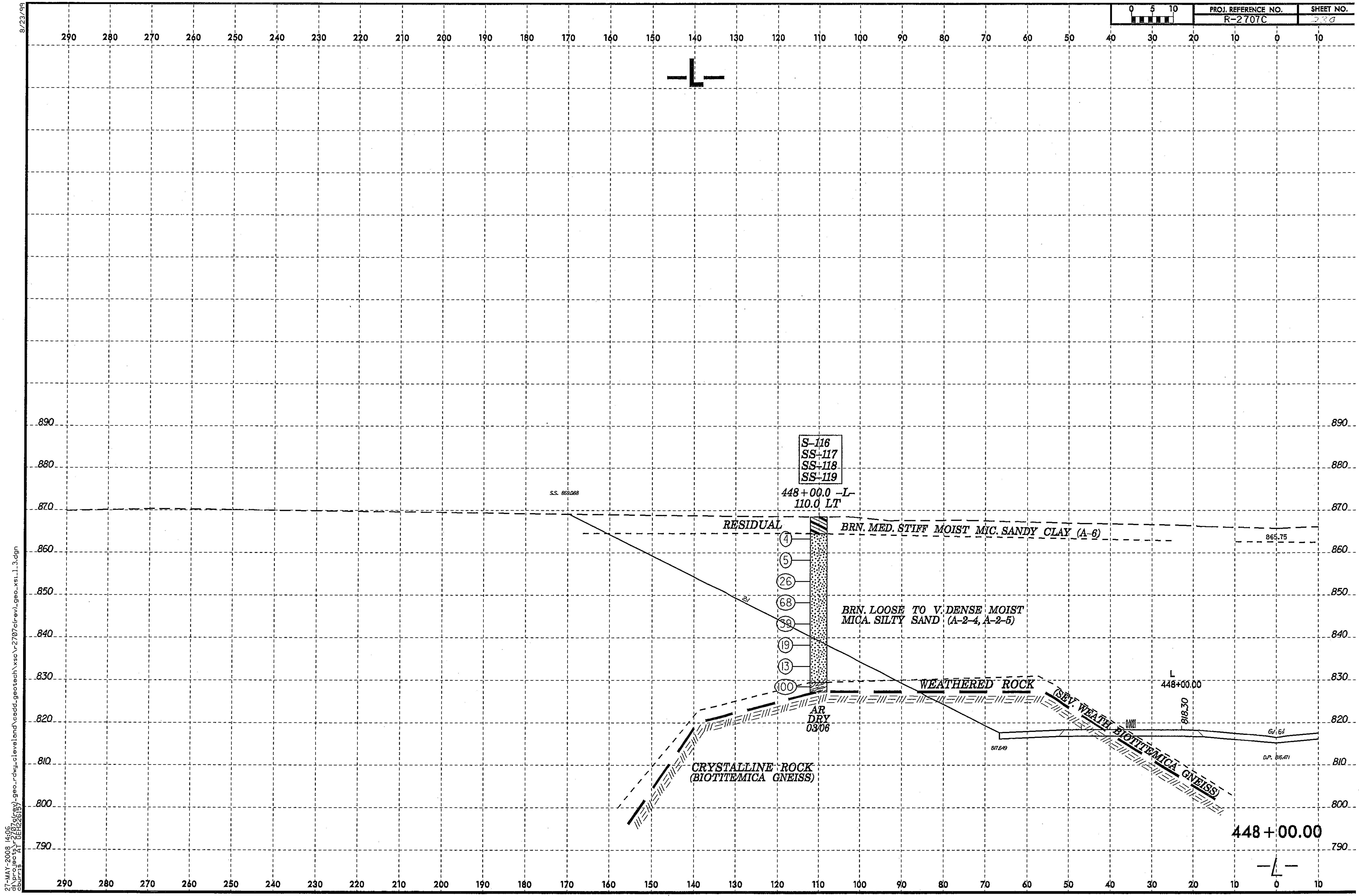
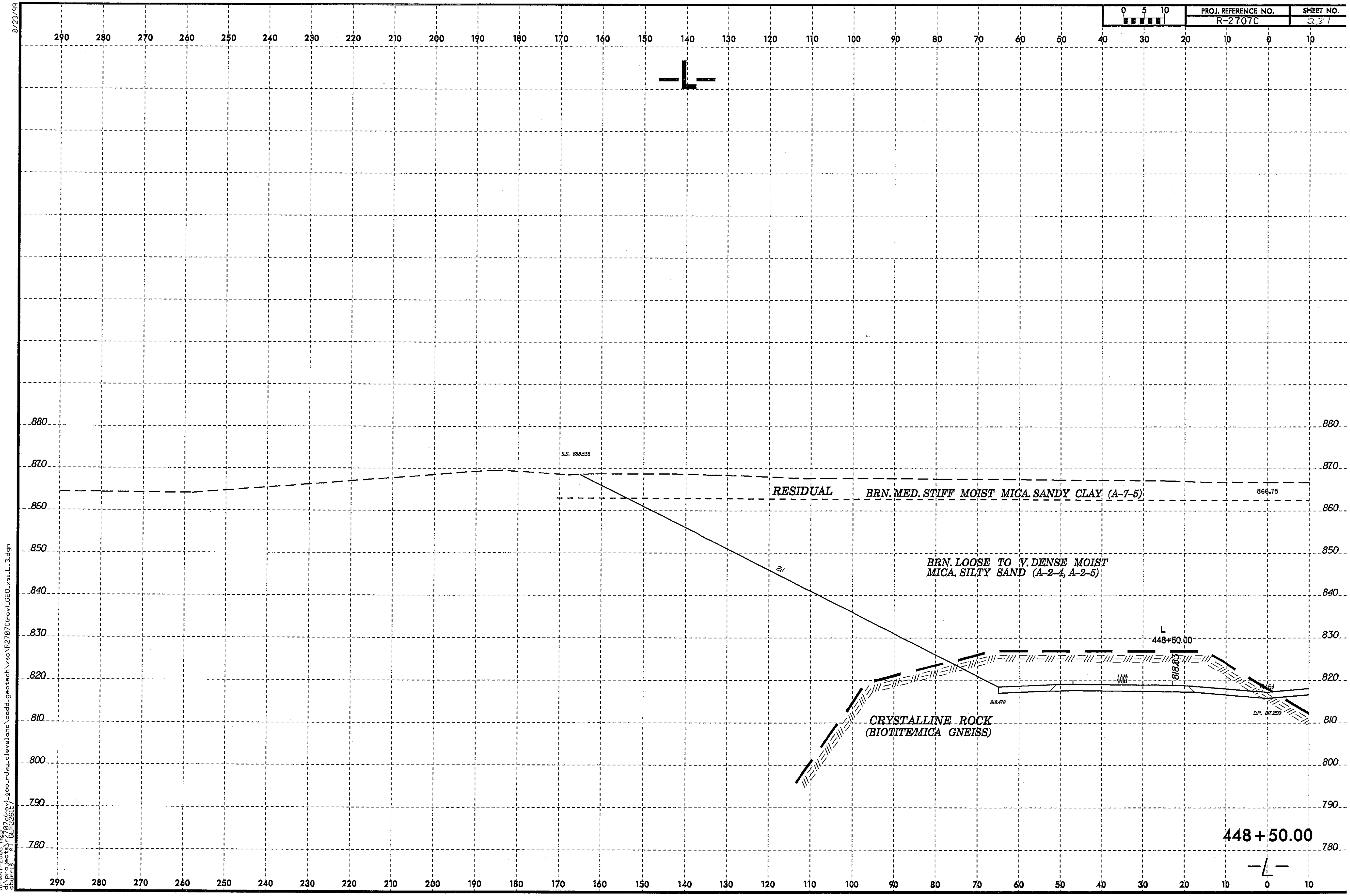
R-2707C
SHEET NO.
-L-
S.S. 867.80
RESIDUAL NO ROCK
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY CLAY (A-7-5)
L
447+50.00
817.78
447+50.00
447+00.0 -L-
C/L
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY CLAY (A-7-5)
L
447+00.00
817.26
BT
DRY
02/06
447+00.00
-L-
8/23/99
16-MAY-2008
cburris



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL
BRN. MED. STIFF MOIST MICA. SANDY CLAYS (A-6, A-7-5)
BRN. LOOSE TO V. DENSE MOIST
MICA. SILTY SAND (A-2-4, A-2-5)
865.75
Ditch Elevation
L
448+00.00
818.30
448+00.00
RESIDUAL NO ROCK
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY CLAY (A-7-5)
Ditch Elevation
L
447+50.00
817.78
447+50.00
-L-

8/23/99


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S-116
SS-117
SS-118
SS-119
448+00.0 -L-
110.0 LT
RESIDUAL
BRN. MED. STIFF MOIST MIC. SANDY CLAY (A-6)
BRN. LOOSE TO V. DENSE MOIST
MICA. SILTY SAND (A-2-4, A-2-5)
WEATHERED ROCK
(SEV. WEATH BIOTITEMICA GNEISS)
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
AR
DRY
03/06
4
5
26
68
39
19
13
100
L
448+00.00
818.30
865.75
448+00.00
-L-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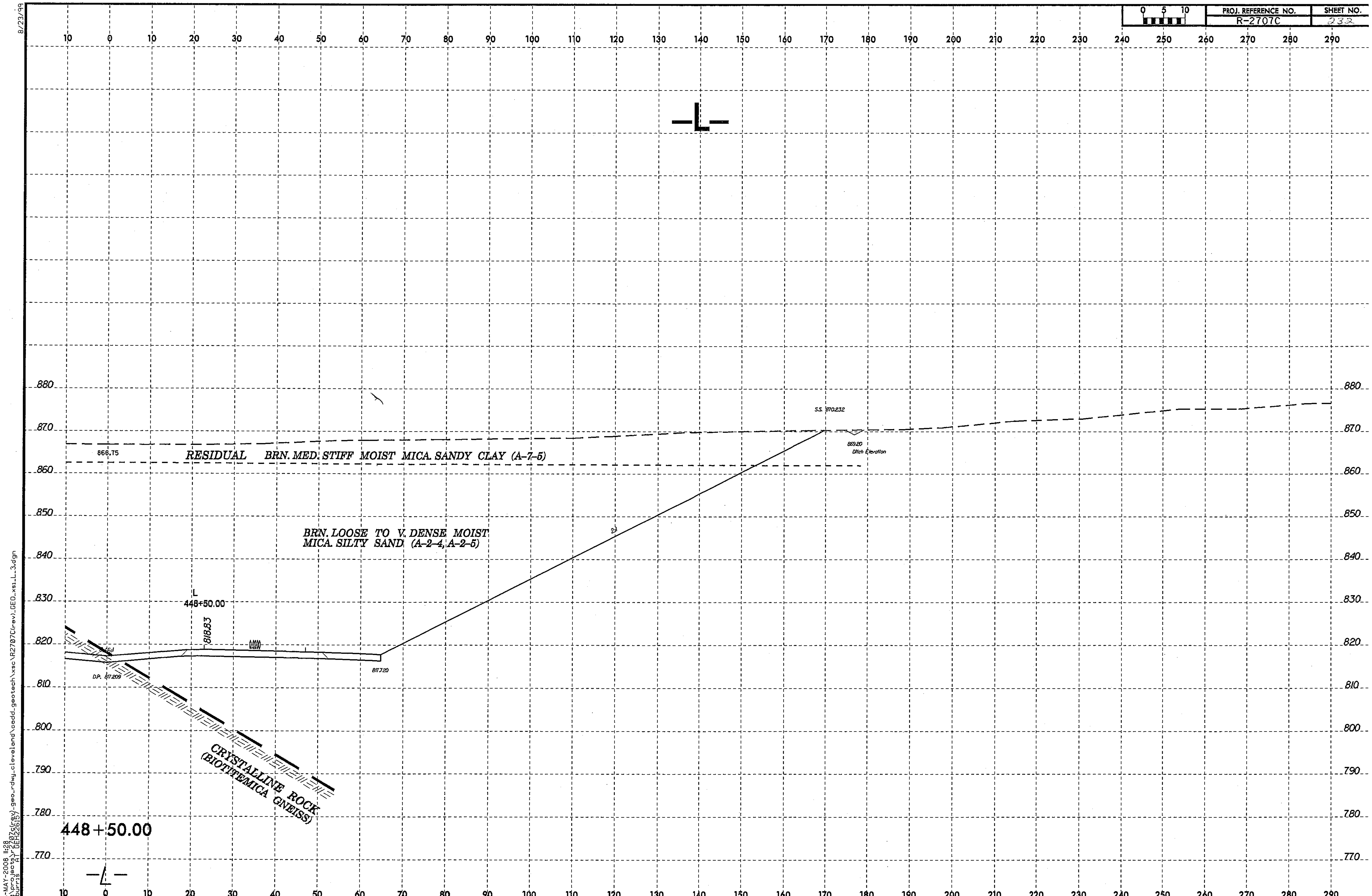
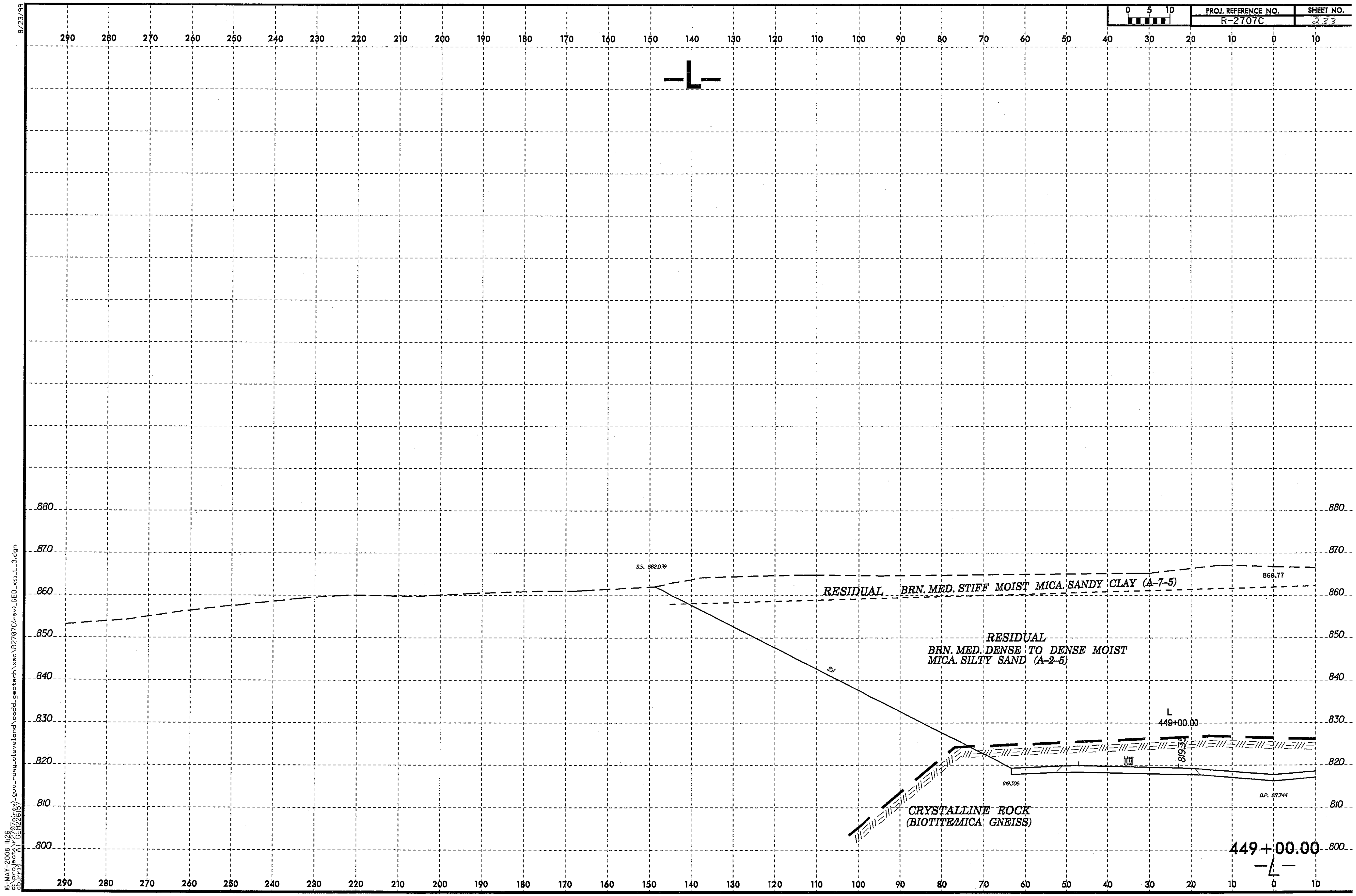
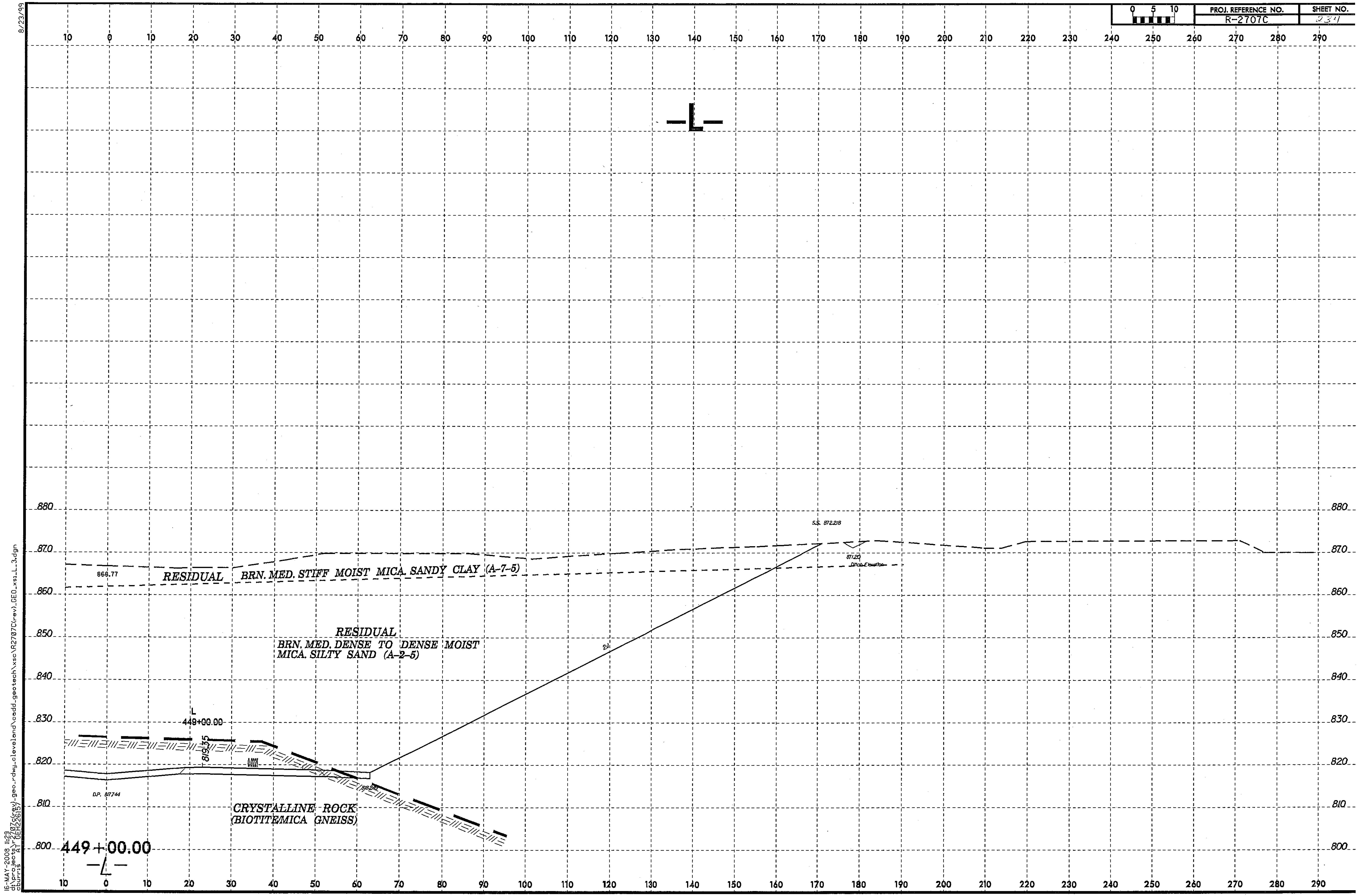
R-2707C
SHEET NO.
-L-
S.S. 868.536
RESIDUAL
BRN. MED. STIFF MOIST MICA. SANDY CLAY (A-7-5)
866.75
BRN. LOOSE TO V. DENSE MOIST
MICA. SILTY SAND (A-2-4, A-2-5)
L
448+50.00
818.478
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
448+50.00
-L-

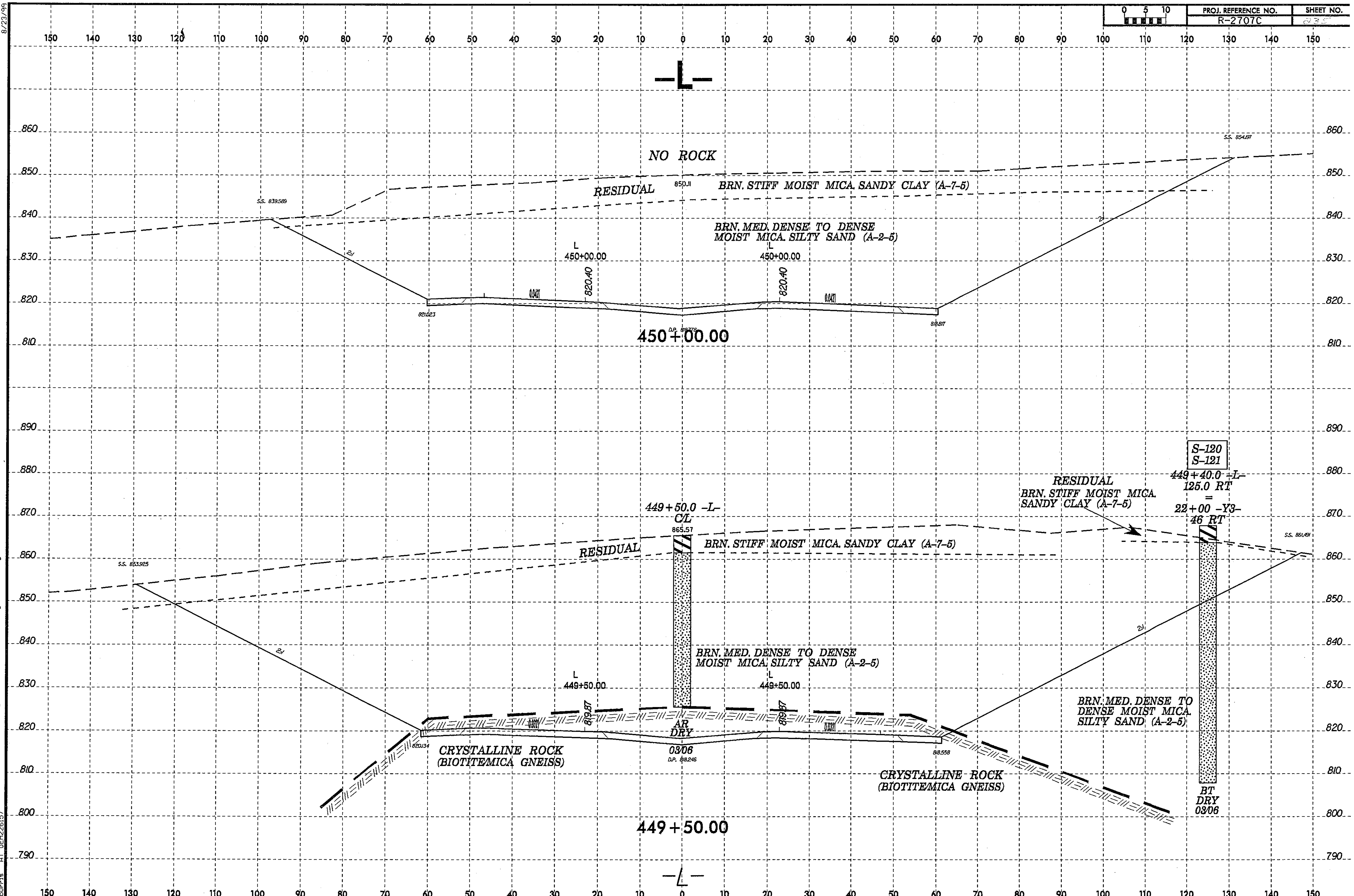


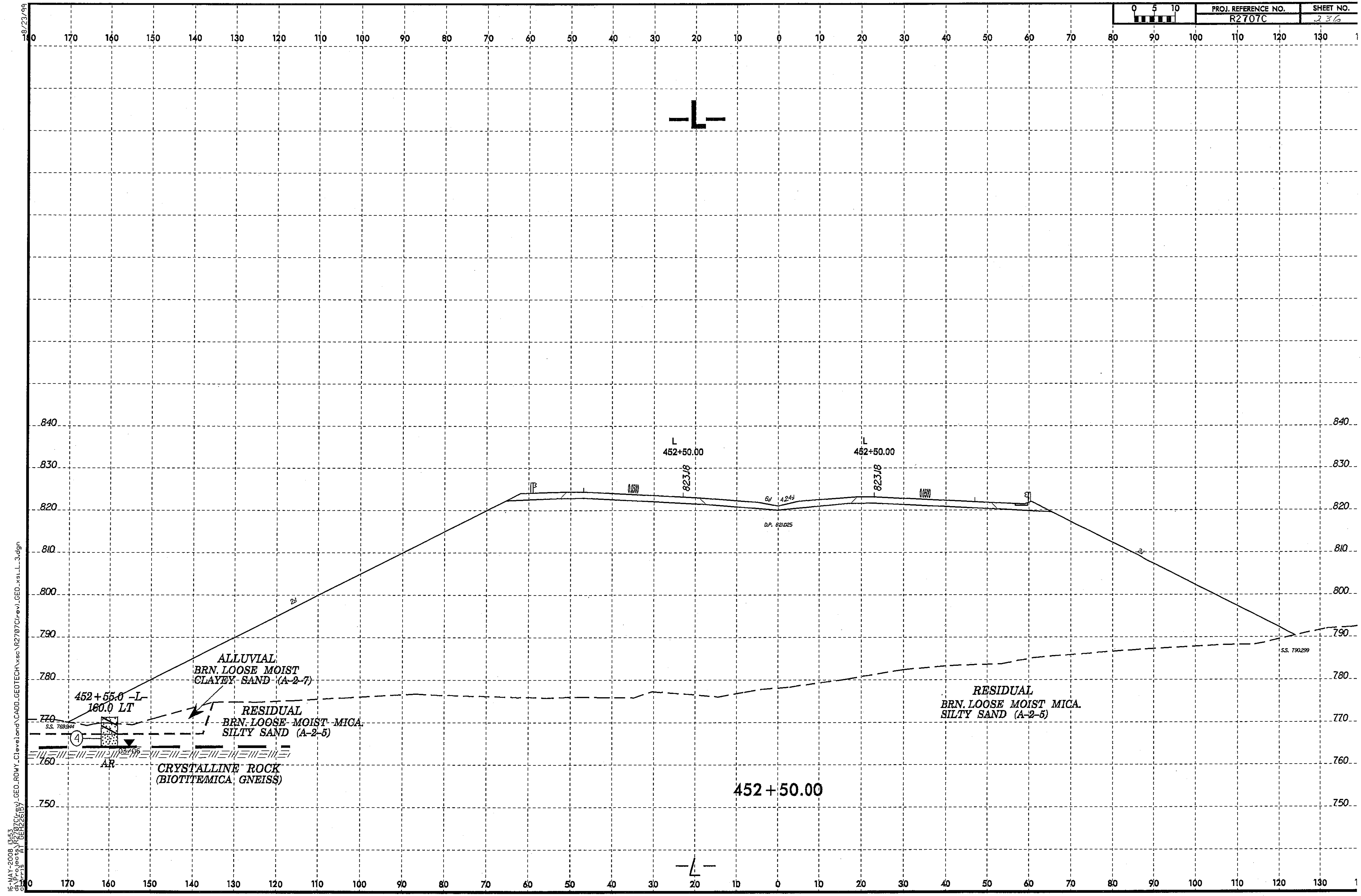
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
232
-L-
RESIDUAL BRN. MED. STIFF MOIST MICA SANDY CLAY (A-7-5)
BRN. LOOSE TO V. DENSE MOIST MICA SILTY SAND (A-2-4, A-2-5)
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
866.75
L
448+50.00
818.83
817.720
S.S. 870.232
Ditch Elevation
448+50.00
-L-

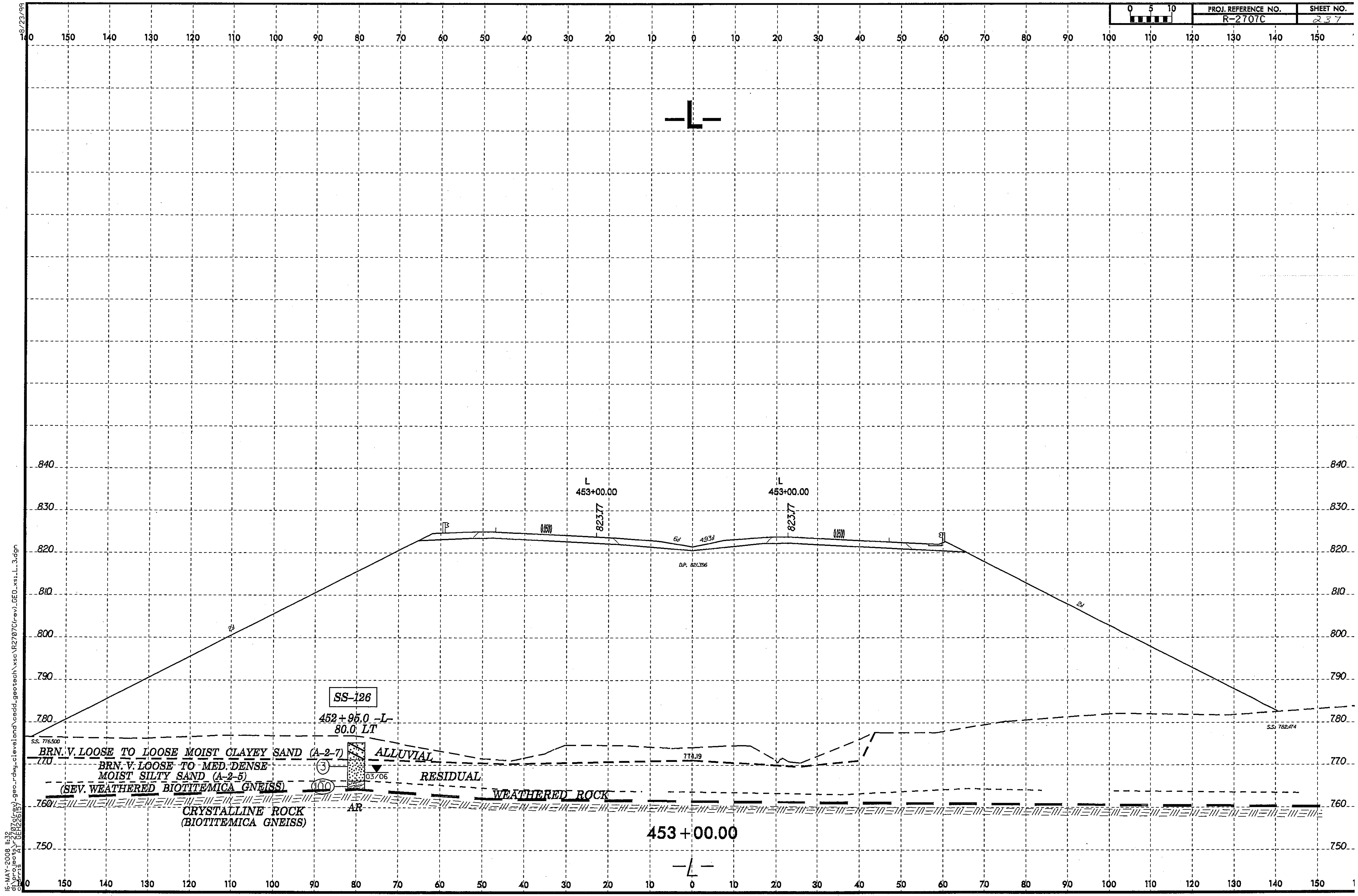


0 5 10
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
S.S. 862.039
RESIDUAL
BRN. MED. STIFF MOIST MICA. SANDY CLAY (A-7-5)
866.77
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST
MICA. SILTY SAND (A-2-5)
2:1
L
449+00.00
819.306
D.P. 817.744
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
449+00.00
-L-
880
870
860
850
840
830
820
810
800
8/23/99
16-MAY-2008 11:26

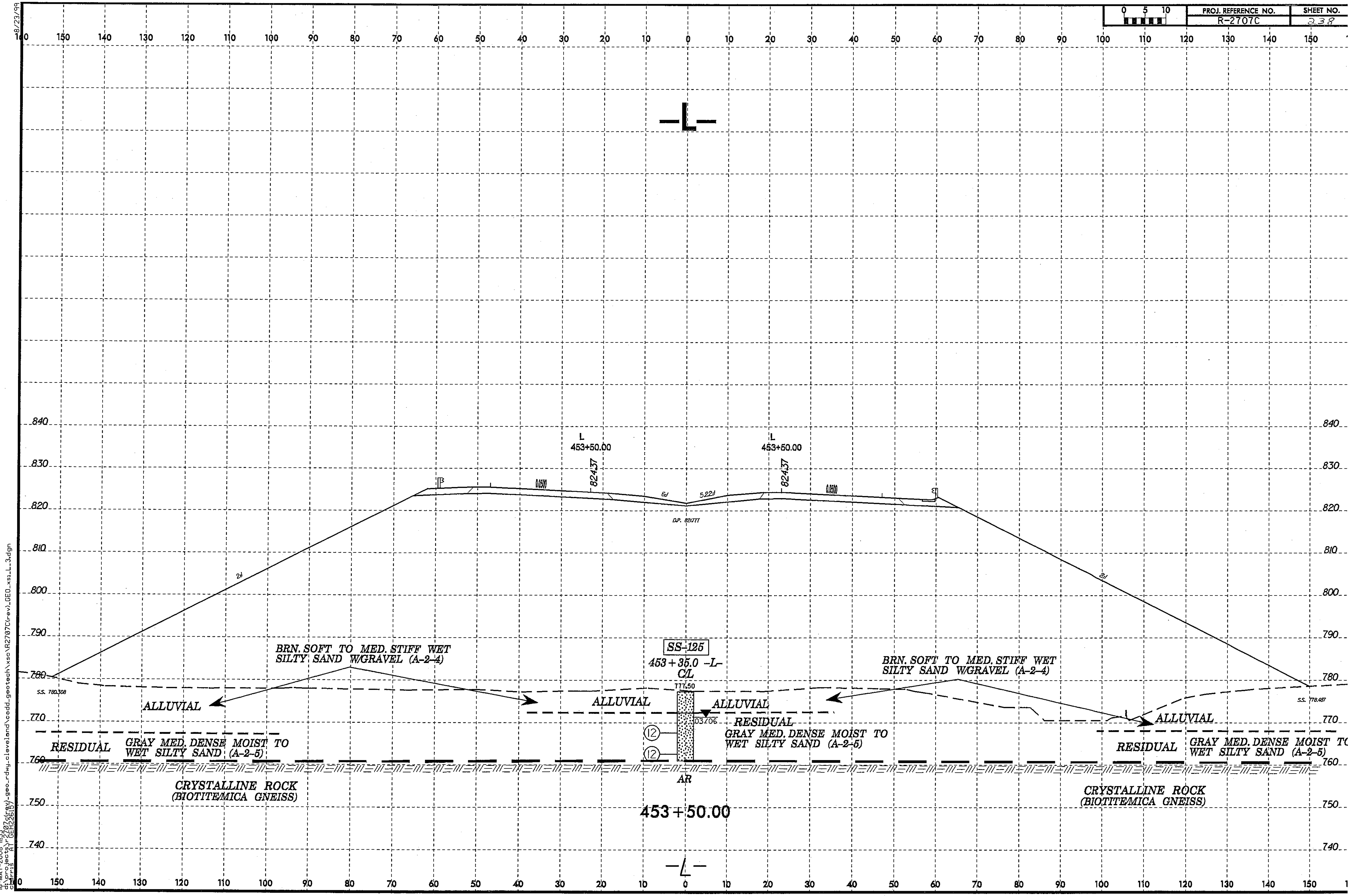

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RESIDUAL BRN. MED. STIFF MOIST MICA SANDY CLAY (A-7-5)
866.77
RESIDUAL
BRN. MED. DENSE TO DENSE MOIST
MICA SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
L
449+00.00
449+00.00
-L-
8/23/99


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
NO ROCK
RESIDUAL
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-5)
L 450+00.00
820.40
450+00.00
449+50.0 -L- C/L
865.57
BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
S-120
S-121
449+40.0 -L- 125.0 RT = 22+00 -Y3- 46 RT
RESIDUAL BRN. STIFF MOIST MICA. SANDY CLAY (A-7-5)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-5)
L 449+50.00
AR DRY 03/06
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
BRN. MED. DENSE TO DENSE MOIST MICA. SILTY SAND (A-2-5)
BT DRY 03/06
449+50.00
-L-
8/23/99


PROJ. REFERENCE NO.
R2707C
SHEET NO.
236
8/23/99
-L-
L
452+50.00
L
452+50.00
823.18
823.18
D.P. 821.025
ALLUVIAL
BRN. LOOSE MOIST
CLAYEY SAND (A-2-7)
452+55.0 -L-
160.0 LT
S.S. 769.844
RESIDUAL
BRN. LOOSE MOIST MICA.
SILTY SAND (A-2-5)
AR
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
RESIDUAL
BRN. LOOSE MOIST MICA.
SILTY SAND (A-2-5)
S.S. 790.299
452+50.00
-L-
16-MAY-2008 13:53

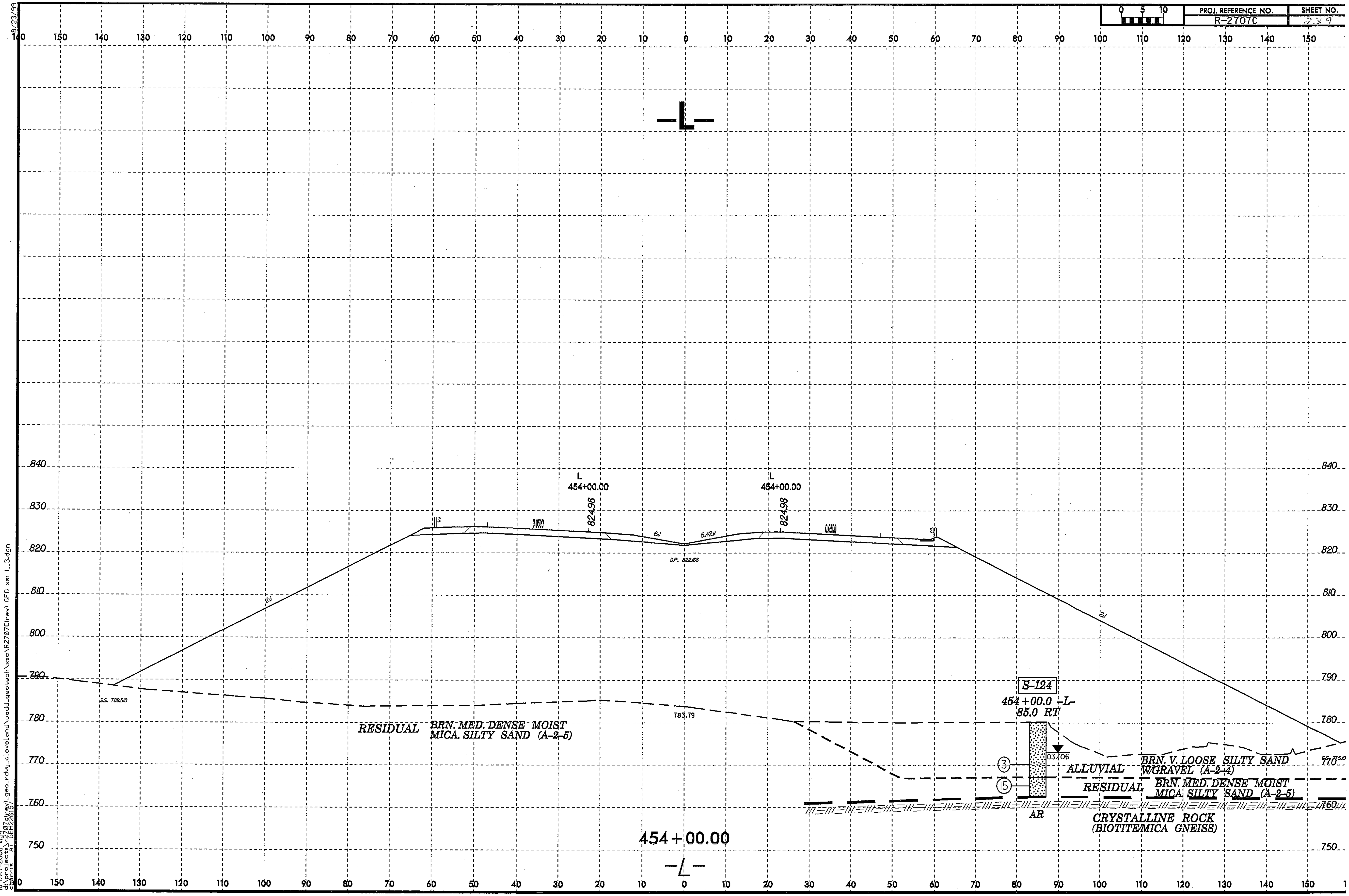


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
237
-L-
L
453+00.00
823.77
SS-126
452+95.0 -L-
80.0 LT
BRN. V. LOOSE TO LOOSE MOIST CLAYEY SAND (A-2-7)
ALLUVIAL
BRN. V. LOOSE TO MED. DENSE
MOIST SILTY SAND (A-2-5)
RESIDUAL
(SEV. WEATHERED BIOTITEMICA GNEISS)
WEATHERED ROCK
CRYSTALLINE ROCK
(BIOTITEMICA GNEISS)
AR
03/06
453+00.00
-L-

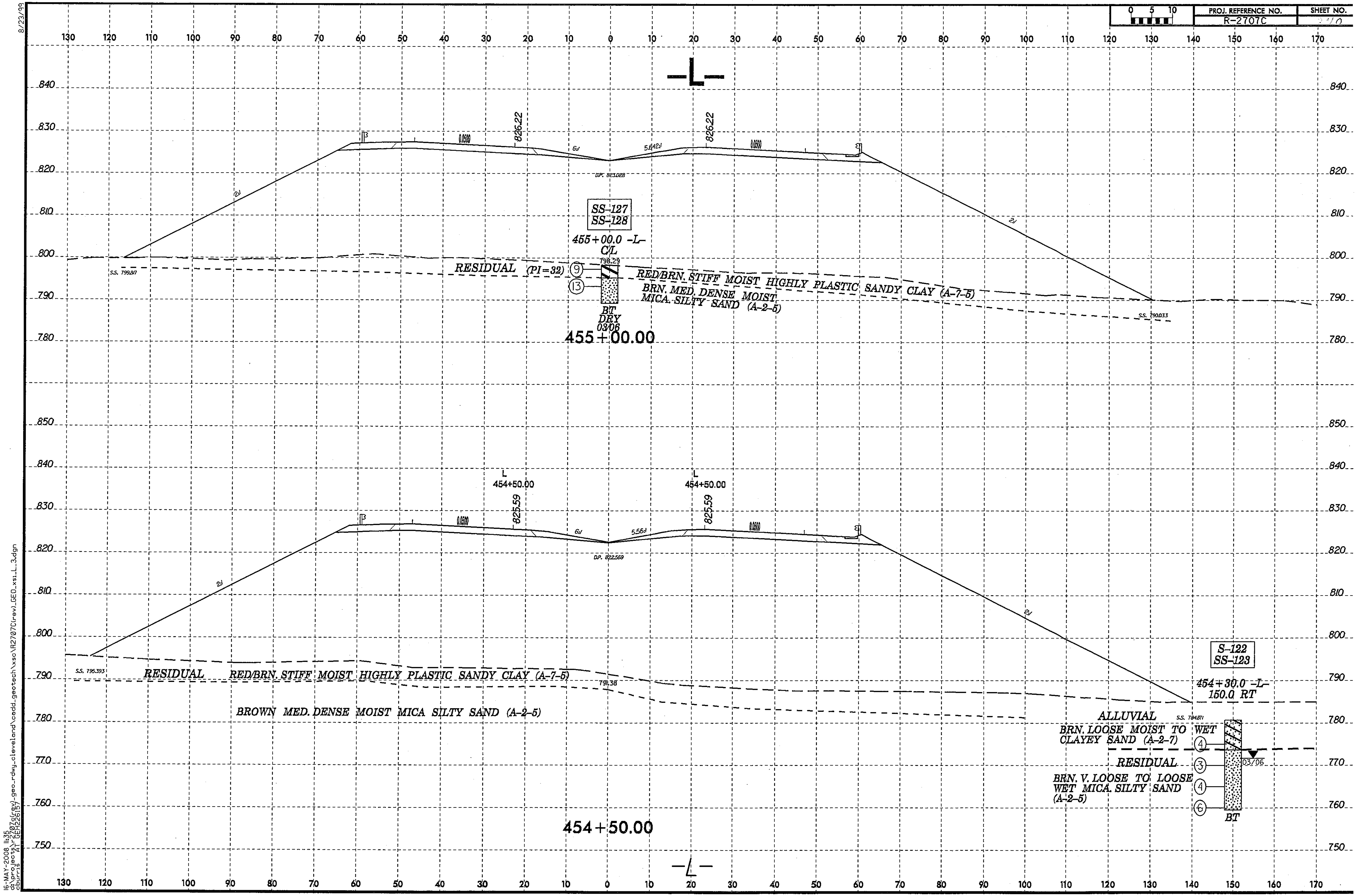


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
L
453+50.00
824.37
DP.
SS-125
453+35.0 -L-
CL
777.50
ALLUVIAL
RESIDUAL
BRN. SOFT TO MED. STIFF WET SILTY SAND W/GRAVEL (A-2-4)
GRAY MED. DENSE MOIST TO WET SILTY SAND (A-2-5)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
453+50.00
-L-
840
830
820
810
800
790
780
770
760
750
740

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	239



16-MAY-2008 11:34
r2707c_rdwy_geo_xsc_L_3.dgn


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
SS-127
SS-128
455+00.0 -L-
C/L
826.22
RESIDUAL (PI=32)
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BRN. MED. DENSE MOIST MICA. SILTY SAND (A-2-5)
BT
DRY
03/06
455+00.00
454+50.00
825.59
RESIDUAL
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-5)
BROWN MED. DENSE MOIST MICA SILTY SAND (A-2-5)
S-122
SS-123
454+30.0 -L-
150.0 RT
ALLUVIAL
BRN. LOOSE MOIST TO WET CLAYEY SAND (A-2-7)
RESIDUAL
BRN. V. LOOSE TO LOOSE WET MICA SILTY SAND (A-2-5)
BT
454+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	241

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

-L-

860
850
840
830
820
810

S.S. 852.460

463+00.0 -L-
80.0 LT

RESIDUAL

BRN. STIFF MOIST MICA. SANDY CLAY (A-6)

BRN. STIFF TO V. STIFF MOIST SANDY SILT (A-4)

834.379

BT
DRY
03/06

836.51

841.01

836.51

S.S. 822.419

463+00.00

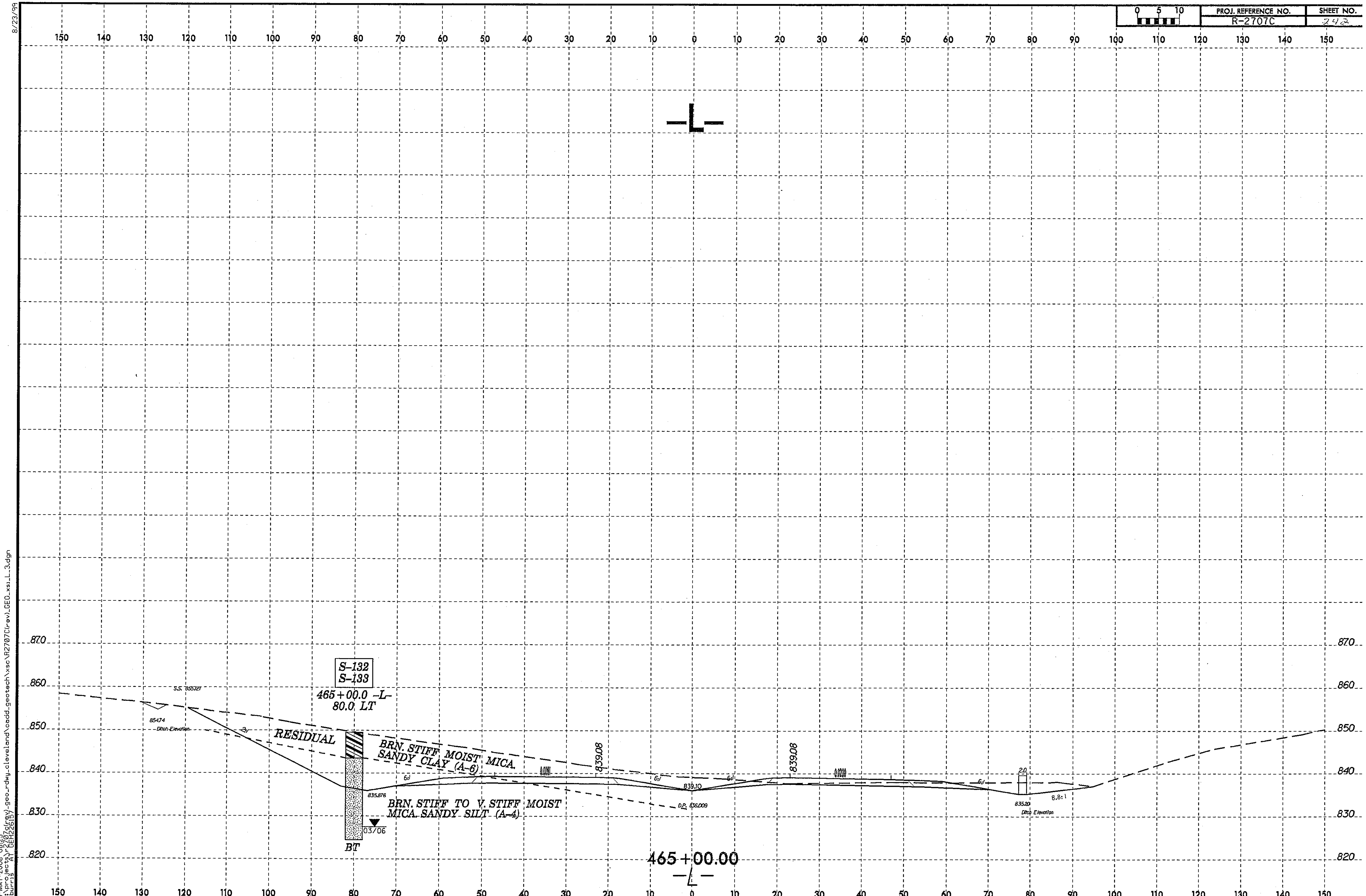
-L-

860
850
840
830
820
810

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

16-MAY-2008 11:44
d:\projects\r-2707c\geo_rdwy_cleveland\coddgeotech\xsc\R2707C(rev)_GEO_xs_L_3.dgn
cburris

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	242



8/23/99

19-MAY-2008 08:25
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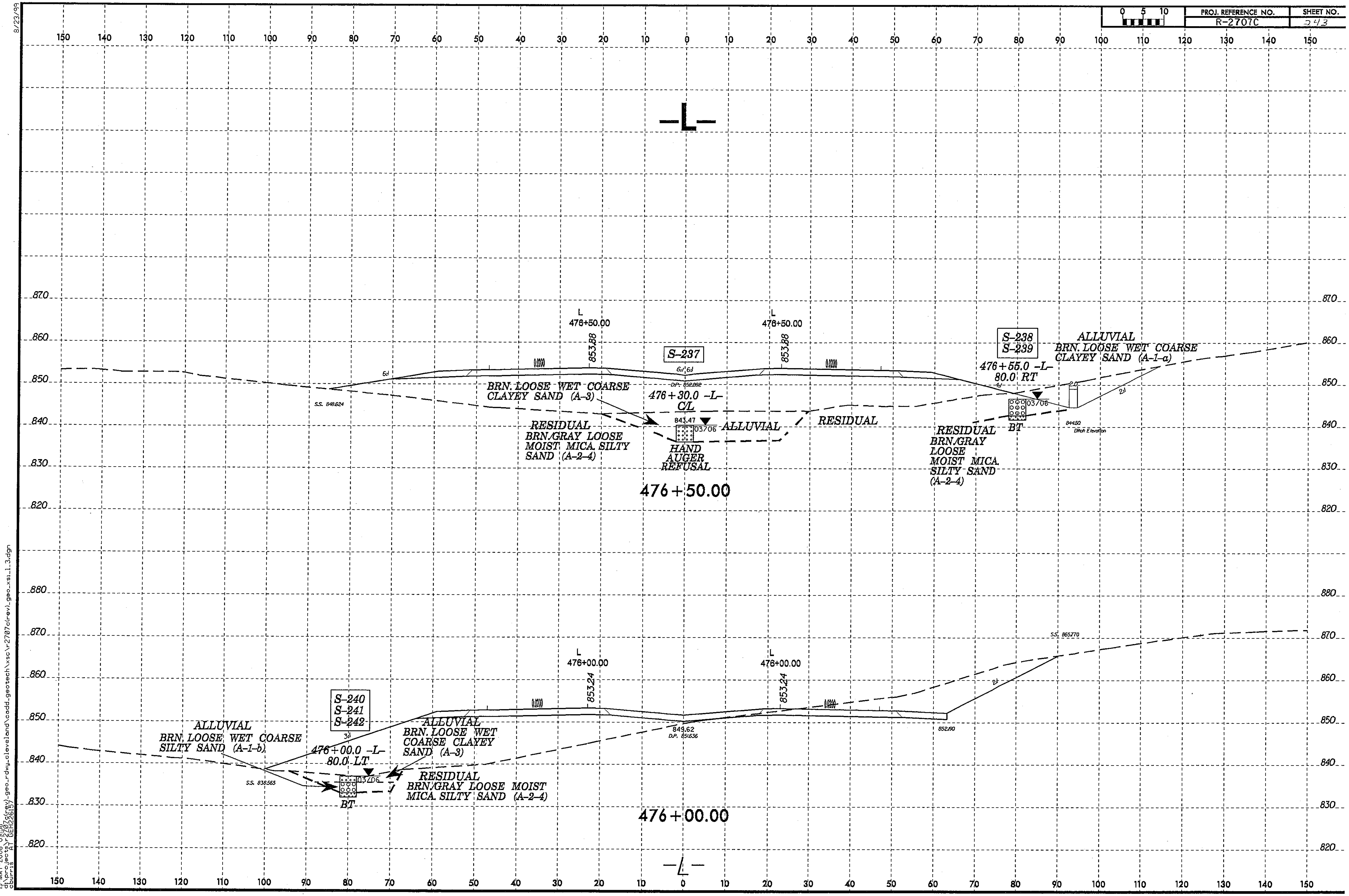
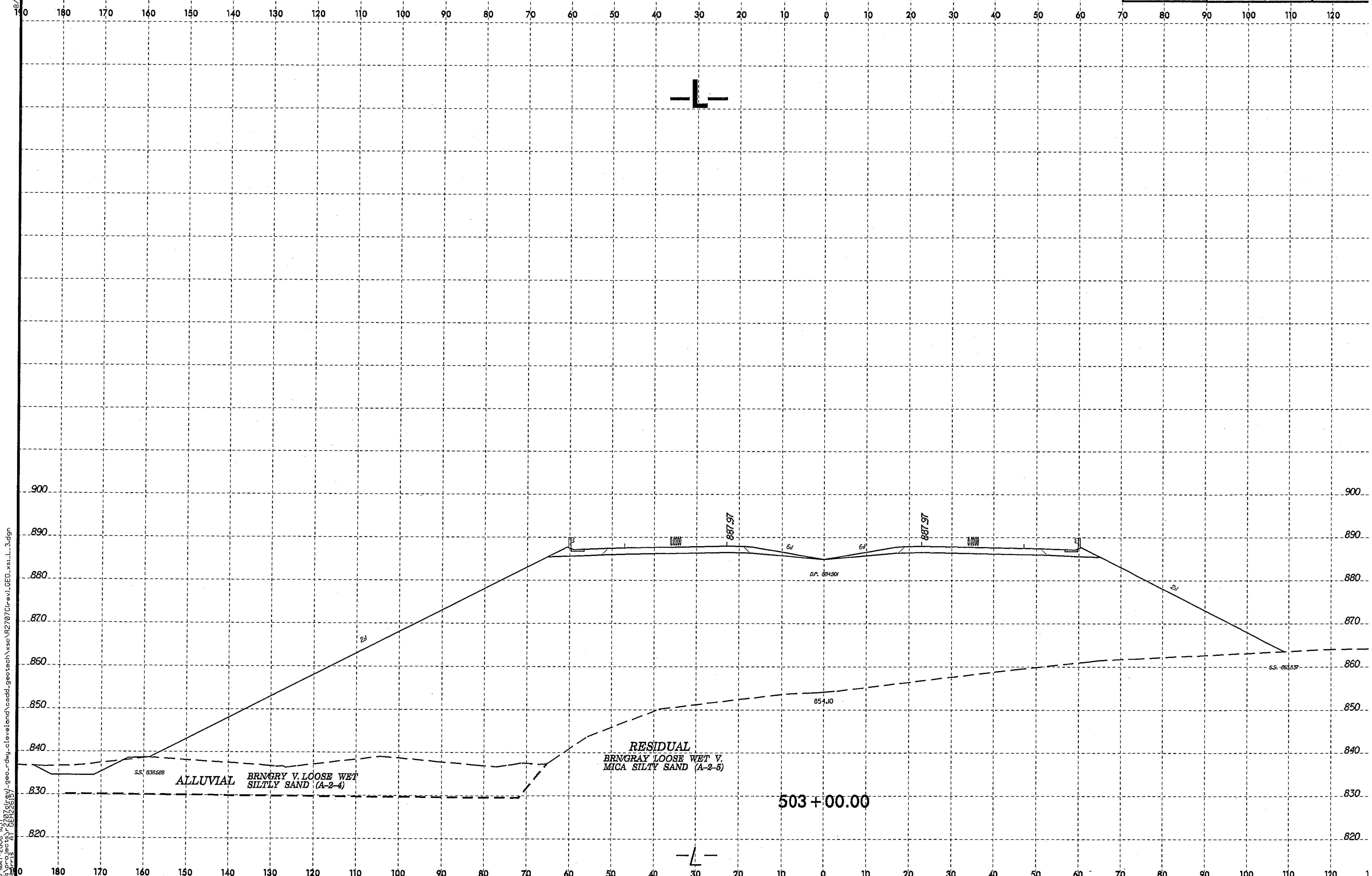


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
243
-L-
S-237
476+30.0 -L-
C/L
BRN. LOOSE WET COARSE CLAYEY SAND (A-3)
RESIDUAL
BRN/GRAY LOOSE MOIST MICA SILTY SAND (A-2-4)
843.47
03/06
ALLUVIAL
HAND AUGER REFUSAL
RESIDUAL
S-238
S-239
476+55.0 -L-
80.0 RT
ALLUVIAL
BRN. LOOSE WET COARSE CLAYEY SAND (A-1-a)
03/06
BT
RESIDUAL
BRN/GRAY LOOSE MOIST MICA SILTY SAND (A-2-4)
476+50.00
S-240
S-241
S-242
ALLUVIAL
BRN. LOOSE WET COARSE SILTY SAND (A-1-b)
476+00.0 -L-
80.0 LT
ALLUVIAL
BRN. LOOSE WET COARSE CLAYEY SAND (A-3)
RESIDUAL
BRN/GRAY LOOSE MOIST MICA SILTY SAND (A-2-4)
03/06
BT
849.62
476+00.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	244



16-MAY-2008 11:37
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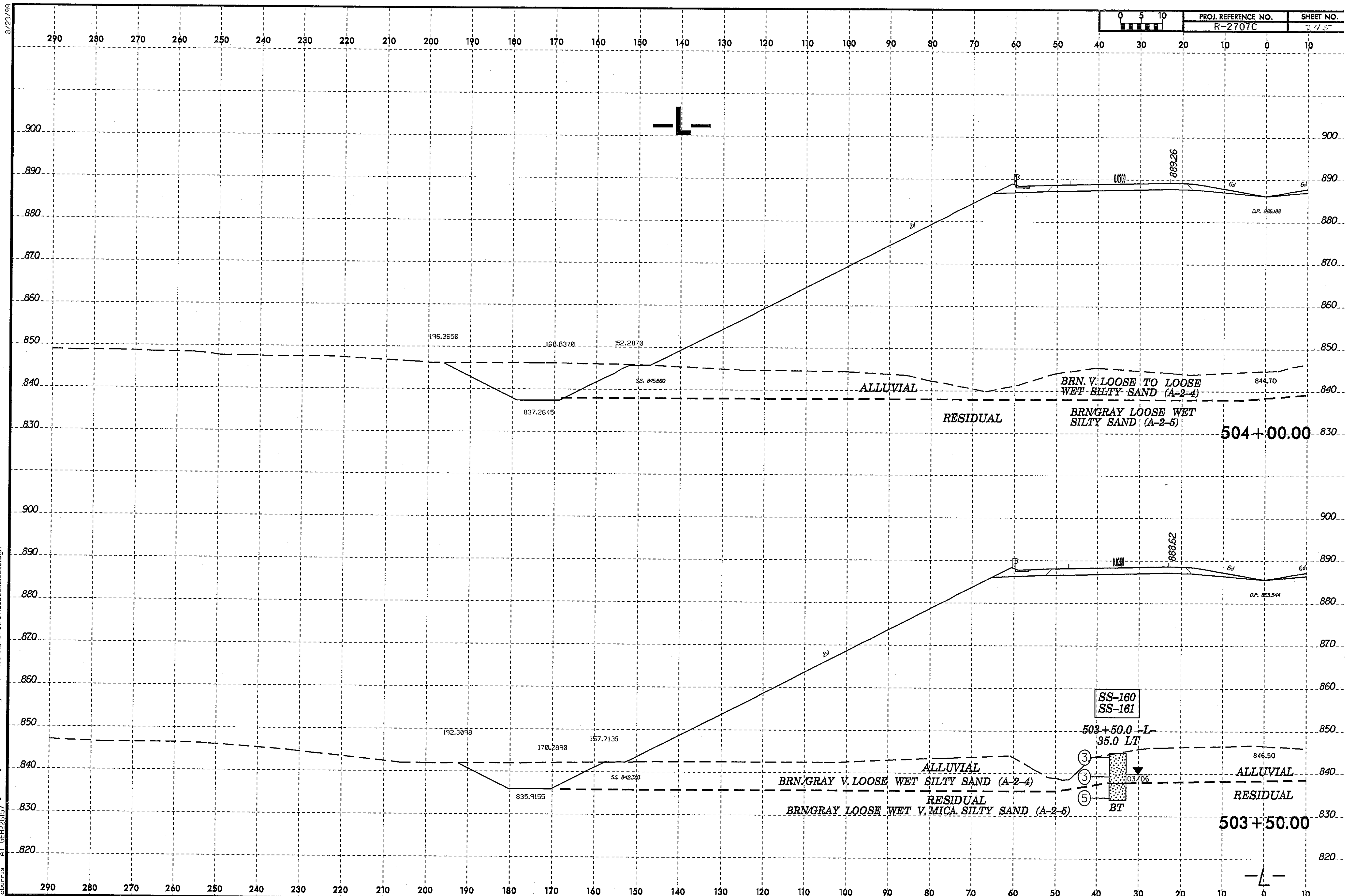
cdarris AT GEH226157

8/23/99

0 5 10

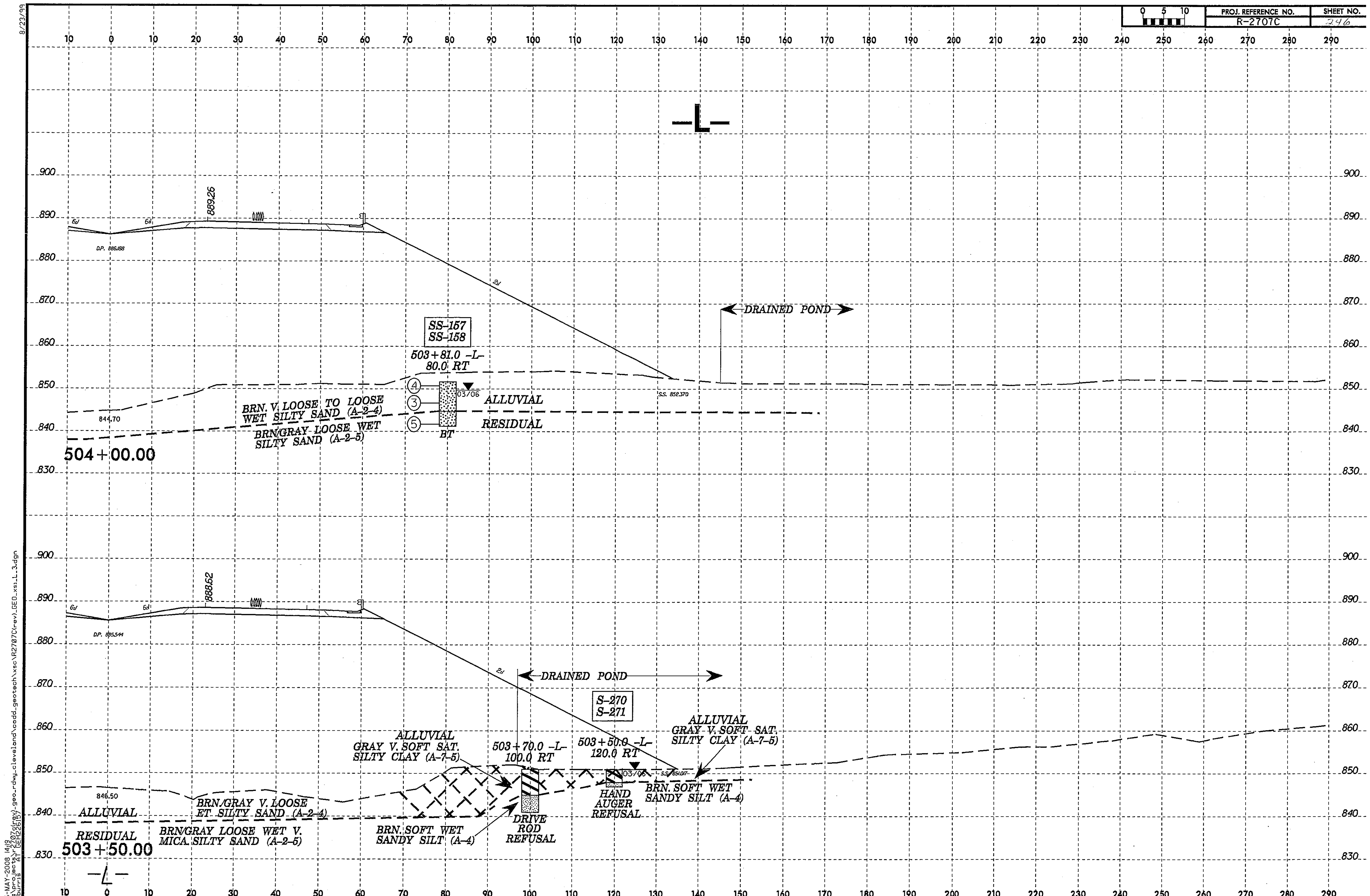
PROJ. REFERENCE NO. R-2707C

SHEET NO. 245

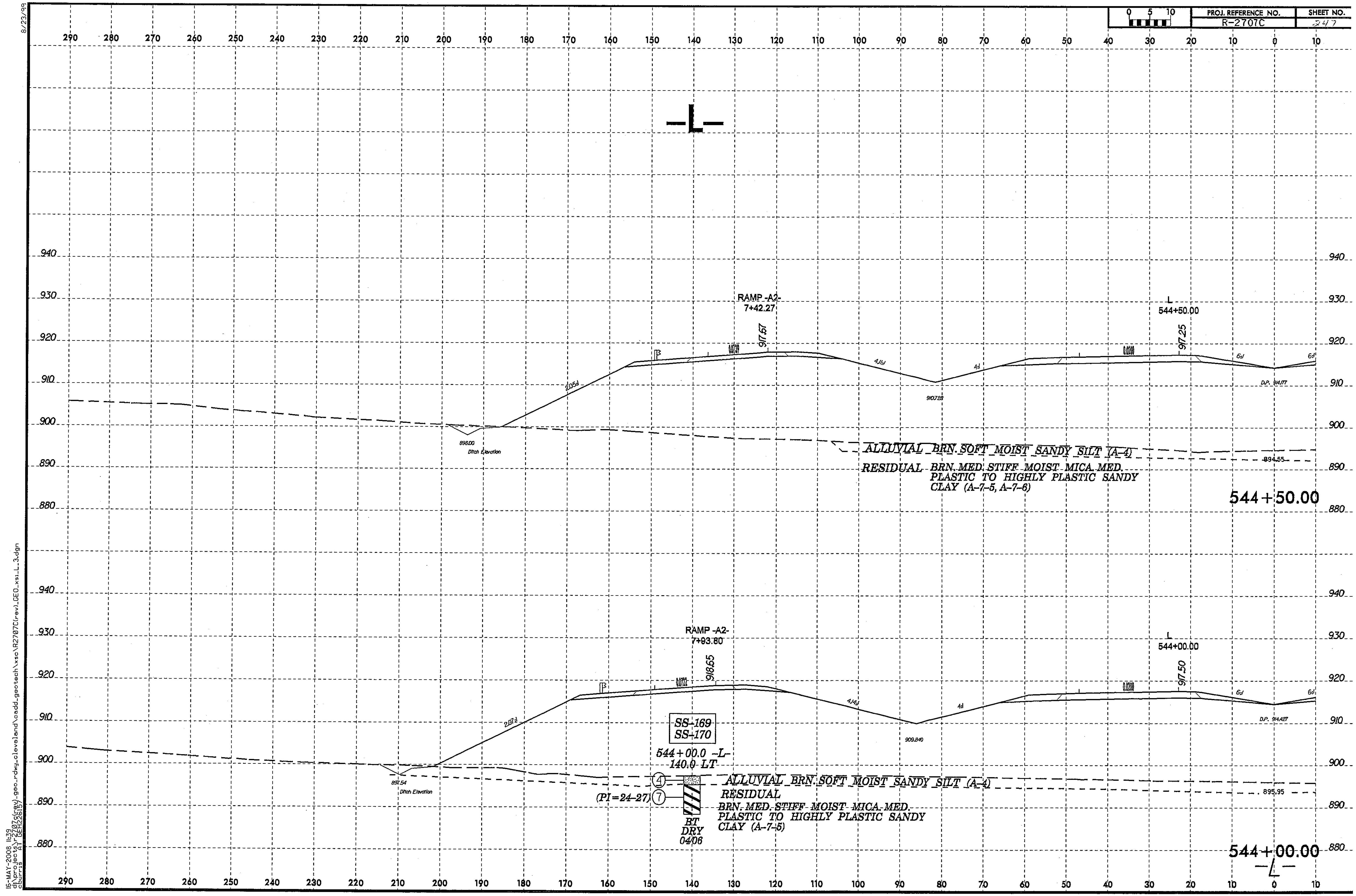


8/23/99
-L-
196.3650
168.8370
152.2870
S.S. 845.660
837.2845
889.26
D.P. 886.188
844.70
ALLUVIAL
BRN. V. LOOSE TO LOOSE WET SILTY SAND (A-2-4)
RESIDUAL
BRN/GRAY LOOSE WET SILTY SAND (A-2-5)
504+00.00
192.3098
170.2890
157.7135
S.S. 842.303
835.9155
888.62
D.P. 885.544
SS-160
SS-161
503+50.0 -L-
35.0 LT
846.50
03/06
BT
ALLUVIAL
BRN/GRAY V. LOOSE WET SILTY SAND (A-2-4)
RESIDUAL
BRN/GRAY LOOSE WET V. MICA. SILTY SAND (A-2-5)
ALLUVIAL
RESIDUAL
503+50.00
-L-

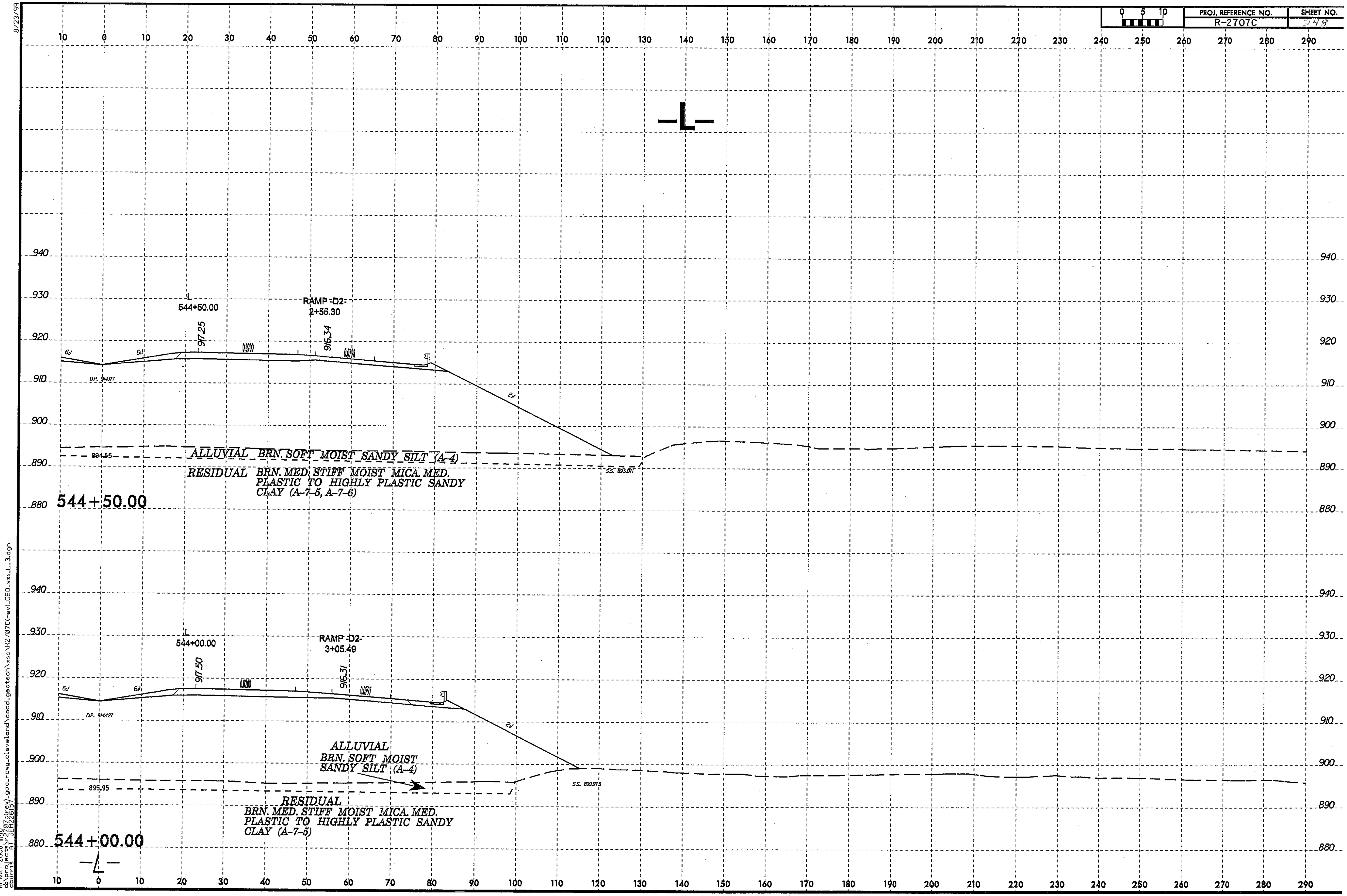
16-MAY-2008 14:18
d:\projects\r2707c(rev)-geo_rdwy_cleveland\cadd_geotech\xsc\R2707C(rev)_GEO_xsi_L_3.dgn
cburris AT GEH226157



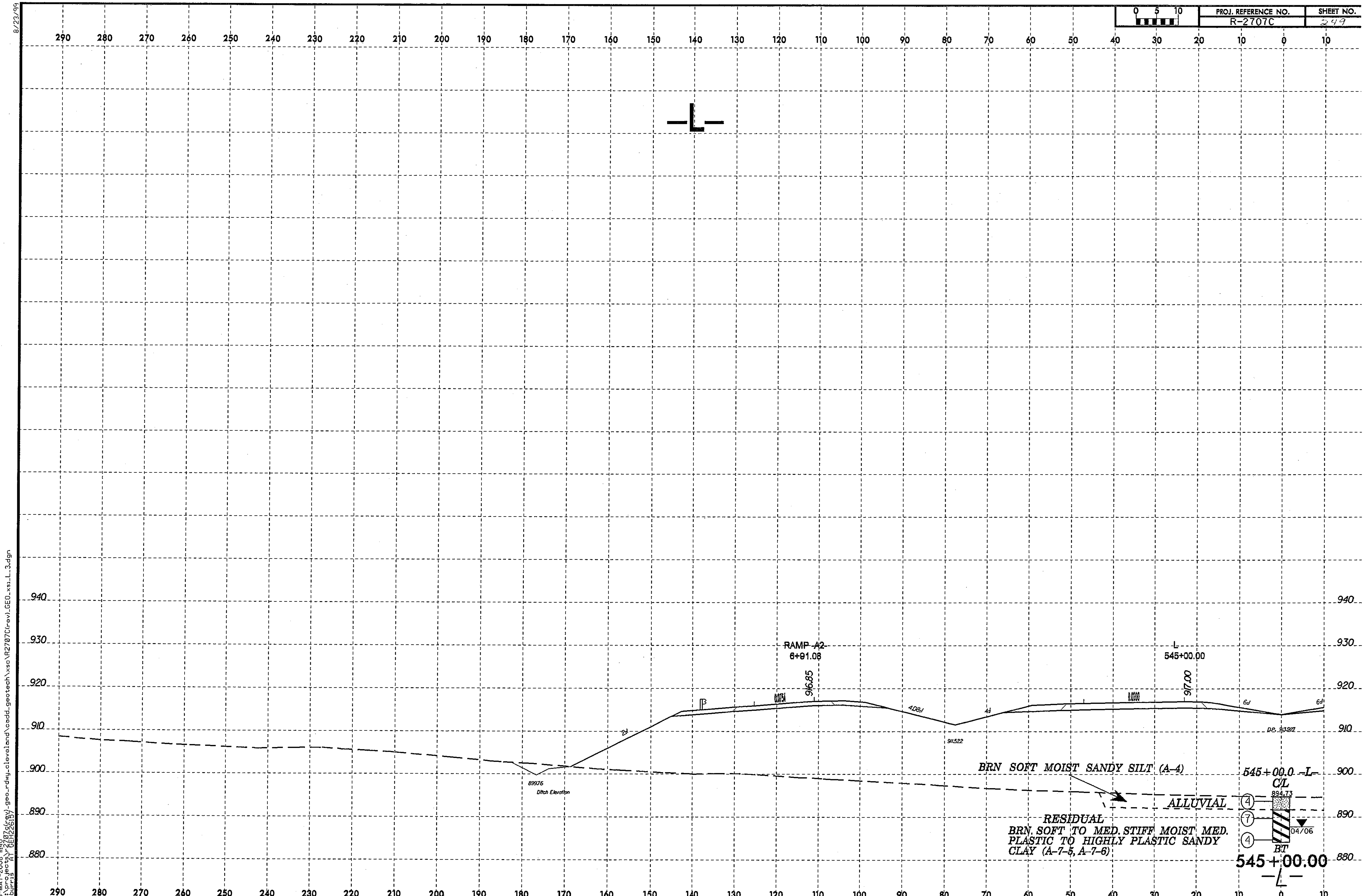
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
246
0 5 10
-L-
889.26
D.P. 886.188
SS-157
SS-158
503+81.0 -L-
80.0 RT
03/06
ALLUVIAL
RESIDUAL
BT
DRAINED POND
BRN. V. LOOSE TO LOOSE WET SILTY SAND (A-2-4)
BRN/GRAY LOOSE WET SILTY SAND (A-2-5)
844.70
504+00.00
888.62
D.P. 885.544
S-270
S-271
503+70.0 -L-
100.0 RT
503+50.0 -L-
120.0 RT
ALLUVIAL
GRAY V. SOFT SAT. SILTY CLAY (A-7-5)
ALLUVIAL
GRAY V. SOFT SAT. SILTY CLAY (A-7-5)
BRN. SOFT WET SANDY SILT (A-4)
BRN. SOFT WET SANDY SILT (A-4)
DRIVE ROD REFUSAL
HAND AUGER REFUSAL
846.50
ALLUVIAL
RESIDUAL
BRN/GRAY V. LOOSE ET SILTY SAND (A-2-4)
BRN/GRAY LOOSE WET V. MICA. SILTY SAND (A-2-5)
503+50.00
-L-
8/23/99
16-MAY-2008 14:19
cburris



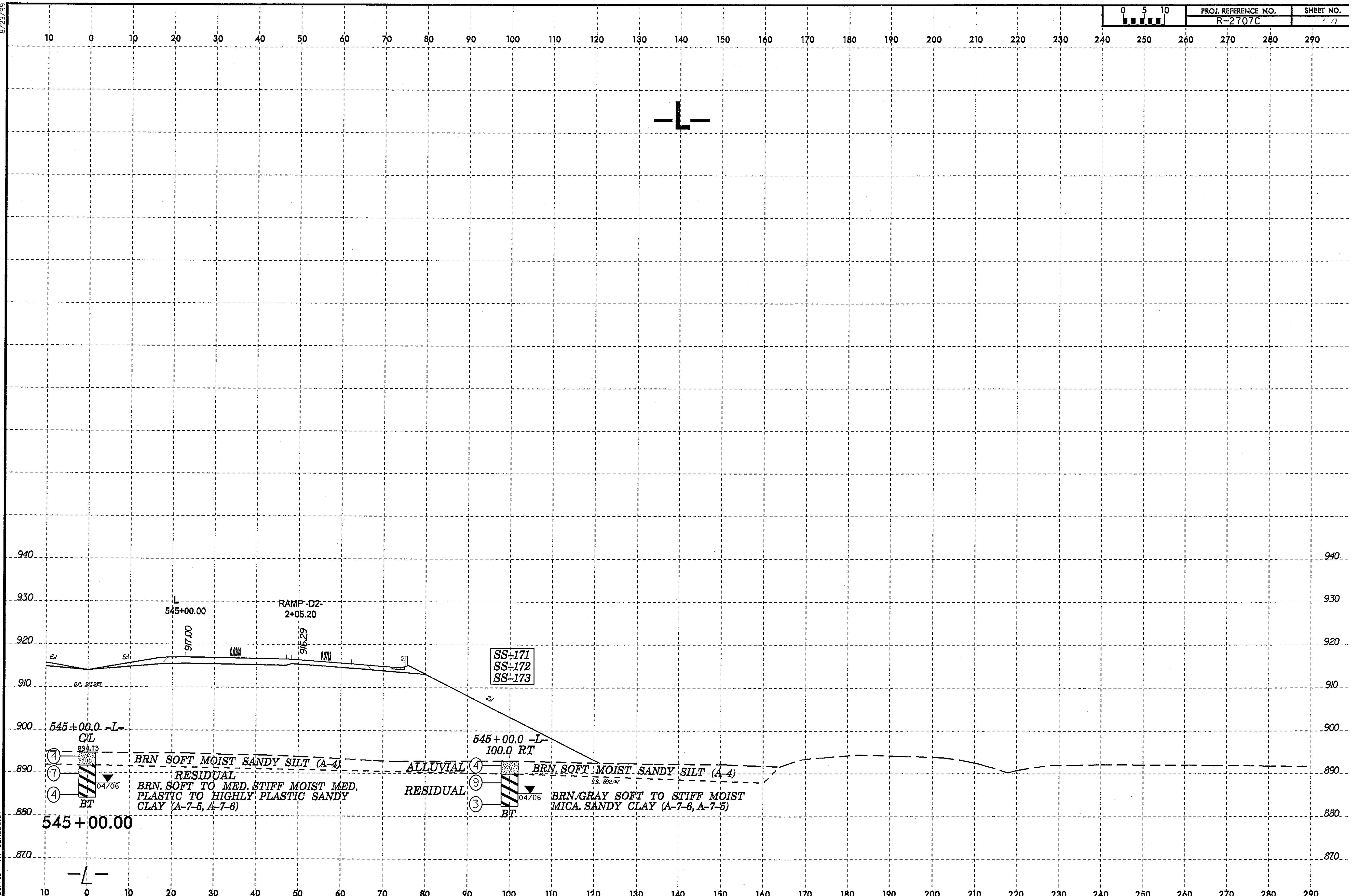
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
RAMP -A2-
7+42.27
917.57
L
544+50.00
917.25
Ditch Elevation
ALLUVIAL BRN. SOFT MOIST SANDY SILT (A-4)
RESIDUAL BRN. MED. STIFF MOIST MICA. MED. PLASTIC TO HIGHLY PLASTIC SANDY CLAY (A-7-5, A-7-6)
544+50.00
RAMP -A2-
7+93.80
918.65
L
544+00.00
917.50
SS-169
SS-170
544+00.0 -L-
140.0 LT
(PI=24-27)
BT
DRY
04/06
ALLUVIAL BRN. SOFT MOIST SANDY SILT (A-4)
RESIDUAL
BRN. MED. STIFF MOIST MICA. MED. PLASTIC TO HIGHLY PLASTIC SANDY CLAY (A-7-5)
544+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
248
-L-
L
544+50.00
RAMP -D2-
2+55.30
917.25
916.34
ALLUVIAL BRN. SOFT MOIST SANDY SILT (A-4)
RESIDUAL BRN. MED. STIFF MOIST MICA. MED. PLASTIC TO HIGHLY PLASTIC SANDY CLAY (A-7-5, A-7-6)
544+50.00
L
544+00.00
RAMP -D2-
3+05.49
917.50
916.31
ALLUVIAL
BRN. SOFT MOIST
SANDY SILT (A-4)
RESIDUAL
BRN. MED. STIFF MOIST MICA. MED. PLASTIC TO HIGHLY PLASTIC SANDY CLAY (A-7-5)
544+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
249
-L-
RAMP -A2-
6+91.08
916.85
-L-
545+00.00
917.00
BRN SOFT MOIST SANDY SILT (A-4)
ALLUVIAL
RESIDUAL
BRN. SOFT TO MED. STIFF MOIST MED. PLASTIC TO HIGHLY PLASTIC SANDY CLAY (A-7-5, A-7-6)
545+00.0 -L-
C/L
894.73
04/06
BT
545+00.00
-L-
Ditch Elevation
940
930
920
910
900
890
880



8/23/99

19-MAY-2008 10:03
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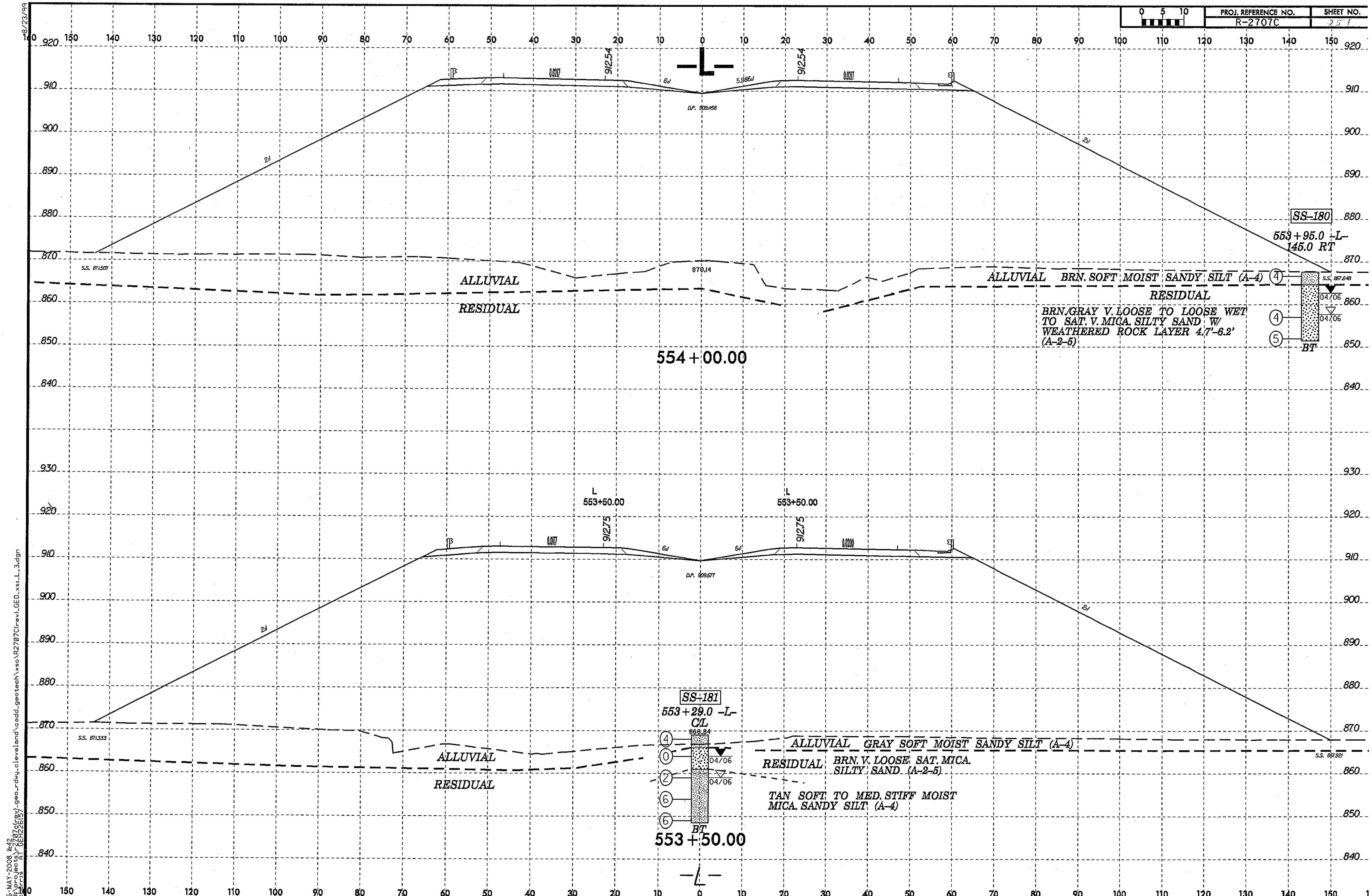
cburris AT GEH226157



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
-L-
554+00.00
ALLUVIAL
RESIDUAL
SS-180
553+95.0 -L-
145.0 RT
ALLUVIAL BRN. SOFT MOIST SANDY SILT (A-4)
RESIDUAL
BRN./GRAY V. LOOSE TO LOOSE WET TO SAT. V. MICA. SILTY SAND W/ WEATHERED ROCK LAYER 4.7'-6.2' (A-2-5)
BT
553+50.00
SS-181
553+29.0 -L-
C/L
ALLUVIAL GRAY SOFT MOIST SANDY SILT (A-4)
RESIDUAL BRN. V. LOOSE SAT. MICA. SILTY SAND (A-2-5)
TAN SOFT TO MED. STIFF MOIST MICA. SANDY SILT (A-4)
BT
553+50.00
-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2707C	25.2

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

920 910 900 890 880 870 860 850

912.40

6d 5.9

D.P. 909.25†

SS-94
SS-95
554+50.0 -L-
140.0 LT

SS. 868.56

2
0
5
28

04/06

ALLUVIAL GRAY SOFT MOIST SANDY CLAY (A-6)
GRAY V. SOFT WET SANDY SILT (A-5)
RESIDUAL
TAN MED. STIFF TO V. STIFF
WET SANDY SILT (A-5)

BT

ALLUVIAL
GRAYBRN. SOFT TO MED. STIFF
MOIST TO WET SANDY CLAY (A-6)
RESIDUAL TAN HARD MOIST
SANDY SILT (A-5)

SS-91
SS-92
SS-93
554+50.0 -L-
C/L
869.34

3
5
5
43

04/06

BT

554+50.00
-L-

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

16-MAY-2008 14:26
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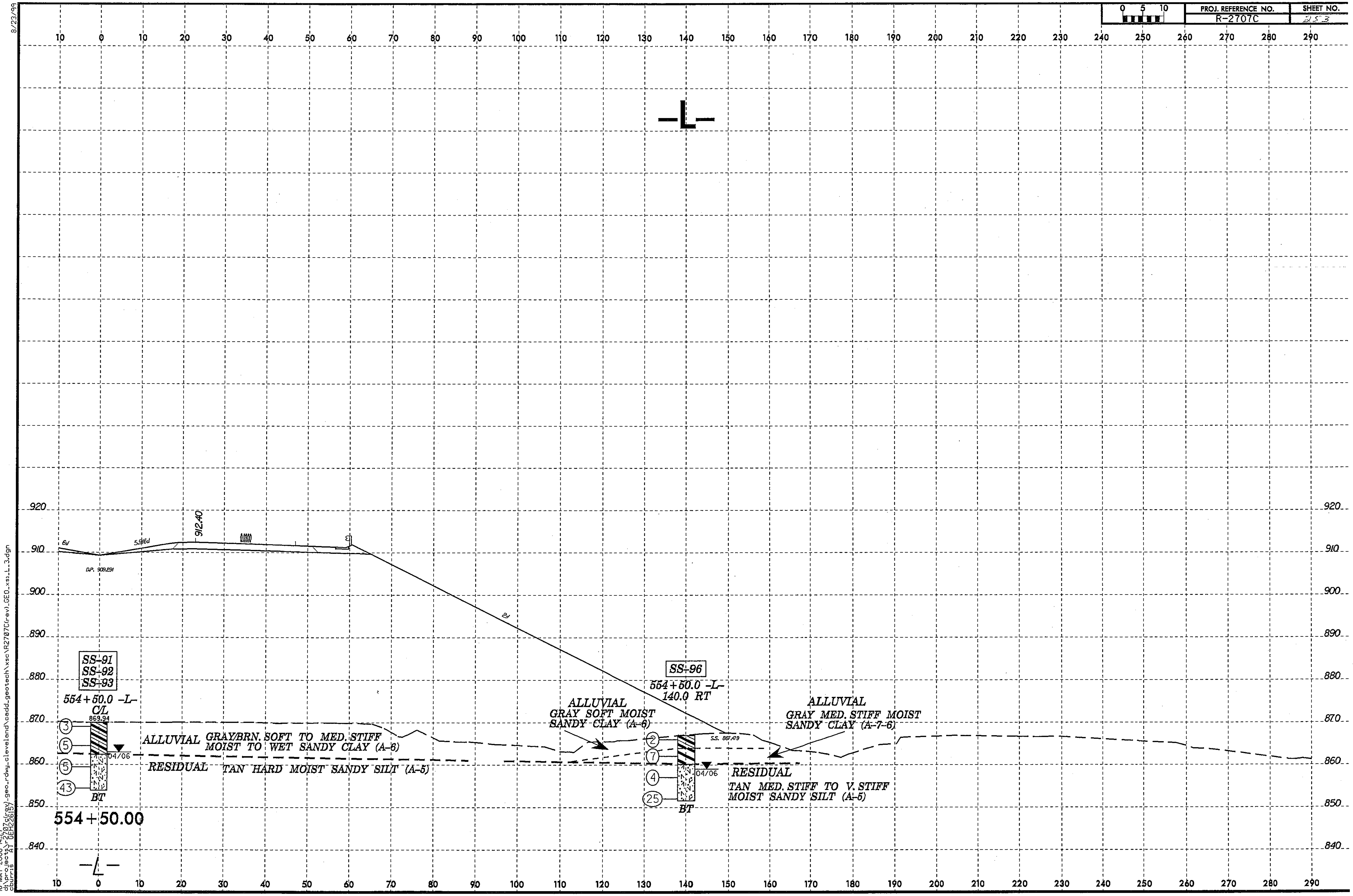
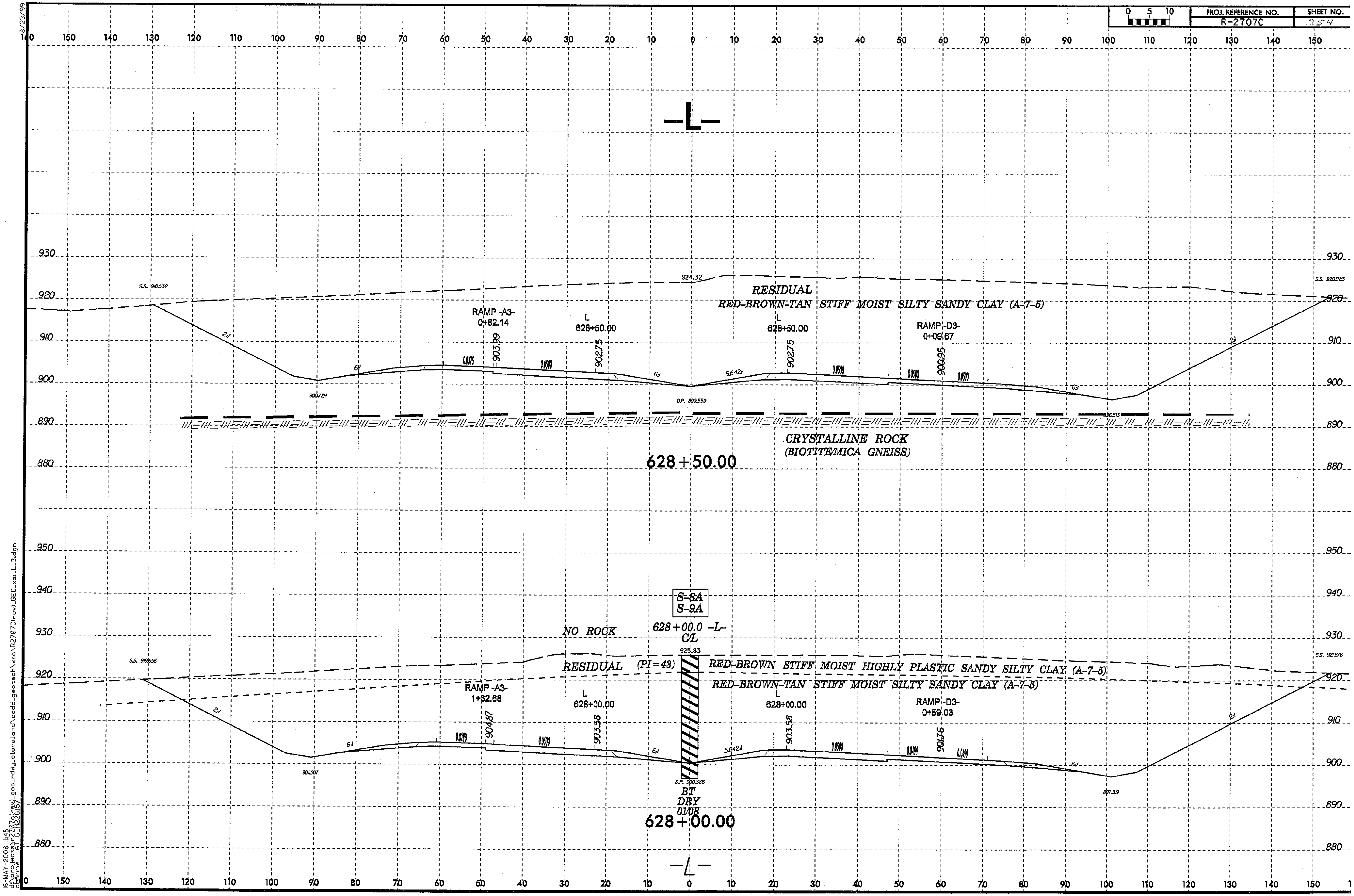
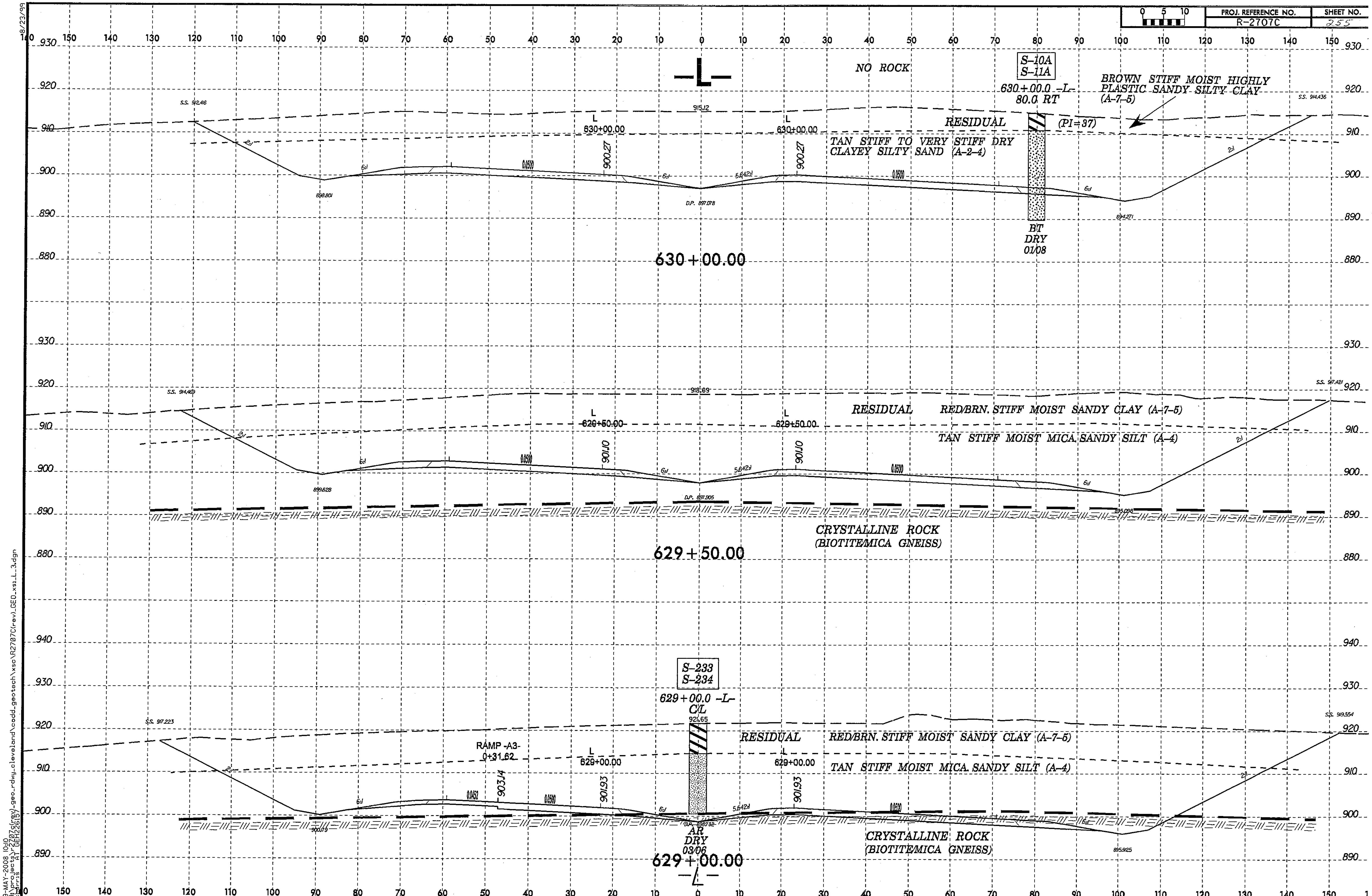
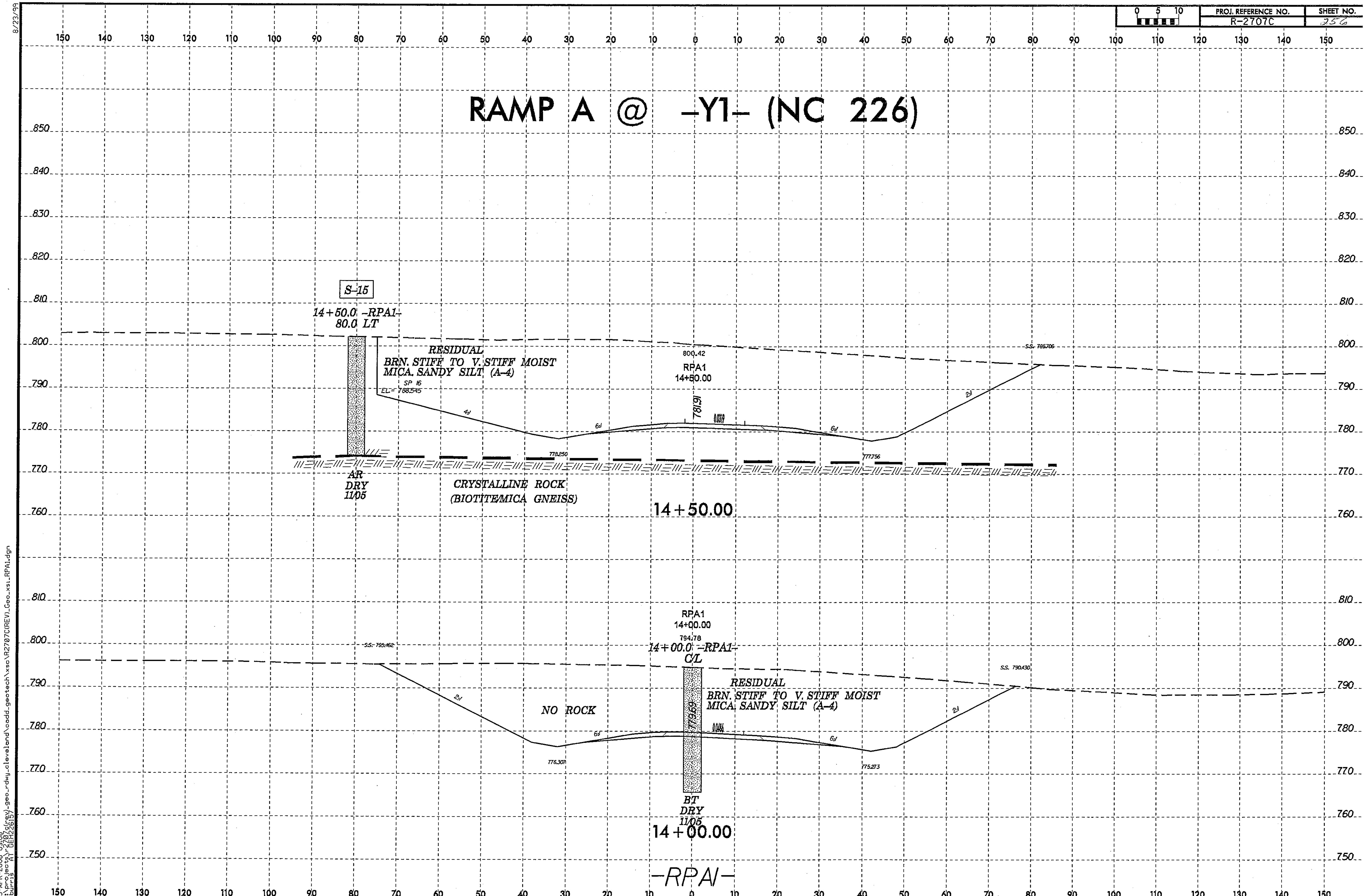

-L-
SS-91
SS-92
SS-93
554+50.0 -L-
C/L
869.94
ALLUVIAL GRAY/BRN. SOFT TO MED. STIFF MOIST TO WET SANDY CLAY (A-6)
RESIDUAL TAN HARD MOIST SANDY SILT (A-5)
04/06
BT
554+50.00
912.40
SS-96
554+50.0 -L-
140.0 RT
ALLUVIAL
GRAY SOFT MOIST SANDY CLAY (A-6)
ALLUVIAL
GRAY MED. STIFF MOIST SANDY CLAY (A-7-6)
RESIDUAL
TAN MED. STIFF TO V. STIFF MOIST SANDY SILT (A-5)
920
910
900
890
880
870
860
850
840



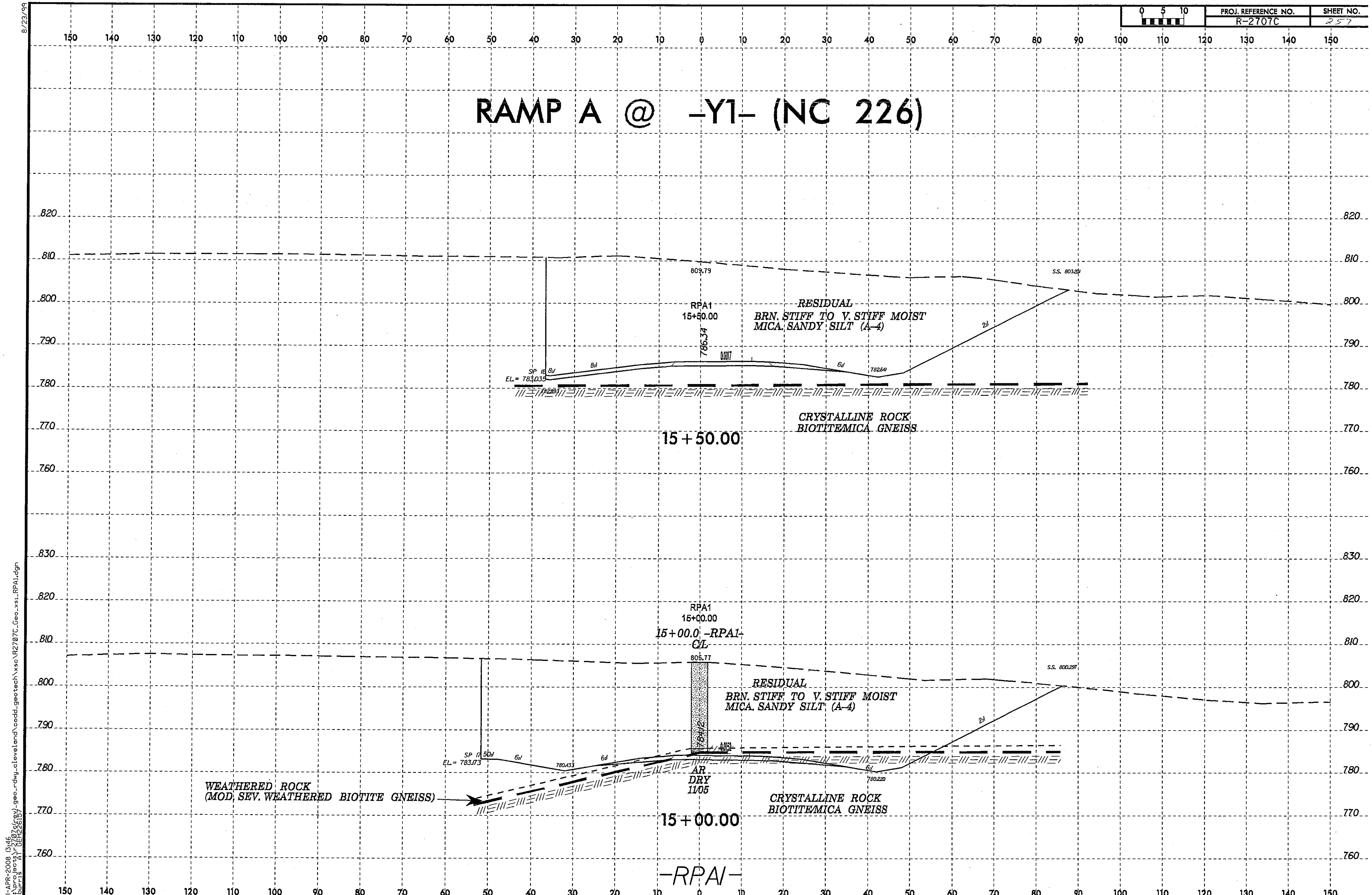
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
254
0 5 10
-L-
RESIDUAL
RED-BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-5)
RAMP -A3-
0+82.14
L
628+50.00
RAMP -D3-
0+09.67
903.99
902.75
900.95
924.32
S.S. 918.532
S.S. 920.923
D.P. 899.559
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
628+50.00
S-8A
S-9A
628+00.0 -L-
C/L
925.83
NO ROCK
RESIDUAL (PI=43)
RED-BROWN STIFF MOIST HIGHLY PLASTIC SANDY SILTY CLAY (A-7-5)
RED-BROWN-TAN STIFF MOIST SILTY SANDY CLAY (A-7-5)
RAMP -A3-
1+32.68
L
628+00.00
RAMP -D3-
0+59.03
904.87
903.58
901.76
S.S. 919.656
S.S. 921.676
D.P. 900.386
BT
DRY
01/08
628+00.00
-L-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
255
-L-
NO ROCK
S-10A
S-11A
630+00.0 -L-
80.0 RT
BROWN STIFF MOIST HIGHLY PLASTIC SANDY SILTY CLAY (A-7-5)
RESIDUAL
(PI=37)
TAN STIFF TO VERY STIFF DRY CLAYEY SILTY SAND (A-2-4)
BT
DRY
01/08
630+00.00
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
TAN STIFF MOIST MICA. SANDY SILT (A-4)
CRYSTALLINE ROCK
(BIOTITE MICA GNEISS)
629+50.00
S-233
S-234
629+00.0 -L-
C/L
RAMP -A3-
0+31.62
RESIDUAL
RED/BRN. STIFF MOIST SANDY CLAY (A-7-5)
TAN STIFF MOIST MICA. SANDY SILT (A-4)
AR
DRY
03/06
CRYSTALLINE ROCK
(BIOTITE MICA GNEISS)
629+00.00
-L-
19-MAY-2008 10:10

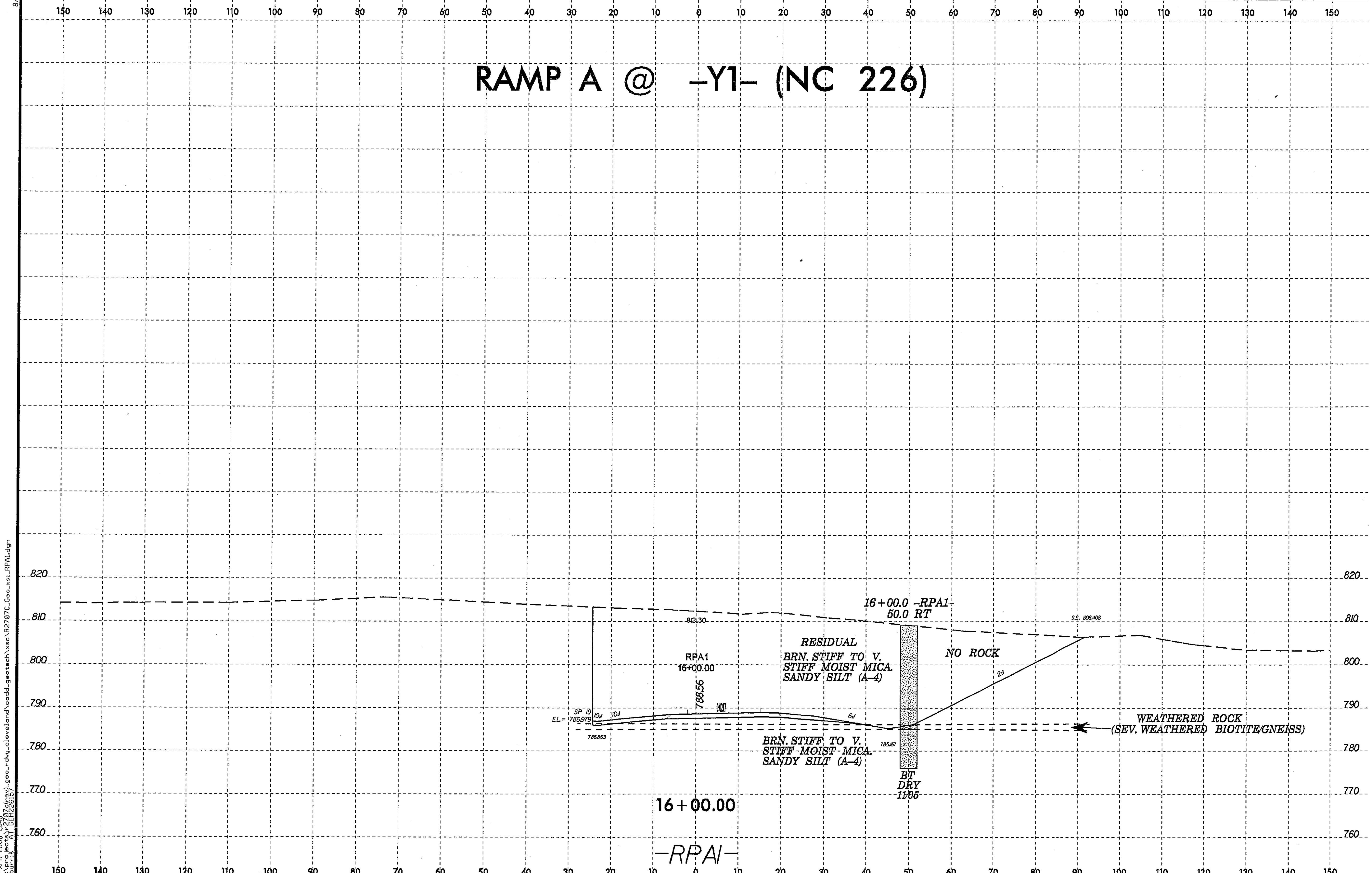


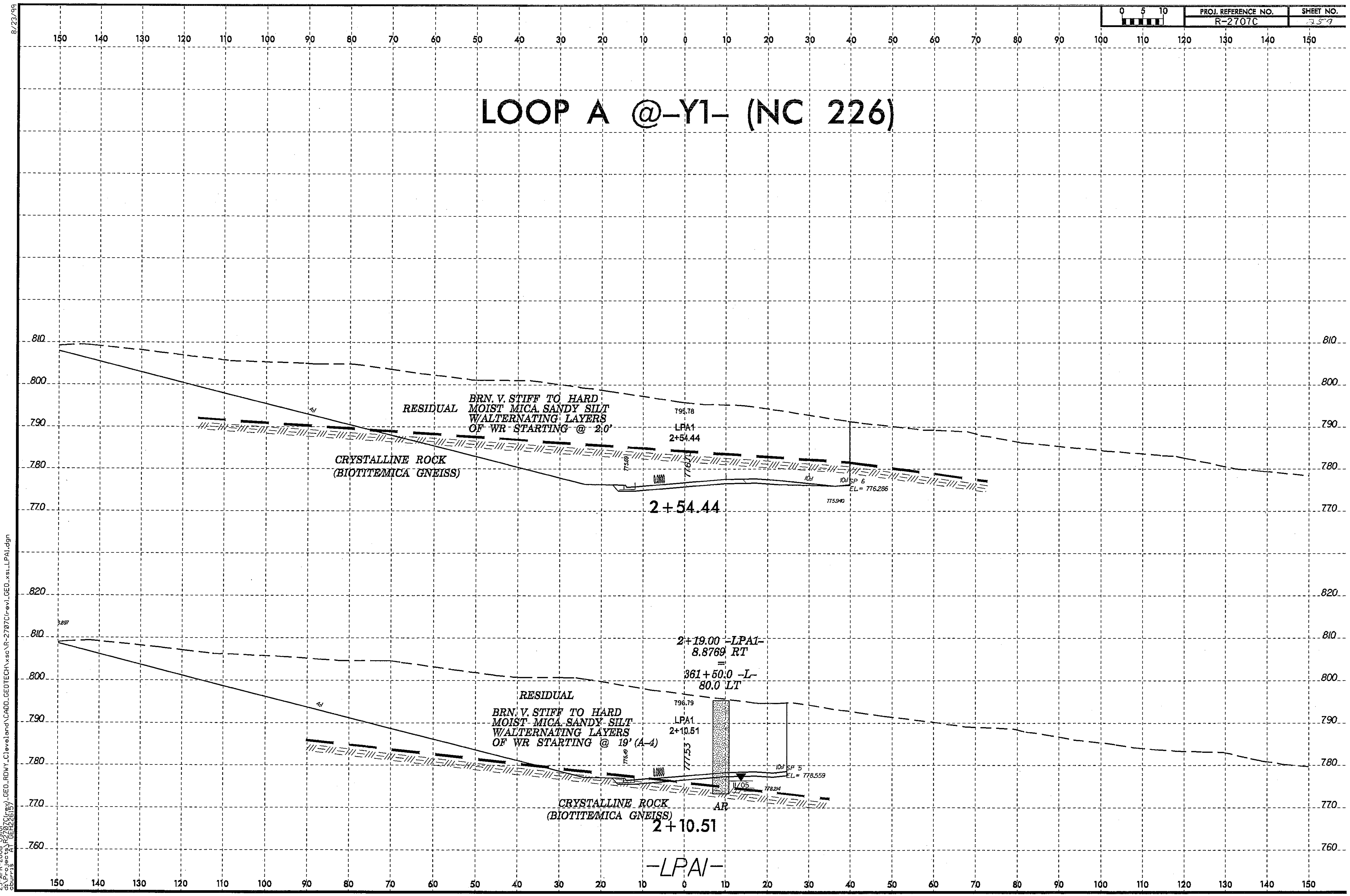
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
256
RAMP A @ -Y1- (NC 226)
S-15
14+50.0 -RPA1-
80.0 LT
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
800.42
RPA1
14+50.00
AR
DRY
11/05
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
14+50.00
RPA1
14+00.00
794.78
14+00.0 -RPA1-
C/L
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
NO ROCK
BT
DRY
11/05
14+00.00
-RPA1-
8/23/99
23-APR-2008 09:08

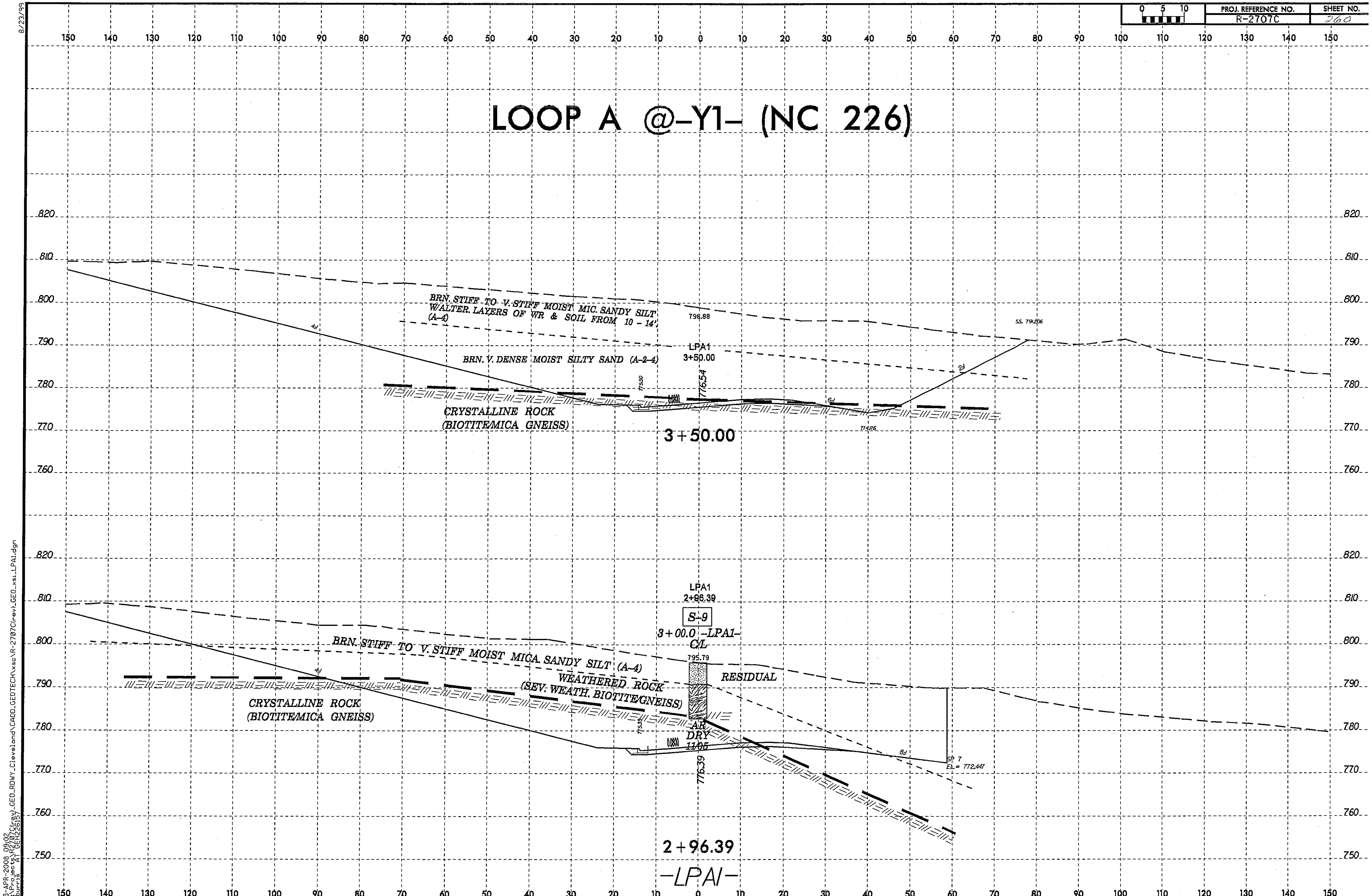

PROJ. REFERENCE NO.
R-2707C
SHEET NO.
RAMP A @ -Y1- (NC 226)
RPA1
15+50.00
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
CRYSTALLINE ROCK
BIOTITE/MICA GNEISS
15+50.00
RPA1
15+00.00
15+00.0 -RPA1-
C/L
RESIDUAL
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
WEATHERED ROCK
(MOD. SEV. WEATHERED BIOTITE GNEISS)
AR
DRY
11/05
CRYSTALLINE ROCK
BIOTITE/MICA GNEISS
15+00.00
-RPA1-

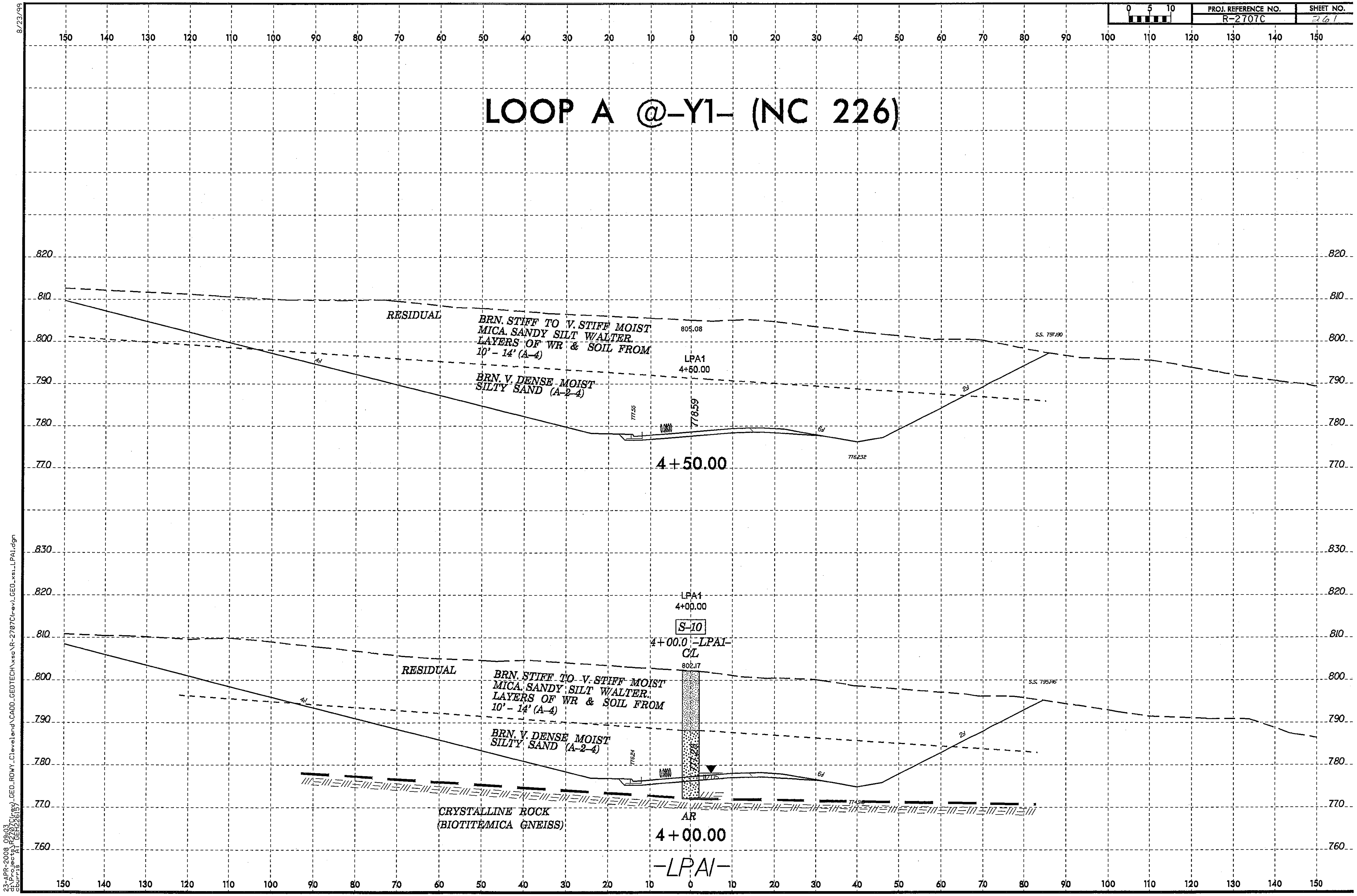
PROJ. REFERENCE NO.	SHEET NO.
R-2707C	258

RAMP A @ -Y1- (NC 226)

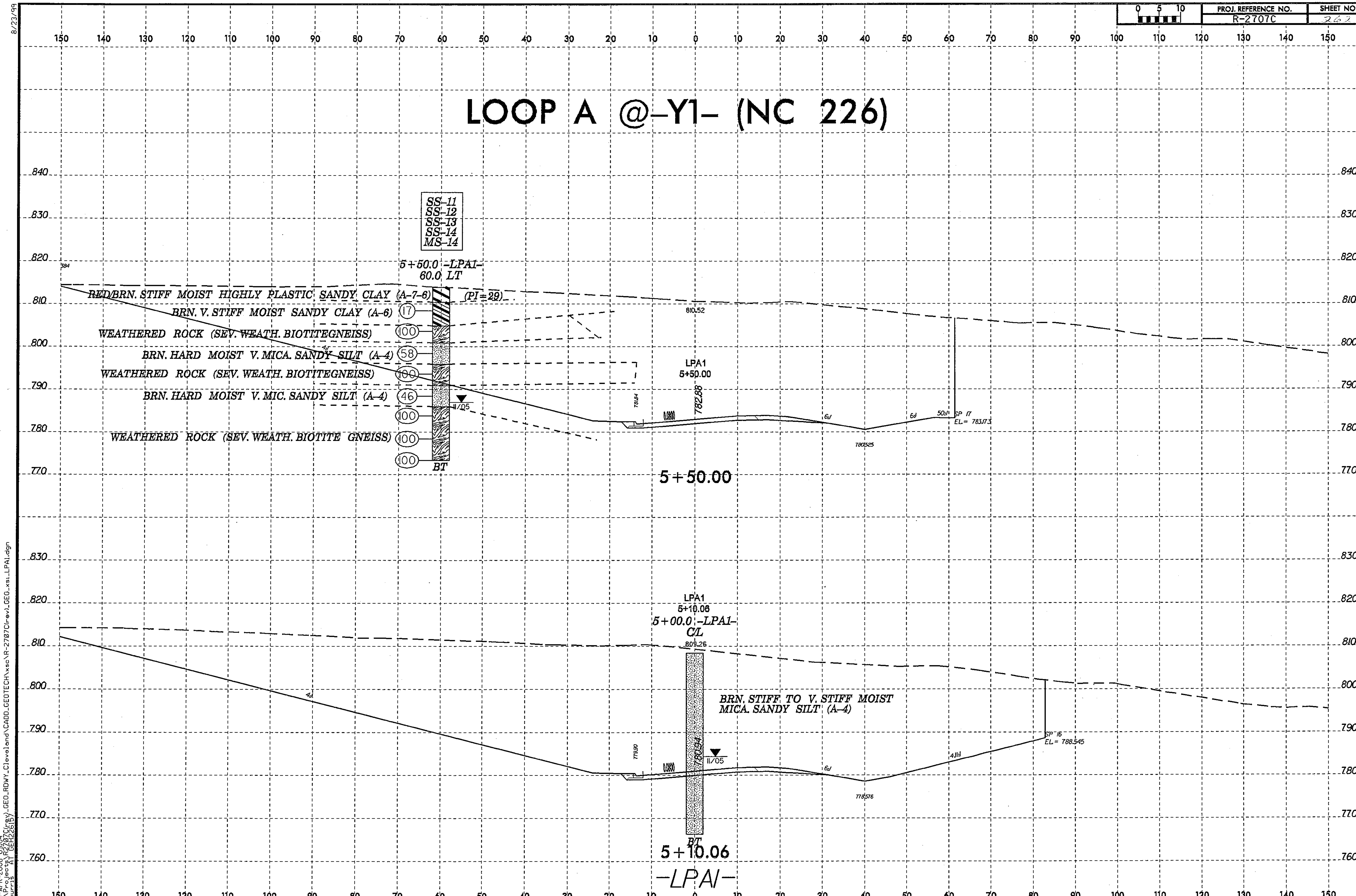



8/23/99
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
LOOP A @-Y1- (NC 226)
RESIDUAL
BRN. V. STIFF TO HARD
MOIST MICA. SANDY SILT
W/ALTERNATING LAYERS
OF WR STARTING @ 2.0'
795.78
LPA1
2+54.44
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
SP 6
EL= 776.286
2+54.44
2+19.00 -LPA1-
8.8769 RT
=
361+50.0 -L-
80.0 LT
RESIDUAL
BRN. V. STIFF TO HARD
MOIST MICA. SANDY SILT
W/ALTERNATING LAYERS
OF WR STARTING @ 19' (A-4)
796.79
LPA1
2+10.51
777.53
SP 5
EL= 778.559
11/05
AR
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
2+10.51
-LPA1-


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
LOOP A @-Y1- (NC 226)
BRN. STIFF TO V. STIFF MOIST MIC. SANDY SILT W/ALTER. LAYERS OF WR & SOIL FROM 10 - 14' (A-4)
BRN. V. DENSE MOIST SILTY SAND (A-2-4)
LPA1
3+50.00
798.88
776.54
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
3+50.00
LPA1
2+96.39
S-9
3+00.0 -LPA1-
C/L
795.79
BRN. STIFF TO V. STIFF MOIST MICA SANDY SILT (A-4)
RESIDUAL
WEATHERED ROCK
(SEV. WEATH. BIOTITE/GNEISS)
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
AR
DRY
11/05
776.39
SP 7
EL= 772.447
2+96.39
-LPAI-
23-APR-2008 09:02
8/23/99



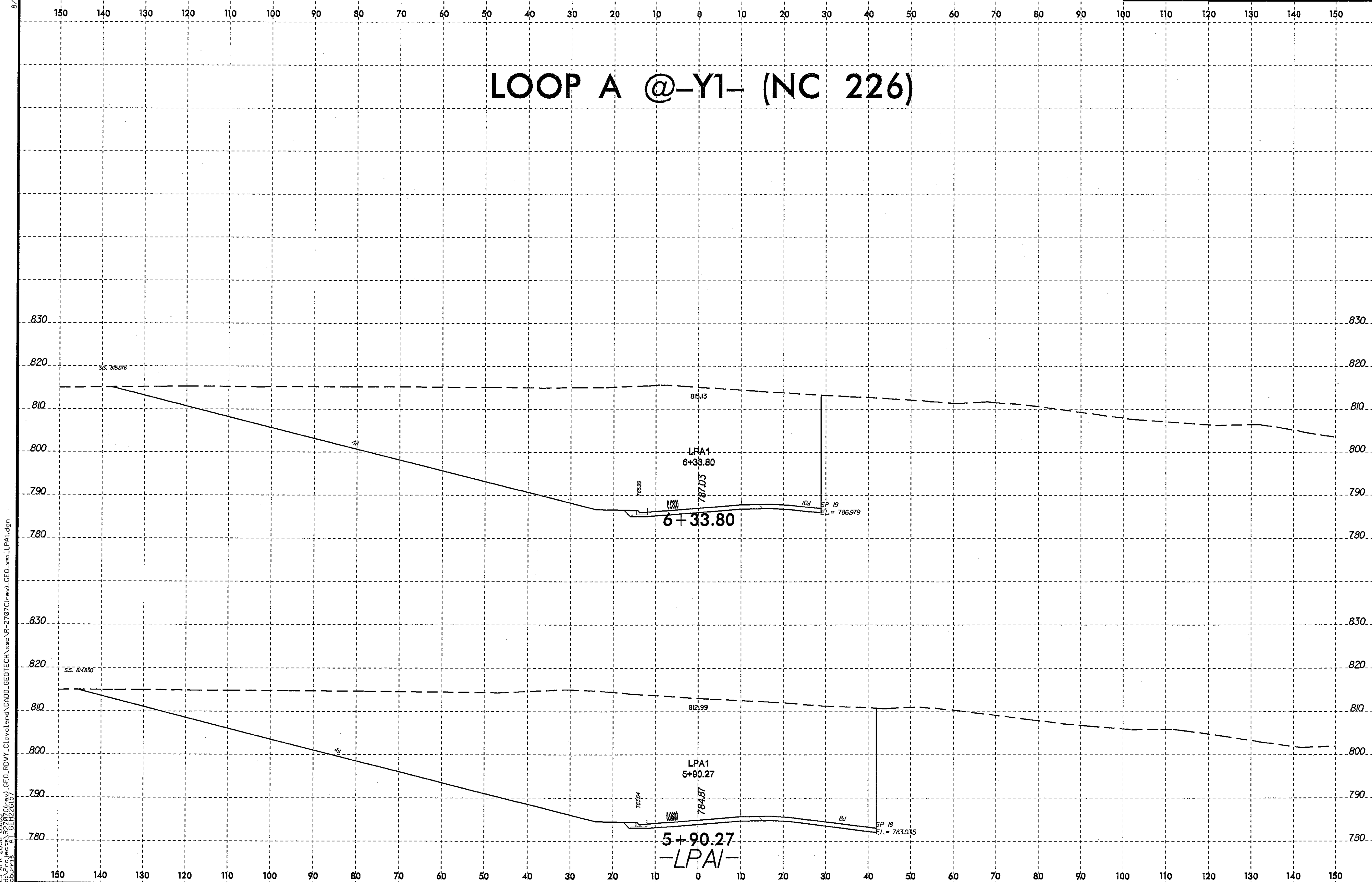
PROJ. REFERENCE NO.
R-2707C
SHEET NO.
261
LOOP A @-Y1- (NC 226)
RESIDUAL
BRN. STIFF TO V. STIFF MOIST MICA. SANDY SILT W/ALTER. LAYERS OF WR & SOIL FROM 10' - 14' (A-4)
BRN. V. DENSE MOIST SILTY SAND (A-2-4)
LPA1
4+50.00
4+50.00
LPA1
4+00.00
S-10
4+00.0 -LPA1- C/L
CRYSTALLINE ROCK (BIOTITE/MICA GNEISS)
AR
4+00.00
-LPA1-



PROJ. REFERENCE NO.
R-2707C
SHEET NO.
LOOP A @-Y1- (NC 226)
SS-11
SS-12
SS-13
SS-14
MS-14
5+50.0 -LPA1-
60.0 LT
RED/BRN. STIFF MOIST HIGHLY PLASTIC SANDY CLAY (A-7-6)
(PI=29)
BRN. V. STIFF MOIST SANDY CLAY (A-6)
WEATHERED ROCK (SEV. WEATH. BIOTITEGNEISS)
BRN. HARD MOIST V. MICA. SANDY SILT (A-4)
WEATHERED ROCK (SEV. WEATH. BIOTITEGNEISS)
BRN. HARD MOIST V. MIC. SANDY SILT (A-4)
WEATHERED ROCK (SEV. WEATH. BIOTITE GNEISS)
17
100
58
100
46
100
100
100
BT
11/05
810.52
LPA1
5+50.00
782.88
5+50.00
LPA1
5+10.06
5+00.0 -LPA1-
C/L
809.26
BRN. STIFF TO V. STIFF MOIST
MICA. SANDY SILT (A-4)
780.94
11/05
BT
5+10.06
-LPA1-

PROJ. REFERENCE NO.	SHEET NO.
R-2707C	263

LOOP A @-Y1- (NC 226)



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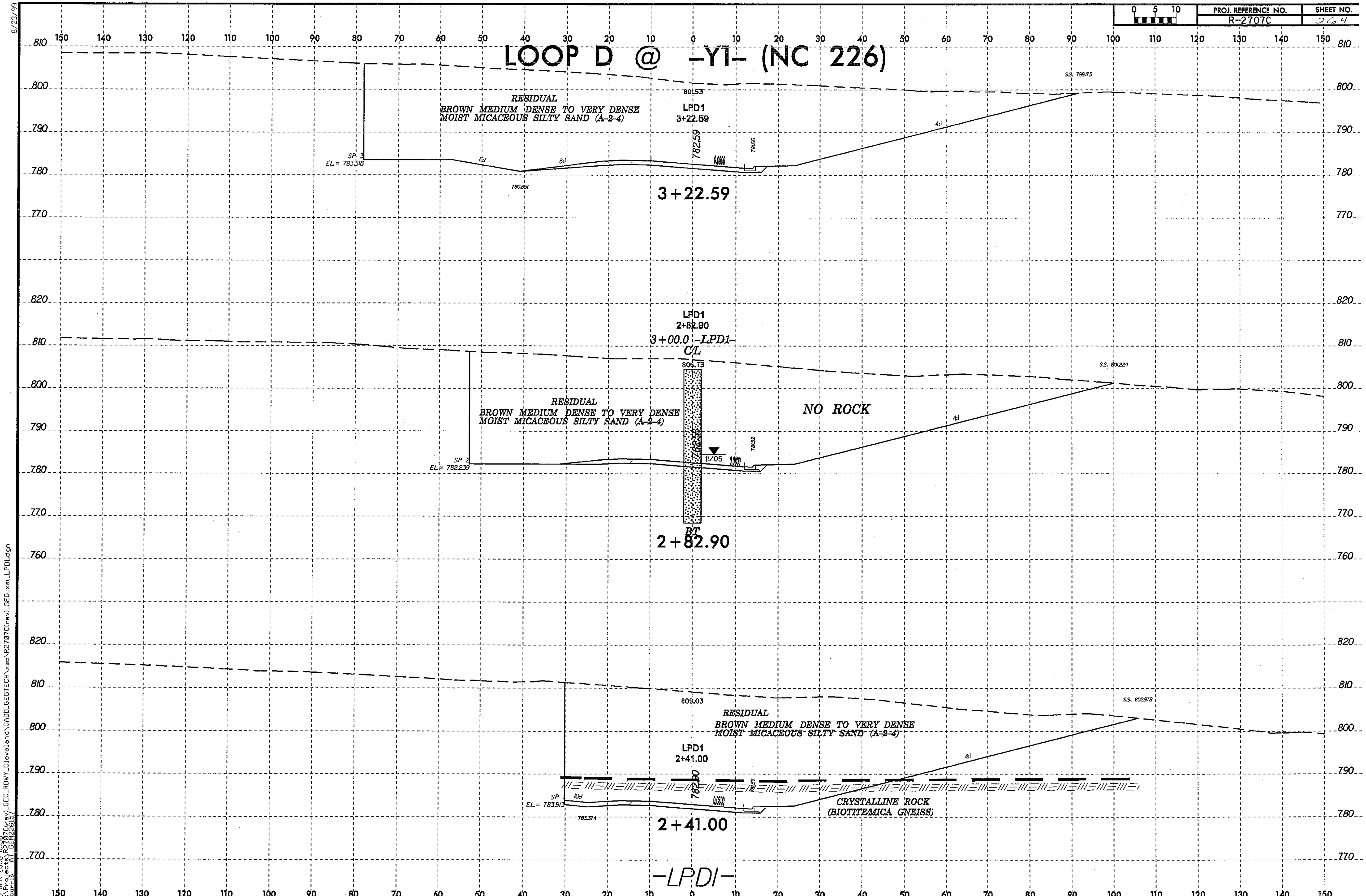


PROJ. REFERENCE NO.
R-2707C
SHEET NO.
264
LOOP D @ -Y1- (NC 226)
RESIDUAL
BROWN MEDIUM DENSE TO VERY DENSE
MOIST MICACEOUS SILTY SAND (A-2-4)
LPD1
3+22.59
3+22.59
LPD1
2+82.90
3+00.0 -LPD1-
C/L
RESIDUAL
BROWN MEDIUM DENSE TO VERY DENSE
MOIST MICACEOUS SILTY SAND (A-2-4)
NO ROCK
11/05
BT
2+82.90
RESIDUAL
BROWN MEDIUM DENSE TO VERY DENSE
MOIST MICACEOUS SILTY SAND (A-2-4)
LPD1
2+41.00
CRYSTALLINE ROCK
(BIOTITE/MICA GNEISS)
2+41.00
-LPDI-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC	Line or Boring ID
MS-1	60 RT	8+00	29.00-30.50				0.0	0.0	0.0	0.0		0	0	22	-	RP-A1
SS-1A	CL	9+00	0.00-1.50	A-7-6(20)	60	31	13.2	22.4	7.5	56.9	99	87	66	-	-	RP-D
S-1	CL	358+00	0.00-30.00	A-4(0)	32	4	26.5	37.8	19.6	16.1	98	82	44	-	-	L
SS-2A	CL	9+00	3.50-5.00	A-7-5(20)	58	24	12.8	17.3	21.1	48.8	100	94	74	-	-	RP-D
S-2	CL	358+00	30.00-45.00	A-2-4(0)	25	NP	51.9	28.3	11.8	8.0	98	62	25	-	-	L
SS-3A	CL	12+00	0.00-1.50	A-7-6(13)	48	25	19.5	22.2	9.6	48.8	100	90	61	-	-	RP-D
SS-3	80 LT	359+50	4.00-5.50	A-2-4(0)	35	3	34.2	40.2	17.6	8.0	94	75	32	-	-	L
SS-4A	50 LT	15+00	0.00-1.50	A-6(5)	38	20	26.2	31.3	10.0	32.5	100	86	46	-	-	RP-D
S-4	80 LT	359+50	24.00-25.50	A-4(0)	33	NP	27.9	40.4	25.6	6.0	99	83	41	-	-	L
SS-5A	30 LT	9+50	2.80-4.30	A-2-4(0)	30	1	29.3	45.3	13.2	12.2	100	71	30	-	-	RP-D
MS-5	80' LT	359+50	29.00-29.80				0.0	0.0	0.0	0.0		0	0	17	-	-L-
SS-5	80 LT	359+50	29.00-29.80	A-2-4(0)	29	NP	32.6	46.4	13.0	8.0	96	80	30	-	-	L
MS-6	80' LT	359+50	34.00-35.00				0.0	0.0	0.0	0.0		0	0	19	-	-L-
SS-6	80 LT	359+50	34.00-35.00	A-4(0)	31	NP	31.4	42.4	18.2	8.0	99	80	37	-	-	L
S-6A	CL	624+00	0.00-4.00	A-7-5(27)	69	38	19.5	12.2	9.3	58.9	100	88	70	-	-	L
SS-7	70 RT	356+50	4.50-6.00	A-2-4(0)	37	NP	52.1	28.7	13.2	6.0	93	57	24	-	-	L
S-7A	CL	626+00	0.00-4.00	A-7-6(16)	55	29	23.2	17.5	8.5	50.8	99	86	62	-	-	L
S-8	100 LT	361+00	0.00-19.00	A-4(2)	32	8	26.1	30.8	27.0	16.1	96	79	50	-	-	L
S-8A	CL	628+00	0.00-4.00	A-7-5(45)	78	43	5.1	7.9	13.8	73.2	100	97	89	-	-	L
S-9	CL	3+00	0.00-5.00	A-4(1)	33	5	13.3	43.8	24.8	18.1	95	89	53	-	-	LOOP A-1
S-9A	CL	628+00	4.00-29.00	A-7-5(4)	44	13	19.9	32.5	25.2	22.4	89	72	47	-	-	L
SS-10	CL	4+00	14.00-30.00	A-2-4(0)	29	2	42.2	30.4	13.4	14.1	89	62	30	-	-	LOOP A-1
S-10A	80 RT	630+00	0.00-4.00	A-7-5(35)	74	37	12.4	8.9	17.7	61.0	100	91	81	-	-	L
SS-11	60 LT	5+50	0.00-3.50	A-7-6(20)	57	29	15.7	19.7	16.4	48.2	99	89	69	-	-	LOOP A-1
S-11A	80 RT	630+00	4.00-25.00	A-2-4(0)	26	NP	43.3	30.7	15.9	10.2	96	71	30	-	-	L
SS-12	60 LT	5+50	4.50-6.00	A-6(5)	37	11	16.5	30.8	24.6	28.1	96	86	59	-	-	LOOP A-1
S-12A	80 RT	632+50	0.00-4.00	A-7-6(14)	51	23	21.5	15.2	10.4	52.8	98	86	64	-	-	L
SS-13	60 LT	5+50	9.50-10.80	A-4(0)	28	NP	28.5	41.6	21.8	8.0	99	83	40	-	-	LOOP A-1
S-13A	CL	9+50	0.00-2.00	A-4(0)	33	7	31.9	34.1	17.7	16.3	99	68	37	-	-	RP-A
MS-14	60' LT	5+50	29.50-30.60				0.0	0.0	0.0	0.0		0	0	14	-	LOOP A-1
SS-14	60 LT	5+50	29.50-30.60	A-4(0)	33	NP	32.4	41.4	18.2	8.0	100	80	36	-	-	LOOP A-1
SS-14A	CL	11+50	0.00-1.50	A-2-4(0)	14	NP	46.3	29.9	13.6	10.2	90	62	25	-	-	RP-A
SS-15-B	CL	11+50	3.50-5.00	A-2-4(0)	35	7	39.8	29.4	16.5	14.2	100	76	35	-	-	RP-A
S-15	80 LT	14+50	0.00-28.00	A-4(0)	27	NP	21.8	45.3	22.8	10.1	92	82	47	-	-	RP-A1
SS-15A	CL	17+00	0.00-1.50	A-7-6(27)	60	33	12.4	13.0	9.6	65.0	100	93	77	-	-	RP-A
SS-16	CL	11+00	0.00-1.50	A-7-6(8)	44	17	14.7	31.7	15.2	38.4	95	88	57	-	-	RP-D1
SS-16A	CL	17+00	3.50-5.00	A-7-6(16)	46	19	2.0	23.6	31.7	42.7	100	98	80	-	-	RP-A
SS-17	CL	11+00	4.50-6.00	A-5(2)	41	7	12.7	44.8	20.2	22.2	99	94	51	-	-	RP-D1
S-17A	CL	18+00	0.00-18.00	A-6(5)	37	16	29.9	24.4	15.2	30.5	100	87	49	-	-	Y16-REV
SS-18	CL	13+50	0.00-1.50	A-4(0)	29	9	28.3	33.9	15.6	22.2	87	72	38	-	-	RP-D1
SS-18A	CL	14+60	0.00-1.50	A-2-4(0)	34	NP	37.2	38.0	12.6	12.2	94	76	27	-	-	Y16-REV
SS-19	CL	13+50	4.70-6.20	A-2-4(0)	34	NP	32.3	42.6	14.9	10.1	90	74	29	-	-	RP-D1
SS-19B	CL	14+60	3.70-5.20	A-2-6(1)	29	17	39.6	29.7	14.4	16.3	78	59	27	-	-	Y16-REV
SS-19A	CL	21+00	0.00-1.50	A-4(1)	35	10	25.7	36.4	15.8	22.2	92	79	41	-	-	Y-17
SS-20B	CL	14+60	8.70-10.20	A-5(3)	48	4	1.0	51.4	31.3	16.3	100	99	58	-	-	Y16-REV
SS-20A	CL	15+00	0.00-1.50	A-2-4(0)	23	3	33.5	36.0	14.3	16.2	86	68	32	-	-	RP-D1
SS-20	CL	25+00	0.00-1.50	A-6(5)	38	19	26.1	27.3	10.3	36.4	96	81	48	-	-	Y-17
SS-21	CL	11+50	0.00-1.50	A-4(0)	30	7	30.3	33.5	13.9	22.2	92	77	36	-	-	RP-A1
SS-21A	CL	18+00	0.00-1.50	A-6(1)	31	13	33.5	26.5	13.7	26.3	88	68	39	-	-	RP-D1
SS-22A	CL	7+00	0.00-1.50	A-7-6(6)	43	19	33.1	16.6	9.9	40.4	92	78	50	-	-	LP-D1
SS-22	CL	11+50	6.00-7.50	A-7-5(2)	47	11	26.7	33.9	21.2	18.2	93	78	42	-	-	RP-A1
SS-23	CL	11+50	11.00-12.50	A-2-5(0)	53	NP	21.2	58.2	14.5	6.1	98	89	30	-	-	RP-A1
S-24	CL	364+00	0.00-16.00	A-4(1)	38	9	37.6	23.8	18.4	20.2	98	72	43	-	-	L
SS-25	100 LT	366+50	0.00-1.50	A-1-b(0)	22	NP	60.2	24.6	5.1	10.1	78	46	14	-	-	L
SS-26	100 LT	366+50	9.00-10.50	A-2-4(0)	36	NP	32.3	42.0	17.6	8.1	90	73	29	-	-	L
SS-27	CL	366+25	0.00-1.50	A-4(0)	25	6	27.9	38.6	11.3	22.2	98	83	39	-	-	L
SS-28	CL	366+25	4.00-5.50	A-4(1)	29	7	18.6	37.8	17.4	26.3	100	95	48	-	-	L
SS-29	CL	366+25	9.00-10.50	A-4(0)	31	NP	21.6	45.1	21.2	12.1	86	76	36	-	-	L
S-30	60 RT	8+00	0.00-4.00	A-7-5(8)	61	26	17.6	40.8	15.4	26.3	98	92	45	-	-	RP-A1
SS-31	60 RT	8+00	29.00-30.50	A-2-5(0)	41	NP	20.0	59.8	14.1	6.1	97	92	26	-	-	RP-A1
SS-32	60 RT	8+00	4.00-5.50	A-2-5(0)	50	NP	32.3	48.7	12.9	6.1	99	91	26	-	-	RP-A1
SS-33	80 LT	377+00	4.00-5.50	A-2-5(0)	47	NP	29.9	41.0	12.9	16.2	98	89	32	-	-	L
MS-34	80LT	377+00	24.00-25.50				0.0	0.0	0.0	0.0		0	0	21.6	-	L
SS-34	80 LT	377+00	24.00-25.50	A-2-5(0)	49	NP	29.7	54.1	10.1	6.1	98	90	20	-	-	L
SS-35	CL	37+00	0.00-1.50	A-5(1)	42	9	19.4	42.8	11.5	26.3	97	92	42	-	-	Y-17
SS-36	50 RT	33+00	0.00-1.50	A-7-5(16)	64	31	20.4	24.4	12.7	42.4	98	88	58	-	-	Y-17
SS-37	50 RT	33+00	4.00-5.50	A-2-5(0)	46	NP	21.6	56.4	7.9	14.1	100	95	29	-	-	Y-17
SS-38	CL	28+25	0.00-1.50	A-2-4(0)	32	4	34.3	36.8	14.7	14.1	90	72	29	-	-	Y-17
SS-38A	CL	30+00	0.00-1.50	A-6(6)	39	19	23.7	27.1	11.0	38.2	95	83	50	-	-	Y-17
SS-39	CL	28+25	4.00-4.50	A-2-4(0)	32	NP	51.3	36.0	6.7	6.0	79	52	14	-	-	Y-17
SS-40	CL	28+25	8.00-9.50	A-2-5(0)	48	NP	27.1	59.3	9.5	4.0	76	69	16	-	-	Y-17
SS-41	25 RT	380+75	0.00-1.50	A-6(3)	36	12	20.3	33.0	18.6	28.1	95	84	48	-	-	L
SS-42A	25 RT	15+00	0.00-1.50	A-7-6(17)	60	33	19.0	23.3	11.1	46.6	93	81	59	-	-	Y-17
SS-42	25 RT	380+75	3.00-4.50	A-6(3)	35	13	24.9	29.1	9.7	36.2	99	89	49	-	-	L

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC	Line or Boring ID
SS-43A	25 RT	15+00	3.50-5.00	A-7-5(4)	48	15	23.7	39.1	13.0	24.3	98	84	44	-	-	Y-17
SS-43	25 RT	380+75	8.00-9.50	A-2-7(1)	42	16	39.4	25.7	8.7	26.1	90	67	34	-	-	L
SS-45	80 RT	393+00	4.00-5.50	A-2-5(0)	52	NP	20.0	65.8	8.1	6.1	100	95	23	-	-	L
SS-46	80 RT	393+00	29.50-31.00	A-2-5(0)	49	NP	16.2	68.8	8.9	6.1	97	92	25	-	-	L
MS-46	80 RT	393+00	29.50-31.00				0.0	0.0	0.0	0.0		0	0	20.2	-	L
S-47	100 LT	392+50	0.00-5.00	A-7-5(3)	47	15	23.9	40.7	9.1	26.3	100	92	42	-	-	L
S-48	CL	390+00	0.00-5.00	A-2-5(0)	43	NP	17.6	58.9	11.3	12.1	97	90	30	-	-	L
S-49	75 LT	389+50	0.00-2.00	A-5(0)	52	NP	20.6	47.6	9.5	22.3	97	89	38	-	-	L
SS-50	CL	395+00	0.00-1.50	A-6(6)	40	17	13.7	38.4	7.6	40.2	99	90	52	-	-	L
S-51	CL	396+50	0.00-2.00	A-7-6(11)	58	29	21.7	21.3	6.5	50.6	83	72	50	-	-	L
S-52	CL	396+50	2.00-22.00	A-5(0)	45	NP	27.9	41.9	14.0	16.2	98	83	37	-	-	L
SS-53	90 LT	397+50	3.70-5.20	A-2-5(0)	51	NP	21.3	51.0	7.5	20.2	98	89	33	-	-	L
SS-54	90 LT	397+50	13.70-15.20	A-2-4(0)	40	NP	39.3	46.0	6.7	8.1	89	68	19	-	-	L
SS-55	90 LT	397+50	18.70-20.20	A-2-4(0)	38	NP	30.8	53.2	9.9	6.1	68	59	16	-	-	L
SS-56	130 RT	400+50	3.70-5.20	A-5(0)	45	NP	11.5	56.5	9.9	22.1	100	98	39	-	-	L
SS-57	130 RT	400+50	20.70-22.20	A-2-5(0)	45	NP	26.6	58.8	4.6	10.1	96	87	17	-	-	L
SS-60	100 LT	403+50	0.00-1.50	A-2-4(0)	24	NP	47.9	35.6	2.4	14.1	90	66	17	-	-	L
SS-61	100 LT	403+50	9.50-11.00	A-1-b(0)	36	NP	57.4	32.4	4.1	6.0	84	50	12	-	-	L
SS-62	120 LT	402+50	0.00-1.50	A-7-5(1)	48	11	26.4	37.6	7.8	28.2	92	77	38	-	-	L
SS-63	120 LT	402+50	9.00-10.50	A-2-5(0)	43	NP	40.6	44.5	6.8	8.0	88	65	17	-	-	L
SS-64	110 RT	406+50	0.00-1.5	A-4(0)	31	10	25.2	41.2	5.4	28.2	97	86	37	-	-	L
SS-65	110 RT	406+50	4.00-5.50	A-1-b(0)	30	NP	29.2	51.9	2.8	16.1	49	36	11	-	-	L
SS-66	110 RT	406+50	9.00-10.50	A-2-4(0)	39	NP	32.8	43.3	7.8	16.1	95	84	29	-	-	L
S-67	80 RT	411+50	0.00-5.00	A-7-5(11)	54	20	17.9	27.0	2.8	52.3	98	91	58	-	-	L
S-68	80 RT	411+50	5.00-40.00	A-2-5(0)	41	NP	18.9	51.9	7.0	22.1	86	80	29	-	-	L
S-69	120 RT	413+00	0.00-4.00	A-7-5(8)	61	18	11.7	41.0	9.1	38.2	100	97	52	-	-	L
SS-70	120 RT	413+00	4.30-5.80	A-2-5(0)	46	NP	15.7	59.2	11.1	14.1	99	96	29	-	-	L
MS-70	120 RT	413+00	29.30-30.80				0.0	0.0	0.0	0.0		0	0	12.5	-	L
SS-71	55RT	415+00	0.00-1.50	A-6(2)	34	13	21.7	36.8	7.2	34.2	91	84	41	-	-	L
SS-72	55RT	415+00	3.50-5.00	A-4(1)	39	10	20.9	41.4	7.4	30.2	95	87	40	-	-	L
S-73	90 RT	419+00	0.00-3.00	A-7-5(25)	75	39	21.0	14.5	10.0	54.5	97	85	64	-	-	L
SS-74	90 RT	419+00	4.50-6.00	A-2-5(0)	57	NP	27.6	51.1	13.2	8.1	99	90	26	-	-	L
SS-75	90 RT	419+00	39.50-41.00	A-2-5(0)	42	NP	30.7	51.5	13.8	4.0	97	85	22	-	-	L
MS-75	90 RT	419+00	39.50-41.00				0.0	0.0	0.0	0.0		0	0	23	-	L
S-75A	CL	519+50	0.00-4.00	A-7-5(7)	50	17	22.6	29.6	19.6	28.2	95	80	52	-	-	L
S-76	CL	6+00	4.00-18.00	A-4(0)	35	3	21.8	44.9	21.2	12.1	96	84	40	-	-	RP-B2
S-77	CL	7+00	0.00-20.00	A-7-5(16)	60	24	6.4	36.5	28.9	28.2	99	97	64	-	-	RP-C2
S-78	30 RT	13+00	0.00-3.00	A-4(0)	20	6	21.6	38.7	17.6	22.2	97	86	44	-	-	RP-C2
S-79	50 RT	530+00	2.00-7.00	A-7-5(25)	66	35	10.3	23.6	15.8	50.4	100	96	69	-	-	L
S-80	50 RT	530+00	7.00-30.00	A-7-5(16)	62	25	9.1	31.6	35.1	24.2	100	97	64	-	-	L
S-80A	CL	580+00	0.00-18.00	A-7-5(20)	63	24	6.6	25.3	35.9	32.2	100	98	73	-	-	L
SS-81	CL	574+00	0.00-1.50	A-7-6(8)	46	22	17.3	33.2	9.2	40.3	96	88	51	-	-	L
SS-82	CL	574+00	3.80-5.30	A-7-5(10)	61	19	16.7	30.8	14.2	38.3	95	87	55	-	-	L
SS-83	CL	572+00	0.00-1.50	A-7-5(30)	71	36	5.8	22.8	13.0	58.4	100	98	75	-	-	L
SS-85	CL	570+00	0.00-1.50	A-7-5(30)	71	36	7.9	19.5	12.2	60.4	100	96	76	-	-	L
SS-86	CL	563+00	0.00-1.50	A-7-5(18)	63	29	18.9	20.7	16.0	44.3	100	90	64	-	-	L
SS-87	CL	563+00	3.90-5.40	A-7-5(3)	54	14	21.9	42.2	15.8	20.1	100	91	43	-	-	L
SS-88	CL	561+00	0.00-1.50	A-7-5(35)	72	38	7.2	14.5	14.0	64.3	100	97	81	-	-	L
SS-89	CL	561+00	4.00-5.50	A-7-5(12)	56	23	16.3	30.8	20.8	32.2	99	91	58	-	-	L
SS-90	CL	558+00	0.00-1.50	A-7-6(9)	44	22	16.7	32.2	15.0	36.2	99	91	54	-	-	L
SS-91	CL	554+50	0.00-1.50	A-6(5)	40	13	9.6	41.8	18.4	30.2	99	96	55	-	-	L
SS-92	CL	554+50	4.50-6.00	A-6(1)	34	11	20.1	44.6	13.2	22.1	94	85	39	-	-	L
SS-93	CL	554+50	9.50-11.00	A-5(3)	50	10	12.9	51.9	25.2	10.1	100	96	47	-	-	L
SS-94	140LT	554+50	4.00-5.50	A-5(2)	48	10	17.9	40.8	33.3	8.0	83	74	45	-	-	L
SS-95	140LT	554+50	9.00-10.50	A-5(3)	41	9	14.7	44.4	30.9	10.1	99	94	52	-	-	L
SS-96	140 RT	554+50	3.90-5.40	A-7-6(8)	46	24	17.7	34.4	13.8	34.2	95	87	49	-	-	L
S-97	CL	429+00	0.00-4.00	A-7-6(8)	44	20	11.9	39.0	10.8	38.3	99	94	55	-	-	L
S-98	CL	429+00	6.00-25.00	A-2-4(0)	30	NP	25.7	56.3	10.9	7.1	99	94	25	-	-	L
S-99	CL	432+00	0.00-3.00	A-7-6(7)	41	17	14.3	35.1	12.2	38.3	99	94	55	-	-	L
S-100	CL	432+00	3.00-13.00	A-7-6(2)	41	13	21.0	40.2	12.6	26.2	97	89	43	-	-	L
S-101	CL	432+00	16.00-25.00	A-1-b(0)	28	NP	50.4	31.8	10.8	7.1	68	43	16	-	-	L
S-102	120 LT	434+00	0.00-4.00	A-7-5(35)	76	39	10.1	14.5	10.8	64.6	100	96	78	-	-	L
SS-103	120 LT	434+00	4.00-5.50	A-2-5(0)	42	NP	31.1	51.3	11.6	6.1	97	87	23	-	-	L
SS-104	120 LT	434+00	29.00-30.50	A-2-4(0)	32	NP	34.6	52.5	8.9	4.0	98	88	19	-	-	L
S-105	120 LT	436+00	0.00-3.80	A-7-5(19)	64	34	21.4	17.0	9.2	52.5	95	84	61	-	-	L
SS-106	120 RT	436+00	4.70-6.20	A-2-5(0)	57	NP	30.3	54.3	11.4	4.0	99	87	22	-	-	L
SS-107A	120 RT	436+00	29.70-31.20	A-2-4(0)	34	NP	31.4	55.6	7.0	6.1	98	89	19	-	-	L
S-107	CL	440+00	0.00-6.00	A-1-b(0)	27	NP	48.8	28.9	12.2	10.1	67	44	18	-	-	L
S-108	CL	441+00	0.00-3.00	A-7-5(12)	64	25	18.0	31.9	11.8	38.3	96	89	54	-	-	L
S-109	CL	441+00	3.00-16.00	A-2-4(0)	39	NP	26.2	48.2	13.4	12.1	97	91	33	-	-	L
S-110	110 LT	446+00	0.00-4.00	A-7-5(12)	62	23	19.0	27.6	13.0	40.4	100	93	57	-	-	L
S-111	110 LT	446+00	4.00-45.00	A-7-5(1)	52	15	28.5	41.4	16.0	14.1	97	86	36	-	-	L
S-112	120 RT	446+00	0.00-4.00	A-7-5(19)	66	32	18.2	22.6	10.8	48.4	97	90	62	-	-	L
SS-113	120 RT	446+00	4.50-6.00	A-2-5(0)	52	10	20.4	52.1	11.4	16.1	98	95	34	-	-	L

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC	Line or Boring ID
SS-114	120 RT	446+00	14.50-16.00	A-2-5(0)	49	NP	39.0	49.6	9.4	2.0	98	85	16	-	-	L
SS-115	120 RT	446+00	29.50-31.00	A-2-4(0)	27	NP	29.1	53.6	10.3	7.1	87	77	21	-	-	L
S-116	110 LT	448+00	0.00-4.20	A-6(2)	37	14	30.7	28.3	12.8	28.3	92	79	41	-	-	L
SS-117	110 LT	448+00	4.20-5.70	A-2-4(0)	37	NP	22.4	58.1	9.4	10.1	100	96	25	-	-	L
SS-118	110 LT	448+00	29.20-30.70	A-2-4(0)	36	NP	42.3	41.2	11.5	5.0	69	52	16	-	-	L
SS-119	110 LT	448+00	34.20-35.70	A-2-5(0)	42	NP	31.7	54.3	10.0	4.0	100	91	21	-	-	L
S-120	46 RT	22+00	0.00-4.00	A-7-5(11)	58	24	23.8	26.4	11.4	38.3	98	89	53	-	-	Y3
S-121	46 RT	22+00	4.00-60.00	A-2-5(0)	52	NP	25.8	56.7	9.4	8.1	97	90	23	-	-	Y3
S-122	150 RT	454+30	0.00-4.70	A-2-7(2)	42	20	41.4	22.8	7.5	28.3	89	67	34	-	-	L
SS-123	150 RT	454+30	9.70-11.20	A-2-5(0)	44	NP	22.4	61.6	11.9	4.0	100	96	23	-	-	L
S-124	100 LT	454+00	0.00-7.00	A-2-4(0)	23	NP	39.0	40.4	8.5	12.1	78	63	19	-	-	L
SS-125	CL	453+35	13.70-15.20	A-2-5(0)	47	NP	42.4	43.0	12.5	2.0	91	69	17	-	-	L
SS-126	80 LT	452+95	9.60-10.80	A-2-4(0)	30	NP	22.4	63.4	12.1	2.0	89	83	21	-	-	L
SS-127	CL	455+00	0.00-1.50	A-7-5(21)	62	32	12.7	23.6	13.1	50.5	100	95	67	-	-	L
SS-128	CL	455+00	4.00-5.50	A-2-5(0)	49	NP	32.7	39.2	11.9	16.2	91	73	30	-	-	L
SS-129	CL	457+50	0.00-1.50	A-7-5(26)	73	39	15.8	18.6	11.1	54.5	97	90	66	-	-	L
SS-130	CL	460+50	0.00-1.50	A-4(1)	25	10	20.4	40.8	10.5	28.3	98	90	43	-	-	L
MS-130	CL	460+50	0.00-1.50				0.0	0.0	0.0	0.0		0	0	28.2	-	L
SS-131	CL	460+50	4.30-5.80	A-7-5(14)	62	31	19.8	26.5	7.3	46.5	95	87	54	-	-	L
MS-131	CL	460+50	4.30-5.80				0.0	0.0	0.0	0.0		0	0	27.8	-	L
S-132	80 LT	465+00	0.00-6.00	A-6(3)	35	17	23.6	37.6	10.5	28.3	99	91	42	-	-	L
S-133	80 LT	465+00	6.00-25.00	A-4(1)	38	5	11.7	50.3	17.8	20.2	100	96	47	-	-	L
SS-134	30 RT	464+50	0.00-1.50	A-2-4(0)	21	4	33.3	36.4	8.1	22.2	91	75	31	-	-	L
SS-135	30 RT	464+50	4.00-5.50	A-7-6(12)	56	31	24.4	27.3	5.9	42.4	97	84	50	-	-	L
SS-136	50 RT	463+50	0.00-1.50	A-4(0)	25	7	28.9	37.4	11.5	22.2	94	81	36	-	-	L
SS-137	50 RT	463+50	4.00-5.50	A-6(4)	39	16	24.0	33.5	12.1	30.3	100	88	46	-	-	L
SS-138	50 RT	463+50	9.00-10.50	A-7-6(7)	47	20	23.4	29.9	10.3	36.4	99	88	49	-	-	L
S-139	80LT	469+00	0.00-7.00	A-7-6(14)	57	28	19.4	24.2	9.9	46.5	97	87	58	-	-	L
S-140A	80 LT	469+00	7.00-40.00	A-7-5(6)	57	16	10.9	49.5	19.4	20.2	100	96	50	-	-	L
SS-140	100 LT	470+00	9.30-10.80	A-5(0)	49	NP	20.8	52.9	16.2	10.1	97	89	36	-	-	L
SS-141	100 LT	470+00	34.30-35.80	A-5(1)	58	NP	5.5	59.4	27.1	8.1	100	99	49	-	-	L
MS-141	100 LT	470+00	34.30-35.80				0.0	0.0	0.0	0.0		0	0	29.5	-	L
S-142	CL	23+00	0.00-5.00	A-7-6(14)	53	27	15.8	28.3	9.5	46.5	99	92	60	-	-	Y4
S-143	CL	23+00	5.00-35.00	A-7-5(9)	57	16	4.0	53.7	24.0	18.2	100	99	59	-	-	Y4
S-144	CL	480+00	0.00-5.00	A-7-5(13)	71	26	20.2	27.9	13.5	38.4	97	87	54	-	-	L
S-145	CL	480+00	5.00-38.00	A-7-5(2)	56	17	26.3	42.2	13.3	18.2	100	90	37	-	-	L
S-146	110 LT	484+50	0.00-4.50	A-7-5(32)	77	40	9.7	20.9	11.0	58.4	100	96	73	-	-	L
SS-147	110 LT	484+50	9.50-11.00	A-5(0)	48	6	18.9	54.0	19.0	8.1	98	91	36	-	-	L
SS-148	110 LT	484+50	44.50-46.00	A-2-5(0)	49	NP	13.7	61.4	16.8	8.1	99	95	35	-	-	L
MS-148	110 LT	484+50	44.50-46.00				0.0	0.0	0.0	0.0		0	0	18.6	-	L
SS-149	CL	489+80	0.00-1.50	A-2-4(0)	33	7	42.1	37.9	12.0	8.1	85	64	20	-	-	L
SS-150	CL	489+80	4.00-5.50	A-2-5(0)	50	NP	13.3	65.3	15.4	6.0	100	97	30	-	-	L
SS-151	CL	490+85	0.00-1.50	A-2-5(0)	43	9	46.9	37.9	9.2	6.0	74	52	13	-	-	L
SS-152	CL	490+85	4.00-5.50	A-2-7(0)	52	13	21.3	54.8	19.8	4.0	90	80	29	-	-	L
SS-153	CL	491+50	0.00-1.50	A-2-6(1)	30	15	36.3	33.2	8.4	22.2	92	74	30	-	-	L
SS-154	CL	491+50	4.00-5.50	A-2-4(0)	34	7	41.8	36.6	10.6	11.1	90	70	23	-	-	L
SS-155	CL	494+50	0.00-1.50	A-4(1)	26	10	22.0	38.9	15.0	24.2	97	85	43	-	-	L
SS-156A	CL	494+50	4.00-5.50	A-7-5(14)	67	22	9.7	37.7	20.4	32.2	98	93	60	-	-	L
SS-157	80 RT	503+81	4.00-5.50	A-2-4(0)	32	9	51.8	25.8	6.3	16.1	88	58	22	-	-	L
SS-158	80 RT	503+81	9.00-10.50	A-2-5(0)	45	NP	36.9	43.3	15.8	4.0	92	72	23	-	-	L
SS-160	35 LT	503+50	0.00-1.50	A-2-4(0)	28	6	35.2	40.9	9.8	14.1	92	71	27	-	-	L
SS-161	35 LT	503+50	9.50-11.00	A-2-5(0)	47	NP	29.0	52.4	14.6	4.0	96	83	26	-	-	L
SS-162	80 LT	505+00	0.00-1.50	A-2-4(0)	25	NP	30.6	49.9	11.4	8.1	85	71	21	-	-	L
S-163	CL	16+00	0.00-5.00	A-7-5(25)	70	34	10.3	23.0	18.4	48.3	100	96	70	-	-	RPB2
S-164	CL	16+00	5.00-28.00	A-7-5(11)	55	20	9.5	41.3	25.1	24.2	100	98	58	-	-	RPB2
S-165	CL	12+00	0.00-5.00	A-7-5(22)	61	31	12.1	22.2	11.4	54.4	100	94	69	-	-	Y8REV
S-166	CL	12+00	5.00-13.00	A-2-6(2)	31	19	25.8	44.1	10.0	20.1	97	85	35	-	-	Y8REV
S-167A	CL	20+00	0.00-13.00	A-7-5(37)	81	43	8.3	17.9	13.4	60.4	100	98	76	-	-	Y8REV
SS-167	CL	538+50	0.00-1.50	A-4(1)	31	10	20.5	41.7	17.6	20.1	98	89	42	-	-	L
S-168A	CL	25+00	0.00-13.00	A-7-5(23)	71	26	9.3	22.0	20.4	48.3	100	96	73	-	-	Y8REV
SS-168	CL	538+50	4.00-5.50	A-2-4(0)	18	NP	30.8	49.7	11.4	8.1	96	81	23	-	-	L
SS-169A	50 LT	6+70	0.00-1.50	A-4(0)	22	2	21.3	48.1	16.4	14.1	98	89	36	-	-	RPD2
SS-169	140 LT	544+00	0.00-1.50	A-4(0)	27	9	21.6	45.1	13.2	20.1	96	87	36	-	-	L
SS-170A	50 LT	6+70	4.00-5.50	A-6(3)	31	17	22.4	41.3	14.2	22.2	97	86	40	-	-	RP D2
SS-170	140 LT	544+00	4.00-5.50	A-7-5(16)	63	27	14.3	26.6	14.8	44.3	100	94	62	-	-	L
SS-171A	50 LT	6+70	9.00-10.50	A-5(0)	46	NP	8.3	65.5	24.3	2.0	100	99	42	-	-	RP D2
SS-171	100 RT	545+00	0.00-1.50	A-4(0)	21	5	18.7	46.5	16.6	18.1	98	90	39	-	-	L
SS-172A	70 LT	16+30	0.00-1.50	A-4(1)	37	8	22.6	42.5	22.9	12.1	98	86	41	-	-	RP A2
SS-172B	70 LT	16+30	4.00-5.00	A-7-5(10)	68	17	5.8	48.3	31.7	14.1	100	99	57	-	-	RP A2
SS-172	100 RT	545+00	4.00-5.50	A-7-6(9)	50	24	18.7	32.8	10.2	38.3	100	92	52	-	-	L
SS-173A	50 RT	16+70	0.00-1.50	A-4(0)	25	5	14.9	44.1	26.9	14.1	99	93	47	-	-	RP A2
SS-173	100 RT	545+00	9.00-10.50	A-7-5(4)	49	16	16.5	44.7	18.6	20.1	96	88	45	-	-	L
SS-174A	50 RT	16+70	4.00-5.50	A-2-4(0)	23	NP	32.8	51.8	13.4	2.0	97	82	20	-	-	RP A2
SS-174	80 LT	546+80	0.00-1.50	A-7-6(30)	66	37	8.7	17.7	15.2	58.4	100	97	76	-	-	L

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC	Line or Boring ID
SS-175A	50 RT	16+70	9.00-10.50	A-5(1)	53	7	20.1	46.5	27.3	6.0	98	86	42	-	-	RP A2
SS-175	80 LT	546+80	4.00-5.50	A-5(1)	43	9	24.4	39.3	26.3	10.1	97	85	42	-	-	L
SS-176A	CL	14+50	0.00-1.50	A-7-5(16)	57	27	13.1	27.2	13.4	46.3	100	94	63	-	-	RP A2
SS-176	CL	550+00	0.00-1.50	A-6(2)	32	14	18.9	43.9	13.0	24.2	95	87	40	-	-	L
SS-177A	CL	14+50	4.00-5.50	A-7-5(7)	64	25	30.4	24.8	18.6	26.2	87	66	43	-	-	RP A2
SS-177	CL	550+00	4.00-5.50	A-7-5(25)	67	37	13.1	21.8	12.8	52.4	100	94	67	-	-	L
SS-178	150 LT	552+60	4.60-6.10	A-2-5(0)	45	NP	20.5	54.8	22.7	2.0	98	91	33	-	-	L
SS-179	150 LT	552+60	0.00-1.50	A-4(2)	32	8	15.3	40.1	26.5	18.1	96	89	49	-	-	L
SS-180	145 RT	553+95	9.70-11.20	A-2-5(0)	43	4	13.5	64.0	20.4	2.0	100	99	34	-	-	L
SS-181	CL	553+29	9.00-10.50	A-4(0)	36	5	18.3	54.0	25.7	2.0	100	97	36	-	-	L
SS-182	CL	30+85	0.00-1.50	A-2-4(0)	24	2	35.0	41.3	15.6	8.1	95	77	28	-	-	Y8 REV
SS-183	CL	32+50	0.00-1.50	A-2-6(1)	28	13	28.2	36.7	17.0	18.1	81	66	32	-	-	Y8 REV
SS-184A	CL	32+50	4.00-5.50	A-6(5)	39	19	19.9	36.3	15.6	28.2	96	87	46	-	-	Y8 REV
S-184	CL	583+00	0.00-4.00	A-7-5(53)	92	44	1.6	7.0	24.9	66.5	100	100	93	-	-	L
MS-184	CL	583+00	0.00-4.00				0.0	0.0	0.0	0.0		0	0	31.4	-	L
S-185	CL	583+00	4.00-16.00	A-7-5(30)	74	33	6.6	18.7	20.3	54.3	99	95	77	-	-	L
MS-185	CL	583+00	4.00-16.00				0.0	0.0	0.0	0.0		0	0	27	-	L
SS-186	CL	600+00	4.00-5.50	A-7-5(28)	65	33	6.8	20.1	14.7	58.4	100	96	77	-	-	L
SS-187	CL	602+50	0.00-1.50	A-6(4)	31	12	16.3	36.6	14.9	32.2	100	92	54	-	-	L
SS-188	CL	602+50	4.00-5.50	A-7-5(11)	58	13	19.5	20.5	31.8	28.2	100	96	69	-	-	L
SS-189	CL	605+00	0.00-1.50	A-2-4(0)	17	2	29.6	41.2	15.1	14.1	99	85	34	-	-	L
SS-190	CL	605+00	4.00-5.50	A-7-5(13)	56	21	17.9	24.5	29.4	28.2	100	92	63	-	-	L
SS-191	CL	7+00	0.00-1.50	A-7-5(37)	77	41	8.7	12.5	18.5	60.4	100	97	80	-	-	RP B3
SS-192	CL	7+00	4.00-5.50	A-7-5(23)	65	27	10.9	18.3	32.6	38.2	100	96	75	-	-	RP B3
S-195	60 LT	612+20	0.00-4.50	A-7-5(19)	58	21	12.3	10.9	14.5	62.4	98	90	77	-	-	L
SS-196	60 LT	612+20	4.50-6.00	A-7-5(15)	70	29	32.6	16.3	22.9	28.2	100	76	55	-	-	L
SS-197	60 LT	612+20	29.50-31.00	A-4(3)	34	6	11.9	38.4	35.6	14.1	99	94	63	-	-	L
SS-198	60 LT	612+20	39.50-41.00	A-4(0)	33	5	33.0	32.6	24.3	10.1	99	76	42	-	-	L
S-199	CL	622+00	0.00-12.00	A-7-5(5)	42	12	28.6	22.9	24.3	24.1	100	82	53	-	-	L
SS-200	145 LT	620+00	0.00-1.50	A-6(7)	40	20	28.6	19.1	14.1	38.2	97	81	53	-	-	L
SS-201	CL	8+00	0.00-1.50	A-7-6(20)	55	30	19.9	14.3	15.5	50.3	100	88	68	-	-	RP A3
MS-201	CL	8+00	1.00-1.50				0.0	0.0	0.0	0.0		0	0	21.3	-	RPA3
SS-202	80 RT	616+00	9.00-10.50	A-7-6(2)	41	13	38.3	26.4	23.3	12.1	100	72	40	-	-	L
SS-202A	80 RT	616+00	4.00-5.50	A-7-6(15)	55	31	23.7	19.3	14.7	42.3	96	82	57	-	-	L
SS-202B	CL	616+00	0.00-1.50	A-7-6(9)	42	20	26.0	20.7	17.0	36.3	98	82	56	-	-	L
SS-203	CL	616+50	4.00-5.50	A-7-6(8)	42	21	27.8	21.5	14.5	36.2	97	81	52	-	-	L
SS-204	75 LT	615+50	9.00-10.50	A-7-5(40)	80	48	15.9	10.9	18.8	54.4	100	89	76	-	-	L
SS-205	75 RT	615+00	0.00-1.50	A-7-6(15)	50	24	17.3	17.7	16.7	48.3	96	86	66	-	-	L
SS-206	75 RT	615+00	4.00-5.50	A-6(3)	40	12	31.2	31.4	23.3	14.1	100	81	45	-	-	L
SS-207	CL	613+50	0.00-1.50	A-6(6)	35	20	25.4	29.4	13.0	32.2	99	86	49	-	-	L
SS-208	CL	613+50	4.00-5.50	A-7-5(18)	53	23	13.3	15.3	31.1	40.3	100	92	75	-	-	L
SS-210	CL	12+00	0.00-1.50	A-7-6(17)	60	32	23.8	17.9	14.0	44.3	100	88	60	-	-	RP A3
SS-211	CL	12+00	4.00-5.50	A-7-5(8)	51	21	28.0	25.4	20.4	26.2	100	82	52	-	-	RP A3
SS-212	CL	9+50	0.00-1.50	A-7-6(8)	46	22	29.8	22.2	13.8	34.2	99	81	51	-	-	RP A3
SS-213	CL	9+50	4.00-5.50	A-7-5(5)	52	18	36.4	17.9	23.5	22.1	94	69	46	-	-	RP A3
SS-216	CL	50+00	0.00-1.50	A-7-6(18)	56	30	16.7	21.5	9.6	52.2	100	91	65	-	-	Y11 REV
SS-217	CL	51+00	0.00-1.50	A-7-6(4)	42	18	36.1	24.5	11.2	28.1	96	72	43	-	-	Y11 REV
SS-218	CL	51+00	4.00-5.50	A-6(6)	37	19	23.3	32.7	7.8	36.1	100	87	49	-	-	Y11 REV
SS-219	CL	51+00	9.00-10.50	A-6(2)	27	14	31.7	34.5	9.6	24.1	100	82	39	-	-	Y11 REV
SS-220	CL	52+00	0.00-1.50	A-4(2)	24	8	16.7	29.1	22.1	32.1	98	88	61	-	-	Y11 REV
SS-221	CL	52+00	4.00-5.50	A-6(4)	37	22	31.3	31.5	5.0	32.1	99	80	41	-	-	Y11 REV
SS-222	CL	52+00	9.00-10.50	A-6(2)	29	15	32.3	31.7	9.8	26.1	99	80	40	-	-	Y11 REV
SS-223	CL	55+00	0.00-1.50	A-7-5(22)	60	26	7.8	20.9	17.1	54.2	100	96	76	-	-	Y11 REV
SS-224	40 LT	57+40	0.00-1.50	A-4(0)	24	8	25.5	39.2	15.3	20.1	100	86	41	-	-	Y11 REV
SS-225	40 LT	57+40	4.50-6.00	A-6(5)	35	18	26.9	26.5	12.4	34.1	99	83	50	-	-	Y11 REV
SS-226	40 LT	57+40	9.50-11.00	A-7-5(3)	44	14	33.9	32.1	19.9	14.1	100	77	43	-	-	Y11 REV
SS-227	50 RT	58+50	0.00-1.50	A-6(11)	38	17	13.5	17.5	24.9	44.2	99	91	73	-	-	Y11 REV
SS-228	30 RT	60+50	0.00-1.50	A-4(0)	15	2	39.6	30.5	13.9	16.1	100	75	36	-	-	Y11 REV
SS-229	30 RT	60+50	4.20-5.70	A-7-6(9)	43	26	33.3	18.7	9.8	38.2	100	78	51	-	-	Y11 REV
SS-230	CL	62+00	0.00-1.50	A-2-4(0)	18	NP	58.8	28.3	2.8	10.0	98	57	17	-	-	Y11 REV
SS-231	CL	62+00	4.00-5.50	A-6(4)	38	19	39.0	19.3	9.6	32.1	99	73	44	-	-	Y11 REV
SS-232	CL	62+00	9.00-11.50	A-4(0)	35	2	27.3	37.3	25.3	10.0	88	74	41	-	-	Y11 REV
S-233	CL	629+00	0.00-7.00	A-7-5(17)	56	19	12.7	15.1	24.1	48.2	99	90	76	-	-	L
S-234	CL	629+00	7.00-21.00	A-4(0)	40	4	39.0	20.9	22.1	18.1	93	63	42	-	-	L
S-235	CL	41+50	0.00-3.00	A-4(2)	28	9	12.7	41.8	15.5	30.1	97	91	52	-	-	Y11 REV
S-236	CL	45+00	0.00-3.00	A-7-6(12)	44	22	16.1	26.1	11.6	46.2	100	92	62	-	-	Y11 REV
S-237	CL	476+30	0.00-4.00	A-3(0)	22	NP	56.4	33.7	3.8	6.0	82	56	10	-	-	L
S-238	80 RT	476+55	0.00-4.00	A-1-a(0)	22	NP	72.9	17.7	3.4	6.0	43	19	5	-	-	L
S-239	80 RT	476+55	4.00-5.00	A-2-4(0)	27	NP	42.6	44.2	5.2	8.0	89	68	15	-	-	L
S-240A	90 RT	27+00	0.00-5.00	A-2-4(0)	28	NP	20.0	64.6	9.4	6.0	100	97	21	-	-	Y2
SS-240	80 LT	476+00	0.00-1.50	A-3(0)	21	NP	64.3	29.7	2.0	4.0	92	78	6	-	-	L
S-241	80 LT	476+00	1.50-4.00	A-1-b(0)	21	NP	58.8	31.1	6.0	4.0	51	31	6	-	-	L
S-241A	CL	592+00	0.00-5.00	A-4(1)	26	9	16.9	42.1	18.8	22.2	98	89	48	-	-	L
SS-242	80 LT	476+00	4.00-5.00	A-2-4(0)	27	NP	42.4	42.4	7.2	8.0	82	61	16	-	-	L

SOIL TEST RESULTS

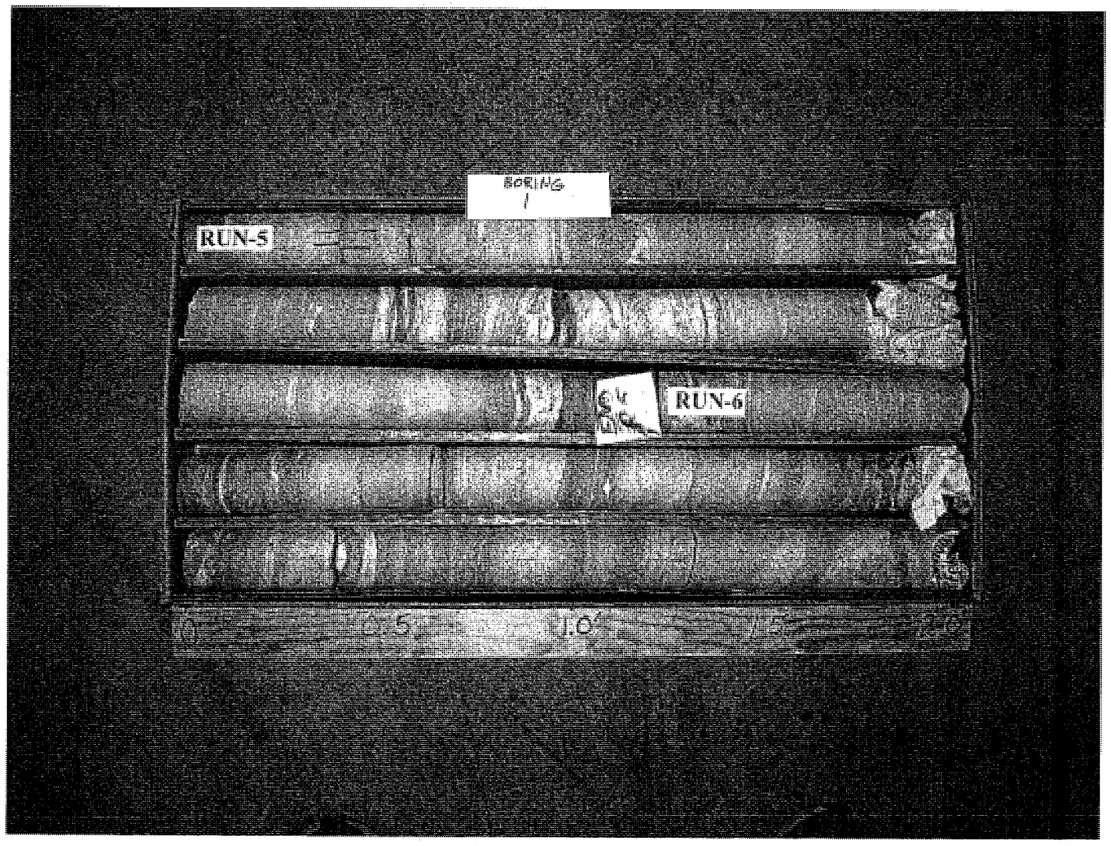
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%	Line or Boring ID
							C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC	
S-242A	CL	586+00	0.00-3.00	A-7-6(14)	48	22	10.1	25.8	15.8	48.3	100	95	68	-	-	L
S-243	CL	584+00	0.00-3.00	A-6(6)	38	15	15.1	31.5	13.1	40.3	97	90	56	-	-	L
S-244	CL	588+50	0.00-3.00	A-4(0)	21	6	22.8	44.4	10.7	22.2	99	86	39	-	-	L
S-245	CL	608+00	0.00-3.00	A-7-6(20)	59	32	16.1	22.6	4.8	56.5	100	91	65	-	-	L
S-246	CL	582+00	0.00-3.00	A-6(4)	31	14	15.5	39.3	8.9	36.3	100	93	50	-	-	L
S-247	CL	12+50	0.00-3.00	A-6(6)	35	16	21.0	25.2	13.5	40.3	97	85	56	-	-	RP B3
S-248	CL	10+00	0.00-3.00	A-7-6(10)	48	26	23.4	29.8	4.4	42.3	100	88	51	-	-	RP B3
SS-251	CL	3+00	0.00-1.50	A-2-4(0)	17	NP	29.8	47.4	10.7	12.1	100	86	30	-	-	LOOP C3
SS-252	CL	3+00	1.50-3.00	A-6(7)	39	18	14.7	35.3	7.7	42.3	99	92	54	-	-	LOOP C3
S-253	30 LT	29+00	0.00-3.00	A-2-4(0)	24	5	29.6	38.5	7.7	24.2	98	83	35	-	-	Y-4REV
S-254	30 LT	32+00	0.00-3.00	A-6(4)	40	14	18.1	39.9	9.7	32.3	100	92	47	-	-	Y-4REV
S-255	C L	14+00	0.00-3.00	A-6(5)	33	15	19.8	27.4	12.5	40.3	95	84	53	-	-	Y18
S-256	C L	15+50	0.00-3.00	A-6(1)	27	11	23.6	36.9	11.3	28.2	98	86	43	-	-	Y18
S-257	30 RT	28+00	0.00-3.00	A-6(2)	32	13	32.7	28.8	10.3	28.2	95	75	40	-	-	Y14
S-258	50 LT	27+50	0.00-5.00	A-2-4(0)	25	7	36.9	31.9	13.1	18.1	97	74	35	-	-	Y14
S-270	120 RT	503+50	0.00-3.00	A-7-5(33)	84	29	4.2	19.0	36.5	40.3	100	97	83	-	-	L
S-271	120 RT	503+50	3.00-4.00	A-4(0)	36	NP	13.7	49.2	14.9	22.2	97	89	51	-	-	L
S-272	CL	497+00	0.00-3.00	A-7-5(23)	64	29	7.5	24.6	11.5	56.5	100	97	73	-	-	L
S-273	CL	498+00	0.00-3.00	A-7-6(18)	58	32	15.3	24.2	8.1	52.4	97	88	61	-	-	L
MS-273	CL	498+00	0.00-3.00				0.0	0.0	0.0	0.0		0	0	31	-	L
S-274	CL	499+00	0.00-4.00	A-7-5(28)	66	35	7.9	21.4	6.3	64.5	100	97	74	-	-	L
S-275	CL	501+00	0.00-4.00	A-7-5(27)	67	34	8.1	20.8	6.7	64.5	100	97	73	-	-	L
S-276	CL	502+00	0.00-4.00	A-6(6)	39	17	7.7	41.9	12.1	38.3	98	95	54	-	-	L
S-277	CL	11+00	0.00-4.00	A-2-4(0)	23	NP	37.2	46.6	7.2	9.1	89	70	18	-	-	RP B2
S-278	CL	11+00	4.00-5.00	A-2-5(0)	45	NP	15.1	62.5	14.3	8.1	98	91	34	-	-	RP B2
S-279	CL	18+50	0.00-2.00	A-2-4(0)	22	3	44.6	31.3	10.1	14.1	87	60	25	-	-	Y 17
S-280	CL	18+50	2.00-4.00	A-7-6(6)	42	20	30.2	24.4	9.1	36.3	96	78	47	-	-	Y 17
S-281	100 RT	18+50	0.00-2.00	A-2-4(0)	33	5	35.3	32.1	16.5	16.1	97	78	35	-	-	Y 17
CBR-1	90 RT	419+00	35.0-40.0	A-7-5(1)	49	12	22.0	50.2	13.7	14.1	99	91	36	-	-	L
ST-1(1,2)	130 RT	400+50	18.7-20.7	A-2-5	50	1	24.4	52.8	20.8	2.0	100	93	27		-	L
ST-1(3)	130 RT	400+50	18.7-20.7	A-2-5	53	2	27.2	51.6	19.2	2.0	90	76	24	19.5	-	L
ST-2	120 RT	413+00	31.5-33.4	A-2-5	44	NP	21.7	64.6	9.8	4.0	100	98	20	-	-	

33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150.

BORING 1 – 390+50 –L-, 75' LT.

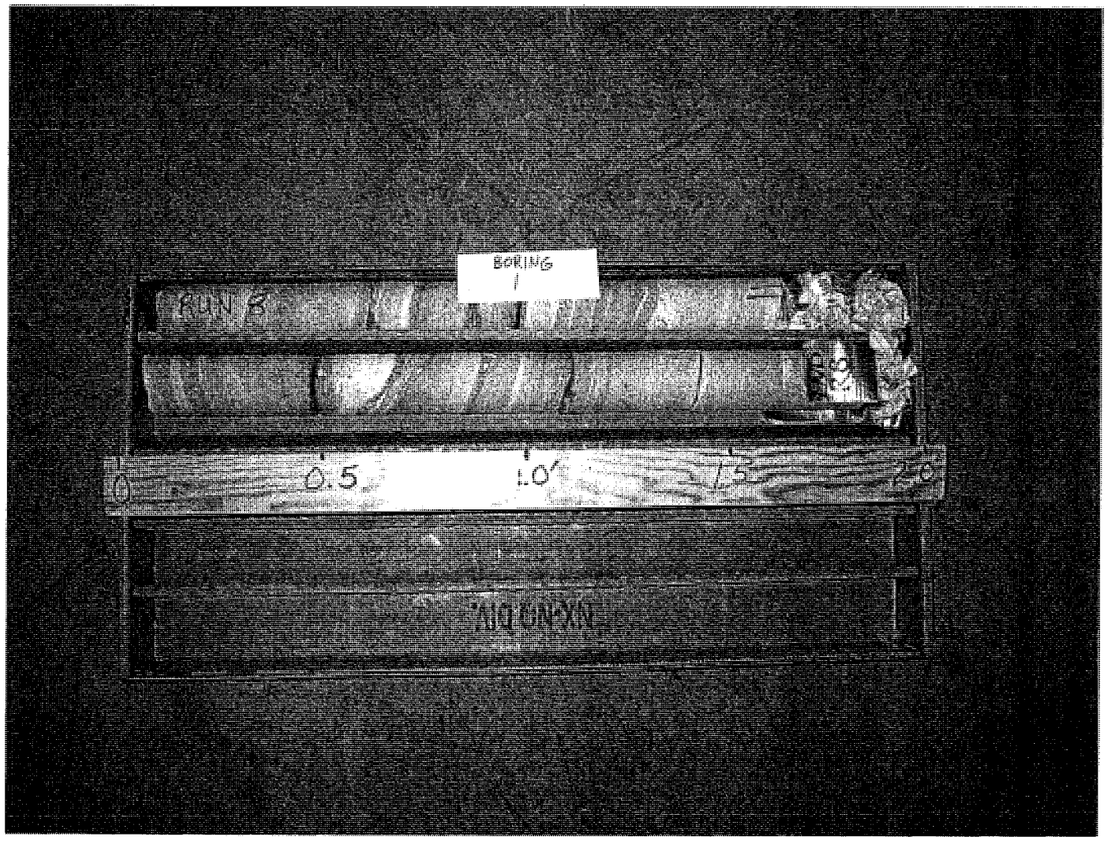
33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150.

BORING 1 – 390+50 –L-, 75' LT.



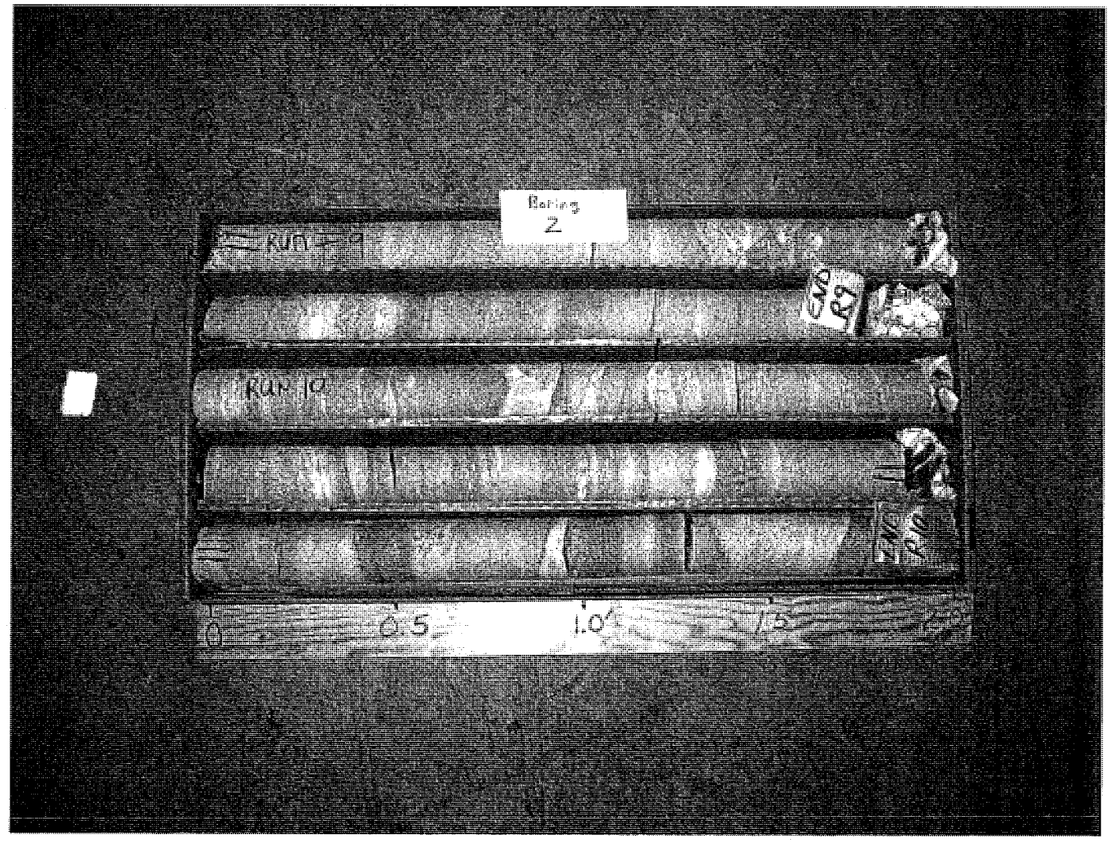
33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150.

BORING 1 – 390+50 –L-, 75' LT.



33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150

BORING 2 – 393+50 -L-, CENTERLINE



33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150

BORING 4 – 393+00 -L-, 100' LT.

33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150

BORING 5 – 390+50 -L-, 75' RT.

33497.1.4 R-2707C
US 74 SHELBY BYPASS FROM WEST OF NC 226 TO EAST OF NC 150

BORING 5 – 390+50 -L-, 75' RT.