STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2233AA	1	224

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34400.1.1	NHF-221(9)	P.E.
34400.2.2		R/W & UTIL.
34400.3.1		CONST.

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

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. R-2233AA F.A. PROJ. NHF-221(9)

COUNTY RUTHERFORD

PROJECT DESCRIPTION US 221 FROM SOUTH CAROLINA STATE LINE TO SOUTH OF FLOYD'S CREEK

INVENTORY

CONTENTS

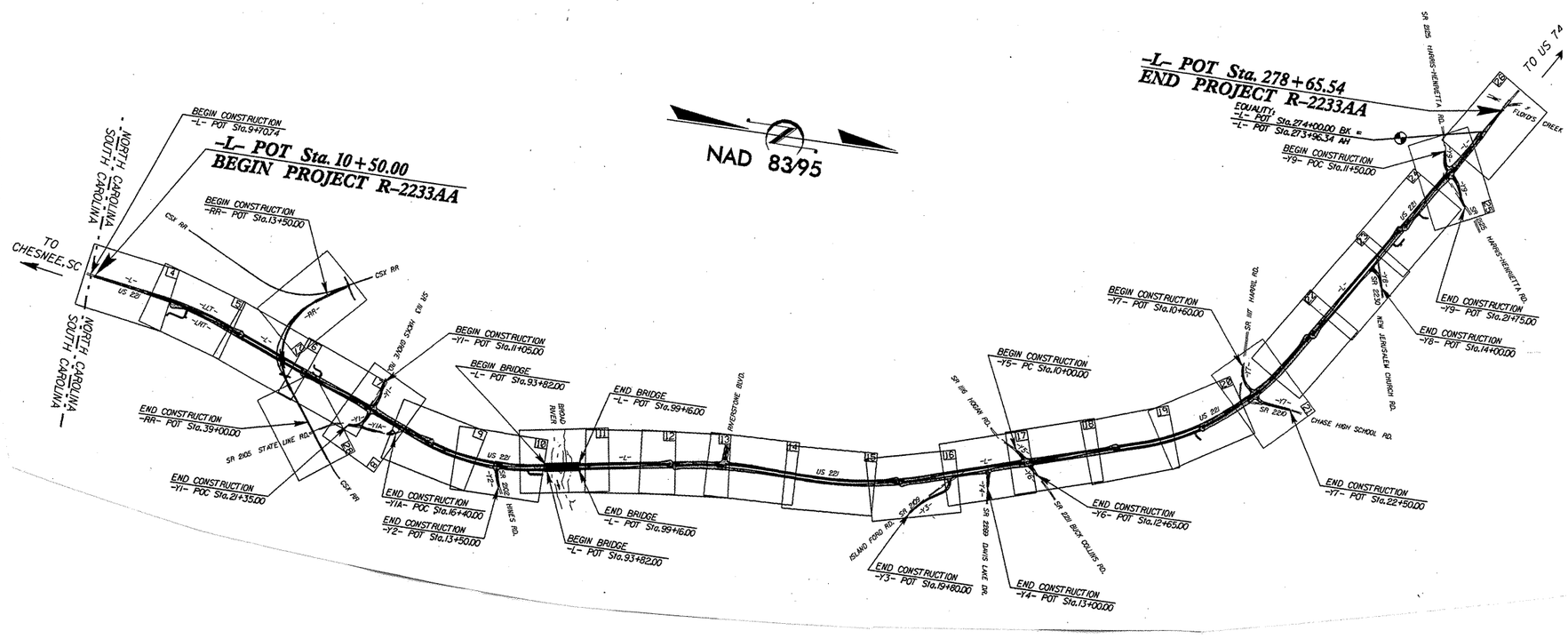
LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+50.0 - 274+00.0	4-26		34-222
-RR-	10+00.0 - 45+88.1	6 & 27-28	29	
-Y1-	11+05.0 - 21+35.0	8	30	
-Y1A-	10+11.0 - 13+00.0	8	30	
-DR1-	10+15.0 - 12+77.84		30	
-Y2-	10+48.87 - 13+50.0	10	30	
-Y3-	10+47.0 - 19+80.0	16	31	
-Y4-	10+48.12 - 13+00.0	17	31	
-Y5-	10+00.0 - 12+87.17	18	31	
-Y6-	10+53.79 - 12+65.0	18	31	
-Y7-	10+60.0 - 22+50.0	21	32	
-Y8-	10+47.0 - 14+00.0	23	32	
-Y9-	11+50.0 - 21+75.0	25	33	
SOIL SAMPLES				223-224

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

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

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



PERSONNEL

R. W. TODD

M. L. SMITH

A. C. SMITH

INVESTIGATED BY J. P. ROGERS

CHECKED BY C.B. LITTLE

SUBMITTED BY C.B. LITTLE

DATE

NORTH CAROLINA LICENSED SEAL 1104 GEOLOGIST CLINTON B. LITTLE 4-16-07

DRAWN BY: C. E. BURRIS

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

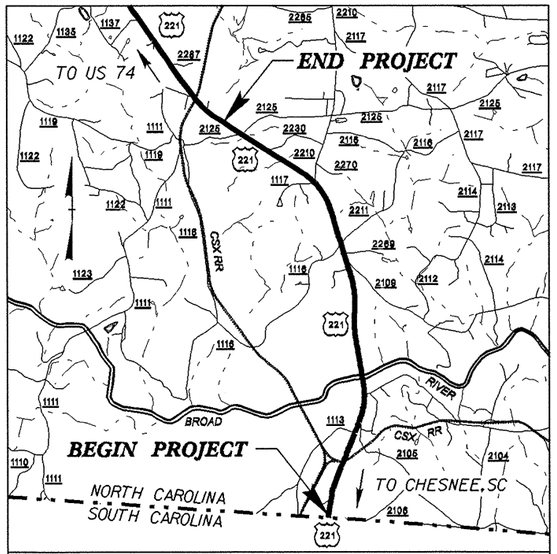
CONTRACT: C202264

ID: R-2233AA

TIP PROJECT: R-2233AA

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

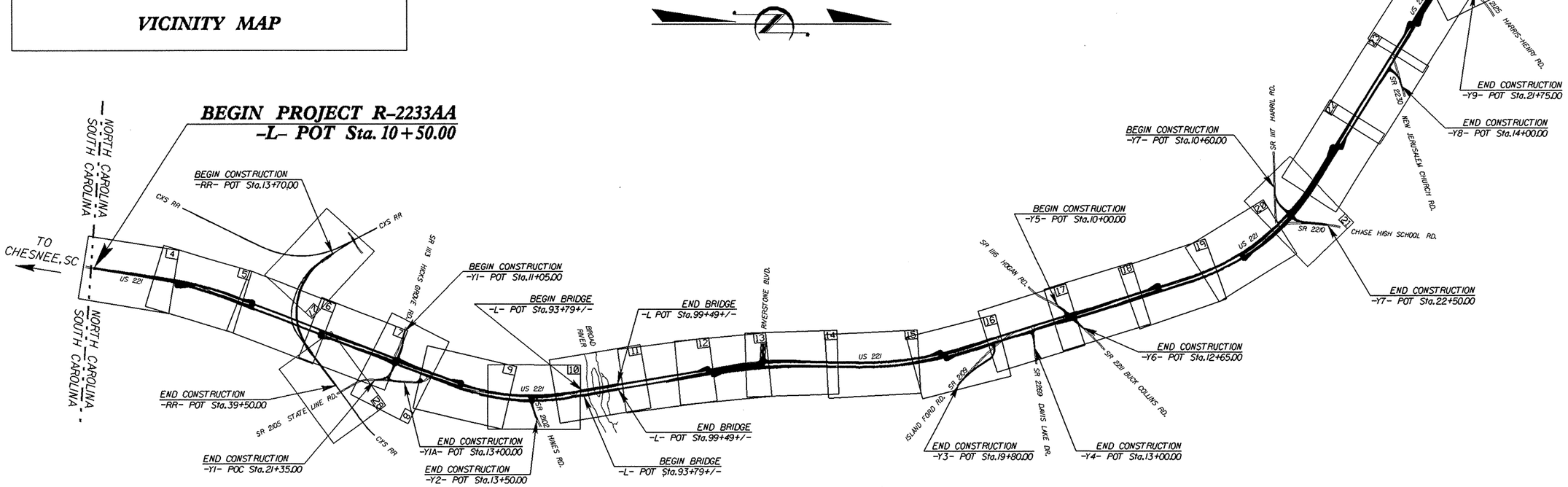
RUTHERFORD COUNTY

LOCATION: US 221 FROM SOUTH CAROLINA STATE LINE TO SOUTH OF FLOYD'S CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES AND RAILROAD REALIGNMENT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2233AA	1A	237

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34400.1.1		P.E.



GRAPHIC SCALES

50' 25' 0 50' 100'
PLANS

50' 25' 0 50' 100'
PROFILE (HORIZONTAL)

10' 5' 0 10' 20'
PROFILE (VERTICAL)

DESIGN DATA

ADT 2005	=	9,100
ADT 2030	=	16,700
DHV	=	11 %
D	=	55 %
T	=	12 % *
V	=	60 MPH
FUNC. CLASS.	=	ARTERIAL

* TTST 7% DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2233AA	=	4.883 MI.
LENGTH STRUCTURE TIP PROJECT R-2233AA	=	0.108 MI.
TOTAL LENGTH OF TIP PROJECT R-2233AA	=	4.991 MI.

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 2007

LETTING DATE: JUNE 16, 2009

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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chbrooks

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	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, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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
GRAIN SIZE IN.: 12 | 3

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, 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, FELDSPAR, 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
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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:
- [ ] MOBILE B-___
- [ ] 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
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____" STEEL TEETH
- [ ] TRICONE ____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

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

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -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 FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

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

January 30, 2007

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

SUBJECT: Geotechnical Report - Inventory

PROJECT DESCRIPTION

This widening project is located in southern Rutherford County, starting at the South Carolina State line and proceeding in a north-northeasterly direction for approximately five miles. The Harrisburg Field Office initially investigated this project in August – October 2006. Please refer to the Roadway plans for a breakdown of all the –L- and –Y- line typicals.

A total of two bridges are also included in the scope of this project. One of these bridges will be required for a grade separation at –RR- over –L-. The other proposed bridge will be a dual structure water crossing at -L-line over the Broad River. The –Y- lines 1 – 9 will be grade separation crossings with line –L-. The following alignments were investigated:

–L- 10+50.00 to 274+00.00 (4.99 miles)
-RR- 13+70.00 to 39+50.00 (0.49 miles)
-Y1- 11+05.00 to 21+35.00 (0.20 miles)
-Y1A- 10+00.00 to 13+00.00 (0.06 miles)
-Y2- 10+00.00 to 13+50.00 (0.07 miles)
-Y3- 10+00.00 to 19+80.00 (0.19 miles)
-Y4- 10+00.00 to 13+00.00 (0.06 miles)
-Y5- 10+00.00 to 12+73.29 (0.05 miles)
-Y6- 10+00.00 to 12+65.00 (0.05 miles)
-Y7- 10+00.00 to 22+50.00 (0.24 miles)
-Y8- 10+00.00 to 14+00.00 (0.08 miles)
-Y9- 11+50.00 to 21+75.00 (0.19 miles)

The total length of lines investigated is 6.67 miles.

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

AREAS OF SPECIAL GEOTECHNICAL INTEREST

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-	20+00 to 21+50
"	135+50 to 137+50
"	138+00 to 145+00

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. There also 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, the most likely rock type within the project corridor is Biotite Gneiss and Mica Schist metamorphic rock (CZms & CZbg). These rocks are likely to become more schistose on the northern end of the project.

The rock is described on the cross-sections and profiles as C*rystalline Rock – Biotite Gneiss and Schist/Mica Gneiss*. As stated previously, the hardness was determined primarily on 8" hollow stem auger refusal and 6" standard auger refusal. In addition, the pulldown pressure on the feed cylinders on the CME 550 was observed to be 800 – 1000 psi in the areas of auger refusal.

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

Station 29+30 to 31+70 –L-, Left: Alluvial soils present in this location are associated with a drainage outlet for a pond that is located to the left of the –L- line. The water flows out of the pond from west to east underneath existing US 221. The deposit is approximately seven feet thick and contains soft sandy silt (A-4) and medium dense clayey sand (A-1-b). At the time of our investigation, groundwater was encountered near elevation 769.00'.

MAILING ADDRESS:
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RALEIGH NC 27699-1589

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WEBSITE: WWW.DOH.DOT.STATE.NC.US

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

Station 41+00 to 42+00 –L-, Left and Right: Alluvial soils present in this location are associated with a small stream that connects two ponds on opposite sides of US 221. The deposits are four to seven feet thick and contain very soft to medium stiff sandy silt (A-5) and loose to medium dense silty sand (A-2-4). Drive Rod refusal was encountered between elevation 740' and 744' at 110' – 130' right of Station 41+00 and 41+10–L-. Groundwater, where encountered, was near elevation 758'.

Station 84+00 to 89+00 –L-, Left: Alluvial soils present in this location are approximately four to five feet thick and consist of very loose clayey sand (A-2-7). These deposits are associated with a northerly flowing stream that is confined to the western side of existing US 221. At the time of our investigation, groundwater was encountered in this area near elevation 700'.

Station 99+50 to 103+00 –L-: Alluvial soils present in this location are associated with the Broad River Floodplain. The deposits are 13' to 22' thick and contain: medium stiff to stiff sandy and silty clay (A-7, A-6), medium stiff to stiff sandy silt (A-4), very loose to loose coarse sand and gravel (A-1-b), and very loose clayey sand (A-2-4). In the borings performed in this interval, crystalline rock was encountered between elevations 676' and 680'. Groundwater, where encountered, was between elevation 680 and 682'.

Station 146+50 to 150+50 –L-: Alluvial soils in this interval are approximately four to seven feet thick and consist of a variety of soils. Very loose to loose silty and coarse sands (A-2-4, A-1-b), very loose to loose clayey sands (A-2-7), and soft sandy clay (A-7) were all encountered in this area. The sands encountered were observed to be micaceous. In the borings performed in this interval, crystalline rock was encountered between elevations 800' and 820'. Groundwater was not encountered in this area.

Station 232+00 to 235+00 –L-: Alluvial soils in this interval are approximately five to nine feet thick and consist of very loose to medium dense silty sand (A-2-4, A-1-b). These sands were observed to be micaceous. Crystalline rock, where encountered, was between elevations 817' and 835'. Groundwater was not encountered in this area.

Station 249+00 to 254+00 –L-: Alluvial soils in this interval are up to 12' thick and consist of very loose to loose silty/clayey sand (A-2-4, A-2-6) and medium stiff sandy silt (A-4). These soils were encountered on both sides of existing US 221 and are associated with a stream that passes underneath the existing roadway. Crystalline rock and groundwater were not encountered in this interval.

Groundwater: Groundwater was not encountered within six feet of proposed grade in the project corridor. However, 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.

Spring(s): One spring was located within the project corridor at the following location:

Line	Station	Offset
-L-	82+00	80' RT.

Artificial Fill/Roadway Embankment:

Artificial fill soils were encountered in numerous locations throughout the project corridor. These soils were generally two to seven feet thick and consisted of the following soil types: soft to stiff sandy clay (A-7, A-6), stiff sandy silt (A-4), and medium dense silty sand (A-2-4). Our investigation of the artificial fill soils between Stations 123+00 and 127+50 –L- revealed organic root mat debris intermingled with the fill soils. Please refer to the attached plan sheets and profiles to view all these areas in detail.

Due to the presence of overhead/underground utilities and high traffic volumes, only a limited number of borings were obtained in the existing US 221 roadway embankment. These soils consisted of very loose silty sand (A-2-4), loose clayey sand (A-2-6) with mica, and medium stiff to stiff sandy clay (A-7). No problems were observed with the existing roadway soils except for some minor erosion on the steeper side slopes.

Ponds: No ponds were encountered within the project corridor. However, the following location has a proposed fill slope impacting an existing earthen dam:

Line	Station	Offset
-L-	29+00	100'

Active Borrow Pits: Two active borrow pits were encountered within the project corridor. Their locations are as follows:

Line	Station	Offset
-L-	239+30 to 242+15	10' RT.
-L-	255+00 to 257+00	10' RT.

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

Sample	Line	Station(s)	Offset
S-18	-L-	38+00	110' LT.
SS-70	-L-	88+00	None
SS-73	-L-	92+50	50' RT.
SS-79	-L-	101+25	85' RT.
S-98	-L-	136+50	85' RT.
S-121	-L-	162+00	70' LT.
S-204	-L-	173+00	40' RT.
SS-124	-L-	188+50	50' RT.
SS-126	-L-	193+00	60' RT.
SS-128	-L-	195+50	60' LT.
S-246	-L-	245+00	None

Culverts: To accommodate the widening of existing US 221, five culvert extensions have been proposed within the project corridor. These culverts will be identified by where they cross centerline –L-. Unless otherwise specified, these culverts will be extending to the west and east of existing US 221.

31+32.1 –L-

The boring performed at Sta. 30+25 –L-, 60' left encountered approximately eight feet of alluvial soils. These soils consisted of soft, sandy silt (A-4) and medium dense, clayey sand (A-1-b). Residual soils on the western side of US 221 consist of very stiff, sandy silt (A-4). The boring performed at Sta. 31+75 –L-, 150' right encountered approximately three feet of alluvial clayey sand overlying crystalline rock. Auger refusal occurred in this boring near elevation 755'. 24 hour groundwater readings, where encountered, were near elevation 770'. Please refer to the attached cross-sections for a detailed overview of this area.

40+98.5 –L-

The culvert extension at this location will be to the west of existing US 221. Alluvial soils in this area are approximately seven feet thick and consist of very soft to medium stiff, sandy silt (A-5). Residual soils encountered consist of loose to very dense, silty sand (A-2-4). At the time of our investigation, the twenty-four hour groundwater level was near elevation 758'. Based on ½" drive rod soundings performed on the eastern side of existing US 221, we anticipate the crystalline rock level to be near elevation 740' in the area of the culvert extension. Please refer to the attached cross-sections for a detailed overview of this area.

224+69.8 –L-

Alluvial soils in this interval are two feet thick and consist of loose, clayey sand (A-2-4). Residual soils consist of stiff, sandy silt (A-5). Groundwater and crystalline rock were not encountered in this interval. Please refer to the attached cross-sections for a detailed overview of this area.

234+89.7 –L-

Alluvial soils at this location are two to six feet thick and consist of very loose to loose, silty clayey sand (A-2-4). Residual soils consist of loose to dense coarse (A-1-b) and clayey sand (A-2-4). Groundwater, where encountered, was between elevations 816' and 826'. Crystalline rock was encountered right of centerline at Sta. 234+70 –L- between elevations 817' and 827'. Artificial fill, where encountered, was approximately two to three feet thick. Wood fragments were found in the artificial fill left of Sta. 235+20 –L-. Please refer to the attached cross-sections for a detailed overview of this area.

261+30.7 –L-

Alluvial soils encountered in this area are approximately two to three feet thick and consist of very loose, silty sand (A-2-4). Residual soils consist of medium dense, clayey/coarse sand (A-2-4, A-1-b) and stiff, sandy clay (A-7). Groundwater, where encountered, was near elevation 770'. Crystalline rock was not encountered in this interval. Please refer to the attached cross-sections for a detailed overview of this area.

PHYSIOGRAPHY AND GEOLOGY

The project is located in the southwestern piedmont region of North Carolina. The terrain is rolling hills and steep valleys with generally narrow floodplains at stream crossings. Elevation relief (from highest point to lowest point) within the entire project corridor is approximately 250'. 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 Gneiss/Mica Schist rocks previously discussed. The dominant soil types encountered are silty and sandy clay (A-6, A-7), silty sand (A-2-4, A-1-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 soils are silty sand (A-2-4) and sandy silt (A-4, A-5) with some alternating zones of dense residual soil and weathered rock. A large majority of the residual silty sands/sandy silts encountered on this project were observed to be micaceous.

Respectfully submitted,

John P. Rogers
Project Geological Engineer

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT TIP # R-2233AA COUNTY: Rutherford DATE: 11/30/2009 ROCK SWELL: 30% SHEET 3 OF 224 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + SHRINK. 15%	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	10+50.00	40+00.00	157,708	2,994			154,714	51,638	2,994	47,746	57,902			99,806		99,806
-DR1A-	10+42.84	15+00.00	935				935	227		227	261			674		674
SUBTOTAL 1			158,643	2,994			155,649	51,865	2,994	47,973	58,163			100,480		100,480
-L-	40+00.00	70+00.00	96,884				96,884	35,362		35,362	40,666			56,218		56,218
-RR-	13+50.00	26+30.07	6,180				6,180	8,635		8,635	9,930	3,750				
-RR-	28+41.58	39+00.00	176				176	23,511		23,511	27,038	26,862				
-RRY1-	10+00.00	11+88.00	0				0	417		417	479	479				
-DR1-	10+15.00	12+77.84	309				309	11		11	13			296		296
-Y1-	11+05.00	15+78.57	8,527				8,527	19		19	22			8,505		8,505
-Y1-	16+72.78	21+35.00	117				117	4,867		4,867	5,597	5,480				
-Y1A-	10+11.00	13+00.00	106				106	1,455		1,455	1,673	1,567				
-Y1A-	14+90.00	16+40.00	1,082				1,082	2		2	2			1,080		1,080
SUBTOTAL 2			113,381				113,381	74,279		74,279	85,420	38,138		66,099		66,099
		BEGIN BRIDGE														
-L-	70+00.00	93+82.00	62,477				62,477	26,548		26,548	30,530			31,947		31,947
-Y2-	10+48.87	13+50.00	136				136	1,064		1,064	1,224	1,088				
SUBTOTAL 3			62,613				62,613	27,612		27,612	31,754	1,088		31,947		31,947
	END BRIDGE															
-L-	99+16.00	130+00.00	31,208		2,500	250	30,958	102,504		102,504	117,880	86,922			2,750	2,750
SUBTOTAL 4			31,208		2,500	250	30,958	102,504		102,504	117,880	86,922			2,750	2,750
-L-	130+00.00	160+00.00	122,071	35,356			86,715	53,391	35,356	7,428	43,898			78,173		78,173
SUBTOTAL 5			122,071	35,356			86,715	53,391	35,356	7,428	43,898			78,173		78,173
-L-	160+00.00	190+00.00	15,142				15,142	22,985		22,985	26,433	11,291				
-Y3-	10+47.00	19+80.00	360				360	8,197		8,197	9,427	9,067				
-Y4-	10+48.00	13+00.00	0				0	1,393		1,393	1,602	1,602				
-Y5-	10+00.00	12+18.17	574				574	263		263	302			272		272
-Y6-	10+53.79	12+65.00	73				73	1,299		1,299	1,494	1,421				
SUBTOTAL 6			16,149				16,149	34,137		34,137	39,258	23,381		272		272

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT TIP # R-2233AA COUNTY: Rutherford DATE: 11/30/2009 ROCK SWELL: 30% SHEET 34 OF 224 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + SHRINK. 15%	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	190+00.00	220+00.00	15,223				15,223	46,636		46,636	53,631	38,408				
-DR2-	10+51.00	11+93.00	0				0	1,992		1,992	2,291	2,291				
-Y7-	10+60.00	15+46.09	1,656				1,656	9		9	10			1,646		1,646
-Y7-	16+40.09	22+50.00	1,338				1,338	361		361	415			923		923
SUBTOTAL 7			18,217				18,217	48,998		48,998	56,347	40,699		2,569		2,569
-L-	220+00.00	250+00.00	39,346				39,346	56,016		56,016	64,418	25,072				
-Y8-	10+47.00	14+00.00	2,111				2,111	98		98	113			1,998		1,998
-DR2A-	10+51.00	12+98.00	230				230	288		288	331	101				
SUBTOTAL 8			41,687				41,687	56,402		56,402	64,862	25,173		1,998		1,998
-L-	250+00.00	274+00.00	106,011				106,011	54,428		54,428	62,592			43,419		43,419
-L-	273+96.34	278+65.54	1,423				1,423	4,842		4,842	5,568	4,145				
-DR3-	10+51.00	12+29.00	0				0	1,917		1,917	2,205	2,205				
-Y9-	11+50.00	14+89.48	4,021				4,021	363		363	417			3,604		3,604
-Y9-	15+86.45	21+75.00	41,379				41,379	78		78	90			41,289		41,289
SUBTOTAL 9			152,834				152,834	61,628		61,628	70,872	6,350		88,312		88,312
PROJECT SUBTOTAL			716,803	38,350	2,500	250	678,203	510,816	38,350	460,961	568,454	221,751	0	369,850	2,750	372,600
LOSS DUE TO CLEARING & GRUBBING			-26,927				-26,927							-26,927		-26,927
ADDITIONAL UNDERCUT					10,000			10,000		10,000	11,500	11,500			10,000	10,000
WASTE IN LIEU OF BORROW												-233,251		-233,251		-233,251
PROJECT TOTAL			689,876	38,350	12,500	250	651,276	520,816	38,350	470,961	579,954	0	0	109,672	12,750	122,422
GRAND TOTAL			689,876													
SAY			**690,000**													

SHALLOW UNDERCUT = 5,000 CY
EST DDE = 9,700 CY
SHOULDER BORROW = 36,000 CY
PAVEMENT STRUCTURE VOLUME (-L-, -Y1-, -Y9-) = 50,833 CY

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

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Alternate Pavment Design - Volumes in Cubic Yards

PROJECT TIP # R-2233AA COUNTY: Rutherford DATE: 11/30/2009 ROCK SWELL: 30% SHEET 38 OF 224 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + SHRINK. 15%	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	10+50.00	40+00.00	155,813	2,994			152,819	52,959	2,994	49,067	59,421			96,392		96,392
-DR1A-	10+42.84	15+00.00	935				935	227		227	261			674		674
SUBTOTAL 1			156,748	2,994			153,754	53,186	2,994	49,294	59,682			97,066		97,066
-L-	40+00.00	70+00.00	92,928				92,928	36,957		36,957	42,501			50,427		50,427
-RR-	13+50.00	26+30.07	6,180				6,180	8,635		8,635	9,930	3,750				
-RR-	28+41.58	39+00.00	176				176	23,511		23,511	27,038	26,862				
-RRY1-	10+00.00	11+88.00	0				0	417		417	479	479				
-DR1-	10+15.00	12+77.84	309				309	11		11	13			296		296
-Y1-	11+05.00	15+78.57	8,527				8,527	19		19	22			8,505		8,505
-Y1-	16+72.78	21+35.00	117				117	4,867		4,867	5,597	5,480				
-Y1A-	10+11.00	13+00.00	106				106	1,455		1,455	1,673	1,567				
-Y1A-	14+90.00	16+40.00	1,082				1,082	2		2	2			1,080		1,080
SUBTOTAL 2			109,425				109,425	75,874		75,874	87,255	38,138		60,308		60,308
		BEGIN BRIDGE														
-L-	70+00.00	93+82.00	58,930				58,930	29,024		29,024	33,378			25,552		25,552
-Y2-	10+48.87	13+50.00	136				136	1,064		1,064	1,224	1,088				
SUBTOTAL 3			59,066				59,066	30,088		30,088	34,602	1,088		25,552		25,552
	END BRIDGE															
-L-	99+16.00	130+00.00	29,882		2,500	250	29,632	106,936		106,936	122,976	93,344			2,750	2,750
SUBTOTAL 4			29,882		2,500	250	29,632	106,936		106,936	122,976	93,344			2,750	2,750
-L-	130+00.00	160+00.00	120,098	34,649			85,449	55,375	34,649	10,331	46,530			73,568		73,568
SUBTOTAL 5			120,098	34,649			85,449	55,375	34,649	10,331	46,530			73,568		73,568
-L-	160+00.00	190+00.00	13,906				13,906	25,944		25,944	29,836	15,930				
-Y3-	10+47.00	19+80.00	360				360	8,197		8,197	9,427	9,067				
-Y4-	10+48.00	13+00.00	0				0	1,393		1,393	1,602	1,602				
-Y5-	10+00.00	12+18.17	574				574	263		263	302			272		272
-Y6-	10+53.79	12+65.00	73				73	1,299		1,299	1,494	1,421				
SUBTOTAL 6			14,913				14,913	37,096		37,096	42,661	28,020		272		272

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Alternate Pavment Design - Volumes in Cubic Yards

PROJECT TIP # R-2233AA COUNTY: Rutherford DATE: 11/30/2009 ROCK SWELL: 30% SHEET 30 OF 224 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + SHRINK. 15%	BORROW	ROCK WASTE	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	190+00.00	220+00.00	13,105				13,105	52,195		52,195	60,024	46,919				
-DR2-	10+51.00	11+93.00	0				0	1,992		1,992	2,291	2,291				
-Y7-	10+60.00	15+46.09	1,656				1,656	9		9	10			1,646		1,646
-Y7-	16+40.09	22+50.00	1,338				1,338	361		361	415			923		923
SUBTOTAL 7			16,099				16,099	54,557		54,557	62,740	49,210		2,569		2,569
-L-	220+00.00	250+00.00	37,333				37,333	59,665		59,665	68,615	31,282				
-Y8-	10+47.00	14+00.00	2,111				2,111	98		98	113			1,998		1,998
-DR2A-	10+51.00	12+98.00	230				230	288		288	331	101				
SUBTOTAL 8			39,674				39,674	60,051		60,051	69,059	31,383		1,998		1,998
-L-	250+00.00	274+00.00	105,437				105,437	55,714		55,714	64,071			41,366		41,366
-L-	273+96.34	278+65.54	1,423				1,423	4,842		4,842	5,568	4,145				
-DR3-	10+51.00	12+29.00	0				0	1,917		1,917	2,205	2,205				
-Y9-	11+50.00	14+89.48	4,021				4,021	363		363	417			3,604		3,604
-Y9-	15+86.45	21+75.00	41,379				41,379	78		78	90			41,289		41,289
SUBTOTAL 9			152,260				152,260	62,914		62,914	72,351	6,350		86,259		86,259
PROJECT SUBTOTAL			698,165	37,643	2,500	250	660,272	536,077	37,643	487,141	597,856	247,533	0	347,592	2,750	350,342
LOSS DUE TO CLEARING & GRUBBING			-26,927				-26,927							-26,927		-26,927
ADDITIONAL UNDERCUT					10,000			10,000		10,000	11,500	11,500			10,000	10,000
WASTE IN LIEU OF BORROW												-259,033		-259,033		-259,033
PROJECT TOTAL			671,238	37,643	12,500	250	633,345	546,077	37,643	497,141	609,356	0	0	61,632	12,750	74,382
GRAND TOTAL			671,238													
SAY			**672,000**													

SHALLOW UNDERCUT = 5,000 CY

EST DDE = 9,700 CY

SHOULDER BORROW = 7,500 CY

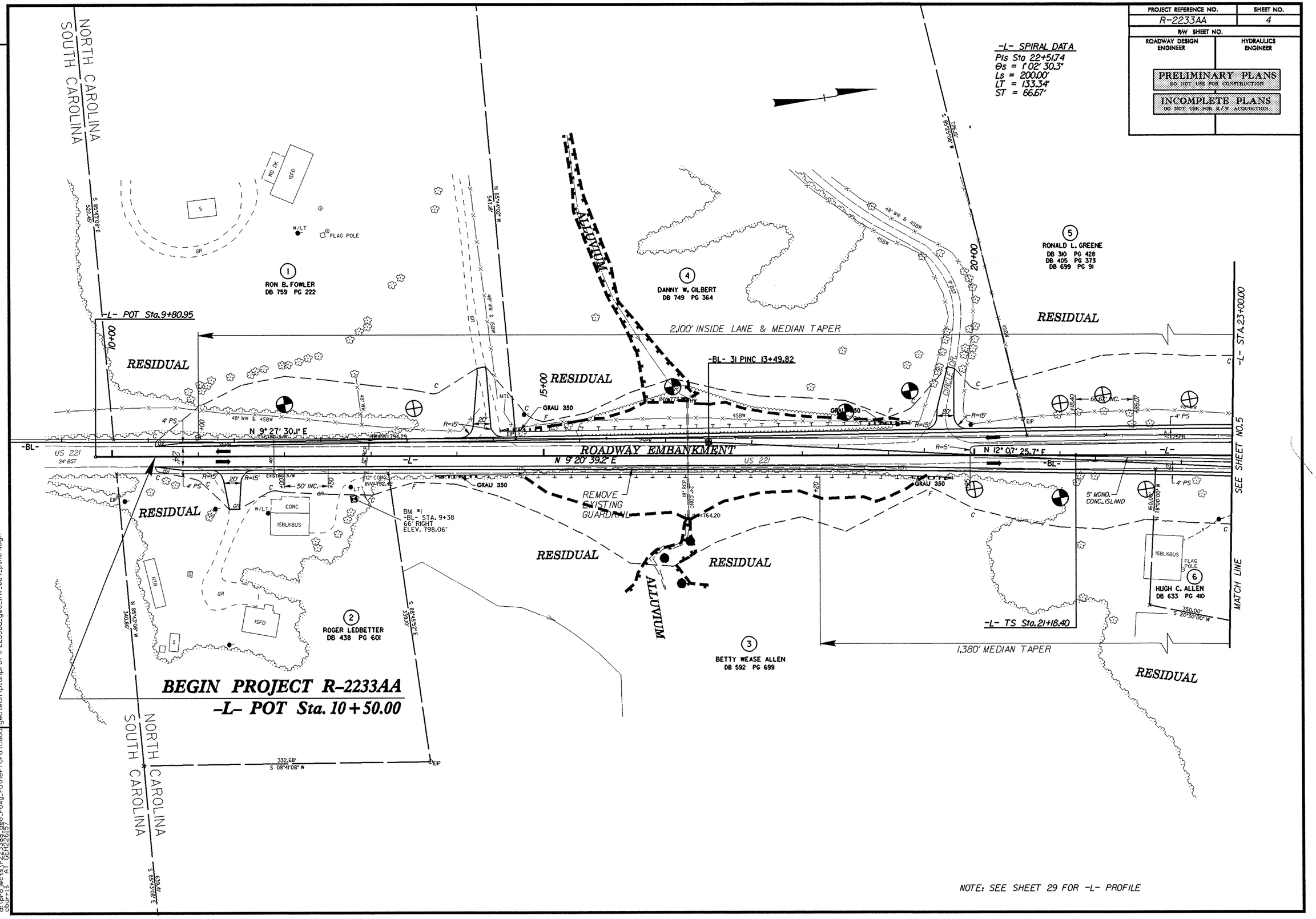
PAVEMENT STRUCTURE VOLUME (-L-, -Y1-, -Y9-) = 31,437 CY

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

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



REVISIONS

17-NOV-2006 14:46
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cbuffis AT GEH22167

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

-L- CURVE DATA

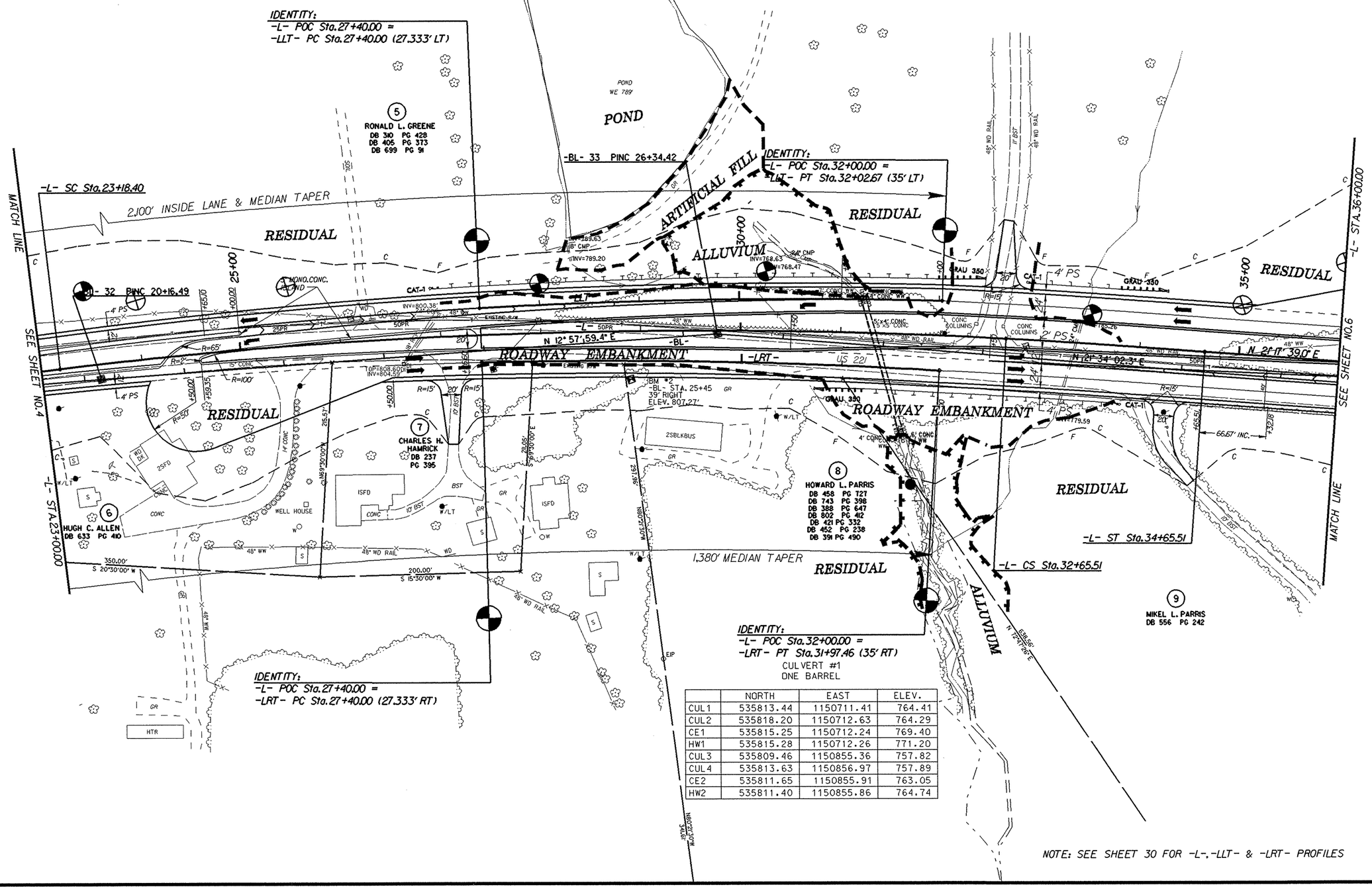
PIs Sta 22+51.74	PI Sta 27+93.13	PIs Sta 33+32.18
Θs = 1° 02' 30.3"	Δ = 9° 51' 59.2" (RT)	Θs = 1° 02' 30.3"
Ls = 200.00'	D = 1° 02' 30.3"	Ls = 200.00'
LT = 133.34'	L = 947.11'	LT = 133.34'
ST = 66.67'	T = 474.73'	ST = 66.67'
	R = 5,500.00'	
	SE = SEE PLANS	

-LLT- CURVE DATA

PI Sta 29+71.47
Δ = 4° 49' 11.4" (RT)
D = 1° 02' 30.3"
L = 462.67'
T = 231.47'
R = 5,500.00'
SE = SEE PLANS

-LRT- CURVE DATA

PI Sta 29+68.86
Δ = 4° 45' 55.8" (RT)
D = 1° 02' 30.3"
L = 457.46'
T = 228.86'
R = 5,500.00'
SE = SEE PLANS



IDENTITY:
-L- POC Sta.32+00.00 =
-LRT- PT Sta.31+97.46 (35' RT)
CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	535813.44	1150711.41	764.41
CUL2	535818.20	1150712.63	764.29
CE1	535815.25	1150712.24	769.40
HW1	535815.28	1150712.26	771.20
CUL3	535809.46	1150855.36	757.82
CUL4	535813.63	1150856.97	757.89
CE2	535811.65	1150855.91	763.05
HW2	535811.40	1150855.86	764.74

NOTE: SEE SHEET 30 FOR -L-, -LLT- & -LRT- PROFILES

REVISIONS

17-NOV-2006 14:52
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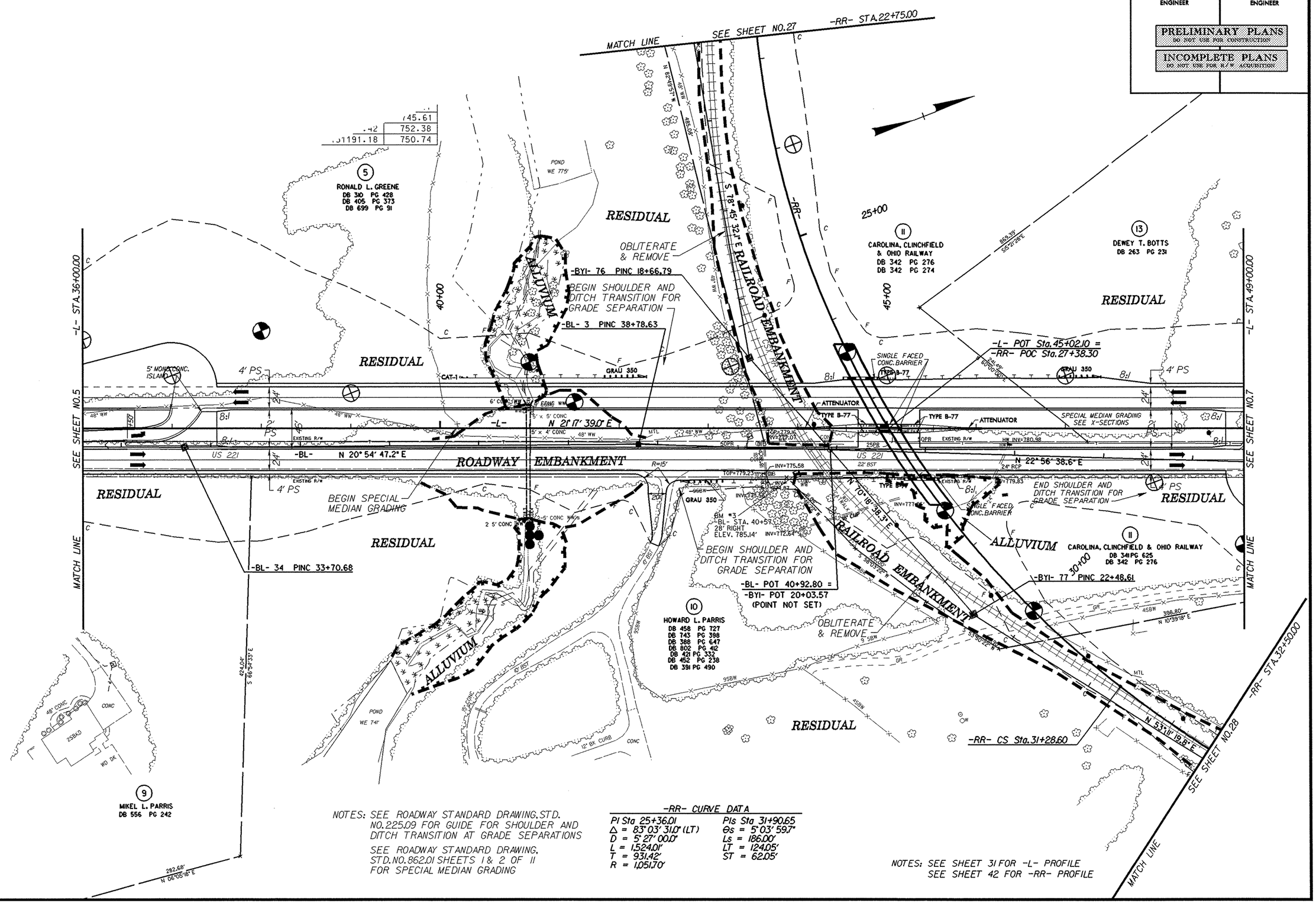
cburris AT GEH26157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



NOTES: SEE ROADWAY STANDARD DRAWING, STD. NO.225.09 FOR GUIDE FOR SHOULDER AND DITCH TRANSITION AT GRADE SEPARATIONS

SEE ROADWAY STANDARD DRAWING, STD.NO.862.01 SHEETS 1 & 2 OF 11 FOR SPECIAL MEDIAN GRADING

-RR- CURVE DATA

PI Sta 25+36.01	PIs Sta 31+90.65
Δ = 83° 03' 31.0" (LT)	θs = 5° 03' 59.7"
D = 5° 27' 00.0"	Ls = 186.00'
L = 1,524.01'	LT = 124.05'
T = 931.42'	ST = 62.05'
R = 1,051.70'	

NOTES: SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 42 FOR -RR- PROFILE

REVISIONS

30-NOV-2006 09:31
d:\projects\r2233aa_geo_rdwy_rutherford\cadd\geotech\planprof\R2233aa_GEO_inv_006_psh06.dgn
dburris AT GEH2261157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

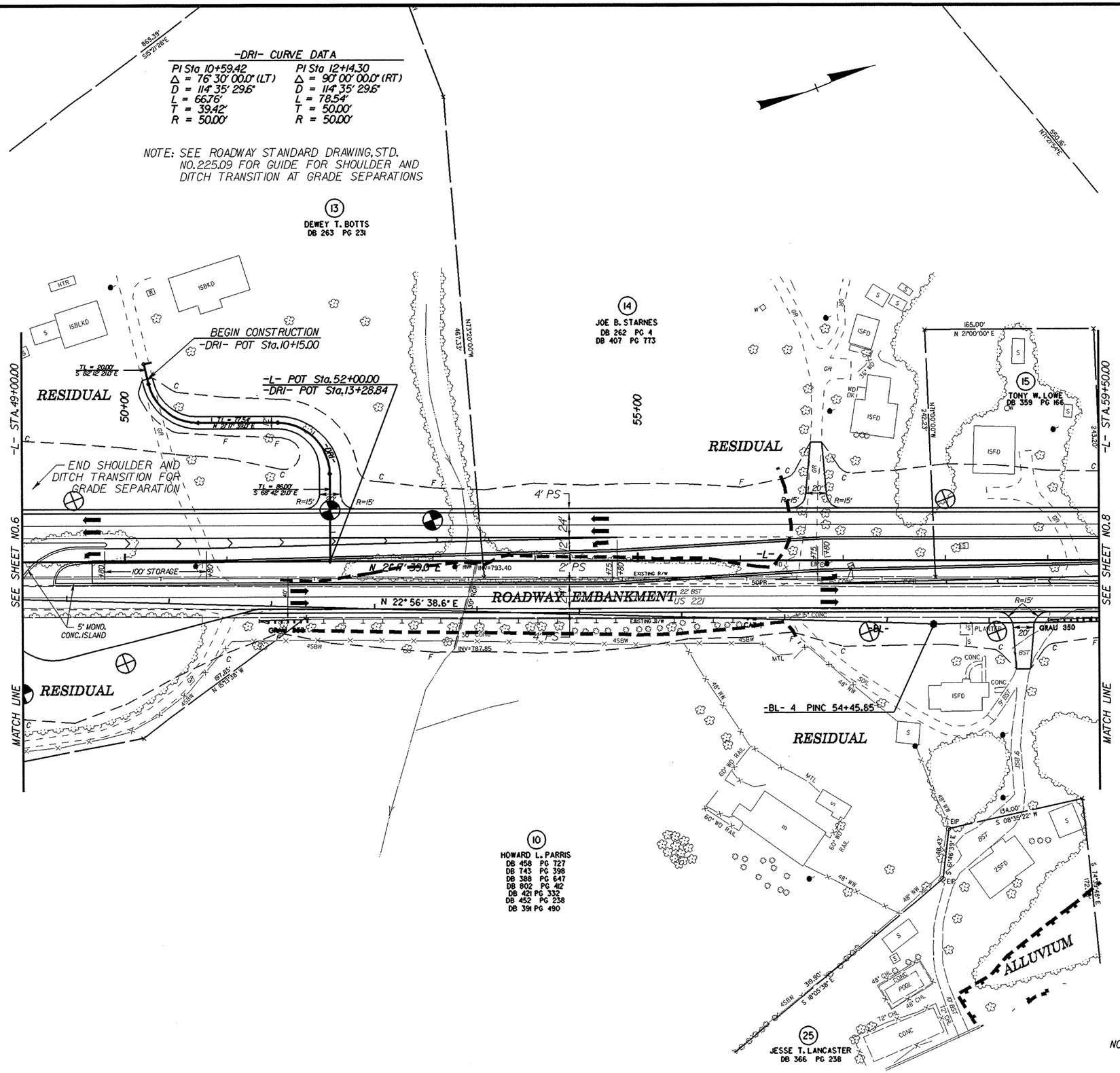
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

-DRI- CURVE DATA

PI Sta 10+59.42	PI Sta 12+14.30
Δ = 76° 30' 00.0" (LT)	Δ = 90° 00' 00.0" (RT)
D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 66.76'	L = 78.54'
T = 39.42'	T = 50.00'
R = 50.00'	R = 50.00'

NOTE: SEE ROADWAY STANDARD DRAWING, STD. NO. 225.09 FOR GUIDE FOR SHOULDER AND DITCH TRANSITION AT GRADE SEPARATIONS



NOTE: SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 43 FOR -DRI- PROFILE

17-NOV-2006 14:56
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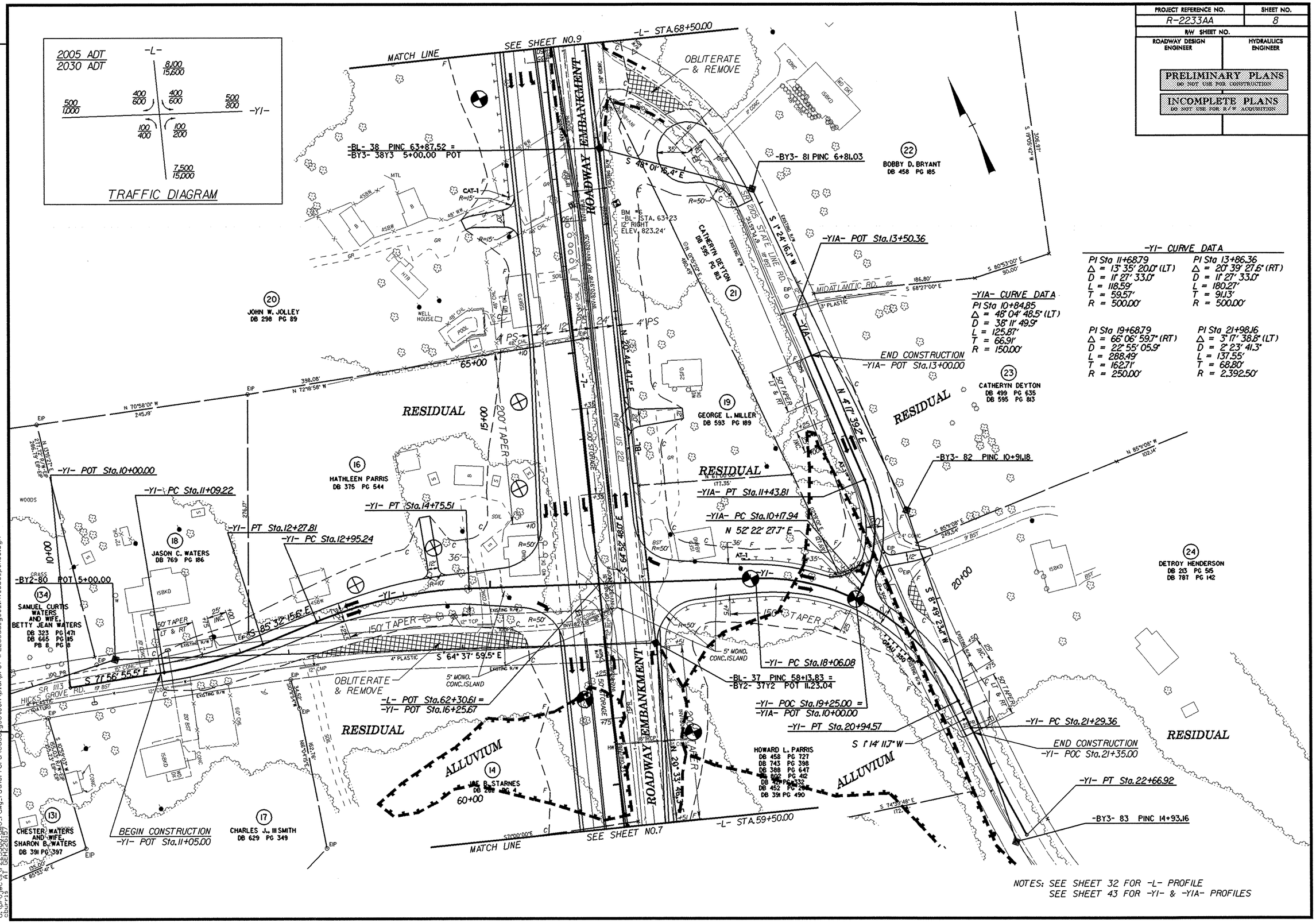
cburris AT GEH22617

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



-YIA- CURVE DATA

PI Sta 10+84.85
Δ = 48° 04' 48.5" (LT)
D = 38° 11' 49.9"
L = 125.87'
T = 66.91'
R = 150.00'

-Y1- CURVE DATA

PI Sta 11+68.79
Δ = 13° 35' 20.0" (LT)
D = 11° 27' 33.0"
L = 118.59'
T = 59.57'
R = 500.00'

PI Sta 13+86.36
Δ = 20° 39' 27.6" (RT)
D = 11° 27' 33.0"
L = 180.27'
T = 91.13'
R = 500.00'

PI Sta 19+68.79
Δ = 66° 06' 59.7" (RT)
D = 22° 55' 05.9"
L = 288.49'
T = 162.71'
R = 250.00'

PI Sta 21+98.16
Δ = 3° 17' 38.8" (LT)
D = 2° 23' 41.3"
L = 137.55'
T = 68.80'
R = 2,392.50'

NOTES: SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 43 FOR -Y1- & -YIA- PROFILES

REVISIONS

28-NOV-2006 11:39
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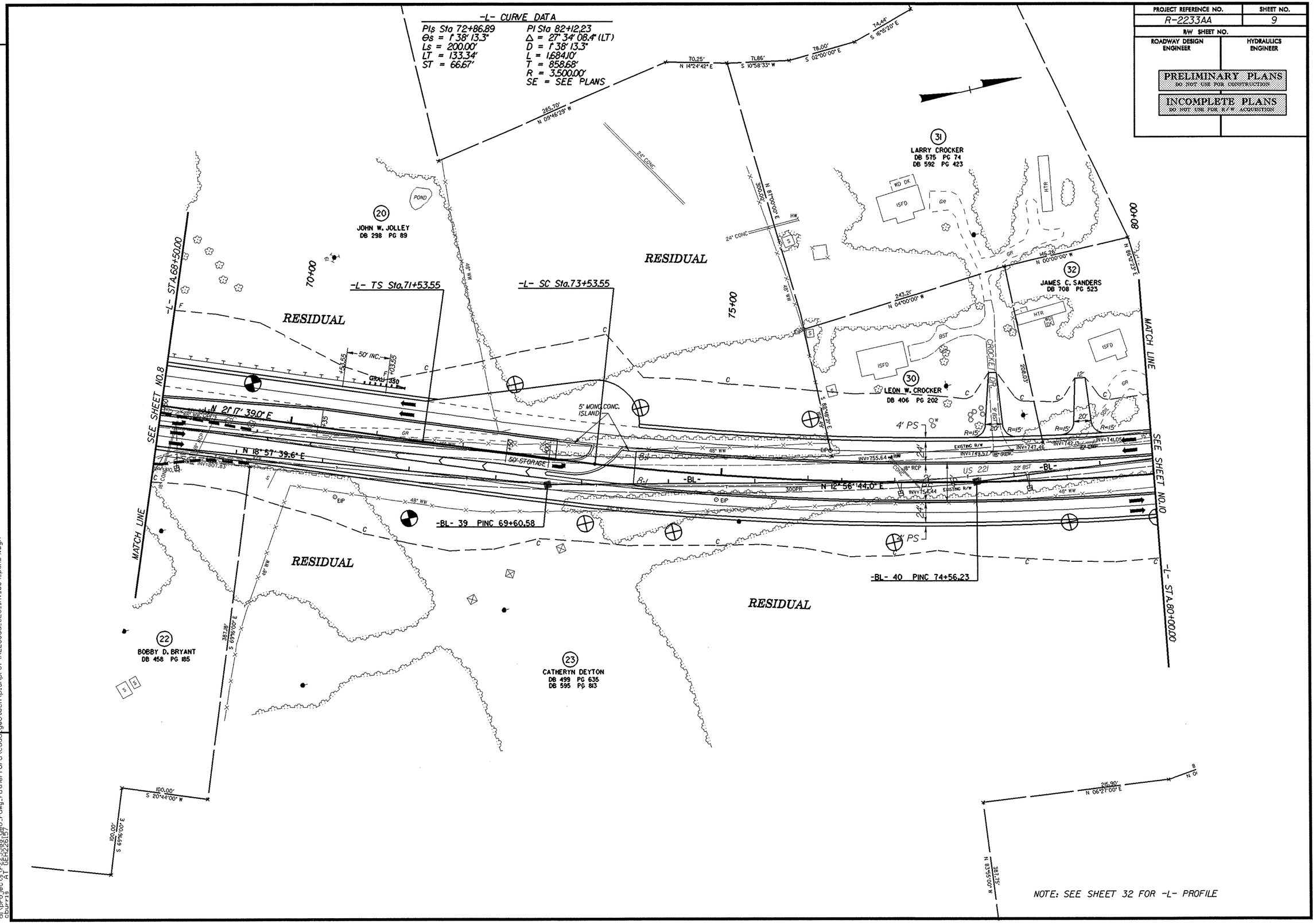
dburris AT GEN2261S7

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



REVISIONS

17-NOV-2006 15:00
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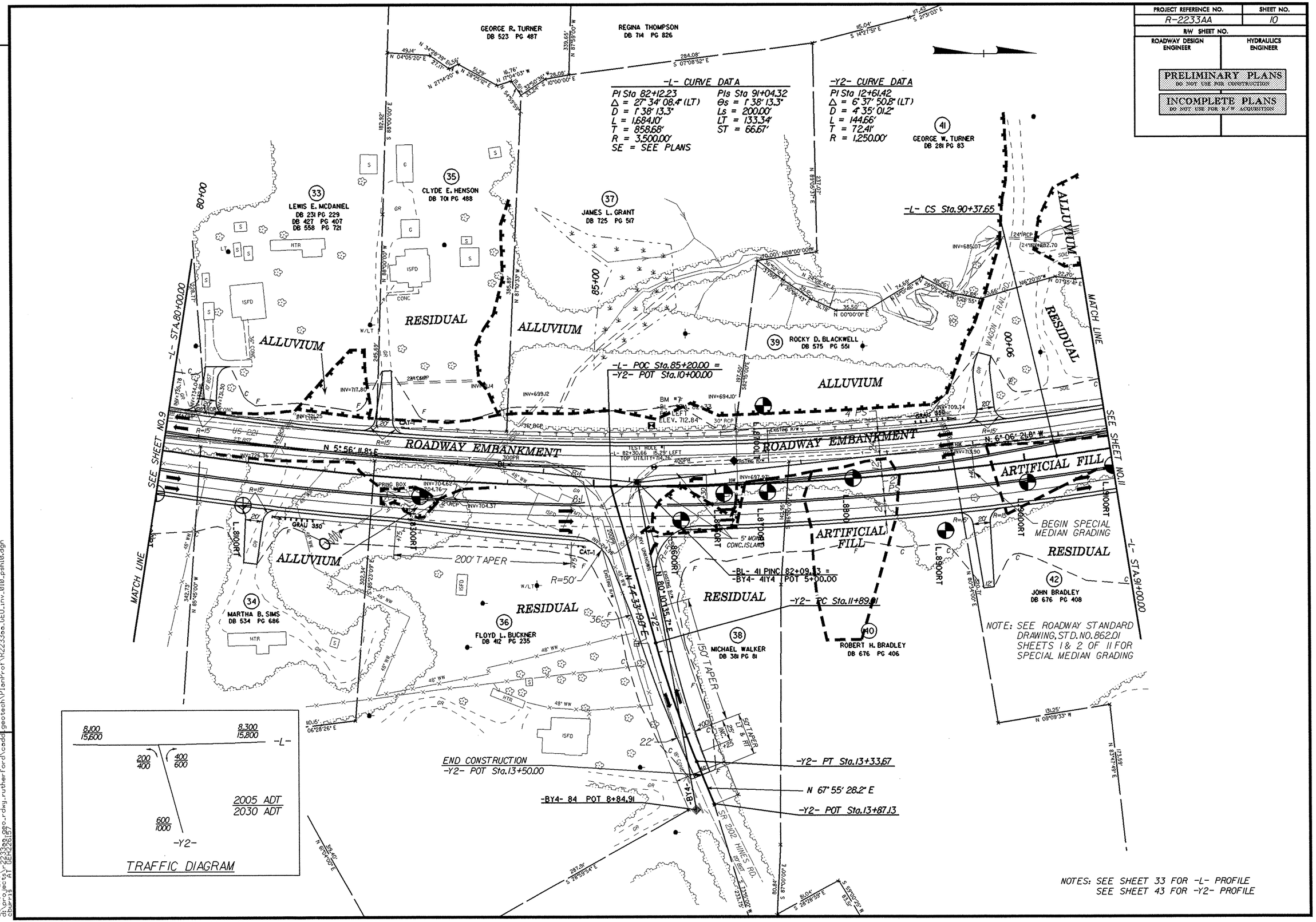
cburris AT GEH226157

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



NOTES: SEE SHEET 33 FOR -L- PROFILE
SEE SHEET 43 FOR -Y2- PROFILE

20-NOV-2006 08:18
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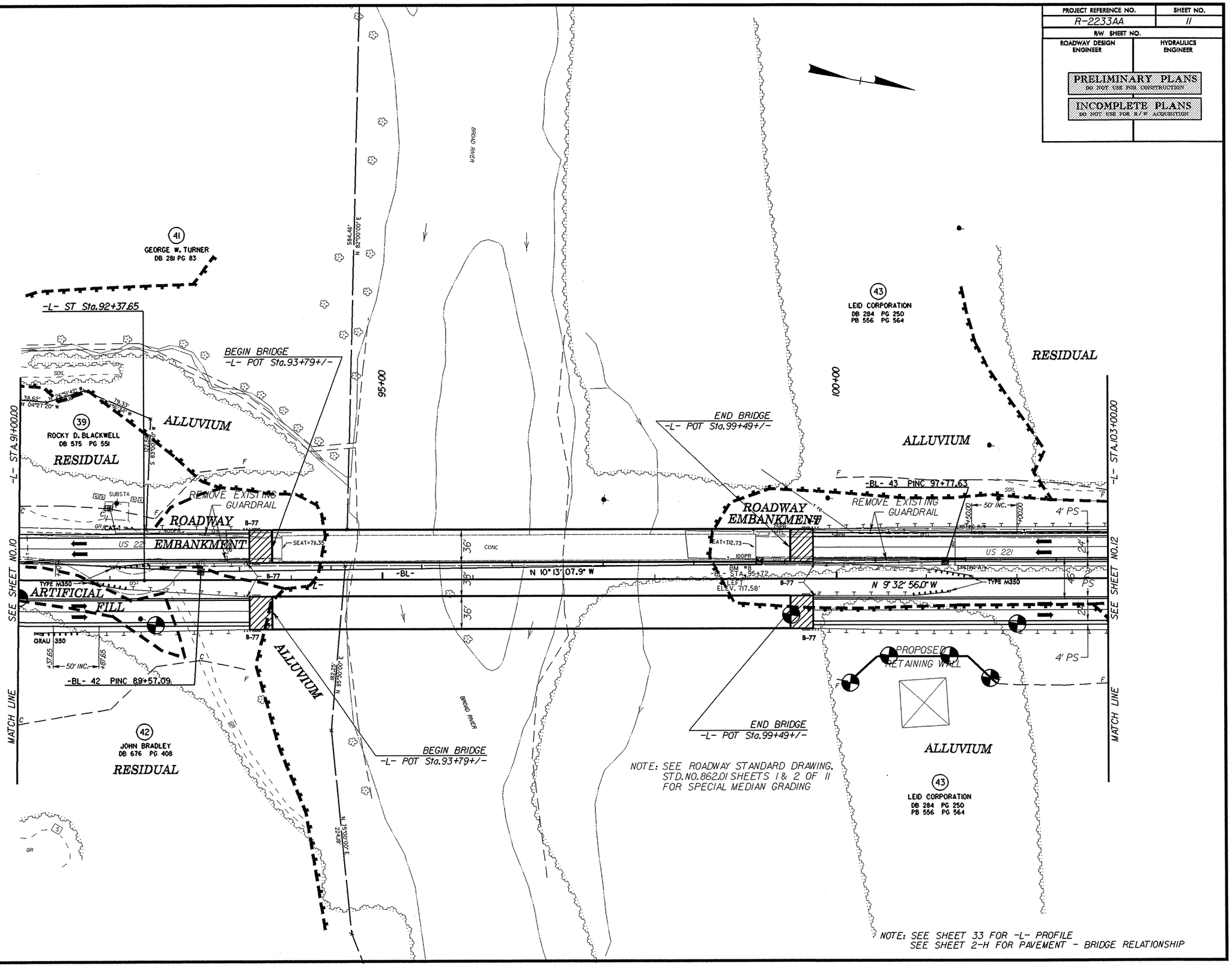
cburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



REVISIONS

20-NOV-2006 07:43
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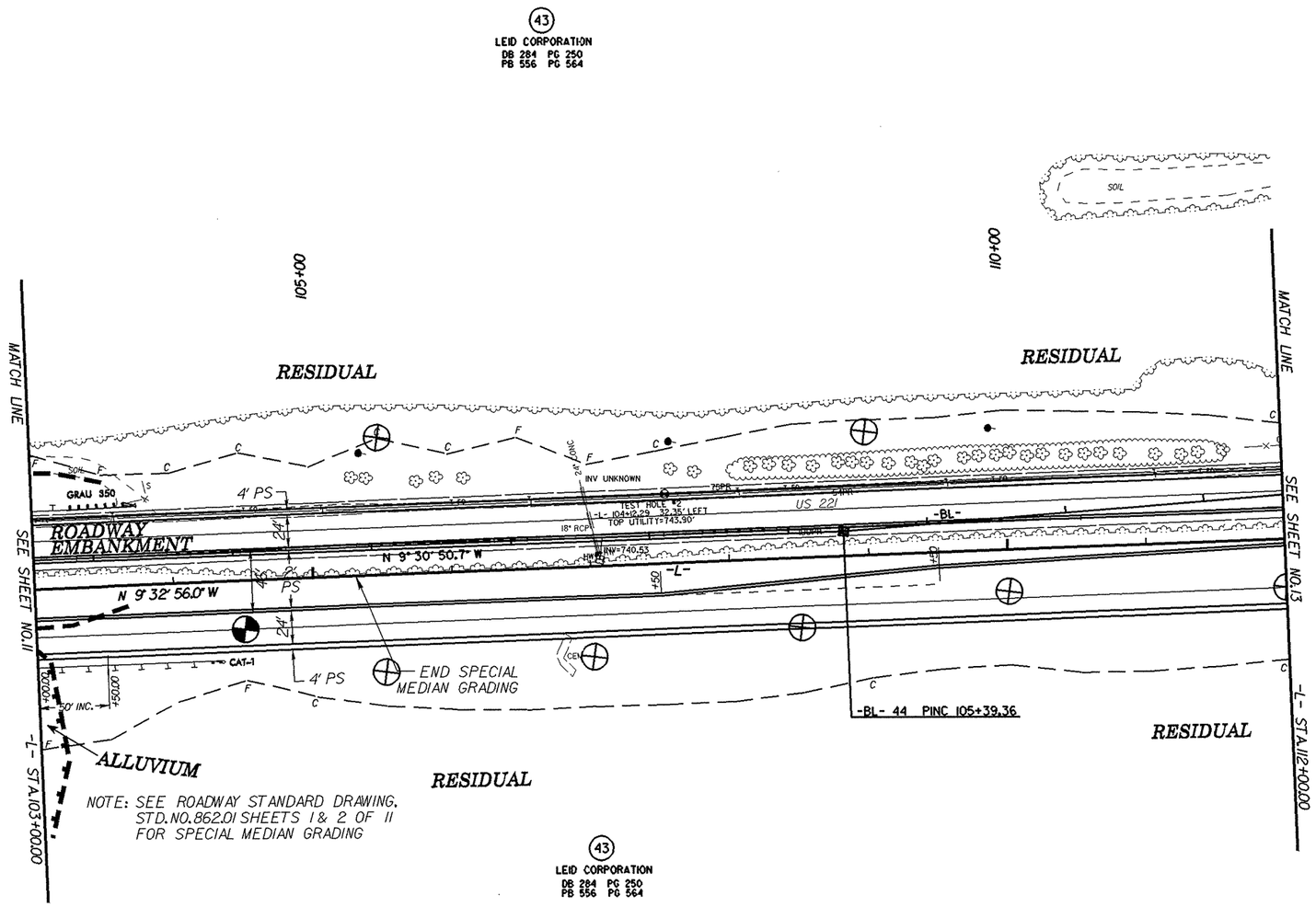
dburris AT GEH2267

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



NOTE: SEE SHEET 34 FOR -L- PROFILE

17-NOV-2006 15:05
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cburris AT GEH2615?

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

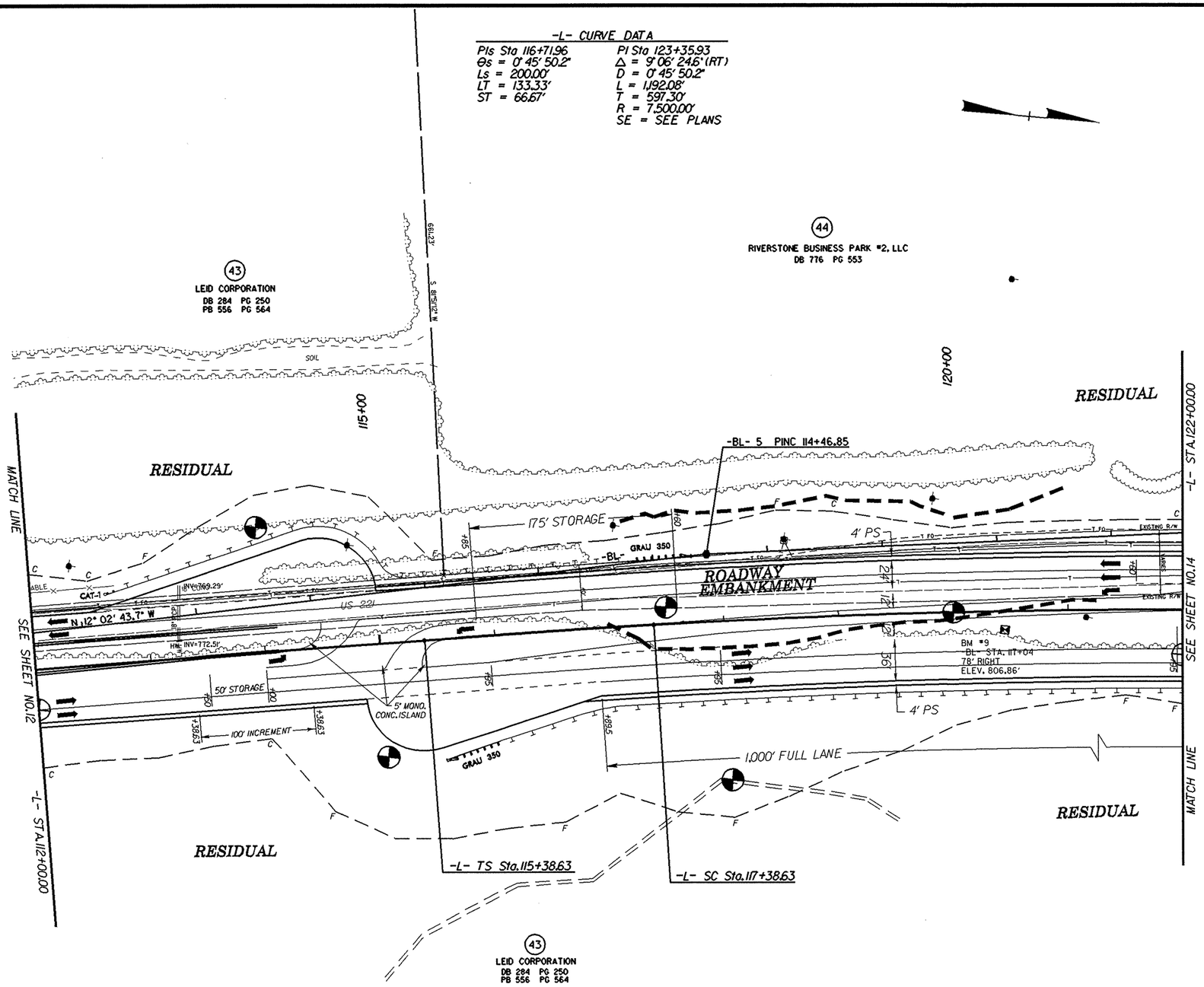
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

-L- CURVE DATA

PIs Sta 116+71.96	PI Sta 123+35.93
Θs = 0° 45' 50.2"	Δ = 9° 06' 24.6" (RT)
Ls = 200.00'	D = 0° 45' 50.2"
LT = 133.33'	L = 1,192.08'
ST = 66.67'	T = 597.30'
	R = 7,500.00'
	SE = SEE PLANS



NOTE: SEE SHEET 34 FOR -L- PROFILE

17-NOV-2006 15:20
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cburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

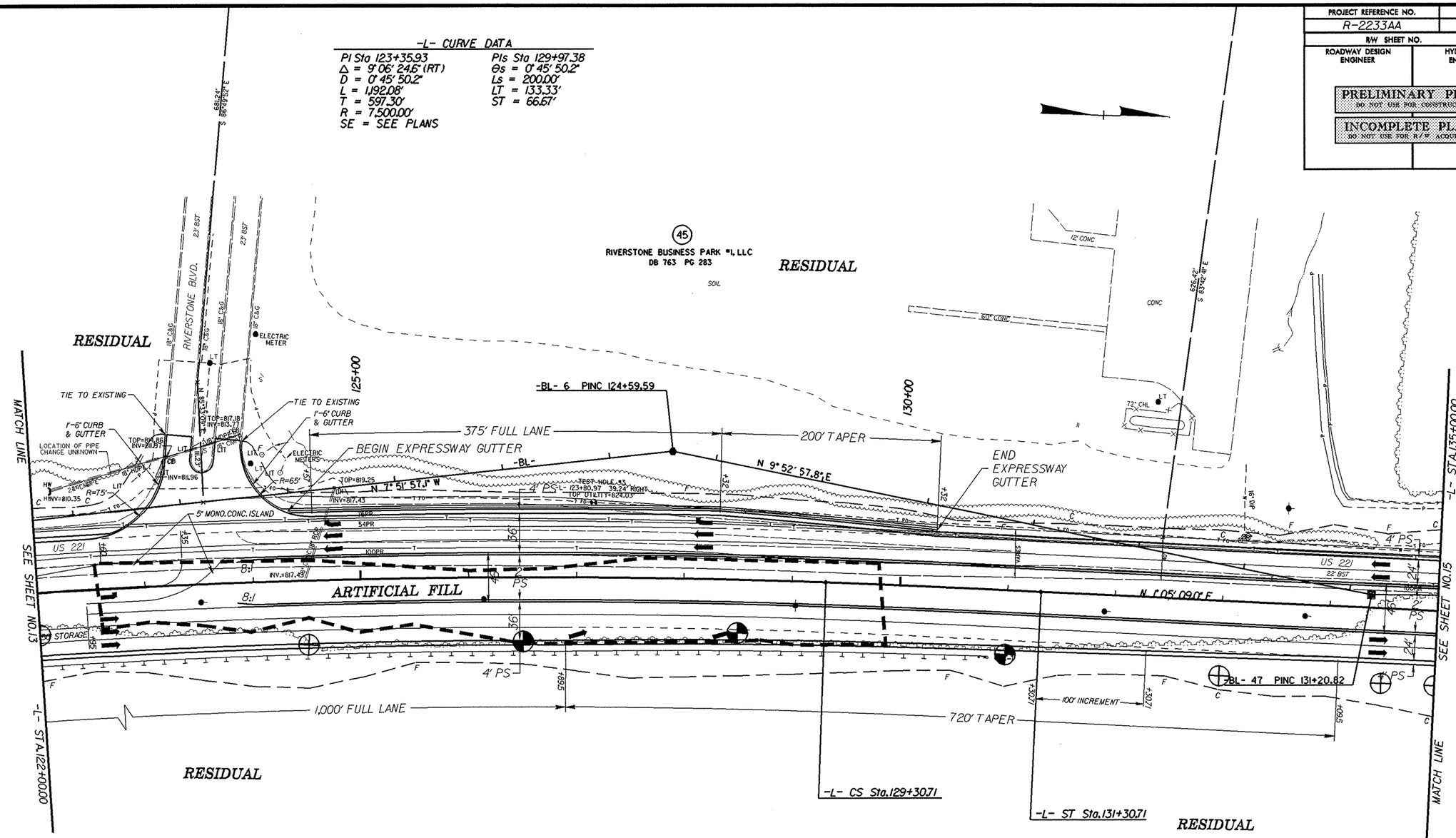
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

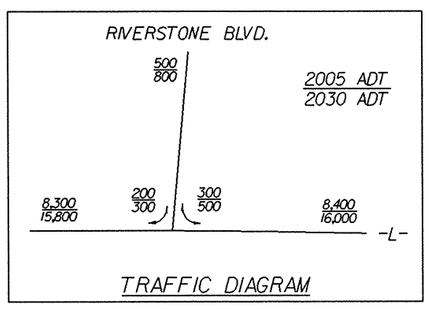
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

-L- CURVE DATA

PI Sta 123+35.93	PIs Sta 129+97.38
Δ = 9° 06' 24.6" (RT)	Θs = 0° 45' 50.2"
D = 0° 45' 50.2"	Ls = 200.00'
L = 1,192.08'	LT = 133.33'
T = 597.30'	ST = 66.67'
R = 7,500.00'	
SE = SEE PLANS	





NOTE: SEE SHEET 35 FOR -L- PROFILE

20-NOV-2006 08:22
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cburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

20-NOV-2006 08:25
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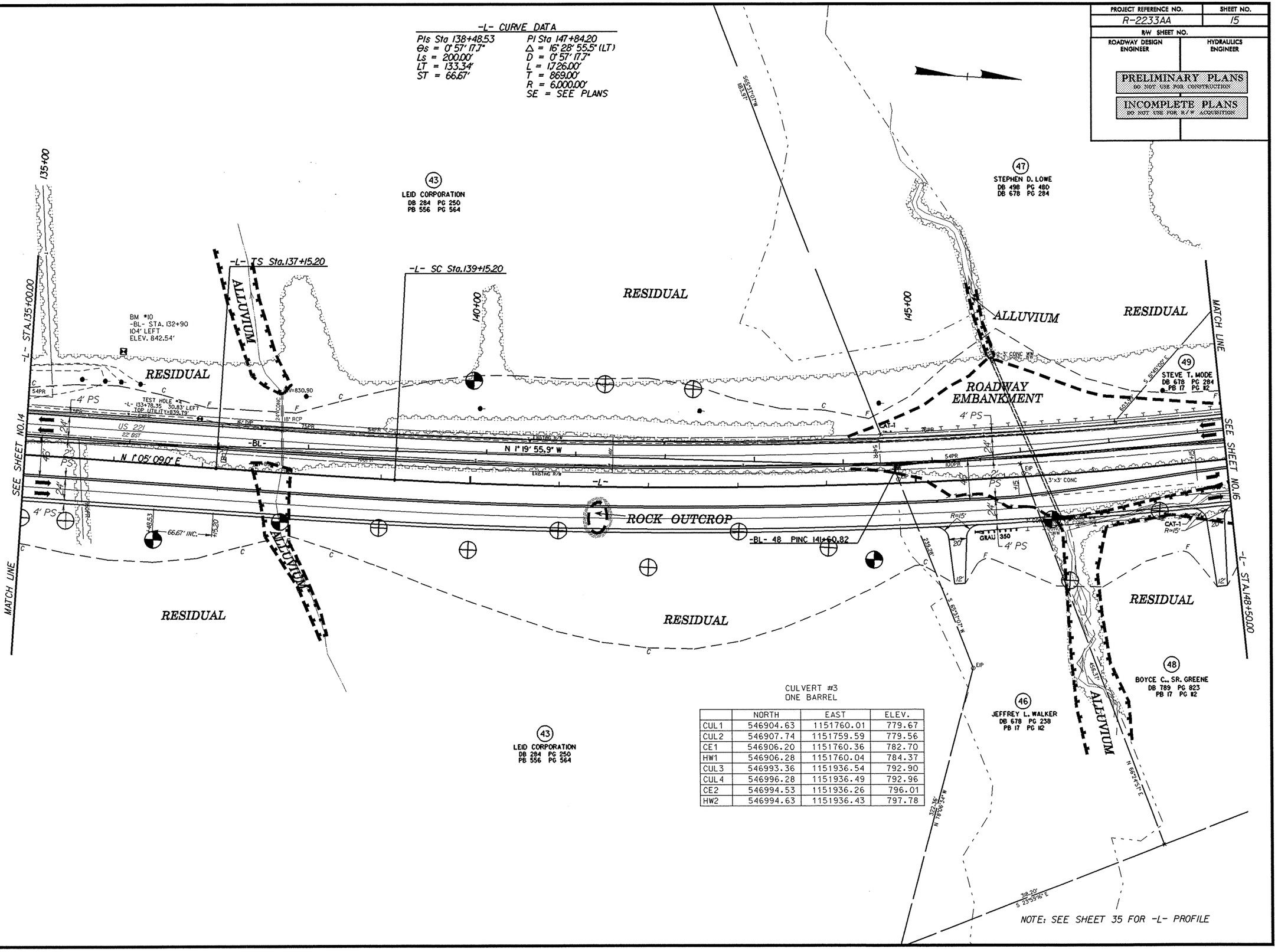
cburris AT GEH22657



CULVERT #3
ONE BARREL

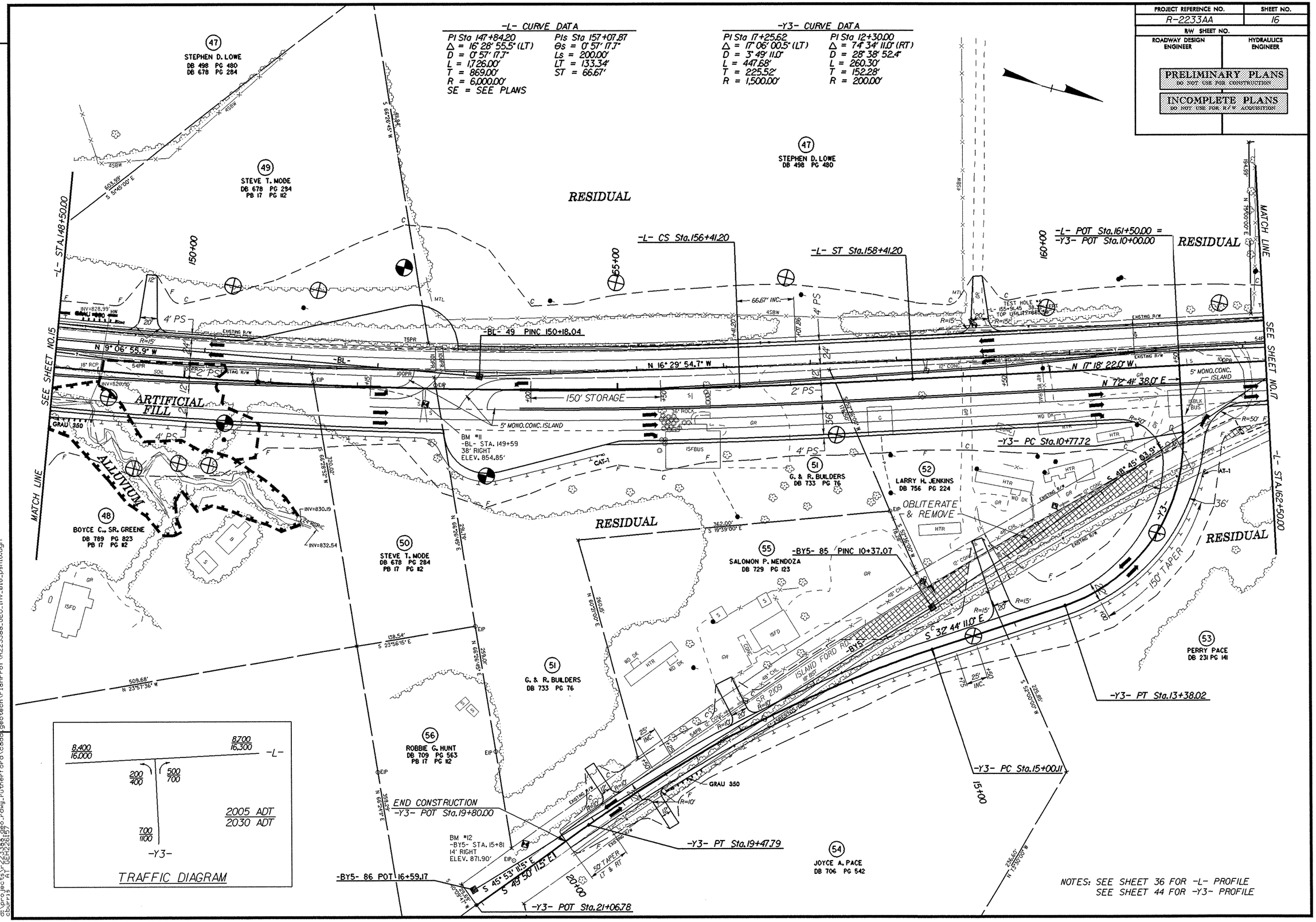
	NORTH	EAST	ELEV.
CUL1	546904.63	1151760.01	779.67
CUL2	546907.74	1151759.59	779.56
CE1	546906.20	1151760.36	782.70
HW1	546906.28	1151760.04	784.37
CUL3	546993.36	1151936.54	792.90
CUL4	546996.28	1151936.49	792.96
CE2	546994.53	1151936.26	796.01
HW2	546994.63	1151936.43	797.78

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



20-NOV-2006 08:27
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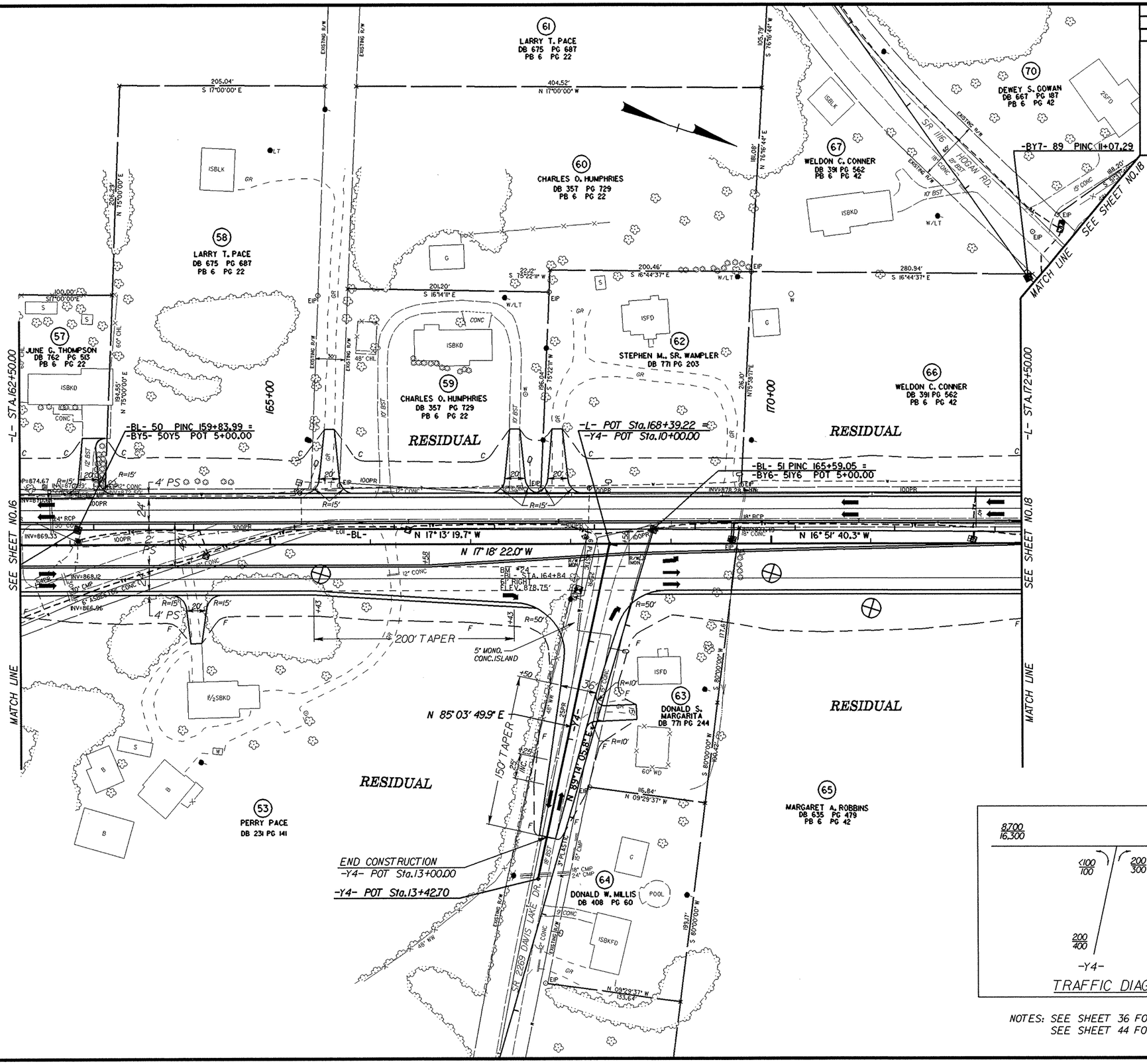
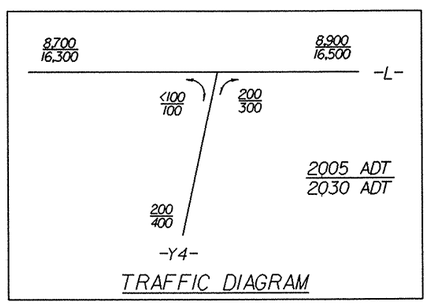
dburris AT GEH2261157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION





TRAFFIC DIAGRAM

NOTES: SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 44 FOR -Y4- PROFILE

REVISIONS

20-NOV-2006 08:30
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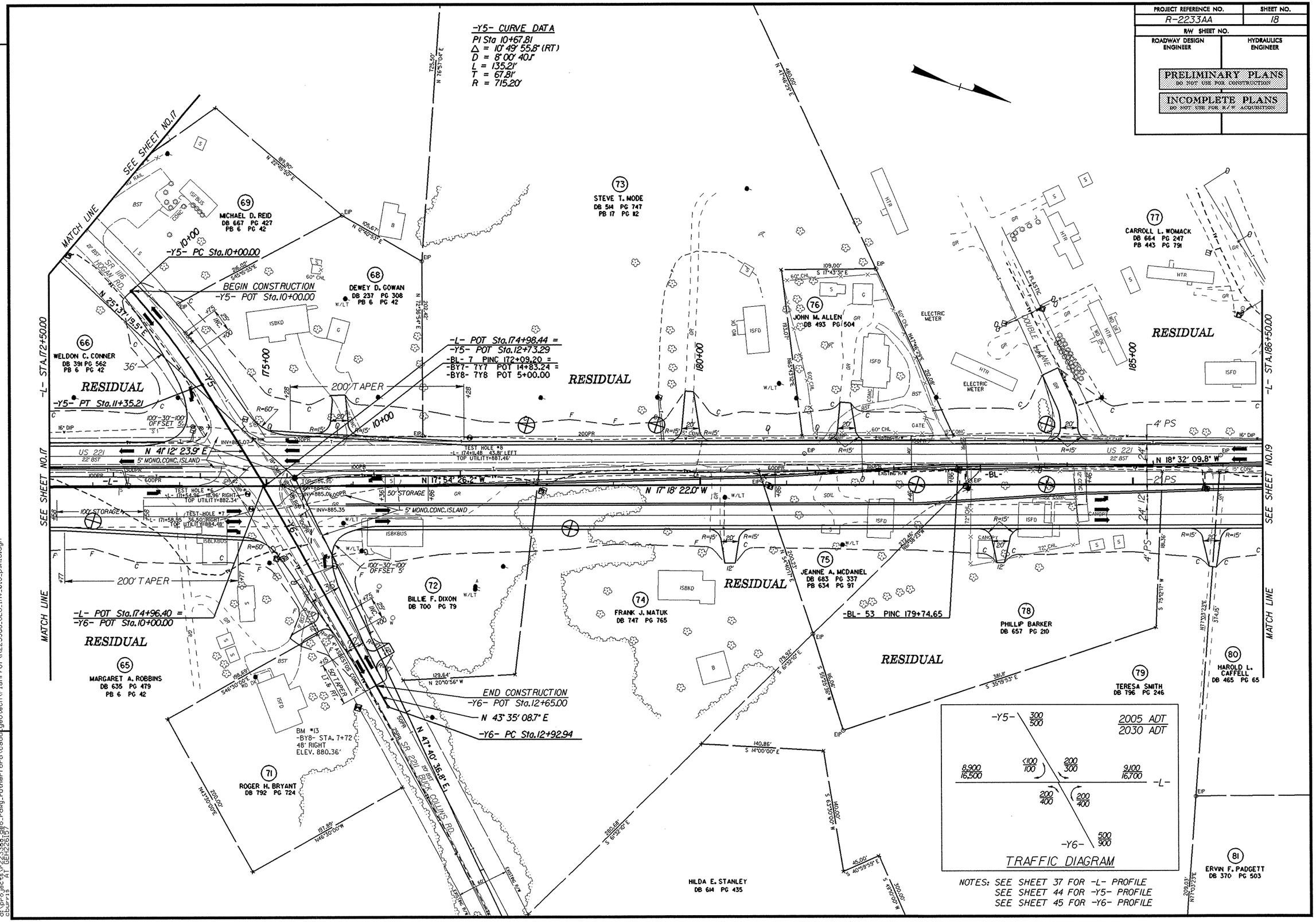
cburris AT GEH22617

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



NOTES: SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 44 FOR -Y5- PROFILE
SEE SHEET 45 FOR -Y6- PROFILE

REVISIONS

20-NOV-2006 08:34
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cburris AT GEH2261157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

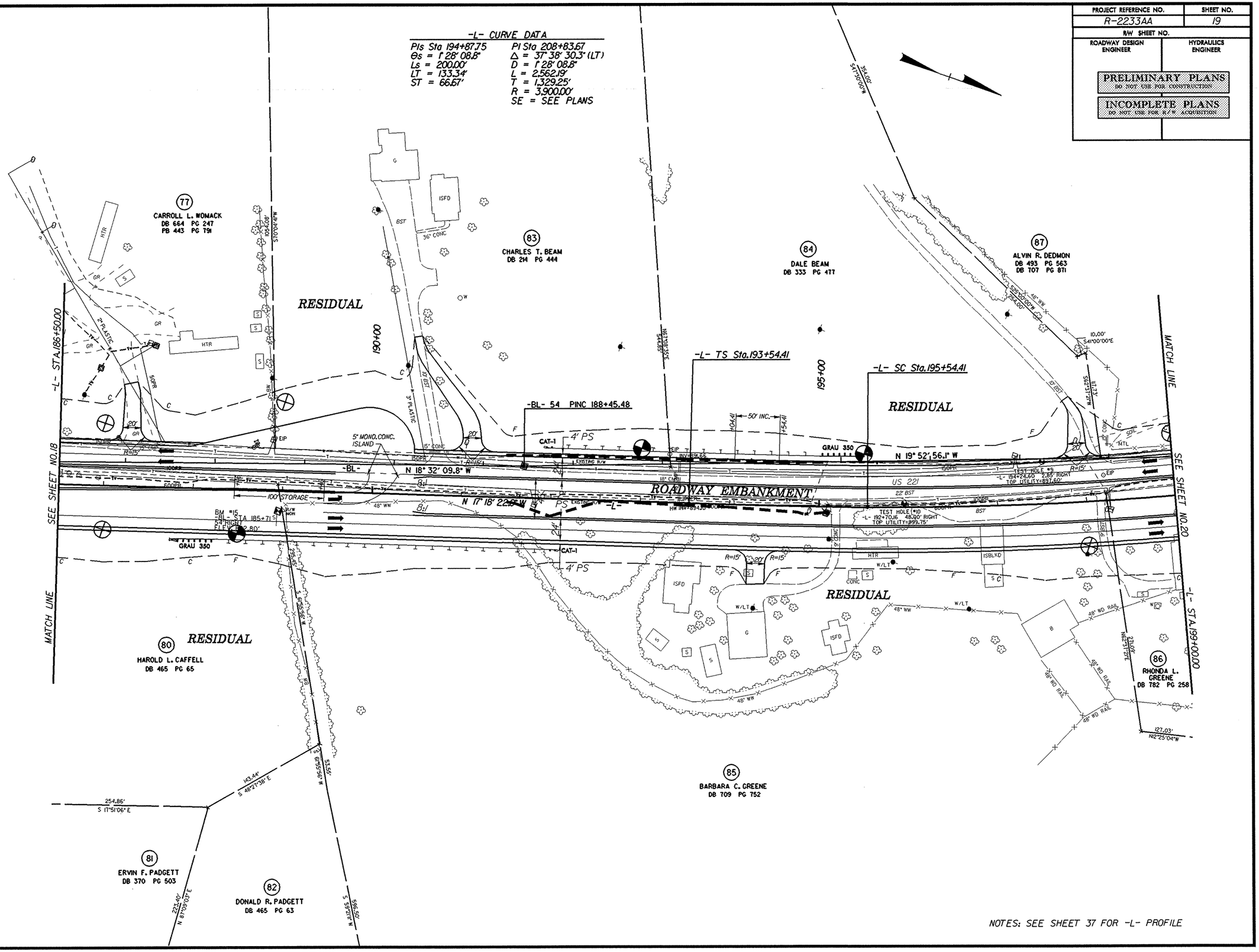
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

-L- CURVE DATA

PIs Sta 194+87.75	PI Sta 208+83.67
θs = 1° 28' 08.8"	Δ = 37° 38' 30.3" (LT)
Ls = 200.00'	D = 1° 28' 08.8"
LT = 133.34'	L = 2,562.19'
ST = 66.67'	T = 1,329.25'
	R = 3,900.00'
	SE = SEE PLANS



NOTES: SEE SHEET 37 FOR -L- PROFILE

20-NOV-2006 08:41
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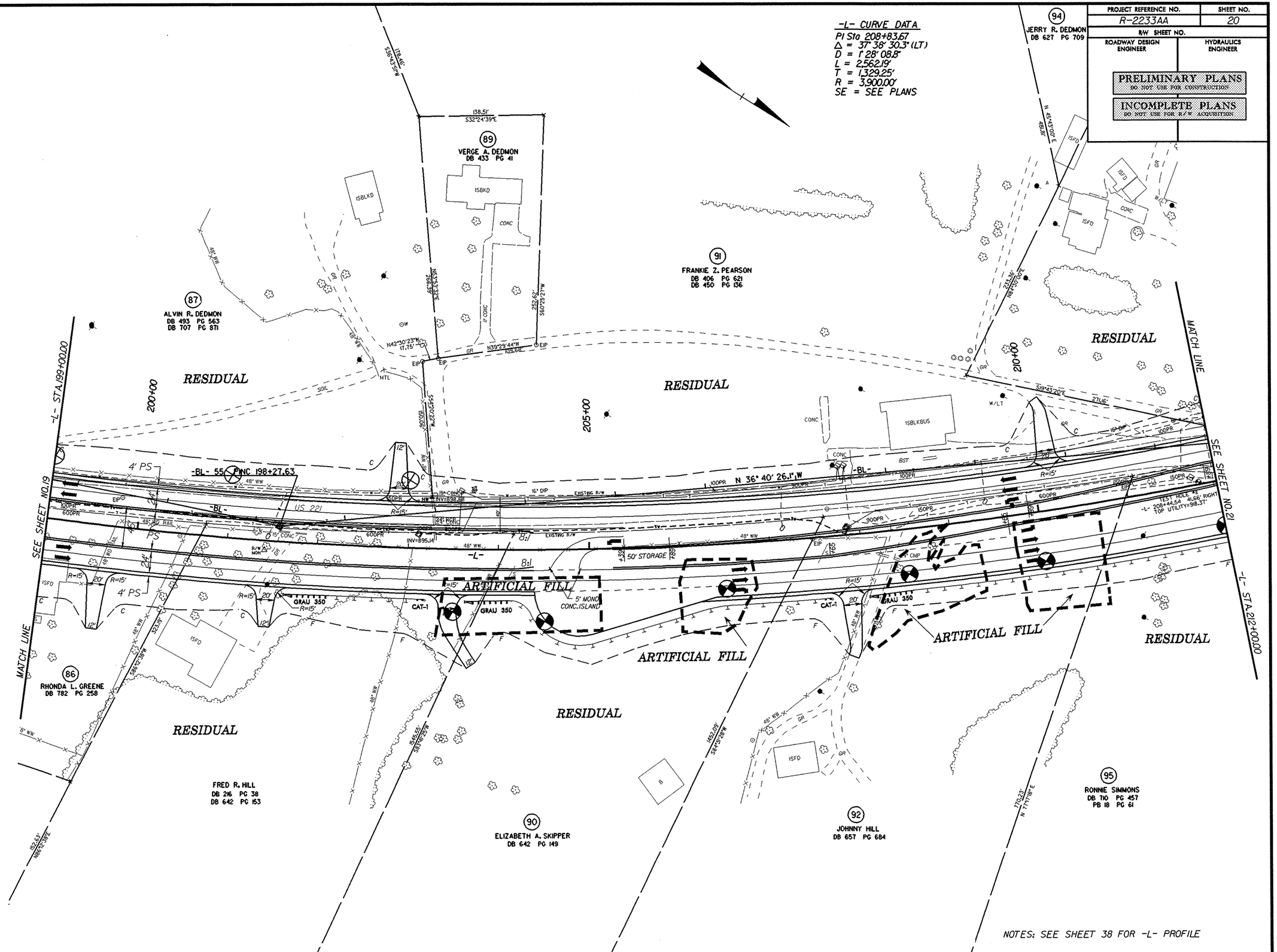
dburris AT GEH22615?

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

-L- CURVE DATA
PI Sta 208+83.67
Δ = 37° 38' 30.3" (LT)
D = 1° 28' 08.8"
L = 2,562.19'
T = 1,329.25'
R = 3,900.00'
SE = SEE PLANS



REVISIONS

20-NOV-2006 08:43
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cburris AT GEH22615?

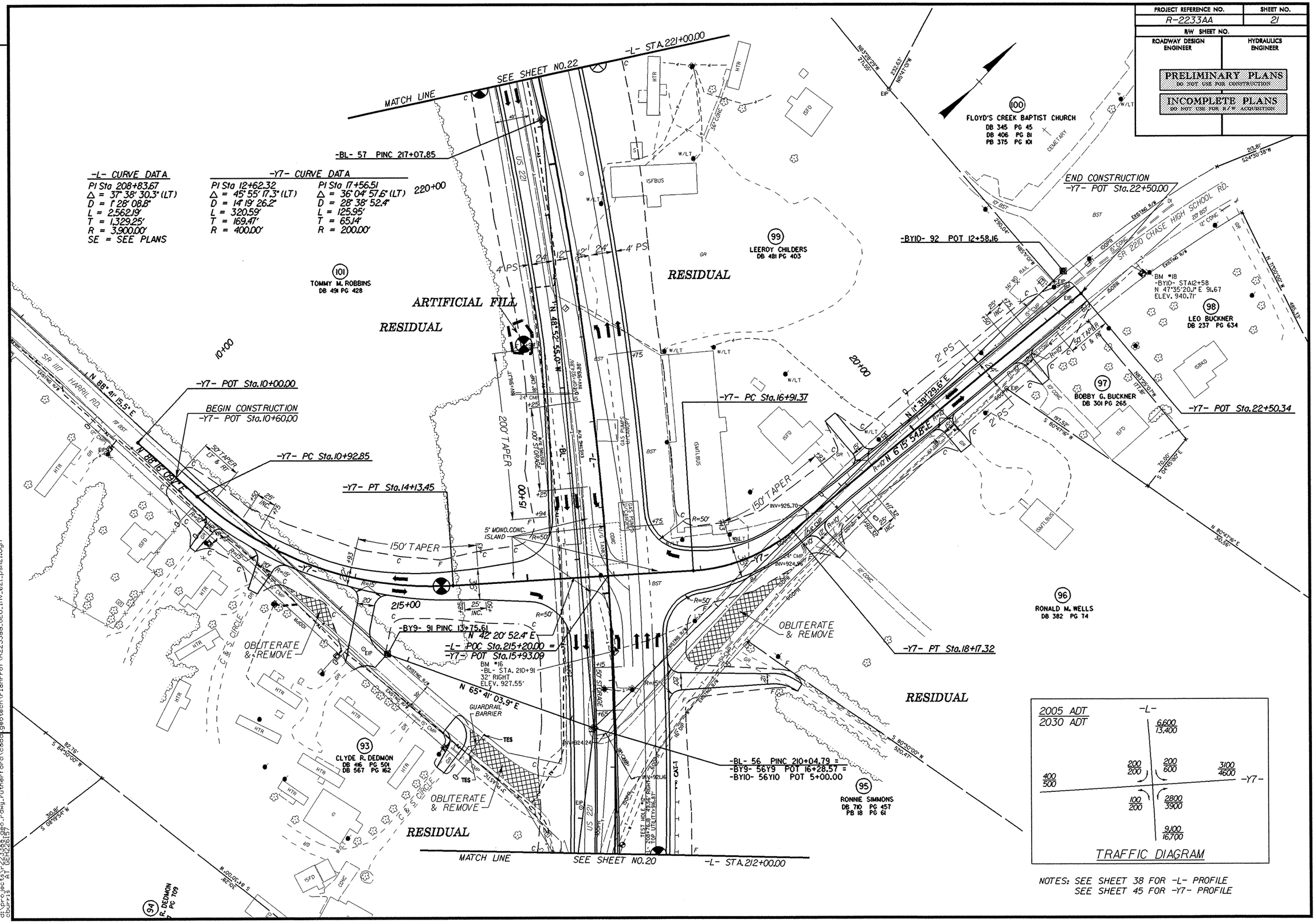
PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

20-NOV-2006 08:45
d:\projects\r2233aa_geo_rdwy_rutherfordcoadd_geotech\PlanProf\R2233aa_GEO_inv_021_psh21.dgn
cburris AT GEH126157



2005 ADT / 2030 ADT	-L-		-Y7-
	6,600 / 13,400		
400 / 500	200 / 200	200 / 600	3100 / 4600
	100 / 200	2800 / 3900	
		9,100 / 16,700	

TRAFFIC DIAGRAM

NOTES: SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 45 FOR -Y7- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS

20-NOV-2006 08:47
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\PlanProf\R2233aa_GEO_inv_022_psh22.dgn
cburris AT GEH22615

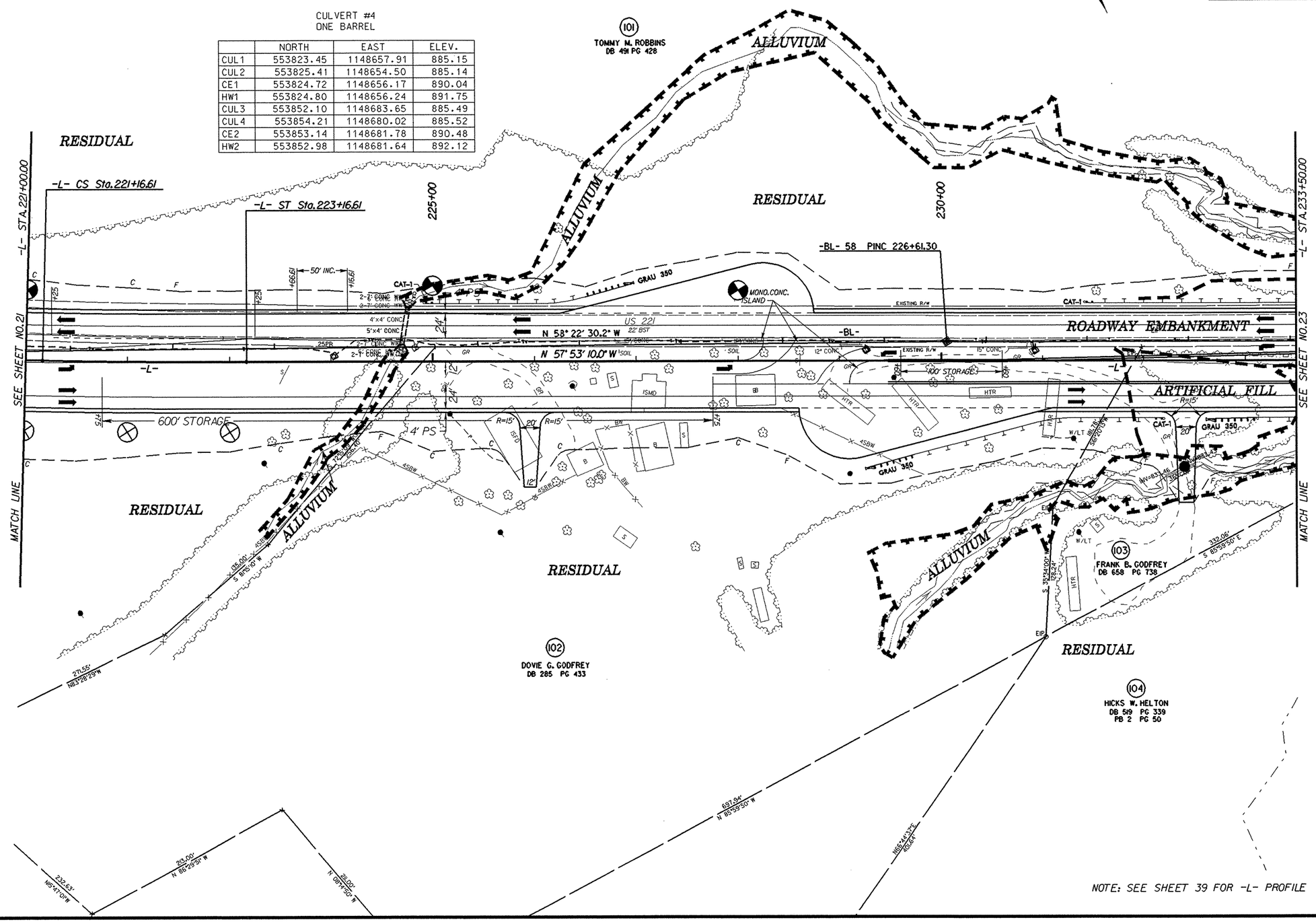
-L- CURVE DATA

PI Sta 208+83.67
Δ = 37° 38' 30.3" (LT)
D = 1° 28' 08.8"
L = 2,562.19'
T = 1,329.25'
R = 3,900.00'
SE = SEE PLANS

PIs Sta 221+83.28
θs = 1° 28' 08.8"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

CULVERT #4
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	553823.45	1148657.91	885.15
CUL2	553825.41	1148654.50	885.14
CE1	553824.72	1148656.17	890.04
HW1	553824.80	1148656.24	891.75
CUL3	553852.10	1148683.65	885.49
CUL4	553854.21	1148680.02	885.52
CE2	553853.14	1148681.78	890.48
HW2	553852.98	1148681.64	892.12



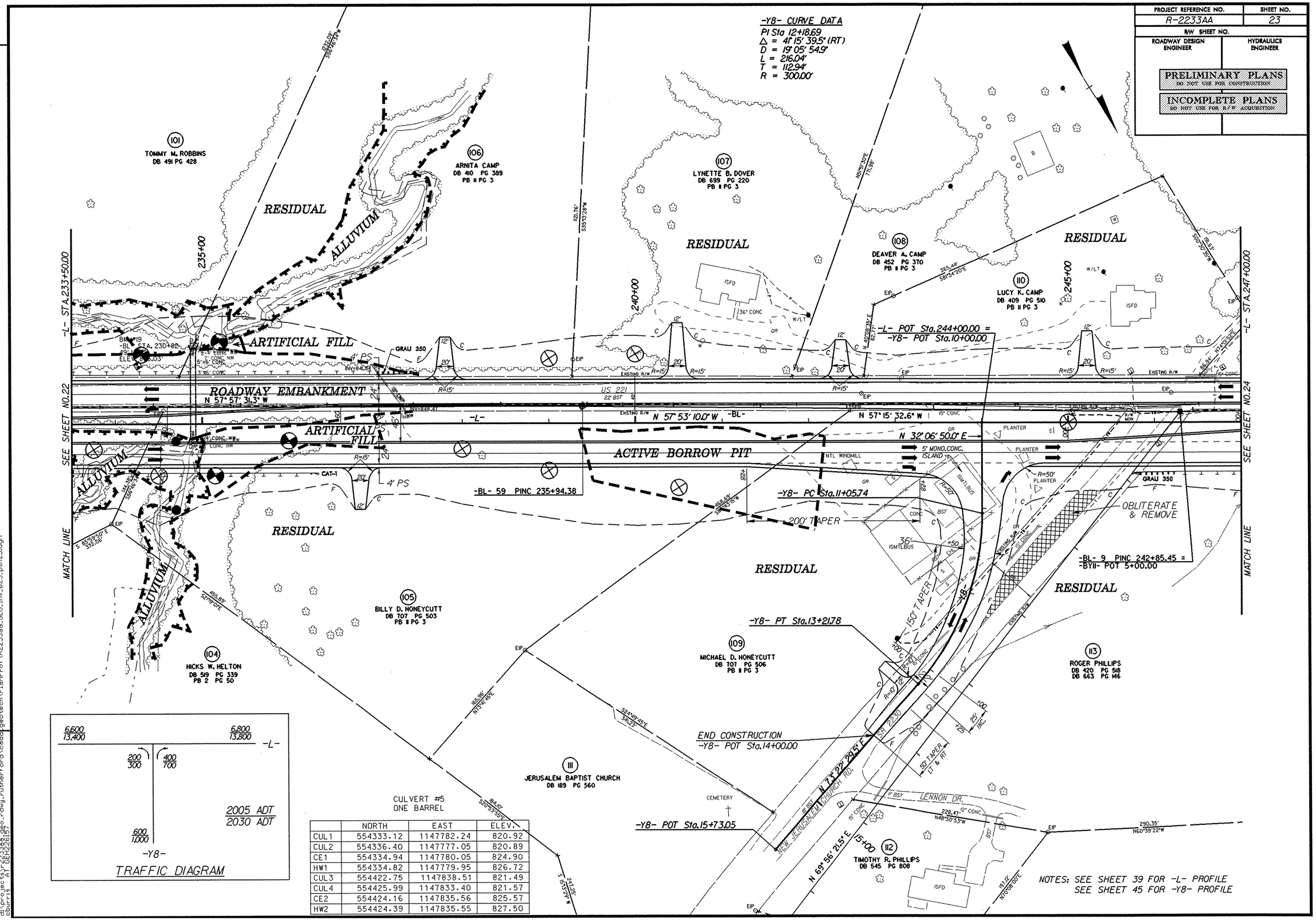
NOTE: SEE SHEET 39 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



	NORTH	EAST	ELEV.
CUL1	554333.12	1147782.24	820.92
CUL2	554336.40	1147777.05	820.89
CE1	554334.94	1147780.05	824.90
HW1	554334.82	1147779.95	826.72
CUL3	554422.75	1147838.51	821.49
CUL4	554425.99	1147833.40	821.57
CE2	554424.16	1147835.56	825.57
HW2	554424.39	1147835.55	827.50

NOTES: SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 45 FOR -Y8- PROFILE

20-NOV-2006 08:49
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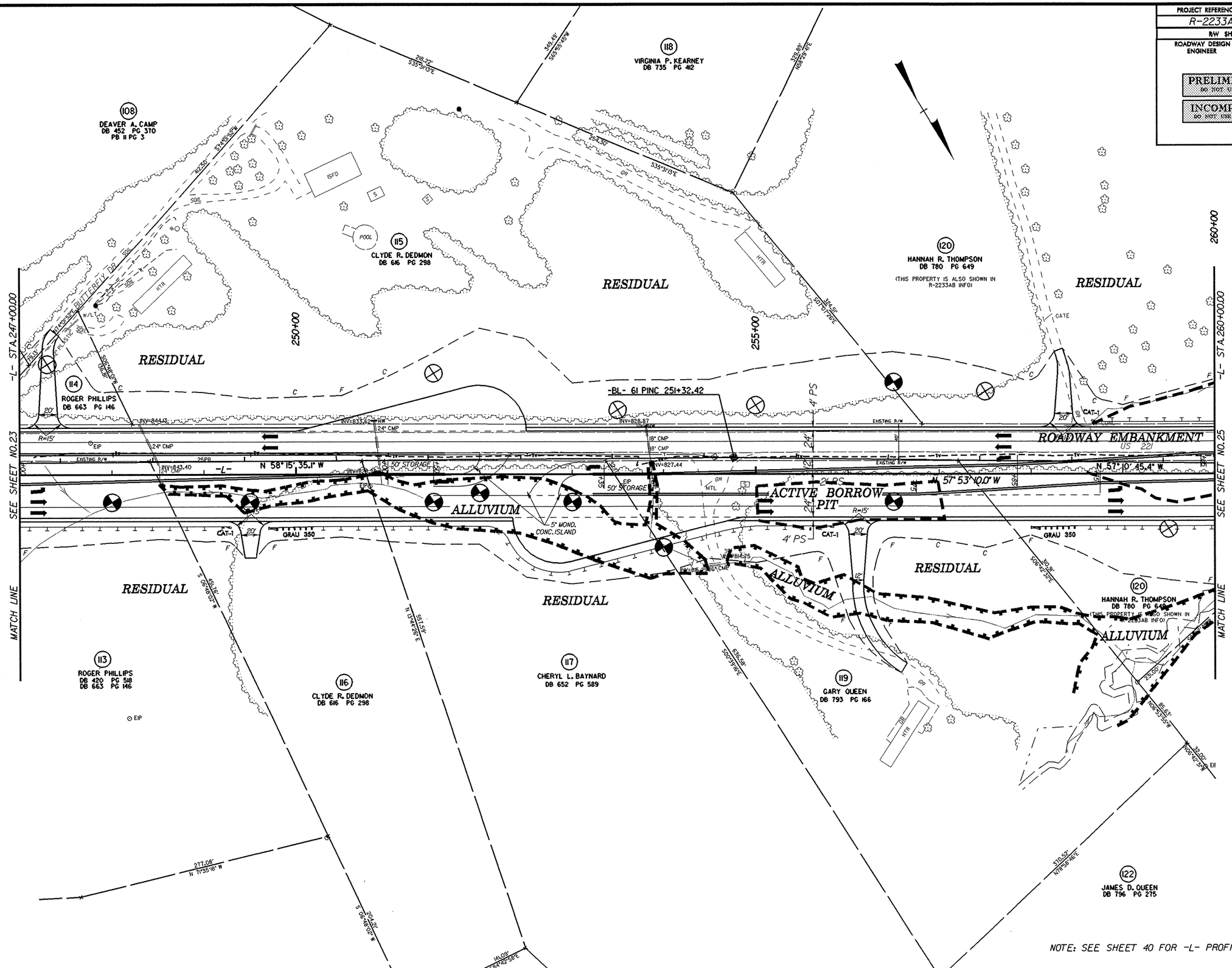
dburris AT GEH2281S7

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



REVISIONS

20-NOV-2006 09:11
cburris
pw:\\pwecs1.pwad.pw.gov:pwpub\PWMS\projects\R2233aa_geo_rdwy_rutherfordcoddl_geotech\PlanProf\R2233aa_GEO_inv_024_psh24.dgn
cburris AT GEH226157

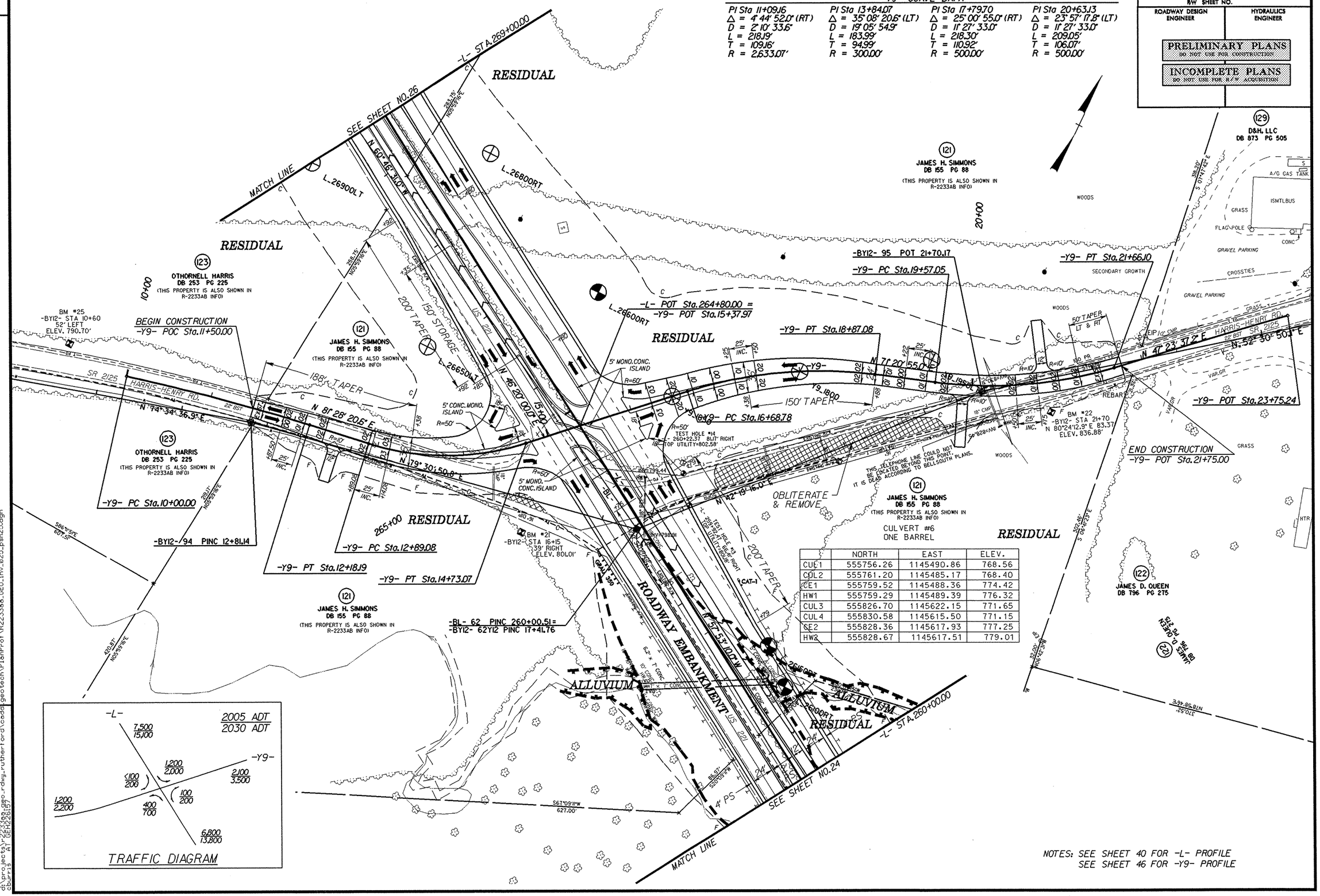
PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

-Y9- CURVE DATA

PI Sta 11+09.16	PI Sta 13+84.07	PI Sta 17+79.70	PI Sta 20+63.13
Δ = 4° 44' 52.0" (RT)	Δ = 35° 08' 20.6" (LT)	Δ = 25° 00' 55.0" (RT)	Δ = 23° 57' 17.8" (LT)
D = 2° 10' 33.6"	D = 19° 05' 54.9"	D = 11° 27' 33.0"	D = 11° 27' 33.0"
L = 218.19'	L = 183.99'	L = 218.30'	L = 209.05'
T = 109.16'	T = 94.99'	T = 110.92'	T = 106.07'
R = 2,633.07'	R = 300.00'	R = 500.00'	R = 500.00'



	NORTH	EAST	ELEV.
CUL1	555756.26	1145490.86	768.56
CUL2	555761.20	1145485.17	768.40
CE1	555759.52	1145488.36	774.42
HW1	555759.29	1145489.39	776.32
CUL3	555826.70	1145622.15	771.65
CUL4	555830.58	1145615.50	771.15
CE2	555828.36	1145617.93	777.25
HW2	555828.67	1145617.51	779.01

NOTES: SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 46 FOR -Y9- PROFILE

REVISIONS

20-NOV-2006 09:07
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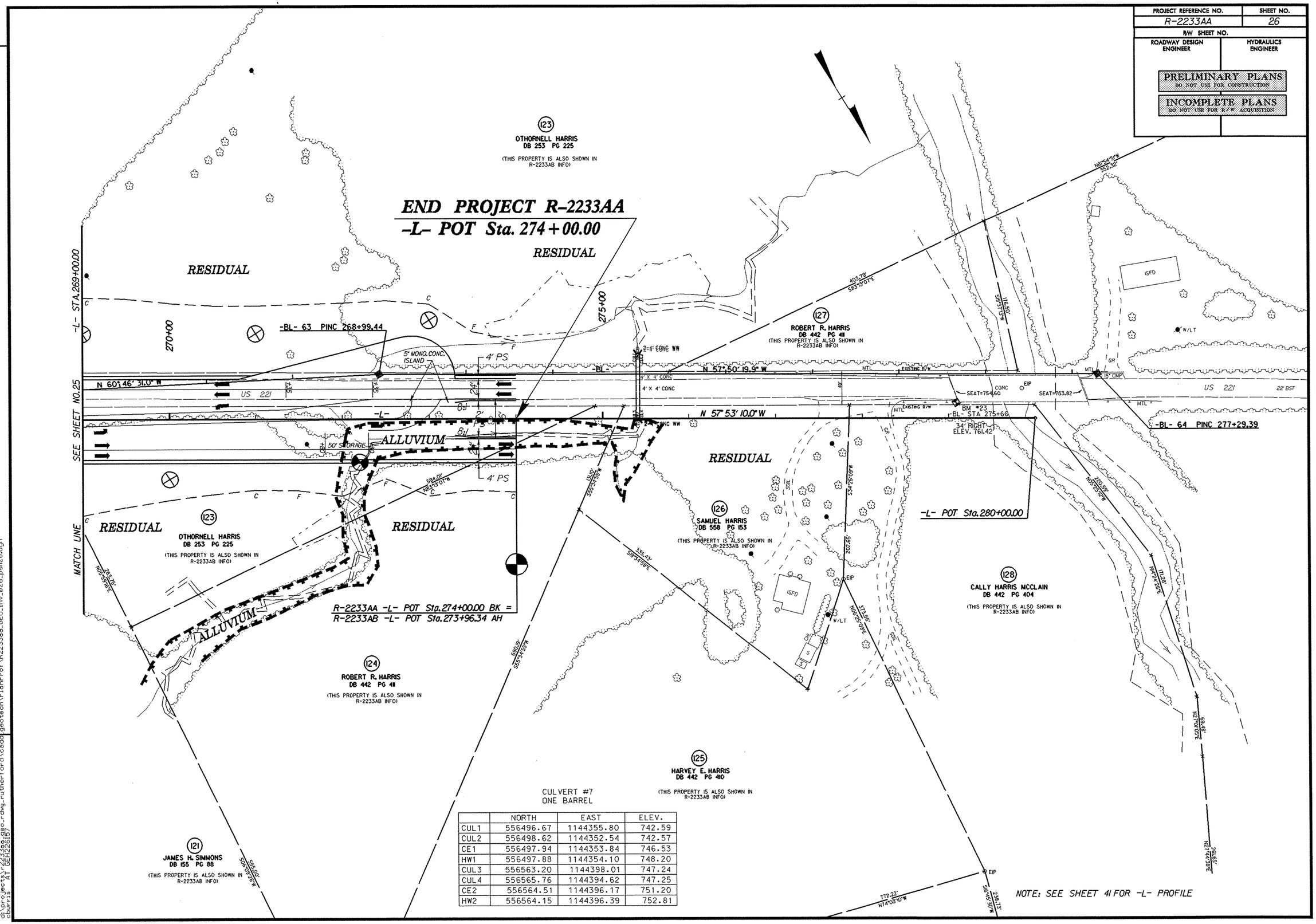
cburris AT GEH26157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



CULVERT #7
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	556496.67	1144355.80	742.59
CUL2	556498.62	1144352.54	742.57
CE1	556497.94	1144353.84	746.53
HW1	556497.88	1144354.10	748.20
CUL3	556563.20	1144398.01	747.24
CUL4	556565.76	1144394.62	747.25
CE2	556564.51	1144396.17	751.20
HW2	556564.15	1144396.39	752.81

REVISIONS

20-NOV-2006 09:14
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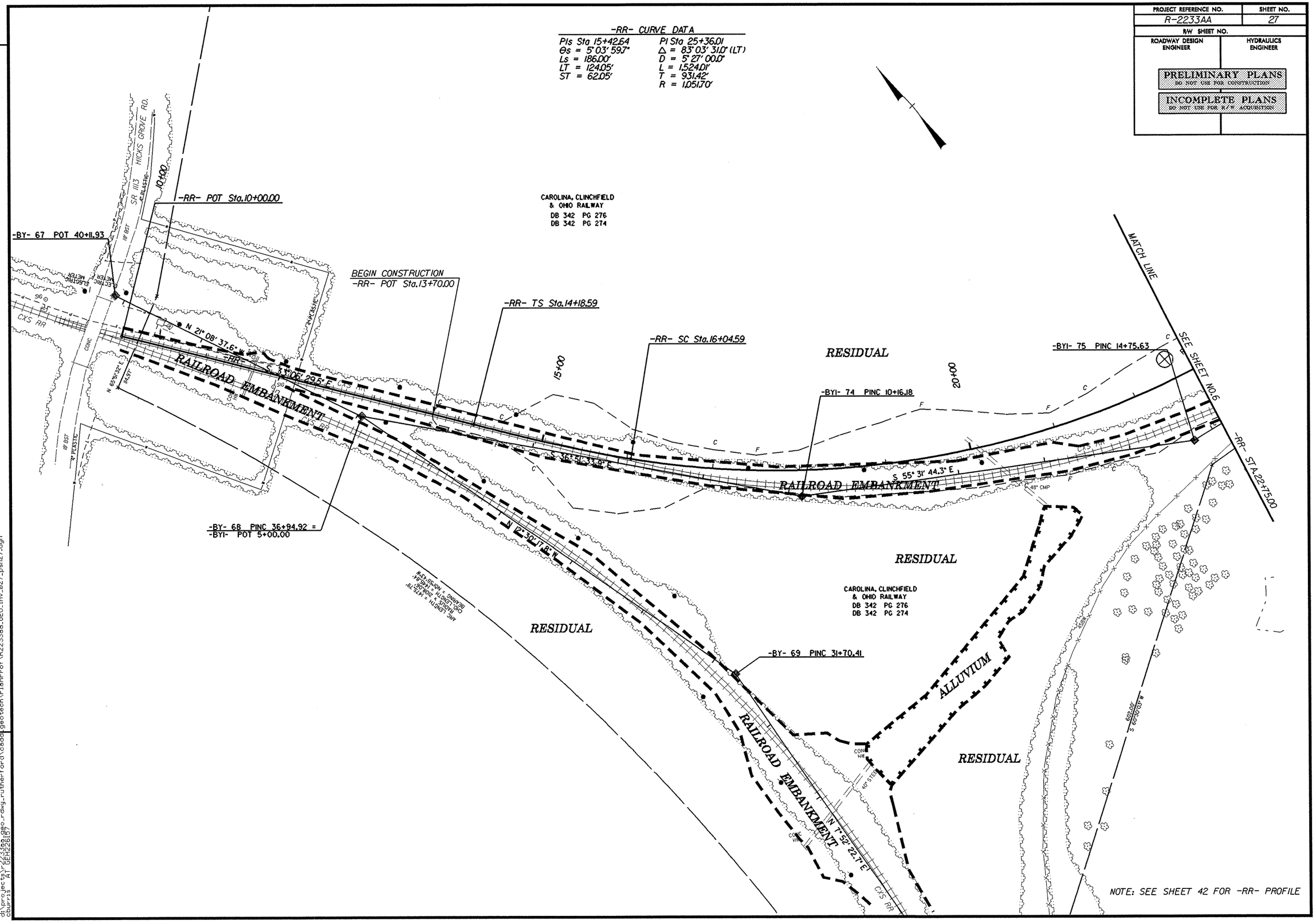
cburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



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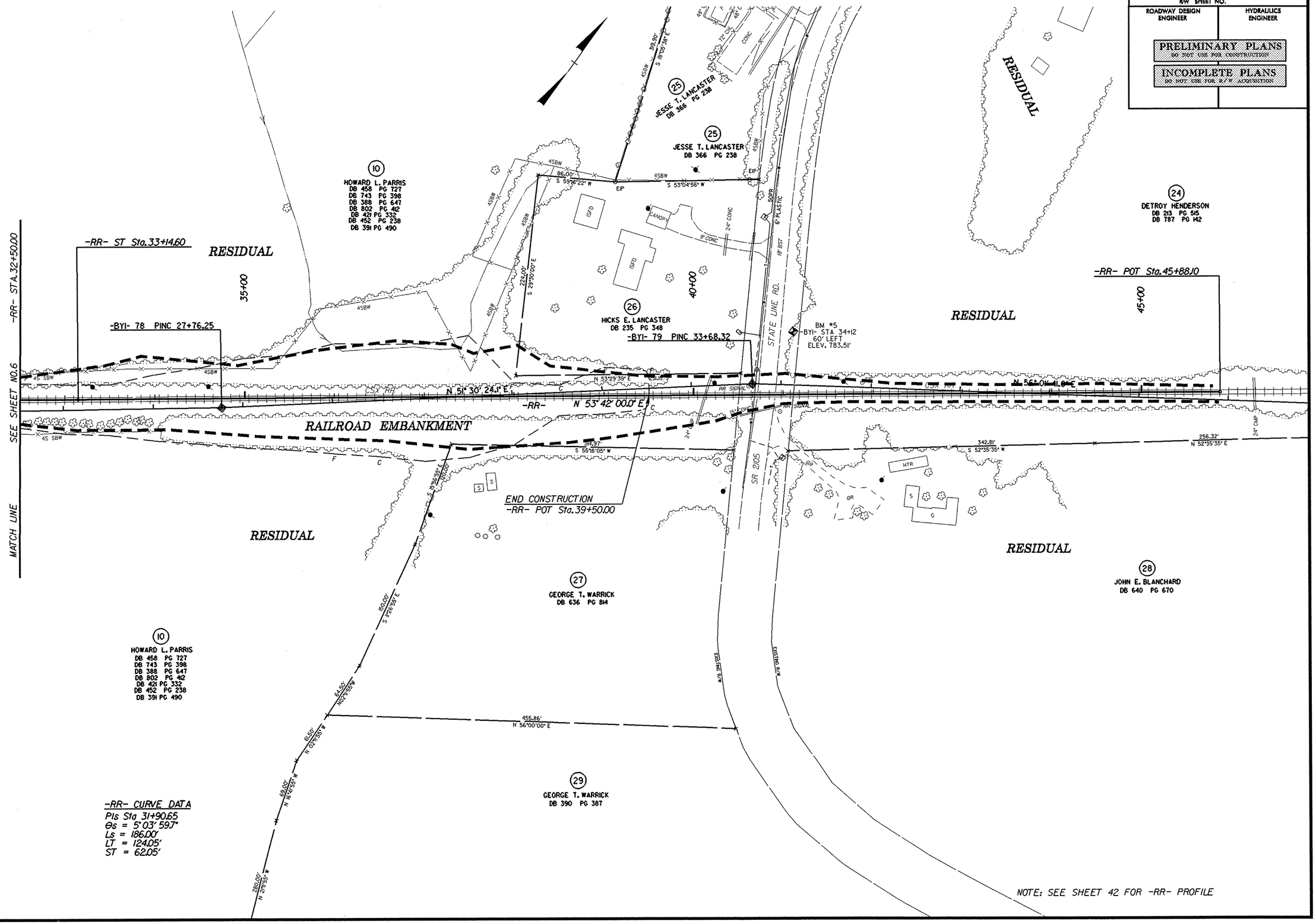
cburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

REVISIONS



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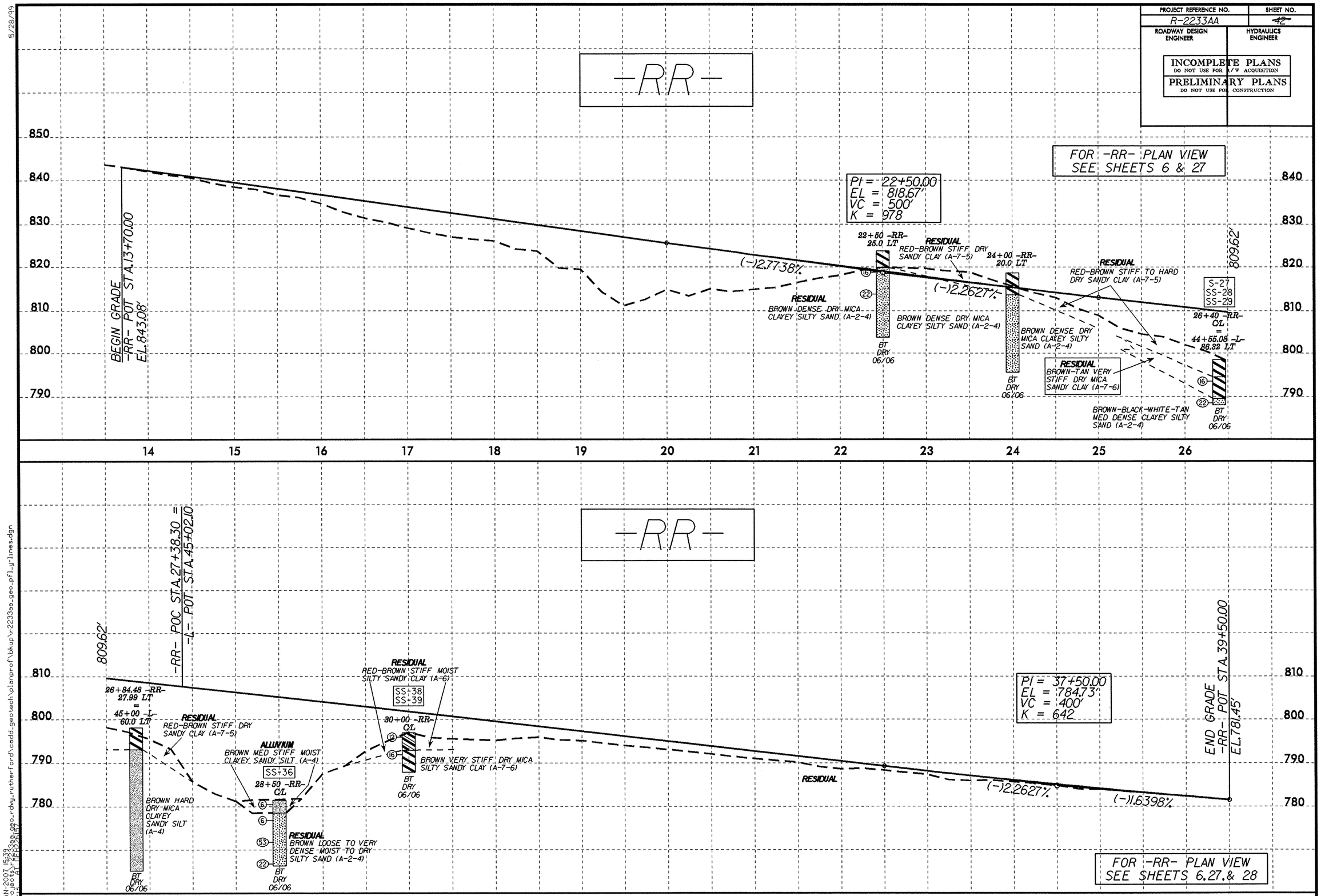
dburris AT GEH226157

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



5/28/99

02-JAN-2007 15:33
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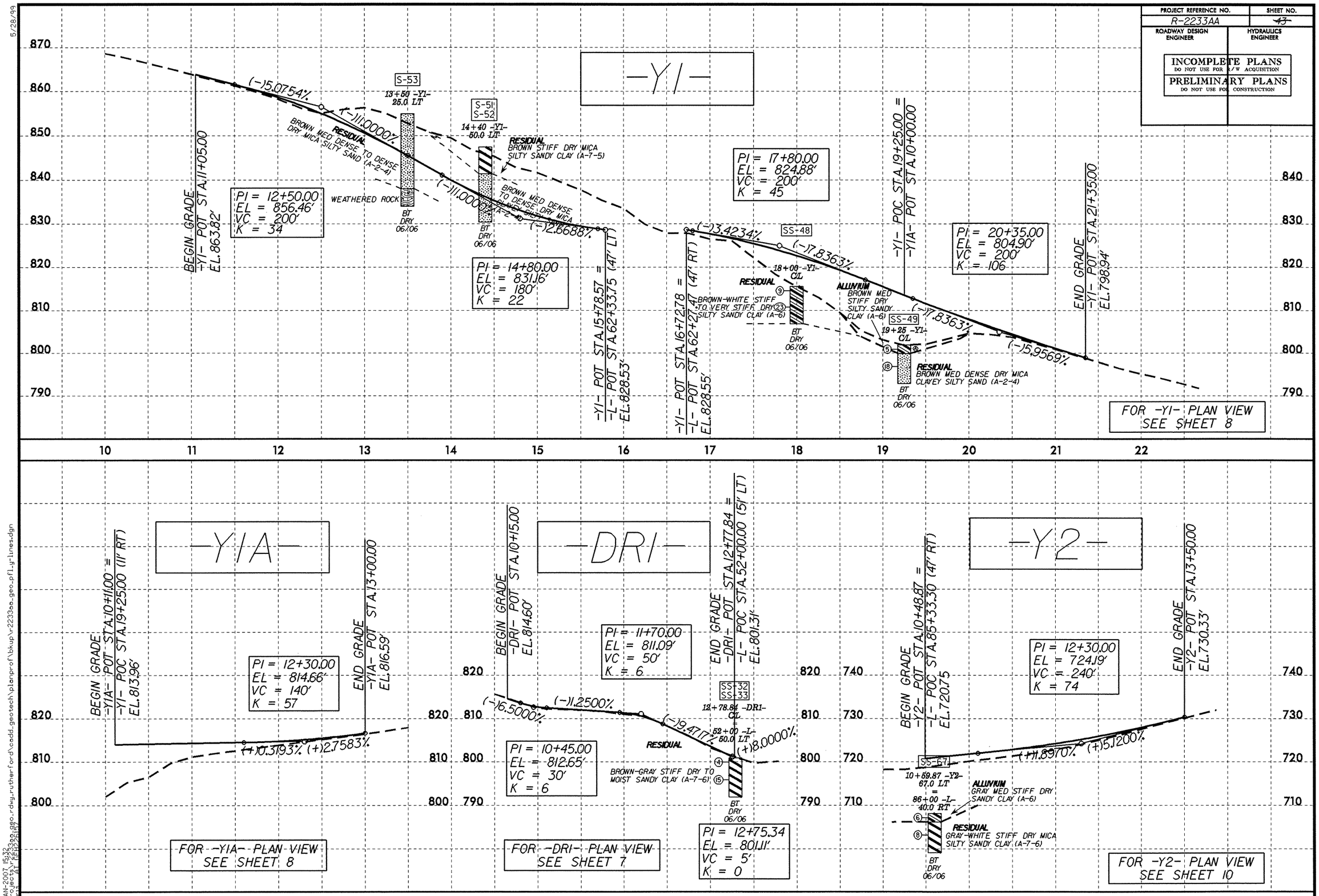
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



02-JAN-2007 15:32
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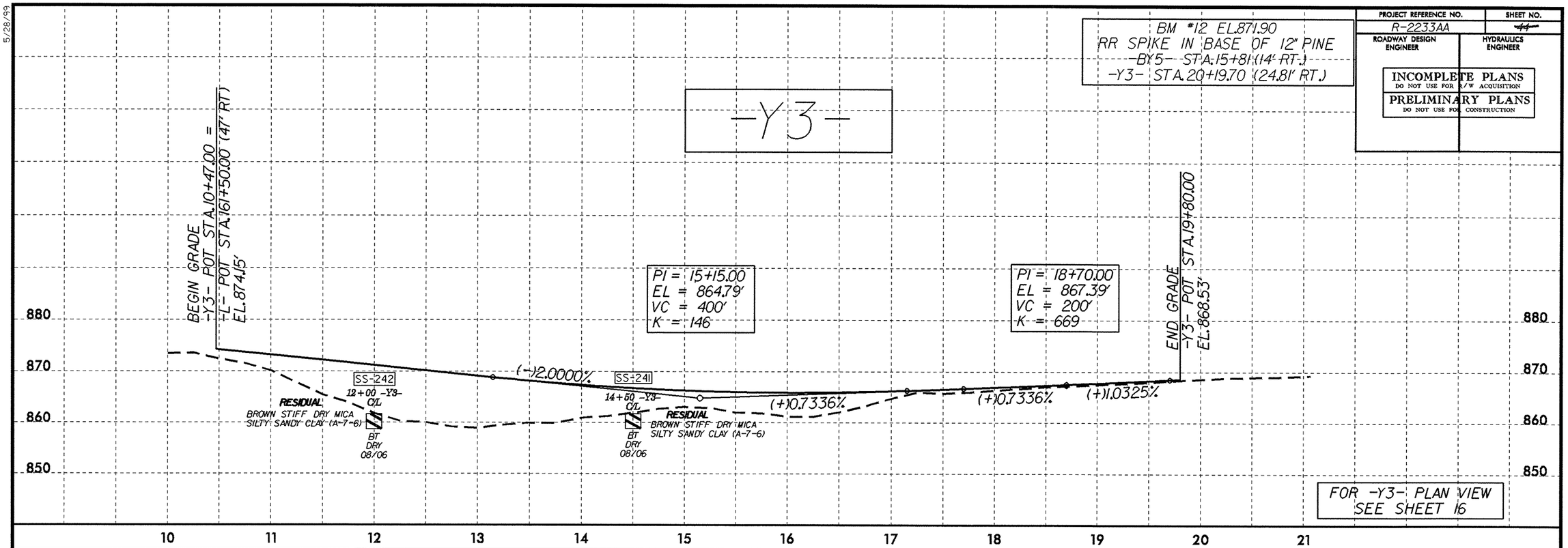
pbuchs AT (REF)26167

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



5/28/99

02-JAN-2007 15:32
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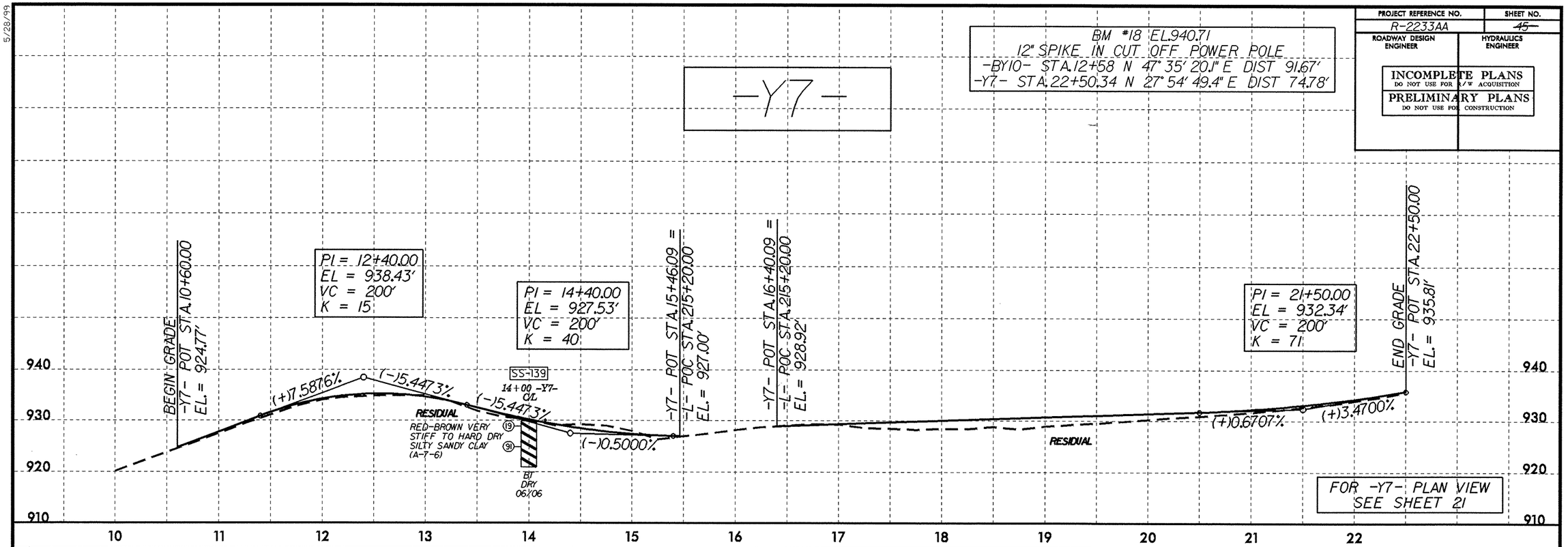
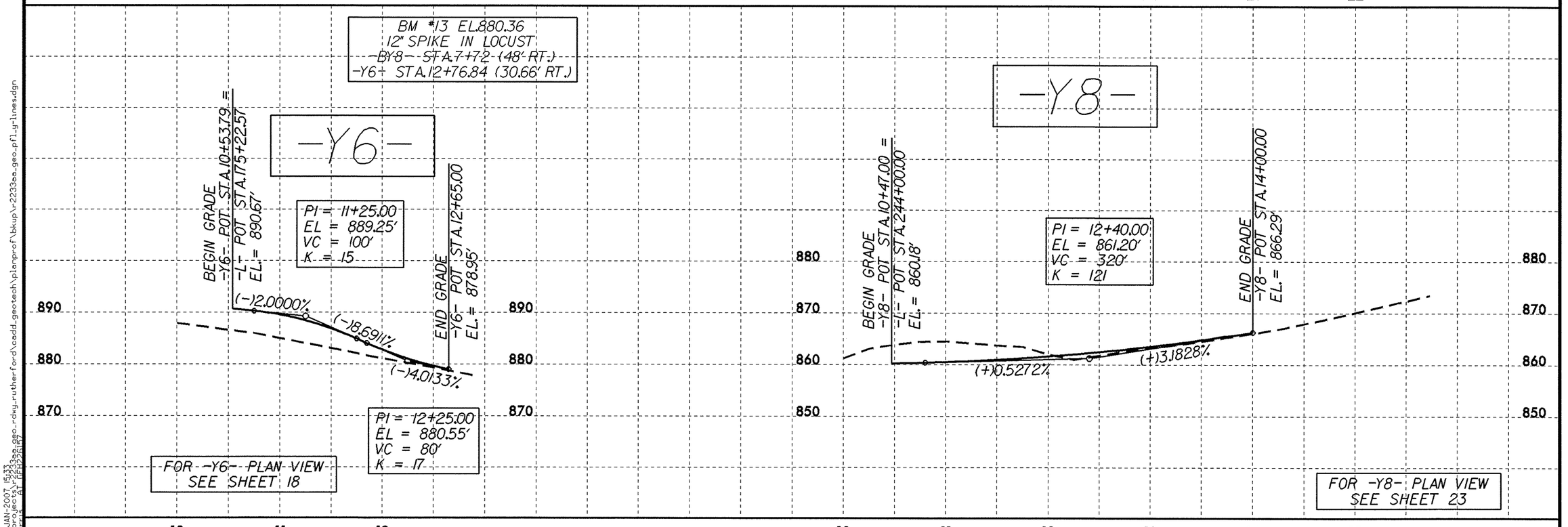
bwiggs AT NEDZBIRT

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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





02-JAN-2007 15:33
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bburris AT GEH2267

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2233AA	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

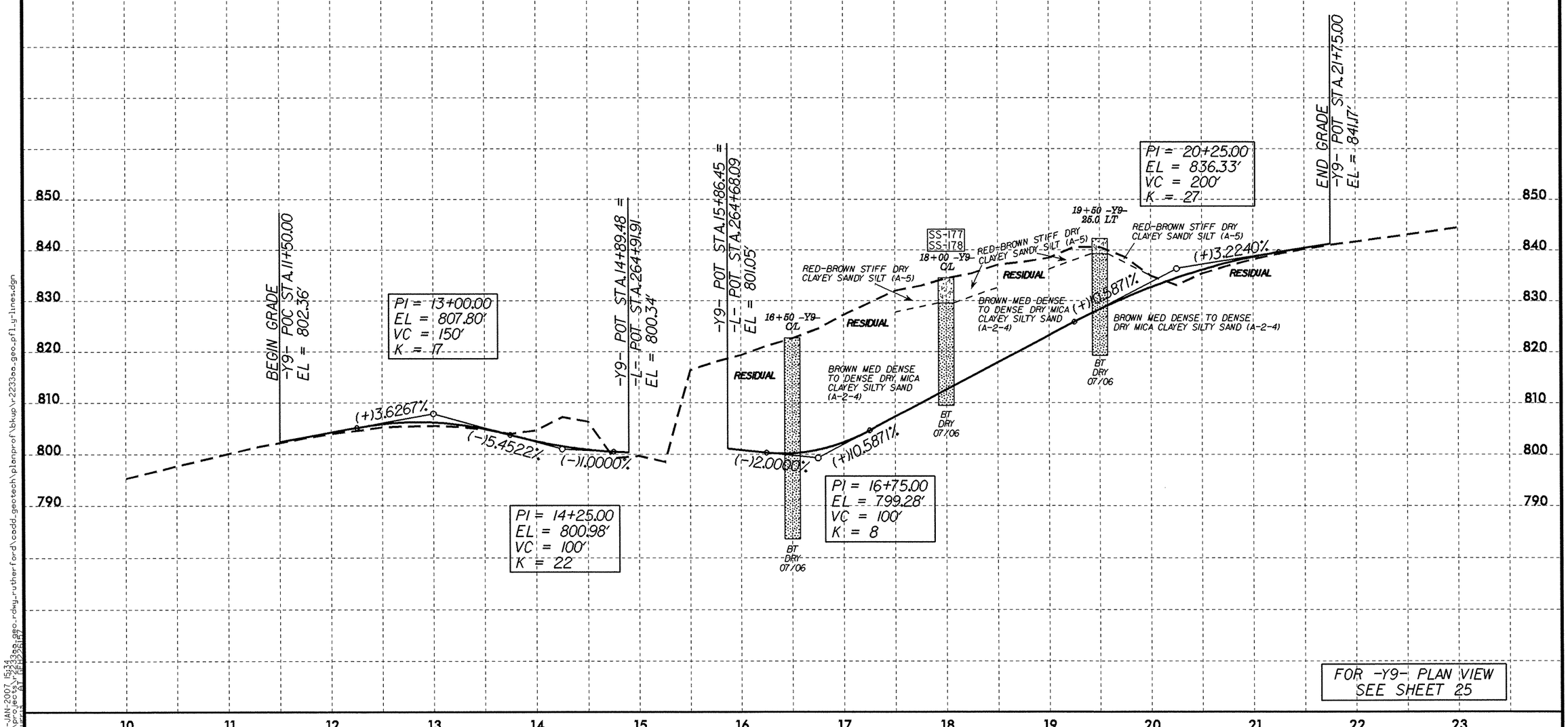
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM #25 EL.790.70
RR SPIKE IN BASE OF 36" OAK
-BY12- STA.10+60 (52' LT.)
-Y9- STA.10+00.00 N 85° 57' 21.5" W DIST 75.24'

BM #22 EL.836.88
RR SPIKE IN BASE OF 14" PINE
-BY12- STA.21+70 N 80° 24' 12.9" E DIST 83.37'
-Y9- STA.20+86.72 (34.93' RT.)

-Y9-



FOR -Y9- PLAN VIEW
SEE SHEET 25

02-JAN-2007 15:34
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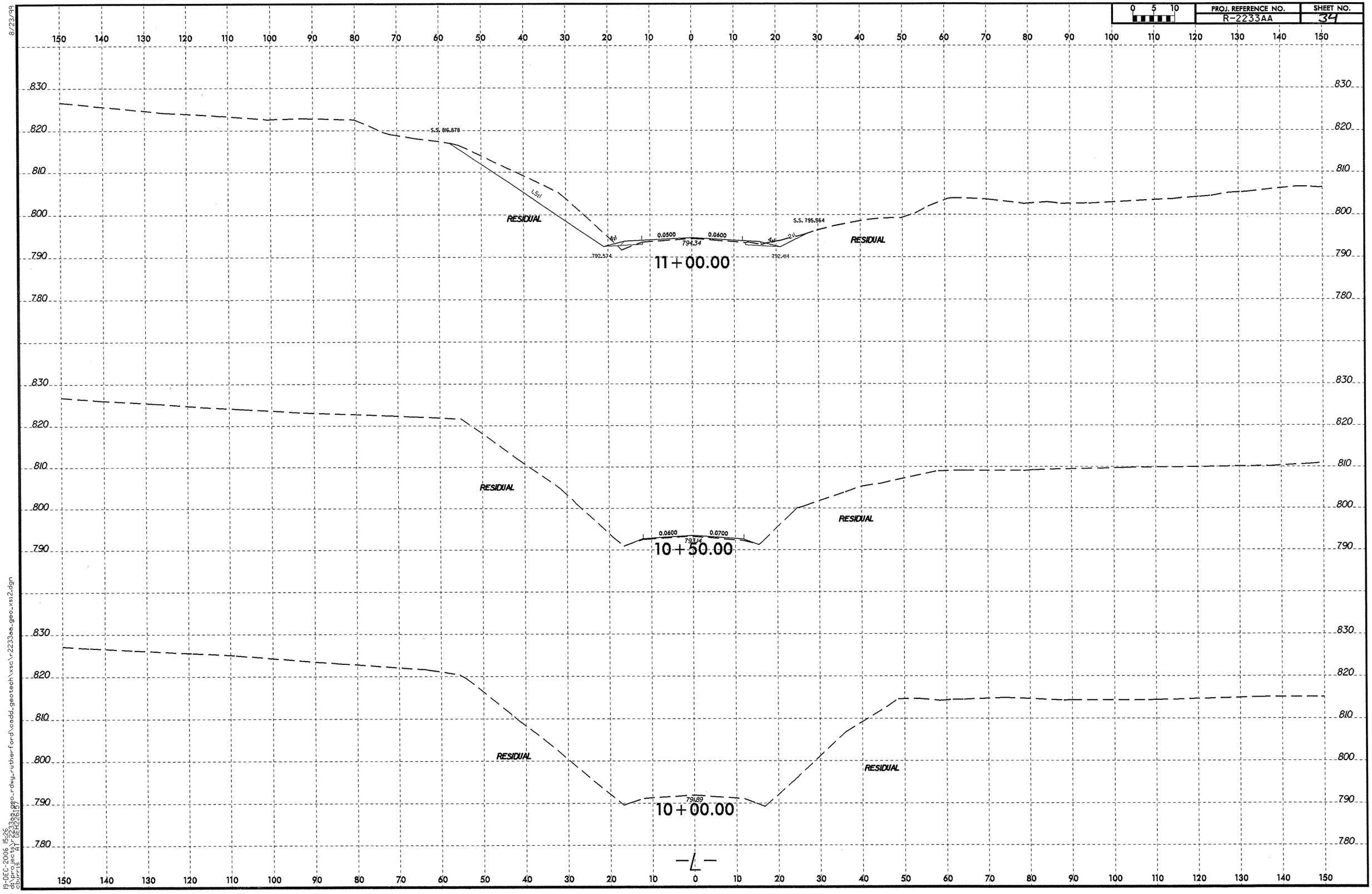
AT REF=2DLIST

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	34



8/23/99

19-DEC-2006 15:26
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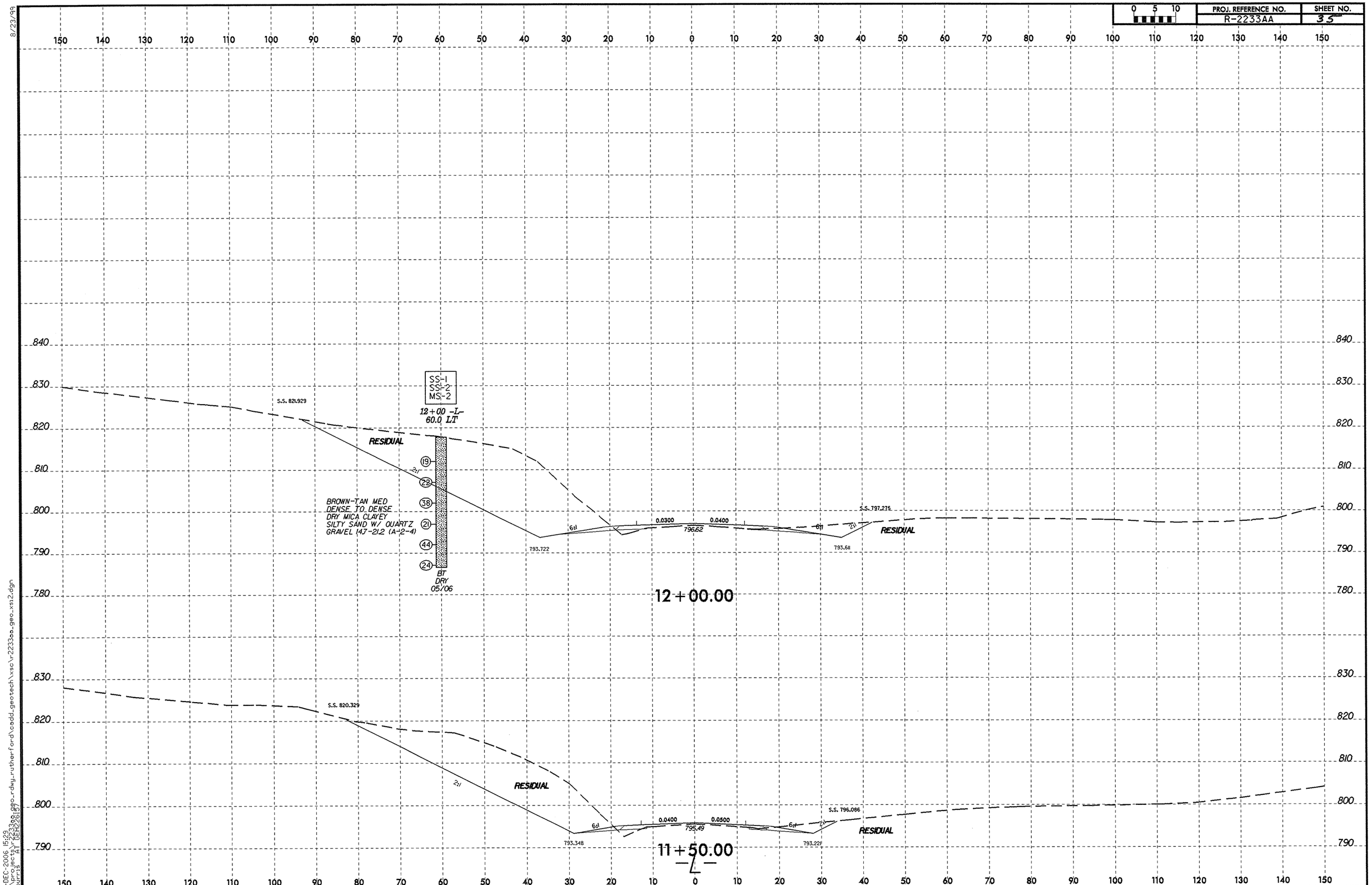
cbirris
A1 DEL26.15



8/23/99
19-DEC-2006 15:22
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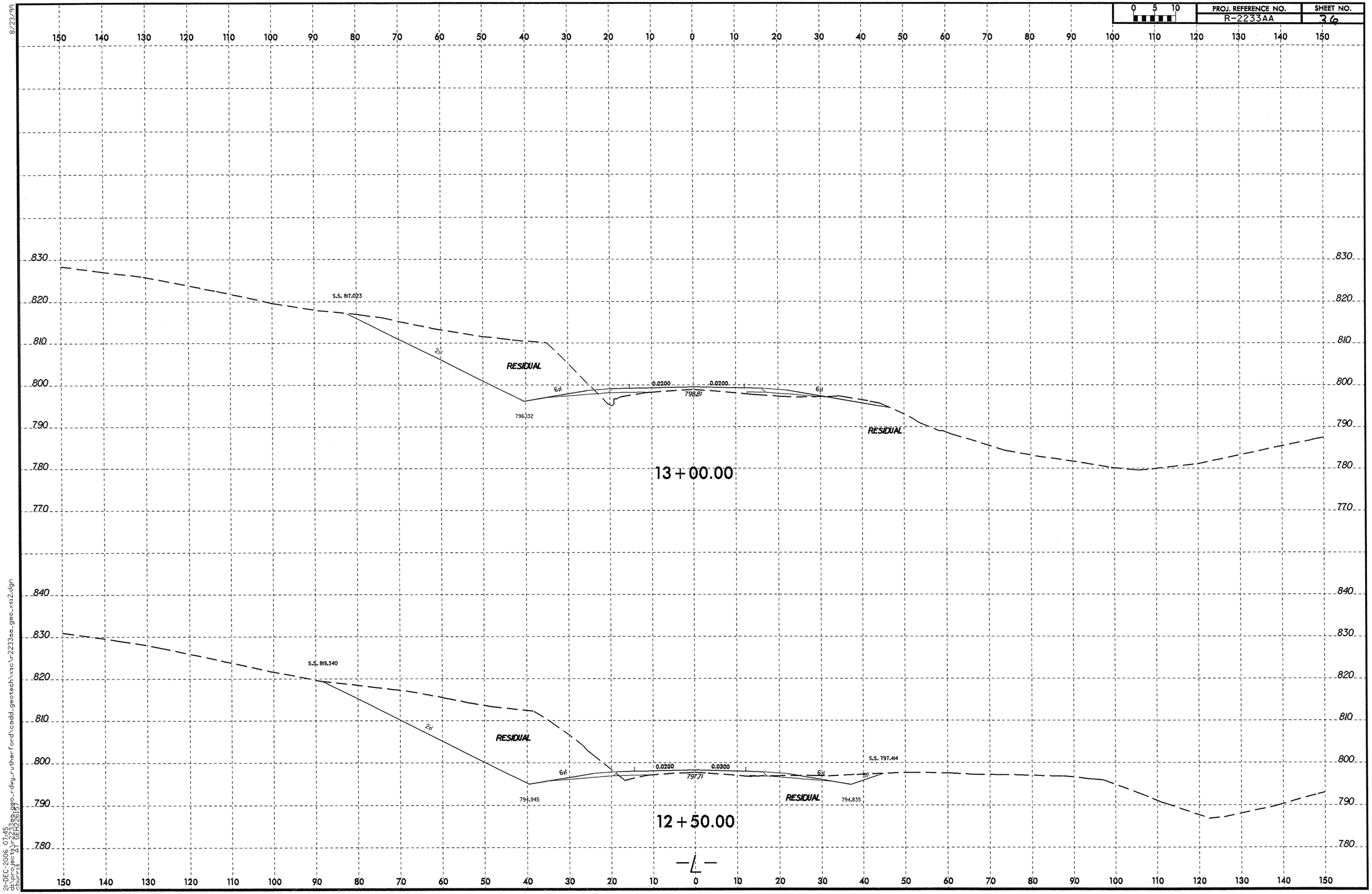
Courtesy Plot

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	36



21-DEC-2006 07:45
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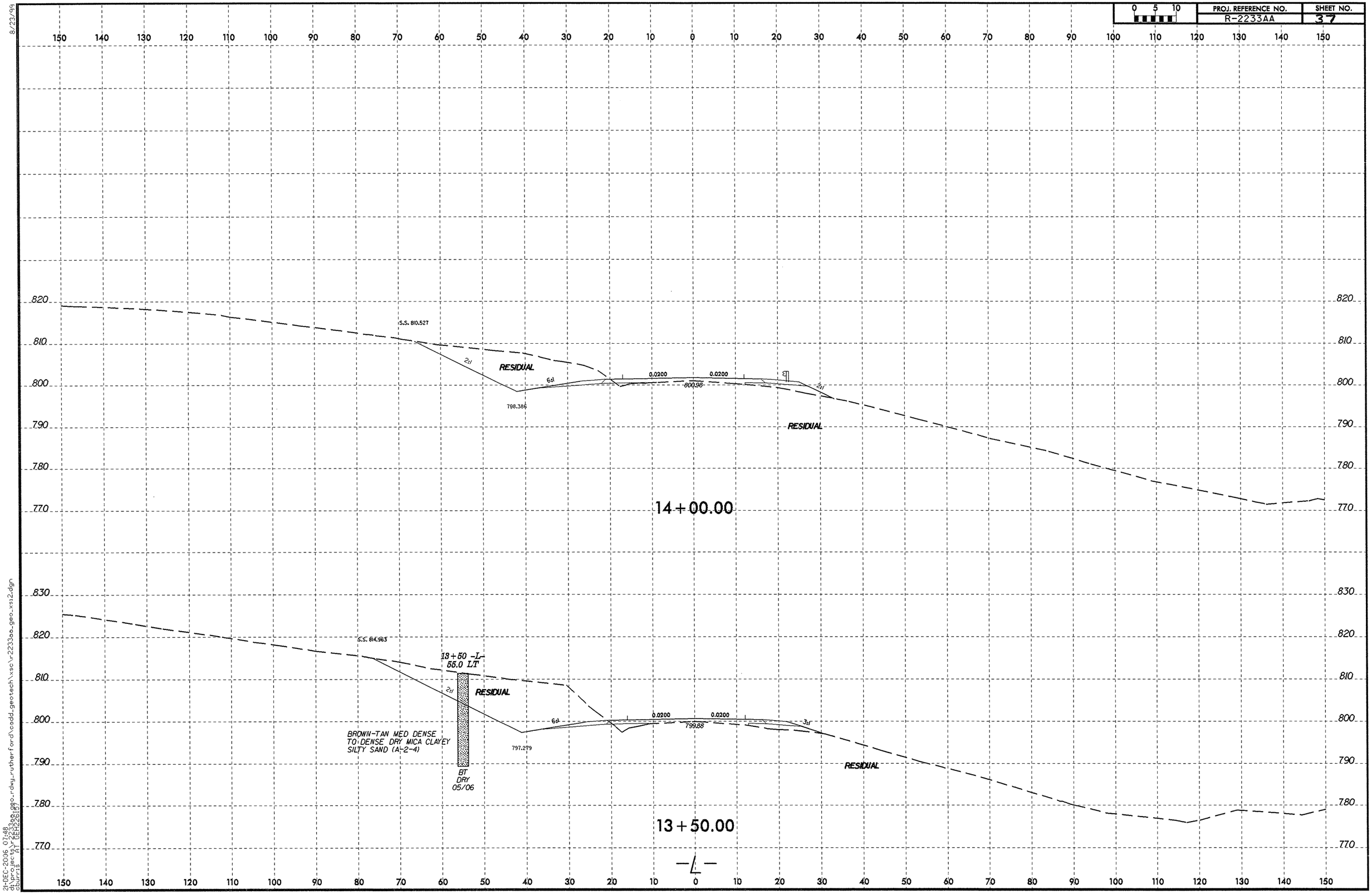
cburris
21-DEC-2006 07:45

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	37



8/23/99

21-DEC-2006 07:48
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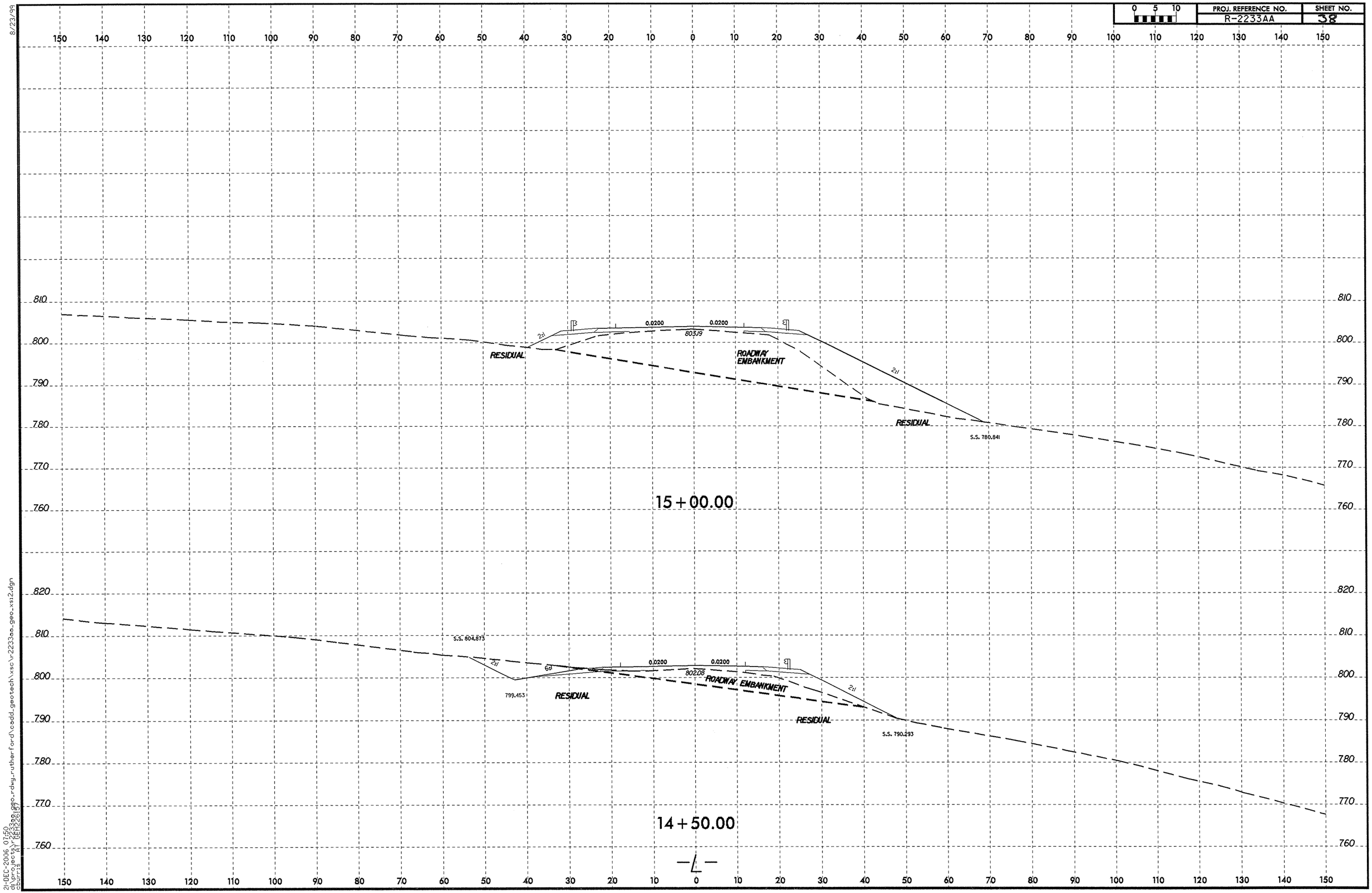
cburris AT GEH2687


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
38
15+00.00
RESIDUAL
2:1
0.0200
0.0200
805.19
ROADWAY EMBANKMENT
2:1
RESIDUAL
S.S. 780.841
14+50.00
S.S. 804.873
2:1
6:1
799.453
RESIDUAL
0.0200
0.0200
802.08
ROADWAY EMBANKMENT
2:1
RESIDUAL
S.S. 790.293
-L-
8/23/99
21-DEC-2006 07:50
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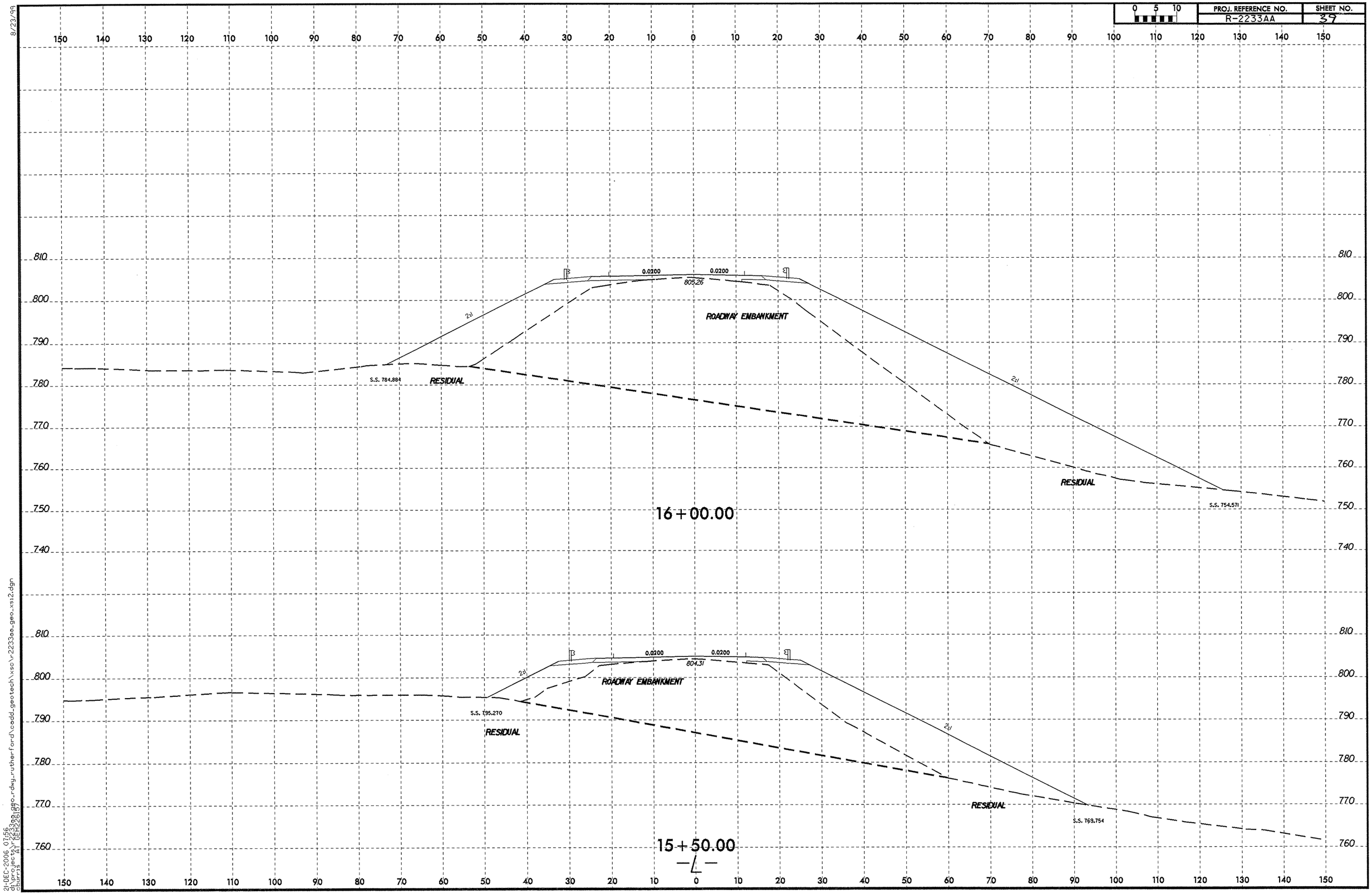
cburris AT GEH22697



8/23/99
21-DEC-2006 07:56
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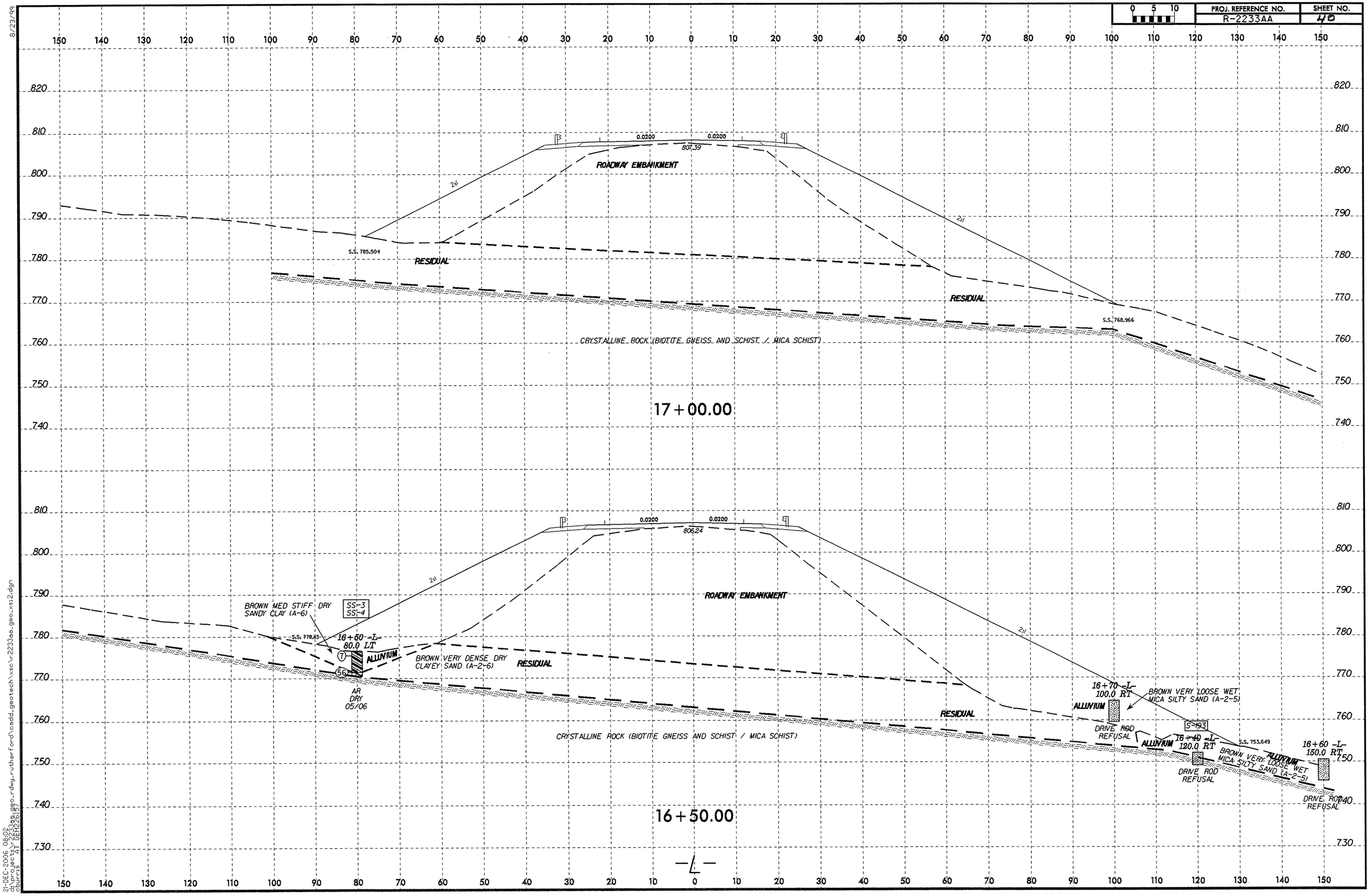
cburris "A" GEN12pt97



8/23/99
21-DEC-2006 08:06
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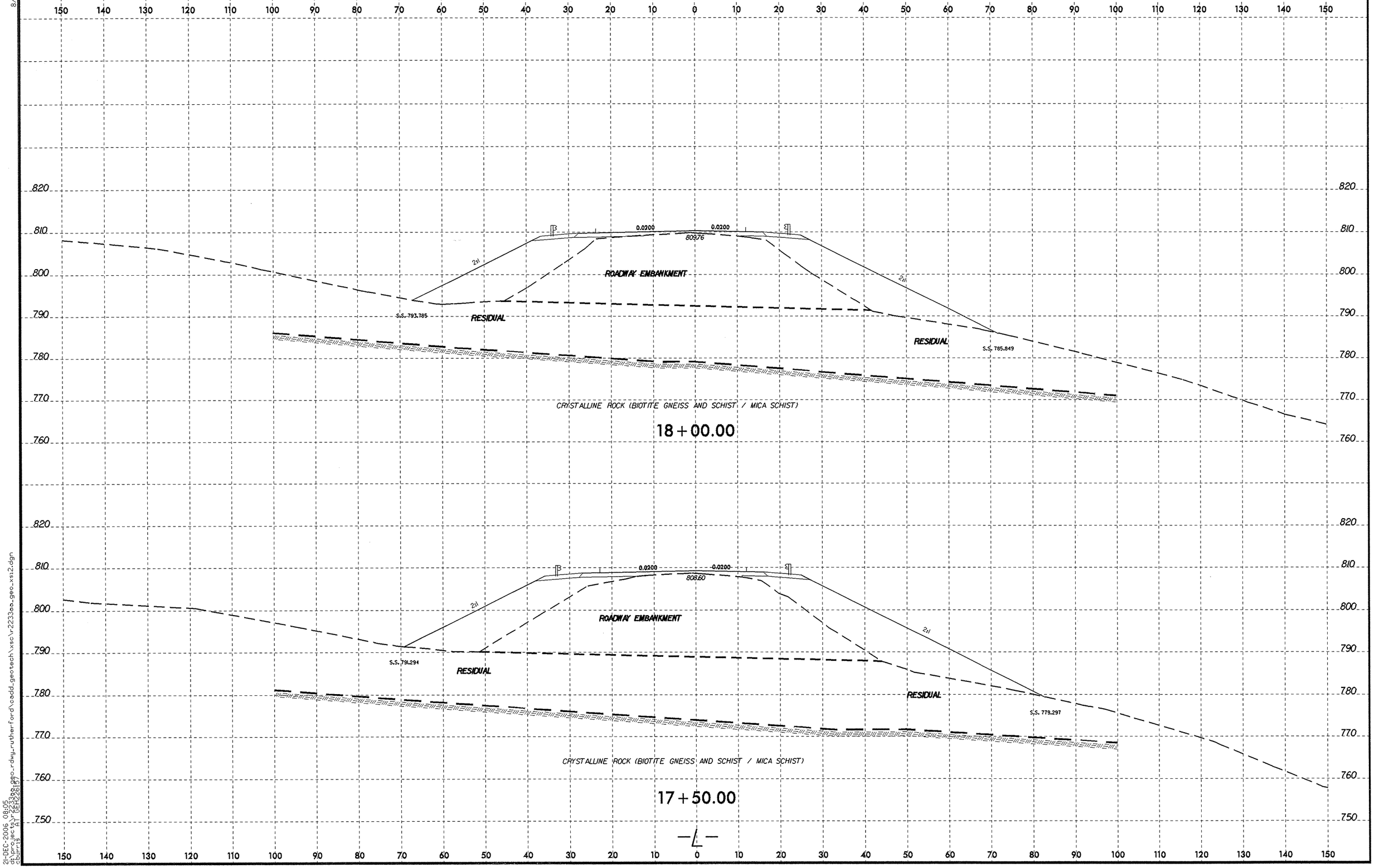
dgnlib: 8.2 TEMPLATE

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	47



8/23/99

21-DEC-2006 08:05
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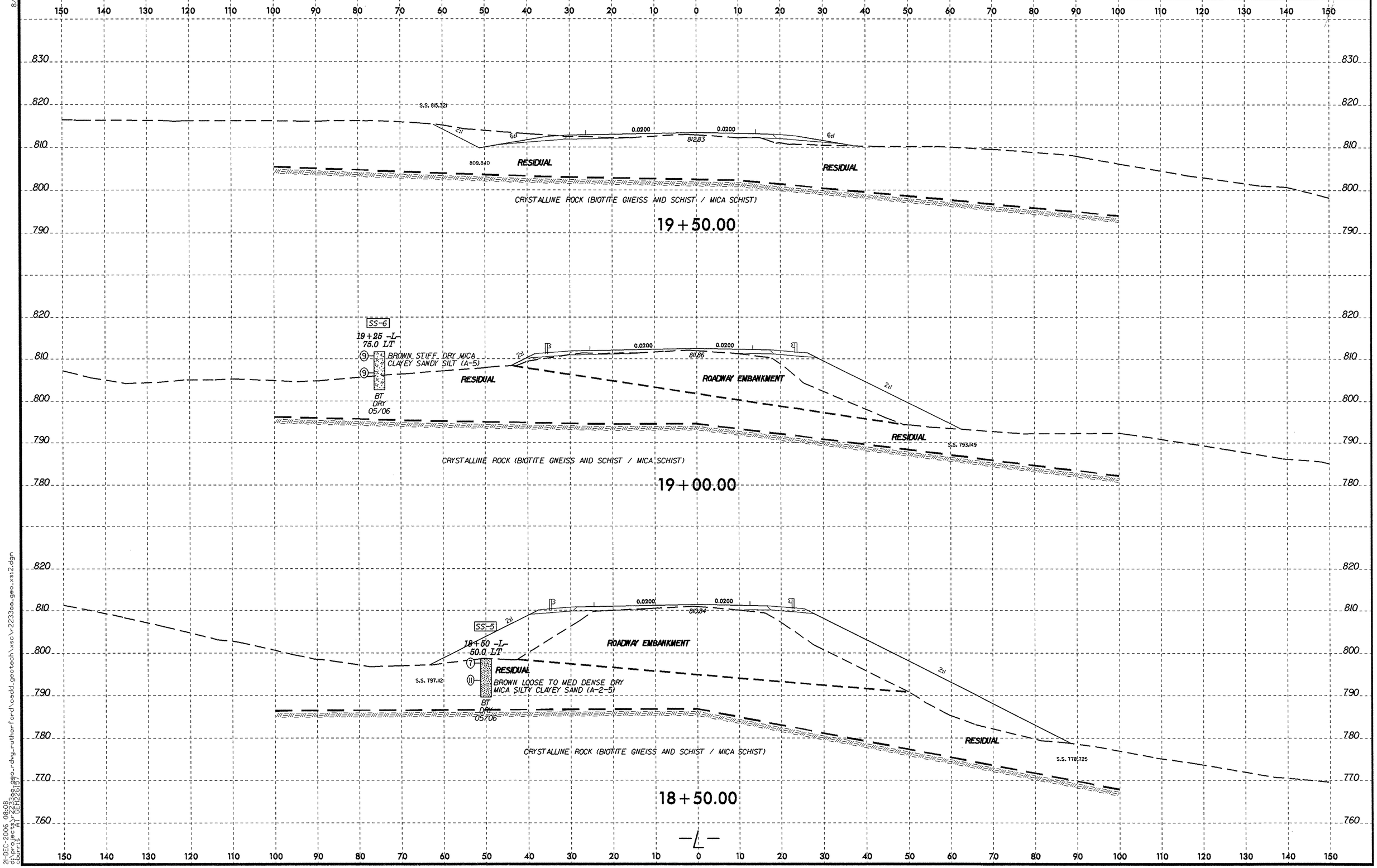
cburris ET GEN(26.67)



8/23/99

21-DEC-2006 08:08
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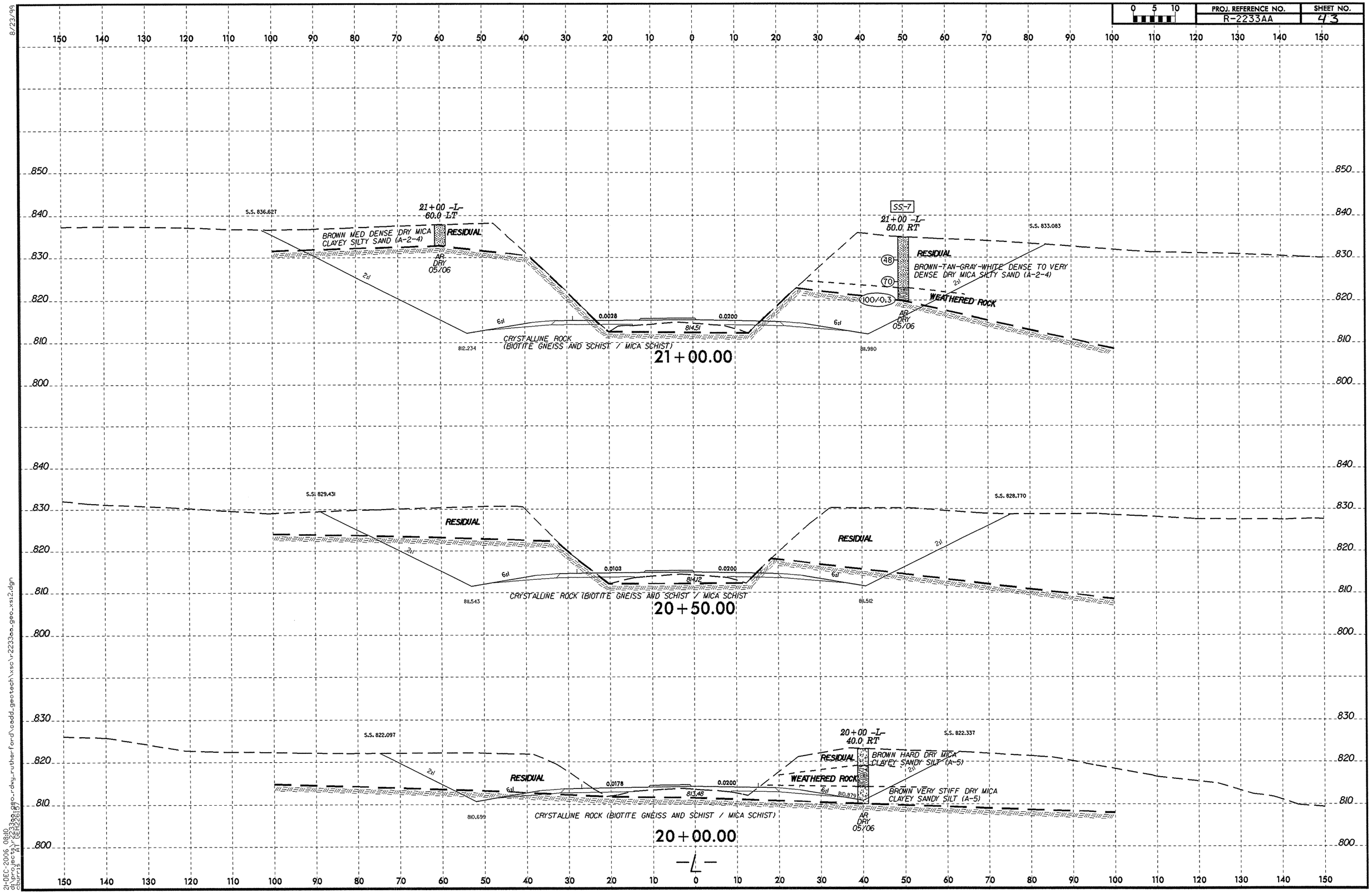
dburris AT GEH12617

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	43



8/23/99

21-DEC-2006 08:10
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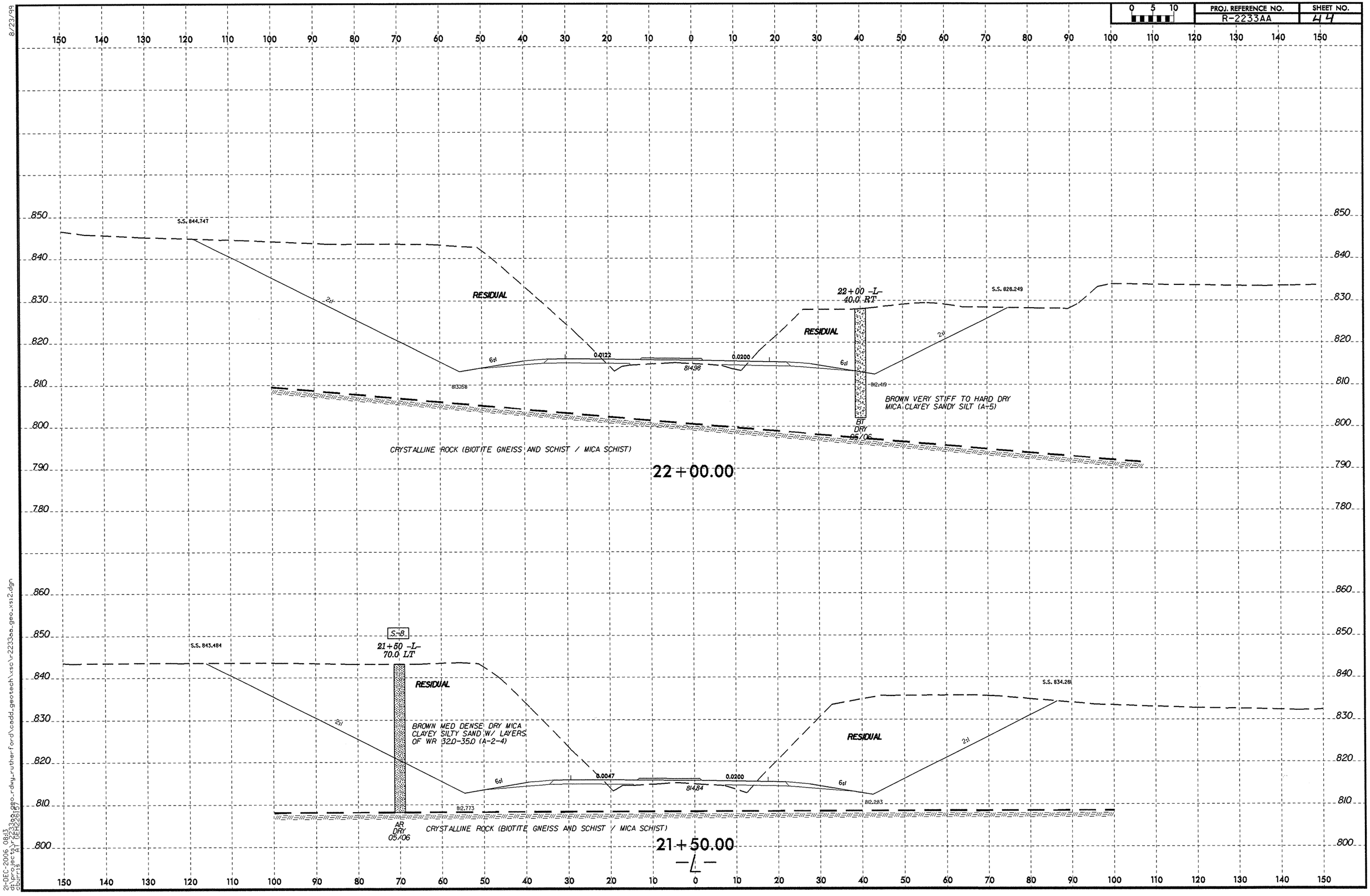
cburris AT DEH:28:57

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	44



8/23/99

21-DEC-2006 08:13
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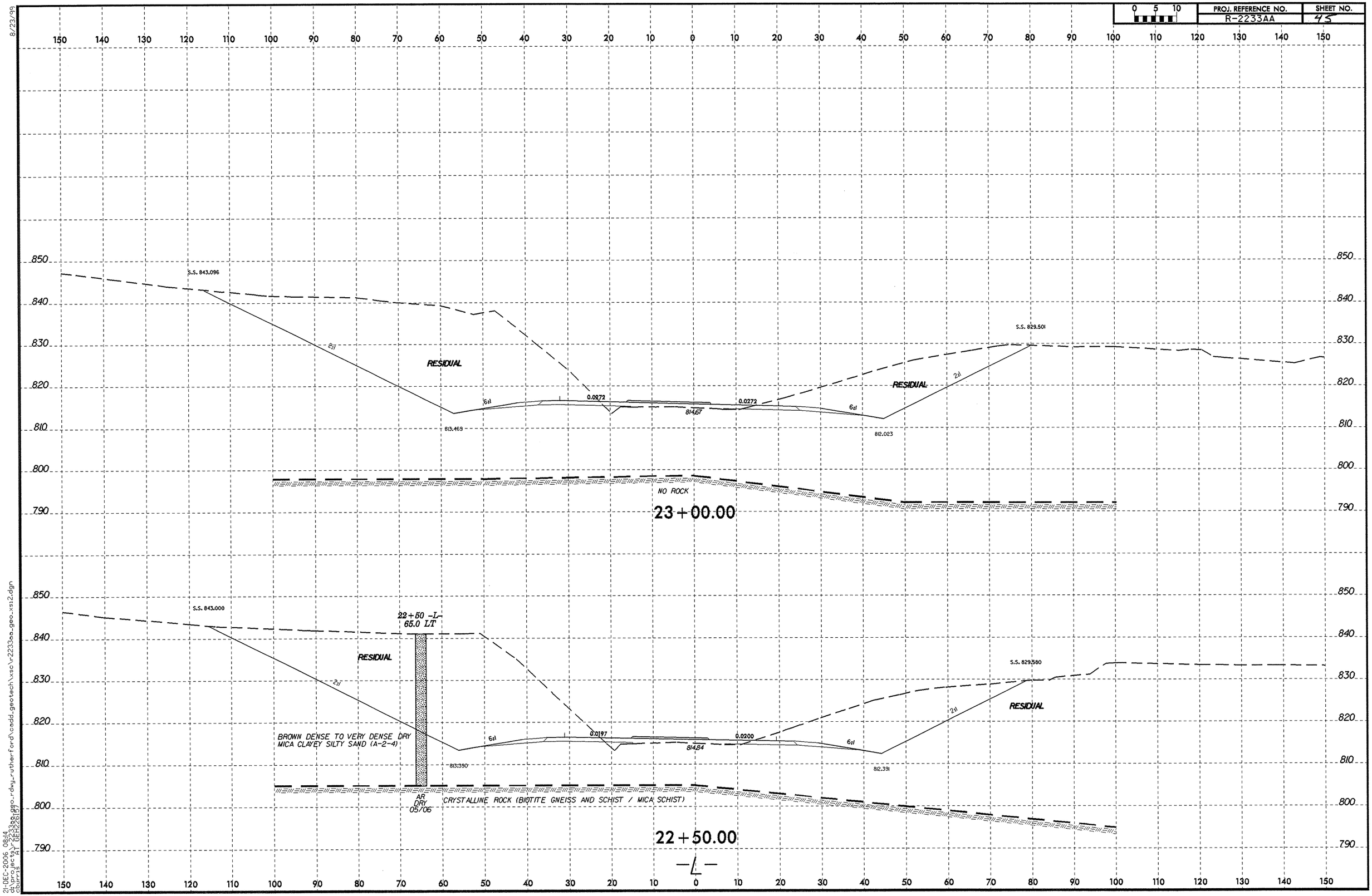
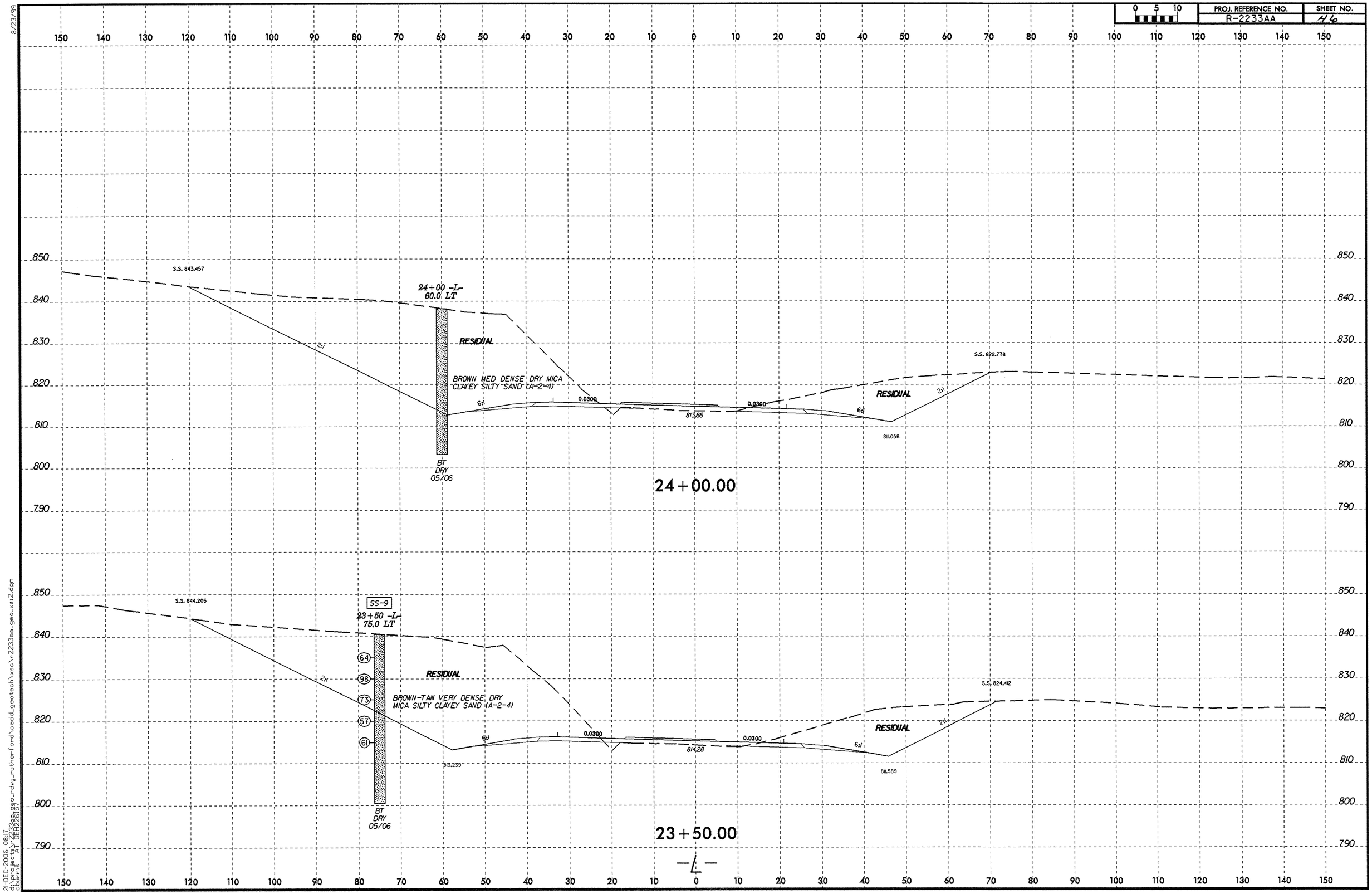
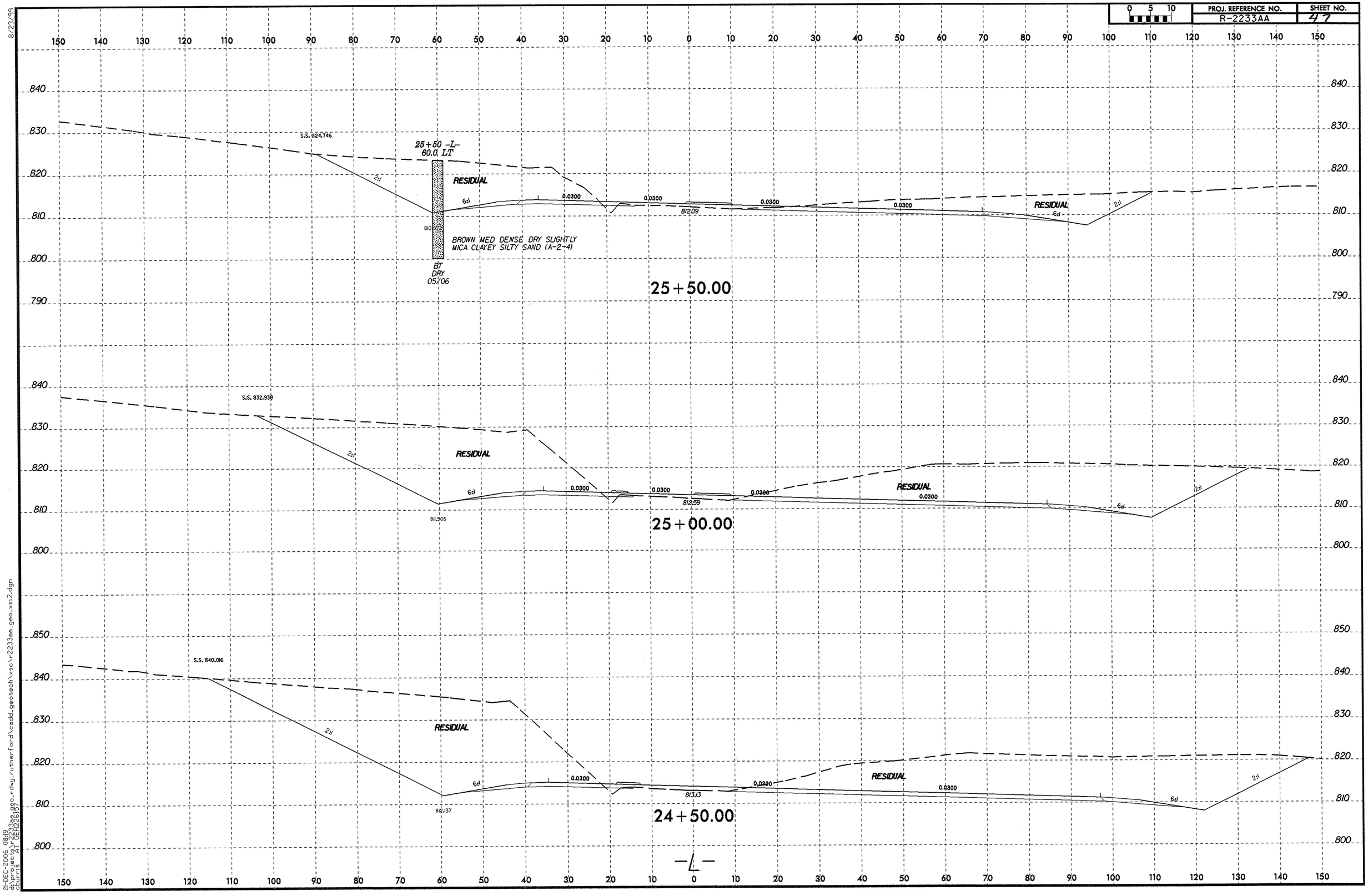
cbuffis AT BEH226157


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
45
S.S. 843.096
2:1
RESIDUAL
6:1
0.0272
814.67
0.0272
6:1
RESIDUAL
2:1
S.S. 829.501
813.469
812.023
NO ROCK
23+00.00
S.S. 843.000
22+50 -L-
65.0 LT
RESIDUAL
2:1
BROWN DENSE TO VERY DENSE DRY
MICA CLAYEY SILTY SAND (A-2-4)
6:1
0.0197
814.84
0.0200
6:1
2:1
RESIDUAL
S.S. 829.580
813.390
812.391
AR
DRY
05/06
CRYSTALLINE ROCK (BIOTITE GNEISS AND SCHIST / MICA SCHIST)
22+50.00
-L-
8/23/99
21-DEC-2006 08:14
d:\projects\r-2233aa\geo-rdwy-rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris



8/23/99

21-DEC-2006 08:17
c:\projects\r2233aa_geo_rdwy_rutherford\oadd_geotech\xsec\r2233aa_geo_xs12.dgn
ch,proj,ex,lt,GEH2,GEH3,GEH4,GEH5,GEH6,GEH7



8/23/99
21-DEC-2006 08:19
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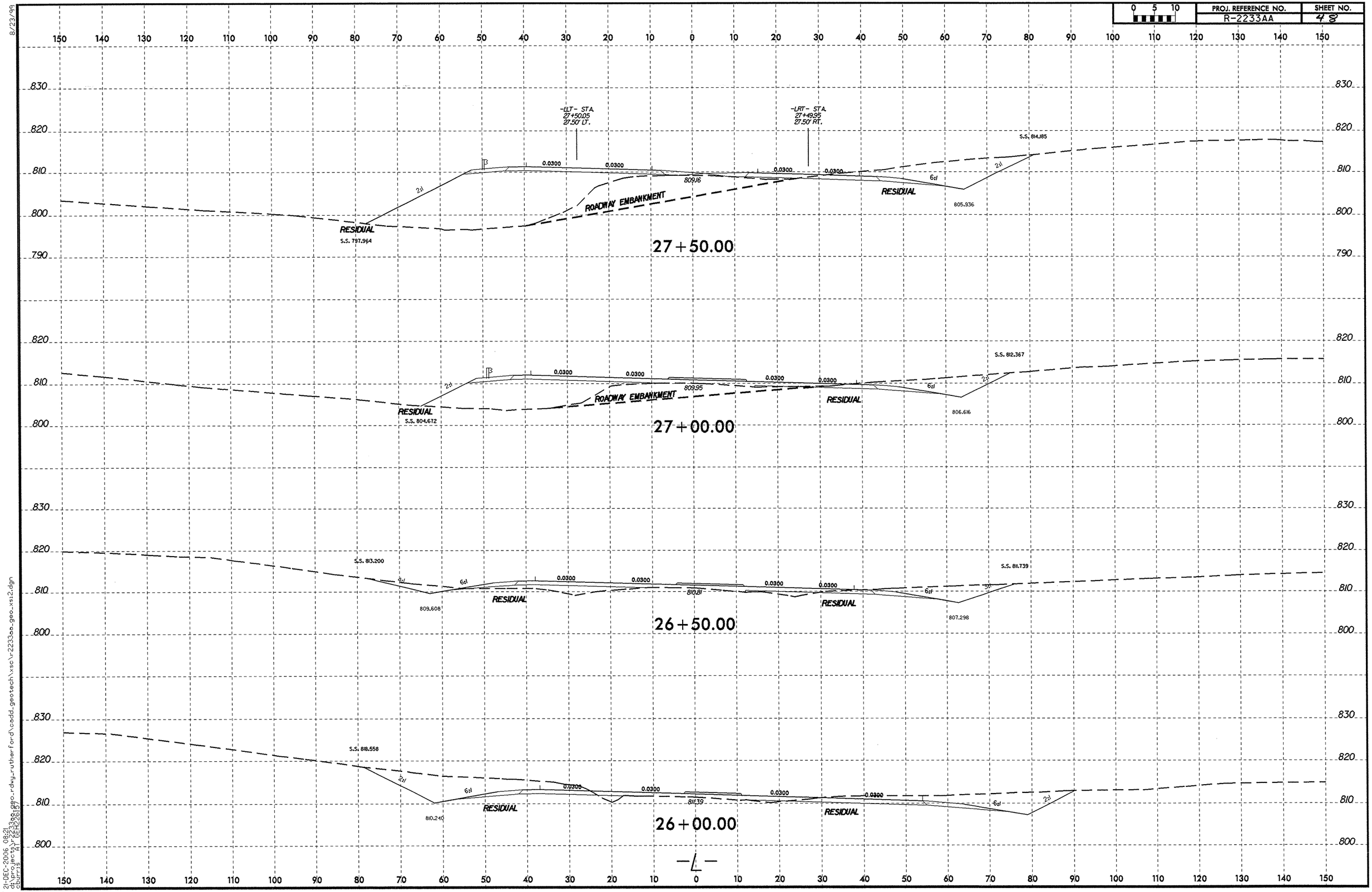
cburrs AT DEH22617



21-DEC-2006 08:21
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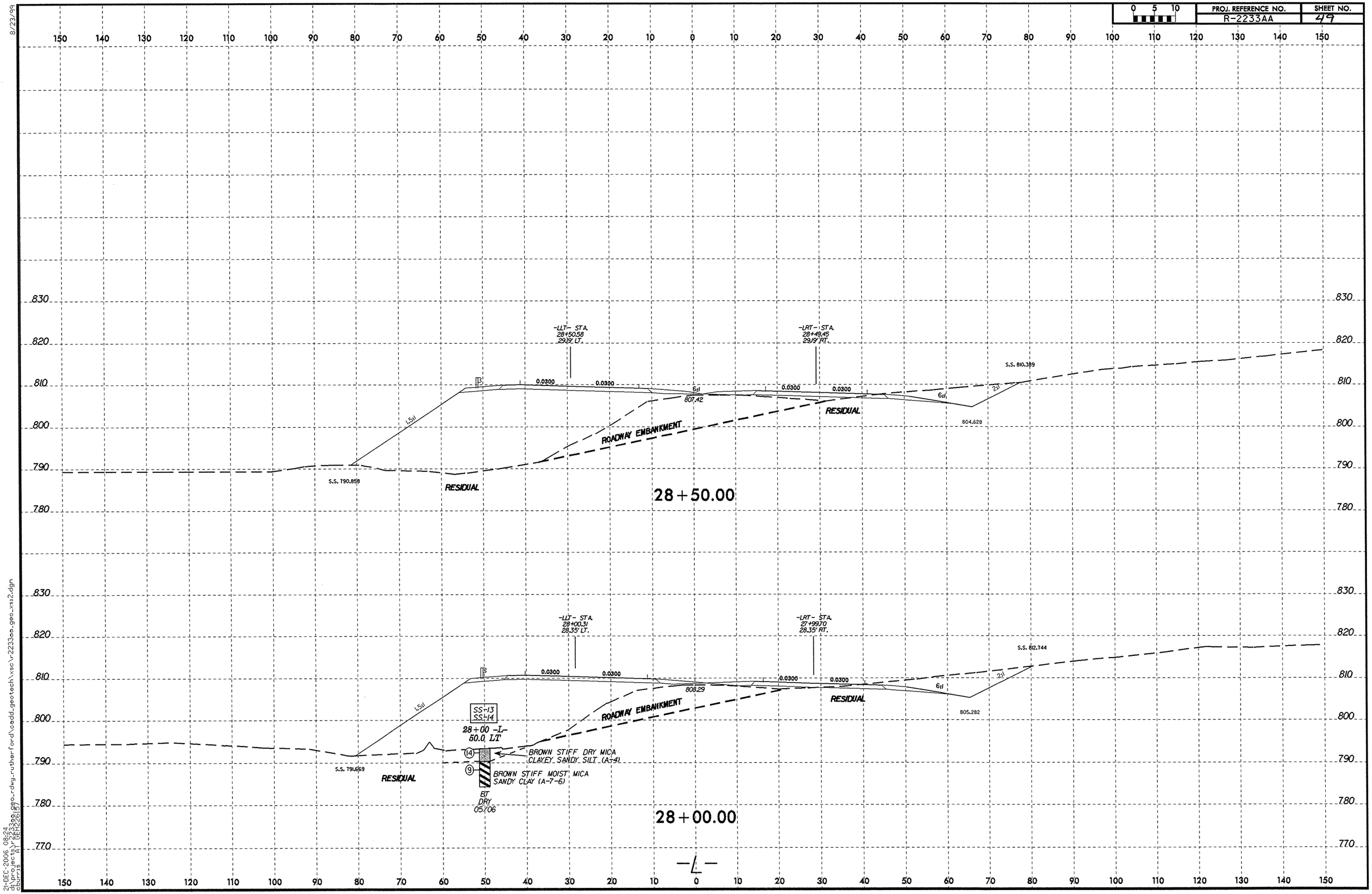
cburris AT GEN(26.57)
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	49



8/23/99

21-DEC-2006 08:24
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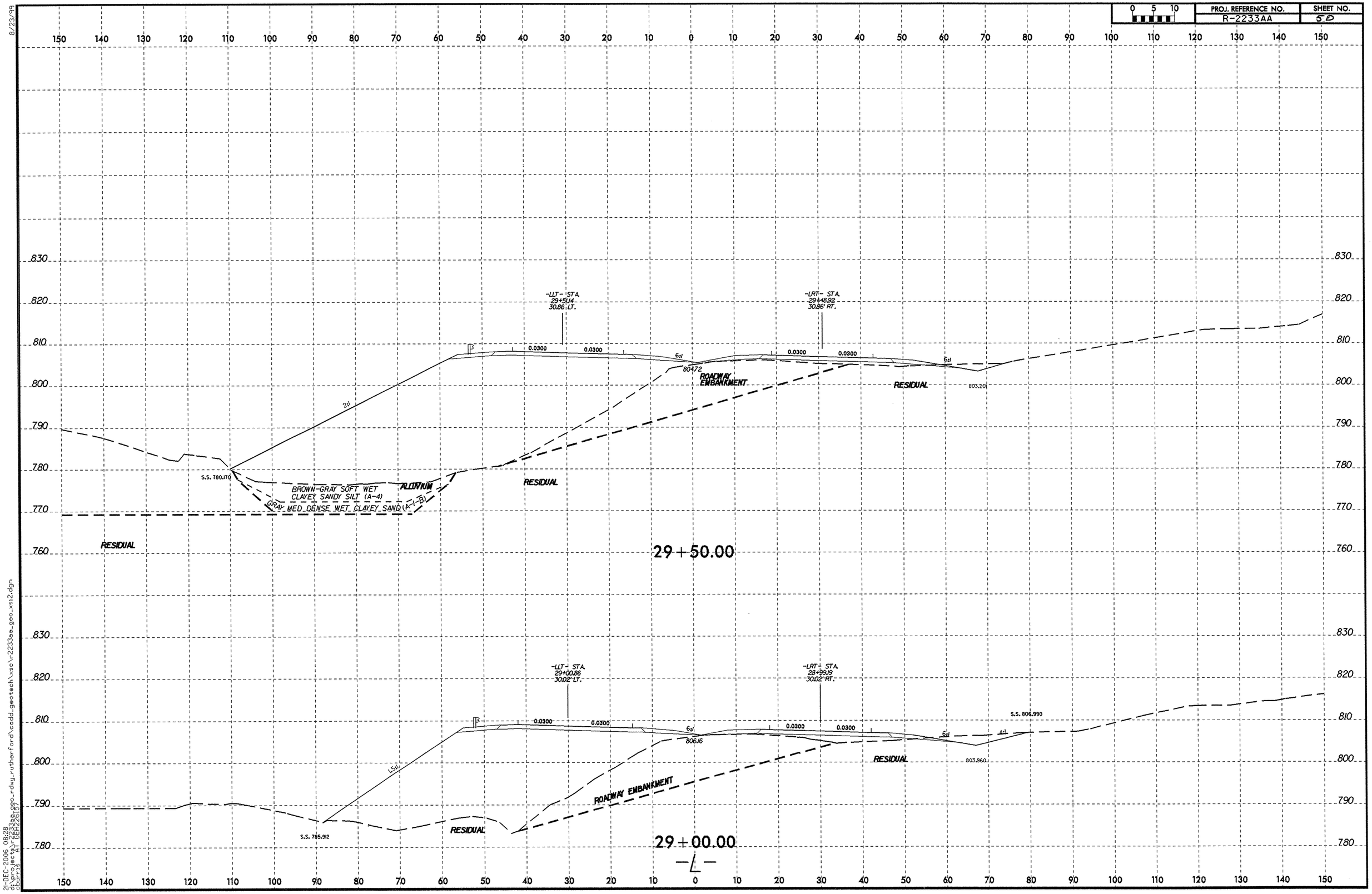
cburris "A1 DEH(2813)"



8/23/99

21-DEC-2006 08:28
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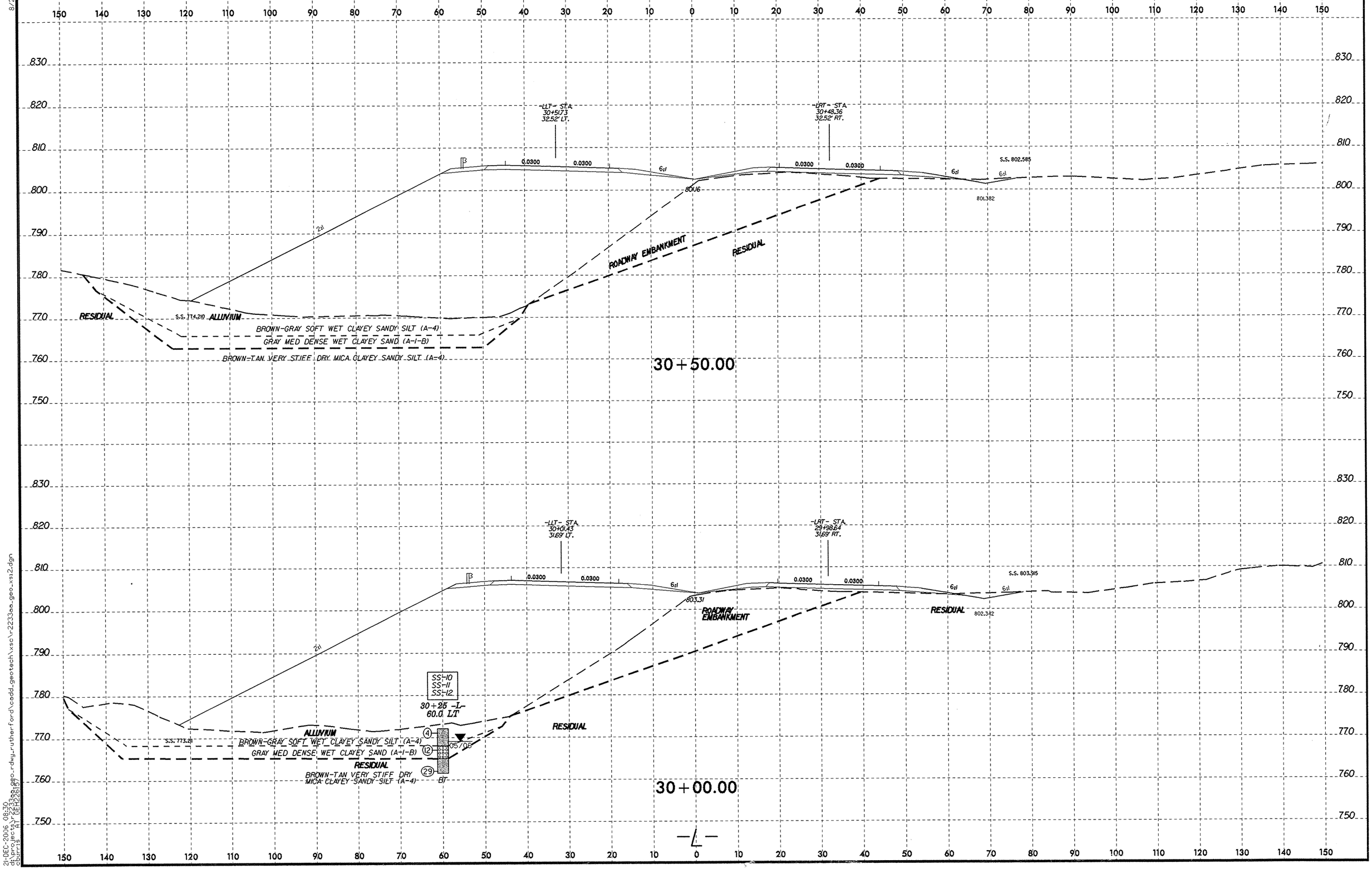
cbuirsis AT GEN(26187)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	51



8/23/99

21-DEC-2006 08:30
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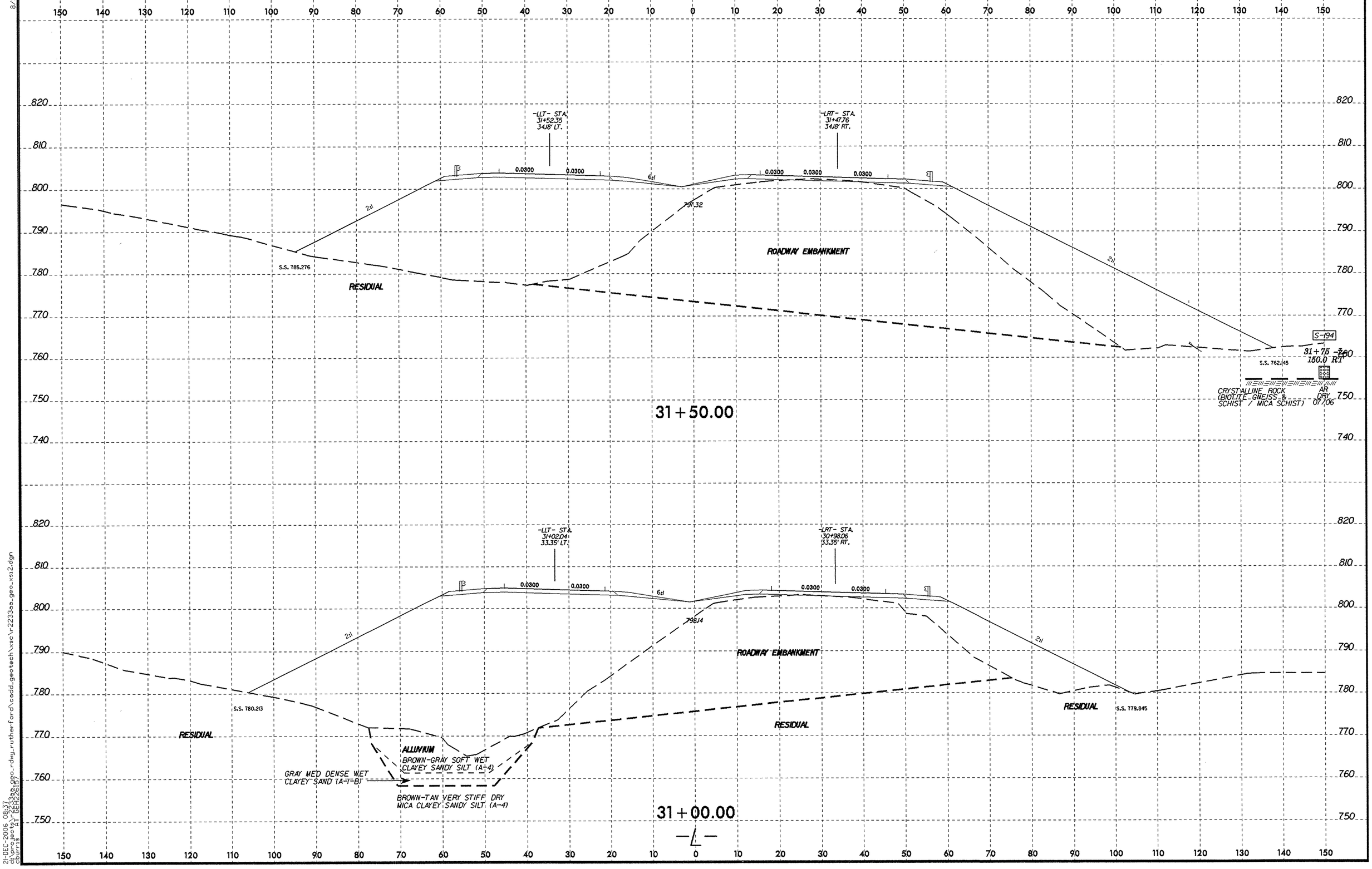
cburris AT DEH2261(7)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	52



8/23/99

21-DEC-2006 08:37
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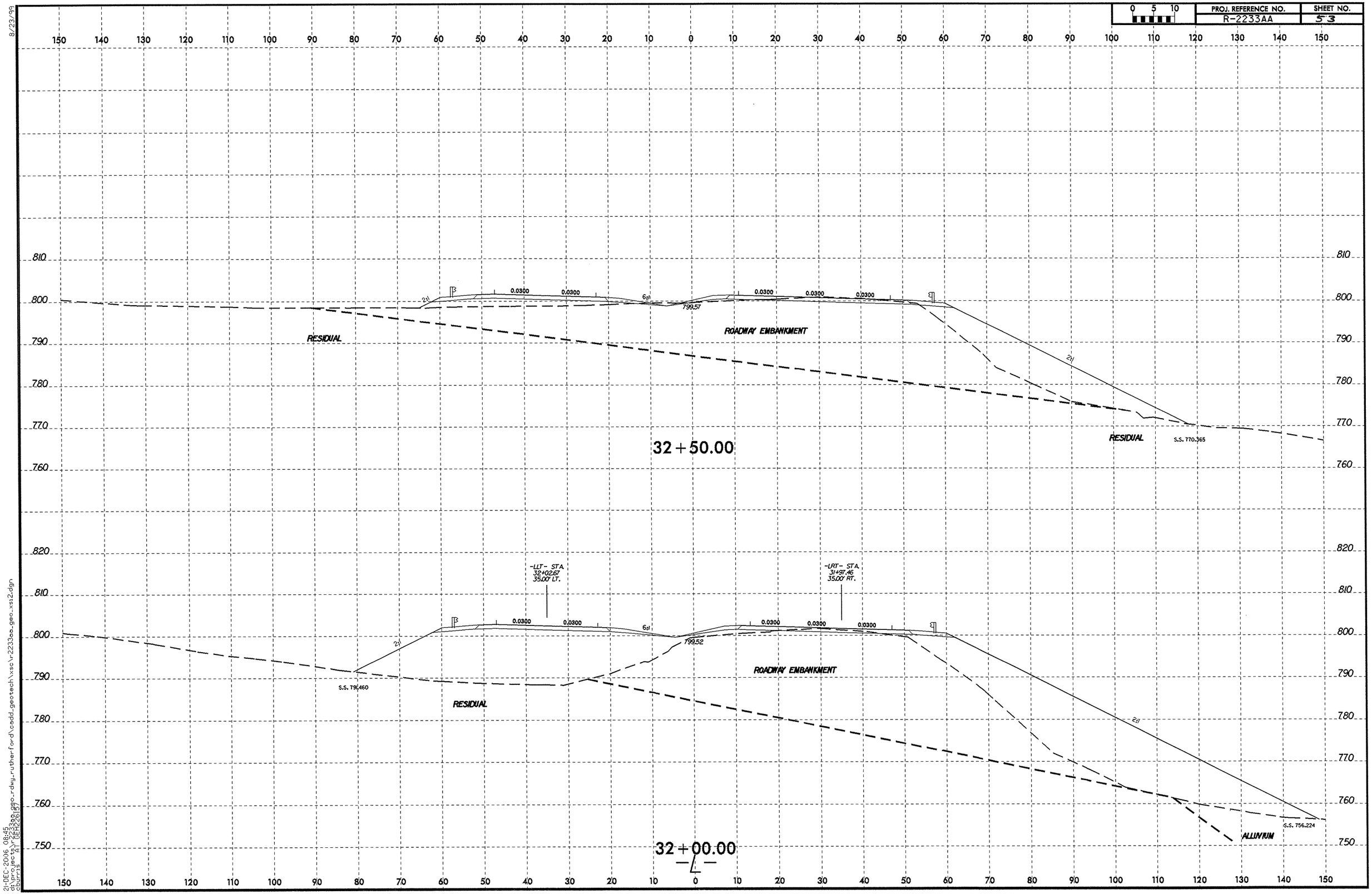
cburris

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	53



8/23/99

21-DEC-2006 08:45
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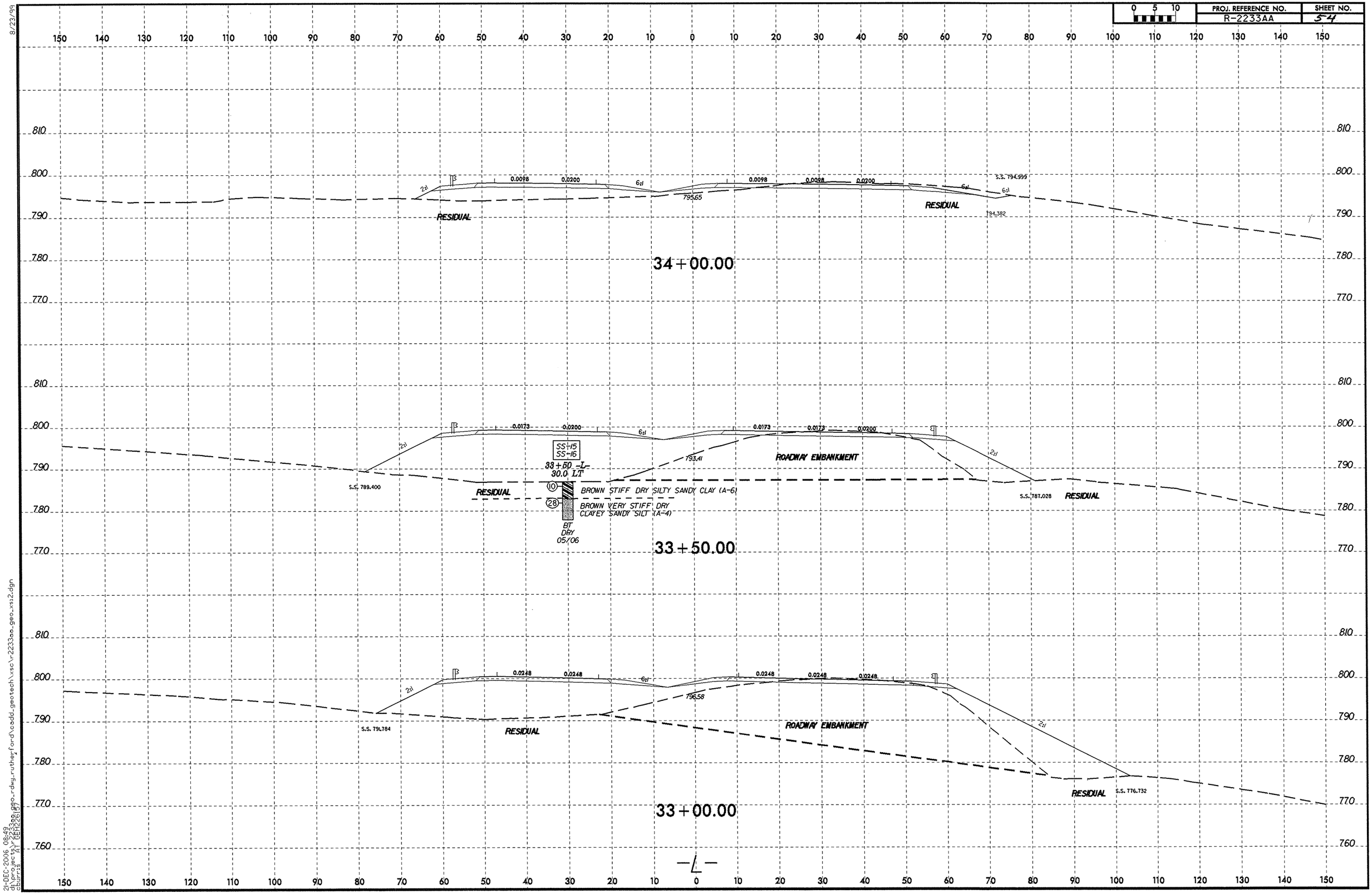
cburris



8/23/99

21-DEC-2006 08:49
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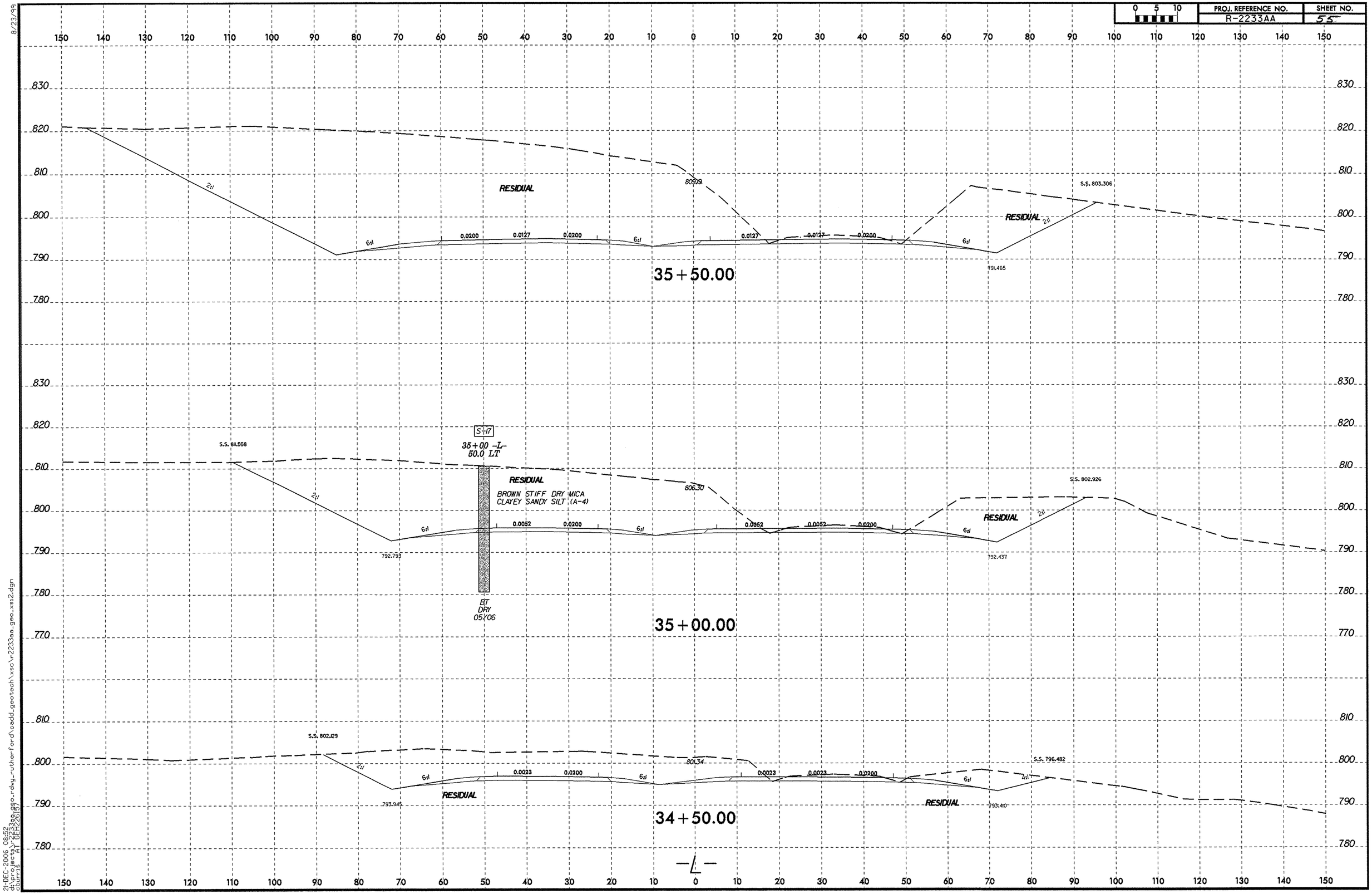
dburris AT DEH2261157

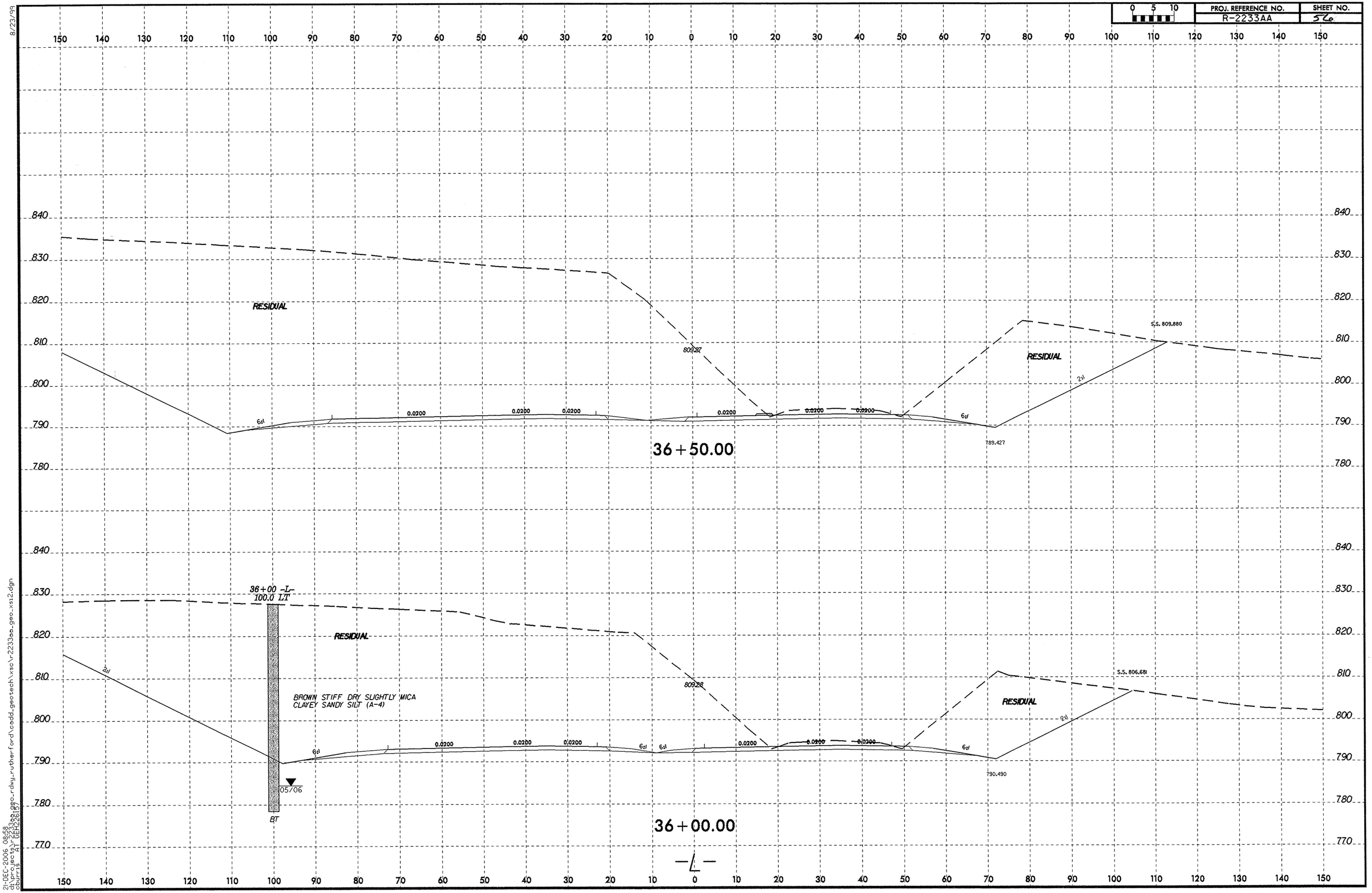
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	55



8/23/99

21-DEC-2006 08:52
d:\projects\r-2233aa\proj-rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
(Courtney A. Bell 28187)

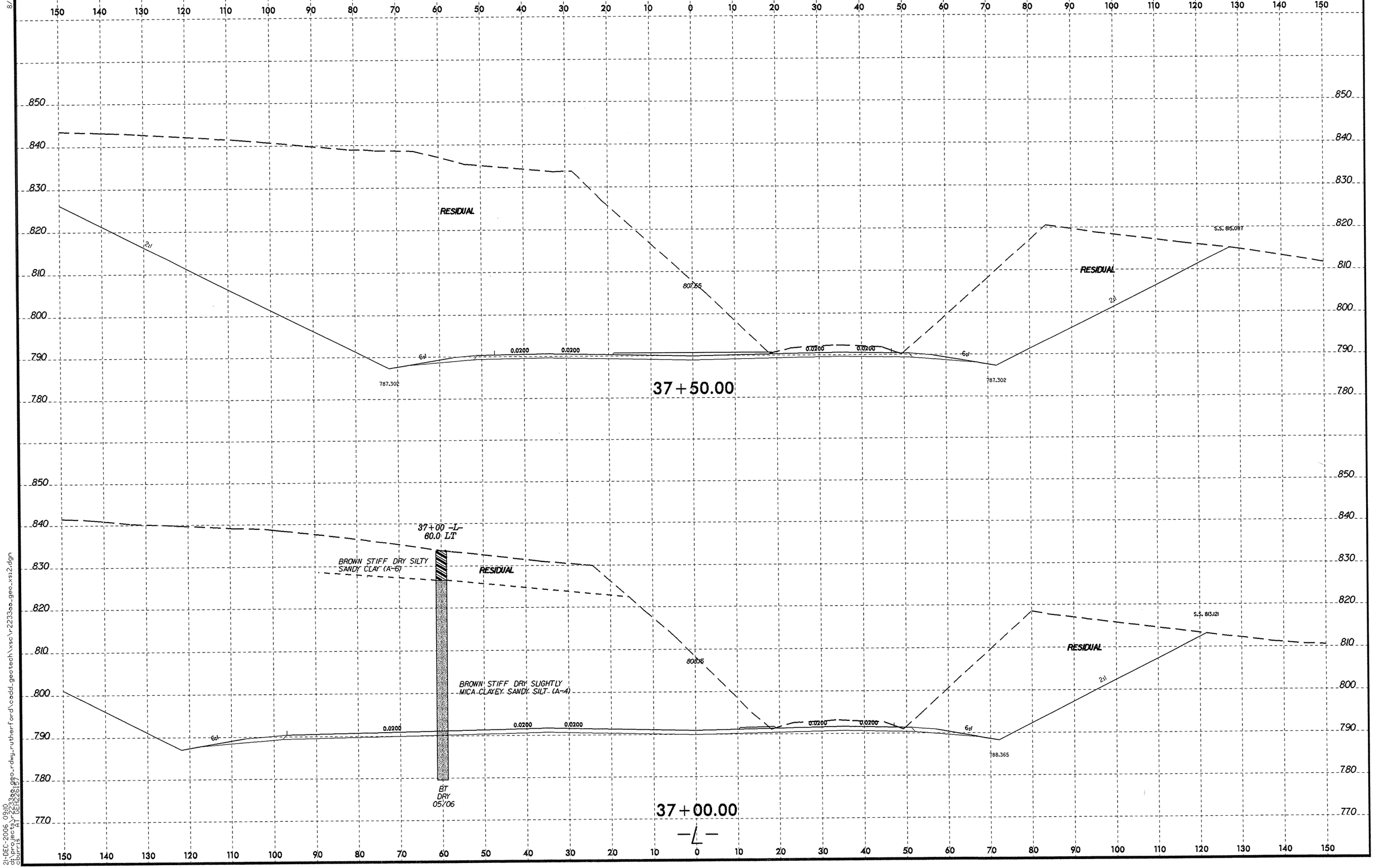
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	56



8/23/99

21-DEC-2006 08:58
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cbarrett

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	57



8/23/99

21-DEC-2006 09:10
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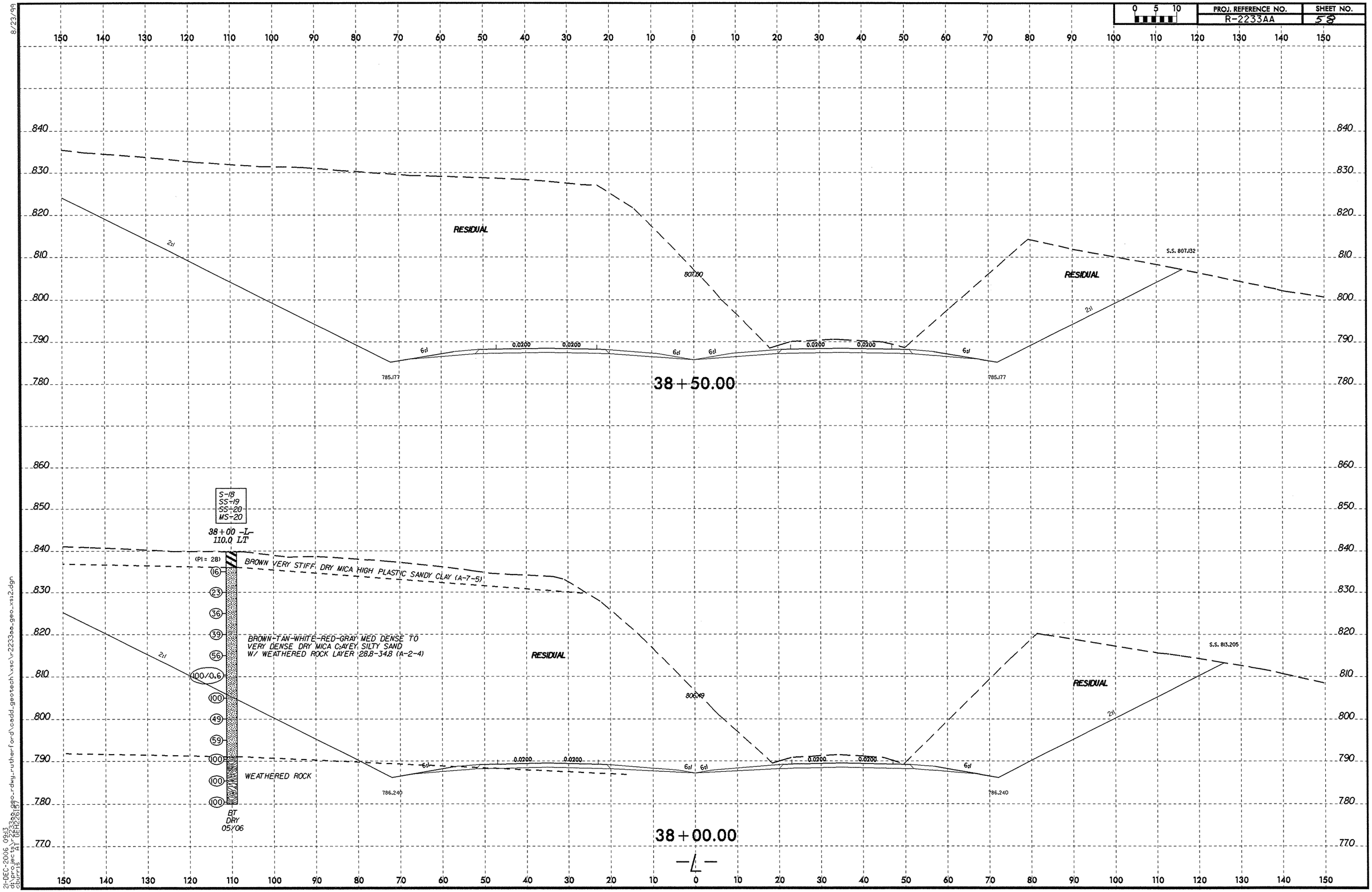
cburris AT GEH22867

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



21-DEC-2006 09:13
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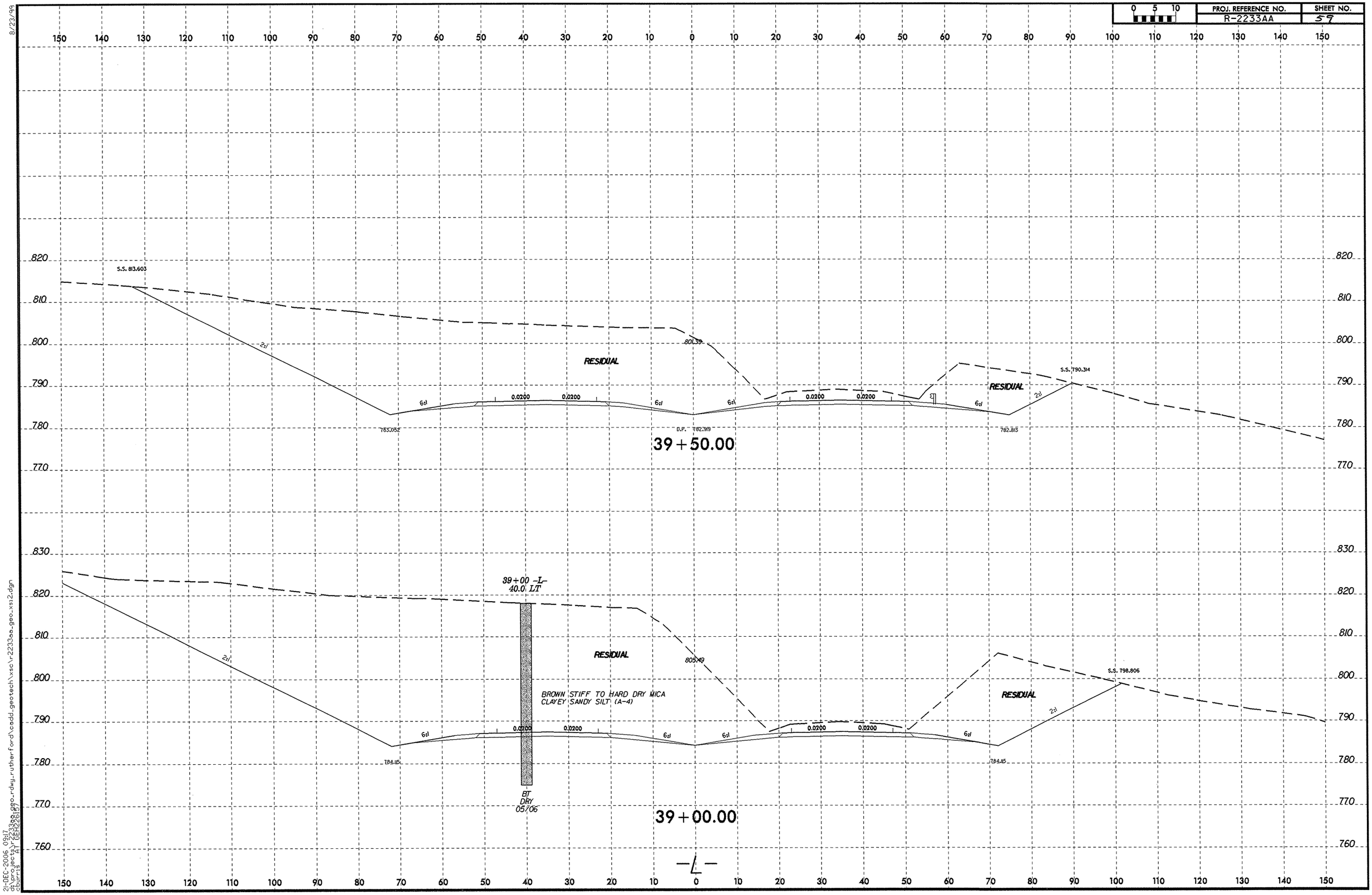
cburris AT DEH2817
8/23/99



8/23/99

21-DEC-2006 09:17
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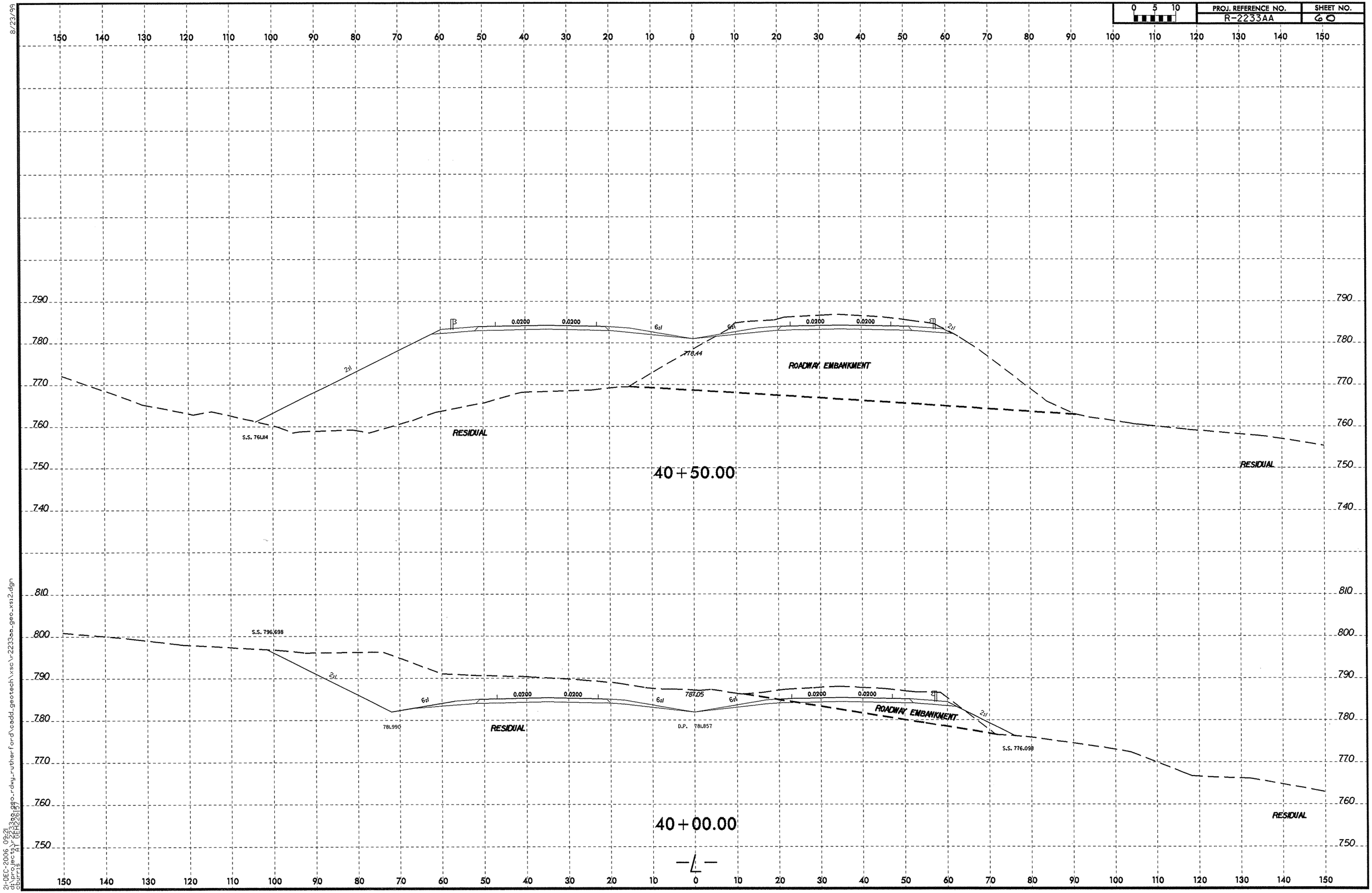
cburris AT DEI2261157



21-DEC-2006 09:21
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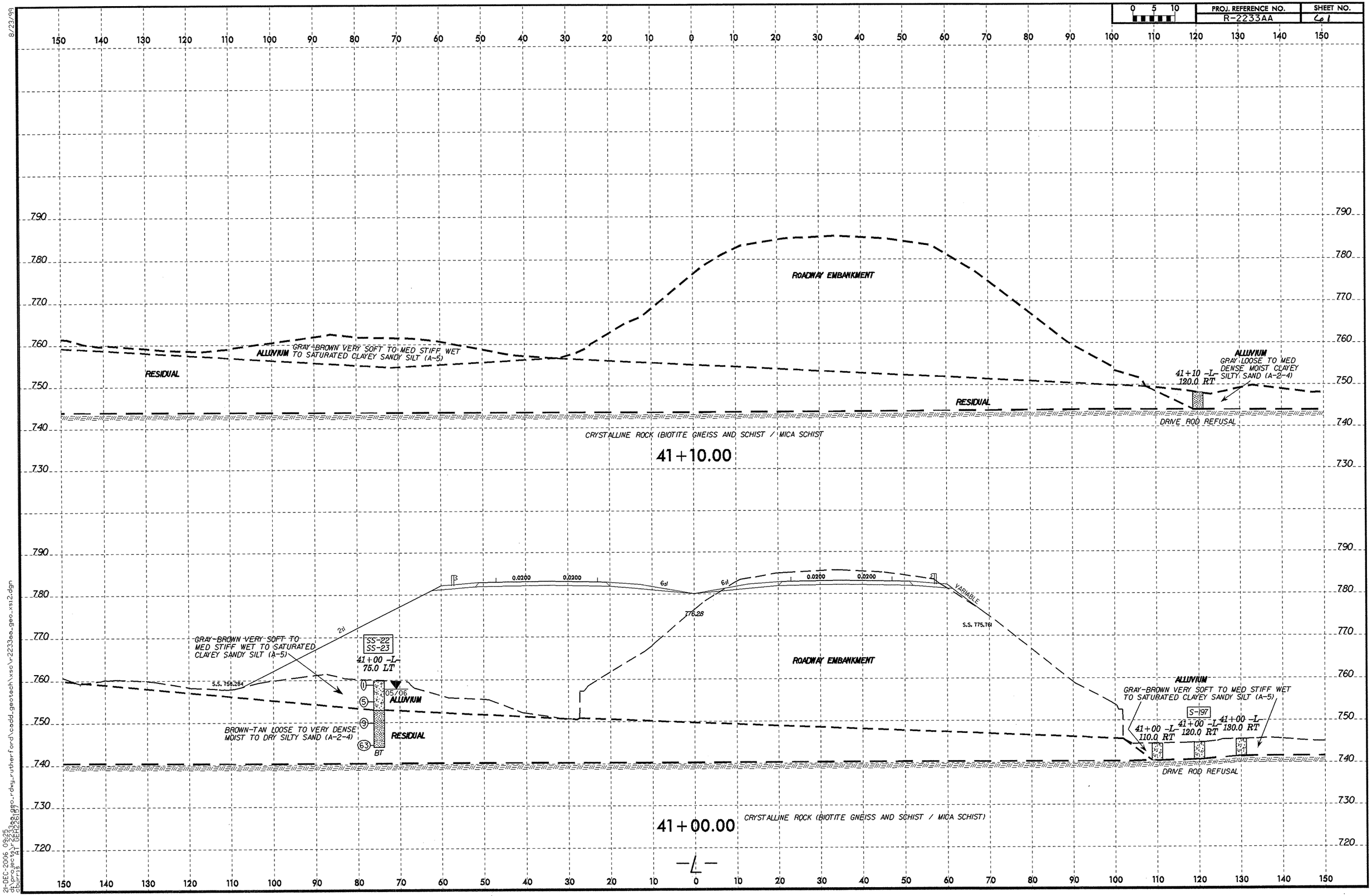
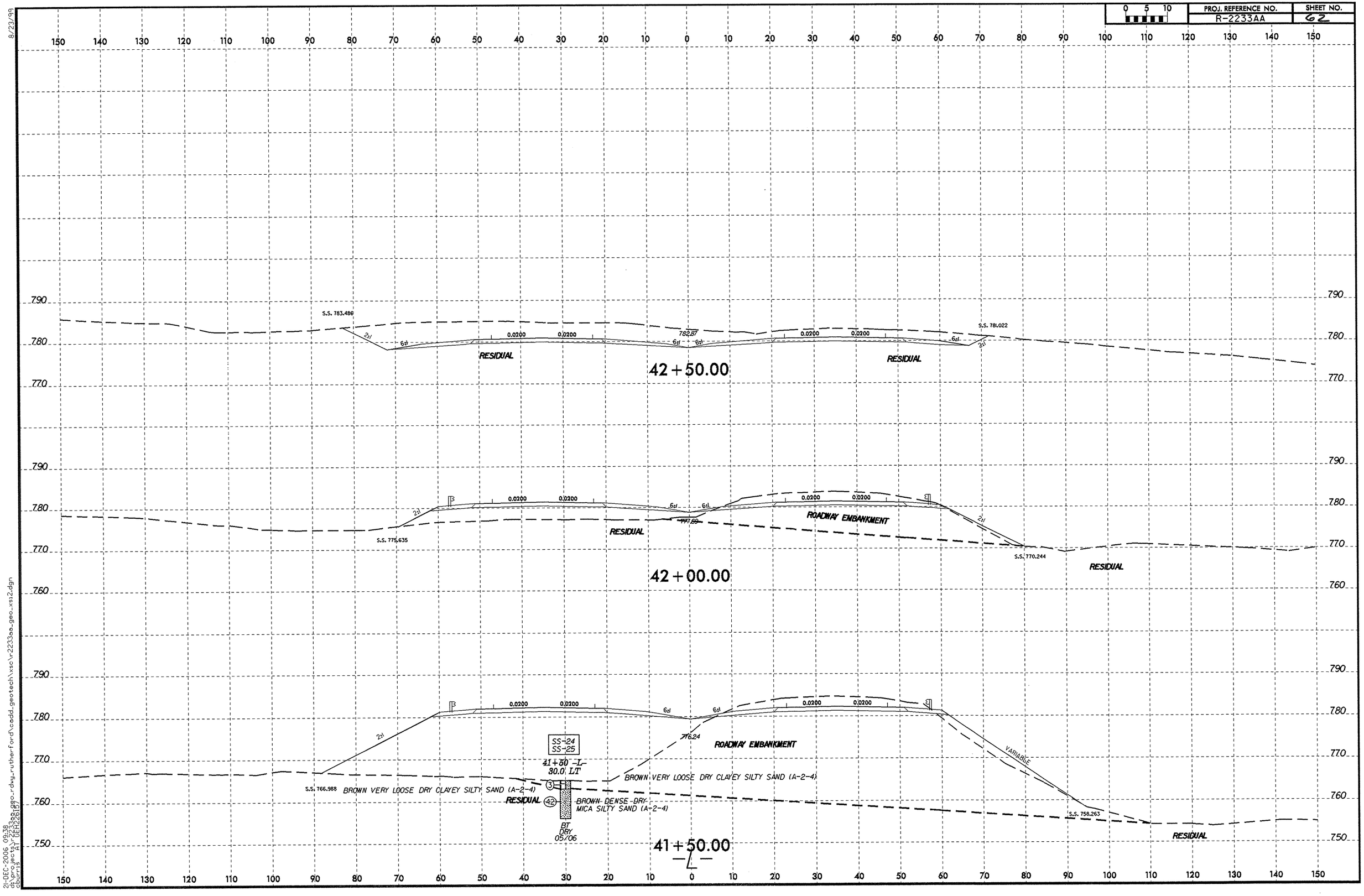
cburris (BEHZ8197)


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
6-1
0 5 10
ROADWAY EMBANKMENT
ALLUVIUM
GRAY-BROWN VERY SOFT TO MED STIFF WET TO SATURATED CLAYEY SANDY SILT (A-5)
RESIDUAL
41+10 -L- 120.0 RT
ALLUVIUM
GRAY LOOSE TO MED DENSE MOIST CLAYEY SILTY SAND (A-2-4)
DRIVE ROD REFUSAL
CRYSTALLINE ROCK (BIOTITE GNEISS AND SCHIST / MICA SCHIST
41+10.00
0.0200
6:1
2:1
VARIABLE
776.28
S.S. 775.76
GRAY-BROWN VERY SOFT TO MED STIFF WET TO SATURATED CLAYEY SANDY SILT (A-5)
SS-22
SS-23
41+00 -L- 75.0 LT
S.S. 768.284
05/06
BROWN-TAN LOOSE TO VERY DENSE MOIST TO DRY SILTY SAND (A-2-4)
BT
S-197
41+00 -L- 110.0 RT
41+00 -L- 120.0 RT
41+00 -L- 130.0 RT
41+00.00
-L-
8/23/99
21-DEC-2006 09:25
d:\projects\r2233aa_geo_rdwg_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris

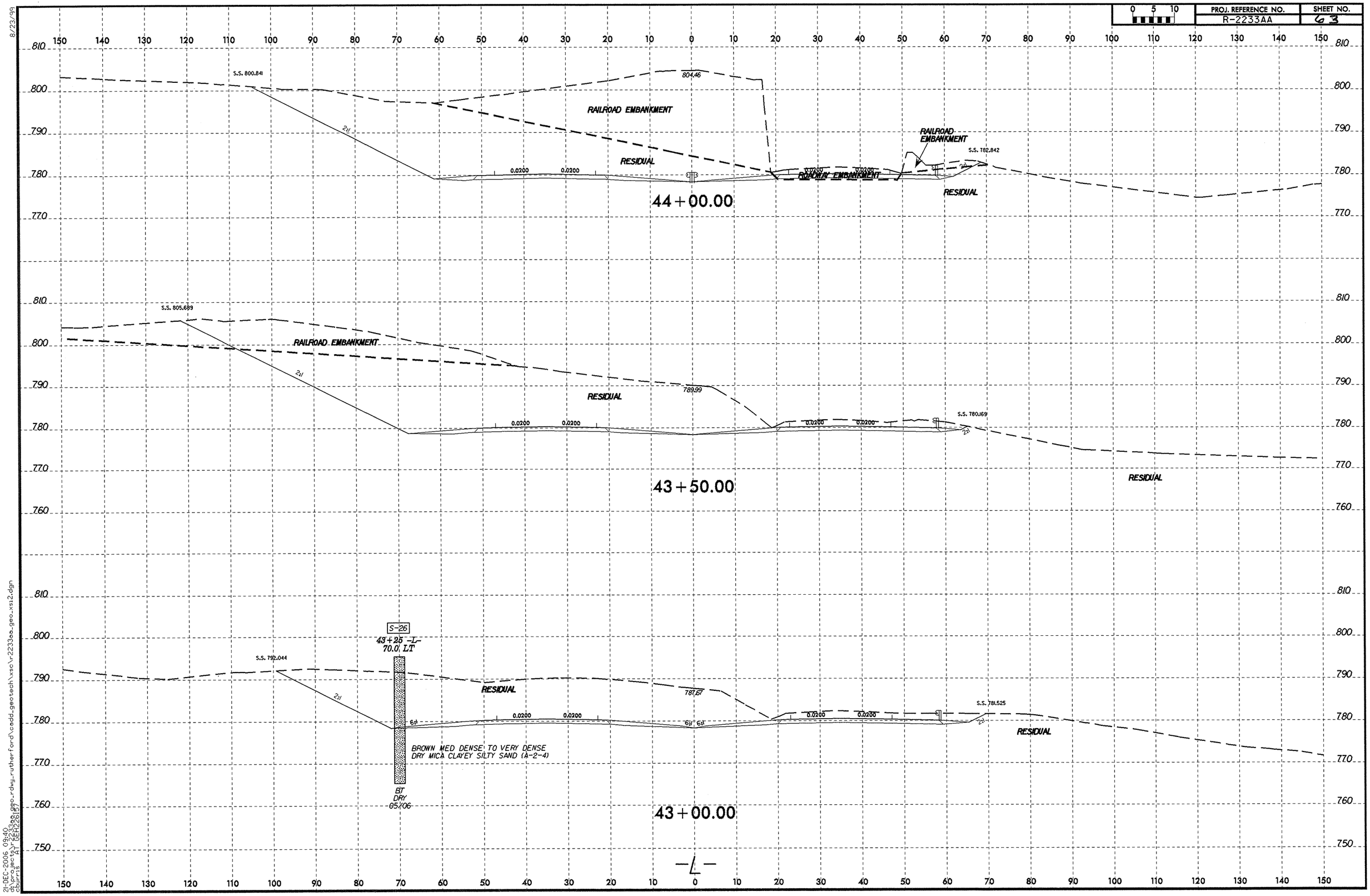
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	62



8/23/99

21-DEC-2006 09:38
d:\projects\r2233aa\r2233aa_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
courtsa

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



21-DEC-2006 09:40
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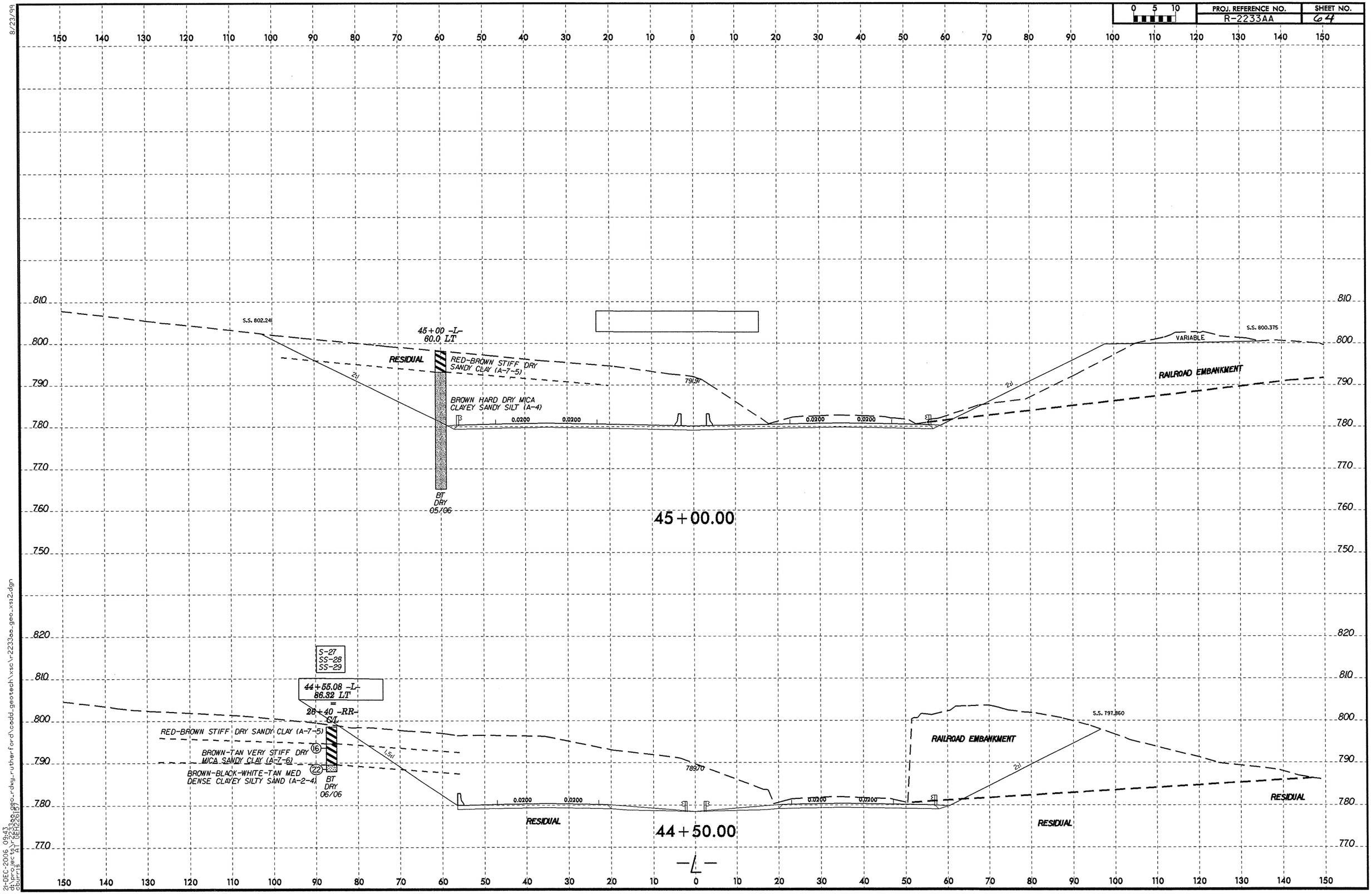
cburris



8/23/99
21-DEC-2006 09:43
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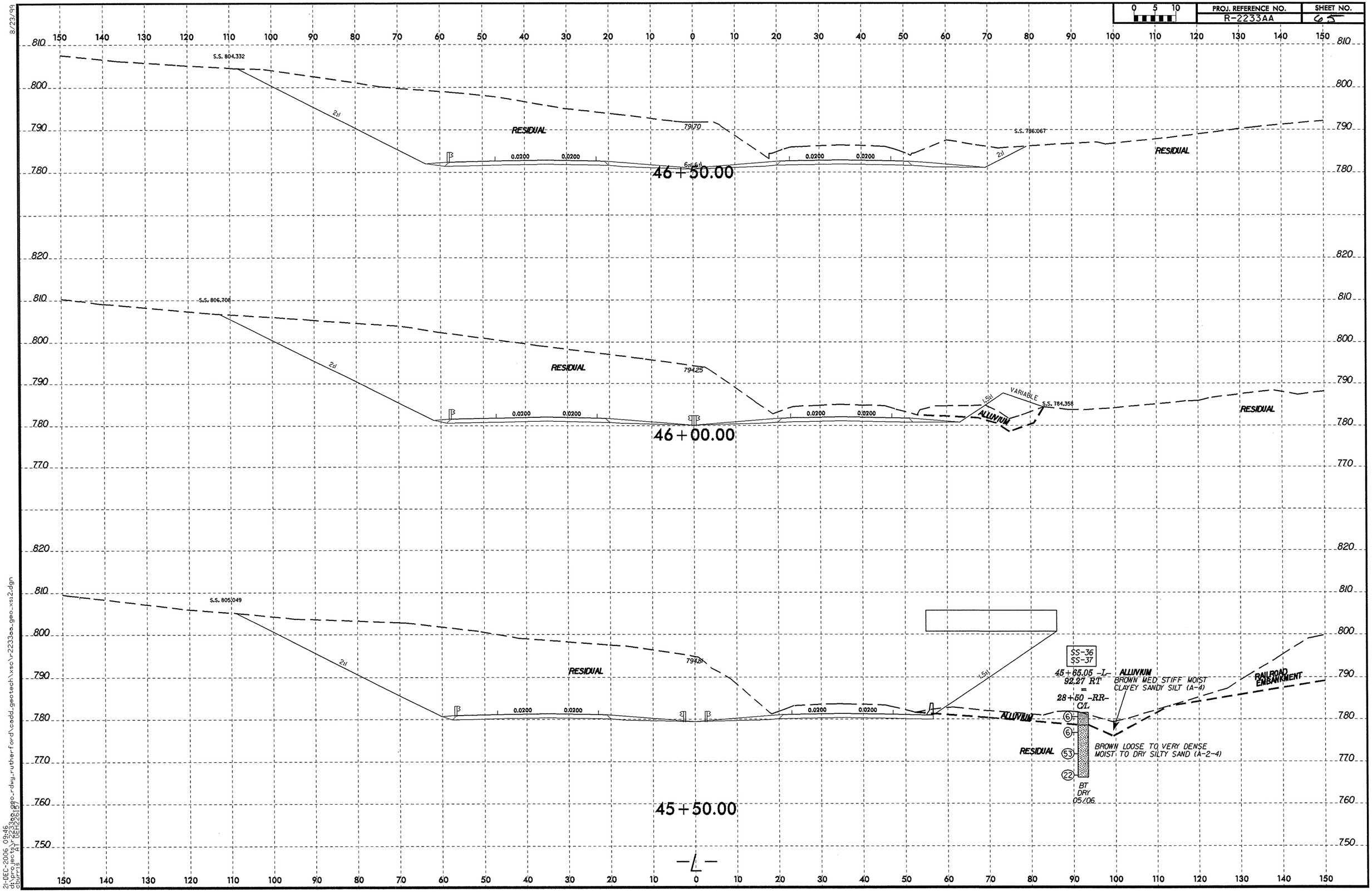
cburris AT GEH2261(7)


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
65
S.S. 804.332
2:1
RESIDUAL
79.70
0.0200
0.0200
6:1
46+50.00
S.S. 786.067
S.S. 806.708
79.25
1.5:1
VARIABLE
ALLUVIUM
S.S. 784.358
46+00.00
S.S. 805.049
79.28
SS-36
SS-37
45+85.05 -L-
92.27 RT
=
28+60 -RR-
C/L
ALLUVIUM
BROWN MED STIFF MOIST
CLAYEY SANDY SILT (A-4)
RAILROAD EMBANKMENT
BROWN LOOSE TO VERY DENSE
MOIST TO DRY SILTY SAND (A-2-4)
BT
DRY
05/06
45+50.00
-L-
8/23/99
21-DEC-2006 09:46
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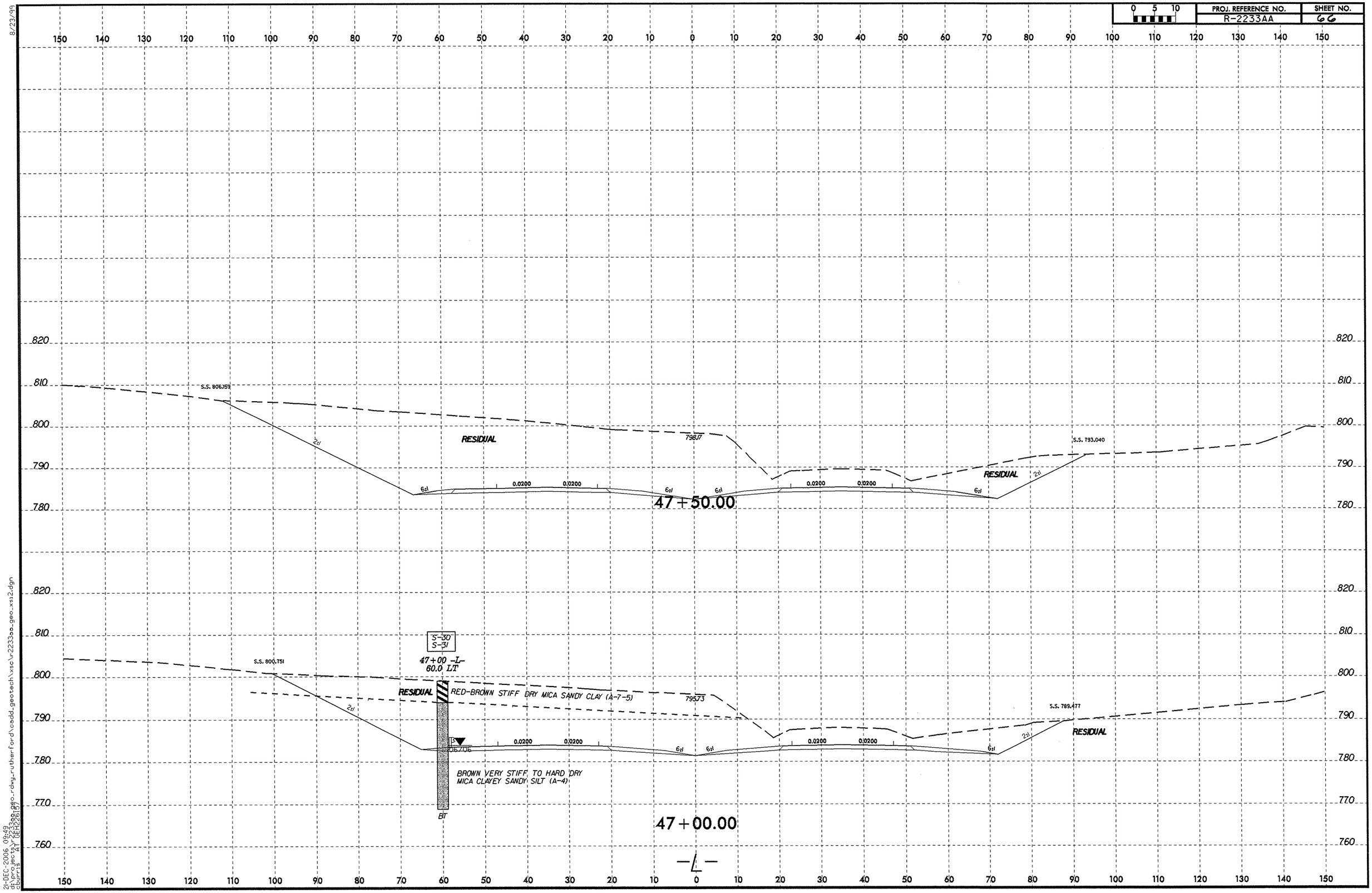
cburris AT DEI/26157



8/23/99

21-DEC-2006 09:49
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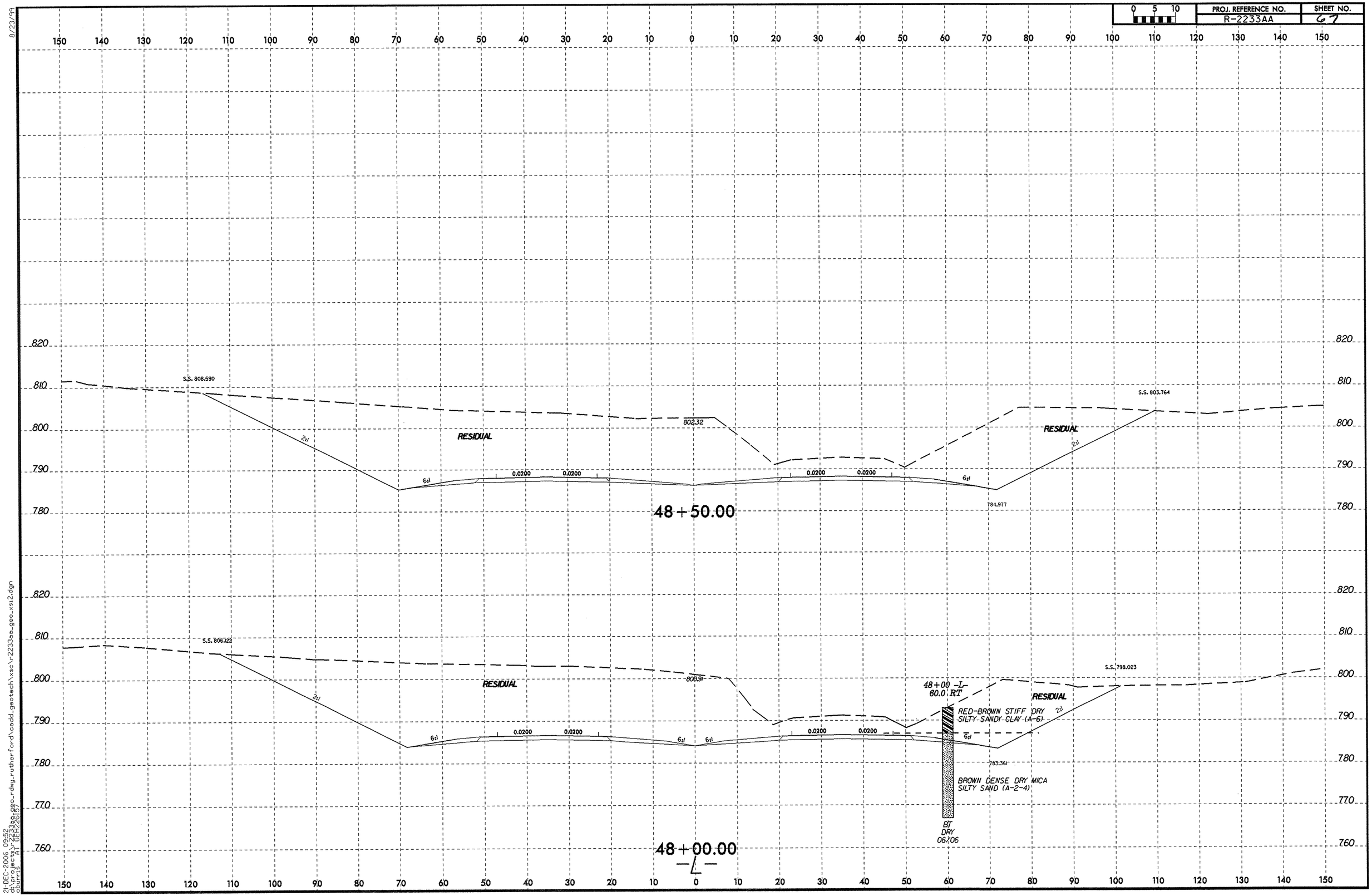
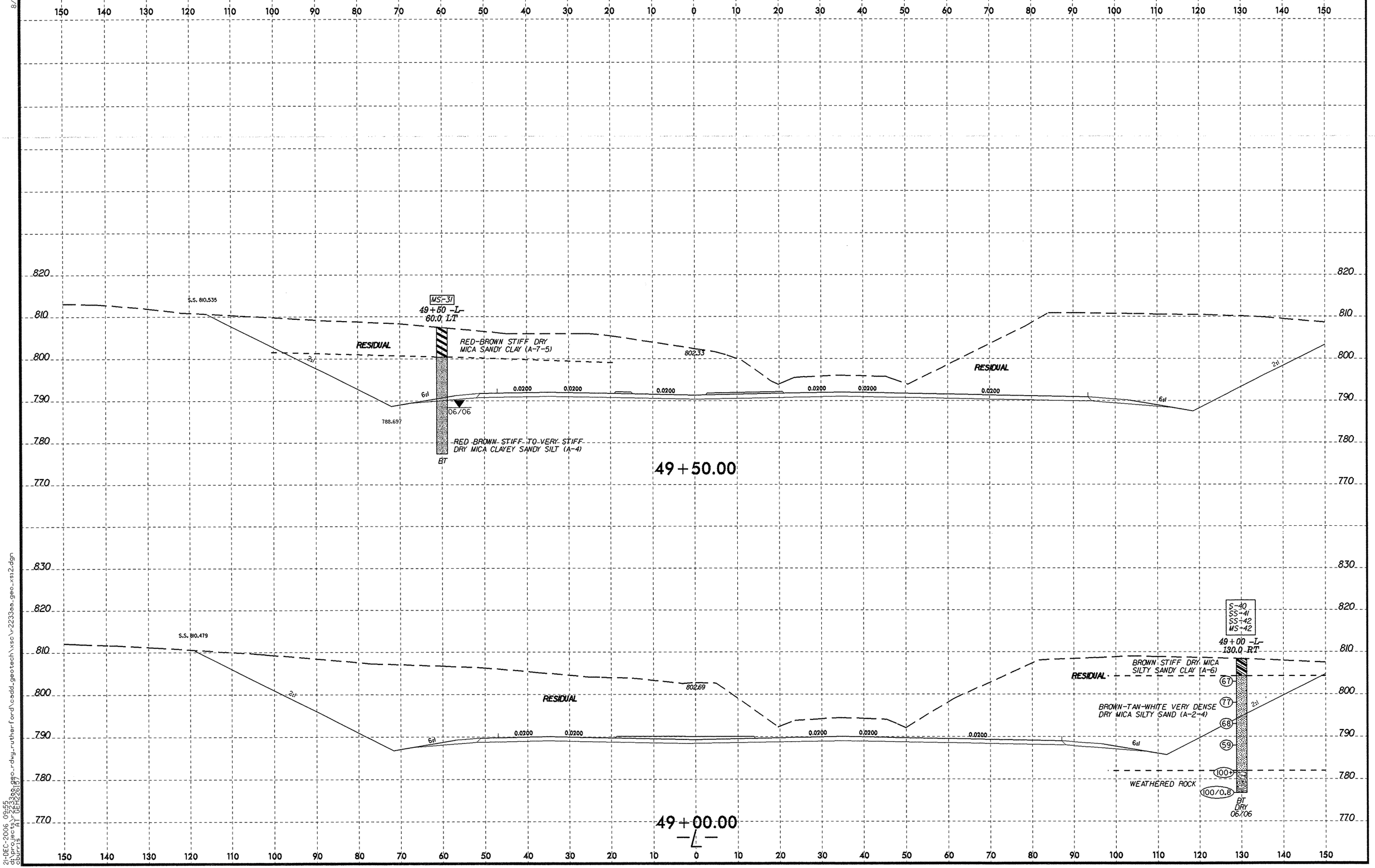
cburris AT DEH12261.07


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
67
S.S. 808.590
2:1
6:1
0.0200
0.0200
RESIDUAL
802.32
0.0200
0.0200
6:1
2:1
RESIDUAL
S.S. 803.764
784.977
48+50.00
S.S. 806.122
2:1
6:1
0.0200
0.0200
RESIDUAL
808.91
6:1
6:1
0.0200
0.0200
48+00 -L-
60.0 RT
RED-BROWN STIFF DRY
SILTY SANDY CLAY (A-6)
6:1
2:1
RESIDUAL
S.S. 798.023
783.361
BROWN DENSE DRY MICA
SILTY SAND (A-2-4)
BT
DRY
06/06
48+00.00
-L-
8/23/99
21-DEC-2006 09:52
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris AT DEC/2007

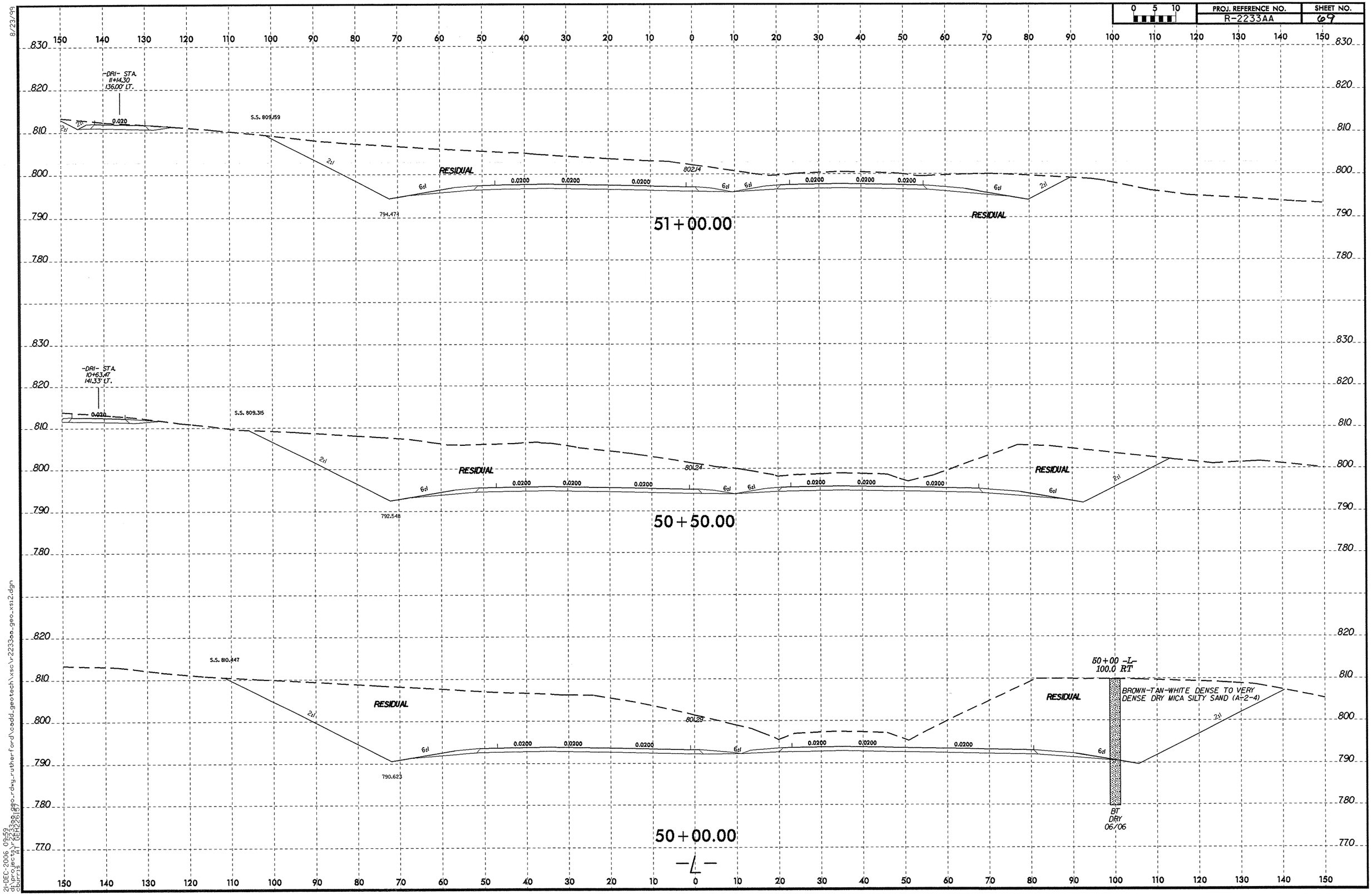
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	68



8/23/99

21-DEC-2006 09:55
r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburrus
AT 6EH22617

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	69



8/23/99

21-DEC-2006 09:59
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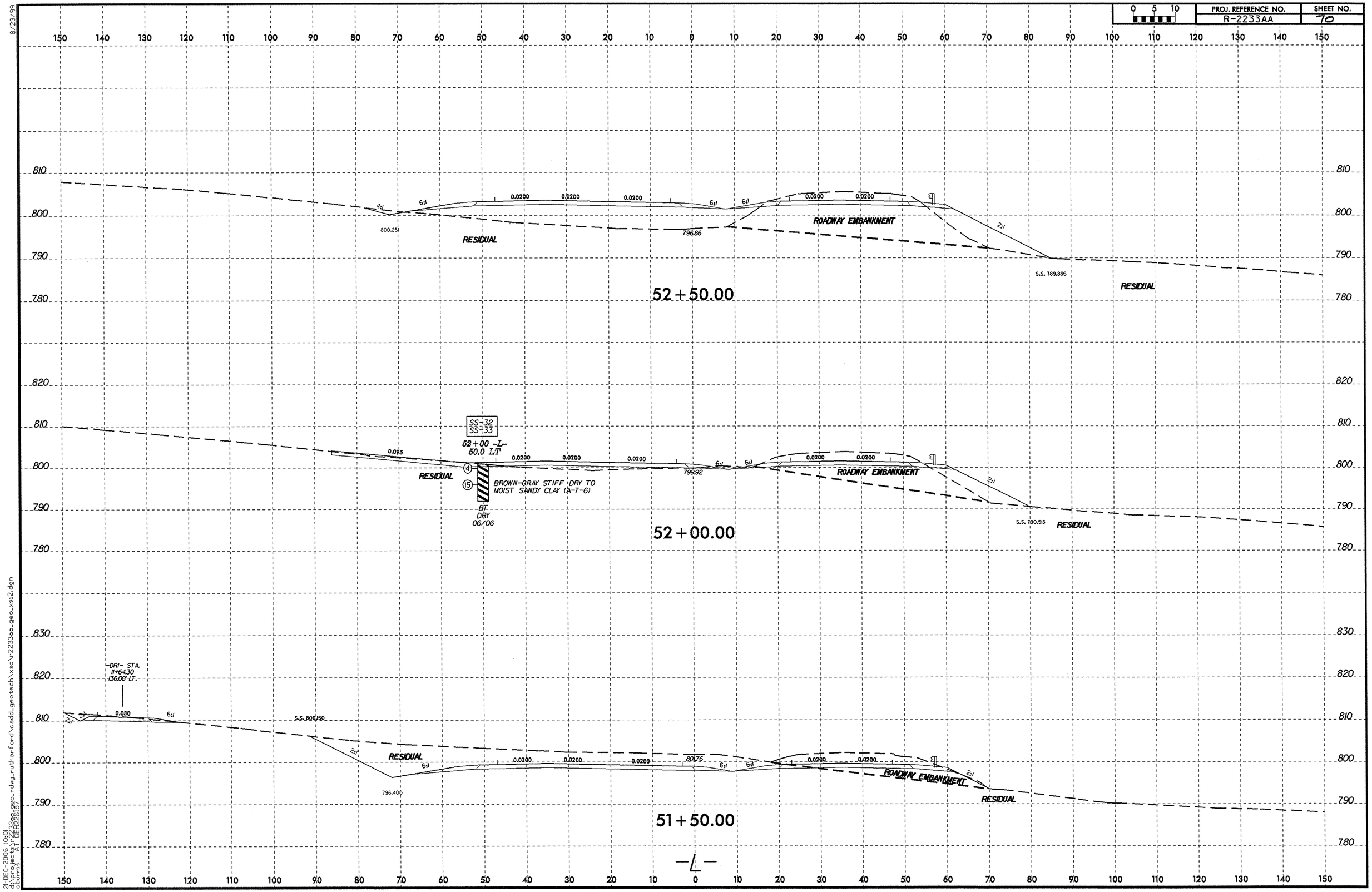
cburris AT GEH2261.67



8/23/99

21-DEC-2006 10:01
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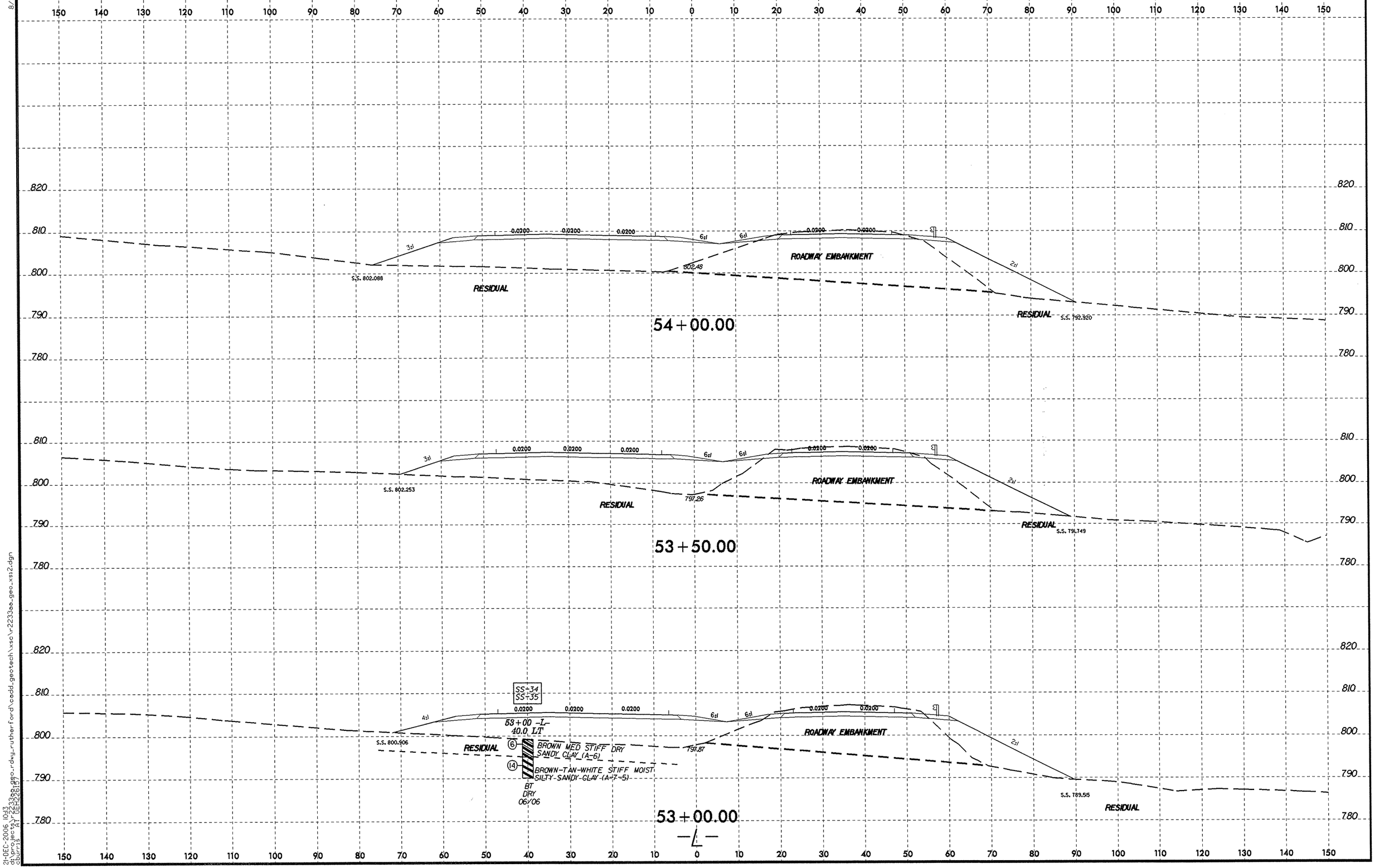
eburris AT GEH22817

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	77



8/23/99

21-DEC-2006 10:13
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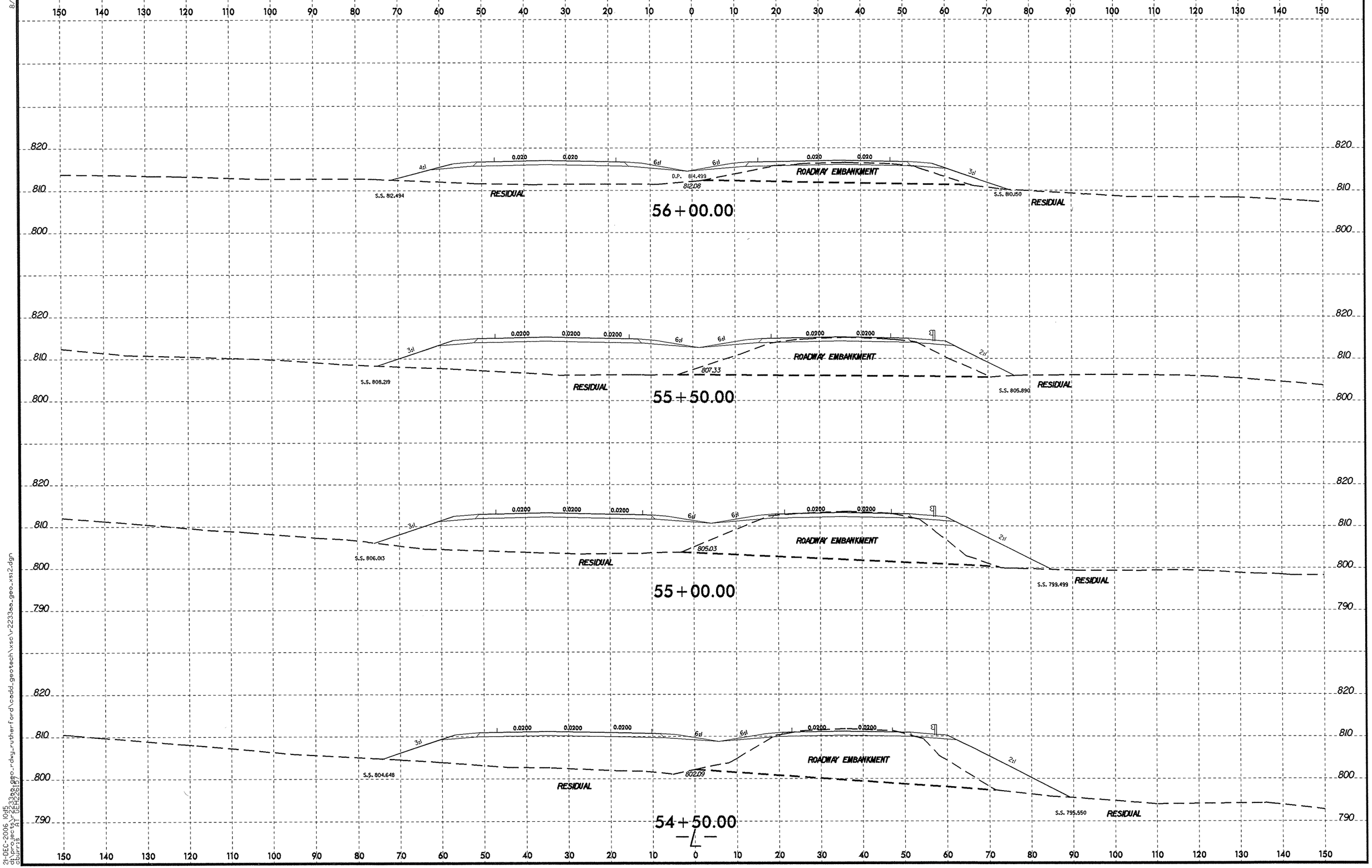
cburns AT DEH2261(7)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	72



8/23/99

21-DEC-2006 10:15
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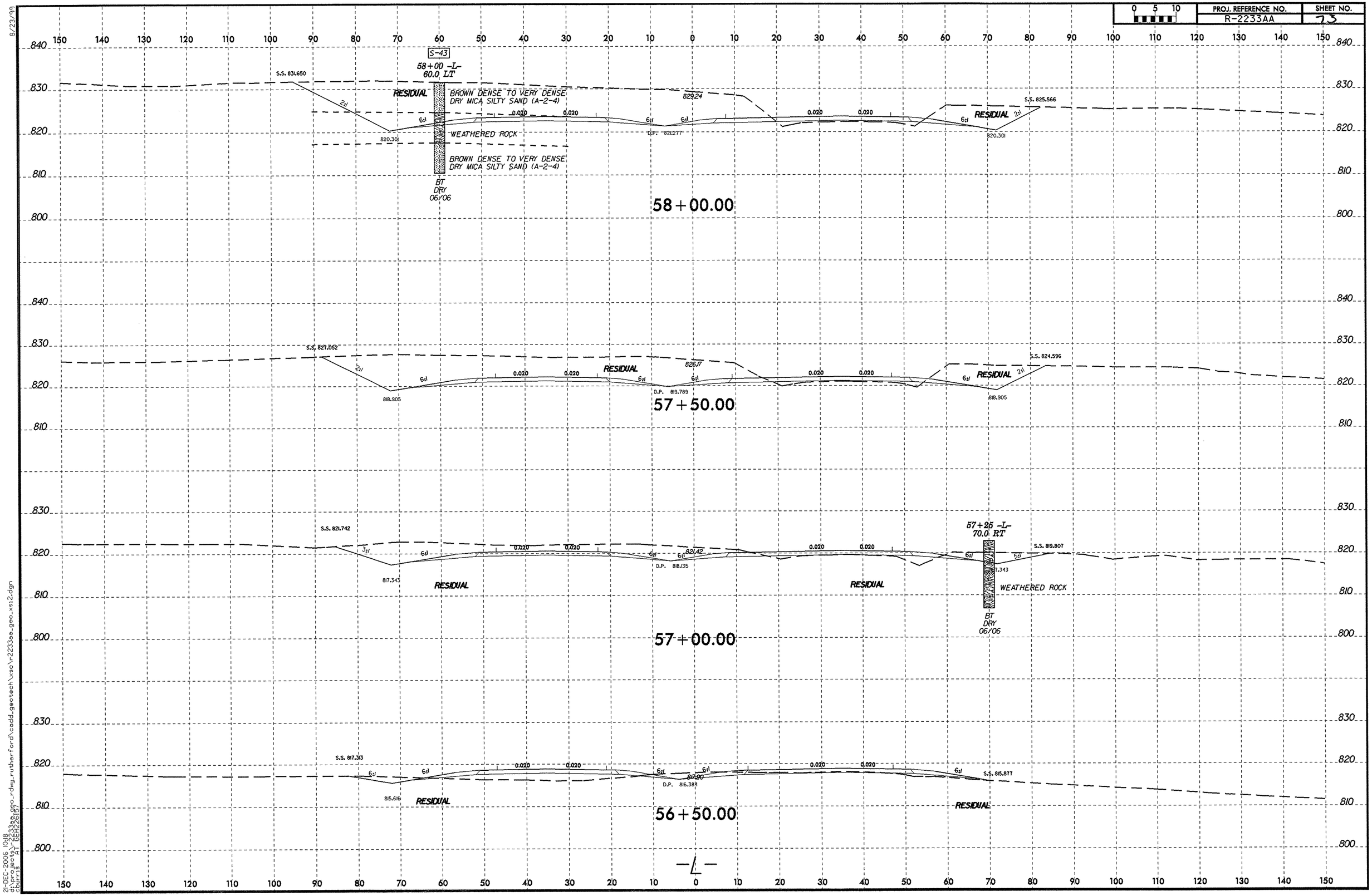
dburris A1 GEH2261(7)



8/23/99
21-DEC-2006 10:18
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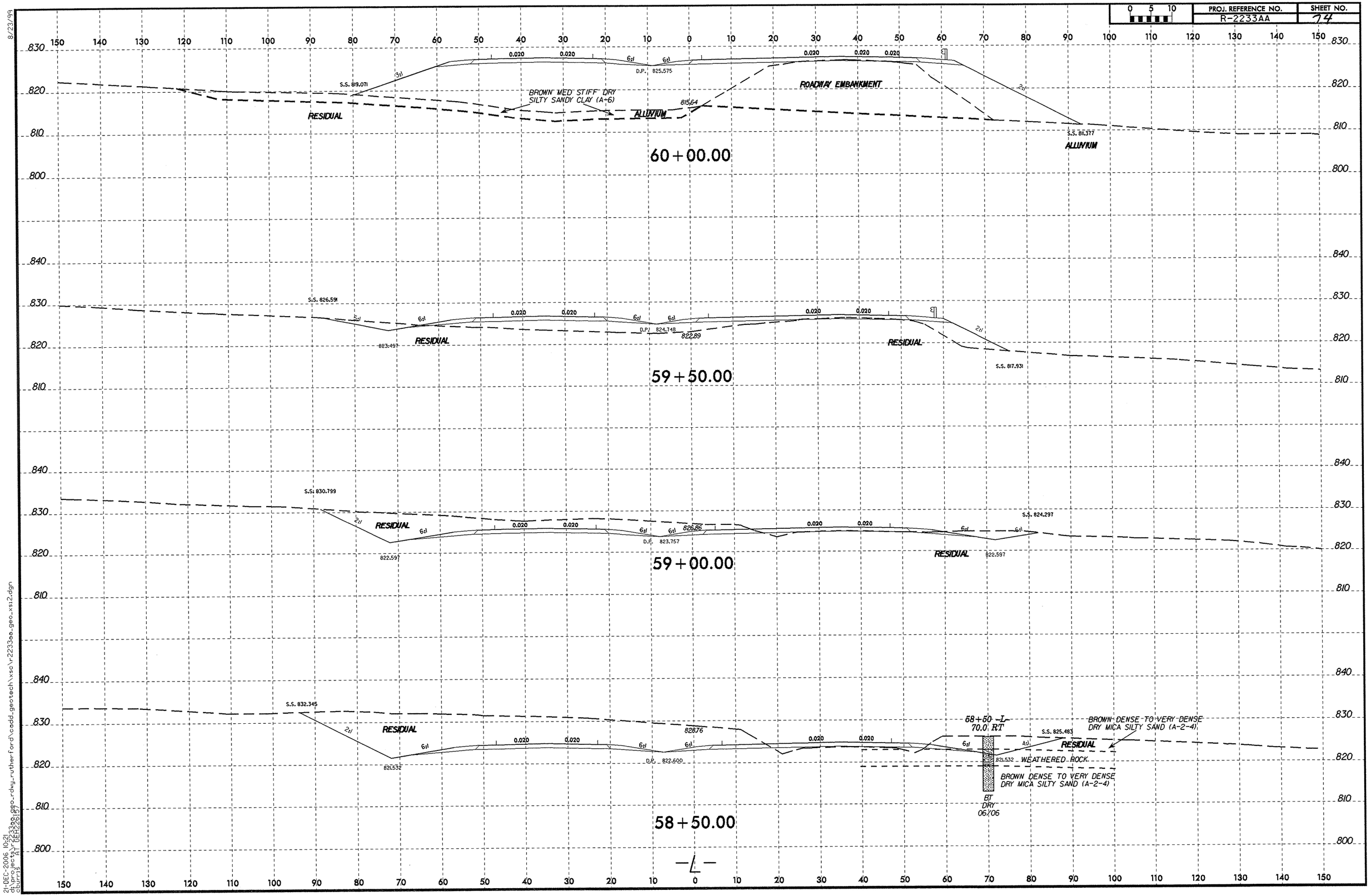
cburris AT DEH2617

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	74



8/23/99

21-DEC-2006 10:21
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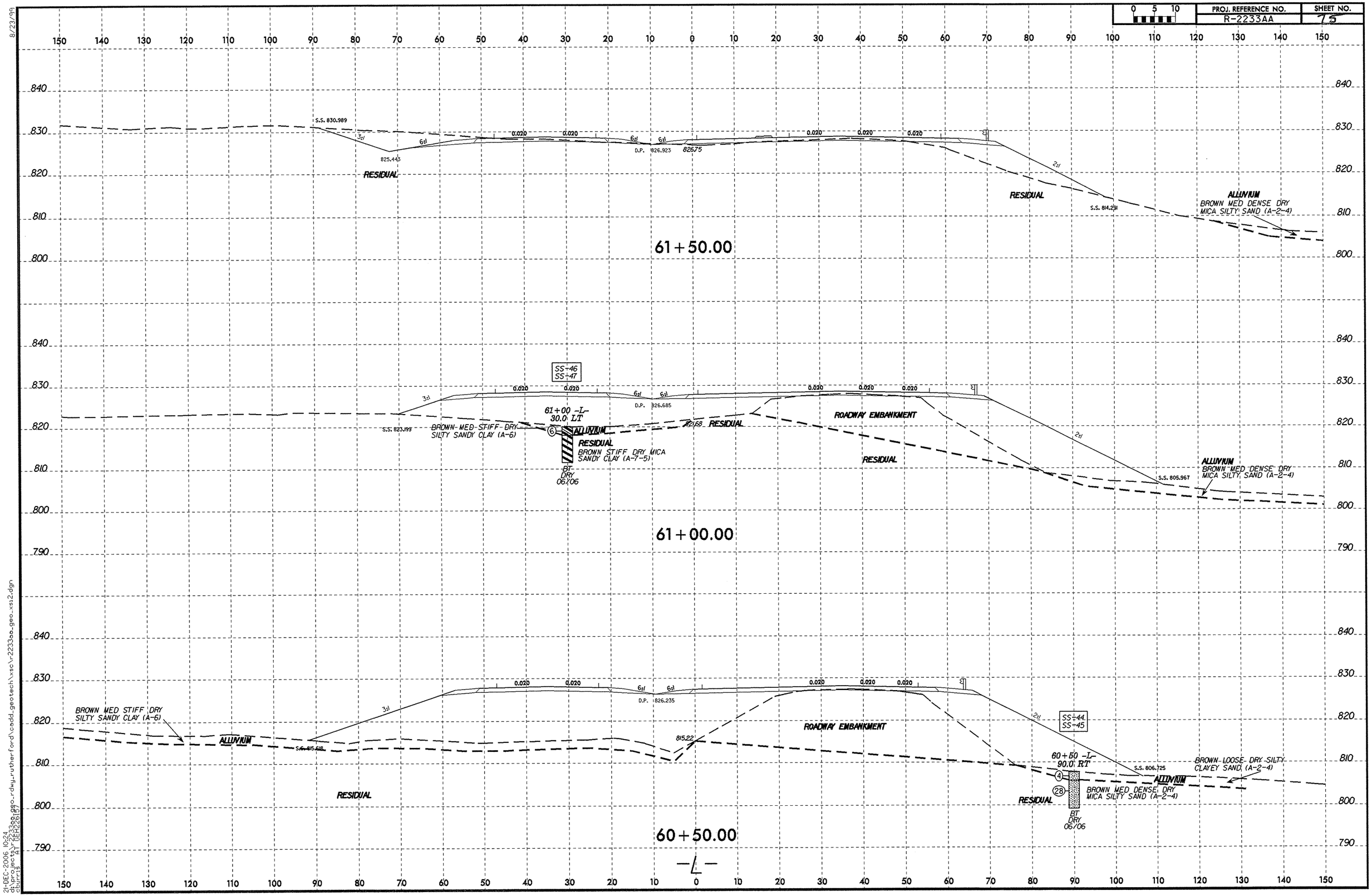
eburris
A1 DEH2261.57



8/23/99

21-DEC-2006 10:24
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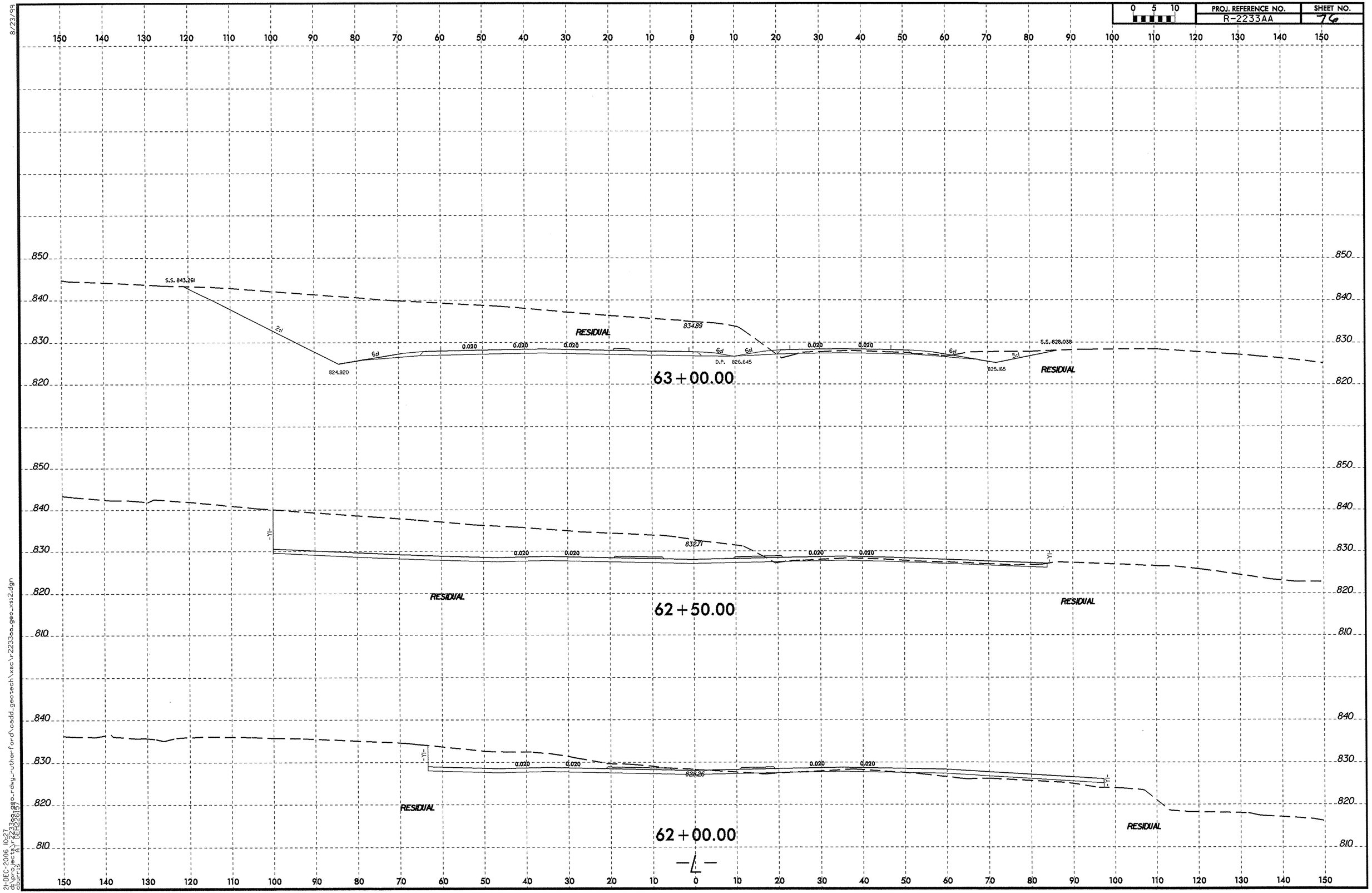
cbuirais AT DEH22617



21-DEC-2006 10:27
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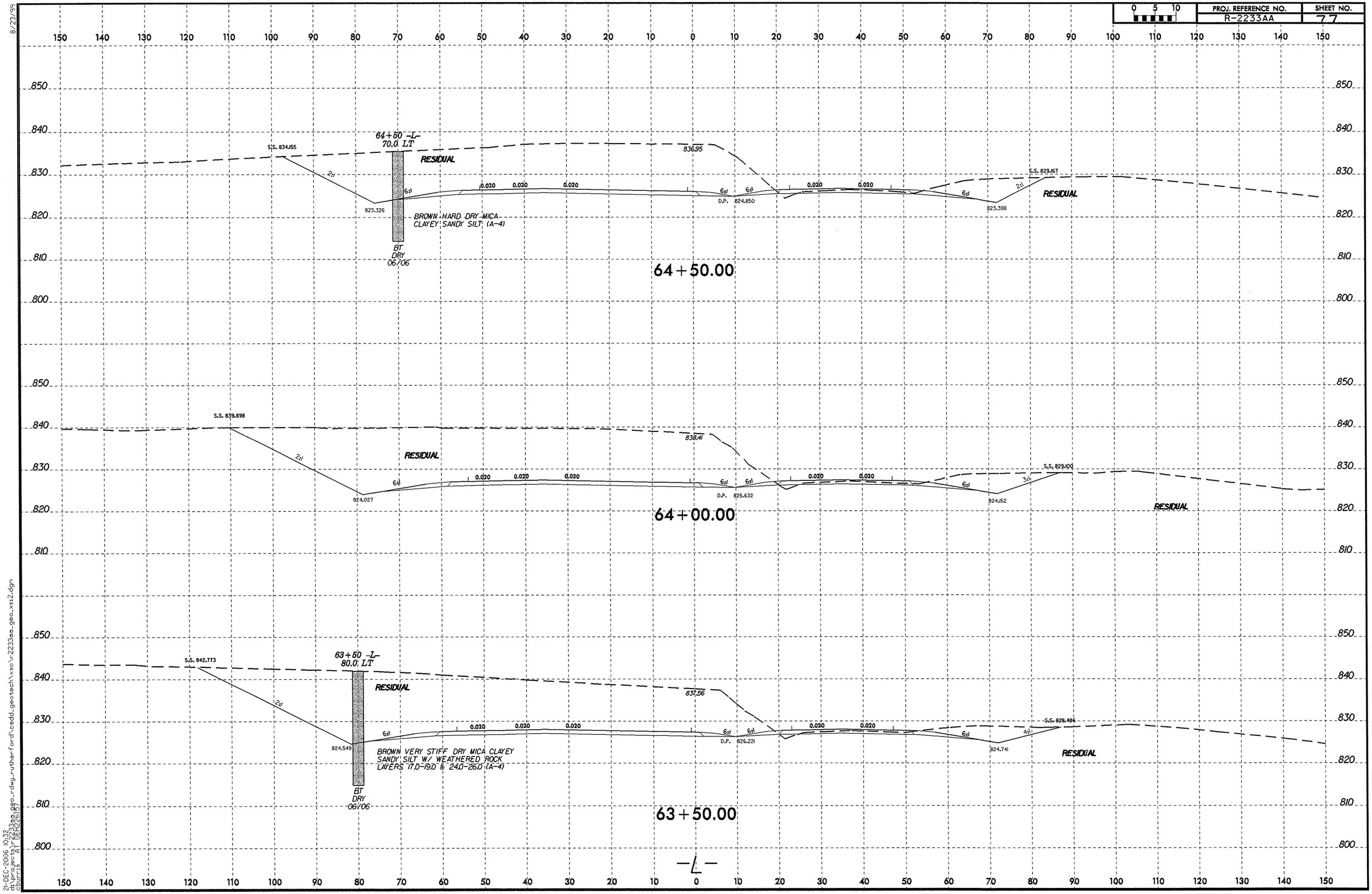
cburris AT GEH2615

8/23/99



8/23/99
21-DEC-2006 10:32
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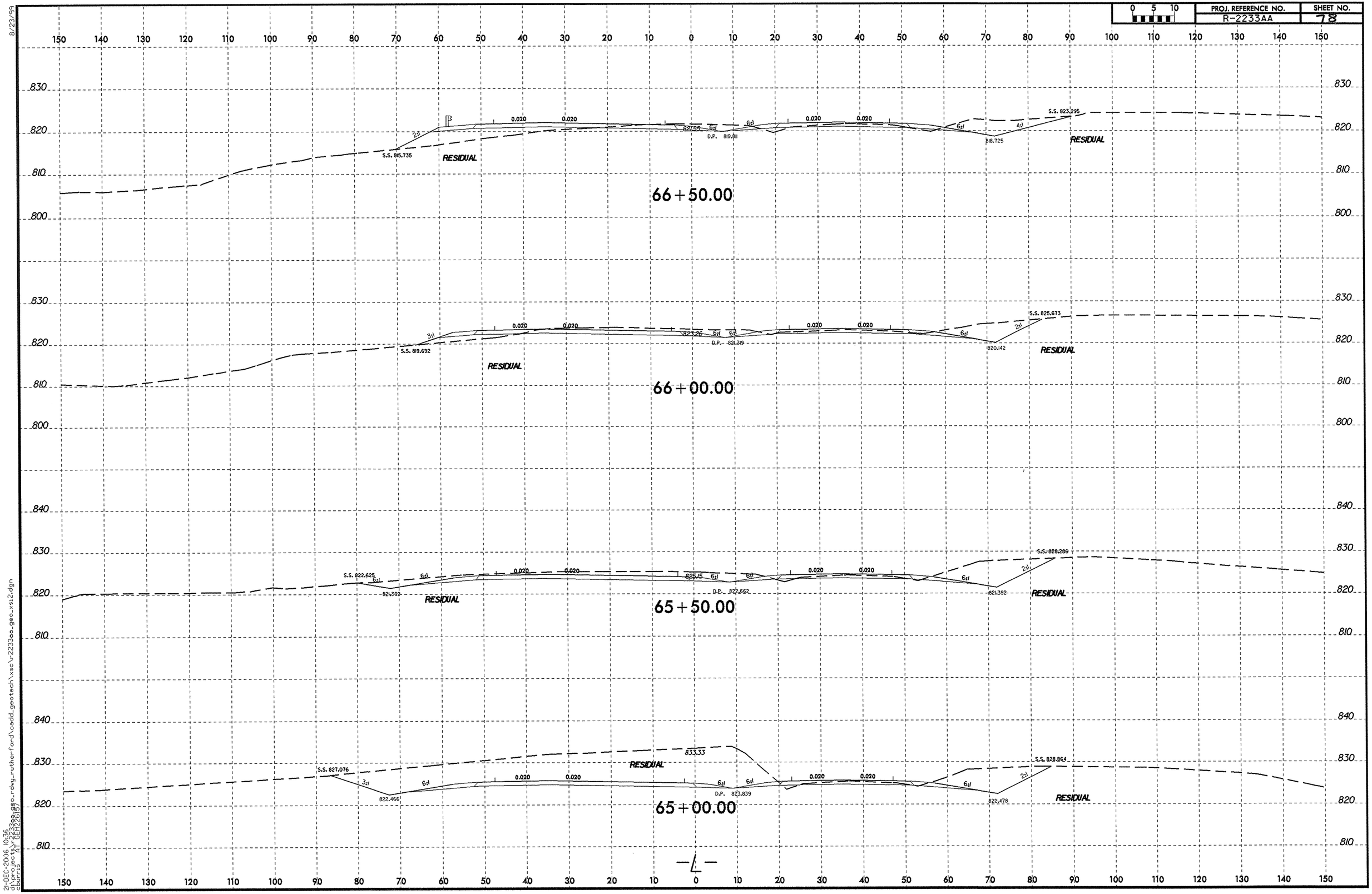
dbarris HT DEH2261S7



8/23/99

21-DEC-2006 10:36
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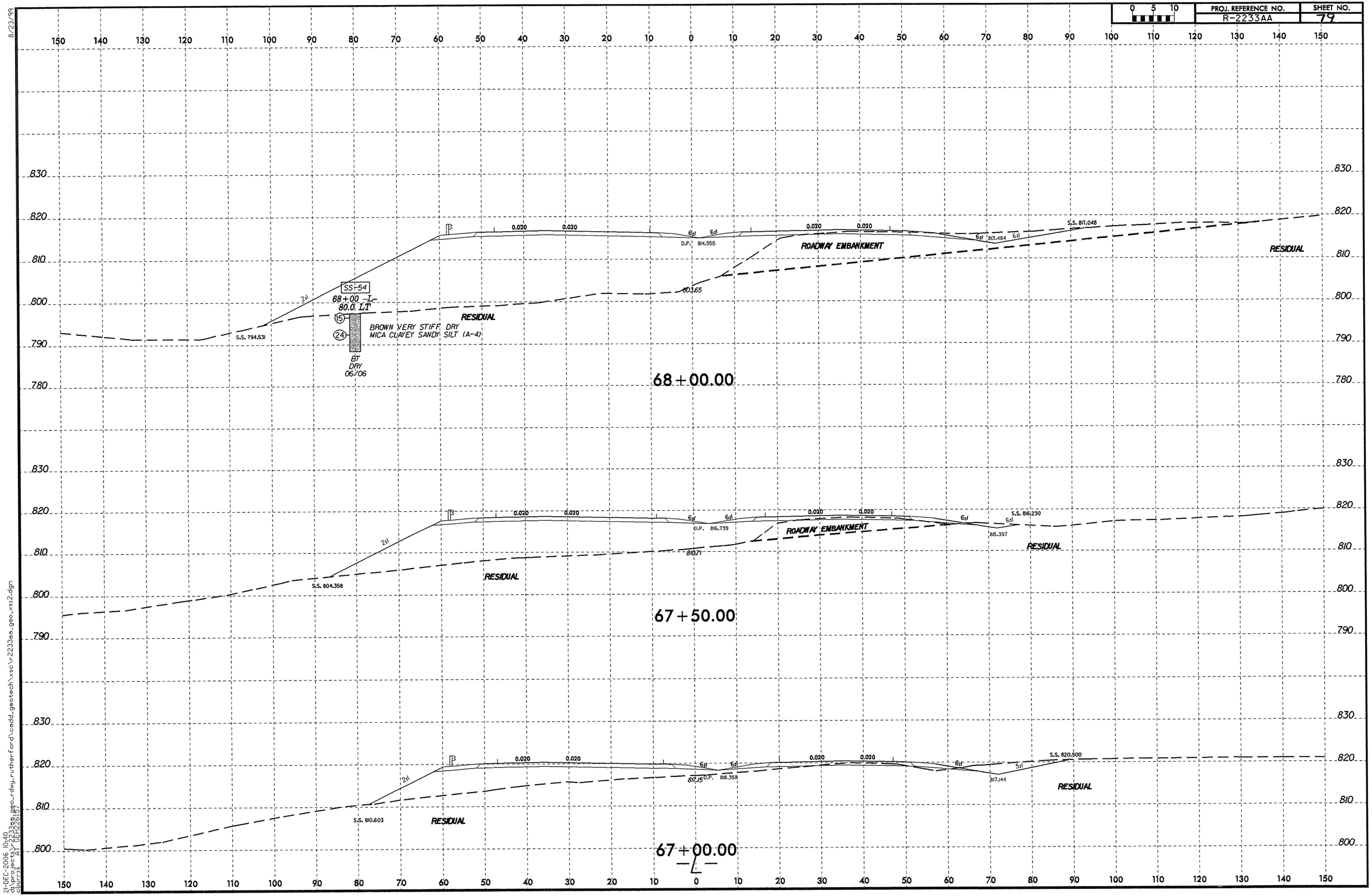
oburris
A1 DEH(28.15)



8/23/99

21-DEC-2006 10:40
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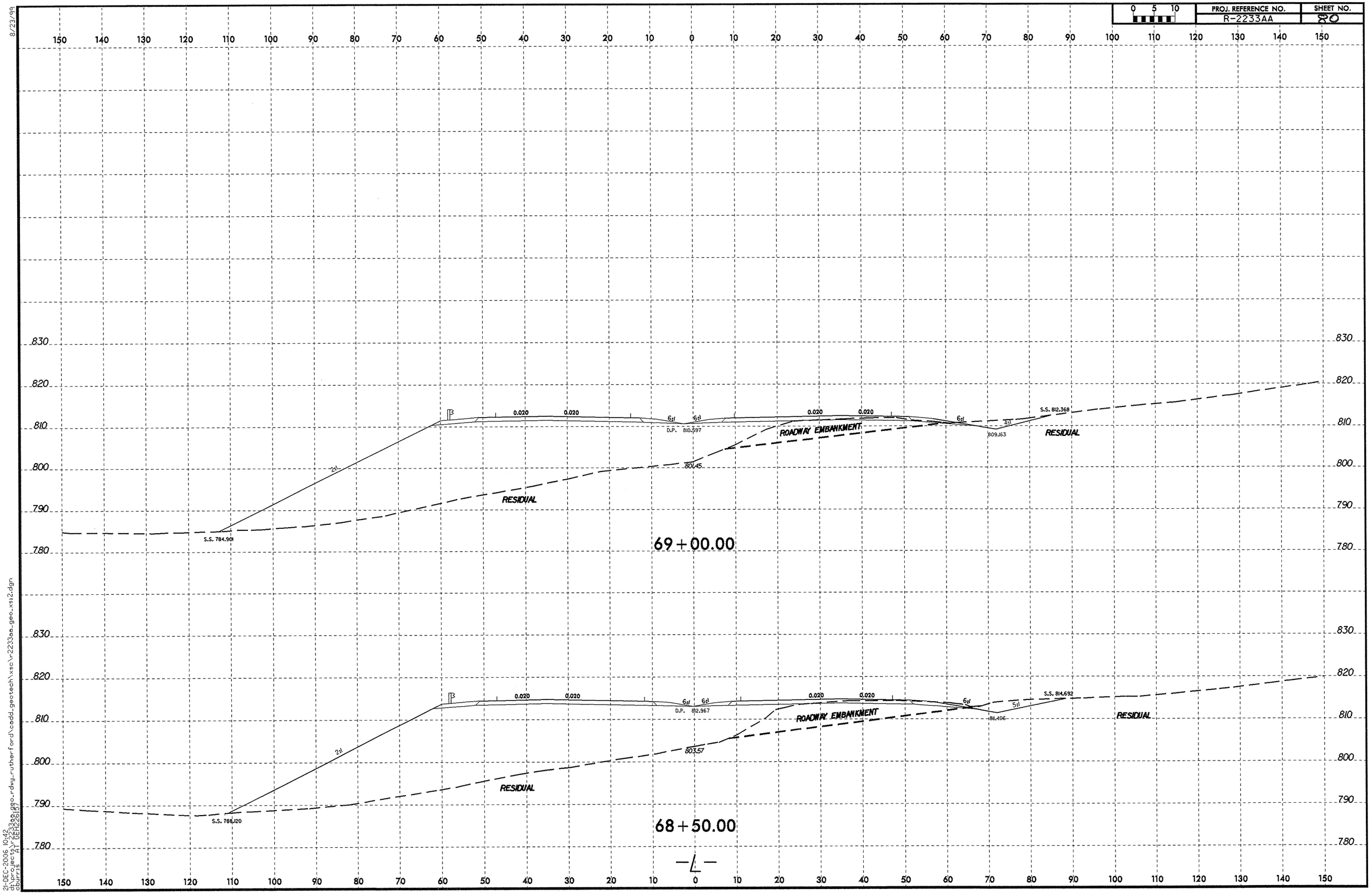
dburns AT GEH22615

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	80



8/23/99

21-DEC-2006 10:42
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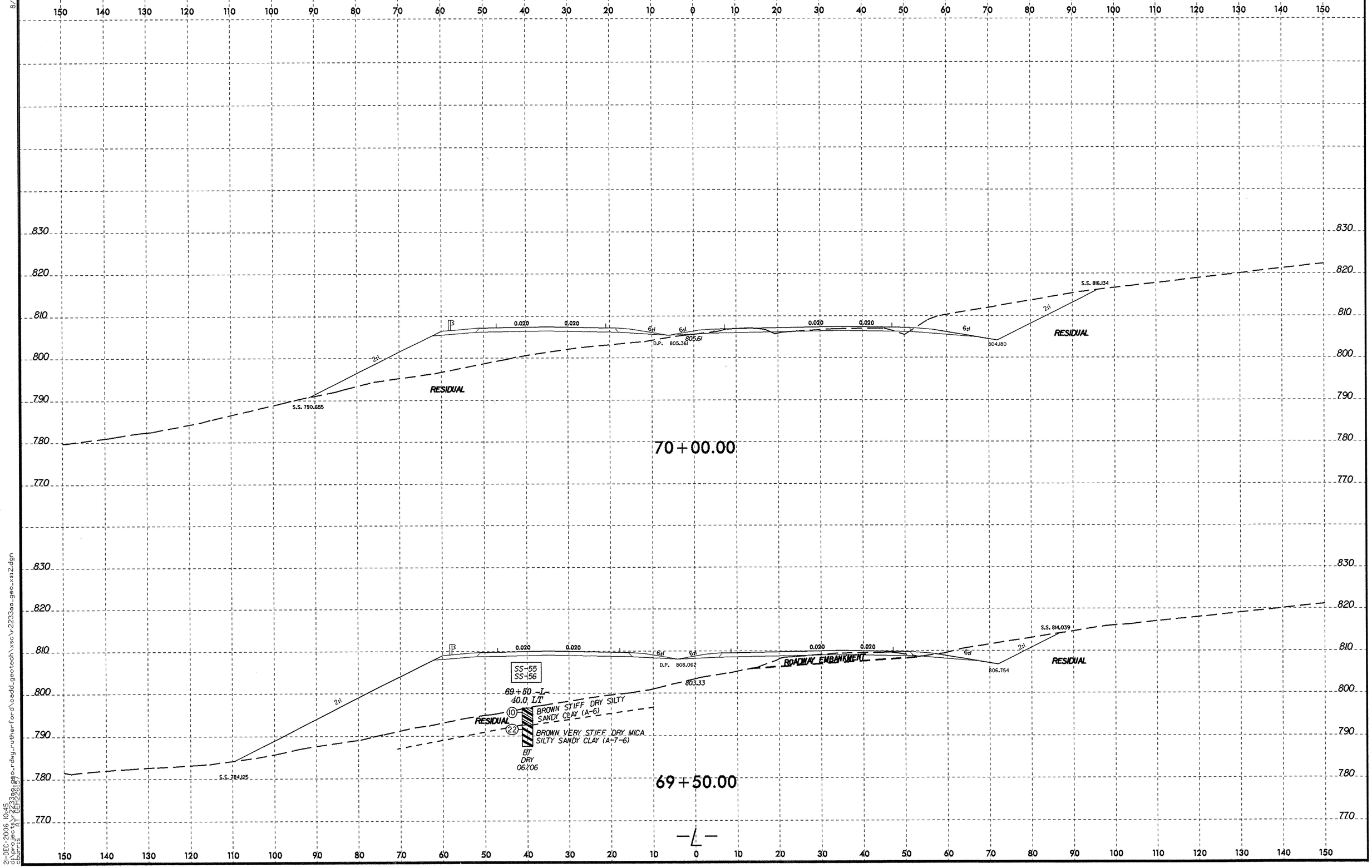
dbyrd



8/23/99
21-DEC-2006 10:45
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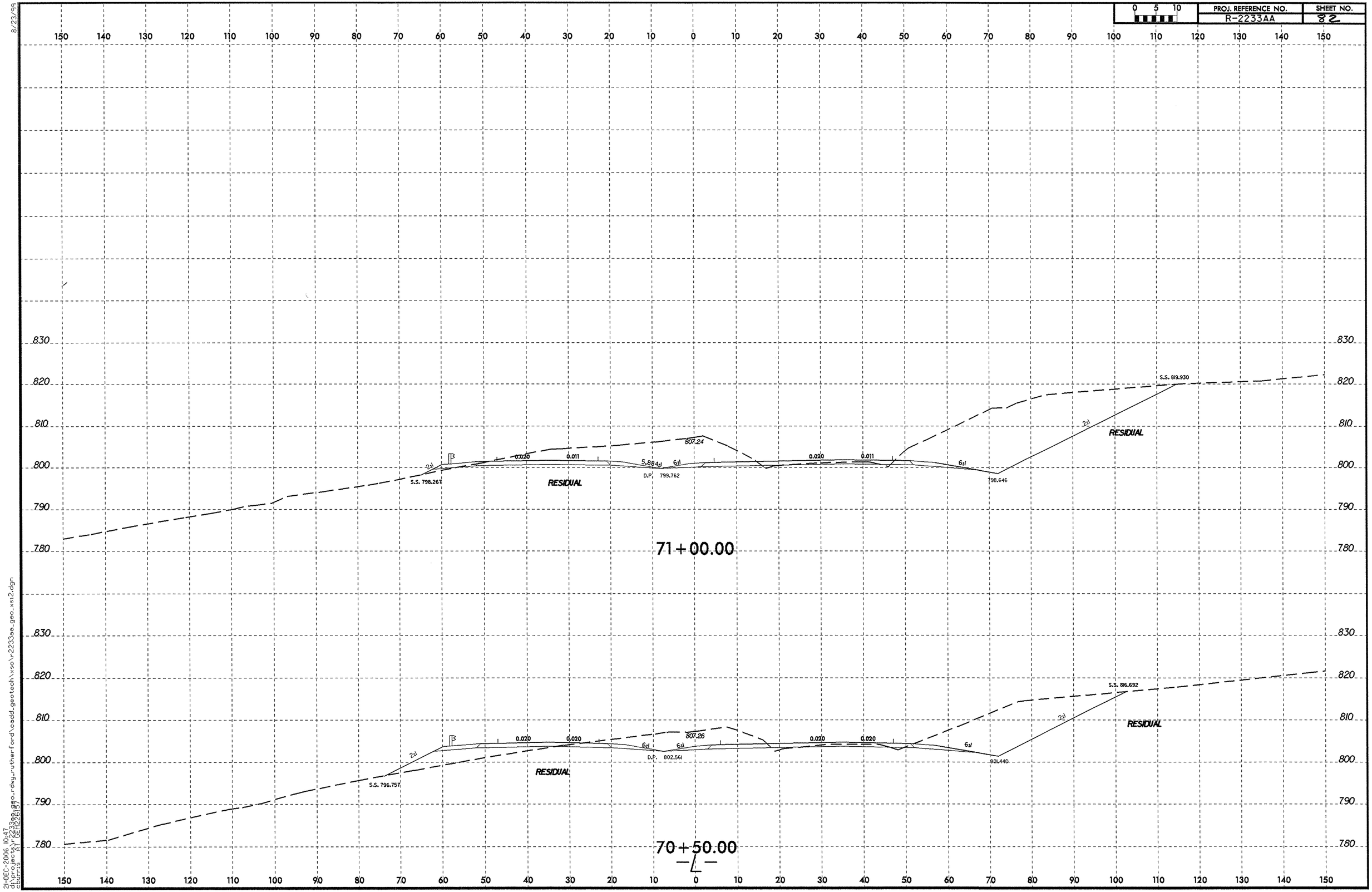
cbuffis AT GEH22617



8/23/99
21-DEC-2006 10:47
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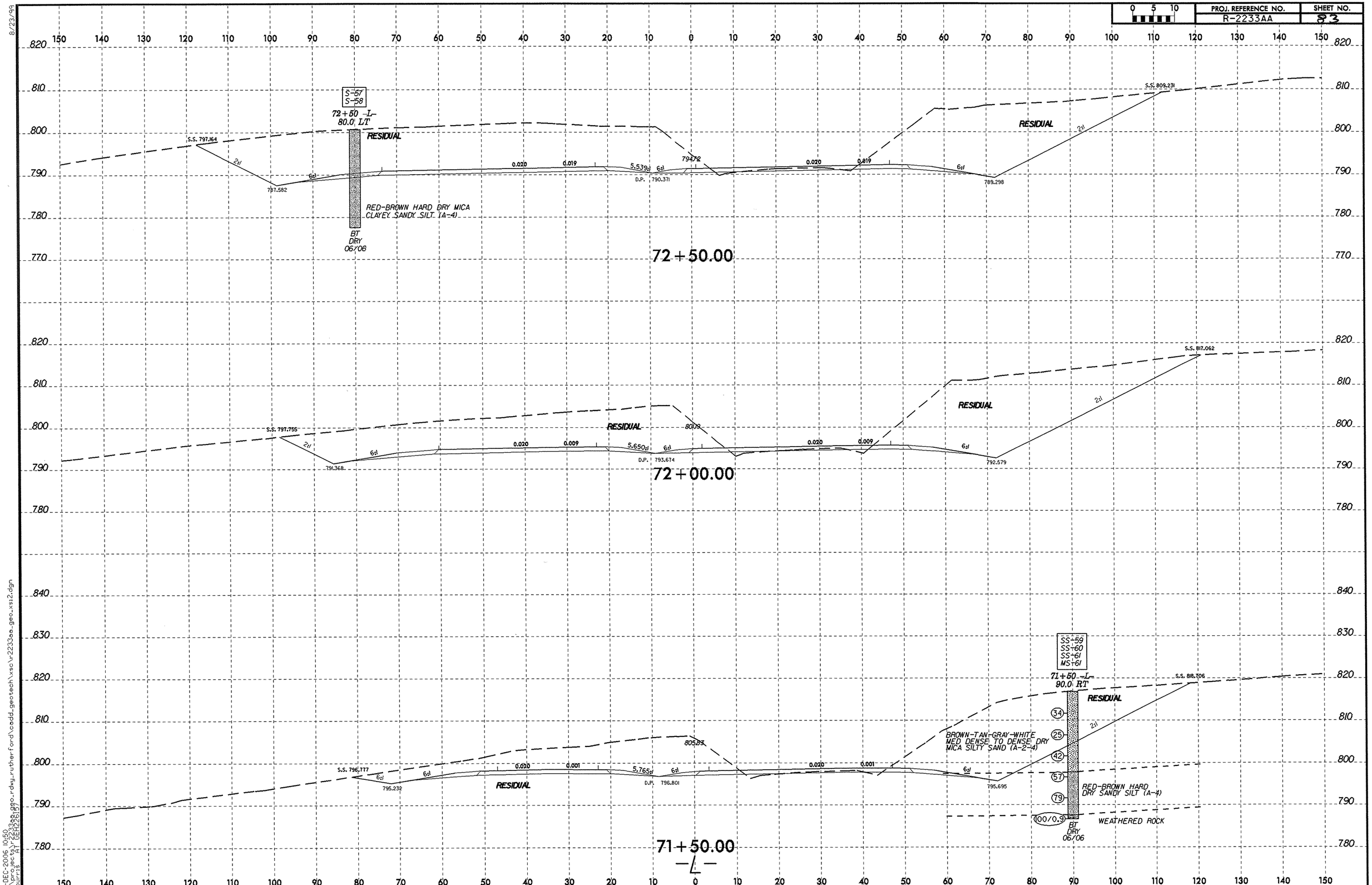
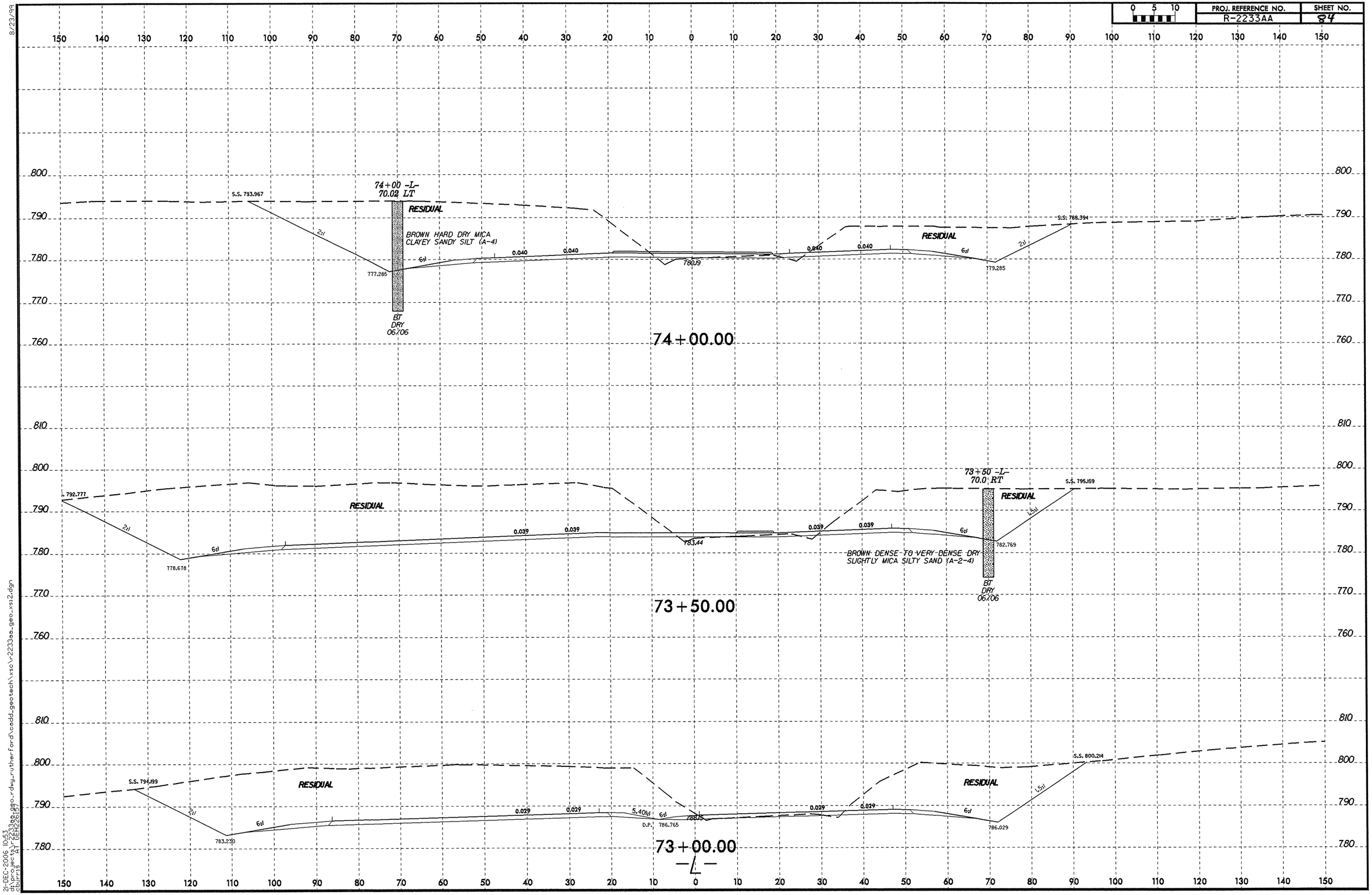
cburris AT GEH22617


S-57
S-58
72+50 -L-
80.0' LT
RESIDUAL
S.S. 797.164
787.582
2:1
6:1
0.020
0.019
5.539:1
D.P. 790.371
794.72
789.298
S.S. 809.231
RED-BROWN HARD DRY MICA CLAYEY SANDY SILT (A-4)
BT
DRY
06/06
72+50.00
S.S. 797.755
791.368
0.009
5.650:1
D.P. 793.674
800.19
792.579
S.S. 817.062
72+00.00
SS-59
SS-60
SS-61
MS-61
71+50 -L-
90.0' RT
S.S. 818.706
34
25
42
57
79
100/0.9
BROWN-TAN-GRAY-WHITE MED DENSE TO DENSE DRY MICA SILTY SAND (A-2-4)
RED-BROWN HARD DRY SANDY SILT (A-4)
WEATHERED ROCK
S.S. 796.777
795.232
0.001
5.765:1
D.P. 796.801
805.83
795.695
71+50.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	84

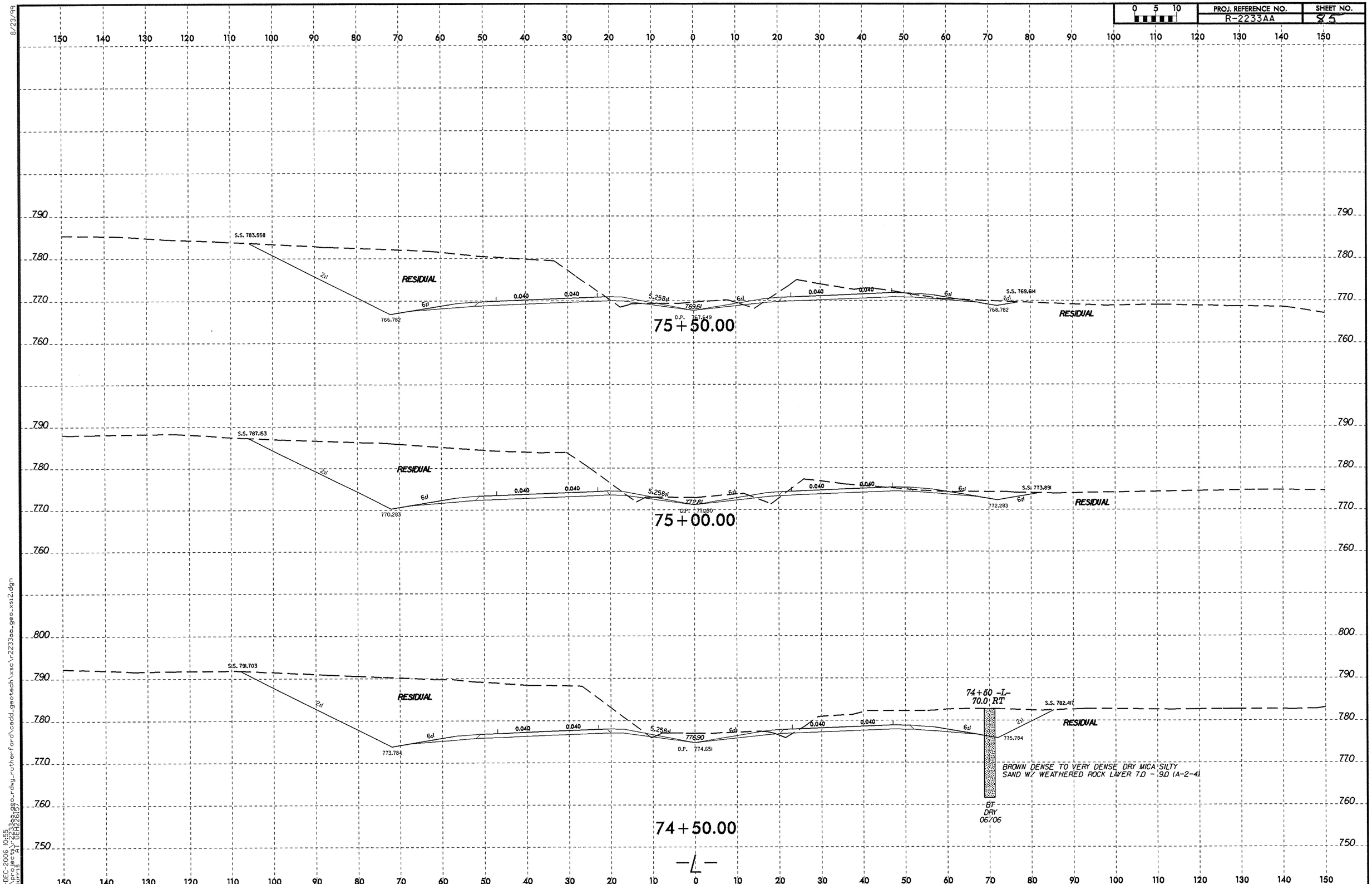


8/23/99

21-DEC-2006 10:53
d:\projects\r-2233aa\geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
cburris AT DEH26167

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	25



21-DEC-2006 10:55
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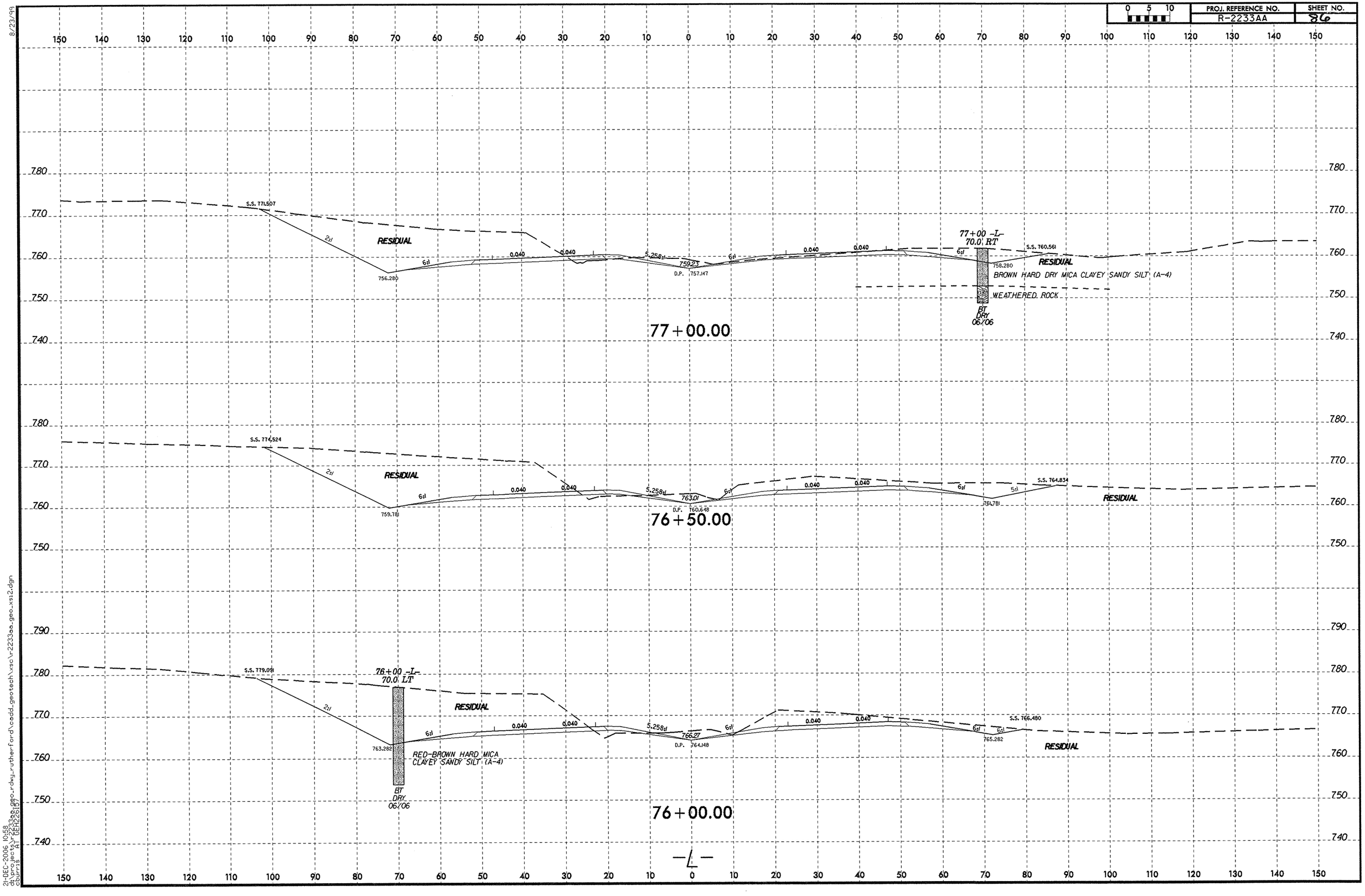
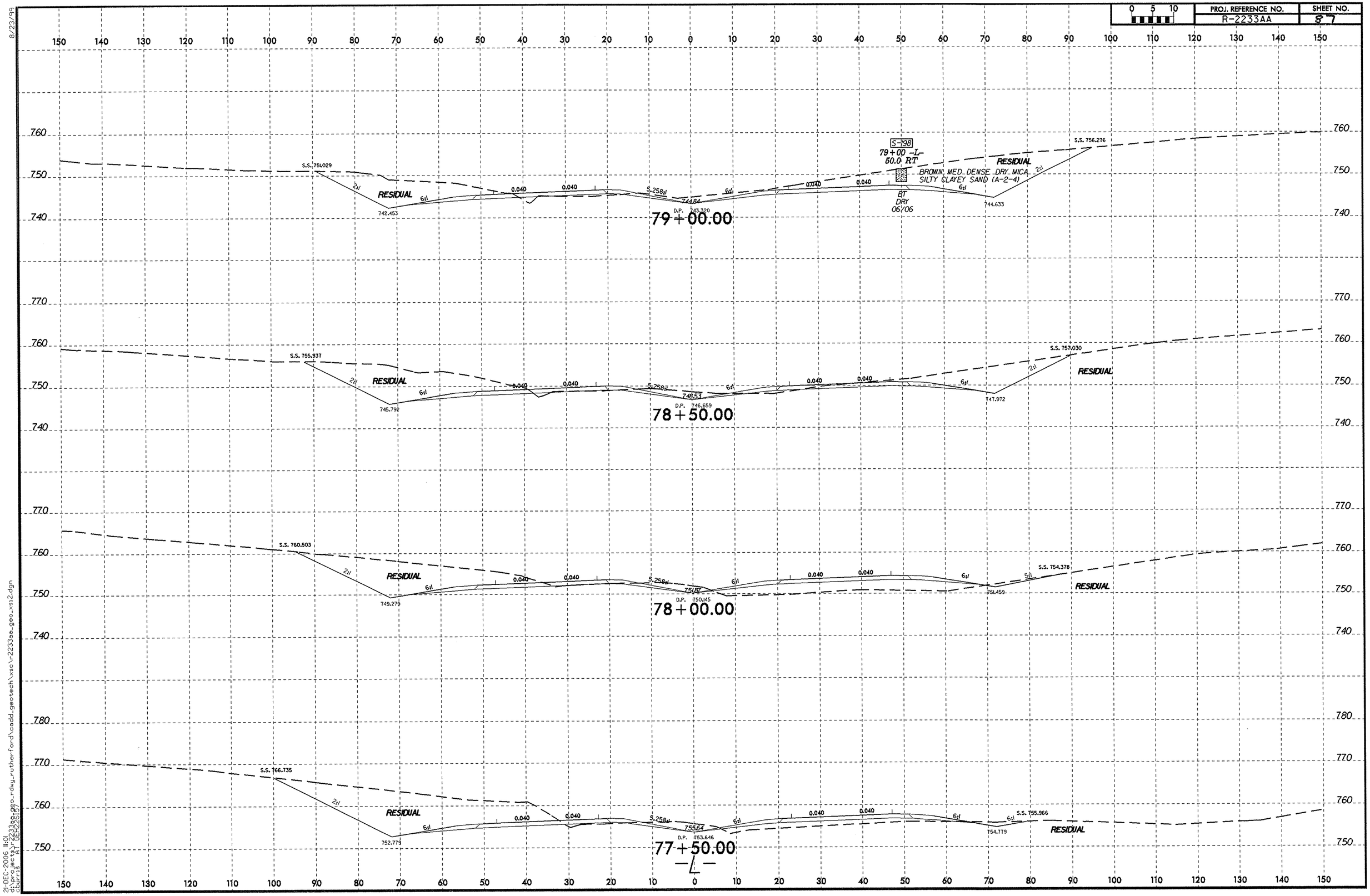
cburris A1 DEN:26.57


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
86
0 5 10
77+00 -L-
70.0' RT
S.S. 771.507
2:1
RESIDUAL
6:1
756.280
0.040
5.258:1
759.23
D.P. 757.147
S.S. 760.561
758.280
BROWN HARD DRY MICA CLAYEY SANDY SILT (A-4)
WEATHERED ROCK
BT
DRY
06/06
77+00.00
S.S. 774.524
759.781
763.01
D.P. 760.648
764.781
S.S. 764.834
76+50.00
S.S. 779.091
76+00 -L-
70.0' LT
763.282
RED-BROWN HARD MICA
CLAYEY SANDY SILT (A-4)
766.27
D.P. 764.148
S.S. 766.480
765.282
76+00.00
-L-
8/23/99
21-DEC-2006 10:58
d:\projects\r2233aa\geo-rdwg_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
burns, a.j. (bkt2010)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	87



8/23/99

21-DEC-2006 11:01
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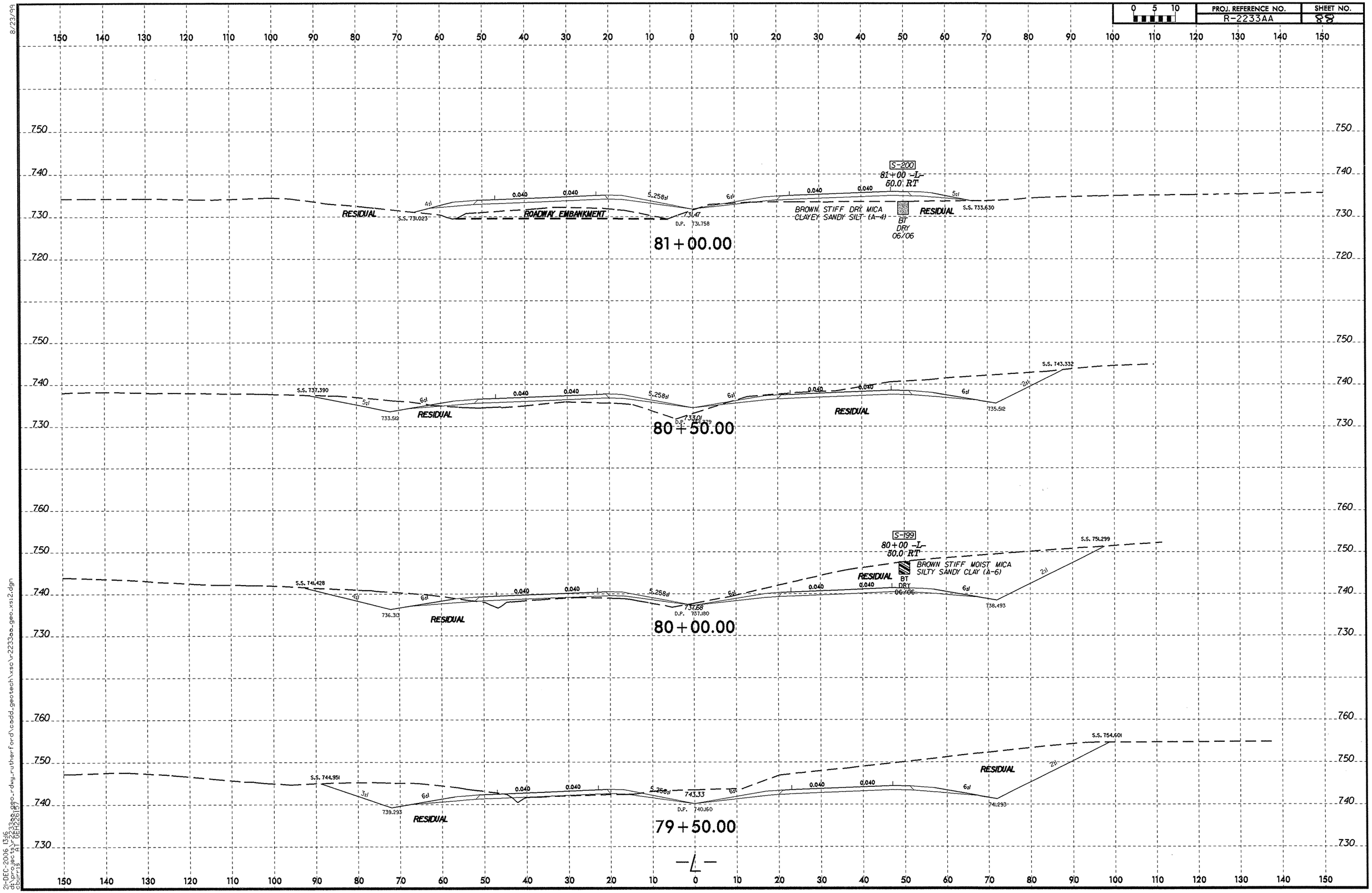
cburns A1 GEH2261(87)



21-DEC-2006 13:16
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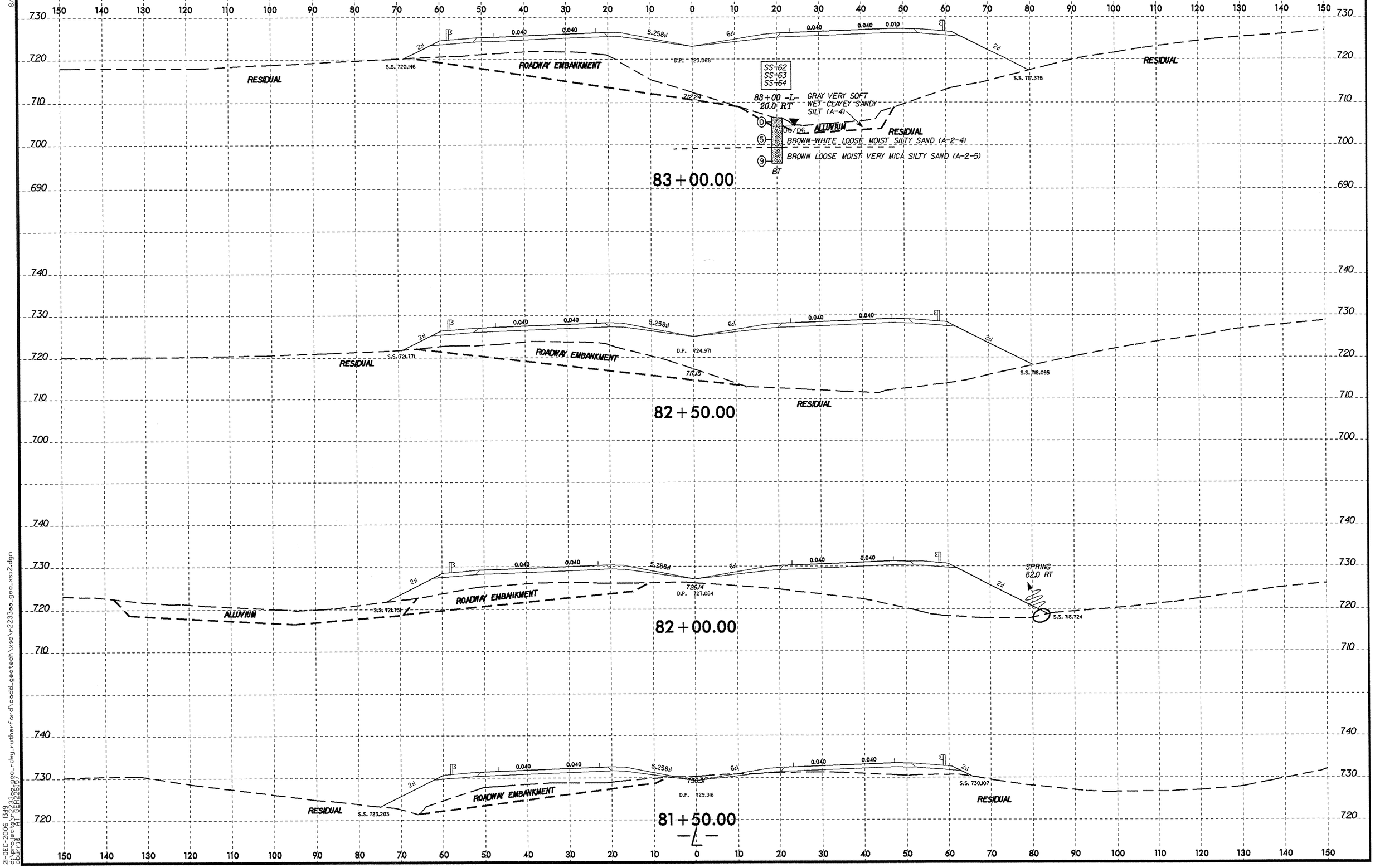
cburris AT DEH2617

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	89



8/23/99

21-DEC-2006 13:19
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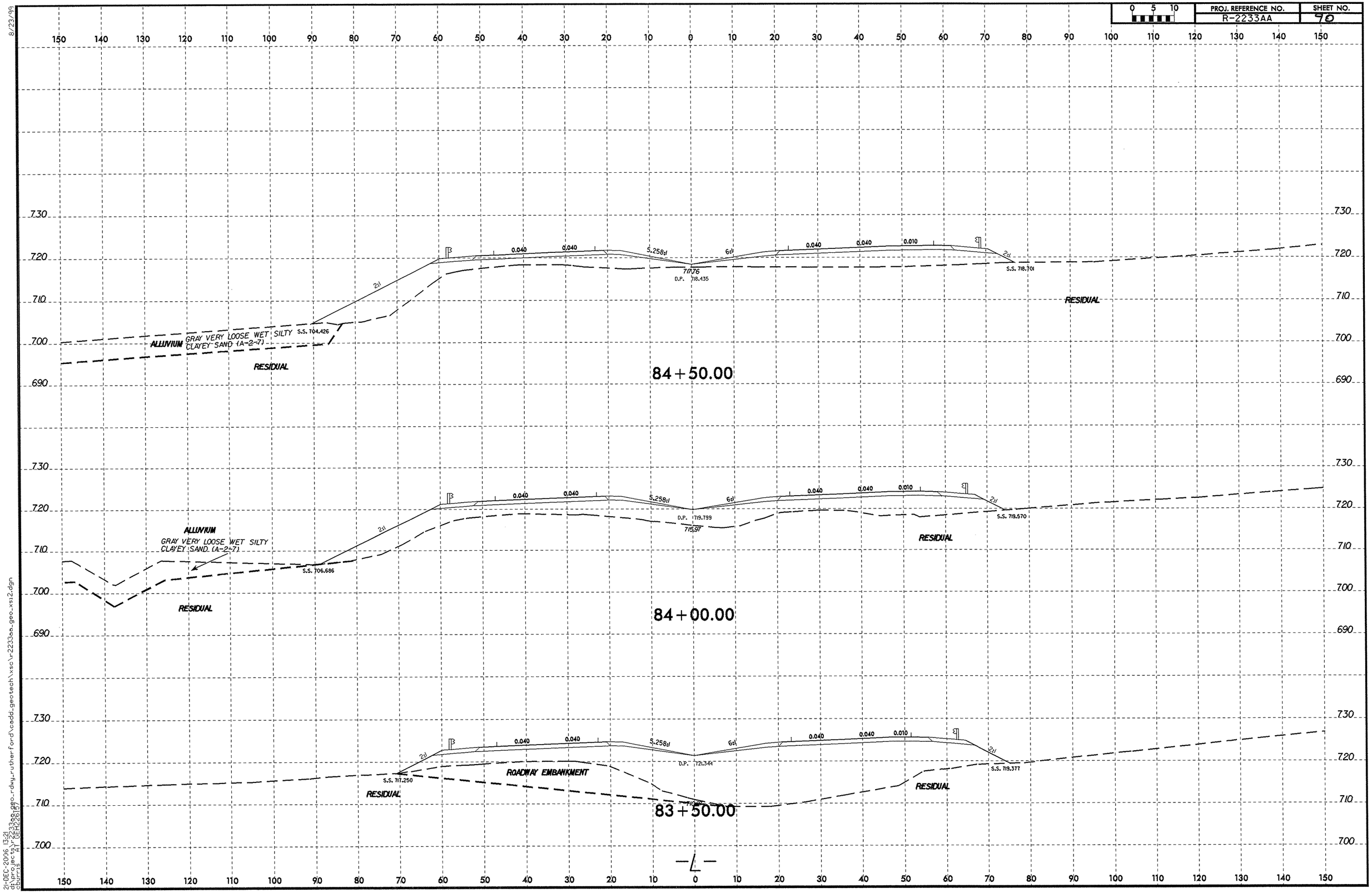
cburns AT GEH22657

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	70

0 5 10



8/23/99

21-DEC-2006 13:21
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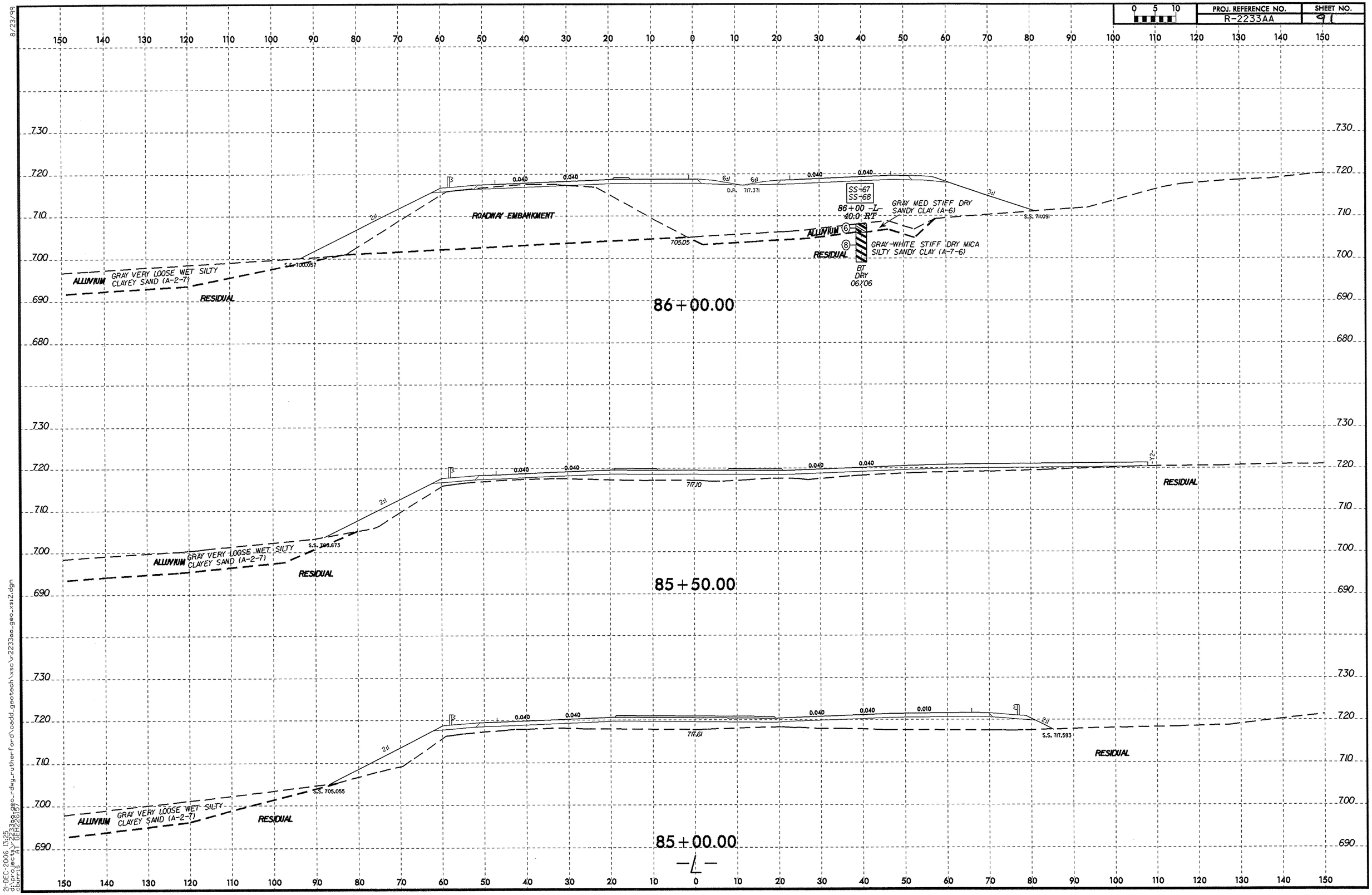
cburris AT DEH2261(7)



8/23/99
21-DEC-2006 13:25
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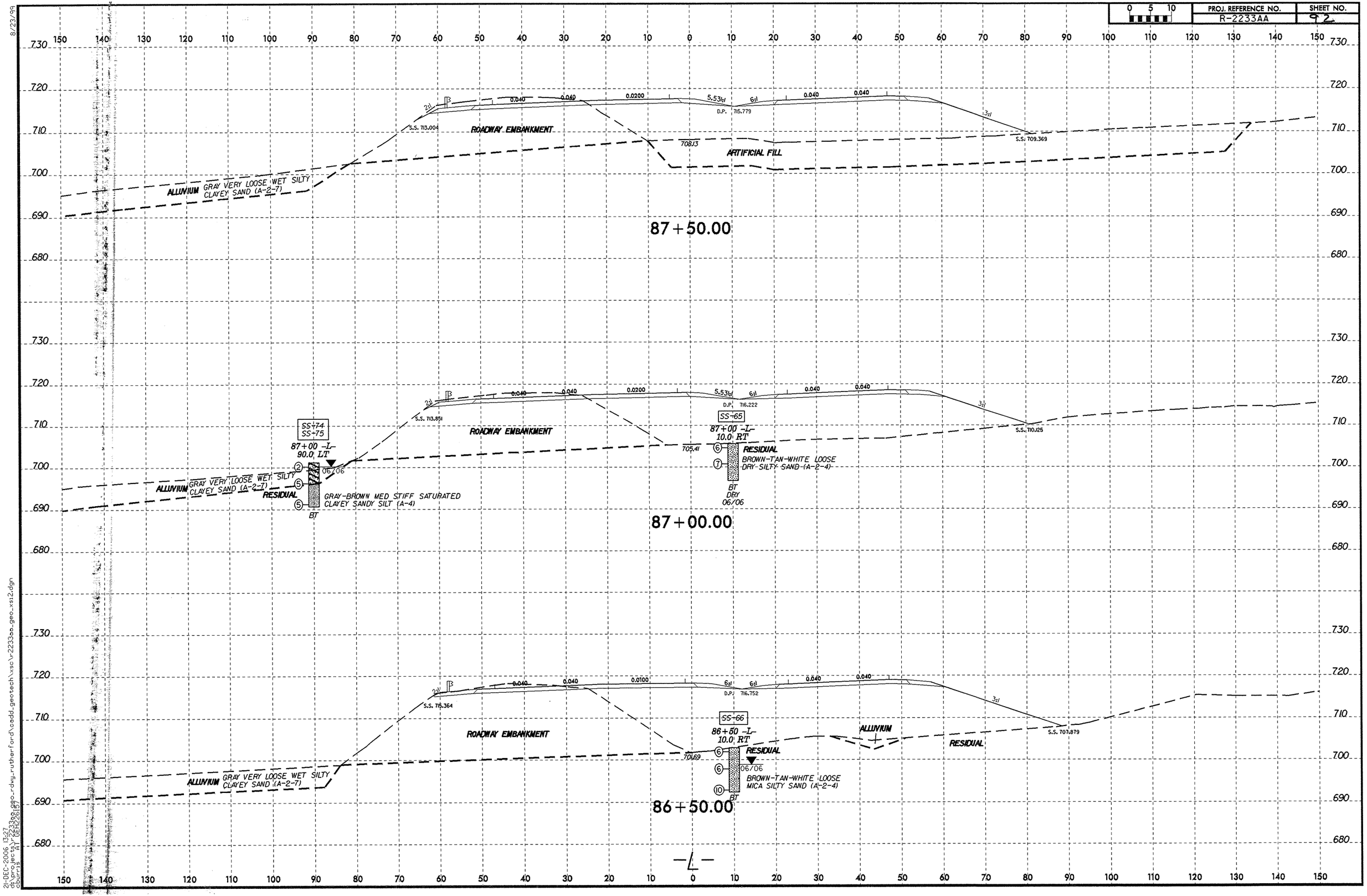
cburris AT DEH:2617

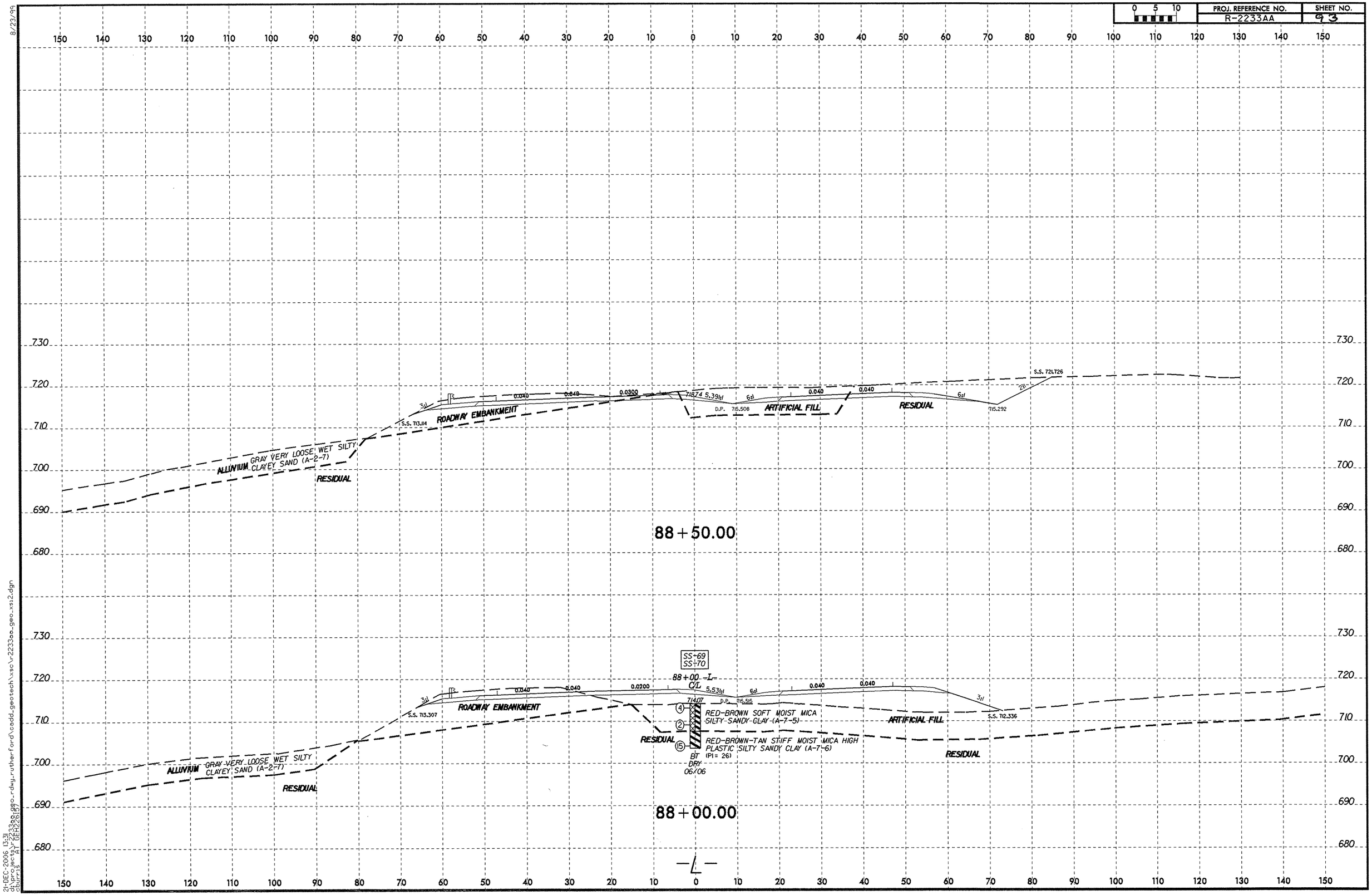
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	92



8/23/99

21-DEC-2006 13:27
dlbproj\geo\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
dlbuser AT GEH22619

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	93



8/23/99

21-DEC-2006 13:31
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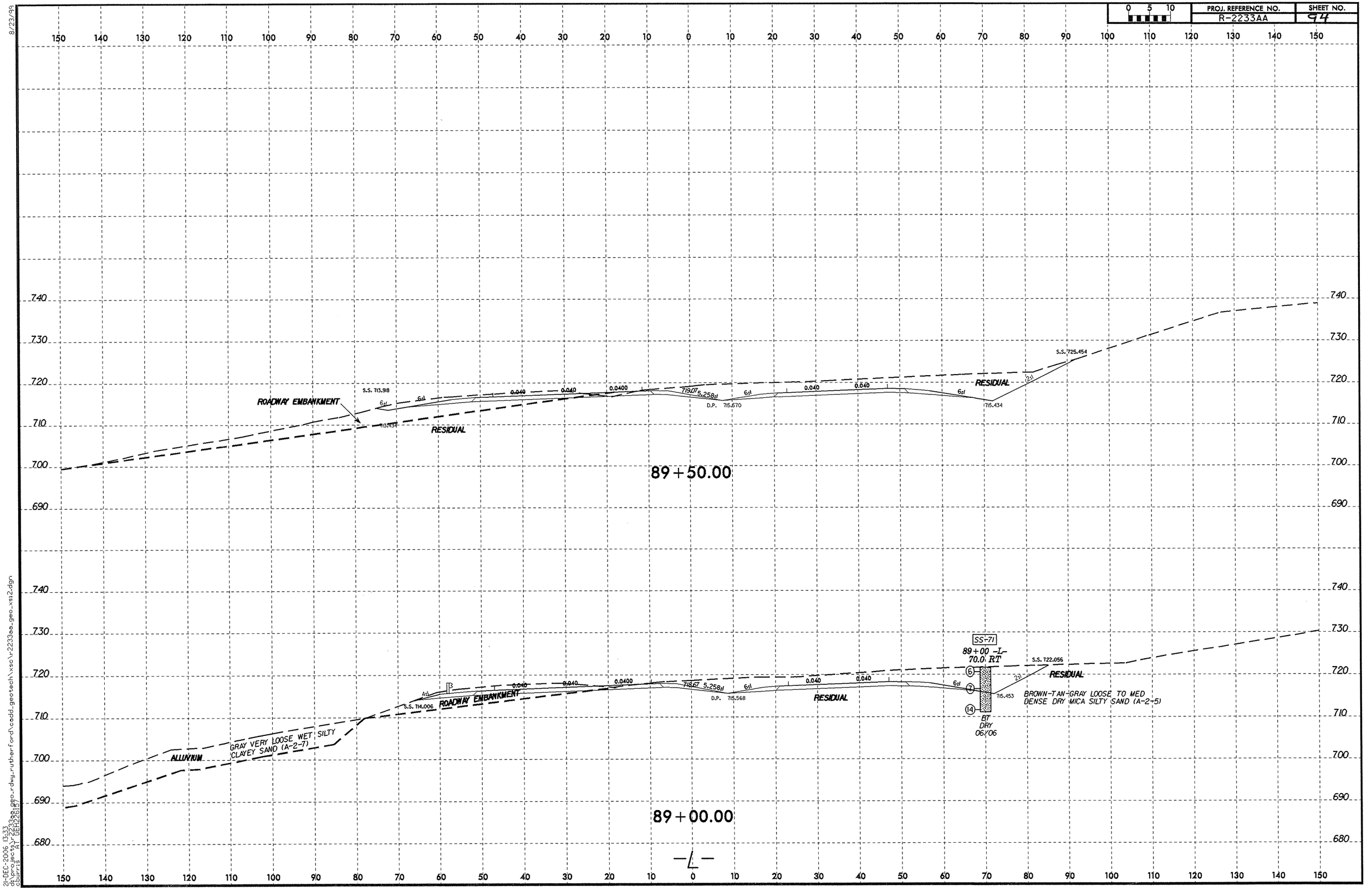
cburris AT (GEH226.67)



8/23/99

21-DEC-2006 13:33
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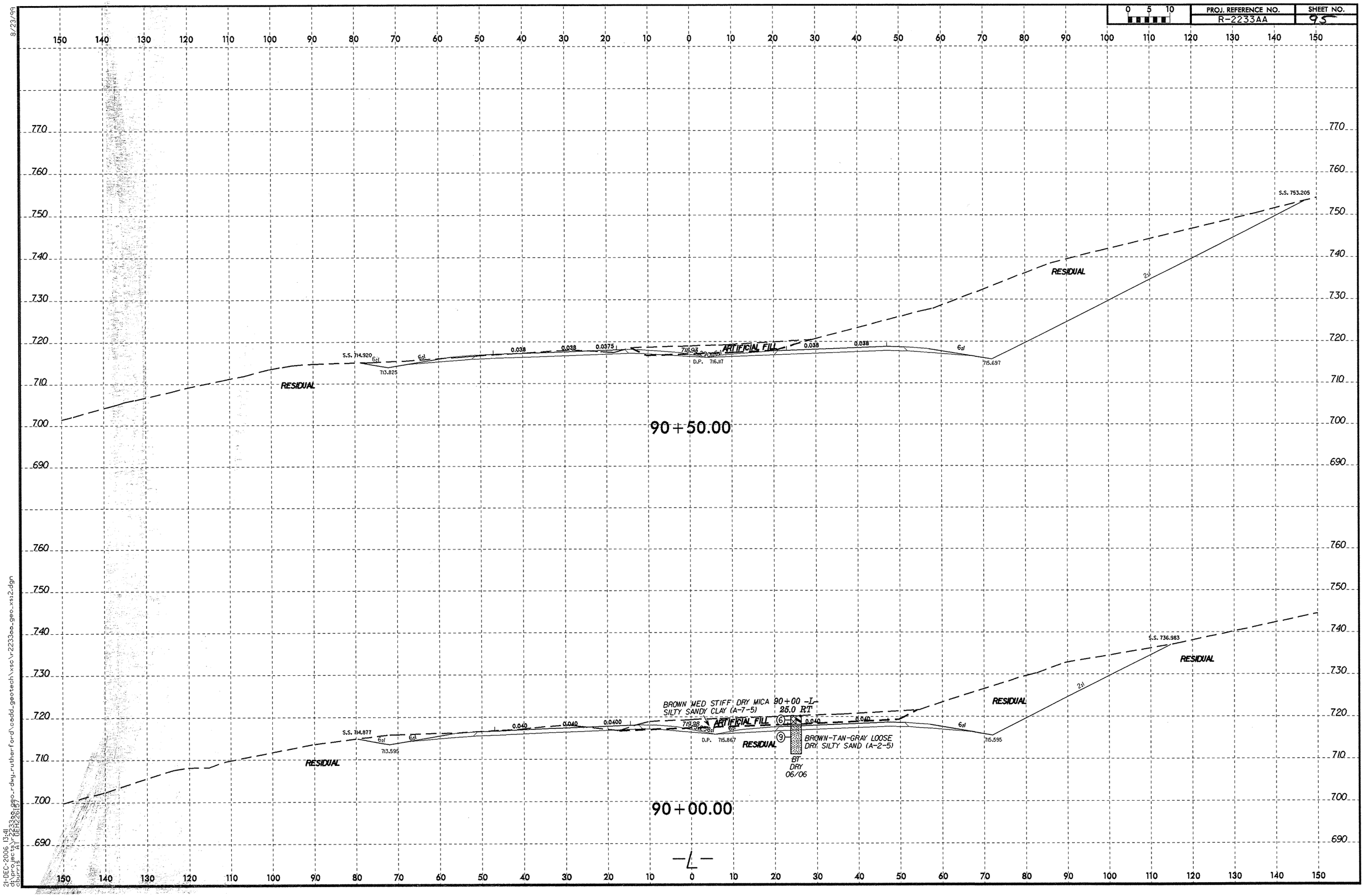
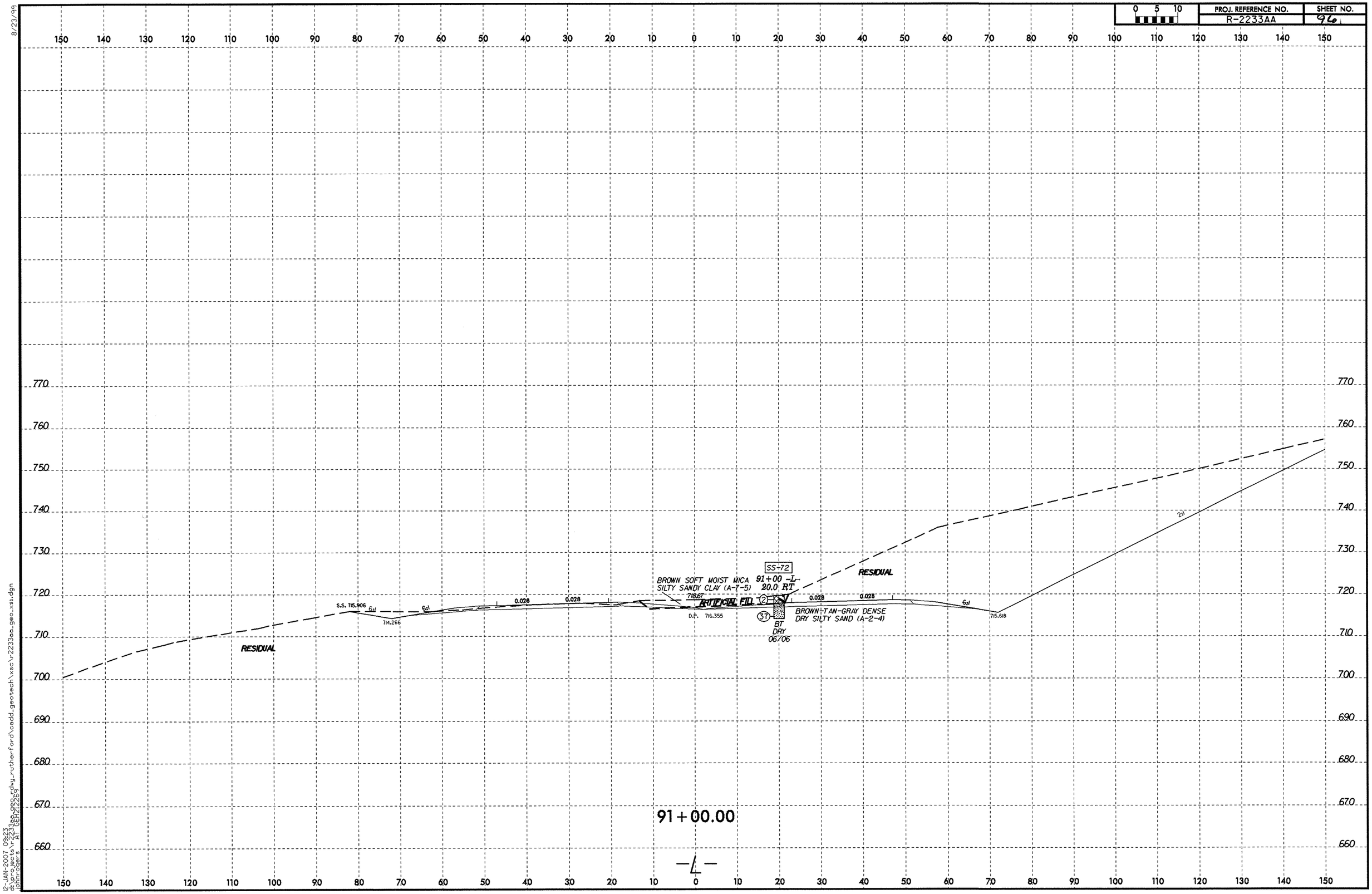
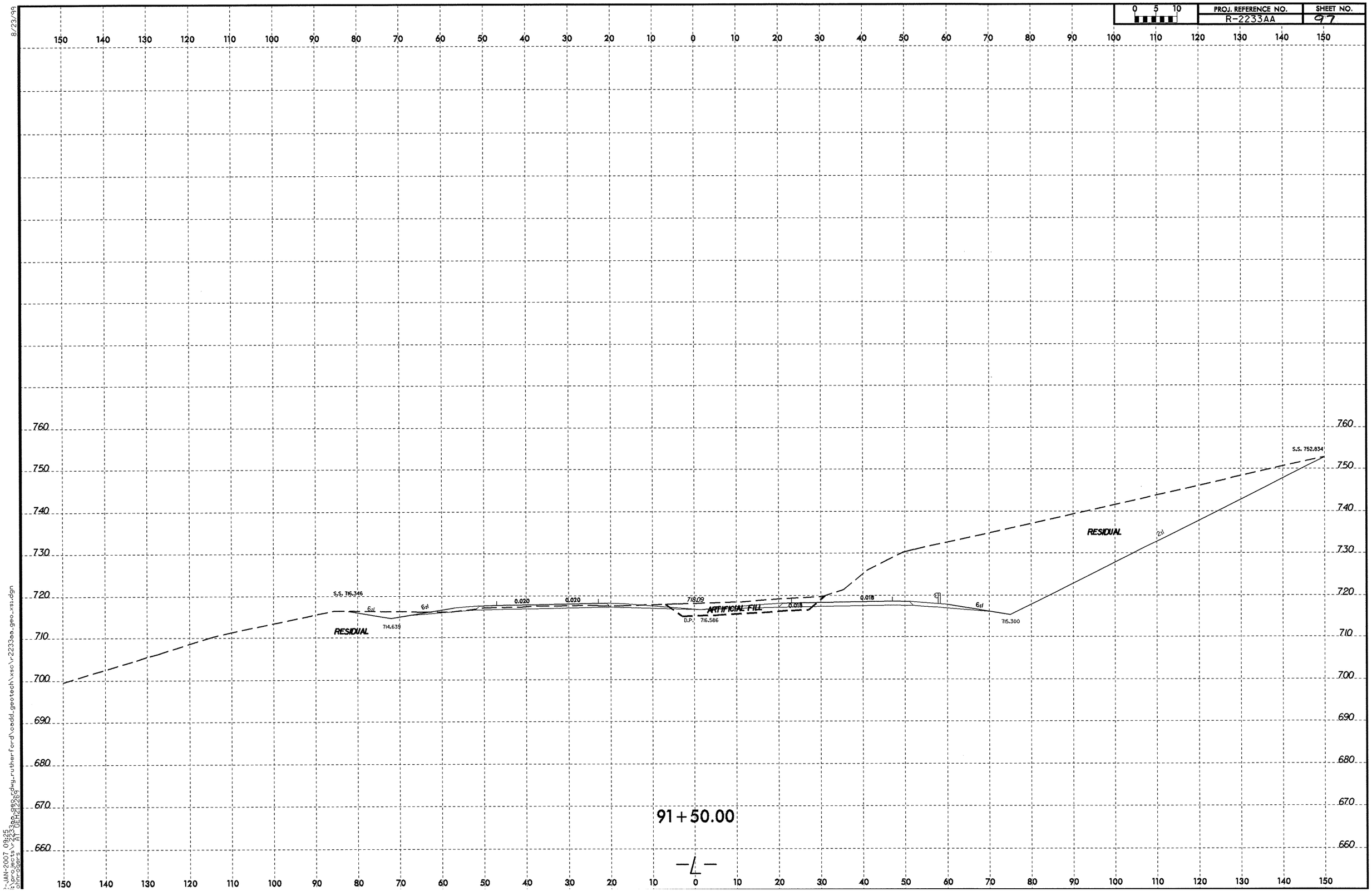
cburris AT GEH2687


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
95
0 5 10
90+50.00
S.S. 714.920
713.825
6:1
0.038
0.038
0.0375
716.93
ARTIFICIAL FILL
D.P. 716.117
0.038
0.038
715.697
S.S. 753.205
RESIDUAL
90+00.00
S.S. 714.877
713.595
0.040
0.040
0.0400
719.28
D.P. 715.867
BROWN MED STIFF DRY MICA
SILTY SANDY CLAY (A-7-5)
90+00 -L-
25.0 RT
BROWN-TAN-GRAY LOOSE
DRY SILTY SAND (A-2-5)
BT
DRY
06/06
715.595
S.S. 736.983
2:1
-L-
8/23/99
21-DEC-2006 13:41
d:\projects\r2233aa\geo-rdwy-rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
burris



8/23/99

12-JAN-2007 09:23
d:\projects\r2233aa_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs1.dgn
johnrogers AT GEH12269



8/23/99

2-JAN-2007 09:25
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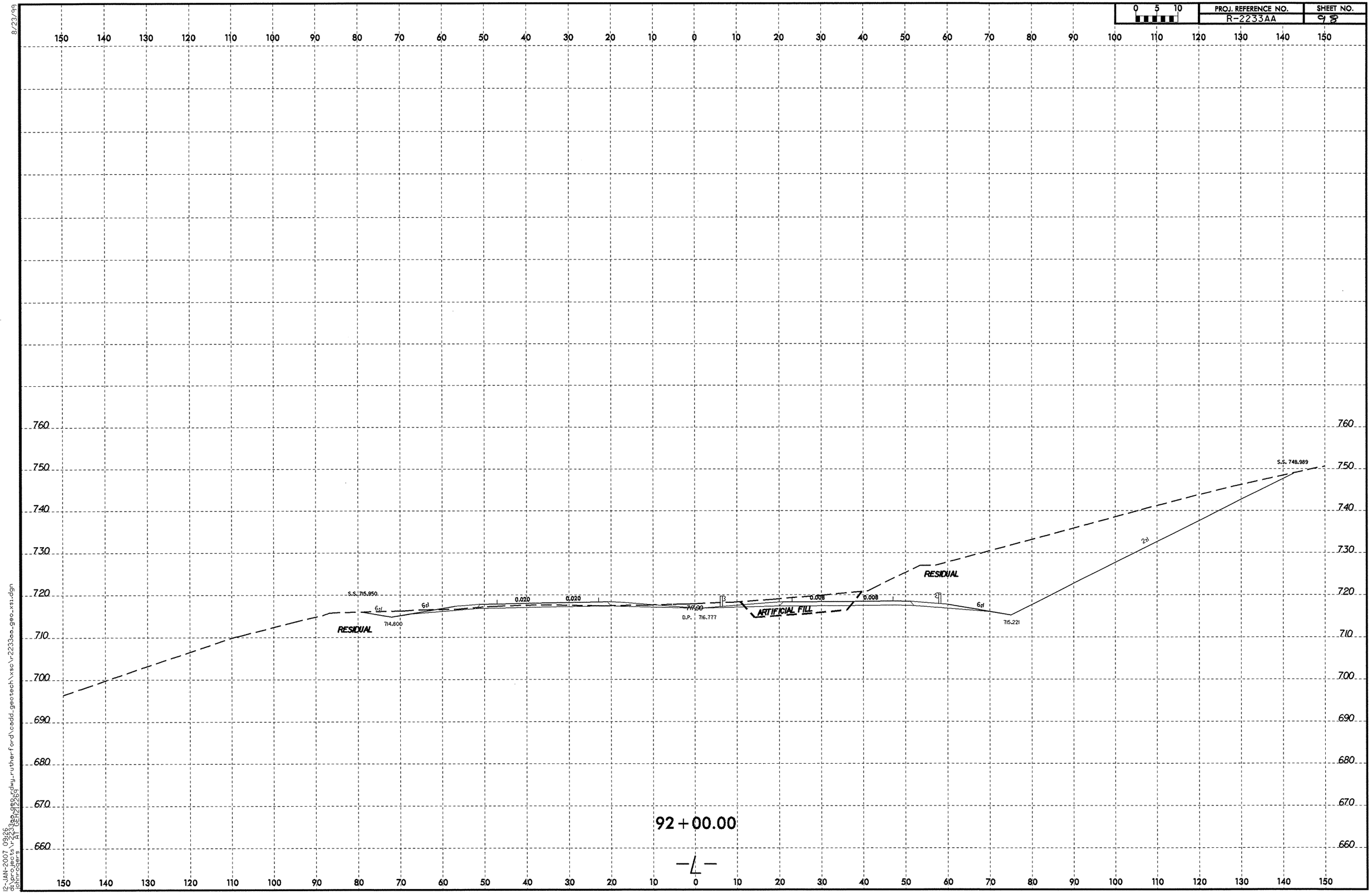
olinrogers
All DEH212269

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	98



12-JAN-2007 09:26
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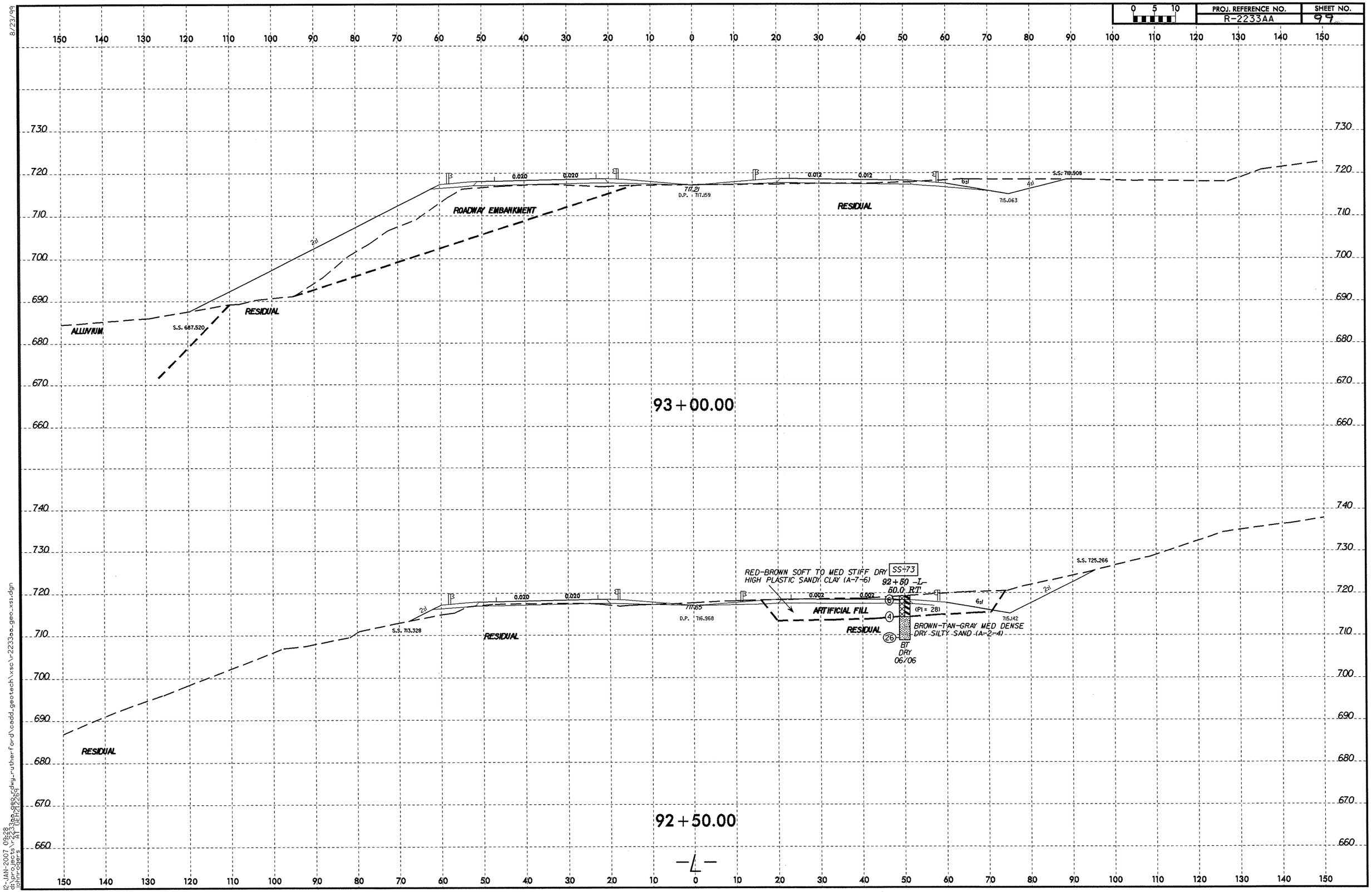
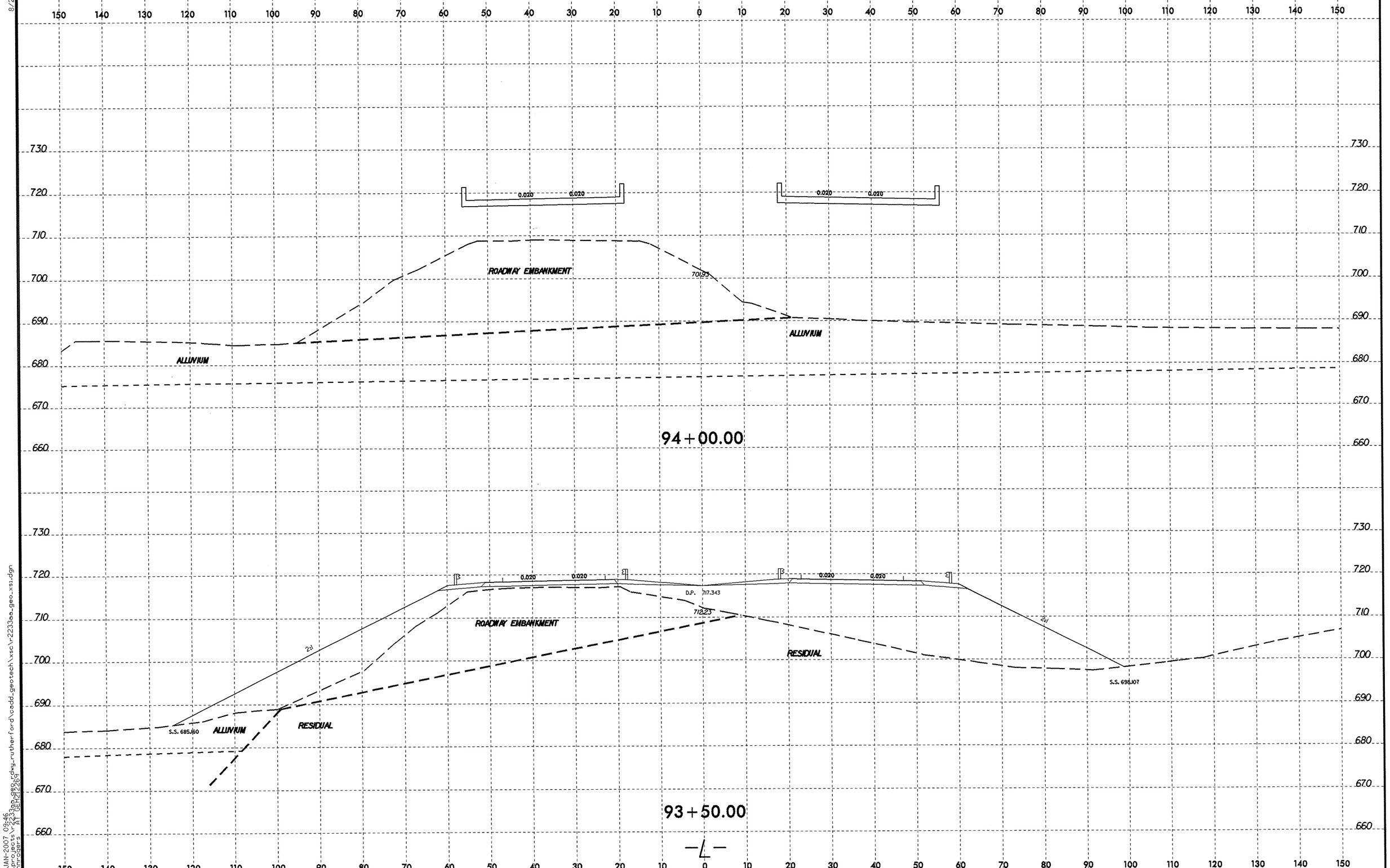
johnrogers AT DEI(2126)


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
99
0 5 10
ALLUVIUM
S.S. 687.520
RESIDUAL
ROADWAY EMBANKMENT
0.020
0.020
717.21
D.P. 717.159
0.012
0.012
RESIDUAL
715.063
S.S. 718.508
93+00.00
RESIDUAL
S.S. 713.328
RESIDUAL
0.020
0.020
717.65
D.P. 716.968
RED-BROWN SOFT TO MED STIFF DRY
HIGH PLASTIC SANDY CLAY (A-7-6)
SS+73
92+50 -L-
60.0 RT
0.002
0.002
ARTIFICIAL FILL
(PI = 28)
RESIDUAL
BROWN-TAN-GRAY MED DENSE
DRY SILTY SAND (A-2-4)
BT
DRY
06/06
715.142
S.S. 725.266
92+50.00
-L-
12-JAN-2007 09:28
d:\projects\r-2233aa_ddot\dwg-rutherford\cadd_geotech\xsc\r-2233aa_geo_xs1.dgn
johnrogers

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	100



8/23/99

2-JAN-2007 09:46
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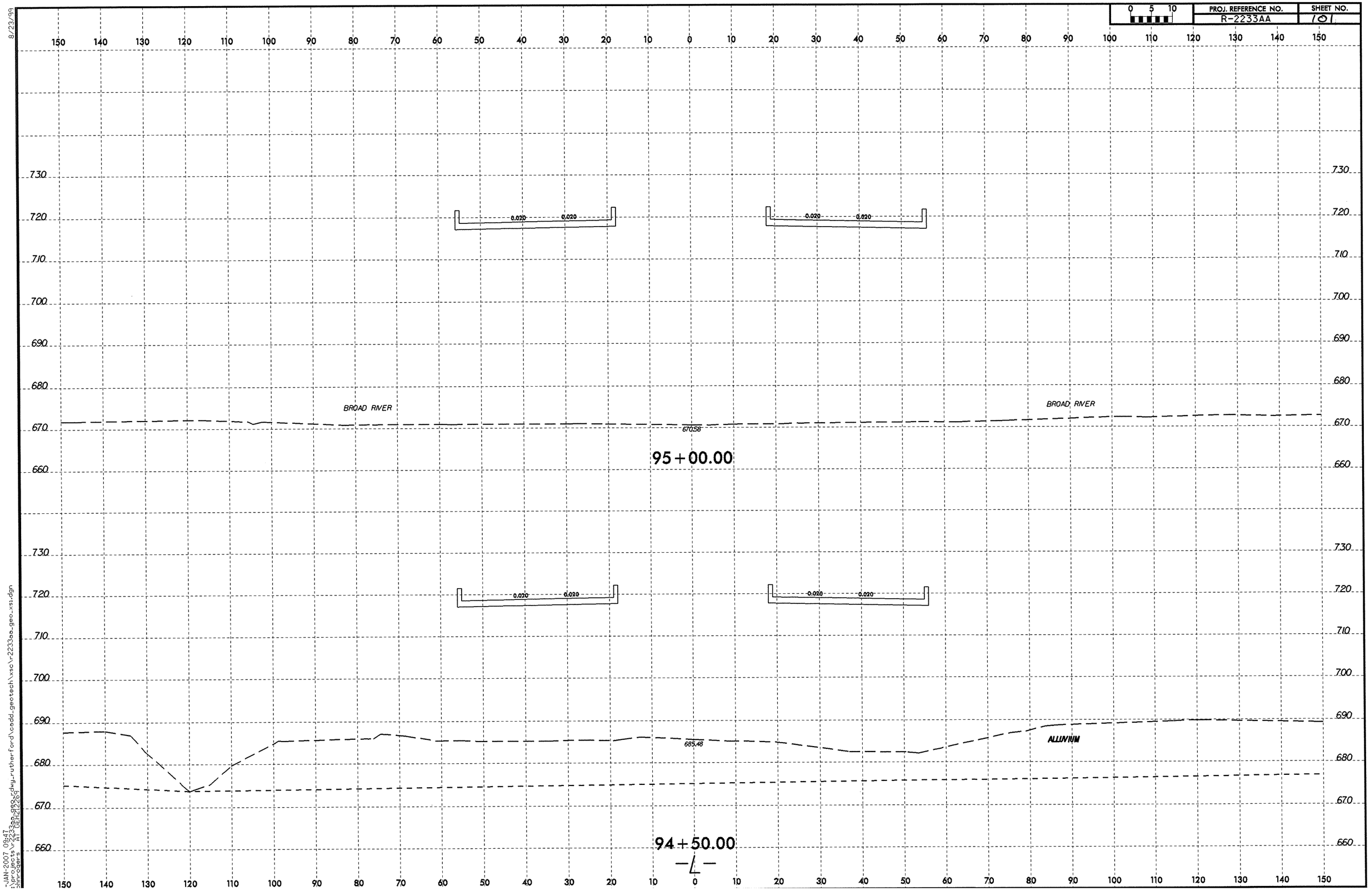
johnrogers AT GEN72269



8/23/99

-JAN-2007 09:47
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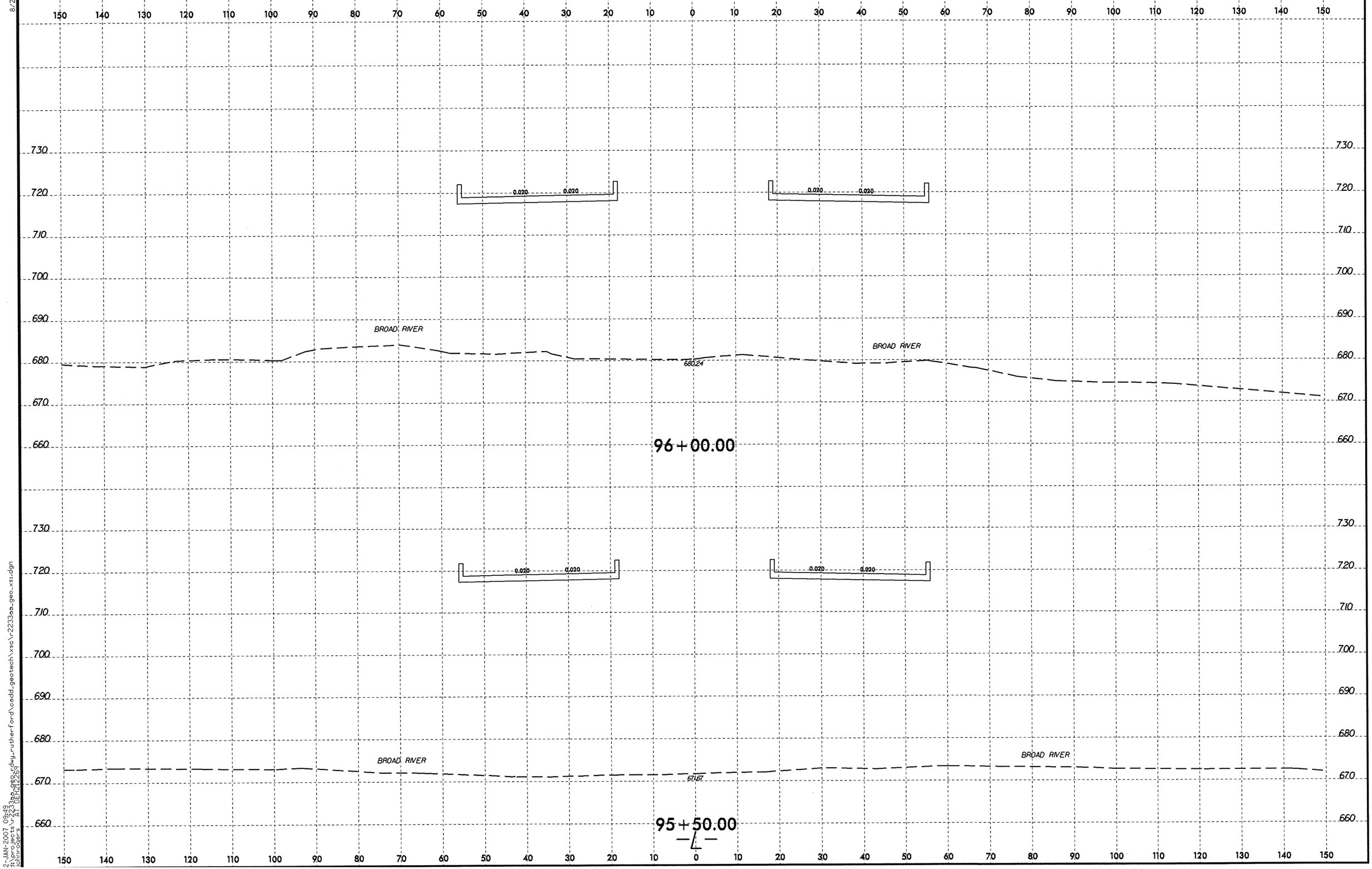
ohnrogers AT DEH21269

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	102



8/23/99

2-JAN-2007 09:49
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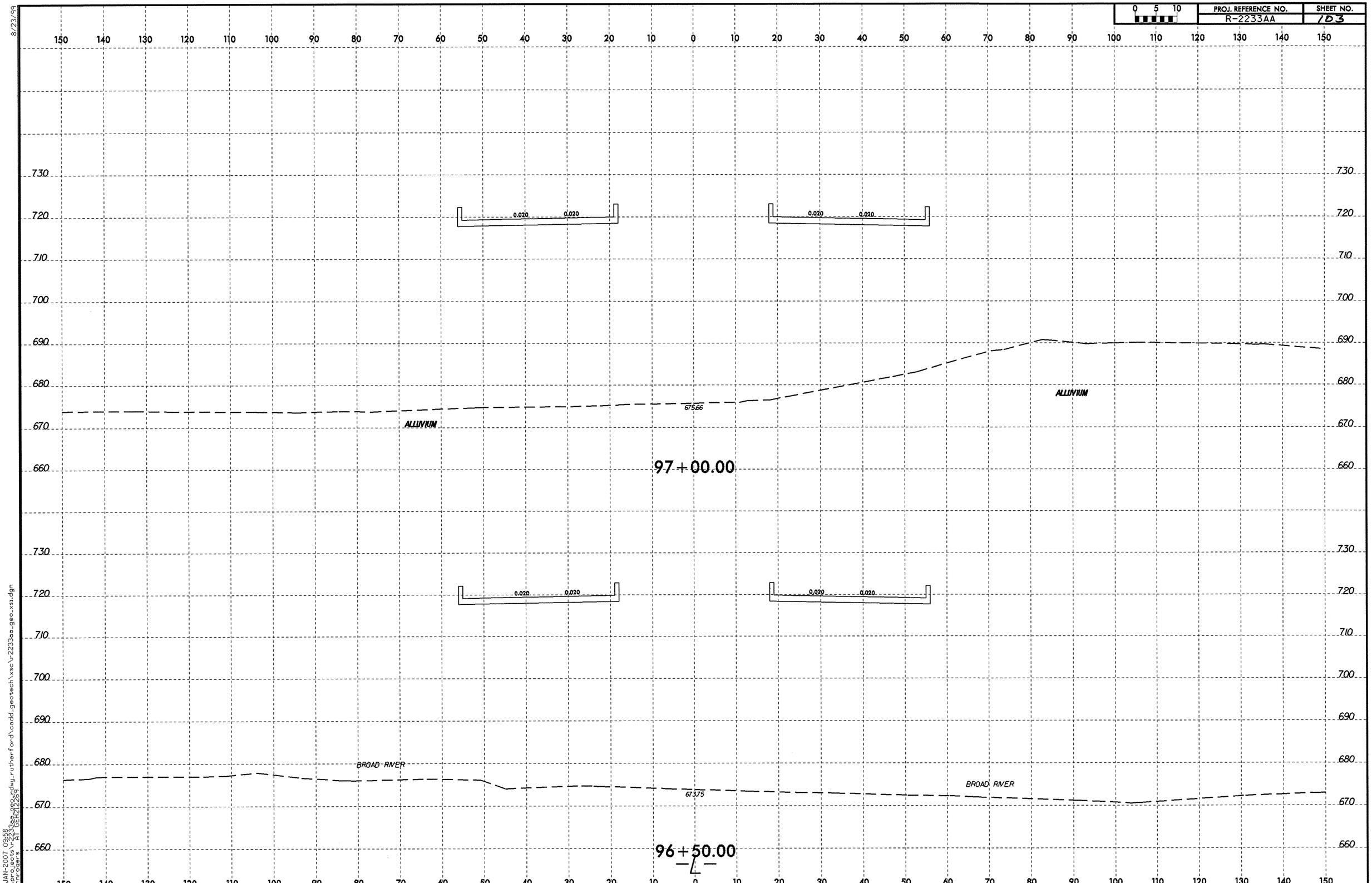
johnroders A1 GEH212269



8/23/99

12-JAN-2007 09:58
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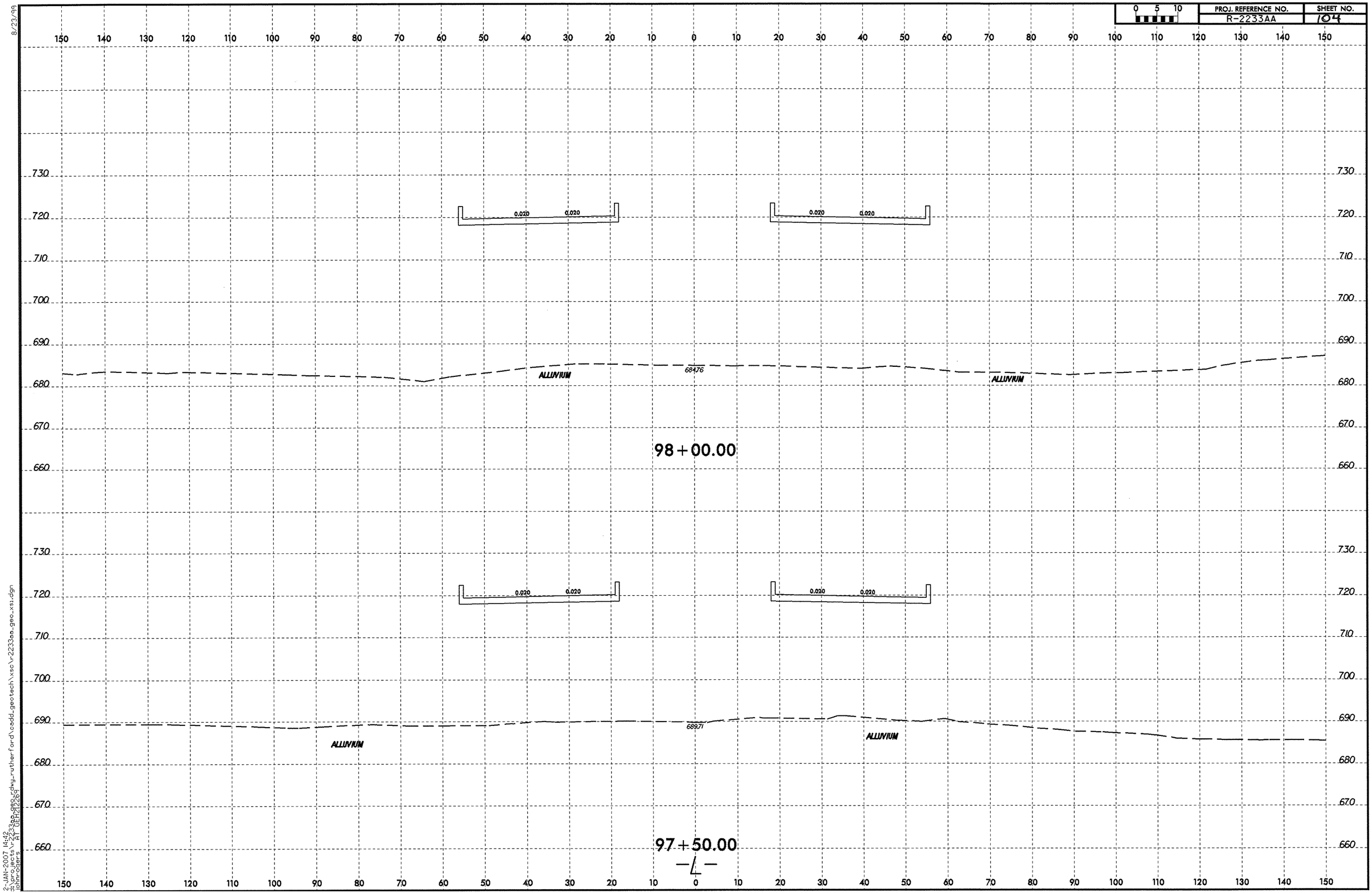
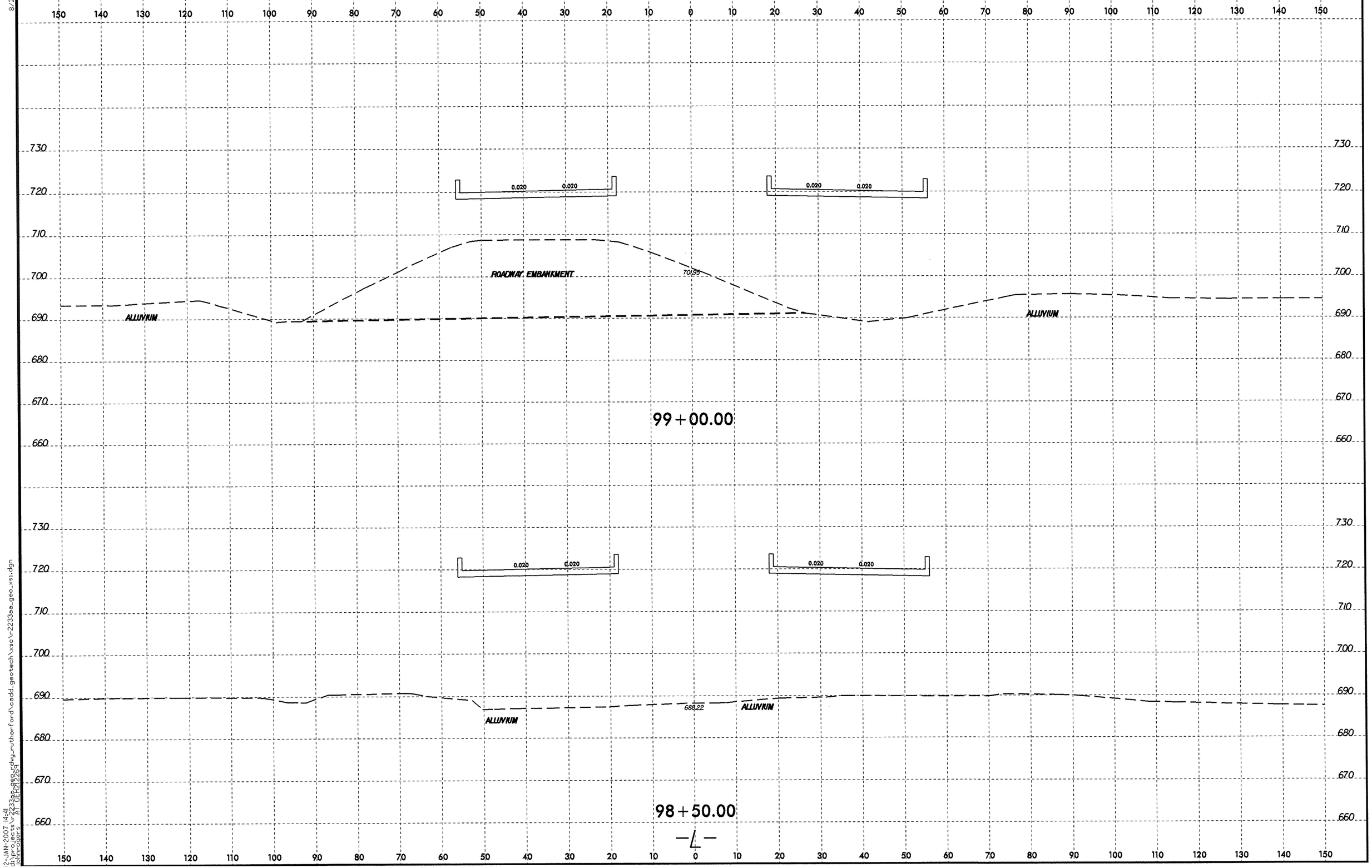
johnrogers H1 (EPT2/2261)



8/23/99

2-JAN-2007 14:42
j:\projects\r-2233aa_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi.dgn
johnrogers
A1 (ZEITZER)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	105



8/23/99

12-JAN-2007 14:41
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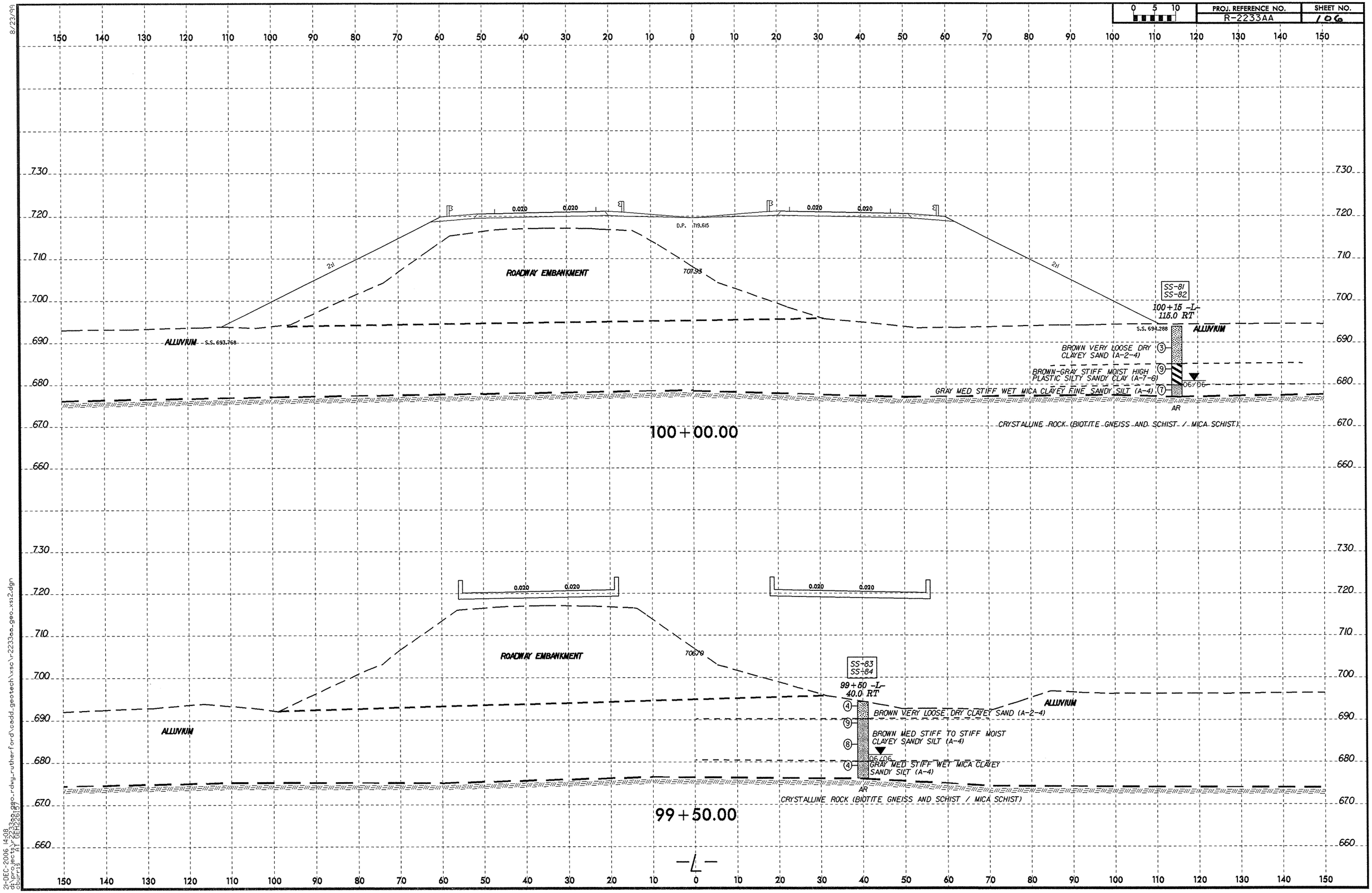
johnrogers
A1 GEH212259



8/23/99

21-DEC-2006 14:08
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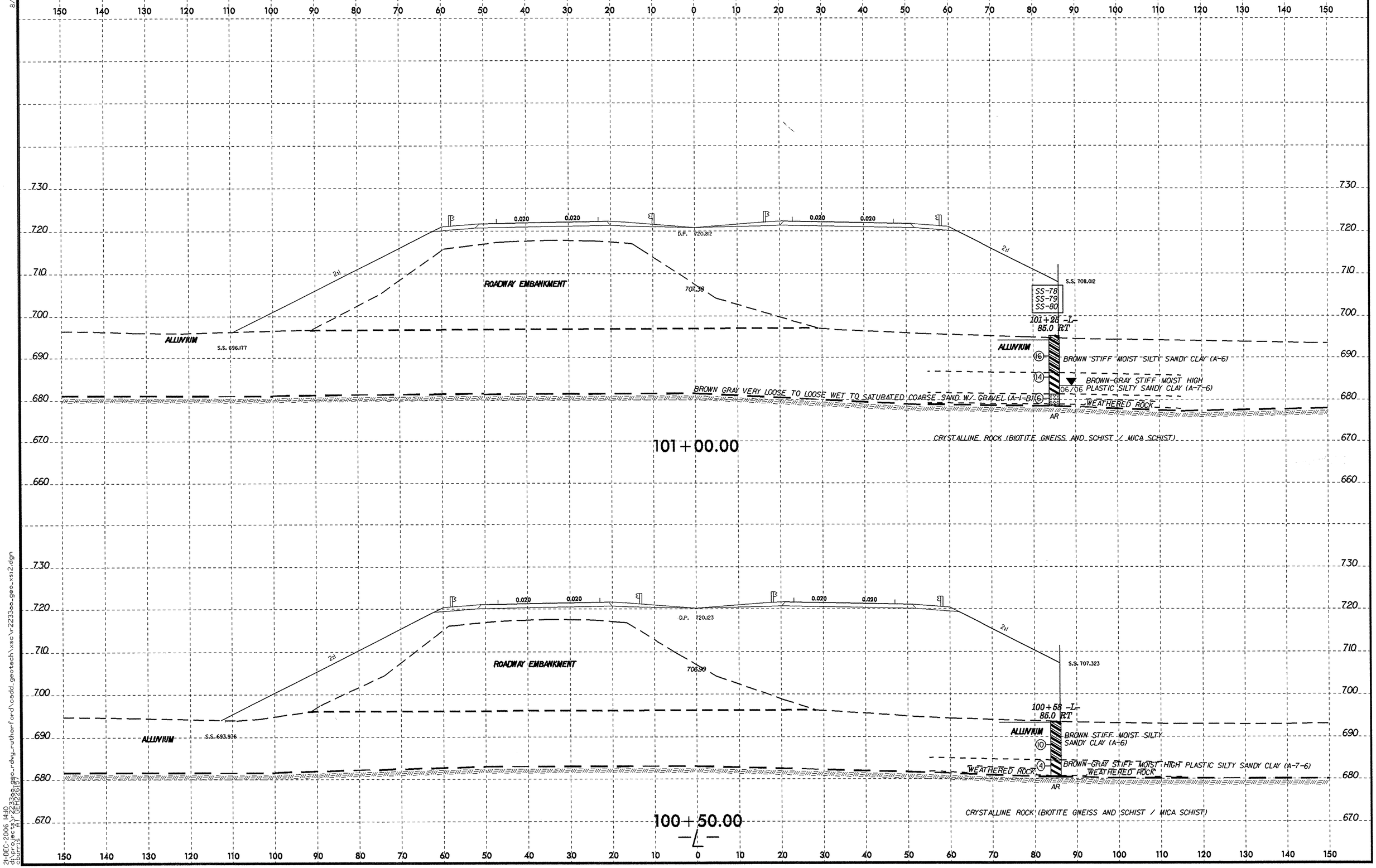
aburris RT GEN26.bt



8/23/99
21-DEC-2006 14:10
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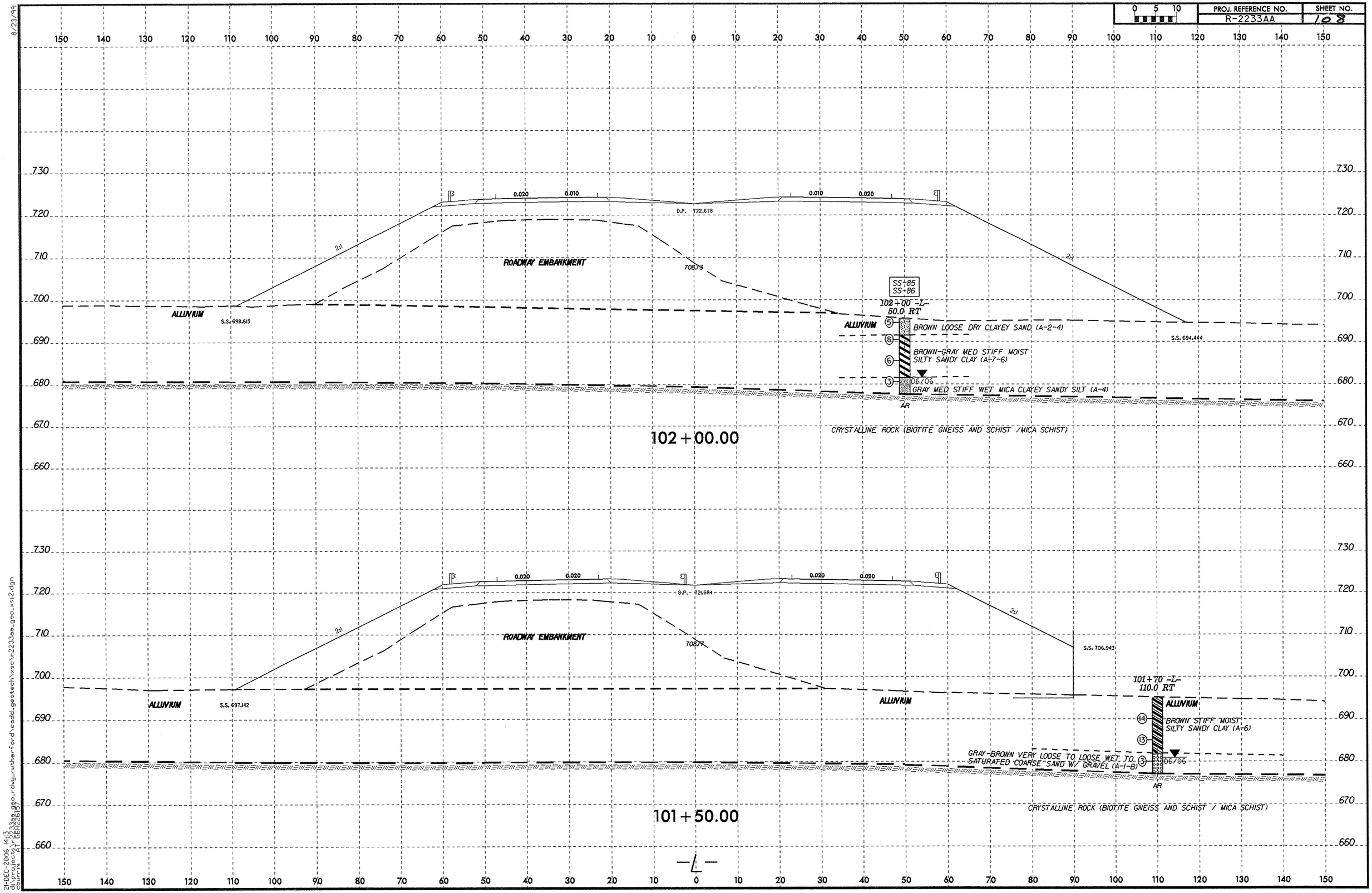
cburris (T) DEH22617



8/23/99

21-DEC-2006 14:13
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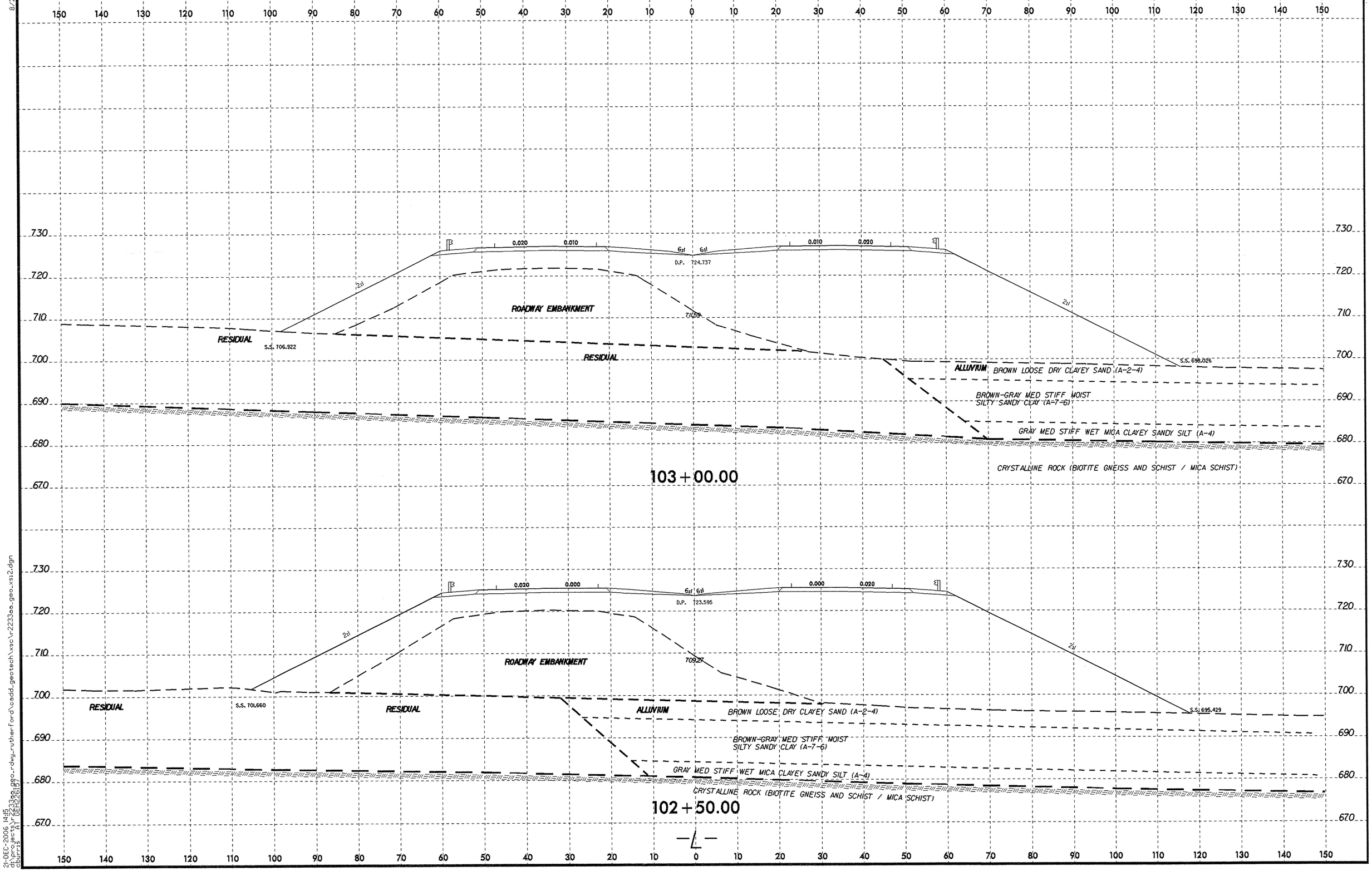
cburris AT DEN2261.37

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	109



8/23/99

21-DEC-2006 14:15
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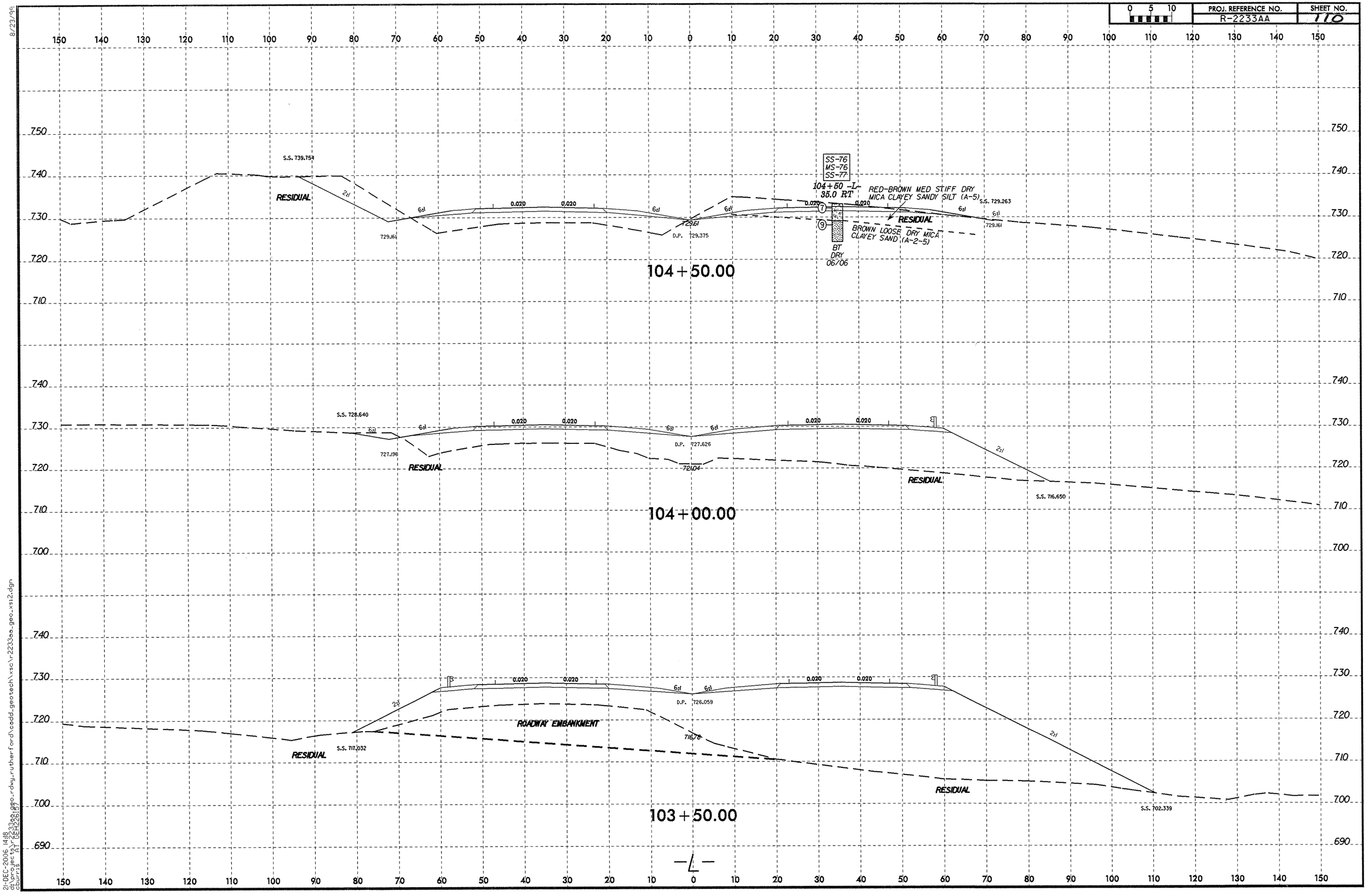
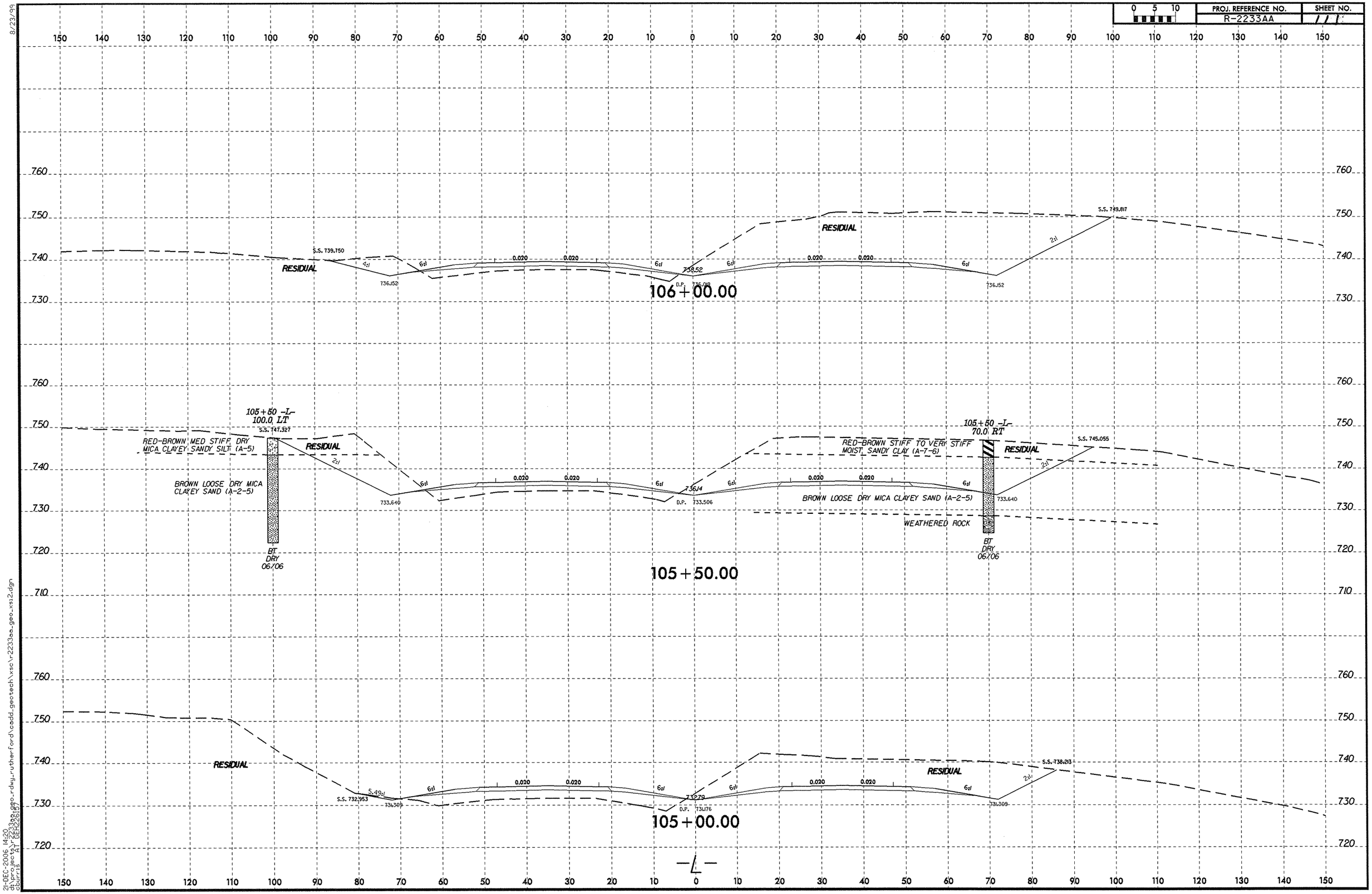
Journal: DEFAULT



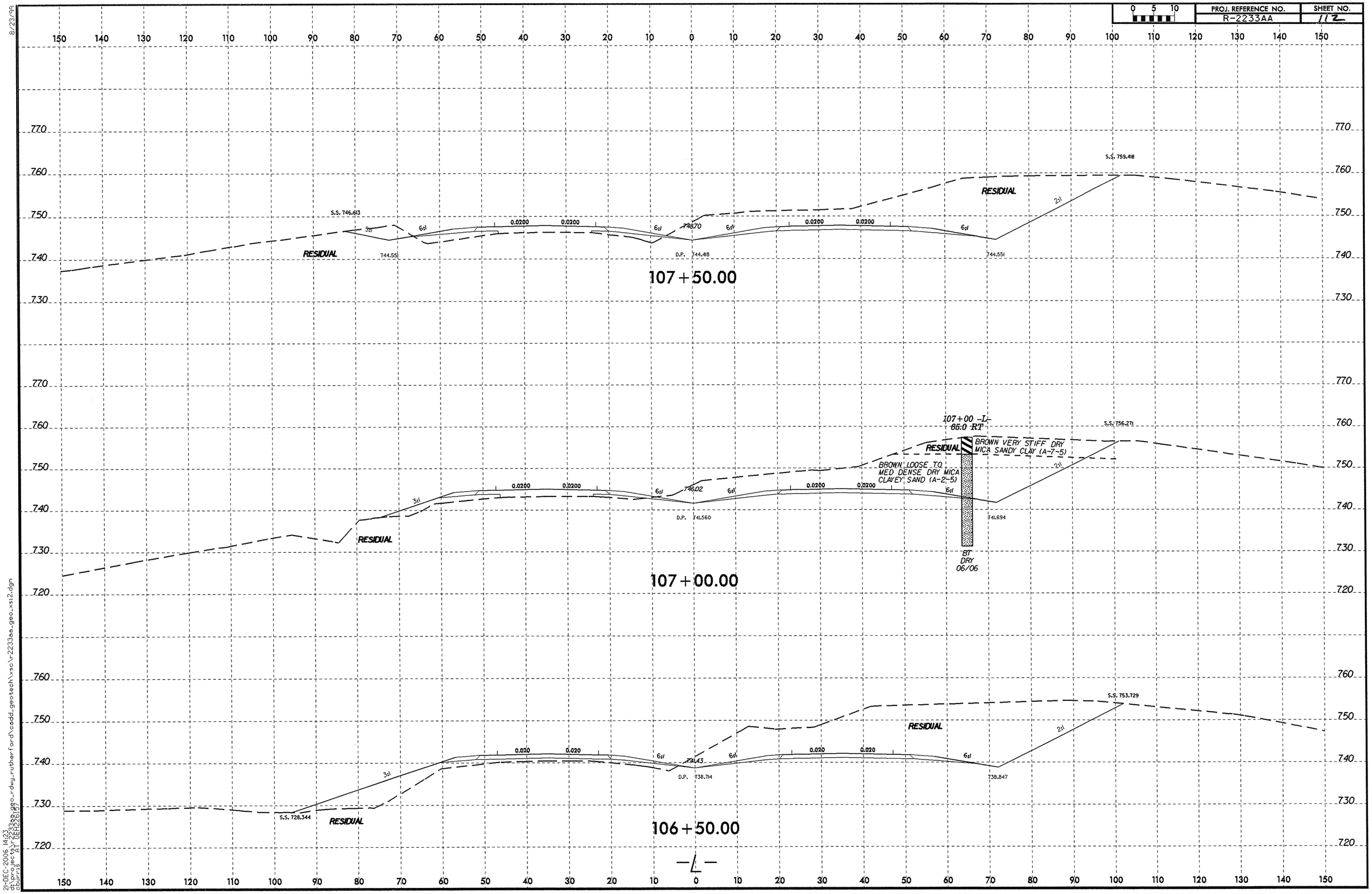
8/23/99

21-DEC-2006 14:18
d:\projects\r-2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
eburris AT GEH26157

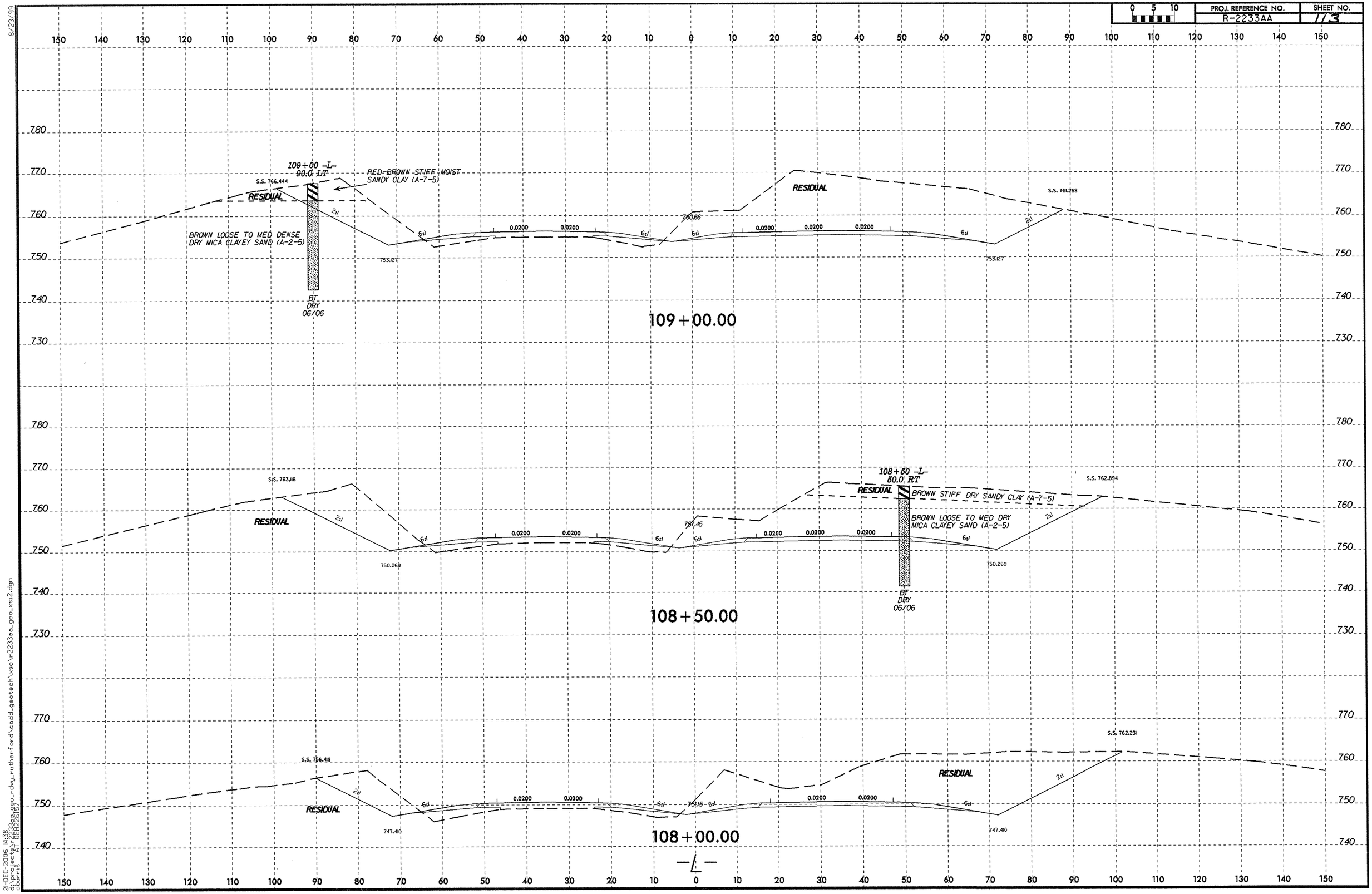


21-DEC-2006 14:20
d:\projects\r-2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xs12.dgn
cburns AT GEH22617

8/23/99


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
112
0 5 10
107+50.00
S.S. 746.613
S.S. 759.418
RESIDUAL
744.551
D.P. 744.418
746.70
0.0200
107+00.00
107+00 -L-
65.0 RT
S.S. 756.271
BROWN VERY STIFF DRY
MICA SANDY CLAY (A-7-5)
BROWN LOOSE TO
MED DENSE DRY MICA
CLAYEY SAND (A-2-5)
D.P. 741.560
746.02
741.694
BT
DRY
06/06
106+50.00
S.S. 728.344
S.S. 753.729
D.P. 738.714
741.43
738.847
0.020
-L-
21-DEC-2006 14:23
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburns A1 (8.5x11)
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	11.3



8/23/99

21-DEC-2006 14:38
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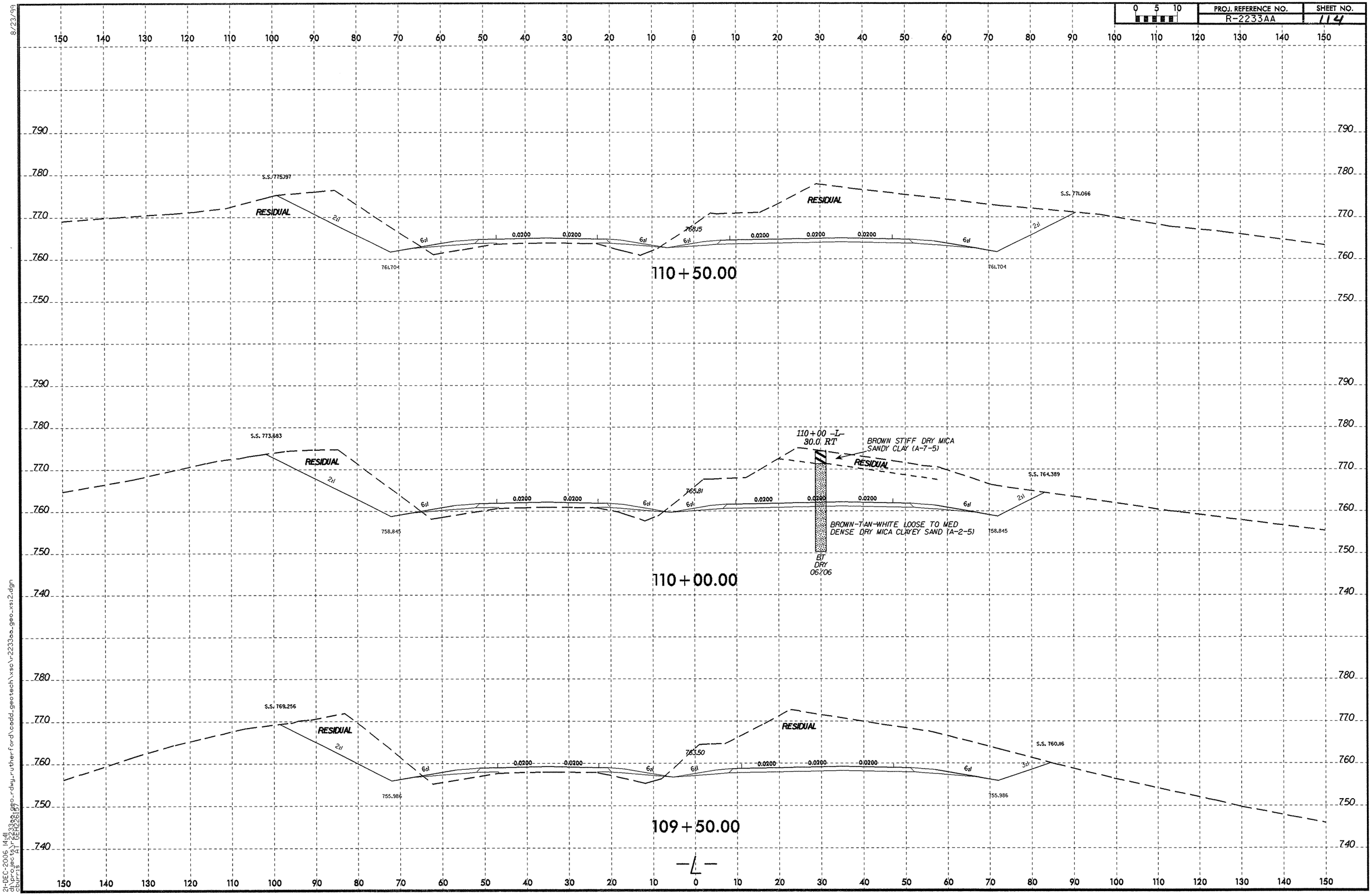
cburns AT DEH22617

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	114



21-DEC-2006 14:41
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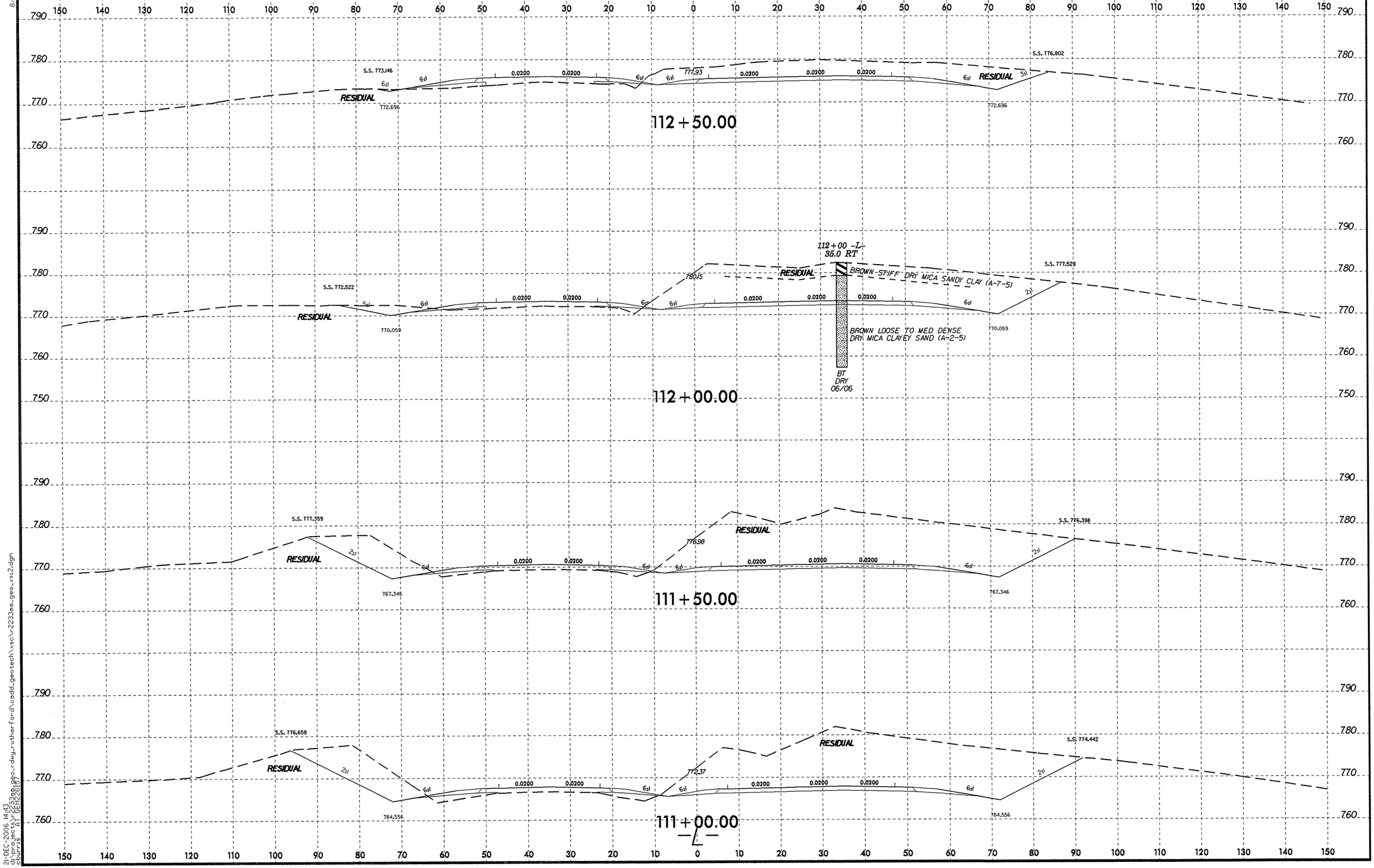
cburris AT DEH26157

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	113



8/23/99

21-DEC-2006 14:43
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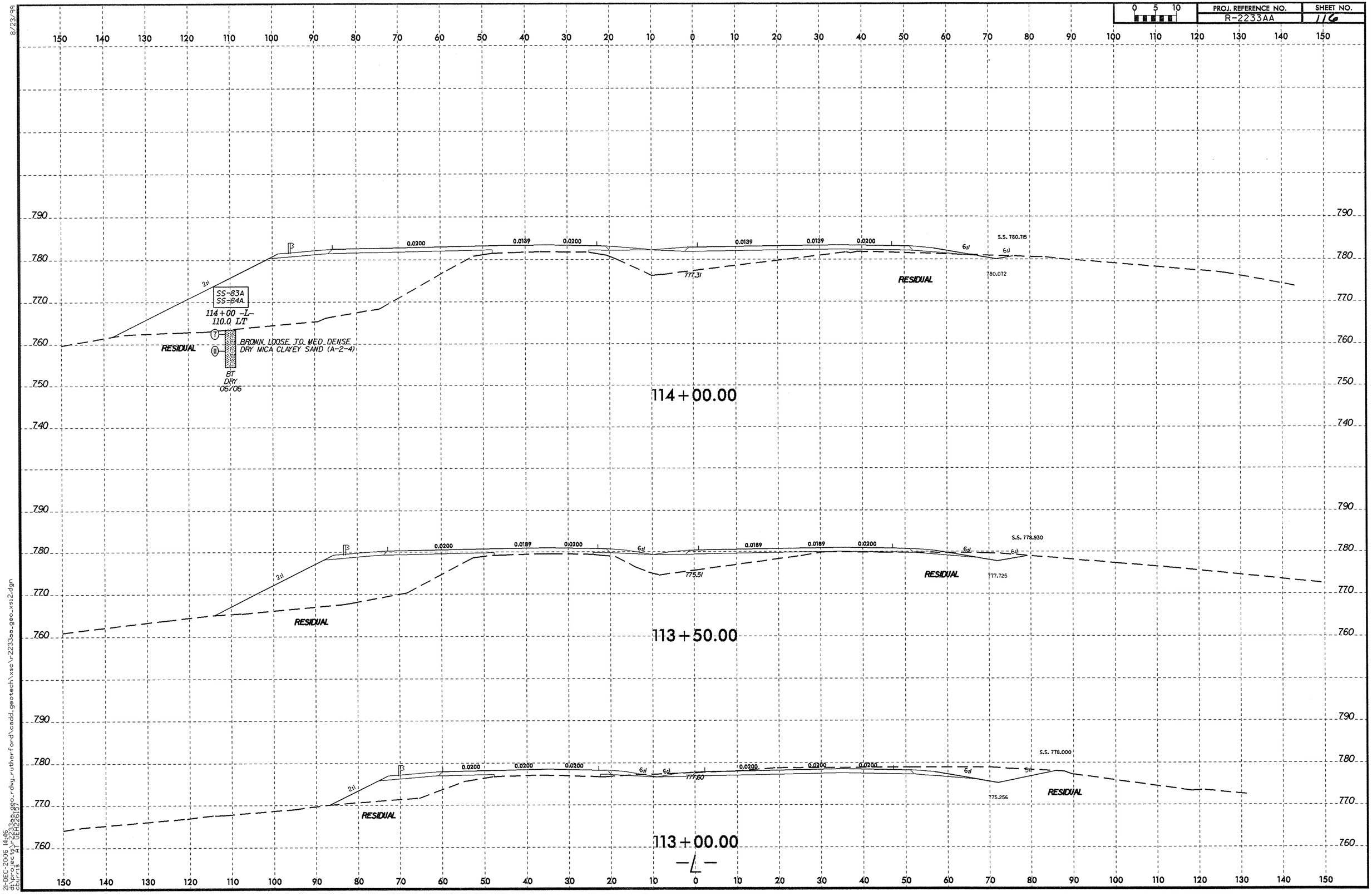
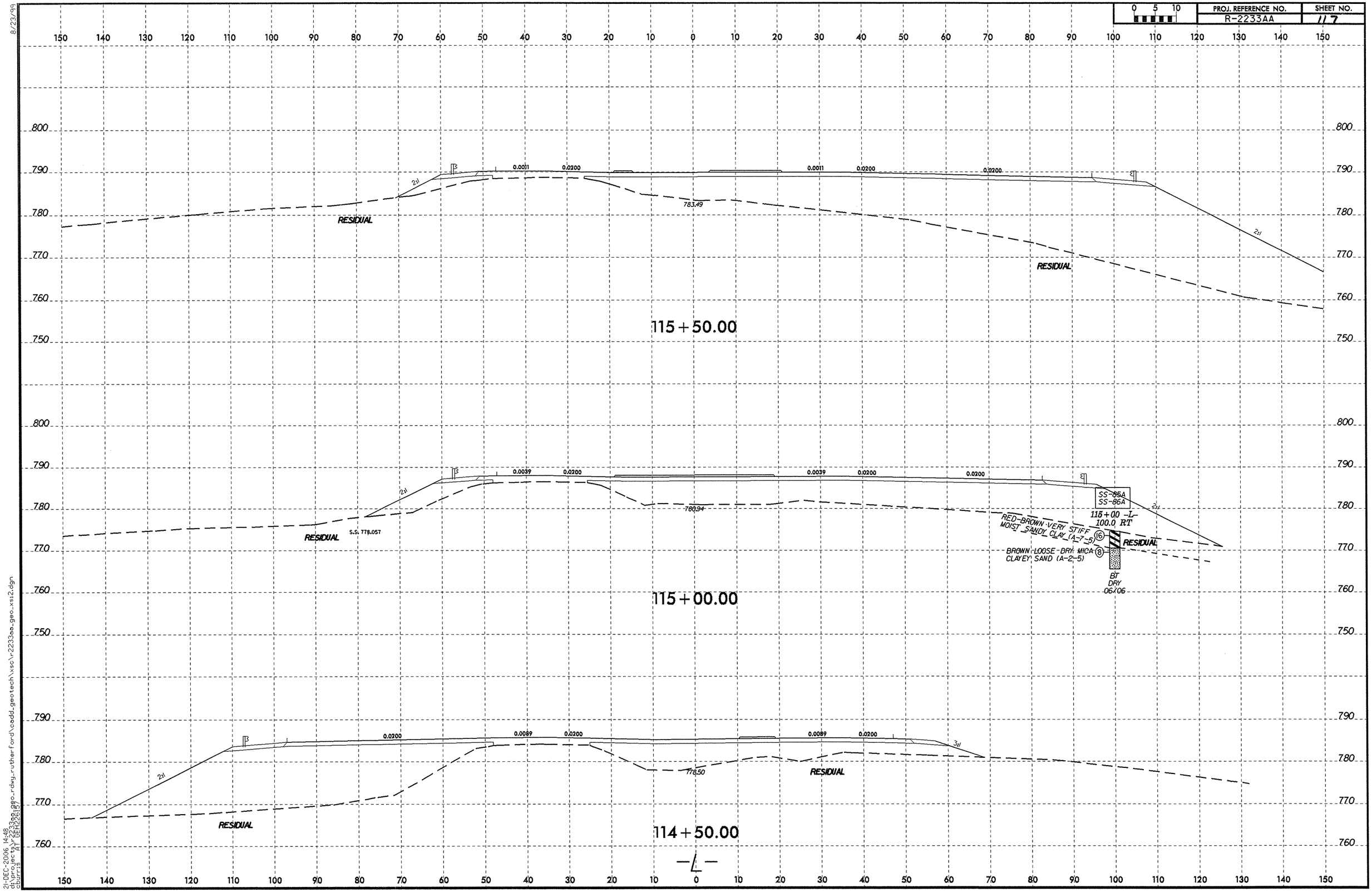
cburris


0 5 10
8/23/99
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
790
780
770
760
750
740
0.0200
0.0139
0.0200
0.0139
0.0139
0.0200
S.S. 780.715
6:1
2:1
SS-83A
SS-84A
114+00 -L-
110.0 LT
7
11
BT
DRY
06/06
BROWN LOOSE TO MED DENSE
DRY MICA CLAYEY SAND (A-2-4)
RESIDUAL
777.31
780.072
114+00.00
0.0189
0.0200
S.S. 778.930
775.51
777.725
113+50.00
0.0200
0.0200
0.0200
S.S. 778.000
5:1
777.60
775.256
113+00.00
-L-
21-DEC-2006 14:46
d:\projects\r-2233aa\geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
dburris AT DEPARTMENT


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
117
0 5 10
115+50.00
0.0011
0.0200
783.49
RESIDUAL
2:1
115+00
0.0039
0.0200
786.94
S.S. 778.057
SS-85A
SS-86A
115+00 -L-
100.0 RT
RED-BROWN VERY STIFF
MOIST SANDY CLAY (A-7-5)
BROWN LOOSE DRY MICA
CLAYEY SAND (A-2-5)
BT
DRY
06/06
114+50.00
0.0089
778.50
-L-
8/23/99
21-DEC-2006 14:48
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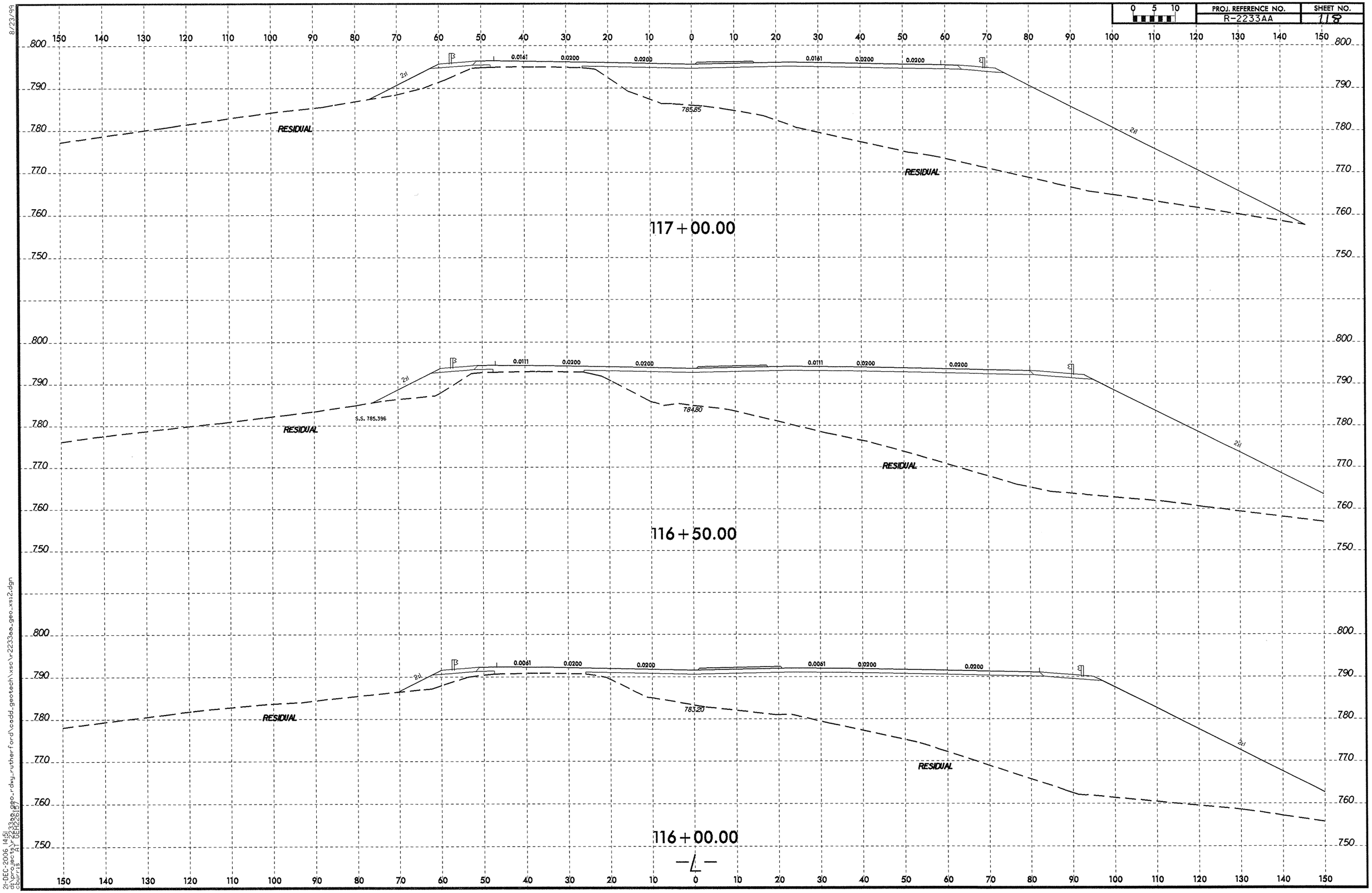
dburris AT DEH26157



8/23/99
21-DEC-2006 14:51
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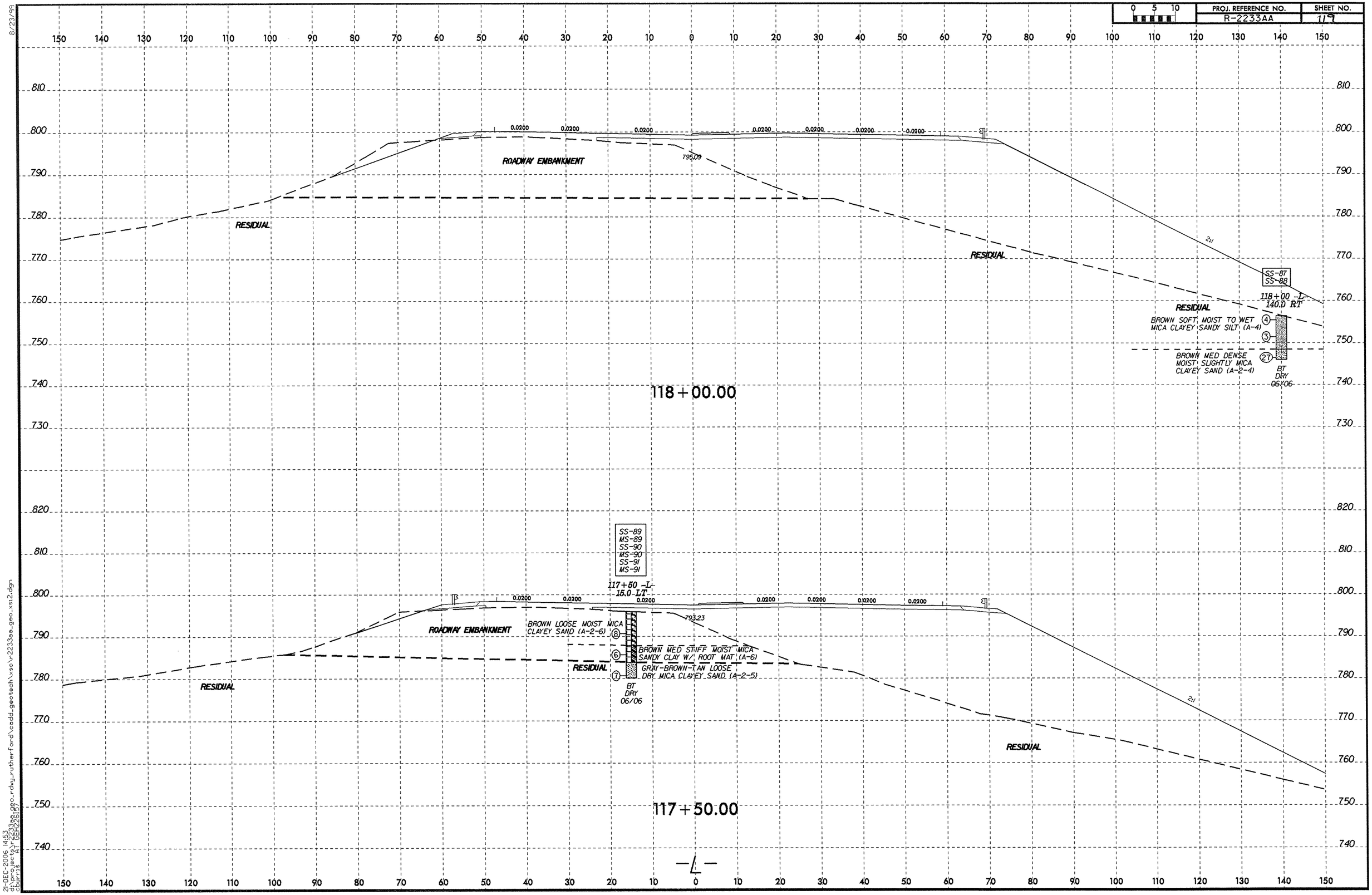
cburris AT GEH(26157)



8/23/99

21-DEC-2006 14:53
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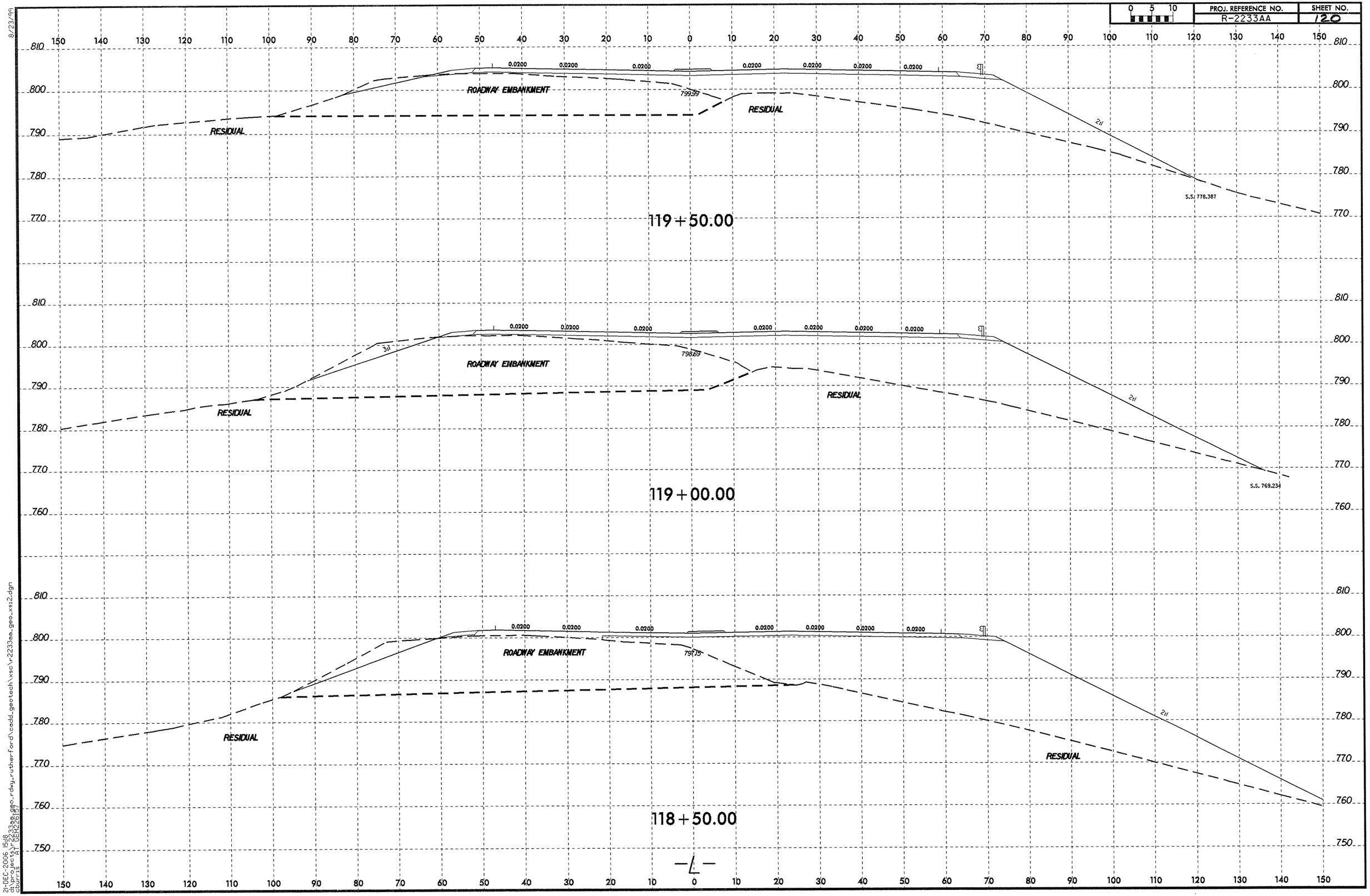
dburns AT DEH26157



21-DEC-2006 15:18
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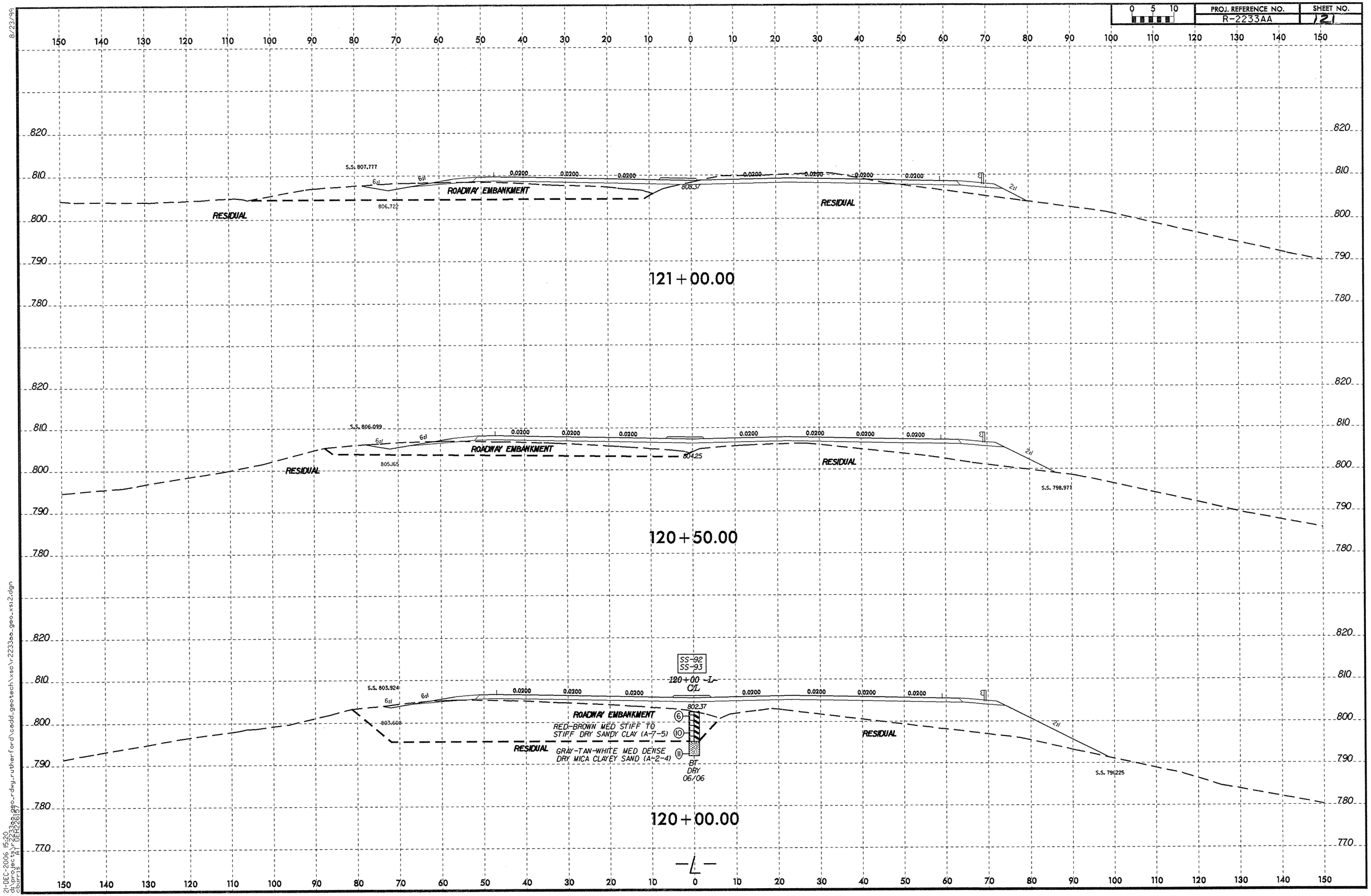
cburns AT DEH22617

8/23/99


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
121
S.S. 807.777
6:1
6:1
0.0200
ROADWAY EMBANKMENT
808.37
806.722
RESIDUAL
RESIDUAL
2:1
121+00.00
S.S. 806.099
805.165
804.25
S.S. 798.971
120+50.00
S.S. 803.924
803.608
SS-92
SS-93
120+00 -L-
C/L
802.37
RED-BROWN MED STIFF TO
STIFF DRY SANDY CLAY (A-7-5)
GRAY-TAN-WHITE MED DENSE
DRY MICA CLAYEY SAND (A-2-4)
BT
DRY
06/06
S.S. 791.225
120+00.00
-L-
8/23/99
21-DEC-2006 15:20
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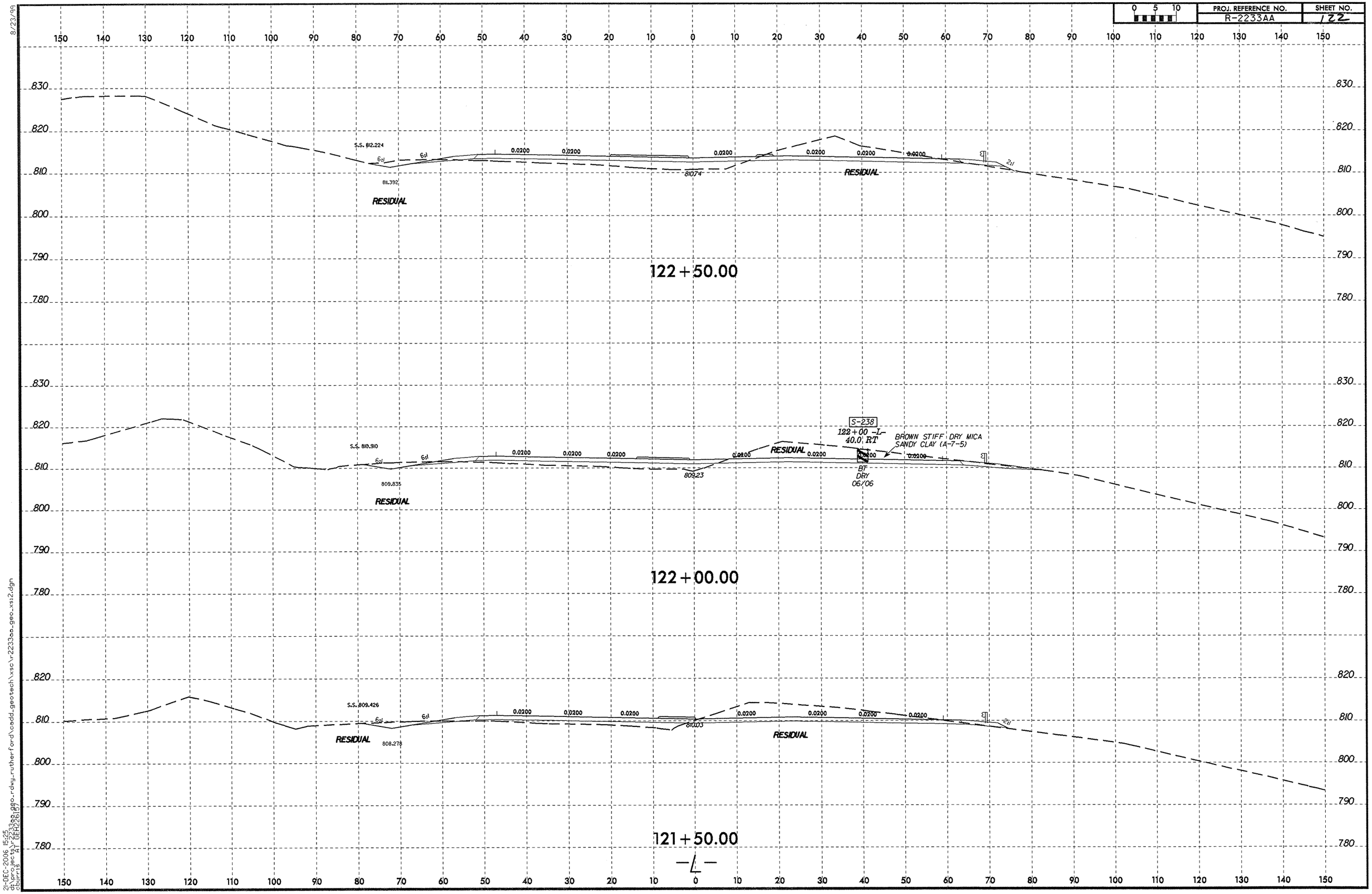
Courtis A. DEHAZON



8/23/99
21-DEC-2006 15:25
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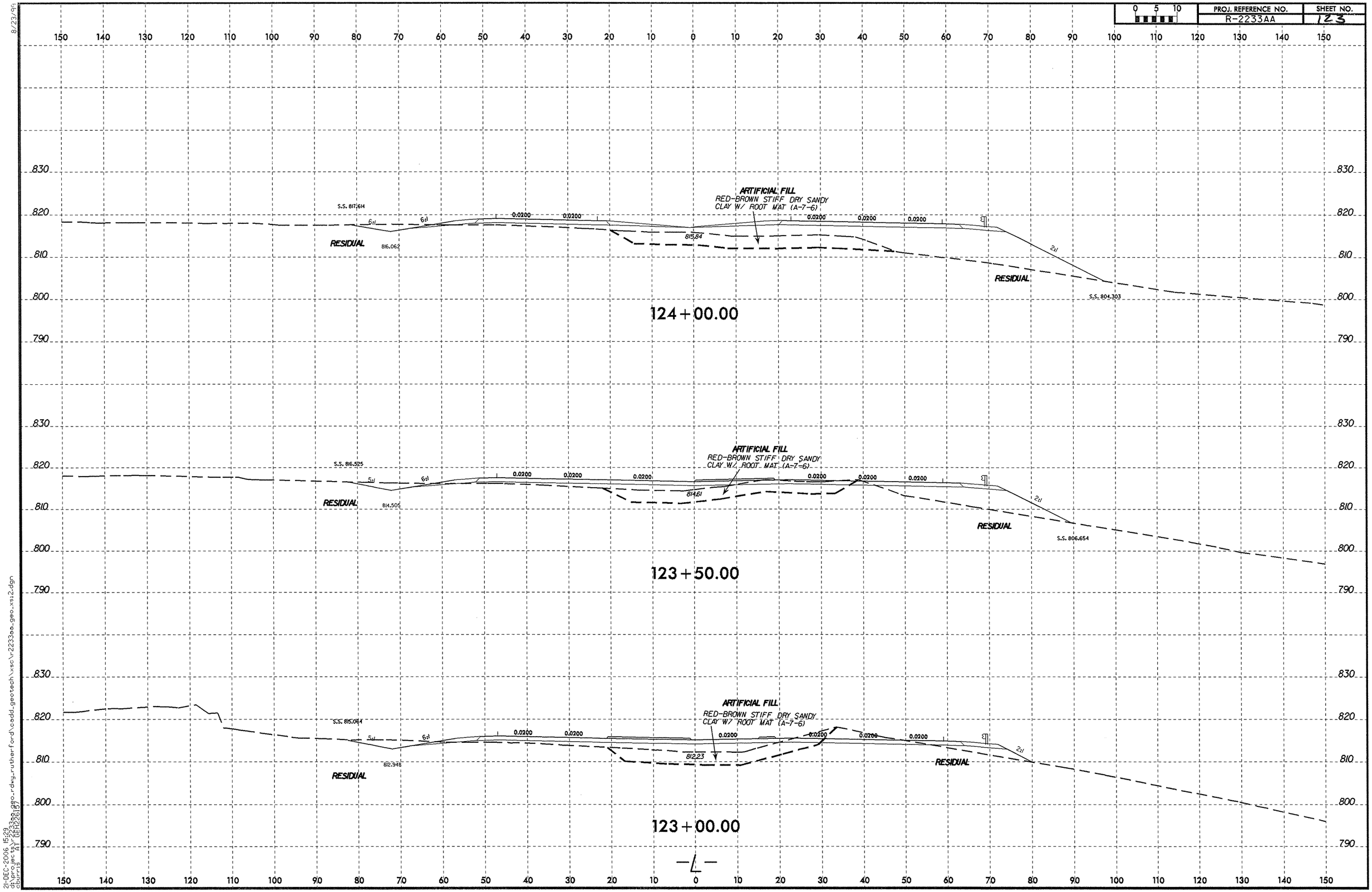
cburris



21-DEC-2006 15:29
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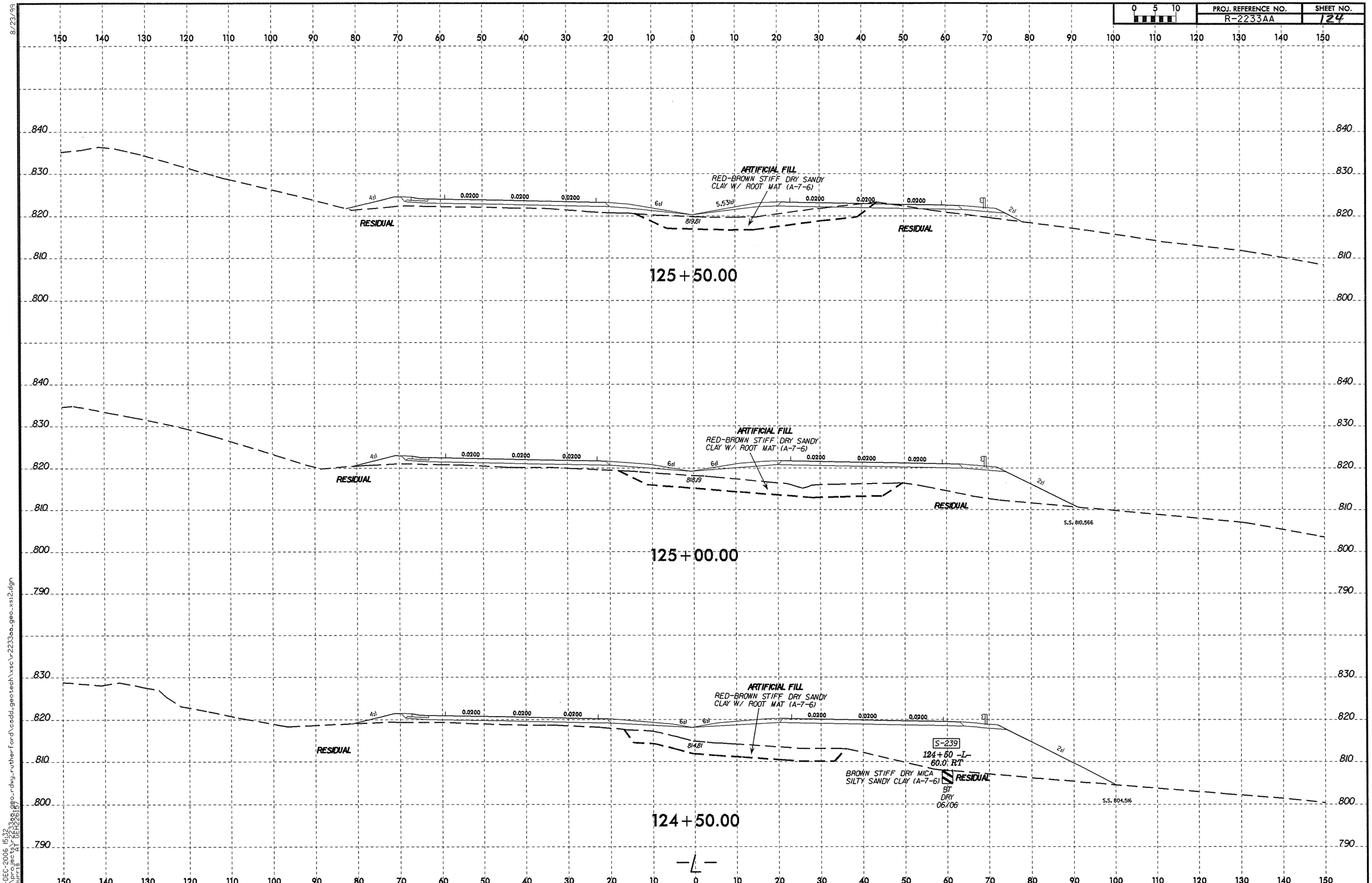
dbowris AT DEM12813

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	124



8/23/99

21-DEC-2006 15:32
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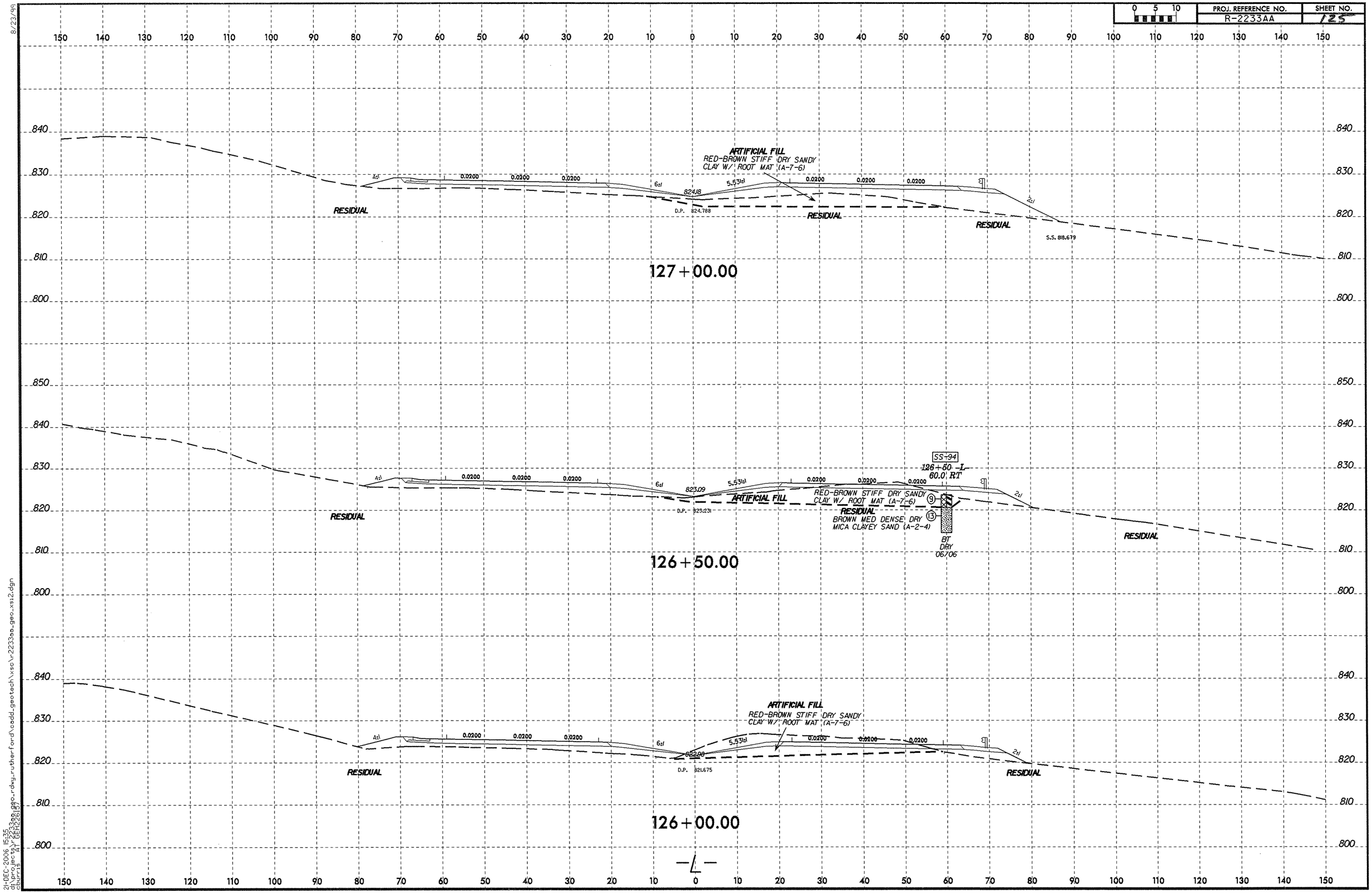
cburris

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	125



8/23/99

21-DEC-2006 15:35
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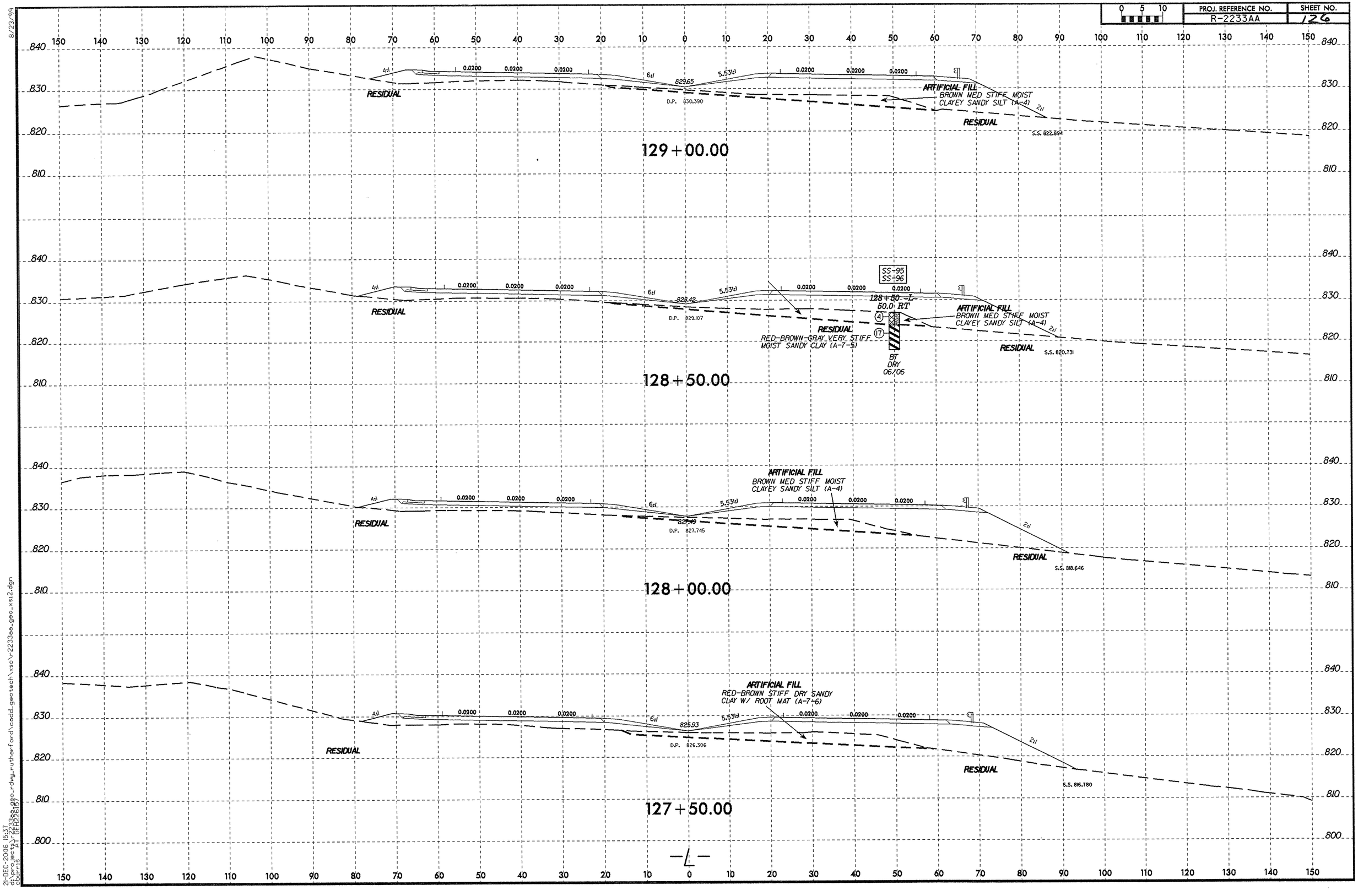
cburris

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	126



8/23/99

21-DEC-2006 15:37
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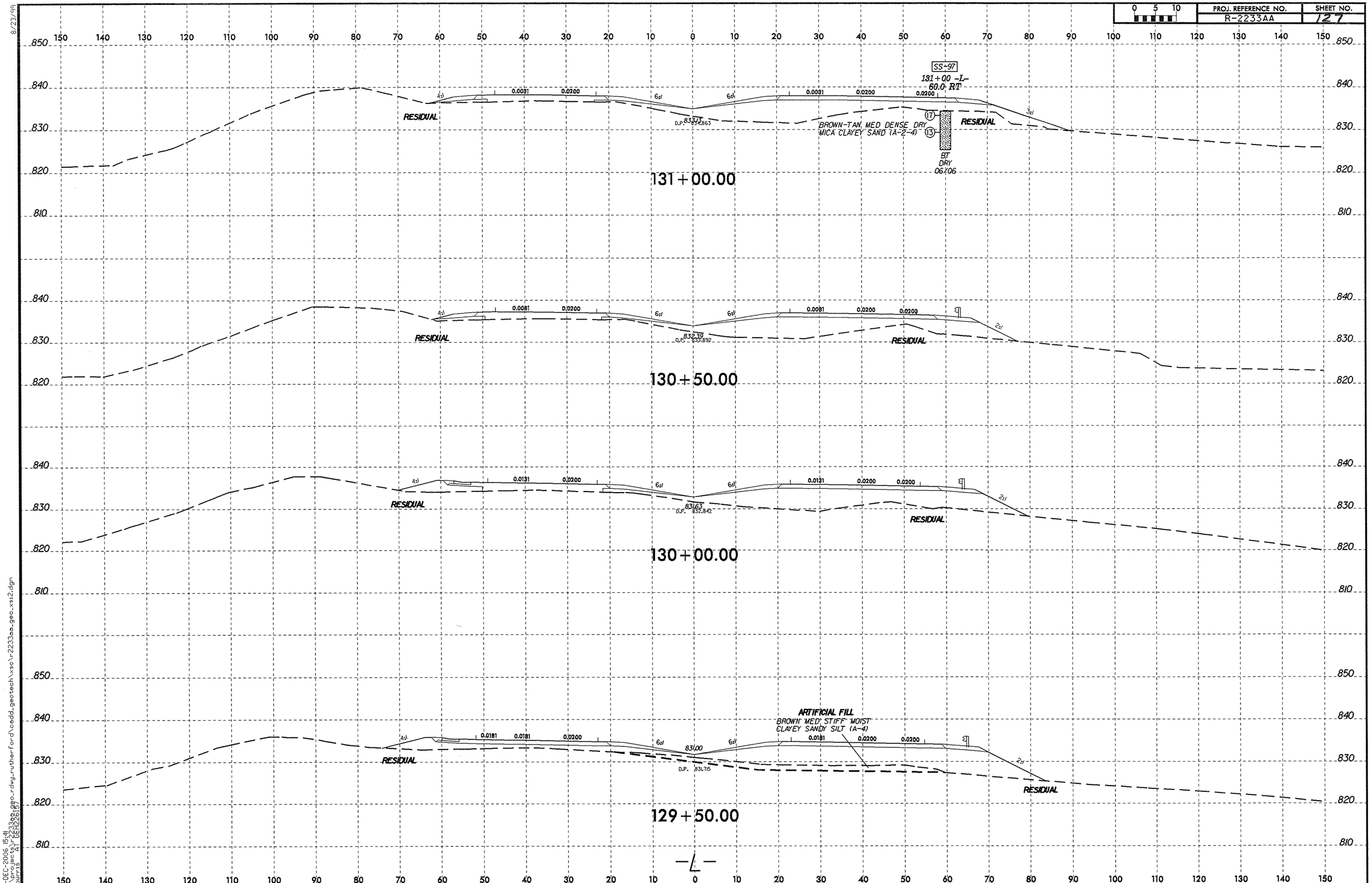
cburris AT (DEH2261)



8/23/99

21-DEC-2006 15:41
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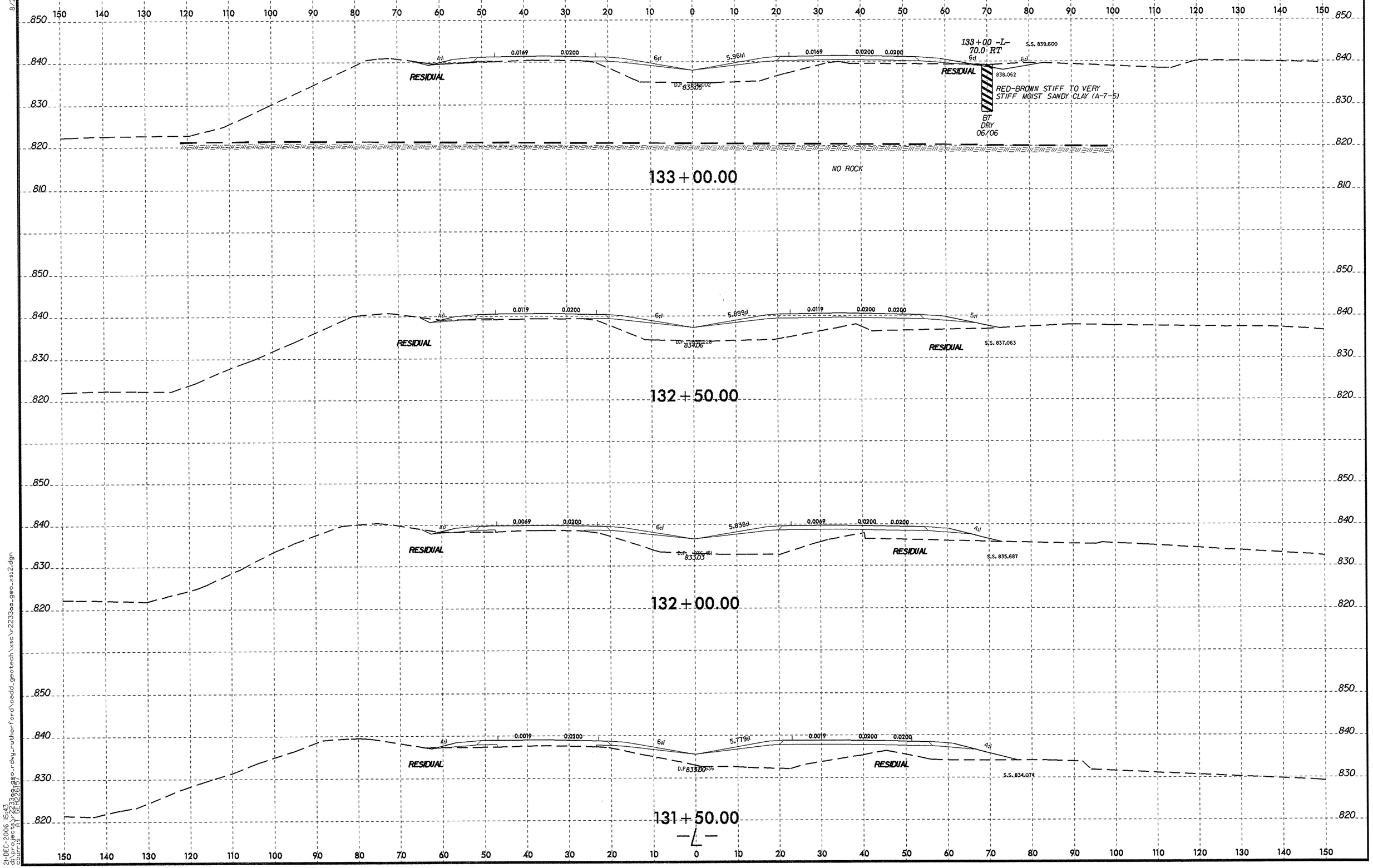
cburris
"A" GEH228197

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	128



8/23/99

21-DEC-2006 15:43
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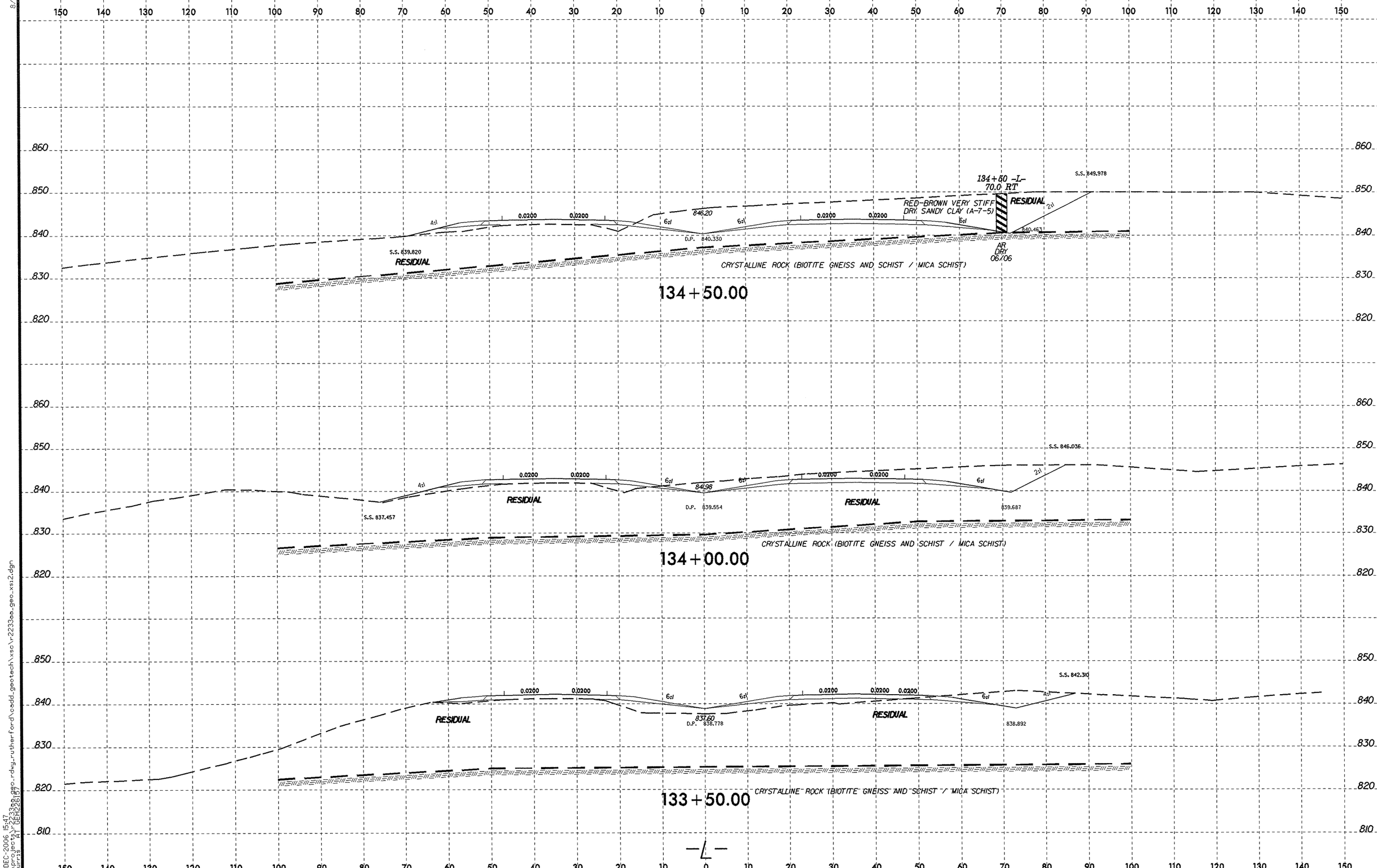
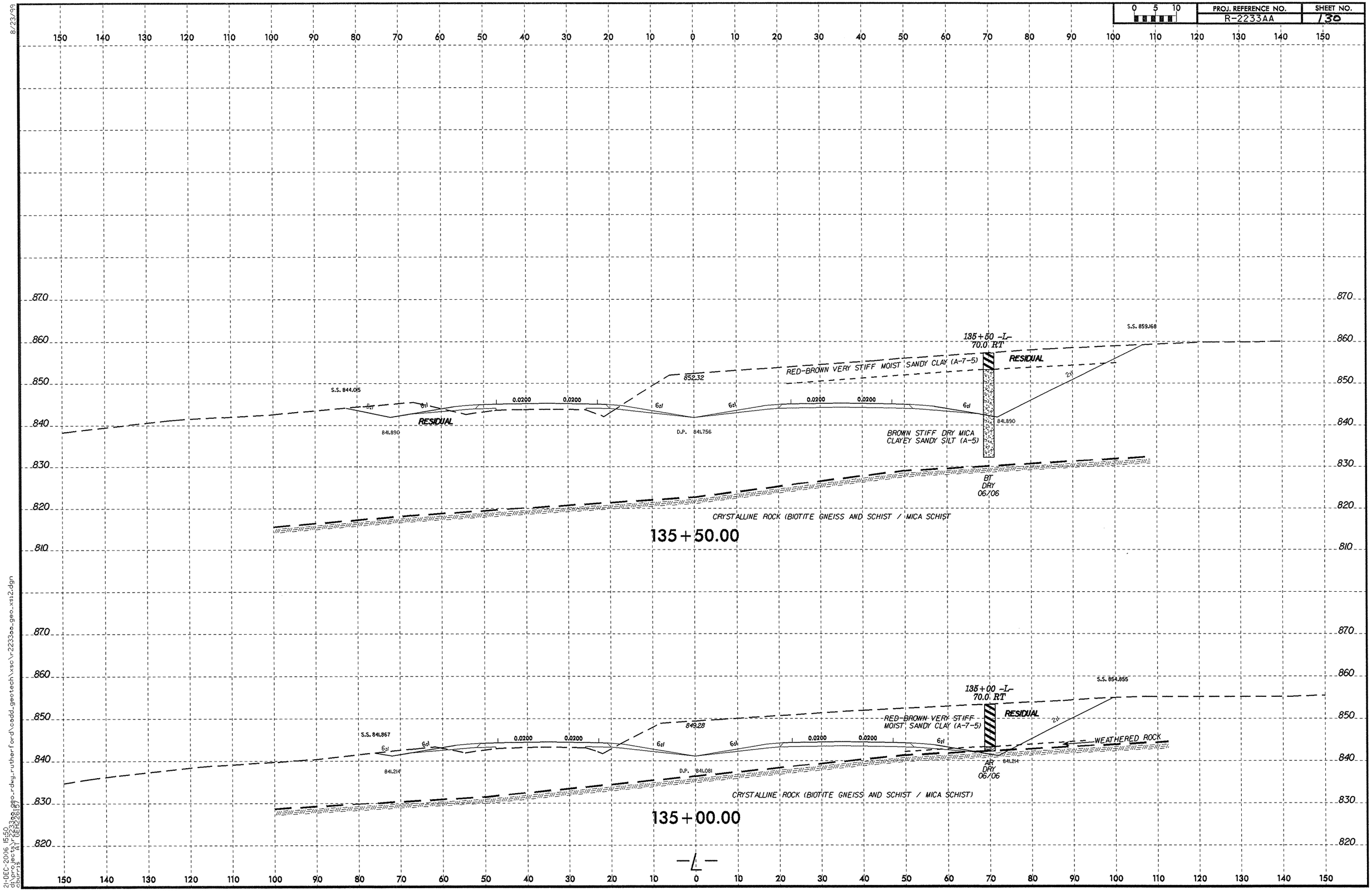
cburris AT DEH26157



21-DEC-2006 15:47
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
Courtney A. Bennett

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	130



8/23/99

21-DEC-2006 15:50
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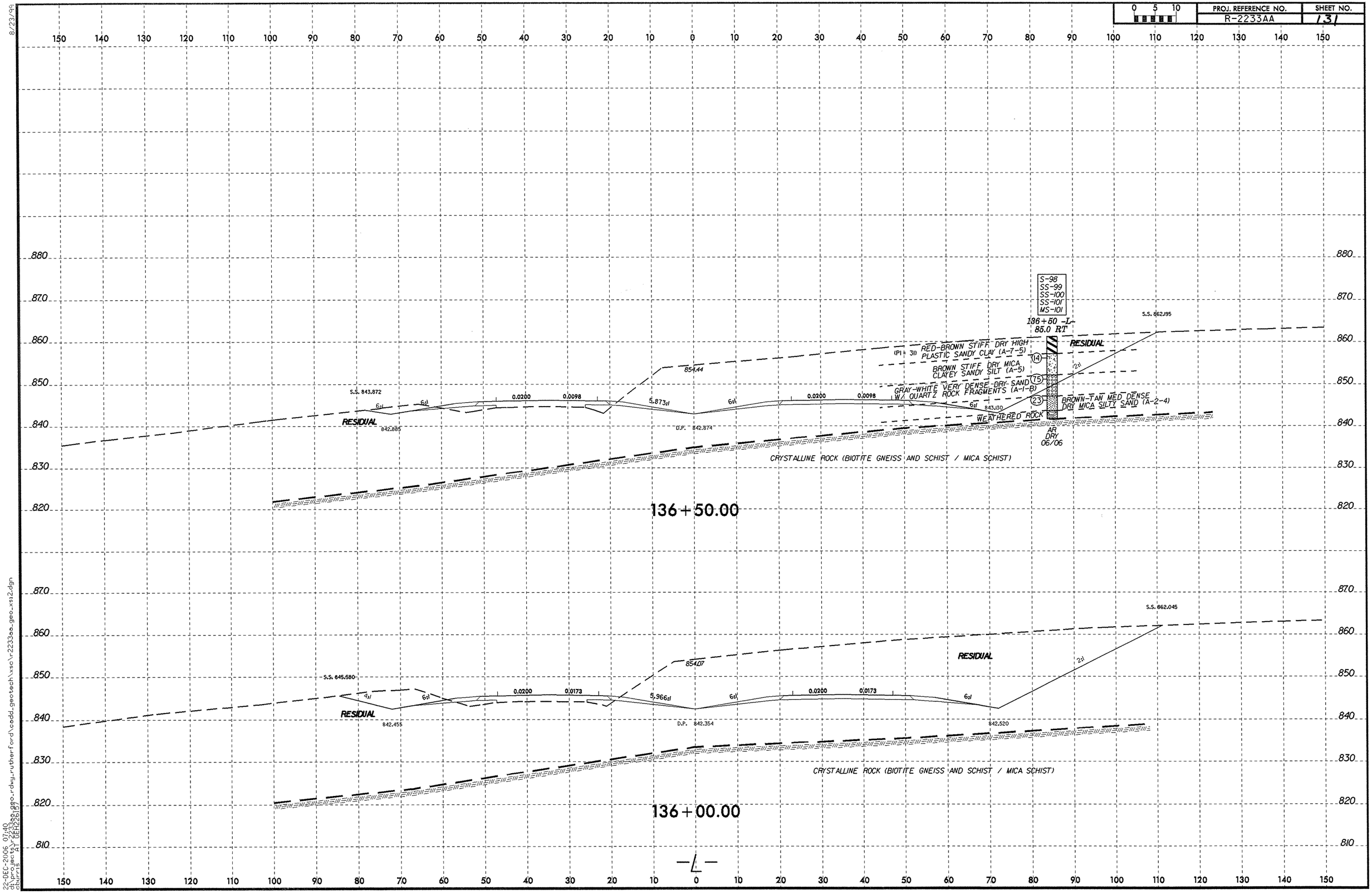
bburns AT DEH2287



8/23/99

22-DEC-2006 07:40
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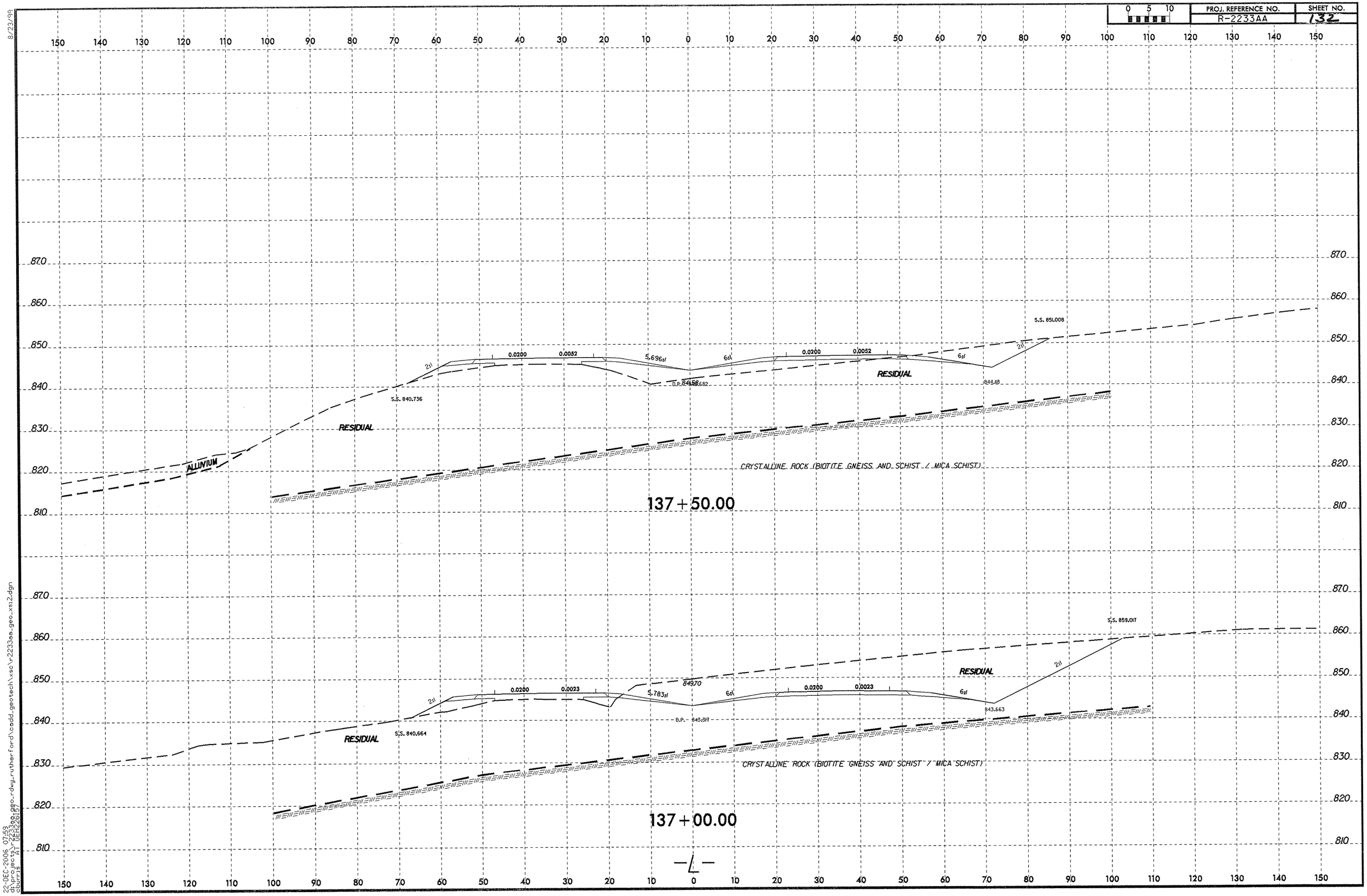
cburris AT DEH2267



8/23/99

22-DEC-2006 07:59
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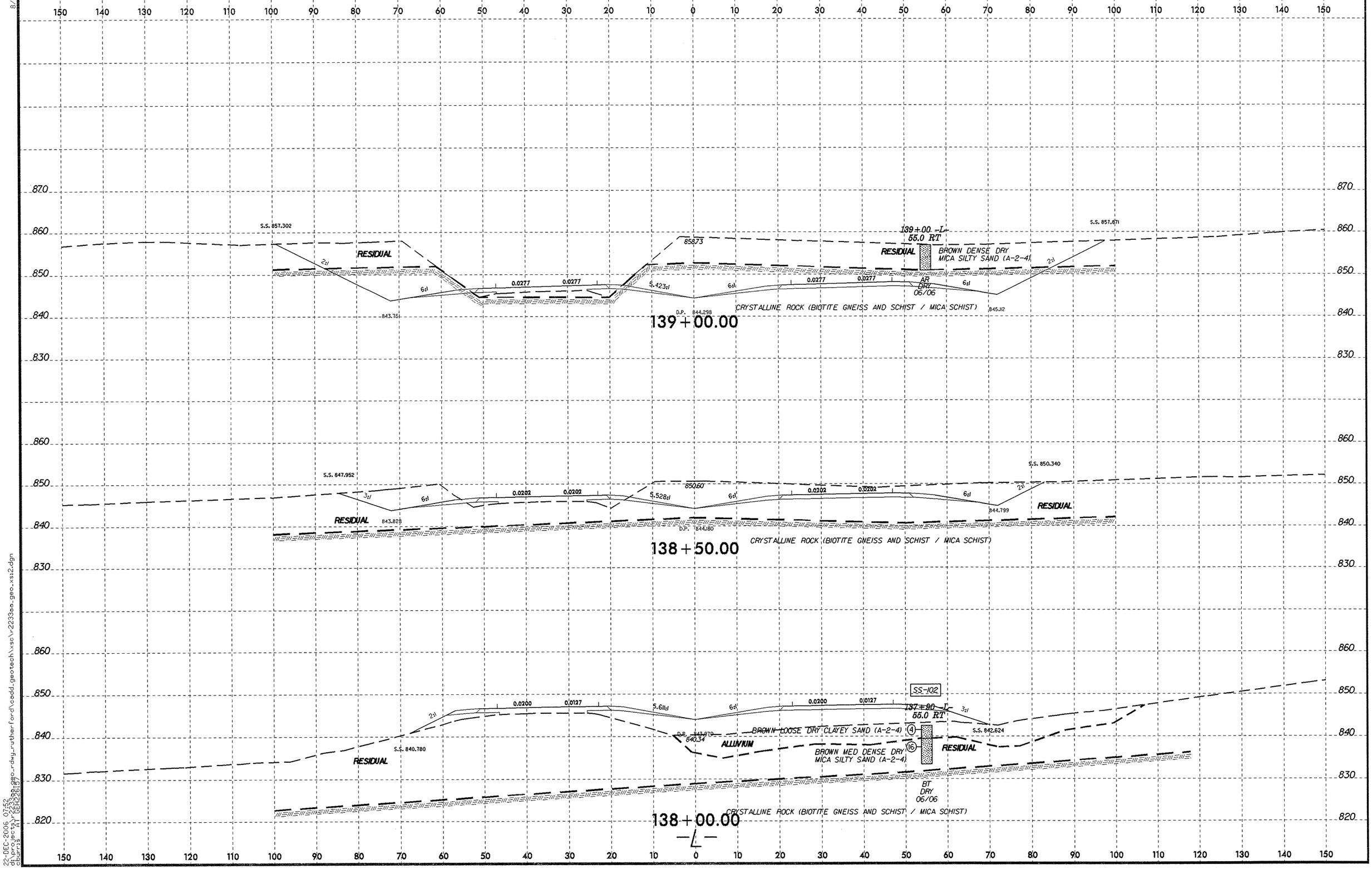
cburris AT GEH226157



8/23/99
22-DEC-2006 07:52
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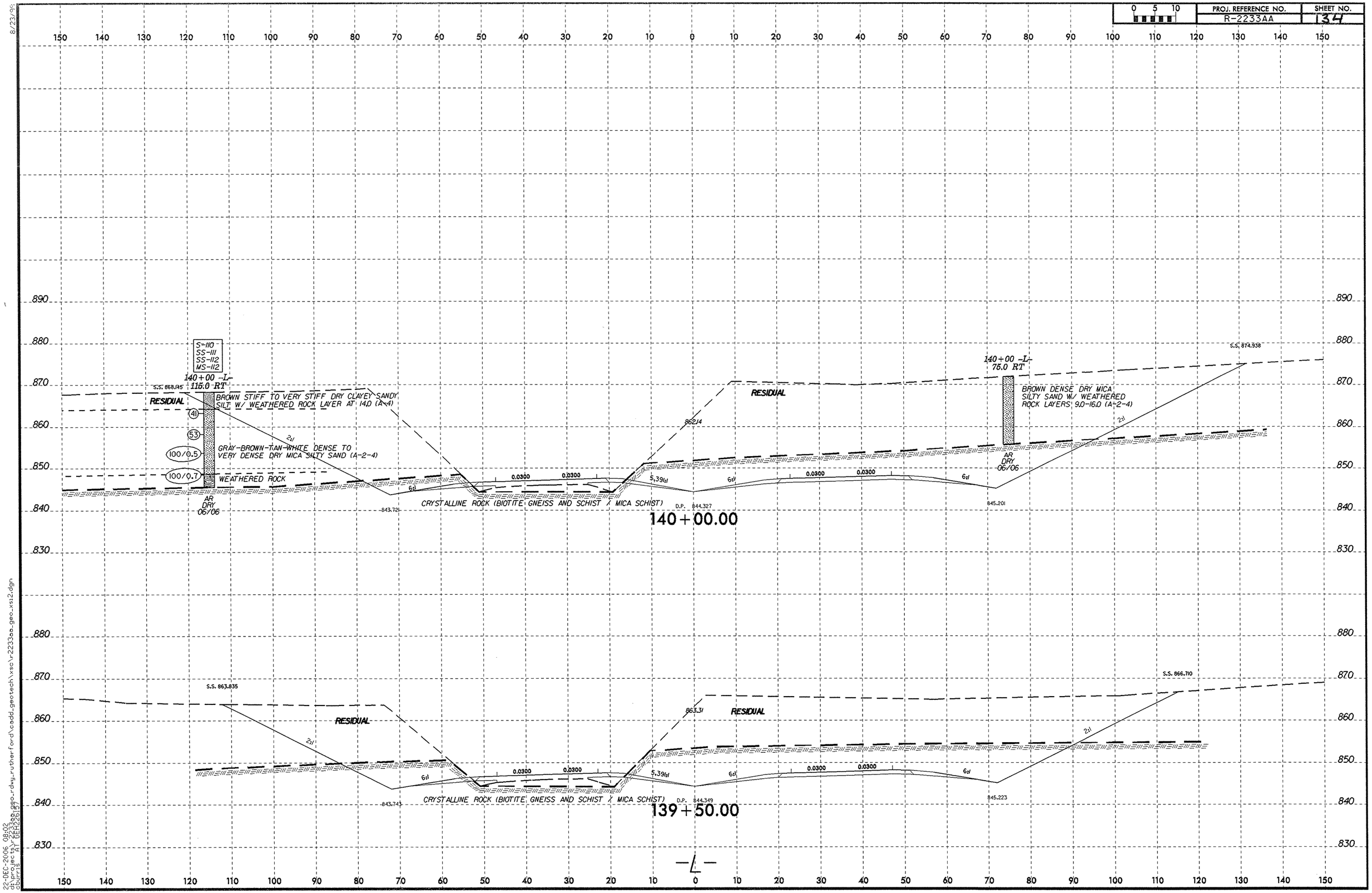
(GEOPAK) r2233aa_geo_rdwy_rutherford



8/23/99
22-DEC-2006 08:02
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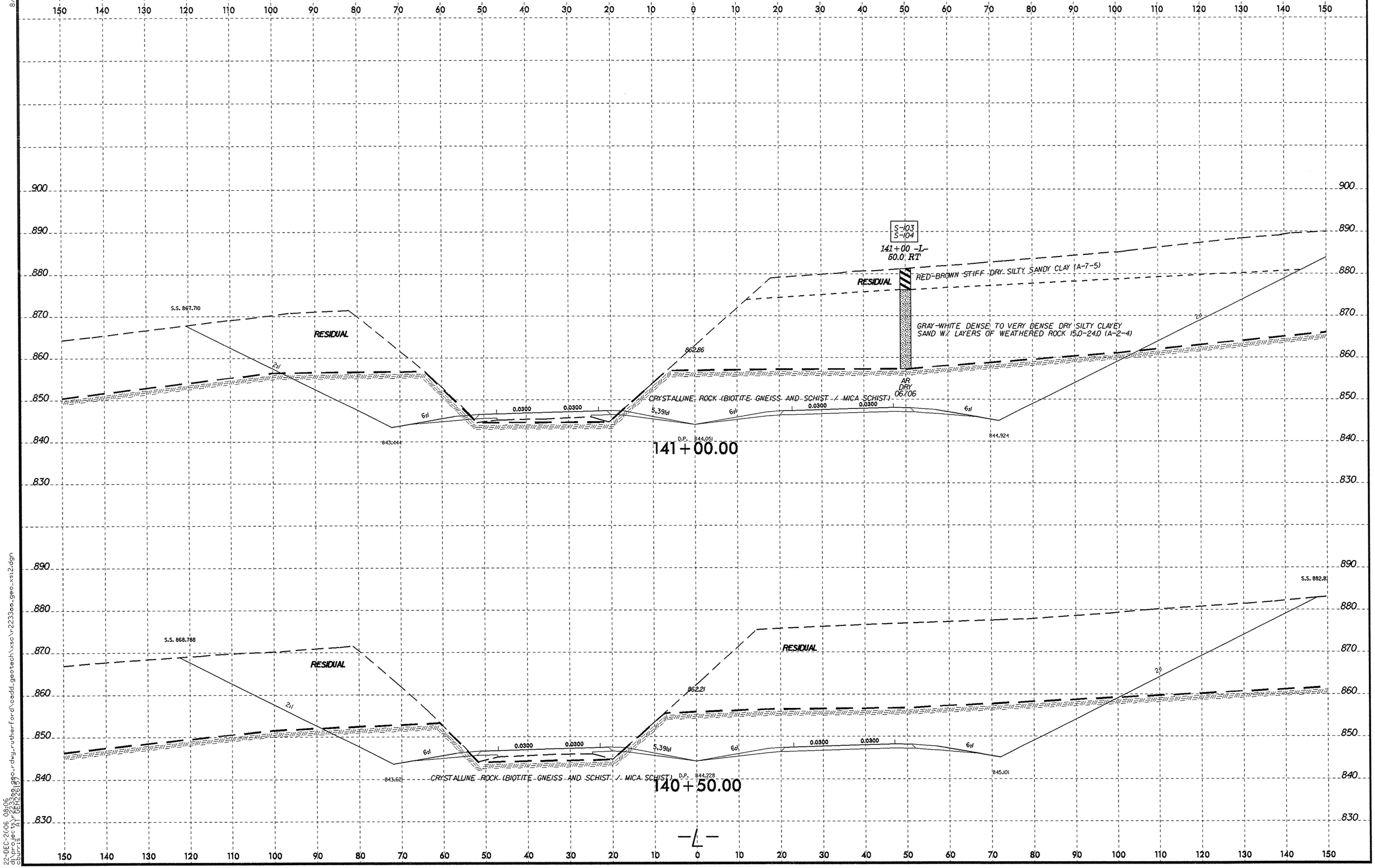
cburns AT GEH22657



8/23/99
22-DEC-2006 08:06
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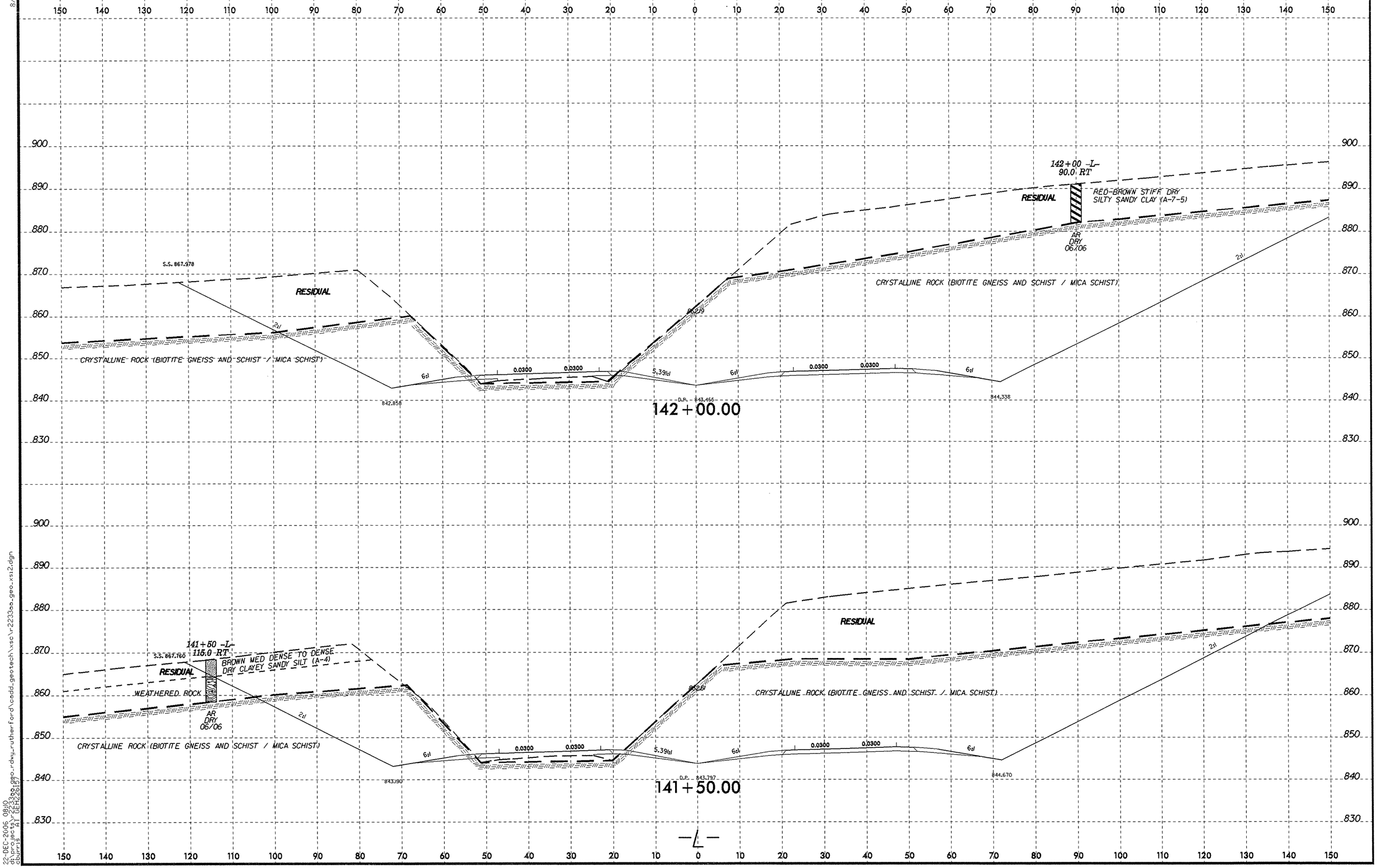
cburris AT DEH2615

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	136



8/23/99

22-DEC-2006 08:10
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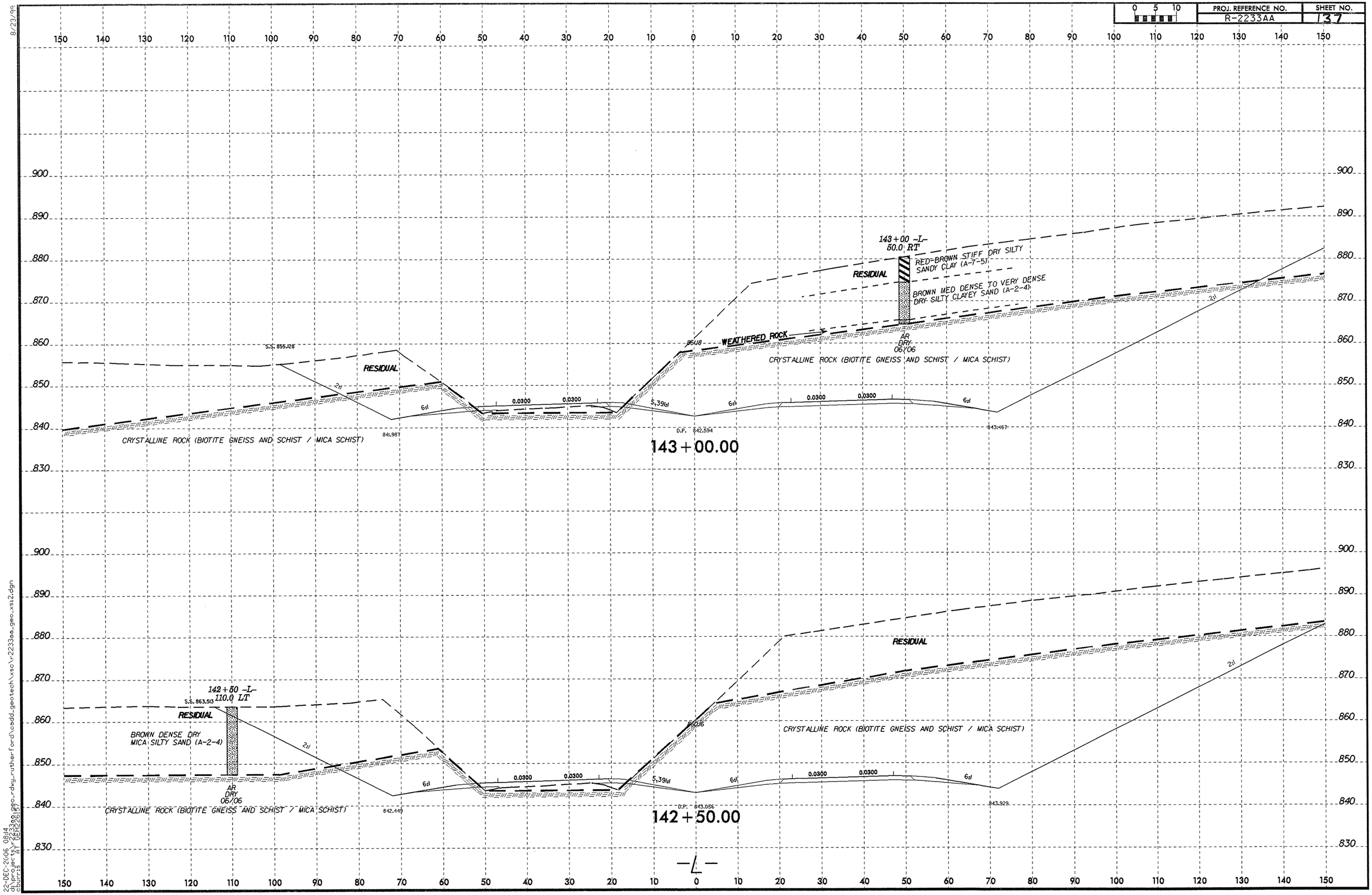
cburris AT (GEH226187)



8/23/99

22-DEC-2006 08:14
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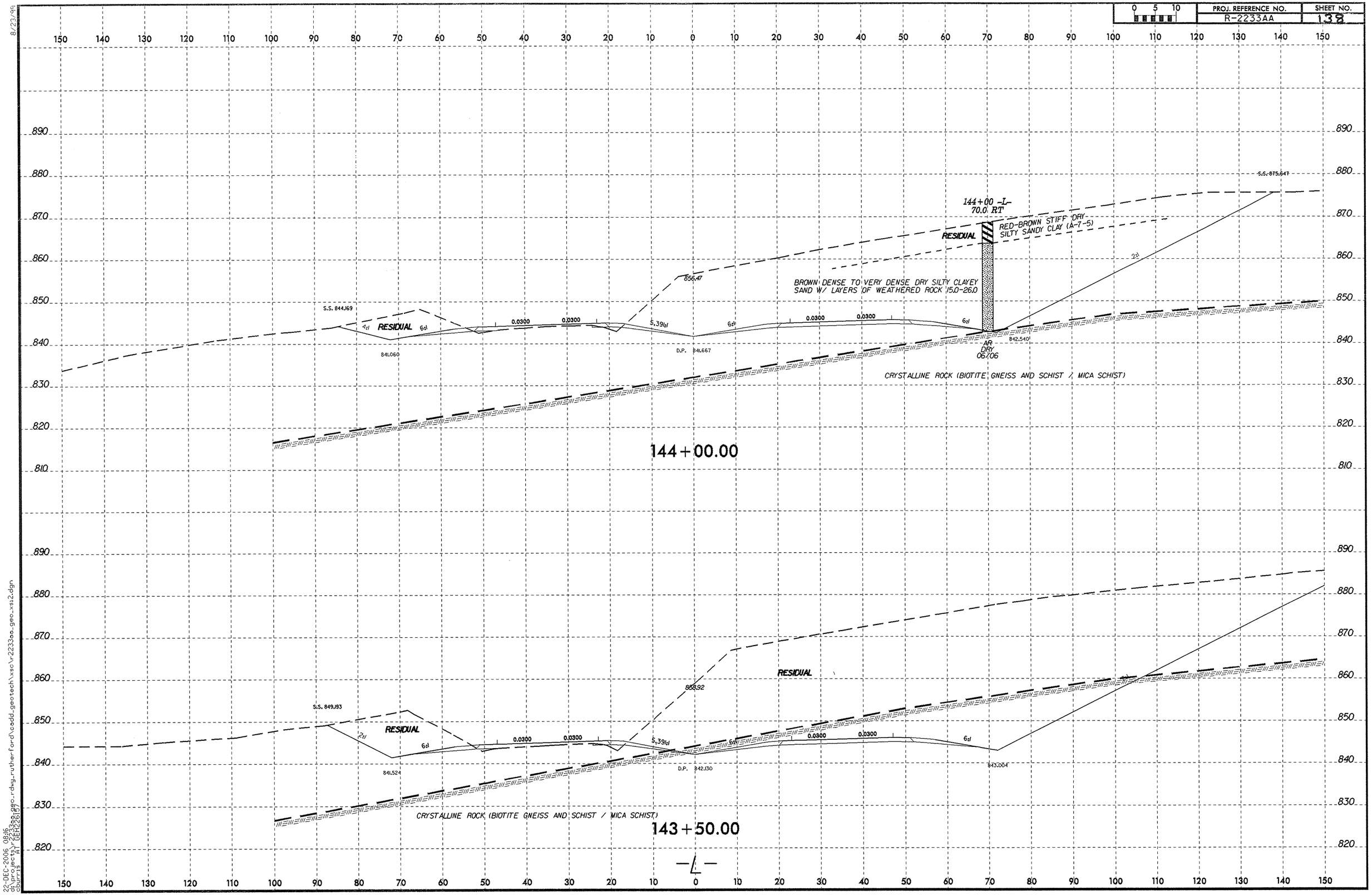
cburris AT DEH226157

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	138



8/23/99

22-DEC-2006 08:16
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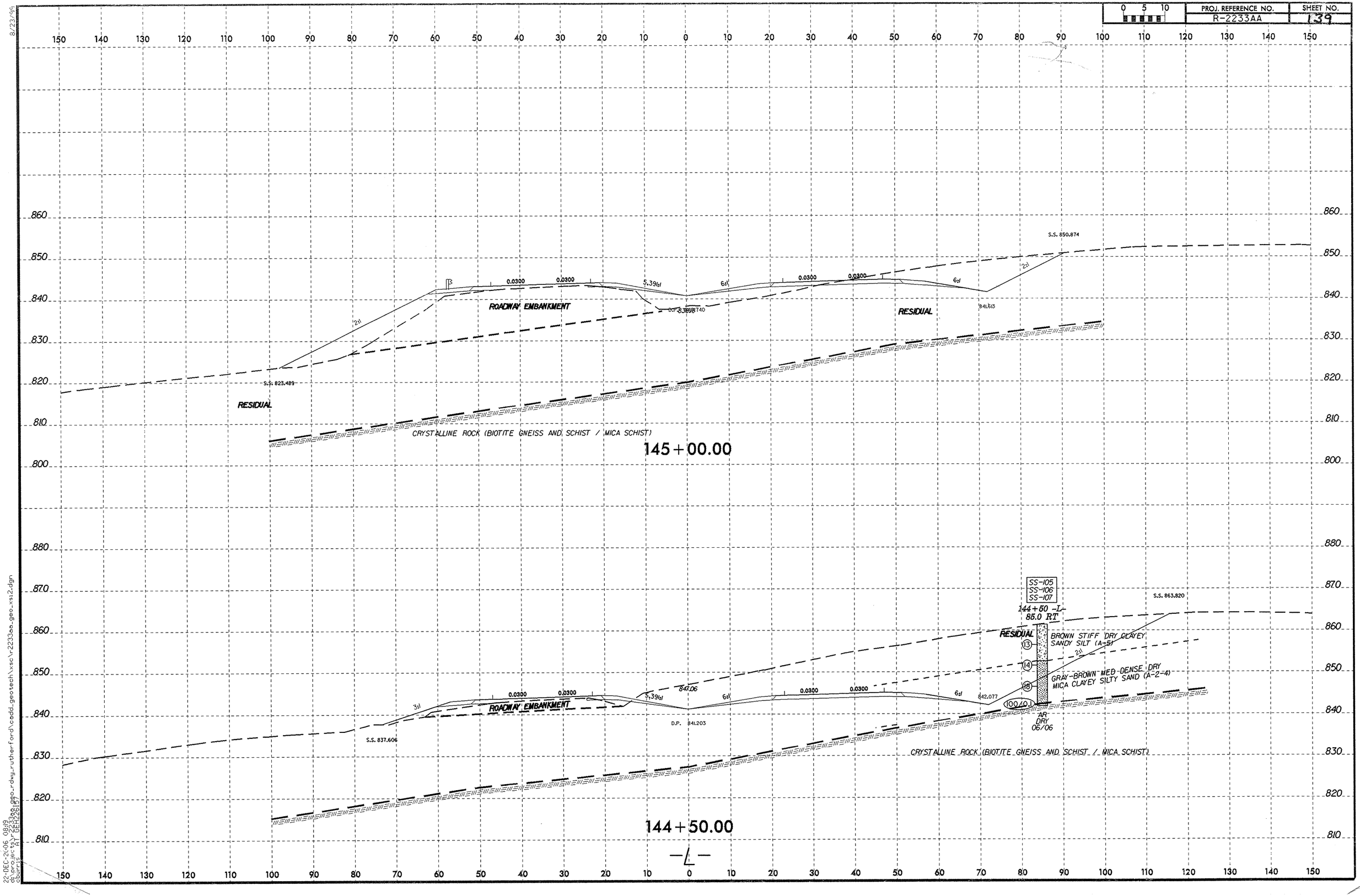
cburris
41 DEFRESS07



8/23/99
22-DEC-2006 08:19
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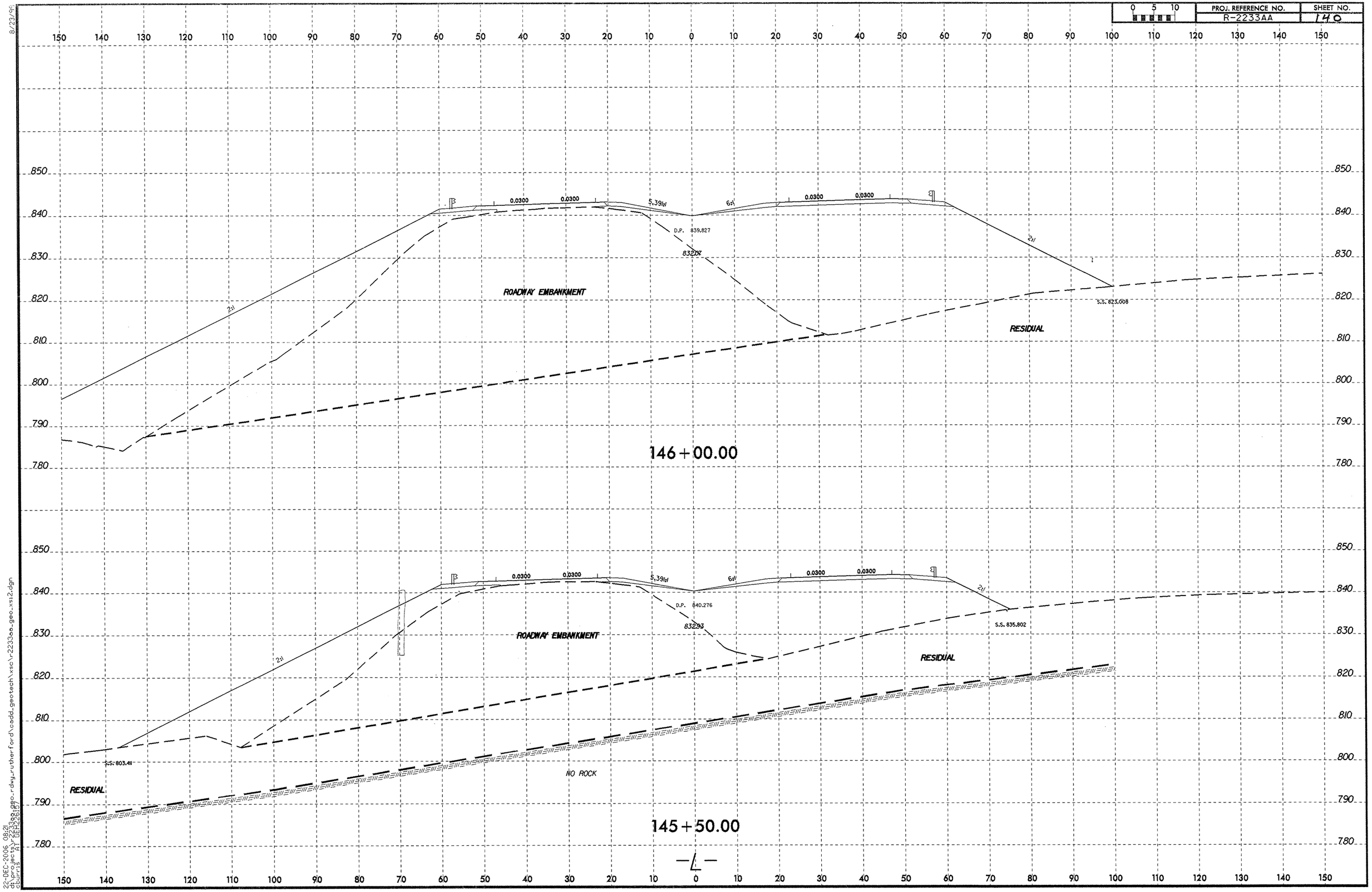
cburrus
AT DEH2261(57)



8/23/99
22-DEC-2006 08:21
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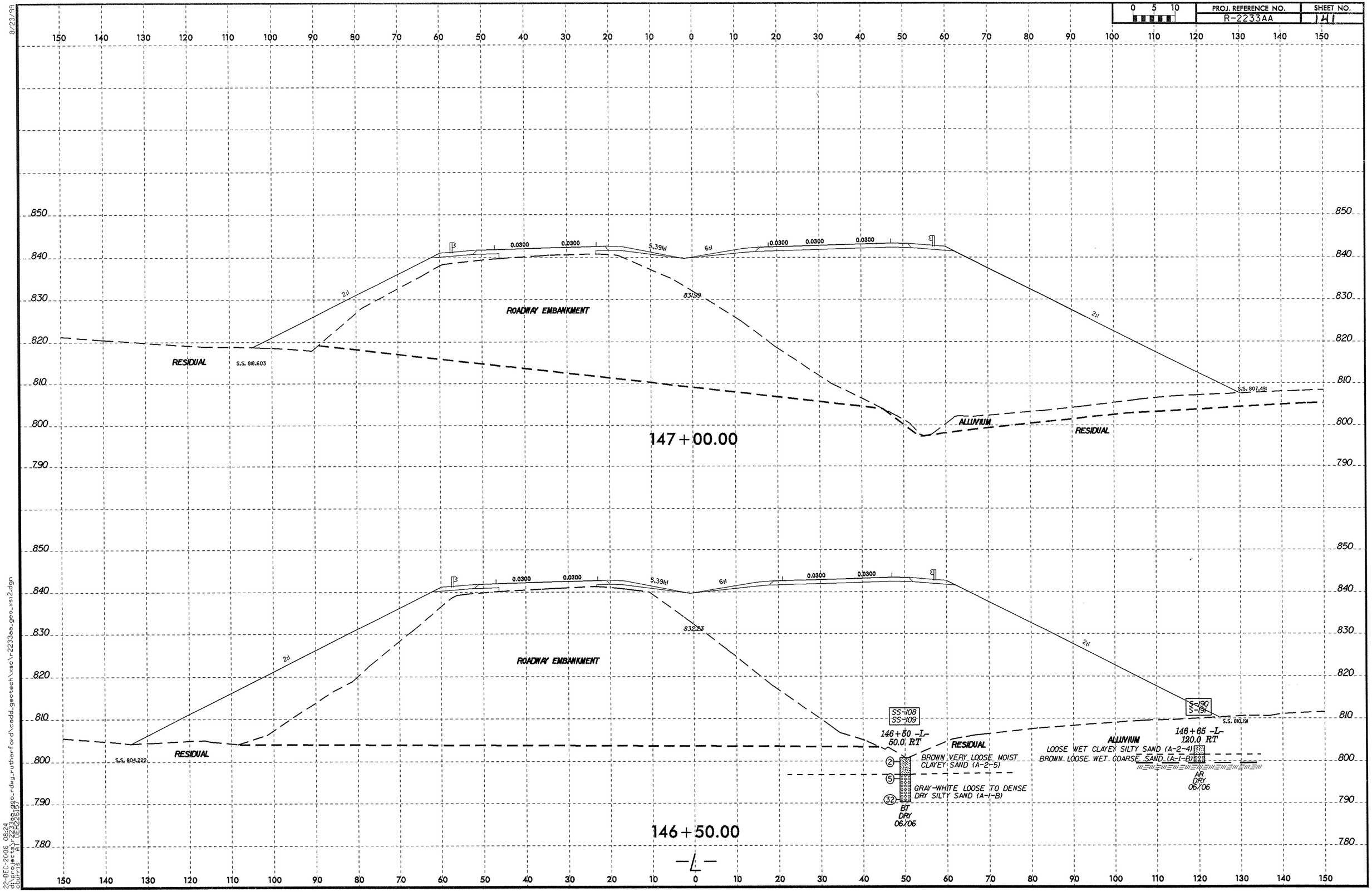
cburris AT GEH22617



8/23/99
22-DEC-2006 08:24
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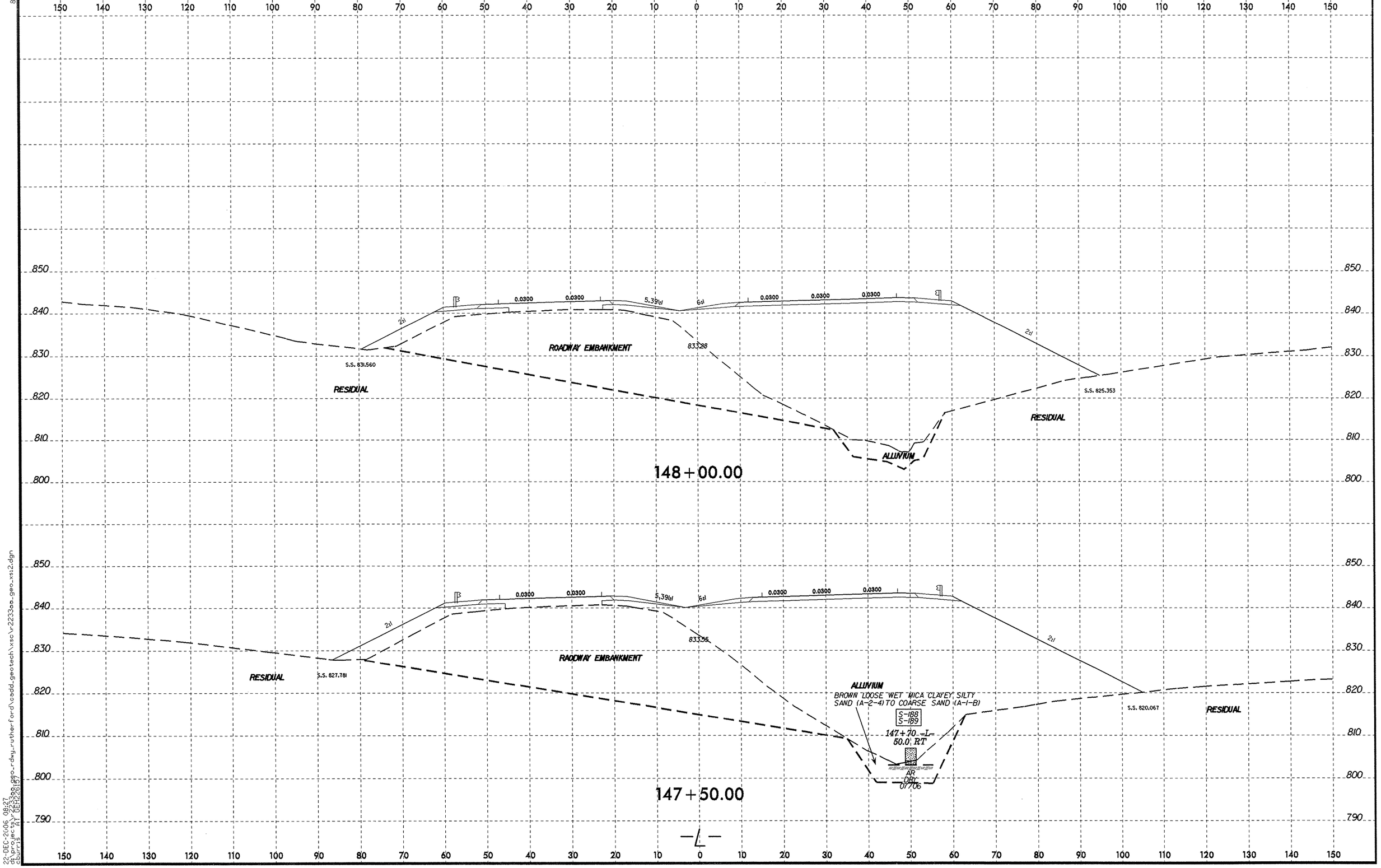
dburris AT DEH2261157



8/23/99
22-DEC-2006 08:27
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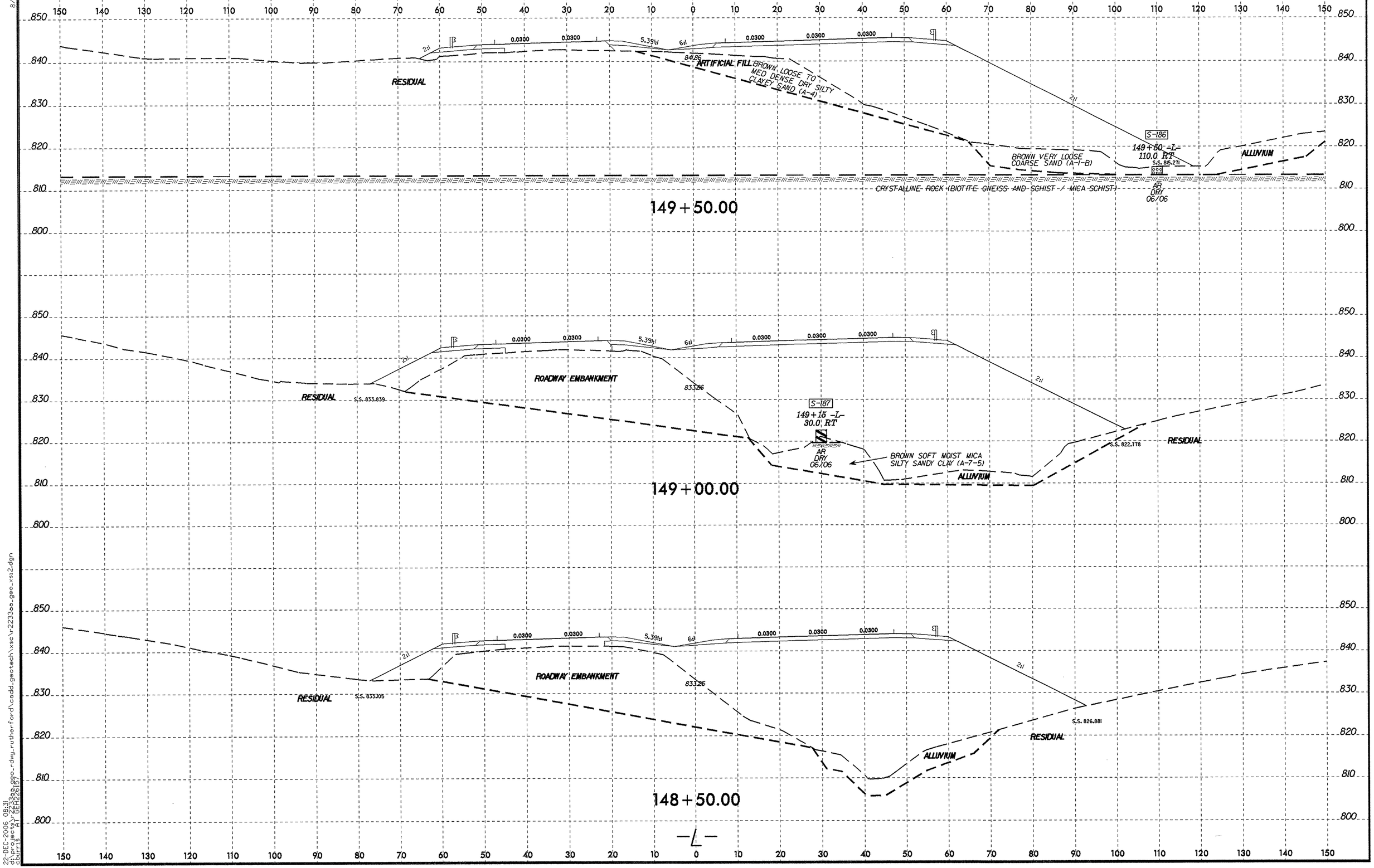
cburns AT DEH22617



8/23/99
22-DEC-2006 08:31
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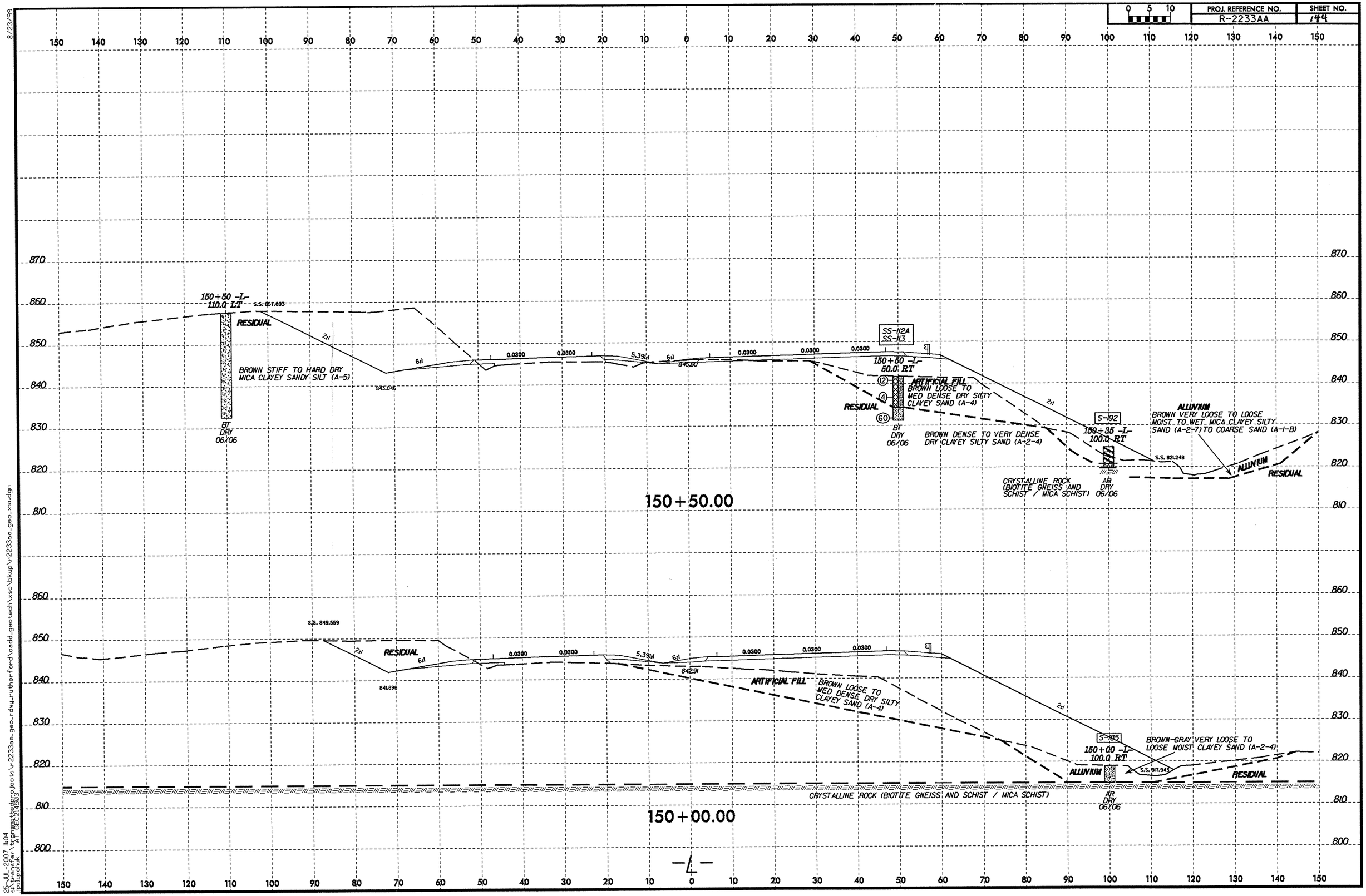
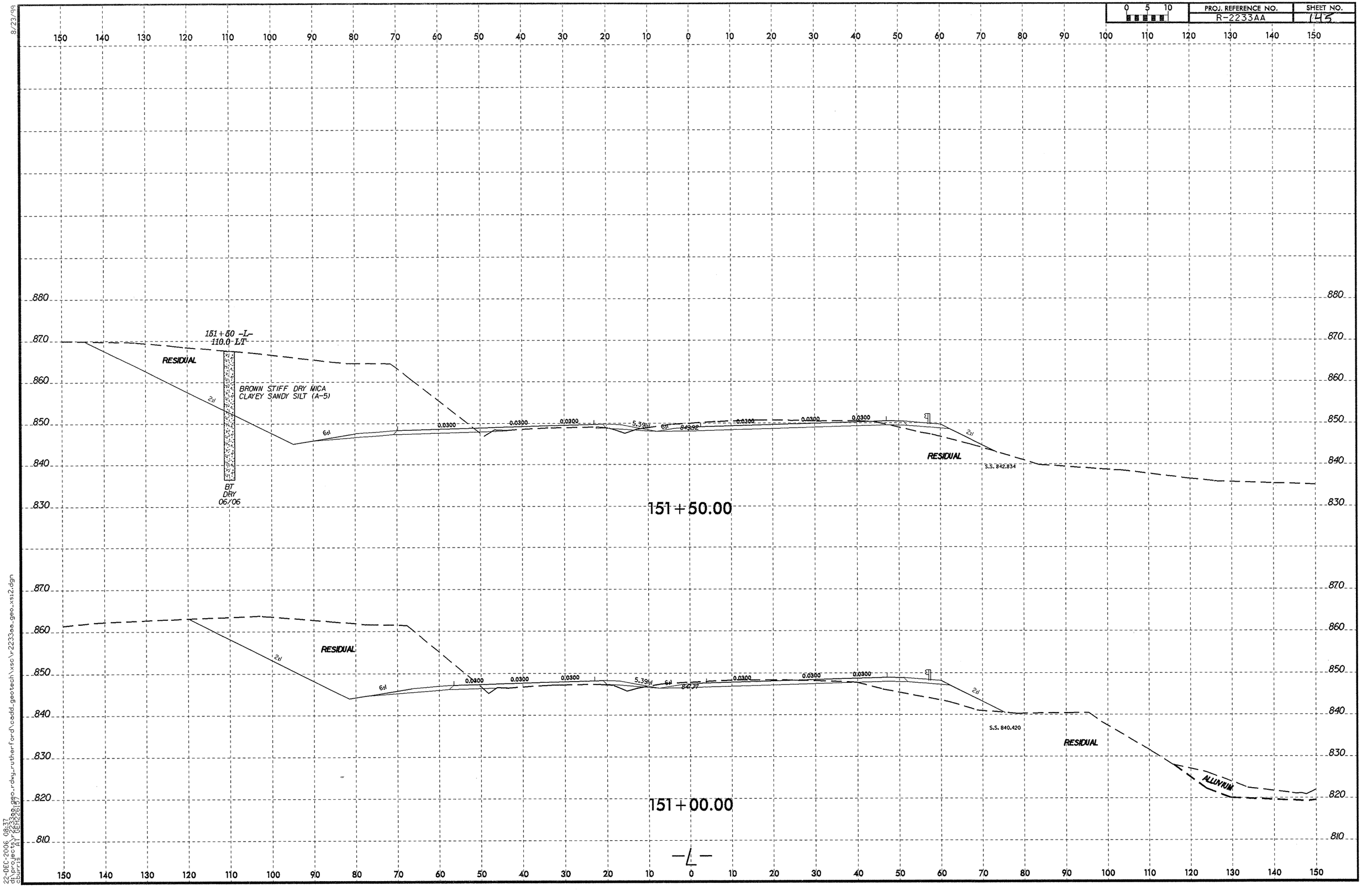
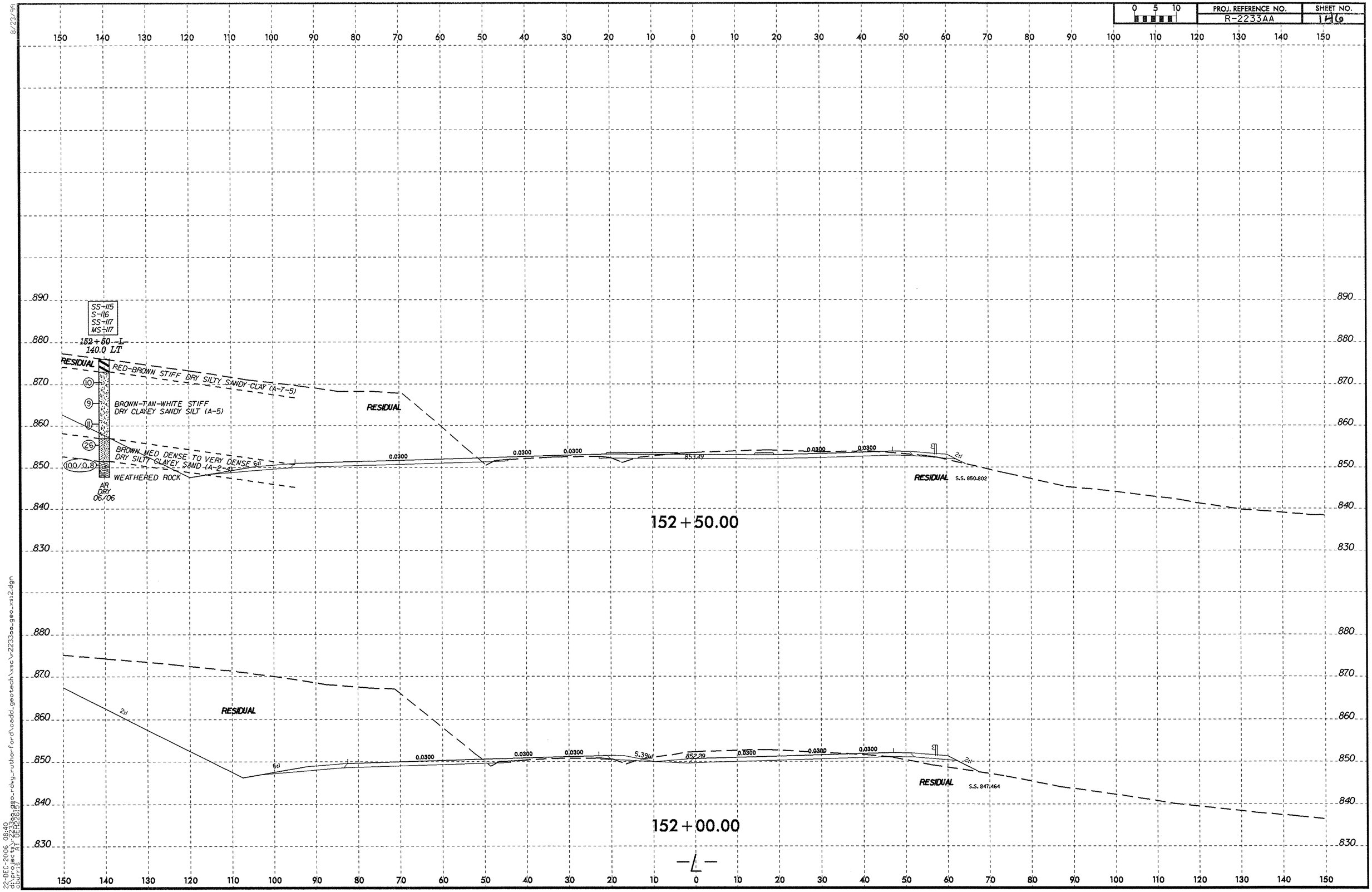
cburris AT DEH22617



8/23/99
25-JUL-2007 11:04
s:\transfer\tcarpenter\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\bkup\r2233aa_geo_xsi.dgn
pjlipscmk AT DEC224.DGN


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
145
151+50 -L-
110.0 LT
RESIDUAL
BROWN STIFF DRY MICA
CLAYEY SANDY SILT (A-5)
BT
DRY
06/06
0.0300
5.39H
6H
843.92
S.S. 842.834
151+50.00
840.77
S.S. 840.420
ALLUVIUM
151+00.00
-L-
8/23/99
22-DEC-2006 08:37
d:\projects\r-2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
AT GEH2267

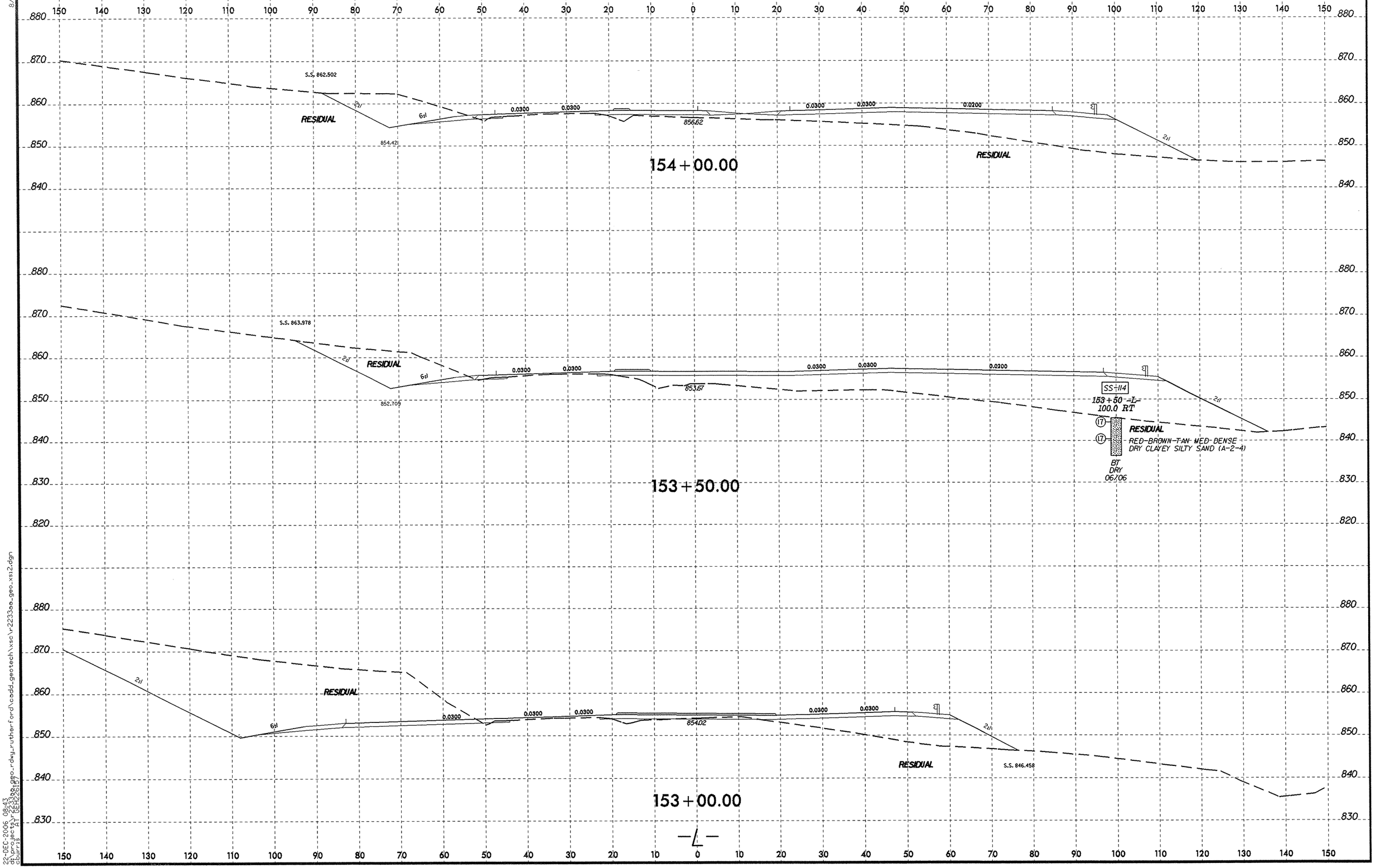
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	116



22-DEC-2006 08:40
d:\projects\r-2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
aburns AT GEH22617

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	127



8/23/99

22-DEC-2006 08:43
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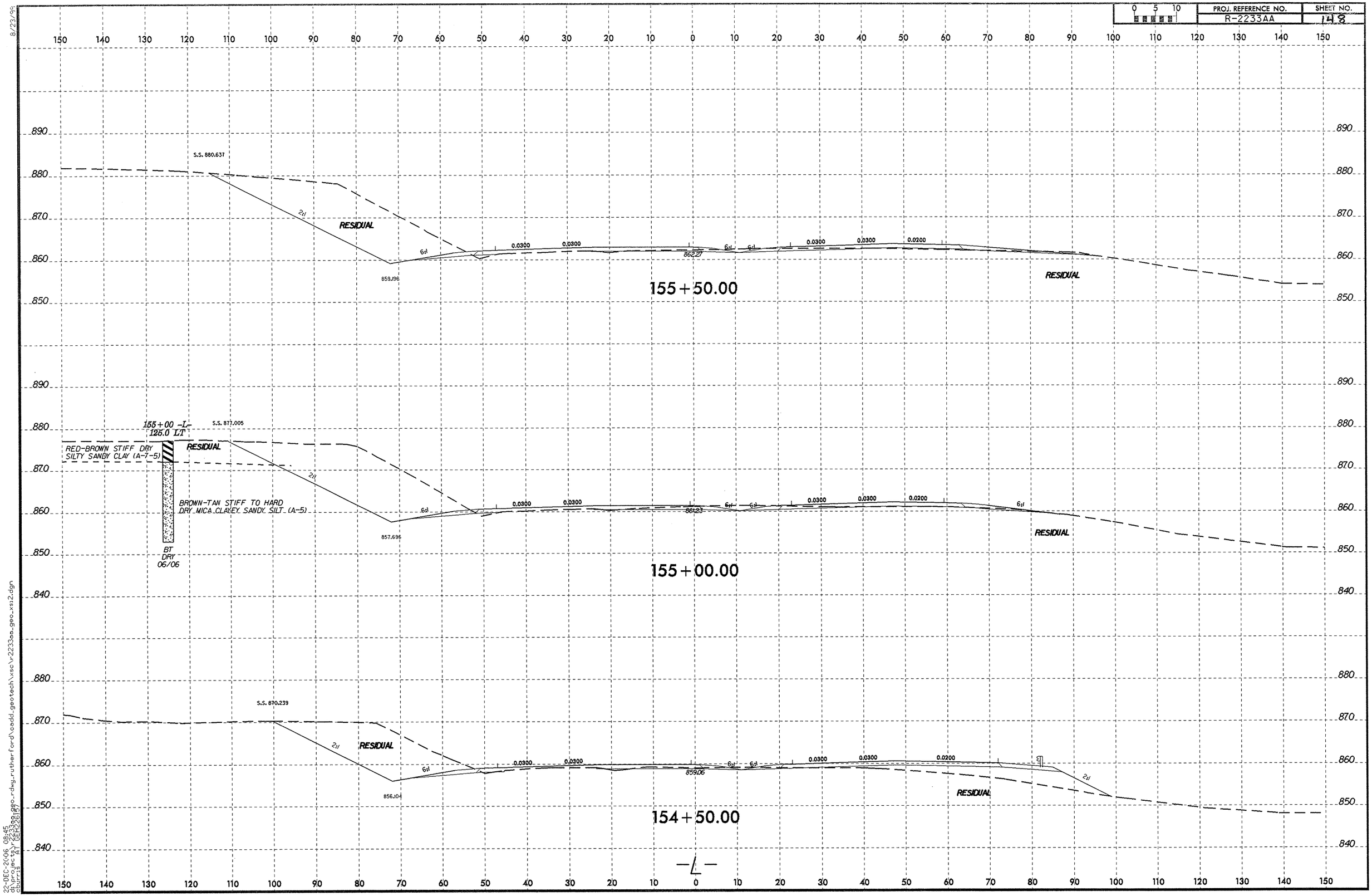
dburris AT GEH22617

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	148



8/23/99

22-DEC-2006 08:45
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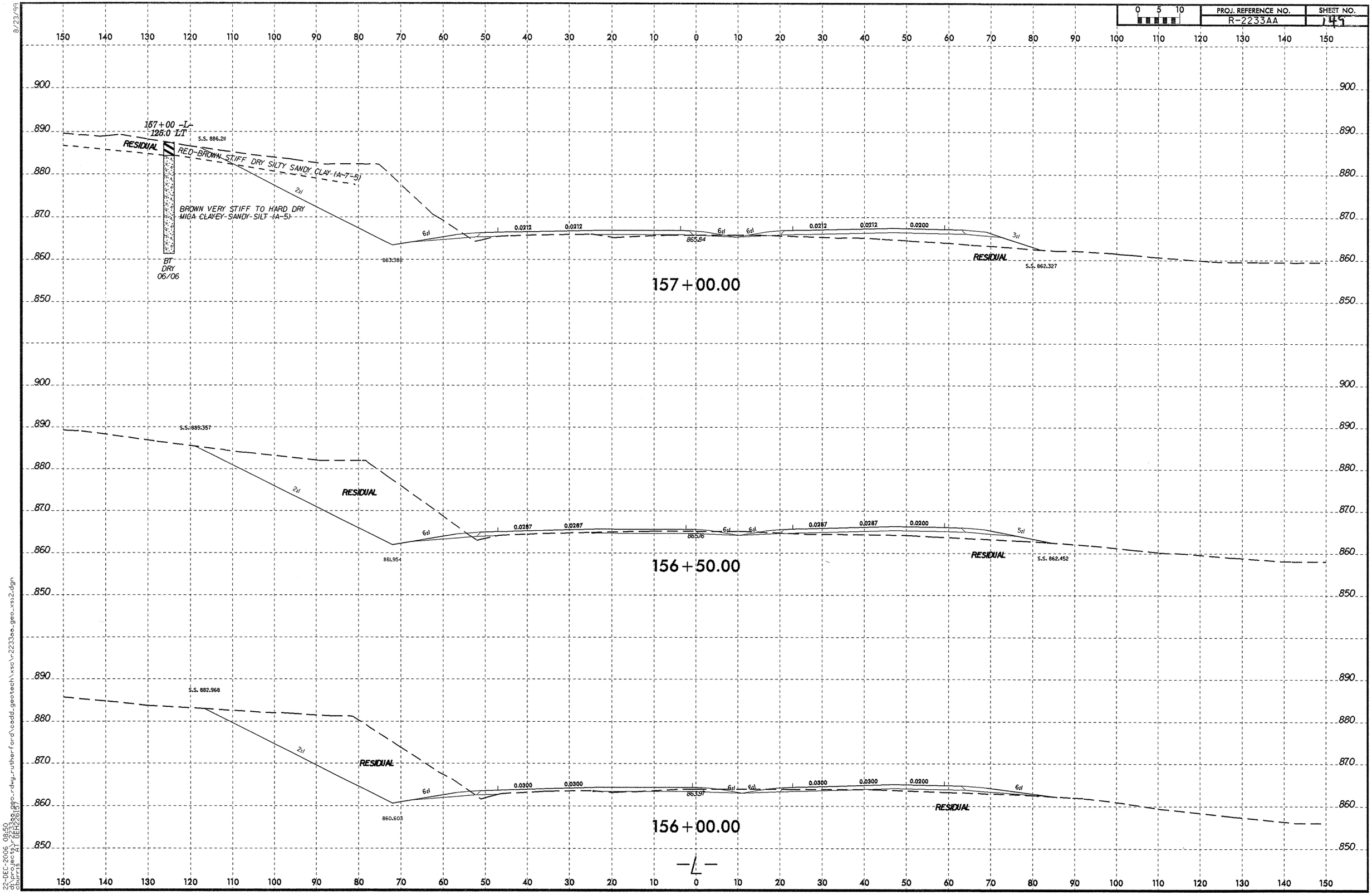
cburns AT GEH22B197



8/23/99
22-DEC-2006 08:50
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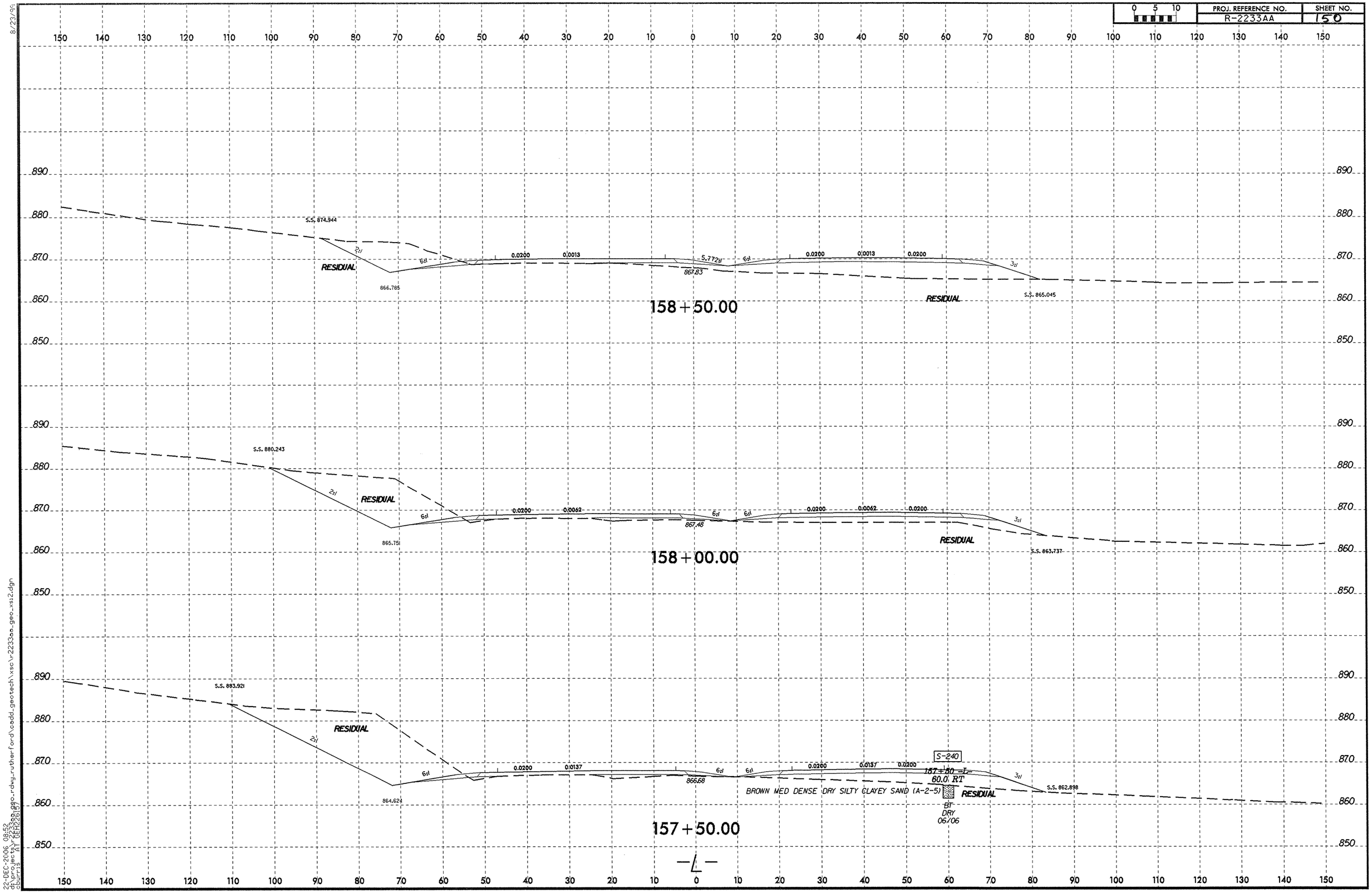
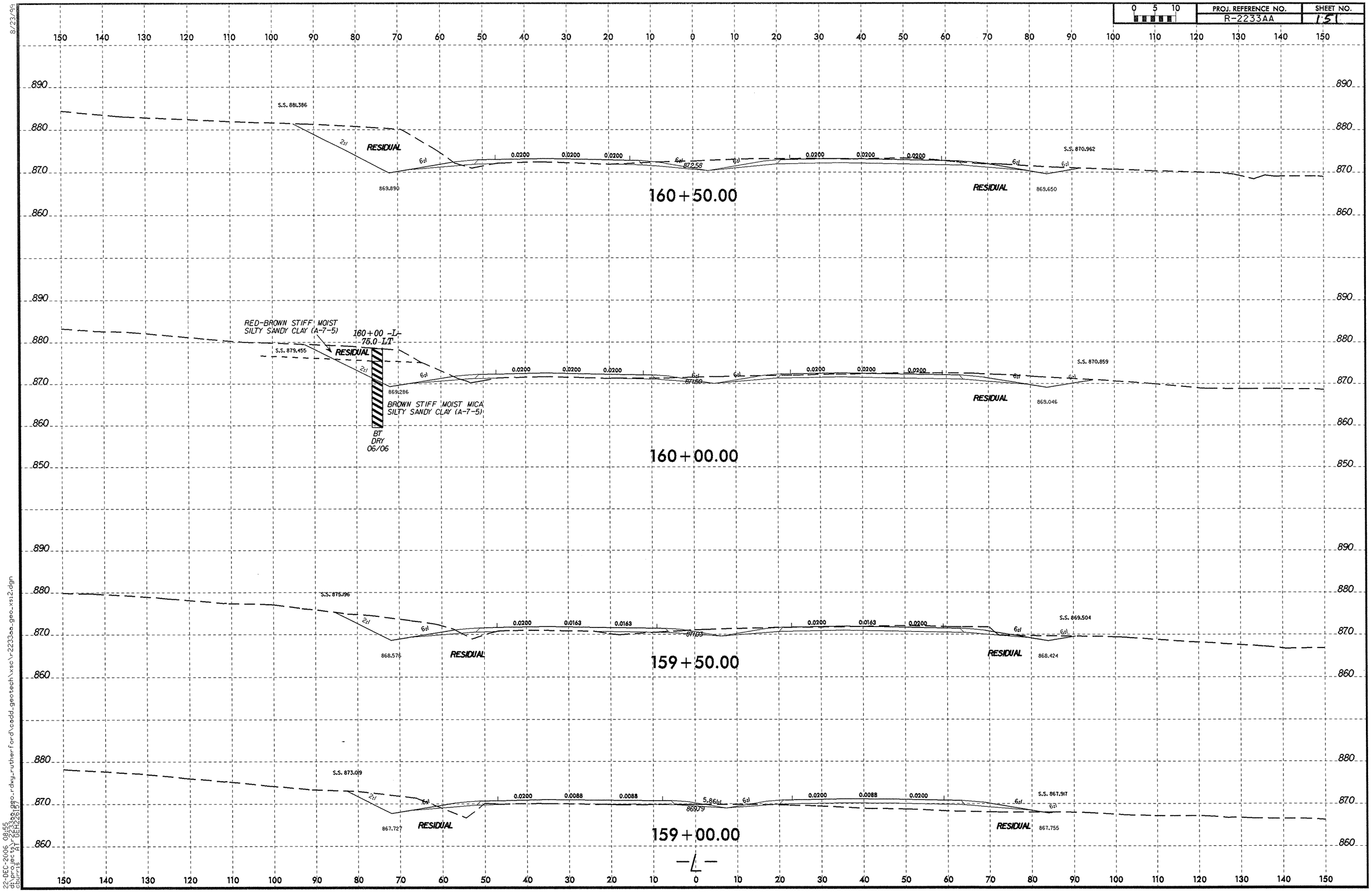
cburris AT DEH2267


PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
150
158+50.00
S.S. 874.844
RESIDUAL
866.785
0.0200
0.0013
867.83
S.S. 865.045
158+00.00
S.S. 880.243
865.751
0.0062
867.48
S.S. 863.737
157+50.00
S.S. 883.921
864.624
0.0137
866.68
S.S. 862.898
S-240
157+50 -L-
60.0 RT
BROWN MED DENSE DRY SILTY CLAYEY SAND (A-2-5)
BT
DRY
06/06
-L-
8/23/99
22-DEC-2006 08:52
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburns RT GEH22B(7)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	15



8/23/99

22-DEC-2006 08:55
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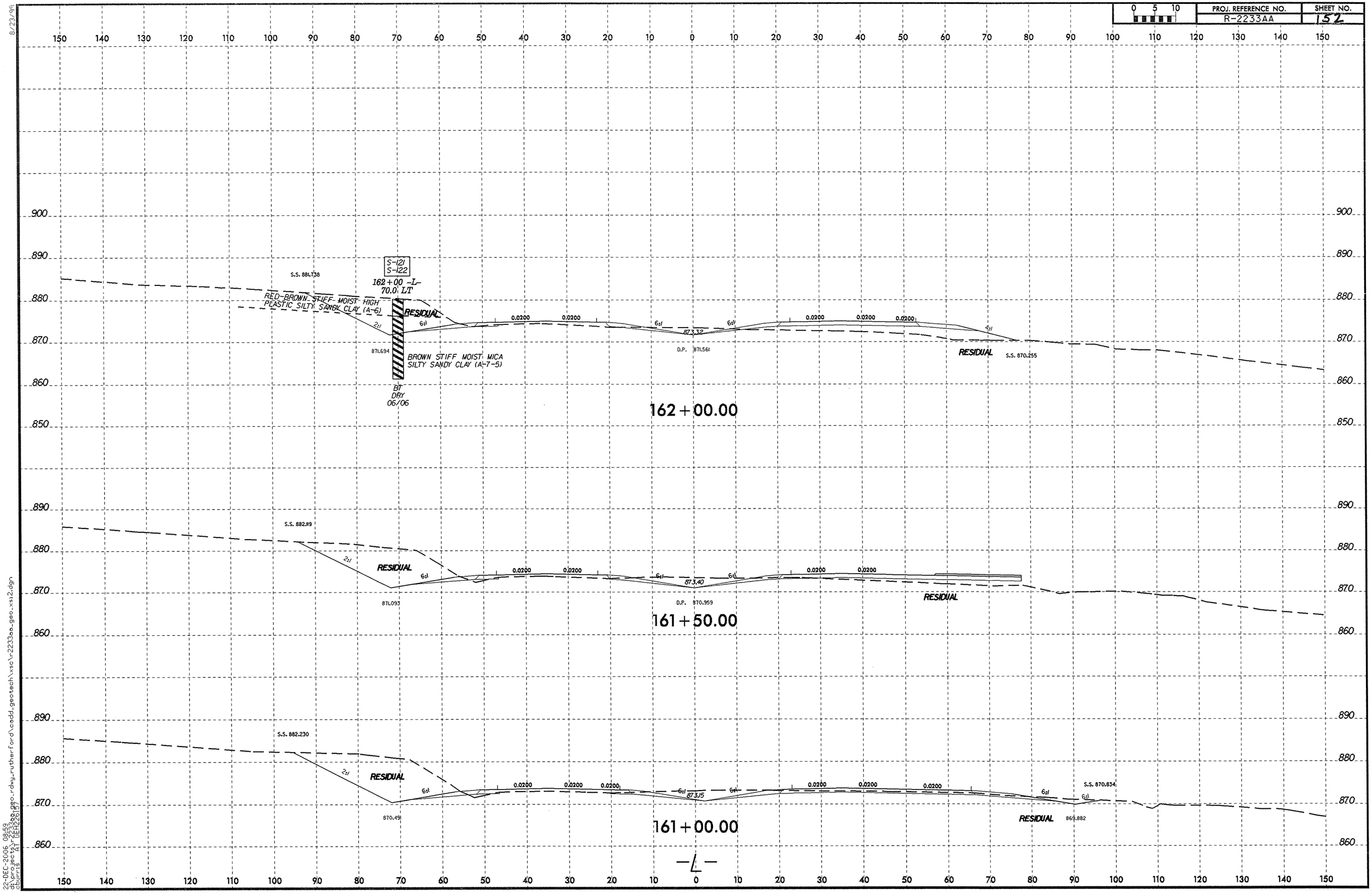
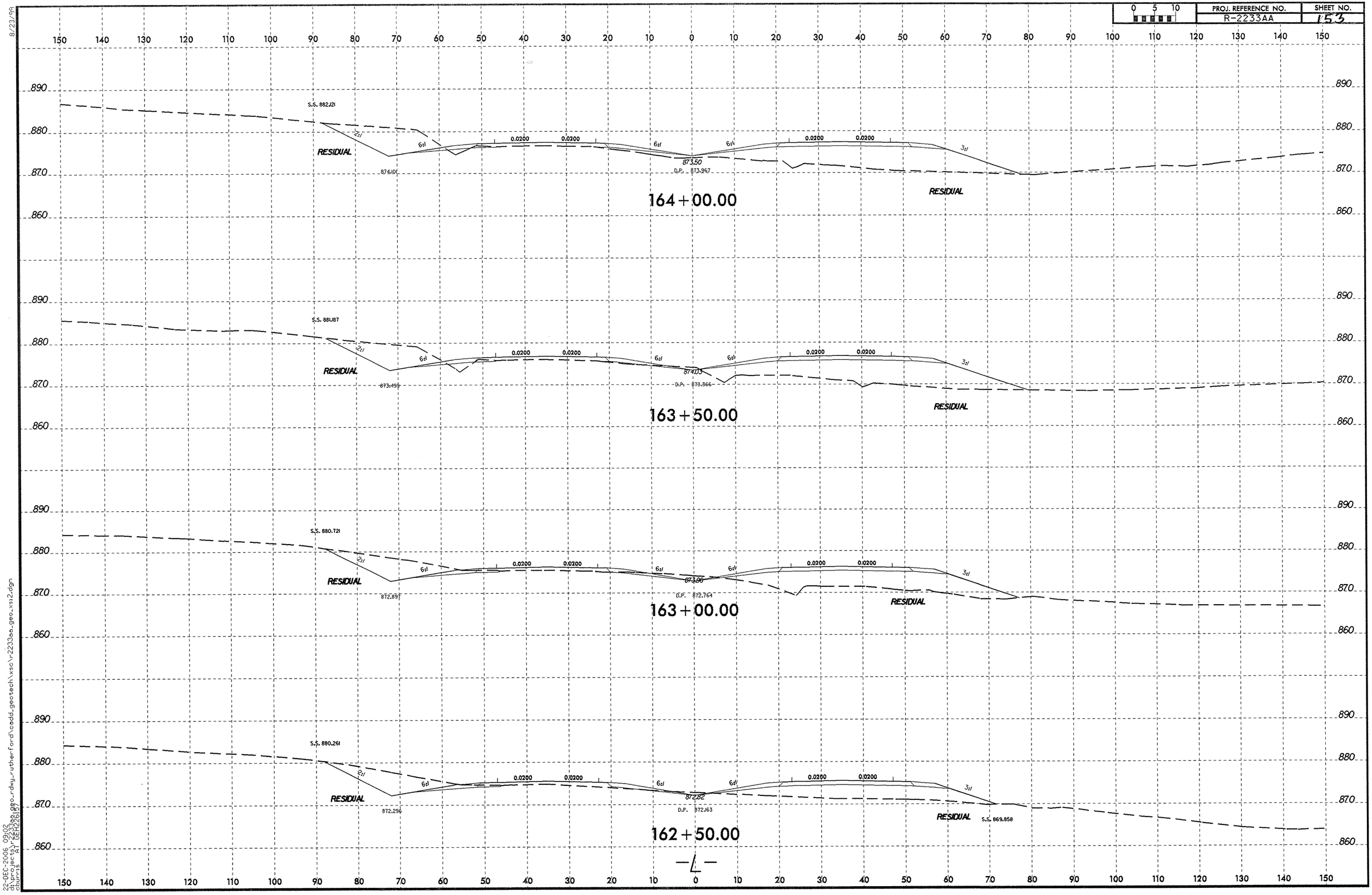
cburns AT GEH22B57



8/23/99

22-DEC-2006 08:59
d:\projects\r2233aa_geo_rdwy_rutherford\coadd_geotech\xsc\r2233aa_geo_xs12.dgn
dburris
AT DEH2261.57

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	153



8/23/99

22-DEC-2006 09:02
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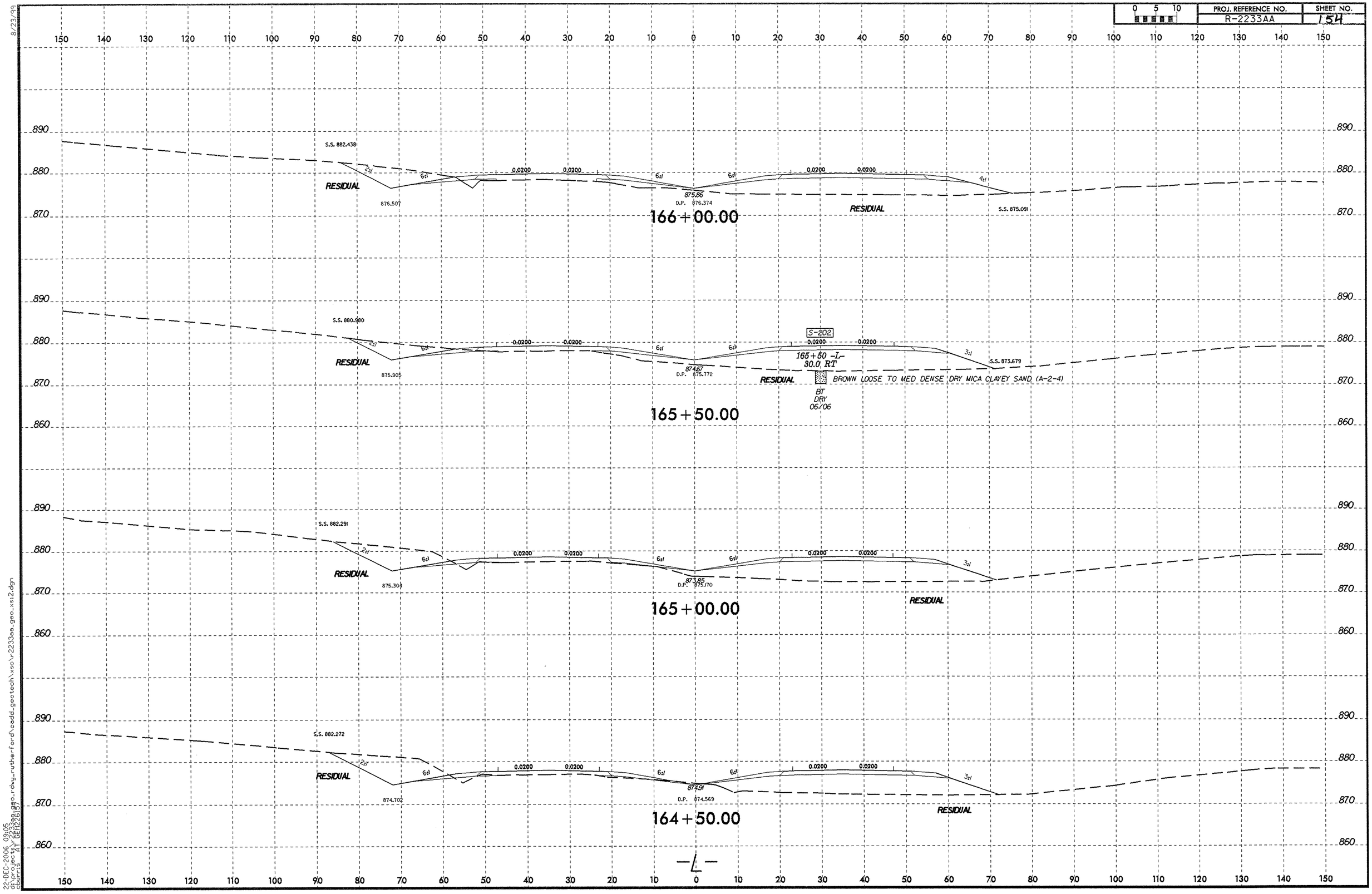
cburris "A1" USER(25,37)



8/23/99
22-DEC-2006 09:05
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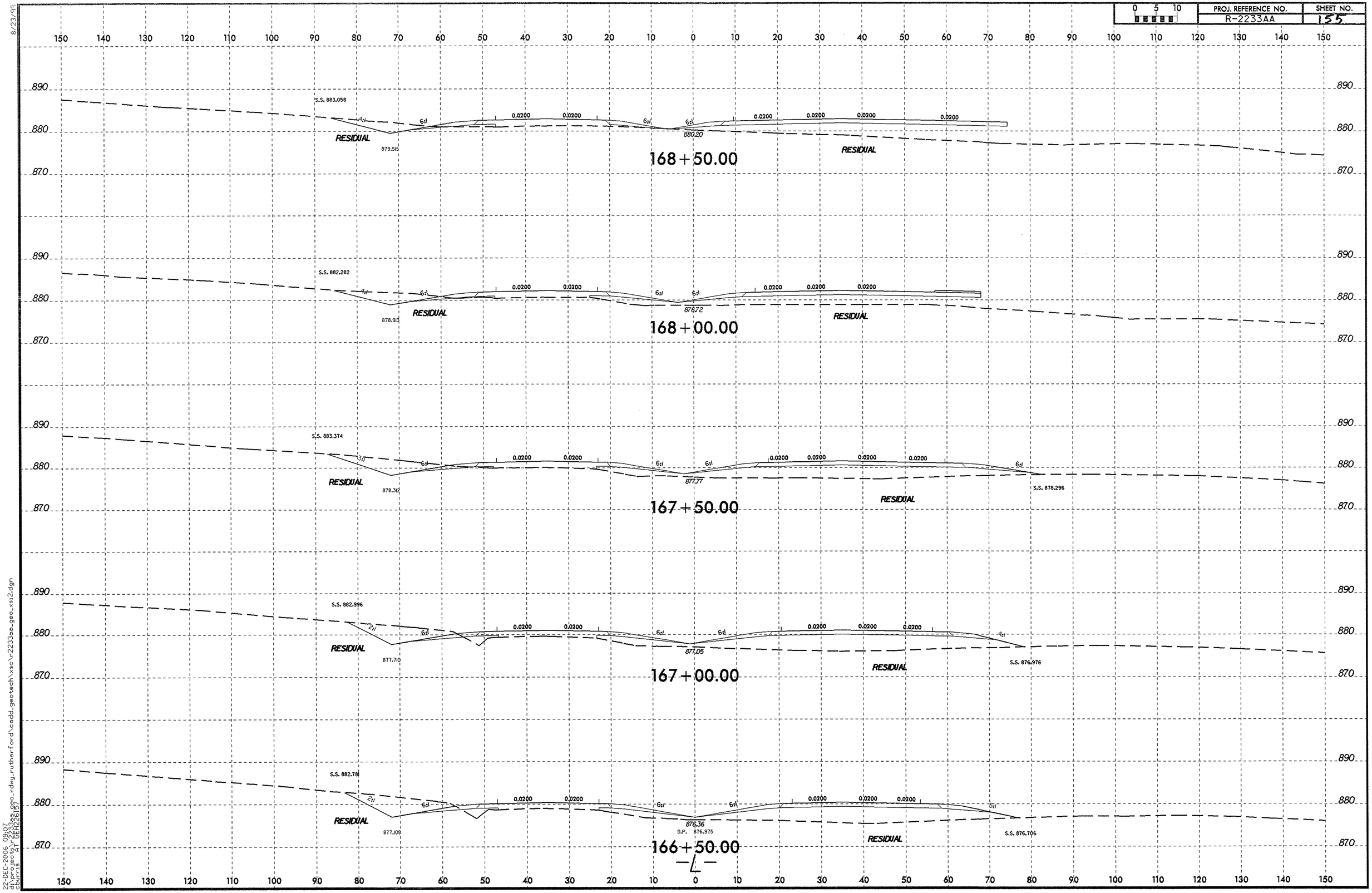

8/23/99
22-DEC-2006 09:07
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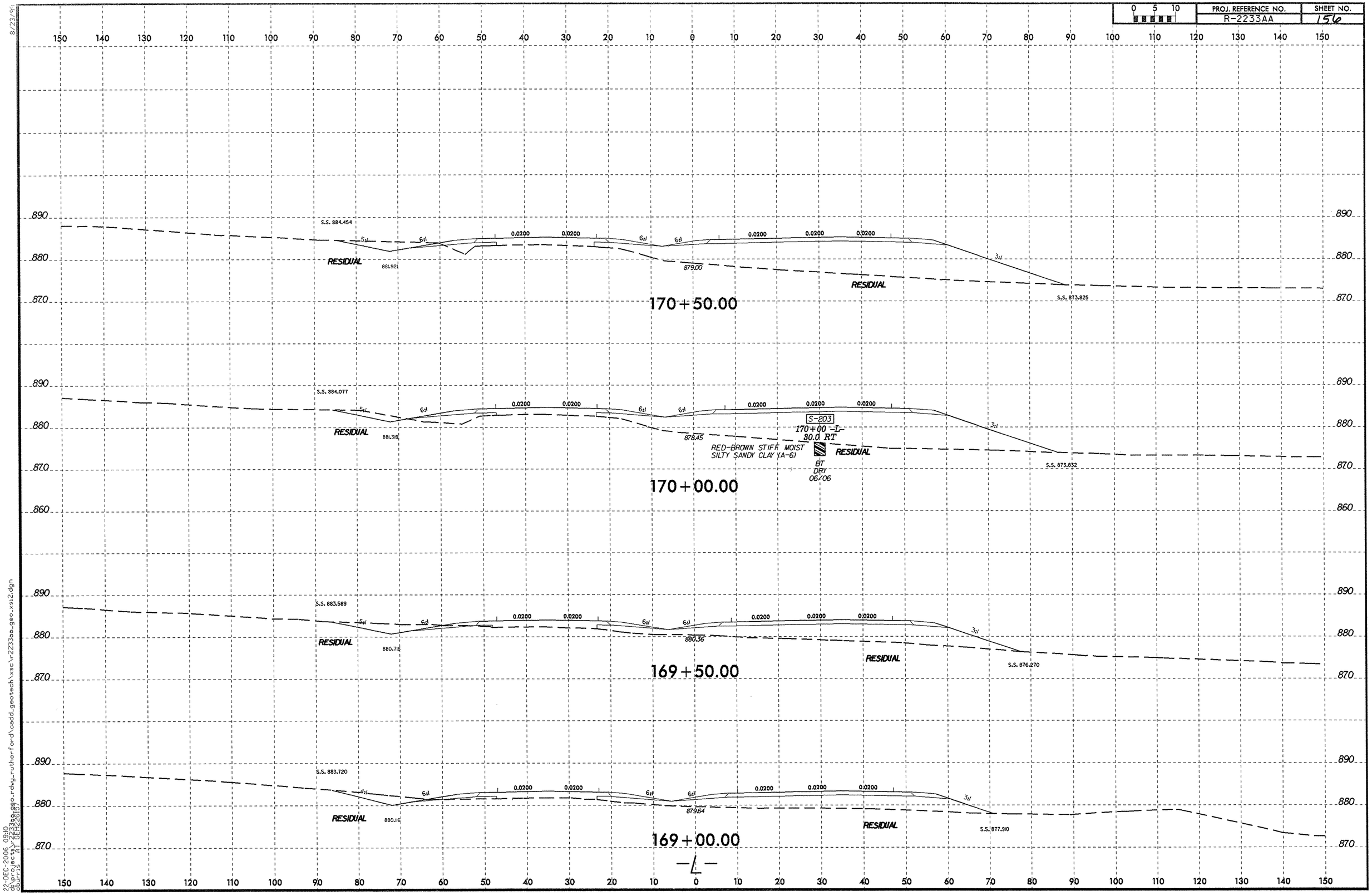
cburris AT GEH2617

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	156



8/23/99

22-DEC-2006 09:10
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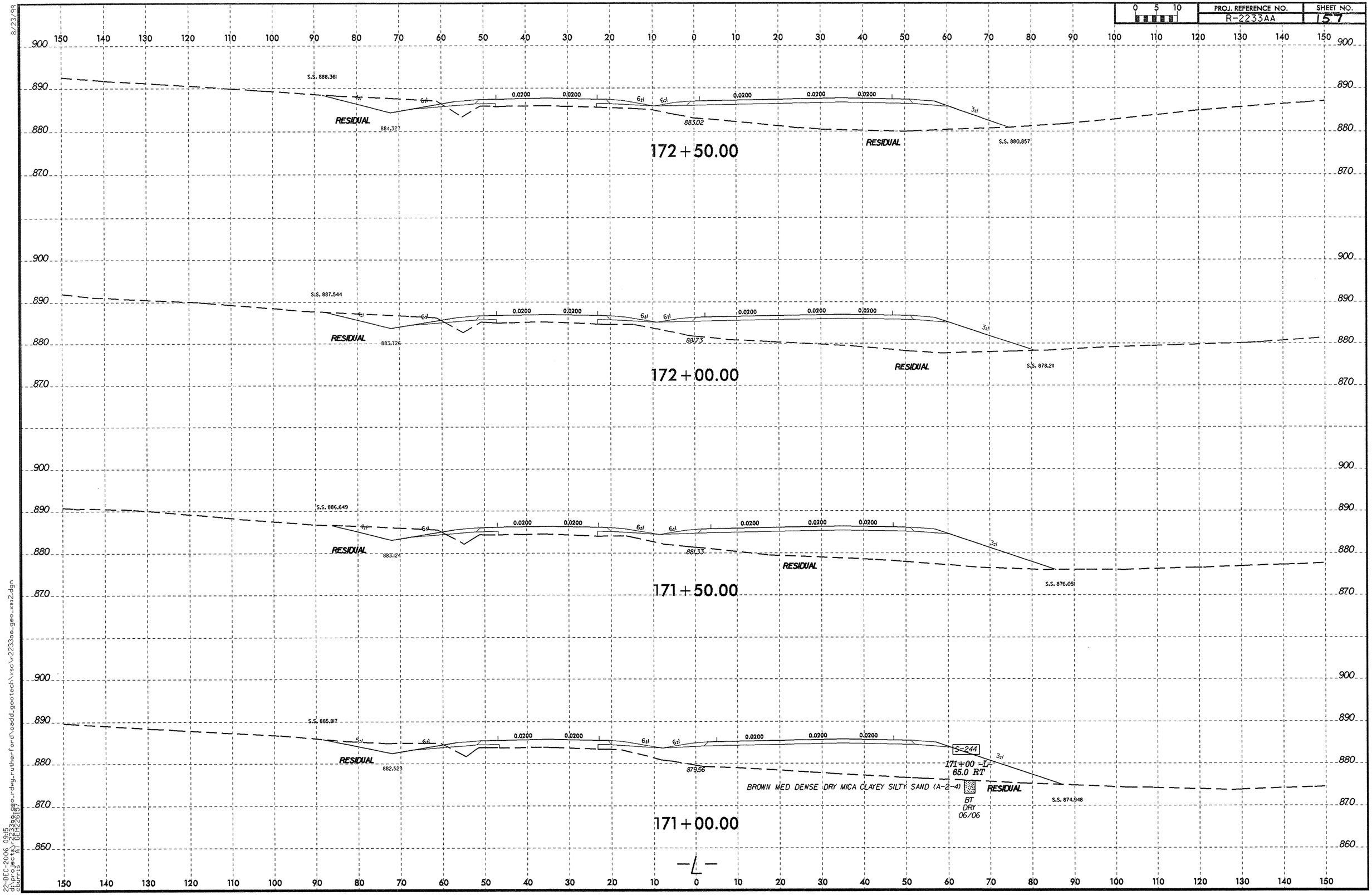
eburris AT GEH2261B7



8/23/99
22-DEC-2006 09:15
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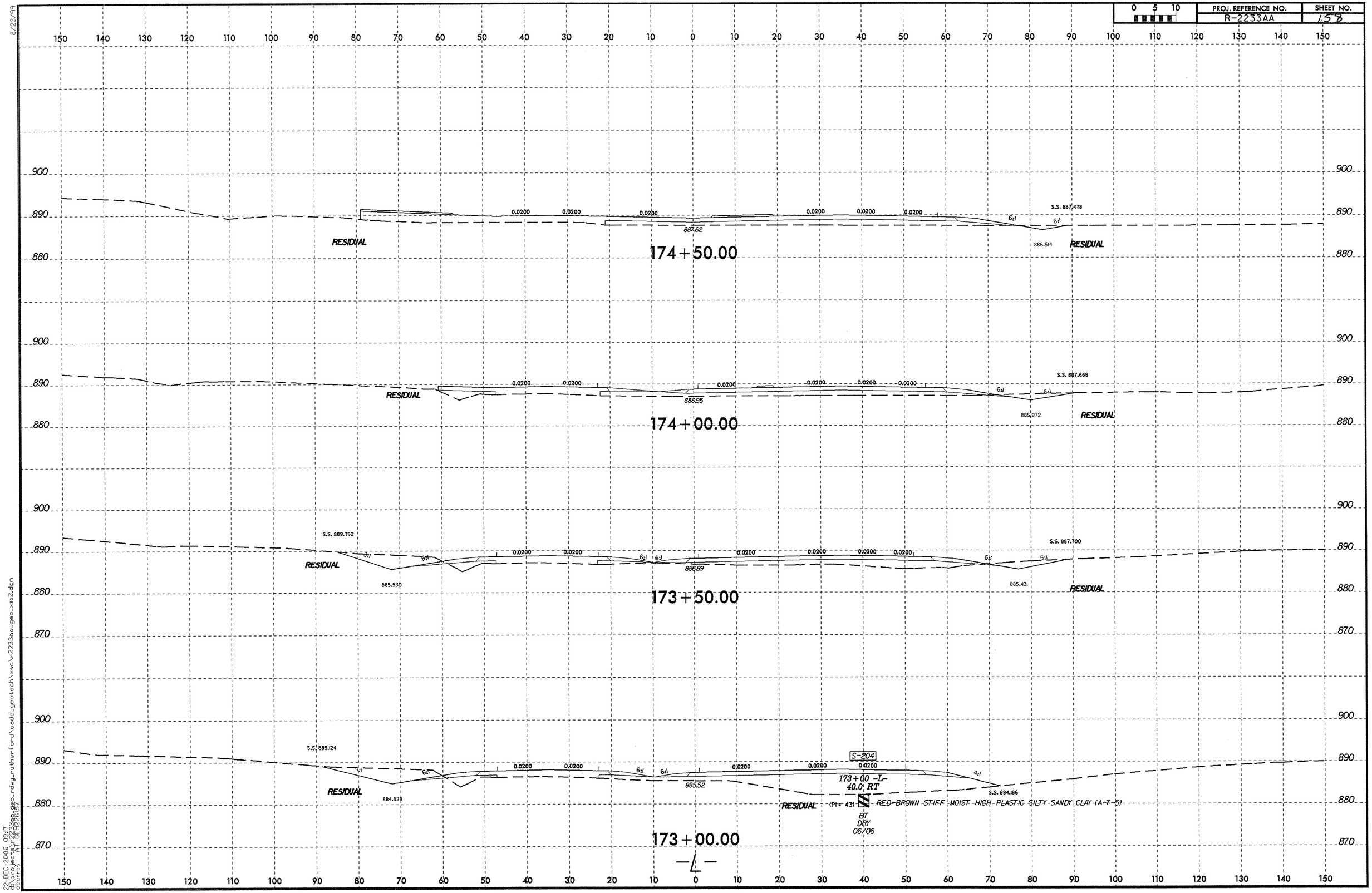
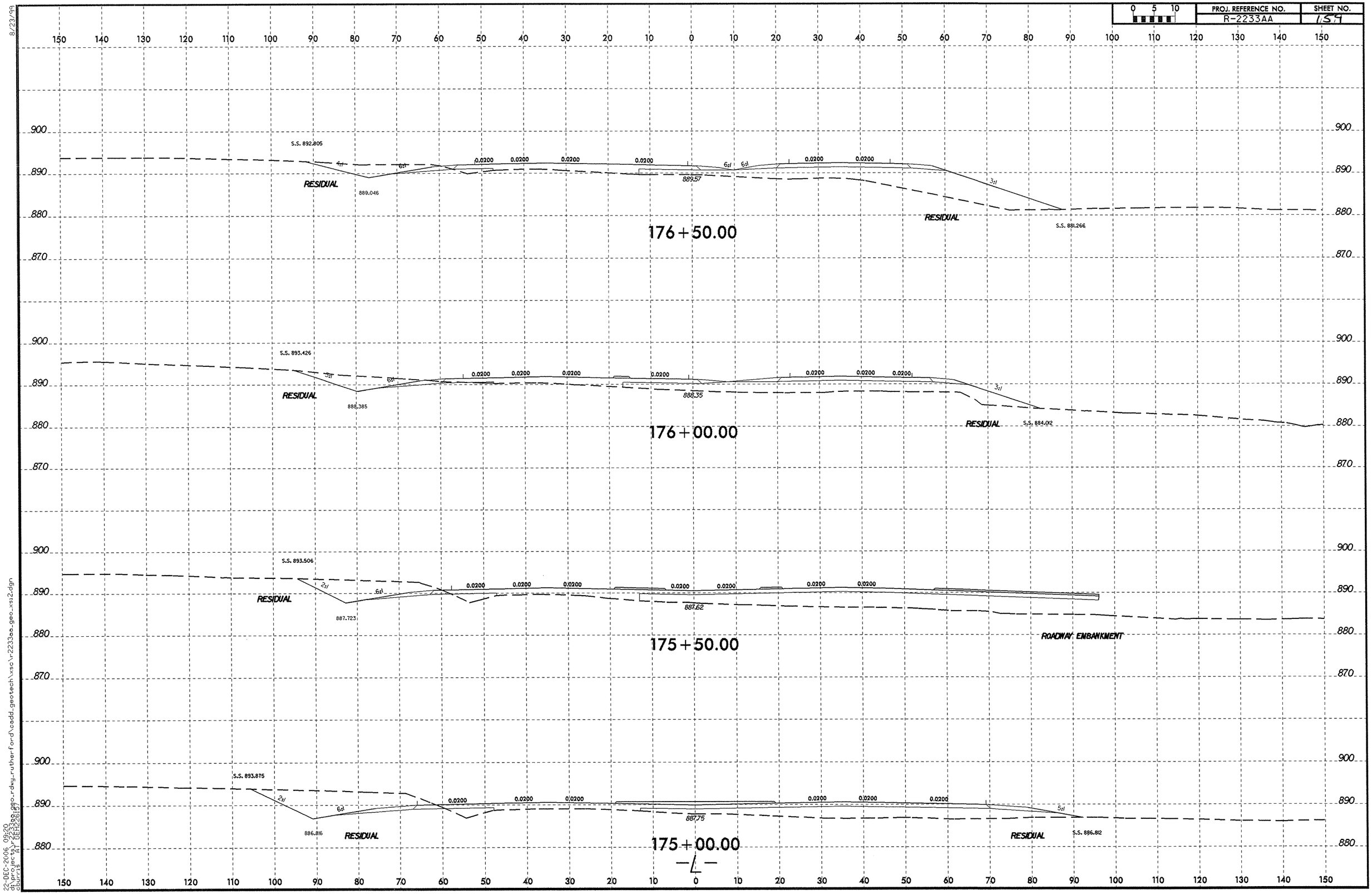
dbourne AT DEI2505



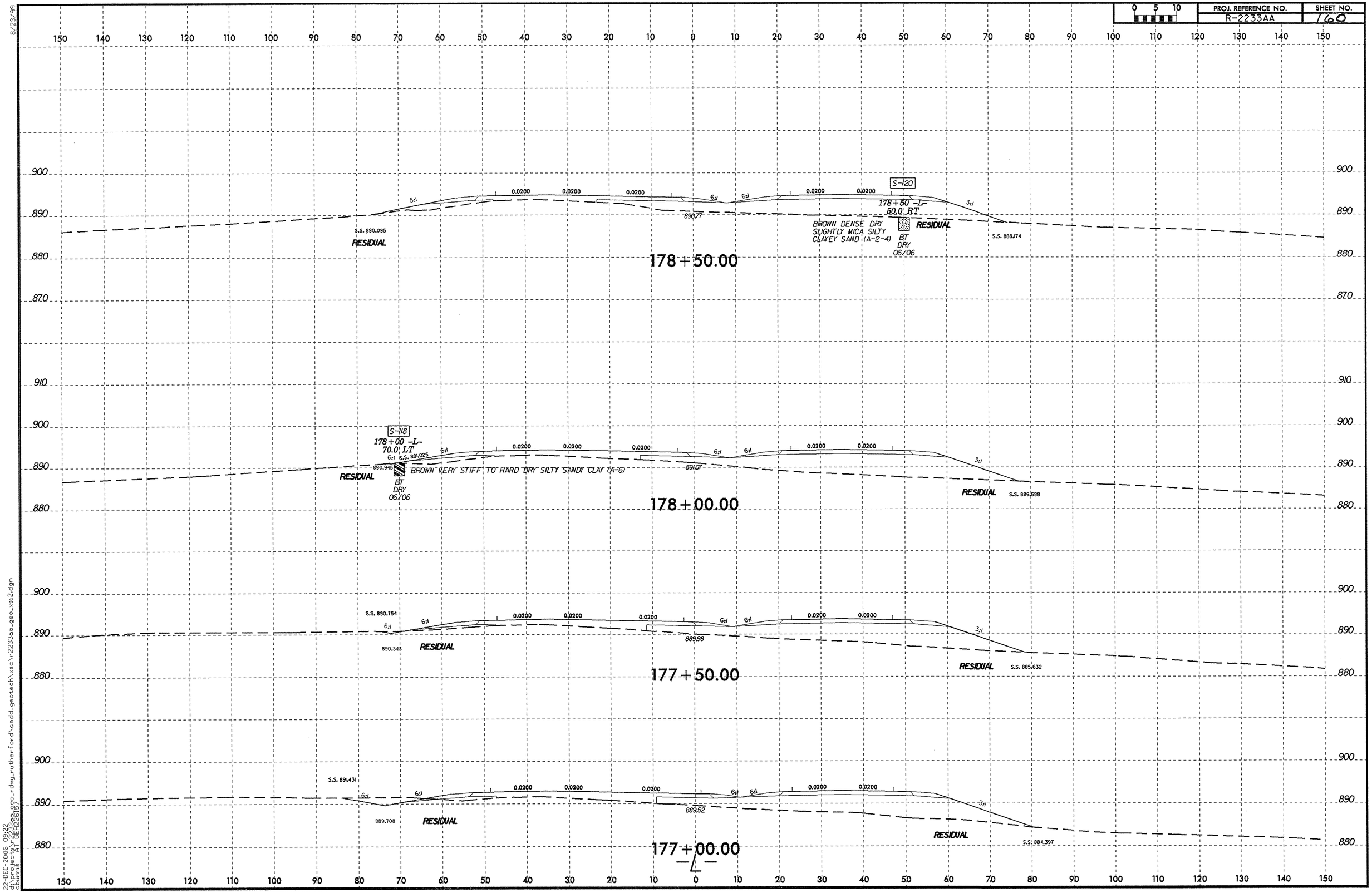
8/23/99

22-DEC-2006 09:17
d:\projects\r2233aa\geo_rdwg_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT DEH22617



8/23/99
22-DEC-2006 09:20
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburns AT CEH22617

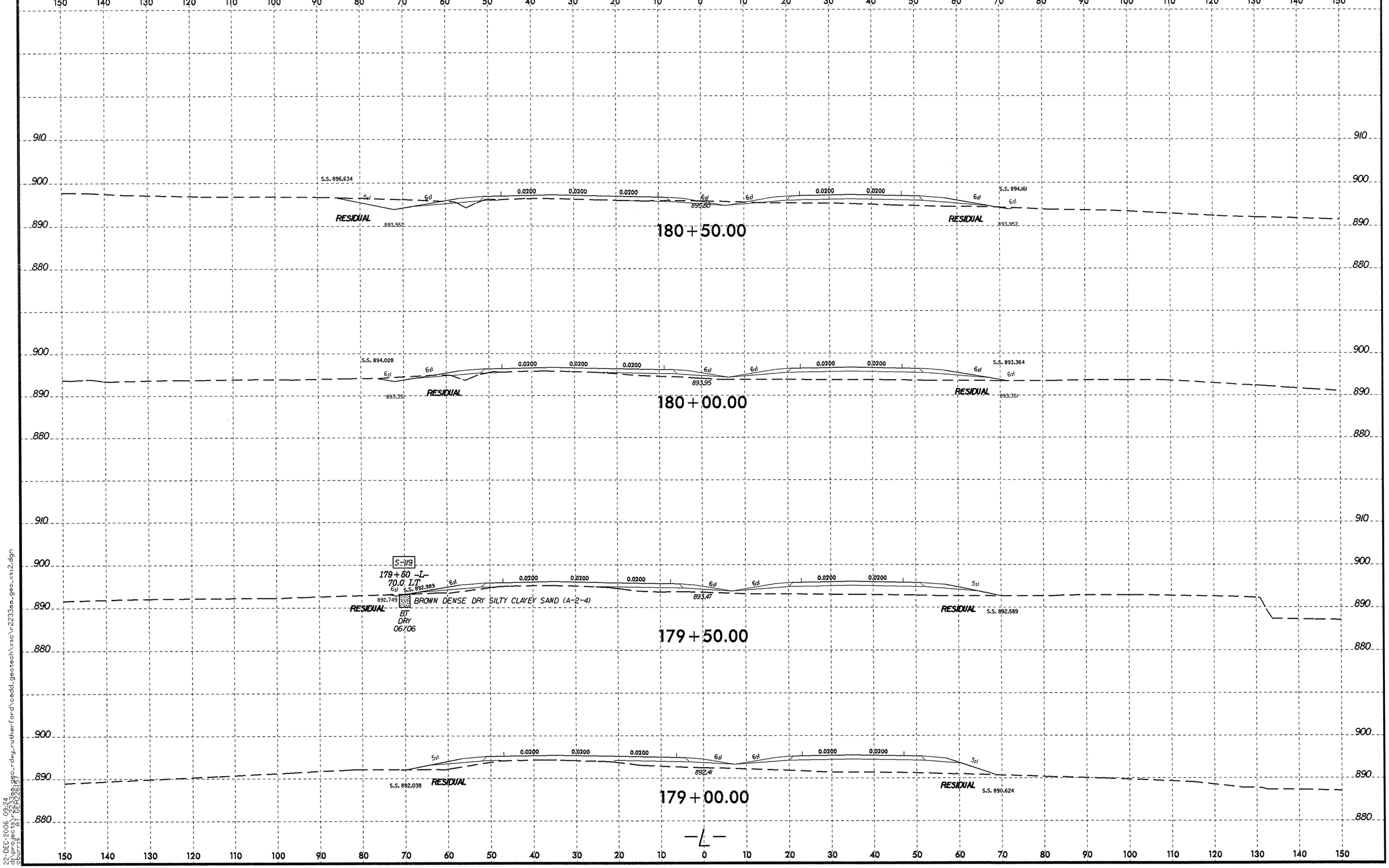
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	160



8/23/99

22-DEC-2006 09:22
d:\projects\r2233aa\rdwg_rutherford\oddd_geotech\xsc\r2233aa_geo_xsi2.dgn
dburris (DEFAULT)

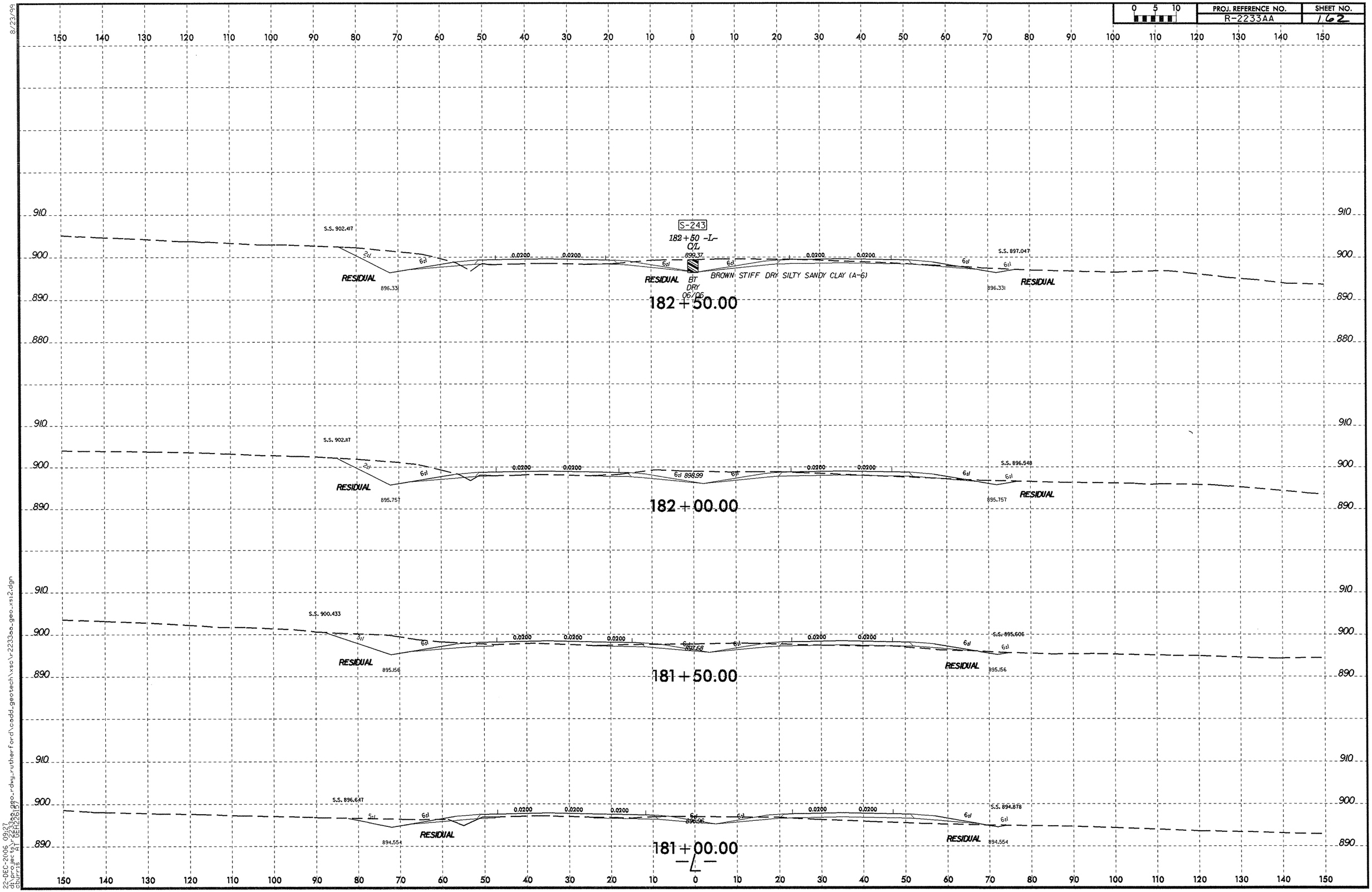
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	161



8/23/99

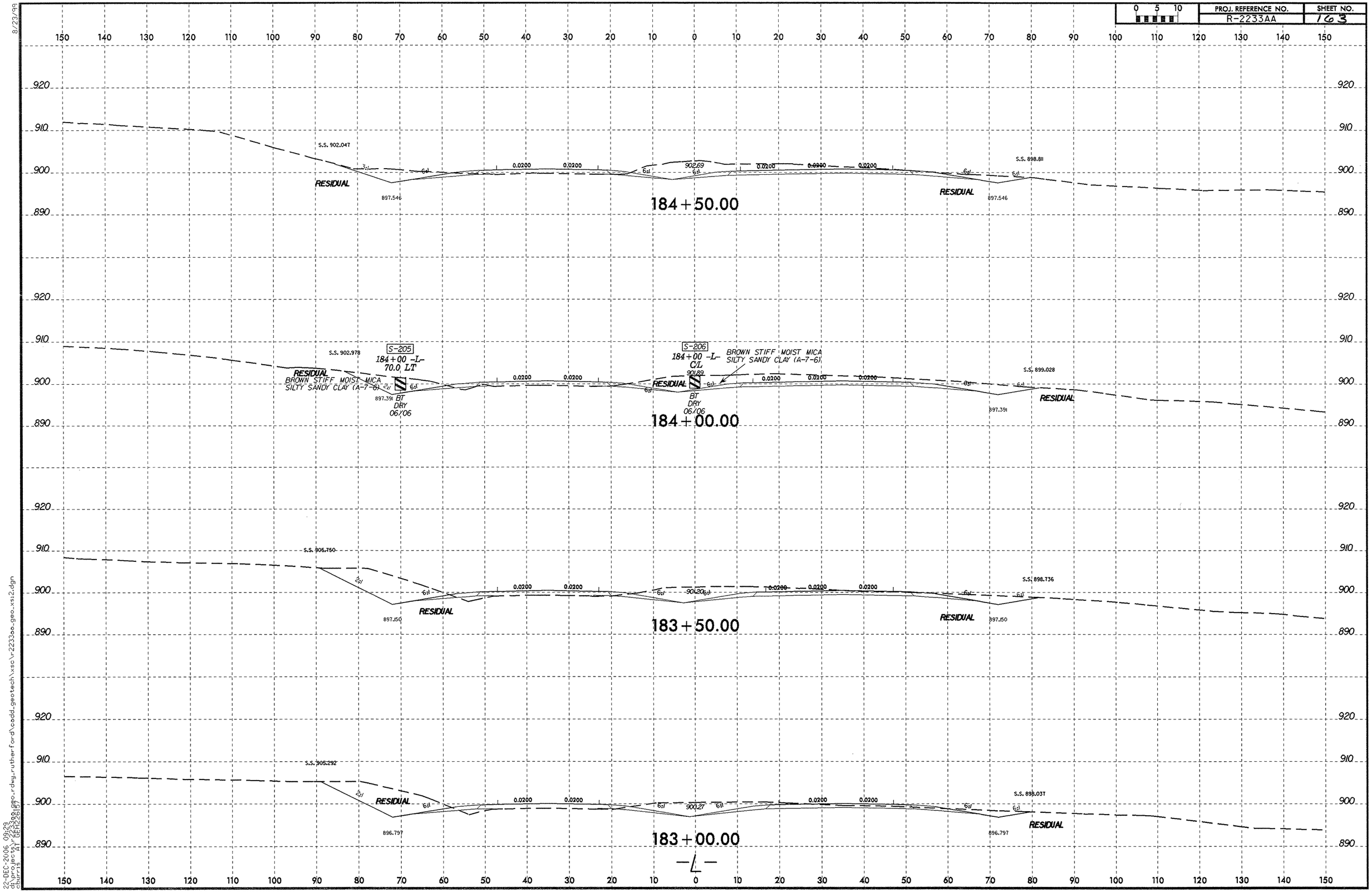
22-DEC-2006 09:24
d:\projects\r-2233aa\geo-rdwy-rutherford\cadd_geotech\xsc\r-2233aa_geo_xsi2.dgn
cburris AT GEN226197

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	162



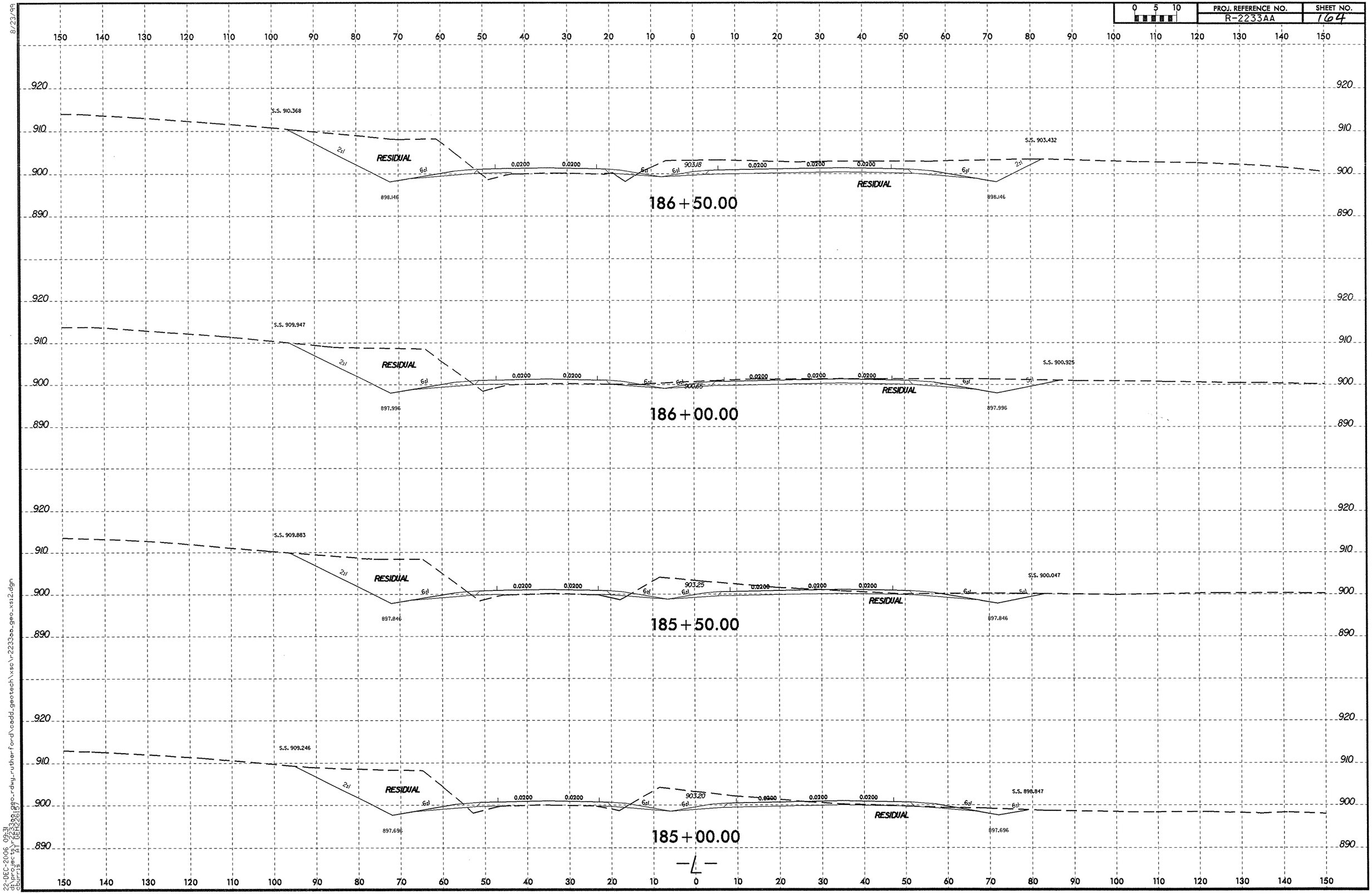
8/23/99

22-DEC-2006 09:27
d:\projects\r2233aa\geo_rdwg_rutherford\cadd_geotech\xsc\r2233aa-geo_xs12.dgn
cburris AT DEH2267



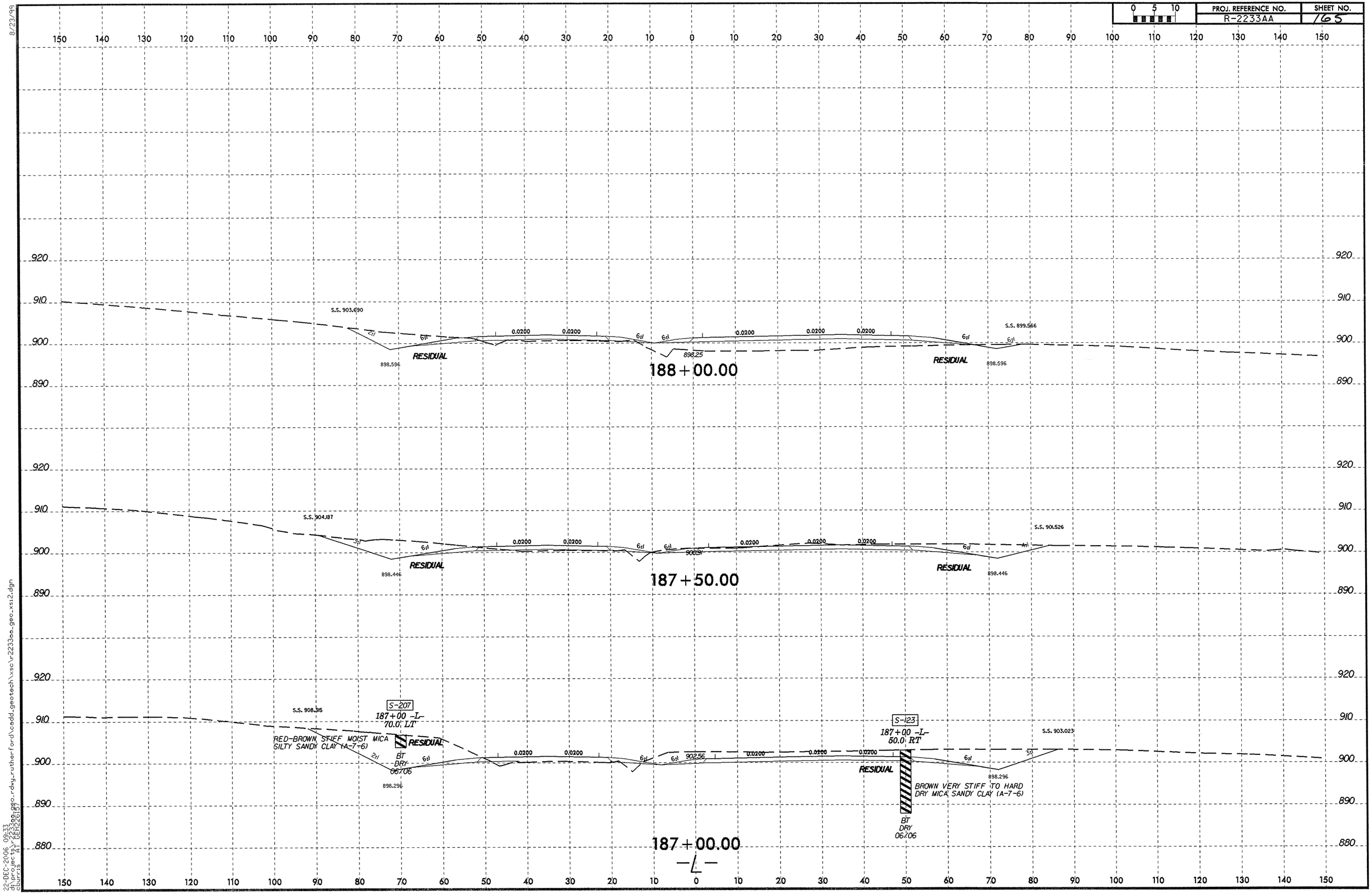
8/23/99
22-DEC-2006 09:29
d:\projects\r2233aa\geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris AT GEOPAK

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	164



8/23/99

22-DEC-2006 09:31
d:\projects\r2233aa\geo_rdwg_rutherford\oadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris
I DEN226(7)



8/23/99
22-DEC-2006 09:33
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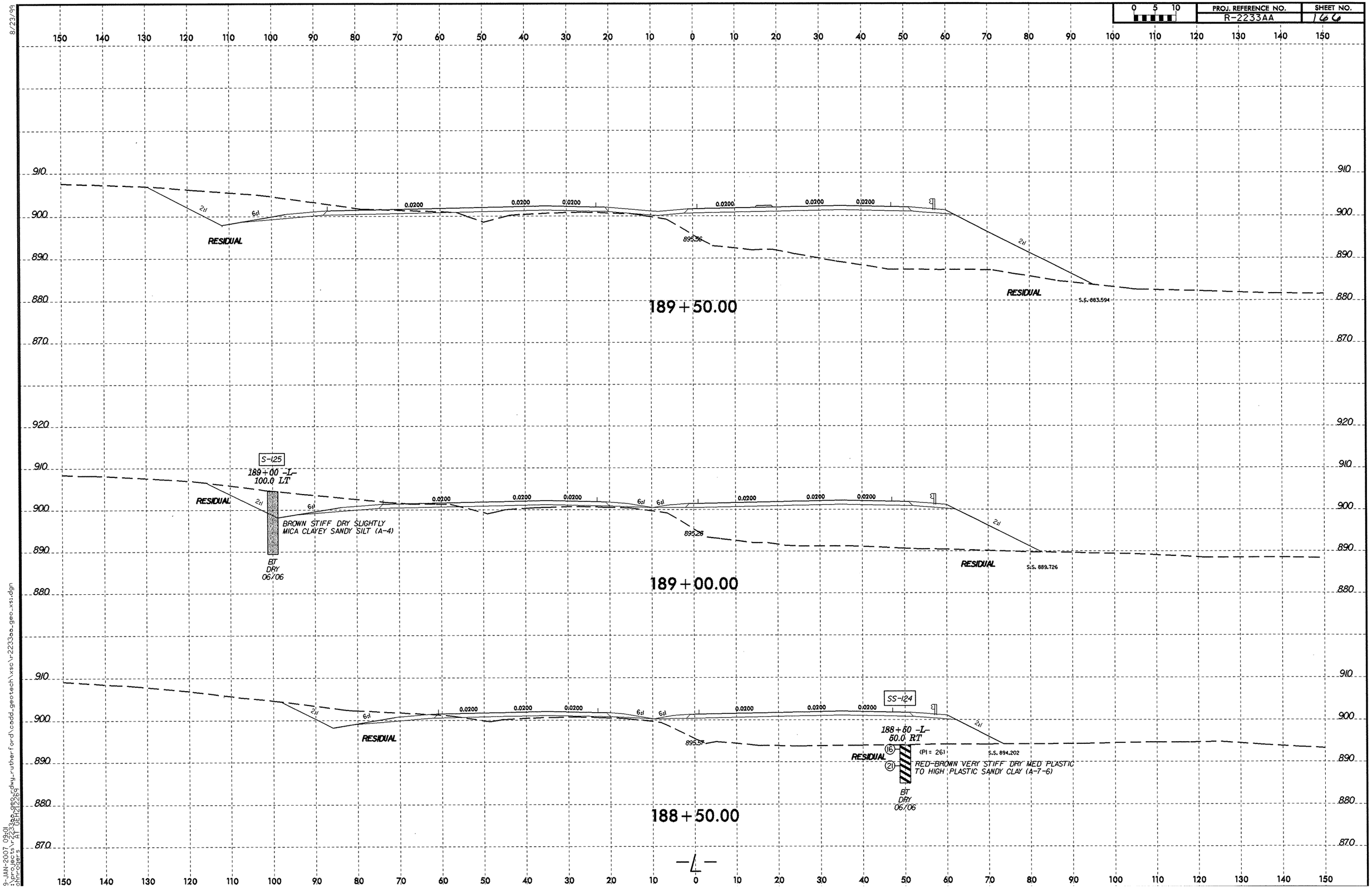
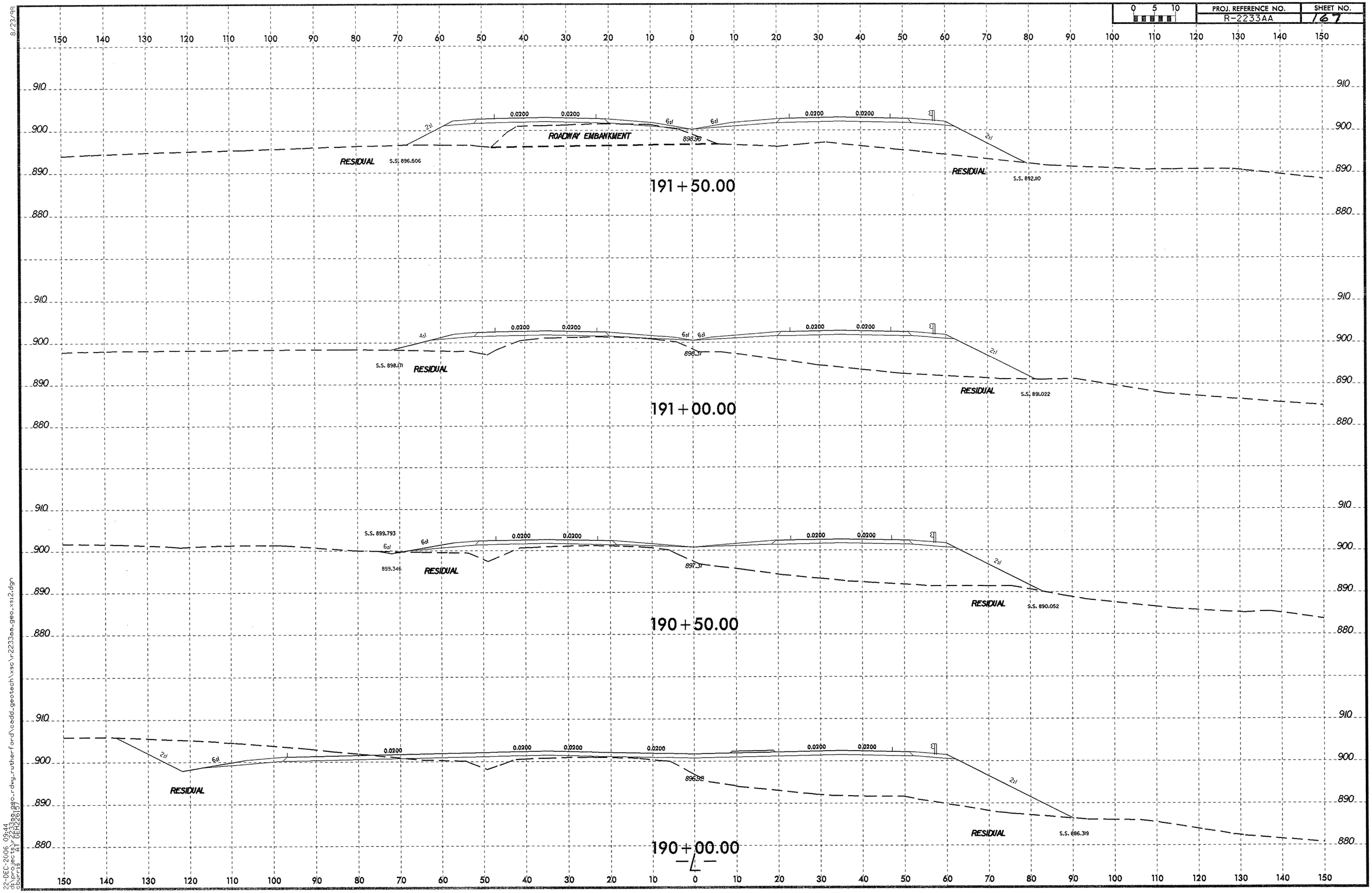
cburris AT DEH26157



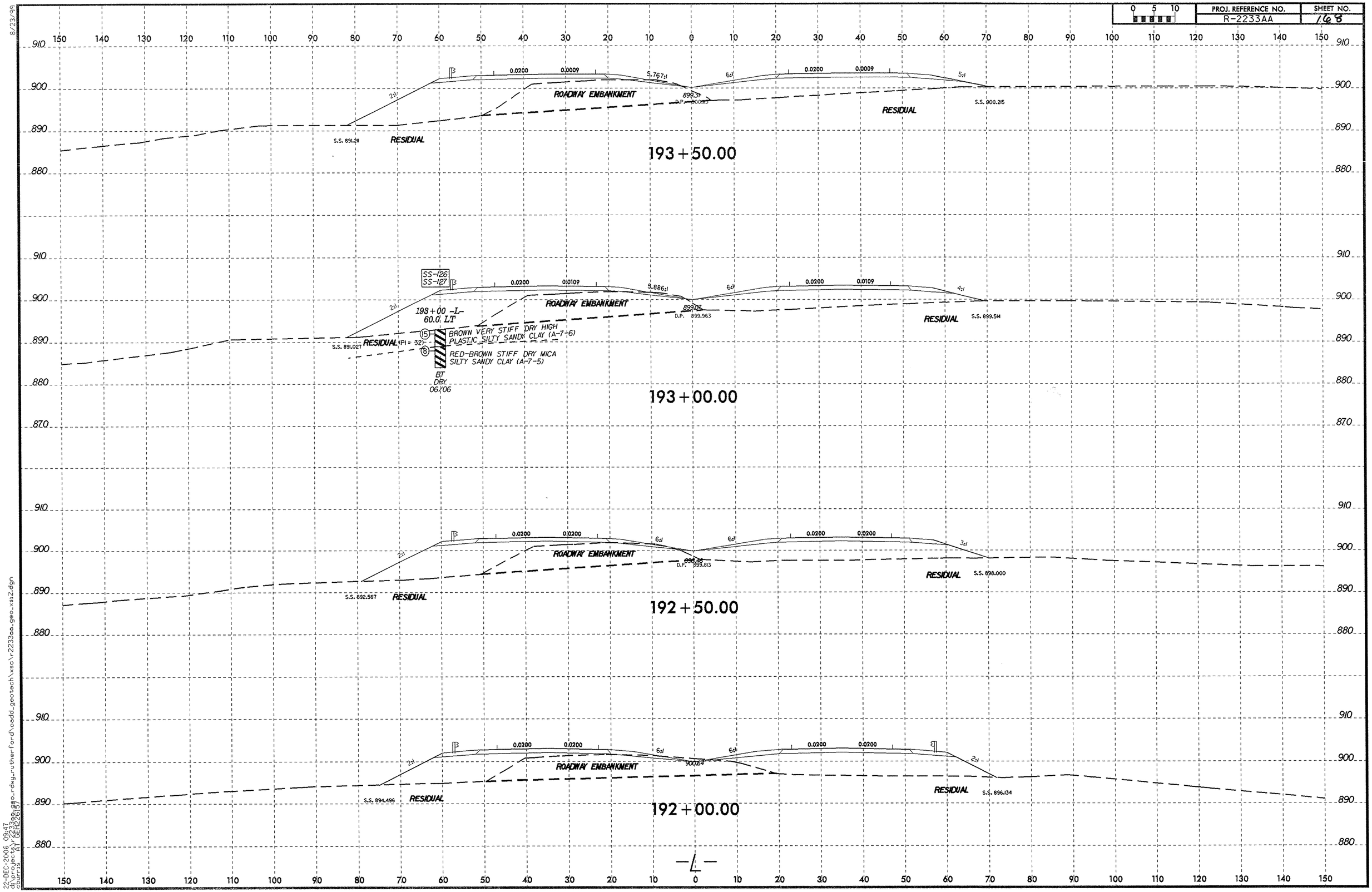
9-JAN-2007 09:01
j:\projects\r2233aa_geo_xsc.dwg_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi.dgn
ohrogers AT 0EH(2128)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	167



8/23/99

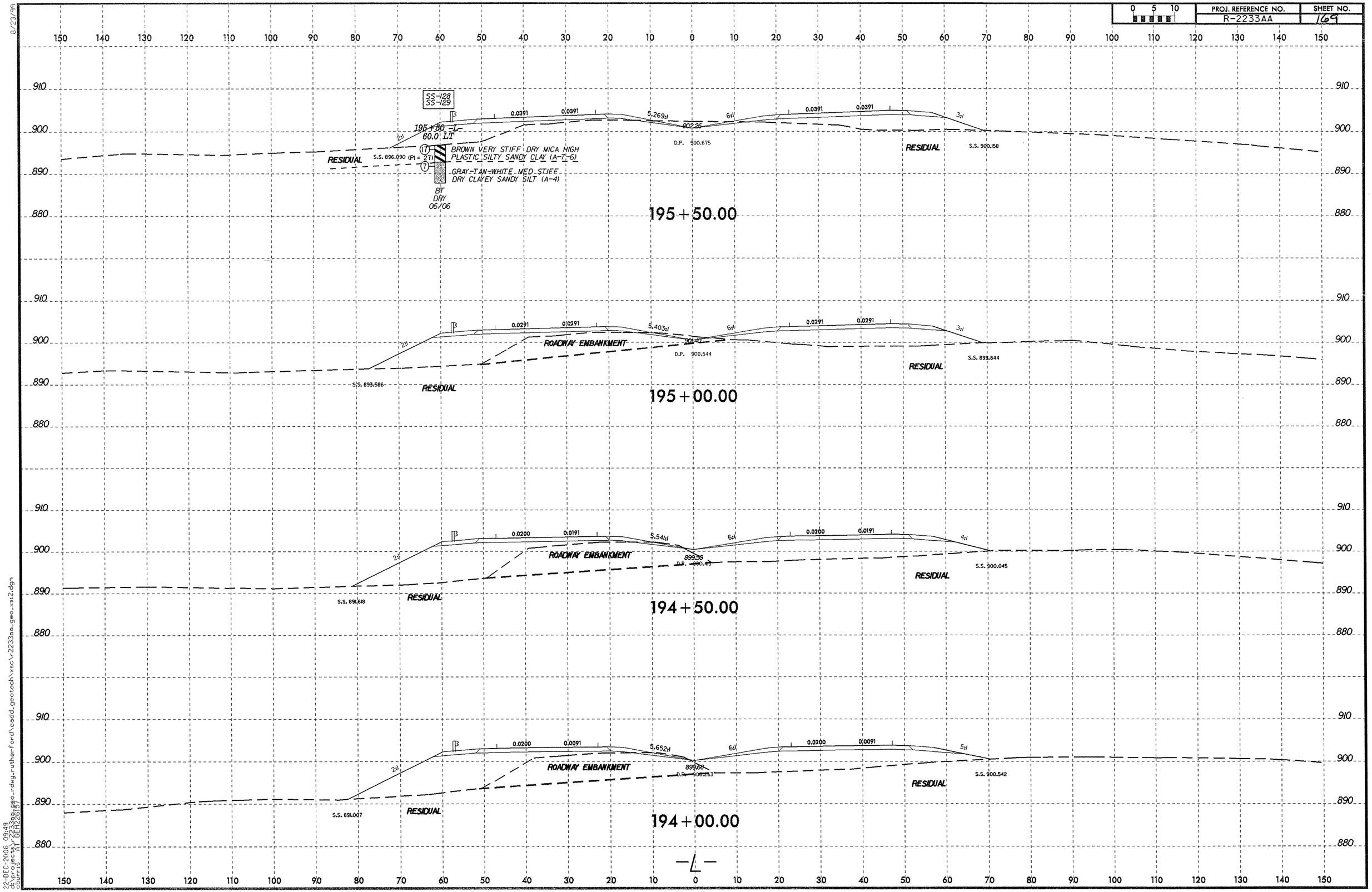
22-DEC-2006 09:44
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
dburris AT GEH22617



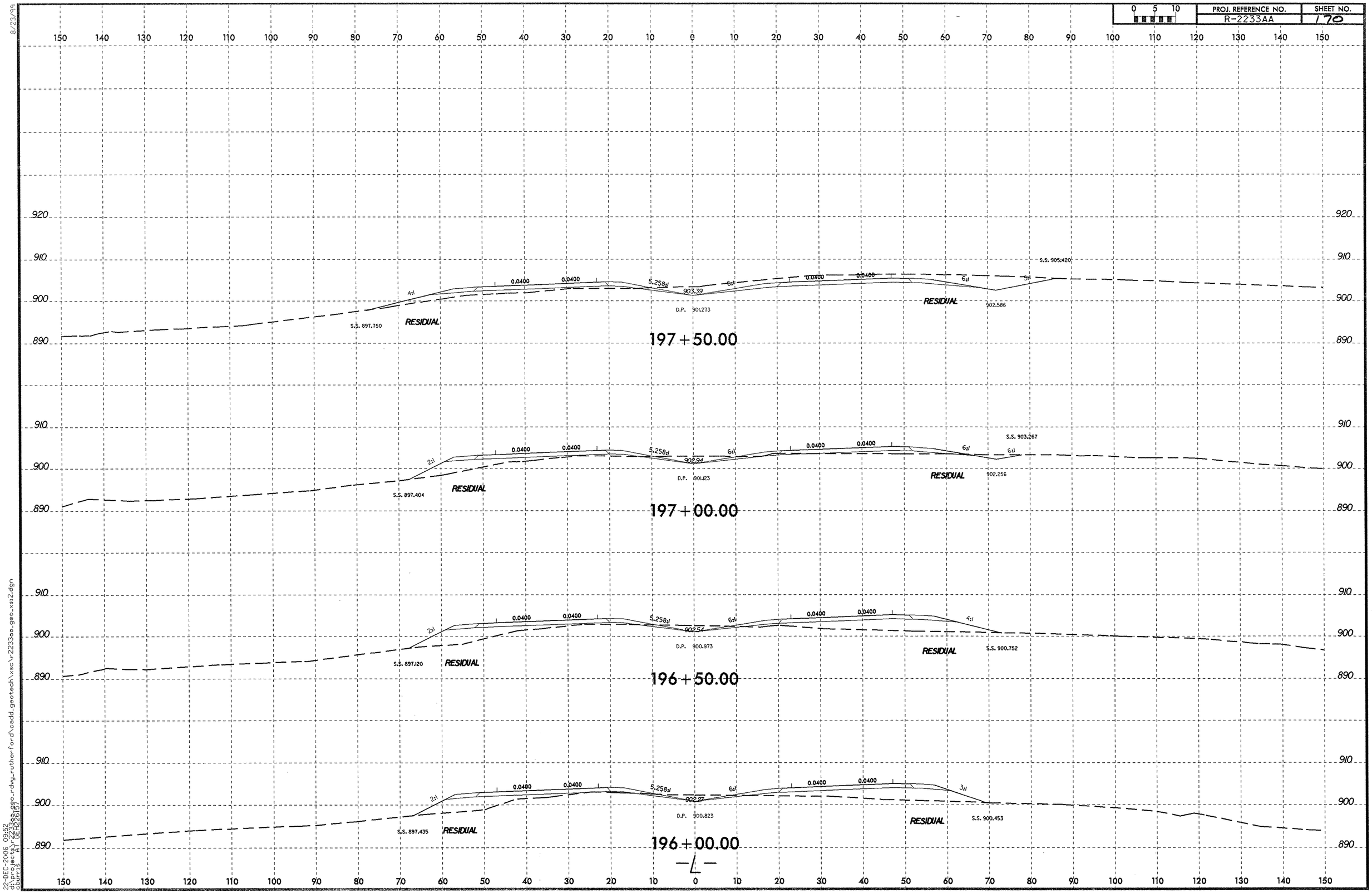
8/23/99

22-DEC-2006 09:47
ok_proj_geo_xsl2
cburris AT GEH226187

ok_proj_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xsl2.dgn

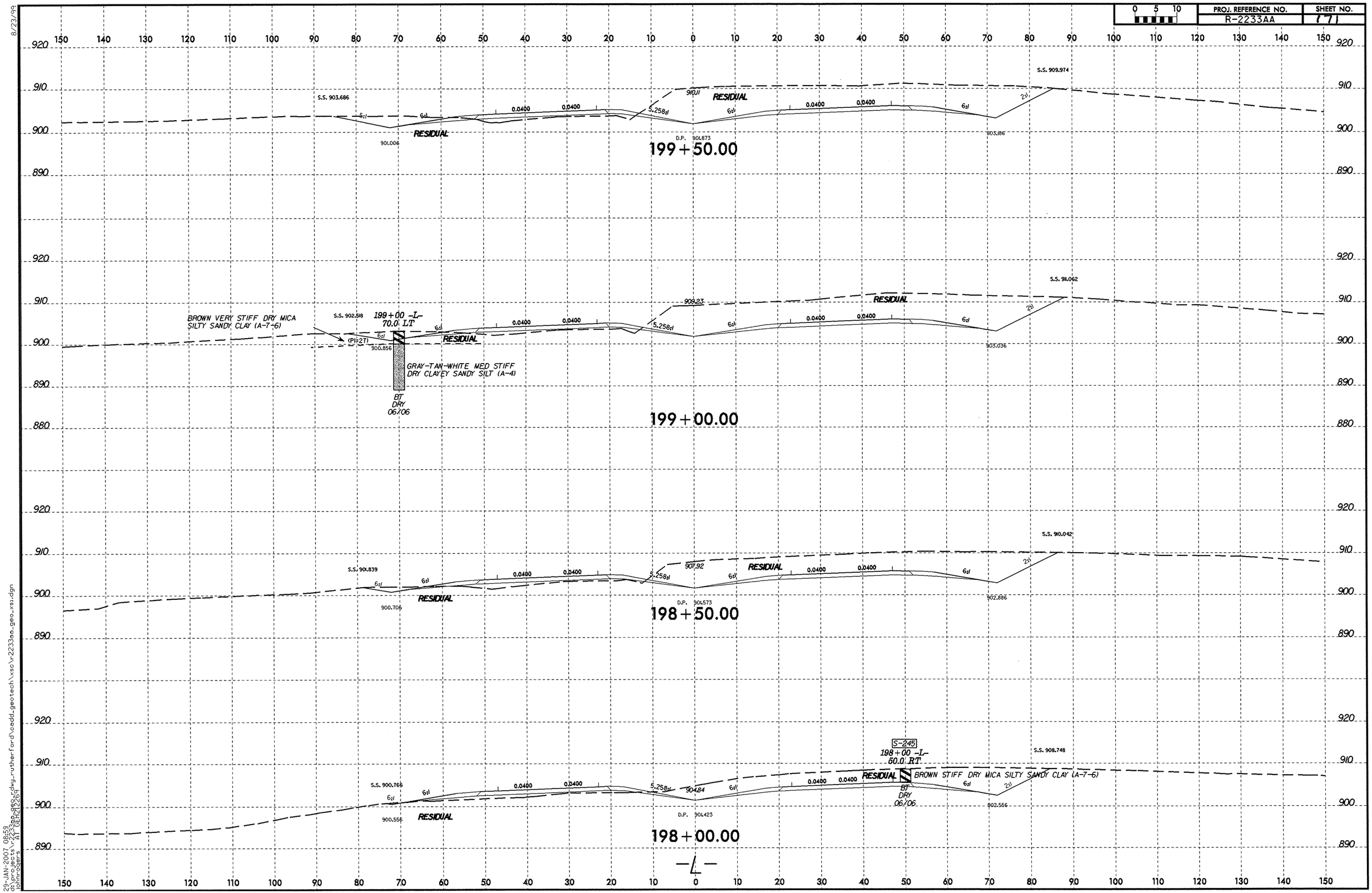


8/23/99
22-DEC-2006 09:49
d:\proj\rec\93\r2233\aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris AT DEH226187



8/23/99

22-DEC-2006 09:52
cl_proj_geo_xs12 (GEH32620.geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn)



8/23/99
29-JAN-2007 08:59
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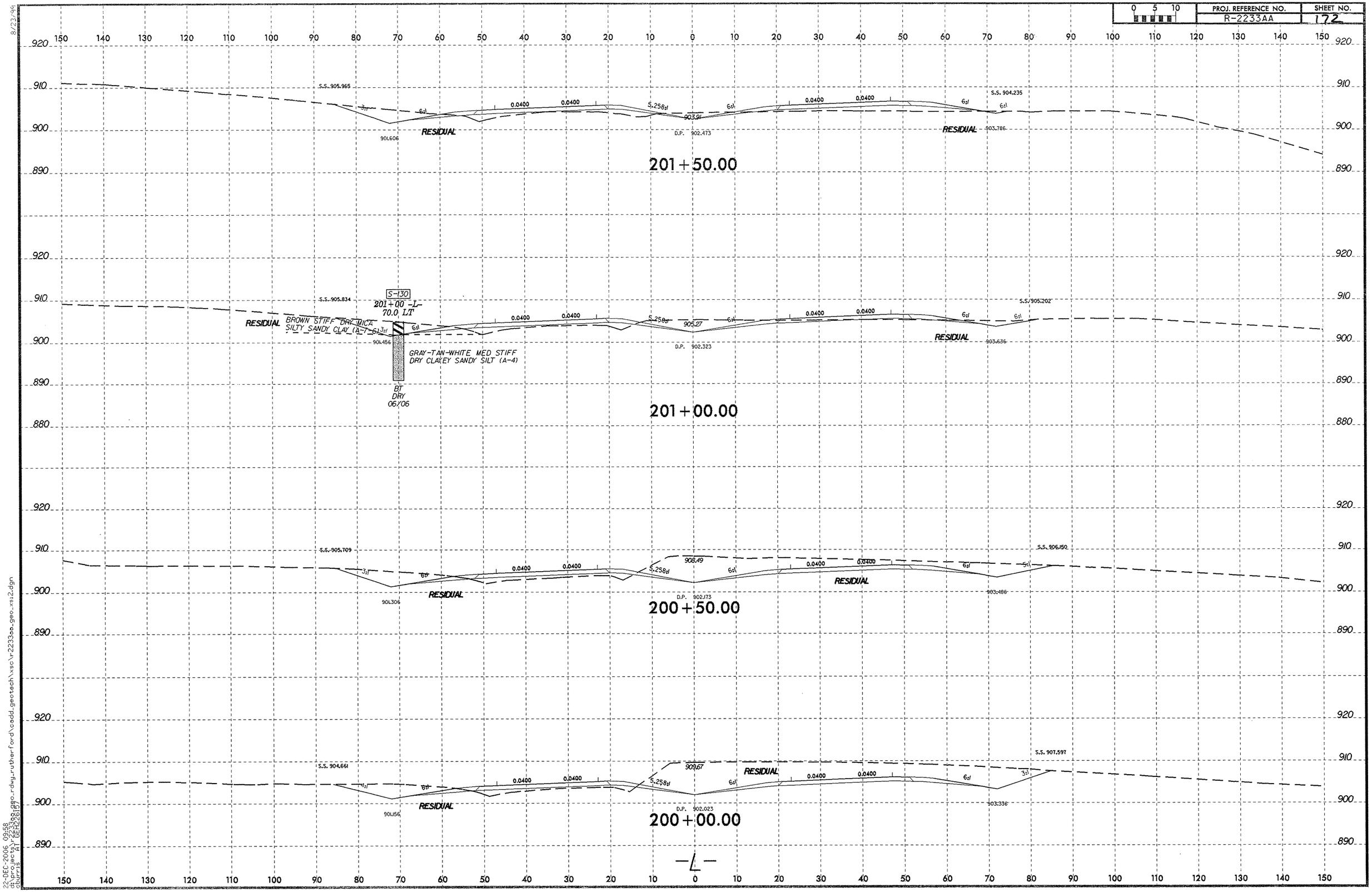
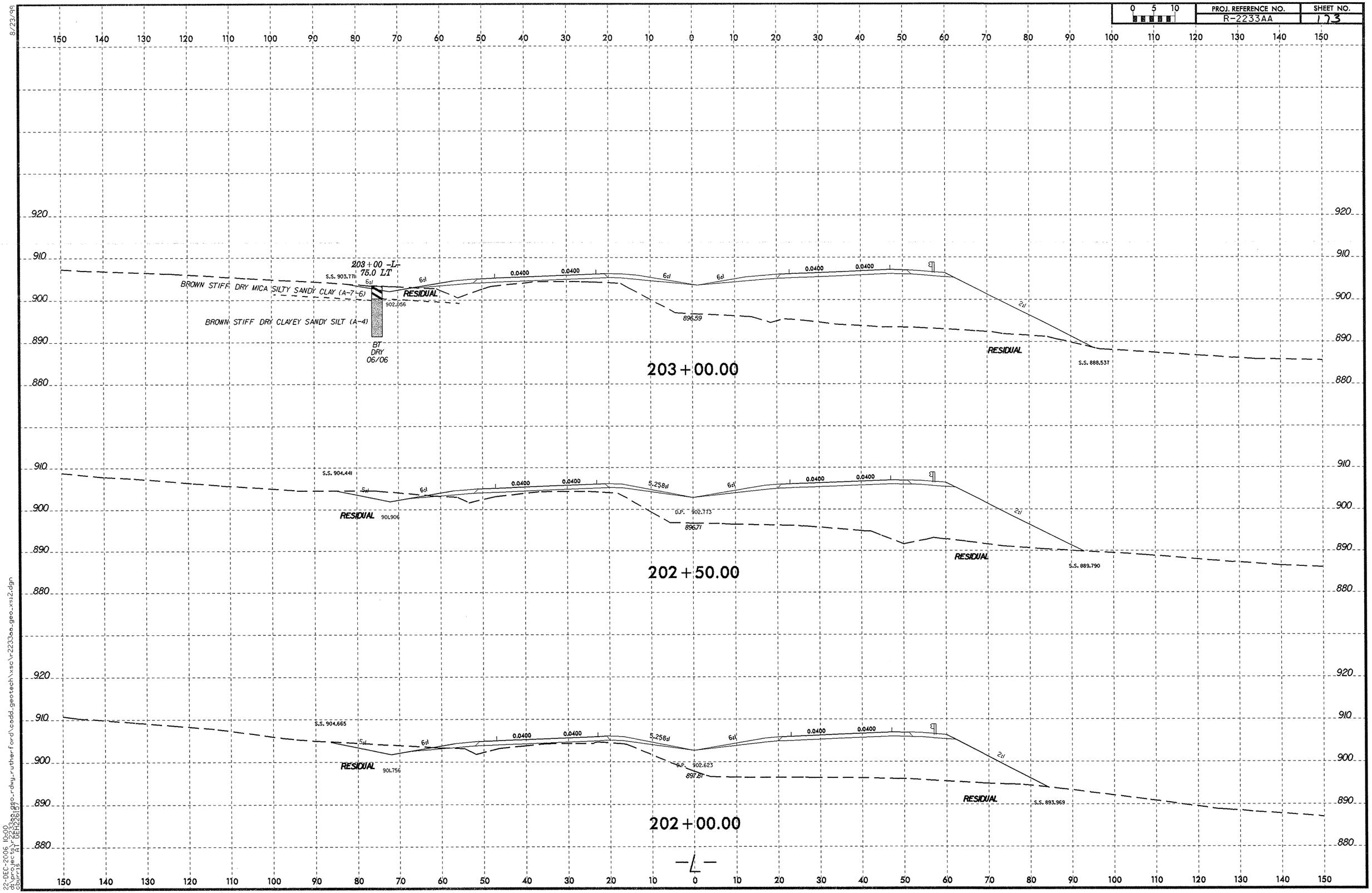
pimrogers AT GEI(2126)



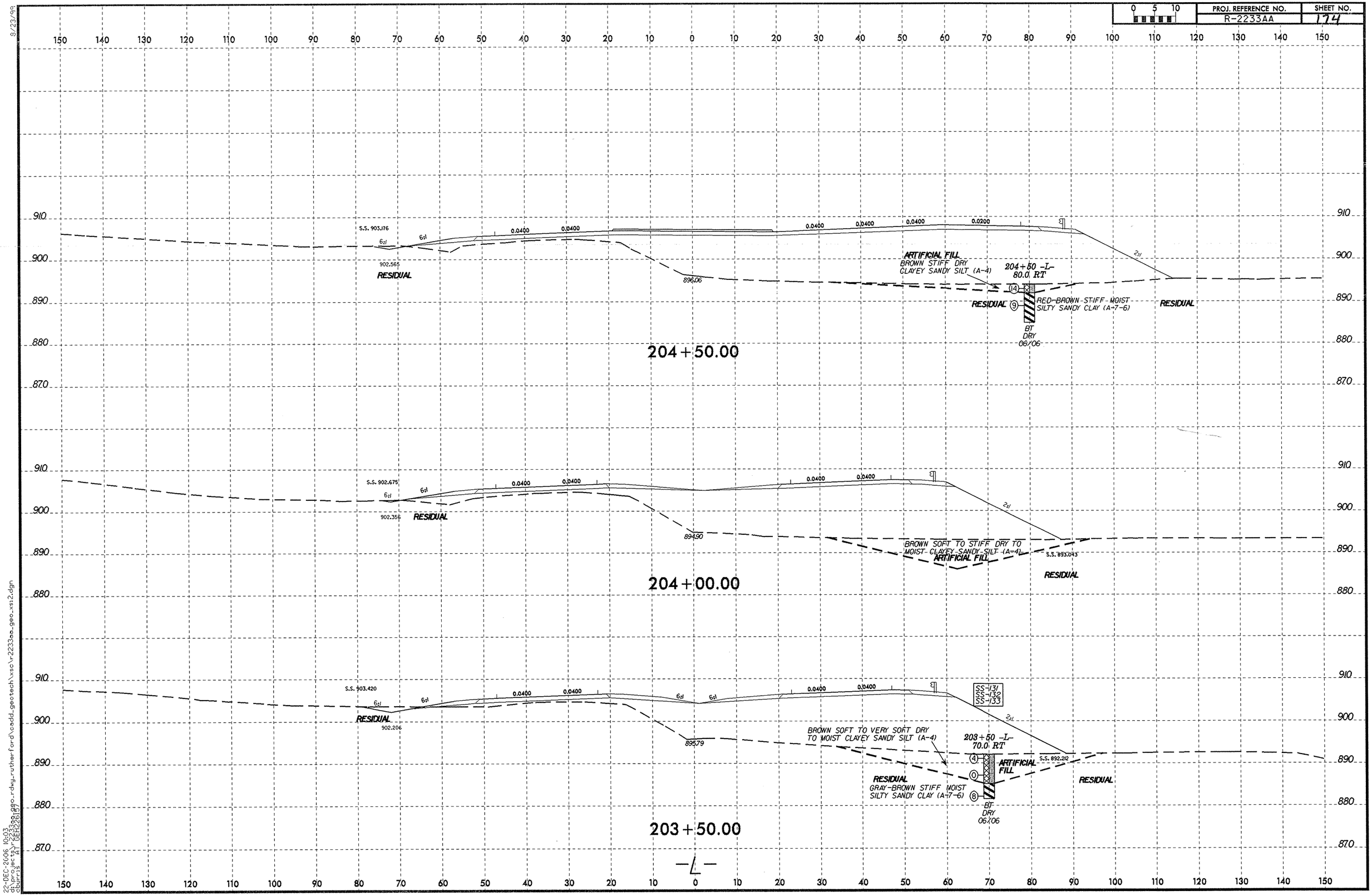
8/23/99
22-DEC-2006 09:58
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris AT DEH2261(7)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	123



8/23/99

22-DEC-2006 10:00
d:\proj\r2233aa_geo_rdwy_rutherford\codd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris
AT GEH2261.97



8/23/99
22-DEC-2006 10:03
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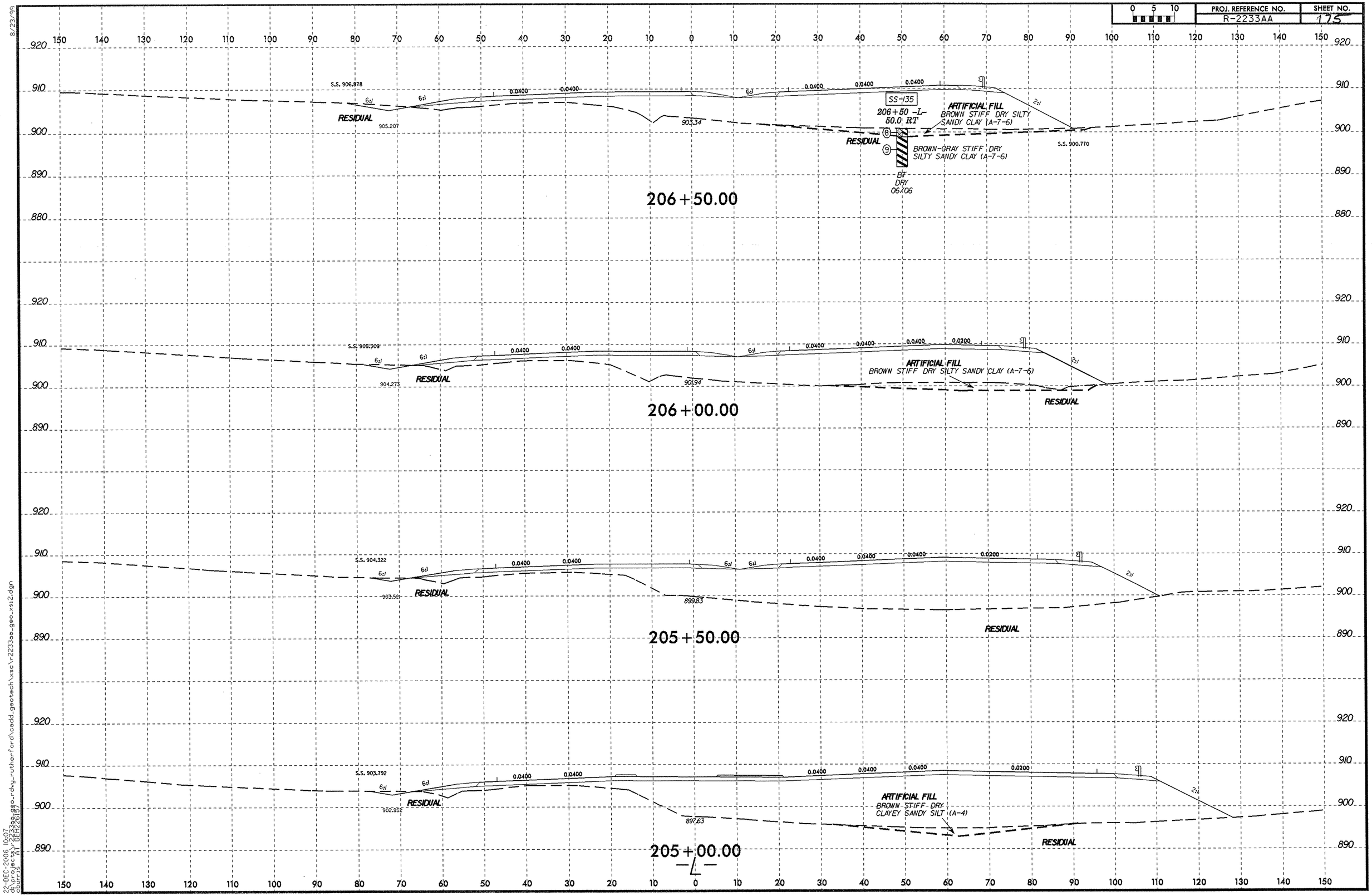
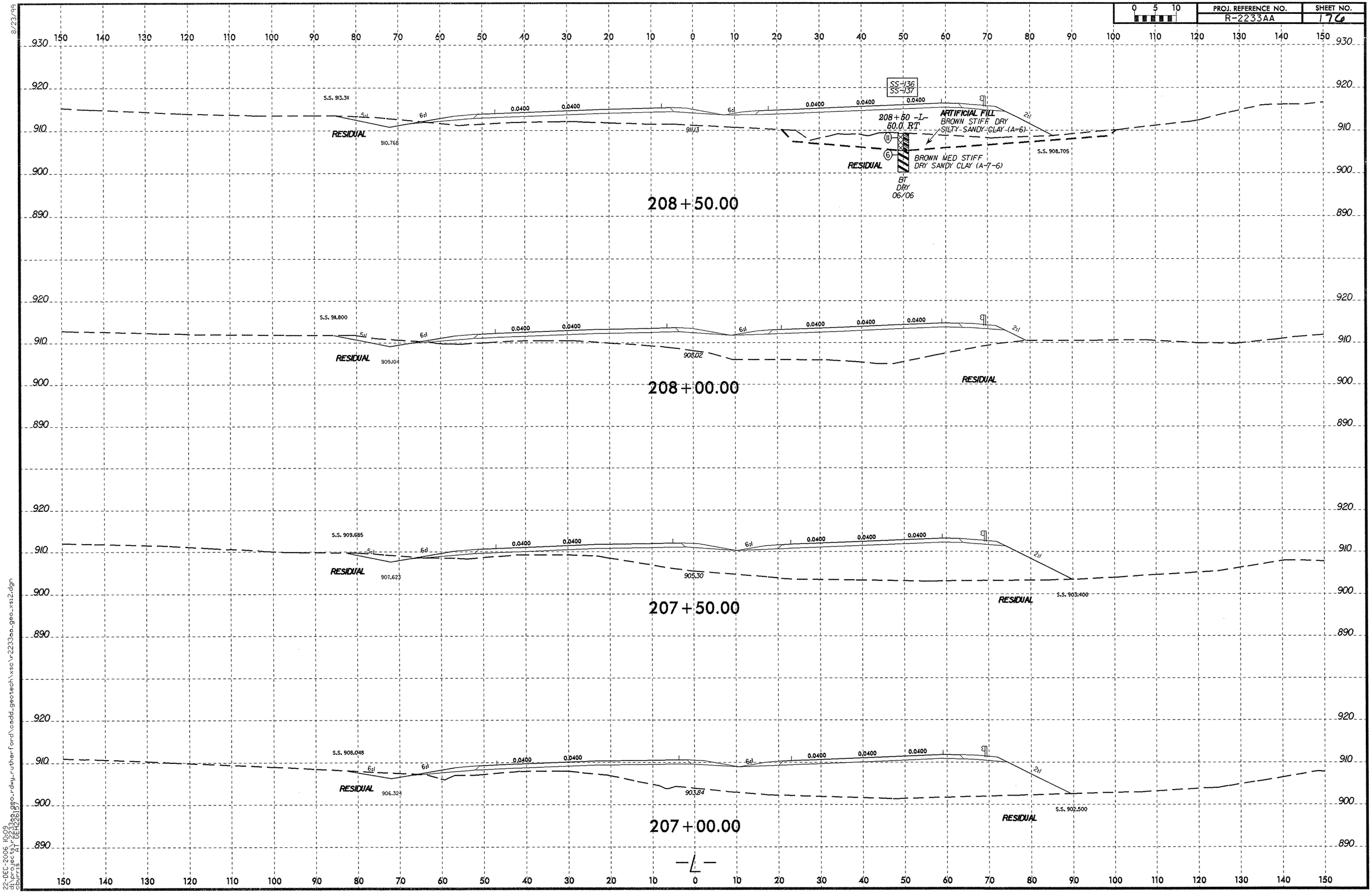
cburris
AT GEH2261



8/23/99
22-DEC-2006 10:07
ch:\proj\sec\21\0022261\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris

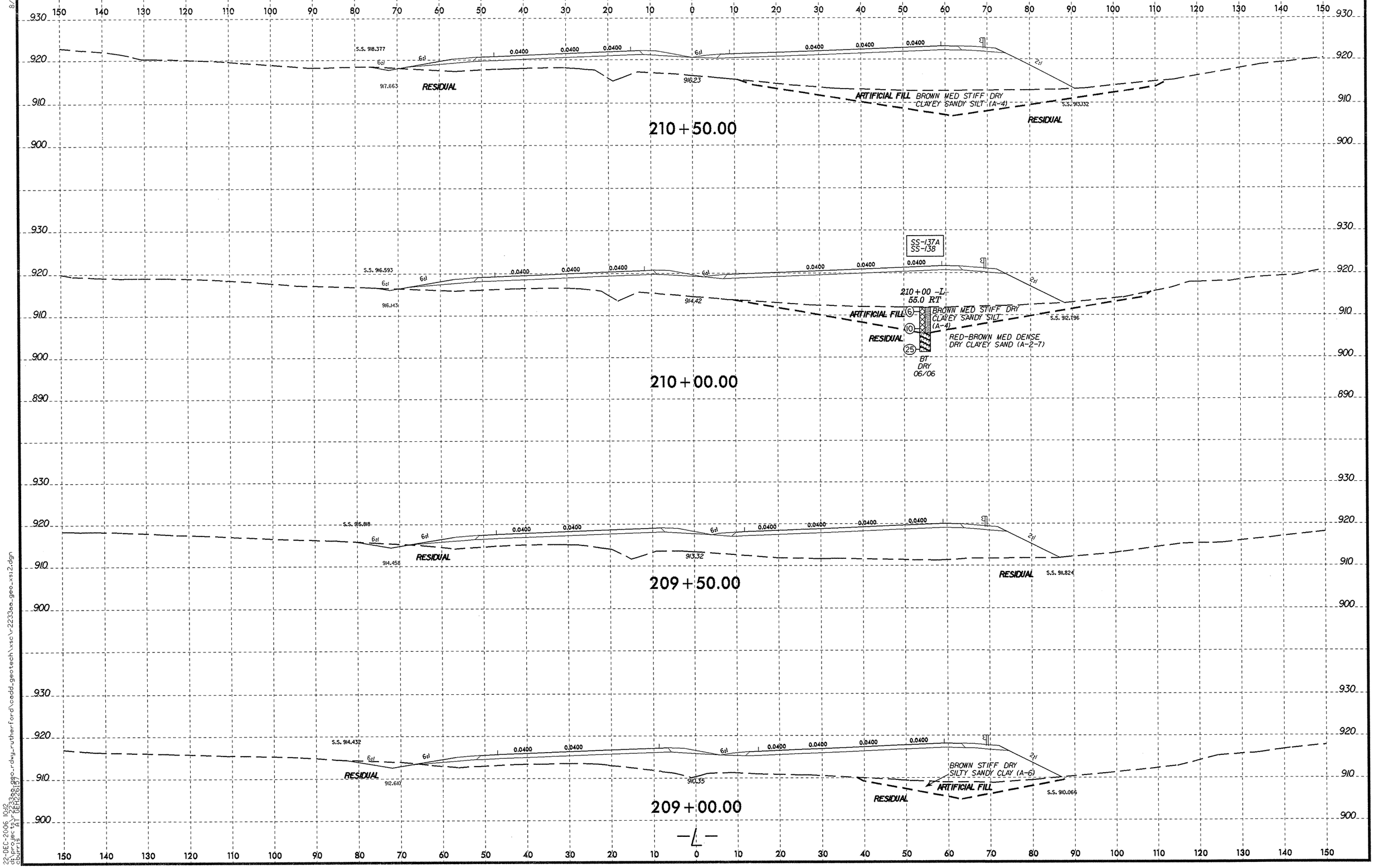
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	176

0 5 10



8/23/99

22-DEC-2006 10:09
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT GEH226157



8/23/99

22-DEC-2006 10:12
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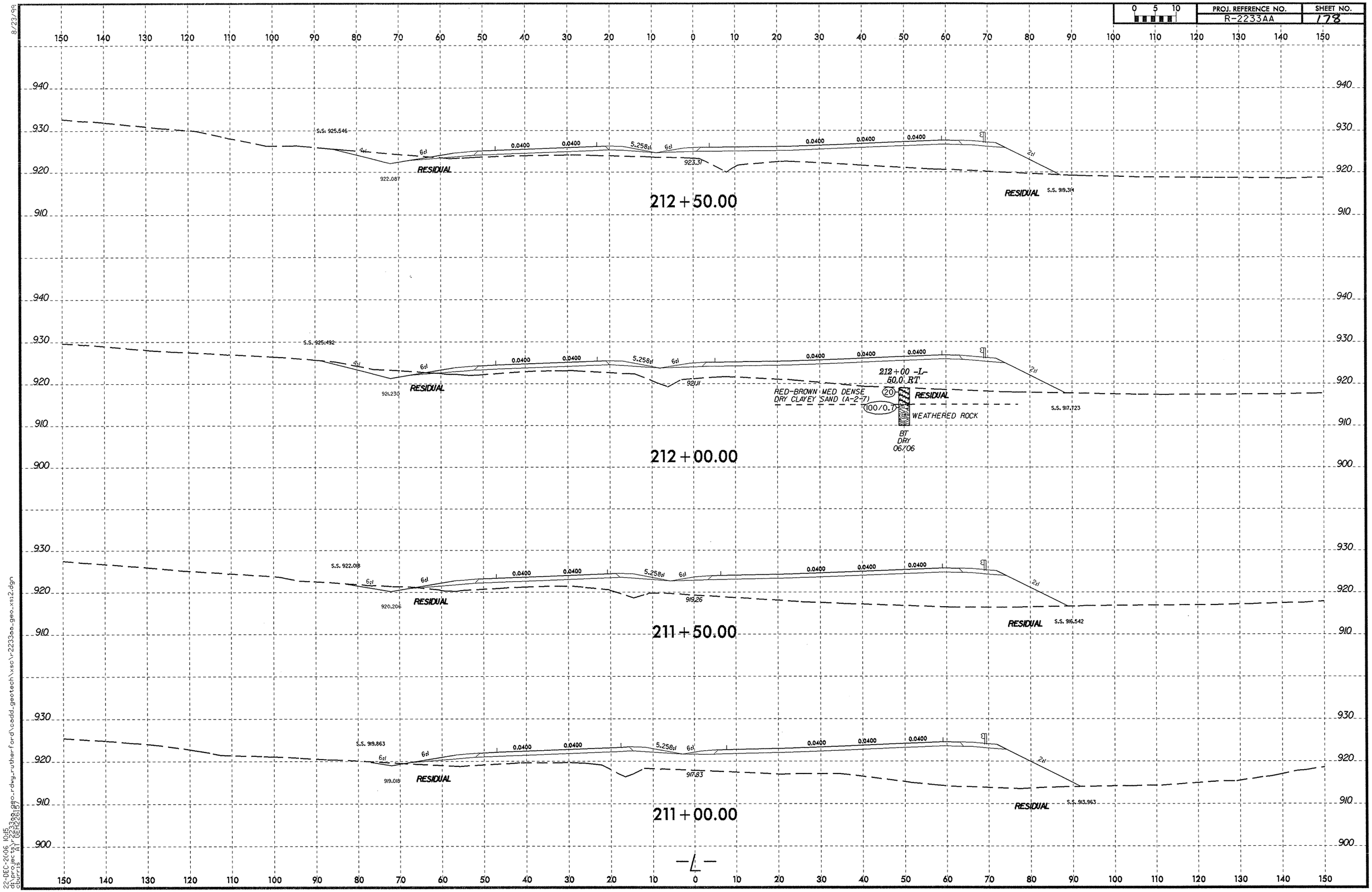
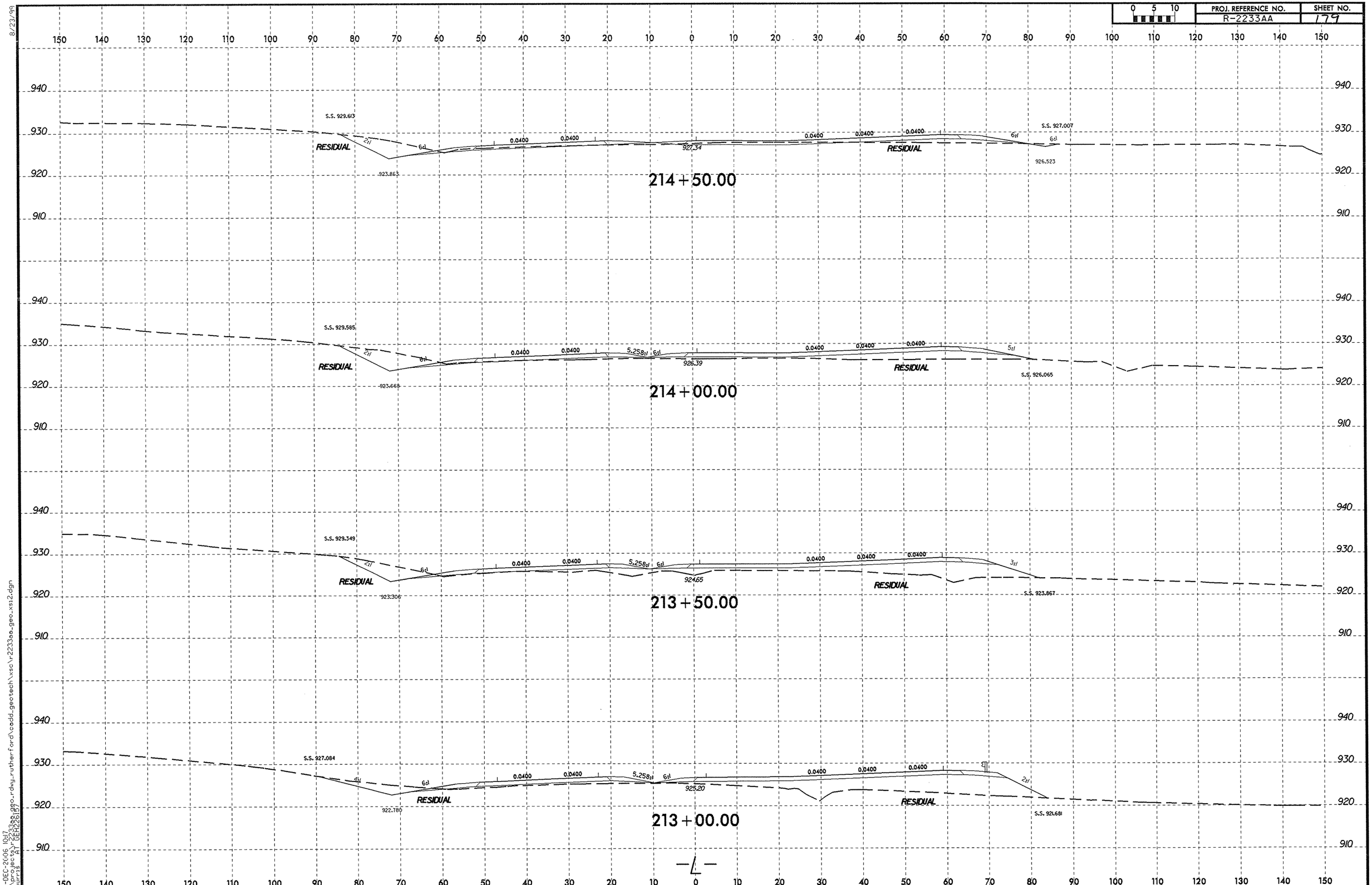
cburris
AT GEH2261B7



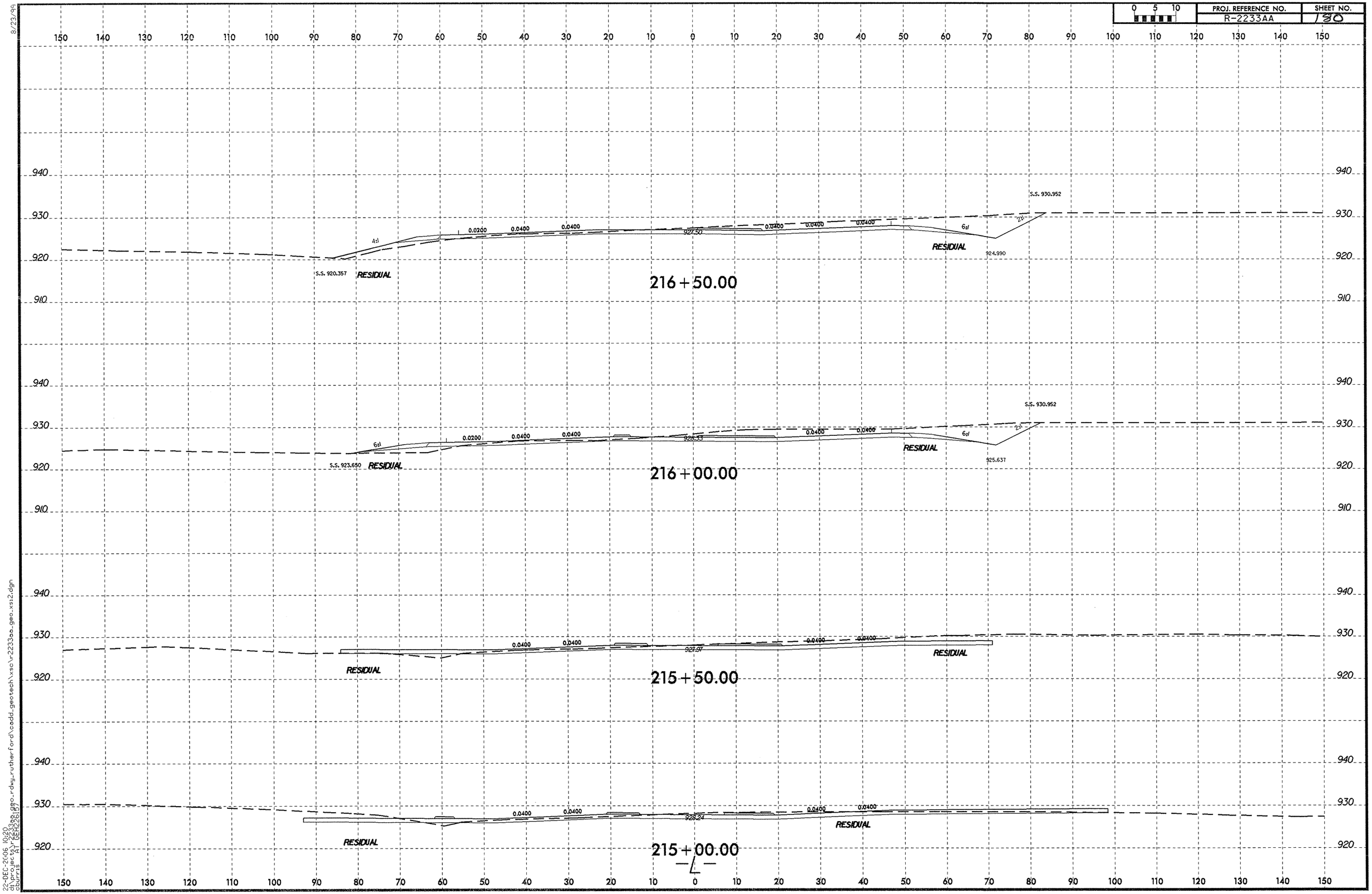
8/23/99

22-DEC-2006 10:15
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xs12.dgn
cburris AT GEH226187



8/23/99
22-DEC-2006 10:17
c:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburrs
AT GEH226187

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	130



8/23/99

22-DEC-2006 10:20
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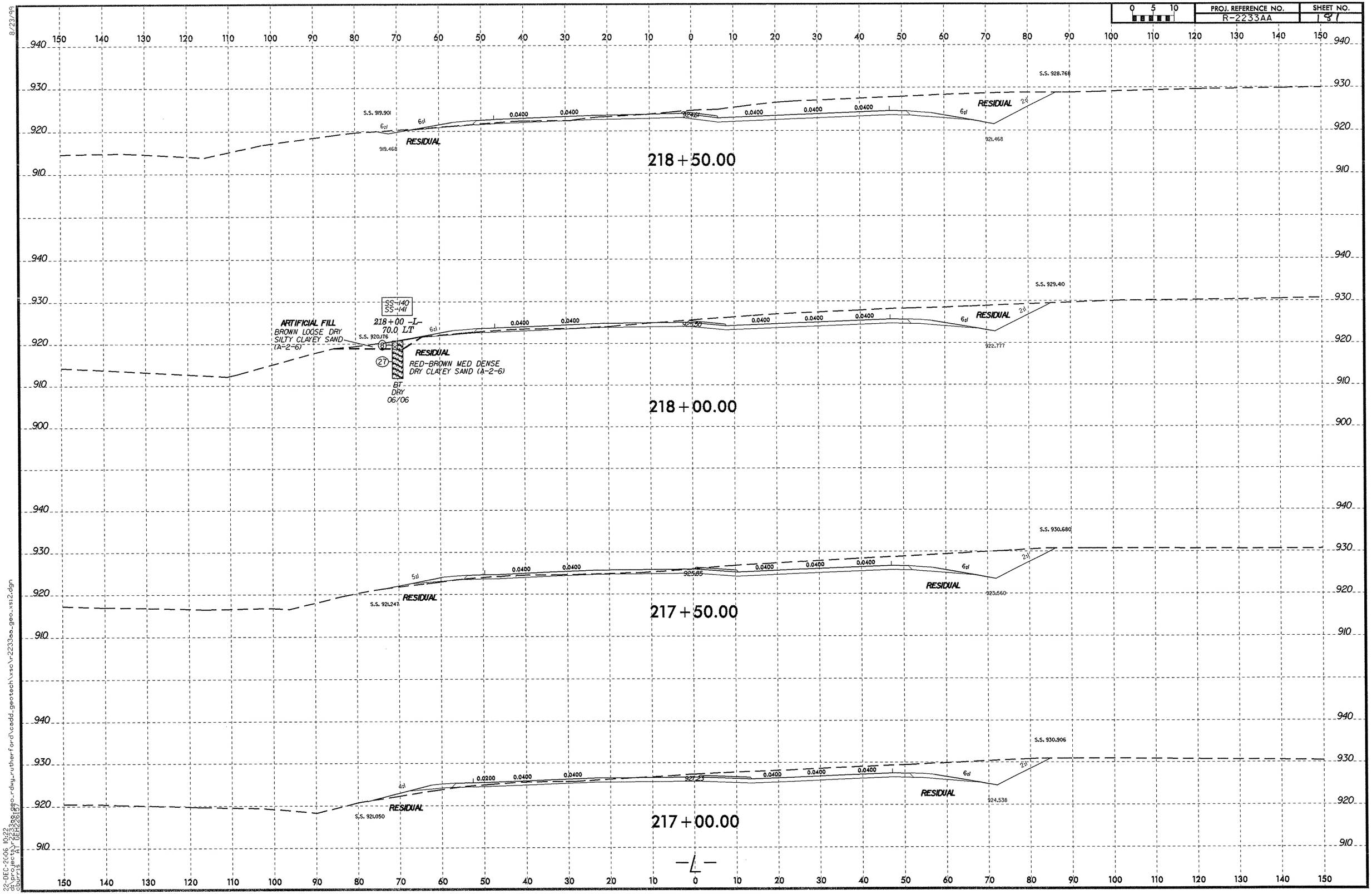
dburris AT GEH22617



8/23/99

22-DEC-2006 10:22
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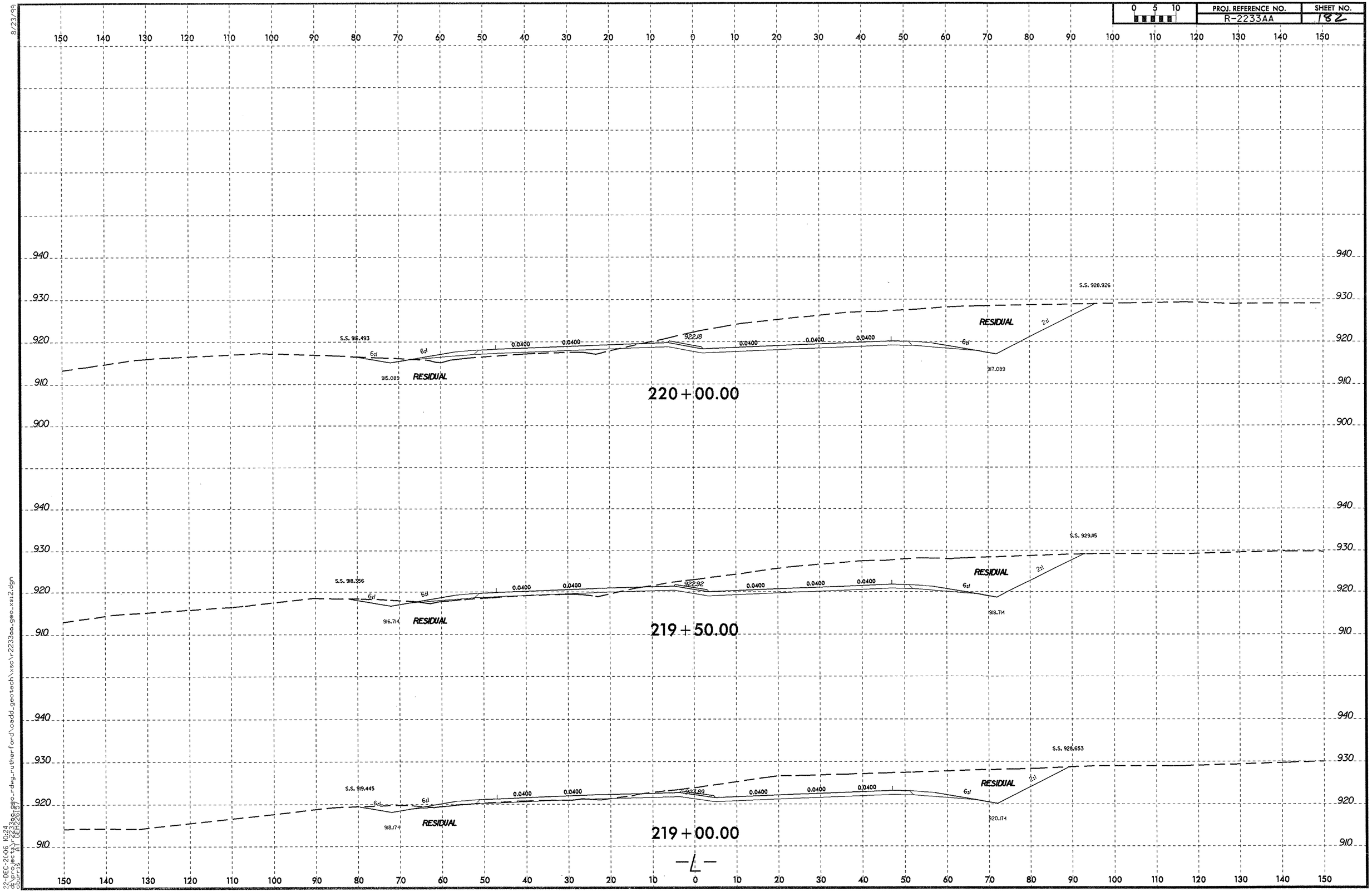
dburrage
"A" (GEH228187)



8/23/99
22-DEC-2006 10:24
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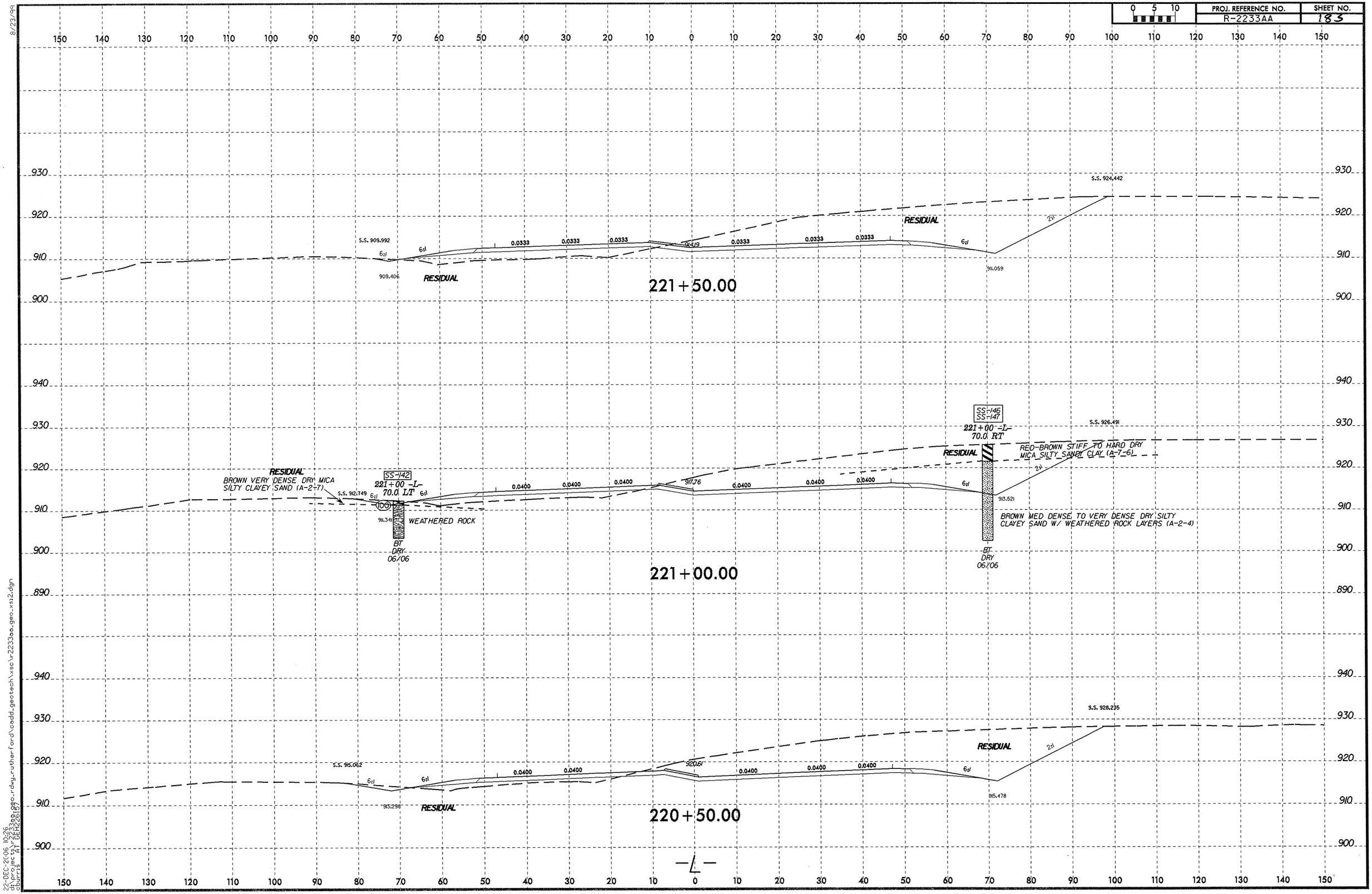
cburris AT CEH226187



8/23/99
22-DEC-2006 10:26
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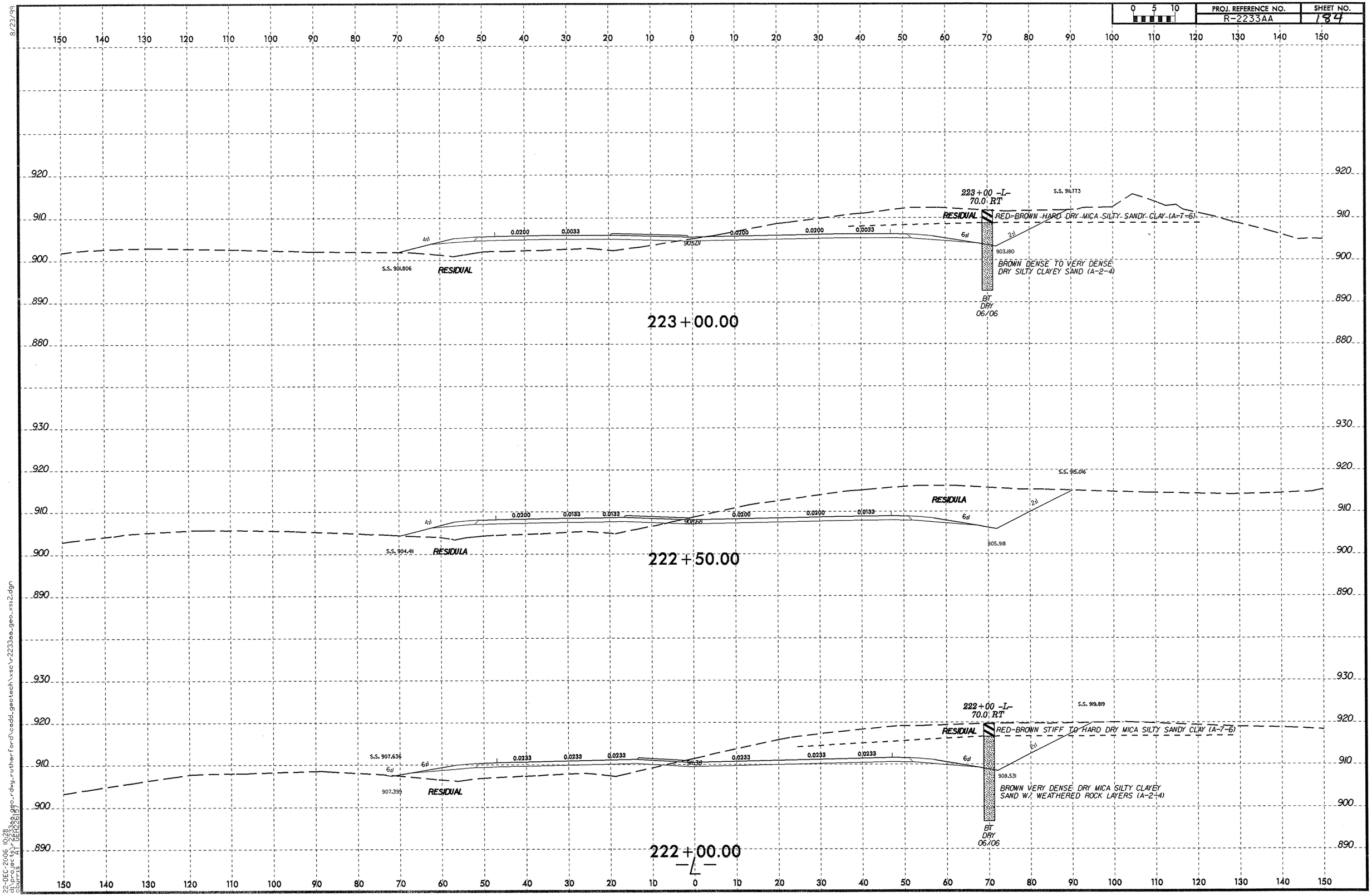
cburris AT DEH22617



8/23/99

22-DEC-2006 10:28
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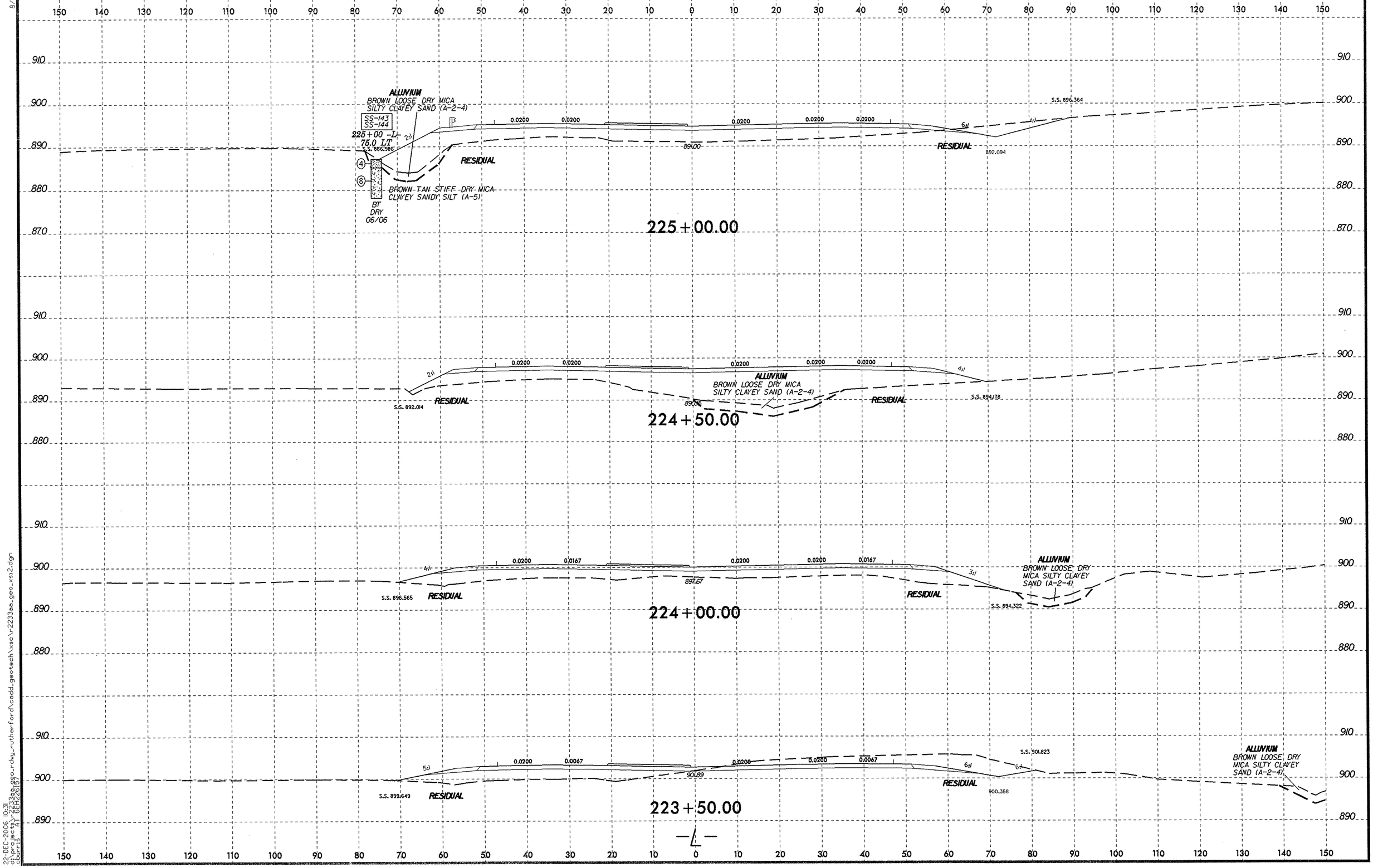
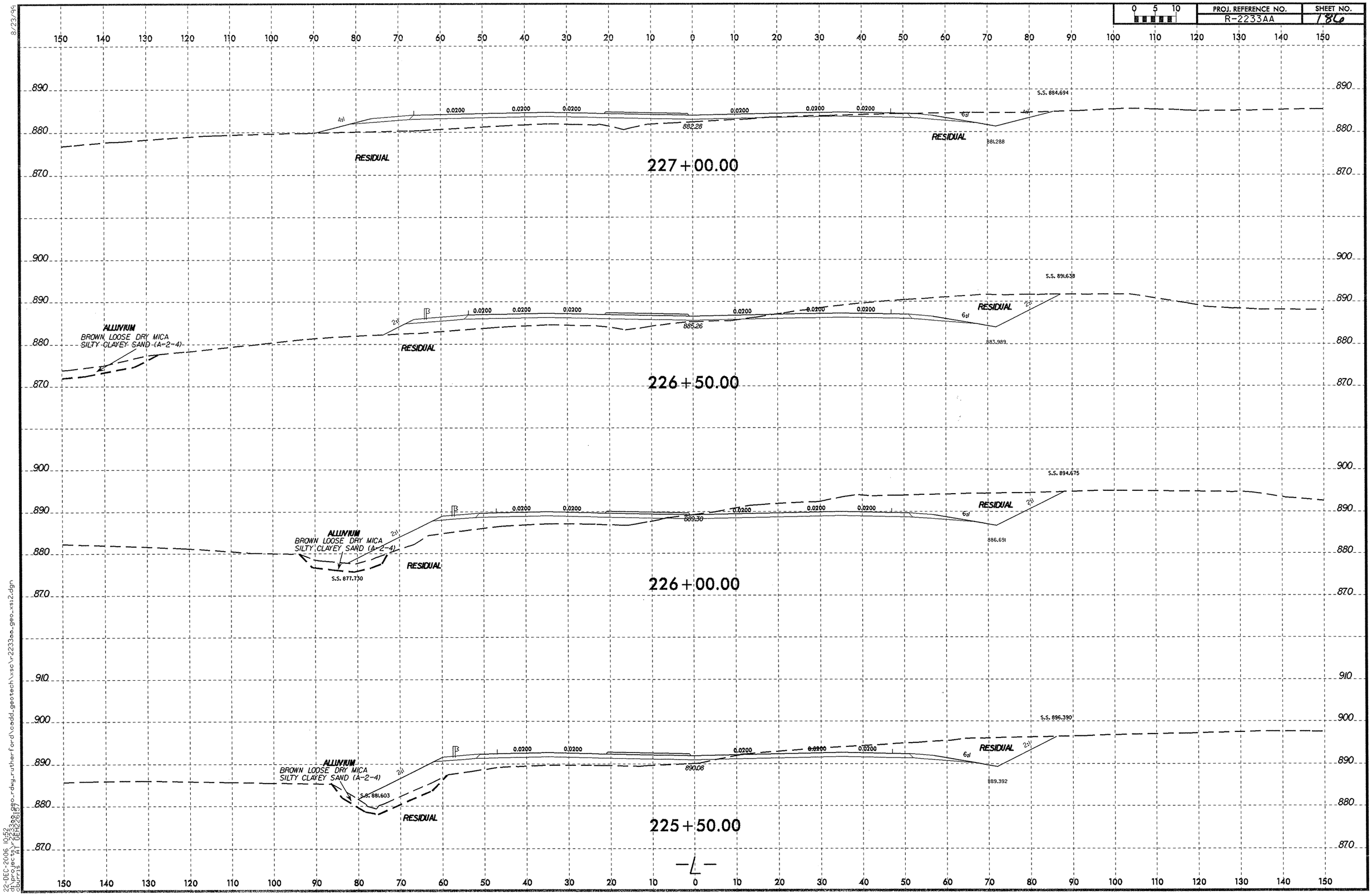
cburris AT CEH326187



8/23/99
22-DEC-2006 10:31
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
churris
AT GEH2261.57

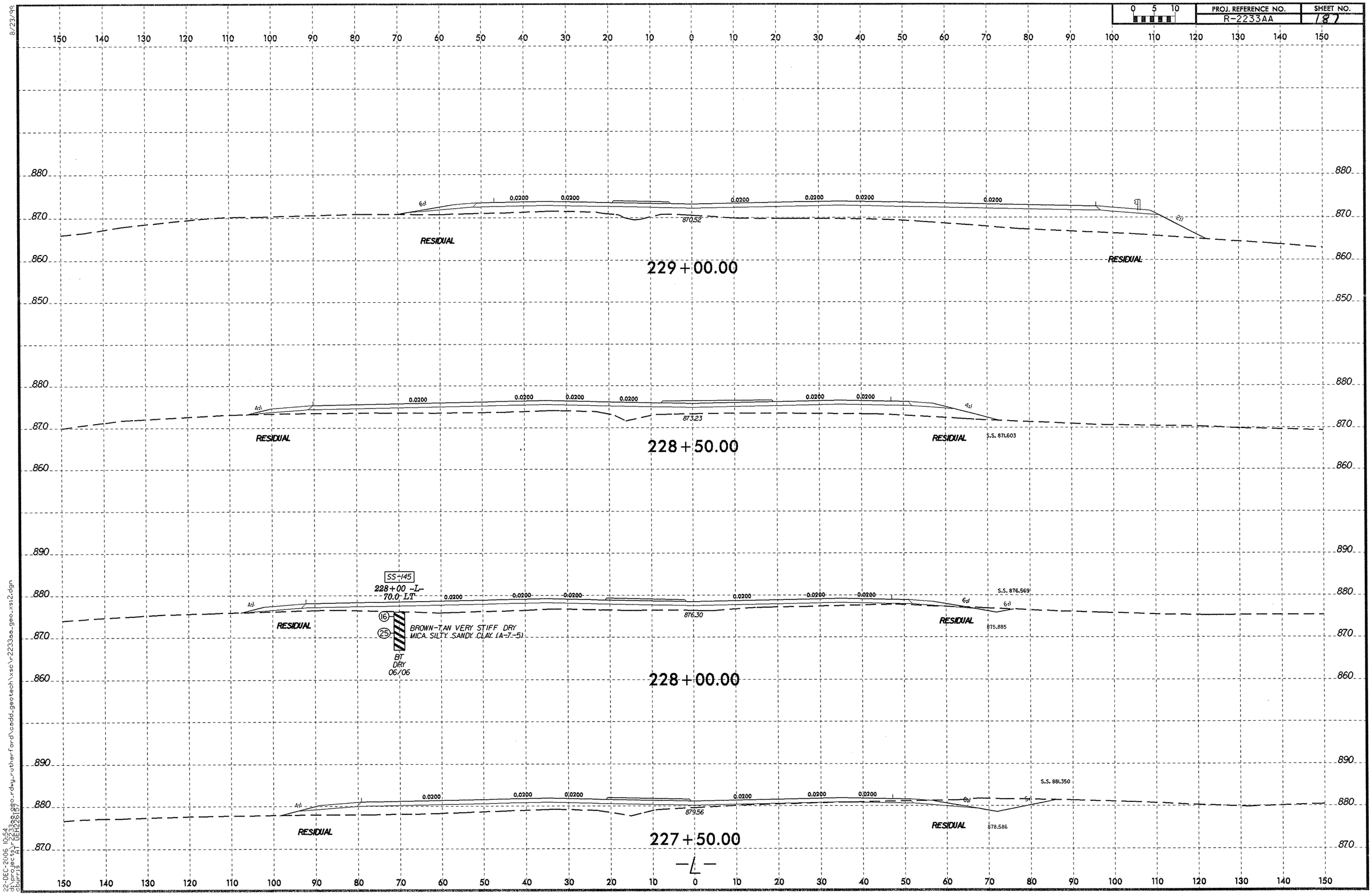
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	7B6

0 5 10



8/23/96

22-DEC-2006 10:52
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT DEH226167



8/23/99
22-DEC-2006 10:54
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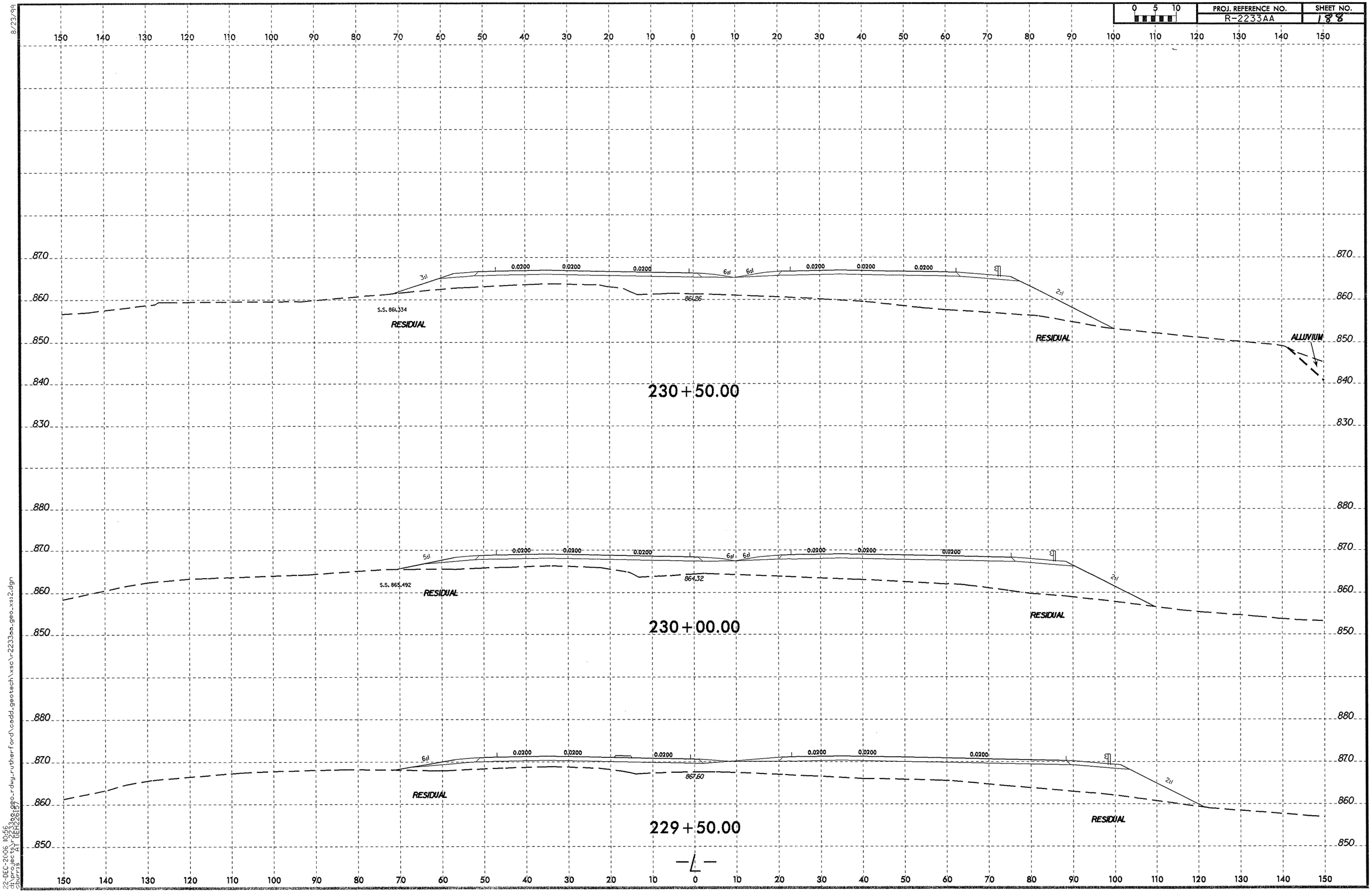
cburris AT GEH226187

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	1.8.8

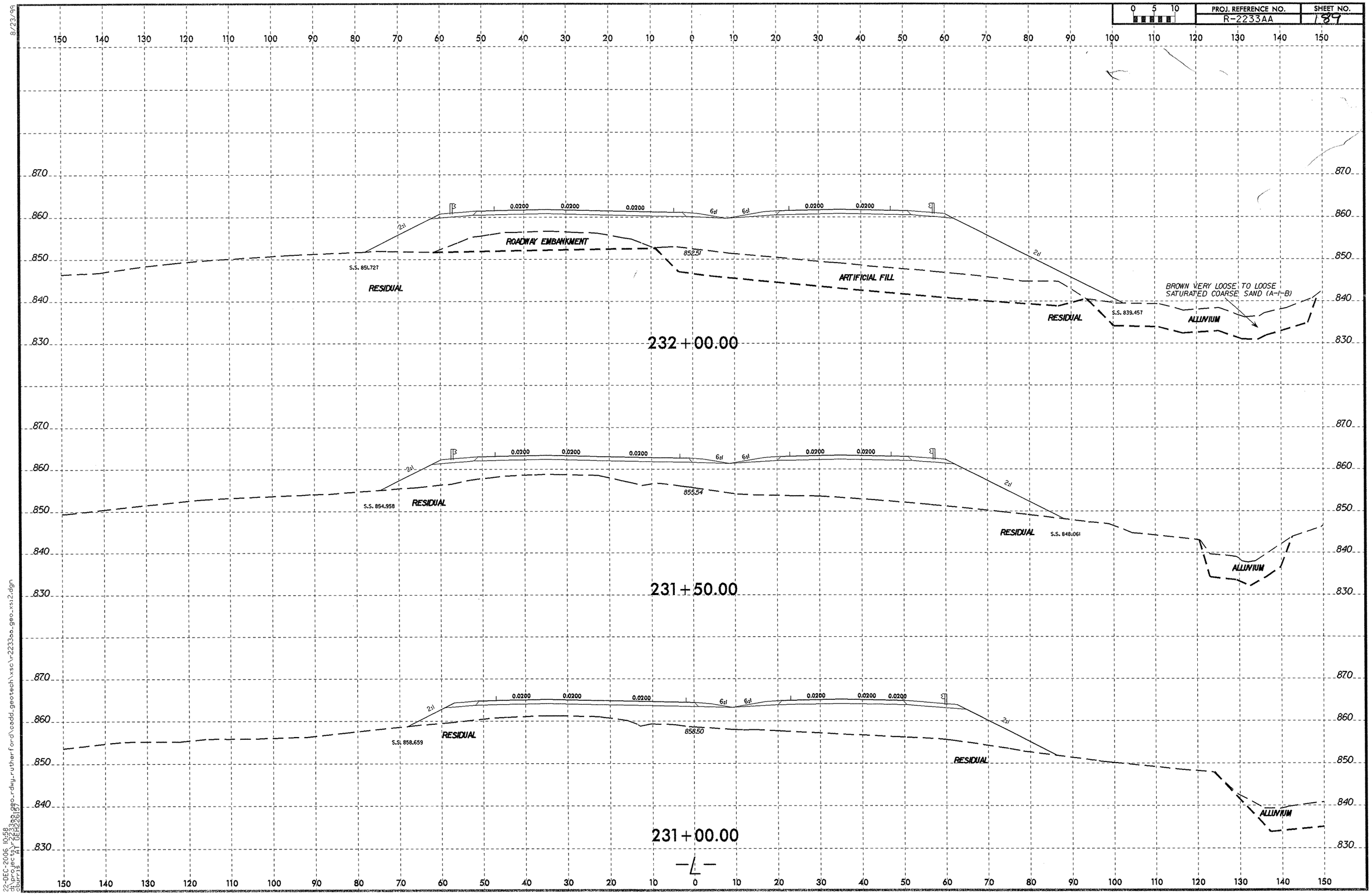


8/23/99

22-DEC-2006 10:56
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xs12.dgn
cburris AT (GEH22617)

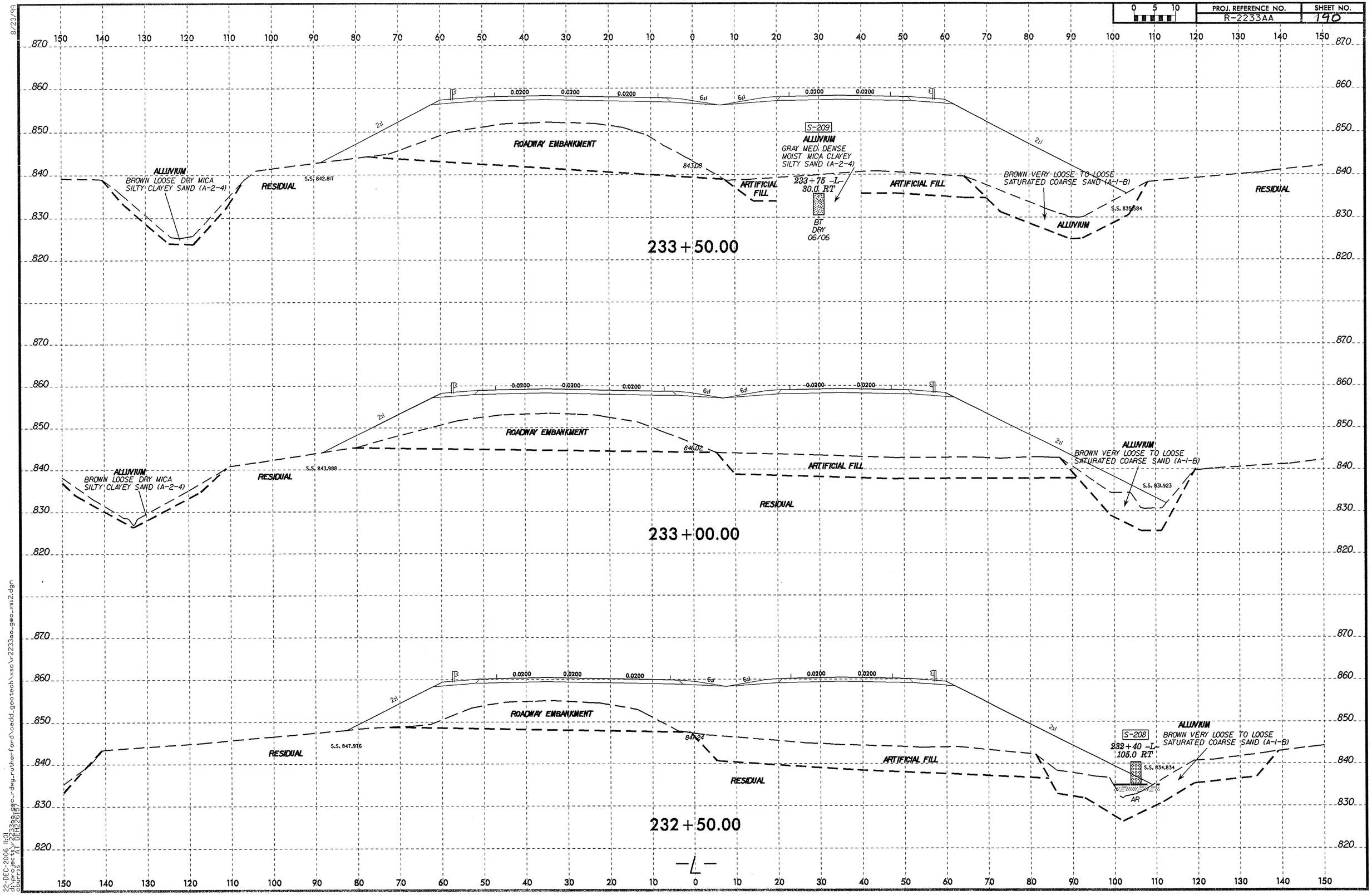
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	189

0 5 10



8/23/99

22-DEC-2006 10:58
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT GEH28157



8/23/99
22-DEC-2006 11:01
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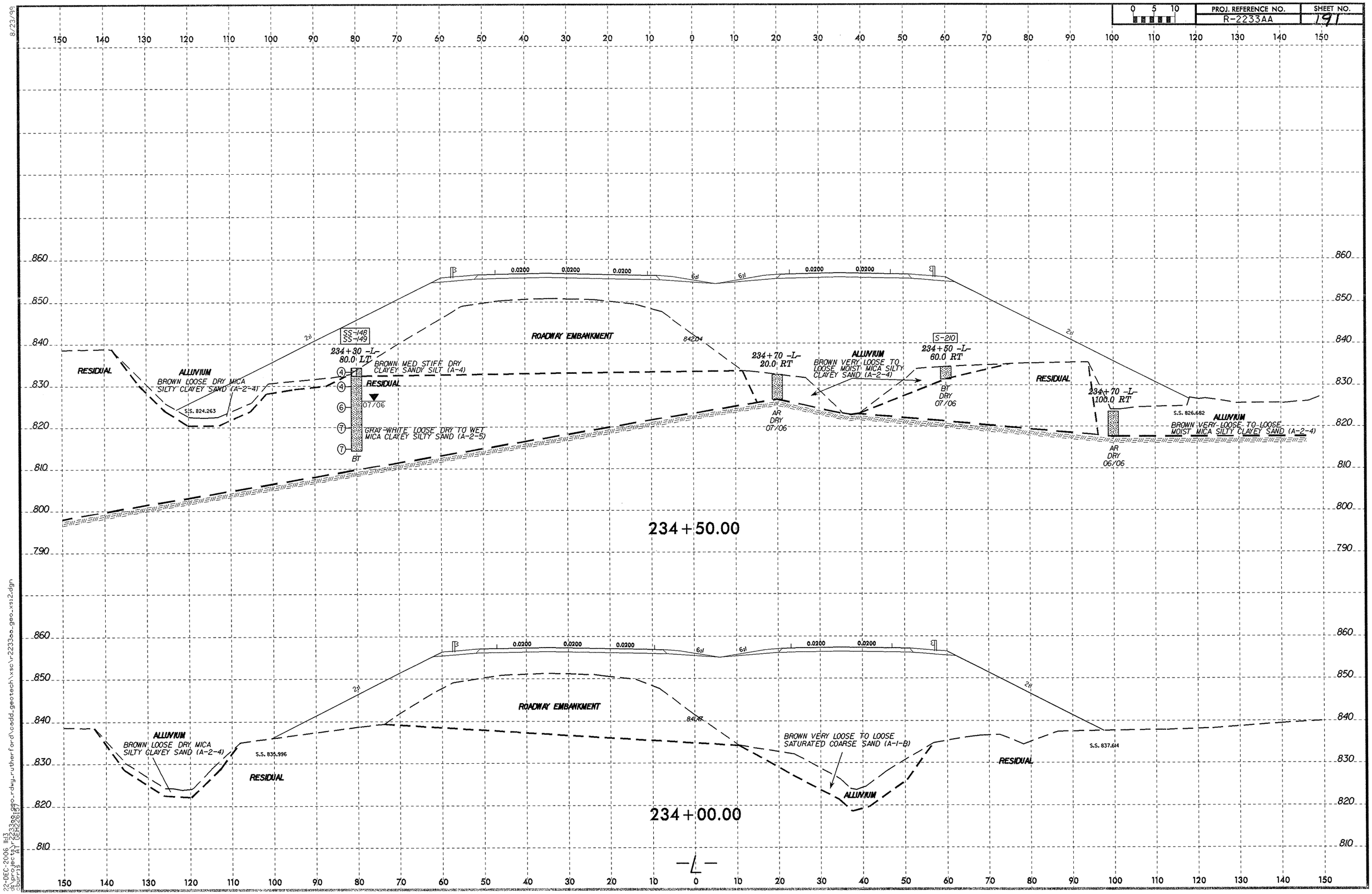
cburris AT GEH28157



8/23/99

22-DEC-2006 11:13
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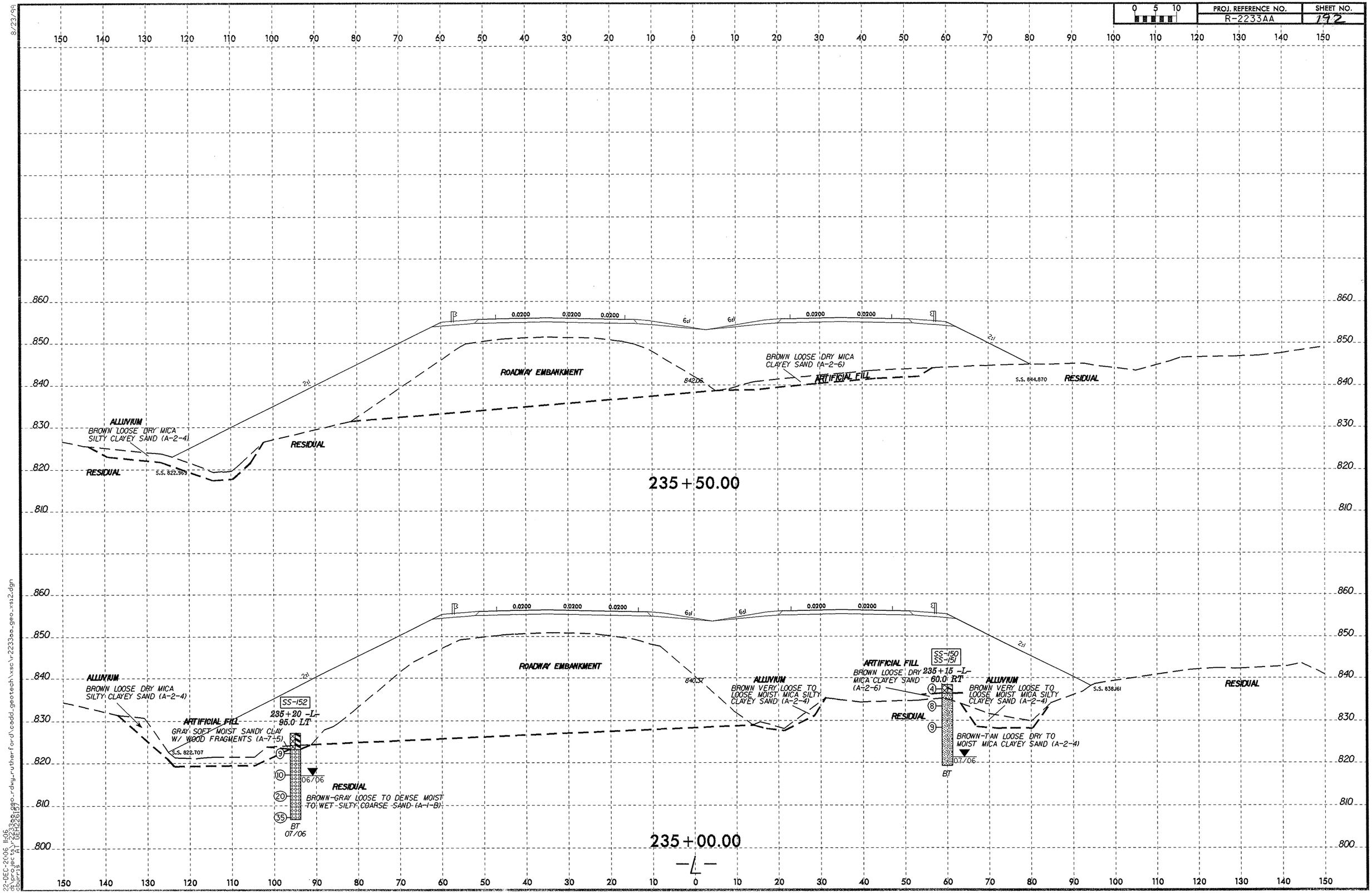
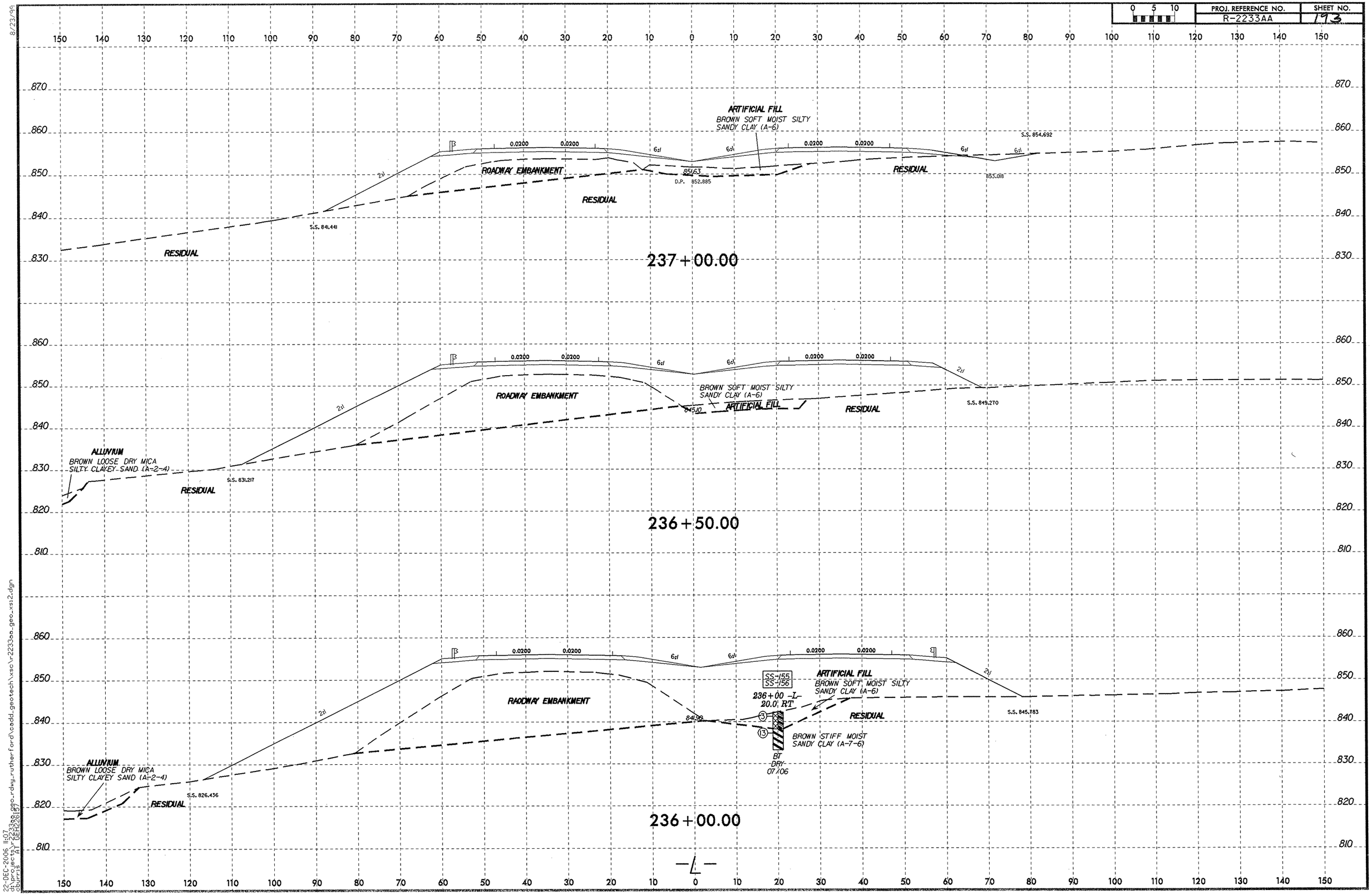
cburris
AT SEH2261197



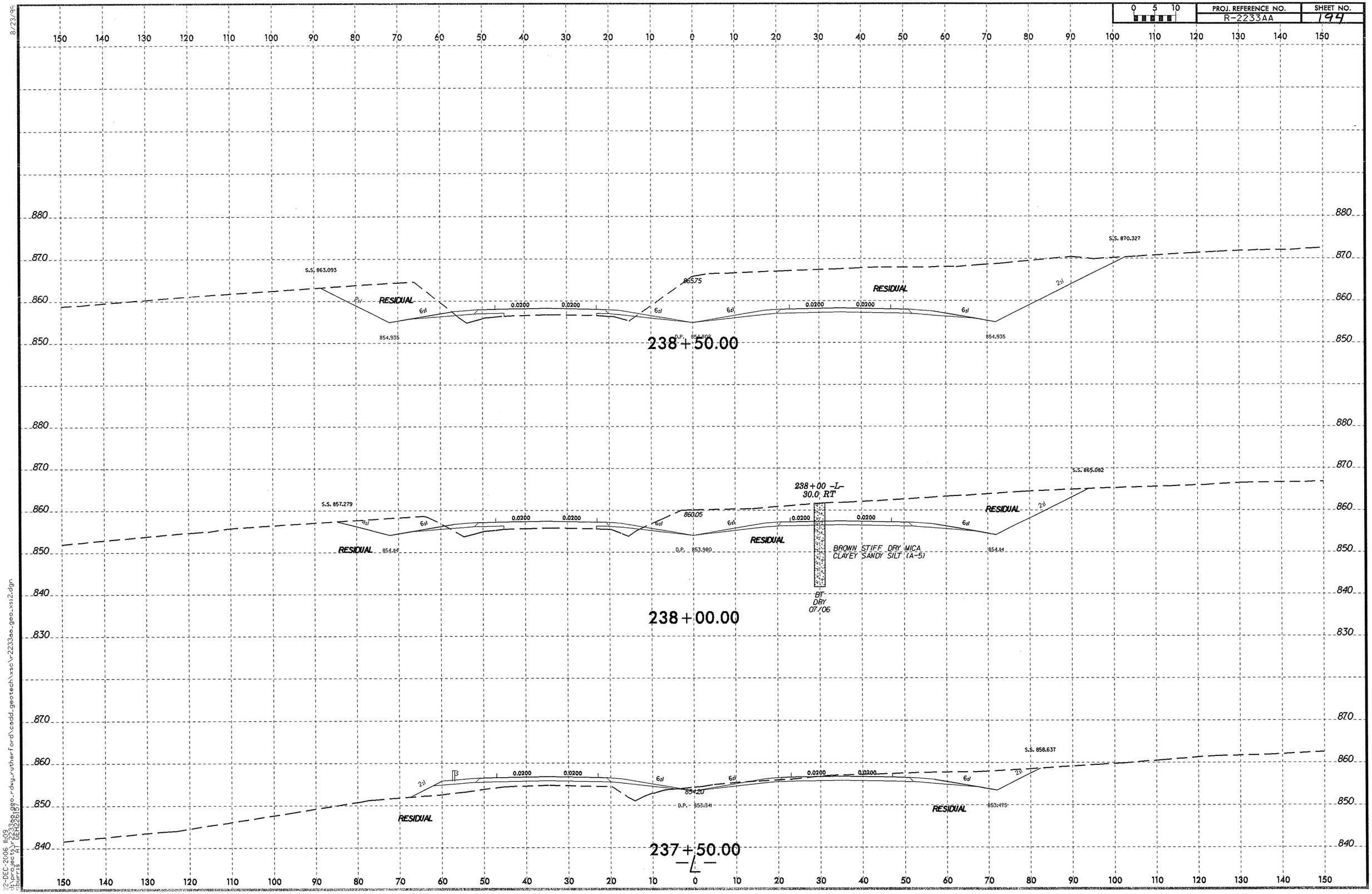
8/23/99
22-DEC-2006 11:06
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT GEH22615

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	193



8/23/99

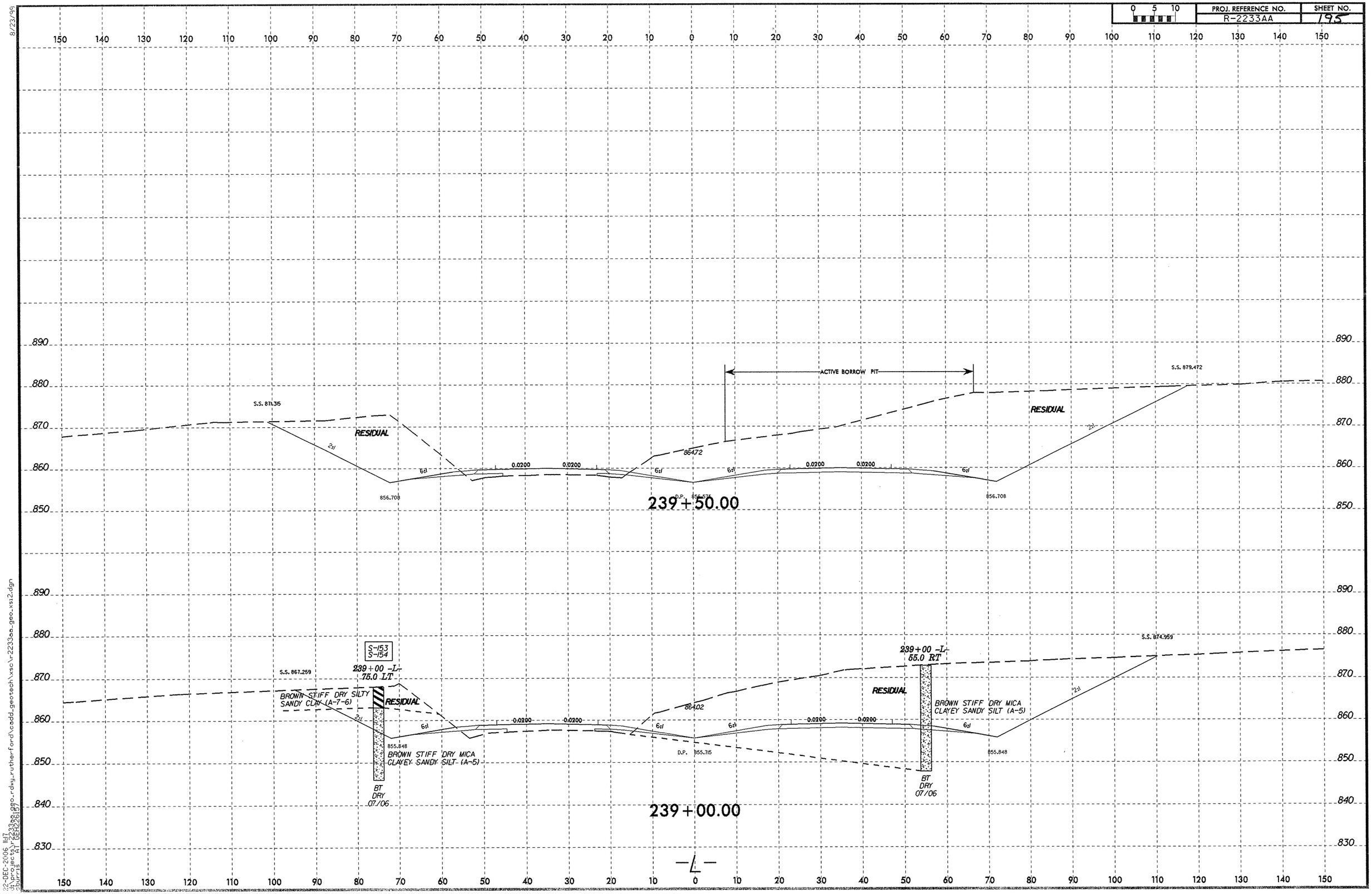
22-DEC-2006 11:07
r2233aa_geo_r-dry_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT GEH22617



8/23/99

22-DEC-2006 11:09
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
burris RT GEH2261.57

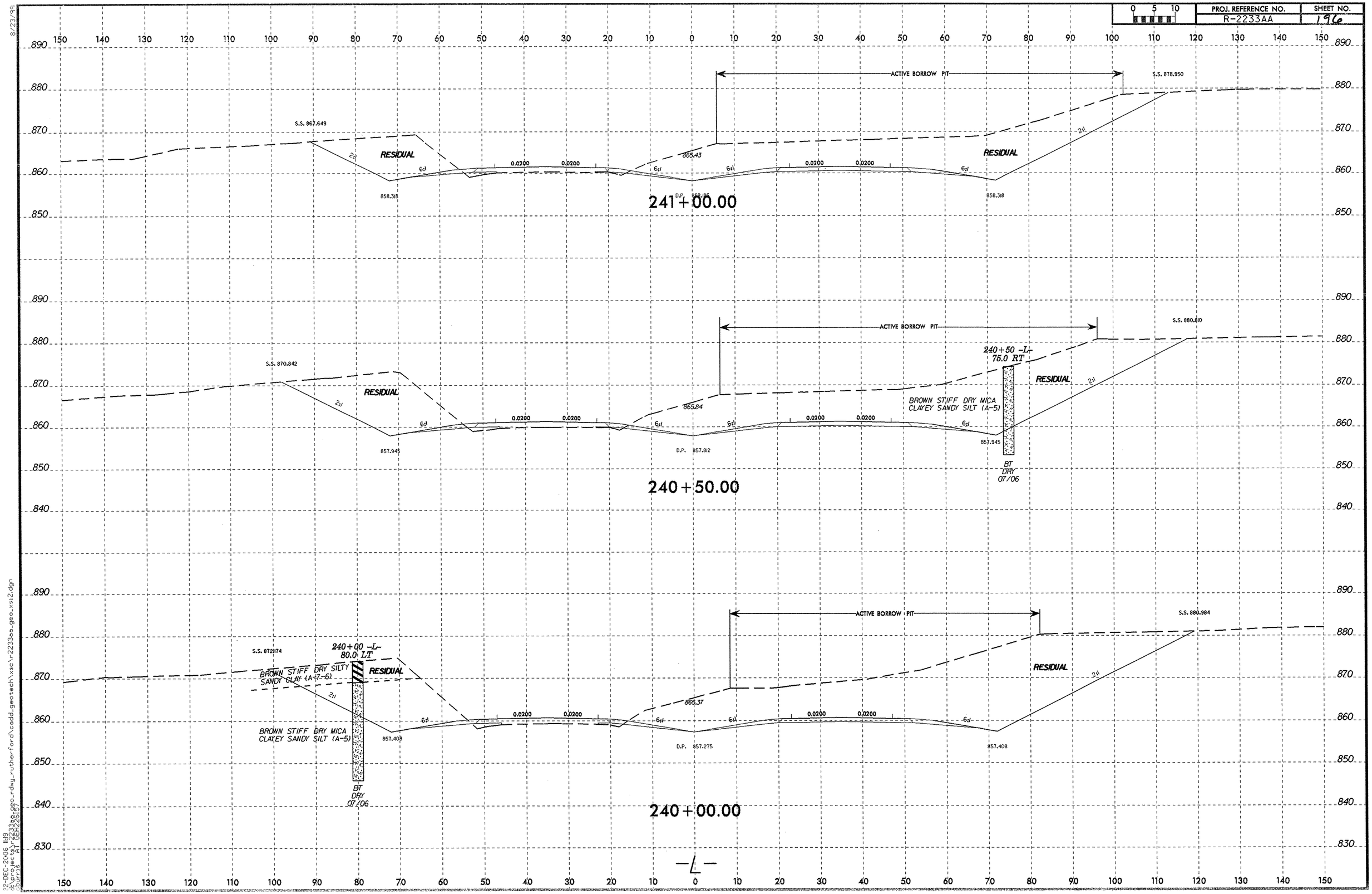
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	195



8/23/99

22-DEC-2006 11:17
r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburrus
"AT" GEH22611.97

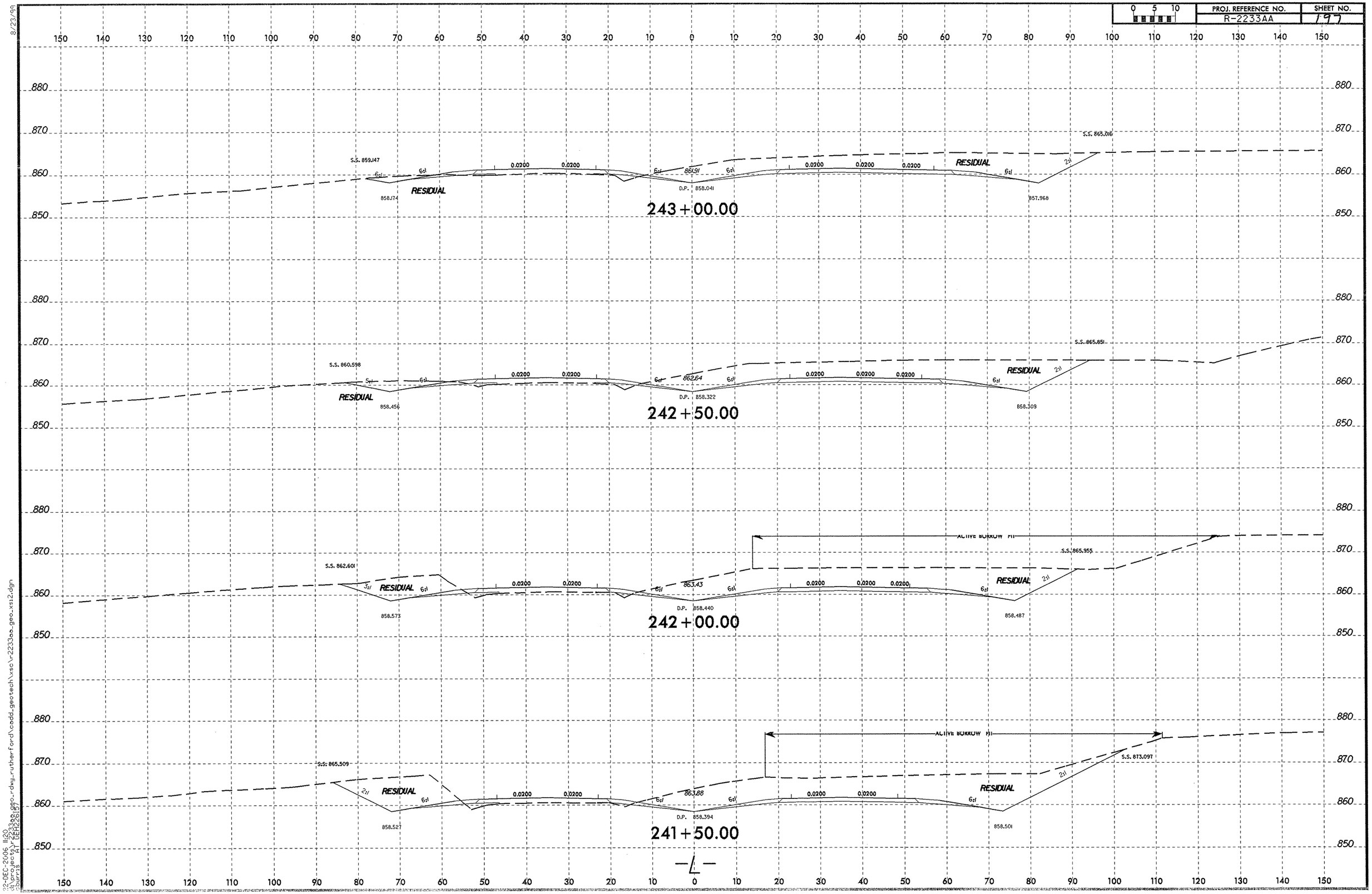
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	196



8/23/99

22-DEC-2006 11:19
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
burris AT (GEH22617)

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	197



8/23/99

22-DEC-2006 11:20
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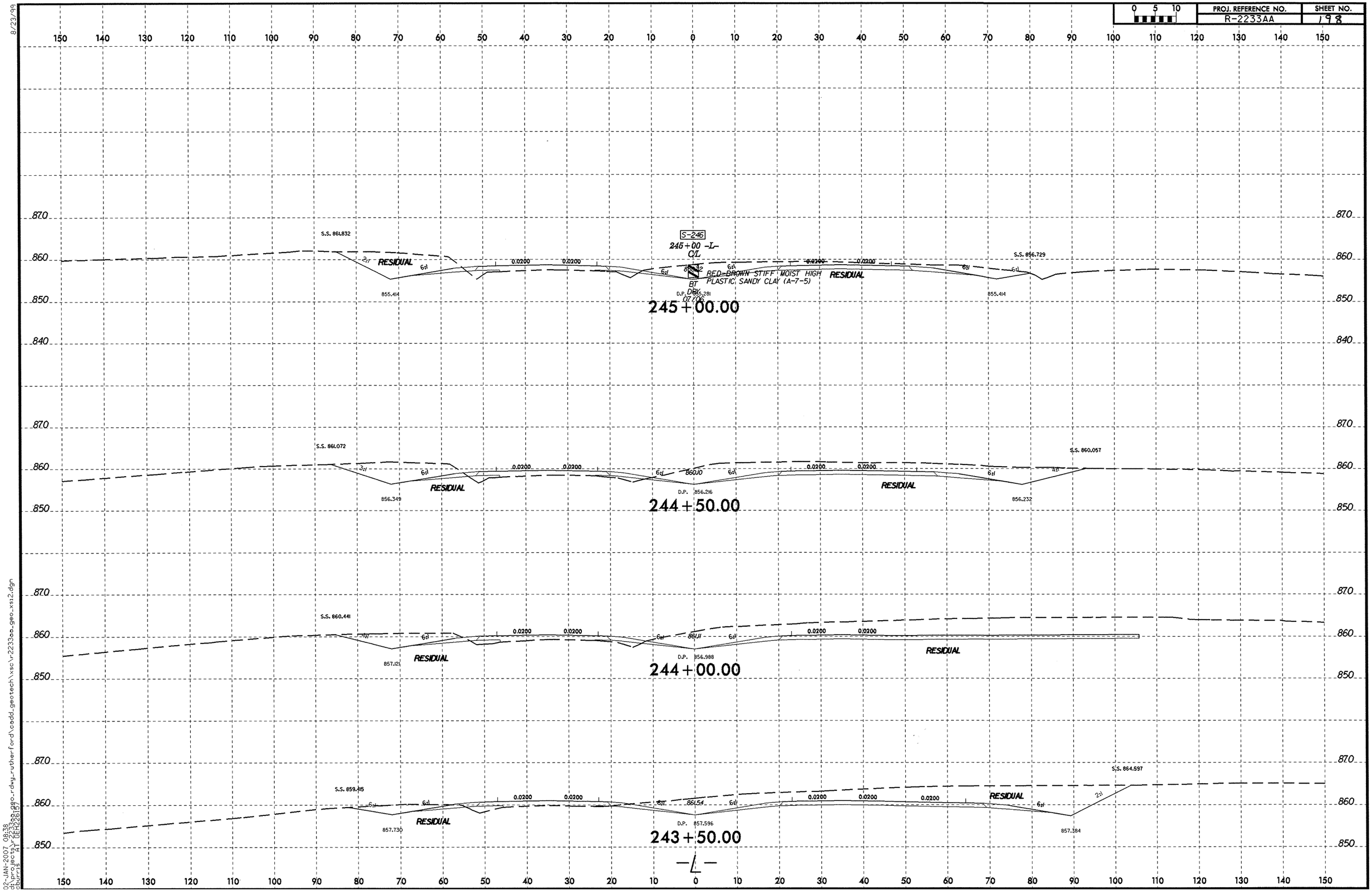
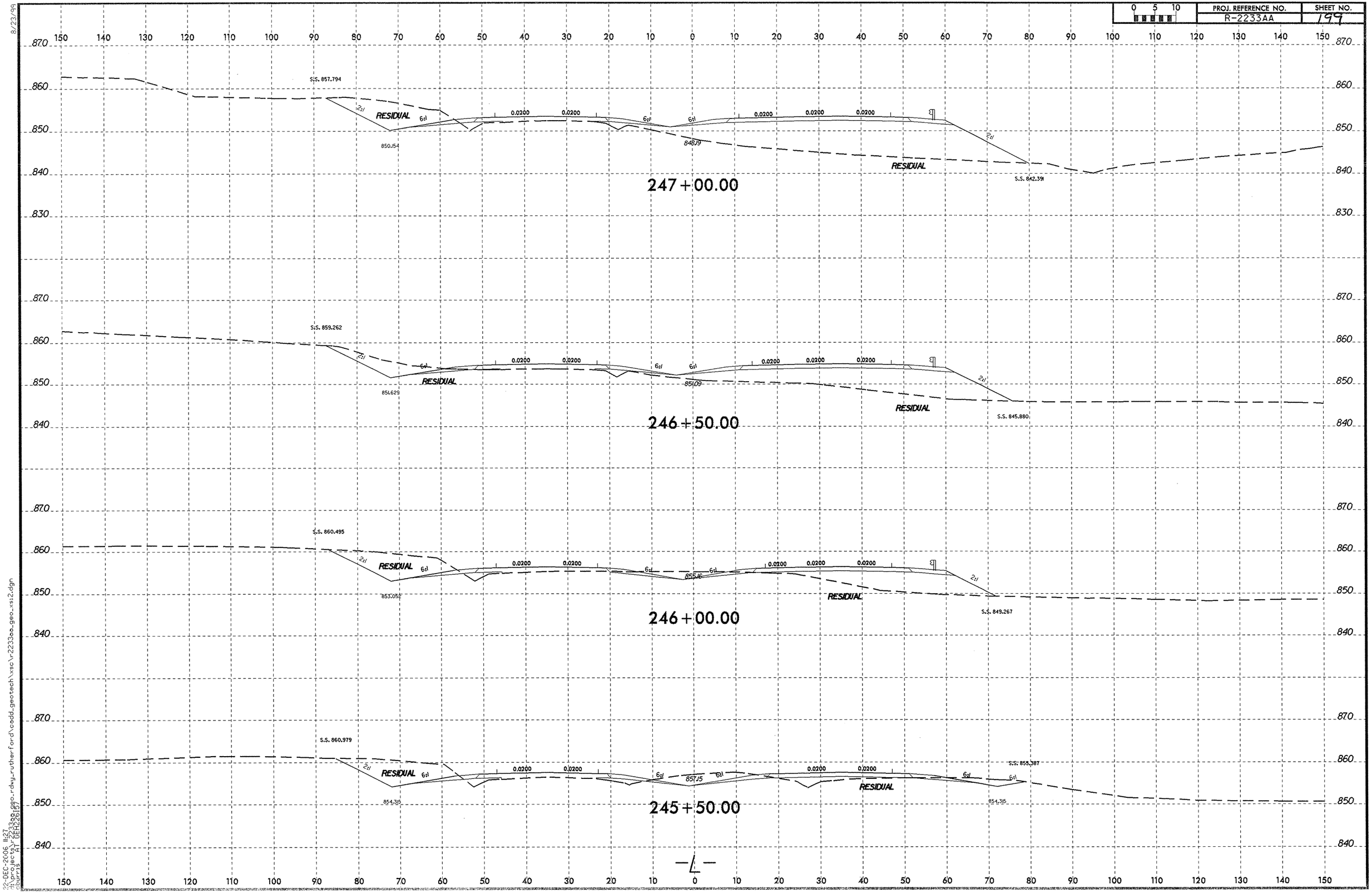
cburris AT CEH226187



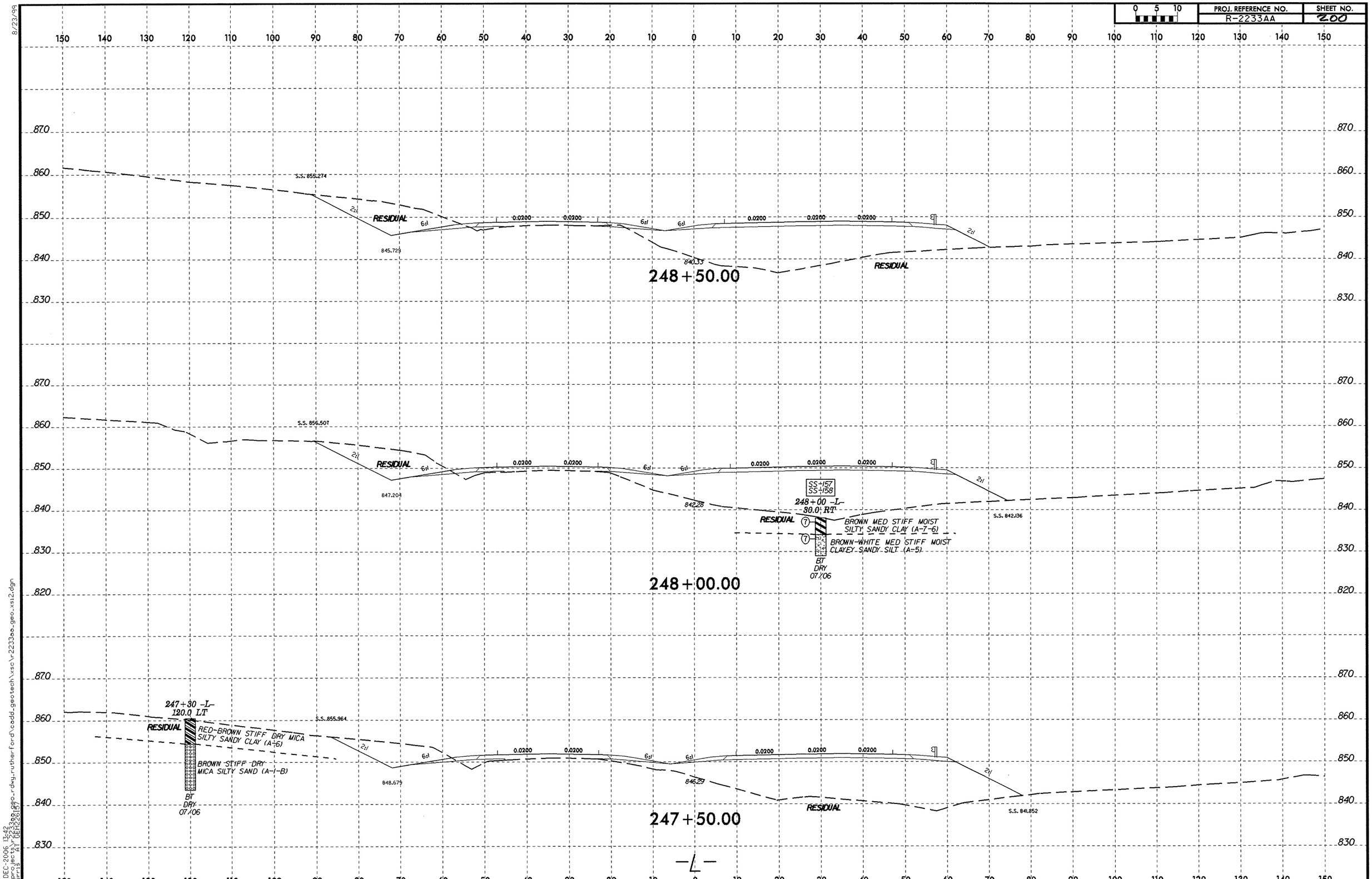
02-JAN-2007 08:38
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xs12.dgn
cburris AT CEH228197

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	199



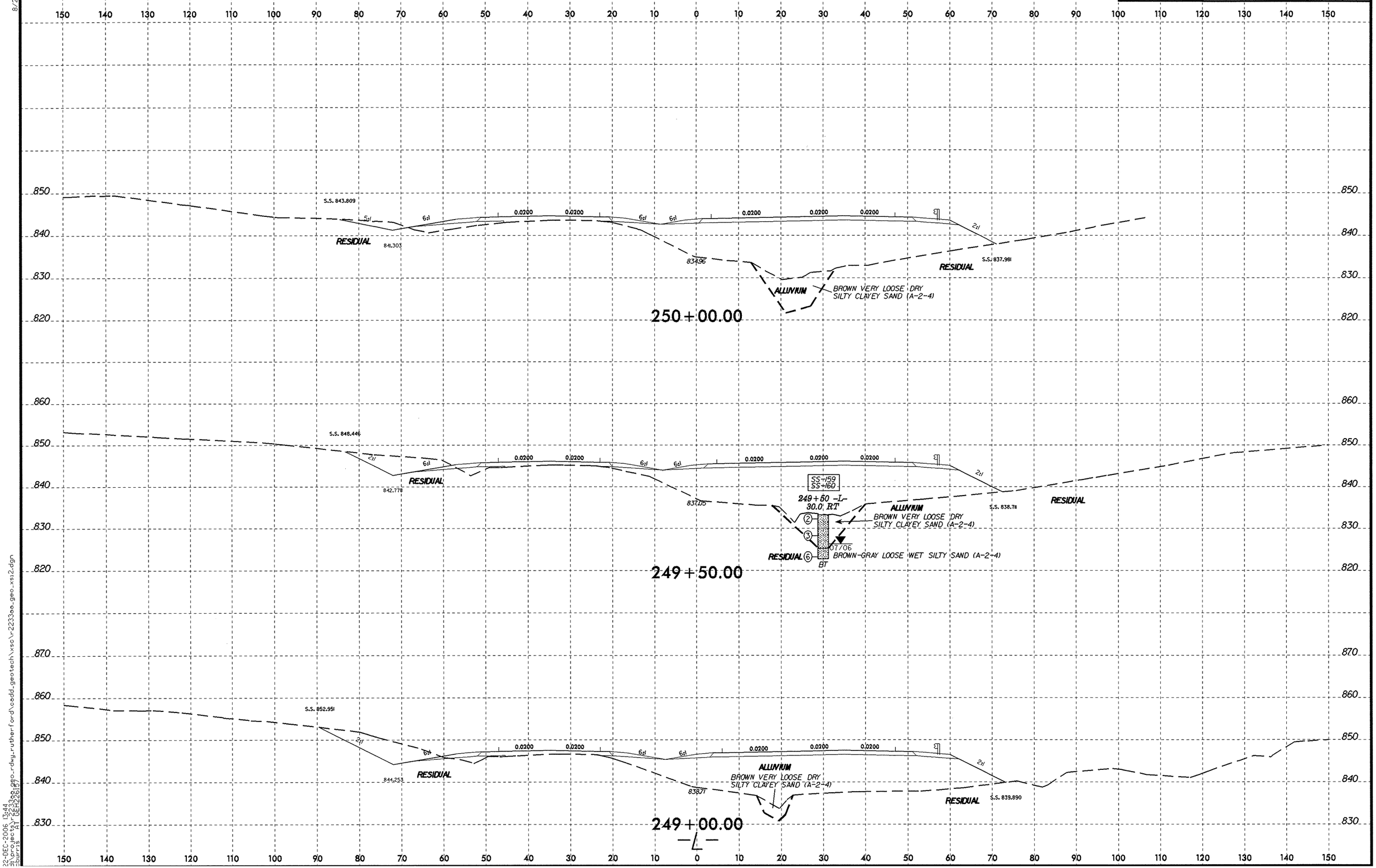
8/23/99

22-DEC-2006 11:27
h:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
cburris AT GEH226167


0 5 10
PROJ. REFERENCE NO.
R-2233AA
SHEET NO.
200
8/23/99
S.S. 855.274
RESIDUAL
845.729
0.0200
840.33
248+50.00
S.S. 856.507
847.204
842.28
SS-157
SS-158
248+00 -L-
80.0 RT
BROWN MED STIFF MOIST
SILTY SANDY CLAY (A-7-6)
BROWN-WHITE MED STIFF MOIST
CLAYEY SANDY SILT (A-5)
BT
DRY
07/06
S.S. 842.136
248+00.00
247+30 -L-
120.0 LT
RED-BROWN STIFF DRY MICA
SILTY SANDY CLAY (A-6)
BROWN STIFF DRY
MICA SILTY SAND (A-1-B)
S.S. 855.964
848.679
846.29
S.S. 841.852
247+50.00
-L-
2-DEC-2006 13:42
i:\projects\r2233aa_geo_rdwg_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
burris
A1 (GEH2261)

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	2.01



22-DEC-2006 13:44
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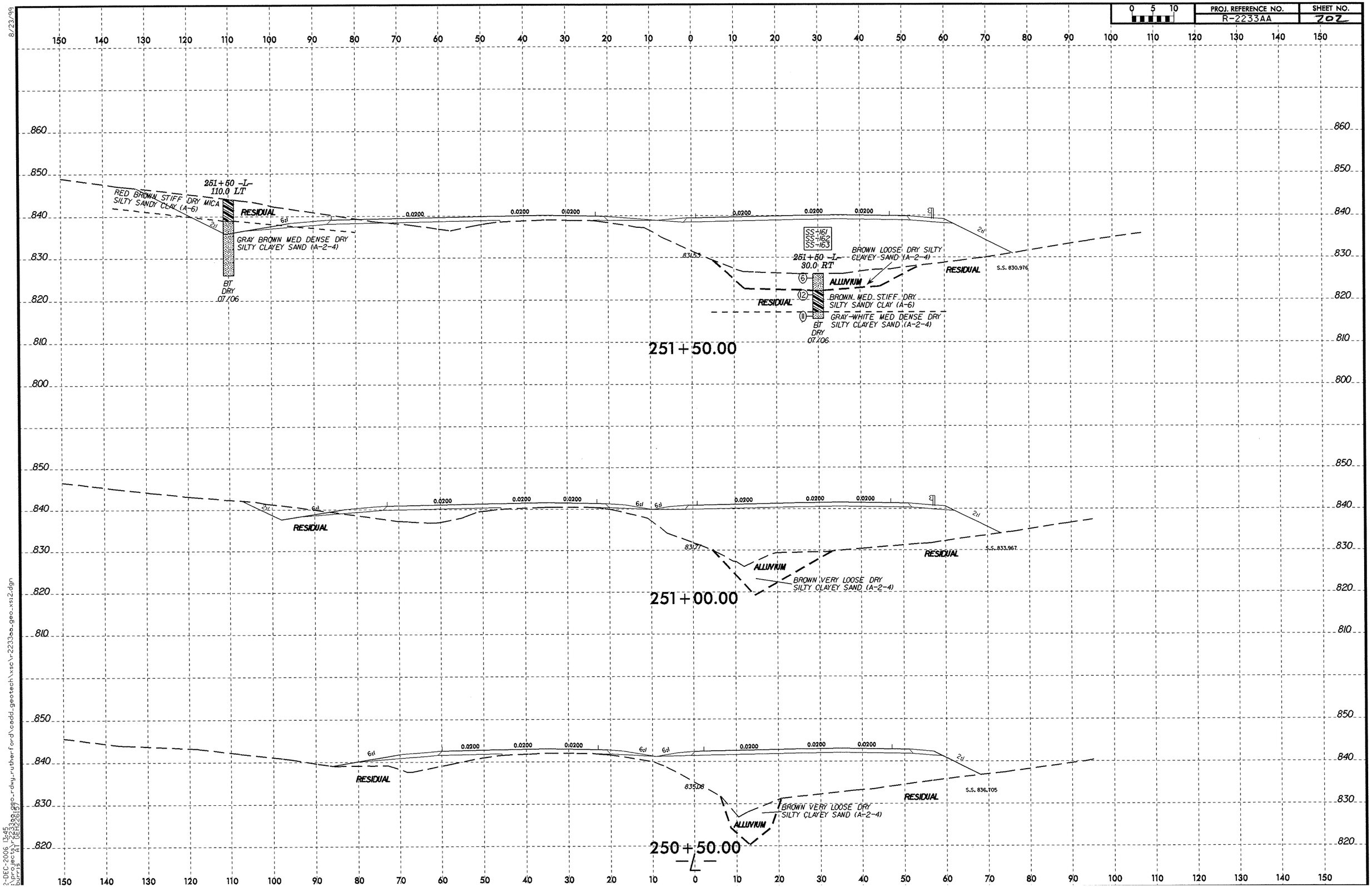
sburris AT DEH226197

PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	202



8/23/99

2-DEC-2006 13:45
burrs geo "A1" (GEH22619)
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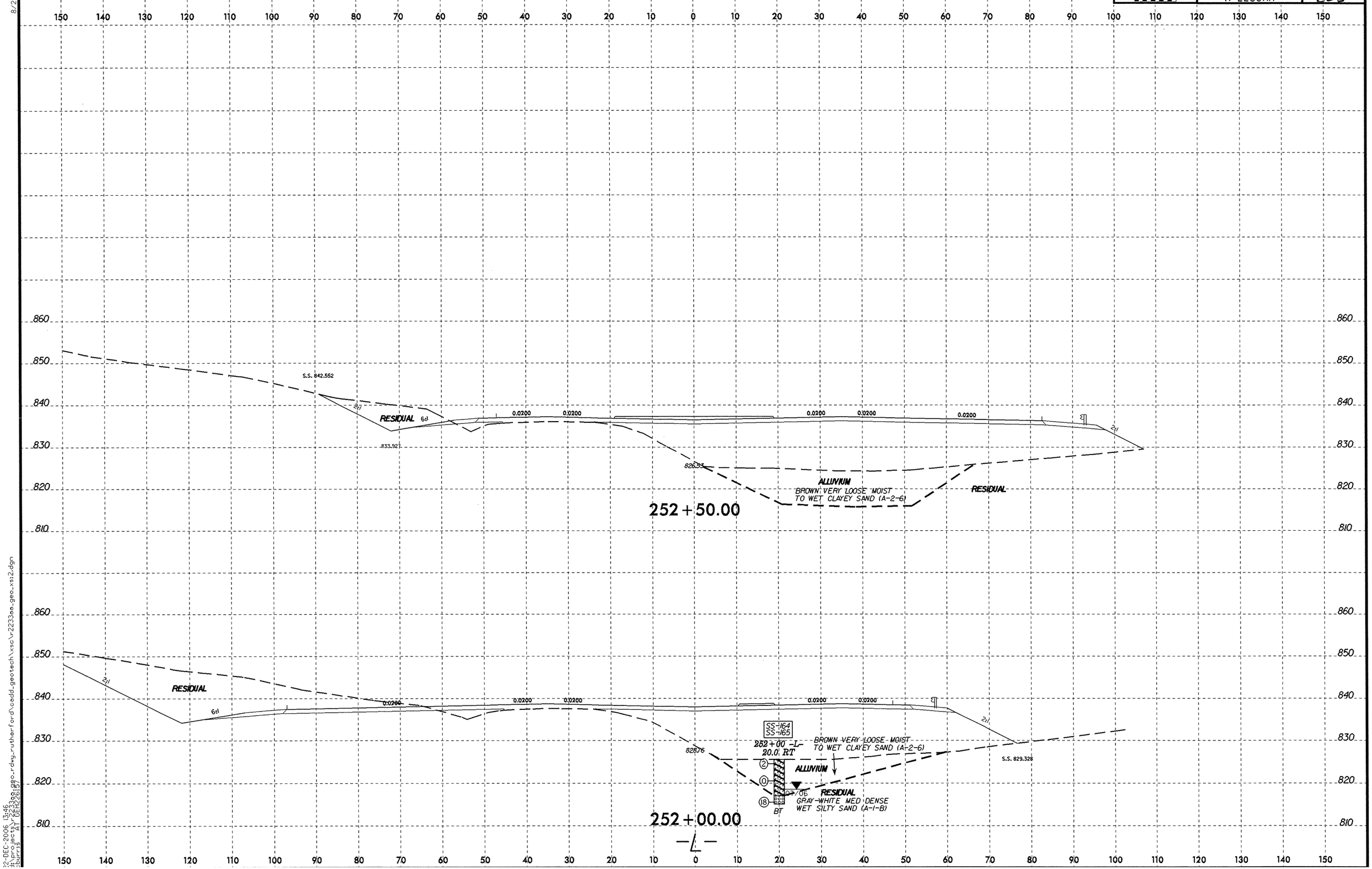
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	203



22-DEC-2006 13:46
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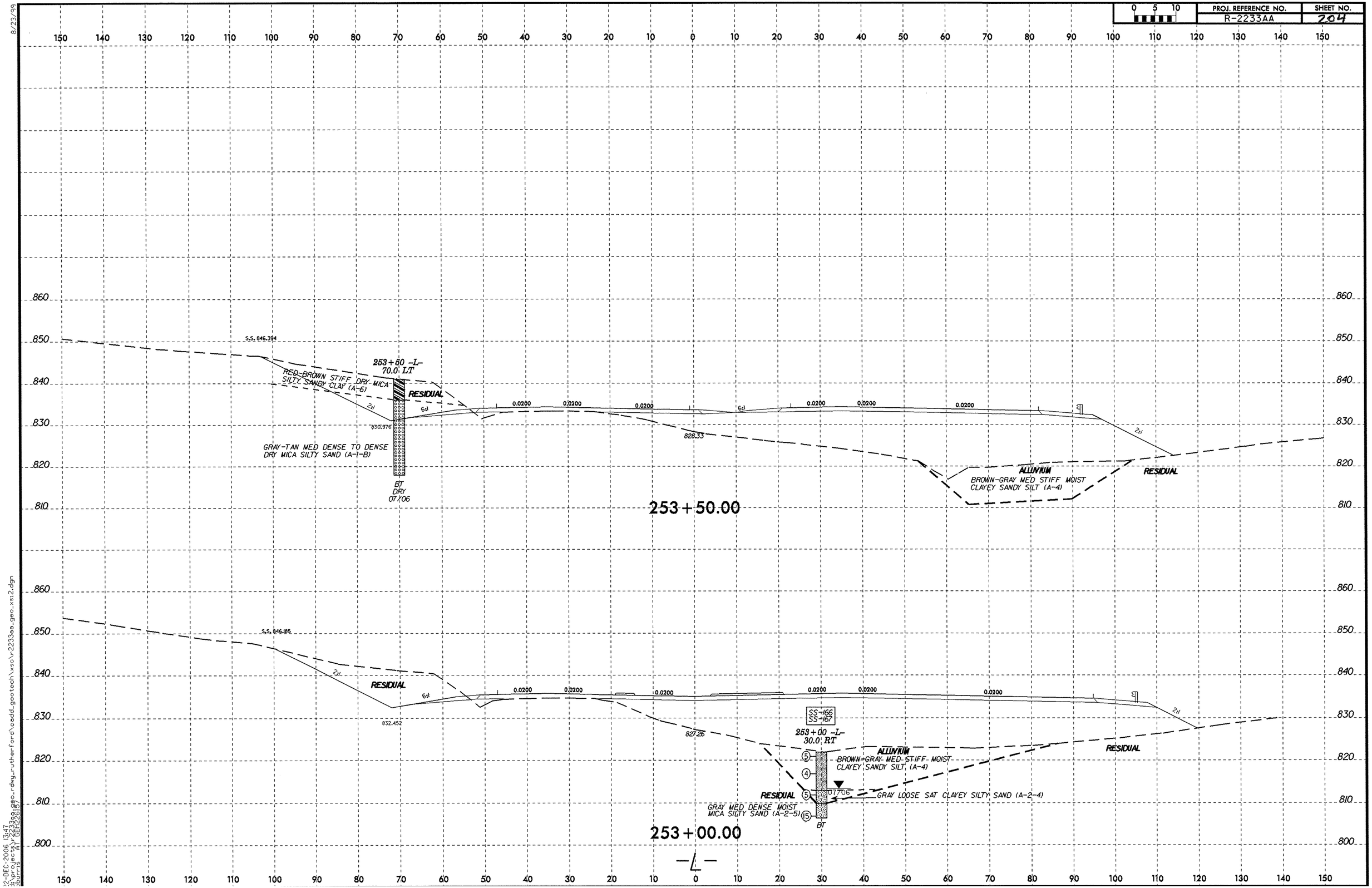
burns AT (GEH2687)



8/23/99
22-DEC-2006 13:47
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PROJ. REFERENCE NO.	SHEET NO.
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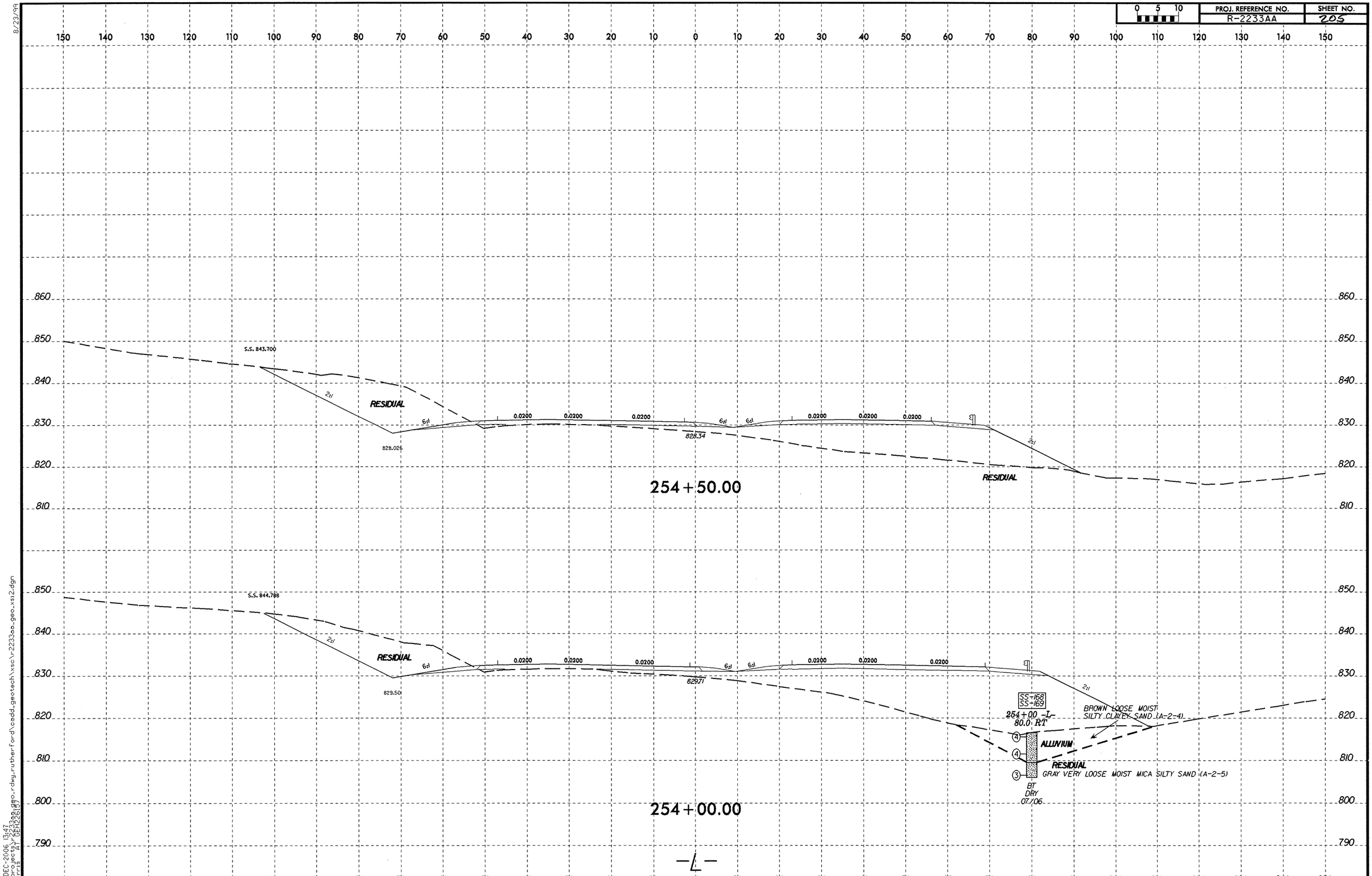

8/23/99

12-DEC-2006 13:47
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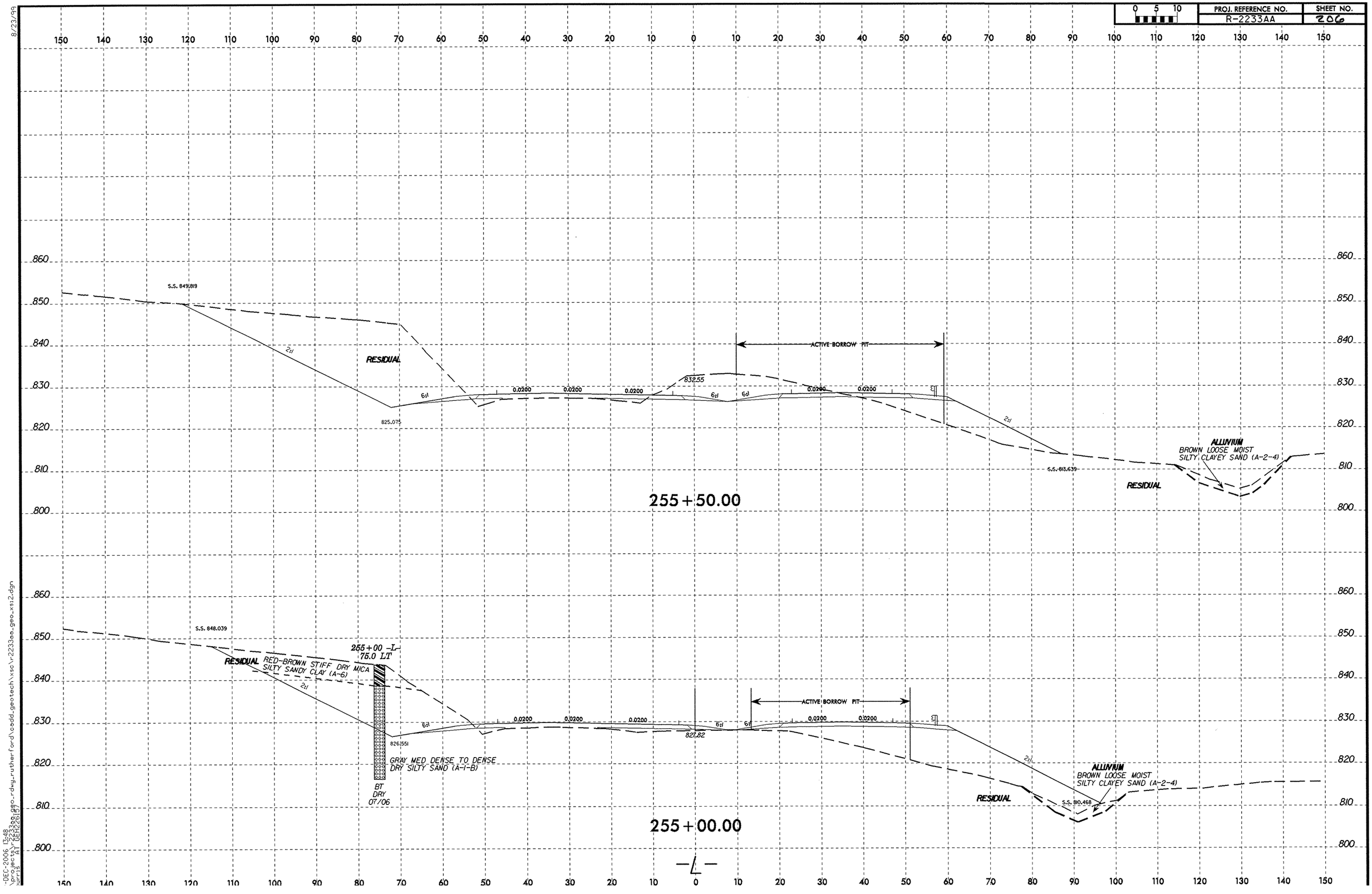
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	206



8/23/99

-DEC-2006 13:48
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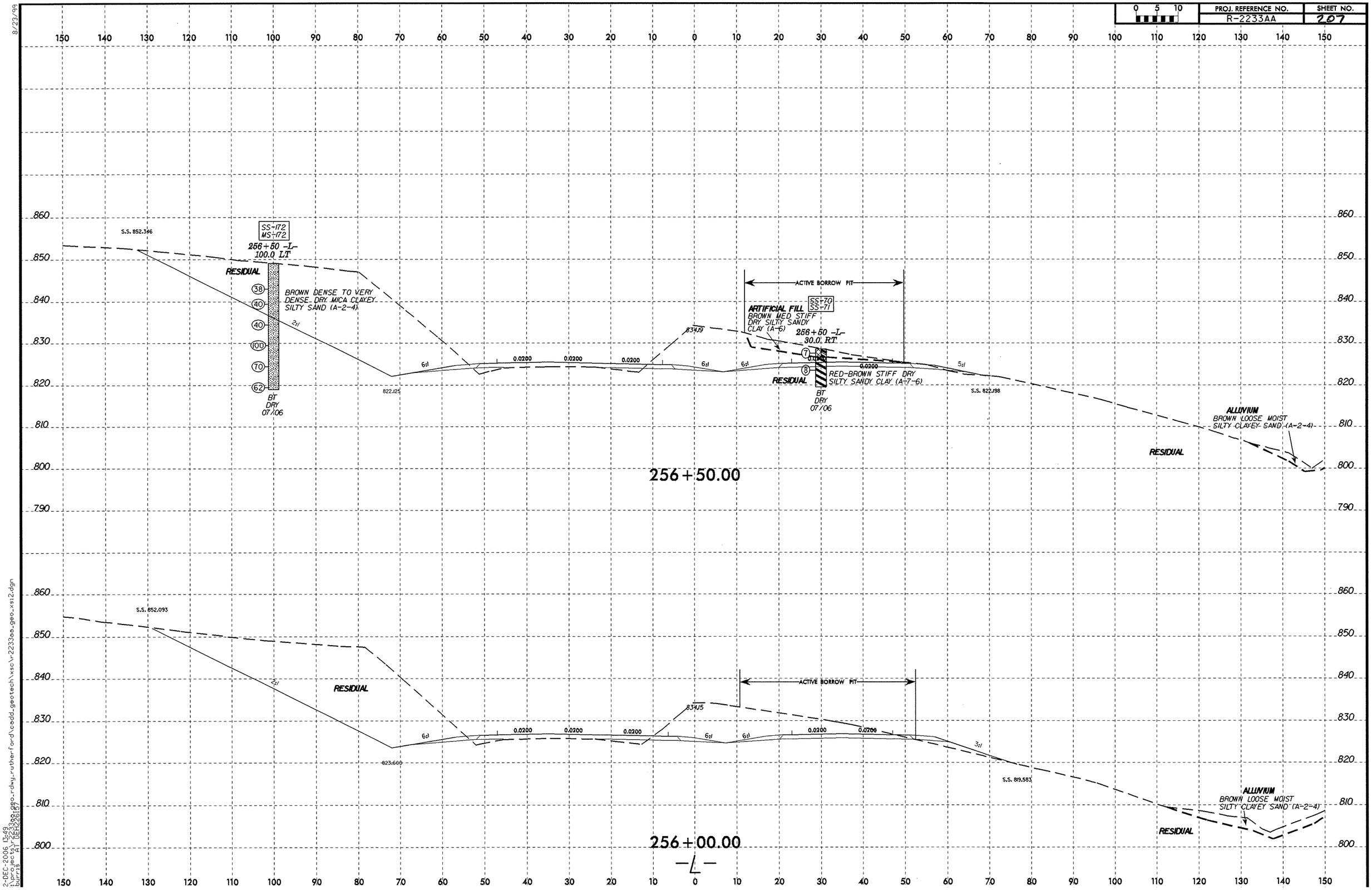
urris AT GEH22617



8/23/99
02-DEC-2006 13:49
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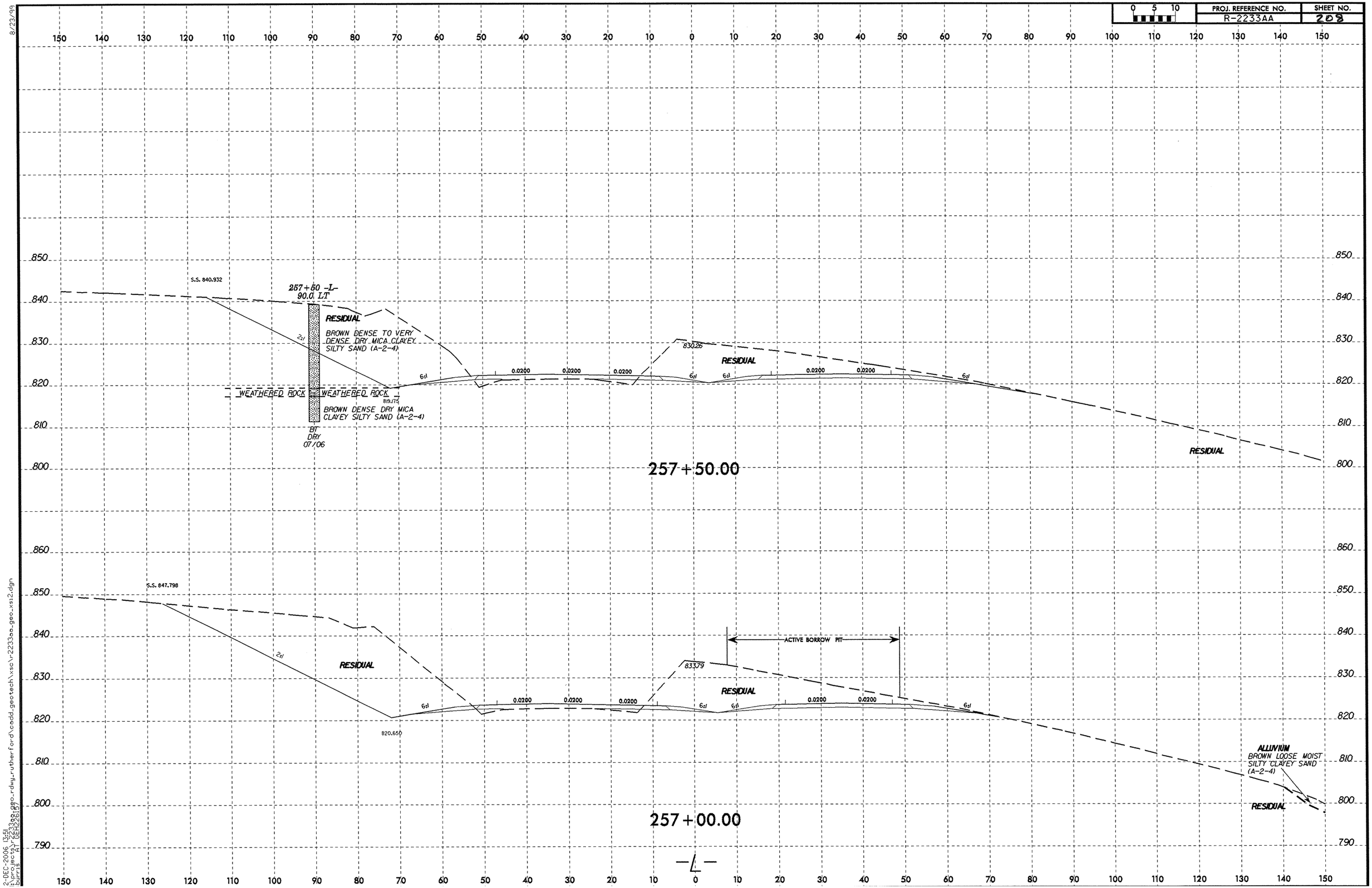

8/23/99

2-DEC-2006 13:51
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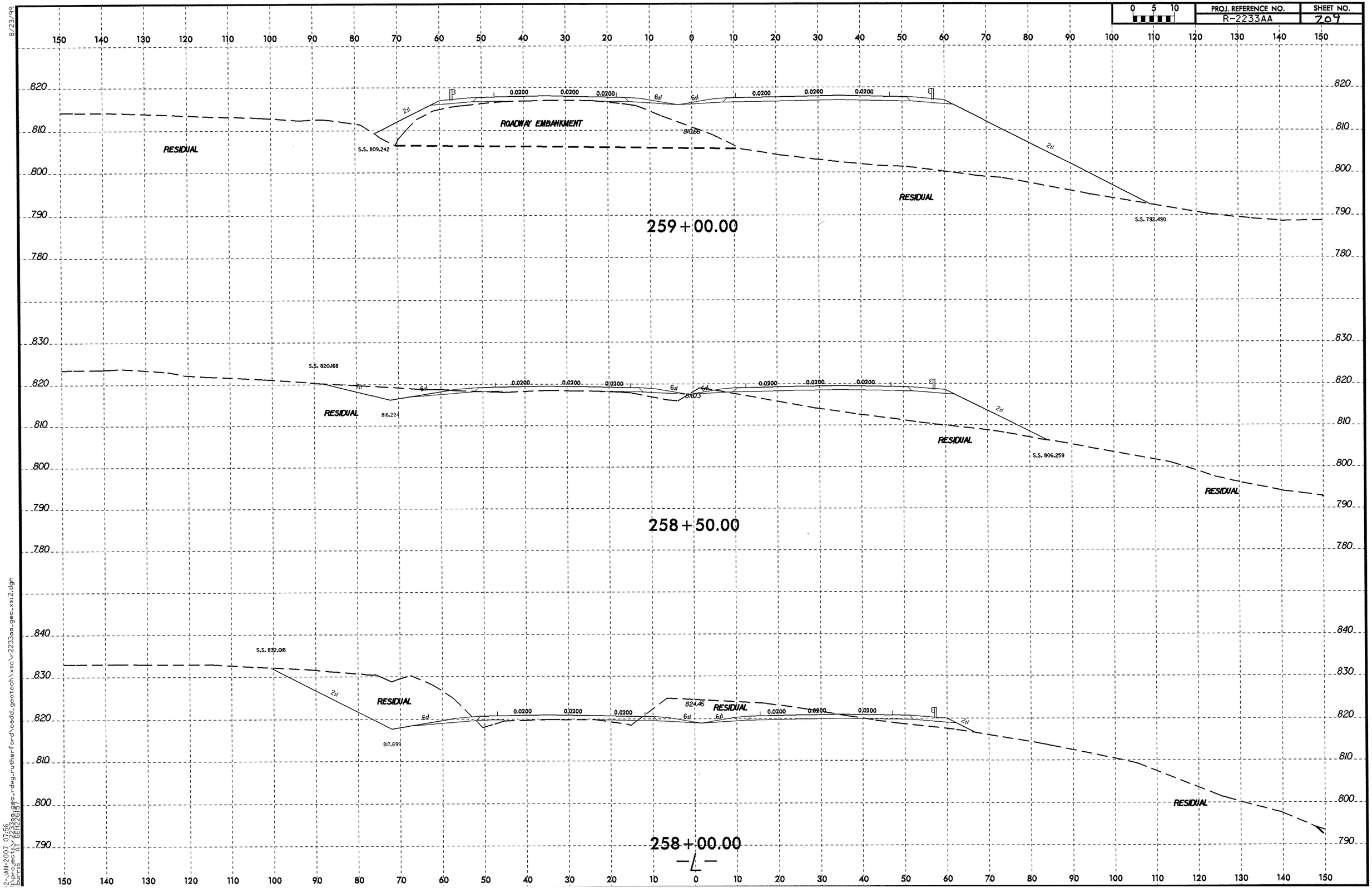
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	709



02-JAN-2007 07:56
r:\roadway\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r-2233aa_geo_xs12.dgn
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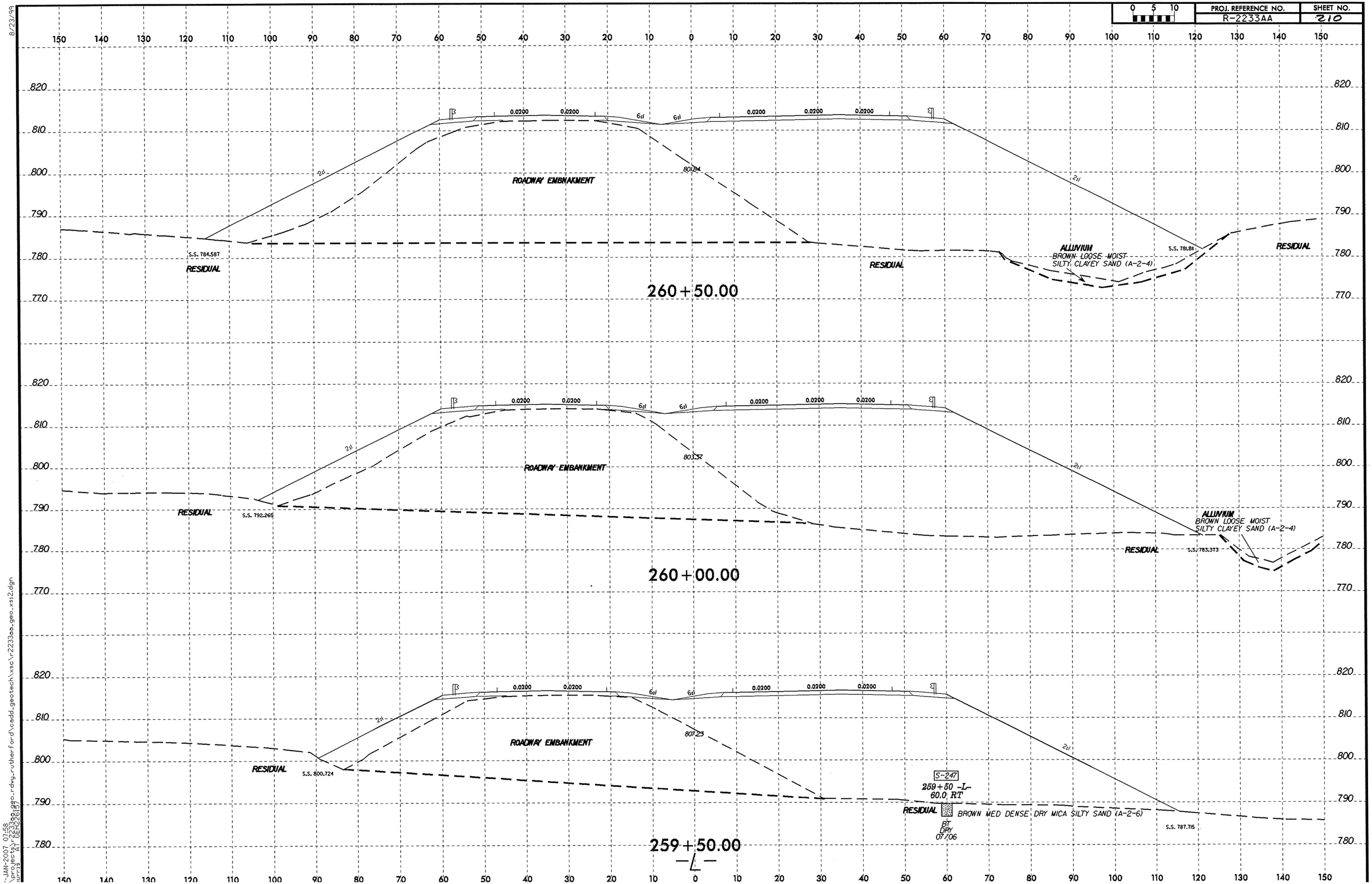
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	210



8/23/99

07-JAN-2007 07:58
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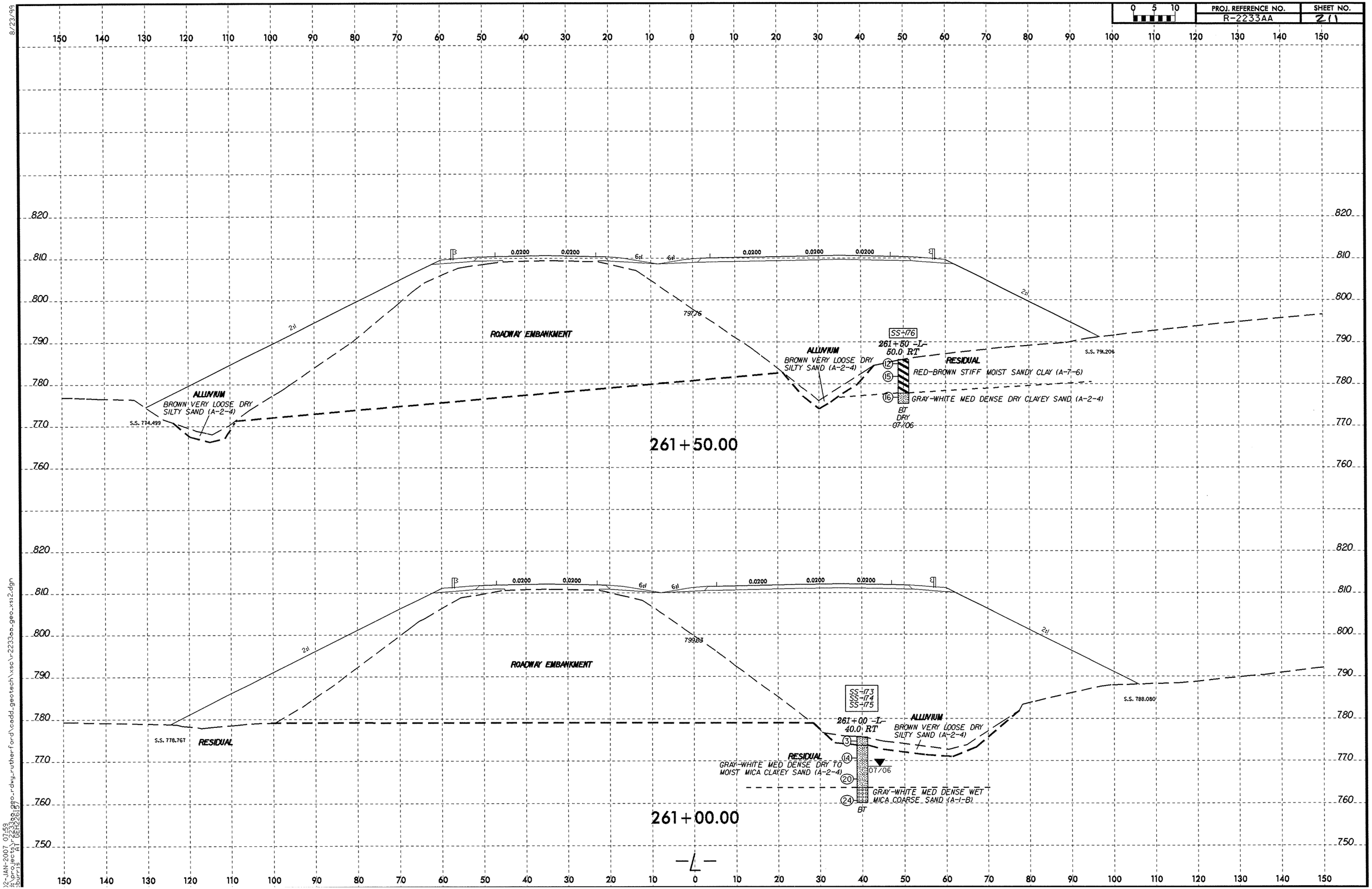
burris AT GEH22615



8/23/99
02-JAN-2007 07:59
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sburris AT GEH22657

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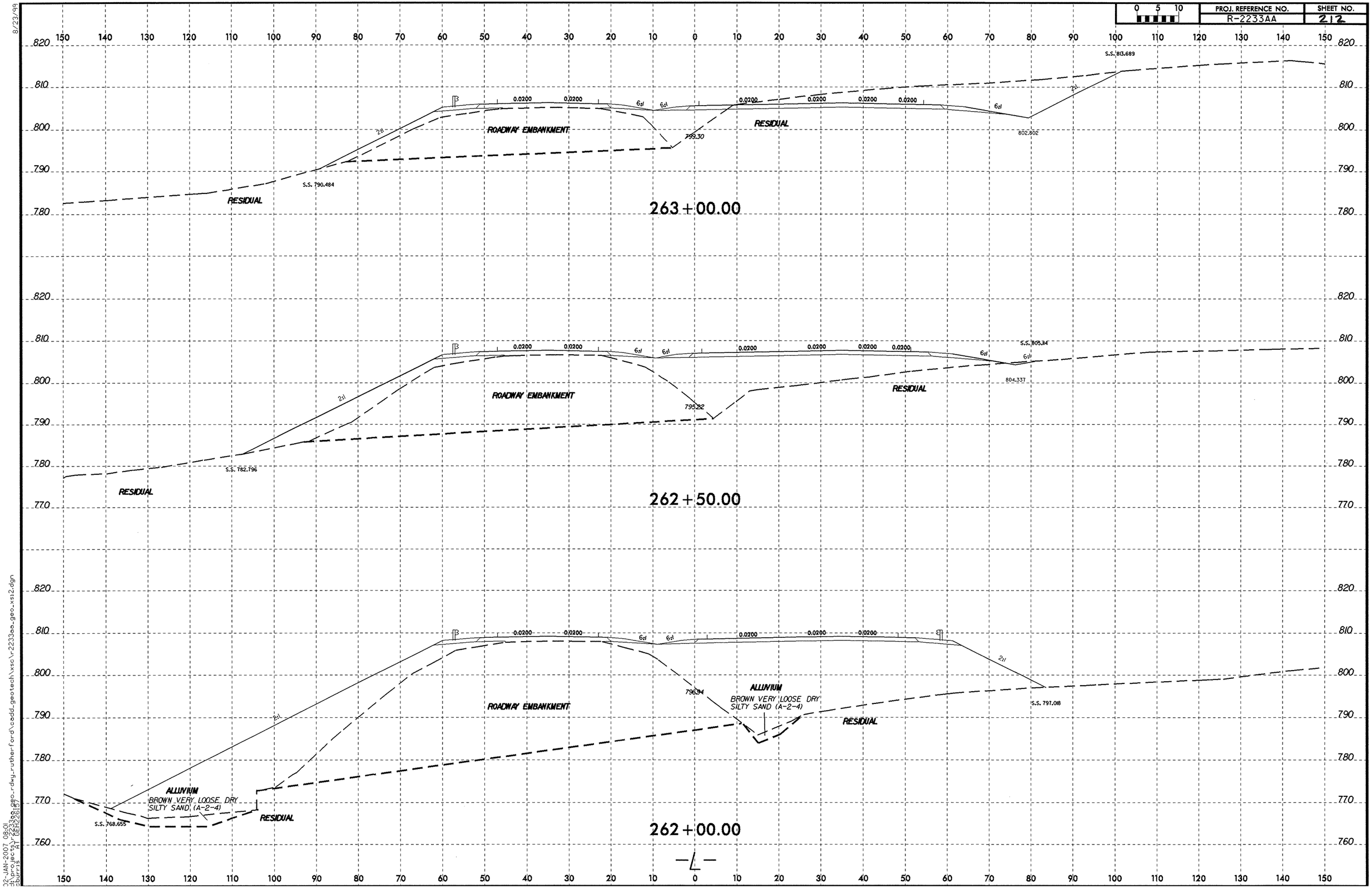
R-2233AA	212



8/23/99

02-JAN-2007 08:01
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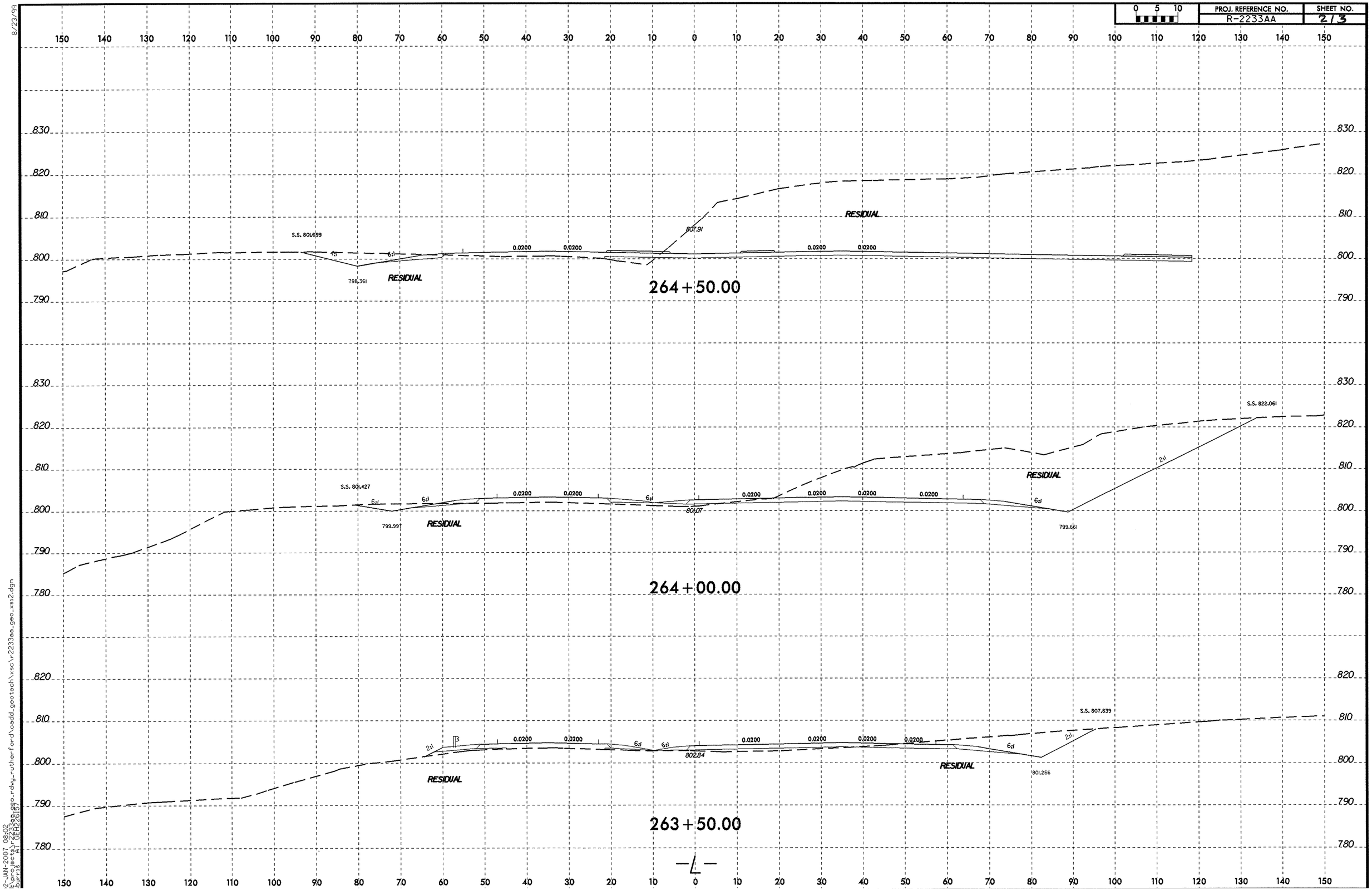
PROJ. REFERENCE NO.	SHEET NO.
R-2233AA	2/3



8/23/99

02-JAN-2007 08:02
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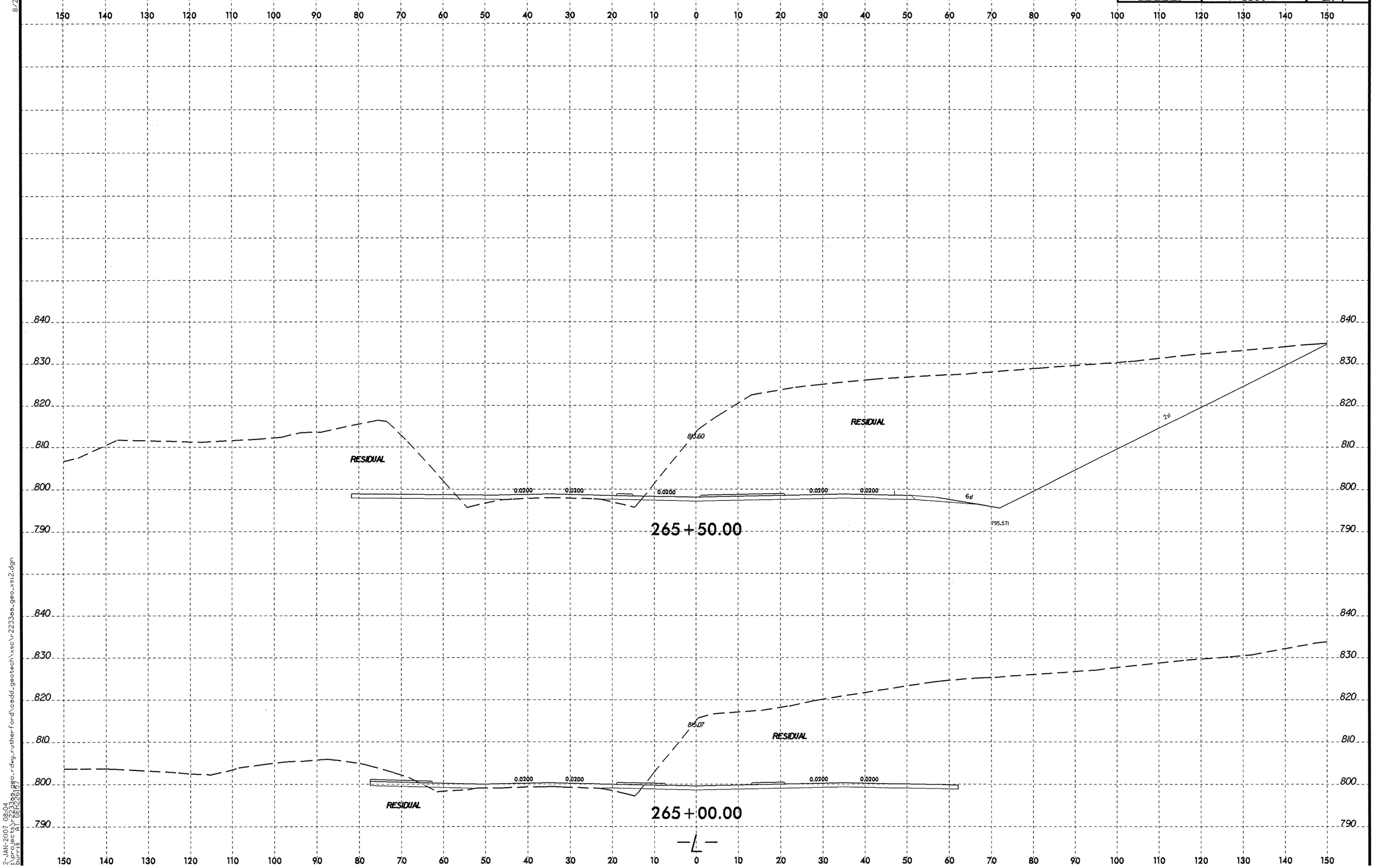
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	214



8/23/99

2-JAN-2007 08:04
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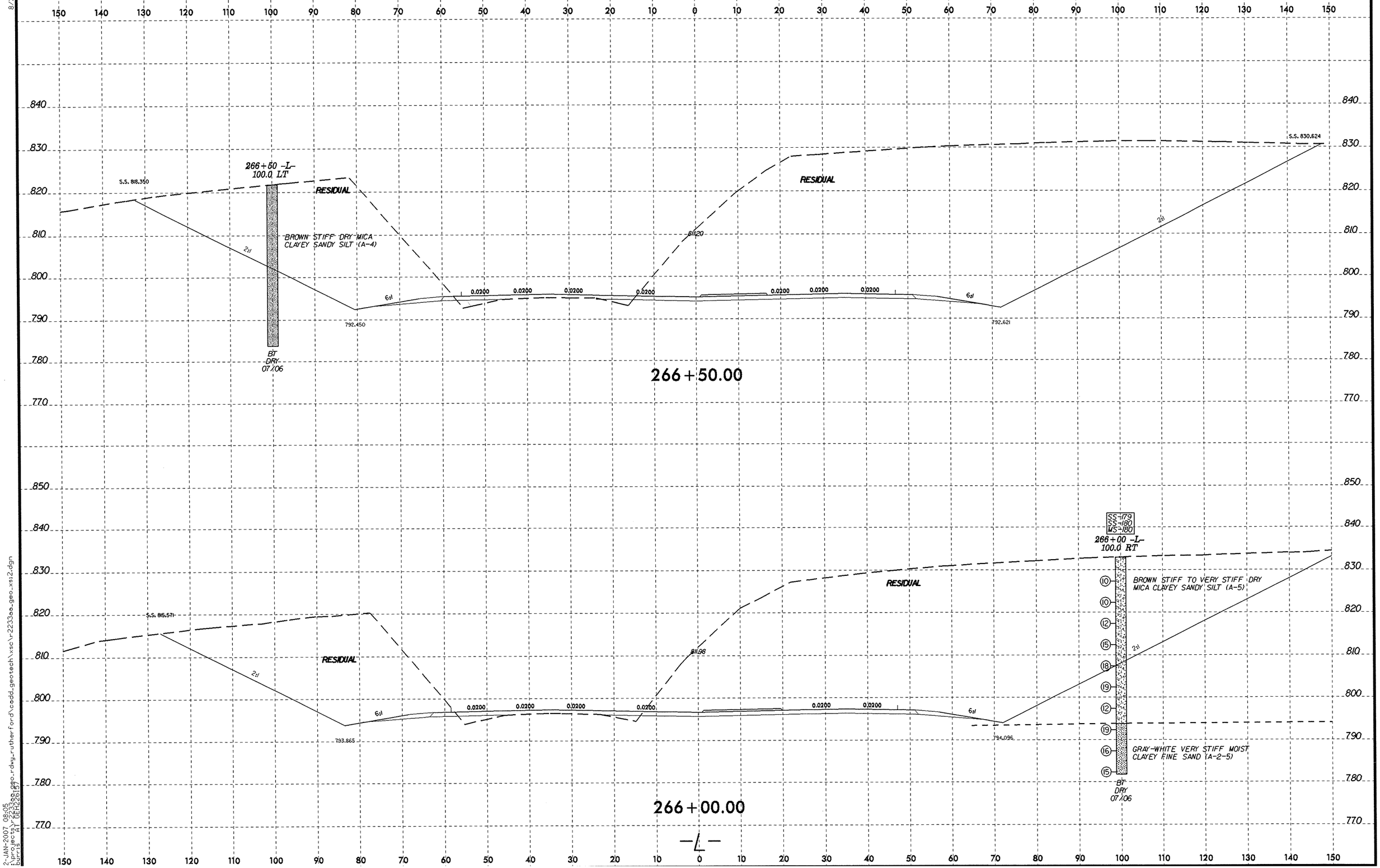
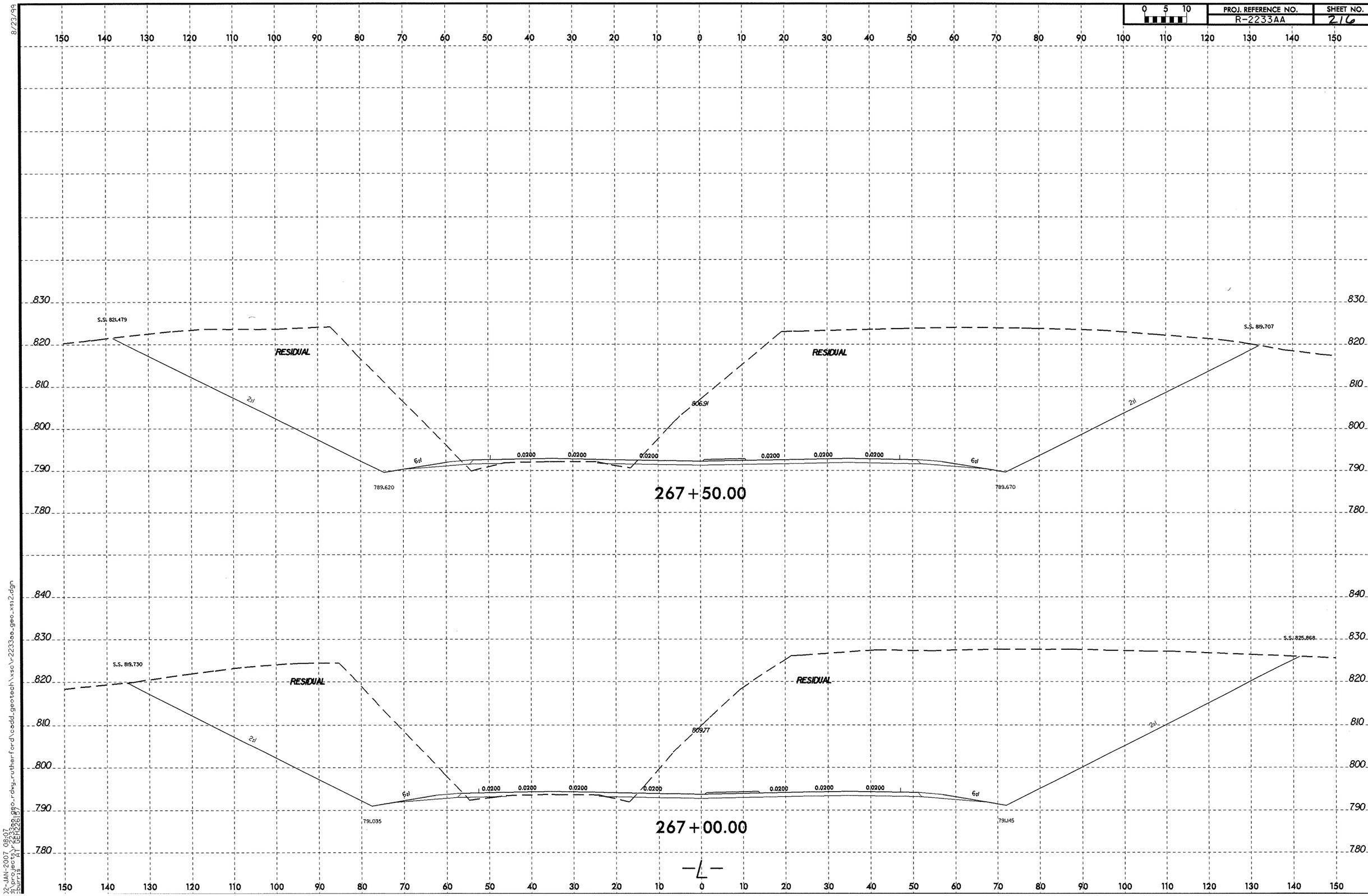
burris AT GEH22617



8/23/99
2-JAN-2007 08:05
burrisa
r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
AT (GEH2261)

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	216



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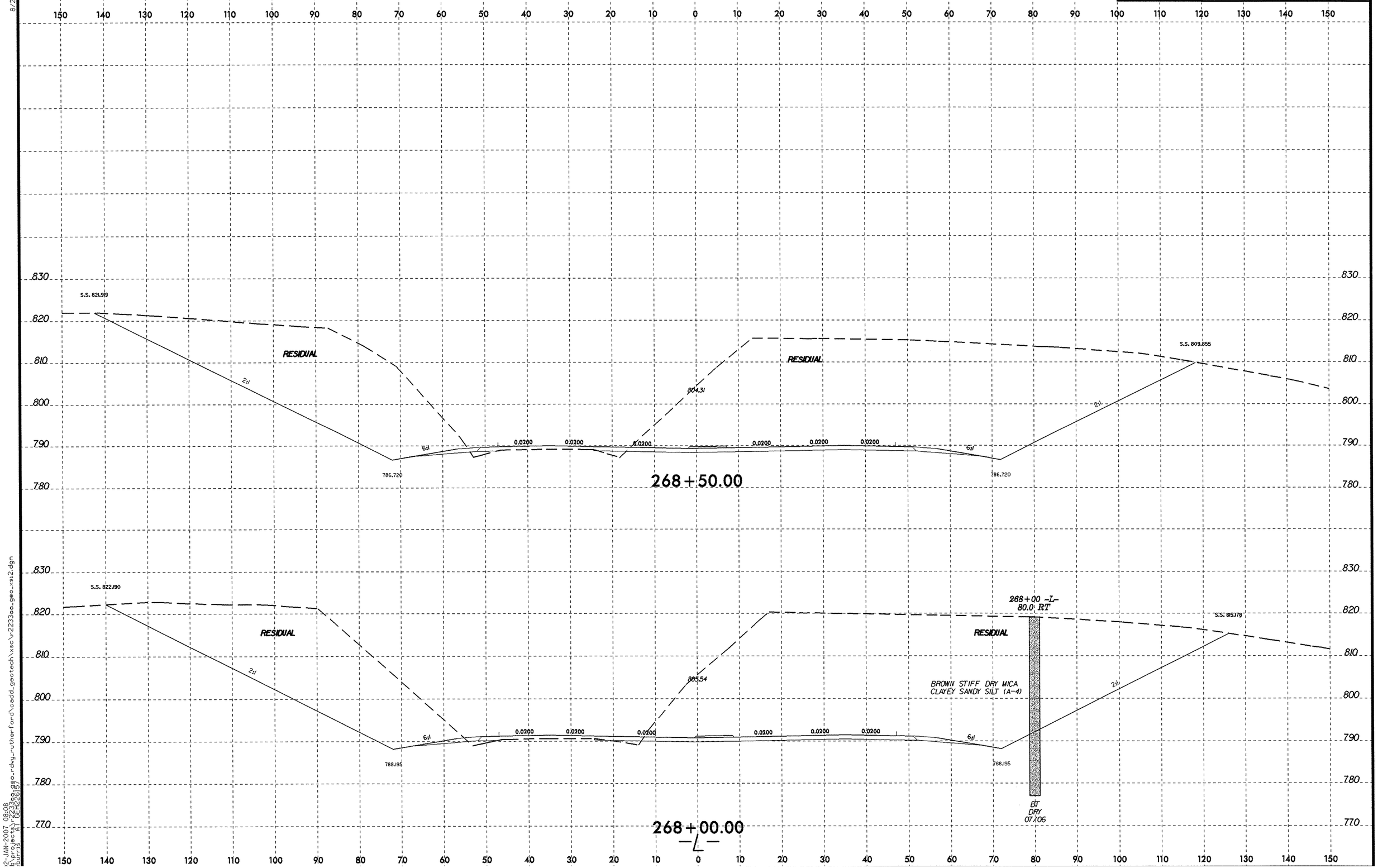

8/23/99
02-JAN-2007 08:08
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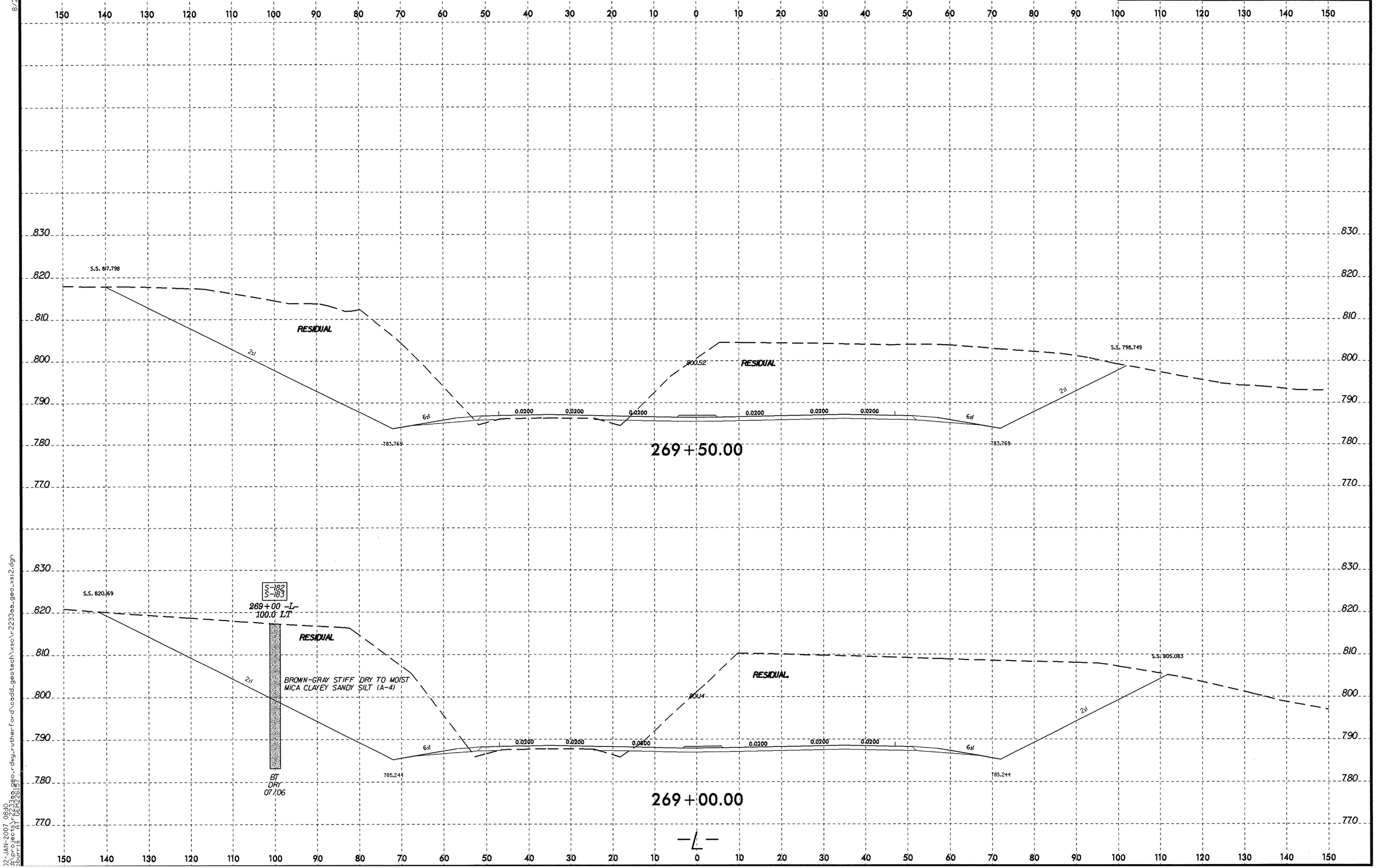
burris AT (GEH22617)



8/23/99
02-JAN-2007 08:10
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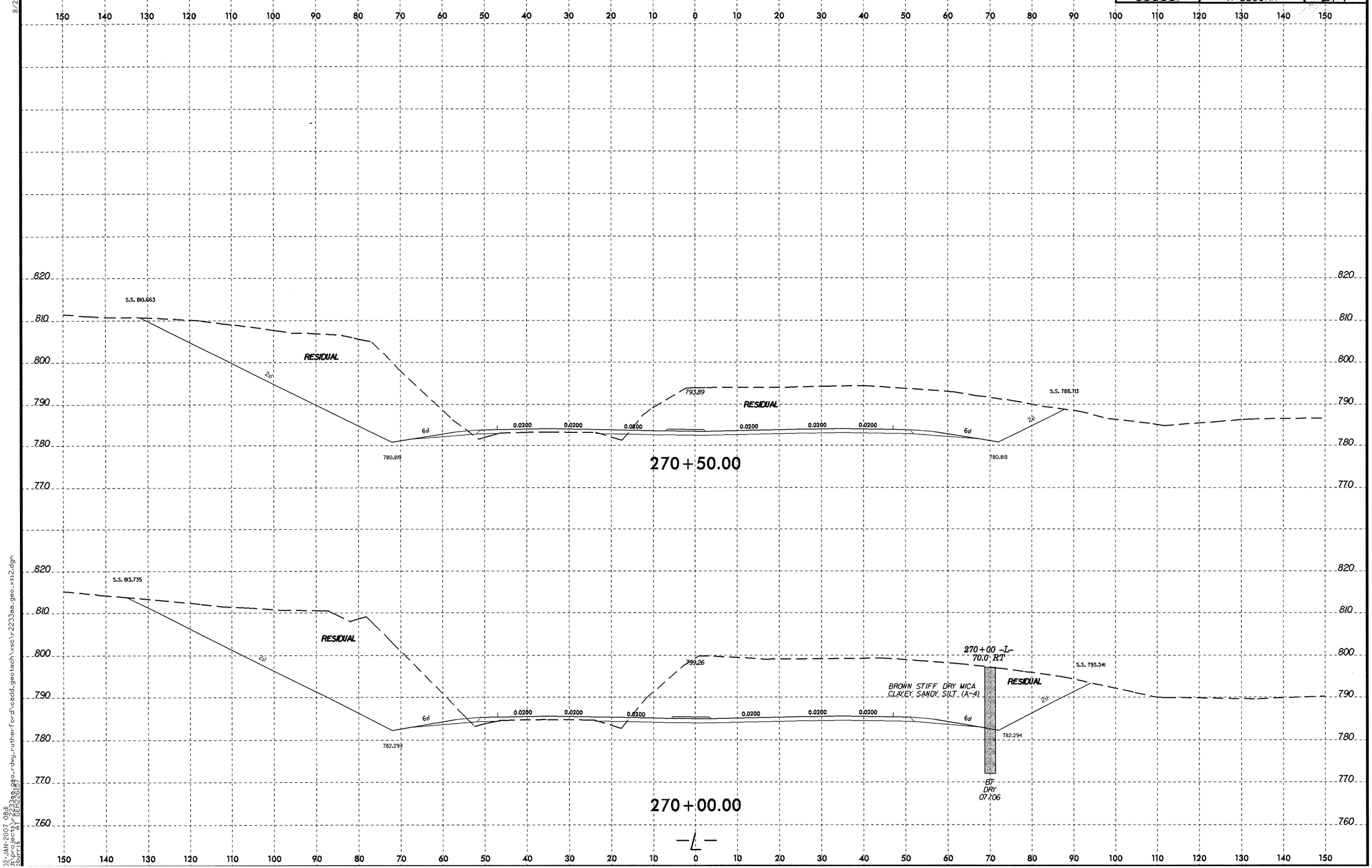
burris AT GEH226187

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2233AA	219



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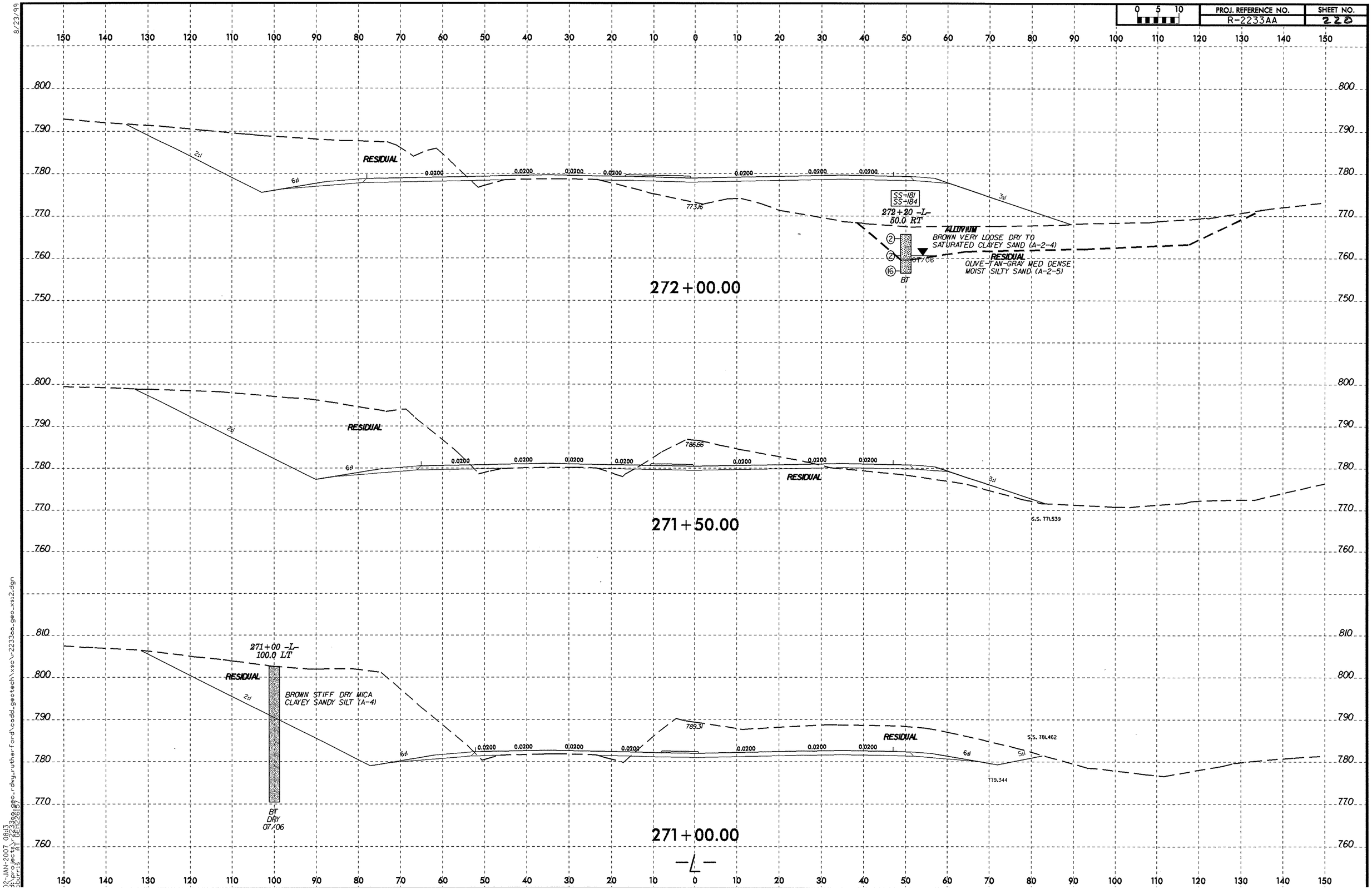
burris
AT GEH2261B7



8/23/99

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sburris AT GEH22617

8/23/99

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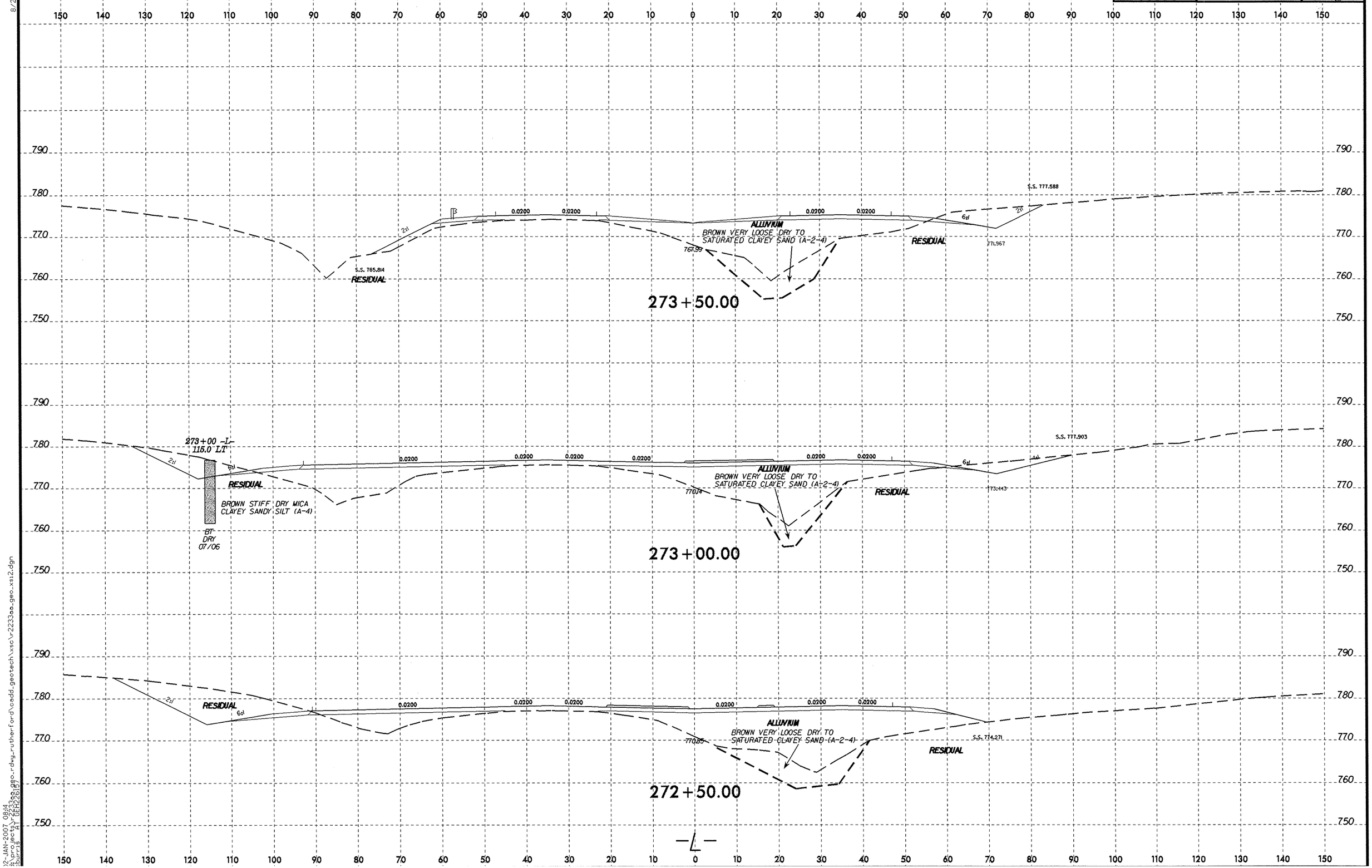
	R-2233AA	22



02-JAN-2007 09:14
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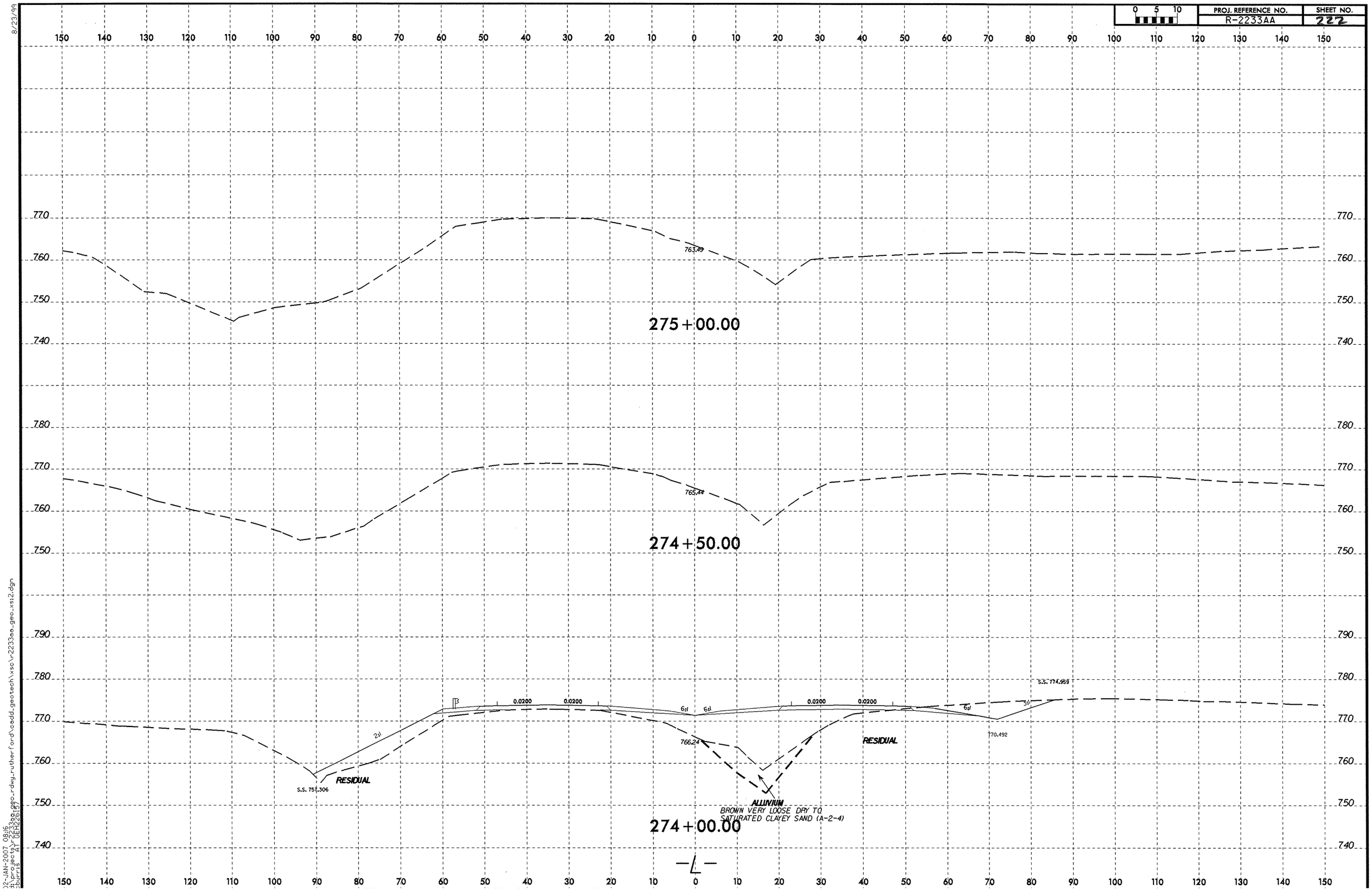
burrisgeo\xc
burrisgeo AT GEH22617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R-2233AA
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222
0 5 10
275+00.00
763.49
274+50.00
765.44
274+00.00
766.24
S.S. 751.306
RESIDUAL
ALLUVIUM
BROWN VERY LOOSE DRY TO
SATURATED CLAYEY SAND (A-2-4)
RESIDUAL
770.492
S.S. 774.959
0.0200
0.0200
0.0200
0.0200
6:1
6:1
6:1
3:1
2:1
-L-
8/23/99
02-JAN-2007 08:16
d:\projects\r2233aa_geo_rdwy_rutherford\cadd_geotech\xsc\r2233aa_geo_xsi2.dgn
burris

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	60 LT	12+00	4.7-6.2	A-2-4(0)	34	NP	37.4	33.7	14.7	14.1	99	76	34	-	-
MS-2	60 LT	12+00	19.7-21.2				0.0	0.0	0.0	0.0		0	0	14.6	-
SS-2	60 LT	12+00	19.7-21.2	A-2-4(0)	32	NP	43.8	28.9	15.2	12.1	83	58	26	-	-
SS-3	80 LT	16+50	0.0-1.5	A-6(0)	29	11	41.2	22.2	8.3	28.3	92	65	36	-	-
SS-4	80 LT	16+50	4.0-5.5	A-2-6(1)	37	17	43.2	22.2	4.2	30.3	96	68	35	-	-
SS-5	50 LT	18+50	0.0-1.5	A-2-5(0)	46	NP	33.3	37.4	13.1	16.2	95	80	31	-	-
SS-6	75 LT	19+25	0.0-1.5	A-5(0)	42	NP	30.9	31.3	17.6	20.2	100	79	43	-	-
SS-7	50 RT	21+00	4.5-6.0	A-2-4(0)	29	NP	50.2	28.4	13.3	8.1	91	60	23	-	-
S-8	70 LT	21+50	0.0-32.0	A-2-4(0)	30	NP	45.8	18.0	25.2	11.1	88	58	30	-	-
SS-9	75 LT	23+50	4.5-6.0	A-2-4(0)	34	NP	47.1	26.3	10.5	16.2	95	64	29	-	-
SS-10	60 LT	30+25	0.0-1.5	A-4(0)	26	6	29.1	31.1	15.6	24.2	91	75	40	-	-
SS-11	60 LT	30+25	4.0-5.5	A-1-b(0)	28	3	47.7	29.3	8.9	14.1	71	47	19	-	-
SS-12	60 LT	30+25	9.0-10.5	A-4(1)	40	7	24.2	34.5	25.1	16.2	99	87	46	-	-
SS-13	50 LT	28+00	0.0-1.5	A-4(1)	30	10	31.3	22.6	13.7	32.3	87	68	44	-	-
SS-14	50 LT	28+00	4.0-5.5	A-7-6(5)	42	17	32.3	20.4	6.9	40.4	95	74	48	-	-
SS-15	30 LT	33+50	0.0-1.5	A-6(1)	29	11	33.1	25.5	13.1	28.3	90	71	40	-	-
SS-16	30 LT	33+50	4.0-5.5	A-4(0)	33	NP	24.6	44.0	17.2	14.1	100	89	38	-	-
S-17	50 LT	35+00	0.0-30.0	A-4(0)	33	5	35.4	28.1	18.4	18.2	96	73	41	-	-
S-18	110 LT	38+00	0.0-3.8	A-7-5(24)	65	28	16.0	9.1	4.2	70.7	98	87	75	-	-
SS-19	110 LT	38+00	3.8-5.3	A-2-4(0)	35	NP	42.2	30.5	17.2	10.1	95	67	33	-	-
MS-20	110 LT	38+00	48.8-49.3				0.0	0.0	0.0	0.0		0	0	11	-
SS-20	110 LT	38+00	18.8-20.3	A-4(0)	34	6	29.1	35.8	23.0	12.1	100	85	41	-	-
SS-21	75 LT	41+00	0.0-1.5	A-5(0)	42	3	40.4	23.8	19.6	16.2	95	73	36	-	-
SS-21A	110 LT	38+00	48.8-49.3	A-2-4(0)	32	NP	49.7	25.9	14.3	10.1	84	54	23	-	-
SS-22	75 LT	41+00	9.0-10.5	A-2-4(0)	33	6	45.9	23.0	17.0	14.1	86	56	30	-	-
SS-23	75 LT	41+00	14.2-15.0	A-2-4(0)	38	9	50.5	25.7	15.8	8.1	89	56	24	-	-
SS-24	30 LT	41+50	0.0-1.5	A-2-4(0)	35	7	38.0	25.5	18.4	18.2	86	62	35	-	-
SS-25	30 LT	41+50	4.0-5.5	A-2-4(0)	32	NP	56.1	25.3	12.6	6.0	92	53	20	-	-
S-26	70 LT	43+25	0.0-30.0	A-2-4(0)	32	6	48.9	19.7	17.4	14.0	88	54	31	-	-
S-27	CL	26+40	0.0-4.0	A-7-5(12)	50	20	22.9	14.6	7.7	54.8	99	84	64	-	-
SS-28	CL	26+40	4.0-5.5	A-7-6(5)	47	18	29.4	27.0	7.1	36.5	98	81	47	-	-
SS-29	CL	26+40	9.0-10.5	A-2-4(0)	34	5	40.8	34.1	15.0	10.1	100	76	31	-	-
S-30	60 LT	47+00	0.0-5.0	A-7-5(8)	52	21	31.6	14.6	9.1	44.6	92	70	52	-	-
MS-31	60 LT	49+50	20.0-21.0				0.0	0.0	0.0	0.0		0	0	21.6	-
S-31	60 LT	47+00	5.0-30.0	A-4(0)	30	6	39.8	24.9	17.0	18.3	88	62	36	-	-
SS-32	50 LT	52+00	0.0-1.5	A-7-6(6)	43	22	38.7	16.2	8.5	36.5	97	69	46	-	-
SS-33	50 LT	52+00	4.0-5.5	A-7-6(8)	48	22	33.1	16.6	9.7	40.6	94	71	50	-	-
SS-34	40 LT	53+00	0.0-1.5	A-6(1)	29	12	42.8	20.5	8.3	28.4	96	65	38	-	-
SS-35	40 LT	53+00	4.0-5.5	A-7-5(3)	50	15	41.4	22.9	11.4	24.3	100	70	40	-	-
SS-36	CL	28+50	0.0-1.5	A-4(1)	32	10	37.3	20.5	11.8	30.4	92	69	42	-	-
SS-37	CL	28+50	8.7-10.2	A-2-4(0)	33	2	51.3	26.8	13.8	8.1	93	57	25	-	-
SS-38	CL	30+00	0.0-1.5	A-6(8)	38	18	21.9	20.9	10.5	46.7	99	87	60	-	-
SS-39	CL	30+00	4.0-5.5	A-7-6(13)	51	23	23.9	20.5	15.0	40.6	100	84	61	-	-
S-40	130 RT	49+00	0.0-3.0	A-6(4)	38	13	29.4	23.5	16.6	30.4	94	75	50	-	-
SS-41	130 RT	49+00	4.3-5.8	A-2-4(0)	33	NP	42.8	39.1	14.0	4.1	98	71	25	-	-
MS-42	130 RT	49+00	19.3-20.8				0.0	0.0	0.0	0.0		0	0	11.7	-
SS-42	130 RT	49+00	19.3-20.8	A-2-4(0)	35	NP	37.9	33.3	20.7	8.1	96	70	35	-	-
S-43	60 LT	58+00	0.0-21.0	A-2-4(0)	32	NP	54.6	25.6	13.8	6.1	91	52	22	-	-
SS-44	90 RT	60+50	0.0-1.5	A-2-4(0)	24	5	33.9	30.0	15.8	20.3	86	68	35	-	-
SS-45	90 RT	60+50	0.0-1.5	A-4(0)	38	6	32.0	31.8	17.8	18.3	91	70	39	-	-
SS-46	30 LT	61+00	0.0-1.5	A-6(3)	31	11	31.0	18.3	20.3	30.4	93	73	50	-	-
SS-47	30 LT	61+00	3.5-5.0	A-7-5(11)	53	23	26.2	17.2	9.9	46.7	95	78	56	-	-
SS-48	CL	18+00	0.0-1.5	A-6(1)	29	12	33.9	28.4	11.4	26.4	96	75	41	-	-
SS-49	CL	19+25	0.0-1.5	A-6(2)	29	11	35.9	17.2	16.4	30.4	96	77	46	-	-
SS-50	CL	19+25	4.0-5.5	A-2-6(0)	35	11	43.6	25.2	11.0	20.3	90	60	32	-	-
S-51	50 LT	14+40	0.0-6.0	A-7-5(16)	55	23	16.4	19.3	13.6	50.7	100	90	68	-	-
S-52	50 LT	14+40	6.0-17.0	A-2-4(0)	31	8	38.1	28.2	17.4	16.2	87	64	34	-	-
S-53	25 LT	13+50	0.0-21.0	A-2-4(0)	28	NP	54.6	24.9	14.4	6.1	89	51	22	-	-
SS-54	80 LT	68+00	0.0-1.5	A-4(0)	32	NP	34.5	32.7	20.7	12.2	97	73	39	-	-
SS-55	40 LT	69+50	0.0-1.5	A-6(3)	31	15	26.0	27.8	13.8	32.5	90	76	45	-	-
SS-56	40 LT	69+50	4.0-5.5	A-7-6(4)	46	17	33.5	26.4	13.8	26.4	99	78	44	-	-
S-57	80 LT	72+50	0.0-5.0	A-4(3)	32	9	16.8	34.3	22.5	26.4	100	92	55	-	-
S-58	80 LT	72+50	5.0-23.0	A-4(0)	28	NP	29.8	36.9	23.1	10.1	98	81	39	-	-
SS-59	90 RT	71+50	4.2-5.7	A-2-4(0)	34	6	34.3	38.9	20.7	6.1	97	76	34	-	-
SS-60	90 RT	71+50	9.2-10.7	A-2-4(0)	39	NP	42.2	40.0	15.8	2.0	99	71	24	-	-
MS-61	90 RT	71+50	19.2-20.7				0.0	0.0	0.0	0.0		0	0	15.5	-
SS-61	90 RT	71+50	19.2-20.7	A-4(0)	33	3	26.6	40.2	27.2	6.1	100	85	42	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-62	20 RT	83+00	0.0-1.5	A-4(1)	28	9	28.9	29.7	13.0	28.3	96	78	43	-	-
SS-63	20 RT	83+00	4.1-5.6	A-2-4(0)	39	NP	51.4	26.5	16.1	6.1	96	60	25	-	-
SS-64	20 RT	83+00	9.1-10.6	A-2-5(0)	44	NP	46.3	29.9	19.7	4.0	93	62	26	-	-
SS-65	10 RT	87+00	0.0-1.5	A-2-4(0)	37	NP	46.5	25.9	19.5	8.1	100	64	33	-	-
SS-66	10 RT	86+50	0.0-1.5	A-2-4(0)	35	NP	48.1	24.9	18.9	8.1	97	63	30	-	-
SS-67	10 RT	86+00	0.0-1.5	A-6(2)	36	17	38.0	22.9	8.8	30.3	93	69	39	-	-
SS-68	10 RT	86+00	4.0-5.5	A-7-6(3)	43	21	34.0	23.3	12.4	30.3	82	64	38	-	-
SS-69	CL	88+00	0.0-1.5	A-7-5(3)	52	17	26.5	35.8	11.4	26.3	93	83	39	-	-
SS-70	CL	88+00	9.0-10.5	A-7-6(11)	53	26	24.3	22.0	13.2	40.4	96	81	54	-	-
SS-71	70 RT	89+00	4.0-5.5	A-2-5(0)	46	NP	33.5	43.4	15.0	8.1	98	84	27	-	-
SS-72	20 RT	91+00	4.0-5.5	A-2-4(0)	36	NP	30.7	51.4	13.9	4.0	77	69	18	-	-
SS-73	50 RT	92+50	0.0-1.5	A-7-6(14)	54	28	15.6	26.5	9.4	48.5	98	93	59	-	-
SS-74	90 LT	87+00	0.0-1.5	A-2-7(1)	43	21	47.3	28.9	11.6	12.1	89	59	25	-	-
SS-75	90 LT	87+00	9.0-10.5	A-4(1)	36	10	46.1	15.2	22.5	16.2	95	59	40	-	-
MS-76	35 RT	104+50	0.0-1.5				0.0	0.0	0.0	0.0		0	0	24.4	-
SS-76	35 RT	104+50	0.0-1.5	A-5(2)	48	10	11.3	52.4	10.0	26.3	97	93	43	-	-
SS-77	35 RT	104+50	4.0-5.5	A-2-5(0)	42	NP	18.2	61.1	6.6	14.2	100	97	28	-	-
SS-78	85 RT	101+25	4.0-5.5	A-6(8)	40	15	8.5	35.8	17.3	38.4	100	97	62	-	-
SS-79	85 RT	101+25	9.0-10.5	A-7-6(23)	54	29	2.2	30.7	22.5	44.5	100	99	77	-	-
SS-80	85 RT	101+25	14.0-15.5	A-1-b(0)	31	NP	73.0	18.2	2.7	6.1	81	36	9	-	-
SS-81	115 RT	100+15	4.2-5.7	A-2-4(0)	25	NP	33.0	53.8	3.1	10.1	100	91	17	-	-
SS-82	115 RT	100+15	14.2-15.7	A-4(2)	31	6	1.4	57.6	18.7	22.2	100	100	58	-	-
SS-83	40RT	99+50	4.0-5.5	A-4(2)	30	10	15.0	45.9	8.8	30.3	100	97	45	-	-
SS-83A	110 LT	114+00	0.0-1.5	A-2-4(0)	27	7	35.6	31.5	10.6	22.2	93	73	35	-	-
SS-84	40 RT	99+50	14.0-15.5	A-4(0)	29	5	5.7	64.1	12.0	18.2	92	91	38	-	-
SS-84A	110 LT	114+00	4.0-5.5	A-2-4(0)	31	7	47.3	26.1	6.4	20.2	100	67	31	-	-
SS-85	50 RT	102+00	0.0-1.5	A-2-4(0)	27	NP	22.6	55.4	3.7	18.2	99	93	26	-	-
SS-85A	100 RT	115+00	0.0-1.5	A-7-5(13)	58	21	18.4	21.6	5.4	54.6	98	87	63	-	-
SS-86	50 RT	102+00	4.0-5.5	A-7-6(13)	45	18	4.7	31.3	23.6	40.4	100	98	72	-	-
SS-86A	100 RT	115+00	4.0-5.5	A-2-5(0)	44	NP	20.4	53.8	9.6	16.2	98	92	32	-	-
SS-87	140 RT	118+00	0.0-1.5	A-4(2)	28	9	33.8	26.1	11.8	28.3	87	68	49	-	-
SS-88	140 RT	118+00	9.0-10.5	A-2-4(0)	36	NP	43.7	32.6	5.6	18.2	81	59	23	-	-
MS-89	15 LT	117+50	4.2-5.7				0.0	0.0	0.0	0.0		0	0	18.8	-
SS-89	15 LT	117+50	4.2-5.7	A-2-6(0)	38	11	27.9	40.6	9.2	22.2	88	75	34	-	-
MS-90	15 LT	117+50	9.2-10.7				0.0	0.0	0.0	0.0		0	0	14.5	-
SS-90	15 LT	117+50	9.2-10.7	A-6(1)	34	13	28.3	31.7	7.6	32.4	86	72	38	-	-
MS-91	15 LT	117+50	14.2-15.7				0.0	0.0	0.0	0.0		0	0	13.3	-
SS-91	15 LT	117+50	14.2-15.7	A-2-5(0)	51	NP	49.3	35.8	4.8	10.1	95	67	19	-	-
SS-92	CL	120+00	0.0-1.5	A-7-5(4)	46	14	25.1	32.4	8.2	34.4	94	82	45	-	-
SS-93	CL	120+00	9.0-10.5	A-2-4(0)	33	NP	38.2	47.7	3.9	10.1	100	88	18	-	-
SS-94	60 RT	126+50	0.0-1.5	A-7-6(5)	42	20	22.0	31.7	7.8	38.4	94	85	46	-	-
SS-95	50 RT	128+50	0.0-1.5	A-4(0)	27	7	22.6	36.8	14.3	26.3	93	81	44	-	-
SS-96	50 RT	128+50	4.0-5.5	A-7-5(11)	54	21	18.6	23.1	5.8	52.6	96	86	59	-	-
SS-97	60 RT	131+00	0.0-1.5	A-2-4(0)	33	NP	45.9	27.1	8.8	18.2	90	60	29	-	-
S-98	85 RT	136+50	0.0-4.0	A-7-5(21)	62	31	11.1	23.3	5.0	60.7	100	98	68	-	-
SS-99	85 RT	136+50	4.0-5.5	A-5(2)	45	5	12.5	44.3	10.8	32.4	100	98	51	-	-
SS-100	85 RT	136+50	9.0-10.5	A-1-b(0)	28	NP	53.2	31.5	7.2	8.1	62	38	13	-	-
MS-101	85 RT	136+50	14.0-15.5				0.0	0.0	0.0	0.0		0	0	17.5	-
SS-101	85 RT	136+50	14.0-15.5	A-2-4(0)	38	NP	26.1	55.4	10.4	8.1	100	88	29	-	-
SS-102	55 RT	137+90	0.0-1.5	A-2-4(0)	19	2	44.7	29.1	6.0	20.2	83	61	24	-	-
S-103	50 RT	141+00	0.0-5.0	A-7-5(11)	59	22	18.2	28.7	10.6	42.5	97	90	56	-	-
S-104	50 RT	141+00	5.0-15.0	A-2-4(0)	29	3	44.1	23.7	16.1	16.2	85	56	32	-	-
SS-105	85 RT	144+50	4.0-5.5	A-5(0)	41	NP	23.3	40.0	12.4	24.3	97	87	43	-	-
SS-106	85 RT	144+50	9.0-10.5	A-2-4(0)	39	NP	27.1	49.7	13.0	10.1	83	70	25	-	-
SS-107	85 RT	144+50	14.0-15.5	A-2-4(0)	38	NP	25.7	51.6	12.6	10.1	98	85	32	-	-
SS-108	50 RT	146+50	0.0-1.5	A-2-5(0)	41	10	30.9	32.2	8.6	28.3	84	68	35	-	-
SS-109	50 RT	146+50	4.0-5.5	A-1-b(0)	31	NP	52.3	29.2	10.4	8.1	80	49	19	-	-
S-110	115 LT	140+00	0.0-4.0	A-4(0)	32	9	40.7	17.6	15.3	26.3	81	54	37	-	-
SS-111	115 LT	140+00	4.0-5.5	A-2-4(0)	34	NP	53.9	28.0	12.1	6.1	89	54	20	-	-
MS-112	115 LT	140+00	19.0-20.2				0.0	0.0	0.0	0.0		0	0	11.3	-
SS-112	115 LT	140+00	19.0-20.2	A-2-4(0)	34	NP	27.8	48.4	15.7	8.1	95	80	31	-	-
SS-112A	50 RT	150+50	0.0-1.5	A-4(0)	37	7	32.2	32.4	15.1	20.3	87	69	36	-	-
SS-113	50 RT	150+50	9.0-10.5	A-2-4(0)	33	NP	41.3	33.4	15.1	10.1	97	70	31	-	-
SS-114	100 RT	153+50	0.0-1.5	A-2-4(0)	32	3	37.3	32.0	16.5	14.2	81	59	29	-	-
SS-115	140 LT	152+50	4.5-6.0	A-5(1)	42	8	33.2	28.2	22.4	16.2	96	73	43	-	-
S-116	140 LT	152+50	0.0-3.0	A-7-5(15)	56	25	20.7	12.6	14.1	52.7	91	76	63	-	-
MS-117	140 LT	152+50	19.5-21.0				0.0	0.0	0.0	0.0		0	0	9.5	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-117	140 LT	152+50	19.5-21.0	A-2-4(0)	32	NP	42.8	33.8	11.2	12.2	83	58	24	-	-
S-118	70 LT	178+00	0.0-3.0	A-6(3)	37	14	23.1	26.7	21.8	28.4	82	71	43	-	-
S-119	70 LT	179+50	0.0-3.0	A-2-4(0)	28	7	39.7	31.0	13.1	16.2	79	59	26	-	-
S-120	50 RT	178+50	0.0-3.0	A-2-4(0)	22	4	30.0	39.7	14.1	16.2	76	64	27	-	-
S-121	70 LT	162+00	0.0-4.0	A-7-5(20)	68	26	15.2	18.6	17.6	48.6	98	91	68	-	-
S-122	70 LT	162+00	4.0-19.0	A-7-5(5)	50	12	21.9	30.4	19.4	28.3	98	89	52	-	-
S-123	50 RT	187+00	0.0-15.0	A-7-6(9)	49	23	27.0	18.0	8.4	46.6	88	72	51	-	-
SS-124	50 RT	188+50	0.0-1.5	A-7-6(13)	53	26	24.3	17.0	8.0	50.7	94	78	58	-	-
S-125	100 LT	189+00	0.0-15.0	A-4(1)	36	8	29.6	35.5	20.8	14.2	95	77	41	-	-
SS-126	60 LT	193+00	0.0-1.5	A-7-6(17)	58	32	19.7	19.7	10.0	50.7	96	86	60	-	-
SS-127	60 LT	193+00	4.0-5.5	A-7-5(5)	54	16	21.5	36.9	17.3	24.3	100	96	46	-	-
SS-128	60 LT	195+50	0.0-1.5	A-7-6(17)	53	27	17.4	18.2	11.7	52.7	98	89	66	-	-
SS-129	60 LT	195+50	4.0-5.5	A-4(0)	39	4	41.9	19.3	24.6	14.2	85	56	36	-	-
S-130	70 LT	201+00	0.0-3.0	A-7-6(15)	50	22	12.2	25.3	15.9	46.6	100	93	69	-	-
SS-131	70 RT	203+50	0.0-1.5	A-4(1)	26	10	36.1	25.3	14.3	24.3	93	71	39	-	-
SS-132	70 RT	203+50	4.0-5.5	A-4(2)	28	10	19.3	30.8	15.5	34.4	96	86	51	-	-
SS-133	70 RT	203+50	9.0-10.5	A-7-6(9)	43	23	27.4	21.1	11.0	40.5	96	79	53	-	-
SS-135	50 RT	206+50	0.0-1.5	A-7-6(9)	42	19	24.7	19.0	13.7	42.6	98	81	58	-	-
SS-136	50 RT	208+50	0.0-1.5	A-6(6)	33	14	20.3	21.1	24.2	34.4	97	85	61	-	-
SS-137	50 RT	208+50	4.0-5.5	A-7-6(4)	41	17	37.1	16.4	6.0	40.5	92	69	44	-	-
SS-137A	55 RT	210+00	0.0-1.5	A-4(0)	24	8	36.1	27.6	14.1	22.3	91	70	36	-	-
SS-138	55 RT	210+00	9.0-10.5	A-2-7(1)	46	17	45.0	19.7	7.0	28.4	76	50	29	-	-
SS-139	CL	14+00	0.0-1.5	A-7-6(12)	50	23	23.7	17.0	14.7	44.6	98	81	61	-	-
SS-140	70 LT	218+00	0.0-1.5	A-2-6(0)	31	11	43.4	22.3	12.1	22.3	80	55	30	-	-
SS-141	70 LT	218+00	4.0-5.5	A-2-6(0)	40	11	44.0	21.9	9.8	24.3	91	61	35	-	-
SS-142	75 LT	221+00	0.0-1.5	A-2-7(0)	41	11	35.5	25.5	14.7	24.3	72	53	31	-	-
SS-143	75 LT	225+00	0.0-1.5	A-2-4(0)	36	5	25.7	44.0	10.0	20.3	98	88	33	-	-
SS-144	75 LT	225+00	4.0-5.5	A-5(3)	46	10	20.9	33.6	21.2	24.3	96	83	50	-	-
SS-145	70 LT	228+00	0.0-1.5	A-7-5(13)	64	25	31.8	10.1	17.5	40.5	95	72	56	-	-
SS-146	70 RT	221+00	0.0-4.0	A-7-6(6)	45	16	16.7	35.7	10.9	36.7	99	93	52	-	-
SS-147	70 RT	221+00	4.0-23.0	A-2-4(0)	30	NP	32.8	39.1	13.8	14.3	83	65	29	-	-
SS-148	80 LT	234+30	0.0-1.5	A-4(0)	28	5	22.8	44.9	9.9	22.4	100	92	36	-	-
SS-149	80 LT	234+30	3.5-5.0	A-2-5(0)	45	10	48.1	24.7	17.0	10.2	92	58	30	-	-
SS-150	60 RT	235+15	0.0-1.5	A-2-6(0)	32	11	42.3	24.3	8.8	24.5	90	64	32	-	-
SS-151	60 RT	235+15	4.0-5.5	A-2-4(0)	24	NP	44.4	35.4	8.0	12.3	85	62	20	-	-
SS-152	95 LT	235+20	3.8-5.3	A-1-b(0)	33	NP	62.4	19.2	14.3	4.1	78	38	17	-	-
S-153	75 LT	239+00	0.0-5.0	A-7-6(7)	51	22	28.2	20.2	10.6	40.9	89	72	48	-	-
S-154	75 LT	239+00	5.0-22.0	A-5(0)	44	NP	28.2	33.5	21.9	16.4	98	82	43	-	-
SS-155	20 RT	236+00	0.0-1.5	A-6(2)	35	15	31.1	27.8	10.4	30.7	88	70	39	-	-
SS-156	20 RT	236+00	4.0-5.5	A-7-6(2)	43	16	35.8	24.5	9.0	30.7	89	68	37	-	-
SS-157	30 RT	248+00	0.0-1.5	A-7-6(3)	41	19	40.3	19.4	11.7	28.6	87	59	38	-	-
SS-158	30 RT	248+00	4.0-5.5	A-5(2)	46	8	32.9	22.7	26.0	18.4	93	69	47	-	-
SS-159	30 RT	249+50	0.0-1.5	A-2-4(0)	27	NP	42.7	33.1	11.9	12.3	87	63	24	-	-
SS-160	30 RT	249+50	9.0-10.5	A-2-4(0)	35	NP	36.6	39.5	15.7	8.2	80	61	24	-	-
SS-161	30 RT	251+50	0.0-1.5	A-2-4(0)	24	6	36.6	28.6	14.3	20.4	91	68	35	-	-
SS-162	30 RT	251+50	4.0-5.5	A-6(3)	36	14	30.7	25.8	12.9	30.7	95	76	44	-	-
SS-163	30 RT	251+50	9.0-10.5	A-2-4(0)	36	10	41.1	29.4	13.1	16.4	75	52	25	-	-
SS-164	20 RT	252+00	0.0-1.5	A-2-6(0)	29	11	54.2	19.0	8.4	18.4	84	48	24	-	-
SS-165	20 RT	252+00	9.0-10.5	A-1-b(0)	24	NP	53.6	29.0	11.2	6.1	64	38	14	-	-
SS-166	30 RT	253+00	0.0-1.5	A-4(1)	28	10	35.6	23.9	16.0	24.5	94	71	41	-	-
SS-167	30 RT	253+00	9.0-10.5	A-2-4(0)	22	2	50.5	29.0	10.2	10.2	90	56	21	-	-
SS-168	80 RT	254+00	0.0-1.5	A-2-4(0)	24	7	50.7	21.9	11.0	16.4	83	51	25	-	-
SS-169	80 RT	254+00	9.0-10.5	A-2-5(0)	44	NP	24.7	48.1	19.0	8.2	93	84	31	-	-
SS-170	30 RT	256+50	0.0-1.5	A-6(1)	32	12	28.2	30.4	15.0	26.4	87	71	40	-	-
SS-171	30 RT	256+50	4.0-5.5	A-7-6(6)	46	19	32.7	23.9	13.0	30.4	99	77	48	-	-
MS-172	100 LT	256+50	18.6-19.6				0.0	0.0	0.0	0.0		0	0	6.6	-
SS-172	100 LT	256+50	5.0-6.5	A-2-4(0)	32	NP	39.8	35.3	12.8	12.2	84	61	26	-	-
SS-173	40 RT	261+00	4.0-5.5	A-2-4(0)	31	NP	55.2	27.5	10.2	7.1	87	51	20	-	-
SS-174	40 RT	261+00	0.0-1.5	A-2-4(0)	19	NP	36.2	42.0	8.6	13.2	97	81	25	-	-
SS-175	40 RT	261+00	14.0-15.5	A-1-b(0)	37	NP	59.5	27.2	9.2	4.1	83	46	15	-	-
SS-176	50 RT	261+50	0.0-1.5	A-7-6(7)	50	24	21.3	25.4	8.7	44.6	84	75	47	-	-
S-177	CL	18+00	0.0-5.0	A-5(0)	51	8	34.7	33.5	9.5	22.3	96	87	37	-	-
S-178	CL	18+00	5.0-35.0	A-2-4(0)	36	NP	26.8	51.5	11.6	10.1	97	87	27	-	-
SS-179	100 RT	266+00	4.5-6.0	A-5(0)	57	7	27.4	41.6	16.8	14.2	98	86	36	-	-
MS-180	100 RT	266+00	39.5-41.0				0.0	0.0	0.0	0.0		0	0	18.1	-
SS-180	100 RT	266+00	39.5-41.0	A-2-5(0)	53	NP	20.7	55.6	17.6	6.1	100	91	33	-	-
SS-181	50 RT	272+20	0.0-1.5	A-2-4(0)	35	NP	15.8	57.2	8.7	18.3	100	96	33	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-182	100 LT	269+00	0.0-10.0	A-4(1)	37	8	22.5	35.9	23.3	18.3	94	80	46	-	-
S-183	100 LT	269+00	10.0-20.0	A-4(0)	26	4	37.0	23.6	24.1	15.2	93	66	42	-	-
SS-184	50 RT	272+20	7.6-9.1	A-2-5(0)	45	NP	34.5	44.4	15.0	6.1	84	68	24	-	-
S-185	100 RT	150+00	0.0-4.0	A-2-4(0)	20	4	43.6	33.1	9.1	14.2	92	67	24	-	-
S-186	110 RT	149+50	0.0-2.0	A-1-b(0)	24	NP	68.2	22.9	3.9	5.1	67	37	7	-	-
S-187	30 RT	149+15	0.0-3.0	A-7-5(17)	57	18	2.0	29.8	25.6	42.6	100	99	77	-	-
S-188	50 RT	147+70	0.0-3.0	A-2-4(0)	34	9	27.8	41.8	16.2	14.2	91	79	32	-	-
S-189	50 RT	147+70	3.0-4.0	A-1-b(0)	28	NP	74.5	17.4	4.0	4.1	52	22	5	-	-
S-190	120 RT	146+65	0.0-2.0	A-2-4(0)	32	6	29.2	38.9	17.6	14.2	93	78	34	-	-
S-191	120 RT	146+65	2.0-4.0	A-1-b(0)	25	NP	79.8	16.5	2.6	1.0	60	23	3	-	-
S-192	100 RT	150+35	0.0-4.0	A-2-7(0)	47	12	36.7	26.2	24.9	12.2	82	62	33	-	-
S-193	120 RT	16+40	0.0-3.0	A-2-5(0)	50	NP	39.6	30.3	22.0	8.1	96	71	33	-	-
S-194	150 RT	31+75	0.0-3.0	A-1-b(0)	22	NP	62.8	27.3	5.9	4.0	81	45	10	-	-
S-195	150 RT	31+70	CREEK BOTTOI	A-1-b(0)	26	NP	79.7	14.4	1.8	4.0	57	18	4	-	-
S-196	120 RT	41+10	0.0-4.0	A-2-4(0)	34	7	55.2	17.9	14.8	12.1	90	48	28	-	-
S-197	120 RT	41+00	CREEK BOTTOI	A-1-b(0)	30	NP	78.8	15.3	1.9	4.0	70	25	5	-	-
S-198	50 RT	79+00	0.0-3.0	A-2-4(0)	24	4	39.0	33.9	12.9	14.1	86	65	27	-	-
S-199	50 RT	80+00	0.0-3.0	A-6(3)	29	13	25.5	27.5	16.8	30.3	98	84	50	-	-
S-200	50 RT	81+00	0.0-3.0	A-4(1)	29	10	29.1	33.9	16.8	20.2	92	76	39	-	-
S-201	70 LT	162+00	0.0-3.0	A-6(5)	40	17	24.8	23.4	13.3	38.4	92	79	50	-	-
S-202	30 RT	165+50	0.0-3.0	A-2-4(0)	22	4	38.2	35.4	6.3	20.2	83	64	25	-	-
S-203	30 RT	170+00	0.0-3.0	A-6(6)	40	19	19.8	29.9	11.9	38.4	92	82	49	-	-
S-204	40 RT	173+00	0.0-3.0	A-7-5(38)	80	43	9.1	15.4	10.9	64.6	100	97	78	-	-
S-205	70 LT	184+00	0.0-3.0	A-7-6(17)	54	25	10.3	26.1	13.1	50.5	100	96	69	-	-
S-206	CL	184+00	0.0-3.0	A-7-6(8)	46	21	25.9	23.0	12.7	38.4	95	79	52	-	-
S-207	70 LT	187+00	0.0-3.0	A-7-6(3)	41	15	32.9	26.3	16.6	24.2	91	69	41	-	-
S-208	105 RT	232+40	0.0-5.5	A-1-b(0)	27	NP	70.0	25.6	2.4	2.0	70	34	4	-	-
S-209	30 RT	233+75	0.0-5.0	A-2-4(0)	33	3	47.3	26.3	14.3	12.1	79	52	23	-	-
S-210	60 RT	234+50	0.0-3.0	A-2-4(0)	31	8	36.0	33.1	12.7	18.2	99	83	33	-	-
S-238	40 RT	122+00	0.0-3.0	A-7-5(7)	49	16	15.8	34.7	7.0	42.6	100	94	55	-	-
S-239	60 RT	124+50	0.0-3.0	A-7-6(8)	48	19	18.4	32.9	14.3	34.3	96	87	54	-	-
S-240	60 RT	157+50	0.0-3.0	A-2-5(0)	51	NP	25.1	45.5	13.3	16.2	100	93	35	-	-
S-241	CL	14+50	0.0-3.0	A-7-6(7)	52	23	26.5	26.5	12.7	34.3	94	80	47	-	-
S-242	CL	12+00	0.0-3.0	A-7-6(5)	41	19	26.5	26.5	10.7	36.4	90	87	45	-	-
S-243	CL	182+50	0.0-3.0	A-6(1)	40	14	31.5	26.1	20.2	22.2	80	64	37	-	-
S-244	65 RT	171+00	0.0-3.0	A-2-4(0)	31	4	44.6	29.3	13.9	12.1	81	56	24	-	-
S-245	50 RT	198+00	0.0-3.0	A-7-6(8)	44	19	26.1	15.8	15.8	42.4	90	73	55	-	-
S-246	CL	245+00	0.0-3.0	A-7-5(24)	69	39	20.2	13.3	9.9	56.6	93	79	64	-	-
S-247	60 RT	259+50	0.0-3.0	A-2-5(0)	49	NP	25.9	51.7	14.3	8.1	100	95	28	-	-