

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

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3110B	1	52
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34901.1.1	STP-0701(7)	P.E.	
34901.2.4	STP-1311(5)	RW, UTIL.	
34901.3.GV2	STP-1311(10)	CONST.	

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+50 - 46+50	4,7	12,13	17-40
-L-	47+00 - 87+00	7-10	13,14	-
-Y1-	10+00 - 15+00	7	15	-
-Y1-	15+50 - 18+00	7,11	15	41, 42
-Y2-	10+00 - 14+50	7	15	-
-Y3-	20+50 - 25+00	8,11	-	43, 44
-RAMPA-	10+50 - 22+50	8,9	16	45-52

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34901.1.1(U-3110B) F.A. PROJ. STP-0701(7)
COUNTY ALAMANCE
PROJECT DESCRIPTION SR 1311 (COOK RD.) IMPROVEMENTS
AND CONNECTOR FROM SR 1909 (WESTBROOK AVE.) TO
NC 100 (HAGGARD AVE.)

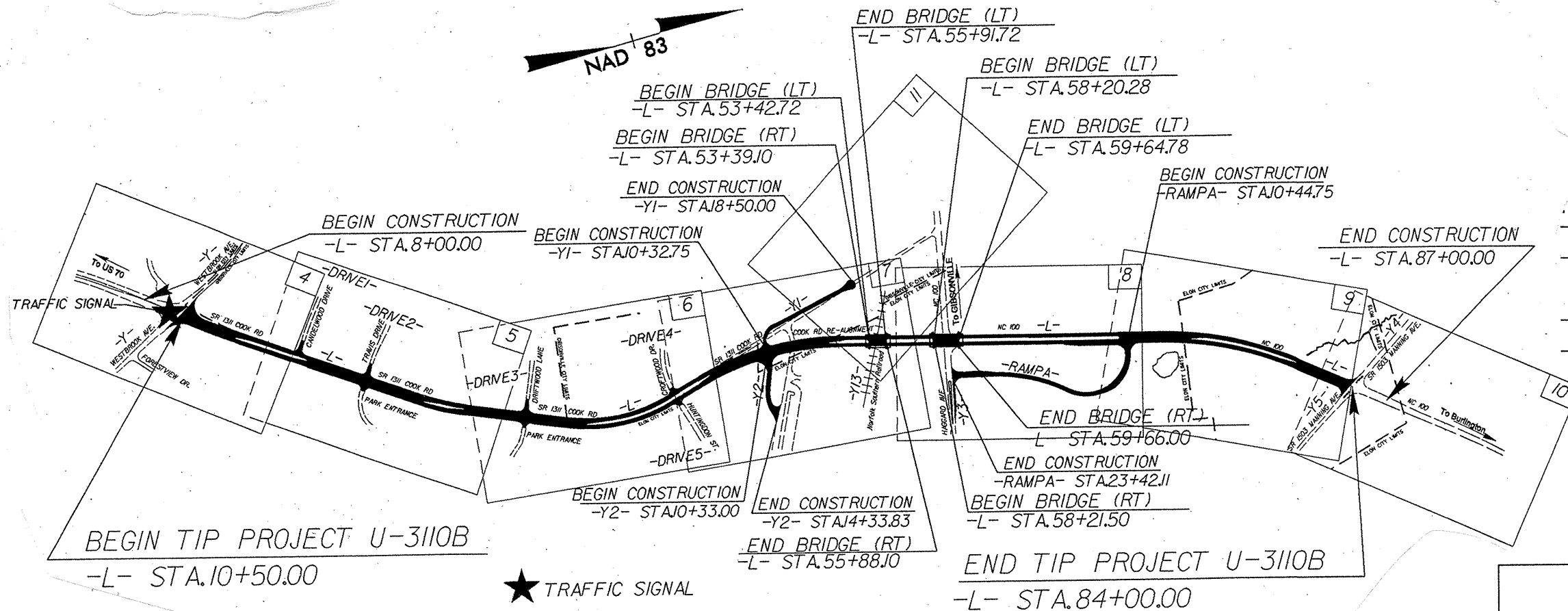
INVENTORY - REVISED

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

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

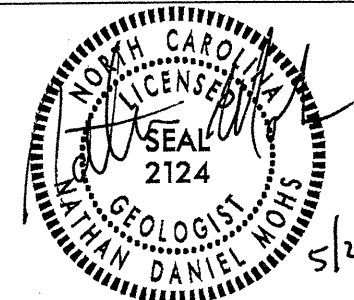
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT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

CONTRACT: C202557 ID: U-3110B



NCDOT PERSONNEL (2007)	NCDOT PERSONNEL (1996-1997)
N.D. MOHS	D.T. HERRING
T.P. MOOREFIELD	T.L. VARGASON
TRIGON (2007)	S.E. FIELD
W. DUGGINS	H.R. CONLEY
K. HICKS	S.M. SMITH
	T.W. ALLEN
	L.B. MADISON

INVESTIGATED BY N.D. MOHS
CHECKED BY N.T. ROBERSON
SUBMITTED BY N.T. ROBERSON
DATE MAY 2010



DRAWN BY: T.T. WALKER, N.D. MOHS

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.

5/25/10

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

PROJECT REFERENCE NO.
34901.I(U-310B) SHEET NO.
2

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION			GRADATION			ROCK DESCRIPTION			TERMS AND DEFINITIONS																																																																														
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (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, MOST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-5			WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.			HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 60 BLOWS PER FOOT 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: 			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 60 BLOWS PER FOOT. 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.																																																																														
SOIL LEGEND AND AASHTO CLASSIFICATION <table border="1"> <thead> <tr> <th>GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (<= 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th>A-1</th> <th>A-3</th> <th>A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th colspan="3"></th> </tr> </thead> <tbody> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="3"></td> </tr> <tr> <td>% PASSING</td> <td>100</td> <td>60</td> <td>40</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td colspan="3"></td> </tr> </tbody> </table>			GENERAL CLASS.	GRANULAR MATERIALS (<= 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS			GROUP CLASS.	A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7				SYMBOL														% PASSING	100	60	40	10	10	10	10	10	10	10				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 <table border="1"> <thead> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> </thead> <tbody> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>>10%</td> <td>>20%</td> <td>HIGHLY</td> </tr> </tbody> </table>			ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	>10%	>20%	HIGHLY
GENERAL CLASS.	GRANULAR MATERIALS (<= 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS																																																																												
GROUP CLASS.	A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	A-6, A-7																																																																													
SYMBOL																																																																																							
% PASSING	100	60	40	10	10	10	10	10	10	10																																																																													
ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL																																																																																				
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE																																																																																				
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE																																																																																				
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME																																																																																				
HIGHLY ORGANIC	>10%	>20%	HIGHLY																																																																																				
GROUND WATER 			MISCELLANEOUS SYMBOLS 																																																																																				
TEXTURE OR GRAIN SIZE <table border="1"> <thead> <tr> <th>U.S. STD. SIEVE SIZE OPENING (MM)</th> <th>4</th> <th>10</th> <th>40</th> <th>60</th> <th>200</th> <th>270</th> </tr> </thead> <tbody> <tr> <td></td> <td>4.75</td> <td>2.00</td> <td>0.42</td> <td>0.25</td> <td>0.075</td> <td>0.053</td> </tr> </tbody> </table>			U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270		4.75	2.00	0.42	0.25	0.075	0.053	ABBREVIATIONS <table border="1"> <tbody> <tr> <td>AR - AUGER REFUSAL</td> <td>HL - HIGHLY</td> <td>w - MOISTURE CONTENT</td> </tr> <tr> <td>BT - BORING TERMINATED</td> <td>MD - MEDIUM</td> <td>v - VERY</td> </tr> <tr> <td>CL - CLAY</td> <td>MICA - MICACEOUS</td> <td>VST - VERY SHEAR TEST</td> </tr> <tr> <td>CPT - CONE PENETRATION TEST</td> <td>MOD - MODERATELY</td> <td>WEA - WEATHERED</td> </tr> <tr> <td>CSE - COARSE</td> <td>NP - NON PLASTIC</td> <td>gamma - UNIT WEIGHT</td> </tr> <tr> <td>DMT - DILATOMETER TEST</td> <td>ORG - ORGANIC</td> <td>gamma_d - DRY UNIT WEIGHT</td> </tr> <tr> <td>DPT - DYNAMIC PENETRATION TEST</td> <td>PMT - PRESSUREMETER TEST</td> <td></td> </tr> <tr> <td>e - VOID RATIO</td> <td>SAP - SAPROLITIC</td> <td></td> </tr> <tr> <td>F - FINE</td> <td>SD - SAND, SANDY</td> <td></td> </tr> <tr> <td>FOSS - FOSSILIFEROUS</td> <td>SL - SILT, SILTY</td> <td></td> </tr> <tr> <td>FRAC - FRACTURED, FRACTURES</td> <td>SLI - SLIGHTLY</td> <td></td> </tr> <tr> <td>FRAGS - FRAGMENTS</td> <td>TCR - TRICONE REFUSAL</td> <td></td> </tr> </tbody> </table>			AR - AUGER REFUSAL	HL - HIGHLY	w - MOISTURE CONTENT	BT - BORING TERMINATED	MD - MEDIUM	v - VERY	CL - CLAY	MICA - MICACEOUS	VST - VERY SHEAR TEST	CPT - CONE PENETRATION TEST	MOD - MODERATELY	WEA - WEATHERED	CSE - COARSE	NP - NON PLASTIC	gamma - UNIT WEIGHT	DMT - DILATOMETER TEST	ORG - ORGANIC	gamma_d - DRY UNIT WEIGHT	DPT - DYNAMIC PENETRATION TEST	PMT - PRESSUREMETER TEST		e - VOID RATIO	SAP - SAPROLITIC		F - FINE	SD - SAND, SANDY		FOSS - FOSSILIFEROUS	SL - SILT, SILTY		FRAC - FRACTURED, FRACTURES	SLI - SLIGHTLY		FRAGS - FRAGMENTS	TCR - TRICONE REFUSAL																																	
U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270																																																																																	
	4.75	2.00	0.42	0.25	0.075	0.053																																																																																	
AR - AUGER REFUSAL	HL - HIGHLY	w - MOISTURE CONTENT																																																																																					
BT - BORING TERMINATED	MD - MEDIUM	v - VERY																																																																																					
CL - CLAY	MICA - MICACEOUS	VST - VERY SHEAR TEST																																																																																					
CPT - CONE PENETRATION TEST	MOD - MODERATELY	WEA - WEATHERED																																																																																					
CSE - COARSE	NP - NON PLASTIC	gamma - UNIT WEIGHT																																																																																					
DMT - DILATOMETER TEST	ORG - ORGANIC	gamma_d - DRY UNIT WEIGHT																																																																																					
DPT - DYNAMIC PENETRATION TEST	PMT - PRESSUREMETER TEST																																																																																						
e - VOID RATIO	SAP - SAPROLITIC																																																																																						
F - FINE	SD - SAND, SANDY																																																																																						
FOSS - FOSSILIFEROUS	SL - SILT, SILTY																																																																																						
FRAC - FRACTURED, FRACTURES	SLI - SLIGHTLY																																																																																						
FRAGS - FRAGMENTS	TCR - TRICONE REFUSAL																																																																																						
SOIL MOISTURE - CORRELATION OF TERMS <table border="1"> <thead> <tr> <th>SOIL MOISTURE SCALE (ATTERBERG LIMITS)</th> <th>FIELD MOISTURE DESCRIPTION</th> <th>GUIDE FOR FIELD MOISTURE DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>LL - LIQUID LIMIT</td> <td>- SATURATED - (SAT.)</td> <td>USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</td> </tr> <tr> <td>PL - PLASTIC LIMIT</td> <td>- WET - (W)</td> <td>SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</td> </tr> <tr> <td>OM - OPTIMUM MOISTURE</td> <td>- MOIST - (M)</td> <td>SOLID; AT OR NEAR OPTIMUM MOISTURE</td> </tr> <tr> <td>SL - SHRINKAGE LIMIT</td> <td>- DRY - (D)</td> <td>REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</td> </tr> </tbody> </table>			SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION	LL - LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE	PL - PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	OM - OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE	SL - SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT <table border="1"> <tbody> <tr> <td>DRILL UNITS:</td> <td>ADVANCING TOOLS:</td> <td>HAMMER TYPE:</td> </tr> <tr> <td><input type="checkbox"/> MOBILE B-</td> <td><input type="checkbox"/> CLAY BITS</td> <td><input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL</td> </tr> <tr> <td><input type="checkbox"/> BK-51</td> <td><input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER</td> <td>CORE SIZE:</td> </tr> <tr> <td><input type="checkbox"/> CME-45C</td> <td><input type="checkbox"/> 8" HOLLOW AUGERS</td> <td><input type="checkbox"/> B</td> </tr> <tr> <td><input type="checkbox"/> CME-550</td> <td><input type="checkbox"/> HARD FACED FINGER BITS</td> <td><input type="checkbox"/> N</td> </tr> <tr> <td><input type="checkbox"/> PORTABLE HOIST</td> <td><input type="checkbox"/> TUNG.-CARBIDE INSERTS</td> <td><input type="checkbox"/> H</td> </tr> <tr> <td></td> <td><input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER</td> <td>HAND TOOLS:</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TRICONE *STEEL TEETH</td> <td><input type="checkbox"/> POST HOLE DIGGER</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TRICONE *TUNG.-CARB.</td> <td><input type="checkbox"/> HAND AUGER</td> </tr> <tr> <td></td> <td><input type="checkbox"/> CORE BIT</td> <td><input type="checkbox"/> SOUNDING ROD</td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/> VANE SHEAR TEST</td> </tr> </tbody> </table>			DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:	<input type="checkbox"/> MOBILE B-	<input type="checkbox"/> CLAY BITS	<input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL	<input type="checkbox"/> BK-51	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER	CORE SIZE:	<input type="checkbox"/> CME-45C	<input type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> B	<input type="checkbox"/> CME-550	<input type="checkbox"/> HARD FACED FINGER BITS	<input type="checkbox"/> N	<input type="checkbox"/> PORTABLE HOIST	<input type="checkbox"/> TUNG.-CARBIDE INSERTS	<input type="checkbox"/> H		<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER	HAND TOOLS:		<input type="checkbox"/> TRICONE *STEEL TEETH	<input type="checkbox"/> POST HOLE DIGGER		<input type="checkbox"/> TRICONE *TUNG.-CARB.	<input type="checkbox"/> HAND AUGER		<input type="checkbox"/> CORE BIT	<input type="checkbox"/> SOUNDING ROD			<input type="checkbox"/> VANE SHEAR TEST																																		
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION																																																																																					
LL - LIQUID LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE																																																																																					
PL - PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE																																																																																					
OM - OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE																																																																																					
SL - SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE																																																																																					
DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:																																																																																					
<input type="checkbox"/> MOBILE B-	<input type="checkbox"/> CLAY BITS	<input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL																																																																																					
<input type="checkbox"/> BK-51	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER	CORE SIZE:																																																																																					
<input type="checkbox"/> CME-45C	<input type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> B																																																																																					
<input type="checkbox"/> CME-550	<input type="checkbox"/> HARD FACED FINGER BITS	<input type="checkbox"/> N																																																																																					
<input type="checkbox"/> PORTABLE HOIST	<input type="checkbox"/> TUNG.-CARBIDE INSERTS	<input type="checkbox"/> H																																																																																					
	<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER	HAND TOOLS:																																																																																					
	<input type="checkbox"/> TRICONE *STEEL TEETH	<input type="checkbox"/> POST HOLE DIGGER																																																																																					
	<input type="checkbox"/> TRICONE *TUNG.-CARB.	<input type="checkbox"/> HAND AUGER																																																																																					
	<input type="checkbox"/> CORE BIT	<input type="checkbox"/> SOUNDING ROD																																																																																					
		<input type="checkbox"/> VANE SHEAR TEST																																																																																					
PLASTICITY <table border="1"> <thead> <tr> <th>NONPLASTIC</th> <th>PLASTICITY INDEX (PI)</th> <th>DRY STRENGTH</th> </tr> </thead> <tbody> <tr> <td>LOW PLASTICITY</td> <td>0-5</td> <td>VERY LOW</td> </tr> <tr> <td>MED. PLASTICITY</td> <td>6-15</td> <td>SLIGHT</td> </tr> <tr> <td>HIGH PLASTICITY</td> <td>16-25</td> <td>MEDIUM</td> </tr> <tr> <td></td> <td>26 OR MORE</td> <td>HIGH</td> </tr> </tbody> </table>			NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH	LOW PLASTICITY	0-5	VERY LOW	MED. PLASTICITY	6-15	SLIGHT	HIGH PLASTICITY	16-25	MEDIUM		26 OR MORE	HIGH	FRACTURE SPACING <table border="1"> <thead> <tr> <th>TERM</th> <th>SPACING</th> <th>TERM</th> <th>THICKNESS</th> </tr> </thead> <tbody> <tr> <td>VERY WIDE</td> <td>MORE THAN 10 FEET</td> <td>VERY THICKLY BEDDED</td> <td>> 4 FEET</td> </tr> <tr> <td>WIDE</td> <td>3 TO 10 FEET</td> <td>THICKLY BEDDED</td> <td>1.5 - 4 FEET</td> </tr> <tr> <td>MODERATELY CLOSE</td> <td>1 TO 3 FEET</td> <td>THINLY BEDDED</td> <td>0.16 - 1.5 FEET</td> </tr> <tr> <td>CLOSE</td> <td>0.16 TO 1 FEET</td> <td>VERY THINLY BEDDED</td> <td>0.03 - 0.16 FEET</td> </tr> <tr> <td>VERY CLOSE</td> <td>LESS THAN 0.16 FEET</td> <td>THICKLY LAMINATED</td> <td>0.008 - 0.03 FEET</td> </tr> <tr> <td></td> <td></td> <td>THINLY LAMINATED</td> <td>< 0.008 FEET</td> </tr> </tbody> </table>			TERM	SPACING	TERM	THICKNESS	VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET	WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET	MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET	CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET	VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET			THINLY LAMINATED	< 0.008 FEET																																							
NONPLASTIC	PLASTICITY INDEX (PI)	DRY STRENGTH																																																																																					
LOW PLASTICITY	0-5	VERY LOW																																																																																					
MED. PLASTICITY	6-15	SLIGHT																																																																																					
HIGH PLASTICITY	16-25	MEDIUM																																																																																					
	26 OR MORE	HIGH																																																																																					
TERM	SPACING	TERM	THICKNESS																																																																																				
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET																																																																																				
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET																																																																																				
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET																																																																																				
CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET																																																																																				
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET																																																																																				
		THINLY LAMINATED	< 0.008 FEET																																																																																				
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.			INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.																																																																																				
<table border="1"> <thead> <tr> <th>BENCH MARK:</th> <th>ELEVATION:</th> <th>FT.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			BENCH MARK:	ELEVATION:	FT.				NOTES:																																																																														
BENCH MARK:	ELEVATION:	FT.																																																																																					

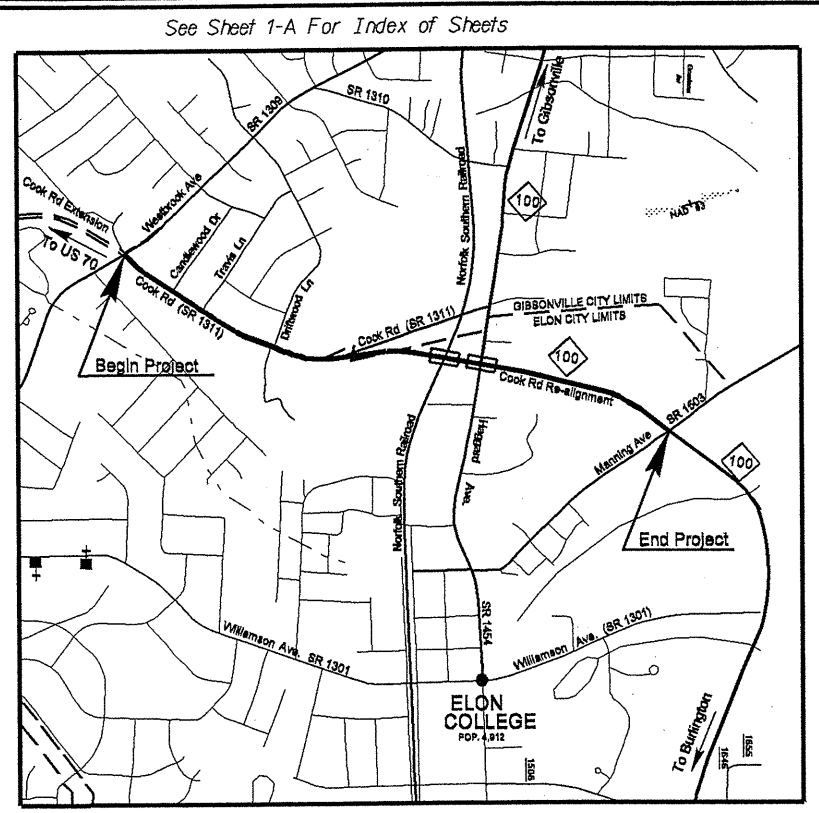
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3110B	2A	52
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
34901.1.1	STP-0701(7)	P.E.	
34901.2.4	STP-1311(5)	RAW, UTIL.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

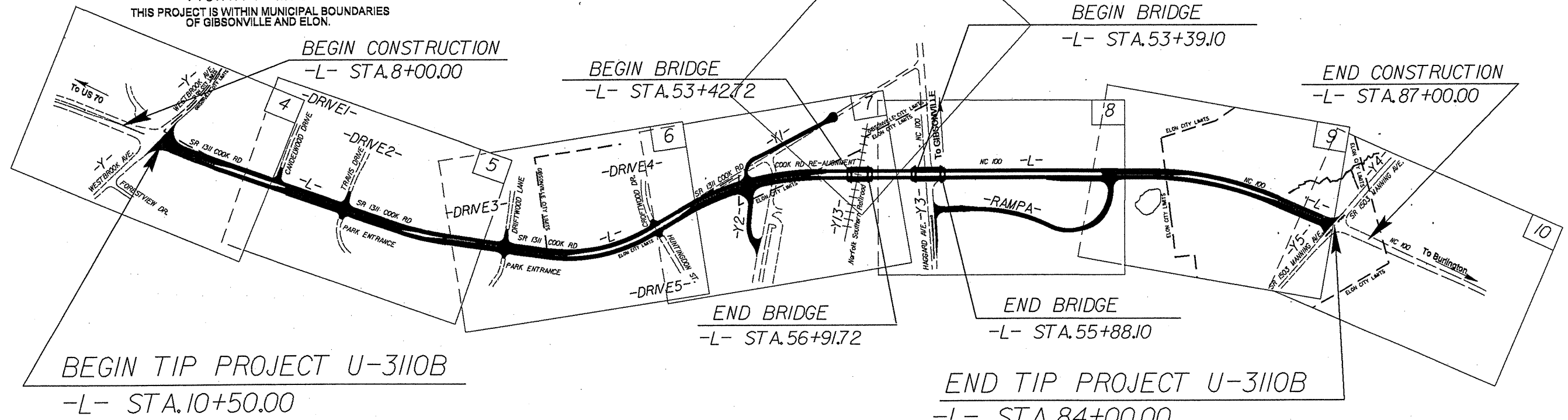
LOCATION: SR 1311 (COOK RD.) WIDENING AND EXTENSION
FROM SR 1909 (WESTBROOK AVE.) TO NC 100

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES



VICINITY MAP

THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF GIBSONVILLE AND ELON.

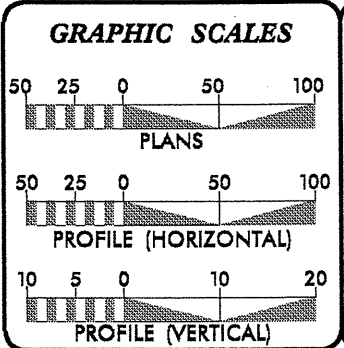


CLEARING LIMITS ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHODS II & III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: U-3110B

CONTRACT:



DESIGN DATA

ADT 2006 =	8,000
ADT 2030 =	16,200
DHV =	12 %
D =	65 %
T =	7 % *
V =	50 MPH
* TTST 2% DUAL 5%	
FUNC CLASS =	URBAN COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-3110B =	1.319 MILES
LENGTH OF STRUCTURES TIP PROJECT U-3110B =	0.073 MILES
TOTAL LENGTH OF TIP PROJECT U-3110B =	1.392 MILES

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

2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: AUGUST 18, 2008	G.E. BREW PROJECT ENGINEER
LETTING DATE: AUGUST 17, 2010	D. WILLIAMS PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER P.E.

09/08/99
24-MAY-2010 13:39
L:\ERO\RAlegh\Investigation\TIP\U3110B_geo_rdw_rev\CADD_GEO\TECH\PlanProf\U-3110B_geo_tsh.dgn
twalker



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Beverly Eaves Perdue
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Eugene A. Conti, Jr.
SECRETARY

May 24, 2010

STATE PROJECT: 34901.1.1 (U-3110B)
FEDERAL PROJECT: STP-0701(7)
COUNTY: Alamance
DESCRIPTION: SR 1311 (Cook Rd.) Improvements and Connector from SR 1909
(Westbrook Ave.) to NC 100 (Haggard Ave.)
SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of widening Cook Rd. (SR 1311, -L- Sta. 10+50 to Sta. 84+00) from two lanes to four lanes with medians and turn lanes. The project begins at the intersection of Cook Rd. (SR 1311) and Westbrook Ave. (SR 1909). The widening generally is proposed to the right of the existing roadway. A new alignment will connect Cook Rd. (SR 1311) to NC 100, with two proposed bridges spanning the Norfolk Southern Rail Road and Haggard Ave.

The geotechnical field investigation was conducted during the period of July, 2007, and August through September, 1996. Trigon Engineering, was used to drill the majority of the borings in this report, with a Geotechnical Engineering Unit Geologist sampling and logging the borings. The Geotechnical Engineering Unit's in house drill crew was used during the 1996 investigation. Trigon used an ATV-mounted CME-45 with a manual hammer during the investigation. The Geotechnical Engineering Unit used an ATV-mounted CME-45C with an automatic hammer during the investigation. Standard Penetration Tests were performed in selected borings and additional borings were advanced using continuous flight augers. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 1.4 miles, were investigated. Subsurface soil profiles, or cross-sections, of these alignments are included in this report.

Line	Station
-L-	10+50 to 84+00
-Y1-	10+00 to 18+37
-Y2-	10+00 to 14+33
-Y3-	11+50 to 25+00
-RAMPA-	10+00 to 23+42

Areas of Special Geotechnical Interest

- 1) Highly Plastic Clay Soils: Occurrences of highly plastic clay soil (Plasticity Index 26 or greater) are noted below:

Alignment	Station	Offset
-L-	11+00	50 RT
-L-	13+50	45 RT
-L-	16+00	45 RT
-L-	18+50	50 RT
-L-	23+00	40 RT
-L-	25+00	40 RT
-L-	31+50	45 RT
-L-	33+10	50 RT
-L-	35+00	50 RT
-L-	37+00	35 RT
-L-	39+00	20 RT
-L-	41+00	20 RT
-L-	43+30	30 RT
-L-	45+00	40 RT
-L-	47+00	CL
-L-	49+40	CL
-L-	53+60	35 LT
-L-	55+70	40 RT
-L-	58+22	55 LT
-L-	59+63	CL
-L-	60+10	50 RT
-L-	62+91	CL
-L-	65+53	CL
-L-	66+50	40 LT
-L-	68+30	CL
-L-	71+44	43 LT
-L-	73+41	CL
-L-	77+34	53 LT
-Y1-	11+50	12 RT
-Y1-	13+50	30 LT
-Y1-	17+00	30 RT
-RAMPA-	13+50	CL
-RAMPA-	16+00	30 LT
-RAMPA-	18+00	10 RT
-RAMPA-	20+00	35 RT
-RAMPA-	22+00	40 RT

made during the 1996 investigation may not reflect current groundwater conditions. Based on this investigation, groundwater is not anticipated to cause problems during construction.

Physiography and Geology

The project is located in the Piedmont area of North Carolina. A mixture of single-family homes, parks, churches, businesses, and wooded areas are located along the project corridor. The terrain is slightly rolling. Geologically, the project is located within the Inner Piedmont Belt. Soils are derived from the weathering of the underlying bedrock, which is composed of metamorphosed gabbro and diorite intrusions. These rock units are generally foliated, and trend in a northeasterly direction.

Soil Properties

Soils encountered at the project site include roadway embankment soils, artificial fill soils, alluvial sediments, and residual soils.

Roadway embankment soil occurs in several locations on the project. The existing embankments generally range from two to twelve feet. Roadway embankment soils are composed of moist, stiff, silty clay (AASHTO classification of A-7-5).

Artificial fill soil occurs in two areas of the project. An area is being used to store fill material for a construction company, right of -L- Sta. 44+80 to 47+20. The soil consists of up to twelve feet of orange, brown and gray, medium stiff to stiff, moist, silty clay (A-7-6), with five feet being highly plastic. The fill soil overlies residual silty clay soil (A-7-6), and sandy silt (A-4). The second area is left of -L- Sta. 66+45 to 68+50. The area is an old quarry pit that has been filled in with red, stiff to very stiff, moist, highly plastic silty clay. This fill section is underlain by residual, orange, very stiff, moist, clayey silt and tan, very stiff, moist, silty clay.

Alluvial soils occur in a narrow stream channel which cross the -L- alignment, and beneath the adjacent roadway embankments at -L- Sta. 80+50. The alluvial soils are approximately 3 to 5 feet thick, and consist of gray, stiff, saturated, sandy clay (A-6). This soil is located beneath 10 to 12 feet of roadway embankment from the existing roadway.

The residual soils are derived from the in-place weathering of the underlying metamorphosed gabbro and diorite bedrock. Clay soil is the most common soil in the project area. These clay soils are generally medium stiff to stiff and consist of sandy clay and silty clay (A-6, A-7-5, and A-7-6). Significant amounts of medium stiff to hard, moist, sandy silt (A-4) are also present.

Residual, highly plastic "cap" clays occur at the ground surface over several areas of the project. Areas containing highly plastic soils (plasticity indices of 26 or greater) are listed above in the section "Areas of Special Geotechnical Interest".

Rock Properties

Weathered rock and crystalline rock were not encountered within this project.

Groundwater

Groundwater was encountered in numerous borings. When present in residual soil, groundwater was determined to be 13 to 23 feet below the ground surface. Groundwater is shallow in alluvial floodplain soils, generally occurring 1 to 2 feet below the ground surface. Groundwater measurements

Prepared by,

Nathan Mohs
Project Geological Engineer

PROJECT: U-3110B

COUNTY: Alamance

Volumes in Cubic Yards
DATE: 24-Jun-10

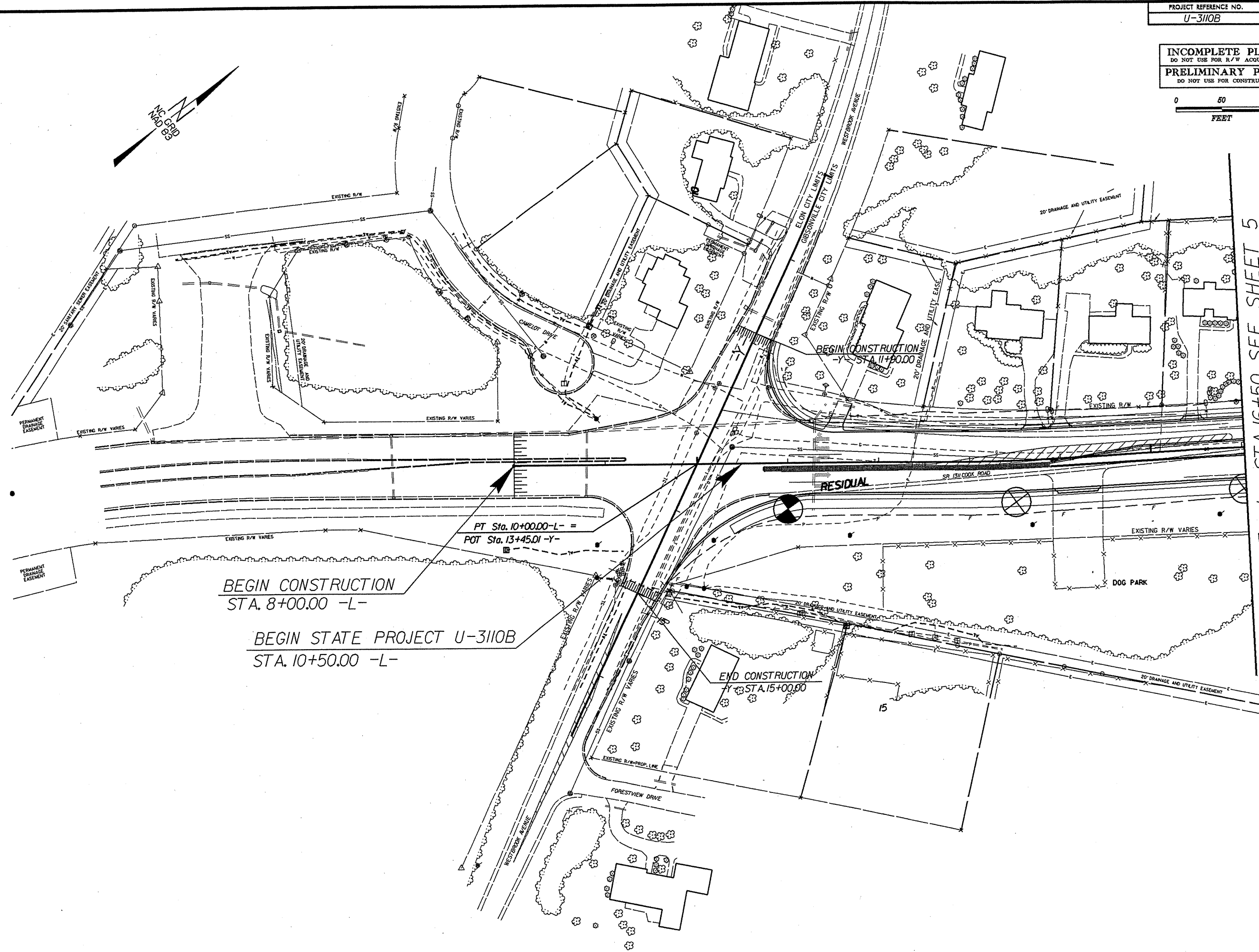
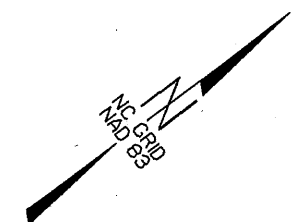
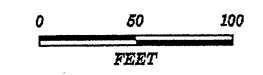
COMPILED BY: ELM

3B 52
SHEET 5 OF 5 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL
-L- Sta. 11+00.00 RT	-L- Sta. 41+00.00 RT	419			358	61	7,305		7,305	8,766	8,705			358	358
-L- Sta. 41+00.00 RT	-L- Sta. 53+00.00 RT	1,855			1,835	20	40,701		40,701	48,841	48,821			1,835	1,835
-L- Sta. 56+00.00 RT	-L- Sta. 57+50.00 RT						13,111		13,111	15,733	15,733				
-L- Sta. 60+00.00 RT	-L- Sta. 83+50.00 RT	210				210	51,989		51,989	62,387	62,177				
SUBTOTAL		2,484			2,193	291	113,106		113,106	135,727	135,436			2,193	2,193
-L- Sta. 11+00.00 LT	-L- Sta. 41+00.00 LT	1,339			1,268	71	2,405		2,405	2,886	2,815			1,268	1,268
-L- Sta. 41+00.00 LT	-L- Sta. 53+00.00 LT	16			7	9	53,231		53,231	63,877	63,868			7	7
-L- Sta. 56+00.00 LT	-L- Sta. 57+50.00 LT						16,158		16,158	19,390	19,390				
-L- Sta. 60+00.00 LT	-L- Sta. 83+50.00 LT	43				43	60,452		60,452	72,542	72,499				
SUBTOTAL		1,398			1,275	123	132,246		132,246	158,695	158,572			1,275	1,275
-Y1- Sta. 11+00.00	-Y1- Sta. 18+00.00	524			270	254	14,079		14,079	16,895	16,641			270	270
-Y2- Sta. 11+00.00	-Y2- Sta. 14+00.00	360				360	1,616		1,616	1,939	1,579				
-Y3- Sta. 19+00.00	-Y3- Sta. 24+50.00	560			560		109		109	131	131			560	560
-RAMPA- Sta. 10+50.00	-RAMPA- Sta. 22+50.00	4,817		2,676	4,817		7,467		7,467	8,960	8,960			7,493	7,493
SUBTOTAL		6,261		2,676	5,647	614	23,271		23,271	27,925	27,311			8,323	8,323
SUBTOTAL															
TOTAL		10,143		2,676	9,115	1,028	268,623		268,623	322,348	321,320			11,791	11,791
LOSS DUE TO CLEARING & GRUBBING		-1,300				-1,300					1,300				
ADDITIONAL UNDERCUT				1,750			1,750		1,750	2,100	2,100			1,750	1,750
SELECT GRANULAR MAT. IN LIEU OF BORROW							3,450			-4,140	-4,140				
WASTE IN LIEU OF BORROW											-274		-274		-274
PROJECT TOTAL		8,843		4,426	9,115	-272	273,823		270,373	320,308	320,306			-274	13,541
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											16,015				
GRAND TOTAL				4,426	9,115	-272	273,823		270,373	320,308	336,321			-274	13,541
SAY		8,850		4,430							336,350				
DDE = 2,610 CY															
Select Granular Mat. = 4,140 CY															
SHALLOW UNDERCUT = 5,859 CY															
CLASS IV SUB. STAB. = 20,465 TONS															

NOTE: 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.

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



MATCHLINE -L- STA.16+50 SEE SHEET 5

REVISIONS

8/17/99

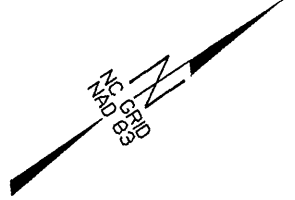
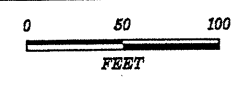
25-MAY-2010 13:10 L:\ERON\cadd\lay\station\TIP\U3110B-geo-r-cv\cadd_Geotech\Plan\U3110B-geo-r-cv\U3110B-geo-r-cv\004r_004.dgn

8/17/99

25-MAY-2010 13:11
C:\PROGRA~1\AutoCAD\AutoCAD.RVT\Projects\gaston\TIP-U3110B_geo_rvj.rvj\ev\CADD_GEO\TECHN\Plan\U3110B_geo.inv\005-005.dgn
122614

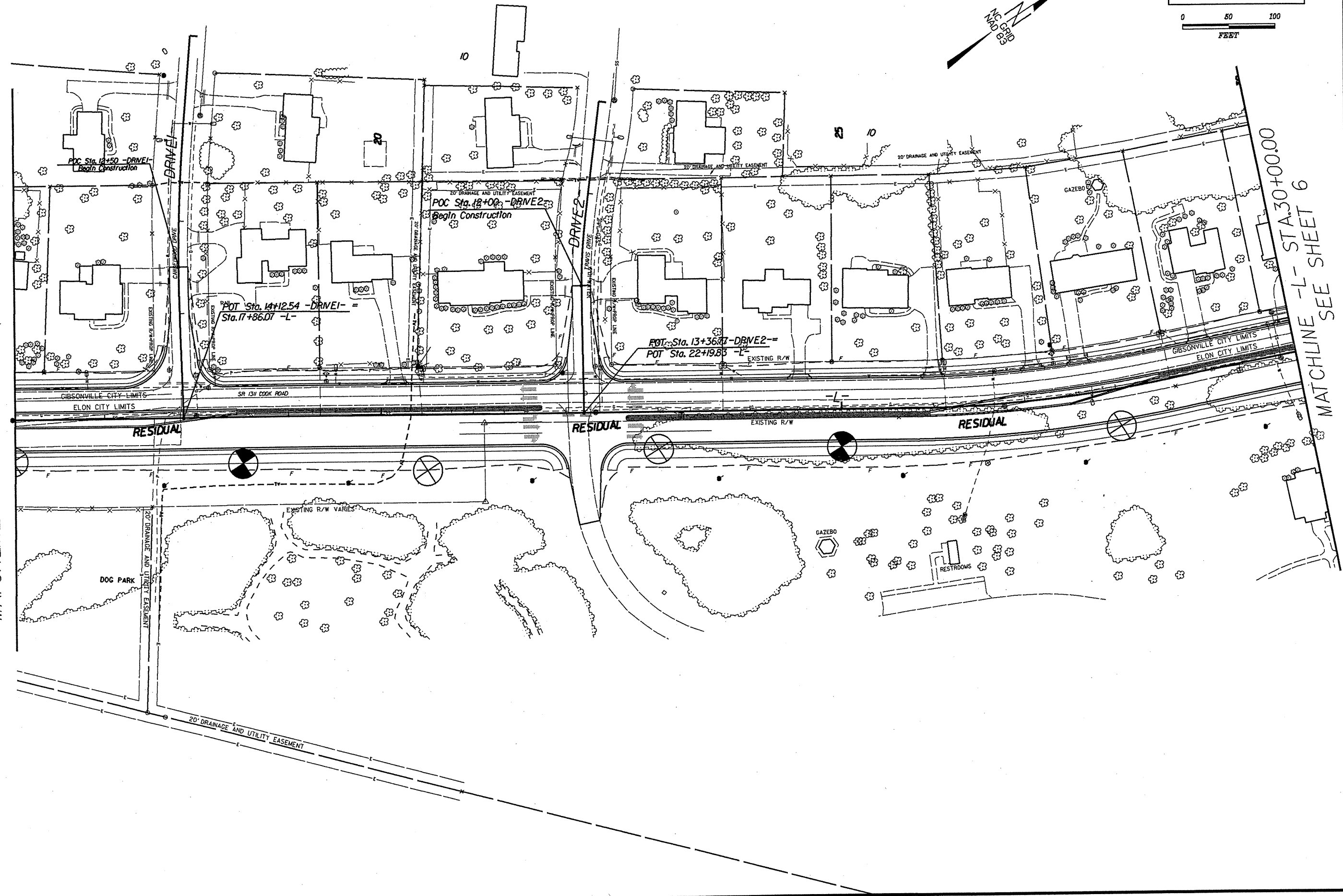
REVISIONS

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

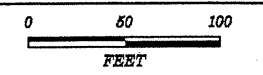


MATCHLINE -L- STA.16+50 SEE SHEET 4

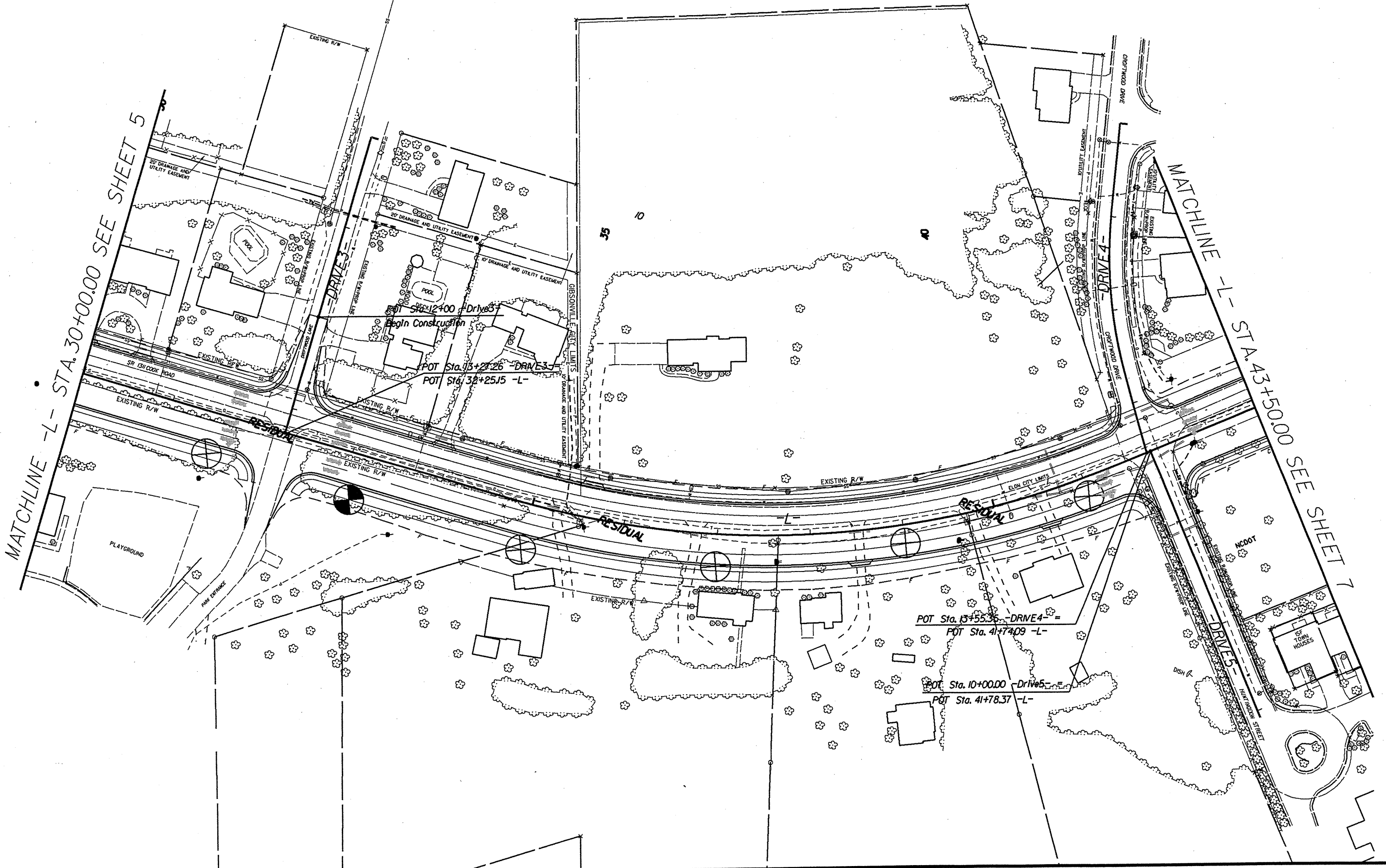
MATCHLINE -L- STA.30+00.00
SEE SHEET 6



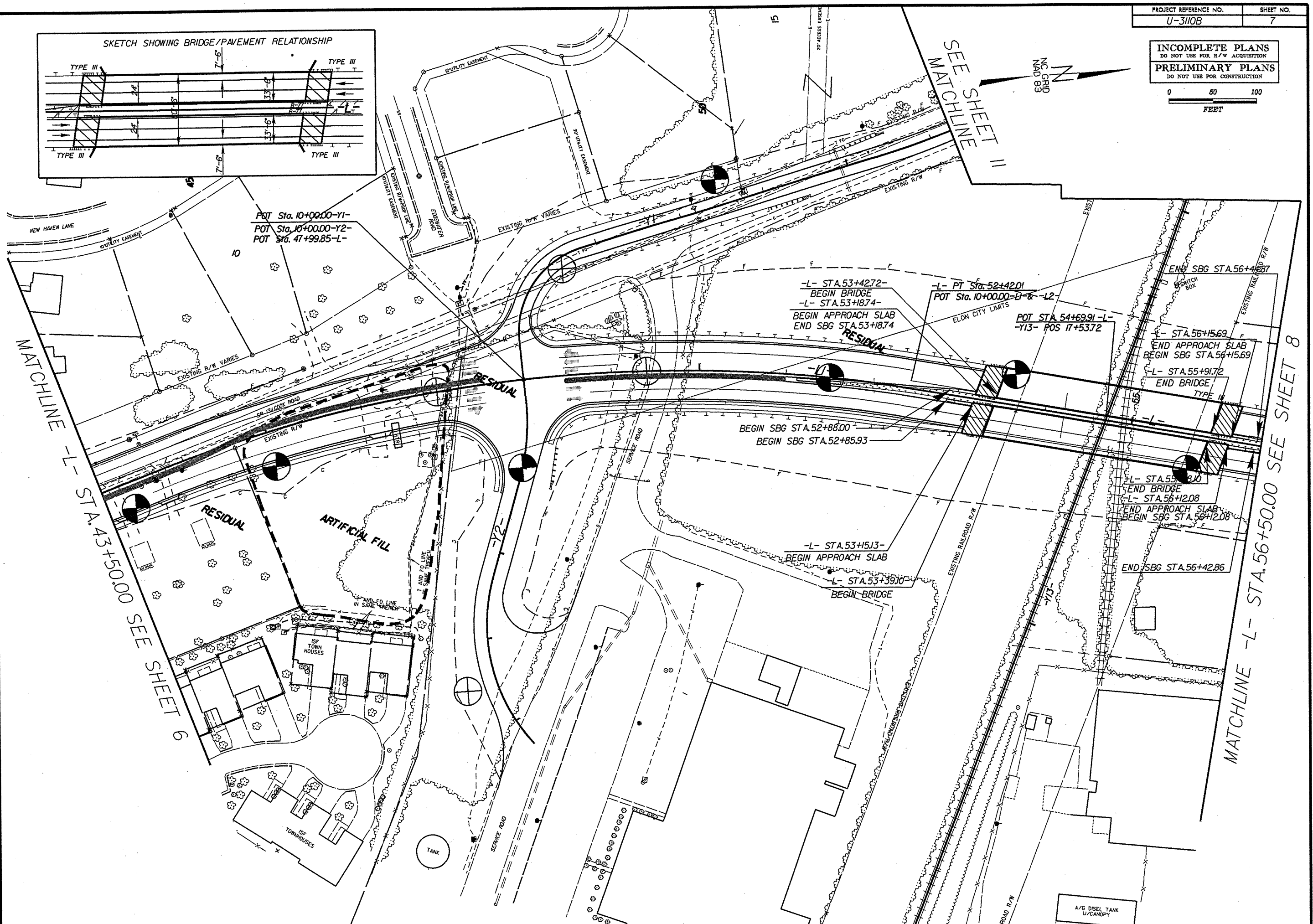
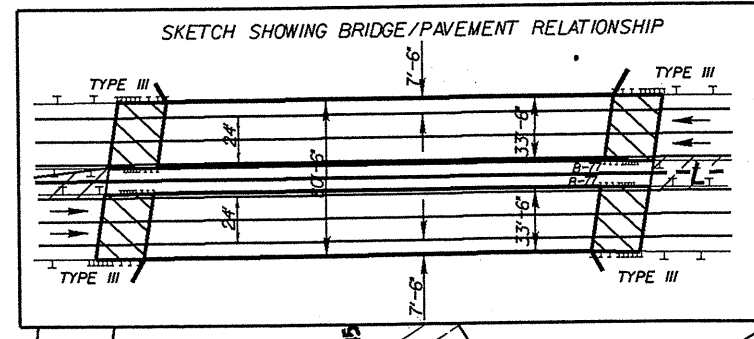
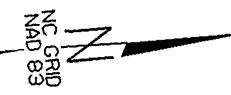
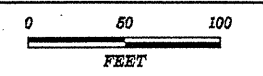
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99
 25-MAY-2010 13:43
 L:\ERON\Projects\1031108\geo_rchj_rev\CADD_GEDTECH\PlanProf\U3110B-geo_rnv.006.dgn
 REVISIONS
 25-MAY-2010 13:43
 L:\ERON\Projects\1031108\geo_rchj_rev\CADD_GEDTECH\PlanProf\U3110B-geo_rnv.006.dgn



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



POT Sta. 10+00.00-Y1-
POT Sta. 10+00.00-Y2-
POT Sta. 47+99.85-L-

-L- STA.53+42.72-
BEGIN BRIDGE
-L- STA.53+18.74-
BEGIN APPROACH SLAB
END SBG STA.53+18.74

-L- PT Sta. 52+42.01
POT Sta. 10+00.00-L1- & -L2-
BELOW CITY LIMITS

POT STA. 54+69.91-L-
-Y13- POS 17+53.72

BEGIN SBG STA.52+88.00
BEGIN SBG STA.52+85.93

-L- STA.53+15.13-
BEGIN APPROACH SLAB

-L- STA.53+39.10
BEGIN BRIDGE

END SBG STA.56+48.87
-L- STA.56+15.69
END APPROACH SLAB
BEGIN SBG STA.56+15.69
-L- STA.55+91.72
END BRIDGE
TYPE II

-L- STA.55+31.0
END BRIDGE
-L- STA.56+12.08
END APPROACH SLAB
BEGIN SBG STA.56+12.08

END SBG STA.56+42.86

MATCHLINE -L- STA. 43+50.00 SEE SHEET 6

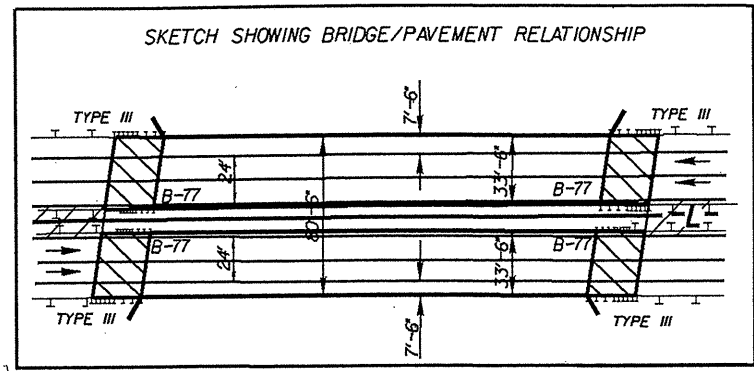
MATCHLINE -L- STA.56+50.00 SEE SHEET 8

8/17/99

REVISIONS

25-MAY-2010 09:49
C:\ERD\Projects\Investigation\TIP\U3110B\geo_r\city_rev\cadd\GEO\TECH\PlanPof\U3110B\geo_r\city_rev\cadd\inv\007_007.dgn

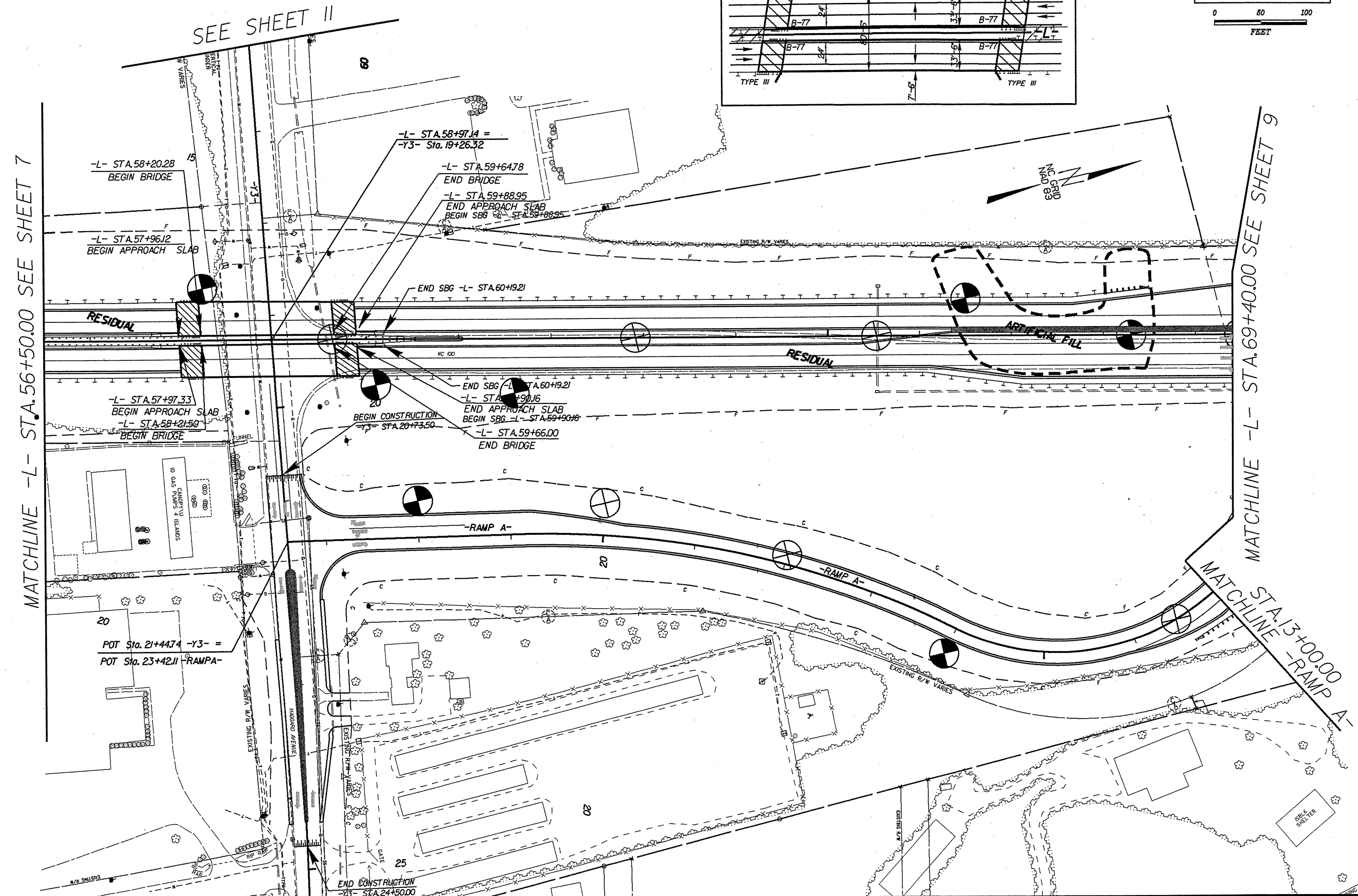
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

REVISIONS

25-MAY-2000 09:20
C:\PROJ\RD\geoplot\TIP\U3110B-geo-chn-rev\CADD_GEOTECH\PlanPof\U3110b-geo-chn-rv\00b_00b.dgn
sheet 8



SEE SHEET II

MATCHLINE -L- STA.56+50.00 SEE SHEET 7

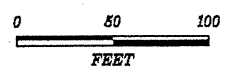
MATCHLINE -L- STA.69+40.00 SEE SHEET 9

MATCHLINE STA.13+00.00 -RAMP A-

8/17/99

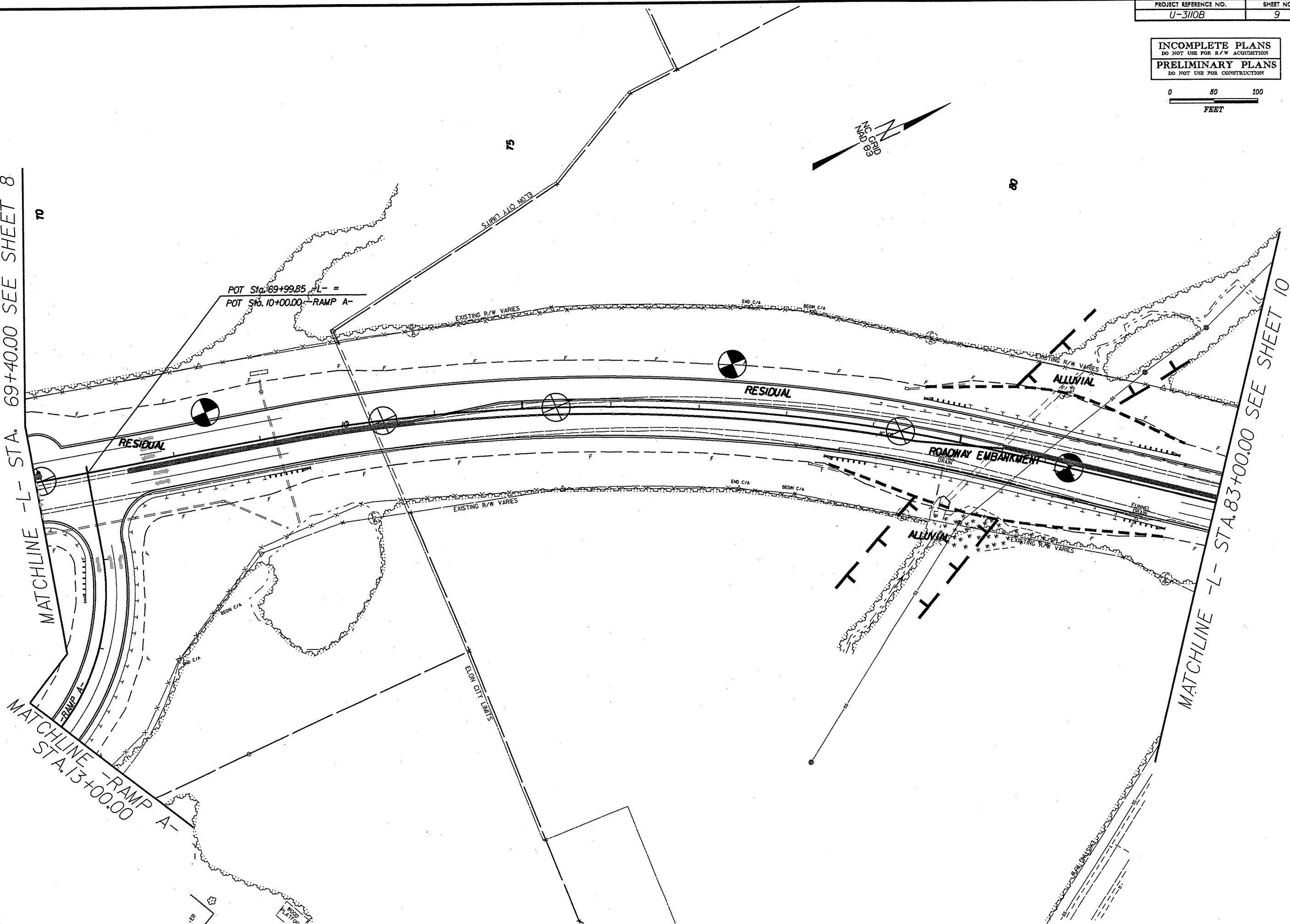
15-MAY-2010 09:17 \\investigation\TIP\U3110B_geo_rwy_rev\ev\CADD_GEO\TECH\Plan\Prof\U3110b-geo_rwy009_009.dgn

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



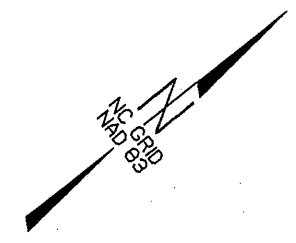
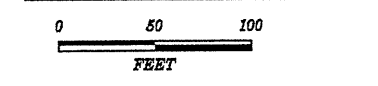
MATCHLINE -L- STA. 69+40.00 SEE SHEET 8

MATCHLINE -L- STA. 83+00.00 SEE SHEET 10

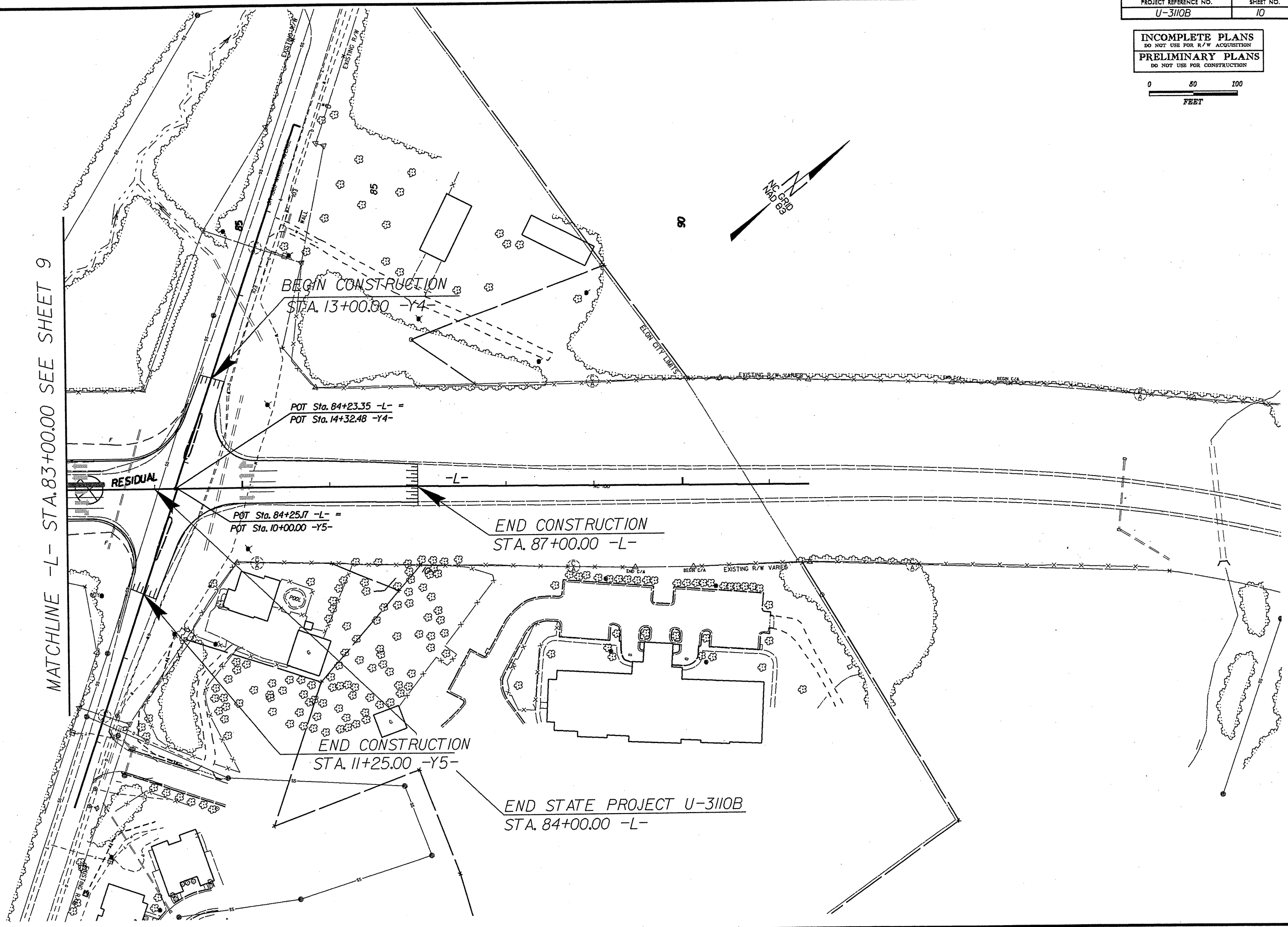


REVISIONS

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



MATCHLINE -L- STA. 83+00.00 SEE SHEET 9

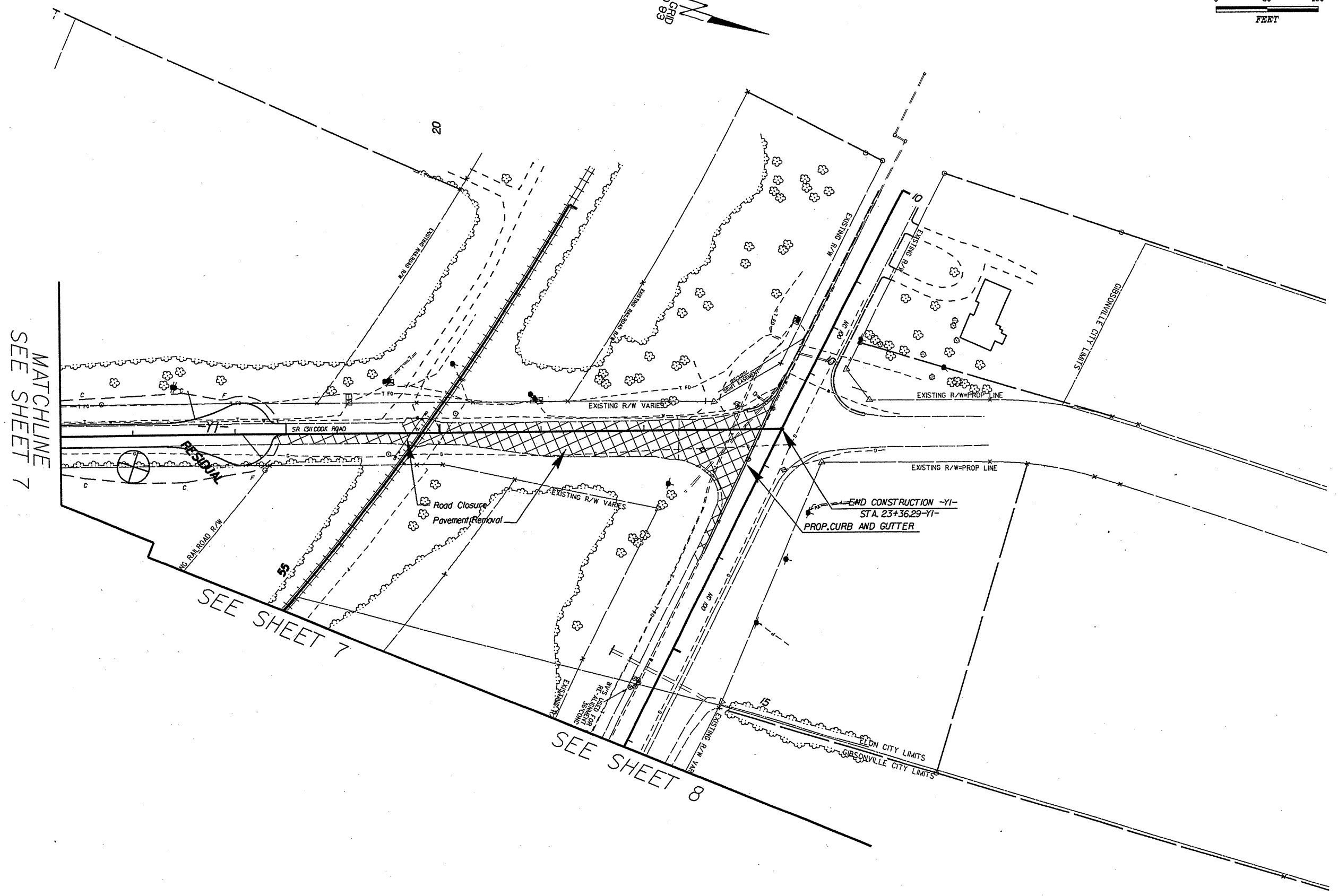


REVISIONS

8/17/99

25-MAY-2010 13:16
C:\PROJ\2010\1316\Investigation\TIP\U3110B-geo-chnj-rev\CADD_GEO\TECH\Plan\Prof\U3110B-geo-nv\010_010.dgn
U3110B-geo-chnj-rev

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



MATCHLINE
SEE SHEET 7

SEE SHEET 7

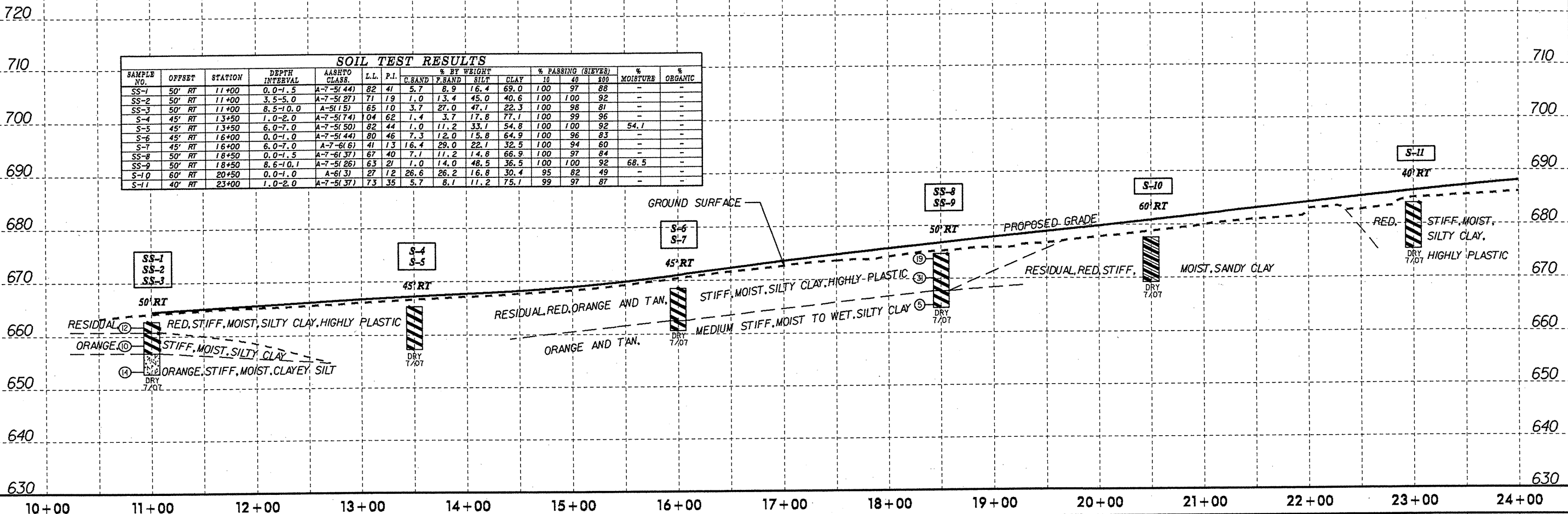
SEE SHEET 8

REVISIONS

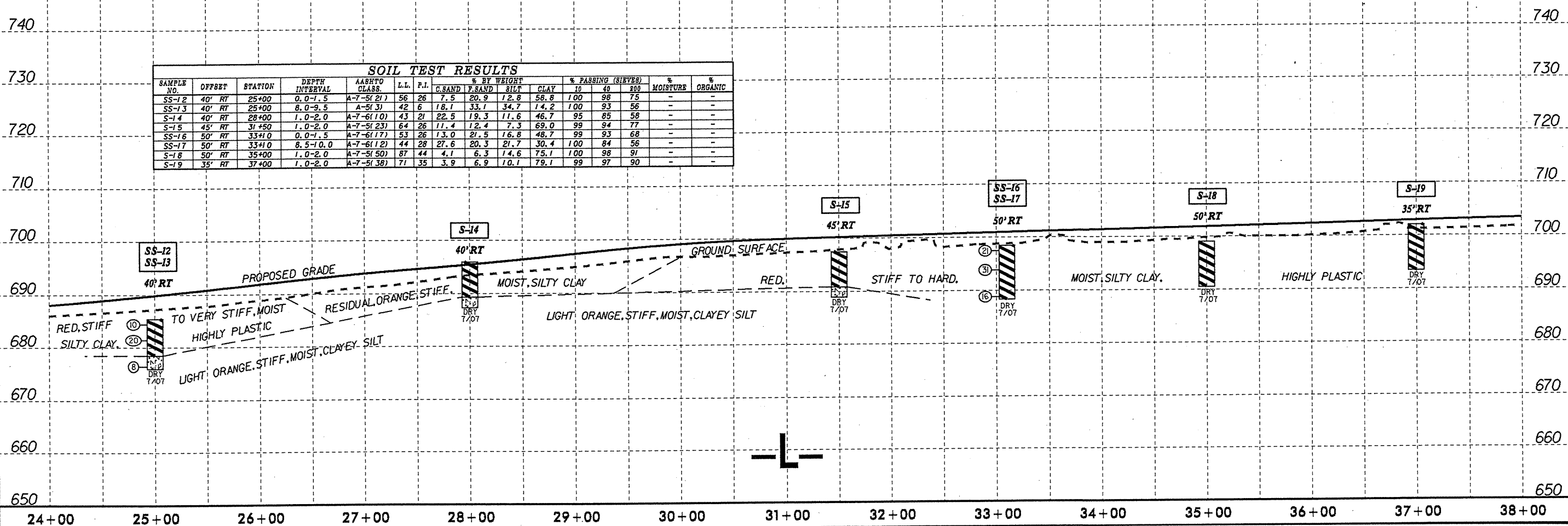
25-MAY-2010 13:17
C:\EPRO\Projects\Station\TIP\U3110B-geo_rchj_rev\CADD_GEO\TECHN\Plan\Prof\U3110B-geo_rnw011_011.dgn

5/28/99
 4:40 PM, 2010 12:59
 C:\Users\jgale\Documents\Investigation\TIP\U3110B_geo_rdwj_rev\CADD_GEO\TECH\Plan\U3110B_Geo_pf.dgn

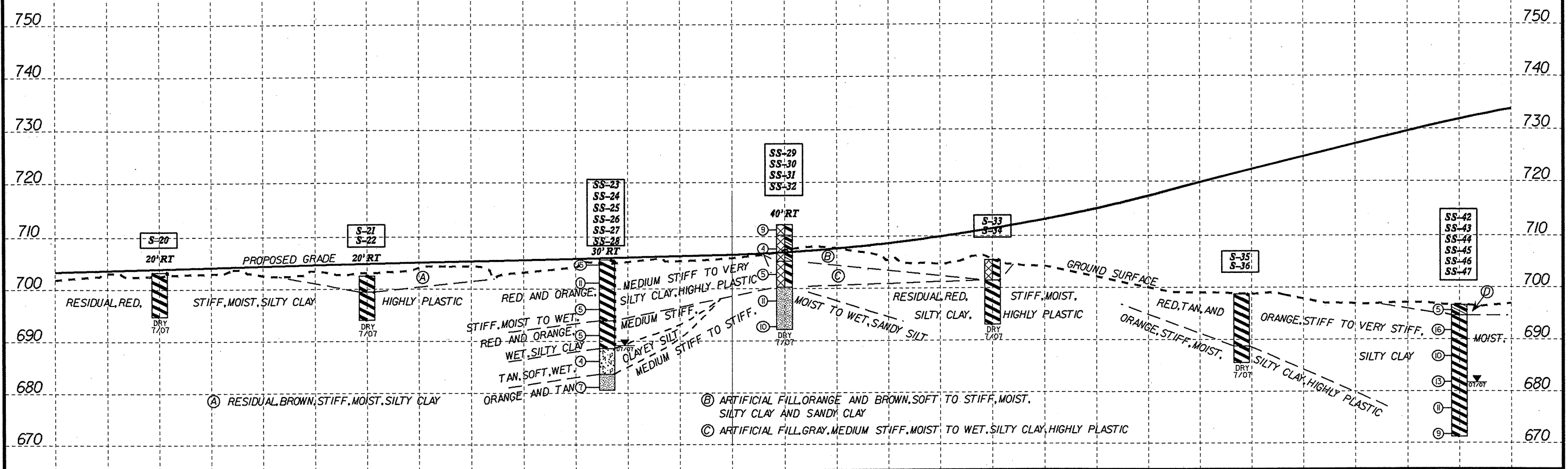
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C.SAND	F.SAND	SILT	10	40	200			
SS-1	50' RT	11+00	0.0-1.5	A-7-5(44)	82	41	5.7	8.9	16.4	69.0	100	97	88	-	-
SS-2	50' RT	11+00	3.5-5.0	A-7-5(27)	71	19	1.0	13.4	45.0	40.6	100	100	92	-	-
SS-3	50' RT	11+00	8.5-10.0	A-5(15)	65	10	3.7	27.0	47.1	22.3	100	98	81	-	-
S-4	45' RT	13+50	1.0-2.0	A-7-5(74)	104	62	1.4	3.7	17.8	77.1	100	99	96	-	-
S-5	45' RT	13+50	6.0-7.0	A-7-5(50)	82	44	1.0	11.2	33.1	54.8	100	100	92	54.1	-
S-6	45' RT	16+00	0.0-1.0	A-7-5(44)	80	46	7.3	12.0	15.8	64.9	100	96	83	-	-
S-7	45' RT	16+00	6.0-7.0	A-7-5(61)	41	13	16.4	29.0	22.1	32.5	100	94	60	-	-
SS-8	50' RT	18+50	0.0-1.5	A-7-5(37)	67	40	7.1	11.2	14.8	66.9	100	97	84	-	-
SS-9	50' RT	18+50	8.5-10.1	A-7-5(26)	63	21	1.0	14.0	48.5	36.5	100	100	92	68.5	-
S-10	60' RT	20+50	0.0-1.0	A-6(3)	27	12	26.6	26.2	16.8	30.4	95	82	49	-	-
S-11	40' RT	23+00	1.0-2.0	A-7-5(37)	73	35	5.7	8.1	11.2	75.1	99	97	87	-	-



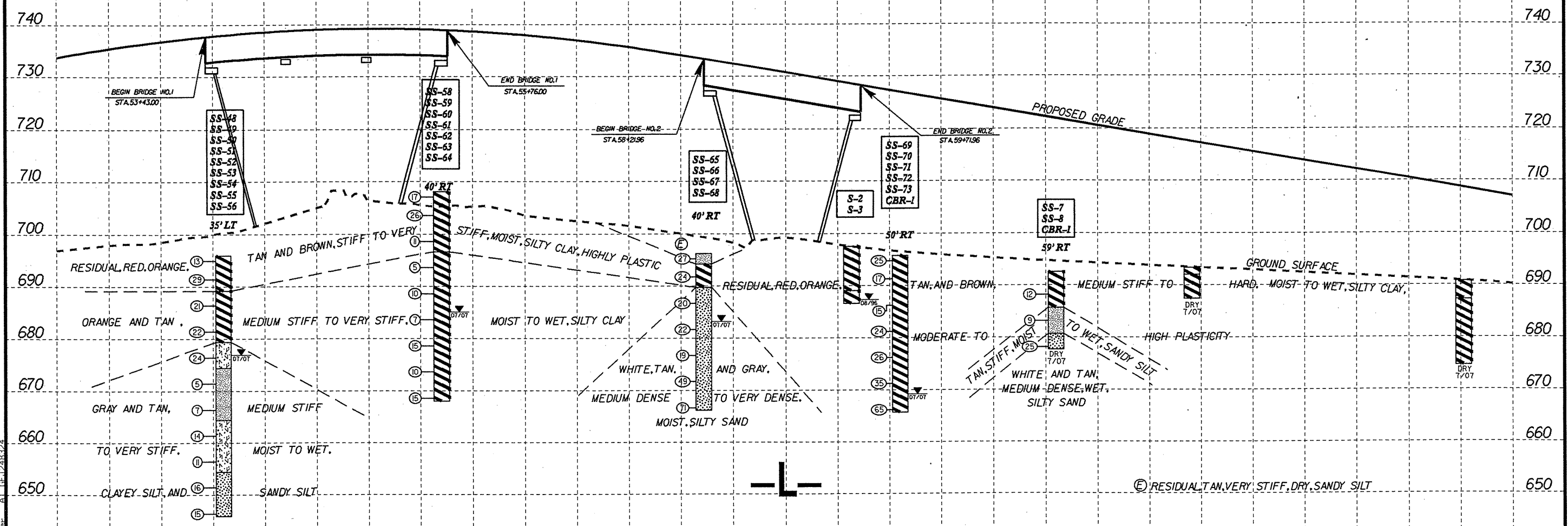
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C.SAND	F.SAND	SILT	10	40	200			
SS-12	40' RT	25+00	0.0-1.5	A-7-5(21)	56	26	7.5	20.9	12.8	58.8	100	98	75	-	-
SS-13	40' RT	25+00	8.0-9.5	A-5(3)	42	6	18.1	33.1	34.7	14.2	100	93	56	-	-
S-14	40' RT	28+00	1.0-2.0	A-7-5(10)	43	21	22.5	19.3	11.6	46.7	95	85	58	-	-
S-15	45' RT	31+50	1.0-2.0	A-7-5(23)	64	26	11.4	12.4	7.3	69.0	99	94	77	-	-
SS-16	50' RT	33+00	0.0-1.5	A-7-5(17)	53	26	13.0	21.5	16.8	48.7	99	93	68	-	-
SS-17	50' RT	33+00	8.5-10.0	A-7-5(12)	44	28	27.6	20.3	21.7	30.4	100	84	56	-	-
S-18	50' RT	35+00	1.0-2.0	A-7-5(50)	87	44	4.1	6.3	14.6	75.1	100	98	91	-	-
S-19	35' RT	37+00	1.0-2.0	A-7-5(38)	71	35	3.9	6.9	10.1	79.1	99	97	90	-	-



5/28/99



38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00



52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00

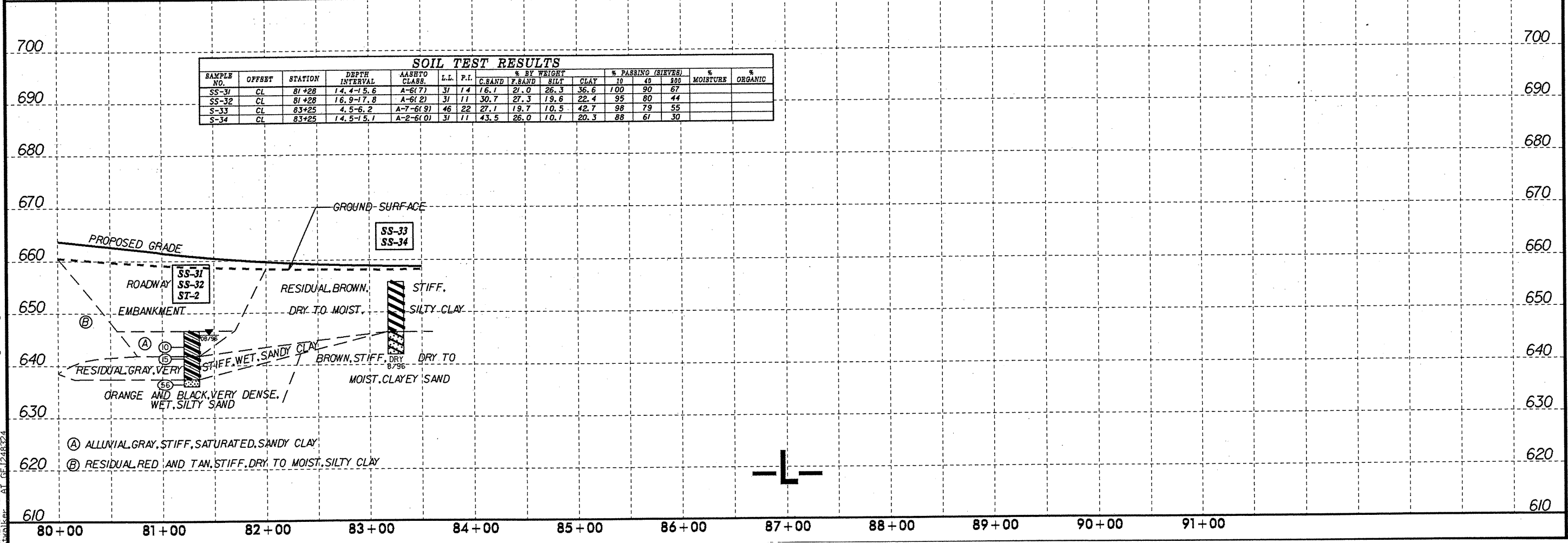
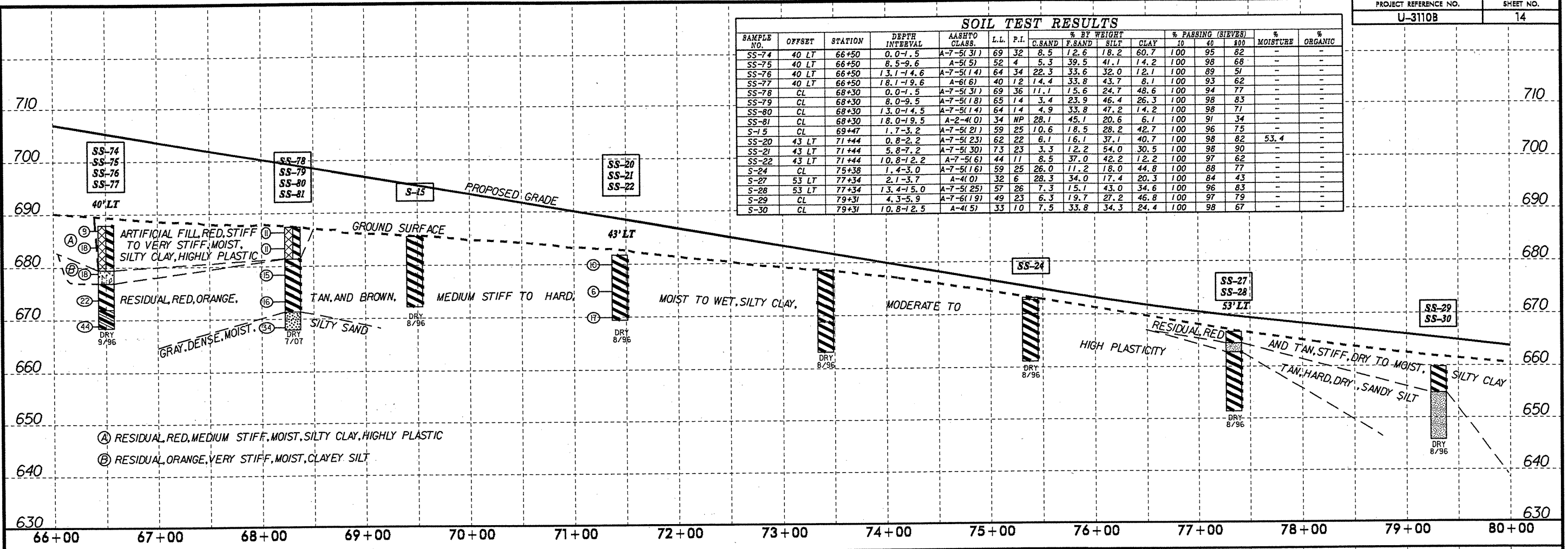
C:\MSX\3010_12559\Investigation\TIP\U3110B_geo_r.dwg...
 5/28/99 12:59
 U:\3110B\Geo\U3110B_Geo.pfl.dgn

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-20	20' RT	39+00	1.0-2.0	A-7-5(27)	66	36	14.8	15.2	11.2	58.8	100	93	72	-	-
S-21	20' RT	41+00	0.0-2.0	A-7-6(13)	42	20	15.4	17.0	14.8	52.7	99	92	69	-	-
S-22	20' RT	41+00	3.0-4.0	A-7-5(41)	78	37	4.7	7.9	16.4	71.0	100	98	89	-	-
SS-23	30' RT	43+30	0.0-1.5	A-7-6(15)	49	27	19.5	19.7	12.2	48.7	100	92	63	-	-
SS-24	30' RT	43+30	3.5-5.0	A-7-5(45)	80	35	0.8	3.7	32.7	62.9	100	100	97	-	-
SS-25	30' RT	43+30	8.5-10.0	A-7-5(35)	72	26	0.8	5.3	43.2	50.7	100	100	97	62.5	-
SS-26	30' RT	43+30	13.5-15.0	A-7-5(31)	70	21	0.6	6.7	48.1	44.6	100	100	97	71.6	-
SS-27	30' RT	43+30	18.5-20.0	A-5(3)	42	8	26.2	27.2	28.4	18.3	100	89	53	42.8	-
SS-28	30' RT	43+30	23.5-25.0	A-4(2)	38	6	22.3	30.8	30.6	16.2	98	87	52	37.9	-
SS-29	40' RT	45+00	0.0-1.5	A-7-6(16)	52	24	14.4	19.3	17.6	48.7	99	92	69	-	-
SS-30	40' RT	45+00	3.6-5.1	A-6(6)	36	15	18.3	29.0	17.7	35.0	98	90	56	-	-
SS-31	40' RT	45+00	8.6-10.1	A-7-6(26)	63	34	15.4	14.4	18.7	51.4	100	90	73	45.3	-
SS-32	40' RT	45+00	13.6-15.1	A-4(2)	39	8	23.5	36.4	25.7	14.4	99	90	47	-	-
SS-33	CL	47+00	1.0-2.0	A-7-6(9)	41	19	13.8	28.8	14.2	43.2	94	89	58	-	-
S-34	CL	47+00	4.0-5.0	A-7-5(44)	76	44	5.8	10.5	17.9	65.8	100	98	86	-	-
S-35	CL	49+40	1.0-2.0	A-7-6(13)	46	22	15.8	18.9	13.8	51.4	97	88	66	-	-
S-36	CL	49+40	10.0-11.0	A-7-5(30)	71	27	2.7	18.5	35.6	43.2	100	99	85	-	-
SS-42	CL	51+50	0.0-1.5	A-6(7)	37	14	19.1	21.0	27.0	32.9	100	89	64	-	-
SS-43	CL	51+50	3.9-5.4	A-7-5(22)	68	17	5.3	12.3	37.0	45.3	100	97	86	-	-
SS-44	CL	51+50	8.9-10.4	A-7-5(24)	67	17	2.5	15.0	51.6	30.9	100	99	90	53.0	-
SS-45	CL	51+50	13.9-15.4	A-7-5(23)	71	21	2.7	23.0	33.1	41.2	100	99	80	54.8	-
SS-46	CL	51+50	18.9-20.4	A-7-5(19)	65	18	4.5	24.3	44.4	26.7	100	98	78	-	-
SS-47	CL	51+50	23.9-25.4	A-7-5(19)	66	16	2.1	26.5	54.9	16.5	100	99	81	75.0	-
SS-48	35' RT	53+60	0.0-1.5	A-7-5(38)	75	38	6.8	10.1	13.2	70.0	100	97	85	-	-
SS-49	35' RT	53+60	3.5-5.0	A-7-5(37)	76	28	1.4	6.2	28.6	63.8	100	99	95	-	-
SS-50	35' RT	53+60	8.5-10.0	A-7-5(29)	72	21	3.9	9.9	49.2	37.0	100	98	91	-	-
SS-51	35' RT	53+60	13.5-15.0	A-7-5(26)	71	20	3.9	12.8	44.2	39.1	100	98	87	-	-
SS-52	35' RT	53+60	18.5-20.0	A-5(9)	45	8	2.3	32.7	54.7	10.3	100	99	79	-	-
SS-53	35' RT	53+60	23.5-25.0	A-4(2)	39	5	10.9	39.1	39.7	10.3	100	97	59	38.7	-
SS-54	35' RT	53+60	28.5-30.0	A-4(1)	39	4	35.4	24.1	30.2	10.3	100	72	48	31.4	-
SS-55	35' RT	53+60	33.5-35.0	A-5(1)	44	6	37.7	20.4	31.7	10.3	100	72	46	32.4	-
SS-56	35' RT	53+60	43.5-45.0	A-2-5(0)	41	5	45.7	24.3	21.8	8.2	98	64	34	-	-
SS-58	40' RT	55+70	0.0-1.5	A-7-5(37)	71	41	7.4	13.8	10.9	67.9	100	97	81	-	-
SS-59	40' RT	55+70	8.5-10.0	A-7-5(38)	75	28	0.8	4.9	46.9	47.3	100	100	97	-	-
SS-60	40' RT	55+70	13.5-15.0	A-7-5(31)	72	22	0.8	11.5	63.0	24.7	100	100	94	-	-
SS-61	40' RT	55+70	18.5-20.0	A-7-5(28)	73	18	0.6	8.0	62.6	28.8	100	100	95	-	-
SS-62	40' RT	55+70	23.5-25.0	A-7-5(35)	76	25	1.6	6.8	56.6	35.0	100	99	95	89.0	-
SS-63	40' RT	55+70	28.5-30.0	A-7-5(36)	78	27	1.2	9.7	66.5	22.6	100	99	94	-	-
SS-64	40' RT	55+70	33.5-35.0	A-7-5(23)	63	25	9.1	19.1	53.3	18.5	100	95	78	-	-
SS-65	55 LT	58+22	0.0-1.5	A-4(1)	20	7	21.5	31.8	20.4	26.3	100	91	54	-	-
SS-66	55 LT	58+22	3.5-5.0	A-7-6(26)	59	37	12.3	20.4	18.6	48.6	100	95	71	-	-
SS-67	55 LT	58+22	8.5-10.0	A-2-4(0)	27	2	38.9	30.6	20.4	10.1	95	75	34	-	-
SS-68	55 LT	58+22	23.5-25.0	A-2-4(0)	29	2	36.0	35.8	20.0	8.1	95	75	33	-	-
S-2	CL	59+63	4.3-6.0	A-7-6(18)	55	26	17.6	16.6	21.4	44.4	100	92	68	-	-
S-3	CL	59+63	9.3-10.9	A-7-6(16)	47	21	6.9	23.6	37.2	32.3	100	98	76	-	-
SS-69	50 RT	60+10	0.0-1.5	A-7-5(30)	68	34	12.8	11.7	16.8	58.7	100	94	78	-	-
SS-70	50 RT	60+10	3.5-5.0	A-7-5(48)	81	41	2.2	6.9	34.2	56.7	100	99	93	-	-
SS-71	50 RT	60+10	8.5-10.0	A-7-5(36)	73	27	1.2	7.7	42.5	48.6	100	100	95	-	-
SS-72	50 RT	60+10	13.5-15.0	A-7-5(14)	59	26	17.8	28.5	33.4	20.2	100	92	59	-	-
SS-73	50 RT	60+10	18.5-20.0	A-7-5(15)	63	28	27.7	18.2	25.7	28.3	100	81	58	-	-
SS-7	59 RT	61+60	8.3-10.2	A-4(4)	39	9	19.8	31.5	36.6	12.1	100	89	56	-	-
SS-8	59 RT	61+60	13.3-14.8	A-2-4(0)	24	NP	41.8	35.4	14.7	8.1	83	61	23	-	-

SOIL TEST RESULTS

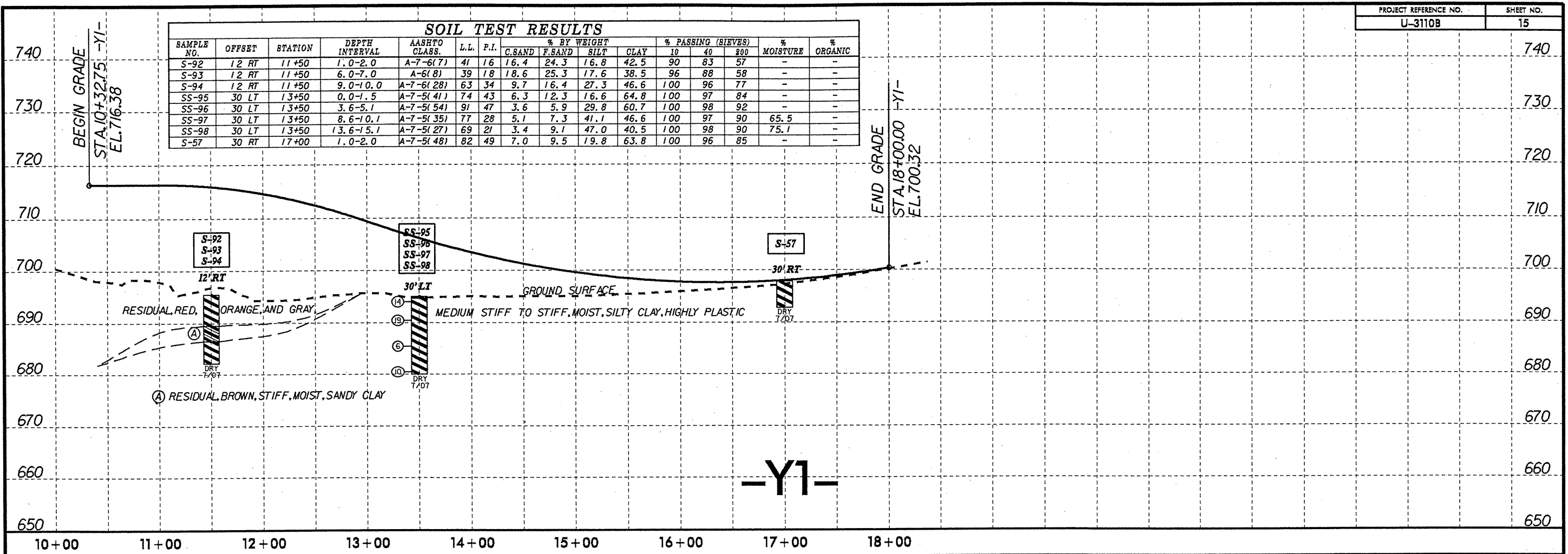
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-74	40 LT	66+50	0.0-1.5	A-7-5(31)	69	32	8.5	12.6	18.2	60.7	100	95	82	-	-
SS-75	40 LT	66+50	8.5-9.6	A-5(5)	52	4	5.3	39.5	41.1	14.2	100	98	68	-	-
SS-76	40 LT	66+50	13.1-14.6	A-7-5(14)	64	34	22.3	33.6	32.0	12.1	100	89	51	-	-
SS-77	40 LT	66+50	18.1-19.6	A-6(6)	40	12	14.4	33.8	43.7	8.1	100	93	62	-	-
SS-78	CL	68+30	0.0-1.5	A-7-5(31)	69	36	11.1	15.6	24.7	48.6	100	94	77	-	-
SS-79	CL	68+30	8.0-9.5	A-7-5(18)	65	14	3.4	23.9	46.4	26.3	100	98	83	-	-
SS-80	CL	68+30	13.0-14.5	A-7-5(14)	64	14	4.9	33.8	47.2	14.2	100	98	71	-	-
SS-81	CL	68+30	18.0-19.5	A-2-4(0)	34	NP	28.1	45.1	20.6	6.1	100	91	34	-	-
S-15	CL	69+47	1.7-3.2	A-7-5(21)	59	25	10.6	18.5	28.2	42.7	100	96	75	-	-
SS-20	43 LT	71+44	0.8-2.2	A-7-5(23)	62	22	6.1	16.1	37.1	40.7	100	98	82	53.4	-
SS-21	43 LT	71+44	5.8-7.2	A-7-5(30)	73	23	3.3	12.2	54.0	30.5	100	98	90	-	-
SS-22	43 LT	71+44	10.8-12.2	A-7-5(6)	44	11	8.5	37.0	42.2	12.2	100	97	62	-	-
S-24	CL	75+38	1.4-3.0	A-7-5(16)	59	25	26.0	11.2	18.0	44.8	100	88	77	-	-
S-27	53 LT	77+34	2.1-3.7	A-4(0)	32	6	28.3	34.0	17.4	20.3	100	84	43	-	-
S-28	53 LT	77+34	13.4-15.0	A-7-5(25)	57	26	7.3	15.1	43.0	34.6	100	96	83	-	-
S-29	CL	79+31	4.3-5.9	A-7-6(19)	49	23	6.3	19.7	27.2	46.8	100	97	79	-	-
S-30	CL	79+31	10.8-12.5	A-4(5)	33	10	7.5	33.8	34.3	24.4	100	98	67	-	-



5/28/99
 14-MAY-2010 12:59
 C:\Users\paleg\Documents\TIP\U3110B_geo_rdw_rev\CAD\U3110B_Geo_rdw.dgn

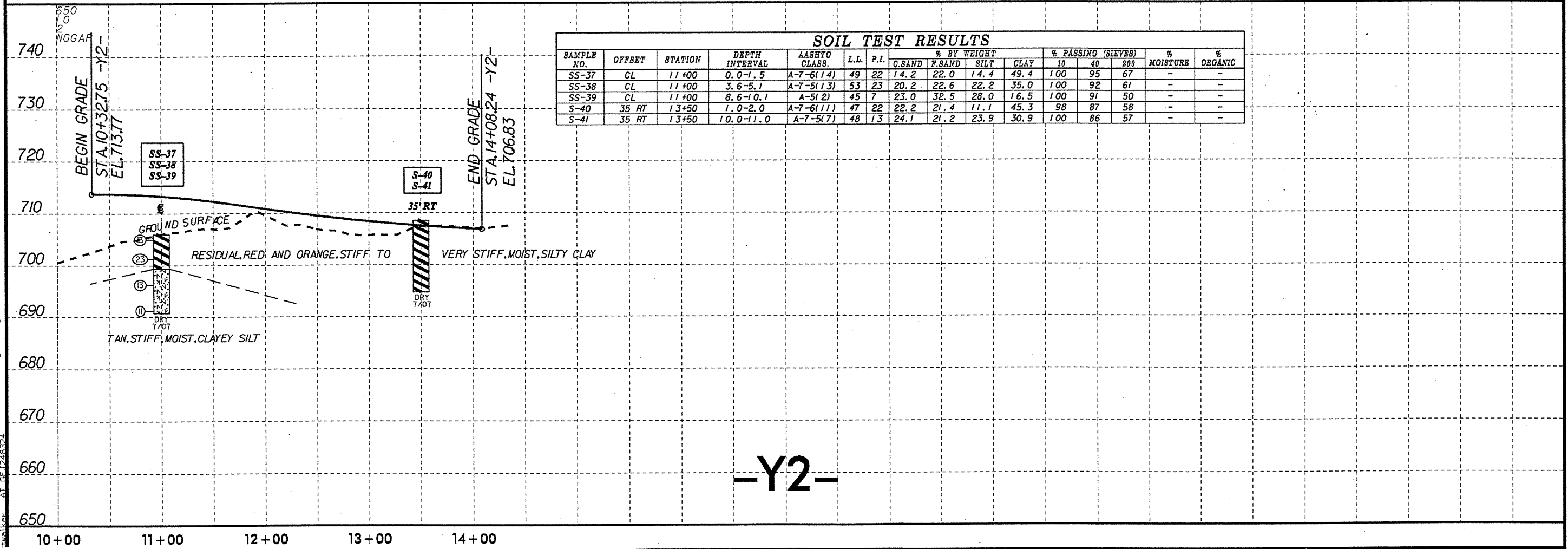
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-92	12 RT	11+50	1.0-2.0	A-7-6(7)	41	16	16.4	24.3	16.8	42.5	90	83	57	-	-
S-93	12 RT	11+50	6.0-7.0	A-6(8)	39	18	18.6	25.3	17.6	38.5	96	88	58	-	-
S-94	12 RT	11+50	9.0-10.0	A-7-6(28)	63	34	9.7	16.4	27.3	46.6	100	96	77	-	-
SS-95	30 LT	13+50	0.0-1.5	A-7-5(41)	74	43	6.3	12.3	16.6	64.8	100	97	84	-	-
SS-96	30 LT	13+50	3.6-5.1	A-7-5(54)	91	47	3.6	5.9	29.8	60.7	100	98	92	-	-
SS-97	30 LT	13+50	8.6-10.1	A-7-5(35)	77	28	5.1	7.3	41.1	46.6	100	97	90	65.5	-
SS-98	30 LT	13+50	13.6-15.1	A-7-5(27)	69	21	3.4	9.1	47.0	40.5	100	98	90	75.1	-
S-57	30 RT	17+00	1.0-2.0	A-7-5(48)	82	49	7.0	9.5	19.8	63.8	100	96	85	-	-



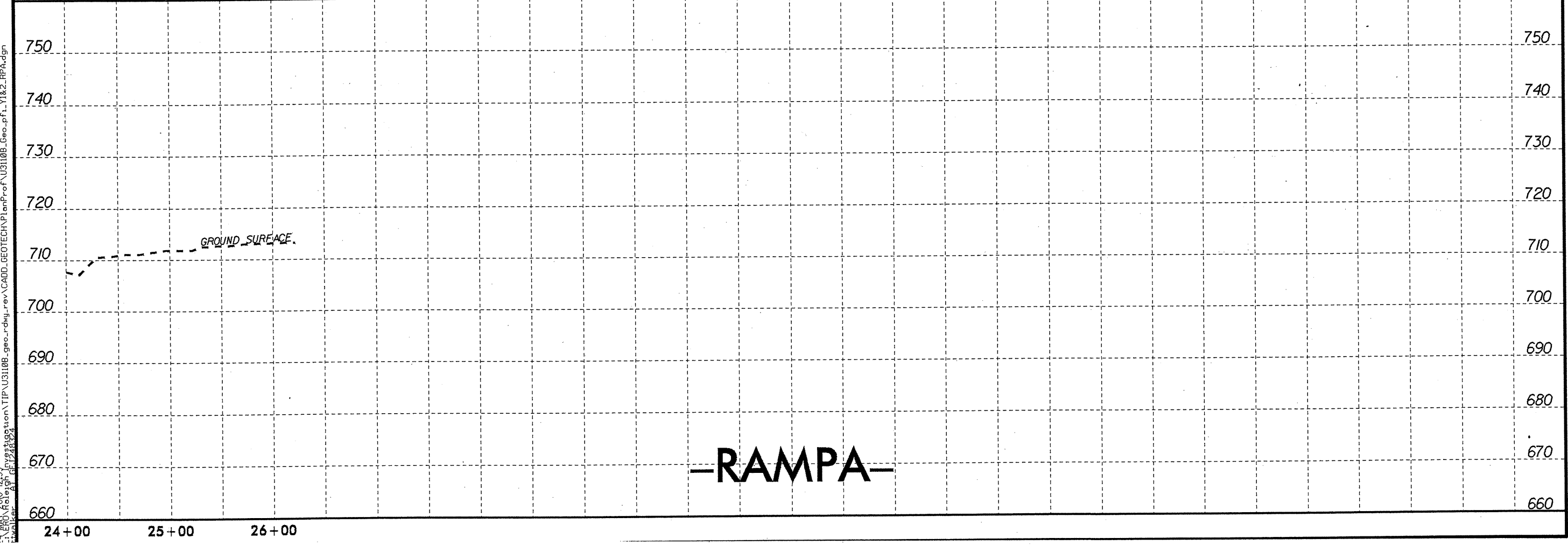
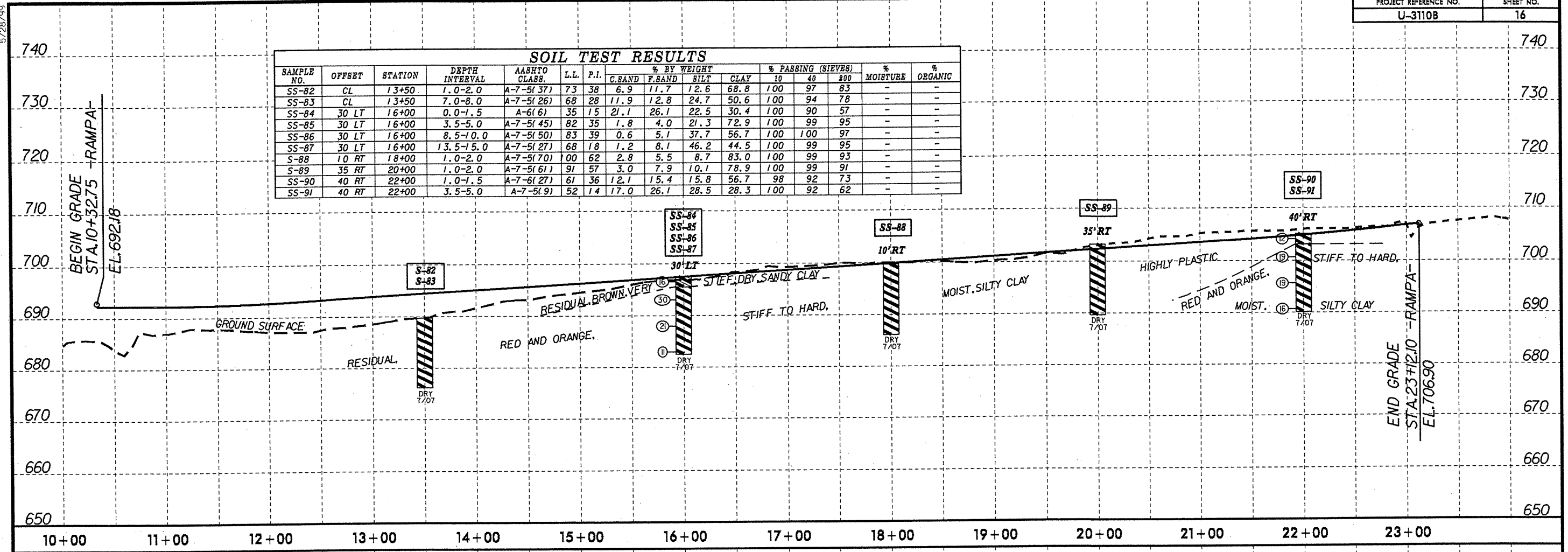
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-37	CL	11+00	0.0-1.5	A-7-6(14)	49	22	14.2	22.0	14.4	49.4	100	95	67	-	-
SS-38	CL	11+00	3.6-5.1	A-7-5(13)	53	23	20.2	22.6	22.2	35.0	100	92	61	-	-
SS-39	CL	11+00	8.6-10.1	A-5(2)	45	7	23.0	32.5	28.0	16.5	100	91	50	-	-
S-40	35 RT	13+50	1.0-2.0	A-7-6(11)	47	22	22.2	21.4	11.1	45.3	98	87	58	-	-
S-41	35 RT	13+50	10.0-11.0	A-7-5(7)	48	13	24.1	21.2	23.9	30.9	100	86	57	-	-



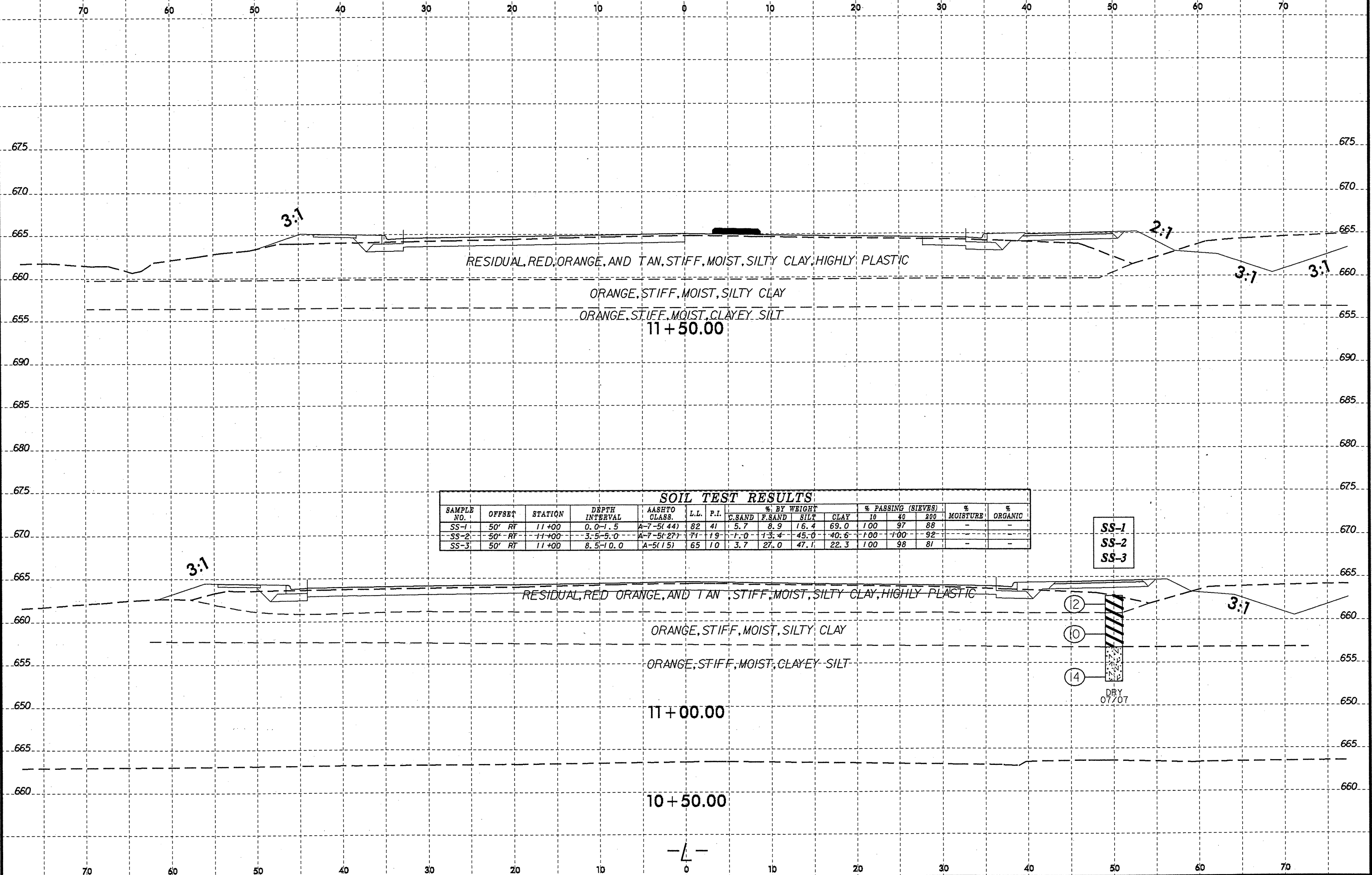
5/28/99
 4/16/2000 12:59
 \\msx01\projects\station\TIP\U3110B-geo_rdvj-rev\CADD_GEOTECH\PIenPr\U3110B_Geo_pf1_Y1&2_RPa.dgn
 11/24/99

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-82	CL	13+50	1.0-2.0	A-7-5(37)	73	38	6.9	11.7	12.6	68.8	100	97	83	-	-
SS-83	CL	13+50	7.0-8.0	A-7-5(26)	68	28	11.9	12.8	24.7	50.6	100	94	78	-	-
SS-84	30 LT	16+00	0.0-1.5	A-6(6)	35	15	21.1	26.1	22.5	30.4	100	90	57	-	-
SS-85	30 LT	16+00	3.5-5.0	A-7-5(45)	82	35	1.8	4.0	21.3	72.9	100	99	95	-	-
SS-86	30 LT	16+00	8.5-10.0	A-7-5(50)	83	39	0.6	5.1	37.7	56.7	100	100	97	-	-
SS-87	30 LT	16+00	13.5-15.0	A-7-5(27)	68	18	1.2	8.1	46.2	44.5	100	99	95	-	-
S-88	10 RT	18+00	1.0-2.0	A-7-5(70)	00	62	2.8	5.5	8.7	83.0	100	99	93	-	-
S-89	35 RT	20+00	1.0-2.0	A-7-5(61)	91	57	3.0	7.9	10.1	78.9	100	99	91	-	-
SS-90	40 RT	22+00	1.0-1.5	A-7-6(27)	61	36	12.1	15.4	15.8	56.7	98	92	73	-	-
SS-91	40 RT	22+00	3.5-5.0	A-7-5(9)	52	14	17.0	26.1	28.5	28.3	100	92	62	-	-



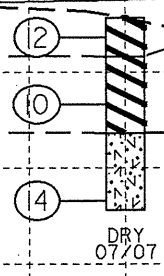
5/28/99
 24-MAY-2010 12:59
 C:\Users\aleg\Documents\TIP\U3110B_geo_r.dwg, rev\CA00D_GEO\TECH\Plan\U3110B_Geo_pf_11&2_RPA.dgn

8/23/99



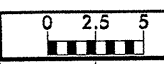
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	50' RT	11+00	0.0-1.5	A-7-5(44)	82	41	5.7	8.9	16.4	69.0	100	97	88	-	-
SS-2	50' RT	11+00	3.5-5.0	A-7-5(27)	71	19	1.0	13.4	45.0	40.6	100	100	92	-	-
SS-3	50' RT	11+00	8.5-10.0	A-5(15)	65	10	3.7	27.0	47.1	22.3	100	98	81	-	-

SS-1
SS-2
SS-3

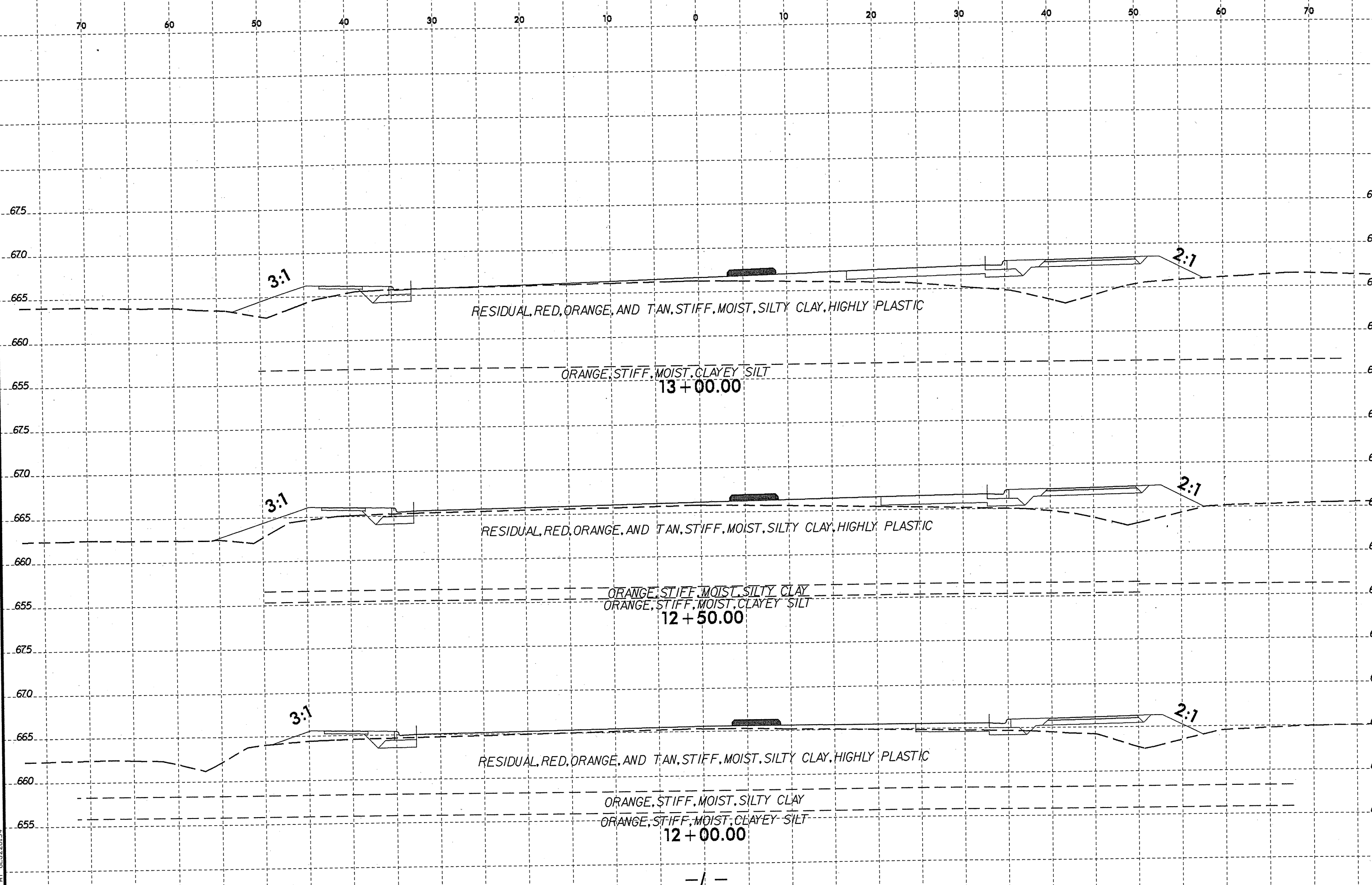


24-MAY-2010 13:41
 L:\NERO\Rail\proj\1999\station\TIP\U3110B-geo-rdwj-rev\CADD_GEO TECH_xac\U3110B-Geo_XSinetL.dgn
 At: GJ248324
 twalker

8/23/99



15-MAY-2010 13:06
 C:\Users\jgaston\IP\U3110B_geo_rdkj-ev\CADD_GEO\TECH\XSO\U3110B_Geo_XS1revL.dgn
 10/18/09 12:26:54
 jgaston



RESIDUAL, RED, ORANGE, AND TAN, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE, STIFF, MOIST, CLAYEY SILT
13+00.00

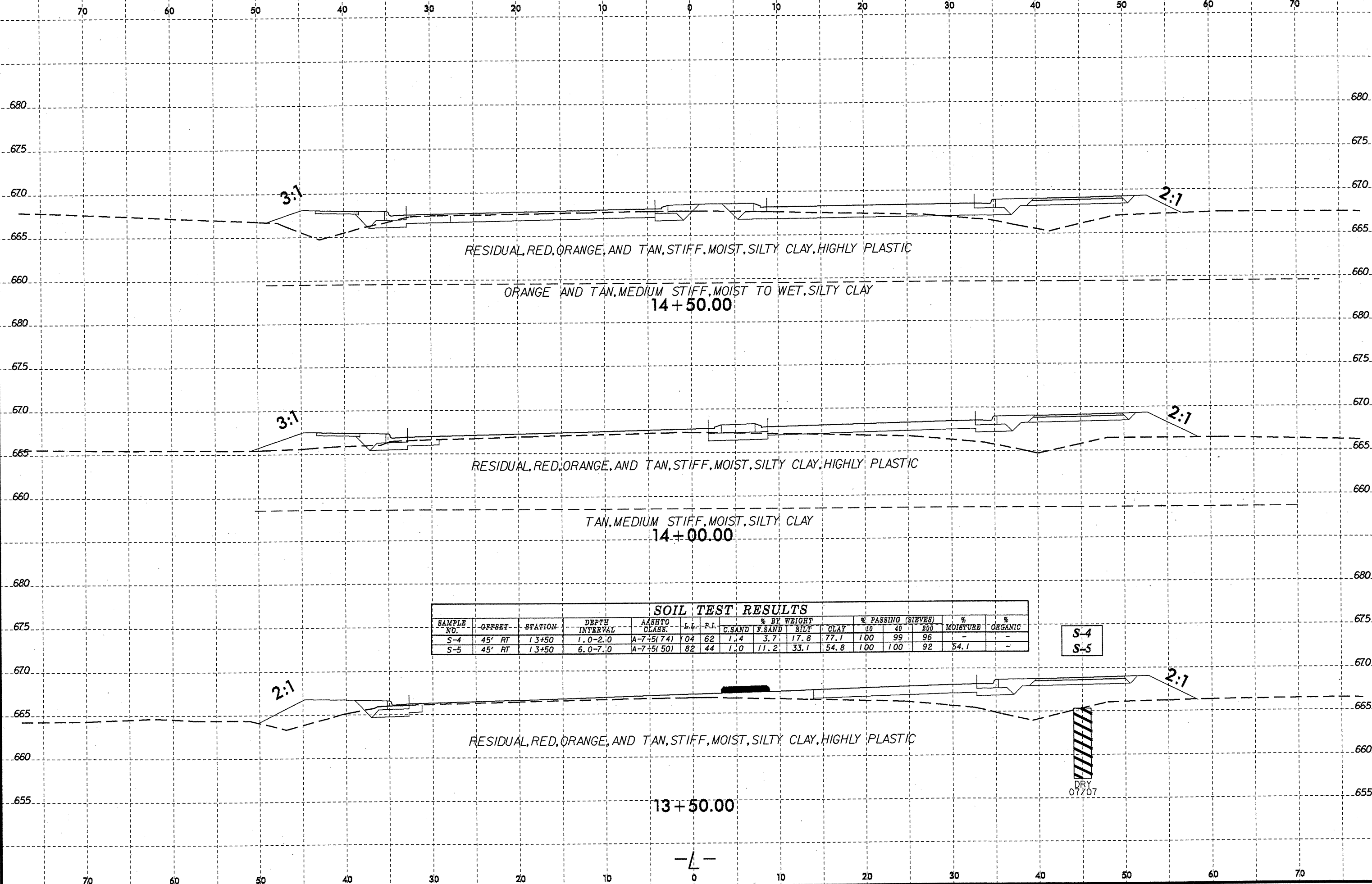
RESIDUAL, RED, ORANGE, AND TAN, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE, STIFF, MOIST, SILTY CLAY
ORANGE, STIFF, MOIST, CLAYEY SILT
12+50.00

RESIDUAL, RED, ORANGE, AND TAN, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE, STIFF, MOIST, SILTY CLAY
ORANGE, STIFF, MOIST, CLAYEY SILT
12+00.00

-L-



SOIL TEST RESULTS

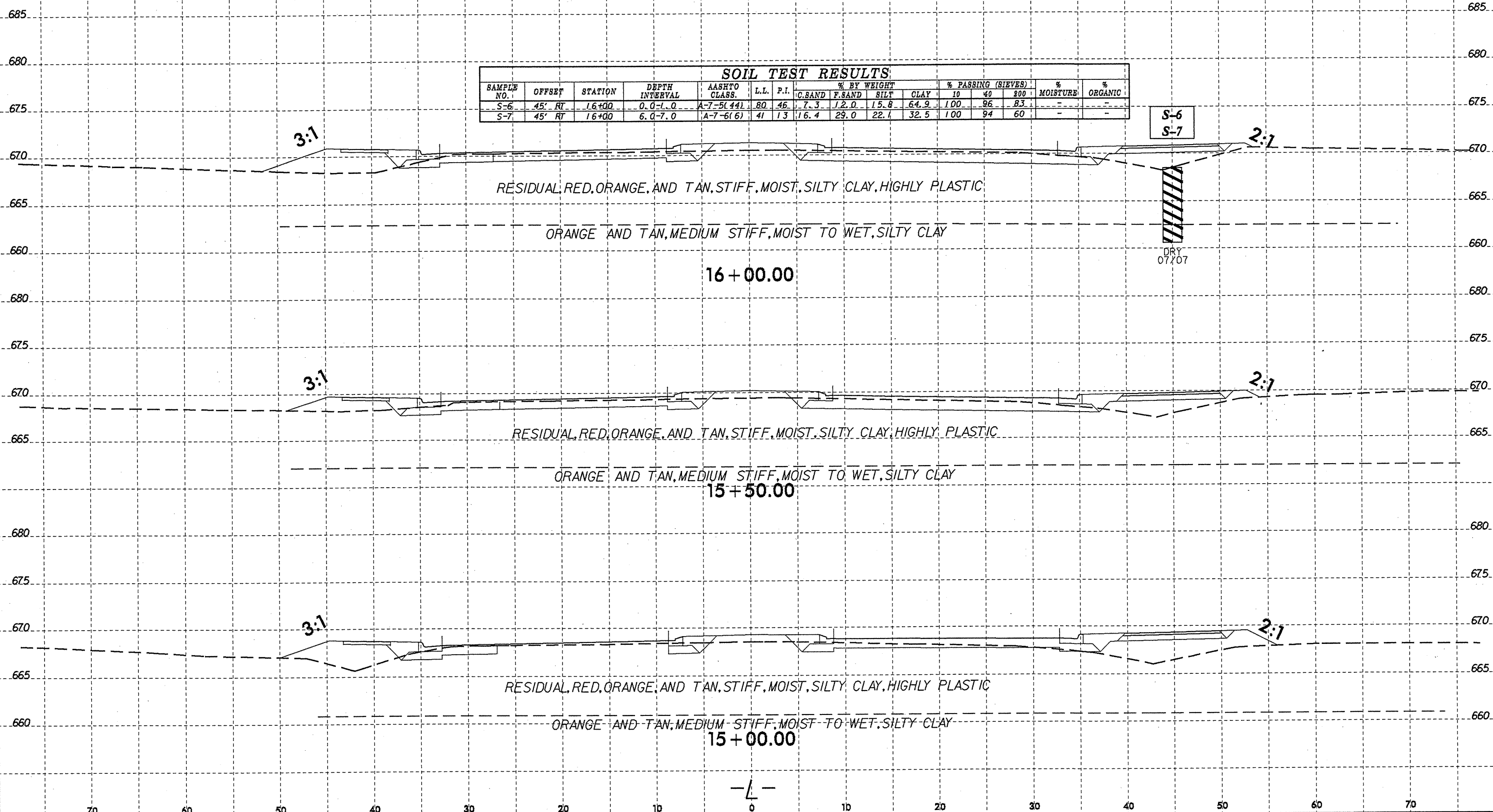
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	40	200	96		
S-4	45' RT	13+50	1.0-2.0	A-7-5(74)	62	62	1.4	3.7	17.8	77.1	100	99	96	-	-
S-5	45' RT	13+50	6.0-7.0	A-7-5(50)	82	44	1.0	11.2	33.1	54.8	100	100	92	54.1	-

S-4
S-5

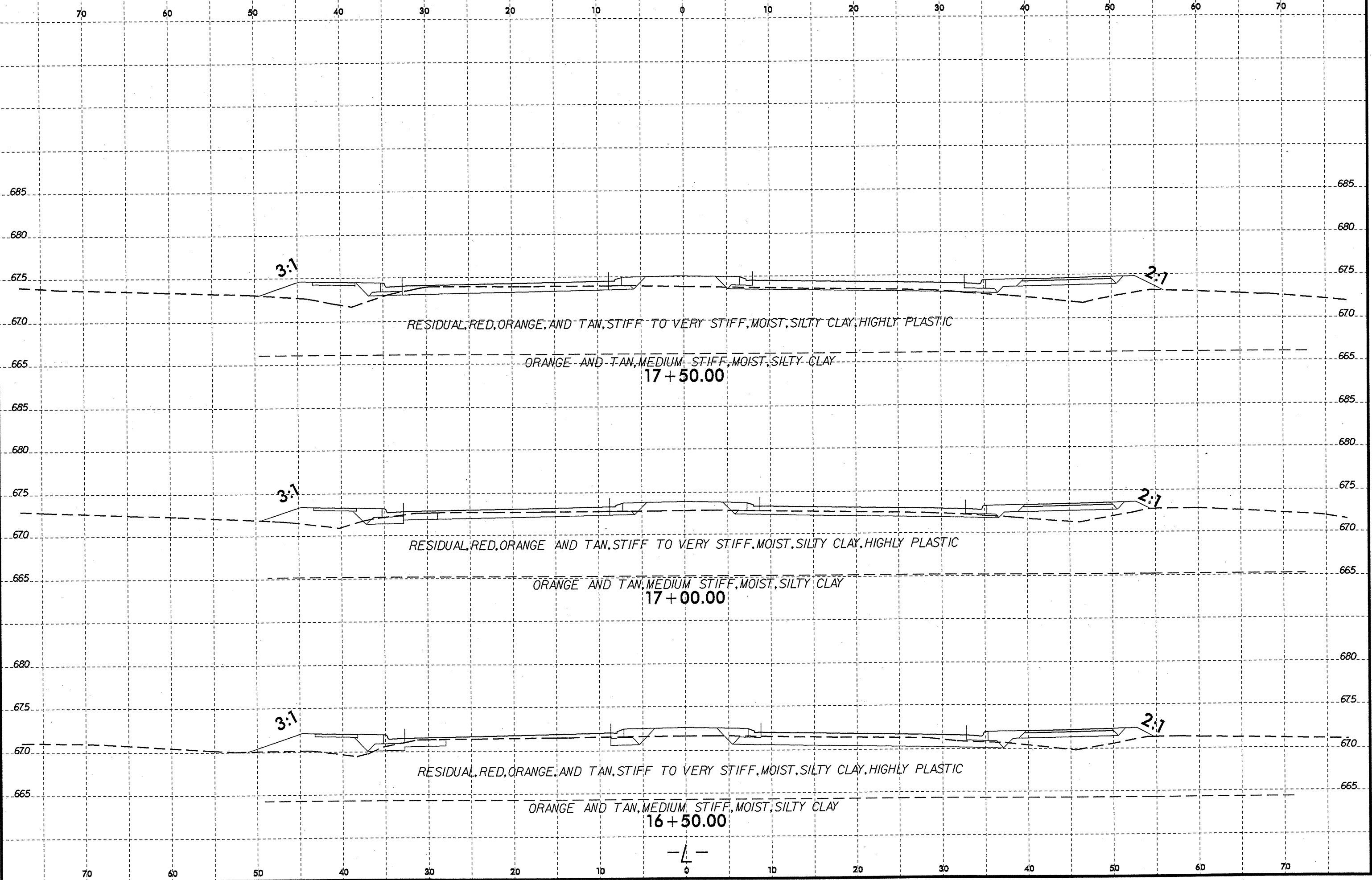
DRY
07X07

8/23/95
 24-MAY-2010 13:11
 C:\NEED\Projects\Station\TIP\U3110B\geo_rdy\rev\CRDD_GEO\TECH\sec\U3110B_Geo.XS\new.dgn

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-6	45' RT	16+00	0.0-1.0	A-7-5(44)	80	46	7.3	12.0	15.8	64.9	100	96	83	-	-
S-7	45' RT	16+00	6.0-7.0	A-7-6(6)	41	13	16.4	29.0	22.1	32.5	100	94	60	-	-



8/23/99
24-MAY-2010 13:11
C:\ERON\Projects\TIP\U3110B_geo_rdwj_rev\CADD_GEO\TECH\XSC\U3110B_Geo.XSInewL.dgn
Walker AT GE0248324



RESIDUAL, RED, ORANGE, AND TAN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE AND TAN, MEDIUM STIFF, MOIST, SILTY CLAY

17+50.00

RESIDUAL, RED, ORANGE AND TAN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE AND TAN, MEDIUM STIFF, MOIST, SILTY CLAY

17+00.00

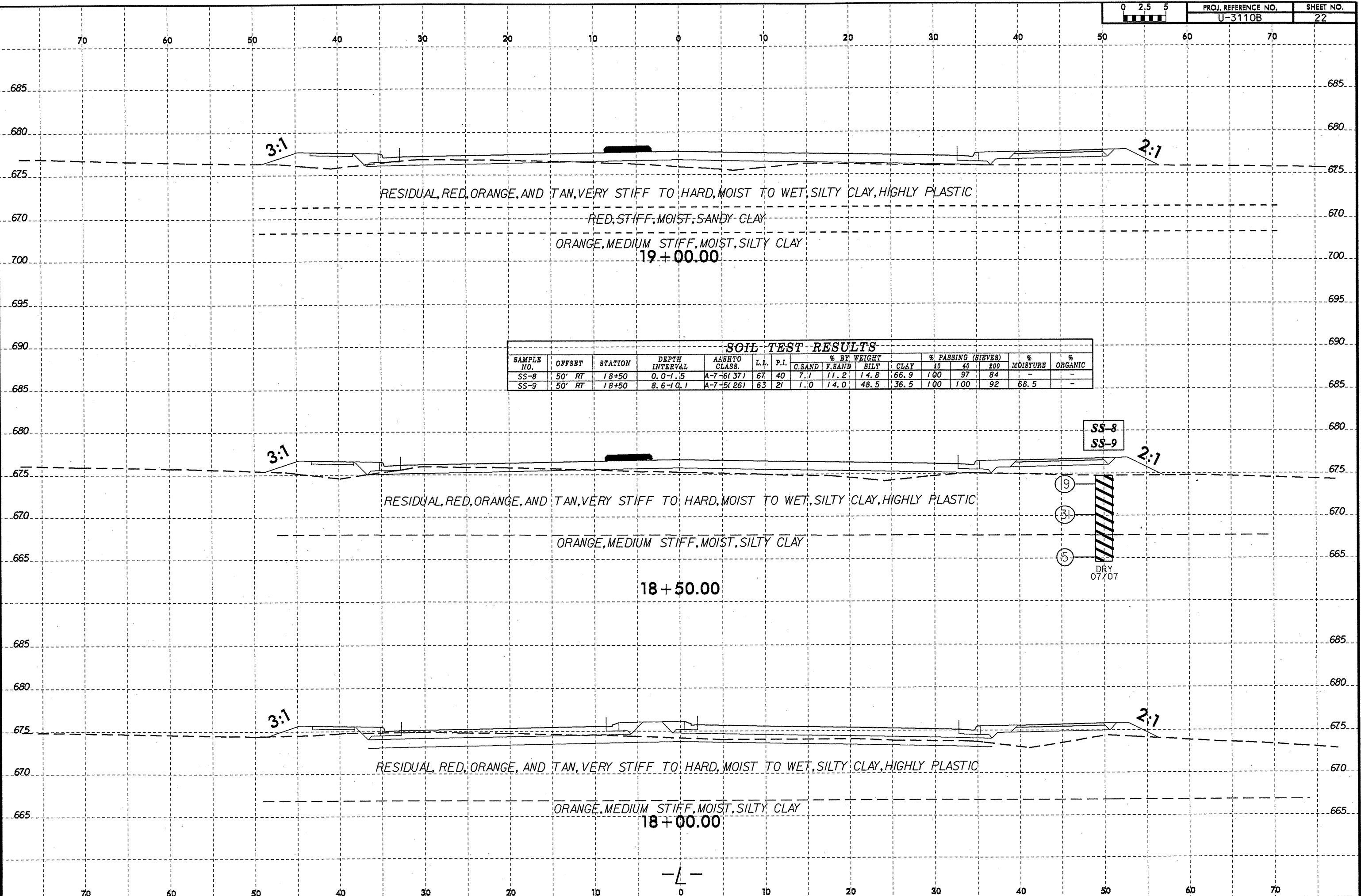
RESIDUAL, RED, ORANGE, AND TAN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE AND TAN, MEDIUM STIFF, MOIST, SILTY CLAY

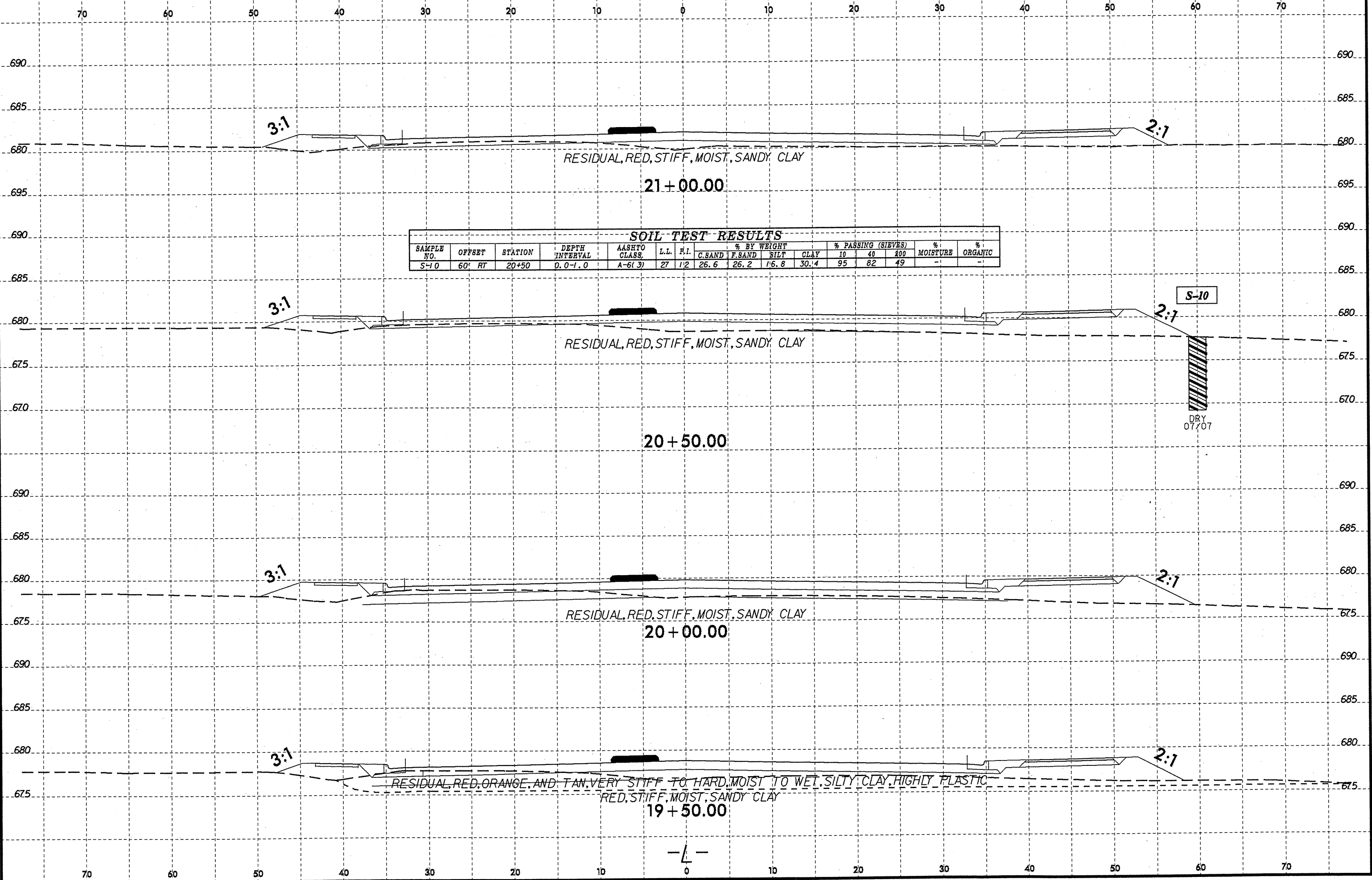
16+50.00

-L-

8/23/99
 24-MAY-2010 13:11
 i:\ERD\Releigh\Projects\Station\TIP\U3110B_geo_rdvj-rev\CADD_GEO\TECH\XAC\U3110B_Geo_XSInewL.dgn
 E:\walker



8/23/99
 24-MAY-2010 13:11
 C:\ERON\Relegh
 twalker - RT GEU248324
 J:\ygg\geotecn\TIP\U3110B-geo_rdwj-rev\CADD_GEO\TECH\XSC\U3110B_Geo_XSInewL.dgn



SOIL TEST RESULTS

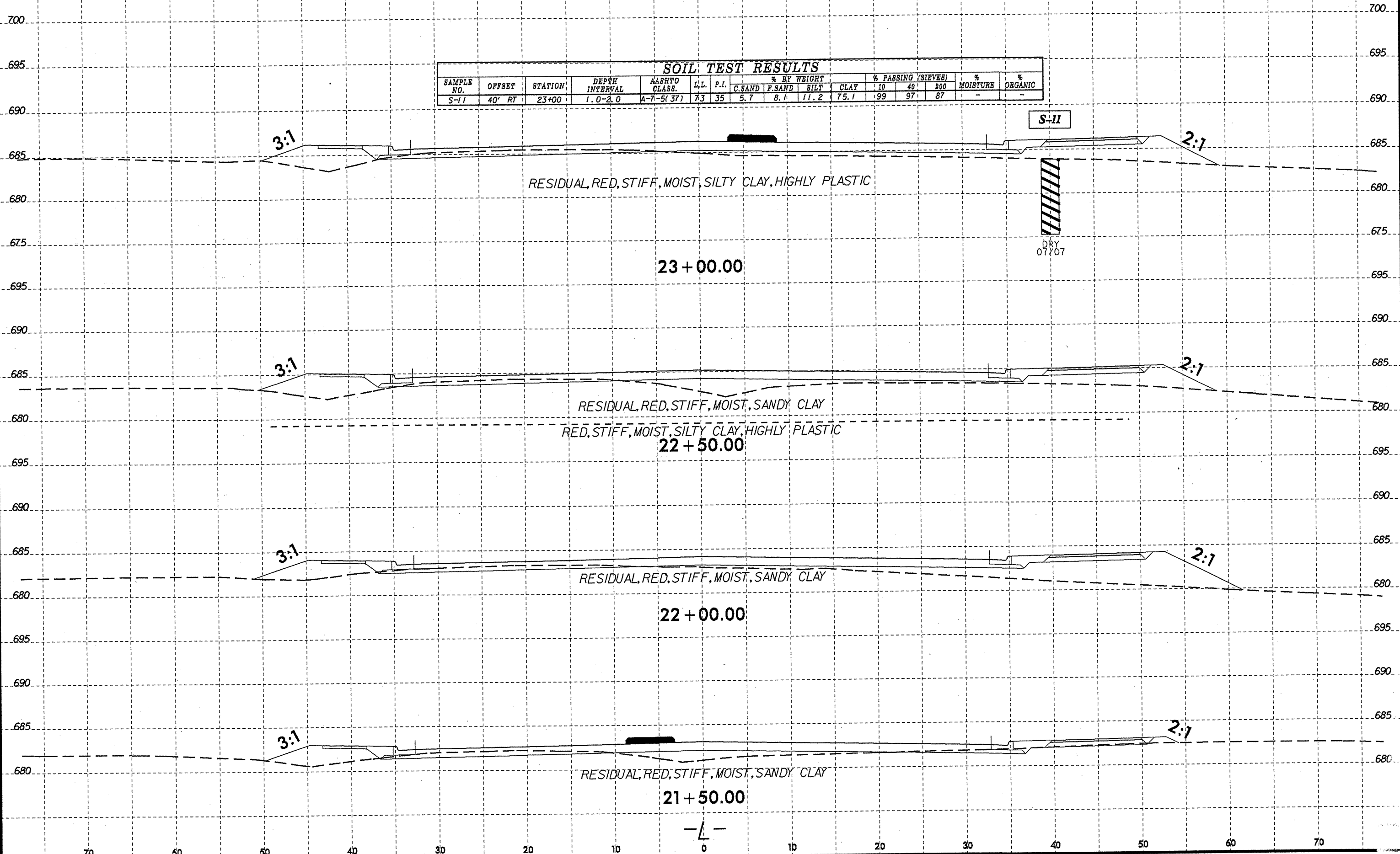
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-10	60' RT	20+50	0.0-1.0	A-6(3)	27	1/2	26.6	26.2	16.8	30.4	95	82	49	-	-

S-10
 DRY
 07/07

-L-

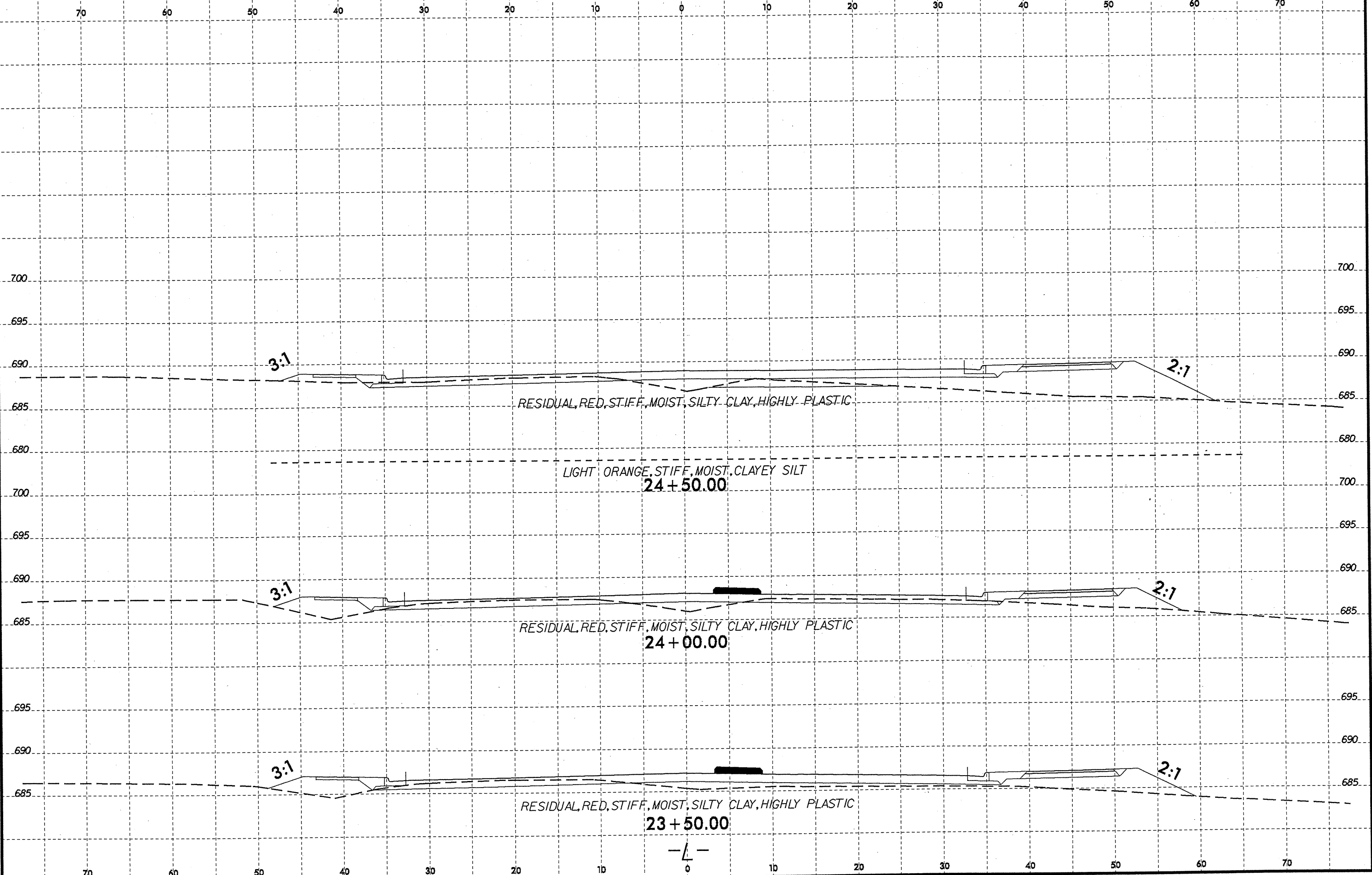
8/23/99

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-11	40' RT	23+00	1.0-2.0	A-7-5(37)	73	35	5.7	8.1	11.2	75.1	99	97	87	-	-

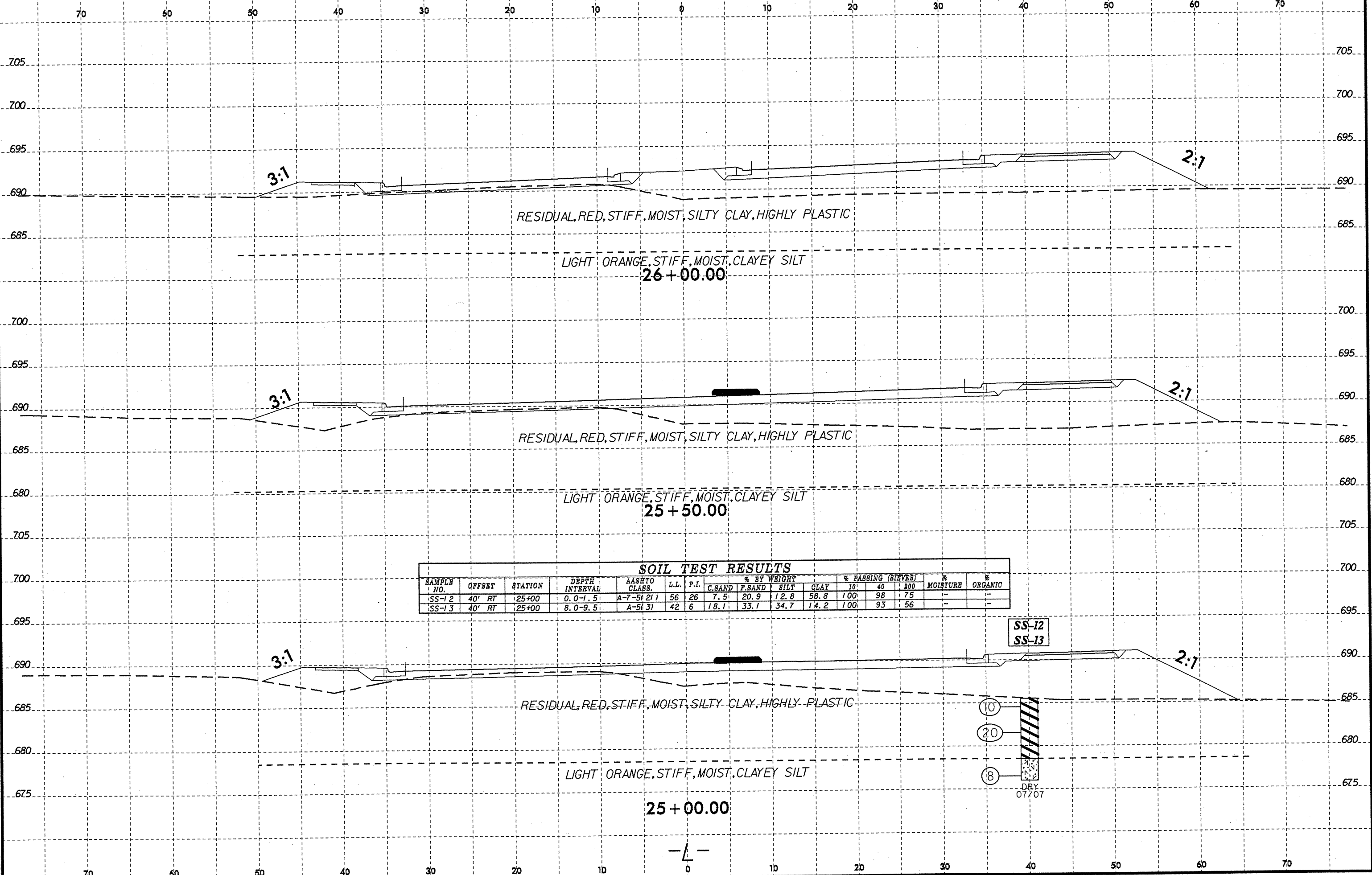


24-MAY-2010 13:11
 I:\projects\geotip\U3110B_geo_rdwj_rev\CA00_GEO\TECH\se U3110B_Geo.XSInewL.dgn
 Walker AT GE0248324

8/23/99

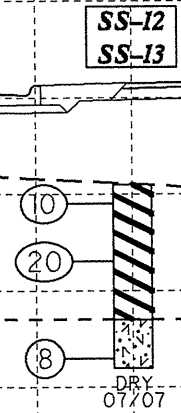


24-MAY-2010 13:11
C:\ERON\Rateigh\Projects\Station\TIP\U3110B_geo_rdwj-rev\CADD_GEO\TECH\XSO_U3110B_Geo_XSInewL.dgn
twalker AT GEI248324

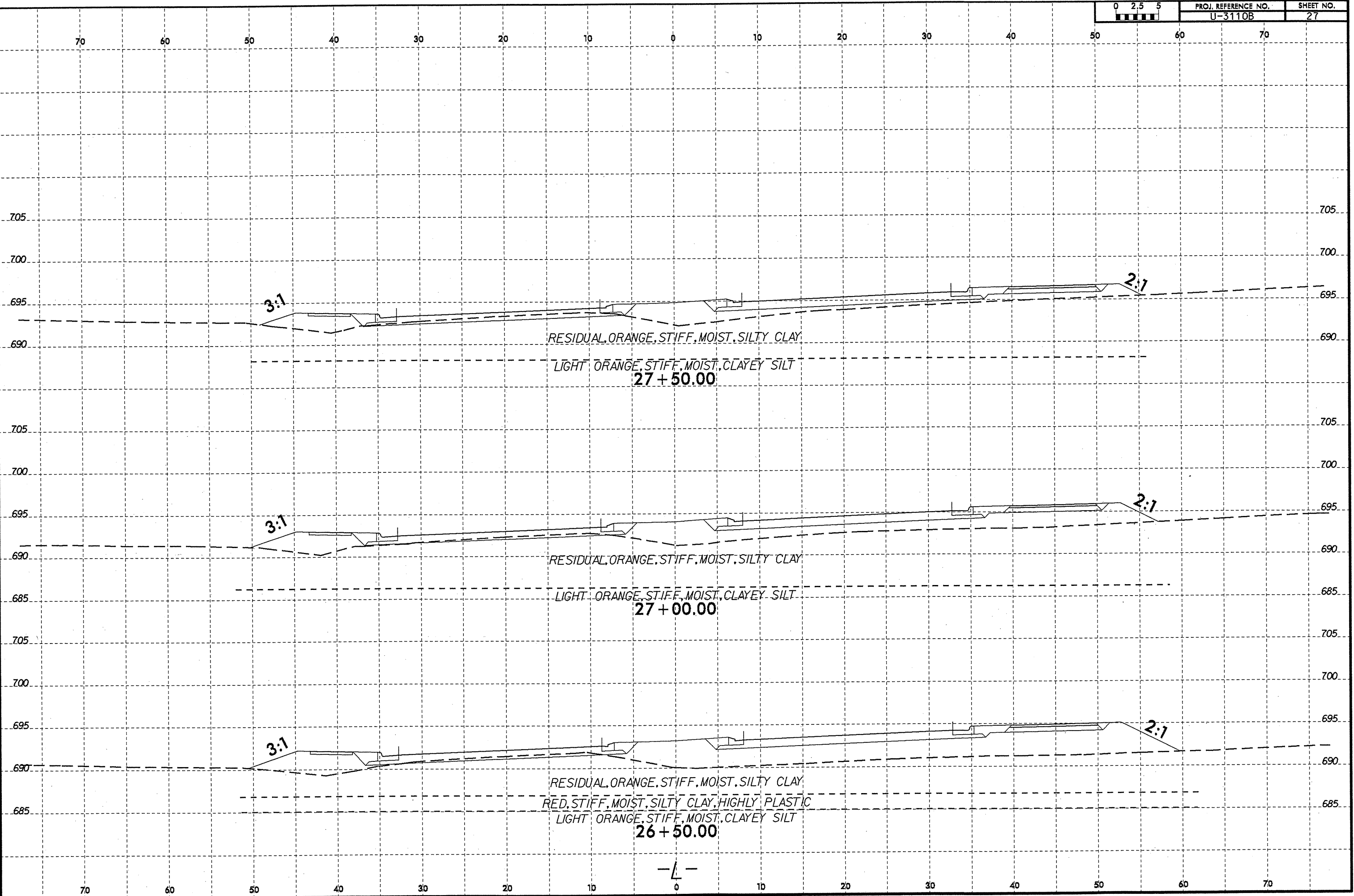


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10'	40	200		
SS-12	40' RT	25+00	0.0-1.5	A-7-5(21)	56	26	7.5	20.9	12.8	58.8	100	98	75	-	-
SS-13	40' RT	25+00	8.0-9.5	A-5(3)	42	6	18.1	33.1	34.7	14.2	100	93	56	-	-



8/23/99
24-MAY-2010 13:11
c:\p\proj\3110b\station\TIP\U3110B.geo_r\dwy\rev\CADD_GEO\TECH\XAC\U3110B_Geo.XS\newLudgn
Walker AT GEO248324



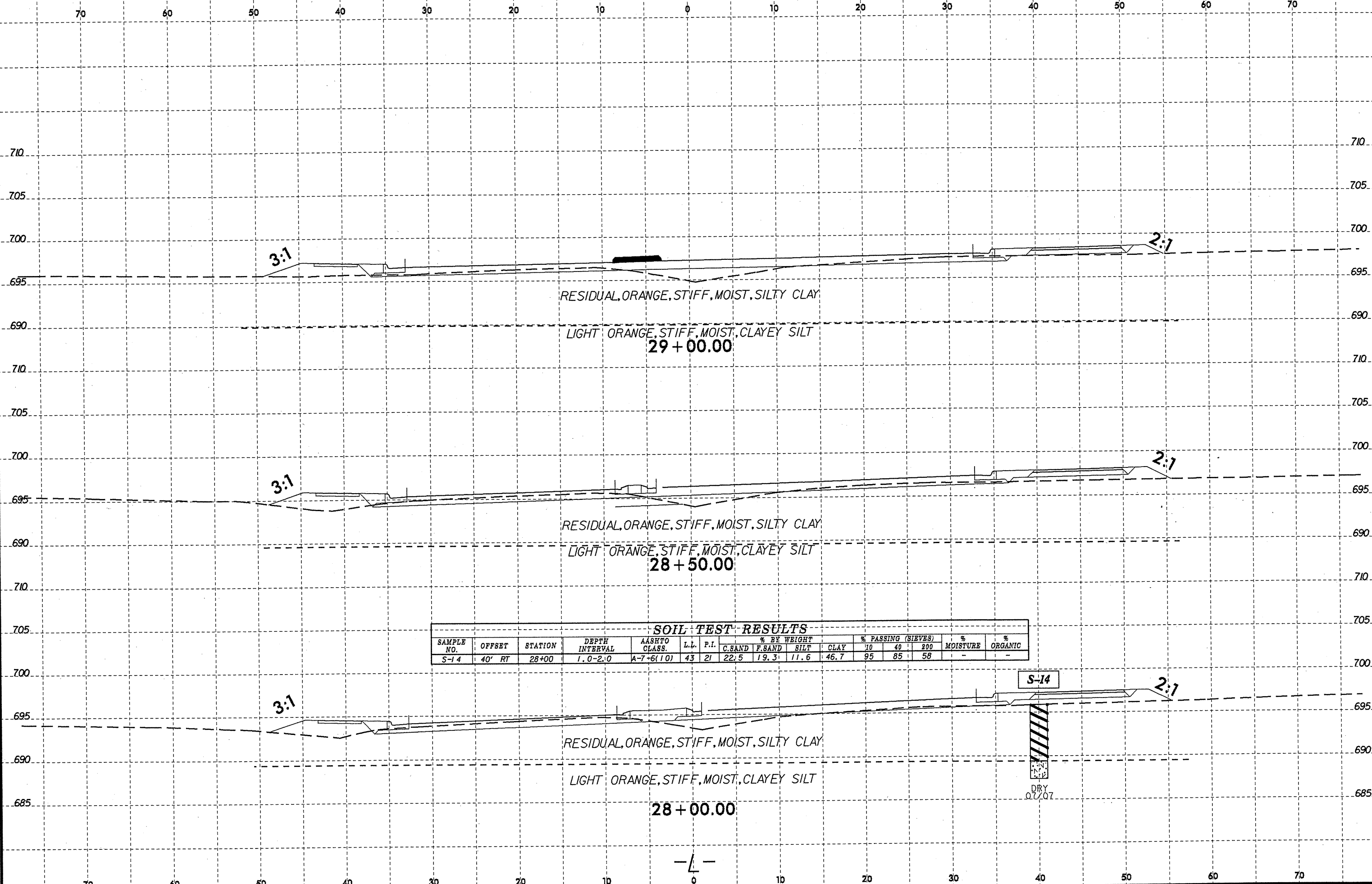
RESIDUAL, ORANGE, STIFF, MOIST, SILTY CLAY
LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT
27 + 50.00

RESIDUAL, ORANGE, STIFF, MOIST, SILTY CLAY
LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT
27 + 00.00

RESIDUAL, ORANGE, STIFF, MOIST, SILTY CLAY
RED, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC
LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT
26 + 50.00

-L-

8/23/99
 24-MAY-2010 13:11
 C:\ERD\Projects\TIP\U3110B\geo_rdwj_rev\CAD\GEO\TECH\XSEC\U3110B_Geo_XSInewL.dgn
 At: GE248324

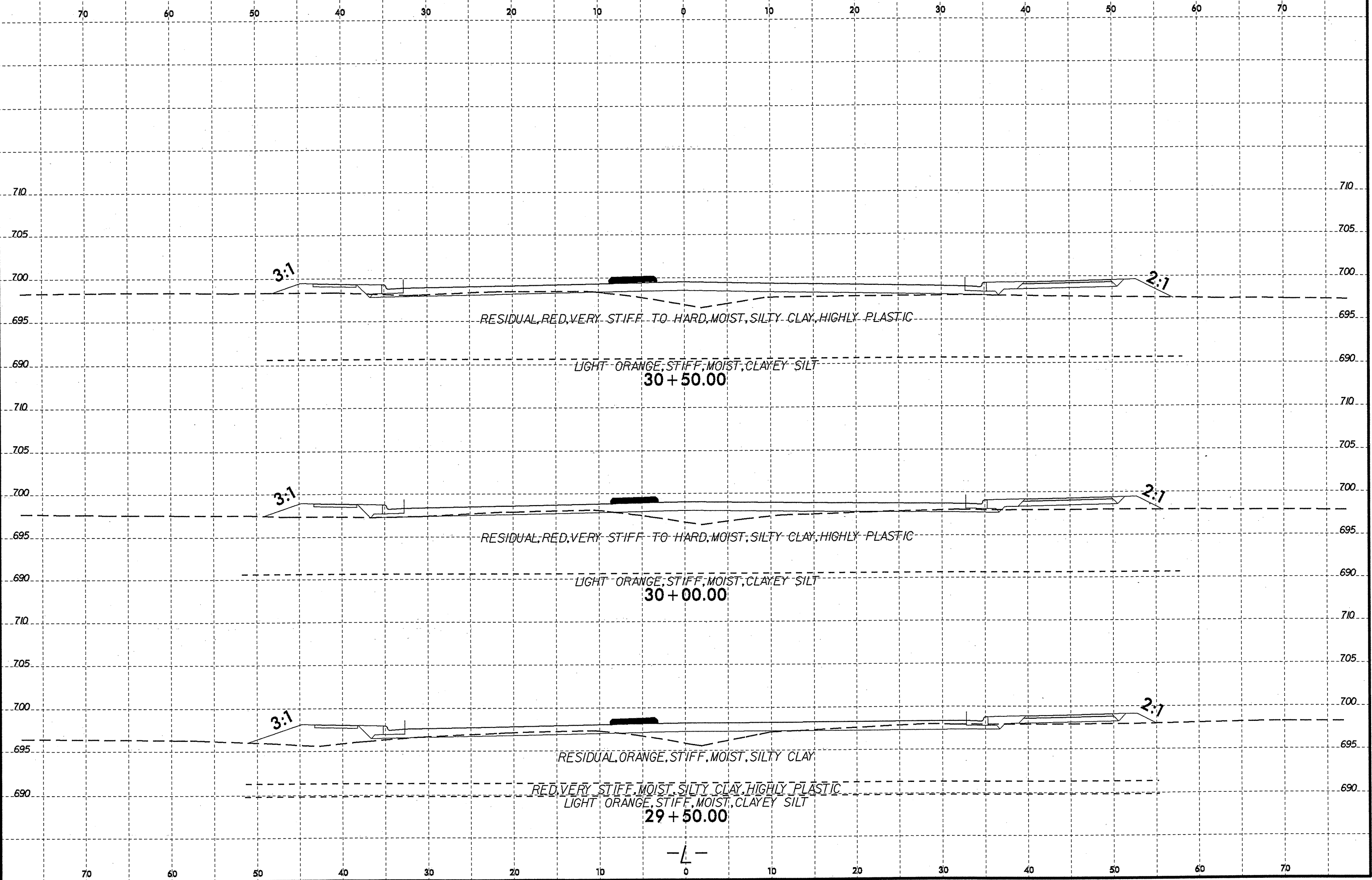


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#40	#200		
S-14	40' RT	28+00	1.0-2.0	A-7-6(10)	43	21	22.5	19.3	11.6	46.7	95	85	58	-	-

S-14

DRY
0.7/0.7

8/23/99
24-MAY-2010 13:11
C:\ERD\Rel\gh\jcyg\399\station\TIP\U3110B_geo_rdwj-rev\CADD_GEOTECH\XAC\U3110B_Geo_XSInewL.dgn
tswiker RT GE0248324



3:1

2:1

RESIDUAL, RED, VERY STIFF TO HARD, MOIST, SILTY CLAY, HIGHLY PLASTIC

LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT

30 + 50.00

3:1

2:1

RESIDUAL, RED, VERY STIFF TO HARD, MOIST, SILTY CLAY, HIGHLY PLASTIC

LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT

30 + 00.00

3:1

2:1

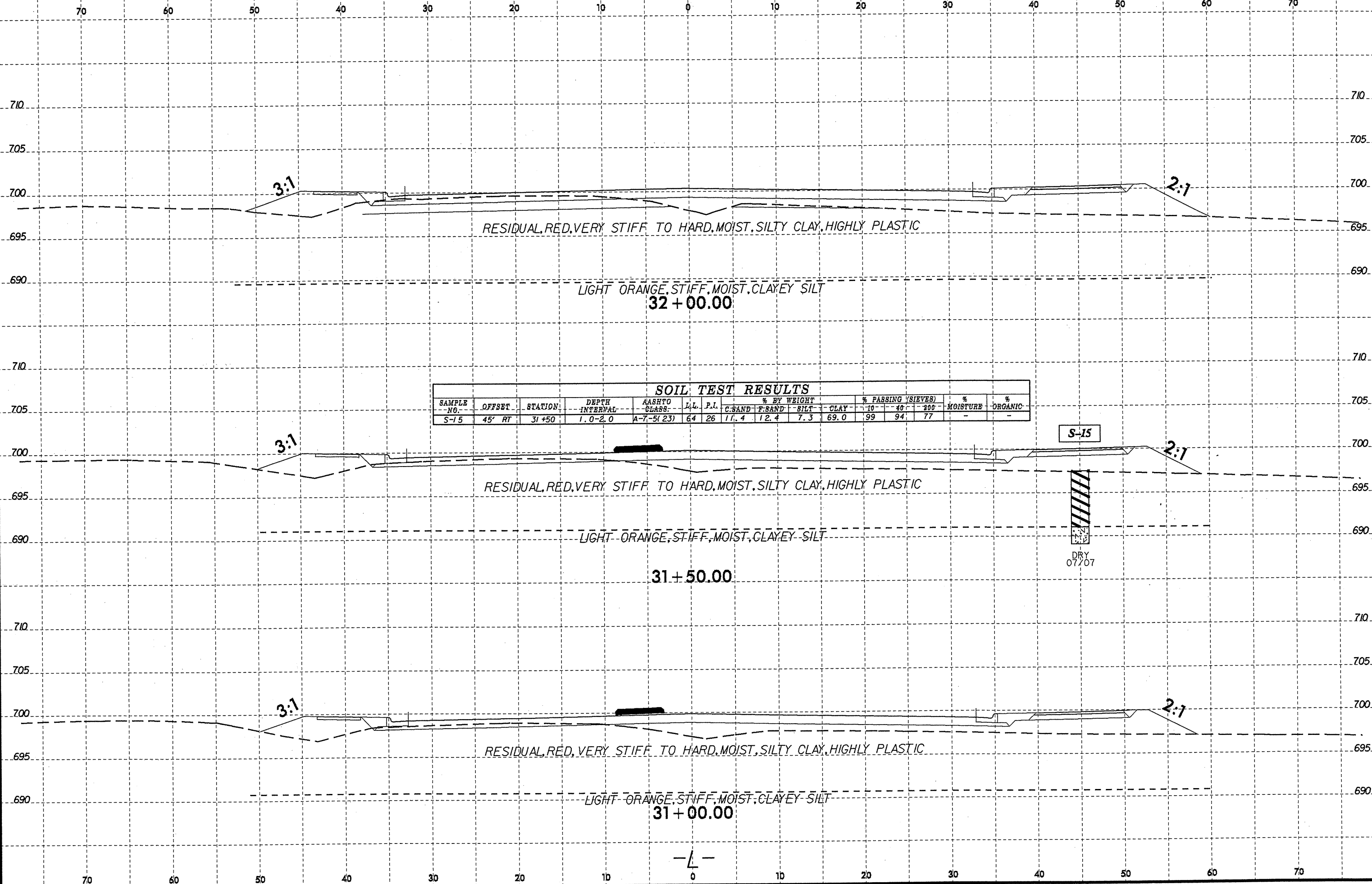
RESIDUAL, ORANGE, STIFF, MOIST, SILTY CLAY

RED, VERY STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

LIGHT ORANGE, STIFF, MOIST, CLAYEY SILT

29 + 50.00

-L-

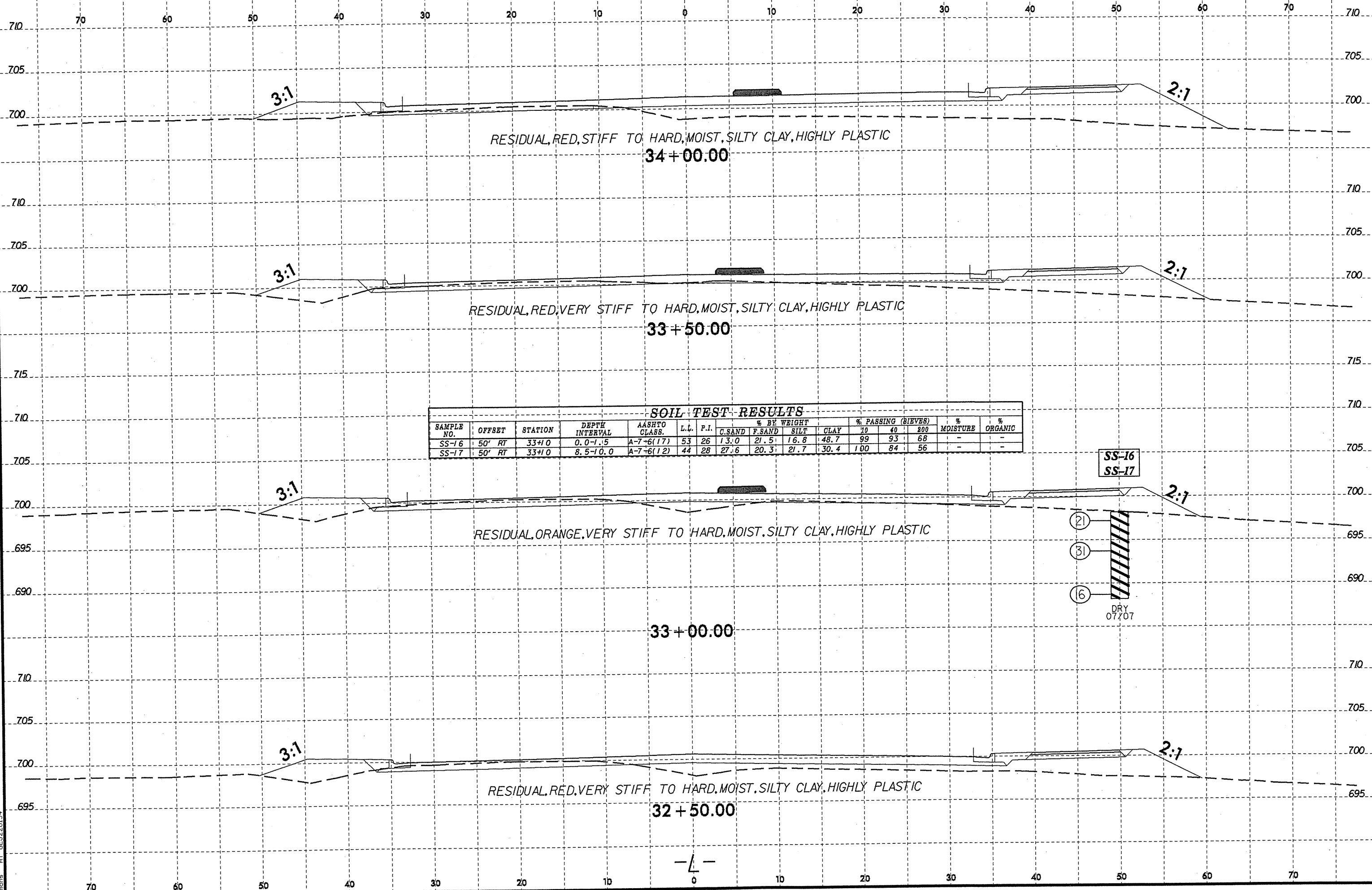


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-15	45' RT	31+50	1.0-2.0	A-7-5(23)	64	26	11.4	12.4	7.3	69.0	99	94	77	-	-

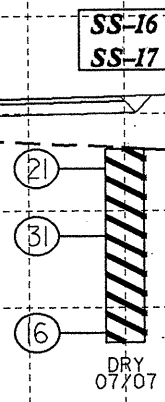
S-15
DRY
07707

8/23/99

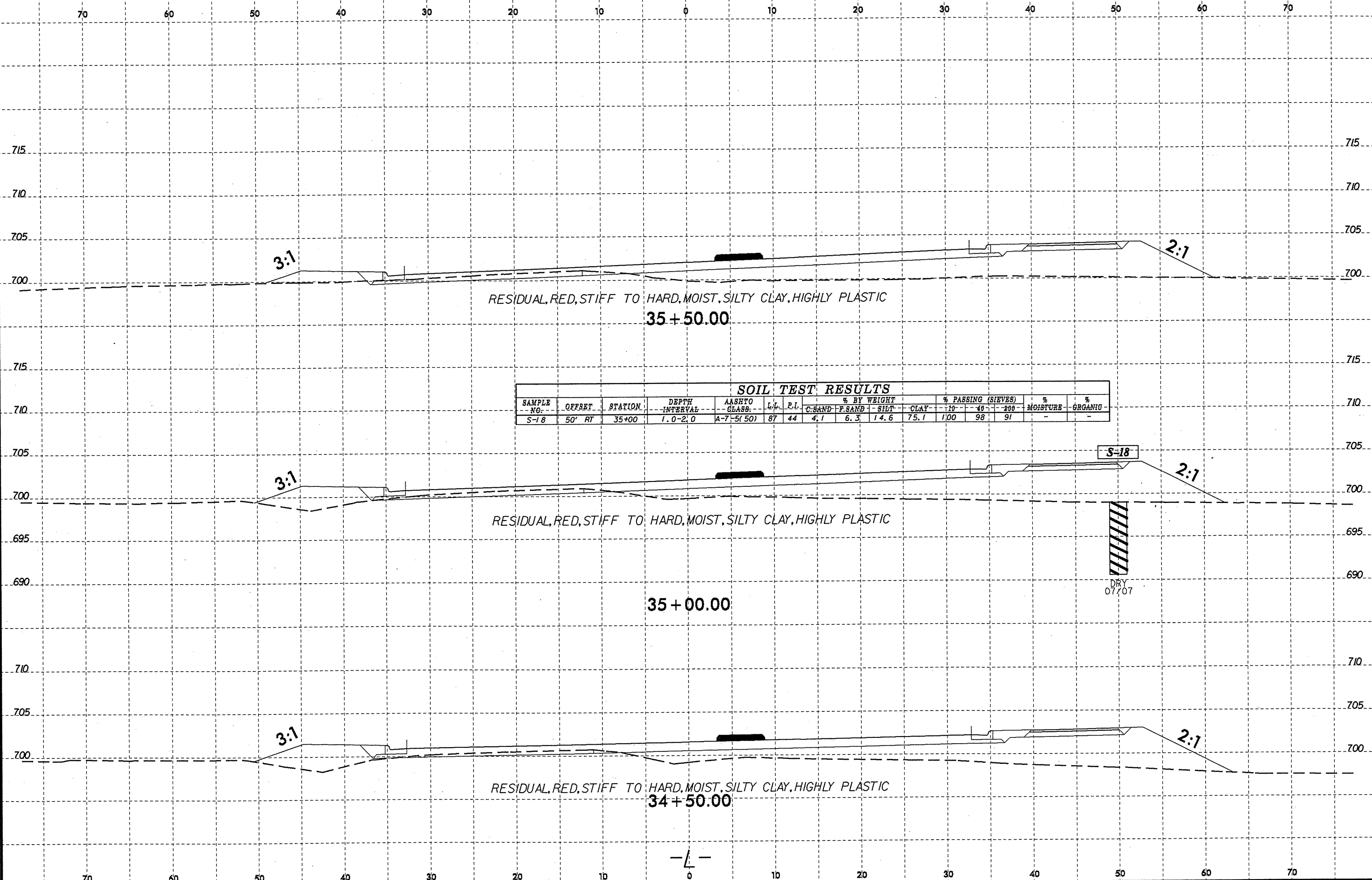


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	#10	#40	#200		
SS-16	50' RT	33+10	0.0-1.5	A-7-6(17)	53	26	13.0	21.5	16.8	48.7	99	93	68	-	-
SS-17	50' RT	33+10	8.5-10.0	A-7-6(12)	44	28	27.6	20.3	21.7	30.4	100	84	56	-	-



25-MAY-2010 13:07
C:\GIS\Projects\U3110B\Geo\U3110B_Geo.XSInewL.dgn
U3110B_GEO\TECH\XSO\U3110B_GEO.XSInewL.dgn

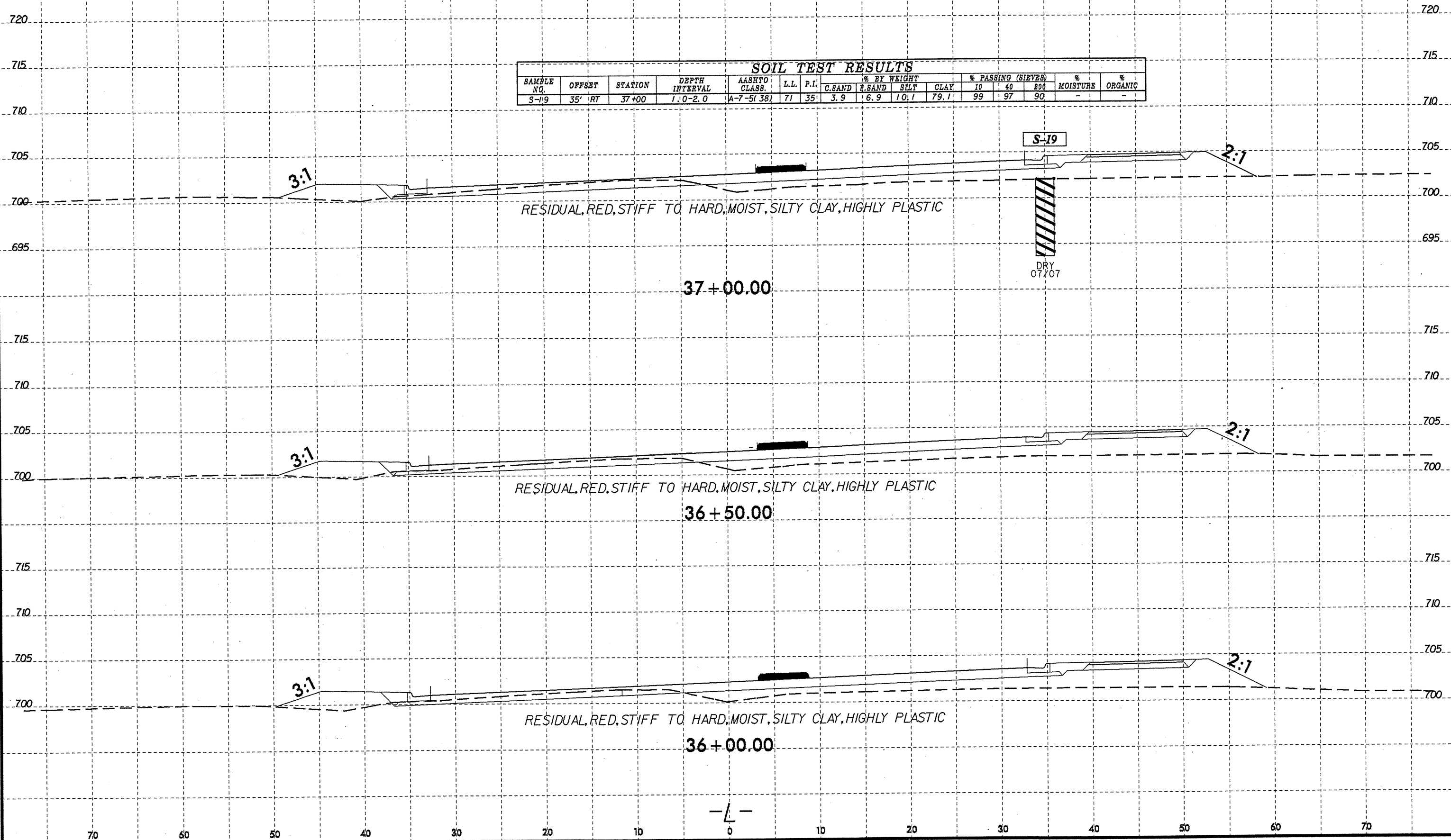


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-18	50' RT	35+00	1.0-2.0	A-7-5(50)	87	44	4.1	6.3	14.6	75.1	100	98	91	-	-

8/23/99

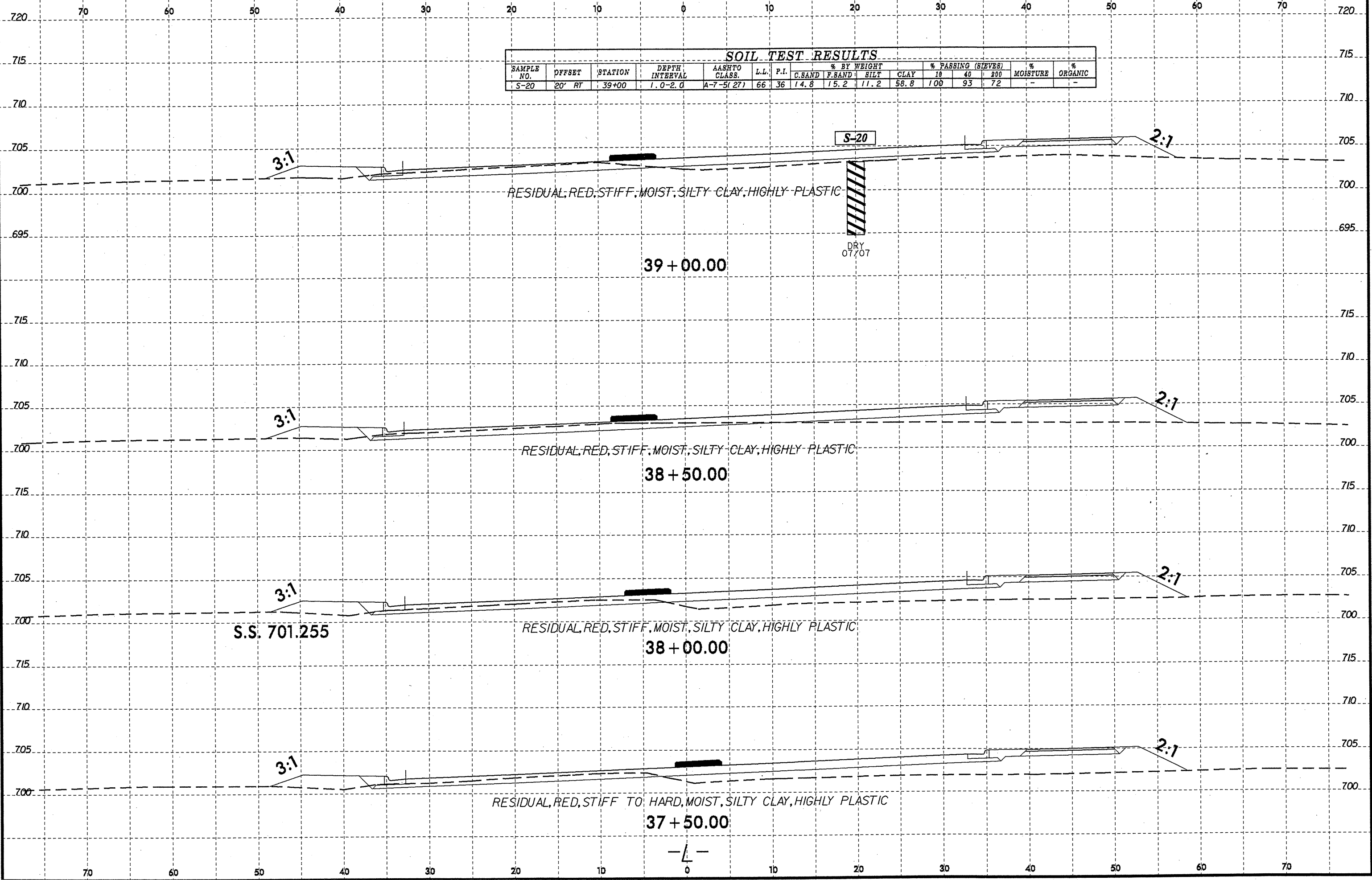
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-19	35' RT	37+00	1.0-2.0	A-7-5(38)	71	35	3.9	6.9	10.1	79.1	99	97	90	-	-



24-MAY-2010 13:12
C:\ERD\Projects\TIP\U3110B_geo_rdwj-rev\VCADD_GEO\TECH\XSO\U3110B_Geo_XSnewL.dgn
Walker AT GE248324

24-MAY-2010 13:12
 C:\Users\jerry\Documents\Projects\3110B\geo\rdwy_rev\CADD_GEO\TECH\Xsc\U3110B_Geo_XSnewL.dgn
 jerry
 AT GEJ248324

SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C.SAND	F.SAND	SILT	CLAY	10	40	200			
S-20	20' RT	39+00	1.0-2.0	A-7-5(27)	66	36	14.8	15.2	11.2	58.8	100	93	72	-	-	



39 + 00.00

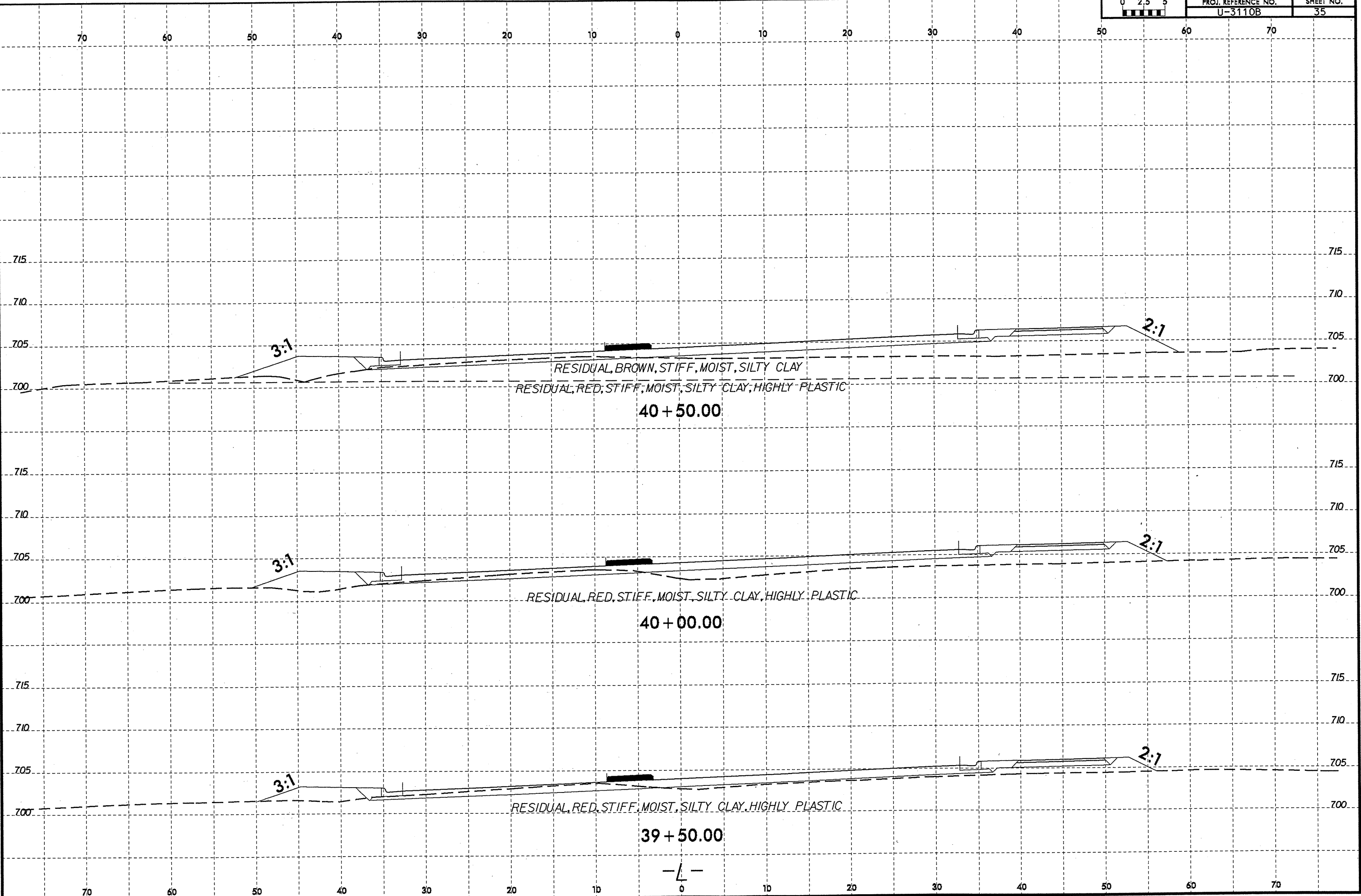
38 + 50.00

38 + 00.00

37 + 50.00

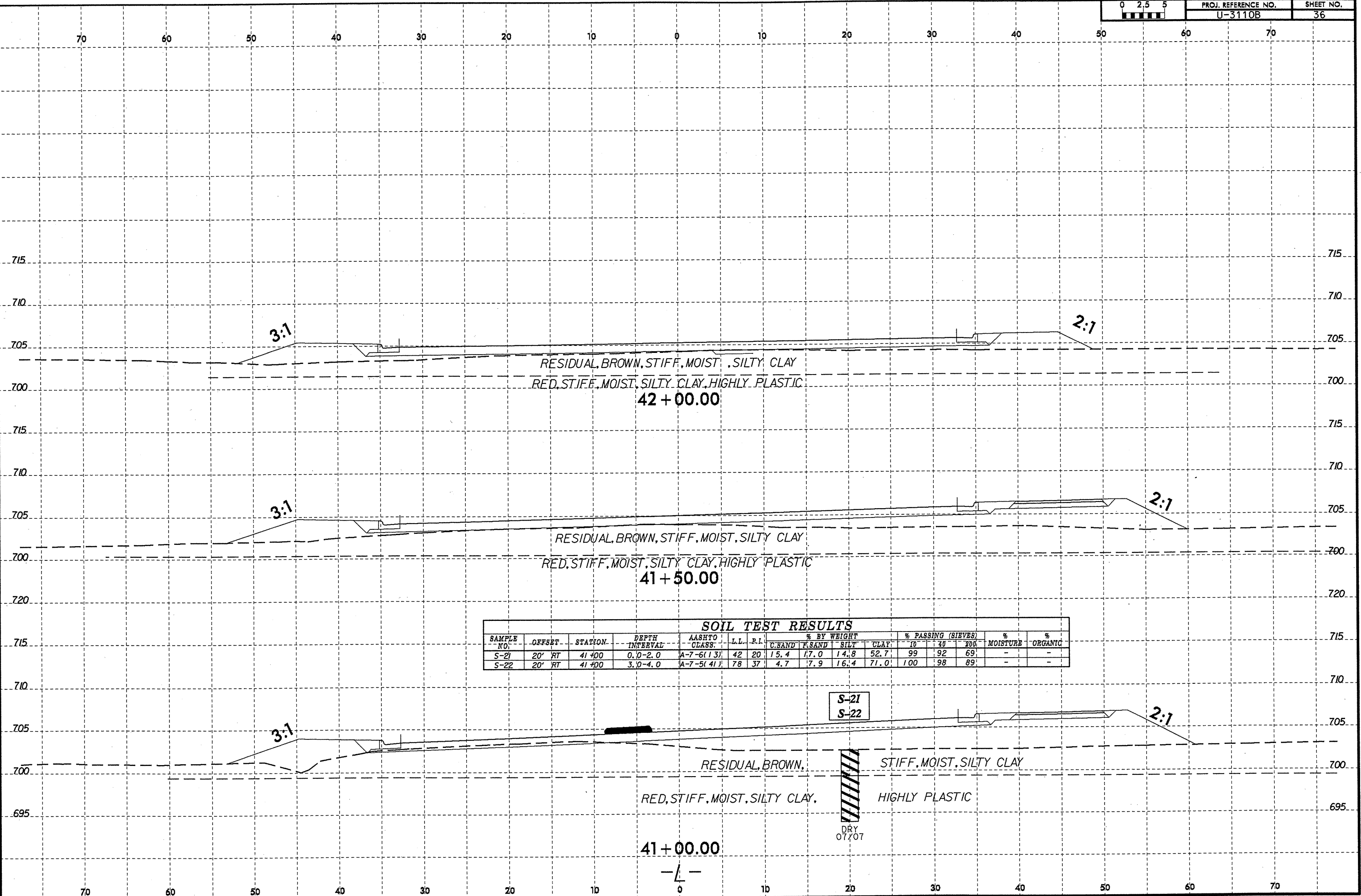
-L-

8/23/99
24-MAY-2010 13:12
L:\ERD\Relaigh AT GEJ248324
Investigation\TIP\U31108-geo-rdwj-rev\CADD_GEOTECH\sec\U31108-Geo_XSnewL.dgn



8/23/99

24-MAY-2010 13:12
I:\ERD\Rateigh\Projects\Station\TIP\U3110B-geo-rdwj-Rev\CADD_GEO\TECH\XSC\U3110B_Geo_XSfnewL.dgn
Walker



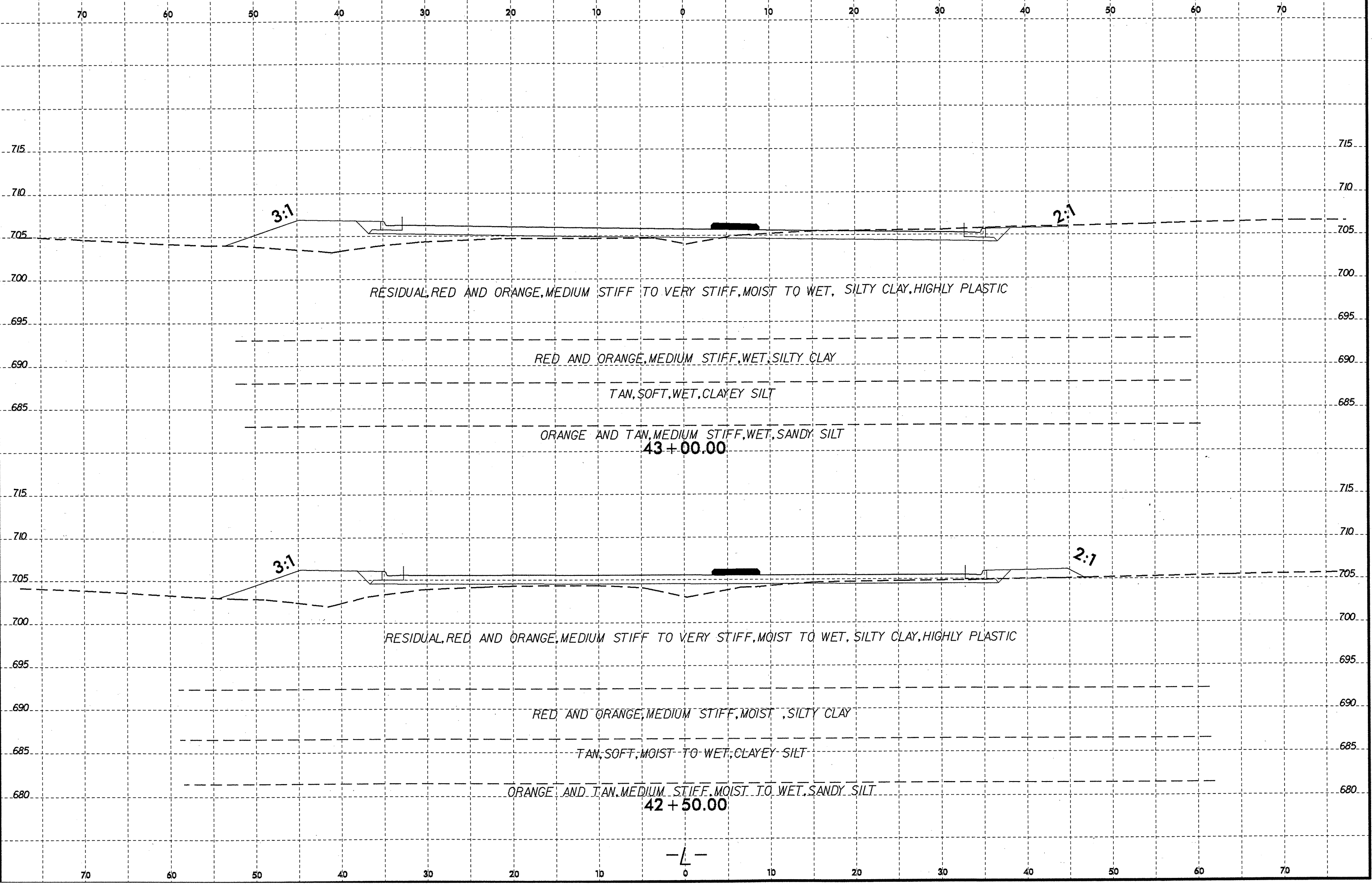
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-21	20' RT	41+00	0.0-2.0	A-7-6(13)	42	20	15.4	17.0	14.8	52.7	99	92	69	-	-
S-22	20' RT	41+00	3.0-4.0	A-7-5(41)	78	37	4.7	7.9	16.4	71.0	100	98	89	-	-

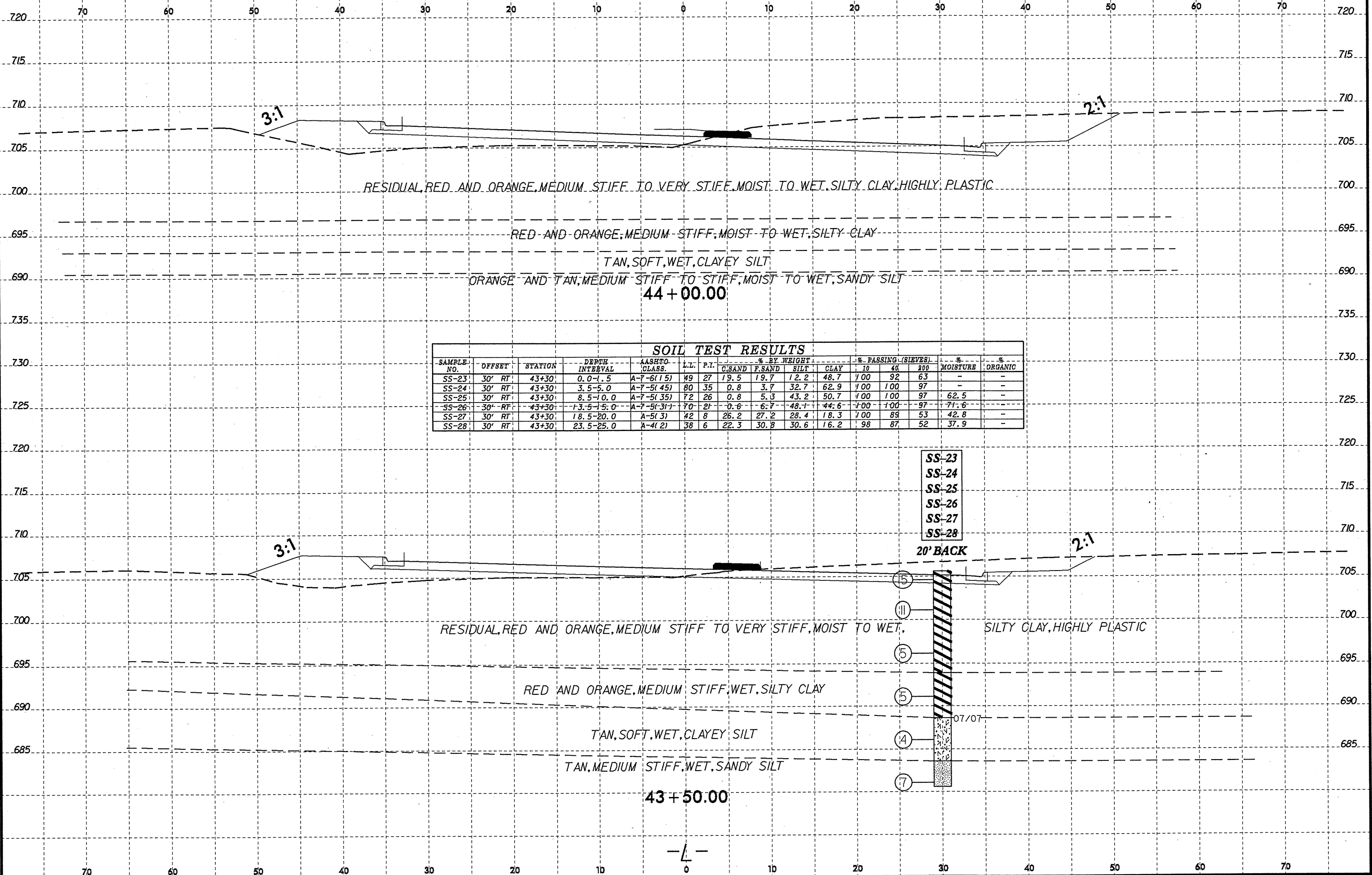
S-21
S-22

DRY
07/07

8/23/99
24-MAY-2010 13:12
L:\ERON\Projects\GIS\GIS\Station\TIP\U3110B_geo_rdvj-rev\CADD_GEOTECH\asc\U3110B_Geo_XSInewL.dgn
Walker - AT - GE248324

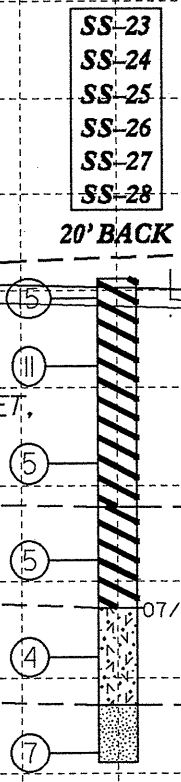


8/23/99
 24-MAY-2010 13:12
 C:\ERON\Projects\Station\TIP\U3110B_geo_rdwj_rev\CADD_GEO\GEO\X\Sheet.dgn
 ERON Raleigh
 AT GEJ248324



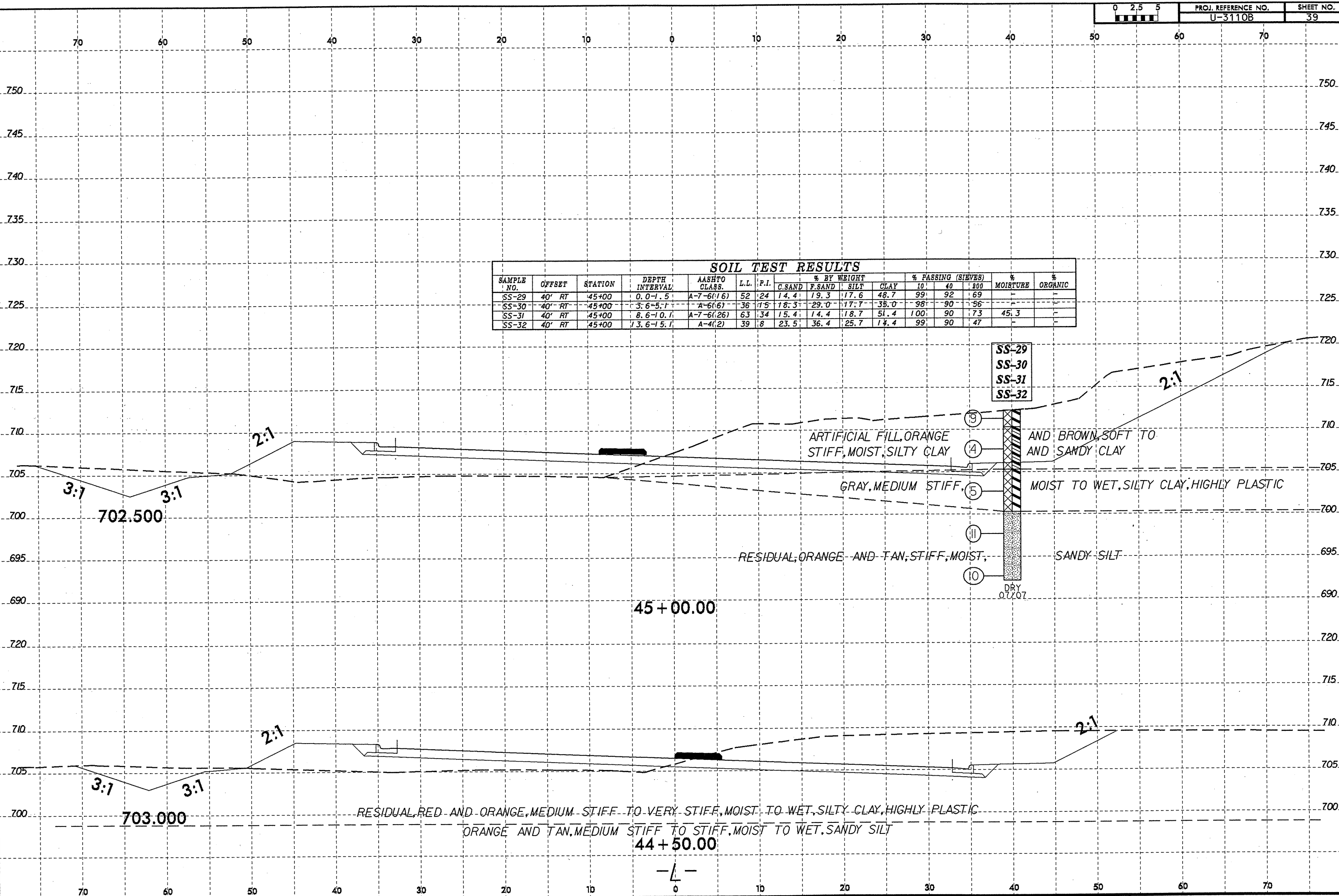
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-23	30' RT	43+30	0.0-1.5	A-7-6(15)	49	27	19.5	19.7	12.2	48.7	100	92	63	-	-
SS-24	30' RT	43+30	3.5-5.0	A-7-5(45)	80	35	0.8	3.7	32.7	62.9	100	100	97	-	-
SS-25	30' RT	43+30	8.5-10.0	A-7-5(35)	72	26	0.8	5.3	43.2	50.7	100	100	97	62.5	-
SS-26	30' RT	43+30	13.5-15.0	A-7-5(31)	70	21	0.6	6.7	48.1	44.6	100	100	97	71.6	-
SS-27	30' RT	43+30	18.5-20.0	A-5(3)	42	8	26.2	27.2	28.4	18.3	100	89	53	42.8	-
SS-28	30' RT	43+30	23.5-25.0	A-4(2)	38	6	22.3	30.8	30.6	16.2	98	87	52	37.9	-

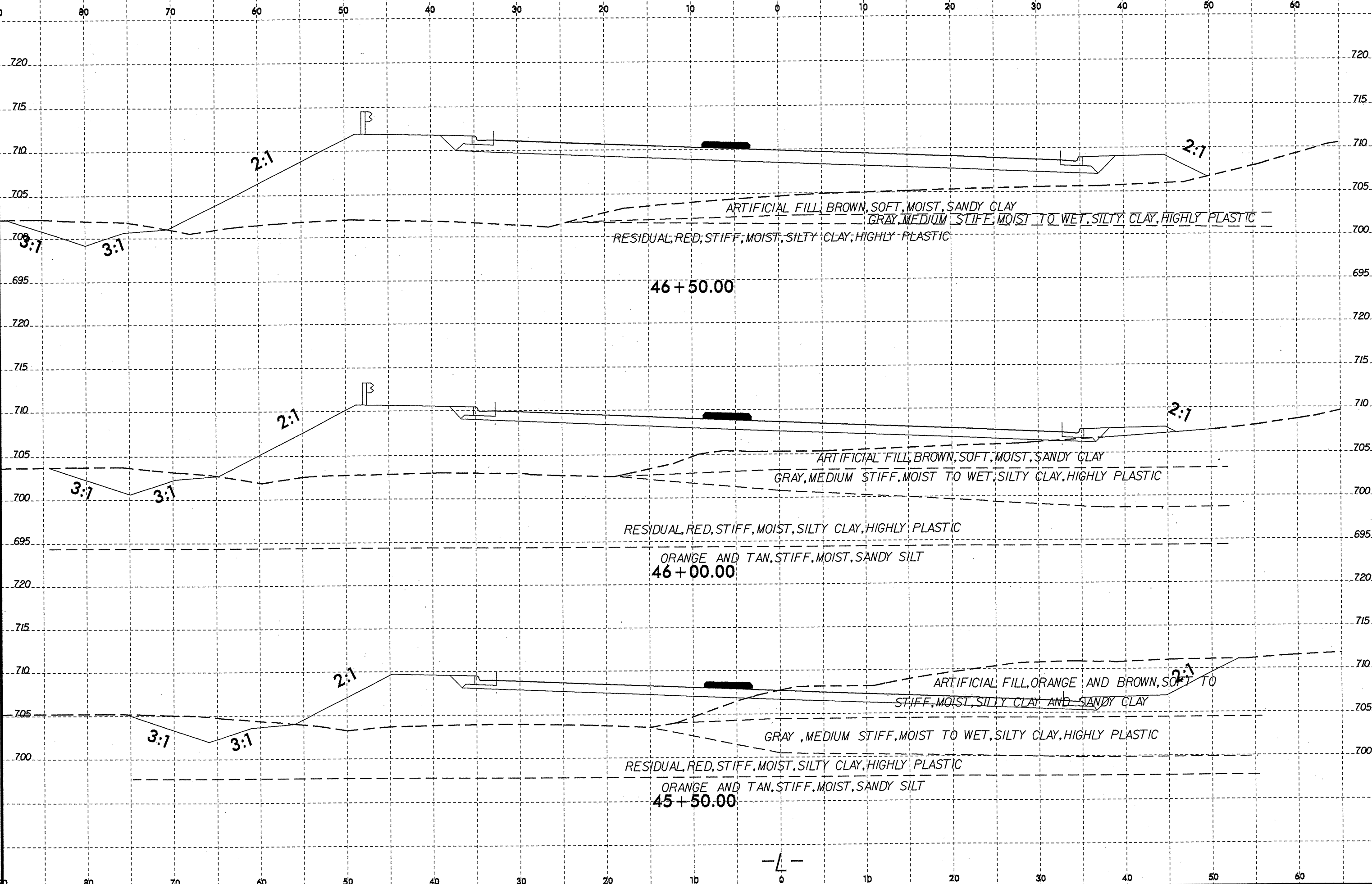


43 + 50.00

-L-

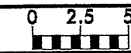


8/23/99

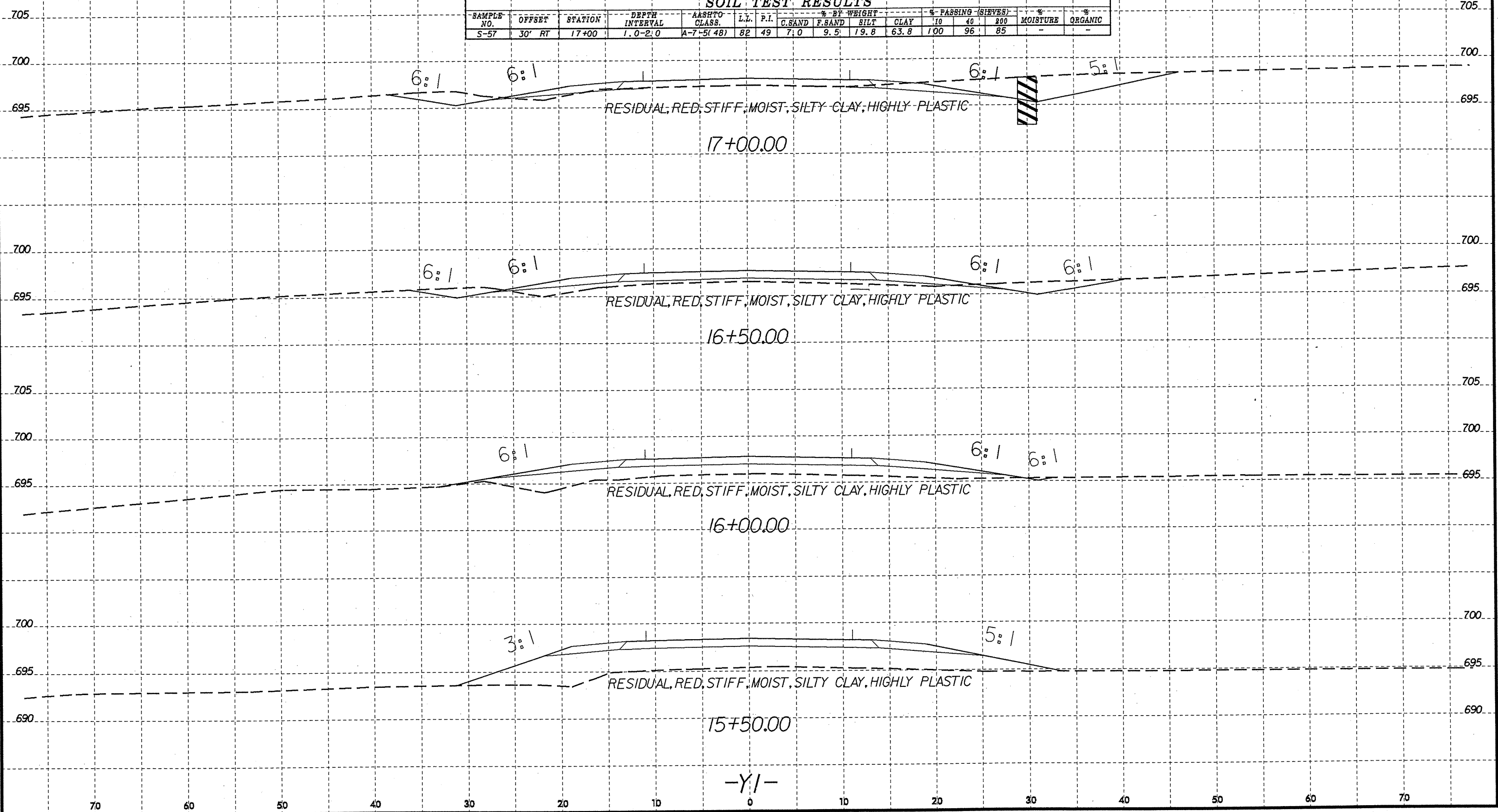


24-MAY-2010 13:42
L:\ERON\Railroad\TIP\U3110B_geo_rdvj_rev\CADD_GEO\TECH\XSC\U3110B_Geo_XSInewL.dgn
Titlebar AT GE1248324

8/23/99



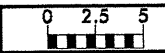
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#40	#200		
S-57	30' RT	17+00	1.0-2.0	A-7-5(48)	82	49	7.0	9.5	19.8	63.8	100	96	85	-	-



-Y/-

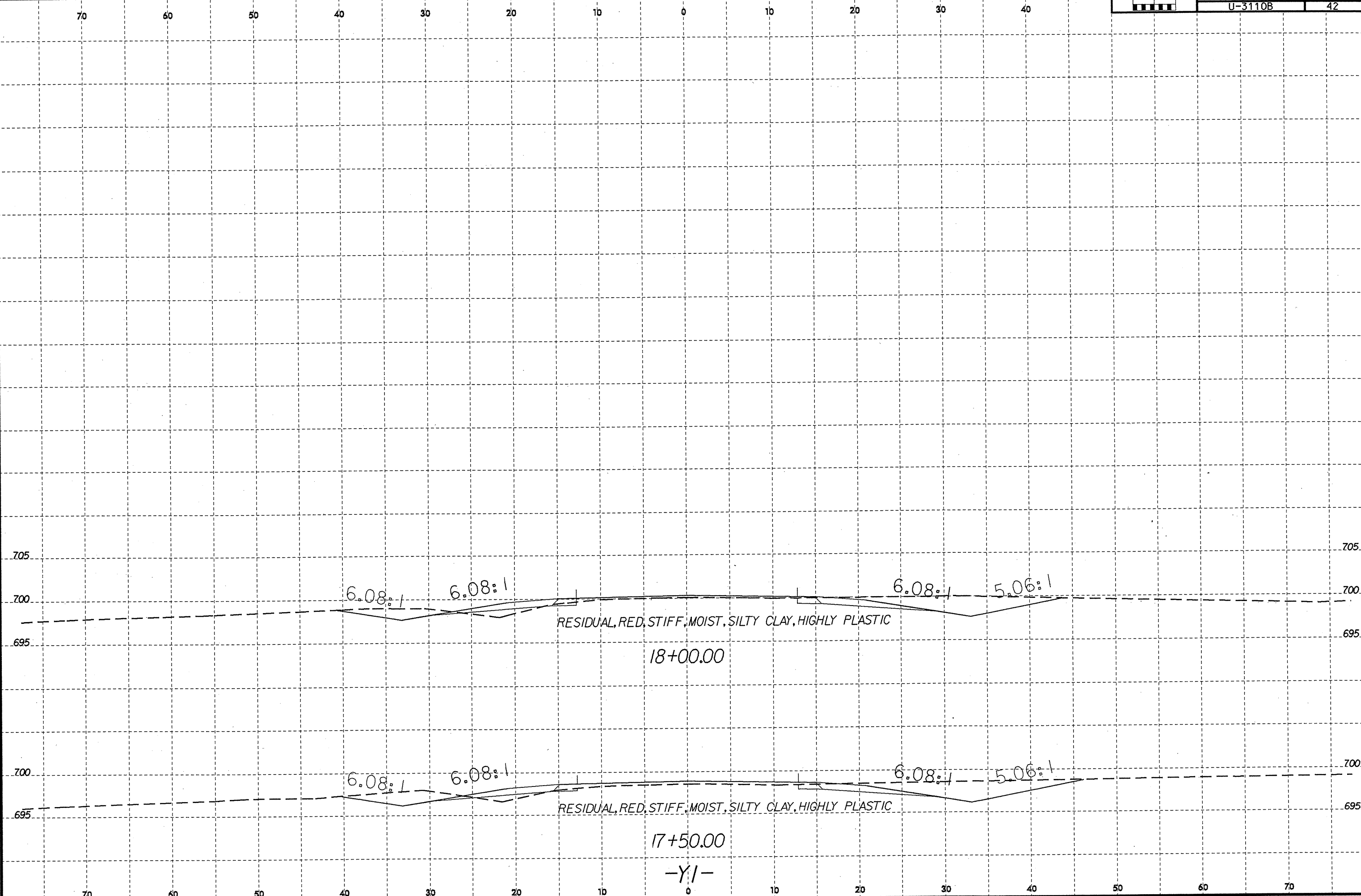
24-MAY-2010 13:11
I:\ERD\RAlejgh\proj\3110B\geo_rdwj-rev\CADD_GEO\TECH\XSC\U3110B_Geo_xs1_Y1&Y3.dgn
ttwalker AT GE0248324

8/23/99
24-MAY-2010 13:11
C:\ERON\Projects\TIP\U3110B\geo_rdwj-rev\CA00_GEO\TECH\sec\U3110B_Geo_xst.Y1&Y3.dgn
ttwalker AT GEJ248324



PROJ. REFERENCE NO.
U-3110B

SHEET NO.
42



6.08:1 6.08:1 6.08:1 5.06:1

RESIDUAL, RED, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

18+00.00

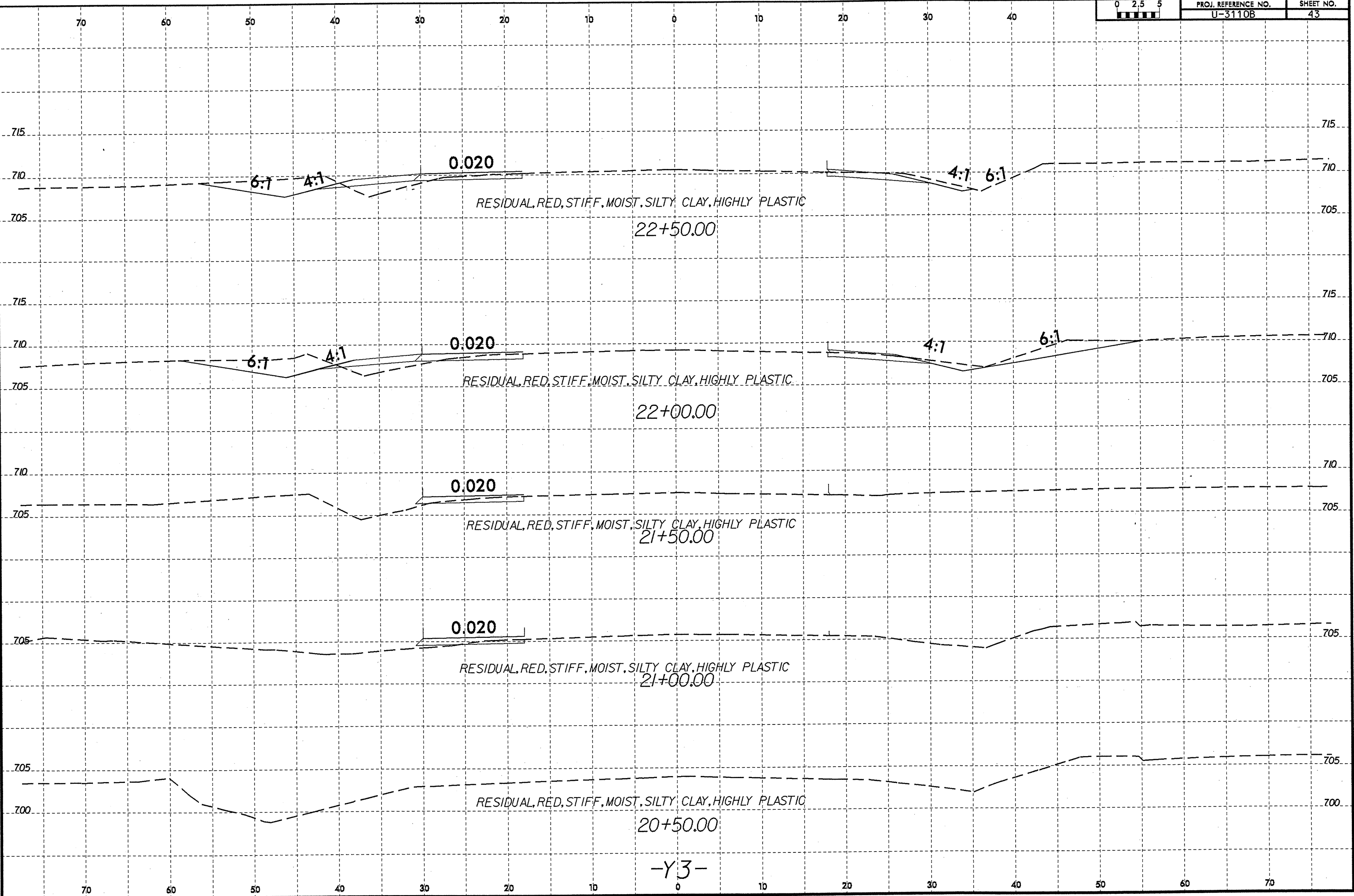
6.08:1 6.08:1 6.08:1 5.06:1

RESIDUAL, RED, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

17+50.00

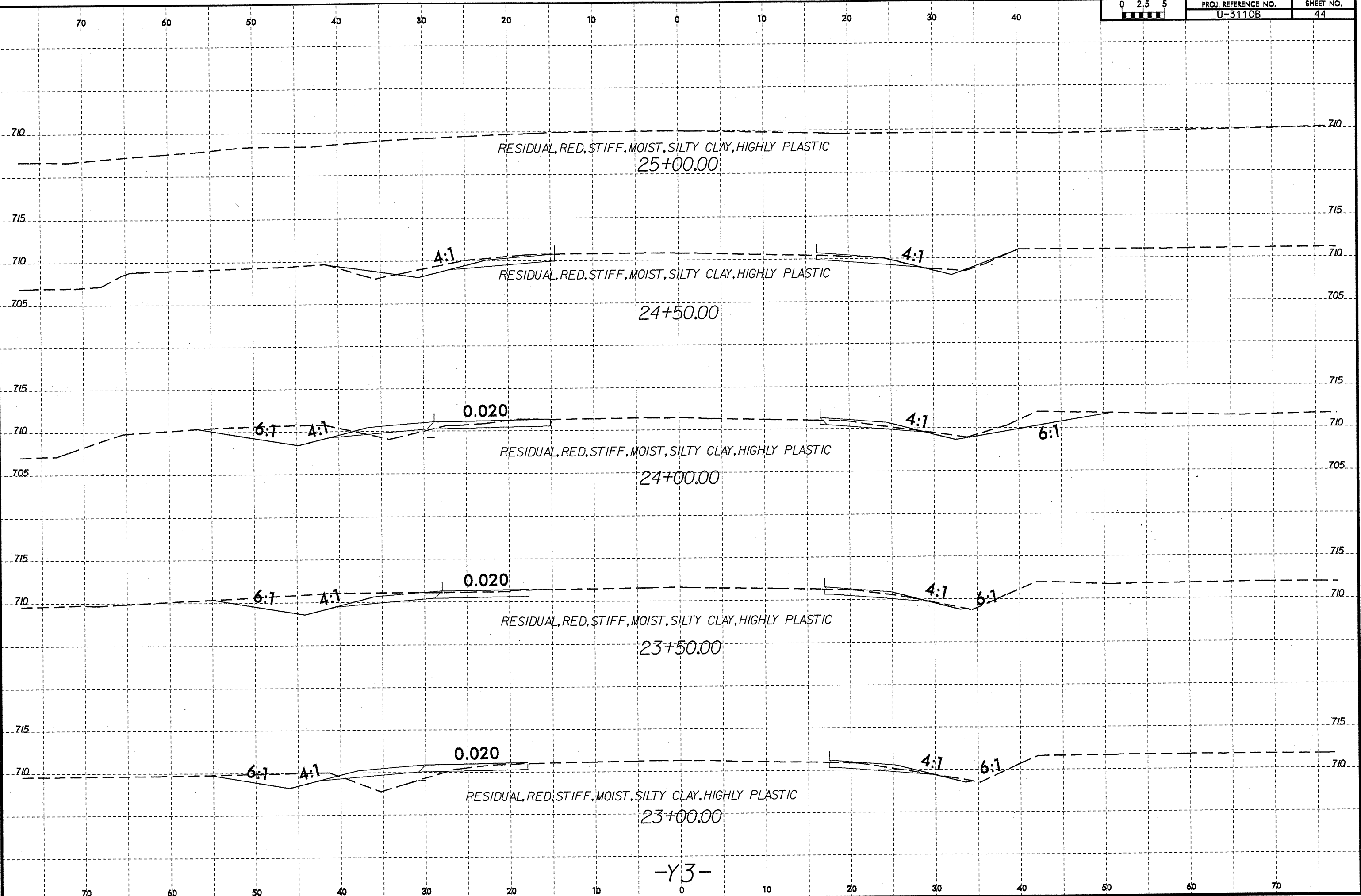
-Y1-

8/23/99
24-MAY-2010 13:41
C:\Users\jwalkers\Documents\TIP\U3110B_geo_rdwj_rev\ACADD_GEO\TECH\XSC\U3110B_Geo_xal_Y1&Y3.dgn
jwalkers AT GEI248324

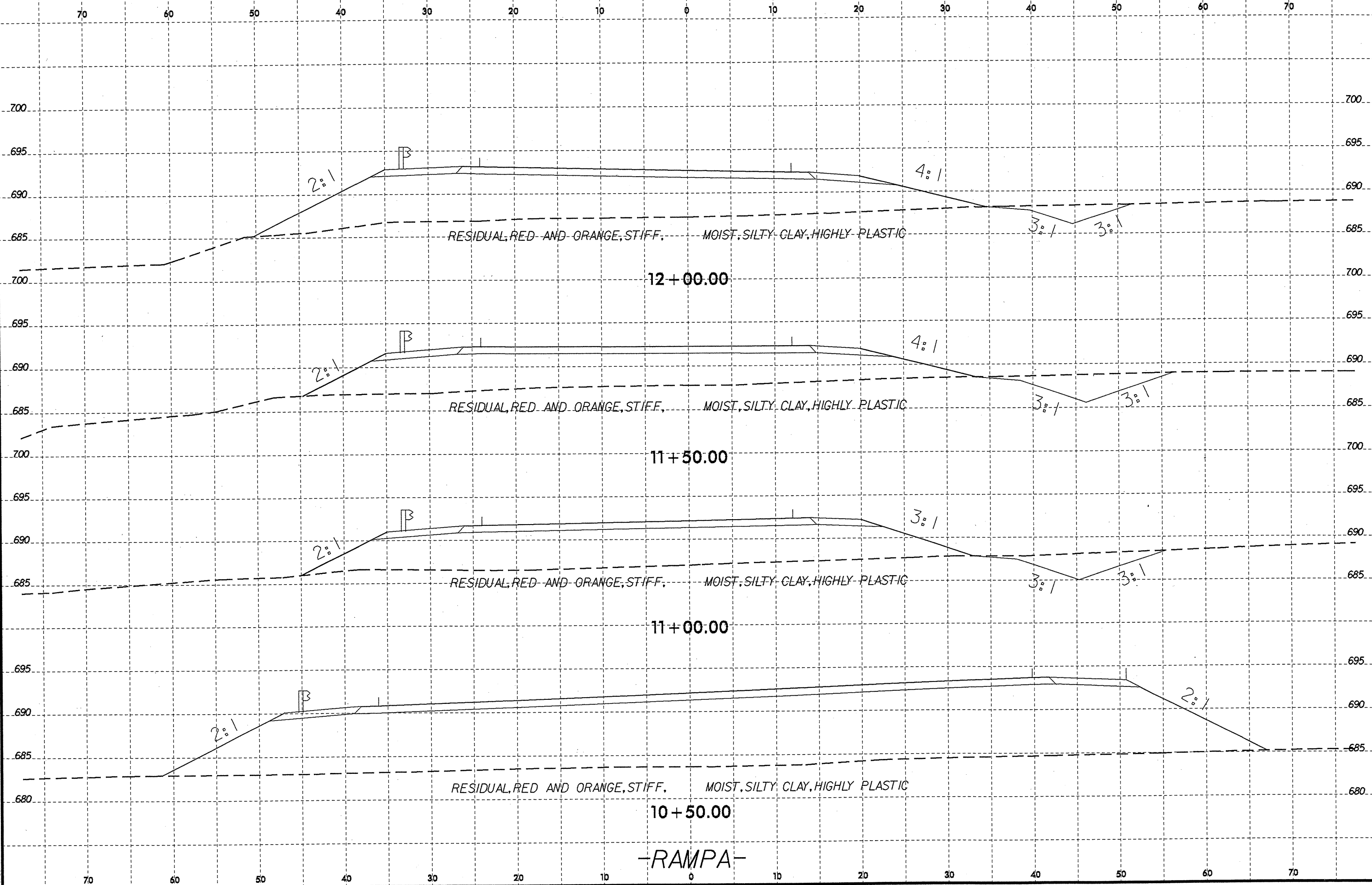


-Y3-

8/23/99
24-MAY-2010 13:11
\\p0591392\ton\TIP\U3110B_geo_rdvj-rev\ACADD_GEO\TECH\asc\U3110B_Geo_xa1_Y1&Y3.dgn
ERON Raleigh
tvalker AT GEJ248324

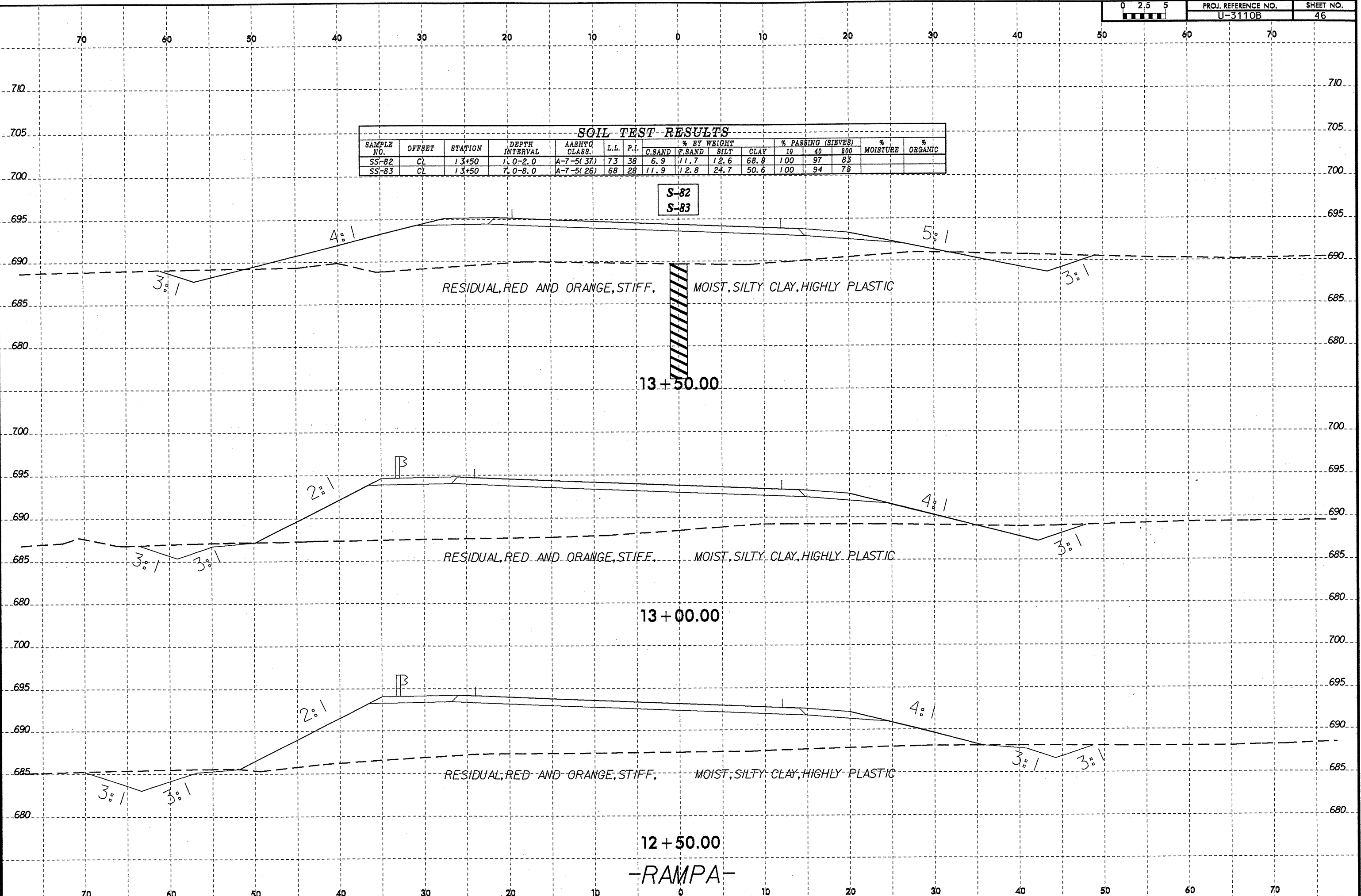


8/23/99
24-MAY-2010 13:11
C:\PROJ\RALEIGH\INVESTIGATION\TIP\U3110B_geo_rdwj_rev\CADD_GEO\TECH\XSEC\U3110B_Geo_RAMPA_XSL_REV.dgn
ctw/ker AT GEJ248324



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-82	CL	13+50	1.0-2.0	A-7-5(37)	73	38	6.9	11.7	12.6	68.8	100	97	83		
SS-83	CL	13+50	7.0-8.0	A-7-5(26)	68	28	11.9	12.8	24.7	50.6	100	94	78		

S-82
S-83



RESIDUAL RED AND ORANGE, STIFF. MOIST, SILTY CLAY, HIGHLY PLASTIC

RESIDUAL RED AND ORANGE, STIFF. MOIST, SILTY CLAY, HIGHLY PLASTIC

RESIDUAL RED AND ORANGE, STIFF. MOIST, SILTY CLAY, HIGHLY PLASTIC

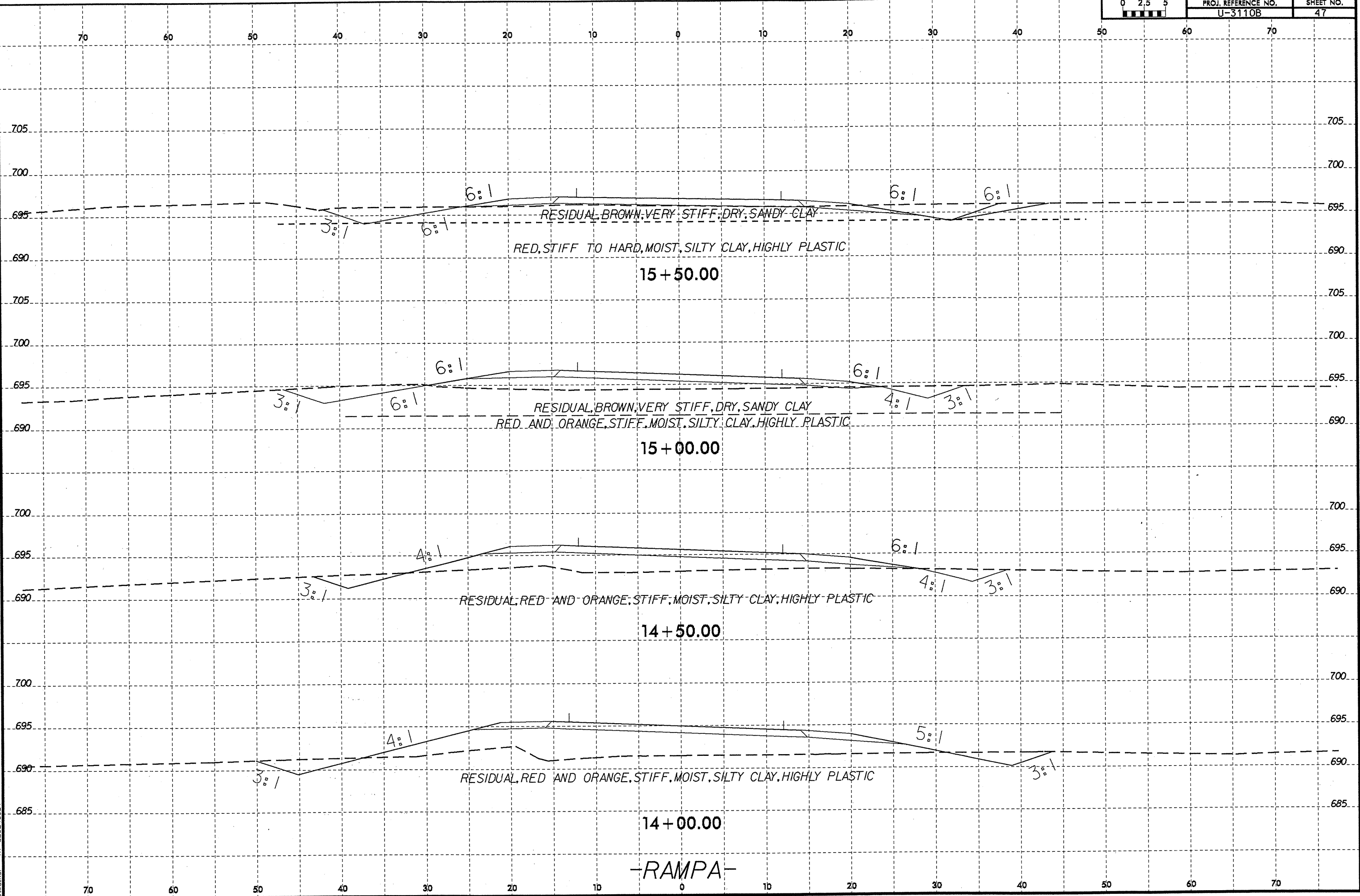
13+50.00

13+00.00

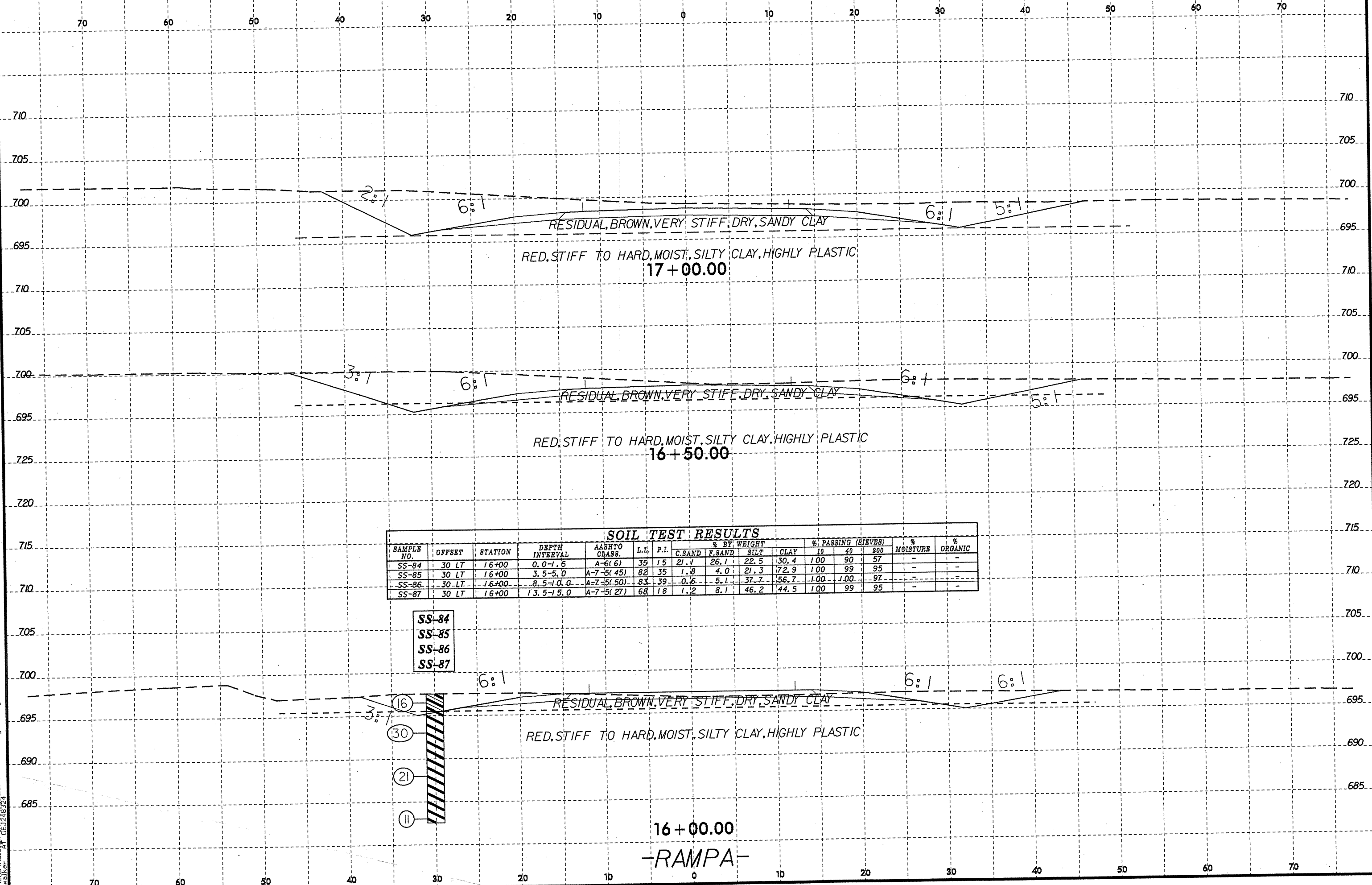
12+50.00

-RAMPA-

24-MAY-2010 13:11 I:\projects\geotecn\TIP-U3110B-geo_rdwj-rvv\CADD_GEO\TECH\XSC-U3110B_Geo-RAMPA_XSL.REV.dgn
t:\walker\at\GE3148324



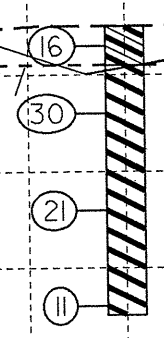
8/23/99
 24-MAY-2010 13:11
 L:\ERON\Projects\103110B\geo_rdwj\rev\CADDD_GEO\TECH\XST\REV.dgn
 twalker



SOIL TEST RESULTS

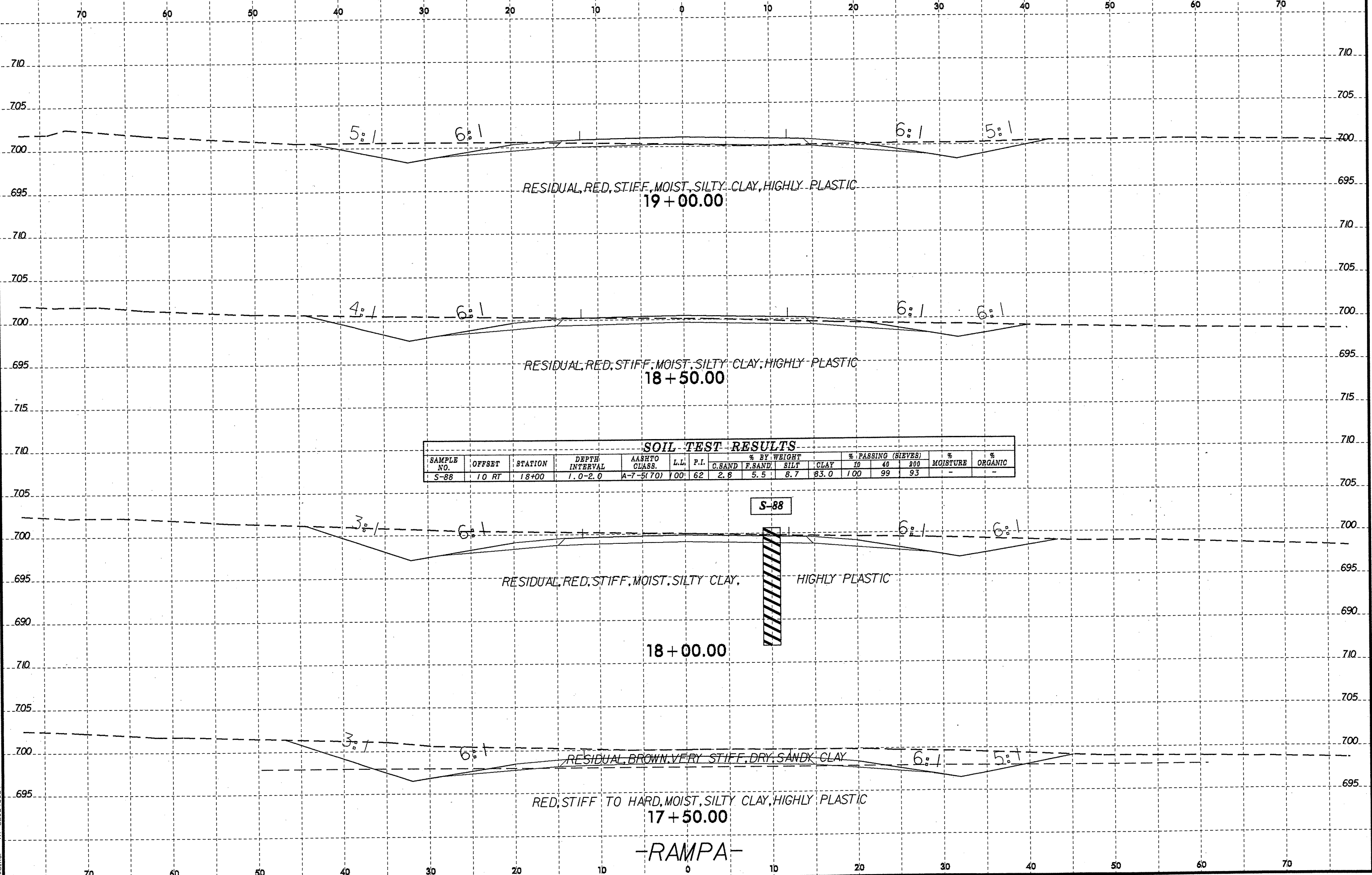
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-84	30 LT	16+00	0.0-1.5	A-6(6)	35	15	21.1	26.1	22.5	30.4	100	90	57	-	-
SS-85	30 LT	16+00	3.5-5.0	A-7-5(45)	82	35	1.8	4.0	21.3	72.9	100	99	95	-	-
SS-86	30 LT	16+00	8.5-10.0	A-7-5(50)	83	39	0.6	5.1	37.7	56.7	100	100	97	-	-
SS-87	30 LT	16+00	13.5-15.0	A-7-5(27)	68	18	1.2	8.1	46.2	44.5	100	99	95	-	-

- SS-84
- SS-85
- SS-86
- SS-87

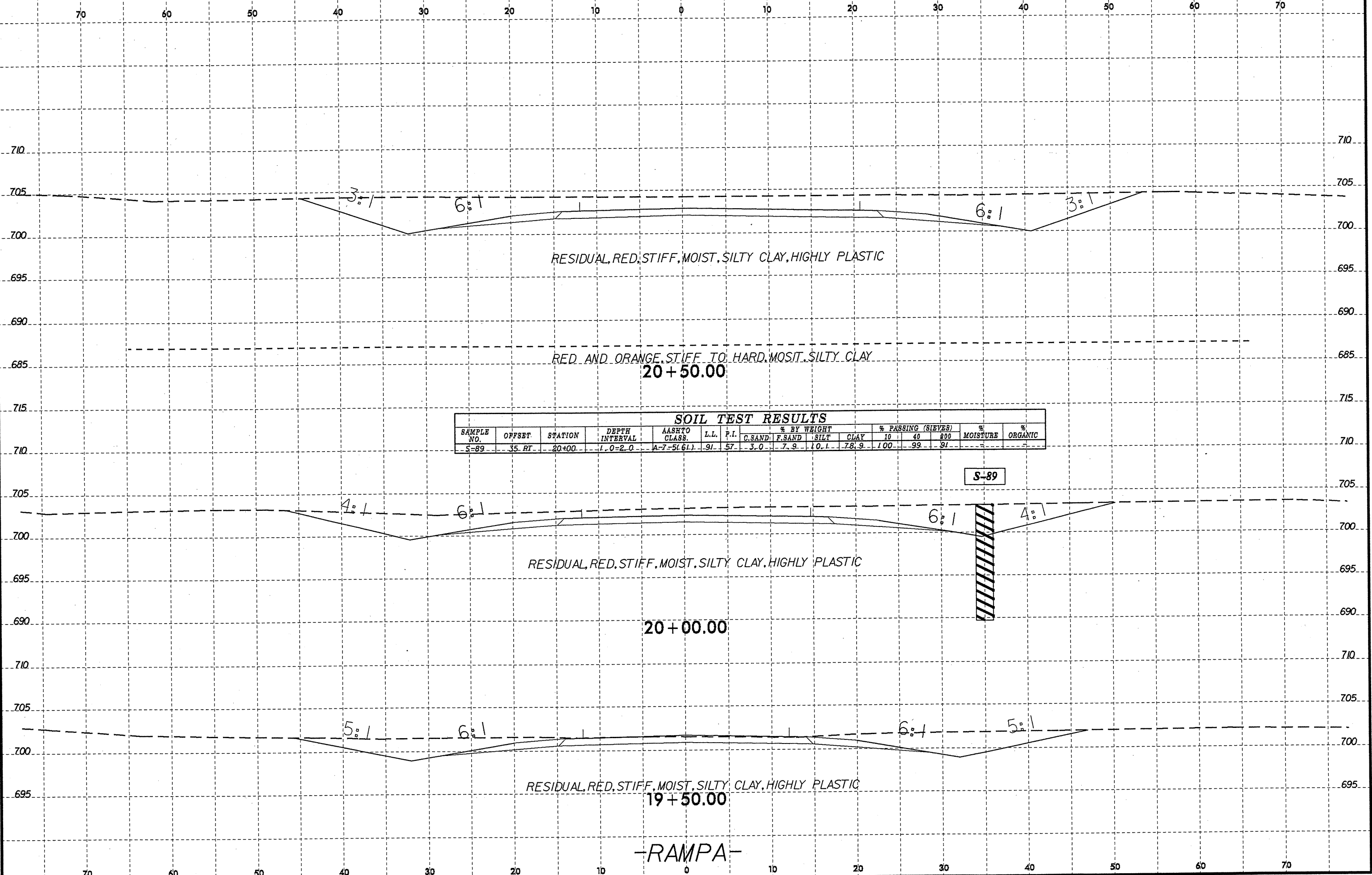


16+00.00
 -RAMPA-

8/23/99
 24-MAY-2010 13:11
 I:\projects\geotecn\TIP-U3110B-geo_rdky-rev\CADD_GEO\TECH\XSO-U3110B-Geo-RAMPA-XSL-REV.dgn
 ttwalker



8/23/99
 24-MAY-2010 13:11
 L:\ERD\Relief\dyvgs198\ton\TIP\U3110B_geo_rdwj-rev\CADD_GEO\TECH\XSC\U3110B_Geo_RAMPA_XSL_REV.dgn
 At GEI248324

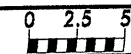


SOIL TEST RESULTS

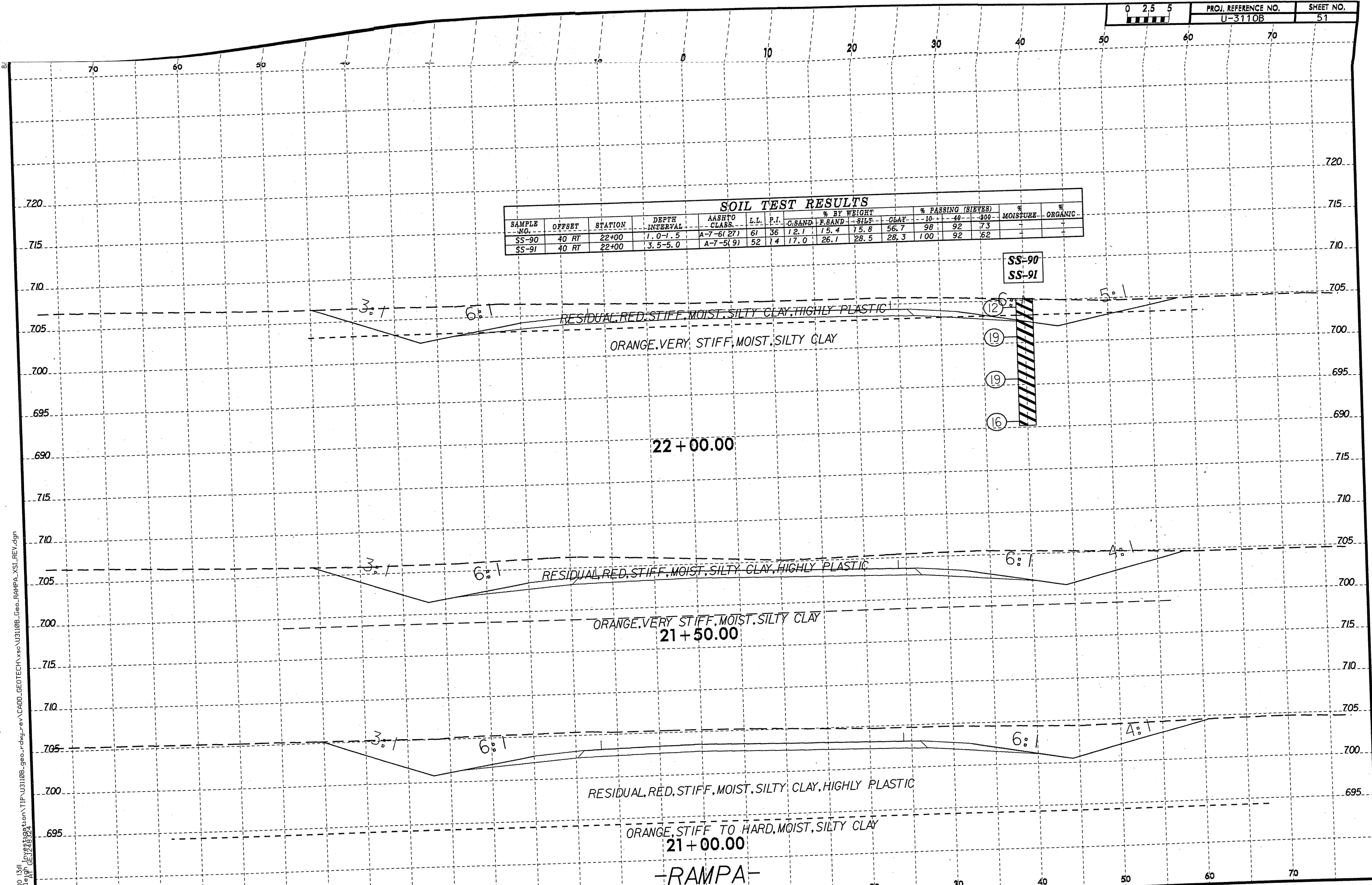
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	800		
S-89	35 RT	20+00	1.0-2.0	A-7-5(6.1)	91	57	3.0	7.9	10.1	78.9	100	99	91		

S-89

-RAMPA-



SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	-10-	-40-	-200-		
SS-90	40 RT	22+00	1.0-1.5	A-7-6(27)	61	36	12.1	15.4	15.8	56.7	98	92	73		
SS-91	40 RT	22+00	3.5-5.0	A-7-5(9)	52	14	17.0	26.1	28.5	28.3	100	92	62		

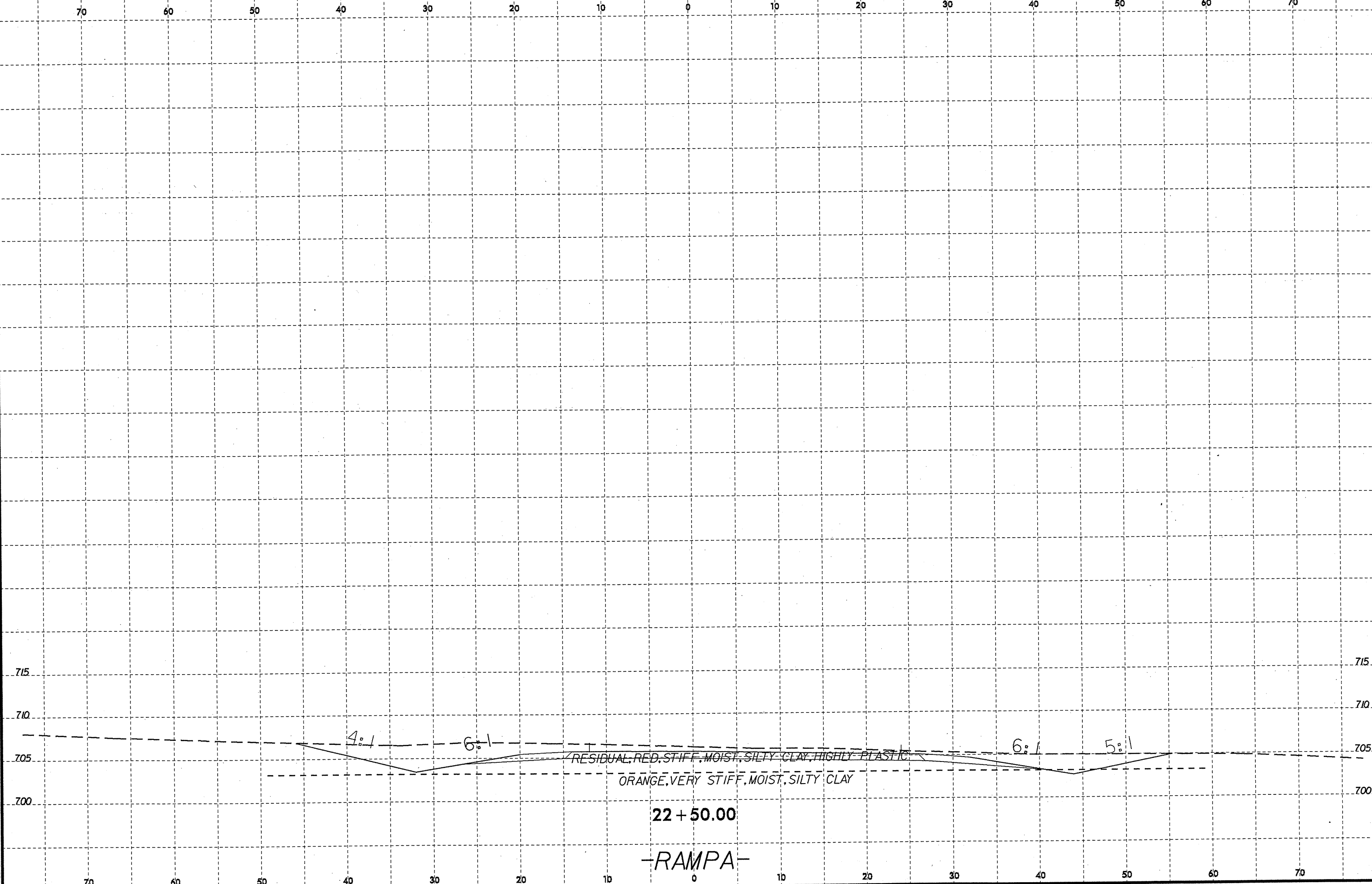


I:\Projects\2010\1341\10\Rel\Station\TIP\U3110B_geo_rdwj-rev\CADD\GEOTECH\XSI\U3110B_Geo_RAMPA_XSI_REV.dgn
 Date: 05/21/09
 User: AT

-RAMPA-

8/23/99

24-MAY-2010 13:41 J:\projects\99\station\TIP\U3110B_geo_rdwj-r-ev\CADD_GEO\TECH\sec\U3110B_Geo_RAMPA_XSL.REV.dgn
t:\walker_at\GEI248324



22 + 50.00

RAMPA

RESIDUAL RED, STIFF, MOIST, SILTY CLAY, HIGHLY PLASTIC

ORANGE, VERY STIFF, MOIST, SILTY CLAY

4:1

6:1

6:1

5:1

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

715
710
705
700

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70