

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-4006	1	25
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
35007.1.1	STP-4126(1)	P.E.	
35007.2.1	STP-4126(1)	RW UTIL	
35007.3.1	STP-4126(2)	CONST	

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	15+00 to 31+50	4, 5	9, 10	
	31+50 to 35+00	5	10	14, 15
	35+00 to 44+50	5, 6	10, 11	
	44+50 to 57+50	6, 7	11, 12	16-22
	57+50 to 68+59	7, 8	12	
-Y2-	10+35 to 16+50		13	
-SRI-	10+16 to 12+77		13	23
RW-1	16+75 to 20+24	24	24	
RW-2	16+75 to 20+14	24	24	
RW-3	16+75 to 18+25	25	25	

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35007.1.1 (U-4006) F.A. PROJ. STP-4126(1)
COUNTY GUILFORD
PROJECT DESCRIPTION GREENSBORO SR 4126 (BRIDFORD PARKWAY, NEW ROUTE) FROM SR 1541 (WENDOVER AVE.) AT HORNADAY RD. TO SR 1607 (BURNT POPLAR RD.) AT SWING RD. INVENTORY

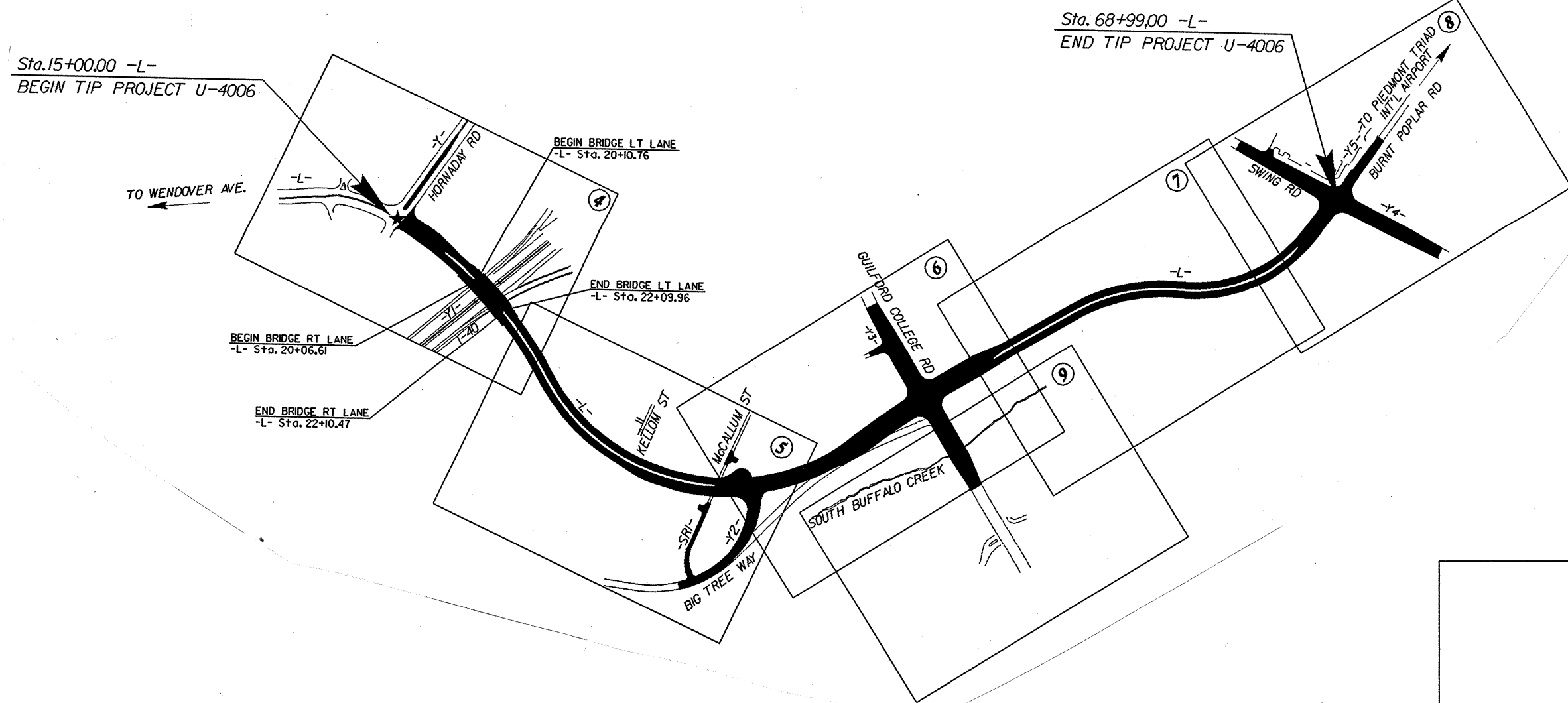
CAUTION NOTICE

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

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

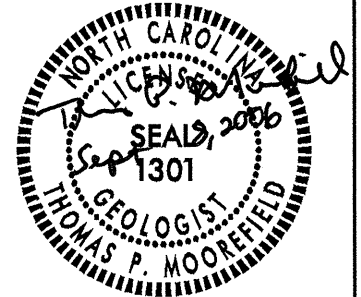
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT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

CONTRACT: C202163 ID: U-4006



- PERSONNEL
- N.D. MOHS
 - L.W. DAIL
 - R.E. SMITH
 - W.N. CHERRY
 - J. WHITE

INVESTIGATED BY T.P. MOOREFIELD
CHECKED BY N.T. ROBERSON
SUBMITTED BY N.T. ROBERSON
DATE SEPTEMBER 2006



DRAWN BY: T.T. WALKER

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

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO.
U-4006(35007.1,1)

SHEET NO.
2

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

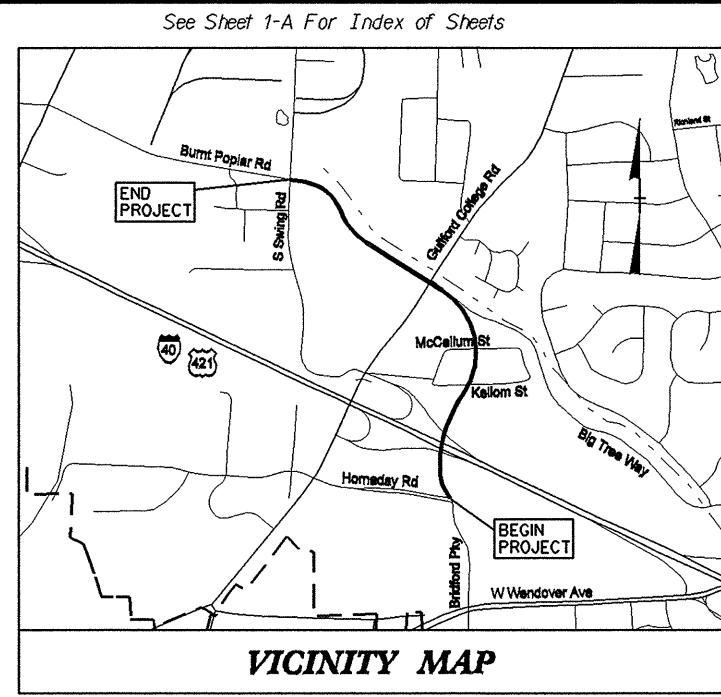
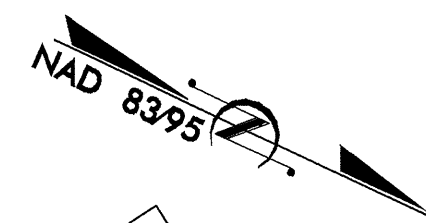
SOIL DESCRIPTION				GRADATION				ROCK DESCRIPTION				TERMS AND DEFINITIONS			
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (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, MOST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-6				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.				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:				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. FALLT - 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 IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 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.			
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-1-b, A-3, A-2, A-2-4, A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7 SYMBOL [Grid of patterns for soil types]				MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.				WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)				WEATHERING FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.): 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 (SL.): ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.): SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.): ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL.</i> SEVERE (SEV.): ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF.</i> VERY SEVERE (V SEV.): ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF.</i> COMPLETE: ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.			
PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE				GROUND WATER WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP				MISCELLANEOUS SYMBOLS ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE 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							
CONSISTENCY OR DENSITY PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)				TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053 BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.) GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3				ABBREVIATIONS AR - AUGER REFUSAL HI. - HIGHLY BT - BORING TERMINATED MED. - MEDIUM CL. - CLAY MICA - MICACEOUS CPT - CONE PENETRATION TEST MOD. - MODERATELY CSE. - COARSE NP - NON PLASTIC DMT - DILATOMETER TEST ORG. - ORGANIC 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 SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL - LIQUID LIMIT - SATURATED - 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 DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST CME-45B ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING W/ ADVANCER TRICONE STEEL TEETH TRICONE TUNG-CARB. CORE BIT HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST				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 PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT: CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT: CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.							
PLASTICITY NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH				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							
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. FRIABLE: RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED: GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED: GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED: SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.				BENCH MARK: ELEVATION: FT. NOTES:							

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4006	2A	25
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35007.1.1	STP-4126(1)	P.E.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

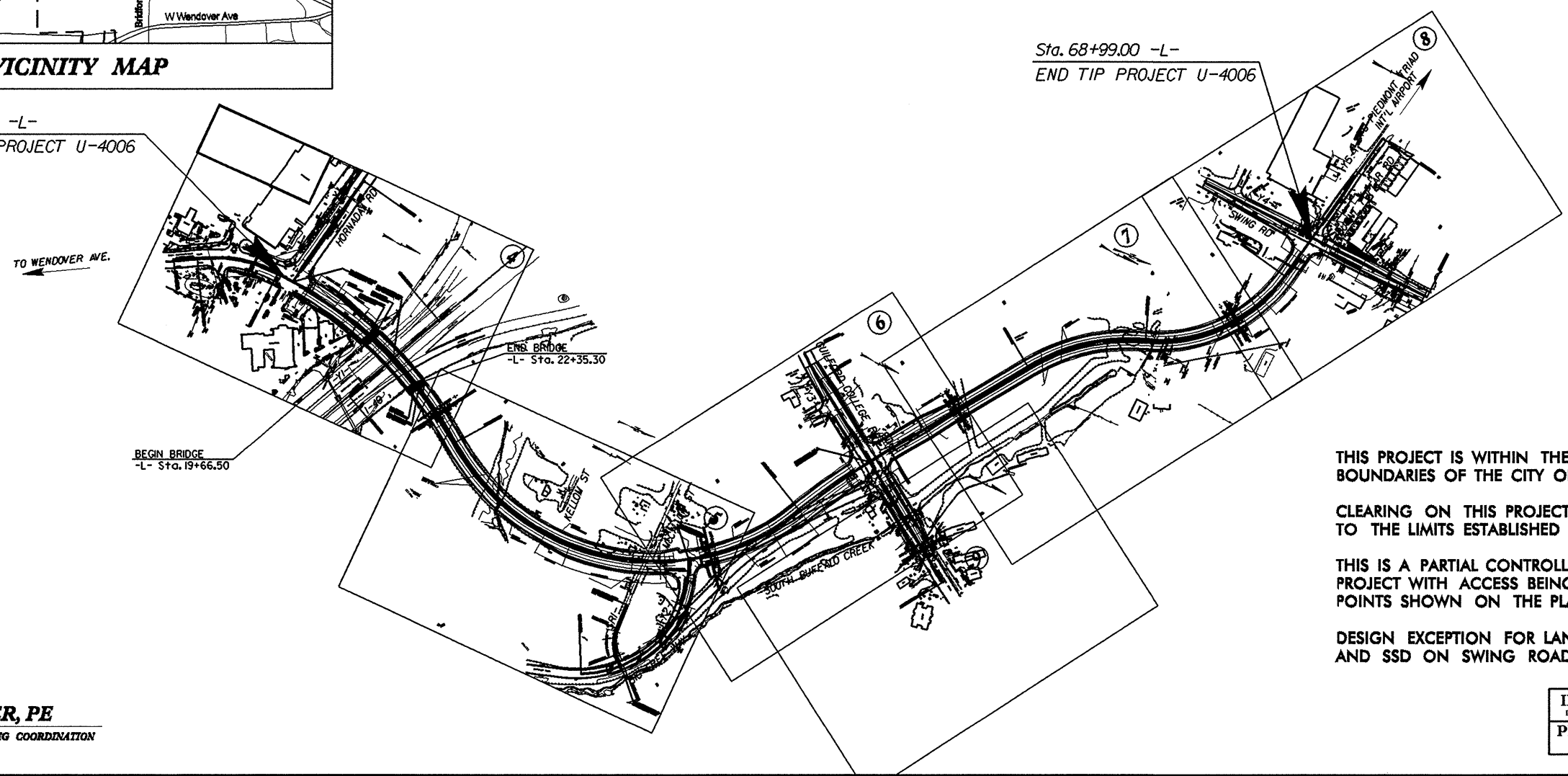
GUILFORD

**LOCATION: GREENSBORO SR 4126 (BRIDFORD PARKWAY, NEW ROUTE)
FROM SR 1541 (WENDOVER AVE.) AT HORNDAY RD. TO
SR 1607 (BURNT POPLAR ROAD) AT SWING ROAD
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES,
AND SIGNALS**



Sta. 15+00.00 -L-
BEGIN TIP PROJECT U-4006

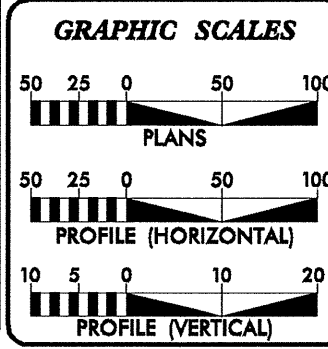
Sta. 68+99.00 -L-
END TIP PROJECT U-4006



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.
DESIGN EXCEPTION FOR LANE WIDTH, K VALUE, AND SSD ON SWING ROAD.

NC DOT CONTACT:
CATHY HOUSER, PE
ROADWAY DESIGN-ENGINEERING COORDINATION

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



DESIGN DATA

ADT 2008 =	23,162
ADT 2028 =	31,469
DHV =	11 %
D =	60 %
T =	6 % *
V =	40 MPH
* TTST 1%	DUAL 5%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-4006 =	0.972 miles
LENGTH OF STRUCTURE TIP PROJECT U-4006 =	0.051 miles
TOTAL LENGTH TIP PROJECT U-4006 =	1.023 miles

ARCADIS
6 & 8 of North Carolina, Inc.
80 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5013
Tel: 919/854-0282 Fax: 919/854-5448
for the North Carolina Department of Transportation

2002 STANDARD SPECIFICATIONS	ARGADIS CONTACT:
RIGHT OF WAY DATE: FEBRUARY 16, 2007	STEVE SMALLWOOD, P.E. PROJECT ENGINEER
LETTING DATE: AUGUST 19, 2008	

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

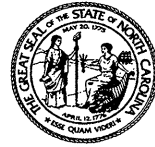
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

PROJECT: U-4006
 TIP PROJECT: 35007.1.1
 PROJECT: 35007.1.1
 ARCADIS C&M Date: \$DATE\$ Time: \$TIME\$ File: \$FILE\$



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

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

Lyndo Tippett
SECRETARY

September 8, 2006

STATE PROJECT: 35007.1.1 (U-4006)
FEDERAL PROJECT: STP-4126(1)
COUNTY: Guilford

DESCRIPTION: Greensboro SR 4126 (Bridford Parkway, new route) from SR 1541 (Wendover Ave.) at Hornaday Rd. to SR 1607 (Burnt Poplar Rd.) at Swing Rd.

SUBJECT: Geotechnical Report – Inventory

Project Description

Existing Bridford Parkway is to be extended on a new location (-L-) from its intersection with Hornaday Rd., to the intersection of Swing Rd. and Burnt Poplar Rd. A new bridge will carry -L- over I-40. A service road -SR1-, will be constructed from Big Tree Way to the eastern portion of McCallam St. Big Tree Way (-Y2-) is being realigned to intersect with the new Bridford Parkway, just east of the Guilford College Rd. intersection. Three retaining wall structures are proposed. Retaining Wall Nos. 1 and 2 (RW-1 and RW-2) will support the bridge approach embankment from approximately -L- Sta. 16+75 to 20+24. Retaining Wall No. 3 will accommodate the widening of Swing Rd. (-Y4-) just north of its intersection with -L-. This wall is 150 feet in length and two to three feet in height.

The geotechnical field investigation was conducted during the period of May and June, 2006. An ATV-mounted CME-45B drill machine with an automatic hammer was used 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 1.1 miles, were investigated. Subsurface soil profiles, or cross-sections, of these alignments are included in this report.

<u>Line</u>	<u>Station</u>
-L-	15+50 to 68+59
-Y2-	10+35 to 16+50
-SR1-	10+16 to 12+77

Areas of Special Geotechnical Interest

1) Highly Plastic Clay Soils: Continuous intervals containing highly plastic clay soils are noted below:

<u>Alignment</u>	<u>Station</u>
-L-	17+00 to 19+50
-L-	31+00 to 34+50
-L-	44+60 to 57+00

Additional occurrences of highly plastic clay soil are located below:

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	24+00	CL
-L-	37+50	40 RT
-SR1-	134+50	20 RT

A discussion of these highly plastic clay soils is located below in the section titled: "Soil Properties".

2) Crystalline Rock: Crystalline rock was encountered in the following borings:

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	26+50	CL
-L-	28+50	CL
-SR1-	11+00	CL

Physiography and Geology

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

Soil Properties

Artificial Fill: Artificial fill soil occurs from -L- Sta. 15+50 to Sta. 19+50. The fill soil was placed in a former stream channel which flowed from left to right across the -L- alignment. The fill was most likely placed during grading for the adjacent business site. The fill consists of medium stiff to very stiff, moist clay, silty clay, sandy silty clay, and sandy silt. The fill soil contains minor amounts of gravel, wood debris, and glass.

Alluvial Soils: Alluvial soil was encountered beneath the artificial fill soil at -L- Sta. 17+00 to 18+30. The alluvial soil consists of approximately 5 to 7 feet of medium stiff, silty clay and sandy silty clay. The alluvial soil occurs in a narrow stream channel buried beneath an existing embankment.

Residual Soils: The residual soils are derived from the in-place weathering of the underlying metamorphosed, 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 clay, silty clay, and sandy, silty clay (A-6, A-7-5, and A-7-6). Minor amounts of medium stiff, sandy silt and loose, silty sand (A-2-4) 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 greater than 25) are listed above in the section "Areas of Special Geotechnical Interest".

Rock Properties

Weathered rock and crystalline rock were encountered in three areas of the project. The weathered rock is derived from the underlying diorite bedrock. The weathered rock occurs at depths ranging from seventeen to thirty-four feet. Crystalline rock was encountered in three borings listed above in the section "Areas of Special Geotechnical Interest".

Groundwater

Groundwater was encountered in several borings on the project generally at depths ranging from five to thirty-one feet below the ground surface.

Contaminated Soils

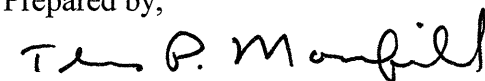
-L- Sta. 60+30 to 68+50: Two Underground Storage Tank (UST) facilities are located within the project limits, and will be directly affected by the proposed alignment of U-4006 as noted in the GeoEnvironmental Impact Evaluation dated September 12, 2002. These sites are located at 305 South Swing Rd. and 307 South Swing Rd. Chlorinated solvent contamination has been found in soil and groundwater at approximately -L- Sta. 60+00 to 68+99. Monitoring wells are distributed through this section and are monitored by the North Carolina Department of Environmental and Natural Resources (NCDENR). No borings were performed along this section of U-4006 as suggested by the GeoEnvironmental Impact Evaluation to limit the Department's liability for cleanup.

Retaining Walls

Retaining Wall Nos. 1 and 2 (RW-1 and RW-2) will support the bridge approach embankment from approximately -L- Sta. 16+75 to 20+24. The walls range in height from 5 to 27 feet. Artificial fill soil occurs at the ground surface from -L- Sta. 15+50 to Sta. 19+50. The fill soil thickness ranges from approximately 17 to 27 feet. The fill consists of medium stiff to very stiff, moist clay, silty clay, sandy silty clay, and sandy silt. The fill soil contains minor amounts of gravel, wood debris, and glass. Alluvial soil occurs beneath the artificial fill soil at -L- Sta. 17+00 to 18+30. The alluvial soil consists of approximately 5 to 7 feet of medium stiff, silty clay and sandy silty clay. Residual soil occurs beneath the alluvial and artificial fill soils. The residual soil generally consists of medium stiff to stiff, clay, silty clay, and sandy, silty clay (A-6, A-7-5, and A-7-6). Minor amounts of medium stiff, sandy silt and loose, silty sand (A-2-4) are also present.

Retaining Wall No. 3 (RW-3) will accommodate the widening of Swing Rd. (-Y4-) just north of its intersection with -L-. This wall is 150 feet in length and two to three feet in height. The wall foundation occurs on residual, red-brown, stiff, moist silty clay.

Prepared by,



Thomas P. Moorefield, LG
Project Geological Engineer

EARTHWORK BALANCE SHEET

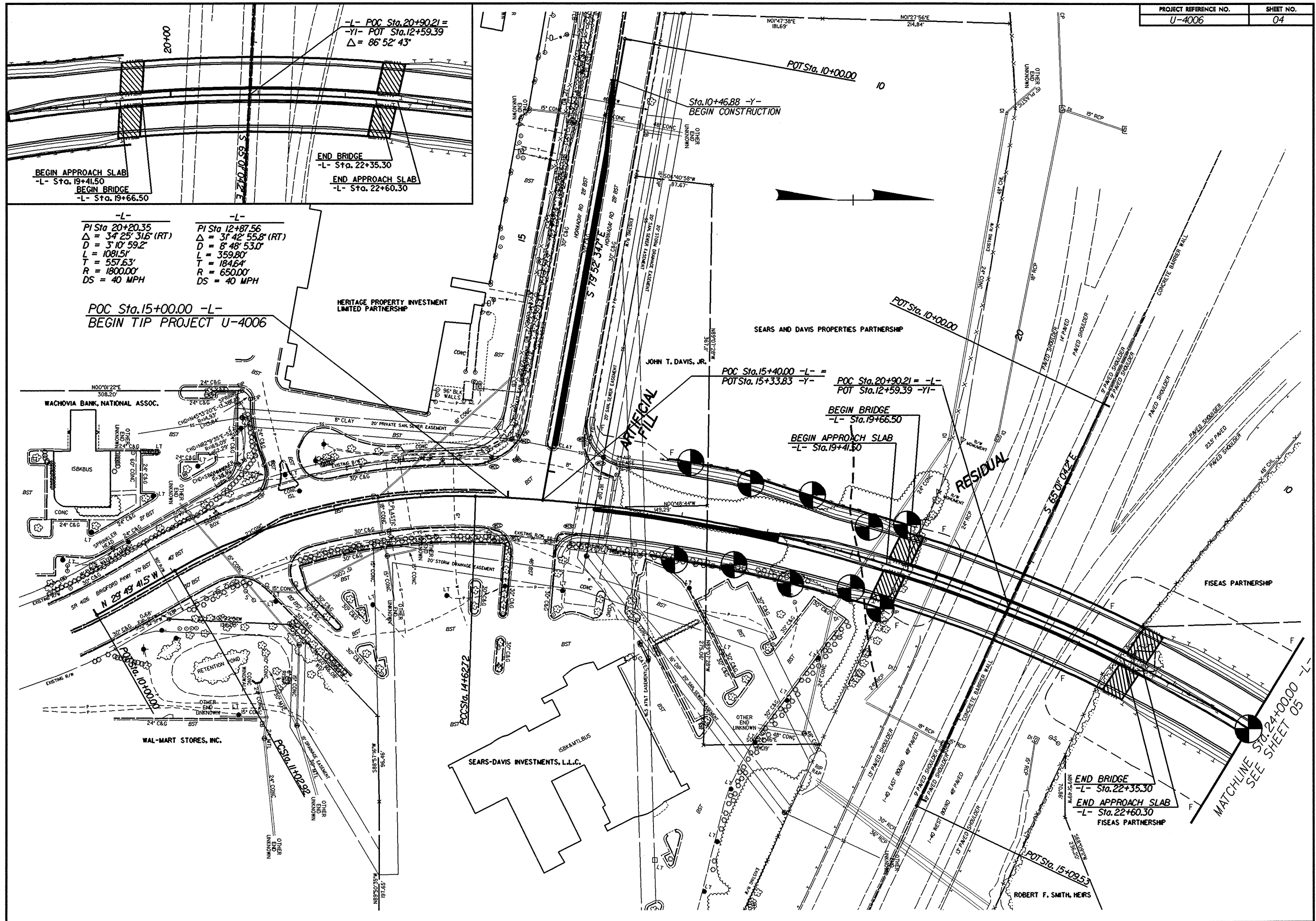
PROJECT NAME Bridford Parkway
 PROJECT NUMBER U-4006

SUMMARY SHEET
 COMPUTED BY LCF
 CHECKED BY STS

DATE May 29, 2009
 SHEET 3B OF 25

STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMB. + 20%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
SUMMARY #1														
-L-														
15+50.00	20+06.61	126				126	20365		20365	24438	24313	0		0
TOTAL SUMMARY #1		126				126	20365		20365	24438	24313	0		0
SUMMARY #2														
-L-														
22+10.47	46+29.81	18052				18052	168396		168396	202076	184024	0		0
-Y2-														
10+35.23	14+50.00	784				784	6858		6858	8229	7445	0		0
-SR1-														
10+16.02	13+95.00	4085				4085	0	0	0	0	0	4084		4084
-Y3RT-														
10+60.00	20+40.00	924				924	1188		1188	1425	501	0		0
TOTAL SUMMARY #2		23845				23845	176442		176442	211730	191970	4084		4084
SUMMARY #3														
-Y3LT-														
10+60.00	20+40.00	1703				1703	1663		1663	1995	292	0		0
-L-														
47+50.00	68+00.00	20107				20107	17916		17916	21500	1393	0		0
-Y4RT-														
10+00.00	20+75.00	714				714	1061		1061	1273	559	0		0
TOTAL SUMMARY #3		22524				22524	20640		20640	24768	2244	0		0
SUMMARY #4														
-Y4LT-														
10+00.00	20+75.00	599				599	167		167	200	0	398		398
-Y5-														
11+85.00	15+02.78	276				276	70		70	84	0	192		192
TOTAL SUMMARY #4		874				874	237		237	284	0	590		590
TOTAL SUMMARY #1,2,3,4		47369				47369	217684		217684	261221	218527	4675		4675

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on the subsurface data provided by the Geotechnical Unit.



-L-
PI Sta 20+20.35
Δ = 34° 25' 31.6" (RT)
D = 3' 10' 59.2"
L = 1081.5'
T = 557.63'
R = 1800.00'
DS = 40 MPH

-L-
PI Sta 12+87.56
Δ = 31° 42' 55.8" (RT)
D = 8' 48' 53.0"
L = 359.80'
T = 184.64'
R = 650.00'
DS = 40 MPH

POC Sta. 15+00.00 -L-
BEGIN TIP PROJECT U-4006

POC Sta. 15+40.00 -L- =
POT Sta. 15+33.83 -Y-

POC Sta. 20+90.21 = -L-
POT Sta. 12+59.39 -Y-

BEGIN BRIDGE
-L- Sta. 19+66.50

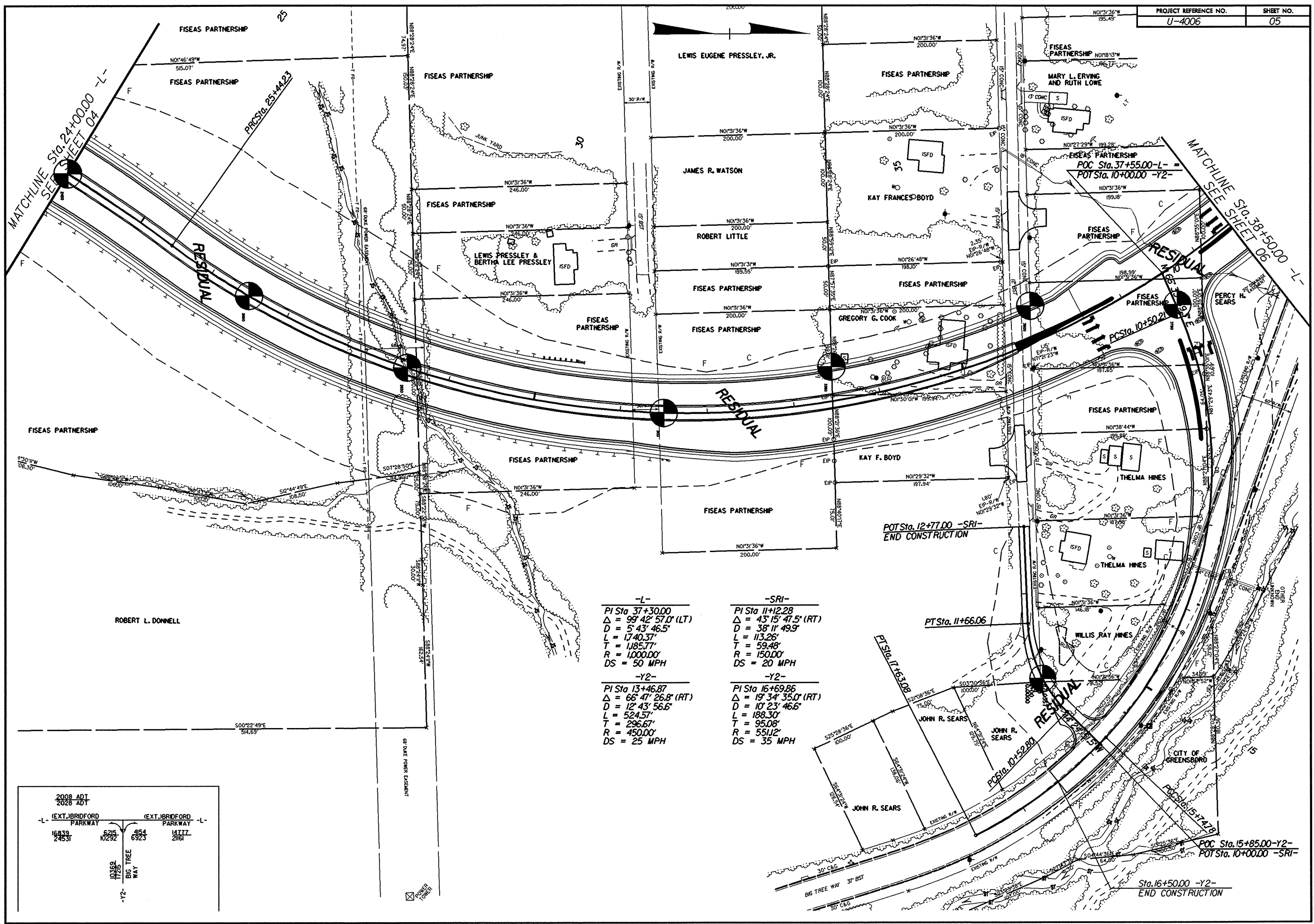
BEGIN APPROACH SLAB
-L- Sta. 19+41.50

END BRIDGE
-L- Sta. 22+35.30

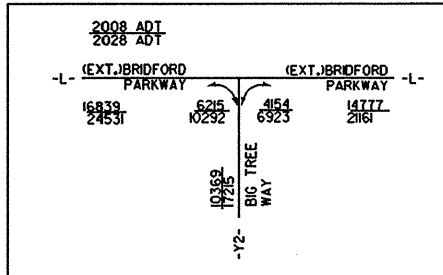
END APPROACH SLAB
-L- Sta. 22+60.30

FISEAS PARTNERSHIP

MATCHLINE
Sta. 24+00.00
SEE SHEET 05



-L-	-SRI-
PI Sta 37+30.00	PI Sta 11+12.28
$\Delta = 99^\circ 42' 57.0''$ (LT)	$\Delta = 43^\circ 15' 47.5''$ (RT)
D = 5' 43' 46.5"	D = 38' 11' 49.9"
L = 1740.37'	L = 113.26'
T = 1185.77'	T = 59.48'
R = 1000.00'	R = 150.00'
DS = 50 MPH	DS = 20 MPH
-Y2-	-Y2-
PI Sta 13+46.87	PI Sta 16+69.86
$\Delta = 66^\circ 47' 26.8''$ (RT)	$\Delta = 19^\circ 34' 35.0''$ (RT)
D = 12' 43' 56.6"	D = 10' 23' 46.6"
L = 524.57'	L = 188.30'
T = 296.67'	T = 95.08'
R = 450.00'	R = 551.12'
DS = 25 MPH	DS = 35 MPH



Sta. 16+50.00 -Y2-
END CONSTRUCTION

MATCHLINE Sta. 38+50.00 -L-
SEE SHEET 06

MATCHLINE Sta. 24+00.00 -L-
SEE SHEET 04

POT Sta. 12+77.00 -SRI-
END CONSTRUCTION

POC Sta. 15+85.00 -Y2-
POT Sta. 10+00.00 -SRI-

POC Sta. 37+55.00 -L-
POT Sta. 10+00.00 -Y2-

PT Sta. 11+66.06

PT Sta. 17+63.08

POC Sta. 10+52.80

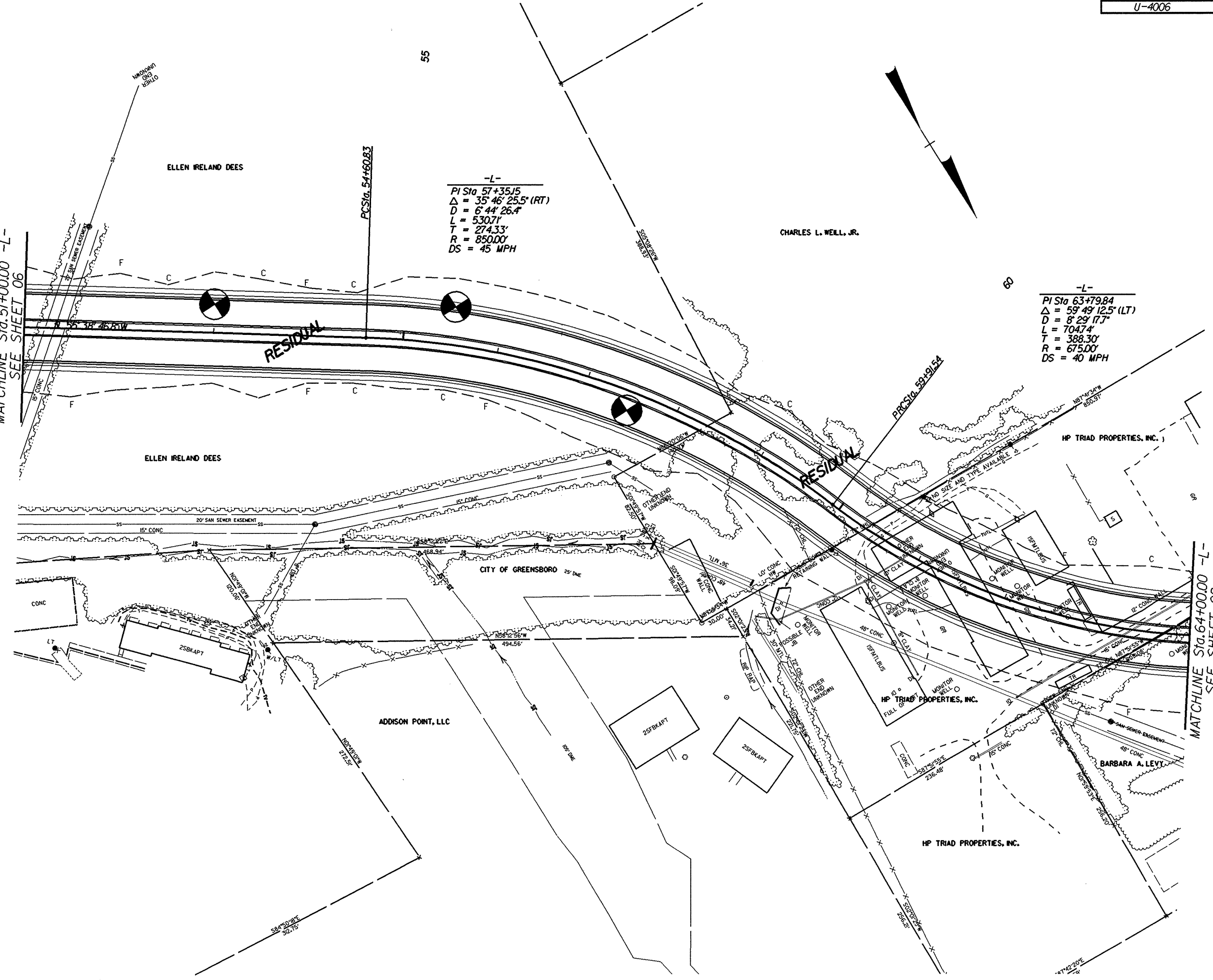
POC Sta. 15+74.20

BIG TREE WAY 37' BST

30' C&G

Sta. 16+50.00 -Y2-
END CONSTRUCTION

MATCHLINE Sta. 51+00.00 -L-
SEE SHEET 06



-L-
PI Sta 57+35.15
 $\Delta = 35^\circ 46' 25.5''$ (RT)
D = 6' 44' 26.4"
L = 530.71'
T = 274.33'
R = 850.00'
DS = 45 MPH

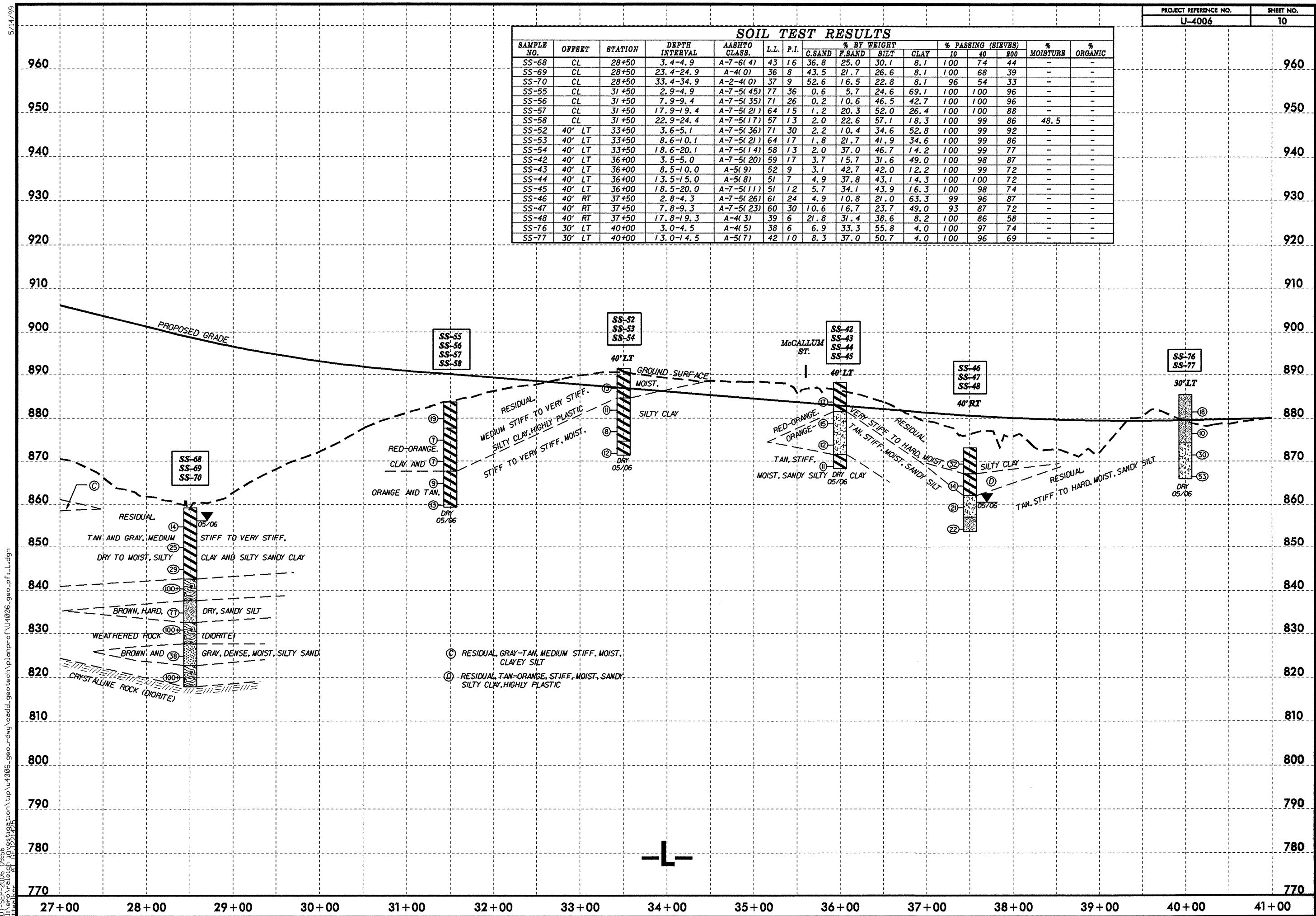
-L-
PI Sta 63+79.84
 $\Delta = 59^\circ 49' 12.5''$ (LT)
D = 8' 29' 17.7"
L = 704.74'
T = 388.30'
R = 675.00'
DS = 40 MPH

MATCHLINE Sta. 64+00.00 -L-
SEE SHEET 08

MATCHLINE Sta. 64+00.00 -L-
SEE SHEET 08

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-68	CL	28+50	3.4-4.9	A-7-6(4)	43	16	36.8	25.0	30.1	8.1	100	74	44	-	-
SS-69	CL	28+50	23.4-24.9	A-4(0)	36	8	43.5	21.7	26.6	8.1	100	68	39	-	-
SS-70	CL	28+50	33.4-34.9	A-2-4(0)	37	9	52.6	16.5	22.8	8.1	96	54	33	-	-
SS-55	CL	31+50	2.9-4.9	A-7-5(45)	77	36	0.6	5.7	24.6	69.1	100	96	-	-	-
SS-56	CL	31+50	7.9-9.4	A-7-5(35)	71	26	0.2	10.6	46.5	42.7	100	100	96	-	-
SS-57	CL	31+50	17.9-19.4	A-7-5(21)	64	15	1.2	20.3	52.0	26.4	100	100	88	-	-
SS-58	CL	31+50	22.9-24.4	A-7-5(17)	57	13	2.0	22.6	57.1	18.3	100	99	86	48.5	-
SS-52	40' LT	33+50	3.6-5.1	A-7-5(36)	71	30	2.2	10.4	34.6	52.8	100	99	92	-	-
SS-53	40' LT	33+50	8.6-10.1	A-7-5(21)	64	17	1.8	21.7	41.9	34.6	100	99	86	-	-
SS-54	40' LT	33+50	18.6-20.1	A-7-5(14)	58	13	2.0	37.0	46.7	14.2	100	99	77	-	-
SS-42	40' LT	36+00	3.5-5.0	A-7-5(20)	59	17	3.7	15.7	31.6	49.0	100	98	87	-	-
SS-43	40' LT	36+00	8.5-10.0	A-5(9)	52	9	3.1	42.7	42.0	12.2	100	99	72	-	-
SS-44	40' LT	36+00	13.5-15.0	A-5(8)	51	7	4.9	37.8	43.1	14.3	100	100	72	-	-
SS-45	40' LT	36+00	18.5-20.0	A-7-5(11)	51	12	5.7	34.1	43.9	16.3	100	98	74	-	-
SS-46	40' RT	37+50	2.8-4.3	A-7-5(26)	61	24	4.9	10.8	21.0	63.3	99	96	87	-	-
SS-47	40' RT	37+50	7.8-9.3	A-7-5(23)	60	30	10.6	16.7	23.7	49.0	93	87	72	-	-
SS-48	40' RT	37+50	17.8-19.3	A-4(3)	39	6	21.8	31.4	38.6	8.2	100	86	58	-	-
SS-76	30' LT	40+00	3.0-4.5	A-4(5)	38	6	6.9	33.3	55.8	4.0	100	97	74	-	-
SS-77	30' LT	40+00	13.0-14.5	A-5(7)	42	10	8.3	37.0	50.7	4.0	100	96	69	-	-

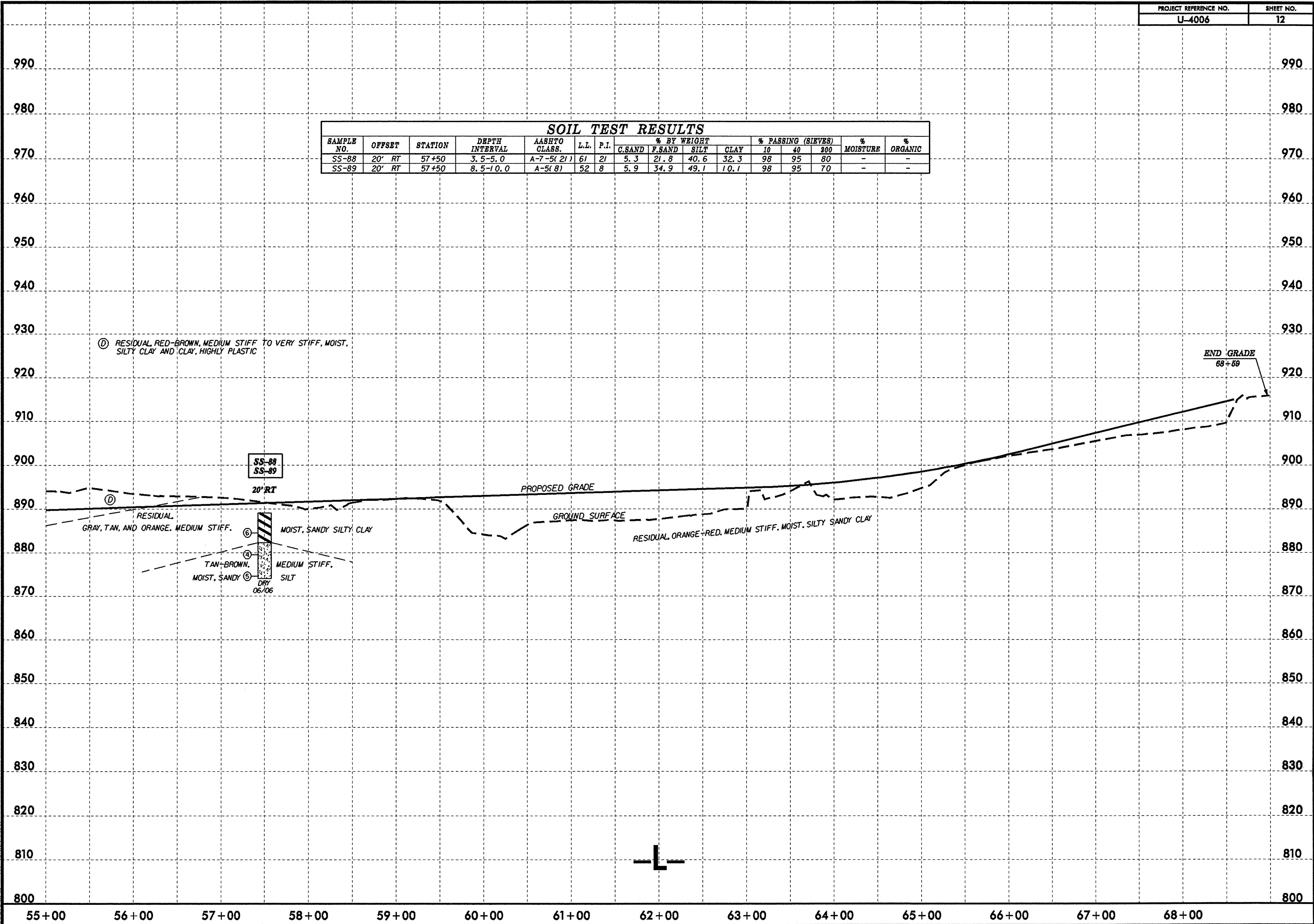


- Ⓒ RESIDUAL GRAY-TAN, MEDIUM STIFF, MOIST, CLAYEY SILT
- Ⓓ RESIDUAL TAN-ORANGE, STIFF, MOIST, SANDY SILTY CLAY, HIGHLY PLASTIC

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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-88	20' RT	57+50	3.5-5.0	A-7-5(21)	61	21	5.3	21.8	40.6	32.3	98	95	80	-	-
SS-89	20' RT	57+50	8.5-10.0	A-5(8)	52	8	5.9	34.9	49.1	10.1	98	95	70	-	-

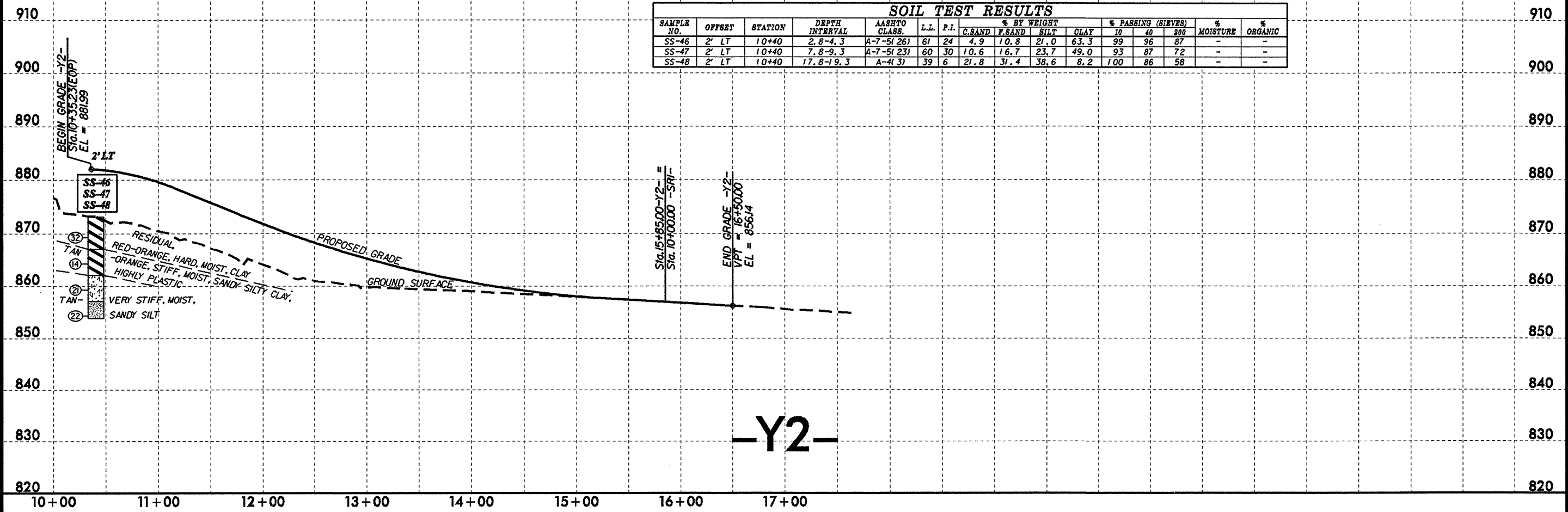
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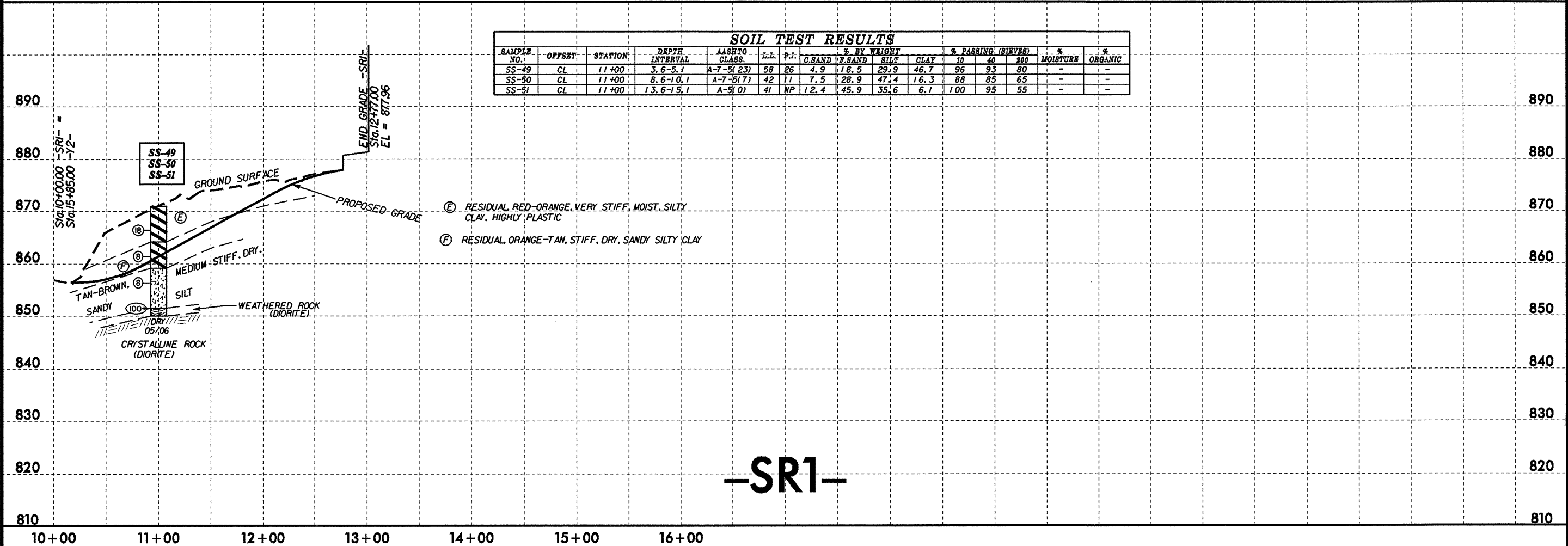
SOIL TEST RESULTS

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-46	2' LT	10+40	2.8-4.3	A-7-5(26)	61	24	4.9	10.8	21.0	63.3	99	96	87	-	-
SS-47	2' LT	10+40	7.8-9.3	A-7-5(23)	60	30	10.6	16.7	23.7	49.0	93	87	72	-	-
SS-48	2' LT	10+40	17.8-19.3	A-4(3)	39	6	21.8	31.4	38.6	8.2	100	86	58	-	-



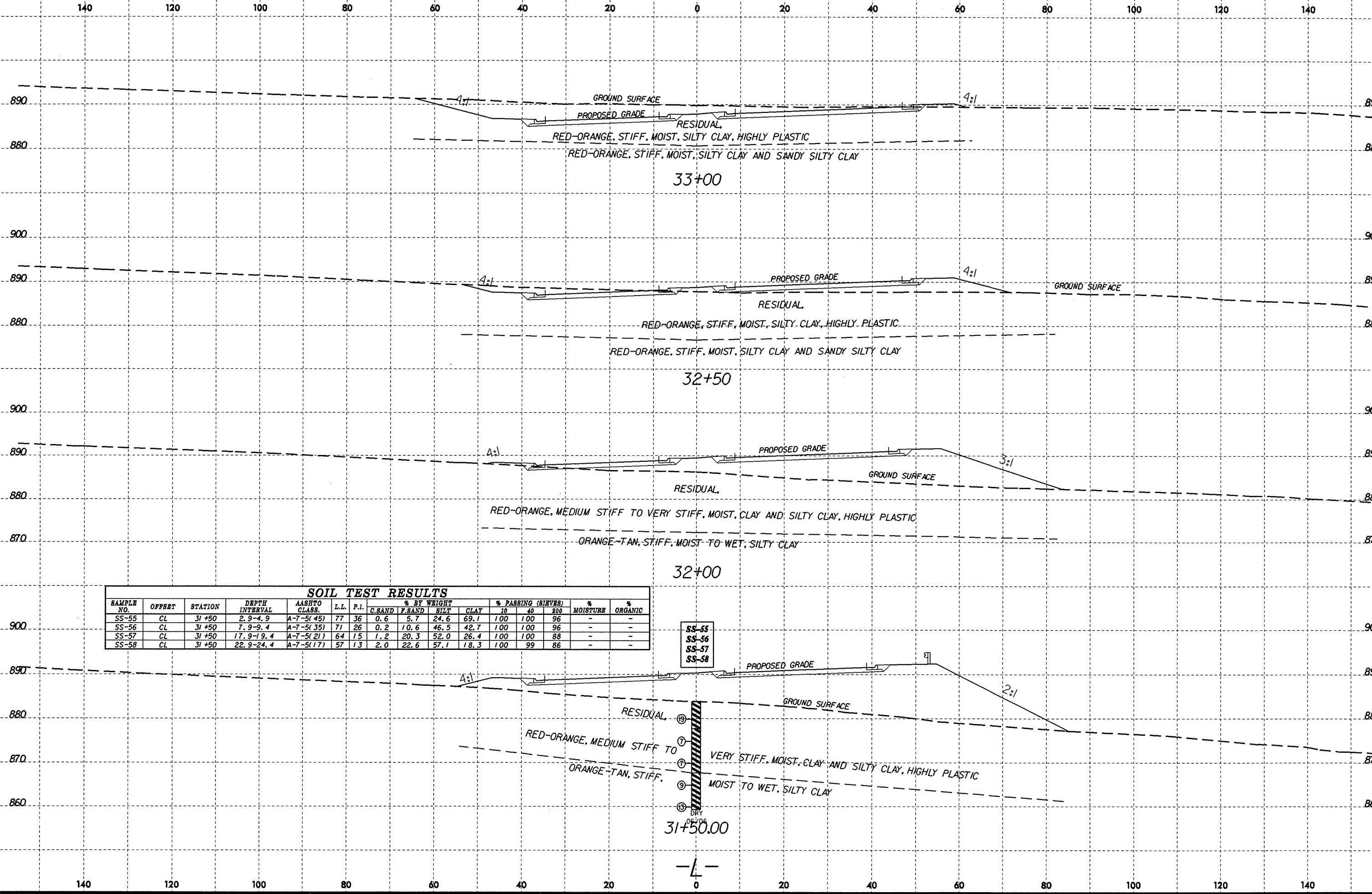
SOIL TEST RESULTS

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-49	CL	11+00	3.6-5.1	A-7-5(23)	58	26	4.9	18.5	29.9	46.7	96	93	80	-	-
SS-50	CL	11+00	8.6-10.1	A-7-5(7)	42	11	7.5	28.9	47.4	16.3	88	85	65	-	-
SS-51	CL	11+00	13.6-15.1	A-5(0)	41	NP	12.4	45.9	35.6	6.1	100	95	55	-	-



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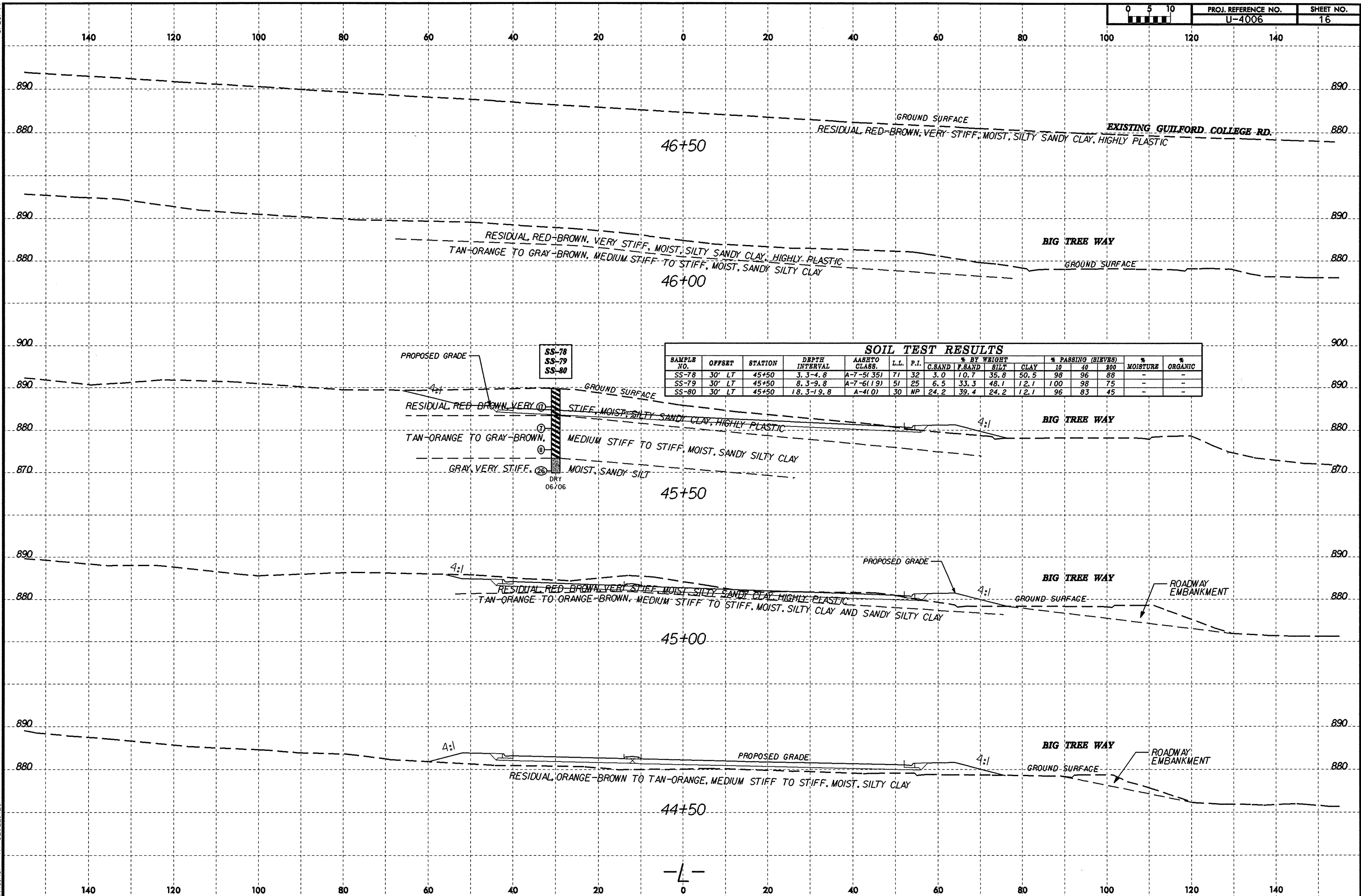
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-55	CL	31+50	2.9-4.9	A-7-5(45)	77	36	0.6	5.7	24.6	69.1	100	100	96	-	-
SS-56	CL	31+50	7.9-9.4	A-7-5(35)	71	26	0.2	10.6	46.5	42.7	100	100	96	-	-
SS-57	CL	31+50	17.9-19.4	A-7-5(21)	64	15	1.2	20.3	52.0	26.4	100	100	88	-	-
SS-58	CL	31+50	22.9-24.4	A-7-5(17)	57	13	2.0	22.6	57.1	18.3	100	99	86	-	-

SS-55
 SS-56
 SS-57
 SS-58

31+50.00

-L-

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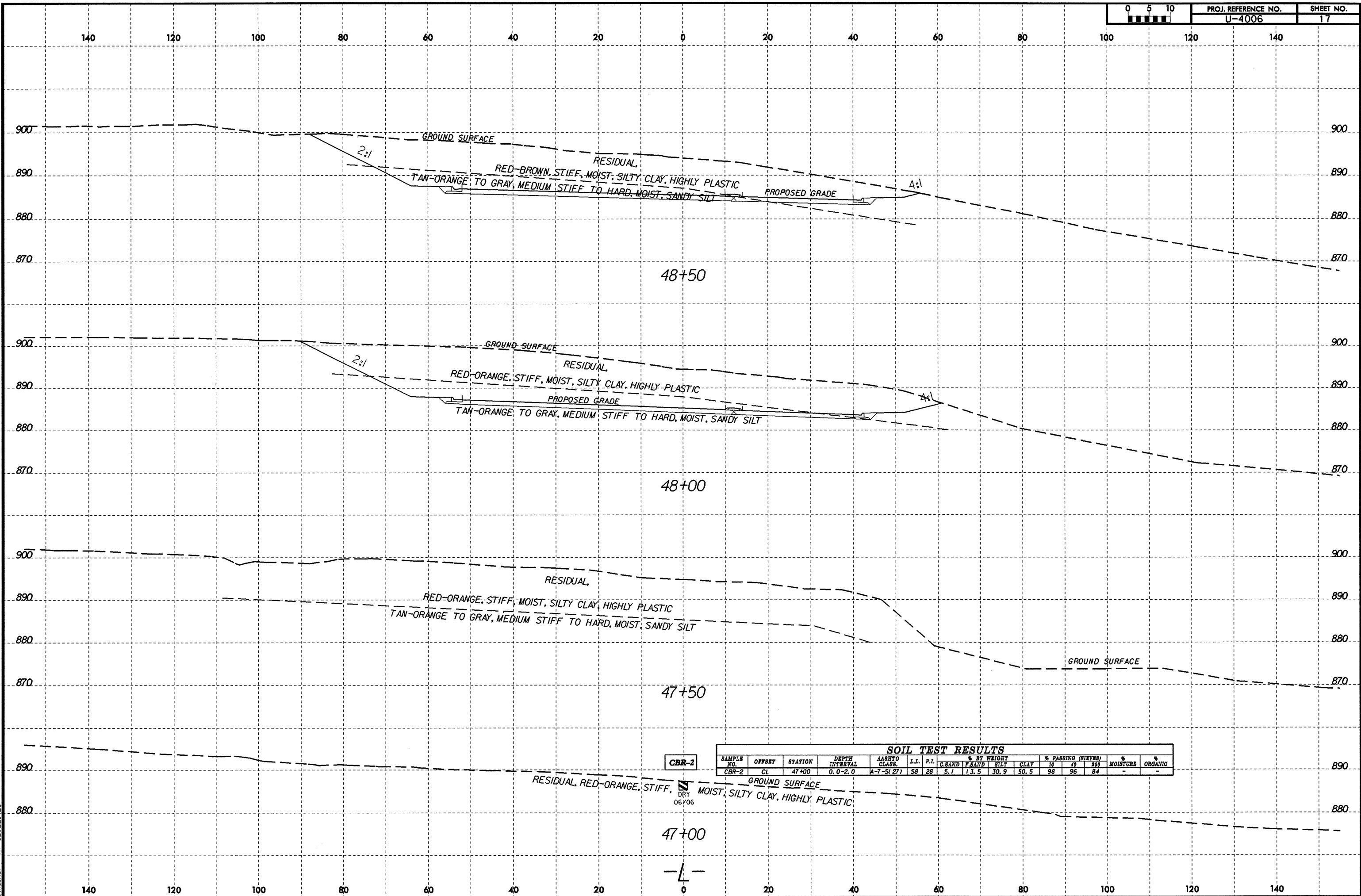
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SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-78	30' LT	45+50	3.3-4.8	A-7-5(35)	71	32	3.0	10.7	35.8	50.5	98	96	88	-	-
SS-79	30' LT	45+50	8.3-9.8	A-7-6(19)	51	25	6.5	33.3	48.1	12.1	100	98	75	-	-
SS-80	30' LT	45+50	18.3-19.8	A-4(0)	30	NP	24.2	39.4	24.2	12.1	96	83	45	-	-

SS-78
 SS-79
 SS-80

DRY
 06/06

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 At Walker



CBR-2

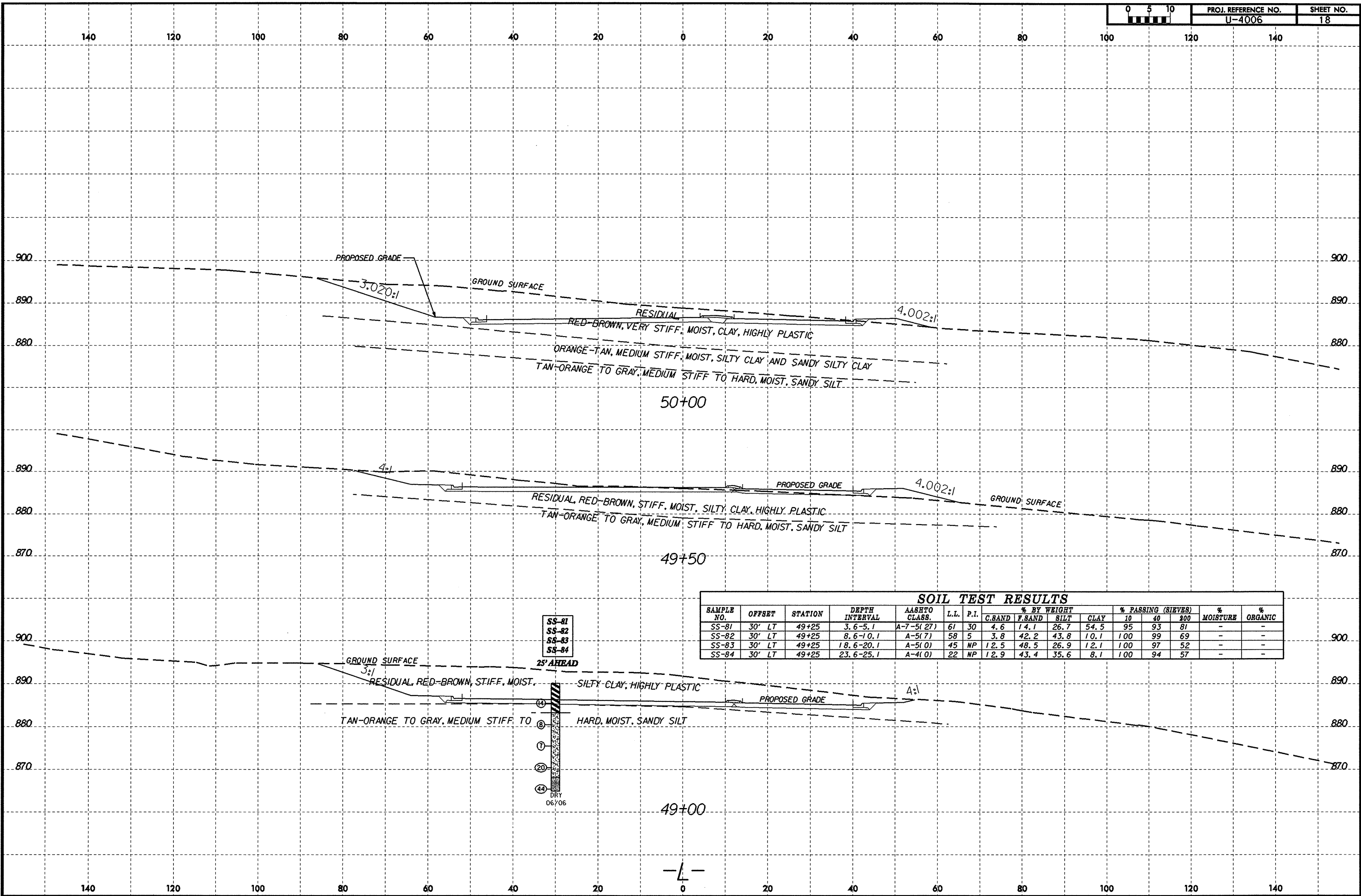
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							G. SAND	F. SAND	SILT	CLAY	10	40	200		
CBR-2	CL	47+00	0.0-2.0	A-7-S(27)	58	28	5.1	13.5	30.9	50.5	98	96	84	-	-

DRY
 06/06

47+00

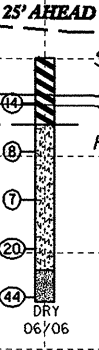
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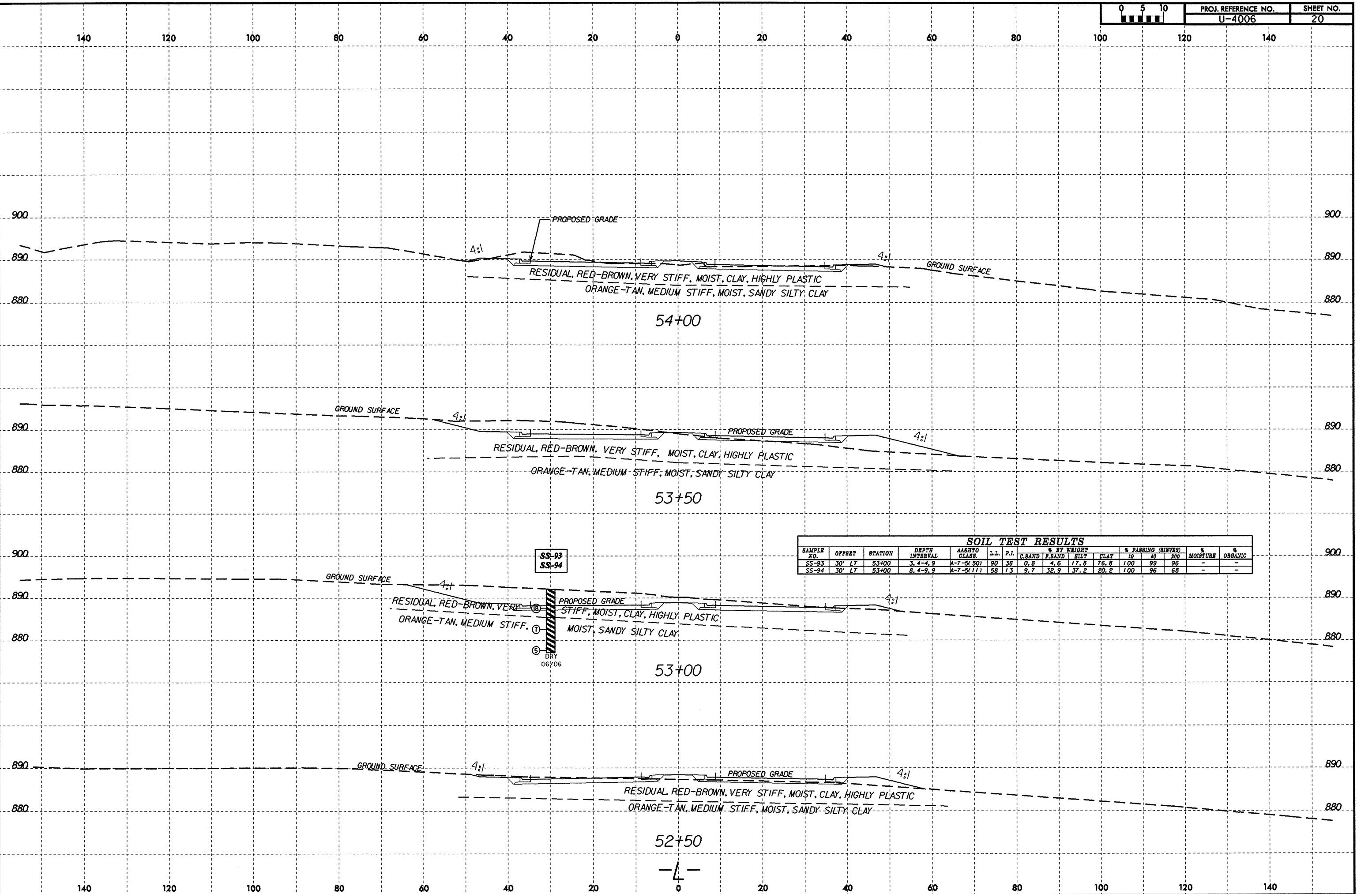


SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-81	30' LT	49+25	3.6-5.1	A-7-5(27)	61	30	4.6	14.1	26.7	54.5	95	93	81	-	-
SS-82	30' LT	49+25	8.6-10.1	A-5(7)	58	5	3.8	42.2	43.8	10.1	100	99	69	-	-
SS-83	30' LT	49+25	18.6-20.1	A-5(0)	45	NP	12.5	48.5	26.9	12.1	100	97	52	-	-
SS-84	30' LT	49+25	23.6-25.1	A-4(0)	22	NP	12.9	43.4	35.6	8.1	100	94	57	-	-

SS-81
 SS-82
 SS-83
 SS-84



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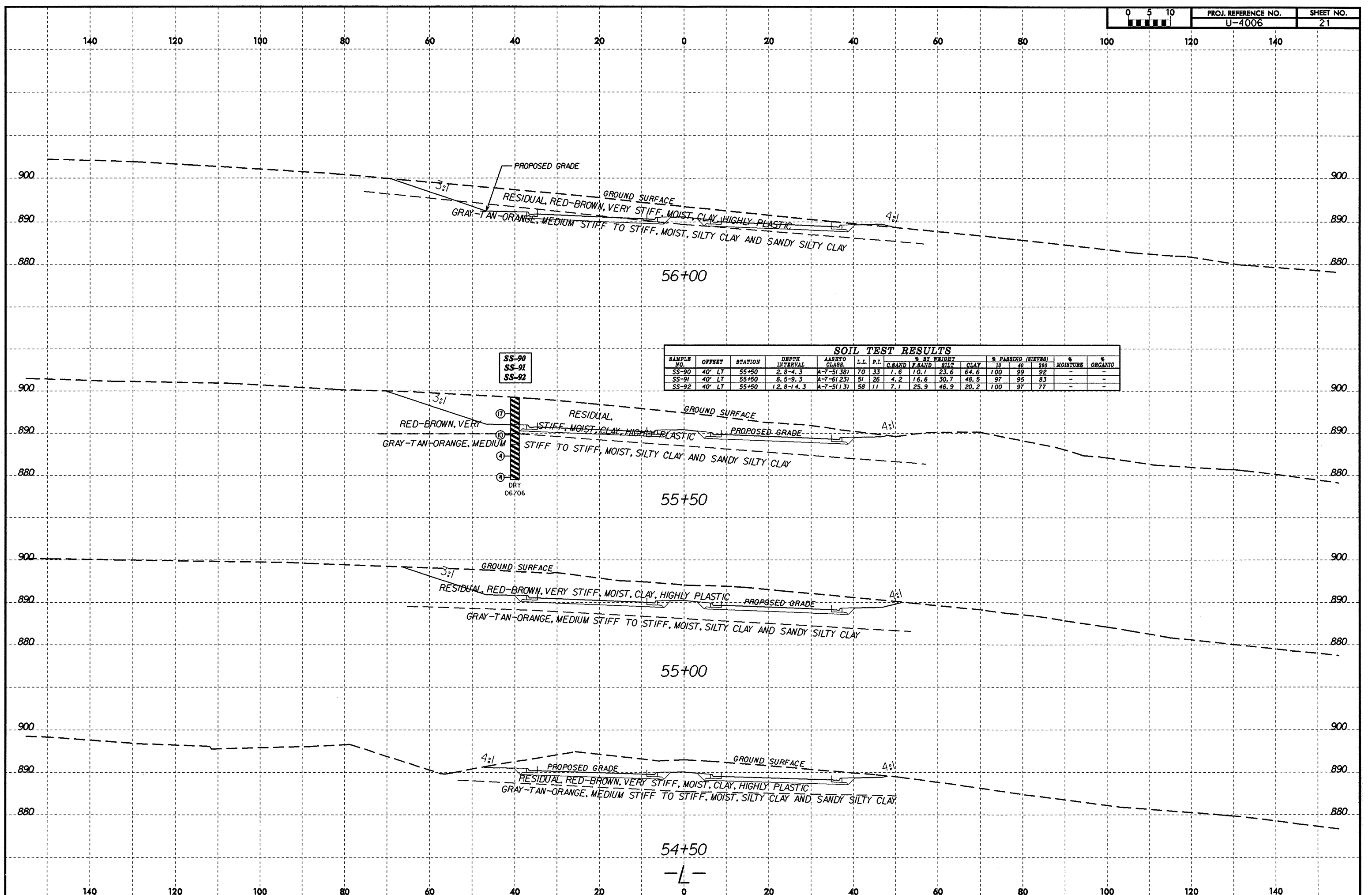


SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							G.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-93	30' LT	53+00	3.4-4.9	A-7-5(50)	90	38	0.8	4.6	17.8	76.8	100	99	96	-	-
SS-94	30' LT	53+00	8.4-9.9	A-7-5(11)	58	13	9.7	32.9	37.2	20.2	100	96	68	-	-

SS-93
 SS-94

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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-90	40' LT	55+50	2.8-4.3	A-7-5(38)	70	33	1.6	10.1	23.6	64.6	100	99	92	-	-
SS-91	40' LT	55+50	8.5-9.3	A-7-6(23)	51	26	4.2	16.6	30.7	48.5	97	95	83	-	-
SS-92	40' LT	55+50	12.8-14.3	A-7-5(13)	58	11	7.1	25.9	46.9	20.2	100	97	77	-	-

SS-90
 SS-91
 SS-92

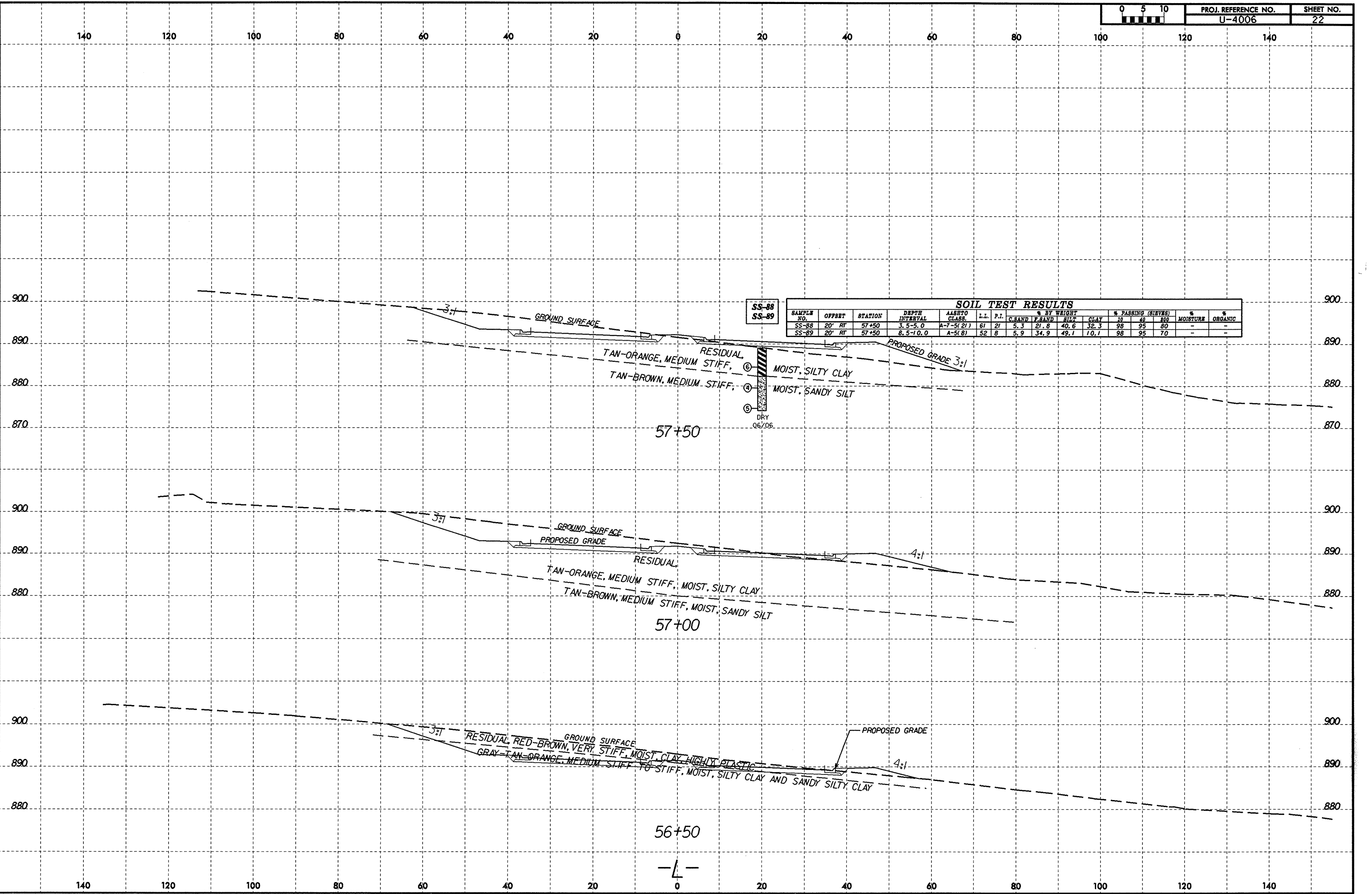
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54+50

55+50

55+00

56+00



SS-88
SS-89

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-88	20' RT	57+50	3.5-5.0	A-7-5(21)	61	27	5.3	21.8	40.6	32.3	98	95	80	-	-
SS-89	20' RT	57+50	8.5-10.0	A-5(8)	52	8	5.9	34.9	49.1	10.1	98	95	70	-	-

DRY
06/06

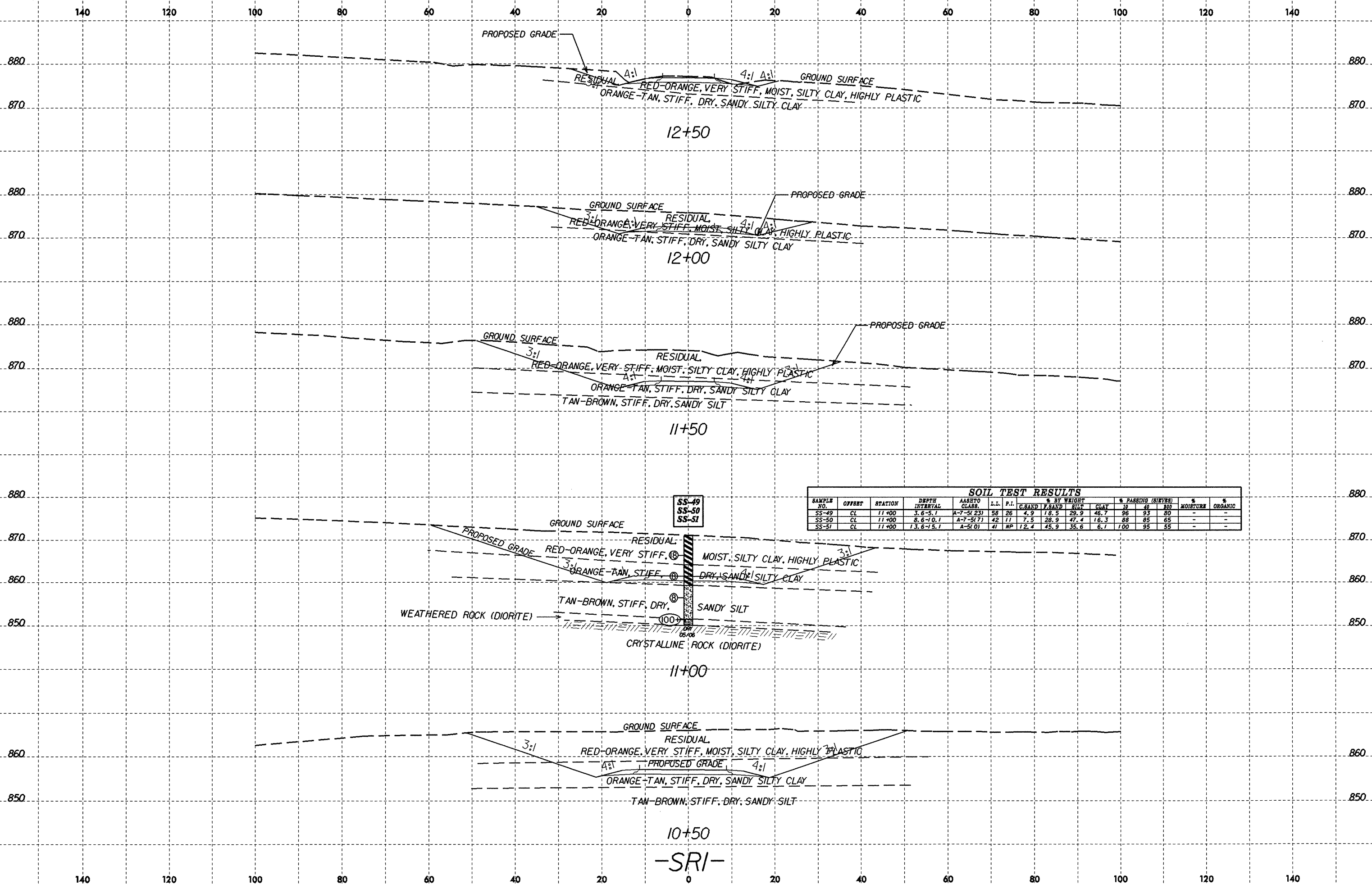
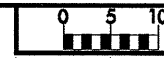
57+50

57+00

56+50

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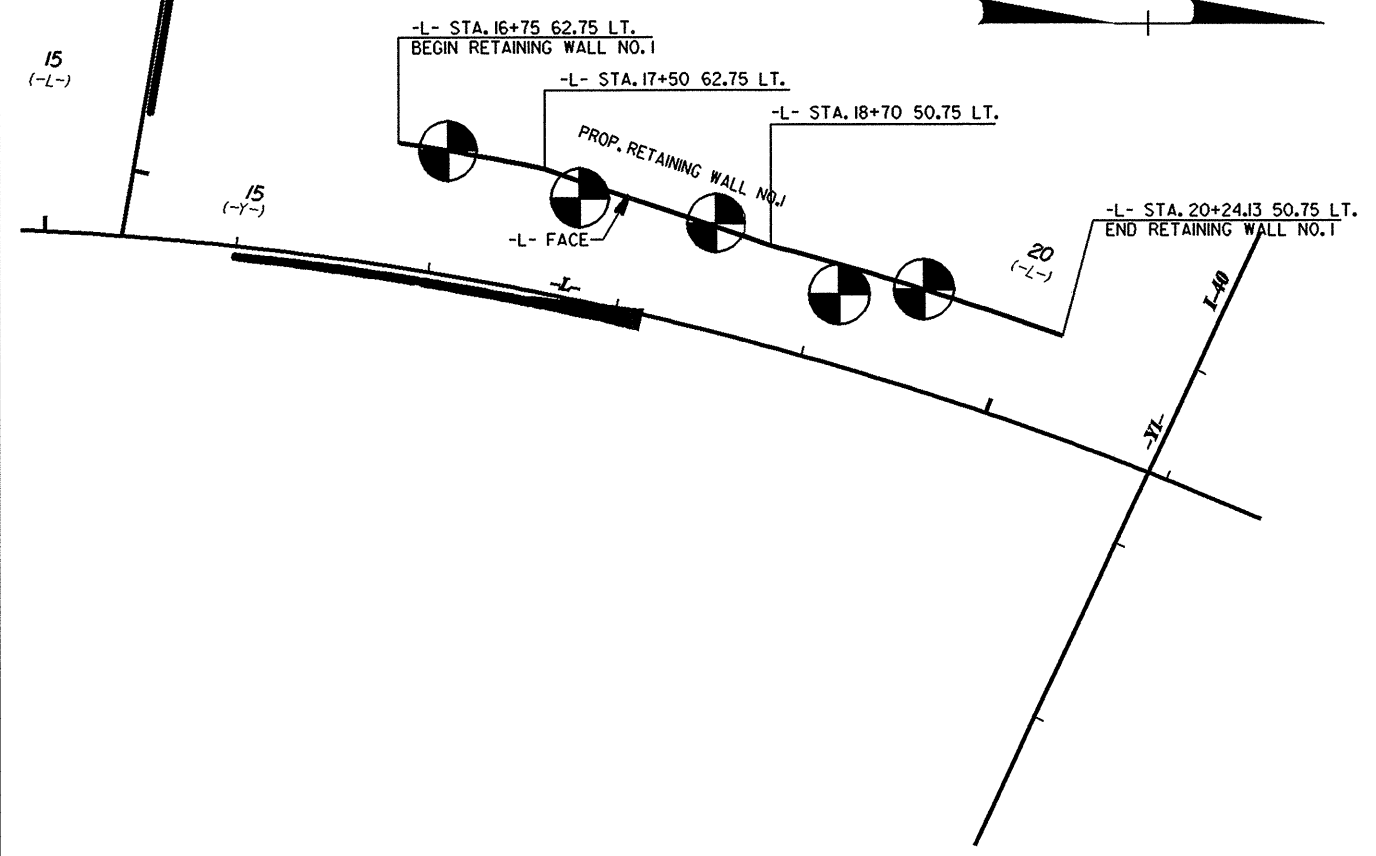
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	ASTM CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT & CLAY	#10	#40	#200			
SS-49	CL	11+00	3.6-5.1	A-7-S(23)	58	26	4.9	18.5	29.9	46.7	96	93	80	-	-
SS-50	CL	11+00	6.6-10.1	A-7-S(7)	42	11	7.5	26.9	47.4	16.3	88	85	65	-	-
SS-51	CL	11+00	13.6-15.1	A-S(O)	41	NP	12.4	45.9	35.6	6.1	100	95	55	-	-

10+50

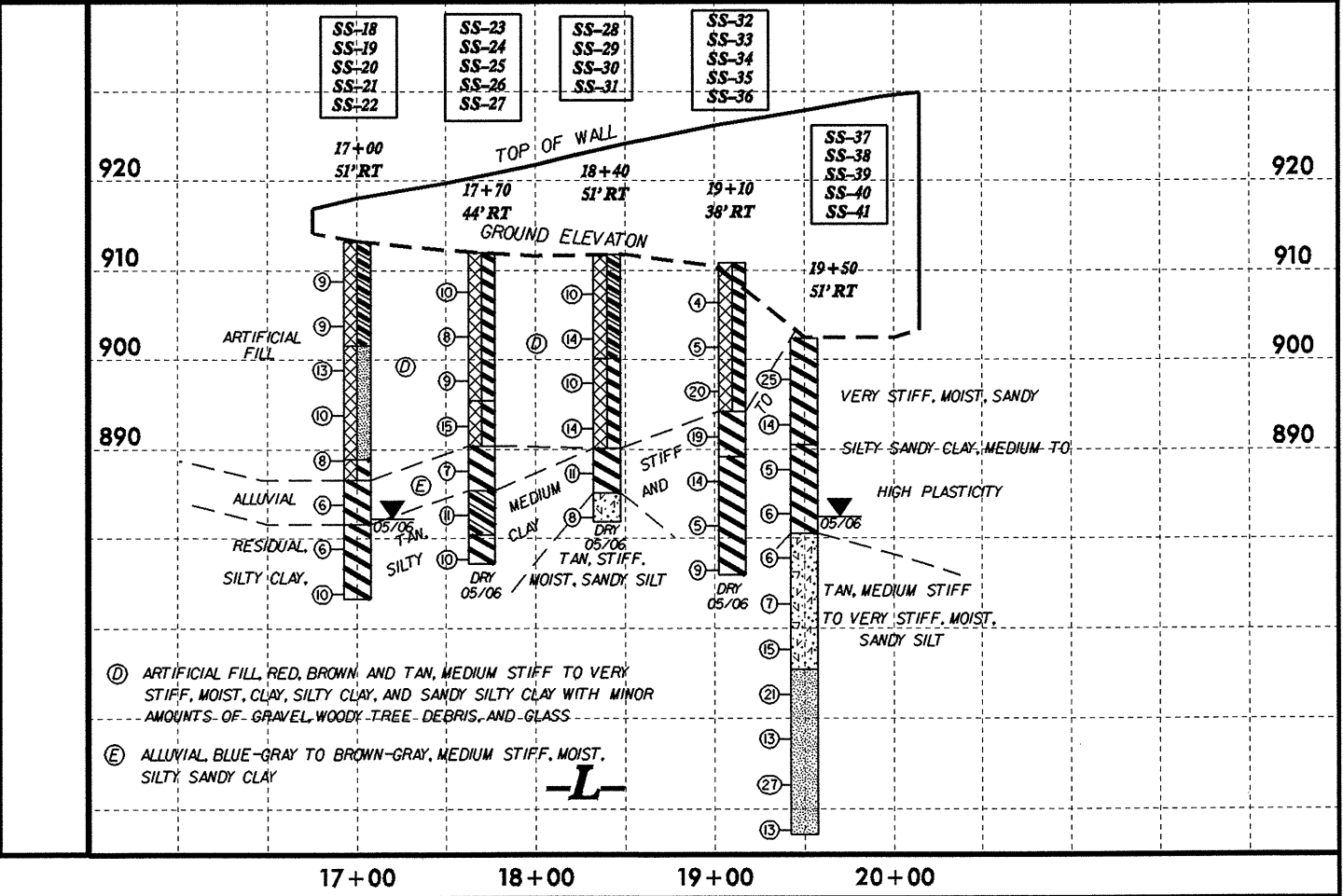
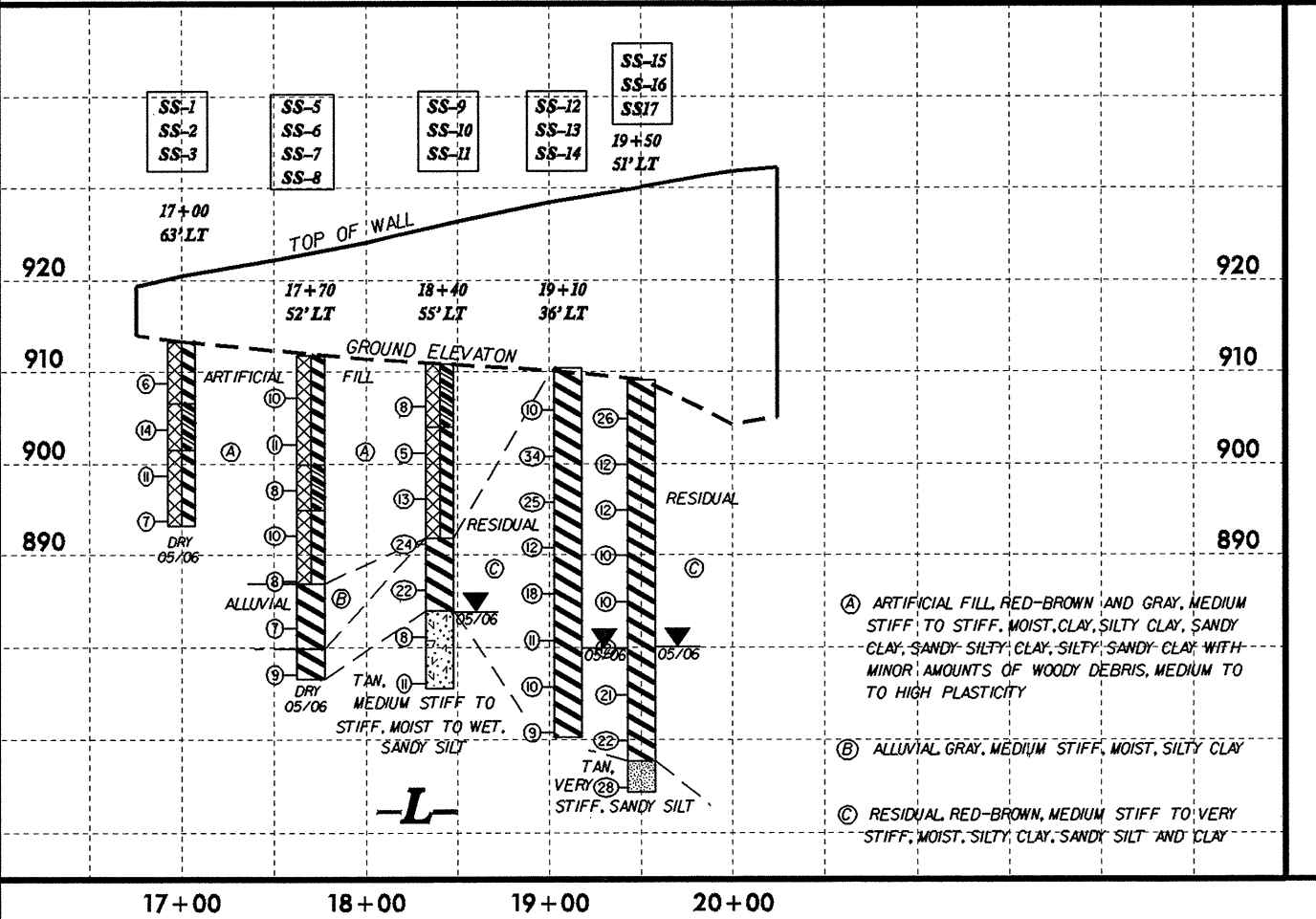
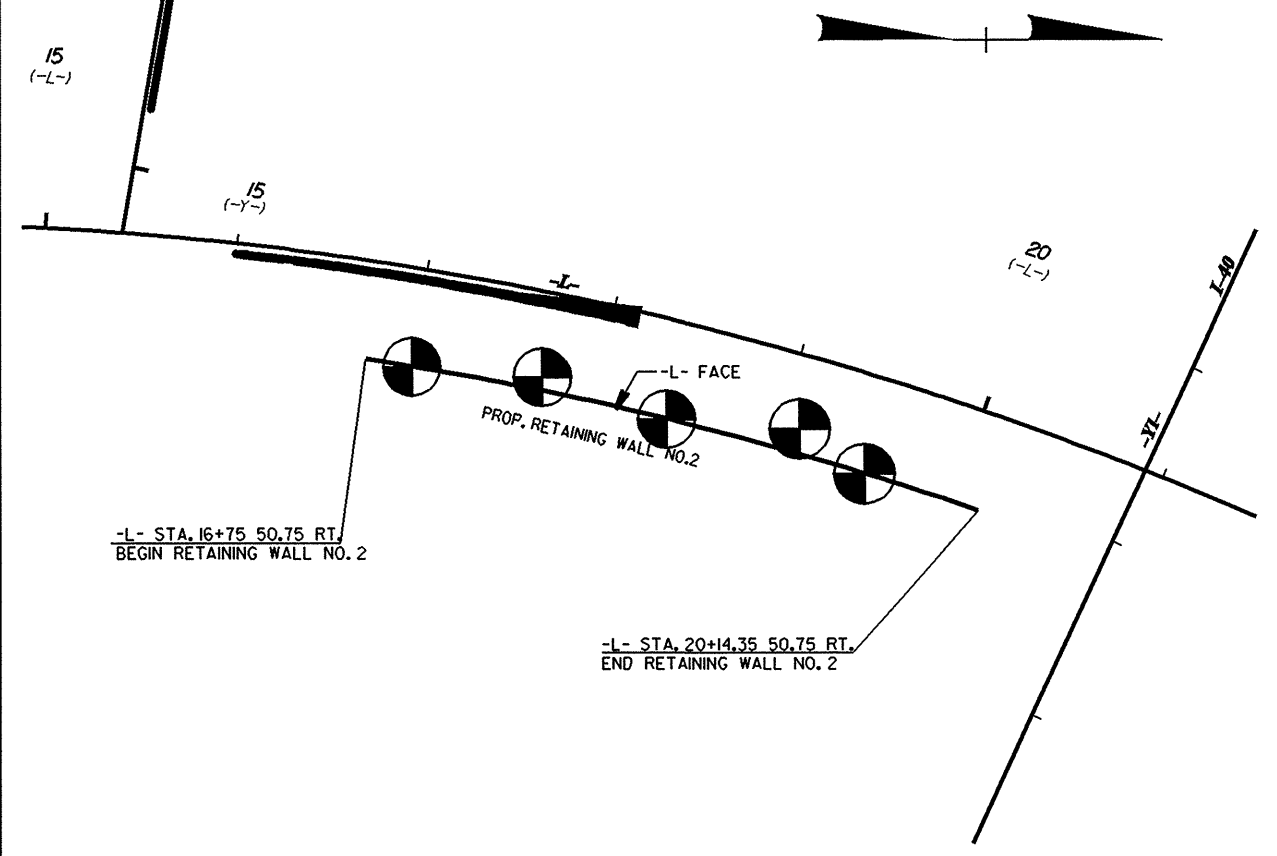
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RETAINING WALL NO. 1



RETAINING WALL NO. 2



RETAINING WALL NO.1

SOIL TEST RESULTS

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-1	63' LT	17+00	3.6-5.1	A-7-5(29)	65	28	4.9	11.0	33.4	50.8	98	95	86	-	-
SS-2	63' LT	17+00	8.6-10.1	A-6(3)	33	11	16.2	21.1	20.0	42.6	79	71	53	-	-
SS-3	63' LT	17+00	13.6-15.1	A-7-5(20)	60	18	6.5	14.4	36.4	42.6	98	82	83	-	-
SS-4	63' LT	17+00	18.6-20.1	A-7-6(23)	57	28	8.7	15.0	17.4	58.9	95	90	76	-	-
SS-5	52' LT	17+70	8.7-10.2	A-7-5(29)	64	34	7.5	13.8	13.7	65.0	97	93	79	-	-
SS-6	52' LT	17+70	13.7-15.2	A-6(4)	34	13	18.5	22.7	20.2	38.6	84	74	54	-	-
SS-7	52' LT	17+70	18.7-20.2	A-7-5(20)	60	30	9.5	12.4	19.2	58.9	82	77	66	-	-
SS-8	52' LT	17+70	28.7-30.2	A-7-5(19)	55	18	2.8	27.2	47.6	22.3	100	99	83	-	-
SS-9	55' LT	18+40	8.7-10.2	A-7-5(32)	66	36	5.1	8.9	21.0	65.0	90	87	80	-	-
SS-10	55' LT	18+40	19.0-20.5	A-7-5(28)	70	35	6.6	13.7	17.4	62.3	89	85	74	-	-
SS-11	55' LT	18+40	28.7-30.2	A-5(9)	50	10	9.0	34.5	42.4	14.0	100	96	69	-	-
SS-12	36' LT	19+10	3.6-5.1	A-7-5(18)	59	16	4.9	18.1	40.5	36.5	95	92	81	-	-
SS-13	36' LT	19+10	8.6-10.1	A-7-5(35)	68	38	5.9	13.0	18.2	62.9	98	95	83	-	-
SS-14	36' LT	19+10	18.6-20.1	A-7-5(15)	54	14	3.0	32.1	46.6	18.3	100	99	80	-	-
SS-15	51' LT	19+50	3.2-4.7	A-7-5(43)	79	33	0.8	3.7	26.5	69.0	100	100	97	-	-
SS-16	51' LT	19+50	18.2-19.7	A-7-5(20)	63	23	3.7	35.3	46.8	14.2	100	99	75	-	-
SS-17	51' LT	19+50	43.2-44.7	A-4(0)	33	3	25.2	35.3	27.3	12.2	94	80	46	-	-

RETAINING WALL NO.2

SOIL TEST RESULTS

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-18	51' RT	17+00	3.4-4.9	A-6(9)	39	16	13.2	19.1	21.0	46.7	90	83	65	-	-
SS-19	51' RT	17+00	13.4-14.9	A-4(2)	31	10	18.1	21.9	19.4	40.6	77	68	50	-	-
SS-20	51' RT	17+00	23.4-24.9	A-7-5(18)	53	19	7.5	13.4	42.5	36.5	96	91	81	-	-
SS-21	51' RT	17+00	28.4-29.9	A-7-5(7)	49	16	16.0	27.4	32.2	24.4	85	76	54	-	-
SS-22	51' RT	17+00	33.4-34.9	A-7-5(20)	57	23	4.1	31.3	50.5	14.2	100	98	77	-	-
SS-23	44' RT	17+70	3.4-4.9	A-7-6(9)	42	17	13.4	18.1	21.8	46.7	84	77	61	-	-
SS-24	44' RT	17+70	18.4-19.9	A-7-5(33)	70	34	3.7	8.5	18.8	69.0	92	90	83	-	-
SS-25	44' RT	17+70	23.4-24.9	A-7-6(16)	47	22	10.2	16.9	21.8	51.0	96	90	74	-	-
SS-26	44' RT	17+70	28.4-29.9	A-6(10)	40	18	13.1	25.5	22.7	38.8	96	90	65	-	-
SS-27	44' RT	17+70	33.4-34.9	A-7-5(12)	49	15	9.0	30.8	39.8	20.4	97	91	71	-	-
SS-28	51' RT	18+40	3.5-5.0	A-6(5)	34	13	17.1	21.0	16.9	44.9	88	79	58	-	-
SS-29	51' RT	18+40	13.5-15.0	A-7-5(24)	56	23	4.3	10.0	16.3	69.4	99	96	88	-	-
SS-30	51' RT	18+40	23.5-25.0	A-7-6(15)	49	23	12.4	23.7	21.0	42.9	95	88	67	-	-
SS-31	51' RT	18+40	28.5-30.0	A-5(7)	50	7	7.8	35.5	38.4	18.4	100	97	71	-	-
SS-32	38' RT	19+10	3.5-5.0	A-7-5(16)	57	15	9.4	14.7	31.0	44.9	99	94	81	-	-
SS-33	38' RT	19+10	8.5-10.0	A-7-5(22)	59	21	6.3	13.3	33.5	46.9	99	95	85	-	-
SS-34	38' RT	19+10	13.5-15.0	A-7-5(28)	60	26	3.9	9.6	19.2	67.3	99	97	89	-	-
SS-35	38' RT	19+10	18.5-20.0	A-7-6(21)	53	24	6.5	20.4	22.0	51.0	100	97	80	-	-
SS-36	38' RT	19+10	23.5-25.0	A-7-5(29)	67	26	4.9	12.9	29.2	53.1	100	97	87	-	-
SS-37	51' RT	19+50	3.7-5.2	A-7-6(20)	50	24	7.1	18.0	17.8	57.1	99	95	79	-	-
SS-38	51' RT	19+50	8.7-10.2	A-7-5(19)	61	19	9.0	16.1	21.8	53.1	99	95	79	-	-
SS-39	51' RT	19+50	13.7-15.2	A-7-5(22)	60	18	2.4	19.4	55.7	22.4	100	99	88	-	-
SS-40	51' RT	19+50	23.7-25.2	A-5(10)	50	7	3.5	26.9	47.1	22.4	100	99	82	-	-
SS-41	51' RT	19+50	38.7-40.2	A-4(4)	37	7	19.2	23.1	43.5	14.3	99	85	65	-	-

