

SEE SHEET 3 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-5809	1	33

CONTENTS

LINE	STATION	PLAN
-L-	10+17-46+00	4-6
-RPA-	10+00-14+70	4
-RPB-	10+58-13+93	4
-RPC-	10+25-13+27	4
-RPD-	10+00-12+50	4
-Y-	10+00-13+30	4
-Y1-	10+00-11+96	5
-Y2-	10+70-14+97	5
-Y3-	10+00-14+15	5
-Y4-	10+50-15+78	6
-Y5-	10+00-15+00	6

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	15+00-44+00	7-12
-RPA-	12+50	13
-RPB-	12+00	13
-RPC-	11+95	14
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-Y4-	13+85-15+00	15
-Y5-	11+00	16

APPENDICES

APPENDIX	TITLE	SHEETS
A	LABORATORY TEST RESULTS	17-18
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ROADWAY  
SUBSURFACE INVESTIGATION

COUNTY YADKIN  
PROJECT DESCRIPTION US 601 FROM SR 1742  
(SHARON DR) TO SR 1146 (LEE AVENUE)

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) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

NOTES:

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

PERSONNEL

K. CUTHBERTSON

INVESTIGATED BY ECS SOUTHEAST, LLP

DRAWN BY M. BREWER, P.E.

CHECKED BY M. WALKO, P.E.

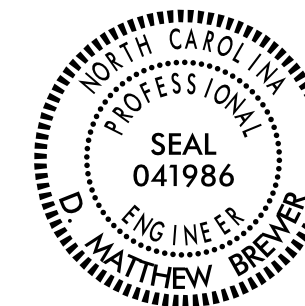
SUBMITTED BY ECS SOUTHEAST, LLP

DATE SEPTEMBER 2018

Prepared in the Office of:



ECS SOUTHEAST, LLP  
1812 CENTER PARK DRIVE, SUITE D  
CHARLOTTE, NC 28217  
(704) 525-5152 [PHONE]  
(704) 357-0023 [FAX]  
NC REGISTERED  
ENGINEERING  
FIRM # F-1078



DocuSigned by:

D. Matthew Brewer

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SIGNATURE

9/14/18

DATE

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

REFERENCE: U-5809

PROJECT: 44382

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION SOIL LEGEND AND AASHTO CLASSIFICATION TABLE with columns for GENERAL CLASS., GRANULAR MATERIALS, SILT-CLAY MATERIALS, ORGANIC MATERIALS, and various classification codes.

GRADATION ANGULARITY OF GRAINS MINERALOGICAL COMPOSITION COMPRESSIBILITY PERCENTAGE OF MATERIAL GROUND WATER MISCELLANEOUS SYMBOLS TABLE with various symbols and their corresponding descriptions.

ROCK DESCRIPTION WEATHERING ROCK HARDNESS TABLE with columns for WEATHERING, ROCK HARDNESS, and detailed descriptions of rock types and weathering effects.

TERMS AND DEFINITIONS TABLE listing various geological terms such as ALLUVIUM, AQUIFER, ARGILLACEOUS, ARTESIAN, etc., with their definitions.

CONSISTENCY OR DENSENESS TEXTURE OR GRAIN SIZE TABLE with columns for PRIMARY SOIL TYPE, COMPACTNESS OR CONSISTENCY, RANGE OF STANDARD PENETRATION RESISTANCE, and GRAIN SIZE.

RECOMMENDATION SYMBOLS ABBREVIATIONS TABLE with columns for RECOMMENDATION SYMBOLS and ABBREVIATIONS.

ROCK HARDNESS TABLE with columns for ROCK HARDNESS and detailed descriptions of rock types and weathering effects.

TERMS AND DEFINITIONS TABLE listing various geological terms such as ALLUVIUM, AQUIFER, ARGILLACEOUS, ARTESIAN, etc., with their definitions.

SOIL MOISTURE - CORRELATION OF TERMS PLASTICITY COLOR TABLE with columns for SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, and COLOR.

EQUIPMENT USED ON SUBJECT PROJECT TABLE with columns for EQUIPMENT USED ON SUBJECT PROJECT and detailed descriptions of equipment.

FRACTURE SPACING BEDDING INDURATION TABLE with columns for FRACTURE SPACING, BEDDING, and INDURATION.

TERMS AND DEFINITIONS TABLE listing various geological terms such as ALLUVIUM, AQUIFER, ARGILLACEOUS, ARTESIAN, etc., with their definitions.

13-SEP-2018 23:27 I:\ZGEO\TECH\02-PROJECTS\2000-12999\2200\2299 - U-5809-US 601 from US 421 to SR 1146 Intersection Improvement\CADD\_GEO\TECH\PlanProf\U-5809\_Rdy.-tsh.dgn

**TIP PROJECT: U-5809**

**CONTRACT:**

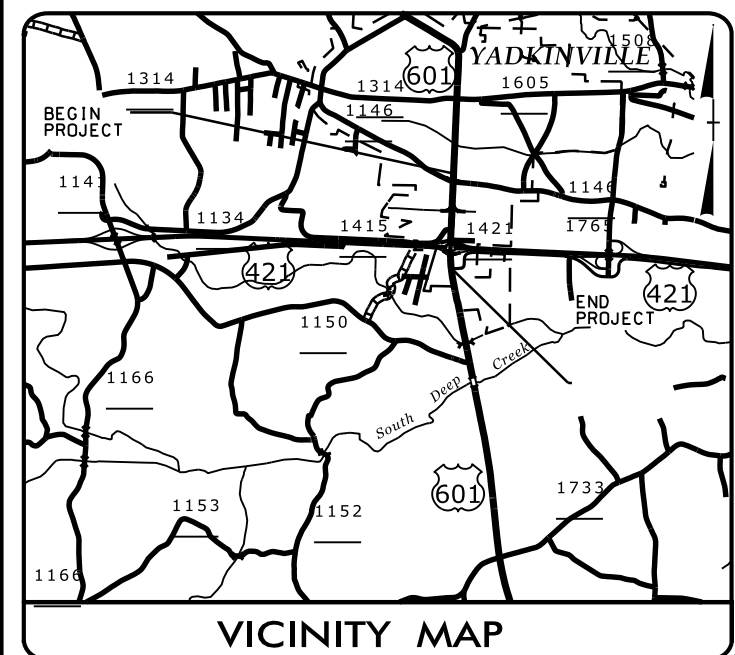
See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Plan Sheet Symbols

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

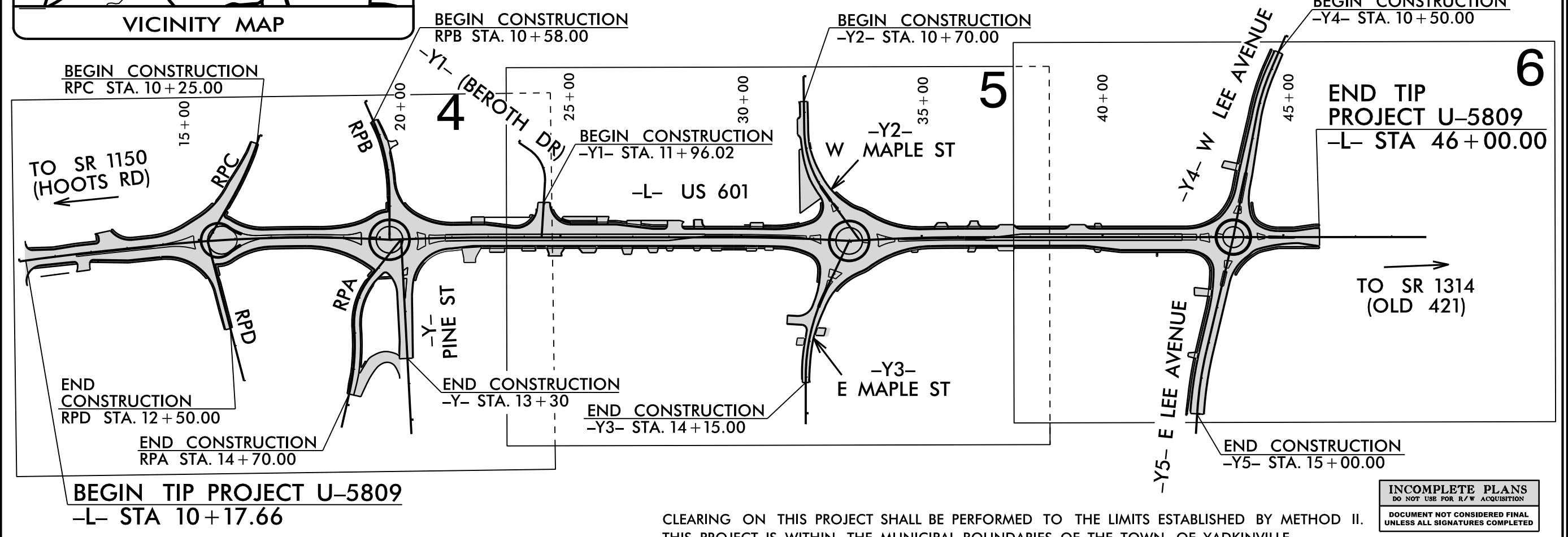
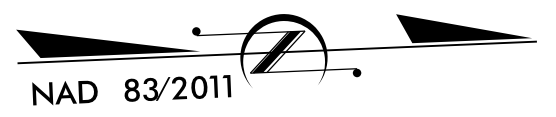
**YADKIN COUNTY**

**LOCATION: US 601 FROM SR 1742 (SHARON DR) TO SR 1146 (LEE AVENUE)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, AND SIGNALS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5809	1	33
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44382.1.1	N/A	PE	

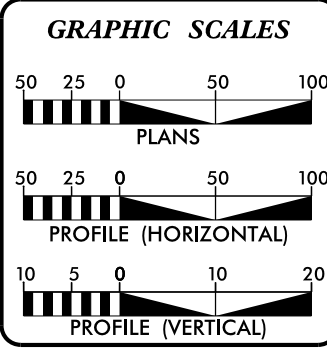


**25% PLAN SUBMITTAL**



**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.  
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF YADKINVILLE.



**DESIGN DATA**

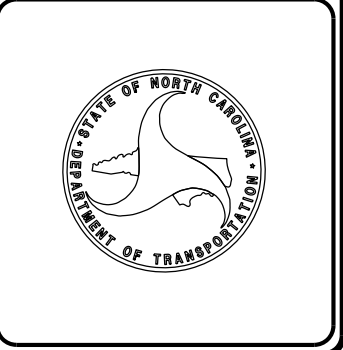
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ADT 2040 =	20,200
K =	7 %
D =	55 %
T =	4 % *
V =	40 MPH
* TTST = 2% DUAL = 2%	
FUNC CLASS =	MINOR ARTERIAL REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-5809	=	0.678 MILES
TOTAL LENGTH TIP PROJECT U-5809	=	0.678 MILES

NCDOT CONTACT: RAMIE SHAW	
PLANS PREPARED BY:	PLANS PREPARED FOR:
<b>TGS ENGINEERS</b> 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH 17041 476-0003 CORP. LICENSE NO. C-0275	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 11 801 Stokesville Rd North Wilkesboro, NC 28659
RIGHT OF WAY DATE: <b>DECEMBER 2018</b>	JIMMY L. TERRY, PE PROJECT ENGINEER
LETTING DATE: <b>JUNE 2020</b>	SANDRA G. MELVIN PROJECT DESIGN ENGINEER
2018 STANDARD SPECIFICATIONS	

HYDRAULICS ENGINEER	
SIGNATURE: _____	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE: _____	P.E.





## ECS Southeast, LLP

1812 Center Park Drive, Suite D  
Charlotte, NC 28217  
T 704.525.5152 | F 704.357.0023  
www.ecslimited.com

September 14, 2018

WBS NO: 44382.1.1  
TIP NO: U-5809  
F.A. NUMBER: N/A  
COUNTY: Yadkin  
DESCRIPTION: US 601 from SR 1742 (Sharon Drive) to SR 1146 (Lee Avenue)

**SUBJECT: Geotechnical Report – Inventory**

### Project Description

The project corridor runs along US 601 between SR 1742 (Sharon Drive) and SR 1146 (Lee Avenue) in Yadkinville, North Carolina. The project also includes the interchange of US 601 and US 421, and the intersections of US 601 with Pine Street, Beroth Drive, Maple Street, and Lee Avenue. We understand improvements to project corridor will consist of the addition of four (4) roundabouts with lane widening and associated sidewalk, curb, and gutter.

The following roads are included as part of this exploration:

<u>Line</u>	<u>Road Name</u>	<u>Station (±)</u>	<u>Offsets</u>
-L-	us 601	10+17 to 46+00	LT to RT
-RPA-	Ramp: US 421 WB to US 601 NB	10+00 to 14+70	LT to RT
-RPB-	Ramp: US 601 SB to US 421 WB	10+58 to 13+93	LT to RT
-RPC-	Ramp: US 421 EB to US 601 SB	10+25 to 13+27	LT to RT
-RDP-	Ramp: US 601 NB to US 421 EB	10+00 to 12+50	LT to RT
-Y-	Pine Street	10+00 to 13+30	LT to RT
-Y1-	Beroth Drive	10+00 to 11+96	LT to RT
-Y2-	W. Maple Street	10+70 to 14+97	LT to RT
-Y3-	E. Maple Street	10+00 to 14+15	LT to RT
-Y4-	W. Lee Avenue	10+50 to 15+78	LT to RT
-Y5-	E. Lee Avenue	10+00 to 15+00	LT to RT

A geotechnical field investigation was performed by ECS between August 9 and August 20, 2018. During this time period, a total of twenty-one (21) Hand Auger (HA) borings (7 pavement borings, 12 roadway

borings, and 2 retaining wall borings) were advanced with a hand auger. Hand auger DCP testing and Kessler DCP testing was performed in general accordance with applicable ASTM standards. Representative soil samples were collected for visual classification in the field and for analysis by ECS's testing laboratory.

### Site Description

The project corridor is comprised mainly of residential and commercial properties. The project is centered around the interchange of US 601 and US 421. At approximate Stations 14+23 -L-, 20+27 -L-, 32+98 -L-, and 43+61 -L- roundabouts will be constructed at the intersections with the various Y lines and ramps. Roadway improvements between Sharon Drive and Lee Avenue will be constructed along US 601.

The road elevations along the various alignments are generally sloping and range from approximately 898 to 967 feet. Soils encountered in the proposed widened areas generally consisted of surficial organic materials underlain by roadway embankment and residual soils. Based on the Roadway Plans provided to us by TGS Engineers, a majority of the new construction and widening will occur along -L- and at the roundabout locations. Mass grading will generally be limited to the existing shoulders and new pavement areas with cut and fill depths on the order of approximately 4 feet or less.

### Areas of Special Geotechnical Interest

1) Artificial Fill: The following areas encountered artificial fill. Artificial fill poses risks associated with undetected deleterious inclusions or soft zones within the fill and/or deleterious materials at the virgin ground/fill interface.

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L-	39+50 to 41+50	RT

2) High Plasticity Soils: The following areas contain high plasticity soils with plasticity indices (PI's) in excess of 25. These soils have the potential to cause subgrade problems during construction, embankment stability or long term settlement problems:

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L-	43+50 to 44+50	LT to RT
-Y4-	13+00 to 14+50	LT to RT

- 3) **Wet or Saturated Soils:** The field exploration did not encounter soils with natural moisture contents in excess of the liquid limit or soils below the ground water table. During the field exploration, soils were labeled as wet at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L	15+50 to 16+50	RT
-L-	18+50 to 20+50	LT to RT
-L-	25+50 to 27+50	LT to RT
-L-	31+00 to 34+50	LT to RT
-L-	39+50 to 45+00	LT to RT
-RPA-	12+00 to 13+00	LT to RT
-RPC-	11+50 to 12+50	LT to RT
-Y2-	13+00 to 14+00	LT to RT
-Y3-	11+50 to 12+50	LT to RT
-Y4-	14+50 to 15+50	LT to RT

- 4) **Soft/Very Loose Soils:** The following areas contain relatively soft or very loose soils that have the potential for subgrade problems, embankment stability or long-term settlement problems during construction:

<u>Line</u>	<u>Station (±)</u>	<u>Offsets</u>
-L-	32+50 to 34+50	Lt to RT
-L-	40+00 to 43+00	RT
-Y4-	14+50 to 15+00	LT to RT
-Y5-	10+50 to 11+50	LT to RT

- 5) **Shallow Groundwater:** Shallow groundwater was not encountered within six feet of the proposed subgrade elevation at the locations explored on the project.

- 6) **Organic Soil:** Soils with little organic content with organic soil thicknesses in excess of 0.3 feet were not encountered at the locations explored on the project.

### **Physiography and Geology**

The site is located in the Piedmont Province of North Carolina. According the Geological Map of North Carolina, 1985, the parent bedrock in this area is in the Cambrian/Late Proterozoic geologic age consisting primarily of Metagraywacke (CZma2). The parent bedrock was not encountered at the locations and depths explored on the project. The virgin soils encountered are the residual product of in-place chemical weathering of rock that was similar to the rock presently underlying the site.

In general, the topography along a majority of the corridor is sloping. Soils encountered in the project corridor generally consisted of roadway embankment soils underlain by residual soils.

### **Soil Properties**

The subsurface conditions discussed below represent the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. The transitions between different soil strata are usually less distinct than those shown on the Borelogs. Sometimes the relatively small sample obtained in the field is insufficient to definitively describe the origin of the subsurface material. Although individual soil test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Soils within the area of this project have been divided into four categories: pavement, artificial fill, roadway embankment and residual soils.

**Pavement:** A summary of the pavement sections encountered in the pavement core borings is listed below.

<u>Line</u>	<u>Station (±)</u>	<u>Offset</u>	<u>Asphalt Thickness (in)</u>	<u>ABC Thickness (in)</u>
-L-	15+00	15' RT	9	12
-L-	17+50	15' LT	11	10
-L-	19+61	13' RT	9	12
-L-	26+50	15' LT	12	3
-L-	32+00	15' RT	6.5	12
-L-	38+00	15' LT	6.5	9
-L-	44+00	15' RT	6.5	9

**Artificial Fill:** The artificial fill encountered generally consisted of soft, wet, sandy silt (A-4) and extends to a depth of approximately 1.0 foot below existing ground.

**Roadway Embankment:** The roadway embankment encountered generally consisted of loose, moist to wet, silty sand and clayey sand (A-2-4 and A-2-6), medium stiff to very stiff, moist to wet, fine sandy silt (A-4) and soft to stiff, moist to wet, moderately plastic silty clay (A-7-5/6) and was encountered at depths up to 6.0 feet below existing ground. Laboratory testing of the roadway embankment soils indicated a PI of 20.

**Residual Soils:** Residual soils throughout the project corridor are derived from the weathering of the underlying parent bedrock. A majority of the residual soils encountered generally consisted of very loose to medium dense, moist to wet, silty sand and clayey sand (A-2-4 and A-2-6), medium stiff to very stiff,

moist, sandy silt (A-4), stiff, wet, sandy clay (A-6), and medium stiff, moist, moderately to highly plastic silty clay (A-7-5 & A-7-6). Laboratory testing indicated PI's ranging from 20 to 32 for the A-7-5 and A-7-6 soils.

### Groundwater Properties

Groundwater levels were measured in the borings both immediately after augering and, where applicable, after a stabilization period of at least 24 hours. At the time of drilling, ground water was not encountered in any of the borings. For safety reasons, several of the borings located in or in close proximity to the roadway were backfilled immediately after augering making stabilized water readings unobtainable.

*No geotechnical profiles will be included as part of this inventory report.*

Respectively submitted,



DocuSigned by:  
*D. Matthew Brewer*  
0EAF318632CF43A...  
D. Matthew Brewer, P.E.  
Senior Project Engineer  
N.C. Registration No. 041986

DocuSigned by:  
*Michael J. Walko*  
99589EECD3814D9...  
Michael J. Walko, P.E.  
Principal Engineer

PROJECT REFERENCE NO. <b>U-5809</b>		SHEET NO. <b>4</b>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

**BEGIN TIP PROJECT U-5809**  
-L- STA 10+17.66

YADKINVILLE INVESTMENTS, LLC  
ROCK HILL LAND & DEVELOPMENT, LLC  
DB 829 PG 380

ARC SBYKLNCOOL, LLC  
DB 1085 PG 125

-L- POC 15+23.65 =  
RPC POT 13+27.64 =  
RPD POT 10+00.00

STARWOOD INVESTMENTS  
DB 358 PG 839

ROBERT A. GEIST  
DB 295 PG 613

RPC PT 11+95.74

RPC.HA.1173R

**BEGIN CONSTRUCTION**  
RPB STA 10+58.00

**BEGIN CONSTRUCTION**  
RPC STA 10+25.00

RPB PC 10+63.09

RPB PT 12+71.14

-L- PT 20+27+10 =  
RPB POT 13+93.13

JANO CAPITAL  
DB 465 PG 424  
TOWN OF YADKINVILLE  
DB 104 PG 763

BEROTH OIL COMPANY  
DB 39 PG 33  
DB 26 PG 444  
PB 1PG 120C

-L- PT 22+92.68

VB&G, LLC  
DB 965 PG 89  
PB 10 PG 55

TRIAD MUNICIPAL  
ABC BOARD  
DB 842 PG 478  
PB 10 PG 55

-L- PT 12+28.94

-L- PC 13+87.89

-L- PC 10+00.00

**END CONSTRUCTION**  
RPD STA 12+50.00

RPD POT 14+00.00

**END CONSTRUCTION**  
RPA STA 14+70.00

RPA POT 15+65.16

**END CONSTRUCTION**  
-Y- STA 13+30.00

-L- POT 20+59.25  
RPA POT 10+00.00  
-Y- POT 10+00.00

JEFFERSON/RAY ASSOCIATES  
DB 247 PG 452

J.C. FAW  
DB 617 PG 472  
PB 1PG 120A

-Y- POT 15+39.69


- NOTES:**
1. UNLESS OTHERWISE NOTED ALL DRIVES ARE ASPHALT DRIVES.
  2. UNLESS OTHERWISE NOTED ALL CHANNELIZATION CURB IS 8" X 12" CONCRETE CURB. SEE DETAIL SHEET 2B- FOR LAYOUT.
  3. FOR CURVE DATA SEE DETAIL SHEET 2B-1
  4. SEE DETAIL SHEETS 2B- THRU 2B- FOR ROUNDABOUT LAYOUTS.

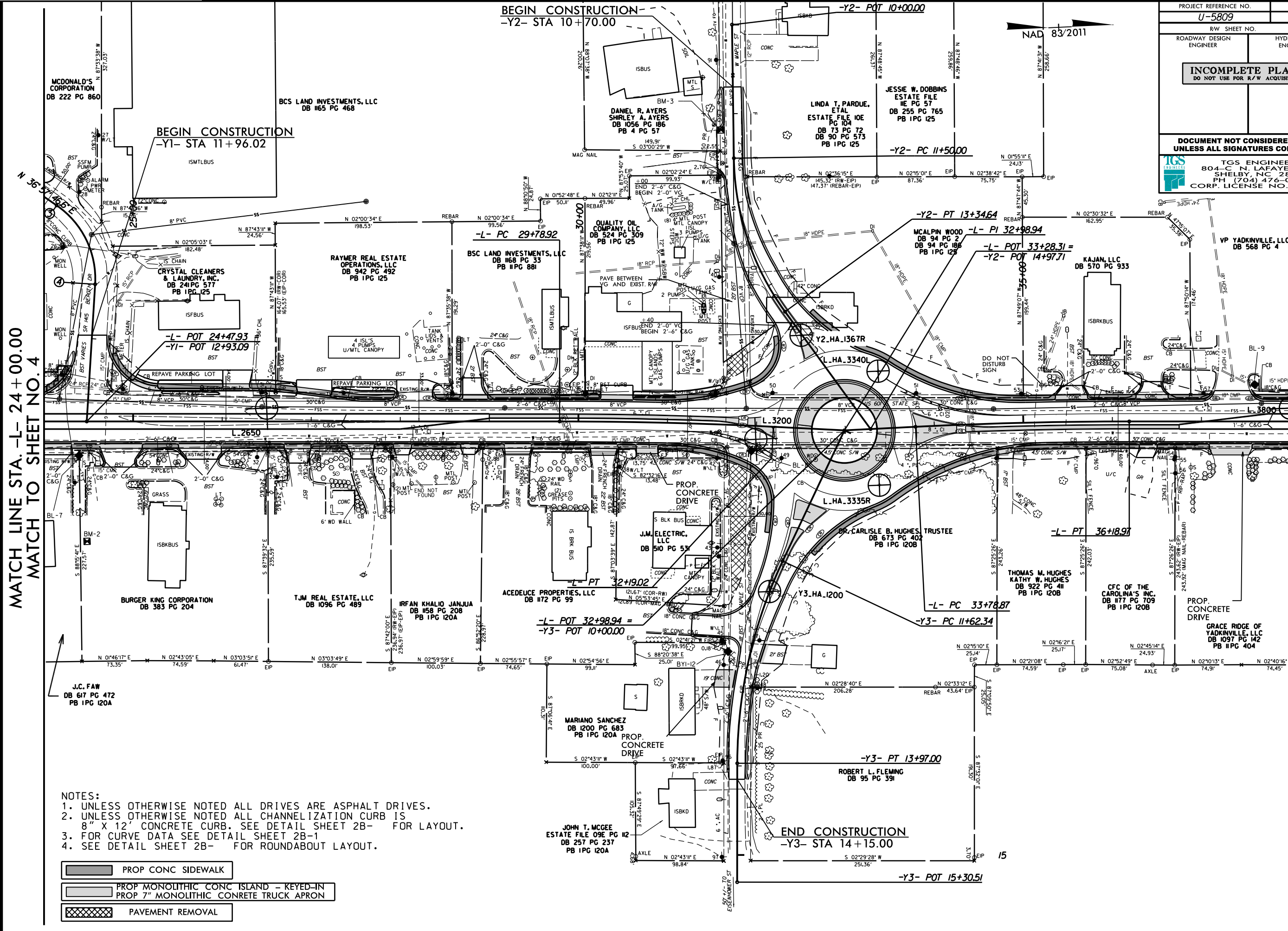
	PROP CONC SIDEWALK
	PROP MONOLITHIC CONC ISLAND - KEYED-IN PROP 7" MONOLITHIC CONCRETE TRUCK APRON
	PAVEMENT REMOVAL

MATCH LINE STA. -L- 24+00.00  
MATCH TO SHEET NO. 5





14-SEP-2018 11:33 I:\2018\PROJECTS\12200-12999\12200-12999 - U-5809-US 601 from US 421 to SR 1146 Intersection Improvement\CADD\GEO\TECH\Plan\Prof U-5809\_Rdy\_psh04.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5809	5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
 <b>TGS ENGINEERS</b> 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	




- NOTES:
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  3. FOR CURVE DATA SEE DETAIL SHEET 2B-1
  4. SEE DETAIL SHEET 2B- FOR ROUNDABOUT LAYOUT.

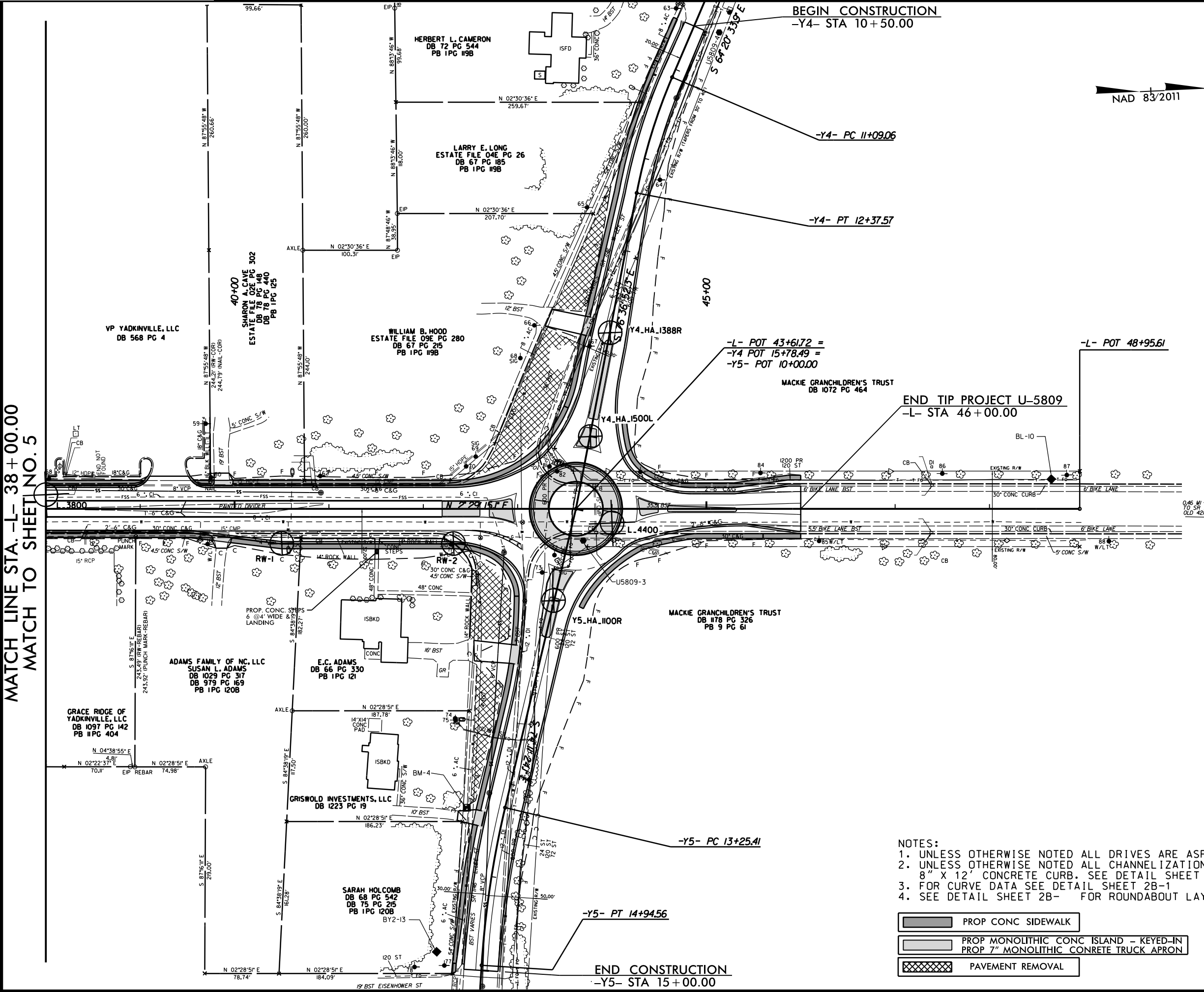
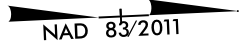
	PROP CONC SIDEWALK
	PROP MONOLITHIC CONC ISLAND - KEYED-IN
	PROP 7" MONOLITHIC CONCRETE TRUCK APRON
	PAVEMENT REMOVAL

REVISIONS  
 14-SEP-2018 11:33  
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MATCH LINE STA. -L- 38+00.00  
 MATCH TO SHEET NO. 6






PROJECT REFERENCE NO. <b>U-5809</b>	SHEET NO. <b>6</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	
 <b>TGS ENGINEERS</b> 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



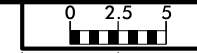
REVISIONS  
 MATCH LINE STA. -L- 38+00.00  
 MATCH TO SHEET NO. 5

- NOTES:**
1. UNLESS OTHERWISE NOTED ALL DRIVES ARE ASPHALT DRIVES.
  2. UNLESS OTHERWISE NOTED ALL CHANNELIZATION CURB IS 8" X 12' CONCRETE CURB. SEE DETAIL SHEET 2B- FOR LAYOUT.
  3. FOR CURVE DATA SEE DETAIL SHEET 2B-1
  4. SEE DETAIL SHEET 2B- FOR ROUNDABOUT LAYOUT.

	PROP CONC SIDEWALK
	PROP MONOLITHIC CONC ISLAND - KEYED-IN PROP 7" MONOLITHIC CONCRETE TRUCK APRON
	PAVEMENT REMOVAL

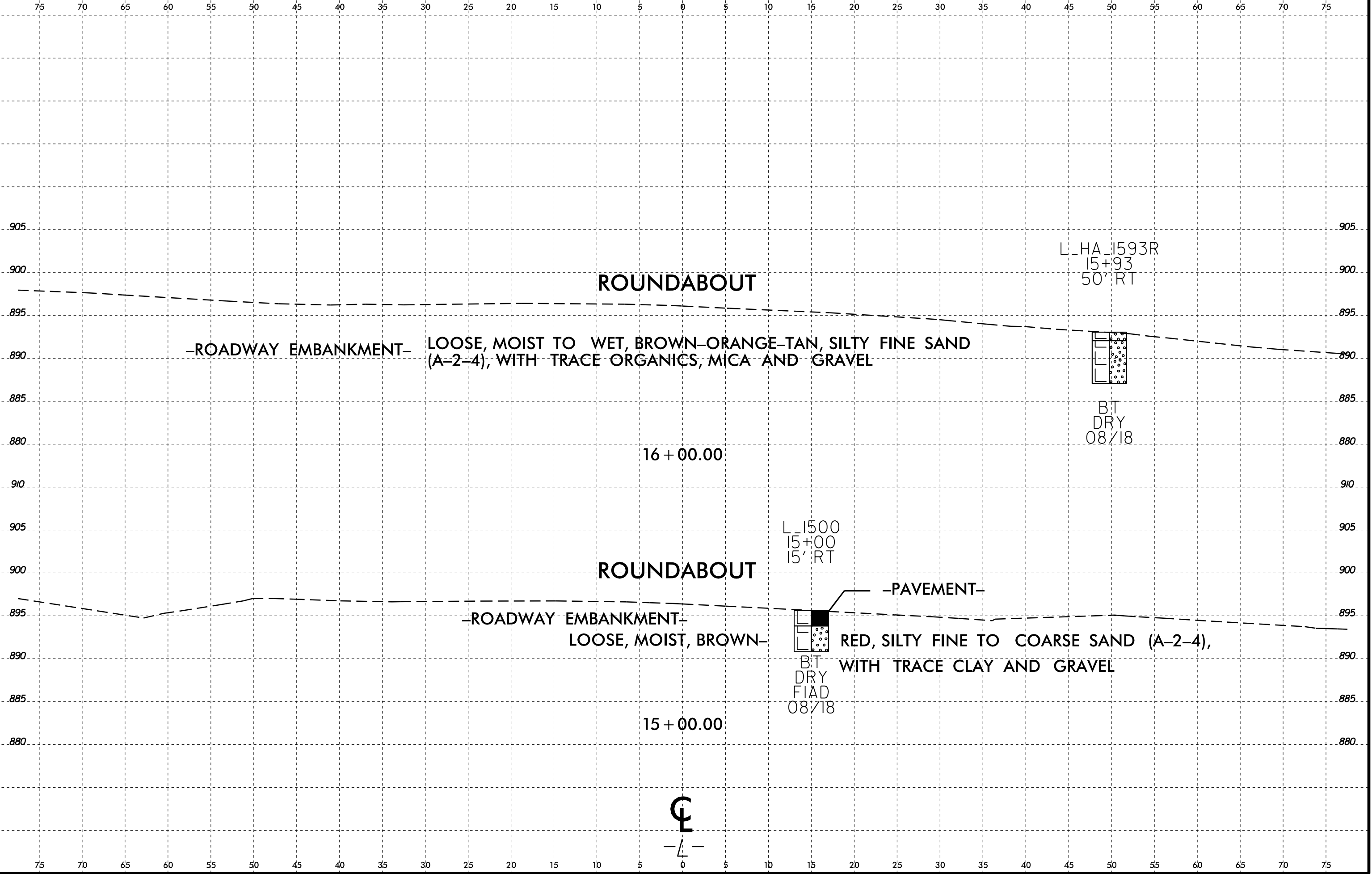
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 8/17/19

6/23/16



PROJ. REFERENCE NO.  
U-5809

SHEET NO.  
7

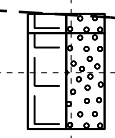


**ROUNDABOUT**

~~ROADWAY EMBANKMENT~~

LOOSE, MOIST TO WET, BROWN-ORANGE-TAN, SILTY FINE SAND (A-2-4), WITH TRACE ORGANICS, MICA AND GRAVEL

L\_HA\_1593R  
15+93  
50' RT



BT  
DRY  
08/18

16 + 00.00

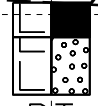
**ROUNDABOUT**

~~ROADWAY EMBANKMENT~~

LOOSE, MOIST, BROWN-

L\_1500  
15+00  
15' RT

~~PAVEMENT~~



BT  
DRY  
FIAD  
08/18

RED, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE CLAY AND GRAVEL

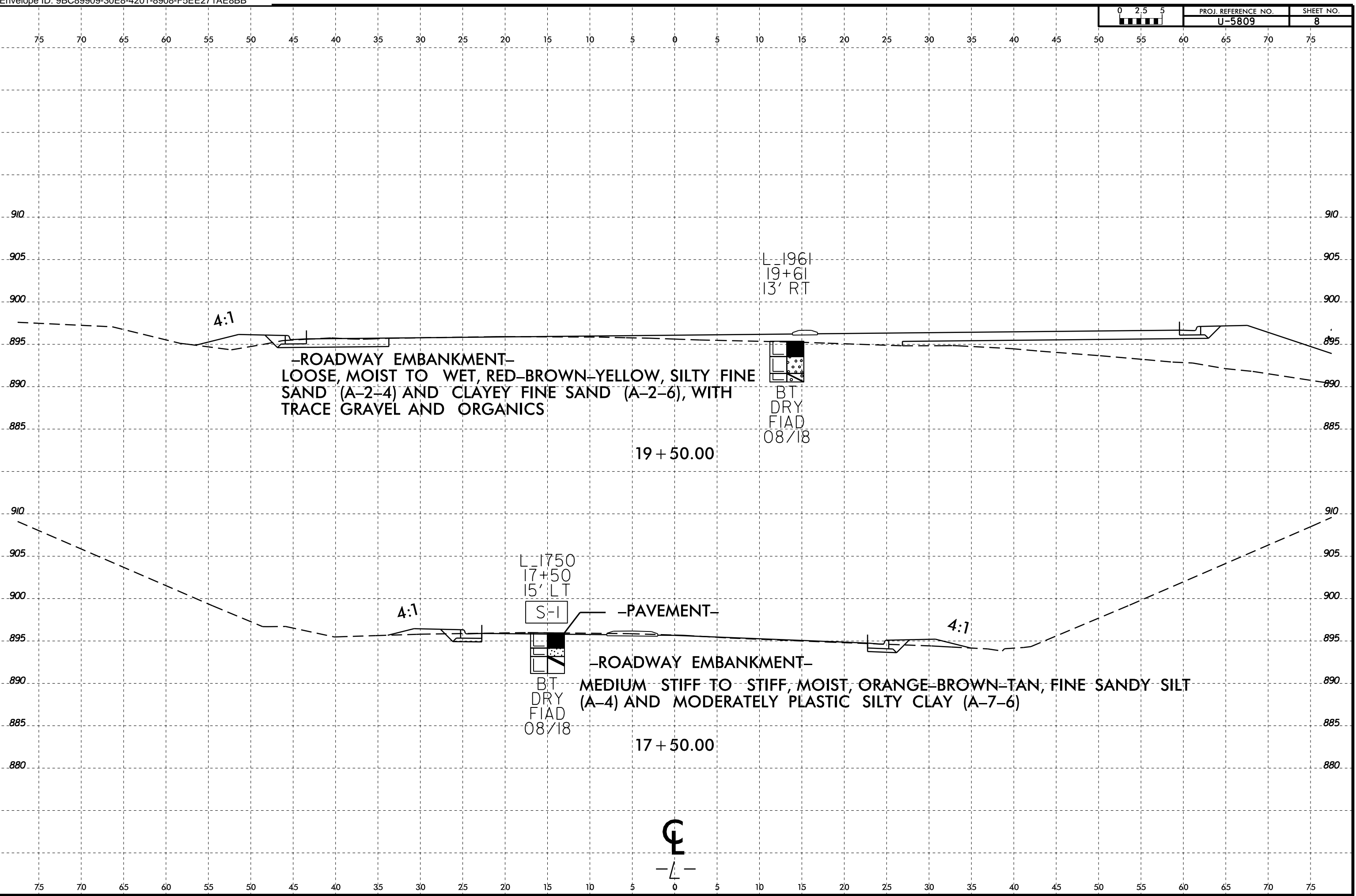
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4:1

-ROADWAY EMBANKMENT-  
LOOSE, MOIST TO WET, RED-BROWN-YELLOW, SILTY FINE SAND (A-2-4) AND CLAYEY FINE SAND (A-2-6), WITH TRACE GRAVEL AND ORGANICS

L-1961  
19+61  
13' RT

BT  
DRY  
FIAD  
08/18

19 + 50.00

4:1

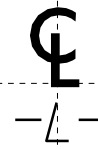
S-1 -PAVEMENT-

-ROADWAY EMBANKMENT-  
MEDIUM STIFF TO STIFF, MOIST, ORANGE-BROWN-TAN, FINE SANDY SILT (A-4) AND MODERATELY PLASTIC SILTY CLAY (A-7-6)

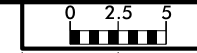
L-1750  
17+50  
15' LT

BT  
DRY  
FIAD  
08/18

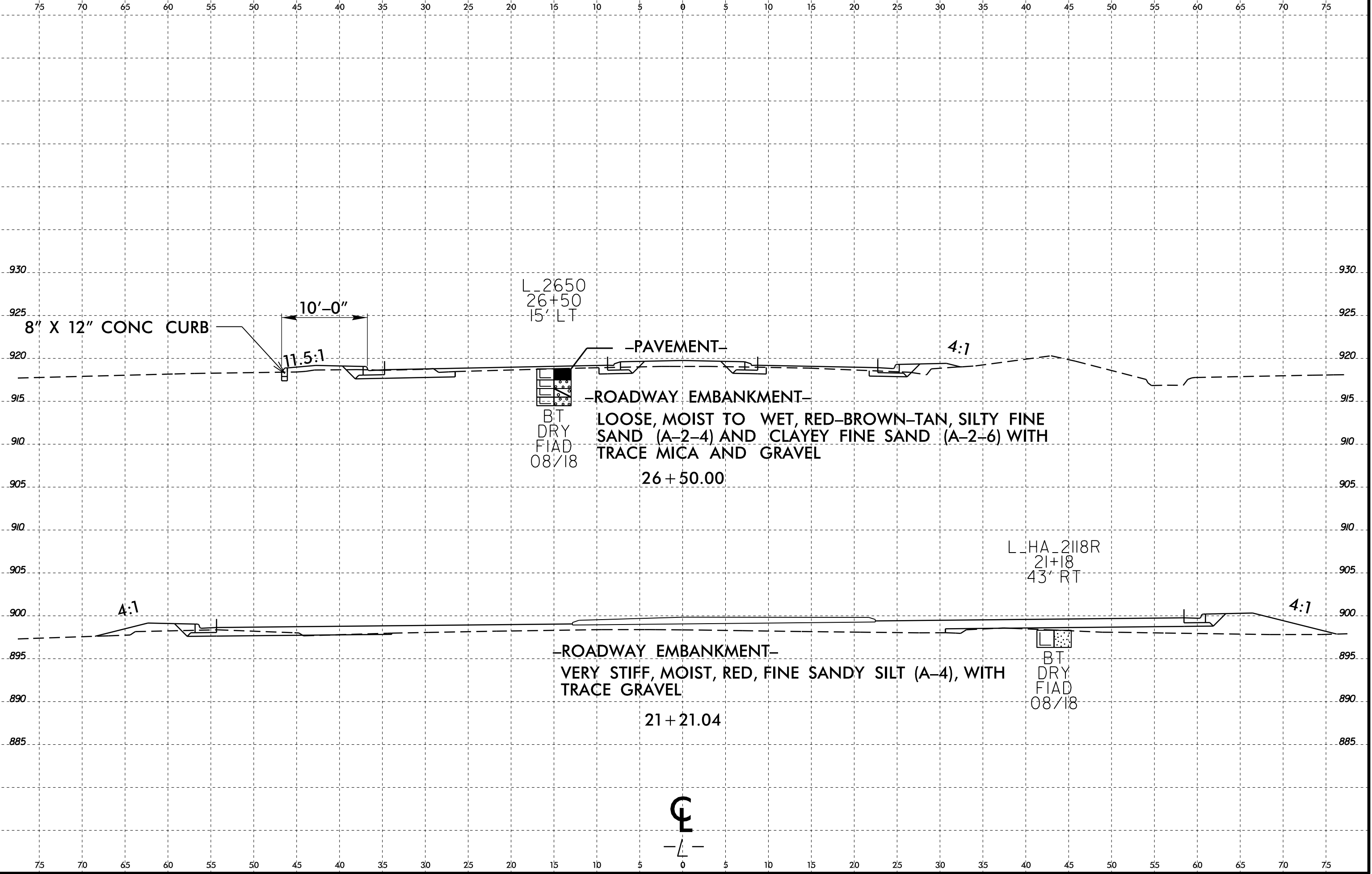
17 + 50.00



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5809	9



L\_2650  
26+50  
15' LT

8" X 12" CONC CURB

10'-0"

11.5:1

-PAVEMENT-

-ROADWAY EMBANKMENT-

LOOSE, MOIST TO WET, RED-BROWN-TAN, SILTY FINE SAND (A-2-4) AND CLAYEY FINE SAND (A-2-6) WITH TRACE MICA AND GRAVEL

26 + 50.00

4:1

L\_HA\_2118R  
21+18  
43' RT

4:1

-ROADWAY EMBANKMENT-

VERY STIFF, MOIST, RED, FINE SANDY SILT (A-4), WITH TRACE GRAVEL

21 + 21.04

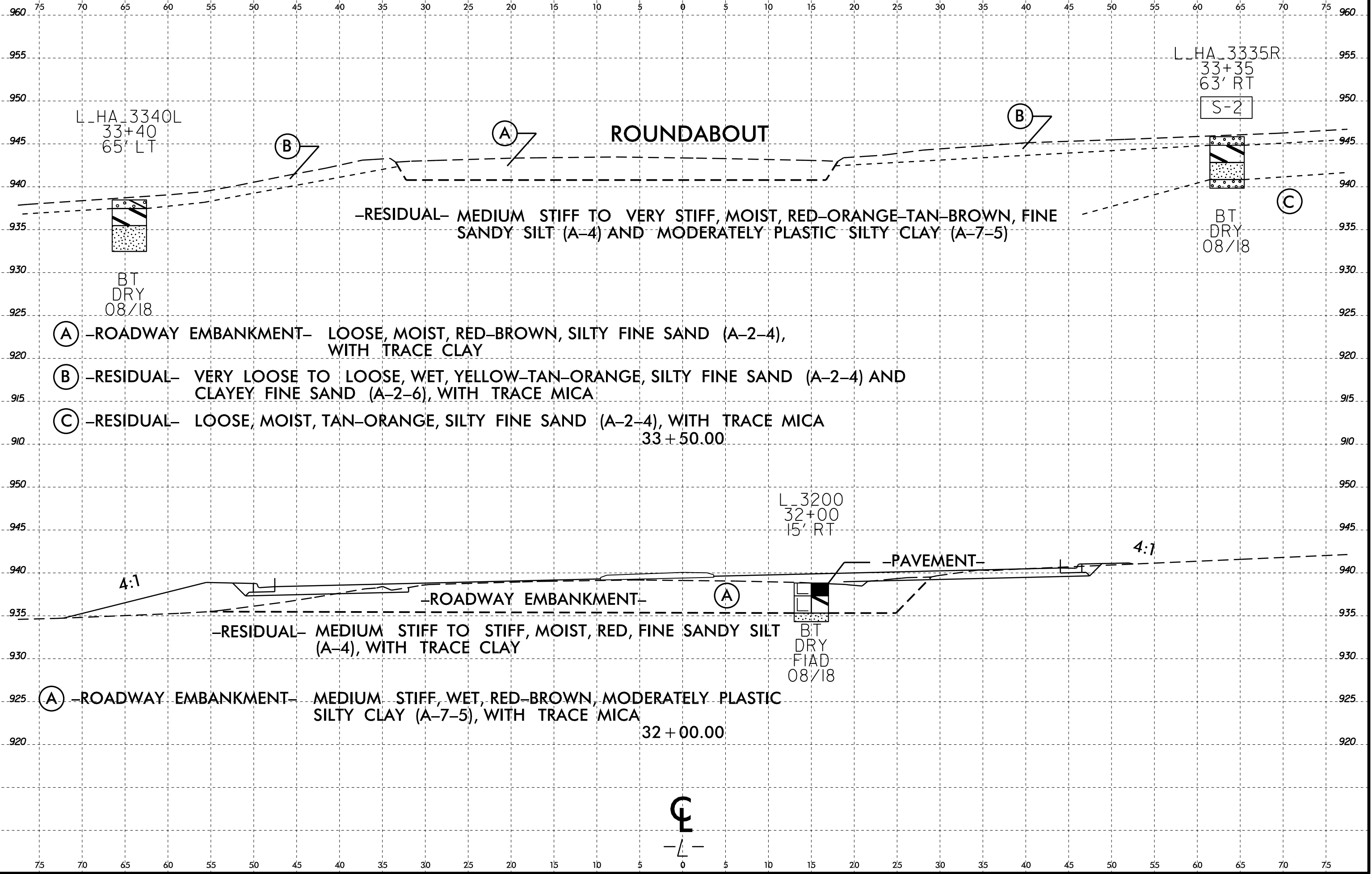
BT  
DRY  
FIAD  
08/18

4:1



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L\_HA\_3340L  
33+40  
65' LT

L\_HA\_3335R  
33+35  
63' RT

**ROUNDABOUT**

-RESIDUAL- MEDIUM STIFF TO VERY STIFF, MOIST, RED-ORANGE-TAN-BROWN, FINE SANDY SILT (A-4) AND MODERATELY PLASTIC SILTY CLAY (A-7-5)

BT  
DRY  
08/18

BT  
DRY  
08/18

- (A) -ROADWAY EMBANKMENT- LOOSE, MOIST, RED-BROWN, SILTY FINE SAND (A-2-4), WITH TRACE CLAY
- (B) -RESIDUAL- VERY LOOSE TO LOOSE, WET, YELLOW-TAN-ORANGE, SILTY FINE SAND (A-2-4) AND CLAYEY FINE SAND (A-2-6), WITH TRACE MICA
- (C) -RESIDUAL- LOOSE, MOIST, TAN-ORANGE, SILTY FINE SAND (A-2-4), WITH TRACE MICA  
33 + 50.00

L\_3200  
32+00  
15' RT

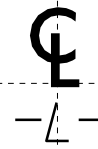
**PAVEMENT**

**ROADWAY EMBANKMENT**

-RESIDUAL- MEDIUM STIFF TO STIFF, MOIST, RED, FINE SANDY SILT (A-4), WITH TRACE CLAY

BT  
DRY  
FIAD  
08/18

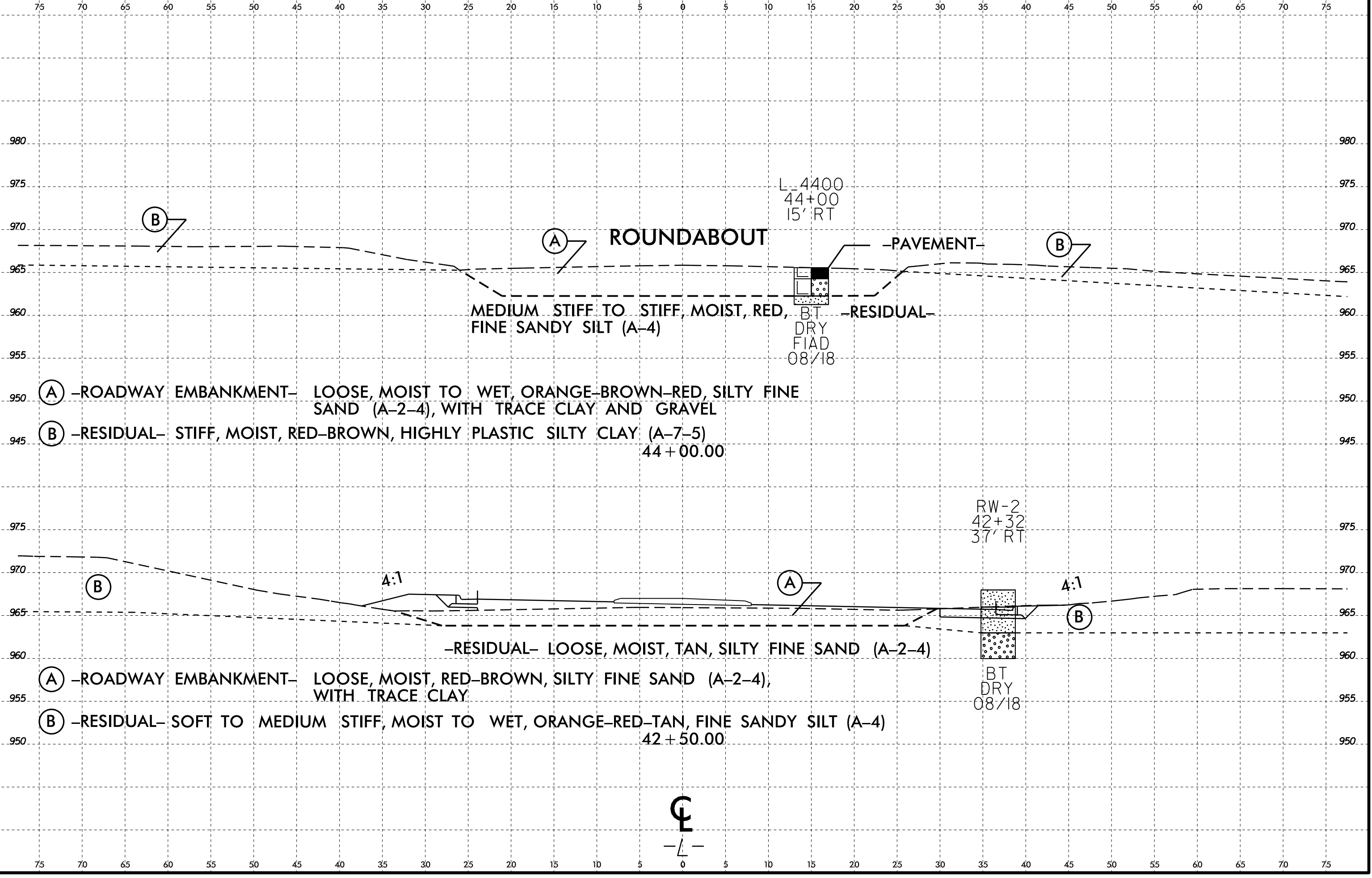
- (A) -ROADWAY EMBANKMENT- MEDIUM STIFF, WET, RED-BROWN, MODERATELY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA  
32 + 00.00



6/23/16  
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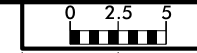
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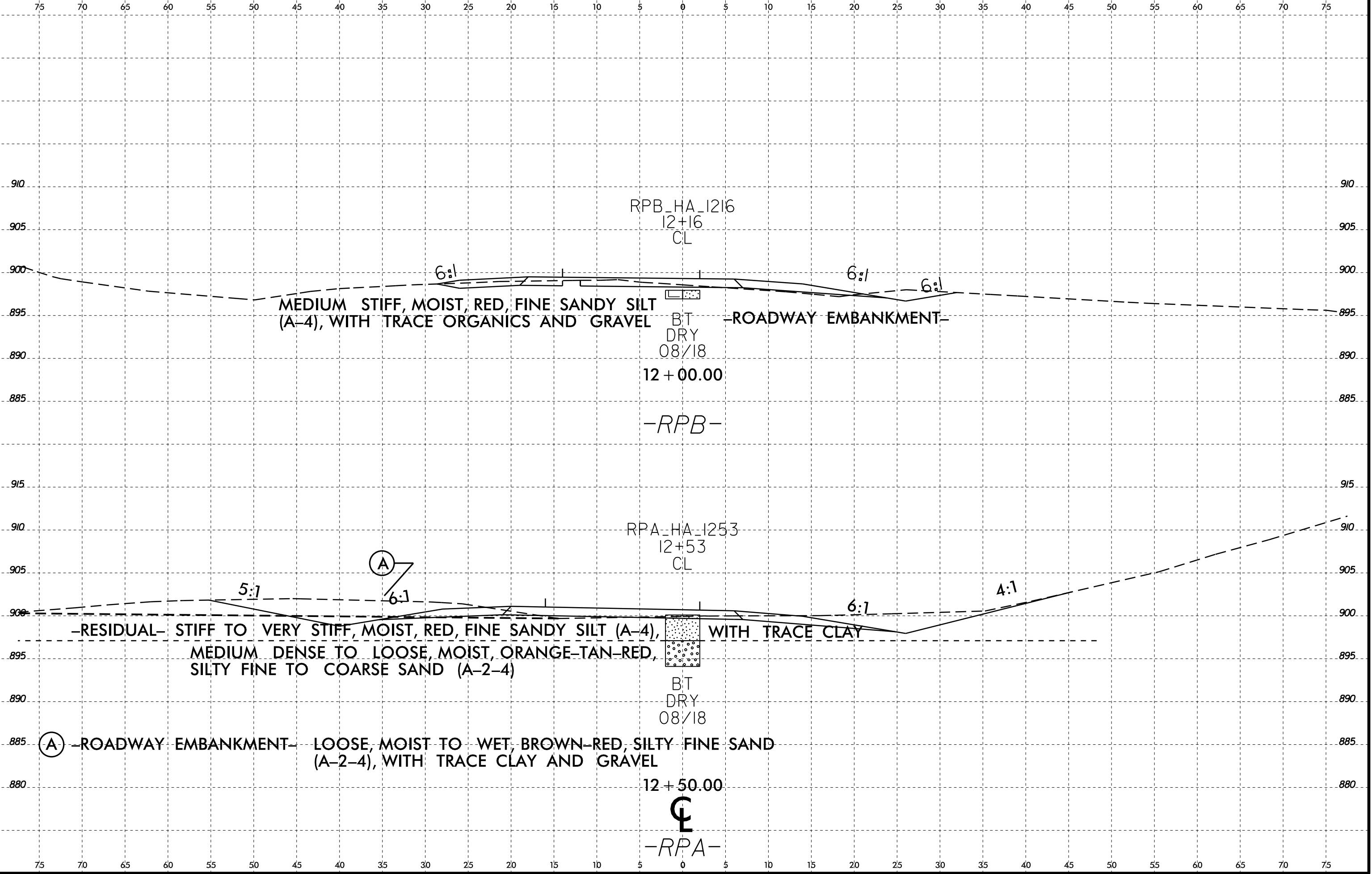
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5809	13



MEDIUM STIFF, MOIST, RED, FINE SANDY SILT (A-4), WITH TRACE ORGANICS AND GRAVEL

RPB\_HA\_1216  
12+16  
CL

ROADWAY EMBANKMENT

BT  
DRY  
08/18  
12 + 00.00

RPB

RPA\_HA\_1253  
12+53  
CL

RESIDUAL STIFF TO VERY STIFF, MOIST, RED, FINE SANDY SILT (A-4), WITH TRACE CLAY  
MEDIUM DENSE TO LOOSE, MOIST, ORANGE-TAN-RED, SILTY FINE TO COARSE SAND (A-2-4)

BT  
DRY  
08/18

ROADWAY EMBANKMENT LOOSE, MOIST TO WET, BROWN-RED, SILTY FINE SAND (A-2-4), WITH TRACE CLAY AND GRAVEL

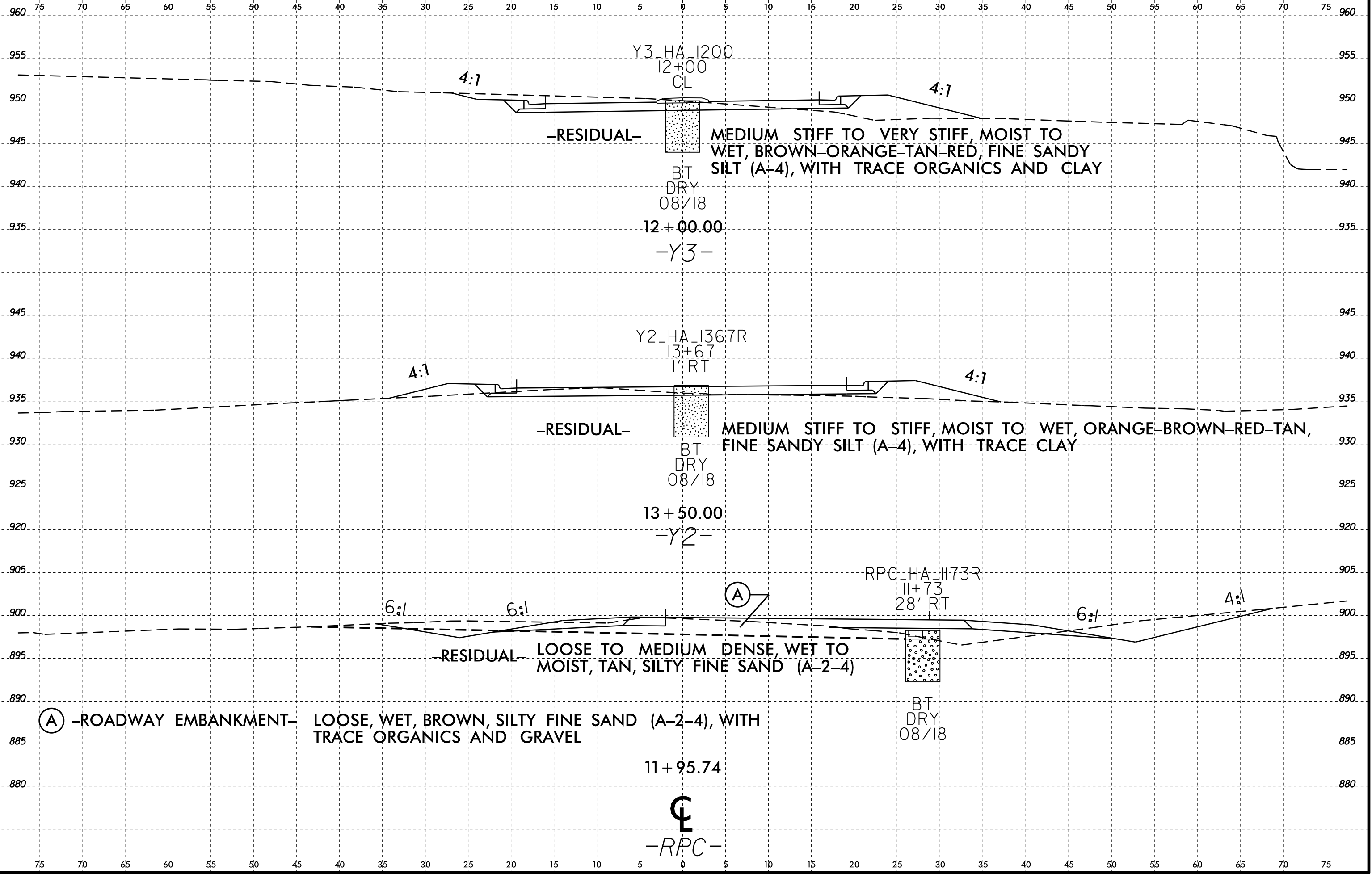
12 + 50.00

RPA

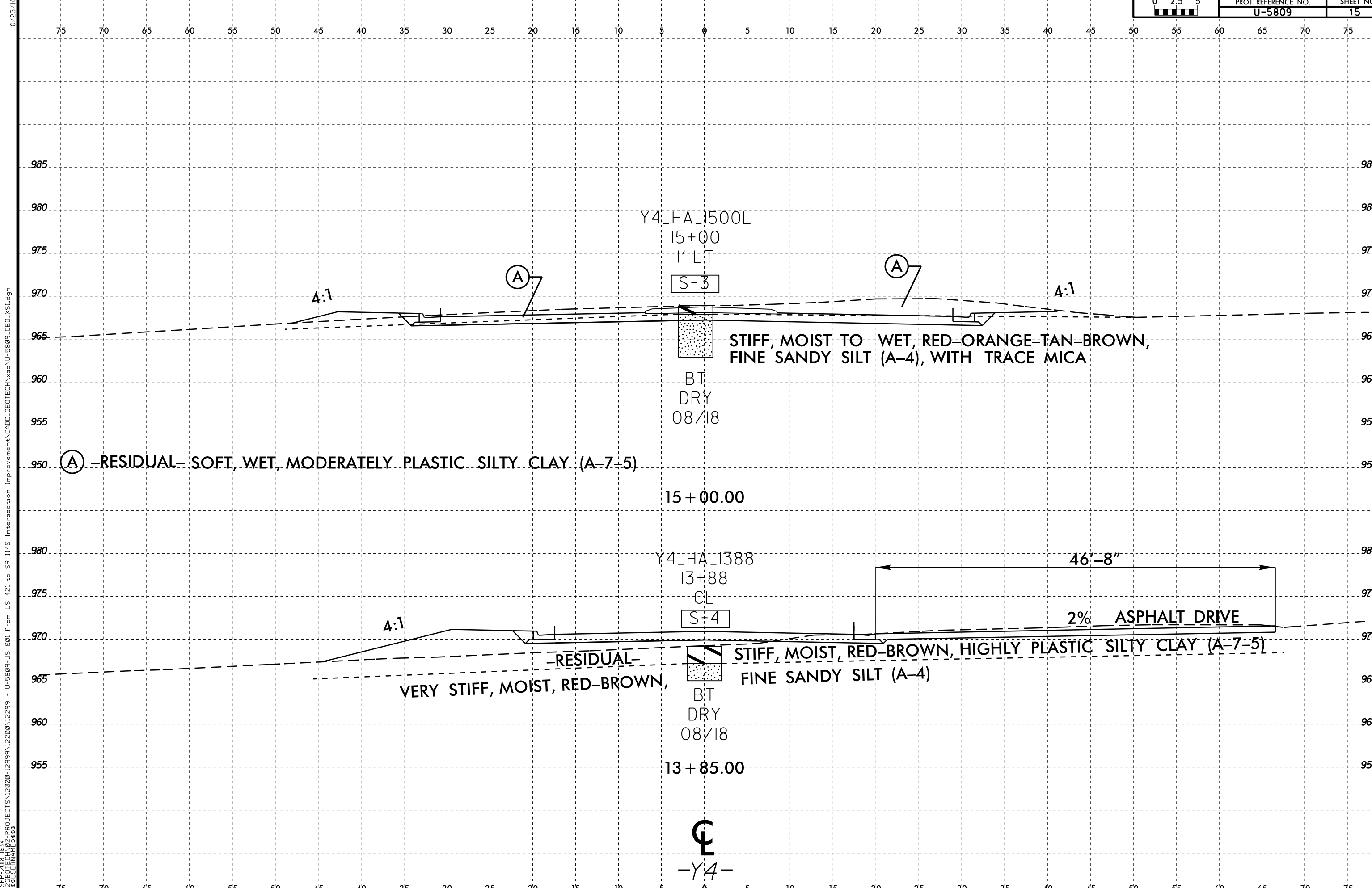
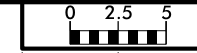
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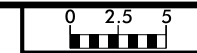


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-Y4-

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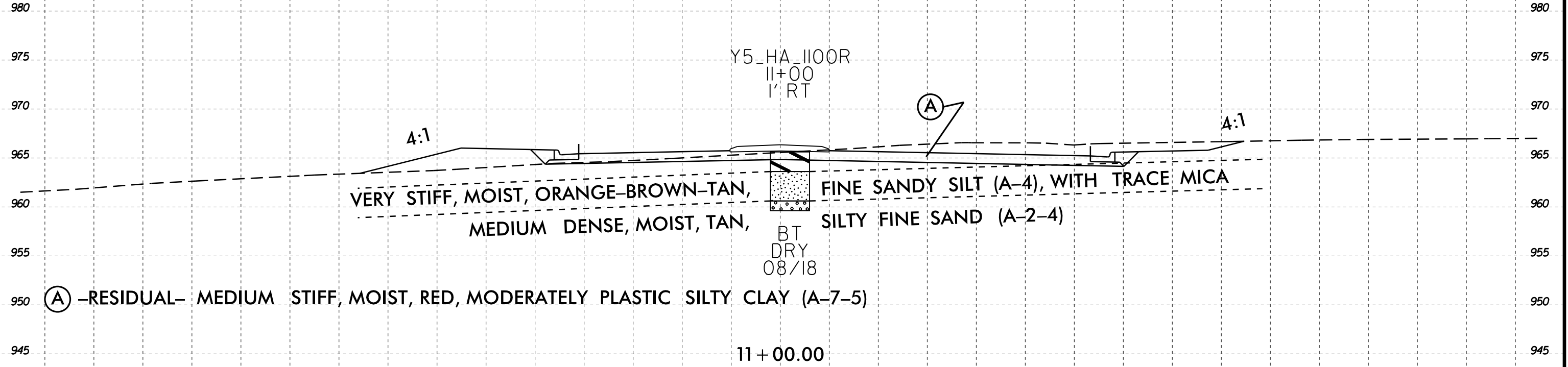
6/23/16



PROJ. REFERENCE NO.  
U-5809

SHEET NO.  
16

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



Y5\_HA\_1100R  
11+00  
1' RT

4:1

4:1

VERY STIFF, MOIST, ORANGE-BROWN-TAN,  
MEDIUM DENSE, MOIST, TAN,

FINE SANDY SILT (A-4), WITH TRACE MICA  
SILTY FINE SAND (A-2-4)

BT  
DRY  
08/18

(A) -RESIDUAL- MEDIUM STIFF, MOIST, RED, MODERATELY PLASTIC SILTY CLAY (A-7-5)

11+00.00

☪  
-Y5-

I:\4-SEP-2018 11:34  
I:\GEO\TECH\102-PROJECTS\12000-12999\12200\12299 - U-5809-US 601 From US 421 to SR 1146 Intersection Improvement\CADD\GEO\TECH\XSEC\U-5809\_GEO\_XSI.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

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PROJECT REFERENCE NO.	SHEET NO.
U-5809	17

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

---

***SUBSURFACE INVESTIGATION***

---

*APPENDIX A  
LABORATORY TEST RESULTS*

**REFERENCE: U-5809**

**PROJECT: 44382**

*Prepared in the Office of:*



**ECS SOUTHEAST, LLP**  
1812 CENTER PARK DRIVE, SUITE D  
CHARLOTTE, NC 28217  
(704) 525-5152 [PHONE]  
(704) 357-0023 [FAX]  
NC REGISTERED  
ENGINEERING  
FIRM # F-1078

## SOIL TEST RESULTS

BORING NO.	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		
L_1750	S-1	15' LT	17+50 -L-	2.8 - 4.8'	A-7-6(9)	42	20	17.3	25.5	6.8	50.4	97.0	88.0	59.0	23.6	-
L_HA_3335R	S-2	63' RT	33+35 -L-	1.0 - 3.0'	A-7-5(19)	56	20	6.1	18.7	16.0	59.2	100.0	97.0	80.0	34.1	-
Y4_HA_1388	S-3	CL	13+88 -Y4-	0.7 - 2.0'	A-7-5(30)	66	32	10.4	14.7	7.7	67.2	100.0	94.0	77.0	32.1	-
Y4_HA_1500L	S-4	1' LT	15+00 -Y4-	0.2 - 1.0'	A-7-6(14)	46	20	13.7	17.1	13.0	56.2	97.0	88.0	71.0	26.7	-

LAB TECHNICIAN: DILLON KESTNER

NCDOT CERTIFICATION NO. 135-01-0816

PROJECT REFERENCE NO.	SHEET NO.
U-5809	19

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

---

***SUBSURFACE INVESTIGATION***

---

***APPENDIX B***

***DCP & DUAL MASS DCP DATA SHEETS***

***REFERENCE: U-5809***

***PROJECT: 44382***

*Prepared in the Office of:*



**ECS SOUTHEAST, LLP**  
1812 CENTER PARK DRIVE, SUITE D  
CHARLOTTE, NC 28217  
(704) 525-5152 [PHONE]  
(704) 357-0023 [FAX]  
NC REGISTERED  
ENGINEERING  
FIRM # F-1078

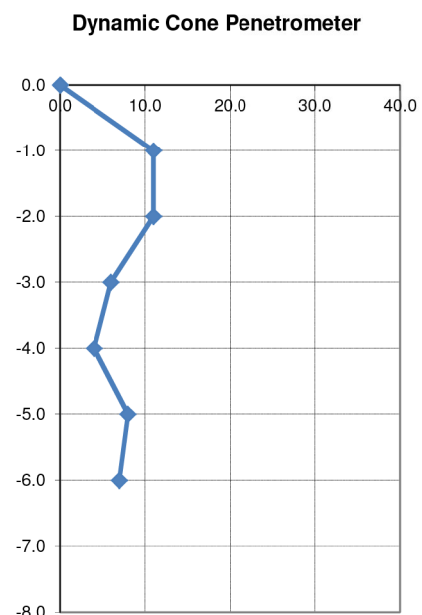
**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** L\_HA\_1593R **Alignment** L  
**Station** 15+93 **Offset** 50' RT

Depth*	Soil Description
0.4 ft	Surficial Organic Soils
0.4 - 1 ft	Roadway Embankment: Loose, Moist, Brown, Silty Fine SAND (A-2-4) with trace organics
1 - 6 ft	Roadway Embankment: Loose, Moist to Wet, Orange-Tan, Silty Fine SAND (A-2-4) with trace mica and gravel
Hand Auger Terminated at 6.0 ft	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	16	12	10	11.0
-2.0	12	11	11	11.0
-3.0	8	7	5	6.0
-4.0	6	4	4	4.0
-5.0	8	8	9	8.0
-6.0	8	7	8	7.0



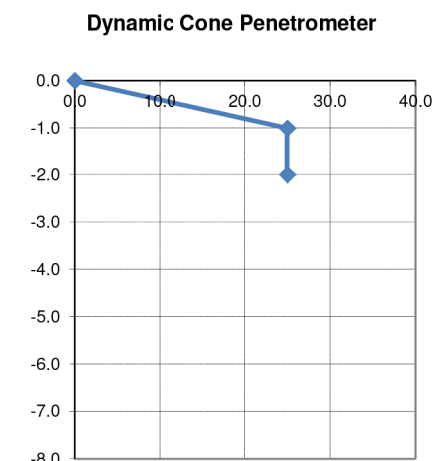
**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** L\_HA\_2118R **Alignment** L  
**Station** 21+18 **Offset** 43' RT

Depth*	Soil Description
0.1 ft	Surficial Organic Soils
0.1 - 2 ft	Roadway Embankment: Very Stiff, Moist, Red, Fine Sandy SILT (A-4) with gravel
Hand Auger Refusal at 2.0 feet	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	25+	-	-	25.0
-2.0	25+	-	-	25.0





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 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

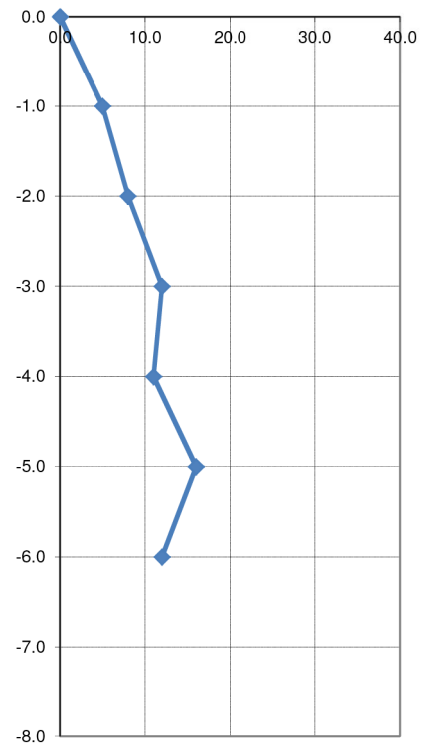
**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** L\_HA\_3335R **Alignment** L  
**Station** 33+35 **Offset** 63' RT

Depth*	Soil Description
0.1 ft	Surficial Organic Soils
0.1 - 1 ft	Residual: Loose, Wet, Orange-Tan, Silty Fine SAND (A-2-4) with trace clay
1 - 3 ft	Medium Stiff, Moist, Red, Moderately Plastic Silty CLAY (A-7-5(19))
3 - 5 ft	Stiff, Moist, Red-Orange-Tan, Fine Sandy SILT (A-4)
5 - 6 ft	Loose, Moist, Tan-Orange, Silty Fine SAND (A-2-4) with trace mica
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	4	4	7	5.0
-2.0	6	8	8	8.0
-3.0	12	14	11	12.0
-4.0	10	10	12	11.0
-5.0	13	11	22	16.0
-6.0	8	12	12	12.0

Dynamic Cone Penetrometer



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 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

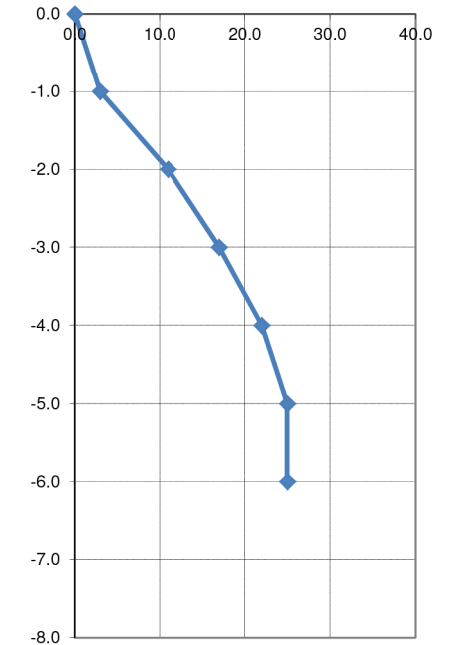
**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** L\_HA\_3340L **Alignment** L  
**Station** 33+40 **Offset** 65' LT

Depth*	Soil Description
0.5 ft	Surficial Organic Soils
0.5 - 1 ft	Residual: Very Loose, Wet, Yellow-Tan, Clayey Fine SAND (A-2-6)
1 - 3 ft	Medium Stiff to Stiff, Moist, Orange-Red-Brown, Moderately Plastic Silty CLAY (A-7-5)
3 - 6 ft	Very Stiff, Moist, Orange-Red, Fine Sandy SILT (A-4)
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	3	3	4	3.0
-2.0	12	12	10	11.0
-3.0	14	17	18	17.0
-4.0	18	20	25	22.0
-5.0	25+	-	-	25.0
-6.0	25+	-	-	25.0

Dynamic Cone Penetrometer







ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** RW-1 **Alignment** L  
**Station** 40+50 **Offset** 37' RT

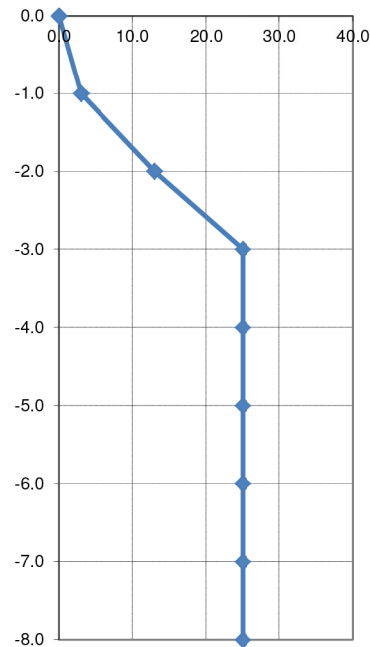
Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 1 ft	Artificial Fill: Soft, Wet, Brown, Fine Sandy SILT (A-4) with trace organics
1 - 2 ft	Residual: Stiff, Wet, Orange-Tan, Fine Sandy CLAY (A-6) with trace organics
2 - 4 ft	Very Stiff, Moist, Red-Orange-Tan, Fine Sandy SILT (A-4)
4 - 8 ft	Medium Dense, Moist, Red-Orange-Tan, Silty Fine to Coarse SAND (A-2-4)
Hand Auger Terminated at 8.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	2	2	4	3.0
-2.0	6	11	16	13.0
-3.0	25+	-	-	25.0
-4.0	25+	-	-	25.0
-5.0	25+	-	-	25.0
-6.0	25+	-	-	25.0
-7.0	18	25+	-	25.0
-8.0	15	25+	-	25.0

Dynamic Cone Penetrometer



ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** RW-2 **Alignment** L  
**Station** 42+32 **Offset** 37' RT

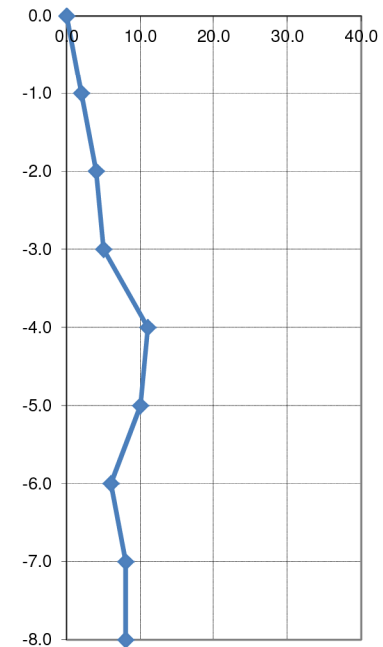
Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 2 ft	Residual: Soft to Medium Stiff, Wet, Red, Fine Sandy SILT (A-4) with trace mica and clay
2 - 5 ft	Medium Stiff, Moist, Orange-Red-Tan, Fine Sandy SILT (A-4)
5 - 8 ft	Loose, Moist, Tan, Silty Fine SAND (A-2-4)
Hand Auger Terminated at 8.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	3	2	3	2.0
-2.0	7	4	5	4.0
-3.0	4	4	6	5.0
-4.0	11	9	13	11.0
-5.0	11	10	11	10.0
-6.0	8	6	7	6.0
-7.0	6	8	8	8.0
-8.0	7	8	9	8.0

Dynamic Cone Penetrometer



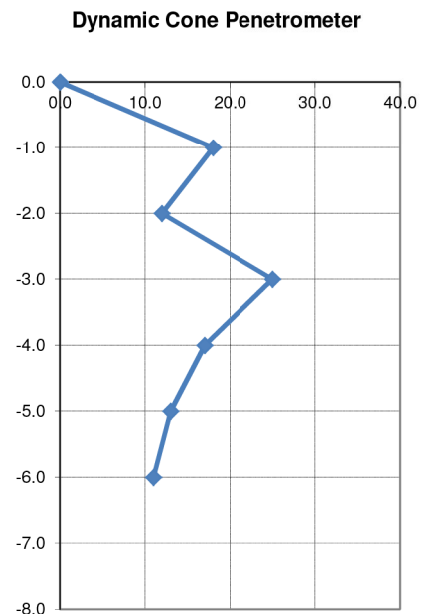
**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** RPA\_HA\_1253 **Alignment** RPA  
**Station** 12+53 **Offset** CL

Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 3 ft	Residual: Stiff to Very Stiff, Moist, Red, Fine Sandy SILT (A-4) with trace clay
3 - 6 ft	Medium Dense to Loose, Moist, Orange-Tan-Red, Silty Fine to Coarse SAND (A-2-4)
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	12	12	25	18.0
-2.0	8	11	13	12.0
-3.0	11	25+	-	25.0
-4.0	13	16	18	17.0
-5.0	13	15	12	13.0
-6.0	8	11	11	11.0



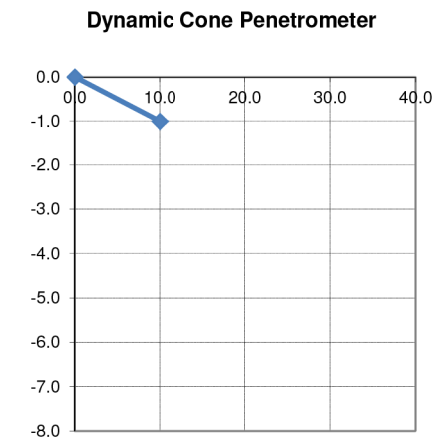
**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** RPB\_HA\_1216 **Alignment** RPB  
**Station** 12+16 **Offset** CL

Depth*	Soil Description
0	Surficial Organic Soils
0 - 1 ft	Roadway Embankment: Medium Stiff, Moist, Red, Fine Sandy SILT (A-4) with trace organics and gravel
Hand Auger Refusal at 1.0 foot	

\*Depths are measured below soil subgrade.  
 \*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	4	6	14	10.0



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 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** RCP\_HA\_1173R **Alignment** RPC  
**Station** 11+73 **Offset** 28' RT

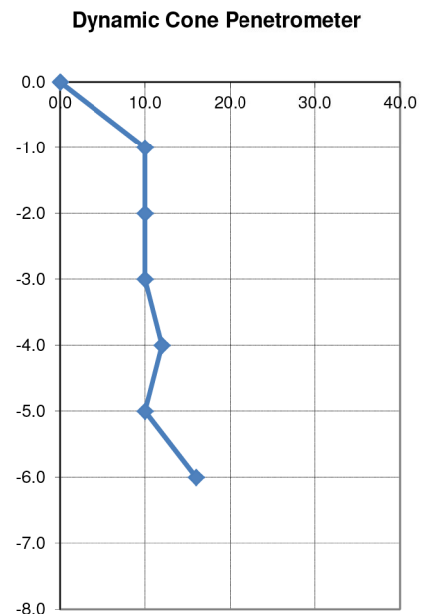
Depth*	Soil Description
0	Surficial Organic Soils
0 - 1 ft	Roadway Embankment: Loose, Wet, Brown, Silty Fine SAND (A-2-4) with trace organics and gravel
1 - 6 ft	Residual: Loose to Medium Dense, Wet to Moist, Tan, Silty Fine SAND (A-2-4)

Hand Auger Terminated at 6.0 feet

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	8	10	11	10.0
-2.0	8	10	11	10.0
-3.0	12	11	10	10.0
-4.0	12	11	13	12.0
-5.0	11	11	10	10.0
-6.0	15	16	17	16.0



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 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** Y2\_HA\_1367R **Alignment** Y2  
**Station** 13+67 **Offset** 1' RT

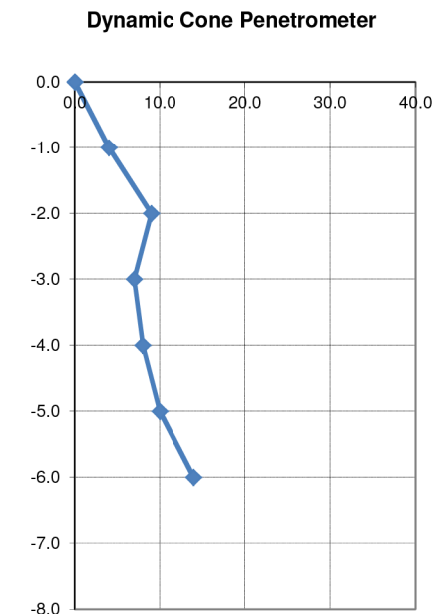
Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 2 ft	Residual: Medium Stiff, Wet to Moist, Orange-Brown-Red, Fine Sandy SILT (A-4)
2 - 6 ft	Medium Stiff to Stiff, Moist, Orange-Red-Tan, Fine Sandy SILT (A-4) with trace clay

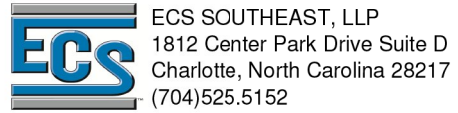
Hand Auger Terminated at 6.0 feet

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	4	4	5	4.0
-2.0	9	12	7	9.0
-3.0	4	6	8	7.0
-4.0	5	7	10	8.0
-5.0	7	10	10	10.0
-6.0	12	14	14	14.0





**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** Y3\_HA\_1200 **Alignment** Y3  
**Station** 12+00 **Offset** CL

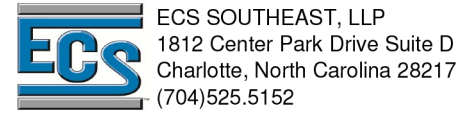
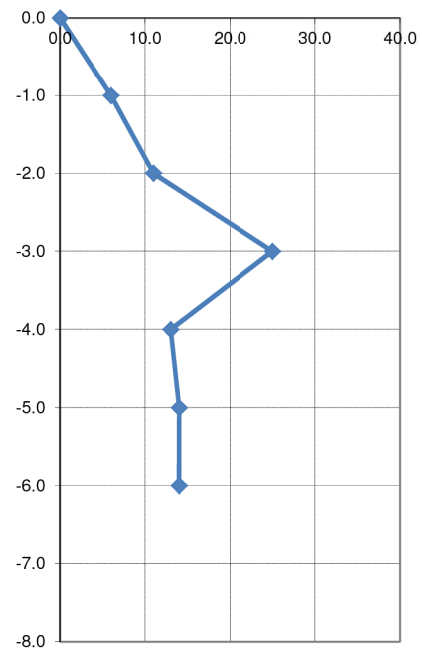
Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 1 ft	Residual: Medium Stiff, Wet, Brown, Fine Sandy SILT (A-4) with organics
1 - 3 ft	Medium Stiff to Stiff, Moist, Orange-Tan-Red, Fine Sandy SILT (A-4) with trace clay
3 - 6 ft	Very Stiff to Stiff, Moist, Red, Fine Sandy SILT (A-4)
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive				
Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	7	6	6	6.0
-2.0	8	11	12	11.0
-3.0	25+	-	-	25.0
-4.0	16	12	15	13.0
-5.0	20	15	14	14.0
-6.0	14	14	15	14.0

Dynamic Cone Penetrometer



**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** Y4\_HA\_1388 **Alignment** Y4  
**Station** 13+88 **Offset** CL

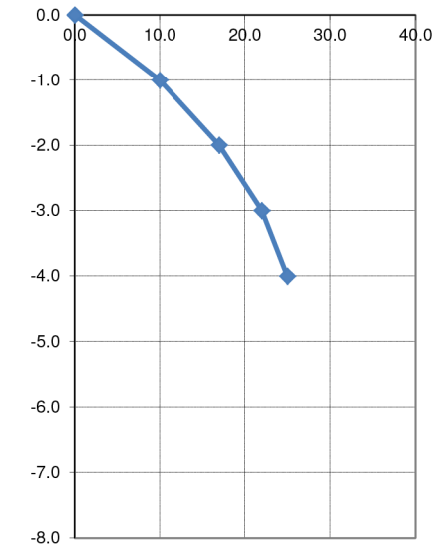
Depth*	Soil Description
0.7 ft	Surficial Organic Soils
0.7 - 2 ft	Residual: Stiff, Moist, Red-Brown, Highly Plastic Silty CLAY (A-7-5(28))
2 - 4 ft	Very Stiff, Moist, Red, Fine Sandy SILT (A-4)
Hand Auger Refusal at 4.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive				
Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	12	10	11	10.0
-2.0	13	15	20	17.0
-3.0	17	20	24	22.0
-4.0	21	25+	-	25.0

Dynamic Cone Penetrometer



**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** Y4\_HA\_1500L **Alignment** Y4  
**Station** 15+00 **Offset** 1' LT

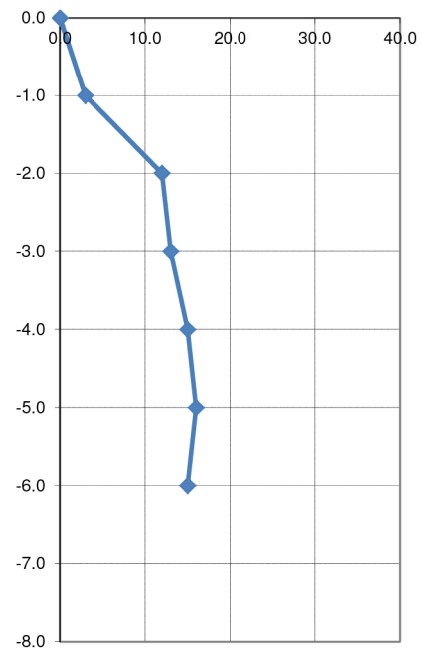
Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 1 ft	Residual: Soft, Wet, Red, Moderately Plastic Silty CLAY (A-7-6(14))
1 - 2 ft	Stiff, Wet, Red, Fine Sandy SILT (A-4) with trace mica
2 - 6 ft	Stiff, Moist, Orange-Tan-Brown, Fine Sandy SILT (A-4)
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	4	3	4	3.0
-2.0	8	11	14	12.0
-3.0	14	15	11	13.0
-4.0	5	12	18	15.0
-5.0	12	17	15	16.0
-6.0	12	14	17	15.0

**Dynamic Cone Penetrometer**



**ECS** ECS SOUTHEAST, LLP  
 1812 Center Park Drive Suite D  
 Charlotte, North Carolina 28217  
 (704)525.5152

**Client** TGS Engineers  
**Project** U-5809 - US 601  
**Location** Yadkinville, North Carolina  
**Job No.** 12299  
**Boring** Y5\_HA\_1100R **Alignment** Y5  
**Station** 11+00 **Offset** 1' RT

Depth*	Soil Description
0.2 ft	Surficial Organic Soils
0.2 - 2 ft	Residual: Medium Stiff, Moist, Red, Moderately Plastic Silty CLAY (A-7-5)
2 - 5 ft	Very Stiff, Moist, Orange-Brown-Tan, Fine Sandy SILT (A-4) with trace mica
5 - 6 ft	Medium Dense, Moist, Tan, Silty Fine SAND (A-2-4)
Hand Auger Terminated at 6.0 feet	

\*Depths are measured below soil subgrade.

\*\*Groundwater not encountered.

Dyanmic Cone Penetrometer Measurements per Drive Increments				
Depth	0" to 2"	2" to 3.75"	3.75" to 5.5"	Average
0.0	-	-	-	0.0
-1.0	4	6	11	8.0
-2.0	11	25+	-	25.0
-3.0	13	15	17	16.0
-4.0	8	12	15	13.0
-5.0	18	25+	-	25.0
-6.0	14	16	19	17.0

**Dynamic Cone Penetrometer**

