REFERENCE: U-4714B

PROJECT: 39078

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	X-SECT
-L-	10+00 - 210+37.50	4-19	20-27	28-30

SOIL TEST RESULTS 31-32

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *UNION*

PROJECT DESCRIPTION *SR 1009 (JOHN STREET/OLD MONROE ROAD) FROM WEST OF MORNINGSIDE MEADOW LANE TO EAST OF SR 1377*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4714B	1	32

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:
1. 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.
2. 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

C. L. SMITH

J. K. STICKNEY

INVESTIGATED BY *J. E. BEVERLY*

DRAWN BY *J. E. BEVERLY*

CHECKED BY *K. B. MILLER*

SUBMITTED BY *K. B. MILLER*

DATE *SEPTEMBER 2018*

NORTH CAROLINA LICENSED SEAL 2029 GEOLOGIST KEVIN BENNETT MILLER

DocuSigned by:

957A789AED764C8...

9/17/2018

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED 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 THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [X] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK:

ELEVATION: FEET

NOTES:

ELEVATIONS OBTAINED FROM "U4714B ls tnl.tin" FILE DATED 7-19-17

FIAD=FILLED IMMEDIATELY AFTER DRILLING
PI=PLASTICITY INDEX

DATE: 8-15-14

09/08/09

TIP PROJECT: U-4714B

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP N.T.S.

APPROVED 25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4714B	3	32

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
39078.1.6		PE

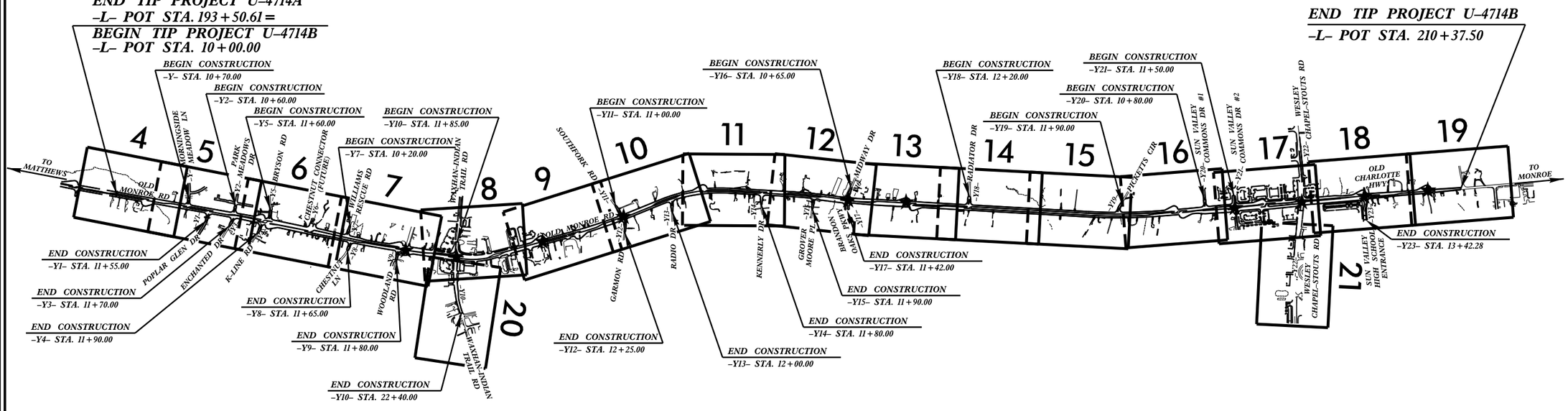
LOCATION: *SR 1009 (OLD MONROE ROAD) FROM WEST OF MORNINGSIDE MEADOW LANE TO EAST OF SR 1377 (WESLEY CHAPEL-STOUTS RD)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, RETAINING WALLS, SIGNALS, AND SIGNING*

NAD 83
NA 2011

END TIP PROJECT U-4714A
-L- POT STA. 193+50.61 =
BEGIN TIP PROJECT U-4714B
-L- POT STA. 10+00.00

END TIP PROJECT U-4714B
-L- POT STA. 210+37.50



★ PROPOSED TRAFFIC SIGNAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

25% PLANS
11-SEP-2018 09:56

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2021 = 36,140
ADT 2041 = 43,160
K = 9%
D = 55%
T = 6%*
V = 50 MPH
* (TTST = 2% + DUAL 4%)
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4714B = 3.795 MILES
LENGTH STRUCTURE TIP PROJECT U-4714B = 0.000 MILES
TOTAL LENGTH OF TIP PROJECT U-4714B = 3.795 MILES

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 15, 2019

LETTING DATE:
FEBRUARY 16, 2021

SEAN C. STEPHENS, PE
PROJECT ENGINEER

NARONG PHAL, EIT
PROJECT DESIGNER

BRYAN KEY, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEERS

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

September 5, 2018

STATE PROJECT: 39078.1.6 (U-4714B)
F.A. PROJECT:
COUNTY: Union
DESCRIPTION: SR 1009 (Old Monroe Road) from West of Morningside Meadow Lane to East of SR 1377 (Wesley Chapel-Stouts Rd.)
SUBJECT: Geotechnical Inventory Report

Project Description:

This report presents the findings for proposed widening and improvements of Old Monroe Road in Union County. The project begins within the Stallings City Limits and progresses to the SE for 3.8 miles. Most portions of the project corridor are heavily developed with a variety of business and residential structures. In addition to widening, proposed improvements include sidewalks, bulbs, and turn out lanes.

The geotechnical field investigation was conducted in March and April of 2018. An ATV mounted CME 550 drill machine equipped with automatic drop hammer was utilized to perform test borings along the proposed corridor. Hand auger borings were performed where drill access was limited. Only the -L- survey line was investigated.

Areas of Special Geotechnical Interest:

1) *Groundwater:*
There were multiple instances in which groundwater was encountered during the course of this investigation. Following is a list of station ranges where water was encountered within 6 feet of proposed grade. Generally in the 2 – 6 foot (below grade) range.

-L- Station Ranges:
11+50 – 16+60
46+00 – 47+00
50+00 – 51+00
115+00 – 116+00

2) Crystalline Rock:
Rock was only encountered in two instances. For this scope of work rock is defined by either power auger refusal or standard penetration test refusal. In each instance rock was well below proposed grade.

3) High Plasticity Soils: (PI's 26 and greater)
Even though clayey soils are common throughout the project corridor, high PI clay soils were only discovered in 6 instances. All highly plastic soils came back as A-7-5 or A-7-6 in the AASHTO classification. The following boring locations encountered high PI soils within 6 feet of proposed grade:

-L- Station(s)	Relationship to proposed grade	PI
30+90	At or just below grade	45
36+80	At or just below grade	26
64+58	At or just below grade	31
72+40	Below grade	27
74+80	At or just below grade	27

4) *Alluvial Soils:*
There were two areas where alluvial soils were encountered along the project corridor. Both due to small creeks/drainage features. Alluvial soils were very loose silty sand (A-2-4) and very soft to stiff clayey silt (A-4).

5) *Artificial Fill - Berm:*
Clearing of adjacent property right of -L- stations 130+20 to 133+50 produced a long berm of soil and construction debris. A test boring on top of the berm shows 14.2 feet of artificial fill material consisting of stiff sandy and silty clay (A-6, A-7-5) mixed with concrete, wood and other construction material. Beyond station 131+25 this berm of debris falls outside of proposed construction limits.

6) *Water Wells:*
No wells were noted within proposed construction limits during the course of this investigation. It is possible that some wells may be present along the project that went undetected.

7) *Drainage Retention Area:*

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

Telephone: 919-707-6850
Fax: 919-250-4237
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

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

To the right of -L- stations 78+25 – 78+75 is a drainage retention area associated with the Stallings Volunteer Fire Department. During the time of this investigation the area was wet and inaccessible. An onsite drop inlet is not positioned well enough to provide complete drainage of the area.

Physiography and Geology:

The project begins in NW Union County in the city of Stallings and trends to the SE toward the city of Monroe. The project is mostly urban and surrounded by homes, businesses, and commercial property. Elevation ranges along the project corridor vary between 740 and 640 feet. There are only a few creeks and wet weather drainage features. The project does however have areas of standing water during seasonal wet periods which is the result of impermeable soils and poor drainage.

Geologically the project lies within the Piedmont Physiographic Province. From beginning to end underlying rock types transition rapidly from the Charlotte Belt into the Carolina Slate Belt. According to the NC Geologic Map the predominant parent rock type underlying the project corridor is Cenozoic age phyllite and schist rock types (CZph and CZmd).

Soil Properties:

1) *Residual Soils:*

These soils are derived from in place weathering of parent materials. They occur in a variety of consistencies, classifications, and stratigraphic sequences. Residual soils are further subdivided into clays, silts, and sands.

Clays are a prominent soil type along the project corridor. They are found as surface soils and subsoils. Typically they consist of soft to hard sandy silty and/or silty sandy clay in the AASHTO classifications of A-7-5, A-7-6, and A-6. Clay soils are somewhat impermeable in respect to this project. Plasticity index ranges are between 11 and 45.

Silts were also common and typically consist of medium stiff to hard clayey sandy silt or sandy clayey silt. AASHTO classifications are A-4, and A-5. Silts occur in all depth ranges.

Sand was not encountered in the residual soil profile during this investigation.

2) *Alluvial Soils:*

Alluvial soils originate from water transportation and deposition in a floodplain environment. Alluvial deposits along the project corridor are sparse and limited to creeks and drainage features. They are typically shallow with predominant soil types being very loose clayey silty sand (A-2-4), and very soft sandy clayey silt (A-4).

3) *Fill Soils:*

Roadway embankment fill soils are present beneath existing SR 1009 (Old Monroe Rd.) and its connectors. Roadway fill soils are likely comprised of medium stiff sandy silty clay (A-7-5, A-7-6, A-6), and medium stiff sandy clayey silt (A-4).

There are areas of artificial fill soils that are the result of adjacent residential and commercial development. Most of these soils are locally disturbed residual soils thereby consisting of silt and clay. One area of disturbed soil right of -L- stations 130+20 to 133+50 also contains a mixture of various construction debris.

DocuSigned by:
J. Eddie Beverly
8BF22D1890734D0...

Prepared by: J.E. Beverly,
Project Geological Engineer

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 17+00 (SHEET 5)

SR 1009 OLD MONROE ROAD 27' BST

60' CONC

EXISTING R/W

S 38°12'43.5"E

ALLUVIUM

L1200LT

L1460RT

L1660LT

48" CHL

48" WD

72" WD

10' DRAINAGE EASEMENT

2SFD

ISFD

ISBKD

ISBKBUS

HOMEWOOD WAY 18' BST

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 22 FOR -L- PROFILE

07-AUG-2018 13:57
S:\WRG\Morrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh04.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83 NA 2011

MATCHLINE -L- STA 17+00 (SHEET 4)

MATCHLINE -L- STA 29+00 (SHEET 6)

-L- POT Sta. 23+81.89 =
-Y1- POT Sta. 10+00.00

-L- POT Sta. 27+49.21 =
-Y2- POT Sta. 12+00.00
-Y3- POC Sta. 10+00.00

-L- POT Sta. 20+68.26 =
-Y- POT Sta. 12+00.00

POT Sta. 10+00.00

PC Sta. 27+84.31

PC Sta. 11+18.35

PT Sta. 11+42.00

PT Sta. 12+35.50

POT Sta. 13+15.00

POT Sta. 13+70.00

BLUEBONNET LN

SR 1009 OLD MONROE RD

DB 365 PG 477

BM#11

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 30 FOR -Y-, -Y1-, -Y2-, -Y3- PROFILE

17-JUL-2018 11:50
S:\WHO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_rdy_psh05.dgn
$$$$LEFTHOUSE$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CHESNUT CTR.

0 / 254	0 / 167
0 / 48	0 / 167
OLD MONROE RD	OLD MONROE RD
200 / 286	250 / 446
4 / 8	54 / 49
CHESNUT CTR.	
58 / 96	2021 / 2041

MATCHLINE -L- STA 29+00 (SHEET 5)

MATCHLINE -L- STA 43+00 (SHEET 7)

NAD 83/NA 2011

POT Sta. 10+00.00

PC Sta. 10+45.39

POT Sta. 12+50.00

-Y5- POC Sta.11+97.97 =
-DRI- POT Sta. 10+00.00

PT Sta. 12+52.28

-L- POT Sta. 32+84.03 =
-Y5- POT Sta.13+50.00

PT Sta. 30+41.89

-L- POT Sta. 13+68.82 =
-Y4- POT Sta. 10+00.00

PC Sta. 10+64.86

PT Sta. 11+84.08

POT Sta. 12+50.00

POT Sta. 10+00.00

-Y6- POT Sta. 14+00.00

POT Sta. 39+14.17

SR 1009 OLD MONROE ROAD 32' BST

SR 1009 OLD MONROE RD 27.5' BST

S 53° 37' 57.8" W

S 36° 22' 02.2" E

N 46° 16' 21.7" W

S 45° 49' 28.8" W

S 55° 43' 13.9" W

L-125RT

L-289LT

L-300LT

L-350LT

L-360LT

L-350LT

L-350LT

ISFD

ISBKD

ISBKBUS

CANOPY

ISFD (ABAND)

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 31 FOR -Y4-, -Y5- PROFILE

17-JUL-2018 13:41
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh06.dgn
$$$$ICTHAUF $$$

★ PROPOSED TRAFFIC SIGNAL

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 43+00 (SHEET 6)

MATCHLINE -L- STA 57+00 (SHEET 8)

-L- POT Sta. 44+37.55 =
-Y7- POT Sta. 112+20.00

-L- POT Sta. 45+17.75=
-Y8- POT Sta. 10+00.00

-L- POT Sta. 52+15.41 =
-Y9- POT Sta. 10+00.00

POT Sta. 10+00.00

PC Sta. 115+20.65

PC Sta. 11+73.93

PT Sta. 12+80.34

PT Sta. 13+19.83

POT Sta. 13+50.00

POT Sta. 13+25.00

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 31 FOR -Y7-, -Y8- PROFILE
SEE SHEET 32 FOR -Y9- PROFILE

17-JUL-2018 13:44
S:\WO\Charlotte\Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh07.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

OLD MONROE RD — WAXHAW INDIAN TRAIL RD

132 / 88	30 / 27
43 / 21	OLD MONROE RD
250 / 446	242 / 500
34 / 66	39 / 114
132 / 220	2021 / 2041

MATCHLINE -L- STA 57+00 (SHEET 7)

MATCHLINE -L- STA 70+00 (SHEET 9)

MATCHLINE -Y10- STA 17+00 (SHEET 20)

-L- POT Sta. 60+77.30 = -Y10- POT Sta. 14+02.85

POT Sta. 10+00.00

PC Sta. 61+82.58

PT Sta. 63+99.88

PC Sta. 14+61.76

SR 1008 WAXHAW INDIAN TRAIL ROAD SOUTH (SIDSRST)

OLD MONROE RD

S 46° 46' 50.0" W

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 32 FOR -Y10- PROFILE

17-JUL-2018 13:47
S:\PROJECTS\Harrisburg Investigation\TIP\U4714B.GEO.RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh08.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

MATCHLINE -L- STA 70+00 (SHEET 8)

MATCHLINE -L- STA 84+00 (SHEET 10)

SR 1009 OLD MONROE ROAD 55 BST

S 63° 34' 18" E

DRAINAGE AREA

PC Sta. 78+12.35

ISBKBUS

ISBK CHURCH

ISFD

ISCONCBLK FIRE DEPT.

ISBKD

L 7240 RT

L 7480 RT

L 7965 RT

L 8175 RT

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 24 FOR -L- PROFILE

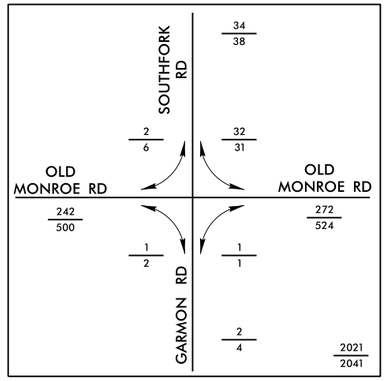
07-AUG-2018 13:58
S:\WRO\Morrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh09.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

★ PROPOSED TRAFFIC SIGNAL



NAD 83/NA 2011

MATCHLINE -L- STA 84+00 (SHEET 9)

MATCHLINE -L- STA 97+00 (SHEET 11)

POT Sta. 10+00.00

PC Sta. 10+72.61

S 54° 28' 47" W

-L- POT Sta. 86+03.47 =
-Y11- POC Sta. 13+00.00

PT Sta. 87+58.69

-L- POC Sta. 86+27.18 =
-Y12- POC Sta. 10+00.00

PT Sta. 11+84.70

POT Sta. 13+40.00

PC Sta. 92+27.62

-L- POC Sta. 93+89.96 =
-Y13- POT Sta. 10+00.00

POT Sta. 13+40.00

S 70° 20' 57.9" E

S 35° 20' 39.5" W

S 46° 17' 49.5" W

37' BST

L8375RT

L8552RT

L8795RT

L8986RT

L9190RT

L9610RT

2SBKD

1SBKD

ISFD

ISROCKD

ISBKD

GARMON RD 35.5' RCF

48" CHL

LAYGROUND

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 32 FOR -Y11- PROFILE
SEE SHEET 33 FOR -Y12-, -Y13- PROFILE

17-JUL-2018 13:51
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_rdy_psh10.dgn
$$$$ICEnGuid$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 97+00 (SHEET 10)

MATCHLINE -L- STA 110+00 (SHEET 12)

PT Sta. 102+39.06

-L- POC Sta. 107+29.83 =
-Y14- POT Sta. 10+00.00

S 45° 07' 59.7" E

S 44° 52' 00.3" W

POC Sta. 11+44.78

PT Sta. 12+81.42

POT Sta. 13+30.00

SR 1009 OLD MONROE RD 28' BST

EXISTING R/W

L1001PRT

L1021PRT

L1041PRT

L0683PRT

L0880LT

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 33 FOR -Y14- PROFILE

17-JUL-2018 13:55
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_ROWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh11.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

★ PROPOSED TRAFFIC SIGNAL

	MIDWAY DR	
OLD MONROE RD	3/3 4/6 1/3	OLD MONROE RD
272/524		214/464
	65/75 9/15	
	BRANDON OAKS PKWY 74/90	2021/2041

NAD 83/NA 2011

MATCHLINE -L- STA 110+00 (SHEET 11)

MATCHLINE -L- STA 122+00 (SHEET 13)

-L- POC Sta. 111+00.00

-L- POC Sta. 115+00.12 =
-Y15- POC Sta. 10+00.00

-L- POC Sta. 119+78.92 =
-Y16- POT Sta. 12+50.00

-L- POC Sta. 119+90.78 =
-Y17- POT Sta. 10+00.00

PRC Sta. 117+34.92

POT Sta. 10+00.00

PC Sta. 10+68.81

PT Sta. 12+27.52

PT Sta. 12+68.45

POT Sta. 13+25.00

POT Sta. 13+38.97

L1=275LT

L2=275LT

L3=275LT

L4=275LT

L5=275LT

L6=275LT

L7=275LT

L8=275LT

L9=275LT

L10=275LT

L11=275LT

L12=275LT

L13=275LT

L14=275LT

L15=275LT

L16=275LT

L17=275LT

L18=275LT

L19=275LT

L20=275LT

L21=275LT

L22=275LT

L23=275LT

L24=275LT

L25=275LT

L26=275LT

L27=275LT

L28=275LT

L29=275LT

L30=275LT

L31=275LT

L32=275LT

L33=275LT

L34=275LT

L35=275LT

L36=275LT

L37=275LT

L38=275LT

L39=275LT

L40=275LT

L41=275LT

L42=275LT

L43=275LT

L44=275LT

L45=275LT

L46=275LT

L47=275LT

L48=275LT

L49=275LT

L50=275LT

L51=275LT

L52=275LT

L53=275LT

L54=275LT

L55=275LT

L56=275LT

L57=275LT

L58=275LT

L59=275LT

L60=275LT

L61=275LT

L62=275LT

L63=275LT

L64=275LT

L65=275LT

L66=275LT

L67=275LT

L68=275LT

L69=275LT

L70=275LT

L71=275LT

L72=275LT

L73=275LT

L74=275LT

L75=275LT

L76=275LT

L77=275LT

L78=275LT

L79=275LT

L80=275LT

L81=275LT

L82=275LT

L83=275LT

L84=275LT

L85=275LT

L86=275LT

L87=275LT

L88=275LT

L89=275LT

L90=275LT

L91=275LT

L92=275LT

L93=275LT

L94=275LT

L95=275LT

L96=275LT

L97=275LT

L98=275LT

L99=275LT

L100=275LT

L101=275LT

L102=275LT

L103=275LT

L104=275LT

L105=275LT

L106=275LT

L107=275LT

L108=275LT

L109=275LT

L110=275LT

L111=275LT

L112=275LT

L113=275LT

L114=275LT

L115=275LT

L116=275LT

L117=275LT

L118=275LT

L119=275LT

L120=275LT

L121=275LT

L122=275LT

L123=275LT

L124=275LT

L125=275LT

L126=275LT

L127=275LT

L128=275LT

L129=275LT

L130=275LT

L131=275LT

L132=275LT

L133=275LT

L134=275LT

L135=275LT

L136=275LT

L137=275LT

L138=275LT

L139=275LT

L140=275LT

L141=275LT

L142=275LT

L143=275LT

L144=275LT

L145=275LT

L146=275LT

L147=275LT

L148=275LT

L149=275LT

L150=275LT

L151=275LT

L152=275LT

L153=275LT

L154=275LT

L155=275LT

L156=275LT

L157=275LT

L158=275LT

L159=275LT

L160=275LT

L161=275LT

L162=275LT

L163=275LT

L164=275LT

L165=275LT

L166=275LT

L167=275LT

L168=275LT

L169=275LT

L170=275LT

L171=275LT

L172=275LT

L173=275LT

L174=275LT

L175=275LT

L176=275LT

L177=275LT

L178=275LT

L179=275LT

L180=275LT

L181=275LT

L182=275LT

L183=275LT

L184=275LT

L185=275LT

L186=275LT

L187=275LT

L188=275LT

L189=275LT

L190=275LT

L191=275LT

L192=275LT

L193=275LT

L194=275LT

L195=275LT

L196=275LT

L197=275LT

L198=275LT

L199=275LT

L200=275LT

L201=275LT

L202=275LT

L203=275LT

L204=275LT

L205=275LT

L206=275LT

L207=275LT

L208=275LT

L209=275LT

L210=275LT

L211=275LT

L212=275LT

L213=275LT

L214=275LT

L215=275LT

L216=275LT

L217=275LT

L218=275LT

L219=275LT

L220=275LT

L221=275LT

L222=275LT

L223=275LT

L224=275LT

L225=275LT

L226=275LT

L227=275LT

L228=275LT

L229=275LT

L230=275LT

L231=275LT

L232=275LT

L233=275LT

L234=275LT

L235=275LT

L236=275LT

L237=275LT

L238=275LT

L239=275LT

L240=275LT

L241=275LT

L242=275LT

L243=275LT

L244=275LT

L245=275LT

L246=275LT

L247=275LT

L248=275LT

L249=275LT

L250=275LT

L251=275LT

L252=275LT

L253=275LT

L254=275LT

L255=275LT

L256=275LT

L257=275LT

L258=275LT

L259=275LT

L260=275LT

L261=275LT

L262=275LT

L263=275LT

L264=275LT

L265=275LT

L266=275LT

L267=275LT

L268=275LT

L269=275LT

L270=275LT

L271=275LT

L272=275LT

L273=275LT

L274=275LT

L275=275LT

L276=275LT

L277=275LT

L278=275LT

L279=275LT

L280=275LT

L281=275LT

L282=275LT

L283=275LT

L284=275LT

L285=275LT

L286=275LT

L287=275LT

L288=275LT

L289=275LT

L290=275LT

L291=275LT

L292=275LT

L293=275LT

L294=275LT

L295=275LT

L296=275LT

L297=275LT

L298=275LT

L299=275LT

L300=275LT

L301=275LT

L302=275LT

L303=275LT

L304=275LT

L305=275LT

L306=275LT

L307=275LT

L308=275LT

L309=275LT

L310=275LT

L311=275LT

L312=275LT

L313=275LT

L314=275LT

L315=275LT

L316=275LT

L317=275LT

L318=275LT

L319=275LT

L320=275LT

L321=275LT

L322=275LT

L323=275LT

L324=275LT

L325=275LT

L326=275LT

L327=275LT

L328=275LT

L329=275LT

L330=275LT

L331=275LT

L332=275LT

L333=275LT

L334=275LT

L335=275LT

L336=275LT

L337=275LT

L338=275LT

L339=275LT

L340=275LT

L341=275LT

L342=275LT

L343=275LT

L344=275LT

L345=275LT

L346=275LT

L347=275LT

L348=275LT

L349=275LT

L350=275LT

L351=275LT

L352=275LT

L353=275LT

L354=275LT

L355=275LT

L356=275LT

L357=275LT

L358=275LT

L359=275LT

L360=275LT

L361=275LT

L362=275LT

L363=275LT

L364=275LT

L365=275LT

L366=275LT

L367=275LT

L368=275LT

L369=275LT

L370=275LT

L371=275LT

L372=275LT

L373=275LT

L374=275LT

L375=275LT

L376=275LT

L377=275LT

L378=275LT

L379=275LT

L380=275LT

L381=275LT

L382=275LT

L383=275LT

L384=275LT

L385=275LT

L386=275LT

L387=275LT

L388=275LT

L389=275LT

L390=275LT

L391=275LT

L392=275LT

L393=275LT

L394=275LT

L395=275LT

L396=275LT

L397=275LT

L398=275LT

L399=275LT

L400=275LT

L401=275LT

L402=275LT

L403=275LT

L404=275LT

L405=275LT

L406=275LT

L407=275LT

L408=275LT

L409=275LT

L410=275LT

L411=275LT

L412=275LT

L413=275LT

L414=275LT

L415=275LT

L416=275LT

L417=275LT

L418=275LT

L419=275LT

L420=275LT

L421=275LT

L422=275LT

L423=275LT

L424=275LT

L425=275LT

L426=275LT

L427=275LT

L428=275LT

L429=275LT

L430=275LT

L431=275LT

L432=275LT

L433=275LT

L434=275LT

L435=275LT

L436=275LT

L437=275LT

L438=275LT

L439=275LT

L440=275LT

L441=275LT

L442=275LT

L443=275LT

L444=275LT

L445=275LT

L446=275LT

L447=275LT

L448=275LT

L449=275LT

L450=275LT

L451=275LT

L452=275LT

L453=275LT

L454=275LT

L455=275LT

L456=275LT

L457=275LT

L458=275LT

L459=275LT

L460=275LT

L461=275LT

L462=275LT

L463=275LT

L464=275LT

L465=275LT

L466=275LT

L467=275LT

L468=275LT

L469=275LT

L470=275LT

L471=275LT

L472=275LT

L473=275LT

L474=275LT

L475=275LT

L476=275LT

L477=275LT

L478=275LT

L479=275LT

L480=275LT

L481=275LT

L482=275LT

L483=275LT

L484=275LT

L485=275LT

L486=275LT

L487=275LT

L488=275LT

L489=275LT

L490=275LT

L491=275LT

L492=275LT

L493=275LT

L494=275LT

L495=275LT

L496=275LT

L497=275LT

L498=275LT

L499=275LT

L500=275LT

L501=275LT

L502=275LT

L503=275LT

L504=275LT

L505=275LT

L506=275LT

L507=275LT

L508=275LT

L509=275LT

L510=275LT

L511=275LT

L512=275LT

L513=275LT

L514=275LT

L515=275LT

L516=275LT

L517=275LT

L518=275LT

L519=275LT

L520=275LT

L521=275LT

L522=275LT

L523=275LT

L524=275LT

L525=275LT

L526=275LT

L527=275LT

L528=275LT

L529=275LT

L530=275LT

L531=275LT

L532=275LT

L533=275LT

L534=275LT

L535=275LT

L536=275LT

L537=275LT

L538=275LT

L539=275LT

L540=275LT

L541=275LT

L542=275LT

L543=275LT

L544=275LT

L545=275LT

L546=275LT

L547=275LT

L548=275LT

L549=275LT

L550=275LT

L551=275LT

L552=275LT

L553=275LT

L554=275LT

L555=275LT

L556=275LT

L557=275LT

L558=275LT

L559=275LT

L560=275LT

L561=275LT

L562=275LT

L563=275LT

L564=275LT

L565=275LT

L566=275LT

L567=275LT

L568=275LT

L569=275LT

L570=275LT

L571=275LT

L572=275LT

L573=275LT

L574=275LT

L575=275LT

L576=275LT

L577=275LT

L578=275LT

L579=275LT

L580=275LT

L581=275LT

L582=275LT

L583=275LT

L584=275LT

L585=275LT

L586=275LT

L587=275LT

L588=275LT

L589=275LT

L590=275LT

L591=275LT

L592=275LT

L593=275LT

L594=275LT

L595=275LT

L596=275LT

L597=275LT

L598=275LT

L599=275LT

L600=275LT

L601=275LT

L602=275LT

L603=275LT

L604=275LT

L605=275LT

L606=275LT

L607=275LT

L608=275LT

L609=275LT

L610=275LT

L611=275LT

L612=275LT

L613=275LT

L614=275LT

L615=275LT

L616=275LT

L617=275LT

L618=275LT

L619=275LT

L620=275LT

L621=275LT

L622=275LT

L623=275LT

L624=275LT

L625=275LT

L626=275LT

L627=275LT

L628=275LT

L629=275LT

L630=275LT

L631=275LT

L632=275LT

L633=275LT

L634=275LT

L635=275LT

L636=275LT

L637=275LT

L638=275LT

L639=275LT

L640=275LT

L641=275LT

L642=275LT

L643=275LT

L644=275LT

L645=275LT

L646=275LT

L647=275LT

L648=275LT

L649=275LT

L650=275LT

L651=275LT

L652=275LT

L653=275LT

L654=275LT

L655=275LT

L656=275LT

L657=275LT

L658=275LT

L659=275LT

L660=275LT

L661=275LT

L662=275LT

L663=275LT

L664=275LT

L665=275LT

L666=275LT

L667=275LT

L668=275LT

L669=275LT

L670=275LT

L671=275LT

L672=275LT

L673=275LT

L674=275LT

L675=275LT

L676=275LT

L677=275LT

L678=275LT

L679=275LT

L680=275LT

L681=275LT

L682=275LT

L683=275LT

L684=275LT

L685=275LT

L686=275LT

L687=275LT

L688=275LT

L689=275LT

L690=275LT

L691=275LT

L692=275LT

L693=275LT

L694=275LT

L695=275LT

L696=275LT

L697=275LT

L698=275LT

L699=275LT

L700=275LT

L701=275LT

L702=275LT

L703=275LT

L704=275LT

L705=275LT

L706=275LT

L707=275LT

L708=275LT

L709=275LT

L710=275LT

L711=275LT

L712=275LT

L713=275LT

L714=275LT

L715=275LT

L716=275LT

L717=275LT

L718=275LT

L719=275LT

L720=275LT

L721=275LT

L722=275LT

L723=275LT

L724=275LT

L725=275LT

L726=275LT

L727=275LT

L728=275LT

L729=275LT

L730=275LT

L731=275LT

L732=275LT

L733=275LT

L734=275LT

L735=275LT

L736=275LT

L737=275LT

L738=275LT

L739=275LT

L740=275LT

L741=275LT

L742=275LT

L743=275LT

L744=275LT

L745=275LT

L746=275LT

L747=275LT

L748=275LT

L749=275LT

L750=275LT

L751=275LT

L752=275LT

L753=275LT

L754=275LT

L755=275LT

L756=275LT

L757=275LT

L758=275LT

L759=275LT

L760=275LT

L761=275LT

L762=275LT

L763=275LT

L764=275LT

L765=275LT

L766=275LT

L767=275LT

L768=275LT

L769=275LT

L770=275LT

L771=275LT

L772=275LT

L773=275LT

L774=275LT

L775=275LT

L776=275LT

L777=275LT

L778=275LT

L779=275LT

L780=275LT

L781=275LT

L782=275LT

L783=275LT

L784=275LT

L785=275LT

L786=275LT

L787=275LT

L788=275LT

L789=275LT

L790=275LT

L791=275LT

L792=275LT

L793=275LT

L794=275LT

L795=275LT

L796=275LT

L797=275LT

L798=275LT

L799=275LT

L800=275LT

L801=275LT

L802=275LT

L803=275LT

L804=275LT

L805=275LT

L806=275LT

L807=275LT

L808=275LT

L809=275LT

L810=275LT

L811=275LT

L812=275LT

L813=275LT

L814=275LT

L815=275LT

L816=275LT

L817=275LT

L818=275LT

L819=275LT

L820=275LT

L821=275LT

L822=275LT

L823=275LT

L824=275LT

L825=275LT

L826=275LT

L827=275LT

L828=275LT

L829=275LT

L830=275LT

L831=275LT

L832=275LT

L833=275LT

L834=275LT

L835=275LT

L836=275LT

L837=275LT

L838=275LT

L839=275LT

L840=275LT

L841=275LT

L842=275LT

L843=275LT

L844=275LT

L845=275LT

L846=275LT

L847=275LT

L848=275LT

L849=275LT

L850=275LT

L851=275LT

L852=275LT

L853=275LT

L854=275LT

L855=275LT

L856=275LT

L857=275LT

L858=275LT

L859=275LT

L860=275LT

L861=275LT

L862=275LT

L863=275LT

L864=275LT

L865=275LT

L866=275LT

L867=275LT

L868=275LT

L869=275LT

L870=275LT

L871=275LT

L872=275LT

L873=275LT

L874=275LT

L875=275LT

L876=275LT

L877=275LT

L878=275LT

L879=275LT

L880=275LT

L881=275LT

L882=275LT

L883=275LT

L884=275LT

L885=275LT

L886=275LT

L887=275LT

L888=275LT

L889=275LT

L890=275LT

L891=275LT

L892=275LT

L893=275LT

L894=275LT

L895=275LT

L896=275LT

L897=275LT

L898=275LT

L899=275LT

L900=275LT

L901=275LT

L902=275LT

L903=275LT

L904=275LT

L905=275LT

L906=275LT

L907=275LT

L908=275LT

L909=275LT

L910=275LT

L911=275LT

L912=275LT

L913=275LT

L914=275LT

L915=275LT

L916=275LT

L917=275LT

L918=275LT

L919=275LT

L920=275LT

L921=275LT

L922=275LT

L923=275LT

L924=275LT

L925=275LT

L926=275LT

L927=275LT

L928=275LT

L929=275LT

L930=275LT

L931=275LT

L932=275LT

L933=275LT

L934=275LT

L935=275LT

L936=275LT

L937=275LT

L938=275LT

L939=275LT

L940=275LT

L941=275LT

L942=275LT

L943=275LT

L944=275LT

L945=275LT

L946=275LT

L947=275LT

L948=275LT

L949=275LT

L950=275LT

L951=275LT

L952=275LT

L953=275LT

L954=275LT

L955=275LT

L956=275LT

L957=275LT

L958=275LT

L959=275LT

L960=275LT

L961=275LT

L962=275LT

L963=275LT

L964=275LT

L965=275LT

L966=275LT

L967=275LT

L968=275LT

L969=275LT

L970=275LT

L971=275LT

L972=275LT

L973=275LT

L974=275LT

L975=275LT

L976=275LT

L977=275LT

L978=275LT

L979=275LT

L980=275LT

L981=275LT

L982=275LT

L983=275LT

L984=275LT

L985=275LT

L986=275LT

L987=275LT

L988=275LT

L989=275LT

L990=275LT

L991=275LT

L992=275LT

L993=275LT

L994=275LT

L995=275LT

L996=275LT

L997=275LT

L998=275LT

L999=275LT

L1000=275LT

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 33 FOR -Y15- PROFILE
SEE SHEET 34 FOR -Y16-, -Y17- PROFILE

17-JUL-2018 13:59
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh12.dgn
$$$$ICEHAGF$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

MATCHLINE -L- STA 122+00 (SHEET 12)

MATCHLINE -L- STA 135+00 (SHEET 14)

PT Sta. 123+59.22

125

130

SR 1009 OLD MONROE ROAD 30.5' BST

L2245RT

L2247BRT

L2247BRT

L2285SRT

L3060RT

L3310RT

EXISTING R/W

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 26 FOR -L- PROFILE

11-SEP-2018 10:32
S:\PROJECTS\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh13.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 135+00 (SHEET 13)

MATCHLINE -L- STA 147+00 (SHEET 15)

POT Sta. 10+00.00

-L- POT Sta. 137+81.85 =
-Y18- POT Sta. 13+80.00

140

145

18" RCP

20.5' BST

S 14° 57' 49.6" W

27' BST

23' BST

60.0' CONC

SR 1009 OLD MONROE RD 27.5' BST

S 45°03' 34.3" E

EXISTING R/W

18" RCP

L1350RT

L1405ORT

L1425ORT

L1445ORT

L1465ORT

2SBKD

DK

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 34 FOR -Y18- PROFILE

11-SEP-2018 10:33
S:\WIP\Charlotte_Harrisburg Investigation\TIP\U4714B.GEO.RDWY.MECKLENBURG\CADD.GEOTECH\PlanProf\U-4714B_GEO_psh14.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 147+00 (SHEET 14)

MATCHLINE -L- STA 161+00 (SHEET 16)

POT Sta. 10+50.00

PC Sta. 12+10.32

PC Sta. 155+27.10

-L- POC Sta. 159+78.68 =
-Y19- POC Sta. 13+80.00

ALLUVIAL

SR 1009 OLD MONROE ROAD 27' BST

EXISTING R/W

L4850RT

L4927RT

L5595RT

L5390RT

L5510RT

L5574RT

L5945RT

BM#17

ISFD

50' DUKE POWER COMPANY R/W

FUTURE FAITH CHURCH PLANTING EASEMENT

30' DRIVEWAY EASEMENT
SALLY HUFF HANSON DR

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 34 FOR -Y19- PROFILE

07-AUG-2018 14:00
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh15.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 161+00 (SHEET 15)

MATCHLINE -L- STA 175+00 (SHEET 17)

POT Sta. 10+00.00

-L- POT Sta. 172+69.47 =
-Y20- POT Sta. 12+30.00

PT Sta. 166+07.34

L16SRT

L16POLT

L16375RT

L16380RT

L16385RT

L17375RT

L1734TRT

SR 1009 OLD CHARLOTTE HIGHWAY 27.5' RST

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 35 FOR -Y20- PROFILE

17-JUL-2018 14:08
S:\WRO\Harrisburg Investigation\TIP\U4714B.GEO.RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh16.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA 175+00 (SHEET 16)

MATCHLINE -L- STA 189+00 (SHEET 18)

MATCHLINE (SHEET 21)

MATCHLINE (SHEET 21)

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 35 FOR -Y21- PROFILE
SEE SHEET 35 FOR -Y22- PROFILE

11-SEP-2018 10:35
S:\PROJECTS\Mecklenburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh17.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

★ PROPOSED TRAFFIC SIGNAL

OLD MONROE RD		OLD MONROE RD
160 / 204		148 / 190
31 / 44	SSUN VALLEY HS ENTRANCE	19 / 30
		50 / 74
		2021 / 2041

NAD 83/NA 2011

MATCHLINE -L- STA 189+00 (SHEET 17)

MATCHLINE -L- STA 203+00 (SHEET 19)

190 195 200

ACCESS POINT +42.00

L9040LT L9240LT L9445LT L9635LT L9825LT L20120LT

U/C U/C

ISBLKBUS ISBKD ISBKD ISFD ISFD ISFD ISFD MTL CAN

ISBK SUN VALLEY HIGH SCHOOL

ISMSCH SUN VALLEY HS

SR 1009 OLD CHARLOTTE HIGHWAY 50' BST

S 53°10'35.4" E

POT$_{GR}$ Sta. 196+54.15 = -123- POT Sta. 10+00.00

PC Sta. 11+62.56

PT Sta. 12+66.03

POT Sta. 14+00.00

BM #19

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 35 FOR -Y23- PROFILE

17-JUL-2018 14:13
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_ROWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh18.dgn
$$$$USERNAME$$$$

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA 203+00 (SHEET 18)

205

210

215

POT Sta. 217+54.16

SR 1178 HAYES ROAD 37' BST

HAYES RD 20' WIDTH

EXISTING R/W

SR 1009 OLD CHARLOTTE HWY 28' BST

GREEN MEADOW WAY 30' WIDTH BST

48" WW

ASPH

SBKD

CONC

E

F

C A

R W

L20720LT

L20905LT

EXISTING R/W

FES

18" RCP

15" CMP

24" RCP

IS 63'10' 35.4' Lt

62.98'

64.98'

ISBKD

ISFD

CAN

G

GR

ASPH

WD

48" CHL

15" RCP DIRECTION ONLY

15" RCP 15" CMP

ACCESS EASEMENT

24' WD MILL

45° CHL

MTL CAN

ISBKBUS

PA-ASPH

30" CMP

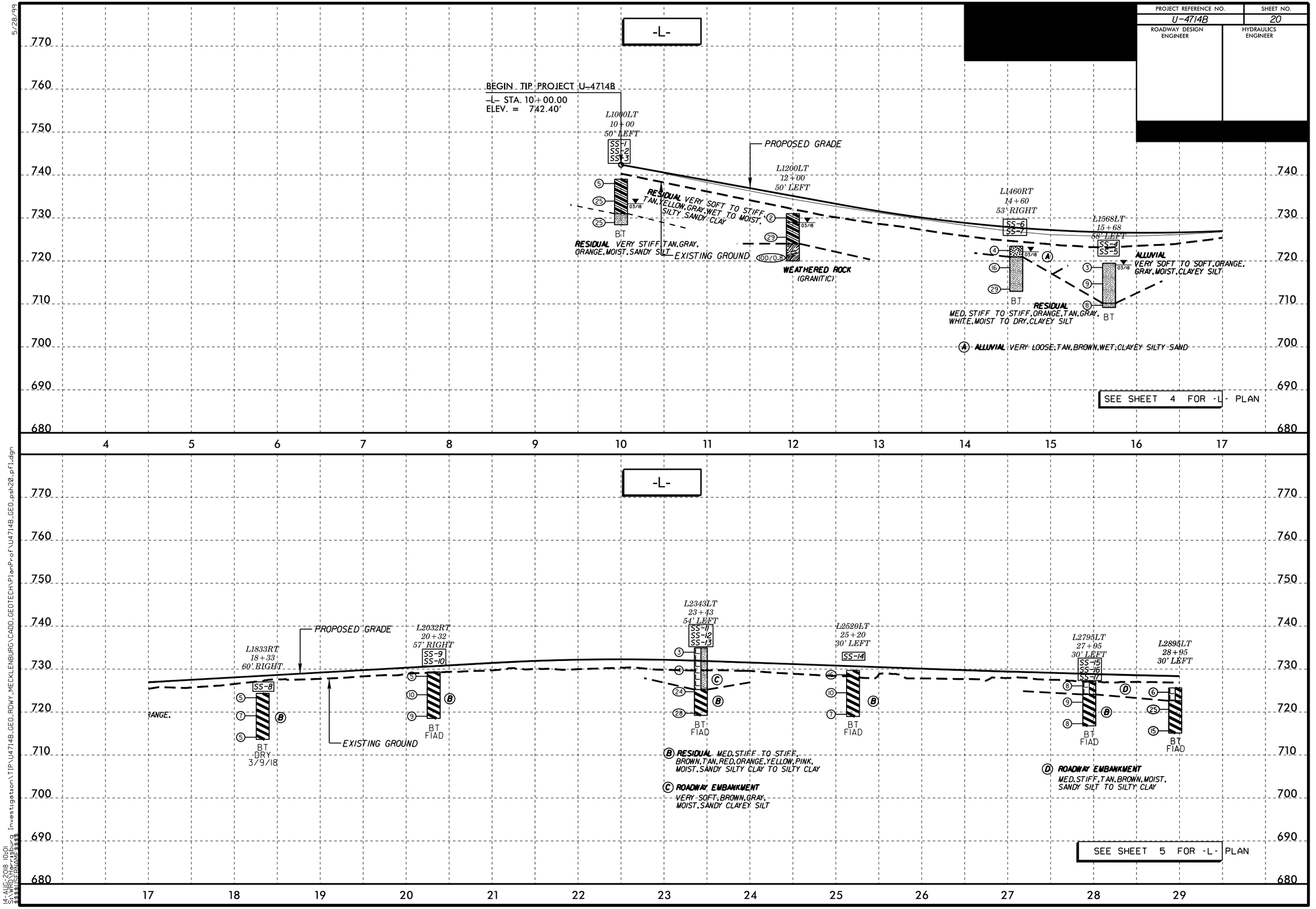
60°CHL

72"WD

SEE SHEET 2B-1 FOR CURVE DATA
SEE SHEET 29 FOR -L- PROFILE

17-JUL-2018 14:15
c:\WMC\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U-4714B_GEO_psh19.dgn
$$$$USERNAME$$$$

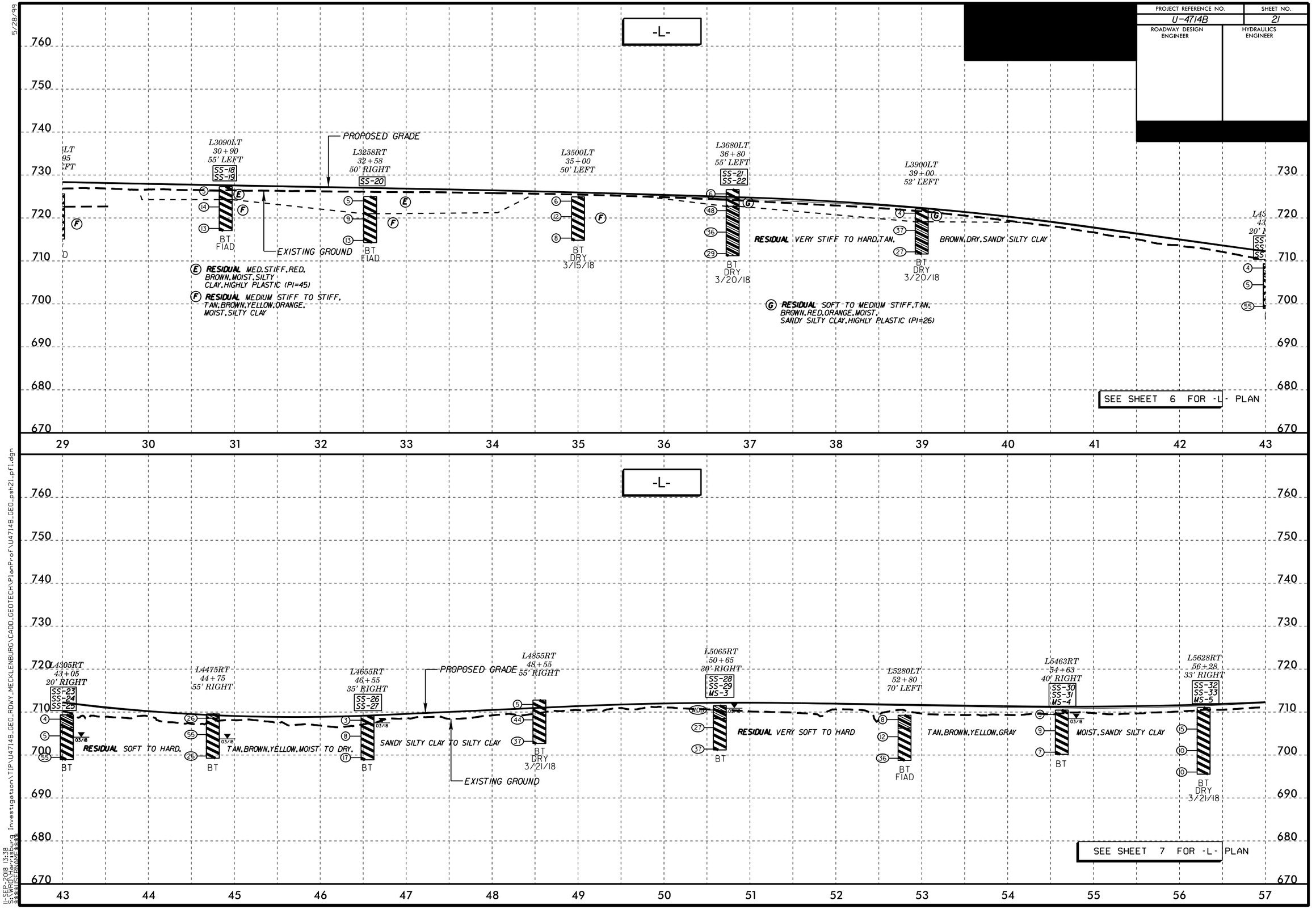
PROJECT REFERENCE NO.	SHEET NO.
U-4714B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/28/99

14-AUG-2018 10:01
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh20_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

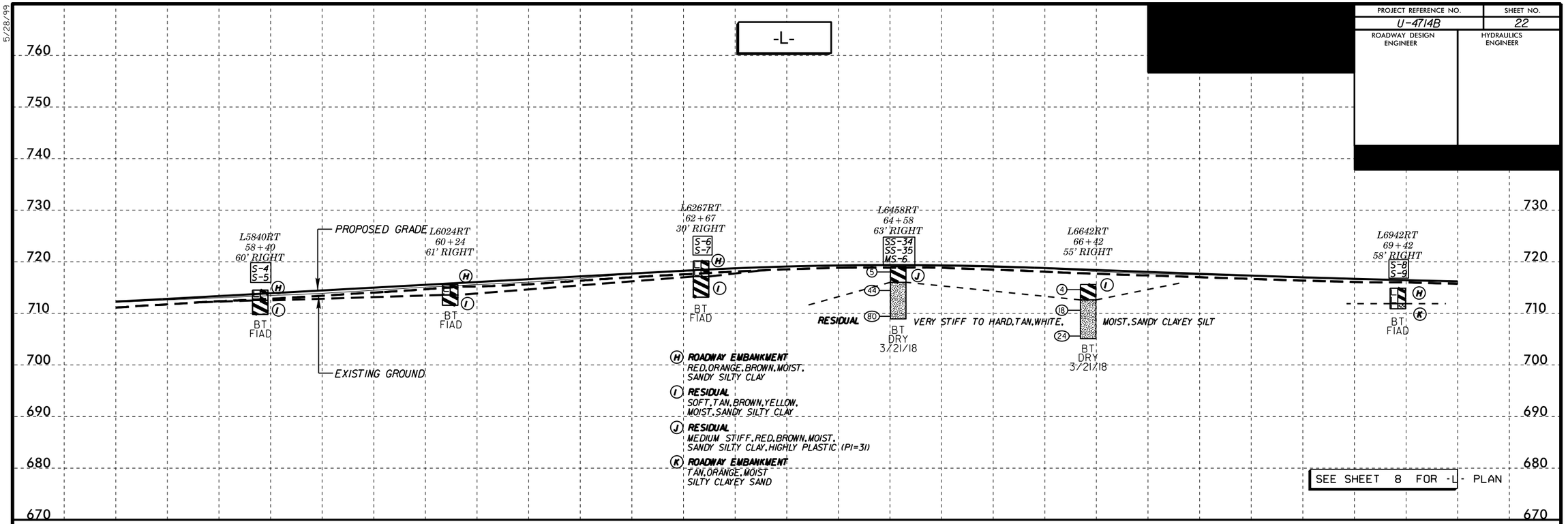


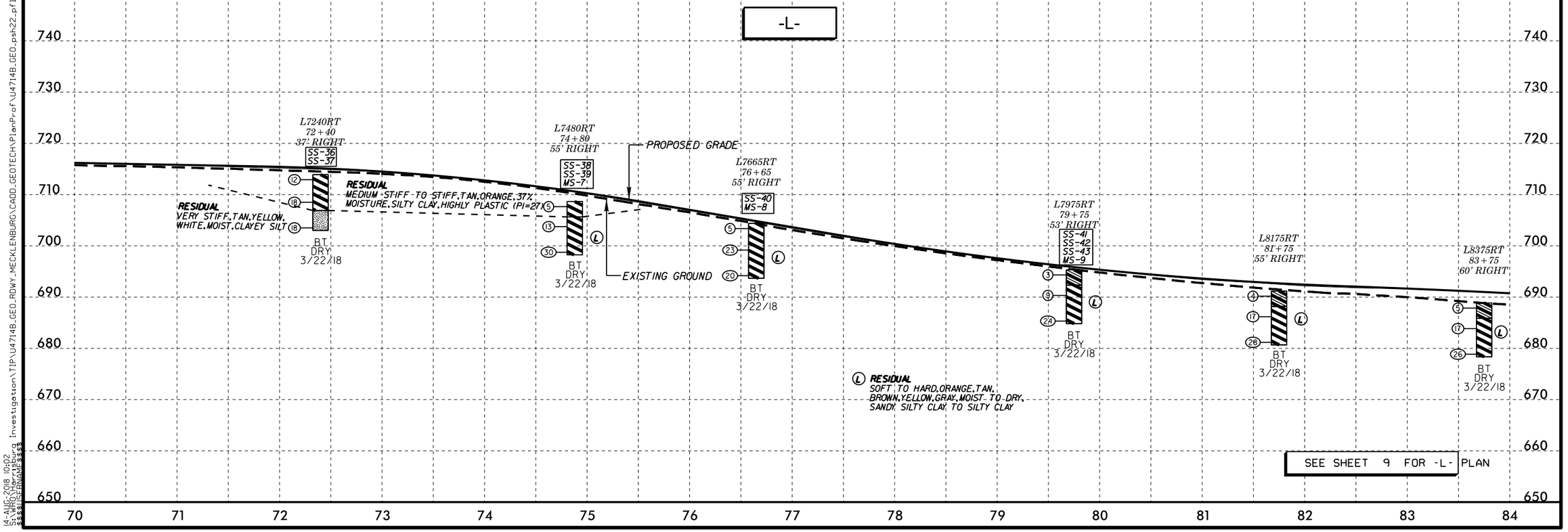
5/28/99

11-SEP-2018 13:38
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh21_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/28/99





14-AUG-2018 10:02
S:\VMOG\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh22_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/28/99

-L-

730 720 710 700 690 680 670 660 650 640

84 85 86 87 88 89 90 91 92 93 94 95 96 97

L8562RT
85+62
67' RIGHT
SS-44
MS-10

5 20 55 L

BT
DRY
3/23/18

L8795RT
87+95
55' RIGHT
SS-45
SS-46
SS-47
MS-11

7 14 25 L

BT
DRY
3/23/18

L8985RT
89+85
60' RIGHT
SS-48

5 41 25 L

BT
DRY
3/26/18

L9155RT
91+55
60' RIGHT
SS-49

3 26 35 L

BT
DRY
3/26/18

PROPOSED GRADE

EXISTING GROUND

L9400RT
94+00
63' RIGHT
SS-50
MS-12

3 28 67 L

03/18

BT

L9610RT
96+10
50' RIGHT

84 52 L

BT
DRY
3/26/18

L RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

SEE SHEET 10 FOR -L- PLAN

-L-

720 710 700 690 680 670 660 650 640 630

97 98 99 100 101 102 103 104 105 106 107 108 109 110

L9810RT
98+10
37' RIGHT
SS-51
MS-13

2 29 100/0.8 L

BT
DRY
3/26/18

WEATHERED ROCK
(PHYLLITE AND SCHIST)

L10015RT
100+15
50' RIGHT
SS-52
SS-53

7 12 93 L

BT
DRY
3/26/18

L10217RT
102+17
62' RIGHT
SS-54
MS-14

2 39 100/.6 L

BT
DRY
3/27/18

WEATHERED ROCK
(PHYLLITE AND SCHIST)

L10410RT
104+10
60' RIGHT

5 86 100/0.6 L

BT
DRY
3/27/18

PROPOSED GRADE

L10683RT
106+83
57' RIGHT
S-10
S-11

RESIDUAL
TAN, BROWN, GRAY, WET, SANDY CLAYEY SILT

WEATHERED ROCK

BT
FIAD

EXISTING GROUND

O ROADWAY EMBANKMENT
TAN, BROWN, WET, SANDY SILTY CLAY

L10880LT
108+80
20' LEFT

3 100/0.9 L

03/18

100/0.7

BT

WEATHERED ROCK
(PHYLLITE AND SCHIST)

L RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

SEE SHEET 11 FOR -L- PLAN

11-SEP-2018 13:39
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh23_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

720 710 700 690 680 670 660 650 640 630

110 111 112 113 114 115 116 117 118 119 120 121 122

L11080RT
110+80
50' RIGHT
SS-55
29 49 44
BT
DRY
3/27/18

L11220LT
112+20
25' LEFT
SS-56
SS-57
MS-15
6 40 43
BT
DRY
3/29/18

L11378LT
113+78
20' LEFT
4 23 29
BT
DRY
3/29/18

L11557LT
115+57
25' LEFT
MS-16
4 3 03/18
100/0.9
BT

L11780RT
117+80
60' RIGHT
SS-58
3 9 100/1.0
BT
DRY
3/29/18

PROPOSED GRADE

EXISTING GROUND

L12075LT
120+75
55' LEFT
BT
FIAD

WEATHERED ROCK
(PHYLLITE AND SCHIST)

(L) RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

SEE SHEET 12 FOR -L- PLAN

-L-

720 710 700 690 680 670 660 650 640 630

122 123 124 125 126 127 128 129 130 131 132 133 134 135

L12245RT
122+45
45' RIGHT
26 60 100/0.6
BT
DRY
3/29/18

L12445RT
124+45
20' RIGHT
100/0.9 100/0.7
BT
DRY
3/29/18

PROPOSED GRADE

L12638RT
126+38
20' RIGHT
SS-59
56 50 47
BT
DRY
3/29/18

L12855RT
128+55
30' RIGHT
S-60
21 38 66
BT
DRY
4/2/18

L13060RT
130+60
75' RIGHT
SS-61
SS-62
9 12 34 29
BT
DRY
4/2/18

L13310RT
133+10
45' RIGHT
SS-63
54 42 41
BT
DRY
4/2/18

L13475RT
134+75
20' RIGHT
44 57 100/0.7
BT
DRY
4/2/18

WEATHERED ROCK
(PHYLLITE AND SCHIST)

EXISTING GROUND

(M) ARTIFICIAL FILL
STIFF, MOIST, LAYERS OF TAN SAND; RED, BROWN, SANDY SILTY CLAY; GRAY GRAVEL, WITH CONSTRUCTION DEBRIS

(L) RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

SEE SHEET 13 FOR -L- PLAN

5/28/99

11-SEP-2018 13:40
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh24_pf1.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

L13670RT
136+70
25' RIGHT
SS-64
MS-17

L13850RT
138+50
50' RIGHT

L14050RT
140+50
55' RIGHT

L14250RT
142+50
38' RIGHT

PROPOSED GRADE
L14450RT
144+50
40' RIGHT
SS-65
SS-66

L14650RT
146+50
25' RIGHT

WEATHERED ROCK
(PHYLLITE AND SCHIST)

EXISTING GROUND

(L) RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

(P) RESIDUAL HARD, TAN, GRAY, BROWN, DRY, CLAYEY SILT

SEE SHEET 14 FOR -L- PLAN

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 330	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN ELEVATION	= 644.8	FT
FLOOD DISCHARGE	= 371 (FEMA)	CFS
FLOOD FREQUENCY	= 100	YRS
FLOOD ELEVATION	= 645.7	FT
OVERTOPPING DISCHARGE	= 420	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 646.9	FT
DATE OF SURVEY	= N/A	
W.S. ELEVATION AT DATE OF SURVEY	= N/A	FT

-L-

L14850RT
148+50
50' RIGHT
SS-67
SS-68
MS-19

L14927RT
149+27
55' RIGHT
SS-69
SS-70
MS-20

PROP 11'X6' RCBC

L15195RT
151+95
30' RIGHT
SS-71

L15400RT
154+00
35' RIGHT

PROPOSED GRADE
L15570RT
155+70
25' RIGHT
SS-72

L15745RT
157+45
25' RIGHT
SS-73
SS-74

L15945RT
159+45
45' RIGHT
SS-75
MS-21

(L) ALLUVIAL
VERY SOFT, GRAY, BROWN, 40% MOISTURE, SANDY CLAYEY SILT

WEATHERED ROCK
(PHYLLITE AND SCHIST)

(L) RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

(O) RESIDUAL
HARD, TAN, ORANGE, DARK BROWN, GRAY, GREEN, MOIST TO DRY, CLAYEY SILT

EXISTING GROUND

SEE SHEET 15 FOR -L- PLAN

11-SEP-2018 13:41
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh25_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/28/99

-L-

L16175RT
161+75
40' RIGHT
SS-76

L16380RT
163+80
45' RIGHT
SS-77
SS-78

L16590LT
165+90
45' LEFT

L16790LT
167+90
75' LEFT
SS-79

PROPOSED GRADE

L16985RT
169+85
60' RIGHT
SS-80
MS-22

L17175RT
171+75
60' RIGHT

L17347RT
173+47
65' RIGHT

RESIDUAL
VERY STIFF TO HARD, TAN, BROWN, MOIST, CLAYEY SILT

WEATHERED ROCK
(PHYLLITE AND SCHIST)

NON-CRYSTALLINE ROCK
(PHYLLITE AND SCHIST)

RESIDUAL
HARD, TAN, BROWN, DRY, CLAYEY SILT

EXISTING GROUND

RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

BT DRY 4/5/18

SEE SHEET 16 FOR -L- PLAN

-L-

L17520RT
175+20
70' RIGHT
S-81
SS-82

L17765LT
177+65
68' LEFT

L17937LT
179+37
50' LEFT
S-19

L18180LT
181+80
55' LEFT
S-18

L18365LT
183+65
52' LEFT
S-16
S-17

PROPOSED GRADE
L18600LT
186+00
60' LEFT

L18800LT
188+00
50' LEFT
S-14
S-15

RESIDUAL
VERY STIFF TO HARD, TAN, BROWN, DRY, CLAYEY SILT

ROADWAY EMBANKMENT
TAN, BROWN, MOIST, SANDY SILTY CLAY

ROADWAY EMBANKMENT
TAN, BROWN, MOIST, SANDY SILTY CLAY

ROADWAY EMBANKMENT
TAN, BROWN, MOIST, SANDY SILTY CLAY

ROADWAY EMBANKMENT
TAN, BROWN, MOIST, SANDY SILTY CLAY

RESIDUAL
TAN, YELLOW, MOIST, CLAYEY SILT

RESIDUAL

EXISTING GROUND

RESIDUAL
SOFT TO HARD, ORANGE, TAN, BROWN, YELLOW, GRAY, MOIST TO DRY, SANDY SILTY CLAY TO SILTY CLAY

BT FIAD

BT DRY 4/10/18

SEE SHEET 17 FOR -L- PLAN

11-SEP-2018 13:43
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh26_pf1.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4714B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

[redacted]

-L-

L19040LT
190+40
65' LEFT

L19240LT
192+40
65' LEFT

L19445LT
194+45
65' LEFT

L19675LT
196+75
60' LEFT

L19925LT
199+25
55' LEFT

L20120LT
201+20
50' LEFT

PROPOSED GRADE

EXISTING GROUND

ARTIFICIAL FILL (ENGINEERED) GRAVEL PARKING LOT
RESIDUAL TAN, BROWN, DRY CLAYEY SILT
100/0.1
100/0.6
BT DRY 4/9/18
WEATHERED ROCK (PHYLLITE AND SCHIST)

SS-83
SS-84
20
2
BT DRY 4/10/18
RESIDUAL VERY STIFF, TAN, BROWN, MOIST TO DRY, SILTY CLAY TO SANDY SILTY CLAY

ARTIFICIAL FILL TAN, BROWN, GRAY, DRY, SANDY SILTY CLAY

SS-85
30
38
BT DRY 4/10/18

RESIDUAL HARD, TAN, BROWN, DARK GRAY, MOIST TO DRY, SANDY CLAYEY SILT

ARTIFICIAL FILL TAN, BROWN, GRAY, DRY, SANDY CLAYEY SILT
58
65
BT DRY 4/10/18

S-86
BT FIAD
RESIDUAL TAN, BROWN, YELLOW, MOIST, SILTY CLAY
WEATHERED ROCK (PHYLLITE AND SCHIST)
BT FIAD

SEE SHEET 18 FOR -L- PLAN

-L-

END TIP PROJECT U-4714B
-L- STA. 210+37.50
ELEV. = 661.75'

L20530RT
205+30
40' RIGHT

L20720LT
207+20
35' LEFT

L20905LT
209+05
30' LEFT

PROPOSED GRADE

EXISTING GROUND

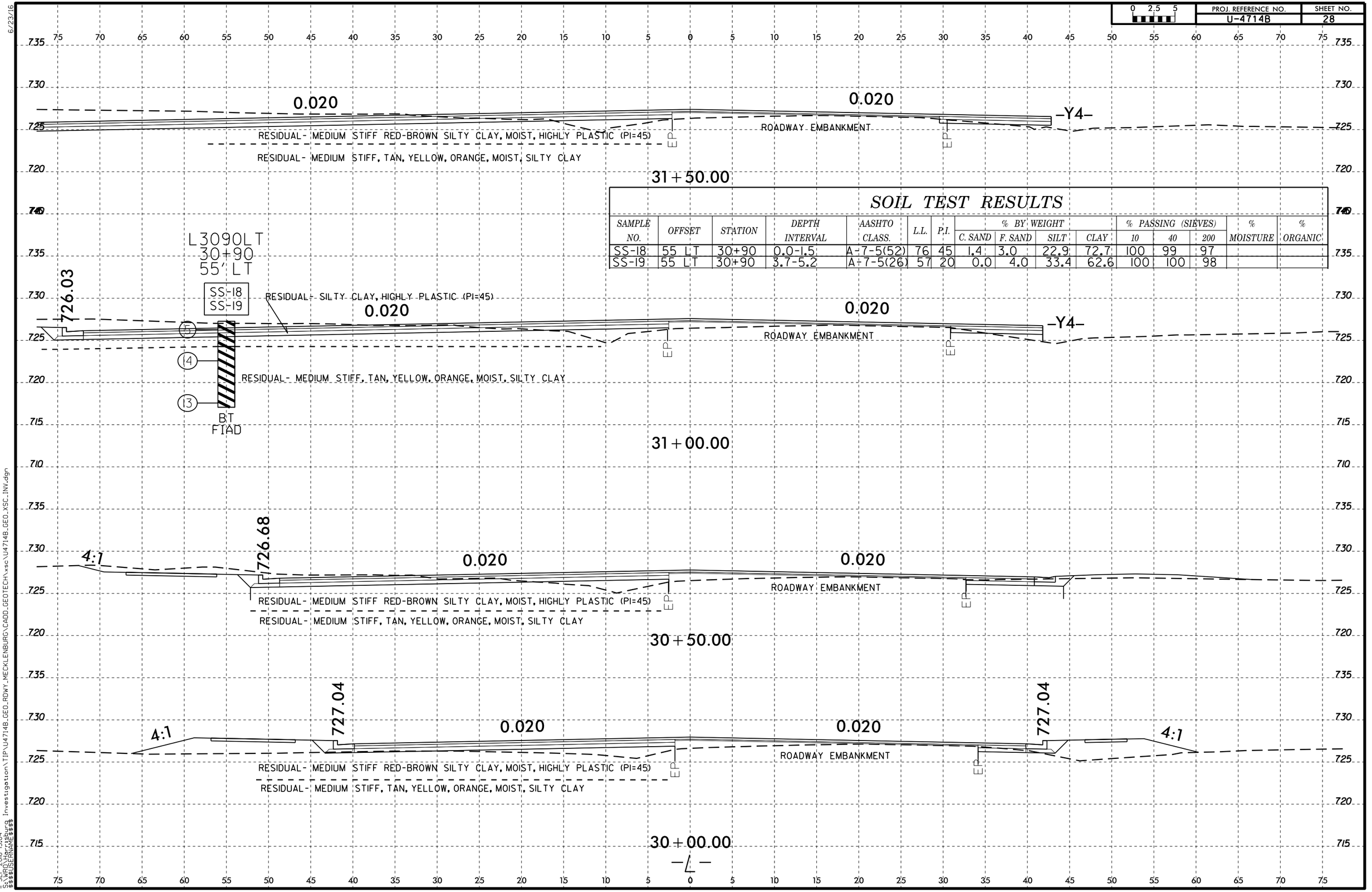
S-87
RESIDUAL TAN, YELLOW, MOIST, SILTY CLAY
BT FIAD
RESIDUAL TAN, DARK BROWN, DRY, CLAYEY SILT
04/18
BT FIAD
RESIDUAL TAN, YELLOW, MOIST TO SATURATED, CLAYEY SILT
04/18
BT

SEE SHEET 19 FOR -L- PLAN

5/28/99

11-SEP-2018 13:43
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\PlanProf\U4714B_GEO_psh27_pf1.dgn
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714B	28

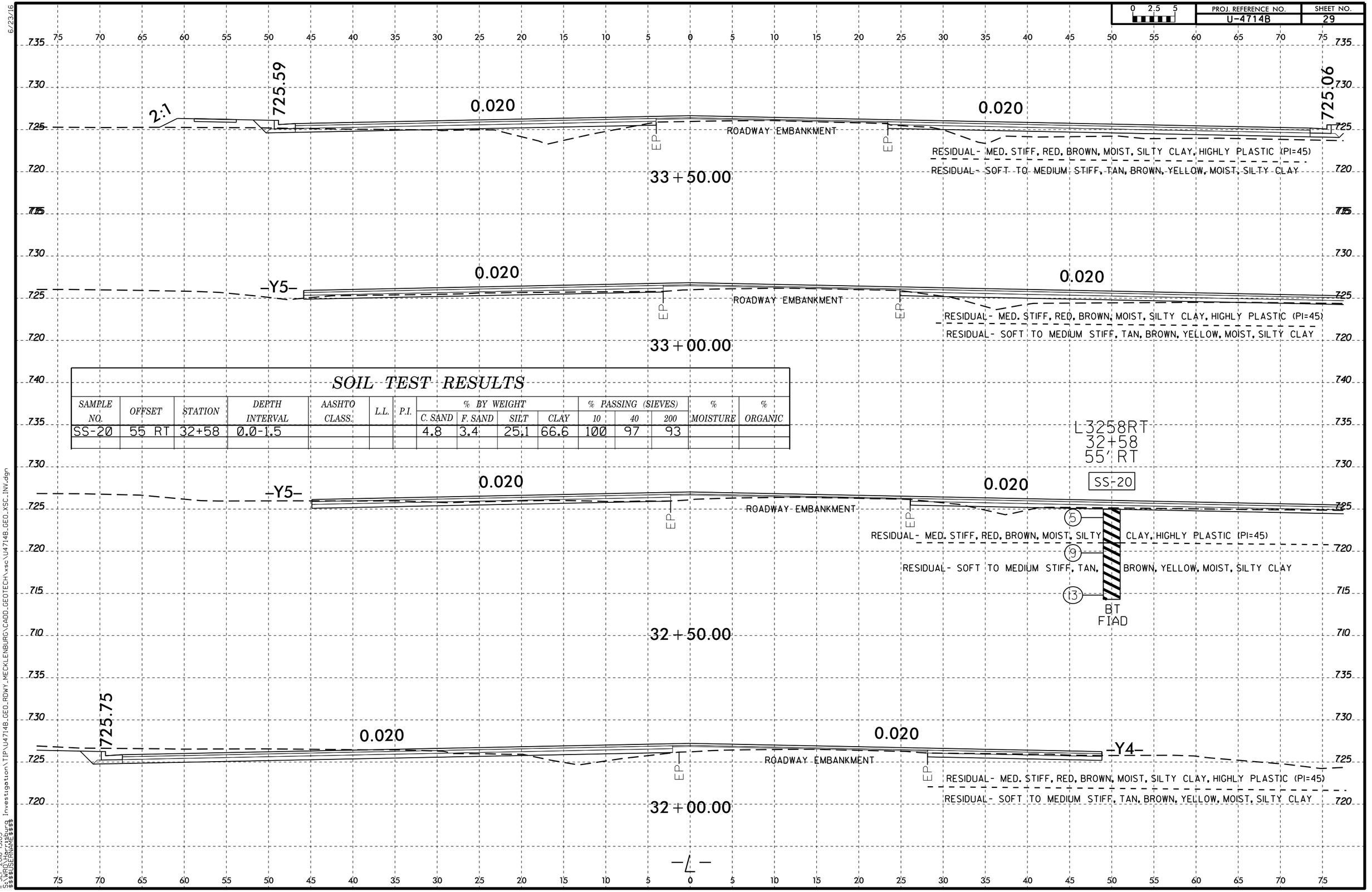


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-18	55 LT	30+90	0.0-1.5	A-7-5(52)	76	45	1.4	3.0	22.9	72.7	100	99	97		
SS-19	55 LT	30+90	3.7-5.2	A-7-5(26)	57	20	0.0	4.0	33.4	62.6	100	100	98		

11-SEP-2018 15:04
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\xsc\U4714B_GEO_XSC_INV.dgn
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714B	29



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-20	55 RT	32+58	0.0-1.5				4.8	3.4	25.1	66.6	100	97	93		

11-SEP-2018 15:05
S:\WRO\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\xsc\U4714B_GEO_XSC_INV.dgn
$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714B	30

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

740
735
730
725
720
715

2:1
725.13
0.020
EP
ROADWAY EMBANKMENT
0.020
EP
725.13
4:1
RESIDUAL- MED. STIFF, RED, BROWN, MOIST, SILTY CLAY, HIGHLY PLASTIC (PI=45)
RESIDUAL- SOFT TO MEDIUM STIFF, TAN, BROWN, YELLOW, MOIST, SILTY CLAY
34+50.00

2:1
725.36
0.020
EP
ROADWAY EMBANKMENT
0.020
EP
725.23
RESIDUAL- MED. STIFF, RED, BROWN, MOIST, SILTY CLAY, HIGHLY PLASTIC (PI=45)
RESIDUAL- SOFT TO MEDIUM STIFF, TAN, BROWN, YELLOW, MOIST, SILTY CLAY
34+00.00

-L-

11-SEP-2018 15:06
$$$$USERNAME$$$$
S:\PROJ\Harrisburg Investigation\TIP\U4714B_GEO_RDWY_MECKLENBURG\CADD_GEOTECH\xsc\U4714B_GEO_XSC_INV.dgn

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	50'LT	10+00	0.0-1.5	A-6(3)	24	11	20.4	31.3	20.1	28.3	100	91	54	-	-
SS-2	50'LT	10+00	4.1-5.6	A-6(6)	33	12	9.5	35.3	35.0	20.2	100	97	65	-	-
SS-3	50'LT	10+00	9.1-10.6	A-4(0)			13.1	38.7	34.0	14.1	100	95	60	-	-
SS-4	58'LT	15+68	0.0-1.5	A-4(0)			39.8	27.4	16.6	16.1	98	73	36	-	-
SS-5	58'LT	15+68	8.8-10.3	A-4(0)			3.0	33.9	46.9	16.1	100	98	78	-	-
SS-6	53'RT	14+60	0.0-1.5	A-2-4(0)			34.9	44.0	13.0	8.1	96	80	26	-	-
SS-7	53'RT	14+60	4.0-5.5	A-4(10)	38	9	4.8	10.3	54.6	30.3	100	97	89	-	-
SS-8	60'RT	18+33	0.2-1.7	A-7-5(19)	54	14	3.6	6.9	47.1	42.4	100	98	93	-	-
SS-9	57'RT	20+32	0.0-1.5	A-7-6(13)	42	15	10.7	8.7	26.1	54.5	97	90	80	-	-
SS-10	57'RT	20+32	4.3-5.8	A-7-5(22)	51	18	3.0	3.8	40.7	52.5	100	98	95	-	-
SS-11	54'LT	23+43	0.0-1.5	A-4(4)	28	9	14.5	15.1	36.0	34.3	93	85	69	-	-
SS-12	54'LT	23+43	4.2-5.7	A-4(0)	21	4	18.8	21.6	33.4	26.2	96	87	61	-	-
SS-13	54'LT	23+43	9.2-10.7	A-7-5(18)	47	14	0.2	2.6	36.6	60.5	100	100	98	-	-
SS-14	30'LT	25+20	4.2-5.7	A-7-5(28)	63	23	0.4	9.9	27.1	62.6	100	100	93	-	-
SS-15	30 LT	27+95	0.0-1.5	A-7-6(27)	54	25	4.8	5.9	26.7	62.6	100	97	91	-	-
SS-16	30 LT	27+95	3.8-5.3	A-7-5(31)	66	25	2.8	5.7	24.9	66.6	100	99	94	-	-
SS-17	30 LT	27+95	8.8-10.3	A-7-5(23)	66	18	4.0	10.5	26.9	58.5	100	98	88	-	-
SS-18	55 LT	30+90	0.0-1.5	A-7-5(52)	76	45	1.4	3.0	22.9	72.7	100	99	97	-	-
SS-19	55 LT	30+90	3.7-5.2	A-7-5(26)	57	20	0.0	4.0	33.4	62.6	100	100	98	-	-
SS-20	55 LT	32+58	0.0-1.5		-	-	4.8	3.4	25.1	66.6	100	97	93	-	-
SS-21	55'LT	36+80	0.0-1.5	A-7-6(28)	51	26	2.6	3.6	37.2	56.6	100	98	95	-	-
SS-22	55'LT	36+80	3.9-5.4	A-6(10)	39	12	6.5	12.1	47.1	34.3	90	85	81	-	-
SS-23	20'RT	43+05	0.0-1.5	A-6(11)	36	14	10.3	11.7	37.6	40.4	99	92	80	-	-
SS-24	20'RT	43+05	3.9-5.4	A-7-6(12)	41	16	14.9	10.5	32.1	42.4	95	85	74	-	-
SS-25	20'RT	43+05	8.9-10.4	A-7-6(16)	44	16	3.4	18.6	49.7	28.3	100	98	87	-	-
SS-26	35'RT	46+55	0.0-1.5	A-7-6(17)	45	18	5.7	10.9	30.9	52.5	98	94	84	-	-
SS-27	35'RT	46+55	3.7-5.2	A-7-5(13)	43	13	0.6	18.8	42.2	38.4	100	100	85	-	-
SS-28	30'RT	50+65	0.0-1.5	A-6(11)	33	13	8.5	5.9	41.2	44.4	99	92	87	-	-
SS-29	30'RT	50+65	4.1-5.6	A-7-6(13)	41	17	12.7	9.7	35.2	42.4	96	87	77	-	-
SS-30	40'RT	54+63	0.0-1.5	A-7-6(25)	53	25	5.3	5.1	33.1	56.6	95	92	87	-	-
SS-31	40'RT	54+63	8.8-10.3	A-7-5(27)	59	23	3.2	6.1	36.2	54.5	100	98	93	-	-
SS-32	33'RT	56+28	4.0-5.5	A-7-5(31)	58	25	0.4	1.2	41.8	56.6	100	100	99	-	-
SS-33	33'RT	56+28	9.0-10.5	A-7-5(17)	48	12	0.0	3.0	58.6	38.4	100	100	98	-	-
SS-34	63'RT	64+58	0.0-1.5	A-7-6(36)	59	31	0.8	2.2	32.3	64.6	100	100	98	-	-
SS-35	63'RT	64+58	3.6-5.1	A-4(8)	37	8	7.7	8.7	57.4	26.3	100	96	87	-	-
SS-36	37RT	72+40	4.4-5.9	A-7-6(29)	54	27	4.0	4.4	34.9	56.6	100	98	93	-	-
SS-37	37RT	72+40	9.4-10.9	A-4(8)	39	6	2.4	5.3	62.0	30.3	100	99	94	-	-
SS-38	55'RT	74+80	0.0-1.5	A-7-5(31)	57	27	2.0	2.4	22.8	72.7	99	97	95	-	-
SS-39	55'RT	74+80	3.9-5.4	A-7-6(19)	45	18	1.4	8.9	61.4	28.3	100	100	93	-	-
SS-40	55'RT	76+65	0.0-1.5	A-7-6(19)	49	21	7.7	3.8	33.9	54.5	93	88	83	-	-
SS-41	58RT	79+75	0.0-1.5	A-6(17)	40	16	4.0	3.0	44.4	48.5	100	97	94	-	-
SS-42	58RT	79+75	4.0-5.5	A-7-5(22)	55	19	7.3	4.8	45.5	42.4	100	94	90	-	-
SS-43	53RT	79+75	9.0-10.5	A-7-5(16)	48	14	3.6	11.5	50.5	34.3	100	98	89	-	-
SS-44	67RT	85+62	0.0-1.5	A-7-6(15)	42	15	5.1	4.4	42.0	48.5	98	94	90	-	-
SS-45	55RT	87+95	0.0-1.5	A-7-5(27)	60	24	4.4	6.7	72.7	16.2	100	97	91	-	-
SS-46	55RT	87+95	3.7-5.2	A-7-5(24)	56	20	3.4	4.8	49.3	42.4	100	98	94	-	-
SS-47	55RT	87+95	8.7-10.2	A-7-5(17)	51	14	2.6	9.7	57.4	30.3	100	99	91	-	-
SS-48	60RT	89+85	0.0-1.5	A-7-5(27)	53	22	1.0	2.4	40.0	56.6	100	99	98	-	-
SS-49	60RT	91+55	3.8-5.3	A-6(5)	37	14	28.9	22.0	37.0	12.1	100	81	54	-	-
SS-50	63RT	94+00	4.1-5.6	A-7-5(13)	46	16	13.9	13.1	42.6	30.3	100	91	77	-	-
SS-51	37RT	98+10	0.0-1.5	A-7-6(18)	45	20	6.5	6.3	42.8	44.4	96	92	85	-	-
SS-52	50RT	100+15	4.1-5.6	A-7-6(26)	53	25	4.8	3.4	39.2	52.5	98	95	91	-	-
SS-53	50RT	100+15	9.1-10.6	A-7-5(14)	44	12	3.4	8.9	59.4	28.3	100	98	91	-	-
SS-54	62RT	102+17	0.0-1.5	A-7-6(18)	43	17	4.4	2.8	44.2	48.5	99	96	92	-	-

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-55	50RT	110+80	4.0-5.5	A-6(10)	38	13	17.8	8.7	43.2	30.3	100	87	76	-	-
SS-56	25LT	112+20	0.0-1.5	A-6(14)	40	14	6.9	8.7	48.2	36.3	100	95	89	-	-
SS-57	25LT	112+20	3.9-5.4	A-6(11)	38	15	14.7	13.7	43.3	28.2	100	88	77	-	-
SS-58	60RT	117+80	3.9-5.4	A-6(10)	40	13	21.2	6.2	36.3	36.3	100	83	74	-	-
SS-59	20'RT	126+38	3.4-4.9	A-7-6(14)	43	15	4.2	9.1	48.4	38.3	93	90	83	-	-
SS-60	30'RT	128+55	0.0-4.7	A-7-6(24)	50	25	5.8	5.8	31.9	56.5	98	94	88	-	-
SS-61	75'RT	130+60	3.7-5.2	A-6(1)	33	14	39.7	20.2	13.9	26.2	88	64	38	-	-
SS-62	75'RT	130+60	13.7-15.2	A-7-5(12)	44	11	6.2	5.0	46.4	42.3	98	94	88	-	-
SS-63	45'RT	133+10	3.0-4.5	A-7-6(20)	46	19	4.2	5.2	32.1	58.5	98	96	91	-	-
SS-64	25'RT	136+70	0.0-1.5	A-6(15)	39	16	7.9	4.6	45.2	42.3	98	92	88	-	-
SS-65	40'RT	144+50	0.0-1.5	A-6(9)	36	11	10.7	4.8	44.2	40.3	96	88	83	-	-
SS-66	40'RT	144+50	3.8-5.3	A-4(6)	39	9	22.2	13.7	44.0	20.2	100	85	68	-	-
SS-67	50'RT	148+50	0.0-1.5	A-7-6(22)	46	22	5.2	4.6	41.7	48.4	98	95	90	-	-
SS-68	50'RT	148+50	3.3-4.8	A-6(4)	37	13	25.6	13.7	30.4	30.2	83	68	53	-	-
SS-69	55RT	149+27	0.0-1.5	A-4(6)	35	9	16.5	12.9	40.3	30.2	95	82	71	-	-
SS-70	55RT	149+27	4.1-5.6	A-7-6(15)	43	21	11.3	9.5	32.9	46.4	90	84	74	-	-
SS-71	30RT	151+95	4.2-5.7	A-5(5)	41	8	25.4	15.9	34.5	24.2	100	83	62	-	-
SS-72	25RT	155+70	3.7-5.2	A-4(0)	33	8	43.5	22.2	18.1	16.1	100	69	38	-	-
SS-73	25RT	157+45	4.0-5.5	A-7-5(17)	53	19	13.1	13.7	32.9	40.3	100	91	77	-	-
SS-74	25RT	157+45	14.0-15.5	A-4(0)	35	7	40.7	26.2	21.0	12.1	100	74	37	-	-
SS-75	45RT	159+45	0.0-1.5	A-7-5(6)	42	12	24.0	16.7	33.1	26.2	92	74	59	-	-
SS-76	40RT	161+75	4.0-5.5	A-6(1)	37	11	45.4	16.5	20.0	18.1	90	58	37	-	-
SS-77	45RT	163+80	0.0-1.5	A-7-6(16)	51	24	14.9	6.9	33.9	44.4	86	75	69	-	-
SS-78	45RT	163+80	3.9-5.4	A-4(0)	38	9	47.0	19.4	21.6	12.1	100	67	37	-	-
SS-79	75LT	167+90	3.9-5.4	A-4(0)	32	7	35.3	28.0	24.6	12.1	97	73	41	-	-
SS-80	60RT	169+85	0.0-1.5	A-6(4)	37	11	30.8	7.9	35.1	26.2	88	64	56	-	-
SS-82	70 RT	175+20	4.1-5.6	A-4(6)	36	10	20.0	17.0	44.9	18.2	100	86	68	-	-
SS-83	65 LT	192+40	3.8-5.3	A-6(8)	36	11	11.9	7.5	52.4	28.3	94	85	78	-	-
SS-84	65 LT	192+40	8.8-10.3	A-7-6(25)	51	26	10.1	5.4	36.0	48.4	100	91	87	-	-
SS-85	65 LT	194+45	8.6-10.1	A-4(0)	29	7	42.4	16.5	24.9	16.1	96	65	42	-	-
S-4	60'RT	58+40	0.0-2.0	A-7-6(11)	43	16	10.5	6.3	36.8	46.4	85	78	72	-	-
S-5	60'RT	58+40	2.0-4.7	A-7-5(20)	49	19	5.4	5.9	44.3	44.4	99	95	90	-	-
S-6	30'RT	62+67	0.0-3.0	A-7-6(21)	43	21	4.0	4.8	34.6	56.5	99	96	93	-	-
S-7	30'RT	62+67	3.0-7.0	A-7-5(24)	54	19	0.6	5.2	49.7	44.4	100	100	96	-	-
S-8	58'RT	69+42	0.0-300.0	A-7-5(14)	46	14	5.9	14.9	48.9	30.3	96	93	83	-	-
S-9	58'RT	69+42	3.0-4.0	A-2-4(0)			63.2	23.4	1.3	12.1	100	63	14	-	-
S-10	57'RT	106+83	0.0-1.0	A-7-5(8)	42	12	17.6	7.9	46.3	28.3	91	77	70	-	-
S-11	57'RT	106+83	1.0-3.0	A-4(5)	34	8	20.0	6.5	43.3	30.3	95	78	71	-	-
S-14	50 LT	188+00	0.0-2.0	A-7-6(5)	42	15	23.0	11.9	30.8	34.3	75	61	51	-	-
S-15	50 LT	188+00	2.0-3.5	A-4(7)	31	10	8.7	4.2	50.8	36.3	93	86	82	-	-
S-16	52 LT	183+65	0.0-0.5	A-7-6(9)	42	16	14.9	15.7	31.0	38.3	86	77	64	-	-
S-17	52 LT	183+65	0.5-1.5	A-6(1)	33	12	27.2	12.1	30.4	30.3	58	45	37	-	-
S-18	55 LT	181+80	0.0-2.0	A-7-6(16)	48	20	8.7	14.3	42.7	34.3	95	91	76	-	-
S-19	50 LT	179+37	0.0-2.7	A-6(10)	38	15	15.1	7.9	34.6	42.4	90	79	71	-	-
S-81	70 RT	175+20	0.0-3.0	A-7-6(17)	48	24	12.5	5.9	39.3	42.4	88	79	73	-	-
S-86	55 LT	199+25	0.0-3.0	A-6(13)	40	13	4.6	5.2	51.8	38.3	97	94	89	-	-
S-87	35 LT	207+20	0.0-5.2	A-4(8)	32	8	3.6	3.2	60.8	32.3	99	96	93	-	-