STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2525C	1	15

REFERENCE: U-2525C

PROJECT: 34821

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY GUILFORD

PROJECT DESCRIPTION GREENSBORO EASTERN LOOP I-85 BYPASS (-L-) FROM US 29 NORTH OF GREENSBORO TO EAST OF LAWNDALE DRIVE

SITE DESCRIPTION SITE #7 (STRUCTURE #10), BRIDGE NO. 1249 ON LAKE JEANETTE ROAD (-Y7-) OVER I-85 BYPASS (-L-)

CONTENTS

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.

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SUBMITTED BY SCHNABEL ENG.

DATE SEPTEMBER 2017

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FC52EEB5B5E6459...

NORTH CAROLINA PROFESSIONAL SEAL 036072 ENGINEER MAHALINGHAM BAHIRADHAN

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Mahalingam Bahiradhan 10/2/2017
FC52EEB5B5E6459...
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	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	50 MX													
#40	30 MX		50 MX	51 MN										
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40														
LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN			
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
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	< 4	
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	N/A
	DENSE	30 TO 50	
	VERY DENSE	> 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 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	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
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
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

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

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] 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: BL-257 N 1759409.4 E 871517.4, -Y7-

ELEVATION: 855.45 FEET

NOTES:

FIAD = FILLED IN AFTER DRILLING

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	3

SITE PLAN

0 40 80

FEET

NAD 83/95

EB1-B

EB13-L

B1-A

B1-B

EB14-R

EB2-A

EASTERN LOOP
I-85 BYPASS

EASTERN LOOP
I-85 BYPASS

TO LAWNDALE DR

LAKE JEANETTE RD (SR 2490)

TO N ELM ST

24

25

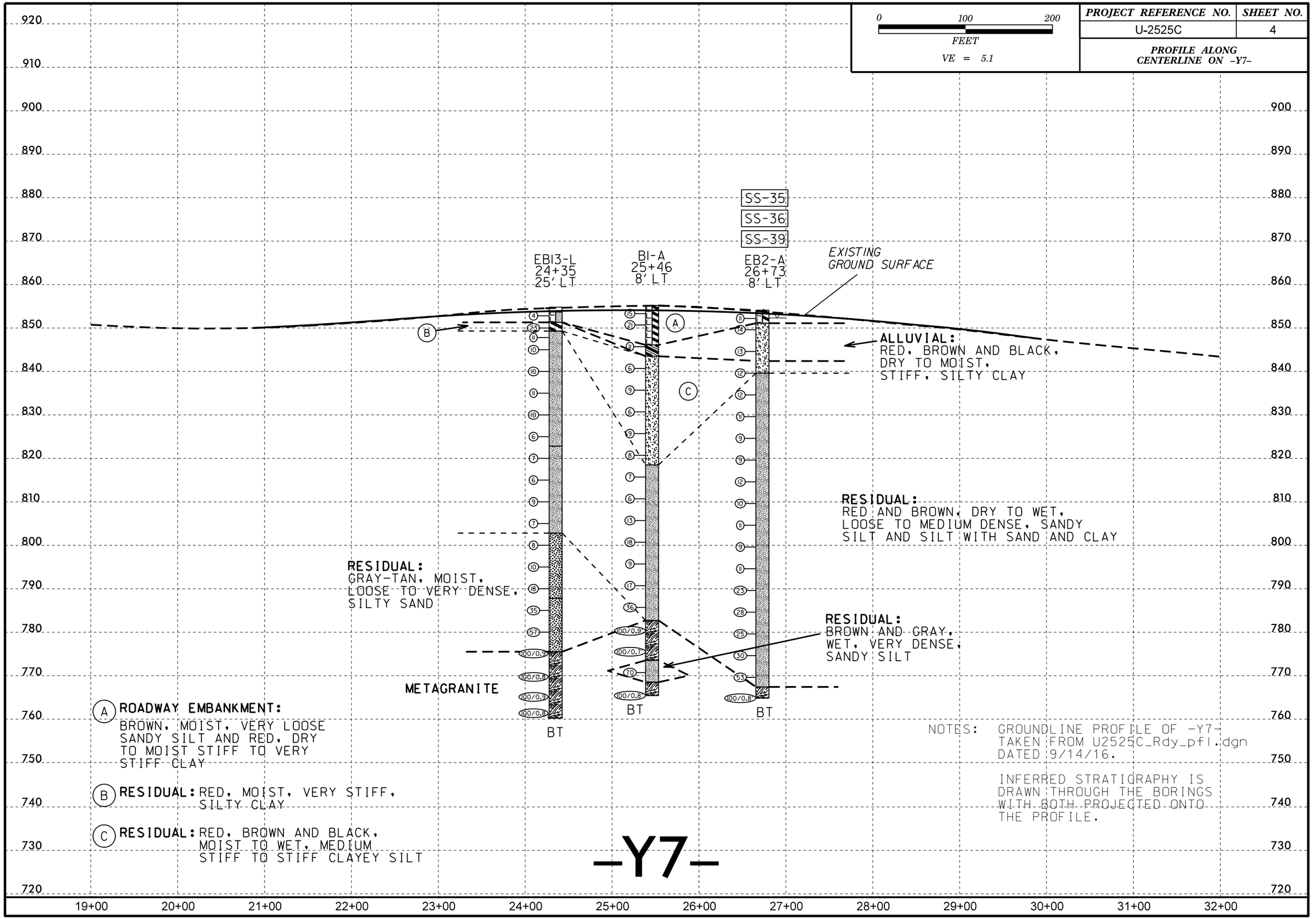
26

27

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	4

PROFILE ALONG CENTERLINE ON –Y7–

0 100 200
FEET
VE = 5.1

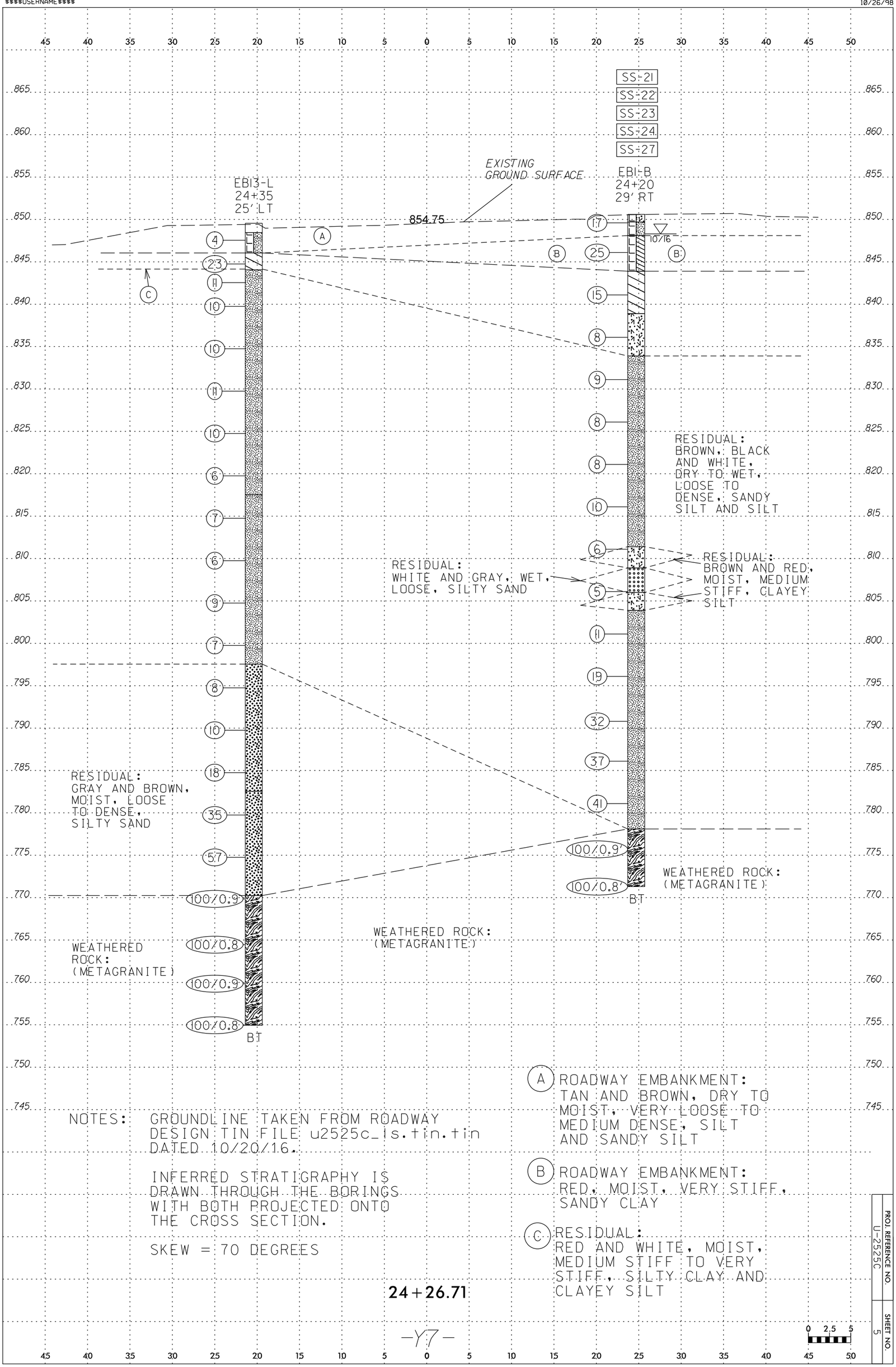


NOTES: GROUNDLINE PROFILE OF –Y7– TAKEN FROM U2525C_Rdy_pfl.dgn DATED 9/14/16.

INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

10/26/98



NOTES: GROUNDLINE TAKEN FROM ROADWAY DESIGN TIN FILE u2525c_is.tin.tin DATED 10/20/16.

INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

SKEW = 70 DEGREES

24+26.71

(A) ROADWAY EMBANKMENT: TAN AND BROWN, DRY TO MOIST, VERY LOOSE TO MEDIUM DENSE, SILT AND SANDY SILT

(B) ROADWAY EMBANKMENT: RED, MOIST, VERY STIFF, SANDY CLAY

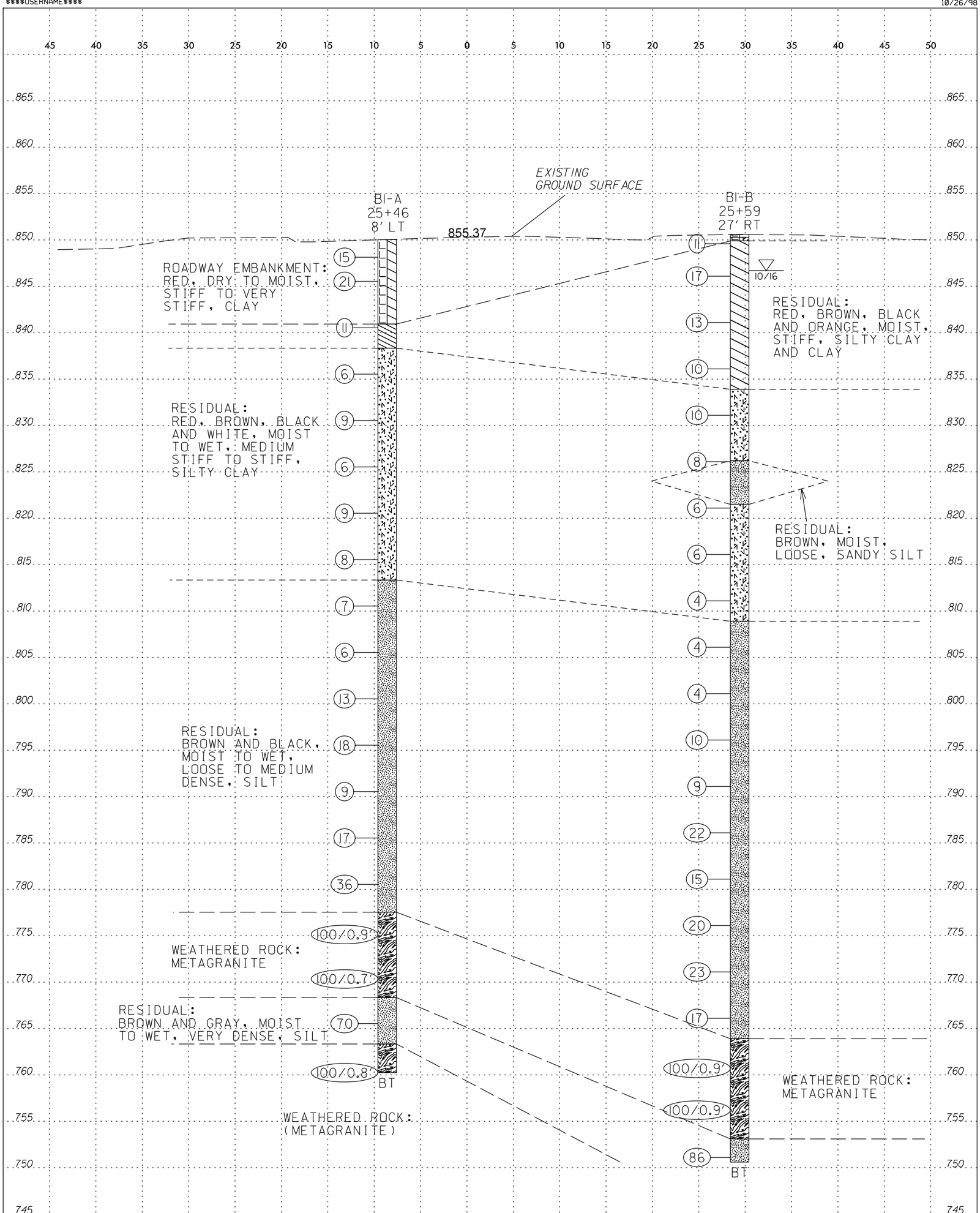
(C) RESIDUAL: RED AND WHITE, MOIST, MEDIUM STIFF TO VERY STIFF, SILTY CLAY AND CLAYEY SILT

PROJ. REFERENCE NO. U-2525C

SHEET NO. 5

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

10/26/98



NOTES: GROUNDLINE TAKEN FROM ROADWAY DESIGN TIN FILE u2525c_ls.tin.tin DATED 10/20/16.

INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

SKEW = 70 DEGREES

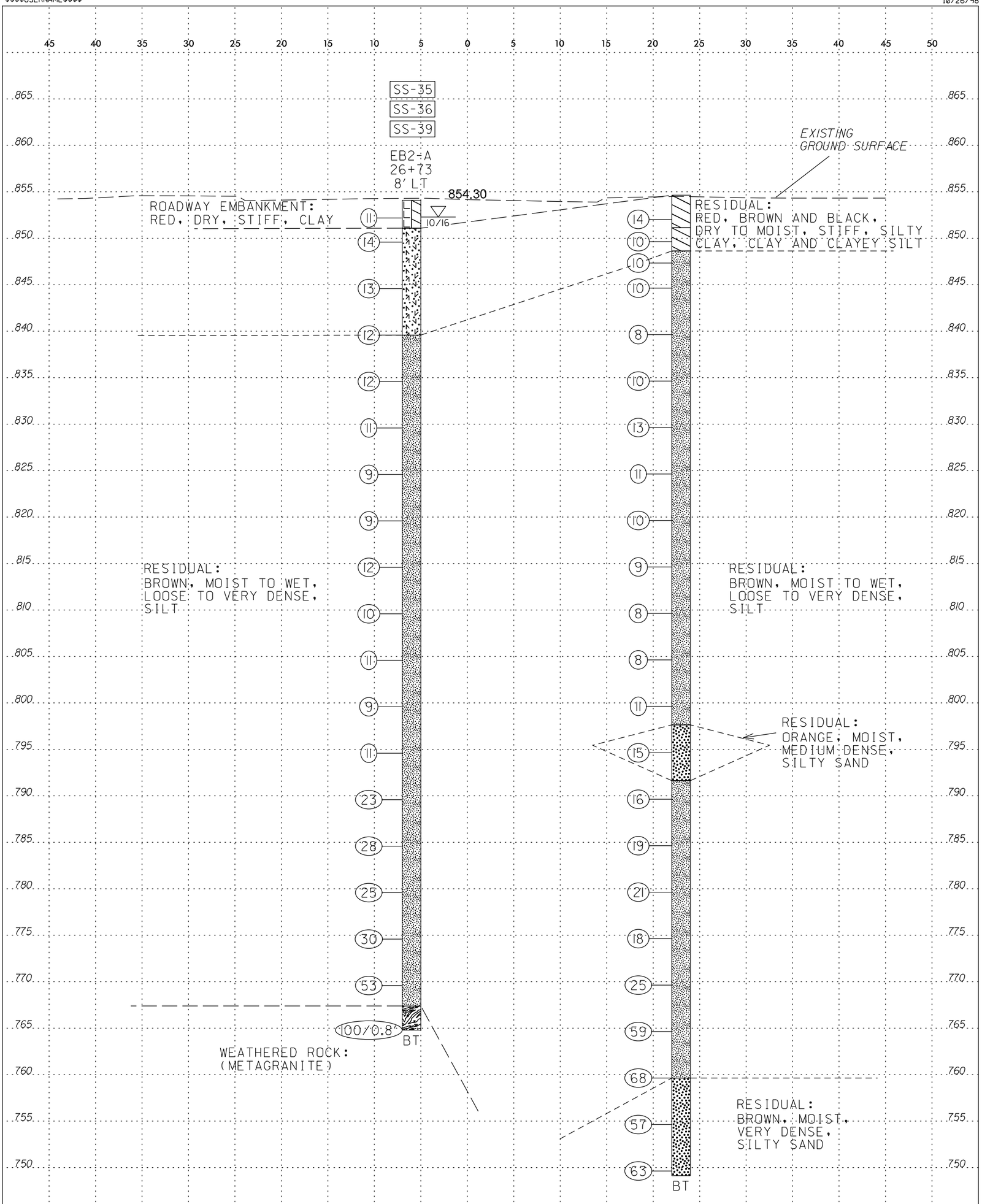
25+52.71

PROJ. REFERENCE NO. U-2525C

SHEET NO. 6

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

10/26/98



NOTES: GROUNDLINE TAKEN FROM ROADWAY DESIGN TIN FILE u2525c_ls.tin.tin DATED 10/20/16.

INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

SKEW = 70 DEGREES

26+66.71

-Y7-

PROJ. REFERENCE NO. U-2525C

SHEET NO. 7

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Wright, F.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB13-L	**STATION** 24+35	**OFFSET** 25 ft LT	**ALIGNMENT** -Y7-	**0 HR.** N/A
COLLAR ELEV. 854.8 ft	**TOTAL DEPTH** 94.6 ft	**NORTHING** 871,419	**EASTING** 1,759,348	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 89% 1/15/2016		**DRILL METHOD** Wash Boring	**HAMMER TYPE** Automatic	
DRILLER T. Williams	**START DATE** 11/05/15	**COMP. DATE** 11/05/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
855										854.8 PAVEMENT	0.0
	853.8	1.0	3	2	2	4		M		853.7 ASPHALT (0.7') CABC STONE (0.4')	1.1
	851.0	3.8								**ROADWAY EMBANKMENT**	
850			6	10	13	23		M		851.3 Tan Fine Sandy SILT with Fine Gravel	3.5
	848.8	6.0								**RESIDUAL**	
			4	4	7	11		D		849.3 Red Silty CLAY with Little Fine Sand	5.5
	846.0	8.8								Red-Tan Fine Sandy SILT with Little to Some Clay and Manganese Seams	
845			4	4	6	10		D			
	841.0	13.8									
840			4	4	6	10		D			
	836.0	18.8									
835			3	5	6	11		D			
	831.0	23.8									
830			2	4	6	10		D			
	826.0	28.8									
825			2	2	4	6		D			
	821.0	33.8								822.8 Tan-Brown Fine Sandy SILT with Manganese Seams and Mica	32.0
820			2	3	4	7		M			
	816.0	38.8									
815			2	3	3	6		M			
	811.0	43.8									
810			2	4	5	9		M			
	806.0	48.8									
805			2	3	4	7		M			
	801.0	53.8								802.8 Gray-Tan Silty Fine SAND with Manganese Seams	52.0
800			2	4	4	8		M			
	796.0	58.8									
795			2	4	6	10		M			
	791.0	63.8									
790			3	6	12	18		M			
	786.0	68.8								787.8 Gray-Tan Silty Fine SAND with Quartz Rock Fragments	67.0
785			8	12	23	35		M			
	781.0	73.8									
780			12	23	34	57		M			
	776.0	78.8								775.5	79.3
775			35	65/0.4		100/0.9					

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Wright, F.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB13-L	**STATION** 24+35	**OFFSET** 25 ft LT	**ALIGNMENT** -Y7-	**0 HR.** N/A
COLLAR ELEV. 854.8 ft	**TOTAL DEPTH** 94.6 ft	**NORTHING** 871,419	**EASTING** 1,759,348	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 89% 1/15/2016		**DRILL METHOD** Wash Boring	**HAMMER TYPE** Automatic	
DRILLER T. Williams	**START DATE** 11/05/15	**COMP. DATE** 11/05/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
775						Match Line				**WEATHERED ROCK** (Metamorphosed Granite) *(continued)*
	771.0	83.8	27	59	41/0.3	100/0.8				
770										
	766.0	88.8	30	70/0.4		100/0.9				
765										
	761.0	93.8	52	48/0.3		100/0.8				760.2 Boring Terminated at Elevation 760.2 ft in Weathered Rock (Metamorphosed Granite) 94.6

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 24+20	**OFFSET** 29 ft RT	**ALIGNMENT** -Y7-	**0 HR.** 2.3
COLLAR ELEV. 856.0 ft	**TOTAL DEPTH** 79.3 ft	**NORTHING** 871,378	**EASTING** 1,759,385	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/04/16	**COMP. DATE** 10/04/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
860											
	856.0	0.0	5	8	9	17		D		856.0 GROUND SURFACE	0.0
855										855.1 **ROADWAY EMBANKMENT**	0.9
	852.5	3.5	8	11	14	25	SS-21	M		853.5 REDDISH BROWN AND GRAY, CLAYEY SILT WITH LITTLE SAND AND GRAVEL	2.5
850										LIGHT ORANGISH BROWN AND GRAYISH BROWN, SILT	
	847.5	8.5	6	7	8	15	SS-22	M		849.3 RED, GRAVELLY SANDY CLAY	6.7
845										**RESIDUAL** RED AND WHITE, SILTY CLAY WITH TRACE SAND	
	842.5	13.5	3	3	5	8	SS-23	W		844.3	11.7
840										RED AND WHITE, CLAYEY SILT WITH LITTLE SAND	
	837.5	18.5	3	4	5	9	SS-24	W		839.3	16.7
835										LIGHT ORANGISH BROWN AND ORANGISH BROWN WITH BLACK STREAKS, SILT WITH LITTLE SAND AT 28.5': SANDY SILT	
	832.5	23.5	3	3	5	8		W			
830											
	827.5	28.5	3	3	5	8		W			
825											
	822.5	33.5	2	2	8	10	SS-27	W			
820											
	817.5	38.5	2	2	4	6		W		816.8	39.2
815										ORANGISH BROWN AND RED, CLAYEY SILT	
	812.5	43.5	1	2	3	5		W		814.3 WHITE AND GRAY, SILTY FINE TO COARSE SAND	41.7
810										811.4	44.6
	807.5	48.5	3	4	7	11		W		ORANGISH BROWN AND RED WITH BLACK STREAKS, CLAYEY SILT	
805										809.3 LIGHT BROWN WITH BLACK AND WHITE STREAKS, SANDY SILT AT 58.5': ORANGISH BROWN AND WHITE	46.7
	802.5	53.5	5	7	12	19		W			
800											
	797.2	58.8	9	13	19	32		W			
795											
	792.5	63.5	10	16	21	37		W			
790											
	787.5	68.5	15	18	23	41		W			
785											
	782.5	73.5	41	54	46/0.4'					783.5	72.5
780						100/0.9'				**WEATHERED ROCK** (METAGRANITE)	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
780						Match Line				**WEATHERED ROCK** (METAGRANITE) *(continued)*
	777.5	78.5	53	47/0.3'		100/0.8'				776.7 79.3
										Boring Terminated at Elevation 776.7 ft In Weathered Rock (Metagranite)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 25+46	**OFFSET** 8 ft LT	**ALIGNMENT** -Y7-	**0 HR.** Dry
COLLAR ELEV. 855.2 ft	**TOTAL DEPTH** 89.8 ft	**NORTHING** 871,504	**EASTING** 1,759,422	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/06/16	**COMP. DATE** 10/06/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
860											
855										855.2	0.0
	854.3	0.9								GROUND SURFACE **ROADWAY EMBANKMENT** ASPHALT: 0.9' RED, CLAY	
	851.7	3.5	8	6	9	15 21		D			
850			8	9	12			M			
	846.7	8.5								846.1	9.1
845			4	5	6	11		M		**RESIDUAL** RED WITH BROWN AND BLACK MOTTLING, SILTY CLAY	
	841.7	13.5								843.5	11.7
840			3	2	4	6		W		RED AND ORANGISH BROWN WITH BLACK STREAKS, CLAYEY SILT AT 18.5': CLAYEY SILT WITH TRACE SAND AND ROCK FRAGMENTS AT 23.5': CLAYEY SILT WITH TRACE ROCK FRAGMENTS AT 28.5': CLAYEY SILT	
	836.7	18.5									
835			3	4	5	9		W			
	831.7	23.5									
830			1	3	3	6		W			
	826.7	28.5									
825			2	4	5	9		W			
	821.7	33.5									
820			2	3	5	8		W			
	816.7	38.5								818.5	36.7
815			2	3	4	7		W		GRAYISH BROWN AND REDDISH BROWN WITH BLACK STREAKS, SILT WITH TRACE CLAY AND SAND AT 43.5': GRAY AND LIGHT BROWN WITH BLACK STREAKS AT 48.5': LIGHT BROWN WITH BLACK STREAKS AT 63.5': LIGHT BROWN, SILT WITH LITTLE SAND, MICACEOUS AT 68.5': SANDY SILT	
	811.7	43.5									
810			2	2	4	6		W			
	806.7	48.5									
805			3	5	8	13		W			
	801.7	53.5									
800			5	7	11	18		W			
	796.7	58.5									
795			3	3	6	9		W			
	791.7	63.5									
790			3	5	12	17		W			
	786.7	68.5									
785			10	14	22	36		W			
	781.7	73.5								782.7	72.5
780			32	48	52/0.4'	100/0.9'				**WEATHERED ROCK** (METAGRANITE)	

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 25+46	**OFFSET** 8 ft LT	**ALIGNMENT** -Y7-	**0 HR.** Dry
COLLAR ELEV. 855.2 ft	**TOTAL DEPTH** 89.8 ft	**NORTHING** 871,504	**EASTING** 1,759,422	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/06/16	**COMP. DATE** 10/06/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
780						Match Line				
	776.7	78.5	35	51	49/0.2'	100/0.7'				**WEATHERED ROCK** (METAGRANITE) *(continued)*
775										773.5 81.7
	771.7	83.5	21	28	42	70		W		**RESIDUAL** LIGHT BROWN AND GRAY, SANDY SILT WITH TRACE ROCK FRAGMENTS
770										768.5 86.7
	766.7	88.5	27	60	40/0.3'	100/0.8'				**WEATHERED ROCK** (METAGRANITE)
										765.4 89.8
										Boring Terminated at Elevation 765.4 ft In Weathered Rock (Metagranite)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 25+59	**OFFSET** 27 ft RT	**ALIGNMENT** -Y7-	**0 HR.** 3.9
COLLAR ELEV. 855.7 ft	**TOTAL DEPTH** 100.0 ft	**NORTHING** 871,496	**EASTING** 1,759,458	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/03/16	**COMP. DATE** 10/04/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
860										
855	855.7	0.0	3	3	8	11		D		855.7 0.0 GROUND SURFACE 855.4 0.3 **ROADWAY EMBANKMENT** 855.0 0.7 ORANGE, CLAY WITH LITTLE SAND
	852.2	3.5	6	8	9	17		D		**RESIDUAL** BROWN AND GRAY, CLAYEY SILT WITH TRACE SAND AND GRAVEL
850										ORANGE, CLAY AT 9.5': ORANGISH RED WITH BLACK AND BROWN AND WHITE MOTTLING
	847.2	8.5	4	5	8	13		M		
845										
	842.2	13.5	3	4	6	10		W		
840										839.0 16.7 ORANGISH RED WITH BLACK AND GRAY AND WHITE STREAKS, CLAYEY SILT
	837.2	18.5	2	5	5	10		W		
835										
	832.2	23.5	2	3	5	8		W		831.3 24.4 LIGHT GRAYISH AND ORANGISH BROWN, SANDY SILT
830										
	827.2	28.5	2	2	4	6		W		826.6 29.1 REDDISH BROWN WITH BLACK AND GRAY STREAKS, CLAYEY SILT AT 34.2': LIGHT ORANGISH BROWN AND GRAY WITH BLACK STREAKS AT 38.5': WITH TRACE SAND
825										
	822.2	33.5	2	2	4	6		W		
820										
	817.2	38.5	2	1	3	4		W		
815										
	812.2	43.5	2	2	2	4		W		
810										
	807.2	48.5	1	2	2	4		W		814.0 41.7 LIGHT YELLOWISH BROWN AND ORANGISH BROWN, SILT WITH LITTLE SAND AT 53.5': SILT WITH TRACE SAND AT 64.6': LIGHT YELLOWISH BROWN AND ORANGISH BROWN AND BLACK, GRAVELLY (ROCK FRAGMENTS) SILT WITH TRACE SAND AT 68.5': SILT WITH LITTLE SAND AND TRACE GRAVEL (ROCK FRAGMENTS) AT 73.5': SILT WITH TRACE SAND AT 78.5': SILT WITH TRACE SAND AND GRAVEL (ROCK FRAGMENTS)
805										
	802.2	53.5	4	4	6	10		W		
800										
	797.2	58.5	2	4	5	9		W		
795										
	792.2	63.5	5	10	12	22		W		
790										
	787.2	68.5	3	5	10	15		W		
785										
	782.2	73.5	4	10	10	20		W		
780										

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 25+59	**OFFSET** 27 ft RT	**ALIGNMENT** -Y7-	**0 HR.** 3.9
COLLAR ELEV. 855.7 ft	**TOTAL DEPTH** 100.0 ft	**NORTHING** 871,496	**EASTING** 1,759,458	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/03/16	**COMP. DATE** 10/04/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
780						Match Line				
	777.2	78.5	4	12	11	23		W		
775										
	772.2	83.5	5	6	11	17		W		
770										769.0 86.7 **WEATHERED ROCK** (METAGRANITE)
	767.2	88.5	41	42	58/0.4'	100/0.9'				
765										
	762.2	93.5	21	79/0.4'		100/0.9'				
760										758.2 97.5 **RESIDUAL**
	757.2	98.5	17	31	55	86		W		755.7 100.0 LIGHT ORANGISH BROWN AND DARK GRAY, SILT WITH LITTLE GRAVEL (ROCK FRAGMENTS) AND TRACE SAND Boring Terminated at Elevation 755.7 ft In Silt with Little Gravel (Rock Fragments) and Trace Sand

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 26+73	**OFFSET** 8 ft LT	**ALIGNMENT** -Y7-	**0 HR.** 1.8
COLLAR ELEV. 854.1 ft	**TOTAL DEPTH** 89.3 ft	**NORTHING** 871,611	**EASTING** 1,759,489	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/05/16	**COMP. DATE** 10/05/16	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
855											
	853.2	0.9	4	5	6	11				854.1 GROUND SURFACE	0.0
										ROADWAY EMBANKMENT ASPHALT: 0.9'	
850	850.6	3.5	6	7	7	14	SS-35	D		851.1 RED, CLAY	3.0
							SS-36	D		**RESIDUAL** RED AND LIGHT BROWN, CLAYEY SILT AT 9.7': CLAYEY SILT WITH LITTLE GRAVEL AT 11.7': WITH BLACK STREAKS	
845	845.6	8.5	4	6	7	13		D			
840	840.6	13.5	3	5	7	12		M		839.6	14.5
										REDDISH BROWN AND LIGHT BROWN, SILT WITH LITTLE CLAY AND SAND AT 18.5': SILT WITH LITTLE CLAY AT 23.5': RED AND LIGHT BROWN WITH BLACK STREAKS AT 43.5': SILT WITH LITTLE CLAY AND SAND AT 44.7': GRAYISH BROWN AND ORANGISH BROWN, SILT WITH TRACE SAND AT 48.5': WITH BLACK STREAKS AT 53.5': GRAYISH BROWN AND ORANGISH BROWN AND GRAY WITH BLACK STREAKS, SILT WITH LITTLE SAND AT 68.5': SILT AT 78.5': BROWN AT 79.7': LIGHT BROWN AND DARK GRAY, GRAVELLY (ROCK FRAGMENTS) SILT WITH TRACE SAND	
835	835.6	18.5	3	5	7	12	SS-39	M			
830	830.6	23.5	3	5	6	11		M			
825	825.6	28.5	3	3	6	9		W			
820	820.6	33.5	3	3	6	9		W			
815	815.6	38.5	3	5	7	12		W			
810	810.6	43.5	3	4	6	10		W			
805	805.6	48.5	3	4	7	11		W			
800	800.6	53.5	3	4	5	9		W			
795	795.6	58.5	2	5	6	11		W			
790	790.6	63.5	7	9	14	23		W			
785	785.6	68.5	8	12	16	28		W			
780	780.6	73.5	7	10	15	25		W			
775	775.6	78.5									

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
775						Match Line				
			9	16	14	30		W		
770	770.6	83.5	11	20	33	53		W		
765	765.6	88.5	51	49/0.3'		100/0.8'				767.4 86.7 **WEATHERED ROCK** (METAGRANITE) 764.8 89.3 Boring Terminated at Elevation 764.8 ft In Weathered Rock (Metagranite)

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Whitt, J.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 26+73	**OFFSET** 8 ft LT	**ALIGNMENT** -Y7-	**0 HR.** 1.8
COLLAR ELEV. 854.1 ft	**TOTAL DEPTH** 89.3 ft	**NORTHING** 871,611	**EASTING** 1,759,489	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 86% 02/16/2016		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER Davis, S.	**START DATE** 10/05/16	**COMP. DATE** 10/05/16	**SURFACE WATER DEPTH** N/A	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Wright, F.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB14-R	**STATION** 26+65	**OFFSET** 25 ft RT	**ALIGNMENT** -Y7-	**0 HR.** N/A
COLLAR ELEV. 854.6 ft	**TOTAL DEPTH** 105.5 ft	**NORTHING** 871,587	**EASTING** 1,759,513	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 89% 1/15/2016		**DRILL METHOD** Wash Boring	**HAMMER TYPE** Automatic	
DRILLER T. Williams	**START DATE** 11/05/15	**COMP. DATE** 11/06/15	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
855										854.6 GROUND SURFACE 0.0
	853.0	1.6								**RESIDUAL**
			4	6	8	14		M		Red Silty CLAY with Trace of Fine Sand
850	850.6	4.0	4	4	6	10		M		851.1 3.5
	848.3	6.3								Red-Tan Silty CLAY with Little Fine Sand
			3	4	6	10		D		848.6 6.0
845	845.6	9.0								Red-Tan Fine Sandy SILT with Some Clay
			3	4	6	10		D		Manganese seams starting at 17 feet
840	840.6	14.0								Quartz Rock at 24.3 feet
			3	3	5	8		D		
835	835.6	19.0								
			3	4	6	10		D		
830	830.6	24.0								
			3	5	8	13		D		
825	825.6	29.0								
			3	5	6	11		D		
820	820.6	34.0								
			3	4	6	10		D		
815	815.6	39.0								
			3	4	5	9		M		
810	810.6	44.0								
			3	3	5	8		M		
805	805.6	49.0								
			3	3	5	8		M		
800	800.6	54.0								
			3	4	7	11		M		
795	795.6	59.0								
			3	6	9	15		M		
790	790.6	64.0								
			4	7	9	16		M		
785	785.6	69.0								
			6	8	11	19		M		
780	780.6	74.0								
			6	8	13	21		M		
775	775.6	79.0								

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
775						Match Line				
			2	7	11	18		M		Tan-Brown Fine Sandy SILT with Manganese
770	770.6	84.0								Seams and Rock Fragments *(continued)*
			5	9	16	25		M		
765	765.6	89.0								
			16	17	42	59		M		
760	760.6	94.0								
			14	24	44	68		M		759.6 95.0
755	755.6	99.0								Brown-Tan Silty Fine SAND with Manganese
			10	20	37	57		M		Seams and Rock Fragments
750	750.6	104.0								
			14	23	40	63		M		749.1 105.5
										Boring Terminated at Elevation 749.1 ft in
										Silty Fine SAND

WBS 34821.1.5	**TIP** U-2525C	**COUNTY** GUILFORD	**GEOLOGIST** Wright, F.	
SITE DESCRIPTION Site #7 (Structure #10), Bridge No. 1249 on Lake Jeanette Road (-Y7-) over I-85 Bypass (-L-)				**GROUND WTR (ft)**
BORING NO. EB14-R	**STATION** 26+65	**OFFSET** 25 ft RT	**ALIGNMENT** -Y7-	**0 HR.** N/A
COLLAR ELEV. 854.6 ft	**TOTAL DEPTH** 105.5 ft	**NORTHING** 871,587	**EASTING** 1,759,513	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SME275 DIEDRICH D-50 89% 1/15/2016		**DRILL METHOD** Wash Boring	**HAMMER TYPE** Automatic	
DRILLER T. Williams	**START DATE** 11/05/15	**COMP. DATE** 11/06/15	**SURFACE WATER DEPTH** N/A	

797.6 — 57.0
Orange-Tan Silty Fine SAND with Manganese Seams

791.6 — 63.0
Tan-Brown Fine Sandy SILT with Manganese Seams and Rock Fragments

NCDOT BORE DOUBLE U2525C_GEO_RDWY_5-16-2016.GPJ NC_DOT.GDT 9/29/17

SITE #7 (STRUCTURE #10), BRIDGE NO. 1249 ON LAKE JEANETTE ROAD (-Y7-) OVER I-85 BYPASS (-L-)

SOIL TEST RESULTS

BORING	SAMPLE			DEPTH INTERVAL	AASHTO	LIQUID	PLASTICITY	% BY WEIGHT				% PASSING (SIEVES)			%	%
NO.	NO.	STATION	OFFSET	(FEET)	CLASS.	LIMIT	INDEX	GRAVEL	C.SAND	F.SAND	SILT & CLAY	10	40	200	MOISTURE	ORGANIC
EB1-B	SS-21	24+20	29' RT	3.5 - 5.0	A-7-5	73.0	37.0	8.0	10.1	9.9	72.0	92.0	81.9	72.0	24.4	-
EB1-B	SS-22	24+20	29' RT	8.5 - 10.0	A-7-5	46.0	16.0	0.3	9.4	24.2	66.2	99.7	90.4	66.2	25.3	-
EB1-B	SS-23	24+20	29' RT	13.5 - 15.0	A-4	40.0	7.0	0.8	12.4	27.1	59.7	99.3	86.8	59.7	34.6	-
EB1-B	SS-24	24+20	29' RT	18.5 - 20.0	A-4	35.0	6.0	0.1	10.3	30.0	59.7	99.9	89.7	59.7	36.7	-
EB1-B	SS-27	24+20	29' RT	33.5 - 35.0	A-4	34.0	7.0	7.4	9.2	29.0	54.4	92.6	83.5	54.4	36.1	-
EB2-A	SS-35	26+73	8' LT	0.9 - 2.4	A-7-5	55.0	22.0	0.5	1.6	16.9	81.0	99.5	97.9	81.0	29.2	
EB2-A	SS-36	26+73	8' LT	3.5 - 5.0	A-5	45.0	8.0	1.2	2.4	23.5	73.0	98.8	96.4	73.0	21.7	
EB2-A	SS-39	26+73	8' LT	18.5 - 20.0	A-5	50.0	9.0	0.2	3.1	27.8	68.9	99.8	96.7	68.9	39.1	-

SITE PHOTOGRAPHS - SITE #7 (STRUCTURE #10), BRIDGE NO. 1249 ON LAKE JEANETTE ROAD (-Y7-) OVER I-85 BYPASS (-L-)

View looking upstation along proposed bridge alignment

View looking nearly perpendicular to proposed bridge alignment (approximate northwest)