STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AC	1	31

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY *BUNCOMBE*

PROJECT DESCRIPTION *I-26/I-40/I-240 INTERCHANGE TO SR 3548 (HAYWOOD ROAD)*

SITE DESCRIPTION *RETAINING WALL NO. 3 -WALL3- STA. 11+12.94 (-RP23- STA. 16+60.00) TO -WALL3- STA. 31+86.65 (-RP23- STA. 37+33.23)*

REFERENCE: I-2513AC

PROJECT: 34165

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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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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.

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GEOLOGIC EXPLORATION

TOTAL DEPTH DRILLING

TERRACON CONSULTANTS

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DATE *SEPTEMBER 2024*

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Signed by: Amanda R. Suttle PG 6/30/2026
399DBE429F4494... SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	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 PI	— 6 MX		— NP	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, CPT, 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:
- [X] CME-75
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME 750X
- [X] DIEDRICH D50

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
- [X] DCP

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: N/A

ELEVATION: FEET

NOTES:

ROADWAY DESIGN FILES, .TIN FILE, AND GPK FILE PROVIDED BY AECOM

NORTHING AND EASTINGS OBTAINED USING A TRIMBLE GEO7X. BORING ELEVATIONS FOR WALL BORINGS WERE OBTAINED USING THE PROVIDED .TIN FILE

FIAD = FILLED IMMEDIATELY AFTER DRILLING

◉ = DCP = DYNAMIC CONE PENETROMETER

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	3

SITE PLAN

0 50 100
FEET

RETAINING WALL #3
-WALL3- POT STA.
11+12.94 TO 31+86.65

FAIRFAX AVE
-RP32-
20+00
60+00
I-26 SB/I-240 WBL
-L-
65+00
I-26 NB/I-240 EBL
L_6650R
WALL03_B-01
17+00
WALL03_B-03
WALL03_B-05
WALL03_B-07
WALL03_B-09
WALL03_B-10
WALL03_B-11
22+00
WALL03_B-13
-RP23-
WALL03_B-02
WALL03_B-04
WALL03_B-06
WALL03_B-08
WALL03_B-12
BEGIN RETAINING WALL #3
-WALL3- POT STA.11+12.94=
-RP23- STA.16+60.00 (21.50' RT)
MATCHLINE -WALL3- STA. 17+75.00 SEE SHEET 4

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	4

SITE PLAN

0 50 100
FEET

RETAINING WALL #3
-WALL3- POT STA.
11+12.94 TO 31+86.65

MATCHLINE –WALL3– STA. 17+75.00 SEE SHEET 3

MATCHLINE –WALL3– STA. 24+75.00 SEE SHEET 5

24+00 -RP32-

25+00 -RP23-

68+00 -L-

73+00

I-26 SB/I-240 WBL

I-26 NB/I-240 EBL

MTL

L_6750R

L_6700R L_6800R L_6850R L_6700R L_6950R L_7000R L_7050R L_7100R L_7150R L_7200R L_7250R L_7300R L_7350R

FRENCH BROAD RIVER

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	5

SITE PLAN

0 50 100
FEET

RETAINING WALL #3
-WALL3- POT STA.
11+12.94 TO 31+86.65

-RP32-
29+00
75+00
-L-
79+00
I-26 SB/I-240 WBL
I-26 NB/I-240 EBL
MTL
BST
SS
SF
GR
W
TV
R/W MON.
48" RCP
10" CIP
W/LT
HW
S
T-27
T-28
35+00
-RP23-
L_7400R
WALL03_B-30
WALL03_B-31
WALL03_B-32
WALL03_B-33
WALL03_B-34
WALL03_B-35
WALL03_B-36
WALL03_B-38
WALL03_B-39
WALL03_B-41
WALL03_B-42
136
137
139
140
141
142

END RETAINING WALL #3
-WALL3- POT STA.31+86.65=
-RP23- STA.37+33.23 (21.50' RT)

MATCHLINE -WALL3- STA. 24+75.00 SEE SHEET 4

Prepared in the Office of:
ECS SOUTHEAST, LLC
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-3402 (PHONE)
(704) 357-1023 (FAX)
NC REGISTERED
ENGINEERING
FIRM # C-1519

0 25 50
VE = 5:1

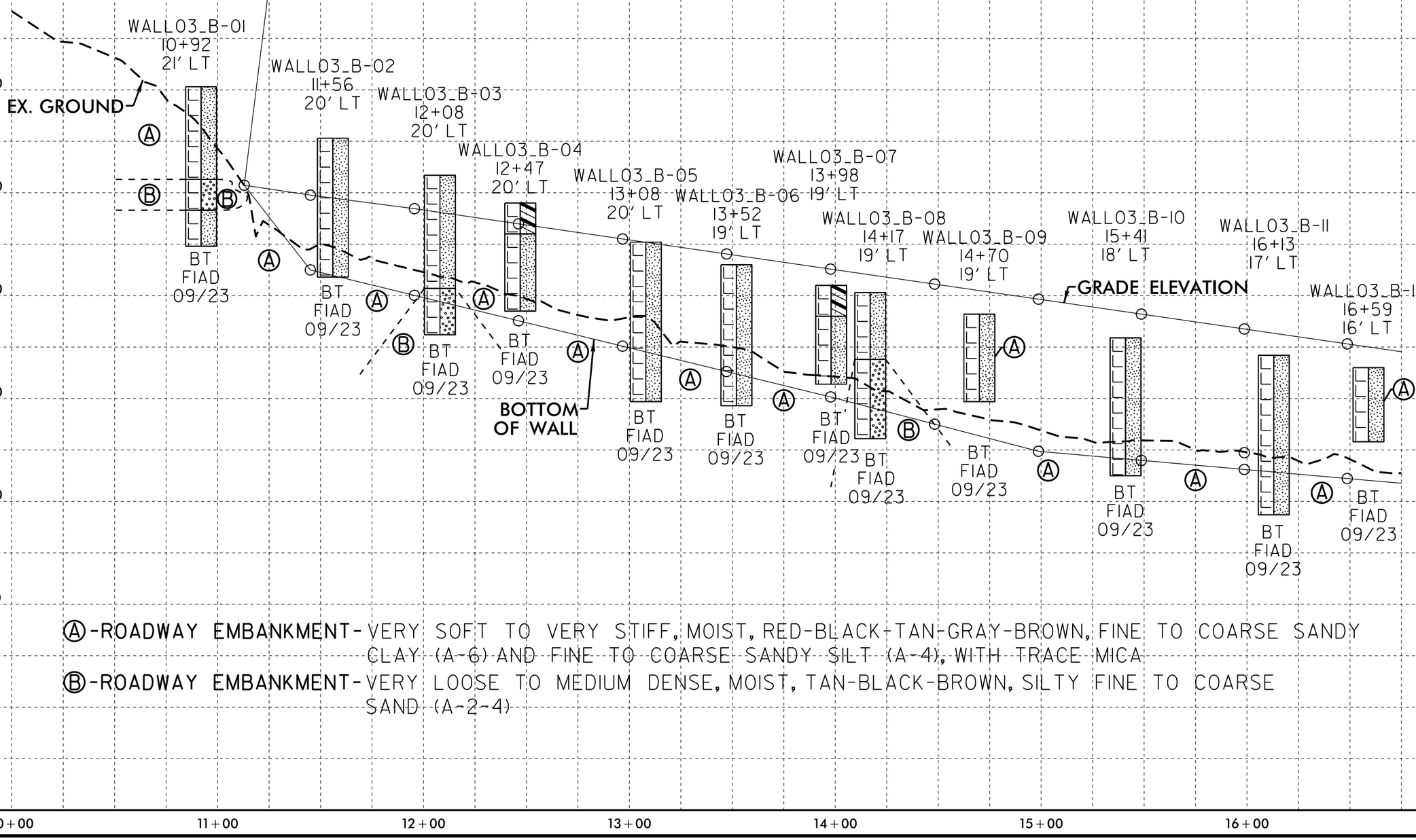
PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	6

PROFILE BORINGS PROJECTED ON –WALL3– ALONG WALL NO. 3

–WALL3– PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES, PROVIDED BY AECOM JULY 2024 AND I2513_ls_tnl.tin. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

–WALL3–

BEGIN RET. WALL
–WALL3– 11+12.94
–RP23– STA. 16+60.00
ELEV = 2,050.73



Ⓐ-ROADWAY EMBANKMENT- VERY SOFT TO VERY STIFF, MOIST, RED-BLACK-TAN-GRAY-BROWN, FINE TO COARSE SANDY CLAY (A-6) AND FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

Ⓑ-ROADWAY EMBANKMENT- VERY LOOSE TO MEDIUM DENSE, MOIST, TAN-BLACK-BROWN, SILTY FINE TO COARSE SAND (A-2-4)

5/14/99

25-SEP-2024 16:16
C:\Users\...\OneDrive - ECS Corporate Services\31-4489 I-2513AC
$$$$USERNAME$$$$
Structures\CADD_GEOTECH\Site&Sub\I2513AC_GEO_RWAL03_PFL.dgn

5/14/99

–WALL3– PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES, PROVIDED BY AECOM JULY 2024 AND I2513 ls tnl.tin. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

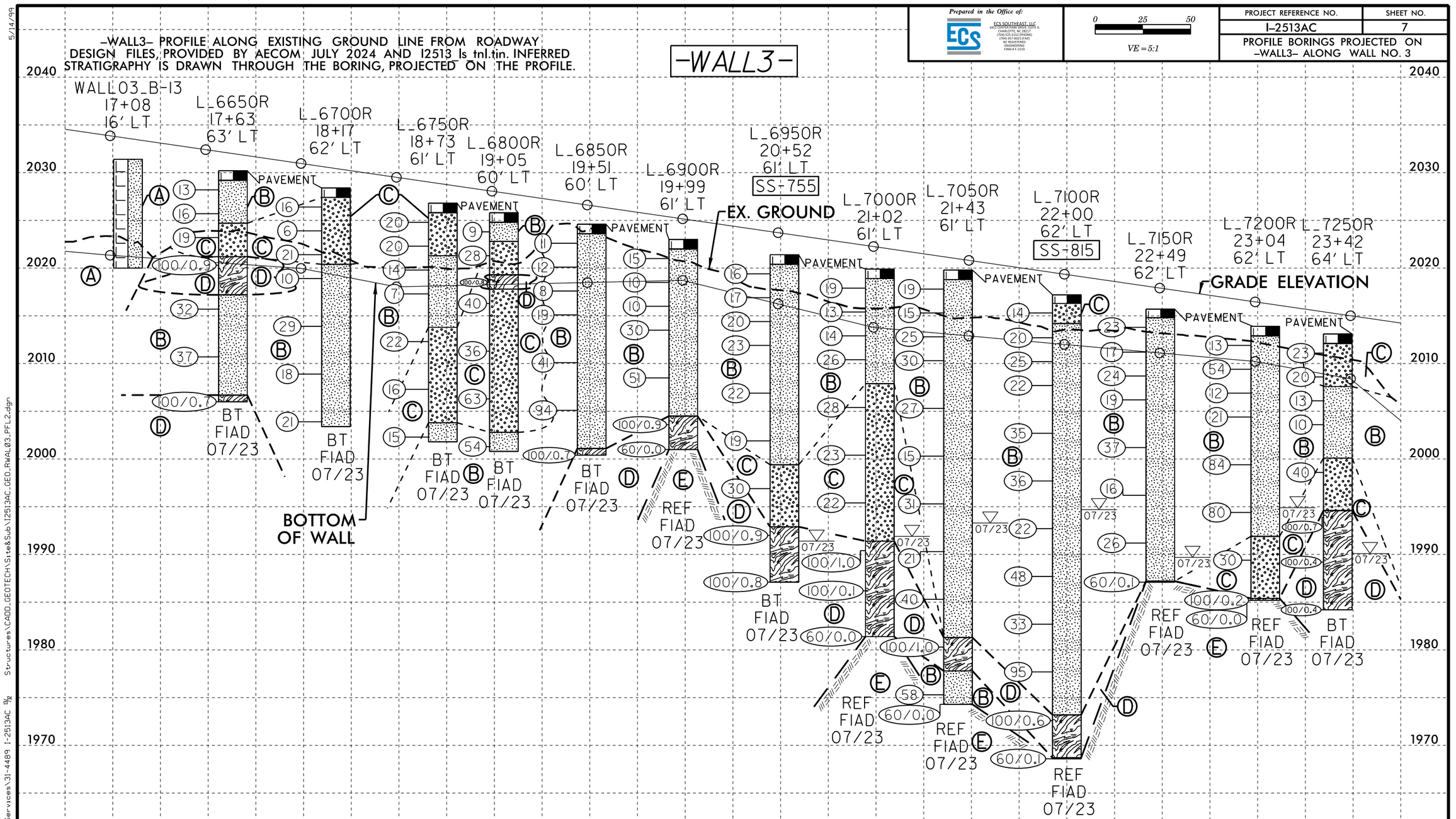
–WALL3–

Prepared in the Office of:
ECS SOUTHEAST, LLC
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-5152 (PHONE)
(704) 357-1023 (FAX)
NC REGISTERED
ENGINEERING
FIRM # C-1519

0 25 50
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	7

PROFILE BORINGS PROJECTED ON –WALL3– ALONG WALL NO. 3



Ⓐ-ROADWAY EMBANKMENT-SOFT TO STIFF, MOIST, BROWN-TAN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

Ⓑ-RESIDUAL- MEDIUM STIFF TO HARD, MOIST, BROWN-ORANGE-GRAY-TAN-WHITE-BLACK-RED, FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO SOME MICA

Ⓒ-RESIDUAL- LOOSE TO VERY DENSE, MOIST, PINK-GRAY-WHITE-RED-TAN-BROWN-BLACK, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE TO LITTLE MICA AND TRACE ROCK FRAGMENTS

Ⓓ-WEATHERED ROCK-(GNEISS)

Ⓔ-CRYSTALLINE ROCK-(GNEISS)

Prepared in the Office of:
ECS SOUTHEAST, LLC
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-7782 (TEL)
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NC REGISTERED
ENGINEERING
FIRM # P-1519

0 25 50
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	8

PROFILE BORINGS PROJECTED ON –WALL3– ALONG WALL NO. 3

–WALL3– PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES, PROVIDED BY AECOM JULY 2024 AND I2513_ls_tnl.tin. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

–WALL3–

GRADE ELEVATION

BOTTOM OF WALL

EX. GROUND

L_7300R 23+91 63' LT

L_7350R 24+46 62' LT

L_7400R 24+89 64' LT

SS-835

WALL03_B-30 25+33 13' LT

WALL03_B-31 25+87 10' LT

WALL03_B-32 26+37 7' LT

WALL03_B-33 26+97 2' LT

WALL03_B-34 27+50 5' RT

WALL03_B-35 28+00 17' LT

SS-519

WALL03_B-36 28+50 7' LT

T-27 28+82 19' LT

SS-49

WALL03_B-38 29+72 16' LT

WALL03_B-39 30+05 12' LT

SS-1215

PAVEMENT

BT FIAD 03/24

REF FIAD 07/23

BT DRY 02/23

REF DRY 02/23

02/24

2030 2020 2010 2000 1990 1980 1970 1960 1950

24+00 25+00 26+00 27+00 28+00 29+00 30+00

Ⓐ-ROADWAY EMBANKMENT-VERY SOFT TO VERY STIFF, MOIST TO WET, RED-TAN-BROWN-GRAY-BLACK, FINE TO COARSE SANDY CLAY (A-6) AND FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA AND GRAVEL

Ⓑ-ROADWAY EMBANKMENT-VERY LOOSE TO MEDIUM DENSE, MOIST, BROWN-BLACK-TAN-GRAY, CLAYEY FINE TO COARSE SAND (A-2-6) AND SILTY FINE TO COARSE SANDY (A-2-4), WITH TRACE MICA

Ⓒ-RESIDUAL-SOFT TO HARD, MOIST TO WET, RED-BLACK-GRAY-ORANGE-TAN-BROWN, SILTY CLAY (A-7-5), SLIGHTLY PLASTIC FINE TO COARSE SANDY CLAY (A-6) AND FINE TO COARSE SANDY SILT (A-4), WITH TRACE TO LITTLE MICA AND TRACE ROCK FRAGMENTS AND WOOD FRAGMENTS

Ⓓ-RESIDUAL-MEDIUM DENSE TO VERY DENSE, MOIST, BROWN-GRAY-BLACK-TAN, CLAYEY FINE TO COARSE SAND (A-2-6) AND SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA AND TRACE TO LITTLE ROCK FRAGMENTS

Ⓔ-WEATHERED ROCK-(GNEISS)

Ⓕ-CRYSTALLINE ROCK-(GNEISS)

Prepared in the Office of:
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CHARLOTTE, NC 28217
(704) 525-7782 (PHONE)
(704) 357-1023 (FAX)
NC REGISTERED
ENGINEERING
FIRM # P-1519

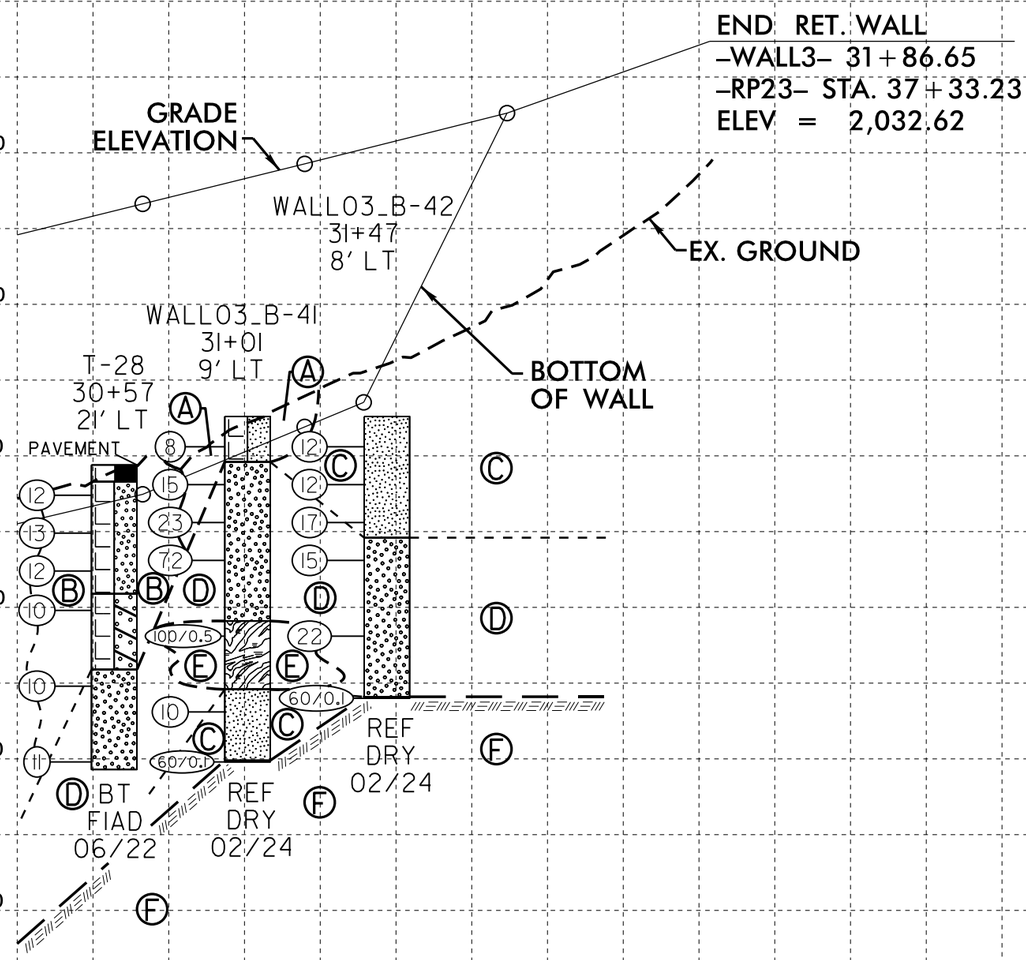
0 25 50
VE = 5:1

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	9

PROFILE BORINGS PROJECTED ON –WALL3– ALONG WALL NO. 3

–WALL3– PROFILE ALONG EXISTING GROUND LINE FROM ROADWAY DESIGN FILES, PROVIDED BY AECOM JULY 2024 AND I2513 ls tnl.tin. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, PROJECTED ON THE PROFILE.

–WALL3–



Ⓐ-ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN, FINE TO COARSE SANDY SILT (A-4)

Ⓑ-ROADWAY EMBANKMENT- MEDIUM DENSE, MOIST, BROWN-GRAY, SILTY FINE TO COARSE SAND (A-2-4) AND SILTY, CLAYEY, FINE SAND (A-2-6), WITH TRACE TO LITTLE GRAVEL AND TRACE MICA

Ⓒ-RESIDUAL- STIFF TO VERY STIFF, MOIST, TAN-BROWN-BLACK, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA

Ⓓ-RESIDUAL- MEDIUM DENSE TO VERY DENSE, MOIST, BROWN-ORANGE-RED-TAN-WHITE, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE MICA AND ROCK FRAGMENTS

Ⓔ-WEATHERED ROCK-(GNEISS)

Ⓕ-CRYSTALLINE ROCK-(GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-01	**STATION** 10+92	**OFFSET** 21 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,060.3 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 679,538	**EASTING** 931,758	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/01/23	**COMP. DATE** 09/01/23	**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
2065										
2060	2,060.3	0.0								2,060.3 GROUND SURFACE 0.0
			0	0	1	1				**ROADWAY EMBANKMENT**
	2,059.3	1.0								Very Soft to Soft, Red-Black-Brown, Fine to
			0	0	2	2				Coarse Sandy SILT (A-4)
	2,058.3	2.0								
			0	0	1	1				
	2,057.3	3.0								
			0	0	2	2				
	2,056.3	4.0								
			0	0	1	1				
2055	2,055.3	5.0						M		
			0	0	2	2				
	2,054.3	6.0								
			0	0	1	1				
	2,053.3	7.0								
			0	0	2	2				
	2,052.3	8.0								
			0	0	2	2				
	2,051.3	9.0								2,051.3 9.0
			0	0	2	2				Very Loose, Brown, Silty Fine to Coarse
2050	2,050.3	10.0								SAND (A-2-4)
			0	0	3	3				
	2,049.3	11.0						M		
			0	0	2	2				
	2,048.3	12.0								2,048.3 12.0
			0	0	2	2				Soft, Gray-Brown, Fine to Coarse Sandy
	2,047.3	13.0								SILT (A-4)
			0	0	2	2				
	2,046.3	14.0						M		
			0	0	2	2				
2045	2,045.3	15.0								
			0	0	4	4				2,044.8 15.5
										Boring Terminated at Elevation 2,044.8 ft In
										Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-02	**STATION** 11+56	**OFFSET** 20 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,055.3 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 679,568	**EASTING** 931,815	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/01/23	**COMP. DATE** 09/01/23	**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
2060										
2055	2,055.3	0.0								2,055.3 GROUND SURFACE 0.0
			0	0	2	2				**ROADWAY EMBANKMENT**
	2,054.3	1.0								Very Soft to Soft, Brown-Black-Tan-Gray,
			0	0	1	1				Fine to Coarse Sandy SILT (A-4), with trace
	2,053.3	2.0								mica
			0	0	2	2				
	2,052.3	3.0								
			0	0	3	3				
	2,051.3	4.0								
			0	0	2	2				
2050	2,050.3	5.0								
			0	0	1	1				
	2,049.3	6.0								
			0	0	3	3				
	2,048.3	7.0								
			0	0	2	2				
	2,047.3	8.0								
			0	0	4	4				
	2,046.3	9.0						M		
			0	0	2	2				
2045	2,045.3	10.0								
			0	0	3	3				
	2,044.3	11.0								
			0	0	3	3				
	2,043.3	12.0								
			0	0	2	2				
	2,042.3	13.0								
			0	0	3	3				2,041.8 13.5
										Boring Terminated by Auger Refusal at
										Elevation 2,041.8 ft In Roadway
										Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-03	**STATION** 12+08	**OFFSET** 20 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,051.7 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 679,592	**EASTING** 931,862	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/01/23	**COMP. DATE** 09/01/23	**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)
2055										
	2,051.7	0.0								2,051.7 GROUND SURFACE 0.0
			0	0	1	1 1				**ROADWAY EMBANKMENT**
	2,050.7	1.0								Very Soft to Soft, Brown-Tan, Fine to
2050			0	0	1	1 1				Coarse Sandy SILT (A-4)
	2,049.7	2.0								
			0	0	3	3				
	2,048.7	3.0								
			0	0	3	3				
	2,047.7	4.0								
			0	0	3	3				
	2,046.7	5.0								
			0	0	3	3				
	2,045.7	6.0								
2045			0	0	2	2				
	2,044.7	7.0								
			0	0	2	2				
	2,043.7	8.0								
			0	0	4	4				
	2,042.7	9.0								
			0	0	2	2				
	2,041.7	10.0								
			0	0	3	3				
	2,040.7	11.0								2,040.7 11.0
2040			0	0	3	3				Very Loose, Tan-Black-Brown, Silty Fine to
	2,039.7	12.0								Coarse SAND (A-2-4)
			0	0	2	2				
	2,038.7	13.0								
			0	0	3	3				
	2,037.7	14.0								
			0	0	1	1				
	2,036.7	15.0								
			0	0	3	3				2,036.2 15.5
										Boring Terminated at Elevation 2,036.2 ft In
										Roadway Embankment Silty SAND (A-2-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-04	**STATION** 12+47	**OFFSET** 20 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,049.0 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 679,610	**EASTING** 931,896	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/01/23	**COMP. DATE** 09/01/23	**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
2050										
	2,049.0	0.0								2,049.0 GROUND SURFACE 0.0
			0	0	2	2 2		M		**ROADWAY EMBANKMENT**
	2,048.0	1.0								Very Soft to Soft, Red-Brown, Fine to
			0	0	2	2 2				Coarse Sandy CLAY (A-6)
	2,047.0	2.0								
			0	0	1	1 1				
	2,046.0	3.0								2,046.0 3.0
2045			0	0	3	3 3				Very Soft to Stiff, Brown, Fine to Coarse
	2,045.0	4.0								Sandy SILT (A-4), with trace mica
			0	0	2	2 2				
	2,044.0	5.0								
			0	0	2	2 2				
	2,043.0	6.0								
			0	0	1	1 1		M		
	2,042.0	7.0								
			0	0	1	1 1				
	2,041.0	8.0								
			0	0	2	2 2				
2040	2,040.0	9.0								
			0	0	2	2 2				
	2,039.0	10.0								
			0	0	12	12				2,038.5 10.5
										Boring Terminated by Auger Refusal at
										Elevation 2,038.5 ft In Roadway
										Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-05	**STATION** 13+08	**OFFSET** 20 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,045.2 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 679,638	**EASTING** 931,950	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/27/23	**COMP. DATE** 09/27/23	**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
2050										
	2,045.2	0.0	0	0	1	1				2,045.2 GROUND SURFACE 0.0
2045	2,044.2	1.0	0	0	1	1				**ROADWAY EMBANKMENT**
	2,043.2	2.0	0	0	2	2				Very Soft to Soft, Brown-Gray-Tan, Fine to
	2,042.2	3.0	0	0	2	2				Coarse Sandy SILT (A-4), with trace mica
	2,041.2	4.0	0	0	3	3				
2040	2,040.2	5.0	0	0	2	2				
	2,039.2	6.0	0	0	1	1				
	2,038.2	7.0	0	0	2	2				
	2,037.2	8.0	0	0	1	1				
	2,036.2	9.0	0	0	4	4				
2035	2,035.2	10.0	0	0	2	2		M		
	2,034.2	11.0	0	0	2	2				
	2,033.2	12.0	0	0	1	1				
	2,032.2	13.0	0	0	3	3				
	2,031.2	14.0	0	0	3	3				
2030	2,030.2	15.0	0	0	4	4				2,029.7 15.5
										Boring Terminated at Elevation 2,029.7 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-06	**STATION** 13+52	**OFFSET** 19 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,043.0 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 679,657	**EASTING** 931,990	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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
2045										
	2,043.0	0.0	0	0	2	2				2,043.0 GROUND SURFACE 0.0
	2,042.0	1.0	0	0	2	2				**ROADWAY EMBANKMENT**
	2,041.0	2.0	0	0	2	2				Very Soft to Soft, Brown-Tan-Gray-Black,
2040	2,040.0	3.0	0	0	3	3				Fine to Coarse Sandy SILT (A-4), with trace
	2,039.0	4.0	0	0	3	3				mica
	2,038.0	5.0	0	0	2	2				
	2,037.0	6.0	0	0	1	1				
	2,036.0	7.0	0	0	1	1				
2035	2,035.0	8.0	0	0	2	2		M		
	2,034.0	9.0	0	0	4	4				
	2,033.0	10.0	0	0	3	3				
	2,032.0	11.0	0	0	2	2				
	2,031.0	12.0	0	0	2	2				
2030	2,030.0	13.0	0	0	3	3				2,029.5 13.5
										Boring Terminated by Auger Refusal at Elevation 2,029.5 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-07	**STATION** 13+98	**OFFSET** 19 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,041.0 ft	**TOTAL DEPTH** 9.5 ft	**NORTHING** 679,678	**EASTING** 932,031	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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)
2045										
	2,041.0	0.0								2,041.0 GROUND SURFACE 0.0
2040	2,040.0	1.0	0	0	1	1		M		**ROADWAY EMBANKMENT** Very Soft to Soft, Brown, Fine to Coarse Sandy CLAY (A-6)
	2,039.0	2.0	0	0	1	1				
	2,038.0	3.0	0	0	2	2				2,038.0 3.0
	2,037.0	4.0	0	0	3	3				Very Soft to Soft, Brown-Tan, Fine to Coarse Sandy SILT (A-4)
	2,036.0	5.0	0	0	1	1				
2035	2,035.0	6.0	0	0	2	2		M		
	2,034.0	7.0	0	0	2	2				
	2,033.0	8.0	0	0	2	2				
	2,032.0	9.0	0	0	2	2				
	2,031.5	9.5	0	0	3	3				2,031.5 9.5
										Boring Terminated by Auger Refusal at Elevation 2,031.5 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-08	**STATION** 14+17	**OFFSET** 19 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,040.3 ft	**TOTAL DEPTH** 14.5 ft	**NORTHING** 679,687	**EASTING** 932,048	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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
2045										
	2,040.3	0.0								2,040.3 GROUND SURFACE 0.0
2040	2,039.3	1.0	0	0	2	2		M		**ROADWAY EMBANKMENT** Very Soft to Soft, Brown-Tan, Fine to Coarse Sandy SILT (A-4)
	2,038.3	2.0	0	0	1	1				
	2,037.3	3.0	0	0	2	2				
	2,036.3	4.0	0	0	2	2				
	2,035.3	5.0	0	0	2	2				
2035	2,034.3	6.0	0	0	2	2				
	2,033.3	7.0	0	0	3	3				2,033.8 6.5
	2,032.3	8.0	0	0	2	2				Very Loose to Medium Dense, Tan-Brown, Silty Fine to Coarse SAND (A-2-4)
	2,031.3	9.0	0	0	2	2				
2030	2,030.3	10.0	0	0	3	3		M		
	2,029.3	11.0	0	0	2	2				
	2,028.3	12.0	0	0	2	2				
	2,027.3	13.0	0	0	2	2				
	2,026.3	14.0	0	0	2	2				
	2,025.8	14.5	0	0	20	20				2,025.8 14.5
										Boring Terminated by Auger Refusal at Elevation 2,025.8 ft In Roadway Embankment Silty SAND (A-2-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-09	**STATION** 14+70	**OFFSET** 19 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,038.2 ft	**TOTAL DEPTH** 8.5 ft	**NORTHING** 679,711	**EASTING** 932,095	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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)
2040										
	2,038.2	0.0	0	0	3	3				2,038.2 GROUND SURFACE 0.0
	2,037.2	1.0	0	0	1	1				**ROADWAY EMBANKMENT**
	2,036.2	2.0	0	0	1	1				Very Soft to Stiff, Tan-Brown, Fine to
2035	2,035.2	3.0	0	0	3	3				Coarse Sandy SILT (A-4)
	2,034.2	4.0	0	0	2	2		M		
	2,033.2	5.0	0	0	2	2				
	2,032.2	6.0	0	0	4	4				
	2,031.2	7.0	0	0	3	3				
2030	2,030.2	8.0	0	0	9	9				2,029.7 8.5
										Boring Terminated by Auger Refusal at Elevation 2,029.7 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-10	**STATION** 15+41	**OFFSET** 18 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,035.9 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 679,743	**EASTING** 932,159	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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
2040										
	2,035.9	0.0								2,035.9 GROUND SURFACE 0.0
	2,034.9	1.0	0	0	1	1				**ROADWAY EMBANKMENT**
	2,033.9	2.0	0	0	1	1				Very Soft to Very Stiff, Tan-Brown-Black,
	2,032.9	3.0	0	0	1	1				Fine to Coarse Sandy SILT (A-4), with trace
2035	2,031.9	4.0	0	0	2	2				mica
	2,030.9	5.0	0	0	2	2				
	2,029.9	6.0	0	0	2	2				
	2,028.9	7.0	0	0	3	3		M		
	2,027.9	8.0	0	0	3	3				
	2,026.9	9.0	0	0	2	2				
	2,025.9	10.0	0	0	2	2				
2025	2,024.9	11.0	0	0	2	2				
	2,023.9	12.0	0	0	1	1				
	2,022.9	13.0	0	0	2	2				
			0	0	17	17				2,022.4 13.5
										Boring Terminated by Auger Refusal at Elevation 2,022.4 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-11	**STATION** 16+13	**OFFSET** 17 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,034.2 ft	**TOTAL DEPTH** 15.5 ft	**NORTHING** 679,775	**EASTING** 932,223	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 09/28/23	**COMP. DATE** 09/28/23	**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)
2035										
	2,034.2	0.0	0	0	1	1				2,034.2 GROUND SURFACE 0.0
	2,033.2	1.0	0	0	1	1				**ROADWAY EMBANKMENT**
	2,032.2	2.0	0	0	2	2				Very Soft to Soft, Red-Brown-Tan, Fine to
	2,031.2	3.0	0	0	1	1				Coarse Sandy SILT (A-4)
2030	2,030.2	4.0	0	0	3	3				
	2,029.2	5.0	0	0	2	2				
	2,028.2	6.0	0	0	2	2				
	2,027.2	7.0	0	0	2	2				
	2,026.2	8.0	0	0	2	2		M		
	2,025.2	9.0	0	0	2	2				
2025	2,024.2	10.0	0	0	1	1				
	2,023.2	11.0	0	0	1	1				
	2,022.2	12.0	0	0	2	2				
	2,021.2	13.0	0	0	2	2				
2020	2,020.2	14.0	0	0	2	2				
	2,019.2	15.0	0	0	2	2				
			0	0	3	3				2,018.7 15.5
										Boring Terminated at Elevation 2,018.7 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-12	**STATION** 16+59	**OFFSET** 16 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,033.0 ft	**TOTAL DEPTH** 7.5 ft	**NORTHING** 679,796	**EASTING** 932,264	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 10/20/23	**COMP. DATE** 10/20/23	**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
2035										
	2,033.0	0.0	0	0	1	1				2,033.0 GROUND SURFACE 0.0
	2,032.0	1.0	0	0	1	1				**ROADWAY EMBANKMENT**
	2,031.0	2.0	0	0	1	1				Very Soft to Stiff, Brown-Red-Tan, Fine to
2030	2,030.0	3.0	0	0	1	1				Coarse Sandy SILT (A-4)
	2,029.0	4.0	0	0	2	2		M		
	2,028.0	5.0	0	0	2	2				
	2,027.0	6.0	0	0	2	2				
	2,026.0	7.0	0	0	15	15				2,025.5 7.5
										Boring Terminated by Auger Refusal at Elevation 2,025.5 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-13	**STATION** 17+08	**OFFSET** 16 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,031.4 ft	**TOTAL DEPTH** 11.5 ft	**NORTHING** 679,818	**EASTING** 932,308	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 10/20/23	**COMP. DATE** 10/20/23	**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
2035										ELEV. (ft) DEPTH (ft)
	2,031.4	0.0								2,031.4 GROUND SURFACE 0.0
			0	0	2	2				**ROADWAY EMBANKMENT**
2030	2,030.4	1.0	0	0	1	1				Soft to Stiff, Brown-Tan, Fine to Coarse
	2,029.4	2.0	0	0	1	1				Sandy SILT (A-4), with trace mica
	2,028.4	3.0	0	0	3	3				
	2,027.4	4.0	0	0	2	2				
	2,026.4	5.0	0	0	3	3				
2025	2,025.4	6.0	0	0	2	2		M		
	2,024.4	7.0	0	0	4	4				
	2,023.4	8.0	0	0	3	3				
	2,022.4	9.0	0	0	2	2				
	2,021.4	10.0	0	0	3	3				
2020	2,020.4	11.0	0	0	10	10				2,019.9 11.5
										Boring Terminated by Auger Refusal at Elevation 2,019.9 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6650R	**STATION** 17+63	**OFFSET** 63 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,030.2 ft	**TOTAL DEPTH** 24.2 ft	**NORTHING** 679,885	**EASTING** 932,335	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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
2035										
2030										2,030.2 GROUND SURFACE 0.0
	2,029.2	1.0								2,029.2 **ROADWAY EMBANKMENT** 1.0
			4	6	7	13		M		Asphalt (0.1'), Concrete (0.9')
	2,026.7	3.5								**RESIDUAL**
2025			6	5	11	16		M		Stiff to Very Stiff, Brown-Tan, Fine to
	2,024.2	6.0								Coarse Sandy SILT (A-4), with trace mica 5.5
			8	8	11	19		M		2,024.7
	2,021.7	8.5								Medium Dense, Brown-Black, Silty Fine to
2020			10	33	67/0.4	100/0.9				Coarse SAND (A-2-4), with trace mica
										2,021.2 9.0
										WEATHERED ROCK
										Brown-Tan (GNEISS)
	2,016.7	13.5								2,017.2 13.0
2015			35	18	14	32		M		**RESIDUAL**
										Hard, Brown, Fine to Coarse Sandy SILT
	2,011.7	18.5								(A-4), with trace mica
2010			23	16	21	37		M		
	2,006.7	23.5								2,006.7 23.5
			70	30/0.2		100/0.7				2,006.0 **WEATHERED ROCK** 24.2
										Gray-Brown (GNEISS)
										Boring Terminated at Elevation 2,006.0 ft In Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6700R	**STATION** 18+17	**OFFSET** 62 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,028.4 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 679,909	**EASTING** 932,383	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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
2030										2,028.4 GROUND SURFACE 0.0
	2,027.4	1.0								2,027.4 **ROADWAY EMBANKMENT** 1.0 Asphalt (0.1'), Concrete (0.9')
2025	2,024.9	3.5	3	8	8	16		M		**RESIDUAL** Loose to Medium Dense, White-Pink-Tan-Brown, Silty Fine to Coarse SAND (A-2-4)
	2,022.4	6.0	3	2	4	6		M		
2020	2,019.9	8.5	5	9	12	21		M		2,020.4 8.0 Stiff to Very Stiff, Brown-Tan, Fine to Coarse Sandy SILT (A-4), with trace mica
			2	4	6	10		M		
2015	2,014.9	13.5	3	15	14	29		M		
2010	2,009.9	18.5	6	10	8	18		M		
2005	2,004.9	23.5	5	8	13	21		M		2,003.4 25.0 Boring Terminated at Elevation 2,003.4 ft In Residual Sandy SILT (A-4)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6750R	**STATION** 18+73	**OFFSET** 61 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,026.8 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 679,934	**EASTING** 932,434	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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
2030										2,026.8 GROUND SURFACE 0.0
	2,025.8	1.0								2,025.8 **ROADWAY EMBANKMENT** 1.0 Asphalt (0.1'), Concrete (0.9')
2025	2,023.3	3.5	7	10	10	20		M		**RESIDUAL** Medium Dense, Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica
	2,020.8	6.0	8	7	13	20		M		2,021.3 5.5 Medium Stiff to Stiff, Tan-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica
2020	2,018.3	8.5	6	7	7	14		M		
			2	3	4	7		M		
2015	2,013.3	13.5	8	11	11	22		M		2,013.8 13.0 Medium Dense, Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica
2010	2,008.3	18.5	7	7	9	16		M		
2005	2,003.3	23.5	4	7	8	15		M		2,003.8 23.0 Very Stiff, Brown-White, Fine to Coarse Sandy SILT (A-4) 25.0 2,001.8 Boring Terminated at Elevation 2,001.8 ft In Residual Sandy SILT (A-4)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6800R	**STATION** 19+05	**OFFSET** 60 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,025.8 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 679,948	**EASTING** 932,462	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/11/23	**COMP. DATE** 07/12/23	**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))
2030										
2025										2,025.8 GROUND SURFACE 0.0
	2,024.8	1.0	4	5	4	9 28		M		2,024.8 **ROADWAY EMBANKMENT** Asphalt (0.1'), Concrete (0.9') 1.0
	2,022.3	3.5	8	13	15			M		2,022.8 **RESIDUAL** Stiff, Brown, Fine to Coarse Sandy SILT (A-4), with trace mica 3.0
2020	2,019.8	6.0	20	57	43/0.3	100/0.8				2,019.3 Medium Dense, Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments 6.5
	2,017.3	8.5	31	21	19	40		M		2,017.8 **WEATHERED ROCK** Brown (GNEISS) 8.0
2015										**RESIDUAL** Dense to Very Dense, Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace rock fragments
	2,012.3	13.5	11	14	22	36		M		
2010										
	2,007.3	18.5	31	31	32	63		M		
2005										
	2,002.3	23.5	16	21	33	54		M		2,002.8 Hard, Brown-Tan, Fine to Coarse Sandy SILT (A-4), with trace mica 23.0
										2,000.8 Boring Terminated at Elevation 2,000.8 ft In Residual Sandy SILT (A-4) 25.0

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6850R	**STATION** 19+51	**OFFSET** 60 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,024.6 ft	**TOTAL DEPTH** 24.2 ft	**NORTHING** 679,969	**EASTING** 932,503	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2025										2,024.6 GROUND SURFACE 0.0
	2,023.6	1.0	3	6	5	11		M		2,023.6 **ROADWAY EMBANKMENT** Asphalt (0.1'), Concrete (0.9') 1.0
	2,021.1	3.5	4	5	7	12		M		**RESIDUAL** Medium Stiff to Hard, Brown-Tan, Fine to Coarse Sandy SILT (A-4)
2020	2,018.6	6.0	2	4	4	8		M		
	2,016.1	8.5	5	9	10	19		M		
2015										
	2,011.1	13.5	10	14	27	41		M		
2010										
	2,006.1	18.5	18	34	60	94		M		
2005										
	2,001.1	23.5	50	50/0.2		100/0.7				2,001.1 23.5
										2,000.4 **WEATHERED ROCK** 24.2 Brown (GNEISS) Boring Terminated at Elevation 2,000.4 ft In Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6900R	**STATION** 19+99	**OFFSET** 61 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,023.0 ft	**TOTAL DEPTH** 22.0 ft	**NORTHING** 679,992	**EASTING** 932,545	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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
2025										
	2,023.0	0.0								GROUND SURFACE
	2,022.0	1.0	2	6	9	15		M		**ROADWAY EMBANKMENT** 1.0 Concrete (1.0') **RESIDUAL** Stiff to Hard, Brown-White-Black, Fine to Coarse Sandy SILT (A-4), with some mica
2020	2,019.5	3.5	3	4	6	10		M		
	2,017.0	6.0	3	4	6	10		M		
2015	2,014.5	8.5	3	5	25	30		M		
2010	2,009.5	13.5	9	15	36	51		M		
2005	2,004.5	18.5	33	67/0.4		100/0.9				2,004.5 **WEATHERED ROCK** 18.5 Brown-White-Black (GNEISS)
	2,001.0	22.0	60/0.0			60/0.0				2,001.0 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,001.0 ft On Crystalline Rock (GNEISS) 22.0

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_6950R	**STATION** 20+52	**OFFSET** 61 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 30.0
COLLAR ELEV. 2,021.4 ft	**TOTAL DEPTH** 34.3 ft	**NORTHING** 680,016	**EASTING** 932,593	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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
2025										
	2,021.4	0.0								GROUND SURFACE
	2,020.4	1.0	2	8	8	16		M		2,020.4 **ROADWAY EMBANKMENT** 1.0 Concrete (1.0') **RESIDUAL** Very Stiff, Brown-Red, Fine to Coarse Sandy SILT (A-4(0)), with some mica
2020	2,017.9	3.5	4	7	10	17		M		
	2,015.4	6.0	6	10	10	20	SS-755	16%		
2015	2,012.9	8.5	6	11	12	23		M		
2010	2,007.9	13.5	5	10	12	22		M		
2005	2,002.9	18.5	5	9	10	19		M		
2000	1,997.9	23.5	12	17	13	30		M		1,999.4 22.0 Dense, Gray-Brown, Silty Fine to Coarse SAND (A-2-4)
1995	1,992.9	28.5	35	65/0.4		100/0.9				1,992.9 **WEATHERED ROCK** 28.5 Brown-Gray (GNEISS)
1990	1,987.9	33.5	60	40/0.3		100/0.8				1,987.1 Boring Terminated at Elevation 1,987.1 ft In Weathered Rock (GNEISS) 34.3

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7000R	**STATION** 21+02	**OFFSET** 61 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 28.0
COLLAR ELEV. 2,019.9 ft	**TOTAL DEPTH** 38.5 ft	**NORTHING** 680,039	**EASTING** 932,637	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/11/23	**COMP. DATE** 07/11/23	**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)
2020										2,019.9 GROUND SURFACE 0.0
	2,018.9	1.0	6	9	10	19		M		2,018.9 **ROADWAY EMBANKMENT** 1.0 Concrete (1.0')
	2,016.4	3.5								**RESIDUAL**
2015			4	6	7	13		M		Stiff to Very Stiff, White-Orange-Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica
	2,013.9	6.0								
			12	9	5	14		M		
	2,011.4	8.5								
2010			12	13	13	26		M		
	2,006.4	13.5								2,007.9 12.0
2005			10	14	14	28		M		Medium Dense, Brown-Black-Red, Silty Fine to Coarse SAND (A-2-4), with trace mica
	2,001.4	18.5								
2000			9	12	11	23		M		
	1,996.4	23.5								
1995			18	9	13	22		M		
	1,991.4	28.5								1,991.4 28.5
1990			14	86/0.5		100/1.0		M		**WEATHERED ROCK** Brown-Black (GNEISS)
	1,986.4	33.5	100/0.1			100/0.1				
1985										
	1,981.4	38.5	60/0.0			60/0.0				1,981.4 38.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 1,981.4 ft On Crystalline Rock (GNEISS)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7050R	**STATION** 21+43	**OFFSET** 61 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 26.5
COLLAR ELEV. 2,019.8 ft	**TOTAL DEPTH** 45.5 ft	**NORTHING** 680,058	**EASTING** 932,673	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2020										2,019.8 GROUND SURFACE 0.0
	2,018.8	1.0	8	9	10	19		M		2,018.8 **ROADWAY EMBANKMENT** 1.0 Concrete (1.0')
	2,016.3	3.5								**RESIDUAL**
2015			10	7	8	15		M		Stiff to Hard, Brown, Fine to Coarse Sandy SILT (A-4)
	2,013.8	6.0								
			6	11	14	25		M		
	2,011.3	8.5								
2010			10	12	18	30		M		
	2,006.3	13.5								
2005			28	11	16	27		M		
	2,001.3	18.5								
2000			4	7	8	15		M		
	1,996.3	23.5								
1995			11	11	20	31		M		
	1,991.3	28.5								
1990			4	9	12	21		M		
	1,986.3	33.5								
1985			10	17	23	40		M		
	1,981.3	38.5								1,981.3 38.5
1980			35	65/0.5		100/1.0		M		**WEATHERED ROCK** Brown (GNEISS)
	1,976.3	43.5								1,977.8 42.0
1975			6	16	42	58		M		**RESIDUAL** Hard, Brown, Fine to Coarse Sandy SILT (A-4)
	1,974.3	45.5	60/0.0			60/0.0				1,974.3 45.5 Boring Terminated with Standard Penetration Test Refusal at Elevation 1,974.3 ft On Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7100R	**STATION** 22+00	**OFFSET** 62 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 22.5
COLLAR ELEV. 2,017.2 ft	**TOTAL DEPTH** 48.6 ft	**NORTHING** 680,085	**EASTING** 932,724	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2020										ELEV. (ft) DEPTH (ft)
										2,017.2 GROUND SURFACE 0.0
	2,016.3	0.9								2,016.3 **ROADWAY EMBANKMENT** 0.9
2015			3	4	10	14	SS-815	12%		Concrete (0.9')
	2,013.7	3.5	11	10	10	20		M		2,014.2 **RESIDUAL** 3.0
	2,011.2	6.0	5	11	14	25		M		Medium Dense, Brown-White, Silty Fine to Coarse SAND (A-2-4(0))
2010	2,008.7	8.5	12	11	11	22		M		Very Stiff to Hard, Brown-White, Fine to Coarse Sandy SILT (A-4)
2005	2,003.7	13.5	13	22	13	35		M		
2000	1,998.7	18.5	16	19	17	36		M		
1995	1,993.7	23.5	9	10	12	22		M		
1990	1,988.7	28.5	11	18	30	48		M		
1985	1,983.7	33.5	8	13	20	33		M		
1980	1,978.7	38.5	20	35	60	95		M		
1975	1,973.7	43.5	13	40	60/0.1	100/0.6		M		1,973.2 44.0 **WEATHERED ROCK** Brown (GNEISS)
1970	1,968.7	48.5	60/0.1			60/0.1				1,968.7 48.5 1,968.6 48.6 **CRYSTALLINE ROCK** (GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 1,968.6 ft In Crystalline Rock (GNEISS)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7150R	**STATION** 22+49	**OFFSET** 62 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 26.0
COLLAR ELEV. 2,015.7 ft	**TOTAL DEPTH** 28.6 ft	**NORTHING** 680,108	**EASTING** 932,767	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2020										
										2,015.7 GROUND SURFACE 0.0
	2,014.8	0.9								2,014.8 **ROADWAY EMBANKMENT** 0.9
2015			9	10	13	23		M		Concrete (0.9')
	2,012.2	3.5	7	8	9	17		M		**RESIDUAL**
	2,009.7	6.0	13	11	13	24		M		Very Stiff to Hard, Brown-Gray-White, Fine to Coarse Sandy SILT (A-4)
2010	2,007.2	8.5	5	9	10	19		M		
2005	2,002.2	13.5	12	17	20	37		M		
2000	1,997.2	18.5	8	9	7	16		M		
1995	1,992.2	23.5	6	12	14	26				
1990	1,987.2	28.5	60/0.1			60/0.1				1,987.2 28.5 1,987.1 28.6 **CRYSTALLINE ROCK** Gray (GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 1,987.1 ft In Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. West	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7200R	**STATION** 23+04	**OFFSET** 62 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 19.0
COLLAR ELEV. 2,013.9 ft	**TOTAL DEPTH** 28.7 ft	**NORTHING** 680,133	**EASTING** 932,816	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS3518 CME 750X 96% 07/21/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER W. King	**START DATE** 07/12/23	**COMP. DATE** 07/13/23	**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
2015										ELEV. (ft) DEPTH (ft)
										2,013.9 GROUND SURFACE 0.0
	2,012.9	1.0	3	6	7	13		M		2,012.9 **ROADWAY EMBANKMENT** 1.0
2010	2,010.4	3.5	8	30	24	54		M		Concrete (1.0')
	2,007.9	6.0	4	3	9	12		M		**RESIDUAL**
2005	2,005.4	8.5	7	11	10	21		M		Stiff to Hard, Brown-White, Fine to Coarse Sandy SILT (A-4)
2000	2,000.4	13.5	20	39	45	84		M		
1995	1,995.4	18.5	12	37	43	80				
										1,991.9 22.0
1990	1,990.4	23.5	8	8	22	30		M		Dense, White-Brown, Silty Fine to Coarse SAND (A-2-4), with trace rock fragments
	1,985.4	28.5								1,985.4 28.5
	1,985.2	28.7	100/0.2			100/0.2				1,985.2 **WEATHERED ROCK** 28.7
			60/0.0			60/0.0				(GNEISS)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 1,985.2 ft On Crystalline Rock (GNEISS)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7250R	**STATION** 23+42	**OFFSET** 64 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 23.0
COLLAR ELEV. 2,013.1 ft	**TOTAL DEPTH** 28.9 ft	**NORTHING** 680,152	**EASTING** 932,849	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2015										
										2,013.1 GROUND SURFACE 0.0
	2,012.1	1.0	8	11	12	23		M		2,012.1 **ROADWAY EMBANKMENT** 1.0
2010	2,009.6	3.5	7	11	9	20		M		Asphalt (0.1'), Concrete (0.9')
	2,007.1	6.0	16	6	7	13		M		**RESIDUAL**
2005	2,004.6	8.5	3	4	6	10		M		Medium Dense, Brown-Tan, Silty Fine to Coarse SAND (A-2-4)
2000	1,999.6	13.5	7	12	28	40		M		2,007.6 5.5
1995	1,994.6	18.5	32	68/0.2		100/0.7				Stiff, Brown-Tan-White, Fine to Coarse Sandy SILT (A-4)
1990	1,989.6	23.5	100/0.4			100/0.4				2,000.1 13.0
1985	1,984.6	28.5	100/0.4			100/0.4				Dense, Brown-Tan-Black, Silty Fine to Coarse SAND (A-2-4), with little mica
										1,994.6 18.5
										WEATHERED ROCK
										Brown-Gray (GNEISS)
										1,984.2 28.9
										Boring Terminated at Elevation 1,984.2 ft In Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7300R	**STATION** 23+91	**OFFSET** 63 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,011.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 680,174	**EASTING** 932,893	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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)
2015										
										2,011.2 GROUND SURFACE 0.0
2010	2,010.2	1.0	6	7	11	18		M		2,010.2 **ROADWAY EMBANKMENT** Asphalt (0.1'), Concrete (0.9') 1.0
	2,007.7	3.5	8	7	9	16		M		**RESIDUAL** Medium Dense, Brown-Tan, Silty Fine to Coarse SAND (A-2-4)
2005	2,005.2	6.0	4	6	7	13		M		2,005.7 5.5
	2,002.7	8.5	2	4	8	12		M		Medium Stiff to Very Stiff, Brown, Fine to Coarse Sandy SILT (A-4), with trace to little mica
2000	1,997.7	13.5	7	10	10	20		M		
1995	1,992.7	18.5	11	11	12	23		M		
1990	1,987.7	23.5	2	2	3	5		M		
1985	1,982.7	28.5	16	84/0.3						1,982.2 29.0
	1,981.2	30.0	60/0.0			100/0.8 60/0.0				1,981.2 **WEATHERED ROCK** Brown-Tan (GNEISS) 30.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 1,981.2 ft On Crystalline Rock (GNEISS)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7350R	**STATION** 24+46	**OFFSET** 62 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,009.3 ft	**TOTAL DEPTH** 16.0 ft	**NORTHING** 680,198	**EASTING** 932,942	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/12/23	**COMP. DATE** 07/12/23	**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
2010										
	2,008.3	1.0	7	13	12	25		M		2,009.3 GROUND SURFACE 0.0
2005	2,005.8	3.5	7	5	6	11		M		2,008.3 **ROADWAY EMBANKMENT** Asphalt (0.1'), Concrete (0.9') 1.0
	2,003.3	6.0	11	5	5	10		M		**RESIDUAL** Medium Dense, Tan-Brown, Silty Fine to Coarse SAND (A-2-4)
2000	2,000.8	8.5	2	4	5	9		M		2,003.8 5.5
										Stiff, Brown, Fine to Coarse Sandy SILT (A-4), with trace mica
1995	1,995.8	13.5	14	26	74/0.1	100/0.6				1,995.3 14.0
	1,993.3	16.0	60/0.0			60/0.0				1,993.3 **WEATHERED ROCK** Brown-Tan (GNEISS) 16.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 1,993.3 ft On Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. L_7400R	**STATION** 24+89	**OFFSET** 64 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,008.5 ft	**TOTAL DEPTH** 19.1 ft	**NORTHING** 680,220	**EASTING** 932,979	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE ECS0888 CME 750X 93% 12/02/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER T. Hibdon	**START DATE** 07/13/23	**COMP. DATE** 07/13/23	**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
2010										ELEV. (ft) DEPTH (ft)
	2,008.5	0.0								GROUND SURFACE 0.0
	2,007.5	1.0	4	7	5	12				**ROADWAY EMBANKMENT** 2,007.5 1.0 Asphalt (0.1'), Concrete (0.9')
2005	2,005.0	3.5	10	6	10	16	SS-835	16% M		**RESIDUAL** Stiff to Very Stiff, Red-Brown, Slightly Plastic Fine to Coarse Sandy CLAY (A-6(4))
	2,002.5	6.0	9	6	15	21		M		
2000	2,000.0	8.5	7	12	21	33		M		2,000.5 8.0 Hard, Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica
1995	1,995.0	13.5	26	29	19	48		M		1,995.5 13.0 Dense, Brown-Black-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica
1990	1,990.0	18.5								1,990.0 18.5
	1,989.5	19.0	100/0.5			100/0.5				1,989.5 19.0 **WEATHERED ROCK** Brown (GNEISS)
			60/0.0			60/0.0				1,989.4 19.1 **CRYSTALLINE ROCK** (GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 1,989.4 ft On Crystalline Rock (GNEISS)

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-30	**STATION** 25+33	**OFFSET** 13 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,005.5 ft	**TOTAL DEPTH** 8.5 ft	**NORTHING** 680,195	**EASTING** 933,042	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**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
2010										
	2,005.5	0.0	0	0	1	1				2,005.5 GROUND SURFACE 0.0
2005	2,004.5	1.0	0	0	2	2				**ROADWAY EMBANKMENT** Very Soft to Soft, Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace rock fragments
	2,003.5	2.0	0	0	2	2				
	2,002.5	3.0	0	0	1	1				
	2,001.5	4.0	0	0	2	2		M		
2000	2,000.5	5.0	0	0	4	4				
	1,999.5	6.0	0	0	2	2				
	1,998.5	7.0	0	0	3	3				
	1,997.5	8.0	0	0	2	2				1,997.0 8.5 Boring Terminated by Auger Refusal at Elevation 1,997.0 ft In Roadway Embankment Sandy SILT (A-4)

Surficial Organic Soil from 0.0 to 0.2 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-31	**STATION** 25+87	**OFFSET** 10 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,004.2 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 680,217	**EASTING** 933,091	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**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
2005										ELEV. (ft) DEPTH (ft)
	2,004.2	0.0								2,004.2 GROUND SURFACE 0.0
	2,003.2	1.0	0	0	2	2				**ROADWAY EMBANKMENT** Soft, Red-Brown, Fine to Coarse Sandy SILT (A-4), with trace rock fragments
	2,002.2	2.0	0	0	2	2				
	2,001.2	3.0	0	0	2	2		M		
2000	2,000.2	4.0	0	0	2	2				
	1,999.2	5.0	0	0	2	2				
	1,998.2	6.0	0	0	3	3				1,998.2 6.0
	1,997.2	7.0	0	0	2	2				Very Loose, Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica
	1,996.2	8.0	0	0	2	2				
	1,995.2	9.0	0	0	3	3		M		
1995										
	1,994.2	10.0	0	0	2	2				
			0	0	3	3				1,993.7 10.5
										Boring Terminated by Auger Refusal at Elevation 1,993.7 ft In Roadway Embankment Silty SAND (A-2-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-32	**STATION** 26+37	**OFFSET** 7 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,003.3 ft	**TOTAL DEPTH** 6.5 ft	**NORTHING** 680,237	**EASTING** 933,137	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**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
2005										
	2,003.3	0.0								2,003.3 GROUND SURFACE 0.0
	2,002.3	1.0	0	0	2	2				**ROADWAY EMBANKMENT** Very Soft to Medium Stiff, Brown-Tan-Black, Fine to Coarse Sandy SILT (A-4)
	2,001.3	2.0	0	0	5	5				
	2,000.3	3.0	0	0	1	1				
2000	1,999.3	4.0	0	0	2	2		M		
	1,998.3	5.0	0	0	2	2				
	1,997.3	6.0	0	0	4	4				
			0	0	2	2				1,996.8 6.5
										Boring Terminated by Auger Refusal at Elevation 1,996.8 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-33	**STATION** 26+97	**OFFSET** 2 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,002.3 ft	**TOTAL DEPTH** 10.5 ft	**NORTHING** 680,260	**EASTING** 933,192	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**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
2005										ELEV. (ft) DEPTH (ft)
	2,002.3	0.0	0	0	2	2				2,002.3 GROUND SURFACE 0.0
	2,001.3	1.0	0	0	2	2		M		**ROADWAY EMBANKMENT** Very Loose, Brown-Tan, Silty Fine to Coarse SAND (A-2-4)
2000	2,000.3	2.0	0	0	3	3				1,998.8 3.5
	1,999.3	3.0	0	0	3	3				Soft, Brown-Tan, Fine to Coarse Sandy SILT (A-4), with trace mica
	1,998.3	4.0	0	0	3	3				
	1,997.3	5.0	0	0	3	3				
	1,996.3	6.0	0	0	4	4		M		
1995	1,995.3	7.0	0	0	3	3				
	1,994.3	8.0	0	0	2	2				
	1,993.3	9.0	0	0	2	2				
	1,992.3	10.0	0	0	2	2				1,991.8 10.5
										Boring Terminated by Auger Refusal at Elevation 1,991.8 ft In Roadway Embankment Sandy SILT (A-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-34	**STATION** 27+50	**OFFSET** 5 ft RT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,001.2 ft	**TOTAL DEPTH** 5.5 ft	**NORTHING** 680,279	**EASTING** 933,242	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE G. Sowers Dynamic Cone Penetrometer		**DRILL METHOD** Hand Auger/DCP	**HAMMER TYPE** N/A	
DRILLER N/A	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**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
2005										
	2,001.2	0.0	0	0	2	2				2,001.2 GROUND SURFACE 0.0
	2,000.2	1.0	0	0	2	2				**ROADWAY EMBANKMENT** Very Loose, Brown, Silty Fine to Coarse SAND (A-2-4)
2000	1,999.2	2.0	0	0	2	2				
	1,998.2	3.0	0	0	2	2		M		
	1,997.2	4.0	0	0	2	2				
	1,996.2	5.0	0	0	2	2				1,995.7 5.5
			0	0	2					Boring Terminated by Auger Refusal at Elevation 1,995.7 ft In Roadway Embankment Silty SAND (A-2-4)
										Surficial Organic Soil from 0.0 to 0.2 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-35	**STATION** 28+00	**OFFSET** 17 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,002.5 ft	**TOTAL DEPTH** 28.6 ft	**NORTHING** 680,322	**EASTING** 933,276	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE GEO366 Diedrich D-50 80% 03/18/2022		**DRILL METHOD** H.S. Augers/Hand Auger	**HAMMER TYPE** Automatic	
DRILLER J. Messick	**START DATE** 02/02/23	**COMP. DATE** 02/02/23	**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
2005										ELEV. (ft) DEPTH (ft)
										2,002.5 GROUND SURFACE 0.0
2000										**ROADWAY EMBANKMENT** Medium Stiff to Stiff, Brown-Red-Gray, Fine to Coarse Sandy SILT (A-4(1)), with trace mica
	1,999.0	3.5	5	4	5	9	SS-519	19%		
	1,996.5	6.0	3	3	5	8		M		
1995	1,994.0	8.5	3	3	3	6		M		
1990	1,989.0	13.5	2	6	8	14		M		1,989.5 13.0 Medium Dense, Gray-Black-Brown, Clayey Fine to Coarse SAND (A-2-6), with trace rock and wood fragments
1985	1,984.0	18.5	100/0.2			100/0.2				1,984.0 18.5 **WEATHERED ROCK** Brown-Gray (GNEISS)
1980	1,979.0	23.5	11	23	52	75		M		1,980.5 22.0 **RESIDUAL** Very Dense, Gray-Brown, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments
1975	1,974.0	28.5	60/0.1			60/0.1				1,974.0 28.5 1,973.9 28.6 **CRYSTALLINE ROCK** (GNEISS)

Boring Terminated with Standard Penetration Test Refusal at Elevation 1,973.9 ft In Crystalline Rock (GNEISS)

Surficial Organic Soil from 0.0 to 0.2 feet.

Possible Boulder Fill encountered within Roadway Embankment at 18.5 ft.

Hand Auger Probe from 0.0 to 3.0 feet due to close proximity to underground utilities.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-36	**STATION** 28+50	**OFFSET** 7 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,000.2 ft	**TOTAL DEPTH** 32.4 ft	**NORTHING** 680,338	**EASTING** 933,324	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE GEO366 Diedrich D-50 80% 03/18/2022		**DRILL METHOD** H.S. Augers/Hand Auger	**HAMMER TYPE** Automatic	
DRILLER J. Messick	**START DATE** 02/02/23	**COMP. DATE** 02/02/23	**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
2005										
										2,000.2 GROUND SURFACE 0.0
2000										**ROADWAY EMBANKMENT** Medium Stiff to Stiff, Brown, Fine to Coarse Sandy SILT (A-4), with trace mica
	1,996.7	3.5	3	4	6	10		M		
1995	1,994.2	6.0	3	3	5	8		M		
	1,991.7	8.5	3	2	4	6		M		1,992.2 8.0 Medium Stiff, Brown-Gray, Fine to Coarse Sandy CLAY (A-6)
1990	1,986.7	13.5	3	4	5	9		M		1,987.2 13.0 Loose, Black-Gray, Clayey Fine to Coarse SAND (A-2-6)
1985	1,981.7	18.5	5	5	5	10		M		1,982.2 18.0 **RESIDUAL** Stiff, Brown-Tan-Gray, Fine to Coarse Sandy CLAY (A-6), with trace rock fragments
1980	1,976.7	23.5	3	5	6	11		W		1,976.2 24.0 Stiff to Hard, Orange-Brown-Tan-Gray, Fine to Coarse Sandy SILT (A-4), with trace mica and rock fragments
1975	1,971.7	28.5	19	28	52	80		M		
1970	1,967.8	32.4	60/0.0			60/0.0				1,967.8 32.4

Boring Terminated with Standard Penetration Test Refusal at Elevation 1,967.8 ft On Crystalline Rock (GNEISS)

Surficial Organic Soil from 0.0 to 0.2 feet.

Hand Auger Probe from 0.0 to 3.0 feet due to close proximity to underground utilities.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.2	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** BRAUN, S.	
SITE DESCRIPTION I-26 CONNECTOR (I-40 TO US 19 - 23 - 70 NORTH OF ASHEVILLE)				**GROUND WTR (ft)**
BORING NO. T-27	**STATION** 28+82	**OFFSET** 19 ft LT	**ALIGNMENT** -RP23-	**0 HR.** Dry
COLLAR ELEV. 2,004.7 ft	**TOTAL DEPTH** 25.3 ft	**NORTHING** 680,364	**EASTING** 933,346	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER373 DIEDRICH D-50 95% 02/06/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 06/09/22	**COMP. DATE** 06/10/22	**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)
2005										2,004.7 GROUND SURFACE	0.0
	2,003.7	1.0	6	6	6	12		M		2,003.7 **PAVEMENT** (ASPHALT, ABC)	1.0
	2,001.2	3.5								**ROADWAY EMBANKMENT** LOOSE TO MEDIUM DENSE, BROWN, SILTY FINE SAND, TRACE MICA, MOIST (A-2-4)	
2000			4	3	3	6		M			
	1,998.7	6.0	4	5	6	11		M			
	1,995.9	8.8								1,996.2	8.5
1995			5	5	8	13	SS-49	21%		**RESIDUAL** STIFF, RED, BROWN, SILTY CLAY, MOIST (A-7-5)	
	1,990.9	13.8	4	4	7	11		M			
1990											
	1,985.9	18.8	2	3	3	6		M		1,986.2 LOOSE, GRAY, BROWN, CLAYEY FINE SAND, TRACE ROCK FRAGMENTS, MOIST (A-2-6)	18.5
1985											
	1,980.9	23.8	23	16	22	38		M		1,981.2 DENSE, GRAY, SILTY FINE TO COARSE SAND, LITTLE ROCK FRAGMENTS, MOIST (A-2-4)	23.5
1980										1,979.4 Boring Terminated at Elevation 1,979.4 ft IN RESIDUAL, SILTY SAND	25.3

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-38	**STATION** 29+72	**OFFSET** 16 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 27.8
COLLAR ELEV. 2,006.5 ft	**TOTAL DEPTH** 33.6 ft	**NORTHING** 680,407	**EASTING** 933,425	**24 HR.** 25.8
DRILL RIG/HAMMER EFF./DATE TDD417 CME75 82.7% 06/15/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Hamilton	**START DATE** 02/21/24	**COMP. DATE** 02/21/24	**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)
2010										2,006.5 GROUND SURFACE	0.0
2005	2,005.5	1.0	3	5	5	10		M		**ROADWAY EMBANKMENT** Medium Stiff to Very Stiff, Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica	
	2,003.0	3.5	3	4	4	8		M			
	2,000.5	6.0	3	5	5	10		M			
2000	1,998.0	8.5	3	5	5	10		M			
1995	1,993.0	13.5	3	5	5	10		M			
1990	1,988.0	18.5	3	3	13	16		M		1,983.5 **RESIDUAL** Soft, Black-Brown, Fine to Coarse Sandy CLAY (A-6), with trace wood fragments	23.0
1985	1,983.0	23.5	3	2	2	4					
1980	1,978.0	28.5	22	11	10	21		M		1,978.5 Medium Dense, Gray-Tan, Silty Fine to Coarse SAND (A-2-4)	28.0
1975	1,973.0	33.5	60/0.1			60/0.1				1,973.0 1,972.9 **CRYSTALLINE ROCK** (GNEISS) Boring Terminated with Standard Penetration Test Refusal at Elevation 1,972.9 ft In Crystalline Rock (GNEISS)	33.5 33.6

Surficial Organic Soil from 0.0 to 0.3 feet.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-39	**STATION** 30+05	**OFFSET** 12 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** 25.9
COLLAR ELEV. 2,007.8 ft	**TOTAL DEPTH** 32.3 ft	**NORTHING** 680,420	**EASTING** 933,455	**24 HR.** 24.3
DRILL RIG/HAMMER EFF./DATE TDD417 CME75 82.7% 06/15/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Hamilton	**START DATE** 02/21/24	**COMP. DATE** 02/21/24	**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
2010										
	2,007.8	0.0								2,007.8 GROUND SURFACE 0.0
	2,006.8	1.0								**ROADWAY EMBANKMENT**
2005			3	2	5	7	SS-1215	17%		Soft to Very Stiff, Brown-Gray-Black, Fine to Coarse Sandy SILT (A-4(1)), with trace gravel
	2,004.3	3.5	3	4	4	8		M		
	2,001.8	6.0	8	8	9	17		M		
2000	1,999.3	8.5	4	6	8	14		M		
1995	1,994.3	13.5	3	5	6	11		M		
1990	1,989.3	18.5	2	2	3	5		M		
1985	1,984.3	23.5	3	1	2	3		M		
1980	1,979.3	28.5	35	11	33	44		M		1,980.3 27.5 **RESIDUAL** Dense, Gray-Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica and rock fragments
	1,975.6	32.2	60/0.1			60/0.1				1,975.6 32.2 1,975.5 32.3 **CRYSTALLINE ROCK** (GNEISS)

Boring Terminated with Standard Penetration Test Refusal at Elevation 1,975.5 ft In Crystalline Rock (GNEISS)

Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.2	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** BRAUN, S.	
SITE DESCRIPTION I-26 CONNECTOR (I-40 TO US 19 - 23 - 70 NORTH OF ASHEVILLE)				**GROUND WTR (ft)**
BORING NO. T-28	**STATION** 30+57	**OFFSET** 21 ft LT	**ALIGNMENT** -RP23-	**0 HR.** Dry
COLLAR ELEV. 2,009.4 ft	**TOTAL DEPTH** 20.1 ft	**NORTHING** 680,455	**EASTING** 933,495	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER373 DIEDRICH D-50 95% 02/06/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 06/10/22	**COMP. DATE** 06/10/22	**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)
2010										
	2,009.4	0.0								2,009.4 GROUND SURFACE 0.0
	2,008.4	1.0								2,008.3 **PAVEMENT** (ASPHALT, ABC) 1.1
			7	6	6	12		M		**ROADWAY EMBANKMENT**
2005	2,005.9	3.5	5	6	7	13		M		MEDIUM DENSE, BROWN, SILTY FINE TO COARSE SAND, TRACE TO LITTLE GRAVEL, TRACE MICA (A-2-4)
	2,003.4	6.0	4	5	7	12		M		
2000	2,000.8	8.6	3	4	6	10		M		2,000.9 8.5 MEDIUM DENSE, GRAY-BROWN, SILTY CLAYEY FINE SAND, TRACE GRAVEL, MOIST (A-2-6)
1995	1,995.8	13.6	2	5	5	10		M		1,995.9 13.5 **RESIDUAL** MEDIUM DENSE, RED-BROWN, SILTY FINE SAND, TRACE MICA, MOIST (A-2-4)
1990	1,990.8	18.6	5	5	6	11		M		1,989.3 20.1

Boring Terminated at Elevation 1,989.3 ft IN RESIDUAL, SILTY SAND

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-41	**STATION** 31+01	**OFFSET** 9 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,012.6 ft	**TOTAL DEPTH** 22.8 ft	**NORTHING** 680,468	**EASTING** 933,538	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TDD417 CME75 82.7% 06/15/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Hamilton	**START DATE** 02/21/24	**COMP. DATE** 02/21/24	**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
2015										ELEV. (ft) DEPTH (ft)
										2,012.6 GROUND SURFACE 0.0
	2,011.6	1.0								**ROADWAY EMBANKMENT**
2010			3	3	5	8		M		Medium Stiff, Brown, Fine to Coarse Sandy SILT (A-4)
	2,009.1	3.5	4	6	9	15		M		2,009.6 3.0
	2,006.6	6.0	7	16	7	23		M		**RESIDUAL**
2005										Medium Dense to Very Dense, Brown-Orange-Tan-White, SIlty Fine to Coarse SAND (A-2-4), with trace rock fragments
	2,004.1	8.5	37	32	40	72		M		
	1,999.1	13.5	90	10/0.0		100/0.5				1,999.1 13.5
2000										**WEATHERED ROCK**
										Gray-Tan (GNEISS)
1995	1,994.1	18.5	8	4	6	10		M		1,994.6 18.0
										RESIDUAL
										Stiff, Brown-Black, Fine to Coarse Sandy SILT (A-4), with trace mica
1990	1,989.9	22.7	60/0.1			60/0.1				1,989.9 22.7
										1,989.8 22.8
										CRYSTALLINE ROCK (GNEISS)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 1,989.8 ft In Crystalline Rock (GNEISS)
										Surficial Organic Soil from 0.0 to 0.3 feet.

WBS 34165.1.13	**TIP** I-2513AC	**COUNTY** BUNCOMBE	**GEOLOGIST** A. Blackmore	
SITE DESCRIPTION RETAINING WALL NO. 3, STA. -RP23- to 16+60.00 TO -RP23- 37+33.23				**GROUND WTR (ft)**
BORING NO. WALL03_B-42	**STATION** 31+47	**OFFSET** 8 ft LT	**ALIGNMENT** -WALL3-	**0 HR.** Dry
COLLAR ELEV. 2,012.6 ft	**TOTAL DEPTH** 18.6 ft	**NORTHING** 680,492	**EASTING** 933,577	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TDD417 CME75 82.7% 06/15/2021		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Hamilton	**START DATE** 02/21/24	**COMP. DATE** 02/21/24	**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
2015										
										2,012.6 GROUND SURFACE 0.0
	2,011.6	1.0								**RESIDUAL**
2010			2	4	8	12		M		Stiff to Very Stiff, Tan-Brown, Fine to Coarse Sandy SILT (A-4), with trace mica
	2,009.1	3.5	3	6	6	12		M		
	2,006.6	6.0	3	7	10	17		M		
2005										2,004.6 8.0
	2,004.1	8.5	4	6	9	15		M		Medium Dense, Brown-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica
	1,999.1	13.5	4	10	12	22		M		
2000										
1995	1,994.1	18.5	60/0.1			60/0.1				1,994.1 18.5
										1,994.0 18.6
										CRYSTALLINE ROCK (GNEISS)
										Boring Terminated with Standard Penetration Test Refusal at Elevation 1,994.0 ft In Crystalline Rock (GNEISS)
										Surficial Organic Soil from 0.0 to 0.3 feet.

PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	31

SOIL TEST RESULTS

BORING NO.	SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	200		
L_6950R	SS–755	61' LT	20+52 –WALL3–	3.5 – 5.0	A–4(0)	40	10	35.3	25.8	17.0	22.0	78.2	57.4	35.4	15.8	–
L_7100R	SS–815	62' LT	22+00 –WALL3–	0.9 – 2.4	A–2–4(0)	33	4	31.9	38.3	15.9	13.9	91.6	74.0	33.3	11.8	–
L_7400R	SS–835	64' LT	24+89 –WALL3–	1.0 – 2.5	A–6(4)	32	13	23.6	25.8	36.7	13.9	95.6	81.7	52.8	15.5	–
WALL03_B–35	SS–519	17' LT	28+00 –WALL3–	3.5 – 5.0	A–4(1)	37	7	28.0	34.3	22.3	15.4	94.0	76.9	43	18.6	–
*T–27	SS–49	19' LT	28+82 –WALL3–	8.8 – 10.3	A–7–5(0)	44	11	26.0	28.7	22.8	22.5	72.0	61.0	36.0	21.1	–
WALL03_B–39	SS–1215	12' LT	30+05 –WALL3–	1.0 – 2.5	A–4(1)	40	10	33.2	30.7	26.3	9.2	88.3	68.5	37.9	17.2	–

LAB TECHNICIAN: DANIEL REEVE NCDOT CERTIFICATION NO. 135–03–0816

LAB TECHNICIAN: STEPHANIE H. HUFFMAN NCDOT CERTIFICATION NO. 114–01–1203

*LAB TESTING FOR T–27 WAS PERFORMED BY OTHERS DURING A PREVIOUS EXPLORATION.