REFERENCE: B-5898/B-3186

PROJECT: 48030

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5898/B-3186	1	

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY HAYWOOD

PROJECT DESCRIPTION B-3186, BRIDGES 430155 AND 430158 OVER RICHLAND CREEK ON US23/74

B-5898, BRIDGE 430168 OVER US 19/23 ON US23/74

SITE DESCRIPTION RETAINING WALLS 1, 2, 3, 4, 5, 7

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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.

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NOTES:
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PERSONNEL

RYAN DOYLE

ALEX LOZADA

ADDISON TAIT

SUMMIT

GEOTECHNICS

INVESTIGATED BY ALEX LOZADA

DRAWN BY ALEX LOZADA

CHECKED BY RYAN DOYLE

SUBMITTED BY AECOM

DATE SEPTEMBER 2023

AECOM

NORTH CAROLINA PROFESSIONAL SEAL 045161 ENGINEER RYAN PATRICK DOYLE

DocuSigned by: Ryan Patrick Doyle CDBB68D5C3BF4...

9/12/2023

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
B-5898/B-3186	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 Mx 30 Mx 15 Mx	50 Mx 25 Mx	51 Mn 10 Mx	35 Mx	35 Mx	35 Mx	35 Mx	36 Mn	36 Mn	36 Mn	36 Mn	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	– 6 Mx		– 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	< 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
- 25/825 — 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:
- [ ] CME-45C
- [X] GTC8255 CME-55
- [X] GTC9883 CME-550X
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] GTC3277 CME-75
- [X] SUM3123 CME-550X

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

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

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] 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: 667233.497(FT) E: 819804.260(FT)

ELEVATION: 2625.00 FEET

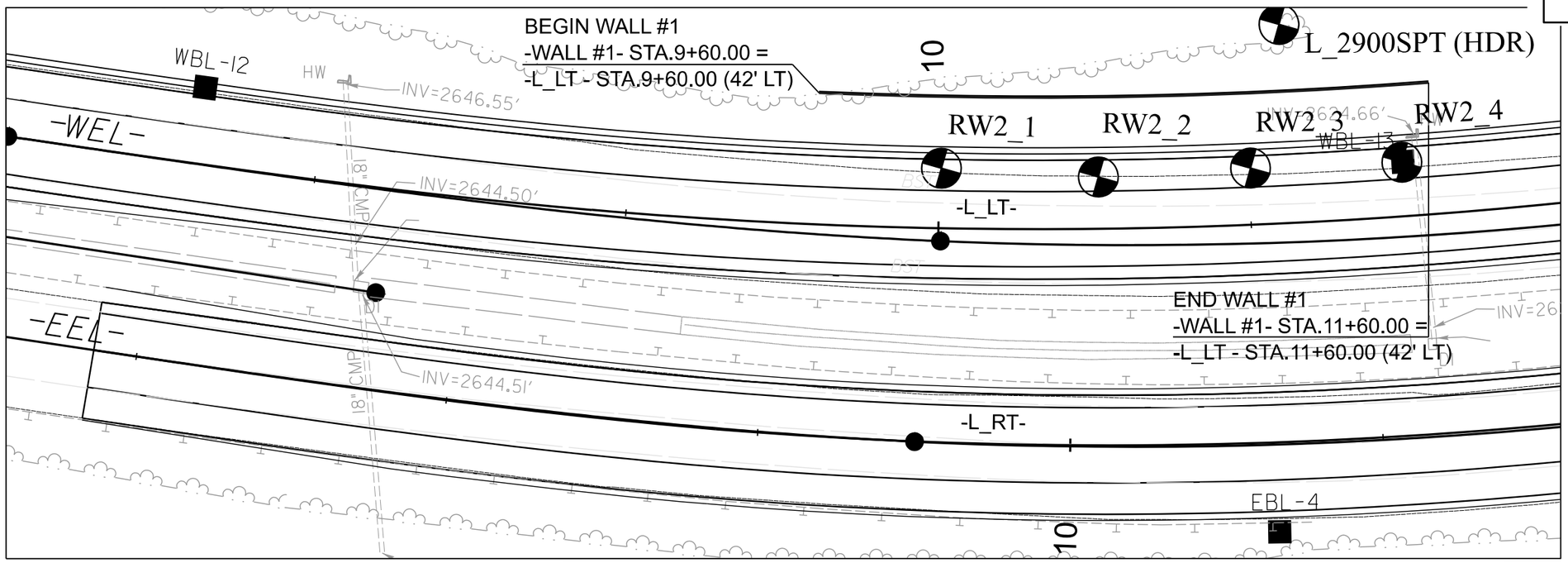
NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

5/26/20

WALL #1 DETAIL SHEET



SITE PLAN

0 40 80

FEET

B-3186/B-5898

PSH | 03

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 049634 ENGINEER MOHAMMED FALLAHA

HYDRAULICS ENGINEER

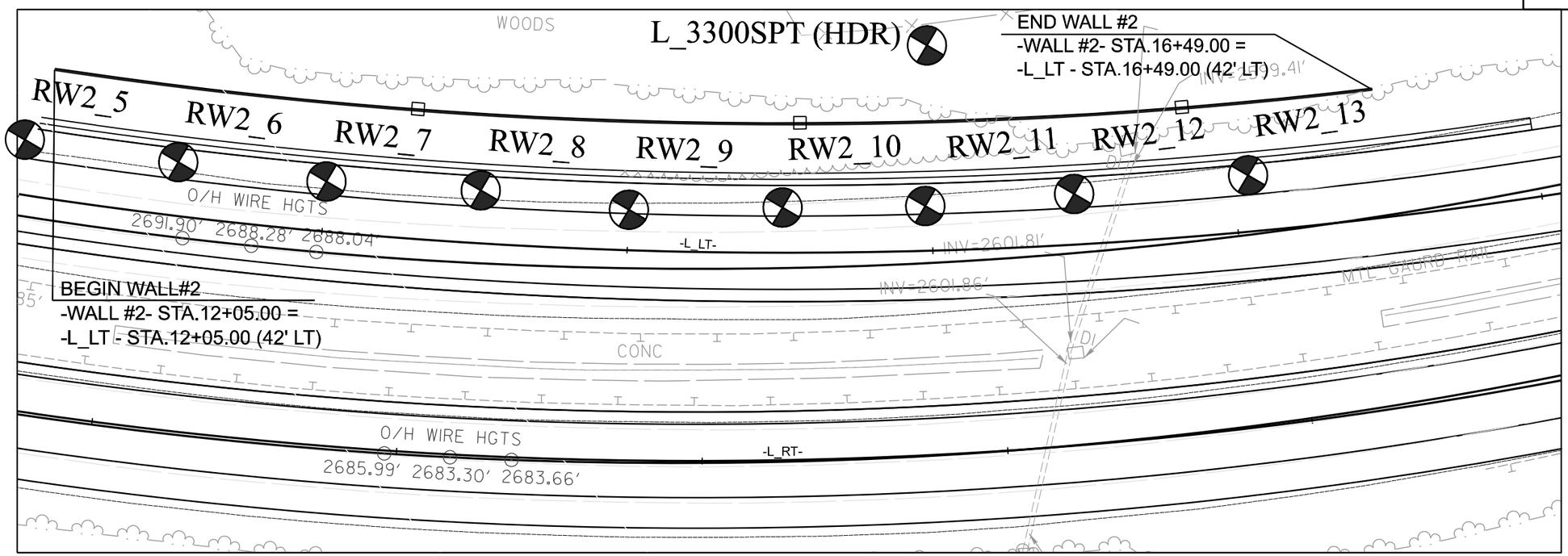
NORTH CAROLINA PROFESSIONAL SEAL 037863 ENGINEER IMEME D. BUSCEMI

PREPARED BY

NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-6200 (919) 854-6259 (FAX)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WALL #2 DETAIL SHEET



SITE PLAN

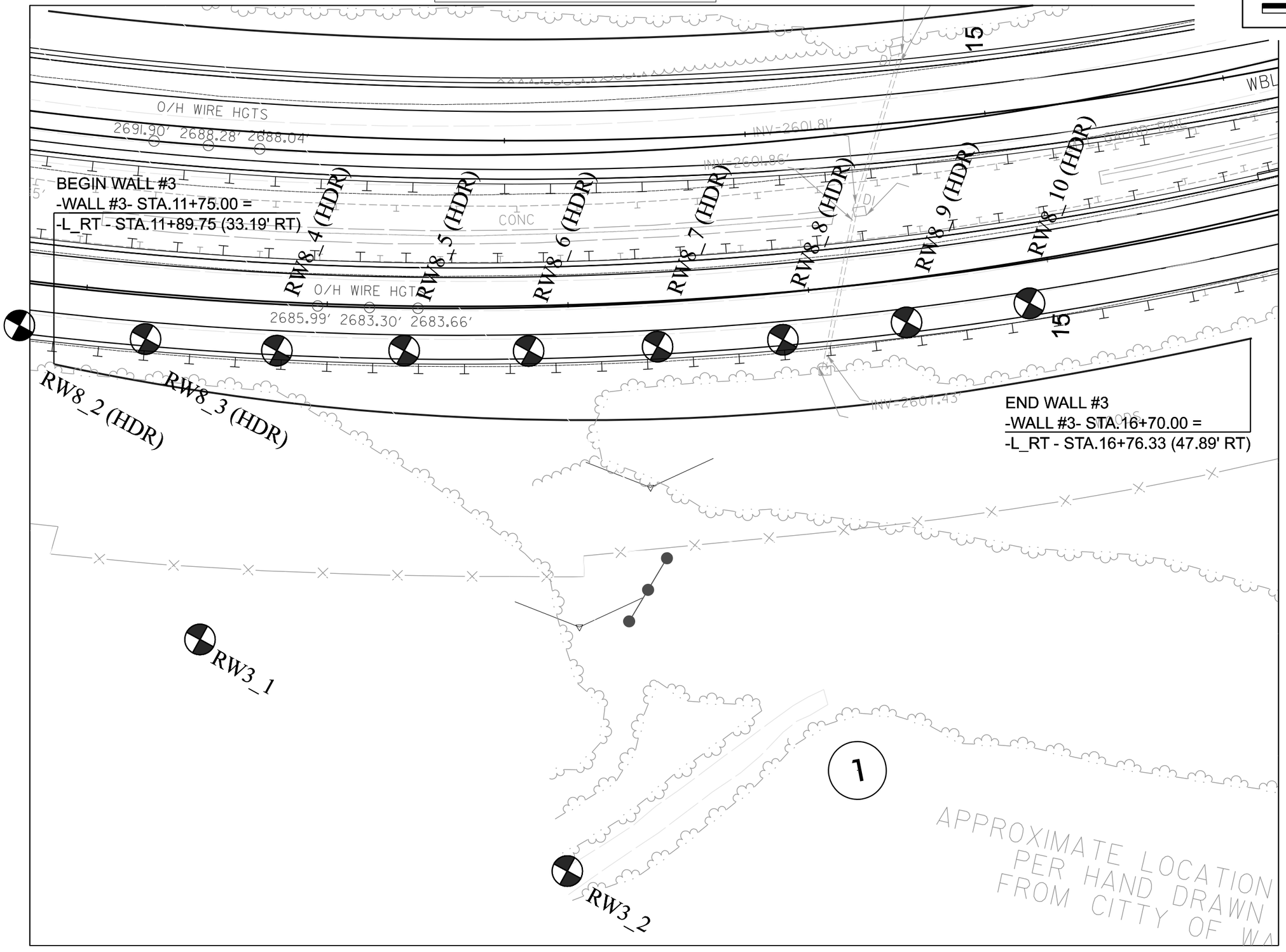
0 40 80

FEET

REVISIONS

5/26/20

WALL #3 DETAIL SHEET



SITE PLAN

0 40 80

FEET

B-3186/B-5898	
PSH	04

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

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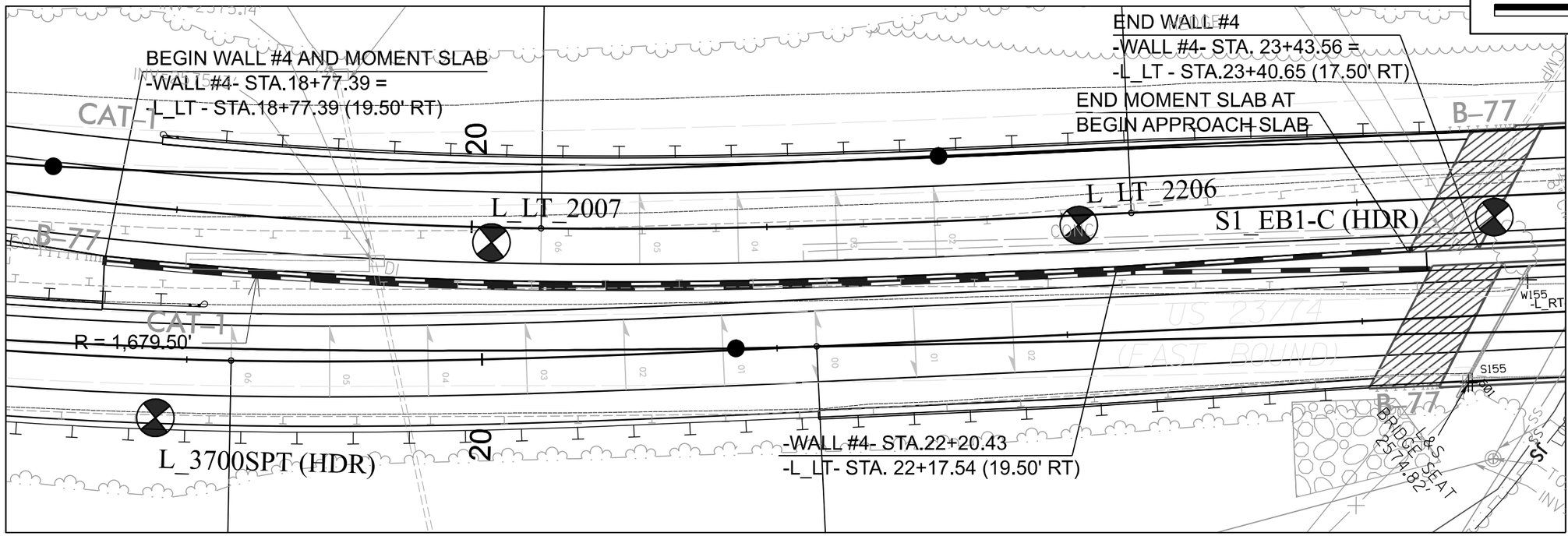
REVISIONS

5/26/20

WALL #4 DETAIL SHEET



SITE PLAN

0 40 80

FEET

B-3186/B-5898

PSH | 05

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 049634 ENGINEER MOHAMMED FALLAH

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037863 ENGINEER MEME D. BUSCEMI

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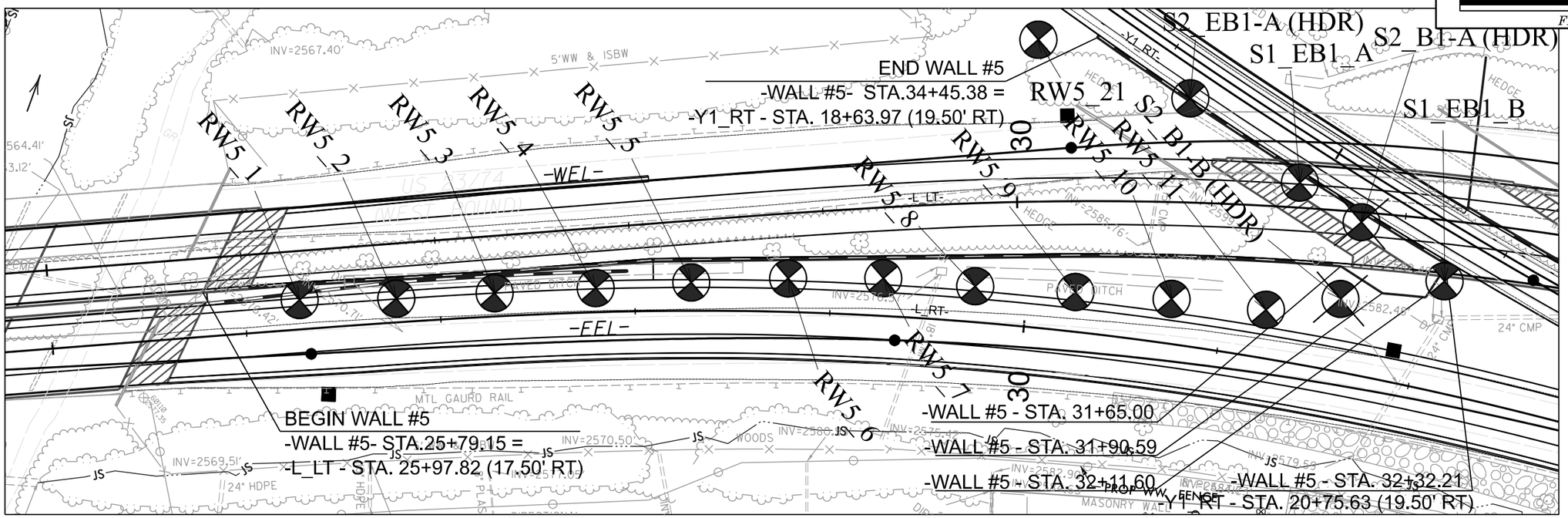
(919) 854-6200 - (919) 854-6259 (FAX)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WALL #5 DETAIL SHEET



SITE PLAN

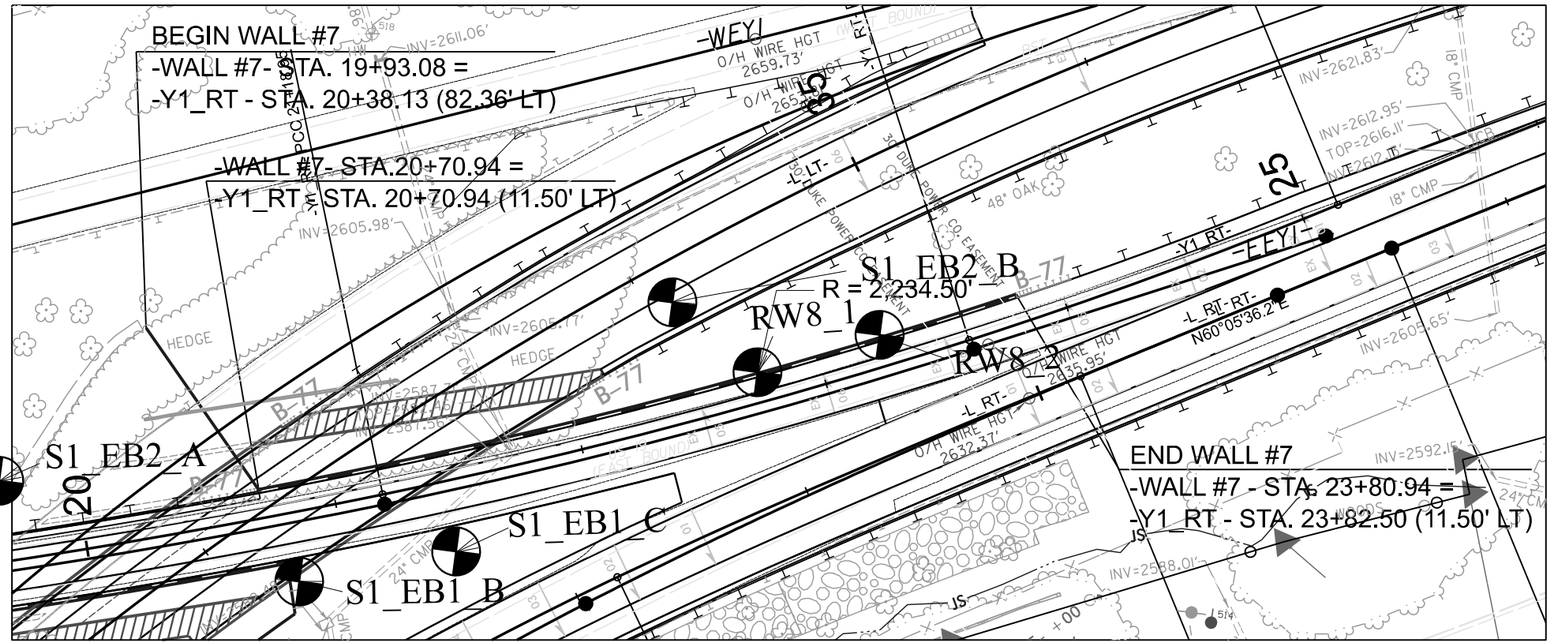
0 60 120

FEET

REVISIONS

5/26/20

WALL #7 DETAIL SHEET



SITE PLAN

0 60 120

FEET

B-3186/B-5898	
PSH	06

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 049634 ENGINEER MOHAMMED FALLAH

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 037863 ENGINEER HERME D. BUSCEMI

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/26/20

WALL 1 PROFILE

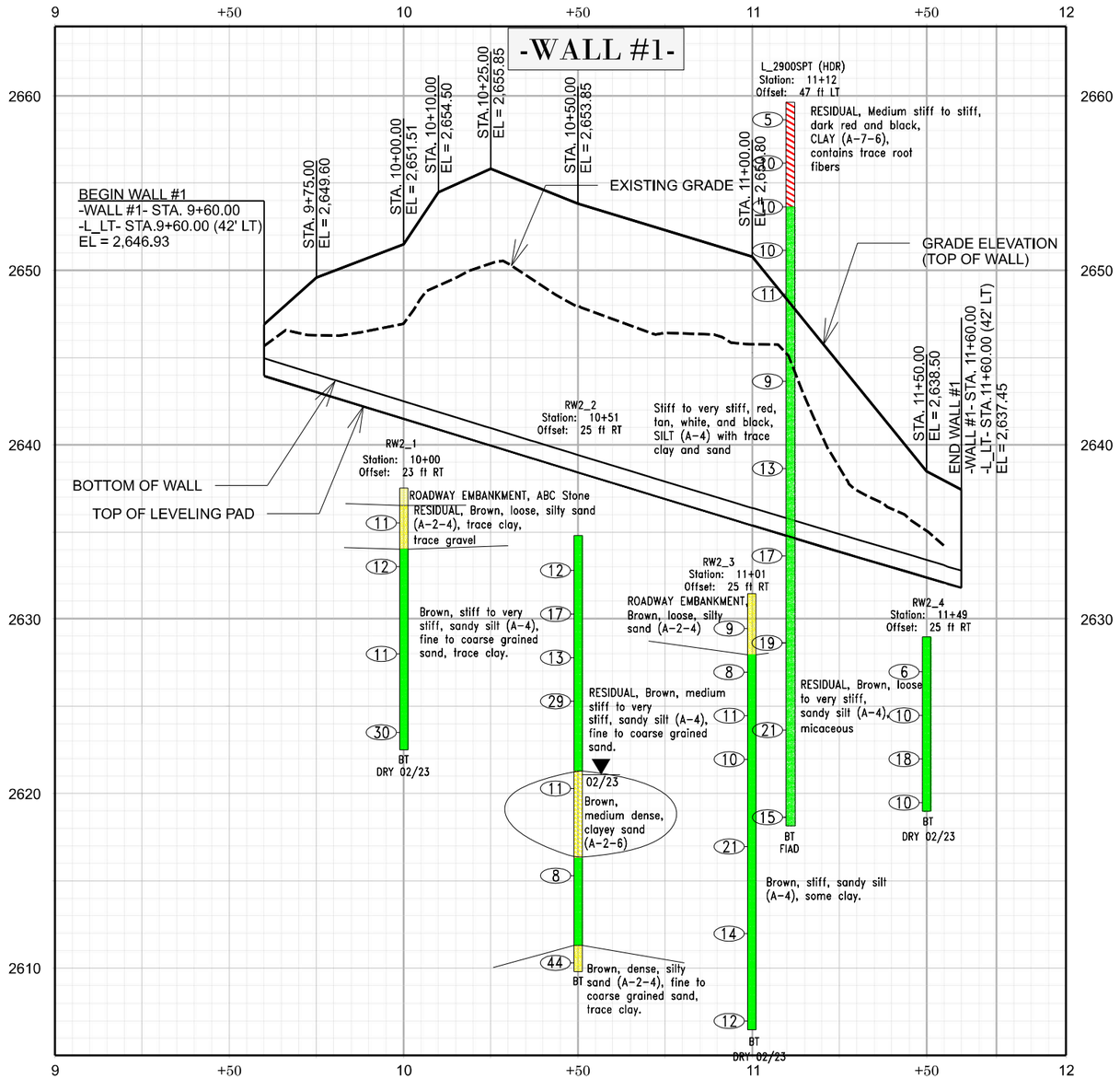
0 40 80

FEET

VE = 5:1

B-3186/B-5898

PFL | 07



5/26/20

WALL 2 PROFILE

0 40 80

FEET

VE = 5:1

B-3186/B-5898

PFL | 08

-WALL #2-

12 +50 13 +50 14 +50 15 +50 16 +50 17

2650 2640 2630 2620 2610 2600 2590

STA.12+25.00 EL = 2,639.50

STA. 12+35.00 EL = 2,642.25

STA. 12+50.00 EL = 2,644.05

STA.13+00.00 EL = 2,639.30

STA.13+50.00 EL = 2,636.17

STA. 14+00.00 EL = 2,633.15

STA. 14+50.00 EL = 2,631.20

STA.15+50.00 EL = 2,621.55

STA. 16+00.00 EL = 2,614.35

END WALL #2 -WALL2- STA. 16+49.00 (42' LT) -L_LT- STA.16+49.00 EL = 2,611.45

STA. 16+49.00 EL = 2,605.25

EXISTING GRADE

GRADE ELEVATION (TOP OF WALL)

BOTTOM OF WALL

TOP OF LEVELING PAD

BEGIN WALL#2 -WALL2- STA. 12+05.00 (42' LT) -L_LT- STA.12+05.00 EL= 2,635.15 (TOP) EL = 2,629.58 (BOTTOM)

RW2_5 Station: 11+99 Offset: 25 ft RT

RW2_6 Station: 12+50 Offset: 25 ft RT

RW2_7 Station: 13+00 Offset: 26 ft RT

RW2_8 Station: 13+51 Offset: 25 ft RT

RW2_9 Station: 14+00 Offset: 29 ft RT

RW2_10 Station: 14+51 Offset: 27 ft RT

RW2_12 Station: 15+47 Offset: 25 ft RT

RW2_13 Station: 16+05 Offset: 24 ft LT

L_3300SPT Station: 1+45 Offset: 25 ft LT

Soft to stiff, red, brown, and tan, silty CLAY (A-7-6), with trace sand, micaceous

Medium dense, brown, red and tan, silty SAND (A-2-4), with trace clay, micaceous

Brown, tan, and orange, stiff to very stiff, silt (A-4)

Brown, stiff to very stiff, sandy silt (A-4), trace clay

Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand.

ABC Stone.

Brown, stiff, silt (A-4), some clay, trace sand.

Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, micaceous.

Brown to white, stiff to hard, silt (A-4), trace sand and clay.

Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace clay, micaceous.

Brown, medium dense, silty sand, (A-2-4), fine to coarse grained sand, trace clay, trace gravel.

Brown, very stiff to hard, sandy silt to silt (A-4, A-5),

Asphalt

ABC Stone.

Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, micaceous.

Brown, very stiff to hard, sandy silt to silt (A-4, A-5),

Asphalt.

ABC Stone.

Brown to reddish brown, stiff to very stiff, sandy silt (A-4), fine to medium grained sand, trace clay, micaceous.

Asphalt

ABC Stone

Brown, medium stiff to very stiff, sandy silt to silt (A-4, A-5), fine to coarse grained sand, trace to some clay, slightly micaceous.

Asphalt

ABC Stone

Brown, stiff, sandy silt (A-4), fine to coarse grained sand, trace clay, slightly micaceous.

Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel.

BT DRY 02/23

BT DRY 02/23

BT DRY 02/23

BT DRY 02/23

BT DRY 02/23

BT FIAD

BT DRY 02/23

BT DRY 02/23

5/26/20

-WALL #3-

WALL 3 PROFILE

0 40 80

FEET

VE = 5:1

B-3186/B-5898

PFL | 09

11+50 12 +50 13 +50 14 +50 15 +50 16 +50

2670 2660 2650 2640 2630 2620 2610 2600

RW3_1
Station: 12+56
Offset: 102 ft RT

RESIDUAL, Reddish brown, loose, silty sand (A-2-4), fine to coarse grained sand, trace gracel, some clay.

Brown, medium stiff, sandy silt (A-4), fne to medium grained sand, trace clay.

Brown, loose, silty sand (A-2-4), fine to coarse grained sand, trace gravel.

Brown, stiff, sandy silt (A-5), fine to medium grained sand, trace clay.

Brown, medium dense to dense, silty sand (A-2-4), fine to coarse grained sand, trace fine gravel.

BEGIN WALL #3
-WALL #3- STA.11+75.00 (33.19' RT)
-L_RT- STA.11+89.75
EL = 2,632.05 (TOP)
EL = 2,629.77 (BOTTOM)

RW3_2
Station: 13+94
Offset: 187 ft RT

RESIDUAL, Brown, medium stiff to very stiff, sandy silt (A-4)

Brown, medium stiff to very stiff, sandy silt (A-4), fine to coarse

STA.14+50.00 EL = 2,630.01

STA.15+00.00 EL = 2,627.50

GRADE ELEVATION (TOP OF WALL)

STA.15+50.00 EL = 2,620.00

BOTTOM OF WALL

TOP OF LEVELING PAD

STA.16+00.00 EL = 2,612.20 (TOP) EL = 2,606.38 (BOTTOM)

EXISTING GRADE

STA.16+50.00 EL = 2,605.60 (TOP) EL = 2,603.70 (BOTTOM)

END WALL #3
-WALL #3- STA.16+70.00
-L_RT- STA.16+76.33 (47.89' RT)
EL = 2,603.95 (TOP)
EL = 2,602.63 (BOTTOM)

RW8_2 (HDR)
Station: 12+90
Offset: 19 ft LT

RW8_3 (HDR)
Station: 13+40
Offset: 18 ft LT

RW8_4 (HDR)
Station: 13+90
Offset: 21 ft LT

RW8_5 (HDR)
Station: 14+40
Offset: 26 ft LT

RW8_7 (HDR)
Station: 15+40
Offset: 30 ft LT

RW8_8 (HDR)
Station: 15+90
Offset: 30 ft LT

RW8_9 (HDR)
Station: 16+40
Offset: 32 ft LT

RW8_10 (HDR)
Station: 16+90
Offset: 32 ft LT

ROADWAY EMBANKMENT, PAVEMENT

Medium dense, gray and brown, SAND and GRAVEL (A-1-b)

RESIDUAL, Stiff to hard, brown to gray, silt and clay (A-4, A-6), micaceous

Brown, hard, sandy silt (A-4), fine to coarse grained sand, trace fine grained gravel

BT DRY

Medium dense, brown and gray, SAND and GRAVEL (A-1-b)

RESIDUAL, Stiff to hard, white, gray, brown and black, SILT (A-4), micaceous, saprolitic

WEATHERED ROCK, Gray and brown, GNEISS

Brown, very dense, silty sand (A-2-4), fine to coarse grained sand, trace fine grained gravel.

RESIDUAL, Stiff to hard, brown and gray, SILT (A-4), micaceous, saprolitic

WEATHERED ROCK, Gray and brown, GNEISS

Medium dense, brown, gray, and white, silty SAND (A-2-4), micaceous, saprolitic

RESIDUAL, Loose to very dense, brown to gray to white, sand and gravel and silty sand (A-1-B, A-2-4, A-2-5)

Medium dense, gray and brown, SAND and GRAVEL (A-1-b)

BT FIAD

2,633.04 2,632.04 2,631.73 2,627.50

5/26/20

WALL 4 PROFILE

0 40 80

FEET

VE = 5:1

B-3186/B-5898

PFL | 10

-WALL #4-

18+50 19 +50 20 +50 21 +50 22 +50 23 +50 24

2600 2590 2580 2570 2560 2550

STA.19+00.00 EL = 2,596.17

STA.19+50.00 EL = 2,594.92

STA.20+00.00 EL = 2,593.84

STA.20+50.00 EL = 2,592.81

STA.21+00.00 EL = 2,591.82

STA.21+50.00 EL = 2,591.00

STA.22+00.00 EL = 2,590.59

STA.22+50.00 EL = 2,590.41

STA.23+00.00 EL = 2,590.45

END WALL #4
-WALL #4- STA. 23+43.56
-L_LT- STA. 23+40.65 (17.50' RT)
EL = 2,590.63

GRADE ELEVATION (TOP OF WALL)

EXISTING GRADE

BOTTOM OF WALL

TOP OF LEVELING PAD

L_3700SPT (HDR)
Offset: 51' RT

17 10 6 7 11 9

BT
FIAD

Red to brown to gray, moist, medium stiff to stiff, clayey silt to silt to silty clay (A-5, A-4, A-7-5)

BEGIN WALL #4
-WALL #4- STA.18+77.39
-L_LT- STA.18+77.39 (19.50' RT)
EL = 2,596.80 (TOP)
EL = 2,589.56 (BOTTOM)

L_LT_2007
Offset: 14' LT

8 8 10 10 11 100/0.8

BT
DRY 02/23

Reddish brown, medium stiff, silty clay (A-7-5), trace gravel

BOTTOM OF WALL

Dark gray, medium dense to very dense, silty sand (A-2-4), trace gravel, trace clay

L_LT_2206
Offset: 16' LT

17 5 14 100/0.8 31 77

02/23

BT

ROADWAY EMBANKMENT, Reddish brown, medium dense, clayey sand (A-2-6), fine to coarse grained sand, trace gravel

Reddish brown, soft to medium stiff, sandy clay (A-6, A-7-6), fine to medium grained sand

2,590.45

ALLUVIAL, dark gray to gray, medium dense, silty sand to gravelly sand (A-2-4, A-1-A, A-1-B)

RESIDUAL, Brown, very dense, silty sand (A-2-4), fine to coarse grained sand, some gravel

RESIDUAL, Brown to tan to red, dense, silt (A-4)

S1_EB1-C (HDR)
Offset: 11' LT

6 5 7 +50 4 5 31 34 50/0.0 100/0.3

03/21

BT
FIAD

590.61

WEATHERED ROCK, Gray, GNEISS

CRYSTALLINE ROCK, gray, GNEISS

5/26/20

WALL 5 PROFILE

0 60 120

FEET

VE = 5:1

B-3186/B-5898

PFL | 11

-WALL #5-

BEGIN WALL #5
-WALL #5- STA.25+79.15
-L_LT- STA.25+79.15 (17.50' RT)
EL = 2,593.90

STA.25+79.15
EL = 2,579.70

STA.26+00.00 EL = 2,594.38
STA.26+50.00 EL = 2,595.64
STA.27+00.00 EL = 2,597.07
STA.27+50.00 EL = 2,598.68
STA.28+00.00 EL = 2,600.33
STA.28+50.00 EL = 2,601.90
STA.29+00.00 EL = 2,603.46
STA.29+50.00 EL = 2,605.03
STA.30+00.00 EL = 2,606.37
STA.30+50.00 EL = 2,607.96
STA.31+00.00 EL = 2,609.51
STA.31+50.00 EL = 2,610.94
STA.32+00.00 EL = 2,612.28
STA.32+11.60 EL = 2,612.53
STA.32+22.00 EL = 2,612.53
STA.32+50.00 EL = 2,602.99
STA.33+00.00 EL = 2,602.99
STA.33+54.06 EL = 2,602.99
STA.33+54.06 EL = 2,613.24
STA.33+60.06 EL = 2,613.24
STA.34+00.00 EL = 2,600.02

CONSTRUCTION JOINT
-WALL #5- STA. 33+15.80

PHASE II
PHASE III

GRADE ELEVATION (TOP OF WALL)
BOTTOM OF WALL
TOP OF LEVELING PAD
EXISTING GRADE

RW5_1 Station: 26+29 Offset: 25 ft RT
RW5_2 Station: 26+79 Offset: 28 ft RT
RW5_3 Station: 27+29 Offset: 29 ft RT
RW5_4 Station: 27+81 Offset: 31 ft RT
RW5_5 Station: 28+29 Offset: 32 ft RT
RW5_6 Station: 28+80 Offset: 33 ft RT
RW5_7 Station: 29+30 Offset: 36 ft RT
RW5_8 Station: 29+77 Offset: 43 ft RT
RW5_9 Station: 30+29 Offset: 47 ft RT
RW5_10 Station: 30+81 Offset: 50 ft RT
RW5_11 Station: 31+31 Offset: 54 ft RT
S2_B1-B (HDR) Station: 31+81 Offset: 14 ft RT
S1_EB1_B Station: 32+24 Offset: 31 ft RT
S2_B1-A (HDR) Station: 32+81 Offset: 4 ft LT
S1_EB1_A Station: 33+44 Offset: 13 ft LT
S2_EB1-A (HDR) Station: 34+16 Offset: 2 FT RT

BT DRY 02/23
BT 02/23
BT 02/21
BOULDER

END WALL #5
-WALL #5- STA.34+45.38
-Y1_RT- STA.18+63.97 (19.50' RT)
EL = 2,585.00 (TOP)
EL = 2,580.59 (BOTTOM)

(A) ROADWAY EMBANKMENT, Brown, medium dense, silty sand (A-2-4), trace gravel
(B) ALLUVIAL, Dark gray, loose to medium dense, silty sand (A-2-4)
(C) ALLUVIAL, Dark gray, soft to stiff, silty to sandy clay to sandy silt to silt (A-7-5, A-7-6, A-6, A-4, A-5)
(D) ALLUVIAL, Dark gray, loose to very dense, gravelly sand to silty sand (A-1-A, A-2-4)
(E) WEATHERED ROCK, Dark gray, gneiss
(F) ROADWAY EMBANKMENT, Brown, medium stiff to stiff, sandy to clayey silt to clay (A-4, A-5, A-7)
(G) ALLUVIAL, Dark gray, medium stiff, sandy silt (A-4)
(H) ROADWAY EMBANKMENT, Brown, loose to medium dense, silty sand to clayey sand (A-2-4, A-2-6)
(I) ALLUVIAL, Gray, medium stiff to very stiff, sandy silt (A-4)
(J) RESIDUAL, Brown-gray to white, dense to very dense, silty sand to gravelly sand (A-2-4, A-1-A)
(K) ALLUVIAL, Brown-gray, loose, silty sand to sand (A-2-4, A-1-B)
(L) RESIDUAL, Brown to tan, moist to wet, very stiff to hard, sandy silt (A-4)
(M) CRYSTALLINE ROCK, Dark gray, gneiss

5/26/20

WALL 7 PROFILE

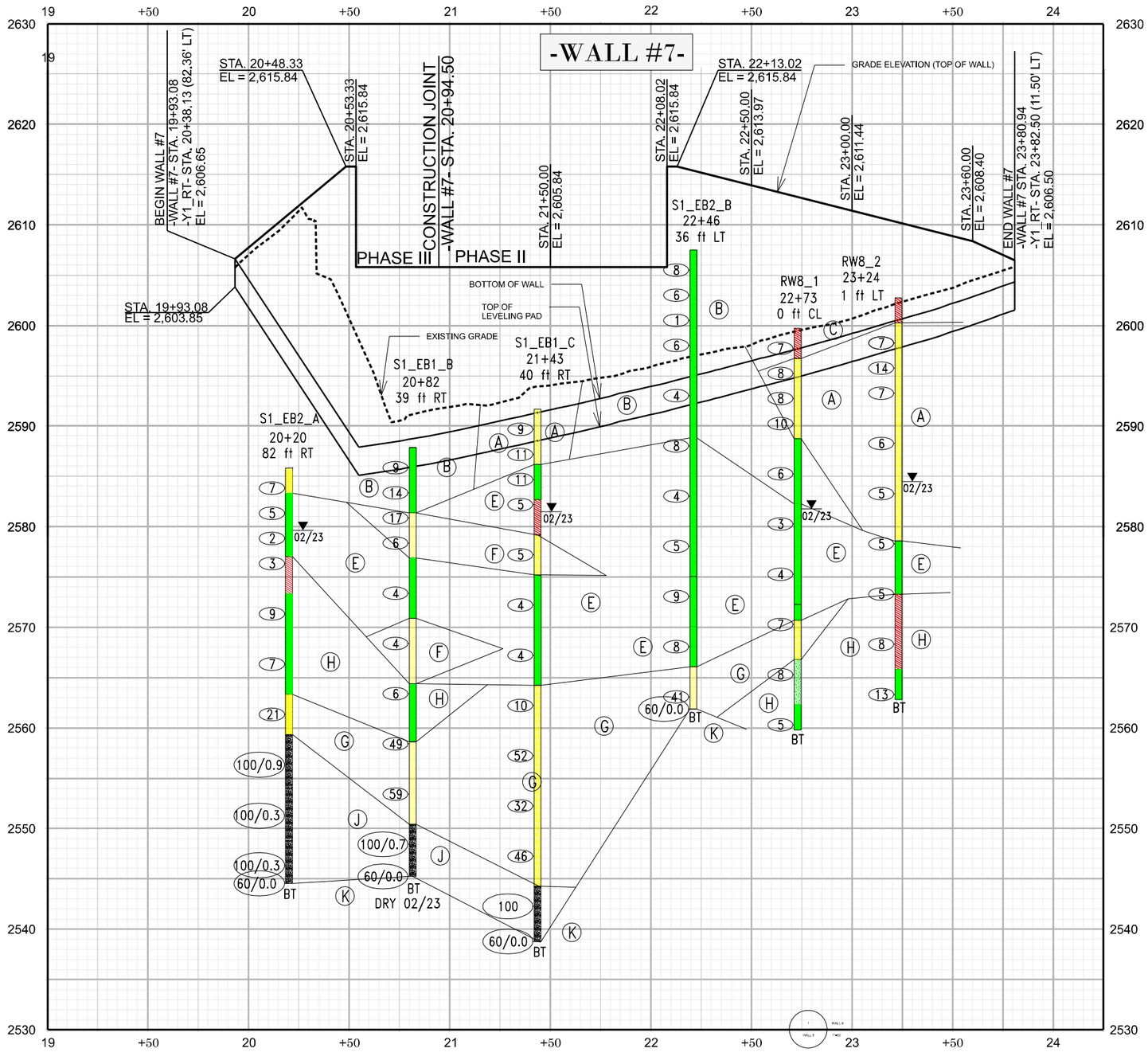
0 60 120

FEET

VE = 5:1

B-3186/B-5898

PFL 12



(A) ROADWAY EMBANKMENT, Brown to gray to red, loose, clayey to silty sand (A-2-6, A-2-4)

(B) ROADWAY EMBANKMENT, Brown to red-brown, very soft to medium stiff, sandy silt (A-4)

(C) ROADWAY EMBANKMENT, Red-brown, medium stiff, silty to sandy clay (A-7-5, A-6)

(D) ALLUVIAL, Gray and white, soft, silty clay (A-7-6)

(E) ALLUVIAL, Dark gray to black, soft to medium stiff, sandy silt to sandy clay (A-4, A-6)

(F) ALLUVIAL, Gray-brown, loose to medium dense, sand to silty sand (A-1-B, A-2-4)

(G) RESIDUAL, Gray and white to red-brown, loose to very dense, gravel to silty sand to sand (A-1-A, A-2-4, A-1-B)

(H) RESIDUAL, Dark gray to red-brown, medium stiff to stiff, clayey to sandy silt to sandy clay (A-5, A-4, A-6)

(I) RESIDUAL, Brown to white, very dense, sandy silt (A-4)

(J) WEATHERED ROCK, White, migmatitic biotite gneiss

(K) CRYSTALLINE ROCK, White migmatitic biotite gneiss

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1 | **TIP** B-5898/B-3186 | **COUNTY** HAYWOOD | **GEOLOGIST** C. Swafford

SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway) | **GROUND WTR (ft)**

BORING NO. L_2900SPT (HDR) | **STATION** 11+12 | **OFFSET** 64 ft LT | **ALIGNMENT** L_LT | **0 HR.** N/A

COLLAR ELEV. 2,659.7 ft | **TOTAL DEPTH** 41.5 ft | **NORTHING** 665,587 | **EASTING** 817,906 | **24 HR.** FIAD

DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020) | **DRILL METHOD** H.S. Augers | **HAMMER TYPE** Automatic

DRILLER L. Wanstrath | **START DATE** 04/06/21 | **COMP. DATE** 04/06/21 | **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)
2660										
	2,659.7	0.0	2	2	3	5		M		2,659.7 GROUND SURFACE 0.0
	2,657.2	2.5	3	4	6	10		M		**RESIDUAL** Medium stiff to stiff, dard red and black, CLAY (A-7-6), contains trace root fibers
2655	2,654.7	5.0	3	4	6	10		M		
	2,652.2	7.5	3	5	5	10		M		2,653.7 6.0
2650	2,649.7	10.0	4	5	6	11		M		Stiff to very stiff, red, tan, white, and black, SILT (A-4) with trace clay and sand, contains trace rock fragments, micaceous, saprolitic
2645	2,644.7	15.0	3	3	6	9		M		
2640	2,639.7	20.0	3	5	8	13		M		
2635	2,634.7	25.0	4	6	11	17		M		
2630	2,629.7	30.0	5	9	10	19		M		
2625	2,624.7	35.0	5	9	12	21		M		
2620	2,619.7	40.0	5	7	8	15		M		2,618.2 41.5
										Boring Terminated at Elevation 2,618.2 ft in SILT

WBS 48030.1.FS1 | **TIP** B-5898/B-3186 | **COUNTY** HAYWOOD | **GEOLOGIST** R. Dugger

SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway) | **GROUND WTR (ft)**

BORING NO. L_3300SPT (HDR) | **STATION** 15+00 | **OFFSET** 67 ft LT | **ALIGNMENT** L_LT | **0 HR.** N/A

COLLAR ELEV. 2,629.4 ft | **TOTAL DEPTH** 36.5 ft | **NORTHING** 665,749 | **EASTING** 818,241 | **24 HR.** FIAD

DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020) | **DRILL METHOD** H.S. Augers | **HAMMER TYPE** Automatic

DRILLER L. Wansrath | **START DATE** 03/26/21 | **COMP. DATE** 03/26/21 | **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
2630										
	2,629.4	0.0	2	1	2	3		M		2,629.4 GROUND SURFACE 0.0
	2,626.9	2.5	3	2	5	7		M		**RESIDUAL** Soft to stiff, red, brown, and tan, silty CLAY (A-7-6), with trace sand, micaceous
2625	2,624.4	5.0	4	5	7	12		M		
	2,621.9	7.5	5	7	8	15		M		2,619.9 9.5
2620	2,619.4	10.0	5	6	7	13		M		Medium dense, brown, red and tan, silty SAND (A-2-4), with trace clay, micaceous
2615	2,614.4	15.0	8	10	11	21		D		
2610	2,609.4	20.0	5	5	6	11		D		2,611.4 18.0
2605	2,604.4	25.0	11	8	10	18		D		Stiff to very stiff, brown, tan and orange, SILT (A-4), contains trace rock fragments, micaceous
2600	2,599.4	30.0	10	8	10	18		D		
2595	2,594.4	35.0	8	10	15	25		D		2,592.9 36.5
										Boring Terminated at Elevation 2,592.9 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1 | **TIP** B-5898/B-3186 | **COUNTY** HAYWOOD | **GEOLOGIST** N. Yacobi

SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway) | **GROUND WTR (ft)**

BORING NO. L_3700SPT (HDR) | **STATION** 18+90 | **OFFSET** 20 ft LT | **ALIGNMENT** L_RT | **0 HR.** N/A

COLLAR ELEV. 2,589.5 ft | **TOTAL DEPTH** 15.0 ft | **NORTHING** 665,892 | **EASTING** 818,637 | **24 HR.** FIAD

DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020) | **DRILL METHOD** H.S. Augers | **HAMMER TYPE** Automatic

DRILLER K. Boone | **START DATE** 01/30/21 | **COMP. DATE** 01/30/21 | **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
2590										ELEV. (ft) / DEPTH (ft)
	2,589.1	0.4								2,589.5 / 0.0 GROUND SURFACE
	2,587.0	2.5	2	9	8	17		D		**ROADWAY EMBANKMENT**
			5	5	5	10		D		2,587.5 / 2.0 Medium dense, brown and gray, SAND and GRAVEL (A-1-b), with little silt
2585	2,584.5	5.0								**RESIDUAL**
			2	3	3	6	SS-1011	28%		2,585.0 / 4.5 Stiff, red and brown, clayey SILT (A-5)
	2,582.0	7.5								2,582.5 / 7.0 Medium stiff, red, silty CLAY (A-7-5)(8)
			3	3	4	7		D		Medium stiff, red, clayey SILT (A-5)
2580	2,579.5	10.0								2,580.0 / 9.5
			4	4	7	11		D		Stiff, gray and red, SILT (A-4), contains little rock fragments, micaceous
	2,576.0	13.5								
2575			9	6	3	9		D		2,574.5 / 15.0
										Boring Terminated at Elevation 2,574.5 ft in SILT

WBS 48030.1.FS1 | **TIP** B-5898/B-3186 | **COUNTY** HAYWOOD | **GEOLOGIST** Addison Tait

SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74 | **GROUND WTR (ft)**

BORING NO. L_LT_2007 | **STATION** 20+07 | **OFFSET** 5 ft RT | **ALIGNMENT** L_LT | **0 HR.** Dry

COLLAR ELEV. 2,583.5 ft | **TOTAL DEPTH** 20.0 ft | **NORTHING** 666,018 | **EASTING** 818,663 | **24 HR.** Dry

DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020 | **DRILL METHOD** H.S. Augers | **HAMMER TYPE** Automatic

DRILLER Michael Moseley | **START DATE** 02/23/23 | **COMP. DATE** 02/23/23 | **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
2585										
	2,582.5	1.0								2,583.5 / 0.0 GROUND SURFACE
			4	4	4	8				**ROADWAY EMBANKMENT**
2580	2,580.0	3.5					SS-201	29%		Reddish brown, medium stiff, silty clay (A-7-5), trace gravel
			3	4	4	8		M		
	2,577.5	6.0								
			4	4	6	10	SS-203	25%		
2575	2,575.0	8.5								
			3	4	6	10		M		
2570	2,570.0	13.5								2,570.0 / 13.5
			4	5	6	11		M		**ALLUVIAL**
										Dark gray, medium dense to very dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, trace clay
2565	2,565.0	18.5								
			100/0.8			100/0.8		M		2,563.5 / 20.0
										Boring Terminated at Elevation 2,563.5 ft in silty sand.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. L_LT_2206	**STATION** 22+06	**OFFSET** 3 ft RT	**ALIGNMENT** L_LT	**0 HR.** 12.6
COLLAR ELEV. 2,577.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 666,176	**EASTING** 818,784	**24 HR.** 13.4
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/23/23	**COMP. DATE** 02/23/23	**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
2580										ELEV. (ft) DEPTH (ft)
										2,577.6 GROUND SURFACE 0.0
	2,576.6	1.0								**ROADWAY EMBANKMENT**
2575			8	9	8	17		M		Reddish brown, medium dense, clayey sand (A-2-6), fine to coarse grained sand, trace gravel
	2,574.1	3.5								2,574.1 3.5
			3	2	3	5	SS-196	29%		Reddish brown, medium stiff, sandy clay (A-6), fine to medium grained sand
	2,571.6	6.0								2,570.0 7.6
2570			8	7	7	14		M		**ALLUVIAL**
	2,569.1	8.5								2,568.3 9.3
			100/0.8			100/0.8		M		Dark gray, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, trace clay
2565										**ALLUVIAL**
	2,564.1	13.5								Gray, dense to very dense, gravelly sand (A-1-a), fine to coarse grained sand, fine to coarse grained gravel
			5	19	12	31	SS-199	M		
2560										
	2,559.1	18.5								2,559.1 18.5
			5	31	46	77		M		**RESIDUAL**
										2,557.6 20.0
										Brown, very dense, silty sand (A-2-4), fine to coarse grained sand
										Boring Terminated at Elevation 2,557.6 ft in silty sand.

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_1	**STATION** 10+00	**OFFSET** 19 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,637.6 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 665,513	**EASTING** 817,815	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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
2640										
										2,637.6 GROUND SURFACE 0.0
	2,636.6	1.0								2,636.6 **ROADWAY EMBANKMENT** 1.0
2635			2	5	6	11		M		ABC Stone
	2,634.1	3.5								2,634.1 Brown, loose, silty sand (A-2-4), fine to coarse grained sand, trace clay, trace gravel 3.5
			4	5	7	12		M		**RESIDUAL**
2630										Brown, stiff to very stiff, sandy silt (A-4), fine to coarse grained sand, trace clay
	2,629.1	8.5								
			4	5	6	11	SS-120	24%		
2625										
	2,624.6	13.0								
			9	14	16	30		M		
										2,622.6 15.0
										Boring Terminated at Elevation 2,622.6 ft in silty sand.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_2	**STATION** 10+51	**OFFSET** 17 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,634.8 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,524	**EASTING** 817,864	**24 HR.** 13.7
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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)
2635											
										2,634.8 GROUND SURFACE	0.0
	2,633.8	1.0	3	5	7	12		M		**RESIDUAL** Brown, stiff to very stiff, sandy silt (A-4), fine to coarse grained sand	
	2,631.3	3.5									
2630			6	7	10	17		M			
	2,628.8	6.0									
			4	6	7	13		M			
	2,626.3	8.5									
2625			5	10	19	29		M			
								▼			
	2,621.3	13.5								2,621.3	13.5
2620			3	5	6	11		M		Brown, medium dense, clayey sand (A-2-6), fine to coarse grained sand	
	2,616.3	18.5								2,616.3	18.5
2615			2	3	5	8	SS-127	32%		Brown, medium stiff, sandy silt (A-4), fine to coarse grained sand, trace gravel	
	2,611.3	23.5								2,611.3	23.5
2610			7	15	29	44		M		Brown, dense, silty sand (A-2-4), fine to coarse grained sand, trace clay	
										2,609.8 Boring Terminated at Elevation 2,609.8 ft in silty sand.	25.0

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_3	**STATION** 11+01	**OFFSET** 18 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,631.5 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,540	**EASTING** 817,910	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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
2635										
										2,631.5 GROUND SURFACE 0.0
										ROADWAY EMBANKMENT Brown, loose, silty sand (A-2-4), some gravel
	2,630.5	1.0	6	5	4	9		M		2,628.0 3.5
	2,628.0	3.5	3	4	4	8		M		**RESIDUAL** Brown to white, medium stiff to very stiff, sandy silt (A-4)
2625	2,625.5	6.0	4	5	6	11		M		
	2,623.0	8.5	3	5	5	10	SS-132	21%		
2620	2,618.0	13.5	6	10	11	21		M		
2615	2,613.0	18.5	4	6	8	14		M		2,615.0 16.5 Brown, stiff, sandy silt (A-4), some clay
2610	2,608.0	23.5	3	5	7	12		M		2,606.5 25.0 Boring Terminated at Elevation 2,606.5 ft in sandy silt.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_4	**STATION** 11+49	**OFFSET** 17 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,629.0 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 665,555	**EASTING** 817,956	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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
2630										ELEV. (ft) 2,629.0 GROUND SURFACE DEPTH (ft) 0.0
	2,628.0	1.0	3	2	4	6	SS-136	19%		**RESIDUAL** Brown, loose, medium stiff to very stiff sandy silt (A-4), fine to coarse grained sand, micaceous
2625	2,625.5	3.5	3	4	6	10		M		
	2,623.0	6.0	4	7	11	18		M		
2620	2,620.5	8.5	4	5	5	10		M		2,619.0 10.0 Boring Terminated at Elevation 2,619.0 ft in sandy silt.

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_5	**STATION** 11+99	**OFFSET** 18 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,626.1 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,573	**EASTING** 818,002	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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
2630										2,626.1 GROUND SURFACE 0.0
2625	2,625.1	1.0	3	5	7	12		M		**RESIDUAL** Brown, stiff to very stiff, sandy silt (A-4), fine to coarse grained sand, trace clay, micaceous
	2,622.6	3.5	3	5	5	10	SS-141	21%		
2620	2,620.1	6.0	3	6	7	13		M		
	2,617.6	8.5	5	7	8	15		M		
2615	2,612.6	13.5	5	9	12	21		M		
2610	2,607.6	18.5	5	6	6	12		M		
2605	2,602.6	23.5	6	4	5	9		M		2,601.1 25.0 Boring Terminated at Elevation 2,601.1 ft in sandy silt.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_6	**STATION** 12+50	**OFFSET** 18 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,623.0 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,592	**EASTING** 818,049	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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)
2625											
										2,623.0 GROUND SURFACE	0.0
	2,622.0	1.0	4	8	10	18		M		**RESIDUAL** Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand	
2620	2,619.5	3.5	7	9	11	20 22	SS-148	18%		2,619.5 Brown, very stiff, sandy silt (A-4), fine to medium grained sand, trace clay and gravel, micaceous	3.5
	2,617.0	6.0	7	10	12			M			
2615	2,614.5	8.5	4	8	9	17		M			
2610	2,609.5	13.5	6	6	11	17		M			
2605	2,604.5	18.5	5	5	6	11	SS-152	30%		2,604.5 Brown, stiff, silt (A-4), some clay, trace sand	18.5
2600	2,599.5	23.5	7	6	11	17		M		2,598.0 Boring Terminated at Elevation 2,598.0 ft in silt.	25.0

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_7	**STATION** 13+00	**OFFSET** 16 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,620.4 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,611	**EASTING** 818,094	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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
2625										
										2,620.4 GROUND SURFACE 0.0
	2,619.4	1.0	5	6	8	14		M		2,619.4 **ROADWAY EMBANKMENT** ABC Stone 1.0
2620	2,616.9	3.5	3	5	6	11		M		**RESIDUAL** Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, micaceous
2615	2,614.4	6.0	6	8	10	18		M		
	2,611.9	8.5	6	8	12	20		M		2,611.9 Brown, very stiff to hard, sandy silt (A-4), fine to medium grained sand, micaceous 8.5
2610	2,606.9	13.5	3	6	8	14	SS-158	25%		2,606.9 Brown to white, stiff, silt (A-4), trace sand and clay 13.5
2605	2,601.9	18.5	3	5	8	13		M		
2600	2,596.9	23.5	9	12	14	26		M		2,596.9 Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace clay, micaceous 23.5
										2,595.4 Boring Terminated at Elevation 2,595.4 ft in silty sand. 25.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_8	**STATION** 13+51	**OFFSET** 17 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,617.4 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 665,634	**EASTING** 818,139	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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)
2620											
	2,616.4	1.0								2,617.4 GROUND SURFACE	0.0
2615			2	6	8	14		M		**RESIDUAL** Brown, medium dense, silty sand, (A-2-4), fine to coarse grained sand, trace clay, trace gravel	
	2,613.9	3.5	5	8	13	21		M			
	2,611.4	6.0								2,611.4	6.0
2610			7	11	11	22	SS-163	14%		Brown, very stiff to hard, sandy silt (A-4), fine to coarse grained sand, micaceous	
	2,608.9	8.5	10	21	31	52		M			
2605											
	2,603.9	13.5	10	10	10	20		M		2,603.9 Brown, medium to very stiff, silt (A-5), trace to some sand, trace to some clay, micaceous	13.5
2600											
	2,598.9	18.5	3	4	5	9		M			
2595											
	2,593.9	23.5	6	10	15	25		M		2,592.4 Boring Terminated at Elevation 2,592.4 ft in silt.	25.0

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_9	**STATION** 14+00	**OFFSET** 13 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,615.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 665,653	**EASTING** 818,184	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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
2620										
										2,615.1 GROUND SURFACE 0.0
2615										2,614.7 0.4
	2,614.1	1.0	8	6	6	12		M		2,614.1 **ROADWAY EMBANKMENT** 1.0
	2,611.6	3.5								0.4' Asphalt
			8	5	7	12				0.6' ABC Stone
2610	2,609.1	6.0					SS-169	23%		**RESIDUAL** Brown, stiff, sandy silt (A-4), fine to coarse grained sand, trace gravel
			3	4	5	9		M		
	2,606.6	8.5								
2605			8	9	14	23		M		
	2,601.6	13.5								2,601.6 13.5
2600			5	7	8	15		M		Brown, stiff, silt (A-5), trace sand, trace clay, micaceous
	2,596.6	18.5								2,596.6 18.5
			10	13	17	30		M		Brown, very stiff, sandy silt, (A-4), fine to medium grained sand, trace clay
										2,595.1 20.0
										Boring Terminated at Elevation 2,595.1 ft in sandy silt.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_10	**STATION** 14+51	**OFFSET** 14 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,612.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 665,679	**EASTING** 818,227	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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)
2615										
										2,612.1 GROUND SURFACE 0.0
	2,611.1	1.0								2,611.7 0.4 2,611.2 **ROADWAY EMBANKMENT** 0.9
2610			7	6	8	14		M		0.4' Asphalt
	2,608.6	3.5								2,608.6 0.5' ABC Stone 3.5
			5	6	7	13		M		**RESIDUAL**
	2,606.1	6.0								Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, micaceous
2605			5	7	8	15	SS-176	19%		
	2,603.6	8.5								Brown to reddish brown, stiff to very stiff, sandy silt (A-4), fine to medium grained sand, trace clay, micaceous
			4	5	8	13		M		
2600										
	2,598.6	13.5	5	7	9	16		M		
2595										
	2,593.6	18.5	4	10	9	19		M		2,592.1 20.0
										Boring Terminated at Elevation 2,592.1 ft in sandy silt.

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_11	**STATION** 14+98	**OFFSET** 15 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,609.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 665,703	**EASTING** 818,267	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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
2610										
										2,609.6 GROUND SURFACE 0.0
	2,608.6	1.0	7	9	9	18	SS-180	17%		2,609.2 0.4 2,608.6 **ROADWAY EMBANKMENT** 1.0
										0.4' Asphalt
	2,606.1	3.5								0.6' ABC Stone
2605			7	8	10	18		M		**RESIDUAL**
	2,603.6	6.0								2,603.6 Brown, very stiff, sandy silt (A-4), fine to coarse grained sand, trace gravel, micaceous 6.0
			5	6	9	15		M		Brown, very stiff, sandy silt (A-4), fine to coarse grained sand, micaceous
	2,601.1	8.5								
2600			6	9	10	19		M		
	2,596.1	13.5								
2595			7	9	11	20		M		
	2,591.1	18.5								2,591.1 18.5
2590			7	11	11	22		M		2,589.6 Brown, moist, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, micaceous 20.0
										Boring Terminated at Elevation 2,589.6 ft in silty sand.
										SS-181 had no recovery.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_12	**STATION** 15+47	**OFFSET** 17 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,606.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 665,731	**EASTING** 818,307	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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)
2610											
										2,606.7	
										GROUND SURFACE	0.0
2605	2,605.7	1.0								2,606.3	0.4
			5	6	7	13				**ROADWAY EMBANKMENT**	
	2,603.2	3.5								2,605.9	0.8
			4	6	7	13				0.4' Asphalt	
	2,600.7	6.0					SS-187	22%		0.4' ABC Stone	
2600			5	6	6	12				**RESIDUAL**	
	2,598.2	8.5								Brown, stiff to very stiff, sandy silt (A-4), fine to coarse grained sand, trace clay, slightly micaceous	
			5	7	10	17					
2595											
	2,593.2	13.5								2,593.2	13.5
			3	3	4	7				2,591.7	15.0
										Brown, medium stiff, silt (A-5), some clay, trace fine sand	
										Boring Terminated at Elevation 2,591.7 ft in silt.	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW2_13	**STATION** 16+05	**OFFSET** 18 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,603.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 665,765	**EASTING** 818,353	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/22/23	**COMP. DATE** 02/22/23	**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	
2605											
										2,603.2	
										GROUND SURFACE	0.0
	2,602.2	1.0								2,602.8	0.4
			6	7	7	14		M		**ROADWAY EMBANKMENT**	
2600										2,602.7	0.5
	2,599.7	3.5								0.4' Asphalt	
			6	5	5	10		M		0.5' ABC Stone	
	2,597.2	6.0								**RESIDUAL**	
			6	9	9	18	SS-193	M		2,597.2 Brown, stiff, sandy silt (A-4), fine to coarse grained sand, trace clay, slightly micaceous	6.0
2595	2,594.7	8.5								Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel	
			7	8	10	18		M		2,593.2	10.0
										Boring Terminated at Elevation 2,593.2 ft in silty sand.	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW3_1	**STATION** 12+56	**OFFSET** 142 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,673.0 ft	**TOTAL DEPTH** 50.0 ft	**NORTHING** 665,399	**EASTING** 818,179	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/28/23	**COMP. DATE** 02/28/23	**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)
2675										
	2,673.0	0.0								2,673.0 GROUND SURFACE 0.0
	2,672.0	1.0	3	3	4	7		M		**RESIDUAL** Reddish brown, loose, silty sand (A-2-4), fine to coarse grained sand, trace gracel, some clay
2670	2,669.5	3.5	2	2	2	4		M		
	2,667.0	6.0	2	3	3	6		M		2,667.0 6.0 Brown, medium stiff, sandy silt (A-4), fine to medium grained sand, trace clay
2665	2,664.5	8.5	2	3	4	7		M		2,664.5 8.5 Brown, loose, silty sand (A-2-4), fine to coarse grained sand, trace gravel
2660	2,659.5	13.5	4	4	4	8		M		
2655	2,654.5	18.5	3	4	6	10	SS-266	23%		2,654.5 18.5 Brown, stiff, sandy silt (A-5), fine to medium grained sand, trace clay
2650	2,649.5	23.5	4	5	6	11		M		2,649.5 23.5 Brown, medium dense to dense, silty sand (A-2-4), fine to coarse grained sand, trace fine gravel
2645	2,644.5	28.5	15	17	31	48	SS-268	M		
2640	2,639.5	33.5	20	26	23	49		M		
2635	2,634.5	38.5	8	11	13	24		M		
2630	2,629.5	43.5	11	16	16	32		M		2,629.5 43.5 Brown, hard, sandy silt (A-4), fine to coarse grained sand, trace fine grained gravel
2625	2,624.5	48.5	15	22	41	63		M		2,623.0 50.0 Boring Terminated at Elevation 2,623.0 ft in sandy silt.

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW3_2	**STATION** 13+94	**OFFSET** 235 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,642.7 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 665,388	**EASTING** 818,359	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 03/01/23	**COMP. DATE** 03/01/23	**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
2645										
	2,642.7	0.0								2,642.7 GROUND SURFACE 0.0
	2,641.7	1.0	10	7	6	13		M		**RESIDUAL** Brown, medium stiff to very stiff, sandy silt (A-4), fine to coarse grained sand, trace to some gravel, fine to coarse grained gravel, trace clay, trace organics
2640	2,639.2	3.5	4	7	11	18		M		
	2,636.7	6.0	6	3	3	6		M		
2635	2,634.2	8.5	11	12	12	24		M		
2630	2,629.2	13.5	10	13	13	26		M		
2625	2,624.2	18.5	10	10	8	18	SS-282	9%		
2620	2,619.2	23.5	12	100/0.9		100/0.9				2,619.2 23.5 **WEATHERED ROCK** Brown, gneiss
2615	2,614.2	28.5	100/0.9			100/0.9				
2610	2,609.2	33.5	100/0.4			100/0.4				
	2,606.2	36.5	60/0.0			60/0.0				2,606.2 36.5 Boring Terminated by Auger Refusal at Elevation 2,606.2 ft on Rock. Offset to dirt road. Auger grinding at 34.0'.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_1	**STATION** 26+29	**OFFSET** 25 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,576.1 ft	**TOTAL DEPTH** 25.6 ft	**NORTHING** 666,503	**EASTING** 819,053	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/28/23	**COMP. DATE** 02/28/23	**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)
2580											
2575	2,575.1	1.0	5	6	6	12		M		2,576.1 GROUND SURFACE	0.0
	2,572.6	3.5	7	7	4	11		M		**ROADWAY EMBANKMENT** Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel	
2570	2,570.1	6.0	0	2	1	3		M		2,571.6 **ALLUVIAL** Dark gray, medium dense, silty sand (A-2-4), fine to medium grained sand, slightly micaceous	4.5
	2,567.6	8.5	0	0	0	0	SS-245	80%		2,570.1 Dark gray, soft, silty clay (A-7-5), trace fine sand, slightly micaceous	6.0
2565	2,562.6	13.5	11	17	16	33		W		2,562.6 Dark gray, dense, gravelly sand (A-1-a), fine to coarse grained sand, fine to coarse grained gravel	13.5
2560	2,557.6	18.5	19	25	21	46		W		2,557.6 Dark gray, dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel	18.5
2555	2,552.6	23.5	100/0.2			100/0.2		W		2,552.6 **WEATHERED ROCK** Dark gray, gneiss	23.5
	2,550.5	25.6	60/0.0			60/0.0				2,550.5 Boring Terminated by Auger Refusal at Elevation 2,550.5 ft on Rock.	25.6

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_2	**STATION** 26+79	**OFFSET** 28 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,583.7 ft	**TOTAL DEPTH** 25.7 ft	**NORTHING** 666,541	**EASTING** 819,085	**24 HR.** 8.5
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/24/23	**COMP. DATE** 02/24/23	**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
2585										
	2,582.7	1.0	3	4	4	8		M		2,583.7 GROUND SURFACE 0.0
2580	2,580.2	3.5	4	5	4	9	SS-235	M		2,582.7 **ROADWAY EMBANKMENT** Brown, medium stiff, sandy silt (A-4) 1.0
	2,577.7	6.0	4	4	4	8		M		2,580.2 **ALLUVIAL** Dark gray, medium stiff, sandy silt (A-4), fine to coarse grained sand, trace gravel 3.5
2575	2,575.2	8.5	2	2	3	5		M		Dark gray, loose, silty sand (A-2-4), fine to medium grained sand, trace gravel, micaceous
										2,575.2 Dark gray, medium stiff, sandy silt (A-4), fine grained sand, slightly micaceous 8.5
2570	2,570.2	13.5	2	8	9	17		W		2,570.2 13.5
										2,569.2 Dark gray, very stiff, silt (A-5), trace fine grained sand 14.5
2565	2,565.2	18.5	14	5	4	9		W		Dark gray, medium dense, sandy gravel (A-1-a), fine to coarse grained gravel, fine to coarse grained sand
										2,565.2 Dark gray, loose, gravelly sand (A-1-a), fine to coarse grained sand, fine to coarse grained gravel 18.5
2560	2,560.2	23.5	7	10	40	50		M		2,560.2 **RESIDUAL** 23.5
	2,558.0	25.7	60/0.0			60/0.0				2,558.0 Brown, dense, silty sand, (A-2-4), fine to coarse grained sand, trace gravel 25.7
										Boring Terminated by Auger Refusal at Elevation 2,558.0 ft on Rock.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_3	**STATION** 27+29	**OFFSET** 29 ft RT	**ALIGNMENT** L_LT	**0 HR.** 11.4
COLLAR ELEV. 2,577.1 ft	**TOTAL DEPTH** 18.5 ft	**NORTHING** 666,581	**EASTING** 819,116	**24 HR.** 7.2
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/24/23	**COMP. DATE** 02/24/23	**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)
2580											
										2,577.1 GROUND SURFACE	0.0
	2,576.1	1.0	5	5	7	12		M		2,576.1 **ROADWAY EMBANKMENT** Brown, loose, silty sand (A-2-4)	1.0
2575											
	2,573.6	3.5	6	8	8	16		M		**ALLUVIAL** Dark gray, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace fine grained gravel, micaceous	
	2,571.1	6.0	5	2	2	4					
2570											
	2,568.6	8.5	2	1	1	2	SS-231	75%		2,568.6 Dark gray, soft, sandy silt (A-5), micaceous	8.5
2565											
	2,563.6	13.5	3	3	2	5		M		2,563.6 Dark gray, loose, silty sand (A-2-4), fine to medium grained sand, micaceous	13.5
2560											
	2,558.6	18.5	60/0.0'			60/0.0				2,558.6 Boring Terminated by Auger Refusal at Elevation 2,558.6 ft on Rock.	18.5

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_4	**STATION** 27+81	**OFFSET** 31 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,577.9 ft	**TOTAL DEPTH** 23.0 ft	**NORTHING** 666,622	**EASTING** 819,148	**24 HR.** 11.8
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/23/23	**COMP. DATE** 02/23/23	**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
2580										
										2,577.9 GROUND SURFACE 0.0
	2,576.9	1.0	4	5	5	10		M		**ROADWAY EMBANKMENT** Brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, fine to coarse grained gravel
2575										
	2,574.4	3.5	3	7	9	16		M		
	2,571.9	6.0	-	-	-					
2570										
	2,569.4	8.5	2	2	2	4	SS-224	69%		2,569.4 **ALLUVIAL** Dark gray, soft, silty clay (A-7-5), trace fine grained sand 8.5
2565										
	2,564.4	13.5	2	2	2	4		M		2,564.4 Dark gray, soft, sandy, silt (A-4), fine grained sand, trace clay 13.5
2560										
	2,559.4	18.5	4	4	7	11		W		2,559.4 Dark gray, medium dense, sandy gravel (A-1-a), fine to coarse grained gravel, fine to coarse grained sand 18.5
2555	2,554.9	23.0	60/0.0'			60/0.0				2,554.9 Boring Terminated by Auger Refusal at Elevation 2,554.9 ft on Rock. 23.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_5	**STATION** 28+29	**OFFSET** 32 ft RT	**ALIGNMENT** L_LT	**0 HR.** 13.3
COLLAR ELEV. 2,578.4 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 666,661	**EASTING** 819,178	**24 HR.** 11.4
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/23/23	**COMP. DATE** 02/23/23	**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)
2580											
	2,578.4	0.0								2,578.4 GROUND SURFACE	0.0
	2,577.4	1.0	3	3	4	7		M		**ROADWAY EMBANKMENT** Brown, loose to medium dense , silty sand (A-2-4), fine to coarse grained sand, trace gravel, fine to medium grained gravel, trace clay	
2575	2,574.9	3.5	5	4	7	11		M			
	2,572.4	6.0	5	5	5	10		M		2,571.9 White, loose, sand (A-1-b), micaceous	6.5 / 7.0
2570	2,569.9	8.5	4	3	3	6		M		**ALLUVIAL** Dark gray, sandy silt (A-4), fine to coarse grained sand, trace gravel, micaceous	
2565	2,564.9	13.5	0	0	1	1		M		2,564.9 Dark gray, very soft, silt (A-5), trace fine grained sand, trace clay	13.5
2560	2,559.9	18.5	7	12	11	23	SS-219	W		2,559.9 Dark gray, sandy gravel (A-1-A), fine to coarse grained gravel, fine to coarse grained sand	18.5
	2,556.9	21.5	60/0.0'			60/0.0				2,556.9 Boring Terminated by Auger Refusal at Elevation 2,556.9 ft on Rock.	21.5

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_6	**STATION** 28+80	**OFFSET** 33 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,579.4 ft	**TOTAL DEPTH** 22.9 ft	**NORTHING** 666,700	**EASTING** 819,209	**24 HR.** 9.5
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/23/23	**COMP. DATE** 02/23/23	**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
2580										
	2,579.4	0.0								2,579.4 GROUND SURFACE 0.0
	2,578.4	1.0	3	4	4	8		M		**ROADWAY EMBANKMENT** Brown to dark brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, trace clay
2575	2,575.9	3.5	3	5	6	11		M		
	2,573.4	6.0	6	7	6	13	SS-209	M		
2570	2,570.9	8.5	3	4	3	7				2,570.4 9.0 White, loose, sand (A-1-b), trace clay, micaceous
2565	2,565.9	13.5	0	2	2	4		M		2,565.9 13.5 **ALLUVIAL** Dark gray, soft, silt (A-5), trace fine grained sand, trace clay, slightly micaceous
2560	2,560.9	18.5	0	2	2	4		W		2,560.9 18.5 Dark gray, loose, sand (A-1-b), fine to coarse grained sand, trace gravel
	2,556.5	22.9	60/0.0'			60/0.0				2,556.5 22.9 Boring Terminated by Auger Refusal at Elevation 2,556.5 ft on Rock.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_7	**STATION** 29+30	**OFFSET** 36 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,580.4 ft	**TOTAL DEPTH** 26.1 ft	**NORTHING** 666,737	**EASTING** 819,241	**24 HR.** 10.1
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/21/23	**COMP. DATE** 02/21/23	**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)
2585											
2580										2,580.4	0.0
	2,579.4	1.0	5	3	3	6 10		M		**ROADWAY EMBANKMENT** Brown, loose, silty sand (A-2-4), fine to coarse grained sand	
	2,576.9	3.5	4	4	6		SS-110	M			
2575	2,574.4	6.0	8	9	11	20		M		2,574.0	6.4
	2,571.9	8.5	4	4	4	8				**ALLUVIAL** Gray, medium stiff to very stiff, sandy silt (A-4), trace mica	
2570										2,570.4	10.0
										Gray, loose, sand (A-1-B), some gravel, micaceous	
	2,566.9	13.5	1	1	1	2		M		2,567.4	13.0
2565										Brown-gray, soft, clayey silt (A-5), highly plastic	
	2,561.9	18.5	1	10	8	18		M		2,563.4	17.0
2560										**RESIDUAL** Brown-gray, medium dense, silty sand (A-2-4)	
	2,556.9	23.5	100/0.3			100/0.3				2,557.9	22.5
2555	2,554.3	26.1	60/0.0			60/0.0				**WEATHERED ROCK** Gray to white, very dense, sand with gravel (A-1-A)	
										2,554.3	26.1
										Boring Terminated by Auger Refusal at Elevation 2,554.3 ft on Rock.	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_8	**STATION** 29+77	**OFFSET** 43 ft RT	**ALIGNMENT** L_LT	**0 HR.** N/A
COLLAR ELEV. 2,581.4 ft	**TOTAL DEPTH** 32.5 ft	**NORTHING** 666,770	**EASTING** 819,275	**24 HR.** 3.2
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/20/23	**COMP. DATE** 02/20/23	**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 ELEV. (ft)	DEPTH (ft)
2585											
2580	2,580.4	1.0								2,581.4	0.0
			4	4	3	7 7		M		GROUND SURFACE	
	2,577.9	3.5	2	3	4		SS-101	21%		**ROADWAY EMBANKMENT** Brown, medium stiff to stiff, sandy silt (A-4)	
2575	2,575.4	6.0	4	4	6	10		M		2,574.4	7.0
	2,572.9	8.5	5	5	6	11	SS-103	M		**ALLUVIAL** Gray, loose, silty sand (A-2-4)	
2570										2,568.4	13.0
	2,567.9	13.5	0	2	3	5		M		Dark gray, medium stiff, silt (A-4)	
2565										2,563.9	17.5
	2,562.9	18.5	1	1	4	5		W		Gray, loose, silty sand (A-2-4)	
2560										2,560.4	21.0
	2,557.9	23.5	100/0.3			100/0.3				**WEATHERED ROCK** Weathered rock, gneiss	
2555	2,552.9	28.5	33	27	32	59		W		2,553.9	27.5
2550	2,548.9	32.5	60/0.0			60/0.0				**RESIDUAL** Brown to black, very dense, sand (A-1-B), some gravel	
										2,548.9	32.5
										Boring Terminated by Auger Refusal at Elevation 2,548.9 ft on Rock.	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74			**GROUND WTR (ft)**
BORING NO. RW5_9	**STATION** 30+29	**OFFSET** 47 ft RT	**ALIGNMENT** L_LT — **0 HR.** Dry
COLLAR ELEV. 2,582.4 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 666,807	**EASTING** 819,311 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER Michael Moseley	**START DATE** 02/16/23	**COMP. DATE** 02/16/23	**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)
2585											
										2,582.4	0.0
										GROUND SURFACE	
	2,581.4	1.0								**ROADWAY EMBANKMENT**	
2580			3	2	2	4	SS-090	24%	M	Brown, loose, sandy silt (A-4), fine to medium grained sand	
	2,578.9	3.5	4	5	11	16			M		
	2,576.4	6.0	4	7	11	18			M	2,576.4	6.0
2575										**ALLUVIAL**	
	2,573.9	8.5	4	6	8	14			M	Gray, medium dense, sand (A-1-B), trace silt	
2570											
	2,568.9	13.5	2	2	2	4			M	2,569.9	12.5
2565										Dark brown to black, soft, silt (A-4), trace sand	
	2,563.9	18.5	2	2	4	6			M		
2560											
	2,558.9	23.5	9	8	7	15			Sat.	2,559.4	23.0
										Dark gray-brown, medium dense, gravel (A-1-A), angular gravel	
2555										2,557.4	25.0
	2,553.9	28.5	13	26	48	74			W	**RESIDUAL**	
2550										Dark brown to tan-brown, very dense, silty sand (A-2-4)	
	2,548.9	33.5	100/0.9			100/0.9				2,548.9	33.5
										WEATHERED ROCK	
	2,545.9	36.5	60/0.0'			60/0.0				Weathered rock, dark brown, gneiss	
										2,545.9	36.5
										Boring Terminated by Auger Refusal at Elevation 2,545.9 ft on Rock.	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74			**GROUND WTR (ft)**
BORING NO. RW5_10	**STATION** 30+81	**OFFSET** 50 ft RT	**ALIGNMENT** L_LT — **0 HR.** Dry
COLLAR ELEV. 2,583.7 ft	**TOTAL DEPTH** 48.5 ft	**NORTHING** 666,842	**EASTING** 819,346 — **24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER Michael Moseley	**START DATE** 02/16/23	**COMP. DATE** 02/16/23	**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
2585										
										2,583.7 GROUND SURFACE 0.0
	2,582.7	1.0								**ROADWAY EMBANKMENT**
2580			4	3	4	7		M		Red-brown, loose, clayey sand (A-2-6), fine to medium grained sand, some rock fragments
	2,580.2	3.5	4	4	5	9		M		
	2,577.7	6.0	4	6	8	14		M		2,577.3 6.4
2575										**ALLUVIAL**
	2,575.2	8.5	5	6	5	11	SS-081	M		Gray-brown, medium dense, silty sand (A-2-4), fine to coarse grained sand
2570										
	2,570.2	13.5	1	2	2	4		W		
2565										2,566.2 17.5
	2,565.2	18.5	0	2	2	4		W		Dark brown to black, soft, silt (A-4), trace to some organic matter
2560										
	2,560.2	23.5	2	5	8	13		W		
										2,554.5 29.2
2555	2,555.2	28.5	5	100/0.8		100/0.8				Weathered rock, dark gray, gneiss
2550	2,550.2	33.5	100/0.8			100/0.8				
2545	2,545.2	38.5	6	100/0.9		100/0.9				
2540	2,540.2	43.5	100/0.5			100/0.5				
	2,535.2	48.5	60/0.0			60/0.0				2,535.2 48.5
										Boring Terminated by Auger Refusal at Elevation 2,535.2 ft on Rock.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Addison Tait	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW5_11	**STATION** 31+31	**OFFSET** 54 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,585.4 ft	**TOTAL DEPTH** 42.9 ft	**NORTHING** 666,875	**EASTING** 819,382	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/28/23	**COMP. DATE** 02/28/23	**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)
2590											
2585										2,585.4 GROUND SURFACE	0.0
	2,584.4	1.0	3	5	8	13		M		**ROADWAY EMBANKMENT** Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, trace clay	
	2,581.9	3.5	3	6	5	11		M		2,581.4 **ALLUVIAL**	4.0
2580	2,579.4	6.0	3	4	4	8	SS-252	M		Dark gray, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, micaceous	
	2,576.9	8.5	2	2	2	4		M			
2575	2,571.9	13.5	1	1	1	2		M		2,571.9 Dark gray, soft, silt (A-5), trace fine grained sand, micaceous	13.5
2570	2,566.9	18.5	2	1	1	2		M		2,566.9 Dark gray to brown, soft to stiff, sandy silt (A-4), fine to coarse grained sand, micaceous	18.5
2565	2,561.9	23.5	0	2	4	6		W			
2560	2,556.9	28.5	3	5	7	12		M			
2555	2,551.9	33.5	100/0.8			100/0.8				2,551.9 **WEATHERED ROCK** Brown, gneiss	33.5
2550	2,546.9	38.5	100/0.9			100/0.9					
2545	2,542.5	42.9	60/0.0'			60/0.0				2,542.5 Boring Terminated by Auger Refusal at Elevation 2,542.5 ft on Rock. SS-259 has no recovery.	42.9

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13				**GROUND WTR (ft)**
BORING NO. RW5_21 (HDR)	**STATION** 30+12	**OFFSET** 83 ft LT	**ALIGNMENT** L_LT	**0 HR.** 14.5
COLLAR ELEV. 2,582.4 ft	**TOTAL DEPTH** 32.5 ft	**NORTHING** 666,877	**EASTING** 819,201	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER K. Boone	**START DATE** 02/14/21	**COMP. DATE** 02/14/21	**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)
2585											
	2,582.4	0.0	3	2	4	6		M		2,582.4 GROUND SURFACE	0.0
2580	2,577.4	5.0	3	2	3	5		M		**ALLUVIAL** Medium stiff, brown, clayey SILT (A-5), with trace sand, micaceous	
	2,574.9	7.5	2	1	2	3		M		2,578.4 Medium stiff, gray, sandy CLAY (A-6)	4.0
2575	2,572.4	10.0	2	3	2	5		M		2,576.1 2,575.4 Loose, gray, fine SAND (A-2-4)	6.3 7.0
2570	2,567.4	15.0	7	6	6	12		Sat.		Soft to stiff, gray, CLAY (A-7-6), with few f-c sand lenses, contains little organic matter	
2565	2,562.4	20.0	3	5	15	20		Sat.		2,564.4 **RESIDUAL** Very stiff to hard, gray, brown, white, and red, clayey SILT (A-5), saprolitic	18.0
2560	2,557.4	25.0	14	18	43	61					
2555	2,552.4	30.0	18	35	65/0.5	100/1.0				2,551.9 **WEATHERED ROCK**	30.5
2550	2,549.9	32.5	60/0.0			60/0.0				2,549.9 Brown, tan, orange, and white, GNEISS Boring Terminated with Standard Penetration Test Refusal at Elevation 2,549.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 32.5'.	32.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW8_1	**STATION** 34+27	**OFFSET** 56 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,599.6 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 667,060	**EASTING** 819,600	**24 HR.** 18.0
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/15/23	**COMP. DATE** 02/15/23	**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)
2600											
										2,599.6 GROUND SURFACE	0.0
	2,598.6	1.0	2	3	4	7	SS-56	23%		**ROADWAY EMBANKMENT** Red-brown, medium stiff, silty clay (A-7-5)	
	2,596.1	3.5								2,596.6 Red-brown, loose, silty sand (A-2-4), fine to medium grained sand	3.0
2595			5	3	5	8		M			
	2,593.6	6.0									
			3	3	5	8		M			
	2,591.1	8.5									
2590			4	4	6	10		M			
										2,588.6 Red-brown, medium stiff, sandy silt (A-4)	11.0
	2,586.1	13.5									
2585			3	2	4	6	SS-060	37%			
										2,582.1 **ALLUVIAL** Gray to red, soft, sandy silt (A-4), fine grained sand	17.5
	2,581.1	18.5						W			
2580			2	1	2	3					
	2,576.1	23.5									
2575			0	2	2	4		M			
										2,572.1 Dark gray-black, medium stiff, silt (A-4), trace roots	27.5
	2,571.1	28.5								2,570.5 **RESIDUAL** Gray-brown, loose, silty sand (A-2-4), fine to coarse grained sand	29.1
2570			2	3	4	7		M			
										2,566.6 Dark gray, medium stiff, clayey silt (A-5), high plasticity	33.0
	2,566.1	33.5									
2565			3	4	4	8		M			
										2,562.1 Dark gray, medium stiff, sandy silt (A-4)	37.5
	2,561.1	38.5									
2560			3	2	3	5		M		2,559.6 Boring Terminated at Elevation 2,559.6 ft in sandy silt.	40.0

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. RW8_2	**STATION** 34+78	**OFFSET** 65 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,602.5 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 667,081	**EASTING** 819,646	**24 HR.** 18.3
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/15/23	**COMP. DATE** 02/15/23	**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
2605										
										2,602.5 GROUND SURFACE 0.0
	2,601.5	1.0	5	3	4	7		M		**ROADWAY EMBANKMENT** Red-brown, medium stiff, sandy clay (A-6), low plasticity 2.5
2600										2,600.0 Brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand
	2,599.0	3.5	4	3	4	7		M		
	2,596.5	6.0	4	7	7	14		M		
2595										
	2,594.0	8.5	4	4	3	7		M		
2590										
	2,589.0	13.5	3	2	4	6		M		
2585										
	2,584.0	18.5	2	2	3	5		M		
2580										
	2,579.0	23.5	3	2	3	5		W		2,578.3 **ALLUVIAL** Gray, medium stiff, sandy silt (A-4), fine grained sand 24.2
2575										2,574.5 28.0
	2,574.0	28.5	0	2	3	5		M		2,573.0 Dark gray-black, medium stiff, sandy silt (A-4), trace roots and organics 29.5
2570										**RESIDUAL** Dark gray, medium stiff, sandy clay (A-6)
	2,569.0	33.5	3	4	4	8	SS-054	30%		
2565										2,565.5 Dark gray, medium stiff, sandy silt (A-4) 37.0
	2,564.0	38.5	5	6	7	13		M		2,562.5 Boring Terminated at Elevation 2,562.5 ft in sandy silt. 40.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_1 (HDR)	**STATION** 11+24	**OFFSET** 20 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,633.3 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 665,458	**EASTING** 818,003	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/26/21	**COMP. DATE** 01/26/21	**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)
2635											
	2,633.3	0.0								GROUND SURFACE	0.0
	2,632.7	0.6								0.6' PAVEMENT	0.6
	2,631.3	2.0	10	11	10	21		D		**ROADWAY EMBANKMENT** Medium dense, gray and brown, silty GRAVEL (A-1-b)	2.0
2630	2,630.8	2.5	8	6	8	14		D			
	2,629.3	4.0								**RESIDUAL** Medium dense, tan and brown, silty SAND (A-2-4), micaceous	4.0
	2,628.3	5.0	7	9	10	19		D			
2625	2,625.8	7.5	5	8	6	14		D		Very stiff to hard, brown, tan and white, SILT (A-4), with trace sand, micaceous, saprolitic	
	2,623.3	10.0	4	12	15	27		D			
2620											
	2,618.3	15.0	12	17	23	40		D			
2615											
	2,613.3	20.0	9	10	11	21		D			
										2,611.8	21.5
										Boring Terminated at Elevation 2,611.8 ft in SILT	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_2 (HDR)	**STATION** 11+74	**OFFSET** 19 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,630.5 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 665,477	**EASTING** 818,051	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/26/21	**COMP. DATE** 01/27/21	**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
2635										
	2,630.5	0.0								GROUND SURFACE
	2,629.9	0.6								0.6' PAVEMENT
	2,628.0	2.5	11	12	10	22		D		**ROADWAY EMBANKMENT** Medium dense, gray and brown, SAND and GRAVEL (A-1-b)
2630	2,625.5	5.0	8	12	17	29		D		
	2,623.0	7.5	9	15	16	31	SS-2	15%		**RESIDUAL** Very stiff to hard, brown, CLAY (A-6), micaceous, saprolitic
2625	2,620.5	10.0	11	16	21	37		D		
	2,615.5	15.0	15	17	21	38		D		
2620										
	2,610.5	20.0	6	9	9	18		D		
2615										
			8	7	11	18		D		
										2,609.0
2610										Boring Terminated at Elevation 2,609.0 ft in CLAY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_3 (HDR)	**STATION** 12+26	**OFFSET** 19 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,627.4 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 665,498	**EASTING** 818,099	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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)
2630											
	2,627.4	0.0								2,627.4 GROUND SURFACE	0.0
	2,626.8	0.6	10	10	8	18		D		2,626.8 0.6' PAVEMENT	0.6
2625	2,624.9	2.5	8	7	6	13		D		2,624.9 **ROADWAY EMBANKMENT** Medium dense, gray and brown, SAND and GRAVEL (A-1-b)	2.5
	2,622.4	5.0	9	9	11	20		D		**RESIDUAL** Stiff to very stiff, brown and gray, SILT (A-4), micaceous, saprolitic	
2620	2,619.9	7.5	7	8	9	17		D			
	2,617.4	10.0	8	8	9	17		D			
2615											
	2,612.4	15.0	8	8	8	16		D			
2610											
	2,607.4	20.0	12	13	12	25		D		2,605.9	21.5
										Boring Terminated at Elevation 2,605.9 ft in SILT	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_4 (HDR)	**STATION** 12+80	**OFFSET** 20 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,624.4 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 665,520	**EASTING** 818,149	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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
2625										
	2,623.8	0.6	6	7	7	14				2,624.4 GROUND SURFACE 0.0
	2,621.9	2.5	7	8	8	16				2,623.8 0.6' PAVEMENT 0.6
2620	2,619.4	5.0	4	6	9	15				2,621.9 **ROADWAY EMBANKMENT** Medium dense, brown and black, SAND and GRAVEL (A-1-b) 2.5
	2,616.9	7.5	10	10	8	18				**RESIDUAL** Stiff to hard, white, gray, brown and black, SILT (A-4), micaceous, saprolitic
2615	2,614.4	10.0	7	7	10	17				
2610										
	2,609.4	15.0	6	6	8	14				
2605	2,604.4	20.0	12	15	23	38				2,602.9 21.5
										Boring Terminated at Elevation 2,602.9 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_5 (HDR)	**STATION** 13+32	**OFFSET** 19 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,621.3 ft	**TOTAL DEPTH** 16.5 ft	**NORTHING** 665,545	**EASTING** 818,196	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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)
2625											
										2,621.3 GROUND SURFACE	0.0
2620	2,620.7	0.6	6	6	7	13		D		2,620.7 0.6' PAVEMENT	0.6
	2,618.8	2.5	8	6	7	13		D		2,618.8 **ROADWAY EMBANKMENT** Medium dense, brown and gray, SAND and GRAVEL (A-1-b)	2.5
	2,616.3	5.0	18	21	15	36		D		**RESIDUAL** Stiff to hard, white, gray and brown, SILT (A-4), with trace clay, micaceous, saprolitic	
2615	2,613.8	7.5	5	5	10	15		D			
	2,611.3	10.0	8	10	13	23		D			
2610											
	2,606.3	15.0	5	7	11	18		D		2,604.8	16.5
2605										Boring Terminated at Elevation 2,604.8 ft in SILT	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_6 (HDR)	**STATION** 13+83	**OFFSET** 19 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,618.4 ft	**TOTAL DEPTH** 5.0 ft	**NORTHING** 665,570	**EASTING** 818,241	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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
2620										
										2,618.4 GROUND SURFACE 0.0
	2,617.8	0.6	9	6	10	16		D		2,617.8 0.6' PAVEMENT 0.6
	2,615.9	2.5	9	10	15	25		D		2,615.9 **ROADWAY EMBANKMENT** Medium dense, brown and gray, SAND and GRAVEL (A-1-b) 2.5
2615	2,613.4	5.0	60/0.0			60/0.0				2,613.4 **RESIDUAL** Very stiff, brown, black, and gray, SILT (A-4), saprolitic 5.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,613.4 ft on Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_7 (HDR)	**STATION** 14+36	**OFFSET** 19 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,615.3 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 665,597	**EASTING** 818,287	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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)
2620											
2615	2,614.8	0.5	6	8	9	17		D		2,615.3 GROUND SURFACE	0.0
										2,614.7 0.6' PAVEMENT	0.6
	2,612.8	2.5	5	6	7	13		D		2,612.8 **ROADWAY EMBANKMENT** Medium dense, brown and gray, SAND and GRAVEL (A-1-b)	2.5
2610	2,610.3	5.0	10	53	41	94		D		**RESIDUAL**	
	2,607.8	7.5	32	68/0.2		100/0.7				2,608.3 Stiff to hard, brown and gray, SILT (A-4), micaceous, saprolitic	7.0
2605	2,605.3	10.0	100/0.3			100/0.3				**WEATHERED ROCK** 2,605.0 Gray, GNEISS	10.3
										Boring Terminated at Elevation 2,605.0 ft in Weathered Rock (GNEISS)	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_8 (HDR)	**STATION** 14+88	**OFFSET** 20 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,612.3 ft	**TOTAL DEPTH** 10.9 ft	**NORTHING** 665,625	**EASTING** 818,331	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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
2615										
	2,611.7	0.6	6	4	5	9		D		2,612.3 GROUND SURFACE 0.0
2610	2,609.8	2.5	8	7	8	15		D		2,611.7 0.6' PAVEMENT 0.6
	2,607.3	5.0	64	36/0.2		100/0.7				2,609.8 **ROADWAY EMBANKMENT** Loose, gray and brown, SAND and GRAVEL (A-1-b) 2.5
2605	2,604.8	7.5	10	15	14	29	SS-4			2,607.8 4.5
	2,602.3	10.0	24	76/0.3		100/0.8				**RESIDUAL** 2,605.3 Stiff, brown and black, SILT (A-4), micaceous 7.0
										WEATHERED ROCK 2,603.3 Gray and brown, GNEISS 9.0
										RESIDUAL 2,601.4 Medium dense, brown, gray, and white, silty SAND (A-2-4), micaceous, saprolitic 10.9
										WEATHERED ROCK Gray, GNEISS
										Boring Terminated at Elevation 2,601.4 ft in Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_9 (HDR)	**STATION** 15+39	**OFFSET** 18 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,609.5 ft	**TOTAL DEPTH** 11.5 ft	**NORTHING** 665,656	**EASTING** 818,373	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/27/21	**COMP. DATE** 01/27/21	**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)
2610										
	2,608.9	0.6	7	11	8	19		D		2,609.5 / 0.0 GROUND SURFACE 2,608.9 / 0.6 0.6' PAVEMENT
	2,607.0	2.5								2,607.0 / 2.5 **ROADWAY EMBANKMENT** Medium dense, gray and brown, SAND and GRAVEL (A-1-b), micaceous
2605			4	9	7	16		D		**RESIDUAL** Medium dense to very dense, brown, white and black, silty SAND (A-2-4), with trace rock fragments, micaceous
	2,604.5	5.0								
			8	8	10	18		D		
	2,602.0	7.5								
			4	8	11	19		D		
2600	2,599.5	10.0								
			16	32	22	54		D		2,598.0 / 11.5 Boring Terminated at Elevation 2,598.0 ft in SILT

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 8 from -DET01_EB- STA 34+83.83 to 29+30.48				**GROUND WTR (ft)**
BORING NO. RW8_10 (HDR)	**STATION** 15+90	**OFFSET** 17 ft RT	**ALIGNMENT** L_RT	**0 HR.** Dry
COLLAR ELEV. 2,606.5 ft	**TOTAL DEPTH** 11.5 ft	**NORTHING** 665,687	**EASTING** 818,414	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 01/26/21	**COMP. DATE** 01/26/21	**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
2610										
	2,605.9	0.6	7	10	7	17		D		2,606.5 / 0.0 GROUND SURFACE 2,605.9 / 0.6 0.6' PAVEMENT
2605										2,604.0 / 2.5 **ROADWAY EMBANKMENT** Medium dense, brown, SAND and GRAVEL (A-1-b)
	2,604.0	2.5	4	4	5	9	SS-3	D		**RESIDUAL** Loose to medium dense, white, brown and red, silty SAND (A-2-5) micaceous, saprolitic
	2,601.5	5.0								
			6	8	13	21		D		
2600	2,599.0	7.5								
			5	5	7	12		D		
	2,596.5	10.0								
2595			6	7	10	17		D		2,595.0 / 11.5 Boring Terminated at Elevation 2,595.0 ft in SILTY SAND

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. S1_EB1_A	**STATION** 31+44	**OFFSET** 13 ft LT	**ALIGNMENT** L_LT	**0 HR.** 9.0
COLLAR ELEV. 2,585.9 ft	**TOTAL DEPTH** 38.5 ft	**NORTHING** 666,931	**EASTING** 819,344	**24 HR.** 7.0
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/14/23	**COMP. DATE** 02/14/23	**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)
2590											
										2,585.9	GROUND SURFACE 0.0
2585	2,584.9	1.0	2	5	4	9		M			**ROADWAY EMBANKMENT** Brown to gray, loose, silty sand (A-2-4), micaceous
	2,582.4	3.5	3	5	4	9		M		2,580.9	5.0
2580	2,579.9	6.0	2	2	2	4	SS-003				**ALLUVIAL** Gray and white, soft, silty clay and peat, highly organic (A-7-6)
	2,577.4	8.5	4	4	4	8		M		2,577.4	8.5
2575											Brown, soft, sandy silt (A-4)
	2,572.4	13.5	0	0	1	1		Sat.		2,573.9	12.0
2570											Gray, soft, sandy clay (A-6)
	2,567.4	18.5	WOH	2	3	5		M			
2565										2,563.9	22.0
	2,562.4	23.5	46	32	19	51	SS-007	M			**RESIDUAL** Orange to gray to brown, very dense, clayey sand (A-2-6), micaceous
2560											
	2,557.4	28.5	10	19	65	84		M		2,554.8	31.1
2555											Brown to white, very dense, sandy silt (A-4), micaceous
	2,552.4	33.5	30	29	26	55		M			
2550											
	2,547.4	38.5	60/0.0			60/0.0				2,547.4	38.5
											Boring Terminated by Auger Refusal at Elevation 2,547.4 ft on Rock.
											ST-001 had 100% recovery.
											Other Samples: ST-001 (15.0 - 17.0)

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. S1_EB1_B	**STATION** 32+24	**OFFSET** 31 ft RT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,587.7 ft	**TOTAL DEPTH** 42.7 ft	**NORTHING** 666,954	**EASTING** 819,431	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/14/23	**COMP. DATE** 02/14/23	**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
2590										
										2,587.7 GROUND SURFACE 0.0
2585	2,586.7	1.0	4	4	5	9		M		**ROADWAY EMBANKMENT** Brown, loose, sandy silt (A-4), micaceous, trace gravel
	2,584.2	3.5	7	6	8	14	SS-012	40%		
	2,581.7	6.0	5	7	10	17		M		2,581.2 6.5
2580	2,579.2	8.5	3	3	3	6		W		**ALLUVIAL** Gray-brown, medium dense, sand (A-1-B), fine to medium grained sand
	2,574.2	13.5	0	2	2	4		W		2,576.7 11.0
2575										Dark gray, soft, sandy silt (A-4), fine grained sand, micaceous
	2,569.2	18.5	0	2	2	4		W		2,570.7 17.0
2570										Brown-gray, loose, sand (A-1-B), some silt
	2,564.2	23.5	2	3	3	6	SS-017	206%		2,564.2 23.5
2565										Black, medium stiff, sandy silt (A-4), organic, some wood fragments
	2,559.2	28.5	6	13	36	49		W		2,558.4 29.3
2560										**RESIDUAL** Gray and white, very dense, gravel (A-1-A), some coarse sand
	2,554.2	33.5	22	24	35	59		W		2,550.2 37.5
2555										**WEATHERED ROCK** White, migmatitic biotite gneiss
	2,549.2	38.5	100/0.7			100/0.7				2,545.0 42.7
2550	2,545.0	42.7	60/0.0			60/0.0				Boring Terminated by Auger Refusal at Elevation 2,545.0 ft on Rock.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)				**GROUND WTR (ft)**
BORING NO. S1_EB1-C (HDR)	**STATION** 23+46	**OFFSET** 7 ft RT	**ALIGNMENT** L_LT	**0 HR.** 16.3
COLLAR ELEV. 2,575.8 ft	**TOTAL DEPTH** 25.1 ft	**NORTHING** 666,287	**EASTING** 818,871	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 03/09/21	**COMP. DATE** 03/09/21	**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)
2580											
2575	2,575.8	0.0	2	3	3	6		D		2,575.8 GROUND SURFACE	0.0
	2,573.3	2.5	4	2	3	5		D		**ROADWAY EMBANKMENT** 2,573.8 Loose, red and brown, clayey SAND (A-2-6)	2.0
2570	2,570.8	5.0	2	3	4	7		D		Soft to medium stiff, red and brown, sandy CLAY (A-6)	
	2,568.3	7.5	2	2	2	4		D		2,566.3 Medium stiff, red, sandy CLAY (A-7-6)	9.5
2565	2,565.8	10.0	1	1	4	5		M		2,562.8 **ALLUVIAL**	13.0
2560	2,560.8	15.0	6	11	20	31				Dense, gray and black, SAND and GRAVEL (A-1-b)	
	2,555.8	20.0	14	13	21	34		D		2,557.8 **RESIDUAL**	18.0
2555	2,551.1	24.7	100/0.3			100/0.3				Dense, brown, tan and red, SILT (A-4), saprolitic	
	2,550.7	25.1	60/0.0			60/0.0				2,551.1 **WEATHERED ROCK**	24.7
										2,550.7 Gray, GNEISS	25.1
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,550.7 ft on Crystalline Rock (GNEISS)	

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. S1_EB2_A	**STATION** 31+53	**OFFSET** 71 ft LT	**ALIGNMENT** L_LT	**0 HR.** Dry
COLLAR ELEV. 2,585.4 ft	**TOTAL DEPTH** 41.3 ft	**NORTHING** 666,978	**EASTING** 819,308	**24 HR.** 6.2
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/15/23	**COMP. DATE** 02/15/23	**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
2590										
2585	2,584.4	1.0	4	3	4	7		M		2,585.4 GROUND SURFACE 0.0
	2,581.9	3.5	3	2	3	5		M		**ROADWAY EMBANKMENT**
2580	2,579.4	6.0	0	0	2	2		M		2,582.9 Red, loose, clayey sand (A-2-6), fine to coarse grained sand 2.5
	2,576.9	8.5	0	0	3	3	SS-038	31%		**ALLUVIAL**
2575	2,571.9	13.5	4	4	5	9		M		Gray, medium stiff, sandy silt (A-4), fine grained sand
	2,566.9	18.5	3	3	4	7	SS-040	19%		2,576.6 8.8
2570	2,561.9	23.5	4	8	13	21		W		**RESIDUAL**
	2,556.9	28.5	28	100/0.9		100/0.9				Red-brown, soft, silty clay (A-7-6)
2565	2,551.9	33.5	100/0.3			100/0.3				2,572.9 12.5
2560	2,546.9	38.5	100/0.3			100/0.3				Orange to gray, stiff, sandy silt (A-4), fine grained sand
2555	2,544.1	41.3	60/0.0			60/0.0				2,562.9 22.5
										Brown to gray, medium dense, silty sand (A-2-4), fine to coarse grained sand
										2,558.9 26.5
										WEATHERED ROCK
										Orange-brown to white, migmatitic biotite gneiss
										2,544.1 41.3
										Boring Terminated by Auger Refusal at Elevation 2,544.1 ft on Rock.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** Alex Lozada	
SITE DESCRIPTION Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74				**GROUND WTR (ft)**
BORING NO. S1_EB2_B	**STATION** 34+10	**OFFSET** 16 ft RT	**ALIGNMENT** L_LT	**0 HR.** N/A
COLLAR ELEV. 2,607.3 ft	**TOTAL DEPTH** 45.7 ft	**NORTHING** 667,083	**EASTING** 819,563	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER Michael Moseley	**START DATE** 02/16/23	**COMP. DATE** 02/16/23	**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)
2610										
										2,607.3 GROUND SURFACE 0.0
	2,606.3	1.0								**ROADWAY EMBANKMENT**
2605			5	4	4	8		M		Red-brown, very soft to medium stiff, sandy silt (A-4)
	2,603.8	3.5								
			4	3	3	6		M		
	2,601.3	6.0								
2600			0	0	1	1	SS-068	26%		
	2,598.8	8.5								
			2	3	3	6		M		
2595										
	2,593.8	13.5								
			2	2	2	4		M		
2590										
	2,588.8	18.5								2,588.6 18.7
			4	3	5	8		W		**ALLUVIAL**
2585										Gray, soft to medium stiff, sandy silt (A-4)
	2,583.8	23.5								
			0	2	2	4		M		
2580										
	2,578.8	28.5								
			2	2	3	5		M		
2575										
	2,573.8	33.5								2,574.8 32.5
			3	4	5	9	SS-074	18%		Gray, medium stiff, sandy silt (A-4)
2570										
	2,568.8	38.5								2,569.8 37.5
			3	4	4	8		M		Black, medium stiff, silt (A-4), trace organic matter
2565										
										2,565.8 41.5
	2,563.8	43.5								**RESIDUAL**
			12	12	29	41		M		Gray and white, dense, sand (A-1-B), fine to coarse grained sand
	2,561.6	45.7						M		2,561.6 45.7
			60/0.0			60/0.0				Boring Terminated by Auger Refusal at Elevation 2,561.6 ft on Rock.

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)				**GROUND WTR (ft)**
BORING NO. S2_B1-B (HDR)	**STATION** 31+70	**OFFSET** 45 ft RT	**ALIGNMENT** L_LT	**0 HR.** N/A
COLLAR ELEV. 2,584.7 ft	**TOTAL DEPTH** 62.8 ft	**NORTHING** 666,908	**EASTING** 819,403	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/27/21	**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
2585										
	2,584.7	0.0								2,584.7 GROUND SURFACE 0.0
	2,582.2	2.5	2	4	5	9		M		**ROADWAY EMBANKMENT**
			7	12	11	23				2,582.7 Stiff, brown and orange, clayey SILT (A-5), micaceous 2.0
2580	2,579.7	5.0						D		2,580.2 Medium dense, brown, clayey SAND (A-2-6) with trace gravel 4.5
			18	18	16	34				2,577.7 Dense, brown and gray, silty SAND (A-2-4) with little gravel, micaceous 7.0
	2,577.2	7.5						D		**ALLUVIAL**
2575			4	4	4	8				Loose, brown and gray, silty SAND (A-2-4), micaceous
	2,574.7	10.0						M		2,571.7 13.0
			2	2	3	5				Very soft, gray, silty CLAY (A-7-5) and SILT (A-5), micaceous
2570	2,569.7	15.0								
			1	1	1	2	SS-222	62%		
								68%		2,566.7 18.0
2565	2,564.7	20.0								Very loose, brown and gray, silty SAND (A-2-4)
			WOH	WOH	1	1		W		2,563.6 21.1
										Very soft, brown and gray, CLAY (A-7-6)
2560	2,559.7	25.0								2,561.7 23.0
			7	5	2	7				Loose, gray, SAND and GRAVEL (A-1-b)
								Sat.		2,556.7 28.0
2555	2,554.7	30.0								**RESIDUAL**
			9	16	14	30				Medium dense to dense, brown, white, and tan, silty SAND (A-2-4) with little rock fragments
								D		2,551.7 33.0
2550	2,549.7	35.0								Very stiff, brown, orange, and tan, sandy SILT (A-4) with little rock fragments, micaceous, saprolitic
			15	15	14	29				
								D		2,544.7 40.0
2545	2,544.7	40.0	100/0.5			100/0.5				**WEATHERED ROCK**
	2,542.2	42.5	60/0.0			60/0.0				2,542.7 Brown, gray, and white, GNEISS 42.0
2540										**CRYSTALLINE ROCK**
										No Recovery, begin rock coring at 42.0'
										Light to dark gray and white with trace pink, Migmatic Biotite GNEISS
2535							RS-13			
2530										
										2,526.6 58.1
2525										Grey and white, METAGRAYWACKE and QUARTZITE
										2,521.9 62.8
										Boring Terminated at Elevation 2,521.9 ft in Crystalline Rock (METAGRAYWACKE and QUARTZITE)

NOTES

15.0- 17.0': ST-2 lab classified as (A-7-5)(16) in offset hole ~3' upstation
15.0 - 16.5': SS-222 lab classified as (A-5)(13)

Other Samples:
ST-2 (15.0 - 17.0)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 48030.1.FS1	**TIP** B-5898/B-3186	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_EB1-A (HDR)	**STATION** 30+87	**OFFSET** 53 ft LT	**ALIGNMENT** L_LT	**0 HR.** 13.0
COLLAR ELEV. 2,584.6 ft	**TOTAL DEPTH** 34.5 ft	**NORTHING** 666,917	**EASTING** 819,274	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/25/21	**COMP. DATE** 02/25/21	**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)
2585	2,584.6	0.0								2,584.6 GROUND SURFACE	0.0
	2,582.1	2.5	5	7	4	11		M		2,583.6 **ROADWAY EMBANKMENT** Medium dense, brown, f SAND (A-2-4), with trace gravel	1.0
2580	2,579.6	5.0	3	4	4	8		M		2,580.1 Soft, brown and orange, CLAY (A-7)	4.5
	2,577.1	7.5	6	5	6	11		M		Loose to medium dense, gray, f-c SAND (A-2-4)	
2575	2,574.6	10.0	3	3	3	6		Sat.		2,574.6 **ALLUVIAL**	10.0
			3	2	2	4	SS-513	51%		Soft, gray, SILT (A-5), micaceous	
2570	2,569.6	15.0								2,571.6 Very loose, gray, f silty SAND (A-2-4), micaceous	13.0
			1	WOH	1	1		W			
2565	2,564.6	20.0								2,566.6 Soft, gray, f sandy SILT (A-4), micaceous	18.0
			1	1	2	3		W			
2560	2,559.6	25.0								2,561.6 **RESIDUAL**	23.0
			4	7	11	18		W		Very stiff, brown and orange, f sandy SILT (A-4), micaceous, saprolitic	
2555	2,554.6	30.0	90	10/0.1		100/0.6				2,554.6 **WEATHERED ROCK** Brown, orange, and white, GNEISS	30.0
	2,550.1	34.5	60/0.0			60/0.0				2,550.1 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,550.1 ft on Crystalline Rock (GNEISS)	34.5

Other Samples:
ST-4 (15.0 - 17.0)

SOIL TEST RESULTS

Soil Classification and Gradation

AECOM

5438 Wade Park Blvd Suite 200, Raleigh, NC 27607

WBS No.: 48030.1.FS1
Project Description: Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74
Client Name: NCDOT

County: Haywood
TIP No: B-5898/B-3186

										% BY WEIGHT				% FINER (SIEVES)				
BORING NO.	SAMPLE NO.	OFFSET	STATION	ALIGNMENT	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.	P.I.	GRAVEL	C. SAND	F. SAND	FINES	10	40	200	% MOISTURE	% ORGANICS
RW2_1	SS-120	19' LT	10+00	L_LT	8.5-10.0	A-4 (0)	0	0	0	1.72	16.88	27.84	53.57	98.28	81.41	53.57	24.4	-
RW2_2	SS-127	17' LT	10+51	L_LT	18.5-20.0	A-4 (0)	0	0	0	0.96	3.98	27.83	67.23	99.04	95.07	67.23	31.5	-
RW2_3	SS-132	18' LT	11+01	L_LT	8.5-10.0	A-4 (0)	0	0	0	0.60	19.99	41.89	37.53	99.40	79.41	37.53	20.7	-
RW2_4	SS-136	17' LT	11+49	L_LT	1.0-2.5	A-4 (0)	0	0	0	1.10	19.95	41.63	37.33	98.90	78.96	37.33	19.3	-
RW2_5	SS-141	18' LT	11+99	L_LT	3.5-5.0	A-4 (0)	0	0	0	0.26	10.70	39.23	49.81	99.74	89.04	49.81	21.3	-
RW2_6	SS-148	18' LT	12+50	L_LT	3.5-5.0	A-4 (1)	36	32	4	0.14	9.46	37.16	53.24	99.86	90.40	53.24	17.9	-
RW2_6	SS-152	18' LT	12+50	L_LT	18.5-20.0	A-4 (0)	0	0	0	0.01	4.09	26.98	68.91	99.99	95.89	68.91	30.2	-
RW2_7	SS-158	16' LT	13+00	L_LT	13.5-15.5	A-4 (0)	0	0	0	0.00	6.47	43.42	50.11	100.00	93.53	50.11	24.9	-
RW2_8	SS-163	17' LT	13+51	L_LT	6.0-7.5	A-4 (0)	0	0	0	1.07	9.64	41.75	47.54	98.93	89.29	47.54	14.1	-
RW2_9	SS-169	13' LT	14+00	L_LT	3.5-5.0	A-4 (0)	0	0	0	0.76	10.69	42.26	46.29	99.24	88.55	46.29	22.7	-
RW2_10	SS-176	14' LT	14+51	L_LT	6.0-7.5	A-4 (0)	39	37	2	0.27	19.31	40.07	40.35	99.73	80.43	40.35	18.9	-
RW2_11	SS-180	15' LT	14+98	L_LT	1.0-2.5	A-4 (0)	0	0	0	1.19	20.83	35.56	42.42	98.81	77.98	42.42	16.5	-
RW2_12	SS-187	17' LT	15+47	L_LT	3.5-5.0	A-4 (0)	0	0	0	0.29	5.59	37.59	56.52	99.71	94.11	56.52	21.5	-
RW2_13	SS-193	18' LT	16+05	L_LT	6.0-7.5	A-2-4 (0)	0	0	0	5.17	22.05	41.30	31.48	94.83	72.79	31.48	13.5	-
L_LT_2007	SS-201	5 RT	20+07	L_LT	1.0-2.5	A-7-5 (5)	45	33	12	5.88	10.31	30.23	53.58	94.12	83.81	53.58	28.8	-
L_LT_2007	SS-203	5 RT	20+07	L_LT	6.0-7.5	A-7-5 (6)	44	32	12	1.22	9.94	29.90	58.94	98.78	88.84	58.94	25.1	-
L_LT_2206	SS-196	3' RT	22+06	L_LT	3.5-5.0	A-6 (4)	40	28	12	1.29	12.06	34.47	52.18	98.71	86.65	52.18	28.7	-
L_LT_2206	SS-199	3' RT	22+06	L_LT	13.5-15.0	A-1-A (1)	0	0	0	53.70	17.96	21.44	6.90	46.30	28.33	6.90	17.0	-
RW5_1	SS-245	25' RT	26+29	L_LT	8.5-10.0	A-7-5 (25)	66	47	19	0.00	0.80	9.10	90.10	100.00	99.20	90.10	79.7	-
RW5_2	SS-235	28' RT	26+79	L_LT	3.5-5.0	A-2-4 (0)	0	0	0	2.18	18.88	51.90	27.03	97.82	78.93	27.03	27.3	-
RW5_3	SS-231	29' RT	27+29	L_LT	8.5-10.0	A-5 (7)	51	42	9	0.00	2.28	32.98	64.74	100.00	97.72	64.74	74.6	-
RW5_4	SS-224	31' RT	27+81	L_LT	8.5-10.0	A-7-5 (17)	63	49	14	0.00	0.84	17.18	81.98	100.00	99.16	81.98	68.6	-
RW5_5	SS-219	32' RT	28+29	L_LT	18.5-20.0	A-1-A (1)	0	0	0	64.18	14.39	14.32	7.12	35.82	21.43	7.12	9.4	-
RW5_6	SS-209	33' RT	28+80	L_LT	6.0-7.5	A-2-4 (0)	0	0	0	11.85	21.66	44.09	22.40	88.15	66.49	22.40	16.5	-
RW5_7	SS-110	36' RT	29+30	L_LT	3.5-5.0	A-4 (0)	0	0	0	4.56	17.19	39.16	39.09	95.44	78.25	39.09	22.4	-
RW5_8	SS-101	17' LT	13+51	L_LT	3.5-5.0	A-4 (0)	34	6	4.43	16.72	42.20	36.65	95.57	78.85	36.65	20.9	-	-
RW5_8	SS-103	43' RT	29+77	L_LT	8.5-10.0	A-2-4 (0)	0	0	0	3.73	14.24	58.88	23.15	96.27	82.03	23.15	33.4	-
RW5_9	SS-90	47' RT	30+29	L_LT	1.0-2.5	A-4 (0)	0	0	0	8.60	14.01	40.63	36.76	91.40	77.40	36.76	23.6	-
RW5_10	SS-81	50' RT	30+81	L_LT	8.5-10.0	A-2-4 (0)	0	0	0	5.15	13.59	63.88	17.38	94.85	81.26	17.38	11.2	-
S2_EB1-A (HDR)	SS-513	53' LT	30+87	L_LT	10.0-11.5	A-5 (9)	48	38	10	0.00	4.10	32.50	63.40	100.00	98.00	74.10	51.0	-
S2_EB1-A (HDR)	ST-4	53' LT	30+87	L_LT	15.0-17.0	A-2-4	27	21	6	0.00	41.20	30.80	28.00	94.40	66.30	31.20	28.0	-
RW5_11	SS-252	54' RT	31+31	L_LT	6.0-7.5	A-2-4 (0)	0	0	0	5.42	17.87	54.99	21.72	94.58	76.71	21.72	14.4	-
S1_EB1_A	SS-3	13' LT	31+44	L_LT	6.0-7.5	A-7-6 (12)	48	24	24	1.81	9.71	28.45	60.04	98.19	88.49	60.04	24.2	40.2
S1_EB1_A	SS-7	13' LT	31+44	L_LT	23.5-25.0	A-2-6 (1)	32	17	15	31.43	10.19	39.01	33.62	68.57	58.38	33.62	17.3	-
S1_EB1_A	ST-1	13' LT	31+44	L_LT	15.0-17.0	A-6 (8)	38	25	13	0.45	8.83	22.07	68.64	99.55	90.72	68.64	45.5	-
S1_EB2_A	SS-38	71' LT	31+53	L_LT	8.5-10.0	A-7-6 (13)	50	28	22	0.04	13.00	22.82	64.14	99.96	86.96	64.14	31.1	-
S1_EB2_A	SS-40	71' LT	31+53	L_LT	18.5-20.0	A-4 (0)	0	0	0	1.34	15.78	33.29	49.59	98.66	82.88	49.59	18.6	-
S1_EB1_B	SS-12	31' RT	32+24	L_LT	3.5-5.0	A-4 (0)	0	0	0	19.99	12.39	30.65	36.97	80.01	67.62	36.97	40.1	0.2
S1_EB1_B	SS-17	31' RT	32+24	L_LT	23.5-25.0	A-4 (0)	0	0	0	0.02	4.68	19.89	75.41	99.98	95.31	75.41	205.7	-
S2_B1-B (HDR)	SS-222	45' RT	31+70	L_LT	13.5-15.0	A-5 (13)	41	10	0.00	26.80	36.00	37.20	86.60	72.30	36.70	43.0	-	-
S2_B1-B (HDR)	ST-2	45' RT	31+70	L_LT	15.0-17.0	A-7-5 (16)	46	11	0.00	1.30	14.30	84.40	100.00	99.60	87.30	68.0	-	-
S1_EB1_C	SS-25	56' RT	32+83	L_LT	8.5-10.0	A-6 (7)	40	22	18	1.29	11.72	33.46	53.54	98.71	87.00	53.54	29.1	-
S1_EB1_C	SS-26	56' RT	32+83	L_LT	13.5-15.0	A-2-4 (0)	0	0	0	0.10	5.32	68.58	25.99	99.90	94.58	25.99	37.5	-
S1_EB2_B	SS-68	16' RT	34+10	L_LT	6.0-7.5	A-4 (2)	36	26	10	5.60	17.19	32.70	44.50	94.40	77.20	44.50	25.8	-
S1_EB2_B	SS-74	16' RT	34+10	L_LT	33.5-35.0	A-4 (2)	27	18	9	2.73	15.00	33.51	48.76	97.27	82.27	48.76	18.0	1.2

SOIL TEST RESULTS

Soil Classification and Gradation

AECOM

5438 Wade Park Blvd Suite 200, Raleigh, NC 27607

WBS No.: 48030.1.FS1
Project Description: Bridges 430155 and 430158 over Richland Creek and Bridge 430168 over US 19/23 on US 23-74
Client Name: NCDOT

County: Haywood
TIP No: B-5898/B-3186

										% BY WEIGHT				% FINER (SIEVES)				
BORING NO.	SAMPLE NO.	OFFSET	STATION	ALIGNMENT	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.	P.I.	GRAVEL	C. SAND	F. SAND	FINES	10	40	200	% MOISTURE	% ORGANICS
RW-8_1	SS-56	56' RT	34+27	L_LT	1.0-2.5	A-7-5 (5)	49	30	19	9.87	12.18	32.15	45.80	90.13	77.95	45.80	22.8	-
RW-8_1	SS-60	56' RT	34+27	L_LT	13.5-15.0	A-4 (0)	0	0	0	1.61	13.97	35.05	49.37	98.39	84.42	49.37	36.5	-
RW-8_2	SS-54	65' RT	34+78	L_LT	33.5-35.0	A-6 (8)	37	19	18	4.29	11.04	24.70	59.97	95.71	84.66	59.97	29.6	-
RW8_2 (HDR)	SS-2	19' RT	11+74	L_RT	2.5-4.0	A-6 (2)	34	21	13	0.00	33.60	31.10	35.30	96.00	76.00	41.00	15.0	-
RW3_1	SS-266	142' RT	12+56	L_RT	18.5-20.0	A-5 (3)	53	44	9	0.03	7.14	46.72	46.11	99.97	92.83	46.11	23.3	-
RW3_1	SS-268	142' RT	12+56	L_RT	28.5-30.0	A-2-4 (0)	0	0	0	8.40	16.15	40.24	35.21	91.60	75.45	35.21	9.1	-
RW3_2	SS-282	235' RT	13+94	L_RT	18.5-20.0	A-4(0)	33	29	4	2.36	18.22	41.66	37.75	97.64	79.42	37.75	9.4	-
RW8_8 (HDR)	SS-4	20' RT	14+88	L_RT	7.5-9.0	A-2-4 (0)	28	22	6	0.00	54.40	23.40	22.20	87.70	50.70	24.30	10.0	-
RW8_10 (HDR)	SS-3	17' RT	15+90	L_RT	2.5-4.0	A-2-5 (1)	44	37	7	0.00	54.20	24.30	21.50	95.10	55.90	25.70	26.0	-

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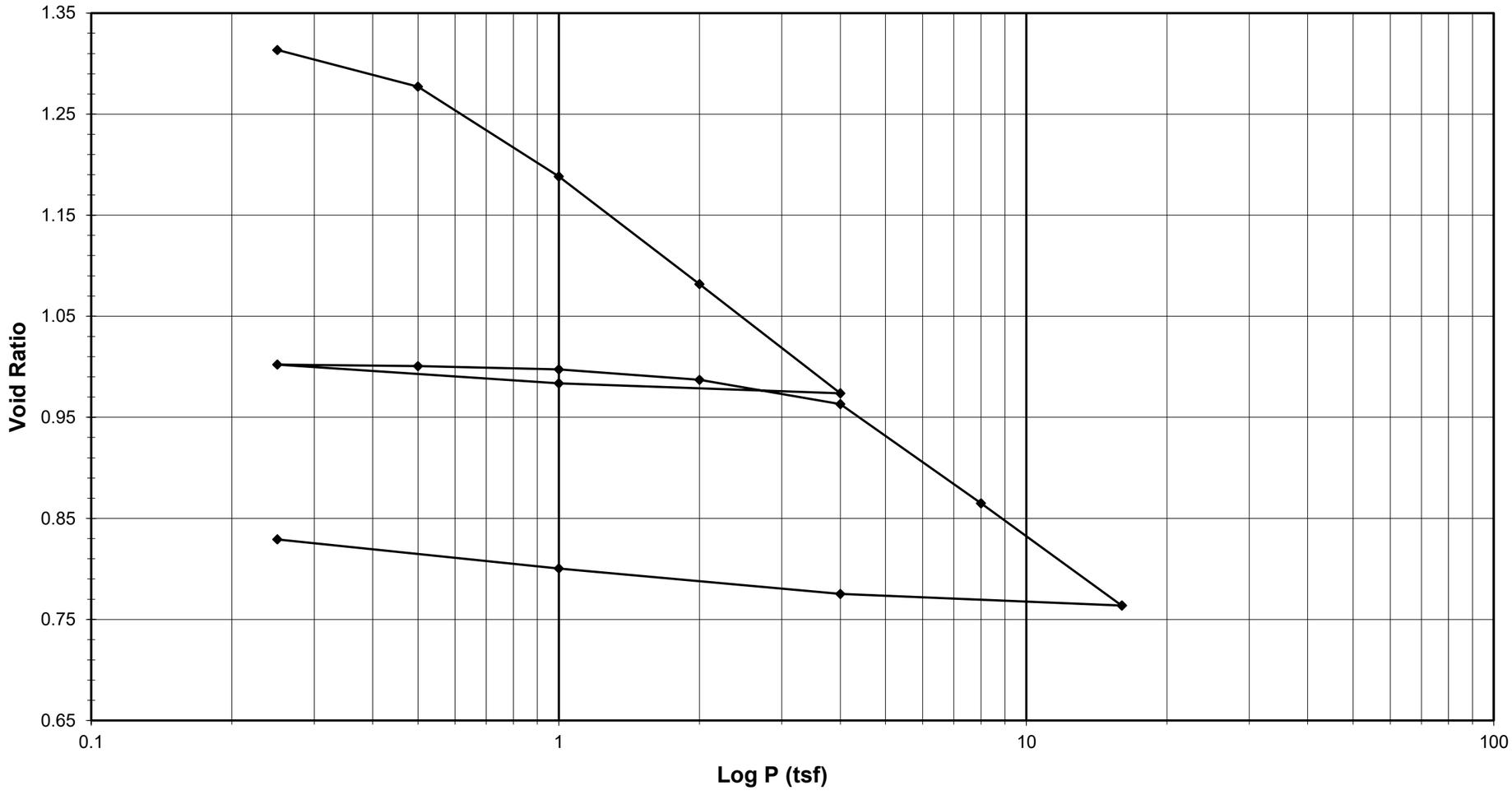
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Tested By *MY* *Date* *4/4/23* *Approved By* *MPS* *Date* *4/21/23*

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ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained
Consolidometer No. R470
1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	490	720
Wt. of Tare & WS (g)	256.44	209.25
Wt. of Tare & DS (g)	207.21	181.94
Wt. of Water (g)	49.23	27.31
Wt. of Tare (g)	99.05	89.89
Wt. of DS (g)	108.16	92.05
Water Content (%)	45.52	29.67
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.7722
Sample Volume (cm^3)	80.44	62.12
Wt. of Wet Sample + Ring (g)	347.10	332.68
Wt. of Ring (g)	214.67	214.67
Wt. of Wet Sample (g)	132.43	118.01
Wet Density (pcf)	102.73	118.55
Wet Density (g/cm^3)	1.65	1.90
Water Content (%)	45.52	29.67
Wt. of Dry Sample (g)	91.01	91.01
Dry Density (pcf)	70.60	91.42
Dry Density (g/cm^3)	1.13	1.47
Void Ratio	1.3688	0.8292
Saturation (%)	89.12	95.89
Specific Gravity	2.68	*Measured*

Test Data Summary

Applied Pressure (tsf)	Final Dial Reading (div)	Machine Deflection (div)	Corrected Reading (div)	Height of Sample (mm)	Volume (cm^3)	Dry Density (g/cm^3)	Void Ratio
Seating	0	0	0	25.400	80.440	1.13137	**1.36881**
0.25	242.8	8.9	233.9	24.806	78.559	1.15846	**1.31341**
0.5	407.5	21.1	386.4	24.418	77.331	1.17685	**1.27727**
1	798.7	36.0	762.7	23.463	74.304	1.22479	**1.18813**
2	1265.4	53.3	1212.1	22.321	70.689	1.28743	**1.08167**
4	1743.6	76.0	1667.6	21.164	67.026	1.35779	**0.97379**
1	1670.3	43.7	1626.6	21.268	67.356	1.35115	**0.98350**
0.25	1570.6	23.4	1547.2	21.470	67.994	1.33845	**1.00231**
0.5	1581.7	27.8	1553.9	21.453	67.940	1.33952	**1.00072**
1	1607.3	39.9	1567.4	21.419	67.831	1.34167	**0.99751**
2	1666.1	55.0	1611.1	21.308	67.480	1.34866	**0.98716**
4	1789.6	76.4	1713.2	21.048	66.659	1.36527	**0.96298**
8	2223.9	96.8	2127.2	19.997	63.329	1.43706	**0.86492**
16	2689.8	135.5	2554.3	18.912	59.893	1.51950	**0.76374**
4	2590.4	84.2	2506.2	19.034	60.280	1.50974	**0.77514**
1	2451.4	52.3	2399.1	19.306	61.141	1.48848	**0.80050**
0.25	2306.4	28.5	2277.9	19.614	62.116	1.46511	**0.82921**

Tested By *MY* *Date* *4/4/23* *Checked By* *MPS* *Date* *4/21/23*

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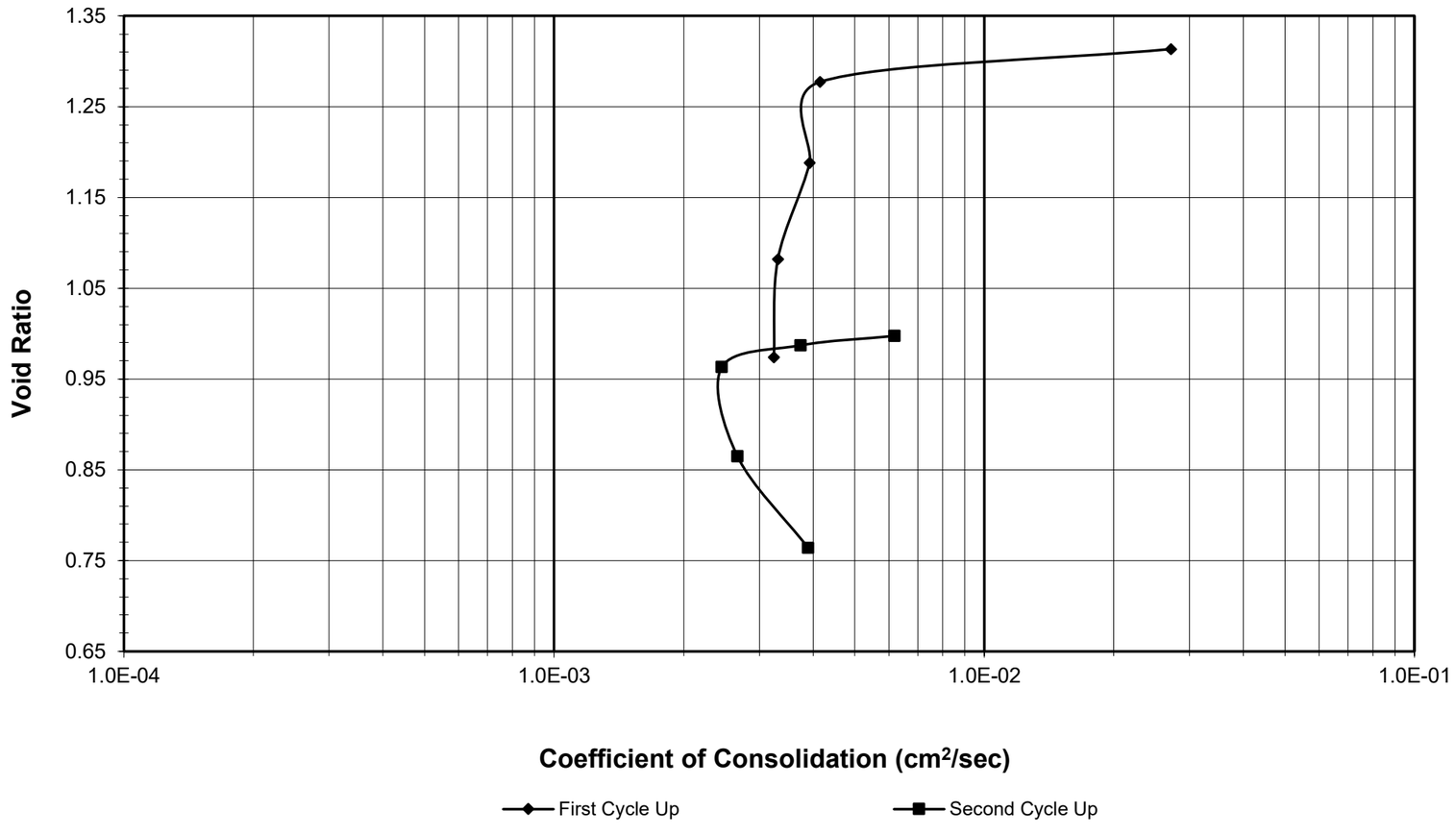
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Tested By MY *Date* 4/4/23 *Checked By* MPS *Date* 4/21/23

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ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained
Consolidometer No. R470
**1 Division = ** 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	490	720
Wt. of Tare & WS (g)	256.44	209.25
Wt. of Tare & DS (g)	207.21	181.94
Wt. of Water (g)	49.23	27.31
Wt. of Tare (g)	99.05	89.89
Wt. of DS (g)	108.16	92.05
Water Content (%)	45.52	29.67
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.7722
Sample Volume (cm^3)	80.44	62.12
Wt. of Wet Sample + Ring (g)	347.10	332.68
Wt. of Ring (g)	214.67	214.67
Wt. of Wet Sample (g)	132.43	118.01
Wet Density (pcf)	102.73	118.55
Wet Density (g/cm^3)	1.65	1.90
Water Content (%)	45.52	29.67
Wt. of Dry Sample (g)	91.01	91.01
Dry Density (pcf)	70.60	91.42
Dry Density (g/cm^3)	1.13	1.47
Void Ratio	1.3688	0.8292
Saturation (%)	89.12	95.89
Specific Gravity	2.68	*Measured*

C_v Test Data Summary

Load Increment	**Dial Reading @ t_{50}**	**Machine Deflection**	**Corrected Dial Reading @ t_{50}**	**Sample Height @ t_{50}**	**Time t_{50}**	**C_v**
(tsf)	(div)	(div)	(div)	(cm)	(min.)	**(cm^2/sec)**
0 - 0.25	141.5	8.9	132.6	2.506	**0.19**	**0.0271**
0.25 - 0.5	318.1	21.1	297.0	2.465	**1.20**	**0.0042**
0.5 - 1	603.0	36.0	567.0	2.396	**1.20**	**0.0039**
1 - 2	1035.1	53.3	981.8	2.291	**1.30**	**0.0033**
2 - 4	1506.8	76.0	1430.8	2.177	**1.20**	**0.0032**
4 - 1	NA	NA	NA	NA	**NA**	**NA**
1 - 0.25	NA	NA	NA	NA	**NA**	**NA**
0.25 - 0.5	NA	NA	NA	NA	**NA**	**NA**
0.5 - 1	1598.2	39.9	1558.3	2.144	**0.61**	**0.0062**
1 - 2	1651.0	55.0	1596.0	2.135	**1.00**	**0.0037**
2 - 4	1740.5	76.4	1664.1	2.117	**1.50**	**0.0025**
4 - 8	2003.2	96.8	1906.4	2.056	**1.30**	**0.0027**
8 - 16	2461.4	135.5	2325.9	1.949	**0.80**	**0.0039**
16 - 4	NA	NA	NA	NA	**NA**	**NA**
4 - 1	NA	NA	NA	NA	**NA**	**NA**
1 - 0.25	NA	NA	NA	NA	**NA**	**NA**

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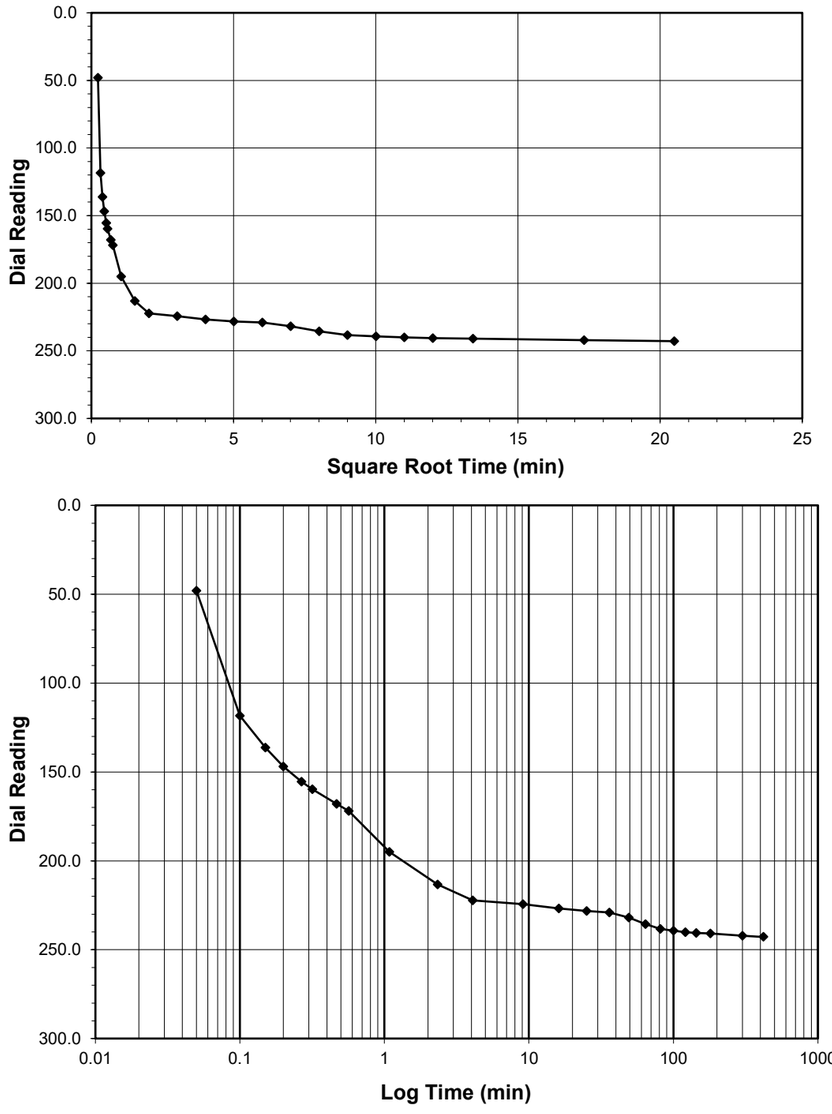
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**0 - 0.25**
Final Reading	**(div)**	**242.8**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/4/2023
Start Time		16:39:25

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	48.0
0.10	118.4
0.15	136.2
0.20	146.9
0.27	155.4
0.32	159.7
0.47	167.9
0.57	171.9
1.08	195.0
2.33	213.2
4.08	222.3
9.08	224.3
16.08	226.7
25.10	228.2
36.10	229.0
49.10	231.8
64.12	235.6
81.12	238.3
100.12	239.3
121.12	240.1
144.12	240.5
180.12	240.9
300.12	242.1
420.22	242.8

Tested By 129-07-0411 *Date* 4/4/23 *Checked By* MPS *Date* 4/21/23

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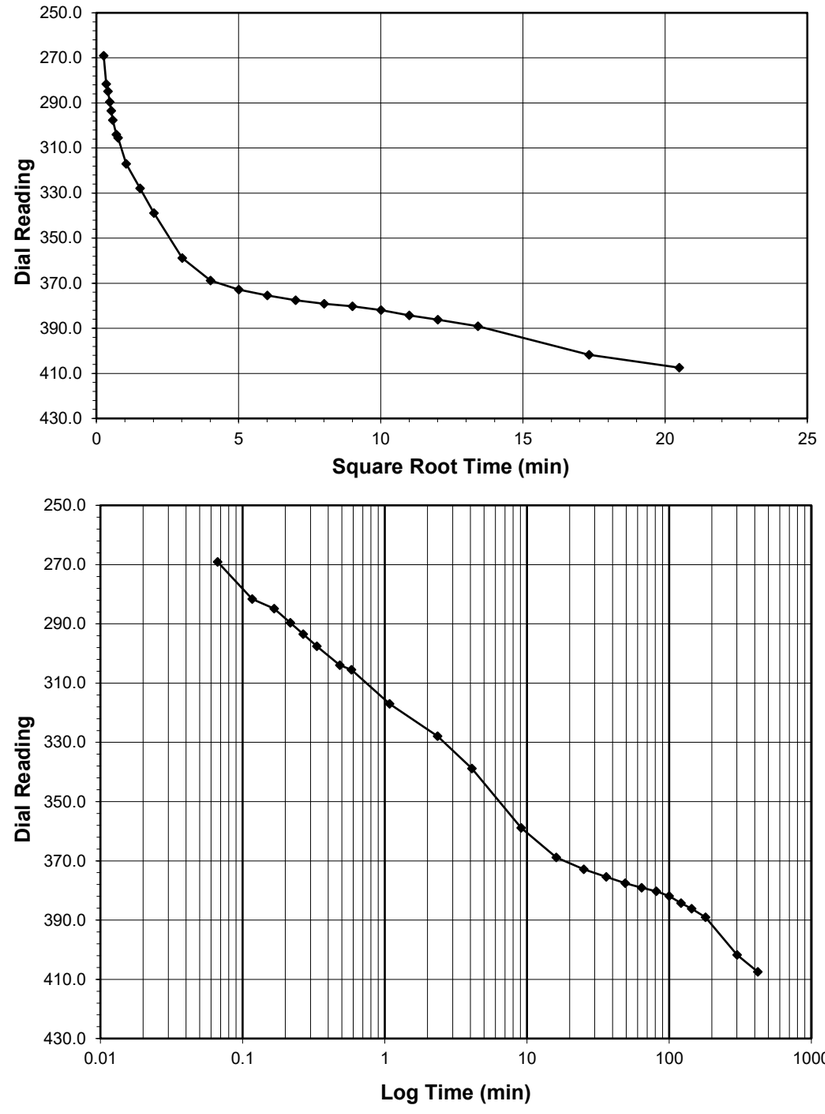
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**0.25 - 0.5**
Final Reading	**(div)**	**407.5**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/4/2023
Start Time		23:39:39

Elapsed Time (min)	Dial Reading (div)
Initial	**242.8**
0.07	269.1
0.12	281.6
0.17	284.8
0.22	289.6
0.27	293.5
0.33	297.6
0.48	304.0
0.58	305.5
1.08	317.0
2.35	327.9
4.10	338.8
9.10	358.8
16.10	368.8
25.10	372.9
36.10	375.4
49.10	377.6
64.12	379.1
81.12	380.3
100.12	381.9
121.13	384.3
144.13	386.2
180.13	389.0
300.15	401.8
420.25	407.5

Tested By 129-07-0411 *Date* 4/4/23 *Checked By* MPS *Date* 4/21/23

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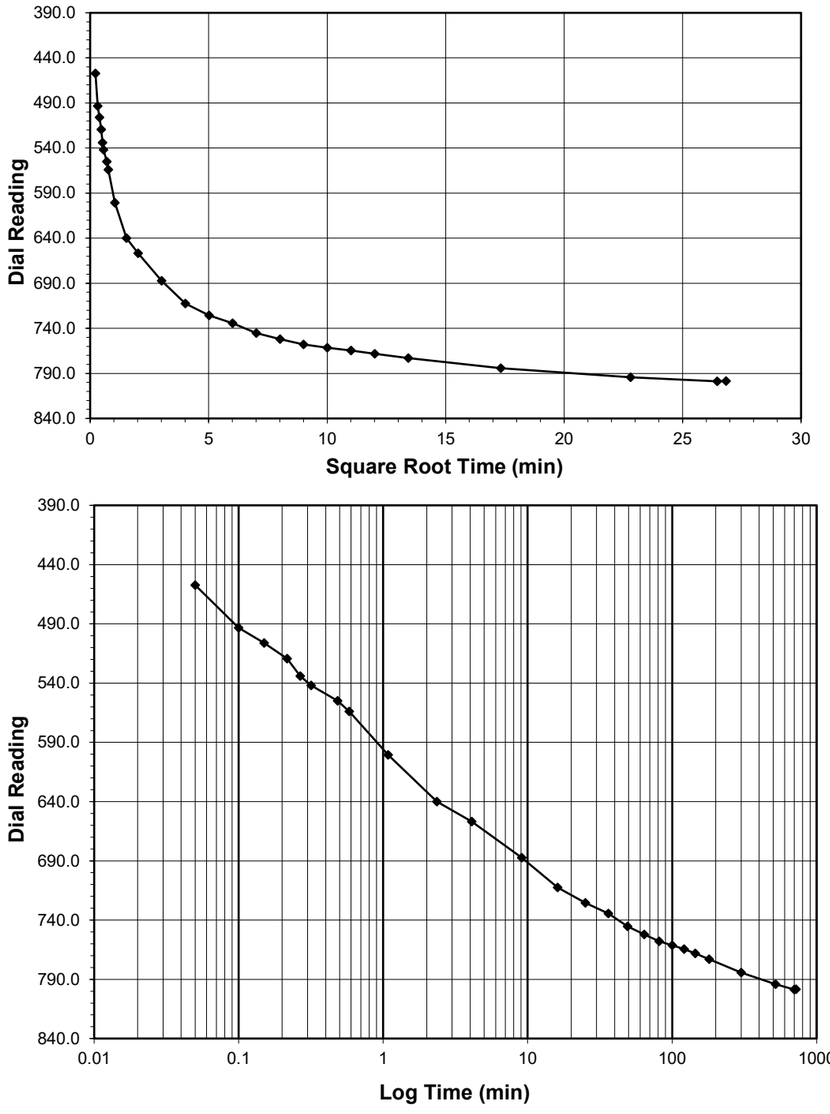
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**0.5 - 1**
Final Reading	**(div)**	**798.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/5/2023
Start Time		6:39:53

Elapsed Time (min)	Dial Reading (div)
Initial	**407.5**
0.05	457.3
0.10	493.4
0.15	506.1
0.22	519.4
0.27	534.0
0.32	541.9
0.48	555.0
0.58	564.0
1.08	600.6
2.35	640.0
4.10	656.8
9.10	687.3
16.12	712.5
25.12	725.6
36.12	734.4
49.12	745.4
64.13	752.0
81.13	758.0
100.13	761.4
121.13	764.5
144.13	768.2
180.15	772.9
300.17	784.3
520.17	794.2
700.17	798.7
720.33	798.5

Tested By *129-07-0411* *Date* *4/5/23* *Checked By* *MPS* *Date* *4/21/23*

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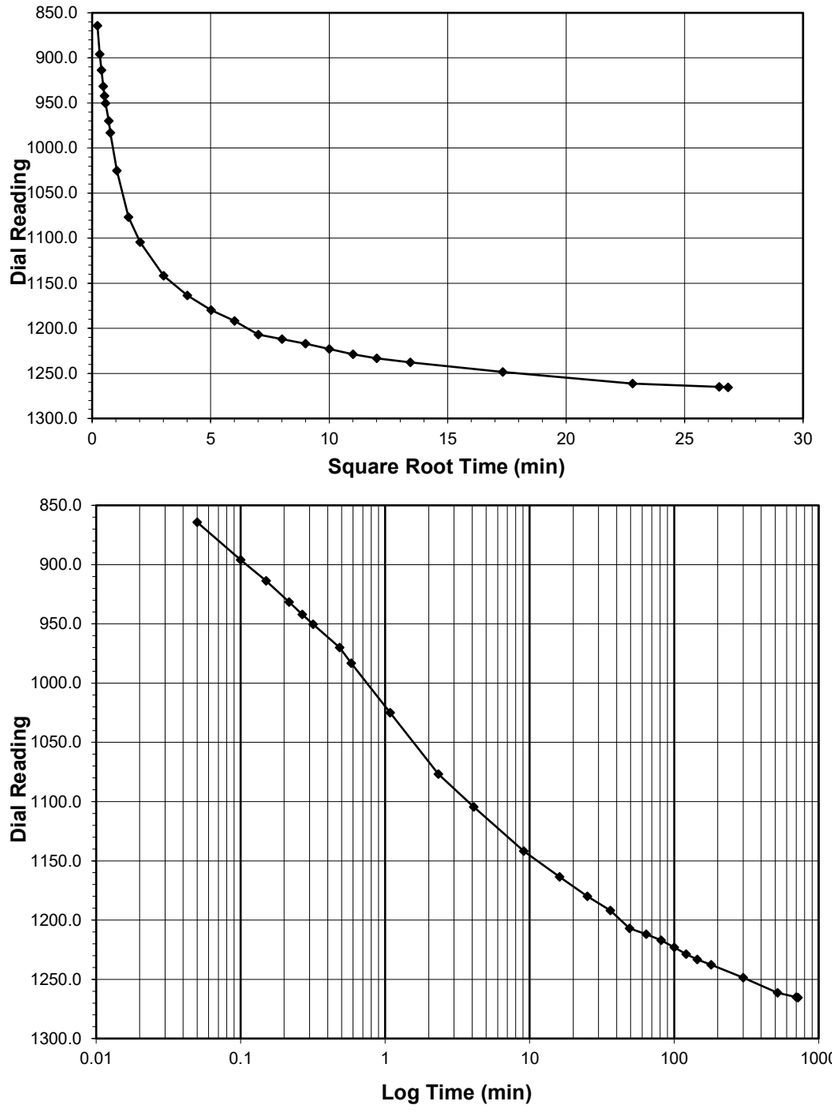
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**1 - 2**
Final Reading	**(div)**	**1265.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/5/2023
Start Time		18:40:13

Elapsed Time (min)	Dial Reading (div)
Initial	**798.7**
0.05	864.3
0.10	896.0
0.15	913.6
0.22	931.6
0.27	942.1
0.32	950.4
0.48	970.0
0.58	983.1
1.08	1025.0
2.33	1076.7
4.10	1104.4
9.10	1141.7
16.10	1163.5
25.12	1179.8
36.12	1191.8
49.12	1207.0
64.13	1212.0
81.13	1217.0
100.13	1223.0
121.15	1228.7
144.15	1233.2
180.15	1237.8
300.15	1248.5
520.17	1261.3
700.17	1265.1
720.02	1265.4

Tested By *129-07-0411* *Date* *4/5/23* *Checked By* *MPS* *Date* *4/21/23*

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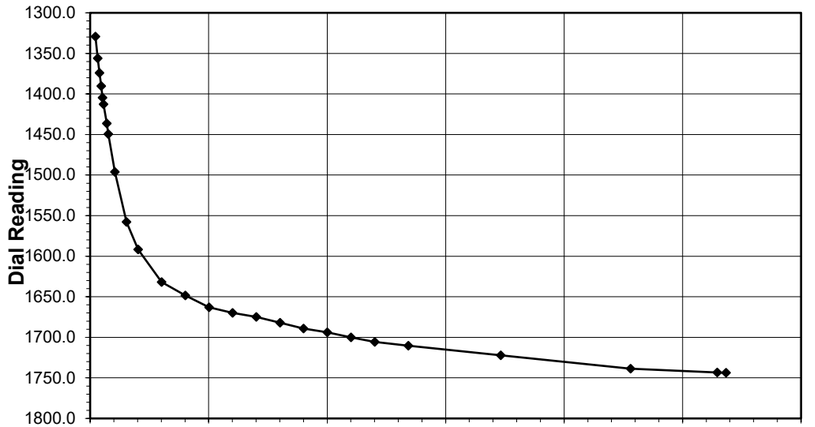
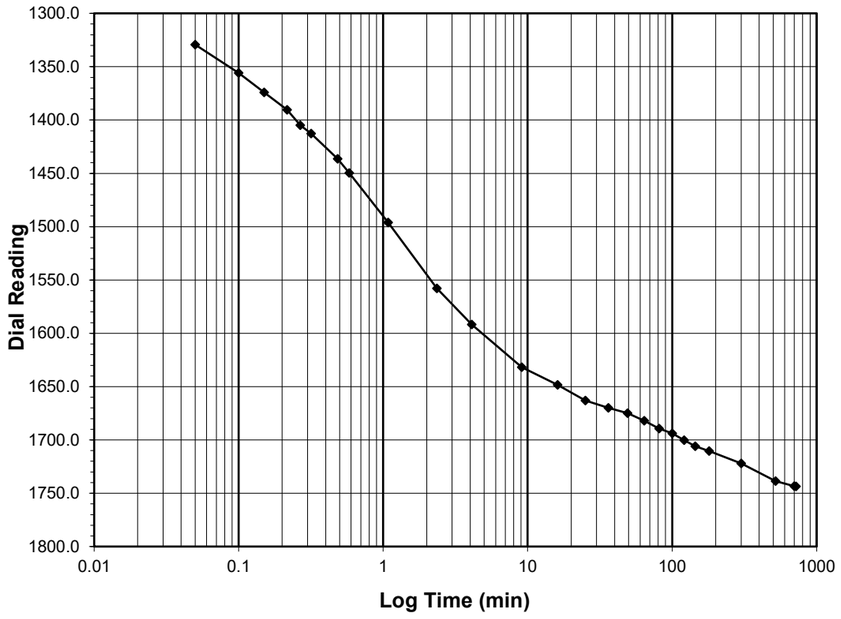
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained





Test Load	**(tsf)**	**2 - 4**
Final Reading	**(div)**	**1743.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/6/2023
Start Time		6:40:14

Elapsed Time (min)	Dial Reading (div)
Initial	**1265.4**
0.05	1329.4
0.10	1355.9
0.15	1374.0
0.22	1390.4
0.27	1404.8
0.32	1412.8
0.48	1436.3
0.58	1449.6
1.08	1496.1
2.35	1557.9
4.10	1591.8
9.10	1631.8
16.12	1648.3
25.12	1662.9
36.12	1669.9
49.13	1674.9
64.13	1681.9
81.13	1689.2
100.13	1693.8
121.13	1700.1
144.13	1705.8
180.13	1710.4
300.15	1722.0
520.15	1738.6
700.15	1743.3
720.23	1743.6

Tested By *129-07-0411* *Date* *4/6/23* *Checked By* *MPS* *Date* *4/21/23*

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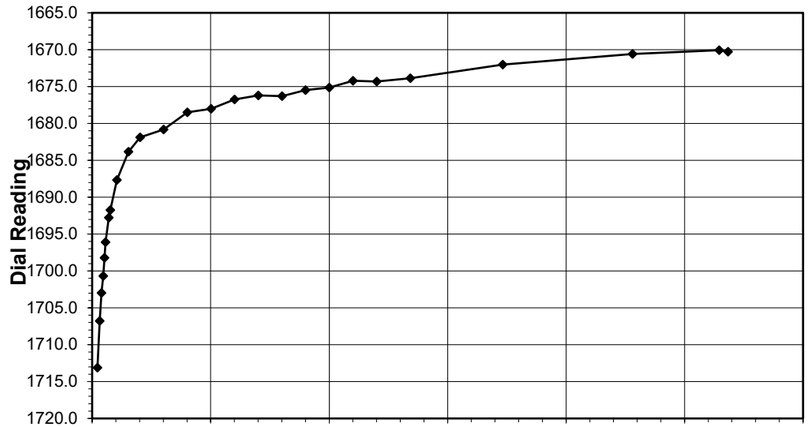
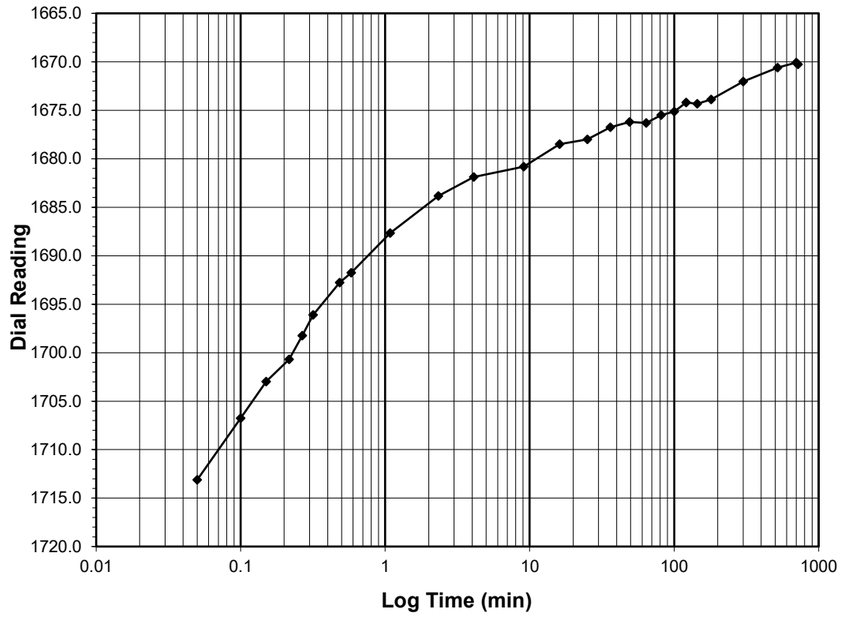
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained





Test Load	**(tsf)**	**4 - 1**
Final Reading	**(div)**	**1670.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/6/2023
Start Time		18:40:28

Elapsed Time (min)	Dial Reading (div)
Initial	**1743.6**
0.05	1713.1
0.10	1706.8
0.15	1703.0
0.22	1700.7
0.27	1698.2
0.32	1696.1
0.48	1692.8
0.58	1691.8
1.08	1687.7
2.33	1683.8
4.10	1681.9
9.10	1680.8
16.12	1678.5
25.12	1678.0
36.12	1676.7
49.13	1676.2
64.13	1676.3
81.13	1675.5
100.13	1675.1
121.13	1674.2
144.13	1674.3
180.13	1673.9
300.15	1672.0
520.15	1670.6
700.17	1670.1
720.15	1670.3

Tested By *129-07-0411* *Date* *4/6/23* *Checked By* *MPS* *Date* *4/21/23*

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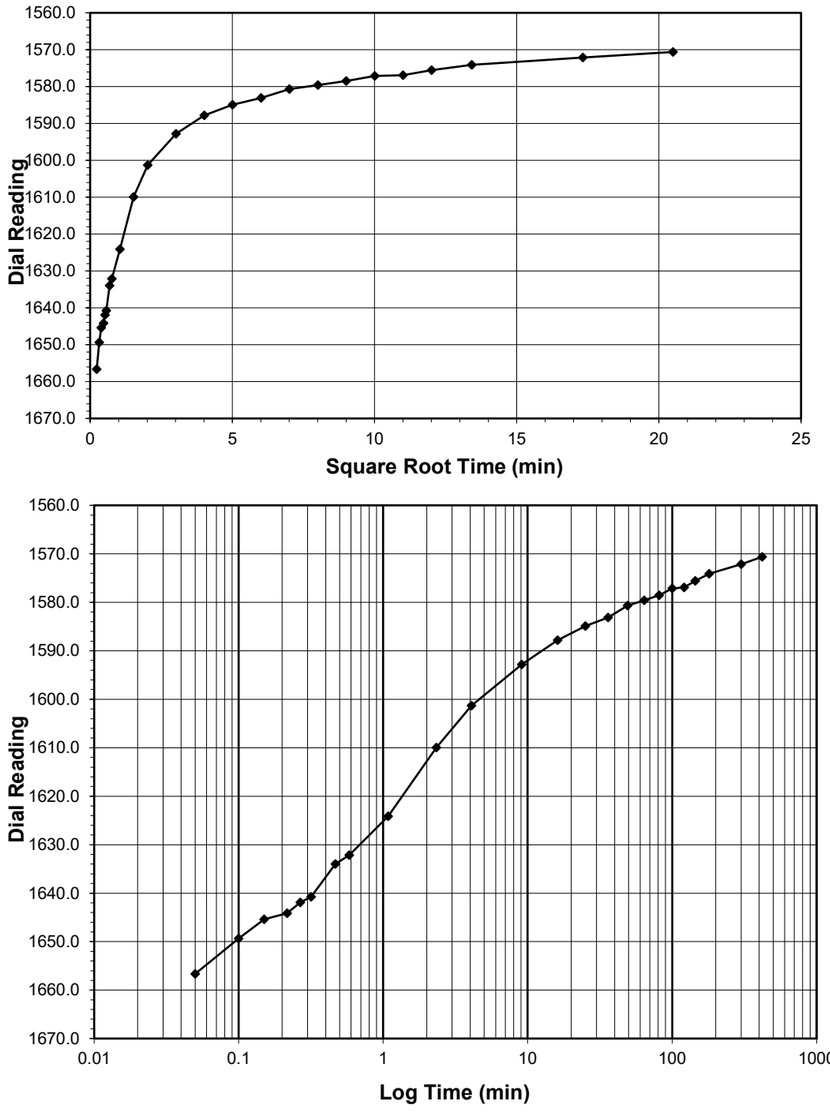
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**1 - 0.25**
Final Reading	**(div)**	**1570.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/7/2023
Start Time		6:40:37

Elapsed Time (min)	Dial Reading (div)
Initial	**1670.3**
0.05	1656.6
0.10	1649.4
0.15	1645.4
0.22	1644.2
0.27	1641.9
0.32	1640.8
0.47	1634.0
0.58	1632.1
1.08	1624.1
2.33	1610.0
4.08	1601.3
9.08	1592.8
16.10	1587.8
25.10	1584.9
36.10	1583.1
49.12	1580.7
64.12	1579.6
81.12	1578.5
100.12	1577.1
121.12	1576.9
144.13	1575.6
180.13	1574.1
300.13	1572.1
420.22	1570.6

Tested By *129-07-0411* *Date* *4/7/23* *Checked By* *MPS* *Date* *4/21/23*

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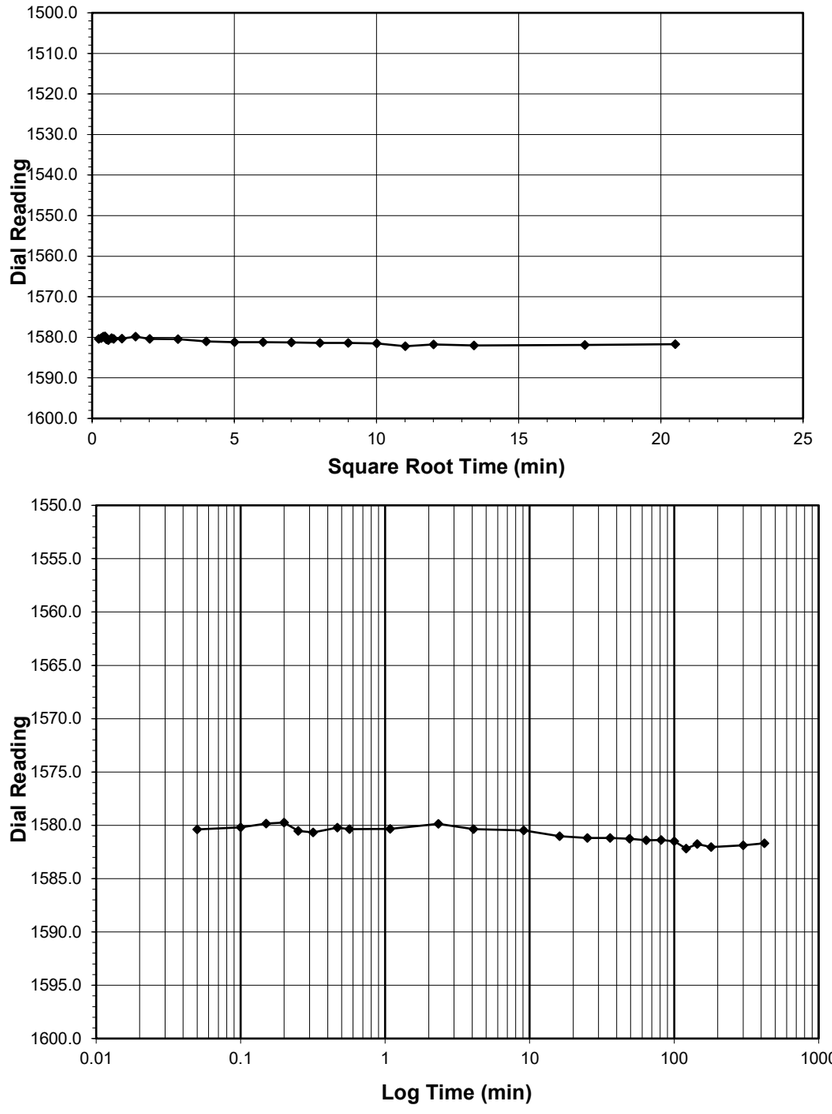
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**0.25 - 0.5**
Final Reading	**(div)**	**1581.7**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/7/2023
Start Time		13:40:51

Elapsed Time (min)	Dial Reading (div)
Initial	**1570.6**
0.05	1580.4
0.10	1580.2
0.15	1579.8
0.20	1579.7
0.25	1580.5
0.32	1580.7
0.47	1580.2
0.57	1580.4
1.08	1580.3
2.33	1579.9
4.08	1580.4
9.08	1580.5
16.10	1581.0
25.10	1581.2
36.10	1581.2
49.12	1581.3
64.12	1581.4
81.13	1581.4
100.13	1581.5
121.15	1582.2
144.15	1581.7
180.17	1582.0
300.17	1581.9
420.42	1581.7

Tested By *129-07-0411* *Date* *4/7/23* *Checked By* *MPS* *Date* *4/21/23*

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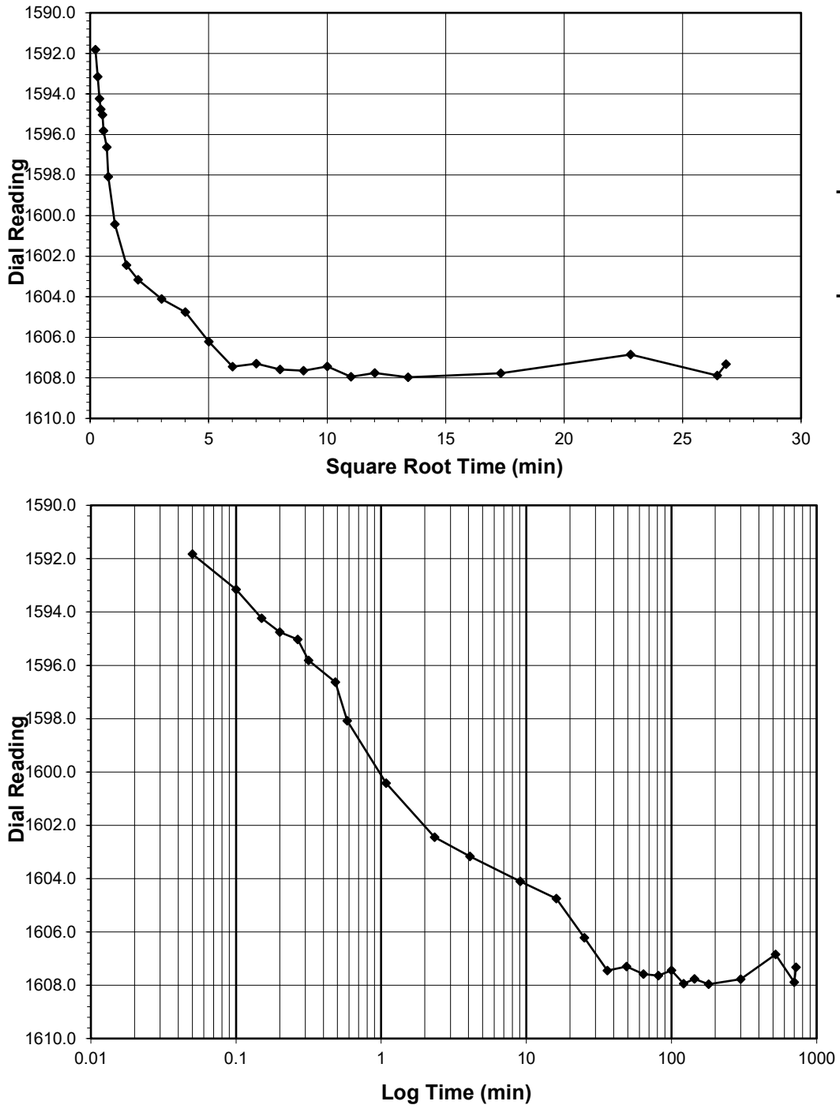
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**0.5 - 1**
Final Reading	**(div)**	**1607.3**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/7/2023
Start Time		20:41:16

Elapsed Time (min)	Dial Reading (div)
Initial	**1581.7**
0.05	1591.8
0.10	1593.2
0.15	1594.2
0.20	1594.8
0.27	1595.0
0.32	1595.8
0.48	1596.6
0.58	1598.1
1.08	1600.4
2.33	1602.4
4.08	1603.2
9.08	1604.1
16.10	1604.8
25.10	1606.2
36.10	1607.5
49.10	1607.3
64.10	1607.6
81.10	1607.6
100.10	1607.4
121.10	1607.9
144.10	1607.8
180.12	1608.0
300.12	1607.8
520.12	1606.8
700.12	1607.9
720.05	1607.3

Tested By *129-07-0411* *Date* *4/7/23* *Checked By* *MPS* *Date* *4/21/23*

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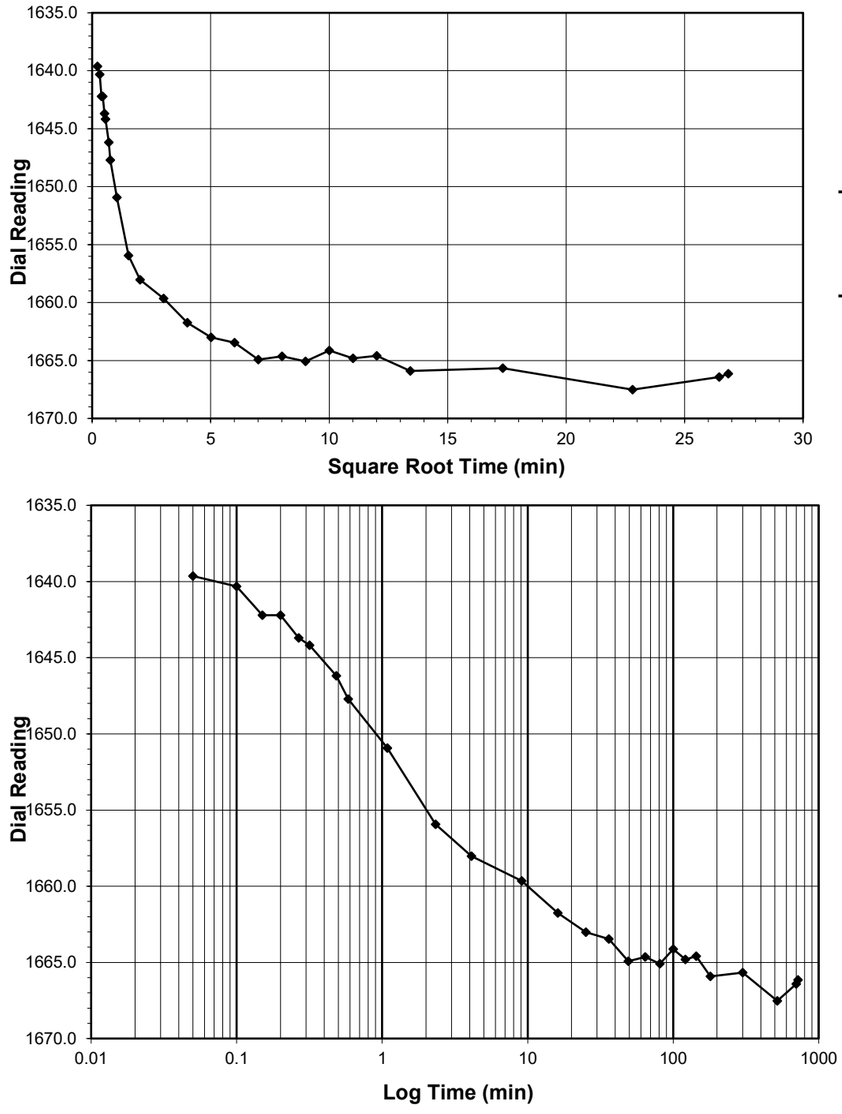
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**1 - 2**
Final Reading	**(div)**	**1666.1**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/8/2023
Start Time		8:41:19

Elapsed Time (min)	Dial Reading (div)
Initial	**1607.3**
0.05	1639.6
0.10	1640.3
0.15	1642.2
0.20	1642.2
0.27	1643.7
0.32	1644.2
0.48	1646.2
0.58	1647.7
1.08	1650.9
2.33	1655.9
4.10	1658.0
9.10	1659.6
16.10	1661.7
25.12	1663.0
36.12	1663.5
49.12	1664.9
64.12	1664.6
81.12	1665.1
100.13	1664.1
121.13	1664.8
144.13	1664.6
180.13	1665.9
300.13	1665.7
520.13	1667.5
700.13	1666.4
720.48	1666.1

Tested By *129-07-0411* *Date* *4/8/23* *Checked By* *MPS* *Date* *4/21/23*

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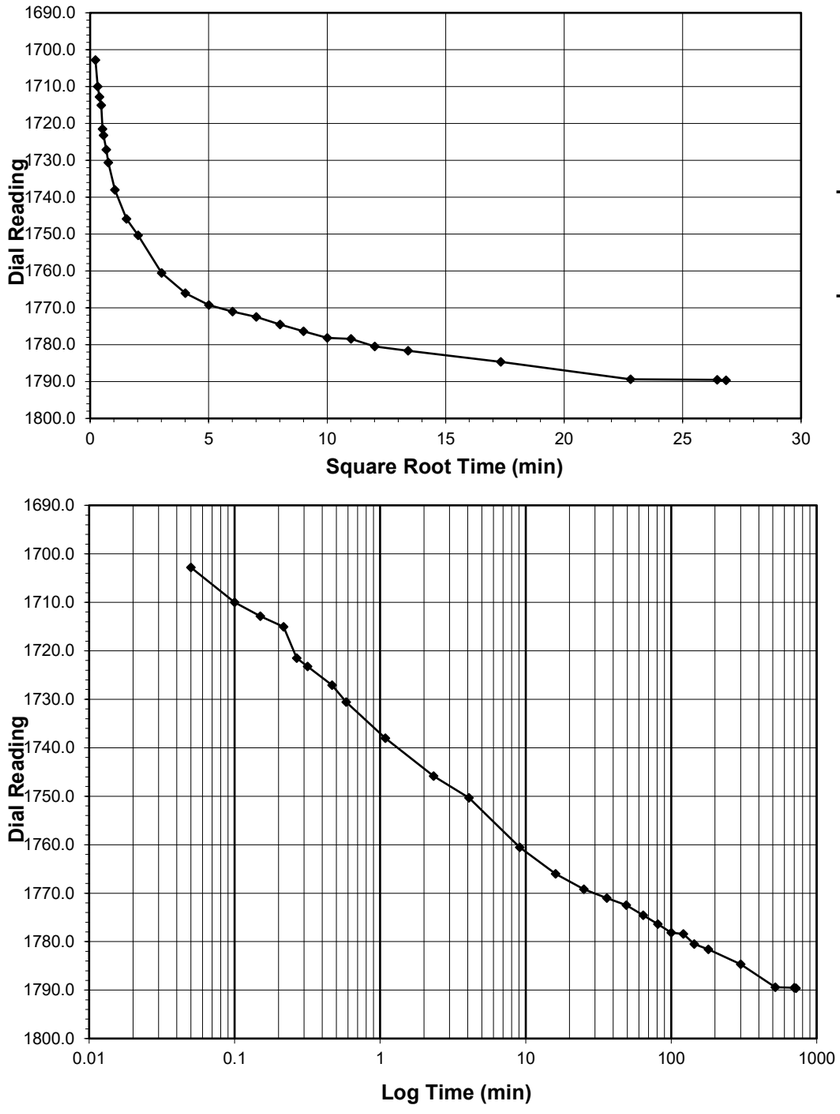
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**2 - 4**
Final Reading	**(div)**	**1789.6**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/8/2023
Start Time		20:41:48

Elapsed Time (min)	Dial Reading (div)
Initial	**1666.1**
0.05	1702.8
0.10	1710.0
0.15	1712.8
0.22	1715.1
0.27	1721.5
0.32	1723.2
0.47	1727.1
0.58	1730.6
1.08	1738.0
2.33	1745.9
4.08	1750.3
9.08	1760.5
16.08	1766.0
25.10	1769.2
36.10	1771.0
49.10	1772.5
64.12	1774.5
81.12	1776.4
100.12	1778.2
121.12	1778.4
144.12	1780.5
180.12	1781.6
300.13	1784.7
520.13	1789.4
700.15	1789.5
720.35	1789.6

Tested By 129-07-0411 *Date* 4/8/23 *Checked By* MPS *Date* 4/21/23

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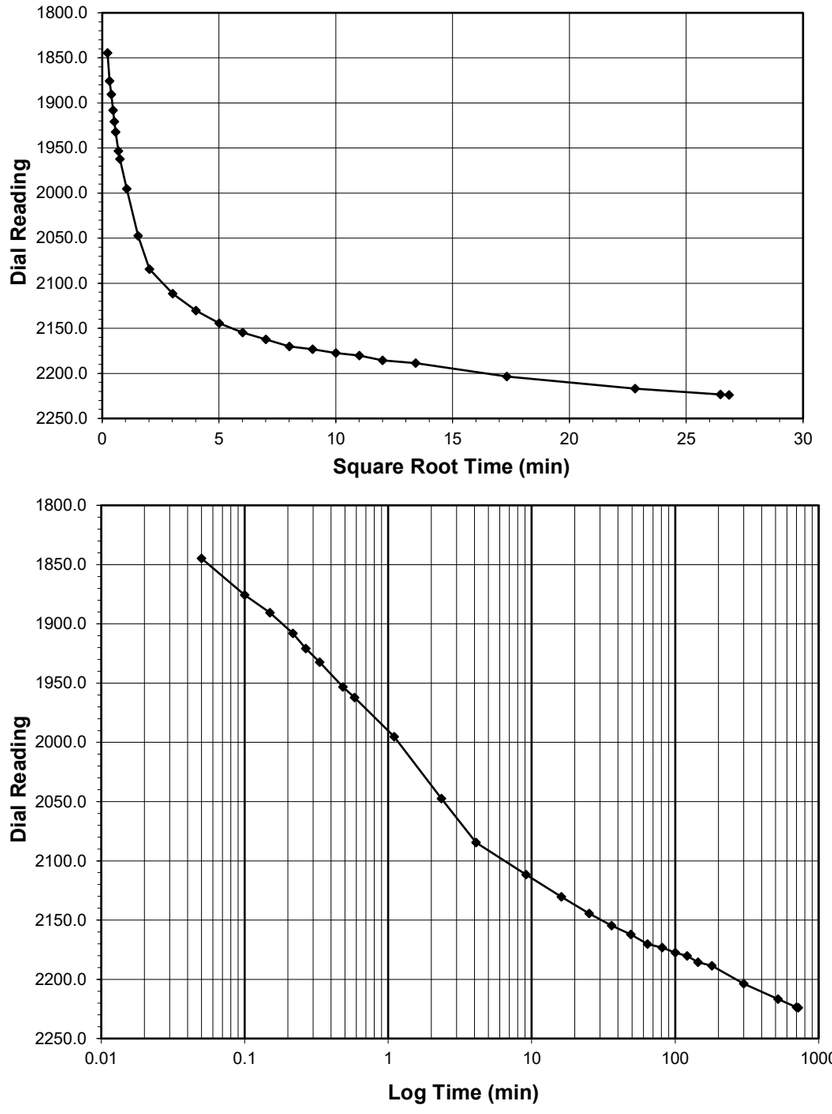
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**4 - 8**
Final Reading	**(div)**	**2223.9**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/9/2023
Start Time		8:42:09

Elapsed Time (min)	Dial Reading (div)
Initial	**1789.6**
0.05	1844.6
0.10	1875.7
0.15	1890.5
0.22	1908.1
0.27	1920.8
0.33	1932.3
0.48	1953.3
0.58	1962.2
1.10	1995.3
2.35	2047.4
4.10	2084.5
9.12	2111.6
16.12	2130.4
25.12	2144.4
36.12	2154.6
49.13	2162.2
64.13	2170.2
81.13	2173.2
100.13	2177.5
121.15	2180.2
144.15	2185.7
180.15	2188.6
300.15	2203.6
520.15	2216.8
700.17	2223.5
720.23	2223.9

Tested By 129-07-0411 *Date* 4/9/23 *Checked By* MPS *Date* 4/21/23

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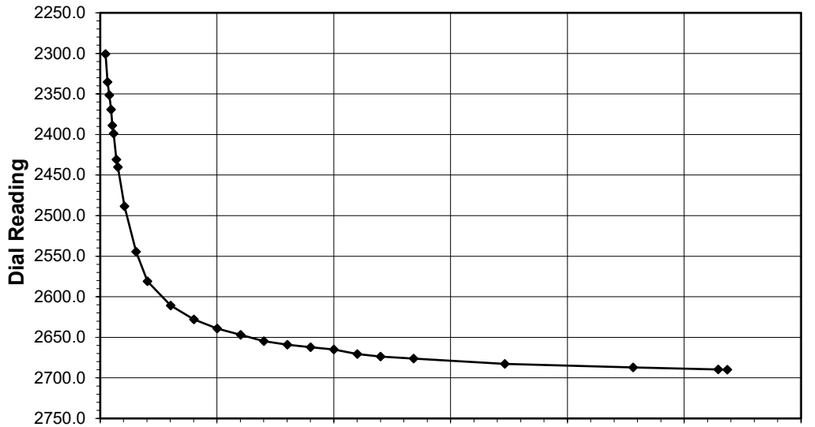
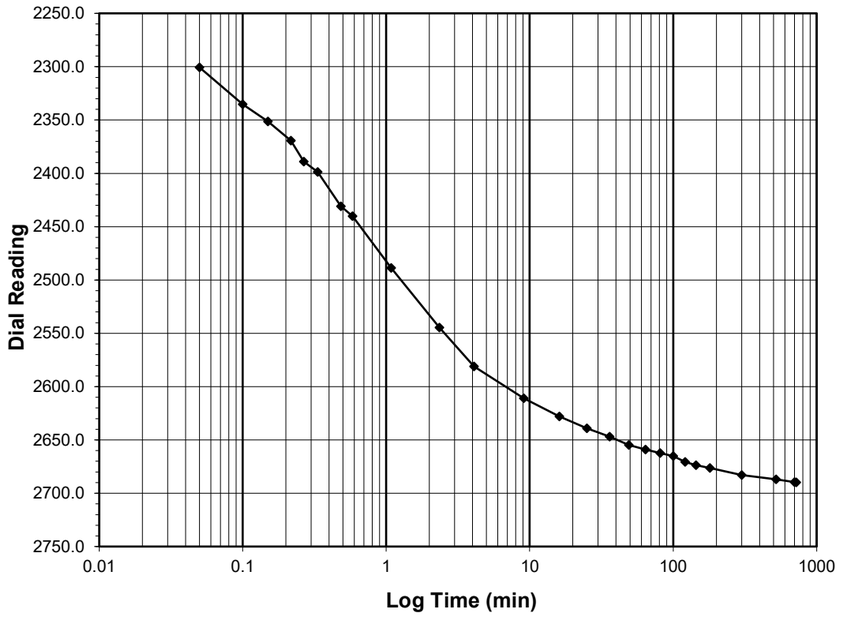
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained





Test Load (tsf)		**8 - 16**
Final Reading (div)		**2689.8**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/9/2023
Start Time		20:42:23

Elapsed Time (min)	Dial Reading (div)
Initial	**2223.9**
0.05	2300.7
0.10	2335.3
0.15	2351.4
0.22	2369.2
0.27	2389.0
0.33	2398.8
0.48	2430.9
0.58	2440.1
1.08	2488.6
2.35	2544.6
4.10	2581.0
9.10	2610.9
16.10	2628.0
25.10	2639.1
36.12	2646.8
49.12	2654.7
64.12	2659.0
81.13	2662.3
100.13	2665.1
121.13	2670.5
144.13	2673.6
180.13	2676.3
300.13	2682.8
520.15	2687.0
700.15	2689.6
720.40	2689.8

Tested By *129-07-0411* *Date* *4/9/23* *Checked By* *MPS* *Date* *4/21/23*

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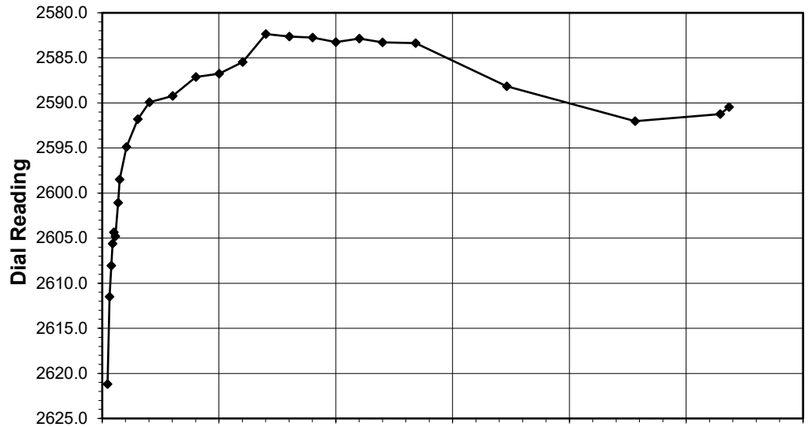
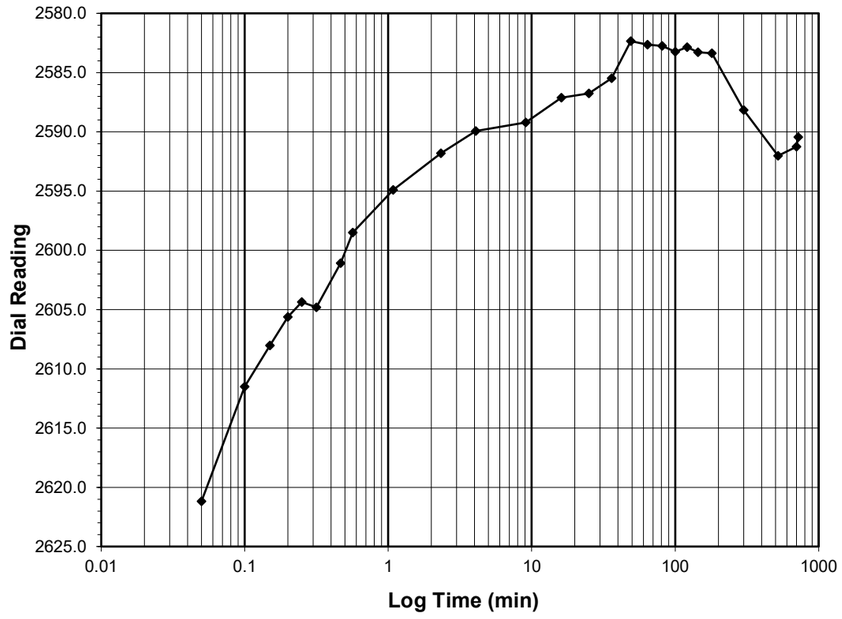
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained





Test Load (tsf)		**16 - 4**
Final Reading (div)		**2590.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/10/2023
Start Time		8:42:48

Elapsed Time (min)	Dial Reading (div)
Initial	**2689.8**
0.05	2621.2
0.10	2611.5
0.15	2608.0
0.20	2605.6
0.25	2604.4
0.32	2604.8
0.47	2601.1
0.57	2598.5
1.08	2594.9
2.33	2591.8
4.08	2589.9
9.10	2589.2
16.10	2587.1
25.10	2586.7
36.12	2585.5
49.12	2582.3
64.12	2582.6
81.13	2582.7
100.13	2583.2
121.13	2582.9
144.13	2583.3
180.13	2583.4
300.13	2588.2
520.15	2592.0
700.15	2591.2
720.23	2590.4

Tested By *129-07-0411* *Date* *4/10/23* *Checked By* *MPS* *Date* *4/21/23*

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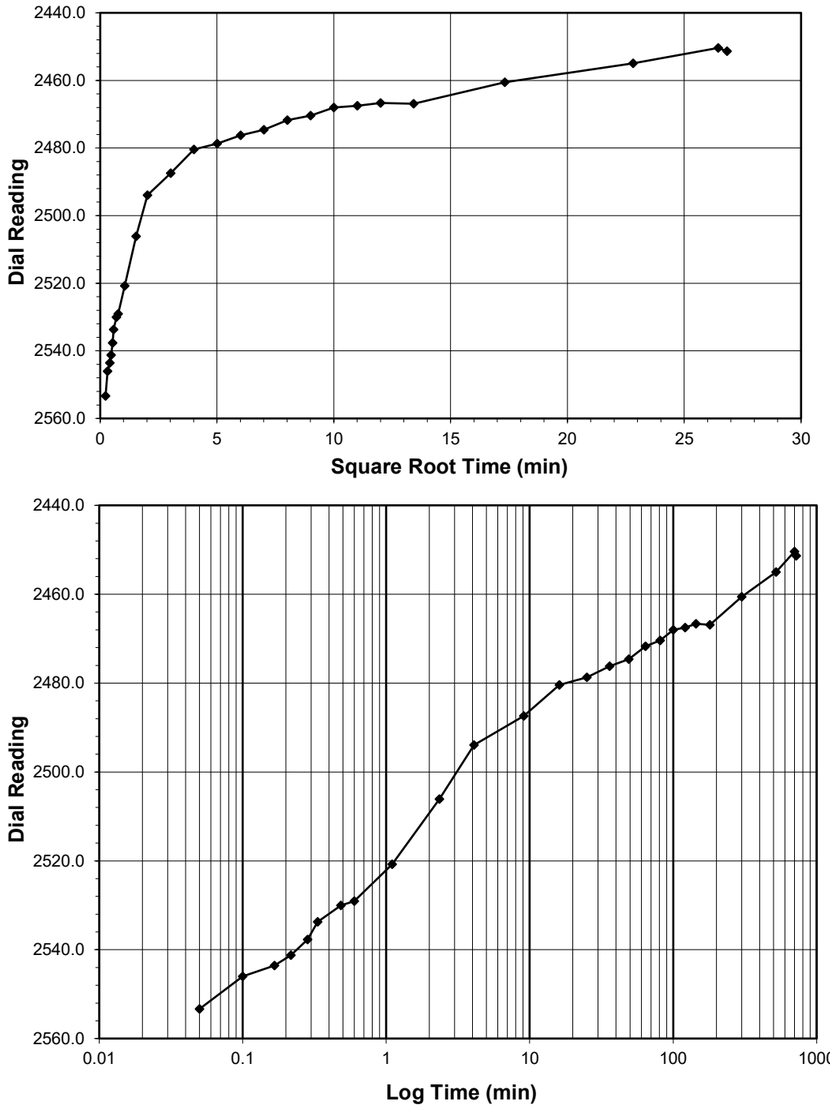
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24A)

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**4 - 1**
Final Reading	**(div)**	**2451.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/10/2023
Start Time		20:43:02

Elapsed Time (min)	Dial Reading (div)
Initial	**2590.4**
0.05	2553.3
0.10	2546.0
0.17	2543.6
0.22	2541.2
0.28	2537.7
0.33	2533.7
0.48	2530.0
0.60	2529.1
1.10	2520.8
2.35	2506.1
4.10	2493.9
9.10	2487.4
16.10	2480.4
25.10	2478.7
36.12	2476.2
49.12	2474.6
64.12	2471.7
81.12	2470.4
100.12	2468.0
121.13	2467.5
144.13	2466.6
180.15	2466.9
300.15	2460.6
520.15	2455.0
700.15	2450.4
720.12	2451.4

Tested By 129-07-0411 *Date* 4/10/23 *Checked By* MPS *Date* 4/21/23

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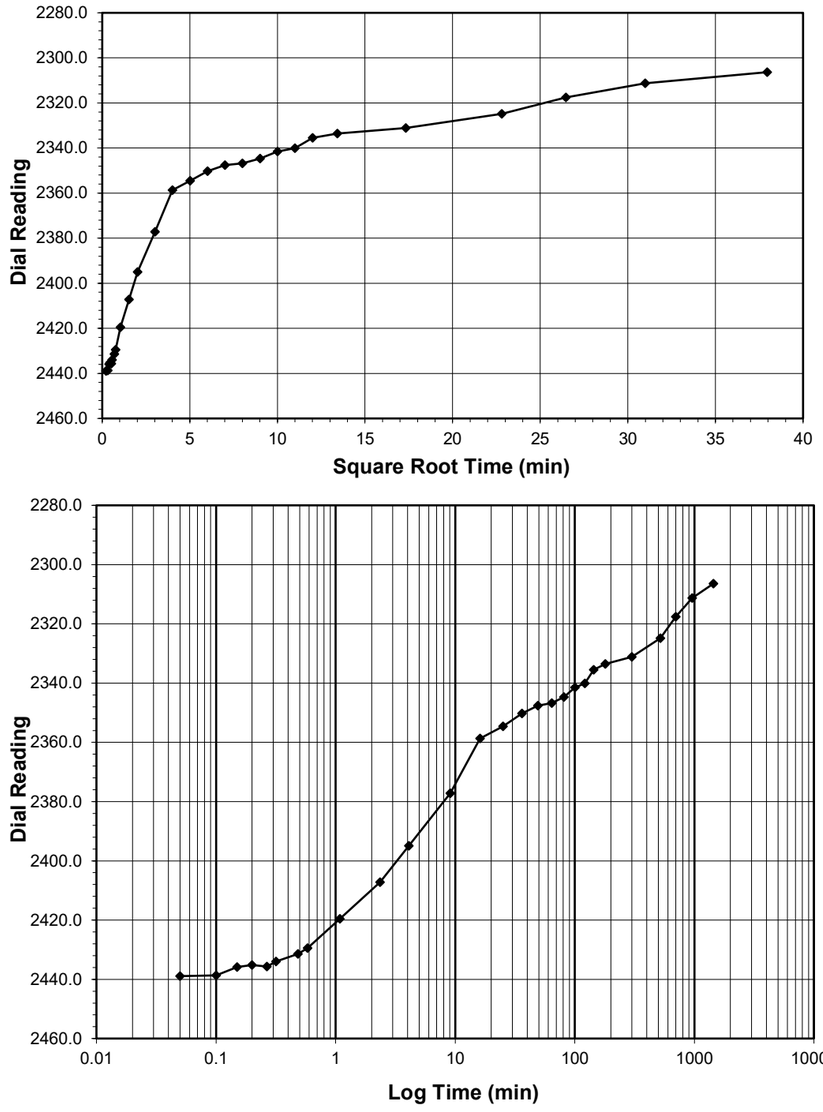
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client:	AECOM	Boring No.:	S1_EB1_A
Client Project:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained



Test Load	**(tsf)**	**1 - 0.25**
Final Reading	**(div)**	**2306.4**
Consolidometer No.		**R470**
1 Division	(in)	0.0001
Start Date		4/11/2023
Start Time		8:43:09

Elapsed Time (min)	Dial Reading (div)
Initial	**2451.4**
0.05	2438.9
0.10	2438.7
0.15	2435.9
0.20	2435.2
0.27	2435.6
0.32	2434.0
0.48	2431.4
0.58	2429.5
1.08	2419.6
2.35	2407.2
4.10	2395.0
9.10	2377.2
16.10	2358.7
25.12	2354.6
36.12	2350.3
49.12	2347.6
64.13	2346.8
81.13	2344.7
100.13	2341.5
121.15	2340.1
144.15	2335.5
180.15	2333.5
300.17	2331.2
520.17	2324.9
700.17	2317.6
960.17	2311.3
1440.03	2306.4

Tested By 129-07-0411 *Date* 4/11/23 *Checked By* MPS *Date* 4/21/23

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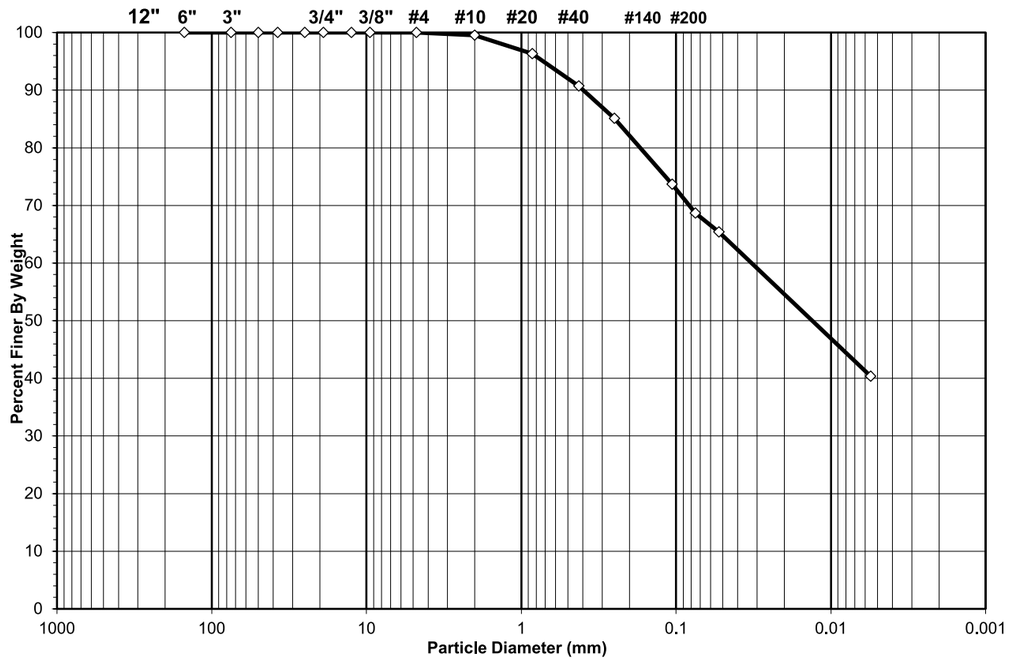
SIEVE AND HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	AECOM	Boring No.	S1_EB1_A
Client Reference	B-5898 / B-3186	Depth (ft)	15.0-17.0
Project No.	R-2023-090-001	Sample No.	ST-1
Lab ID	R-2023-090-001-048	Soil Color	**Brown**

	SIEVE ANALYSIS			HYDROMETER
USCS	cobbles	gravel	sand	silt and clay fraction
AASHTO	cobbles	gravel	sand	silt and clay fraction



Sieve Size (mm)	Percent Finer	USCS	%	AASHTO	%	NCDOT SOIL MORTAR	%
100	100.00	*Gravel*	0.00	*Gravel*	0.45	*Coarse Sand Ret. #60*	14.49
2	99.55	*Sand*	31.36	*Coarse Sand*	8.83	*Fine Sand Ret. #270*	19.84
0.075	68.64	*Silt&Clay*	68.64	*Fine Sand*	22.07	*Silt 0.05-0.005mm*	25.12
				Silt & Clay	68.64	Clay <0.005mm	40.55
AASHTO (GI)		***A-6***	**(8)**				

DCN: CT-S3Y DATE 12/16/08 REVISION 6 I:\RALEIGH\2023 Projects\AECOM\2023-090 - B-5898\[2023-090-001-048 Grain SIEVEHYD10 NCDOT.xlsm]Data1

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WASH SIEVE ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	AECOM	Boring No.	S1_EB1_A
Client Reference	B-5898 / B-3186	Depth (ft)	15.0-17.0
Project No.	R-2023-090-001	Sample No.	ST-1
Lab ID	R-2023-090-001-048	Soil Color	**Brown**

Minus #10 for Hygroscopic (10-15gm)		Hydrometer Specimen 50 or 100gms	
Tare No.	AN	Air Dried Hydrometer Material (gm)	70.75
Wgt.Tare + Wet Specimen (gm)	46.84	Corrected Dry Wt. of Hydro Mtrl. (gm)	67.65
Wgt.Tare + Dry Specimen (gm)	45.46		
Weight of Tare (gm)	15.38	Weight of -#270 Material	44.43
Weight of Water (gm)	1.38	Weight of -#10; +#270 Material	23.22
Weight of Dry Soil (gm)	30.08		
Moisture Content (%)	**4.6**		

Tare No.	425		
Wgt. Tare + Air Dry Soil (gm)	320.13	Dry Weight of Material Ret. #10 (gm)	0.96
Weight of Tare (gm)	99.18	Corrected Dry Sample Wt - #10 (gm)	210.34
Air Dried Wgt.Total Sample (gm)	220.95		
Total Dry Weight Sample (gm)	211.3	**J - Factor (Percent Finer than #10)**	**0.9955**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.5	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.96	0.45	0.45	99.55	**99.55**
#20	0.85	2.20	3.25	3.25	96.75	**96.31**
#40	0.425	3.80	5.62	8.87	91.13	**90.72**
#60	0.25	3.80	5.62	14.49	85.51	**85.12**
#140	0.106	7.78	11.50	25.99	74.01	**73.68**
#200	0.075	3.42	5.06	31.04	68.96	**68.64**
#270	0.053	2.22	3.28	34.33	65.67	**65.38**
Pan	-	44.43	65.67	100.00	-	**-**

Tested By 129-07-0411 Date 4/17/23 Checked By AES Date 4/19/23

DCN: CT-S3Y DATE 12/16/08 REVISION 6 I:\RALEIGH\2023 Projects\AECOM\2023-090 - B-5898\[2023-090-001-048 Grain SIEVEHYD10 NCDOT.xlsm]Data1

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HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	AECOM	Boring No.	S1_EB1_A
Client Reference	B-5898 / B-3186	Depth (ft)	15.0-17.0
Project No.	R-2023-090-001	Sample No.	ST-1
Lab ID	R-2023-090-001-048	Soil Color	**Brown**

Elapsed Time (min)		R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
14:55:00	0	NA	NA	NA	NA	NA	NA	NA	NA
14:55:30	0.50	48.0	24.7	-2.60	44.6	65.5	0.01279	0.0525	**65.2**
15:55:00	60.00	31.0	24.7	-2.60	27.6	40.6	0.01279	0.0055	**40.4**

Corrections		
a - Factor	0.994	
Percent Finer than # 10	99.55	
Specific Gravity	2.68	Measured

Note: *Hydrometer test is performed on - #10 sieve material.*

LL = 38

PL = 25

PI = 13

Tested By 129-09-0411 Date 4/14/23 Checked By AES Date 4/19/23

DCN: CT-S3Y DATE: 12/16/08 REVISION: 6 H:\2023 Projects\AECOM\2023-090 - B-5898\[2023-090-001-048 Grain SIEVEHYD10 NCDOT.xlsm]Data1

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ATTERBERG LIMITS

AASHTO T-89, T-90 *(DOT Modified)*

Client	AECOM	Boring No.	S1_EB1_A
Client Reference	B-5898 / B-3186	Depth (ft)	15.0-17.0
Project No.	R-2023-090-001	Sample No.	ST-1
Lab ID	R-2023-090-001-048	Soil Description	**BROWN SILT**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

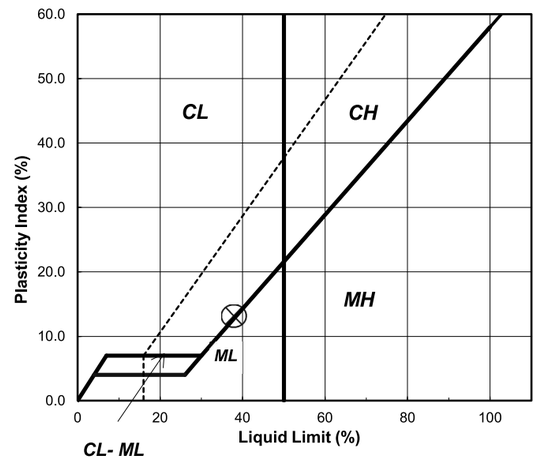
Liquid Limit Test	**1**
Tare Number	17
Wt. of Tare & WS (gm)	17.68
Wt. of Tare & DS (gm)	14.72
Wt. of Tare (gm)	6.99
Wt. of Water (gm)	3.0
Wt. of DS (gm)	7.7
Moisture Content (%)	**38.3**
Number of Blows	**25**

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	21	23	
Wt. of Tare & WS (gm)	16.14	14.59	
Wt. of Tare & DS (gm)	14.33	13.11	
Wt. of Tare (gm)	7.06	7.10	
Wt. of Water (gm)	1.8	1.5	
Wt. of DS (gm)	7.3	6.0	
Moisture Content (%)	**24.9**	**24.6**	**0.3**

Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**38**
Plastic Limit (%)	**25**
Plasticity Index (%)	**13**
USCS Symbol	**ML**

Plasticity Chart



Tested By 129-07-0411 Date 4/14/23 Checked By AES Date 4/17/23

DCN: CT-S4B **DATE:** 10/8/01 **REVISION:** 2

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SPECIFIC GRAVITY

AASHTO T-100-15

Client:	AECOM	Boring No.:	S1_EB1_A
Client Reference:	B-5898 / B-3186	Depth (ft):	15.0-17.0
Project No.:	R-2023-090-001	Sample No.:	ST-1
Lab ID:	R-2023-090-001-048	Visual Description:	Brown Clay

(MInus No.4 sieve material,oven dried)

Replicate Number	**1**	**2**
Pycnometer ID:	R 716	R 717
Weight of Pycnometer & Soil & Water (g):	684.99	683.77
Temperature (^{o}C):	24.8	24.6
Weight of Pycnometer & Water (g):	651.99	650.62
Tare Number:	716	717
Weight of Tare & Dry Soil (g):	206.98	205.62
Weight of Tare (g):	154.21	152.77
Weight of Dry Soil (g):	52.77	52.85
Specific Gravity of Soil @ Measured Temperature:	2.669	2.683
Specific Gravity of Water @ Measured Temperature:	0.99710	0.99715
Conversion Factor for Measured Temperature:	0.99889	0.99895
Specific Gravity @ 20^{o} Celsius:	2.672	2.686

Average Specific Gravity @ 20^{o} Celsius	2.68

Tested By *RFF* *Date* *4/5/23* *Checked By* *AES* *Date* *4/7/23*

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