

REFERENCE: B-5898/B-3186

PROJECT: 48030

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 1923 ON US23/74
 SITE DESCRIPTION RETAINING WALLS 1, 2, 3, 4, 5, 7

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3-6	WALL PLANS
7-12	WALL PROFILES
13-38	BORE LOGS
39-55	LAB TEST SUMMARY AND RESULTS

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

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 1901 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

RYAN DOYLE

ALEX LOZADA

ADDISON TAIT

SUMMIT

GEOTECHNICS

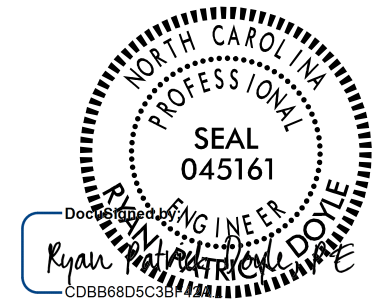
INVESTIGATED BY ALEX LOZADA

DRAWN BY ALEX LOZADA

CHECKED BY RYAN DOYLE

SUBMITTED BY AECOM

DATE SEPTEMBER 2023



9/12/2023

SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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 (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, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6														
SOIL LEGEND AND AASHTO CLASSIFICATION														
GENERAL CLASS.	GRANULAR MATERIALS (≤ 30% PASSING #200)						SILT-CLAY MATERIALS (> 30% PASSING #200)				ORGANIC MATERIALS			
	A-1	A-1-a	A-1-b	A-2	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5
GROUP CLASS.	A-1		A-2		A-3		A-4		A-5		A-6		A-7	
SYMBOL	[Pattern]		[Pattern]		[Pattern]		[Pattern]		[Pattern]		[Pattern]		[Pattern]	
2 PASSING #10	50		30		10		5		4		3		2	
40 #200	15		10		5		3		2		1		0	
GROUP INDEX	0		0		0		0		0		0		0	
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS		MUCK, PEAT		HIGHLY ORGANIC SOILS	
GENERAL RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR				POOR		UNSATISFACTORY	

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

TEXTURE OR GRAIN SIZE						
U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.75	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
LL - LIQUID LIMIT PL - PLASTIC LIMIT	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY	
NON PLASTIC	0-5
SLIGHTLY PLASTIC	6-15
MODERATELY PLASTIC	16-25
HIGHLY PLASTIC	26 OR MORE
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			
[Symbol]	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION	[Symbol]	DIP & DIP DIRECTION OF ROCK STRUCTURES
[Symbol]	SOIL SYMBOL	[Symbol]	TEST BORING
[Symbol]	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT	[Symbol]	AUGER BORING
[Symbol]	INFERRED SOIL BOUNDARY	[Symbol]	CORE BORING
[Symbol]	INFERRED ROCK LINE	[Symbol]	MONITORING WELL
[Symbol]	ALLUVIAL SOIL BOUNDARY	[Symbol]	PIEZOMETER INSTALLATION
[Symbol]		[Symbol]	SLOPE INDICATOR INSTALLATION
[Symbol]		[Symbol]	CONE PENETROMETER TEST
[Symbol]		[Symbol]	SOUNDING ROD
[Symbol]		[Symbol]	TEST BORING WITH CORE
[Symbol]		[Symbol]	SPT N-VALUE

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

ABBREVIATIONS		
AR - AUGER REFUSAL	MED. - MEDIUM	VST - VANE SHEAR TEST
BT - BORING TERMINATED	MICA - MICACEOUS	WEA. - WEATHERED
CL - CLAY	MOD. - MODERATELY	W - UNIT WEIGHT
CPT - CONE PENETRATION TEST	NP - NON PLASTIC	W _d - DRY UNIT WEIGHT
CSE. - COARSE	ORG. - ORGANIC	
DMT - DILATOMETER TEST	PMT - PRESSUREMETER TEST	
DPT - DYNAMIC PENETRATION TEST	SAP. - SAPROLITE	
e - VOID RATIO	SD. - SAND, SANDY	
F - FINE	SL. - SILT, SILTY	
FOSS. - FOSSILIFEROUS	SLI. - SLIGHTLY	
FRAC. - FRACTURED, FRACTURES	TCR - TRICONE REFUSAL	
FRAGS. - FRAGMENTS	w - MOISTURE CONTENT	
HL. - HIGHLY	v - VERY	
		S - BULK
		SS - SPLIT SPOON
		ST - SHELBY TUBE
		RS - ROCK
		RT - RECOMPACTED TRIAXIAL RATIO
		CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT		
DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:
<input type="checkbox"/> CHE-45C	<input type="checkbox"/> CLAY BITS	<input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL
<input checked="" type="checkbox"/> GTC295 CME-95	<input type="checkbox"/> 6' CONTINUOUS FLIGHT AUGER	CORE SIZE:
<input checked="" type="checkbox"/> GTC983 CME-958X	<input checked="" type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> -B <input type="checkbox"/> -H <input type="checkbox"/> -N
<input type="checkbox"/> VANE SHEAR TEST	<input type="checkbox"/> HARD FACED FINGER BITS	HAND TOOLS:
<input type="checkbox"/> PORTABLE MOIST	<input type="checkbox"/> TUNG-CARBIDE INSERTS	<input type="checkbox"/> POST HOLE DIGGER
<input checked="" type="checkbox"/> GTC3277 CME-75	<input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER	<input type="checkbox"/> HAND AUGER
<input checked="" type="checkbox"/> SUM3123 CME-958X	<input type="checkbox"/> TRICONE _____ *STEEL TEETH	<input type="checkbox"/> SOUNDING ROD
	<input type="checkbox"/> TRICONE _____ *TUNG-CARB.	<input type="checkbox"/> VANE SHEAR TEST
	<input type="checkbox"/> CORE BIT	

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 60 BLOWS 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 YIELD 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 SL.)	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 (SL.)	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 GROVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 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 FINGER NAIL.
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

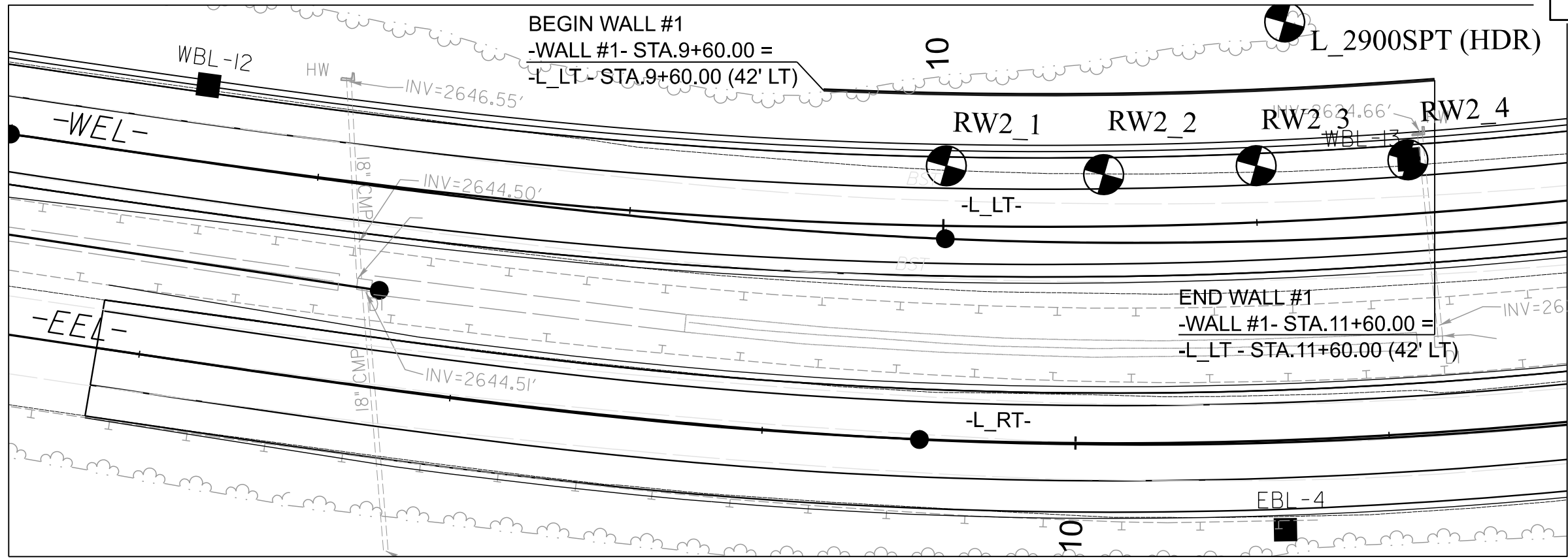
INDURATION	
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT 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 60 BLOWS PER FOOT.	
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 (SROD) - 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: 662733.497(F) E: 819804.260(F)	
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



HYDRAULICS ENGINEER

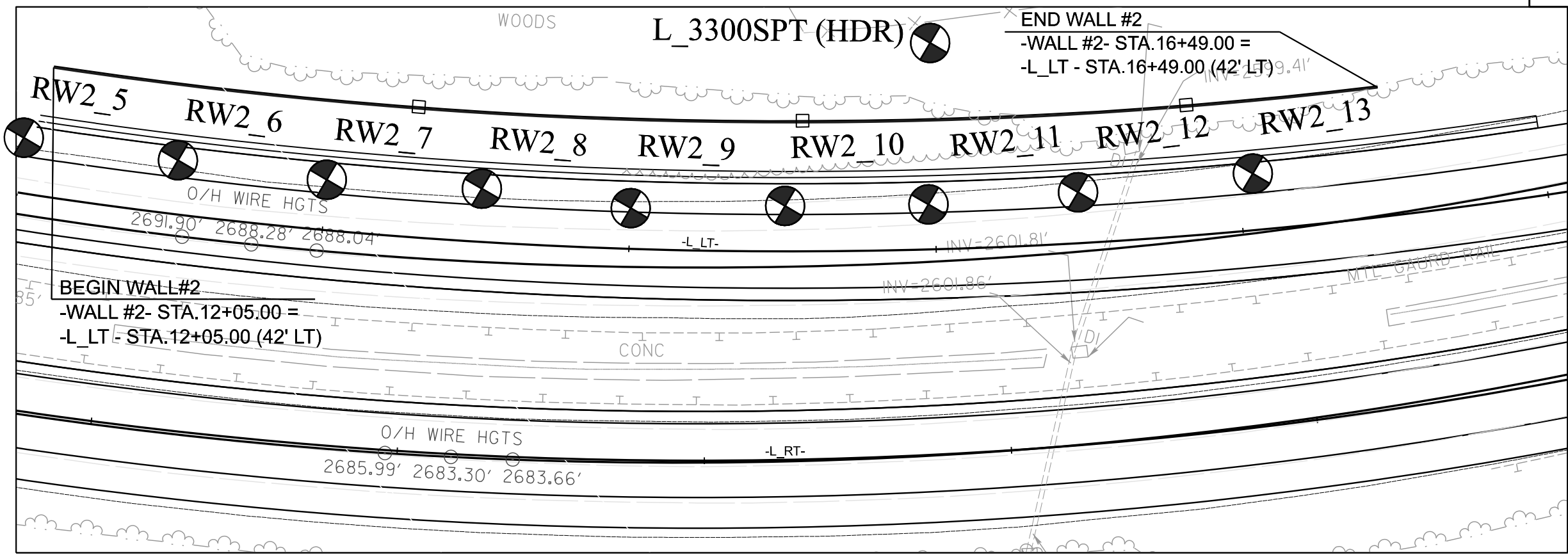


PREPARED BY

NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-2222 FAX: (919) 854-2223 (CELL)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETE

WALL #2 DETAIL SHEET



SITE PLAN
 0 40 80
 FEET

REVISIONS

WALL #3 DETAIL SHEET

SITE PLAN



B-3186/B-5898

PSH 04

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER

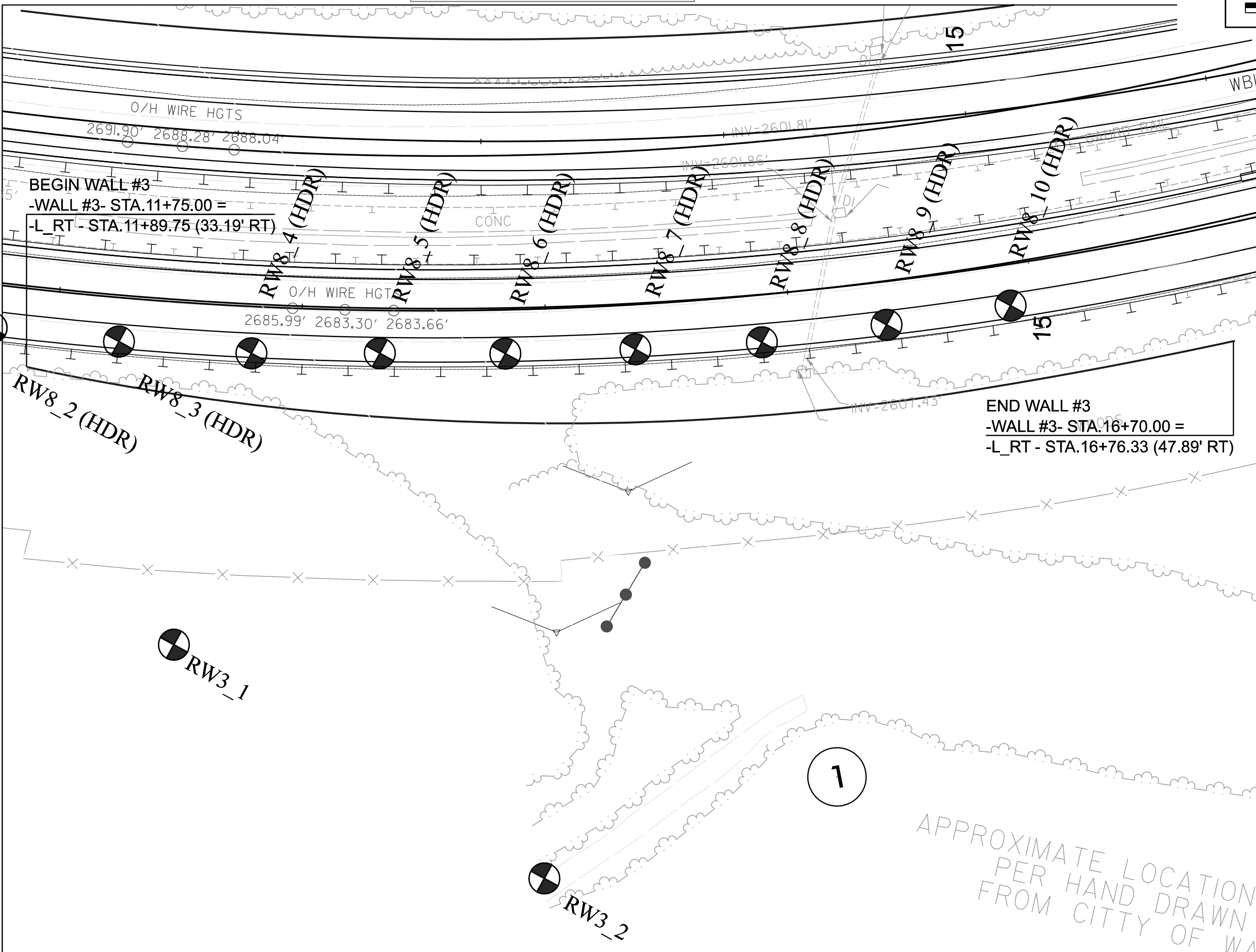


PREPARED BY

NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27603
(919) 854-2222 FAX: (919) 854-2223

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETE

REVISIONS



5/26/20

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



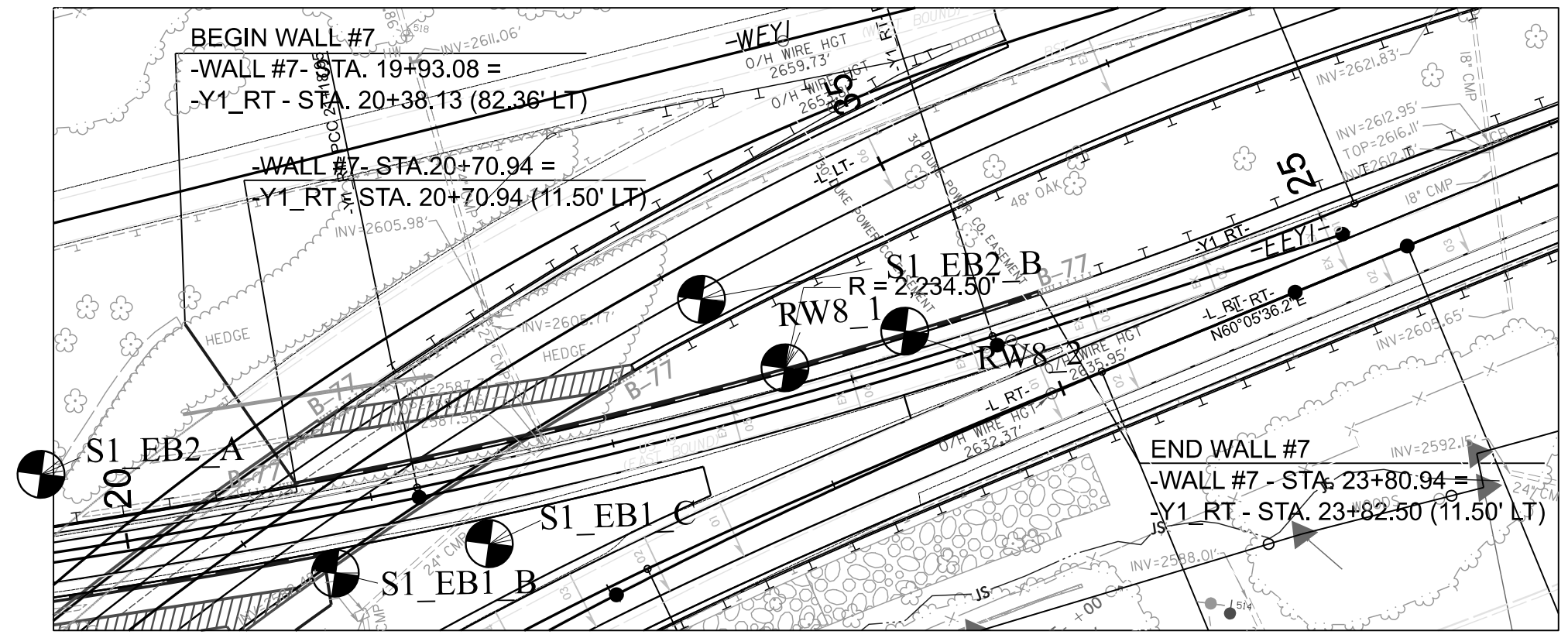
HYDRAULICS
ENGINEER



PREPARED BY

NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607
(919) 854-2000 FAX: (919) 854-2001

DOCUMENT NOT FOR CONSTRUCTION
UNLESS ALL SIGNATURES COMPLETE



REVISIONS

5/26/20

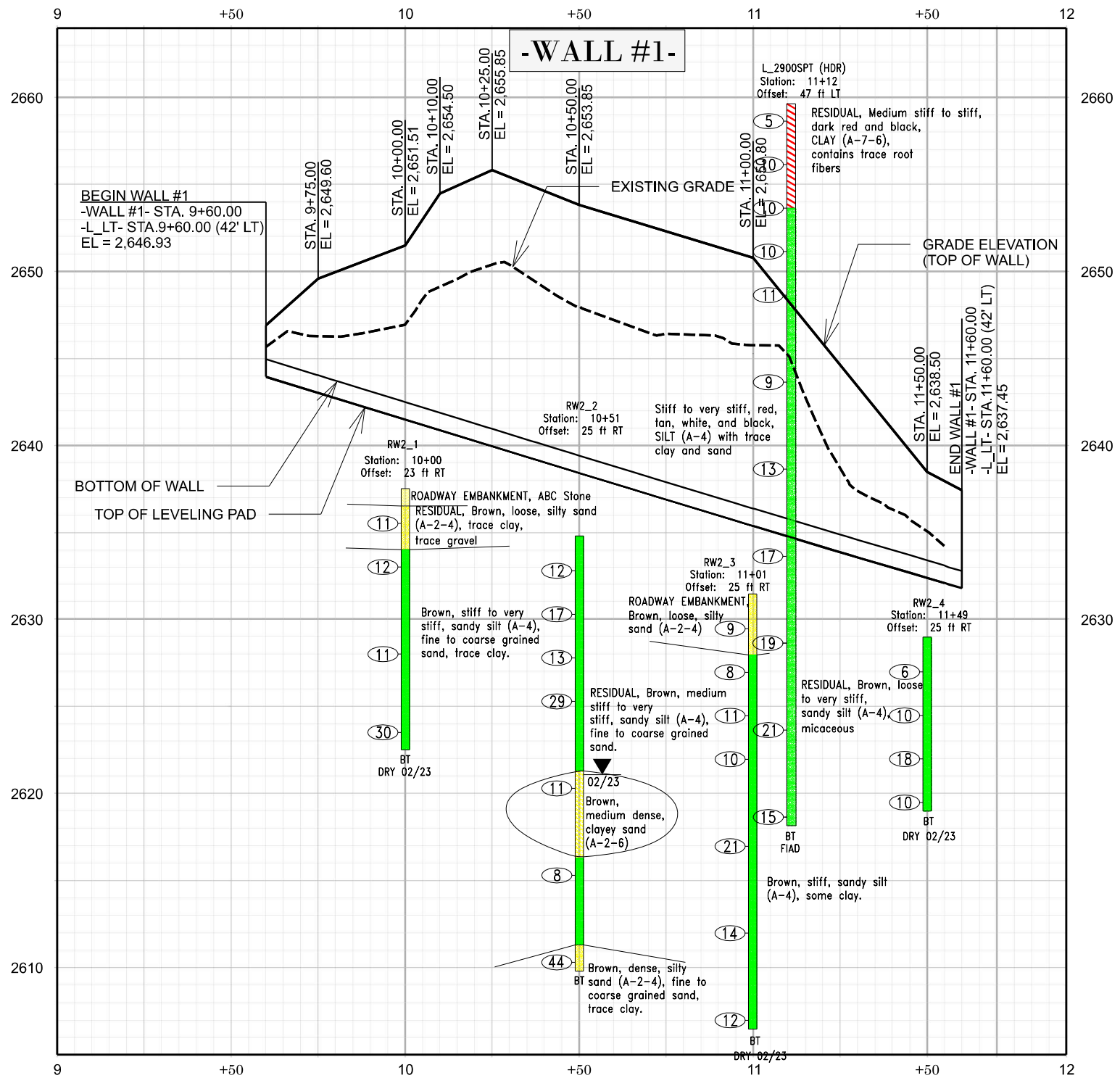
WALL 1 PROFILE

B-3186/B-5898

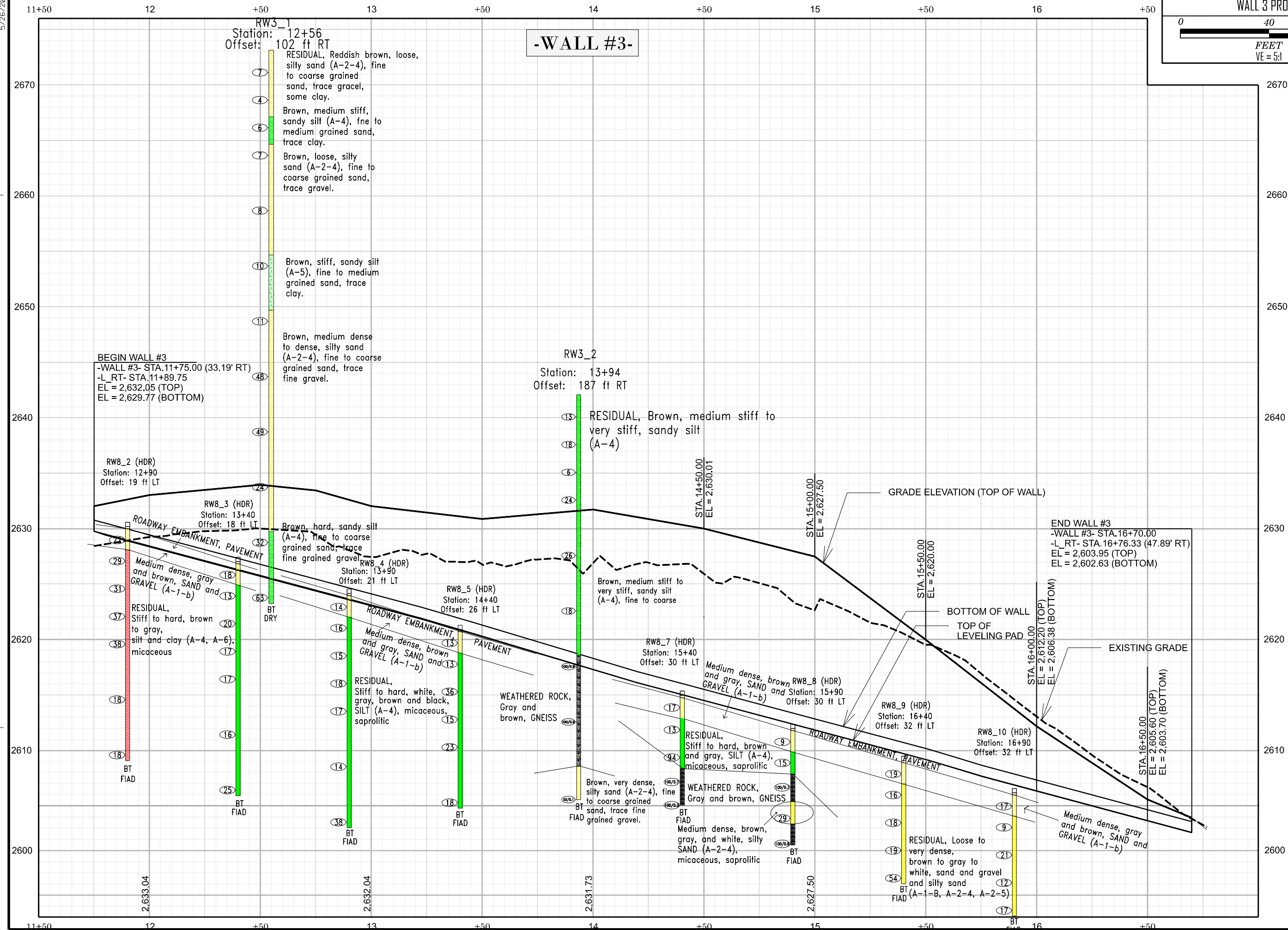
0 40 80

PFL 07

FEET
VE = 5:1



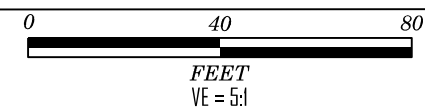
-WALL #3-



5/26/20

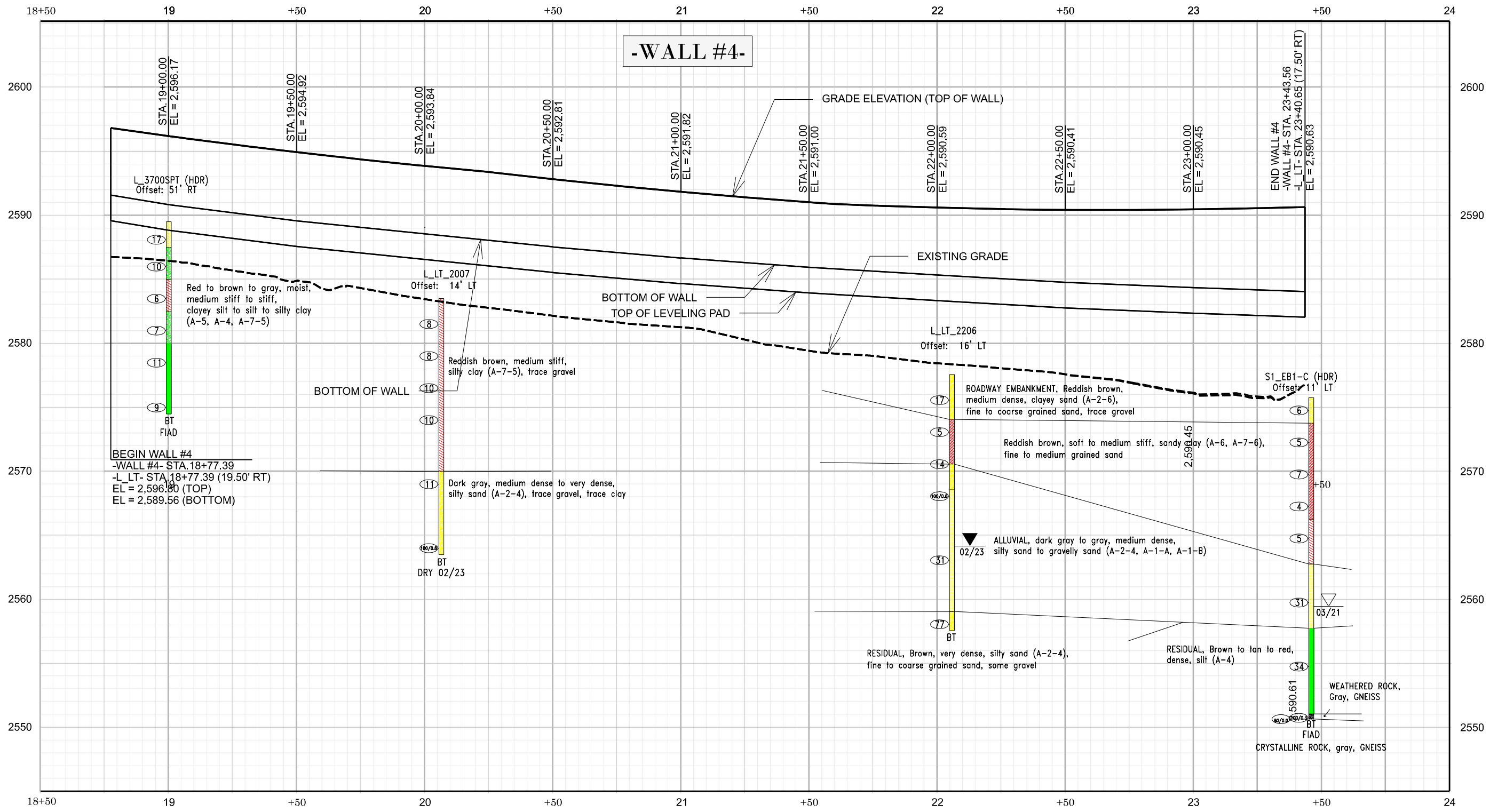
5/26/20

WALL 4 PROFILE

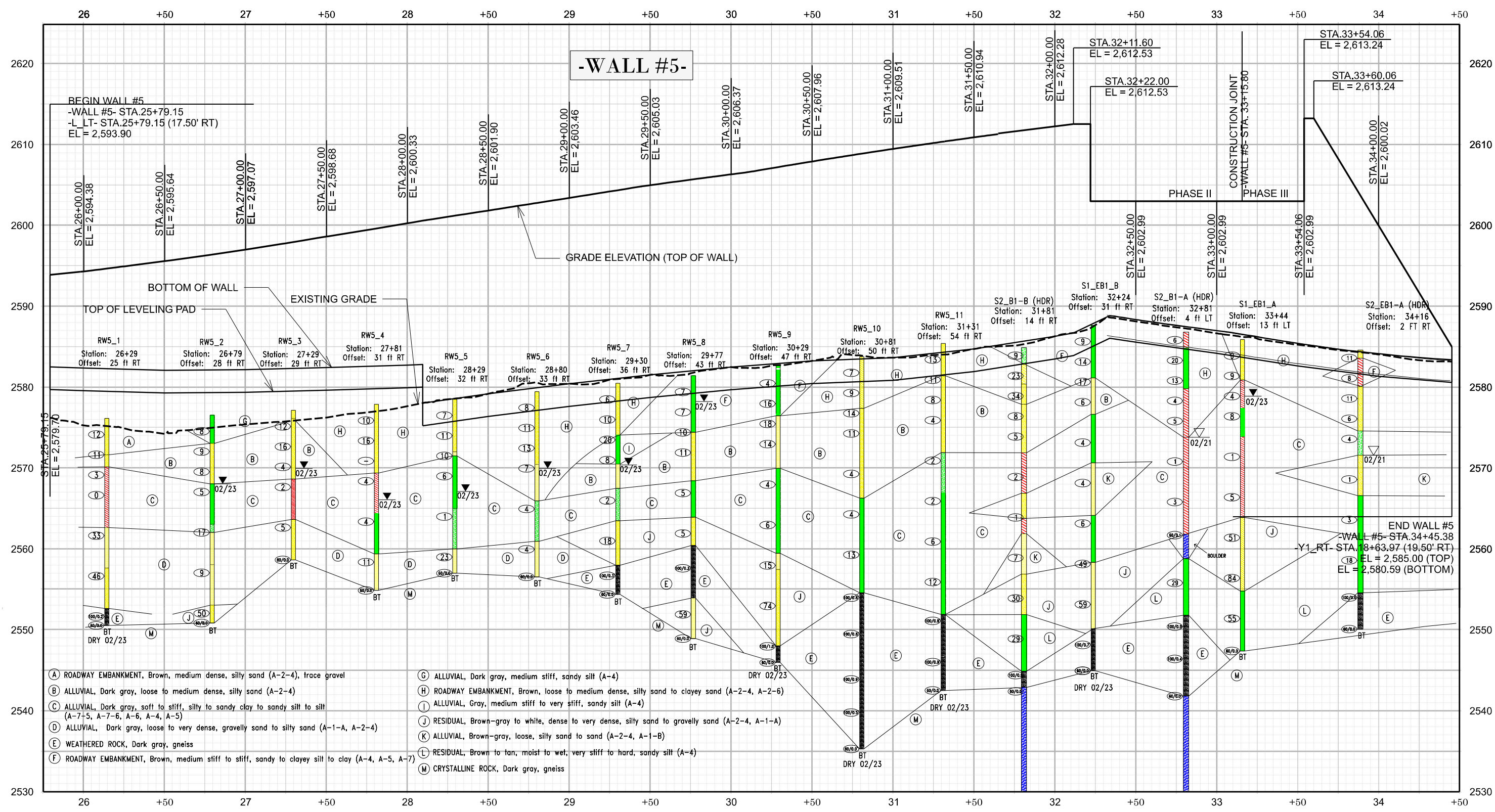
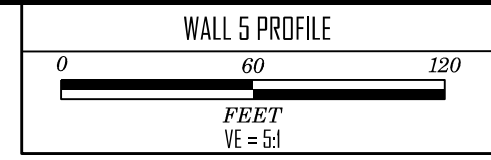


B-3186/B-5898

PFL 10

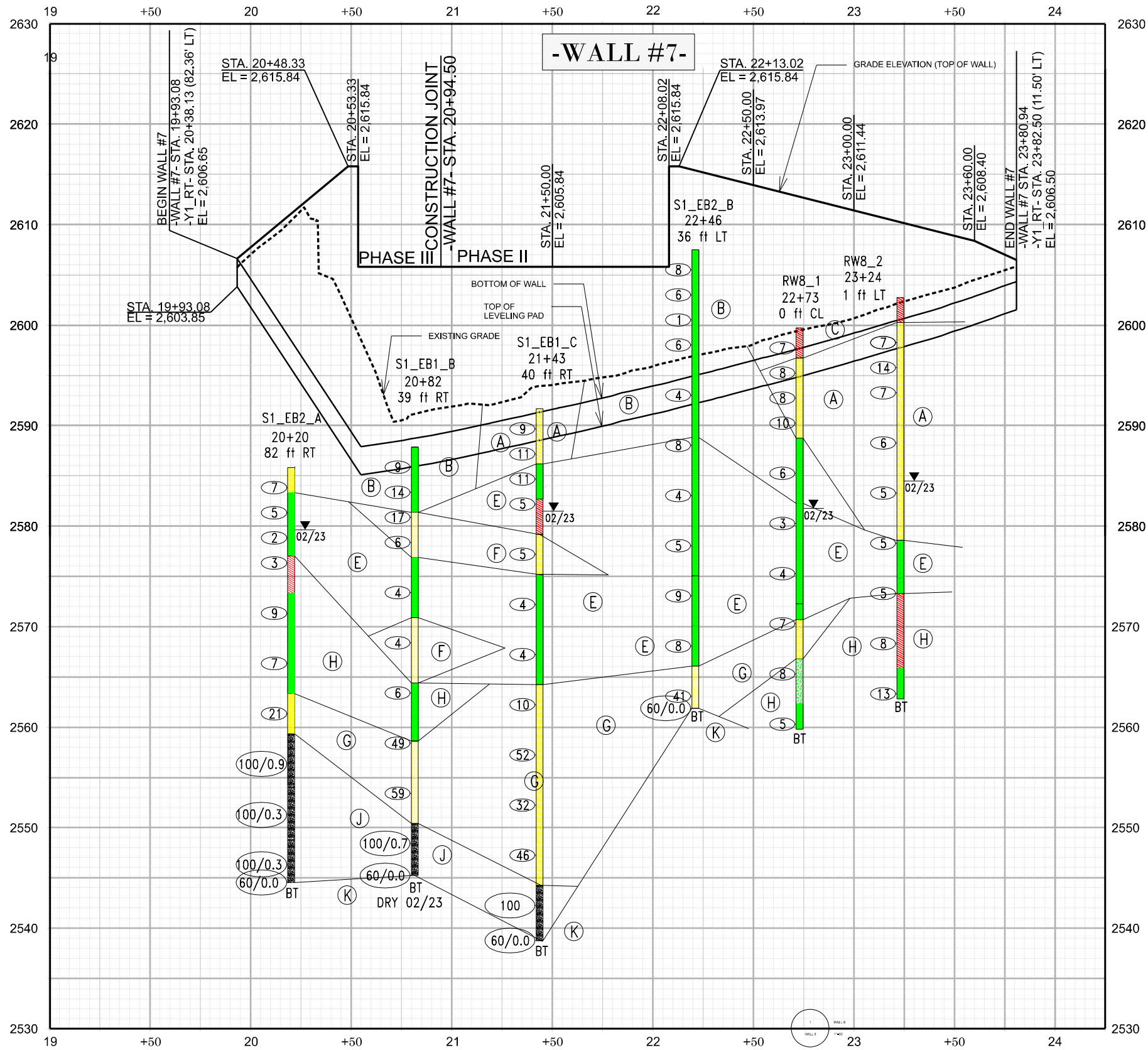
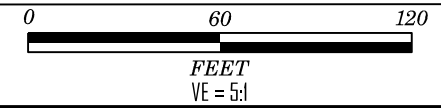


5/26/20



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)

WALL 7 PROFILE



- (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										
COLLAR ELEV. 2,659.7 ft		TOTAL DEPTH 41.5 ft		NORTHING 665,587		EASTING 817,906										
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER L. Wansrath		START DATE 04/06/21		COMP. DATE 04/06/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2660	2,659.7	0.0	2	2	3									2,659.7	0.0	GROUND SURFACE
	2,657.2	2.5	3	4	6								M			RESIDUAL Medium stiff to stiff, dark red and black, CLAY (A-7-6), contains trace root fibers
2655	2,654.7	5.0	3	4	6								M			
	2,652.2	7.5	3	5	5								M			Stiff to very stiff, red, tan, white, and black, SILT (A-4) with trace clay and sand, contains trace rock fragments, micaceous, saprolitic
2650	2,649.7	10.0	4	5	6								M			
2645	2,644.7	15.0	3	3	6								M			
2640	2,639.7	20.0	3	5	8								M			
2635	2,634.7	25.0	4	6	11								M			
2630	2,629.7	30.0	5	9	10								M			
2625	2,624.7	35.0	5	9	12								M			
2620	2,619.7	40.0	5	7	8								M			
													M			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															
COLLAR ELEV. 2,629.4 ft		TOTAL DEPTH 36.5 ft		NORTHING 665,749		EASTING 818,241															
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)							
			0.5ft	0.5ft	0.5ft	0	25	50	75	100											
2630	2,629.4	0.0	2	1	2									2,629.4	0.0	GROUND SURFACE					
	2,626.9	2.5	3	2	5								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								M								
	2,621.9	7.5	5	7	8								M								
2620	2,619.4	10.0	5	6	7								M			2,619.9	9.5	Medium dense, brown, red and tan, silty SAND (A-2-4), with trace clay, micaceous			
2615	2,614.4	15.0	8	10	11								D								
2610	2,609.4	20.0	5	5	6								D				2,611.4	18.0	Stiff to very stiff, brown, tan and orange, SILT (A-4), contains trace rock fragments, micaceous		
2605	2,604.4	25.0	11	8	10								D								
2600	2,599.4	30.0	10	8	10								D								
2595	2,594.4	35.0	8	10	15								D								
													D						2,592.9	36.5	Boring Terminated at Elevation 2,592.9 ft in SILT

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,589.5 ft		TOTAL DEPTH 15.0 ft		NORTHING 665,892		EASTING 818,637									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2590	2,589.1	0.4	2	9	8									2,589.5	0.0
	2,587.0	2.5	5	5	5									2,587.5	2.0
2585	2,584.5	5.0	2	3	3									2,585.0	4.5
	2,582.0	7.5	3	3	4									2,582.5	7.0
2580	2,579.5	10.0	4	4	7									2,580.0	9.5
2575	2,576.0	13.5	9	6	3									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									
COLLAR ELEV. 2,583.5 ft		TOTAL DEPTH 20.0 ft		NORTHING 666,018		EASTING 818,663									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2585	2,582.5	1.0	4	4	4									2,583.5	0.0
2580	2,580.0	3.5	3	4	4									2,580.0	3.5
	2,577.5	6.0	4	4	6									2,577.5	6.0
2575	2,575.0	8.5	3	4	6									2,575.0	8.5
2570	2,570.0	13.5	4	5	6									2,570.0	13.5
2565	2,565.0	18.5	100/0.8											2,563.5	20.0
Boring Terminated at Elevation 2,563.5 ft in silty sand.															

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,577.6 ft		TOTAL DEPTH 20.0 ft		NORTHING 666,176		EASTING 818,784									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2580														2,577.6	0.0
	2,576.6	1.0	8	9	8									2,574.1	3.5
2575	2,574.1	3.5	3	2	3									2,570.0	7.6
	2,571.6	6.0	8	7	7									2,568.3	9.3
2570	2,569.1	8.5	100/0.8											2,564.1	13.5
	2,564.1	13.5	5	19	12									2,559.1	18.5
2565	2,559.1	18.5	5	31	46									2,557.6	20.0
2560															

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									
COLLAR ELEV. 2,637.6 ft		TOTAL DEPTH 15.0 ft		NORTHING 665,513		EASTING 817,815									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2640														2,637.6	0.0
	2,636.6	1.0	2	5	6									2,634.1	3.5
2635	2,634.1	3.5	4	5	7									2,629.1	8.5
	2,629.1	8.5	4	5	6									2,624.6	13.0
2630	2,624.6	13.0	9	14	16										
2625															

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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										
COLLAR ELEV. 2,634.8 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,524		EASTING 817,864										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2635															2,634.8	0.0
	2,633.8	1.0	3	5	7											
	2,631.3	3.5	6	7	10											
2630	2,628.8	6.0	4	6	7											
	2,626.3	8.5	5	10	19											
2625	2,621.3	13.5	3	5	6										2,621.3	13.5
	2,616.3	18.5	2	3	5										2,616.3	18.5
2620	2,611.3	23.5	7	15	29										2,611.3	23.5
															2,609.8	25.0
Boring Terminated at Elevation 2,609.8 ft in silty sand.																

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										
COLLAR ELEV. 2,631.5 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,540		EASTING 817,910										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2635															2,631.5	0.0
	2,630.5	1.0	6	5	4											
2630	2,628.0	3.5	3	4	4										2,628.0	3.5
	2,625.5	6.0	4	5	6											
2625	2,623.0	8.5	3	5	5										2,623.0	8.5
	2,618.0	13.5	6	10	11											
2620	2,613.0	18.5	4	6	8										2,613.0	18.5
	2,608.0	23.5	3	5	7										2,608.0	23.5
2615															2,615.0	16.5
2610															2,606.5	25.0
Boring Terminated at Elevation 2,606.5 ft in sandy silt.																

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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										
COLLAR ELEV. 2,629.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 665,555		EASTING 817,956										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2630															2,629.0	0.0
	2,628.0	1.0	3	2	4											
2625	2,625.5	3.5	3	4	6											
	2,623.0	6.0	4	7	11											
2620	2,620.5	8.5	4	5	5											
															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										
COLLAR ELEV. 2,626.1 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,573		EASTING 818,002										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2630															2,626.1	0.0
	2,625.1	1.0	3	5	7											
2625	2,622.6	3.5	3	5	5											
	2,620.1	6.0	3	6	7											
2620	2,617.6	8.5	5	7	8											
2615	2,612.6	13.5	5	9	12											
2610	2,607.6	18.5	5	6	6											
2605	2,602.6	23.5	6	4	5											
															2,601.1	25.0
Boring Terminated at Elevation 2,601.1 ft in sandy silt.																

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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										
COLLAR ELEV. 2,623.0 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,592		EASTING 818,049										
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2625																
	2,622.0	1.0	4	8	10										2,623.0	GROUND SURFACE 0.0
2620	2,619.5	3.5	7	9	11										2,619.5	RESIDUAL Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand 3.5
	2,617.0	6.0	7	10	12											Brown, very stiff, sandy silt (A-4), fine to medium grained sand, trace clay and gravel, micaceous
2615	2,614.5	8.5	4	8	9											
	2,609.5	13.5	6	6	11											
2610	2,604.5	18.5	5	5	6											
	2,599.5	23.5	7	6	11											
2605																
2600																
																Boring Terminated at Elevation 2,598.0 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_7		STATION 13+00		OFFSET 16 ft LT		ALIGNMENT L_LT										
COLLAR ELEV. 2,620.4 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,611		EASTING 818,094										
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2625																
	2,620.4														2,620.4	GROUND SURFACE 0.0
2620	2,619.4	1.0	5	6	8										2,619.4	ROADWAY EMBANKMENT ABC Stone 1.0
	2,616.9	3.5	3	5	6											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											
	2,611.9	8.5	6	8	12											Brown, very stiff to hard, sandy silt (A-4), fine to medium grained sand, micaceous
2610	2,606.9	13.5	3	6	8											
	2,601.9	18.5	3	5	8											Brown to white, stiff, silt (A-4), trace sand and clay
2605																
2600																
	2,596.9	23.5	9	12	14											
	2,595.4	25.0														Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, trace clay, micaceous
																Boring Terminated at Elevation 2,595.4 ft in silty sand.

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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								
COLLAR ELEV. 2,617.4 ft		TOTAL DEPTH 25.0 ft		NORTHING 665,634		EASTING 818,139								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2620														2,617.4 GROUND SURFACE 0.0
2615	2,616.4	1.0	2	6	8								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								M	
	2,611.4	6.0	7	11	11									2,611.4 6.0
2610	2,608.9	8.5	10	21	31						SS-163	14%	M	Brown, very stiff to hard, sandy silt (A-4), fine to coarse grained sand, micaceous
2605	2,603.9	13.5	10	10	10								M	2,603.9 13.5
2600	2,598.9	18.5	3	4	5								M	Brown, medium to very stiff, silt (A-5), trace to some sand, trace to some clay, micaceous
2595	2,593.9	23.5	6	10	15								M	2,592.4 25.0
														Boring Terminated at Elevation 2,592.4 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_9		STATION 14+00		OFFSET 13 ft LT		ALIGNMENT L_LT								
COLLAR ELEV. 2,615.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 665,653		EASTING 818,184								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2620														2,615.1 GROUND SURFACE 0.0
2615	2,614.1	1.0	8	6	6								M	ROADWAY EMBANKMENT 0.4' Asphalt 0.6' ABC Stone
	2,611.6	3.5	8	5	7								M	RESIDUAL Brown, stiff, sandy silt (A-4), fine to coarse grained sand, trace gravel
2610	2,609.1	6.0	3	4	5						SS-169	23%	M	2,601.6 13.5
2605	2,606.6	8.5	8	9	14								M	Brown, stiff, silt (A-5), trace sand, trace clay, micaceous
2600	2,601.6	13.5	5	7	8								M	2,596.6 18.5
	2,596.6	18.5	10	13	17								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.

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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								
COLLAR ELEV. 2,612.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 665,679		EASTING 818,227								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2615														
2610	2,611.1	1.0	7	6	8								M	GROUND SURFACE ROADWAY EMBANKMENT 0.4' Asphalt
	2,608.6	3.5	5	6	7								M	0.5' ABC Stone
2605	2,606.1	6.0	5	7	8								M	RESIDUAL Brown, medium dense, silty sand (A-2-4), fine to coarse grained sand, micaceous
	2,603.6	8.5	4	5	8								M	SS-176 19% Brown to reddish brown, stiff to very stiff, sandy silt (A-4), fine to medium grained sand, trace clay, micaceous
2600	2,598.6	13.5	5	7	9								M	
2595	2,593.6	18.5	4	10	9								M	
														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								
COLLAR ELEV. 2,609.6 ft		TOTAL DEPTH 20.0 ft		NORTHING 665,703		EASTING 818,267								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2610	2,608.6	1.0	7	9	9									
2605	2,606.1	3.5	7	8	10									
	2,603.6	6.0	5	6	9									
2600	2,601.1	8.5	6	9	10									
2595	2,596.1	13.5	7	9	11									
2590	2,591.1	18.5	7	11	11									

GROUND SURFACE 0.0

ROADWAY EMBANKMENT 0.4' Asphalt 0.9

0.6' ABC Stone 3.5

RESIDUAL 6.0

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

Brown, very stiff, sandy silt (A-4), fine to coarse grained sand, micaceous

SS-180 17% 18.5

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.

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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										
COLLAR ELEV. 2,673.0 ft		TOTAL DEPTH 50.0 ft		NORTHING 665,399		EASTING 818,179										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2675																
	2,672.0	1.0	3	3	4										2,673.0	0.0
2670	2,669.5	3.5	2	2	2											
	2,667.0	6.0	2	3	3										2,667.0	6.0
2665	2,664.5	8.5	2	3	4										2,664.5	8.5
	2,659.5	13.5	4	4	4											
2655	2,654.5	18.5	3	4	6										2,654.5	18.5
	2,649.5	23.5	4	5	6										2,649.5	23.5
2645	2,644.5	28.5	15	17	31										2,644.5	28.5
2640	2,639.5	33.5	20	26	23										2,639.5	33.5
2635	2,634.5	38.5	8	11	13										2,634.5	38.5
2630	2,629.5	43.5	11	16	16										2,629.5	43.5
2625	2,624.5	48.5	15	22	41										2,624.5	48.5
															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										
COLLAR ELEV. 2,642.7 ft		TOTAL DEPTH 36.5 ft		NORTHING 665,388		EASTING 818,359										
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2645																
	2,641.7	1.0	10	7	6										2,642.7	0.0
2640	2,639.2	3.5	4	7	11											
	2,636.7	6.0	6	3	3											
2635	2,634.2	8.5	11	12	12											
	2,629.2	13.5	10	13	13											
2625	2,624.2	18.5	10	10	8										2,624.2	18.5
	2,619.2	23.5	12	100/0.9											2,619.2	23.5
2615	2,614.2	28.5	100/0.9												2,614.2	28.5
2610	2,609.2	33.5	100/0.4												2,609.2	33.5
	2,606.2	36.5	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'.																

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,576.1 ft		TOTAL DEPTH 25.6 ft		NORTHING 666,503		EASTING 819,053									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2580															
2575	2,575.1	1.0	5	6	6										
	2,572.6	3.5	7	7	4										
2570	2,570.1	6.0	0	2	1										
	2,567.6	8.5	0	0	0										
2565															
	2,562.6	13.5	11	17	16										
2560															
	2,557.6	18.5	19	25	21										
2555															
	2,552.6	23.5	100/0.2												
	2,550.5	25.6	60/0.0												

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. RW5_2		STATION 26+79		OFFSET 28 ft RT		ALIGNMENT L_LT									
COLLAR ELEV. 2,583.7 ft		TOTAL DEPTH 25.7 ft		NORTHING 666,541		EASTING 819,085									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2585															
	2,582.7	1.0	3	4	4										
2580	2,580.2	3.5	4	5	4										
	2,577.7	6.0	4	4	4										
2575	2,575.2	8.5	2	2	3										
2570	2,570.2	13.5	2	8	9										
2565	2,565.2	18.5	14	5	4										
2560	2,560.2	23.5	7	10	40										
	2,558.0	25.7	60/0.0												

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,577.1 ft		TOTAL DEPTH 18.5 ft		NORTHING 666,581		EASTING 819,116									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2580															
	2,576.1	1.0	5	5	7									2,577.1	0.0
2575	2,573.6	3.5	6	8	8									2,576.1	1.0
	2,571.1	6.0	5	2	2										
2570	2,568.6	8.5	2	1	1									2,568.6	8.5
	2,563.6	13.5	3	3	2									2,563.6	13.5
2560	2,558.6	18.5												2,558.6	18.5
Boring Terminated by Auger Refusal at Elevation 2,558.6 ft on Rock.															

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									
COLLAR ELEV. 2,577.9 ft		TOTAL DEPTH 23.0 ft		NORTHING 666,622		EASTING 819,148									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2580															
	2,576.9	1.0	4	5	5									2,577.9	0.0
2575	2,574.4	3.5	3	7	9										
	2,571.9	6.0	-	-	-										
2570	2,569.4	8.5	2	2	2									2,569.4	8.5
	2,564.4	13.5	2	2	2									2,564.4	13.5
2560	2,559.4	18.5	4	4	7									2,559.4	18.5
2555	2,554.9	23.0												2,554.9	23.0
Boring Terminated by Auger Refusal at Elevation 2,554.9 ft on Rock.															

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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										
COLLAR ELEV. 2,578.4 ft		TOTAL DEPTH 21.5 ft		NORTHING 666,661		EASTING 819,178										
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2580														2,578.4	GROUND SURFACE	0.0
	2,577.4	1.0	3	3	4							M			ROADWAY EMBANKMENT	
2575	2,574.9	3.5	5	4	7							M			Brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, fine to medium grained gravel, trace clay	
	2,572.4	6.0	5	5	5							M		2,571.9	White, loose, sand (A-1-b), micaceous	6.5
2570	2,569.9	8.5	4	3	3							M		2,571.4	ALLUVIAL	7.0
															Dark gray, sandy silt (A-4), fine to coarse grained sand, trace gravel, micaceous	
2565	2,564.9	13.5	0	0	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							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										SS-219		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										
COLLAR ELEV. 2,579.4 ft		TOTAL DEPTH 22.9 ft		NORTHING 666,700		EASTING 819,209										
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2580														2,579.4	GROUND SURFACE	0.0
	2,578.4	1.0	3	4	4							M			ROADWAY EMBANKMENT	
2575	2,575.9	3.5	3	5	6							M			Brown to dark brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand, trace gravel, trace clay	
	2,573.4	6.0	6	7	6							M				
2570	2,570.9	8.5	3	4	3							M		2,570.4	White, loose, sand (A-1-b), trace clay, micaceous	9.0
2565	2,565.9	13.5	0	2	2							M		2,565.9	ALLUVIAL	13.5
															Dark gray, soft, silt (A-5), trace fine grained sand, trace clay, slightly micaceous	
2560	2,560.9	18.5	0	2	2							W		2,560.9	Dark gray, loose, sand (A-1-b), fine to coarse grained sand, trace gravel	18.5
	2,556.5	22.9												2,556.5	Boring Terminated by Auger Refusal at Elevation 2,556.5 ft on Rock.	22.9

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,580.4 ft		TOTAL DEPTH 26.1 ft		NORTHING 666,737		EASTING 819,241									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2585															
2580	2,579.4	1.0	5	3	3									2,580.4	0.0
	2,576.9	3.5	4	4	6										
2575	2,574.4	6.0	8	9	11									2,574.0	6.4
	2,571.9	8.5	4	4	4									2,570.4	10.0
2570	2,566.9	13.5	1	1	1									2,567.4	13.0
	2,563.4	17.0												2,563.4	17.0
2565	2,561.9	18.5	1	10	8									2,557.9	22.5
2560	2,556.9	23.5	100/0.3											2,554.3	26.1
2555	2,554.3	26.1	60/0.0											2,554.3	26.1

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									
COLLAR ELEV. 2,581.4 ft		TOTAL DEPTH 32.5 ft		NORTHING 666,770		EASTING 819,275									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2585															
2580	2,580.4	1.0	4	4	3									2,581.4	0.0
	2,577.9	3.5	2	3	4										
2575	2,575.4	6.0	4	4	6									2,574.4	7.0
	2,572.9	8.5	5	5	6										
2570	2,567.9	13.5	0	2	3									2,568.4	13.0
	2,562.9	18.5	1	1	4									2,563.9	17.5
2565	2,557.9	23.5	100/0.3											2,560.4	21.0
	2,552.9	28.5	33	27	32									2,553.9	27.5
2555	2,548.9	32.5	60/0.0											2,548.9	32.5

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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	
COLLAR ELEV. 2,582.4 ft		TOTAL DEPTH 36.5 ft		NORTHING 666,807		EASTING 819,311	
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2585															2,582.4	GROUND SURFACE	0.0
2580	2,581.4	1.0	3	2	2							SS-090	24%		2,578.9	ROADWAY EMBANKMENT Brown, loose, sandy silt (A-4), fine to medium grained sand	
	2,578.9	3.5	4	5	11										2,576.4	ALLUVIAL Gray, medium dense, sand (A-1-B), trace silt	6.0
2575	2,576.4	6.0	4	7	11										2,569.9	Dark brown to black, soft, silt (A-4), trace sand	12.5
	2,573.9	8.5	4	6	8										2,559.4	Dark gray-brown, medium dense, gravel (A-1-A), angular gravel	23.0
2570	2,568.9	13.5	2	2	2										2,557.4	RESIDUAL Dark brown to tan-brown, very dense, silty sand (A-2-4)	25.0
2565	2,563.9	18.5	2	2	4										2,548.9	WEATHERED ROCK Weathered rock, dark brown, gneiss	33.5
2560	2,558.9	23.5	9	8	7										2,545.9	Boring Terminated by Auger Refusal at Elevation 2,545.9 ft on Rock.	36.5
2555	2,553.9	28.5	13	26	48												
2550	2,548.9	33.5	100/0.9														
	2,545.9	36.5	60/0.0														

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. RW5_10		STATION 30+81		OFFSET 50 ft RT		ALIGNMENT L_LT	
COLLAR ELEV. 2,583.7 ft		TOTAL DEPTH 48.5 ft		NORTHING 666,842		EASTING 819,346	
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			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2585															2,583.7	GROUND SURFACE	0.0
	2,582.7	1.0	4	3	4										2,577.3	ROADWAY EMBANKMENT Red-brown, loose, clayey sand (A-2-6), fine to medium grained sand, some rock fragments	6.4
2580	2,580.2	3.5	4	4	5										2,566.2	Dark brown to black, soft, silt (A-4), trace to some organic matter	17.5
	2,577.7	6.0	4	6	8										2,554.5	Weathered rock, dark gray, gneiss	29.2
2575	2,575.2	8.5	5	6	5												
2570	2,570.2	13.5	1	2	2												
2565	2,565.2	18.5	0	2	2												
2560	2,560.2	23.5	2	5	8												
2555	2,555.2	28.5	5	100/0.8													
2550	2,550.2	33.5	100/0.8														
2545	2,545.2	38.5	6	100/0.9													
2540	2,540.2	43.5	100/0.5														
	2,535.2	48.5	60/0.0														

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ_NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,585.4 ft		TOTAL DEPTH 42.9 ft		NORTHING 666,875		EASTING 819,382									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2590															
2585	2,584.4	1.0	3	5	8										
	2,581.9	3.5	3	6	5										
2580	2,579.4	6.0	3	4	4										
	2,576.9	8.5	2	2	2										
2575															
	2,571.9	13.5	1	1	1										
2570															
	2,566.9	18.5	2	1	1										
2565															
	2,561.9	23.5	0	2	4										
2560															
	2,556.9	28.5	3	5	7										
2555															
	2,551.9	33.5	100/0.8												
2550															
	2,546.9	38.5	100/0.9												
2545															
	2,542.5	42.9	60/0.0												

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									
COLLAR ELEV. 2,582.4 ft		TOTAL DEPTH 32.5 ft		NORTHING 666,877		EASTING 819,201									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2585															
	2,582.4	0.0	3	2	4										
2580															
	2,577.4	5.0	3	2	3										
2575															
	2,574.9	7.5	2	1	2										
	2,572.4	10.0	2	3	2										
2570															
	2,567.4	15.0	7	6	6										
2565															
	2,562.4	20.0	3	5	15										
2560															
	2,557.4	25.0	14	18	43										
2555															
	2,552.4	30.0	18	35	65/0.5										
2550															
	2,549.9	32.5	60/0.0												

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ_NC_DOT.GDT 9/12/23

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											
COLLAR ELEV. 2,599.6 ft		TOTAL DEPTH 40.0 ft		NORTHING 667,060		EASTING 819,600											
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2600															2,599.6	GROUND SURFACE	0.0
	2,598.6	1.0	2	3	4										2,596.6	ROADWAY EMBANKMENT	
	2,596.1	3.5	5	3	5										2,596.6	Red-brown, medium stiff, silty clay (A-7-5)	3.0
2595																Red-brown, loose, silty sand (A-2-4), fine to medium grained sand	
	2,593.6	6.0	3	3	5												
	2,591.1	8.5	4	4	6												
2590															2,588.6	Red-brown, medium stiff, sandy silt (A-4)	11.0
	2,586.1	13.5	3	2	4												
2585															2,582.1	ALLUVIAL	17.5
	2,581.1	18.5	2	1	2											Gray to red, soft, sandy silt (A-4), fine grained sand	
2580																	
	2,576.1	23.5	0	2	2												
2575															2,572.1	Dark gray-black, medium stiff, silt (A-4), trace roots	27.5
	2,571.1	28.5	2	3	4										2,570.5	RESIDUAL	29.1
2570																Gray-brown, loose, silty sand (A-2-4), fine to coarse grained sand	
	2,566.1	33.5	3	4	4										2,566.6	Dark gray, medium stiff, clayey silt (A-5), high plasticity	33.0
2565															2,562.1	Dark gray, medium stiff, sandy silt (A-4)	37.5
	2,561.1	38.5	3	2	3										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											
COLLAR ELEV. 2,602.5 ft		TOTAL DEPTH 40.0 ft		NORTHING 667,081		EASTING 819,646											
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
2605															2,602.5	GROUND SURFACE	0.0
	2,601.5	1.0	5	3	4										2,600.0	ROADWAY EMBANKMENT	
2600															2,600.0	Red-brown, medium stiff, sandy clay (A-6), low plasticity	2.5
	2,599.0	3.5	4	3	4											Brown, loose to medium dense, silty sand (A-2-4), fine to coarse grained sand	
	2,596.5	6.0	4	7	7												
2595															2,594.0		
	2,594.0	8.5	4	4	3												
	2,589.0	13.5	3	2	4												
2590																	
	2,584.0	18.5	2	2	3												
2585																	
	2,579.0	23.5	3	2	3										2,578.3	ALLUVIAL	24.2
2580																Gray, medium stiff, sandy silt (A-4), fine grained sand	
	2,574.0	28.5	0	2	3										2,574.5	Dark gray-black, medium stiff, sandy silt (A-4), trace roots and organics	28.0
2575															2,573.0	RESIDUAL	29.5
	2,569.0	33.5	3	4	4											Dark gray, medium stiff, sandy clay (A-6)	
2570																	
	2,564.0	38.5	5	6	7										2,565.5	Dark gray, medium stiff, sandy silt (A-4)	37.0
2565															2,562.5	Boring Terminated at Elevation 2,562.5 ft in sandy silt.	40.0

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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								
COLLAR ELEV. 2,627.4 ft		TOTAL DEPTH 21.5 ft		NORTHING 665,498		EASTING 818,099								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2630														
	2,626.8	0.6	10	10	8									
2625	2,624.9	2.5	8	7	6									
	2,622.4	5.0	9	9	11									
2620	2,619.9	7.5	7	8	9									
	2,617.4	10.0	8	8	9									
2615														
	2,612.4	15.0	8	8	8									
2610														
	2,607.4	20.0	12	13	12									

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								
COLLAR ELEV. 2,624.4 ft		TOTAL DEPTH 21.5 ft		NORTHING 665,520		EASTING 818,149								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2625	2,623.8	0.6	6	7	7									
	2,621.9	2.5	7	8	8									
2620	2,619.4	5.0	4	6	9									
	2,616.9	7.5	10	10	8									
2615	2,614.4	10.0	7	7	10									
2610	2,609.4	15.0	6	6	8									
2605	2,604.4	20.0	12	15	23									

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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								
COLLAR ELEV. 2,621.3 ft		TOTAL DEPTH 16.5 ft		NORTHING 665,545		EASTING 818,196								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2625														
2620	2,620.7	0.6												2,621.3 GROUND SURFACE 0.0
	2,618.8	2.5	6	6	7									2,620.7 0.6
	2,616.3	5.0	8	6	7									2,618.8 ROADWAY EMBANKMENT 2.5
	2,613.8	7.5	18	21	15									Medium dense, brown and gray, SAND and GRAVEL (A-1-b)
	2,611.3	10.0	5	5	10									RESIDUAL
	2,606.3	15.0	8	10	13									Stiff to hard, white, gray and brown, SILT (A-4), with trace clay, micaceous, saprolitic
2605			5	7	11									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								
COLLAR ELEV. 2,618.4 ft		TOTAL DEPTH 5.0 ft		NORTHING 665,570		EASTING 818,241								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2620														
	2,617.8	0.6												2,618.4 GROUND SURFACE 0.0
	2,615.9	2.5	9	6	10									2,617.8 0.6
	2,613.4	5.0	9	10	15									2,615.9 ROADWAY EMBANKMENT 2.5
														Medium dense, brown and gray, SAND and GRAVEL (A-1-b)
														RESIDUAL
														Very stiff, brown, black, and gray, SILT (A-4), saprolitic
														Boring Terminated with Standard Penetration Test Refusal at Elevation 2,613.4 ft on Crystalline Rock (GNEISS)

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,615.3 ft		TOTAL DEPTH 10.3 ft		NORTHING 665,597		EASTING 818,287									
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2620															
2615	2,614.8	0.5	6	8	9										
	2,612.8	2.5	5	6	7										
2610	2,610.3	5.0	10	53	41										
	2,607.8	7.5	32	68/0.2											
2605	2,605.3	10.0	100/0.3												

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									
COLLAR ELEV. 2,612.3 ft		TOTAL DEPTH 10.9 ft		NORTHING 665,625		EASTING 818,331									
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2615															
	2,611.7	0.6	6	4	5										
2610	2,609.8	2.5	8	7	8										
	2,607.3	5.0	64	36/0.2											
2605	2,604.8	7.5	10	15	14										
	2,602.3	10.0	24	76/0.3											

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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								
COLLAR ELEV. 2,609.5 ft		TOTAL DEPTH 11.5 ft		NORTHING 665,656		EASTING 818,373								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)
2610	2,608.9	0.6	7	11	8									GROUND SURFACE 2,609.5
	2,607.0	2.5	4	9	7									0.6' PAVEMENT 2,608.9
2605	2,604.5	5.0	8	8	10									ROADWAY EMBANKMENT 2,607.0
	2,602.0	7.5	4	8	11									Medium dense, gray and brown, SAND and GRAVEL (A-1-b), micaceous
2600	2,599.5	10.0	16	32	22									RESIDUAL
														Medium dense to very dense, brown, white and black, silty SAND (A-2-4), with trace rock fragments, micaceous
														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								
COLLAR ELEV. 2,606.5 ft		TOTAL DEPTH 11.5 ft		NORTHING 665,687		EASTING 818,414								
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)
2610	2,606.5	0.6												GROUND SURFACE 2,606.5
	2,604.0	2.5	7	10	7									0.6' PAVEMENT 2,605.9
2605	2,601.5	5.0	4	4	5									ROADWAY EMBANKMENT 2,604.0
	2,599.0	7.5	6	8	13									Medium dense, brown, SAND and GRAVEL (A-1-b)
2600	2,596.5	10.0	5	5	7									RESIDUAL
														Loose to medium dense, white, brown and red, silty SAND (A-2-5) micaceous, saprolitic
														Boring Terminated at Elevation 2,595.0 ft in SILTY SAND

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

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									
COLLAR ELEV. 2,585.9 ft		TOTAL DEPTH 38.5 ft		NORTHING 666,931		EASTING 819,344									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2590															
2585	2,584.9	1.0	2	5	4							M	GROUND SURFACE	0.0	
	2,582.4	3.5	3	5	4							M	ROADWAY EMBANKMENT Brown to gray, loose, silty sand (A-2-4), micaceous	5.0	
2580	2,579.9	6.0	2	2	2							SS-003	ALLUVIAL Gray and white, soft, silty clay and peat, highly organic (A-7-6)	8.5	
	2,577.4	8.5	4	4	4							M	Brown, soft, sandy silt (A-4)	12.0	
2575													Gray, soft, sandy clay (A-6)	12.9	
2570	2,572.4	13.5	0	0	1							Sat.			
	2,567.4	18.5	WOH	2	3							M			
2565															
	2,562.4	23.5	46	32	19							SS-007	RESIDUAL Orange to gray to brown, very dense, clayey sand (A-2-6), micaceous	22.0	
2560															
	2,557.4	28.5	10	19	65							M			
2555															
	2,552.4	33.5	30	29	26							M	Brown to white, very dense, sandy silt (A-4), micaceous	31.1	
2550															
	2,547.4	38.5													
		60/0.0													
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									
COLLAR ELEV. 2,587.7 ft		TOTAL DEPTH 42.7 ft		NORTHING 666,954		EASTING 819,431									
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2590															
	2,586.7	1.0	4	4	5										
2585															
	2,584.2	3.5	7	6	8							SS-012	40%	ROADWAY EMBANKMENT Brown, loose, sandy silt (A-4), micaceous, trace gravel	5.0
	2,581.7	6.0	5	7	10							M			
2580															
	2,579.2	8.5	3	3	3							W	ALLUVIAL Gray-brown, medium dense, sand (A-1-B), fine to medium grained sand	6.5	
	2,576.7	11.0										W	Dark gray, soft, sandy silt (A-4), fine grained sand, micaceous	11.0	
2575															
	2,574.2	13.5	0	2	2							W			
2570															
	2,569.2	18.5	0	2	2							W	Brown-gray, loose, sand (A-1-B), some silt	17.0	
2565															
	2,564.2	23.5	2	3	3							SS-017	206%	Black, medium stiff, sandy silt (A-4), organic, some wood fragments	23.5
2560															
	2,559.2	28.5	6	13	36							W			
2555															
	2,554.2	33.5	22	24	35							W	RESIDUAL Gray and white, very dense, gravel (A-1-A), some coarse sand	29.3	
	2,550.2	37.5													
2550															
	2,549.2	38.5													
		100/0.7													
	2,545.0	42.7													
		60/0.0													
Boring Terminated by Auger Refusal at Elevation 2,545.0 ft on Rock.															

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

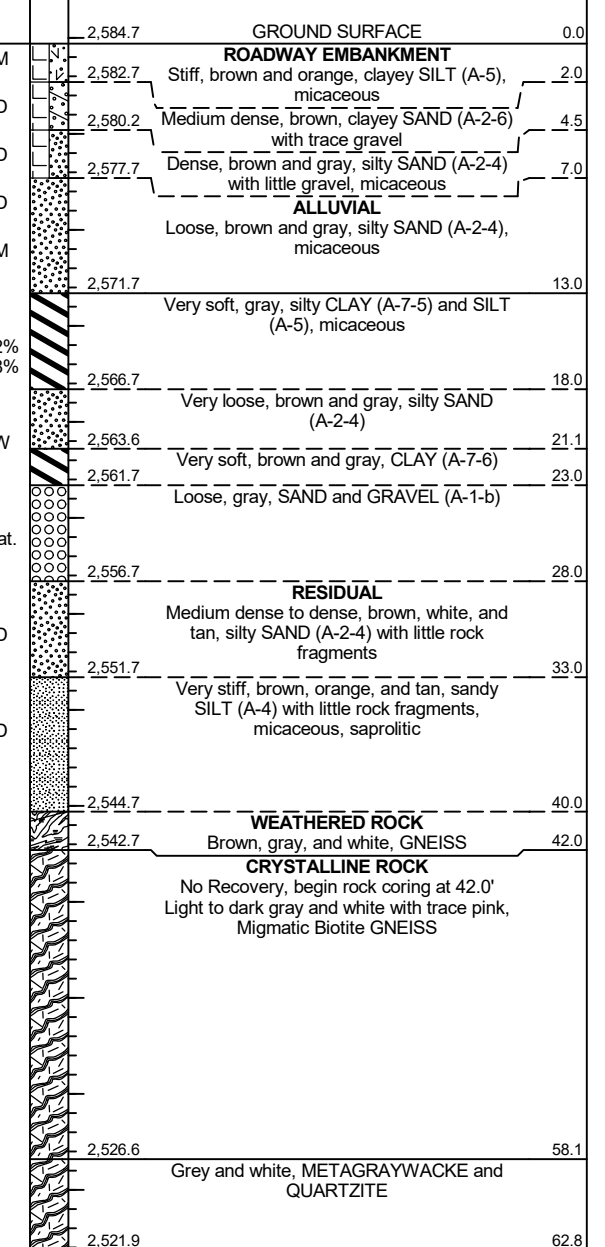
GEOTECHNICAL BORING REPORT

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										
COLLAR ELEV. 2,607.3 ft		TOTAL DEPTH 45.7 ft		NORTHING 667,083		EASTING 819,563										
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2610															2,607.3	0.0
															2,607.3	0.0
2605	2,606.3	1.0	5	4	4											
	2,603.8	3.5	4	3	3											
2600	2,601.3	6.0	0	0	1											
	2,598.8	8.5	2	3	3											
2595	2,593.8	13.5	2	2	2											
	2,588.8	18.5	4	3	5											
2585	2,583.8	23.5	0	2	2											
	2,578.8	28.5	2	2	3											
2580	2,573.8	33.5	3	4	5											
	2,568.8	38.5	3	4	4											
2575	2,563.8	43.5	12	12	29											
	2,561.6	45.7	60/0.0												60/0.0	

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										
COLLAR ELEV. 2,584.7 ft		TOTAL DEPTH 62.8 ft		NORTHING 666,908		EASTING 819,403										
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			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
2585	2,584.7	0.0	2	4	5										2,584.7	0.0
	2,582.2	2.5	7	12	11										2,582.2	2.0
2580	2,579.7	5.0	18	18	16										2,579.7	4.5
	2,577.2	7.5	4	4	4										2,577.2	7.0
2575	2,574.7	10.0	2	2	3										2,574.7	10.0
	2,569.7	15.0	1	1	1										2,569.7	15.0
2570	2,566.7	20.0	WOH	WOH	1										2,566.7	20.0
	2,564.7	25.0	7	5	2										2,564.7	25.0
2565	2,559.7	30.0	9	16	14										2,559.7	30.0
	2,557.7	35.0	15	15	14										2,557.7	35.0
2560	2,554.7	40.0	100/0.5												100/0.5	40.0
	2,542.2	42.5	60/0.0												60/0.0	42.5
2555	2,544.7	45.0														45.0
2550	2,542.2	47.5														47.5
2545	2,544.7	50.0														50.0
2540	2,542.2	52.5														52.5
2535																
2530																
2525																

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ_NC_DOT.GDT 9/12/23



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										
COLLAR ELEV. 2,584.6 ft		TOTAL DEPTH 34.5 ft		NORTHING 666,917		EASTING 819,274										
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			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
2585	2,584.6	0.0	5	7	4									2,584.6	0.0	GROUND SURFACE
	2,583.6											M		2,583.6	1.0	ROADWAY EMBANKMENT
	2,582.1	2.5	3	4	4							M				Medium dense, brown, f SAND (A-2-4), with trace gravel
2580	2,579.6	5.0	6	5	6							M		2,580.1	4.5	Soft, brown and orange, CLAY (A-7)
	2,577.1	7.5	3	3	3							Sat.				Loose to medium dense, gray, F-c SAND (A-2-4)
2575	2,574.6	10.0	3	2	2									2,574.6	10.0	ALLUVIAL
												SS-513	51%			Soft, gray, SILT (A-5), micaceous
2570	2,569.6	15.0	1	WOH	1									2,571.6	13.0	Very loose, gray, f silty SAND (A-2-4), micaceous
2565	2,564.6	20.0	1	1	2									2,566.6	18.0	Soft, gray, f sandy SILT (A-4), micaceous
2560	2,559.6	25.0	4	7	11									2,561.6	23.0	RESIDUAL
	2,554.6	30.0	90	10/0.1												Very stiff, brown and orange, f sandy SILT (A-4), micaceous, saprolitic
2555	2,550.1	34.5												2,554.6	30.0	WEATHERED ROCK
																Brown, orange, and white, GNEISS
														2,550.1	34.5	Boring Terminated with Standard Penetration Test Refusal at Elevation 2,550.1 ft on Crystalline Rock (GNEISS)
																Other Samples: ST-4 (15.0 - 17.0)

NCDOT BORE DOUBLE B-5898 AECOM + HDR RELEVANT LOGS.GPJ NC_DOT.GDT 9/12/23

SOIL TEST RESULTS

Soil Classification and Gradation


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

BORING NO.	SAMPLE NO.	OFFSET	STATION	ALIGNMENT	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.	P.I.	% BY WEIGHT				% FINER (SIEVES)			% MOISTURE	% ORGANICS
										GRAVEL	C. SAND	F. SAND	FINES	10	40	200		
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



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

BORING NO.	SAMPLE NO.	OFFSET	STATION	ALIGNMENT	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.L.	P.I.	% BY WEIGHT				% FINER (SIEVES)			% MOISTURE	% ORGANICS
										GRAVEL	C. SAND	F. SAND	FINES	10	40	200		
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	-

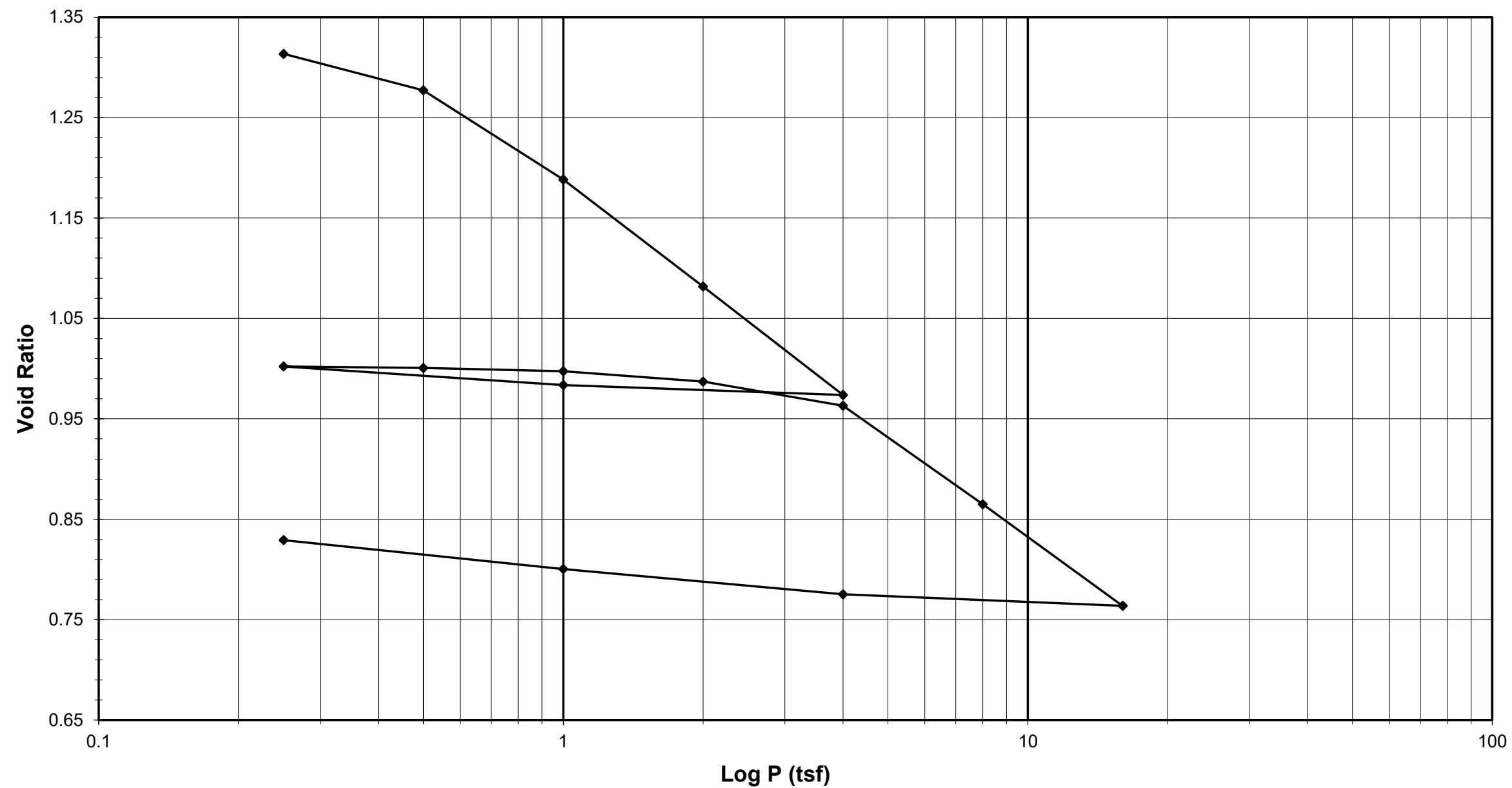
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client: AECOM
 Client Project: B-5898 / B-3186
 Project No.: R-2023-090-001
 Lab ID: R-2023-090-001-048

Boring No.: S1_EB1_A
 Depth (ft): 15.0-17.0
 Sample No.: ST-1
 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



ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client: AECOM
 Client Project: B-5898 / B-3186
 Project No.: R-2023-090-001
 Lab ID: R-2023-090-001-048

Boring No.: S1_EB1_A
 Depth (ft): 15.0-17.0
 Sample No.: ST-1
 Visual Description: Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained

Consolidometer No. R470
1 Division = 0.0001 (in.)

<u>Sample Properties</u>	<u>Initial</u>	<u>Final</u>	<u>Test Data Summary</u>							
Water Content			Applied Pressure	Final Dial Reading	Machine Deflection	Corrected Reading	Height of Sample	Volume	Dry Density	Void Ratio
			(tsf)	(div)	(div)	(div)	(mm)	(cm ³)	(g/cm ³)	
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	Seating	0	0	0	25.400	80.440	1.13137	1.36881
Wt. of Tare (g)	99.05	89.89	0.25	242.8	8.9	233.9	24.806	78.559	1.15846	1.31341
Wt. of DS (g)	108.16	92.05	0.5	407.5	21.1	386.4	24.418	77.331	1.17685	1.27727
Water Content (%)	45.52	29.67	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
Sample Parameters			1	1670.3	43.7	1626.6	21.268	67.356	1.35115	0.98350
Sample Diameter (in)	2.5	2.5	0.25	1570.6	23.4	1547.2	21.470	67.994	1.33845	1.00231
Sample Height (in)	1.0000	0.7722	0.5	1581.7	27.8	1553.9	21.453	67.940	1.33952	1.00072
Sample Volume (cm ³)	80.44	62.12	1	1607.3	39.9	1567.4	21.419	67.831	1.34167	0.99751
Wt. of Wet Sample + Ring (g)	347.10	332.68	2	1666.1	55.0	1611.1	21.308	67.480	1.34866	0.98716
Wt. of Ring (g)	214.67	214.67	4	1789.6	76.4	1713.2	21.048	66.659	1.36527	0.96298
Wt. of Wet Sample (g)	132.43	118.01	8	2223.9	96.8	2127.2	19.997	63.329	1.43706	0.86492
Wet Density (pcf)	102.73	118.55	16	2689.8	135.5	2554.3	18.912	59.893	1.51950	0.76374
Wet Density (g/cm ³)	1.65	1.90	4	2590.4	84.2	2506.2	19.034	60.280	1.50974	0.77514
Water Content (%)	45.52	29.67	1	2451.4	52.3	2399.1	19.306	61.141	1.48848	0.80050
Wt. of Dry Sample (g)	91.01	91.01	0.25	2306.4	28.5	2277.9	19.614	62.116	1.46511	0.82921
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	<i>Measured</i>								
			<i>Tested By</i>	<i>MY</i>	<i>Date</i>	<i>4/4/23</i>	<i>Checked By</i>	<i>MPS</i>	<i>Date</i>	<i>4/21/23</i>



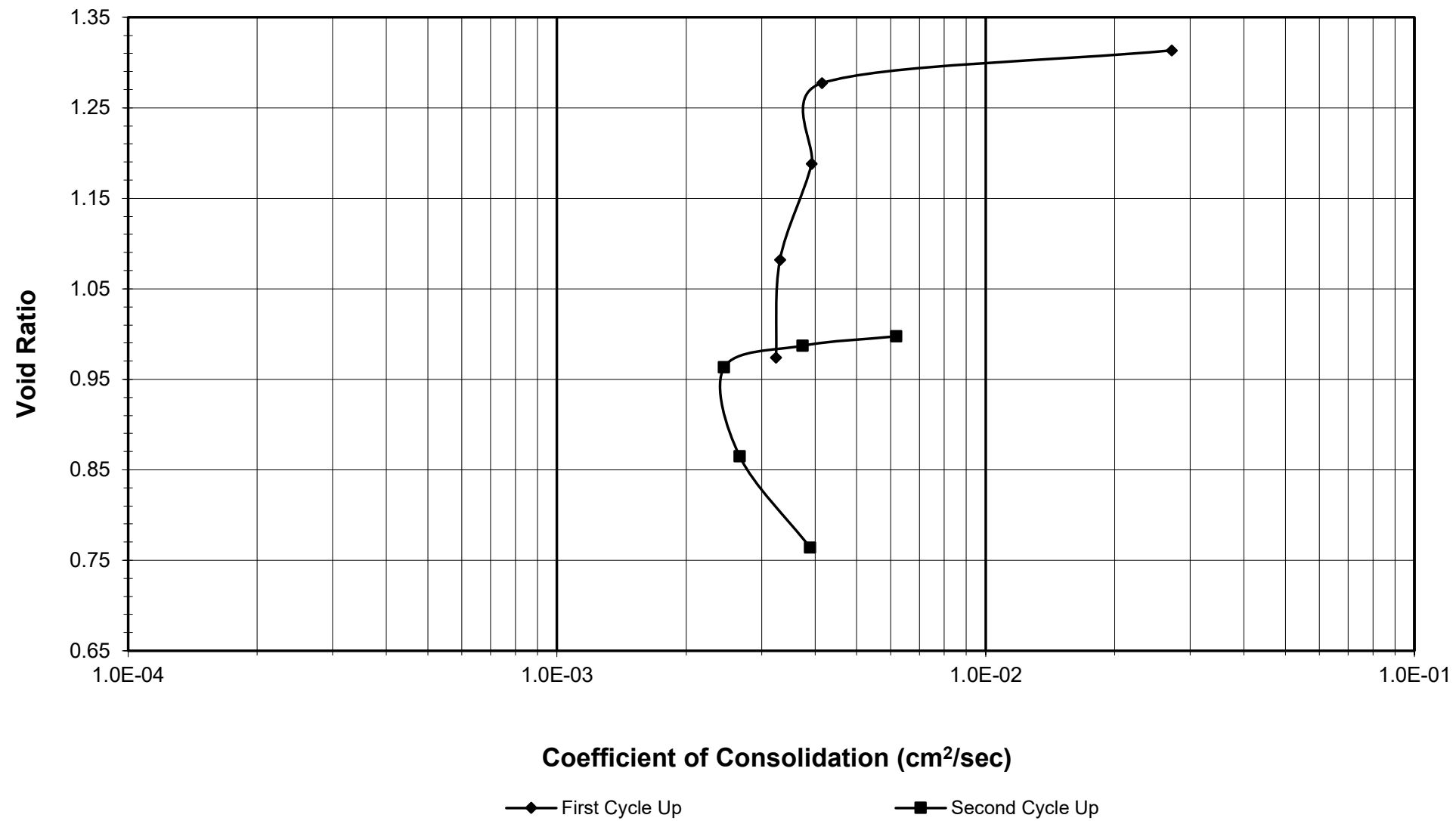
ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client: AECOM
 Client Project: B-5898 / B-3186
 Project No.: R-2023-090-001
 Lab ID: R-2023-090-001-048

Boring No.: S1_EB1_A
 Depth (ft): 15.0-17.0
 Sample No.: ST-1
 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



ONE DIMENSIONAL CONSOLIDATION

ASTM D2435 / D2435M-11

Client: AECOM
 Client Project: B-5898 / B-3186
 Project No.: R-2023-090-001
 Lab ID: R-2023-090-001-048

Boring No.: S1_EB1_A
 Depth (ft): 15.0-17.0
 Sample No.: ST-1
 Visual Description: Brown Sandy Silt

Sample Conditions: Undisturbed, Inundated, Double Drained

Consolidometer No. R470
1 Division = 0.0001 (in.)

C_v Test Data Summary

<u>Sample Properties</u>	<u>Initial</u>	<u>Final</u>	<u>Load Increment</u>	<u>Dial Reading @ t₅₀</u>	<u>Machine Deflection</u>	<u>Corrected Dial Reading @ t₅₀</u>	<u>Sample Height @ t₅₀</u>	<u>Time t₅₀</u>	<u>C_v</u>
			(tsf)	(div)	(div)	(div)	(cm)	(min.)	(cm ² /sec)
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	0 - 0.25	141.5	8.9	132.6	2.506	0.19	0.0271
Wt. of Tare (g)	99.05	89.89	0.25 - 0.5	318.1	21.1	297.0	2.465	1.20	0.0042
Wt. of DS (g)	108.16	92.05	0.5 - 1	603.0	36.0	567.0	2.396	1.20	0.0039
Water Content (%)	45.52	29.67	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
Sample Parameters									
Sample Diameter (in)	2.5	2.5	1 - 0.25	NA	NA	NA	NA	NA	NA
Sample Height (in)	1.0000	0.7722	0.25 - 0.5	NA	NA	NA	NA	NA	NA
Sample Volume (cm ³)	80.44	62.12	0.5 - 1	1598.2	39.9	1558.3	2.144	0.61	0.0062
Wt. of Wet Sample + Ring (g)	347.10	332.68	1 - 2	1651.0	55.0	1596.0	2.135	1.00	0.0037
Wt. of Ring (g)	214.67	214.67	2 - 4	1740.5	76.4	1664.1	2.117	1.50	0.0025
Wt. of Wet Sample (g)	132.43	118.01	4 - 8	2003.2	96.8	1906.4	2.056	1.30	0.0027
Wet Density (pcf)	102.73	118.55	8 - 16	2461.4	135.5	2325.9	1.949	0.80	0.0039
Wet Density (g/cm ³)	1.65	1.90	16 - 4	NA	NA	NA	NA	NA	NA
Water Content (%)	45.52	29.67	4 - 1	NA	NA	NA	NA	NA	NA
Wt. of Dry Sample (g)	91.01	91.01	1 - 0.25	NA	NA	NA	NA	NA	NA
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	<i>Measured</i>							

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

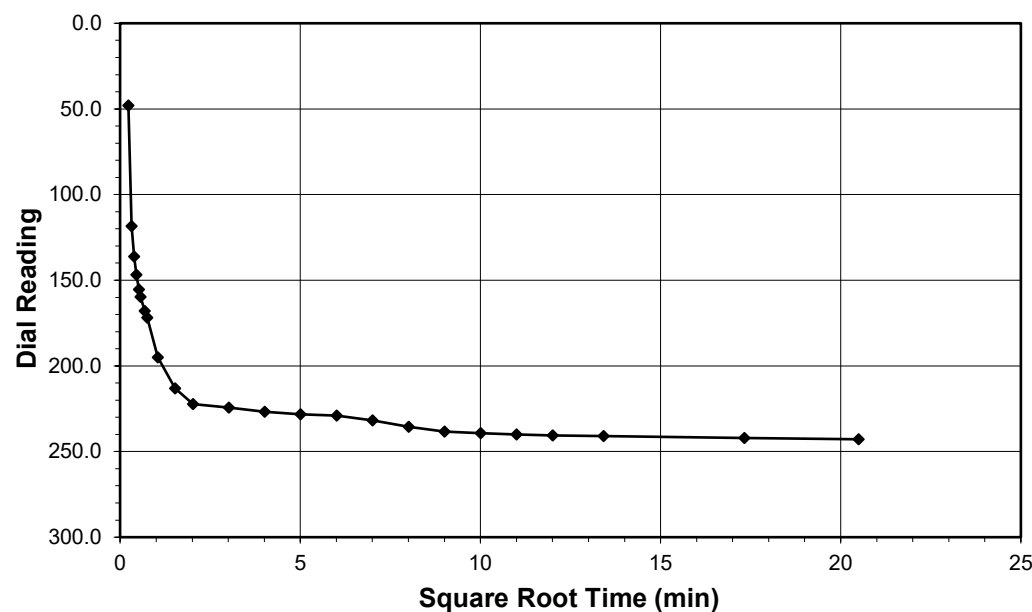


ONE DIMENSIONAL CONSOLIDATION

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

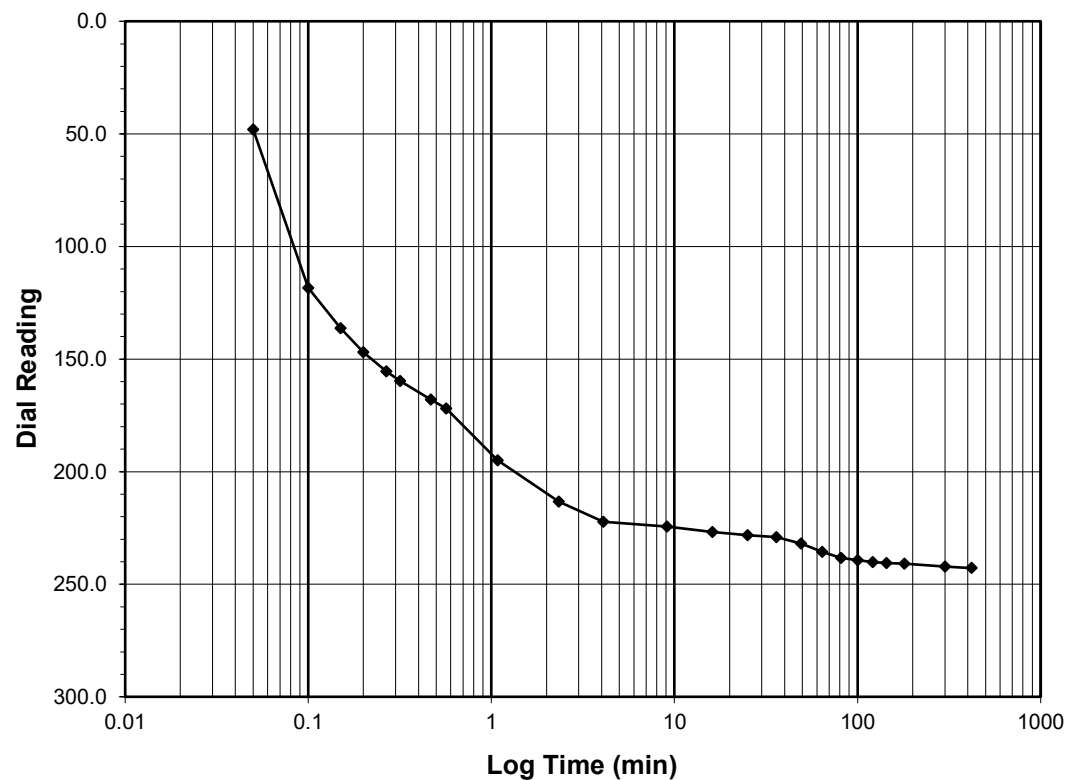
Sample Conditions: Undisturbed, Inundated, Double Drained



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

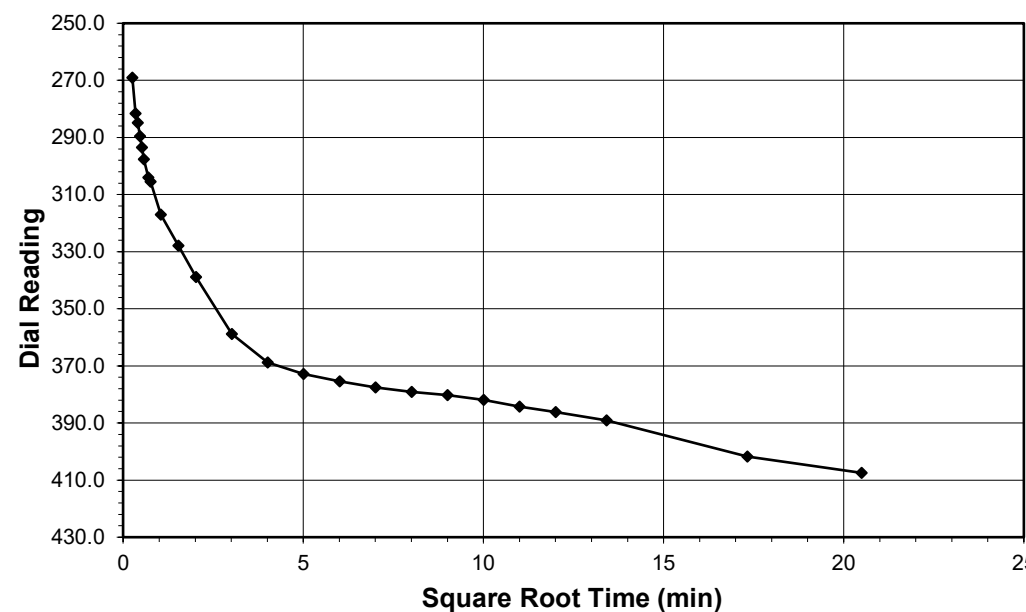


ONE DIMENSIONAL CONSOLIDATION

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

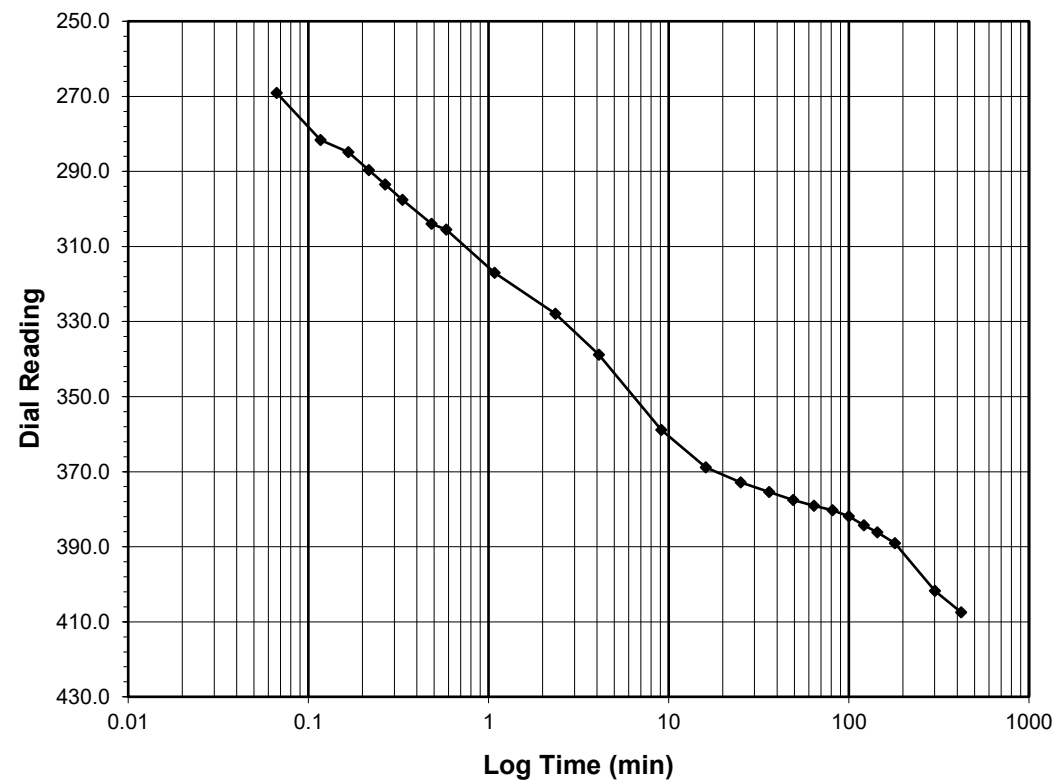
Sample Conditions: Undisturbed, Inundated, Double Drained



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

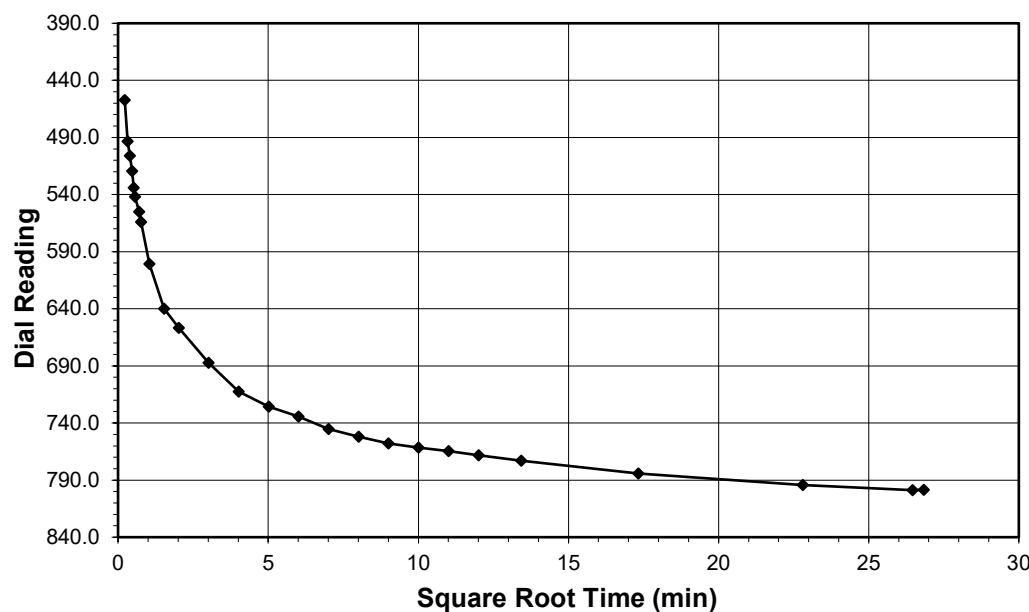


ONE DIMENSIONAL CONSOLIDATION

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

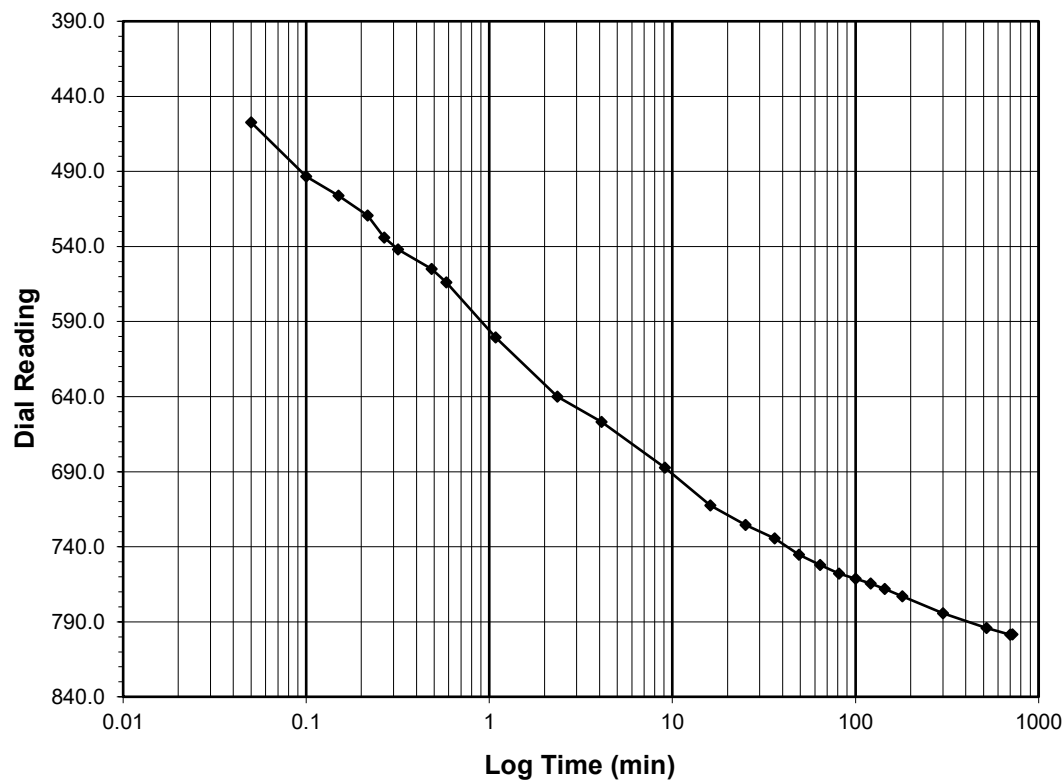
Sample Conditions: Undisturbed, Inundated, Double Drained



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

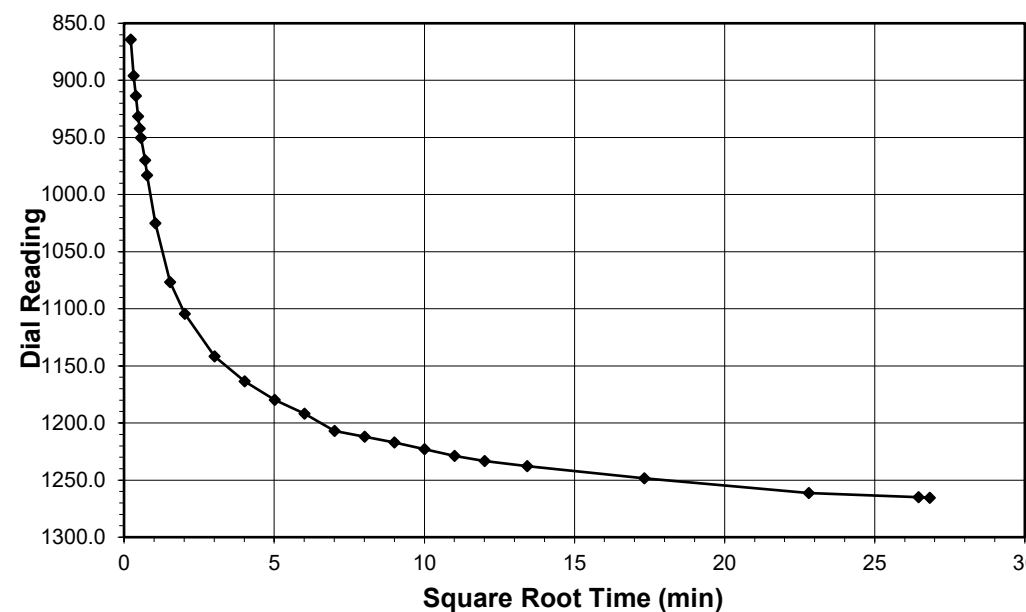


ONE DIMENSIONAL CONSOLIDATION

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

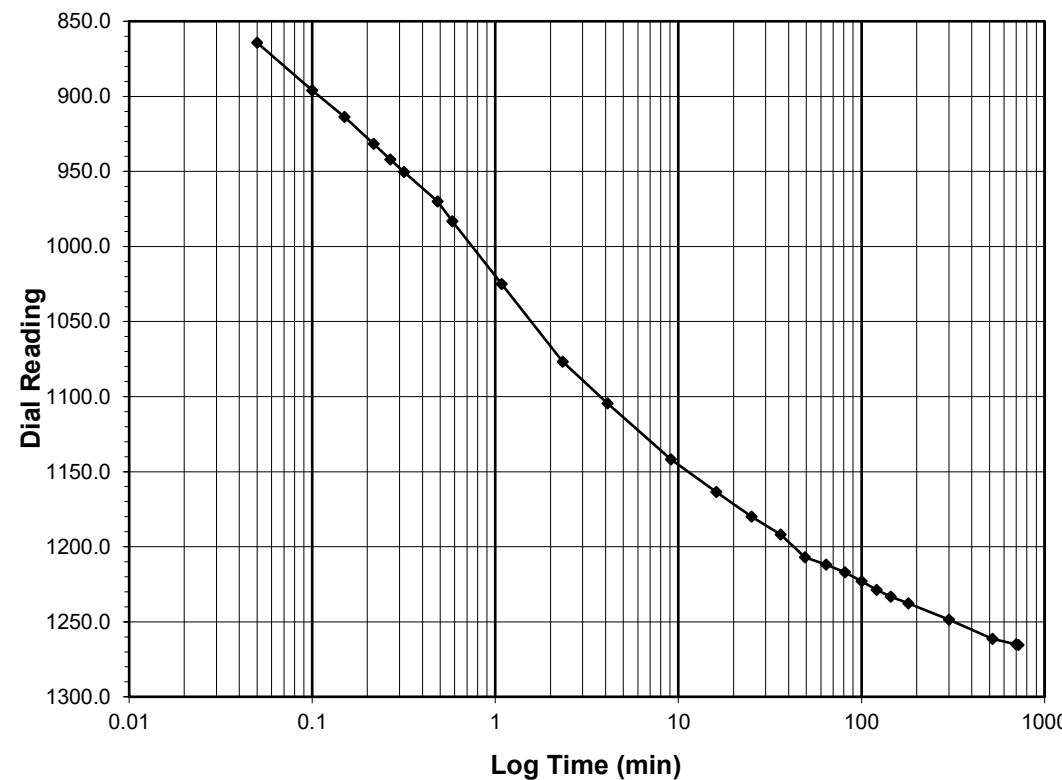
Sample Conditions: Undisturbed, Inundated, Double Drained



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

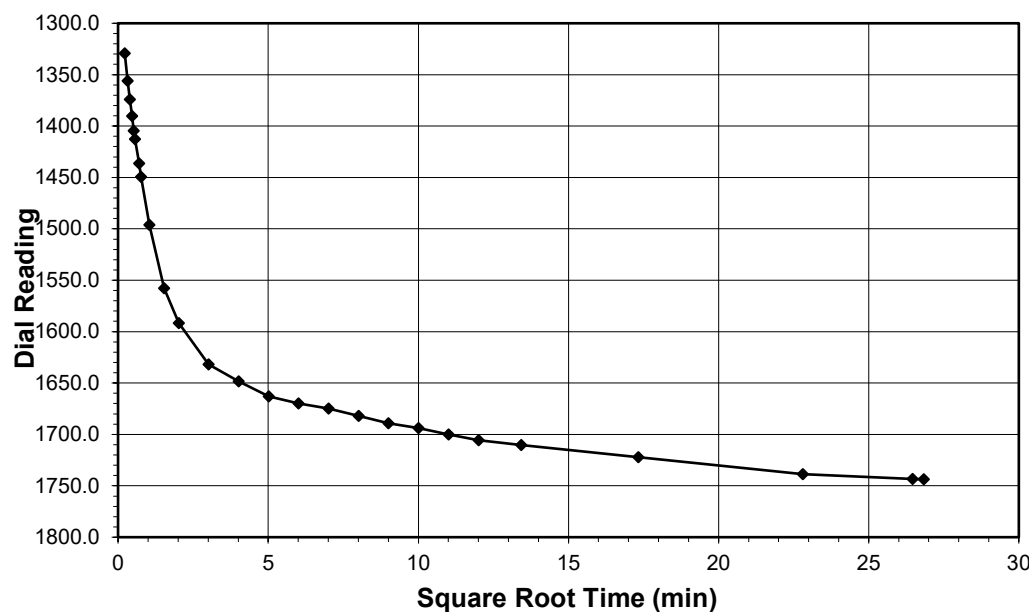


ONE DIMENSIONAL CONSOLIDATION

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

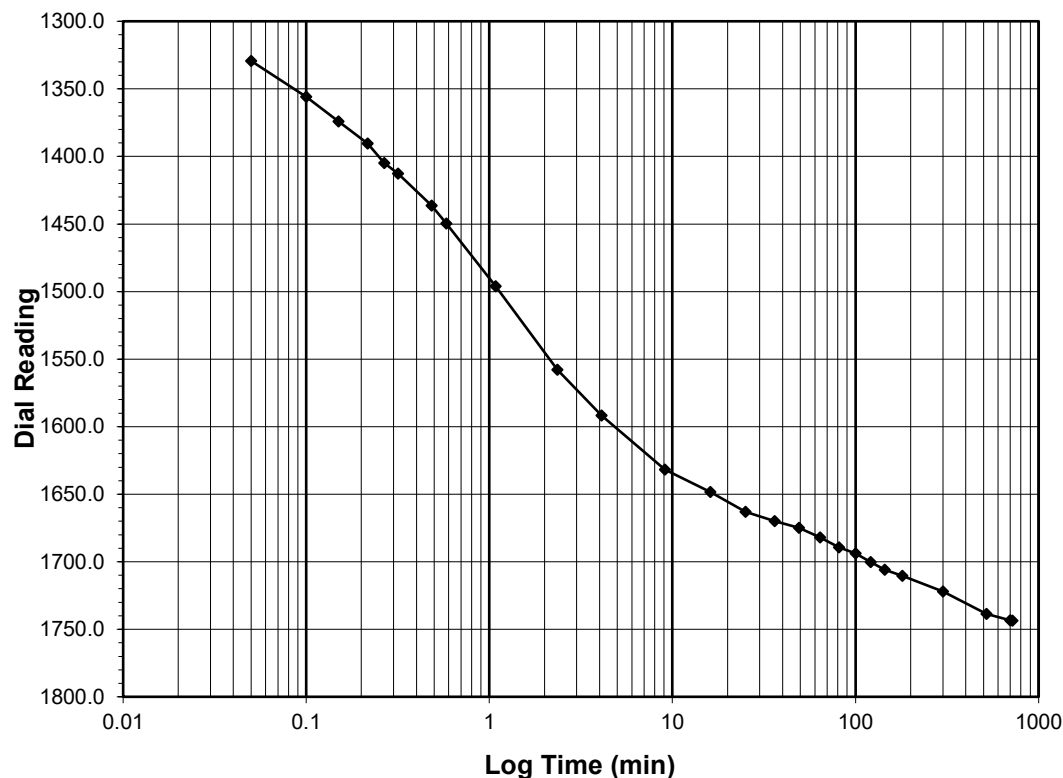
Sample Conditions: Undisturbed, Inundated, Double Drained



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

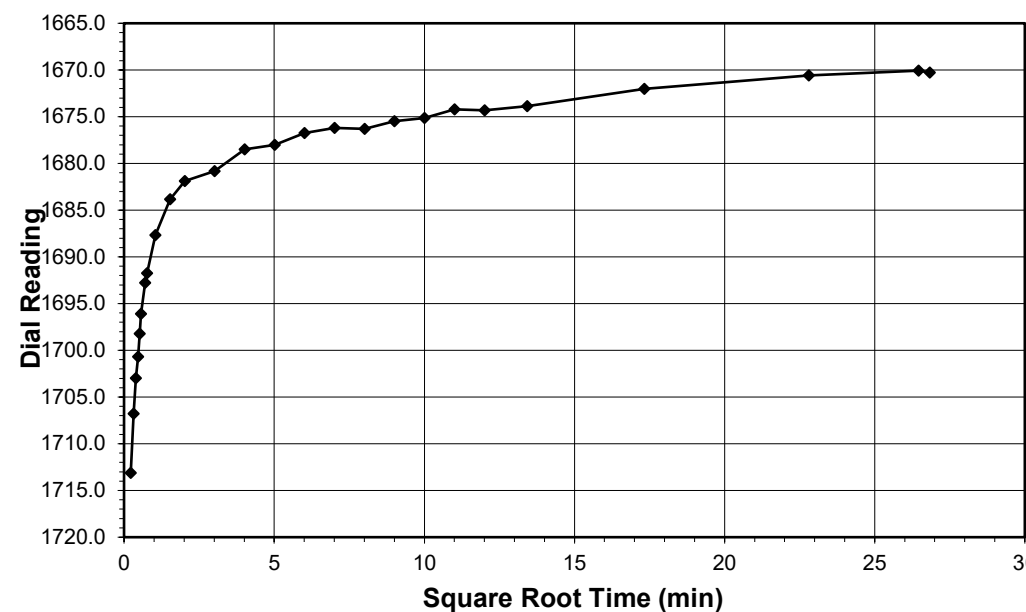


ONE DIMENSIONAL CONSOLIDATION

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

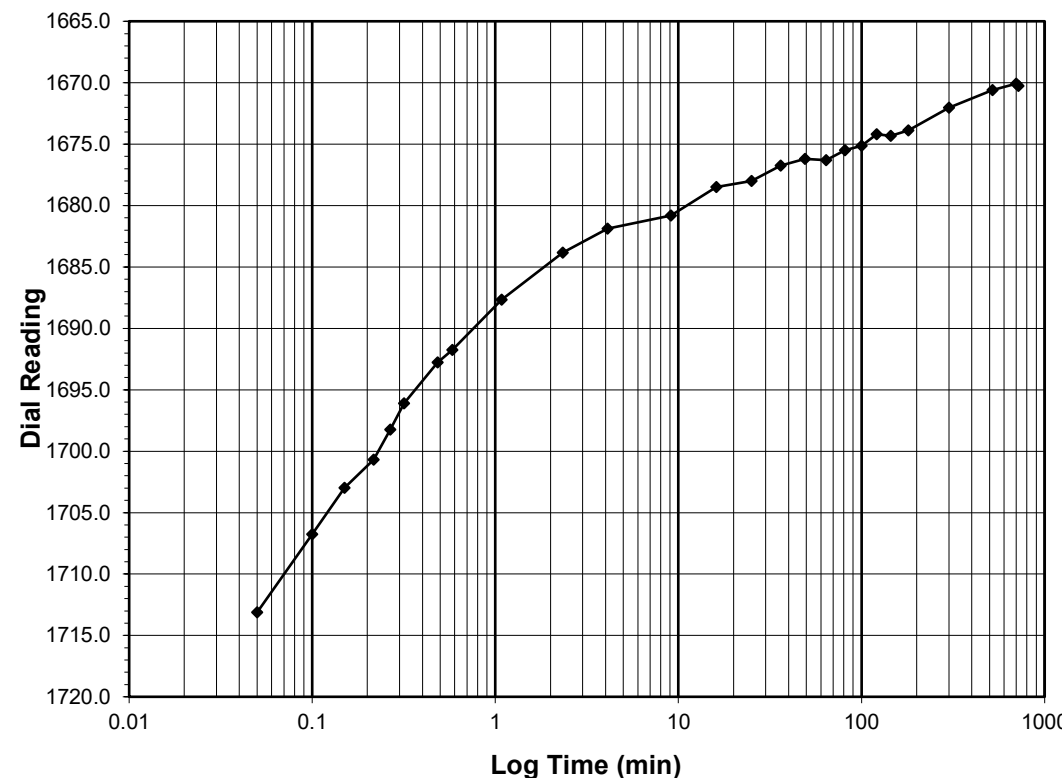
Sample Conditions: Undisturbed, Inundated, Double Drained



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



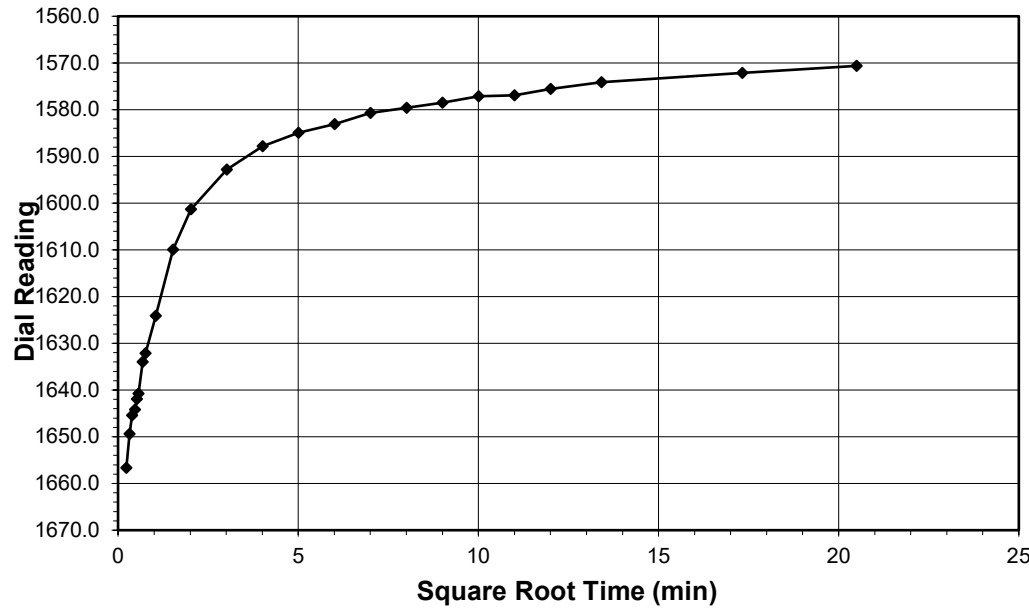
Tested By 129-07-0411 Date 4/6/23 Checked By MPS Date 4/21/23



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

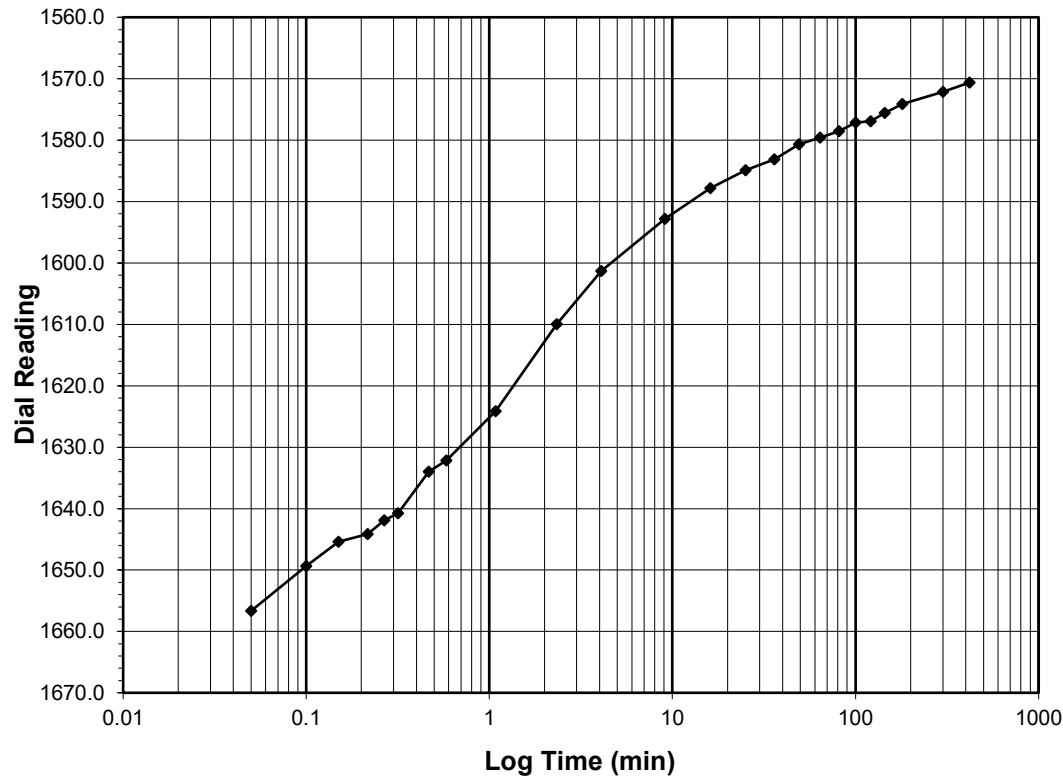
Sample Conditions: Undisturbed, Inundated, Double Drained



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



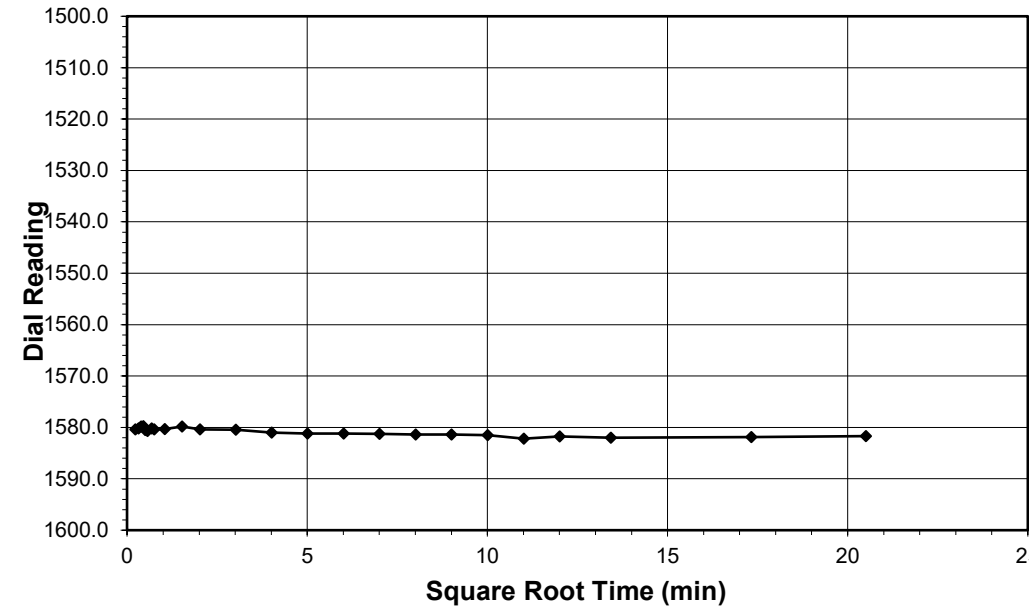
Tested By 129-07-0411 Date 4/7/23 Checked By MPS Date 4/21/23



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

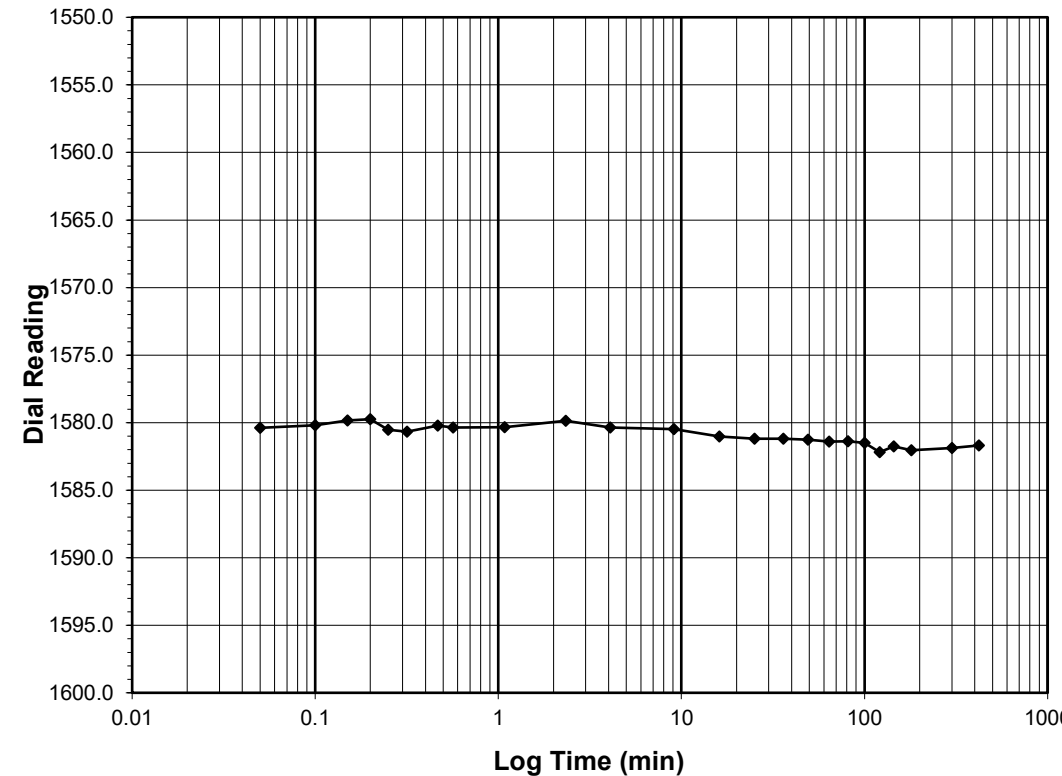
Sample Conditions: Undisturbed, Inundated, Double Drained



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

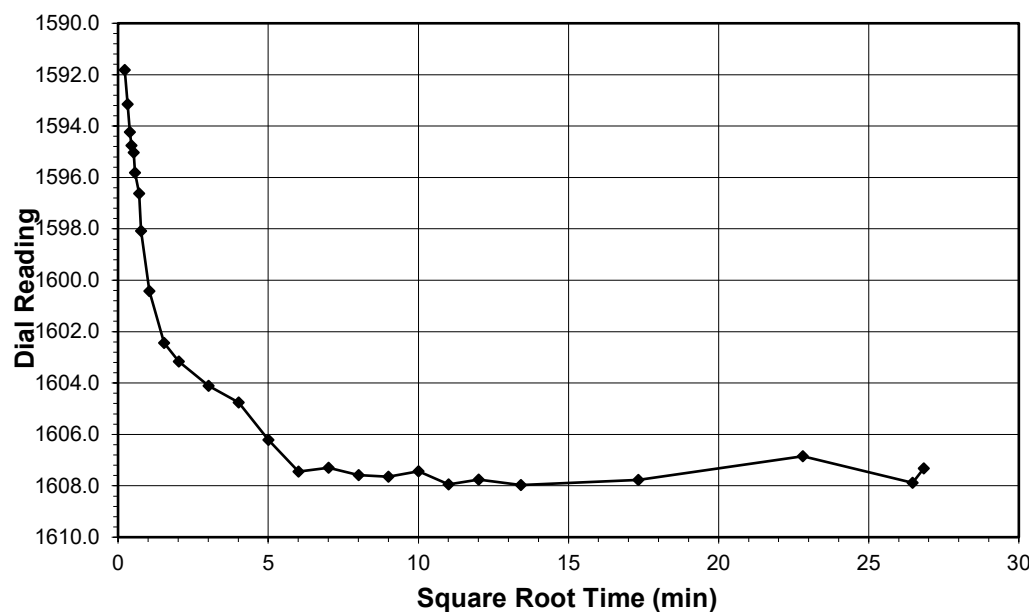


ONE DIMENSIONAL CONSOLIDATION

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

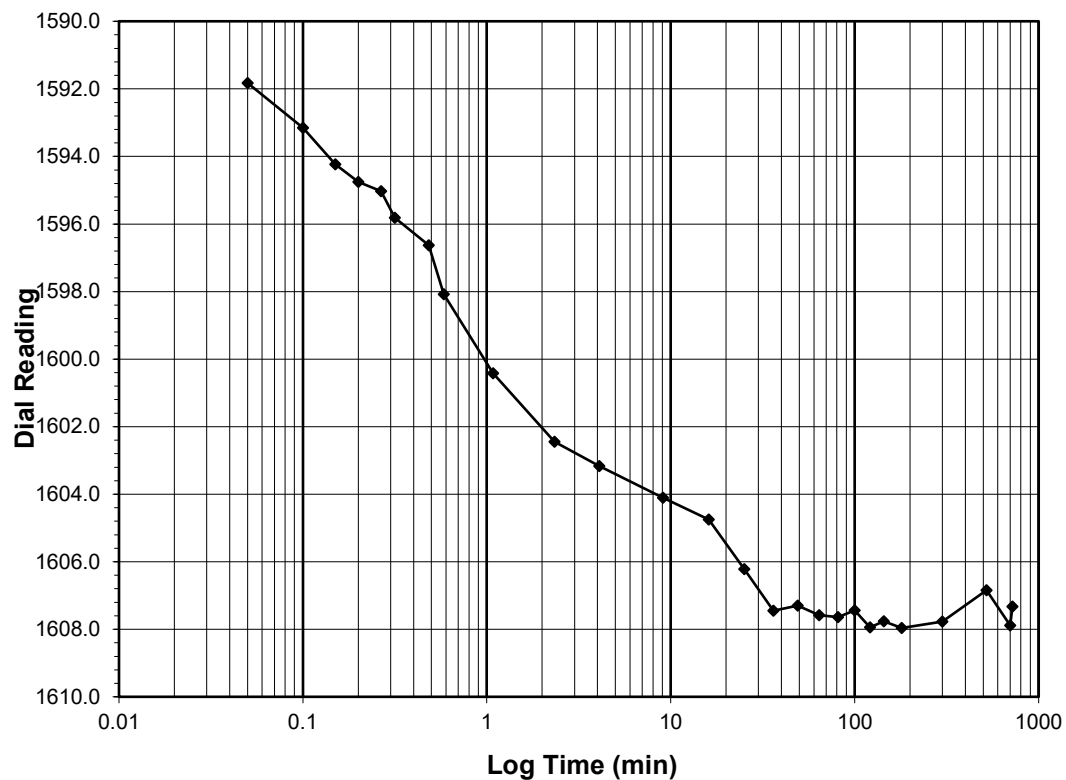
Sample Conditions: Undisturbed, Inundated, Double Drained



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

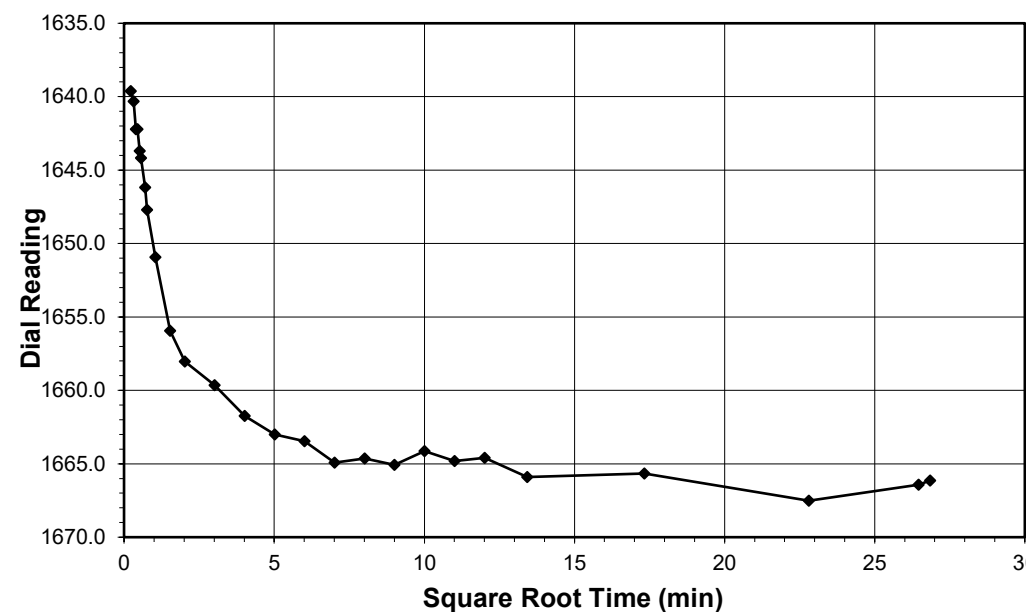


ONE DIMENSIONAL CONSOLIDATION

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

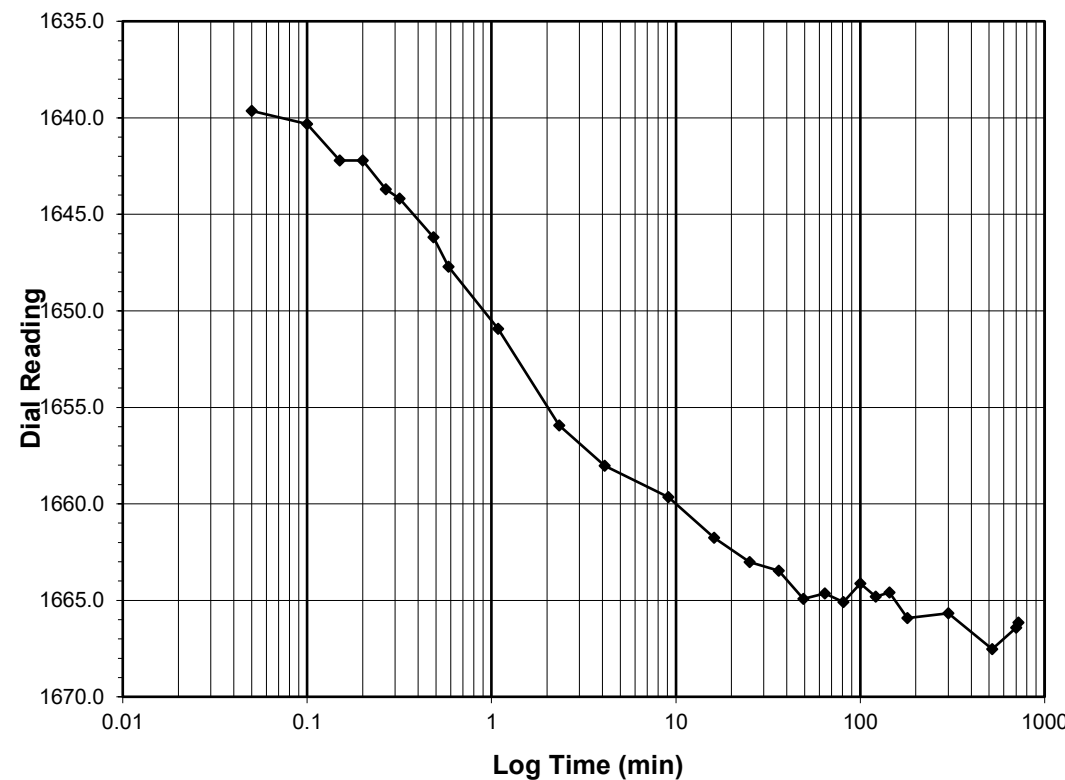
Sample Conditions: Undisturbed, Inundated, Double Drained



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

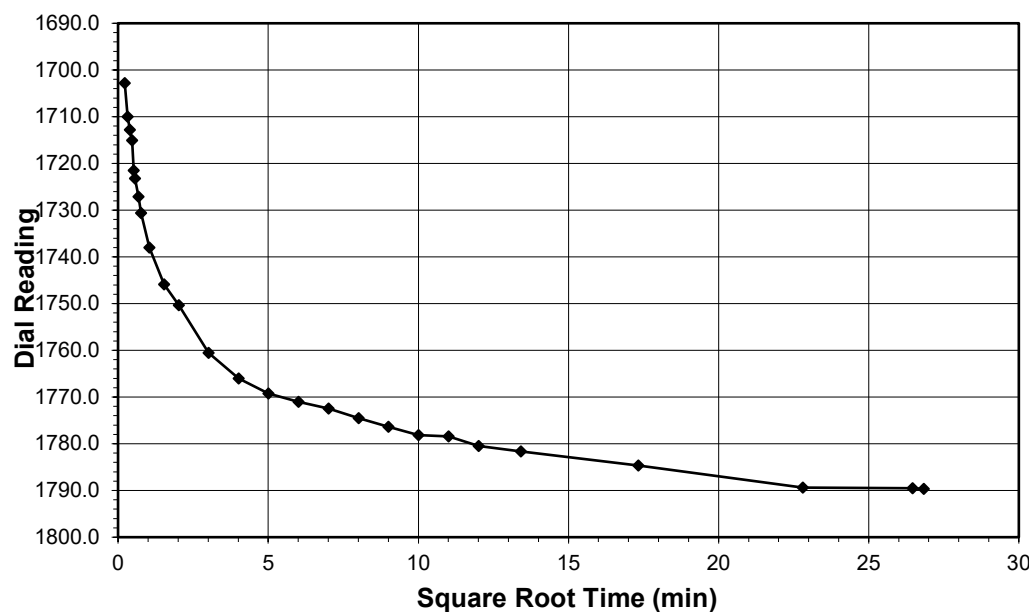


ONE DIMENSIONAL CONSOLIDATION

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

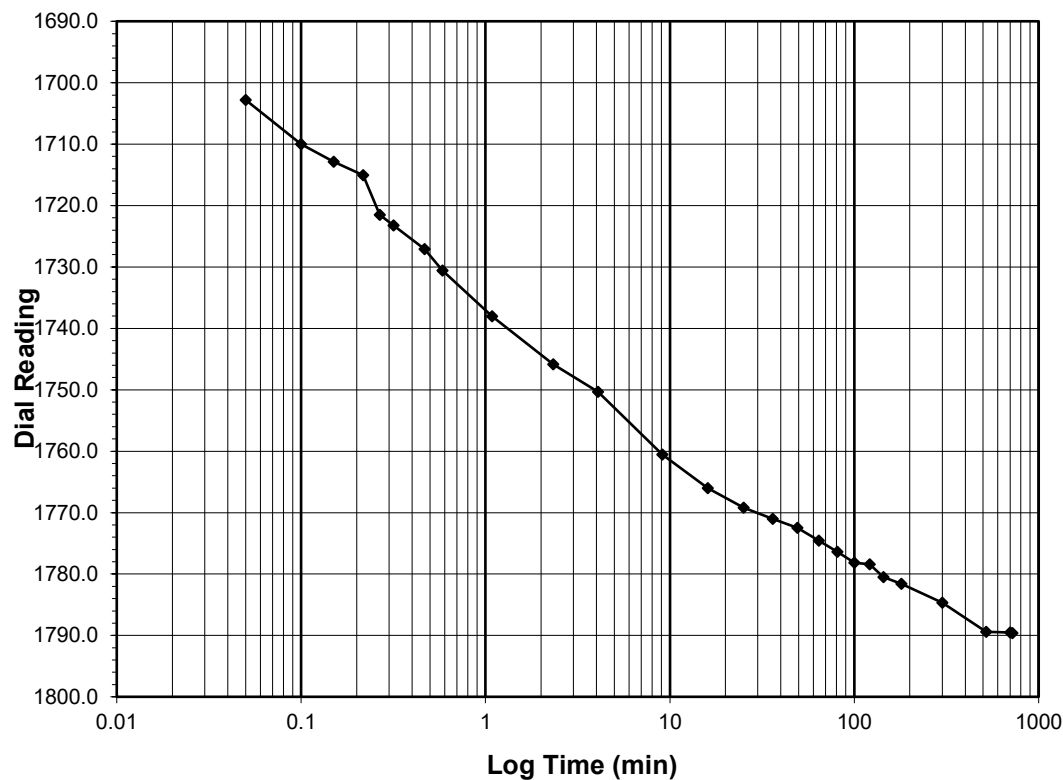
Sample Conditions: Undisturbed, Inundated, Double Drained



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

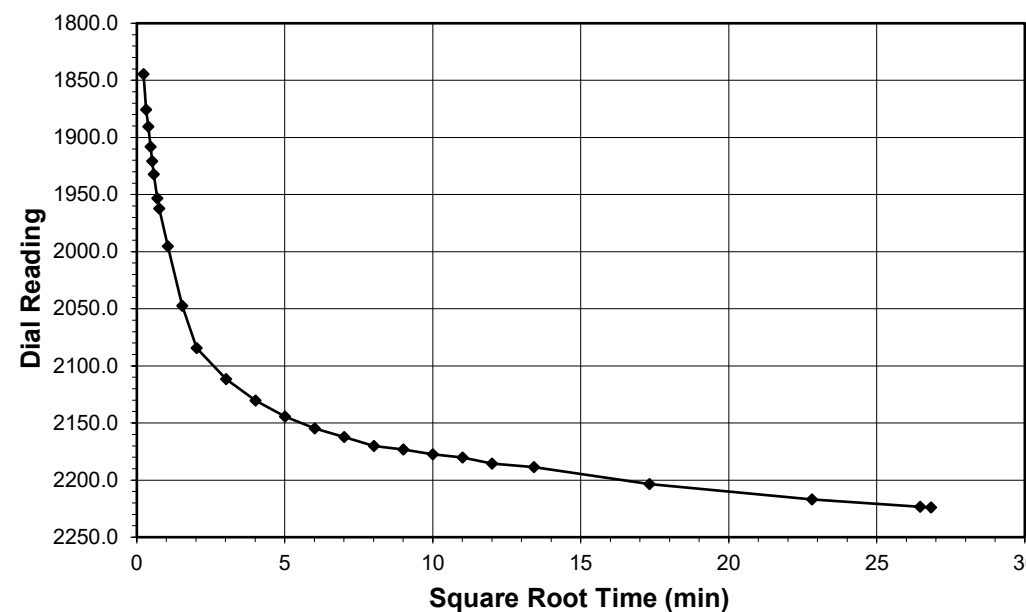


ONE DIMENSIONAL CONSOLIDATION

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

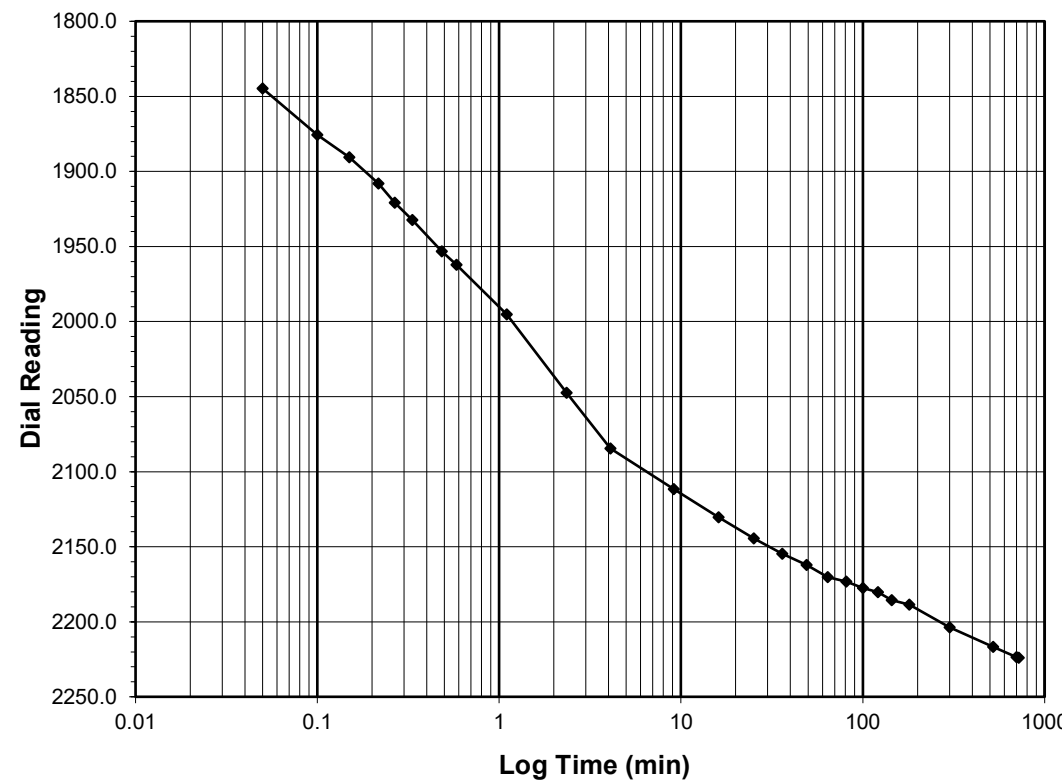
Sample Conditions: Undisturbed, Inundated, Double Drained



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

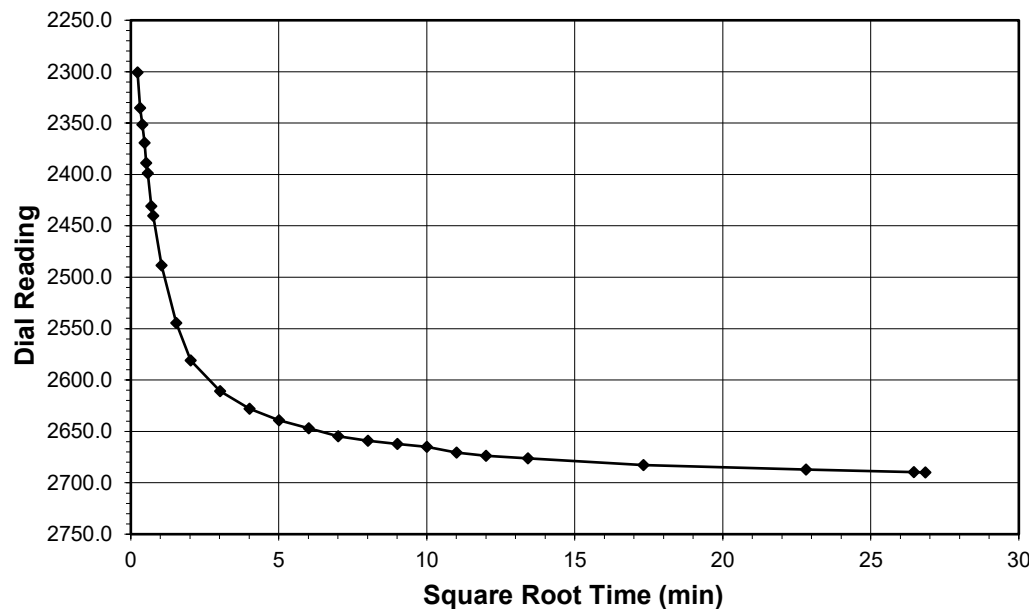


ONE DIMENSIONAL CONSOLIDATION

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

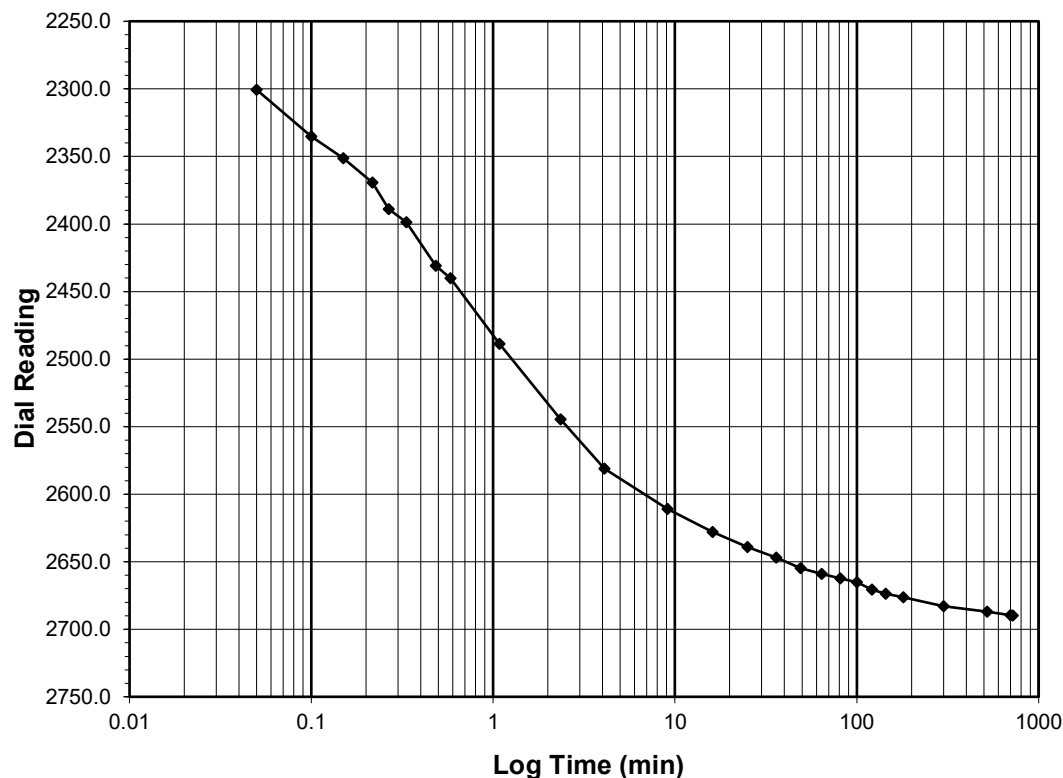
Sample Conditions: Undisturbed, Inundated, Double Drained



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

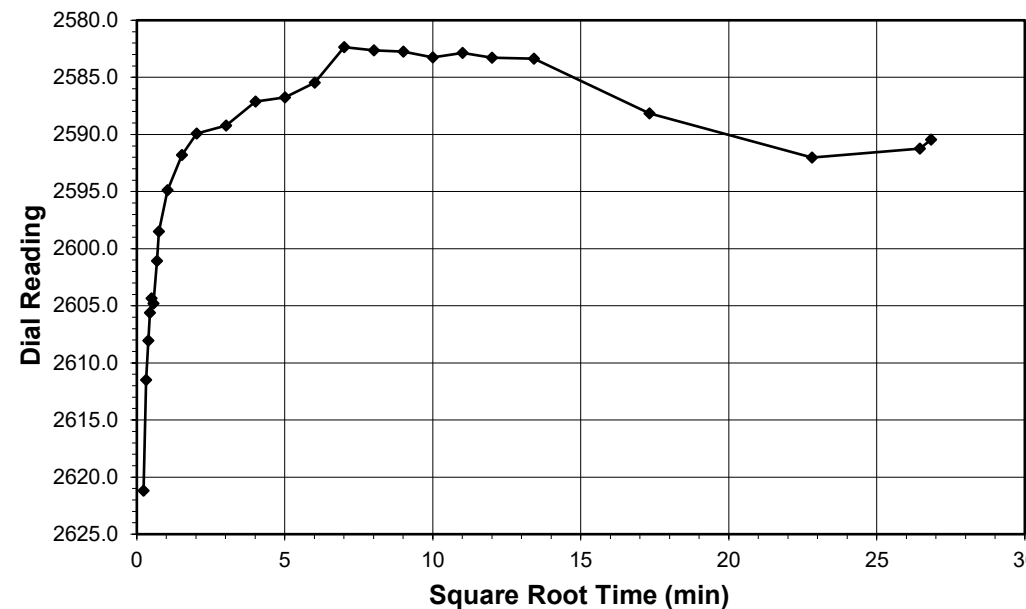


ONE DIMENSIONAL CONSOLIDATION

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

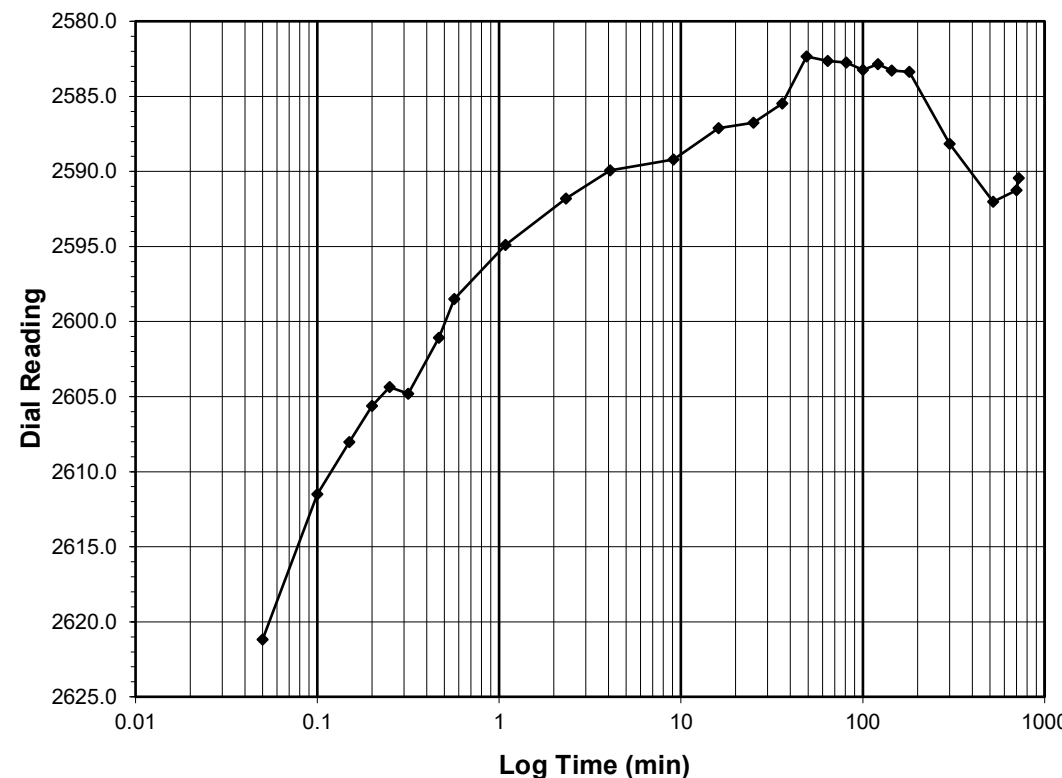
Sample Conditions: Undisturbed, Inundated, Double Drained



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



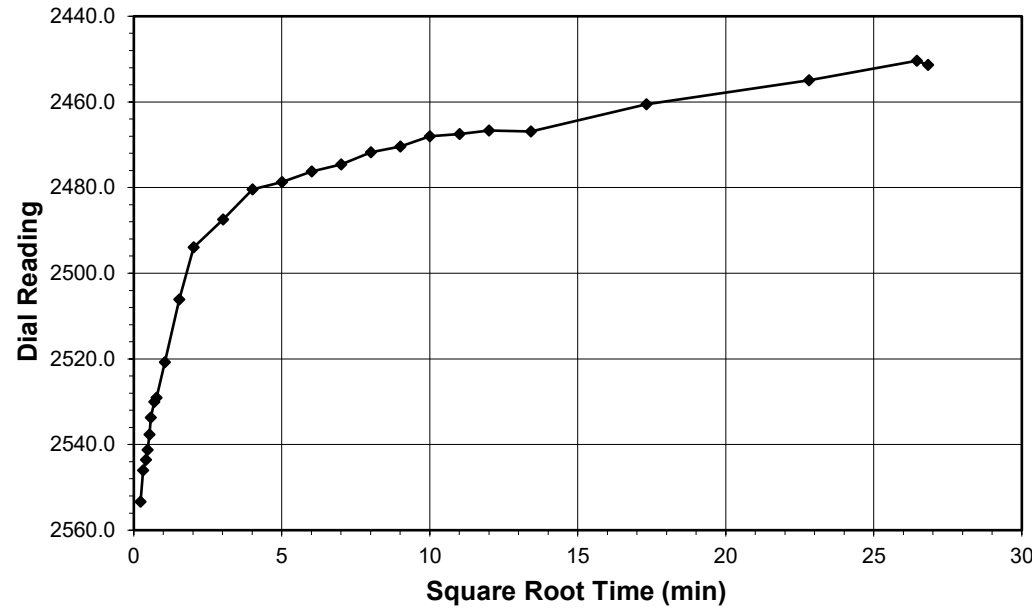
Tested By 129-07-0411 Date 4/10/23 Checked By MPS Date 4/21/23



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

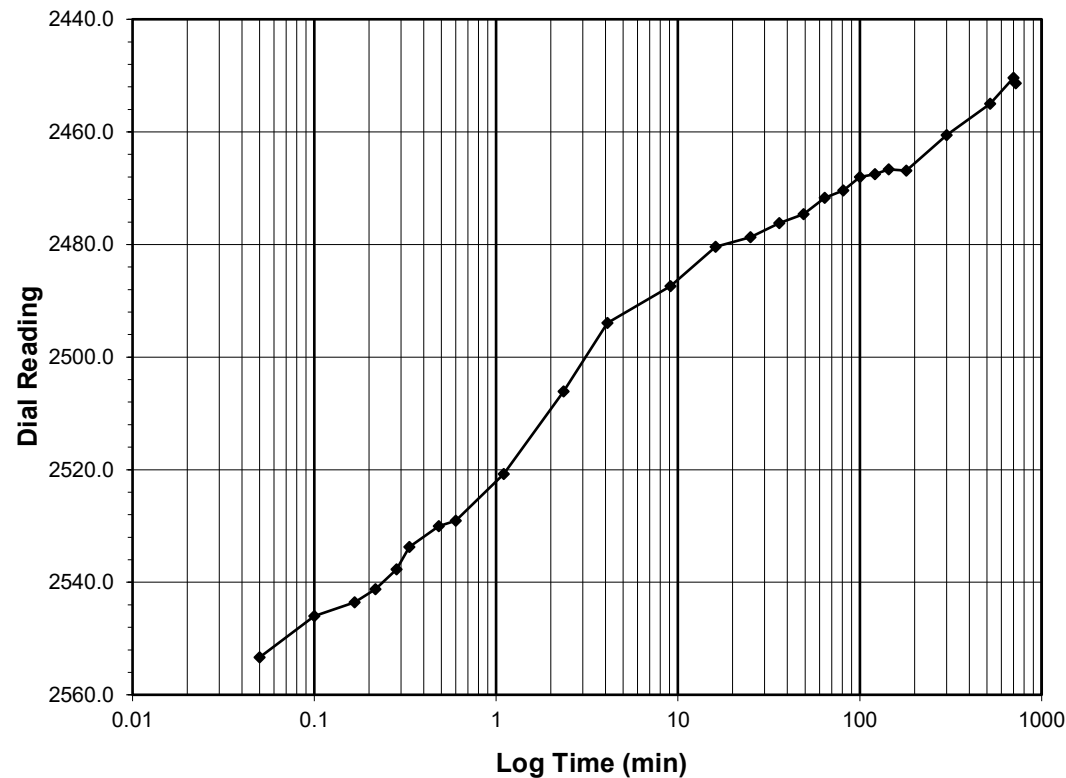
Sample Conditions: Undisturbed, Inundated, Double Drained



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



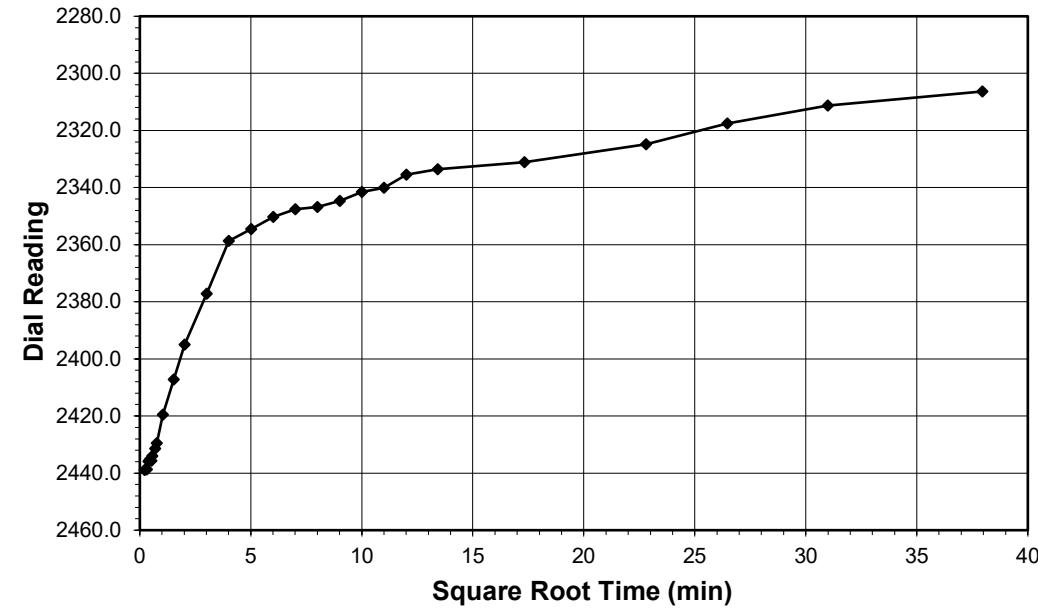
Tested By 129-07-0411 Date 4/10/23 Checked By MPS Date 4/21/23



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

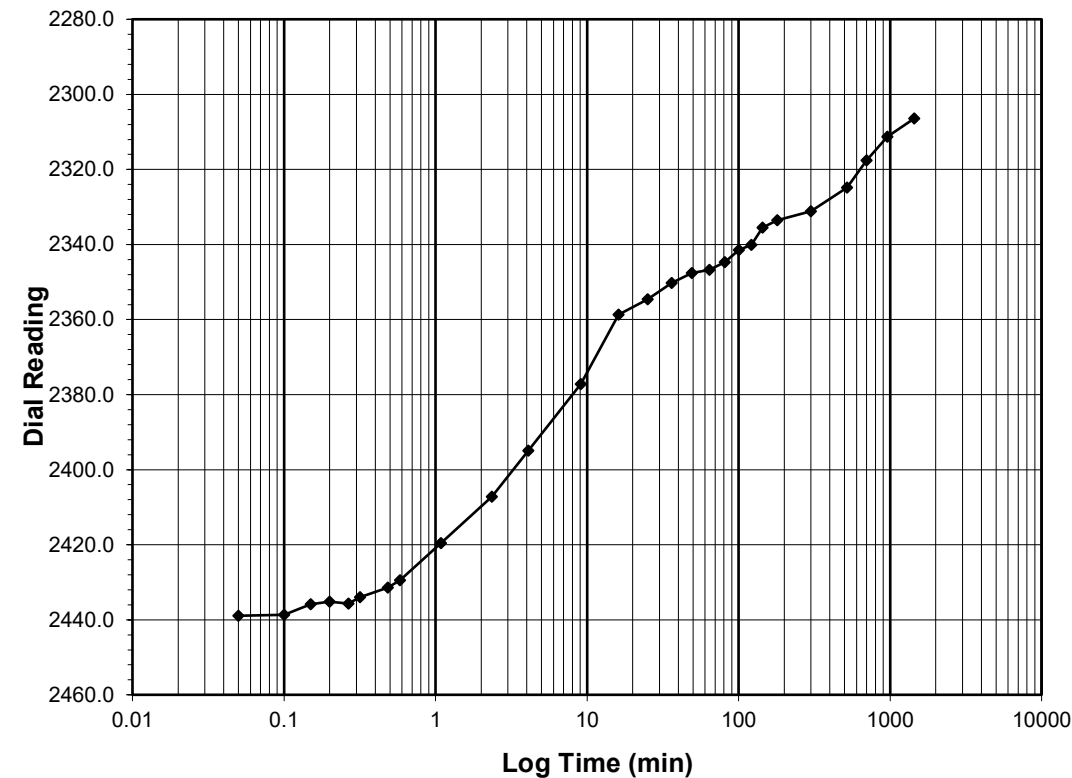
Sample Conditions: Undisturbed, Inundated, Double Drained



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



SIEVE AND HYDROMETER ANALYSIS
NCDOT MOD. AASHTO T-88,

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**

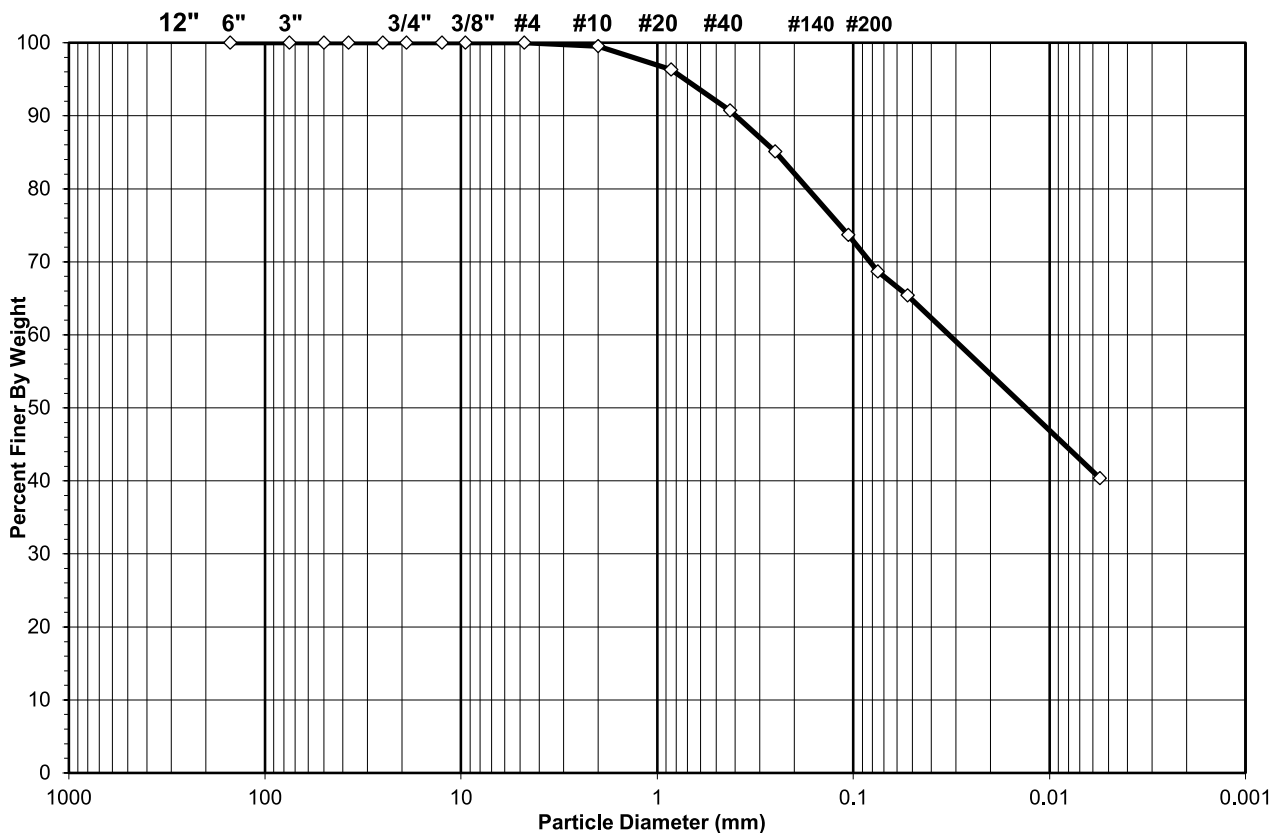
Client AECOM Boring No. S1_EB1_A
 Client Reference B-5898 / B-3186 Depth (ft) 15.0-17.0
 Project No. R-2023-090-001 Sample No. ST-1
 Lab ID R-2023-090-001-048 Soil Color **Brown**

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

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	Dry Weight of Material Ret. #10 (gm)	0.96
Wgt. Tare + Air Dry Soil (gm)	320.13	Corrected Dry Sample Wt - #10 (gm)	210.34
Weight of Tare (gm)	99.18		
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	-	-



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)
--------------------	------------	------------

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



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
14:55:30	0.50	48.0	-2.60	44.6	65.5	0.01279	0.0525	65.2
15:55:00	60.00	31.0	-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

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 (Minus No. 40 sieve material, Airdried)

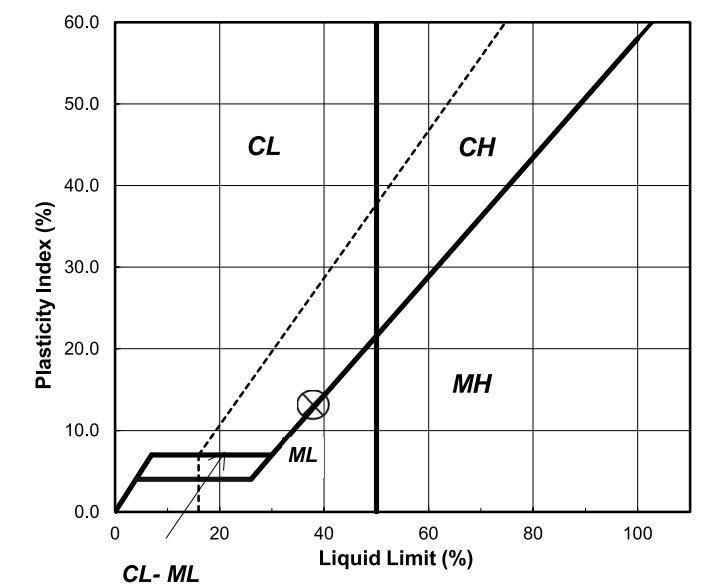
Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

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	Test Results
Tare Number	21	23		Liquid Limit (%) 38
Wt. of Tare & WS (gm)	16.14	14.59		
Wt. of Tare & DS (gm)	14.33	13.11		Plastic Limit (%) 25
Wt. of Tare (gm)	7.06	7.10		
Wt. of Water (gm)	1.8	1.5		Plasticity Index (%) 13
Wt. of DS (gm)	7.3	6.0		
Moisture Content (%)	24.9	24.6	0.3	USCS Symbol ML

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

Plasticity Chart



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

Tested By 129-07-0411 Date 4/14/23 Checked By AES Date 4/17/23
page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

**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 (°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° Celsius:	2.672	2.686

Average Specific Gravity @ 20° Celsius	2.68
---	-------------

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

page 1 of 1 DCN: CT-S5 DATE: 3/26/18 REVISION: 21