REFERENCE: B-3186/B-5898

PROJECT: 38332/48030

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3186/B-5898	1	98

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY HAYWOOD

PROJECT DESCRIPTION US 23/US 74/US 19 (GREAT SMOKY MOUNTAIN HWY) FROM WEST OF NC 209 (CRABTREE RD.) TO EAST OF RUSS AVE.

SITE DESCRIPTION RETAINING WALL #4 FROM -Y1LT- STA. 14+09.67 TO -L_LT- STA. 67+53.55

CONTENTS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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

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

PERSONNEL

R. DUGGER

N. YACOBI

C. SWAFFORD

GEOTECHNOLOGY, INC.

INVESTIGATED BY C. SWAFFORD

DRAWN BY T. LYNN

CHECKED BY K. BUSSEY

SUBMITTED BY HDR

DATE NOVEMBER 2021

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [X] CME-550X
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME-75
- [ ] _____

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

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

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

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK: N/A

ELEVATION: FEET

NOTES:

BORING ELEVATIONS OBTAINED USING b3186_br0022_r4047_Merged_1-12-21.tin

SITE 3 BORING ELEVATIONS OBTAINED FROM TRIMBLE R12 GNSS RECEIVER CERTIFIED WITH FCC PART 15 (CLASS B DEVICE), 24, 32; RCM; PTCRB; BT SIG

FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
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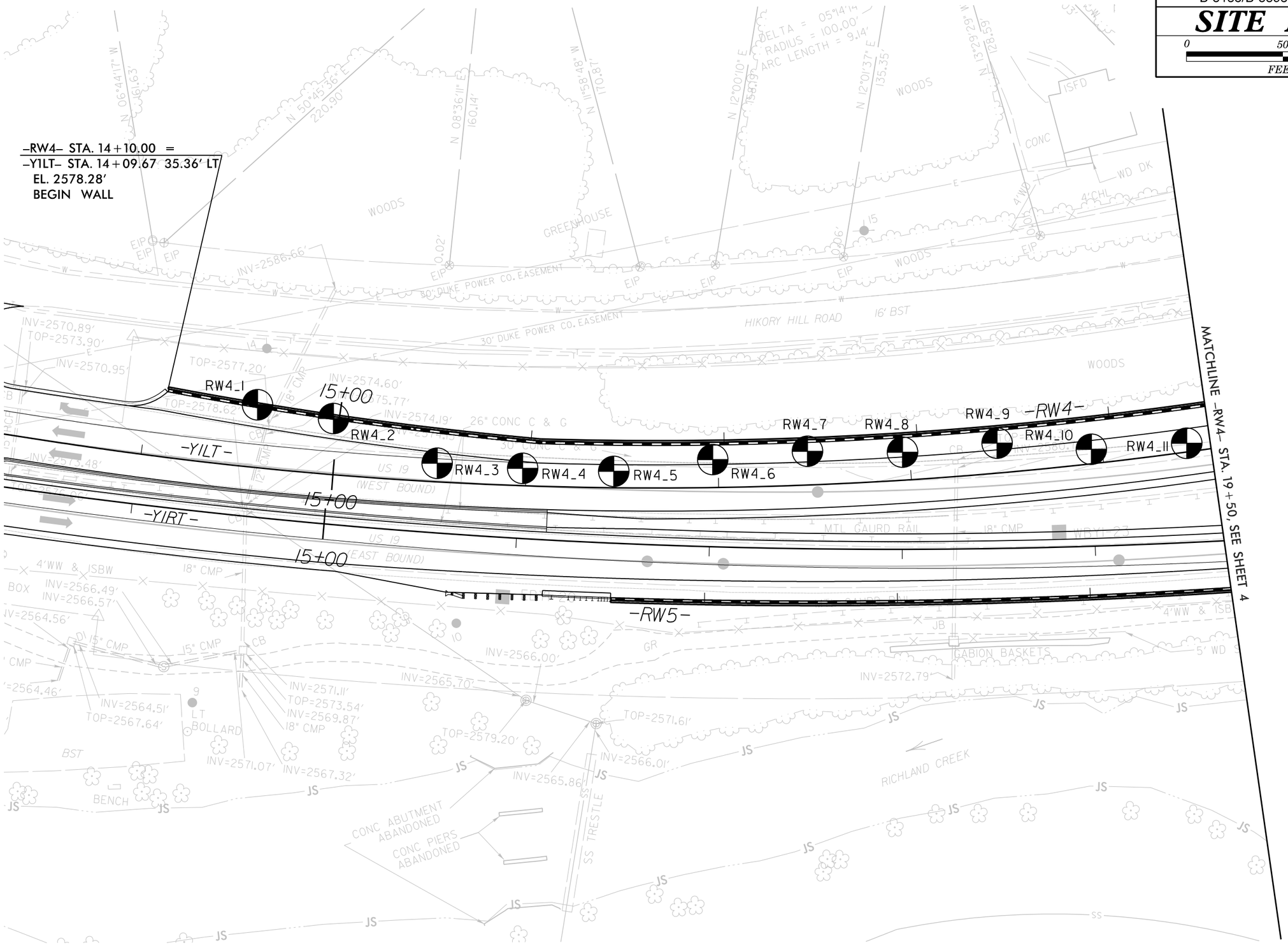
SITE PLAN

0 50 100
FEET



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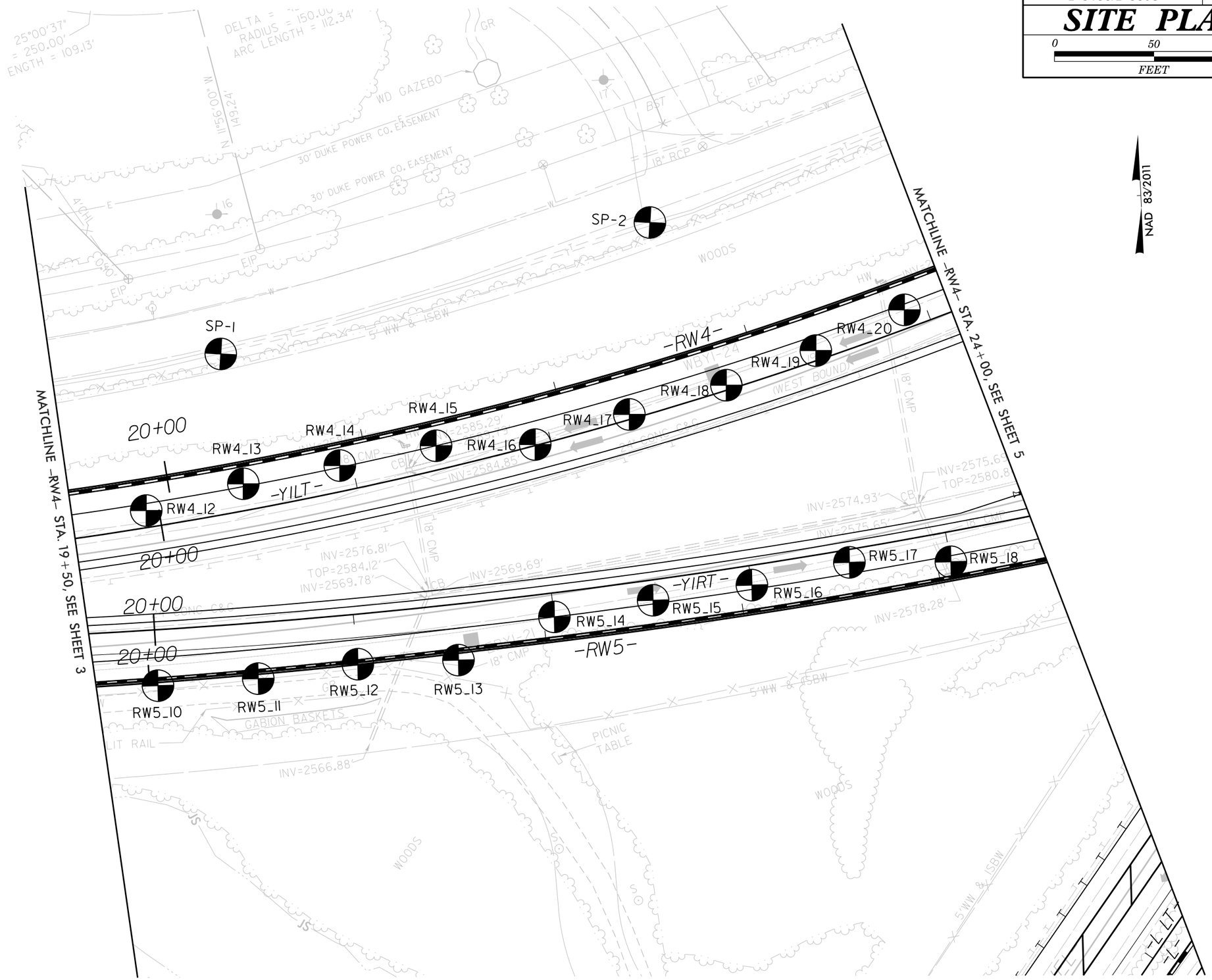
SITE PLAN

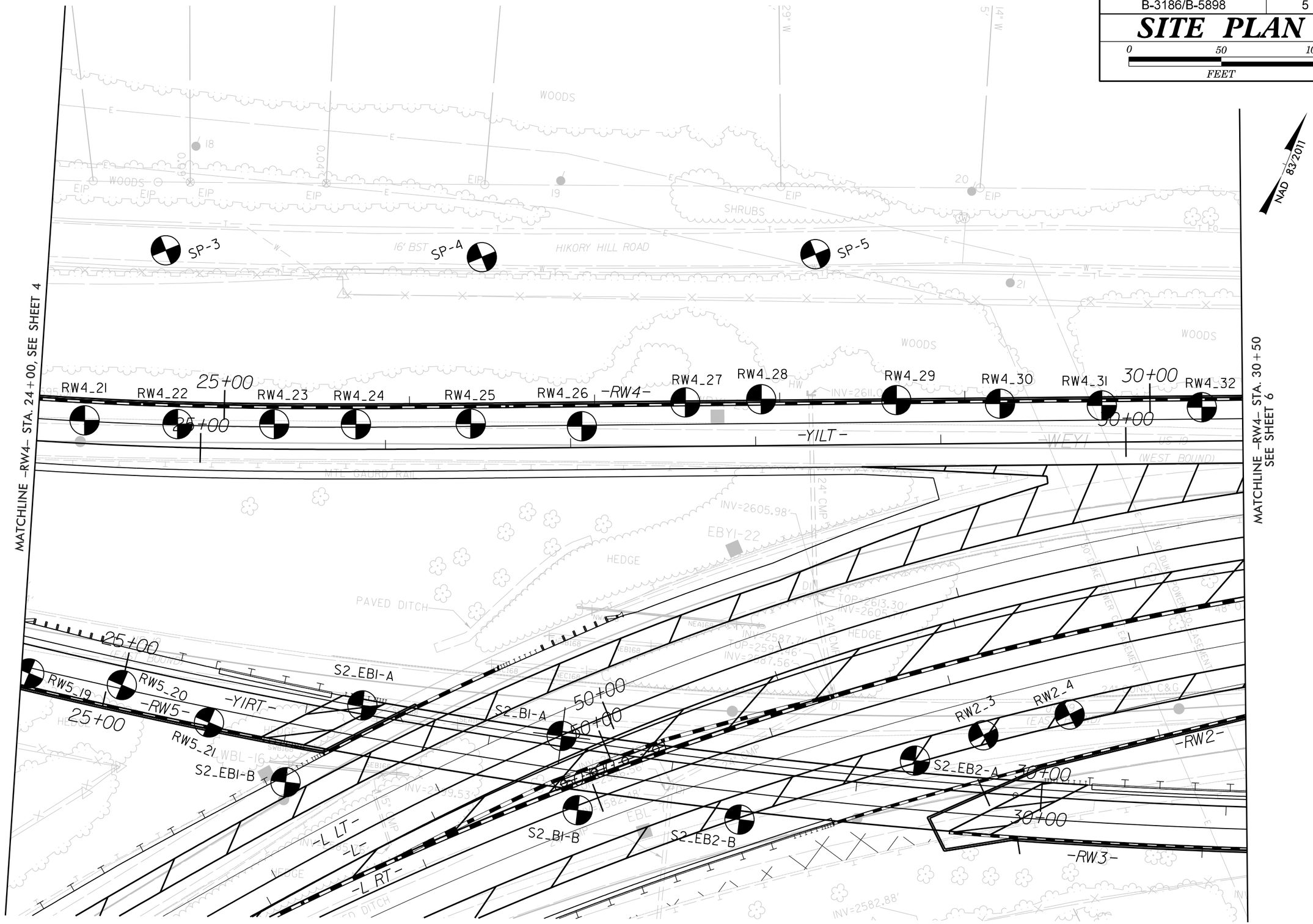
0 50 100
FEET



PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	5

SITE PLAN

0 50 100
FEET



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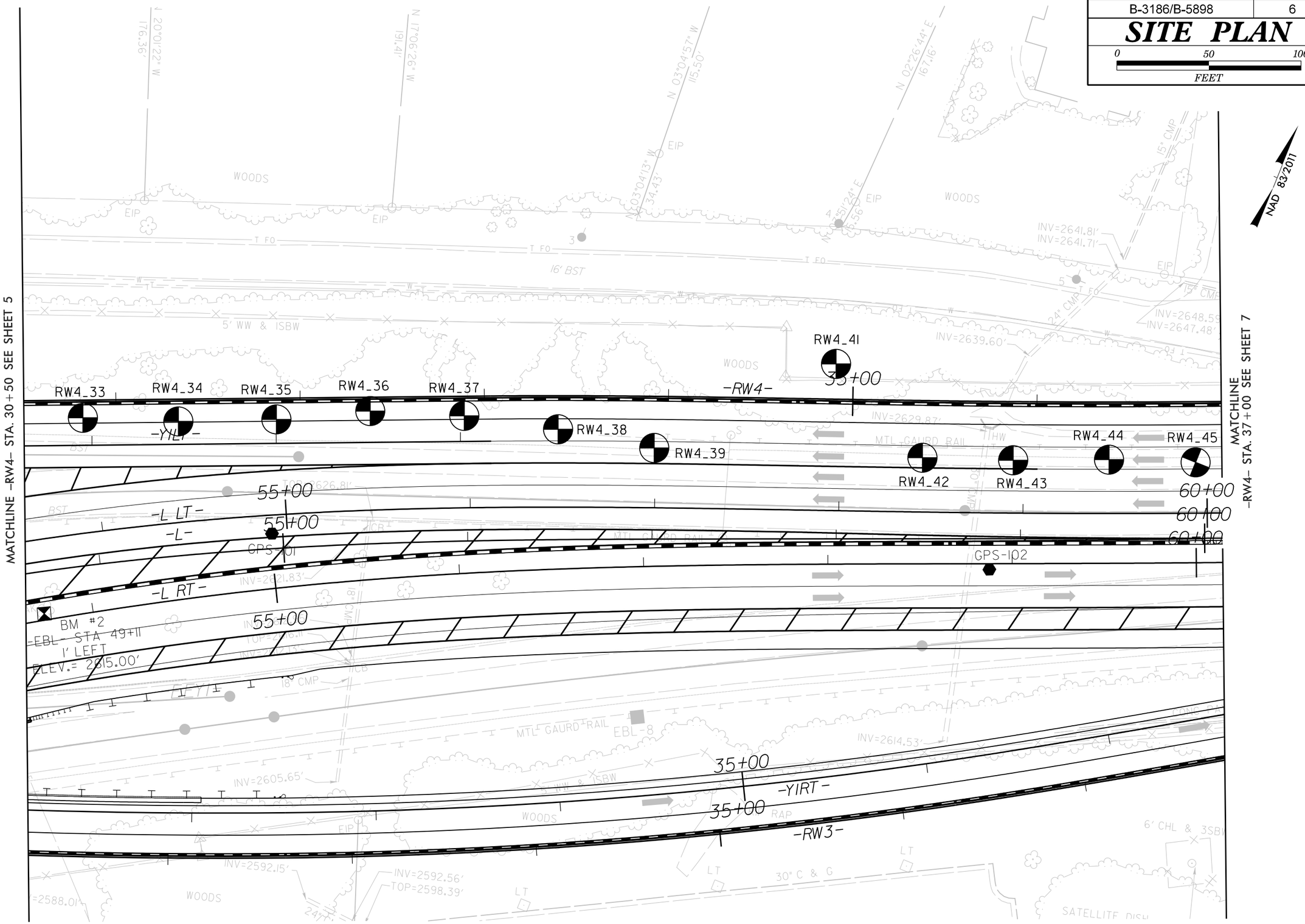
B-3186/B-5898	6

SITE PLAN

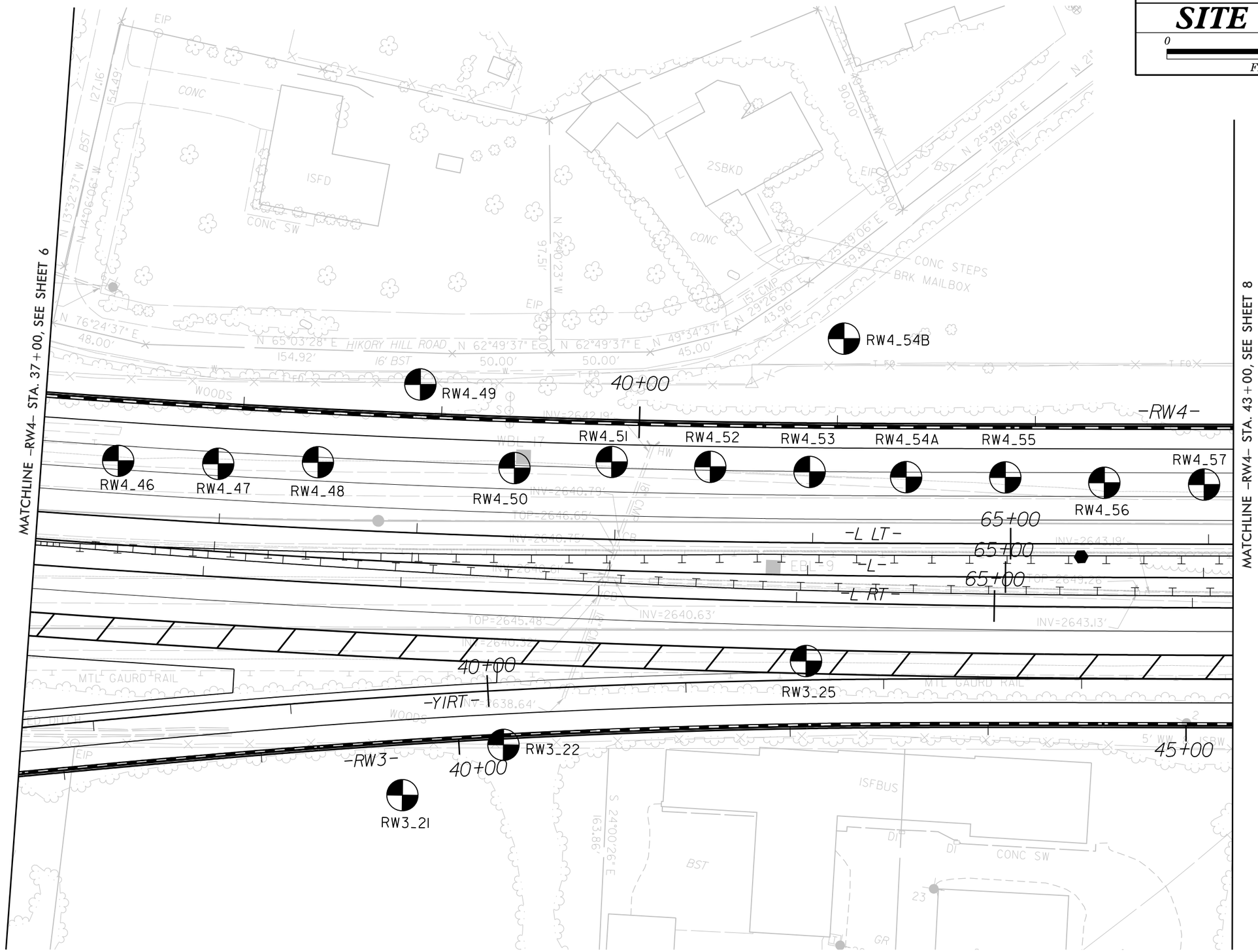
0 50 100
FEET



PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	7

SITE PLAN

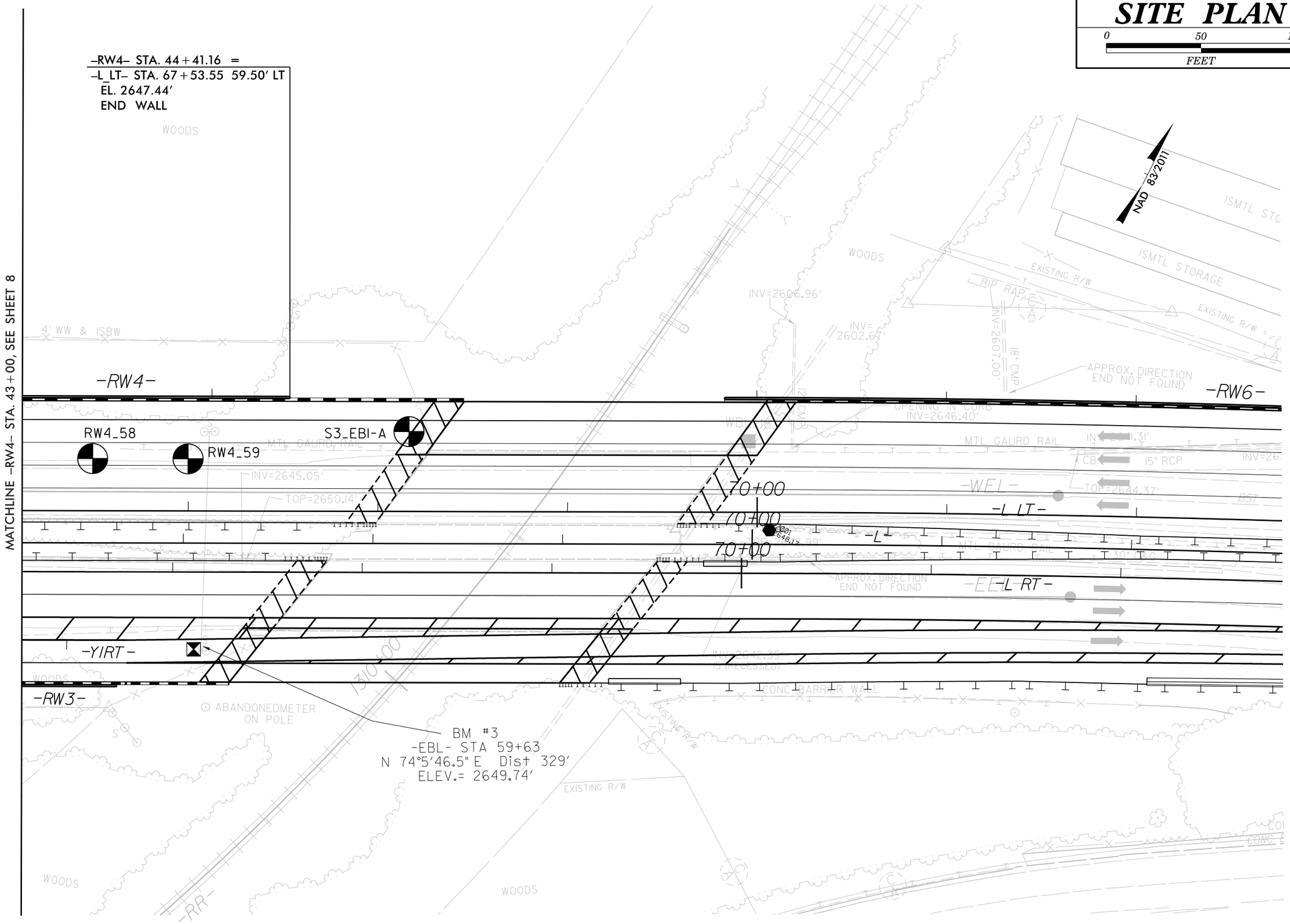
0 50 100
FEET



PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	8

SITE PLAN

0 50 100
FEET

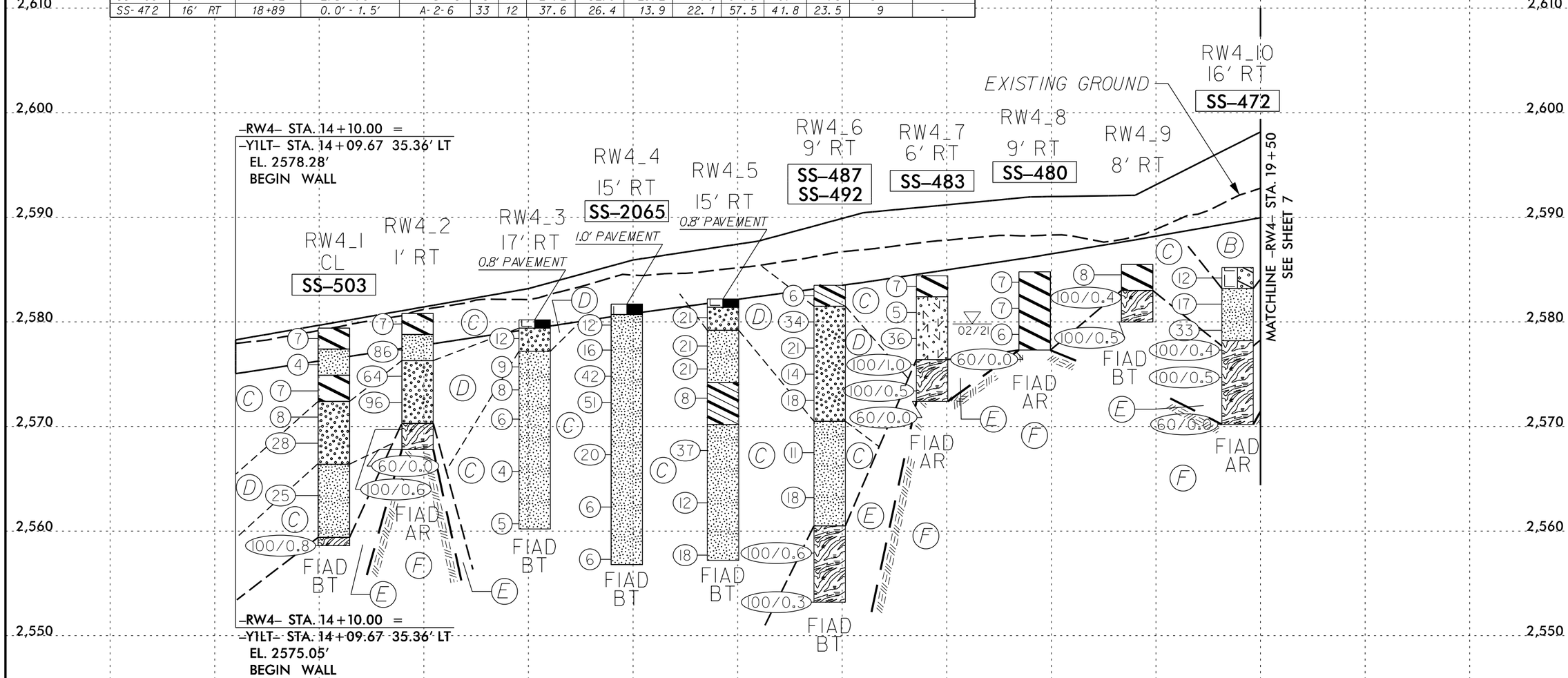


PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	9
-RW4- PROFILE	

0 50 100
FEET
VE = 1:5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-503	CL	14+57	2.5'-4.0'	A-4	36	4	30.1	31.9	21.0	17.0	88.4	70.9	39.3	27	-
SS-487	9' RT	16+94	0.0'-1.5'	A-6 (3)	39	14	23.2	23.9	27.6	25.3	79.8	67.3	45.9	20	-
SS-483	6' RT	17+43	2.5'-4.0'	A-5 (2)	43	7	24.5	29.1	41.0	5.4	91.1	75.9	49.0	29	-
SS-480	9' RT	17+92	2.5-4.0'	A-7-5 (3)	46	14	27.2	32.8	28.2	11.8	94.9	79.7	44.6	31	-
SS-472	16' RT	18+89	0.0'-1.5'	A-2-6	33	12	37.6	26.4	13.9	22.1	57.5	41.8	23.5	9	-



(B) ROADWAY EMBANKMENT: Medium dense, brown and orange, GRAVEL (A-1-b), with some clay, micaceous, moist

(C) RESIDUAL: Soft to hard, brown, tan, and orange, sandy SILT (A-4, A-5), silty CLAY (A-6), and CLAY (A-7-5, A-7-6), with trace sand, contains trace to little rock fragments, micaceous, saprolitic, dry to wet

(D) RESIDUAL: Loose to very dense, brown, orange, and tan, silty SAND (A-2-4), with trace clay, contains trace rock fragments, dry to saturated

(E) WEATHERED ROCK: Brown, tan, and white, GNEISS

(F) CRYSTALLINE ROCK: GNEISS

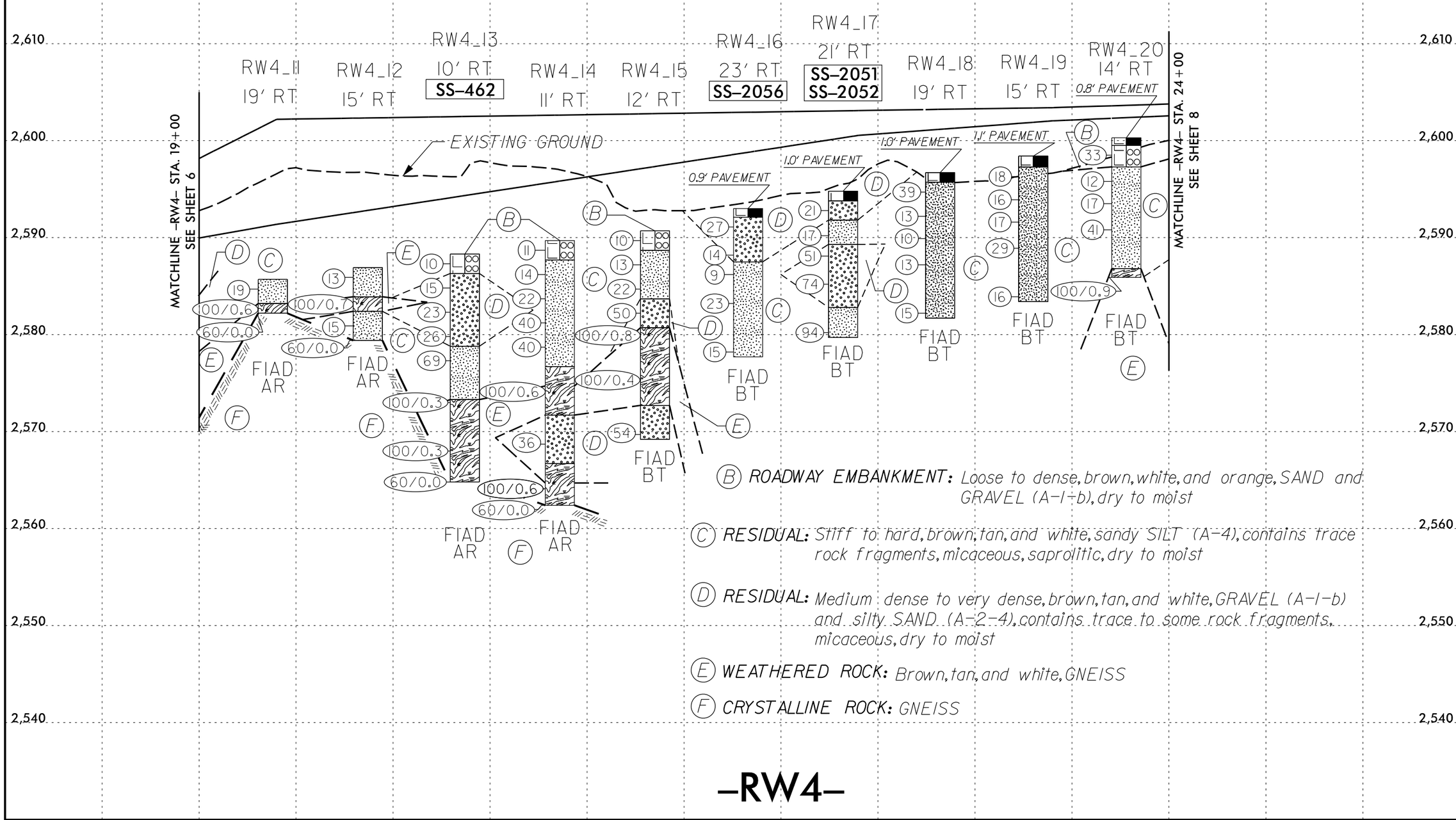
-RW4-

PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	10
–RW4– PROFILE	

0 50 100
FEET
VE = 1:5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-462	10' RT	20+37	2.5' - 4.0'	A-2-4	40	9	44.0	25.3	19.7	11.0	94.6	62.5	34.0	11	-
SS-2056	23' RT	21+83	8.8' - 10.3'	A-4	31	NP	34.8	27.9	34.3	3.0	98.2	73.2	42.6	19	-
SS-2051	21' RT	22+32	8.6' - 10.1'	A-2-4	32	NP	37.1	25.9	33.1	3.9	59.6	43.3	25.7	8	-
SS-2052	21' RT	22+32	13.6' - 15.1'	A-4	31	NP	39.5	22.7	34.4	3.4	98.5	70.5	41.7	13	-



(B) **ROADWAY EMBANKMENT:** Loose to dense, brown, white, and orange, SAND and GRAVEL (A-1-b), dry to moist

(C) **RESIDUAL:** Stiff to hard, brown, tan, and white, sandy SILT (A-4), contains trace rock fragments, micaceous, saprolitic, dry to moist

(D) **RESIDUAL:** Medium dense to very dense, brown, tan, and white, GRAVEL (A-1-b) and silty SAND (A-2-4), contains trace to some rock fragments, micaceous, dry to moist

(E) **WEATHERED ROCK:** Brown, tan, and white, GNEISS

(F) **CRYSTALLINE ROCK:** GNEISS

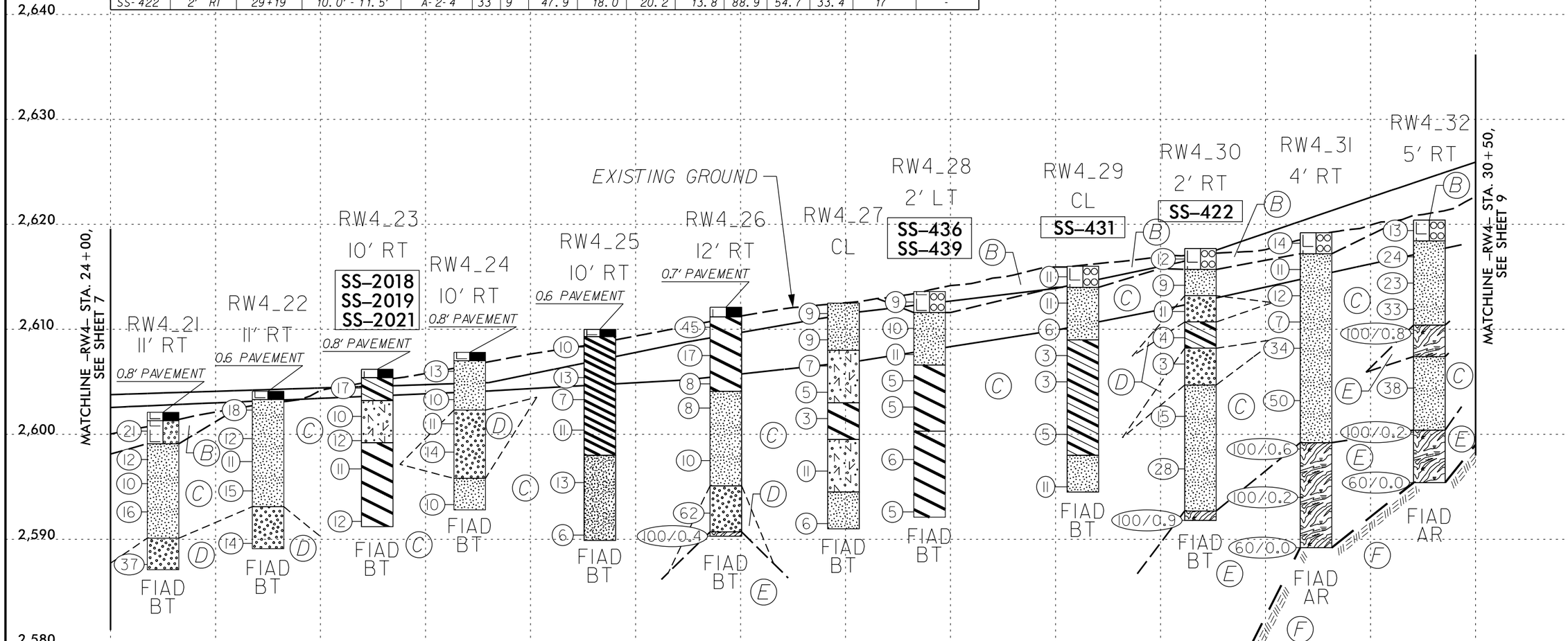
–RW4–

PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	11
-RW4- PROFILE	

0 50 100
FEET
VE = 1:5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-2018	10' RT	25+27	0.8'-2.3'	A-6 (8)	38	15	13.9	20.3	29.7	36.1	91.2	83.0	63.9	13	-
SS-2019	10' RT	25+27	3.5'-5.0'	A-5 (2)	45	6	23.5	31.4	38.6	6.5	92.9	77.9	49.7	12	-
SS-436	2' LT	27+90	7.5'-9.0'	A-7-5 (8)	55	20	24.0	23.4	34.3	18.3	87.8	73.7	50.2	27	-
SS-422	2' RT	29+19	10.0'-11.5'	A-2-4	33	9	47.9	18.0	20.2	13.8	88.9	54.7	33.4	17	-



(B) **ROADWAY EMBANKMENT:** Loose to medium dense, brown and orange, silty SAND (A-2-4), and SAND and GRAVEL (A-1-b), dry to moist

(C) **RESIDUAL:** Soft to hard, light brown, orange, and white, SILT (A-4, A-5), sandy CLAY (A-6), and CLAY (A-7-5, A-7-6), contains little rock fragments, micaceous, saprolitic, dry to moist

(D) **RESIDUAL:** Very loose to very dense, light brown, orange, and white, silty SAND (A-2-4), contains trace rock fragments, micaceous, saprolitic, dry to moist

(E) **WEATHERED ROCK:** Light brown, orange, and white, GNEISS

(F) **CRYSTALLINE ROCK:** GNEISS

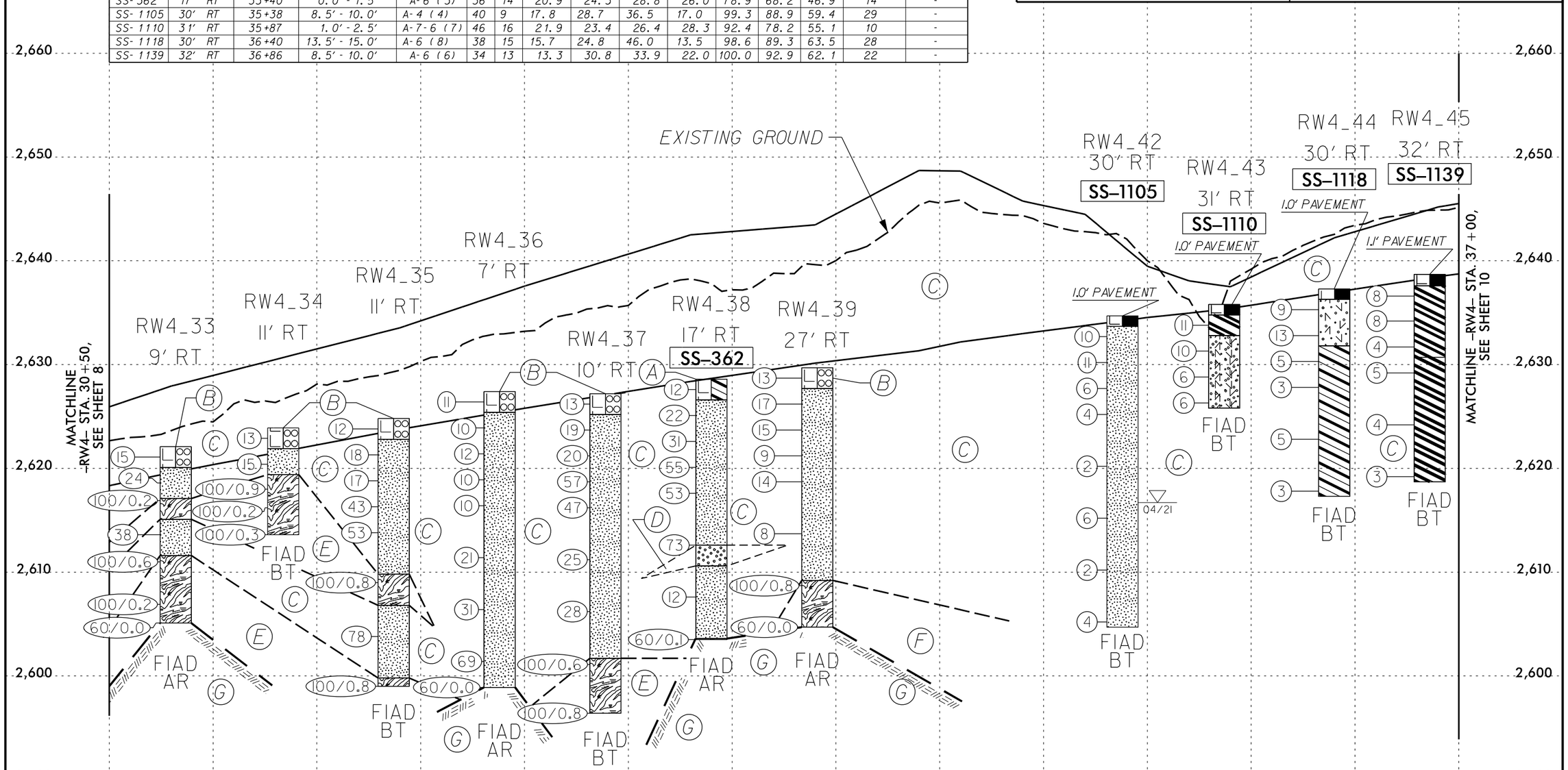
-RW4-

PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	12
-RW4- PROFILE	

0 50 100
FEET
VE = 1:5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-362	17' RT	33+40	0.0' - 1.5'	A-6 (3)	36	14	20.9	24.3	28.8	26.0	78.9	68.2	46.9	14	-
SS-1105	30' RT	35+38	8.5' - 10.0'	A-4 (4)	40	9	17.8	28.7	36.5	17.0	99.3	88.9	59.4	29	-
SS-1110	31' RT	35+87	1.0' - 2.5'	A-7-6 (7)	46	16	21.9	23.4	26.4	28.3	92.4	78.2	55.1	10	-
SS-1118	30' RT	36+40	13.5' - 15.0'	A-6 (8)	38	15	15.7	24.8	46.0	13.5	98.6	89.3	63.5	28	-
SS-1139	32' RT	36+86	8.5' - 10.0'	A-6 (6)	34	13	13.3	30.8	33.9	22.0	100.0	92.9	62.1	22	-



(A) **ROADWAY EMBANKMENT:** Stiff, brown and orange, CLAY (A-6) with trace gravel, micaceous, dry

(B) **ROADWAY EMBANKMENT:** Medium dense, brown and orange, SAND and GRAVEL (A-1-b), dry

(C) **RESIDUAL:** Soft to hard, brown, tan, and white, SILT (A-4), clayey SILT (A-5), silty CLAY (A-6), and CLAY (A-7-6), with trace sand, contains trace rock fragments, micaceous, saprolitic, dry to wet

(D) **RESIDUAL:** Very dense, white and tan, silty SAND (A-2-4), contains trace rock fragments, dry

(E) **WEATHERED ROCK:** Brown, tan, and orange, GNEISS

(F) **WEATHERED ROCK:** White, black, and brown, AMPHIBOLITE

(G) **CRYSTALLINE ROCK:** Brown, GNEISS

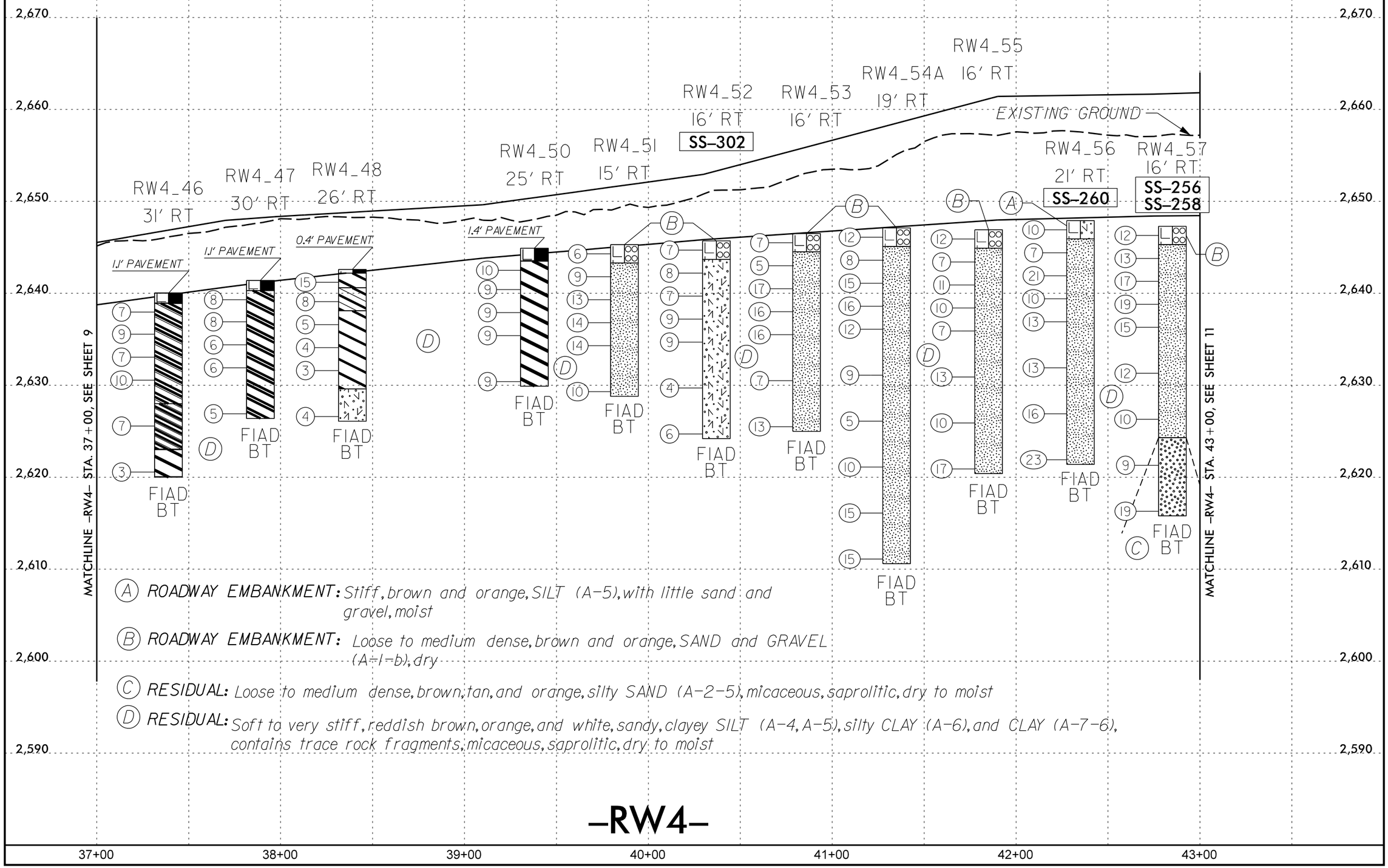
-RW4-

PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	13
–RW4– PROFILE	

0 50 100
FEET
VE = 1:5

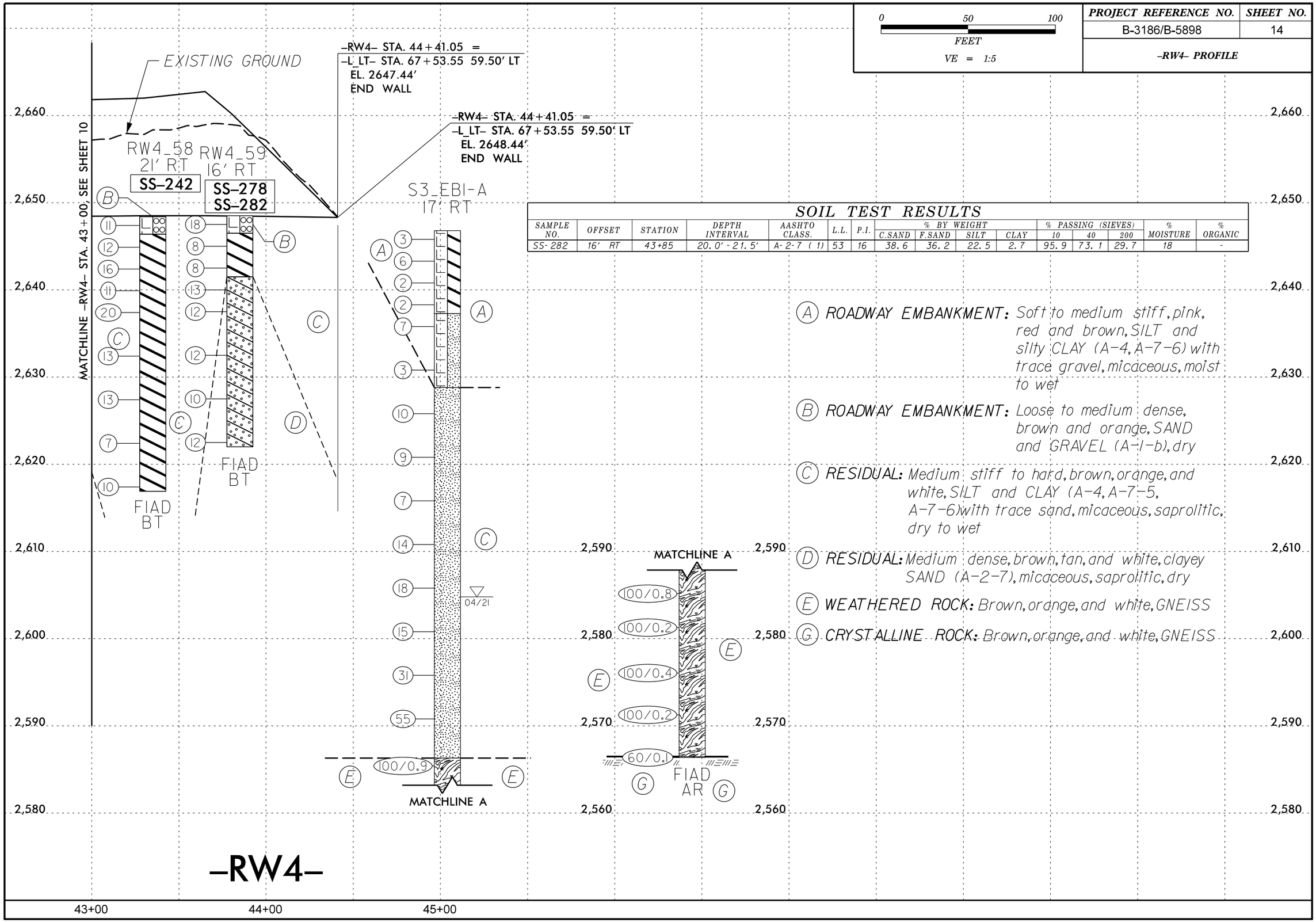
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-302	16' RT	40+37	2.5' - 4.0'	A-5 (4)	46	5	10.9	29.7	45.7	13.7	95.0	89.1	64.5	26	-
SS-260	21' RT	42+35	0.0' - 1.5'	A-5 (5)	47	10	20.1	25.6	23.3	31.0	92.1	80.0	54.9	17	-



PROJECT REFERENCE NO.	SHEET NO.
B-3186/B-5898	14
-RW4- PROFILE	

0 50 100
FEET
VE = 1:5



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-282	16' RT	43+85	20.0' - 21.5'	A-2-7 (1)	53	16	38.6	36.2	22.5	2.7	95.9	73.1	29.7	18	-

(A) ROADWAY EMBANKMENT: Soft to medium stiff, pink, red and brown, SILT and silty CLAY (A-4, A-7-6) with trace gravel, micaceous, moist to wet

(B) ROADWAY EMBANKMENT: Loose to medium dense, brown and orange, SAND and GRAVEL (A-1-b), dry

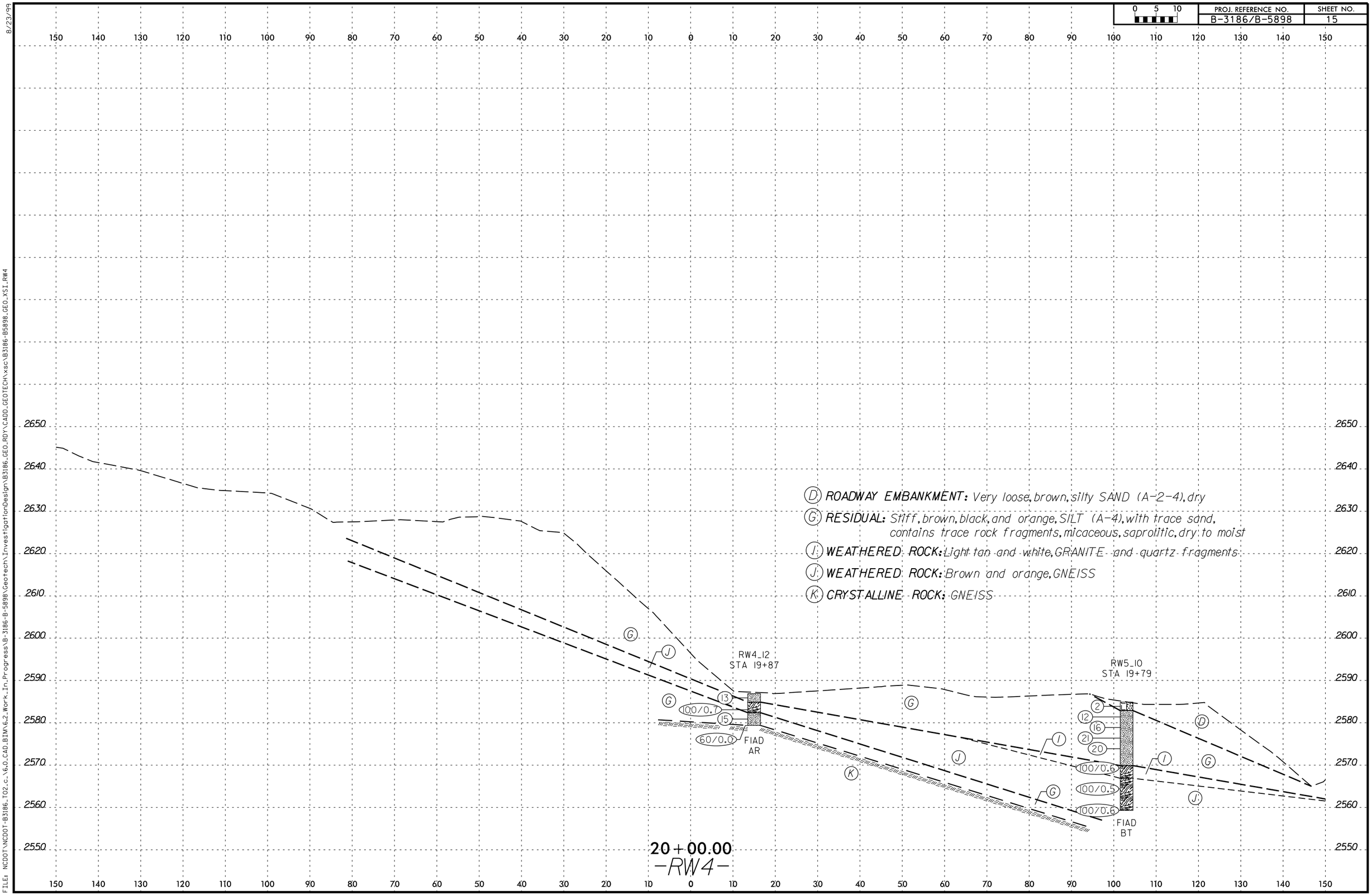
(C) RESIDUAL: Medium stiff to hard, brown, orange, and white, SILT and CLAY (A-4, A-7-5, A-7-6) with trace sand, micaceous, saprolitic, dry to wet

(D) RESIDUAL: Medium dense, brown, tan, and white, clayey SAND (A-2-7), micaceous, saprolitic, dry

(E) WEATHERED ROCK: Brown, orange, and white, GNEISS

(G) CRYSTALLINE ROCK: Brown, orange, and white, GNEISS

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	15



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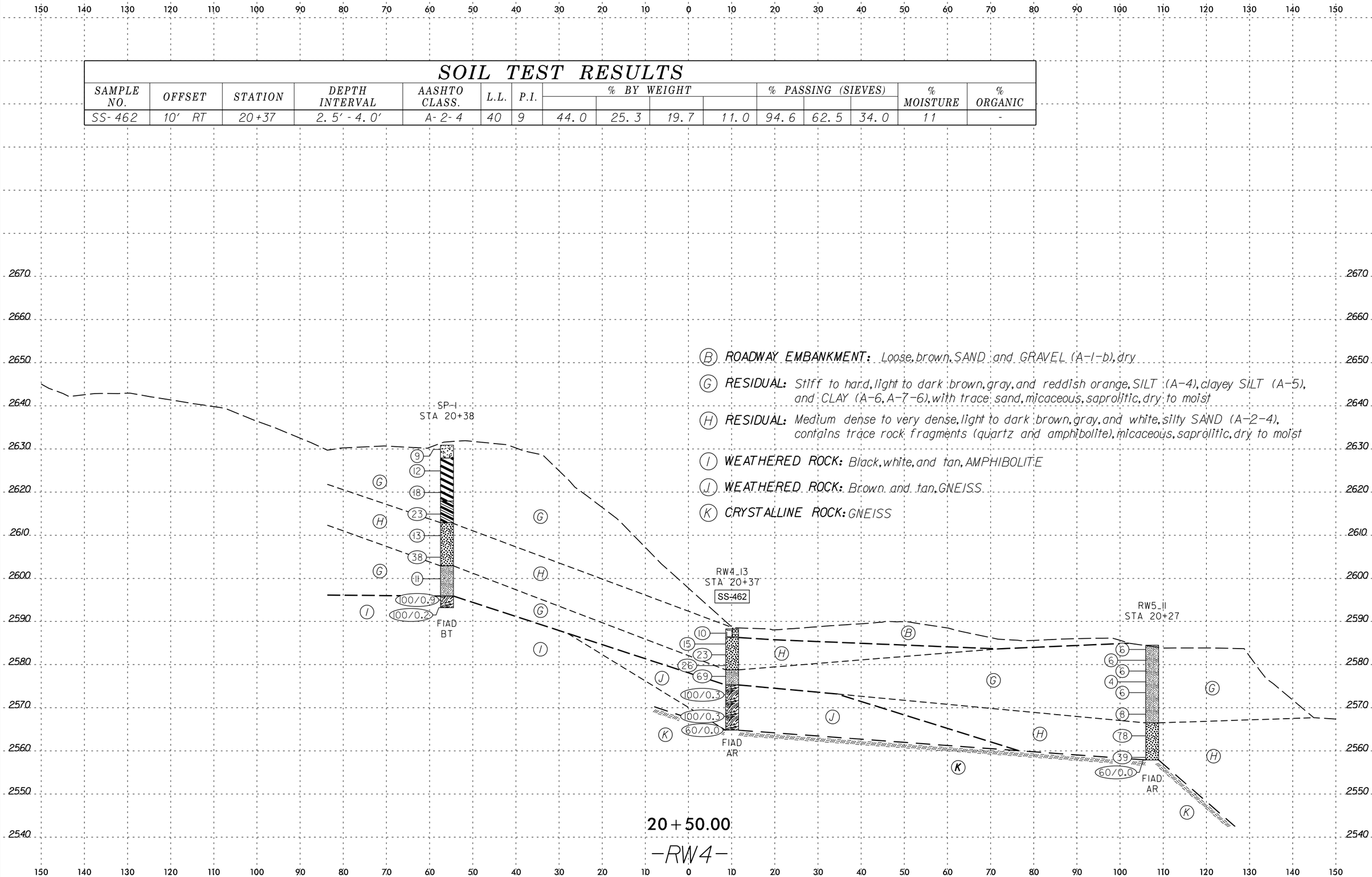
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	16

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-462	10' RT	20+37	2.5' - 4.0'	A-2-4	40	9	44.0	25.3	19.7	11.0	94.6	62.5	34.0	11	-



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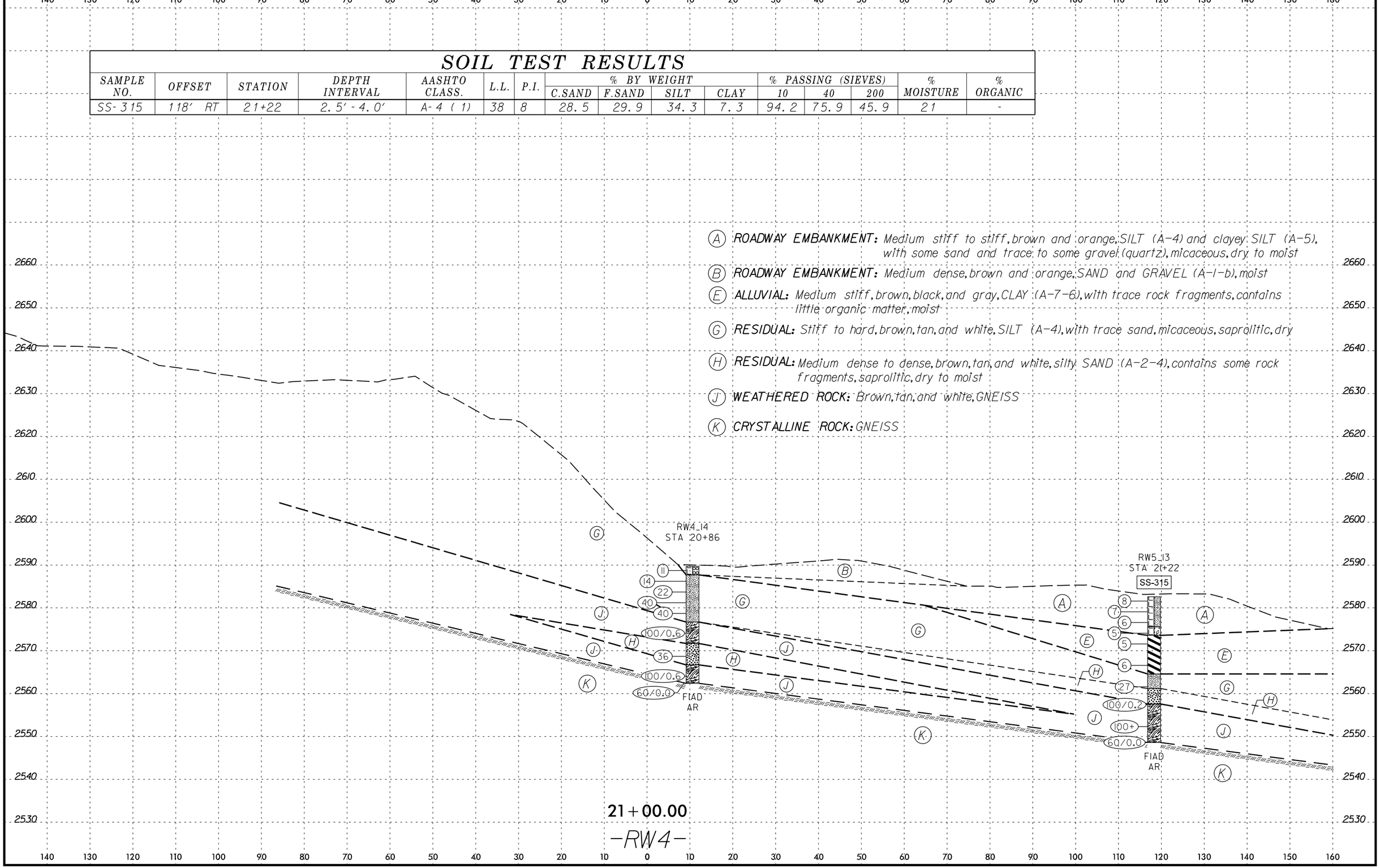
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	17

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-315	118' RT	21+22	2.5' - 4.0'	A-4 (1)	38	8	28.5	29.9	34.3	7.3	94.2	75.9	45.9	21	-



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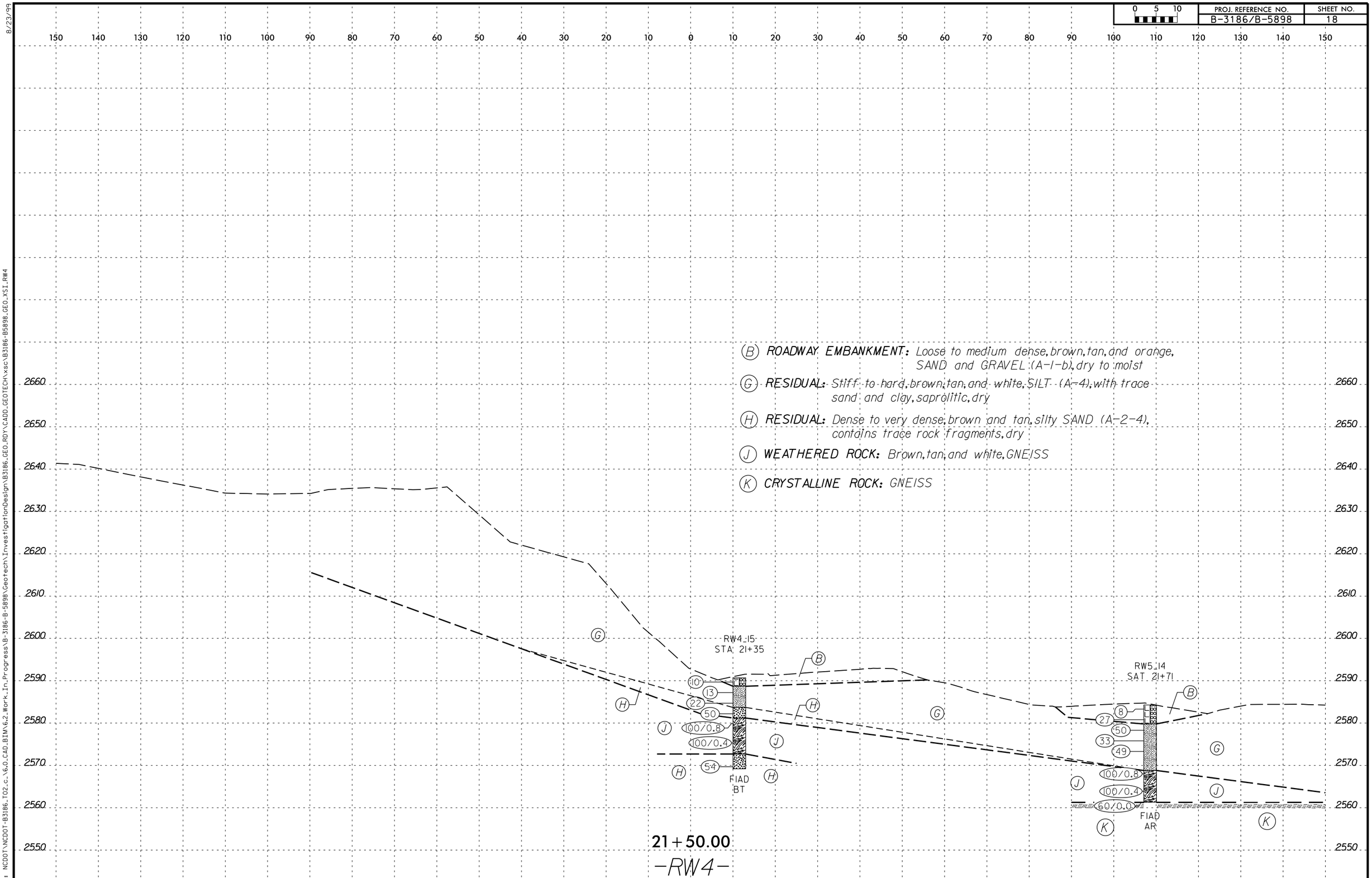
PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	18



8/23/99

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PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	19

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-2056	23' RT	21+83	8.8' - 10.3'	A-4	31	NP	34.8	27.9	34.3	3.0	98.2	73.2	42.6	19	-

Ⓑ **ROADWAY EMBANKMENT:** Loose to medium dense, brown, black, and orange, SAND and GRAVEL (A-1-b), dry

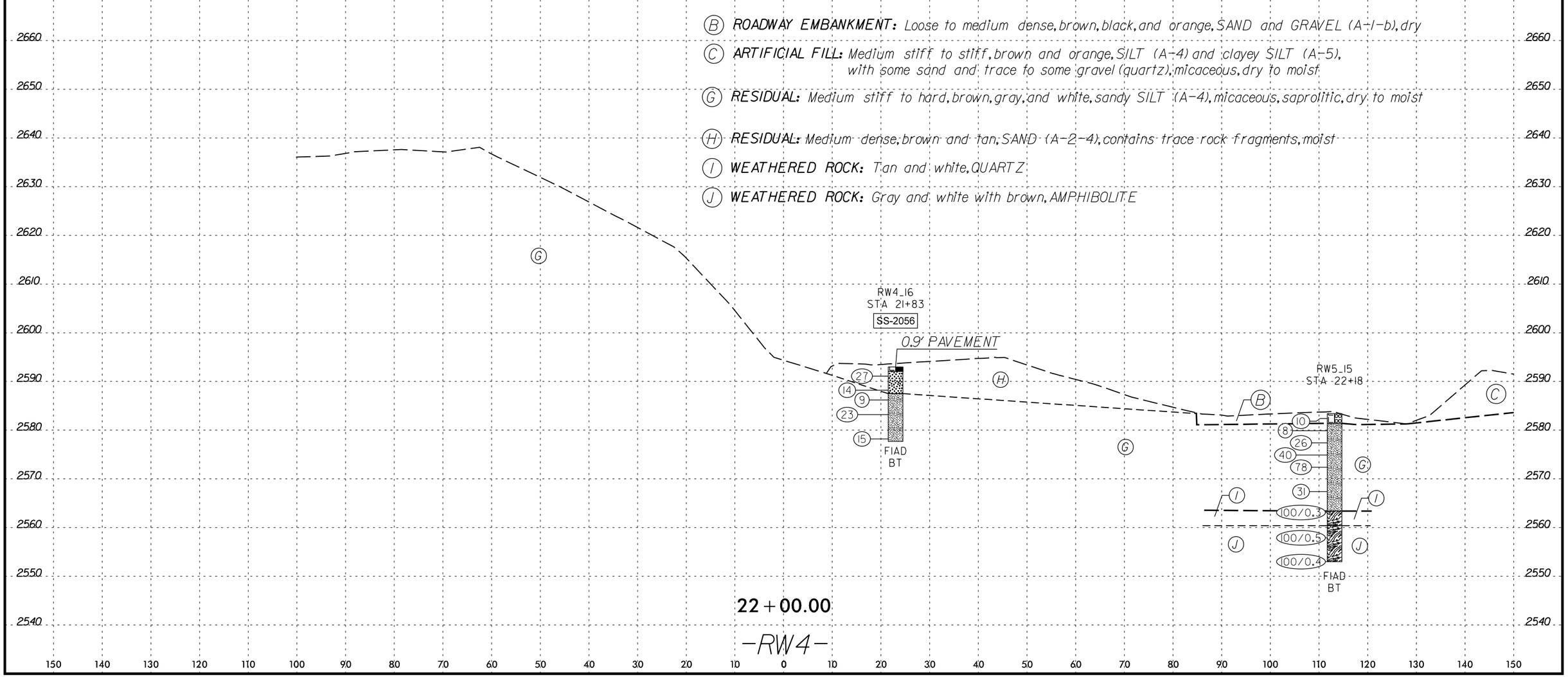
Ⓒ **ARTIFICIAL FILL:** Medium stiff to stiff, brown and orange, SILT (A-4) and clayey SILT (A-5), with some sand and trace to some gravel (quartz), micaceous, dry to moist

Ⓖ **RESIDUAL:** Medium stiff to hard, brown, gray, and white, sandy SILT (A-4), micaceous, saprolitic, dry to moist

Ⓗ **RESIDUAL:** Medium dense, brown and tan, SAND (A-2-4), contains trace rock fragments, moist

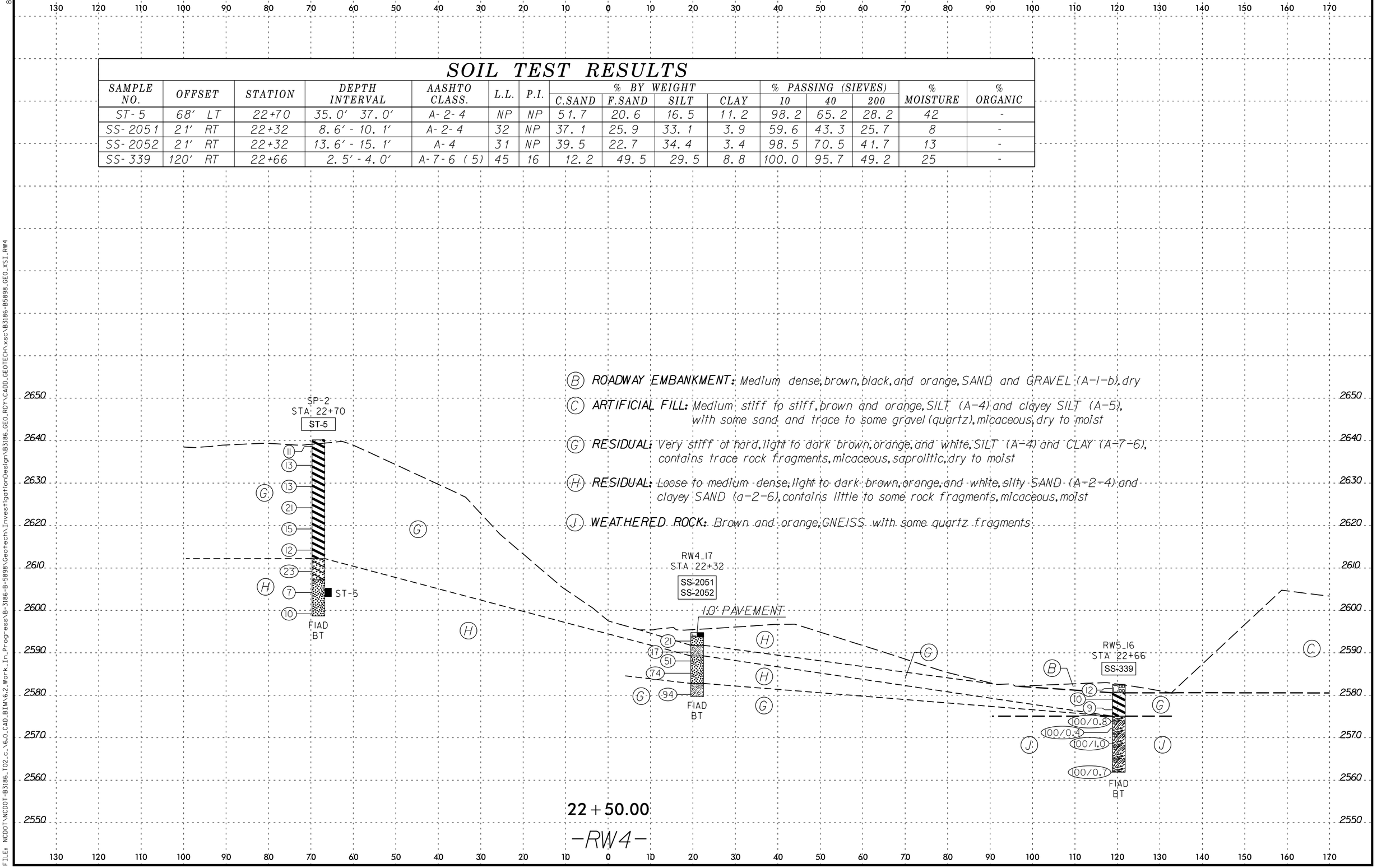
Ⓘ **WEATHERED ROCK:** Tan and white, QUARTZ

Ⓙ **WEATHERED ROCK:** Gray and white with brown, AMPHIBOLITE



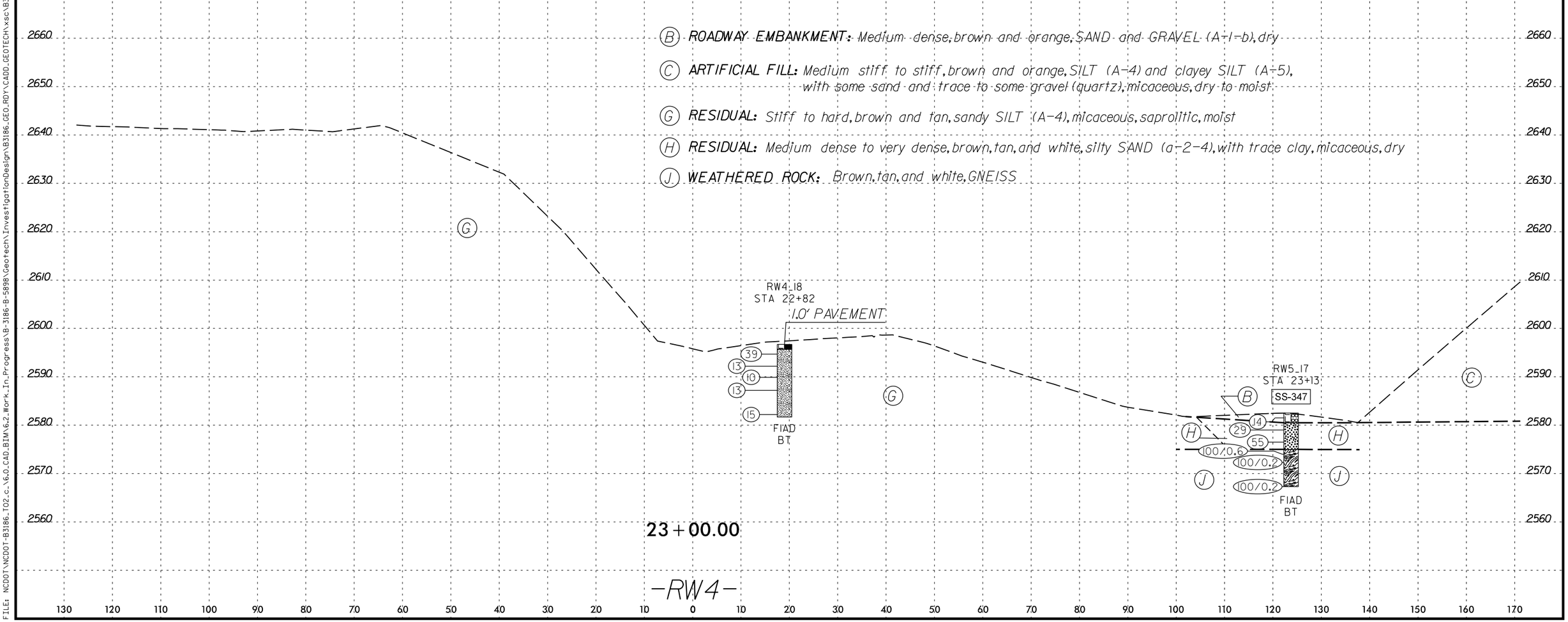
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
ST-5	68' LT	22+70	35.0' 37.0'	A-2-4	NP	NP	51.7	20.6	16.5	11.2	98.2	65.2	28.2	42	-
SS-2051	21' RT	22+32	8.6' - 10.1'	A-2-4	32	NP	37.1	25.9	33.1	3.9	59.6	43.3	25.7	8	-
SS-2052	21' RT	22+32	13.6' - 15.1'	A-4	31	NP	39.5	22.7	34.4	3.4	98.5	70.5	41.7	13	-
SS-339	120' RT	22+66	2.5' - 4.0'	A-7-6 (5)	45	16	12.2	49.5	29.5	8.8	100.0	95.7	49.2	25	-

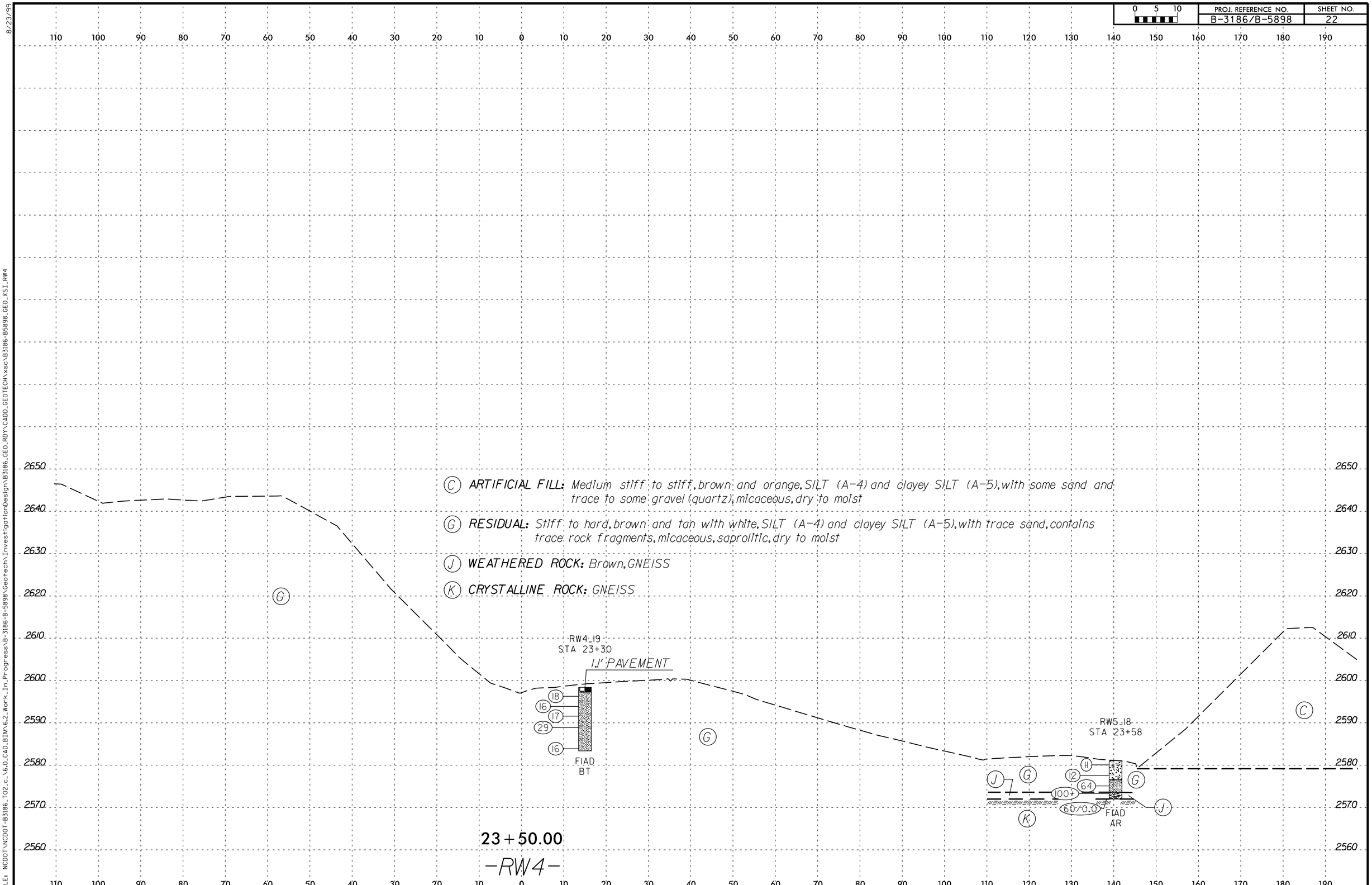


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-347	124' RT	23+13	5.0' - 6.5'	A-2-4	34	8	39.8	31.4	18.9	9.9	96.5	70.5	33.6	11	-



PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	22



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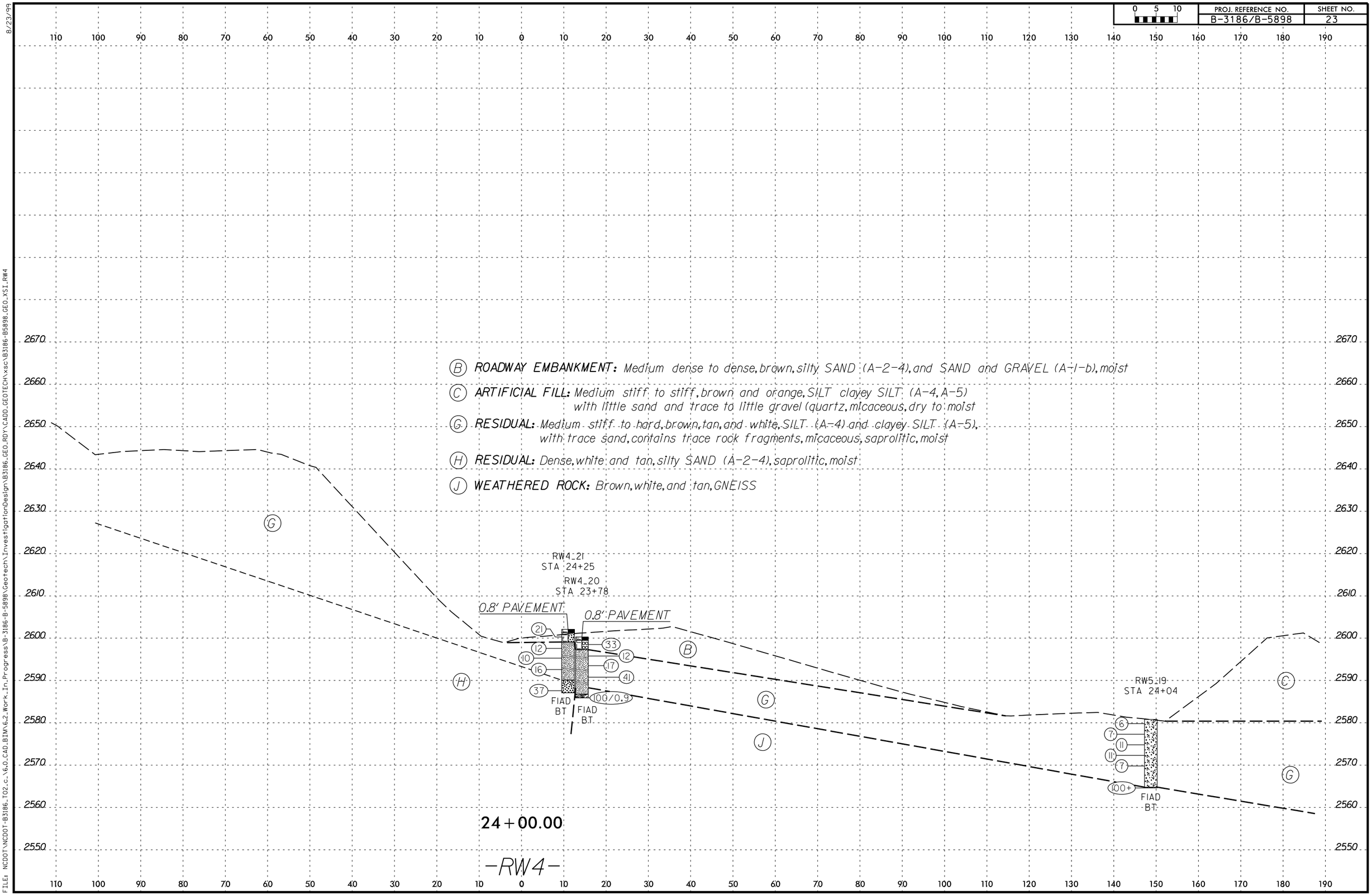
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	23



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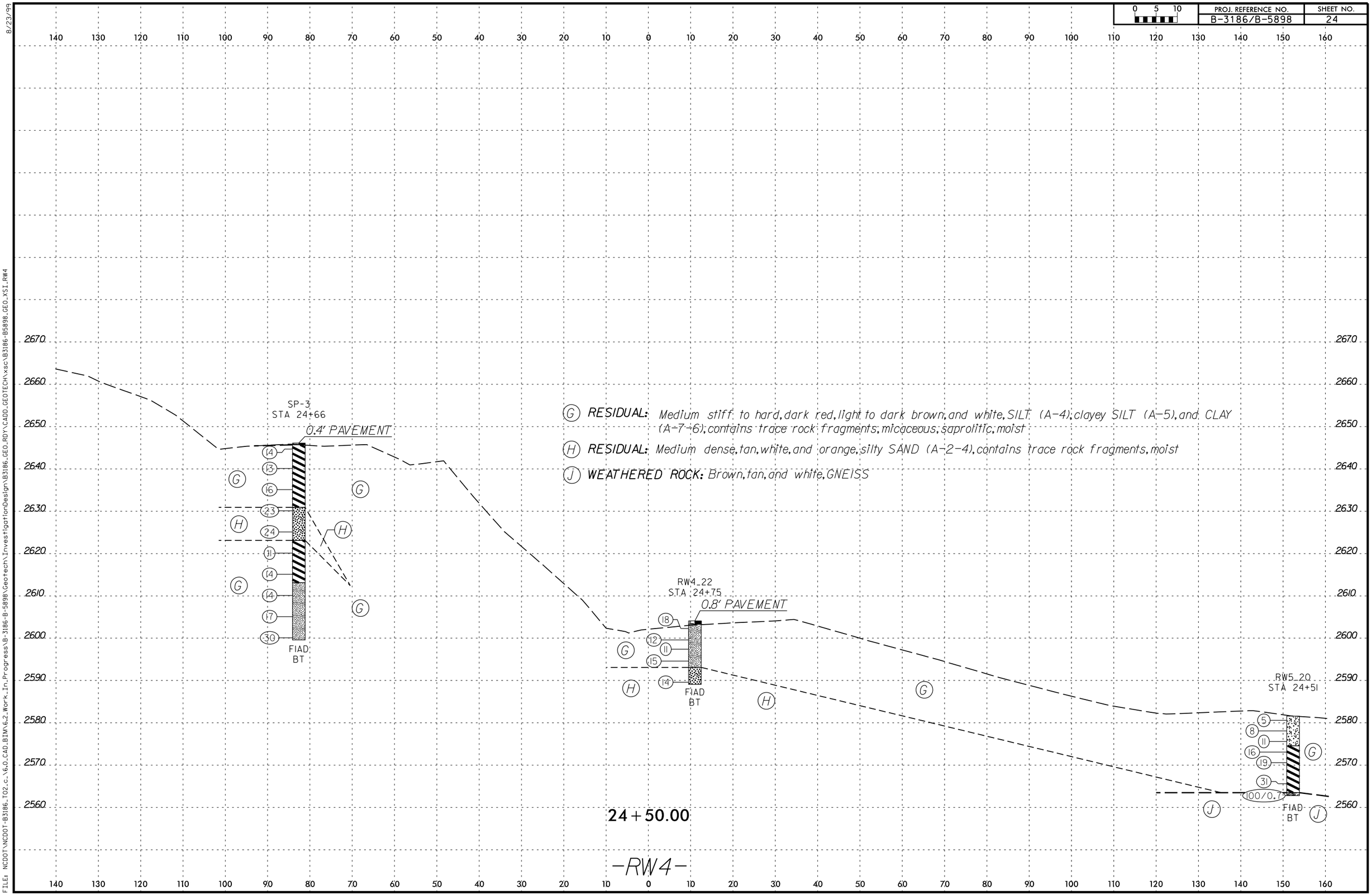

8/23/99

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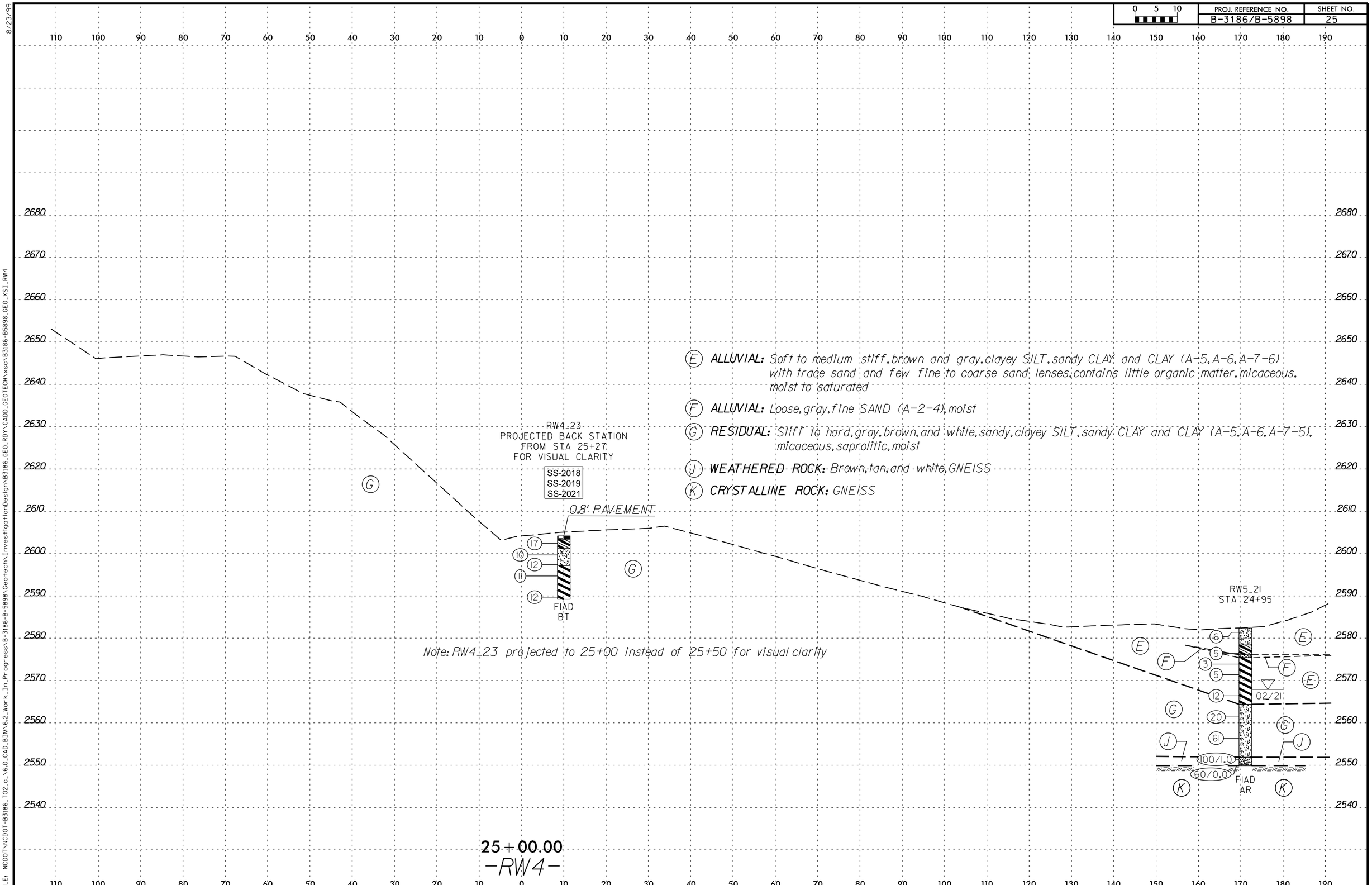
PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	25



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8/23/99

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-513	5' LT	26+29	10.0' - 11.5'	A-5 (9)	48	10	4.1	32.5	49.9	13.5	100.0	98.0	74.1	51	-
ST-4	5' LT	26+29	15.0' - 17.0'	A-2-4	27	6	41.2	30.8	7.0	21.0	94.4	66.3	31.2	28	-
SS-3009	44' RT	25+96	38.9' - 40.4	A-4	37	8	26.8	36.0	25.4	11.8	86.6	72.3	36.7	43	-

(A) **ROADWAY EMBANKMENT:** Soft to medium stiff, brown, orange, and black, clayey SILT and CLAY (A-5, A-7) with trace sand, moist

(B) **ROADWAY EMBANKMENT:** Loose to dense, brown and gray, f-c SAND and GRAVEL (A-1-b, A-2-4), moist to saturated

(E) **ALLUVIAL:** Soft to medium stiff, gray, SILT and f sandy SILT (A-4, A-5) with trace wood fragments, micaceous, organic odor, wet

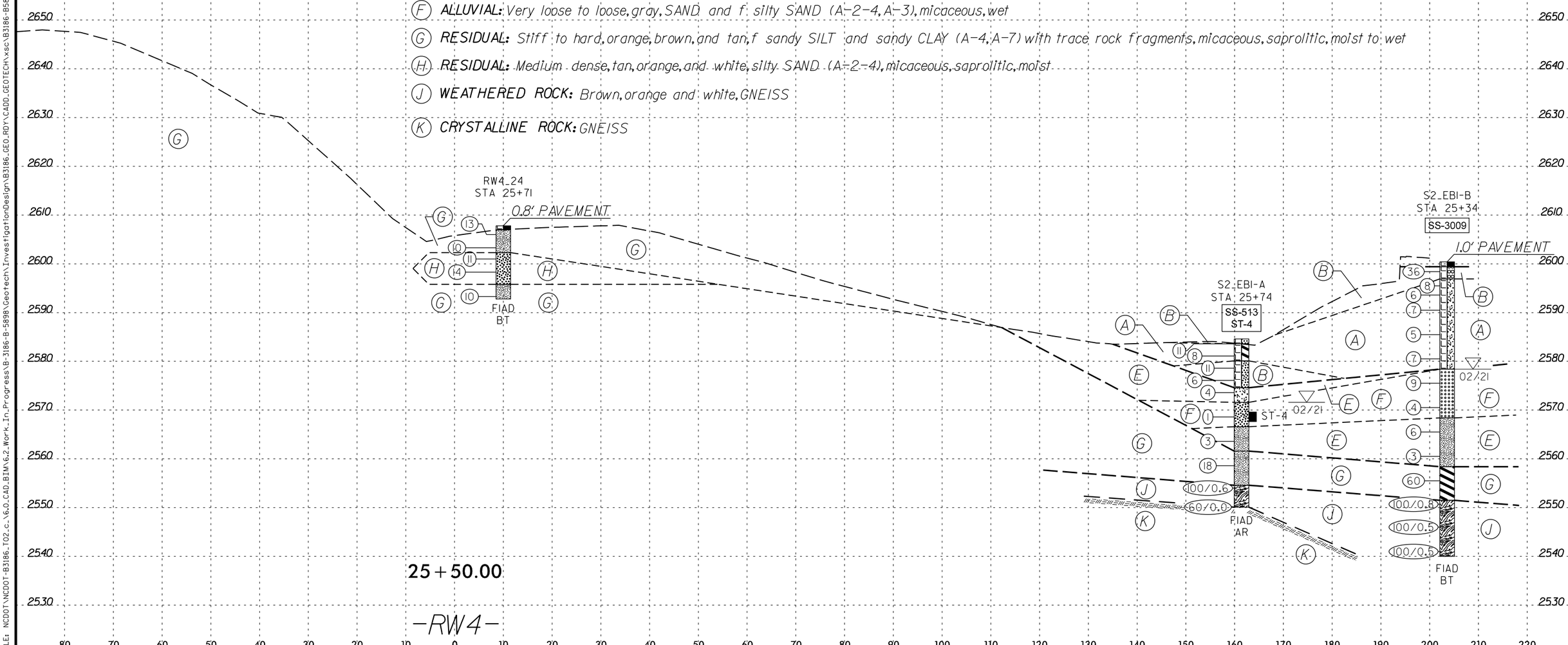
(F) **ALLUVIAL:** Very loose to loose, gray, SAND and f silty SAND (A-2-4, A-3), micaceous, wet

(G) **RESIDUAL:** Stiff to hard, orange, brown, and tan, f sandy SILT and sandy CLAY (A-4, A-7) with trace rock fragments, micaceous, saprolitic, moist to wet

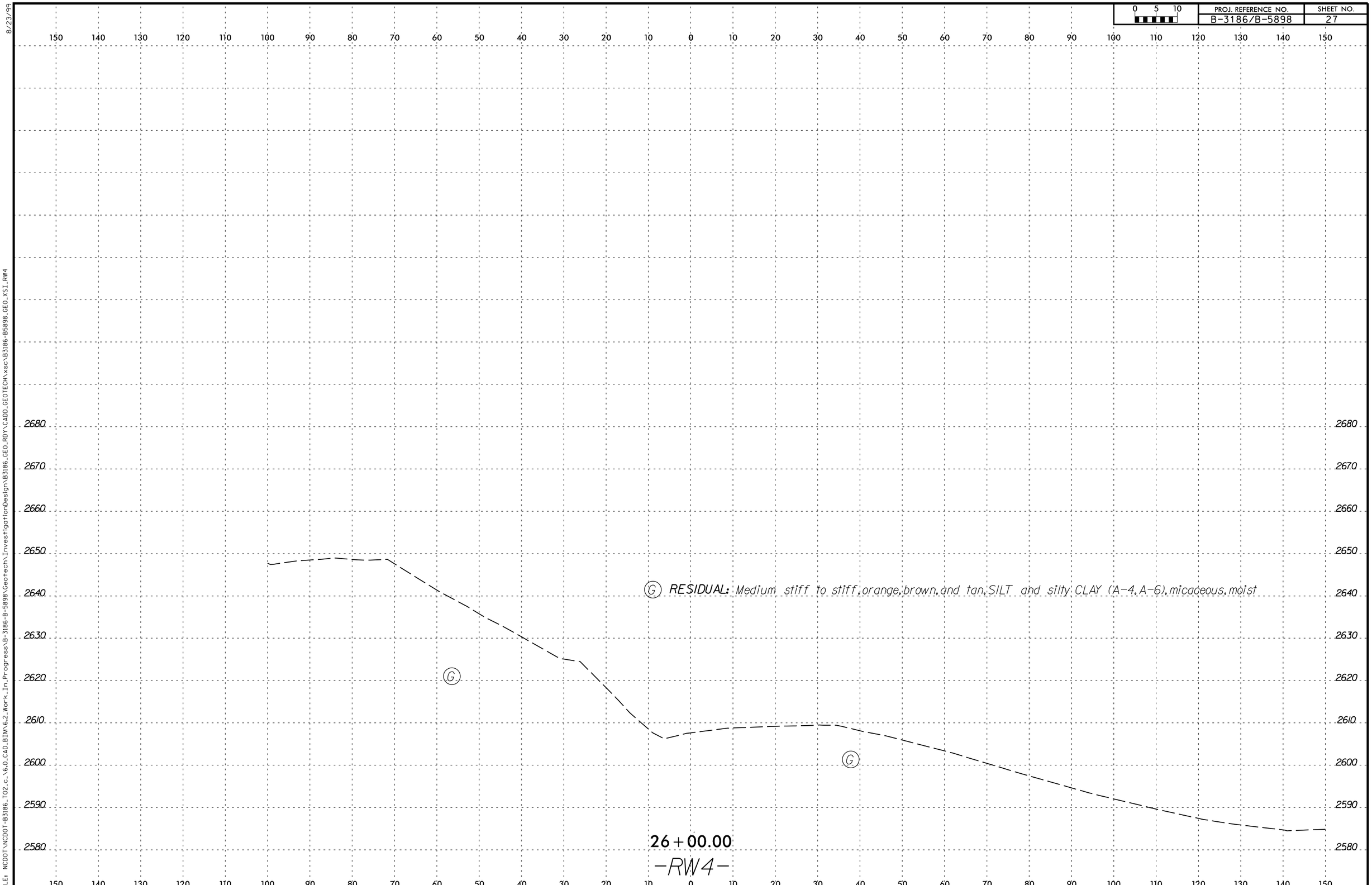
(H) **RESIDUAL:** Medium dense, tan, orange, and white, silty SAND (A-2-4), micaceous, saprolitic, moist

(J) **WEATHERED ROCK:** Brown, orange and white, GNEISS

(K) **CRYSTALLINE ROCK:** GNEISS



PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	27



8/23/99

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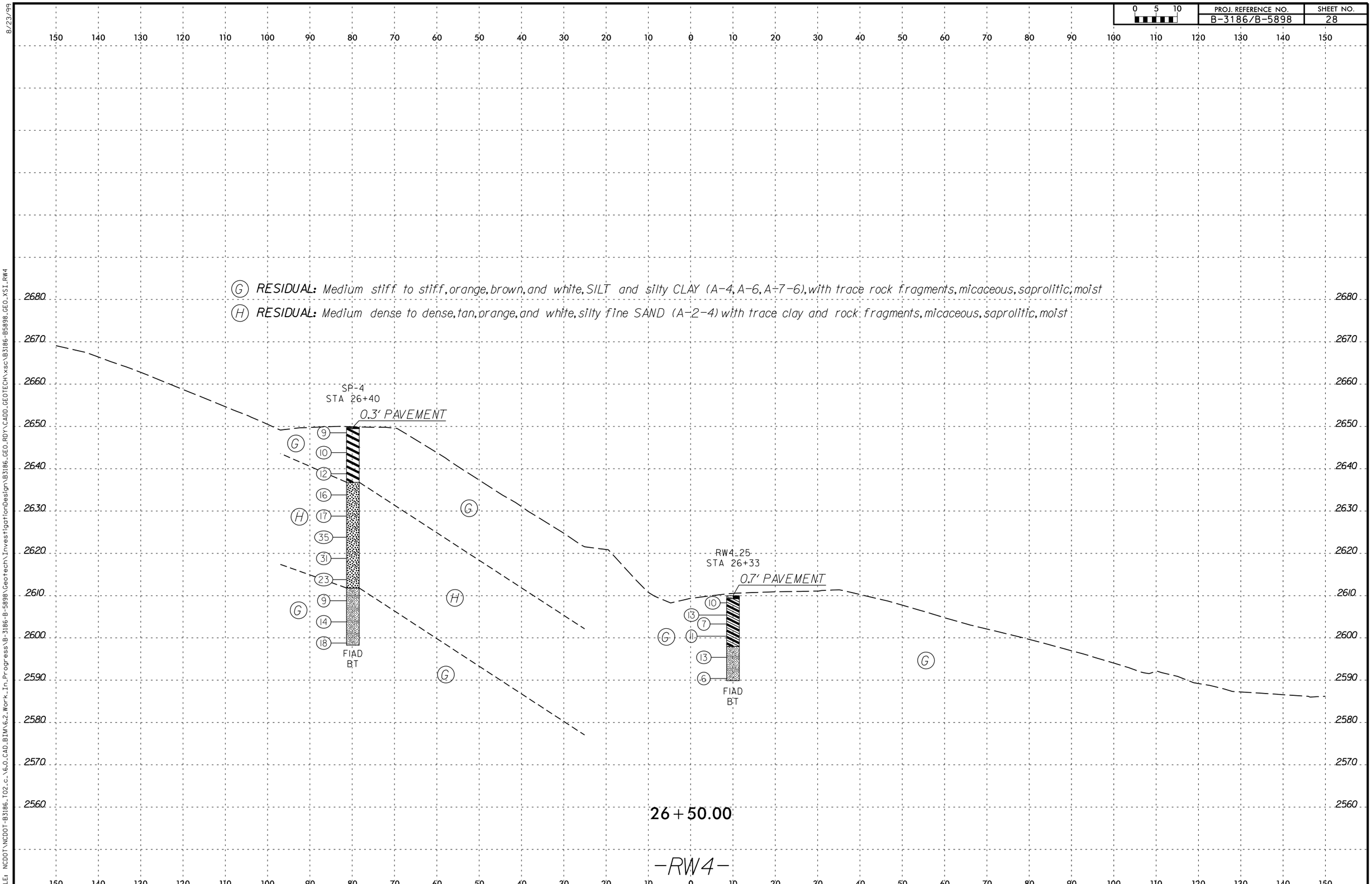

8/23/99

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PENTABLE: NCDOT_Profile_INV.tbl
DATE: 11/8/2021
TIME: 10:40:17 AM

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-222	33' RT	27+53	15.0' - 16.5'	A-5 (13)	51	10	1.1	21.2	59.5	18.2	100.0	99.5	85.8	62	-
ST-2	33' RT	27+53	15.0' - 17.0'	A-7-5 (16)	57	11	1.3	14.3	66.8	17.6	100.0	99.6	87.3	68	-

(A) **ROADWAY EMBANKMENT:** Medium stiff to very stiff, brown, gray, and orange, sandy and clayey SILT and CLAY (A-4, A-5, A-7), with trace gravel, micaceous, mottled, moist

(B) **ROADWAY EMBANKMENT:** Medium dense to dense, brown and gray, silty and clayey SAND (A-2-6, A-2-4), with trace to little gravel, micaceous, dry

(E) **ALLUVIAL:** Very soft to stiff, gray, brown, and orange, clayey SILT, SILT, and sandy CLAY (A-5, A-7-5, A-7-6), micaceous, moist to wet

(F) **ALLUVIAL:** Very loose to dense, brown and gray, silty SAND, clayey SAND, SAND and GRAVEL (A-1-b, A-2-4, A-2-6), micaceous, dry to saturated

(G) **RESIDUAL:** Stiff to very stiff, orange, white, and black, sandy SILT and CLAY (A-4, A-7-6), with little rock fragments, micaceous, saprolitic, dry to moist

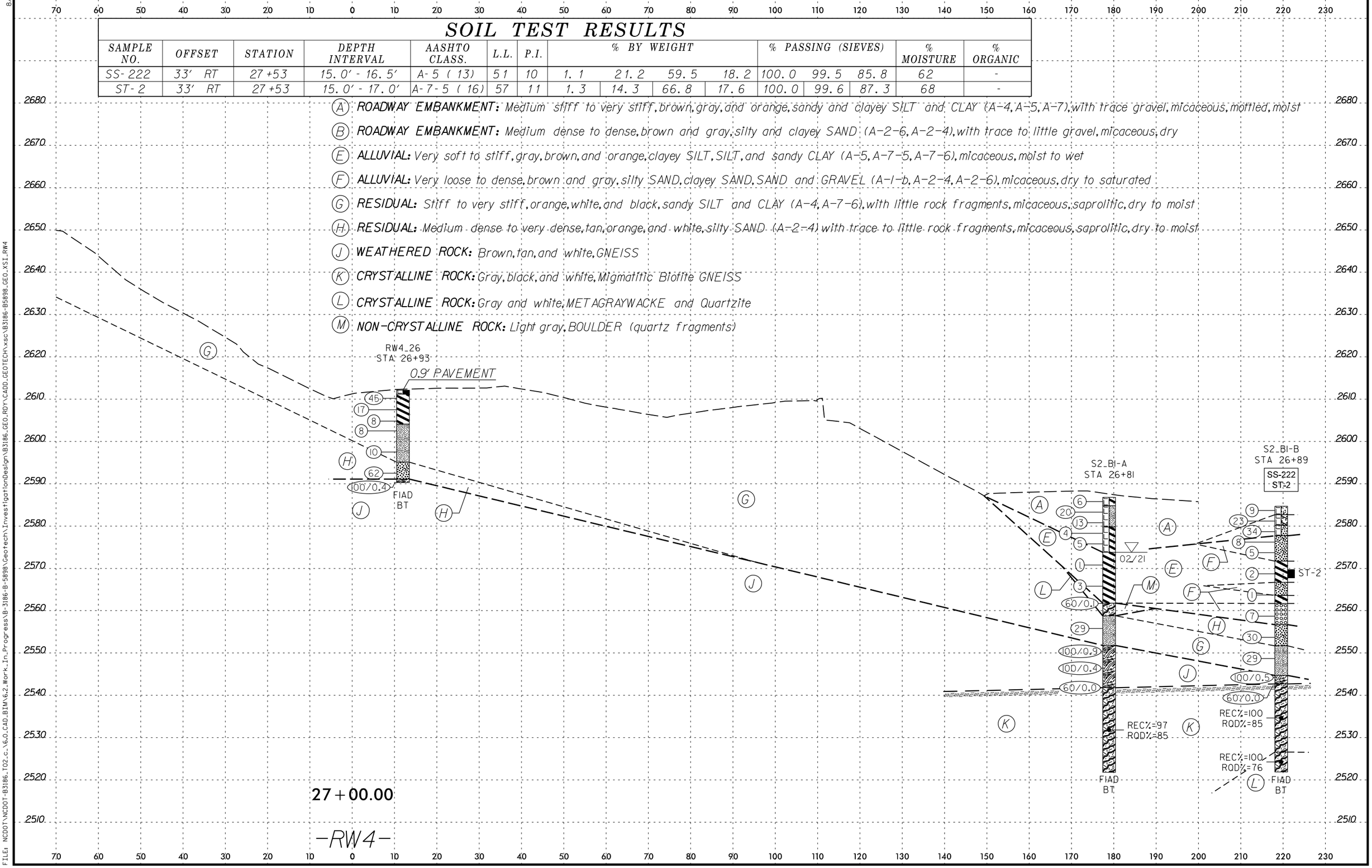
(H) **RESIDUAL:** Medium dense to very dense, tan, orange, and white, silty SAND (A-2-4) with trace to little rock fragments, micaceous, saprolitic, dry to moist

(J) **WEATHERED ROCK:** Brown, tan, and white, GNEISS

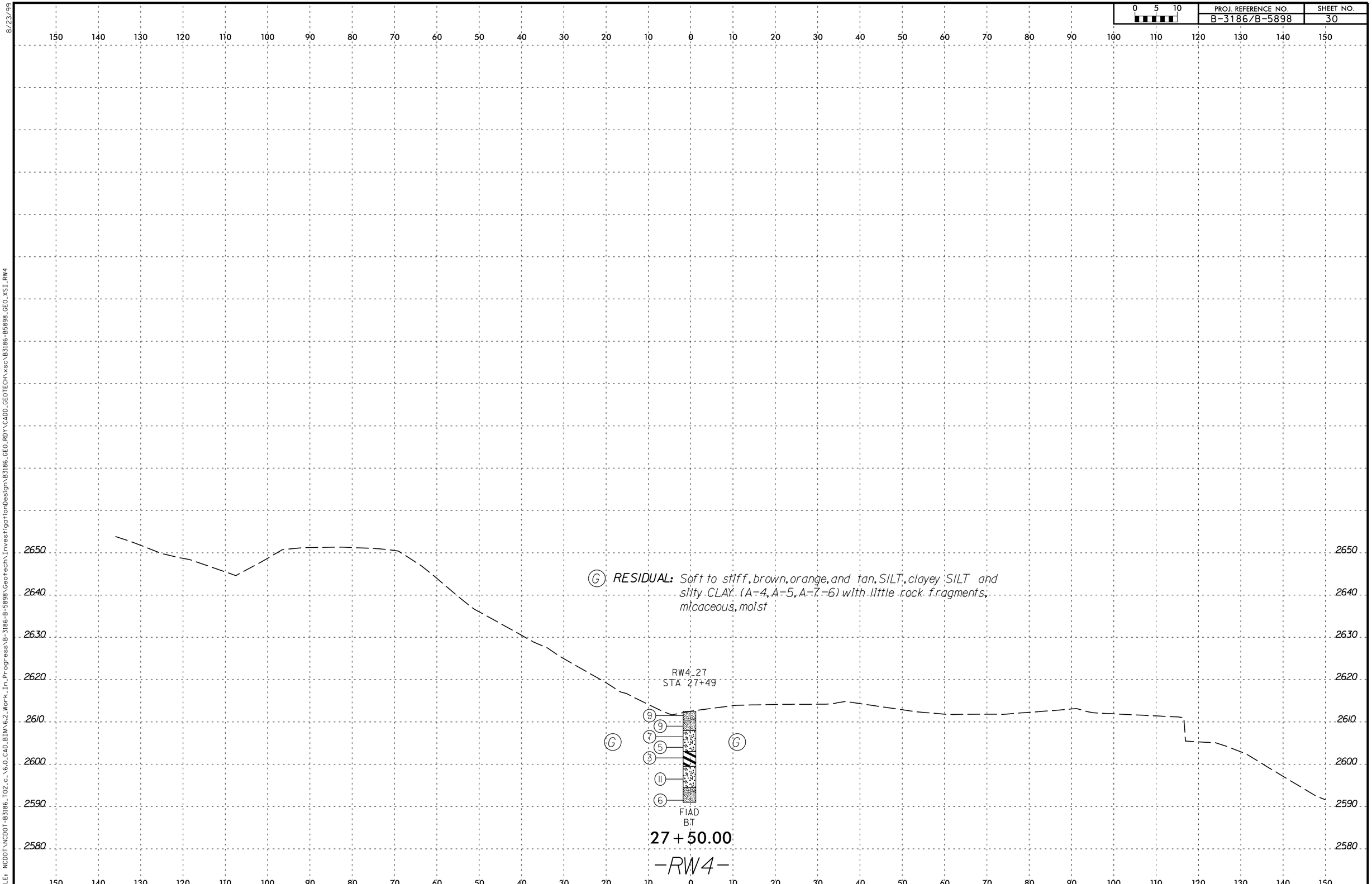
(K) **CRYSTALLINE ROCK:** Gray, black, and white, Migmatitic Biotite GNEISS

(L) **CRYSTALLINE ROCK:** Gray and white, METAGRAYWACKE and Quartzite

(M) **NON-CRYSTALLINE ROCK:** Light gray, BOULDER (quartz fragments)



PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	30



8/23/99

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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
ST-6	80' LT	29+20	18.0' - 20.0'	A-7-6 (13)	50	25	24.5	14.8	15.4	45.3	97.2	80.0	59.4	25	-
SS-436	2' LT	27+90	7.5' - 9.0'	A-7-5 (8)	55	20	24.0	23.4	34.3	18.3	87.8	73.7	50.2	27	-
SS-439	2' LT	27+90	20.0' - 21.5'	A-7-6 (6)	44	18	23.0	32.0	20.6	34.4	97.8	84.3	49.3	24	-
SS-208	27' RT	28+39	20.0' - 21.5'	A-7-5 (29)	77	21	2.5	13.1	70.9	13.5	100.0	98.9	89.2	73	-
ST-3	27' RT	28+39	20.0' - 21.5'	A-4	NP	NP	6.7	33.0	38.9	21.4	100	97.2	69.0	46	-

(B) **ROADWAY EMBANKMENT:** Loose, brown and orange, SAND and GRAVEL (A-1-b), dry

(E) **ALLUVIAL:** Soft to stiff, brown, orange and gray, SILT, clayey SILT, and CLAY (A-4, A-5, A-7-5) with little gravel and sand, micaceous, dry to wet

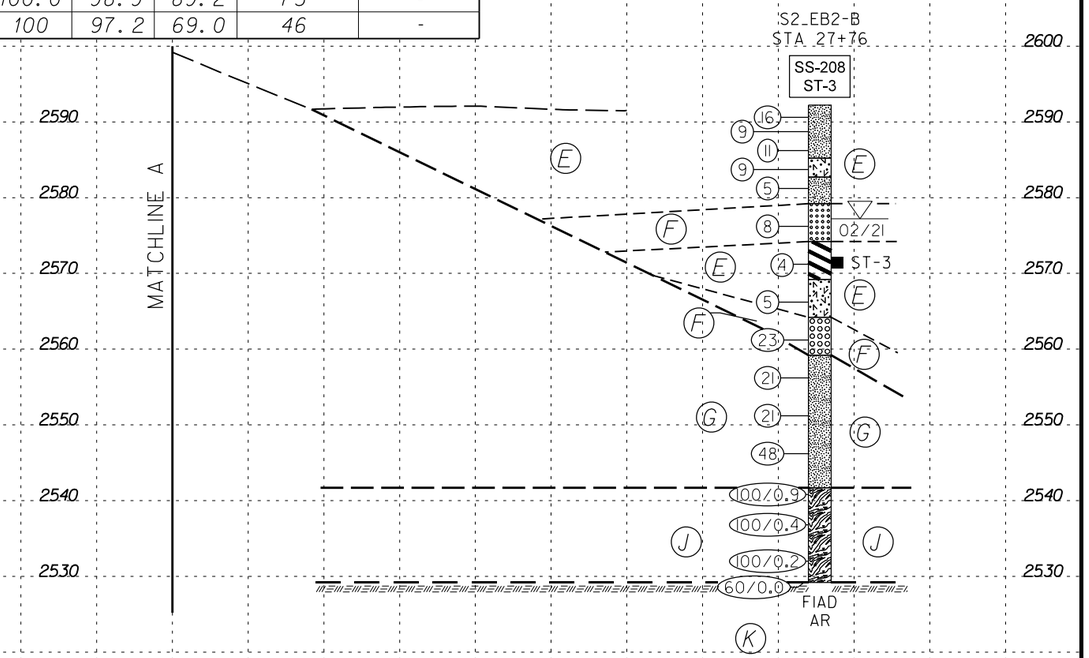
(F) **ALLUVIAL:** Loose to medium dense, brown and gray, SAND and GRAVEL (A-1-b, A-3), wet to saturated

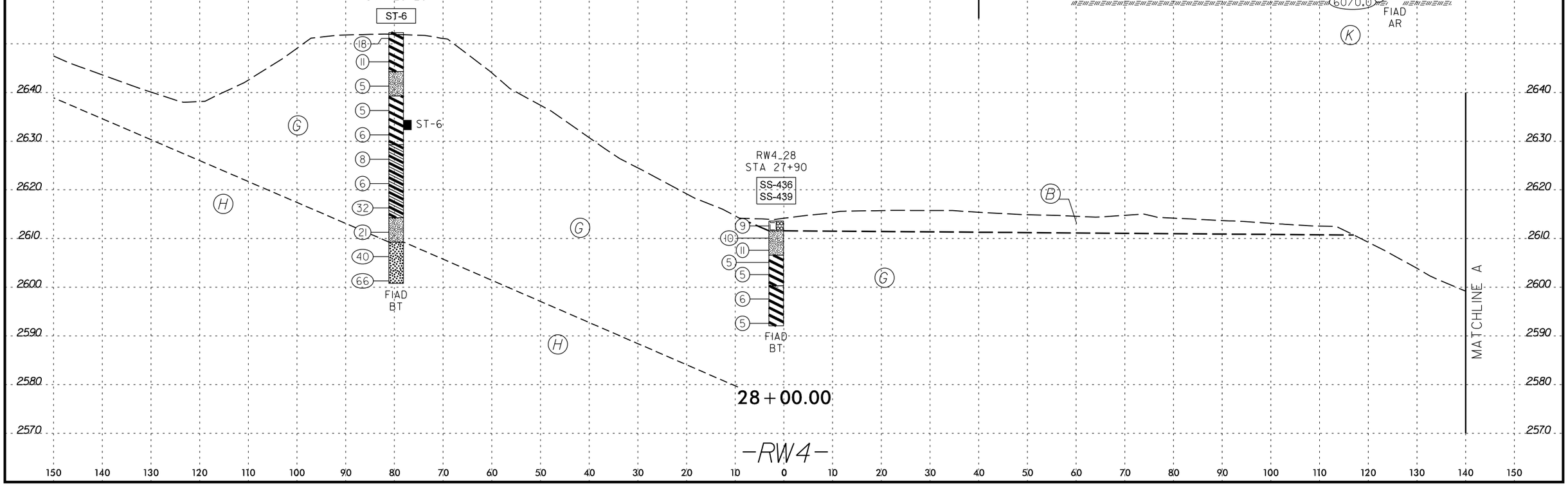
(G) **RESIDUAL:** Medium stiff to hard, brown, orange, and gray, SILT, sandy CLAY and silty CLAY (A-4, A-6, A-7-5, A-7-6) with trace to little rock fragments, micaceous, saprolitic, dry to moist

(H) **RESIDUAL:** Dense to very dense, brown, orange, and white, silty SAND (A-2-4), micaceous, saprolitic, moist

(J) **WEATHERED ROCK:** Brown, orange, and gray, GNEISS

(K) **CRYSTALLINE ROCK:** GNEISS

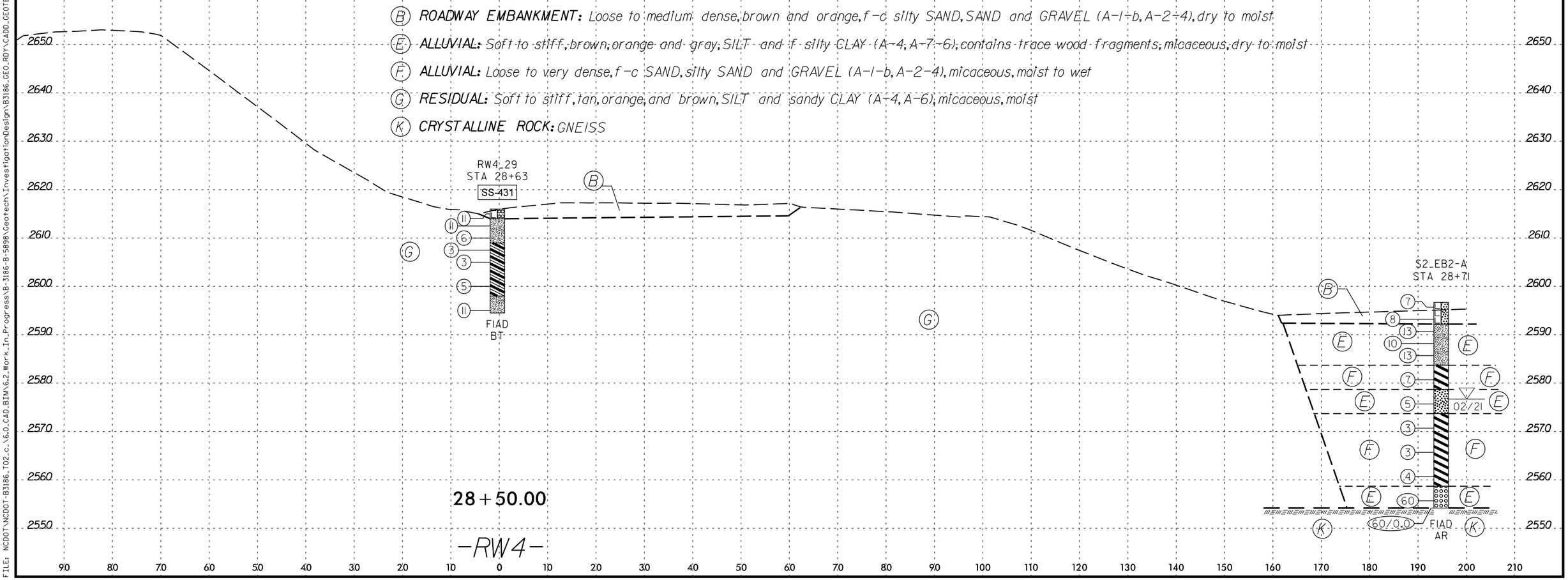




PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	32

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-431	CL	28+63	15.0' - 16.5'	A-6 (3)	40	11	34.3	21.8	22.1	21.8	96.4	71.7	46.6	18	-



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8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	33

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-422	2' RT	29+19	10.0' - 11.5'	A-2-4	33	9	47.9	18.0	20.2	13.8	88.9	54.7	33.4	17	-

(B) **ROADWAY EMBANKMENT:** Medium dense, brown and orange, SAND and GRAVEL (A-1-b), micaceous, dry

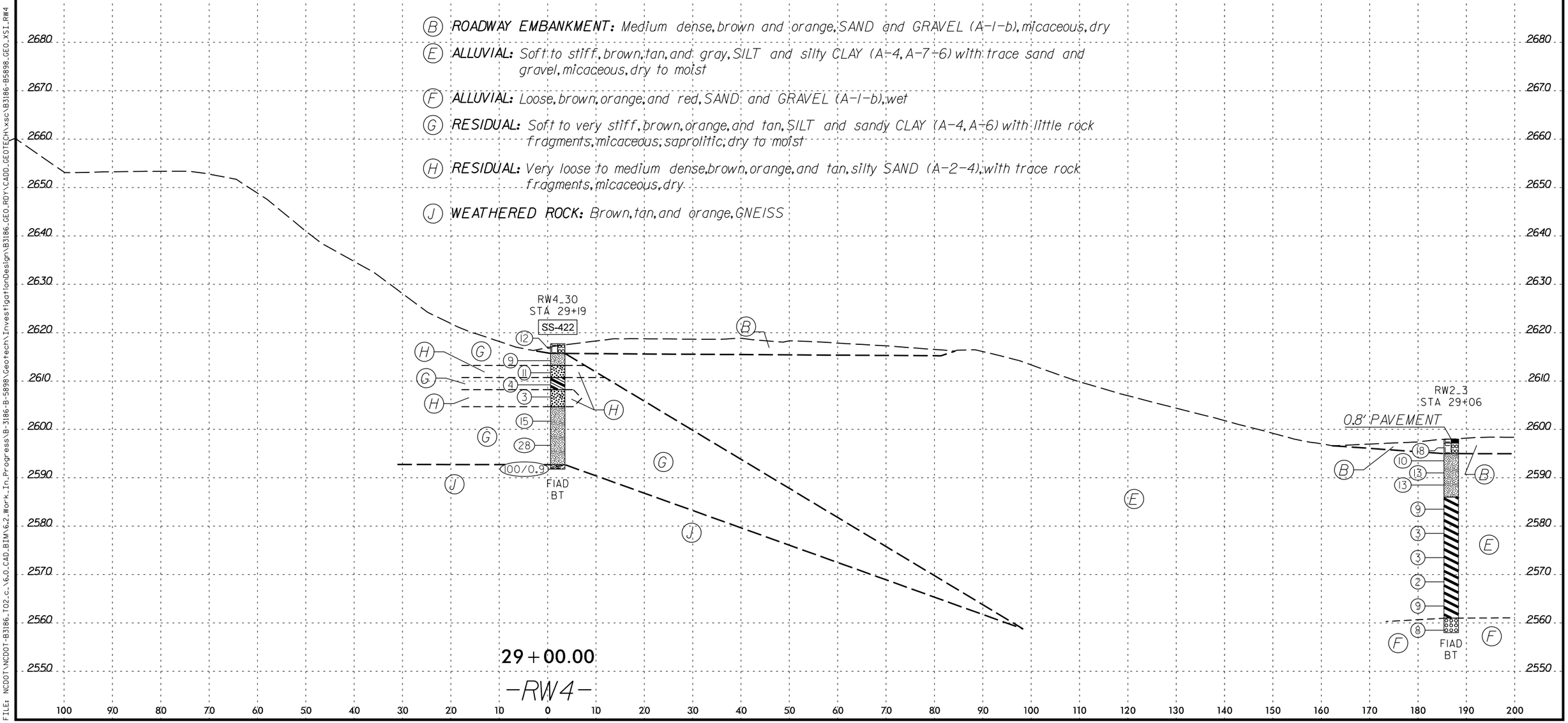
(E) **ALLUVIAL:** Soft to stiff, brown, tan, and gray, SILT and silty CLAY (A-4, A-7-6) with trace sand and gravel, micaceous, dry to moist

(F) **ALLUVIAL:** Loose, brown, orange, and red, SAND and GRAVEL (A-1-b), wet

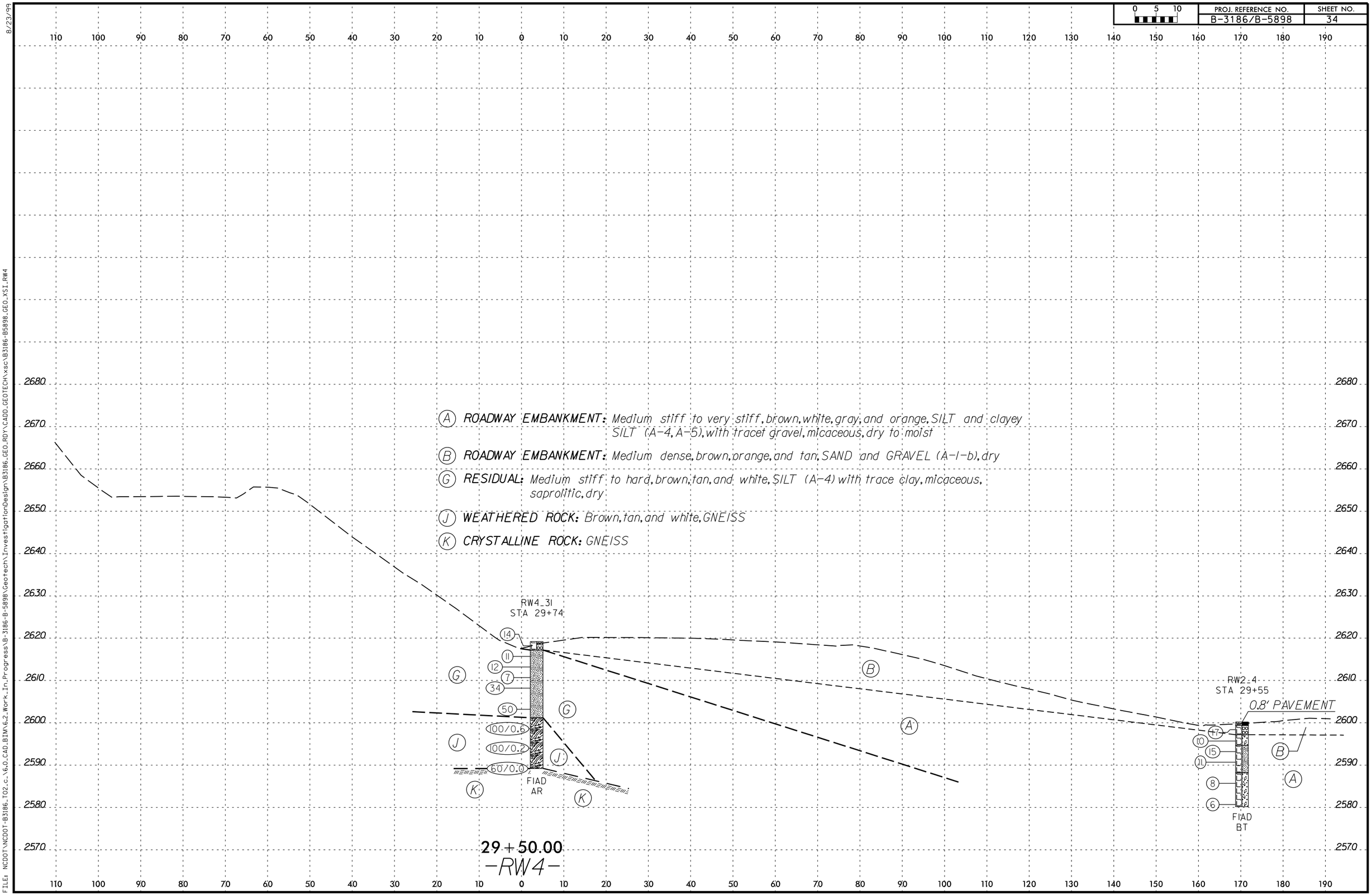
(G) **RESIDUAL:** Soft to very stiff, brown, orange, and tan, SILT and sandy CLAY (A-4, A-6) with little rock fragments, micaceous, saprolitic, dry to moist

(H) **RESIDUAL:** Very loose to medium dense, brown, orange, and tan, silty SAND (A-2-4), with trace rock fragments, micaceous, dry

(J) **WEATHERED ROCK:** Brown, tan, and orange, GNEISS



PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	34



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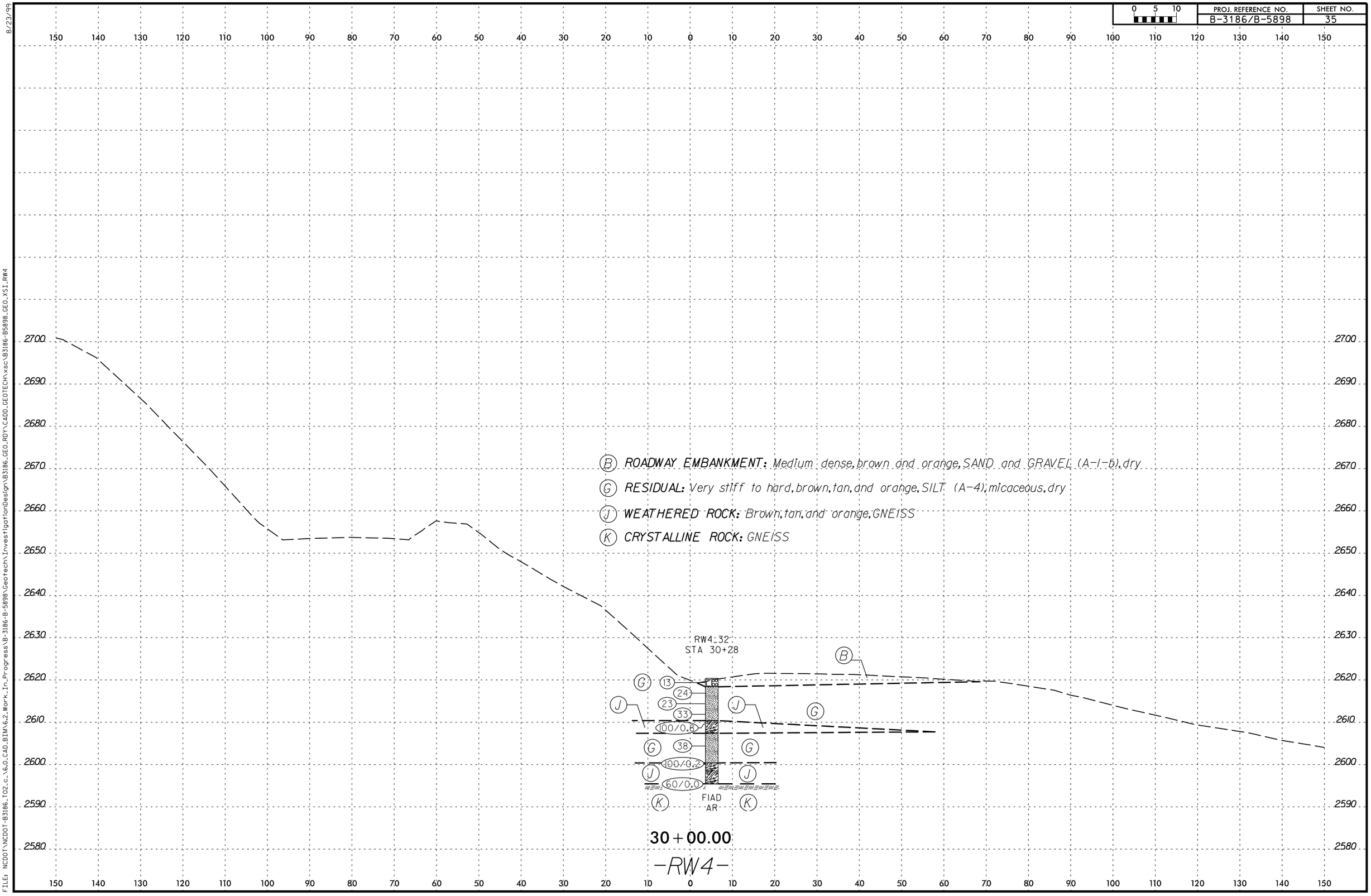
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-3186/B-5898	35



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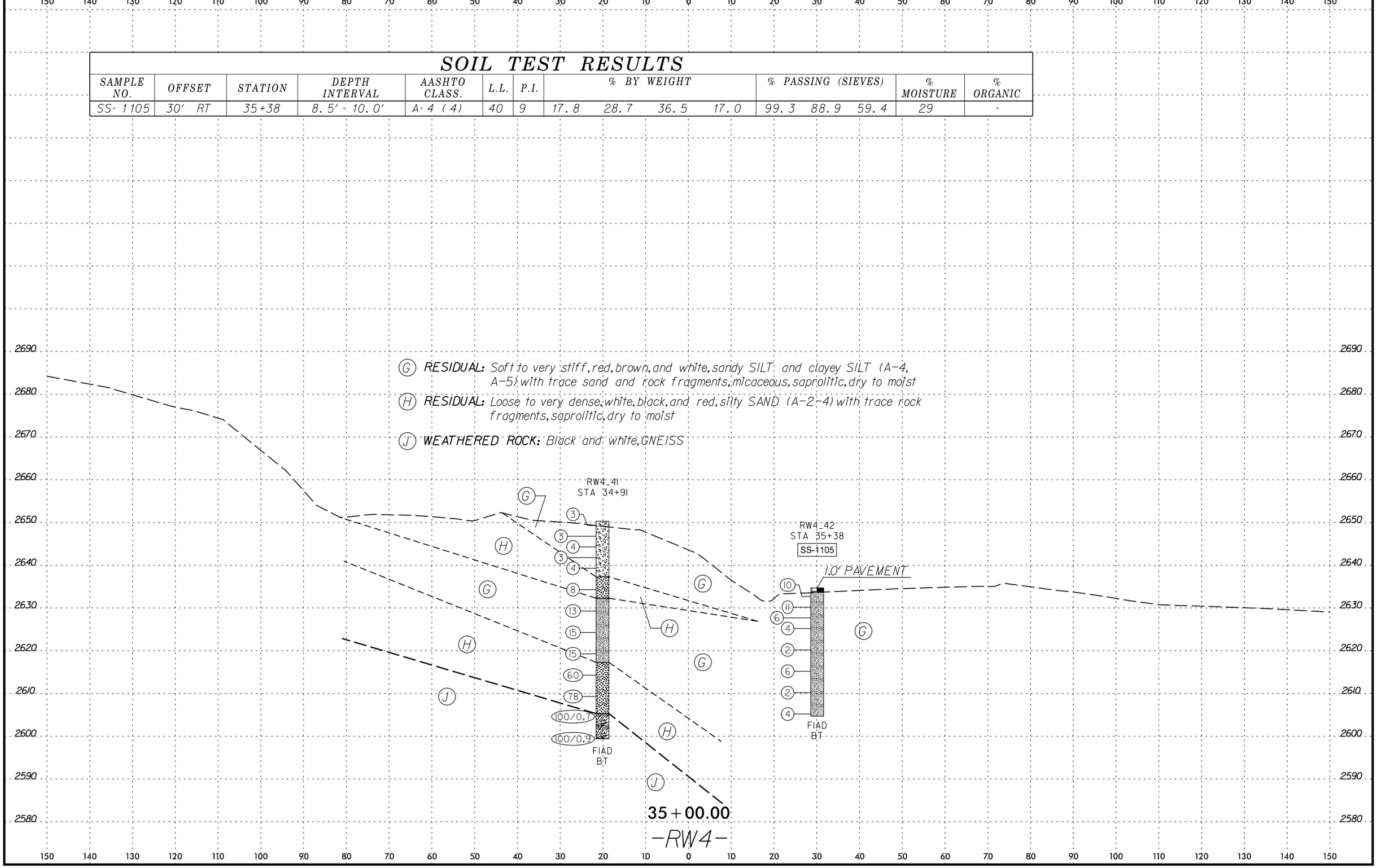
8/23/99

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-1105	30' RT	35+38	8.5' - 10.0'	A-4 (4)	40	9	17.8	28.7	36.5	17.0	99.3	88.9	59.4	29	-



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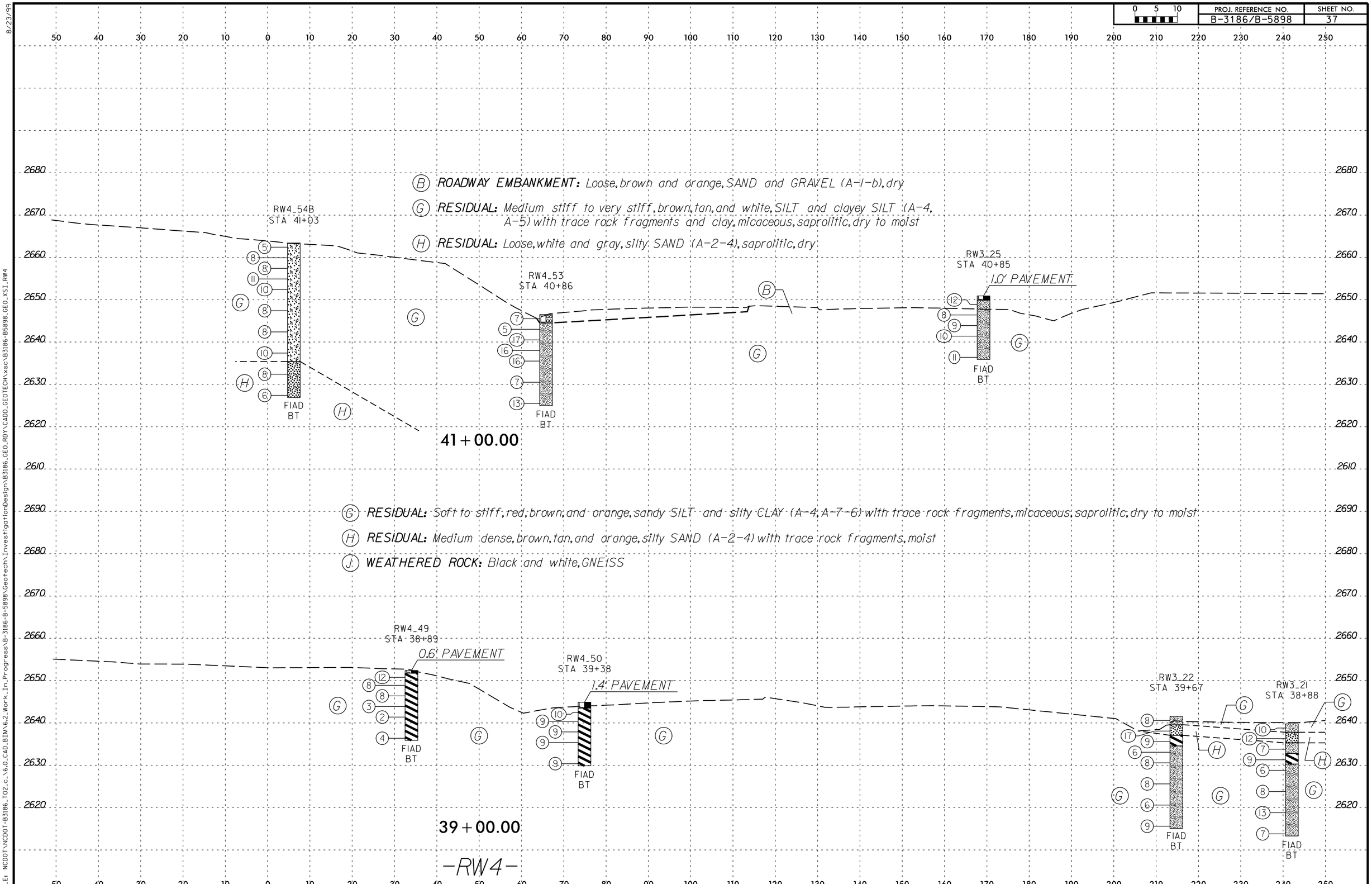
B-3186/B-5898	37



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8/23/99

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_1	**STATION** 14+57	**OFFSET** CL	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,579.4 ft	**TOTAL DEPTH** 20.8 ft	**NORTHING** 666,937	**EASTING** 818,120
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** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2580											
	2,579.4	0.0	4	4	3	7		M		2,579.4 GROUND SURFACE	0.0
	2,576.9	2.5	2	2	2	4	SS-503	27%		**RESIDUAL** 2,577.4 Medium stiff, brown and orange, silty CLAY (A-7-6), contains trace rock fragments, micaceous	2.0
2575	2,574.4	5.0	3	4	3	7		M		2,574.9 Soft to medium stiff, brown and orange, SILT (A-4), micaceous	4.5
	2,571.9	7.5	5	4	4	8		D		2,572.4 Medium stiff, brown and orange, CLAY (A-7-6), micaceous	7.0
2570	2,569.4	10.0	4	11	17	28		D		Medium dense, brown, silty SAND (A-2-4), contains trace rock fragments	
2565	2,564.4	15.0	21	13	12	25		M		2,566.4 Very stiff, brown and orange, SILT (A-4), contains little rock fragments	13.0
2560	2,559.4	20.0	25	75/0.3		100/0.8				2,559.4	20.0
										2,558.6 **WEATHERED ROCK** Brown and orange, GNEISS	20.8
										Boring Terminated at Elevation 2,558.6 ft in Weathered Rock (GNEISS)	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_2	**STATION** 14+97	**OFFSET** 1 ft RT	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,580.8 ft	**TOTAL DEPTH** 13.0 ft	**NORTHING** 666,928	**EASTING** 818,159
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** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,580.8	0.0	3	3	4	7		M		2,580.8 GROUND SURFACE 0.0
2580	2,578.3	2.5	18	40	46	86		D		**RESIDUAL** 2,578.8 Medium stiff, brown and orange, silty CLAY (A-7-6), contains trace rock fragments 2.0
	2,575.8	5.0	60	38	26	64		D		2,576.3 Hard, brown with tan, SILT (A-4), with trace sand 4.5
2575	2,573.3	7.5	7	21	75	96		D		Very dense, brown and tan, silty SAND (A-2-4), contains trace rock fragments
	2,570.8	10.0	11	68	32/0.1	100/0.6				2,570.3 10.5
2570	2,567.8	13.0	60/0.0			60/0.0				**WEATHERED ROCK** 2,567.8 Brown and tan, GNEISS 13.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,567.8 ft on Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_3	**STATION** 15+53	**OFFSET** 17 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,580.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 666,902	**EASTING** 818,212 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/25/21	**COMP. DATE** 02/25/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585											
2580	2,579.4	0.8	7	7	5	12		M		2,580.2 GROUND SURFACE	0.0
	2,576.7	3.5	4	4	5	9		M		2,579.4 0.8' PAVEMENT	0.8
2575	2,574.5	5.7	5	4	4	8		M		**RESIDUAL** Medium dense, brown and tan, SAND (A-2-4)	
	2,571.7	8.5	3	3	3	6		M		2,577.2 Medium stiff to stiff, brown and tan, sandy SILT (A-4), micaceous, saprolitic	3.0
2570											
	2,566.7	13.5	2	1	3	4		M			
2565											
	2,561.7	18.5	1	2	3	5		M		2,560.2 Boring Terminated at Elevation 2,560.2 ft in SILT	20.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_4	**STATION** 15+97	**OFFSET** 15 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,581.7 ft	**TOTAL DEPTH** 24.9 ft	**NORTHING** 666,897	**EASTING** 818,255 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2585										2,581.7 GROUND SURFACE	0.0
2580	2,580.7	1.0	3	6	6	12	SS-2065	16%		2,580.7 1.0' PAVEMENT	1.0
	2,578.3	3.4	8	7	9	16		M		**RESIDUAL** Stiff to hard, brown, tan and orange, sandy SILT (A-4), contains trace rock fragments, micaceous, saprolitic	
2575	2,575.8	5.9	4	13	29	42		M			
	2,573.3	8.4	10	19	32	51		M			
2570											
	2,568.3	13.4	4	8	12	20		M			
2565											
	2,563.3	18.4	3	3	3	6		M			
2560											
	2,558.3	23.4	2	3	3	6		M		2,556.8 Boring Terminated at Elevation 2,556.8 ft in SILT	24.9

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_5	**STATION** 16+43	**OFFSET** 15 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,582.2 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 666,894	**EASTING** 818,304 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2585											
										2,582.2 GROUND SURFACE	0.0
	2,581.4	0.8								2,581.4 0.8" PAVEMENT	0.8
2580			11	13	8	21		M		**RESIDUAL**	
	2,578.7	3.5								2,579.2 Medium dense, brown and tan, silty SAND (A-2-4), contains trace rock fragments	3.0
			5	9	12	21		M		Very stiff, brown, tan, and white, sandy SILT (A-4)	
	2,576.5	5.7									
2575			5	9	12	21		M			
	2,573.7	8.5								2,574.2	8.0
			3	3	5	8		M		Stiff, brown, white, and black, silty CLAY (A-6), with trace fine sand, saprolitic	
2570										2,570.2	12.0
	2,568.7	13.5								Stiff to hard, tan, orange and white, SILT (A-4), with trace fine sand, saprolitic	
			4	14	23	37		M			
2565											
	2,563.7	18.5									
			2	5	7	12		M			
2560											
	2,558.7	23.5									
			4	8	10	18		M		2,557.2	25.0
										Boring Terminated at Elevation 2,557.2 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_6	**STATION** 16+94	**OFFSET** 9 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,583.5 ft	**TOTAL DEPTH** 30.3 ft	**NORTHING** 666,897	**EASTING** 818,354 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2585											
	2,583.5	0.0								2,583.5 GROUND SURFACE	0.0
			3	3	3	6	SS-487	20%		**RESIDUAL**	
2580	2,581.0	2.5								2,581.5 Medium stiff, brown and orange, silty CLAY (A-6)(3), contains trace rock fragments, micaceous	2.0
			16	21	13	34		Sat.		Dense to medium dense, brown, tan, and white, silty SAND (A-2-4), contains trace rock fragments	
	2,578.5	5.0									
			9	10	11	21		Sat.			
	2,576.0	7.5									
2575			5	5	9	14		M			
	2,573.5	10.0									
			9	9	9	18		M			
2570										2,570.5	13.0
	2,568.5	15.0								Stiff to very stiff, brown, tan, and white, sandy SILT (A-4), with trace clay, micaceous	
			5	5	6	11	SS-492	21%			
2565											
	2,563.5	20.0									
			7	8	10	18		M			
2560										2,560.5	23.0
	2,558.5	25.0								**WEATHERED ROCK** Brown, tan, and white, GNEISS	
			23	67/0.1		100/0.6					
2555											
	2,553.5	30.0								2,553.2	30.3
			100/0.3			100/0.3				Boring Terminated at Elevation 2,553.2 ft in Weathered Rock (GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_7	**STATION** 17+43	**OFFSET** 6 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,584.4 ft	**TOTAL DEPTH** 12.0 ft	**NORTHING** 666,899	**EASTING** 818,403 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2585										
	2,584.4	0.0	3	4	3	7		M		2,584.4 GROUND SURFACE 0.0
	2,581.9	2.5	4	2	3	5	SS-483	29%		**RESIDUAL** Medium stiff, brown and orange, silty CLAY (A-7-6), with trace sand, contains rock fragments, micaceous 2,582.4 2.0
2580	2,579.4	5.0	8	16	20	36		M		Medium stiff to hard, brown and tan, SILT (A-5)(2), with trace sand, micaceous
	2,576.9	7.5	11	55	45/0.5	100/1.0				2,576.4 8.0
2575	2,574.4	10.0	3	97/0.5		100/1.0				**WEATHERED ROCK** Brown and tan, GNEISS
	2,572.4	12.0	60/0.0			60/0.0				2,572.4 12.0

Boring Terminated with Standard Penetration Test Refusal at Elevation 2,572.4 ft on Crystalline Rock (GNEISS)

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_8	**STATION** 17+92	**OFFSET** 9 ft RT	**ALIGNMENT** -RW4- / **0 HR.** 5.0
COLLAR ELEV. 2,584.8 ft	**TOTAL DEPTH** 7.5 ft	**NORTHING** 666,896	**EASTING** 818,453 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,584.8	0.0	2	3	4	7		M		2,584.8 GROUND SURFACE 0.0
	2,582.3	2.5	2	3	4	7	SS-480	31%		**RESIDUAL** Medium stiff, brown, orange, and tan, CLAY (A-7-5)(3), contains trace rock fragments, micaceous
2580	2,579.8	5.0	2	2	4	6		W		
	2,577.3	7.5	60/0.0			60/0.0				2,577.3 7.5

Boring Terminated with Standard Penetration Test Refusal at Elevation 2,577.3 ft on Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_9	**STATION** 18+41	**OFFSET** 8 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,585.5 ft	**TOTAL DEPTH** 5.5 ft	**NORTHING** 666,899	**EASTING** 818,502 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2590											
	2,585.5	0.0	3	4	4	8		M		2,585.5 GROUND SURFACE	0.0
2585										**RESIDUAL**	
	2,583.0	2.5	100/0.4			100/0.4				2,583.0 Stiff, brown and orange, silty CLAY (A-7-6), contains trace rock fragments, micaceous	2.5
										WEATHERED ROCK	
2580	2,580.5	5.0								2,580.0 Brown and orange, GNEISS	5.5
	2,580.0	5.5	60	40/0.0		100/0.5				Boring Terminated with Standard Penetration Test Refusal at Elevation 2,580.0 ft on Crystalline Rock (GNEISS)	
			60/0.0			60/0.0					

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_10	**STATION** 20+04	**OFFSET** 2 ft RT	**ALIGNMENT** -RW5- / **0 HR.** Dry
COLLAR ELEV. 2,584.9 ft	**TOTAL DEPTH** 25.6 ft	**NORTHING** 666,815	**EASTING** 818,651 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wansrath	**START DATE** 03/16/21	**COMP. DATE** 03/16/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2585										2,584.9 GROUND SURFACE	0.0
	2,584.9	0.0	3	1	1	2		D		**ROADWAY EMBANKMENT**	
	2,582.4	2.5	4	5	7	12		D		2,582.9 Very loose, brown, silty SAND (A-2-4)	2.0
2580	2,579.9	5.0	8	8	8	16		D		**RESIDUAL** Stiff to very stiff, brown, black and red, SILT (A-4), with trace f-c sand, micaceous, saprolitic	
	2,577.4	7.5	8	9	12	21		D			
2575	2,574.9	10.0	11	8	12	20		D			
2570	2,569.9	15.0	71	39/0.1		100/0.6				2,569.9 **WEATHERED ROCK** Light tan and white, GRANITE and quartz fragments	15.0
2565	2,564.9	20.0	100/0.5			100/0.5				2,566.9 Dark brown, black, and red, GNEISS	18.0
2560	2,559.9	25.0	69	31/0.1		100/0.6				2,559.3 Boring Terminated at Elevation 2,559.3 ft in Weathered Rock (GNEISS)	25.6

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54				**GROUND WTR (ft)**
BORING NO. RW4_11	**STATION** 19+38	**OFFSET** 19 ft RT	**ALIGNMENT** -RW4-	**0 HR.** Dry
COLLAR ELEV. 2,585.7 ft	**TOTAL DEPTH** 3.5 ft	**NORTHING** 666,894	**EASTING** 818,600	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2590											
2585	2,585.7	0.0	3	10	9	19		M		2,585.7 GROUND SURFACE	0.0
	2,583.2	2.5								2,583.2 **RESIDUAL** Very stiff, brown and orange, SILT (A-4), contains trace rock fragments, micaceous	2.5
	2,582.2	3.5	75	25/0.1		100/0.6				2,582.2 **WEATHERED ROCK** Gray and brown, GNEISS	3.5
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 2,582.2 ft on Crystalline Rock (GNEISS)	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54				**GROUND WTR (ft)**
BORING NO. RW4_12	**STATION** 19+87	**OFFSET** 15 ft RT	**ALIGNMENT** -RW4-	**0 HR.** Dry
COLLAR ELEV. 2,586.9 ft	**TOTAL DEPTH** 7.5 ft	**NORTHING** 666,903	**EASTING** 818,649	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2590											
	2,586.9	0.0								2,586.9 GROUND SURFACE	0.0
2585			4	3	10	13		M		**RESIDUAL** Stiff, brown and orange, SILT (A-4), contains trace rock fragments, micaceous	
	2,584.4	2.5								2,583.9	3.0
			20	49	51/0.2	100/0.7				2,582.4 **WEATHERED ROCK** Brown and orange, GNEISS	4.5
	2,581.9	5.0									
2580			49	10	5	15		M		2,579.4 **RESIDUAL** Stiff, brown and orange, SILT (A-4), contains trace rock fragments, micaceous	7.5
	2,579.4	7.5	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 2,579.4 ft on Crystalline Rock (GNEISS)	

NOTES
Split spoon at 5.0' resulted in no recovery; material description was inferred

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_13	**STATION** 20+37	**OFFSET** 10 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,588.3 ft	**TOTAL DEPTH** 23.5 ft	**NORTHING** 666,914	**EASTING** 818,698 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2590											
	2,588.3	0.0	5	5	5	10		D		2,588.3 GROUND SURFACE	0.0
2585	2,585.8	2.5	8	6	9	15	SS-462	11%		**ROADWAY EMBANKMENT** 2,586.3 Loose, brown, SAND and GRAVEL (A-1-b)	2.0
	2,583.3	5.0	8	9	14	23		D		**RESIDUAL** Medium dense, brown and tan, silty SAND (A-2-4), contains trace quartz fragments, micaceous	
2580	2,580.8	7.5	4	11	15	26		D			
	2,578.3	10.0	11	27	42	69		D		2,578.8 Hard, brown and tan, SILT (A-4), with trace sand	9.5
2575	2,573.3	15.0	100/0.3			100/0.3				2,573.3 **WEATHERED ROCK** Brown and tan, GNEISS	15.0
2570	2,568.3	20.0	100/0.3			100/0.3					
2565	2,564.8	23.5	60/0.0			60/0.0				2,564.8 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,564.8 ft on Crystalline Rock (GNEISS)	23.5

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_14	**STATION** 20+86	**OFFSET** 11 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,589.7 ft	**TOTAL DEPTH** 27.3 ft	**NORTHING** 666,921	**EASTING** 818,747 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2590										
	2,589.7	0.0	5	6	5	11		M		2,589.7 GROUND SURFACE 0.0
	2,587.2	2.5	6	6	8	14		D		**ROADWAY EMBANKMENT** 2,587.7 Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
2585	2,584.7	5.0	12	10	12	22		D		**RESIDUAL** Stiff to hard, brown, tan, and white, SILT (A-4), with trace sand, micaceous
	2,582.2	7.5	9	17	23	40		D		
2580	2,579.7	10.0	17	17	23	40		D		
2575	2,574.7	15.0	71	29/0.1		100/0.6				2,574.7 **WEATHERED ROCK** Brown, tan, and white, GNEISS 15.0
2570	2,569.7	20.0	6	14	22	36		M		2,571.7 **RESIDUAL** Dense, brown, tan, and white, silty SAND (A-2-4) 18.0
2565	2,564.7	25.0	87	13/0.1		100/0.6				2,564.7 **WEATHERED ROCK** Brown, tan, and white, GNEISS 25.0
	2,562.4	27.3	60/0.0			60/0.0				2,562.4 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,562.4 ft on Crystalline Rock (GNEISS) 27.3

NOTES
Split spoon at 0.0' resulted in no recovery. Material was interpreted from nearby borings.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_15	**STATION** 21+35	**OFFSET** 12 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,590.7 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 666,929	**EASTING** 818,795 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2595											
2590	2,590.7	0.0	3	4	6	10, 13		M		2,590.7 GROUND SURFACE	0.0
	2,588.2	2.5	5	6	7	22		D		**ROADWAY EMBANKMENT** Loose, brown and orange, SAND and GRAVEL (A-1-b) 2,588.7	2.0
2585	2,585.7	5.0	8	9	13			D		**RESIDUAL** Stiff to very stiff, brown and tan, SILT (A-4)	
	2,583.2	7.5	26	29	21	50		D		2,583.7 Dense, brown and tan, silty SAND (A-2-4)	7.0
2580	2,580.7	10.0	24	76/0.3		100/0.8				2,580.7 **WEATHERED ROCK** Brown and tan, GNEISS	10.0
2575	2,575.7	15.0	100/0.4			100/0.4					
2570	2,570.7	20.0	19	19	35	54		D		2,572.7 **RESIDUAL** Very dense, brown and tan, silty SAND (A-2-4), contains trace rock fragments	18.0
										2,569.2 Boring Terminated at Elevation 2,569.2 ft in SAND	21.5

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_16	**STATION** 21+83	**OFFSET** 23 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,593.0 ft	**TOTAL DEPTH** 15.3 ft	**NORTHING** 666,927	**EASTING** 818,846 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2595										
										2,593.0 GROUND SURFACE 0.0
	2,592.1	0.9	7	16	11	27		M		2,592.1 0.9' PAVEMENT 0.9
2590	2,589.2	3.8	7	7	7	14		M		**RESIDUAL** Medium dense, brown and tan, SAND (A-2-4), contains trace rock fragments
	2,587.2	5.8	3	4	5	9		M		2,587.5 5.5 Stiff to very stiff, brown, tan, and white, sandy SILT (A-4), micaceous, saprolitic
2585	2,584.2	8.8	5	9	14	23	SS-2056	19%		
2580	2,579.2	13.8	3	6	9	15		M		2,577.7 15.3 Boring Terminated at Elevation 2,577.7 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_17	**STATION** 22+32	**OFFSET** 21 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,594.8 ft	**TOTAL DEPTH** 15.1 ft	**NORTHING** 666,940	**EASTING** 818,893 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/24/21	**COMP. DATE** 02/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2595										2,594.8 GROUND SURFACE	0.0
	2,593.8	1.0								2,593.8 1.0' PAVEMENT	1.0
			16	13	8	21		M		**RESIDUAL**	
	2,591.2	3.6								2,591.8 Medium dense, brown, silty SAND (A-2-4), contains little rock fragments, micaceous	3.0
2590			4	3	14	17		M			
	2,589.1	5.7								2,589.3 Very stiff, tan and white, SILT (A-4), micaceous	5.5
			10	25	26	51		M			
	2,586.2	8.6								Very dense, white and tan, silty SAND (A-2-4), contains little rock fragments	
2585			7	25	49	74	SS-2051	8%			
										2,582.8	12.0
	2,581.2	13.6								Hard, white and tan, sandy SILT (A-4), contains trace rock fragments	
2580			12	40	54	94	SS-2052	13%		2,579.7	15.1
										Boring Terminated at Elevation 2,579.7 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_18	**STATION** 22+82	**OFFSET** 19 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,596.7 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 666,954	**EASTING** 818,942 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2600										
										2,596.7 GROUND SURFACE 0.0
										2,595.7 1.0' PAVEMENT 1.0
2595	2,595.7	1.0								**RESIDUAL**
			14	27	12	39		M		Stiff to hard, brown and tan, sandy SILT (A-4), micaceous, saprolitic
	2,593.2	3.5								
			5	6	7	13		M		
	2,590.9	5.8								
2590			5	5	5	10		M		
	2,588.2	8.5								
			4	7	6	13		M		
2585										
	2,583.2	13.5								
			4	6	9	15		M		2,581.7 15.0
										Boring Terminated at Elevation 2,581.7 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_19	**STATION** 23+30	**OFFSET** 15 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,598.4 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 666,971	**EASTING** 818,987 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2600										2,598.4 GROUND SURFACE	0.0
	2,597.3	1.1								2,597.3 1.1' PAVEMENT	1.1
			11	10	8	18		M		**RESIDUAL** Very stiff, tan and brown with white, sandy SILT (A-4), contains trace rock fragments, micaceous, saprolitic	
2595	2,594.9	3.5									
			6	7	9	16		M			
	2,592.6	5.8									
			4	7	10	17		M			
2590	2,589.9	8.5									
			7	14	15	29		M			
2585	2,584.9	13.5									
			3	7	9	16		M		2,583.4	15.0
										Boring Terminated at Elevation 2,583.4 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_20	**STATION** 23+78	**OFFSET** 14 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,600.3 ft	**TOTAL DEPTH** 14.4 ft	**NORTHING** 666,986	**EASTING** 819,033 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2605											
										2,600.3 GROUND SURFACE	0.0
2600	2,599.5	0.8								2,599.5 0.8' PAVEMENT	0.8
			15	21	12	33		M		**ROADWAY EMBANKMENT** Dense, brown, GRAVEL (A-1-b)	
	2,596.8	3.5								2,597.3	3.0
			9	6	6	12		M		**RESIDUAL** Stiff to hard, brown, tan and white, SILT (A-4), with trace sand, micaceous	
2595	2,594.5	5.8									
			6	7	10	17		M			
	2,591.8	8.5									
			10	18	23	41		M			
2590											
	2,586.8	13.5								2,586.8	13.5
			18	82/0.4		100/0.9				2,585.9 **WEATHERED ROCK** Brown and tan with white, GNEISS	14.4
										Boring Terminated at Elevation 2,585.9 ft in Weathered Rock (GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_21	**STATION** 24+25	**OFFSET** 11 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,602.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,003	**EASTING** 819,078 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2605											
										2,602.1 GROUND SURFACE	0.0
	2,601.3	0.8								2,601.3 0.8' PAVEMENT	0.8
2600			14	13	8	21		M		**ROADWAY EMBANKMENT** Medium dense, brown, silty SAND (A-2-4), contains trace rock fragments	
	2,598.6	3.5								2,599.1	3.0
			6	5	7	12		M		**RESIDUAL** Stiff to very stiff, tan, white, and brown, SILT (A-4), with trace sand, micaceous, saprolitic	
	2,596.3	5.8									
2595			7	5	5	10		M			
	2,593.6	8.5									
			4	7	9	16		M			
2590										2,590.1	12.0
	2,588.6	13.5								Dense, white with tan, silty SAND (A-2-4), saprolitic	
			6	16	21	37		M		2,587.1	15.0
										Boring Terminated at Elevation 2,587.1 ft in SAND	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_22	**STATION** 24+75	**OFFSET** 11 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,604.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,021	**EASTING** 819,125 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2605										
										2,604.1 GROUND SURFACE 0.0
	2,603.3	0.8								2,603.3 0.8' PAVEMENT 0.8
			3	11	7	18		M		**RESIDUAL** Stiff to very stiff, brown, tan, and white, sandy SILT (A-4), micaceous
2600	2,600.6	3.5								
			4	5	7	12		M		
	2,598.4	5.7								
			5	5	6	11		M		
2595	2,595.6	8.5								
			5	5	10	15		M		
										2,593.1 11.0
										Medium dense, white, SAND (A-2-4)
2590	2,590.6	13.5								
			8	9	5	14		M		2,589.1 15.0
										Boring Terminated at Elevation 2,589.1 ft in CLAY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_23	**STATION** 25+27	**OFFSET** 10 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,606.2 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,040	**EASTING** 819,173 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2610											
										2,606.2 GROUND SURFACE	0.0
2605	2,605.4	0.8								2,605.4 0.8' PAVEMENT	0.8
			5	10	7	17	SS-2018	13%		**RESIDUAL**	
	2,602.7	3.5								2,603.2 Very stiff, orange and tan, CLAY (A-6)(8), micaceous	3.0
			5	4	6	10	SS-2019	12%			
2600	2,600.4	5.8								Stiff, tan, orange, and white, sandy SILT (A-5)(2), micaceous, saprolitic	
			6	6	6	12		M		2,599.2	7.0
	2,597.7	8.5								Stiff, white and tan, sandy CLAY (A-7-5)(1), micaceous, saprolitic	
			5	5	6	11	SS-2021	24%			
2595											
	2,592.7	13.5									
			3	5	7	12		M		2,591.2	15.0
										Boring Terminated at Elevation 2,591.2 ft in CLAY	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_24	**STATION** 25+71	**OFFSET** 10 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,607.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,056	**EASTING** 819,214 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2610										
										2,607.8 GROUND SURFACE 0.0
	2,607.0	0.8								2,607.0 0.8' PAVEMENT 0.8
			3	6	7	13		M		**RESIDUAL**
2605										Stiff, orange and brown, SILT (A-4), micaceous
	2,604.3	3.5								
			5	5	5	10		M		2,602.3 5.5
	2,602.0	5.8								Medium dense, tan, orange, and white, silty SAND (A-2-4), micaceous, saprolitic
			4	6	5	11		M		
2600	2,599.3	8.5								
			5	7	7	14		M		
										2,595.8 12.0
2595										Stiff, brown and orange, SILT (A-4), micaceous
	2,594.3	13.5								
			3	4	6	10		M		2,592.8 15.0
										Boring Terminated at Elevation 2,592.8 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_25	**STATION** 26+33	**OFFSET** 10 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,610.0 ft	**TOTAL DEPTH** 20.1 ft	**NORTHING** 667,080	**EASTING** 819,272 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2610										2,610.0 GROUND SURFACE	0.0
	2,609.3	0.7								2,609.3 0.7' PAVEMENT	0.7
			5	5	5	10		M		**RESIDUAL** Medium stiff to stiff, orange, silty CLAY (A-6), micaceous	
	2,606.4	3.6									
2605			10	5	8	13		M			
	2,604.3	5.7									
			4	4	3	7		M			
	2,601.4	8.6									
2600			4	6	5	11		M			
										2,598.0	12.0
	2,596.4	13.6								Medium stiff to stiff, light brown, tan, and white, SILT (A-4), micaceous	
2595			2	4	9	13		M			
	2,591.4	18.6									
2590			3	4	2	6		M		2,589.9	20.1
										Boring Terminated at Elevation 2,589.9 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_26	**STATION** 26+93	**OFFSET** 12 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,612.1 ft	**TOTAL DEPTH** 21.8 ft	**NORTHING** 667,101	**EASTING** 819,327 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2615										2,612.1 GROUND SURFACE 0.0
	2,611.2	0.9								2,611.2 0.9' PAVEMENT 0.9
2610			7	21	24	45		M		**RESIDUAL** Stiff to very stiff, orange, white, and black, CLAY (A-7-6), with trace sand, micaceous, saprolitic
	2,608.5	3.6								
			6	5	12	17		M		
	2,605.8	6.3								
2605			2	3	5	8		M		2,604.1 8.0
	2,603.5	8.6								Stiff, orange, white, and black, SILT (A-4), micaceous, saprolitic
			2	3	5	8		M		
2600										
	2,598.5	13.6								
			3	5	5	10		M		
2595										2,595.1 17.0
	2,593.5	18.6								Very dense, tan, orange and white, silty SAND (A-2-4), contains trace rock fragments, micaceous, saprolitic
			6	28	34	62		M		
	2,590.7	21.4								2,590.7 21.4
			100/0.4			100/0.4				2,590.3 21.8 **WEATHERED ROCK** Tan and white, GNEISS
										Boring Terminated at Elevation 2,590.3 ft in Weathered Rock (GNEISS)

NOTES
Due to drilling error, split spoon at 0.9' was advanced 1.1'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_27	**STATION** 27+49	**OFFSET** 0 ft LT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,612.5 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 667,134	**EASTING** 819,375 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2615											
	2,612.5	0.0								2,612.5 GROUND SURFACE	0.0
			2	4	5	9		M		**RESIDUAL** Stiff, brown and orange, SILT (A-4), micaceous	
2610	2,610.0	2.5									
			4	4	5	9		M			
	2,607.5	5.0								2,608.0	4.5
			3	3	4	7		M		Medium stiff, brown and orange, clayey SILT (A-5), contains little rock fragments, micaceous	
2605	2,605.0	7.5									
			1	3	2	5		M			
	2,602.5	10.0								2,603.0	9.5
			2	1	2	3		M		Soft to medium stiff, brown and orange, silty CLAY (A-7-6), contains little rock fragments, micaceous	
2600										2,599.5	13.0
	2,597.5	15.0								Stiff, brown and orange, clayey SILT (A-5), micaceous	
			3	4	7	11		M			
2595										2,594.5	18.0
	2,592.5	20.0								Medium stiff, brown and tan, SILT (A-4), micaceous	
			3	2	4	6		M		2,591.0	21.5
										Boring Terminated at Elevation 2,591.0 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_28	**STATION** 27+90	**OFFSET** 2 ft LT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,613.6 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 667,151	**EASTING** 819,412 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2615										
	2,613.6	0.0								2,613.6 GROUND SURFACE 0.0
			5	4	5	9		D		**ROADWAY EMBANKMENT**
	2,611.1	2.5								2,611.6 Loose, brown and orange, SAND and GRAVEL (A-1-b) 2.0
2610			4	5	5	10		M		**RESIDUAL**
	2,608.6	5.0								Stiff, brown and orange, SILT (A-4), micaceous
			6	6	5	11		M		
	2,606.1	7.5								2,606.6 7.0
2605			1	2	3	5	SS-436	27%		Medium stiff, brown and gray, silty CLAY (A-7-5)(8)), with wood fragments
	2,603.6	10.0								
			2	2	3	5		M		
2600										2,600.3 13.3
	2,598.6	15.0								Medium stiff, brown and orange, sandy CLAY (A-7-6(6)), micaceous
			2	2	4	6		M		
2595										
	2,593.6	20.0								
			2	2	3	5	SS-439	24%		2,592.1 21.5
										Boring Terminated at Elevation 2,592.1 ft in CLAY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_29	**STATION** 28+63	**OFFSET** 0 ft LT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,616.0 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 667,178	**EASTING** 819,480 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2620										
	2,616.0	0.0								2,616.0 GROUND SURFACE 0.0
2615			7	6	5	11 11		D		**ROADWAY EMBANKMENT**
	2,613.5	2.5								2,614.0 Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
			6	4	7			M		**RESIDUAL**
	2,611.0	5.0								Medium stiff to stiff, brown, tan, and orange, SILT (A-4), micaceous
2610			7	3	3	6		M		2,609.0 7.0
	2,608.5	7.5								Soft to medium stiff, brown and orange, sandy CLAY (A-6)(3), micaceous
			1	1	2	5 3		M		
	2,606.0	10.0								
2605			1	1	2	3		M		
	2,601.0	15.0								
2600			2	3	2	5	SS-431	18%		
										2,598.0 18.0
										Stiff, brown, tan, and orange, SILT (A-4), with trace clay, micaceous
	2,596.0	20.0								
2595			4	4	7	11		M		2,594.5 21.5
										Boring Terminated at Elevation 2,594.5 ft in SILT

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_30	**STATION** 29+19	**OFFSET** 2 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,617.7 ft	**TOTAL DEPTH** 25.9 ft	**NORTHING** 667,197	**EASTING** 819,533 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2620										
	2,617.7	0.0								2,617.7 GROUND SURFACE 0.0
			9	7	5	12		D		**ROADWAY EMBANKMENT**
2615	2,615.2	2.5								2,615.7 Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
			5	5	4	9		D		**RESIDUAL**
	2,612.7	5.0								2,613.2 Stiff, brown, orange, and tan, SILT (A-4), micaceous 4.5
			10	6	5	11		D		
2610	2,610.2	7.5								2,610.7 Medium dense, brown, orange, and tan, silty SAND (A-2-4), contains trace rock fragments, micaceous 7.0
			1	2	2	4		M		
	2,607.7	10.0								2,608.2 Soft, brown and orange, sandy CLAY (A-6), contains little rock fragments, micaceous 9.5
			2	1	2	3	SS-422	17%		
2605										2,604.7 Very loose to medium dense, brown and orange, silty SAND (A-2-4), micaceous 13.0
	2,602.7	15.0								
			5	7	8	15		D		Very stiff, brown, tan and orange, SILT (A-4), contains little rock fragments micaceous, saprolitic
2600										
	2,597.7	20.0								
			8	12	16	28		D		
2595										
	2,592.7	25.0								2,592.7 25.0
			14	86/0.4		100/0.9				2,591.8 25.9 **WEATHERED ROCK** Brown, tan, and orange, GNEISS
										Boring Terminated at Elevation 2,591.8 ft in Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_31	**STATION** 29+74	**OFFSET** 4 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,619.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 667,217	**EASTING** 819,584 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2620	2,619.2	0.0	10	8	6	14		D		2,619.2 GROUND SURFACE	0.0
	2,616.7	2.5	7	5	6	11		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2,617.2	2.0
2615	2,614.2	5.0	6	6	6	12		D		**RESIDUAL** Medium stiff to hard, brown, tan, and white, SILT (A-4), with trace clay, micaceous, saprolitic	
	2,611.7	7.5	3	4	3	7		D			
2610	2,609.2	10.0	14	17	17	34		D			
2605	2,604.2	15.0	13	28	22	50		D			
2600	2,599.2	20.0	81	19/0.1		100/0.6				2,599.2 **WEATHERED ROCK** Brown, tan, and white, GNEISS	20.0
2595	2,594.2	25.0	100/0.2			100/0.2					
2590	2,589.2	30.0	60/0.0			60/0.0				2,589.2 Boring Terminated at Elevation 2,589.2 ft on Crystalline Rock (GNEISS)	30.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_32	**STATION** 30+28	**OFFSET** 5 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,620.4 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 667,236	**EASTING** 819,635 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2625										
2620	2,620.4	0.0	10	6	7	13		D		2,620.4 GROUND SURFACE 0.0
	2,617.9	2.5	10	12	12	24		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2,618.4 2.0
2615	2,615.4	5.0	11	11	12	23		D		**RESIDUAL** Very stiff to hard, brown, tan, and orange, SILT (A-4), micaceous
	2,612.9	7.5	10	11	22	33		D		
2610	2,610.4	10.0	46	54/0.3		100/0.8				2,610.4 10.0 **WEATHERED ROCK** Brown, tan, and orange, GNEISS
										2,607.4 13.0 **RESIDUAL** Hard, brown, tan, and orange, SILT (A-4), micaceous
2605	2,605.4	15.0	22	17	21	38		D		
2600	2,600.4	20.0	100/0.2			100/0.2				2,600.4 20.0 **WEATHERED ROCK** Brown, tan, and orange, GNEISS
	2,595.4	25.0	60/0.0			60/0.0				2,595.4 25.0 Boring Terminated at Elevation 2,595.4 ft on Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_33	**STATION** 30+82	**OFFSET** 9 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,622.1 ft	**TOTAL DEPTH** 17.0 ft	**NORTHING** 667,254	**EASTING** 819,686 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2625											
	2,622.1	0.0								2,622.1 GROUND SURFACE	0.0
			9	9	6	15		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	
2620	2,619.6	2.5								2,620.1	2.0
			10	12	12	24		D		**RESIDUAL** Very stiff, brown and tan, SILT (A-4), micaceous	
	2,617.1	5.0	100/0.2			100/0.2				2,617.1	5.0
2615	2,614.6	7.5								**WEATHERED ROCK** Brown and tan, GNEISS	
			10	18	20	38		D		2,615.1	7.0
	2,612.1	10.0								**RESIDUAL** Hard, brown, tan, and orange, SILT (A-4), with trace sand, micaceous	
2610			33	90	10/0.1	100/0.6				2,611.6	10.5
										WEATHERED ROCK Brown, tan, and orange, GNEISS	
	2,607.1	15.0	100/0.2			100/0.2					
	2,605.1	17.0	60/0.0			60/0.0				2,605.1	17.0
										Boring Terminated at Elevation 2,605.1 ft on Crystalline Rock (GNEISS)	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_34	**STATION** 31+34	**OFFSET** 11 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,623.9 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 667,271	**EASTING** 819,734 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/23/21	**COMP. DATE** 02/23/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2625											
	2,623.9	0.0								2,623.9 GROUND SURFACE	0.0
			8	8	5	13		D		**ROADWAY EMBANKMENT**	
	2,621.4	2.5								2,621.9 Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	2.0
2620			5	6	9	15		D		**RESIDUAL**	
	2,618.9	5.0								2,618.9 Stiff, brown and tan, SILT (A-4), micaceous	5.0
			40	60/0.4		100/0.9				**WEATHERED ROCK** Brown and tan, GNEISS	
	2,616.4	7.5	100/0.2			100/0.2					
2615											
	2,613.9	10.0	100/0.3			100/0.3				2,613.6	10.3
										Boring Terminated at Elevation 2,613.6 ft in Weathered Rock (GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_35	**STATION** 31+87	**OFFSET** 11 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,624.8 ft	**TOTAL DEPTH** 25.8 ft	**NORTHING** 667,292	**EASTING** 819,783 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/22/21	**COMP. DATE** 02/22/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2625	2,624.8	0.0	5	7	5	12		D		2,624.8 GROUND SURFACE	0.0
	2,622.3	2.5	6	8	10	18		D		**ROADWAY EMBANKMENT** 2,622.8 Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	2.0
2620	2,619.8	5.0	7	8	9	17		D		**RESIDUAL** Very stiff to hard, brown, orange, and tan, SILT (A-4), micaceous	
	2,617.3	7.5	13	22	21	43		D			
2615	2,614.8	10.0	14	26	27	53		D			
2610	2,609.8	15.0	55	45/0.3		100/0.8				2,609.8 **WEATHERED ROCK** Brown and tan, GNEISS	15.0
										2,606.8 **RESIDUAL** Hard, brown and tan, SILT (A-4), with trace sand, micaceous	18.0
2605	2,604.8	20.0	26	44	34	78		D			
2600	2,599.8	25.0	25	75/0.3		100/0.8				2,599.8	25.0
										2,599.0 **WEATHERED ROCK** Brown and tan, GNEISS	25.8
										Boring Terminated at Elevation 2,599.0 ft in Weathered Rock (GNEISS)	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_36	**STATION** 32+38	**OFFSET** 7 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,627.4 ft	**TOTAL DEPTH** 28.5 ft	**NORTHING** 667,315	**EASTING** 819,829 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/22/21	**COMP. DATE** 02/22/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2630	2,627.4	0.0	7	6	5	11		D		2,627.4 GROUND SURFACE 0.0
2625	2,624.9	2.5	5	4	6	10		D		**ROADWAY EMBANKMENT** 2,625.4 Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
	2,622.4	5.0	6	5	7	12		D		**RESIDUAL** Stiff to hard, brown, orange, and white, SILT (A-4), with trace sand, micaceous
2620	2,619.9	7.5	2	4	6	10		D		
	2,617.4	10.0	5	5	5	10		D		
2615	2,612.4	15.0	10	10	11	21		D		
2610	2,607.4	20.0	12	15	16	31		D		
2605	2,602.4	25.0	14	27	42	69		D		
2600	2,598.9	28.5	60/0.0			60/0.0				2,598.9 28.5
										Boring Terminated at Elevation 2,598.9 ft on Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_37	**STATION** 32+89	**OFFSET** 10 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,627.2 ft	**TOTAL DEPTH** 30.8 ft	**NORTHING** 667,332	**EASTING** 819,878 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/22/21	**COMP. DATE** 02/22/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2630											
	2,627.2	0.0								2,627.2 GROUND SURFACE	0.0
			9	7	6	13		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	
2625	2,624.7	2.5								2,625.2	2.0
			6	9	10	19		D		**RESIDUAL** Very stiff to hard, brown, tan, and white, SILT (A-4), micaceous, saprolitic	
	2,622.2	5.0									
			11	8	12	20		D			
2620	2,619.7	7.5									
			15	24	33	57		D			
	2,617.2	10.0									
			31	27	20	47		D			
2615											
	2,612.2	15.0									
			13	14	11	25		D			
2610											
	2,607.2	20.0									
			7	13	15	28		D			
2605											
	2,602.2	25.0									
			20	75	25/0.1	100/0.6				2,601.7	25.5
2600										**WEATHERED ROCK** Brown, tan, and orange, GNEISS	
	2,597.2	30.0									
			44	66/0.3		100/0.8				2,596.4	30.8
										Boring Terminated at Elevation 2,596.4 ft in Weathered Rock (GNEISS)	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_38	**STATION** 33+40	**OFFSET** 17 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,628.6 ft	**TOTAL DEPTH** 25.1 ft	**NORTHING** 667,344	**EASTING** 819,928 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/22/21	**COMP. DATE** 02/22/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2630											
	2,628.6	0.0								2,628.6 GROUND SURFACE	0.0
			8	7	5	12	SS-362	14%		**ROADWAY EMBANKMENT** Stiff, brown and orange, CLAY (A-6)(3), with trace gravel, micaceous	
	2,626.1	2.5								2,626.6	2.0
2625			9	11	11	22		M		**RESIDUAL** Very stiff to hard, brown, tan, and white, SILT (A-4), with trace sand, contains trace rock fragments, micaceous, saprolitic	
	2,623.6	5.0									
			10	14	17	31		D			
	2,621.1	7.5									
2620			13	21	34	55		D			
	2,618.6	10.0									
			15	26	27	53		D			
2615											
	2,613.6	15.0									
			18	33	40	73		D		2,612.6 Very dense, white and tan, silty SAND (A-2-4), contains trace rock fragments	16.0
2610										2,610.6	18.0
	2,608.6	20.0								Stiff, brown, tan, and orange, SILT (A-4), micaceous, saprolitic	
			5	6	6	12		D			
2605											
	2,603.6	25.0								2,603.6	25.0
			60/0.1			60/0.1				2,603.5 **CRYSTALLINE ROCK** Brown, GNEISS	25.1
										Boring Terminated at Elevation 2,603.5 ft in Crystalline Rock (GNEISS)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_39	**STATION** 33+91	**OFFSET** 17 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,629.7 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 667,363	**EASTING** 819,974 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/22/21	**COMP. DATE** 02/22/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2630											
	2,629.7	0.0	8	7	6	13 17		M		2,629.7 GROUND SURFACE	0.0
	2,627.2	2.5	7	8	9			D		**ROADWAY EMBANKMENT** Medium dense, brown, orange and white, SAND and GRAVEL (A-1-b), micaceous	
2625	2,624.7	5.0	4	7	8	15		D		2,627.7	2.0
	2,622.2	7.5	4	4	5	9		D		**RESIDUAL** Stiff, brown, tan and white, SILT (A-4), with trace clay, micaceous	
2620	2,619.7	10.0	4	7	7	14		D			
2615	2,614.7	15.0	2	3	5	8		M			
2610	2,609.7	20.0	43	54	46/0.3	100/0.8				2,609.2 **WEATHERED ROCK** White, black and brown, AMPHIBOLITE	20.5
2605	2,604.7	25.0	60/0.0			60/0.0				2,604.7 Boring Terminated at Elevation 2,604.7 ft on Crystalline Rock (GNEISS)	25.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_41	**STATION** 34+91	**OFFSET** 20 ft LT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,650.3 ft	**TOTAL DEPTH** 50.9 ft	**NORTHING** 667,433	**EASTING** 820,054 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wansrath	**START DATE** 03/15/21	**COMP. DATE** 03/15/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2655										
2650	2,650.3	0.0	1	2	1	3		M		2,650.3 GROUND SURFACE 0.0
	2,647.8	2.5	1	1	2	3		M		**RESIDUAL** Soft, red, brown, white and gray, clayey SILT (A-5)
2645	2,645.3	5.0	2	2	2	4		M		
	2,642.8	7.5	1	1	2	3		M		
2640	2,640.3	10.0	1	2	2	4		M		2,637.3 13.0
2635	2,635.3	15.0	5	4	4	8		D		Loose, white, black and red, silty SAND (A-2-4), contains trace rock fragments
2630	2,630.3	20.0	4	6	7	13		M		2,632.3 18.0 Stiff to very stiff, orange and brown, SILT (A-4), with trace sand, contains trace rock fragments
2625	2,625.3	25.0	4	7	8	15		D		
2620	2,620.3	30.0	5	5	10	15		D		2,617.3 33.0
2615	2,615.3	35.0	17	30	30	60		D		Very dense, white and black, silty SAND (A-2-4), saprolitic
2610	2,610.3	40.0	11	37	41	78		D		
2605	2,605.3	45.0	83	17/0.2		100/0.7				2,605.3 45.0 **WEATHERED ROCK** Black and white, GNEISS
2600	2,600.3	50.0	51	49/0.4		100/0.9				2,599.4 50.9 Boring Terminated at Elevation 2,599.4 ft in Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_42	**STATION** 35+38	**OFFSET** 30 ft RT	**ALIGNMENT** -RW4- / **0 HR.** 18.0
COLLAR ELEV. 2,634.7 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 667,434	**EASTING** 820,108 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/11/21	**COMP. DATE** 02/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2635										2,634.7 GROUND SURFACE	0.0
	2,633.7	1.0								2,633.7 1.0' PAVEMENT	1.0
			3	4	6	10		M		**RESIDUAL** Soft to stiff, red, brown, and orange, sandy SILT (A-4)(4), contains trace rock fragments, micaceous, saprolitic	
	2,631.2	3.5									
2630			3	5	6	11		M			
	2,628.7	6.0									
			2	2	4	6		M			
	2,626.2	8.5									
2625			2	2	2	4	SS-1105	29%			
	2,621.2	13.5									
2620			2	1	1	2		M			
	2,616.2	18.5									
2615			2	2	4	6		W			
	2,611.2	23.5									
2610			1	1	1	2		W			
	2,606.2	28.5									
2605			1	2	2	4		W		2,604.7	30.0
										Boring Terminated at Elevation 2,604.7 ft in CLAY	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_43	**STATION** 35+87	**OFFSET** 31 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,635.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 667,421	**EASTING** 820,162 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/11/21	**COMP. DATE** 02/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2640											
										2,635.8 GROUND SURFACE	0.0
2635										2,634.8 1.0' PAVEMENT	1.0
	2,634.8	1.0								**RESIDUAL**	
			4	5	6	11	SS-1110	10%		2,632.8 Stiff, red and brown, CLAY (A-7-6)(7), contains trace rock fragments	3.0
	2,632.3	3.5									
			3	4	6	10		M		Stiff to medium stiff, red, brown and gray, clayey SILT (A-5), with trace sand, micaceous	
2630											
	2,629.8	6.0									
			2	3	3	6		M			
	2,627.3	8.5									
			2	3	3	6		M		2,625.8	10.0
										Boring Terminated at Elevation 2,625.8 ft in SILT	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_44	**STATION** 36+40	**OFFSET** 30 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,637.3 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 667,440	**EASTING** 820,210 / **24 HR.** Dry
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** 02/11/21	**COMP. DATE** 02/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2640											
										2,637.3 GROUND SURFACE	0.0
	2,636.3	1.0								2,636.3 1.0' PAVEMENT	1.0
2635			4	4	5	9		M		**RESIDUAL** Stiff, brown, red, and gray, clayey SILT (A-5), with trace sand, micaceous	
	2,633.8	3.5									
			3	7	6	13		M			
	2,631.3	6.0								2,631.8	5.5
2630			2	3	2	5		M		Soft to medium stiff, red, brown, and white, silty CLAY (A-6)(8), micaceous, saprolitic	
	2,628.8	8.5									
			2	1	2	3		M			
2625											
	2,623.8	13.5									
			2	2	3	5	SS-1118	28%			
2620											
	2,618.8	18.5									
			1	1	2	3		M		2,617.3	20.0
										Boring Terminated at Elevation 2,617.3 ft in CLAY	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_45	**STATION** 36+86	**OFFSET** 32 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,638.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 667,456	**EASTING** 820,254 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/12/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2640										
										2,638.7 GROUND SURFACE 0.0
	2,637.6	1.1								2,637.6 1.1' PAVEMENT 1.1
			2	3	5	8		M		**RESIDUAL** Soft to medium stiff, red and gray, silty CLAY (A-6)(6), micaceous
2635	2,635.2	3.5								
			4	4	4	8		M		
	2,632.7	6.0								
			2	2	2	4		M		
2630	2,630.2	8.5								
			3	2	3	5	SS-1139	22%		
2625	2,625.2	13.5								
			3	2	2	4		M		
2620	2,620.2	18.5								
			2	1	2	3		W		2,618.7 20.0
										Boring Terminated at Elevation 2,618.7 ft in CLAY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_46	**STATION** 37+39	**OFFSET** 31 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,640.0 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 667,478	**EASTING** 820,303 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2640										2,640.0 GROUND SURFACE	0.0
	2,638.9	1.1								2,638.9 1.1' PAVEMENT	1.1
			1	2	5	7		M		**RESIDUAL** Medium stiff to stiff, red and gray, sandy CLAY (A-6), micaceous	
	2,636.5	3.5									
2635			2	4	5	9		M			
	2,634.0	6.0									
			2	3	4	7		M			
	2,631.5	8.5									
2630			2	4	6	10		M			
	2,626.5	13.5									
2625			2	3	4	7		M			
										2,623.0 Soft, red, CLAY (A-7-6)	17.0
	2,621.5	18.5									
2620			2	1	2	3		M		2,620.0 Boring Terminated at Elevation 2,620.0 ft in CLAY	20.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_47	**STATION** 37+89	**OFFSET** 30 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,641.4 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,499	**EASTING** 820,349 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2645											
										2,641.4 GROUND SURFACE	0.0
2640	2,640.3	1.1								2,640.3 1.1' PAVEMENT	1.1
			2	3	5	8		M		**RESIDUAL** Medium stiff, red and brown, silty CLAY (A-7-6), micaceous	
	2,637.9	3.5									
			3	4	4	8		M			
2635	2,635.4	6.0									
			2	3	3	6		M			
	2,632.9	8.5									
			2	3	3	6		M			
2630											
	2,627.9	13.5									
			2	3	2	5		M		2,626.4 Boring Terminated at Elevation 2,626.4 ft in CLAY	15.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_48	**STATION** 38+39	**OFFSET** 26 ft RT	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,642.6 ft	**TOTAL DEPTH** 16.5 ft	**NORTHING** 667,523	**EASTING** 820,394
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/07/21	**COMP. DATE** 04/07/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2645											
	2,642.2	0.4								2,642.6 GROUND SURFACE	0.0
			30	11	4	15		M		2,642.2 0.4' PAVEMENT	0.4
2640	2,640.1	2.5								2,640.6 **RESIDUAL** Stiff to very stiff, red, CLAY (A-7-6)	2.0
			5	4	4	8		M			
	2,637.6	5.0								2,638.1 Stiff, reddish pink with white, silty CLAY (A-6), micaceous, saprolitic	4.5
			2	2	3	5		M			
2635	2,635.1	7.5								Soft to medium stiff, dark red, CLAY (A-7-6), contains trace rock fragments (Amphibolite)	
			2	2	2	4		M			
	2,632.6	10.0									
			2	1	2	3		M			
2630											
										2,629.6	13.0
	2,627.6	15.0								Soft, dark red, clayey SILT (A-5), with trace mica	
			2	2	2	4		M		2,626.1	16.5

Boring Terminated at Elevation 2,626.1 ft in SILT

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_49	**STATION** 38+89	**OFFSET** 16 ft LT	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,652.4 ft	**TOTAL DEPTH** 16.5 ft	**NORTHING** 667,581	**EASTING** 820,422
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/07/21	**COMP. DATE** 04/07/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2655										
	2,651.8	0.6								2,652.4 GROUND SURFACE 0.0
			25	8	4	12		M		2,651.8 0.6' PAVEMENT 0.6
2650	2,649.9	2.5								**RESIDUAL**
			4	4	4	8		M		Stiff to soft, dark red, white, and orange, CLAY (A-7-6), saprolitic
	2,647.4	5.0								
			2	4	4	8		M		
2645	2,644.9	7.5								
			2	1	2	3		M		
	2,642.4	10.0								
			2	1	1	2		M		
2640										
	2,637.4	15.0								
			1	2	2	4		M		2,635.9 16.5

Boring Terminated at Elevation 2,635.9 ft in CLAY

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_50	**STATION** 39+38	**OFFSET** 25 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,644.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,578	**EASTING** 820,483 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2645										2,644.9 GROUND SURFACE	0.0
	2,643.5	1.4								2,643.5 1.4' PAVEMENT	1.4
	2,641.4	3.5	4	4	6	10		M		**RESIDUAL** Stiff, red and brown, silty CLAY (A-7-6), micaceous	
2640			3	4	5	9		M			
	2,638.9	6.0	3	4	5	9		M			
	2,636.4	8.5	2	4	5	9		M			
2635											
	2,631.4	13.5	3	4	5	9		M		2,629.9	15.0
										Boring Terminated at Elevation 2,629.9 ft in CLAY	
2630											

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_51	**STATION** 39+87	**OFFSET** 15 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,645.3 ft	**TOTAL DEPTH** 16.5 ft	**NORTHING** 667,594	**EASTING** 820,525 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2650										
2645	2,645.3	0.0								2,645.3 GROUND SURFACE 0.0
			3	3	3	6		D		**ROADWAY EMBANKMENT**
	2,642.8	2.5								2,643.3 Loose, brown and orange, SAND and GRAVEL (A-1-b) 2.0
			4	4	5	9		D		**RESIDUAL**
2640	2,640.3	5.0								Stiff, brown, orange, and tan, SILT (A-4), contains trace rock fragments, micaceous, saprolitic
			5	6	7	13		D		
	2,637.8	7.5								
			4	6	8	14		D		
2635	2,635.3	10.0								
			3	6	8	14		D		
2630	2,630.3	15.0								
			3	4	6	10		D		2,628.8 16.5
										Boring Terminated at Elevation 2,628.8 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_52	**STATION** 40+37	**OFFSET** 16 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,645.7 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 667,615	**EASTING** 820,570 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
2645	2,645.7	0.0	4	4	3	7		D		2,645.7 GROUND SURFACE	0.0
	2,643.2	2.5	3	4	4	8		26%		2,643.7 **ROADWAY EMBANKMENT** Loose, brown and orange, SAND and GRAVEL (A-1-b)	2.0
2640	2,640.7	5.0	3	3	4	7		D		**RESIDUAL** Medium stiff to stiff, white, tan and pink, SILT (A-5)(4), contains trace rock fragments	
	2,638.2	7.5	3	4	5	9		D			
2635	2,635.7	10.0	3	4	5	9		D			
2630	2,630.7	15.0	2	1	3	4		M			
2625	2,625.7	20.0	1	2	4	6		M		2,624.2	21.5
										Boring Terminated at Elevation 2,624.2 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_53	**STATION** 40+86	**OFFSET** 16 ft RT	**ALIGNMENT** -RW4- / **0 HR.** Dry
COLLAR ELEV. 2,646.5 ft	**TOTAL DEPTH** 21.5 ft	**NORTHING** 667,637	**EASTING** 820,614 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2650										
2645	2,646.5	0.0	5	2	5	7		D		2,646.5 GROUND SURFACE 0.0
	2,644.0	2.5	2	2	3	5		D		2,644.5 **ROADWAY EMBANKMENT** Loose, brown and orange, SAND and GRAVEL (A-1-b) 2.0
2640	2,641.5	5.0	3	5	12	17		D		**RESIDUAL** Medium stiff to very stiff, brown, tan, pink, and white, SILT (A-4), contains trace rock fragments, micaceous
	2,639.0	7.5	5	8	8	16		D		
2635	2,636.5	10.0	6	6	10	16		D		
2630	2,631.5	15.0	3	3	4	7		M		
2625	2,626.5	20.0	3	6	7	13		M		2,625.0 21.5
										Boring Terminated at Elevation 2,625.0 ft in SILT

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_54A	**STATION** 41+35	**OFFSET** 19 ft RT	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,647.1 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 667,649	**EASTING** 820,663
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** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,647.1	0.0								2,647.1 GROUND SURFACE	0.0
2645	2,644.6	2.5	4	6	6	12		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	
	2,642.1	5.0	4	3	5	8		D		2,645.1	2.0
2640	2,639.6	7.5	5	7	8	15		D		**RESIDUAL** Medium stiff to very stiff, brown, orange, and tan, SILT (A-4)	
	2,637.1	10.0	7	8	8	16		D			
2635			5	5	7	12		D			
2630	2,632.1	15.0	3	4	5	9		D			
2625	2,627.1	20.0	2	2	3	5		M			
2620	2,622.1	25.0	3	4	6	10		M			
2615	2,617.1	30.0	5	6	9	15		M			
	2,612.1	35.0	4	6	9	15		M		2,610.6 Boring Terminated at Elevation 2,610.6 ft in SILT	36.5

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_54B	**STATION** 41+03	**OFFSET** 44 ft LT	**ALIGNMENT** -RW4-
COLLAR ELEV. 2,663.4 ft	**TOTAL DEPTH** 36.5 ft	**NORTHING** 667,698	**EASTING** 820,603
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 03/15/21	**COMP. DATE** 03/15/21	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	FIAD

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2665										
	2,663.4	0.0								2,663.4 GROUND SURFACE 0.0
2660	2,660.9	2.5	2	3	2	5		M		**RESIDUAL** Medium stiff to stiff, orange, red, and white, clayey SILT (A-5), micaceous, saprolitic
	2,658.4	5.0	4	4	4	8		M		
2655	2,655.9	7.5	3	3	5	8		M		
	2,653.4	10.0	4	5	6	11		M		
2650			3	4	6	10		M		
2645	2,648.4	15.0	3	3	5	8		M		
2640	2,643.4	20.0	3	3	5	8		M		
2635	2,638.4	25.0	3	4	6	10		M		2,635.4 Loose, white and gray, silty SAND (A-2-4), saprolitic 28.0
2630	2,633.4	30.0	3	4	4	8		D		
	2,628.4	35.0	3	2	4	6		D		2,626.9 Boring Terminated at Elevation 2,626.9 ft in SAND 36.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_55	**STATION** 41+85	**OFFSET** 16 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,646.9 ft	**TOTAL DEPTH** 26.5 ft	**NORTHING** 667,680	**EASTING** 820,703 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,646.9	0.0								2,646.9 GROUND SURFACE	0.0
2645	2,644.4	2.5	4	6	6	12		D		**ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2,644.9	2.0
	2,641.9	5.0	2	3	4	7		D		**RESIDUAL** Medium stiff to very stiff, white and pink, SILT (A-4)	
2640	2,639.4	7.5	4	5	6	11		D			
	2,636.9	10.0	4	4	6	10		D			
2635			4	4	3	7		D			
	2,631.9	15.0	5	6	7	13		D			
2630	2,626.9	20.0	3	4	6	10		M			
2625	2,621.9	25.0	5	7	10	17		M		2,620.4 Boring Terminated at Elevation 2,620.4 ft in SILT	26.5

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_56	**STATION** 42+35	**OFFSET** 21 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,647.9 ft	**TOTAL DEPTH** 26.5 ft	**NORTHING** 667,698	**EASTING** 820,750 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2650										
	2,647.9	0.0								2,647.9 GROUND SURFACE 0.0
2645	2,645.4	2.5	7	5	5	10		17%		**ROADWAY EMBANKMENT** 2,645.9 Stiff, brown and orange, SILT (A-5)(5), with little sand and gravel 2.0
	2,642.9	5.0	5	3	4	7		D		**RESIDUAL** Medium stiff to very stiff, brown, white, and orange, SILT (A-4), micaceous, saprolitic
2640	2,640.4	7.5	6	9	12	21		D		
	2,637.9	10.0	3	4	6	10		D		
2635			3	5	8	13		D		
	2,632.9	15.0	3	6	7	13		D		
2630	2,627.9	20.0	4	6	10	16		D		
2625	2,622.9	25.0	5	11	12	23		D		2,621.4 Boring Terminated at Elevation 2,621.4 ft in SILT 26.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_57	**STATION** 42+85	**OFFSET** 16 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,647.3 ft	**TOTAL DEPTH** 31.5 ft	**NORTHING** 667,725	**EASTING** 820,793 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,647.3	0.0								2,647.3 GROUND SURFACE	0.0
			6	7	5	12		D		**ROADWAY EMBANKMENT**	
2645	2,644.8	2.5								2,645.3 Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	2.0
			4	6	7	13		D		**RESIDUAL**	
	2,642.3	5.0								Stiff to very stiff, brown, tan, and white, sandy SILT (A-4)(1), micaceous, saprolitic	
			5	8	9	17		D			
2640	2,639.8	7.5									
			7	9	10	19		D			
	2,637.3	10.0									
			7	6	9	15		D			
2635											
	2,632.3	15.0									
			4	5	7	12		12%			
2630											
	2,627.3	20.0									
			3	4	6	10		D			
2625											
										2,624.3 Loose to medium dense, brown, tan, and orange, silty SAND (A-2-5), micaceous, saprolitic	23.0
	2,622.3	25.0									
			2	4	5	9		34%			
2620											
	2,617.3	30.0									
			4	8	11	19		D		2,615.8 Boring Terminated at Elevation 2,615.8 ft in SILTY SAND	31.5

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_58	**STATION** 43+35	**OFFSET** 21 ft RT	**ALIGNMENT** -RW4- — **0 HR.** Dry
COLLAR ELEV. 2,648.4 ft	**TOTAL DEPTH** 31.5 ft	**NORTHING** 667,743	**EASTING** 820,840 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2650											
	2,648.4	0.0								2,648.4 GROUND SURFACE	0.0
			6	6	5	11		D		**ROADWAY EMBANKMENT**	
2645	2,645.9	2.5								2,646.4 Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	2.0
			6	5	7	12		D		**RESIDUAL**	
	2,643.4	5.0								Medium stiff to very stiff, brown, tan, white, and orange, CLAY (A-7-5)(2), micaceous, saprolitic	
			5	8	8	16		D			
2640	2,640.9	7.5									
			5	5	6	11		28%			
	2,638.4	10.0									
			7	9	11	20		D			
2635											
	2,633.4	15.0									
			4	6	7	13		D			
2630											
	2,628.4	20.0									
			5	6	7	13		D			
2625											
	2,623.4	25.0									
			3	3	4	7		D			
2620											
	2,618.4	30.0									
			3	4	6	10		D		2,616.9 Boring Terminated at Elevation 2,616.9 ft in CLAY	31.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 4 from -Y1LT- STA 14+10 to -L_LT- STA 67+54			**GROUND WTR (ft)**
BORING NO. RW4_59	**STATION** 43+85	**OFFSET** 16 ft RT	**ALIGNMENT** -RW4-	**0 HR.** Dry
COLLAR ELEV. 2,648.5 ft	**TOTAL DEPTH** 26.5 ft	**NORTHING** 667,770	**EASTING** 820,882	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/12/21	**COMP. DATE** 02/12/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,648.5	0.0								2,648.5 GROUND SURFACE	0.0
			10	9	9	18		D		**ROADWAY EMBANKMENT**	
	2,646.0	2.5								2,646.5 Medium dense, brown and orange, SAND and GRAVEL (A-1-b)	2.0
2645			5	4	4	8		D		**RESIDUAL**	
	2,643.5	5.0								Medium stiff, brown, orange, and tan, CLAY (A-7-6)(2), micaceous, saprolitic	
			4	3	5	8		22%			
	2,641.0	7.5								2,641.5	7.0
2640			5	6	7	13		D		Medium dense, brown, tan, and white, clayey SAND (A-2-7)(1), micaceous, saprolitic	
	2,638.5	10.0									
			4	5	7	12		D			
2635											
	2,633.5	15.0									
			5	6	6	12		D			
2630											
	2,628.5	20.0									
			3	4	6	10		18%			
2625											
	2,623.5	25.0									
			5	5	7	12		D		2,622.0	26.5
										Boring Terminated at Elevation 2,622.0 ft in CLAYEY SAND	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S3_EB1-A	**STATION** 68+19	**OFFSET** 59 ft LT	**ALIGNMENT** -L- / **0 HR.** 42.0
COLLAR ELEV. 2,646.8 ft	**TOTAL DEPTH** 85.1 ft	**NORTHING** 667,822	**EASTING** 820,989 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/11/21	**COMP. DATE** 04/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,646.8	0.0								2,646.8 GROUND SURFACE	0.0
2645			2	1	2	3		M		**ROADWAY EMBANKMENT** Soft to medium stiff, pink, red and tan, silty CLAY (A-7-6), micaceous	
	2,644.3	2.5									
			1	2	4	6		M			
	2,641.8	5.0									
2640			2	1	1	2		M			
	2,639.3	7.5									
			WOH	1	1	2		W			
	2,636.8	10.0								2,637.3	9.5
2635			3	3	4	7		M		Medium stiff to soft, brown, SILT (A-4), with trace gravel, micaceous	
	2,631.8	15.0									
2630			3	2	1	3		M			
										2,628.8	18.0
	2,626.8	20.0								**RESIDUAL** Medium stiff to hard, brown, white and black, SILT (A-4), with trace sand, micaceous, saprolitic	
2625			3	5	5	10		M			
	2,621.8	25.0									
2620			3	4	5	9		M			
	2,616.8	30.0									
2615			3	3	4	7		M			
	2,611.8	35.0									
2610			6	6	8	14		M			
	2,606.8	40.0									
2605			3	8	10	18		▽			
	2,601.8	45.0									
2600			5	7	8	15		W			
	2,596.8	50.0									
2595			7	10	21	31		W			
	2,591.8	55.0									
2590			14	23	32	55		W			
	2,586.8	60.0								2,586.3	60.5
2585			25	42	58/0.4	100/0.9				**WEATHERED ROCK** Brown, orange, and white, GNEISS	
	2,581.8	65.0									
2580			25	45	55/0.3	100/0.8					
	2,576.8	70.0									
2575			100/0.2			100/0.2					
	2,571.8	75.0									
2570			100/0.4			100/0.4					

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S3_EB1-A	**STATION** 68+19	**OFFSET** 59 ft LT	**ALIGNMENT** -L- / **0 HR.** 42.0
COLLAR ELEV. 2,646.8 ft	**TOTAL DEPTH** 85.1 ft	**NORTHING** 667,822	**EASTING** 820,989 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/11/21	**COMP. DATE** 04/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2570						Match Line				
	2,566.8	80.0								**WEATHERED ROCK** Brown, orange, and white, GNEISS *(continued)*
2565			100/0.2			100/0.2				
	2,561.8	85.0								2,561.8 / 2,561.7 — 85.0 / 85.1
			60/0.1			60/0.1				**CRYSTALLINE ROCK** Brown, orange, and white, GNEISS
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,561.7 ft in Crystalline Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_10	**STATION** 20+04	**OFFSET** 2 ft RT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,584.9 ft	**TOTAL DEPTH** 25.6 ft	**NORTHING** 666,815	**EASTING** 818,651	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wansrath	**START DATE** 03/16/21	**COMP. DATE** 03/16/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585											
	2,584.9	0.0	3	1	1	2		D		2,584.9 GROUND SURFACE	0.0
	2,582.4	2.5	4	5	7	12		D		2,582.9 **ROADWAY EMBANKMENT** Very loose, brown, silty SAND (A-2-4)	2.0
2580	2,579.9	5.0	8	8	8	16		D		**RESIDUAL** Stiff to very stiff, brown, black and red, SILT (A-4), with trace f-c sand, micaceous, saprolitic	
	2,577.4	7.5	8	9	12	21		D			
2575	2,574.9	10.0	11	8	12	20		D			
2570	2,569.9	15.0	71	39/0.1		100/0.6				2,569.9 **WEATHERED ROCK** Light tan and white, GRANITE and quartz fragments	15.0
	2,566.9	18.0								Dark brown, black, and red, GNEISS	
2565	2,564.9	20.0	100/0.5			100/0.5					
2560	2,559.9	25.0	69	31/0.1		100/0.6				2,559.3 Boring Terminated at Elevation 2,559.3 ft in Weathered Rock (GNEISS)	25.6

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_11	**STATION** 20+55	**OFFSET** 2 ft RT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,584.5 ft	**TOTAL DEPTH** 26.6 ft	**NORTHING** 666,816	**EASTING** 818,701	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wansrath	**START DATE** 03/16/21	**COMP. DATE** 03/16/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,584.5	0.0	4	2	4	6		D		2,584.5 GROUND SURFACE 0.0
	2,582.0	2.5	5	3	3	6		D		**RESIDUAL** Medium stiff to stiff, red, brown, and gray, SILT (A-4), with trace f-c sand and clay, micaceous
2580	2,579.5	5.0	3	3	3	6		M		
	2,577.0	7.5	2	2	2	4		D		
2575	2,574.5	10.0	3	3	3	6		D		
2570	2,569.5	15.0	3	4	4	8		D		2,566.5 Very dense, gray and brown, f silty SAND (A-2-4) 18.0
2565	2,564.5	20.0	30	35	43	78		D		
2560	2,559.5	25.0	10	14	25	39		D		2,557.9 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,557.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 26.6'. 26.6
	2,557.9	26.6	60/0.0			60/0.0				

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_12	**STATION** 21+05	**OFFSET** CL	**ALIGNMENT** -RW5-	**0 HR.** 18.0
COLLAR ELEV. 2,583.9 ft	**TOTAL DEPTH** 28.0 ft	**NORTHING** 666,821	**EASTING** 818,751	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wansrath	**START DATE** 03/15/21	**COMP. DATE** 03/16/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2585											
	2,583.9	0.0	4	3	4	7		D		2,583.9 GROUND SURFACE	0.0
	2,581.4	2.5	3	2	4	6		M		**ROADWAY EMBANKMENT** Loose, gray and brown, clayey SAND (A-2-6), with trace gravel	
2580	2,578.9	5.0	6	4	3	7		M		2,581.9 Medium stiff, brown, SILT (A-4), with trace clay, micaceous	2.0
	2,576.4	7.5	2	3	2	5		M			
2575	2,573.9	10.0	2	1	2	3		M		2,574.4 **ALLUVIAL** Soft, tan and light grayish brown, clayey SILT (A-5), contains trace root fragments, mottled	9.5
2570	2,568.9	15.0	1	1	2	3		M		2,570.9 Very soft, dark gray and brown, silty CLAY (A-7-6), contains trace root fragments, mottled	13.0
2565	2,563.9	20.0	1	1	1	2		W			
2560	2,558.9	25.0	11	50	50/0.2	100/0.7				2,560.9 Very dense, brown and white, SAND and GRAVEL (A-1-b)	23.0
	2,555.9	28.0	60/0.0			60/0.0				2,558.4 **WEATHERED ROCK** Red and brown, GNEISS	25.5
										2,555.9 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,555.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 28.0'.	28.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13				**GROUND WTR (ft)**
BORING NO. RW5_13	**STATION** 21+55	**OFFSET** 3 ft RT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,582.6 ft	**TOTAL DEPTH** 34.0 ft	**NORTHING** 666,821	**EASTING** 818,802	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/13/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,582.6	0.0	2	4	4	8		M		2,582.6 GROUND SURFACE 0.0
2580	2,580.1	2.5	4	3	4	7	SS-315	21%		**ROADWAY EMBANKMENT** Medium stiff to stiff, brown and orange, SILT (A-4), with some f-c sand and trace gravel (quartz), micaceous
	2,577.6	5.0	2	3	3	6		D		
2575	2,575.1	7.5	1	2	3	5		D		2,575.6 7.0
	2,572.6	10.0	2	2	3	5		M		2,573.6 Medium stiff, brown and orange, clayey SILT (A-5), contains little rock fragments (quartz), micaceous 9.0
2570	2,567.6	15.0	1	2	4	6		M		**ALLUVIAL** Medium stiff, brown, black, and gray, CLAY (A-7-6), with trace rock fragments, contains little organic matter; No recovery
2565	2,562.6	20.0	3	5	22	27		D		2,564.6 18.0 **RESIDUAL** Very stiff, brown, tan, orange, and white, SILT (A-4), saprolitic
2560	2,557.6	25.0	100/0.2			100/0.2				2,561.2 21.4 Medium dense, brown and tan, f-c silty SAND (A-2-4), contains little rock fragments, saprolitic
2555	2,552.6	30.0	60/0.3			100+				2,557.6 25.0 **WEATHERED ROCK** Brown and tan, GNEISS
2550	2,548.6	34.0	60/0.0			60/0.0				2,548.6 34.0 Boring Terminated by Auger Refusal at Elevation 2,548.6 ft in Crystalline Rock (GNEISS). A.R. at a depth of 34.0'.

NOTES
Split spoons at 15.0' and 30.0' resulted in no recovery

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13			**GROUND WTR (ft)**
BORING NO. RW5_14	**STATION** 22+06	**OFFSET** 13 ft LT	**ALIGNMENT** -RW5- / **0 HR.** Dry
COLLAR ELEV. 2,584.3 ft	**TOTAL DEPTH** 23.0 ft	**NORTHING** 666,840	**EASTING** 818,851 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/13/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585	2,584.3	0.0	5	3	5	8, 27		D		2,584.3 GROUND SURFACE	0.0
										ROADWAY EMBANKMENT Loose to medium dense, brown, orange, and tan, SAND and GRAVEL (A-1-b)	
	2,581.8	2.5	8	10	17			D			
2580	2,579.3	5.0	13	23	27	50		D		2,579.8	4.5
										RESIDUAL Hard, brown, tan, orange, and white, SILT (A-4), with trace f sand and clay, saprolitic	
	2,576.8	7.5	8	13	20	33		D			
2575	2,574.3	10.0	40	27	22	49		D			
2570	2,569.3	15.0	13	29	71/0.3	100/0.8				2,568.8	15.5
										WEATHERED ROCK Brown, tan and orange, GNEISS	
2565	2,564.3	20.0	100/0.4			100/0.4					
	2,561.3	23.0	60/0.0			60/0.0				2,561.3	23.0
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,561.3 ft on Crystalline Rock (GNEISS). A.R. at a depth of 23.0'.	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13			**GROUND WTR (ft)**
BORING NO. RW5_15	**STATION** 22+56	**OFFSET** 15 ft LT	**ALIGNMENT** -RW5- / **0 HR.** Dry
COLLAR ELEV. 2,583.4 ft	**TOTAL DEPTH** 30.4 ft	**NORTHING** 666,846	**EASTING** 818,901 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/13/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585	2,583.4	0.0	4	6	4	10		D		2,583.4 GROUND SURFACE 0.0
										ROADWAY EMBANKMENT
	2,580.9	2.5	2	2	6	8		D		2,581.4 Loose to medium dense, brown, black, and orange, SAND and GRAVEL (A-1-b) 2.0
2580	2,578.4	5.0	12	12	14	26		D		**RESIDUAL** Medium stiff to hard, gray and white, sandy SILT (A-4), saprolitic
	2,575.9	7.5	6	15	25	40		D		
2575	2,573.4	10.0	29	33	45	78		D		
2570	2,568.4	15.0	8	14	17	31		D		
2565	2,563.4	20.0	100/0.3			100/0.3				2,563.4 20.0
										WEATHERED ROCK Tan and white, QUARTZ
2560	2,558.4	25.0	100/0.5			100/0.5				2,560.4 23.0
										Gray and white with brown, AMPHIBOLITE
2555	2,553.4	30.0	100/0.4			100/0.4				2,553.0 30.4
										Boring Terminated at Elevation 2,553.0 ft in Weathered Rock (AMPHIBOLITE)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13			**GROUND WTR (ft)**
BORING NO. RW5_16	**STATION** 23+07	**OFFSET** 15 ft LT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,582.6 ft	**TOTAL DEPTH** 20.7 ft	**NORTHING** 666,852	**EASTING** 818,951	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/13/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585											
	2,582.6	0.0	4	6	6	12		D		2,582.6 GROUND SURFACE	0.0
2580	2,580.1	2.5	5	5	5	10	SS-339	25%		2,580.6 **ROADWAY EMBANKMENT** Medium dense, brown, black, and orange, SAND and GRAVEL (A-1-b)	2.0
	2,577.6	5.0	3	4	5	9		D		**RESIDUAL** Stiff, brown and orange, f sandy, silty CLAY (A-7-6)(5), highly micaceous, saprolitic (gneiss)	
2575	2,575.1	7.5	11	48	52/0.3	100/0.8 100/0.4				2,575.1 **WEATHERED ROCK** Brown and orange, GNEISS with some quartz fragments	7.5
	2,572.6	10.0	100/0.4								
2570	2,569.6	13.0	11	37	63/0.5	100/1.0					
2565	2,562.6	20.0	53	47/0.2		100/0.7				2,561.9 Boring Terminated at Elevation 2,561.9 ft in Weathered Rock (GNEISS)	20.7

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 5 from -Y1RT- STA 15+25 to 26+13			**GROUND WTR (ft)**
BORING NO. RW5_17	**STATION** 23+57	**OFFSET** 19 ft LT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,582.5 ft	**TOTAL DEPTH** 15.2 ft	**NORTHING** 666,861	**EASTING** 819,000	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/13/21	**COMP. DATE** 02/13/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,582.5	0.0	4	6	8	14		D		2,582.5 GROUND SURFACE 0.0
2580	2,580.0	2.5	11	13	16	29		D		2,580.5 **ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
	2,577.5	5.0	27	27	28	55	SS-347	11%		**RESIDUAL** Medium dense to very dense, brown, tan and white, f-c silty SAND (A-2-4), with trace clay, micaceous
2575	2,575.0	7.5	36	64/0.1		100/0.6				2,575.0 **WEATHERED ROCK** Brown, tan, and white, GNEISS 7.5
	2,572.5	10.0	100/0.2			100/0.2				
2570	2,567.5	15.0	100/0.2			100/0.2				2,567.3 Boring Terminated at Elevation 2,567.3 ft in Weathered Rock (GNEISS) 15.2

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_18	**STATION** 24+07	**OFFSET** 10 ft LT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,581.1 ft	**TOTAL DEPTH** 9.1 ft	**NORTHING** 666,859	**EASTING** 819,051	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/15/21	**COMP. DATE** 02/15/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585											
	2,581.1	0.0								2,581.1 GROUND SURFACE	0.0
2580			2	5	6	11		M		**RESIDUAL** Stiff, brown, clayey SILT (A-5), contains trace rock fragments, micaceous	
	2,578.6	2.5	4	5	7	12		M			
	2,576.1	5.0	26	27	37	64		D		2,576.6 Hard, brown, SILT (A-4), saprolitic	4.5
2575											
	2,573.6	7.5	4/0.3	60/0.0		100+				2,573.6	7.5
	2,572.0	9.1	60/0.0			60/0.0				2,572.0 **WEATHERED ROCK** Brown, GNEISS	9.1

Boring Terminated with Standard Penetration Test Refusal at Elevation 2,572.0 ft in Crystalline Rock (GNEISS). A.R. at a depth of 9.1'.

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_19	**STATION** 24+58	**OFFSET** 10 ft LT	**ALIGNMENT** -RW5-	**0 HR.** Dry
COLLAR ELEV. 2,580.8 ft	**TOTAL DEPTH** 16.2 ft	**NORTHING** 666,866	**EASTING** 819,101	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/15/21	**COMP. DATE** 02/15/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2585										
	2,580.8	0.0								2,580.8 GROUND SURFACE 0.0
2580			2	3	3	6		M		**RESIDUAL** Medium stiff to stiff, brown, tan, and white, clayey SILT (A-5), contains trace rock fragments, micaceous, saprolitic
	2,578.3	2.5	1	2	5	7		M		
	2,575.8	5.0	3	4	7	11		M		
2575										
	2,573.3	7.5	2	5	6	11		M		
	2,570.8	10.0	1	3	4	7		M		
2570										
	2,565.8	15.0	1	9	60/0.2	100+				2,564.8 16.0
2565										2,564.6 **WEATHERED ROCK** Brown, white, and tan, GNEISS 16.2

Boring Terminated with Standard Penetration Test Refusal at Elevation 2,564.6 ft in Weathered Rock (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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_20	**STATION** 25+08	**OFFSET** 15 ft LT	**ALIGNMENT** -RW5- / **0 HR.** Dry
COLLAR ELEV. 2,581.6 ft	**TOTAL DEPTH** 18.8 ft	**NORTHING** 666,879	**EASTING** 819,149 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/14/21	**COMP. DATE** 02/14/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2585											
	2,581.6	0.0	1	2	3	5		M		2,581.6 GROUND SURFACE	0.0
2580	2,579.1	2.5	4	3	5	8		M		**RESIDUAL** Medium stiff to stiff, brown, tan, and orange, clayey SILT (A-5), micaceous	
	2,576.6	5.0	3	4	7	11		M			
2575	2,574.1	7.5	4	6	10	16		M		2,574.6 Very stiff to hard, tan, white, and brown, silty CLAY (A-7-6), highly micaceous, saprolitic	7.0
	2,571.6	10.0	5	7	12	19		M			
2570											
	2,566.6	15.0	7	13	18	31					
2565	2,563.5	18.1								2,563.5	18.1
	2,562.8	18.8	35	65/0.2		100/0.7				2,562.8 **WEATHERED ROCK** Brown, white, and tan, GNEISS	18.8
			60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 2,562.8 ft on Crystalline Rock (GNEISS). A.R. at a depth of 18.8'.	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**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	**STATION** 25+58	**OFFSET** 5 ft LT	**ALIGNMENT** -RW5- / **0 HR.** 14.5
COLLAR ELEV. 2,582.4 ft	**TOTAL DEPTH** 32.5 ft	**NORTHING** 666,877	**EASTING** 819,201 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/14/21	**COMP. DATE** 02/14/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2585											
	2,582.4	0.0	3	2	4	6		M		2,582.4 GROUND SURFACE	0.0
2580	2,577.4	5.0	3	2	3	5		M		**ALLUVIAL** Medium stiff, brown, clayey SILT (A-5), with trace sand, micaceous	
	2,574.9	7.5	2	1	2	3		M		2,578.4 Medium stiff, gray, sandy CLAY (A-6)	4.0
2575	2,572.4	10.0	2	3	2	5		M		2,576.1 Loose, gray, fine SAND (A-2-4)	6.3
	2,567.4	15.0	7	6	6	12		Sat.		2,575.4 Soft to stiff, gray, CLAY (A-7-6), with few f-c sand lenses, contains little organic matter	7.0
2570	2,562.4	20.0	3	5	15	20		Sat.			
2565	2,557.4	25.0	14	18	43	61				2,564.4 **RESIDUAL** Very stiff to hard, gray, brown, white, and red, clayey SILT (A-5), saprolitic	18.0
2560	2,552.4	30.0	18	35	65/0.5	100/1.0				2,551.9 **WEATHERED ROCK** Brown, tan, orange, and white, GNEISS	30.5
2555	2,549.9	32.5	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation 2,549.9 ft on Crystalline Rock (GNEISS). A.R. at a depth of 32.5'.	32.5
2550											

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_EB1-A	**STATION** 26+29	**OFFSET** 5 ft LT	**ALIGNMENT** -Y1RT- / **0 HR.** 13.0
COLLAR ELEV. 2,584.6 ft	**TOTAL DEPTH** 34.5 ft	**NORTHING** 666,917	**EASTING** 819,274 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/25/21	**COMP. DATE** 02/25/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2585											
	2,584.6	0.0	5	7	4	11		M		2,584.6 GROUND SURFACE	0.0
	2,582.1	2.5	3	4	4	8		M		2,583.6 **ROADWAY EMBANKMENT** Medium dense, brown, f SAND (A-2-4), with trace gravel	1.0
2580	2,579.6	5.0	6	5	6	11		M		2,580.1 Soft, brown and orange, CLAY (A-7)	4.5
	2,577.1	7.5	3	3	3	6		Sat.		Loose to medium dense, gray, f-c SAND (A-2-4)	
2575	2,574.6	10.0	3	2	2	4	SS-513	51%		2,574.6 **ALLUVIAL** Soft, gray, SILT (A-5)(9), micaceous	10.0
2570	2,569.6	15.0	1	WOH	1	1		W 28%		2,571.6 Very loose, gray, f silty SAND (A-2-4), micaceous	13.0
2565	2,564.6	20.0	1	1	2	3		W		2,566.6 Soft, gray, f sandy SILT (A-4), micaceous	18.0
2560	2,559.6	25.0	4	7	11	18		W		2,561.6 **RESIDUAL** Very stiff, brown and orange, f sandy SILT (A-4), micaceous, saprolitic	23.0
2555	2,554.6	30.0	90	10/0.1		100/0.6				2,554.6 **WEATHERED ROCK** Brown, orange, and white, GNEISS	30.0
	2,550.1	34.5	60/0.0			60/0.0				2,550.1 Boring Terminated with Standard Penetration Test Refusal at Elevation 2,550.1 ft on Crystalline Rock (GNEISS)	34.5

Other Samples:
ST-4 (15.0 - 17.0)

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_EB1-B	**STATION** 25+96	**OFFSET** 44 ft RT	**ALIGNMENT** -Y1RT- / **0 HR.** 22.0
COLLAR ELEV. 2,600.4 ft	**TOTAL DEPTH** 60.4 ft	**NORTHING** 666,863	**EASTING** 819,251 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/27/21	**COMP. DATE** 02/27/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
2605											
2600										2,600.4 GROUND SURFACE	0.0
	75,599.4	1.0	11	20	16	36		M		2,599.4 **ROADWAY EMBANKMENT** 1.0' PAVEMENT	1.0
	2,596.5	3.9	6	4	4	8		M		2,596.9 **ROADWAY EMBANKMENT** Dense, brown, GRAVEL (A-1-b)	3.5
2595	2,594.6	5.8	6	3	3	6		M		Medium stiff, orange and brown with black, clayey SILT (A-5), with trace sand	
2590	2,591.5	8.9	4	3	4	7		M			
2585	2,586.5	13.9	3	2	3	5		M			
2580	2,581.5	18.9	3	3	4	7		M		2,578.4 **ALLUVIAL** Very loose to loose, gray, SAND (A-3), micaceous	22.0
2575	2,576.5	23.9	4	4	5	9		W		2,573.4 Soft to medium stiff, gray, sandy SILT (A-4), contains trace wood fragments, micaceous, organic odor	27.0
2570	2,571.5	28.9	3	3	1	4		W			
2565	2,566.5	33.9	1	3	3	6		W			
2560	2,561.5	38.9	WOH	1	2	3	SS-3009	43%		2,558.4 **RESIDUAL** Hard, tan and brown, sandy CLAY (A-7), contains trace rock fragments, micaceous, saprolitic	42.0
2555	2,556.5	43.9	18	27	33	60		W			
2550	2,551.5	48.9	32	68/0.3		100/0.8				2,551.5 **WEATHERED ROCK** Brown, GNEISS, micaceous	48.9
2545	2,546.5	53.9	86	14/0.0		100/0.5					
2540	2,541.5	58.9	79	21/0.0		100/0.5				2,540.0 Boring Terminated at Elevation 2,540.0 ft in Weathered Rock (GNEISS)	60.4

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_B1-A	**STATION** 27+39	**OFFSET** 6 ft LT	**ALIGNMENT** -Y1RT- / **0 HR.** 13.0
COLLAR ELEV. 2,586.8 ft	**TOTAL DEPTH** 65.0 ft	**NORTHING** 666,942	**EASTING** 819,380 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/26/21	**COMP. DATE** 02/27/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2590										
	2,586.8	0.0								2,586.8 GROUND SURFACE 0.0
2585			3	3	3	6		M		**ROADWAY EMBANKMENT** Medium stiff, brown and orange, CLAY (A-7), micaceous 2,584.8 2.0
	2,584.3	2.5								
			5	10	10	20		M		Stiff to very stiff, brown and gray, sandy SILT (A-4), with trace clay and gravel, micaceous, mottled
	2,581.8	5.0								
2580			10	6	7	13		M		2,579.8 7.0
	2,579.3	7.5								Medium stiff, orange, CLAY (A-7), with trace sand, mottled
			2	1	3	4		M		
	2,576.8	10.0								
2575			1	2	3	5		M		2,573.8 13.0
										ALLUVIAL Very soft to soft, gray and brown, sandy CLAY (A-7), micaceous
	2,571.8	15.0								
2570			1	WOH	1	1		W		
	2,566.8	20.0								
2565			1	1	2	3		W		
	2,561.8	25.0								2,561.8 25.0
2560			60/0.1			60/0.1				**NON-CRYSTALLINE ROCK** Light gray, BOULDER (Quartz fragments)
										2,558.8 28.0
	2,556.8	30.0								**RESIDUAL** Very stiff, brown, tan, and white, sandy SILT (A-4), micaceous, saprolitic
2555			11	13	16	29		M		
	2,551.8	35.0								2,551.8 35.0
			14	40	60/0.4					**WEATHERED ROCK** Brown, tan, and white, GNEISS
2550						100/0.9				
	2,546.8	40.0								
2545			100/0.4			100/0.4				
	2,541.8	45.0								2,541.8 45.0
2540			60/0.0			60/0.0				**CRYSTALLINE ROCK** Light gray, black, and white, Migmatitic Biotite GNEISS
2535										
2530							RS-14			
2525										
										2,521.8 65.0
										Boring Terminated at Elevation 2,521.8 ft in Crystalline Rock (Migmatitic Biotite GNEISS)

NOTES
0.5' topsoil

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_B1-A	**STATION** 27+39	**OFFSET** 6 ft LT	**ALIGNMENT** -Y1RT- / **0 HR.** 13.0
COLLAR ELEV. 2,586.8 ft	**TOTAL DEPTH** 65.0 ft	**NORTHING** 666,942	**EASTING** 819,380 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/26/21	**COMP. DATE** 02/27/21	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ2	**TOTAL RUN** 20.0 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS (ELEV. (ft) / DEPTH (ft))
2541.8											Begin Coring @ 45.0 ft
2540	2,541.8	45.0	4.0	2:07 1:47 2:06 2:00	(3.4) 85%	(2.6) 65%		(19.4) 97%	(17.0) 85%		2,541.8 45.0 **CRYSTALLINE ROCK** Light gray, black and white, Migmatitic Biotite GNEISS, slight weathering, hard, very close to close fracture spacing Very severe weathering, highly micaceous; 0.6' core loss at 48.0' Slight weathering, close fracture spacing at 49.0'
	2,537.8	49.0									
	2,537.8	49.0	5.0	1:39 4:00 1:44 2:36 2:03	(5.0) 100%	(4.3) 86%					
2535											
	2,532.8	54.0									
			5.0	1:53 2:05 2:16 2:20 2:22	(5.0) 100%	(4.8) 96%	RS-14				RS-14 54.6' - 55.2' GSI= 75 - 85 Qu= 16,778 psi
2530											
	2,527.8	59.0									
			5.0	1:46 2:15 2:24 1:55 1:54	(5.0) 100%	(4.3) 86%					
2525											
	2,522.8	64.0									
	2,521.8	65.0	1.0	2:10	(1.0) 100%	(1.0) 100%					2,521.8 65.0 Boring Terminated at Elevation 2,521.8 ft in Crystalline Rock (Migmatitic Biotite GNEISS)

CORE PHOTOGRAPHIC RECORD

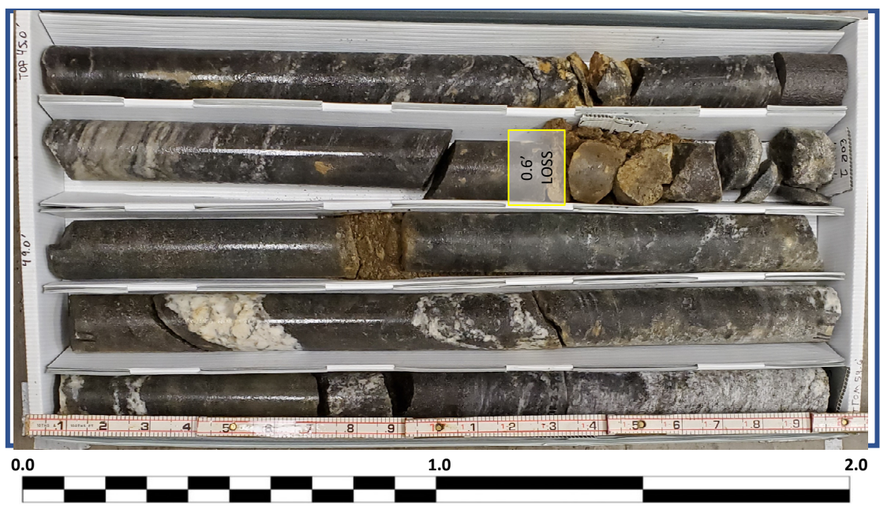
38330.1.FS1 (B-3186/B-5898)

US 23/ US 74 Great Smokey Mountain Highway

S2_B1-A
Box 1 of 3: 45.0 – 54.6 FEET
DRY

S2_B1-A
Box 2 of 3: 54.6 – 64.0 FEET
DRY

S2_B1-A
Box 1 of 3: 45.0 – 54.6 FEET
WET



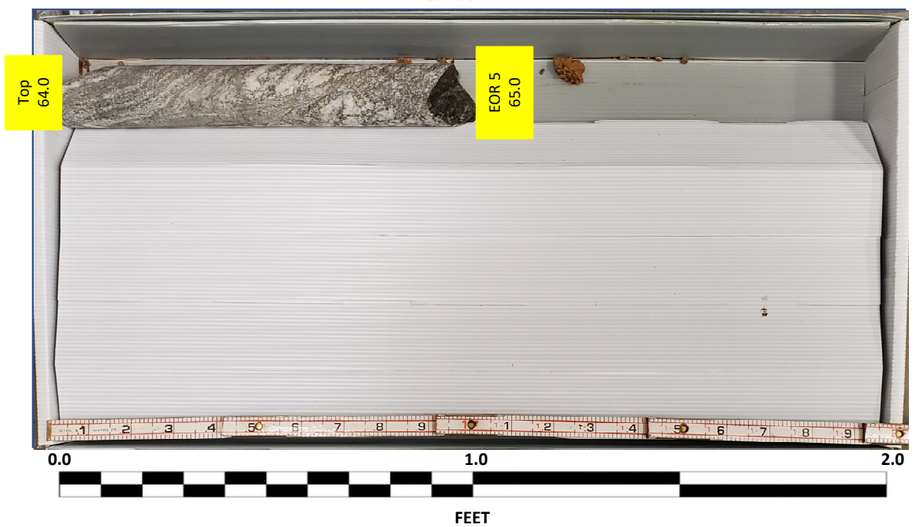
S2_B1-A
Box 2 of 3: 54.6 – 64.0 FEET
WET

CORE PHOTOGRAPHIC RECORD

38330.1.FS1 (B-3186/B-5898)

US 23/ US 74 Great Smokey Mountain Highway

S2_B1-A
Box 3 of 3: 64.0 – 65.0 FEET
DRY



S2_B1-A
Box 3 of 3: 64.0 – 65.0 FEET
WET

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_B1-B	**STATION** 27+53	**OFFSET** 33 ft RT	**ALIGNMENT** -Y1RT- / **0 HR.** N/A
COLLAR ELEV. 2,584.7 ft	**TOTAL DEPTH** 62.8 ft	**NORTHING** 666,908	**EASTING** 819,403 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/27/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	SAMP. NO.	MOI	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2585	2,584.7	0.0	2	4	5		M	GROUND SURFACE (2,584.7 / 0.0); **ALLUVIAL** Stiff, brown and orange, clayey SILT (A-5), micaceous (2,582.7 / 2.0)
	2,582.2	2.5	7	12	11		D	Medium dense, brown, clayey SAND (A-2-6), with trace gravel (2,580.2 / 4.5)
2580	2,579.7	5.0	18	18	16		D	Loose to dense, brown and gray, silty SAND (A-2-4), with little gravel, micaceous
	2,577.2	7.5	4	4	4		D	
2575	2,574.7	10.0	2	2	3		M	
2570	2,569.7	15.0	1	1	1	SS-222	62% 68%	Very soft, gray, silty CLAY (A-7-5)(16) and SILT (A-5)(13), micaceous (2,571.7 / 13.0)
2565	2,564.7	20.0	WOH	WOH	1		W	Very loose, brown and gray, silty SAND (A-2-4) (2,566.7 / 18.0); Very soft, brown and gray, CLAY (A-7-6) (2,563.6 / 21.1)
2560	2,559.7	25.0	7	5	2		Sat.	Loose, gray, SAND and GRAVEL (A-1-b) (2,561.7 / 23.0)
2555	2,554.7	30.0	9	16	14		D	**RESIDUAL** Medium dense to dense, brown, white, and tan, silty SAND (A-2-4), contains little rock fragments (2,556.7 / 28.0)
2550	2,549.7	35.0	15	15	14		D	Very stiff, brown, orange, and tan, sandy SILT (A-4), contains little rock fragments, micaceous, saprolitic (2,551.7 / 33.0)
2545	2,544.7	40.0	100/0.5					**WEATHERED ROCK** Brown, gray, and white, GNEISS (2,544.7 / 40.0)
	2,542.2	42.5	60/0.0					**CRYSTALLINE ROCK** No Recovery, begin rock coring at 42.0' Light to dark grey and white with trace pink, BIOTITE GNEISS, migmatitic (2,542.7 / 42.0)
2540								
2535						RS-13		
2530								
2525								Grey and white, METAGRAYWACKE and QUARTZITE (2,526.6 / 58.1)
								Boring Terminated at Elevation 2,521.9 ft In Crystalline Rock (METAGRAYWACKE and QUARTZITE) (2,521.9 / 62.8)

BLOWS PER FOOT: 0 25 50 75 100

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
CORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. S2_B1-B	**STATION** 27+53	**OFFSET** 33 ft RT	**ALIGNMENT** -Y1RT- / **0 HR.** N/A
COLLAR ELEV. 2,584.7 ft	**TOTAL DEPTH** 62.8 ft	**NORTHING** 666,908	**EASTING** 819,403 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** SPT Core Boring	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/27/21	**SURFACE WATER DEPTH** N/A
CORE SIZE NQ2	**TOTAL RUN** 20.8 ft		

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	DESCRIPTION AND REMARKS (ELEV. (ft) / DEPTH (ft))
2542.7										Begin Coring @ 42.0 ft
	2,542.7	42.0	2.8	0:36/0.8 N=60/0.0 1:43/1.0 2:21/1.0	(2.8) 100%	(2.6) 93%		(16.1) 100%	(13.7) 85%	(2,542.7 / 42.0) **CRYSTALLINE ROCK** Light to dark grey and white with trace pink, Migmatitic Biotite GNEISS, with trace garnet porphyroblasts, slight to very slight weathering, hard, moderately close to close fracture spacing
2540	2,539.9	44.8	5.0	1:41/1.0 1:30/1.0 1:39/1.0 1:29/1.0 2:20/1.0	(5.0) 100%	(5.0) 100%				
2535	2,534.9	49.8	5.0	1:55/1.0 1:52/1.0 1:45/1.0 2:14/1.0 2:20/1.0	(5.0) 100%	(2.8) 56%	RS-13			RS-13 49.5' - 50.2' GSI= 75 - 85 Qu= 17,889 psi; Moderately severe to severe weathering, very close fracture spacing (80-90° joint), with trace epidote along fracture plane; Very slight to slight weathering, wide fracture spacing
2530	2,529.9	54.8	5.0	1:44/1.0 2:04/1.0 2:22/1.0 2:38/1.0 2:46/1.0	(5.0) 100%	(4.5) 90%				(2,526.6 / 58.1) Grey and white, METAGRAYWACKE and QUARTZITE (eye fold), slight weathering, hard, close to moderately close fracture spacing, with few healed fractures (variable orientations), foliations oriented 55-65°
2525	2,524.9	59.8	3.0	3:16/1.0 3:15/1.0 2:30/1.0	(3.0) 100%	(2.4) 80%		(4.5) 100%	(3.4) 76%	
	2,521.9	62.8								(2,521.9 / 62.8) Boring Terminated at Elevation 2,521.9 ft In Crystalline Rock (METAGRAYWACKE and QUARTZITE)

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

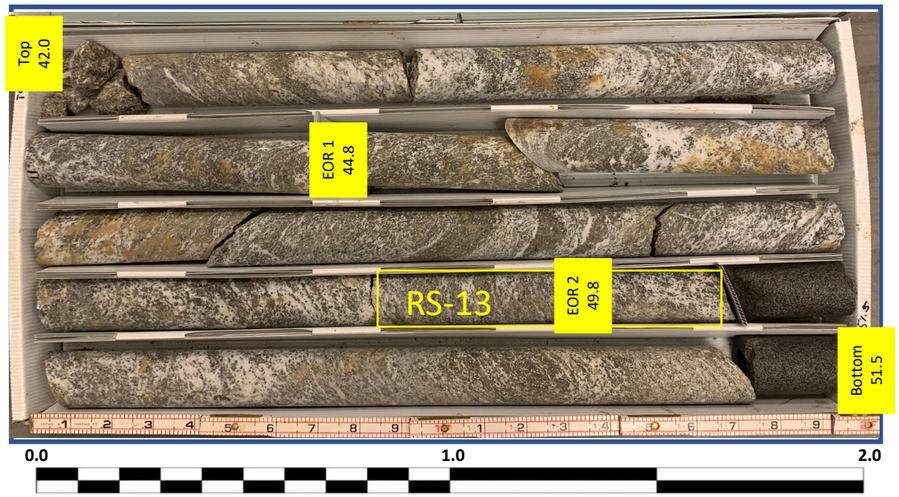
Other Samples:
ST-2 (15.0 - 17.0)

CORE PHOTOGRAPHIC RECORD

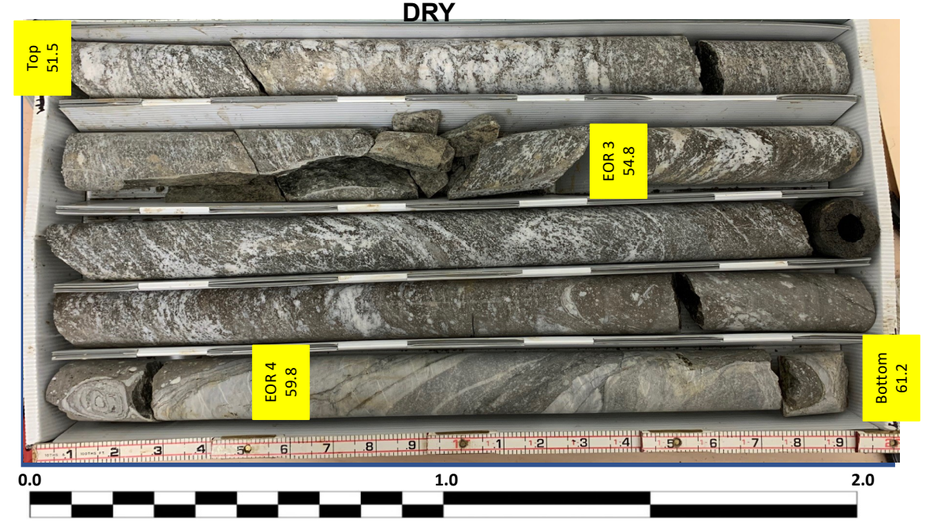
38330.1.FS1 (B-3186/B-5898)

US 23/ US 74 Great Smokey Mountain Highway

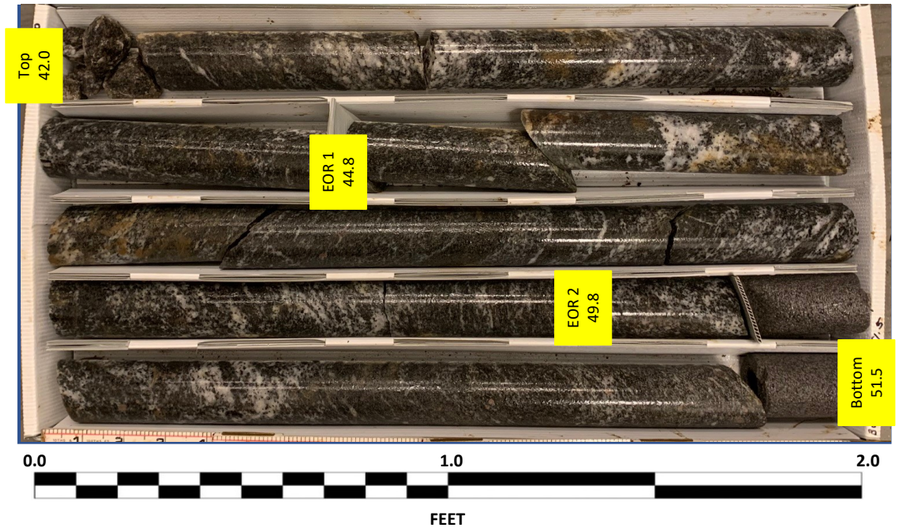
S2_B1-B
Box 1 of 3: 42.0 – 51.5 FEET
DRY



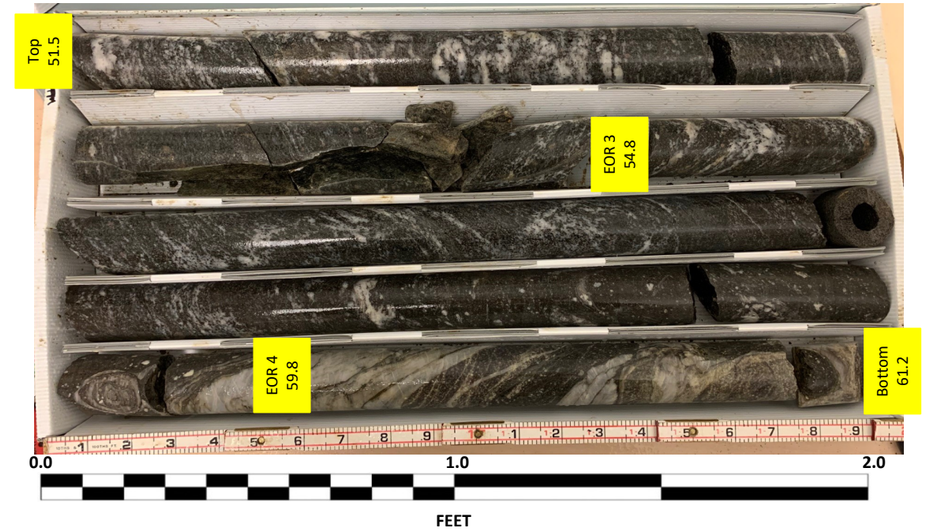
S2_B1-B
Box 2 of 3: 51.5 – 61.2 FEET
DRY



S2_B1-B
Box 1 of 3: 42.0 – 51.5 FEET
WET



S2_B1-B
Box 2 of 3: 51.5 – 61.2 FEET
WET

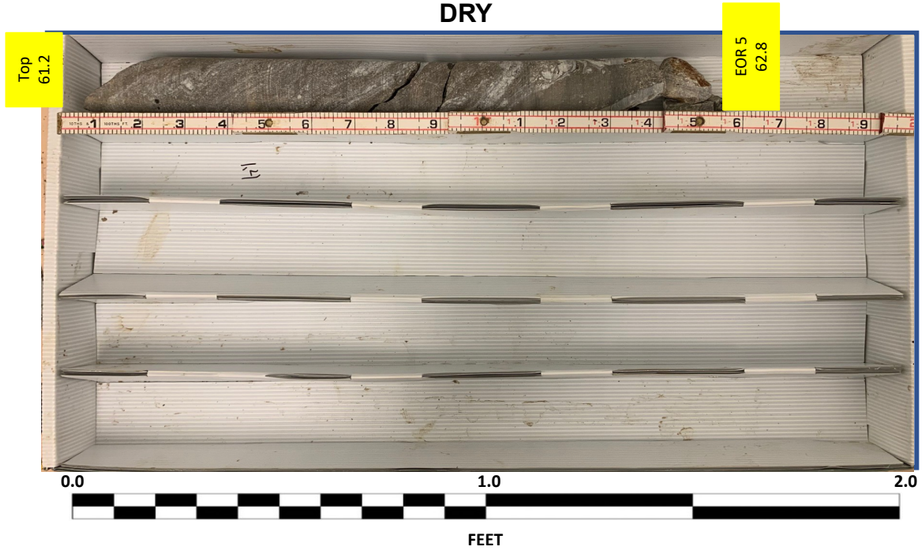


CORE PHOTOGRAPHIC RECORD

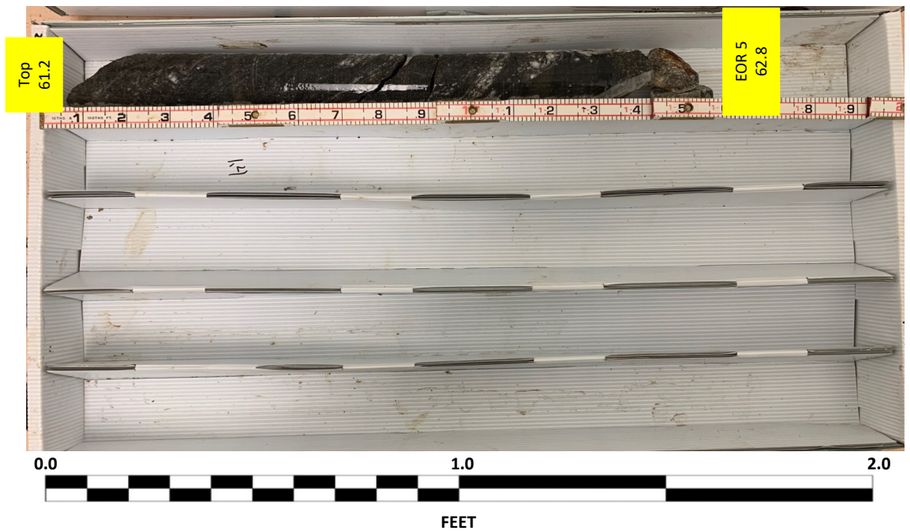
38330.1.FS1 (B-3186/B-5898)

US 23/ US 74 Great Smokey Mountain Highway

S2_B1-B
Box 3 of 3: 61.2 – 62.8 FEET
DRY



S2_B1-B
Box 3 of 3: 61.2 – 62.8 FEET
WET



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)				**GROUND WTR (ft)**
BORING NO. S2_EB2-A	**STATION** 29+30	**OFFSET** 14 ft LT	**ALIGNMENT** -Y1RT-	**0 HR.** 20.0
COLLAR ELEV. 2,596.7 ft	**TOTAL DEPTH** 42.5 ft	**NORTHING** 667,001	**EASTING** 819,562	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2600											
	2,596.7	0.0								2,596.7 GROUND SURFACE	0.0
2595			2	3	4	7		M		**ROADWAY EMBANKMENT** Loose, brown and orange, f-c silty SAND (A-2-4), with little gravel	
	2,594.2	2.5									
			3	4	4	8		D			
	2,591.7	5.0								2,592.2	4.5
			3	6	7	13		D		**ALLUVIAL** Stiff, brown and orange, SILT (A-4), micaceous	
2590	2,589.2	7.5									
			4	4	6	10		D			
	2,586.7	10.0									
			7	6	7	13		D			
2585											
										2,583.7	13.0
	2,581.7	15.0								Medium stiff, brown and gray, f silty CLAY (A-7-6), micaceous	
			3	3	4	7		M			
2580											
										2,578.7	18.0
	2,576.7	20.0								Loose, brown and gray, f-c silty SAND (A-2-4), micaceous	
			3	3	2	5		M			
2575											
										2,573.7	23.0
	2,571.7	25.0								Soft to medium stiff, gray, CLAY (A-7-6), contains trace wood fragments, micaceous	
			1	1	2	3		M			
2570											
	2,566.7	30.0									
			1	1	2	3		M			
2565											
	2,561.7	35.0									
			1	2	2	4		M			
2560											
										2,558.7	38.0
	2,556.7	40.0								Very dense, gray, SAND and GRAVEL (A-1-b)	
			9	25	35	60		W			
2555											
	2,554.2	42.5	60/0.0			60/0.0				2,554.2	42.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,554.2 ft on Crystalline Rock (GNEISS). A.R. at a depth of 42.5'.	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)				**GROUND WTR (ft)**
BORING NO. S2_EB2-B	**STATION** 28+39	**OFFSET** 27 ft RT	**ALIGNMENT** -Y1RT-	**0 HR.** 15.0
COLLAR ELEV. 2,592.2 ft	**TOTAL DEPTH** 63.0 ft	**NORTHING** 666,936	**EASTING** 819,486	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wanstrath	**START DATE** 02/09/21	**COMP. DATE** 02/09/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2595										
										2,592.2 GROUND SURFACE 0.0
	2,591.6	0.6								2,591.6 0.6" PAVEMENT
2590			12	10	6	16		D		2,590.2 **ROADWAY EMBANKMENT** Medium dense, brown and orange, SAND and GRAVEL (A-1-b) 2.0
	2,589.7	2.5								
			3	5	4	9		D		
	2,587.2	5.0								
			3	5	6	11		D		**ALLUVIAL** Stiff, brown and orange, SILT (A-4), micaceous
2585	2,584.7	7.5								2,585.2 7.0
			2	4	5	9		D		Stiff, brown and orange, clayey SILT (A-5), with little gravel, micaceous
	2,582.2	10.0								2,582.7 9.5
			2	2	3	5		D		Medium stiff, brown, orange and white, SILT (A-4), with little gravel and sand, micaceous
2580										2,579.2 13.0
	2,577.2	15.0								Loose, gray, SAND (A-3)
			2	4	4	8		W		
2575										2,574.2 18.0
	2,572.2	20.0								Soft, gray, CLAY (A-7-5)(29), micaceous
			1	2	2	4	SS-208	73% 46%		
2570										2,569.2 23.0
	2,567.2	25.0								Medium stiff, gray and brown, clayey SILT (A-5), micaceous
			2	2	3	5		W		
2565										2,564.2 28.0
	2,562.2	30.0								Medium dense, brown and gray, SAND and GRAVEL (A-1-b)
			13	12	11	23		Sat.		
2560										2,559.2 33.0
	2,557.2	35.0								**RESIDUAL** Very stiff to hard, brown, orange and tan, SILT (A-4), contains little rock fragments, micaceous, saprolitic
			5	9	12	21		D		
2555										
	2,552.2	40.0								
			11	10	11	21		D		
2550										
	2,547.2	45.0								
			12	13	35	48		D		
2545										
	2,542.2	50.0								2,541.7 50.5
			37	48	52/0.4	100/0.9	SS-214	14%		**WEATHERED ROCK** Brown, orange, and gray, GNEISS
2540										
	2,537.2	55.0								
			100/0.4			100/0.4		13%		
2535										
	2,532.2	60.0								
			100/0.2			100/0.2				
2530										
	2,529.2	63.0	60/0.0			60/0.0				2,529.2 63.0
										Boring Terminated by Auger Refusal at Elevation 2,529.2 ft on Crystalline Rock (GNEISS)

NOTES

ST-3 was classified as gray, sandy SILT (A-4)

Other Samples:
ST-3 (20.0 - 21.5)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 2 from -L_RT- STA 51+63 to 53+56			**GROUND WTR (ft)**
BORING NO. RW2_3	**STATION** 54+92	**OFFSET** 24 ft RT	**ALIGNMENT** -RW2- / **0 HR.** Dry
COLLAR ELEV. 2,598.0 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 667,028	**EASTING** 819,591 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2600											
										2,598.0 GROUND SURFACE	0.0
	2,597.2	0.8	9	12	6	18		D		2,597.2 0.8' PAVEMENT	0.8
2595										**ROADWAY EMBANKMENT**	
	2,594.5	3.5	5	5	5	10		D		2,595.0 Medium dense, brown, SAND and GRAVEL (A-1-b), micaceous	3.0
	2,592.0	6.0	5	6	7	13		D		**ALLUVIAL** Stiff, brown and tan, SILT (A-4), with trace sand and gravel, micaceous	
2590	2,589.5	8.5	7	6	7	13		D			
2585	2,584.5	13.5	4	4	5	9		M		2,586.0 Soft to stiff, gray, silty CLAY (A-7-6), with trace sand, micaceous	12.0
2580	2,579.5	18.5	2	1	2	3		M			
2575	2,574.5	23.5	1	1	2	3		M			
2570	2,569.5	28.5	1	1	1	2		M			
2565	2,564.5	33.5	0	4	5	9		M			
2560	2,559.5	38.5	0	3	5	8		W		2,561.0 Loose, brown, orange, and red, SAND and GRAVEL (A-1-b)	37.0
										2,558.0 Boring Terminated at Elevation 2,558.0 ft in SAND and GRAVEL	40.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 3 from -Y1RT- STA 29+35 to 40+54			**GROUND WTR (ft)**
BORING NO. RW3_1	**STATION** 29+84	**OFFSET** 7 ft LT	**ALIGNMENT** -RW3- / **0 HR.** 18.0
COLLAR ELEV. 2,596.6 ft	**TOTAL DEPTH** 49.5 ft	**NORTHING** 666,986	**EASTING** 819,622 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 01/28/21	**COMP. DATE** 01/28/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2600										
										2,596.6 GROUND SURFACE 0.0
	2,596.0	0.6								2,596.0 0.6' PAVEMENT 0.6
2595			8	7	6	13		D		**ROADWAY EMBANKMENT**
	2,594.1	2.5	3	4	5	9		D		2,592.1 Loose to medium dense, brown and orange, SAND and GRAVEL (A-1-b), micaceous 4.5
	2,591.6	5.0	7	7	7	14		D		Loose to medium dense, brown, tan and orange, silty SAND (A-2-4), with trace gravel, micaceous
2590	2,589.1	7.5	6	5	4	9		D		2,587.6 9.0
2585	2,586.6	10.0	3	3	4	7		D		Medium stiff to stiff, brown and tan, SILT (A-4), with trace sand, micaceous
										2,583.6 13.0
2580	2,581.6	15.0	3	2	3	5	SS-24	26%		**ALLUVIAL** Medium stiff, tan and gray, sandy CLAY (A-7-6)(11)
										2,578.6 18.0
2575	2,576.6	20.0	3	3	4	7		W		Loose, brown and gray, silty SAND (A-2-4), micaceous
										2,573.6 23.0
2570	2,571.6	25.0	1	2	2	4		W		Soft to medium stiff, brown, CLAY (A-7-6), micaceous
2565	2,566.6	30.0	WOH	2	3	5		W		
										2,563.6 33.0
										Medium dense, gray, SAND (A-3)
2560	2,561.6	35.0	4	15	13	28		W		2,560.8 35.8
										RESIDUAL Medium dense to very dense, brown, orange, and tan, silty SAND (A-2-4), contains trace rock fragments, micaceous, saprolitic
2555	2,556.6	40.0	5	7	10	17		M		
2550	2,551.6	45.0	18	19	32	51		M		
	2,547.1	49.5	60/0.0			60/0.0				2,547.1 49.5
										Boring Terminated with Standard Penetration Test Refusal at Elevation 2,547.1 ft on Crystalline Rock (GNEISS). A.R. at a depth of 49.5'.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 2 from -L_RT- STA 51+63 to 53+56			**GROUND WTR (ft)**
BORING NO. RW2_4	**STATION** 54+44	**OFFSET** 24 ft RT	**ALIGNMENT** -RW2-	**0 HR.** Dry
COLLAR ELEV. 2,600.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 667,055	**EASTING** 819,630	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/10/21	**COMP. DATE** 02/11/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2605											
2600										2,600.2 GROUND SURFACE	0.0
	2,599.4	0.8	15	11	6	17		D		2,599.4 0.8' PAVEMENT	0.8
										ROADWAY EMBANKMENT	
	2,596.7	3.5	6	5	5	10		M		2,597.2 Medium dense, brown and tan, SAND and GRAVEL (A-1-b)	3.0
2595	2,594.2	6.0	8	7	8	15		D		2,594.7 Stiff, brown and white, clayey SILT (A-5)	5.5
										Stiff to very stiff, brown and gray, SILT (A-4), with trace gravel, micaceous	
	2,591.7	8.5	4	5	6	11		D			
2590											
	2,586.7	13.5	2	4	4	8		M		2,588.2 Medium stiff to stiff, gray, brown, and orange, clayey SILT (A-5), with trace gravel, micaceous	12.0
2585											
	2,581.7	18.5	3	3	3	6		M		2,580.2 Boring Terminated at Elevation 2,580.2 ft in SILT	20.0

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi
SITE DESCRIPTION Retaining Wall No. 2 from -L_RT- STA 51+63 to 53+56			**GROUND WTR (ft)**
BORING NO. RW2_3	**STATION** 54+92	**OFFSET** 28 ft RT	**ALIGNMENT** -RW2-	**0 HR.** Dry
COLLAR ELEV. 2,598.0 ft	**TOTAL DEPTH** 40.0 ft	**NORTHING** 667,028	**EASTING** 819,591	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83%(09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER K. Boone	**START DATE** 02/10/21	**COMP. DATE** 02/10/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2600										
	2,597.2	0.8	9	12	6	18		D		2,598.0 GROUND SURFACE 0.0
2595										2,597.2 0.8' PAVEMENT 0.8
	2,594.5	3.5	5	5	5	10		D		**ROADWAY EMBANKMENT**
										2,595.0 Medium dense, brown, SAND and GRAVEL (A-1-b), micaceous 3.0
	2,592.0	6.0	5	6	7	13		D		**ALLUVIAL**
2590										Stiff, brown and tan, SILT (A-4), with trace sand and gravel, micaceous
	2,589.5	8.5	7	6	7	13		D		
2585										2,586.0 12.0
	2,584.5	13.5	4	4	5	9		M		Soft to stiff, gray, silty CLAY (A-7-6), with trace sand, micaceous
2580										
	2,579.5	18.5	2	1	2	3		M		
2575										
	2,574.5	23.5	1	1	2	3		M		
2570										
	2,569.5	28.5	1	1	1	2		M		
2565										
	2,564.5	33.5	0	4	5	9		M		
2560										2,561.0 37.0
	2,559.5	38.5	0	3	5	8		W		Loose, brown, orange, and red, SAND and GRAVEL (A-1-b)
										2,558.0 40.0
										Boring Terminated at Elevation 2,558.0 ft in SAND and GRAVEL

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. SP-1	**STATION** 20+45	**OFFSET** 80 ft LT	**ALIGNMENT** -Y1LT- / **0 HR.** Dry
COLLAR ELEV. 2,630.9 ft	**TOTAL DEPTH** 37.7 ft	**NORTHING** 666,980	**EASTING** 818,690 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/07/21	**COMP. DATE** 04/07/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2635										
2630	2,630.9	0.0	4	5	4	9		M		2,630.9 — 0.0 GROUND SURFACE
										RESIDUAL Stiff, dark red and tan, clayey SILT (A-5)
										2,627.9 — 3.0 Stiff to very stiff, dark red, CLAY (A-7-6)
2625	2,625.9	5.0	3	6	6	12		M		
2620	2,620.9	10.0	8	9	9	18		M		
										2,617.9 — 13.0 Very stiff, orange and black, CLAY (A-6), saprolitic
2615	2,615.9	15.0	6	11	12	23		M		
										2,612.9 — 18.0 Medium dense to dense, tan, orange and white, silty SAND (A-2-4), contains trace rock fragments, micaceous, saprolitic
2610	2,610.9	20.0	6	5	8	13		M		
2605	2,605.9	25.0	22	23	15	38		M		
										2,602.9 — 28.0 Stiff, tan, orange and black, SILT (A-4), highly micaceous, saprolitic
2600	2,600.9	30.0	5	5	6	11		M		
										2,595.9 — 35.0 **WEATHERED ROCK** Black, white, and tan, AMPHIBOLITE
2595	2,595.9	35.0	14	86/0.4		100/0.9				
	2,593.4	37.5	100/0.2			100/0.2				2,593.2 — 37.7 Boring Terminated at Elevation 2,593.2 ft in Weathered Rock (Amphibolite)

NOTES
Rig chatter and hard drilling encountered at 37.5'

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. SP-2	**STATION** 22+80	**OFFSET** 92 ft LT	**ALIGNMENT** -Y1LT- / **0 HR.** Dry
COLLAR ELEV. 2,640.2 ft	**TOTAL DEPTH** 41.5 ft	**NORTHING** 667,036	**EASTING** 818,908 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/06/21	**COMP. DATE** 04/06/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2645										
2640	2,639.6	0.6	9	5	6	11		M		2,640.2 — 0.0 GROUND SURFACE
										RESIDUAL Stiff to very stiff, dark red, orange, and black, CLAY (A-7-6), with trace mica, saprolitic
2635	2,635.2	5.0	5	5	8	13		M		
2630	2,630.2	10.0	4	6	7	13		M		
2625	2,625.2	15.0	9	9	12	21		M		
2620	2,620.2	20.0	4	7	8	15		M		
2615	2,615.2	25.0	3	5	7	12		M		2,612.2 — 28.0 Medium dense, tan, orange and white, clayey SAND (A-2-6), contains trace rock fragments, micaceous, saprolitic
2610	2,610.2	30.0	34	11	12	23		M		2,607.2 — 33.0 Loose, tan, orange and black, silty SAND (A-2-4), highly micaceous, saprolitic
2605	2,605.2	35.0	2	3	4	7		M 42%		
2600	2,600.2	40.0	4	5	5	10		M		2,598.7 — 41.5 Boring Terminated at Elevation 2,598.7 ft in CLAYEY SILT

NOTES
0.6' Topsoil

Other Samples:
ST-5 (35.0 - 37.0)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. SP-3	**STATION** 24+78	**OFFSET** 106 ft LT	**ALIGNMENT** -Y1LT- / **0 HR.** Dry
COLLAR ELEV. 2,646.1 ft	**TOTAL DEPTH** 46.5 ft	**NORTHING** 667,105	**EASTING** 819,084 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/06/21	**COMP. DATE** 04/06/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,646.1	0.0								GROUND SURFACE	0.0
	2,645.7	0.4								0.4' PAVEMENT	0.4
2645			21	7	7	14		M		**RESIDUAL** Stiff to very stiff, dark red and black, CLAY (A-7-6)	
	2,641.1	5.0									
2640			3	5	8	13		M			
	2,636.1	10.0									
2635			5	8	8	16		M			
	2,631.1	15.0									
2630			8	5	18	23		M			
	2,630.9	15.2								Medium dense, tan, white and orange, silty fine SAND (A-2-4), contains trace to little rock fragments	
	2,626.1	20.0									
2625			10	13	11	24		M			
	2,623.1	23.0								Stiff, red, tan and white, fine sandy CLAY (A-7-6) with trace mica, contains trace to little rock fragments	
	2,621.1	25.0									
2620			3	4	7	11		M			
	2,616.1	30.0									
2615			5	9	5	14		M			
	2,613.1	33.0								Stiff to very stiff, orange, brown and black, SILT (A-4), micaceous, saprolitic	
	2,611.1	35.0									
2610			6	9	5	14		M			
	2,606.1	40.0									
2605			8	8	9	17		M			
	2,601.1	45.0									
2600			10	13	17	30		M			
	2,599.6	46.5								Boring Terminated at Elevation 2,599.6 ft in SILT	

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. SP-4	**STATION** 26+53	**OFFSET** 103 ft LT	**ALIGNMENT** -Y1LT- / **0 HR.** Dry
COLLAR ELEV. 2,649.8 ft	**TOTAL DEPTH** 51.5 ft	**NORTHING** 667,166	**EASTING** 819,243 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/06/21	**COMP. DATE** 04/06/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
2650											
	2,649.8	0.0								GROUND SURFACE	0.0
	2,649.5	0.3								0.3' PAVEMENT	0.3
			20	4	5	9		M		**RESIDUAL** Stiff, dark red and tan, silty CLAY (A-7-6), contains trace rock fragments	
2645	2,644.8	5.0									
			3	5	5	10		M			
2640	2,639.8	10.0									
			4	5	7	12		M			
	2,636.8	13.0									
2635	2,634.8	15.0								Medium dense to dense, tan, orange and white, silty fine SAND (A-2-4) with trace clay, contains trace rock fragments, micaceous, saprolitic	
			7	7	9	16		M			
2630	2,629.8	20.0									
			5	7	10	17		M			
2625	2,624.8	25.0									
			14	16	19	35		M			
2620	2,619.8	30.0									
			18	14	17	31		M			
2615	2,614.8	35.0									
			10	12	11	23		M			
	2,611.8	38.0									
2610	2,609.8	40.0								Stiff to very stiff, tan, orange, and gray, SILT (A-4), micaceous, saprolitic	
			3	4	5	9		M			
2605	2,604.8	45.0									
			4	6	8	14		M			
2600	2,599.8	50.0									
			6	8	10	18		M			
	2,598.3	51.5								Boring Terminated at Elevation 2,598.3 ft in SILT	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** C. Swafford
SITE DESCRIPTION US 23/ US 74 (Great Smoky Mountain Highway)			**GROUND WTR (ft)**
BORING NO. SP-5	**STATION** 28+33	**OFFSET** 103 ft LT	**ALIGNMENT** -Y1LT- — **0 HR.** Dry
COLLAR ELEV. 2,652.3 ft	**TOTAL DEPTH** 51.5 ft	**NORTHING** 667,235	**EASTING** 819,410 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC9083 CME-550X 80% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wanstrath	**START DATE** 04/06/21	**COMP. DATE** 04/06/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION — ELEV. (ft)	DEPTH (ft)
2655											
	2,652.1	0.2	21	10	8	18		M		2,652.3 GROUND SURFACE	0.0
2650										**RESIDUAL** Very stiff to stiff, dark orange and tan, sandy CLAY (A-7-6), contains trace rock fragments	
	2,647.3	5.0	9	6	5	11		M			
2645										2,644.3 Medium stiff, brown, red and white, SILT (A-4) with trace clay, contains trace rock fragments, micaceous	8.0
	2,642.3	10.0	3	3	2	5		M			
2640										2,639.3 Medium stiff, dark red, CLAY (A-7-6)(13), contains trace to little rock fragments, micaceous	13.0
	2,637.3	15.0	3	2	3	5		M			
2635											
	2,632.3	20.0	2	3	3	6		25% M			
2630										2,629.3 Medium stiff to hard, brown and gray, silty CLAY (A-6), contains trace to little rock fragments, micaceous	23.0
	2,627.3	25.0	2	3	5	8		M			
2625											
	2,622.3	30.0	3	3	3	6		M			
2620											
	2,617.3	35.0	32	19	13	32		M			
2615										2,614.3 Very stiff, brown, orange and white, SILT (A-4), micaceous, saprolitic	38.0
	2,612.3	40.0	8	9	12	21		M			
2610										2,609.3 Dense to very dense, brown, orange and white, silty SAND (A-2-4), micaceous, saprolitic	43.0
	2,607.3	45.0	10	17	23	40		M			
2605											
	2,602.3	50.0	21	22	44	66		M		2,600.8 Boring Terminated at Elevation 2,600.8 ft in SILTY SAND	51.5

Other Samples:
ST-6 (18.0 - 20.0)

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger
SITE DESCRIPTION Retaining Wall No. 3 from -Y1RT- STA 29+35 to 40+54			**GROUND WTR (ft)**
BORING NO. RW3_21	**STATION** 39+61	**OFFSET** 3 ft RT	**ALIGNMENT** -RW3- — **0 HR.** Dry
COLLAR ELEV. 2,639.8 ft	**TOTAL DEPTH** 26.5 ft	**NORTHING** 667,412	**EASTING** 820,497 — **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER L. Wansrath	**START DATE** 03/24/21	**COMP. DATE** 03/24/21	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
2640											
	2,639.8	0.0	3	5	5	10		M		2,639.8 GROUND SURFACE	0.0
	2,637.3	2.5	3	5	7	12		M		**RESIDUAL** 2,637.8 Stiff, brown and orange, SILT (A-4), with trace rock fragments and sand, micaceous	2.0
2635											
	2,634.8	5.0	3	3	4	7		M		2,635.3 Medium dense, brown and orange, silty SAND (A-2-4)	4.5
	2,632.3	7.5	4	4	5	9		M		2,632.8 Medium stiff, brown and orange, fine sandy SILT (A-4), with trace clay, micaceous	7.0
2630										2,630.3 Stiff, brown and black, silty CLAY (A-7-6), micaceous	9.5
	2,629.8	10.0	2	2	4	6		M		Medium stiff to stiff, brown and tan, SILT (A-4), with trace rock fragments, micaceous	
2625											
	2,624.8	15.0	2	4	4	8		M			
2620											
	2,619.8	20.0	2	4	9	13		M			
2615											
	2,614.8	25.0	3	3	4	7				2,613.3	26.5
										Boring Terminated at Elevation 2,613.3 ft in SILT	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** R. Dugger	
SITE DESCRIPTION Retaining Wall No. 3 from -Y1RT- STA 29+35 to 40+54				**GROUND WTR (ft)**
BORING NO. RW3_22	**STATION** 40+12	**OFFSET** 3 ft RT	**ALIGNMENT** -RW3-	**0 HR.** Dry
COLLAR ELEV. 2,641.6 ft	**TOTAL DEPTH** 26.5 ft	**NORTHING** 667,437	**EASTING** 820,542	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC8255 CME-55 93% (11/24/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER L. Wansrath	**START DATE** 03/24/21	**COMP. DATE** 03/24/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
2645										
	2,641.6	0.0	4	4	4	8		M		2,641.6 GROUND SURFACE 0.0
2640	2,639.1	2.5	7	8	9	17		M		2,639.6 **RESIDUAL** Medium stiff to stiff, brown and orange, SILT (A-4), with trace rock fragments and sand 2.0
	2,636.6	5.0	3	4	5	9		M		2,637.1 Medium dense, brown and tan, silty SAND (A-2-4), with trace rock fragments 4.5
2635	2,634.1	7.5	2	3	3	6		M		2,634.6 Stiff, brown and orange, silty CLAY (A-7-6), micaceous 7.0
	2,631.6	10.0	3	4	4	8		D		Medium stiff to stiff, brown, tan, orange, and white, SILT (A-4), micaceous
2630										
	2,626.6	15.0	3	3	5	8		D		
2625										
	2,621.6	20.0	2	2	4	6		M		
2620										
	2,616.6	25.0	2	3	6	9		M		2,615.1 26.5
										Boring Terminated at Elevation 2,615.1 ft in SILT

WBS 38332.1.FS1	**TIP** B-3186 / B-5898	**COUNTY** HAYWOOD	**GEOLOGIST** N. Yacobi	
SITE DESCRIPTION Retaining Wall No. 12 from -Y1RT- STA 40+54 to 44+26				**GROUND WTR (ft)**
BORING NO. RW3_25	**STATION** 46+93	**OFFSET** 4 ft LT	**ALIGNMENT** -RW12-	**0 HR.** N/A
COLLAR ELEV. 2,650.9 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 667,511	**EASTING** 820,675	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE GTC3277 CME-75 83% (09/15/2020)		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER K. Boone	**START DATE** 02/17/21	**COMP. DATE** 02/17/21	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
2655										
										2,650.9 GROUND SURFACE 0.0
2650	2,649.9	1.0	2	5	7	12		D		2,649.9 1.0' Pavement 1.0
	2,647.4	3.5	3	4	4	8		D		**RESIDUAL** Medium stiff to stiff, white, orange, and tan, SILT (A-4), with trace clay, micaceous, saprolitic
2645	2,644.9	6.0	3	4	5	9		D		
	2,642.4	8.5	3	5	5	10		D		
2640										
	2,637.4	13.5	4	5	6	11		D		2,635.9 15.0
										Boring Terminated at Elevation 2,635.9 ft in SILT

REPORT ON SAMPLES OF: Rock For Quality

PROJECT:	B-3186 / B-5898	COUNTY:	Haywood
DATE SAMPLED:	05/11/2021	RECEIVED:	5/11/2021
SAMPLED FROM:	Test Borings	REPORTED:	5/12/2021
SUBMITTED BY:	HDR	BY / CERT NO:	Kevin E. Walker

BORING NO	SAMPLE NO	DEPTH (FT)	ROCK TYPE	LENGTH (IN)	DIAMETER (IN)	UNIT WEIGHT (PCF)	UNCONFINED COMPRESSIVE STRENGTH (PSI)
S2_B1-A	RS-13	49.5-50.2	Migmatitic Biotite Gneiss	4.20	1.86	177.20	17,889
S2_B1-B	RS-14	54.6-55.2	Migmatitic Biotite Gneiss	4.22	1.86	171.90	16,778

SITE PHOTOGRAPHS FOR EXISTING SIGNS OF POSSIBLE SLOPE INSTABILITY

SHEET 91


SOUTH
19
RW4_28 (-Y1LT- 28+20 25' LT)
MODEL IS 6.0'


RW4
23
RW4_24 (-Y1LT- 25+88 25' LT)
MODEL IS 6.0'

SHEET 92


50
RW4_23 (-Y1LT- 25+40 29' LT)
MODEL IS 6.0'


RW4_23
SOIL EROSION UNDER TREE ROOTS
MODEL IS 6.0'

SHEET 93

RW4_23
SOIL EROSION UNDER TREE ROOTS, POSSIBLE CREEP
MODEL IS 6.0'

RW4_20 (-Y1LT- 23+92 26' LT)
CUT SECTION, NOT NATURAL (ASSUMED)
MODEL IS 6.0'

SHEET 94


SCARP
CREEP
RW4_18 (-Y1LT- 22+93 21' LT)
TOE BULGE, SCARP, CREEP
MODEL IS 6.0'


SCARP
CREEP
BULGE
RW4_18
TOE BULGE, SCARP, CREEP
MODEL IS 6.0'

SHEET 95

RW4_18
TOE BULGE, SCARP, CREEP
MODEL IS 6.0'

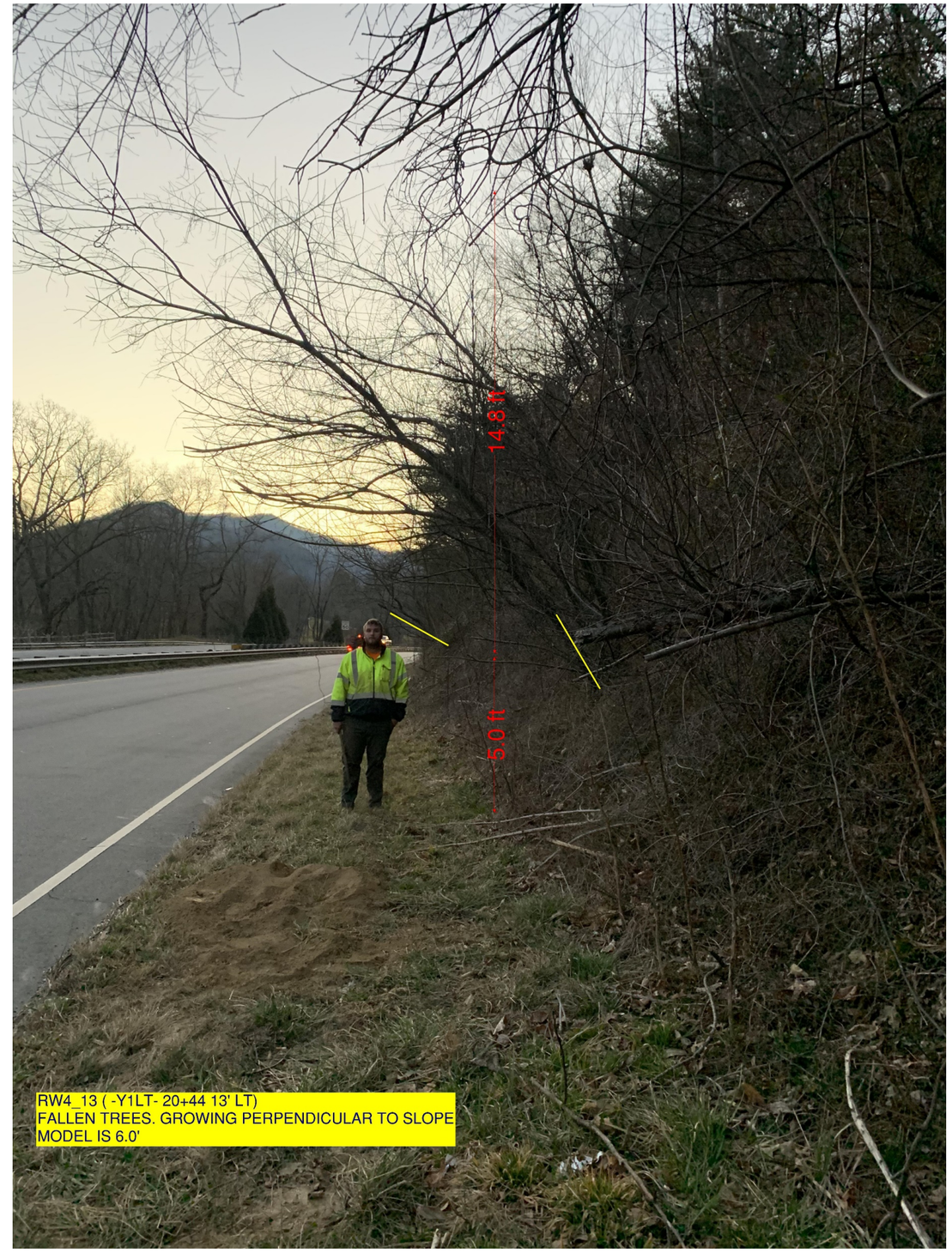
RW4_17 (-Y1LT- 22+44 29' LT)
CONTINUED SLIP PLANE/SCARP
MODEL IS 6.0'

SHEET 96


18.3 ft
RW4_15 (-Y1LT- 21+43 12' LT)
MODEL IS 6.0'


13.4 ft
RW4_14 (-Y1LT- 20+94 18' LT)
SOIL EROSION
MODEL IS 6.0'

RW4_14
SOIL EROSION
MODEL IS 6.0'



RW4_13 (-Y1LT- 20+44 13' LT)
FALLEN TREES. GROWING PERPENDICULAR TO SLOPE
MODEL IS 6.0'


14.8 ft
5.0 ft
RW4_12
TREES GROWING PERPENDICULAR TO SLOPE
MODEL IS 6.0'