

REFERENCE: HB-0002

PROJECT: 55041

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY HAYWOOD
PROJECT DESCRIPTION REPLACE BRIDGE NO. 248 &
249 ON I-40 OVER SR 1613 (BEAVERDAM ROAD)

SITE DESCRIPTION
RETAINING WALL -WLI-

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4-5	PROFILES
6-21	CROSS SECTIONS
22-29	BORE LOGS
30	SITE PHOTOGRAPHS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0002	1	30

CAUTION NOTICE

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

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

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

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

PERSONNEL

J. KARDON

TRIGON EXPLORATION

INVESTIGATED BY J. KARDON DS

DRAWN BY M. FOSTER DM

CHECKED BY T. WELLS

SUBMITTED BY KLEINFELDER, INC.

DATE DECEMBER 2022

Prepared in the Office of:



KLEINFELDER
Bright People. Right Solutions.
422 GALLIMORE DAIRY ROAD, SUITE B
GREENSBORO, NORTH CAROLINA 27409
NC ENGINEERING FIRM LICENSE NO. F-1312



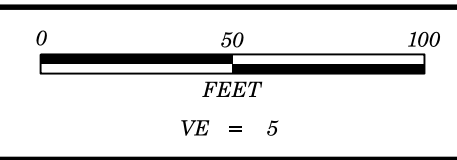
DocuSigned by:
Thomas R. Wells 12/07/2022

7DA5D2D0518F480 SIGNATURE DATE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

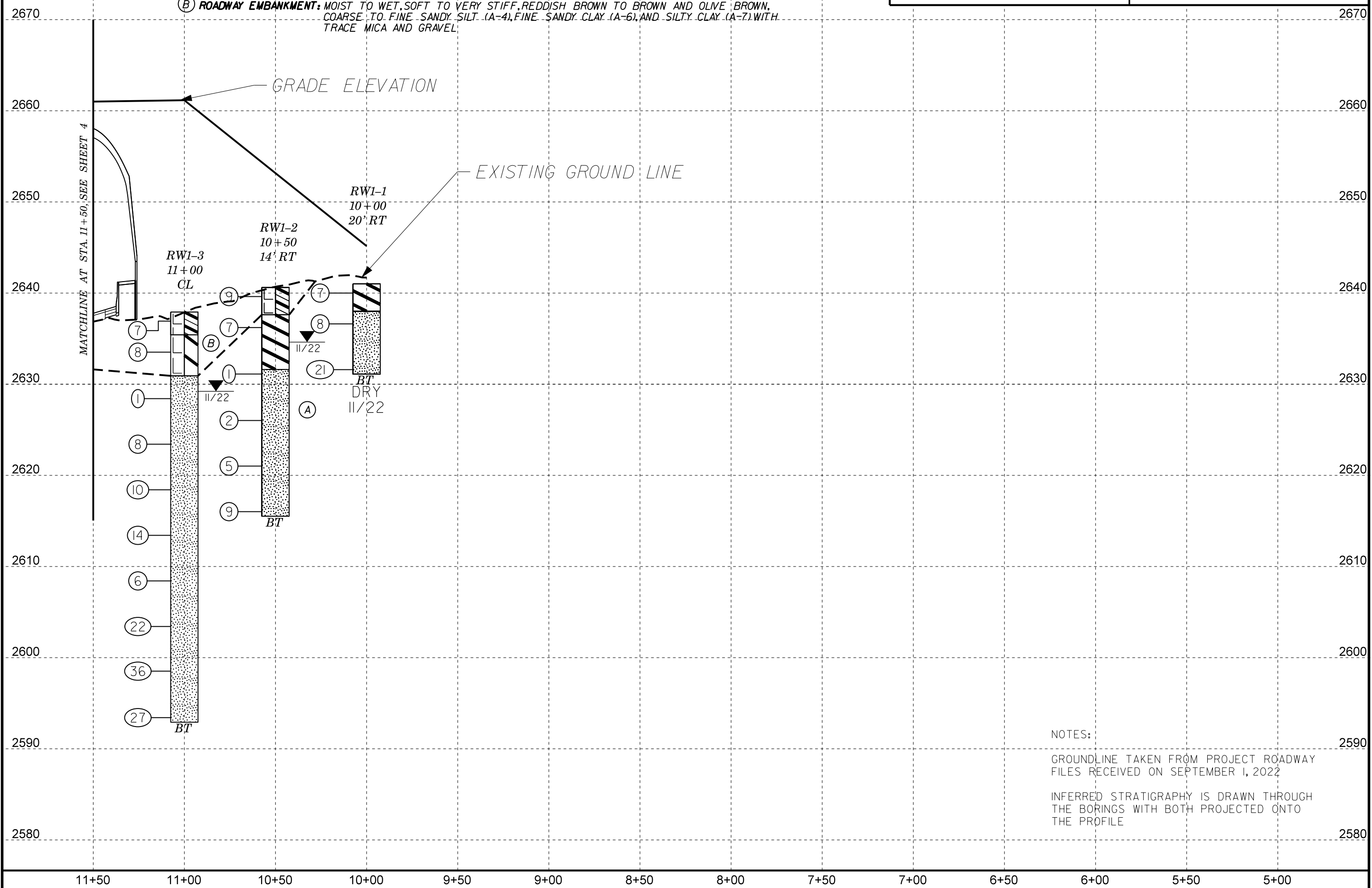
SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																																																																																																																																												
<p>SOIL IS CONSIDERED UNCONSOLIDATED, 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, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p>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.</p>										<p>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:</p>										<p>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 (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																																																												
<p style="text-align: center;">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="5">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="5">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="5">ORGANIC MATERIALS</th> </tr> <tr> <th>A-1</th> <th>A-2</th> <th>A-3</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> <th>A-6, A-7</th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1-a</td> <td>A-1-b</td> <td>A-2-4</td> <td>A-2-5</td> <td>A-2-6</td> <td>A-2-7</td> <td>A-4</td> <td>A-5</td> <td>A-6</td> <td>A-7</td> <td>A-1, A-2</td> <td>A-3</td> <td>A-4, A-5</td> <td>A-6, A-7</td> <td></td> </tr> <tr> <td>SYMBOL</td> <td colspan="5">[Pattern]</td> <td colspan="5">[Pattern]</td> <td colspan="5">[Pattern]</td> </tr> <tr> <td>% PASSING #10 #40 #200</td> <td>50 MX 30 MX 15 MX</td> <td>50 MX 25 MX 10 MX</td> <td>51 MN 35 MX 35 MX</td> <td>40 MX 41 MN 10 MX 11 MN</td> <td>40 MX 41 MN 11 MN 11 MN</td> <td>40 MX 41 MN 11 MN 11 MN</td> <td>36 MN 36 MN 36 MN</td> <td>40 MX 41 MN 40 MX 41 MN</td> <td>40 MX 41 MN 40 MX 41 MN</td> <td>40 MX 41 MN 40 MX 41 MN</td> <td>40 MX 41 MN 40 MX 41 MN</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MATERIAL PASSING #40 LL PI</td> <td colspan="5"></td> <td colspan="5"></td> <td colspan="5">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> </tr> <tr> <td>GROUP INDEX</td> <td colspan="5">0</td> <td colspan="5">4 MX</td> <td colspan="5">8 MX 12 MX 16 MX NO MX</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td colspan="2">STONE FRAGS. 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ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p style="text-align: center;">WEATHERING</p> <p>FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (V SL.): ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.</p> <p>SLIGHT (SL.): ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</p> <p>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.</p> <p>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. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i></p> <p>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. <i>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</i></p> <p>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. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i></p> <p>COMPLETE: ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. FABRIC MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.</p>										<p style="text-align: center;">PERCENTAGE OF MATERIAL</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table>											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
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<p style="text-align: center;">COLOR</p> <p>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.</p>										<p style="text-align: center;">INDURATION</p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p>FRIABLE: RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED: GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED: GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED: SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>																																																																																																																																																																																																
<p style="text-align: center;">FRACATURE SPACING</p>										<p style="text-align: center;">BEDDING</p>										<p style="text-align: center;">BENCH MARK: N/A</p> <p style="text-align: right;">ELEVATION: N/A FEET</p>																																																																																																																																																																																						
<p style="text-align: center;">NOTES:</p> <p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p> <p>RETAINING WALL BORING ELEVATIONS WERE TAKEN FROM THE PROJECT TIN FILE H0002.LS.TIN.TIN RECEIVED ON OCTOBER 18, 2022.</p>										<p style="text-align: right;">DATE: 8-15-14</p>																																																																																																																																																																																																



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	5
PROFILE ON RETAINING WALL -WLI-	

(A) **RESIDUAL:** MOIST TO SATURATED, VERY SOFT TO HARD, REDDISH BROWN, YELLOW BROWN, OLIVE YELLOW, WHITE, GRAY, OLIVE BROWN, AND OLIVE YELLOW, COARSE TO FINE SANDY SILT (A-4), CLAYEY SILT (A-5), AND SILTY CLAY (A-7)

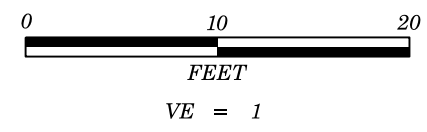
(B) **ROADWAY EMBANKMENT:** MOIST TO WET, SOFT TO VERY STIFF, REDDISH BROWN TO BROWN AND OLIVE BROWN, COARSE TO FINE SANDY SILT (A-4), FINE SANDY CLAY (A-6), AND SILTY CLAY (A-7) WITH TRACE MICA AND GRAVEL



NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022

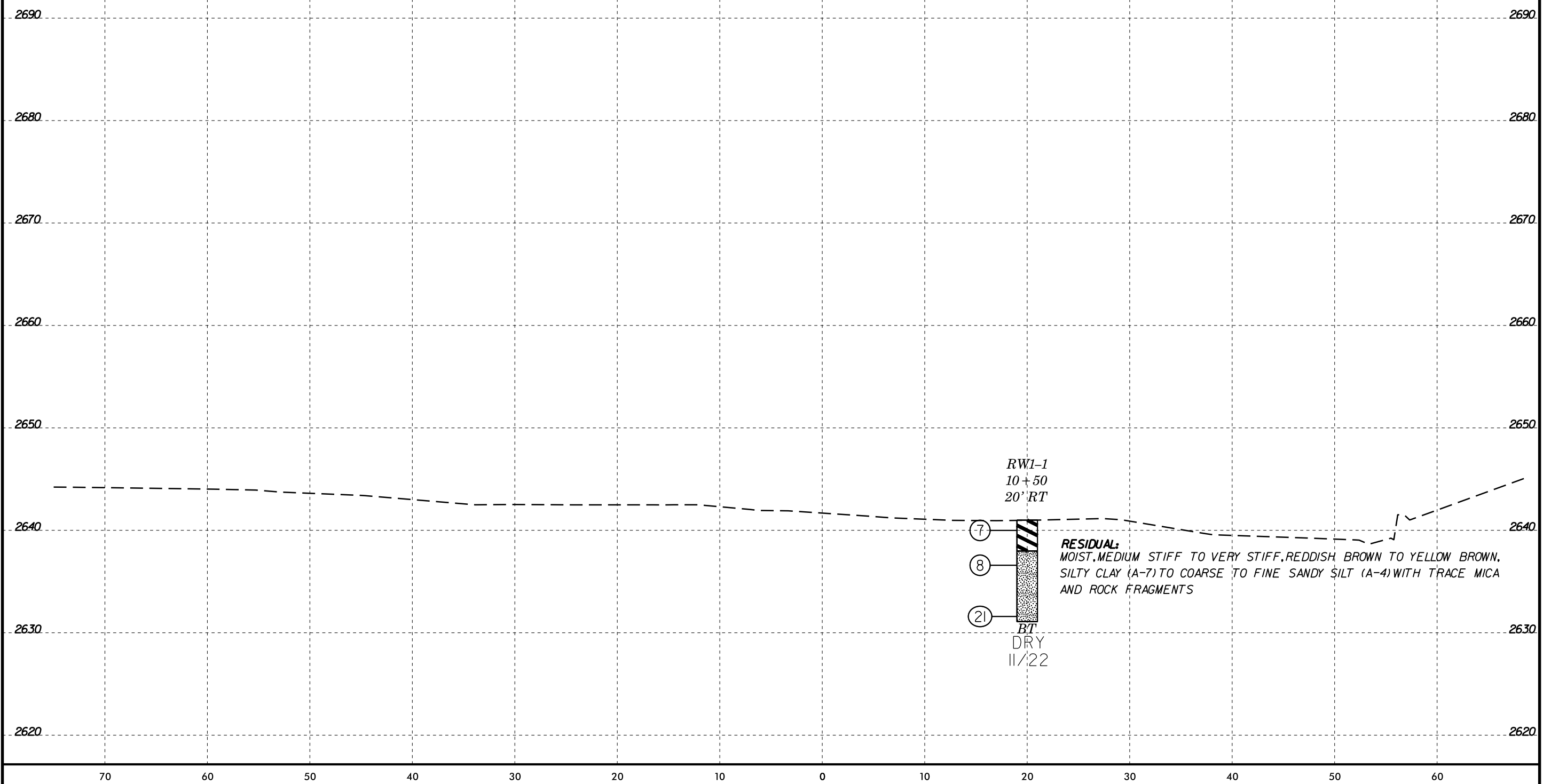
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE



NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

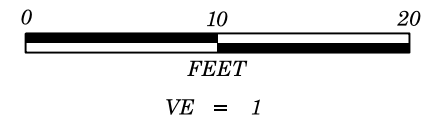
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.



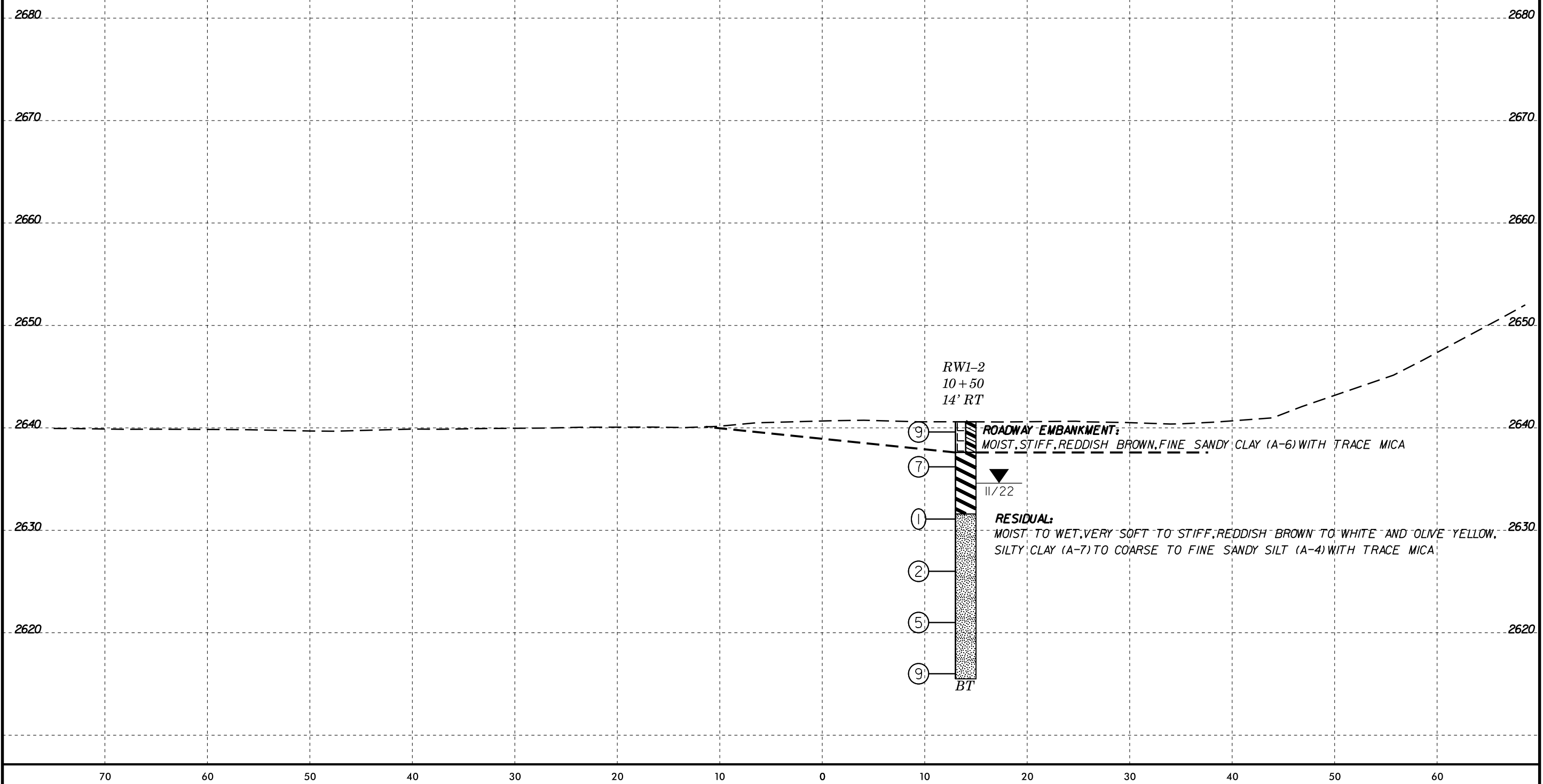
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	7
CROSS SECTION RETAINING WALL -W1- AT STA. 10+50	



RW1-2
10+50
14' RT

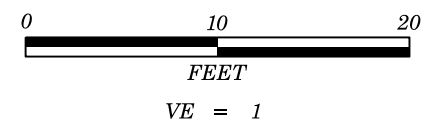
- 9
- 7
- 1
- 2
- 5
- 9

ROADWAY EMBANKMENT:
MOIST, STIFF, REDDISH BROWN, FINE SANDY CLAY (A-6) WITH TRACE MICA

RESIDUAL:
MOIST TO WET, VERY SOFT TO STIFF, REDDISH BROWN TO WHITE AND OLIVE YELLOW,
SILTY CLAY (A-7) TO COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

1 1/2 / 2

BT



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NOTES:

2680 GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022. 2680

2670 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION. 2670

2660 2660

2650 2650

2640 2640

2630 2630

2620 2620

2610 2610

2600 2600

2590 2590

70 60 50 40 30 20 10 0 10 20 30 40 50 60

RW1-3
11+00
CL

- ⑦
- ⑧
- ①
- ⑧
- ⑩
- ⑭
- ⑥
- ②②
- ③⑥
- ②⑦

ROADWAY EMBANKMENT:
MOIST, MEDIUM STIFF, REDDISH BROWN TO OLIVE YELLOW AND GRAY, FINE SANDY CLAY (A-6) TO SILTY CLAY (A-7)

RESIDUAL:
MOIST TO WET, VERY SOFT TO HARD, OLIVE BROWN AND GRAY, COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA AND MANGANESE

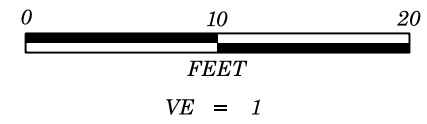
BT

6/23/16

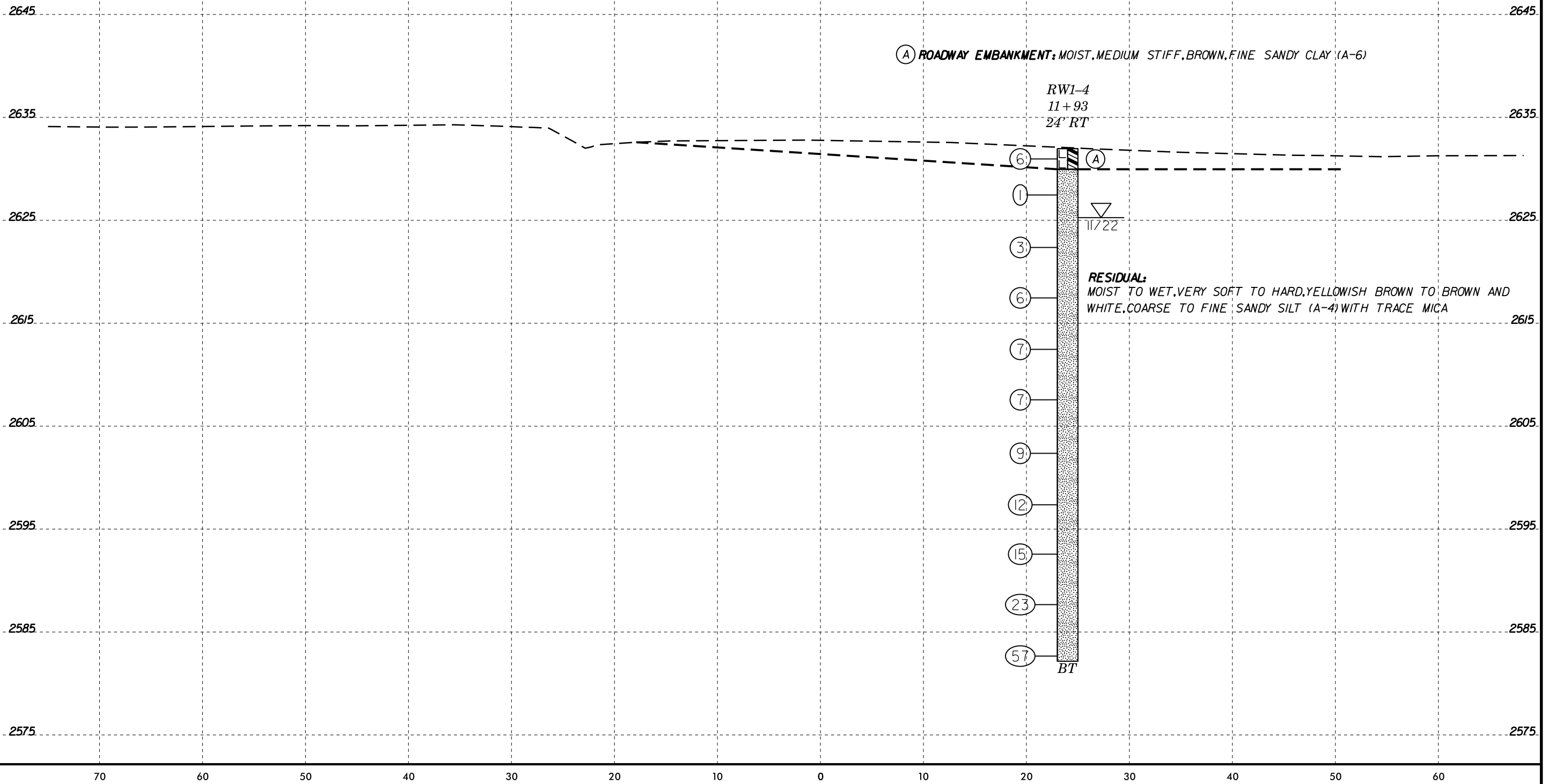
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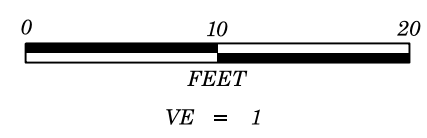
2665 GROUNDLINE TAKEN FROM PROJECT ROADWAY
FILES RECEIVED ON SEPTEMBER 1, 2022.

2655 INFERRED STRATIGRAPHY IS DRAWN THROUGH
THE BORINGS WITH BOTH PROJECTED ONTO
THE CROSS SECTION.



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	9
CROSS SECTION RETAINING WALL -WLI- AT STA. 12+00	





NOTES:

2670 GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022. 2670

2660 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION. 2660

2650 2650

2640 2640

2630 2630

2620 2620

2610 2610

2600 2600

2590 2590

2600 2600

2590 2590

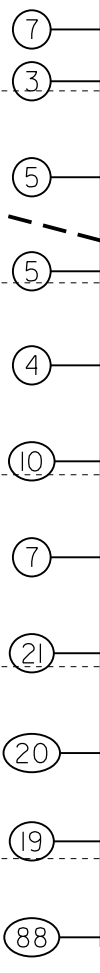
2600 2600

2590 2590

2580 2580

70 60 50 40 30 20 10 0 10 20 30 40 50 60

RW1-5
12+60
CL



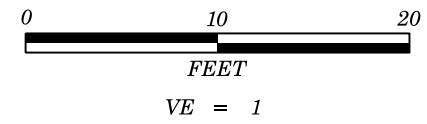
ROADWAY EMBANKMENT:
MOIST TO WET, MEDIUM STIFF TO SOFT, REDDISH BROWN TO BROWN,
COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

RESIDUAL:
MOIST AND MOIST, SOFT TO HARD, LIGHT BROWNISH GRAY TO BROWN AND WHITE,
CLAYEY SILT (A-5) TO COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

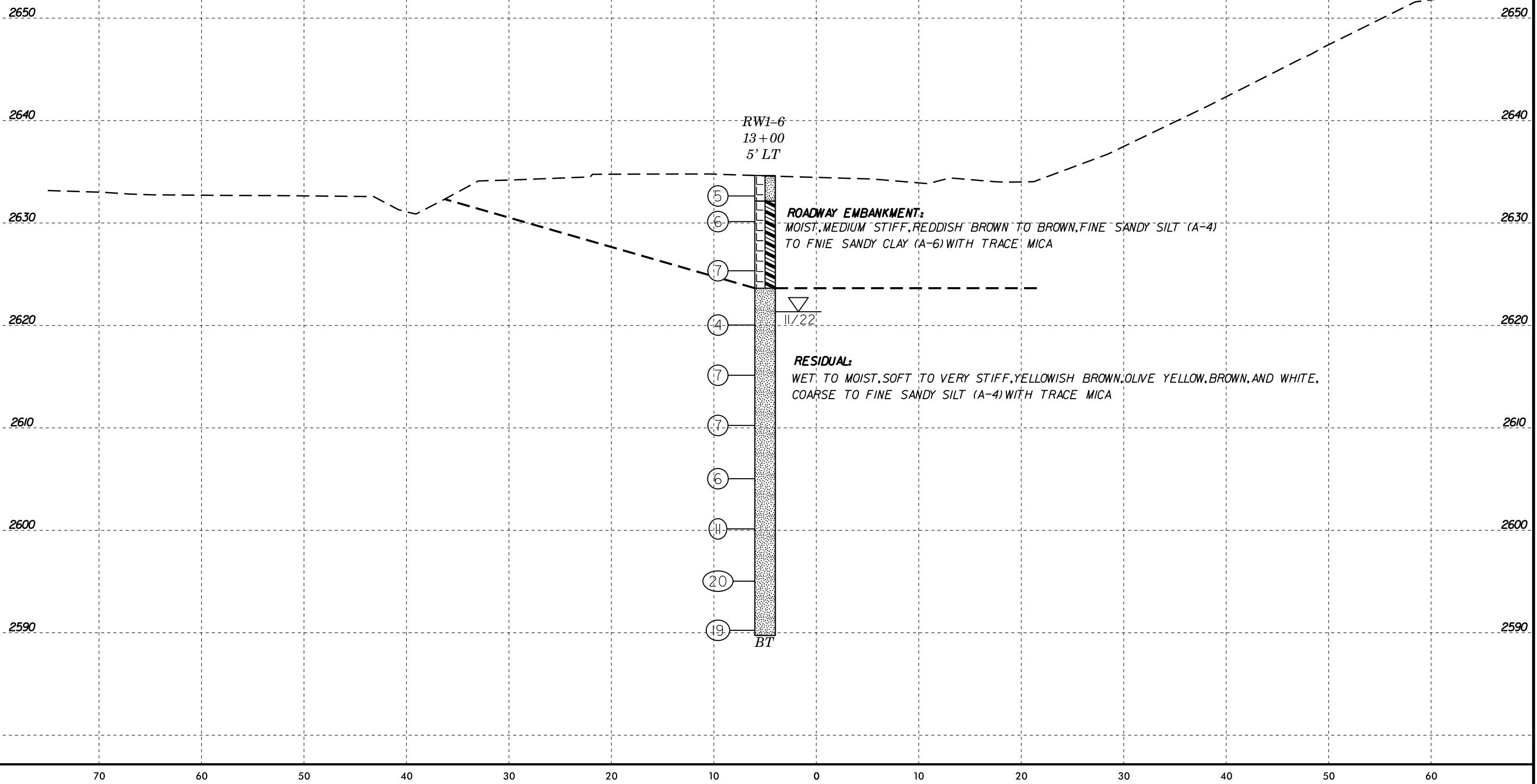
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2670 GROUNDLINE TAKEN FROM PROJECT ROADWAY
FILES RECEIVED ON SEPTEMBER 1, 2022.

2660 INFERRED STRATIGRAPHY IS DRAWN THROUGH
THE BORINGS WITH BOTH PROJECTED ONTO
THE CROSS SECTION.



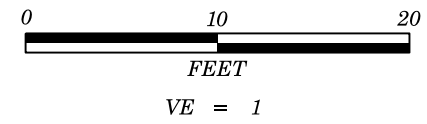
PROJECT REFERENCE NO.	SHEET NO.
HB-0002	11
CROSS SECTION RETAINING WALL -WLI- AT STA. 13+00	



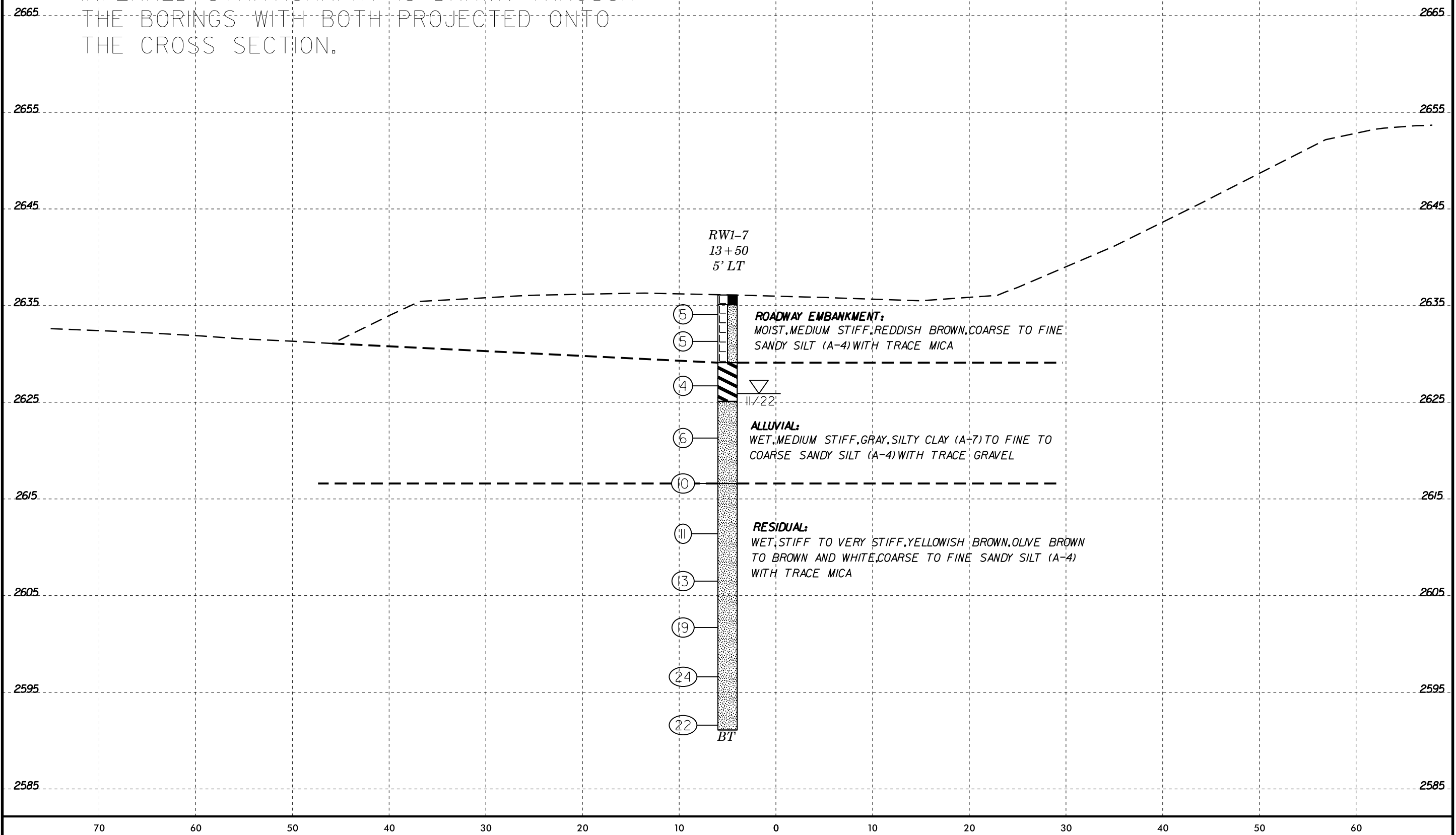
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	12
CROSS SECTION RETAINING WALL -W1- AT STA. 13+50	



RW1-7
13+50
5' LT

ROADWAY EMBANKMENT:
MOIST, MEDIUM STIFF, REDDISH BROWN, COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

ALLUVIAL:
WET, MEDIUM STIFF, GRAY, SILTY CLAY (A-7) TO FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL

RESIDUAL:
WET, STIFF TO VERY STIFF, YELLOWISH BROWN, OLIVE BROWN TO BROWN AND WHITE, COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

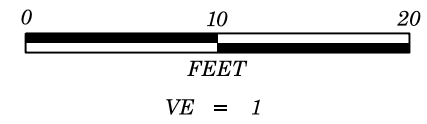
▽
11/22

BT

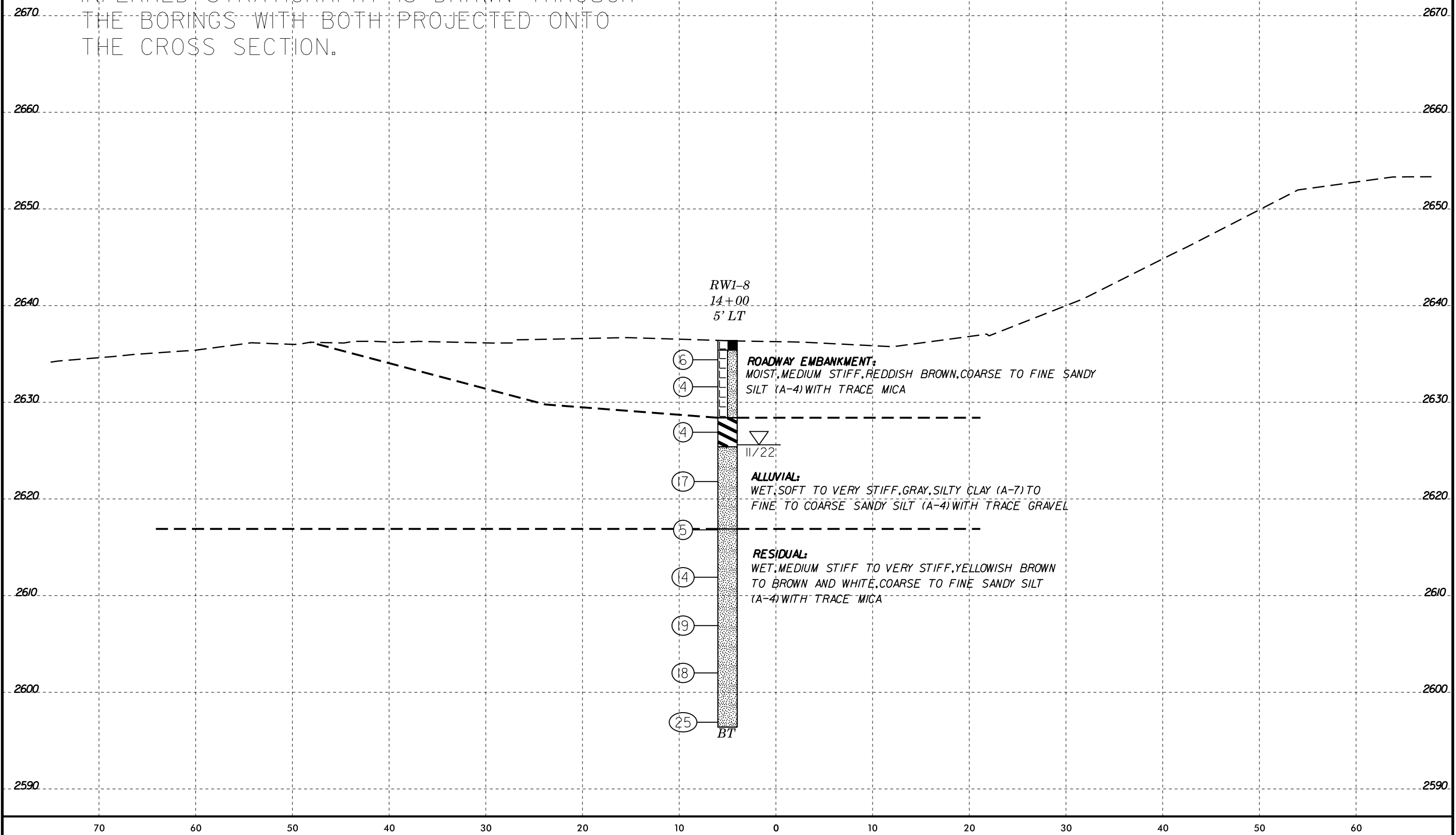
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



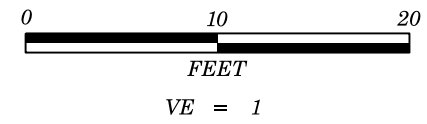
PROJECT REFERENCE NO.	SHEET NO.
HB-0002	13
CROSS SECTION RETAINING WALL -W1- AT STA. 14+00	



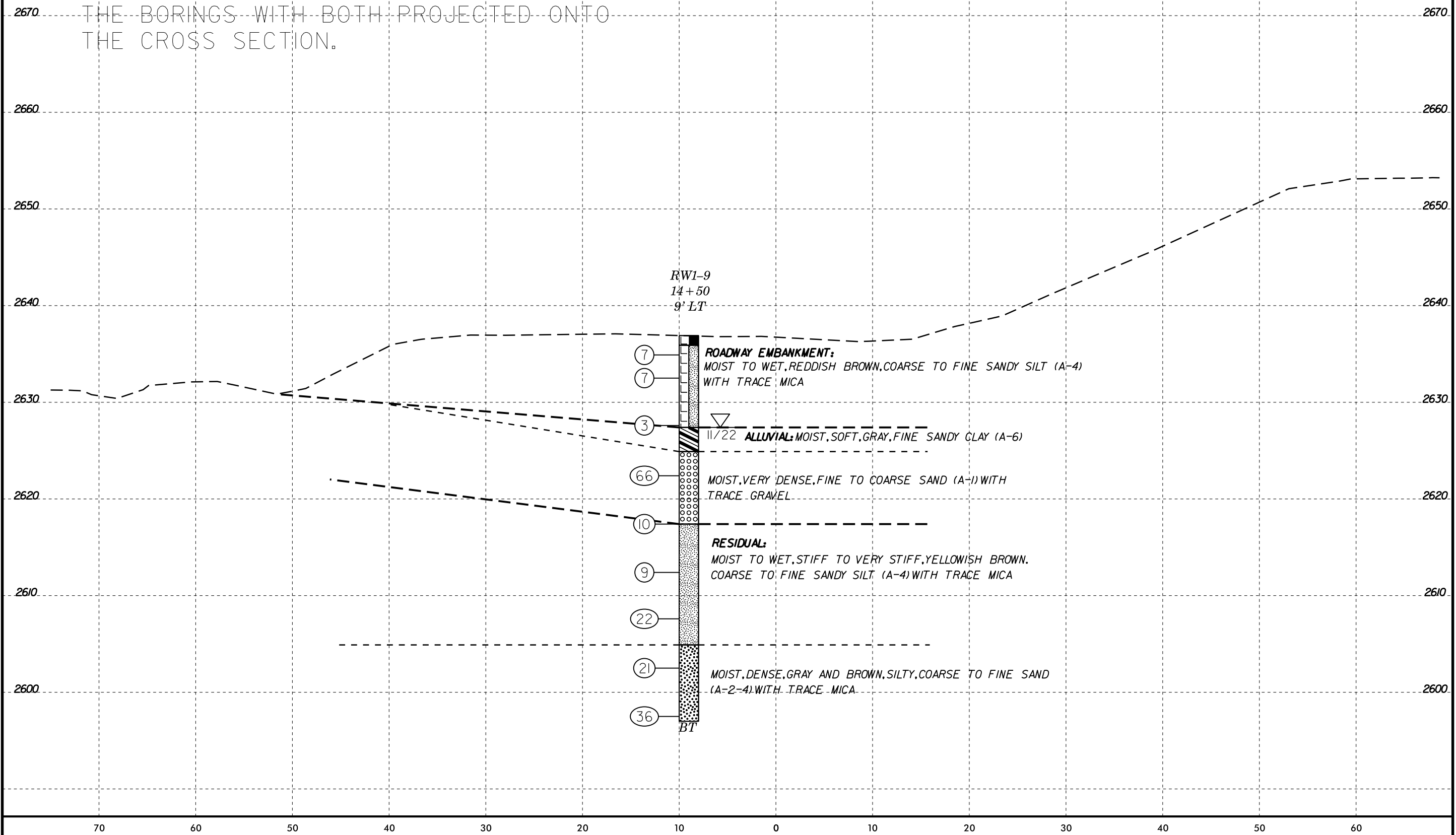
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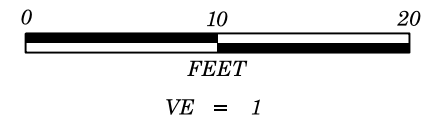
GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	14
CROSS SECTION RETAINING WALL -WLI- AT STA. 14+50	

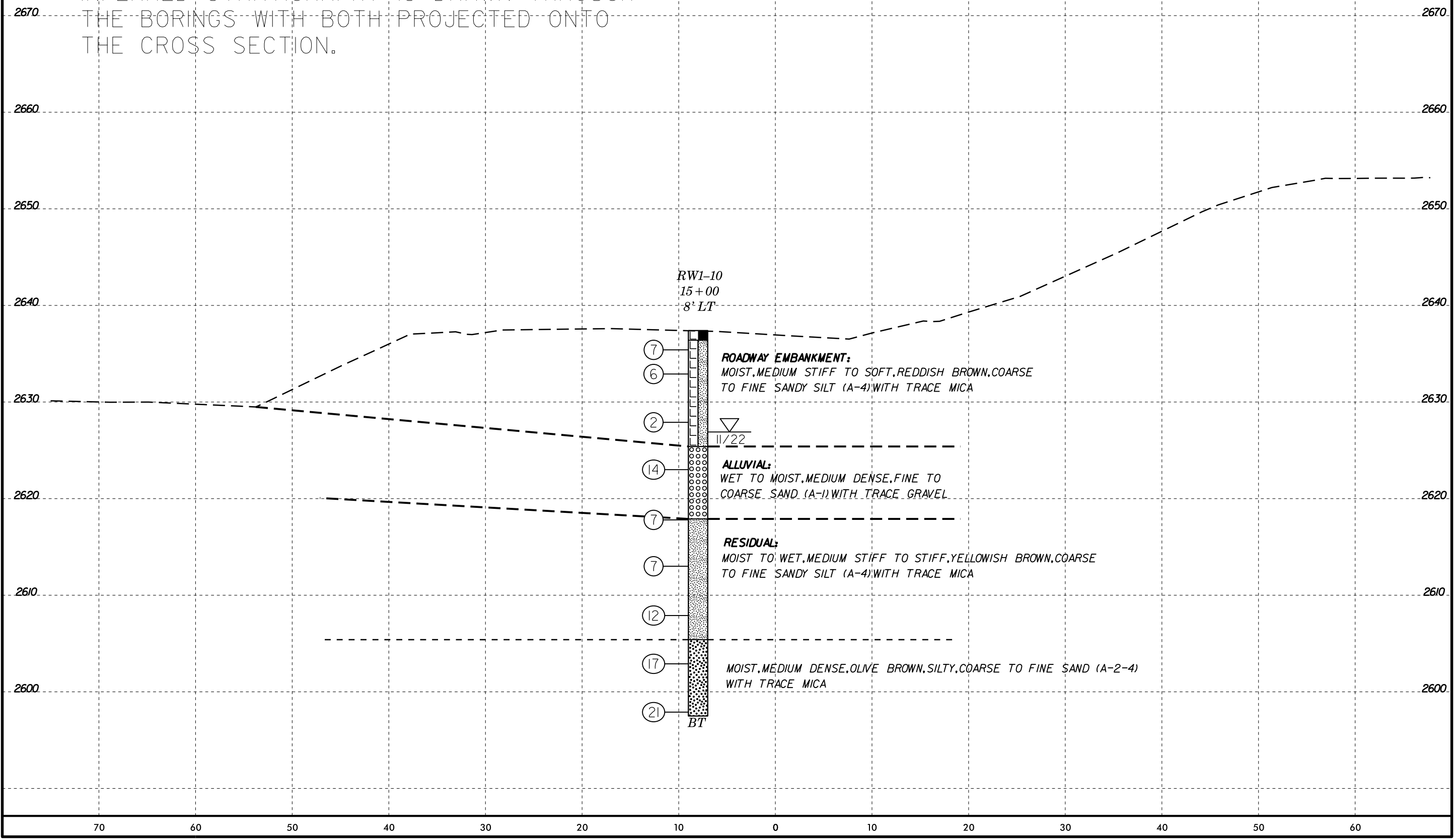


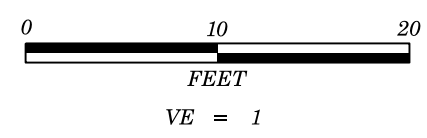


NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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

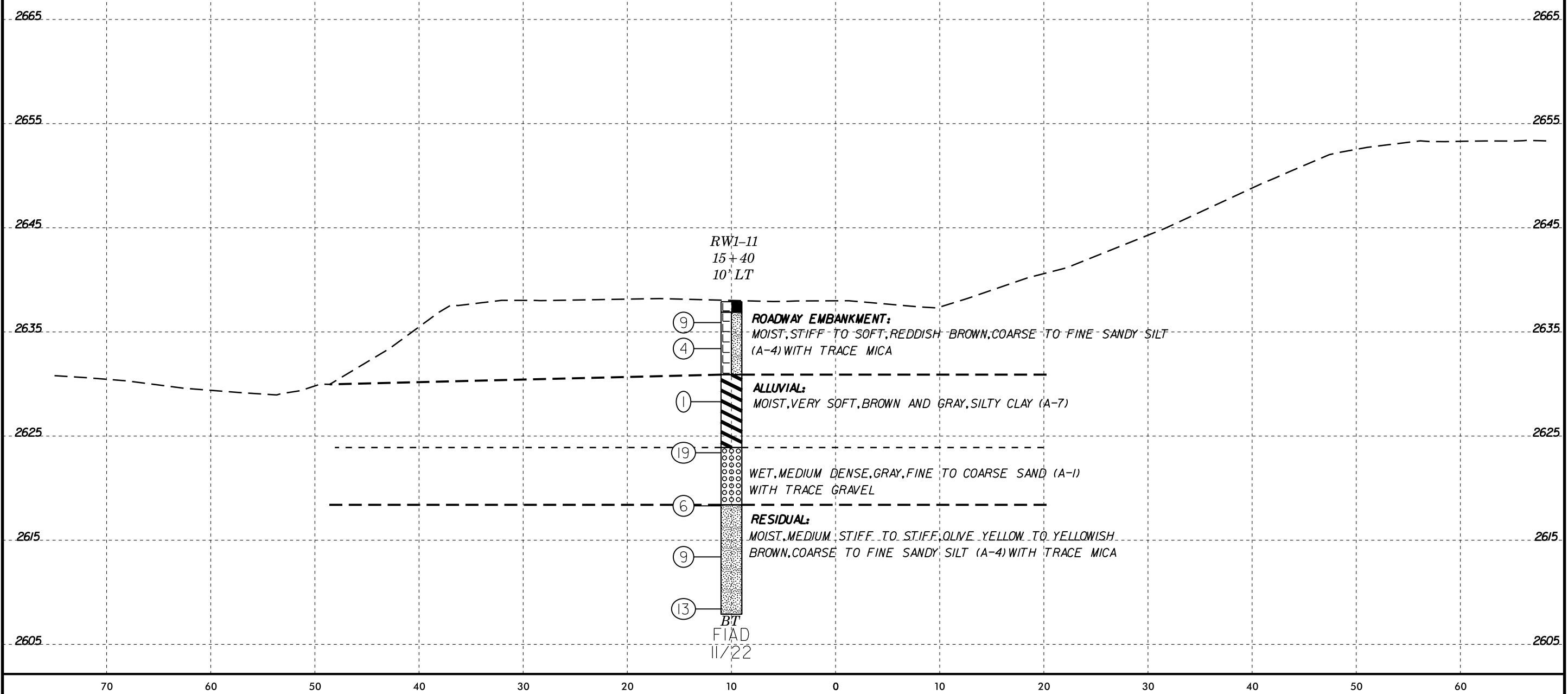




NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

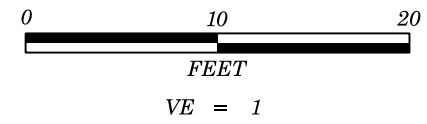
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.



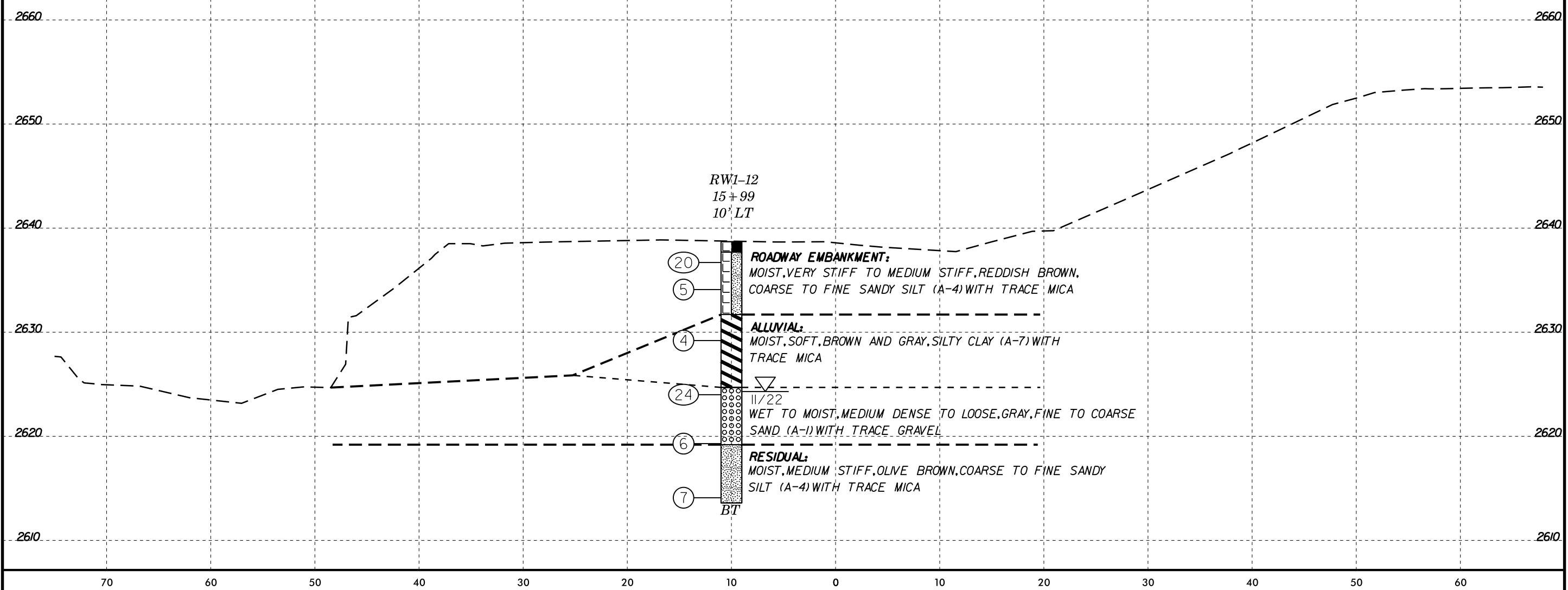
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



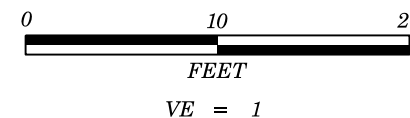
PROJECT REFERENCE NO.	SHEET NO.
HB-0002	17
CROSS SECTION RETAINING WALL -W1- AT STA. 16+00	



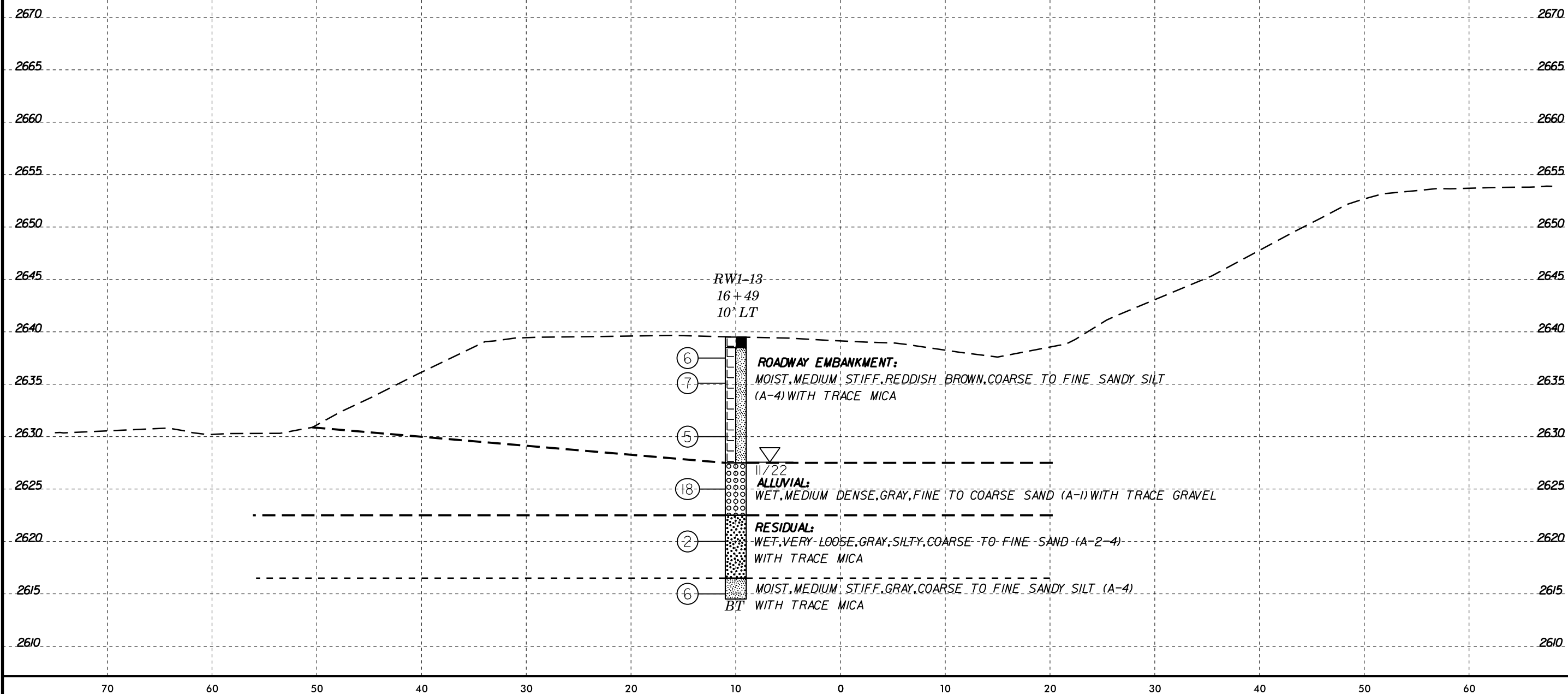
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



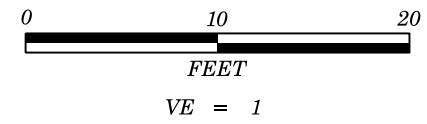
PROJECT REFERENCE NO.	SHEET NO.
HB-0002	18
CROSS SECTION RETAINING WALL -WLI- AT STA. 16+50	



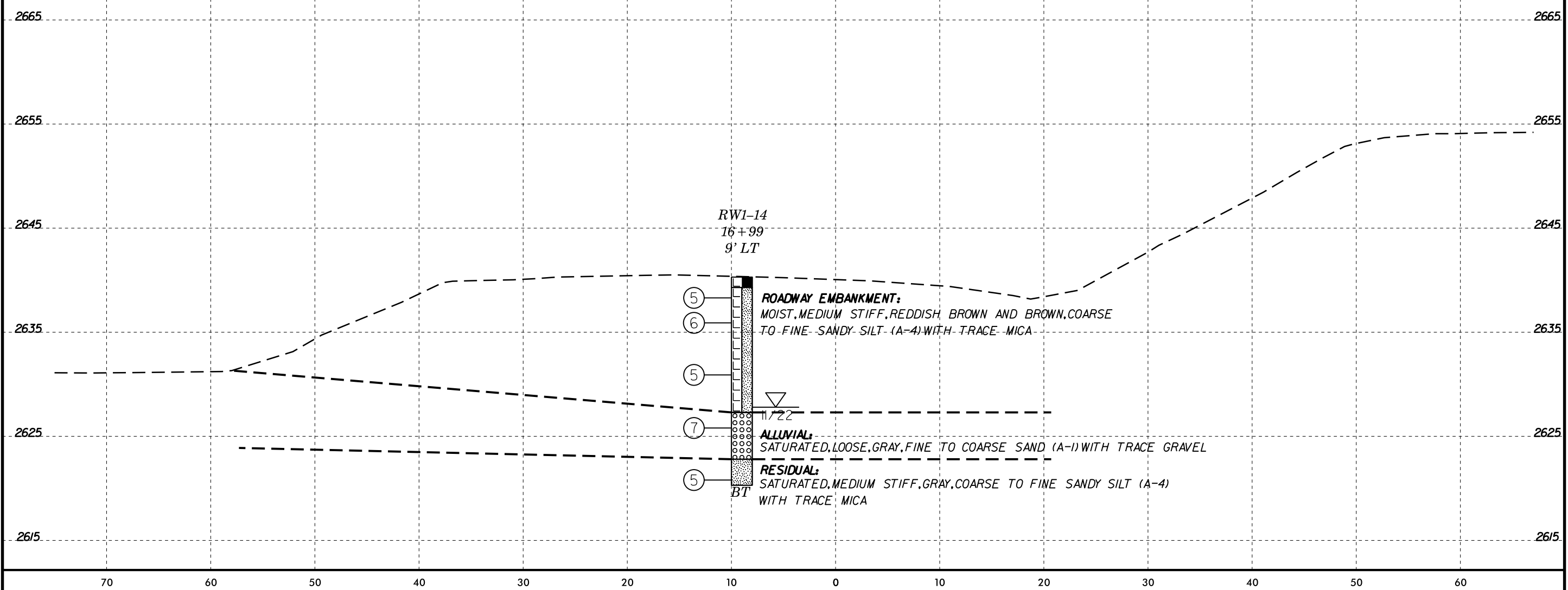
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	19
CROSS SECTION RETAINING WALL -WLI- AT STA. 17+00	



RWI-14
16+99
9' LT

⑤
⑥
ROADWAY EMBANKMENT:
MOIST, MEDIUM STIFF, REDDISH BROWN AND BROWN, COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

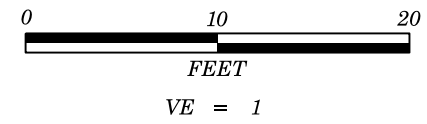
⑤
⑦
▽
2622.5
ALLUVIAL:
SATURATED, LOOSE, GRAY, FINE TO COARSE SAND (A-1) WITH TRACE GRAVEL

⑤
BT
RESIDUAL:
SATURATED, MEDIUM STIFF, GRAY, COARSE TO FINE SANDY SILT (A-4) WITH TRACE MICA

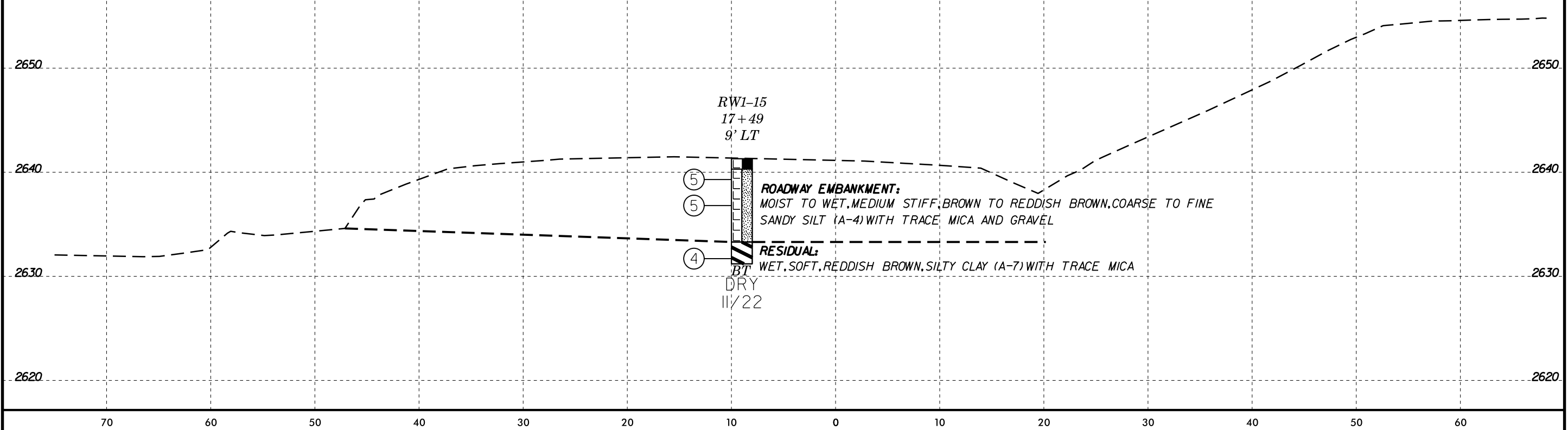
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



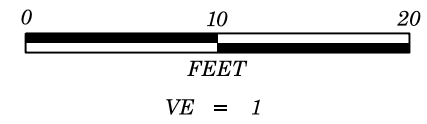
PROJECT REFERENCE NO.	SHEET NO.
HB-0002	20
CROSS SECTION RETAINING WALL -WLI- AT STA. 17+50	



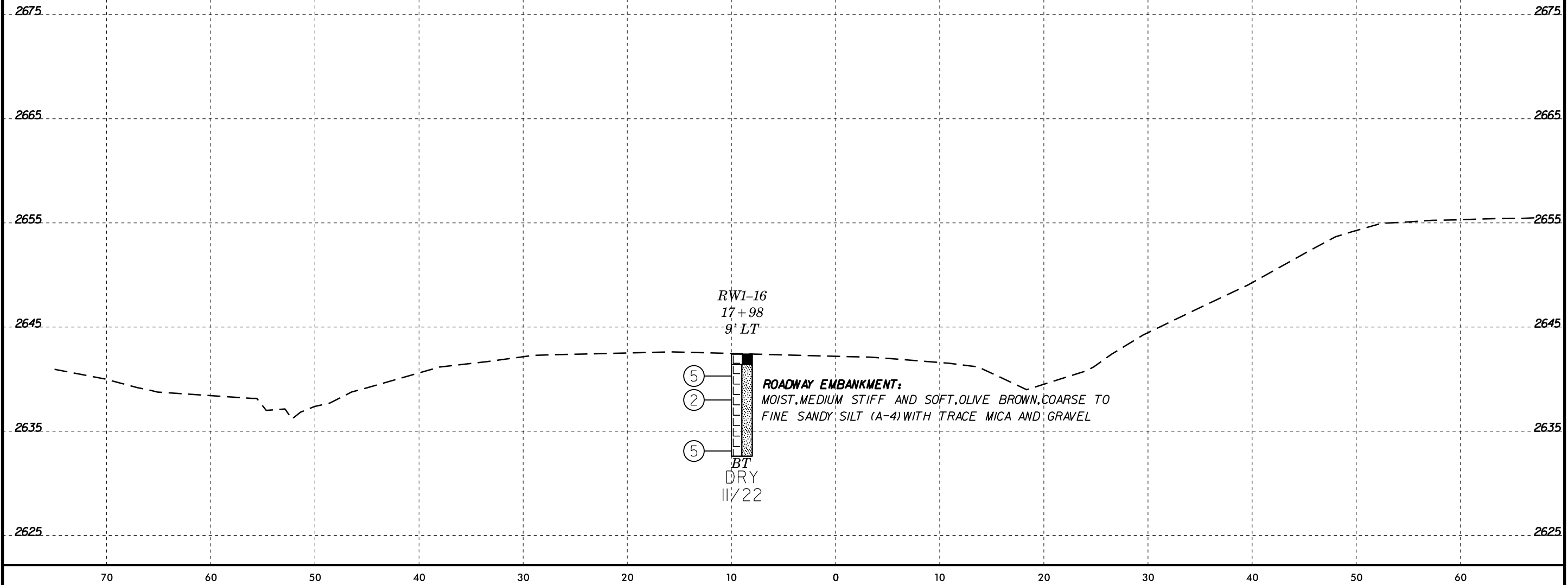
NOTES:

GROUNDLINE TAKEN FROM PROJECT ROADWAY FILES RECEIVED ON SEPTEMBER 1, 2022.

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



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	21
CROSS SECTION RETAINING WALL -W1- AT STA. 18+00	



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-1		STATION 10+00		OFFSET 20 ft RT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,641.0 ft		TOTAL DEPTH 9.9 ft		NORTHING 679,292		EASTING 860,680									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/03/22		COMP. DATE 11/03/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2645															
2640	2,641.0	0.0	2	3	4							M	GROUND SURFACE	0.0	
	2,637.6	3.4	3	4	4							M	RESIDUAL Reddish Brown, Silty CLAY (A-7)	3.0	
2635	2,632.6	8.4	9	17	4							M	Yellowish Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica and Rock Fragments	9.9	
Boring Terminated at Elevation 2,631.1 ft in RESIDUAL: Sandy SILT (A-4)															
Notes: Topsoil from 0.0 to 0.3 ft.															

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-2		STATION 10+50		OFFSET 14 ft RT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,640.6 ft		TOTAL DEPTH 25.1 ft		NORTHING 679,285		EASTING 860,730									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/02/22		COMP. DATE 11/02/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2645															
2640	2,640.6	0.0	2	6	3							M	GROUND SURFACE	0.0	
	2,637.2	3.4	2	4	3							M	ROADWAY EMBANKMENT Reddish Brown, Fine Sandy CLAY (A-6) with Trace Mica	3.0	
2635												M	RESIDUAL Olive Yellow, Silty CLAY (A-7)		
	2,632.1	8.5	WOH	WOH	1							M		9.0	
2630												M	White, Olive Yellow, and Reddish Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica		
	2,627.0	13.6	1	1	1							M			
2625												M			
	2,622.0	18.6	2	3	2							W			
2620												M			
	2,617.0	23.6	2	4	5							M			
Boring Terminated at Elevation 2,615.5 ft in RESIDUAL: Sandy SILT (A-4)															
Notes: Topsoil from 0.0 to 0.2 ft.															

NCDOT BORE DOUBLE HB0002_GEO_RWAL_GPJ_NC_DOT.GDT 11/14/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-5		STATION 12+60		OFFSET CL		ALIGNMENT -WL1-									
COLLAR ELEV. 2,635.2 ft		TOTAL DEPTH 49.8 ft		NORTHING 679,296		EASTING 860,938									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/04/22		COMP. DATE 11/04/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2640															
2635	2,634.2	1.0	3	3	4								M	2,635.2 GROUND SURFACE 0.0 2,634.2 ROADWAY EMBANKMENT 1.0 Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	
2630	2,631.5	3.7	3	2	1								M	Reddish Brown to Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
2625	2,626.5	8.7	2	2	3								W		
2620	2,621.6	13.6	1	2	3								W	2,622.2 RESIDUAL 13.0 Light Brownish Gray, Clayey SILT (A-5) with Trace Mica	
2615	2,616.7	18.5	WOH	2	2								W		
2610	2,611.7	23.5	2	5	5								M		
2605	2,606.7	28.5	2	3	4								M	2,609.2 Brown and White, Coarse to Fine Sandy SILT (A-4) with Trace Mica 26.0	
2600	2,601.7	33.5	9	11	10								M		
2595	2,596.5	38.7	7	9	11								M		
2590	2,591.9	43.3	9	10	9								W		
	2,586.9	48.3	8	29	59								M		
														Boring Terminated at Elevation 2,585.4 ft in RESIDUAL: Sandy SILT (A-4)	

NCDOT BORE DOUBLE HB0002_GEO_RWAL_GPJ_NC_DOT_GDT 11/14/22

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-6		STATION 13+00		OFFSET 5 ft LT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,635.7 ft		TOTAL DEPTH 44.9 ft		NORTHING 679,298		EASTING 860,978									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/07/22		COMP. DATE 11/07/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2640															
2635	2,634.7	1.0	4	2	3								M	2,635.7 GROUND SURFACE 0.0 2,634.7 ROADWAY EMBANKMENT 1.0 Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	
2630	2,632.2	3.5	4	3	3								M	2,633.2 ROADWAY EMBANKMENT 2.5 Reddish Brown, Fine Sandy SILT (A-4)	
2625	2,627.4	8.3	6	3	4								M	ROADWAY EMBANKMENT Brown, Fine Sandy CLAY (A-6) with Trace Gravel	
2620	2,622.1	13.6	1	2	2								W	2,624.7 RESIDUAL 11.0 Yellowish Brown, Olive Yellow, Brown and White, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
2615	2,617.2	18.5	1	3	4								W		
2610	2,612.3	23.4	2	3	4								W		
2605	2,607.1	28.6	2	3	3								W		
2600	2,602.2	33.5	3	5	6								W		
2595	2,597.1	38.6	4	9	11								M		
	2,592.3	43.4	5	8	11								M		
														Boring Terminated at Elevation 2,590.8 ft in RESIDUAL: Sandy SILT (A-4)	

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-13		STATION 16+49		OFFSET 10 ft LT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,639.5 ft		TOTAL DEPTH 25.0 ft		NORTHING 679,280		EASTING 861,327									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/01/22		COMP. DATE 11/01/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2640														2,639.5 GROUND SURFACE 0.0	
	2,638.5	1.0	4	3	3								M	2,638.5 ROADWAY EMBANKMENT 1.0	
	2,636.1	3.4	7	4	3								M	Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	
2635														Reddish Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
	2,631.0	8.5	1	2	3								M		
2630															
	2,626.0	13.5	2	10	8								W	2,627.5 ALLUVIAL 12.0	
														Gray, Fine to Coarse SAND (A-1) with Trace Gravel	
2625															
	2,621.0	18.5	WOH	1	1								W	2,622.5 RESIDUAL 17.0	
														Gray, Silty, Coarse to Fine SAND (A-4) with Trace Mica	
2620															
	2,616.0	23.5	1	2	4								W	2,616.5 23.0	
														Gray, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
2615													M	2,614.5 25.0	
														Boring Terminated at Elevation 2,614.5 ft in RESIDUAL: Sandy SILT (A-4)	

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-14		STATION 16+99		OFFSET 9 ft LT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,640.3 ft		TOTAL DEPTH 20.0 ft		NORTHING 679,275		EASTING 861,377									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/01/22		COMP. DATE 11/01/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2645														2,640.3 GROUND SURFACE 0.0	
	2,639.3	1.0	5	2	3								M	2,639.3 ROADWAY EMBANKMENT 1.0	
	2,636.9	3.4	2	1	5								M	Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	
2640														Reddish Brown and Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
	2,631.9	8.4	2	2	3								M		
2635															
	2,626.8	13.5	4	5	2								Sat.	2,627.3 ALLUVIAL 13.0	
														Gray, Fine to Coarse SAND (A-1) with Trace Gravel	
2630															
	2,621.8	18.5	2	2	3								Sat.	2,622.8 RESIDUAL 17.5	
														Gray, Coarse to Fine Sandy SILT (A-4) with Trace Mica	
2625															
	2,620.3	20.0												Boring Terminated at Elevation 2,620.3 ft in RESIDUAL: Sandy SILT (A-4)	

NCDOT BORE DOUBLE HB0002_GEO_RWAL_GPJ_NC_DOT.GDT 11/14/22

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-15		STATION 17+49		OFFSET 9 ft LT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,641.3 ft		TOTAL DEPTH 10.1 ft		NORTHING 679,269		EASTING 861,427									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/01/22		COMP. DATE 11/01/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2645															
2640	2,640.3	1.0	6	3	2							M	GROUND SURFACE 2,641.3 ROADWAY EMBANKMENT 2,640.3 Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	0.0 1.0	
	2,637.8	3.5	2	3	2							W	Brown to Reddish Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica and Gravel		
2635	2,632.7	8.6	1	2	2							W	RESIDUAL Reddish Brown, Silty CLAY (A-7) with Trace Mica Boring Terminated at Elevation 2,631.2 ft in RESIDUAL: Silty CLAY (A-7)	8.0 10.1	

WBS 55041.1.1		TIP HB-0002		COUNTY HAYWOOD		GEOLOGIST Kardon, J.									
SITE DESCRIPTION Replace Bridge No. 248 & 249 on I-40 over SR 1613 (Beaverdam Road): Retaining Wall -WL1-							GROUND WTR (ft)								
BORING NO. RW1-16		STATION 17+98		OFFSET 9 ft LT		ALIGNMENT -WL1-									
COLLAR ELEV. 2,642.4 ft		TOTAL DEPTH 9.8 ft		NORTHING 679,263		EASTING 861,476									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 87% 05/09/2022				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 11/01/22		COMP. DATE 11/01/22		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
2645															
2640	2,641.3	1.1	6	3	2							M	GROUND SURFACE 2,642.4 ROADWAY EMBANKMENT 2,641.4 Pavement: Asphalt (0.0 to 0.3 ft.) & ABC Stone (0.3 to 1.0 ft.)	0.0 1.0	
	2,639.0	3.4	1	1	1							M	Olive Brown, Coarse to Fine Sandy SILT (A-4) with Trace Mica and Gravel		
2635	2,634.1	8.3	2	3	2							M	Boring Terminated at Elevation 2,632.6 ft in RESIDUAL: Sandy SILT (A-4)	9.8	
Notes: Topsoil from 0.0 to 0.2 ft.															

NCDOT BORE DOUBLE HB0002_GEO_RWAL_GPJ_NC_DOT.GDT 11/14/22

SITE PHOTOGRAPH

View of Retaining Wall



Looking East from West End of Retaining Wall along -WL1-