

REFERENCE: BR-0063

PROJECT: 67063

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

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|------|----------------|-------|---------|
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CROSS SECTIONS

| LINE | STATION | SHEETS |
|------|----------------|--------------|
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT

**ROADWAY
 SUBSURFACE INVESTIGATION**

COUNTY ANSON
 PROJECT DESCRIPTION REPLACE BRIDGE NUMBER 87
 ON NC 742 OVER RICHARDSON CREEK

INVENTORY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | BR-0063 | 1 | 26 |

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 1919 T07-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

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- NOTES:
- 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

CAMERON STRATTON

THOMAS PARK

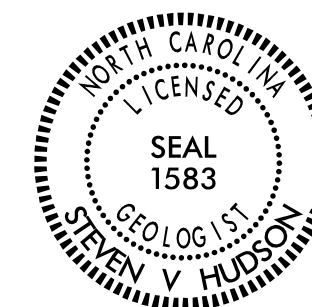
INVESTIGATED BY CATLIN

DRAWN BY S. V. HUDSON, LG

CHECKED BY J. LEE STONE, LG

SUBMITTED BY S. V. HUDSON, LG

DATE JUNE 2023



DocuSigned by:
Steve V. Hudson 07/12/2023
 01DB23BB740D66
 SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (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

Table with columns for General Class, Group Class, Symbol, % Passing, Material Passing #10 #40 #200, Group Index, Usual Types of Major Materials, Gen. Rating as Subgrade, and Soil Legend symbols.

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

CONSISTENCY OR DENSENESS

Table mapping Primary Soil Type (Generally Granular, Generally Silty-Clay) to Consistency or Denseness (Very Loose, Medium Dense, etc.) and Range of Standard Penetration Resistance (N-value).

TEXTURE OR GRAIN SIZE

Table showing U.S. Std. Sieve Size (mm and in) for Boulder, Cobble, Gravel, Coarse Sand, Fine Sand, Silt, and Clay.

SOIL MOISTURE - CORRELATION OF TERMS

Table correlating Soil Moisture Scale (Atterberg Limits), Field Moisture Description (Saturated, Wet, Moist, Dry), and Guide for Field Moisture Description (Usually Liquid, Semisolid, Solid).

PLASTICITY

Table mapping Plasticity Index (PI) to Plasticity (Non-plastic, Slightly plastic, etc.) and Dry Strength (Very low, Light, Medium, High).

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). 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

Table showing percentages for Organic Material, Granular Soils, Silty-Clay Soils, and Other Material (Trace of organic matter, Little organic matter, etc.).

GROUND WATER

Water level symbols: Water level in bore hole immediately after drilling, Static water level after 24 hours, Perched water, saturated zone, or water bearing strata, Spring or seep.

MISCELLANEOUS SYMBOLS

Diagrammatic symbols for Roadway Embankment, Soil Symbol, Artificial Fill, Inferred Soil Boundary, Inferred Rock Line, Alluvial Soil Boundary, Dip & Dip Direction, Test Boring, Auger Boring, Core Boring, Monitoring Well, Piezometer Installation, Sounding Rod, Slope Indicator Installation, Cone Penetrometer Test, Test Boring with Core, SPT N-value.

RECOMMENDATION SYMBOLS

Symbols for 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

Table of 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, FRAGS. - Fragments, HI. - Highly, MED. - Medium, MICA. - Micaceous, MOD. - Moderately, NP - Non Plastic, ORG. - Organic, PMT - Pressuremeter Test, SAP. - Saprolitic, SD. - Sand, Sandy, SL. - Silty, Slightly, TCR - Tricone Refusal, w - Moisture Content, V - Very, VST - Vane Shear Test, WEA. - Weathered, UNIT WEIGHT, DRY UNIT WEIGHT, SAMPLE ABBREVIATIONS: S - Bulk, SS - Split Spoon, ST - Shelby Tube, RS - Rock, RT - Re-compacted Triaxial, CBR - California Bearing Ratio.

EQUIPMENT USED ON SUBJECT PROJECT

Checklist of equipment used: Drill Units (CME-45B, CME-55, CME-550, Vane Shear Test, Portable Hoist, Mobile B-57), Advancing Tools (Clay Bits, 6" Continuous Flight Auger, 8" Hollow Augers, Hard Faced Finger Bits, Tung-Carbide Inserts, Casing w/ Advancer, Tricone, Core Bit), Hammer Type (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 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:

Diagrams and descriptions for Weathered Rock (WR), Crystalline Rock (CR), Non-Crystalline Rock (NCR), and Coastal Plain Sedimentary Rock (CP). Includes descriptions of non-coastal plain material, igneous and metamorphic rocks, and sedimentary rocks like phyllite, slate, and sandstone.

WEATHERING

Descriptions of weathering states: Fresh (Rock fresh, crystals bright), Very Slight (Slightly), Slight (Slightly), Moderate (Moderate), Moderately Severe (Moderate-Severe), Severe (Severe), Very Severe (Very Severe), Complete (Rock reduced to soil).

ROCK HARDNESS

Descriptions of rock hardness: Very Hard (Cannot be scratched by knife), Hard (Can be scratched by knife), Moderately Hard (Can be scratched by knife or pick), Medium Hard (Can be grooved or gouged), Soft (Can be grooved or gouged), Very Soft (Can be carved with knife).

FRACTURE SPACING

Table mapping Fracture Spacing (Very wide, Wide, Moderately close, Close, Very close) to Spacing (More than 10 feet, 3 to 10 feet, 1 to 3 feet, 0.16 to 1 foot, Less than 0.16 feet).

BEDDING

Table mapping Bedding (Very thickly bedded, Thickly bedded, Thinly bedded, Very thinly bedded, Thickly laminated, Thinly laminated) to Thickness (4 feet, 1.5 - 4 feet, 0.16 - 1.5 feet, 0.03 - 0.16 feet, 0.008 - 0.03 feet, < 0.008 feet).

TERMS AND DEFINITIONS

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 DISLOADED 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 (ROD) - 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. SLICKENISE - 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.

BENCH MARK:

ELEVATION: FEET

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING

TIP PROJECT: BR-0063

CONTRACT: 630067035

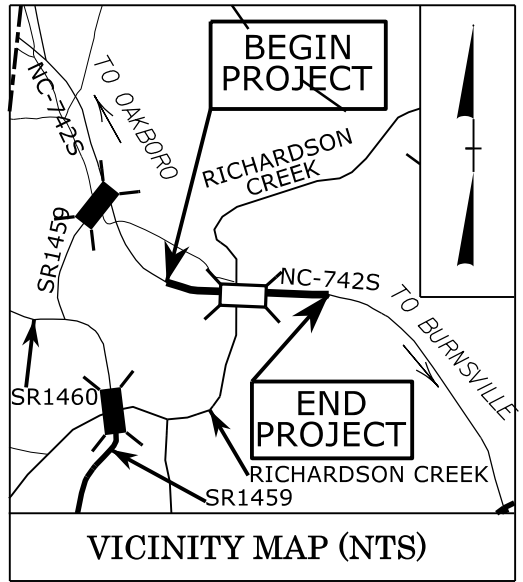
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

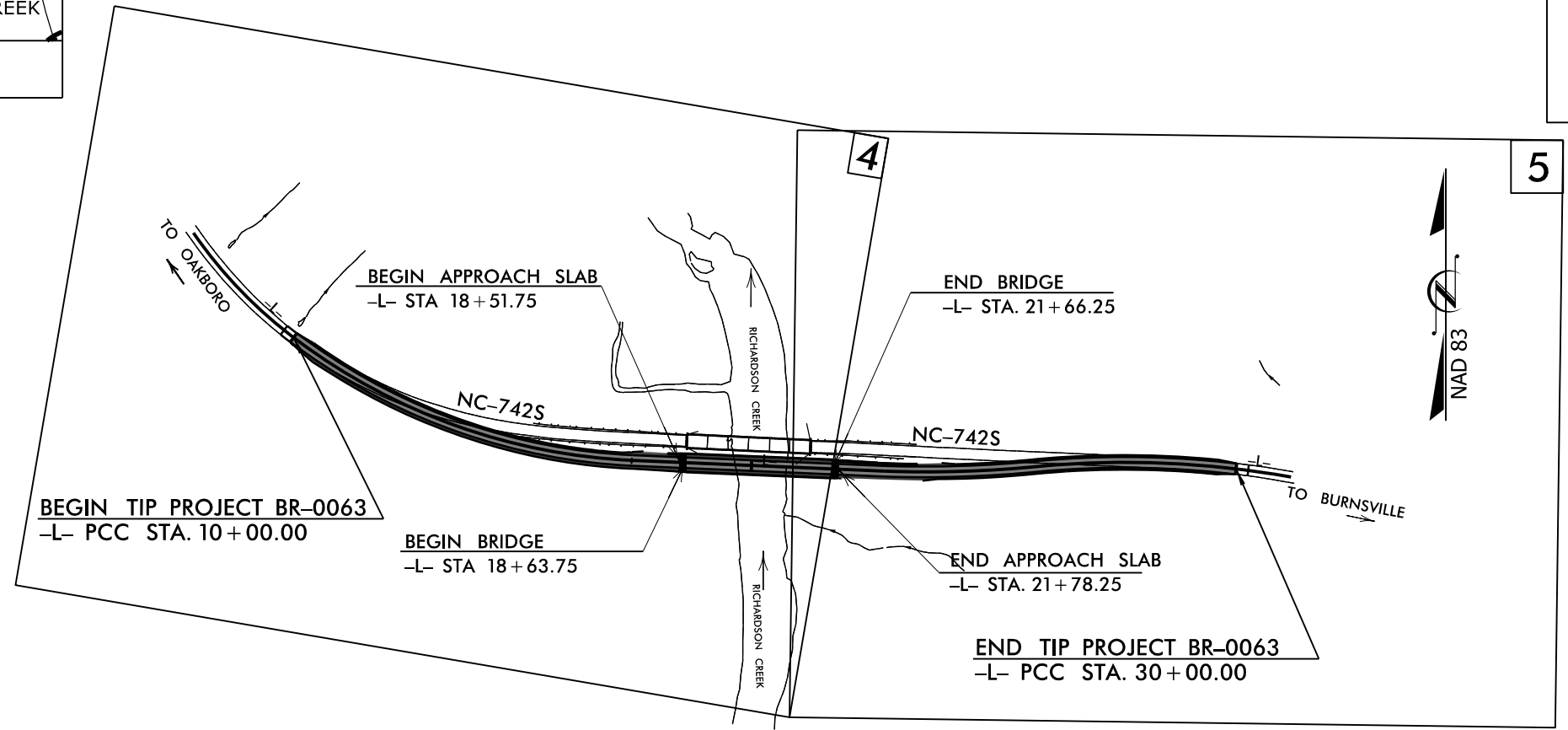
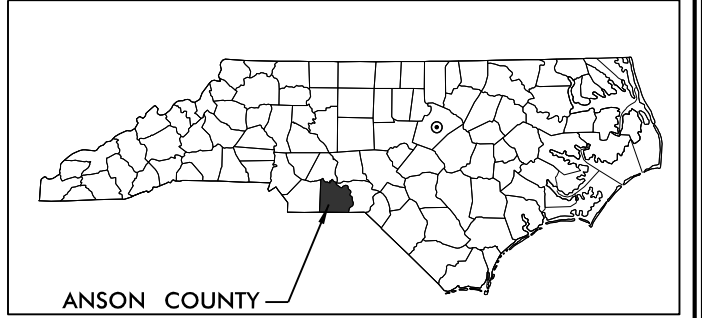
LOCATION: *REPLACEMENT OF BRIDGE 030087 OVER RICHARDSON CREEK ON NC 742*

TYPE OF WORK: *GRADING, PAVING, DRAINAGE AND STRUCTURE*

| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | BR-0063 | 3 | 26 |
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION | |
| 67063.1.1 | N/A | PE | |
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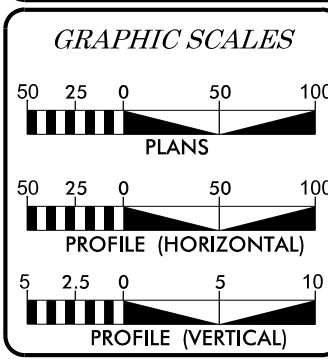


STAGE II - ALIGNMENT DEFINED



CLEARING ON THIS PROJECT SHALL BE PREPARED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

| |
|------------------------------|
| ADT 2023 = 1,950 |
| ADT 2043 = 3,000 |
| K = 10 % |
| D = 60 % |
| T = 15 % * |
| V = 50 MPH |
| * (TTST = 7% + DUAL 8%) |
| FUNC CLASS = RURAL COLLECTOR |

PROJECT LENGTH

| | |
|--------------------------------------|------------|
| LENGTH ROADWAY TIP PROJECT BR-0063 | = 0.322 MI |
| LENGTH STRUCTURE TIP PROJECT BR-0063 | = 0.057 MI |
| TOTAL LENGTH TIP PROJECT BR-0063 | = 0.379 MI |

Prepared in the Office of:
ARCADIS Design & Consultancy for natural and built assets
5420 WADE PARK BLVD., SUITE 350, RALEIGH NC, 27607
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 2023

LETTING DATE: JANUARY 16, 2024

K. ZAK HAMIDI, PE
PROJECT ENGINEER

PRITHIVIRAJ RAJA, PE
PROJECT DESIGN ENGINEER

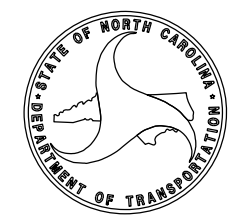
GARLAND HAYWOOD, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

SIGNATURE: _____ P.E.



June 2023

WBS Number: 67063.1.1
 TIP Number: BR-0063
 Project ID: 41444
 County: Anson
 Description: Replacement of Bridge 030087 over Richardson Creek on NC 742
 CATLIN Number: 222291

SUBJECT: Geotechnical Inventory Report

Project Description

This project is located on NC-742 South approximately seven miles south-southeast of the town of Oakboro in Anson County, North Carolina. A new alignment is proposed associated with the replacement of existing Bridge Number 87 over Richardson Creek. Based on available data, the new construction will begin approximately 750 feet west of the proposed structure and extend approximately 850 feet east of the proposed structure. This geotechnical investigation was conducted by Richard Catlin and Associates (DBE Catlin Engineers and Scientists – CATLIN) and was confined to the areas of proposed construction.

Fieldwork was conducted by CATLIN personnel in January through March 2023. Standard Penetration Test (SPT) borings were completed along the project corridor with an average distance of 200 linear feet between borings. Representative soil samples were collected for visual classification in the field and for laboratory analysis.

The following alignment was investigated. Subsurface profiles and cross sections are included in this report.

| <u>Line</u> | <u>Station (±)</u> |
|-------------|--------------------|
| -L- | 10+00 to 30+00 |

Areas of Special Geotechnical Interest

1) Seasonal high groundwater was encountered at the following locations:

| <u>Line</u> | <u>Station (±)</u> |
|-------------|--------------------|
| -L- | 12+50 to 13+50 |
| -L- | 27+75 to 30+00 |

2) Cohesive soils that may have the potential to cause embankment/subgrade and or slope stability problems during construction were identified at the following locations:

| <u>Line</u> | <u>Station (±)</u> |
|-------------|--------------------|
| -L- | 23+25 to 27+25 |

Physiography and Geology

This project corridor is located within the Carolina Slate Belt of the North Carolina Piedmont physiographic province. Rocks in the area consist of heated and deformed sedimentary and volcanic assemblages. Topography along the project is relatively gently sloping towards Richardson Creek. Natural ground elevations along the project range from approximately 340 feet along the eastern limits of the project to 270 feet within the creek bed of Richardson Creek.

Surficial soils in this area are generally classified as residual.

Ground Water

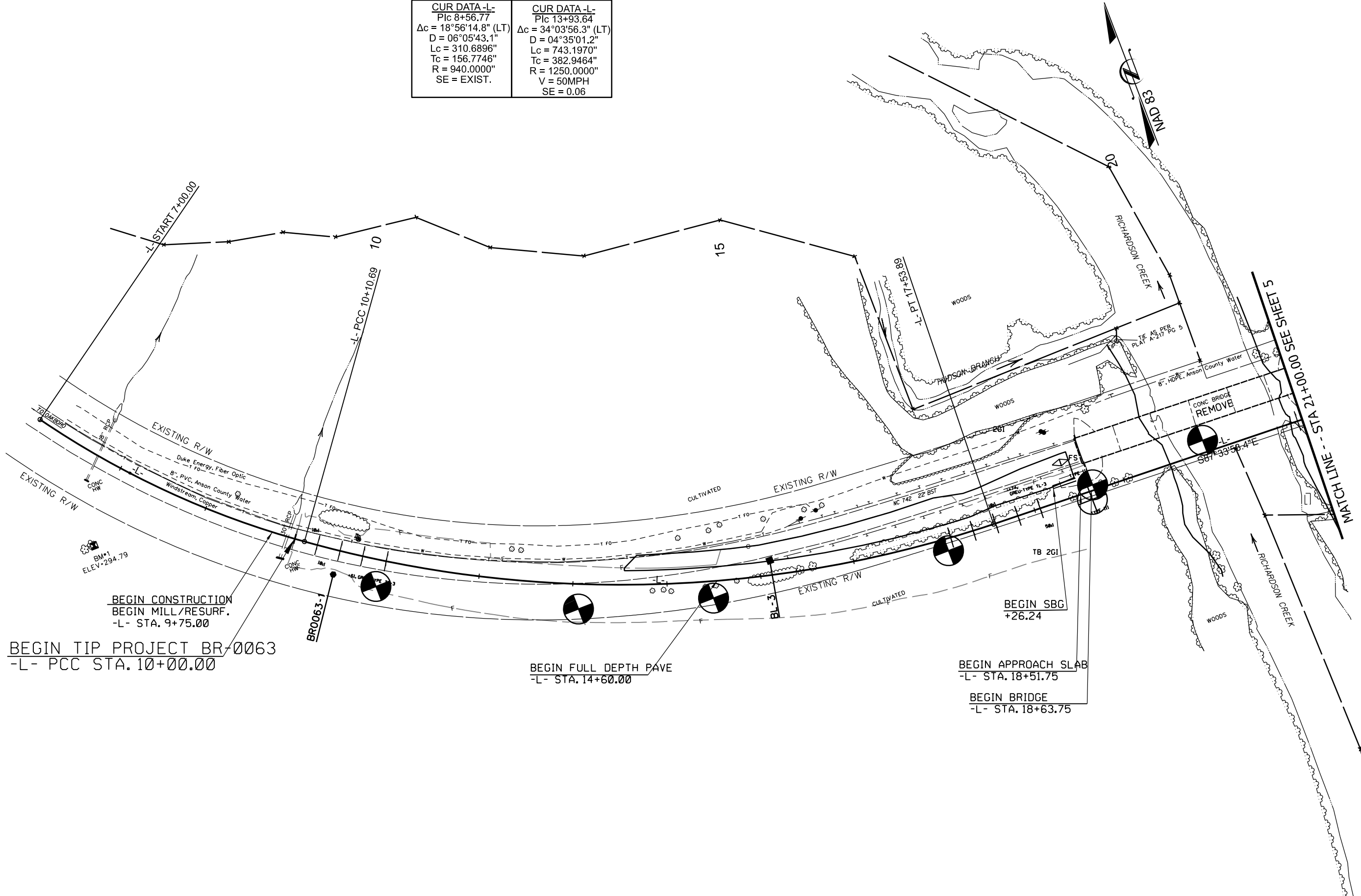
Ground water data was collected in January through March 2023. Ground water was encountered from within 1.7 feet to greater than 20 feet of the ground surface along the area of investigation.

Soils

Soils encountered along the project site include Roadway Embankment, Residual, Saprolite, Weathered Rock (Argillite), Non-crystalline Rock (Argillite).

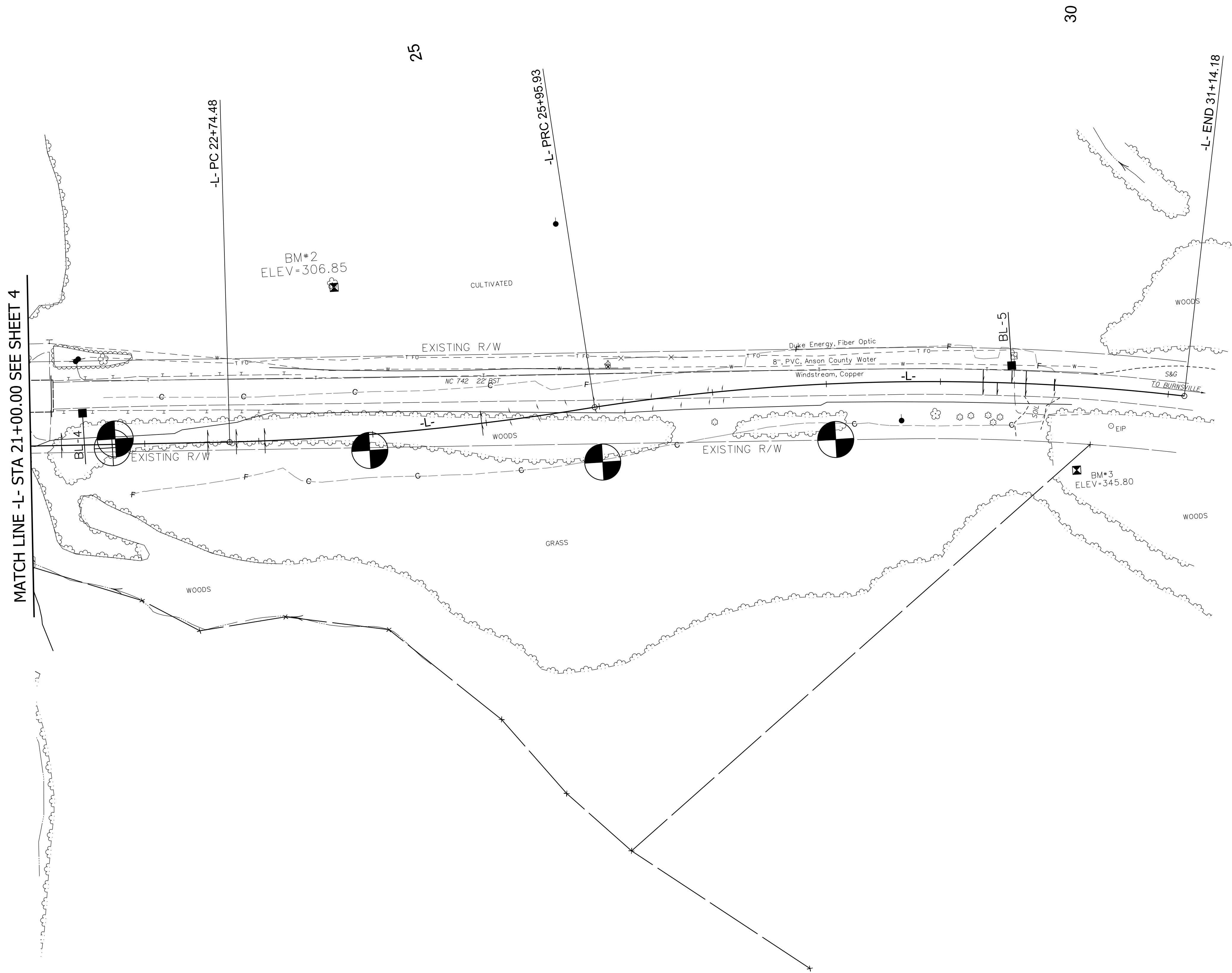
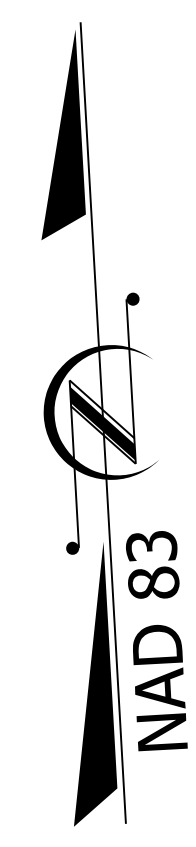
- Roadway Embankment soils exist beneath and adjacent to existing roadways and consist of approximately six (6) to 12 of material.
- Approximately four (4) to 18 feet of Residual soils comprised of soft to hard silty clay and clayey silt (A-6, A-7, A-4) with trace sand and gravel and some thin layers of loose to dense clayey sand (A-2-6) exists from existing land surface (and below the Roadway Embankment) to elevations ranging from approximately 290 to 275 feet with the thickest stratum adjacent to Richardson Creek.
- Weathered Rock (Argillite) was encountered below the Residual soils relatively consistently along the project corridor. The Weathered Rock is exposed in portions of Richardson Creek.
- Saprolite was encountered below the Weathered Rock and appears to extend roughly from -L-17+50 to 19+50. The Saprolite is described as hard silt (A-4).
- Non-crystalline Rock (Argillite) was identified beneath the Weathered Rock and Saprolite at elevations ranging from approximately 256 feet to 274 feet.

| | |
|--|---|
| CUR DATA -L- P/c 8+56.77 $\Delta c = 18^\circ 56' 14.8''$ (LT) D = 06°05'43.1" Lc = 310.6896" Tc = 156.7746" R = 940.0000" SE = EXIST. | CUR DATA -L- P/c 13+93.64 $\Delta c = 34^\circ 03' 56.3''$ (LT) D = 04°35'01.2" Lc = 743.1970" Tc = 382.9464" R = 1250.0000" V = 50MPH SE = 0.06 |
|--|---|

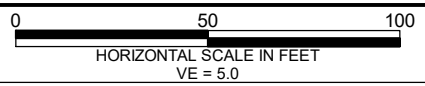


NOTE: SEE SHEET NOS. 6-8 FOR -L- PROFILE

| | |
|---|--|
| <p>CUR DATA -L- P/c 24+35.44 $\Delta c = 07^{\circ}40'26.8''$ (LT) $D = 02^{\circ}23'14.4''$ $Lc = 321.4529''$ $Tc = 160.9672''$ $R = 2400.0000''$ $V = 50MPH$ $SE = 0.04$</p> | <p>CUR DATA -L- P/c 28+56.59 $\Delta c = 15^{\circ}13'39.3''$ (RT) $D = 02^{\circ}56'17.7''$ $Lc = 518.2542''$ $Tc = 260.6632''$ $R = 1950.0000''$ $V = 50MPH$ $SE = 0.045$</p> |
|---|--|

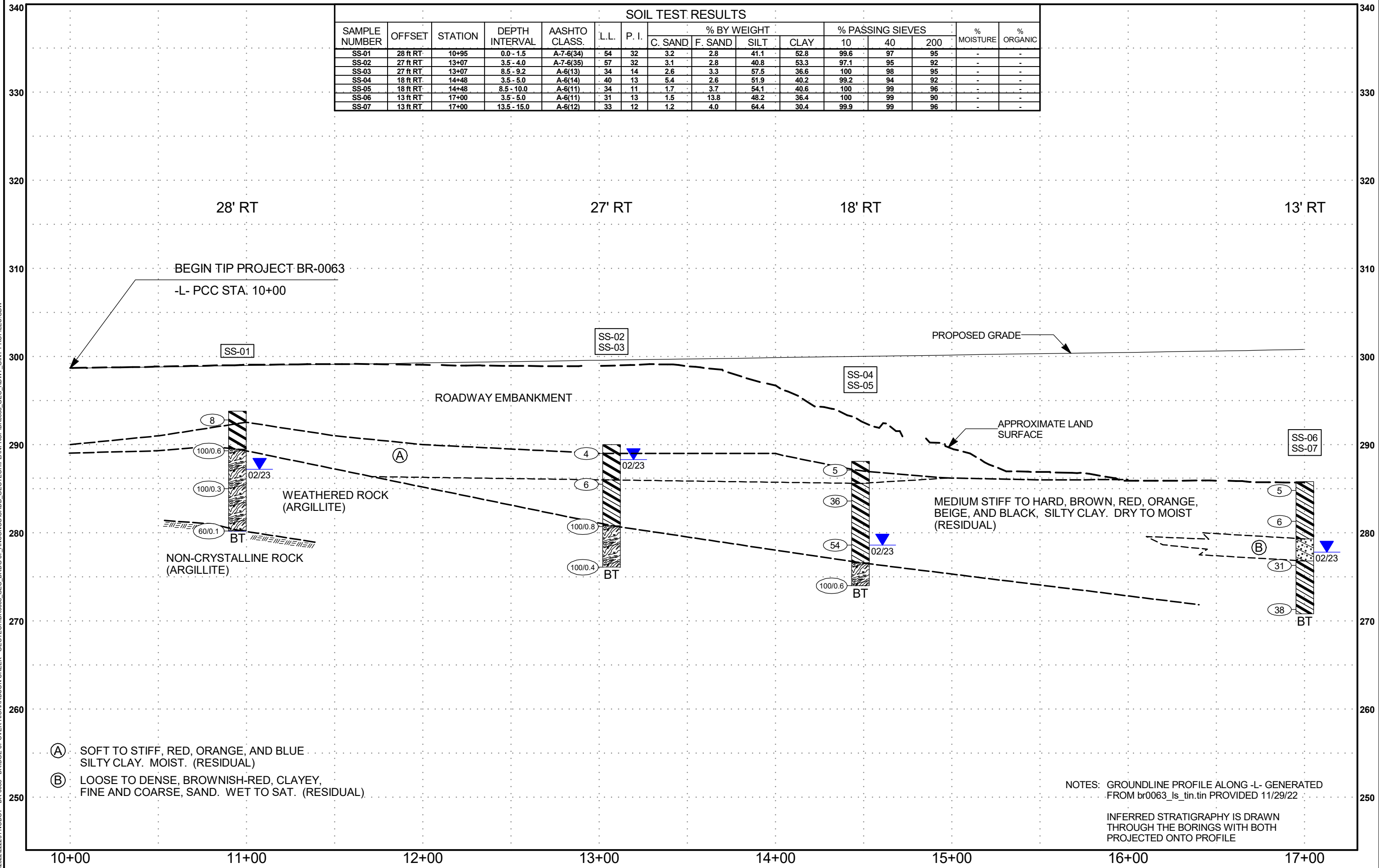


MATCH LINE -L- STA 21+00.00 SEE SHEET 4



PROFILE THROUGH BORINGS PROJECTED ALONG -L-

| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
|---------------|----------|---------|----------------|---------------|------|-------|-------------|----------|-------|-----------|------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-01 | 28 ft RT | 10+95 | 0.0 - 1.5 | A-7-6(34) | 54 | 32 | | |
| SS-02 | 27 ft RT | 13+07 | 3.5 - 4.0 | A-7-6(35) | 57 | 32 | 3.1 | 2.8 | 40.8 | 53.3 | 97.1 | 95 | 92 | - | - |
| SS-03 | 27 ft RT | 13+07 | 8.5 - 9.2 | A-6(13) | 34 | 14 | 2.6 | 3.3 | 57.5 | 36.6 | 100 | 98 | 95 | - | - |
| SS-04 | 18 ft RT | 14+48 | 3.5 - 5.0 | A-6(14) | 40 | 13 | 5.4 | 2.6 | 51.9 | 40.2 | 99.2 | 94 | 92 | - | - |
| SS-05 | 18 ft RT | 14+48 | 8.5 - 10.0 | A-6(11) | 34 | 11 | 1.7 | 3.7 | 54.1 | 40.6 | 100 | 99 | 96 | - | - |
| SS-06 | 13 ft RT | 17+00 | 3.5 - 5.0 | A-6(11) | 31 | 13 | 1.5 | 13.8 | 48.2 | 36.4 | 100 | 99 | 90 | - | - |
| SS-07 | 13 ft RT | 17+00 | 13.5 - 15.0 | A-6(12) | 33 | 12 | 1.2 | 4.0 | 64.4 | 30.4 | 99.9 | 99 | 96 | - | - |

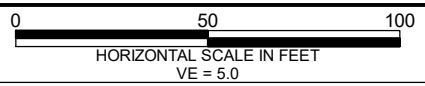


- (A) SOFT TO STIFF, RED, ORANGE, AND BLUE SILTY CLAY. MOIST. (RESIDUAL)
- (B) LOOSE TO DENSE, BROWNISH-RED, CLAYEY, FINE AND COARSE, SAND. WET TO SAT. (RESIDUAL)

NOTES: GROUNDLINE PROFILE ALONG -L- GENERATED FROM br0063_ls_tin.tin PROVIDED 11/29/22

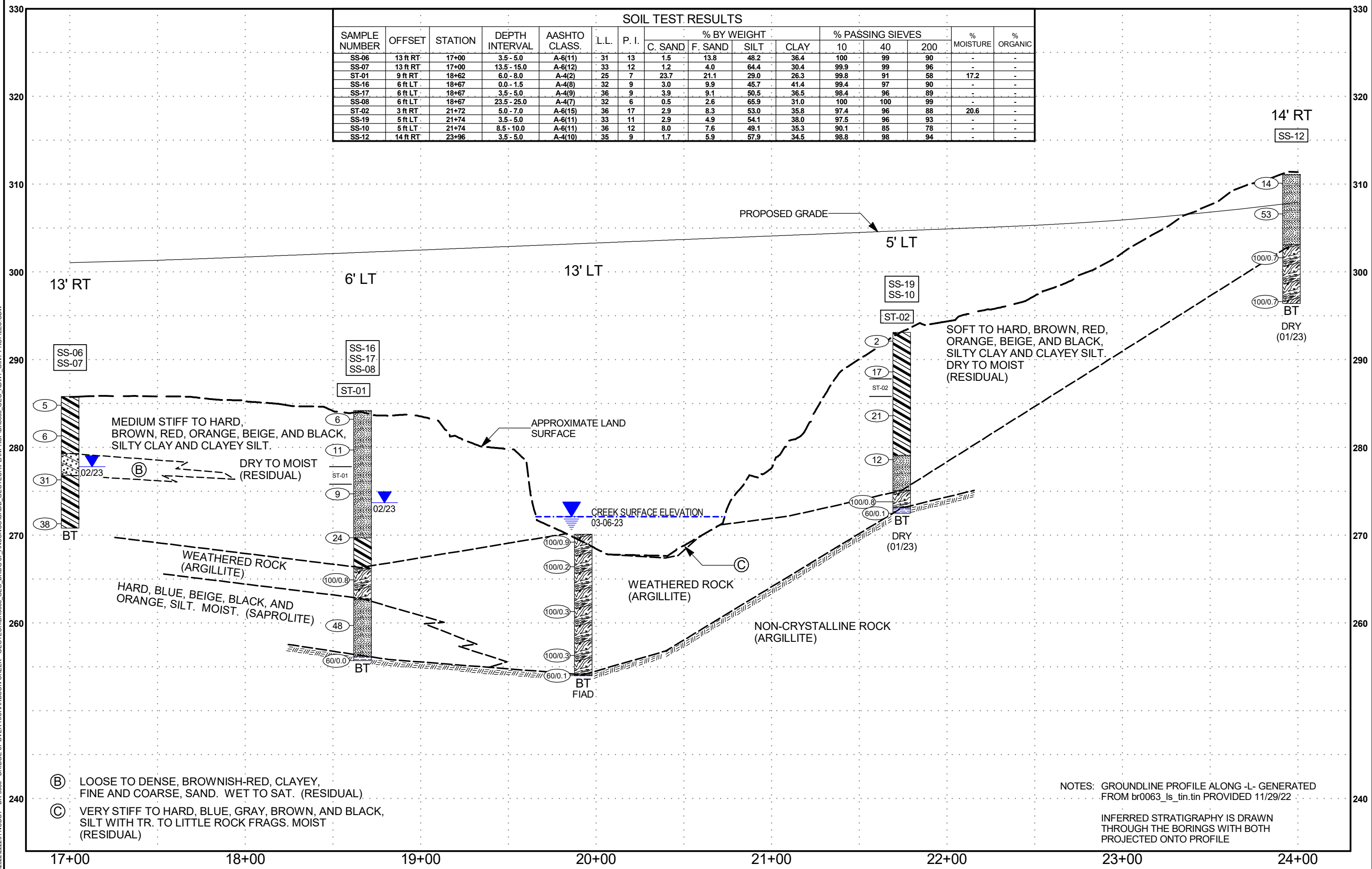
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE

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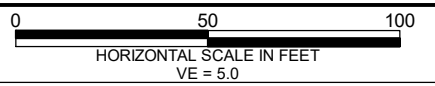
PROFILE THROUGH BORINGS PROJECTED ALONG -L-

| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
|---------------|----------|---------|----------------|---------------|------|-------|-------------|----------|-------|-----------|------------------|-----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| | | | | | | | SS-06 | 13 ft RT | 17+00 | 3.5 - 5.0 | A-6(11) | 31 | 13 | | |
| SS-07 | 13 ft RT | 17+00 | 13.5 - 15.0 | A-6(12) | 33 | 12 | 1.2 | 4.0 | 64.4 | 30.4 | 99.9 | 99 | 96 | - | - |
| ST-01 | 9 ft RT | 18+62 | 6.0 - 8.0 | A-4(2) | 25 | 7 | 23.7 | 21.1 | 29.0 | 26.3 | 99.8 | 91 | 58 | 17.2 | - |
| SS-16 | 6 ft LT | 18+67 | 0.0 - 1.5 | A-4(8) | 32 | 9 | 3.0 | 9.9 | 45.7 | 41.4 | 99.4 | 97 | 90 | - | - |
| SS-17 | 6 ft LT | 18+67 | 3.5 - 5.0 | A-4(9) | 36 | 9 | 3.9 | 9.1 | 50.5 | 36.5 | 98.4 | 96 | 89 | - | - |
| SS-08 | 6 ft LT | 18+67 | 23.5 - 25.0 | A-4(7) | 32 | 6 | 0.5 | 2.6 | 65.9 | 31.0 | 100 | 100 | 99 | - | - |
| ST-02 | 3 ft RT | 21+72 | 5.0 - 7.0 | A-6(15) | 36 | 17 | 2.9 | 8.3 | 53.0 | 35.8 | 97.4 | 96 | 88 | 20.6 | - |
| SS-19 | 5 ft LT | 21+74 | 3.5 - 5.0 | A-6(11) | 33 | 11 | 2.9 | 4.9 | 54.1 | 38.0 | 97.5 | 96 | 93 | - | - |
| SS-10 | 5 ft LT | 21+74 | 8.5 - 10.0 | A-6(11) | 36 | 12 | 8.0 | 7.6 | 49.1 | 35.3 | 90.1 | 85 | 78 | - | - |
| SS-12 | 14 ft RT | 23+96 | 3.5 - 5.0 | A-4(10) | 35 | 9 | 1.7 | 5.9 | 57.9 | 34.5 | 98.8 | 98 | 94 | - | - |

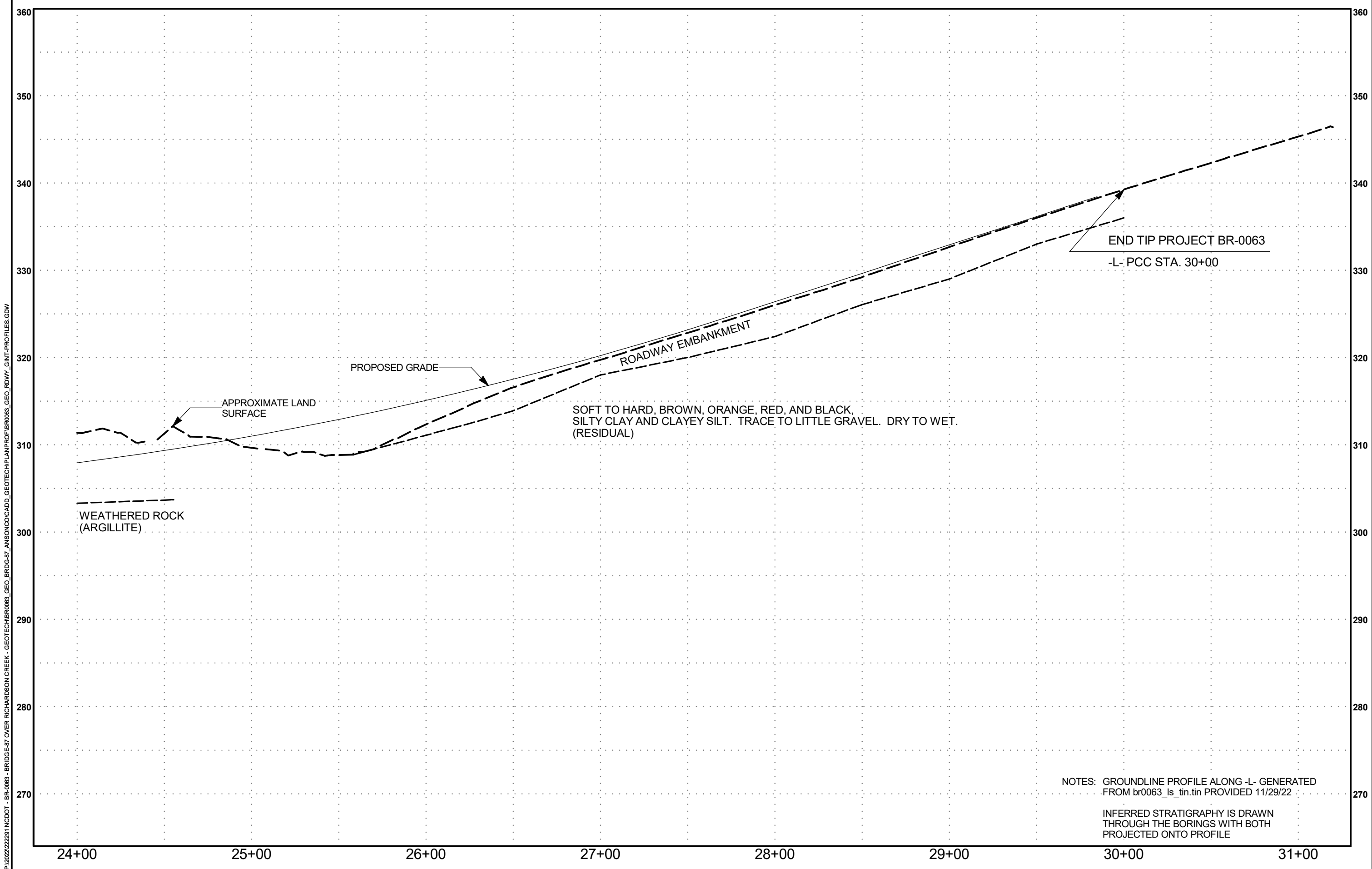


NOTES: GROUNDLINE PROFILE ALONG -L- GENERATED FROM br0063_ls_tin.tin PROVIDED 11/29/22
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE

P:\2022\222291_NCDOT - BR-0063 - BRIDGE-87 OVER RICHARDSON CREEK - GEOTECH\BR0063_GEO_BROD-87_ANSONCO\CADD_GEO\BRIDGE-87 OVER RICHARDSON CREEK - GEOTECH\PLAN\PROF\BR0063_GEO_RDWY_GINT-PROFILES.GDW



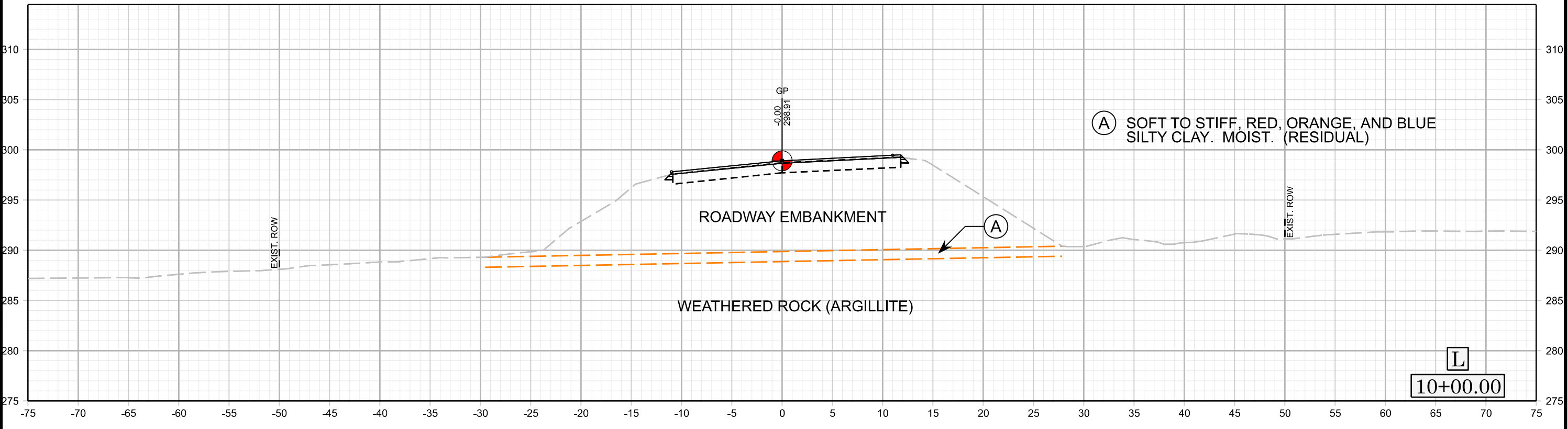
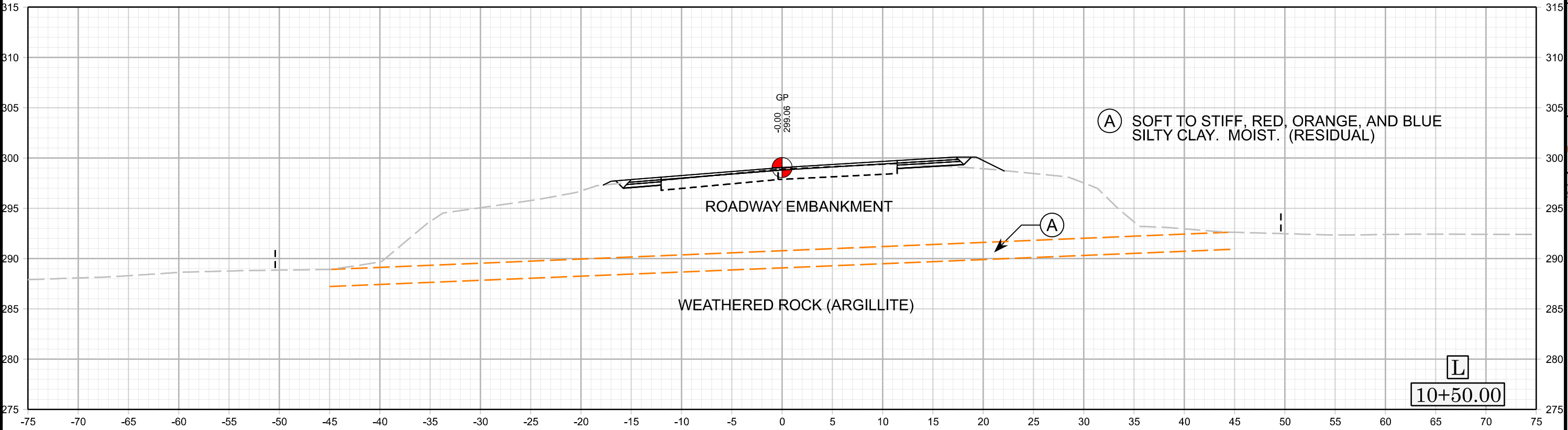
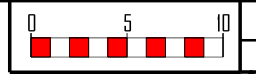
PROFILE THROUGH BORINGS PROJECTED ALONG -L-



NOTES: GROUNDLINE PROFILE ALONG -L- GENERATED FROM br0063_ls_tin.tin PROVIDED 11/29/22

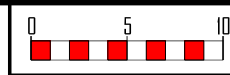
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE

P:\2022\222291 NCDOT - BR-0063 - BRIDGE-87 OVER RICHARDSON CREEK - GEOTECH\BR0063_GEO_BRDC-87_ANSONCO\CADD_GEO\TECH\PLAN\PROF\BR0063_GEO_RDWY_GINT-PROFILES.GDW



REVISIONS

5/26/20



BR-0063
X 002

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ANSON COUNTY

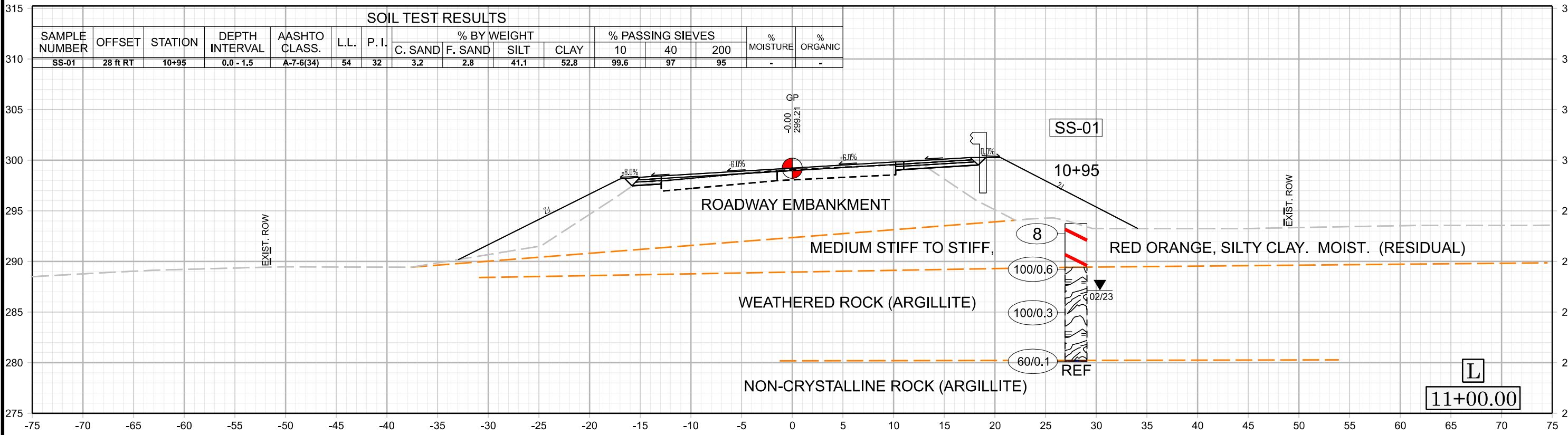
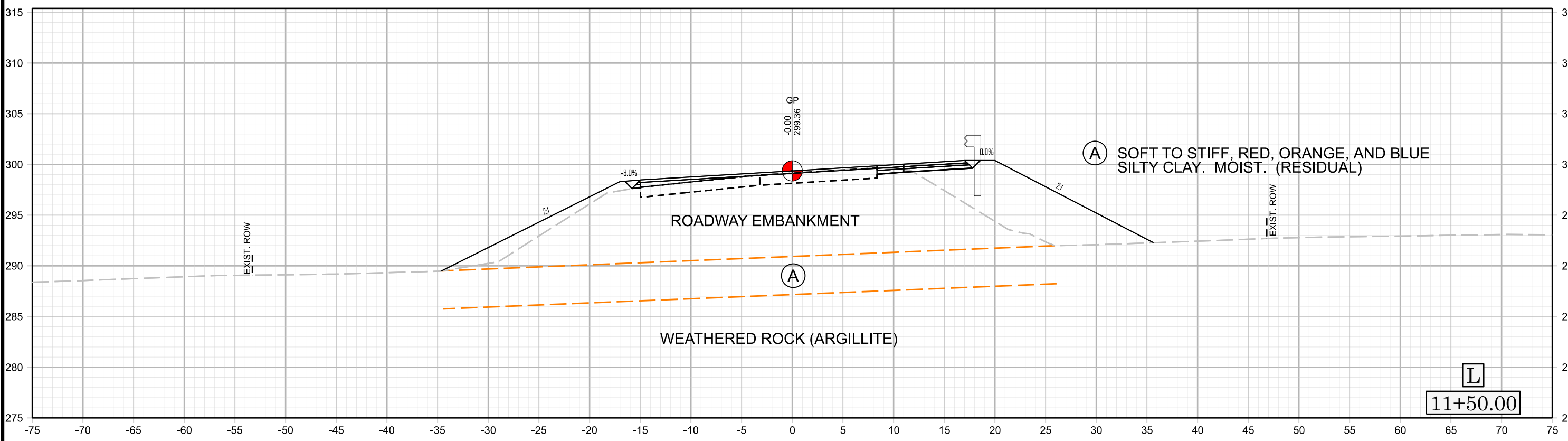


ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER

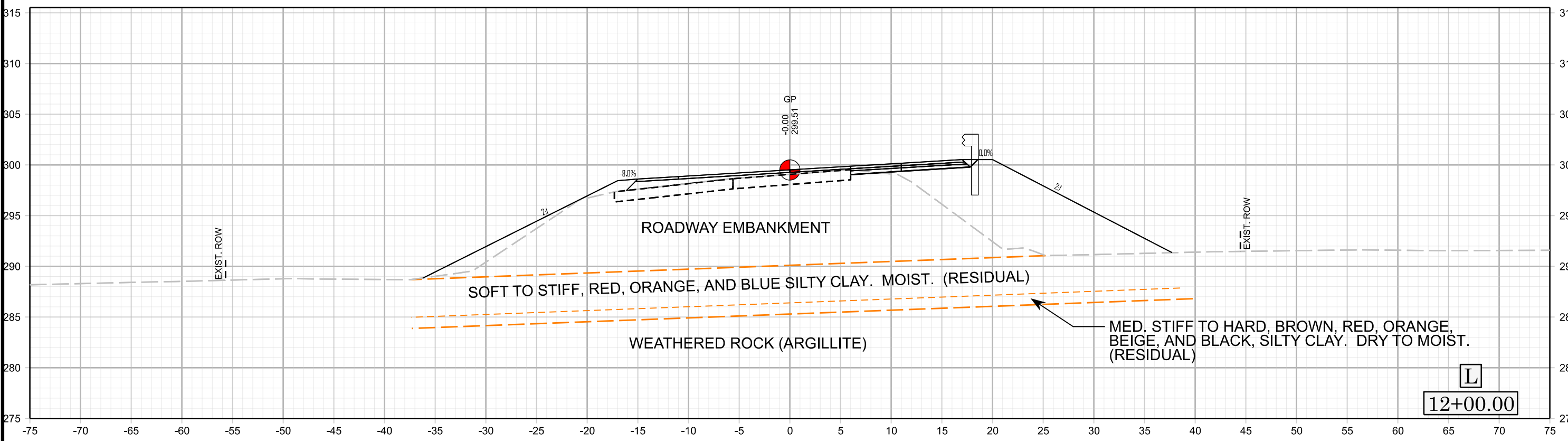
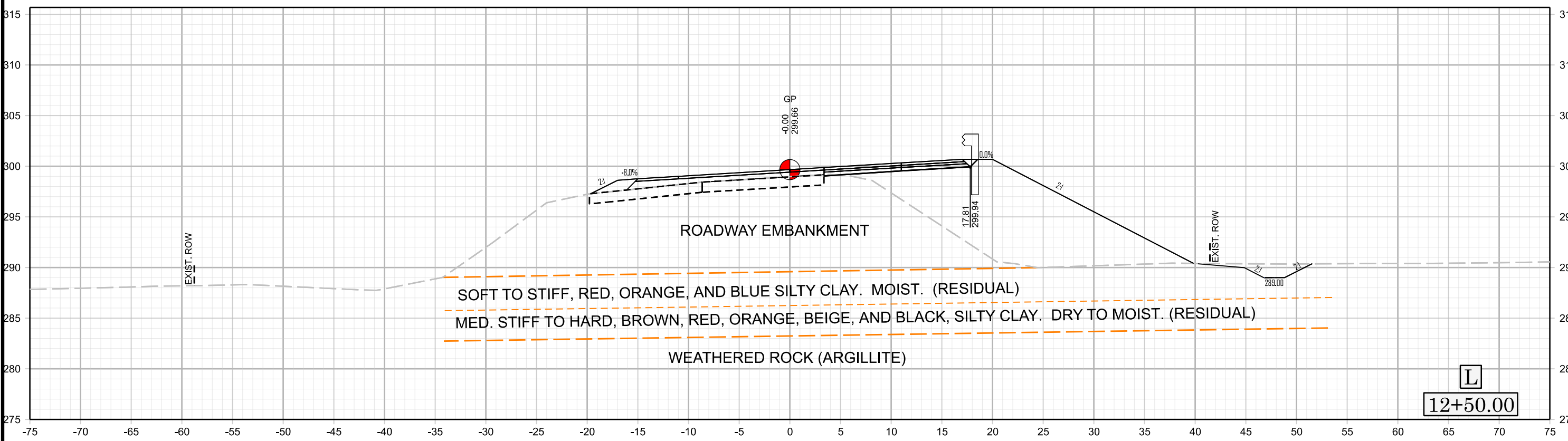
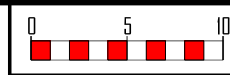
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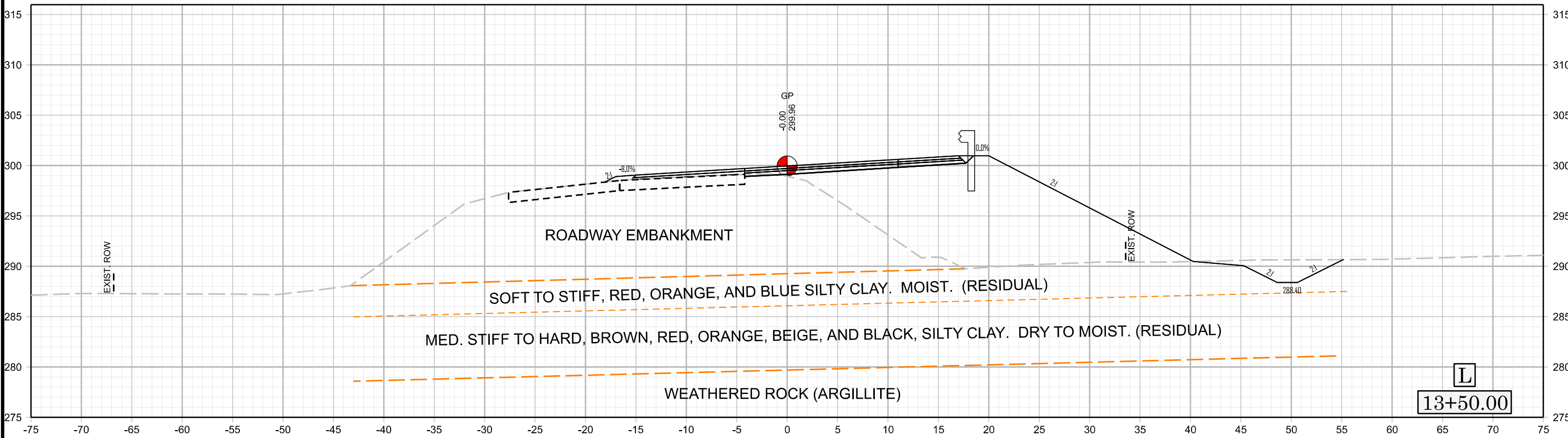
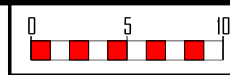
PRELIMINARY PLANS
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



REVISIONS

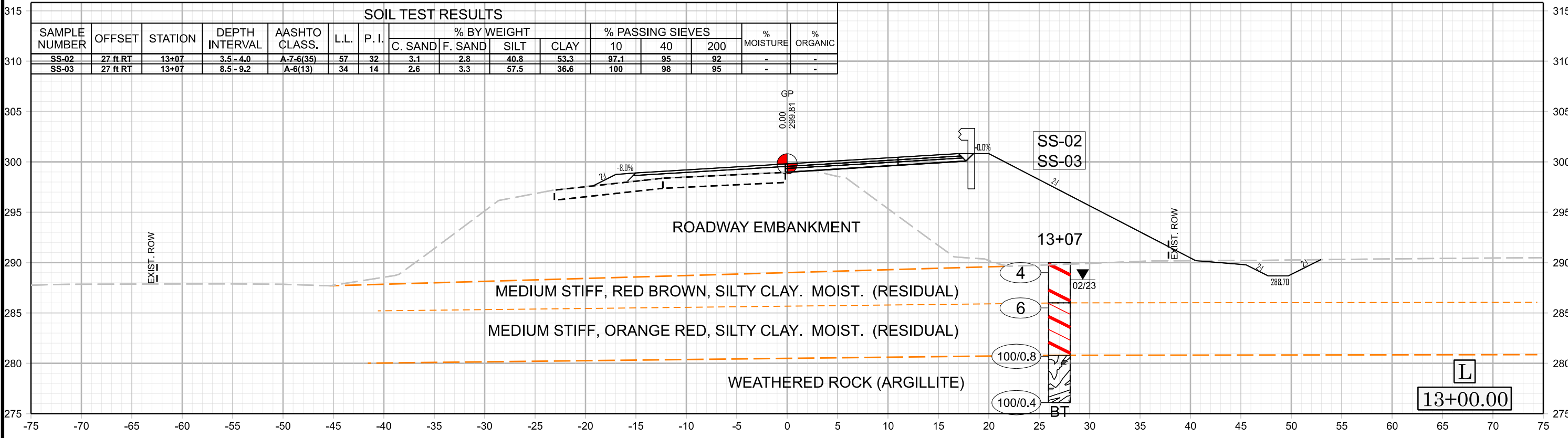


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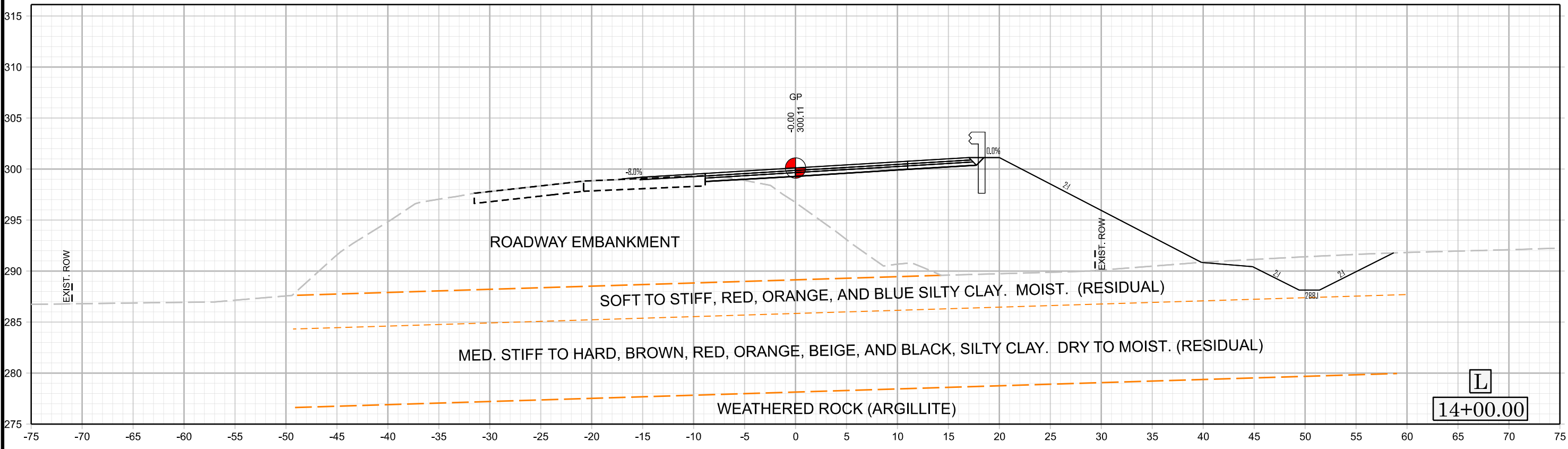
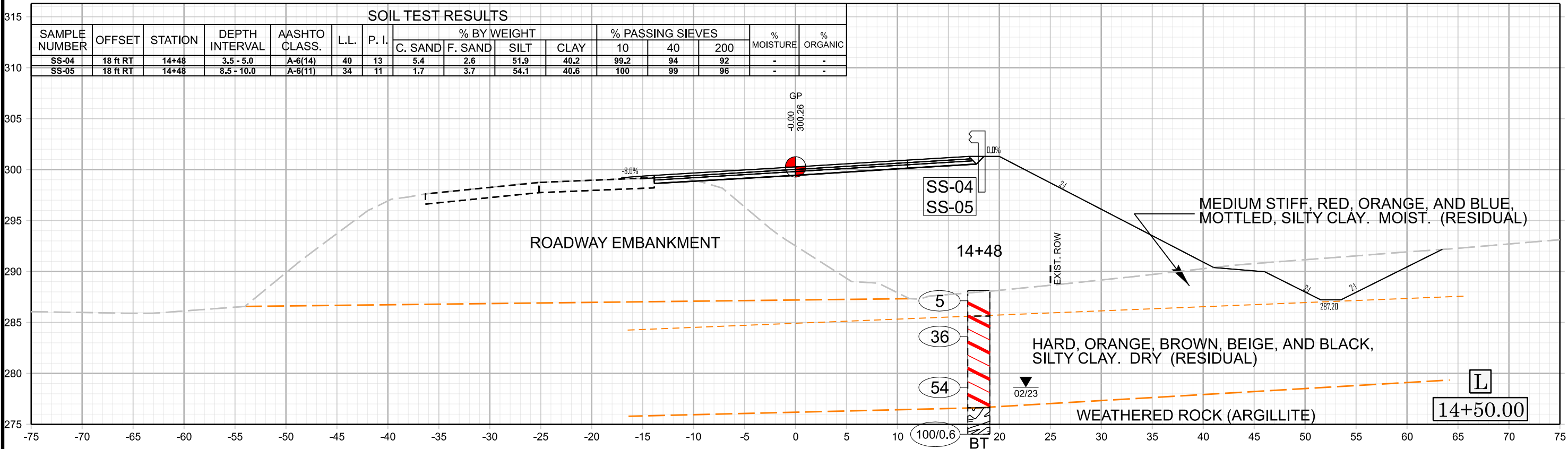
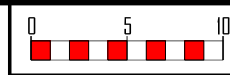


SOIL TEST RESULTS

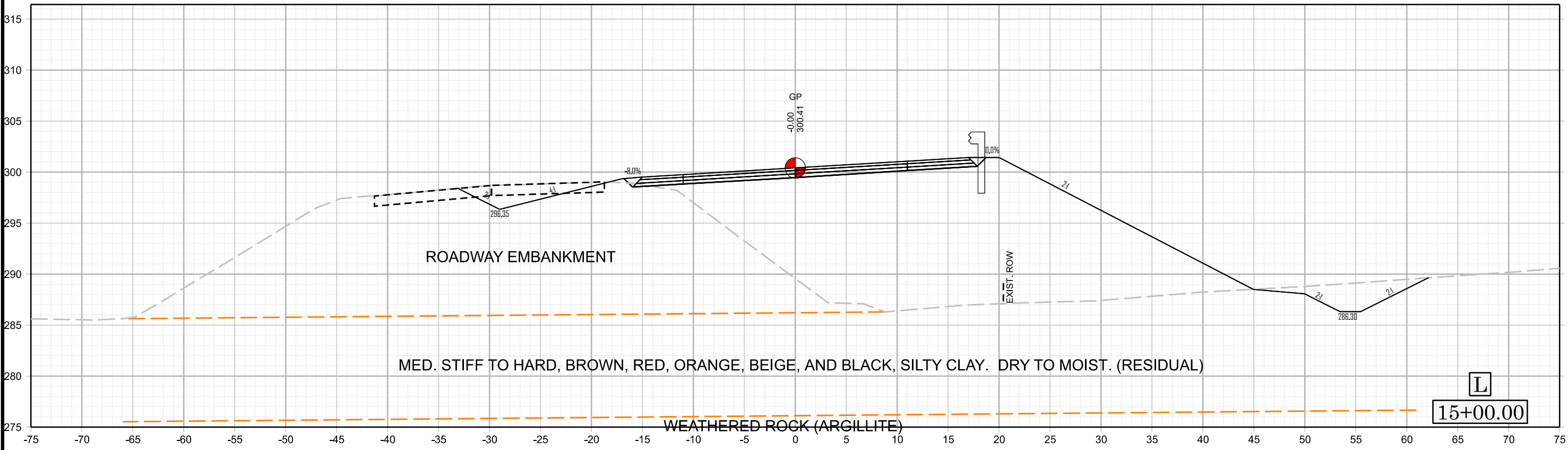
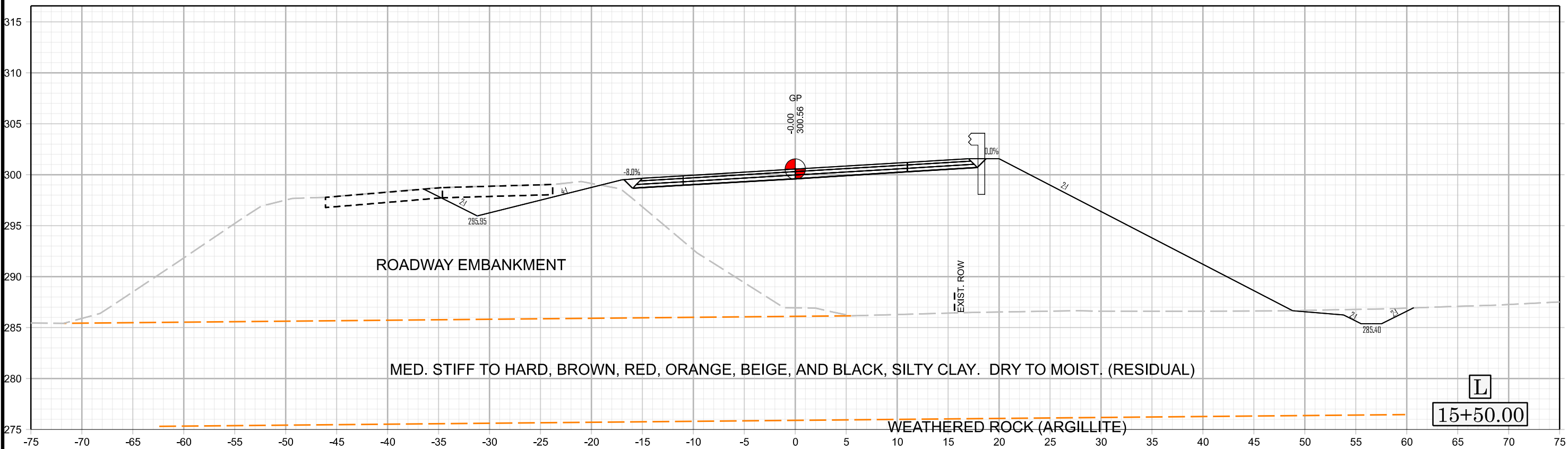
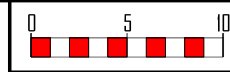
| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
|---------------|----------|---------|----------------|---------------|------|-------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-02 | 27 ft RT | 13+07 | 3.5 - 4.0 | A-7-6(35) | 57 | 32 | 3.1 | 2.8 | 40.8 | 53.3 | 97.1 | 95 | 92 | - | - |
| SS-03 | 27 ft RT | 13+07 | 8.5 - 9.2 | A-6(13) | 34 | 14 | 2.6 | 3.3 | 57.5 | 36.6 | 100 | 98 | 95 | - | - |



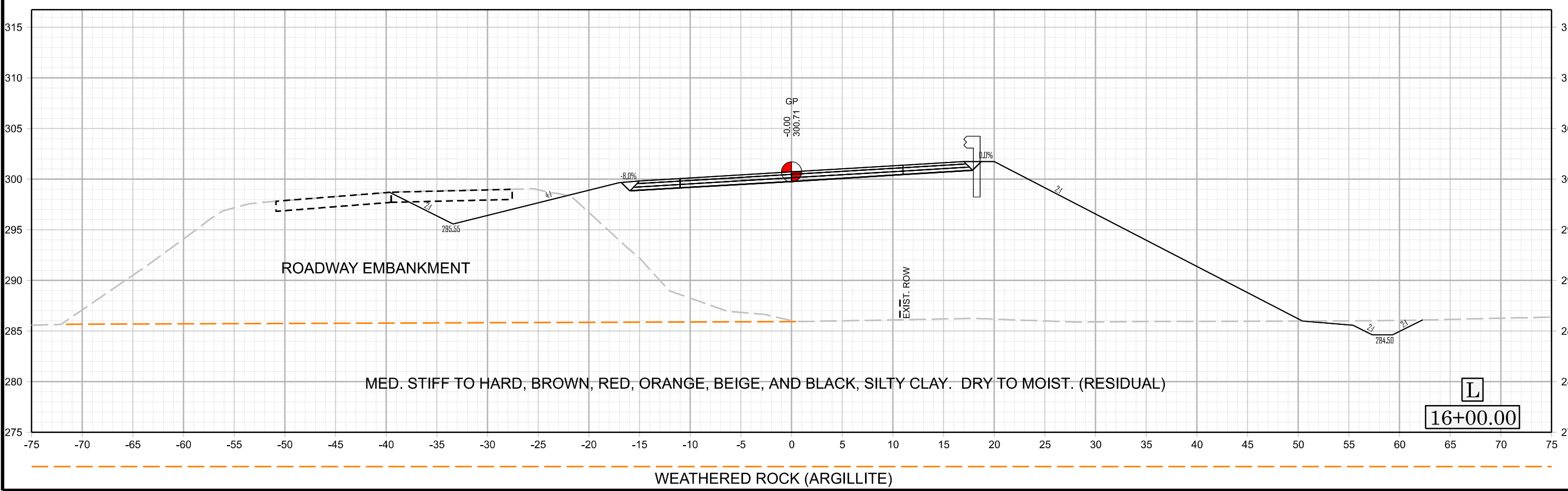
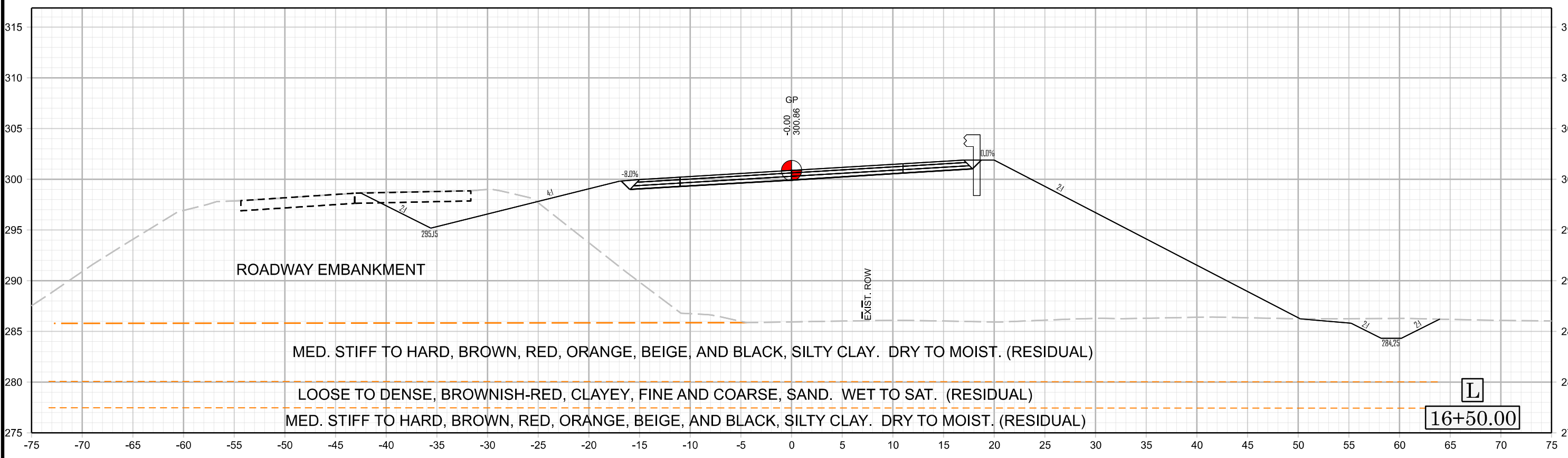
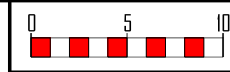
REVISIONS



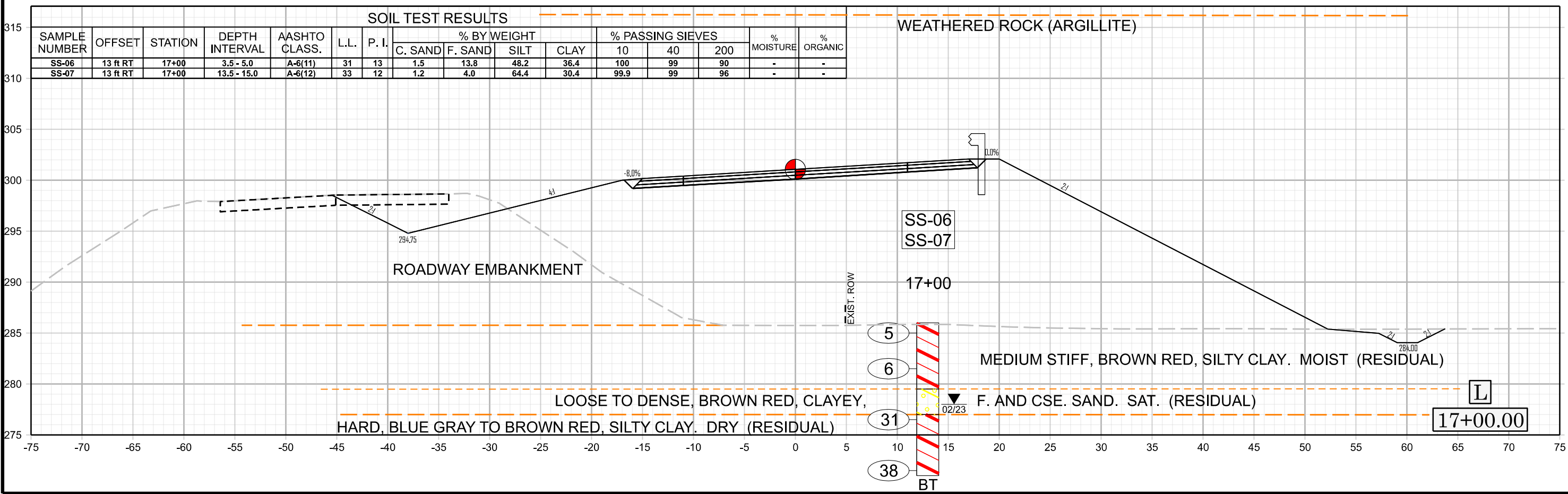
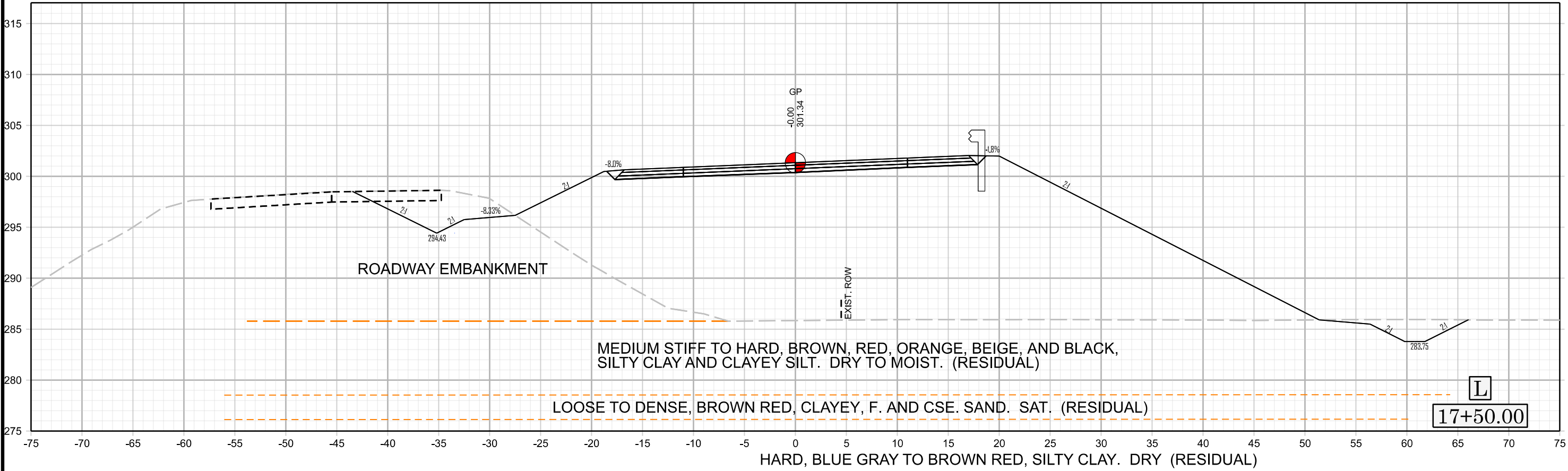
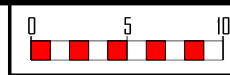
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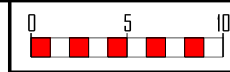
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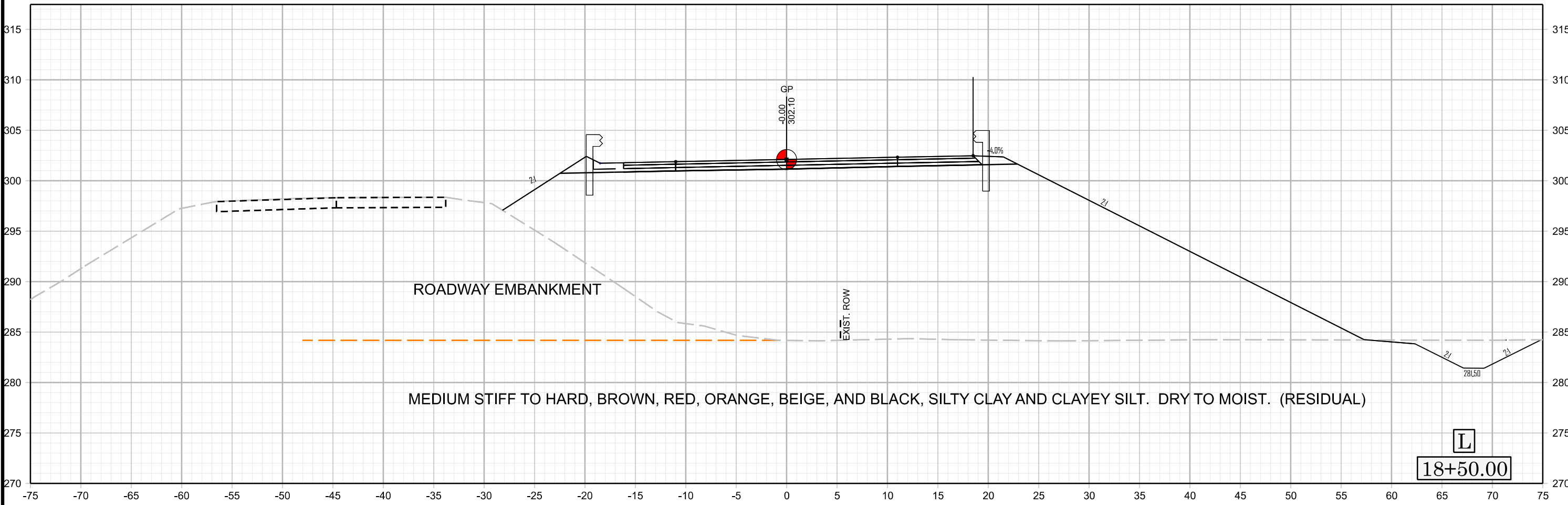
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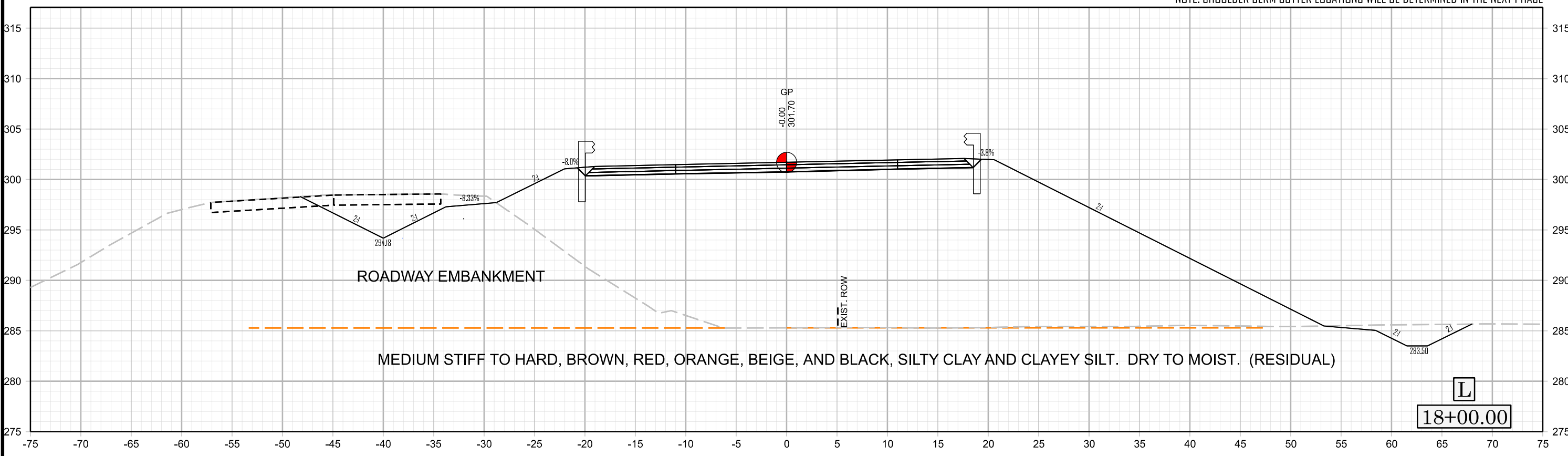
REVISIONS



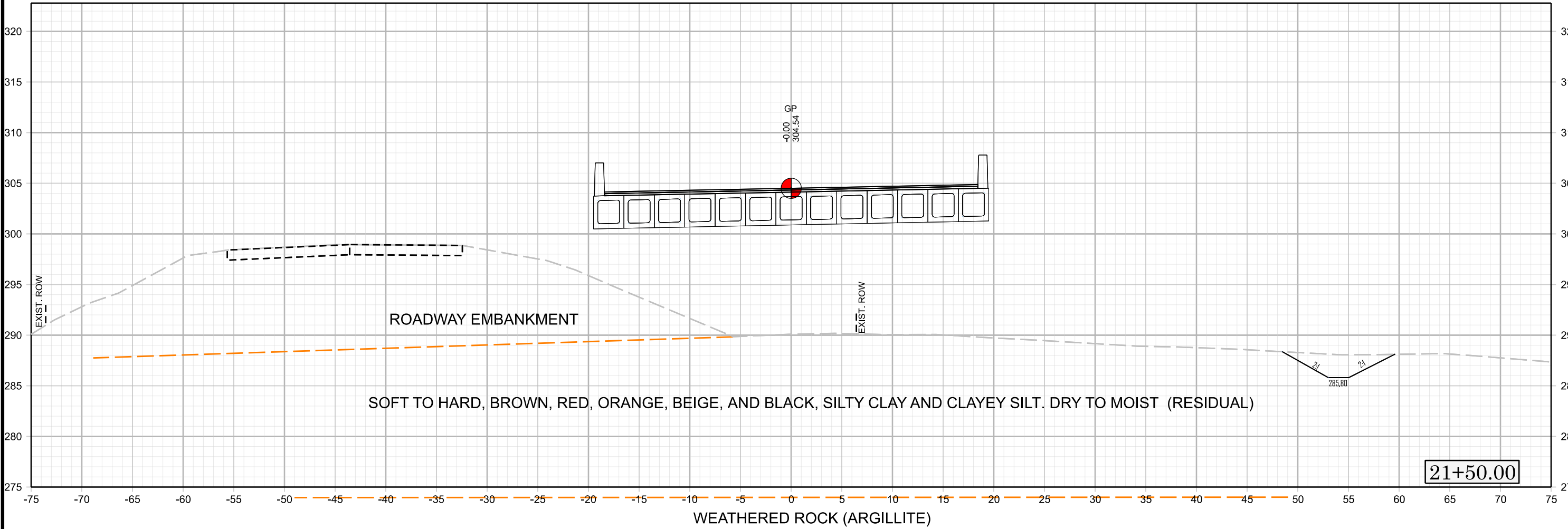
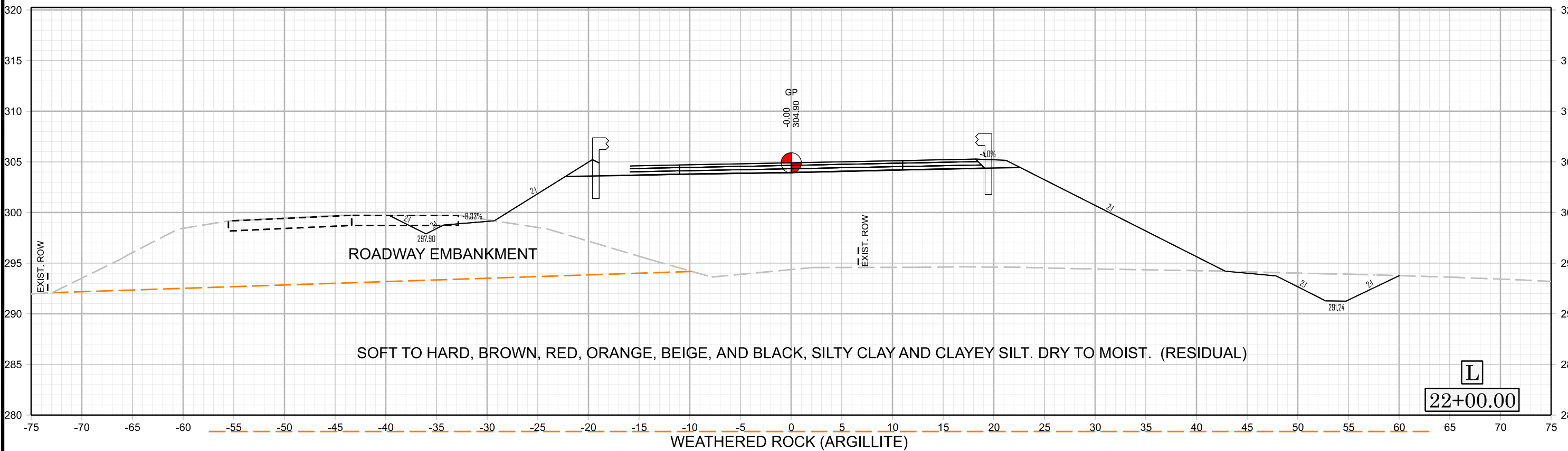
NOTE: SHOULDER BERM GUTTER LOCATIONS WILL BE DETERMINED IN THE NEXT PHASE



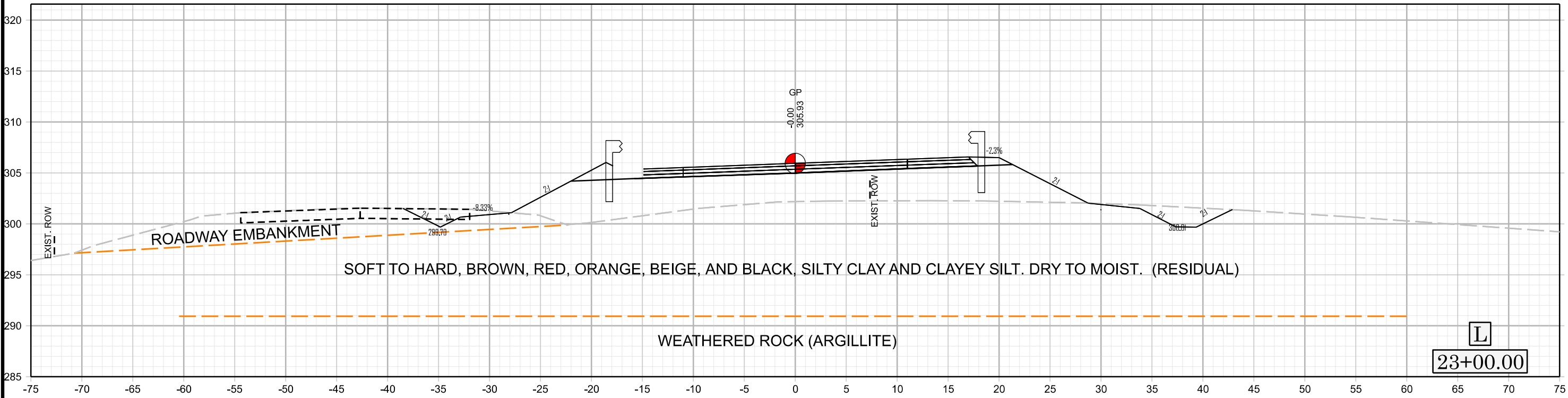
NOTE: SHOULDER BERM GUTTER LOCATIONS WILL BE DETERMINED IN THE NEXT PHASE



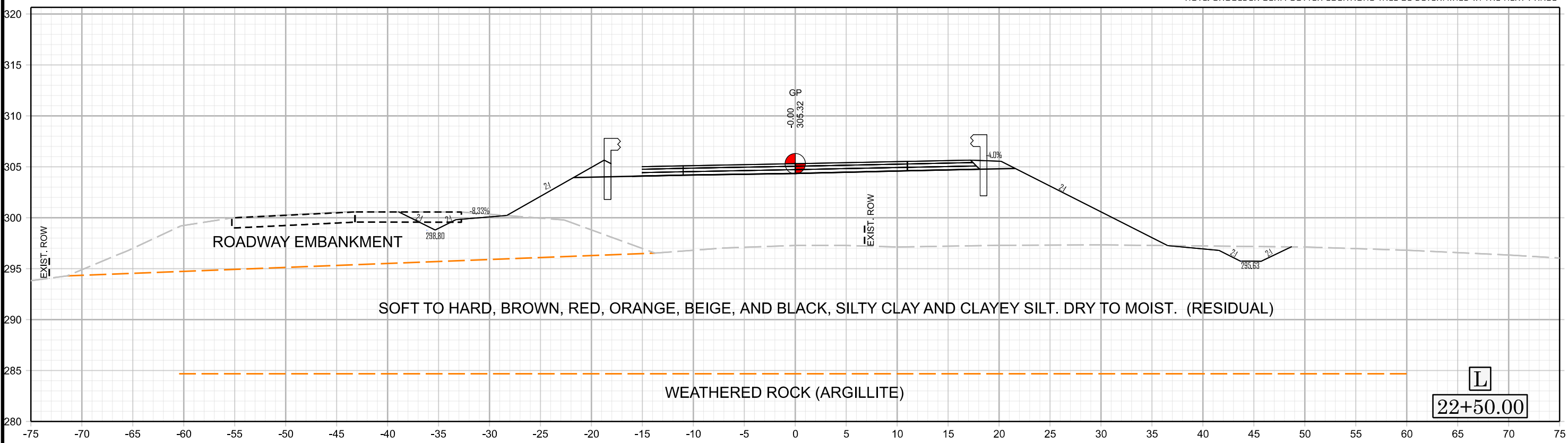
REVISIONS



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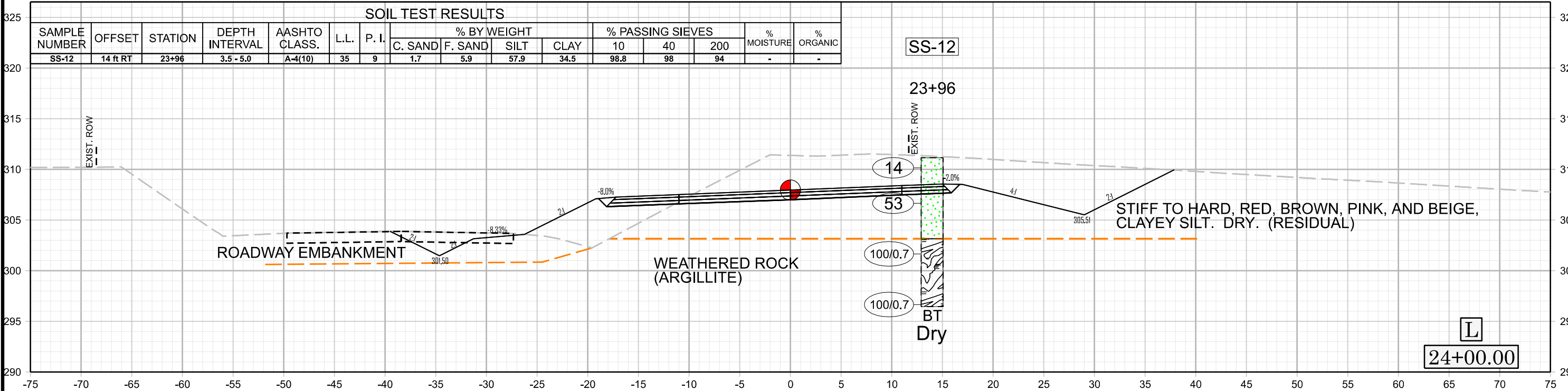
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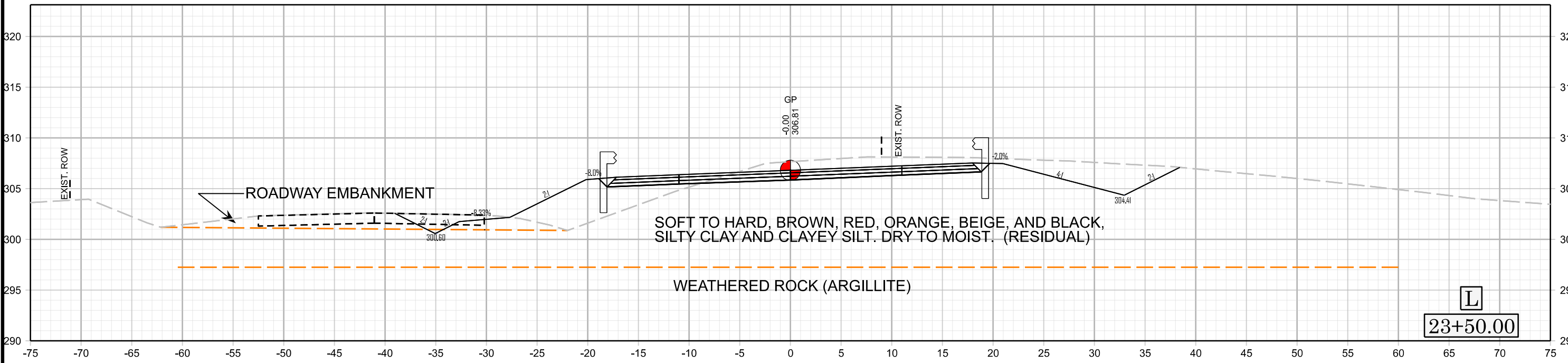
NOTE: SHOULDER BERM GUTTER LOCATIONS WILL BE DETERMINED IN THE NEXT PHASE

SOIL TEST RESULTS

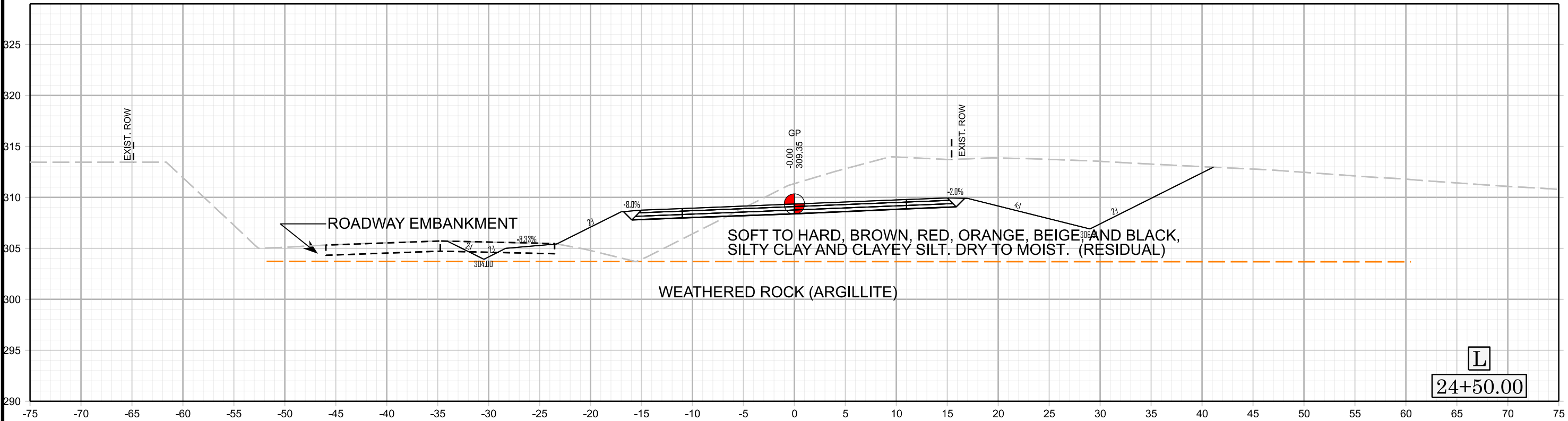
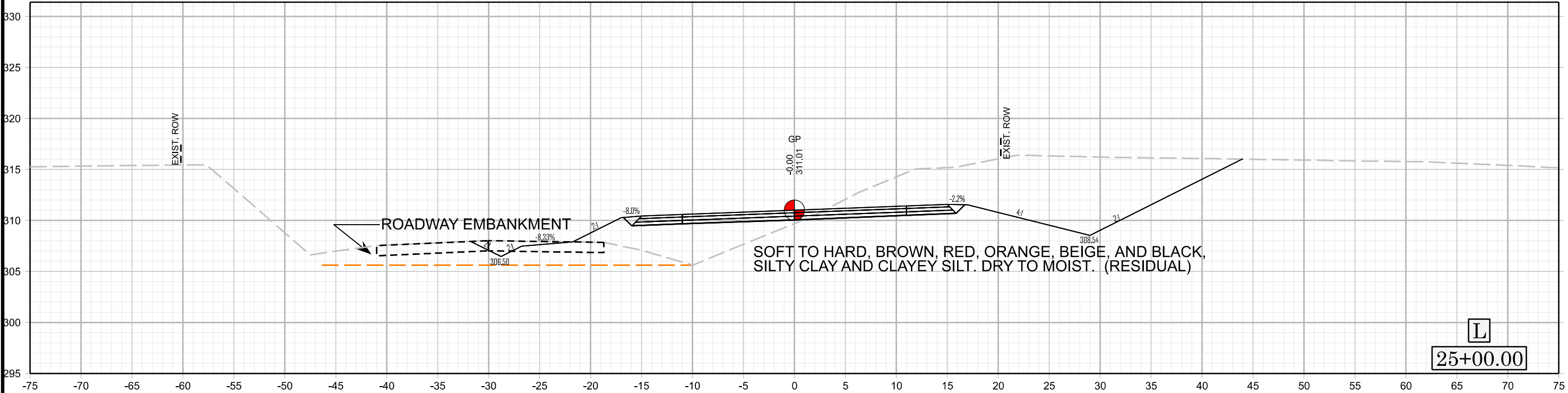
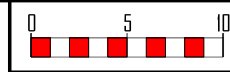
| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
|---------------|----------|---------|----------------|---------------|------|-------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-12 | 14 ft RT | 23+96 | 3.5 - 5.0 | A-4(10) | 35 | 9 | 1.7 | 5.9 | 57.9 | 34.5 | 98.8 | 98 | 94 | - | - |



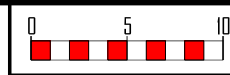
NOTE: SHOULDER BERM GUTTER LOCATIONS WILL BE DETERMINED IN THE NEXT PHASE



REVISIONS

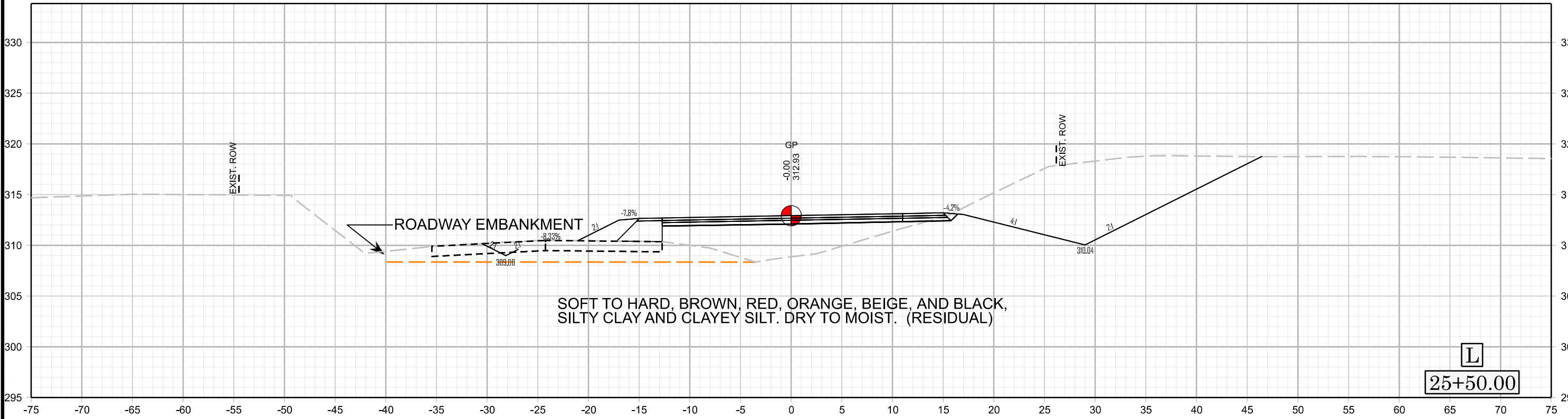
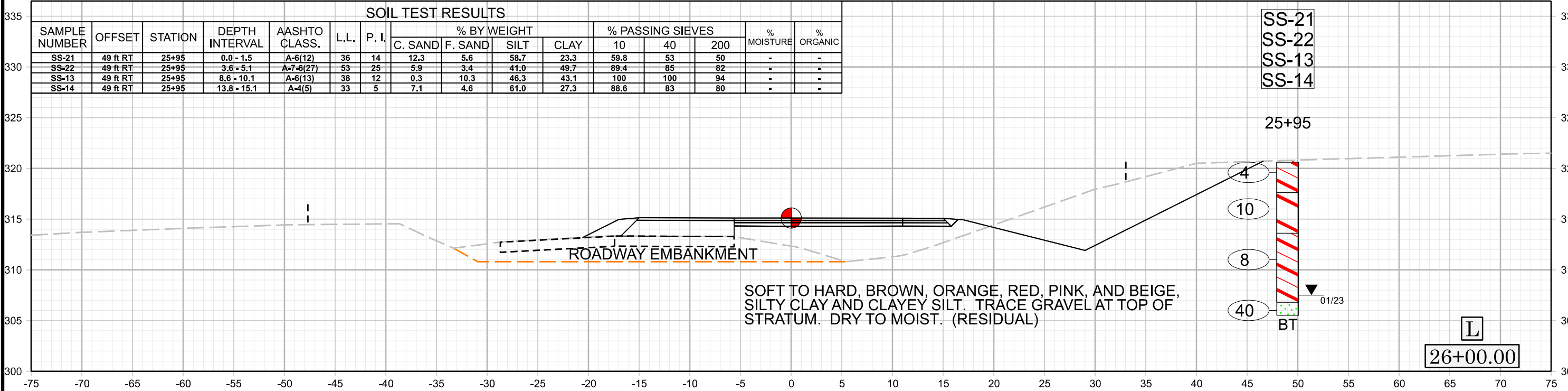


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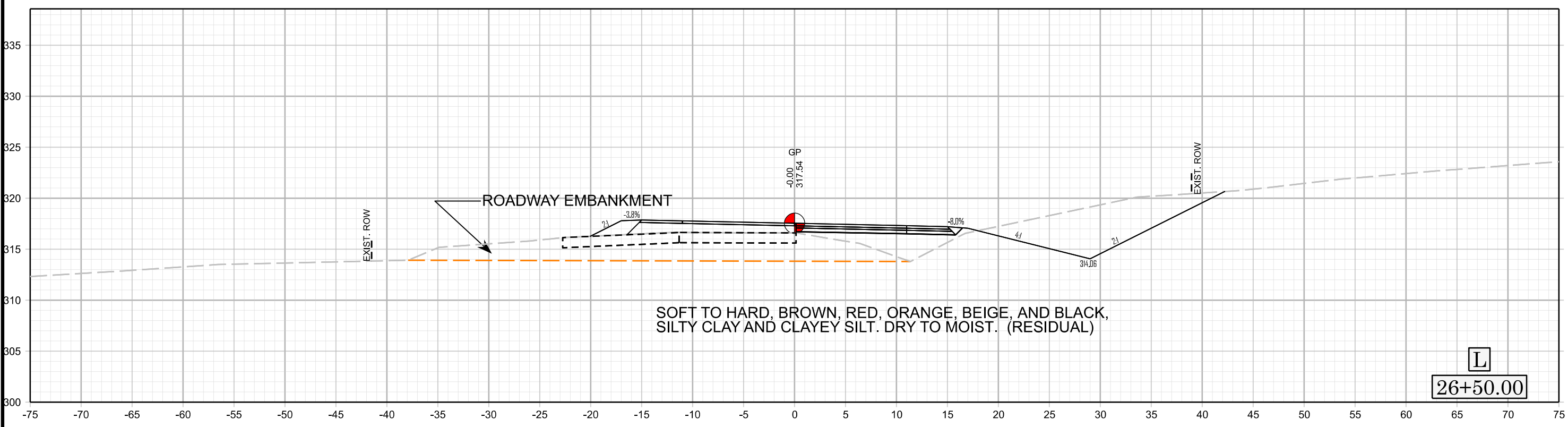
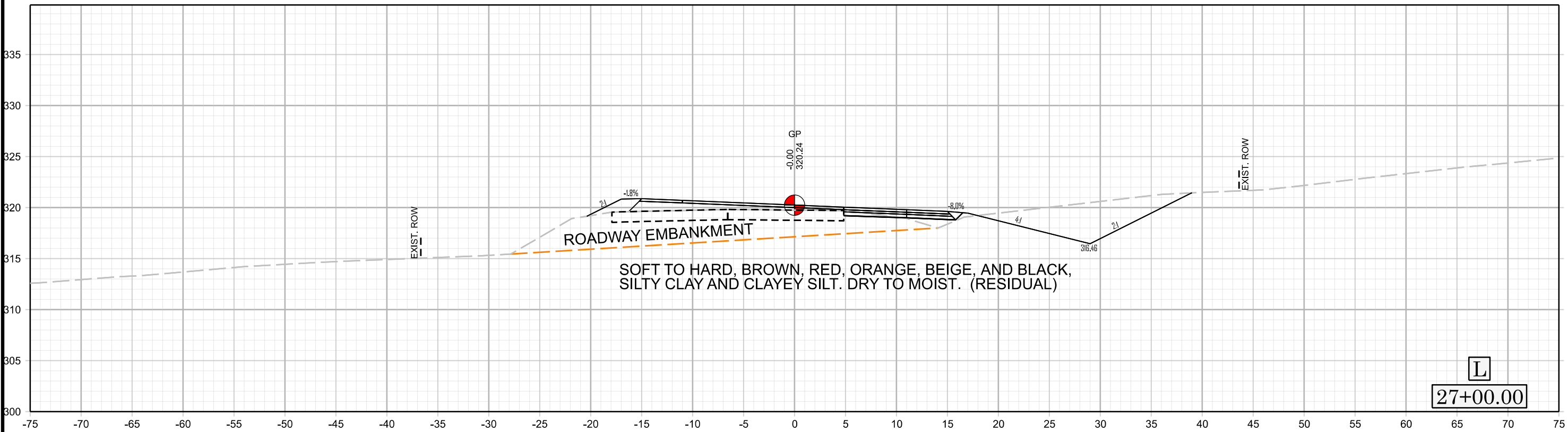
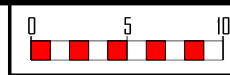


| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|----------|---------|----------------|---------------|------|-------|-------------|---------|------|------|------------------|-----|-----|------------|-----------|
| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-21 | 49 ft RT | 25+95 | 0.0 - 1.5 | A-6(12) | 36 | 14 | 12.3 | 5.6 | 58.7 | 23.3 | 59.8 | 53 | 50 | - | - |
| SS-22 | 49 ft RT | 25+95 | 3.6 - 5.1 | A-7-6(27) | 53 | 25 | 5.9 | 3.4 | 41.0 | 49.7 | 89.4 | 85 | 82 | - | - |
| SS-13 | 49 ft RT | 25+95 | 8.6 - 10.1 | A-6(13) | 38 | 12 | 0.3 | 10.3 | 46.3 | 43.1 | 100 | 100 | 94 | - | - |
| SS-14 | 49 ft RT | 25+95 | 13.8 - 15.1 | A-4(5) | 33 | 5 | 7.1 | 4.6 | 61.0 | 27.3 | 88.6 | 83 | 80 | - | - |

SS-21
SS-22
SS-13
SS-14

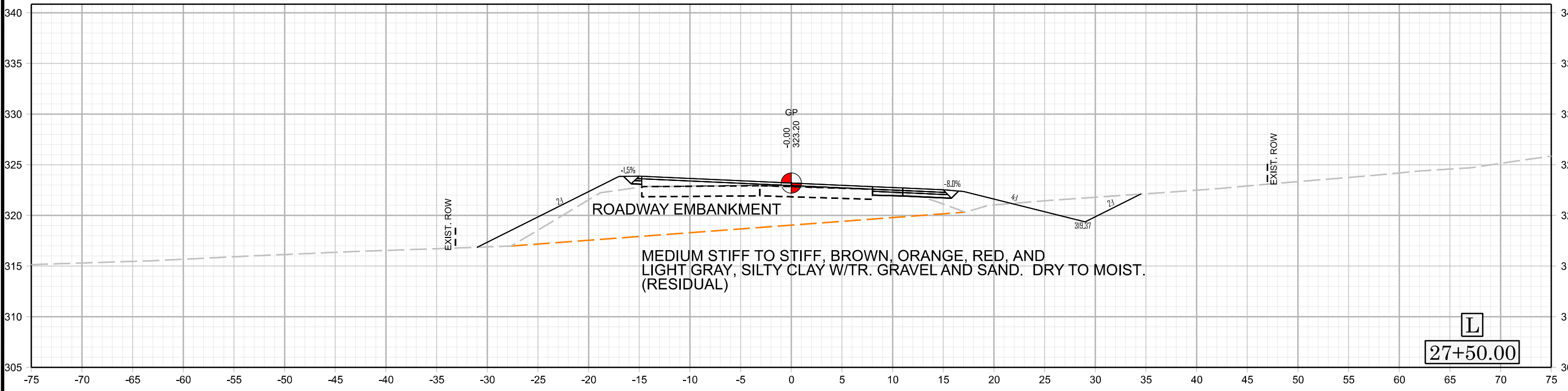
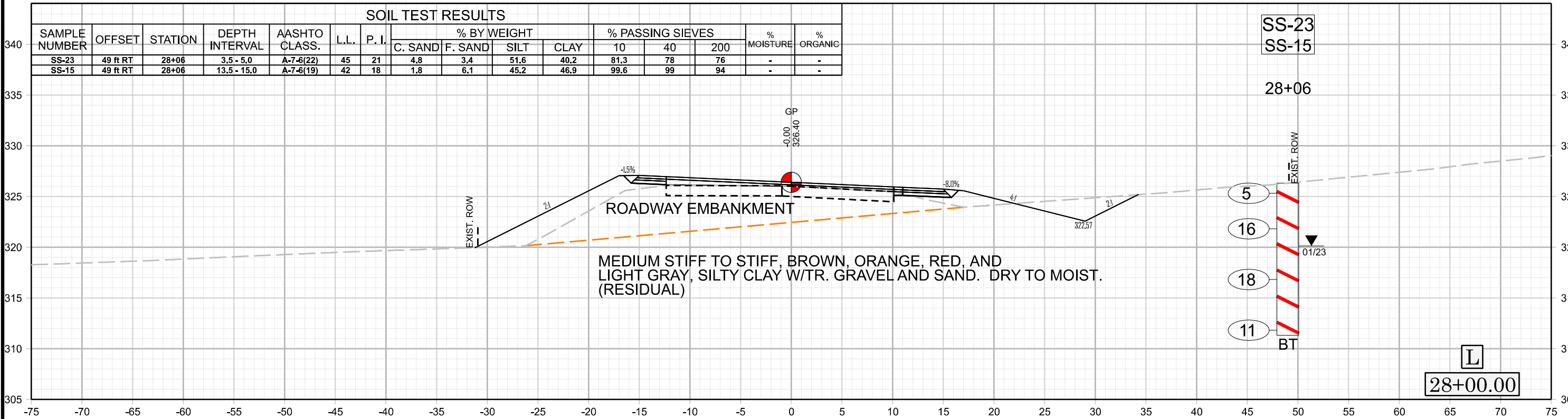


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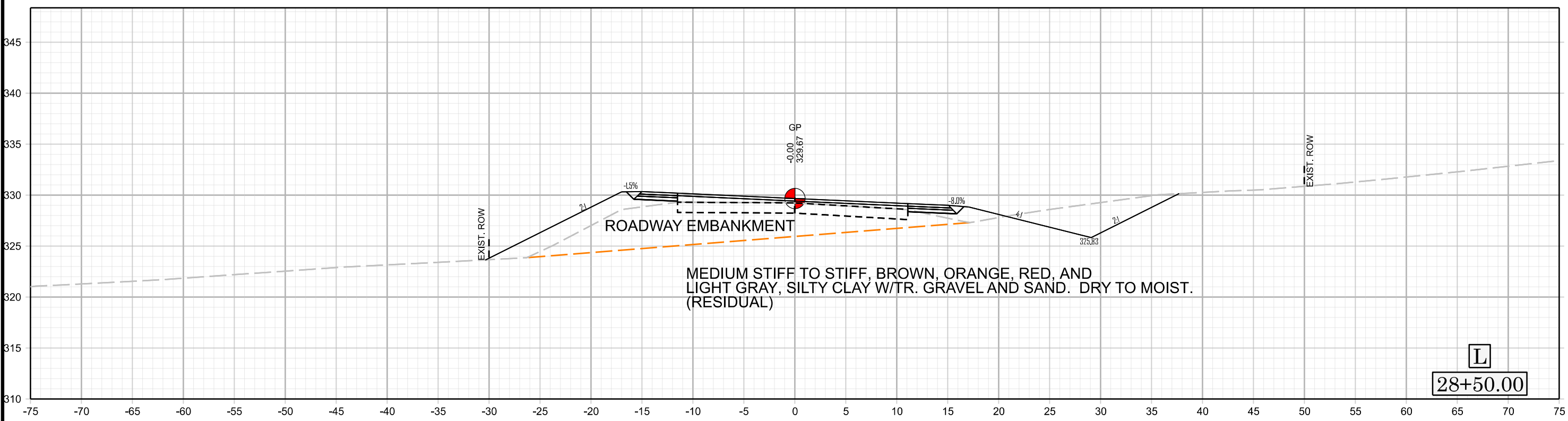
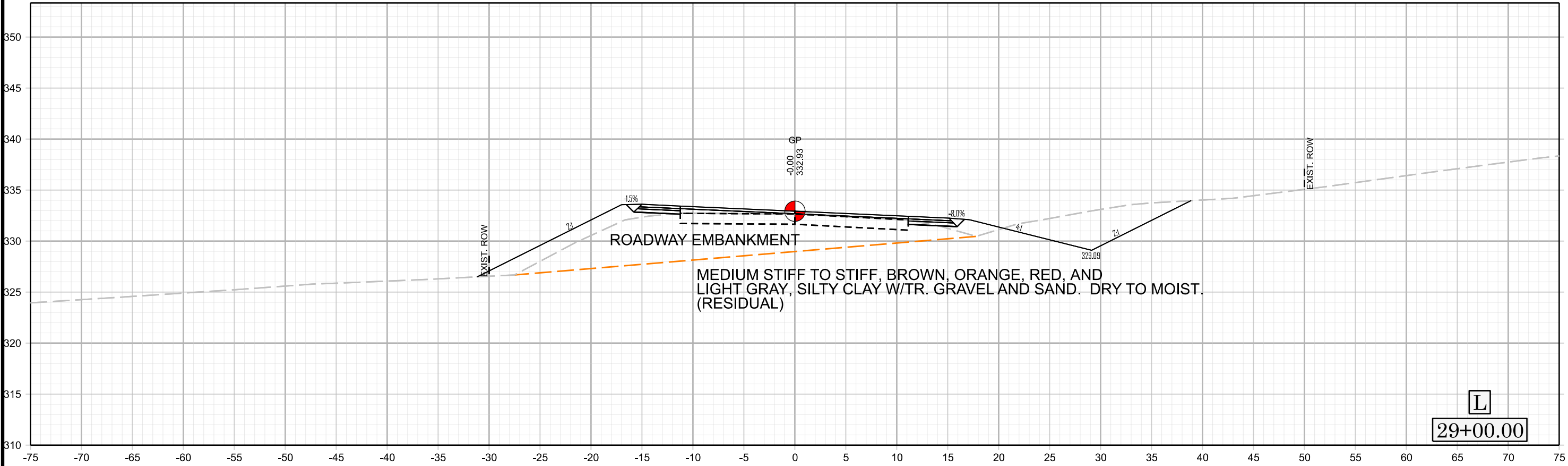
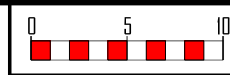


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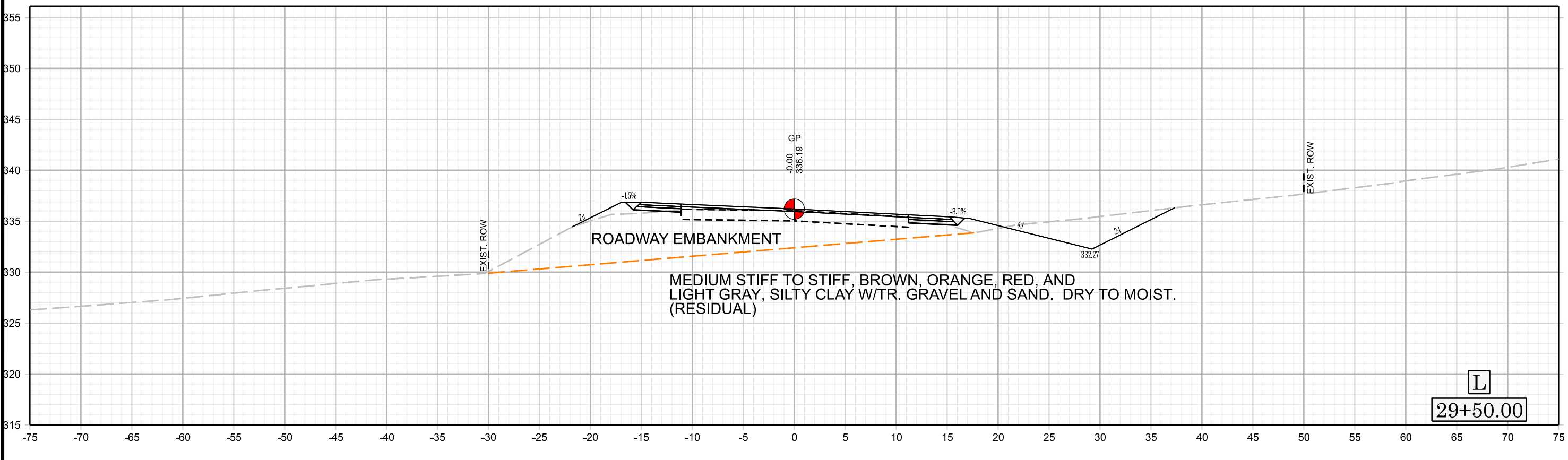
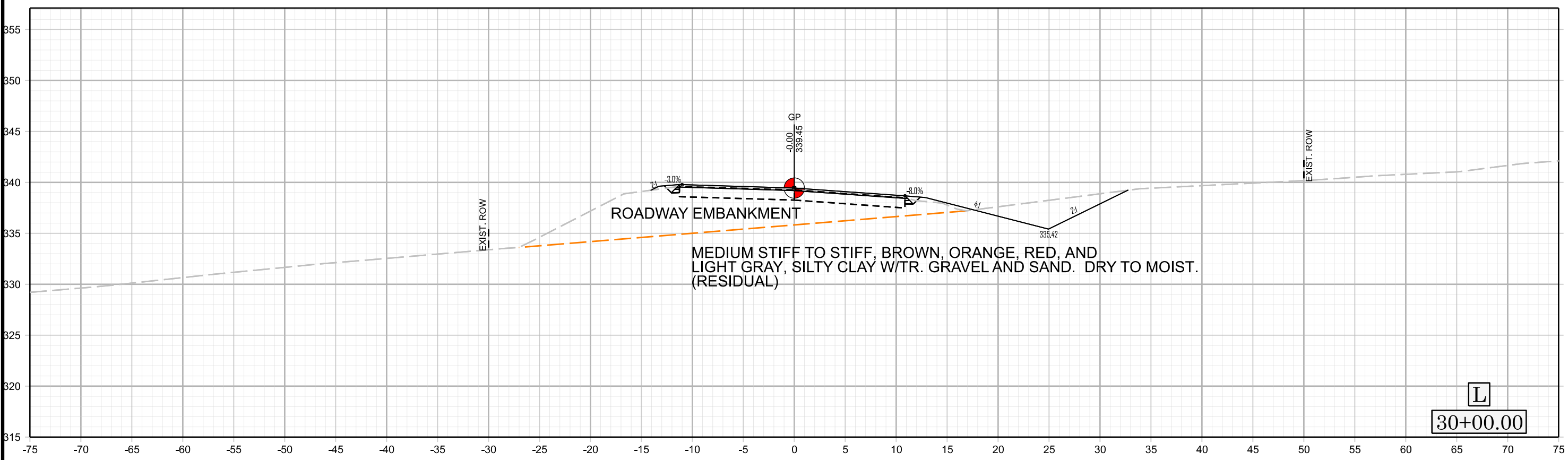
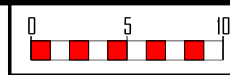
| SOIL TEST RESULTS | | | | | | | | | | | | | | | |
|-------------------|----------|---------|----------------|---------------|------|-------|-------------|---------|------|------|------------------|----|-----|------------|-----------|
| SAMPLE NUMBER | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P. I. | % BY WEIGHT | | | | % PASSING SIEVES | | | % MOISTURE | % ORGANIC |
| | | | | | | | C. SAND | F. SAND | SILT | CLAY | 10 | 40 | 200 | | |
| SS-23 | 49 ft RT | 28+06 | 3.5 - 5.0 | A-7-6(22) | 45 | 21 | 4.8 | 3.4 | 51.6 | 40.2 | 81.3 | 78 | 76 | - | - |
| SS-15 | 49 ft RT | 28+06 | 13.5 - 15.0 | A-7-6(19) | 42 | 18 | 1.8 | 6.1 | 45.2 | 46.9 | 99.6 | 99 | 94 | - | - |



REVISIONS



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