REFERENCE: W-5212N

PROJECT: 45342

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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LINE	STATION	PLAN	PROFILE
-L-	24+50 - 439+00	N/A	N/A

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APPENDICES

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *GASTON*

PROJECT DESCRIPTION *NC 279 (DALLAS CHERRYVILLE HWY) FROM SOUTH OF SR 1438 (ST MARK'S CHURCH RD) TO NORTH OF NC 275*

RECOMMENDATIONS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5212N	1	77

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.

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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
W-5212N	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE 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
	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:
- [X] DIEDRICH D-50
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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
- [X] 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:

SURVEY AND ROADWAY DESIGN INFORMATION PROVIDED BY TGS ENGINEERS.

DATE: 8-15-14

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

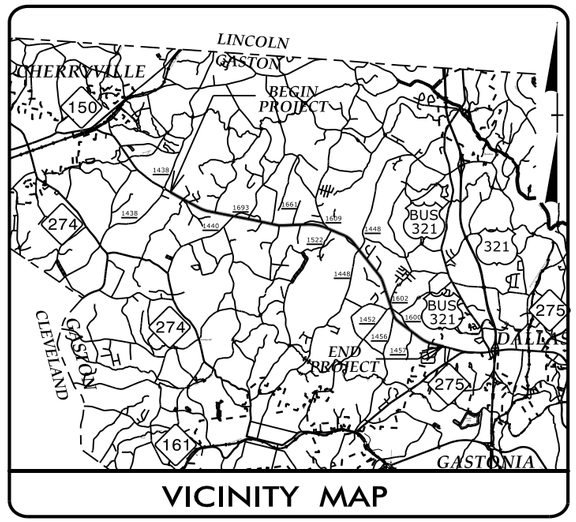
GASTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5212N	3	

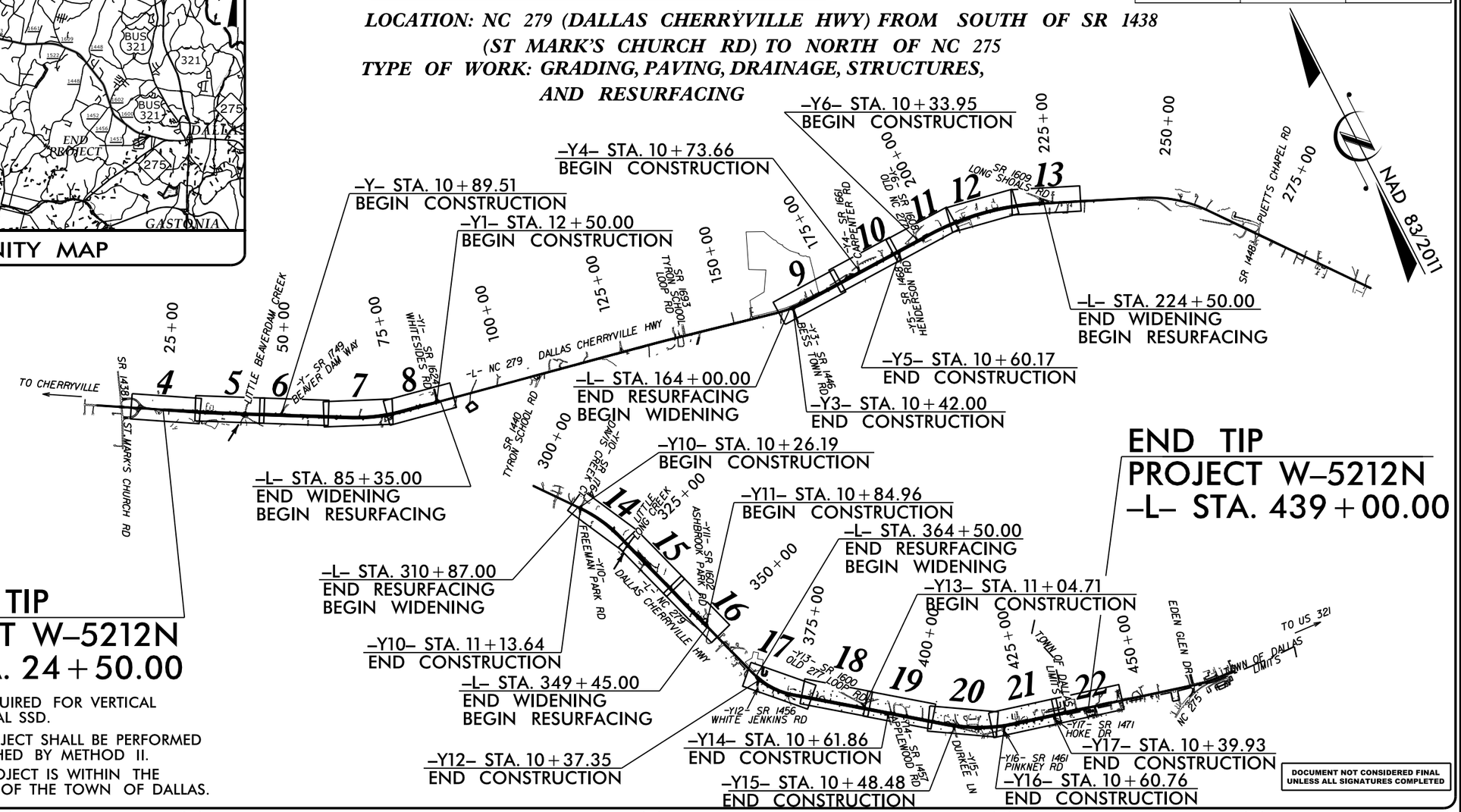
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45342.1.FR14	HSIP-0279(10)	PE
45342.2.14	HSIP-0279(10)	ROW
45342.3.14	HSIP-0279(10)	CONST.

LOCATION: NC 279 (DALLAS CHERRYVILLE HWY) FROM SOUTH OF SR 1438 (ST MARK'S CHURCH RD) TO NORTH OF NC 275

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, AND RESURFACING



VICINITY MAP



BEGIN TIP PROJECT W–5212N –L– STA. 24 + 50.00

END TIP PROJECT W–5212N –L– STA. 439 + 00.00

–L– STA. 85 + 35.00
END WIDENING
BEGIN RESURFACING

–L– STA. 164 + 00.00
END RESURFACING
BEGIN WIDENING

–Y– STA. 10 + 89.51
BEGIN CONSTRUCTION

–Y1– STA. 12 + 50.00
BEGIN CONSTRUCTION

–Y2– STA. 10 + 42.00
END CONSTRUCTION

–Y3– STA. 10 + 42.00
END CONSTRUCTION

–Y4– STA. 10 + 73.66
BEGIN CONSTRUCTION

–Y5– STA. 10 + 60.17
END CONSTRUCTION

–L– STA. 224 + 50.00
END WIDENING
BEGIN RESURFACING

–Y6– STA. 10 + 33.95
BEGIN CONSTRUCTION

–L– STA. 310 + 87.00
END RESURFACING
BEGIN WIDENING

–Y10– STA. 11 + 13.64
END CONSTRUCTION

–L– STA. 349 + 45.00
END WIDENING
BEGIN RESURFACING

–Y12– STA. 10 + 37.35
END CONSTRUCTION

–Y10– STA. 10 + 26.19
BEGIN CONSTRUCTION

–Y11– STA. 10 + 84.96
BEGIN CONSTRUCTION

–L– STA. 364 + 50.00
END RESURFACING
BEGIN WIDENING

–Y13– STA. 11 + 04.71
BEGIN CONSTRUCTION

–Y14– STA. 10 + 61.86
END CONSTRUCTION

–Y15– STA. 10 + 48.48
END CONSTRUCTION

–Y16– STA. 10 + 60.76
END CONSTRUCTION

–Y17– STA. 10 + 39.93
END CONSTRUCTION

DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVATURE AND VERTICAL SSD.

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

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF DALLAS.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 11,600
ADT 2040 = 14,400
K = 9 %
D = 60 %
T = 4 % *
V = 60 MPH
* TTST = 3% DUAL = 1%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W–5212N = 7.822 MILES
TOTAL LENGTH TIP PROJECT W–5212N = 7.822 MILES

NCDOT CONTACT: JACKIE McSWAIN

PLANS PREPARED BY:
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PLANS PREPARED FOR:
NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 12
1710 E. MARION ST
Shelby, NC 28151

RIGHT OF WAY DATE:
APRIL 2017

LETTING DATE:

2012 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA G. MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

CONTRACT:

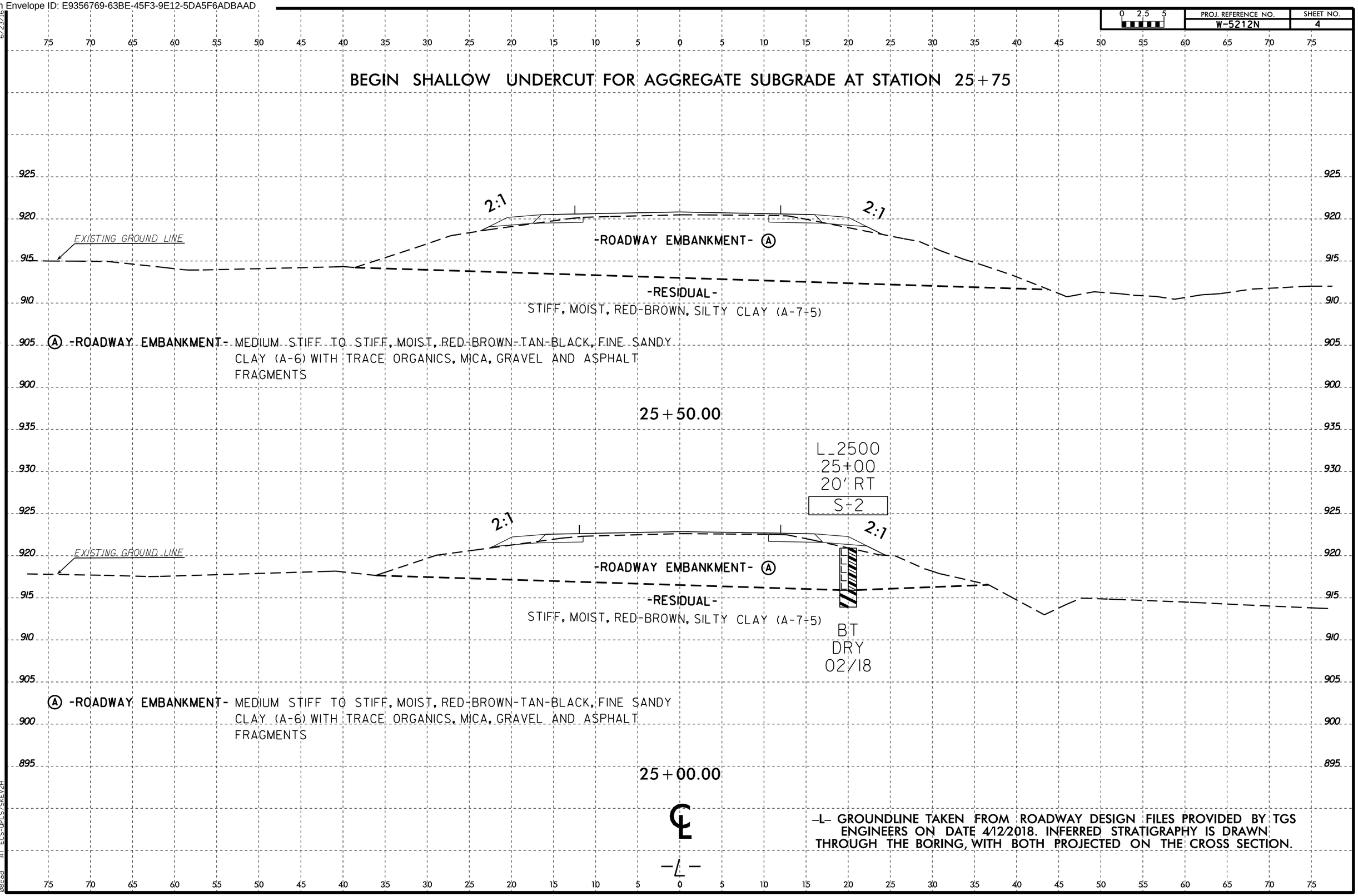
TIP PROJECT: W–5212N

20-APR-2018 15:33
I:\26GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\PlanProf\W5212N_Rdy_tsh.dgn
$$$$USERNAME$$$$

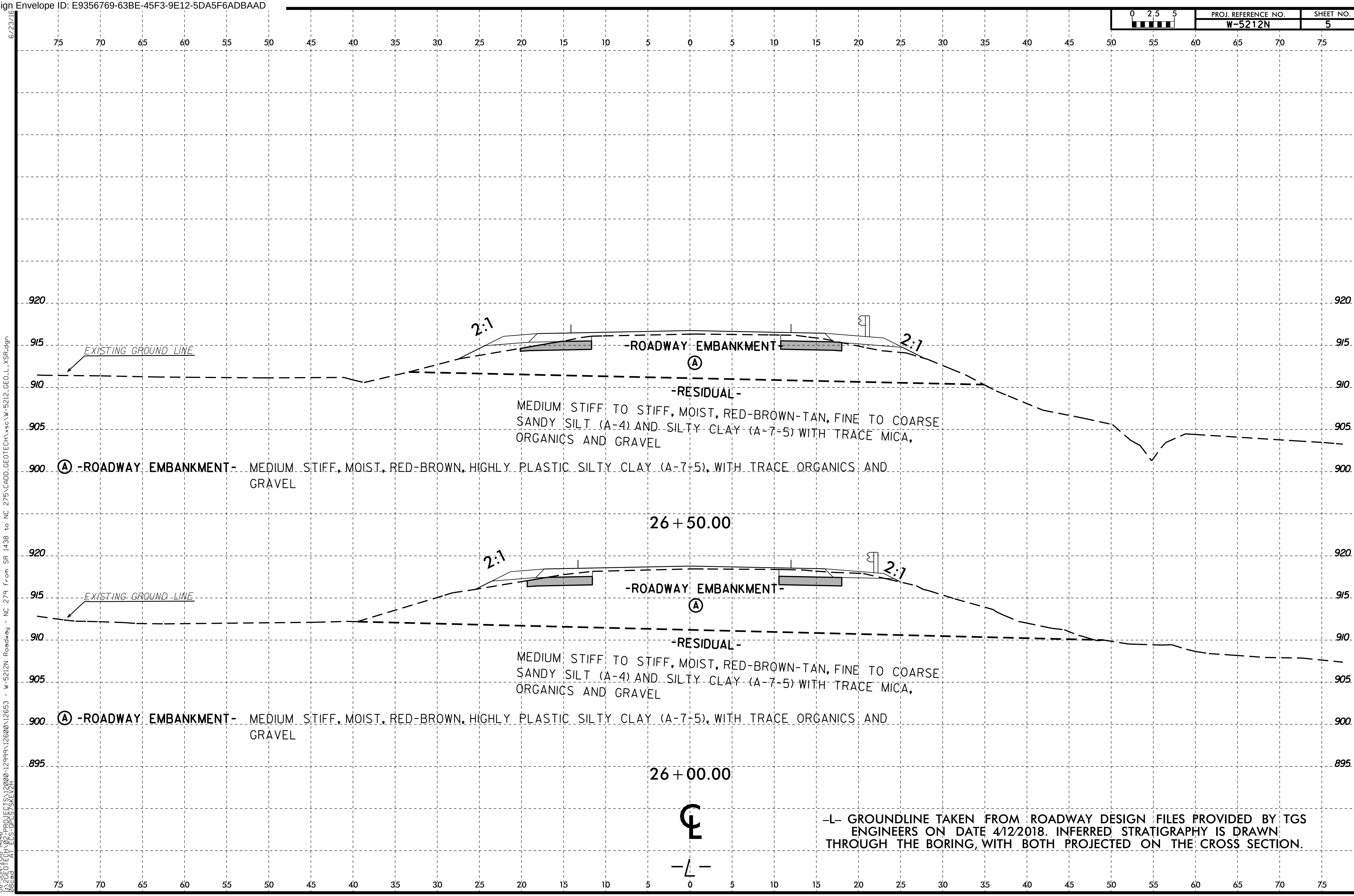
09/08/2018

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	4

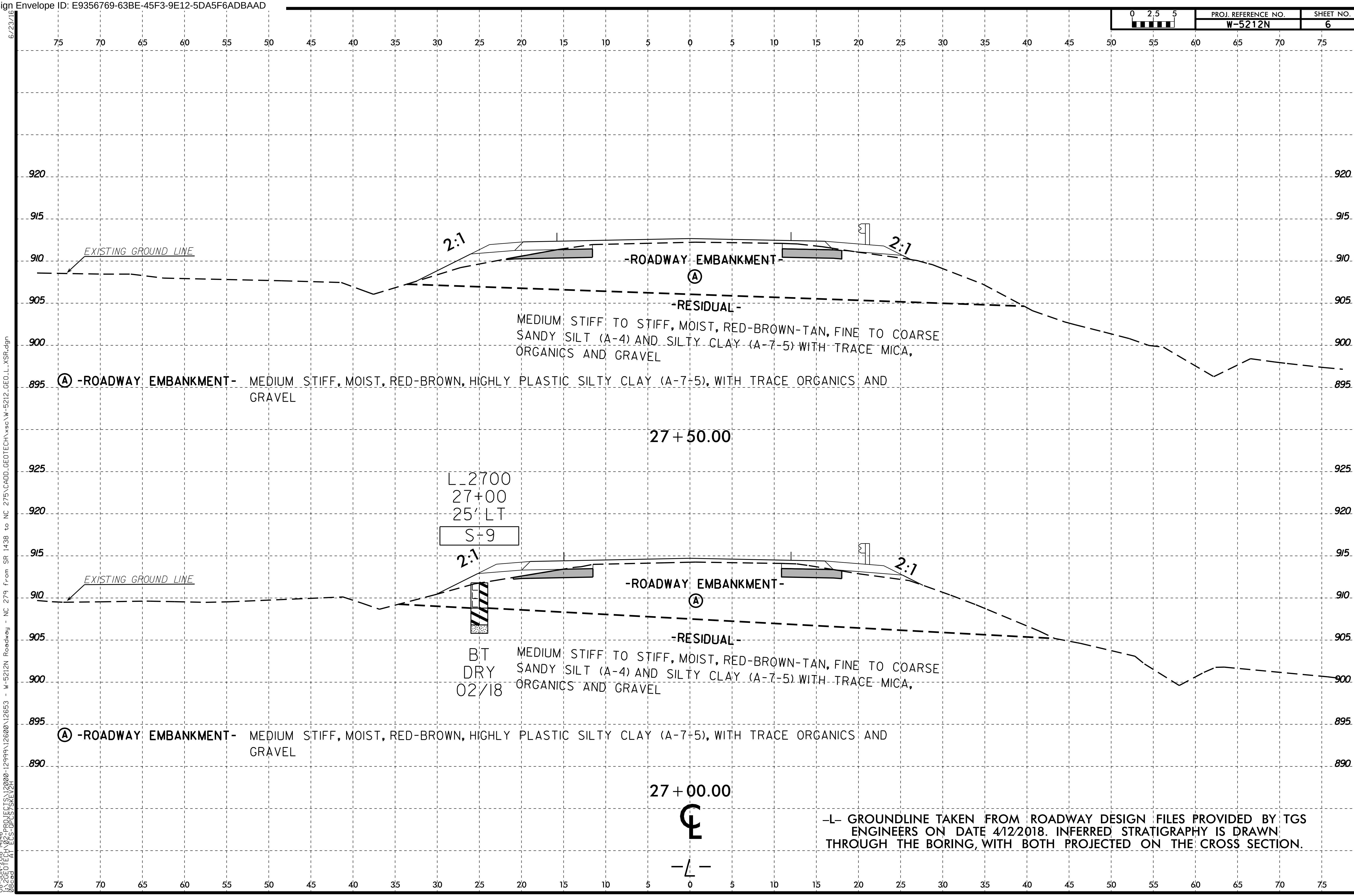
BEGIN SHALLOW UNDERCUT FOR AGGREGATE SUBGRADE AT STATION 25+75



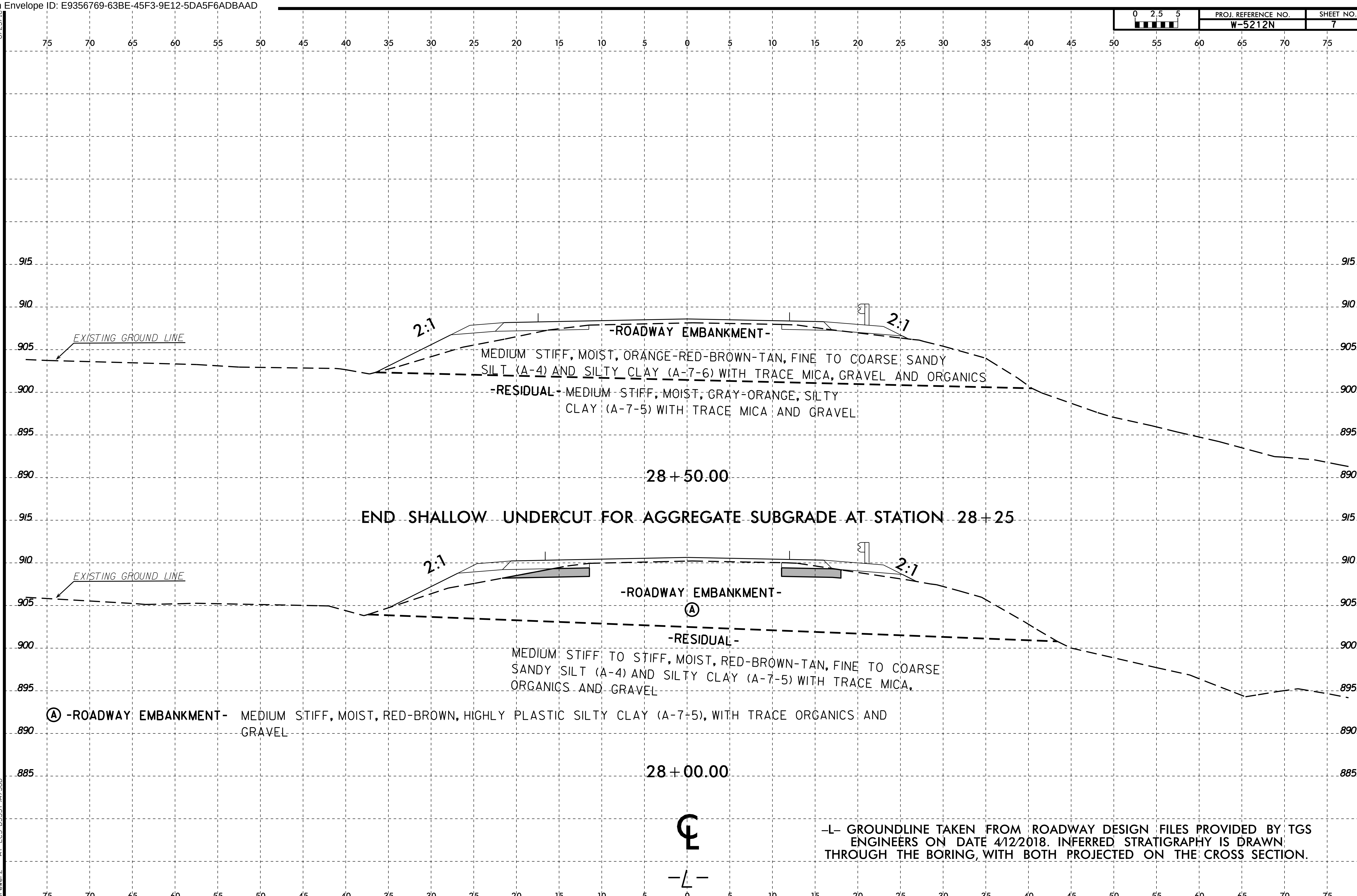
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.


PROJ. REFERENCE NO.
W-5212N
SHEET NO.
5
EXISTING GROUND LINE
2:1
2:1
-ROADWAY EMBANKMENT-
A
-RESIDUAL-
MEDIUM STIFF TO STIFF, MOIST, RED-BROWN-TAN, FINE TO COARSE SANDY SILT (A-4) AND SILTY CLAY (A-7-5) WITH TRACE MICA, ORGANICS AND GRAVEL
A -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE ORGANICS AND GRAVEL
26+50.00
EXISTING GROUND LINE
2:1
2:1
-ROADWAY EMBANKMENT-
A
-RESIDUAL-
MEDIUM STIFF TO STIFF, MOIST, RED-BROWN-TAN, FINE TO COARSE SANDY SILT (A-4) AND SILTY CLAY (A-7-5) WITH TRACE MICA, ORGANICS AND GRAVEL
A -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE ORGANICS AND GRAVEL
26+00.00
CL
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

DocuSign Envelope ID: E9356769-63BE-45F3-9E12-5DA5F6ADBAAD

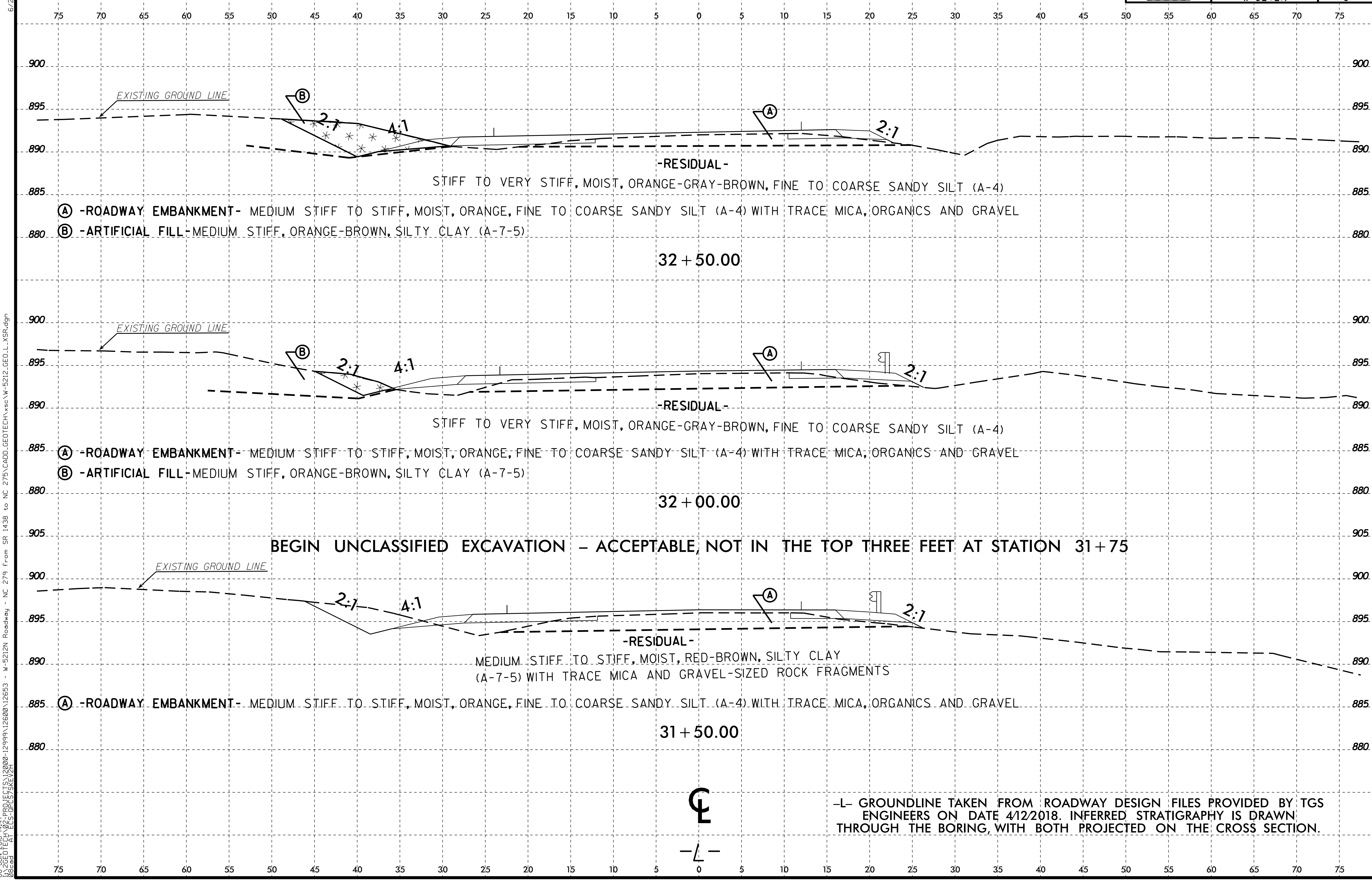

PROJ. REFERENCE NO.
W-5212N
SHEET NO.
6
0 2.5 5
EXISTING GROUND LINE
2:1
2:1
-ROADWAY EMBANKMENT-
A
-RESIDUAL-
MEDIUM STIFF TO STIFF, MOIST, RED-BROWN-TAN, FINE TO COARSE SANDY SILT (A-4) AND SILTY CLAY (A-7-5) WITH TRACE MICA, ORGANICS AND GRAVEL
A -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE ORGANICS AND GRAVEL
27+50.00
L_2700
27+00
25' LT
S-9
EXISTING GROUND LINE
2:1
2:1
-ROADWAY EMBANKMENT-
A
-RESIDUAL-
BT
DRY
02/18
MEDIUM STIFF TO STIFF, MOIST, RED-BROWN-TAN, FINE TO COARSE SANDY SILT (A-4) AND SILTY CLAY (A-7-5) WITH TRACE MICA, ORGANICS AND GRAVEL
A -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE ORGANICS AND GRAVEL
27+00.00
CL
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	7

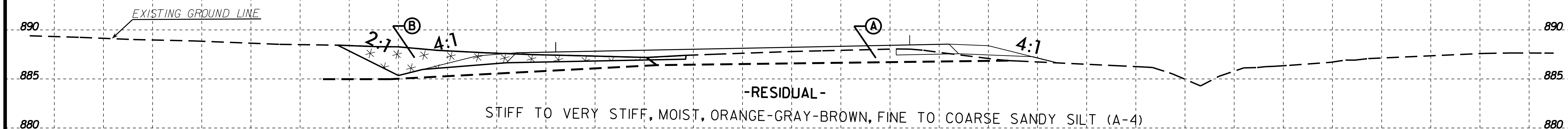


-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	8



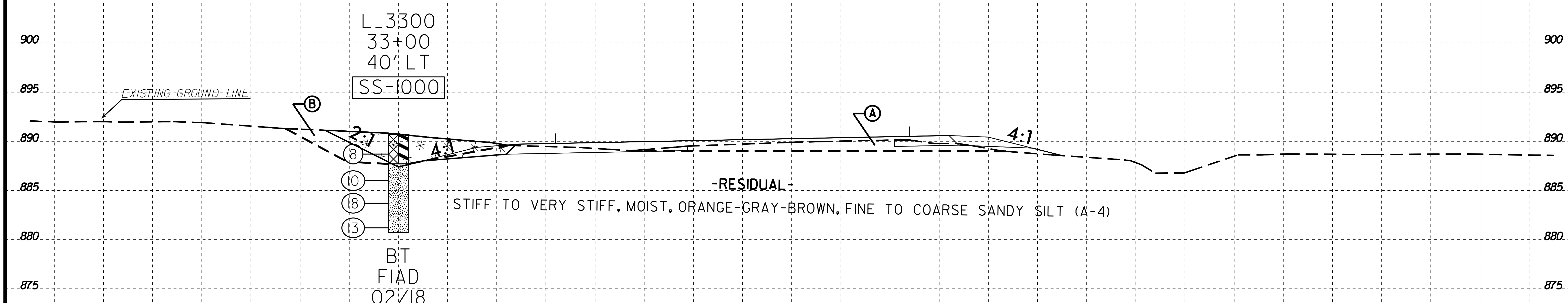
END UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 33+75



Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF TO STIFF, MOIST, ORANGE, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, ORGANICS AND GRAVEL

Ⓑ -ARTIFICIAL FILL-MEDIUM STIFF, ORANGE-BROWN, SILTY CLAY (A-7-5)

33+50.00



Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF TO STIFF, MOIST, ORANGE, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, ORGANICS AND GRAVEL

Ⓑ -ARTIFICIAL FILL-MEDIUM STIFF, ORANGE-BROWN, SILTY CLAY (A-7-5)

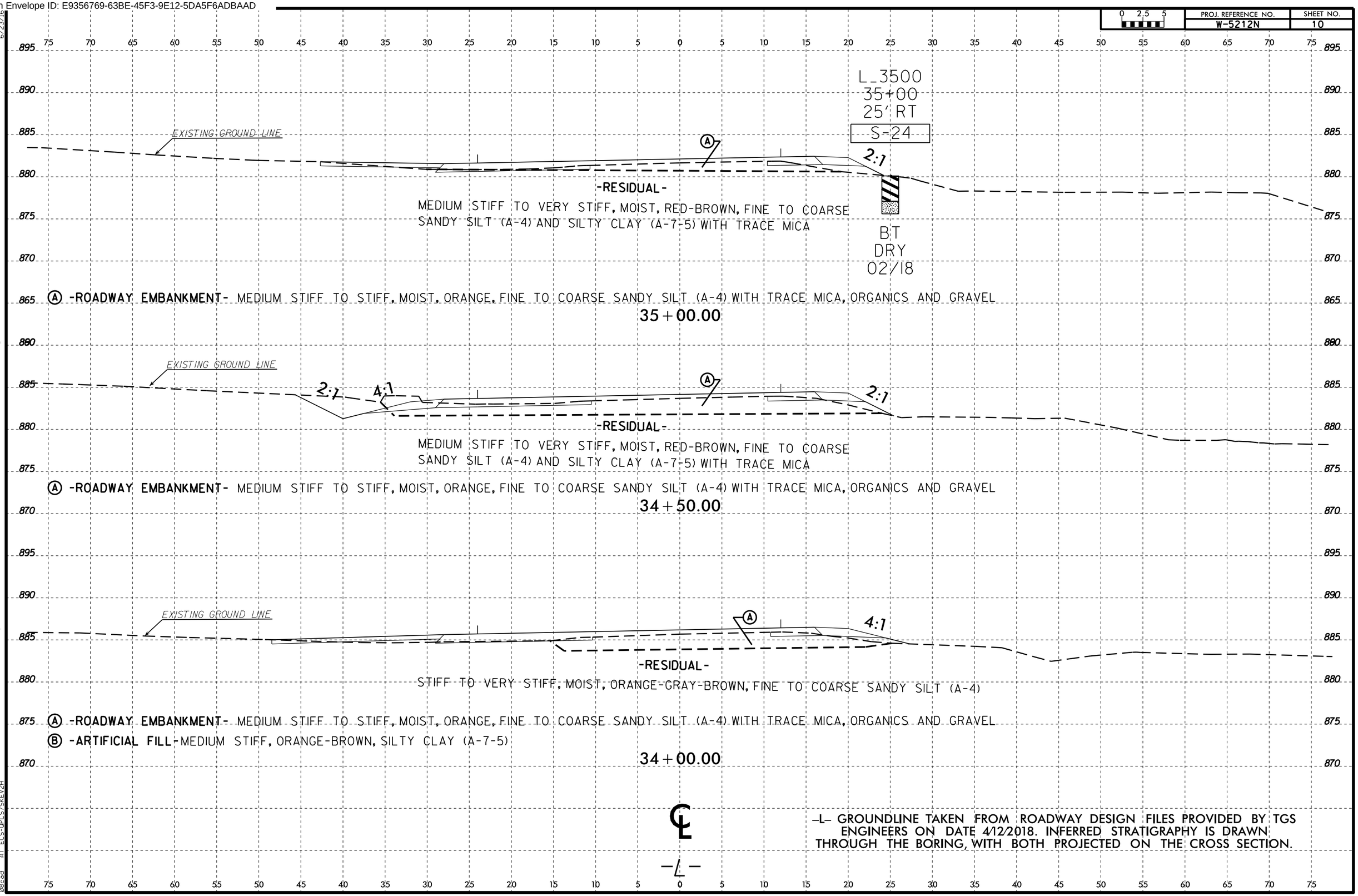
33+00.00

℄

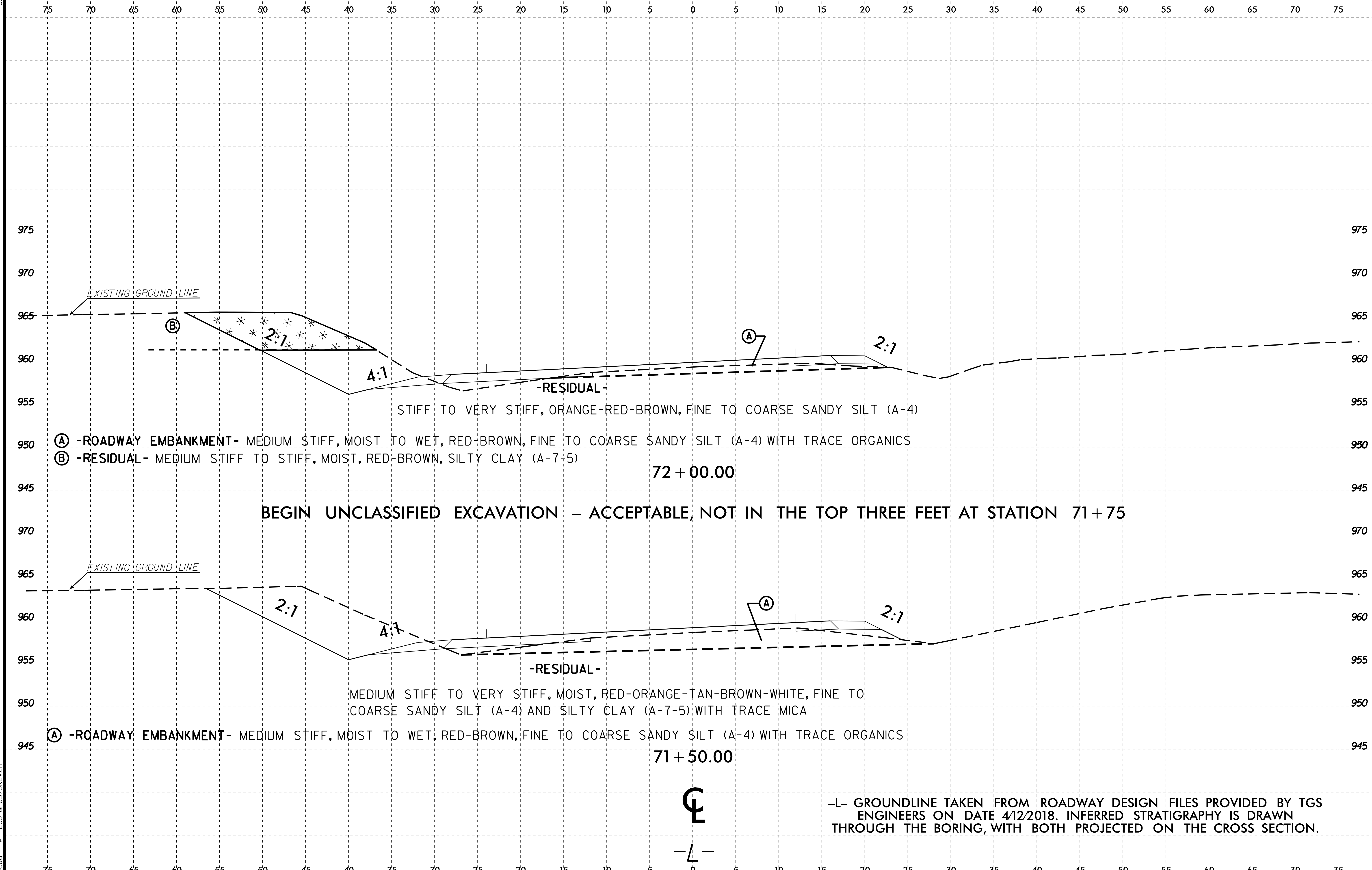
-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	10



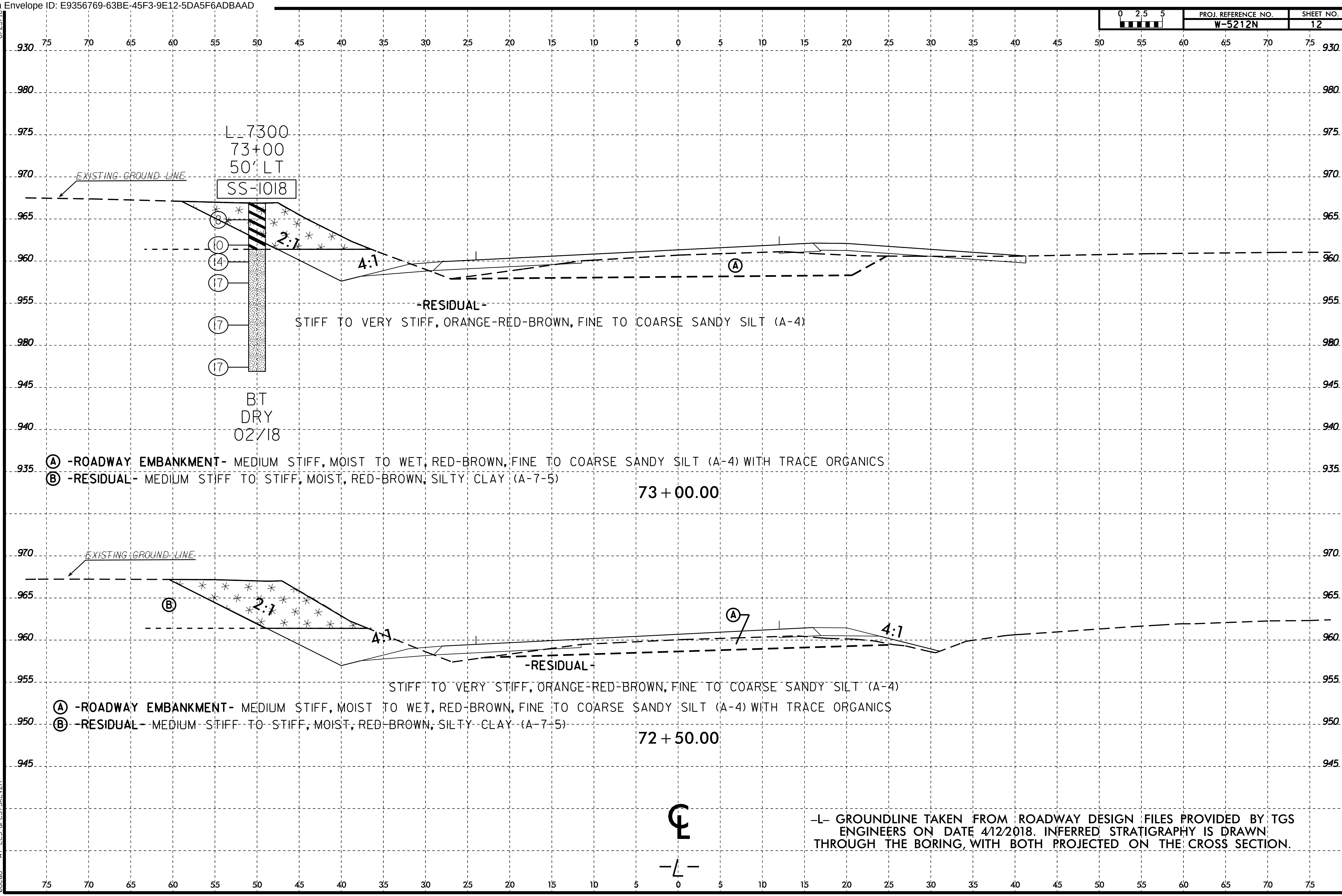
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

08-JUN-2018 14:47 R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	12

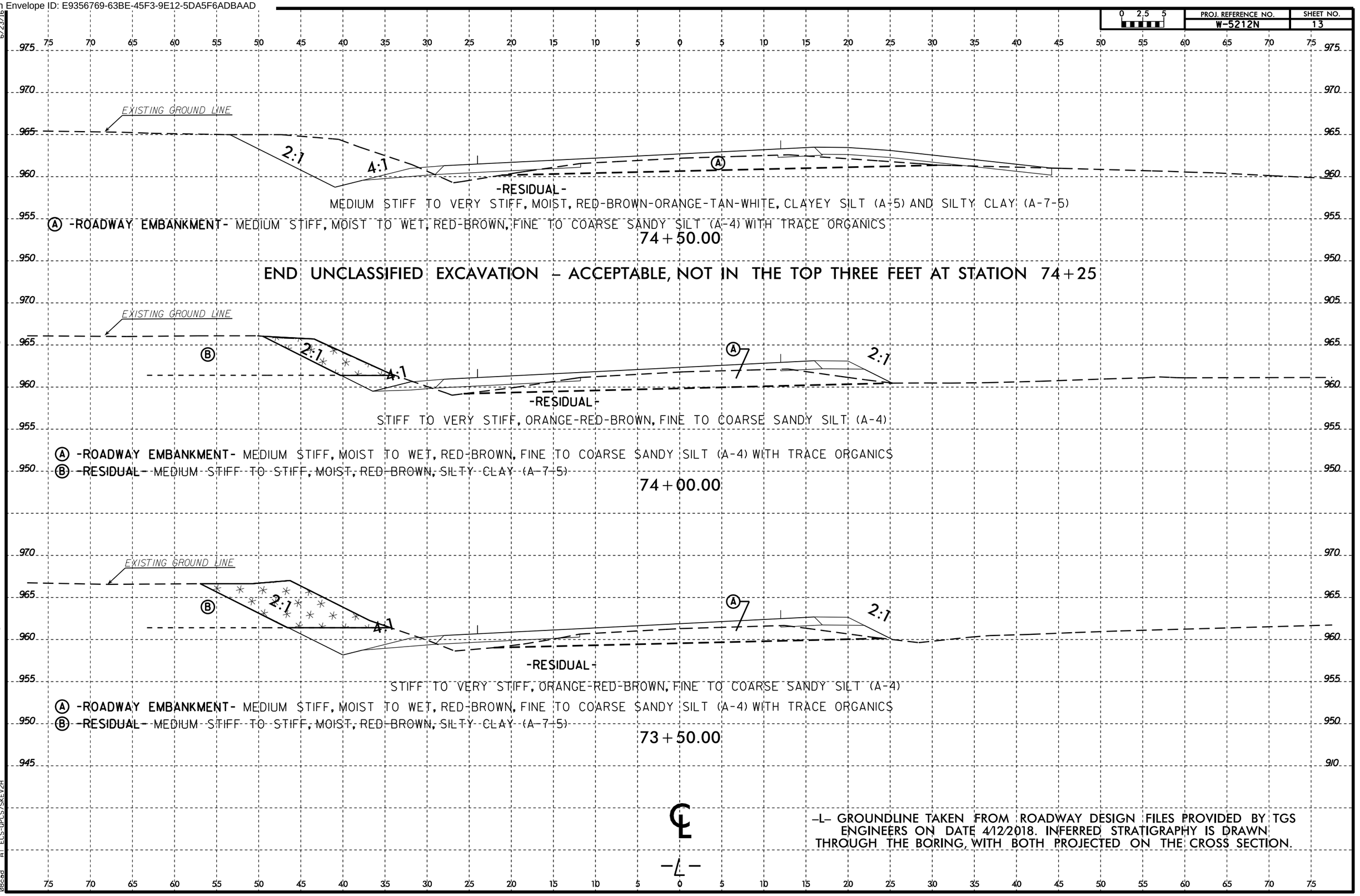


-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16

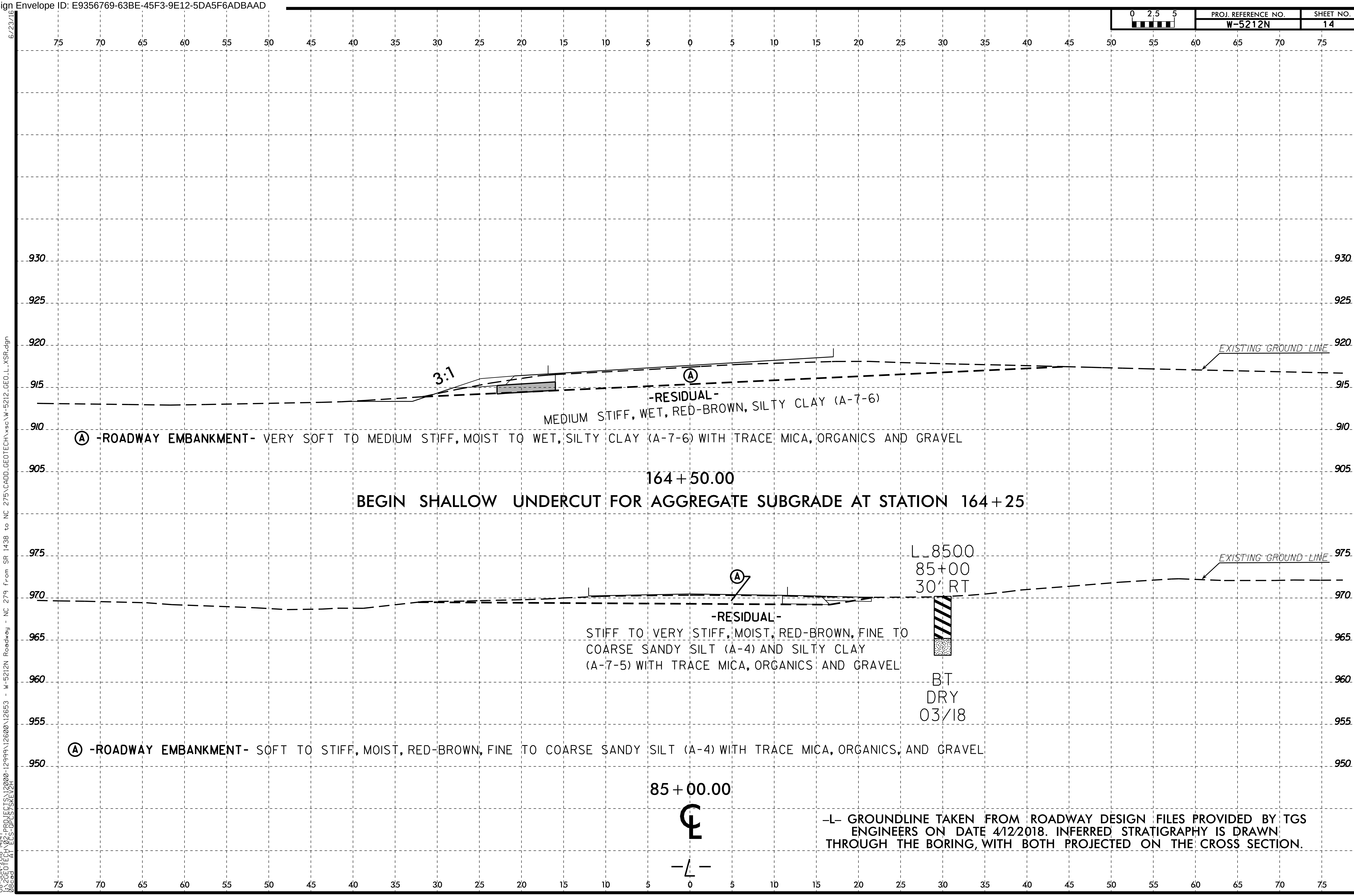
08-JUN-2018 14:47
R:\2GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
AT ECS-OFC57\SKEVZH

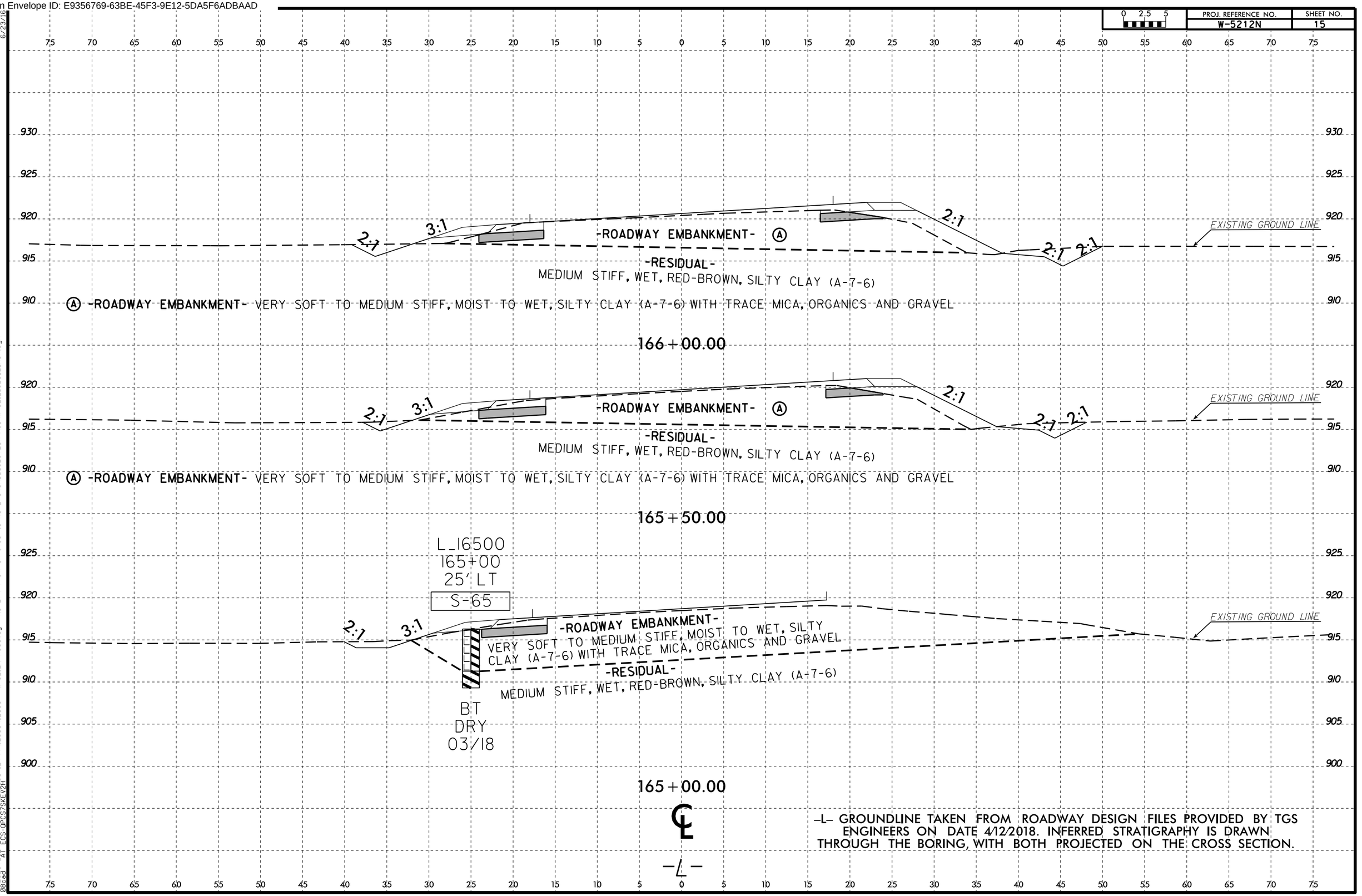
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	13



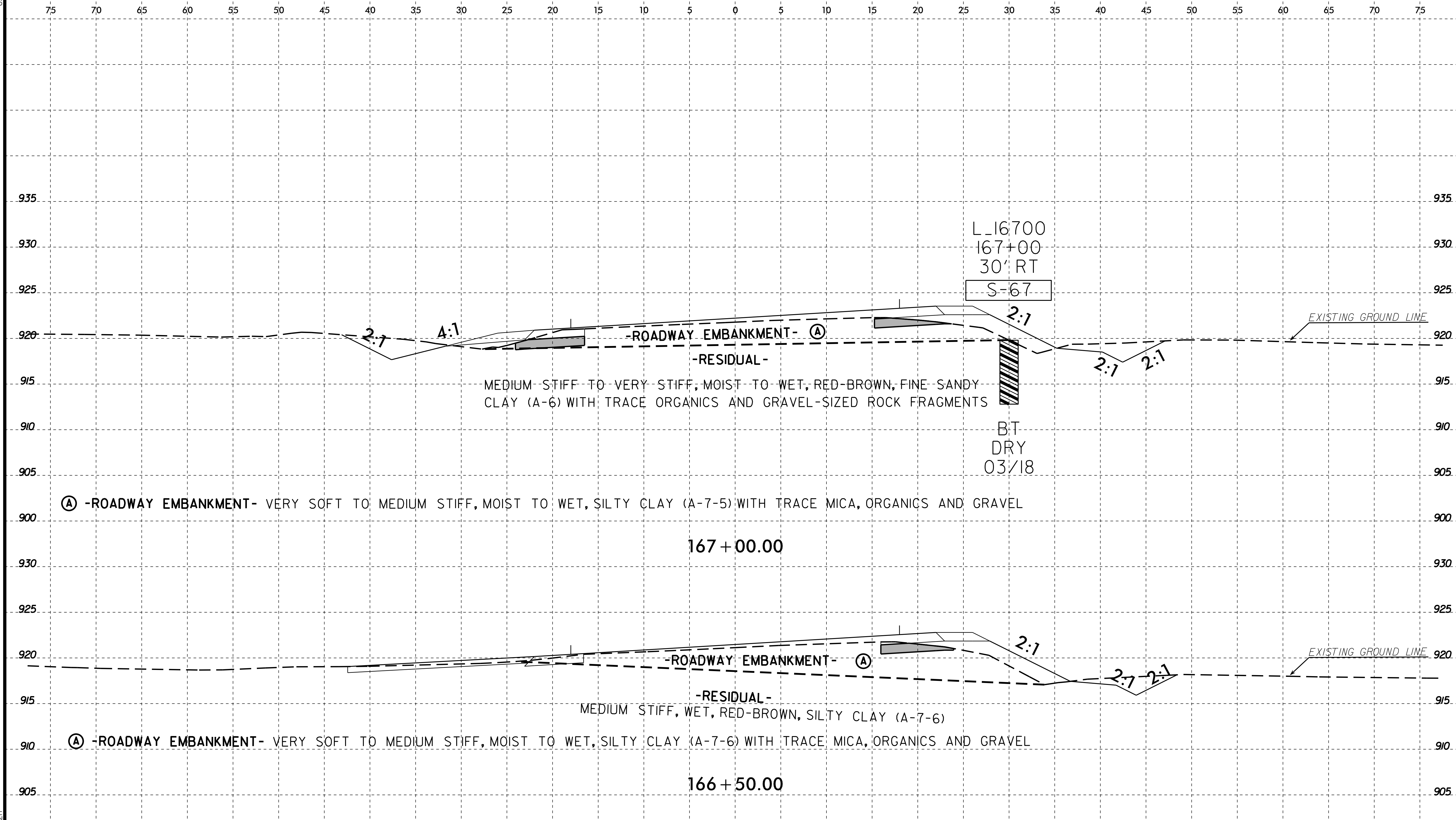
6/23/16

08-JUN-2018 14:47
U:\2GEOTECH\W2-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xs\W-5212_GEO_L_XSR.dgn
AT ECS-OPCS75KEY2H
08cad


PROJ. REFERENCE NO. W-5212N
SHEET NO. 14
0 2.5 5
EXISTING GROUND LINE
3:1
A
-RESIDUAL-
MEDIUM STIFF, WET, RED-BROWN, SILTY CLAY (A-7-6)
A -ROADWAY EMBANKMENT- VERY SOFT TO MEDIUM STIFF, MOIST TO WET, SILTY CLAY (A-7-6) WITH TRACE MICA, ORGANICS AND GRAVEL
164+50.00
BEGIN SHALLOW UNDERCUT FOR AGGREGATE SUBGRADE AT STATION 164+25
L_8500
85+00
30' RT
EXISTING GROUND LINE
A
-RESIDUAL-
STIFF TO VERY STIFF, MOIST, RED-BROWN, FINE TO COARSE SANDY SILT (A-4) AND SILTY CLAY (A-7-5) WITH TRACE MICA, ORGANICS AND GRAVEL
BT
DRY
03/18
A -ROADWAY EMBANKMENT- SOFT TO STIFF, MOIST, RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA, ORGANICS, AND GRAVEL
85+00.00
CL
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

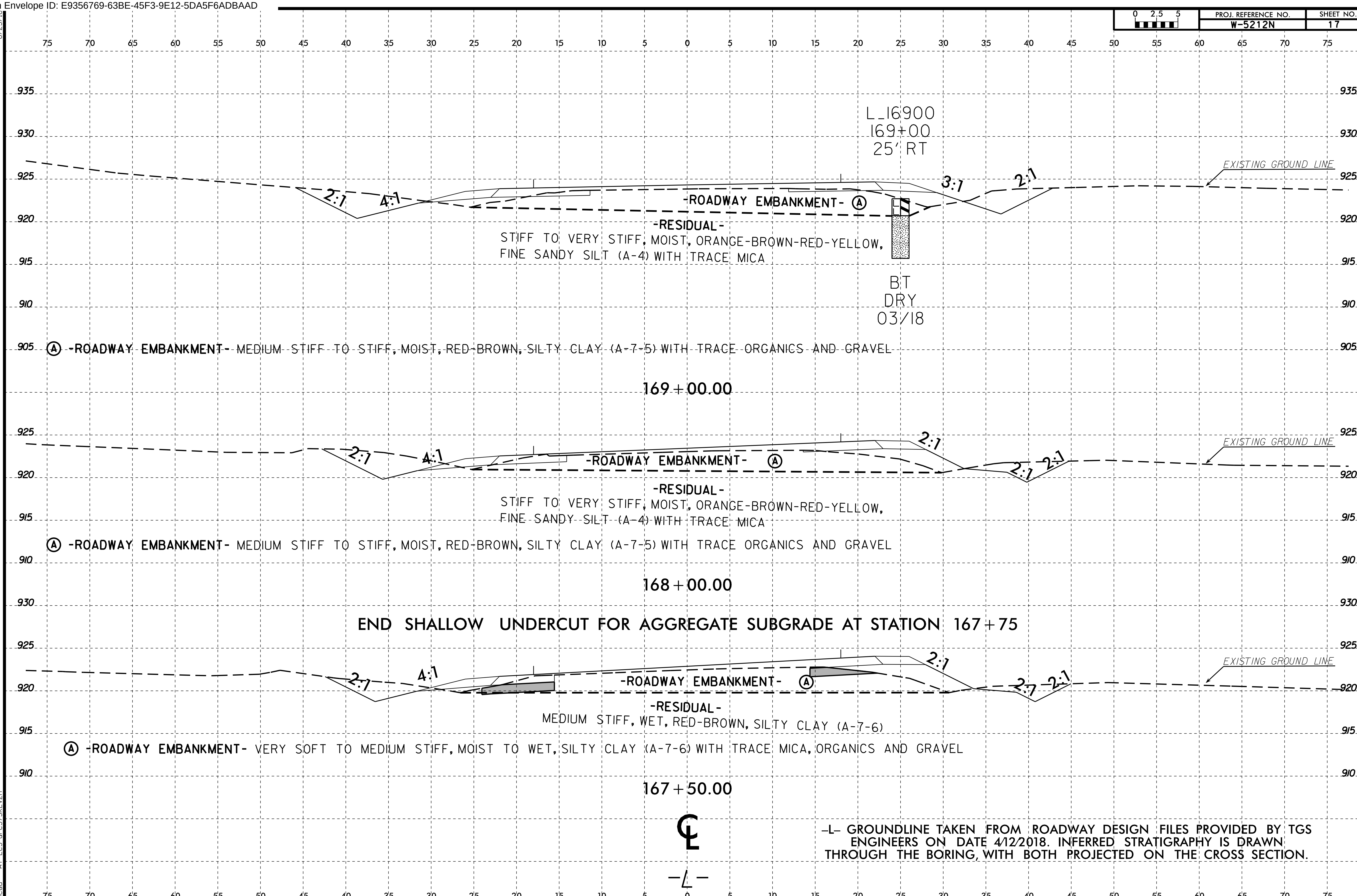


—L— GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



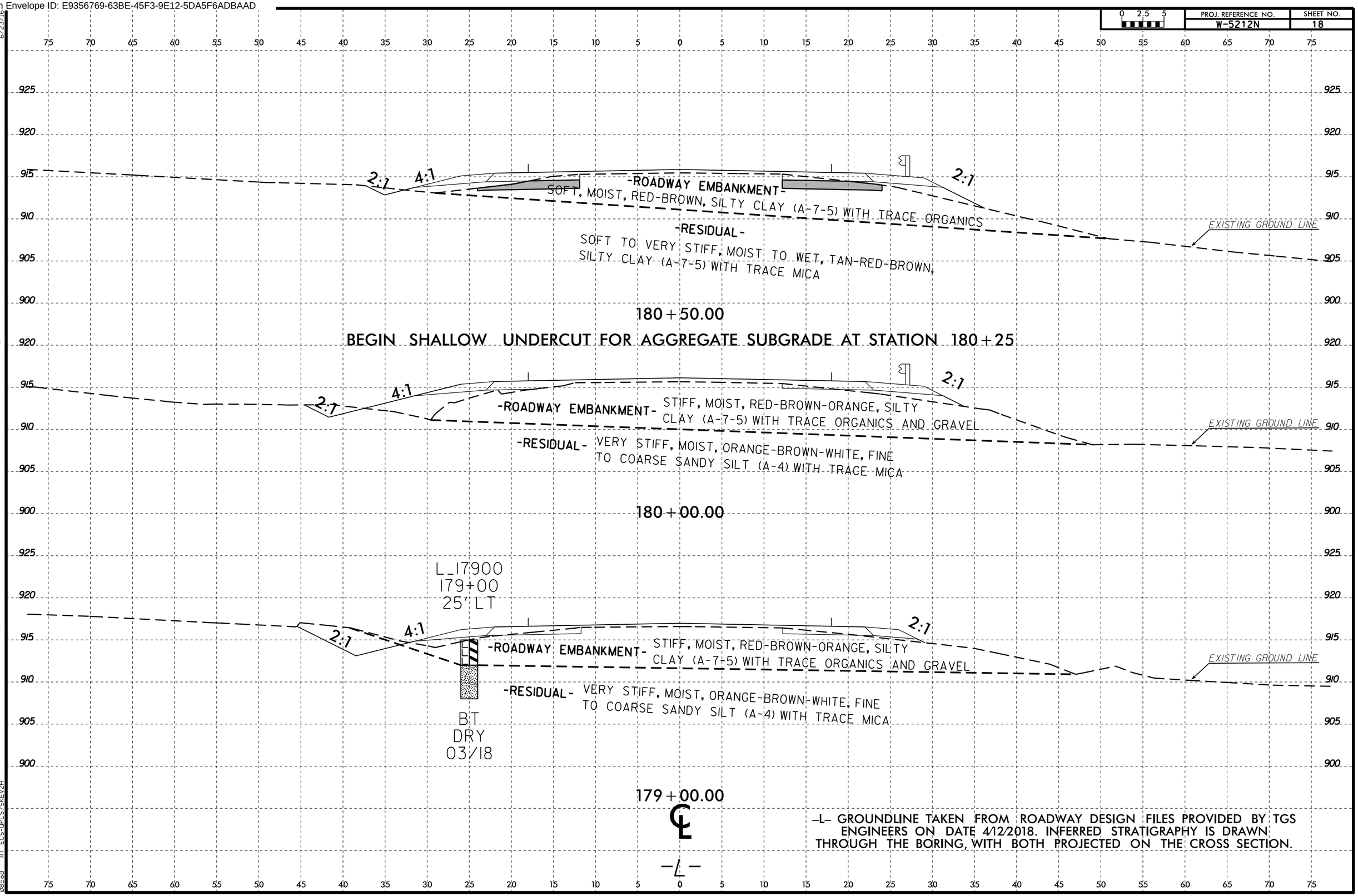
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	17

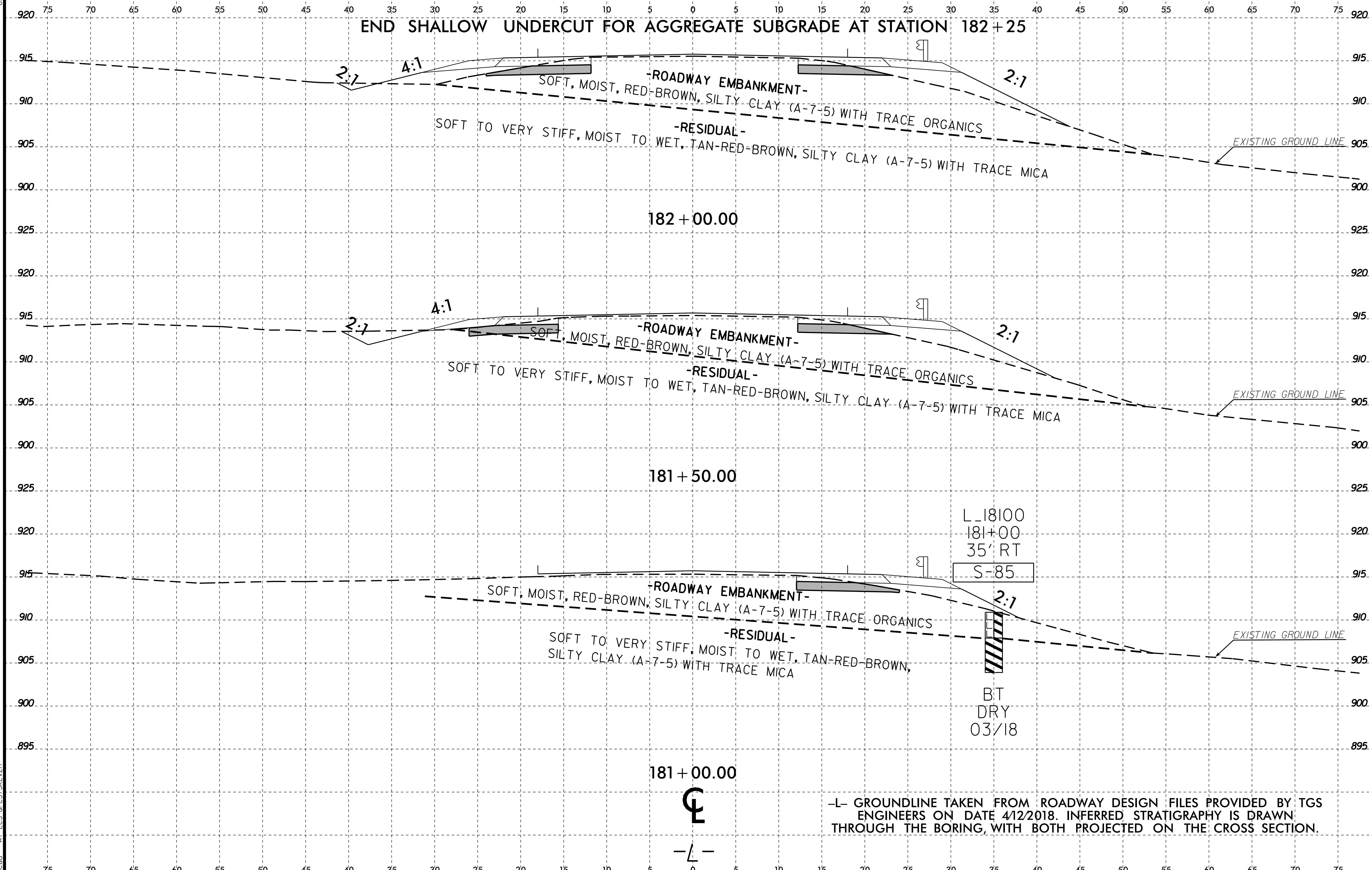


-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	18



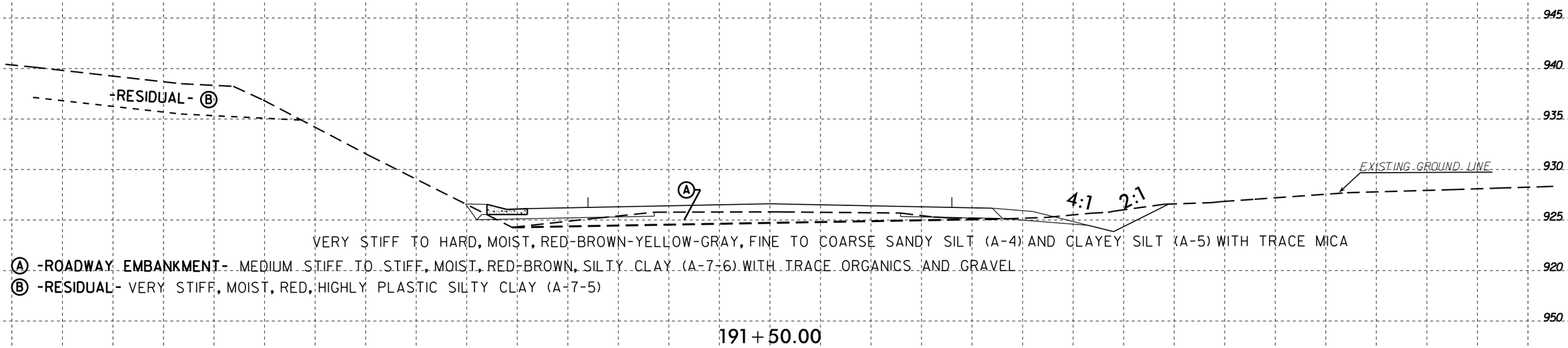
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	20

BEGIN UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 191+75

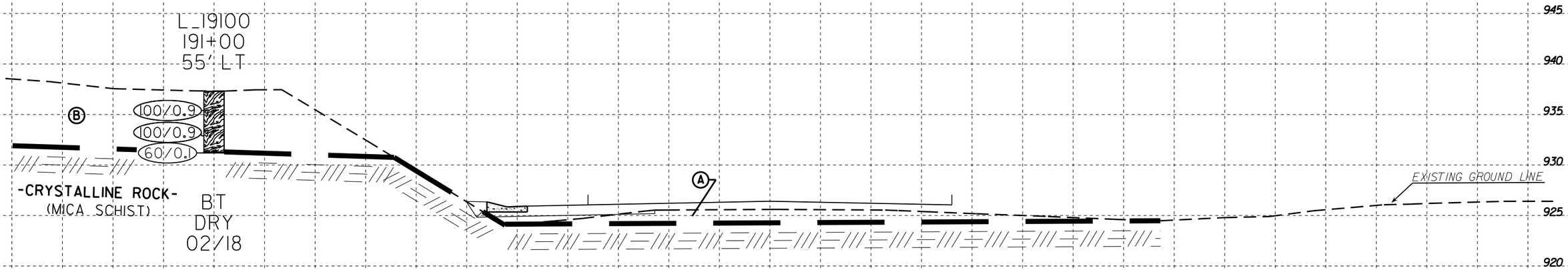


VERY STIFF TO HARD, MOIST, RED-BROWN-YELLOW-GRAY, FINE TO COARSE SANDY SILT (A-4) AND CLAYEY SILT (A-5) WITH TRACE MICA

Ⓐ **-ROADWAY EMBANKMENT-** MEDIUM STIFF TO STIFF, MOIST, RED-BROWN, SILTY CLAY (A-7-6) WITH TRACE ORGANICS AND GRAVEL

Ⓑ **-RESIDUAL-** VERY STIFF, MOIST, RED, HIGHLY PLASTIC SILTY CLAY (A-7-5)

191+50.00



Ⓐ **-ROADWAY EMBANKMENT-** MEDIUM STIFF TO STIFF, MOIST, RED-BROWN, SILTY CLAY (A-7-6) WITH TRACE ORGANICS AND GRAVEL

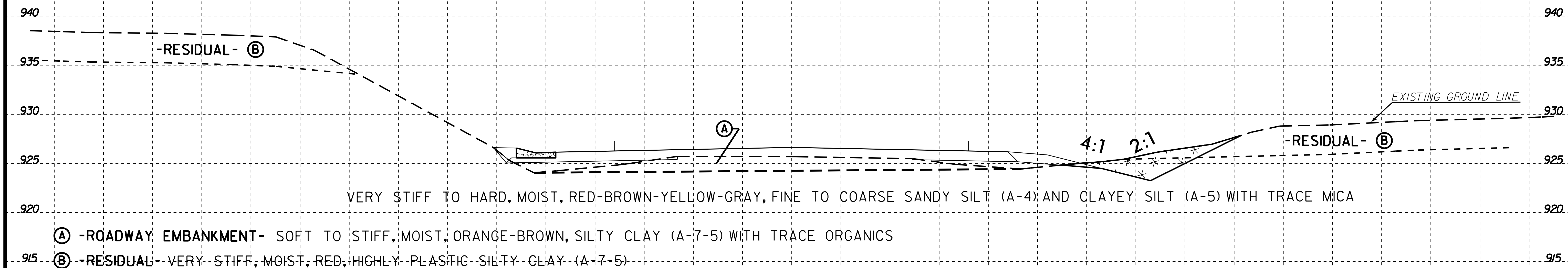
Ⓑ **-WEATHERED ROCK-** (MICA SCHIST)

191+00.00

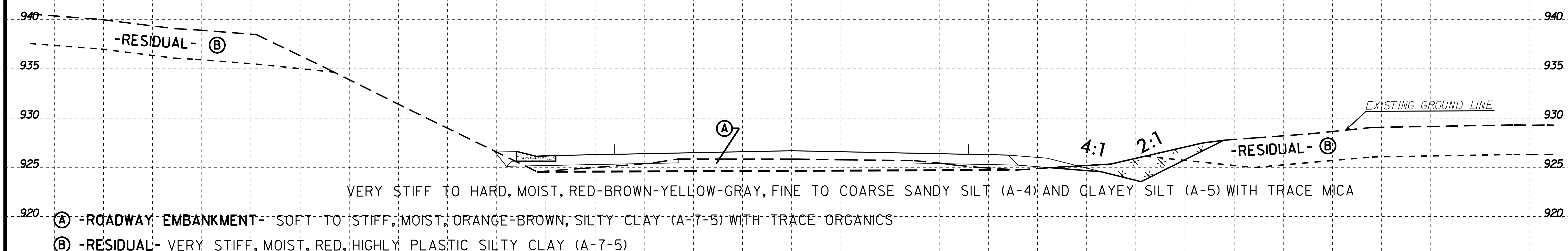
℄

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



192+50.00



192+00.00

℄

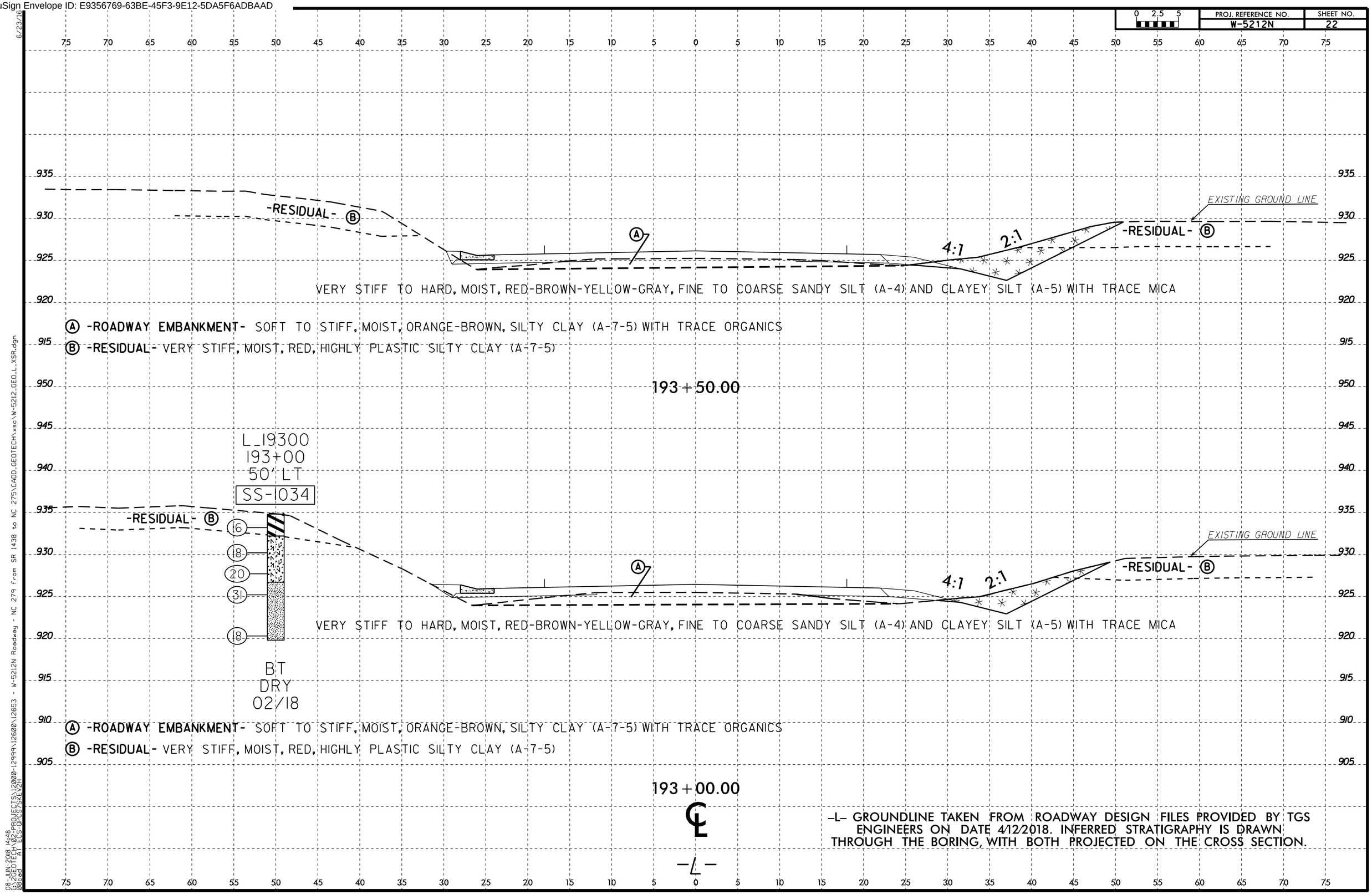
-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

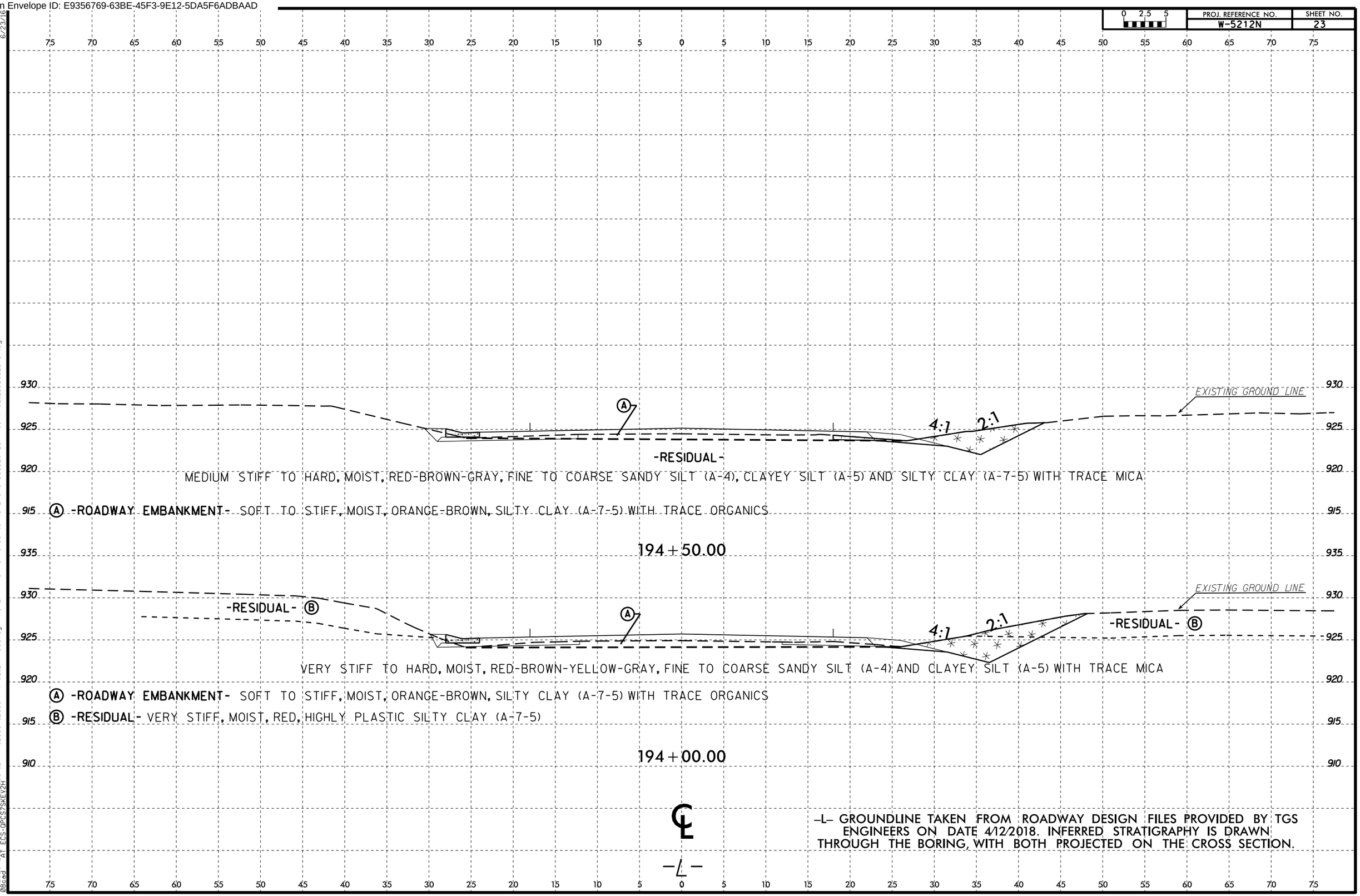
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

08-JUN-2018 14:48
R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
$$USERNAME$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	22



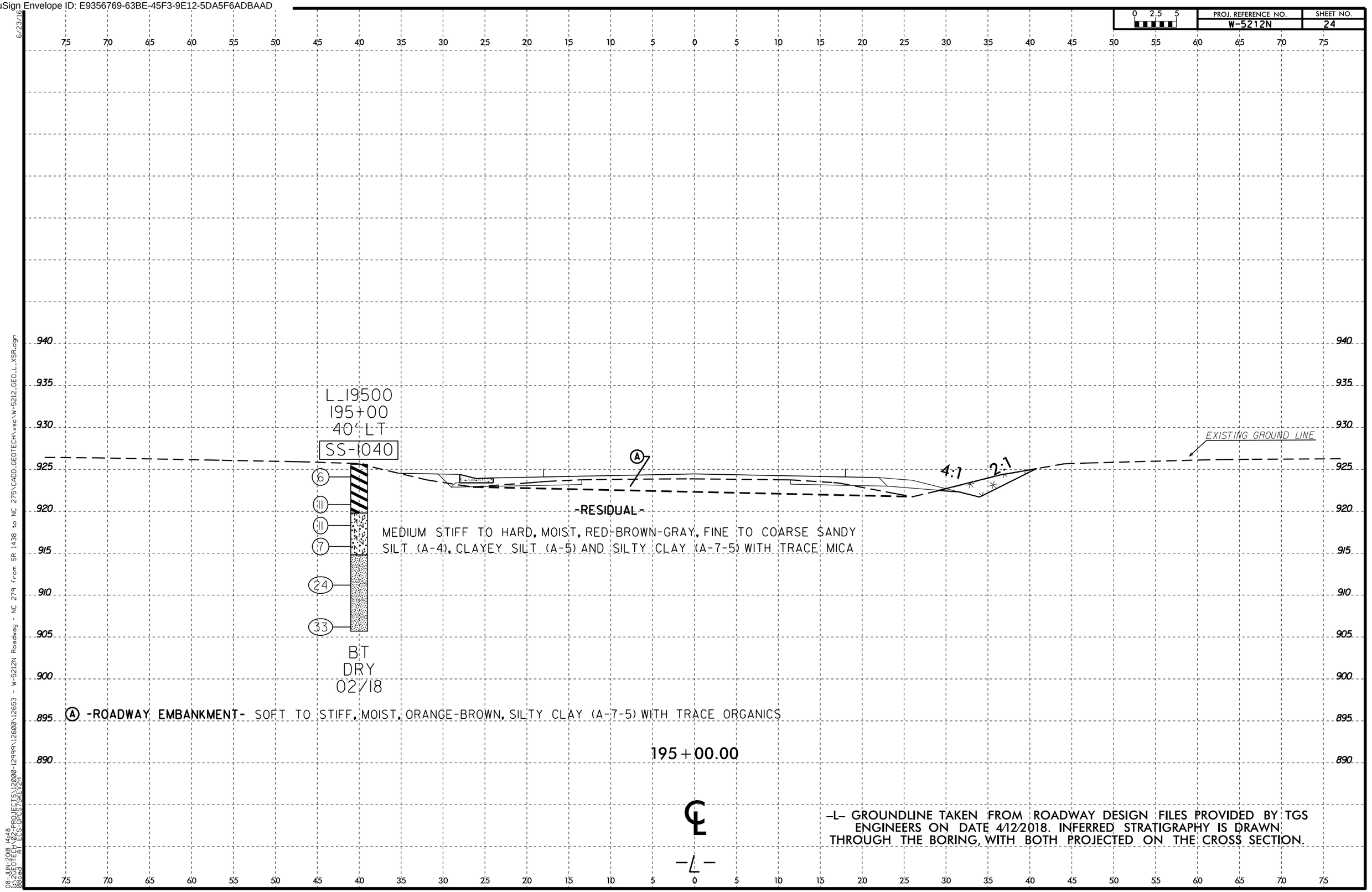
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	23



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	24

0 2.5 5

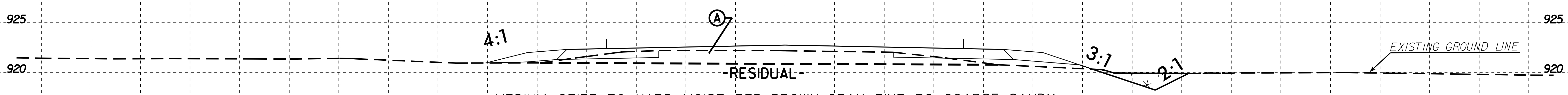


Ⓐ **-ROADWAY EMBANKMENT-** SOFT TO STIFF, MOIST, ORANGE-BROWN, SILTY CLAY (A-7-5) WITH TRACE ORGANICS

195+00.00

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

END UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 196+25

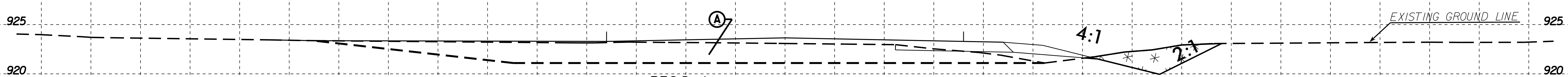


-RESIDUAL-

MEDIUM STIFF TO HARD, MOIST, RED-BROWN-GRAY, FINE TO COARSE SANDY SILT (A-4), CLAYEY SILT (A-5) AND SILTY CLAY (A-7-5) WITH TRACE MICA

Ⓐ -ROADWAY EMBANKMENT- SOFT TO STIFF, MOIST, ORANGE-BROWN, SILTY CLAY (A-7-5) WITH TRACE ORGANICS

196+00.00



-RESIDUAL-

MEDIUM STIFF TO HARD, MOIST, RED-BROWN-GRAY, FINE TO COARSE SANDY SILT (A-4), CLAYEY SILT (A-5) AND SILTY CLAY (A-7-5) WITH TRACE MICA

Ⓐ -ROADWAY EMBANKMENT- SOFT TO STIFF, MOIST, ORANGE-BROWN, SILTY CLAY (A-7-5) WITH TRACE ORGANICS

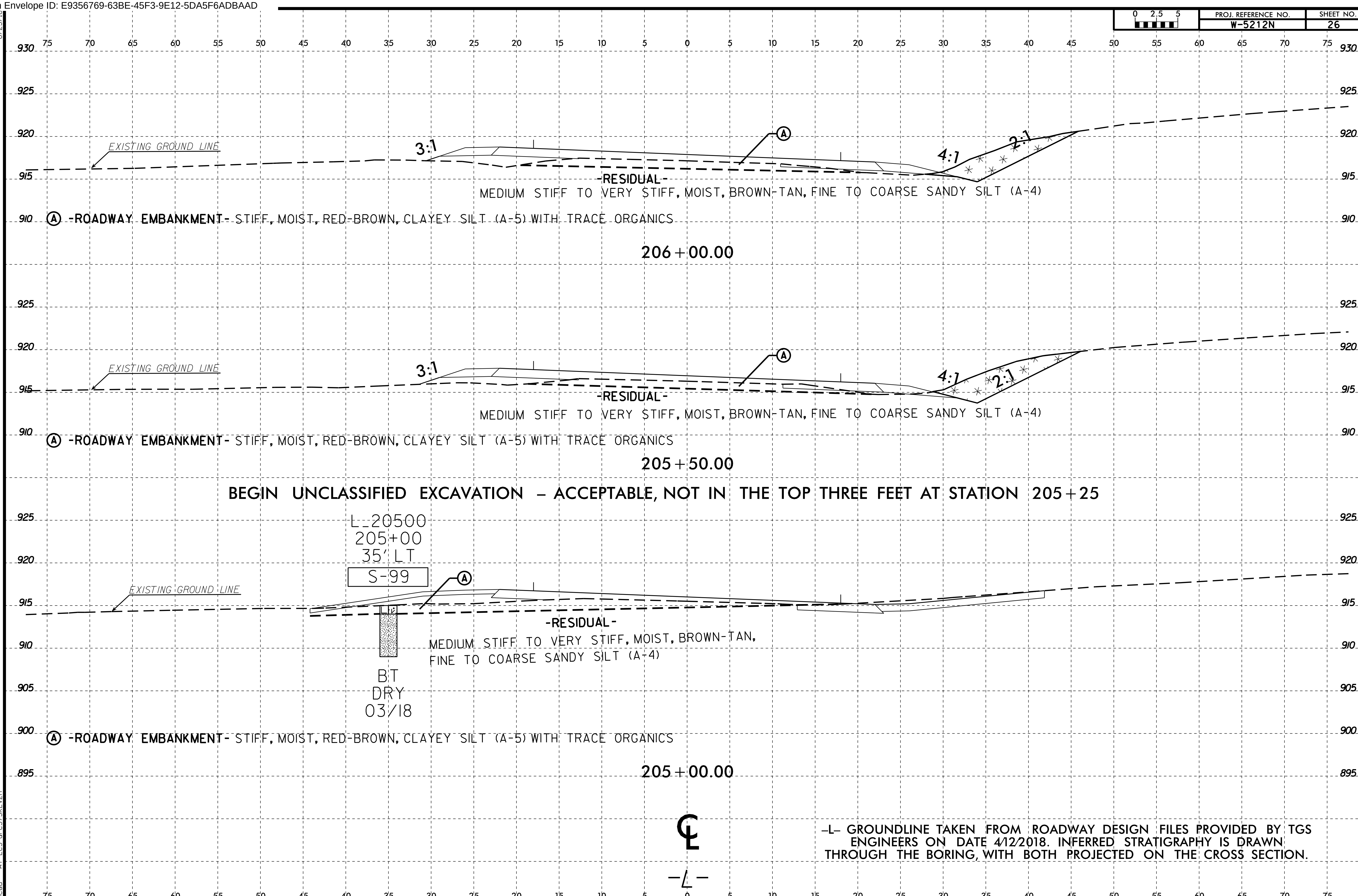
195+50.00

CL

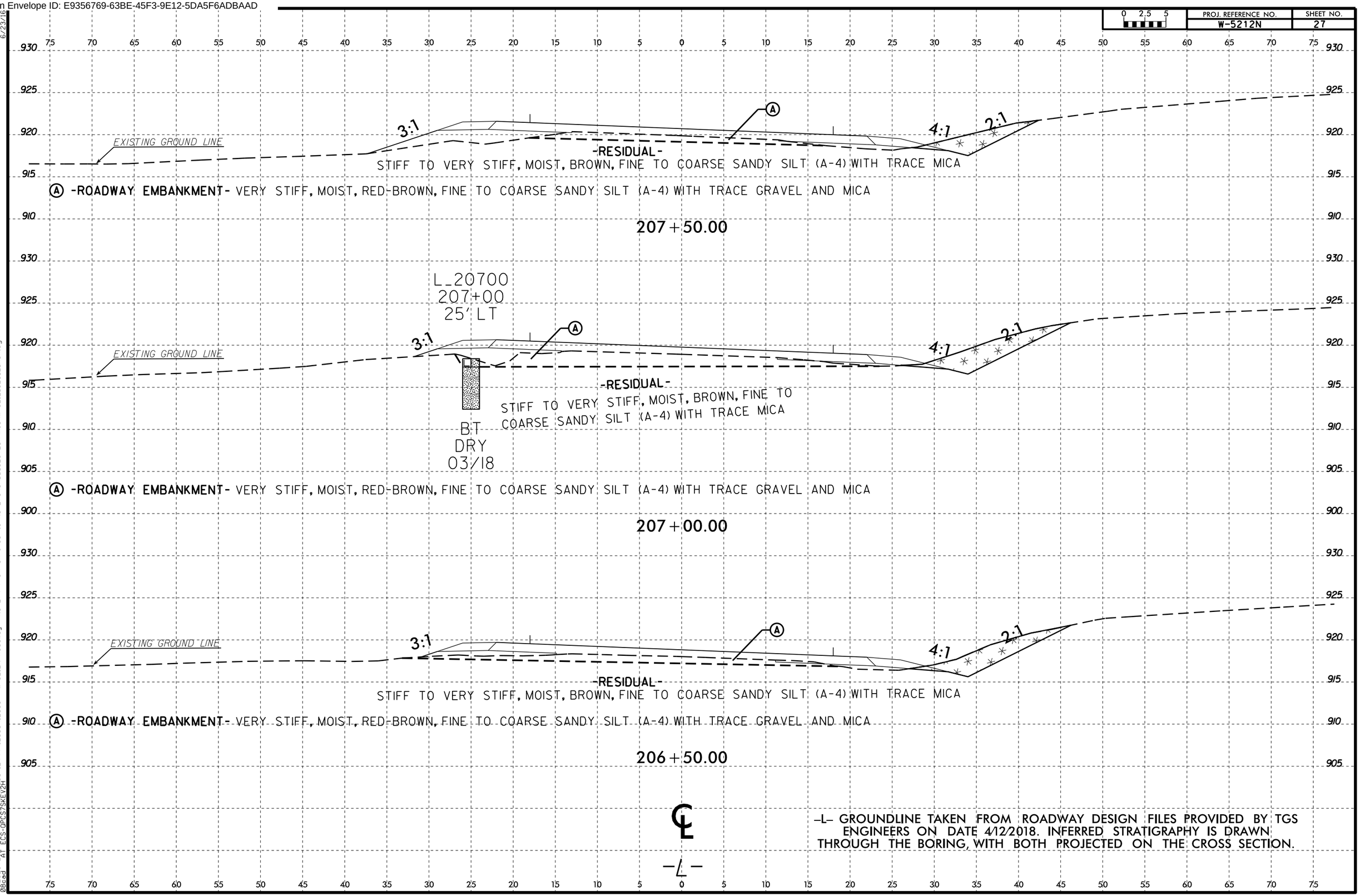
-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

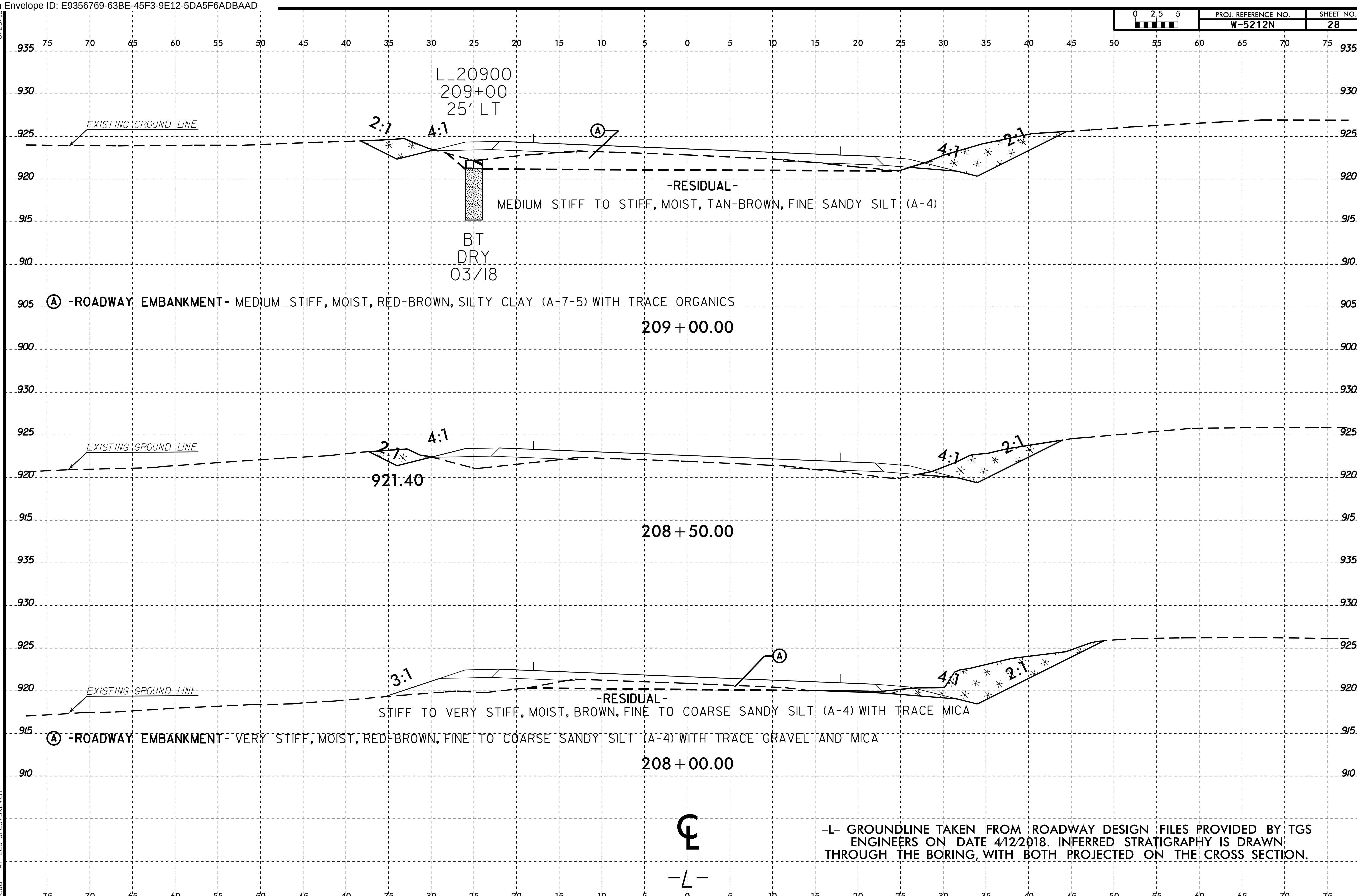
08-JUN-2018 14:48
R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
6/23/16



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

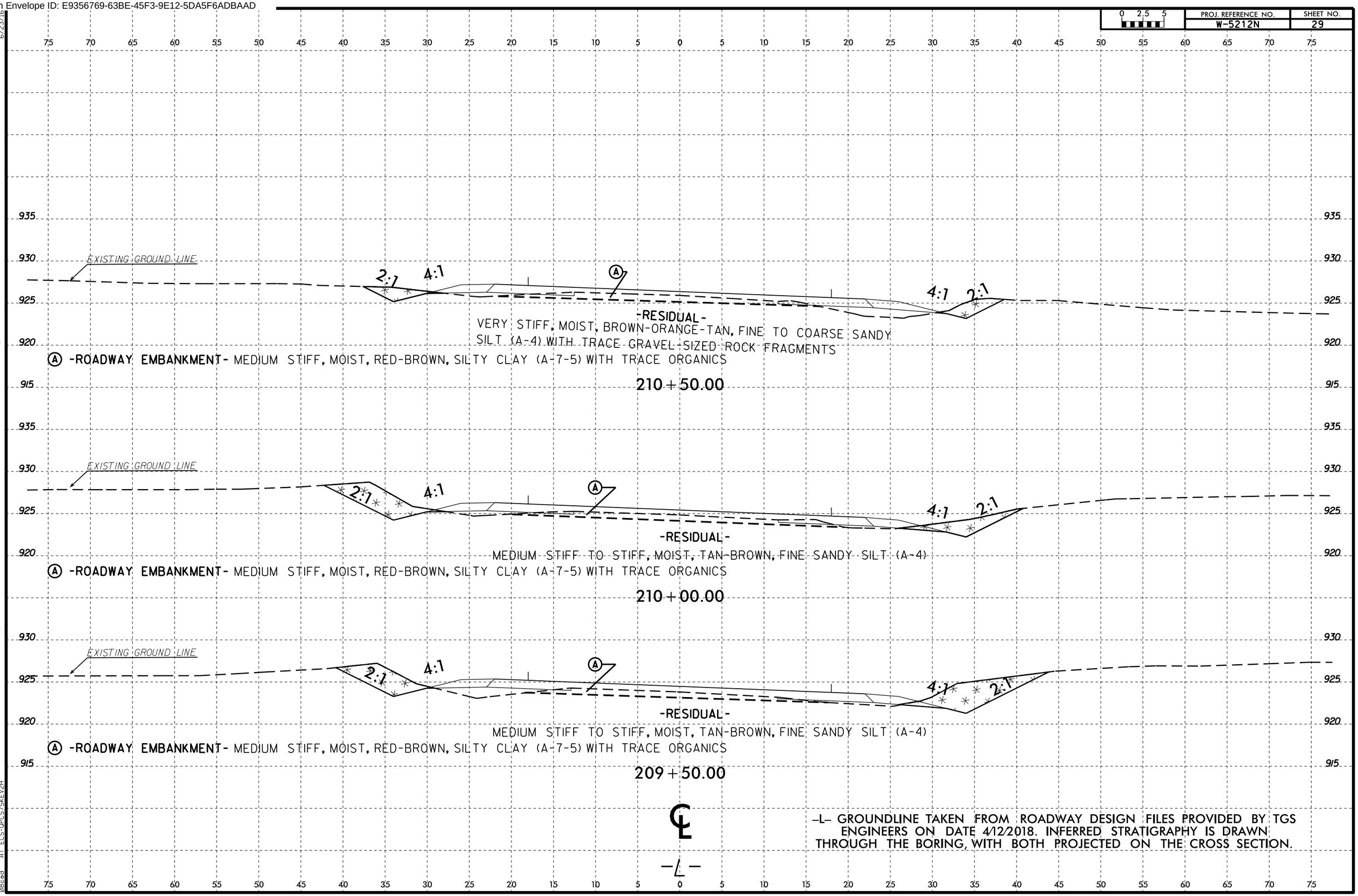


–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



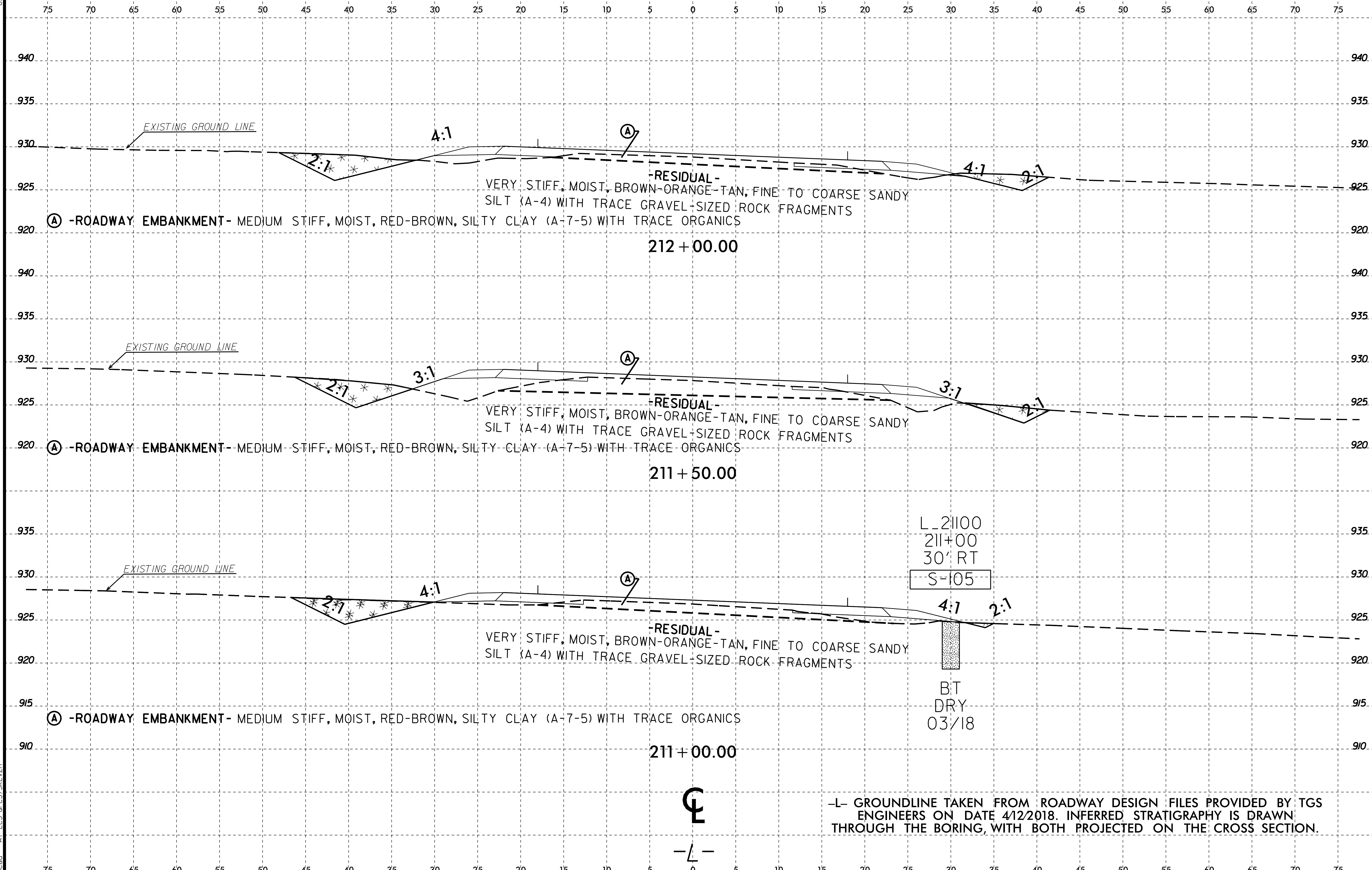
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	29

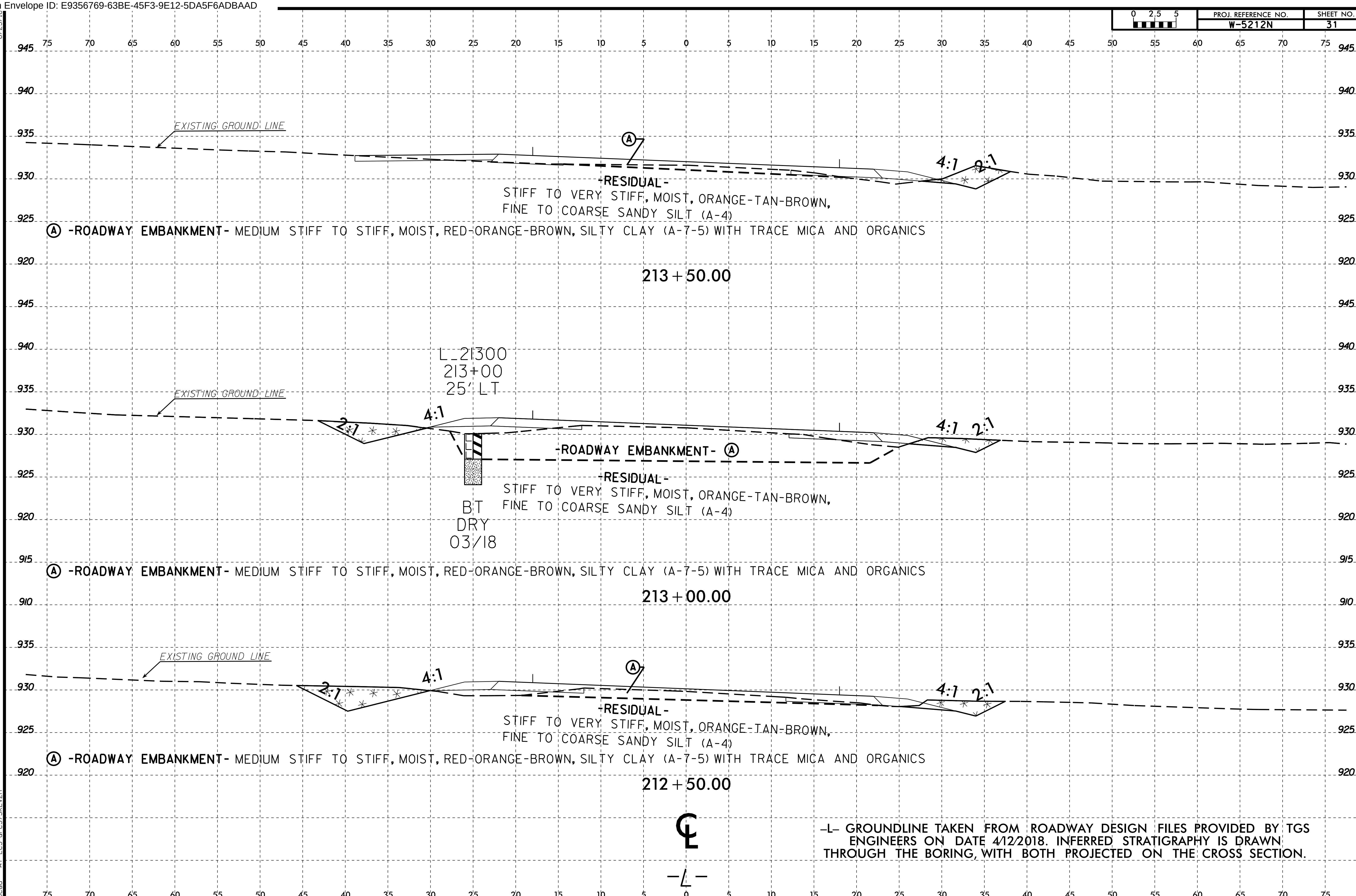


–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	30

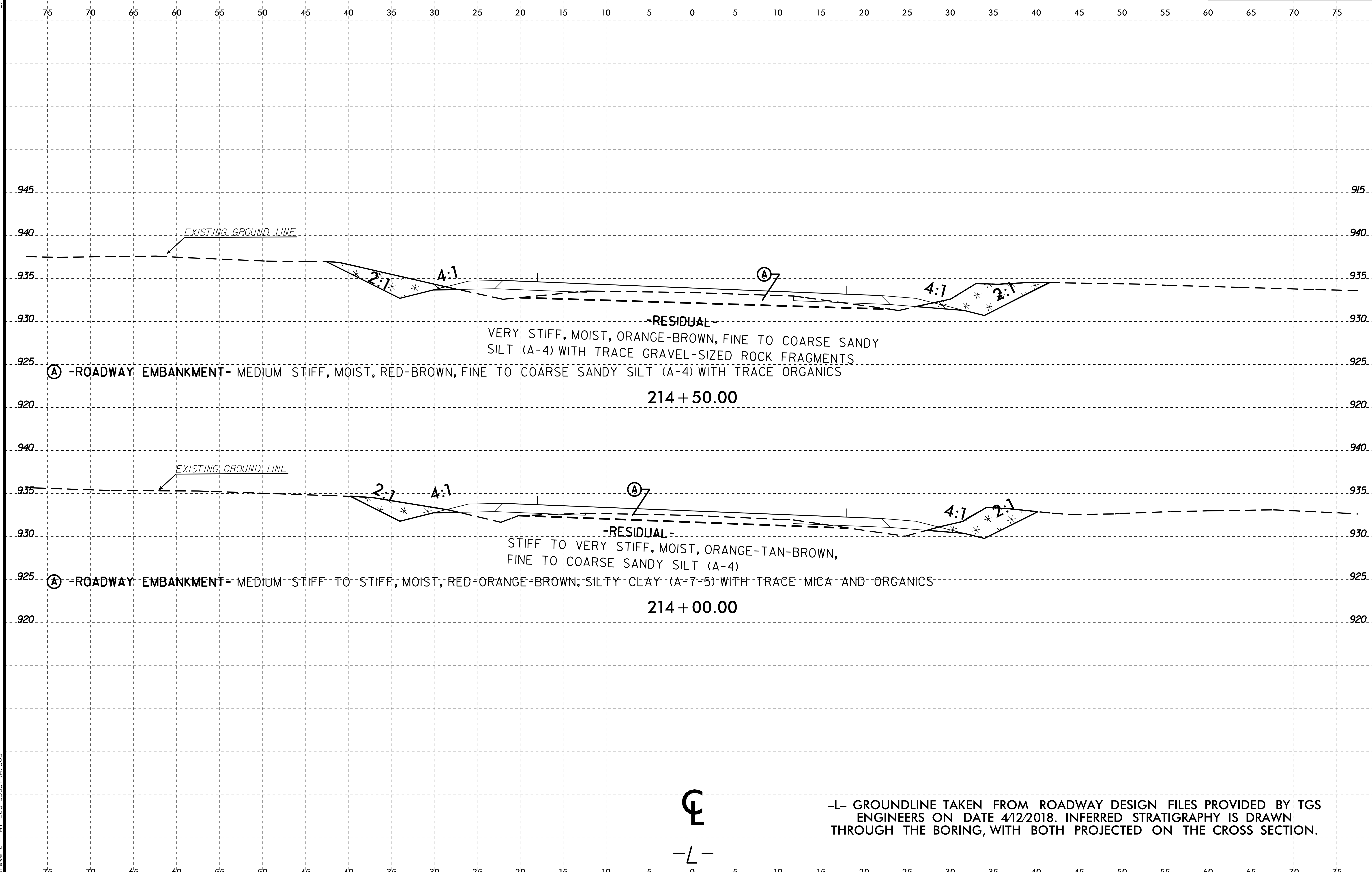


-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



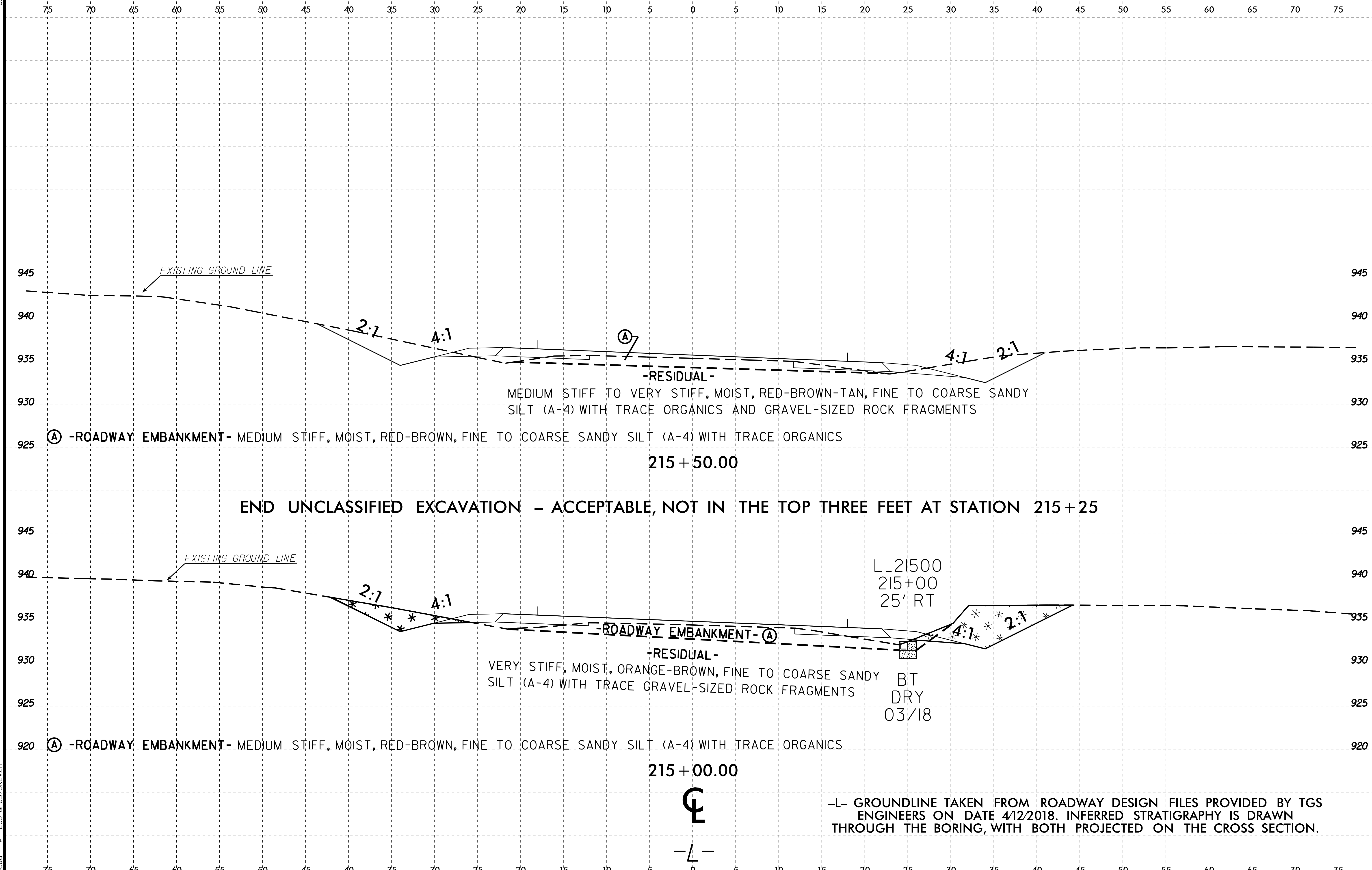
6/23/16

08-JUN-2018 15:03
R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	33



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	34

BEGIN UNCLASSIFIED EXCAVATION – UNSUITABLE AT STATION 311+75

L_22300
223+00
35' LT
S-113

BT
DRY
03/18

2:1 4:1 4:1

-ROADWAY EMBANKMENT- Ⓐ

-RESIDUAL-
VERY STIFF, MOIST, TAN-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS

EXISTING GROUND LINE

Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, ORANGE-TAN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE GRAVEL

223+00.00

L_22100
221+00
35' LT

BT
DRY
03/18

2:1 2:1 2:1 2:1

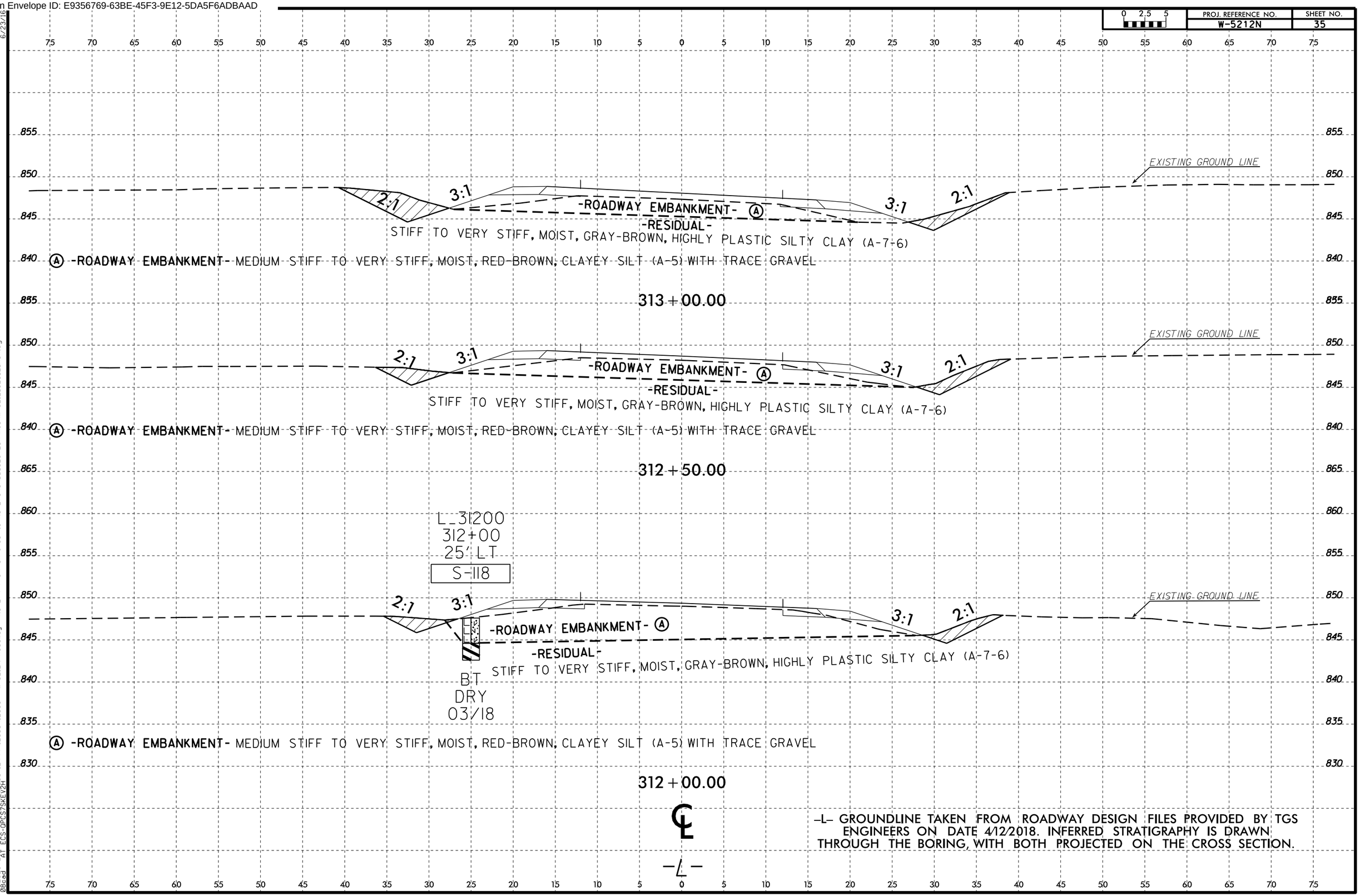
-ROADWAY EMBANKMENT-
MEDIUM STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS AND GRAVEL

-RESIDUAL-
MEDIUM STIFF TO STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) AND FINE SANDY CLAY (A-6)

EXISTING GROUND LINE

221+00.00

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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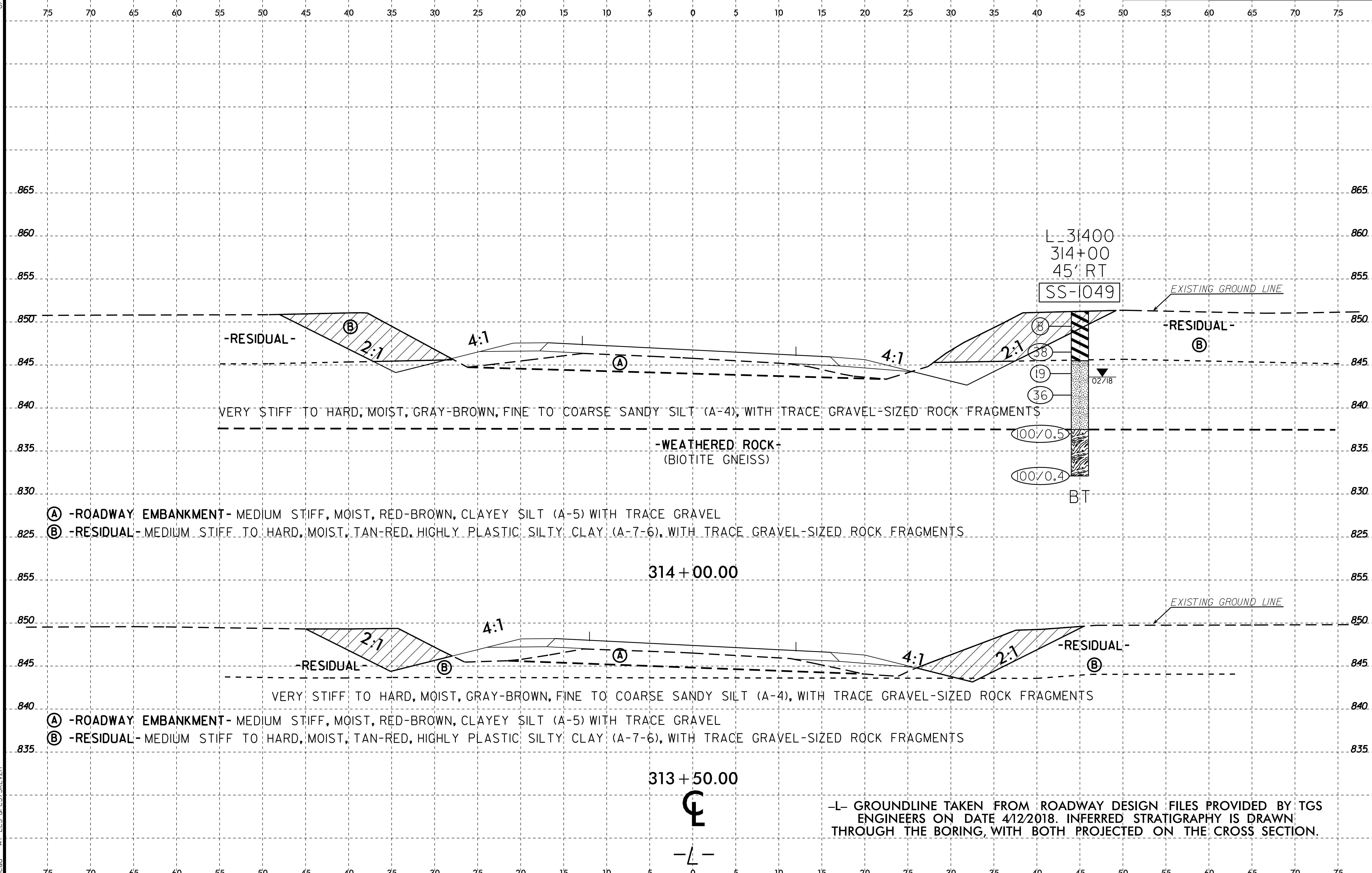
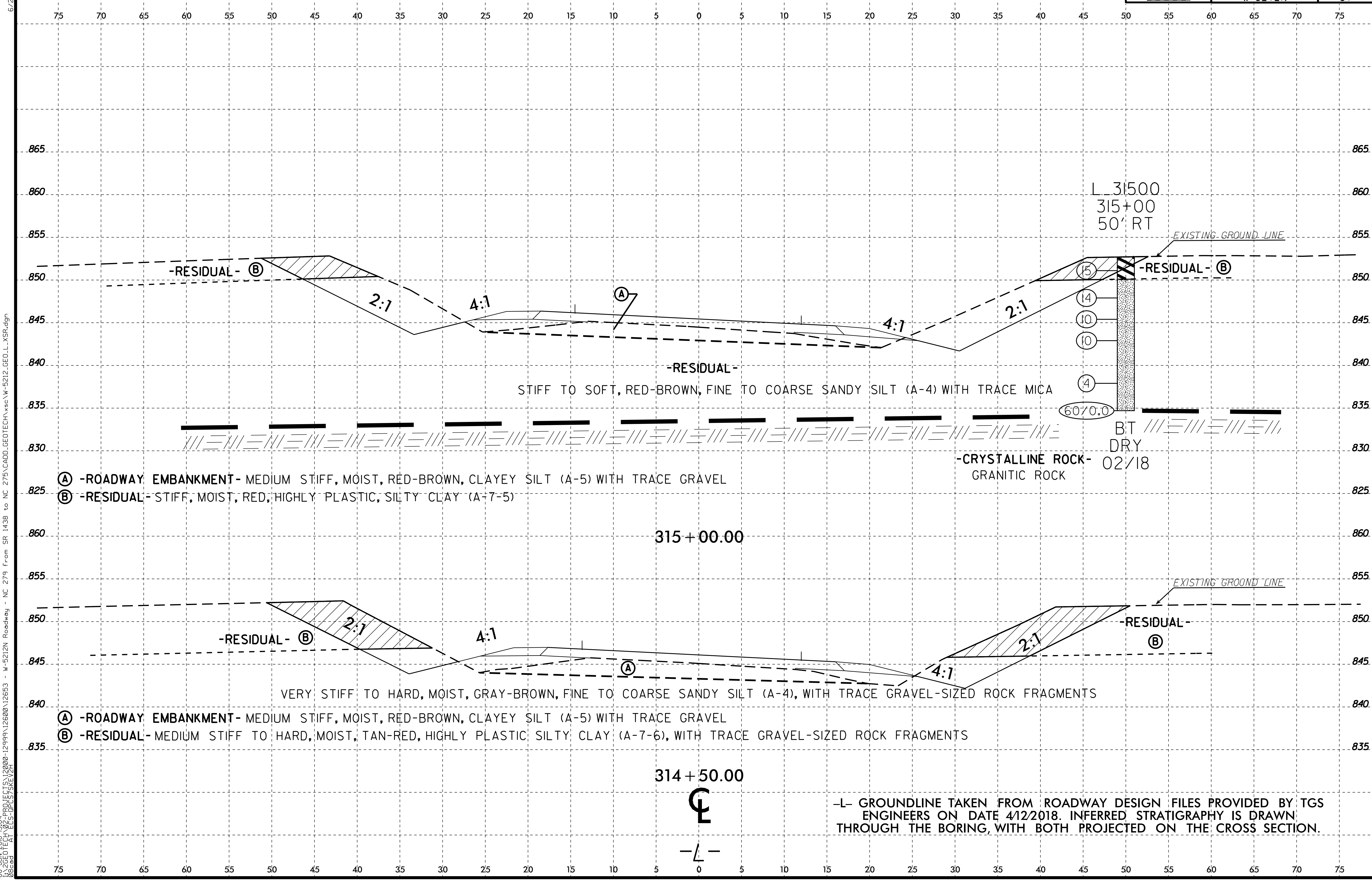
PROJ. REFERENCE NO.	SHEET NO.
W-5212N	36

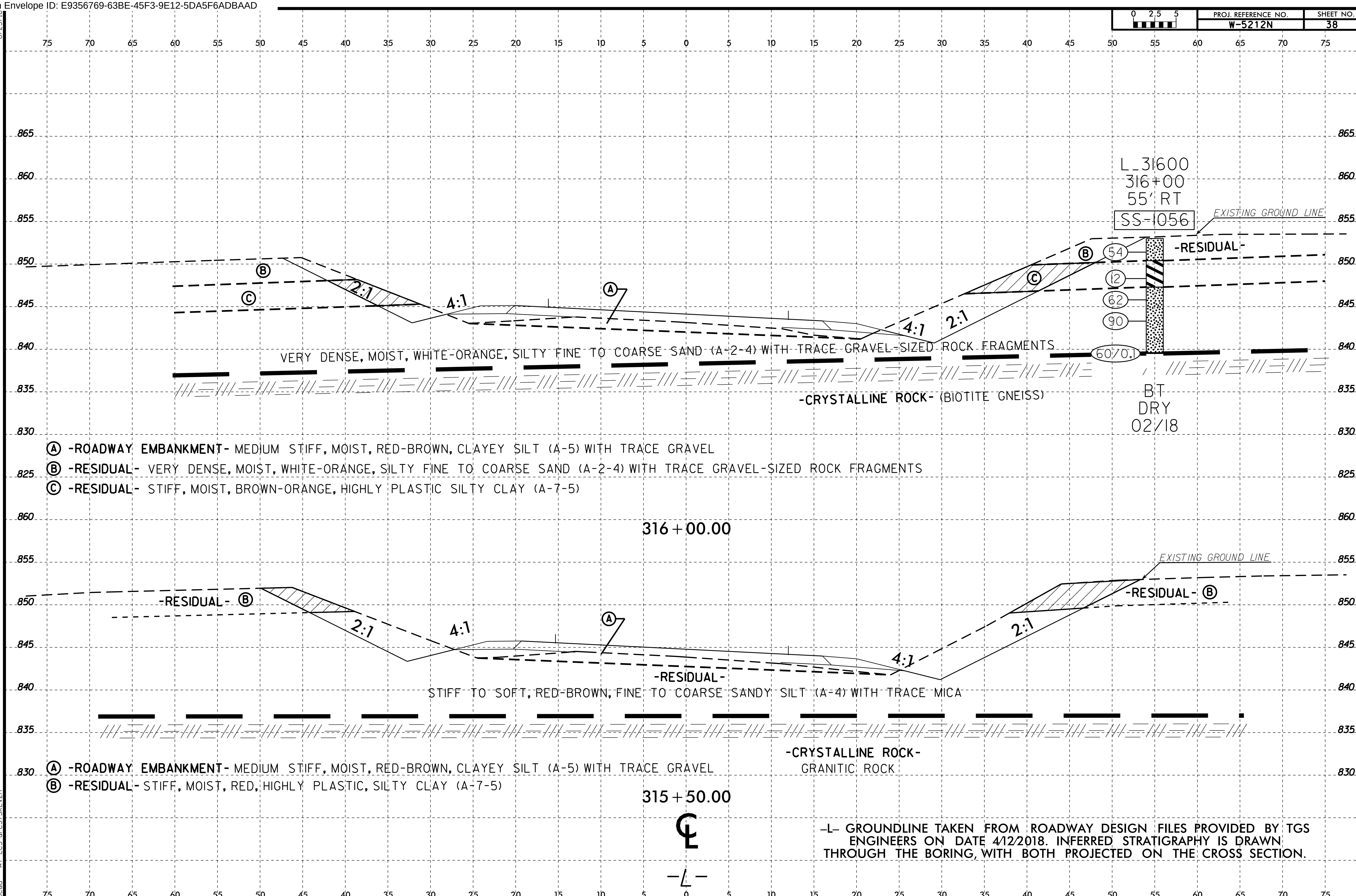


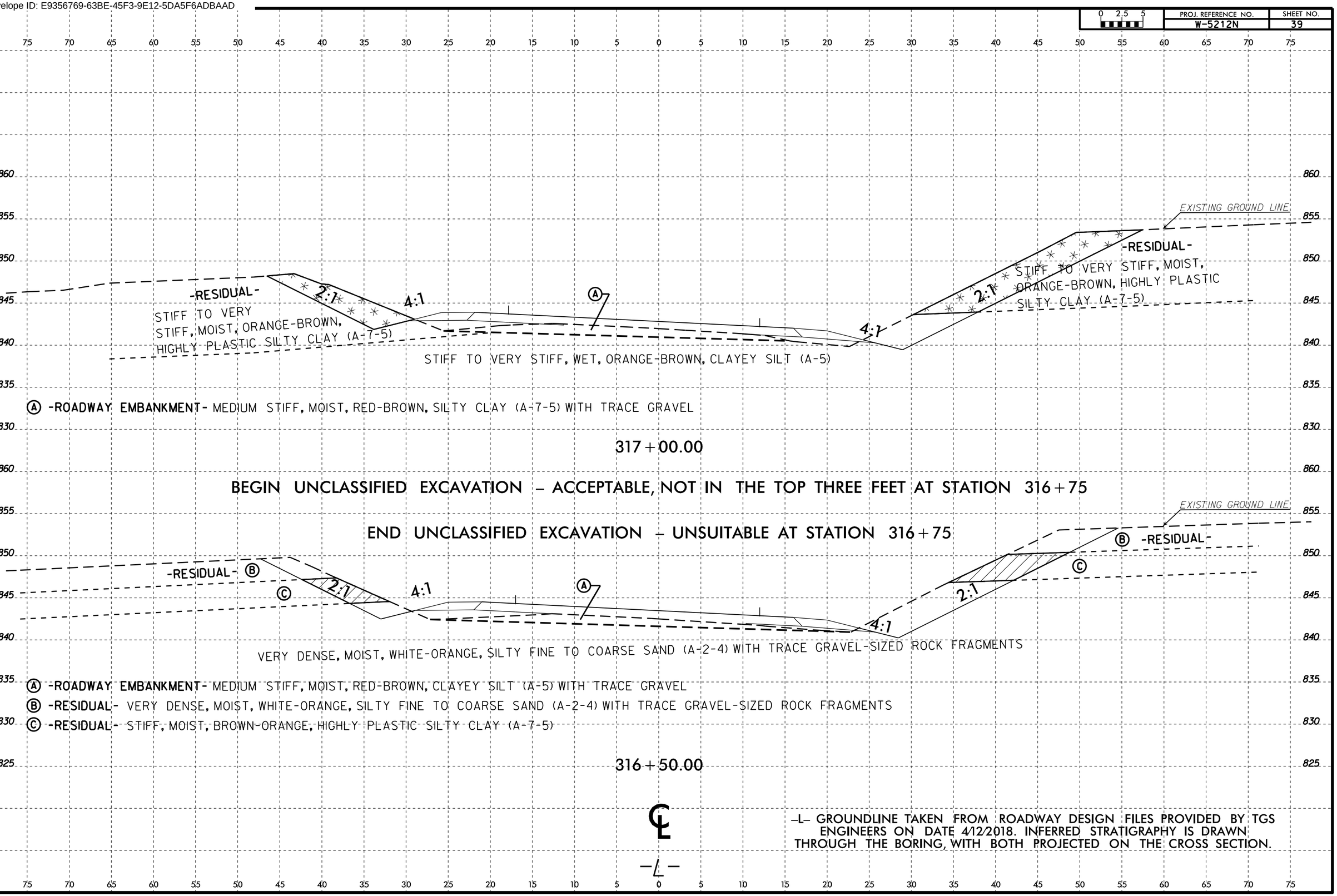
0 2.5 5
L_31400
314+00
45' RT
SS-1049
EXISTING GROUND LINE
-RESIDUAL-
Ⓑ
2:1
4:1
Ⓐ
8
38
19
36
02/18
100/0.5
100/0.4
BT
VERY STIFF TO HARD, MOIST, GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
-WEATHERED ROCK-
(BIOTITE GNEISS)
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- MEDIUM STIFF TO HARD, MOIST, TAN-RED, HIGHLY PLASTIC SILTY CLAY (A-7-6), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
314+00.00
EXISTING GROUND LINE
2:1
4:1
-RESIDUAL-
Ⓑ
Ⓐ
VERY STIFF TO HARD, MOIST, GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- MEDIUM STIFF TO HARD, MOIST, TAN-RED, HIGHLY PLASTIC SILTY CLAY (A-7-6), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
313+50.00
℄
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

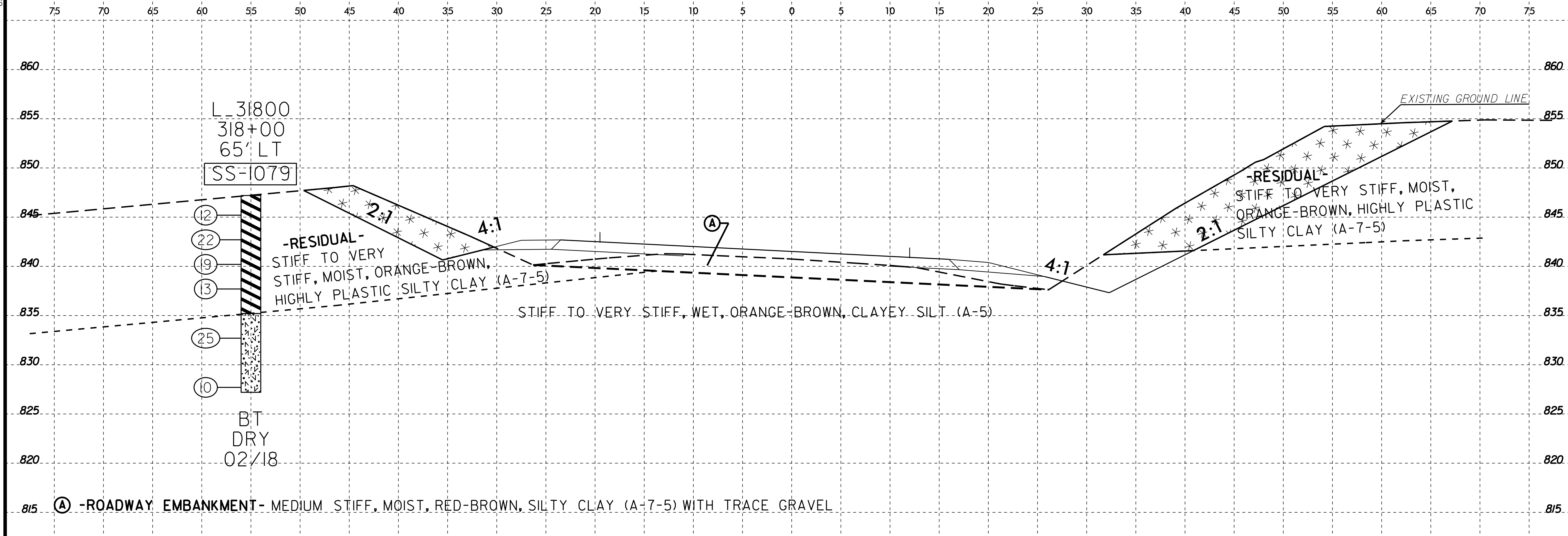
PROJ. REFERENCE NO.	SHEET NO.
W-5212N	37



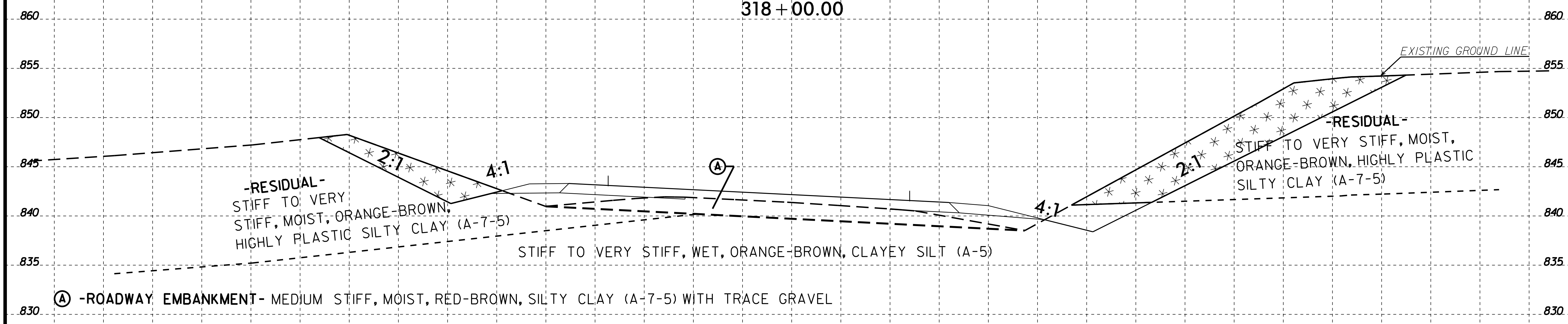
0 2.5 5
L_31500
315+00
50' RT
EXISTING GROUND LINE
-RESIDUAL- Ⓑ
2:1
4:1
Ⓐ
15
14
10
10
4
60/0.0
BT
DRY
02/18
-RESIDUAL-
STIFF TO SOFT, RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
-CRYSTALLINE ROCK-
GRANITIC ROCK
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- STIFF, MOIST, RED, HIGHLY PLASTIC, SILTY CLAY (A-7-5)
315+00.00
VERY STIFF TO HARD, MOIST, GRAY-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- MEDIUM STIFF TO HARD, MOIST, TAN-RED, HIGHLY PLASTIC SILTY CLAY (A-7-6), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
314+50.00
℄
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.


L_31600
316+00
55' RT
SS-1056
EXISTING GROUND LINE
-RESIDUAL-
54
12
62
90
60/0.1
2:1
4:1
VERY DENSE, MOIST, WHITE-ORANGE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
-CRYSTALLINE ROCK- (BIOTITE GNEISS)
BT
DRY
02/18
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- VERY DENSE, MOIST, WHITE-ORANGE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
Ⓒ -RESIDUAL- STIFF, MOIST, BROWN-ORANGE, HIGHLY PLASTIC SILTY CLAY (A-7-5)
316+00.00
EXISTING GROUND LINE
-RESIDUAL- Ⓑ
-RESIDUAL-
STIFF TO SOFT, RED-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
-CRYSTALLINE ROCK-
GRANITIC ROCK
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ -RESIDUAL- STIFF, MOIST, RED, HIGHLY PLASTIC, SILTY CLAY (A-7-5)
315+50.00
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.





318+00.00



317+50.00

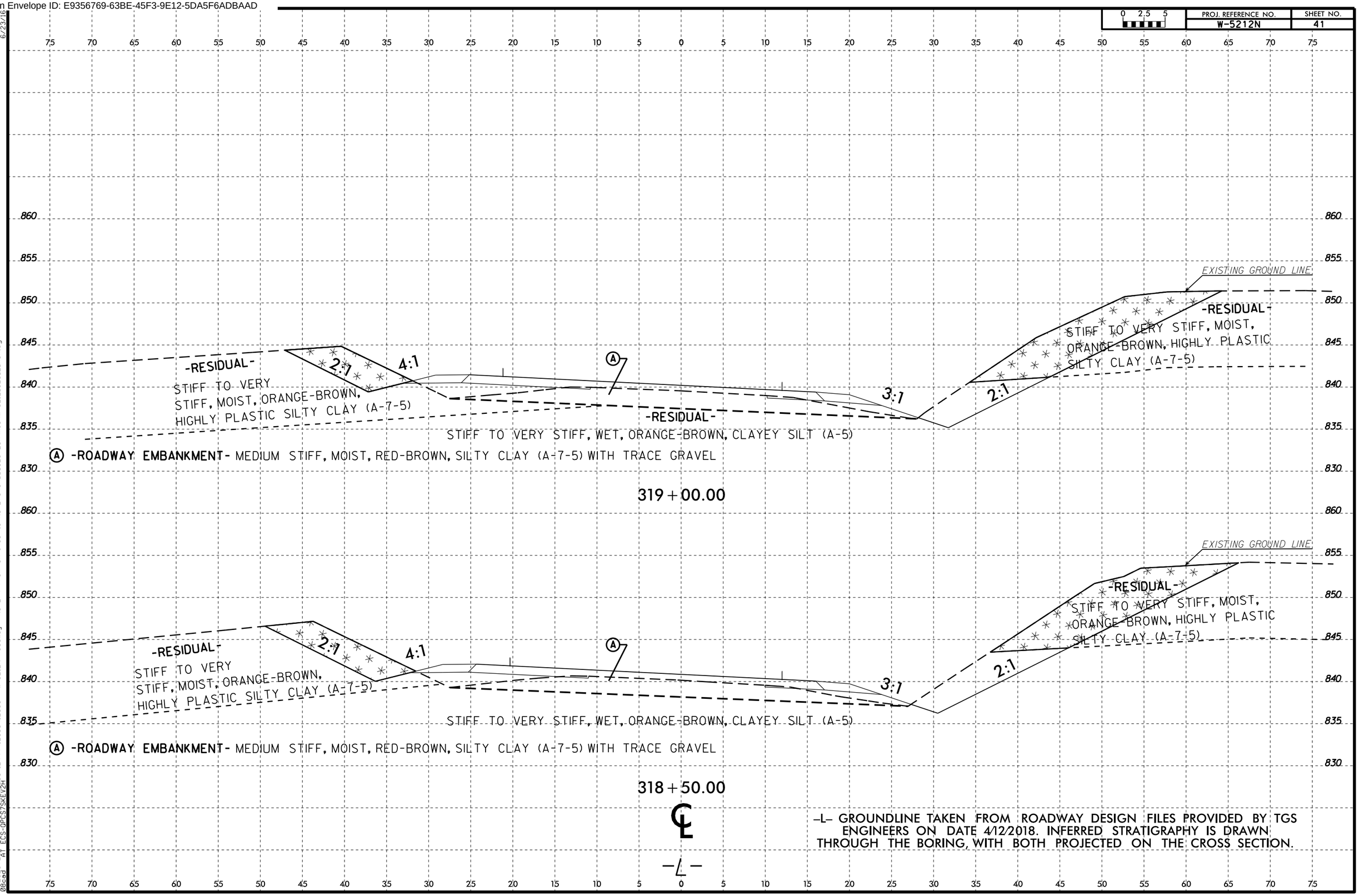
℄

-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	41

0 2.5 5



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	42

BEGIN UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 321+75

L_32000
320+00
30' LT

EXISTING GROUND LINE

MEDIUM STIFF, MOIST, RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE MICA AND GRAVEL -ROADWAY EMBANKMENT-

STIFF, MOIST, RED-ORANGE-BROWN, SILTY CLAY (A-7-5) -RESIDUAL-

BT
DRY
03/18

320+00.00

END UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 319+75

EXISTING GROUND LINE

2:1 4:1 3:1 2:1

-RESIDUAL-

STIFF TO VERY STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

-RESIDUAL-

STIFF TO VERY STIFF, WET, ORANGE-BROWN, CLAYEY SILT (A-5)

Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE GRAVEL

Ⓑ -RESIDUAL- STIFF TO VERY STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

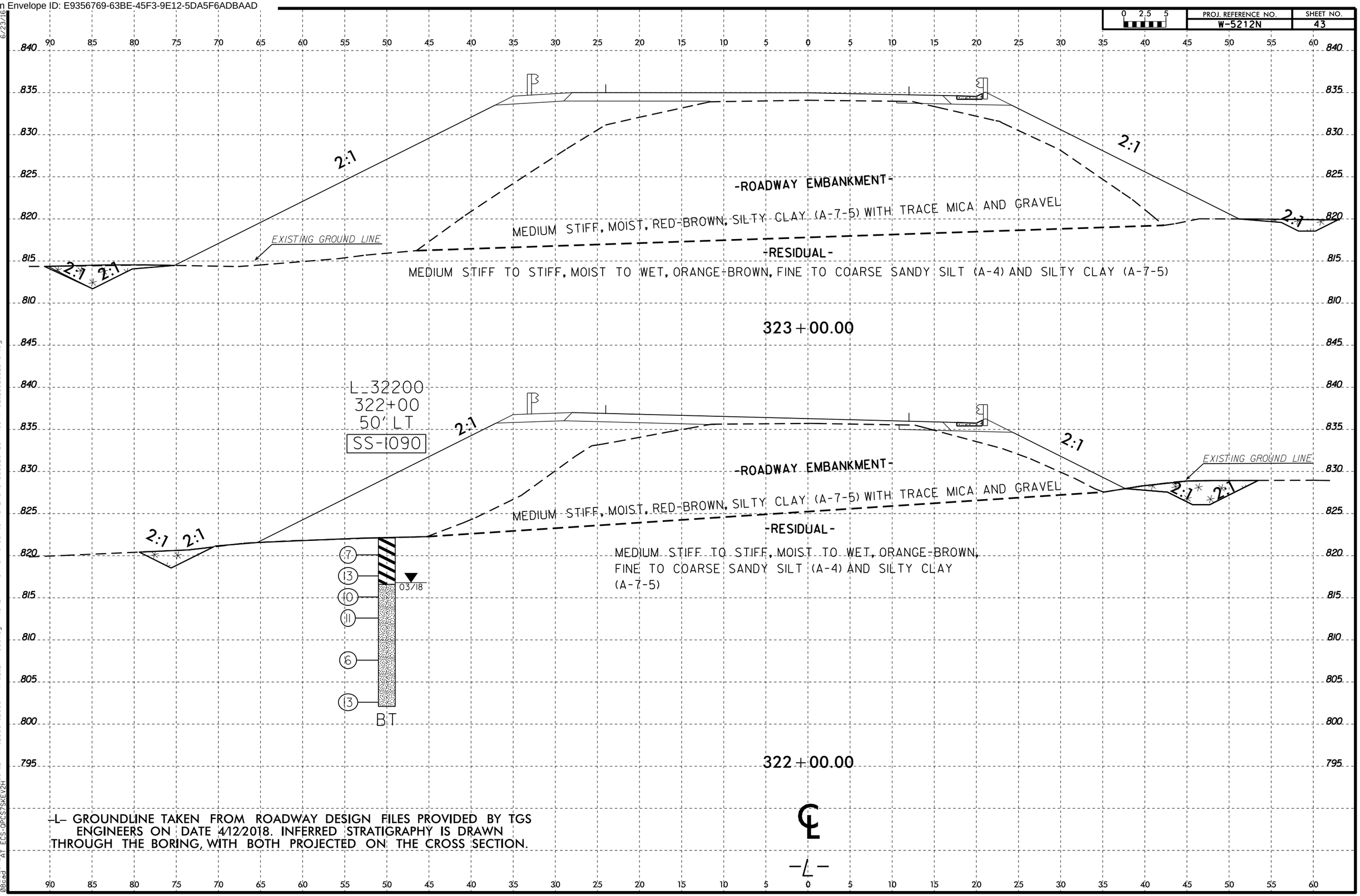
319+50.00

℄

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

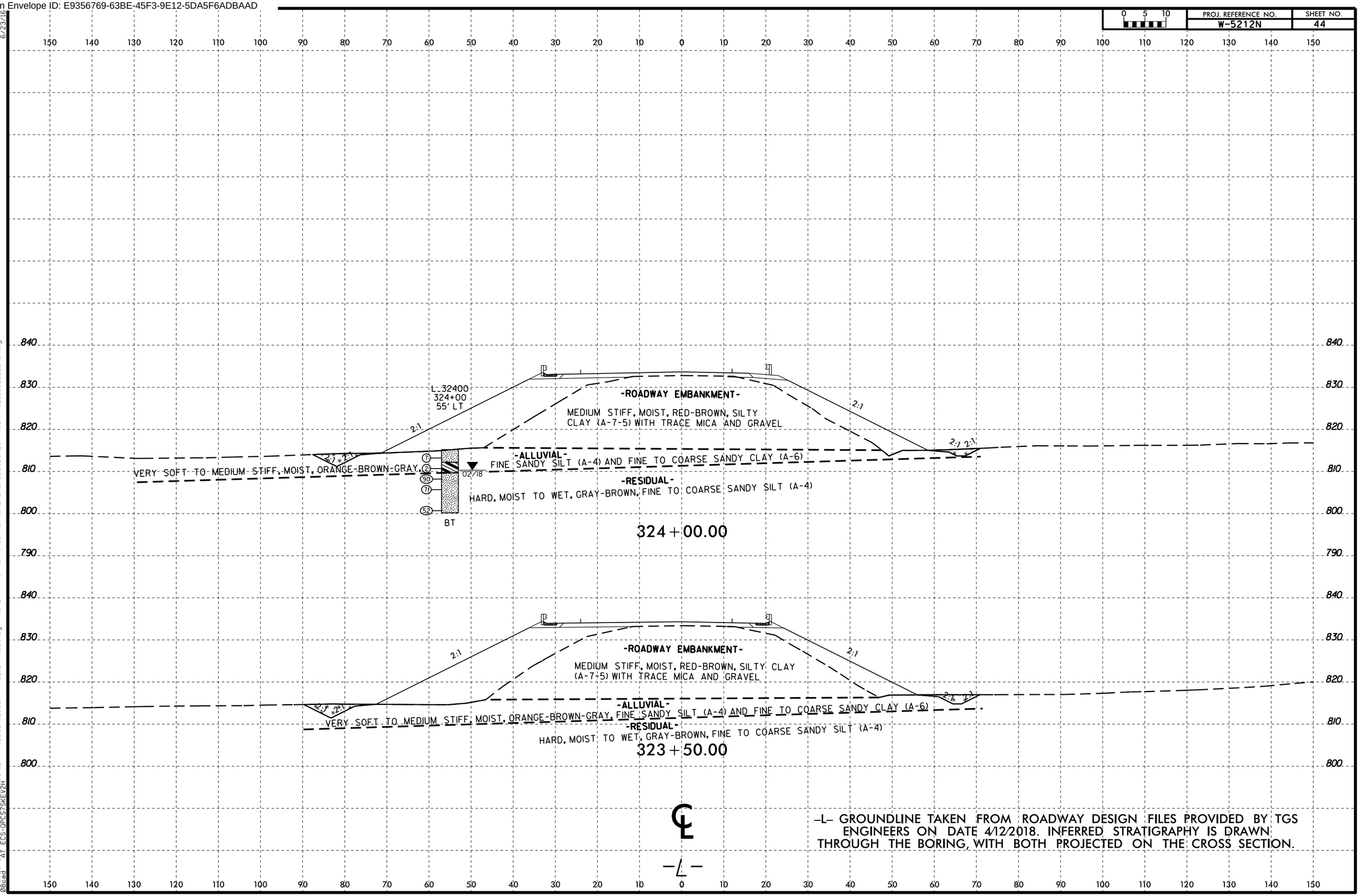
–L–

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	43



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	44



6/23/16

09-JUN-2018 15:04
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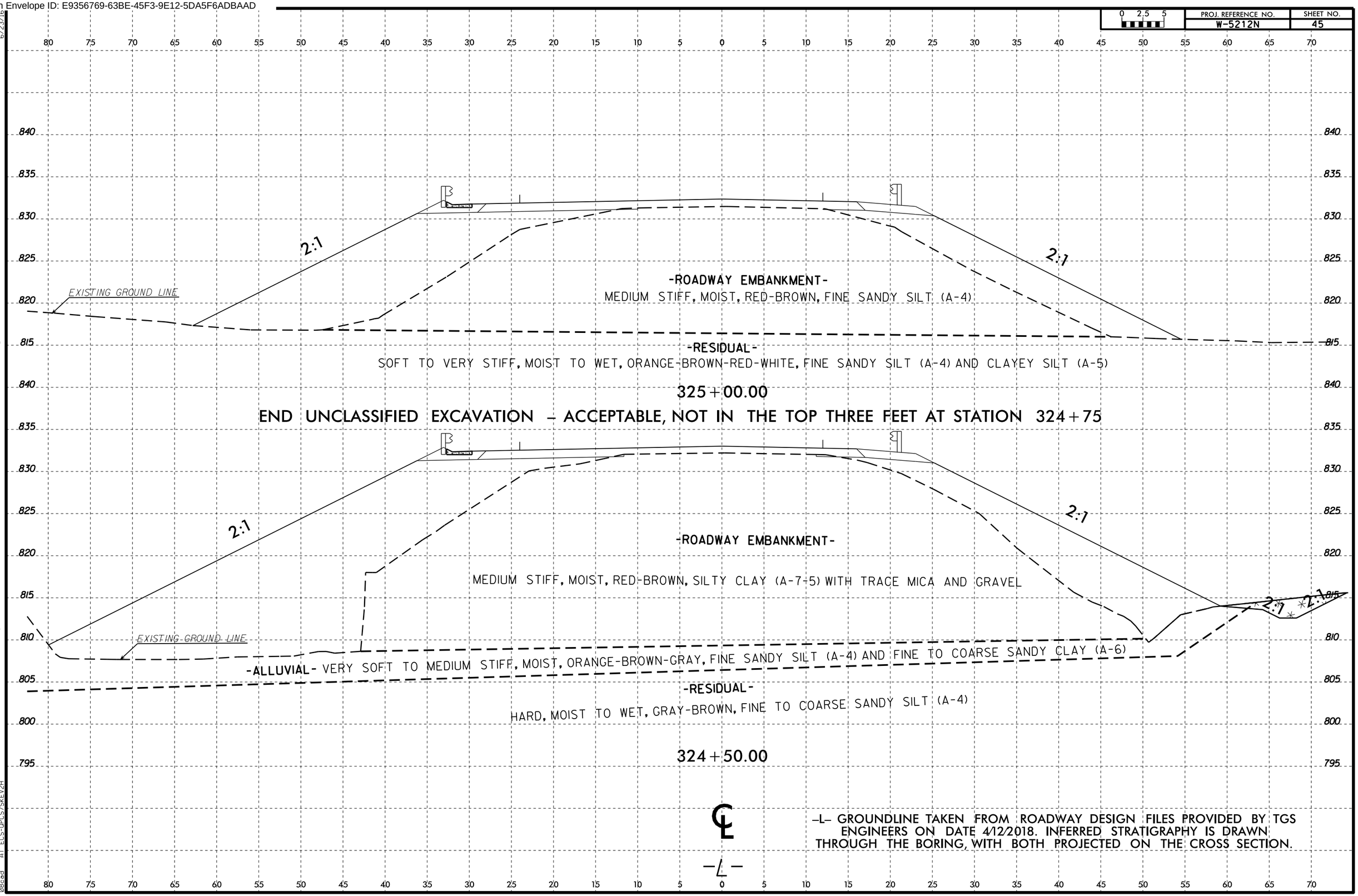
08cad AT ECS-DPC57SKEV2H

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	45

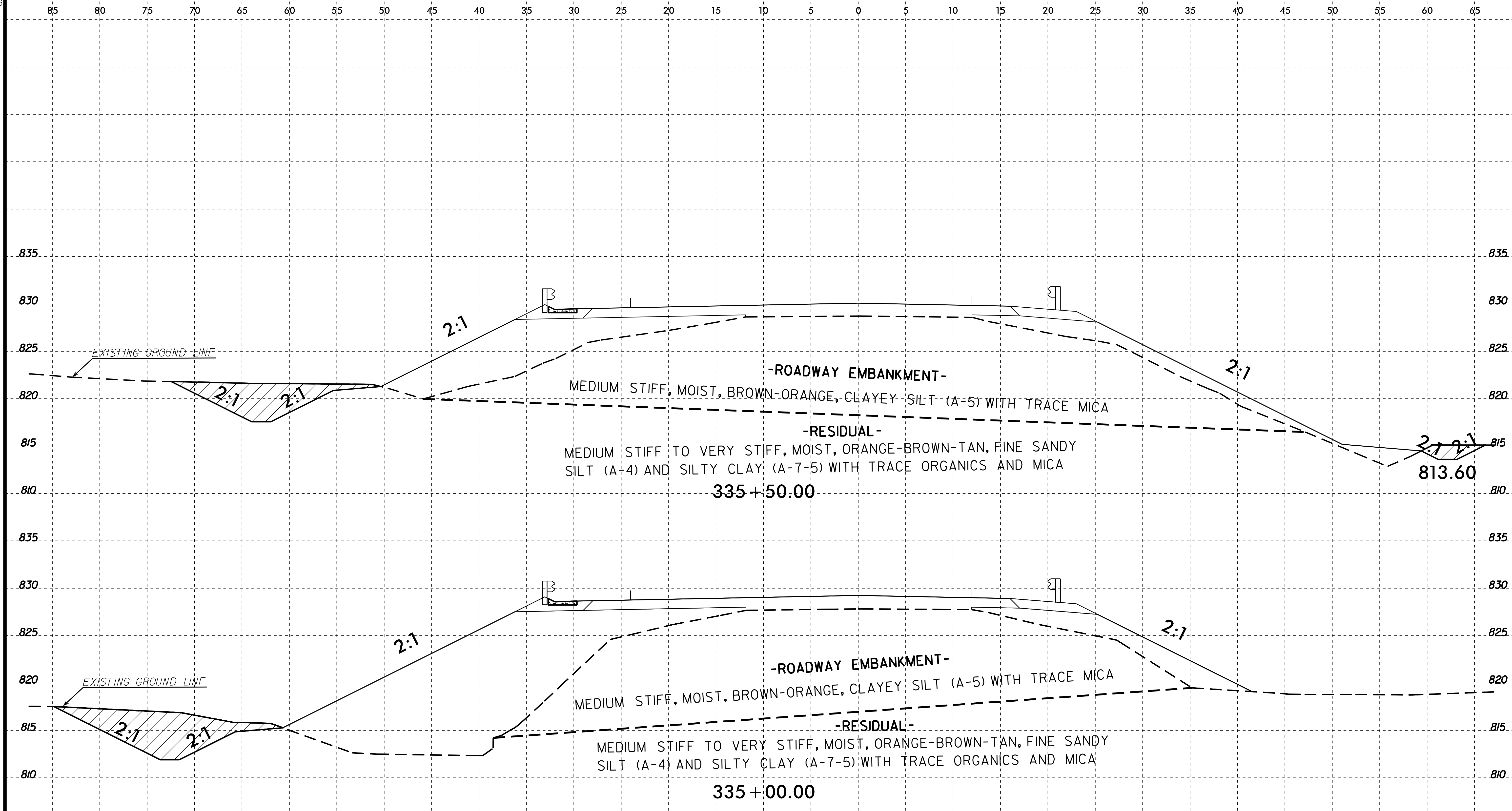


–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16

08-JUN-2018 15:05
U:\GEOTECH\PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
AT ECS-OPC57SKEY2H
08cad

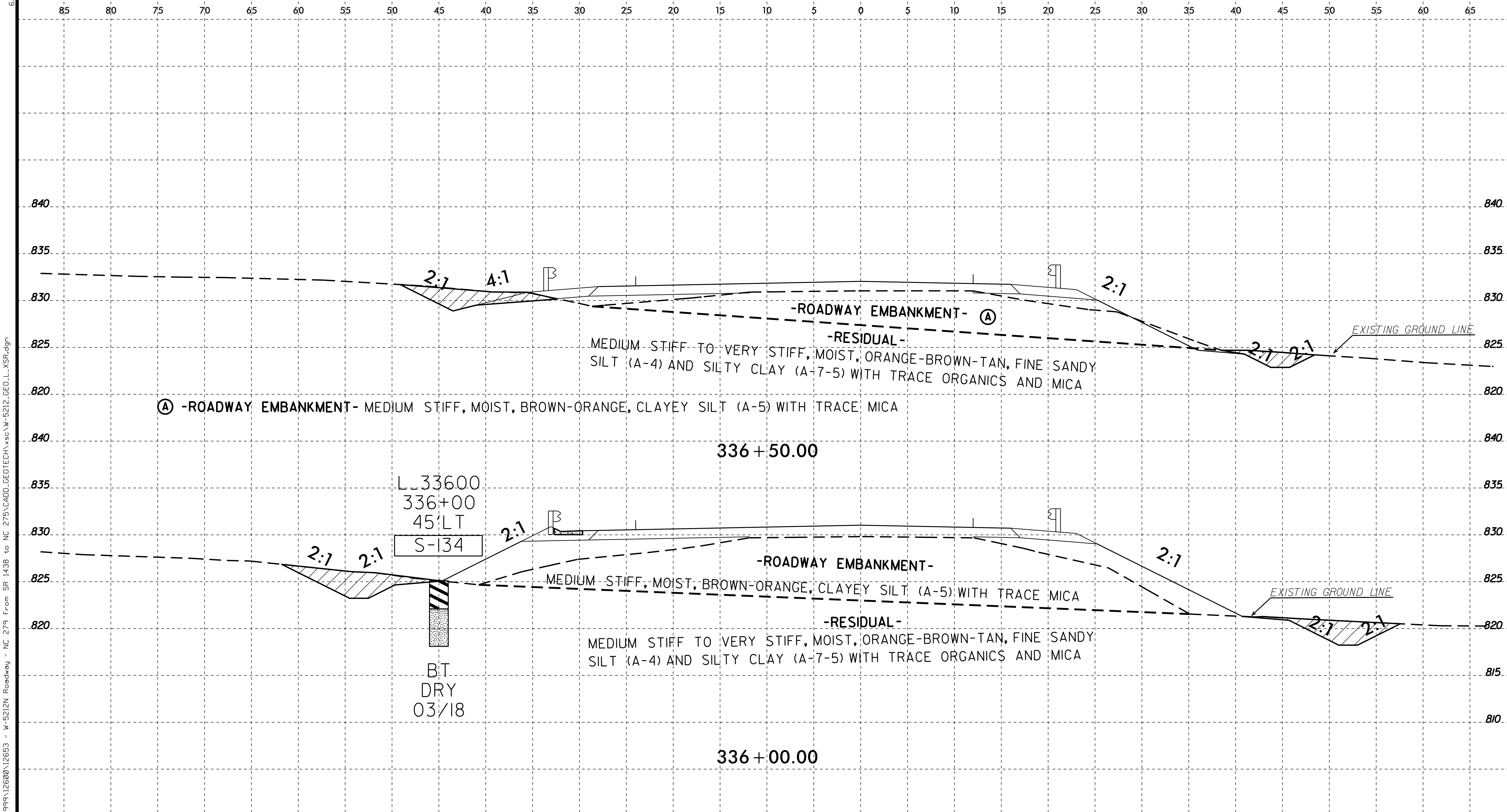
PROJ. REFERENCE NO.	SHEET NO.
W-5212N	46



BEGIN UNCLASSIFIED EXCAVATION – UNSUITABLE AT STATION 334+75

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

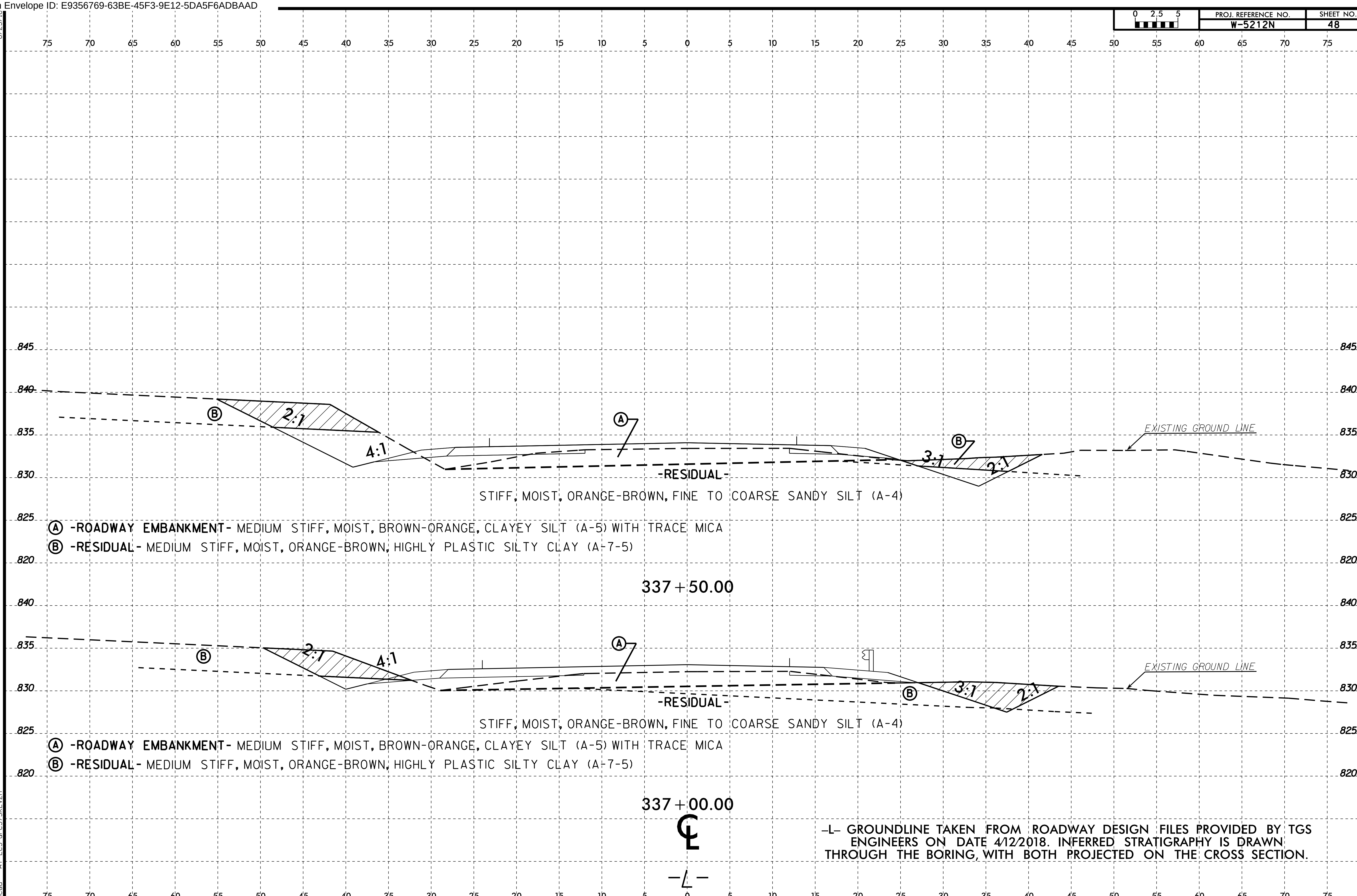
–L–

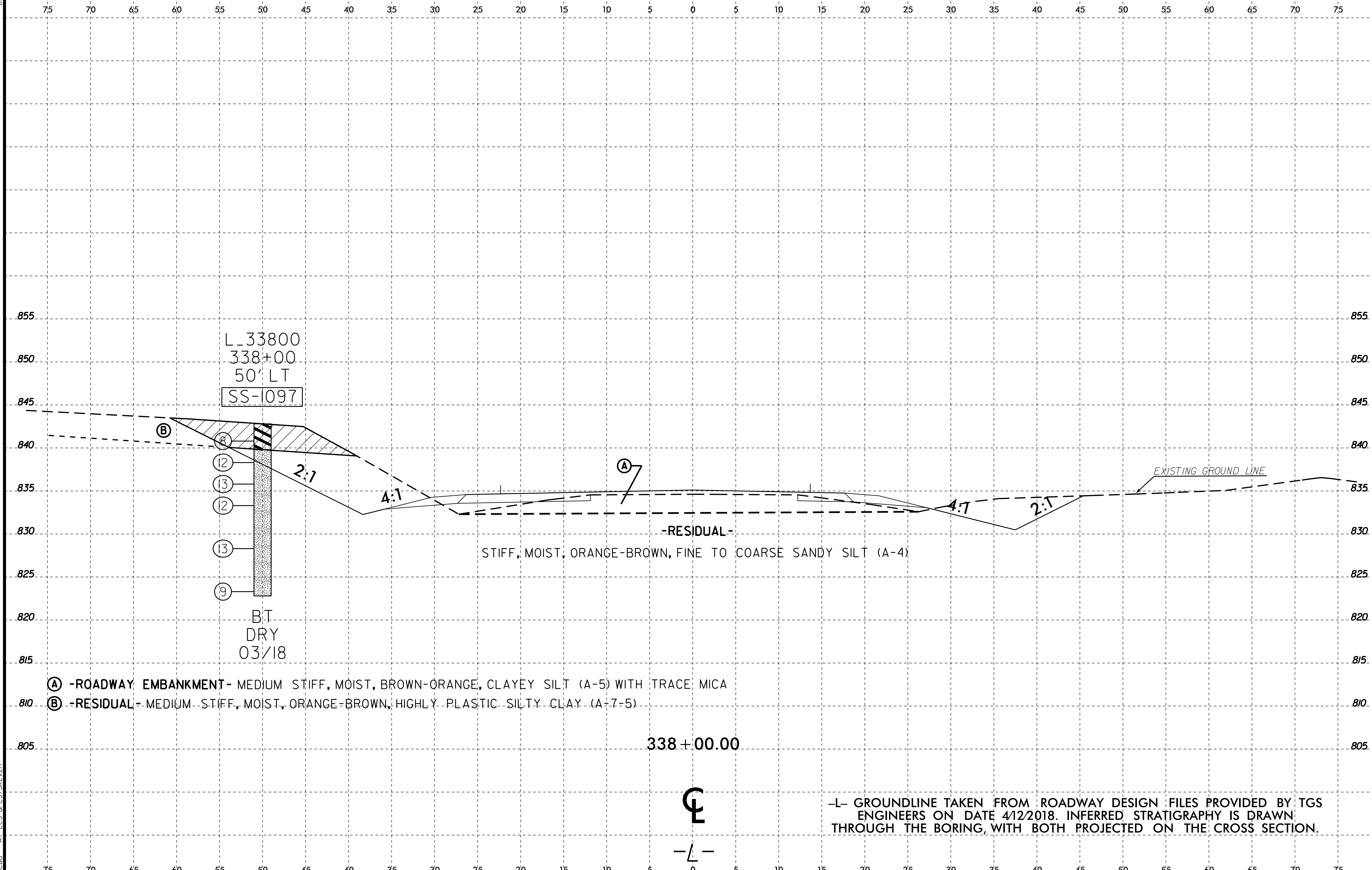


CL

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

-L-


EXISTING GROUND LINE
2:1
4:1
3:1
2:1
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4)
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA
Ⓑ -RESIDUAL- MEDIUM STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)
337+50.00
EXISTING GROUND LINE
2:1
4:1
3:1
2:1
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4)
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA
Ⓑ -RESIDUAL- MEDIUM STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)
337+00.00
CL
-L-
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA

Ⓑ -RESIDUAL- MEDIUM STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

338+00.00

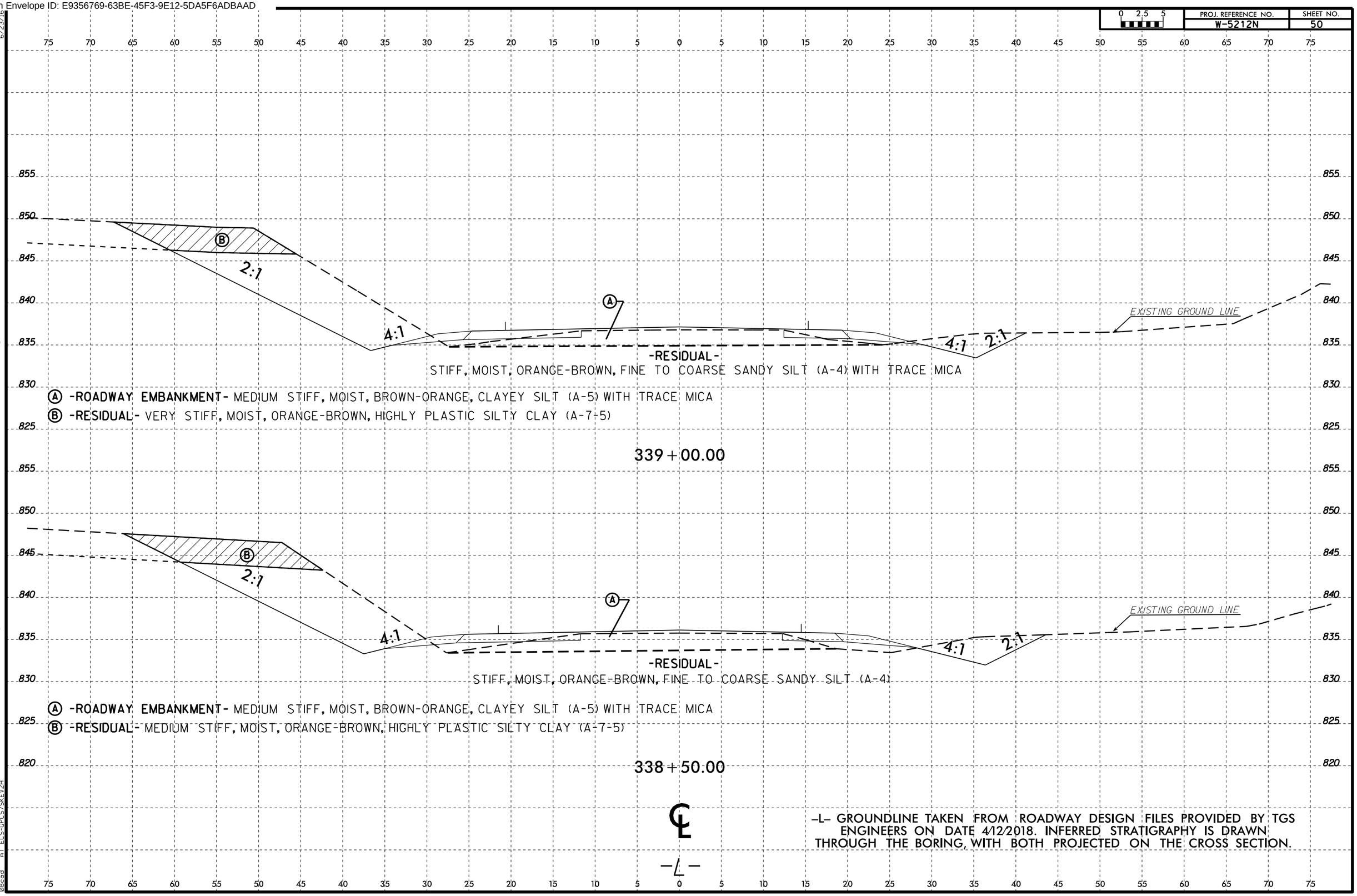
CL

-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

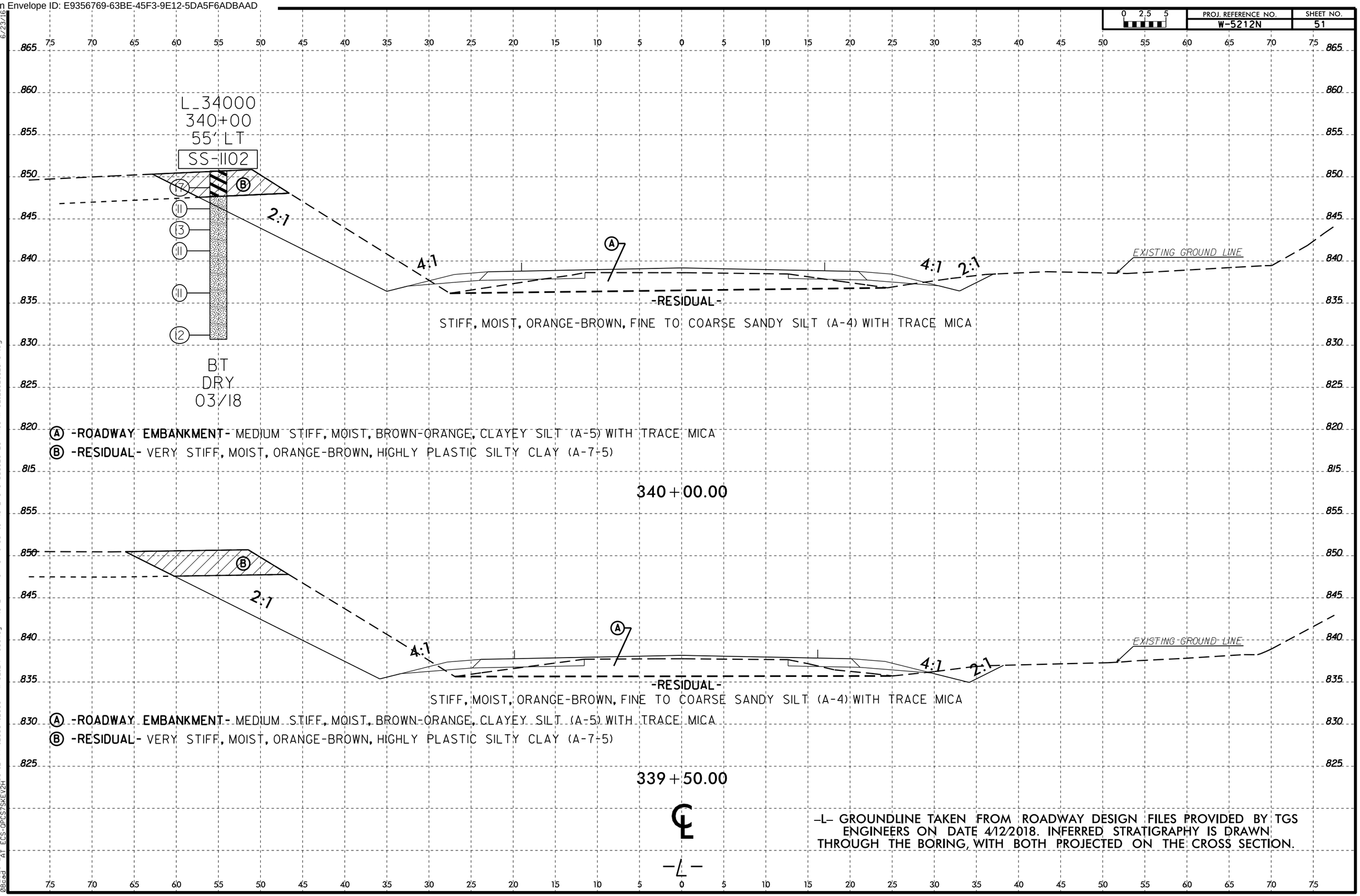
08-JUN-2018 15:05
I:\2GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
08cad AT ECS-QPCS7SKEV2H

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	50



–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	51



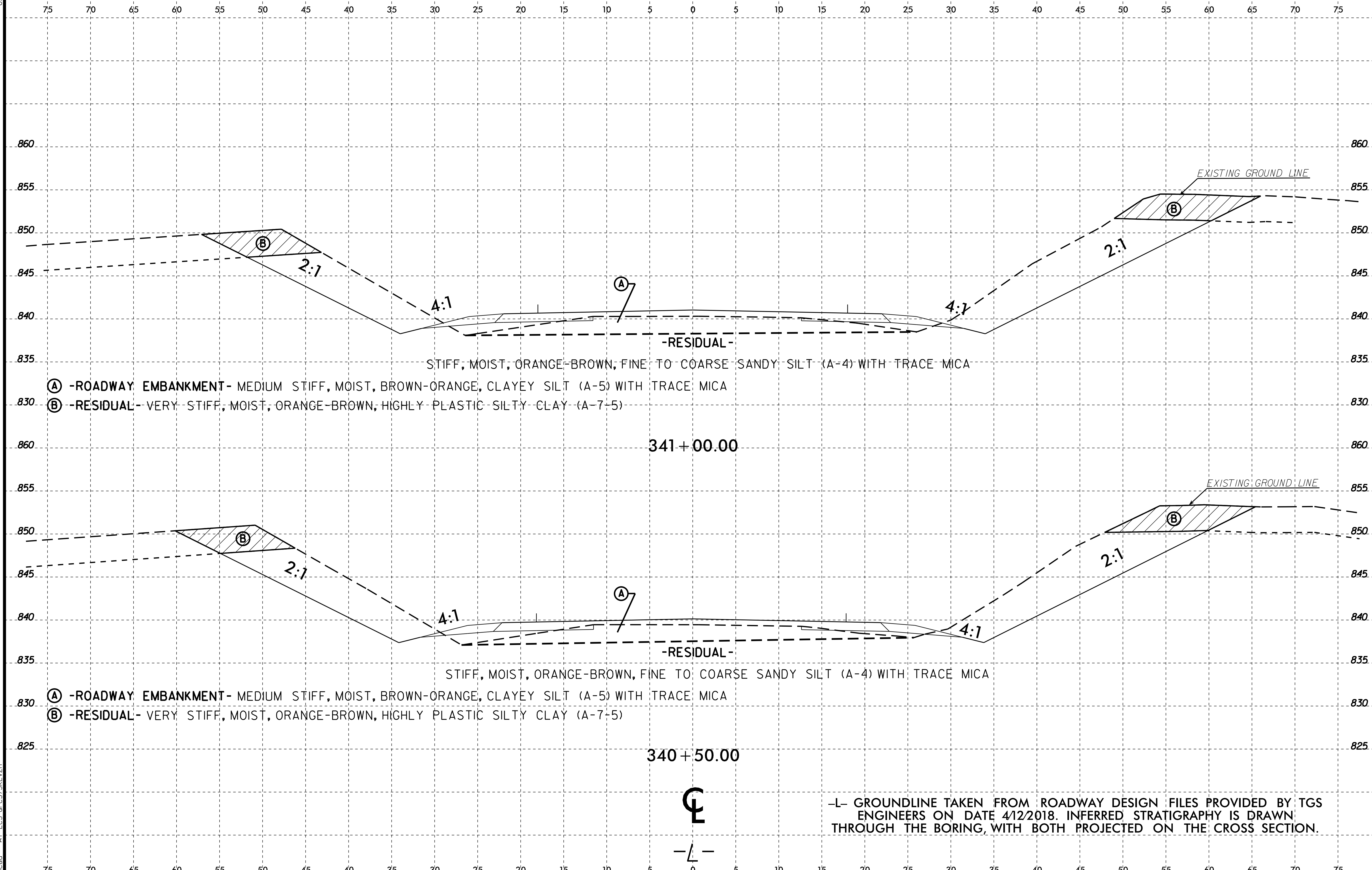
Ⓐ **-ROADWAY EMBANKMENT-** MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA

Ⓑ **-RESIDUAL-** VERY STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

Ⓐ **-ROADWAY EMBANKMENT-** MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA

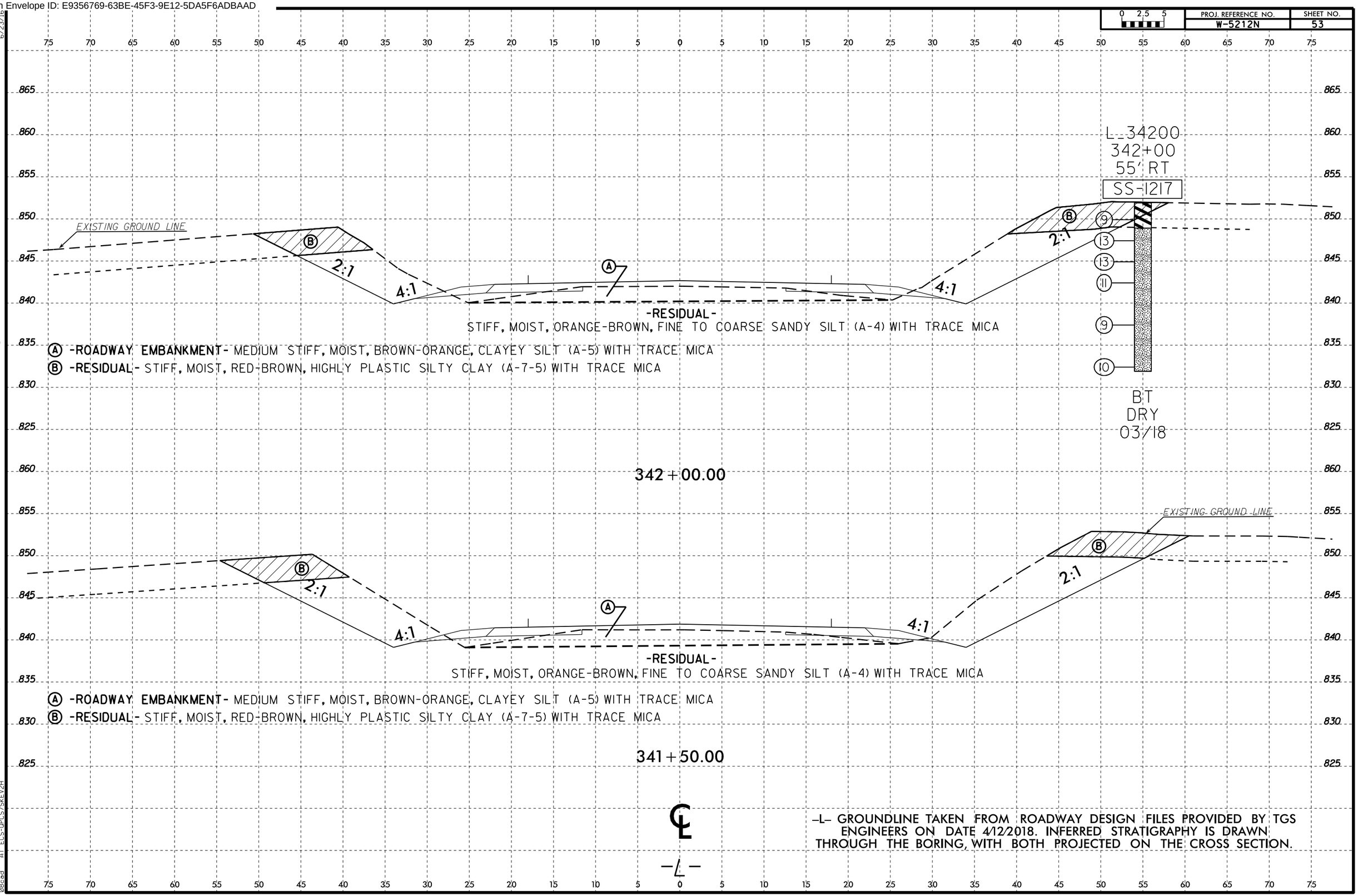
Ⓑ **-RESIDUAL-** VERY STIFF, MOIST, ORANGE-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	53



Ⓐ **-ROADWAY EMBANKMENT-** MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA

Ⓑ **-RESIDUAL-** STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5) WITH TRACE MICA

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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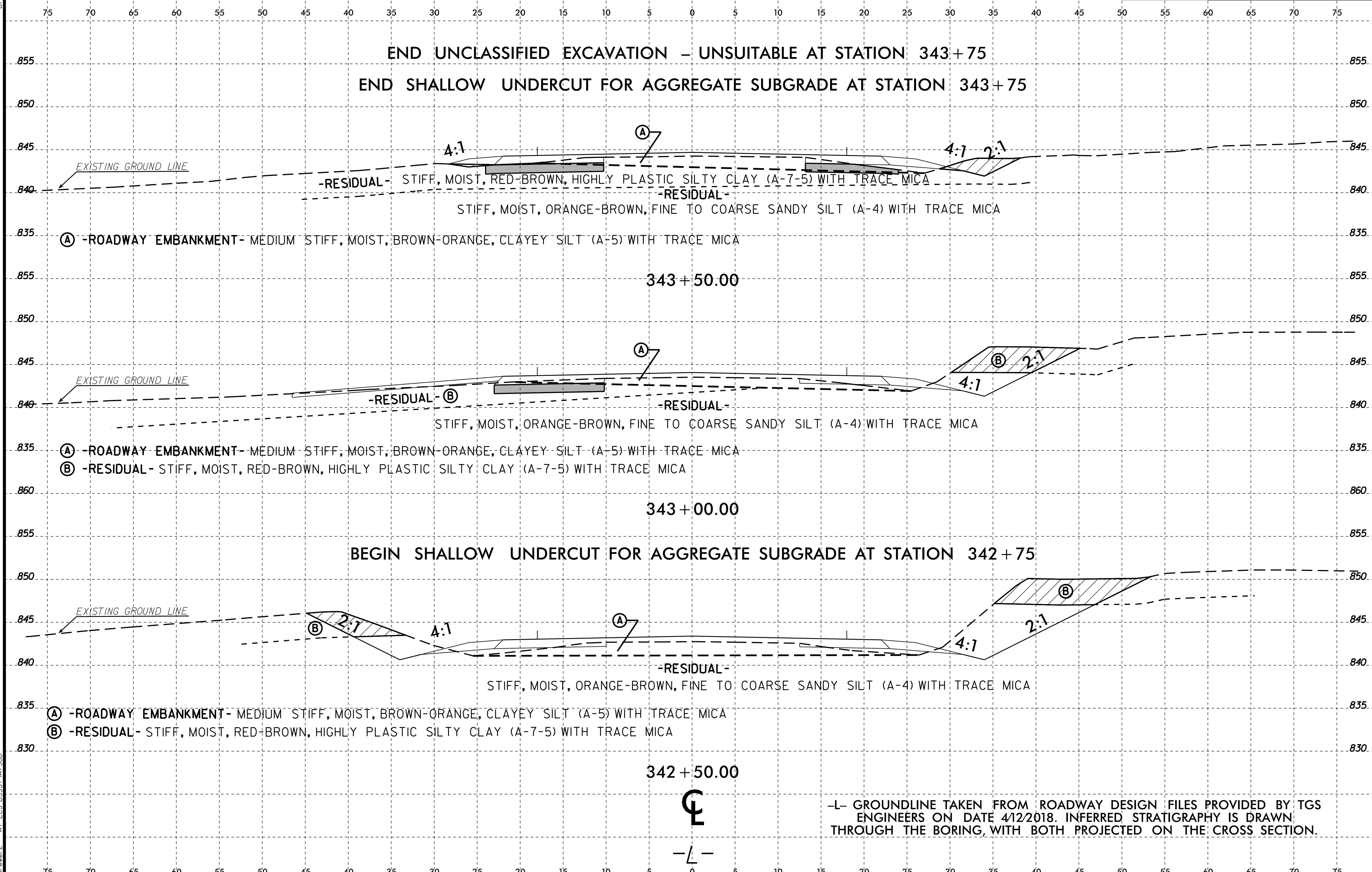
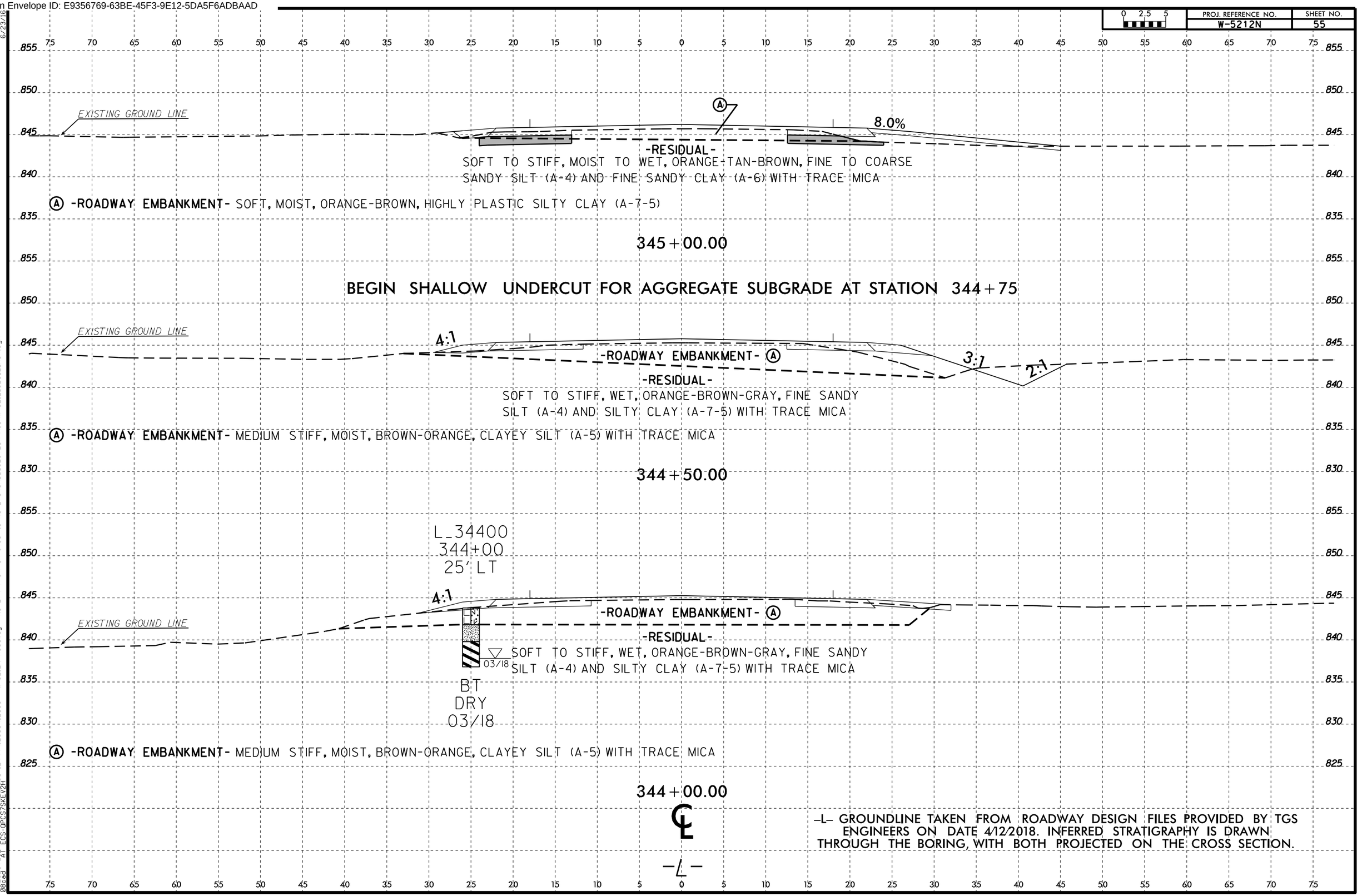
PROJ. REFERENCE NO.	SHEET NO.
W-5212N	54

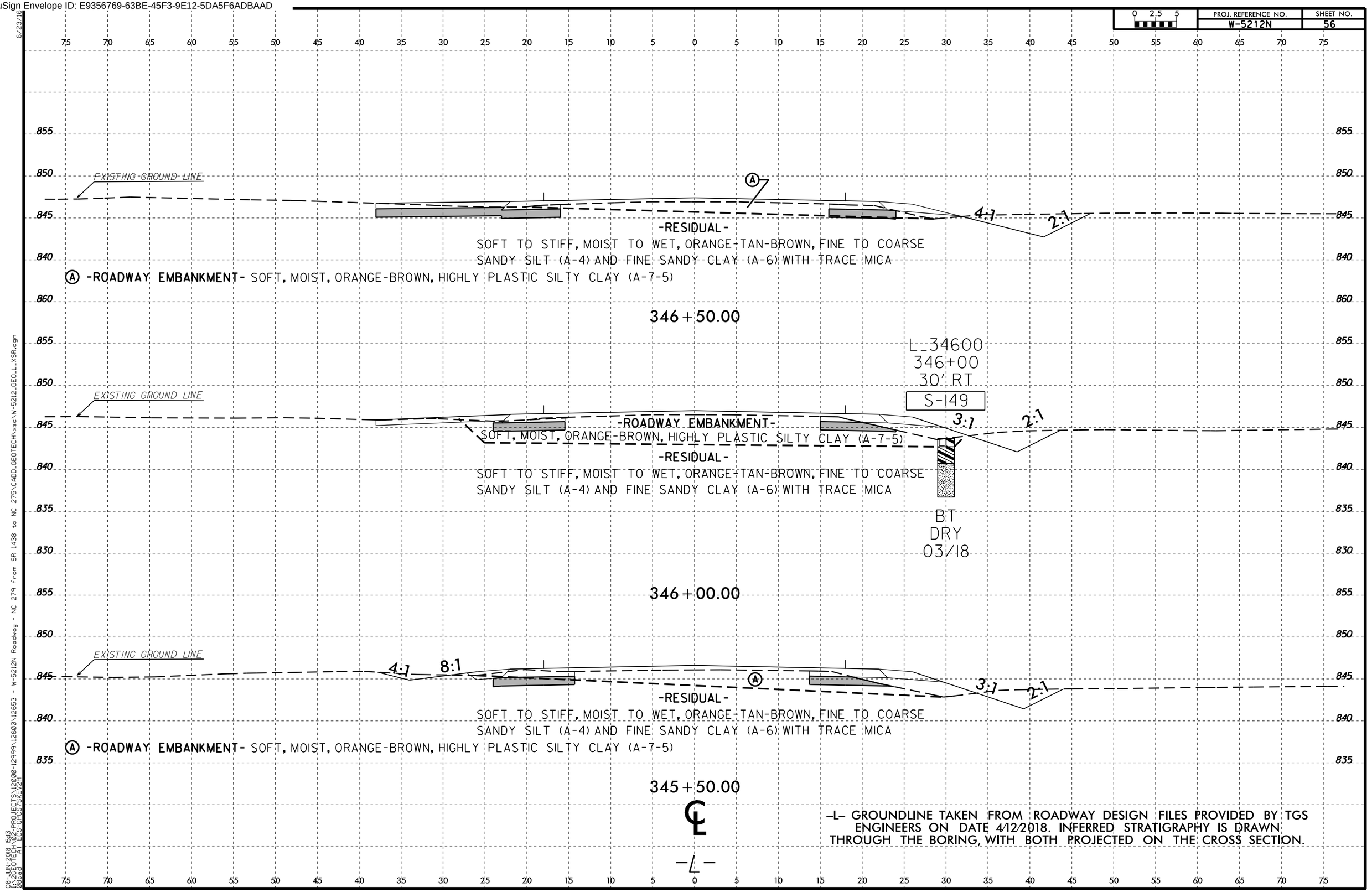


END UNCLASSIFIED EXCAVATION – UNSUITABLE AT STATION 343+75
END SHALLOW UNDERCUT FOR AGGREGATE SUBGRADE AT STATION 343+75
EXISTING GROUND LINE
4:1
4:1
2:1
-RESIDUAL- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5) WITH TRACE MICA
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA
343+50.00
EXISTING GROUND LINE
-RESIDUAL- Ⓑ
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA
Ⓑ -RESIDUAL- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5) WITH TRACE MICA
343+00.00
BEGIN SHALLOW UNDERCUT FOR AGGREGATE SUBGRADE AT STATION 342+75
EXISTING GROUND LINE
2:1
4:1
4:1
2:1
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA
Ⓐ -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, BROWN-ORANGE, CLAYEY SILT (A-5) WITH TRACE MICA
Ⓑ -RESIDUAL- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5) WITH TRACE MICA
342+50.00
CL
-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



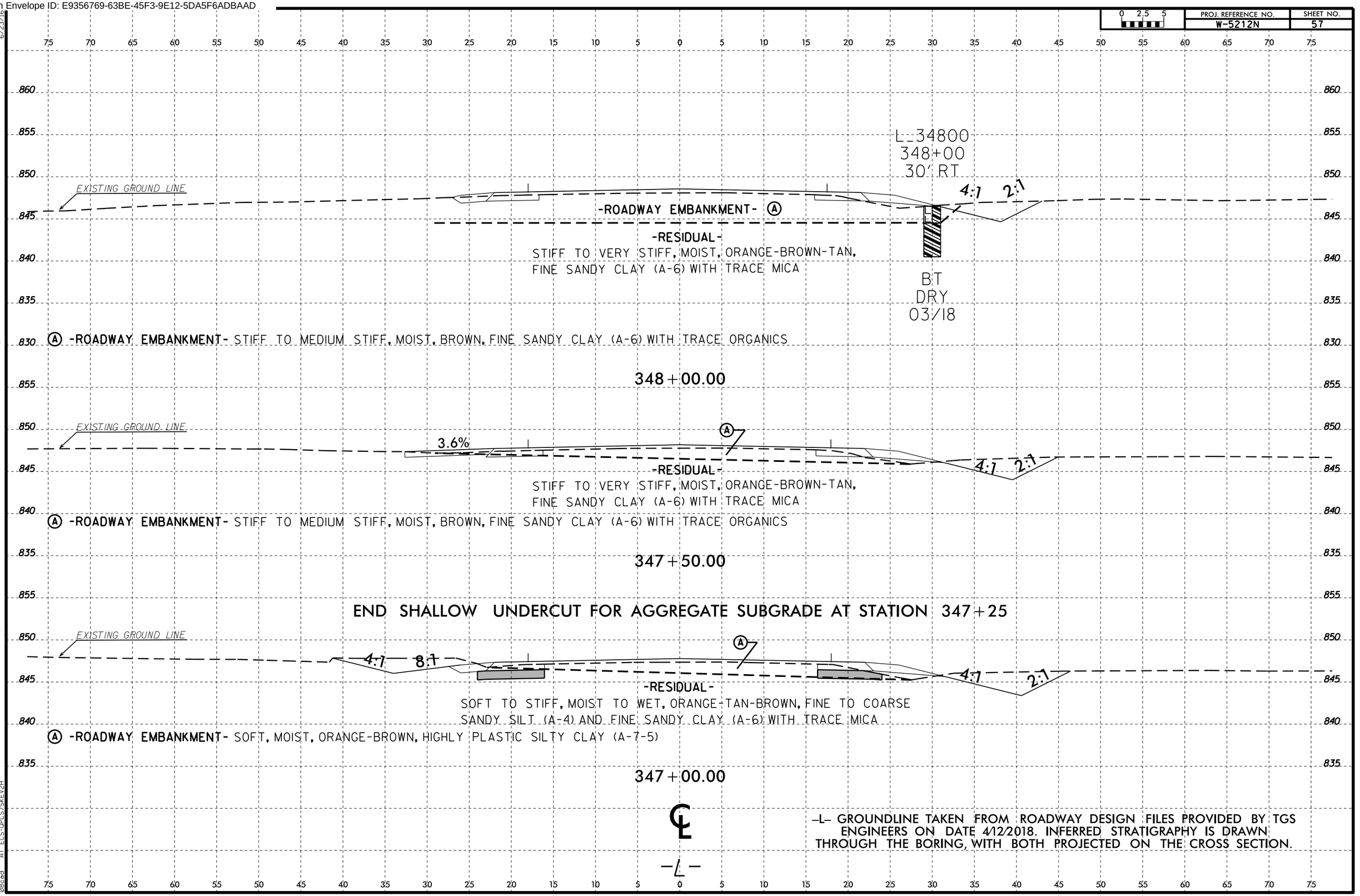
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

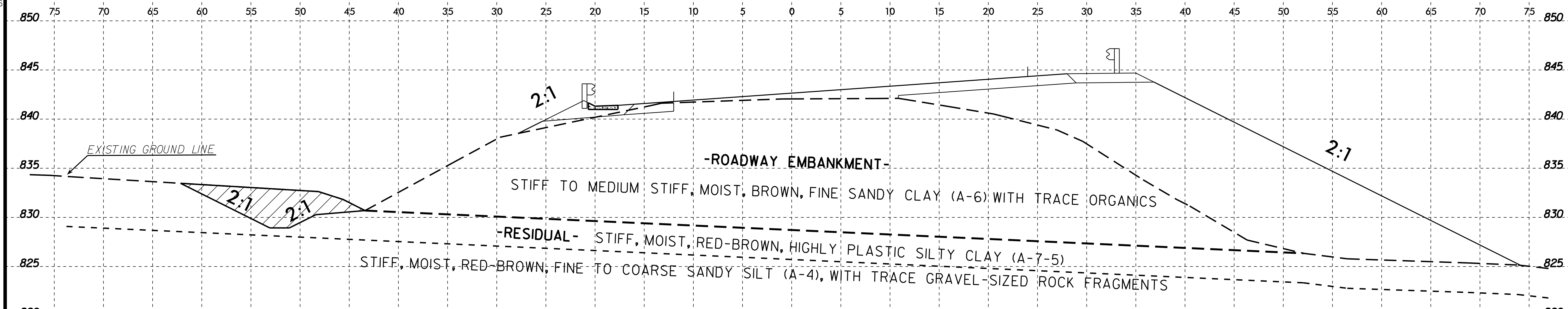


-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	57

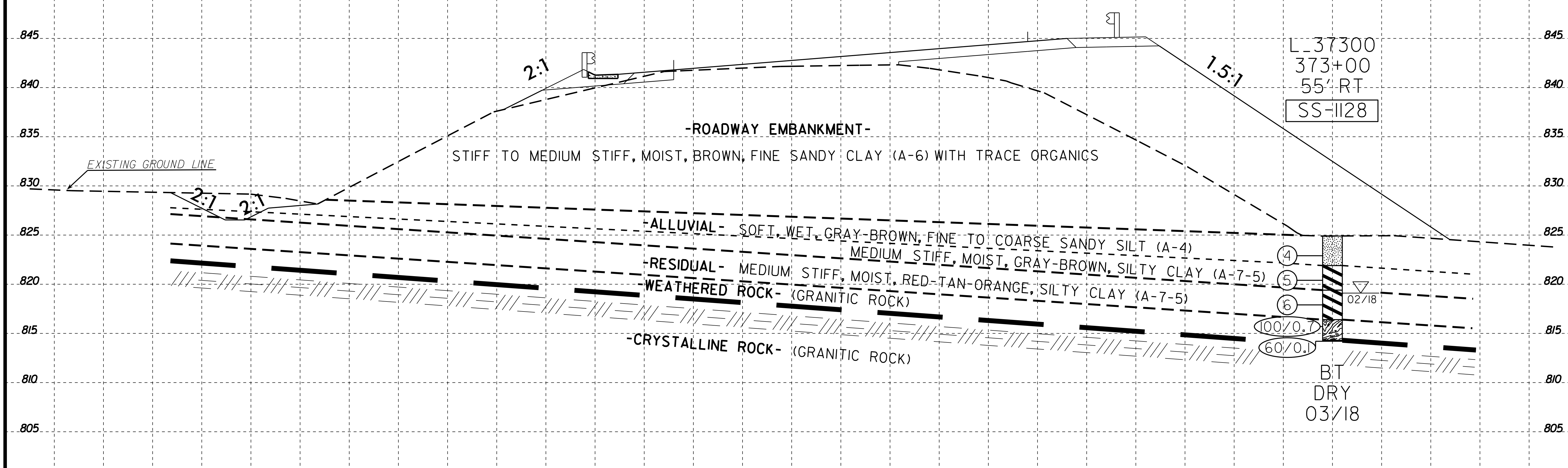
0 2.5 5





373+50.00

BEGIN UNCLASSIFIED EXCAVATION – UNSUITABLE AT STATION 372+25



373+00.00

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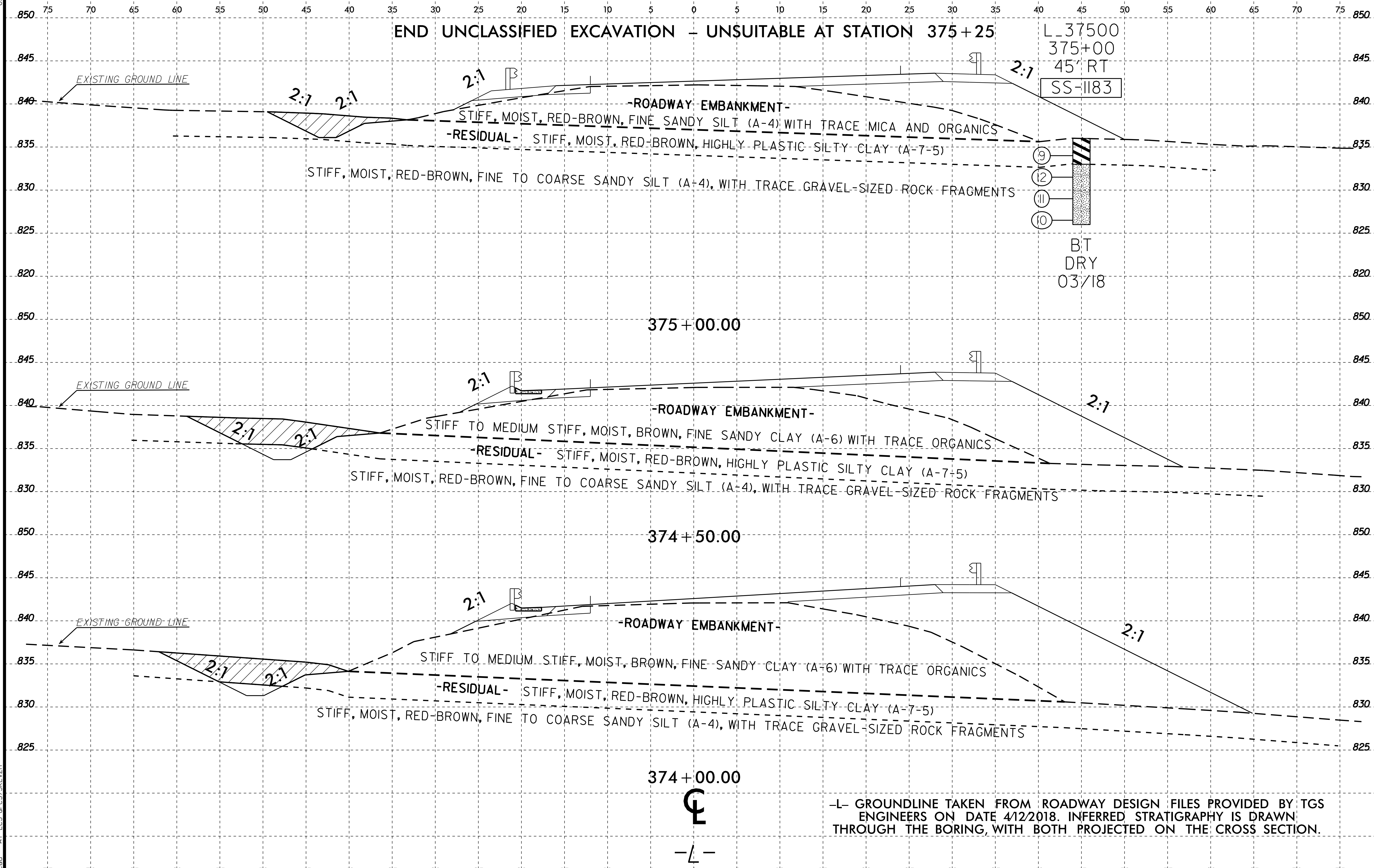
–L–

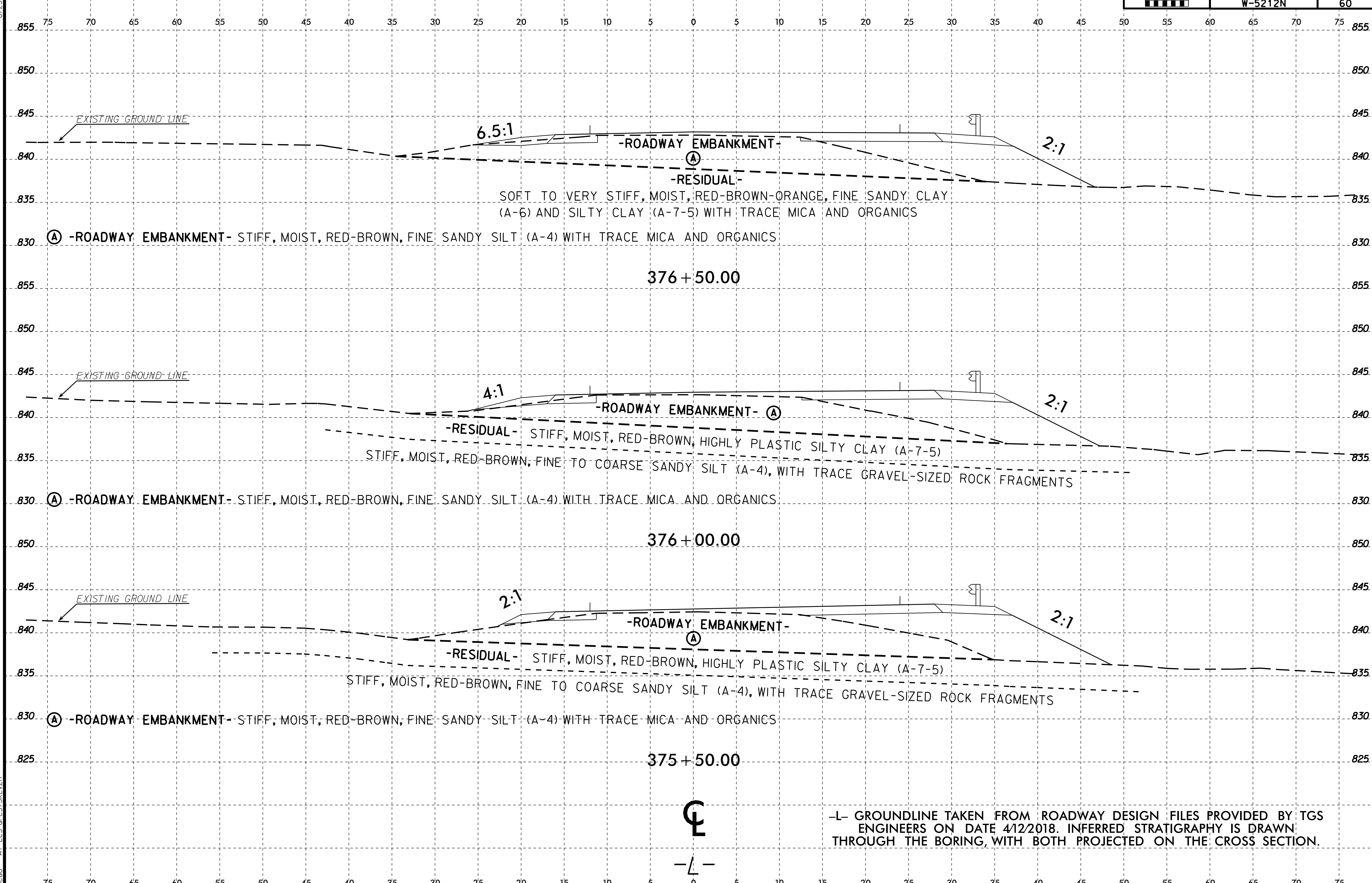
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

08-JUN-2018 15:13
R:\2GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn
AT ECS-GFCS7SKEY2H
6/23/16



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

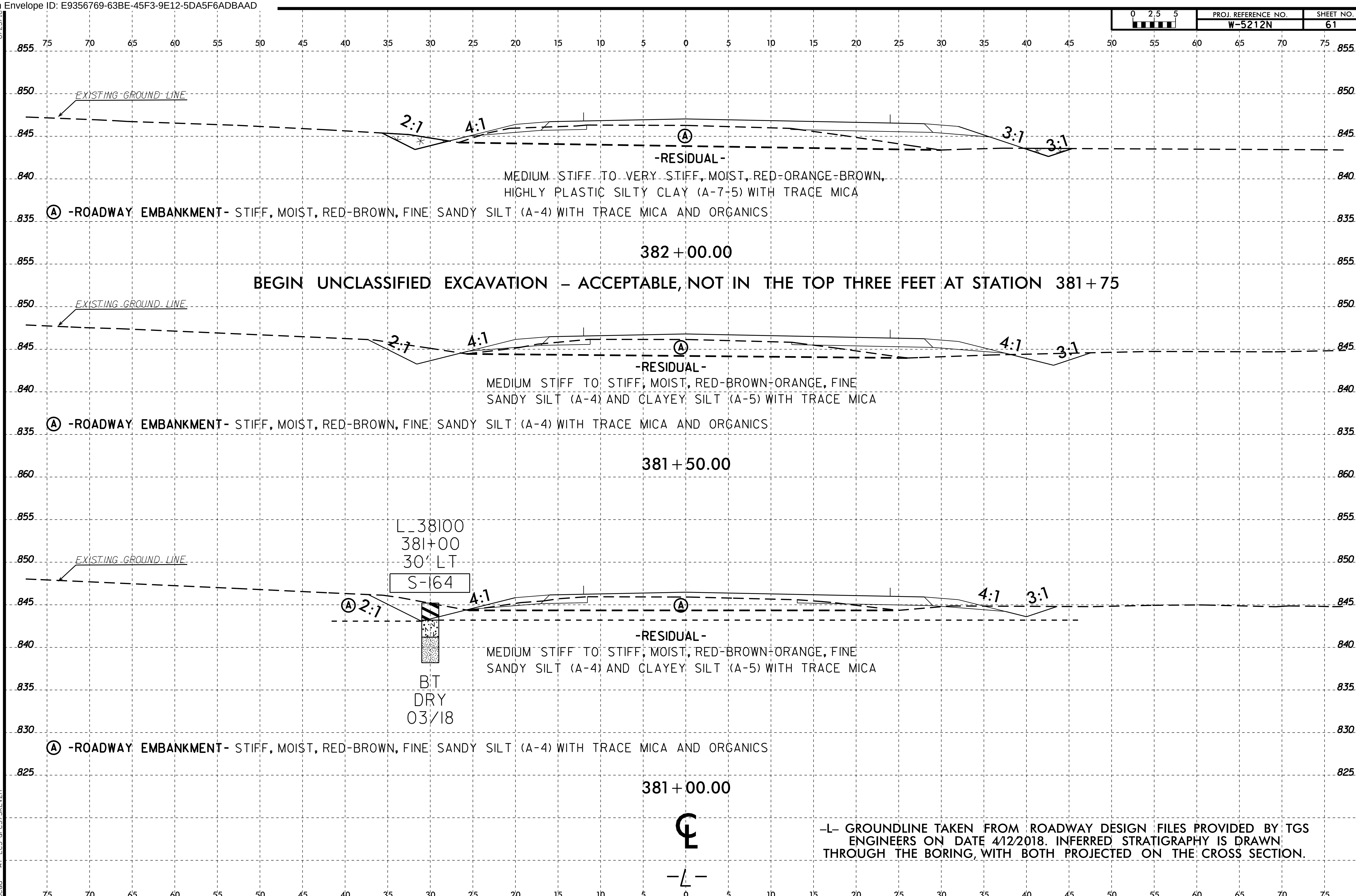
PROJ. REFERENCE NO.	SHEET NO.
W-5212N	60



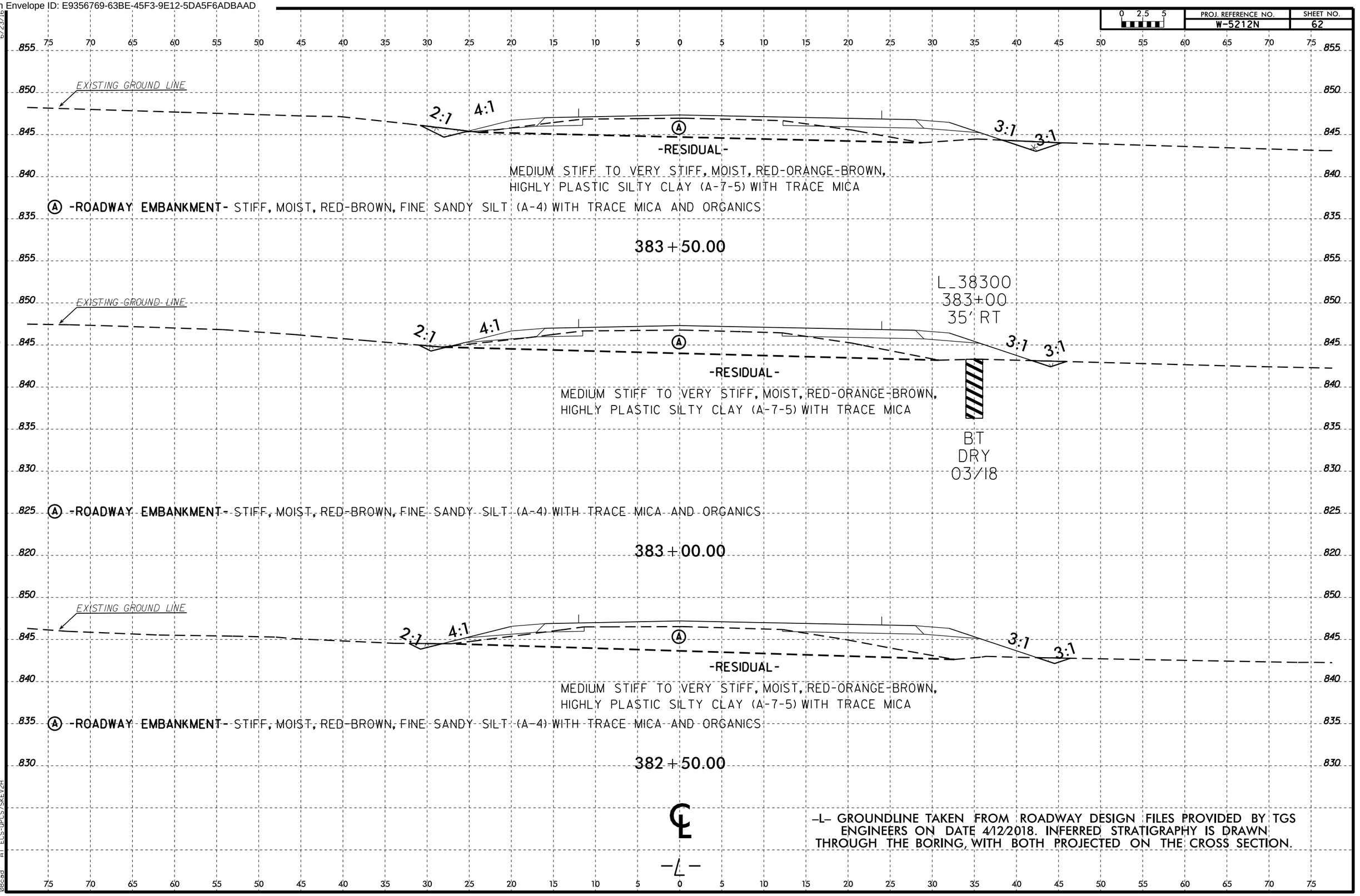
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16

08-JUN-2018 15:14 R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn



0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	62



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

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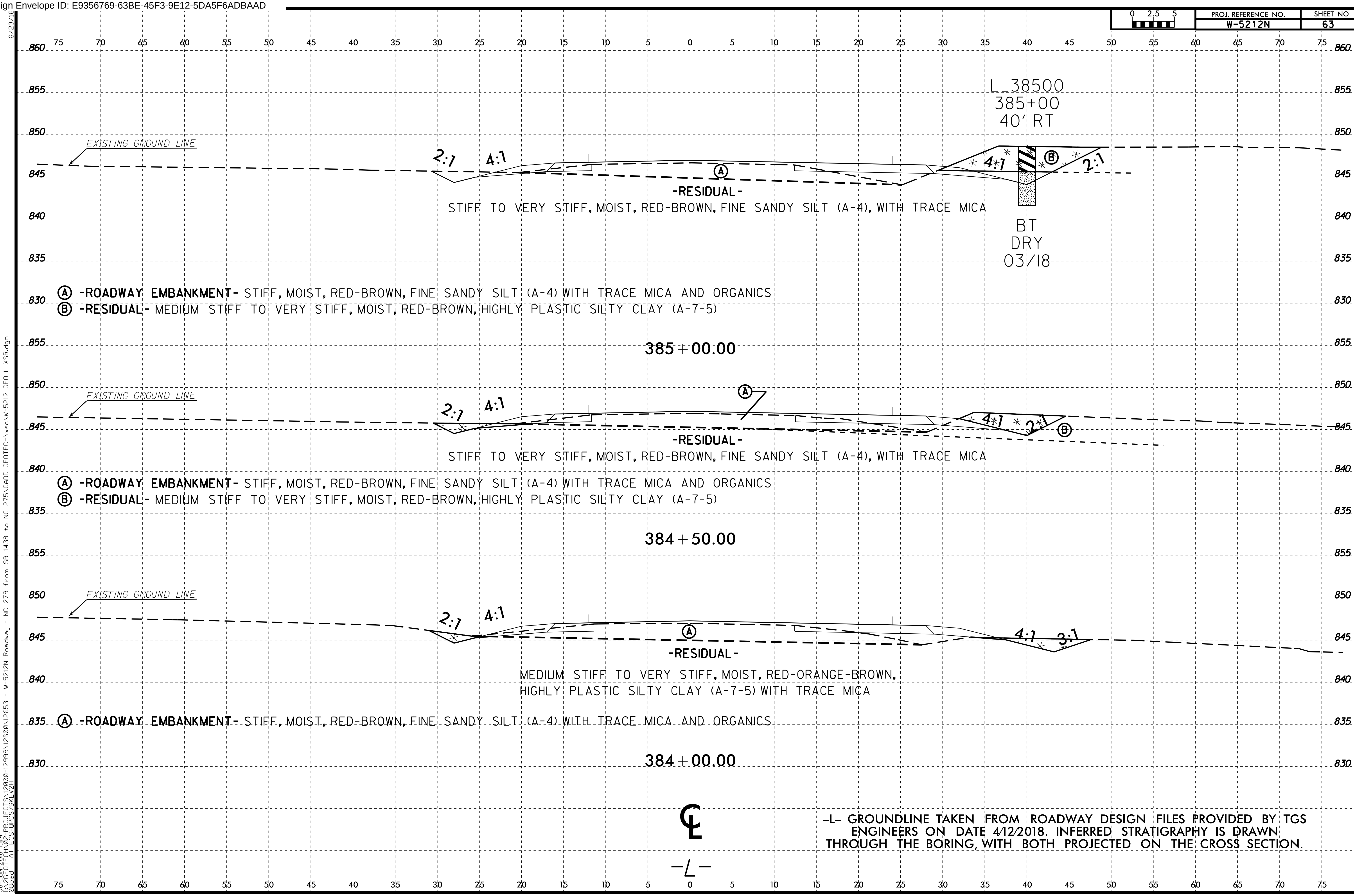
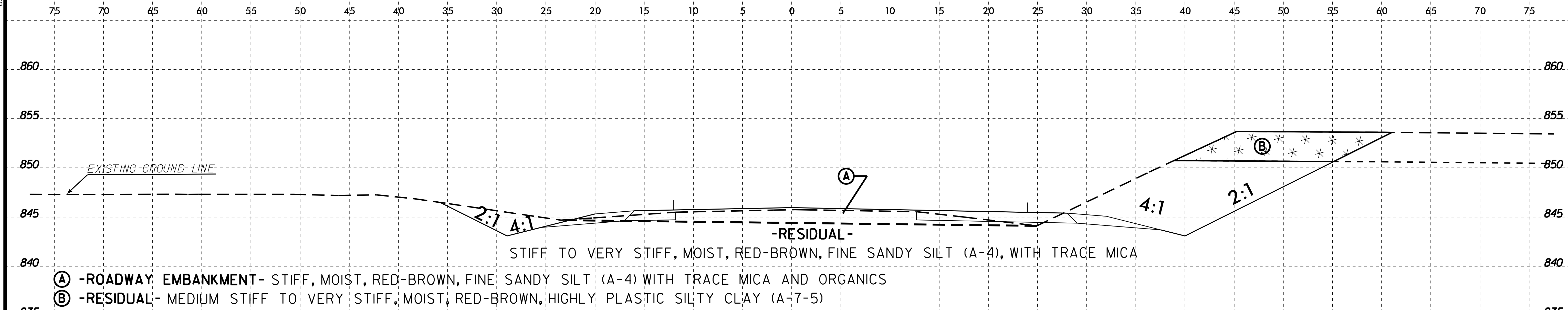
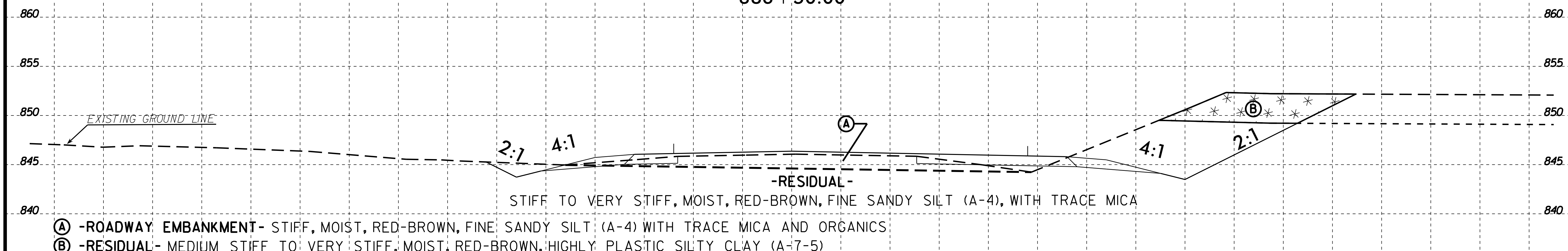
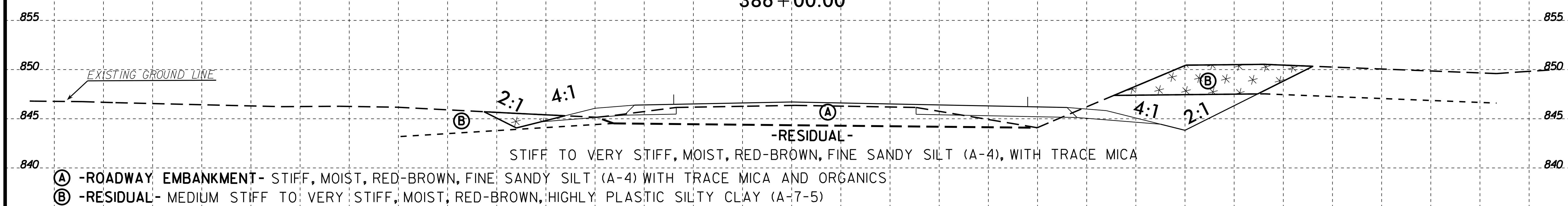




386+50.00



386+00.00



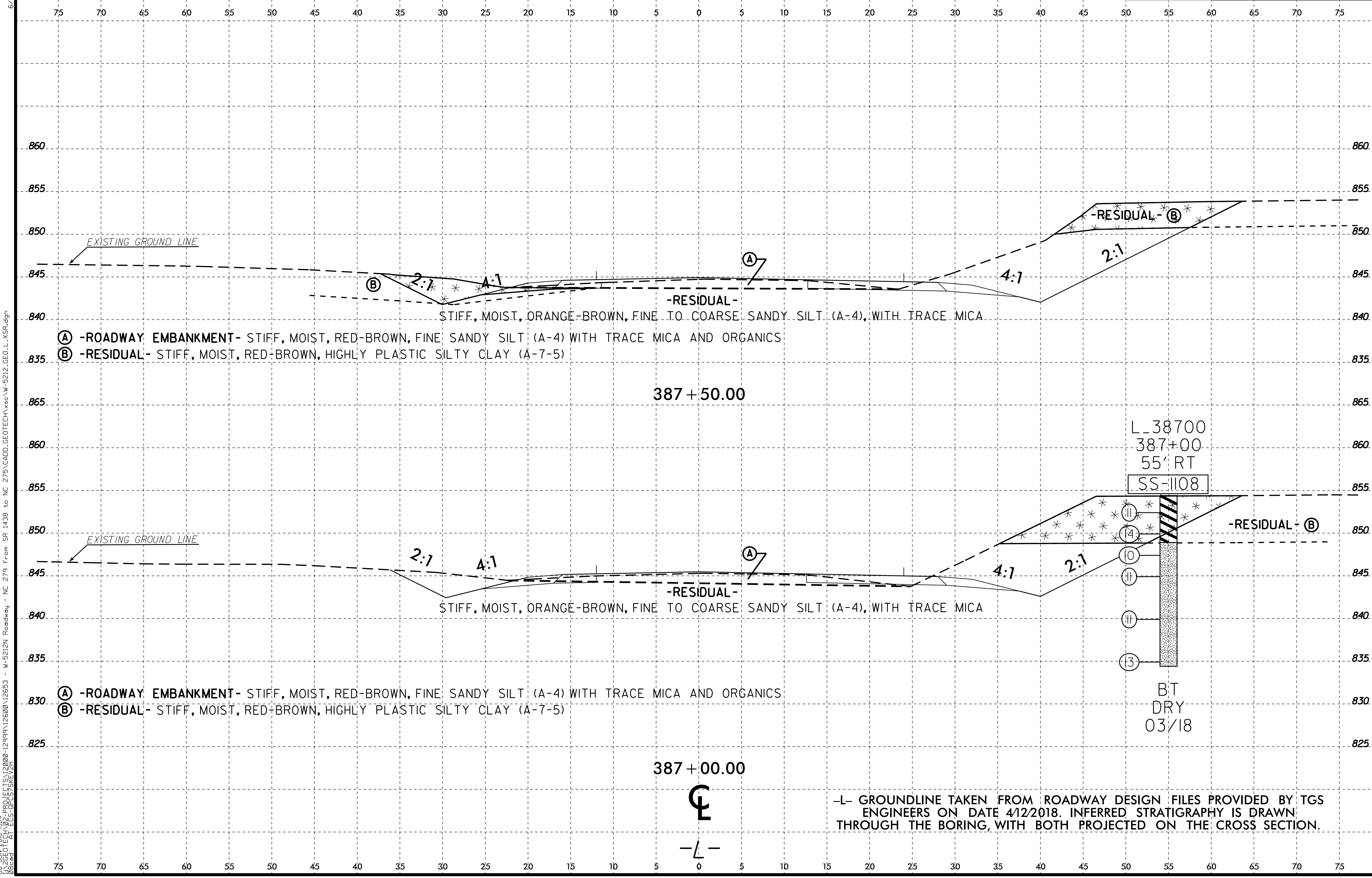
385+50.00

CL

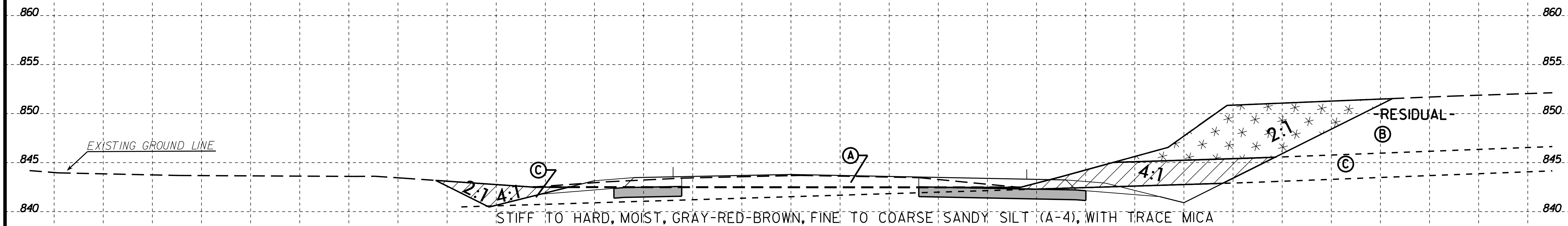
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJ. REFERENCE NO.	SHEET NO.
W-5212N	65



EXISTING GROUND LINE
-RESIDUAL- (B)
2:1
4:1
(A)
(B)
-RESIDUAL-
STIFF, MOIST, ORANGE-BROWN, FINE TO COARSE SANDY SILT (A-4), WITH TRACE MICA
(A) -ROADWAY EMBANKMENT- STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS
(B) -RESIDUAL- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)
387+50.00
L_38700
387+00
55' RT
SS-1108
11
14
10
11
11
13
BT
DRY
03/18
-RESIDUAL- (B)
387+00.00
℄
-L-
–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

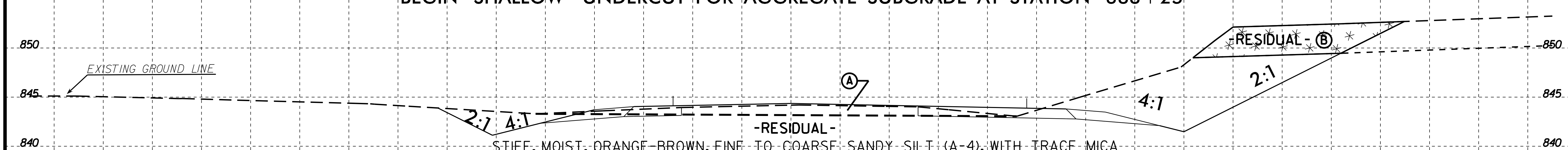


Ⓐ -**ROADWAY EMBANKMENT**- STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS
Ⓑ -**RESIDUAL**- STIFF TO VERY STIFF, MOIST, RED-BROWN, CLAYEY SILT (A-5)
Ⓒ -**RESIDUAL**- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA

388+50.00

BEGIN UNCLASSIFIED EXCAVATION – UNSUITABLE AT STATION 388+25

BEGIN SHALLOW UNDERCUT FOR AGGREGATE SUBGRADE AT STATION 388+25



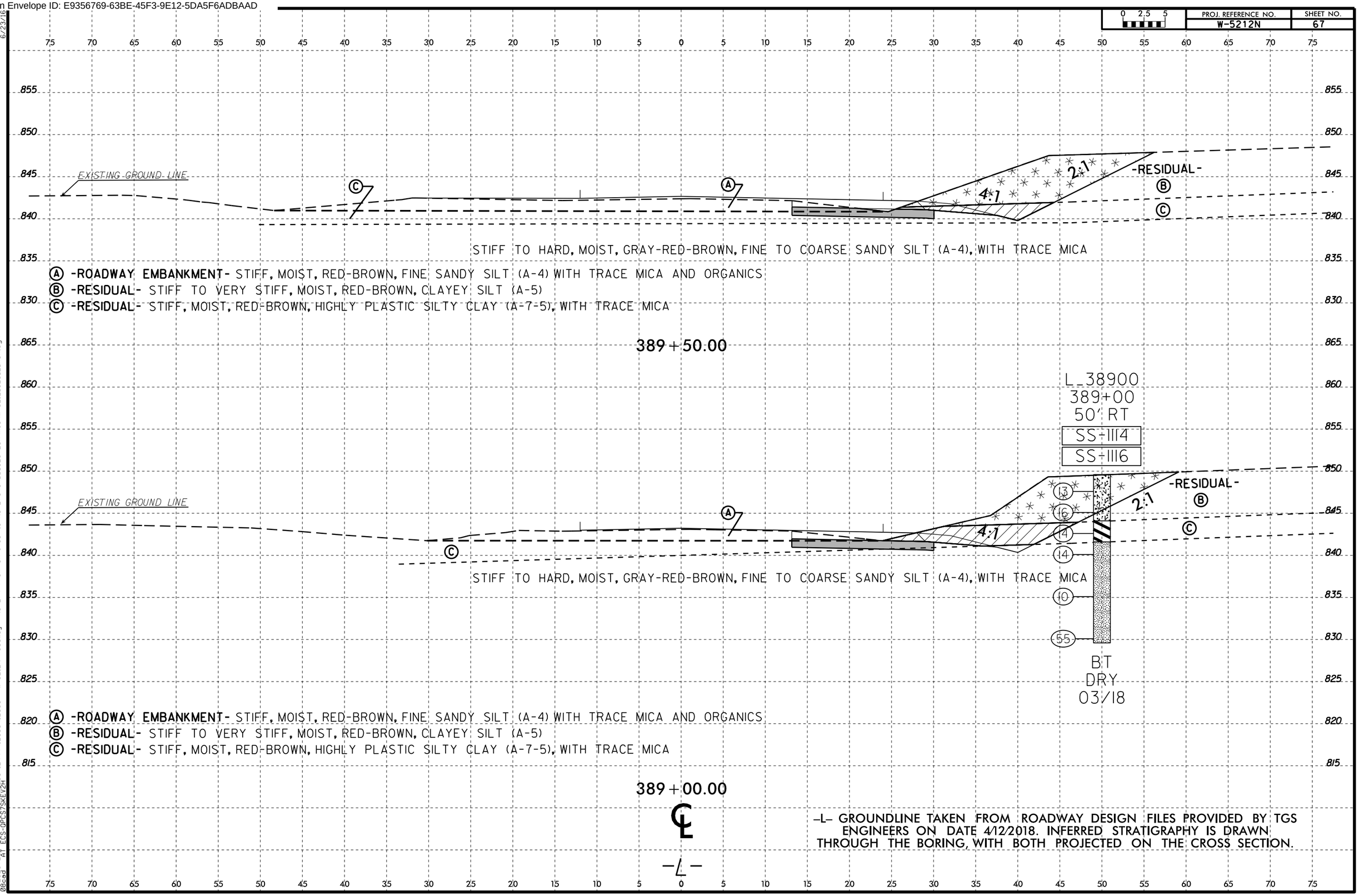
Ⓐ -**ROADWAY EMBANKMENT**- STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS
Ⓑ -**RESIDUAL**- STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

388+00.00

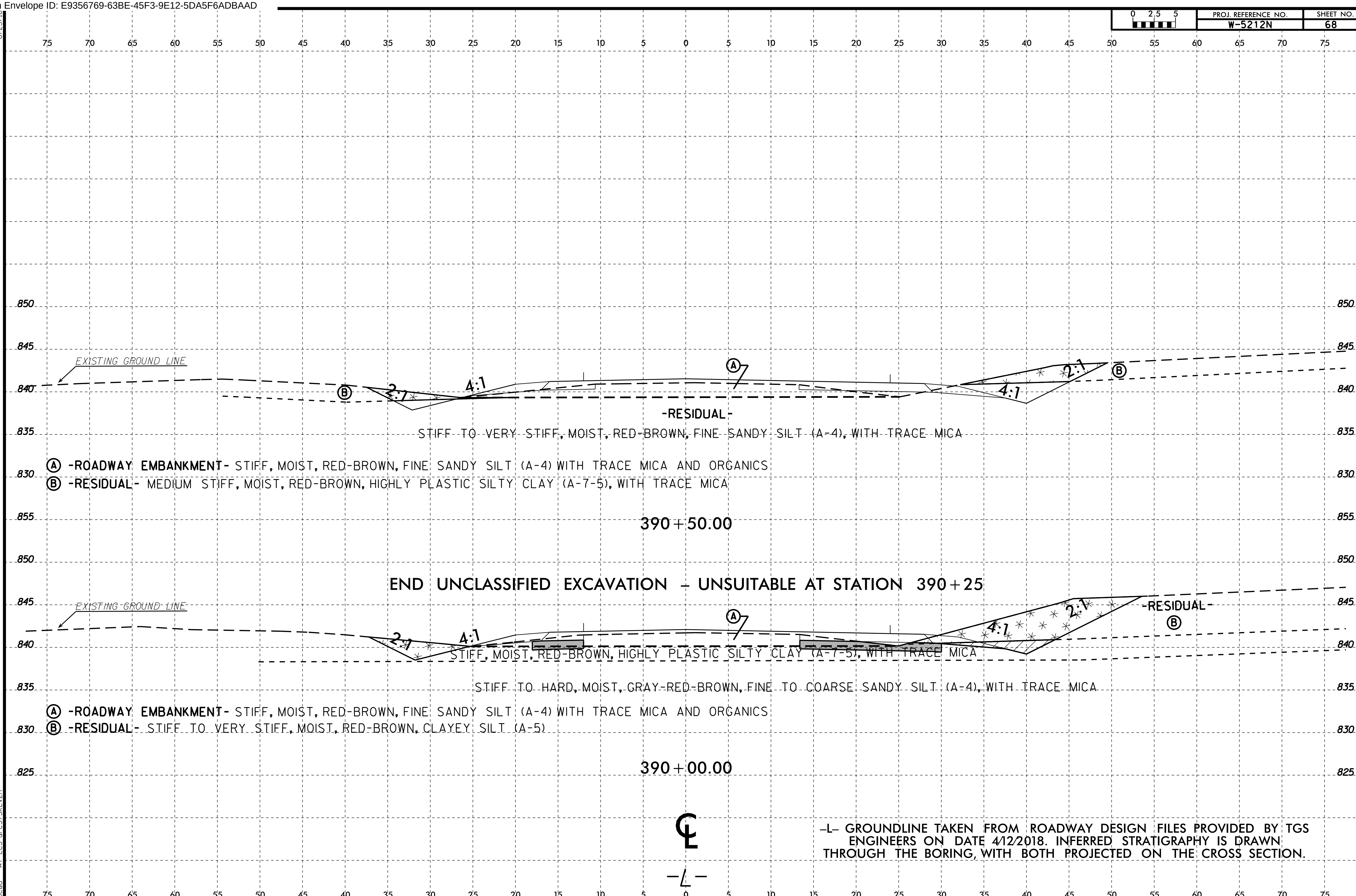
CL

–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

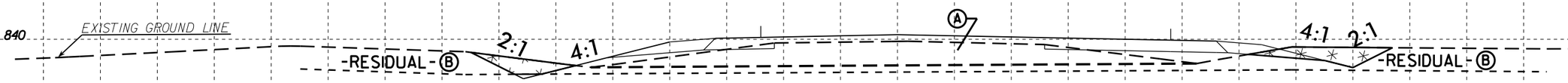


END UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 392+25

Ⓐ **-ROADWAY EMBANKMENT-** STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS

Ⓑ **-RESIDUAL-** MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA

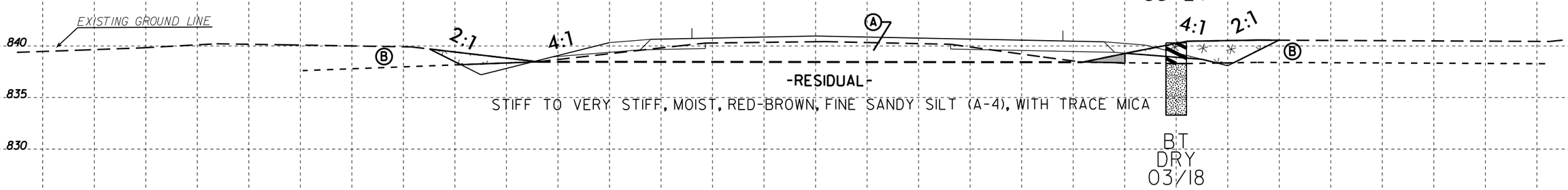
392+00.00



Ⓐ **-ROADWAY EMBANKMENT-** STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS

Ⓑ **-RESIDUAL-** MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA

391+50.00



Ⓐ **-ROADWAY EMBANKMENT-** STIFF, MOIST, RED-BROWN, FINE SANDY SILT (A-4) WITH TRACE MICA AND ORGANICS

Ⓑ **-RESIDUAL-** MEDIUM STIFF, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5), WITH TRACE MICA

391+00.00

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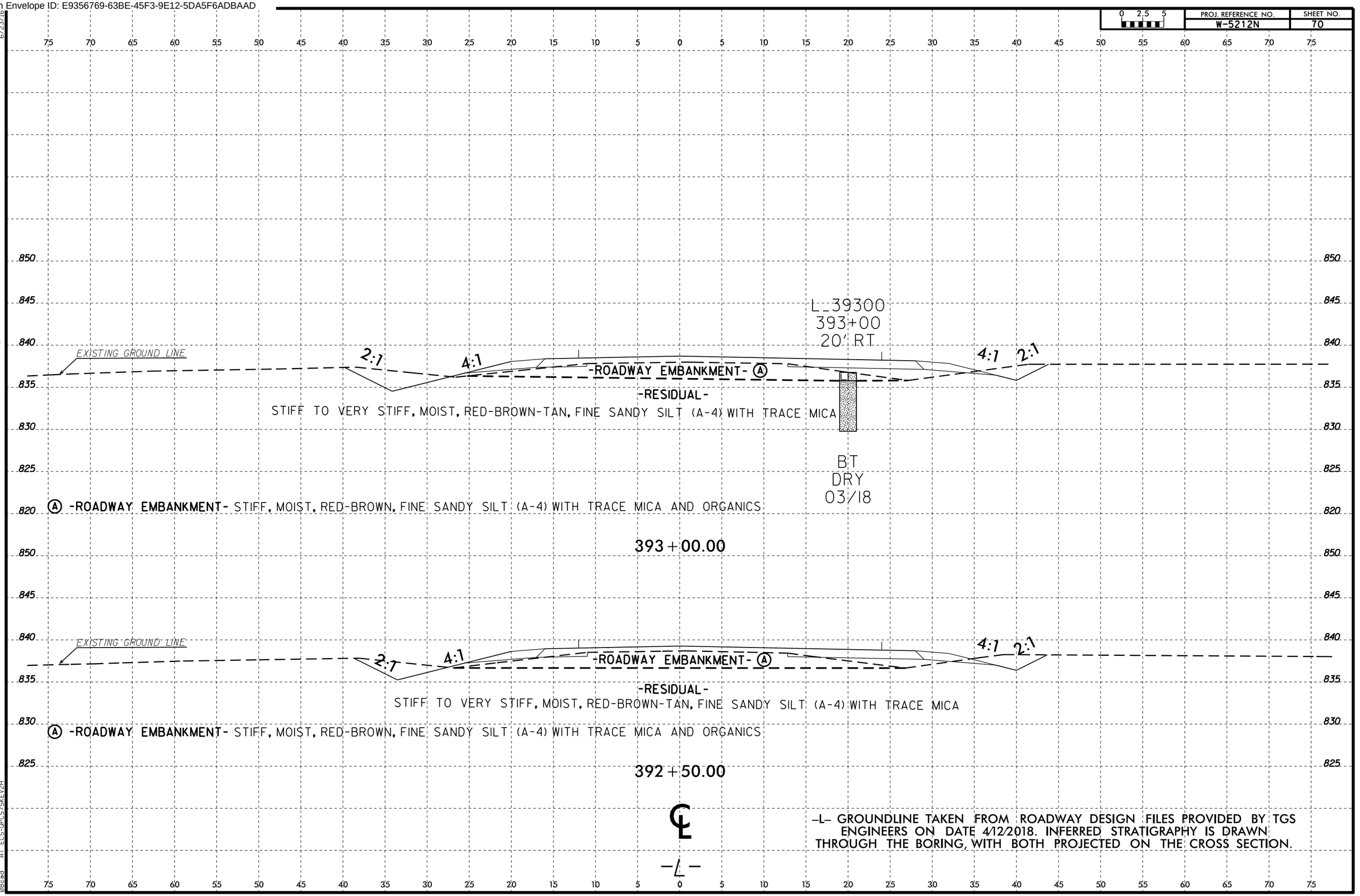
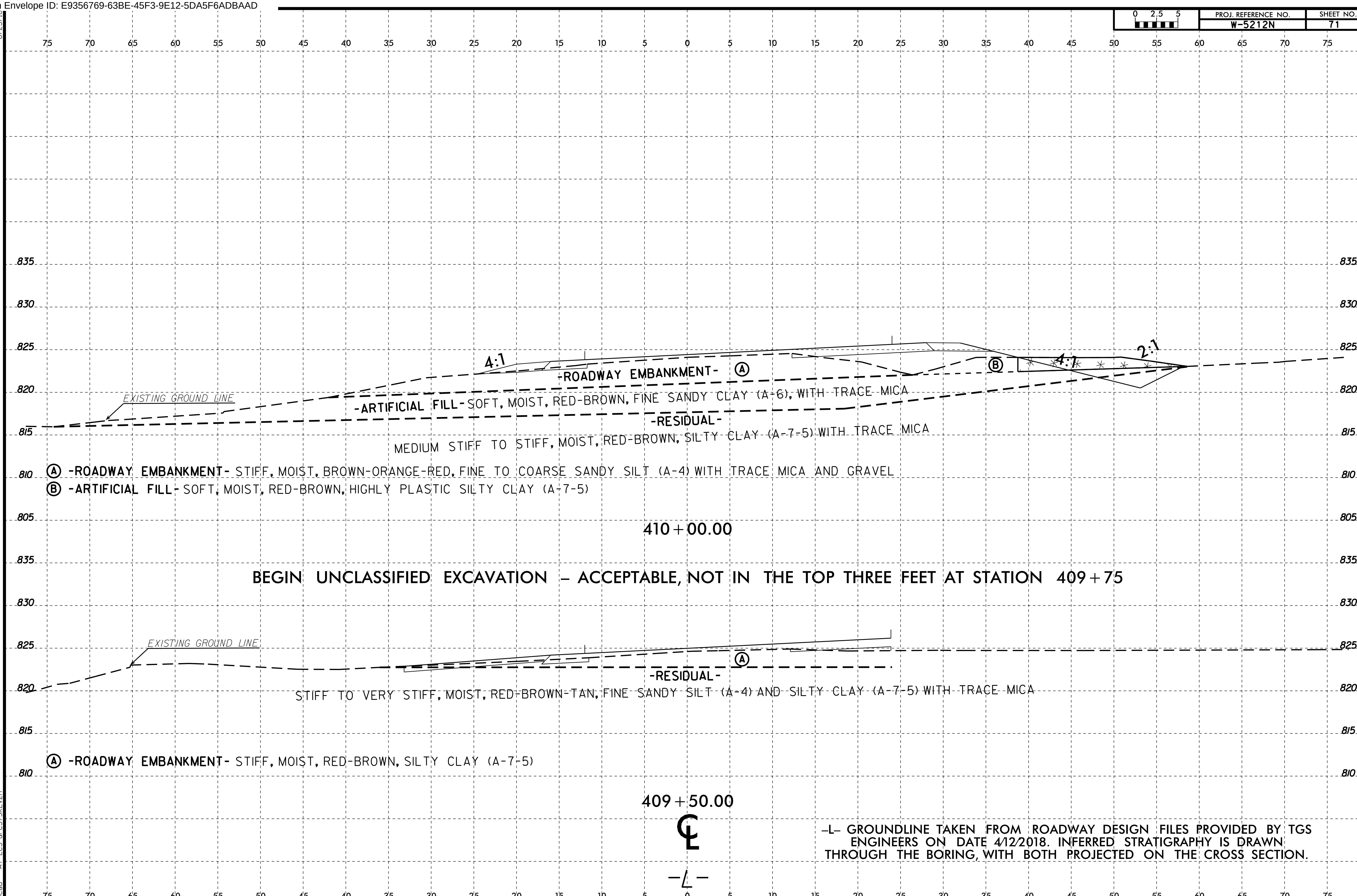
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5212N	70



-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



(A) -ROADWAY EMBANKMENT- STIFF, MOIST, BROWN-ORANGE-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL

(B) -ARTIFICIAL FILL- SOFT, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

410+00.00

BEGIN UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 409+75

(A) -ROADWAY EMBANKMENT- STIFF, MOIST, RED-BROWN, SILTY CLAY (A-7-5)

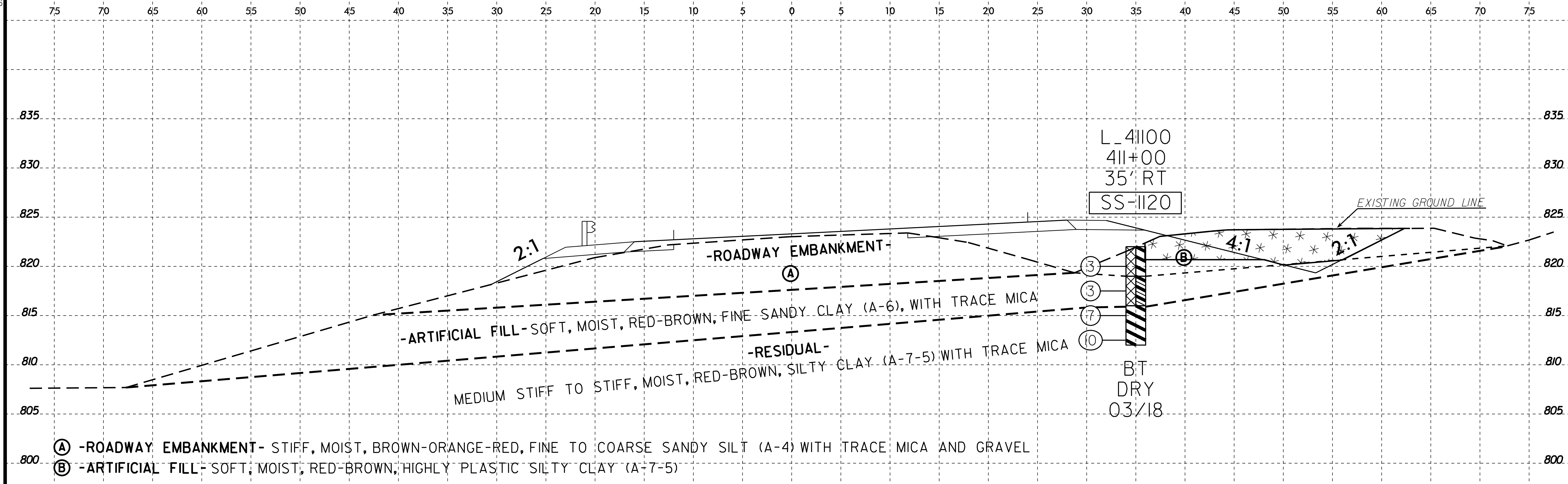
409+50.00

CL

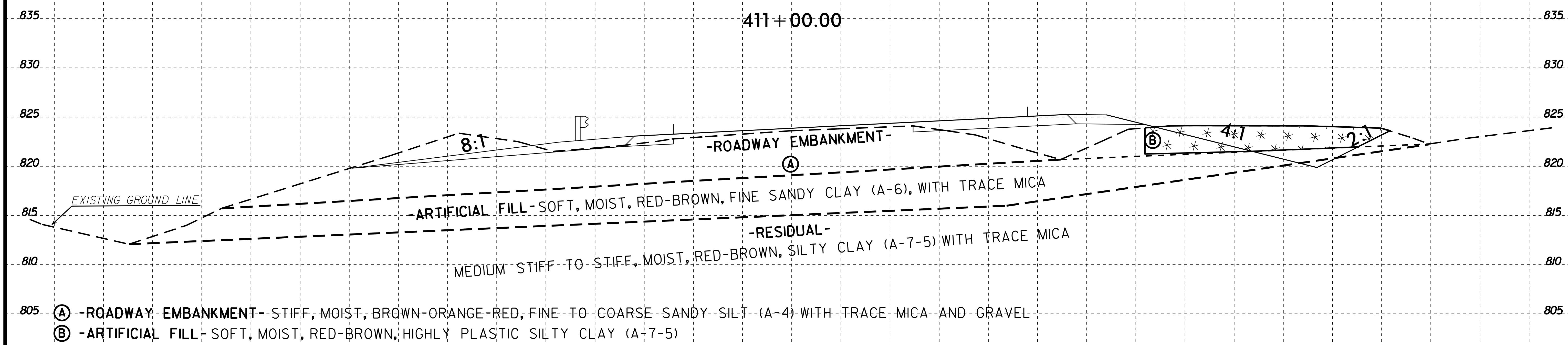
–L–

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

6/23/16
08-JUN-2018 15:15 R:\GEOTECH\02-PROJECTS\12000-12999\12600\12653 - W-5212N Roadway - NC 279 from SR 1438 to NC 275\CADD_GEOTECH\xsc\W-5212_GEO_L_XSR.dgn



411+00.00



410+50.00

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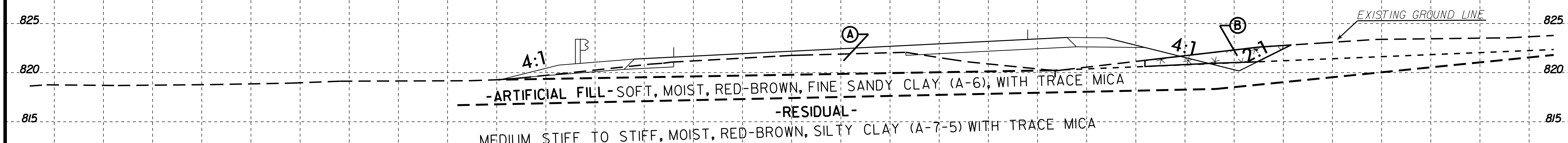
-L-

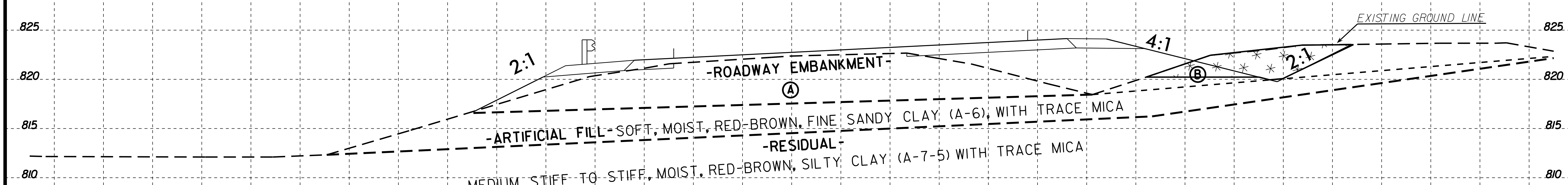
-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

END UNCLASSIFIED EXCAVATION – ACCEPTABLE, NOT IN THE TOP THREE FEET AT STATION 412+25



Ⓐ -ROADWAY EMBANKMENT- STIFF, MOIST, BROWN-ORANGE-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
Ⓑ -ARTIFICIAL FILL- SOFT, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

412+00.00



Ⓐ -ROADWAY EMBANKMENT- STIFF, MOIST, BROWN-ORANGE-RED, FINE TO COARSE SANDY SILT (A-4) WITH TRACE MICA AND GRAVEL
Ⓑ -ARTIFICIAL FILL- SOFT, MOIST, RED-BROWN, HIGHLY PLASTIC SILTY CLAY (A-7-5)

411+50.00

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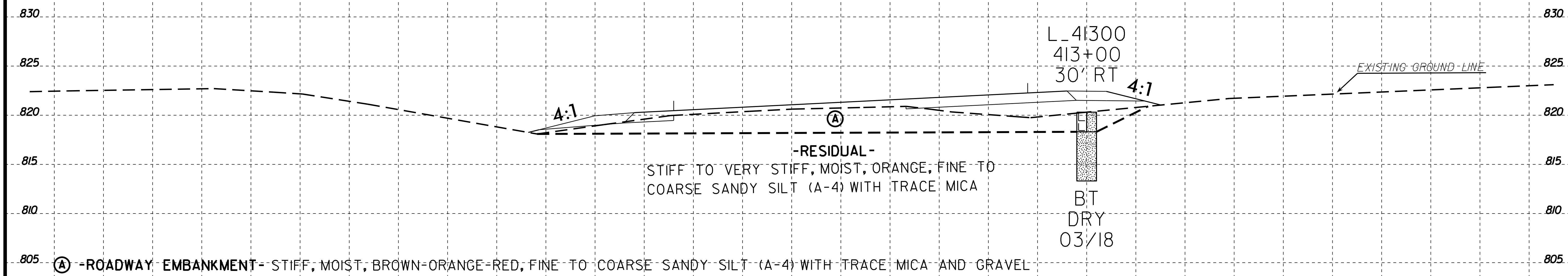
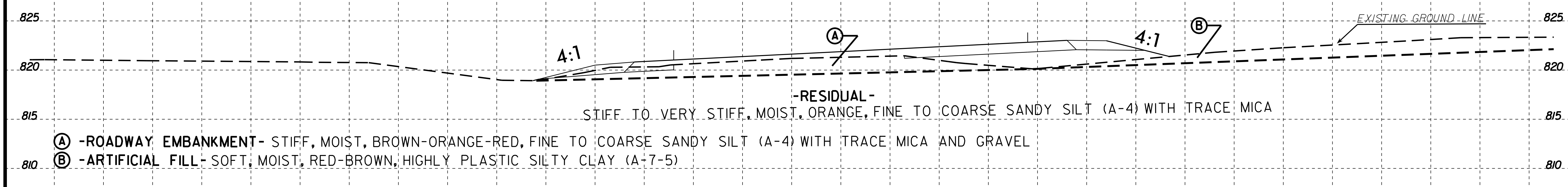
-L-

–L– GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.



413+00.00



412+50.00

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-L-

-L- GROUNDLINE TAKEN FROM ROADWAY DESIGN FILES PROVIDED BY TGS ENGINEERS ON DATE 4/12/2018. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.

PROJECT REFERENCE NO.	SHEET NO.
W–5212N	75

REFERENCE: W–5212N

PROJECT: 45342

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY TEST RESULTS

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FIRM # F-1078

PROJECT REFERENCE NO.	SHEET NO.
W-5212N	76

SOIL TEST RESULTS

BORING NO.	SAMPLE NO.	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		
L_2500	S–2	20' RT	25+00 –L–	1.0 – 2.0'	A–6–(4)	37	14	32.4	17.6	14.6	35.3	90.0	68.0	47.8	34.0	–
L_2700	S–9	25' LT	27+00 –L–	1.0 – 2.0'	A–7–5(23)	56	26	7.8	11.7	16.4	64.1	96.7	91.9	81.0	25.5	–
L_3300	SS–1000	40' LT	33+00 –L–	1.0 – 2.5'	A–7–5(16)	59	11	2.8	16.8	40.6	39.9	99.8	98.6	86.6	30.5	–
L_16500	S–65	25' LT	165+00 –L–	0.0 – 1.0'	A–7–6(12)	44	17	11.6	22.8	21.4	44.3	97.2	89.5	70.7	25.8	–
L_16700	S–67	30' RT	167+00 –L–	0.0 – 1.0'	A–6(10)	37	16	6.4	26.5	29.8	37.3	98.0	95.0	75.0	25.7	–
L_18100	S–85	35' RT	181+00 –L–	0.0 – 1.0'	A–7–5(13)	48	17	8.4	24.3	31.3	36.1	98.2	93.7	73.5	29.9	–
L_18900	S–95	25' LT	189+00 –L–	0.0 – 1.0'	A–7–6(11)	41	16	8.4	24.4	26.7	40.6	98.6	96.3	72.9	24.4	–
L_19300	SS–1034	50' LT	193+00 –L–	0.6 – 2.1'	A–7–5(36)	74	32	4.4	9.5	18.4	67.7	99.9	97.2	89.2	27.4	–
L_19500	SS–1040	40' LT	195+00 –L–	3.8 – 5.3'	A–7–5(20)	56	21	5.7	20.4	22.1	51.9	99.6	97.4	79.6	23.4	–
L_19900	SS–1046	35' LT	199+00 –L–	3.6 – 5.1'	A–5(12)	53	9	7.8	20.0	43.1	29.1	97.6	92.0	82.4	24.6	–
L_31200	S–118	25' LT	312+00 –L–	0.0 – 1.0'	A–5(1)	41	10	25.4	27.9	20.0	26.6	75.4	62.3	40.5	25.7	–
L_31400	SS–1049	45' RT	314+00 –L–	0.7 – 2.2'	A–7–6(42)	83	55	8.4	13.9	33.4	44.3	88.9	83.1	73.4	28.5	–
L_31600	SS–1056	55' RT	316+00 –L–	3.7 – 5.2'	A–7–5(47)	94	37	3.4	7.7	15.9	72.9	100.0	98.4	91.1	46.5	–
L_31800	SS–1079	55' LT	318+00 –L–	1.0 – 2.5'	A–7–5(20)	74	27	13.5	25.0	22.4	39.1	99.4	93.3	65.8	39.9	–
L_32200	SS–1090	50' LT	322+00 –L–	1.0 – 2.5'	A–7–5(7)	50	13	25.7	15.3	17.7	41.3	93.5	74.3	58.7	40.6	–

LAB TECHNICIAN: AMANDA ROTH

NCDOT CERTIFICATION NO. 112–09–1003

SOIL TEST RESULTS

BORING NO.	SAMPLE NO.	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		
L_32600	SS–1066	40' LT	326+00 –L–	1.0 – 2.5'	A–7–6(6)	41	15	21.5	27.7	12.4	38.4	96.7	85.1	54.2	20.6	–
L_32800	SS–1073	55' LT	328+00 –L–	1.0 – 2.5'	A–4(5)	38	10	18.5	28.4	25.0	28.1	90.1	79.6	53.8	34.2	–
L_32800	SS–1074	55' LT	328+00 –L–	3.5 – 5.0'	A–7–6(9)	42	16	15.1	25.6	21.1	38.1	97.7	89.5	63.4	30.4	–
L_32800	ST–1	55' LT	328+00 –L–	3.0 – 5.0'	A–7–5(9)	44	13	5.6	32.5	28.5	33.4	99.0	92.0	68.0	30.3	–
L_33000	S–123	50' LT	330+00 –L–	0.0 – 1.0'	A–4(0)	38	1	20.3	28.4	21.8	29.5	90.5	77.7	52.6	30.5	–
L_33400	S–133	50' LT	334+00 –L–	2.0 – 3.0'	A–4(1)	27	7	27.0	33.7	17.1	22.3	99.7	85.0	47.3	25.4	–
L_33600	S–134	45' LT	336+00 –L–	0.0 – 1.0'	A–7–5(14)	50	20	17.9	16.2	14.3	51.6	98.0	86.8	68.1	30.4	–
L_33800	SS–1097	50' LT	338+00 –L–	3.5 – 5.0'	A–4(2)	39	6	26.2	27.4	21.6	24.8	96.2	77.7	53.6	25.1	–
L_34000	SS–1102	55' LT	340+00 –L–	1.0 – 2.5'	A–7–5(43)	85	43	9.6	9.5	10.2	70.7	99.9	93.8	83.4	34.3	–
L_34200	SS–1217	55' RT	342+00 –L–	1.0 – 2.5'	A–7–5(33)	72	34	10.5	9.8	19.4	60.2	99.9	93.8	81.8	31.5	–
L_34600	S–149	30' RT	346+00 –L–	0.0 – 1.0'	A–7–5(26)	66	33	14.6	14.8	13.7	56.9	100.0	91.8	73.9	32.2	–
L_36900	S–155	50' LT	369+00 –L–	0.0 – 1.0'	A–7–5(6)	45	15	24.2	27.0	21.7	27.1	99.8	85.1	54.3	15.1	–
L_37300	SS–1128	55' RT	373+00 –L–	1.0 – 2.5'	A–4(0)	23	5	38.3	25.0	17.7	19.1	96.9	71.3	39.8	14.6	–
L_37500	SS–1183	45' RT	375+00 –L–	1.0 – 2.5'	A–7–5(29)	80	35	15.5	17.1	8.4	59.0	98.7	88.1	70.9	36.2	–
L_38100	S–164	30' LT	381+00 –L–	0.0 – 1.0'	A–7–5(17)	48	18	8.7	9.3	18.4	63.6	99.4	93.5	84.0	39.1	–
L_38700	SS–1108	55' RT	387+00 –L–	1.0 – 2.5'	A–7–5(25)	77	25	10.4	15.8	13.2	60.6	100.0	95.5	77.2	39.1	–
L_38900	SS–1114	50' RT	389+00 –L–	1.0 – 2.5'	A–5(10)	51	7	9.4	8.2	15.1	67.3	100.0	94.5	84.2	35.7	–
L_38900	SS–1116	50' RT	389+00 –L–	6.0 – 7.5'	A–7–5(28)	90	43	18.8	21.8	24.3	35.1	98.6	87.1	62.0	31.1	–
L_39700	S–179	50' RT	397+00 –L–	0.0 – 1.0'	A–7–5(6)	44	13	24.2	22.5	23.4	29.9	98.1	81.9	57.3	24.0	–
L_41100	SS–1120	35' RT	411+00 –L–	1.0 – 2.5'	A–7–5(16)	59	26	22.1	17.2	11.9	48.8	99.4	84.3	64.1	20.9	–
L_42700	S–600	30' RT	427+00 –L–	0.0 – 1.0'	A–7–5(14)	54	24	21.9	26.0	2.8	49.3	99.6	87.1	63.3	28.0	–

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