REFERENCE: U-4714A

PROJECT: 39078

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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-L-	15+50.00 to 193+50.61	4-17	18-106

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *MECKLENBURG/UNION*

PROJECT DESCRIPTION *SR 1009 (JOHN ST./OLD MONROE RD.) FROM SR 3448/SR 3474 (TRADE ST.) TO WEST OF MORNINGSIDE MEADOW LANE (EXCLUDING THE I-485 INTERCHANGE)*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4714A	1	106

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.

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NOTES:
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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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DATE *SEPTEMBER 2018*

SINCE 1881

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A270EF78A6DF442...

9/14/2018

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4714A	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		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/FT²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	< 4	
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	> 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 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		
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PLASTIC RANGE (PI)		
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] 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: N/A FEET

NOTES:

FIAD= FILLED IMMEDIATELY AFTER DRILLING
BORING ELEVATIONS OBTAINED FROM .TIN FILE RECIEVED FROM NCDOT ON 4/10/2018
HAR= HAND AUGER REFUSAL

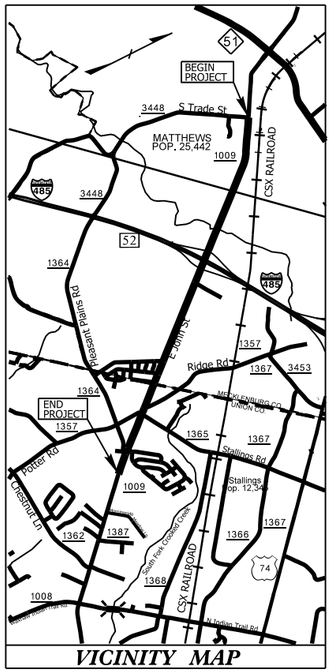
DATE: 8-15-14

09/06/99

TIP PROJECT: U-4714A

CONTRACT:

SEE SHEET 1B FOR CONVENTIONAL SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4714A	3	106

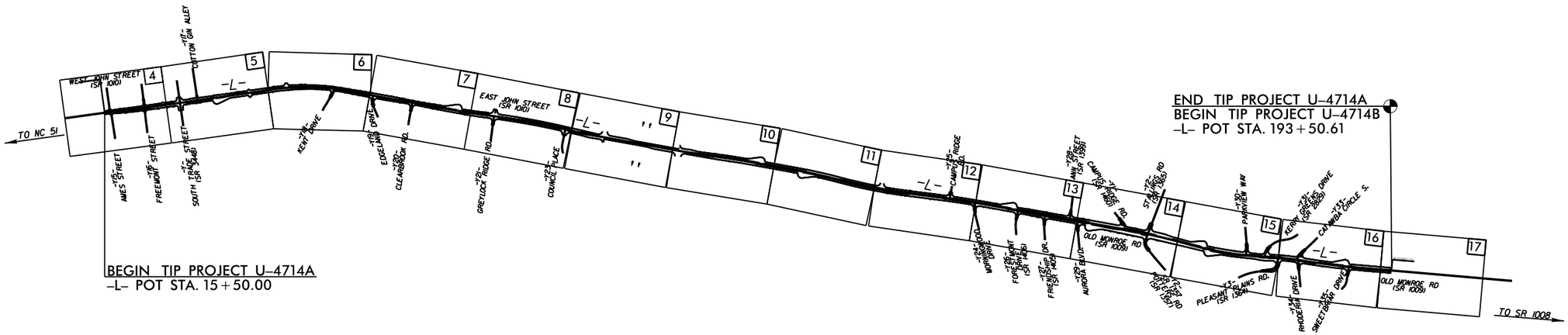
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
39078.1.2		P.E.

25% REVIEW PLANS

LOCATION: *SR 1009 (JOHN STREET\OLD MONROE ROAD) FROM SR 3448\SR 3474 (TRADE STREET) TO WEST OF MORNINGSIDE MEADOW LANE (EXCLUDING I-485 INTERCHANGE)*

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

NAD 83/2011



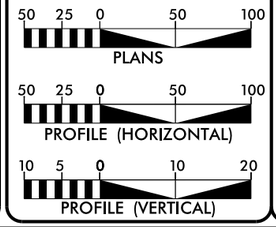
BEGIN TIP PROJECT U-4714A
-L- POT STA. 15+50.00

END TIP PROJECT U-4714A
BEGIN TIP PROJECT U-4714B
-L- POT STA. 193+50.61

NOTE:
1. THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF MATTHEWS.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD _____.

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

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 45,000
ADT 2040 = 54,500
K = 6 %
D = 55 %
T = 4 % *
V = 40 MPH
* TTST = 1% DUAL 3%
FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

TOTAL LENGTH OF TIP PROJECT U-4714A = 3.371 MILES

Prepared In the Office of:
KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *FEBRUARY 15, 2019*

LETTING DATE: *FEBRUARY 16, 2021*

NCDOT CONTACT: *BRYAN KEY, PE*
PROJECT ENGINEER – NCDOT

Plans Prepared For:
DIVISION OF HIGHWAYS

DEWAYNE L. SYKES, PE
PROJECT ENGINEER

BRYAN E. HOUGH, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

05-SEP-2018 14:03
F:\Projects_66\66V_0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\PlanProf\U-4714A_Rdy_tsh.dgn
T.Walker AT 66026102

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September 10, 2018

State Project No.: 39078.1.2
TIP No.: U-4714A
Project ID: 32049
County: Mecklenburg/Union
Description: SR 1009 (John Street/Old Monroe Road) from SR 3448/SR 3474 (Trade Street) to West of Morningside Meadow Lane (Excluding the I-485 Interchange)

SUBJECT: **Geotechnical Report – Inventory**

Project Description

This project primarily involves the widening and slight realignment of approximately 3.4 miles of John Street/Old Monroe Road [SR 1009 (-L-)] in Matthews, Mecklenburg and Union Counties, North Carolina. As shown on plan sheets received on 4/9/18, the project begins at -L- station 15+50 near the intersection of North Ames Street. The project ends at -L- station 193+50.61, which is approximately 600 feet upstation from the intersection of Sweetbriar Drive. The typical section for the project will include two, 12-foot eastbound and two, 12-foot westbound lanes separated by raised medians and concrete islands. Dedicated turn lanes and median crossovers at –Y- lines, and median U-turn configurations are proposed along the alignment. The widening generally extends into undeveloped areas, but in most cases impacts residential and commercial properties along SR 1009. The following alignment was investigated: -L- 15+50 to 192+00.

The geotechnical field investigation was performed between March and April 2018. During this time period, a total of 61 Standard Penetration Test (SPT) borings were advanced with an ATV-mounted CME-55 drill rig with an automatic hammer. In addition, 27 hand auger borings were completed by NCDOT personnel due to restrictive drill rig access. Representative soil samples were collected from the split spoon and hand auger cuttings for visual classification in the field and for analysis by F&R's testing laboratory.

Areas of Special Geotechnical Interest

1) Crystalline Rock: The following areas were found to contain crystalline rock above or within six feet of the proposed grade and will likely require ripping or blasting for removal:

Alignment	Station (±)
-L-	69+25 to 71+25
-L-	105+75 to 107+25, left

2) Weathered Rock: The following areas were found to contain weathered rock above or within six feet of the proposed grade and have a potential to require ripping or blasting for removal:

Alignment	Station (±)
-L-	68+25 to 71+25
-L-	105+25 to 107+75, left

3) Soft, Loose and/or Wet Soils: The following areas contain relatively soft or loose and/or wet, near-surface soils that have the potential to cause subgrade problems during construction:

Alignment	Station (±)
-L-	41+75 to 42+25, right
-L-	63+75 to 66+25, left
-L-	67+75 to 68+25, right
-L-	103+50 to 104+00, left
-L-	109+25 to 112+25
-L-	118+75 to 119+25
-L-	125+00 to 125+50, right
-L-	135+25 to 137+75, left
-L-	141+25 to 149+75, left
-L-	153+25 to 157+75
-L-	168+25 to 172+75
-L-	178+75 to 191+25, left

4) Cohesive Soils: The following areas contain cohesive soils (AASHTO A-5, A-6 & A-7 soils) at existing subgrade in fill areas or at/near proposed subgrade that have the potential to cause subgrade problems during construction:

Alignment	Station (±)
-L-	16+25 to 16+75, left
-L-	20+25 to 20+75, right
-L-	31+75 to 64+25, right
-L-	67+75 to 68+25
-L-	74+25 to 75+75
-L-	78+75 to 80+75
-L-	84+25 to 94+75
-L-	100+25 to 100+75
-L-	114+25 to 114+75

-L-	118+75 to 122+75
-L-	127+25 to 135+75
-L-	143+25 to 152+00
-L-	155+25 to 163+75
-L-	168+25 to 168+75
-L-	174+25 to 174+75
-L-	178+50 to 179+25

5) Cohesive Soils: The following areas contain deeper deposits of relatively soft cohesive soils (AASHTO A-5, A-6 & A-7 soils) that have the potential to cause embankment instability or long-term settlement problems:

Alignment	Station (±)
-L-	20+25 to 20+75, right
-L-	31+75 to 32+25, left
-L-	74+25 to 74+75, left
-L-	109+25 to 109+75, right

6) Unclassified Excavation: The following areas of unclassified excavation contain soils with plasticity indices (PI) of 26 through 35 (*i.e.,* soils not to be used in the top 3 feet of embankments). Soils with a PI >35 (*i.e.,* unsuitable waste) were not encountered in areas of unclassified excavation:

Alignment	Station (±)
-L-	35+75 to 38+75, left
-L-	40+75 to 43+75, right
-L-	47+25 to 49+25
-L-	53+75 to 57+25
-L-	133+25 to 133+75, left
-L-	168+25 to 168+75

7) Groundwater: The following areas exhibited groundwater within six feet of the proposed grade:

Alignment	Station (±)
-L-	67+75 to 68+25
-L-	125+00 to 125+50, left
-L-	141+25 to 141+75, left
-L-	149+25 to 149+75, left
-L-	157+25 to 163+75
-L-	170+25 to 172+75, right
-L-	181+25 to 181+75, left

The following areas exhibited groundwater within three feet of existing grade, which have the potential to cause subgrade problems during construction:

Alignment	Station (±)
-L-	31+75 to 32+25, left
-L-	67+75 to 68+25
-L-	109+25 to 110+25
-L-	124+75 to 125+25, left
-L-	141+25 to 141+75, left
-L-	149+25 to 149+75, left
-L-	155+25 to 155+75, left
-L-	163+25 to 163+75
-L-	170+25 to 172+75, right
-L-	181+25 to 181+75, left

8) Artificial Fill: The following locations contain artificial fill. These soils have the potential to be highly variable, which could cause subgrade problems during construction if undetected pockets of organics, debris, or soft/loose/wet soils are present. In addition, some of these soils are cohesive, which may cause embankment instability or long-term settlement problems.

Alignment	Station (±)
-L-	16+25 to 16+75, left
-L-	44+25 to 44+75, left
-L-	63+75 to 64+25, right
-L-	133+25 to 133+75, left
-L-	137+25 to 137+75, left
-L-	160+25 to 165+75, left
-L-	178+75 to 179+25, left

9) Organic Soils: The following locations were found to contain organic-laden soils that were greater than 4 inches in thickness, which have the potential to cause subgrade problems during construction, embankment instability, or long-term settlement problems. Samples were not collected at these locations, and therefore organic content tests were not performed.

Alignment	Station (±)	Association
-L-	16+50, 50’ left	Topsoil/root mat
-L-	30+00, 30’ right	Topsoil/landscaping
-L-	34+00, 30’ right	Topsoil/landscaping
-L-	64+00, 35’ right	Anoxic bacteria smell
-L-	109+50, 65’ right	Alluvial
-L-	172+50, 10’ right	Residual

10) Potentially Contaminated Soils: A fuel odor was detected in the auger cuttings in boring L16150LT from a depth of about 12 to 13.5 feet. The source of the odor was not determined or explored further.

Physiography and Geology

The proposed road widening will require expanding the existing roadway laterally to accommodate additional lanes, median crossovers at –Y- lines, and median U-turn configurations in both directions. The construction along the –L- centerline will typically match existing roadway grades, while the widening will require additional right-of-way, which is a mix of residential, commercial, and undeveloped properties. The existing ground surface along the centerline of the proposed widening is gently rolling with no abrupt elevation (EL) changes. At the beginning of the project, at station 15+50, the elevation starts out at EL ±729 and gradually slopes upward to EL ±730 at station 19+00. The grade remains generally flat until about station 24+00 where it starts descending to EL ±707 at station 33+00. From here the grade gradually ascends to EL ±718 at station 39+00, and then descends again to EL ±693 at station 54+00, which is a creek crossing. From this point the grade gradually ascends and descends by about 15 to 20 feet difference in elevation until the next creek crossing at about station 75+00 (EL ±681), which is the lowest elevation for the project. The grade then ascends to EL ±703 at about station 85+00 and continues slightly ascending as it crosses over I-485 to about station 95+00 (EL ±708) before descending again to the next creek crossing at about station 104+00 (EL ±687). From here the grade ascends to EL ±731 at about station 123+00 before slightly descending to EL ±728 at the next creek crossing at about station 125+00, then again ascends to EL ±745 at about station 132+00. The grade again gradually descends to EL ±741 at about 137+00 before ascending to the maximum elevation of the project, EL ±788 at about station 153+00. The grade then generally descends to EL ±740 at the end of the project at station 193+50.

The surface water across the project is generally drained by Fourmile Creek. Fourmile Creek generally runs in a west to southwest direction and crosses beneath East John Street at approximate –L- station 104+25 via an existing culvert of unknown dimensions. Four other unnamed tributaries cross beneath East John Street via unlabeled drainage structures.

The project is located in the Piedmont Physiographic Province of North Carolina within the Inner Piedmont Belt. More-specifically, it is located in an area mapped as Metamorphosed Quartz Diorite (PzZq) up to about station 130+00, and then Granite (DOg) to the end of the project. Typical weathered and crystalline rock samples recovered from our borings primarily exhibit the characteristics of Granite. Soils weathered from the parent rock generally consist of sandy silts and silty sands. The in-situ soils are the residual product of in-place chemical weathering of rock that was similar to the rock presently underlying the site.

Soils Properties

The subsurface conditions discussed below and those shown on the attached drawings represent an estimate of the subsurface conditions based on interpretation of the boring data using normally-accepted geotechnical engineering judgments. The transitions between different soil strata are usually less distinct than those shown on the cross sections. Sometimes the relatively small sample obtained in the field is insufficient to definitively describe the origin of the subsurface material. Although individual soil test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Soils encountered within the area of this project have been divided into four categories: artificial fill, roadway embankment, alluvial soils, and residual soils.

Artificial Fill: Artificial fill (AF) was encountered at the surface of 9 borings. The AF extended to depths ranging from about 1 to 7 feet, with most extending to about 2 feet or less in depth. The artificial fill was typically described as moist, medium dense silty SAND (A-2-4), and soft to stiff sandy and silty CLAY (A-6 & A-7). A majority of the samples contained trace organic matter and gravel.

Roadway Embankment: Roadway embankment (RE) soils were encountered at the surface of 20 borings. The RE was typically associated to the borings drilled within or near the existing roadway (-L-). The RE extended to depths ranging from about 1 to 6 feet, with most about 2 feet or less in depth. The fill was typically described as moist, medium stiff to very stiff, sandy and clayey SILT (A-4 & A-5), and sandy and silty CLAY (A-6 & A-7). A majority of the samples contained trace organic matter and gravel.

Alluvial Soil: Alluvial soils were encountered in 15 borings. The alluvial soils were typically encountered at the ground surface, and in some locations below artificial fill. The alluvium extended to depths ranging from about 1 to 9.3 feet with an average of about 2.6 feet. The alluvium was variable and typically described as moist to wet, very soft to medium stiff, sandy SILT (A-4), very loose to dense, silty and clayey SAND (A-1-b, A-2-4 & A-2-6), and soft to medium stiff, sandy and silty CLAY (A-6 & A-7). A majority of the soil samples contained trace organic matter and gravel.

Residual Soil: A majority of the soils encountered on this project were residual soils. Residual soils were encountered at the surface of 48 borings, below artificial fill at 3 borings, below alluvial soils at 9 borings, below roadway embankment at 15 borings, and below weathered rock at 1 boring. No residual soils were encountered in 12 borings, and these borings were terminated in roadway embankment, artificial fill, alluvial soils, or rock. The residual soils were variable and typically described as moist, medium dense to very dense, silty SAND (A-2-4), medium stiff to hard, sandy SILT (A-4), and medium stiff to very stiff, silty and sandy CLAY (A-6 & A-7). A majority of the A-7 clays were highly plastic. Most of the samples contained varying amounts of mica, organic matter, manganese deposits, gravel, and rock fragments. A fuel odor was detected in the auger cuttings in boring L-16150LT from a depth of about 12 to 13.5 feet.

Rock Properties

Weathered Rock (WR) was encountered in 16 borings. Of these 16 borings, 2 of the borings were terminated in residual soils, 6 terminated in WR, and 8 terminated in Crystalline Rock (CR). Borings L6600LT and L8250LT encountered intermediate layers of WR before re-encountering soils below this layer, and both of these borings terminated in residual soils. These intermediate zones of WR were 5.6 and 2.9 feet thick, respectively. Excluding the intermediate zones of WR, the WR was encountered at depths ranging from about 2.5 to 17.6 feet and elevations ranging from about 656 to 740 feet.

Crystalline Rock (CR) was encountered in 13 borings as indicated by auger and SPT refusal. All of these borings were terminated in CR. Eight of the 13 borings encountered WR before being terminated, while the five remaining borings transitioned directly from residual or alluvial soil to CR. The WR layers above the CR varied in thickness from 1.5 to 5.3 feet. The CR was encountered at depths ranging from about 5 to 21 feet and elevations ranging from about 653 to 733 feet. The rock typically consisted of granite. Refusal is a designation applied to any material that cannot be penetrated by the soil auger, and is typically caused by encountering boulders, hard rock lenses/ledges or bedrock. The nature of the materials causing refusal was not explored in these borings, but the depth shown represents the depth to CR where refusal was encountered.

Groundwater Properties

Generally, groundwater measurements were attempted in a majority of the borings immediately upon their completion and after a stabilization period of approximately 24 hours. Immediately upon completion, groundwater was encountered in 14 borings at depths ranging from 0 to 19 feet, and elevations ranging from about 661.1 to 776.7 feet. Twenty-seven (27) borings were then backfilled immediately upon their completion. Stabilized groundwater was encountered in 23 borings at depths ranging from 1.2 to 12 feet, and elevations ranging from 658.4 to 780.4 feet. Groundwater was not encountered in the remaining borings. The recovered soil samples were generally described as moist above the groundwater level and wet or saturated below the groundwater level. It should be noted that the groundwater levels fluctuate depending upon seasonal factors such as precipitation and temperature. As such, soil moisture and groundwater conditions at other times may vary or be different from those described in this report.

Geotechnical Descriptive Analysis of the Project

For descriptive purposes, the project has been divided into two segments. The division of the segments is based on the approximate mid-point of the project near the I-485 interchange (86+50 to 94+00):

Segment 1: -L- Station 15+50 to 86+50 (±):

Segment 1 of the project generally consists of widening existing SR 1009, with impacts on residential and commercial properties on both sides of the road. The project begins at an existing elevation (EL) of ±729 and gently ascends to the maximum elevation of the segment at –L- station 19+00 (EL ±730). The lowest elevation in this segment exists near the end of the segment at a culvert at -L- station 75+00 (EL ±681).

This segment generally requires minor fills on both sides of the road. Maximum fills are proposed up to about 11 feet as measured on the right side of the road at about -L- station 54+00, and up to about 24 feet as measured on the left side of the road at about –L- station 75+00. Fills in this segment range from less than 1 foot to as much as 24 feet, with an average fill requirement of about 4 feet. The subgrade within the areas of proposed fills is anticipated to consist mainly of moist, soft to stiff clays (A-6 & A-7), and moist, medium stiff to stiff silts (A-4 & A-5).

This segment requires maximum cuts up to about 3 feet as measured on the right side of the road at about –L- station 15+50, and up to about 16 feet as measured on the left side of the road at about –L- station 70+00. The unclassified excavation to be encountered in the cuts is anticipated to consist mainly of residual clay along with some roadway embankment and artificial fill. The subgrade within the areas of proposed cuts is anticipated to consist mainly of moist, soft to very stiff residual clays (A-6 & A-7), moist, stiff to very stiff residual silts (A-4), and moist, medium dense sands (A-2-4). Weathered and crystalline rock were also encountered above proposed cut elevations from about –L- station 69+25 to 71+25. The WR layers above the CR varied in thickness from 3 to 5 feet. The CR was encountered at depths ranging from about 8 to 10 feet and elevations ranging from about 680 to 692.5 feet. The rock typically consisted of granite.

Segment 2: -L1- Station 94+00 to 193+50 (±):

Segment 2 of the project generally consists of widening existing SR 1009, with impacts on residential, commercial, and undeveloped areas. The segment begins at an existing elevation (EL) of ±708 feet and gently ascends and descends to its maximum EL ±788 at –L- station 153+00. The segment then generally descends to EL ±740 at –L- station 193+50. The lowest elevation exists near the beginning of the segment at a small creek crossing at about –L- station 105+00 (EL ±687).

This segment requires maximum fills up to about 16 feet as measured on the left side of the road at about –L- station 111+00, and up to about 18 feet as measured on the right side of the road at about –L- station 125+00. Fills in this segment range from less than 1 foot to as much as 18 feet, with an average fill requirement of about 4.5 feet. The subgrade within the areas of proposed fills is anticipated to consist mainly of moist, soft to very stiff clays (A-6 & A-7), moist to wet, soft to medium stiff silts (A-4), and moist to wet, very loose to medium dense sands (A-2-4 & A-2-6).

This segment requires maximum cuts up to about 16 feet as measured on the left side of the road at about –L- station 106+00, and up to about 4 feet as measured on the right side of the road at about –L- station 115+00. The unclassified excavation to be encountered in the cuts is anticipated to consist mainly of residual clay along with some areas of roadway embankment and artificial fill. The subgrade within the areas of proposed cuts is anticipated to consist mainly of moist, soft to very stiff residual clays (A-6 & A-7), moist, medium stiff to hard residual silts (A-4), and moist to wet, very loose to medium dense sands (A-2-4). Weathered rock was also encountered above proposed cut elevations from about –L- station 106+25 to 106+75. The WR layer was about 5.5 feet thick, and the rock typically consisted of granite.

We appreciate the opportunity to work with you on this project. Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,
FROEHLING & ROBERTSON, INC.

DocuSigned by:
Patrick Alton
A270EF78A6DF442...
W. Patrick Alton, P.E.
Geotechnical Services Manager

DocuSigned by:
Derick Racey
1C9DED1446894D7...
Derick Racey
Geotechnical Project Manager

Appendix A

Bulk Samples

The following bulk samples were obtained and transported to our laboratory for testing to determine the engineering properties of the soil:

Sample No.	Boring No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
CBR-1	L6200LT	-L-	62+00	55’ Lt.	2.5-8.5’	Standard Proctor, CBR
CBR-2	L11439RT	-L-	114+39	72’ Rt.	2.5-8.5’	Standard Proctor, CBR
CBR-3	L13100LT	-L-	131+00	70’ Lt.	7.5-15.0’	Standard Proctor, CBR

Undisturbed Samples

Undisturbed Shelby tube samples were not collected as part of this investigation.

8/17/99

REVISIONS

BEGIN TIP PROJECT U-4714A
-L- STA. 15+50.00

NAD 83/NA 2011

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Prepared in the Office of:
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Engineering Stability Since 1881
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Raleigh, North Carolina 27603-2302USA
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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y14- POT Sta. 10+00.00

-Y16- POT Sta. 10+00.00

-Y16- STA.10+00.00= -L- STA.16+37.81

-Y14- STA.13+38.02= -L- STA.16+23.62

-Y15- STA.10+00.00 -L- STA.16+37.81

-Y15- POT Sta. 13+74.51

-Y16- POT Sta. 16+76.13

L1650LT

L1850RT

L2050RT

L2200LT

-U4714-13 5+00.00

-U4714-14

MATCHLINE -L- 24+00.00
SEE SHEET 5

PCM HOLDINGS LLC
PCM HOLDINGS, LLC
MATTHEWS HELP CENTER
MATTHEWS HELP CENTER
JIMAANA PROPERTIES
JIMAANA PROPERTIES, INC.
MORRIS
MCMANUS
BLACKLEY
PCM HOLDINGS LLC
THE CHRIST OUR SHEPHERD ENDOWMENT FOUNDATION TRUST
COPPER CABLE, UNK SIZE
CHARLOTTE-MECKLENBURG HISTORIC LANDMARKS COMMISSION
MATTHEWS HISTORICAL FOUNDATION, INC.
HISTORICAL PROPERTY
MAI SINGH RATHORE
SR 1009 E JOHN ST
SCHOOLEE LAWN, LEE
ROSA NORMA MATTHEWS
PATRICIA ANN MATTHEWS
ARC SOMTSNCOOL LLC
SBMTSNCOOL LLC
GARY L NICHOLSON
MATTHEWS PROPERTY HOLDINGS LLC
PRAIRIE PIZZA INC
ALLISON MELISSA PENCE
MATTHEWS PRESBYTERIAN CHURCH
MATTHEWS PRESBYTERIAN CHURCH
F&N PROPERTIES LLC
DJI HOLDINGS LLC
DDA DAWG HOLDINGS LLC
RUSSELL E. GILL II
WENDY F. GILL
LANDON
AND COMPANY LLC
S FREEMONT ST
N AMES ST
FRENCH DRAIN

GRAPHIC SCALE
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PLANS

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8/17/99

REVISIONS

NAD 83/NA 2011

-Y17- POT Sta. 10+00.00

-Y- POT Sta. 10+00.00

-Y17-

-Y- STA.13+12.26=
-L- STA.25+86.37

-Y- POT Sta. 16+32.83

-L- STA.28+27.35

-Y17- STA.14+48.50=

L3200LT

L3600LT

L3800LT

L3400RT

L3000RT

MATCHLINE -L- 24+00.00
SEE SHEET 4

MATCHLINE -L- 38+00.00
SEE SHEET 6

SR 1009 E JOHN ST

N TRADE ST

S TRADE ST

LAM PROPERTY HOLDINGS LLC

PCM HOLDINGS LLC

ISMTL&CONCRUS THREE AND ONE

F&N PROPERTIES LLC

CITY OF MATTHEWS

UNITED STATES POSTAL SERVICE

CHRISTOPHER V MILLER

MATTHEWS MARKET PLACE LLC

MATTHEWS PROPERTY HOLDINGS LLC

DOMENICO PULEIO

W E LOVE ENTERPRISES

MULTIPLE OWNERS

CURTIS H KENNINGTON

CHARLES LYBRAND

LEMMOND HOLDINGS LLC

ARC PSMTSNCOOI, LLC

6 GAS PUMPS U/MTL CANOPY

WILKINSON PROPERTIES

THREE AND ONE PROPERTIES LLC

SHAILENDRA K SUMAN

THE TOWN OF MATTHEWS

MATTHEWS FIRST BAPTIST CHURCH OF

MATTHEWS INC FIRST BAPTIST CH

PekeNet Communications LLC, 48 STR

GRAPHIC SCALE
50 25 0 50 100

PLANS
1 INCH = 22+26.517

18-MAY-2018 10:23
P:\Projects\66V.66V-0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\PlanProf\U-4714A_Rdy_psh_5.dgn
Walker, AT 6602611102

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

-Y18- STA.10+00.00=
-L- STA.47+07.68

-L- STA. 19 34+02.96

-L- STA. 38+00.00

MATCHLINE -L- 52+00.00
SEE SHEET 7

MATCHLINE -L-
SEE SHEET 5

-Y18- POT Sta. 13+41.30

L3800LT
L4000LT
L4202LT
L4441LT
L4200RT
L4600RT
L4788RT
L4900LT
L5100LT

SR 1009 E JOHN ST

CHURCH OF GOD MATTHEWS
TOWN OF MATTHEWS
LIVING TRUST FUNDERBURK
443 EAST JOHN STREET CORPORATION
GRANT HELMS
KUVILA ALEKSANDER
MYRTLE D LEFLER
JUDY L PRESSLEY
STEVE C MOORE
ADNAN TALOVIE
DENNIS D KOKENES
YVETTE S KUNTZ
IDEAL PROPERTY MANAGEMENT LLC
MARIA ELENA CONTRERAS MURCIA
WILLIAM G ROBINSON
NIKOLAOS HONDROS
BOBBIE PRICE DISHINGER
MONA-T LLC
FAHM LLC
THOMAS REID HANDLE
DANIEL & CARMEN EARNHARDT
LULA MAE H POPE
AN LIHUA
MADISON JRH PROPERTIES
ABLE CHRISTOPHER ALLEN
SANDRA GRONER RIDDLE
BOBBIE S COMPTON
RICHARD D CARTER
RICHARD & GUINEY
ALISON L LEWICK
DAWN POULTERER
PAUL O'SHAUGHNESSY
HANSEN
BRIAN TIFFANY
GEORGE S STATHOPOULOS
JIMMY L MARTIN
MICHAEL BALDWIN
JEANNIE RENE COUICK
ELLEN D TANNIR
PAULA J SMRCINA
CRAIG W BOHLEN
WILLIAM H COOPER
DAVID WISE
HALL H KALE

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- 52+00.00
SEE SHEET 6

MATCHLINE -L- 66+00.00
SEE SHEET 8

-Y19- STA.10+00.00 =
-L- STA.52+43.35

-Y20- STA.10+00.00 =
-L- STA.57+86.46

-Y19- POT Sta. 13+12.41

-Y20- POT Sta. 13+12.58

-BL- 52+54.32

KATIE P WRIGHT

LINDA MAHON STRAWDERMAN

REBECCA LOCKETT

TONI RENAE STITT ISBKD

SHERRY ANN LAWRENCE

BINJIP

DOROTHY ELIZABETH STITT

KENNER L MOORE

ALLEN GALE JOINER

HABITAT FOR HUMANITY OF MATTHEWS INC

FREDDIE LORENZO MONTGOMERY

Y SIMON EBAN

KATE RONE ISBK&FD

THOMAS W GRIFFITH

DORIS J CLUNAN

LINDA MANN DULA

RYAN J SULLIVAN

JACK ERIC CEKAVEC III

CHRISTINA R HARGROVE

ROBERT PAUL TOROK

ROSE M DOTSON

REBECCA M KROLL

MINH PHAM

CHARLES F WHITE

JAMES P NGO

LSDP REAL ESTATE PROPERTIES II

JOMAND PROPERTIES LLC

CHRISTINE N COLE

STEPHANIE L ROSSI

KATHERINE C HODGSON

PETE M BUDKO

NICHOLAS SANGERMANO

BEN C WIRTZ

JOHN M CAVES

2015-3 IH2 BORROWER LP

MOHAMMAD R SHOKOUHFAR

STEVEN P SMITH

DIANNE BENTON

TONI MARIE CHURCHILL

MICHAEL R KRILL

DONNA S MULLEN

RODRICK M MATTHEWS

BRIAN DAUGHERTY ISBKD

THE DANIELLE MARIE LAING REVOCABLE TRUST

ROGER K MIKEAL

BILLY W BAKER

MARIE KELLEY JONES

BASIL N BABAA

CHARLYNE HANNA WHITE

DSVA PROPERTIES LLC

CAROL CLARK OBRIEN

EDWARD F HASKINS

NATHANAEL D FOREMAN

RESIDUAL

ALIGNMENT

L5300LT

L5550LT

L5750RT

L6000RT

L6200LT

L6400LT

L6400RT

L6600LT

EXISTING R/W

SR 1009 E JOHN ST

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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MATCHLINE -L- 66+00.00
SEE SHEET 7

MATCHLINE -L- 80+00.00
SEE SHEET 9

-BYI-64 10+67.02

-BYI-63 12+33.58

-Y21- STA.10+00.00 =
-L- STA.69+16.57

-L- STA.79+06.32 =
-Y23- STA.10+00.00

-Y21- POT Sta. 13+42.54

-Y23- POT Sta. 13+35.08

CRYSTALLINE ROCK

RESIDUAL

ALLUVIAL

L6600LT
L6730LT
L6800RT
L7000LT
L7150LT
L7350LT
L7460LT
L7550RT
L7700LT
L7900LT

SR 1009 E JOHN ST

GREYLOCK RIDGE ROAD

TOWN OF MATTHEWS

COUNCIL PLACE LLC

JENNIFER ZICCARDI

TAMMY LINEBERGER

SAMUEL A BOZOIAN

REDDICK L BOSWELL

ANNA M MULLETT

HENRY W ROWELL

EUGENE MICHAEL LAZO

DONALD F BREWINGTON

CEDRIC MOORE

HERMAN OGLETREE

REBECCA SO HOLLOWAY

PHILLIP D BURITZA

WAYNE JOHN MCCHESNEY

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- 80+00.00
SEE SHEET 8

MATCHLINE -L- 94+00.00
SEE SHEET 10

-L- L8050LT
L8250LT
L8450LT
L8650LT

-BY9-U4714-5 75+21.45

-BL-25 77+82.73
-BY9- 71+01.16

-BY9-123(15507-23) 64+20.35

-BY9-U4714-6 67+33.74

SR 1009 E JOHN ST NW
SR 1009 E JOHN ST
SR 1009 E JOHN ST SE

OFF RAMP TO E JOHN ST
ON RAMP TO I-485 INNER 23' BST
I-485 INNER

MATTHEWS BELTWAY

WOODS
SODDM

RIPRAP
CONC ISL
MTL
CABLE
APPROX
48" WW/ISBW
SOIL
15" RCP
24" RCP
36" RCP
12" CMP
18" C&G
12" HDPE
6" CURB
36" CONC WALL
30" EXPRESSWAY CURB
SIG
BM#5

GRAPHIC SCALE
50 25 0 50 100
PLANS

18-MAY-2018 10:23
P:\Projects\6617\66V-0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\PlanProf\U-4714A_Rdy_psh_9.dgn
T:\Walker A\T 6602\1102

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REVISIONS

NAD 83/NA 2011

LESTER AND MARY YANDLE, LLC

ASPEN ASSET GROUP LLC

EDWIN LAWRENCE TENHENGEL

WOODS

SOIL

ALLUVIAL

RESIDUAL

POND

ISBKD

CONC

DK

G

GR

MTL

GATE

CONC

48" WW/ISBW

48" WM

24" RCP

SR 1009 E JOHN ST

L9650LT

L9850RT

L9450RT

L10050LT

L10250LT

L10370LT

L10650LT

MATCHLINE –L– 94+00.00
SEE SHEET 9

MATCHLINE –L– 108+00.00
SEE SHEET 11

95

100

105

-BL-

-L-

95+21

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- 108+00.00
SEE SHEET 10

MATCHLINE -L- 122+00.00
SEE SHEET 12

L10850LT
L11000LT
L11200LT
L11650LT
L11900LT
L10950RT
L11439RT
L12050RT

RESIDUAL
ALLUVIAL

BL 28 112+21.18
BL 29 112+20.44

SR 1009 E JOHN ST

J & M INVESTMENTS LLC
FOUR MORE INVESTMENTS LLC
CHARLESTON VENTURE LLC
DAVID SCOTT SHAFFNER

ISBKD
CANOPY
ISFD
M/L CANOPY
FLAGPOLE
BM#6

110
115
120

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	12
R/W SHEET NO.	
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MATCHLINE -L- 122+00.00
SEE SHEET 11

MATCHLINE -L- 136+00.00
SEE SHEET 13

SR 1009 E JOHN ST

SR 3457 CAMPUS RIDGE RD

RESIDUAL
ALLUVIAL
RESIDUAL

L12523LT
L13100LT
L13350LT
L13550LT
L12241RT
L12525RT
L12742RT
L12937RT
L13350RT

-Y25- POT. Sta. 10+00.00
-Y24- STA.10+00.00=
-L- STA.135+74.53
-Y25- STA.11+75.00=
-L- STA.132+37.46

-B- 31 125+03.81
-B- 29 125+25.82

CYNTHIA SEWELL GARDNER
2217 EAST JOHN ST LLC
CARSILLO ENTITIES LLC
TROTTER PROPERTIES LLC
INDIAN TRAIL PLAZA
WITHROW VENTURES MONROE RD LLC
WITHROW VENTURES - MONROE ROAD

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE -L- 136+00.00
SEE SHEET 12

MATCHLINE -L- 150+00.00
SEE SHEET 14

COUCHELL FAMILY PROPERTIES LLC

LDH RENTAL PROPERTIES, LLC

JERRY MAC PRESSLEY
& LYNDA PRESSLEY

2309 EAST JOHN ST LLC

BERBICE ENTERPRISE LLC

BERBICE ENTERPRISE

ROCKS

ROKTAL PROPERTY DEVELOPMENT LLC

2425 EAST JOHN ST LLC

ISMTL&STUCCOBUS

MECKLENBURG COUNTY
UNION COUNTY

AJC LLC

ISMTLBUS

LDH RENTAL PROPERTIES, LLC

ISSTUCCOBUS 2SSTUCCOBUS
F & B LLC

JEFFREY R. CARROLL AND WIFE TERESA A. CARROLL

SR1099 ANN ST

LANDSCAPE TIMBERS

-Y28- POT Sta. 10+00.00

-Y28- POT Sta. 13+25.65
-L- Sta. 148+97.32

-Y27- POT Sta. 13+42.69

-Y27-

-Y26- Sta. 10+00.00=
-L- Sta. 141+84.71

-Y26- PT Sta. 13+40.53

-Y26-

-Y25-

-Y24- POT Sta. 13+80.57

-Y24-

-Y27- Sta. 10+00.00=
-L- Sta. 145+54.41

ST A 141+61.28 (11.50' RT)

L13750LT

L13950LT

L14150LT

L14350

L14550LT

L14750LT

L14950LT

SR 1009 E JOHN ST

SR 1009 OLD MONROE RD

SR 1009 E JOHN ST (ENDS)

SR 3556 HARWOOD PL

SR 1106 FORESTMONT DR

JOSEPH C MARTIN

GLENN M OWEN

RM MATTHEWS LLC

HAROLD JOSEPH TENNANT

AMY C MCNABB

MONTY F KOONCE

RICKY LEE KLUTZ AND
WIFE RAYMOUTH JEAN KLUTZ

SAMMY BENJAMINE FLOW

TNW PROPERTIES INC

JEFFREY C PRESSLEY

EAST JOHN SYSTEMS, L.L.C.

RONNIE H CHAPMAN &
WIFE MARY F CHAPMAN

WELDON D. POWELL

EASTWOOD FOREST
BAPTIST CHURCH

GRAPHIC SCALE
50 25 0 50 100
PLANS

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Walker AT 6602610Z

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METROLINA MEDICAL PROPERTIES LLC

BLACK & BLACK, LLC

WILLAREE M SLOAN ET AL

WELLS FARGO BANK

TIMOTHY & RANDALL DUCKWORTH

LR & FR, LLC

KIMBERLY B. CROWE

JOHNSON WALTON CURTIS & HESTA T

MARIA COPSIS TASSOPOULOS AND HUSBAND, TIMOTHY TASSOPOULOS, A ONE-HALF UNDIVIDED INTEREST AS TENANTS BY THE ENTIRETY AND PETER NICHOLAS COPSIS, THE OTHER ONE-HALF UNDIVIDED INTEREST AS TENANTS BY THE ENTIRETY

SAFELITE ELECTRIC, INC

MARK S SIMPSON ANS WIFE CAROL L SIMPSON

STEGALL AND COMPANY INC.

APOSTOL SABINO P JR

WASH ONE, LLC C/O THE MOSER GROUP

BK CARWASH U/MTL CANOPY

RAINBOW TROUT PROPERTIES, LLC C/O THOMAS B MCELWEE

GILBERTO HERNANDEZ AND WIFE MARICELA CASTILLO MORAN

RANDALL B. DUCKWORTH AND WIFE, BONNIE H. DUCKWORTH

GUION FAMILY LP

JANET GUION GRAHAM

GADD REALTY GROUP, INC.

SILK ROAD PROPERTIES, LLC

ROADWAY EMBANKMENT

ALLUVIAL

RES.

SR 1009 OLD MONROE RD

SR 1357 POTTERS RD

SR 1365 STALLINGS RD

SR 1400 CAMPUS RIDGE ROAD

-Y1- POT Sta. 10+00.00

-Y1- Sta. 12+78.51=
-L- Sta. 156+65.53

-Y2- STA.16+56.30=
-L- STA.159+82.95

-Y2- POT Sta. 22+49.96

-Y29- STA.10+00.00=
-L- STA.150+05.00

-Y29- POT Sta. 13+89.29

L15350LT

L15550LT

L15750LT

L16150LT

L16350LT

L16355RT

L15163RT

-L- 145+53.12

-L- 153+09.28

-L- 157+00.00

-BY5-72 9+64.73

MATCHLINE -L- 150+00.00 SEE SHEET 13

MATCHLINE -L- 164+00.00 SEE SHEET 15

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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MATCHLINE -L- 164+00.00
SEE SHEET 14

MATCHLINE -L- 178+00.00
SEE SHEET 16

-Y30- T Sta. 10+00.00

-Y30- ST A.13+90.95=
-L- ST A.173+50.11

-Y31- ST A.15+89.39=
-L- ST A.176+05.26

-Y3- ST A.10+00.00=
-L- ST A.177+87.64

-Y3- PT Sta. 16+73.74

L16550LT

L16850LT

L17050RT

L17250RT

L17450RT

L17650RT

BM=9

CAROLYN M. FUNDERBURK

FUNDERBURK FOUR, LLC

DENNIS W. SCHILL AND WIFE, GRACE V. SCHILL

TANNER J. LONG

DENNIS E. HAYWOOD

DMITRIJS SELPAKIS AND WIFE ANITA SELPAKIS

LORIANA MORABITO

VIVIAN F SHECKLER

SR 1009 OLD MONROE RD

SR 1364 PLEASANT PLAINS RD

SR 1459 LAKEWOOD DR

ALPHA OMEGA LAND DEVELOPMENT INC.

SQUIRES HOLDINGS, LCC

COLLEEN B. TEETER AND HUSBAND, HOWARD O. TEETER

MONA-T, LLC

PRESLAR KAREN F

GLORIA WILLIAMS SHERIN AND HUSBAND DAVID MICHAEL SHERIN

GRAPHIC SCALE
50 25 0 50 100
PLANS

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T.Walker AT 6002611002

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PROJECT REFERENCE NO.	SHEET NO.
U-4714A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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http://www.kci.com

NAD 83/NA 2011

REVISIONS

8/17/99

-Y31- POT Sta. 10+00.00

-Y33- POT Sta. 10+00.00

-Y33- STA.14+18.24=
-L- STA.180+46.41

-Y34- STA.12+26.67=
-L- STA.180+70.85

-Y35- STA.10+00.00=
-L- STA.180+46.41

-Y34- POT Sta. 10+00.00

-Y35- POT Sta. 13+35.14

-BL-36 180+63.47

L17890LT

L18150LT

L18350LT

L18550LT

L18750LT

L19100LT

ALLUVIAL

RESIDUAL

MATCHLINE -L- 178+00.00
SEE SHEET 15

MATCHLINE -L- 192+00.00
SEE SHEET 17

M. BRENT HUFFMAN AND WIFE, KIMBERLY G. HUFFMAN

DAVID A. DREVLOW AND WIFE, JUNE A. DREVLOW

JOSEPH C. LANE AND WIFE, WENDI ST. LANE

WILLIAM D. LAURSEN AND WIFE, ALICIA M. LAURSEN

DONNA K. THOMAS

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HISTORIC PROPERTY
ISROCKCONC
BUS

CAROLYN M FINDERBURK

FLAGPOLE

HOMESALES INC.

BONNIE FAYE MARTIN AND KIMBERLY DAWN SIETMANN

RONALD LEE ALLED SEPERATED

TAE KYU PARK AND WIFE, OH SEON PARK

IME INVESTMENTS GROUP, INC

COUCHELL PETER JR

LUCY MARIE PRIVETTE

B.E. THOMPSON AND DEWEY THOMAS PRIEST

JEAN ALEXANDER

TIMOTHY L. SHERIN

ALEXANDER J. POULTES

TIMOTHY L. SHERIN AND WIFE DAWN M. SHERIN

SR 1009 OLD MONROE ROAD

CATAWBA DR

SWEETBRIAR DR

RHODEPIA DR

HOMEWOOD WAY

BM=10

GRAPHIC SCALE
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PLANS

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kwalker

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-4714A	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

END TIP PROJECT U-4714A
BEGIN TIP PROJECT U-4714B
-L- STA. 193+50.61

MATCHLINE -L- 192+00.00
SEE SHEET 16

-BL-37 187+94.72

-BL-38 194+52.28

DAVID AARON FREED AND WIFE STEPHANIE FREED
SIKES VAN HENERY AND LYNETTE G
LUKENS JUDY E
RUSSELL DANNY K AND VIRGINIA
PHIFER BRENDA E
FREDERICK M. BUNICK AND WIFE PATRICIA G. GABRIEL-BURNICK
ERIK K ROWLETT AND WIFE ISABEL RUEDA ABAD
ROBERT M. SULLIVAN AND WIFE SHARON L. SULLIVAN
MAXIMILLIAN CHESTER QUENTIN VUURMANS
JACEK RUDZIEWICZ DANKA RUDZIEWICZ
DAVID L RAY SUSAN A FEAY
KIMBERLY A ELSASSER
KORRY L HUMPHREY
CHRISTINE S GOODSON DAVIS A GOODSON
MORNINGSIDE MEADOWS HOMEOWNERS ASSOCIATION, INC
RICHARD W BROOME & SADIE C
DAWN M. SHERIN
317 PROPERTIES, LLC
POLE HELENA B.
DANNY F. DUNN AND WIFE, JENNIFER J DUNN
JAMES HAMILTON TURNER, JR
ANTONIOS K. PANOU
WILLIAM LARRY ALEXANDER
BRUCE R. MARX AND SPOUSE, LINDA L. MARX
SEAMON S. BUTCHER AND WIFE, TIFFANY M. BUTCHER
EDWARD R. BENVENUTI, JR. AND WIFE DIANA K. BENVENUTI
RICHARD P. BROOME
TODD SHANE LAMBERT
HAZEL FOSTER
LINA M. ALEXANDER
BENJAMIN A. GUTHRIE AND SPOUSE, KATHRYN E. GUTHRIE

GRAPHIC SCALE
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PLANS

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TWalker AT 6012611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	18

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

Ⓐ **Artificial Fill:** *Moist, Orange-Brown, Silty CLAY (A-7) with Trace Rock Fragments and Organics*

735
730
725
720
715
710
705
700
695

L1650LT

Topsoil 0.0'-0.5'

2:1

4:1

HAR
HR. DRY
FIAD

Ⓐ

6:1

6:1

Ground Surface

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

16+50.00
-L-

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

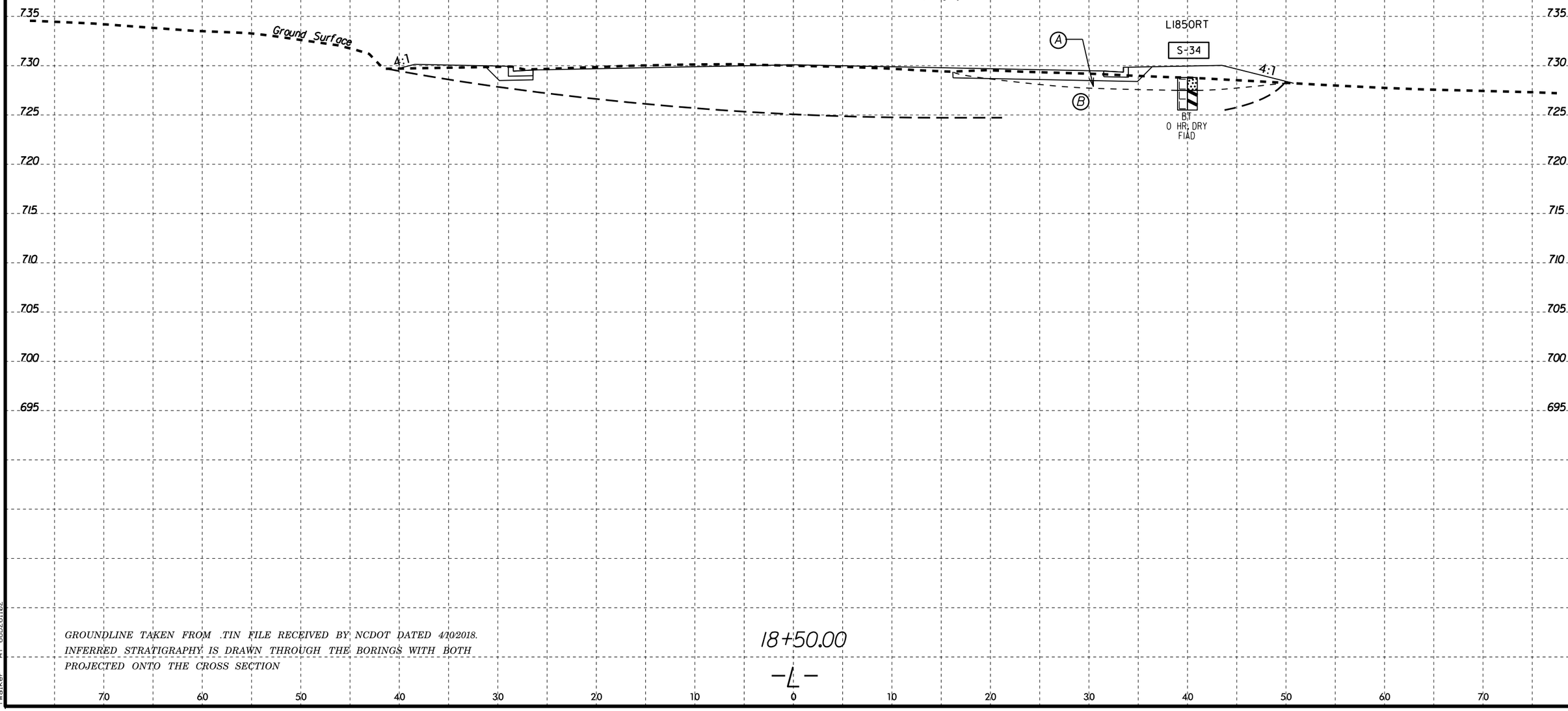
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	19

SOIL TEST RESULTS

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		
S-34	40' RT	18+50	1.3-2.3	A-7-6(29)	55	30	4.7	10.7	30.0	54.6	99.1	96.2	86.8	28.1	-

(A) **Roadway Embankment:** Moist, Brown-Tan, Silty Fine to Coarse SAND (A-2-4) with Some Rock Fragments, Trace Organics

(B) **Roadway Embankment:** Moist, Orange-Tan, Silty CLAY (A-7-6) with Trace Rock Fragments, Organics, and Fine to Coarse Sand, Highly Plastic



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/02/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

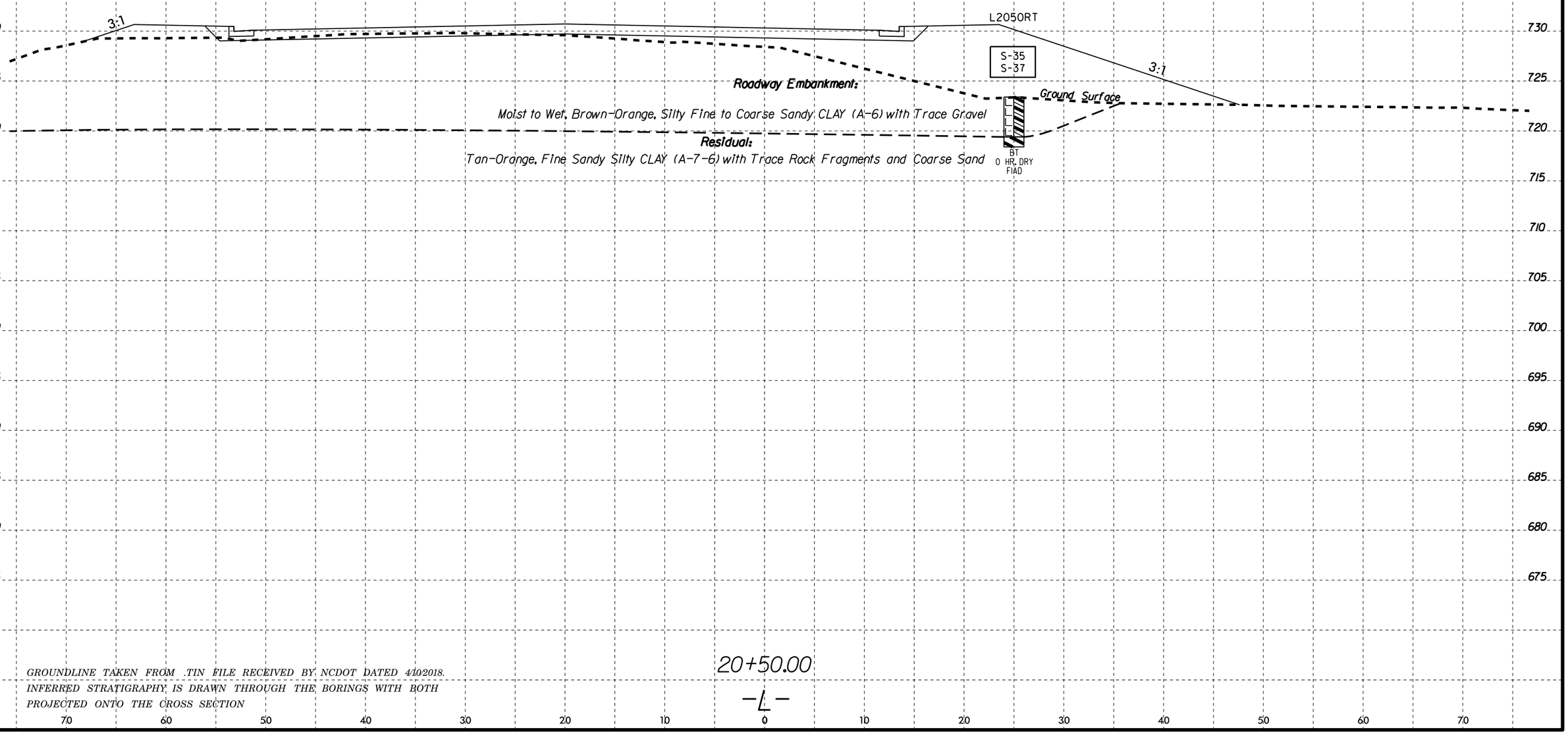
18+50.00
-L-

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Walker
AT 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	20

SOIL TEST RESULTS

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		
S-35	45' RT	20+50	0.5-1.5	A-6(2)	30	11	25.2	25.8	25.7	23.3	87.9	73.0	48.1	15.8	-
S-37	45' RT	20+50	4.0-4.5	A-7-6(20)	46	23	7.4	12.7	35.6	44.3	99.4	94.7	83.2	22.5	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

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keiker
ALT 66026102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	21

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

Ⓐ **Artificial Fill:** *Moist, Dark Brown-Red, Clayey SAND (A-2-6) and Silty SAND (A-2-4) with Trace Organics (Roots)*

735
730
725
720
715
710
705
700
695

Ground Surface

L2200LT

4:1

Residual

Ⓐ

BT
0 HR. DRY
FIAD

Ⓐ

Residual

4:1

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

22+00.00

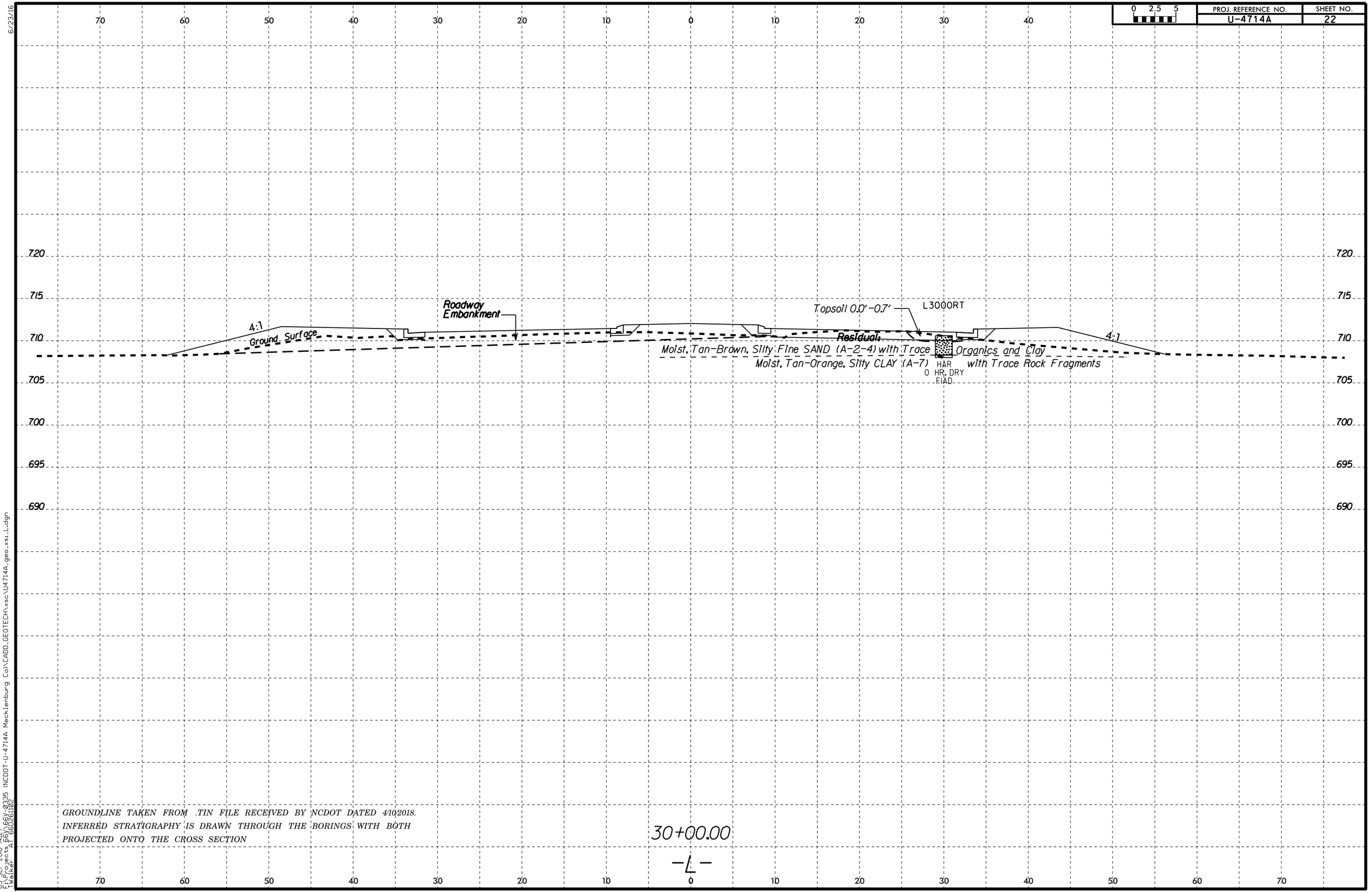
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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	22



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

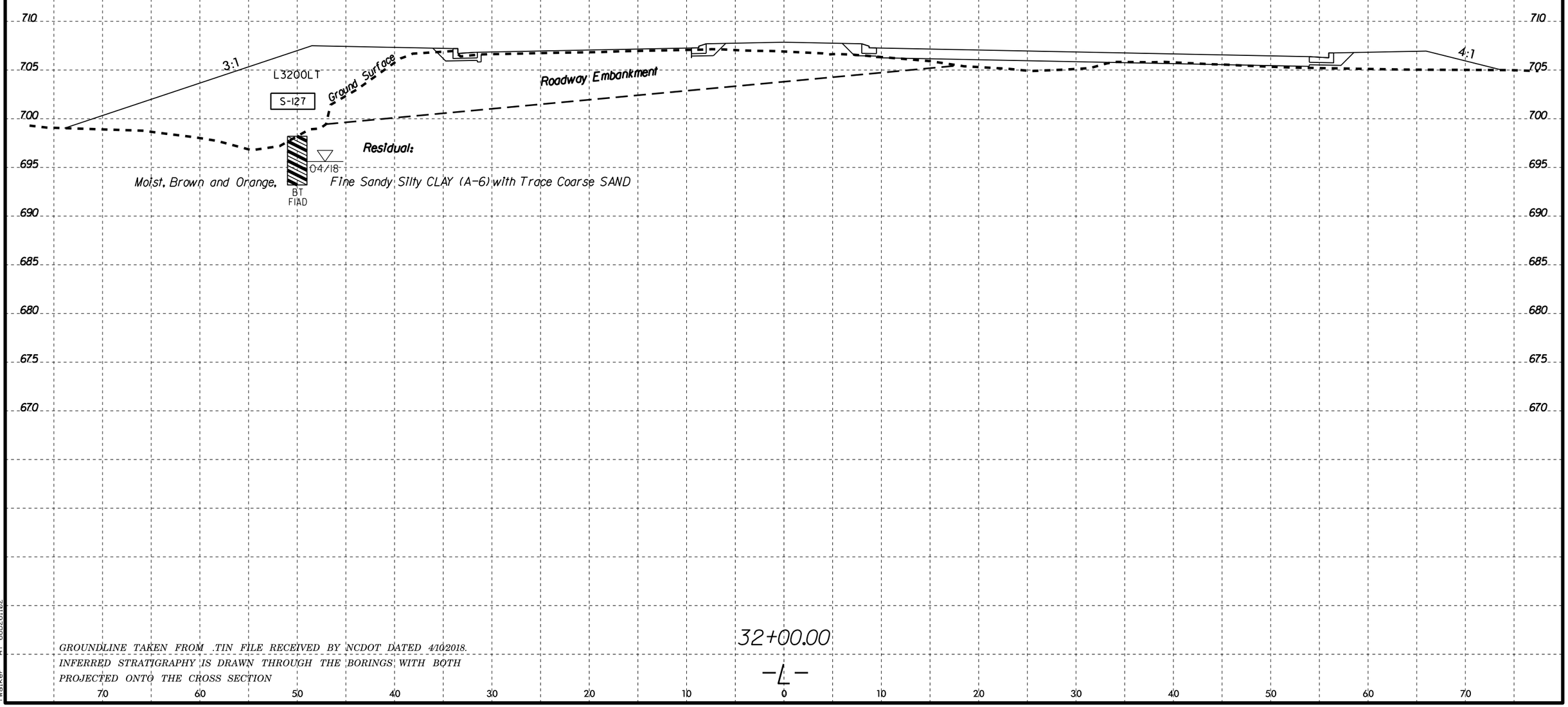
30+00.00
-L-

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Walker
TI 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	23

SOIL TEST RESULTS

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		
S- 127	50' LT	32+00	1. 2- 1. 7	A- 6(10)	35	13	6. 6	21. 4	34. 9	37. 1	99. 6	95. 6	78. 8	30. 9	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

32+00.00

-L-

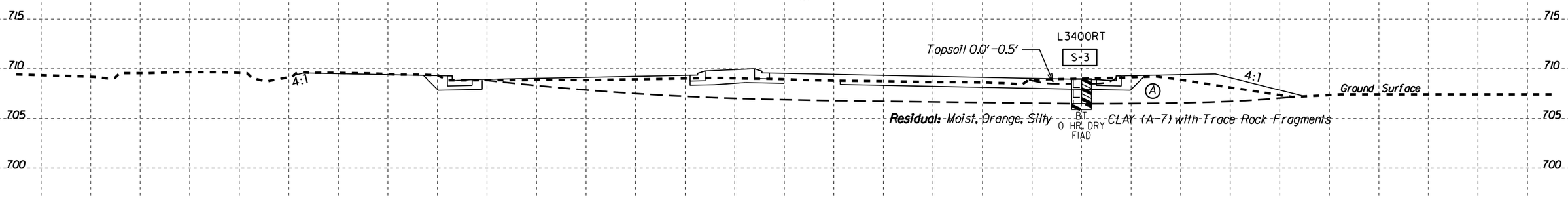
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Walker, A. T. 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	24

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-3	30' RT	34+00	1.3-2.3	A-6(8)	39	17	19.5	18.0	33.4	29.1	90.7	78.4	59.6	30.6	-

Ⓐ **Roadway Embankment:** Moist, Orange, Silty Fine to Coarse Sandy CLAY (A-6) with Trace Organics and Gravel



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

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Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	25

90 80 70 60 50 40 30 20 10 0 10 20 30

725 720 715 710 705

Residual:
Soft to Very Stiff, Moist, Red-Brown, Fine to Coarse Sandy Highly Plastic CLAY (A-7-5)

Ground Surface

4:1

3:1

36+50.00

L3600LT

Residual:
Soft to Very Stiff, Moist, Red-Brown, Fine to Highly Plastic CLAY (A-7-5) and Sandy Mica, Organics (Roots) and Silt

(3) (16)

Coarse Sandy CLAY (A-6) with Trace

Ground Surface

Medium Stiff, Moist, Red-Brown and Light

(7)

Gray, Sandy SILT (A-4) with Trace Mica

Soft to Medium Stiff, Moist, Red

(4)

Orange, Silty CLAY (A-7) with Trace Mica

BT
DRY

4:1

Roadway Embankment

36+00.00

4:1

4:1

35+50.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

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Walker, AT 6602611102

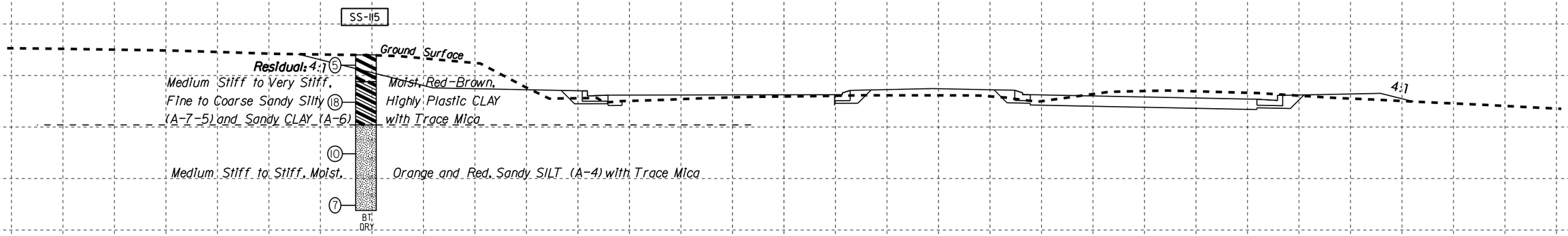
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PROJ. REFERENCE NO.	SHEET NO.
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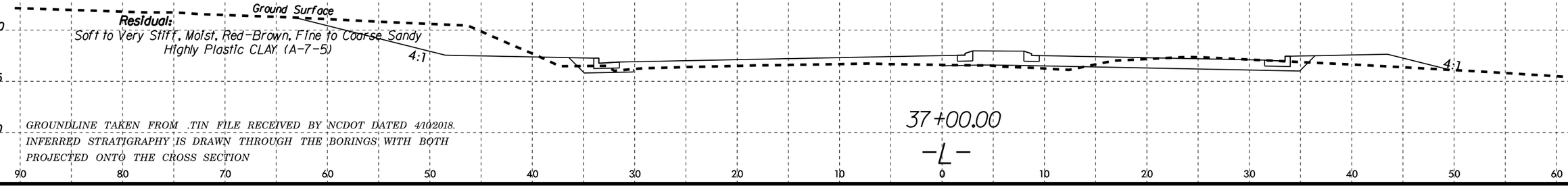
0 2.5 5

SOIL TEST RESULTS

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		
SS-115	55' LT	38+00	0.0-1.5	A-7-5(33)	67	28	2.0	7.3	21.6	69.1	99.8	98.9	93.0	30.6	-







GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/02018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker, Al 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	27

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

730 725 720 715 710

Residual:
Soft to Very Stiff, Moist, Red-Brown, Fine to Coarse Sandy Highly Plastic CLAY (A-7-5)

4:1

4:1

39+00.00

730 725 720 715 710

Ground Surface

4:1

Residual: Soft to Very Stiff, Moist, Red-Brown, Fine to Coarse Sandy Highly Plastic CLAY (A-7-5)

4:1

38+50.00

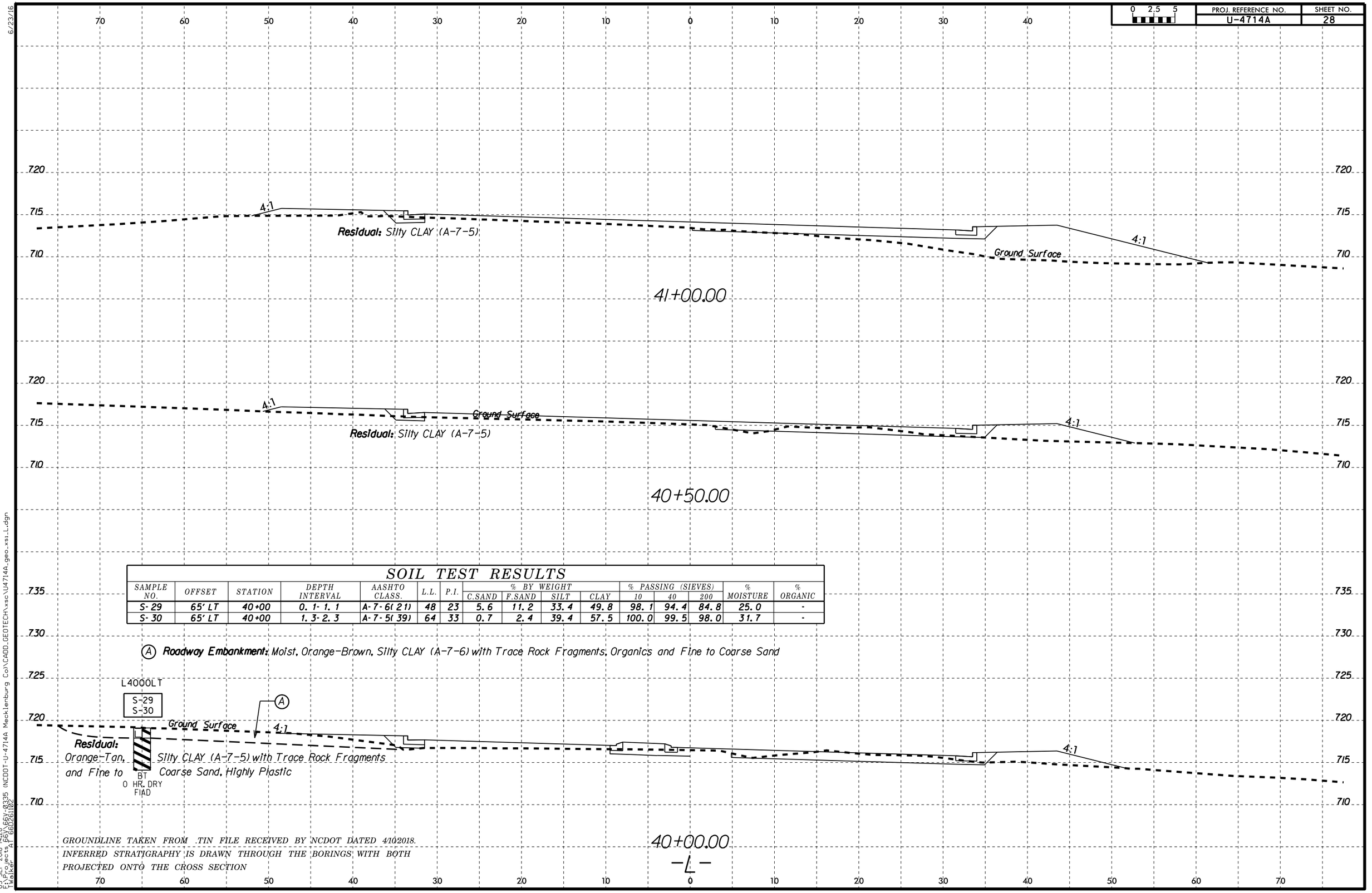
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GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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

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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	28



SOIL TEST RESULTS

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		
S-29	65' LT	40+00	0.1-1.1	A-7-6(21)	48	23	5.6	11.2	33.4	49.8	98.1	94.4	84.8	25.0	-
S-30	65' LT	40+00	1.3-2.3	A-7-5(39)	64	33	0.7	2.4	39.4	57.5	100.0	99.5	98.0	31.7	-

(A) **Roadway Embankment:** Moist, Orange-Brown, Silty CLAY (A-7-6) with Trace Rock Fragments, Organics and Fine to Coarse Sand

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker, A T 6602611002

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	29

0 2.5 5

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

715 710 705 700

4:1

Residual: Silty CLAY (A-7-5)

3:1

Ground Surface

42+50.00

SOIL TEST RESULTS

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		
S-6	40' RT	42+00	1.8-2.5	A-7-5(31)	64	30	2.5	11.7	41.3	44.5	98.2	96.8	87.9	41.8	-
S-7	40' RT	42+00	2.7-3.7	A-4(4)	26	8	8.9	22.5	44.0	24.6	96.8	91.9	72.1	18.5	-
S-27	52' LT	42+02	0.0-1.0	A-7-6(21)	53	28	9.1	14.2	29.2	47.5	91.9	87.6	73.7	29.5	-

L4202LT
42+02
S-27
4:1
BT
0 HR. DRY
FIAD

Roadway Embankment:
Orange-Brown, Fine Sandy Silty CLAY (A-7-6) with Trace Gravel, Organics, and Coarse Sand, Highly Plastic

Ground Surface

Residual: Moist to Wet, Tan-Orange, Fine Sandy Silty CLAY (A-7-5) with Trace Manganese, Rock Fragments, and Coarse Sand, Highly Plastic

Tan-Brown, Clayey Fine Sandy SILT (A-4) with Trace Rock Fragments, Manganese, and Coarse Sand

L4200RT
S-6
S-7
3:1
BT
0 HR. DRY
FIAD

42+00.00

4:1

Ground Surface

3:1

Residual: Silty CLAY (A-7-5)

41+50.00

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker
AT 66026102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	30

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

710
705
700
695

4:1

Residual: Silty CLAY (A-7-5)

44+00.00

4:1

710
705
700
695

710
705
700
695

4:1

Residual: Silty CLAY (A-7-5)

Ground Surface

4:1

43+50.00

710
705
700
695

710
705
700
695

4:1

Residual: Silty CLAY (A-7-5)

Ground Surface

3:1

43+00.00

710
705
700
695

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

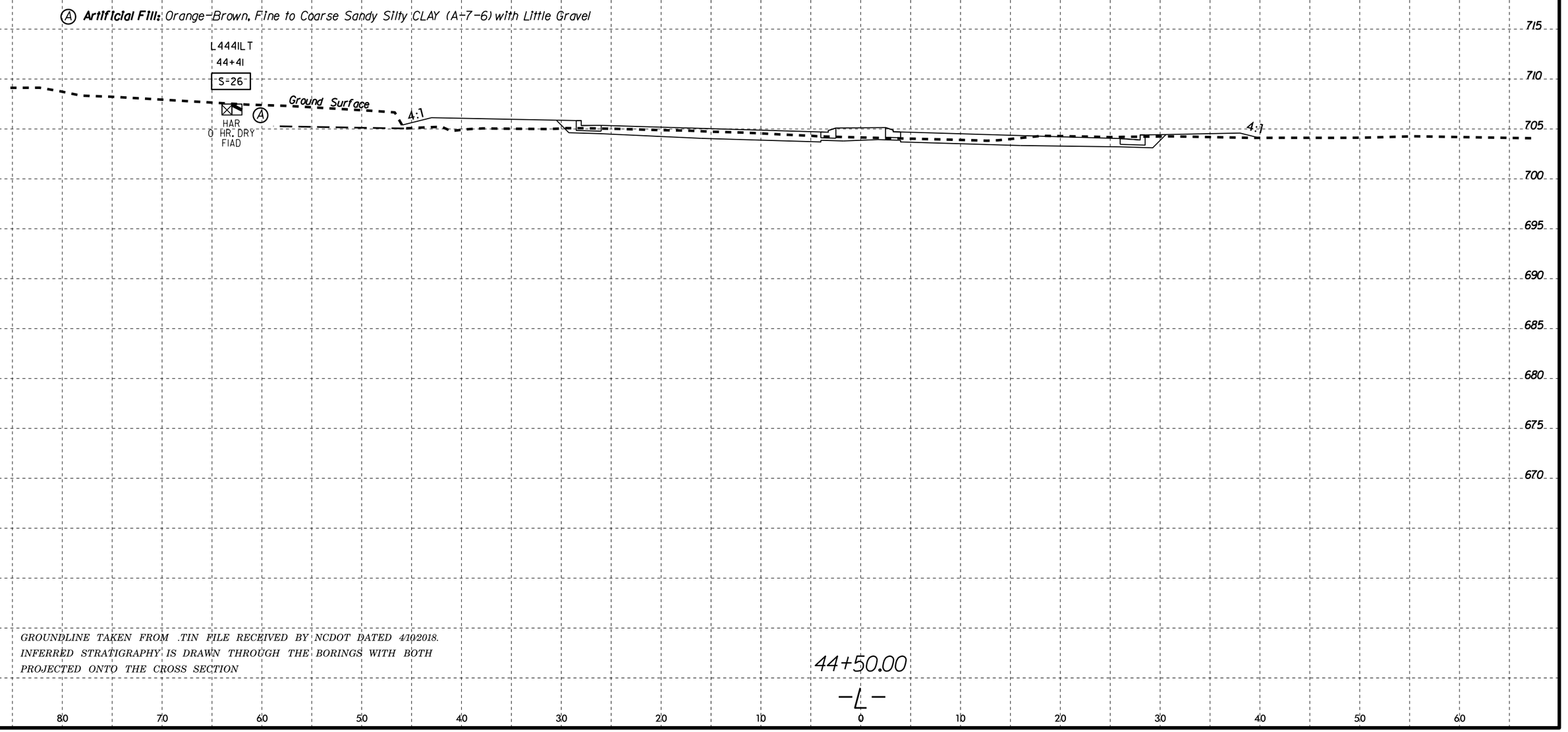
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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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Walker, A.T. 6602611002

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-26	63' LT	44+41	0. 1- 1. 1	A-7-6(11)	47	22	17. 5	15. 1	30. 3	37. 1	84. 9	75. 1	60. 4	21. 6	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

6/23/16
05-SEP-2018 14:28
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Walker
AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	32

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

Ⓐ **Roadway Embankment:** *Moist, Orange, Silty CLAY (A-7) with Trace Organics and Rock Fragments*

L460ORT

Ground Surface

4:1

Ⓐ

BT
0 HR. DRY
FIAD

710 705 700 695 690 685 680 675 670

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

46+00.00

-L-

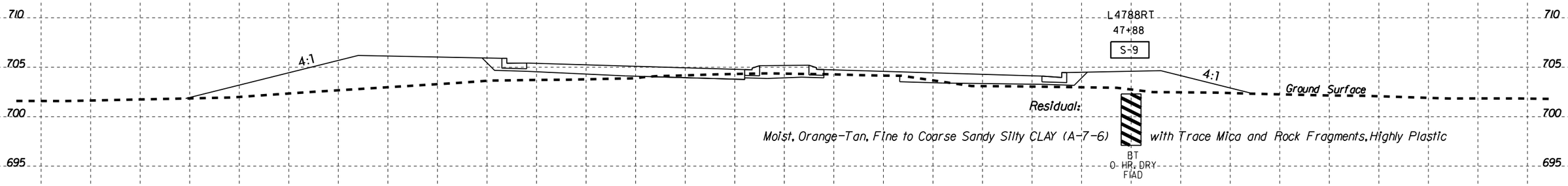
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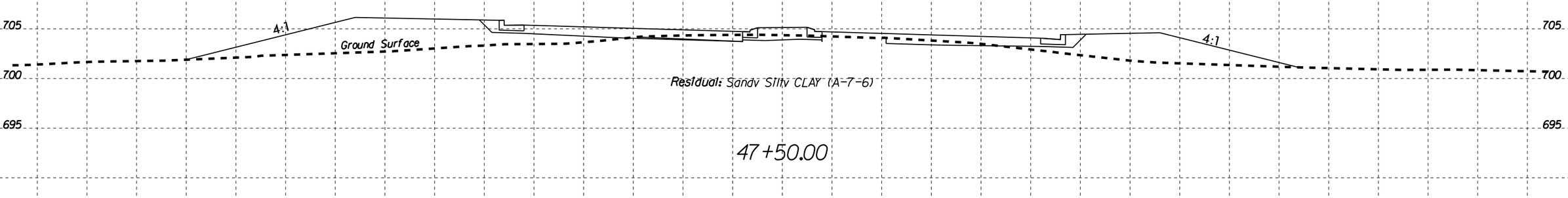
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Walker AT 6602611102

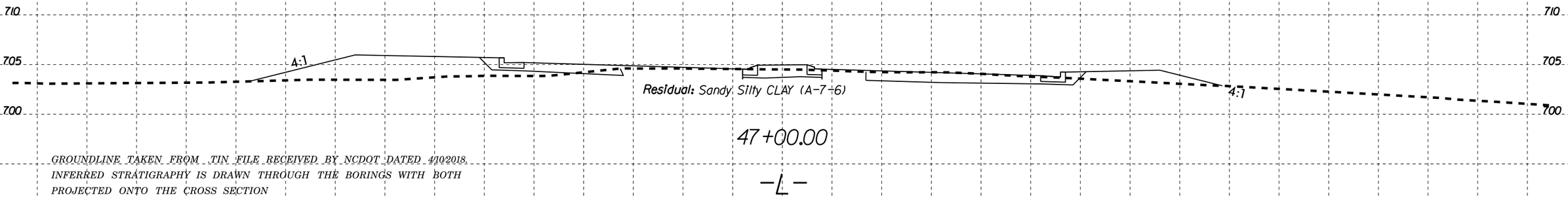
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	33

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-9	35' RT	47+88	0.0-1.5	A-7-6(19)	51	27	13.1	15.6	23.4	47.9	96.6	89.9	71.7	26.1	-







GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY NCDOT DATED 4/02/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	34

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

715 710 705 700 695

4:1

Ground Surface

49+50.00

SOIL TEST RESULTS

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		
S-126	40' LT	49+00	0.7-1.2	A-7-5(58)	92	47	2.2	3.2	17.4	77.2	99.7	98.3	95.4	41.2	-

L4900LT

S-126

4:1

Ground Surface

Residual:

Moist, Red-Brown, Silty CLAY (A-7-5) with Trace Organics (Roots) and Fine to Coarse Sand, Highly Plastic

BT
0 HR. DRY
FIAD

49+00.00

4:1

Ground Surface

48+50.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

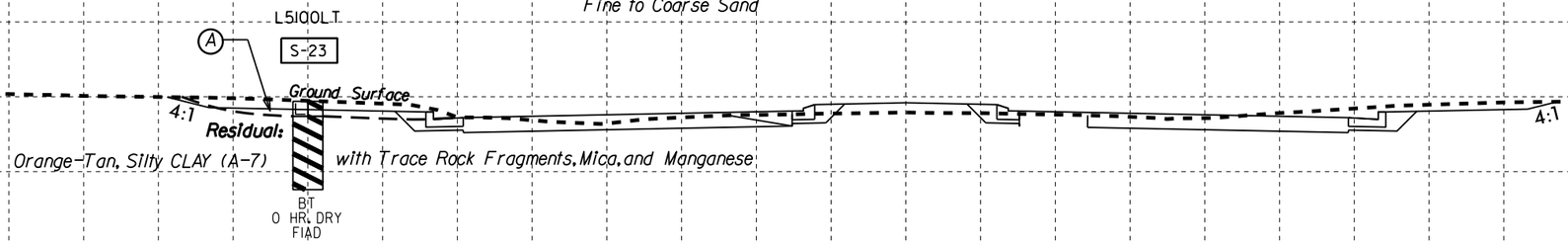
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Walker, A1 6602611002

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	35

SOIL TEST RESULTS

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		
S-23	40' LT	51+00	0.0-1.0	A-7-5(26)	60	25	6.7	8.2	38.8	46.3	98.6	94.6	85.7	39.6	-

Ⓐ **Roadway Embankment:** Moist, Orange-Tan, Silty CLAY (A-7-5) with Trace Organics, Rock Fragments and Fine to Coarse Sand



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

51+00.00

-L-

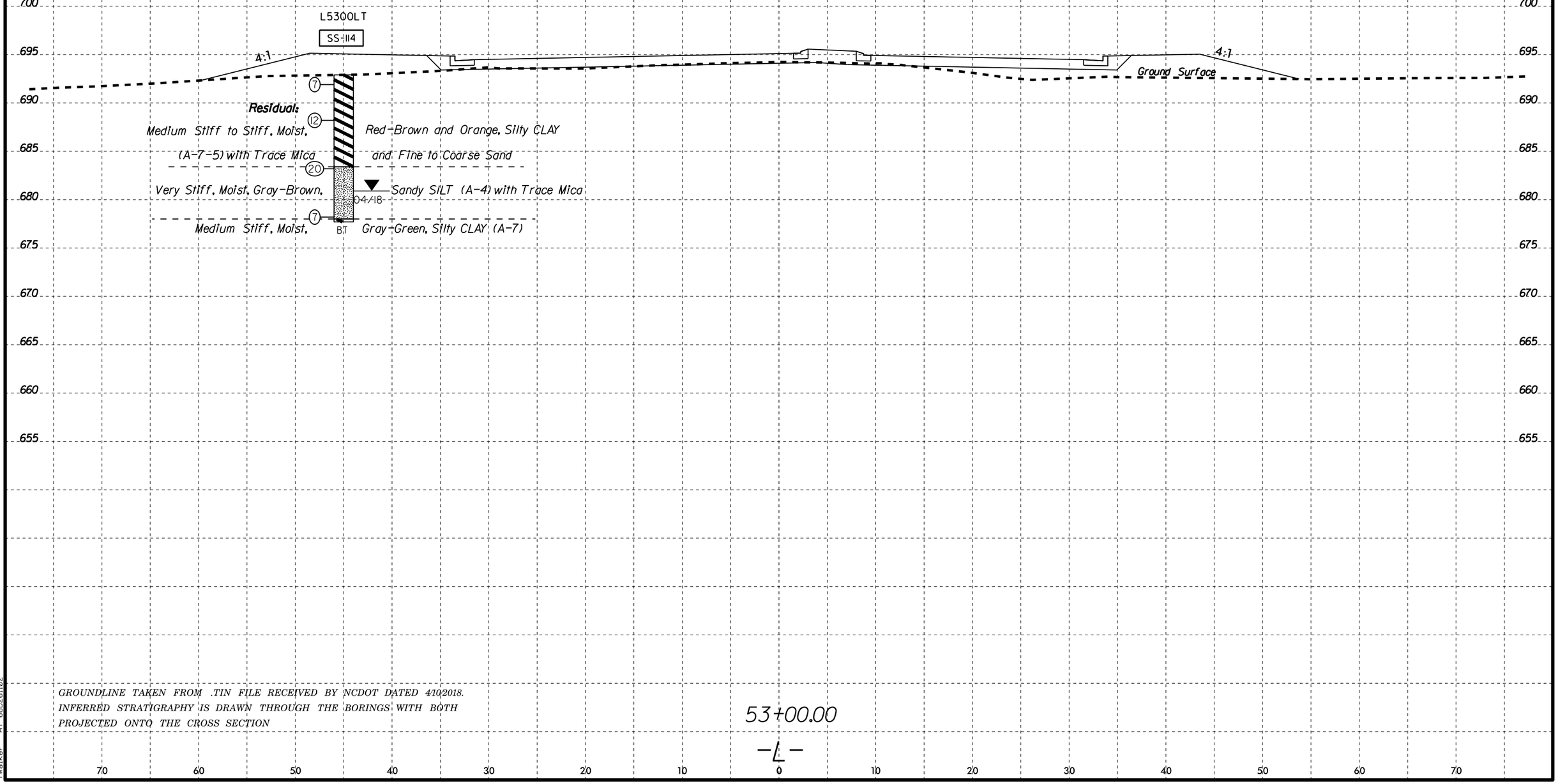
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	36

0 2.5 5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-114	45' LT	53+00	0.0-1.5	A-7-5(20)	51	17	4.5	7.6	37.5	50.4	100.0	96.9	91.3	23.3	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker
AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	37

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

700 695 690 685 680

4:1

Residual: Silty CLAY (A-7-5)

Ground Surface

3:1

54+50.00

700 695 690 685 680

4:1

Residual: Silty CLAY (A-7-5)

Ground Surface

3:1

54+00.00

700 695 690 685 680

3:1

Residual: Silty CLAY (A-7-5)

3:1

53+50.00

-L-

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

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

05-SEP-2018 14:35
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Walker
ai 660261102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	38

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

705 700 695 690 685

Ground Surface 4:1

Residual: Silty CLAY (A-7-5)

4:1

56+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-19	35' LT	55+50	0.1-1.1	A-7-6(26)	59	30	7.8	10.6	37.6	44.0	93.3	88.5	78.7	33.8	-

Ⓐ **Roadway Embankment:** Moist, Green-Orange-Brown, Silty CLAY (A-7-6) with Trace Gravel, Organics, and Fine to Coarse Sand, Highly Plastic

L5550LT

S-19

Ground Surface 4:1

Residual: Moist, Tan-Orange, Silty Fine to Coarse Sandy CLAY (A-6) with Trace Rock Fragments

Dry, Tan-Orange, Sandy Clayey SILT (A-5) with Trace Rock Fragments

3:1

BT
0 HR. DRY
FIAD

55+50.00

4:1

Residual: Silty CLAY (A-7-5)

Ground Surface 4:1

55+00.00

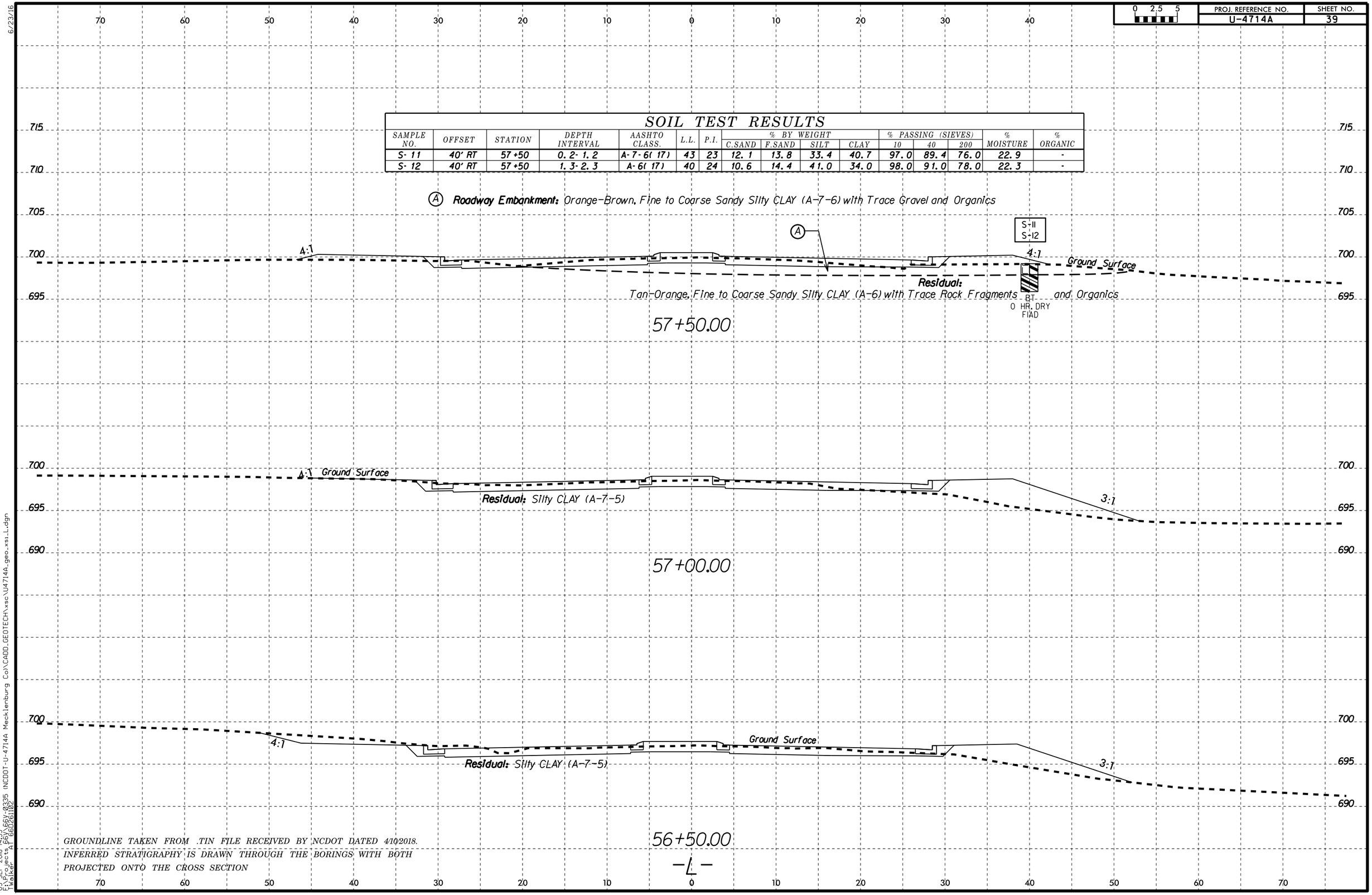
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

—L—

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	39

SOIL TEST RESULTS

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		
S-11	40' RT	57+50	0.2-1.2	A-7-6(17)	43	23	12.1	13.8	33.4	40.7	97.0	89.4	76.0	22.9	-
S-12	40' RT	57+50	1.3-2.3	A-6(17)	40	24	10.6	14.4	41.0	34.0	98.0	91.0	78.0	22.3	-



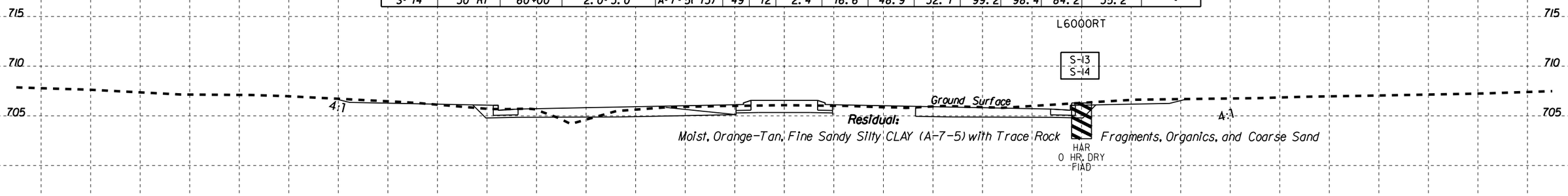
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker, A. 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	40

SOIL TEST RESULTS

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		
S-13	30' RT	60+00	0.1-1.1	A-7-5(22)	61	20	5.4	11.3	40.7	42.6	99.8	96.9	84.4	38.1	-
S-14	30' RT	60+00	2.0-3.0	A-7-5(13)	49	12	2.4	16.6	48.9	32.1	99.2	98.4	84.2	35.2	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4102018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

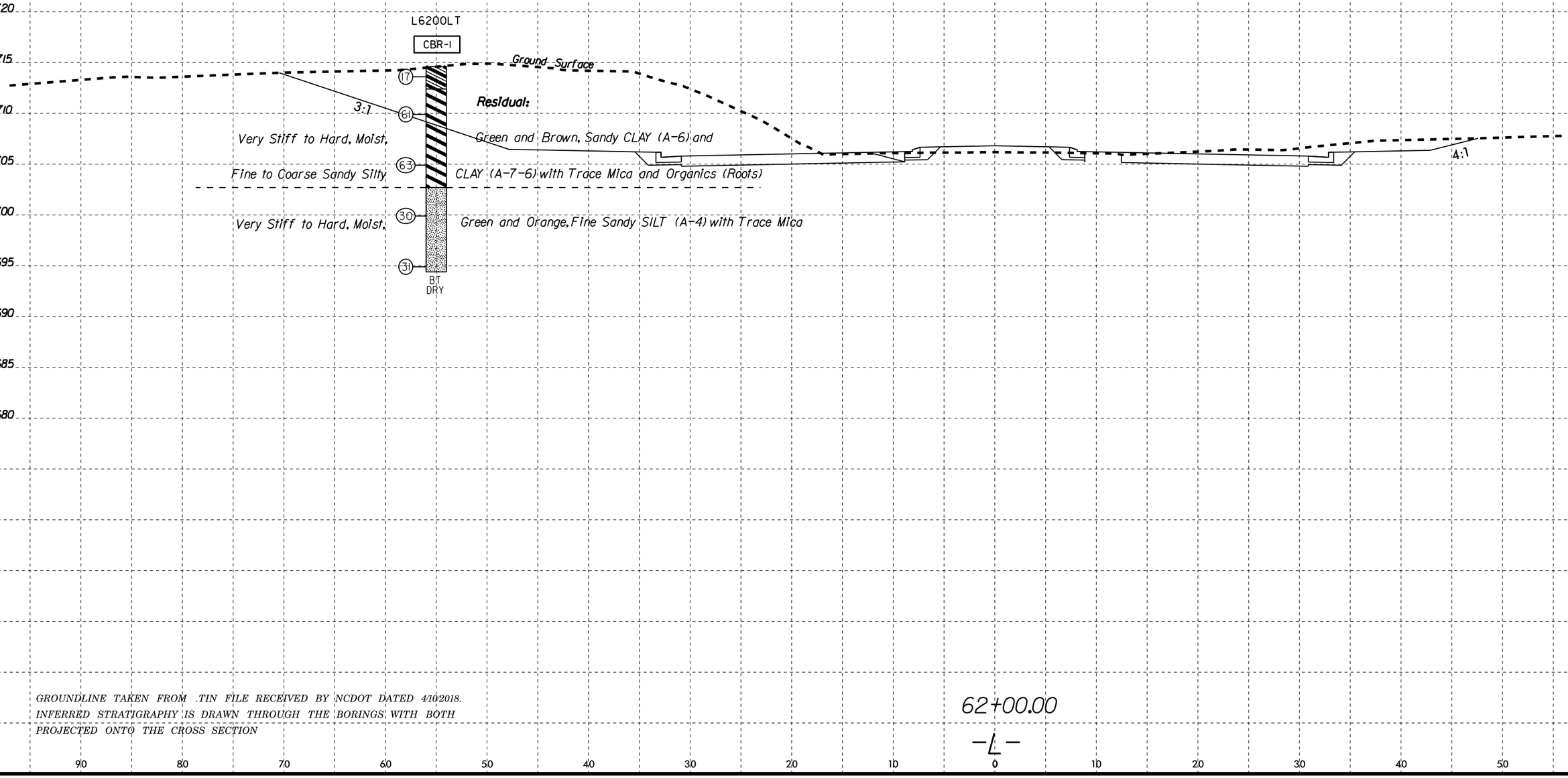
60+00.00
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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	41

SOIL TEST RESULTS

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		
CBR-1	55' LT	62+00	2.5-8.5	A-7-6(16)	46	18	7.8	13.9	43.3	35.0	98.0	92.7	81.4	18.0	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

62+00.00
-L-

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Walker AT 6602610102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	42

140 130 120 110 100 90 80 70 60 50 40 30

705 700 695 690 685 680 675 670 665

3:1

L6400LT

Ground Surface

Roadway Embankment

Residual: Very Soft, Wet, (0) Dark Brown-Gray, Silty CLAY (A-7) with Trace Organics (Roots)

Very Stiff, Moist, Light Gray (18) and Light Orange, Sandy SILT (A-4) with Trace Organics (Roots)

04/18

Very Dense, Moist, Light Gray (89) and Orange, Silty SAND (A-2-4) with Trace Lenses of Sandy Silt and Mica

BT

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

64+00.00

-L-

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

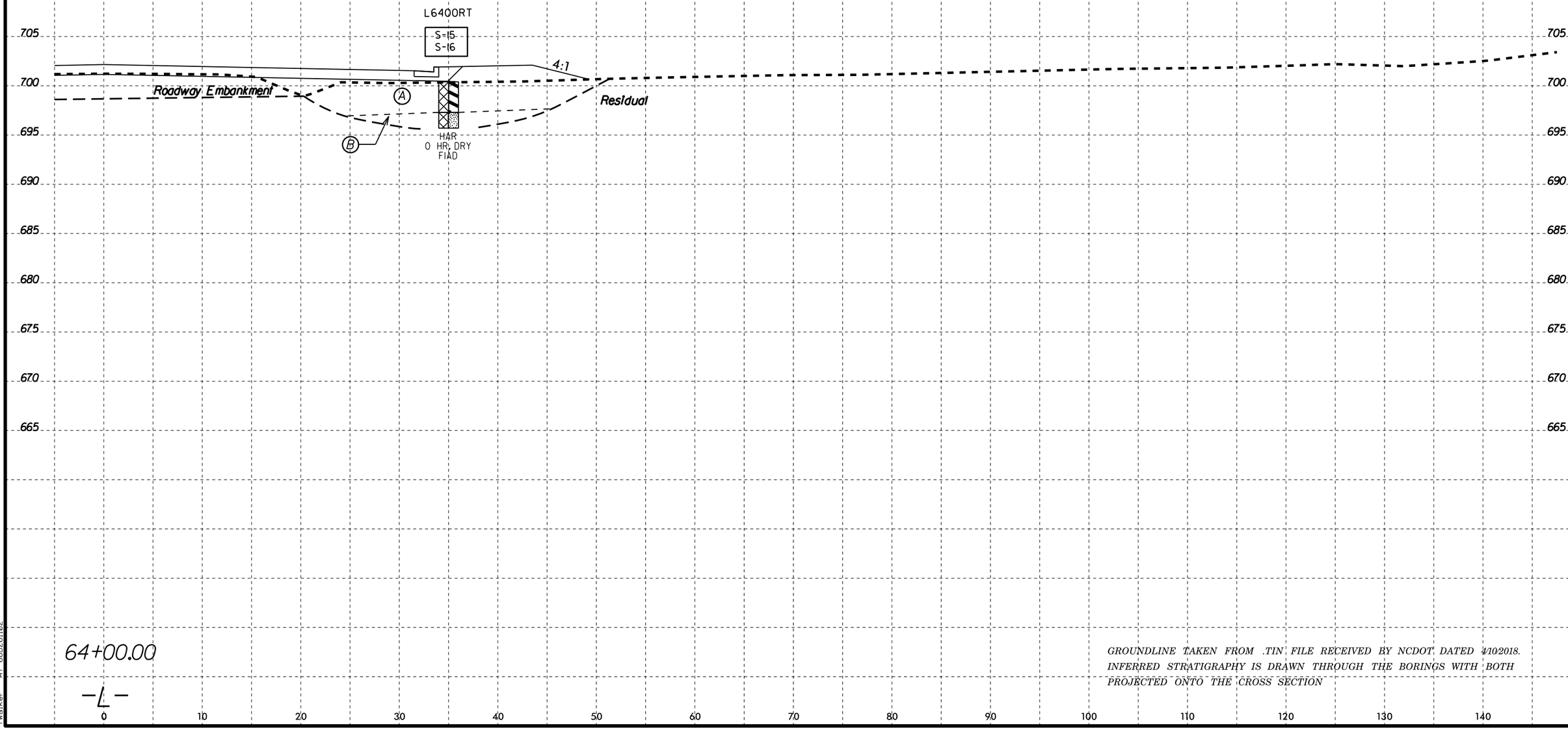
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T Walker
AT 6602611102

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-15	35' RT	64+00	0.0-1.0	A-7-6(21)	52	25	9.2	11.3	34.0	45.5	96.0	90.2	79.4	30.5	-
S-16	35' RT	64+00	2.0-3.0	A-7-5(10)	43	13	10.4	19.6	41.9	28.1	96.6	90.5	73.5	29.4	-

(A) **Artificial Fill:** Moist, Tan-Orange-Green, Fine to Coarse Sandy Silty CLAY (A-7-5/6) with Trace Gravel

(B) **Artificial Fill:** Tan-Orange-Green, Fine to Coarse Sandy Clayey SILT (A-5) with Trace Rock Fragments and Organics, Anoxic Bacteria Smell



64+00.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker
Al 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	44

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

700 695 690 685 680 675 670 665 660 655 650

Ⓐ **Residual:** *Soft, Moist, Tan, Sandy SILT (A-4) with Trace Organics (Roots)*

3:1

4:1

L6600LT

Ⓐ 3

Residual:

66

Very Dense, Moist, Green and Orange, Silty SAND (A-2-4) with Trace Mica

Roadway Embankment

Ground Surface

Weathered Rock: 100/0.7 *(GRANITE)*

04/18

Residual:

Very Dense, Moist, Tan 86 *and Green, Silty SAND (A-2-4) with Trace Mica*

BT

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

66+00.00

-L-

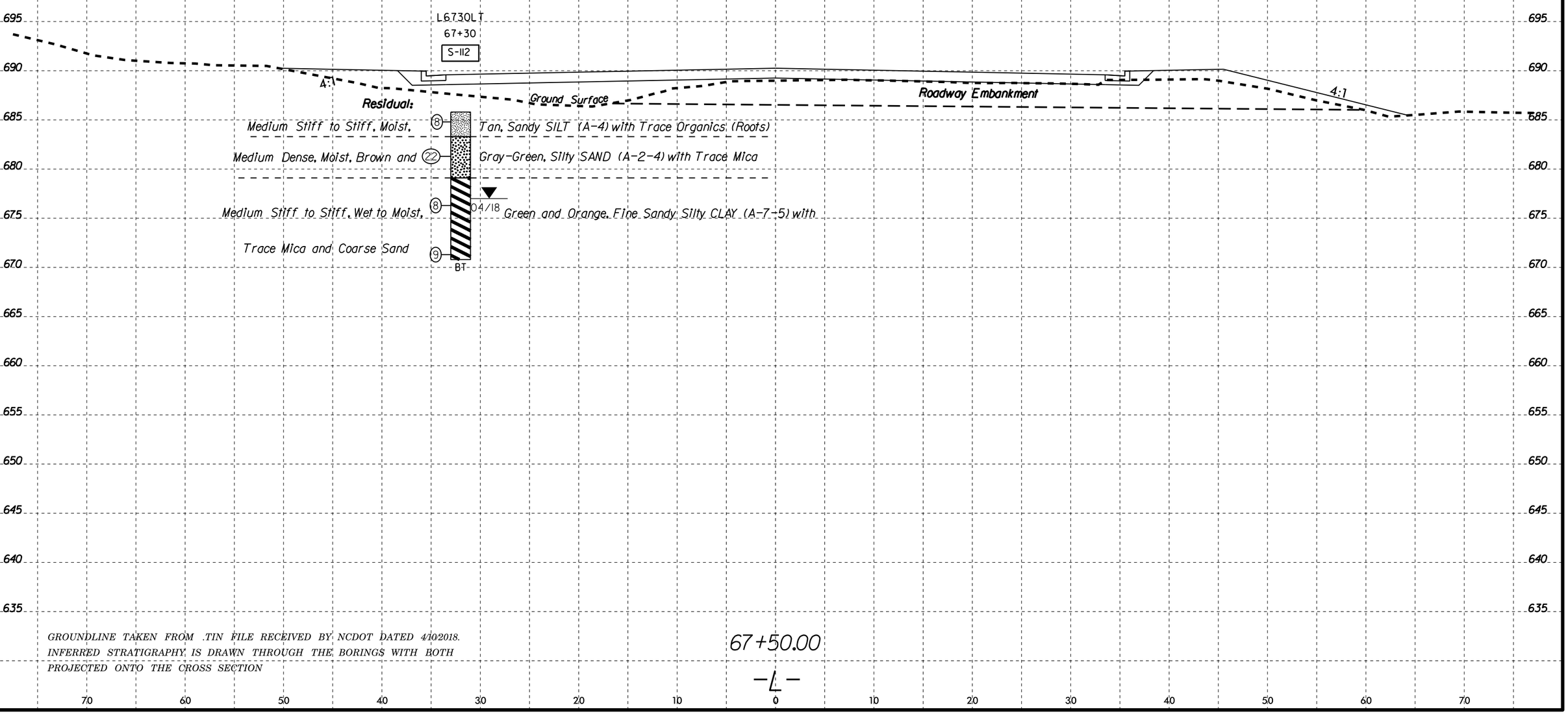
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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	45

SOIL TEST RESULTS

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		
SS-112	32' LT	67+30	8.5-10.0	A-7-5(20)	53	22	4.8	21.1	39.5	34.6	99.5	97.2	80.2	42.5	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

67+50.00
-L-

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Walker AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	46

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

700 695 690 685 680 675 670 665 660

L6800RT

3:1

Ground Surface

04/18 HAR FIAD

Residual: Wet, Tan-Brown, Silty CLAY (A-7) with Trace Organics (Roots)

3:1

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

68+00.00
-L-

05-SEP-2018 14:36
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User: Walker
PI 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	47

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

705
700
695
690
685

Ground Surface

2:1

Residual:
Stiff, Moist, Gray and Orange, Sandy SILT (A-4) with Trace Organics and Mica

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

4:1

69+50.00

710
705
700
695
690
685

Ground Surface

2:1

Residual: Stiff, Moist, Gray and Orange,
Sandy SILT (A-4) with Trace Organics and Mica

4:1

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

69+00.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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

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Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	48

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

705
700
695
690
685
680

Ground Surface

Residual: Stiff, Moist, Gray and Orange, Sandy SILT (A-4) with Trace Organics and Mica

2:1

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

4:1

70+50.00

Ⓐ **Residual:** Stiff, Moist, Gray and Orange, Sandy SILT (A-4) with Trace Organics and Mica

L7000LT

Ground Surface

I-4 Ⓐ

100/0.8

60/0.1

60/0.0

60/0.0

REF
DRY

Weathered Rock: (GRANITE)

2:1

Crystalline Rock: (GRANITE)

4:1

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

70+00.00

-L-

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

10-SEP-2018 17:34
F:\Projects\66V\66V.0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\xsc\U4714A_geo_xsL.dgn
DRacel AT 6602611094

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	49

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

700 695 690 685 680 675 670 665

L7150LT

Ground Surface

Residual: Stiff, Moist, Orange-Red, Sandy CLAY (A-6) with Trace Organics (Roots)

9 28 29

3:1

Medium Dense, Moist, Green-Gray and Orange, Silty Fine SAND (A-2-4) with Trace Mica and Feldspar

4:1

21

Very Stiff, Moist, Green and Orange, Fine Sandy SILT (A-4) with Trace Mica

Weathered Rock: 100/0.4 (GRANITE)

Crystalline Rock: 60/0.1 (GRANITE)

REF DRY

71+50.00

660 700 695 690 685 680

Ⓐ **Residual:** Stiff, Moist, Orange-Red, Sandy CLAY (A-6) with Trace Organics (Roots)

Ground Surface

Ⓐ

Medium Dense, Moist, Green-Gray and Orange, Silty Fine SAND (A-2-4) with Trace Mica and Feldspar

2:1

4:1

Very Stiff, Moist, Green and Orange, Fine Sandy SILT (A-4) with Trace Mica

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

71+00.00

-L-

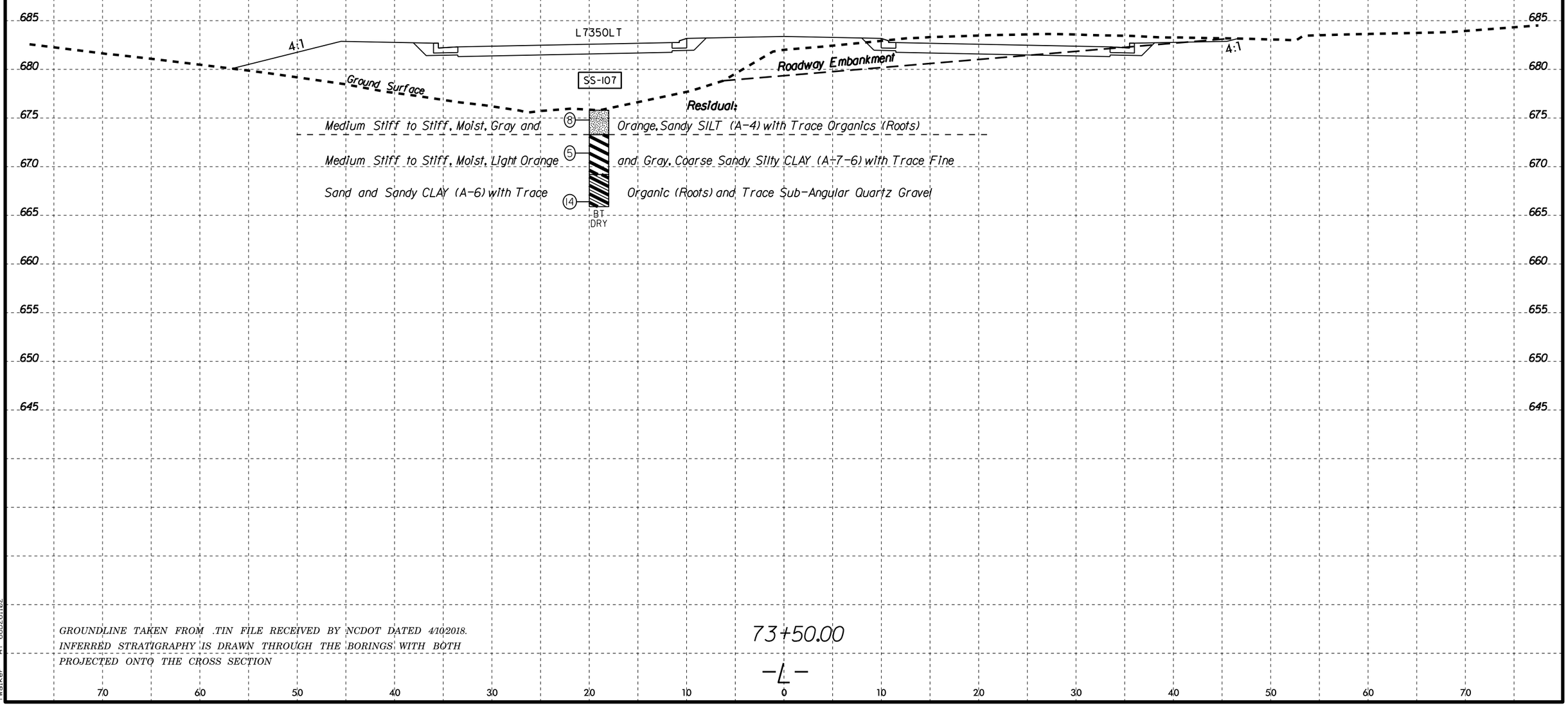
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Walker AT 6602610102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	50

SOIL TEST RESULTS

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		
SS-107	19' LT	73+50	3.4-4.9	A-7-6(18)	47	21	12.7	8.8	41.2	37.3	99.0	88.8	80.7	25.5	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

73+50.00

-L-

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Walker, Al 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	51

80 70 60 50 40 30 20 10 0 10 20 30 40

685 680 675 670 665 660 655 650 645 640 635

3:1

2:1

Roadway Embankment

L7460LT
74+60

Ground Surface

Alluvial: ⑤ Medium Stiff to Soft, Moist, Brown and Gray-Green, Sandy CLAY (A-6) and ③ Silty CLAY (A-7), with Trace Organics (Roots) and Sub Rounded Gravel

04/18

60/0.1 REF

Crystalline Rock: (GRANITE)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

74+50.00

-L-

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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Created At 6602611004

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	52

0 10 20 30 40 50 60 70 80 90 100 110

685 680 675 670 665 660 655 650 645 640

4:1

Roadway Embankment

Ground Surface

L7550RT

11 6

Residual:

Medium Stiff to Stiff, Moist, Red-Brown and Tan-Brown, Sandy CLAY (A-6) with Trace Organics (Roots), Sub-Angular Gravel, and Mica

04/18

100/0.8

Weathered Rock: (GRANITE)

60/0.0 REF

Crystalline Rock: (GRANITE)

75+50.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

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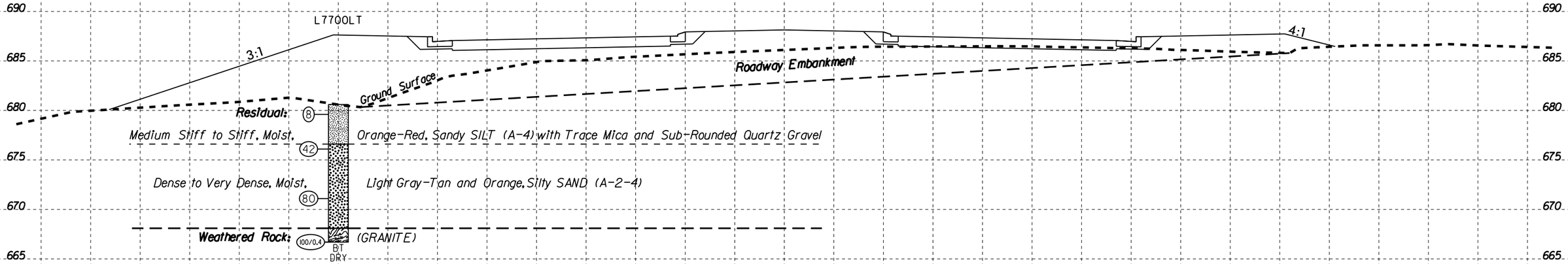
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TIWalker AI 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	53

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

690 685 680 675 670 665 660 655 650 645 640 635 630 625



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

77+00.00

-L-

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

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Walker AT 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	54

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

700 695 690 685 680 675 670 665 660 655

L7900LT

4:1

4:1

Ground Surface

Roadway Embankment: Stiff, Moist, Orange-Red, Sandy CLAY (A-6) with Trace Organics (Roots)

9

19

Residual:

Medium Dense, Moist, Orange-Brown, Sandy SILT (A-4) with Trace Mica

Weathered Rock: 100/0.9 BT DRY (GRANITE)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4102018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

79+00.00

-L-

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

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T Walker AT 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	55

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

705
700
695
690
685
680
675
670
665

Ⓐ **Roadway Embankment:** *Stiff, Moist, Red-Orange, Sandy CLAY (A-7) with Trace Organics (Roots)*

Ground Surface

4:1

L8050LT

4:1

Ⓐ

(11)

(15)

(57)

Residual:

Stiff to Hard, Moist, Gray-Orange-Red, Sandy SILT (A-4) with Trace Mica, Saprolitic

-BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

80+50.00

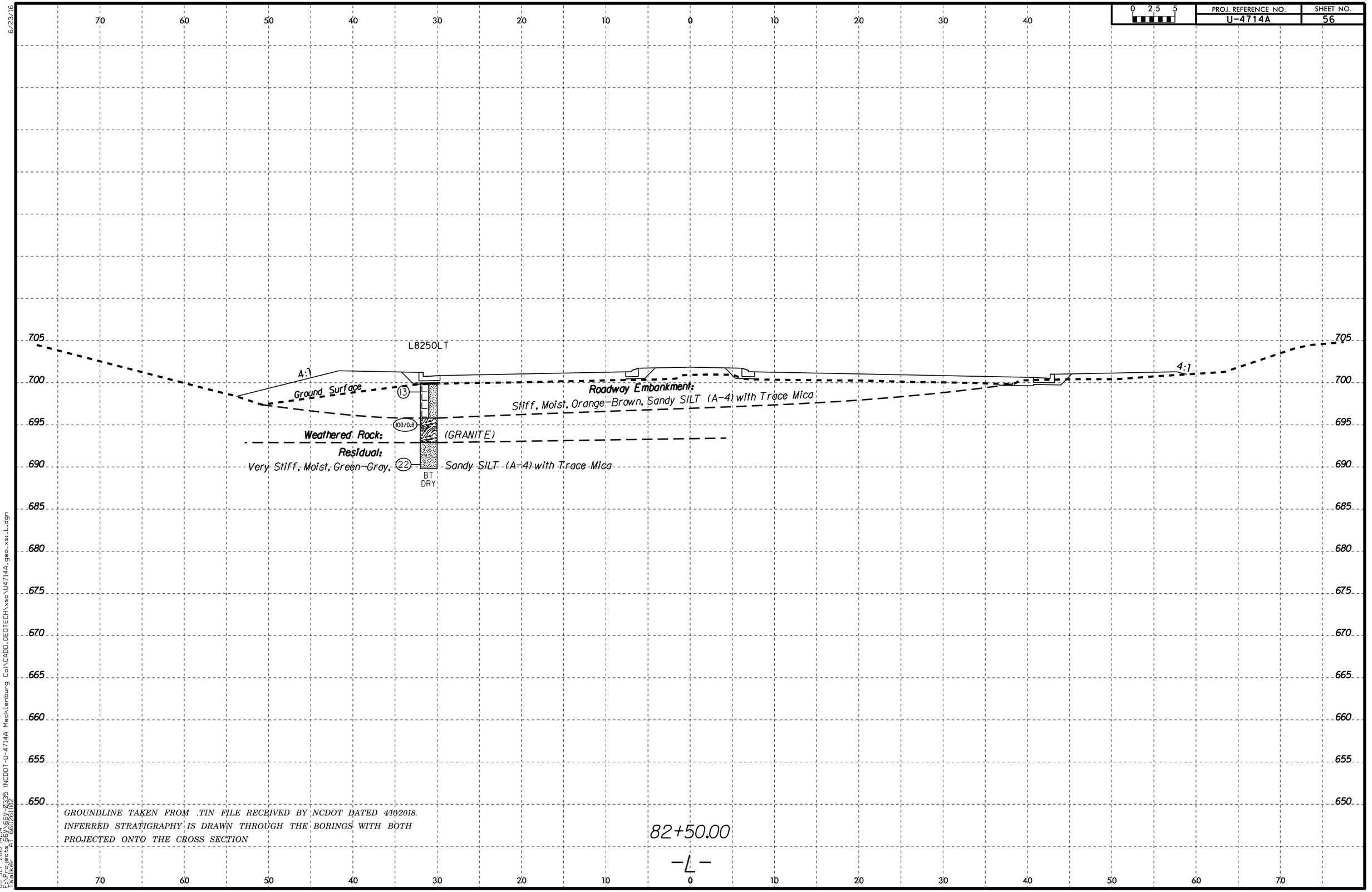
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Walker AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	56



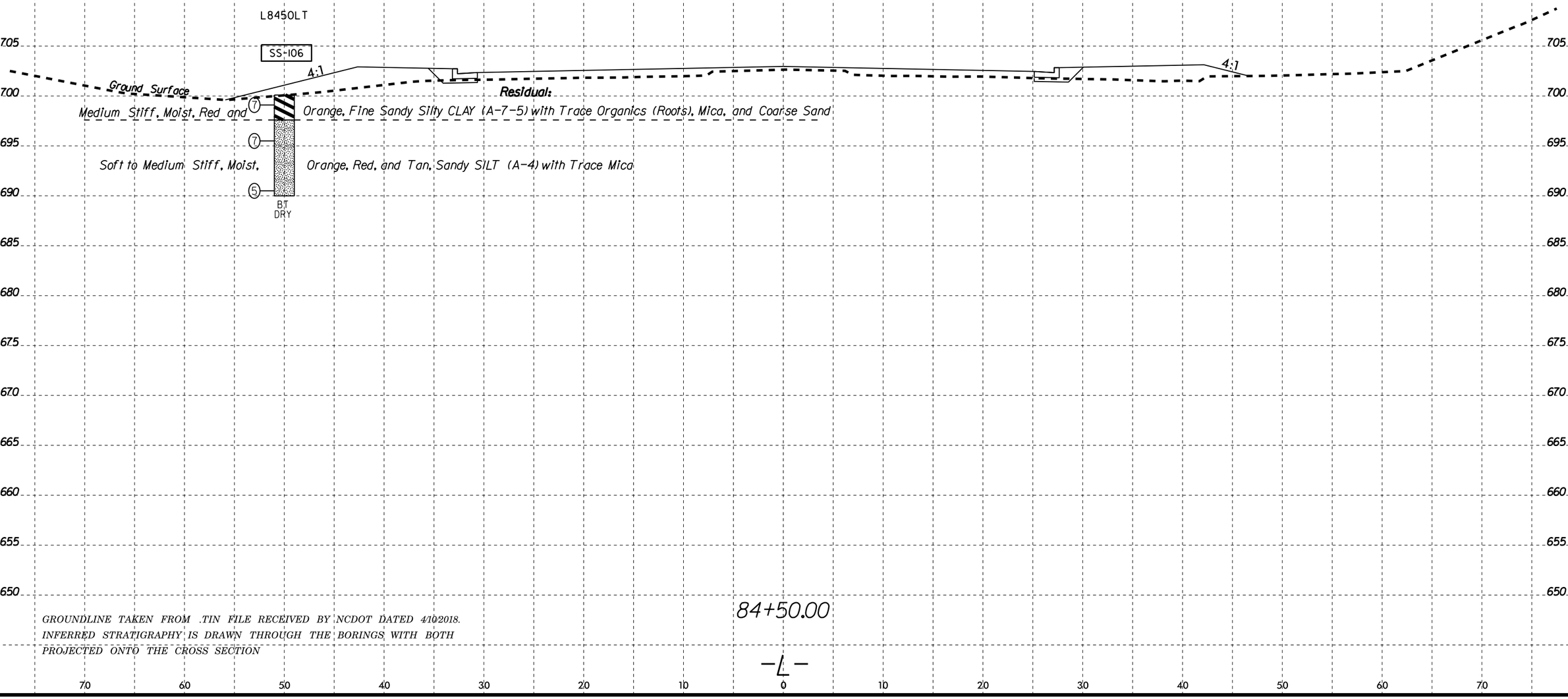
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Walker, Al 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	57

0 2.5 5

SOIL TEST RESULTS

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		
SS- 106	50' LT	84+50	0.0- 1.5	A-7-5(15)	55	11	5.5	16.7	53.9	23.9	99.7	96.0	85.9	34.7	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

84+50.00

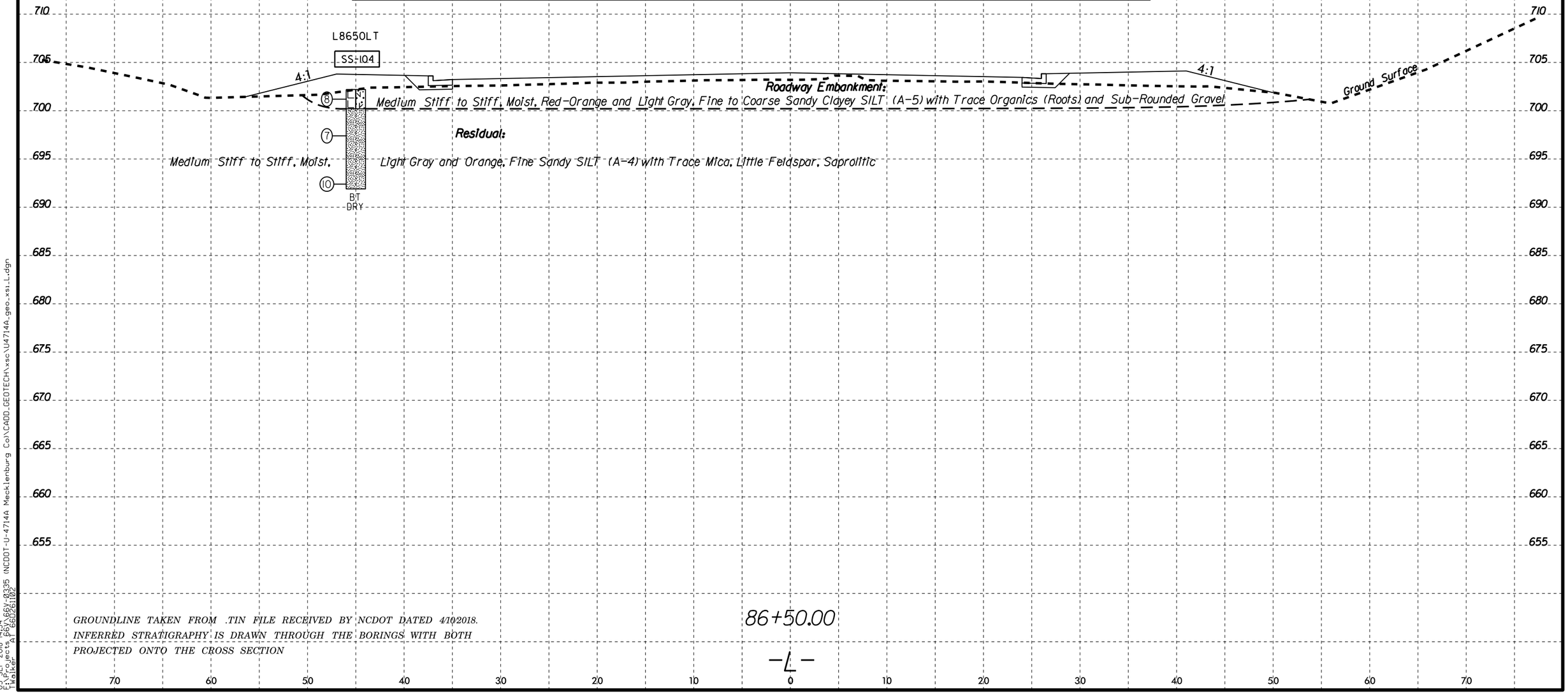
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Walker AT 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	58

SOIL TEST RESULTS

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		
SS-104	45' LT	86+50	0.0-1.5	A-5(6)	44	7	16.4	16.3	43.2	24.1	99.0	87.2	72.3	22.7	-

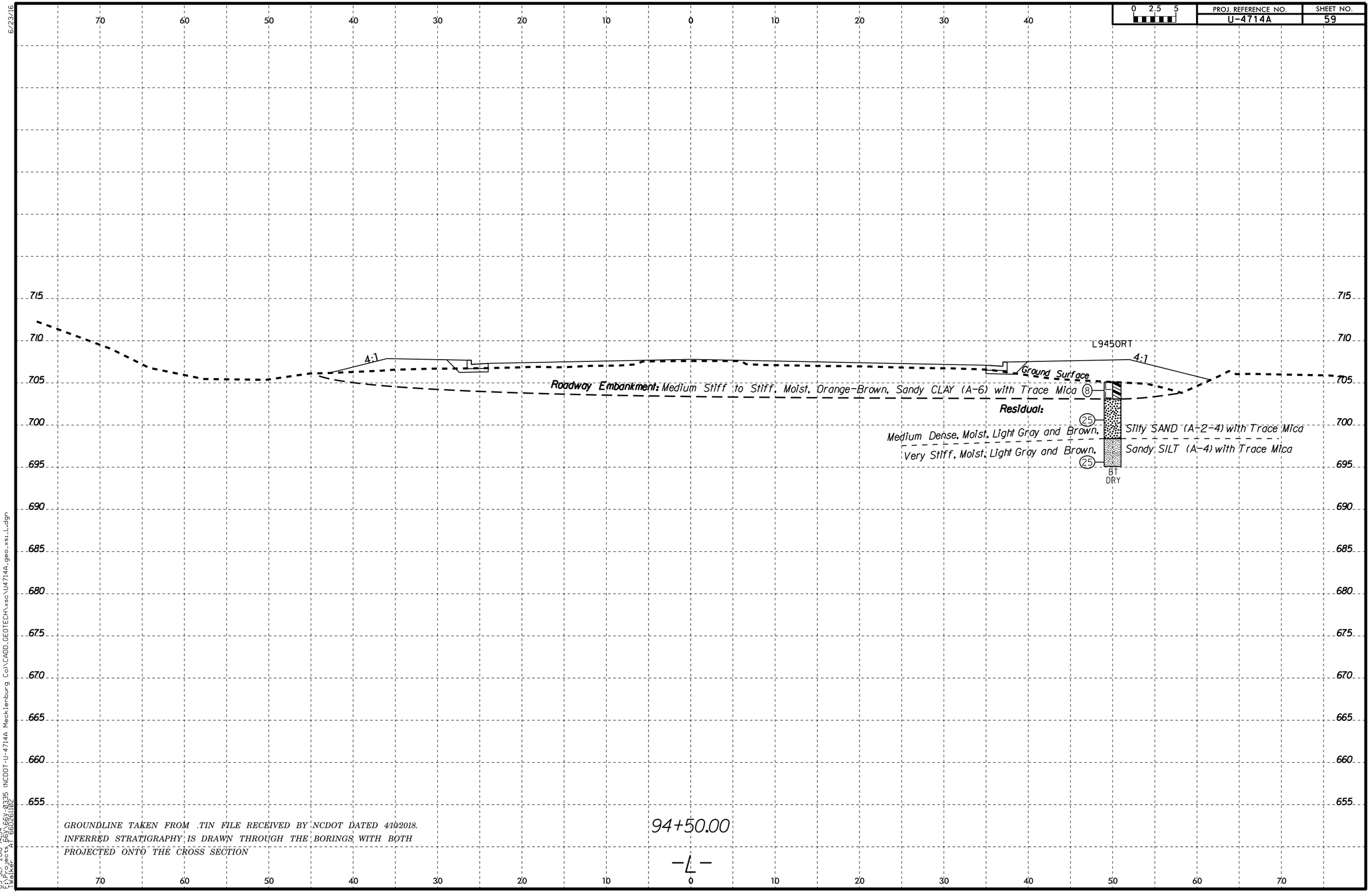


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

86+50.00

-L-

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Walker, Al 66026102



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

6/23/16
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Walker, AT 6602611002

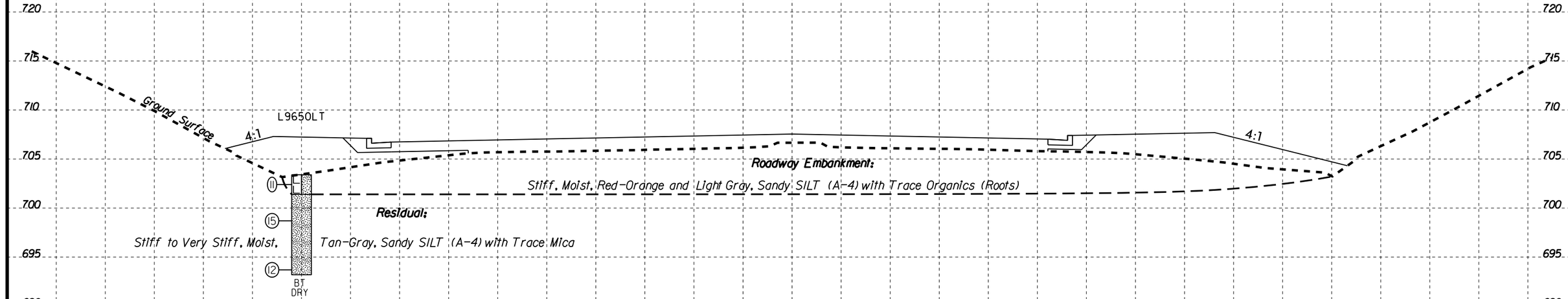
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	60

0 2.5 5

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

720 715 710 705 700 695 690 685 680 675 670 665 660 655



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

96+50.00
-L-

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TWalker
AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	61

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

710 705 700 695 690 685 680 675 670 665 660 655 650

4:1

L9850RT

4:1

Ground Surface

Roadway Embankment: Stiff to Very Stiff, Moist, Brown and Gray, Sandy SILT (A-4)

15

Residual:

20 Very Stiff, Moist, Light Gray and Brown, Sandy SILT (A-4) with Trace Mica

28

BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

98+50.00

-L-

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

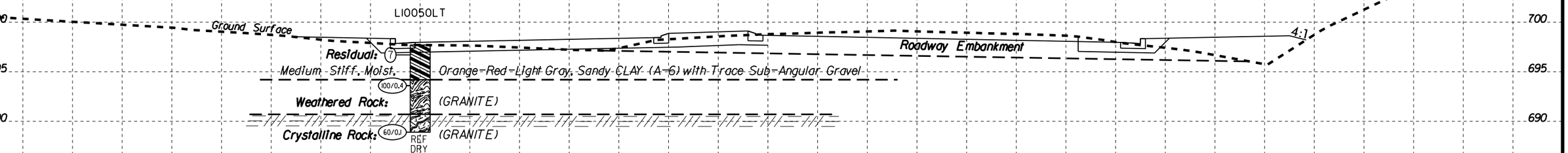
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T. Walker AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	62

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

705 700 695 690 685 680 675 670 665 660 655 650



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

100+50.00

-L-

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Walker, A1 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	63

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

695 690 685 680 675 670 665 660 655

LI0250LT

3:1

4:1

Ground Surface

Roadway Embankment

Residual:

(8) (13) Medium Stiff to Stiff, Moist, Brown-Orange, Sandy SILT (A-4) with Trace Organics (Roots) and Sub-Rounded Gravel

(20) Very Stiff, Moist, Tan-Orange, Silty CLAY (A-7) with Trace Organics (Roots) and Gravel

BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

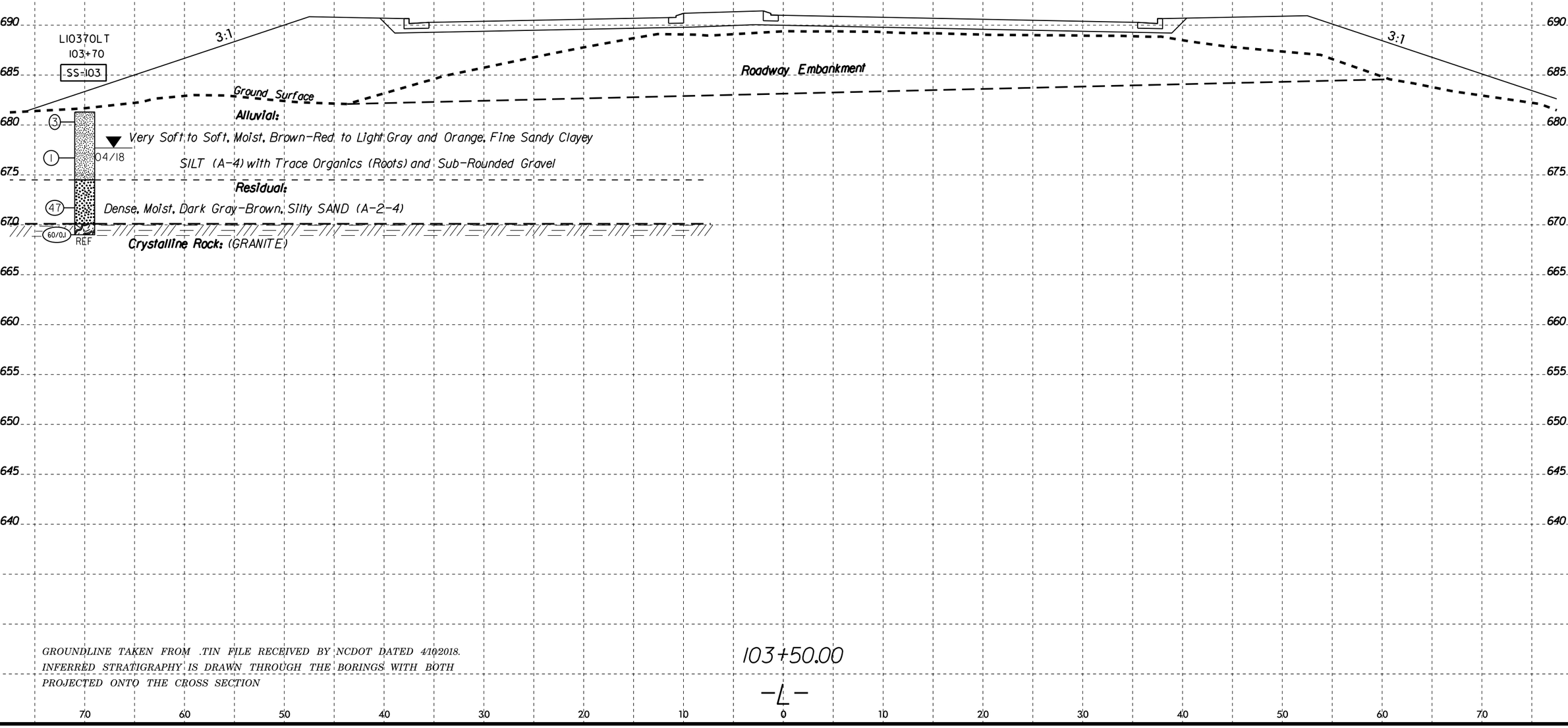
102+50.00
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70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

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Walker
AT 6602611102

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-103	70' LT	103+70	0.0-1.3	A-4(4)	29	7	6.0	21.1	45.3	27.6	100.0	99.0	77.5	25.3	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

103+50.00
-L-

6/23/16
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Walker A1 66026102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	65

140 130 120 110 100 90 80 70 60 50 40 30

715 710 705 700 695 690 685 680

Residual: Soft, Moist, Red-Orange, Fine to Coarse Sandy Silty CLAY (A-7-6) with Trace Organics (Roots)

2:1

Very Stiff to Hard, Moist, Tan-Gray, Green, and Orange, Sandy SILT (A-4) with Trace Mica

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

106+00.00

-L-

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

05-SEP-2018 14:56
E:\Projects_DOT\66V_66V-0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\xsc\U4714A_geo_xsi_L.dgn
Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	66

80 70 60 50 40 30 20 10 0 10 20 30

710 705 700 695 690 685 680

Ⓐ **Residual:** Soft, Moist, Red-Orange, Fine to Coarse Sandy Silty CLAY (A-7-6) with Trace Organics (Roots)

Ground Surface

2:1

Very Stiff to Hard, Moist, Tan-Gray, Green, and Orange, Sandy SILT (A-4) with Trace Mica

4:1

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

107+00.00

SOIL TEST RESULTS

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		
SS-102	70' LT	106+50	0.0-1.5	A-7-6(15)	41	23	15.2	12.9	34.4	37.5	93.7	83.4	71.0	17.7	-

715 710 705 700 695 690 685 680 675 670

L10650LT

SS-102

Residual: (3) (19) (42) (99) (100/0.3) (60/0.1) (60/0.1) REF DRY

Soft, Moist, Red-Orange, Fine to Coarse Sandy Silty CLAY (A-7-6) with Trace Organics (Roots)

Ground Surface

Very Stiff to Hard, Moist, Tan-Gray, Green, and Orange, Sandy SILT (A-4) with Trace Mica

4:1

Weathered Rock: (GRANITE)

Crystalline Rock: (GRANITE)

106+50.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	67

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

705 700 695 690 685 680 675 670 665 660

LI0850LT

Ground Surface

Residual:

Medium Stiff, Moist, Orange-Brown,

Sandy SILT (A-4) with Trace Organics (Wood Fragments)

Dense to Very Dense, Moist, Orange-Brown and Light Gray, Silty SAND (A-2-4) with Trace Sub-Angular Quartz Gravel

4:1

3:1

Roadway Embankment

7
32
61
BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/102018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

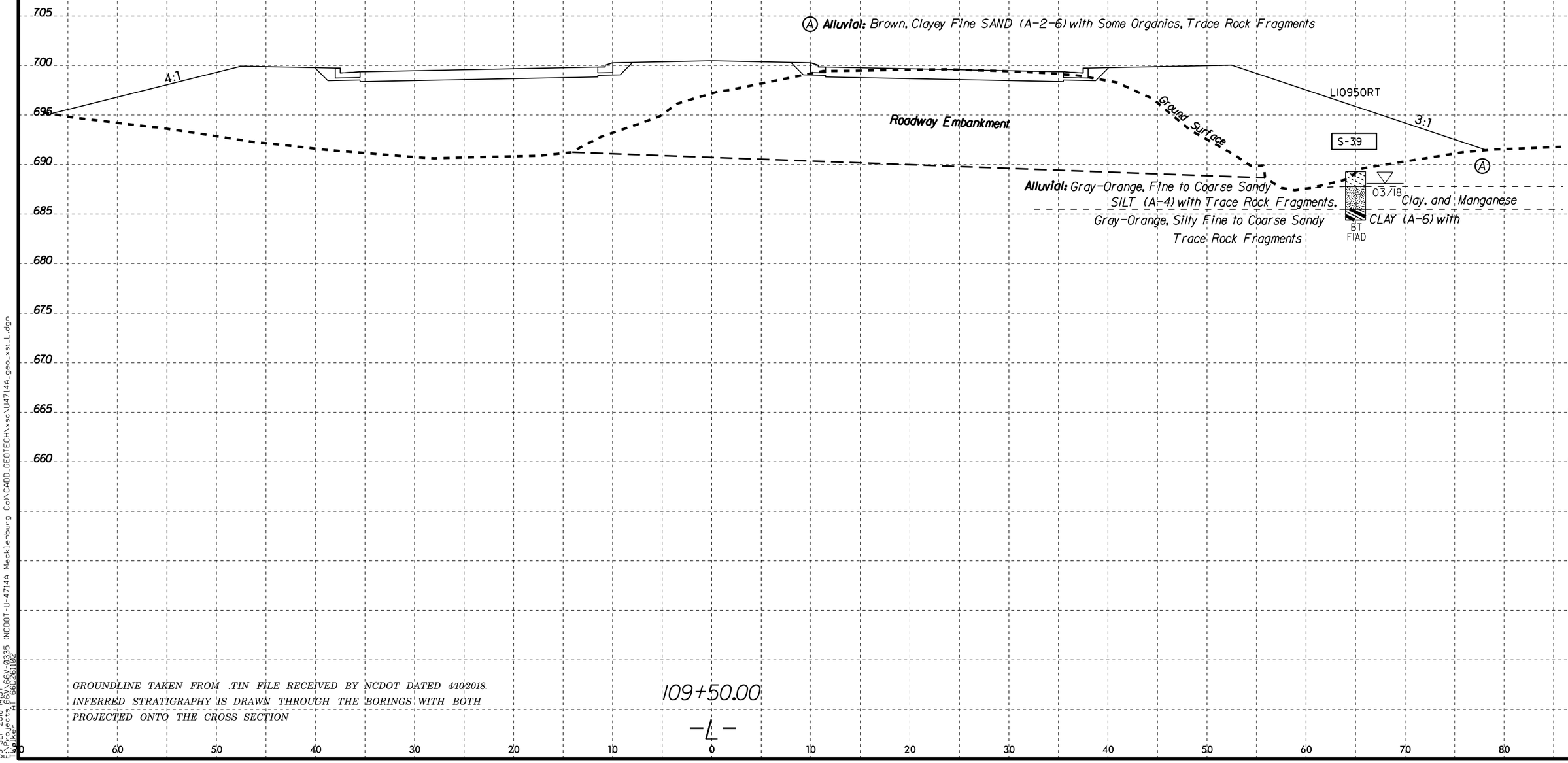
108+50.00
-L-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	68

SOIL TEST RESULTS

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		
S-39	65' RT	109+50	1.7-2.7	A-4(0)	19	4	26.0	22.5	38.0	13.5	98.5	82.3	54.4	19.7	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

109+50.00

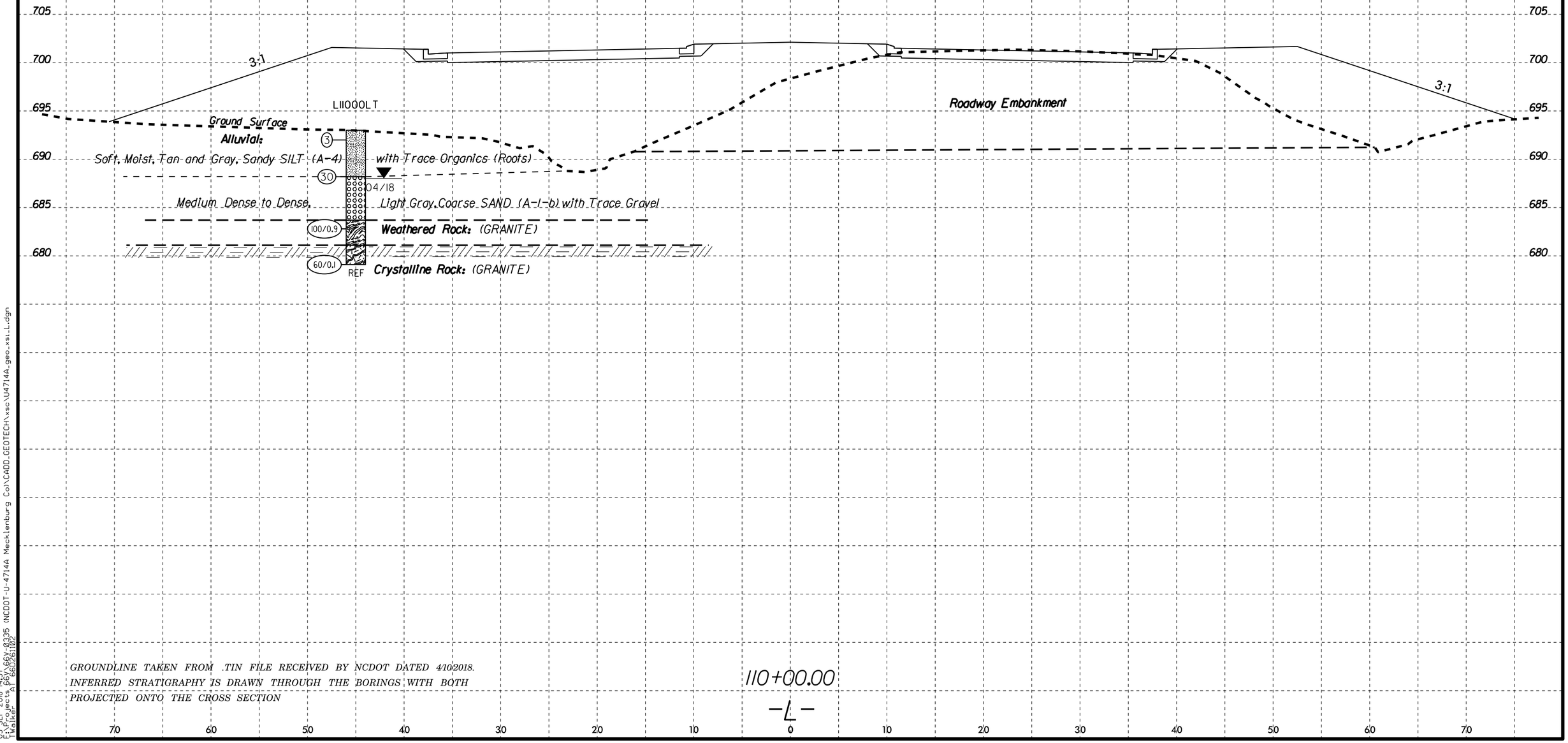
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Volker AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	69

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



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

110+00.00
-L-

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

05-SEP-2018 14:57
F:\Projects\6607.66\V-0335 (NCDOT-U-4714A Mecklenburg Co)\CADD_GEOTECH\xsc\U4714A_geo_xsL_L.dgn
Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	70

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

Ⓐ **Alluvial:** *Soft, Moist, Tan and Gray, Fine Sandy SILT (A-4) with Trace Organics (Roots)*

710 705 700 695 690 685 680 675 670 665

4:1

L11200LT

Roadway Embankment

Ground Surface

Residual

3 Ⓐ

100/0.8 REF DRY 60/0.0

Weathered Rock: *(GRANITE)*

Crystalline Rock: *(GRANITE)*

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

112+00.00
-L-

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

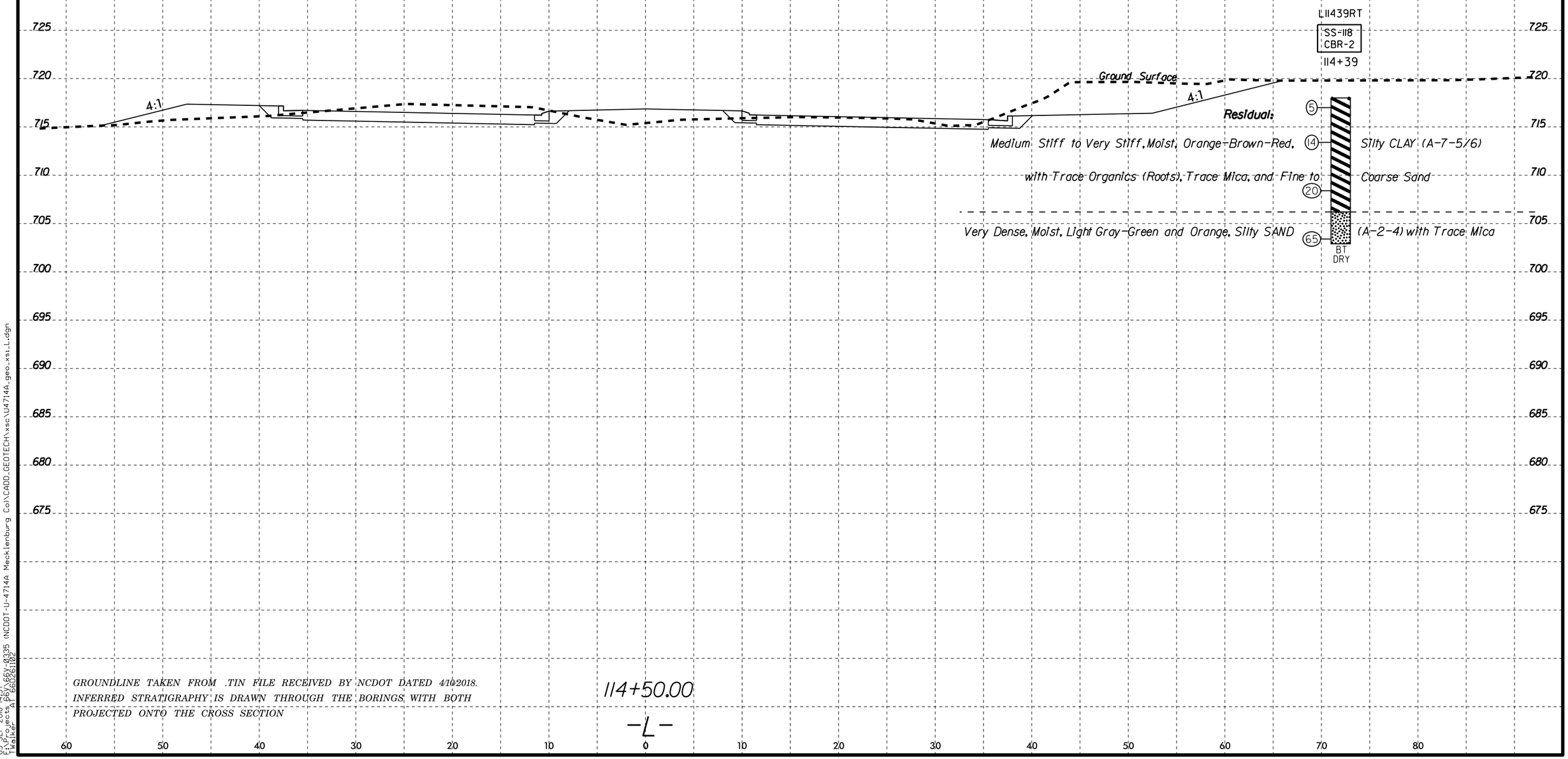
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Walker

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	71

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-118	72' RT	114+39	0.0-1.5	A-7-6(19)	45	20	5.7	6.8	36.3	51.2	99.6	95.4	89.5	25.1	-
CBR-2	72' RT	114+39	2.5-8.5	A-7-5(27)	62	24	7.9	4.8	25.3	62.0	98.7	92.0	87.9	29.3	-

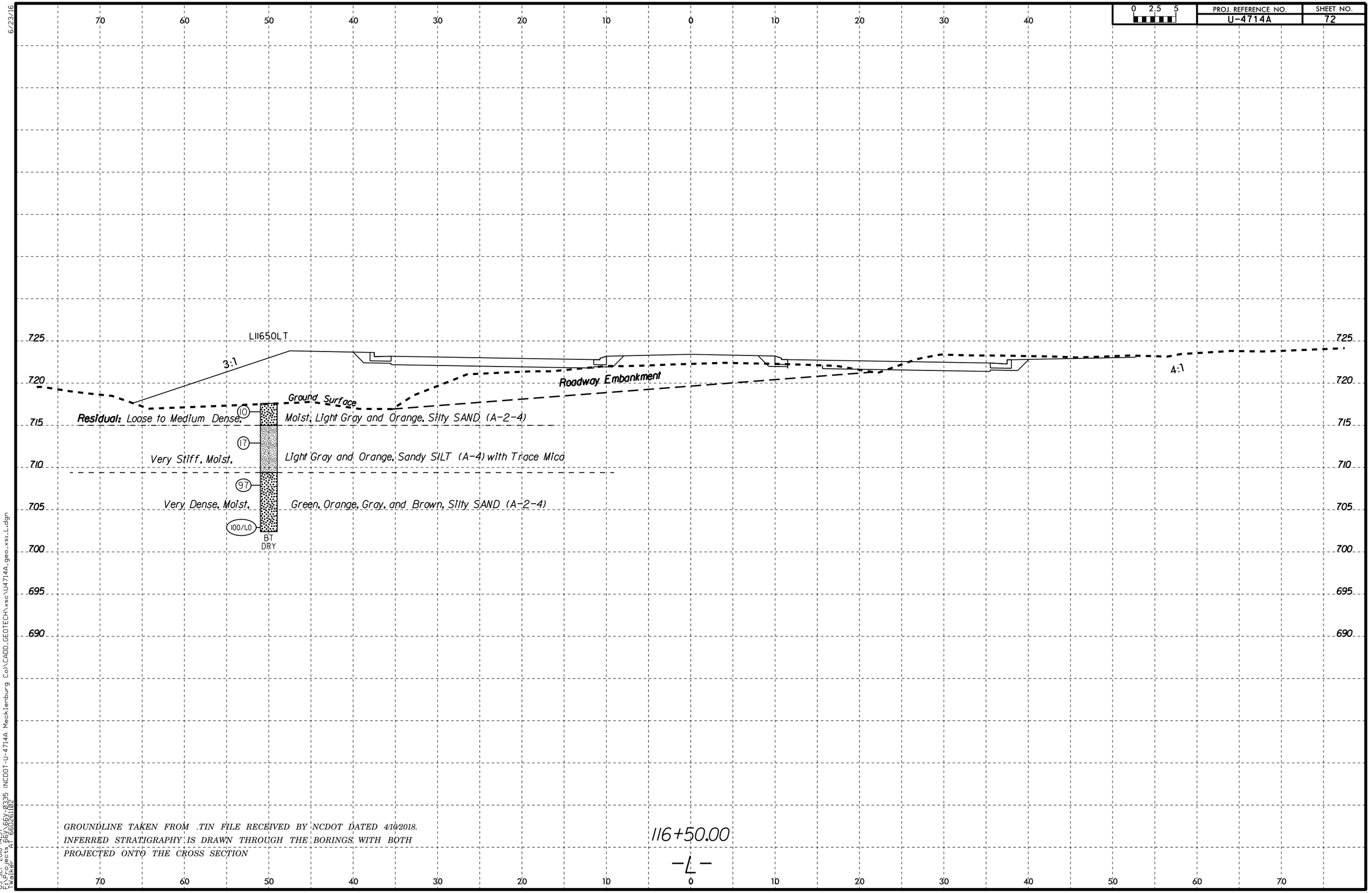


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

114+50.00
-L-

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Walker AT 6602611002

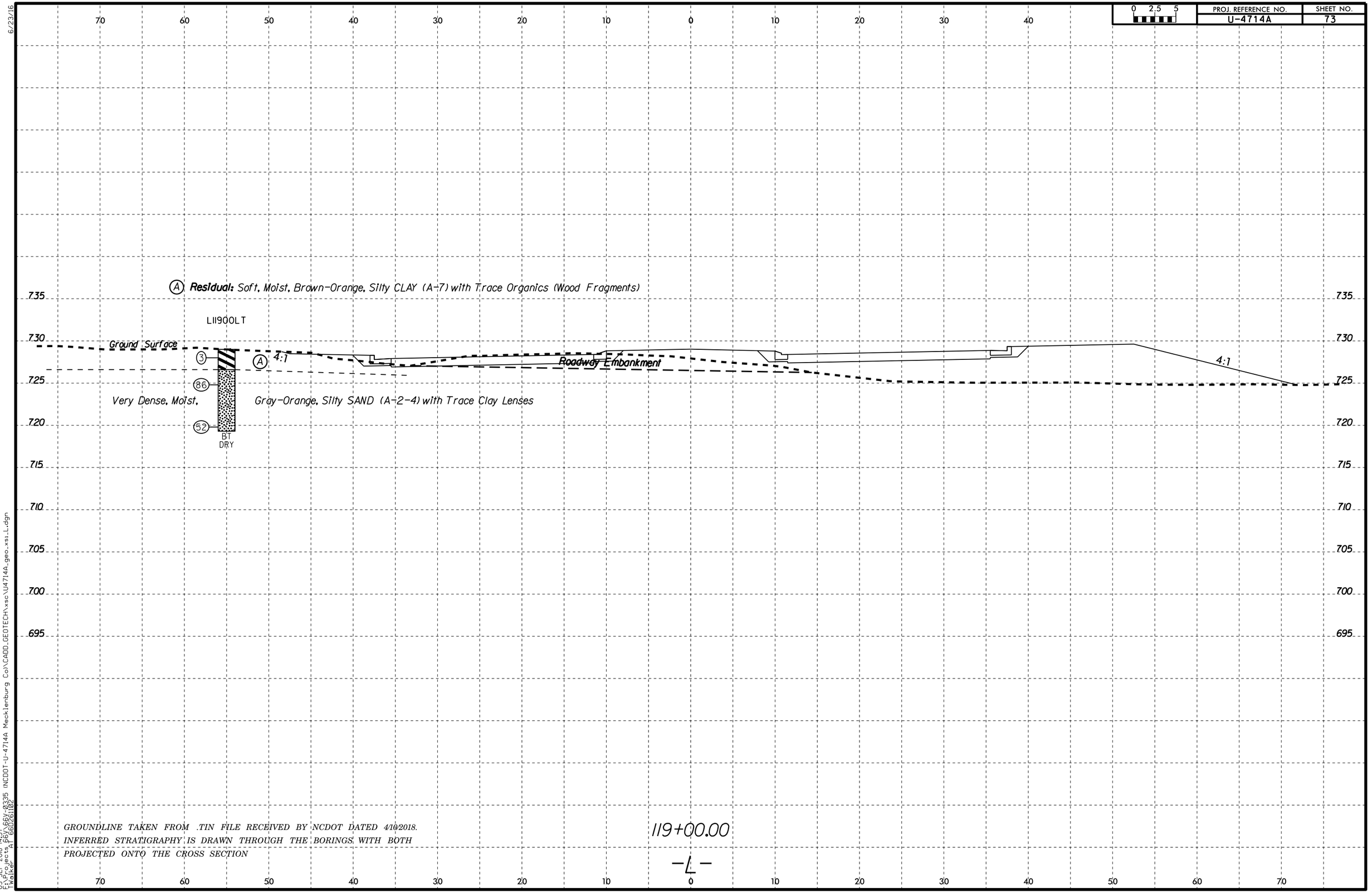
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	72



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

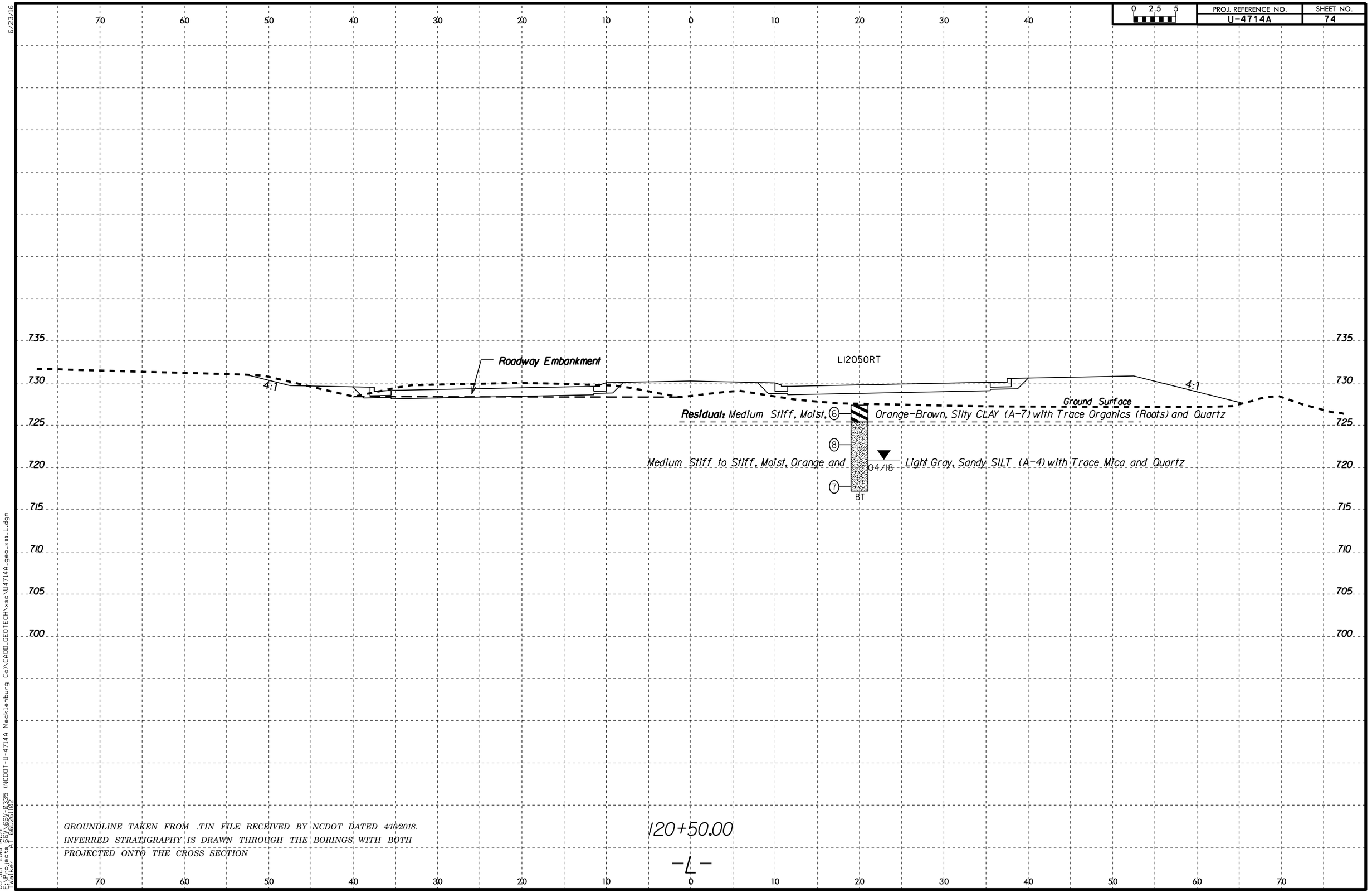
116+50.00
-L-

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Walker, A.T. 6602611092



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05-SEP-2018 14:57
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Tim Walker

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	74



05-SEP-2018 14:57
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T. Walker AT 6602611002

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	75

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

740 735 730 725 720 715 710 705 700

Ⓐ **Residual:** *Medium Stiff, Moist, Orange-Brown, Silty CLAY (A-7) with Trace Organics (Roots) and Quartz*

LI224IRT
122+41

Ground Surface

4:1

4:1

Ⓐ

⑦

⑪ **Residual:** *Soft to Stiff, Moist, Orange and Light Gray, Sandy SILT (A-4) with Trace Mica and Quartz*

⑥

④

BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

122+50.00

-L-

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

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Walker AT 6602611002

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	76

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

735 730 725 720 715 710 705 700 695 690 685

LI2523LT
125+23

3:1

Roadway Embankment

Ground Surface

Alluvial: Loose, Moist, Light Gray and Orange, Silty SAND (A-2-4)

Medium Dense to Very Dense, Moist, Light Gray and Orange, Silty SAND (A-2-4) with Trace Sub-Rounded Quartz and Mica

Residual:

Very Stiff, Moist, Gray and Orange-Brown, Sandy SILT (A-4) with Trace Mica

Weathered Rock: (GRANITE)

9
14
04/18
24
23
100/0.7
BT

LI2525RT
125+25

Soft, Moist, Light Gray and Brown, Sandy SILT (A-4) with Trace Organics (Roots)

3
19
04/18
29
62
100/0.6
BT

Weathered Rock: (GRANITE)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

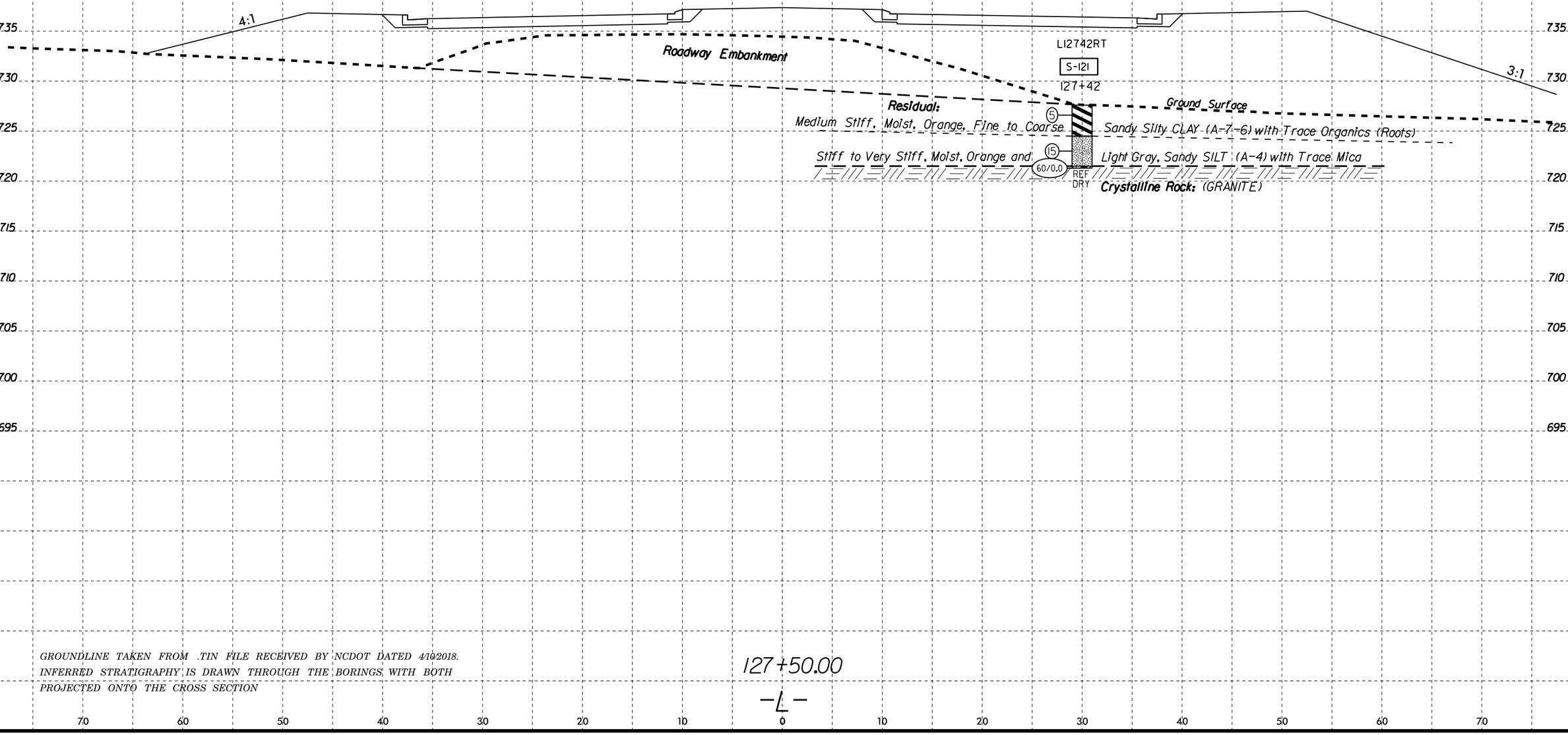
125+00.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	77

0 2.5 5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-121	30' RT	127+42	0.0-1.5	A-7-6(11)	41	16	19.9	12.4	21.7	46.0	99.1	84.5	69.7	12.9	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

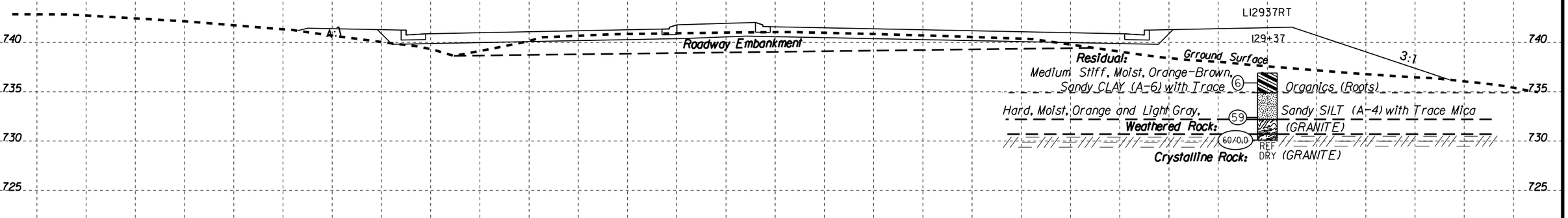
127+50.00
-L-

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Walker AT 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	78

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

745 740 735 730 725 720 715 710 705 700 695 690 685 680



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

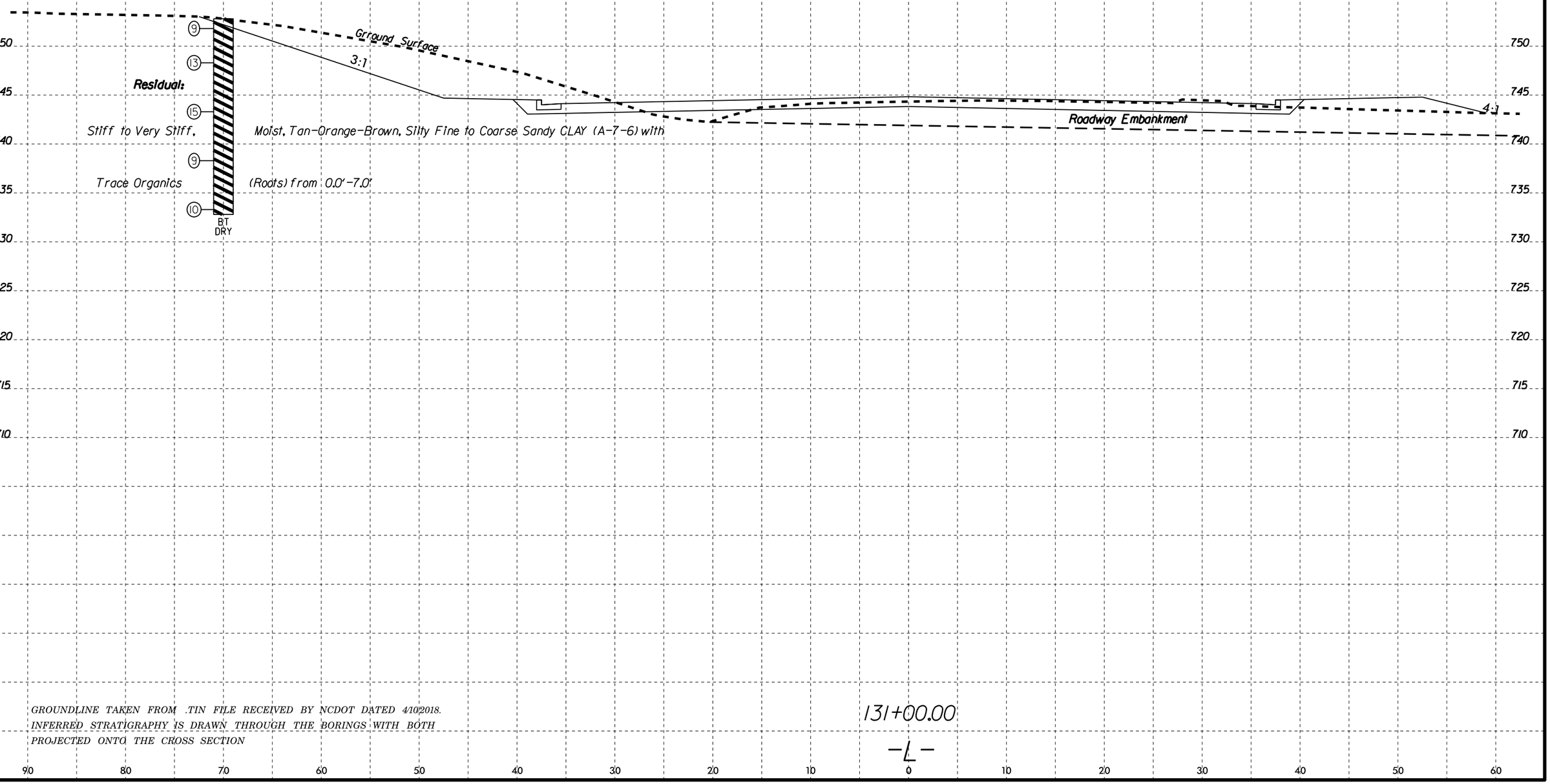
I29+50.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	79

0 2.5 5

SOIL TEST RESULTS

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		
CBR-3	70' LT	131+00	7.5-15.0	A-7-6(11)	45	17	17.5	22.4	18.0	42.1	95.7	84.1	65.8	22.2	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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Walker
AT 6602611102

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	80

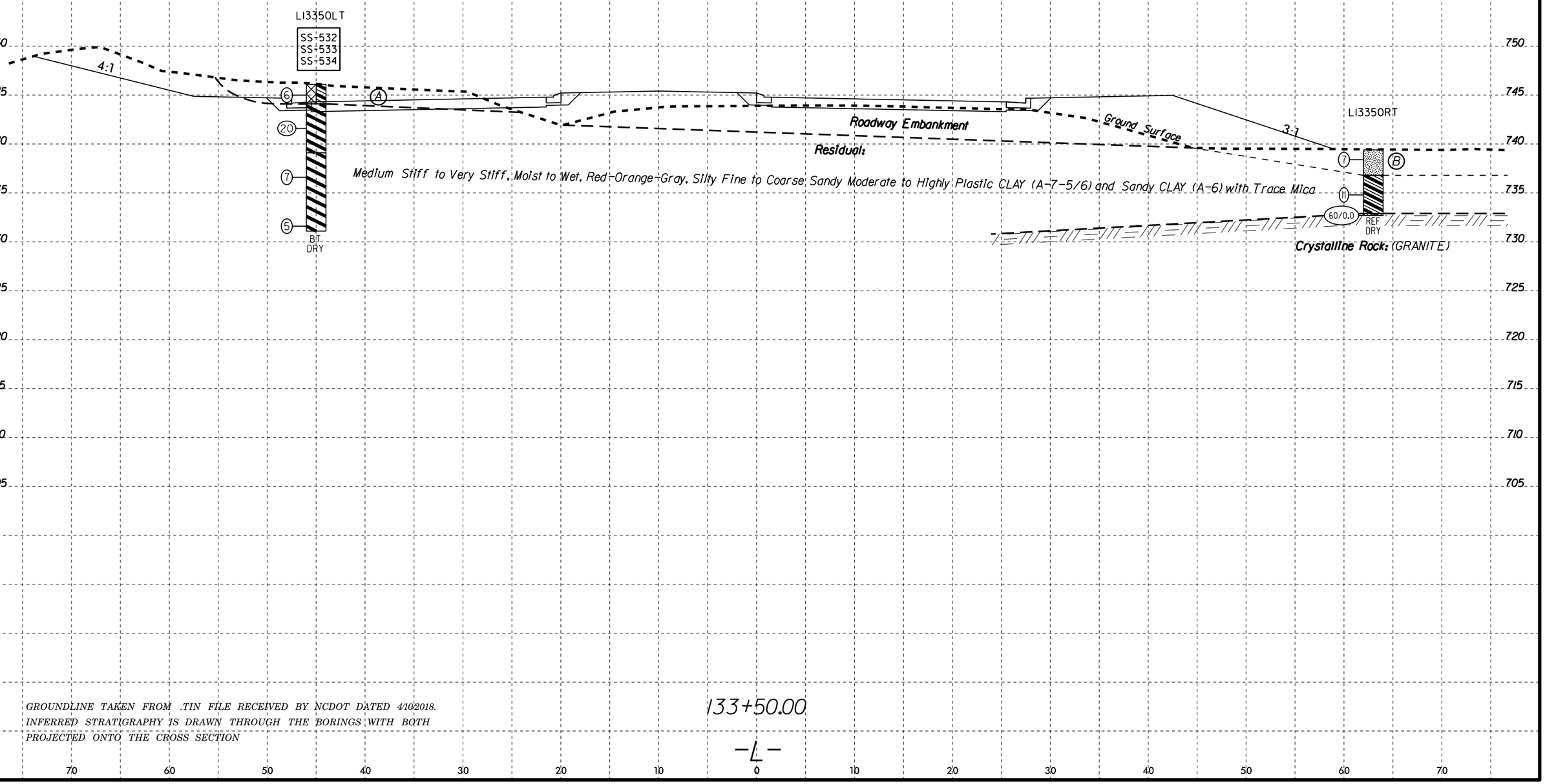
0 2.5 5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-532	35' LT	133+50	0.1-1.5	A-6(5)	35	13	23.7	23.2	16.2	36.9	99.5	82.5	57.0	18.1	-
SS-533	35' LT	133+50	3.5-5.0	A-7-5(25)	67	35	17.8	13.9	9.7	58.6	100.0	86.9	70.7	22.4	-
SS-534	35' LT	133+50	8.5-10.0	A-7-6(14)	48	19	10.1	21.6	27.3	41.0	100.0	94.3	72.8	32.0	-

(A) **Artificial Fill:** Medium Stiff, Moist, Brown, Silty Fine to Coarse Sandy CLAY (A-6) with Trace Organics (Roots)

(B) **Residual:** Medium Stiff, Moist, Gray and Orange, Sandy SILT (A-4) with Trace Organics (Roots) and Gravel



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

133+50.00

-L-

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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	81

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

Ⓐ **Residual:** *Very Loose, Wet, Gray-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Clay*

750 745 740 735 730 725 720 715 710 705

LI3550LT

Ground Surface

4:1

Ⓐ 3

Very Stiff, Moist, Orange-Gray-Brown, CLAY (A-6) with Trace Quartz 20

Medium Dense, Moist, 20

60/0.0

Crystalline Rock: REF DRY *Gray-Brown (GRANITE)*

Silty Fine to Coarse Sandy Fragments Tan-Orange-Brown, Silty Fine to Coarse SAND (A-2-4)

Roadway Embankment

4:1

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

135+50.00

-L-

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

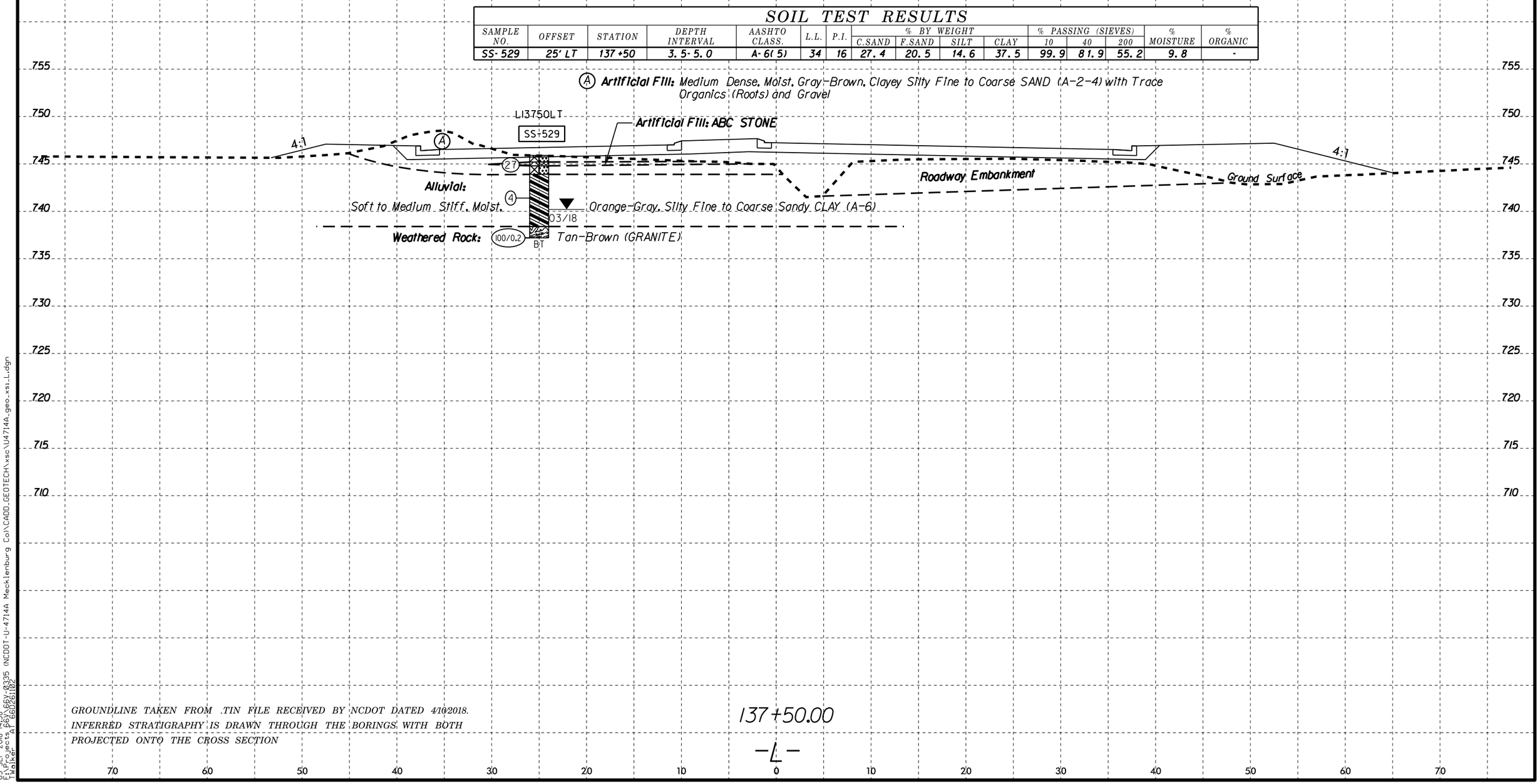
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PROJ. REFERENCE NO.	SHEET NO.
U-4714A	82

0 2.5 5

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-529	25' LT	137+50	3.5-5.0	A-6(5)	34	16	27.4	20.5	14.6	37.5	99.9	81.9	55.2	9.8	-



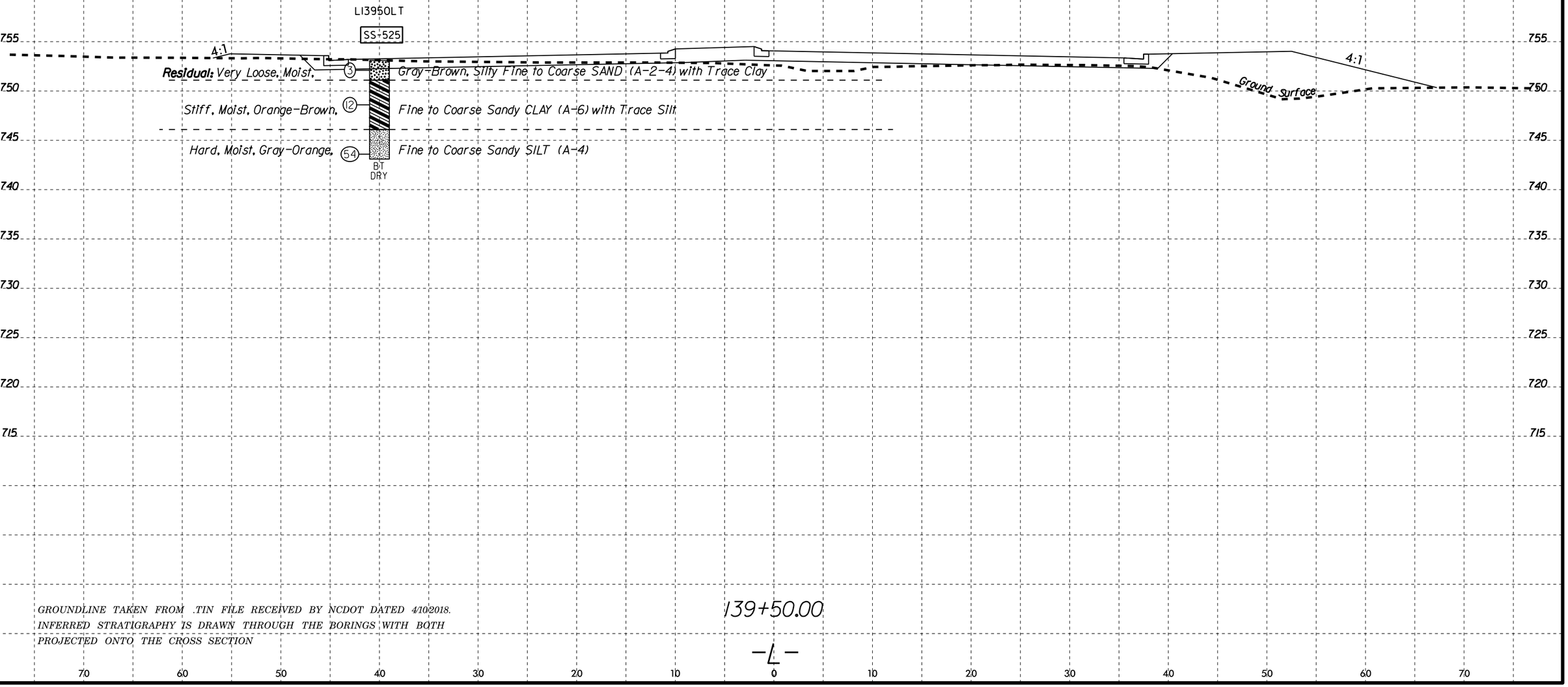
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INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

137+50.00
-L-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	83

SOIL TEST RESULTS

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		
SS-525	40' LT	139+50	3.5-5.0	A-6(3)	32	15	37.0	23.2	11.0	28.8	98.9	72.6	43.1	14.2	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

139+50.00

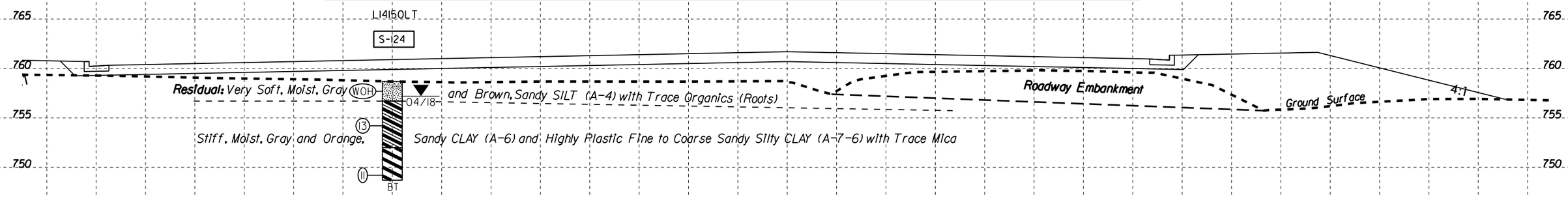
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Walker, A.T. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	84

SOIL TEST RESULTS

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		
SS-124	40' LT	141+50	8.5-10.0	A-7-6(21)	56	30	19.0	11.6	12.3	57.1	100.0	86.9	71.7	27.1	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

141+50.00
-L-

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Walker AT 6602611102

6/23/16

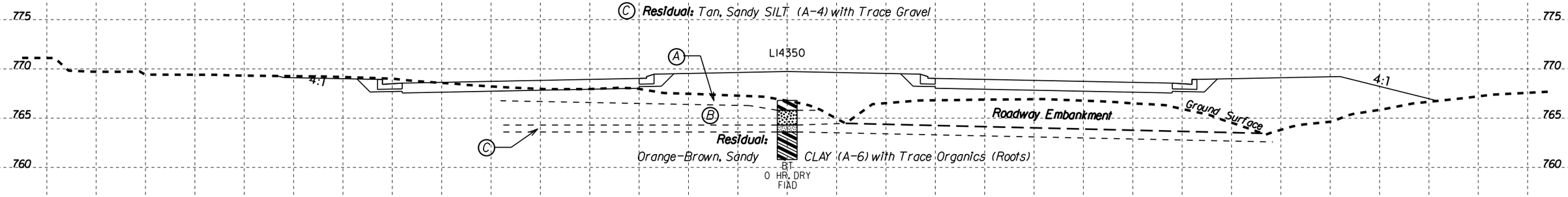
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	85

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

Ⓐ **Residual:** *Orange-Brown, Silty CLAY (A-7) with Trace Organics (Roots)*

Ⓑ **Residual:** *Gray, Silty SAND (A-2-4) with Trace Organics (Roots)*

Ⓒ **Residual:** *Tan, Sandy SILT (A-4) with Trace Gravel*



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.

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

143+50.00

-L-

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

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Walker, A. 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	86

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

785 780 775 770 765 760 755

Ⓐ **Residual:** *Gray-Tan, Silty SAND (A-2-4) with Trace Sub-Rounded Gravel*

Ⓑ **Residual:** *Orange, Sandy SILT (A-4) with Trace Mica*

LI455OLT

Ground Surface

Ⓐ 4:1

4:1

Residual:
Light Gray, Orange, and Red, Sandy CLAY (A-6) with Trace Mica

Ⓑ

BT
0 HR. DRY
FIAD

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

145+50.00

-L-

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

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Walker AT 6602611102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	87

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

790 785 780 775 770 765 760 755 750 745

LI4750LT

Ground Surface

4:1

Residual:

③ ⑱ ⑦

Soft to Very Stiff, Moist, Orange- Brown, Light Gray, and Red, Sandy CLAY (A-6) with Trace Organics (Roots) and Mica

Medium Stiff, Moist, Orange, Light Gray, and Red, Sandy SILT (A-4) with Trace Mica

BT
DRY

Roadway Embankment

4:1

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/02/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

147+50.00
-L-

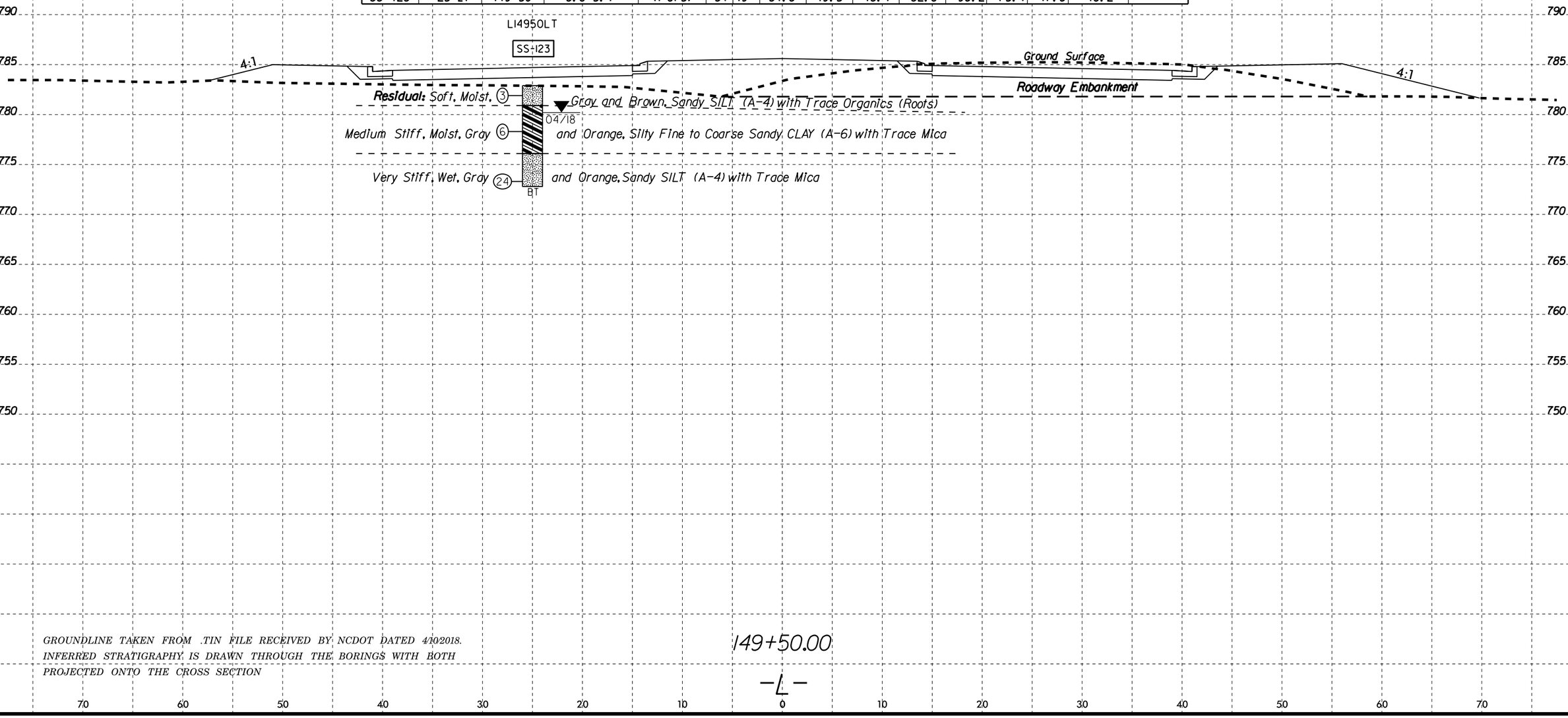
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Walker
TI 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	88

SOIL TEST RESULTS

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		
SS-123	25' LT	149+50	3.6-5.1	A-6(5)	34	19	34.8	19.5	13.1	32.6	98.2	75.4	47.8	16.2	-



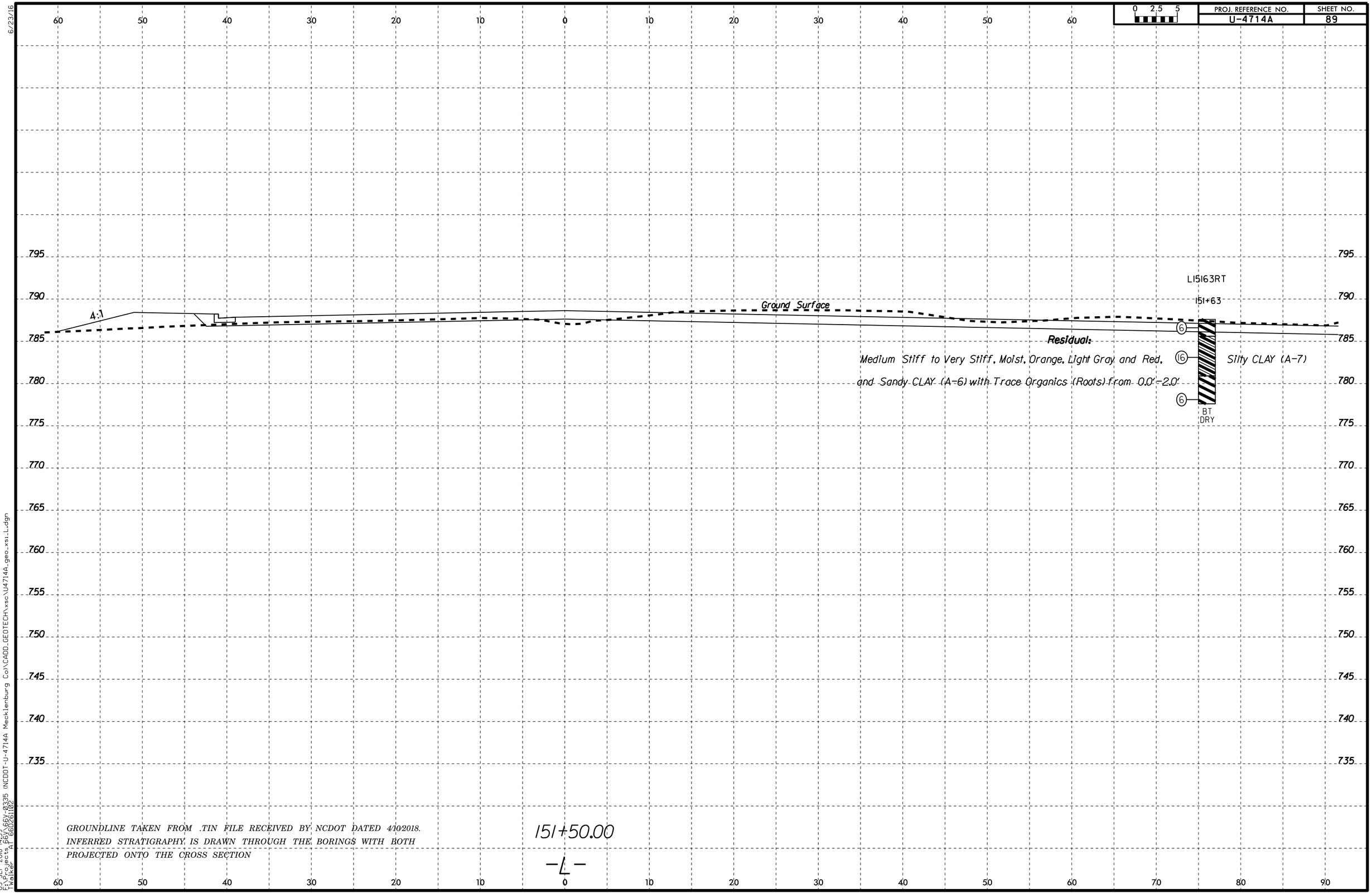
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

149+50.00

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Walker, Al 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	89

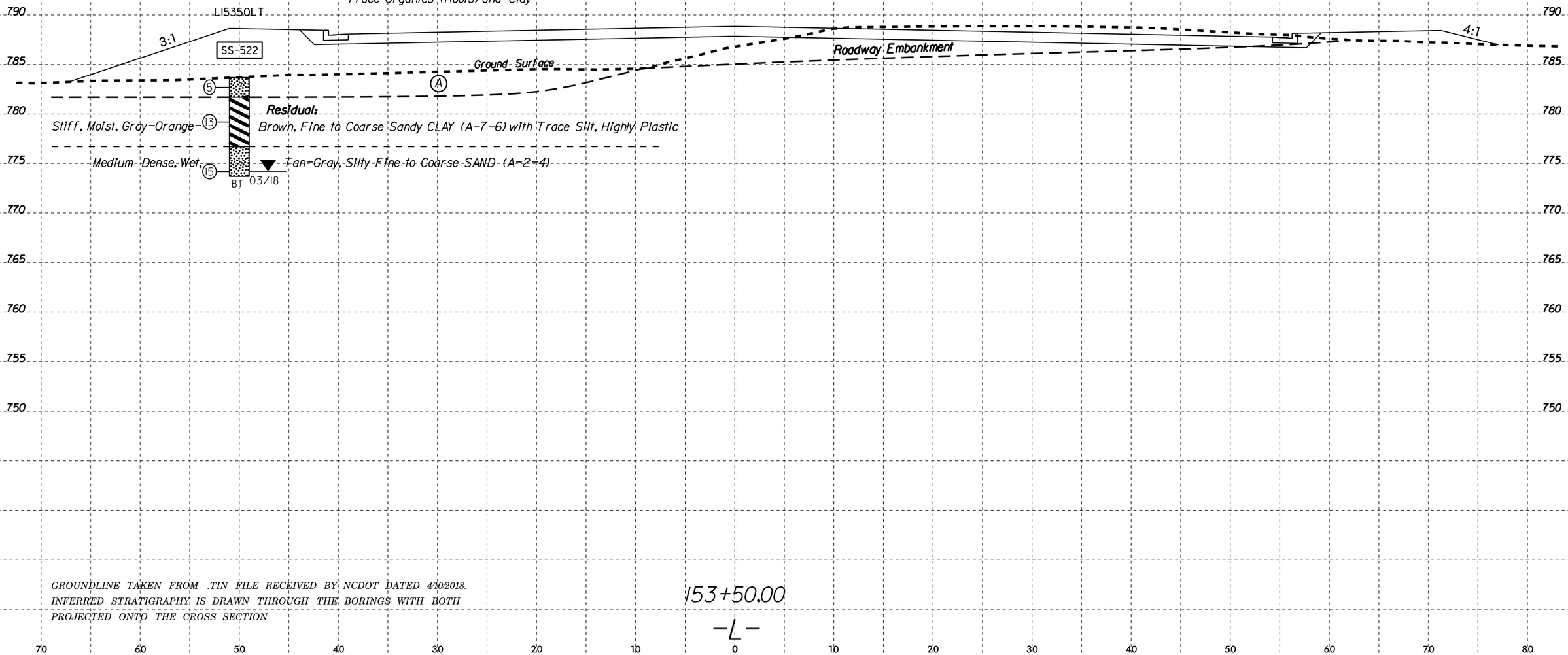


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Walker AT 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	90

SOIL TEST RESULTS

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		
SS-522	50' LT	153+50	3.5-5.0	A-7-6(18)	61	36	28.7	14.3	11.0	46.0	95.9	76.5	57.1	15.4	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

153+50.00
-L-

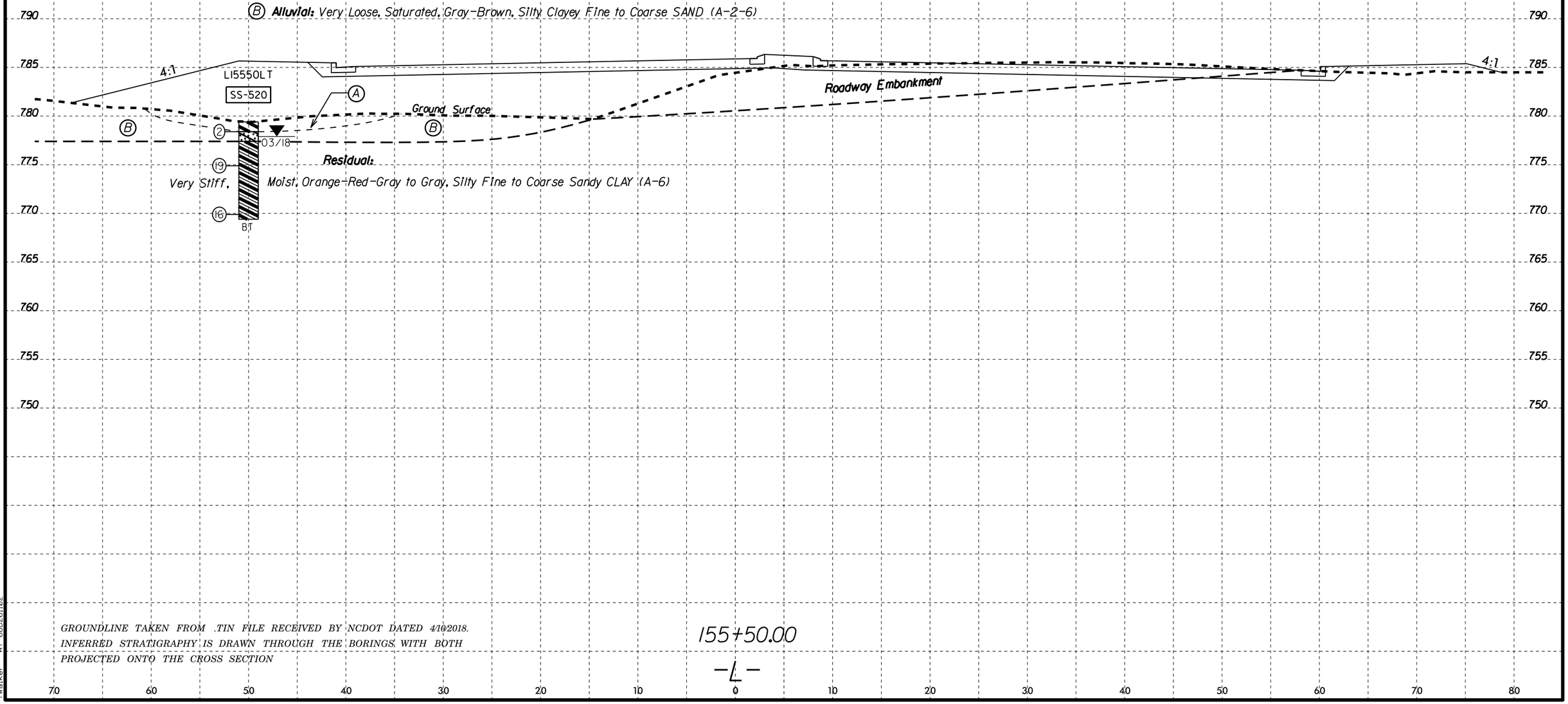
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Walker, AT 6602610

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-520	50' LT	155+50	3.5-5.0	A-6(6)	37	21	36.1	18.2	18.2	27.5	99.6	75.2	48.0	13.6	-

(A) **Alluvial:** Soft, Moist, Red-Brown, Fine Sandy Silty CLAY (A-7) with Trace Organics (Roots)

(B) **Alluvial:** Very Loose, Saturated, Gray-Brown, Silty Clayey Fine to Coarse SAND (A-2-6)



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

155+50.00

-L-

6/23/16
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Walker AT 6602611002

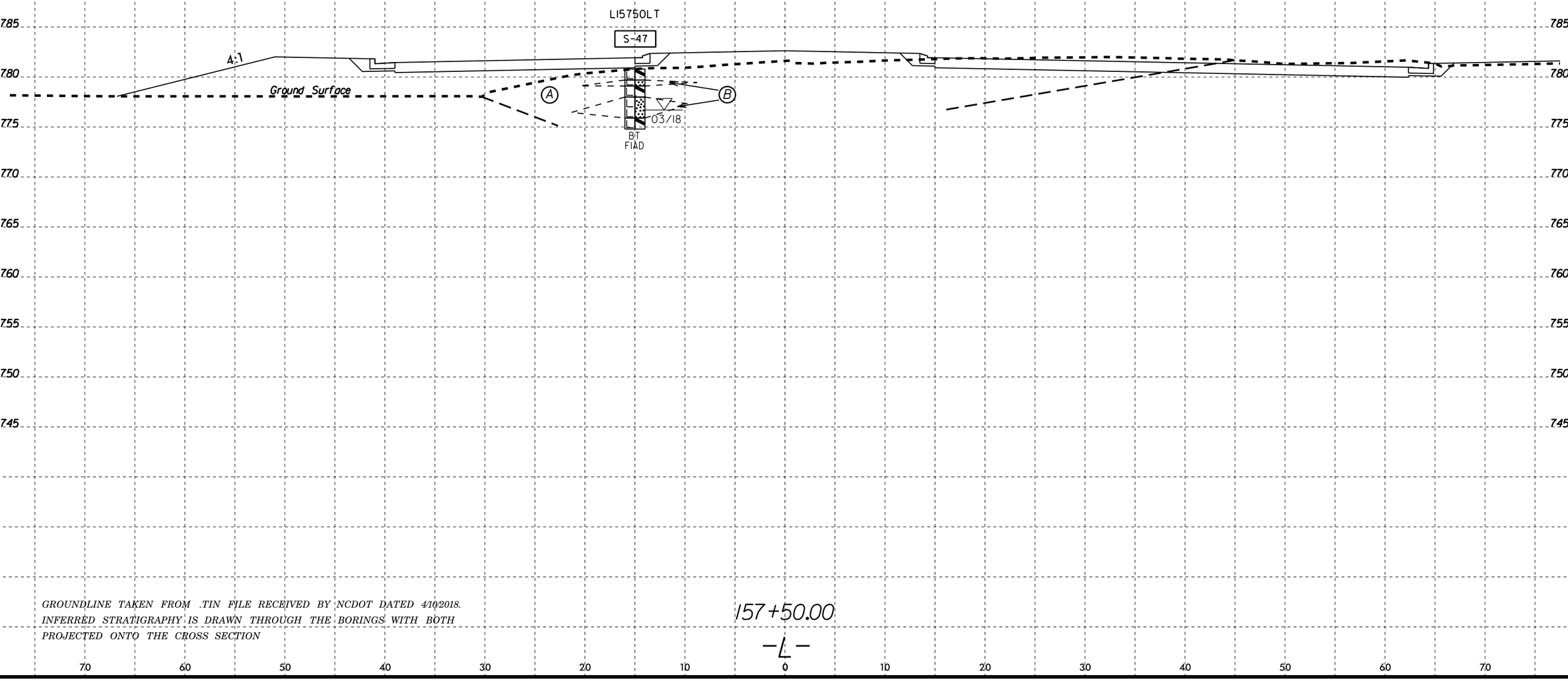
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	92

SOIL TEST RESULTS

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		
S-47	15' LT	157+50	1.7-2.7	A-7-6(20)	58	34	26.3	10.4	14.4	48.9	99.3	81.2	64.2	24.3	-

Ⓐ **Roadway Embankment:** Moist to Wet, Orange-Tan and Gray-Brown, Silty Fine to Coarse Sandy CLAY (A-7) with Trace Rock Fragments, Highly Plastic

Ⓑ **Roadway Embankment:** Wet, Tan and Gray-Brown, Clayey Silty Fine to Coarse SAND (A-2-4) with Trace Rock Fragments



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

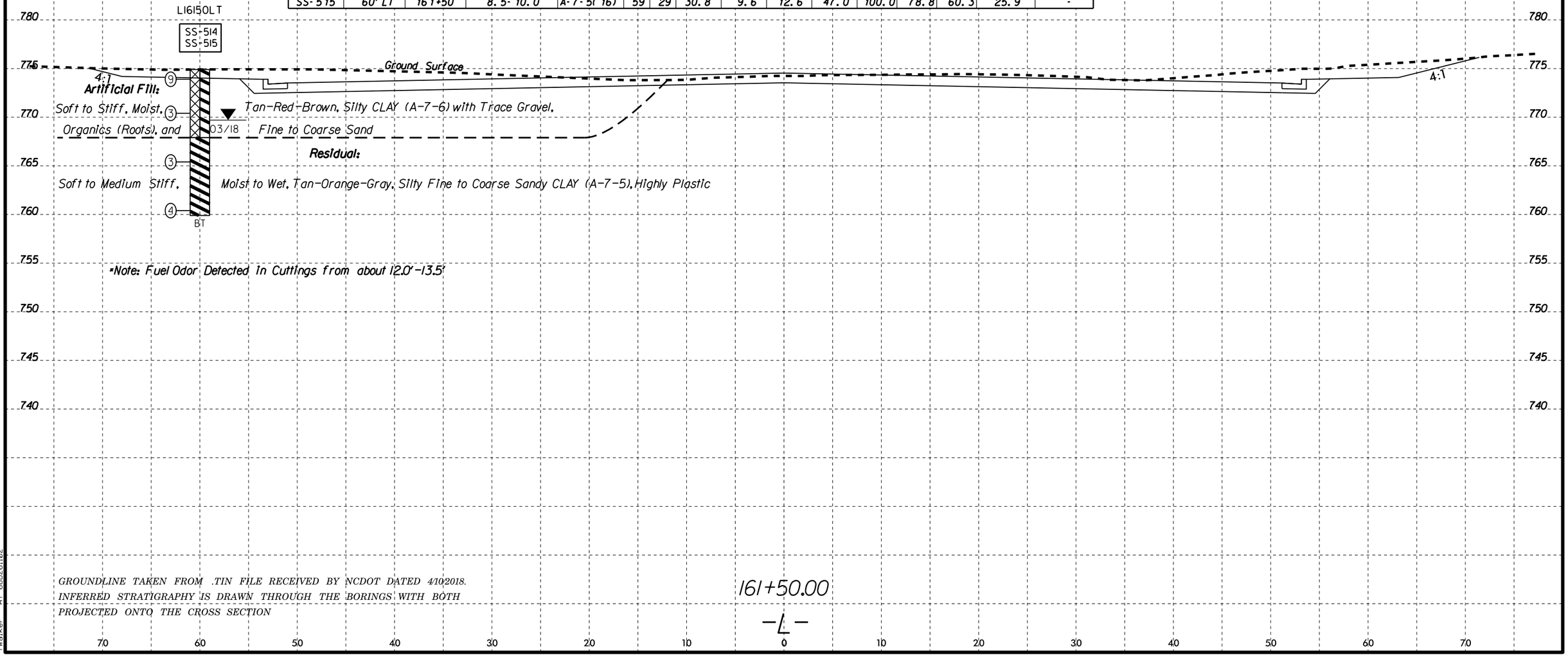
157+50.00
-L-

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	93

SOIL TEST RESULTS

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		
SS-514	60' LT	161+50	0.8-1.5	A-7-6(24)	47	24	3.6	5.7	40.2	50.5	99.5	97.4	91.9	20.2	-
SS-515	60' LT	161+50	8.5-10.0	A-7-5(16)	59	29	30.8	9.6	12.6	47.0	100.0	78.8	60.3	25.9	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

161+50.00
-L-

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Walker AT 6602611002

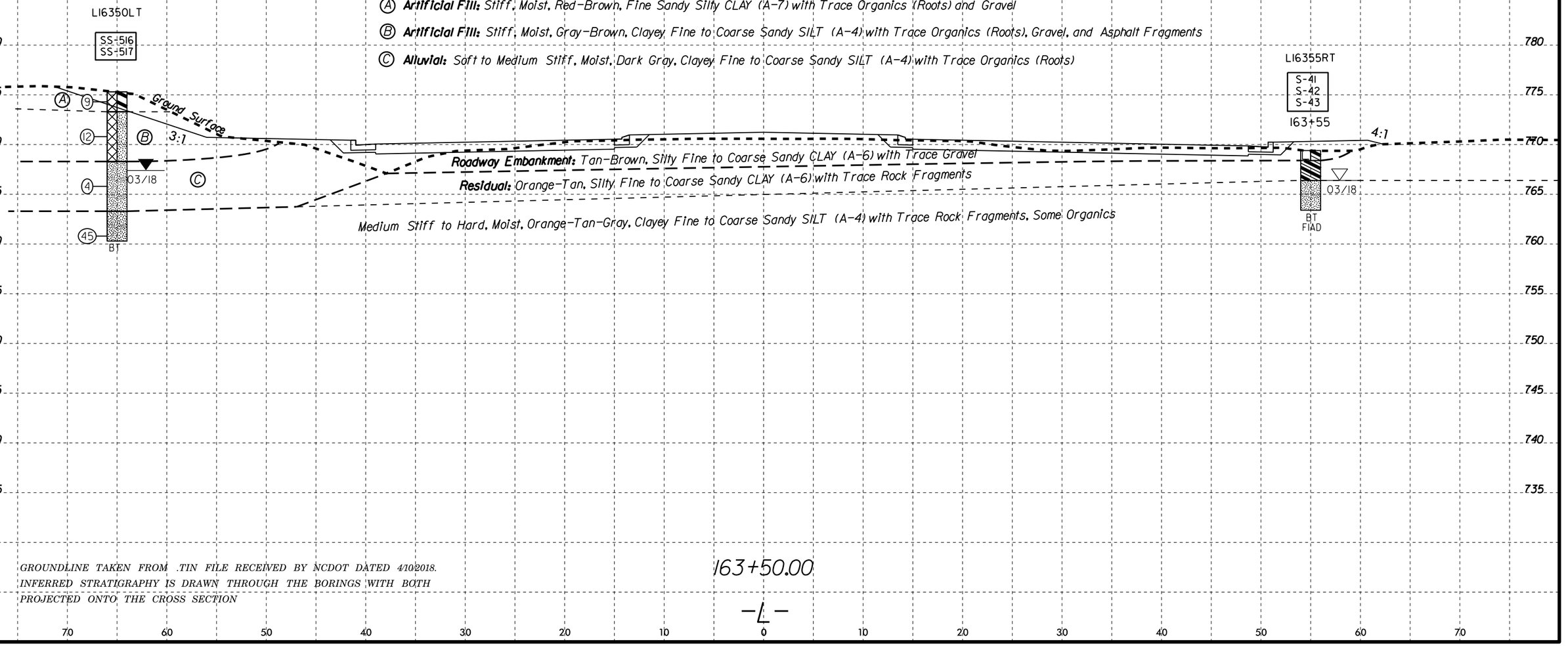
SOIL TEST RESULTS

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		
SS-516	65' LT	163+50	3.5-5.0	A-4(0)	24	9	39.0	20.8	21.6	18.6	88.1	64.6	38.3	12.9	-
SS-517	65' LT	163+50	8.5-10.0	A-4(0)	19	4	36.8	27.4	23.1	12.7	98.6	75.0	39.5	17.8	-
S-41	55' RT	163+55	0.0-1.0	A-6(3)	33	13	27.0	21.7	23.6	27.7	89.0	73.2	49.1	23.5	-
S-42	55' RT	163+55	1.0-2.0	A-6(5)	36	17	33.5	19.5	15.1	31.9	99.2	76.8	49.3	17.9	-
S-43	65' LT	163+55	3.0-4.0	A-4(2)	26	10	33.5	18.1	20.7	27.7	99.4	75.9	51.0	21.5	-

Ⓐ ***Artificial Fill:*** *Stiff, Moist, Red-Brown, Fine Sandy Silty CLAY (A-7) with Trace Organics (Roots) and Gravel*

Ⓑ ***Artificial Fill:*** *Stiff, Moist, Gray-Brown, Clayey Fine to Coarse Sandy SILT (A-4) with Trace Organics (Roots), Gravel, and Asphalt Fragments*

Ⓒ ***Alluvial:*** *Soft to Medium Stiff, Moist, Dark Gray, Clayey Fine to Coarse Sandy SILT (A-4) with Trace Organics (Roots)*



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

163+50.00

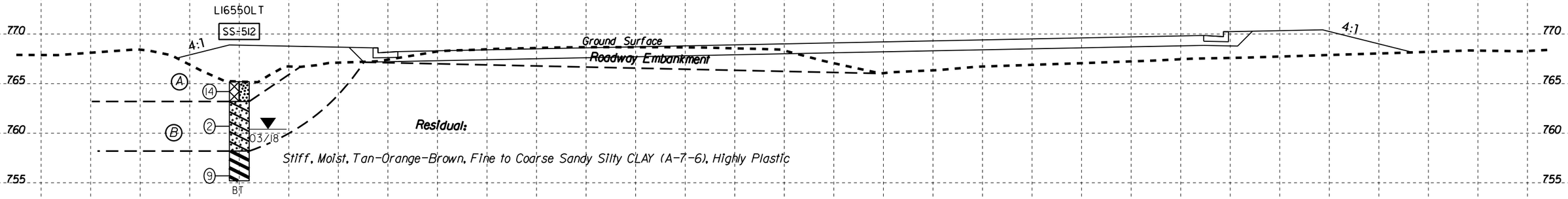
-L-

SOIL TEST RESULTS

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		
SS-512	55' LT	165+50	8.5-10.0	A-7-6(19)	46	33	20.9	13.8	18.9	46.4	99.9	87.5	67.3	13.7	-

Ⓐ **Artificial Fill:** Medium Dense, Moist, Tan-Orange-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (Roots) and Clay

Ⓑ **Alluvial:** Very Loose, Moist, Gray, Silty Clayey Fine to Coarse SAND (A-2-6) with Trace Gravel



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

165+50.00
-L-

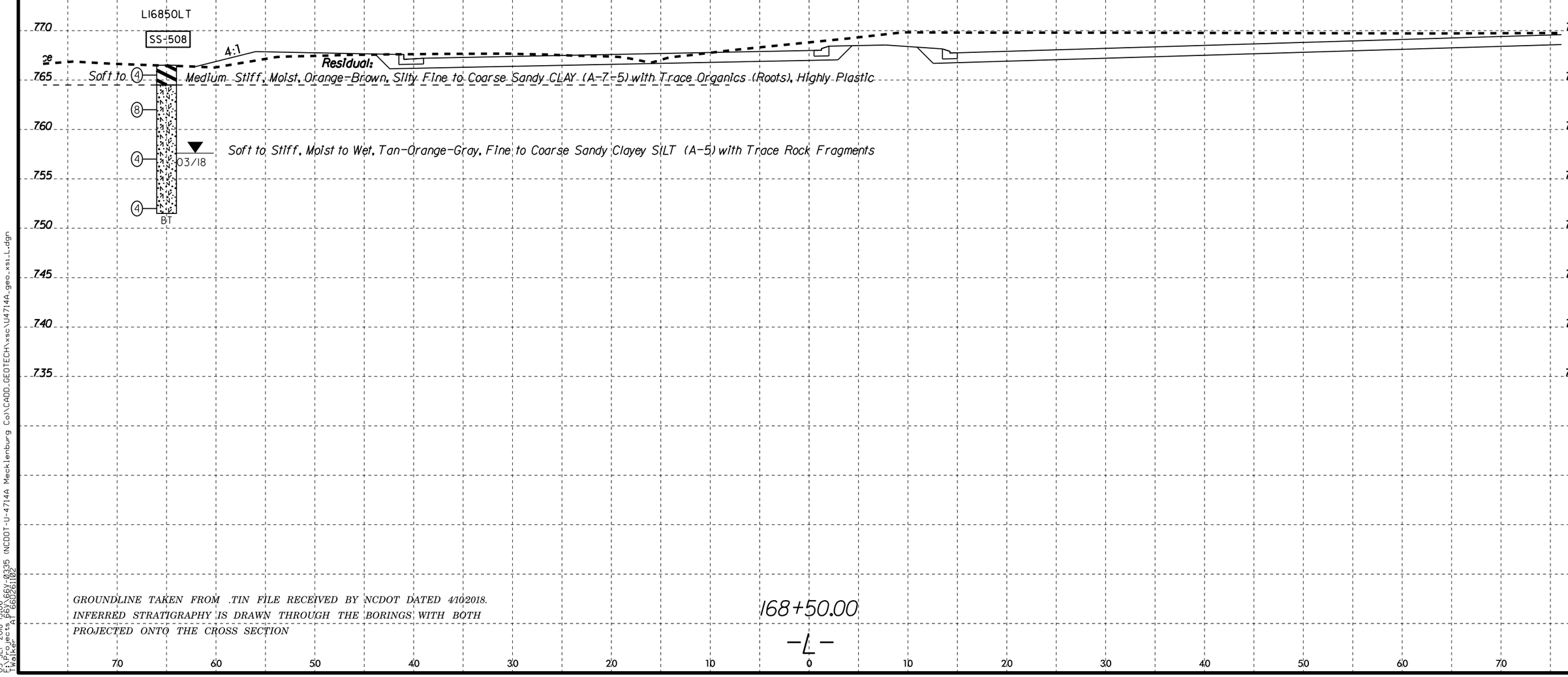
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T.Walker
AT 66026102

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	96

SOIL TEST RESULTS

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		
SS-508	65' LT	168+50	0.2-1.5	A-7-5(22)	70	40	30.6	10.1	12.3	47.0	99.3	77.3	59.9	25.0	-



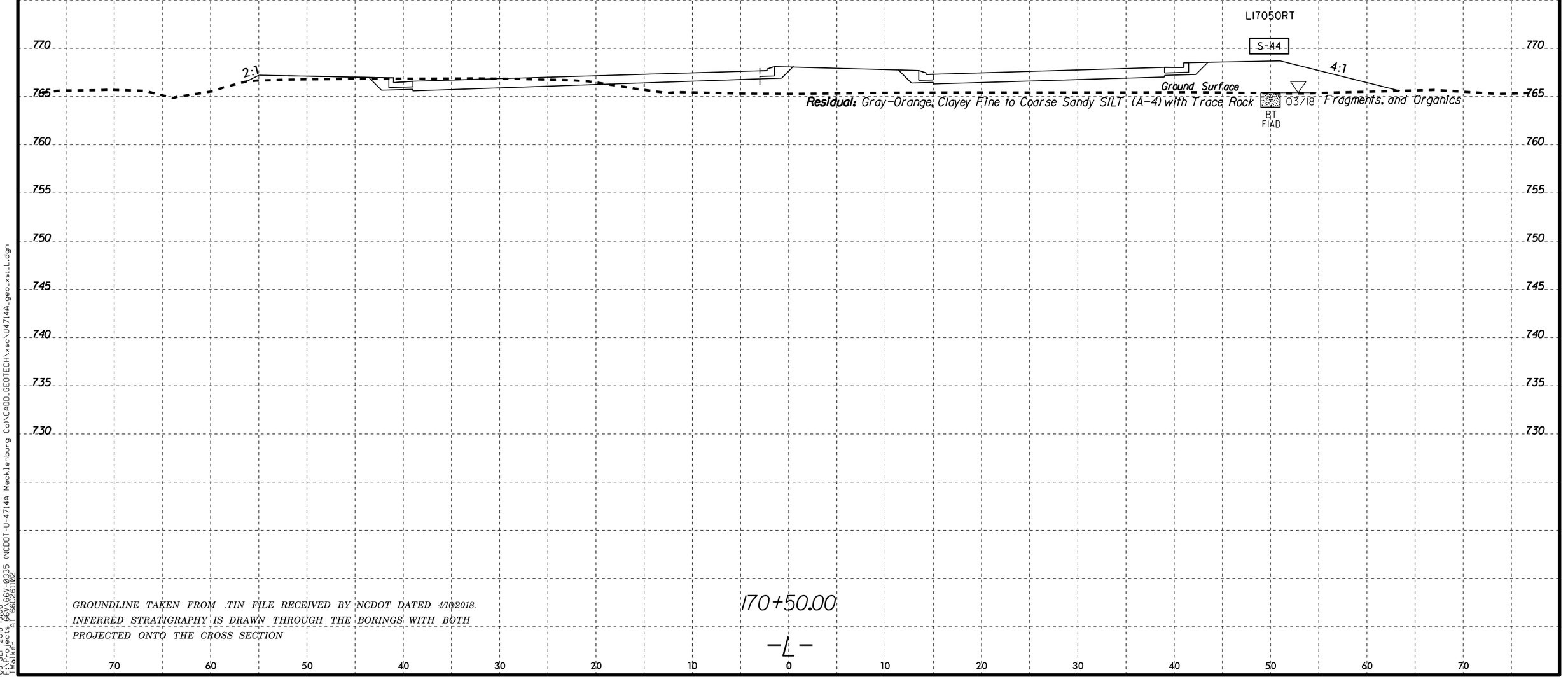
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

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Walker, A. 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	97

SOIL TEST RESULTS

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		
S-44	50' RT	170+50	0.0- 1.0	A-4(0)	23	4	40.3	18.8	23.0	17.9	99.3	73.7	43.3	22.5	-

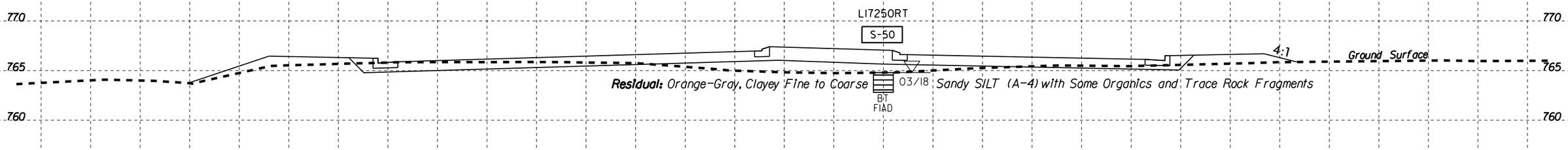


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	98

SOIL TEST RESULTS

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		
S-50	10' RT	172+50	0.0-1.0	A-4(0)	21	6	44.5	17.9	17.4	20.2	99.4	69.3	39.3	25.7	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

172+50.00
-L-

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Walker, A. 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	99

0 2.5 5

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

770 765 760 755 750 745 740 735 730

Ⓐ **Residual:** *Stiff, Moist, Orange-Brown, Silty CLAY (A-7) with Trace Organics (Roots)*

L17450RT

Ground Surface

4:1

4:1

Ⓐ

⑫

⑬

Residual:

Stiff to Soft, Moist, Orange and Light Gray, Sandy SILT (A-4) with Trace Mica

⑤

④

BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

174+50.00

-L-

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

6/23/16

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Walker, A T 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	100

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

770
765
760
755
750
745
740
735
730
725

Ⓐ **Residual:** *Medium Dense, Moist, Gray-Tan, Silty SAND (A-2-4) with Trace Organics (Roots)*

LI7650RT

4:1

4:1

Ground Surface

Ⓐ

26 **Residual:**
Very Stiff, Moist, Gray, Orange, and Red, Sandy CLAY (A-6) with Trace Organics (Roots)

27

Medium Dense, Moist, Gray-Orange, Silty SAND 22 *(A-2-4) with Trace Mica*

Stiff to Very Stiff, Moist, Light Gray, Sandy 15 *SILT (A-4) with Trace Mica*

BT
DRY

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/02018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

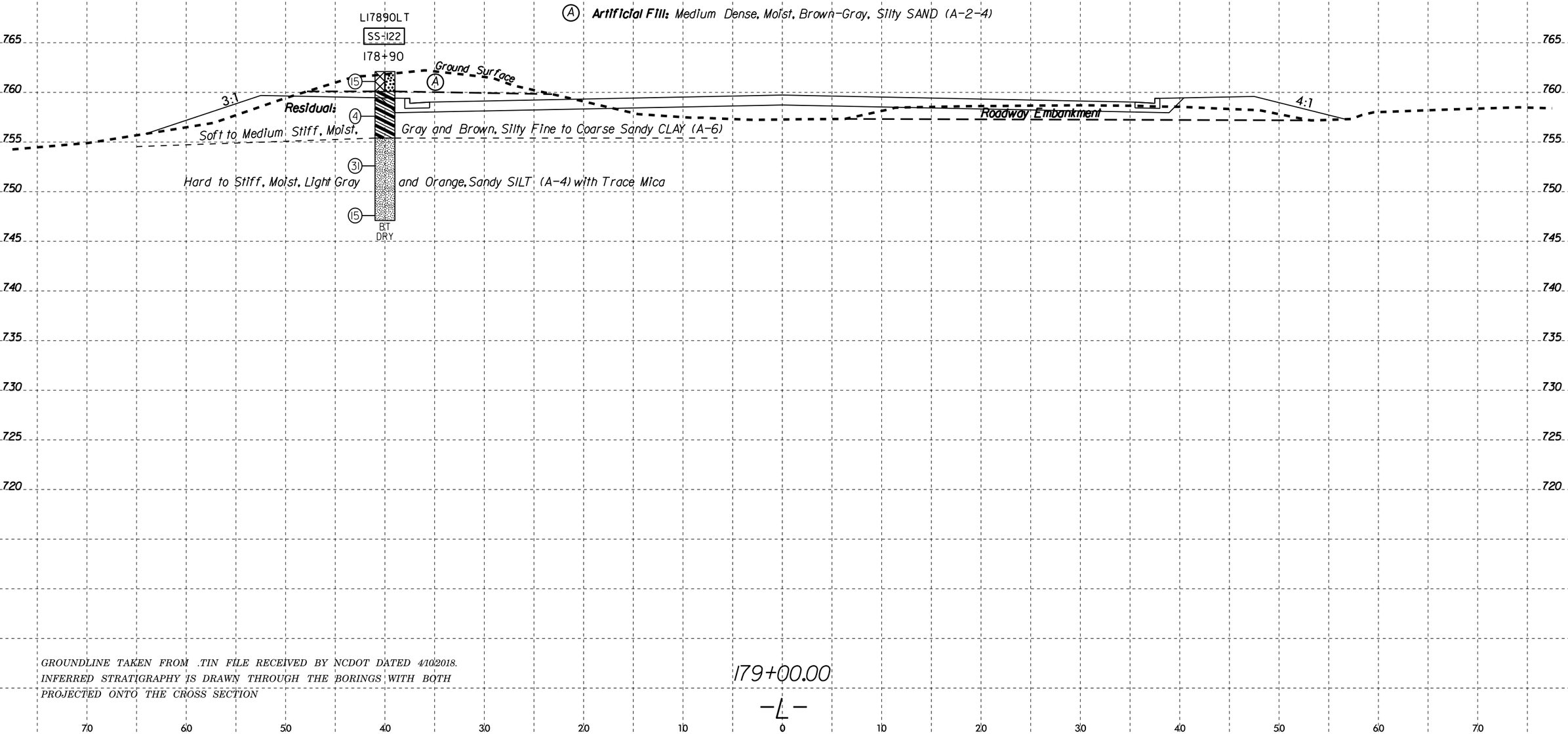
176+50.00
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Walker
AT 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	101

SOIL TEST RESULTS

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		
SS-122	40' LT	178+90	3.5-5.0	A-6(4)	31	15	36.8	17.9	17.2	28.1	99.7	76.4	47.4	15.0	-

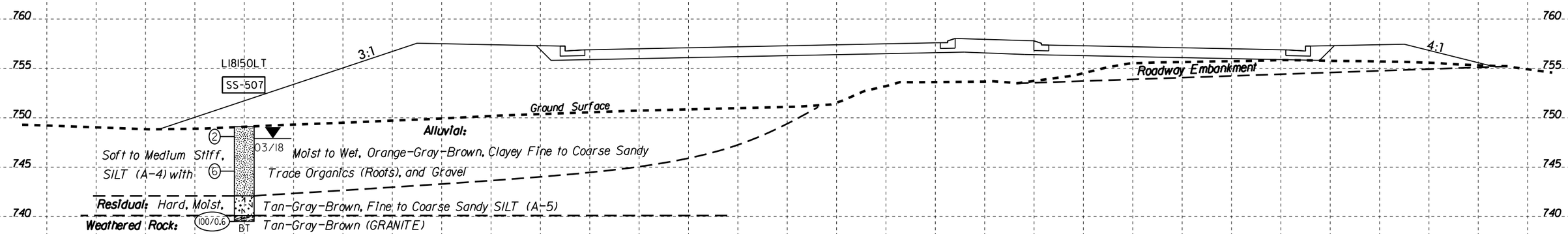


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Walker, A.T. 66026102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	102

SOIL TEST RESULTS

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		
SS-507	70' LT	181+50	0.0-1.5	A-4(0)	15	3	40.5	20.6	24.7	14.2	99.5	72.6	41.6	11.6	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

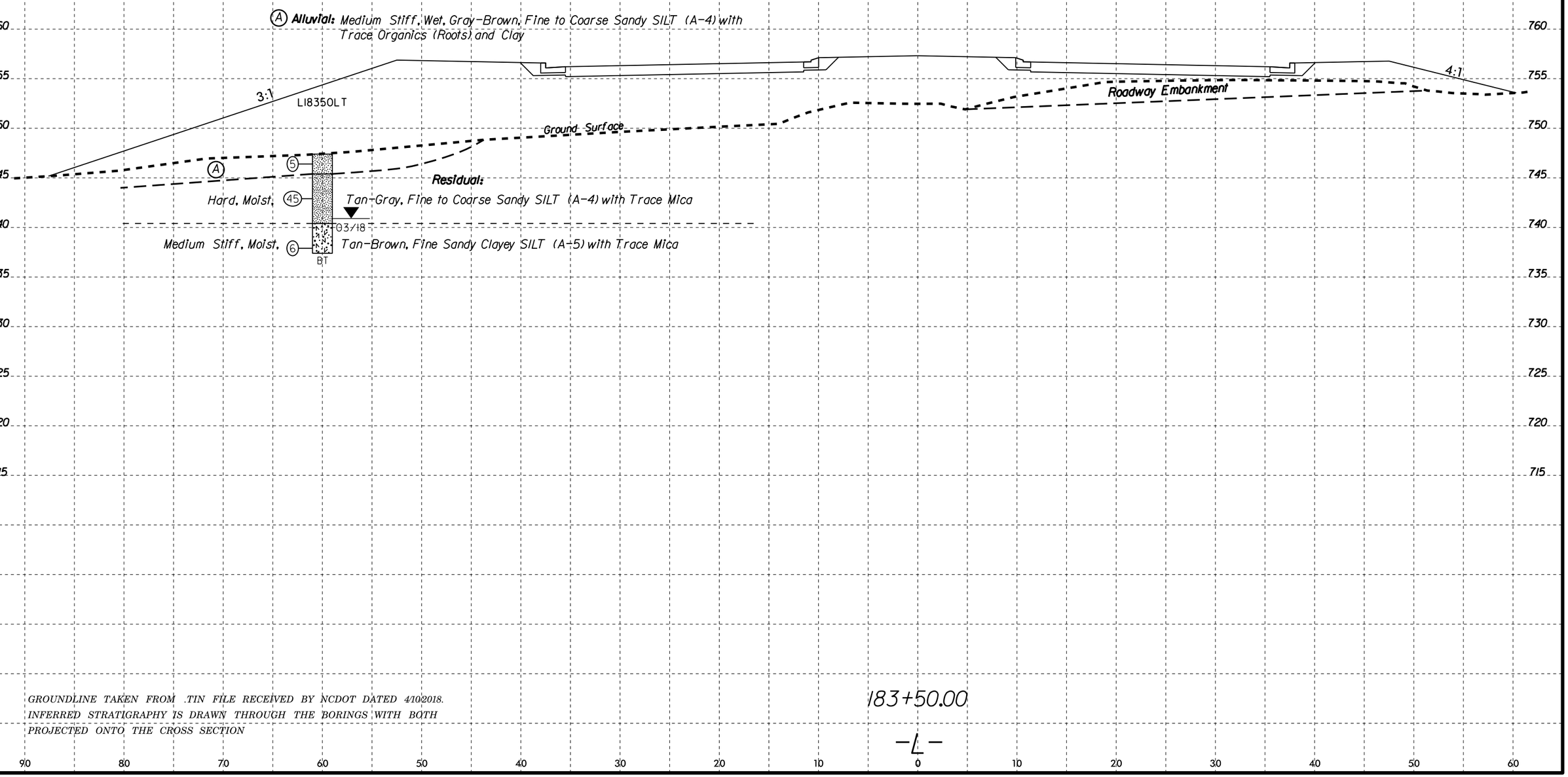
181+50.00
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T.Walker
AT 6602611102

PROJ. REFERENCE NO.	SHEET NO.
U-4714A	103

0 2.5 5

90 80 70 60 50 40 30 20 10 0 10 20 30



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

183+50.00

-L-

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Walker, A.T. 6602611002

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	104

90 80 70 60 50 40 30 20 10 0 10 20 30

760 755 750 745 740 735 730

Ⓐ **Residual:** *Loose, Wet, Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (Roots) and Clay*

Ⓑ **Residual:** *Soft to Medium Stiff, Wet, Brown, Clayey Fine to Coarse Sandy SILT (A-4) with Trace Organics (Roots)*

3:1

LI8550LT

Ⓐ

Ground Surface

4:1

Roadway Embankment

Ⓑ

Ⓐ4

⑭

⑦

BT
DRY

Residual:

Stiff to Medium Stiff, Wet, Tan-Orange-Brown, Fine to Coarse Sandy Silty CLAY (A-7), Highly Plastic

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

185+50.00

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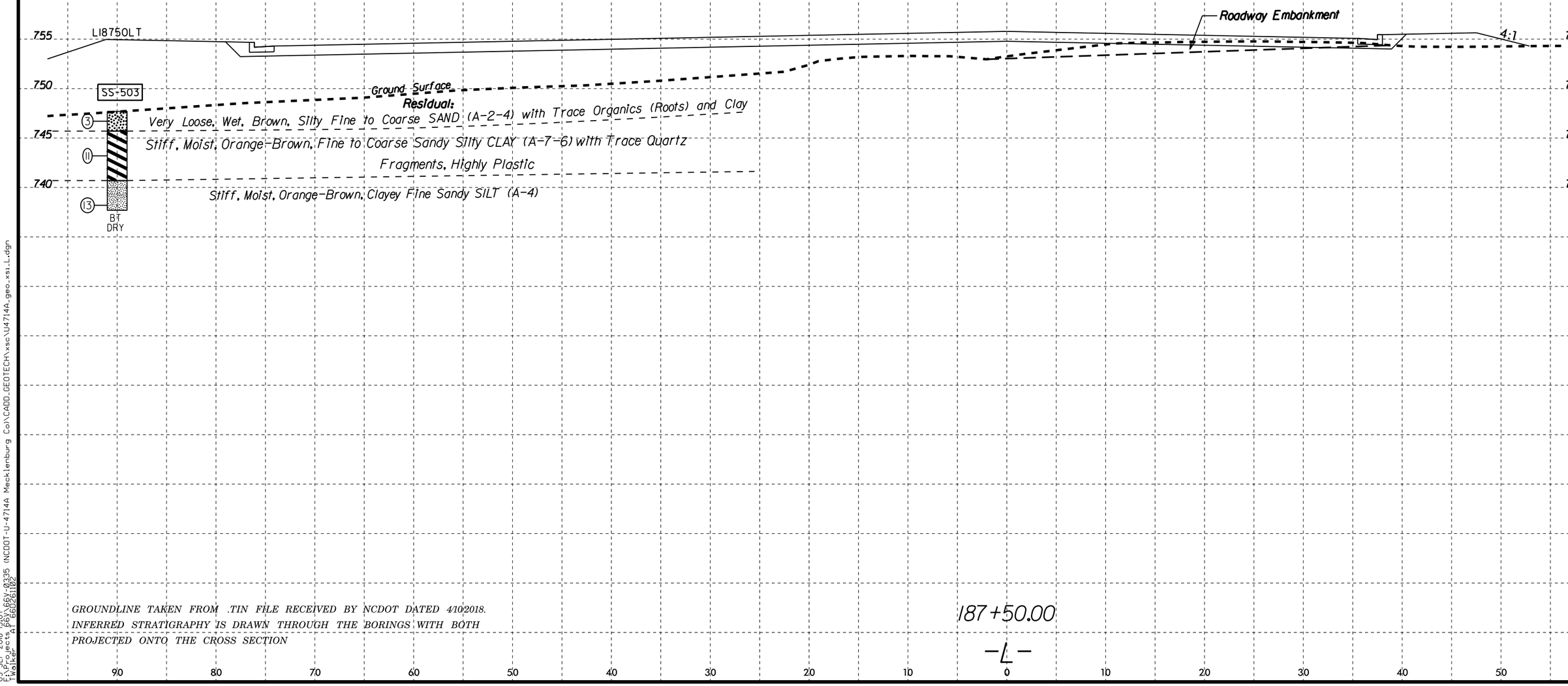
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TIWalker AT 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	105

SOIL TEST RESULTS

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		
SS-503	90' LT	187+50	3.5-5.0	A-7-6(23)	58	32	19.6	11.5	20.3	48.6	100.0	90.0	71.1	28.3	-



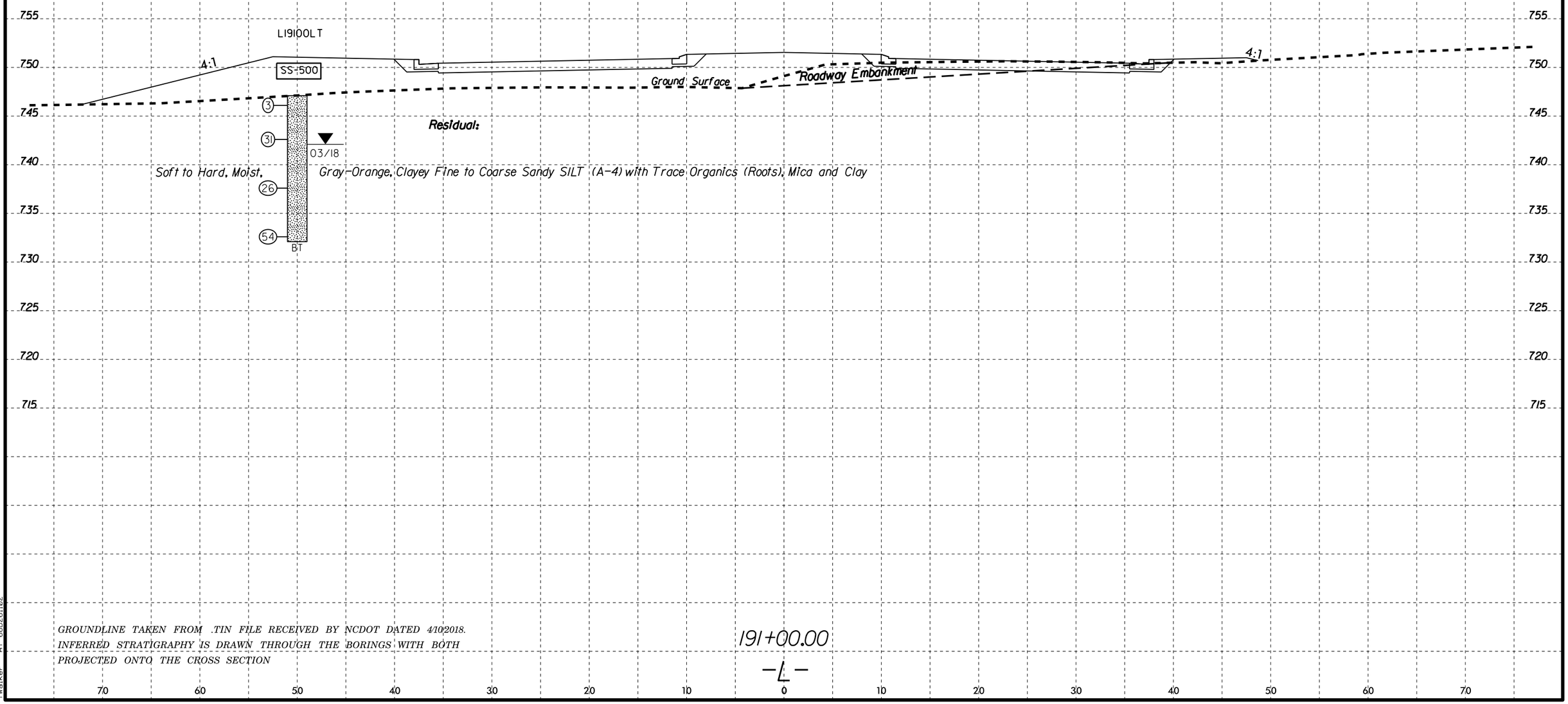
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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T Walker
AT 6602611102

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-4714A	106

SOIL TEST RESULTS

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		
SS-500	50' LT	191+00	0.2-1.5	A-4(1)	22	7	20.5	30.8	25.4	23.3	98.7	88.2	53.0	17.3	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 4/10/2018.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

191+00.00
-L-

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Walker, Al 6602611102