PROJECT: 40325

REFERENCE: Y-4810K

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	Y-4810K	1	95

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *CABARRUS*

PROJECT DESCRIPTION *NORFOLK SOUTHERN MAINLINE GRADE CROSSING SEPARATION AT ROGERS LAKE ROAD CROSSING #724408Y IN KANNAPOLIS*

INVENTORY

CONTENTS

CAUTION NOTICE

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

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

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

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

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5228073BBA4F482...
3/4/2019

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] D-50 (TER373)
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [X] 3¼" HSA

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK: N/A

ELEVATION: FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

PROJECT WAS DRAFTED USING PROVIDED TIN FILE
FILE: y4810k_ls_tin.tin (DATED: 10/31/2017)

DATE: 8-15-14

TIP PROJECT: Y-4810K

CONTRACT:

STATE OF NORTH CAROLINA
RAIL DIVISION

CABARRUS COUNTY

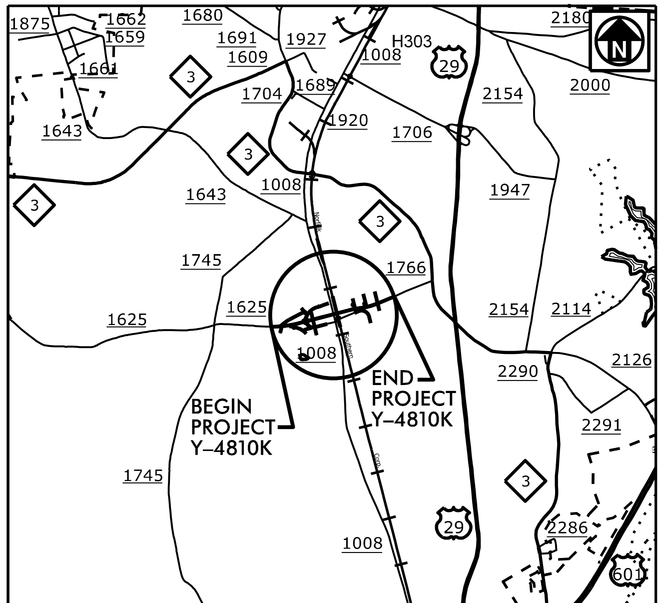
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	Y-4810K	3	95

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40325.1.46	TCSP-1034(18)	P.E.
40325.2.46	TCSP-1034(18)	R/W

LOCATION: GRADE SEPERATION AT SR 1625 (ROGERS LAKE ROAD) OVER NS/NCRR RAILROAD AND CLOSURE OF AT-GRADE CROSSING (#724408Y) IN KANNAPOLIS

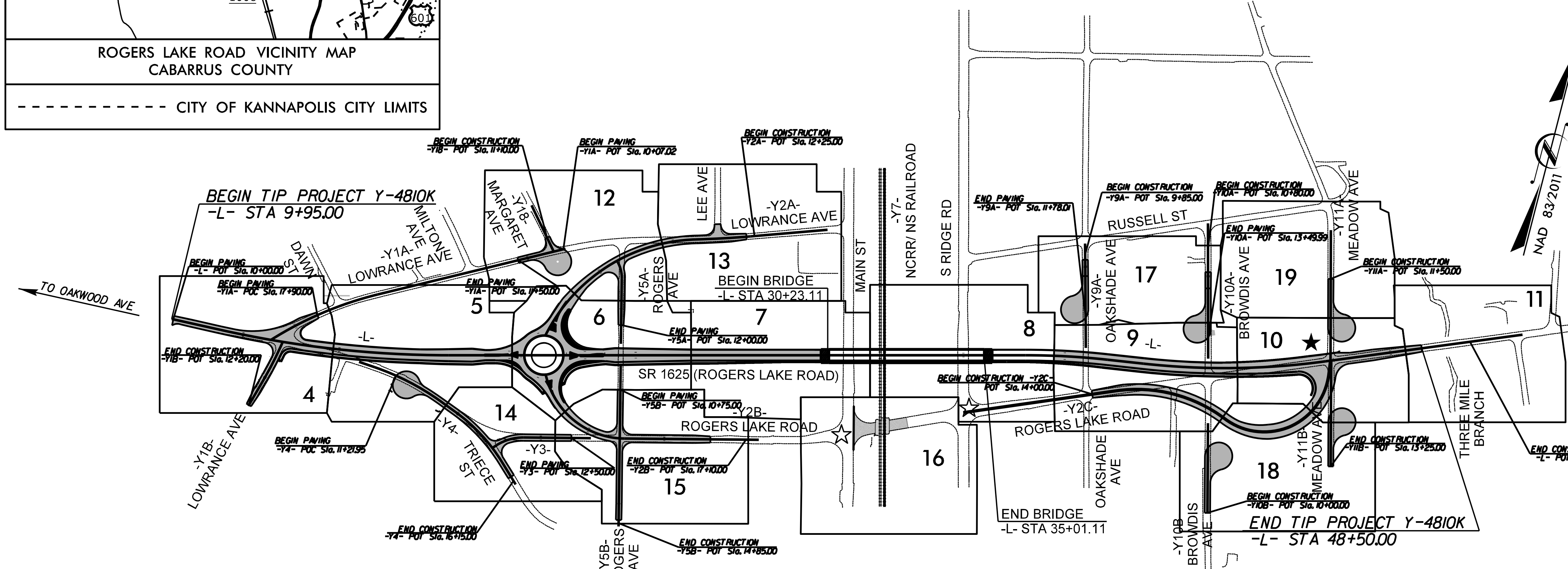
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS, AND STRUCTURE

90% SUBMITTAL



ROGERS LAKE ROAD VICINITY MAP
CABARRUS COUNTY

- - - - - - - - CITY OF KANNAPOLIS CITY LIMITS



☆ EXISTING SIGNAL
★ PROPOSED SIGNAL

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

*DESIGN EXCEPTION:
LANE TAPER RATE

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 8,600
ADT 2040 = 11,200
K = 10 %
D = 55 %
T = 5 % *
V = 50 MPH
* TTST =1% DUAL 4%
FUNC CLASS =
URBAN MAJOR COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT Y-4810K = 0.639 MILES
LENGTH STRUCTURE TIP PROJECT Y-4810K = 0.091 MILES
TOTAL LENGTH OF TIP PROJECT Y-4810K = 0.730 MILES

PLANS PREPARED FOR THE NCDOT BY:

SIMPSON ENGINEERS & ASSOCIATES — MOTT MACDONALD — SUNGATE DESIGN GROUP, P.A.

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 14, 2018

LETTING DATE:
JUNE 18, 2019

MICHAEL PEKAREK, PE
PROJECT ENGINEER
PEF ENGINEER

JORDAN WOODARD, PE
PROJECT DESIGN ENGINEER
PEF ENGINEER

KUMAR TRIVEDI, PE
NCDOT CONTACT
NCDOT RAIL DIVISION

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556
(919) 707 4110
(919) 707-4154 (FAX)

Date: February 6, 2018

WBS Number: 40325.1.46
TIP Number: Y-4810K
County: Cabarrus
Description: Norfolk Southern Mainline Grade Crossing Separation at Rogers Lake Road Crossing #724408Y in Kannapolis

Subject: Roadway Geotechnical Report - Inventory

Project Description

The project is located along existing SR 1625 (Rogers Lake Road) at the Norfolk Southern Mainline Grade Crossing (#724408Y) in Kannapolis, North Carolina in Cabarrus County. The total length of the project is 0.730 miles and consists of a new roadway alignment and roadway realignments with a MSE wall within a fill section along the new roadway and a new four span bridge at the railroad crossing. The project corridor is in an urban setting with both residential and commercial development. The project will require minimal cuts of less than 5 feet and maximum fill placement of about 34 feet at the bridge approaches.

The geotechnical subsurface investigation was performed in December of 2017. Standard penetration test (SPT) borings were advanced using a Diedrich D-50 rotary drill rig equipped with a recently calibrated automatic hammer. Borings were advanced utilizing hollow stem auger drilling techniques to the necessary depths. In addition to soil test borings a hand auger boring was performed at boring B-12 due to limited access beneath overhead utilities. Representative soil samples were collected in the field for visual classification and selected samples were submitted for laboratory analysis by Terracon's soil testing laboratory. Laboratory testing was performed in accordance with the AASHTO Soil Classification System.

The following alignments were investigated by soil testing and visual reconnaissance:

Alignment	Stations(±)
-L-	9+95 to 48+50
-Y1A-	10+00 to 11+50
-Y1A-	17+90 to 19+52
-Y1B-	10+00 to 12+20
-Y2A-	12+25 to 19+82
-Y2B-	10+00 to 16+00
-Y2C-	14+00 to 22+90
-Y3-	10+00 to 12+50
-Y4-	10+00 to 16+15
-Y5A-	10+00 to 12+00
-Y5B-	10+00 to 14+85
-Y9A-	9+85 to 12+71
-Y10A-	11+35 to 14+16
-Y11A-	12+40 to 14+01
-Y11B-	10+00 to 11+80
-Y18-	11+10 to 11+58

Physiography and Geology

The site is located within the Piedmont Physiographic Province of North Carolina, northeast of Charlotte, North Carolina. Topography in the area is rolling to moderately steep. The Piedmont Province is characterized by gently to steeply sloping topography with well-rounded hills and along rolling ridges with a northeast-southwest trend dissected by a moderate to well developed (mature) dendritic-type drainage system consisting of drainage swales, hollows, tributaries, streams and rivers.

Geologically, the site is located within the Charlotte Belt. Based on the North Carolina Geologic Map 1985, and recovered rock core samples on-site, the underlying rock formation at this site consist of igneous, plutonic, granitic rock of Permian/Pennsylvanian Age. These granitic rocks have a megacrystic to equigranular rock structure. These rocks typically weather in an irregular pattern with deep residual soils overlying saprolite to bedrock. The typical residual profile consists of finer grain clays and silts near the ground surface which gradually transition to coarser and denser material with depth and contain mica.

Soil Properties

Soils encountered during this investigation are separated into four categories based on their origin. Soils encountered consist of roadway embankment fill, artificial fill, residual and rock materials.

Roadway embankment soils were encountered along the existing roadway shoulders to depths of about 2 to 3 feet. The roadway embankment soils consist of moderately to highly plastic, stiff to very stiff, moist, silty clay (A-7-6, A-7-5, A-6). The roadway embankment soils appear to be reworked near-by residual soils.

Artificial fill materials were encountered within isolated areas along the new alignment in previously graded areas adjacent to both residential and commercial structures. These areas are listed in "Areas of Special Geotechnical Interest." The artificial fill soils extend to depths of about 2 to 3 feet beneath the ground surface and are underlain by residual soils. The artificial fill soils consist of stiff to very stiff, moist, silty clay (A-7-6, A-7-5). The exception to this exists beneath the pavement along Triece Street (-Y4-) where about 8 feet of very soft to soft, moist, coarse to fine sandy silt (A-4) was encountered beneath the pavement. These fill materials appear to be within a possible utility trench beneath the roadway.

Residual soils are present at the surface along the majority of the project and beneath the roadway embankment soils, asphalt pavement sections and artificial fill in the remaining portions of the project. The residual soils are deeply weathered and extend to greater than the roadway boring termination depths of 45 feet. The residual soils can be generalized as about 5 to 10 feet of moderate to highly plastic, medium stiff to hard, dry to wet, silty clay and sandy clay (A-7-6, A-7-5, A-6) with trace to little mica, at the surface, underlain by low to non-plastic sandy clays, clayey silts, sandy silts and clayey to silty sands. These clays exhibit moderate to high plastic indices of 18 to 60 percent. The highly plastic residual soils are indicated on the attached cross section graphics. The low to non-plastic silts consist of soft to hard, dry to moist, fine to

coarse sandy silts and clayey silts (A-4, A-5) with a trace of mica to highly micaceous. The sands consist of and loose to very dense, dry to wet silty to clayey fine to coarse sands (A-2-4, A-2-6, A-2-7) with varying amounts of mica.

Rock Properties

Weathered rock was not encountered during the roadway investigation. However, weathered rock was encountered during the investigation for the bridge structure. The depth to weathered rock varied significantly across the bridge structure from about 77 to 83.5 feet at the west approach of the bridge to about 4 to 35 feet at the east approach of the bridge. The weathered rock originates from the underlying granitic crystalline rock.

Crystalline rock (granite) was not encountered during the roadway investigation but was encountered during the investigation for the bridge structure. Crystalline rock is present at depths of 18.5 to 35 feet beneath the ground surface, at the east approach to the bridge. No outcrops of crystalline rock were observed during drilling operations.

Groundwater

Groundwater was not encountered within about 16.2 feet of the ground surface and deeper borings caved dry at depths of 18.6 feet at time of drilling. The depth of groundwater, beneath the ground surface, will fluctuate with seasonal precipitation and may occur a higher levels at other times of the year above less permeable clayey soils.

Areas of Special Geotechnical Interest

1) Plastic Soils – High plasticity soils occur throughout the upland portions of the project and may impact grading at the following locations:

Alignment	Stations(±)
-L-	12+25 to 23+75
-L-	39+75 to 46+75
-Y1A-	17+90 to 19+52
-Y1B-	10+00 to 12+20
-Y2A-	12+50 to 19+82
-Y2B-	10+00 to 11+75
-Y2B-	13+75 to 16+00
-Y2C-	15+25 to 22+70
-Y3-	10+00 to 12+50
-Y5B-	10+50 to 12+25
-Y5B-	13+25 to 14+85
-Y9A-	9+85 to 12+71
-Y10A-	11+35 to 13+50
-Y11A-	12+50 to 14+00
-Y11B-	10+00 to 11+50

A discussion of these plastic soils is located above in the section titled “Soil Properties”.

2) Artificial Fill- Artificial fill was encountered at the following locations:

Alignment	Station (±)
-L-	25+48 to 28+25
-Y2B-	12+15 to 12+53
-Y4-	11+63

A discussion of these artificial soils is located above in the section titled “Soil Properties”.

BULK SAMPLES

No bulk samples were obtained.

UNDISTURBED SAMPLES

No undisturbed samples were obtained.

Sincerely,
Terracon Consultants, Inc.

Abner F. Riggs, Jr., P.E.
Senior Geotechnical Engineer

Andrew A. Nash, P.E.
Geotechnical Department Manager

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	4

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

10+00

BEGIN PAVING
-L- POT Sta. 10+00.00

BL-7

N 88° 12' 37.0" E
-L-

RESIDUAL

B-1
12+00 -L-
20' LT

-Y1A- PT Sta. 19+51.99
-L- POC Sta. 13+06.52

BEGIN PAVING
-Y1A- POC Sta. 17+90.00

MATCHLINE SEE SHEET 5
-Y1A- STA 17+50.00

-Y1A-

B-2
14+06 -L-
3' LT

MATCHLINE SEE SHEET 5
-L- STA 15+00.00

B-16
10+50 -Y1B-
12' LT

RESIDUAL

-Y1B- PC Sta. 10+00.00
-L- POC Sta. 13+43.58

-Y1B- PT Sta. 11+39.99

-Y1B-
S 15° 56' 05.0" W

-Y1B- POT Sta. 12+23.87

END CONSTRUCTION
-Y1B- POT Sta. 12+20.00

ROGERS LAKE RD.(SR 1625)

LOWRANCE AVE.

GARY L. BUNN AND WIFE, THERESA S. BUNN

ELLEN W. THOMPSON

VICTOR BENITEZ

JAMES P. KEAN AND WIFE, PEGGY A. KEAN

TERRY K. MEASE AND WIFE, MARSHA B. MEASE

WARREN B CHAPMAN

LAURA CRUSE OSBORNE

DARBY T. VERBOS AND HUSBAND, TYLER L. VERBOS

LESLIE W. PUNTCH AND WIFE, GAIL B. PUNTCH

IDA MARIE SCOTT WARD

WENDY BERGERON (SINGLE)

RICHARD C. HORTON AND DONNA C. HORTON, HUSBAND AND WIFE, TENANTS BY THE ENTIRETIES WITH RIGHTS OF SURVIVORSHIP

CHARLES H. WHITEHEAD AND WIFE, MYRTLE F. WHITEHEAD

RONALD C. ALMOND

EDDIE E. DURHAM

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	5

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

NAD 83 2011

RESIDUAL

ARTIFICIAL FILL – (UTILITY TRENCH)

B-3
16+20 -L-
3' RT

B-4
18+08 -L-
20' LT

B-5
20+00 -L-
CL

B-28
11+63 -Y4-
8' RT

-Y1A-

-L-

-Y4-

-Y4- POT Sta. 10+00.00

-Y4- PT Sta. 12+76.46

MATCHLINE SEE SHEET 4 -Y1A- STA 17+50.00

MATCHLINE SEE SHEET 4 -L- STA 15+00.00

MATCHLINE SEE SHEET 6 -L- STA 20+50.00

MATCHLINE SEE SHEET 14 -Y4- STA 13+00.00

GFS PROPERTIES, LLC

BYI-22

DONALD ROMANO, WIDOWER
ISFD

ALICE A. WILSON, SINGLE
ISFD

BETTY S. RITCHIE

TERRY K. MEASE AND WIFE, MARSHA B. MEASE
ISFD

MILDRED J. WATERS
ISFD

KENNETH W. MILLER
ISFD

JESUS CHRIST IS THE ANSWER BAPTIST CHURCH

JOHANNA F. E. ROBERTS (UNMARRIED)

STEPHEN R. JEWETT AND WIFE, CATHY G. JEWETT

JAMES J. KUFFNER AND WIFE, CRYSTAL C. KUFFNER

DUKE ENERGY 75.00' TRANSMISSION R/W

ROBERTS LAKE ROAD (SR 1620)

POWER ST.

PRIVATE DRIVE

BL-9

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	6

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

NAD 83/2011

MATCHLINE SEE SHEET 12
-Y2A- STA 18+25.00

MATCHLINE SEE SHEET 12
-Y5A- STA 11+25.00

-Y2A- PT Sta. 19+82.44
-ROUND- POC Sta. 10+98.58 (B)

-L- POT Sta. 20+87.67 (A)
-ROUND- PC Sta. 10+00.00
-ROUND- PC Sta. 13+76.99

END PAVING
-Y5A- POT Sta. 12+00.00

B-19
19+00 -Y2A-
60' LT

RESIDUAL

-L- POT Sta. 22+07.67
-ROUND- POC Sta. 11+88.50 (C)

B-6
22+50 -L-
40' LT

B-7
24+00 -L-
22' LT

-Y5A- POT Sta. 12+57.70

B-29
21+50 -L-
15' LT

ARTIFICIAL FILL

B-20
10+29 -Y2B-
7' LT

-Y2B- PC Sta. 10+00.00
-ROUND- POC Sta. 12+76.87 (D)

-Y5B- POT Sta. 10+00.00

MATCHLINE SEE SHEET 15
-Y5B- STA 10+75.00

MATCHLINE SEE SHEET 15
-Y2B- STA 11+30.00

MATCHLINE SEE SHEET 5
-L- STA 20+50.00

MATCHLINE SEE SHEET 7
-L- STA 26+00.00

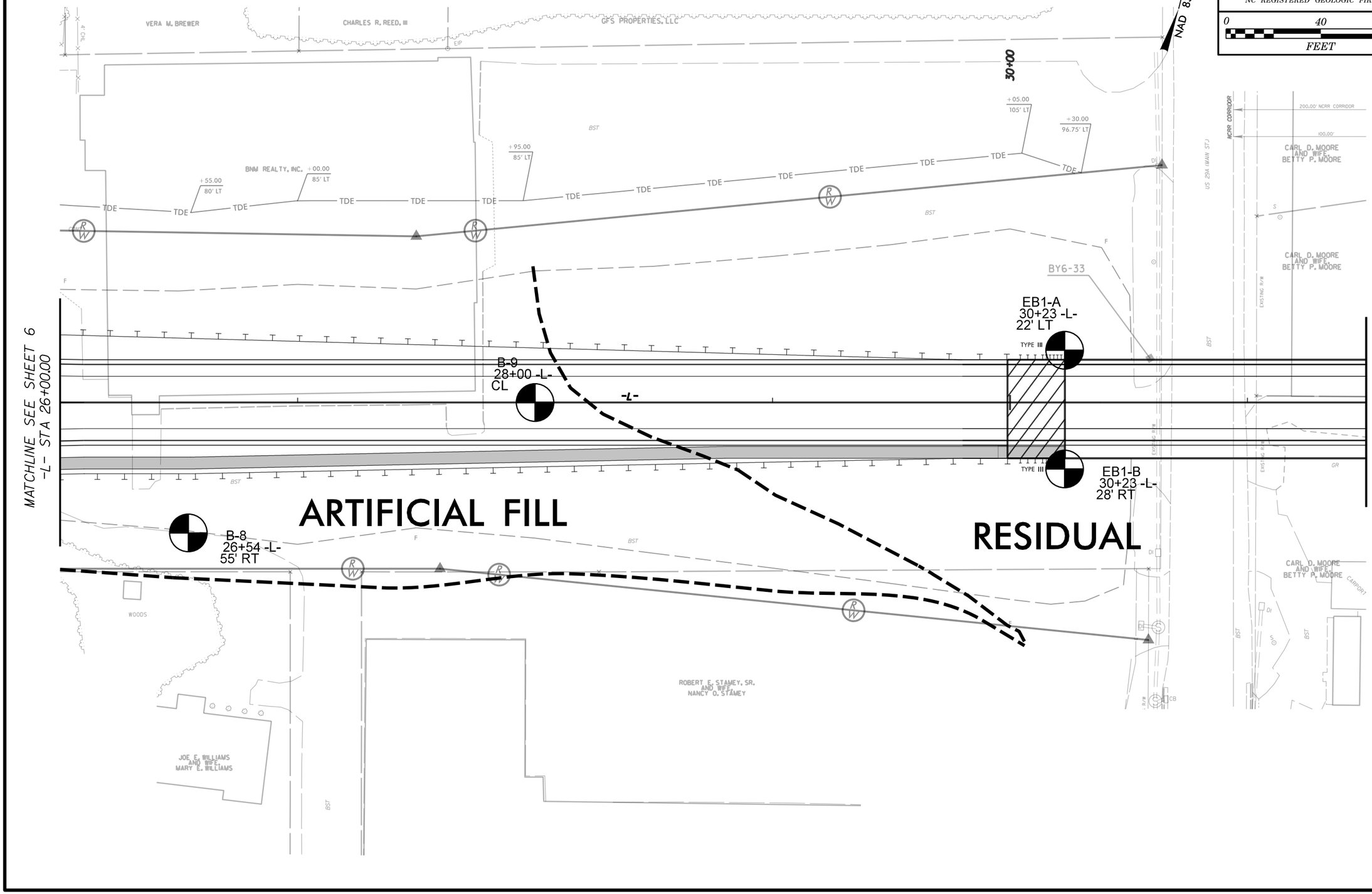
ROBERT L. RITCHIE AND WIFE, JOYCE D. RITCHIE
D.B. JORDAN, AND WIFE, JOSIE H. JORDAN
JOSIE H. JORDAN
EDDIE A. DURHAM
FRANCES J. NICHOLSON
ERIC SCOTT SMITH, UNMARRIED
JOHNNY F. NICHOLSON AND WIFE, FRANCES JORDAN NICHOLSON
SHIRLEY J. BEAVER AND HUSBAND, JOHN W. BEAVER
PATRICIA ANN JORDAN GOODNIGHT AND SHIRLEY RUTH JORDAN BEAVER
PATRICIA ANN JORDAN GOODNIGHT AND SHIRLEY RUTH JORDAN BEAVER, EQUALLY, AND AS TENANT IN COMMON
THOMAS LEE JORDAN AND WIFE, RUTH S. JORDAN
CHARLES R. REED, III

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	7

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

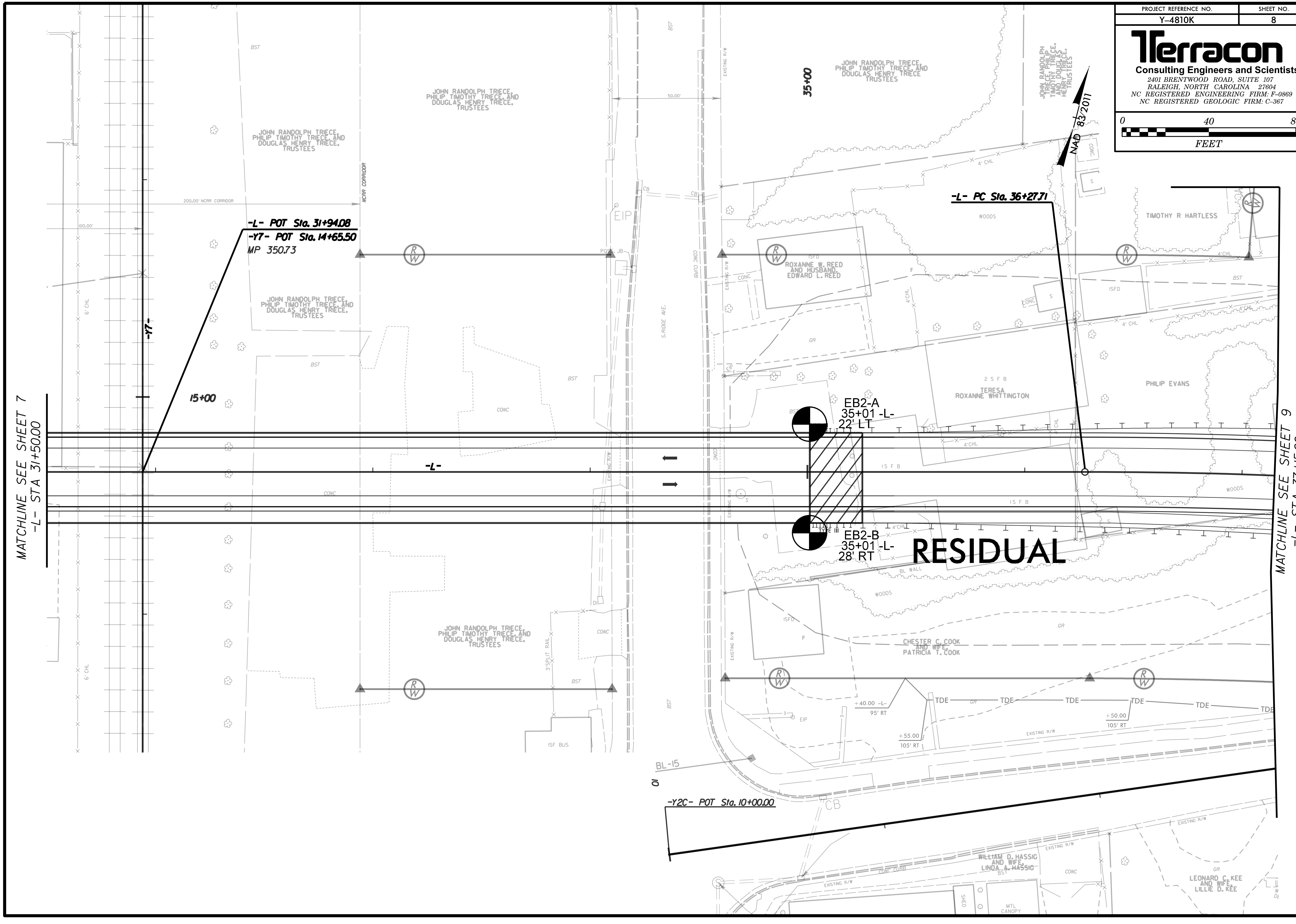
NAD 83/2011



PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	8

Terracon

Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367



0 40 80
FEET
NAD 83/2011
MATCHLINE SEE SHEET 7
-L- STA 31+50.00
MATCHLINE SEE SHEET 9
-L- STA 37+15.00
-L- POT Sta. 31+94.08
-Y7- POT Sta. 14+65.50
MP 350.73
-L- PC Sta. 36+27.71
-Y7-
15+00
35+00
-L-
EB2-A
35+01 -L-
22' LT
EB2-B
35+01 -L-
28' RT
RESIDUAL
-Y2C- POT Sta. 10+00.00
BL-15
JOHN RANDOLPH TRIECE, PHILIP TIMOTHY TRIECE, AND DOUGLAS HENRY TRIECE, TRUSTEES
ROXANNE W. REED AND HUSBAND, EDWARD L. REED
TERESA ROXANNE WHITTINGTON
TIMOTHY R HARTLESS
PHILIP EVANS
CHESTER C. COOK AND WIFE, PATRICIA T. COOK
WILLIAM D. HASSIG AND WIFE, LINDA A. HASSIG
LEONARD C. KEE AND WIFE, LILLIE D. KEE
200.00' NCRR CORRIDOR
NCRR CORRIDOR
S. RIDGE AVE.
TDE
+40.00 -L- 95' RT
+55.00 105' RT
+50.00 105' RT

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	9

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

NAD 83/2011

MATCHLINE SEE SHEET 17
-Y9A- STA 12+00.00

MATCHLINE SEE SHEET 17
-Y10A- STA 13+05.00

MATCHLINE SEE SHEET 8
-L- STA 37+15.00

MATCHLINE SEE SHEET 10
-L- STA 42+80.00

MATCHLINE SEE SHEET 18
-Y2C- STA 18+20.00

RESIDUAL

ROADWAY EMBANKMENT

-Y9A- POT Sta. 12+70.76

-L- PT Sta. 38+79.53

-L- PC Sta. 39+91.40

-Y10A- POT Sta. 14+15.65

END PAVING
-Y10A- POT Sta. 13+49.99

-Y2C- PC Sta. 14+74.39

-Y2C- BEGIN CONSTRUCTION
POT Sta. 14+00.00

B-10
38+24 -L-
25' LT

B-11
39+00 -L-
30' LT

B-12
40+93 -L-
18' RT

B-30
13+25 -Y10A-
34' RT

B-23
15+70 -Y2C-
2' LT

RW1-1
14+14 -Y2C-
11' LT

RW1-2
14+58 -Y2C-
8' LT

RW1-3
15+11 -Y2C-
16' LT

RW1-4
15+60 -Y2C-
15' LT

RW1-5
16+22 -Y2C-
25' LT

PHILIP EVANS
KENNETH J. UNDERWOOD
VELBA ARLENE PERKINS AND MELBA DARLENE PERKINS, JTWROS
MELBA DARLENE PERKINS
ALVIN M. HOKE AND WIFE GWYNEIRA L. HOKE
JAMES R. DUREN AND SPOUSE DEANNE S. DUREN
CHESTER C. COOK AND WIFE PATRICIA T. COOK
ARNOLD J. CROUCH AND WIFE CARLYIN H. CROUCH
D & E LIMTED LLC
EDWARD BURNS DUTY
BRIDLEWOOD PROPERTIES, LLC
GREU, TL-3
BL-16
BL-17

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	10

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NAD 83/2011

0 40 80
FEET

ROADWAY EMBANKMENT

RESIDUAL

END PAVING
-Y11A- POT Sta. 13+25.08

-Y11A- POT Sta. 14+01.16
-L- POT Sta. 45+67.19

-L- POT Sta. 45+67.19
-Y2C- POT Sta. 22+90.59

-L- PT Sta. 45+52.02

-Y2C- PT Sta. 22+46.07

BEGIN PAVING
-Y11B- POT Sta. 11+63.31

B-13
43+00 -L-
23' RT

B-14
45+00 -L-
5' LT

B-15
47+00 -L-
6' LT

MATCHLINE SEE SHEET 9
-L- STA 42+80.00

MATCHLINE SEE SHEET 11
-L- STA 48+00.00

MATCHLINE SEE SHEET 18
-Y2C- STA 21+20.00

Y4810K-3

ENZA GERMANO AKA ENZA FRIEDMAN

CHESTER C. COOK AND WIFE PAT COOK

ALVIN M. HOKE AND WIFE GWYNEIRA L. HOKE

PAT L. COOK AND HUSBAND CHESTER C. COOK

ARNOLD J. CROUCH AND WIFE CARLYN H. CROUCH

D & E LIMITED, LLC

K. J. UNDERWOOD

HOWARD V. WYRICK AND WIFE FAYE C. WYRICK

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	11

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

NAD 83/2011

HARDIN MCRAE AND WIFE DOROTHY MCRAE

K.J. UNDERWOOD

AUSTIN ST.

THREE MILE BRANCH

WILLARD E. YOW

WOODS

BST

EIP

BR WALL

PLASTIC

CONC

6' WD

4'CHL

POT Sta. 51+62.34

BL-19

BRICK WALK

EXISTING R/W

50+00

+35.00
40' LT

+35.00
EX. R/W

150' TAPER

PDE

-L- STA 48+00.00

SEE SHEET 10

+25.00
EX. R/W

+25.00
40' RT

+10.00
55' RT

Y4810K-4

END CONSTRUCTION
-L- POT Sta. 50+00.00

END TIP PROJECT Y-4810K
-L- POT Sta. 48+50.00

EXISTING R/W

30.00'

JOHN RANDOLPH TRIECE, PHILIP TIMOTHY TRIECE, AND DOUGLAS HENRY TRIECE, TRUSTEES

BRANCH AVE.

GR

BY12-48

HOWARD V. WYRICK AND WIFE, FAYE C. WYRICK

CITY OF ANNAPOLIS PUBLIC WORKS 20' SEWER R/W

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	12

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 80
FEET

NAD 83/2011

-Y1B- POT Sta. 10+00.00

ROBERT P. SEAFORD AND WIFE, MARGARET ANN WILSON SEAFORD

MARGARET E. B. SHERIDAN, MARRIED

DAVID GREY GLASS AND WIFE, GWENDOLYN P. GLASS

NINA RUTH GLASS GRAVES

BERTIE PRESSLEY GARDNER

ABANDONED LANDSCAPE POND

DUKE ENERGY 75.00' TRANSMISSION R/W

BEGIN CONSTRUCTION
-Y1B- POT Sta. 11+10.00

BY1-24

PLAYHOUSE

WOODS

BECKY HOWARD SMITH

DAVID R. QUEEN, A MARRIED MAN

BETTY S. RITCHIE

BEGIN PAVING
-Y1A- POT Sta. 10+07.02
-Y1A- POT Sta. 10+00.00

-Y1B- POT Sta. 11+57.60
-Y1A- POT Sta. 10+37.18

-Y1A-

RESIDUAL

B-31
10+33 -Y1A-
33' LT

B-18
16+97 -Y2A-
25' RT

END PAVING
-Y1A- POT Sta. 11+50.00

MATCHLINE SEE SHEET 6
-Y2A- STA 18+25.00

-Y2A-

BY1-25

MATCHLINE SEE SHEET 13
-Y2A- STA 15+10.00

-Y5A- POT Sta. 10+00.00
-Y2A- POC Sta. 16+59.17
-Y5A- PC Sta. 10+05.04

-Y5A- PT Sta. 10+56.61

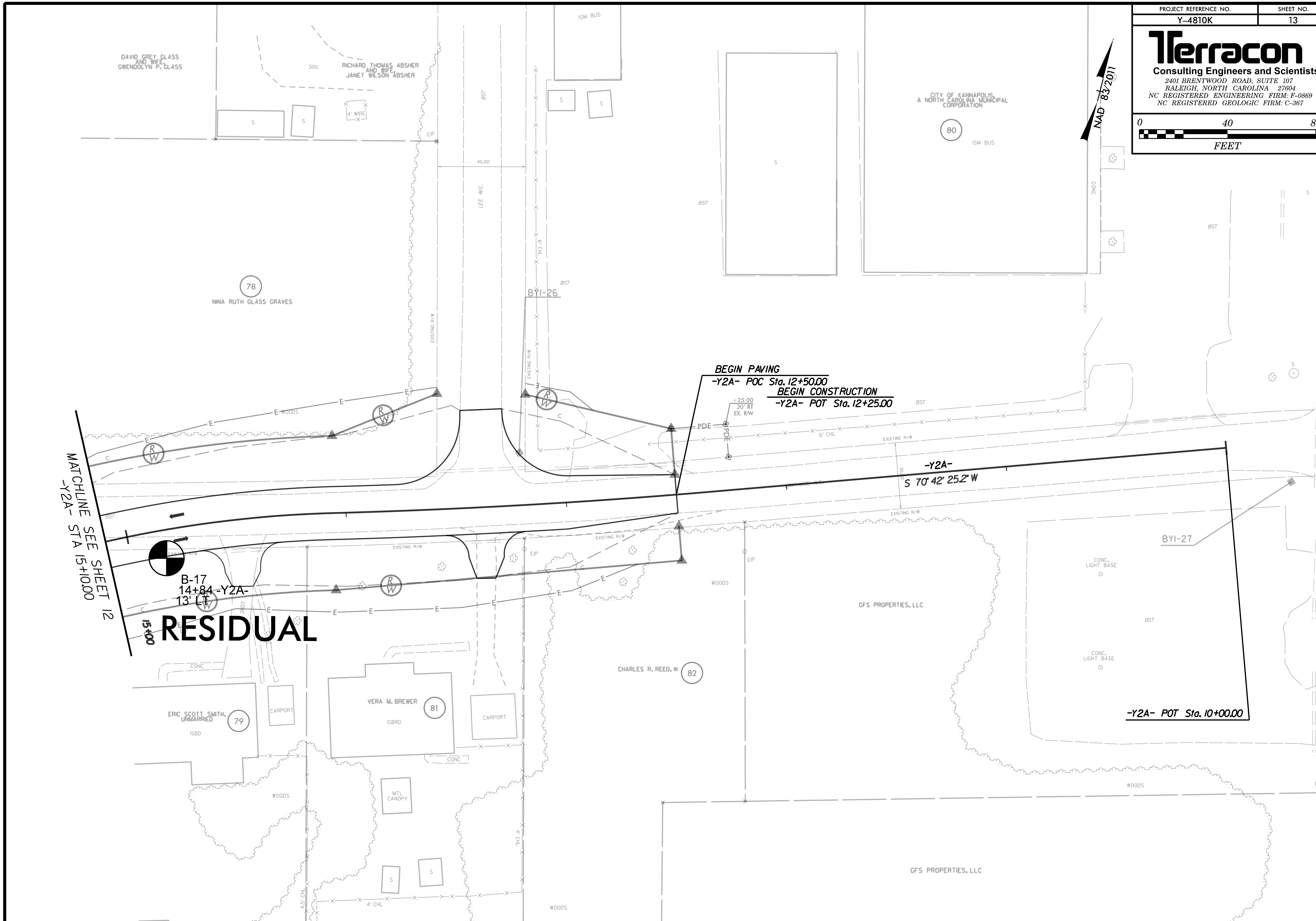
FRANCES J. NICHOLSON

D.B. JORDAN, AND WIFE, JOSIE H. JORDAN

ROBERT L. RITCHIE AND WIFE, JOYCE D. RITCHIE

EDDIE B. DURHAM

MATCHLINE SEE SHEET 6
-Y5A- STA 11+25.00


PROJECT REFERENCE NO.
Y-4810K
SHEET NO.
13
Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367
0
40
80
FEET
NAD 83/2011
DAVID GREY GLASS AND WIFE, GWENDOLYN P. GLASS
RICHARD THOMAS ABSHER AND WIFE, JANET WILSON ABSHER
CITY OF KANNAPOLIS, A NORTH CAROLINA MUNICIPAL CORPORATION
80
ISM BUS
78
NINA RUTH GLASS GRAVES
LEE AVE.
BYI-26
BEGIN PAVING
-Y2A- POC Sta. 12+50.00
BEGIN CONSTRUCTION
-Y2A- POT Sta. 12+25.00
-Y2A-
S 70° 42' 25.2" W
MATCHLINE SEE SHEET 12
-Y2A- STA 15+10.00
B-17
14+84 -Y2A-
13' LT
RESIDUAL
15+00
BYI-27
GFS PROPERTIES, LLC
CHARLES R. REED, III
82
VERA M. BREWER
81
ERIC SCOTT SMITH, UNMARRIED
79
CARPORT
MTL CANOPY
WOODS
CONC. LIGHT BASE
-Y2A- POT Sta. 10+00.00

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	14

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NAD 83/2011

0 40 80
FEET

MATCHLINE SEE SHEET 5
-Y4- STA 13+00.00

MATCHLINE SEE SHEET 15
-Y3- STA 12+00.00

B-26
13+95 -Y4-
20' LT

B-25
10+50 -Y3-
5' LT

RESIDUAL

-Y3- POT Sta. 10+00.00
-Y4- POC Sta. 14+94.56
-Y4- PT Sta. 15+46.78

END PAVING
-Y4- POT Sta. 16+00.00

END CONSTRUCTION
-Y4- POT Sta. 16+15.00

JESUS CHRIST IS THE ANSWER BAPTIST CHURCH

4 U & ME PROPERTIES, LLC

CECIL G. KELLER AND WIFE, BETTY G. KELLER

DENNIS A. DANIELS AMY A. DANIELS

WILLIAM VANWIEREN, II (SINGLE)

MARK O. MILLER (UNMARRIED)

MITCHELL STANBACK (SINGLE)

KAY & JAY PROPERTIES, LLC

PAUL DALTON BYRD

JEREMY SELLERS UNMARRIED

ROGERS LAKE RD. (SR 1625)

MATCHLINE SEE SHEET 6 -Y5B- STA 10+75.00

MATCHLINE SEE SHEET 6 -Y2B- STA 11+30.00

MATCHLINE SEE SHEET 14 -Y3- STA 12+00.00

ARTIFICIAL FILL

RESIDUAL

BEGIN PAVING
-Y5B- POT Sta. 10+75.00

-Y2B- PT Sta. 13+36.05

END PAVING
-Y2B- POT Sta. 16+00.00

END CONS
-Y2B- PC

END PAVING
-Y3- POT Sta. 12+50.00

B-21
12+50 -Y2B-
15' LT

B-27
12+50 -Y5B-
15' LT

B-22
15+49 -Y2B-
4' RT

-Y3- POT Sta. 13+09.72

-Y2B- POC Sta. 13+21.65
-Y5B- POT Sta. 12+24.29

END PAVING
-Y5B- POT Sta. 14+75.00
END CONSTRUCTION
-Y5B- POT Sta. 14+85.00

-Y2B-
PI Sta 11+98.92
Δ = 77° 00' 57.3" (LT)
D = 22° 55' 05.9"
L = 336.05'
T = 198.92'
R = 250.00'

-Y3-

-Y5B-

-Y2B-

15+00

+25.00 -Y3-
PROP R/W

+35.00 -Y3-
45' RT

+55.00
40' RT

BL-11

CECIL G. KELLER AND WIFE, BETTY G. KELLER

PAUL DALTON BYRD

JEREMY SELLERS OR UNMARRIED

MICHAEL JEFFREY GARVER AND WIFE, EVA MURRAY GARVER

CYNTHIA J. BARNHARDT, DIVORCED

DAVID W. NICHOLSON AND WIFE, ANGELA C. NICHOLSON

FRANKIE LAVERA BAKER COSA

A.L. HELMS AND WIFE, SARA HELMS

JOE E. WILLIAMS AND WIFE, MARY E. WILLIAMS

JOHN H. WOOLLERTON, JR.

JAMES WILBUR FINK AND WIFE, DOROTHY LEE ALWRAN FINK

MICHAEL DERON SIMMONS

H.L. RED SMITH, LLC.

RICHARD C. OWINGS AND SPOUSE, TAMMY S. OWINGS

HAROLD G. WILKINSON AND WIFE, REBA T. WILKINSON

HARRY WAYNE SMITH AND WIFE, CHARLEE S. SMITH

NAD 83/2011

0 40
FEET

PROJECT REFERENCE NO.
Y-4810K

Terraco
Consulting Engineers and S
2401 BRENTWOOD ROAD, SUITE
RALEIGH, NORTH CAROLINA
NC REGISTERED ENGINEERING FIR
NC REGISTERED GEOLOGIC FIRM

PAVEMEN

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	16

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

0 40 8(
FEET

NAD 83/2011

BST
EXISTING R/W
CONC SIDEWALK
CB
DI
S
CONC
CONC CURB
GR
ROGERS LAKE RD.(SR 1625)
TES
BL-14
BL-13
BY8-38
BY7-35
-Y7- POT Sta. 10+00.00
ISBL BUS
ISBLK BUS
ISBR BUS
ISFD
SHED
R/R CTL BOX
4" CHL
EIP
POSS. GR
ADAM CANTERO AND JUAN PRECIADO
HARRY L. SMITH
CARL D. MOORE AND WIFE, BETTY P. MOORE
C.J. MOSS AND WIFE, MONTINE M. MOSS
JOHN RANDOLPH TRIECE, PHILLIP TIMOTHY TRIECE, DOUGLAS HENRY TRIECE TRUSTEES
DWIGHT D. DEESE AND WIFE, BEATRICE C. DEESE
MELBA DARLENE PERKINS AND VELBA ARLENE PERKINS
JOE STAMPER PLOTT, JR. AND WIFE, AVA SPARKS PLOTT
WILLIAM D. HASSIG AND WIFE, LINDA A. HASSIG
ROY ELBY LUCAS AND WIFE, PAMELA GLASS LUCAS
US 29A (MAIN ST.)
S. RIDGE AVE.

PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	17

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NAD 83/2011

0 40 80
FEET

BEGIN PAVING
-Y9A- POT Sta. 10+00.00

BEGIN PAVING
-Y10A- POT Sta. 11+50.00

-Y9A-

-Y10A-

RESIDUAL

B-32
11+53 -Y9A-
34' RT

END PAVING
-Y9A- POT Sta. 11+78.01

JOHN RANDOLPH TRIECE, PHILIP TIMOTHY TRIECE, AND DOUGLAS HENRY TRIECE, TRUSTEES

PEDRO C. PARRA AND WIFE, MARIA C. MALDONADO

KURT ZALYS

JOE & CAROLYN GLASS PROPERTIES, LLC

VICTOR J. PARSONS AND MARIA T. PARSONS

BARBARA H. ROCHE

TIMOTHY R HARTLESS

JUNIOR LAMARR HALL

CORALEE REITH, UNMARRIED

VELBA ARLENE PERKINS AND MELBA DARLENE PERKINS, JTWROS

BOBBY RAY YOST SR AND WIFE, THANH-LAN THI YOST

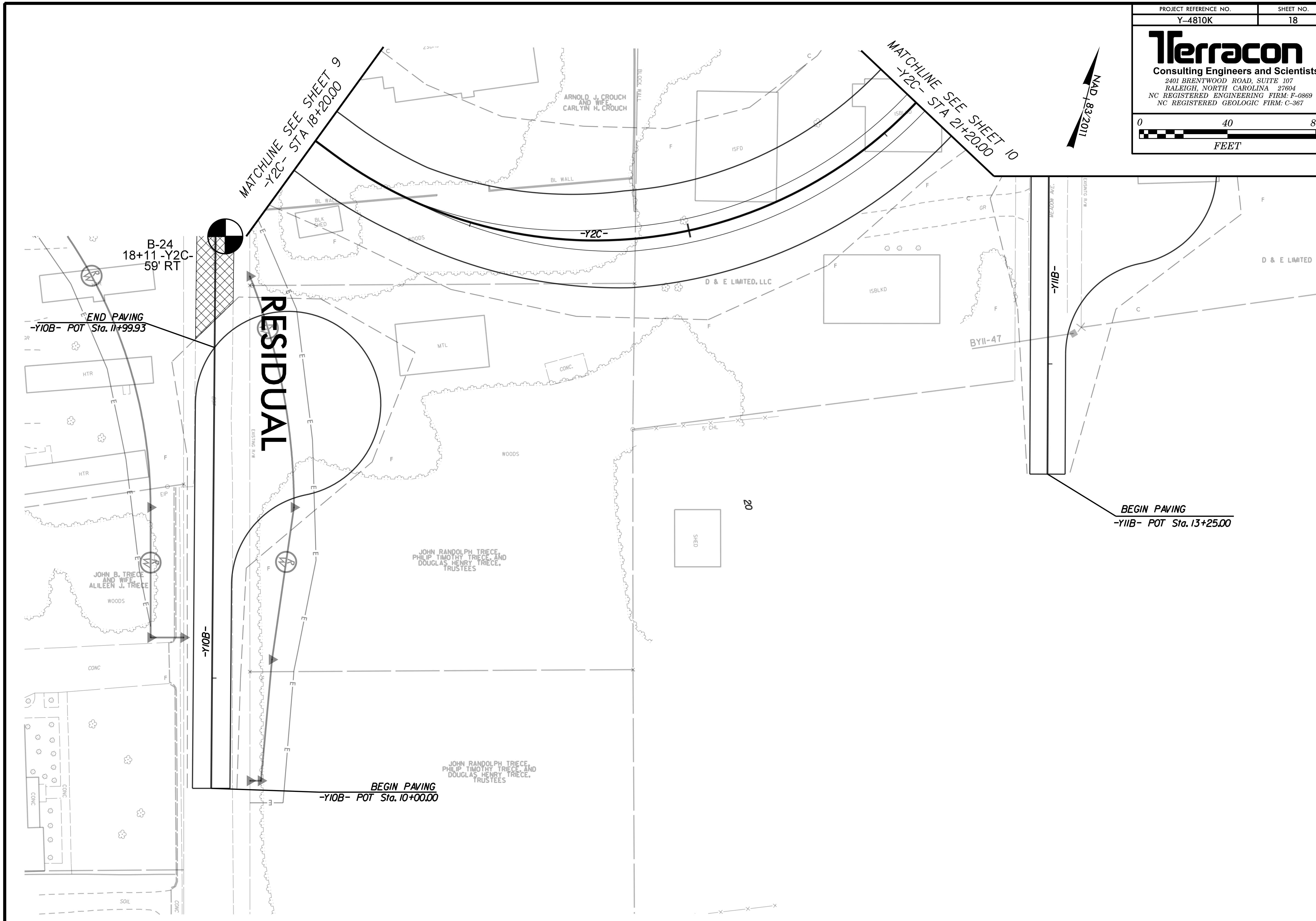
ENZA GERMADU AKA ENZA FRIEDMAN

MATCHLINE SEE SHEET 9
-Y9A- STA 12+00.00

MATCHLINE SEE SHEET 9
-Y10A- STA 13+05.00

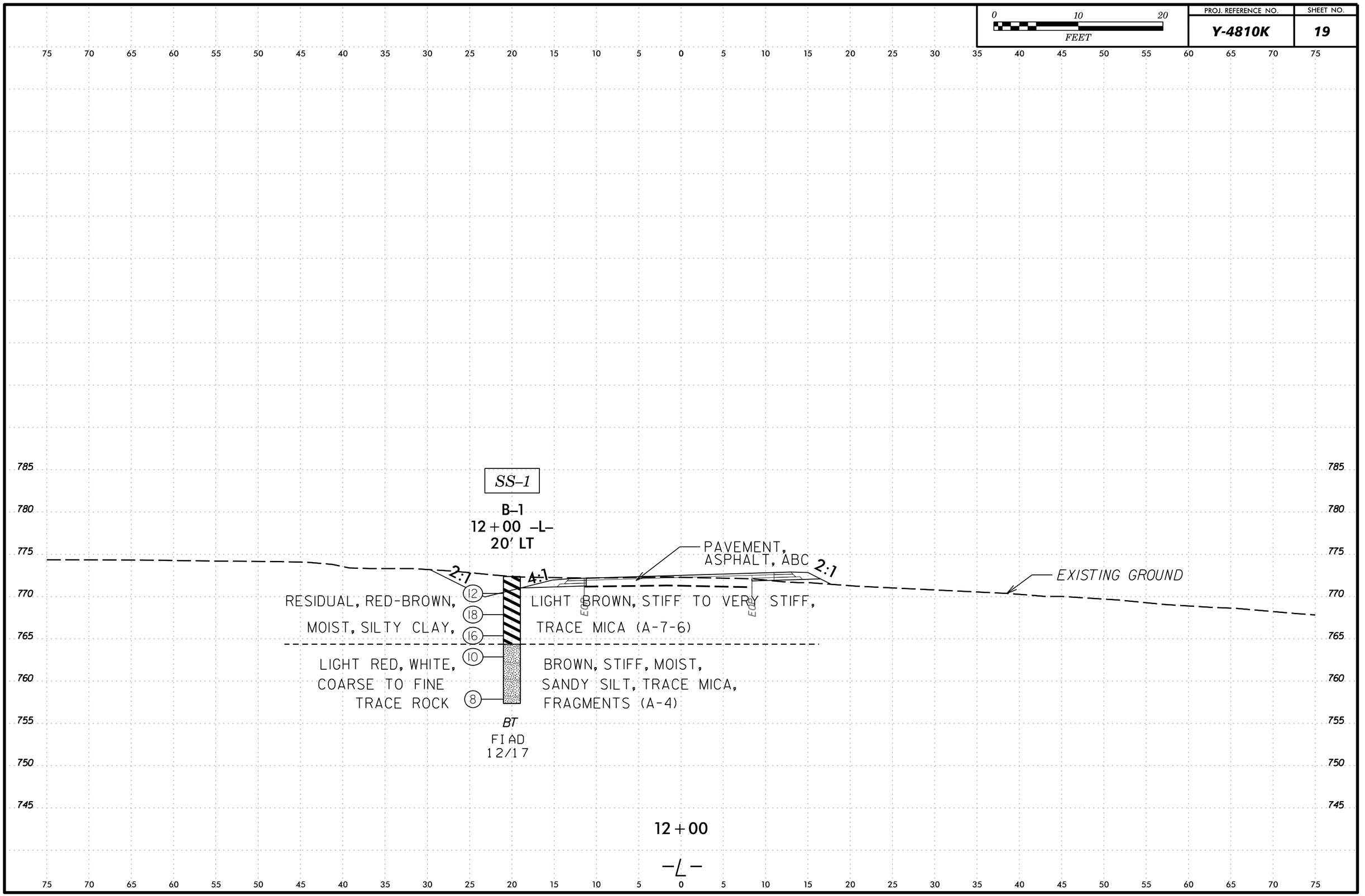
PROJECT REFERENCE NO.	SHEET NO.
Y-4810K	18

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367



MATCHLINE SEE SHEET 9
-Y2C- STA 18+20.00
MATCHLINE SEE SHEET 10
-Y2C- STA 21+20.00
NAD 83/2011
0 40 80
FEET
B-24
18+11 -Y2C-
59' RT
RESIDUAL
END PAVING
-Y10B- POT Sta. 11+99.93
BEGIN PAVING
-Y10B- POT Sta. 10+00.00
BEGIN PAVING
-Y11B- POT Sta. 13+25.00
-Y2C-
-Y10B-
-Y11B-
BY11-47
ARNOLD J. CROUCH AND WIFE, CARLYIN H. CROUCH
D & E LIMITED, LLC
D & E LIMITED LLC
JOHN RANDOLPH TRIECE, PHILIP TIMOTHY TRIECE, AND DOUGLAS HENRY TRIECE, TRUSTEES
JOHN B. TRIECE AND WIFE, ALILEEN J. TRIECE
WOODS
BL WALL
BLK SHED
MTL
CONC.
SHED
HTR
5' CHL
20

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	19



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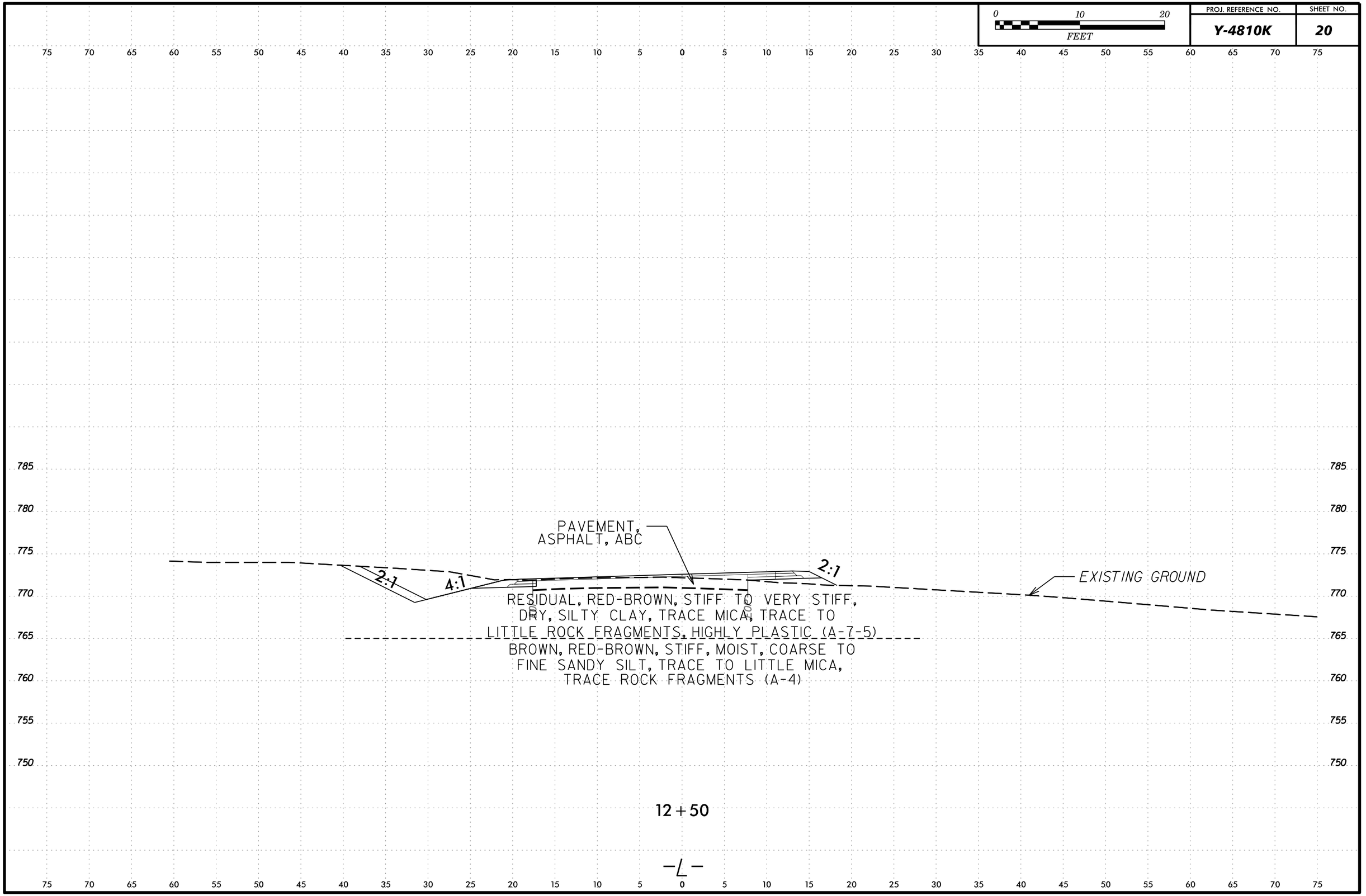
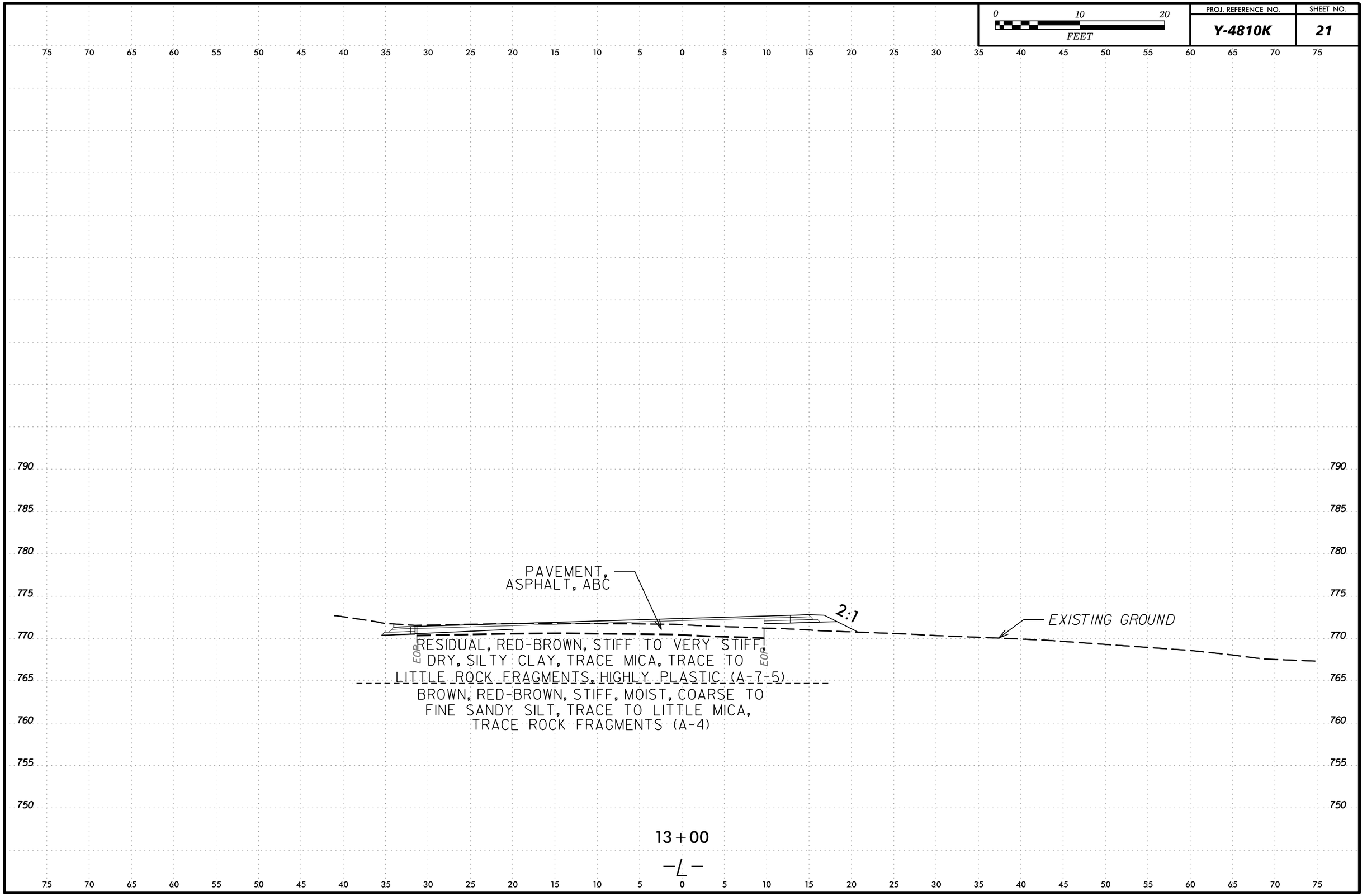
	Y-4810K	20



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	21



PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	22

0 10 20 FEET

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

780 775 770 765 760 755 750

SS-2

B-2
14+06 -L-
3' LT

PAVEMENT,
ASPHALT, ABC

4:1

2:1

EXISTING GROUND

EOP

EOP

RESIDUAL, RED-BROWN, DRY, SILTY CLAY, TRACE LITTLE ROCK FRAGMENTS, BROWN, RED-BROWN, FINE SANDY SILT, TRACE ROCK FRAGMENTS

9
23
23
13

STIFF TO VERY STIFF, MICA, TRACE TO HIGHLY PLASTIC (A-7-5)

STIFF, MOIST, COARSE TO TO LITTLE MICA, TRACE (A-4)

BT

FIAD
12/17

14+00

785 780 775 770 765 760 755 750 745

PAVEMENT,
ASPHALT, ABC

4:1

2:1

EXISTING GROUND

EOP

EOP

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY, SILTY CLAY, TRACE MICA, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

BROWN, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

13+50

-L-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	23

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

775
770
765
760
755

PAVEMENT,
ASPHALT, ABC

2:1 4:1 3:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF,
DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK
FRAGMENTS, HIGHLY PLASTIC (A-7-5)

WHITE, LIGHT RED, BROWN, COARSE TO FINE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

15+00

775
770
765
760
755
750
745

PAVEMENT,
ASPHALT, ABC

2:1 4:1 2:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF,
DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK
FRAGMENTS, HIGHLY PLASTIC (A-7-5)

WHITE, LIGHT RED, BROWN, COARSE TO FINE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

14+50

$-\mathit{L}-$

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	24

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

780 775 770 765 760 755 750

SS-3
B-3
16+20 -L-
3' RT

PAVEMENT,
ASPHALT, ABC

2:1 4:1 4:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT DRY TO MOIST, SILTY CLAY, FRAGMENTS, HIGHLY WHITE, LIGHT RED, BROWN, TRACE MICA, TRACE

(13) (24) (19) (11)

BROWN, STIFF TO VERY STIFF, TRACE MICA, TRACE ROCK PLASTIC (A-7-5)

COARSE TO FINE SANDY SILT, ROCK FRAGMENTS (A-4)

BT

FIAD
12/17

16+00

PAVEMENT,
ASPHALT, ABC

2:1 4:1 4:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF, DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

WHITE, LIGHT RED, BROWN, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

15+50

-L-

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

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	25

0 10 20
FEET

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

775
770
765
760
755

EXISTING GROUND
2:1
4:1
4:1
PAVEMENT,
ASPHALT, ABC
EOP

RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF,
DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK
FRAGMENTS, HIGHLY PLASTIC (A-7-5)

WHITE, LIGHT RED, BROWN, COARSE TO FINE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

17+00

PAVEMENT,
ASPHALT, ABC
4:1
EXISTING GROUND
2:1
4:1
EOP
EOP

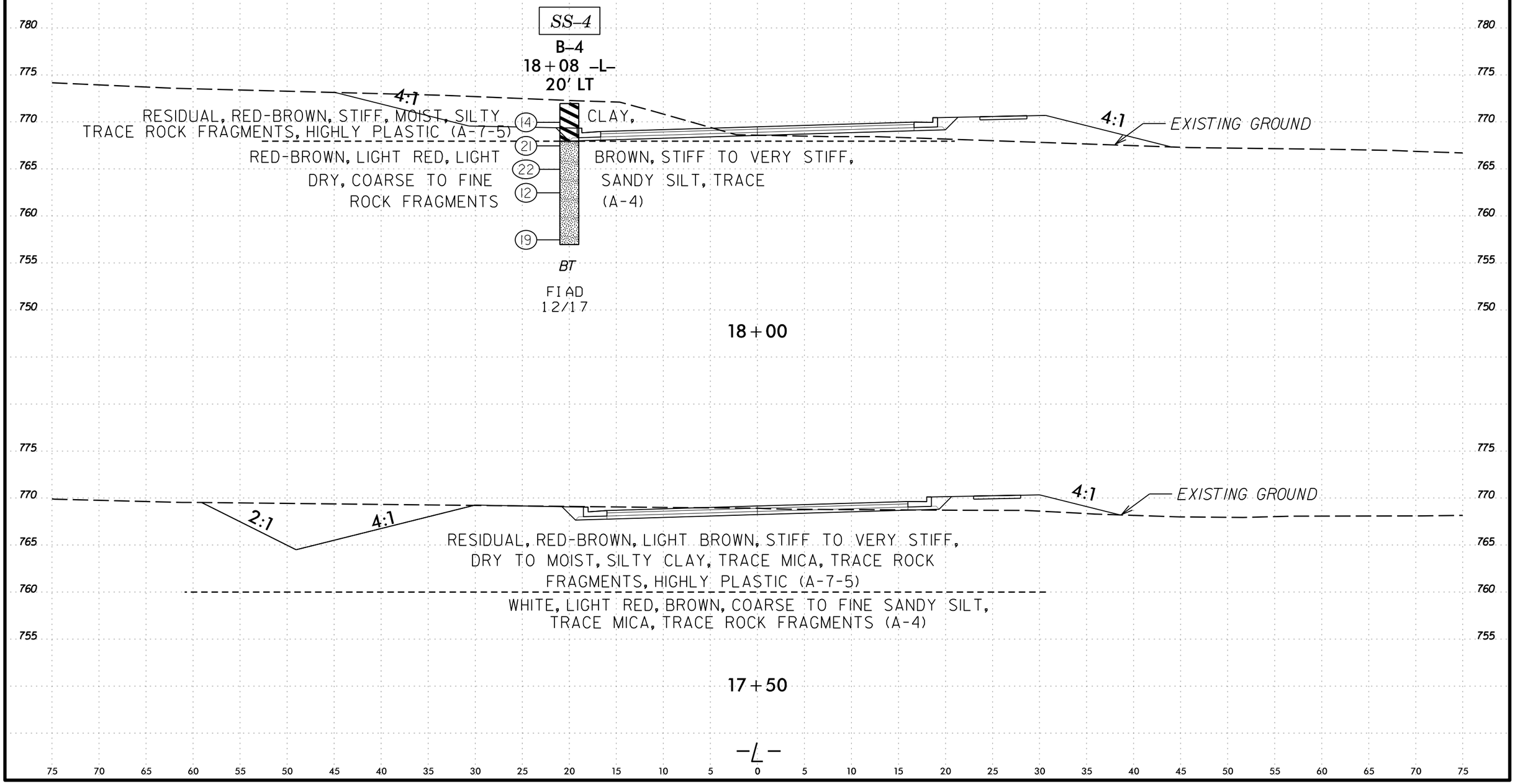
RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF,
DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK
FRAGMENTS, HIGHLY PLASTIC (A-7-5)

WHITE, LIGHT RED, BROWN, COARSE TO FINE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

16+50
-L-

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	26

0 10 20
FEET



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	27

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

775 770 765 760 755

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, BROWN, MEDIUM STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF, DRY TO MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

19+50

775 770 765 760 755

4:1 3:1 EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, LIGHT RED, LIGHT BROWN, STIFF TO VERY STIFF, DRY, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS (A-4)

19+00

775 770 765 760

4:1 4:1 EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, LIGHT RED, LIGHT BROWN, STIFF TO VERY STIFF, DRY, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS (A-4)

18+50

$-\mathit{L}-$

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	28

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

775
770
765
760
755

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, BROWN, MEDIUM STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF, DRY TO MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

20+50

B-5
20+00 -L-
CL

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, BROWN, MEDIUM STIFF, (8) (16) MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, LIGHT BROWN, STIFF TO (17) (10) VERY STIFF, DRY TO MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

BT

FIAD
12/17

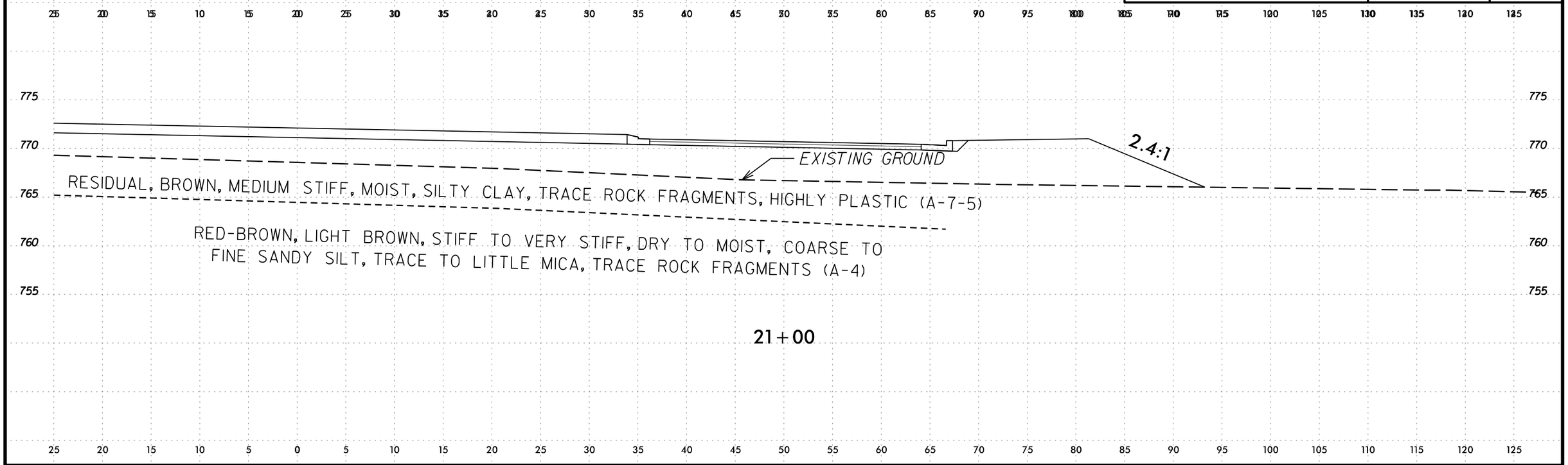
20+00

-L-

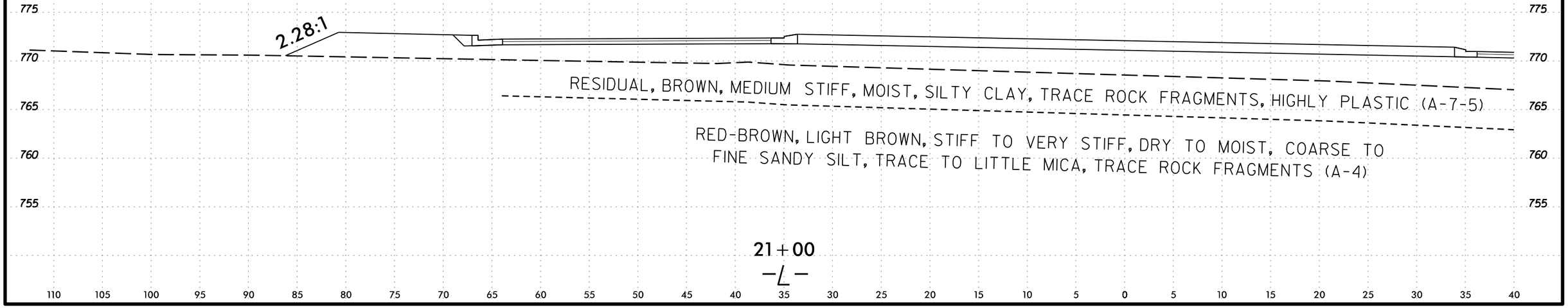
775
770
765
760
755
750

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	29



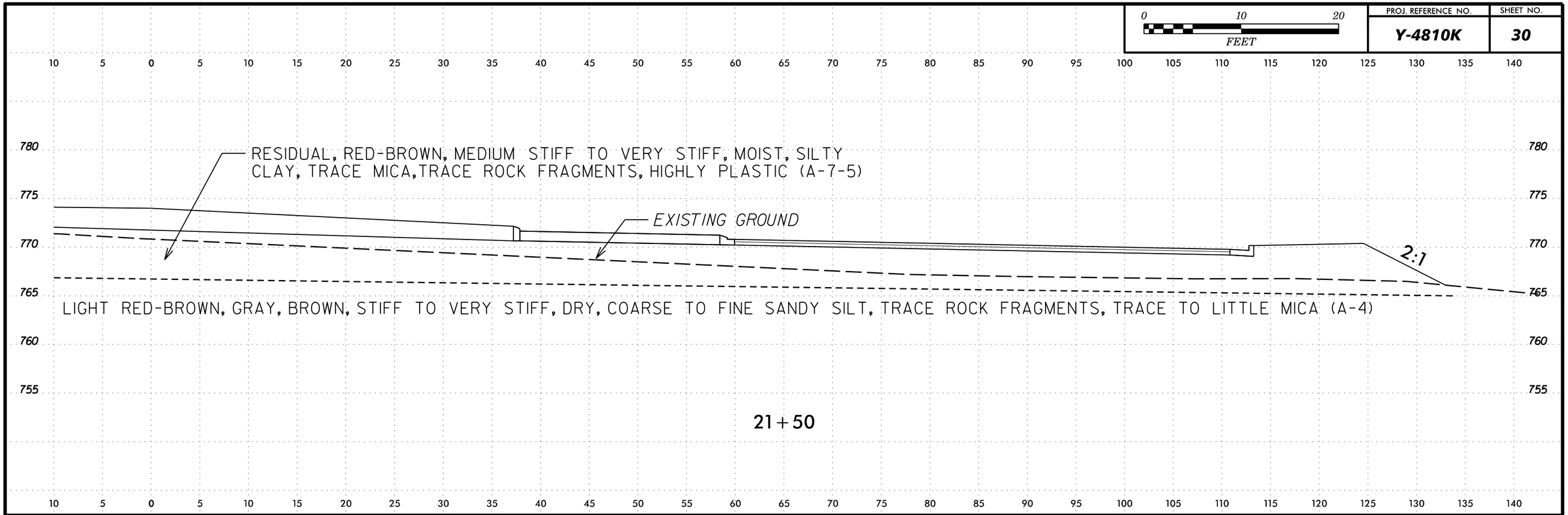
21+00

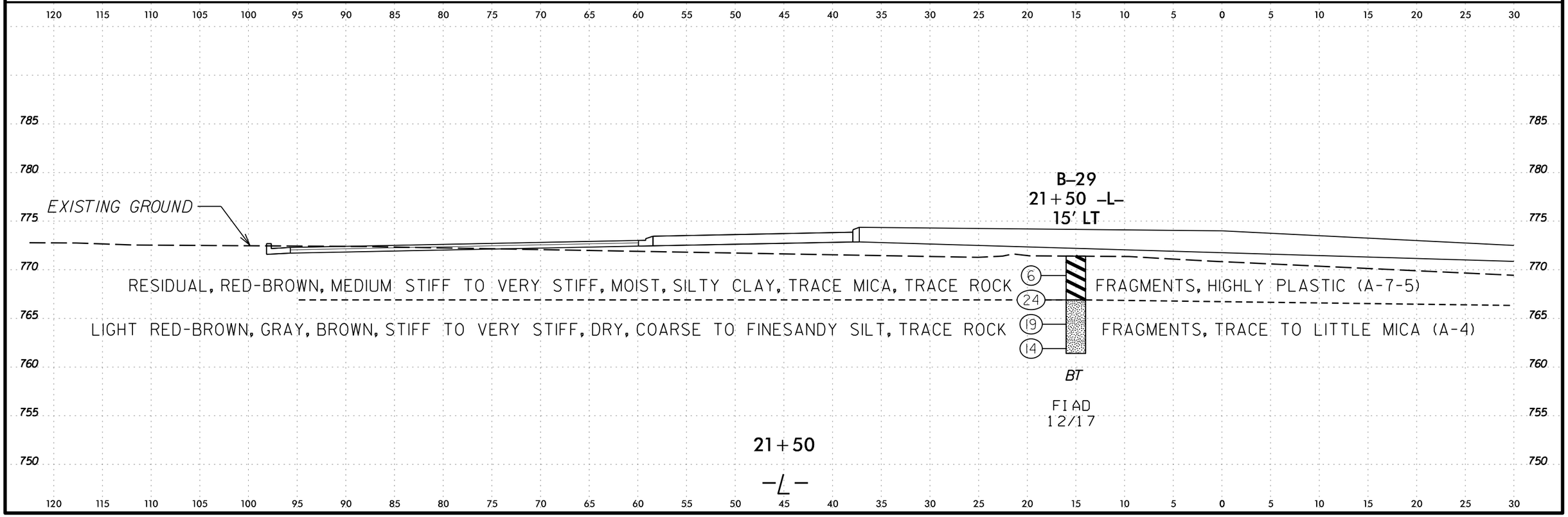


21+00

—L—

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	30





0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	31

RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, TRACE MICA, HIGHLY PLASTIC (A-7-5)

EXISTING GROUND

LIGHT RED, RED-BROWN, STIFF, DRY, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS, TRACE MICA (A-4)

22+00

EXISTING GROUND

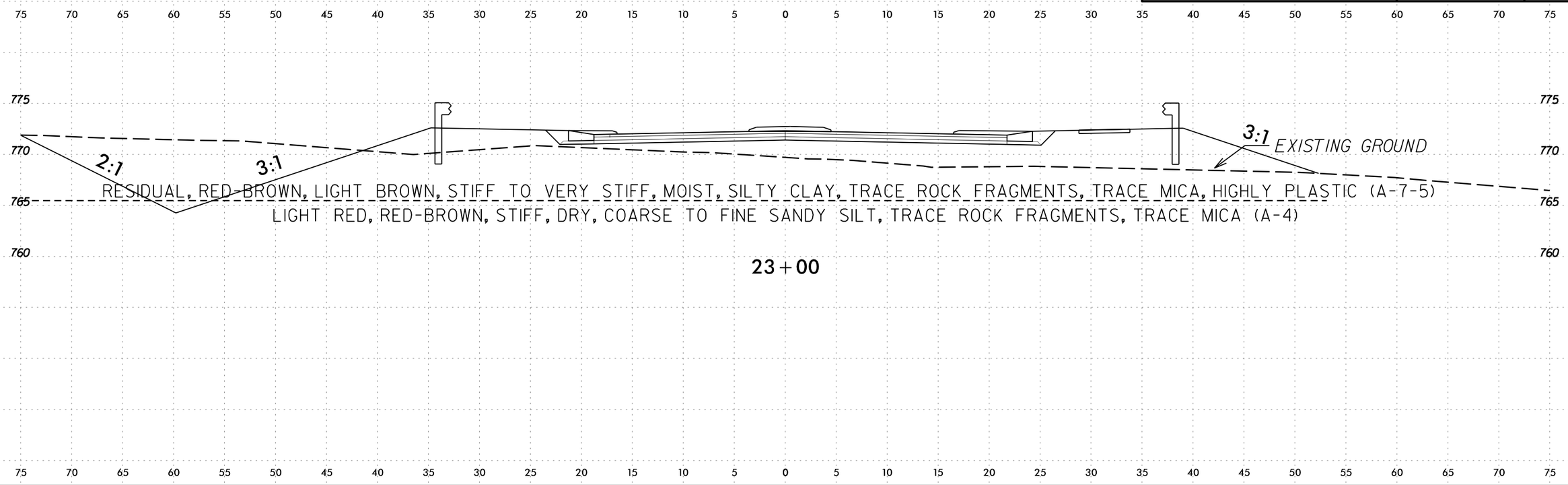
RESIDUAL, RED-BROWN, LIGHT BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, TRACE MICA, HIGHLY PLASTIC (A-7-5)

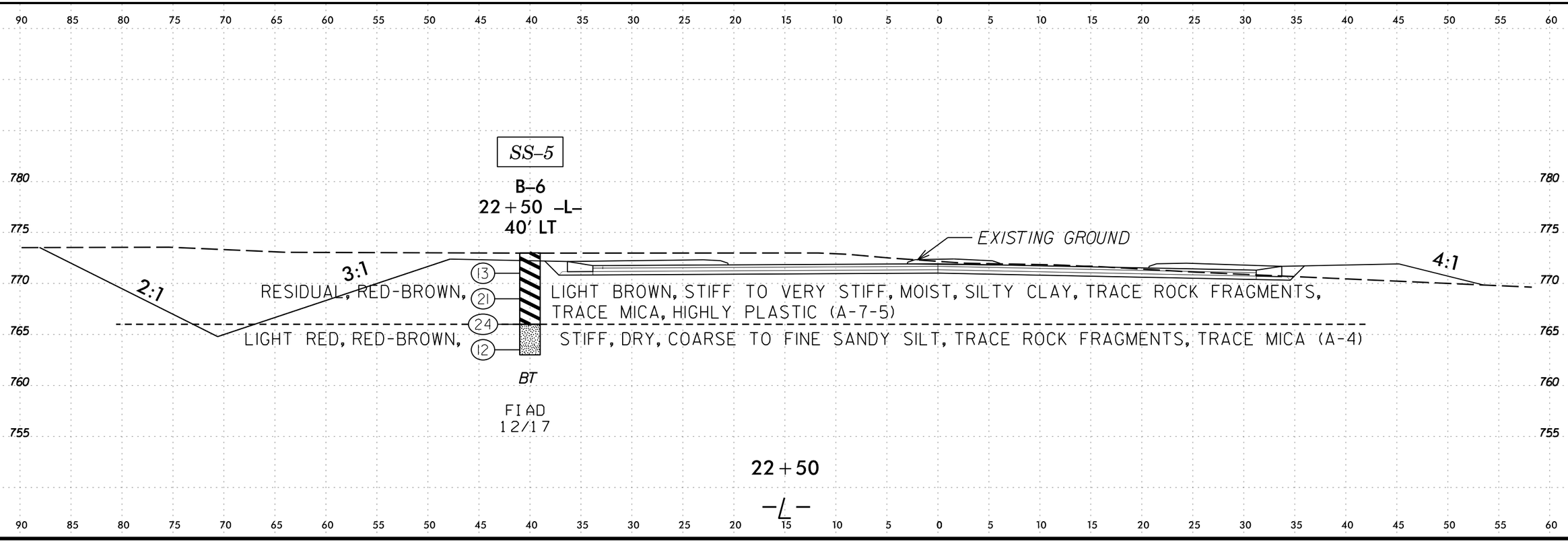
LIGHT RED, RED-BROWN, STIFF, DRY, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS, TRACE MICA (A-4)

22+00

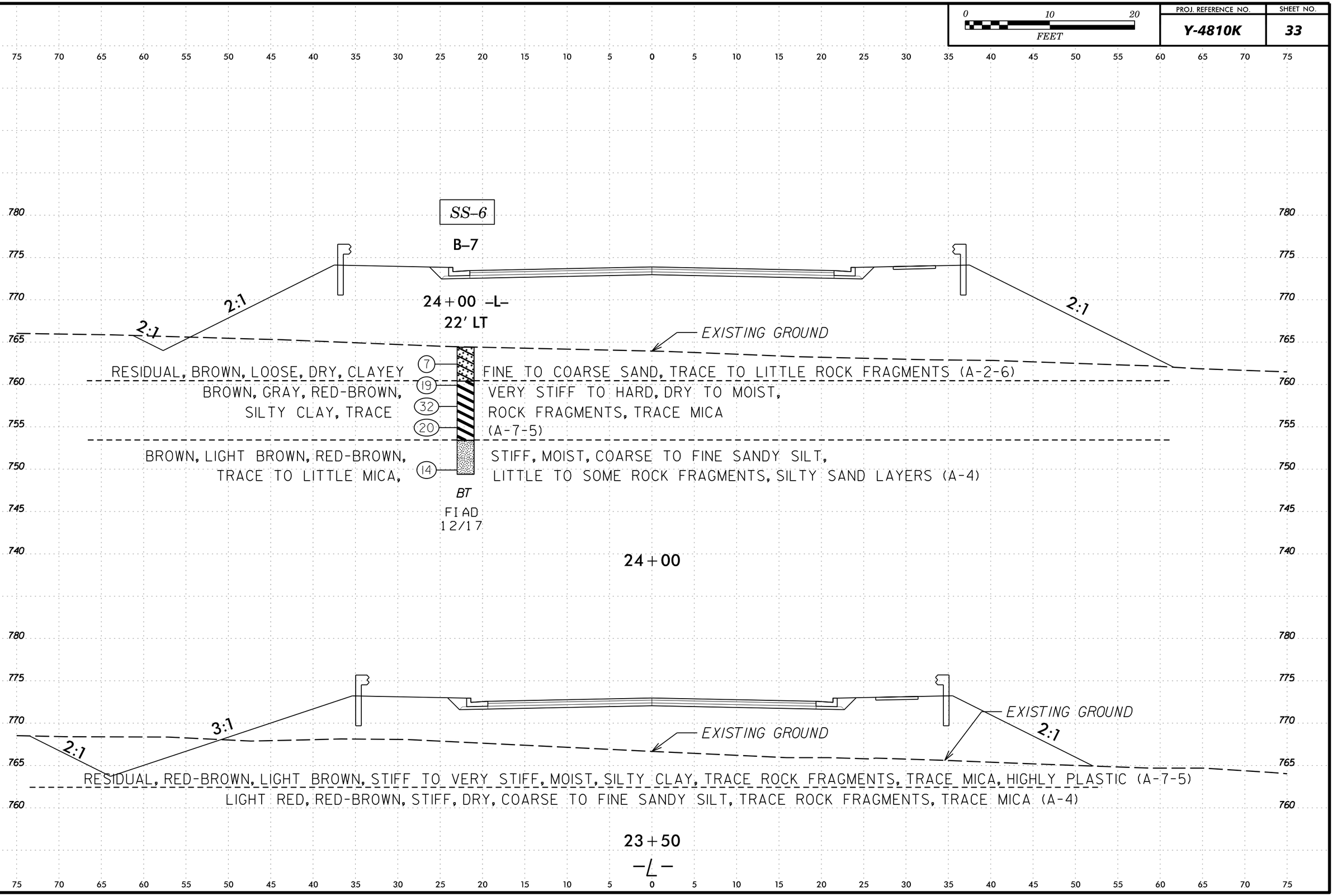
$-L-$

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	32



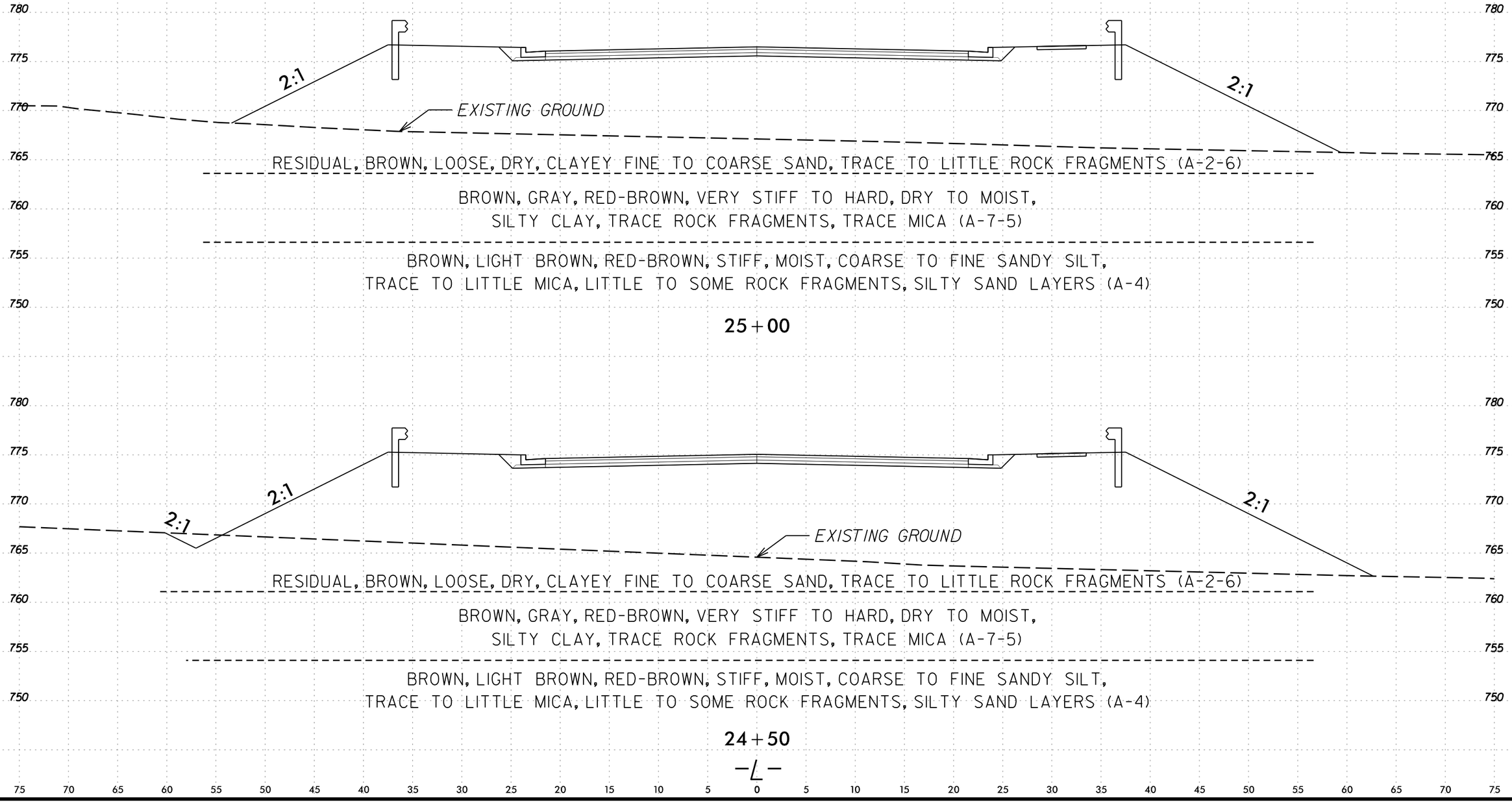


0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	33



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	34

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



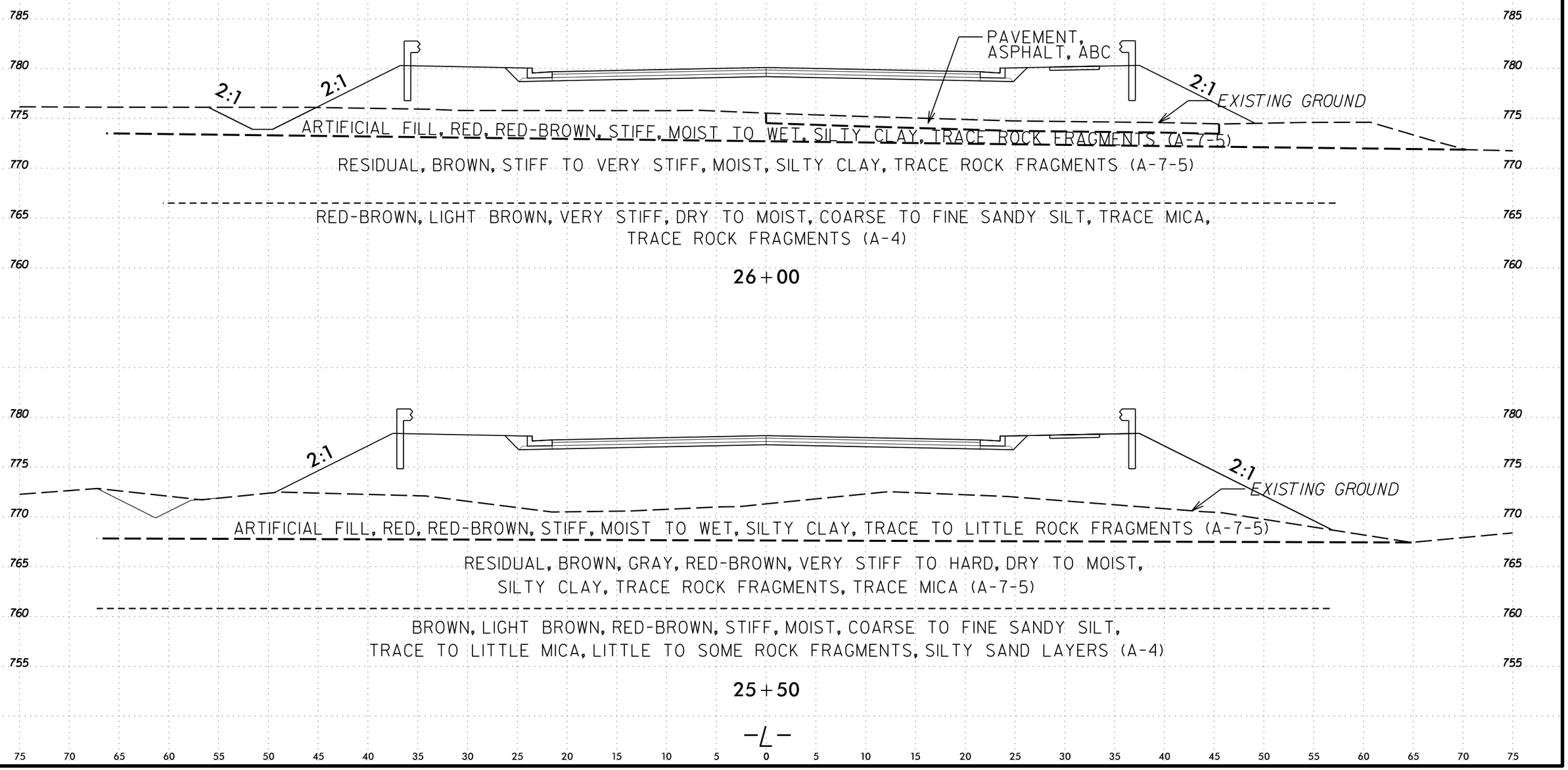
25+00

24+50

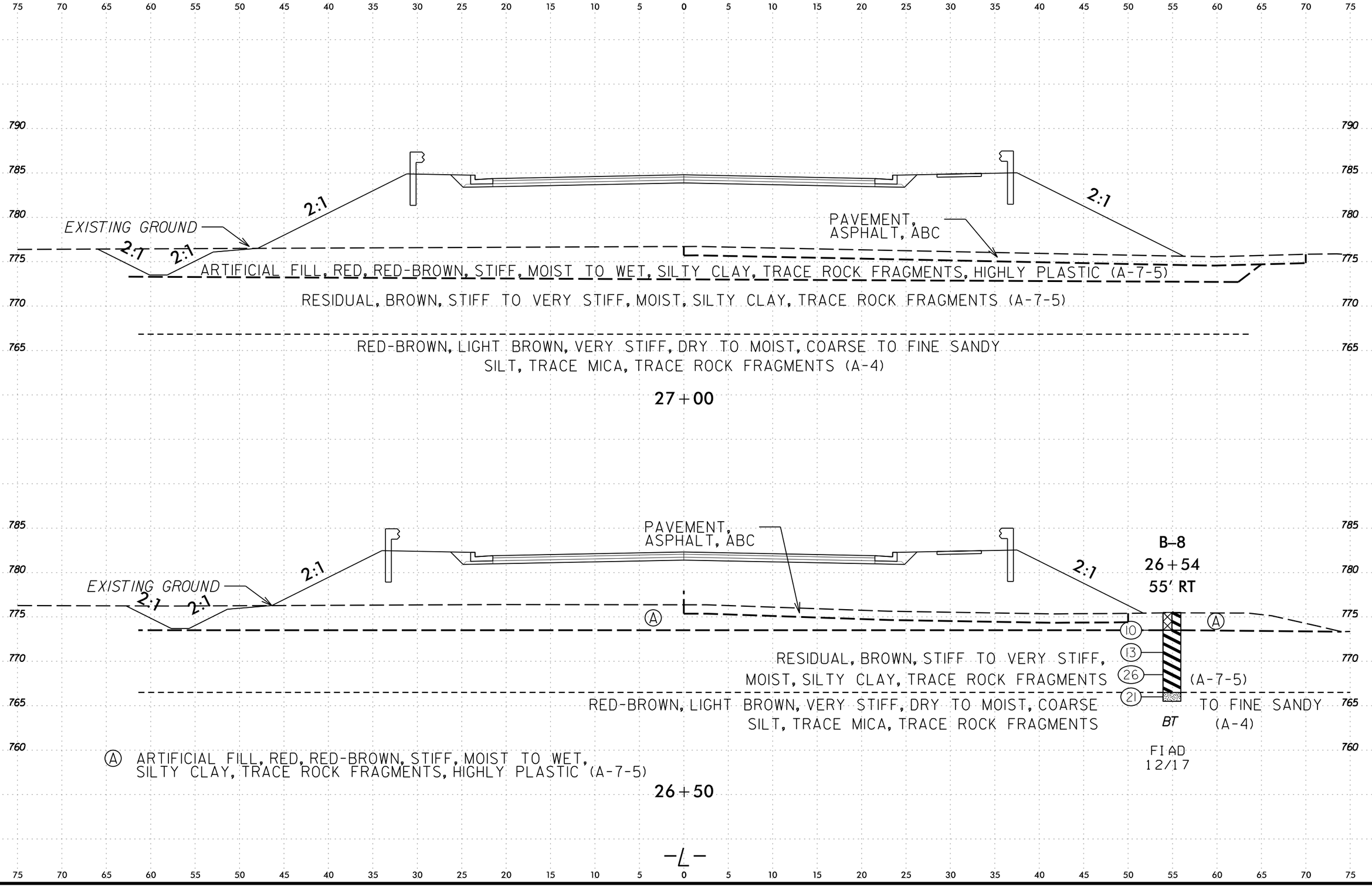
$-\mathit{L}-$

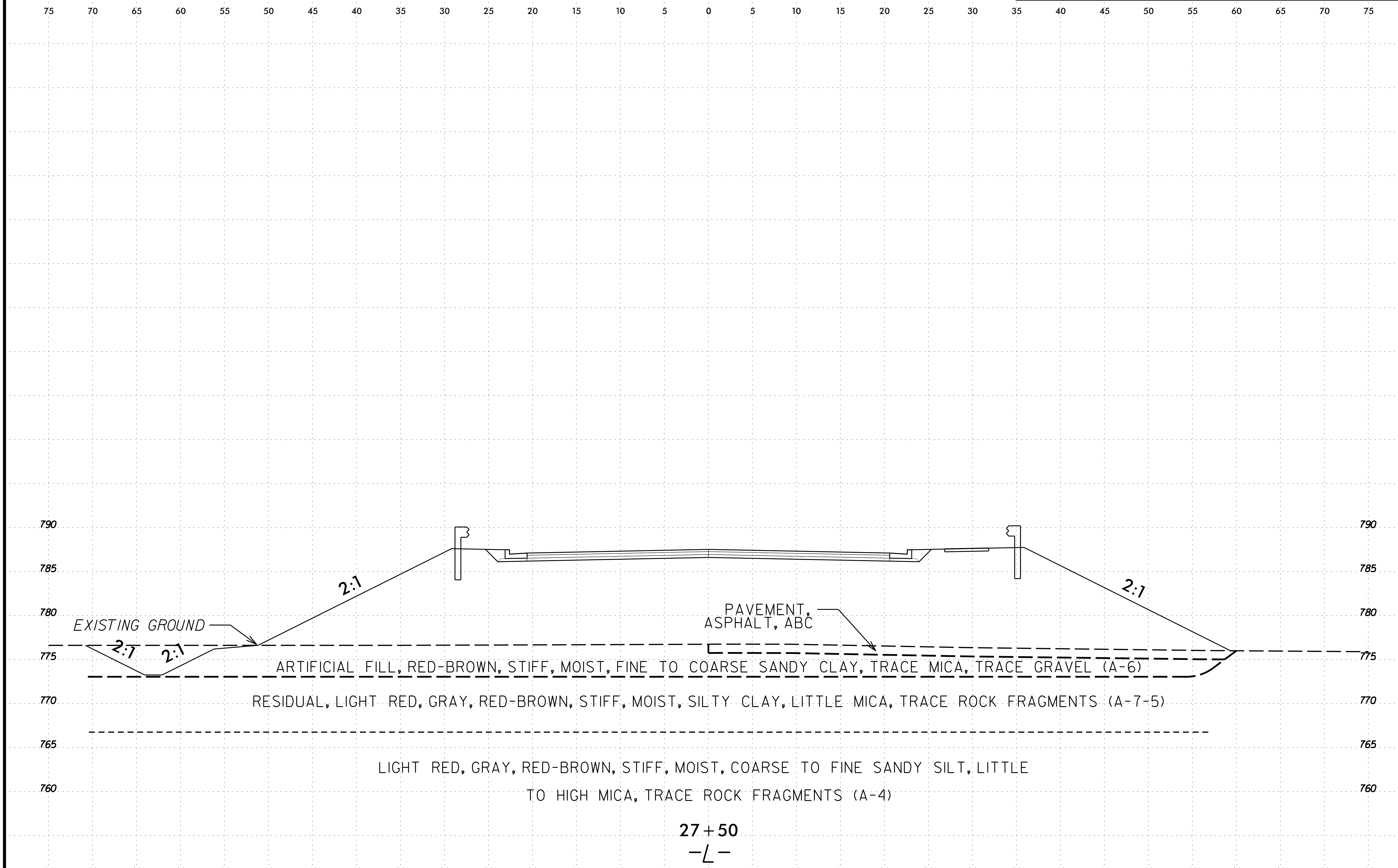
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	35



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	36




0 10 20
FEET
EXISTING GROUND
2:1
2:1
2:1
2:1
PAVEMENT,
ASPHALT, ABC
ARTIFICIAL FILL, RED-BROWN, STIFF, MOIST, FINE TO COARSE SANDY CLAY, TRACE MICA, TRACE GRAVEL (A-6)
RESIDUAL, LIGHT RED, GRAY, RED-BROWN, STIFF, MOIST, SILTY CLAY, LITTLE MICA, TRACE ROCK FRAGMENTS (A-7-5)
LIGHT RED, GRAY, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE
TO HIGH MICA, TRACE ROCK FRAGMENTS (A-4)
790
785
780
775
770
765
760

27 + 50

-L-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	38

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

795
790
785
780
775
770
765
760
755
750
745
740

2:1

2:1

2:1

2:1

SS–7

B–9
28+00 –L–
CL

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

ARTIFICIAL FILL, RED-BROWN, STIFF, MOIST, FINE TO COARSE (11)

SANDY CLAY, TRACE MICA, TRACE GRAVEL (A-6)

(12)

RESIDUAL, LIGHT RED, GRAY, RED-BROWN, STIFF, (15)

MOIST, SILTY CLAY, LITTLE MICA, TRACE ROCK FRAGMENTS (A-7-5)

(14)

LIGHT RED, GRAY, RED-BROWN, STIFF, (13)

MOIST, COARSE TO FINE SANDY SILT, LITTLE TO HIGH MICA,

TRACE ROCK FRAGMENTS (14)

(A-4)

(14)

BT

FIAD
12/17

28+00

–L–

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	39

2:1

2:1

SS-8

EB1-A
30+23 -L-
22' LT

EB1-B
30+23 -L-
28' RT

EXISTING GROUND

PAVEMENT,
ASPHALT, GRAVEL

RESIDUAL, LIGHT RED, RED-BROWN,
COARSE TO FINE SAND, TRACE TO SOME
LITTLE TO SOME MICA

GRAY, MEDIUM DENSE, MOIST, CLAYEY
ROCK FRAGMENTS,
(A-2-7)

11
12
11
12
11
12
12
13
14
13

13
12
12
14
13
12
13
12
10
11
16

12/17

LIGHT RED, RED-BROWN, BROWN,
SILT, TRACE TO SOME ROCK

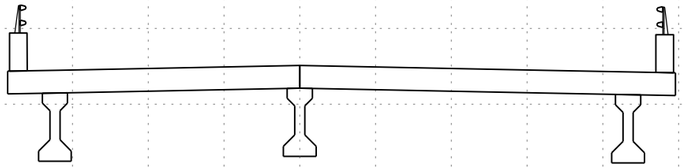
WHITE, GRAY, STIFF TO VERY STIFF, MOIST
FRAGMENTS, TRACE TO SOME MICA

TO WET, COARSE TO FINE SANDY
(A-4)

REMAINDER OF BRIDGE BORINGS (EB1-A,EB1-B)
SHOWN ON Y-4810K BRIDGE INVENTORY REPORT

30+00
-L-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	40



SS-9

EB2–A
35 + 01 –L–
22′ LT

EB2–B
35 + 01 –L–
28′ RT

EXISTING GROUND

PAVEMENT, ASPHALT, GRAVEL

RESIDUAL, RED-BROWN, (A-7-5) — 16

VERY STIFF, MOIST, SILTY CLAY, TRACE QUARTZ FRAGMENTS, TRACE MICA — 100/0.8

WEATHERED ROCK (GRANITE)

RESIDUAL, WHITE, GRAY, COARSE TO FINE SAND, — 34

BLACK, DENSE, DRY, SILTY TRACE MICA, LITTLE ROCK FRAGMENTS (A-2-4)

WHITE, LIGHT RED, SANDY SILT, TRACE (A-4) — 7, 7, 7

GRAY-BROWN, MEDIUM STIFF TO HARD, MOIST, TO SOME MICA, TRACE QUARTZ FRAGMENTS — 35

COARSE TO FINE TRACE TO LITTLE MICA, — 60/0.1

DENSE, DRY, SILTY COARSE TO FINE SAND, LITTLE QUARTZ ROCK FRAGMENTS (A-2-4) — 100/0.8

WHITE, GRAY, BROWN, BLACK, — 35

(GRANITE) — 100/0.2

BROWN, STIFF, MOIST, CLAYEY SILT, MICACEOUS (A-5) — 9

WEATHERED ROCK (GRANITE) — 60/0.0

60/0.1

ROCK

CRYSTALLINE

AR FIAD 11/17

CRYSTALLINE ROCK (GRANITE)

AR FIAD 11/17

35 + 00

–L–

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	41

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

810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725

2:1

2:1

B–10
38+24 –L–
25' LT

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

EOP

RESIDUAL, RED-BROWN, LIGHT BROWN, MEDIUM STIFF TO VERY STIFF, WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS (A-7-5)

6
17
9
16
15
12
14
11
12
13
13

RED-BROWN, LIGHT BROWN, LIGHT RED, WHITE, BROWN, STIFF TO VERY STIFF, DRY TO WET,

COARSE TO FINE SANDY SILT AND CLAYEY SILT, TRACE TO SOME MICA, TRACE ROCK FRAGMENTS

(A-4, A-5)

BT
CAVED DRY
@ 18.6'
12/17

38+00

–L–

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	42

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

800 795 790 785 780 775 770 765 760 755 750 745 740 735

2:1

2:1

B–11
39 + 00 –L–
30′ LT

EXISTING GROUND

RESIDUAL, BROWN, RED-BROWN, MEDIUM STIFF TO VERY STIFF, WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, TRACE MICA

(A-7-5)

LIGHT BROWN, DARK BROWN, WHITE, LIGHT RED, STIFF, MOIST TO WET, COARSE TO FINE SANDY SILT

AND CLAYEY SILT, TRACE TO SOME MICA, TRACE ROCK FRAGMENTS (A-4, A-5)

6
24
25
11
12
10
11
9
13

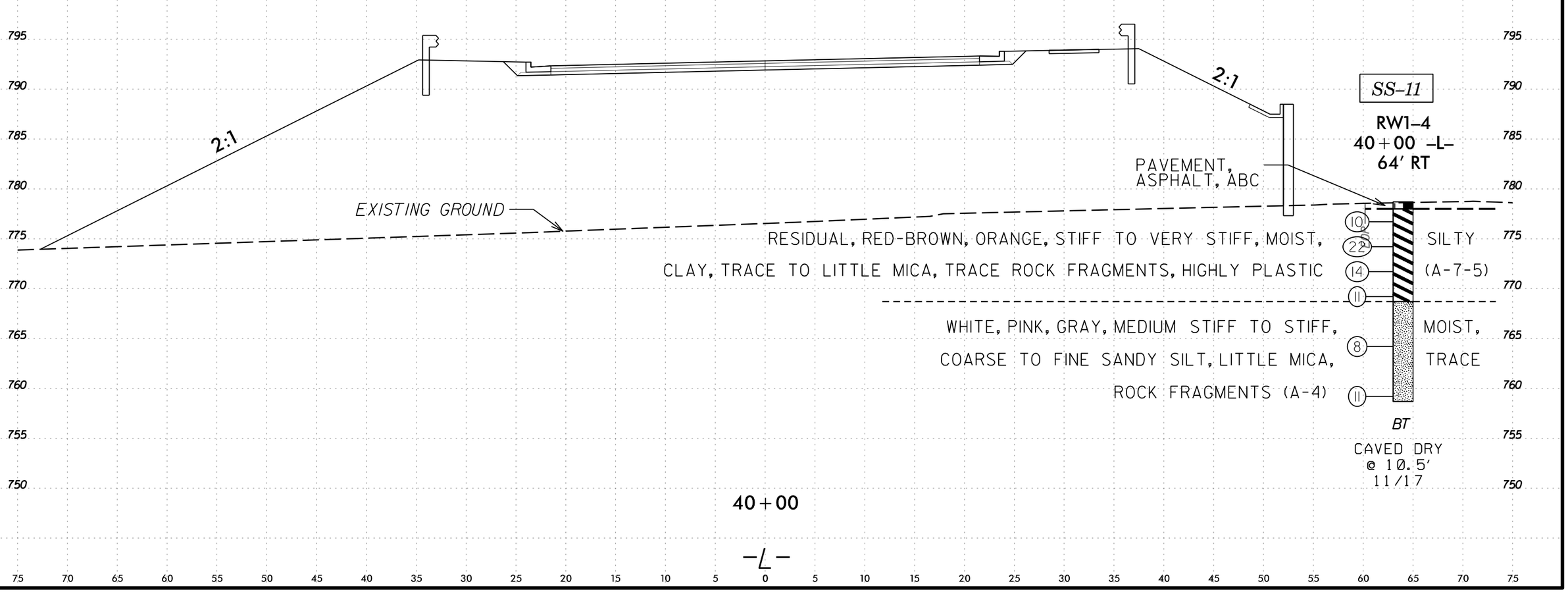
BT

CAVED DRY
@ 13.1′
12/17

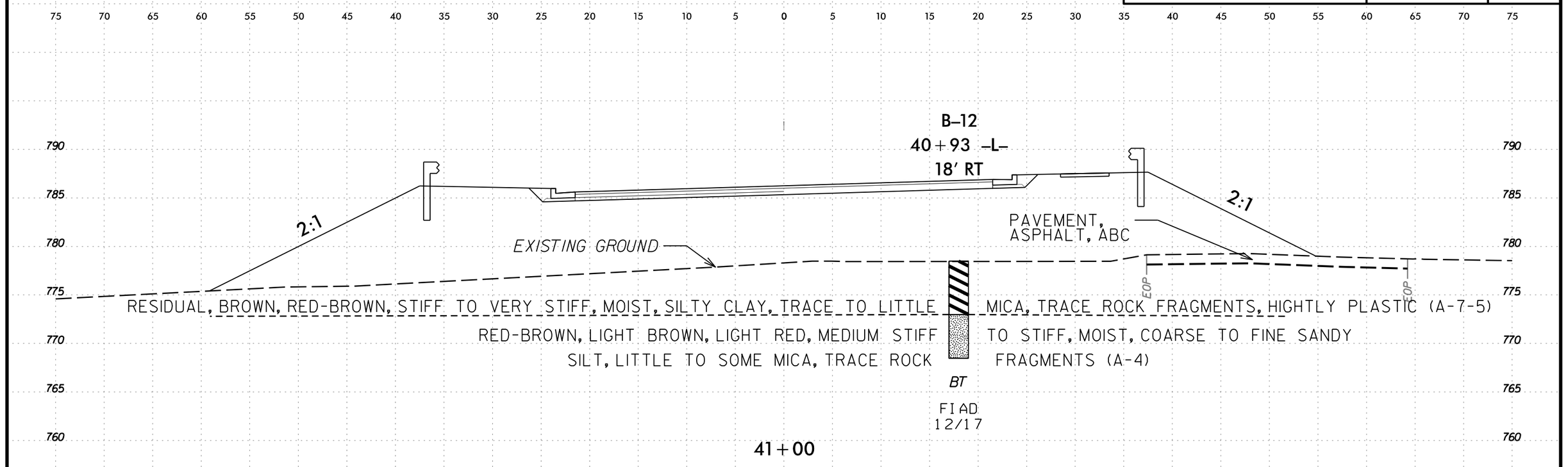
39 + 00

–L–

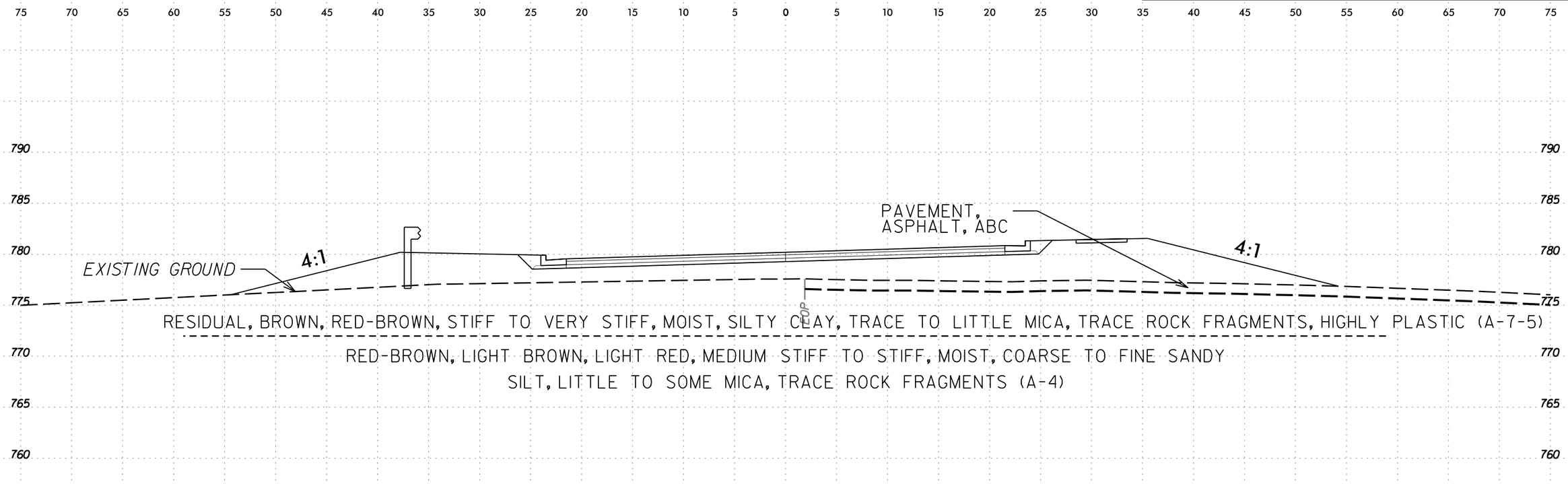
0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	45



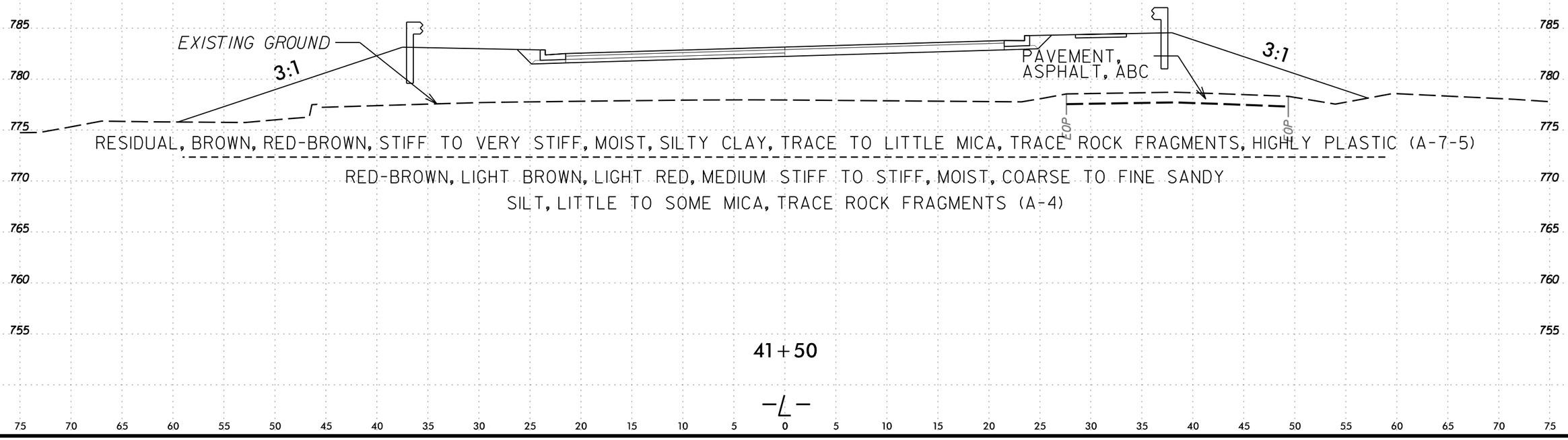
0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	46



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	47



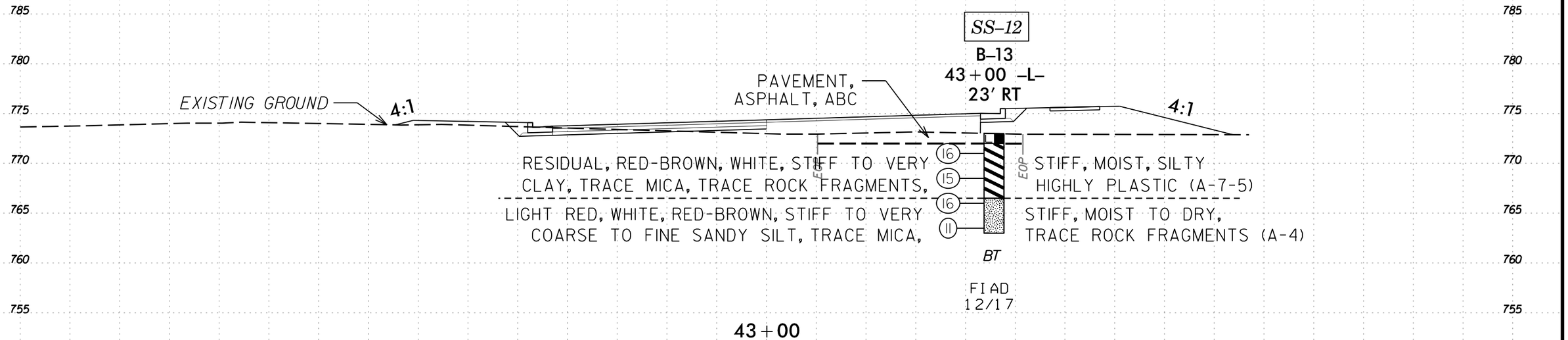
42 + 00

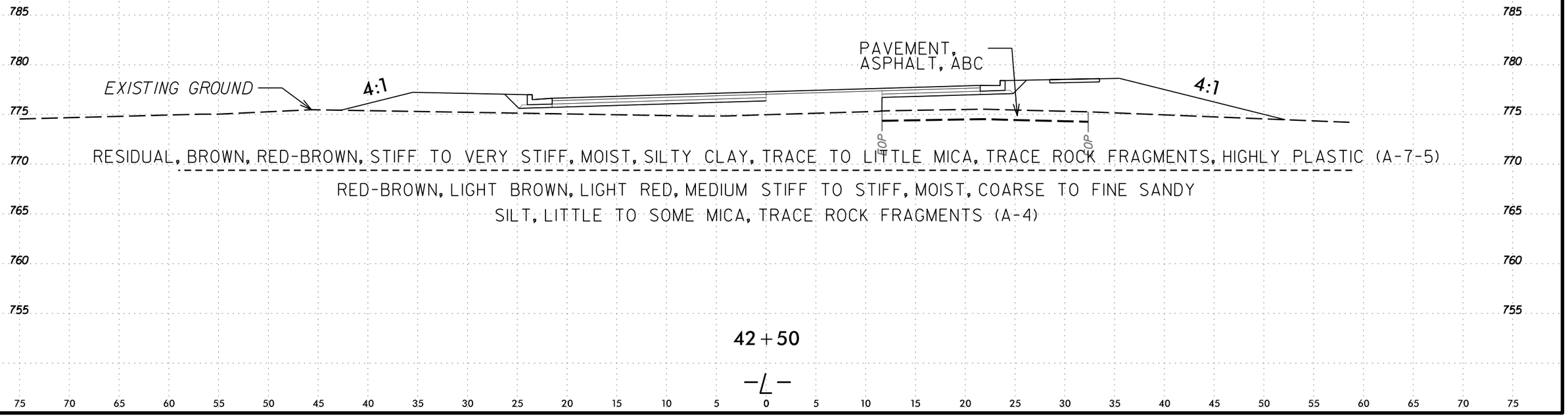


41 + 50

$-\mathit{L}-$

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	48





0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	49

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

775
770
765
760
755
750

EXISTING GROUND
4:1
PAVEMENT,
ASPHALT, ABC
4:1
EOP
EOP
RESIDUAL, RED-BROWN, WHITE, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)
LIGHT RED, WHITE, RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

44+00

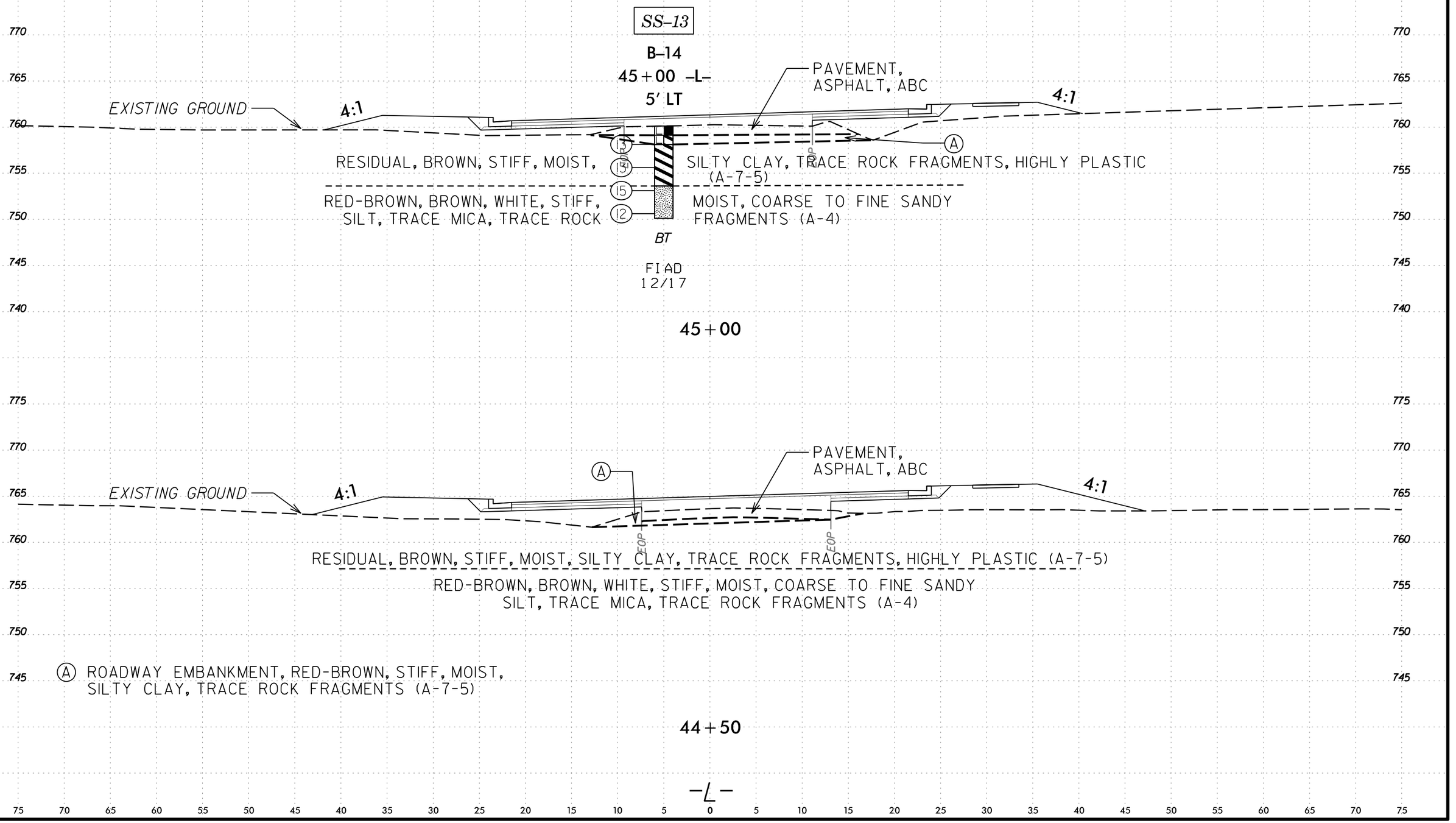
780
775
770
765
760
755

EXISTING GROUND
4:1
PAVEMENT,
ASPHALT, ABC
4:1
EOP
EOP
RESIDUAL, RED-BROWN, WHITE, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)
LIGHT RED, WHITE, RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

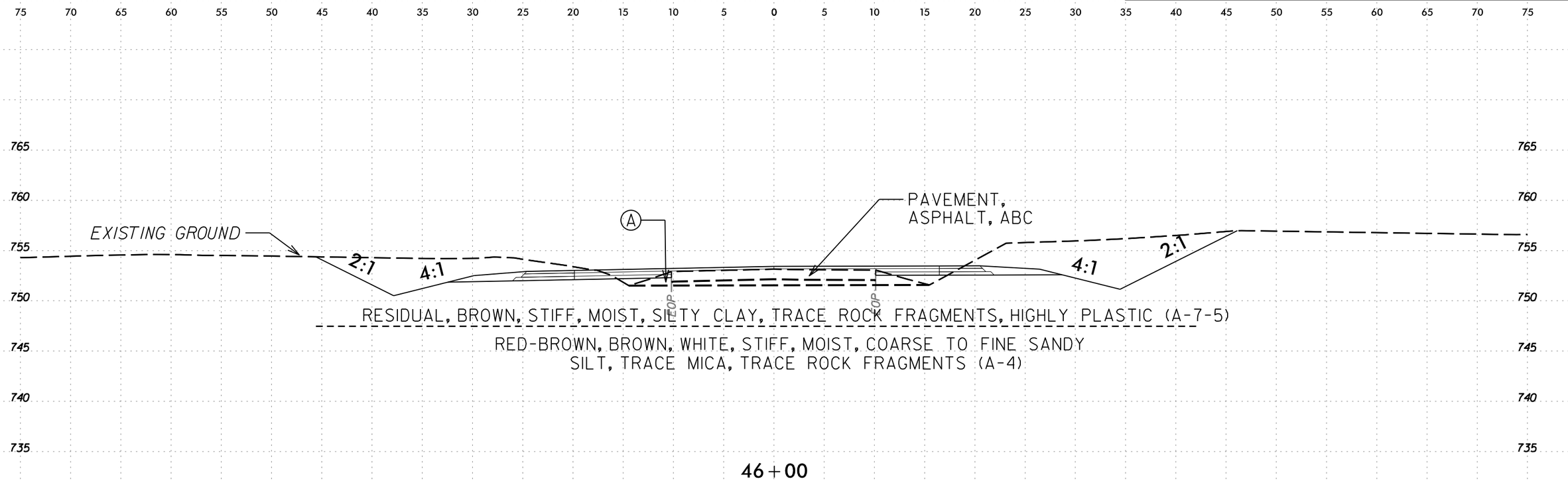
43+50
-L-

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

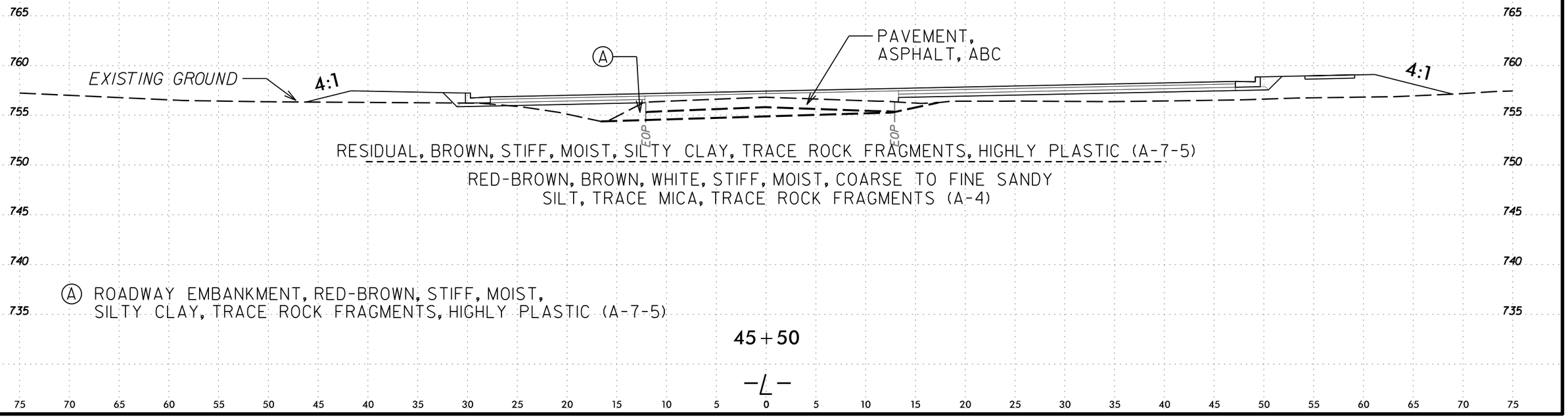
0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	50



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	51



46+00



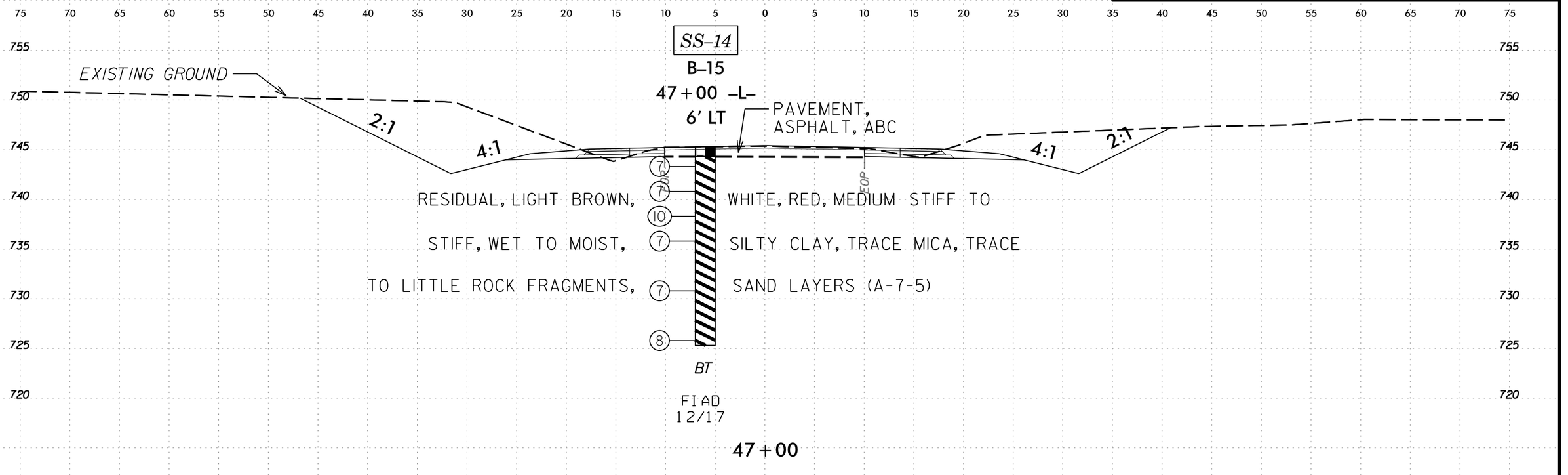
45+50

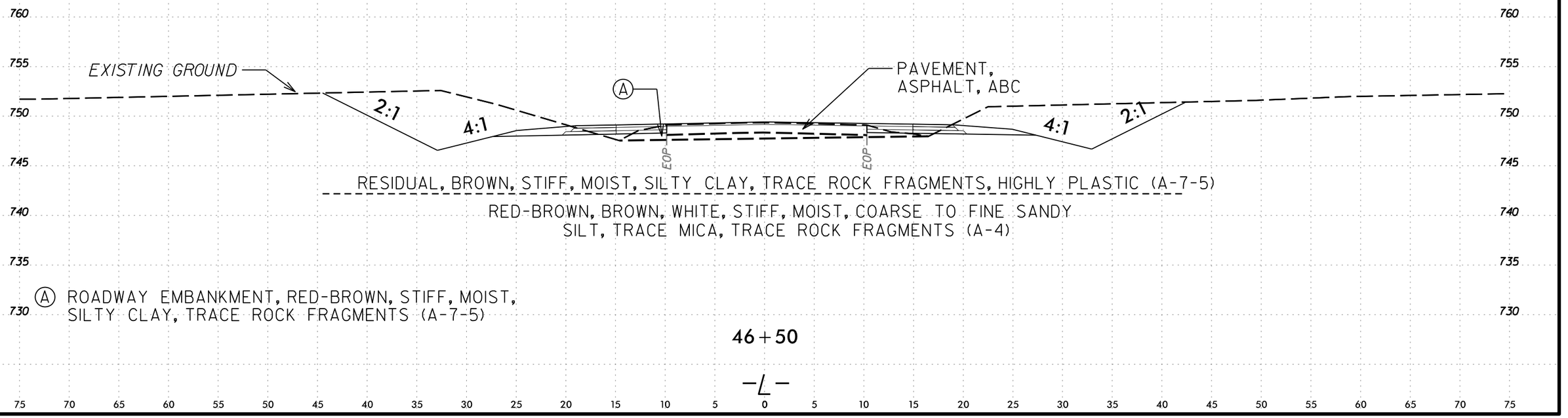
$-\mathit{L}-$

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

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	52

0 10 20
FEET





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

46+50

-L-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	44

20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130

800 795 790 785 780 775 770 765 760 755 750

ROADWAY EMBANKMENT, RED-BROWN, VERY STIFF, MOIST, SILTY CLAY, TRACE TO LITTLE ROCK FRAGMENTS, TRACE MICA (A-7-5)

2:1

PAVEMENT, ASPHALT, ABC

SS-10

RW1-3
39+50
74' RT

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, TRACE MICA (A-7-5)

WHITE, PINK, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA (A-4)

EOP

19
20
11
9
10
10

BT

CAVED DRY
@ 11.0'
11/17

39+50

-L-

20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	43

120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30

800 795 790 785 780 775 770 765 760 755 750

2:1

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, TRACE MICA (A-7-5)

WHITE, PINK, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA (A-4)

39+50

$-\mathit{L}-$

120 115 110 105 100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	53

90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

785 780 775 770 765 760 755

SS–15

B–31
10 + 33
33′ LT

2:1 4:1

PAVEMENT, ASPHALT, ABC

EXISTING GROUND

EOP

(9) (22) RESIDUAL, BROWN, RED-BROWN, SILTY CLAY, TRACE ROCK — STIFF TO VERY STIFF, MOIST, FRAGMENTS (A-7-5)

(23) (13) LIGHT RED, RED-BROWN, COARSE TO FINE SANDY — WHITE, STIFF TO VERY STIFF, MOIST, SILT, TRACE MICA, TRACE ROCK FRAGMENTS, CLAY LAYERS (A-4)

BT
FIAD
12/17

10 + 50

790 785 780 775 770 765 760

EXISTING GROUND

EOP EOP

RESIDUAL, BROWN, RED-BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS (A-7-5)

LIGHT RED, RED-BROWN, WHITE, STIFF TO VERY STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS, CLAY LAYERS (A

10 + 00

–YIA–

90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	54

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

780
775
770
765
760
755
750

PAVEMENT, ASPHALT, ABC

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY, SILTY CLAY, TRACE MICA, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

BROWN, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

18+00

785
780
775
770
765

2:1

2:1

EOP

EOP

RESIDUAL, BROWN, RED-BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS (A-7-5)

LIGHT RED, RED-BROWN, WHITE, STIFF TO VERY STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS, CLAY LAYERS (A-4)

11+00

-YIA-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	55

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

780
775
770
765
760
755
750

PAVEMENT,
ASPHALT, ABC

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF,
DRY, SILTY CLAY, TRACE MICA, TRACE TO
LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)
BROWN, RED-BROWN, STIFF, MOIST, COARSE TO
FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE
ROCK FRAGMENTS (A-4)

19+00

SS-2
B-2
18+71
61' LT

PAVEMENT,
ASPHALT, ABC

EXISTING GROUND

9
23
23
13

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF,
DRY, SILTY CLAY, TRACE MICA, TRACE TO
LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)
BROWN, RED-BROWN, STIFF, MOIST, COARSE TO
FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE
ROCK FRAGMENTS (A-4)

BT
FIAD
12/17

18+50

-YIA-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	56

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

780 775 770 765 760 755 750

B–16
10 + 50
12' LT

PAVEMENT, ASPHALT, ABC

4:1

2:1

EXISTING GROUND

8
18
21
14

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, LITTLE ROCK FRAGMENTS,

BROWN, RED-BROWN, STIFF, MOIST, COARSE TO TRACE ROCK FRAGMENTS (A-4)

DRY, SILTY CLAY, TRACE MICA, TRACE TO HIGHLY PLASTIC (A-7-5)

FINE SANDY SILT, TRACE TO LITTLE MICA,

BT
FIAD
12/17

TOP

TOP

10 + 50

780 775 770 765 760

EXISTING GROUND

TOP

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY, SILTY CLAY, TRACE MICA, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

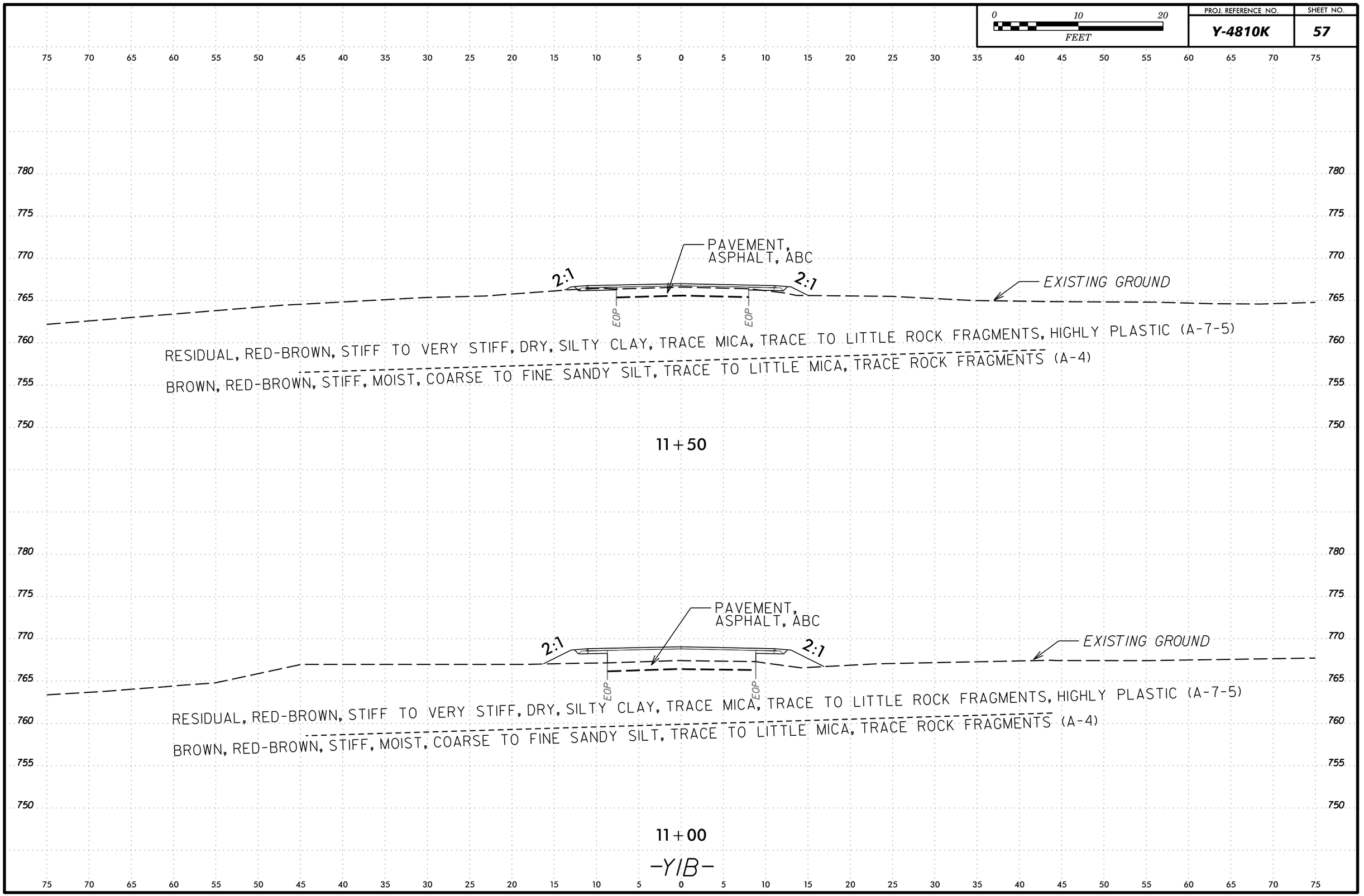
BROWN, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

10 + 00

–YIB–

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	57



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	58

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

765

760

755

EOP

EOP

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, DRY, SILTY CLAY, TRACE MICA, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

BROWN, RED-BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

12+00

-YIB-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	59

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

790
785
780
775
770

EXISTING GROUND

2:1 4:1

PAVEMENT, ASPHALT, ABC

4:1 2:1

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)

RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)

RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

13+00

795
790
785
780
775

EXISTING GROUND

PAVEMENT, ASPHALT, ABC

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)

RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)

RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

12+50

-Y2A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	60

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

785
780
775
770

EXISTING GROUND

2:1 4:1

PAVEMENT, ASPHALT, ABC

4:1 2:1

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)

RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)

RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

14+50

785
780
775
770

EXISTING GROUND

2:1 4:1

PAVEMENT, ASPHALT, ABC

4:1 2:1

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)

RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)

RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

14+00

790
785
780
775

EXISTING GROUND

2:1 4:1

PAVEMENT, ASPHALT, ABC

4:1 2:1

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)

RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)

RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

13+50

-Y2A-

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

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	61

0 10 20
FEET

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

780
775
770
765

EXISTING GROUND
2:1
4:1
2:1
PAVEMENT,
ASPHALT, ABC

RESIDUAL, BROWN, RED-BROWN, SOFT TO STIFF, WET, SILTY CLAY, TRACE MICA, HIGHLY PLASTIC (A-7-5)
RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)
RED-BROWN, WHITE, BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

15+50

790
785
780
775
770
765
760

B-17
14+84
13' LT

EXISTING GROUND
2:1
4:1
PAVEMENT,
ASPHALT, ABC
4:1
2:1

RESIDUAL, BROWN, RED BROWN, (4) SOFT TO STIFF, WET,
SILTY CLAY, TRACE MICA, (14) HIGHLY PLASTIC (A-7-5)
RED-BROWN, WHITE, MEDIUM DENSE, WET, SILTY COARSE (17) TO FINE SAND, LITTLE MICA, TRACE TO LITTLE ROCK FRAGMENTS (A-2-4)
RED-BROWN, WHITE, BROWN, STIFF, MOIST, (9) COARSE TO FINE SANDY SILT, LITTLE MICA, LITTLE ROCK FRAGMENTS (A-4)

BT
FIAD
12/17

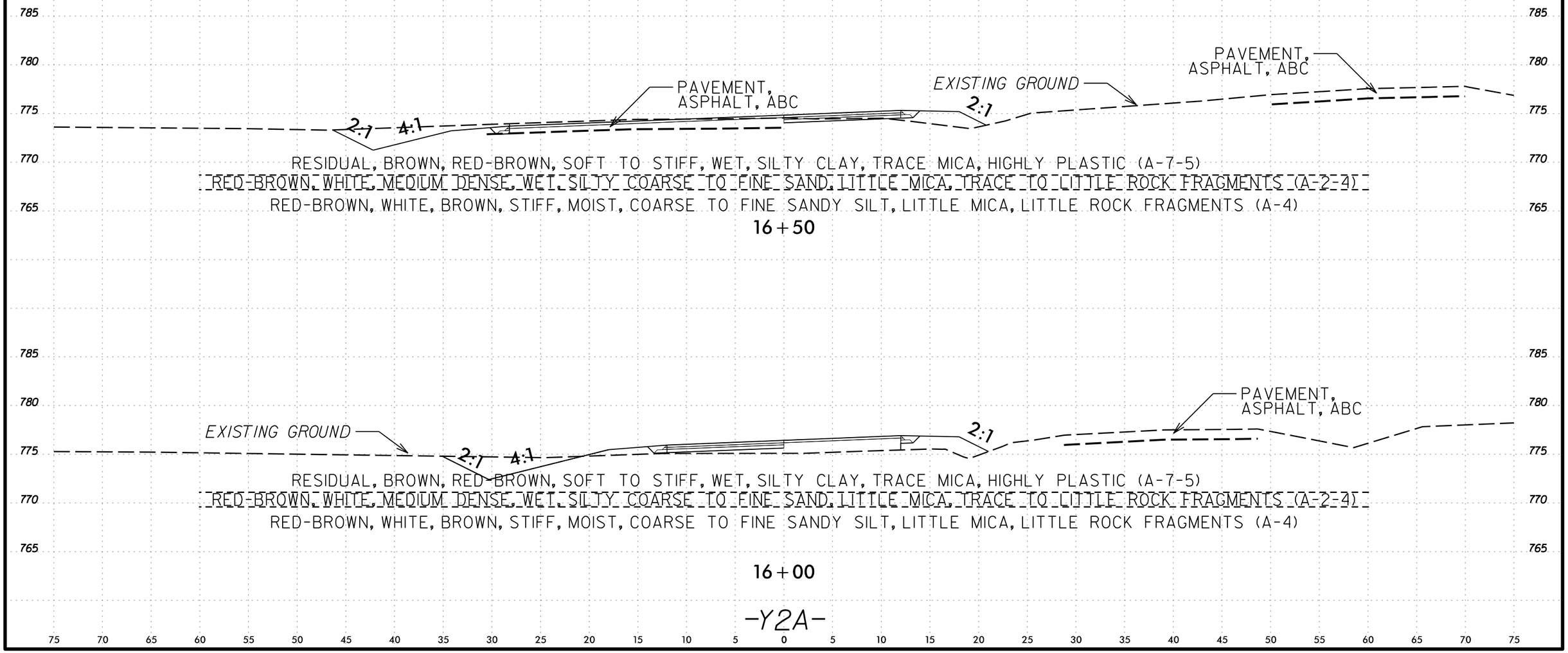
15+00

-Y2A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	62

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



-Y2A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	63

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

780 775 770 765 760 755

EXISTING GROUND

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

RESIDUAL, BROWN, MEDIUM DENSE, DRY, SILTY COARSE TO FINE SAND, TRACE ROCK FRAGMENTS (A-2-4)

RED-BROWN, BROWN, VERY STIFF TO HARD, DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

WHITE, BROWN, LIGHT RED, STIFF, MOIST, COARSE TO FINE SANDY SILT, SOME MICA, LITTLE ROCK FRAGMENTS (A-4)

17+50

785 780 775 770 765 760 755

SS-16
B-18
16+97
25' RT

EXISTING GROUND

2:1 4:1 2:1

RESIDUAL, BROWN, MEDIUM DENSE, DRY, SILTY COARSE TO FINE SAND, TRACE ROCK FRAGMENTS (A-2-4)

26
32
42
22
11

RED-BROWN, BROWN, VERY STIFF TO HARD, DRY TO MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

WHITE, BROWN, LIGHT RED, STIFF, MOIST, COARSE TO FINE SANDY SILT, SOME MICA, LITTLE ROCK FRAGMENTS (A-4)

BT
FIAD
12/17

17+00

-Y2A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	64

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

775 770 765

EXISTING GROUND

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

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT RED, LIGHT RED-BROWN, GRAY, STIFF TO VERY STIFF, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS, TRACE TO SOME MICA (A-4)

18+50

780 775 770 765 760

EXISTING GROUND

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

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT RED, LIGHT RED-BROWN, GRAY, STIFF TO VERY STIFF, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS, TRACE TO SOME MICA (A-4)

18+00

-Y2A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	65

85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65

785
780
775
770
765
760

EXISTING GROUND

4:1

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT RED, LIGHT RED-BROWN, GRAY, STIFF TO VERY STIFF, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS, TRACE TO SOME MICA (A-4)

19+50

B-19
19+00
60' LT

EXISTING GROUND

4:1

2:1

3:1

RESIDUAL, (13) (21) RED-BROWN, STIFF TO VERY STIFF, MOIST TO DRY, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

(21) LIGHT RED, (13) LIGHT RED-BROWN, GRAY, STIFF TO VERY STIFF, COARSE TO FINE SANDY SILT,

TRACE ROCK FRAGMENTS, TRACE TO SOME MICA (A-4)

(16)

(14)

BT
FIAD
12/17

780
775
770
765
760
755
750
745

19+00

-Y2A-

85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	66

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

780 775 770 765 760 755 750 745

SS-17

B-20
10+29
7' LT

4:1

4:1

EXISTING GROUND

19 31 32 14

RESIDUAL, RED-BROWN, LIGHT BROWN, GRAY, VERY STIFF TO HARD, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

GRAY, WHITE, LIGHT BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS (A-4)

BT
FIAD
12/17

10+50

780 775 770 765 760 755 750 745

RESIDUAL, RED-BROWN, LIGHT BROWN, GRAY, VERY STIFF TO HARD, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

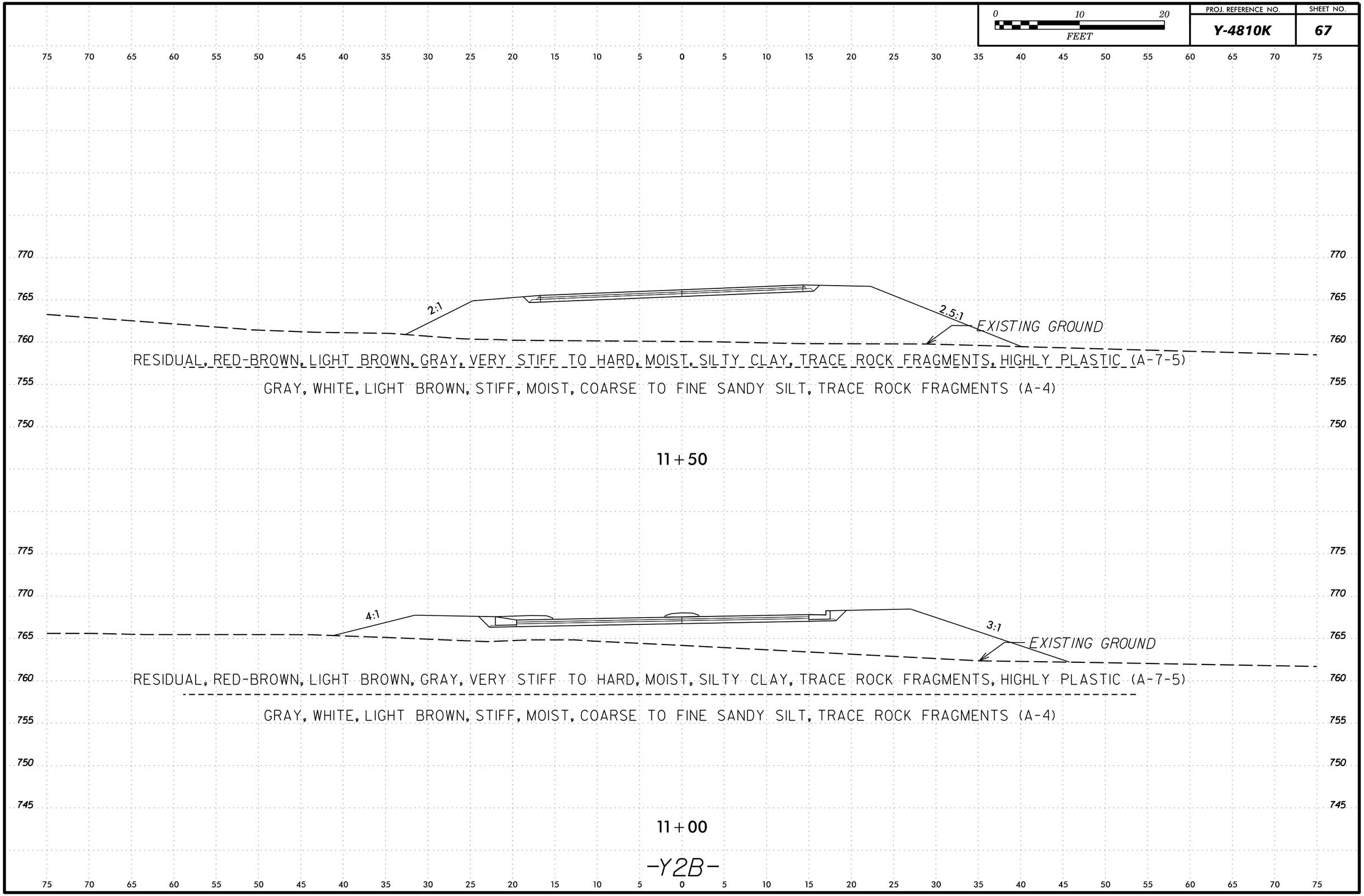
GRAY, WHITE, LIGHT BROWN, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS (A-4)

10+00

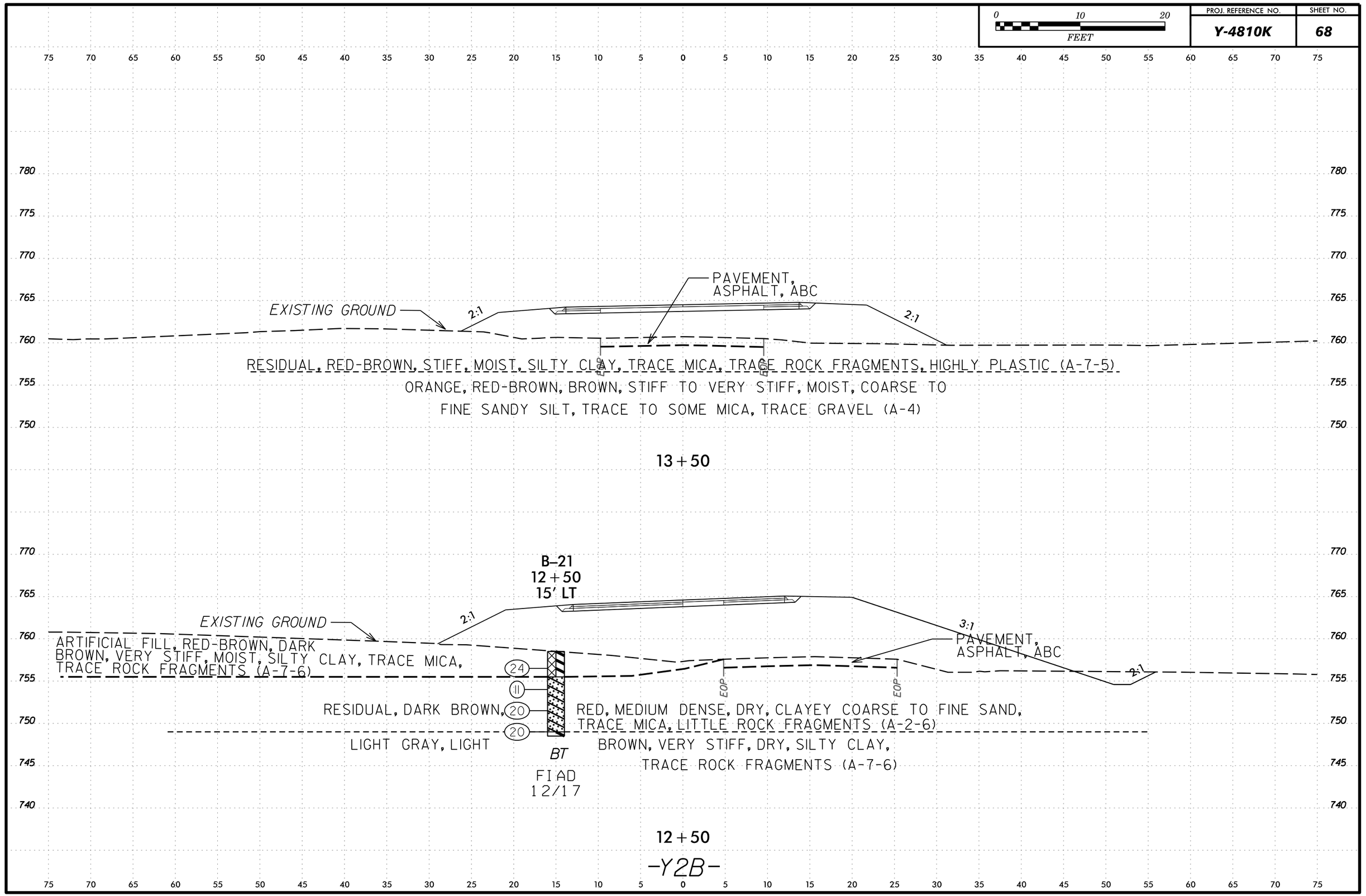
-Y2B-

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

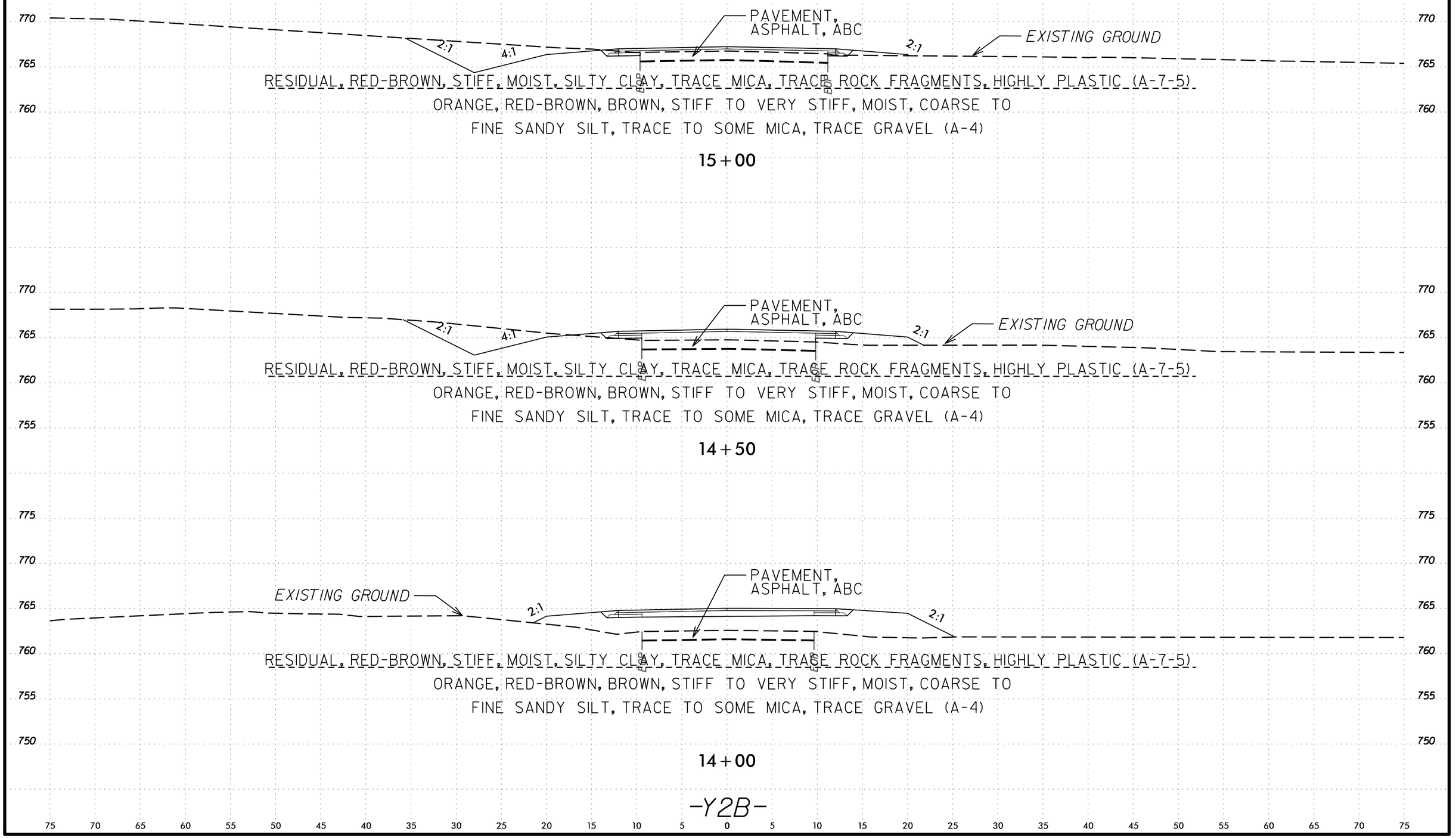
0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	67



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	68



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	69



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	70

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

785 780 775 770 765 760 755 750

EXISTING GROUND

TOP TOP

RESIDUAL, RED-BROWN, STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

ORANGE, RED-BROWN, BROWN, STIFF TO VERY STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO SOME MICA, TRACE GRAVEL (A-4)

16+00

SS-18
B-22
15+49
4' RT

PAVEMENT, ASPHALT, ABC

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

EXISTING GROUND

RESIDUAL, RED-BROWN, STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

ORANGE, RED-BROWN, BROWN, STIFF TO VERY STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE TO SOME MICA, TRACE GRAVEL (A-4)

13 16 16 11

BT

FIAD
12/17

15+50

-Y2B-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	71

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

RW1-2
14+58 -Y2C-
8' LT

EXISTING GROUND

PAVEMENT, ASPHALT, ABC,

ROADWAY EMBANKMENT, RED-BROWN, VERY STIFF, MOIST, COARSE TO FINE SILTY CLAY, TRACE TO LITTLE ROCK FRAGMENTS (A-7-5)

785 780 775 770 765 760

19 EOP
7 RESIDUAL, RED-BROWN, ORANGE, SILTY CLAY, TRACE TO SOME MICA, MEDIUM STIFF TO STIFF, MOIST, TRACE ROCK FRAGMENTS (A-7-5)
15 EOP
9 WHITE, GRAY, PINK, STIFF, MOIST, ROCK FRAGMENTS, TRACE TO COARSE TO FINE SANDY SILT, TRACE SOME MICA (A-4)
9
BT

FIAD
11/17

14+50

795 790 785 780 775 770 765

SS-19

RW1-1
14+14 -Y2C-
11' LT

EXISTING GROUND

PAVEMENT, ASPHALT, ABC

ROADWAY EMBANKMENT, LIGHT BROWN, BROWN, VERY STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS (A-7-5)

19 EOP
30 RESIDUAL, RED-BROWN, ORANGE, STIFF SILTY CLAY, TRACE MICA, TRACE ROCK TO VERY STIFF, MOIST, FRAGMENTS, HIGHLY PLASTIC (A-7-5) EOP
14
11 WHITE, PINK, BROWN, STIFF, TRACE ROCK FRAGMENTS, MOIST, COARSE TO FINE SANDY SILT, TRACE TO LITTLE MICA (A-4)
BT

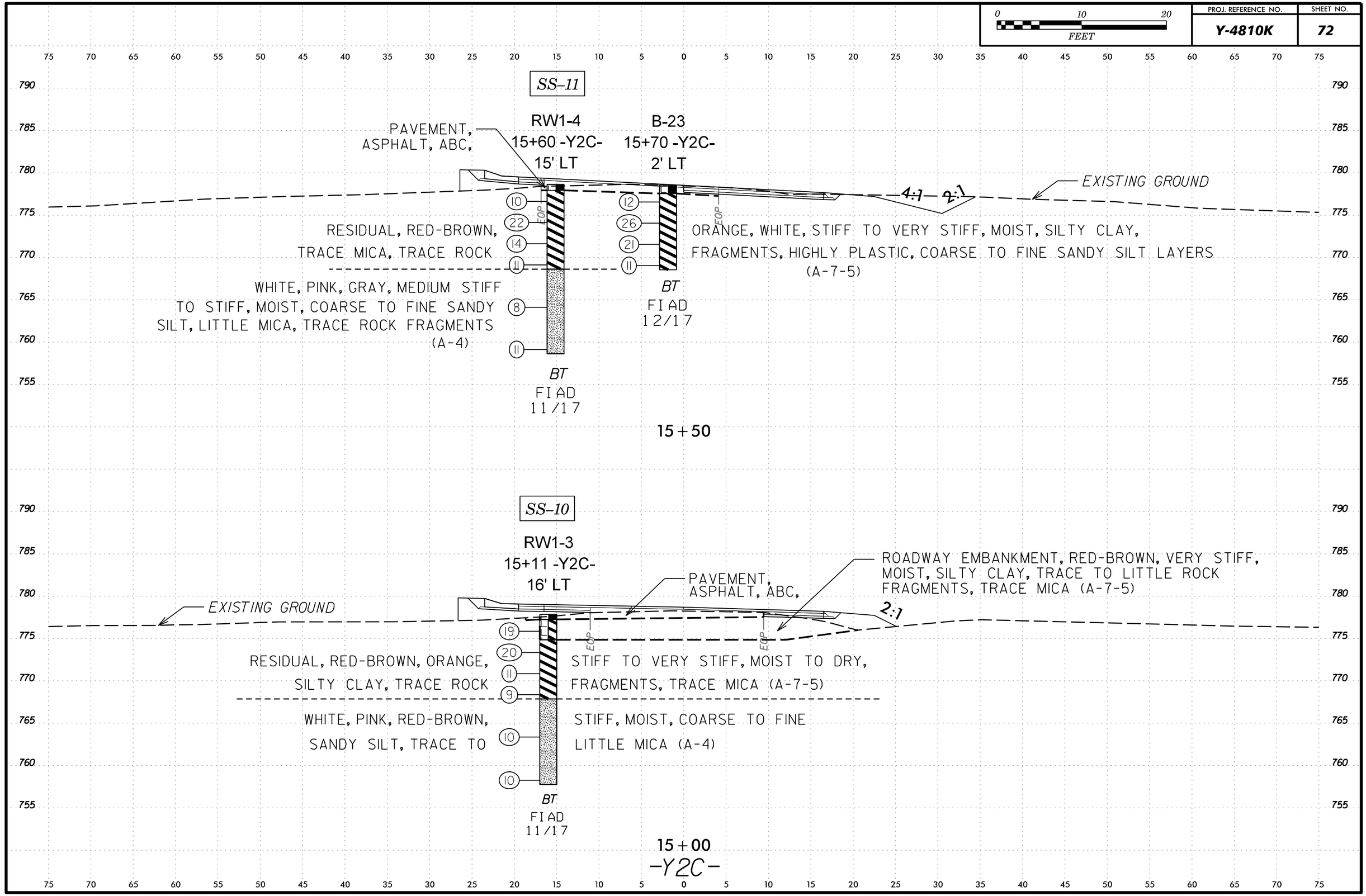
FIAD
11/17

14+00

-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	72



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	73

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

780 775 770 765

EOP EOP

2:1 4:1

EXISTING GROUND

4:1 2:1

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, ORANGE, WHITE, MEDIUM STIFF TO STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, TRACE ROCK FRAGMENTS, SOME CLAY LAYERS (A-4)

17+00

785 780 775 770 765

2:1

EOP EOP

EXISTING GROUND

4:1 2:1

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, ORANGE, WHITE, MEDIUM STIFF TO STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, TRACE ROCK FRAGMENTS, SOME CLAY LAYERS (A-4)

16+50

785 780 775 770 765

RW1-5
16+22 -Y2C-
25' LT

PAVEMENT,
ASPHALT, ABC,

EXISTING GROUND

4:1 2:1

EOP EOP

(16) (14) (9) (7)

RESIDUAL, RED-BROWN, STIFF TO VERY STIFF, MOIST, SILTY CLAY, TRACE MICA, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, ORANGE, WHITE, MEDIUM STIFF TO STIFF, MOIST, COARSE TO FINE SANDY SILT, LITTLE MICA, TRACE ROCK FRAGMENTS, SOME CLAY LAYERS (A-4)

BT

16+00

-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	74

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

780 775 770 765 760 755

EXISTING GROUND

2:1 4:1

PAVEMENT, ASPHALT, ABC

2:1 4:1

EOP

EOP

SS-20

B-24
18+11 -Y2C-
59' RT

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC — 17, 34 — SILTY CLAY, (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE TRACE ROCK FRAGMENTS — 34, 18 — SANDY SILT, (A-4)

BT

FIAD
12/17

18+00

780 775 770 765 760

EOP

EOP

2:1 4:1

EXISTING GROUND

4:1 2:1

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT, TRACE ROCK FRAGMENTS (A-4)

17+50

-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	75

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

770 765 760 755 750

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

19+50

770 765 760 755

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

19+00

775 770 765 760 755

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

18+50

-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	76

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

765 760 755 750

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

21+00

765 760 755 750 745

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

20+50

765 760 755 750 745

2:1 4:1 2:1 EXISTING GROUND

RESIDUAL, RED, RED-BROWN, VERY STIFF TO HARD, MOIST, SILTY CLAY,
TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

LIGHT BROWN, LIGHT RED, VERY STIFF TO HARD, DRY, COARSE TO FINE SANDY SILT,
TRACE ROCK FRAGMENTS (A-4)

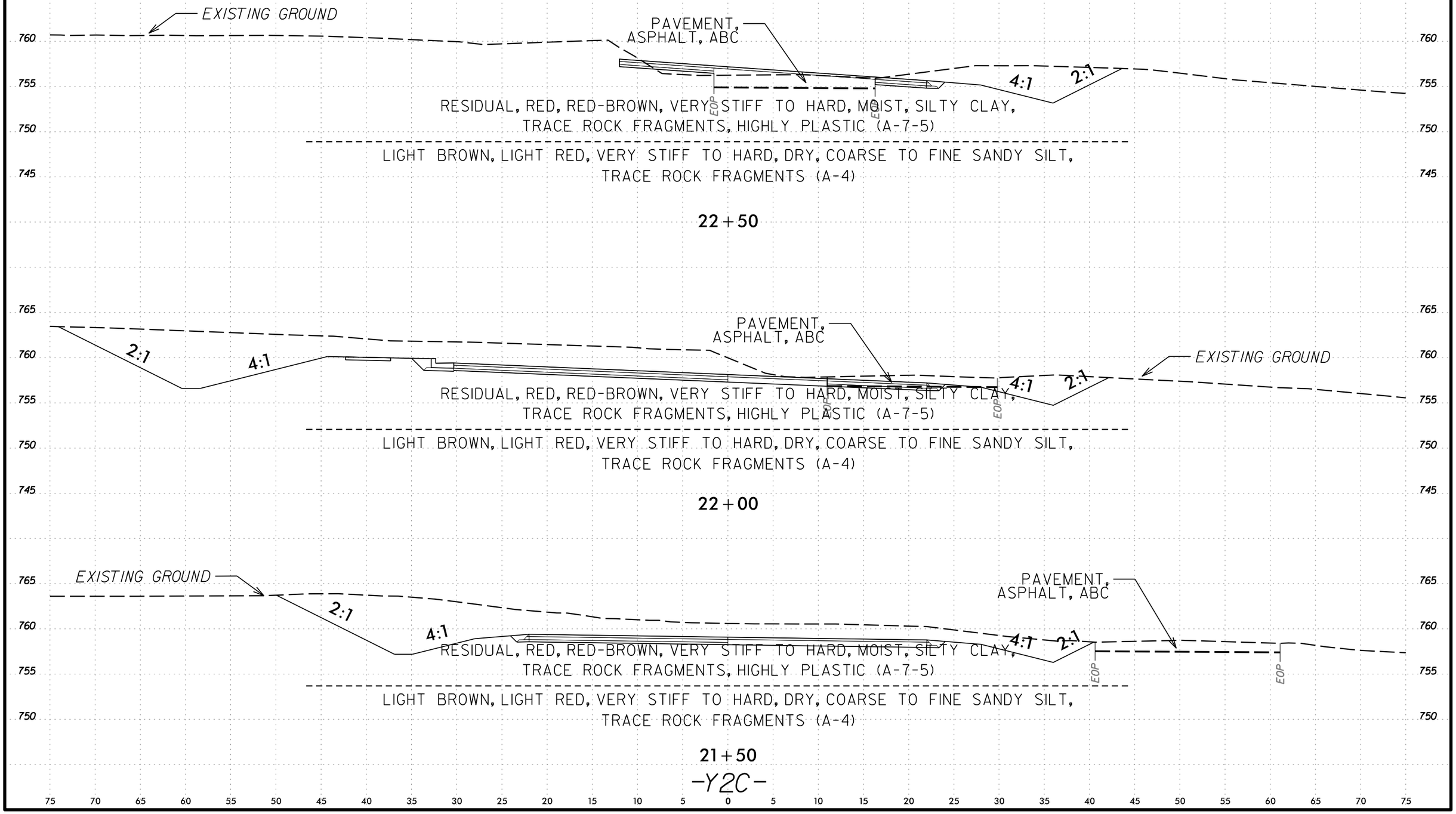
20+00

-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	77

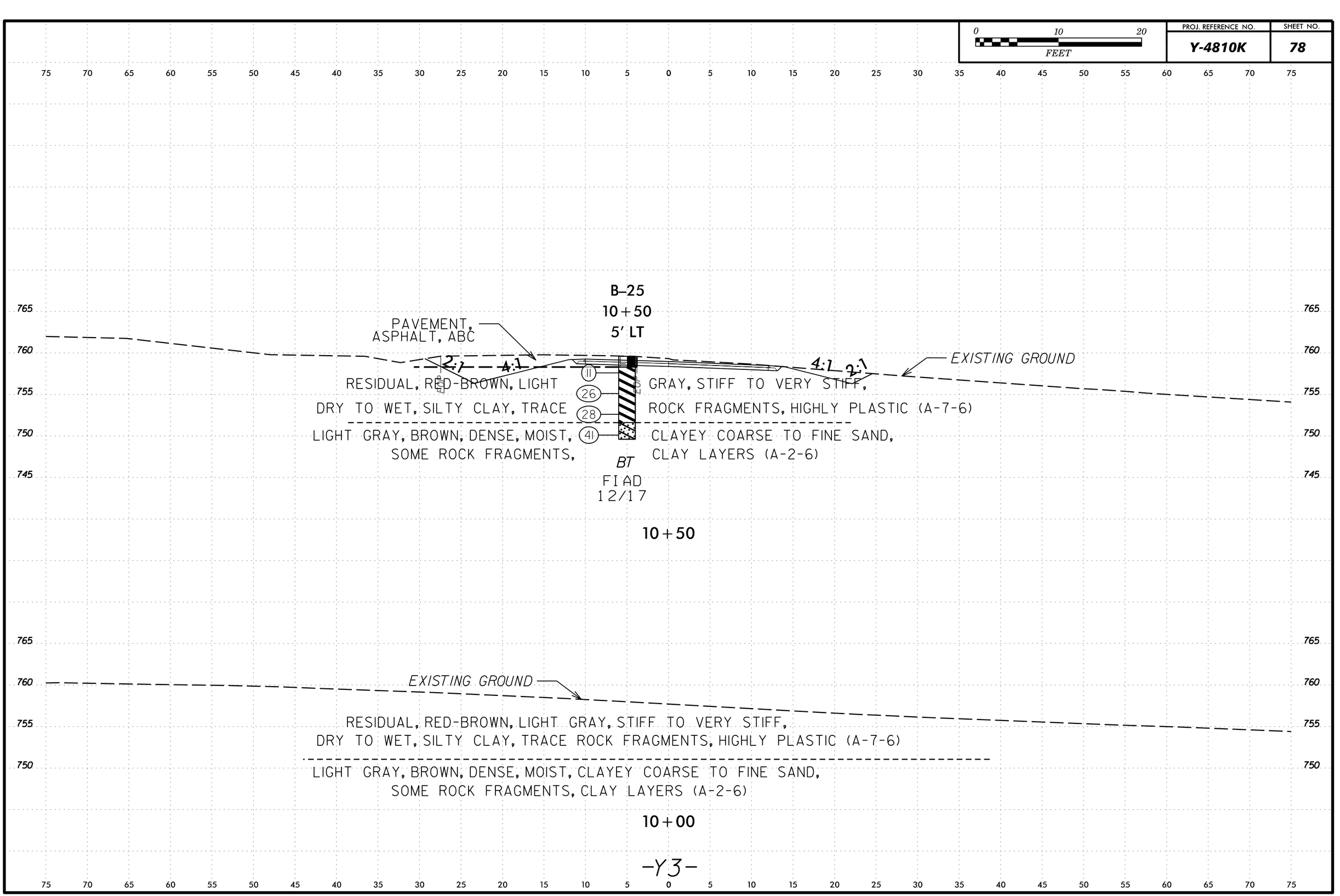
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



-Y2C-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	78



-Y3-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	79

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

760 755 750 745

PAVEMENT, ASPHALT, ABC

2:1 4:1 2:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT GRAY, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT GRAY, BROWN, DENSE, MOIST, CLAYEY COARSE TO FINE SAND, SOME ROCK FRAGMENTS, CLAY LAYERS (A-2-6)

12+00

765 760 755 750 745

PAVEMENT, ASPHALT, ABC

2:1 4:1 2:1

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT GRAY, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT GRAY, BROWN, DENSE, MOIST, CLAYEY COARSE TO FINE SAND, SOME ROCK FRAGMENTS, CLAY LAYERS (A-2-6)

11+50

765 760 755 750

PAVEMENT, ASPHALT, ABC

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

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, LIGHT GRAY, STIFF TO VERY STIFF, DRY TO WET, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT GRAY, BROWN, DENSE, MOIST, CLAYEY COARSE TO FINE SAND, SOME ROCK FRAGMENTS, CLAY LAYERS (A-2-6)

11+00

-Y3-

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

0 10 20
FEET

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	80

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

765
760
755
750
745

EXISTING GROUND

RESIDUAL, RED-BROWN, LIGHT GRAY, STIFF TO VERY STIFF,
DRY TO WET, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT GRAY, BROWN, DENSE, MOIST, CLAYEY COARSE TO FINE SAND,
SOME ROCK FRAGMENTS, CLAY LAYERS (A-2-6)

BP

EOB

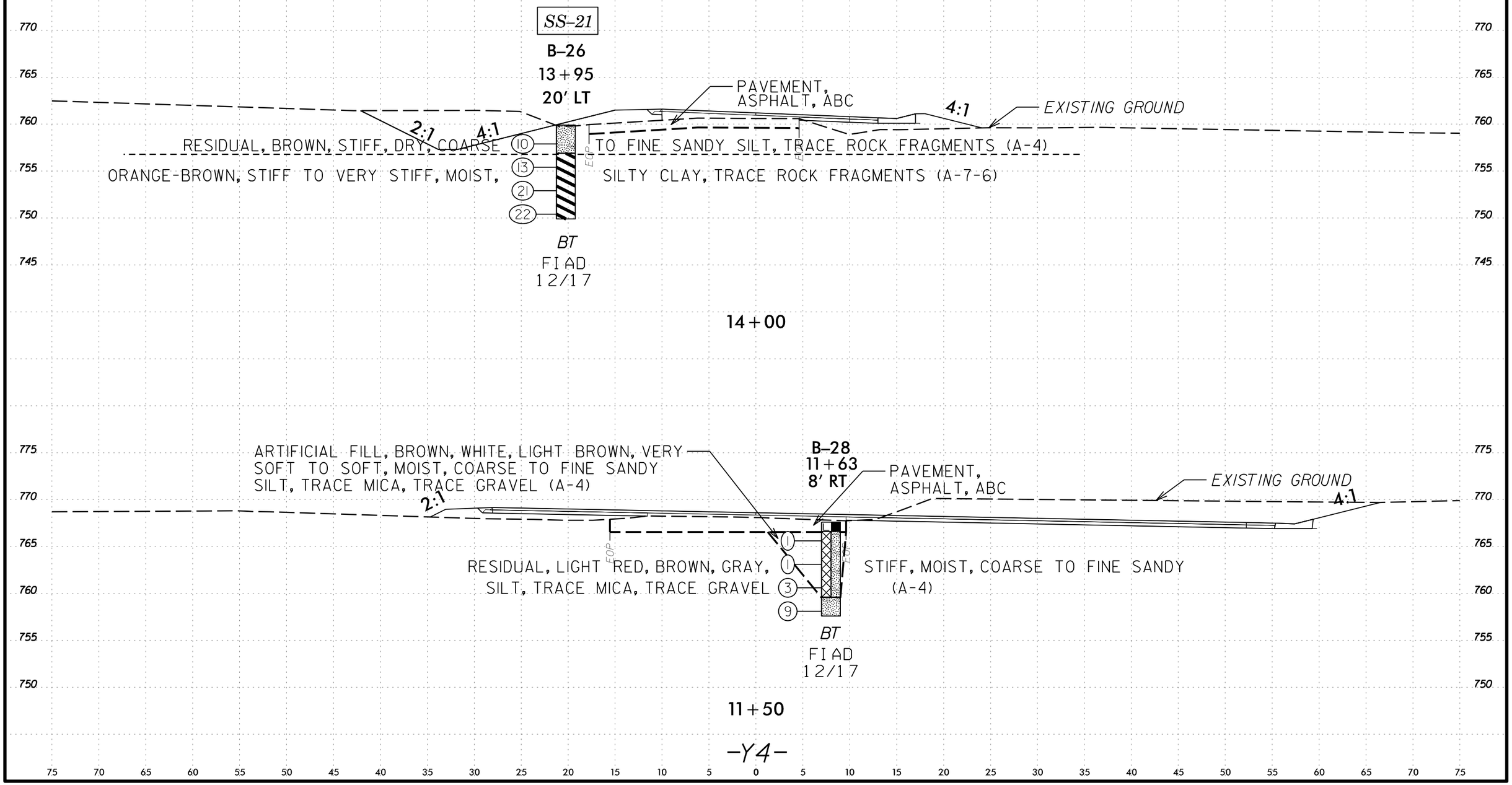
12+50

-Y3-

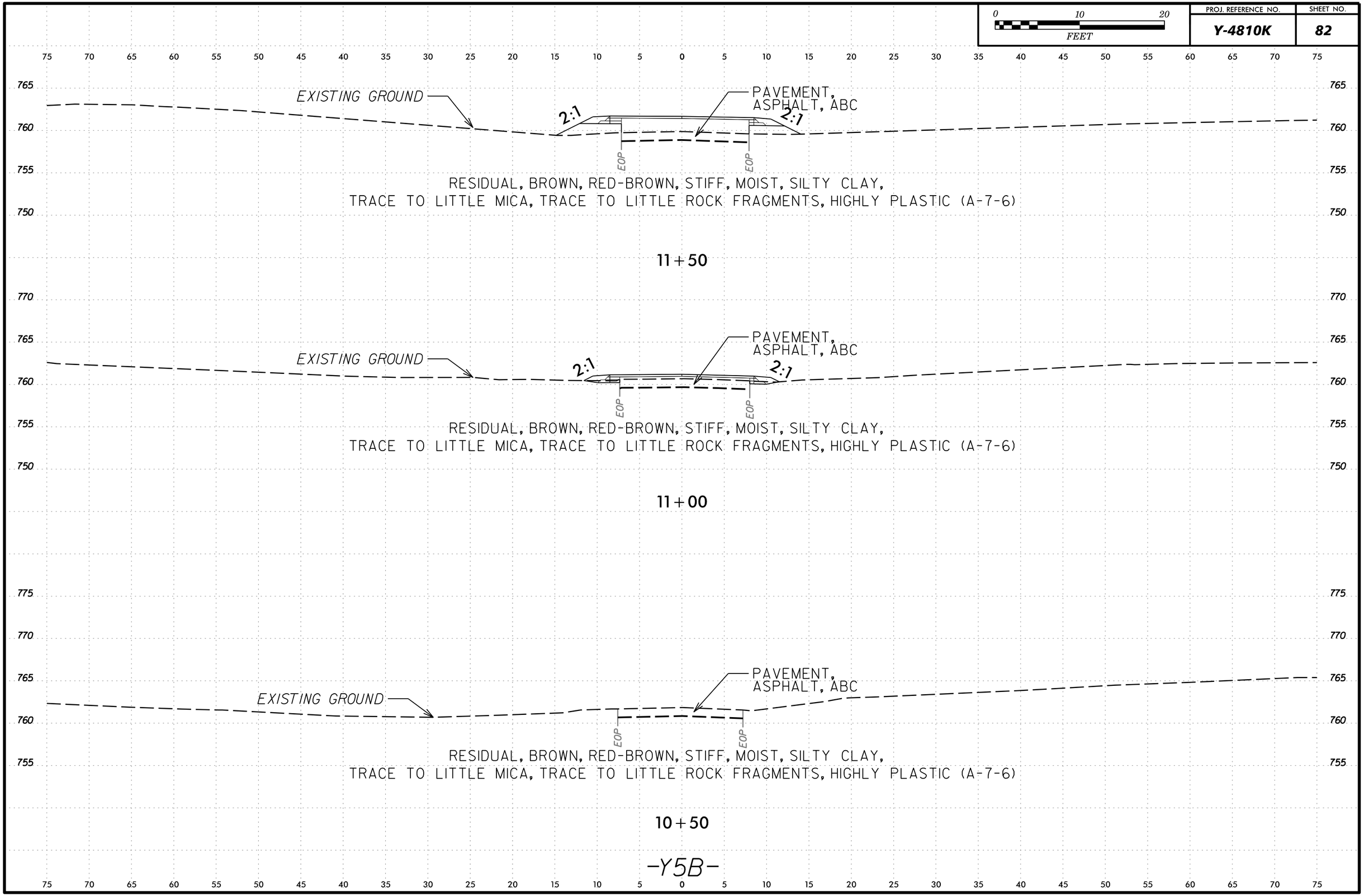
765
760
755
750
745

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

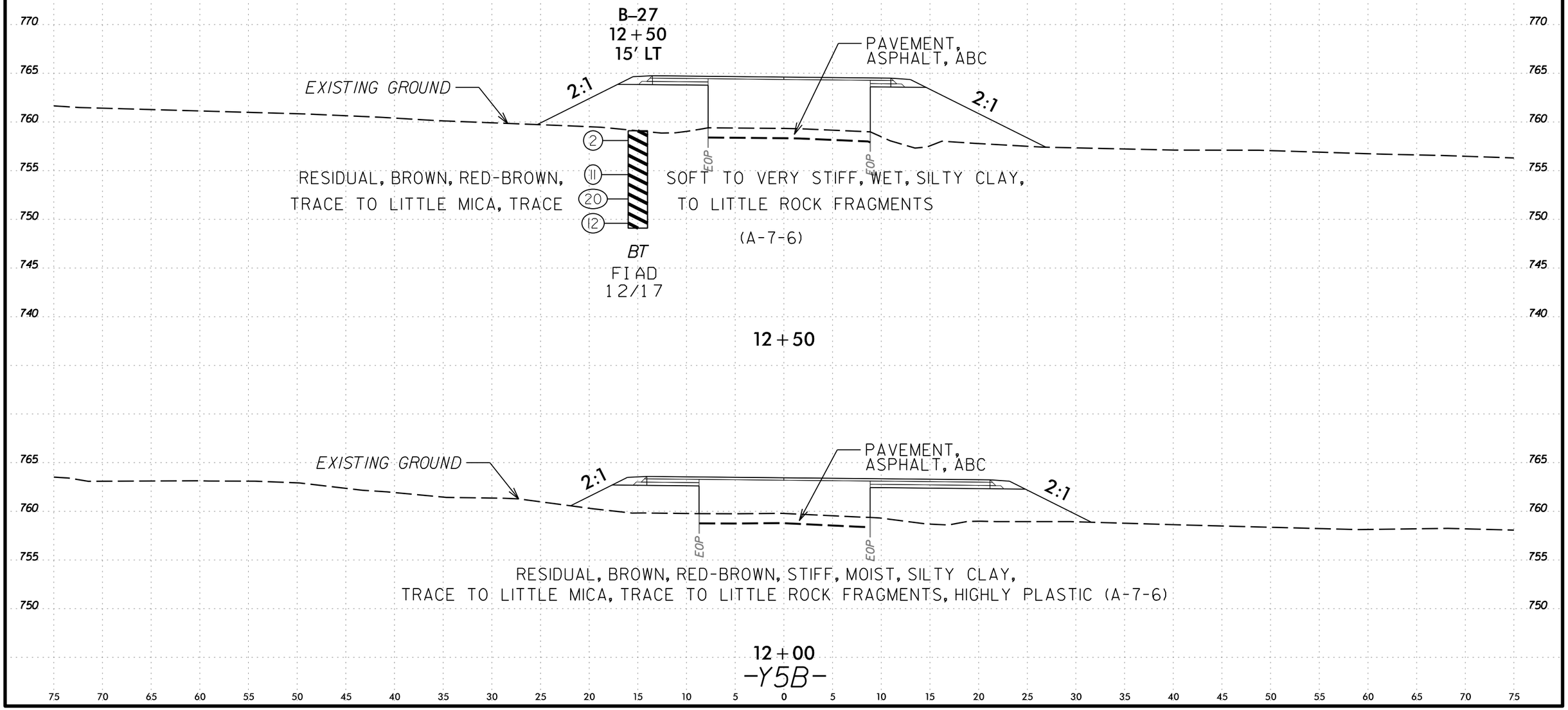
0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	81



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	82



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	83



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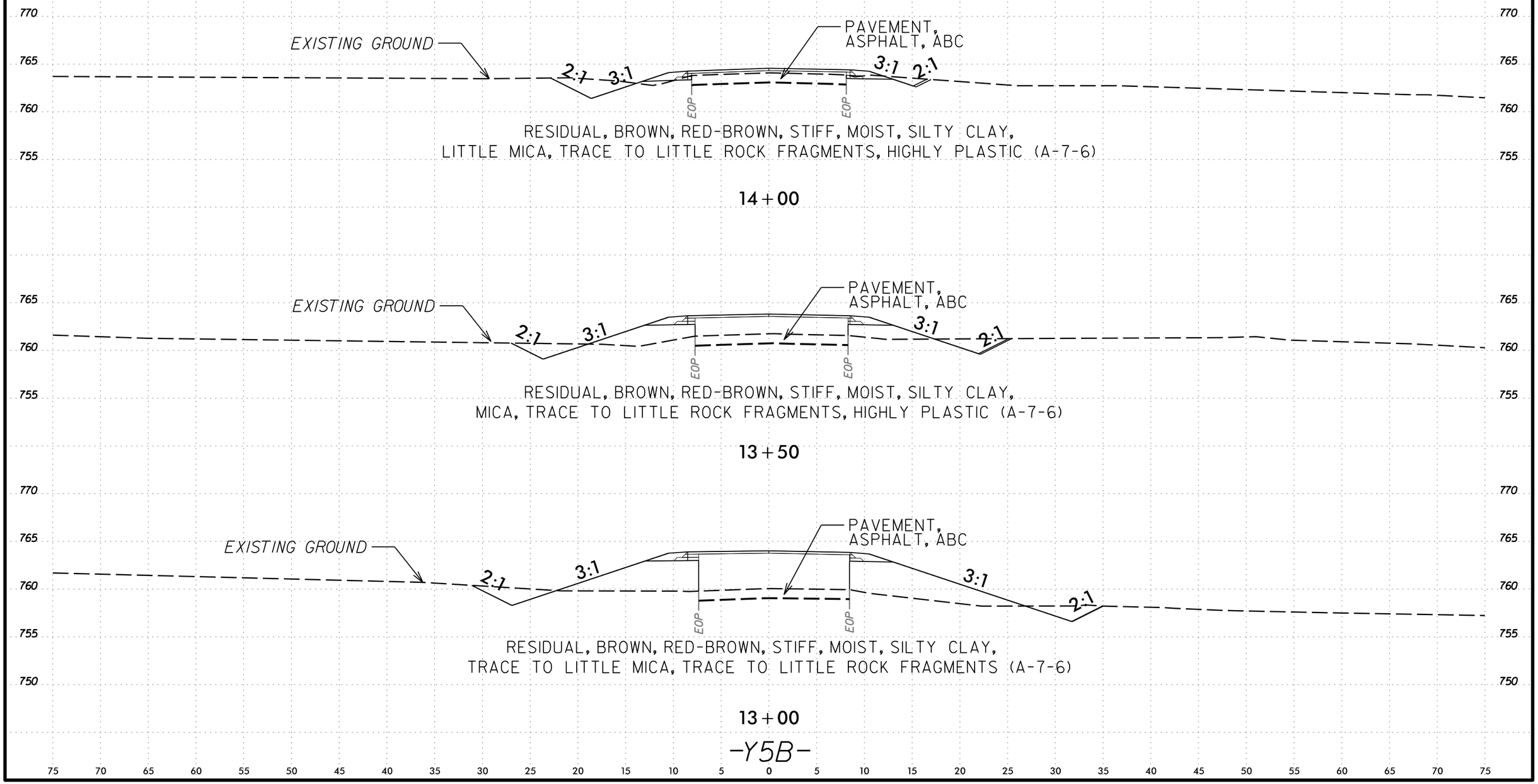
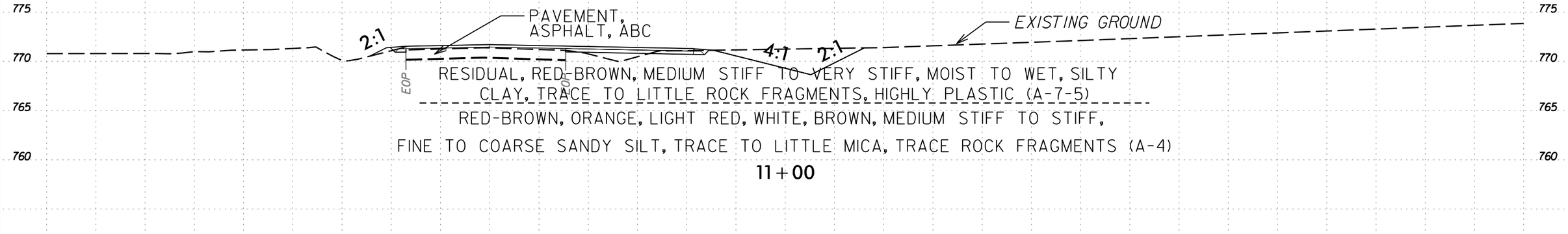
	Y-4810K	84

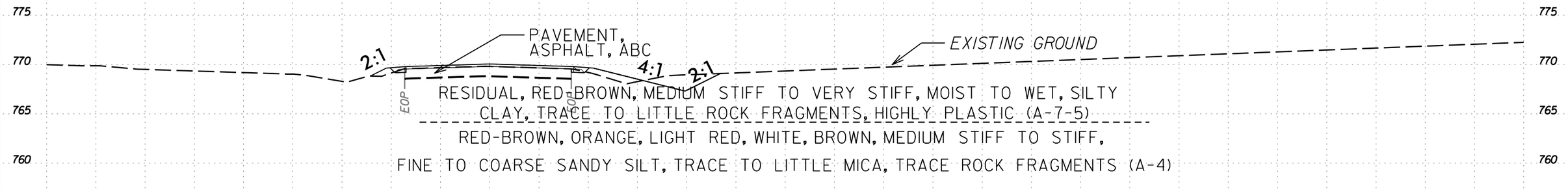


0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	85

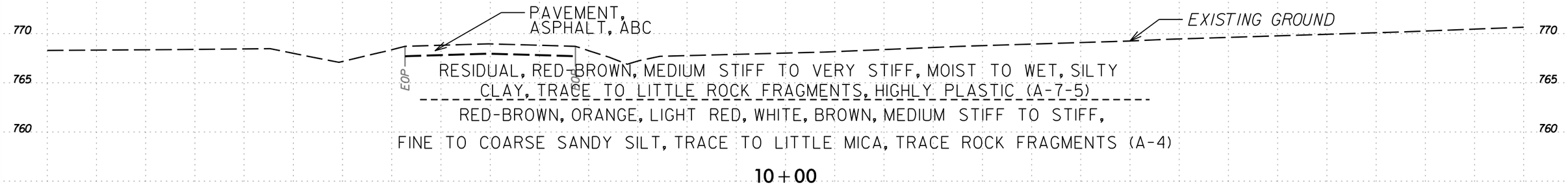
45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105



11+00



10+50



10+00

-Y9A-

45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	86

45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105

780
775
770
765

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

EOP

SOIL

RESIDUAL, RED-BROWN, MEDIUM STIFF TO VERY STIFF, MOIST TO WET, SILTY CLAY, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, ORANGE, LIGHT RED, WHITE, BROWN, MEDIUM STIFF TO STIFF, MOIST, FINE TO COARSE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

12+00

785
780
775
770
765
760
755

SS-22

B-32
11+53
34' RT

EXISTING GROUND

2:1

PAVEMENT,
ASPHALT, ABC

EOP

SOIL

RESIDUAL, RED-BROWN, MEDIUM STIFF TO VERY STIFF, MOIST TO WET, SILTY CLAY, TRACE TO LITTLE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, ORANGE, LIGHT RED, WHITE, BROWN, MEDIUM STIFF TO STIFF, MOIST, FINE TO COARSE SANDY SILT, TRACE TO LITTLE MICA, TRACE ROCK FRAGMENTS (A-4)

7
26
12
8
10

4:1

2:1

BT
FIAD
12/17

11+50

-Y9A-

45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	87

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

770
765
760
755
750
745

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

BOP

EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

11+50

770
765
760
755
750
745

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

BOP

EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

11+00

-Y10A-

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	88

0 10 20
FEET

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

775 770 765 760 755 750

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

2:1 4:1 2:1

EOP EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

12+50

775 770 765 760 755 750 745

EXISTING GROUND

PAVEMENT,
ASPHALT, ABC

2:1 4:1 2:1

EOP EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

12+00

-YIOA-

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	89

0 10 20
FEET

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

785
780
775
770
765
760

PAVEMENT,
ASPHALT, ABC

EXISTING GROUND

EOP EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

13+50

B-30
13+25
34' RT

2:1

PAVEMENT,
ASPHALT, ABC

EXISTING GROUND

4:1 2:1

EOP EOP

RESIDUAL, RED-BROWN, ORANGE-BROWN, (6) (22) (20) MEDIUM STIFF TO VERY STIFF,
WET TO MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-6)

LIGHT BROWN, WHITE, STIFF, MOIST, (9) FINE TO COARSE SANDY SILT,
TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

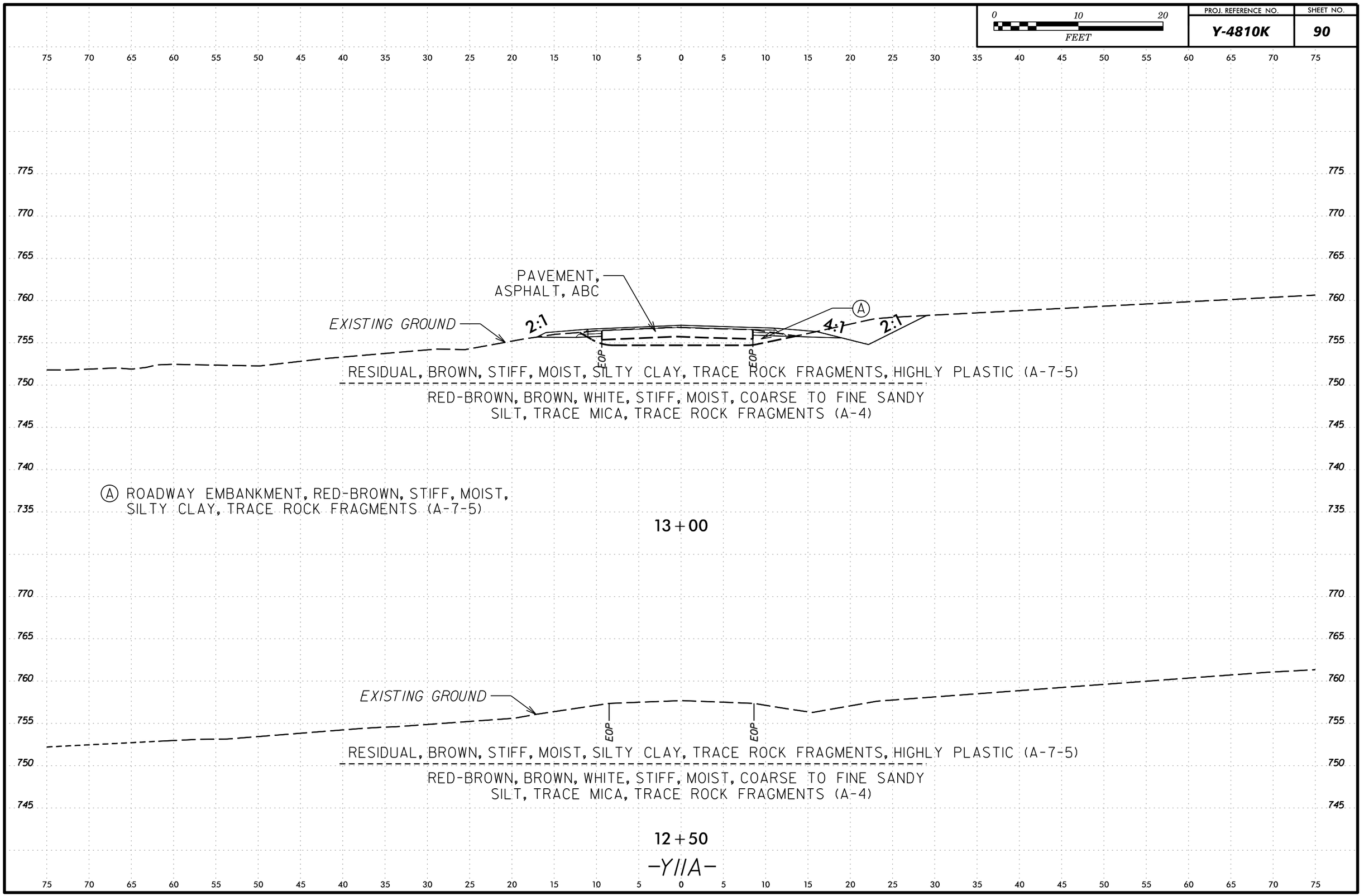
BT

CAVED DRY
@ 1.8'
12/17

13+00

-Y10A-

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	90



PROJ. REFERENCE NO.	SHEET NO.
Y-4810K	91

0 10 20
FEET

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

770 765 760 755 750 745 740

EXISTING GROUND

EOP

RESIDUAL, BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, BROWN, WHITE, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

14+00

770 765 760 755 750 745 740 735

PAVEMENT, ASPHALT, ABC

EXISTING GROUND

2:1

Ⓐ

4:1

2:1

EOP

EOP

RESIDUAL, BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, BROWN, WHITE, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

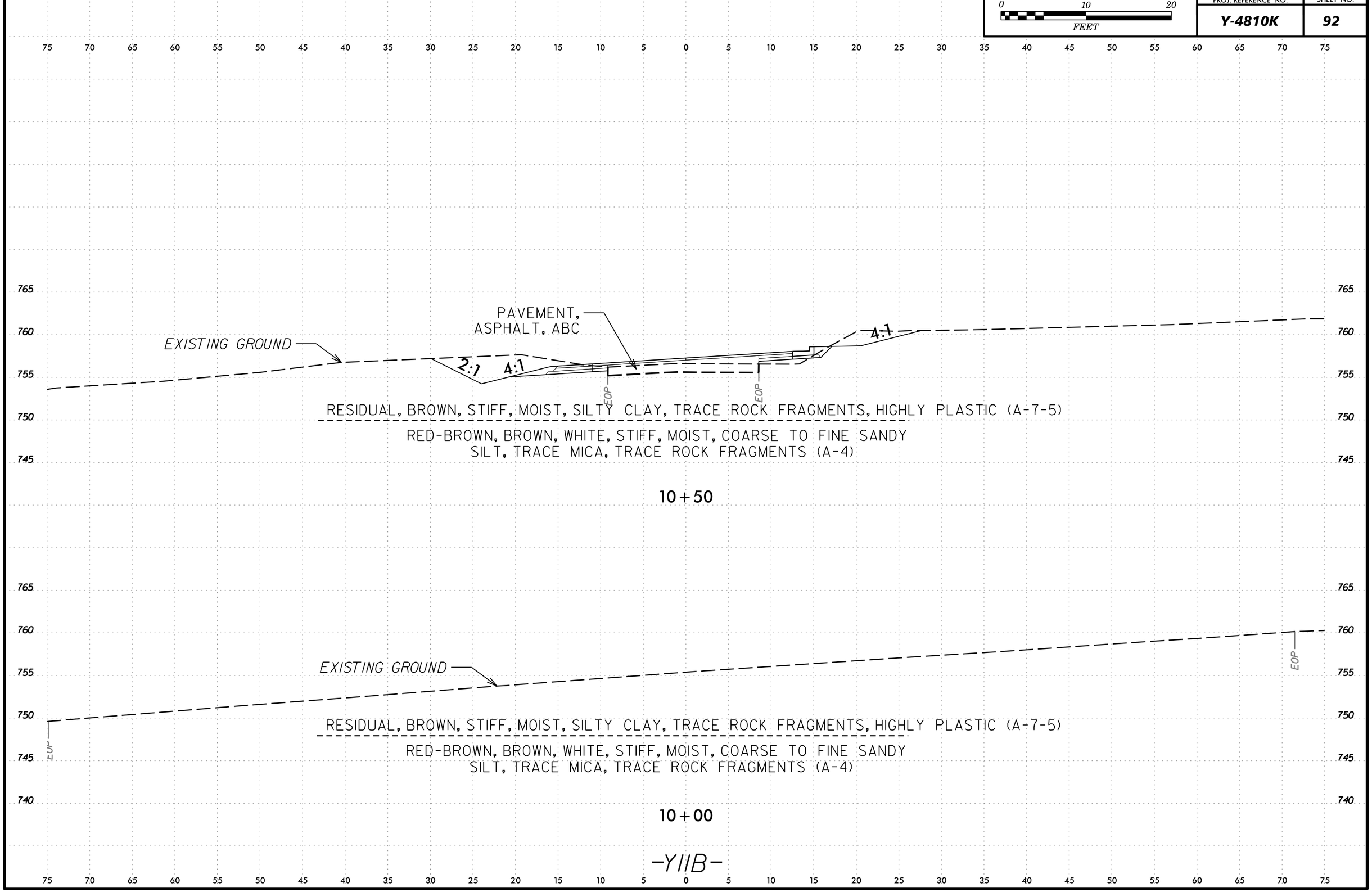
Ⓐ ROADWAY EMBANKMENT, RED-BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS (A-7-5)

13+50

-Y11A-

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

0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	92



0 10 20 FEET	PROJ. REFERENCE NO.	SHEET NO.
	Y-4810K	93

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

765
760
755
750

EXISTING GROUND

EOP EOP

RESIDUAL, BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, BROWN, WHITE, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

11+50

770
765
760
755
750
745

PAVEMENT, ASPHALT, ABC

EXISTING GROUND

2:1

4:1

EOP EOP

RESIDUAL, BROWN, STIFF, MOIST, SILTY CLAY, TRACE ROCK FRAGMENTS, HIGHLY PLASTIC (A-7-5)

RED-BROWN, BROWN, WHITE, STIFF, MOIST, COARSE TO FINE SANDY SILT, TRACE MICA, TRACE ROCK FRAGMENTS (A-4)

11+00

-Y11B-

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

PROJECT REFERENCE NO.	SHEET NO.
Y–4810K	94

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F–0869
NC REGISTERED GEOLOGIC FIRM: C–367

REFERENCE: Y–4810K

PROJECT: 40325

APPENDIX A

LABORATORY TESTING SUMMARY

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 40325.1.46 **TIP:** Y-4810K **COUNTY:** CABARRUS

DESCRIPTION: SR 1625 (Rogers Lake Road) Grade Separation over NCRR/NS Railroad

Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic	Ave. Wet Unit Wt. (pcf)	Shear Strength Values			
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200				Total Cohesion (psf)	Total Friction (ϕ)	Effective Cohesion (psf)	Effective Friction (φ)
SS-1	-L-	12+00	20 LT	3.5-5.0	A-7-6 (10)	52	25	23.3	22.7	21.8	32.2	2	90	75	53	19.7	N/D	N/D	N/D	N/D	N/D	N/D
SS-2	-L-	14+06	3 LT	1.2-2.5	A-7-5 (36)	79	46	14.8	8.5	12.4	64.3	1	92	81	73	25.1	N/D	N/D	N/D	N/D	N/D	N/D
SS-3	-L-	16+20	3 RT	1.0-2.5	A-7-5 (33)	76	45	13.9	11.9	10.8	63.4	1	92	83	70	24.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-4	-L-	18+08	20 LT	1.0-2.5	A-7-5 (30)	71	39	13.0	7.1	10.6	69.3	2	88	79	72	19.1	N/D	N/D	N/D	N/D	N/D	N/D
SS-5	-L-	22+50	40 LT	3.5--5.0	A-7-5 (15)	65	35	25.5	15.8	15.6	43.1	2	84	68	53	21.6	N/D	N/D	N/D	N/D	N/D	N/D
SS-6	-L-	24+00	22 LT	1.0-2.5	A-2-6 (0)	24	11	50.6	14.8	14.2	20.4	3	81	48	30	N/D	N/D	N/D	N/D	N/D	N/D	N/D
SS-7	-L-	28+00	CL	8.5-10.0	A-7-5 (2)	54	18	31.6	32.6	19.9	15.9	1	86	68	37	18.7	N/D	N/D	N/D	N/D	N/D	N/D
SS-8	-L-	30+23	22 LT	13.5-15.0	A-2-7 (0)	49	13	38.4	28.5	16.4	16.7	4	79	58	31	27.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-9	-L-	35+01	22 LT	5.5-7.5	A-7-5 (2)	52	12	28.8	28.3	14.1	28.8	3	86	70	41	19.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-10	-L-	39+50	69 RT	8.5-10.0	A-7-5 (3)	53	16	28.9	29.9	23.6	17.6	3	86	70	40	19.7	N/D	N/D	N/D	N/D	N/D	N/D
SS-11	-L-	40+00	64 RT	3.5-5.0	A-7-5 (16)	65	28	16.7	21.8	22.5	39.0	2	89	78	59	22.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-12	-L-	43+00	23 RT	1.0-2.5	A-7-5 (51)	94	60	8.8	6.9	12.4	71.9	2	89	83	77	26.7	N/D	N/D	N/D	N/D	N/D	N/D
SS-13	-L-	45+00	5 LT	3.5-5.0	A-7-5 (22)	75	37	16.4	15.4	13.7	54.5	1	85	75	61	26.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-14	-L-	47+00	6 LT	1.0-2.5	A-7-5 (6)	52	20	31.1	19.2	22.0	27.7	2	85	65	45	26.2	N/D	N/D	N/D	N/D	N/D	N/D
SS-15	-Y1A-	10+33	33 LT	3.5-5.0	A-7-5 (13)	56	25	20.4	17.1	23.4	39.1	1	89	75	59	21.8	N/D	N/D	N/D	N/D	N/D	N/D
SS-16	-Y2A-	16+97	25 RT	4.0-5.0	A-7-6 (12)	59	32	31.2	11.6	11.5	45.7	3	83	63	49	13.2	N/D	N/D	N/D	N/D	N/D	N/D
SS-17	-Y2B-	10+29	7 LT	1.0-2.5	A-7-6 (23)	69	40	23.3	7.9	9.9	58.9	1	87	69	61	17.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-18	-Y2B	15+49	4 RT	1.0-2.5	A-7-5 (20)	71	36	20.4	18.2	11.9	49.5	2	90	77	59	25.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-19	-Y2C-	14+14	11 LT	3.5-5.0	A-7-5 (21)	70	33	17.1	17.7	18.9	46.3	1	91	80	64	23.2	N/D	N/D	N/D	N/D	N/D	N/D
SS-20	-Y2C-	18+11	59 RT	3.5-5.0	A-7-5 (30)	77	42	13.5	12.0	14.6	59.9	2	87	78	68	23.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-21	-Y4-	13+95	20 LT	1.0-2.5	A-4 (0)	26	10	41.6	16.9	17.5	24.0	5	78	52	36	6.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-22	-Y9A-	11+53	34 RT	1.0-2.5	A-7-5 (31)	73	42	16.1	8.0	11.8	64.1	1	91	80	71	26.8	N/D	N/D	N/D	N/D	N/D	N/D

N/D - NOT DETERMINED

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number