STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5742	1	107

REFERENCE: R-5742

PROJECT: 46325

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

CROSS SECTIONS

LINE	STATION	SHEETS
-L-	10+75-229+76	20-98

APPENDICES

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *CLAY*

PROJECT DESCRIPTION *NC 175 WIDENING FROM GEORGIA STATE LINE TO US 64*

INVENTORY

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.

PERSONNEL

J. RACZYNSKI

M. SNYDER

F&R Personnel

INVESTIGATED BY *RK&K, LLP*

DRAWN BY *M. SNYDER*

CHECKED BY *G. GOINS*

SUBMITTED BY *RK&K, LLP*

DATE *SEPTEMBER 2018*

Prepared in the Office of:

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RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

NORTH CAROLINA PROFESSIONAL SEAL 044566 ENGINEER MATTHEW R. SNYDER

DocuSigned by:
Matthew Snyder 9/18/2018
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
R-5742	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		—	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	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 / SPT CMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [X] 3-¼" HOLLOW STEM AUGERS

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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

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: ELEVATIONS FROM PROVIDED ELECTRONIC FILE
"R5742_merged.tin"
ELEVATION: N/A FEET

NOTES:
F.I.A.D. - FILLED IMMEDIATELY AFTER DRILLING

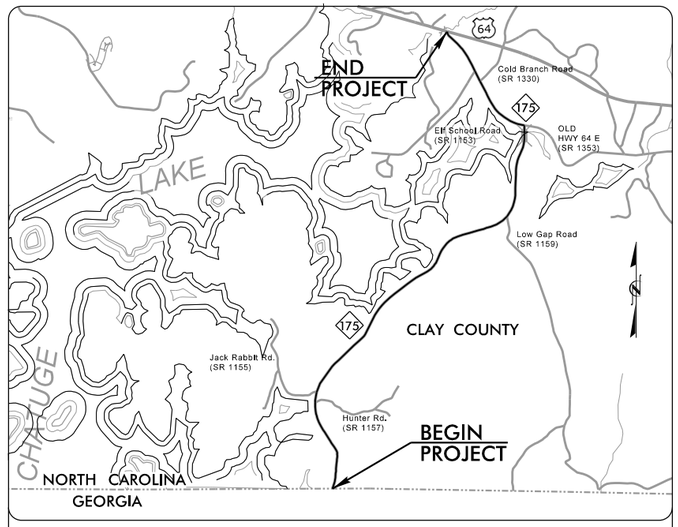
DATE: 8-15-14

09/08/95

TIP PROJECT: R-5742

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP *N.T.S.*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CLAY COUNTY

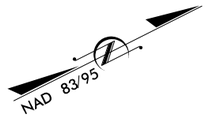
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5742	3	107

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46325.1.D.1	STP-0175(8)	PE
46325.2.1		R/W

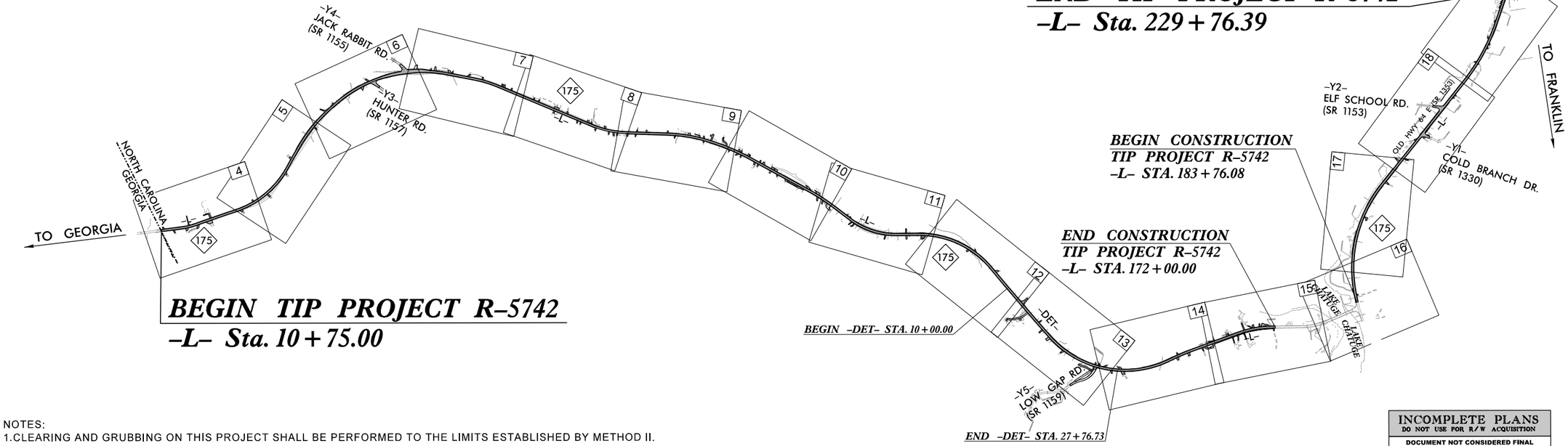
LOCATION: *NC 175 FROM GEORGIA STATE LINE TO US 64*

TYPE OF WORK: *IMPROVEMENT – ALIGNMENT, LANE WIDENING, SHOULDER WIDENING, CULVERT & DRAINAGE*

R/W PLANS SUBMITTAL
DATE: 6-05-17



END TIP PROJECT R-5742
–L– Sta. 229 + 76.39



BEGIN TIP PROJECT R-5742
–L– Sta. 10 + 75.00

BEGIN CONSTRUCTION
TIP PROJECT R-5742
–L– STA. 183 + 76.08

END CONSTRUCTION
TIP PROJECT R-5742
–L– STA. 172 + 00.00

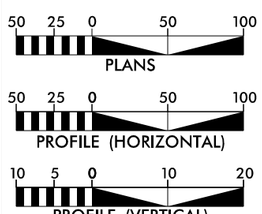
BEGIN –DET– STA. 10 + 00.00

END –DET– STA. 27 + 76.73

NOTES:
1.CLEARING AND GRUBBING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

GRAPHIC SCALES



DESIGN DATA

ADT 2012 = 2,100
ADT 2030 = 3,950
DHV = %
D = %
T = 6.4 % *
V = 50 MPH
* (TTST 5.2% + DUALS 1.2%)

CLASSIFICATION:
RURAL MAJOR COLLECTOR

PROJECT LENGTH

ROADWAY LENGTH TIP PROJECT R-5742.....3.925 MILES
TOTAL LENGTH TIP PROJECT R-5742.....3.925 MILES

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

FOR
DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 22, 2017

LETTING DATE:
JANUARY 15, 2019

B. KEITH SKINNER, P.E.
PROJECT ENGINEER

BRANDON McINNIS, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

9/18/2018
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msnyder

September 18, 2018

WBS Number: 46325.1.D.1
TIP Number: R-5742
F.A. Number: STP-0175(8)
County: Clay
Description: NC 175 Widening from Georgia State Line to US 64

Subject: Roadway Subsurface Inventory Report

PROJECT DESCRIPTION

The project begins at the North Carolina-Georgia state line and extends approximately 4.2 miles north to US 64 in Clay County, North Carolina. The project consists of realigning/widening and improvements of existing NC 175. An approximately 0.22-mile portion of the project corridor was previously upgraded with the replacement of Bridge #11 over Chatuge Lake on NC 175 (TIP No. B-4733).

Seven retaining walls are proposed along the project corridor and are located as follows:

- Retaining Wall #1: -L- Sta. 111+50, 22’ LT to -L- Sta. 115+00, 22’ LT (fill wall)
- Retaining Wall #2: -L- Sta. 111+64, 22’ RT to -L- Sta. 114+10, 22’ RT (fill wall)
- Retaining Wall #3: -L- Sta. 116+17, 22’ LT to -L- Sta. 117+00, 22’ LT (fill wall)
- Retaining Wall #4: -L- Sta. 119+00, 22’ LT to -L- Sta. 126+00, 22’ LT (fill wall)
- Retaining Wall #5: -L- Sta. 160+00, 19’ LT to -L- Sta. 160+50, 19’ LT (fill wall)
- Retaining Wall #6: -L- Sta. 163+72, 63’ RT to -L- Sta. 165+99, 25’ RT (cut wall)
- Retaining Wall #7: -L- Sta. 168+25, 25’ RT to -L- Sta. 170+82, 25’ RT (cut wall)

A CME 55 drill rig with an automatic hammer was used for the geotechnical investigation during June and July of 2017. Standard Penetration Tests (SPT) were performed and soil samples were collected for visual classification and laboratory testing. Bulk samples were collected from select proposed excavation areas for laboratory testing.

The following alignments were investigated. Selected cross sections of these alignments are included in this report.

Line	Stations (±)
-L-	10+75 – 172+00
-L-	183+76 – 229+76
-DET-	11+04 – 26+75

AREAS OF SPECIAL GEOTECHNICAL INTEREST

Alluvial Soils: The following areas contain alluvial soils:

Line	Stations (±)	Offset
-L-	33+75 – 34+50	LT & RT
-L-	111+75 – 114+35	LT & RT
-L-	155+50 – 157+25	LT & RT
-L-	208+60 – 211+25	LT & RT

Soft, Loose and/or Wet Soils: The following areas contain relatively soft or loose and/or wet soils:

Line	Stations (±)	Offset
-L-	23+00 – 25+00	LT & RT
-L-	27+00 – 34+50	LT & RT
-L-	42+00 – 46+00	LT & RT
-L-	48+00 – 60+00	LT & RT
-L-	72+50 – 95+00	LT & RT
-L-	116+50 – 126+00	LT & RT
-L-	142+00 – 145+00	LT & RT
-L-	155+00 – 161+00	LT & RT
-L-	167+00 – 171+00	LT & RT
-L-	209+00 – 212+00	LT & RT

Highly Plastic Soils: The following areas contain highly plastic soils with plasticity indices (PI) greater than 25 within proposed cut sections or greater than 35 within 3-ft of subgrade:

Line	Stations (±)	Offset
-L-	12+00 – 16+25	LT & RT
-L-	24+75 – 31+75	LT & RT
-L-	72+25 – 81+00	LT & RT

Weathered Rock: The following areas contain weathered rock above or within six (6) feet of proposed grade:

Line	Stations (±)	Offset
-L-	110+00 – 111+50	RT
-L-	169+00 – 171+00	RT
-L-	185+00 – 189+75	LT & RT
-L-	190+25 – 193+75	RT
-L-	201+75 – 202+75	RT

Crystalline Rock: The following areas contain crystalline rock above or within six (6) feet of proposed grade:

Line	Stations (±)	Offset
-L-	185+00 – 189+75	LT & RT
-L-	190+25 – 192+75	RT
-L-	202+75 – 205+00	LT & RT

Groundwater: The following areas contain groundwater within six (6) feet of the proposed grade:

Line	Stations (±)	Offset
-L-	30+00 – 32+50	LT & RT
-L-	43+00 – 45+00	LT & RT
-L-	51+00 – 53+00	LT & RT
-L-	72+50 – 75+00	LT & RT
-L-	82+00 – 84+00	LT & RT
-L-	87+00 – 90+00	LT & RT
-L-	214+00 – 217+00	LT & RT

The following areas contain groundwater within three (3) feet of the existing grade:

Line	Stations (±)	Offset
-L-	30+00 – 32+50	LT
-L-	43+00 – 45+00	LT & RT
-L-	51+00 – 53+00	LT & RT
-L-	72+50 – 75+00	LT & RT
-L-	116+50 – 118+00	LT & RT
-L-	120+00 – 121+00	LT
-L-	155+50 – 159+00	LT & RT

PHYSIOGRAPHY AND GEOLOGY

The project is located within the Blue Ridge Physiographic Province. The project corridor is comprised of a rural to subdivision setting. Portions of the project are adjacent to Chatuge Lake. A portion of the existing alignment consists of a causeway built over Lake Chatuge from approximately -L- 111+50 to 116+50. The general topography of the site consists of mountainous to rolling terrain with moderately to steeply sloping hillsides.

The project is located within the Blue Ridge Belt Litho-Tectonic Unit, specifically the Ocoee Supergroup and Great Smokey Group of Middle to Late Proterozoic Era (Geologic Map of North Carolina, 1985). The overlying residual soils are a result of physical and chemical weathering of the underlying parent bedrock.

SOIL PROPERTIES

Soils encountered during the geotechnical investigation are separated into three (3) categories based on origin. The origins consist of roadway embankment, alluvial soils and residual soils.

Roadway Embankment: Materials interpreted as roadway embankment were encountered within the limits of the existing NC 175 alignment. The roadway embankment generally consisted of loose to dense, silty fine to coarse SAND (A-1-b, A-2-4) and soft to stiff, sandy SILT (A-4) and silty CLAY (A-6). The thickness of the encountered roadway embankment varied up to 13.5 feet.

Alluvial Soils: Alluvial soils were typically associated with drainage features or areas where creeks previously crossed the proposed alignment. Alluvial soils were also encountered in areas within the floodplain of Lake Chatuge. Alluvial soils generally consisted of very soft to medium stiff, silty and sandy slightly to highly plastic CLAY (A-6, A-7-5 and A-7-6).

Residual Soils: Soils classified as residual soils generally consisted of loose to very dense, clayey and silty fine to coarse SAND (A-1-b, A-2-4, A-2-5, A-2-6) and soft to hard, sandy SILT (A-4, A-5) and slightly to highly plastic silty CLAY (A-6, A-7-5, A-7-6). Varying amounts of mica and rock fragments were noted within soils interpreted as residual soils.

ROCK PROPERTIES

Weathered Rock: Weathered rock was encountered in ten (10) borings at elevations ranging from 1912.2 to 2011.0. Weathered rock was generally encountered within the northern portion of the project site.

Crystalline Rock: Crystalline rock is defined as auger refusal or SPT refusal with penetration by split spoon of less than or equal to 0.1 feet per 60 blows. Crystalline rock was encountered in eight (8) borings at elevations ranging from 1919.9 to 1962.1. Crystalline rock was generally encountered within the northern portion of the project site. Parent bedrock encountered at the project site is Biotite Gneiss and Amphibolite. Scattered exposed crystalline rock in existing cut slopes is present within the following areas:

Line	Stations (±)	Offset
-L-	186+50 – 191+25	LT & RT

GROUNDWATER

Groundwater was encountered during drilling operations (0-hr reading) within twenty-nine (29) borings at elevations ranging from 1913.2 to 1964.6. Static (24-hr reading) measurements were recorded within twenty-eight (28) borings at elevations ranging from 1925.2 to 1985.3.

Prepared by,

Matthew R. Snyder, P.E.
Project Engineer, Geotechnical
Registered, North Carolina 044566

Appendix A

Bulk Samples

The following bulk samples were collected from cut sections for laboratory testing:

Sample No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
S-1	-L-	104+35	49’ RT	0.0 – 10.0	Standard Proctor, California Bearing Ratio
S-2	-L-	137+65	62’ LT	0.0 – 10.0	Standard Proctor, California Bearing Ratio
S-3	-L-	170+00	37’ RT	0.0 – 10.0	Standard Proctor, California Bearing Ratio

PROJECT REFERENCE NO.	SHEET NO.
R-5742	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/95

INCOMPLETE PLANS
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BOBBY J. LEDFORD
DAVID C. LEDFORD
PARCEL # 12573
DB 262 PG 106

DENVER LEDFORD
ANNETTE LEDFORD
PARCEL # 4522
DB 226 PG 28

WILLIAM L. COSSIN
JOYCE A. COSSIN
PARCEL # 12471
DB 263 PG 178

BEGIN TIP PROJECT R-5742
-L- POT Sta. 10+75.00

BEGIN CONSTRUCTION
-DRI- POT Sta. 10+00.00

-DRI- PC Sta. 10+50.00

-L- PRC Sta. 15+14.76

-DRI- PT Sta. 10+89.99

RESIDUAL

RESIDUAL

-L- POT Sta. 9+97.53

-L- PC Sta. 13+40.41

-DRI- POT Sta. 11+45.68 =
-L- POC Sta. 17+22.53

-L- PRC Sta. 20+58.76

MATCHLINE -L- STA. 22+50 SEE SHEET 5

DORIS LEDFORD
PARCEL # 2405
DB 226 PG 8

JONES LINDA DEAN
PIN # 547804648954
DB 399 PG 185

JONES LINDA DEAN
PIN # 547804648954
DB 399 PG 185

LAWRENCE K. BEAL
PARCEL #2631
TRACK #6
DB 380 PG 172

BRIAN DOBSON
LINDA DOBSON
DOBSON FAMILY LIVING TRUST
PARCEL # 6740
TRACT #1
DB 336 PG 107

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

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msnyder

PROJECT REFERENCE NO.	SHEET NO.
R-5742	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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MATCHLINE -L- STA. 22+50 SEE SHEET 4

L 22+75 LT

LISA ANDERSON
PARCEL # 13890
DB 377 PG 41

WILLIAM L. COSSIN
JOYCE A. COSSIN
PARCEL # 12471
DB 263 PG 178

RESIDUAL

25+00

L 25+75 LT

-L-

LISA ANDERSON
PARCEL # 13604
DB 377 PG 41

-L- PT Sta. 29+14.80

L 28+75 LT

30+00

CHARLENE HOGSED
PARCEL # 8302
THIRD TRACK
DB 122 PG 114

EVERETT SHARON HOGSED
FIRST TRACK
DB 311 PG 15

ALLUVIAL

7'x7' RCBC

35+00

L 34+21 LT

GREU 350, TL-3

L 31+75 LT

L 33+00 RT

L 34+21 RT

MAINTAINED R/W

EXISTING R/W

RESIDUAL

-L- PC Sta. 32+15.55

STORAGE BUILDING

GARAGE

GARAGE

ISFD

COVER DECK

THE NATURE CONSERVANCY
PARCEL # 9910
DB 186 PG 199

BRIAN DOBSON
LINDA DOBSON
DOBSON FAMILY LIVING TRUST
PARCEL # 6740
TRACT #1
DB 336 PG 107

WADE M. HOGSED
PARCEL # 2245
DB 299 PG 12

MATCHLINE -L- STA. 36+50 SEE SHEET 6

PAVEMENT REMOVAL

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PROJECT REFERENCE NO.	SHEET NO.
R-5742	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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-DR3- POT Sta. 10+00.00
-DR3- PC Sta. 10+30.00
-DR3- PT Sta. 11+01.53
-Y3- POT Sta. 10+00.00 =
-L- POC Sta. 44+94.97
-Y4- POT Sta. 10+00.00
-Y4- PC Sta. 10+27.66
BEGIN CONSTRUCTION
-Y4- POC Sta. 10+55.00
BEGIN CONSTRUCTION
-DR3- POT Sta. 10+50.00
BEGIN CONSTRUCTION
-DR2- POT Sta. 10+26.00
-DR2- POT Sta. 10+00.00
-L- PT Sta. 39+55.96 BK =
-L- PC Sta. 39+51.17 AH
L 37+75 LT
L 40+75 RT
L 43+75 RT
L 46+75 LT
L 48+50 LT
40+00
45+00
50+00
GREU 350, TL-3
GREU 350, TL-4
EXISTING R/W
RESIDUAL
RESIDUAL
-L- PT Sta. 38+73.02
-DR2- POT Sta. 11+16.68 =
-L- POC Sta. 38+02.26
-DR3- POT Sta. 11+14.64=
-L- POC Sta. 44+62.69
-Y3- POT Sta. 11+28.19
END CONSTRUCTION
-Y3- POT Sta. 11+25.00
-Y4- PT Sta. 11+61.36
-Y4- POT Sta. 11+72.46 =
-L- POC Sta. 49+23.09
COVERED DECK
ISBK/FRAME
MATCHLINE -L- STA. 36+50
SEE SHEET 5
MATCHLINE -L- STA. 50+50
SEE SHEET 7

SHARON HOGSED EVERETT
PARCEL # 16838
DB 311 PG 15

EVERETT SHARON HOGSED
FIRST TRACT
DB 311 PG 15

JAMES D. HOGSED
PARCEL # 15824
DB 299 PG 11

SCHRADER DRAKE, LLC
DB 393 PG 50

JAMES MITCHELL NICHOLS
PARCEL #2709
DB 153 PG 92

JOYCE HALLOWAY CURTIS
FARRELL M. CURTIS
PARCEL # 2138
DB 316 PG 172

DAVID H. REEVES
LESA M. REEVES
PARCEL #13888
DB 199 PG 142

TVA FLOWAGE EASEMENT
DB 36 PG 371

SCHRADER DRAKE, LLC
DB 393 PG 50

JAMES MITCHELL NICHOLS
PARCEL #2709
DB 153 PG 92

SCHRADER DRAKE, LLC
DB 393 PG 50

DAVID H. REEVES
LESA M. REEVES
PARCEL # 1924
FIRST TRACT
DB 199 PG 142

WADE M. HOGSED
PARCEL # 2245
DB 299 PG 12

PAVEMENT REMOVAL

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

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PROJECT REFERENCE NO.	SHEET NO.
R-5742	7
R/W SHEET NO.	
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JOYCE GALLOWAY CURTIS
FARRELL M. CURTIS
PARCEL # 2138
DB 316 PG 172

BRENDA G. WALDROUP FRANKLIN
PARCEL # 17351
DB 316 PG 173

ANNA LEE
JEROME LEE
PARCEL # 2227
DB 255 PG 140

JEROME LEE
ANN LEE
PARCEL # 2307
DB 136 PG 185

ARVIL LONG
LIFE ESTATE
PARCEL # 2423
DB 174 PG 263

FAIRLEY & KATHY HOLDEN
PARCEL # 2246
DB 98 PG 154

PHILLIP HOLLIFIELD
PATRICIA HOLLIFIELD
PARCEL # 2251
DB 368 PG 195

ISBLKBUS
ISBKD
IMTLBUS
ISBKD
ISBKD

L 51+75 LT
L 54+75 RT
L 57+75 RT
L 61+75 RT

EXISTING R/W
MAINTAINED R/W
60' PROPOSED R/W

RESIDUAL
RESIDUAL

MATCHLINE -L- STA. 50+50
SEE SHEET 6

MATCHLINE -L- STA. 64+50
SEE SHEET 8

-L- PT Sta. 54+61.06
-L- PC Sta. 58+23.68
-L- PT Sta. 61+33.43

JAMES MITCHELL NICHOLS
PARCEL #2709
DB 153 PG 92

JAMES MITCHELL NICHOLS
PARCEL # 17099
DB 205 PG 29

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PROJECT REFERENCE NO.	SHEET NO.
R-5742	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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MATCHLINE -L- STA. 64+50 SEE SHEET 7

MATCHLINE -L- STA. 78+50 SEE SHEET 9

FLOYD R. SHOOK
FAYE I. SHOOK
AB LIVING TRUST
PARCEL # 4465
DB 334 PG 53

PHILLIP HOLLIFIELD
MAYBELLE HOLLIFIELD
PARCEL # 2251
DB 49 PG 130

EMERALD BAY CAPITAL
PARCEL # 2429
DB 376 PG 220

EMERALD BAY CAPITAL
PARCEL # 2158
DB 376 PG 220

SCOTT NEWTON
PARCEL # 2437
DB 382 PG 64

JAMES ALLEN
PARCEL # 1933
DB 393 PG 236

JAMES MITCHELL NICHOLS
PARCEL # 17099
DB 205 PG 29

JAMES MITCHELL NICHOLS
PARCEL # 2638
DB 205 PG 29

JAMES MITCHELL NICHOLS
SUSAN W. NICHOLS
PARCEL # 16062
DB 283 PG 193

ROBERT HOLLIFIELD
PARCEL # 2252
PLAT 4 SLIDE 1238
DB 354 PG 232

ROBERT HOLLIFIELD
RUTH HOLLIFIELD
PARCEL # 2253
DB 100 PG 11

JERRY L. MORGAN
PHYLLIS J MORGAN
PARCEL # 4677
DB 344 PG 63

GARY NICHOLS
PARCEL # 4311
DB 205 PG 298

RICHARD LEE CLINE & JENNIFER SUTHERLAND
PARCEL #2254
DB 111 PG 110

L 64+75 RT
L 67+75 RT
L 70+75 RT
L 73+75 RT
L 76+75 RT

55+00
70+00
75+00

MAINTAINED R/W
EXISTING R/W

RESIDUAL

2SFD
ISBLKBUS
ISBKD
ISFD
SHED
G
S
WD SHED
ON LOT

-L- PC Sta. 74+35.48

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-5742	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/95

MATCHLINE -L- STA. 78+50 SEE SHEET 8

MATCHLINE -L- STA. 92+50 SEE SHEET 10

W.T. GREENE
PARCEL # 1943
DB 398 PG 125

W.T. GREENE
PARCEL # 2100
DB 398 PG 127

W. T. GREENE
PARCEL # 9922
DB 359 PG 98

JIMMY R SMITH
ANNA L SMITH
PARCEL #8024
DB 170 PG 133

HUEY HOBGOOD
MELISSA HOBGOOD
PARCEL #8015
DB 196 PG 294

HUEY HOBGOOD
MELISSA HOBGOOD
PARCEL #4494
DB 246 PG 68

GARY MEASE
PARCEL #2531
DB 77 PG 149

W T GREENE
PARCEL #2180
DB 130 PG 20

GARY NICHOLS
PARCEL # 4311
DB 205 PG 298

DEALOS STEVENS
TERESA STEVENS
PARCEL # 4678
DB 400 PG 130

THELMA BALLARD
PARCEL # 9922
DB 181PG 185

CAJAM PROPERTIES LLC
PARCEL # 1891
DB 371PG 20

REGINALD Q. NICHOLSON
DB 371PG 89

C.M. DOWDLE
JUDITH B. DOWDLE
PARCEL # 4495
DB 182 PG 238

MILAS LEE NICHOLSON
PARCEL # 9923
DB 305 PG 37

-L- PT Sta. 78+70.31

-L- PC Sta. 84+03.80

-L- PCC Sta. 89+02.51

-DR5- POT Sta. 10+00.00

-DR6- POT Sta. 10+00.00

-DR7- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-DR6- POT Sta. 10+20.00

BEGIN CONSTRUCTION
-DR7- POT Sta. 10+50.00

BEGIN CONSTRUCTION
-DR5- POT Sta. 10+82.81

-DR7- PC Sta. 10+51.82

-DR7- PT Sta. 11+14.68

-DR7- PC Sta. 11+23.87

-DR6- POT Sta. 11+20.08 =
-L- POC Sta. 89+68.19

-DR7- PT Sta. 11+79.11 =

-DR7- POT Sta. 11+92.17 =
-L- POC Sta. 91+73.85

-DR5- POT Sta. 11+21.48 =
-L- POC Sta. 88+75.71

L 79+75 LT

L 82+75 RT

L 85+75 LT

L 87+50 RT

L 90+75 RT

RESIDUAL

RESIDUAL

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCHLINE –L– STA. 92+50 SEE SHEET 9

MATCHLINE –L– STA. 106+50 SEE SHEET 11

HOOPER TOMMY
PARCEL #2257
DB 131 PG 112

JANET L EDWARDS
PARCEL #4600
DB 374 PG 106

CHATUGE COVE MARINA, LLP
PARCEL # 4589
DB 302 PG 39

THOMAS C. BORISCH
DB 358 PG 222

WILLIAM P. CHAPMAN
CHRISTINA CHAPMAN
DB 406 PG 193

TVA

RESIDUAL

GARY MEASE
PARCEL #2531
DB 77 PG 149

2SBKD

ISFD

2SFD

SHED
GREU 350, TI-3

Steps

95+00

100+00

105+00

L 100+75 LT

L 93+75 RT

L 97+75 RT

L 104+00 RT

EXISTING R/W

-L- PC Sta. 103+75.50

-L- PT Sta. 95+29.83

C.M. DOWDLE
JUDITH B. DOWDLE
PARCEL # 4495
DB 182 PG 238

ELLIOTT ARROWOOD
PAMELA M. ARROWOOD
PARCEL # 1878
DB 123 PG 122

THOMAS K &
TRACY J HAGAN
PARCEL # 2603
DB 367 PG 94

WD DECK

MARY ANN NUTTER
DB 194 PG 38

2SBUS

1SBLKD

MARVIN HOWELL MCCRACKEN
PARCEL # 7345
DB 211 PG 13

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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mauder

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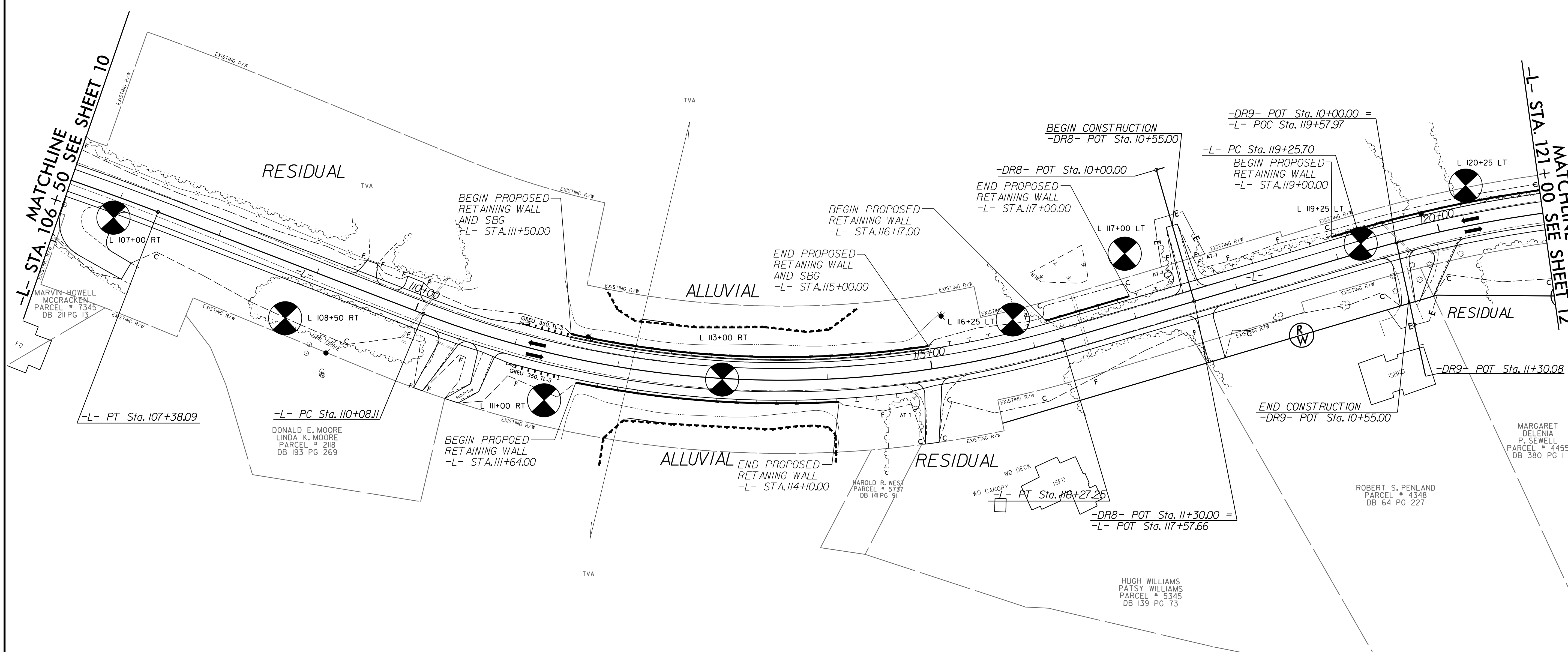
PROJECT REFERENCE NO.	SHEET NO.
R-5742	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95



-L- STA. 106+50 MATCHLINE SEE SHEET 10
-L- STA. 121+00 MATCHLINE SEE SHEET 12
RESIDUAL
ALLUVIAL
ALLUVIAL
RESIDUAL
RESIDUAL
TVA
EXISTING R/W
L 107+00 RT
L 108+50 RT
L 111+00 RT
L 113+00 RT
L 116+25 LT
L 117+00 LT
L 119+25 LT
L 120+25 LT
110+00
115+00
120+00
MARVIN HOWELL MCCRACKEN PARCEL # 7345 DB 211 PG 13
DONALD E. MOORE LINDA K. MOORE PARCEL # 2118 DB 193 PG 269
HAROLD R. WEST PARCEL # 5737 DB 141 PG 9
HUGH WILLIAMS PATSY WILLIAMS PARCEL # 5345 DB 139 PG 73
ROBERT S. PENLAND PARCEL # 4348 DB 64 PG 227
MARGARET DELENIA P. SEWELL PARCEL # 4455 DB 380 PG 1
-L- PT Sta. 107+38.09
-L- PC Sta. 110+08.11
BEGIN PROPOSED RETAINING WALL AND SBG -L- STA. 111+50.00
BEGIN PROPOED RETAINING WALL -L- STA. 111+64.00
END PROPOSED RETAINING WALL -L- STA. 114+10.00
END PROPOSED RETAINING WALL AND SBG -L- STA. 115+00.00
BEGIN PROPOSED RETAINING WALL -L- STA. 116+17.00
-L- PT Sta. 116+27.25
END PROPOSED RETAINING WALL -L- STA. 117+00.00
-DR8- POT Sta. 10+00.00
BEGIN CONSTRUCTION -DR8- POT Sta. 10+55.00
-DR8- POT Sta. 11+30.00 = -L- POT Sta. 117+57.66
-L- PC Sta. 119+25.70
BEGIN PROPOSED RETAINING WALL -L- STA. 119+00.00
-DR9- POT Sta. 10+00.00 = -L- POC Sta. 119+57.97
END CONSTRUCTION -DR9- POT Sta. 10+55.00
-DR9- POT Sta. 11+30.08
GREU 350 TL-3
WD DECK
WD CANOPY
1SFD
1SBKD

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RK&K

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PROJECT REFERENCE NO.	SHEET NO.
R-5742	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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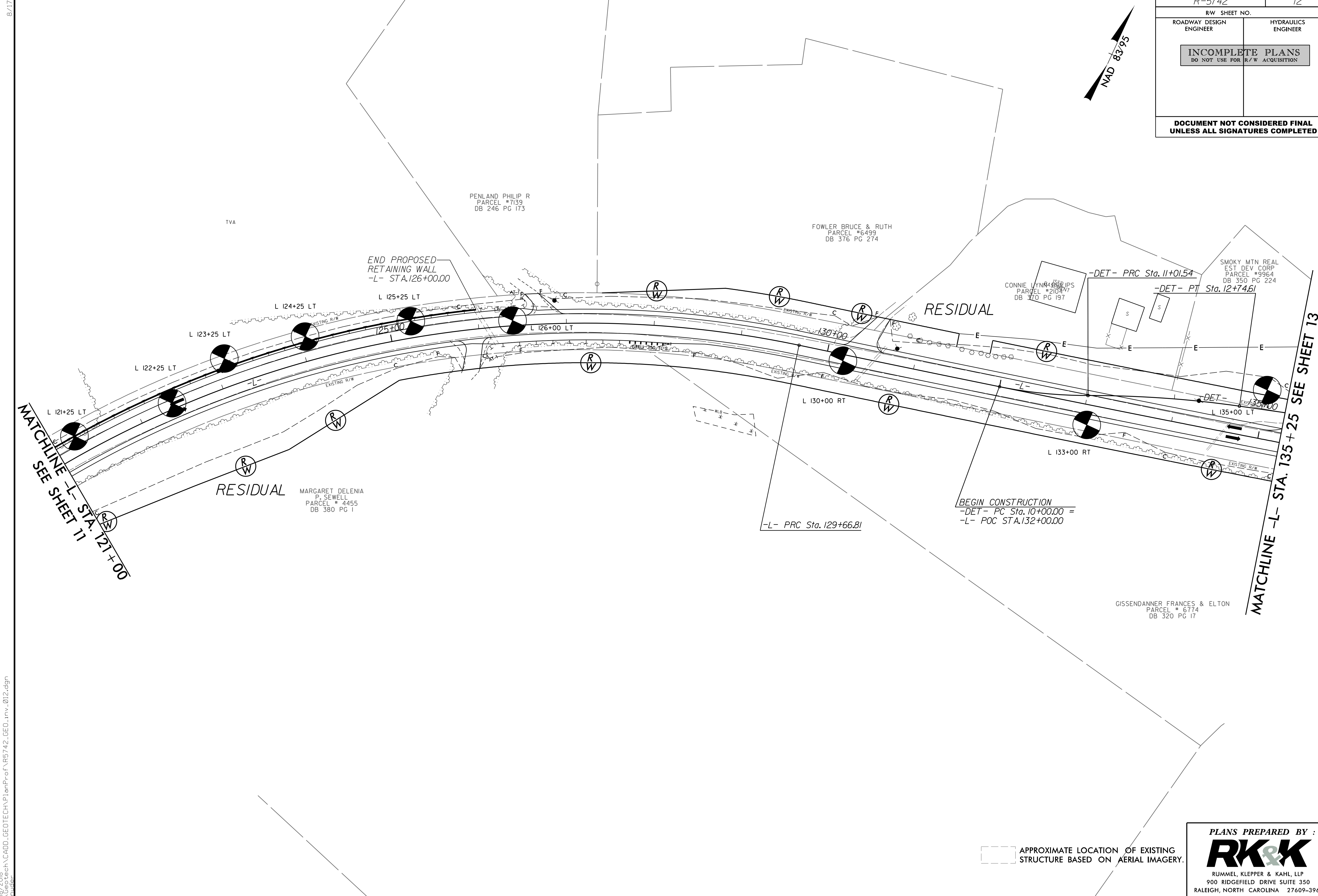
NAD 83/95
PENLAND PHILIP R
PARCEL #7139
DB 246 PG 173
TVA
FOWLER BRUCE & RUTH
PARCEL #6499
DB 376 PG 274
SMOKY MTN REAL EST DEV CORP
PARCEL #9964
DB 350 PG 224
CONNIE LYNN PHILLIPS
PARCEL #2104
DB 370 PG 197
END PROPOSED RETAINING WALL -L- STA.126+00.00
-DET- PRC Sta. 11+01.54
-DET- PT Sta. 12+74.61
RESIDUAL
L 121+25 LT
L 122+25 LT
L 123+25 LT
L 124+25 LT
L 125+25 LT
L 126+00 LT
L 130+00 RT
L 133+00 RT
L 135+00 LT
125+00
130+00
135+00
-L-
-DET-
EXISTING R/W
MATCHLINE -L- STA. 121+00 SEE SHEET 11
MATCHLINE -L- STA. 135+25 SEE SHEET 13
RESIDUAL
MARGARET DELENIA P. SEWELL
PARCEL # 4455
DB 380 PG 1
-L- PRC Sta. 129+66.81
BEGIN CONSTRUCTION
-DET- PC Sta. 10+00.00 =
-L- POC STA.132+00.00
GISSENDANNER FRANCES & ELTON
PARCEL # 6774
DB 320 PG 17

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

-L- STA. 135+25 SEE SHEET 12

MATCHLINE -L- STA. 149+50 SEE SHEET 14

-DRI0- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-DRI0- POT Sta. 10+25.00

SMOKY MTN REAL EST DEV CORP
PARCEL #9588
DB 350 PG 224

BEAL RONNELL & REBECCA
PARCEL #5574
DB 138 PG 63

CUNNINGHAM WILLIAM & LINDA
PARCEL #1987 & #1988
DB 279 PG 105

GEORGE WILLIAM BULLER II
PARCEL #4497
DB 354 PG 191
PB 5 PG 334
TRACT 67D

GEORGE WILLIAM BULLER II
PARCEL #4497
DB 354 PG 191
PB 5 PG 334
TRACT 67C

GEORGE WILLIAM BULLER II
PARCEL #4497
DB 354 PG 191
PB 5 PG 334
TRACT 67B

GEORGE WILLIAM BULLER II
PARCEL #4497
DB 354 PG 191
PB 5 PG 334
TRACT 67A

PARCEL LINES FROM PRELIMINARY UNRECORDED PLAT PROVIDED BY LANDOWNER

RESIDUAL

-DRI1- POT 10+00.00=
-L- POC Sta. 137+00.00

-DRI3- POT Sta. 10+00.00 =
-L- POC Sta. 139+88.09

-L- PCC Sta. 141+07.71

-DET- PC Sta. 26+06.31

-Y5- POT Sta. 10+00.00 =
-L- POC Sta.148+20.00

-DET- PT Sta. 23+06.65

RESIDUAL

-DET- PC Sta. 19+59.61

L 137+00 LT

L 140+00 RT

L 143+00 LT

L 146+00 LT

L 149+00 RT

140+00

145+00

EXISTING R/W

-DRI1- PC Sta. 10+63.25

-DRI1- PT Sta. 11+48.96

-DRI3- POT Sta. 11+50.03

-DRI1- PC Sta. 12+19.12

-DRI1- PT Sta. 12+65.27

END CONSTRUCTION
-DRI3- POT Sta. 10+70.00

END CONSTRUCTION
-DRI1- POT Sta. 13+00.00

-DRI1- POT Sta. 13+45.82

-DRI0- POT Sta. 11+30.02 =
-L- POC Sta. 135+60.12

PC Sta. 10+10.85

PRC Sta. 12+77.82

END CONSTRUCTION
-Y5- POT Sta. 14+29.54

POT Sta. 14+91.29

AMANDA LEE HOPE HARPER
PARCEL #7487
DB 361PG 102

DENNIS C. STEVENS
DB 353 PG 270

ROBERT KEVIN RAY
PARCEL #7750
DB 355 PG 173

KEVIN RAY ROBERT
PARCEL #7751
DB 355 PG 173

PANNELL JUANITA & RICHARD
PARCEL #6761
DB 341 PG 2

JARROD D. PENLAND
DB 378 PG 35
PC 5 SL 582

2SFD

HTR

HTR WD DECK

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RK&K
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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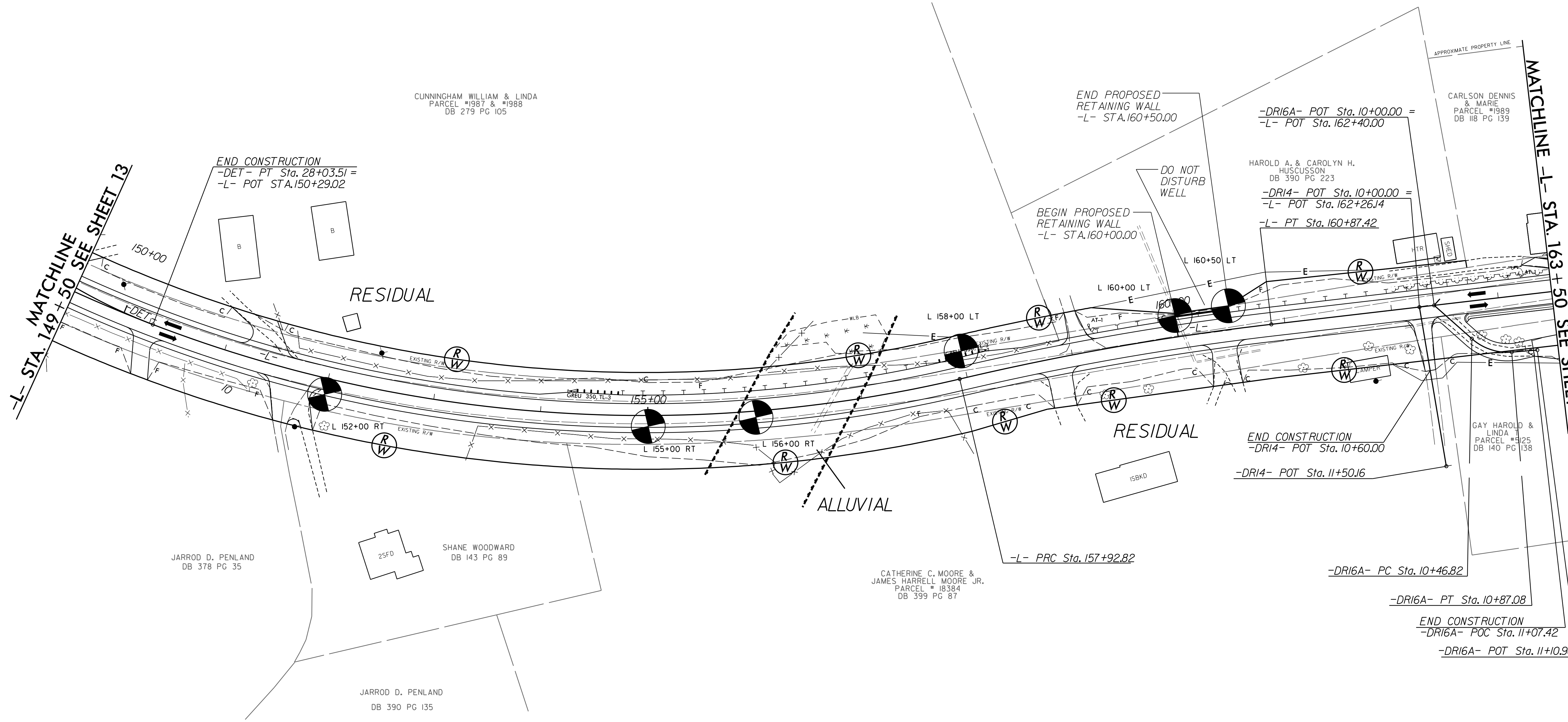
NAD 83/95



MATCHLINE -L- STA. 149+50 SEE SHEET 13
MATCHLINE -L- STA. 163+50 SEE SHEET 15
CUNNINGHAM WILLIAM & LINDA
PARCEL #1987 & #1988
DB 279 PG 105
END CONSTRUCTION
-DET- PT Sta. 28+03.51 =
-L- POT STA.150+29.02
150+00
RESIDUAL
L 152+00 RT
155+00
L 155+00 RT
L 156+00 RT
L 158+00 LT
L 160+00 LT
L 160+50 LT
ALLUVIAL
END PROPOSED
RETAINING WALL
-L- STA.160+50.00
BEGIN PROPOSED
RETAINING WALL
-L- STA.160+00.00
DO NOT
DISTURB
WELL
HAROLD A. & CAROLYN H.
HUSCUSSON
DB 390 PG 223
-DRI6A- POT Sta. 10+00.00 =
-L- POT Sta. 162+40.00
-DRI4- POT Sta. 10+00.00 =
-L- POT Sta. 162+26.14
-L- PT Sta. 160+87.42
CARLSON DENNIS
& MARIE
PARCEL #1989
DB 118 PG 139
APPROXIMATE PROPERTY LINE
RESIDUAL
END CONSTRUCTION
-DRI4- POT Sta. 10+60.00
-DRI4- POT Sta. 11+50.16
GAY HAROLD &
LINDA
PARCEL #5125
DB 140 PG 138
-L- PRC Sta. 157+92.82
-DRI6A- PC Sta. 10+46.82
-DRI6A- PT Sta. 10+87.08
END CONSTRUCTION
-DRI6A- POC Sta. 11+07.42
-DRI6A- POT Sta. 11+10.96
JARROD D. PENLAND
DB 378 PG 35
SHANE WOODWARD
DB 143 PG 89
CATHERINE C. MOORE &
JAMES HARRELL MOORE JR.
PARCEL # 18384
DB 399 PG 87
JARROD D. PENLAND
DB 390 PG 135
2SFD
1SBKD
EXISTING R/W

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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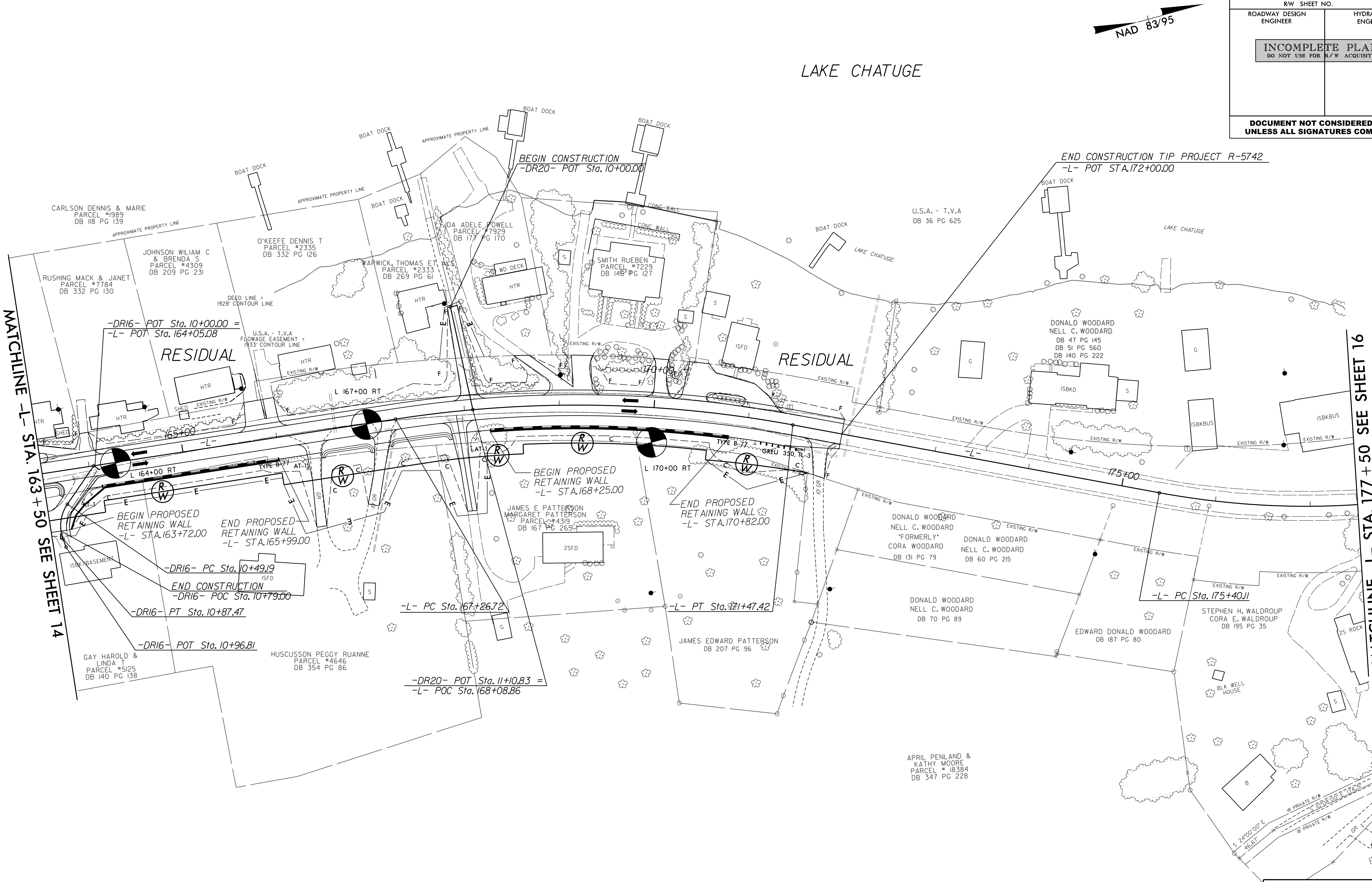

NAD 83/95
LAKE CHATUGE
MATCHLINE -L- STA. 163+50 SEE SHEET 14
MATCHLINE -L- STA. 177+50 SEE SHEET 16
BEGIN CONSTRUCTION
-DR20- POT Sta. 10+00.00
END CONSTRUCTION TIP PROJECT R-5742
-L- POT STA.172+00.00
BOAT DOCK
APPROXIMATE PROPERTY LINE
CARLSON DENNIS & MARIE
PARCEL #1989
DB 118 PG 139
JOHNSON WILIAM C
& BRENDA S
PARCEL #4309
DB 209 PG 231
RUSHING MACK & JANET
PARCEL #7784
DB 332 PG 130
O'KEEFE DENNIS T
PARCEL #2335
DB 332 PG 126
WARWICK, THOMAS ET AL
PARCEL #2333
DB 269 PG 61
IDA ADELE POWELL
PARCEL #7929
DB 177 PG 170
SMITH RUEBEN J
PARCEL #7229
DB 146 PG 127
U.S.A. - T.V.A
DB 36 PG 625
DEED LINE =
1928' CONTOUR LINE
U.S.A. - T.V.A
FLOWAGE EASEMENT =
1933' CONTOUR LINE
-DR16- POT Sta. 10+00.00 =
-L- POT Sta. 164+05.08
RESIDUAL
RESIDUAL
DONALD WOODARD
NELL C. WOODARD
DB 47 PG 145
DB 51 PG 560
DB 140 PG 222
L 167+00 RT
L 164+00 RT
L 170+00 RT
165+00
170+00
175+00
-L-
BEGIN PROPOSED
RETAINING WALL
-L- STA.168+25.00
BEGIN PROPOSED
RETAINING WALL
-L- STA.163+72.00
END PROPOSED
RETAINING WALL
-L- STA.165+99.00
END PROPOSED
RETAINING WALL
-L- STA.170+82.00
JAMES E PATTERSON
MARGARET PATTERSON
PARCEL #4319
DB 167 PG 269
-DR16- PC Sta. 10+49.19
END CONSTRUCTION
-DR16- POC Sta. 10+79.00
-DR16- PT Sta. 10+87.47
-DR16- POT Sta. 10+96.81
-L- PC Sta. 167+26.72
-L- PT Sta. 171+47.42
-L- PC Sta. 175+40.11
-DR20- POT Sta. 11+10.83 =
-L- POC Sta. 168+08.86
GAY HAROLD &
LINDA T
PARCEL #5125
DB 140 PG 138
HUSCUSSON PEGGY RUANNE
PARCEL #4646
DB 354 PG 86
JAMES EDWARD PATTERSON
DB 207 PG 96
DONALD WOODARD
NELL C. WOODARD
"FORMERLY"
CORA WOODARD
DB 131 PG 79
DONALD WOODARD
NELL C. WOODARD
DB 60 PG 215
DONALD WOODARD
NELL C. WOODARD
DB 70 PG 89
EDWARD DONALD WOODARD
DB 187 PG 80
STEPHEN H. WALDROUP
CORA E. WALDROUP
DB 195 PG 35
APRIL PENLAND &
KATHY MOORE
PARCEL #18384
DB 347 PG 228
BLK WELL HOUSE
EXISTING R/W
TYPE B-77
GREU 350, TL-3

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCHLINE -L- STA. 189+00 SEE SHEET 17

MATCHLINE -L- STA. 177+50 SEE SHEET 15

L 189+00 RT

L 186+00 RT

STATE OF NORTH CAROLINA
DB 48 PG 161

SCATTERED EXPOSED ROCK IN EXISTING CUT SLOPE

RESIDUAL

LAKE CHATUGE

U.S.A. - T.V.A
LAKE CHATUGE
DB 36 PG 251

U.S.A. - T.V.A
LAKE CHATUGE
DB 37 PG 52

-L- PT Sta. 178+69.70

THE SHOOTING CREEK EMBAYMENT OF LAKE CHATUGE

180+00

185+00

BEGIN CONSTRUCTION TIP PROJECT R-5742
-L- POC STA.183+76.08

-L- PI Sta. 183+10.68

-L- PC Sta. 183+06.05

EXISTING R/W

10' GR

WAYNA C. HENSON
DONALD O. HENSON
DB 64 PG 154
DB 106 PG 48

WILLIAM W. MOORE
ROY H. MOORE
DB 90 PG 150

MICHAEL J. HUGHES
LENORA J. HUGHES
DB 282 PG 207

BRUCE H. MANN
PATSY Y. MANN
DB 92 PG 41

SHELBY JEAN WOODY LIVING TRUST
DB 303 PG 162
"TRACT 3"
DB 53 PG 481

18' PRIVATE R/W

68.66'
S 84°28'00" E

61.84'
S 39°58'00" E

S 40°58'00" E
67.34'

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RK&K

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mgruber

PROJECT REFERENCE NO.	SHEET NO.
R-5742	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

U.S.A. - T.V.A
LAKE CHATUGE
DB 36 PG 251

LAKE CHATUGE

STATE OF NORTH CAROLINA
DB 48 PG 161

EXISTING R/W

LAKE CHATUGE

L 189+00 RT

L 190+00 RT

190+00

-L-

SCATTERED EXPOSED ROCK
IN EXISTING CUT SLOPE

L 192+00 RT

L 193+00 RT

195+00

L 196+00 LT

RESIDUAL

GREU 330 TL-3

L 199+50 LT

LAKE CHATUGE WETLAND AREA

-L- PT Sta. 199+60.66

L 201+50 LT

L 202+00 LT

L 203+00 LT

U.S.A. - T.V.A
LAKE CHATUGE
DB 36 PG 251

HUGH J. NICHOLS
SARAH W. NICHOLS
DB 57 PG 169
PC 4 SL 1707

STATE OF NORTH CAROLINA
DB 48 PG 161

MATCHLINE -L- STA. 189+00 SEE SHEET 16

MATCHLINE -L- STA. 203+00 SEE SHEET 18

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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PROJECT REFERENCE NO.	SHEET NO.
R-5742	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCHLINE -L- STA. 203+00 SEE SHEET 17

MATCHLINE -L- STA. 217+00 SEE SHEET 19

HUGH J. NICHOLS
SARAH W. NICHOLS
DB 57 PG 169

TRUE NORTH MARINA, LLC
DB 372 PG 23
PC 5 SL 16

SONYA ANDERSON FOLKERTS
CHARLES D. ANDERSON
BRIAN K. BARRETT
SHELBY JEAN & JAMES H. MAUGHON
DB 316 PG 176

KENNETH WOODARD
DAVID BURCH
NORMAN DAVENPORT
TRUSTEES OF MOUNT PLEASANT BAPTIST CHURCH
DB 177 PG 30

MOUNT PLEASANT BAPTIST CHURCH
DB 333 PG 195

MOUNT PLEASANT BAPTIST CHURCH
DB 52 PG 30

-DR2I- POT Sta. 10+00.00 =
-L- POT Sta.204+02.78

-Y1- POT Sta. 10+00.00 =
-L- POT Sta.207+82.93

-Y2- POT Sta. 10+00.00

-Y1- 10+00

BEGIN CONSTRUCTION
-Y2- POT Sta. 10+75.00

-Y2- PC Sta. 11+51.90

-L- PC Sta. 216+32.52

ISFBUS

ISFD

ISBLKBUS ABANDON

EXISTING R/W

SOIL

RESIDUAL

ALLUVIAL

L 203+00 LT

L 205+00

L 206+00 RT

L 209+00 LT

L 210+00

L 212+00 RT

L 214+50 LT

215+00

-L-

-DR2I- PC Sta. 10+26.99

-DR2I- PT Sta. 10+65.66

END CONSTRUCTION
-DR2I- POT Sta. 10+75.00

-DR2I- POT Sta. 10+89.64

END CONSTRUCTION
-Y1- POT Sta. 11+05.50

POT - Sta. 12+06.11

-Y2- PT Sta. 11+96.02

-Y2- POT Sta. 23+06.11 =
-L- POT Sta.211+98.88

GREU 350, TL-3

GRAU 350

DONALD E. SMITH
EDNA R. SMITH
DB 331 PG 256

CLAY COUNTY
DB 70 PG 167

THE BLAC FAMILY
LIMITED PARTNERSHIP
DB 354 PG 266
DB 78 PG 128
TRACT #3

THE BLAC FAMILY
LIMITED PARTNERSHIP
DB 354 PG 266
DB 119 PG 105
TRACT #5

JIMMY D. CHAMBERS
NICOLA ELAINE RHEW
SHELLY DAWN WEAVER
DB 330 PG 17
DB 33 PG 264

VIRGINIA MARTIN
DB 341 PG 249
DB 119 PG 107

MICHAEL M. MARTIN
JANIS M. MARTIN
DB 146 PG 42

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

8/17/2018

9/18/2018
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mander

PROJECT REFERENCE NO.	SHEET NO.
R-5742	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCHLINE -L- STA. 217+00 SEE SHEET 18

MOUNT PLEASANT BAPTIST CHURCH
DB 333 PG 195

MARTHA FRANKLIN
DB 36 PG 133

STANLEY ROBINSON
KATHY FORD
DB 187 PG 167

STEVEN C. GOINGS
JUDITH L. GOINGS
DB 373 PG 122
PC 4 SL 382

ROBERT E. JOHNSON, JR.
DB 381 PG 143
PC 4 SL 382

-L- PC Sta. 228+23.49

-L- PT Sta. 229+88.25

-L- POT Sta. 229+95.48

END TIP PROJECT R-5742
-L- POC Sta. 229+76.39

-L- PT Sta. 225+08.82

L 227+00 LT

RESIDUAL L 224+00 RT

RESIDUAL L 221+00 LT

L 218+00 RT

ELLEN TERESA CHASTAIN
DB 211 PG 202
TRACT #2

ELLEN TERESA CHASTAIN
DB 211 PG 202
DB 164 PG 210
TRACT #1

JIMMY A. CHAMBERS
NICOLA ELAINE RHEW
SHELLY DAWN WEAVER
DB 330 PG 17
DB 33 PG 264

ISBKD

ISFD

S

GREU 350, TL-3

EXISTING R/W

10' SOIL

9' GR

APPROXIMATE LOCATION OF EXISTING STRUCTURE BASED ON AERIAL IMAGERY.

PLANS PREPARED BY :

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

8/17/9

9/18/2018
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mshuler

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990 1980 1970 1960 1950

Ⓐ ROADWAY EMBANKMENT: BROWN, DENSE, FINE TO COARSE GRAVELLY, SILTY FINE TO COARSE SAND, MOIST

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, LOOSE TO MEDIUM DENSE, CLAYEY, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE ROCK FRAGMENTS, MOIST

11+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-24	12 LT	10+71	3.5-5.0	A-2-4(0)	29	3	32.2	35.5	9.0	23.3	64.3	52.2	23.7	14.3	-

2000 1990 1980 1970 1960 1950 1940

Ⓐ ROADWAY EMBANKMENT: BROWN, DENSE, FINE TO COARSE GRAVELLY, SILTY FINE TO COARSE SAND, MOIST

L 10+75 LT
10+71
12' LT

SS-24

EXISTING GROUND SURFACE

32
4
15
9

06/17

FIAD

RESIDUAL: ORANGE-BROWN, LOOSE TO MEDIUM DENSE, CLAYEY, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE ROCK FRAGMENTS, MOIST

10+50.00

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	21

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2000
1990
1980
1970
1960
1950

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, SOFT TO STIFF, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

12 + 50.00

2000
1990
1980
1970
1960
1950

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, SOFT TO STIFF, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

12 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

9/18/2018
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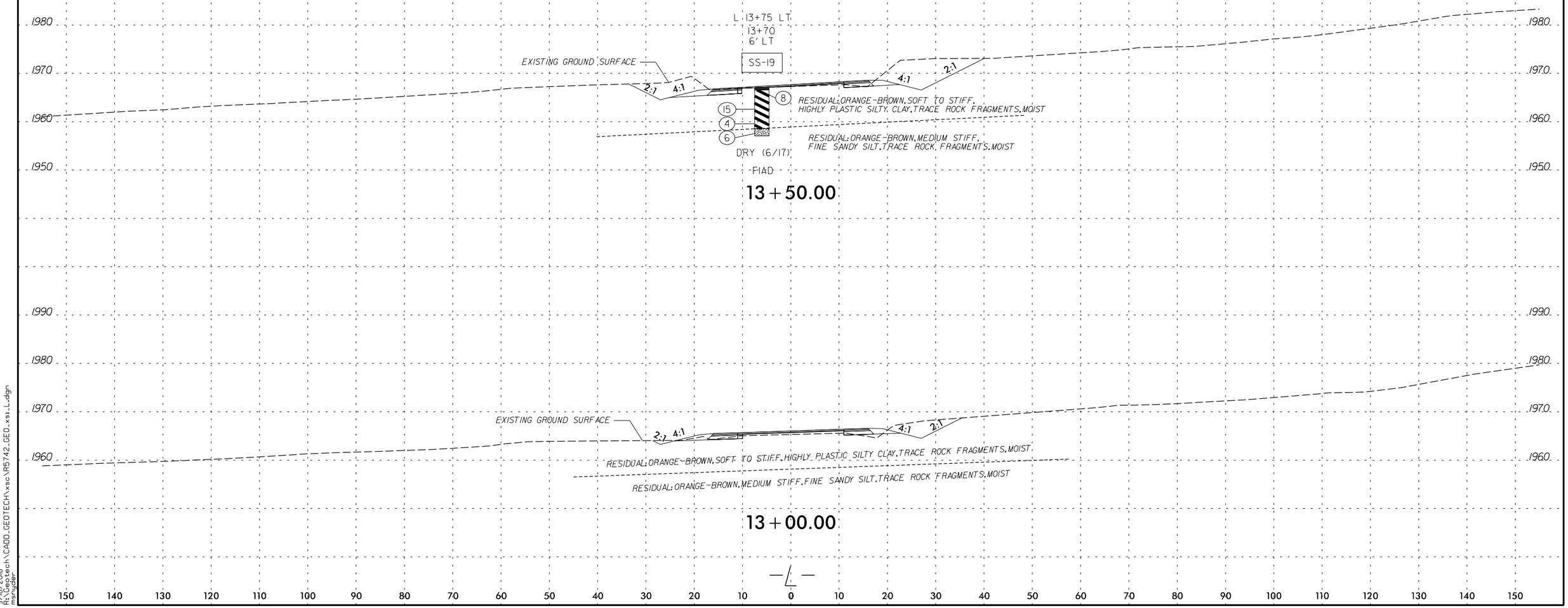
mcyder

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	22

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-19	6 LT.	13+70	0.5-2.0	A-7-5(34)	76	26	3.3	5.6	45.8	45.3	98.4	96.3	91.4	42.2	-



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mtaylor

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	23

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2000 1990 1980 1970 1960

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, SOFT TO STIFF, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

15+00.00

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, SOFT TO STIFF, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

14+50.00

EXISTING GROUND SURFACE

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

RESIDUAL: ORANGE-BROWN, SOFT TO STIFF, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

14+00.00

9/18/2018
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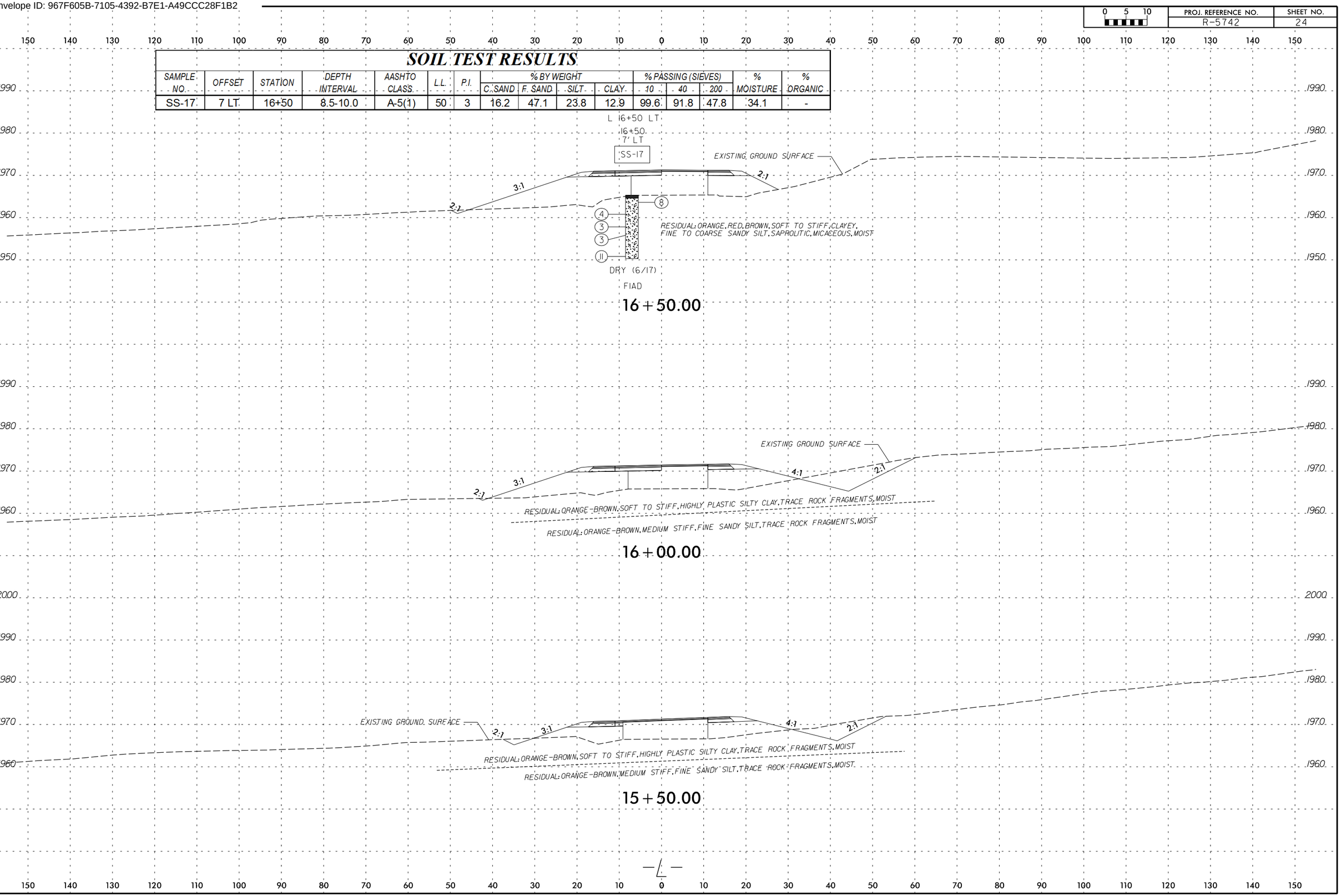
mstyler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	24

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-17	7 LT	16+50	8.5-10.0	A-5(1)	50	3	16.2	47.1	23.8	12.9	99.6	91.8	47.8	34.1	-



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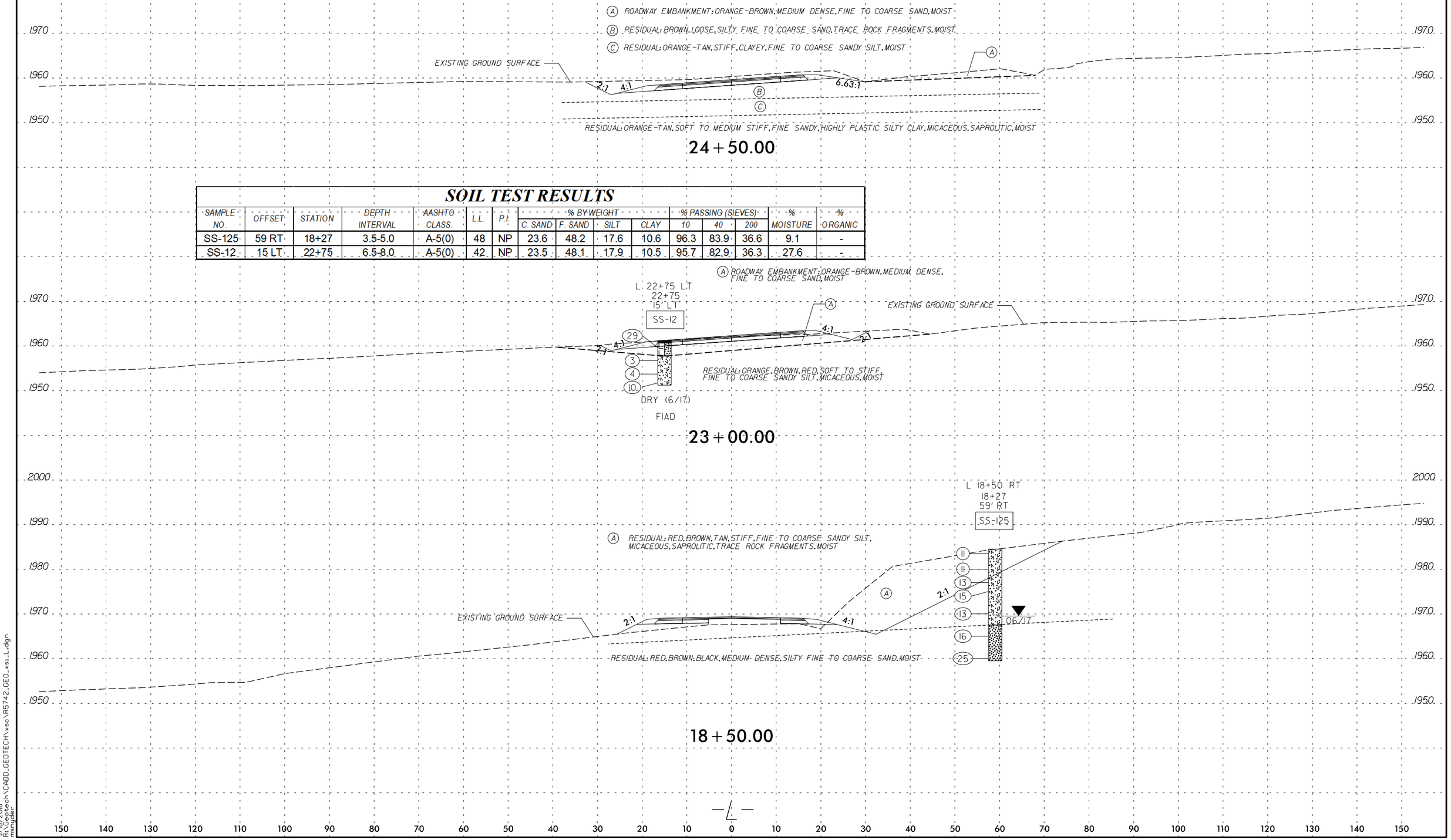
ms_user



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-125	59 RT	18+27	3.5-5.0	A-5(0)	48	NP	23.6	48.2	17.6	10.6	96.3	83.9	36.6	9.1	-
SS-12	15 LT	22+75	6.5-8.0	A-5(0)	42	NP	23.5	48.1	17.9	10.5	95.7	82.9	36.3	27.6	-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	26

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-122	15 LT	25+73	6.5-8.0	A-7-5(38)	86	31	4.2	11.3	24.4	60.1	100	97.8	87.5	58.6	-

1970 1960 1950

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST
Ⓑ RESIDUAL: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MOIST
Ⓒ RESIDUAL: ORANGE-TAN, STIFF, CLAYEY, FINE TO COARSE SANDY SILT, MOIST

EXISTING GROUND SURFACE

2:1 4:1 4:1

RESIDUAL: ORANGE-TAN, SOFT TO MEDIUM STIFF, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, MICACEOUS, SAPROLITIC, MOIST

26+00.00

1980 1970 1960 1950

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST
Ⓑ RESIDUAL: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MOIST
Ⓒ RESIDUAL: ORANGE-TAN, STIFF, CLAYEY, FINE TO COARSE SANDY SILT, MOIST

L 25+75 LT
25+73
15' LT
SS-122

EXISTING GROUND SURFACE

2:1 4:1 4:1

RESIDUAL: ORANGE-TAN, SOFT TO MEDIUM STIFF, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, MICACEOUS, SAPROLITIC, MOIST

DRY (6/17)
FIAD

25+50.00

1970 1960 1950

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST
Ⓑ RESIDUAL: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MOIST
Ⓒ RESIDUAL: ORANGE-TAN, STIFF, CLAYEY, FINE TO COARSE SANDY SILT, MOIST

EXISTING GROUND SURFACE

2:1 4:1 5.88:1

RESIDUAL: ORANGE-TAN, SOFT TO MEDIUM STIFF, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, MICACEOUS, SAPROLITIC, MOIST

25+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

9/18/2018
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mslyder

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	27

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1960 1950 1940

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

Ⓑ RESIDUAL: BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: TAN, GRAY, ORANGE, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, MOIST

28 + 00.00

1960 1950 1940

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

Ⓑ RESIDUAL: BROWN, MEDIUM STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MOIST

EXISTING GROUND SURFACE

2:1 4:1 2:1

RESIDUAL: TAN, GRAY, ORANGE, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, MOIST

27 + 50.00

1960 1950 1940

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

Ⓑ RESIDUAL: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MOIST

Ⓒ RESIDUAL: ORANGE-TAN, STIFF, CLAYEY, FINE TO COARSE SANDY SILT, MOIST

EXISTING GROUND SURFACE

2:1 Ⓑ 4:1 4:1 2:1

RESIDUAL: ORANGE-TAN, SOFT TO MEDIUM STIFF, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, MICACEOUS, SAPROLITIC, MOIST

27 + 00.00

1970 1960 1950

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

Ⓑ RESIDUAL: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MOIST

Ⓒ RESIDUAL: ORANGE-TAN, STIFF, CLAYEY, FINE TO COARSE SANDY SILT, MOIST

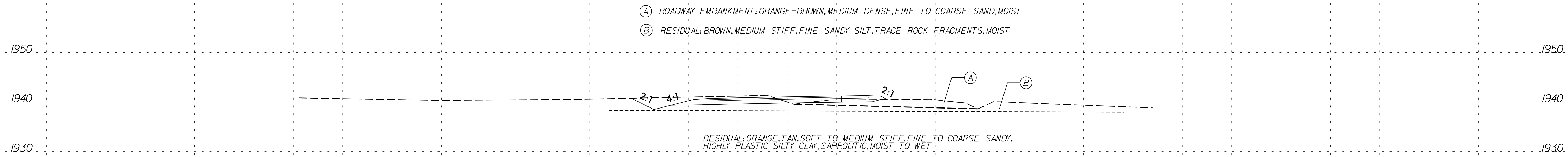
EXISTING GROUND SURFACE

2:1 4:1 Ⓑ 4:1 4:1

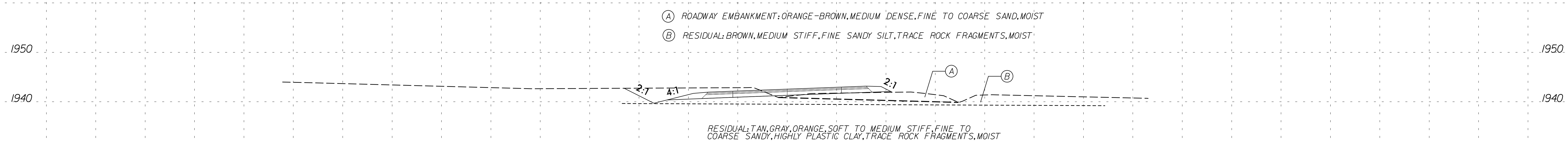
RESIDUAL: ORANGE-TAN, SOFT TO MEDIUM STIFF, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, MICACEOUS, SAPROLITIC, MOIST

26 + 50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

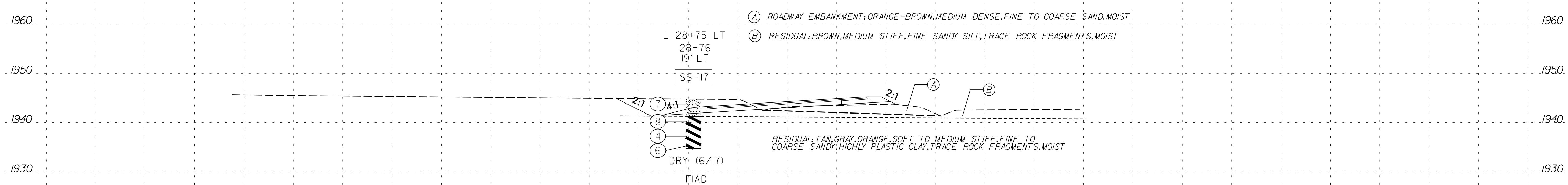


30+00.00

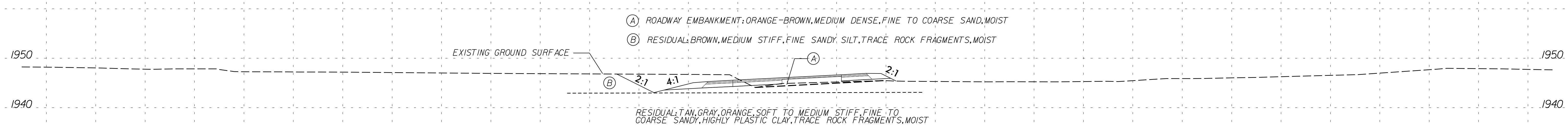


29+50.00

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-117	19 LT	28+76	3.5-5.0	A-7-5(18)	81	41	12.9	24.1	6.9	56.1	77.8	73.4	51.6	52.1	-



29+00.00



28+50.00

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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-134	1 RT	31+73	6.5-8.0	A-7-5(53)	99	49	3	15	33.3	48.7	99.7	98.7	86.3	80.9	-

1950 1940 1930 1920

L 31+75 LT
31+73
1' RT
SS-134

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

2:1 2:1

5 2 3 2

06/17

RESIDUAL: ORANGE, TAN, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, HIGHLY PLASTIC SILTY CLAY, SAPROLITIC, MOIST TO WET

31+50.00

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

1940 1930

2:1 4:1 2:1

RESIDUAL: ORANGE, TAN, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, HIGHLY PLASTIC SILTY CLAY, SAPROLITIC, MOIST TO WET

31+00.00

1950 1940 1930

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, FINE TO COARSE SAND, MOIST

2:1 4:1 2:1

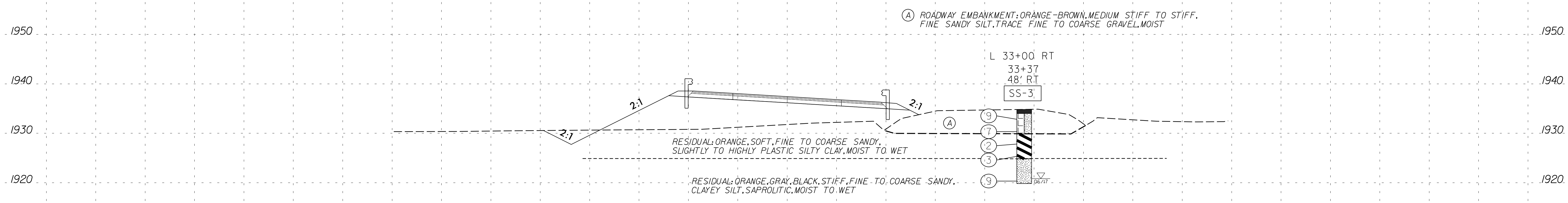
RESIDUAL: ORANGE, TAN, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, HIGHLY PLASTIC SILTY CLAY, SAPROLITIC, MOIST TO WET

30+50.00

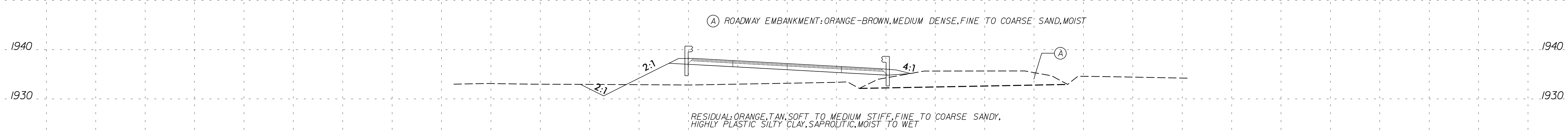
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

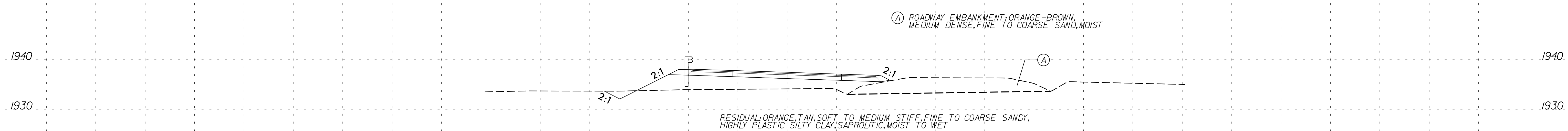
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-3	48 RT	33+37	6.0-7.5	A-7-5(40)	83	40	6.1	16.4	40	37.5	99.9	97.5	82.3	68.9	-



33 + 50.00



32 + 50.00

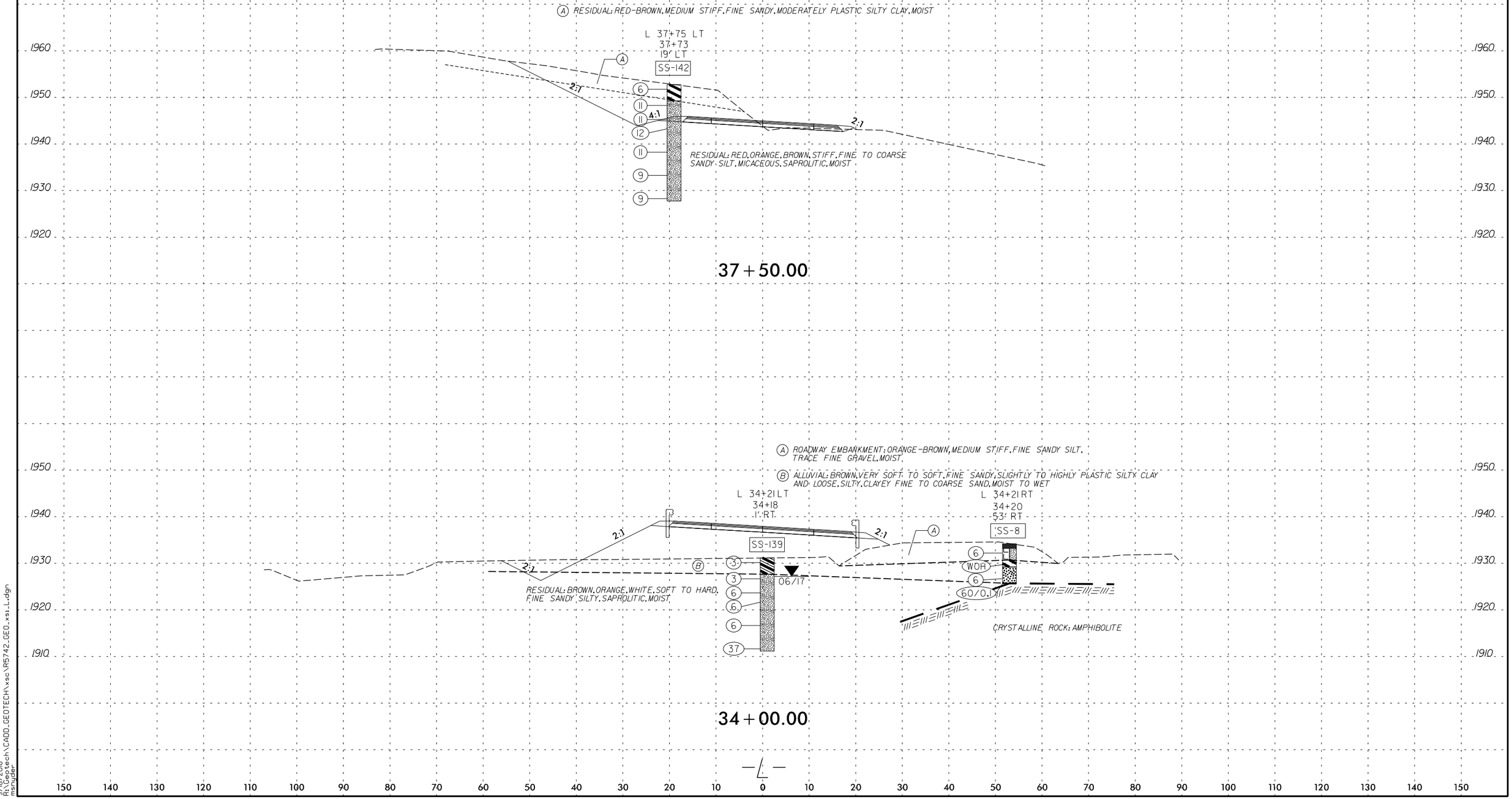


32 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

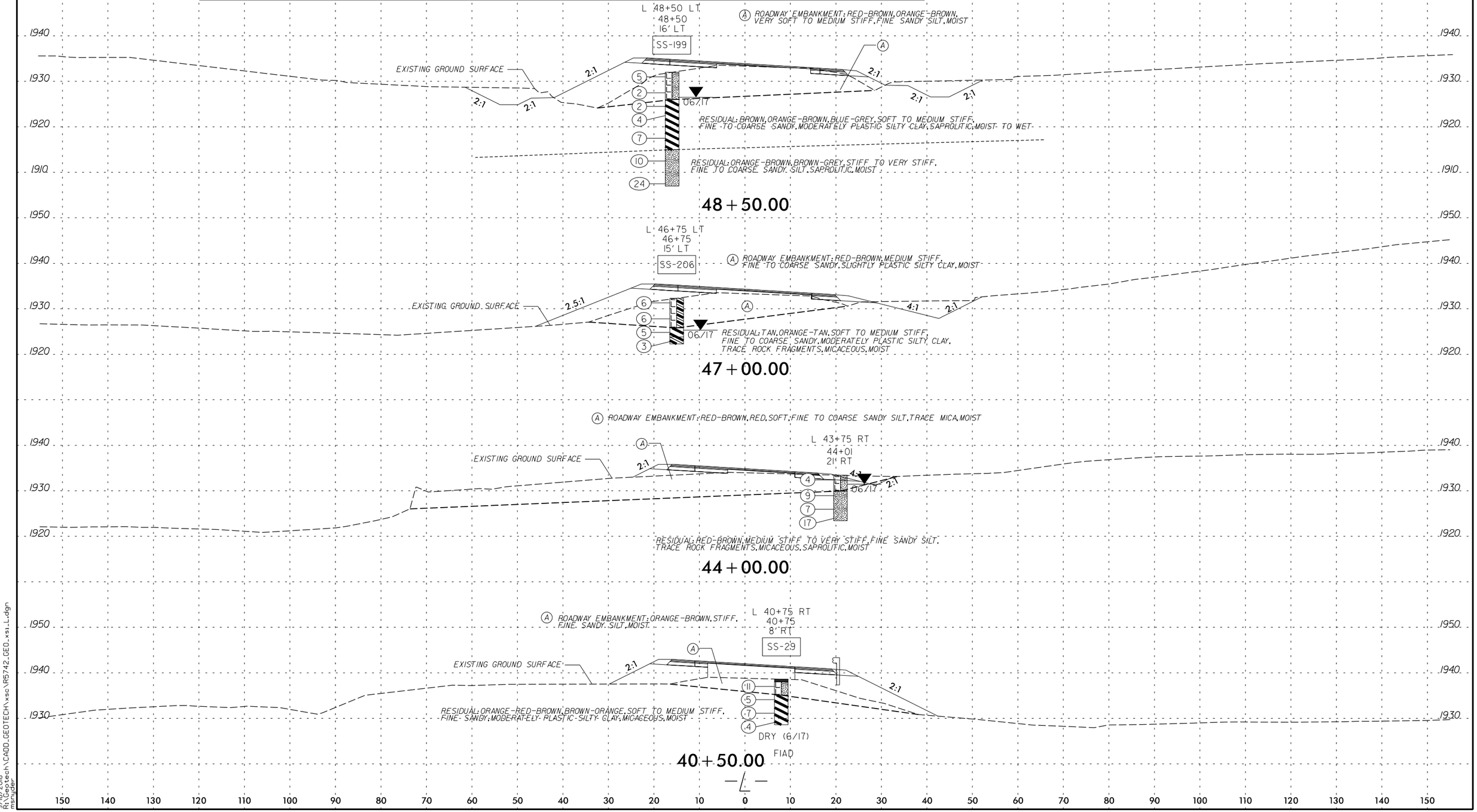
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-8	53 RT	34+20	6.5-8.0	A-2-7(0)	44	11	34.5	34.4	12.2	18.9	79.7	61.8	29.7	47.9	-
SS-139	1 RT	34+18	8.5-10.0	A-4(0)	25	NP	8.3	53.7	20.5	17.5	99.8	98.0	46.9	33.5	-
SS-142	19 LT	37+73	0.0-1.5	A-7-5(16)	53	22	9.6	25	16.8	48.6	99.4	95.6	69.2	30.5	-



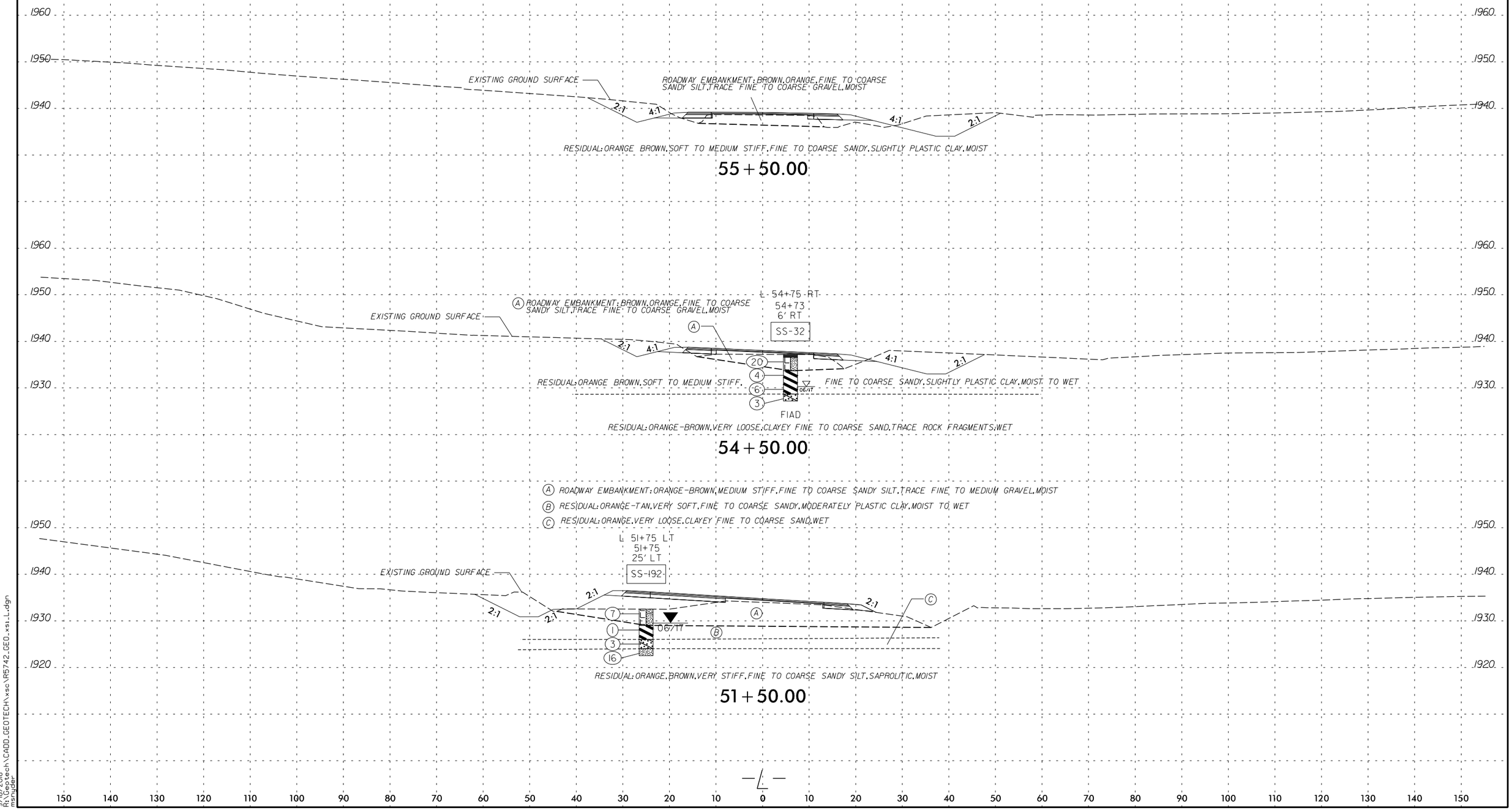
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-29	8 RT	40+75	6.5-8.0	A-7-5(13)	50	18	9.9	20.6	21.1	48.4	92.7	87.7	68.5	35.2	-
SS-206	15 LT	46+75	8.5-10.0	A-6(5)	40	17	19.7	31.4	16	32.9	89.4	79.9	48.0	28	-
SS-199	16 LT	48+50	8.5-10.0	A-7-5(15)	68	20	9.6	32.4	28.7	29.3	99.7	95.8	65.5	87.3	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-192	25 LT	51+75	3.5-5.0	A-7-6(8)	49	21	14.3	32.9	22.2	30.6	87.8	82.2	51.6	40.1	-
SS-32	6 RT	54+73	3.5-5.0	A-7-5(17)	59	15	6.5	11.2	48.1	34.2	94	89.6	80.6	66	-



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	34

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1960
1950
1940

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: BROWN-GREY, MEDIUM DENSE, FINE TO COARSE GRAVELLY SAND, TRACE SILT, MOIST

4:1 2:1

RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

57 + 00.00

1960
1950
1940

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: BROWN-GREY, MEDIUM DENSE, FINE TO COARSE GRAVELLY SAND, TRACE SILT, MOIST

4:1 2:1

RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

56 + 50.00

1960
1950
1940

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: BROWN, ORANGE, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

4:1 2:1

RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

56 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	35

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1960 1950 1940

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: BROWN-GREY, MEDIUM DENSE, FINE TO COARSE GRAVELLY SAND, TRACE SILT, MOIST

4:1 2:1

RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

58 + 50.00

1970 1960 1950 1940

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: BROWN-GREY, MEDIUM DENSE, FINE TO COARSE GRAVELLY SAND, TRACE SILT, MOIST

4:1 2:1

RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

58 + 00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	#10	#40	#200		
SS-36	1 RT	57+73	3.5-5.0	A-5(2)	63	8	13.6	49.3	14.6	22.5	99.8	94.3	43.2	84.2	-

1960 1950 1940 1930

Ⓐ ROADWAY EMBANKMENT: BROWN-GREY, MEDIUM DENSE, FINE TO COARSE GRAVELLY SAND, TRACE SILT, MOIST

L 57+75 RT
57+73
-1'- RT.
SS-36

EXISTING GROUND SURFACE

2:1 4:1

16 WOH 2 2

Ⓐ

06/17

FIAD

4:1 2:1

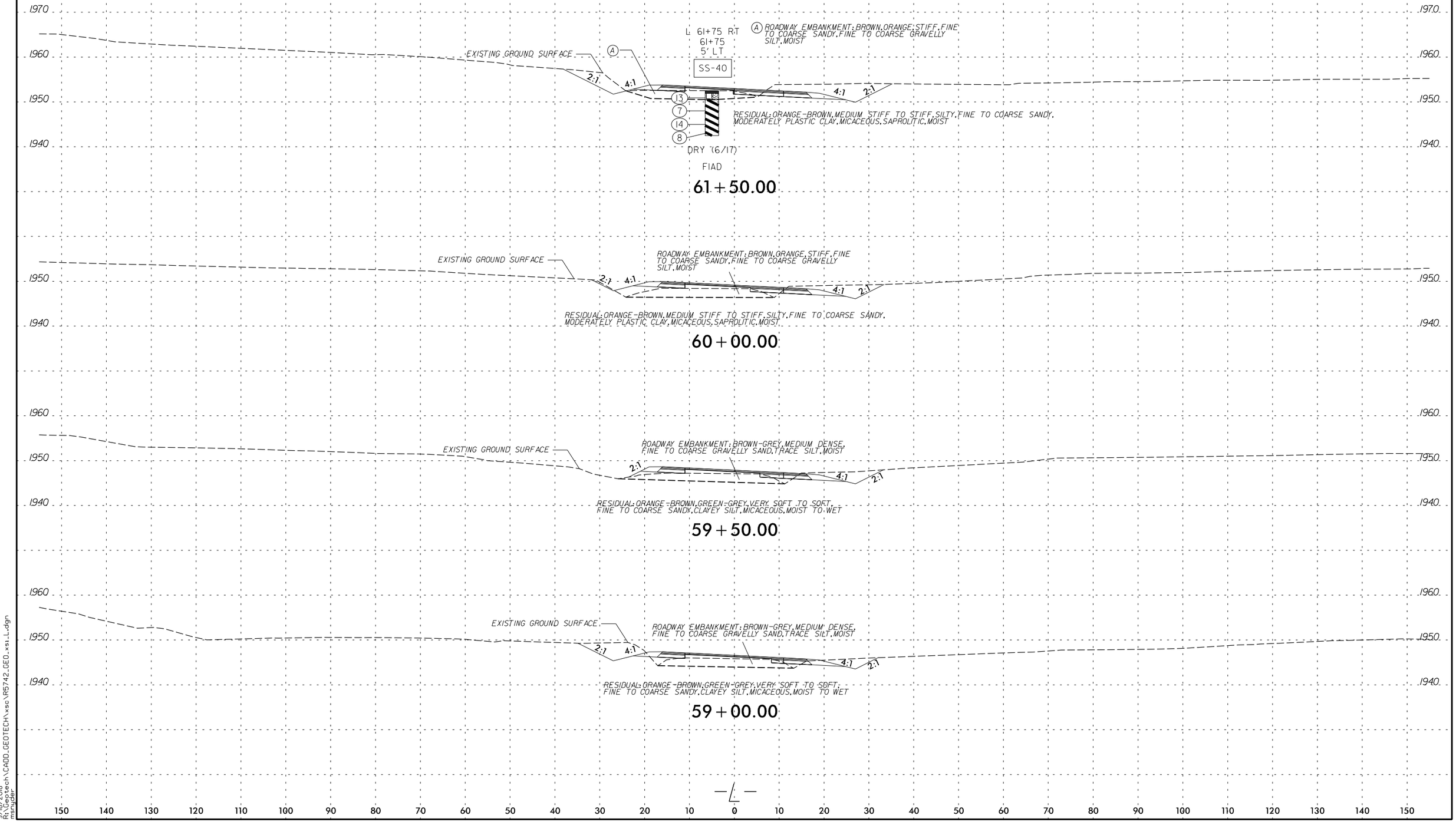
RESIDUAL: ORANGE-BROWN, GREEN-GREY, VERY SOFT TO SOFT, FINE TO COARSE SANDY, CLAYEY SILT, MICACEOUS, MOIST TO WET

57 + 50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-40	5 LT	61+75	3.5-5.0	A-7-5(11)	63	18	16.9	30.2	23.1	29.8	99.3	88.0	59.0	92.5	-



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	37

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-44	9 LT	64+79	3.5-5.0	A-4(0)	40	NP	34.2	25.8	22.3	17.7	100.0	76.7	45.2	55.1	-
SS-52	16 LT	70+73	3.5-5.0	A-4(0)	36	NP	22.5	38.9	25.3	13.3	100	88.0	46.3	34.4	-

1990 1980 1970 1960

(A) ROADWAY EMBANKMENT: BROWN, MEDIUM DENSE, FINE SANDY SILT, TRACE FINE GRAVEL, MOIST

L 70+75 RT
70+73
16' LT
SS-52

EXISTING GROUND SURFACE

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

13 17 14 9

RESIDUAL: ORANGE-BROWN, WHITE, VERY STIFF, FINE TO COARSE SANDY SILT, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST

RESIDUAL: ORANGE-BROWN, WHITE, LOOSE TO MEDIUM DENSE, CLAYEY FINE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST

DRY (6/17)

FIAD

70 + 50.00

1980 1970 1960

(A) ROADWAY EMBANKMENT: BROWN, STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

L 67+75 RT
67+67
15' LT

EXISTING GROUND SURFACE

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

12 11 15 12

RESIDUAL: ORANGE-BROWN, MEDIUM DENSE, CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST TO WET

DRY (6/17)

FIAD

67 + 50.00

1980 1970 1960 1950

(A) ROADWAY EMBANKMENT: BROWN, MEDIUM DENSE, FINE TO MEDIUM GRAVELLY FINE TO COARSE SAND, TRACE CLAY, MOIST

(B) RESIDUAL: ORANGE, VERY STIFF, FINE TO COARSE SANDY, SLIGHTLY PLASTIC CLAY, MOIST

(C) RESIDUAL: ORANGE-BROWN, STIFF, CLAYEY FINE TO COARSE SANDY SILT, TRACE FINE ROCK FRAGMENTS, MOIST

L 64+75 RT
64+79
9' LT
SS-44

EXISTING GROUND SURFACE

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

24 15 9 8

RESIDUAL: ORANGE-BROWN, LOOSE, CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLOTIC, MOIST

DRY (6/17)

FIAD

65 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	38

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990
1980
1970
1960

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

EXISTING GROUND SURFACE

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

Ⓐ

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

73+00.00

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

EXISTING GROUND SURFACE

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

Ⓐ

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

72+50.00

Ⓐ ROADWAY EMBANKMENT: BROWN, MEDIUM DENSE, FINE SANDY SILT, TRACE FINE GRAVEL, MOIST

EXISTING GROUND SURFACE

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

Ⓐ

RESIDUAL: ORANGE-BROWN, WHITE, VERY STIFF, FINE TO COARSE SANDY SILT, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST

RESIDUAL: ORANGE-BROWN, WHITE, LOOSE TO MEDIUM DENSE, CLAYEY FINE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST

72+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	39

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990 1980 1970 1960

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

EXISTING GROUND SURFACE

2.03:1 4:1 4:1 2:1

Ⓐ

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

74+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-211	10 RT	73+75	0.0-1.5	A-7-5(44)	95	40	4.5	14.2	32.7	48.6	97.5	95.6	83.2	72.3	-

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

L 73+75 RT
73+75
10' RT
SS-211

EXISTING GROUND SURFACE

2.03:1 4:1 4:1 2:1

4 6 8 10

Ⓐ

0.67 FT

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

74+00.00

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

EXISTING GROUND SURFACE

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

Ⓐ

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

73+50.00

—L—

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	40

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990
1980
1970
1960
1950

EXISTING GROUND SURFACE

4:1 4:1 2:1

RESIDUAL: ORANGE-BROWN, VERY SOFT TO SOFT, FINE TO COARSE SANDY, MODERATELY TO HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

76 + 00.00

EXISTING GROUND SURFACE

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

RESIDUAL: ORANGE-BROWN, VERY SOFT TO SOFT, FINE TO COARSE SANDY, MODERATELY TO HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

75 + 50.00

Ⓐ RESIDUAL: BROWN, SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC CLAY, TRACE ROCK FRAGMENTS, WET

EXISTING GROUND SURFACE

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

Ⓐ

RESIDUAL: ORANGE-BROWN, GREY, LOOSE, SILTY AND CLAYEY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, WET

75 + 00.00

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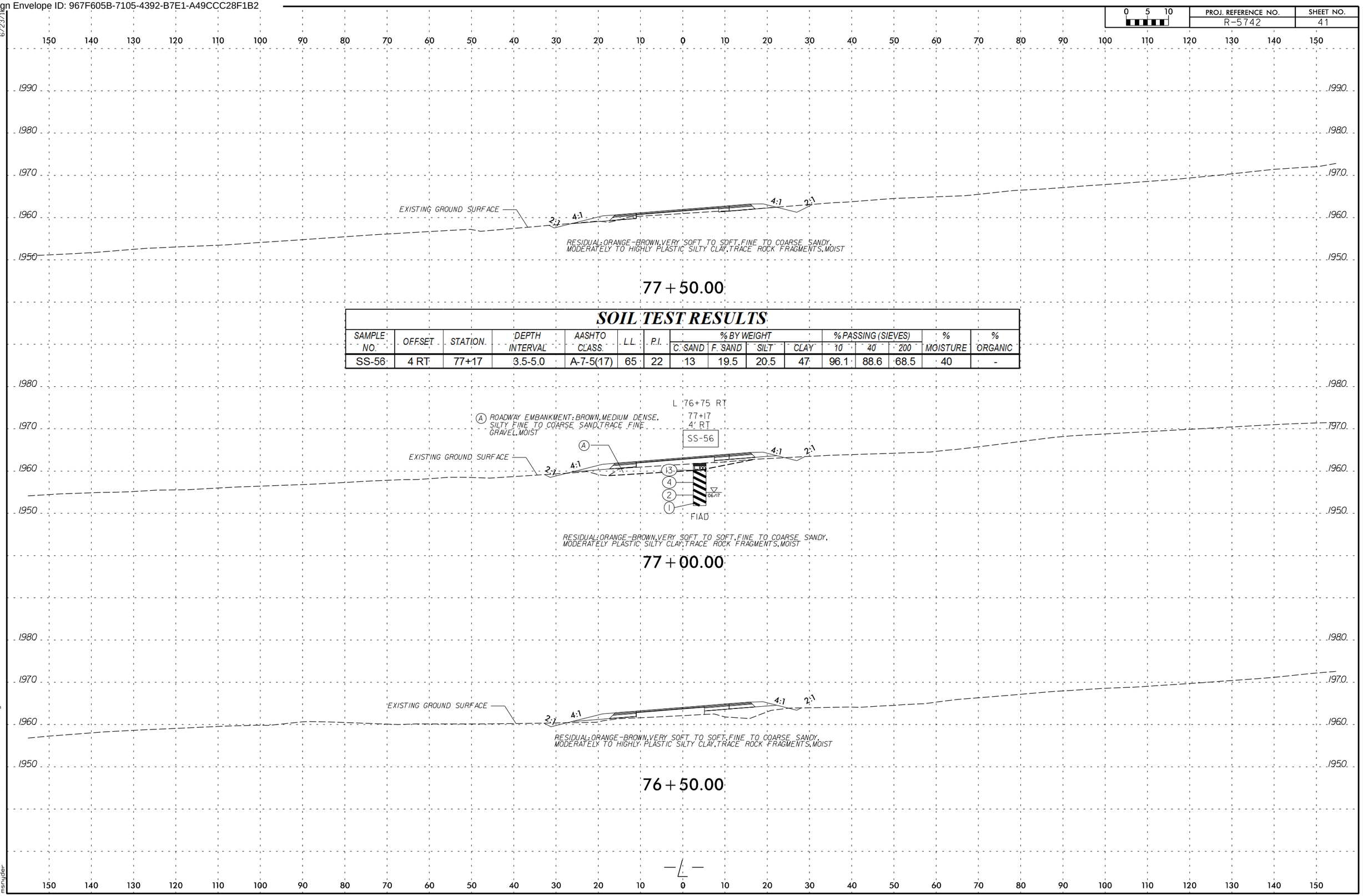
mstucker

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	41



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-56	4 RT	77+17	3.5-5.0	A-7-5(17)	65	22	13	19.5	20.5	47	96.1	88.6	68.5	40	-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	42

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990
1980
1970
1960
1950

Ⓐ ROADWAY EMBANKMENT: BROWN, MEDIUM DENSE, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE GRAVEL AND STIFF, FINE SANDY SILT, MOIST

EXISTING GROUND SURFACE

2:1 4:1 Ⓐ 4:1 2:1

RESIDUAL: ORANGE, SOFT, FINE SANDY, HIGHLY PLASTIC SILTY CLAY, Mmicaceous, SAPROLITIC, MOIST

78+50.00

1990
1980
1970
1960
1950

EXISTING GROUND SURFACE

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

RESIDUAL: ORANGE-BROWN, VERY SOFT TO SOFT, FINE TO COARSE SANDY, HIGHLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MOIST

78+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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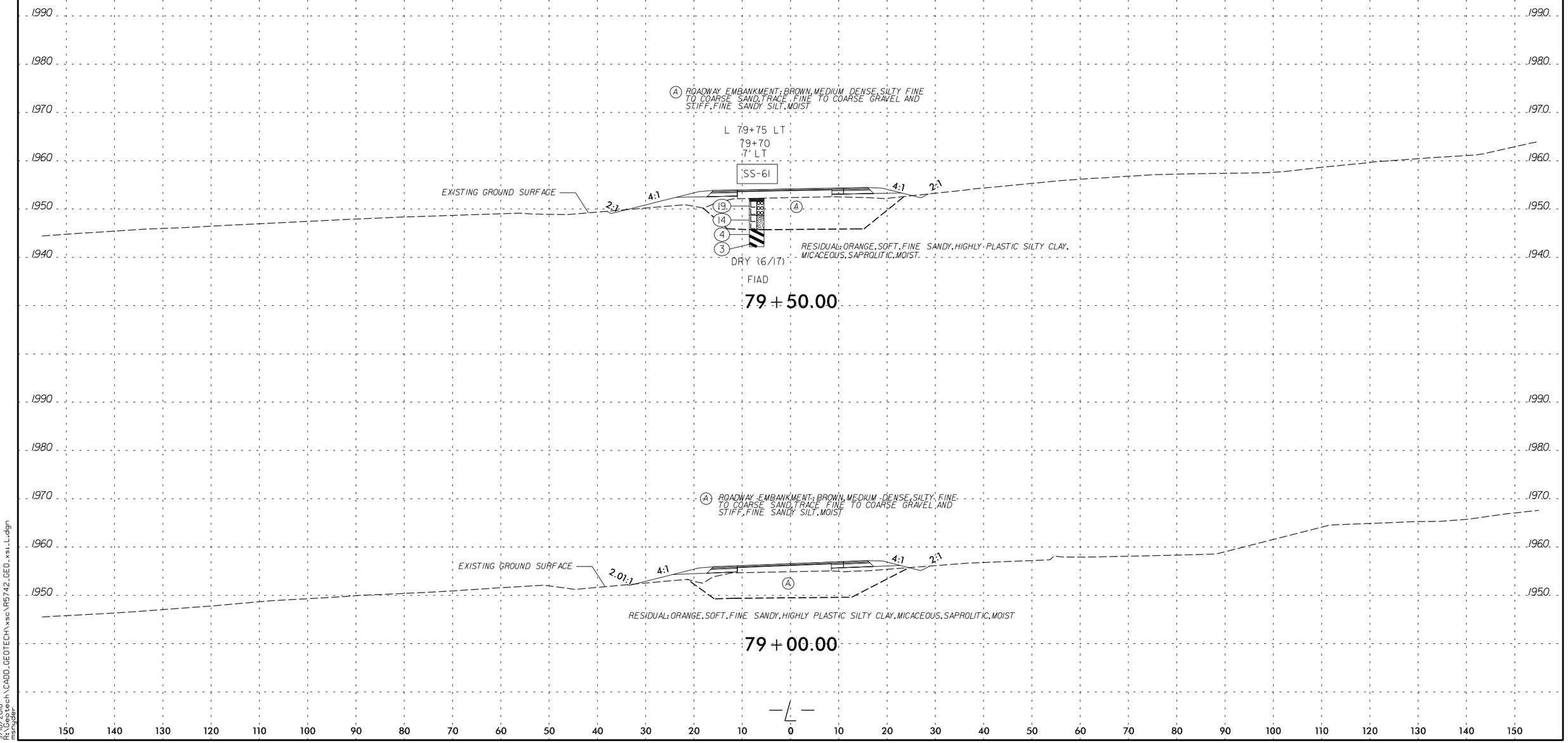
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	43

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-61	7 LT	79+70	6.5-8.0	A-7-5(43)	90	38	3.8	13.8	31	51.4	100	98.7	86.6	69.6	-



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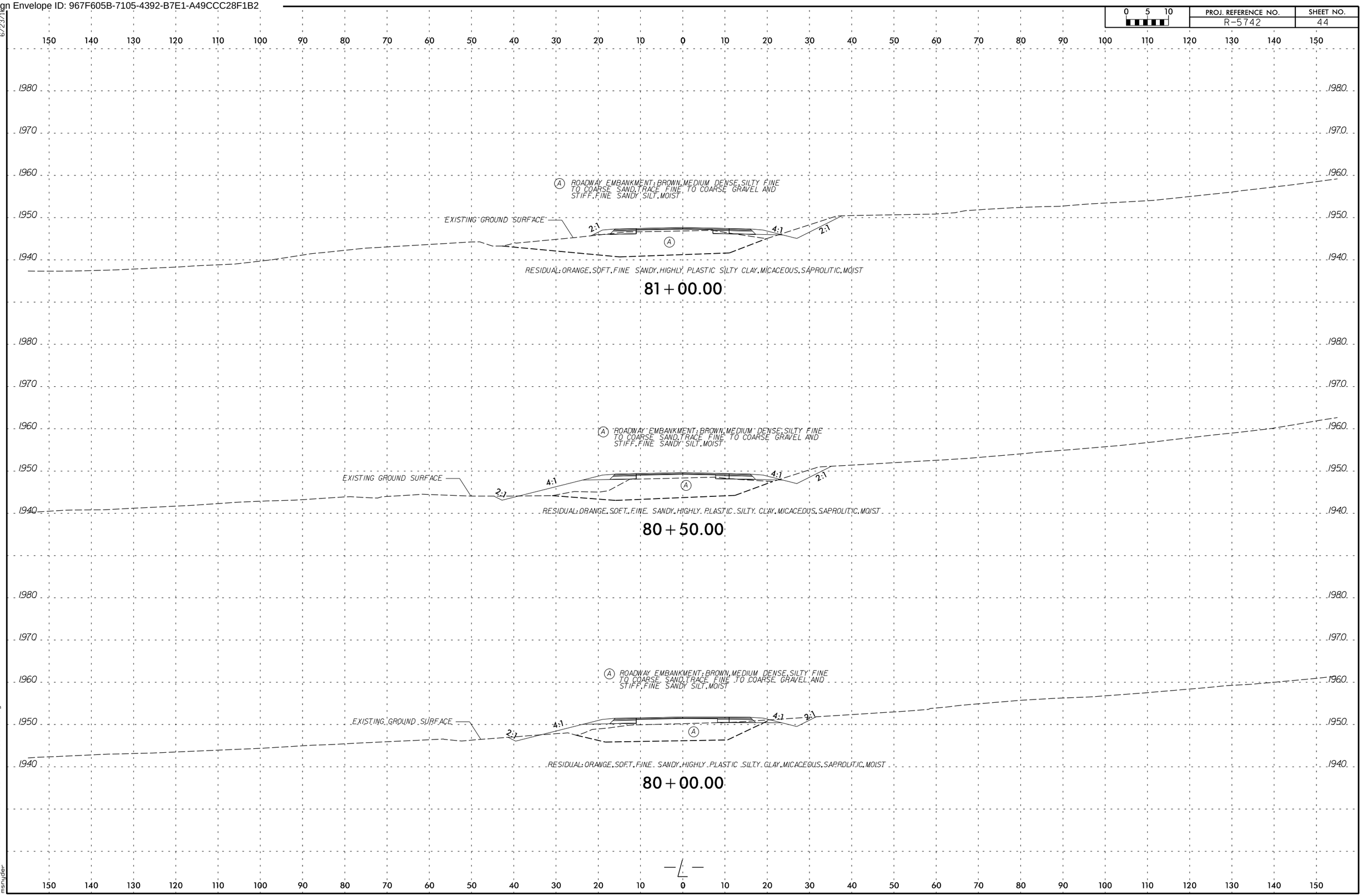
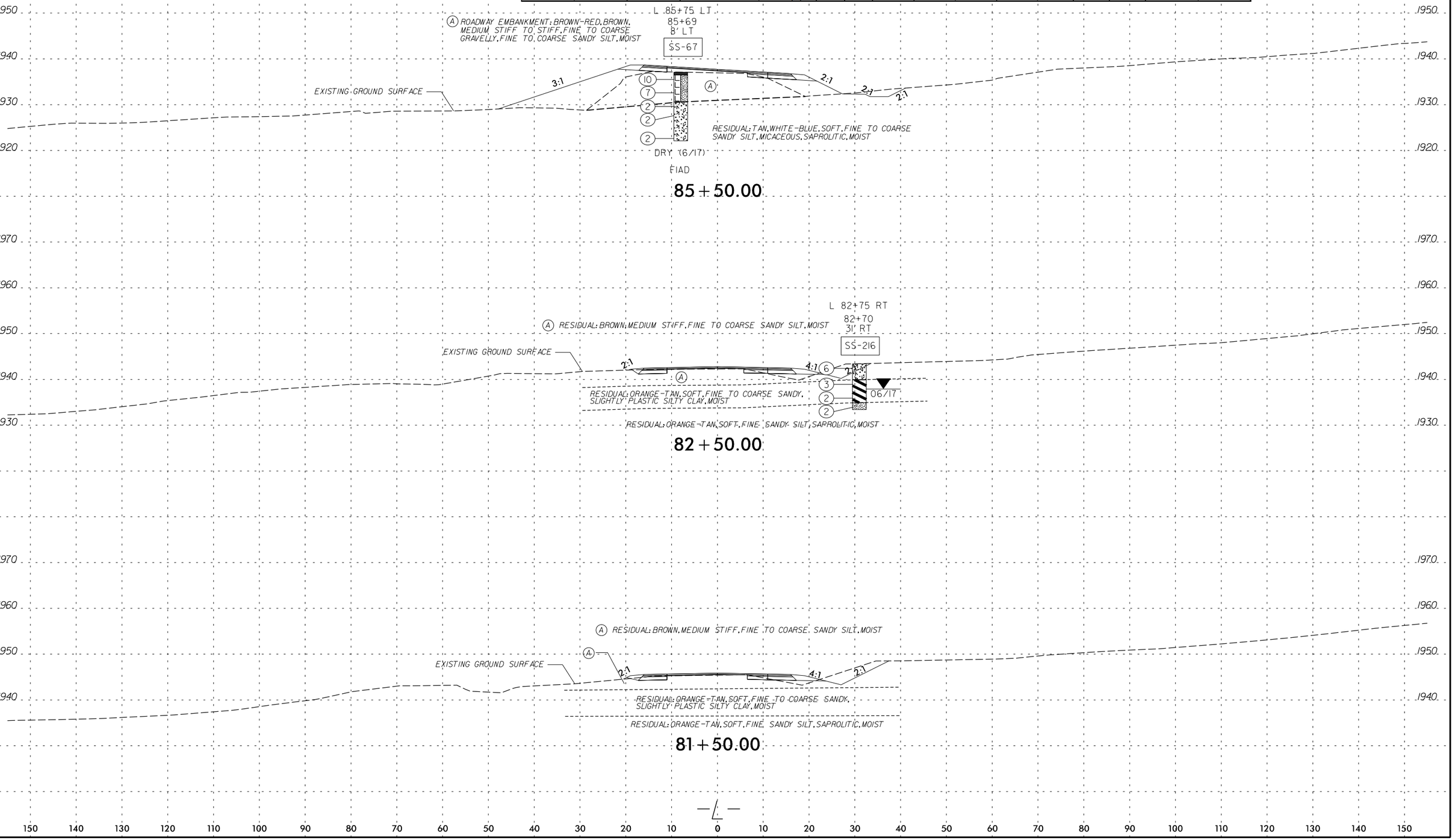
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	44



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-216	31 RT	82+70	3.5-5.0	A-7-6(6)	41	12	10.8	26	30.2	33	88.7	84.2	60.4	23.4	-
SS-67	8 LT	85+69	13.5-15.0	A-5(1)	50	NP	24.2	32.6	30.8	12.4	100	84.5	52.0	44.9	-



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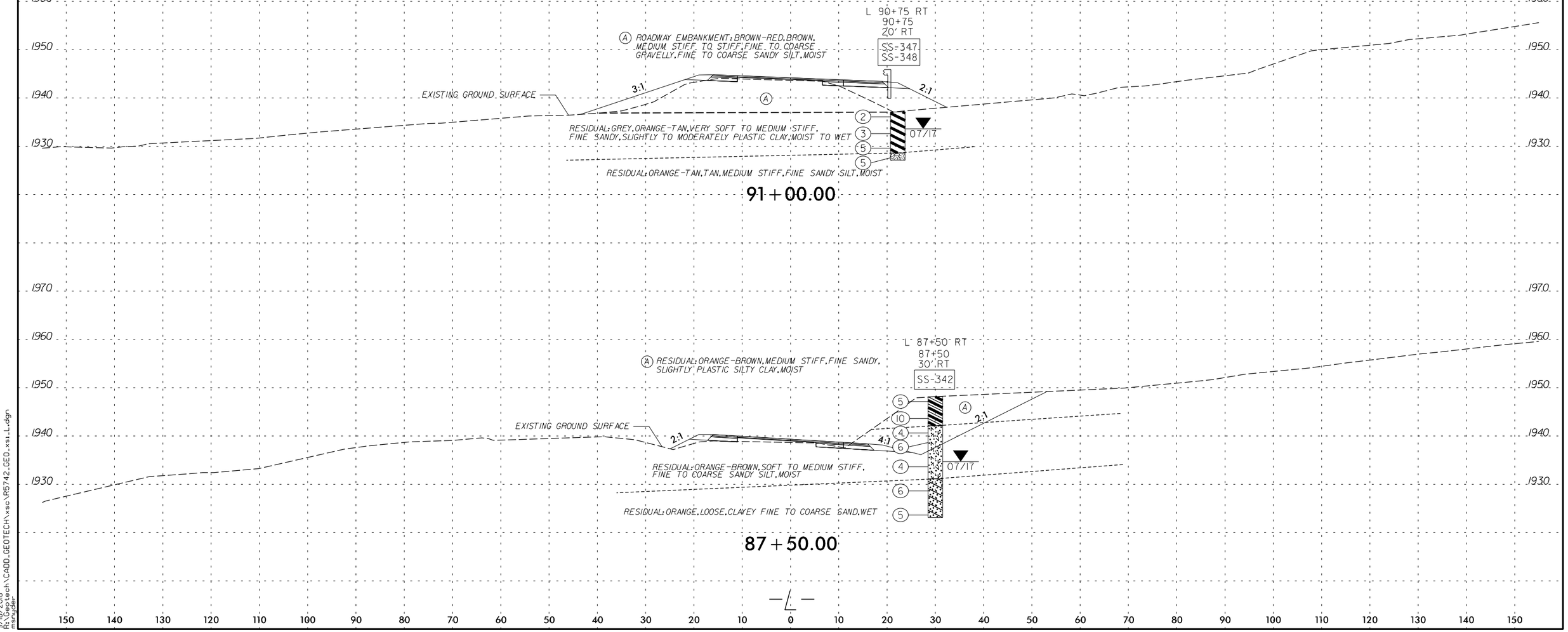
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	46

SOIL TEST RESULTS

SAMPLE NO	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-342	30 RT	87+50	6.5-8.0	A-5(1)	50	NP	25	27.2	29.4	18.4	99.3	83.8	53.8	50.3	-
SS-347	20 RT	90+75	0.0-1.5	A-7-6(10)	41	14	9	21	24.8	45.2	97.9	93.3	72.6	24.4	-
SS-348	20 RT	90+75	3.5-5.0	A-7-5(14)	85	19	19.4	28	26.6	26	100	91.1	58.5	71.8	-



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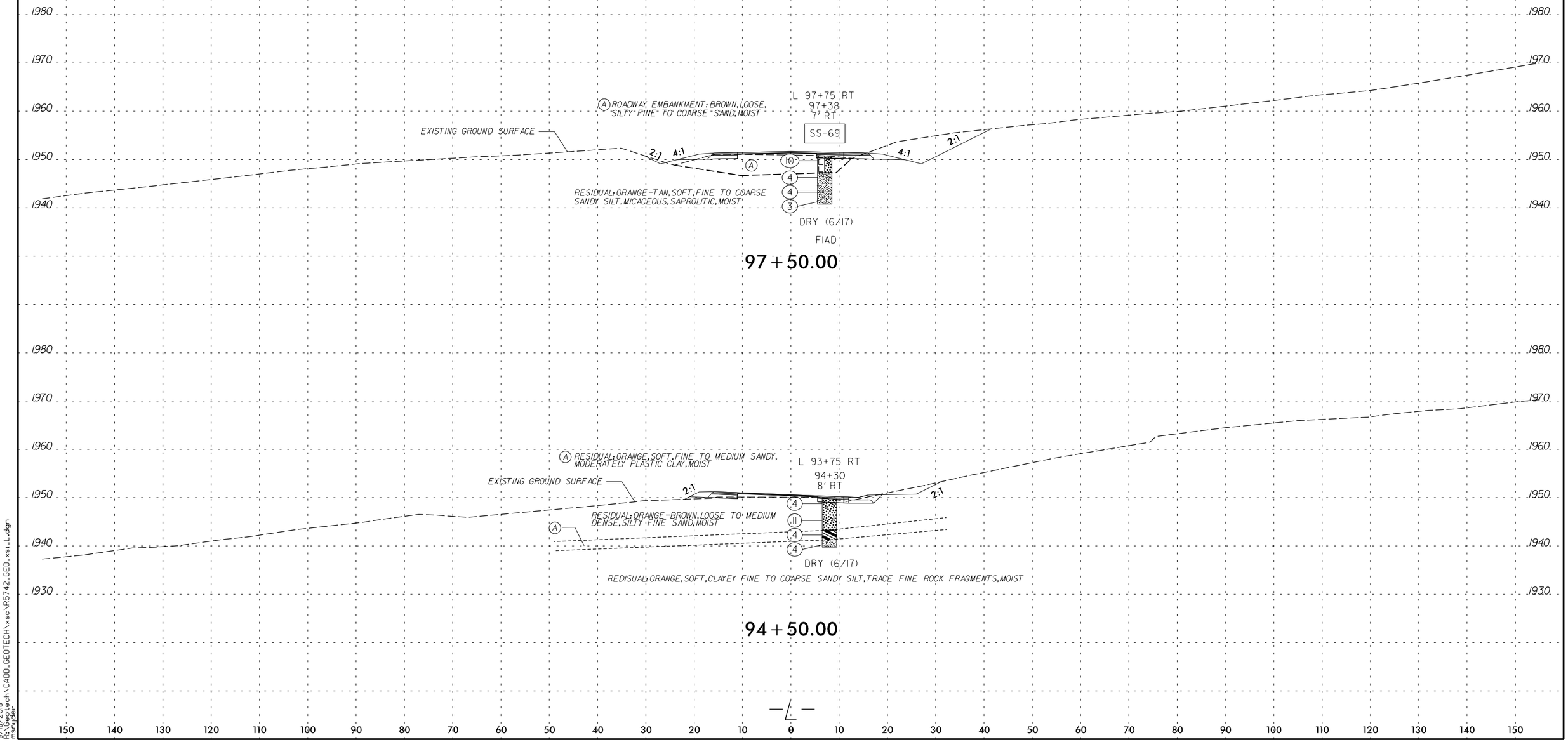
mrogers

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-69	7 RT.	97+38	3.5-5.0	A-4(0)	31	NP	19.8	41.4	24.2	14.6	100.0	91.0	45.6	26.3	-



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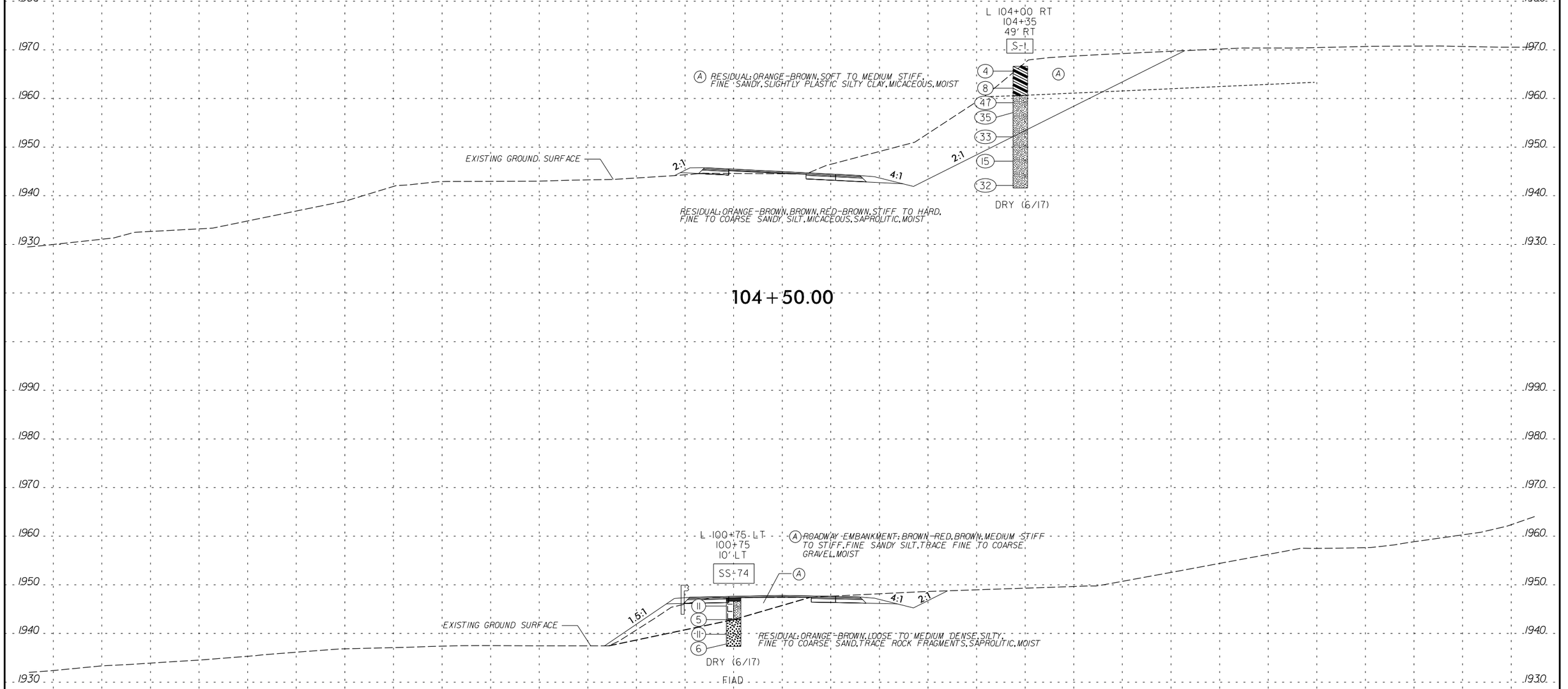
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	48

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-74	10 LT	100+75	6.5-8.0	A-2-4(0)	35	NP	28.6	40.3	16.3	14.8	73.7	58.9	29.1	7.3	-
S-1	49 RT	104+35	0.0-10.0	A-4(0)	32	NP	16.4	51.5	19.4	12.7	96.8	88.3	40.6	21.5	-



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msigler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	49

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-375	45 RT	111+39	3.5-5.0	A-4(0)	36	NP	9.3	57.7	16.2	16.8	100	97.7	42.8	30	-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1950 1940 1930

(A) RESIDUAL: BROWN, ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF, FINE TO COARSE SANDY SILT, TRACE ROCK RAGMENTS, SAPROLITIC, MOIST

L 111+00 RT
111+39
45' RT
SS-375

EXISTING GROUND SURFACE

2:1

5
6
25
100/0.4

07/17

ROADWAY EMBANKMENT: RED-BROWN, LOOSE, SILTY FINE SAND, TRACE FINE GRAVEL, TRACE MICA, MOIST

WEATHERED ROCK: BIOTITE GNEISS

111+50.00

1960 1950 1940 1930 1920

L 108+50 RT
108+87
51' RT

EXISTING GROUND SURFACE

4:1 4:1 2:1

9
13
11
11
7
8
10
60/0.1

07/17

RESIDUAL: BROWN, ORANGE-BROWN, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST

CRYSTALLINE ROCK: BIOTITE GNEISS

109+00.00

1970 1960 1950 1940 1930

L 107+00 RT
107+00
20' RT

EXISTING GROUND SURFACE

2:1 4:1 2:1

12
15
15
18

DRY (6/17)

RESIDUAL: RED-BROWN, STIFF TO VERY STIFF, FINE TO COARSE SANDY SILT, MICACEOUS, SAPROLITIC, MOIST

107+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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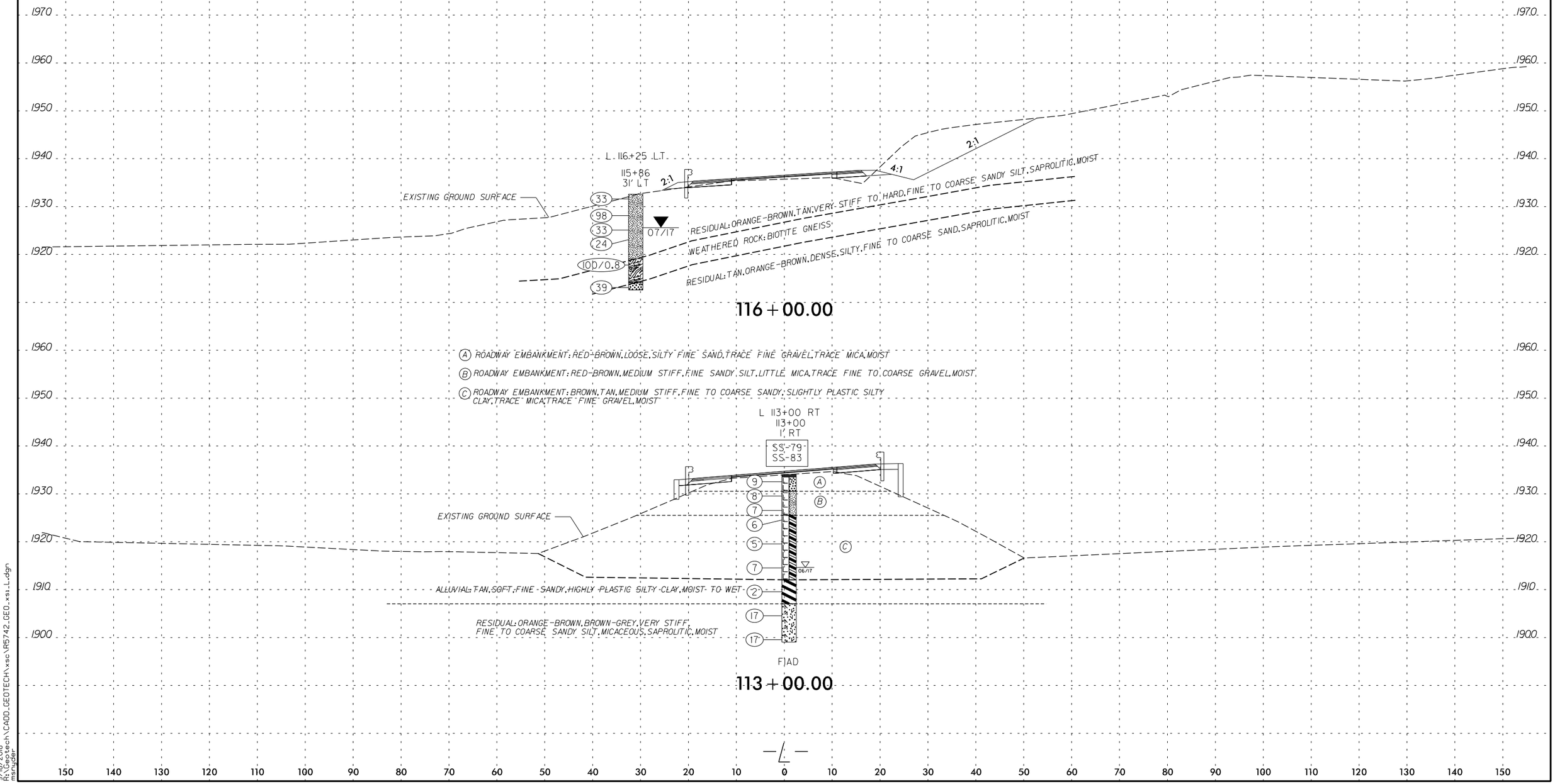
mslyder

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-79	1 RT.	113+00	8.5-10.0	A-6(6)	36	12	12.7	30.1	24.8	32.4	98.1	91.5	61.5	20.7	-
SS-83	1 RT.	113+00	28.5-30.0	A-5(0)	49	7	19.5	42.7	13.2	24.6	87.9	80.2	39.1	43.3	-



6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	51

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1980
1970
1960
1950
1940
1930
1920
1910

Ⓐ ROADWAY EMBANKMENT: RED-BROWN, STIFF, FINE SANDY SILT, TRACE FINE GRAVEL, MOIST

3:1

Ⓐ

EXISTING GROUND SURFACE

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY, SLIGHTLY PLASTIC SILTY CLAY, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST

RESIDUAL: BROWN, ORANGE, MEDIUM STIFF TO VERY STIFF, FINE SANDY SILT, MICACEOUS, SAPROLITIC, MOIST

116 + 50.00

9/18/2018
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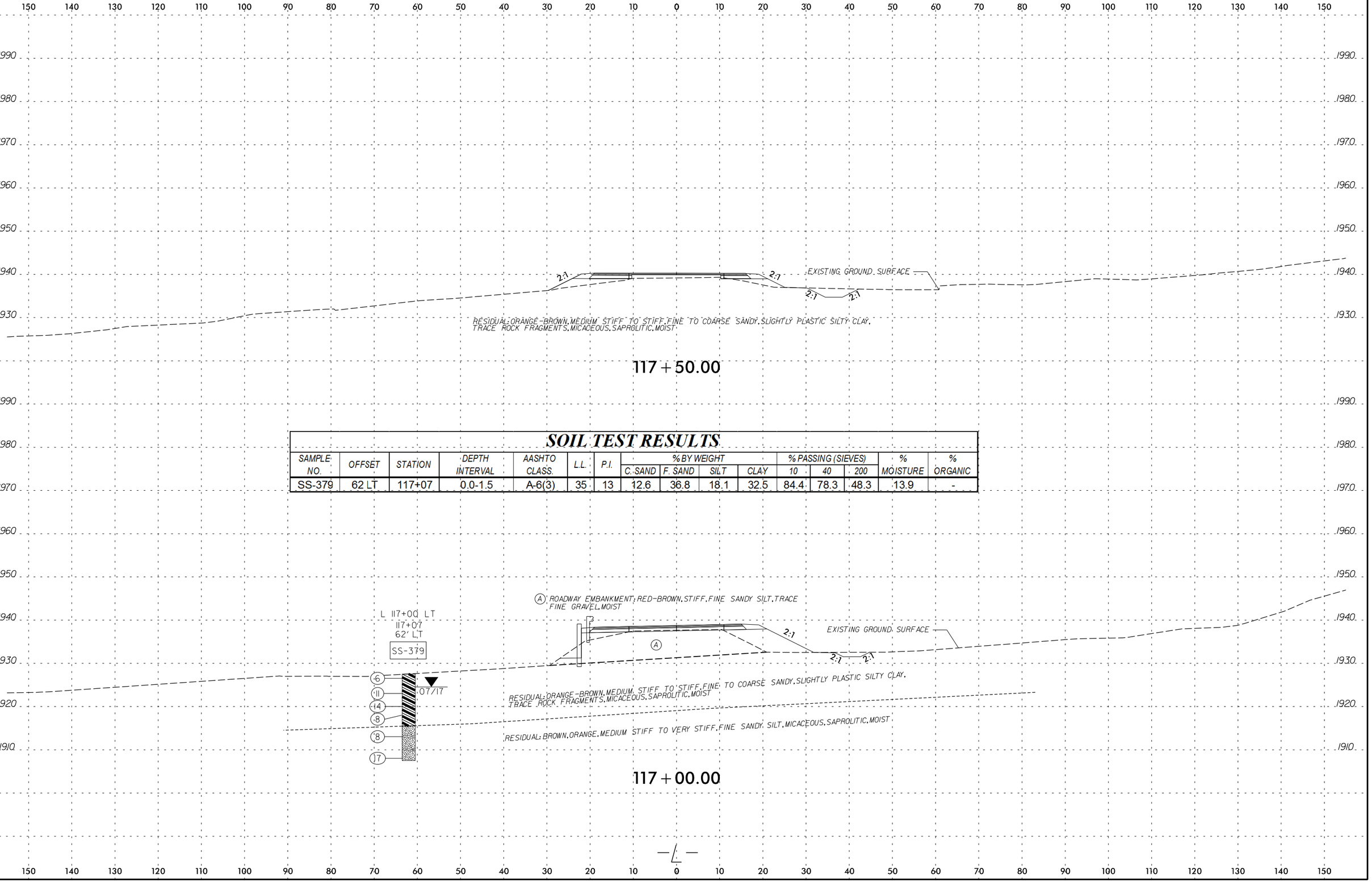
mstygler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	52



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-379	62 LT	117+07	0.0-1.5	A-6(3)	35	13	12.6	36.8	18.1	32.5	84.4	78.3	48.3	13.9	-

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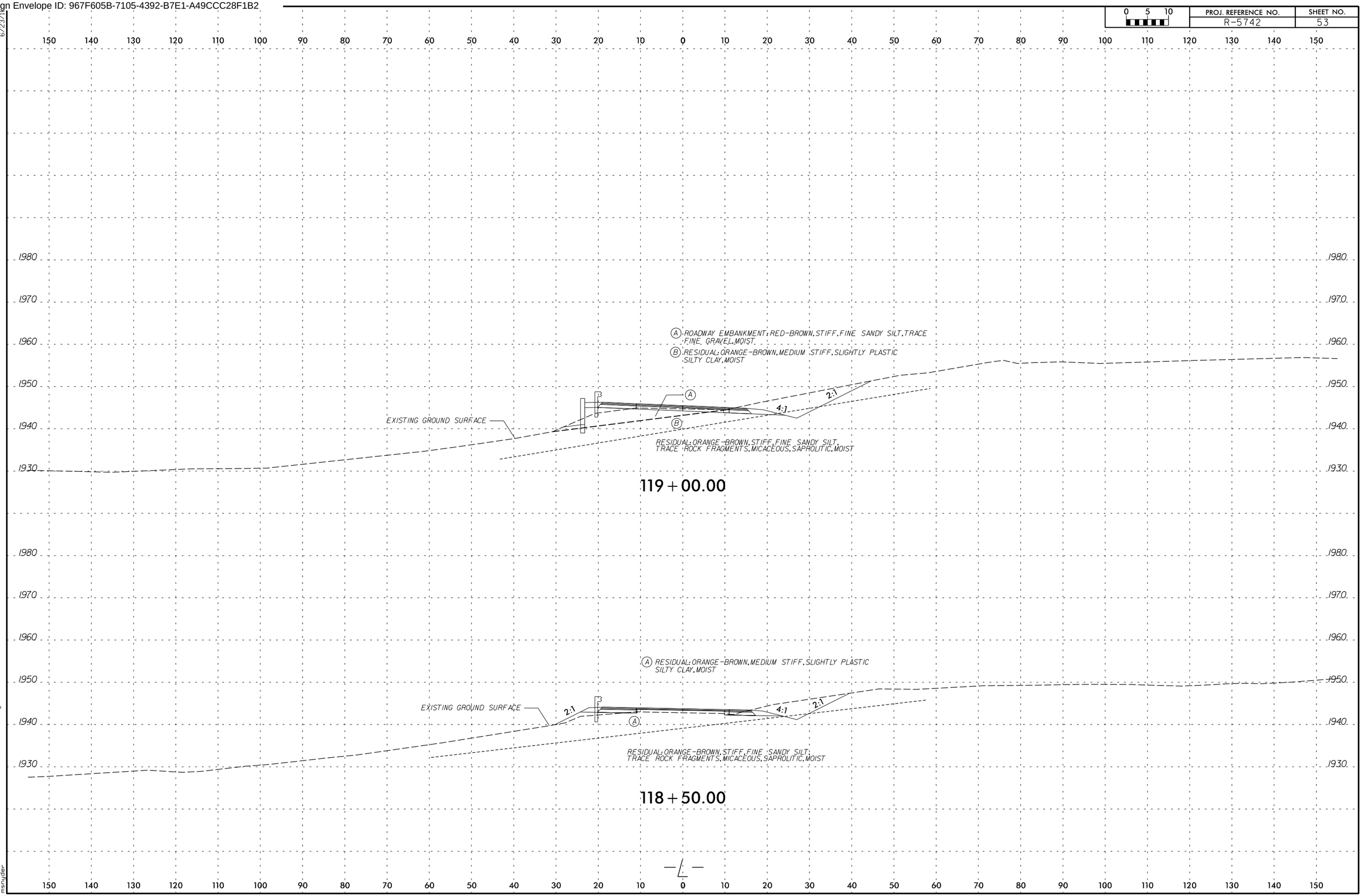
msigler



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	54

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1970 1960 1950 1940

EXISTING GROUND SURFACE

(A) ROADWAY EMBANKMENT: RED-BROWN, STIFF, FINE SANDY SILT, TRACE FINE GRAVEL, MOIST

(B) RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, SLIGHTLY PLASTIC SILTY CLAY, MOIST

2.38:1 2:1

RESIDUAL: ORANGE-BROWN, STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST TO WET

120+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-87	8 LT	119+25	3.5-5.0	A-7-5(7)	45	14	8.5	34.7	16.7	40.1	93.9	89.2	59.5	22.7	-

L 119+25 LT

119+25
8' LT

SS-87

(A) ROADWAY EMBANKMENT: RED-BROWN, STIFF, FINE SANDY SILT, TRACE FINE GRAVEL, MOIST

(B) RESIDUAL: ORANGE-BROWN, MEDIUM STIFF, SLIGHTLY PLASTIC SILTY CLAY, MOIST

4:1 2:1

EXISTING GROUND SURFACE

12 5 9 12 11 10

RESIDUAL: ORANGE-BROWN, STIFF, FINE SANDY SILT, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST TO WET

DRY (6/17)

FIAD

119+50.00

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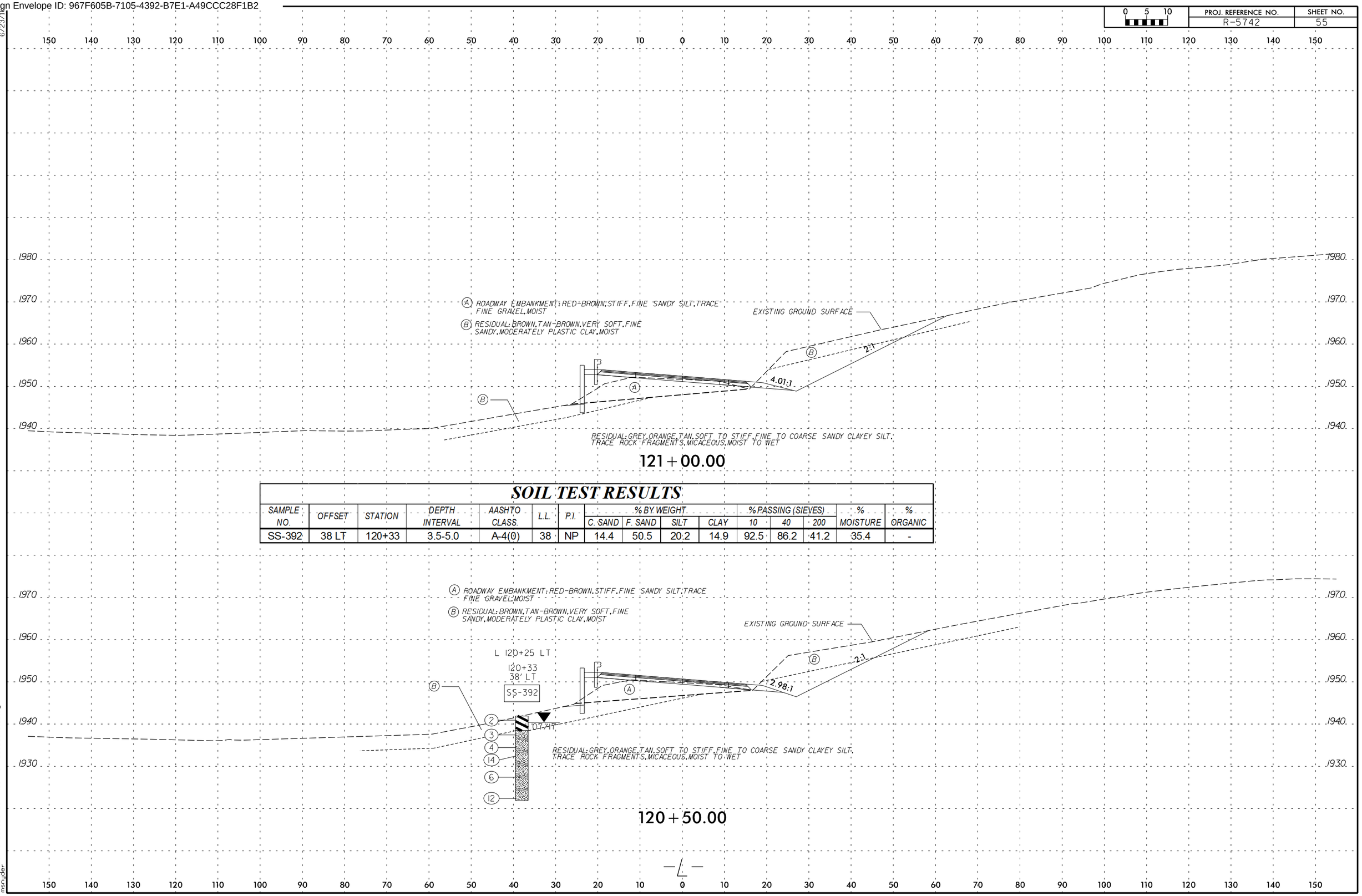
mrogers

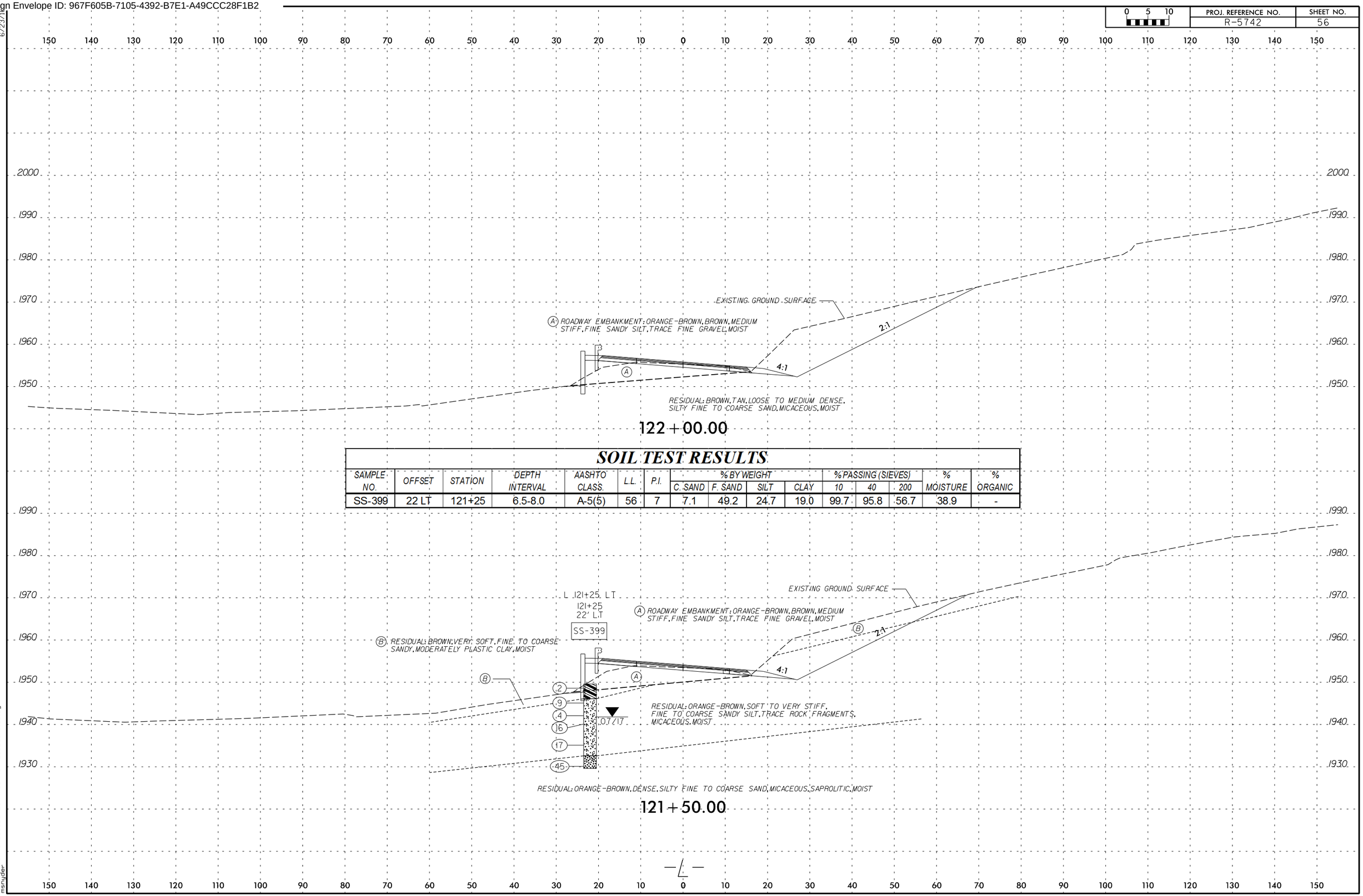


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-392	38 LT	120+33	3.5-5.0	A-4(0)	38	NP	14.4	50.5	20.2	14.9	92.5	86.2	41.2	35.4	-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	56



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-399	22 LT	121+25	6.5-8.0	A-5(5)	56	7	7.1	49.2	24.7	19.0	99.7	95.8	56.7	38.9	-

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msingler

6/23/16

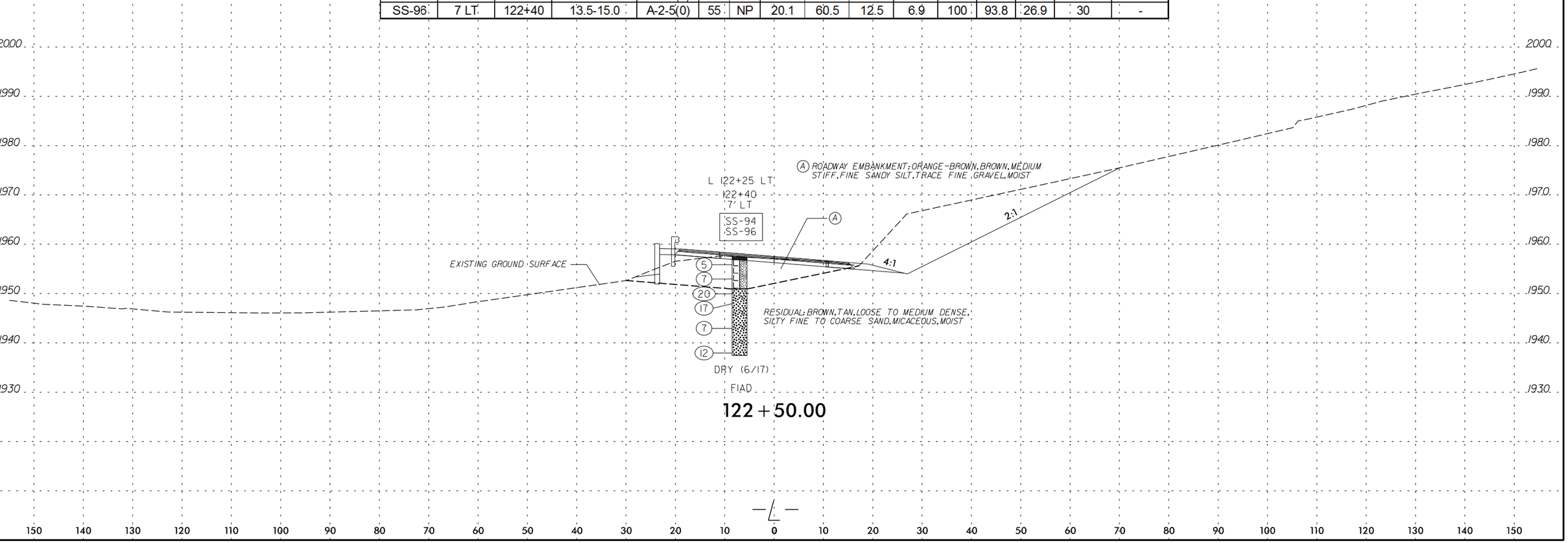
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	57

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-94	7 LT	122+40	6.5-8.0	A-2-4(0)	34	NP	3.5	73.6	14.2	8.7	98.3	97.3	34.1	15.6	-
SS-96	7 LT	122+40	13.5-15.0	A-2-5(0)	55	NP	20.1	60.5	12.5	6.9	100	93.8	26.9	30	-

2000 1990 1980 1970 1960 1950 1940 1930



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msyder

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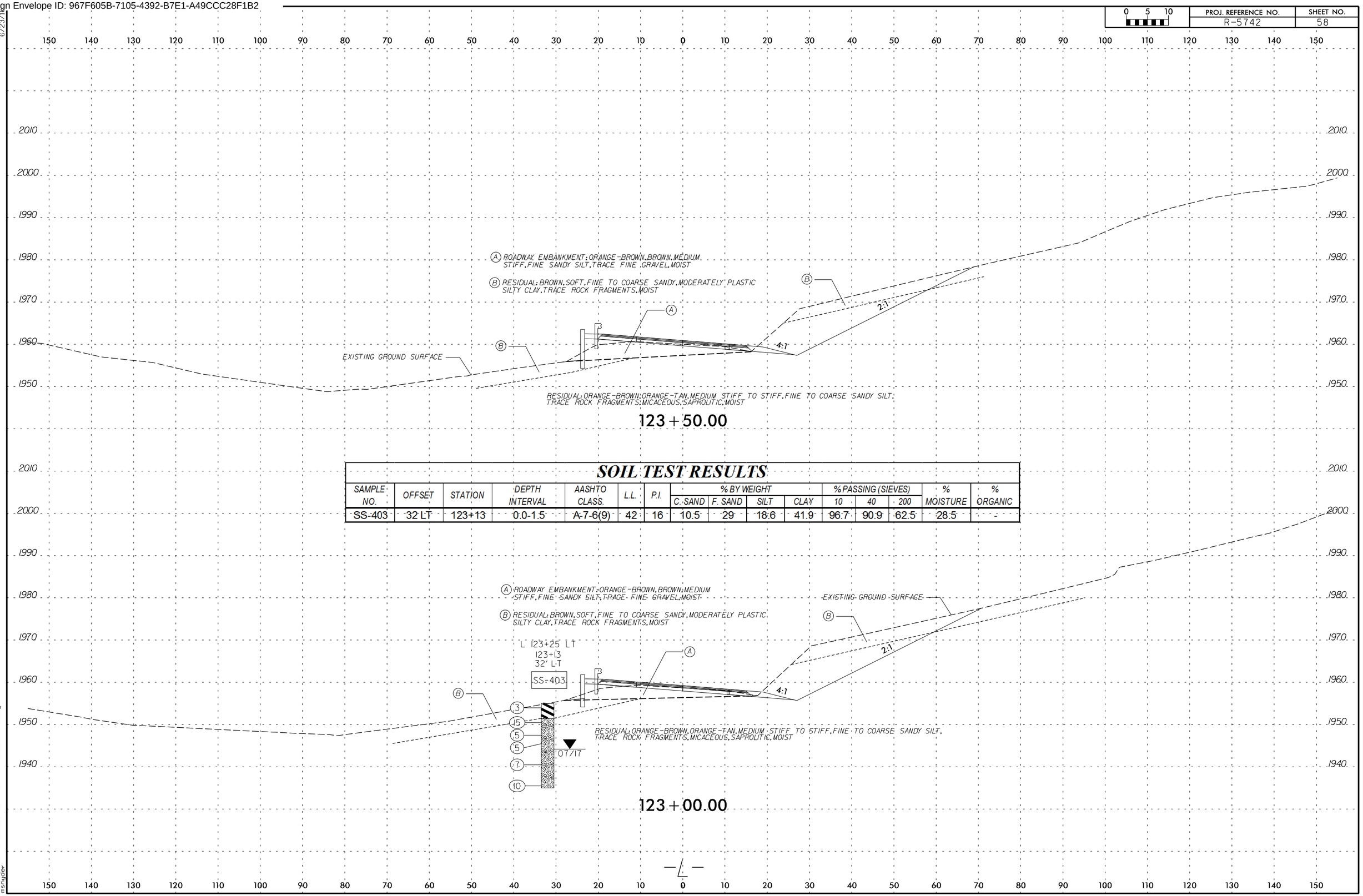
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	58



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-403	32 LT	123+13	0.0-1.5	A-7-6(9)	42	16	10.5	29	18.6	41.9	96.7	90.9	62.5	28.5	-

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msigler

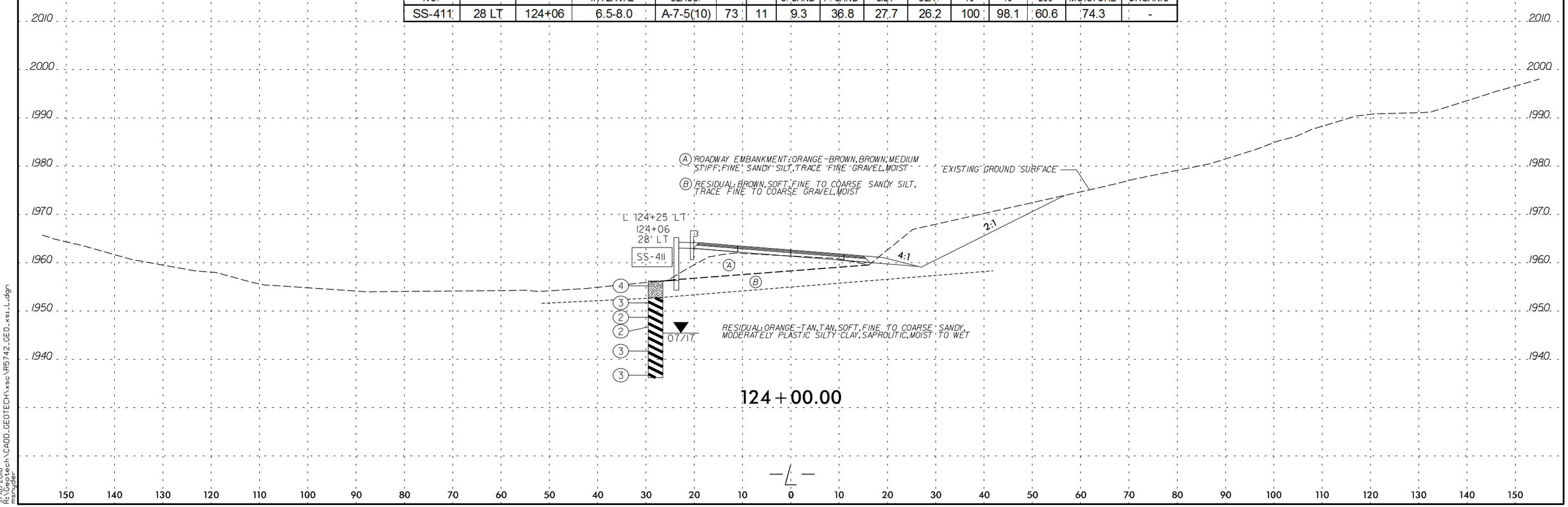
6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	59

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-411	28 LT	124+06	6.5-8.0	A-7-5(10)	73	11	9.3	36.8	27.7	26.2	100	98.1	60.6	74.3	-



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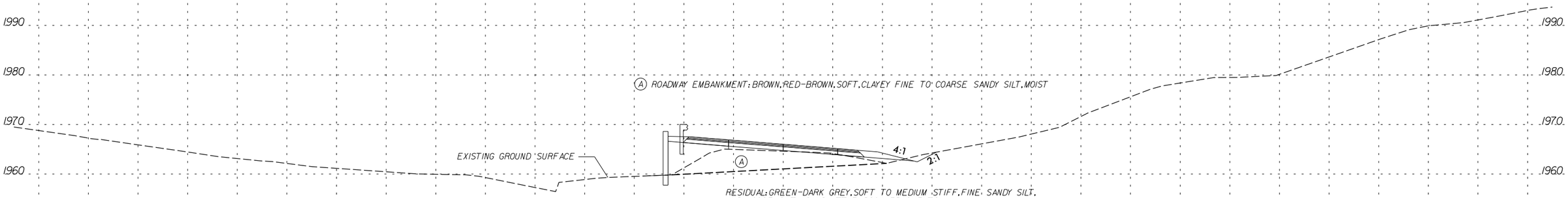
msingler

6/23/16

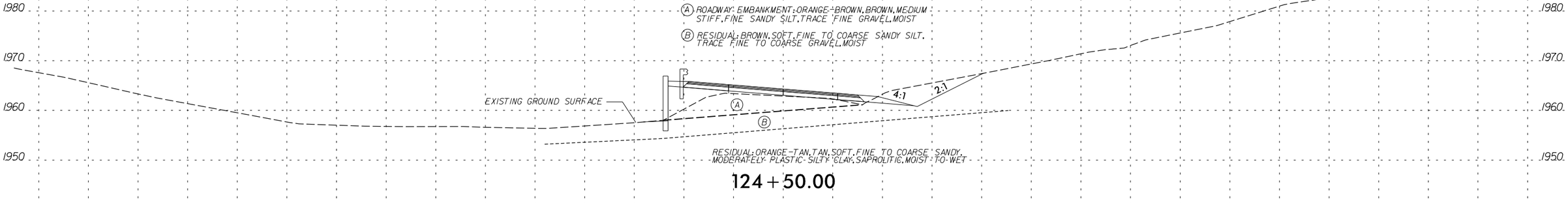
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	60

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2020 2010 2000 1990 1980 1970 1960



125 + 00.00



124 + 50.00

2020 2010 2000 1990 1980 1970 1960 1950

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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mstyler

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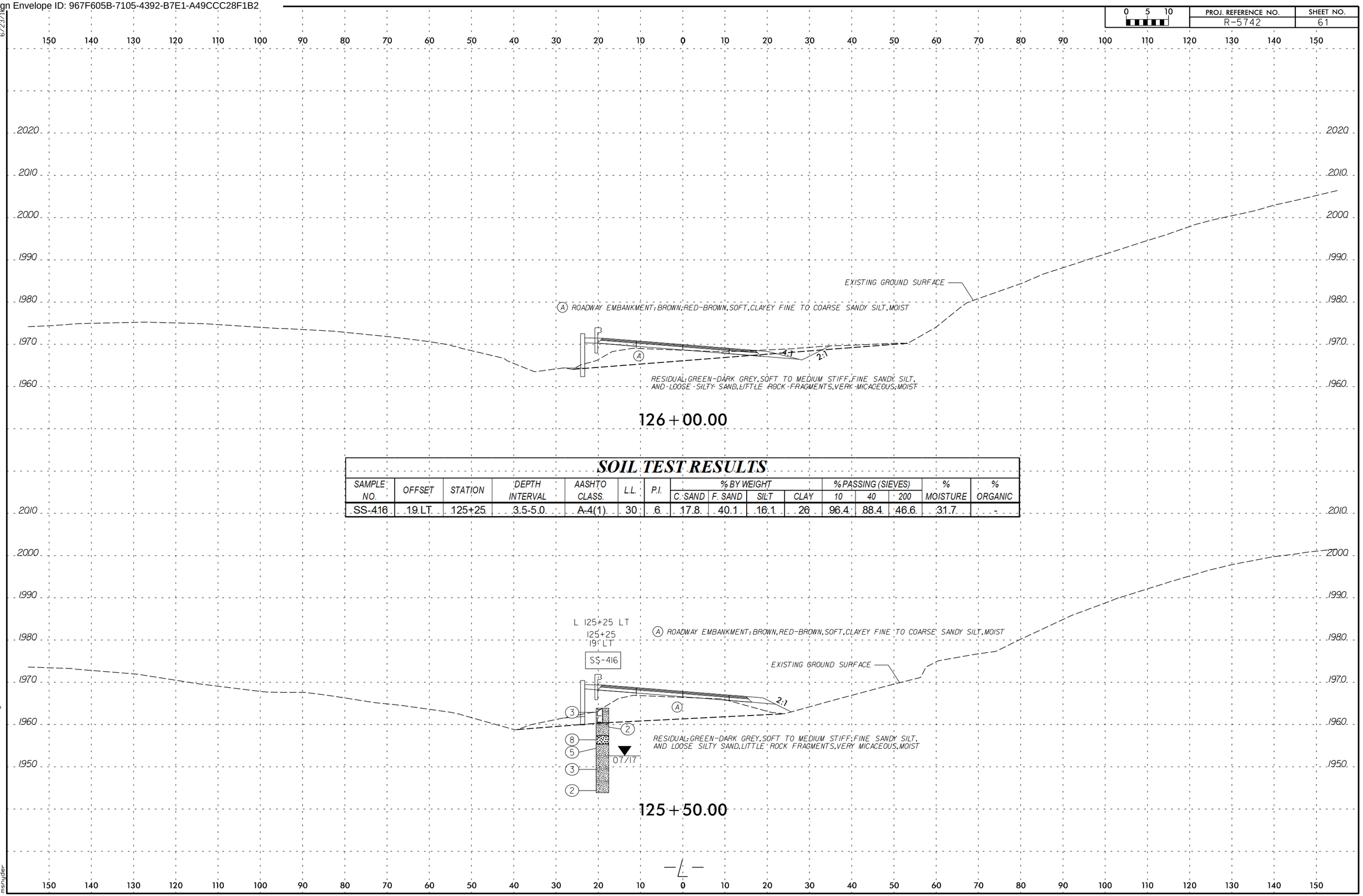
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	61



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-416	19 LT	125+25	3.5-5.0	A-4(1)	30	6	17.8	40.1	16.1	26	96.4	88.4	46.6	31.7	-

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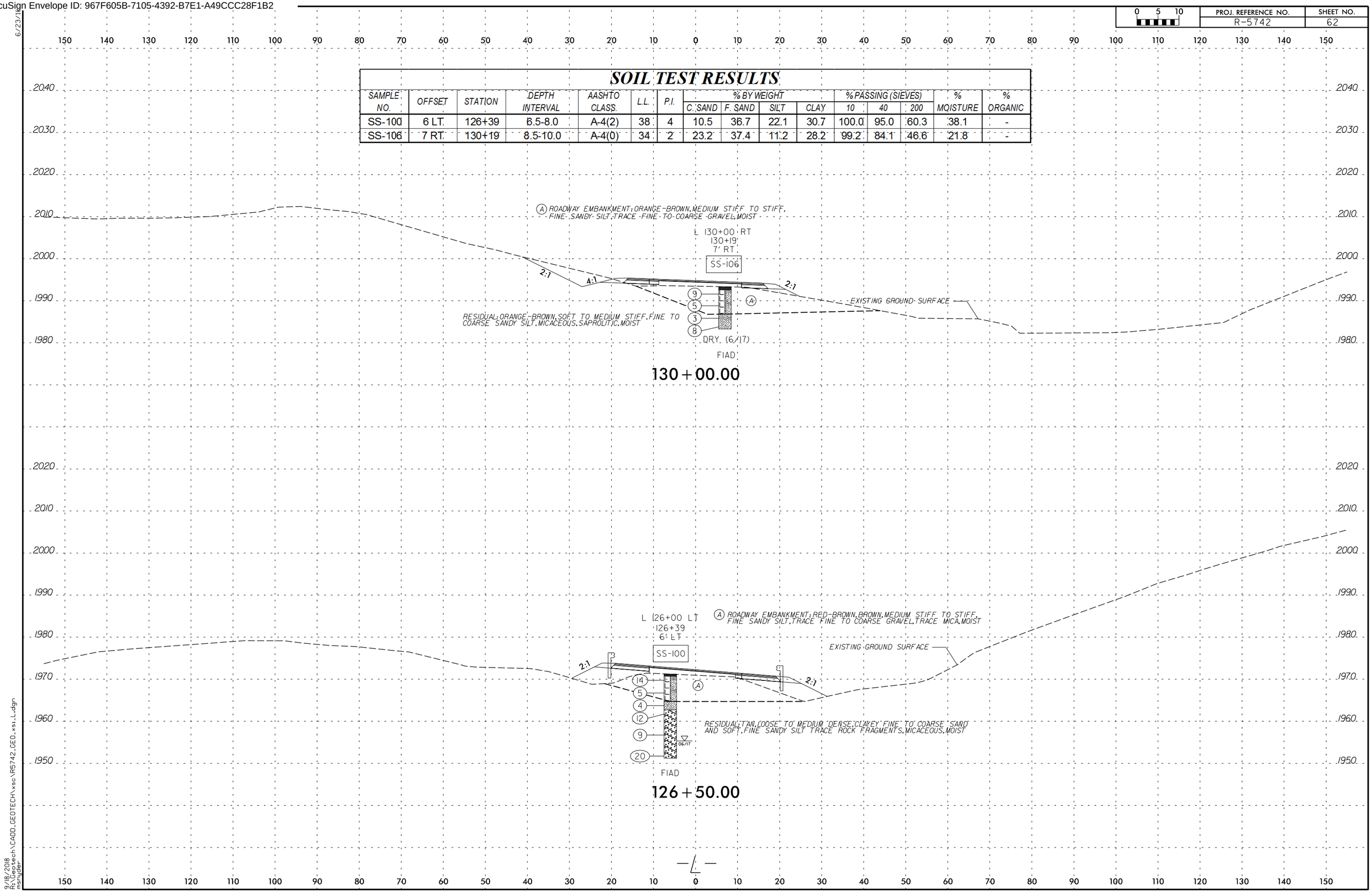
msigler

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-100	6 LT.	126+39	6.5-8.0	A-4(2)	38	4	10.5	36.7	22.1	30.7	100.0	95.0	60.3	38.1	-
SS-106	7 RT.	130+19	8.5-10.0	A-4(0)	34	2	23.2	37.4	11.2	28.2	99.2	84.1	46.6	21.8	-



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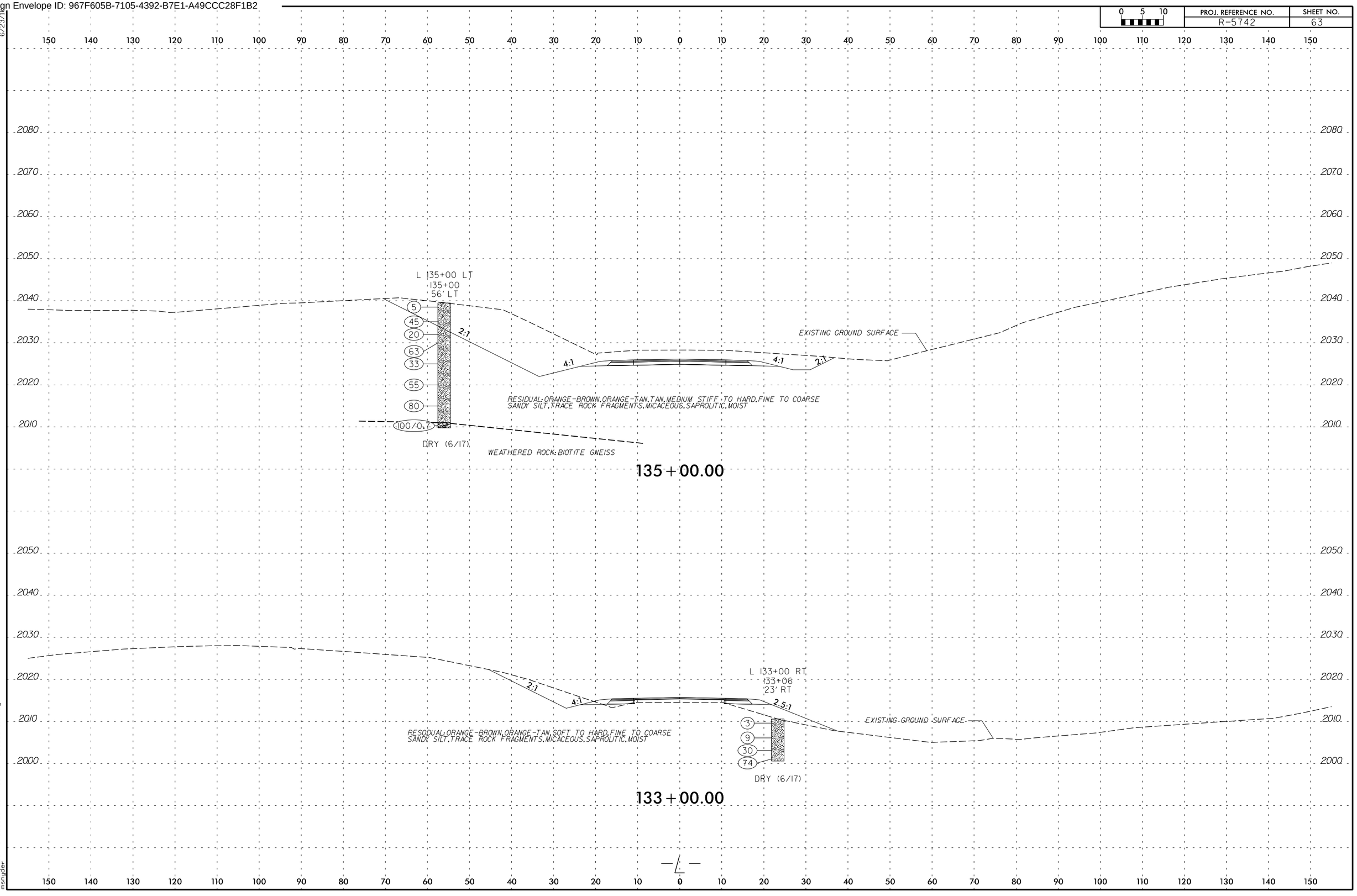
	R-5742	63



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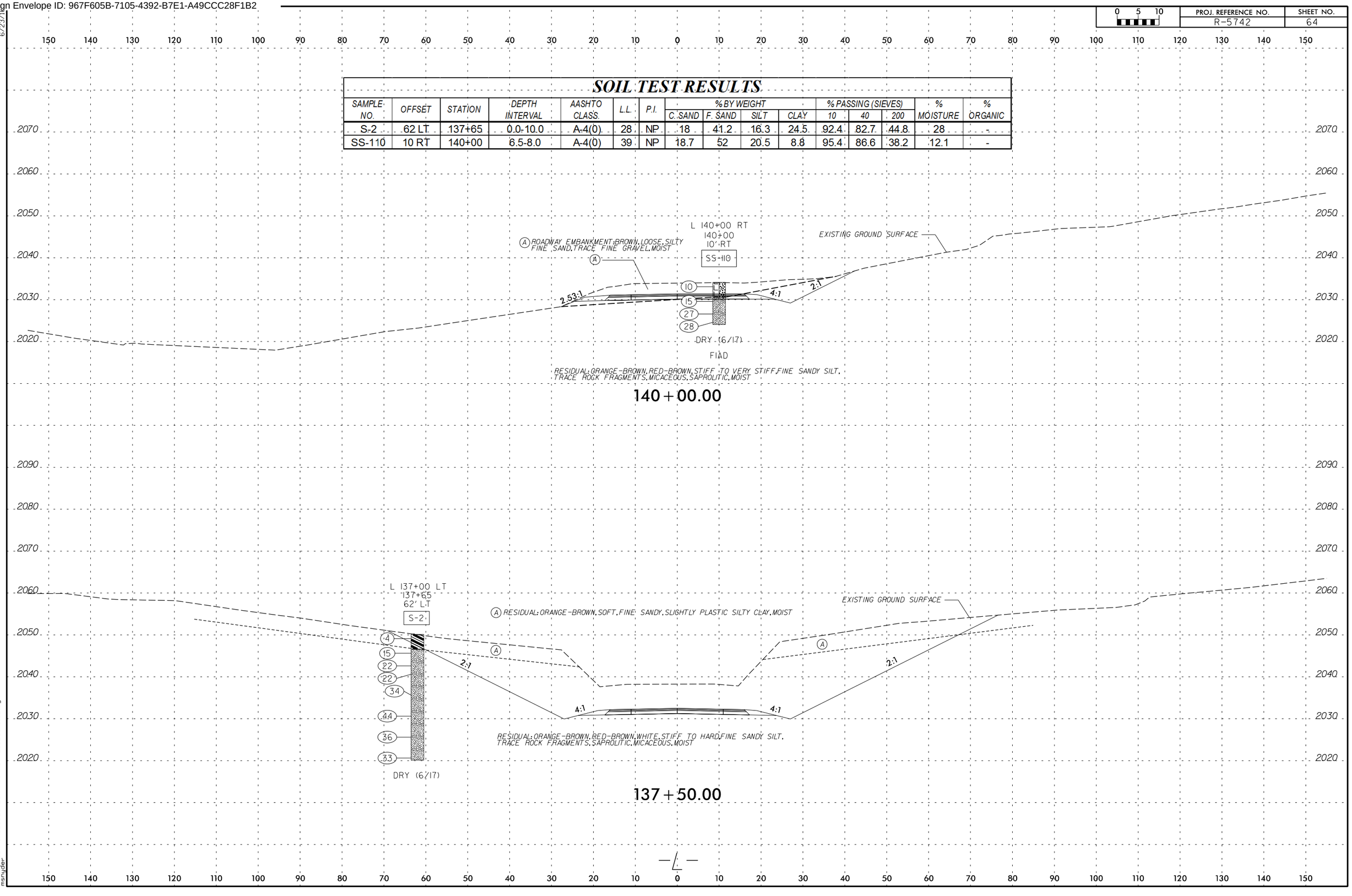
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	64

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	62 LT	137+65	0.0-10.0	A-4(0)	28	NP	18	41.2	16.3	24.5	92.4	82.7	44.8	28	-
SS-110	10 RT	140+00	6.5-8.0	A-4(0)	39	NP	18.7	52	20.5	8.8	95.4	86.6	38.2	12.1	-



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mstyler

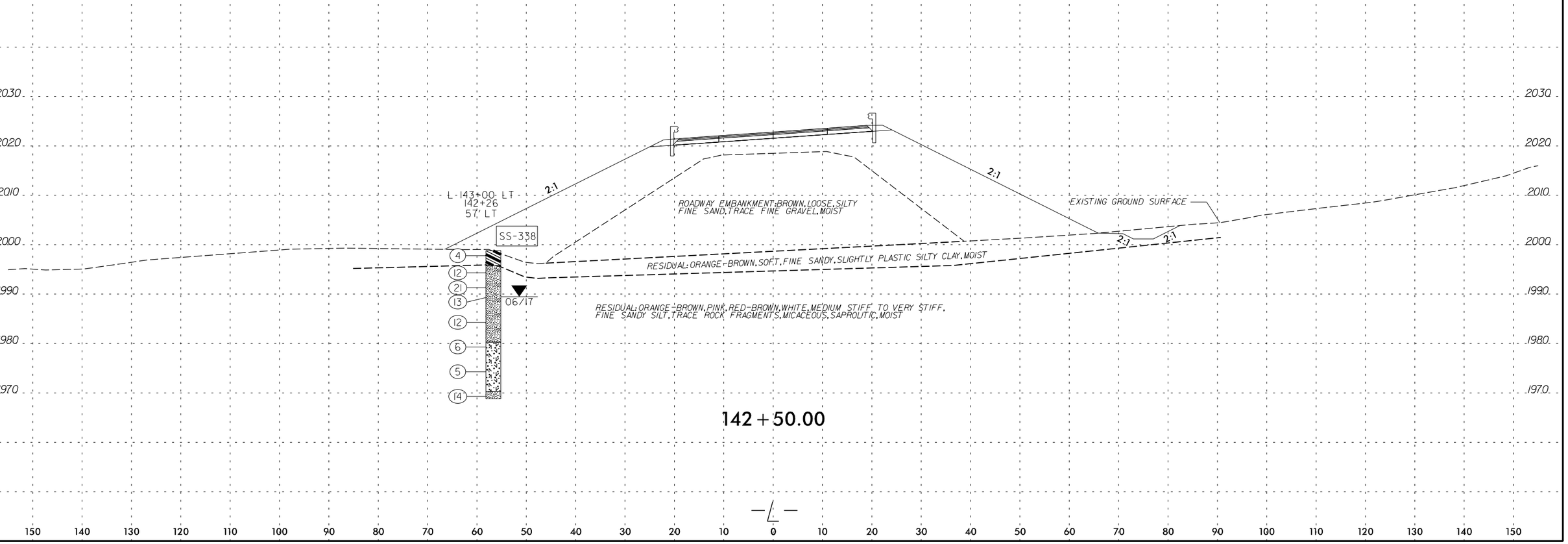
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	65

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-338	57 LT	142+26	23.5-25.0	A-5(0)	46	NP	12.7	50.3	27.4	9.6	100	97.0	48.8	32.7	-



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msigler

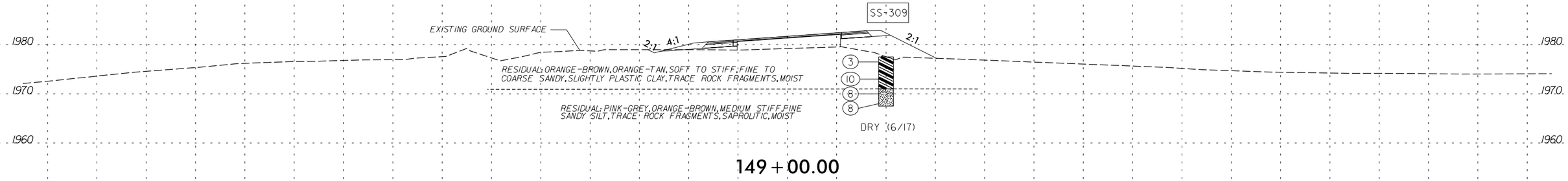
6/23/16

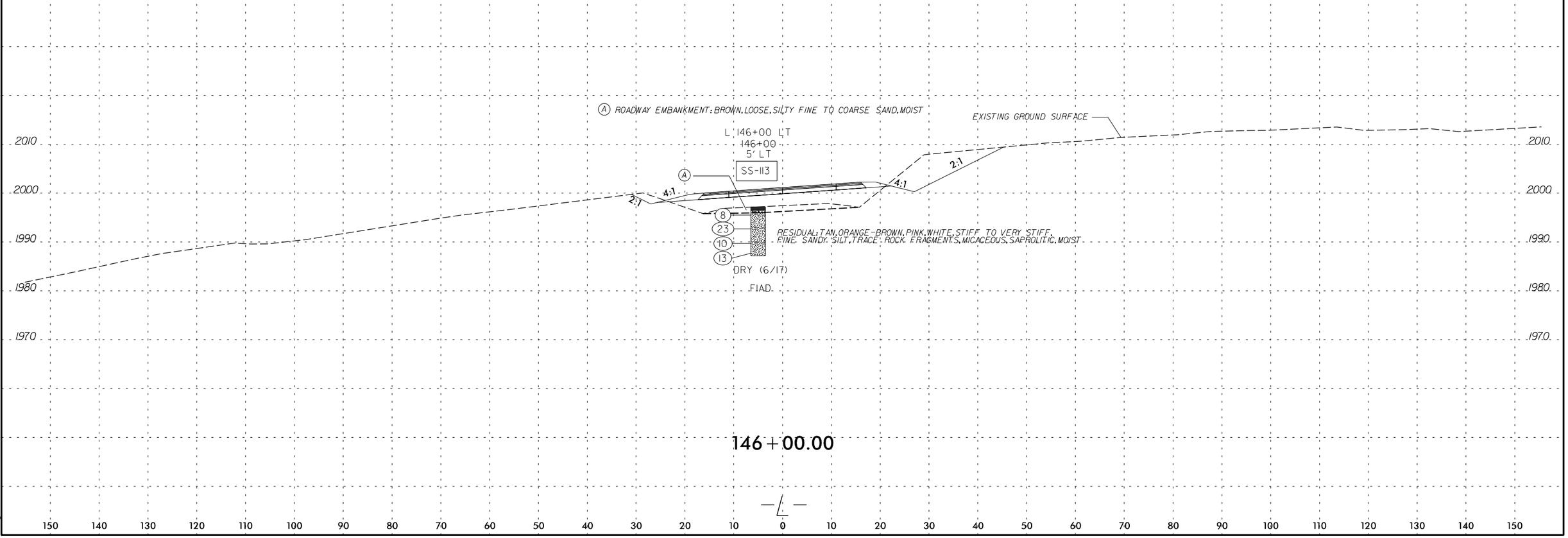
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	66

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-113	5 LT	146+00	3.5-5.0	A-4(0)	35	NP	18.1	55	15.5	11.4	100	94.6	36.0	25.4	-
SS-309	20 RT	149+00	0.0-1.5	A-6(5)	30	11	8	36.2	19.2	36.6	97.9	94.3	60.8	19.4	-





150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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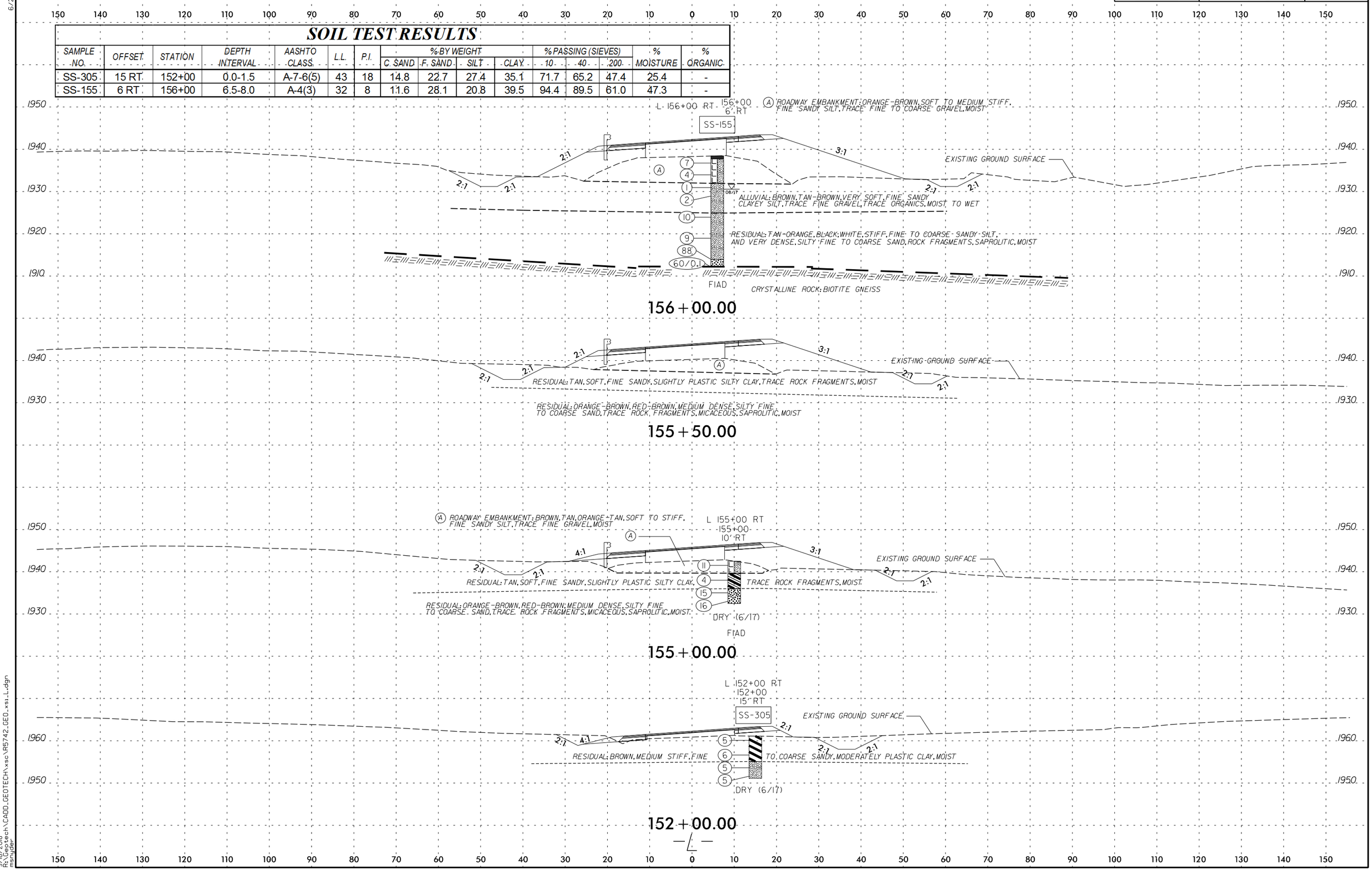
msyder

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	%BY WEIGHT C. SAND	%BY WEIGHT F. SAND	%BY WEIGHT SILT	%BY WEIGHT CLAY	%PASSING (SIEVES) #10	%PASSING (SIEVES) #40	%PASSING (SIEVES) #200	% MOISTURE	% ORGANIC
SS-305	15 RT	152+00	0.0-1.5	A-7-6(5)	43	18	14.8	22.7	27.4	35.1	71.7	65.2	47.4	25.4	-
SS-155	6 RT	156+00	6.5-8.0	A-4(3)	32	8	11.6	28.1	20.8	39.5	94.4	89.5	61.0	47.3	-



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1950 1940 1930

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, SOFT TO MEDIUM STIFF, FINE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

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

RESIDUAL: ORANGE-BROWN, TAN, VERY SOFT TO SOFT, FINE TO COARSE SANDY SILT, MOIST

WEATHERED ROCK: BIOTITE GNEISS

157 + 50.00

1940 1930 1920 1910

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, SOFT TO MEDIUM STIFF, FINE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

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

ALLUVIAL: BROWN, TAN-BROWN, VERY SOFT, FINE SANDY CLAYEY SILT, TRACE FINE GRAVEL, TRACE ORGANICS, MOIST TO WET

RESIDUAL: TAN-ORANGE, BLACK, WHITE, STIFF, FINE TO COARSE SANDY SILT, AND VERY DENSE, SILTY FINE TO COARSE SAND, ROCK FRAGMENTS, SAPROLITIC, MOIST

CRYSTALLINE ROCK: BIOTITE GNEISS

157 + 00.00

1940 1930 1920 1910

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, SOFT TO MEDIUM STIFF, FINE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

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

ALLUVIAL: BROWN, TAN-BROWN, VERY SOFT, FINE SANDY CLAYEY SILT, TRACE FINE GRAVEL, TRACE ORGANICS, MOIST TO WET

RESIDUAL: TAN-ORANGE, BLACK, WHITE, STIFF, FINE TO COARSE SANDY SILT, AND VERY DENSE, SILTY FINE TO COARSE SAND, ROCK FRAGMENTS, SAPROLITIC, MOIST

CRYSTALLINE ROCK: BIOTITE GNEISS

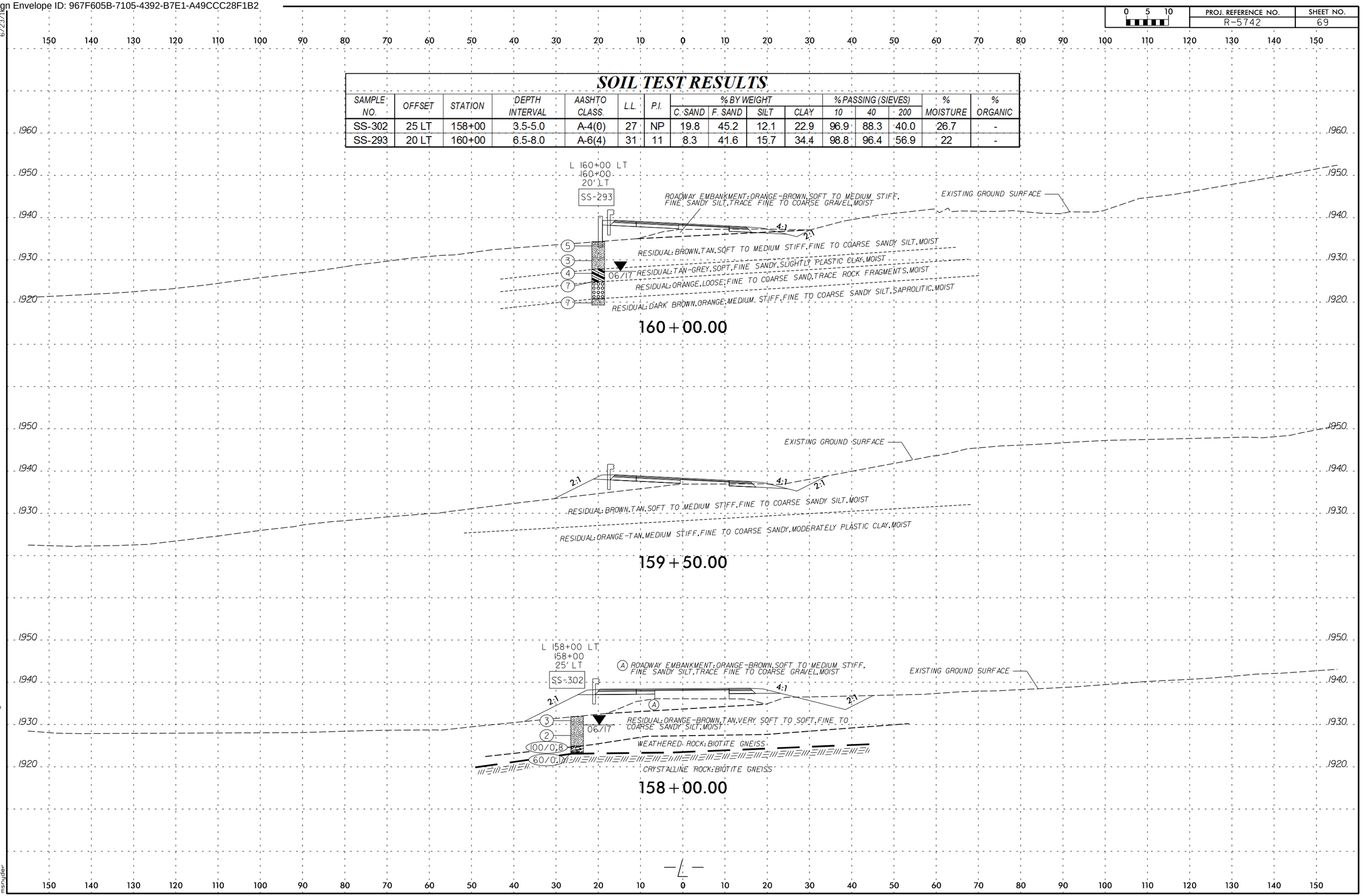
156 + 50.00

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	69

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-302	25 LT	158+00	3.5-5.0	A-4(0)	27	NP	19.8	45.2	12.1	22.9	96.9	88.3	40.0	26.7	-
SS-293	20 LT	160+00	6.5-8.0	A-6(4)	31	11	8.3	41.6	15.7	34.4	98.8	96.4	56.9	22	-



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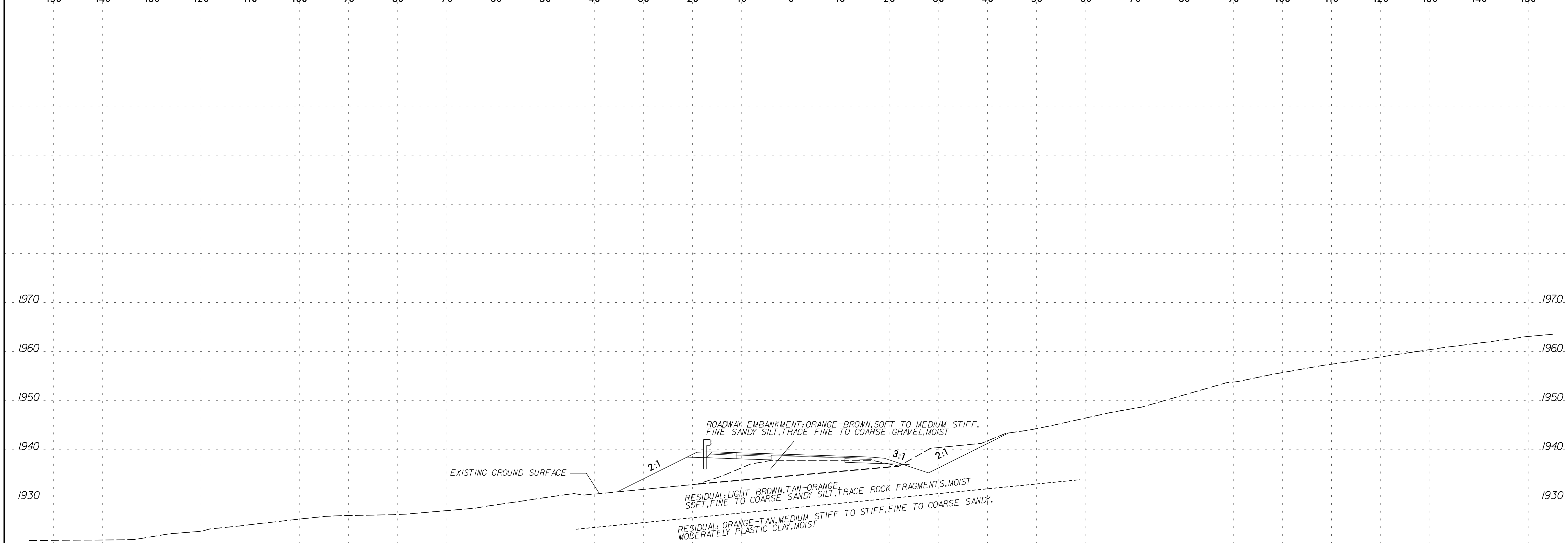
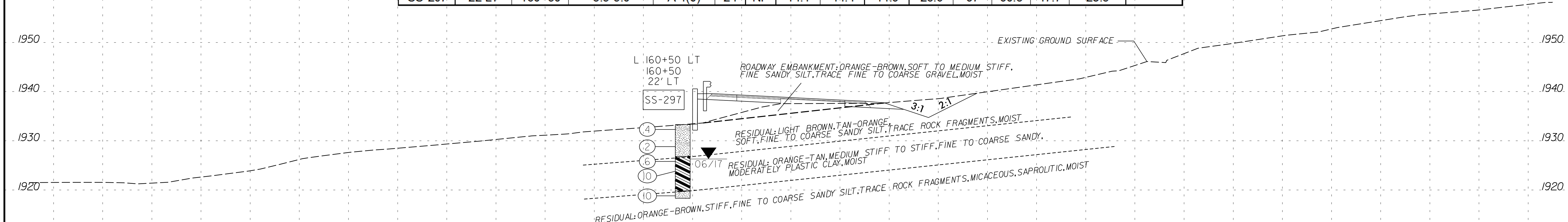
mstyder



161+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-297	22 LT	160+50	3.5-5.0	A-4(0)	24	NP	14.1	44.4	14.9	26.6	97	90.3	47.7	28.3	-



160+50.00

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990 1980 1970 1960 1950 1940 1930 1920

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE GRAVEL, MICACEOUS, MOIST

L 164+00 RT
164+28
1' RT

EXISTING GROUND SURFACE

2:1

Ⓐ 18 58 26 70

DRY (6/17)

PIAD

RESIDUAL: ORANGE-TAN, ORANGE-BROWN, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST

164+50.00

1990 1980 1970 1960 1950 1940 1930

EXISTING GROUND SURFACE

4:1 2:1

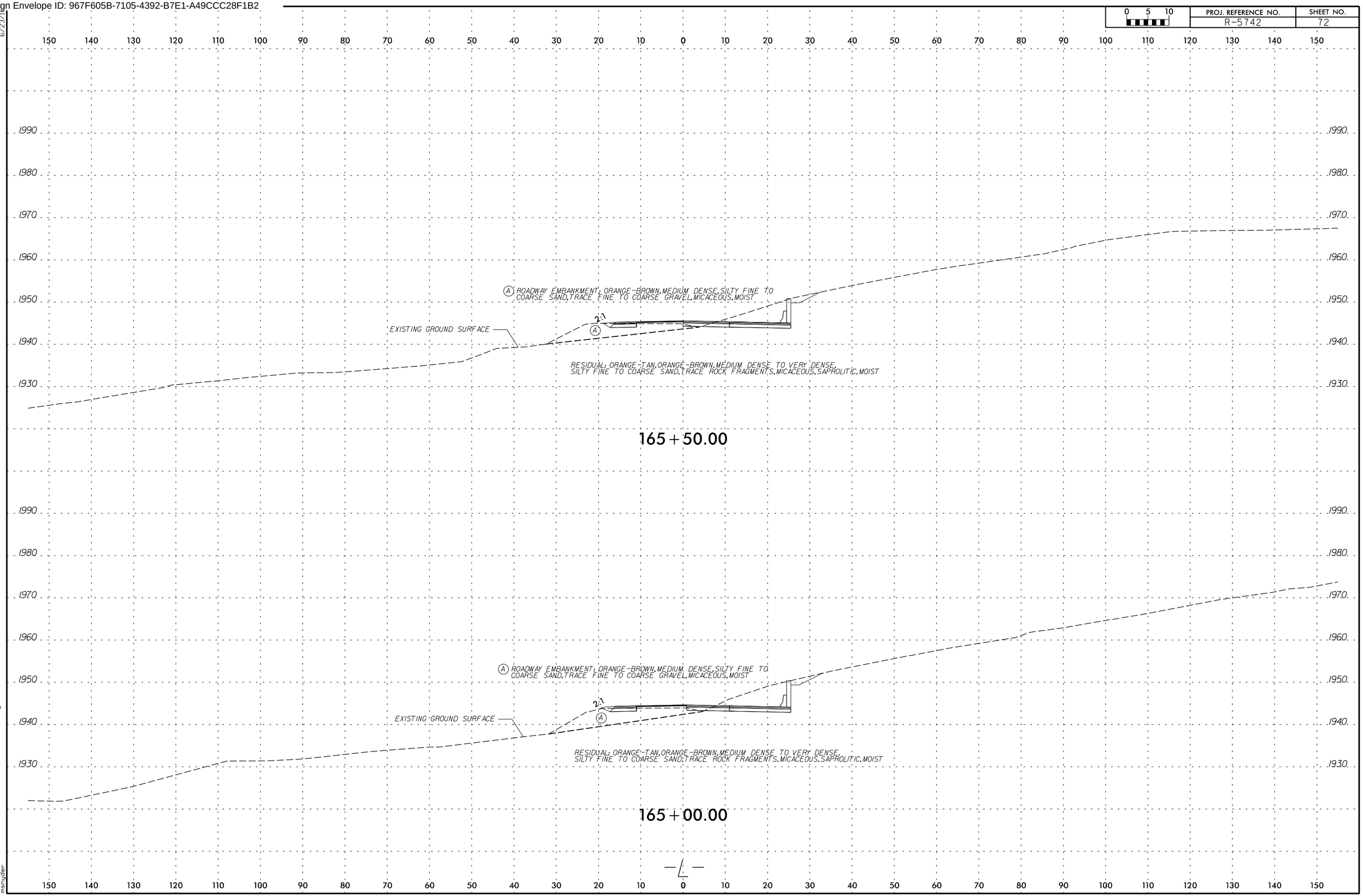
RESIDUAL: ORANGE-TAN, ORANGE-BROWN, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST

164+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	72



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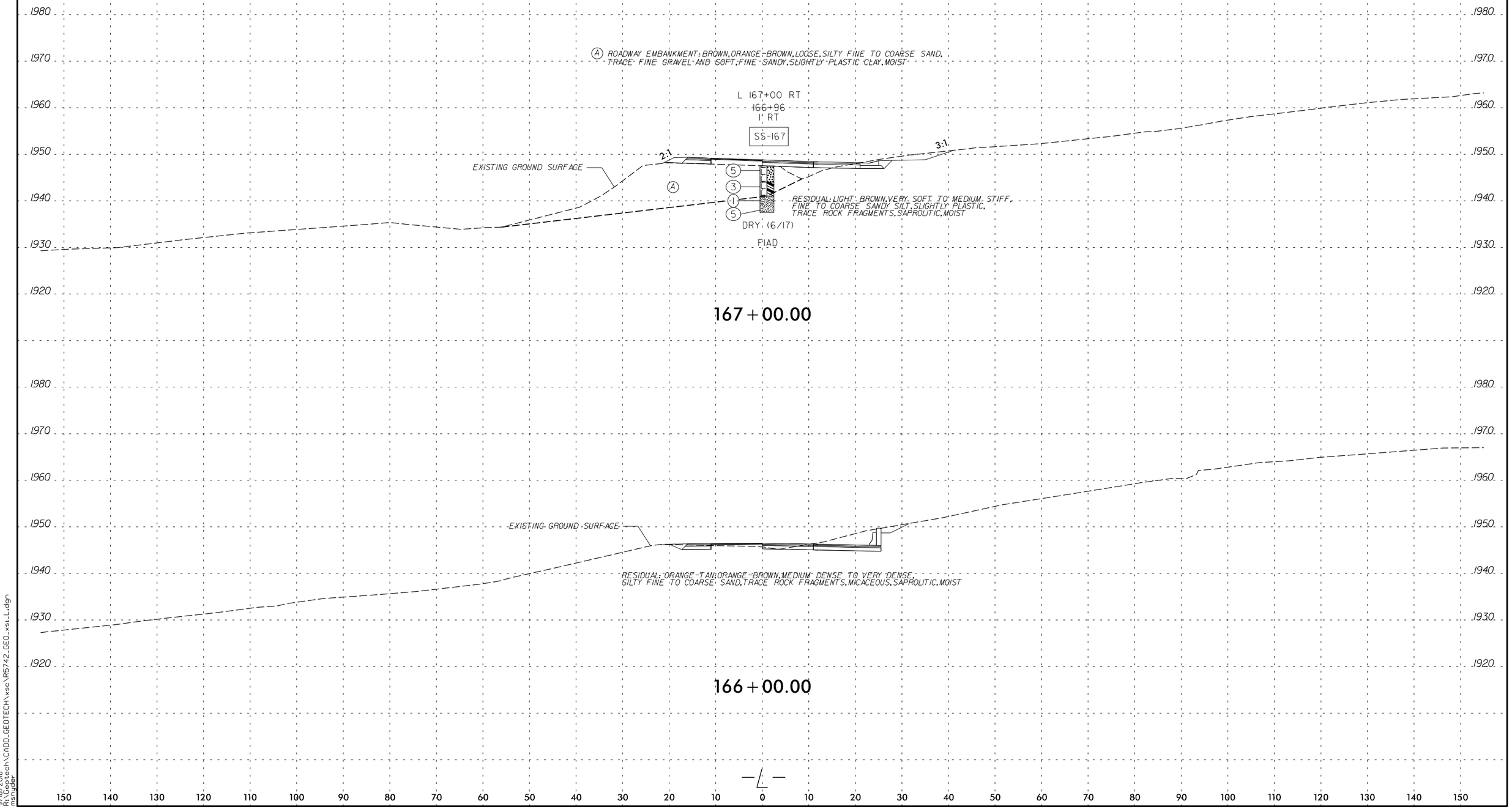
msigler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	73

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-167	1 RT	166+96	6.5-8.0	A-4(6)	34	10	9	29.6	24.2	37.2	100	95.9	67.4	24.8	-



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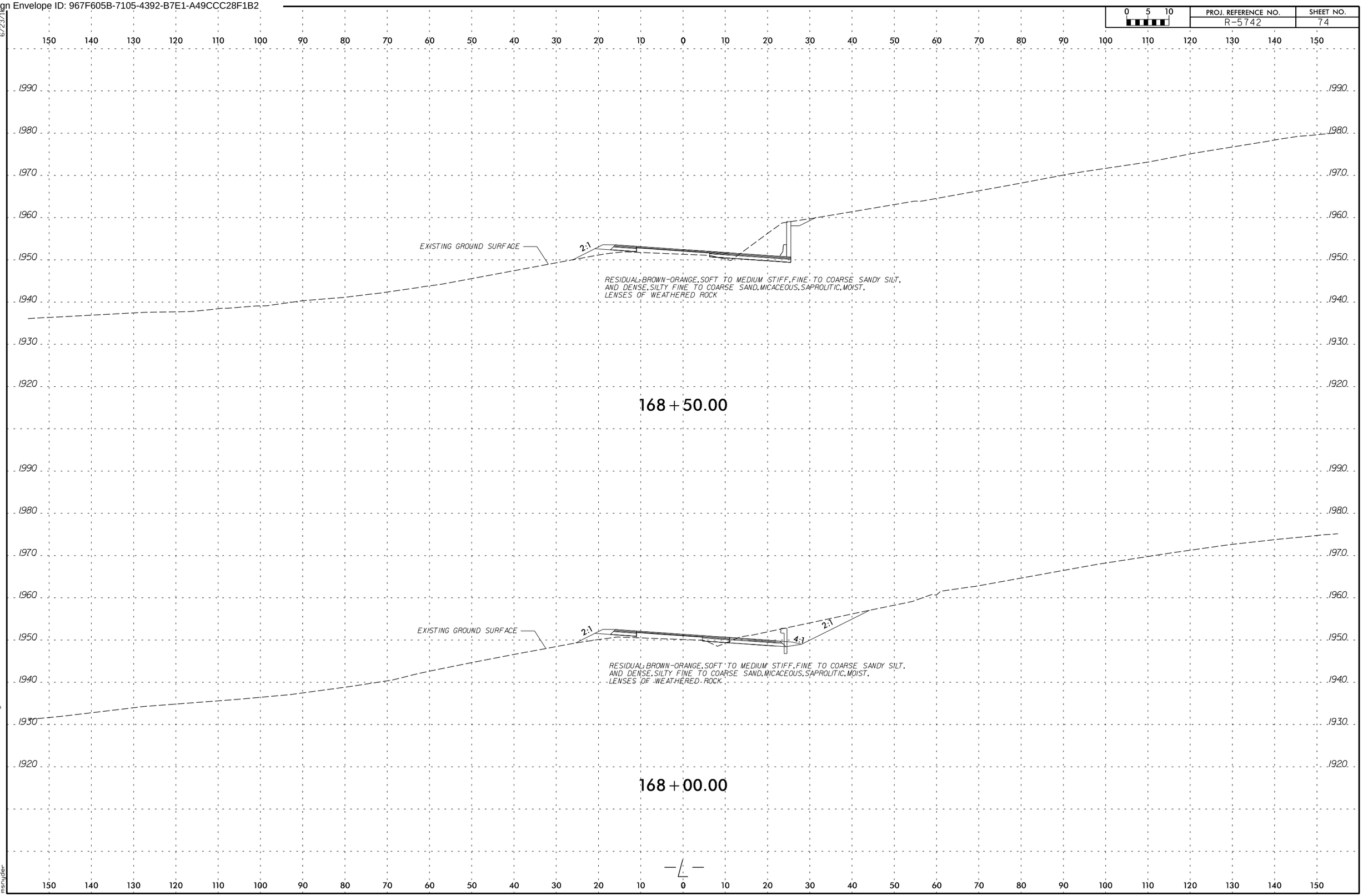
mtyder

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	74



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mstyler

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	75

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1990
1980
1970
1960
1950
1940
1930
1920

EXISTING GROUND SURFACE

2:1

RESIDUAL: BROWN-ORANGE, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY SILT, AND DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST, LENSES OF WEATHERED ROCK

169+00.00

9/18/2018
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msigler

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	76

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2000
1990
1980
1970
1960
1950
1940
1930
1920

EXISTING GROUND SURFACE

2:1

RESIDUAL: BROWN-ORANGE, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY SILT, AND DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST. LENSES OF WEATHERED ROCK

169+50.00

9/18/2018
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msygler

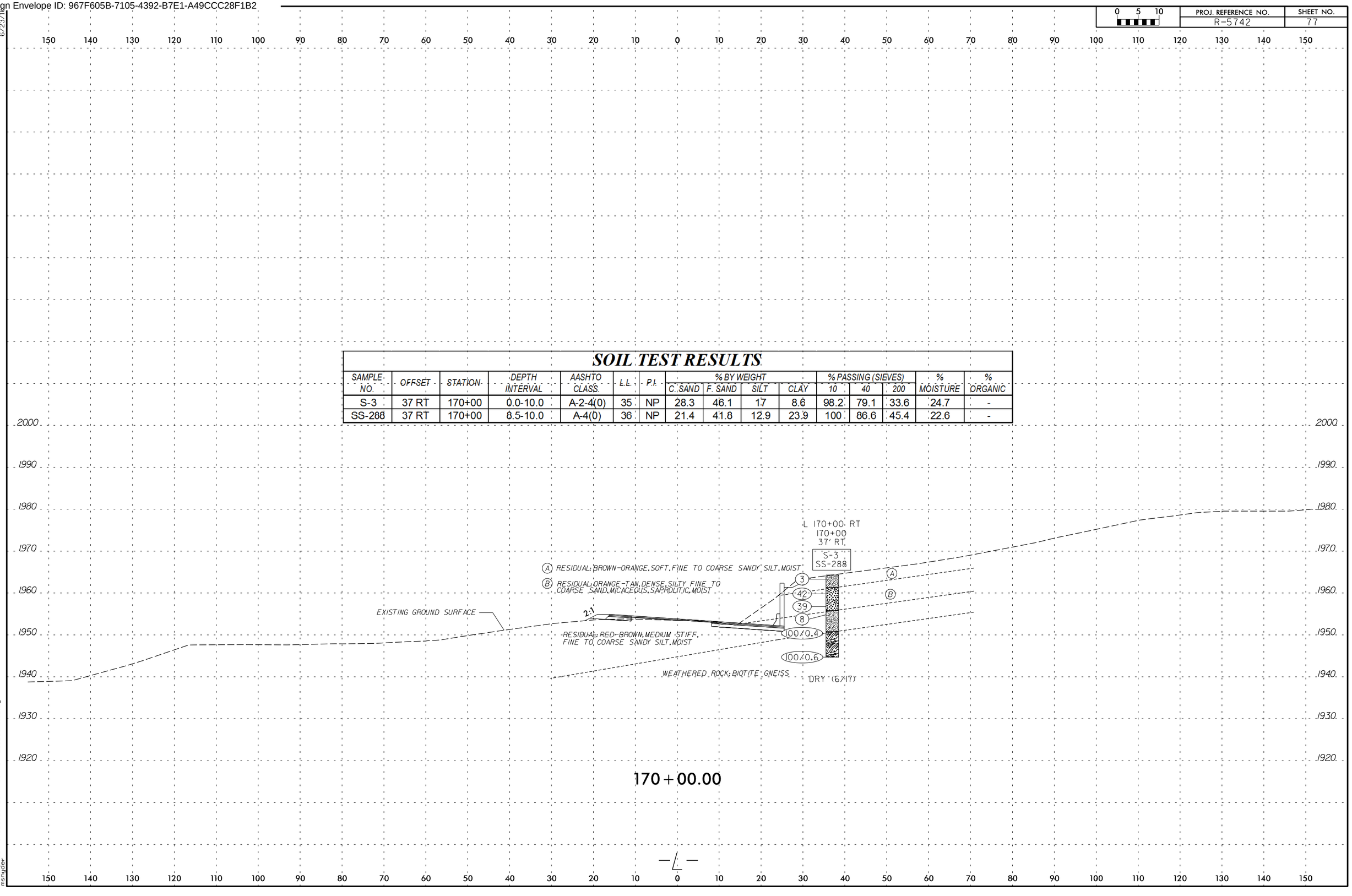
6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	77

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-3	37 RT	170+00	0.0-10.0	A-2-4(0)	35	NP	28.3	46.1	17	8.6	98.2	79.1	33.6	24.7	-
SS-288	37 RT	170+00	8.5-10.0	A-4(0)	36	NP	21.4	41.8	12.9	23.9	100	86.6	45.4	22.6	-



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msyder

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-5742	78

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2000
1990
1980
1970
1960
1950
1940
1930
1920

EXISTING GROUND SURFACE

3:1

RESIDUAL: BROWN-ORANGE, SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY SILT, AND DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST. LENSES OF WEATHERED ROCK

170+50.00

9/18/2018
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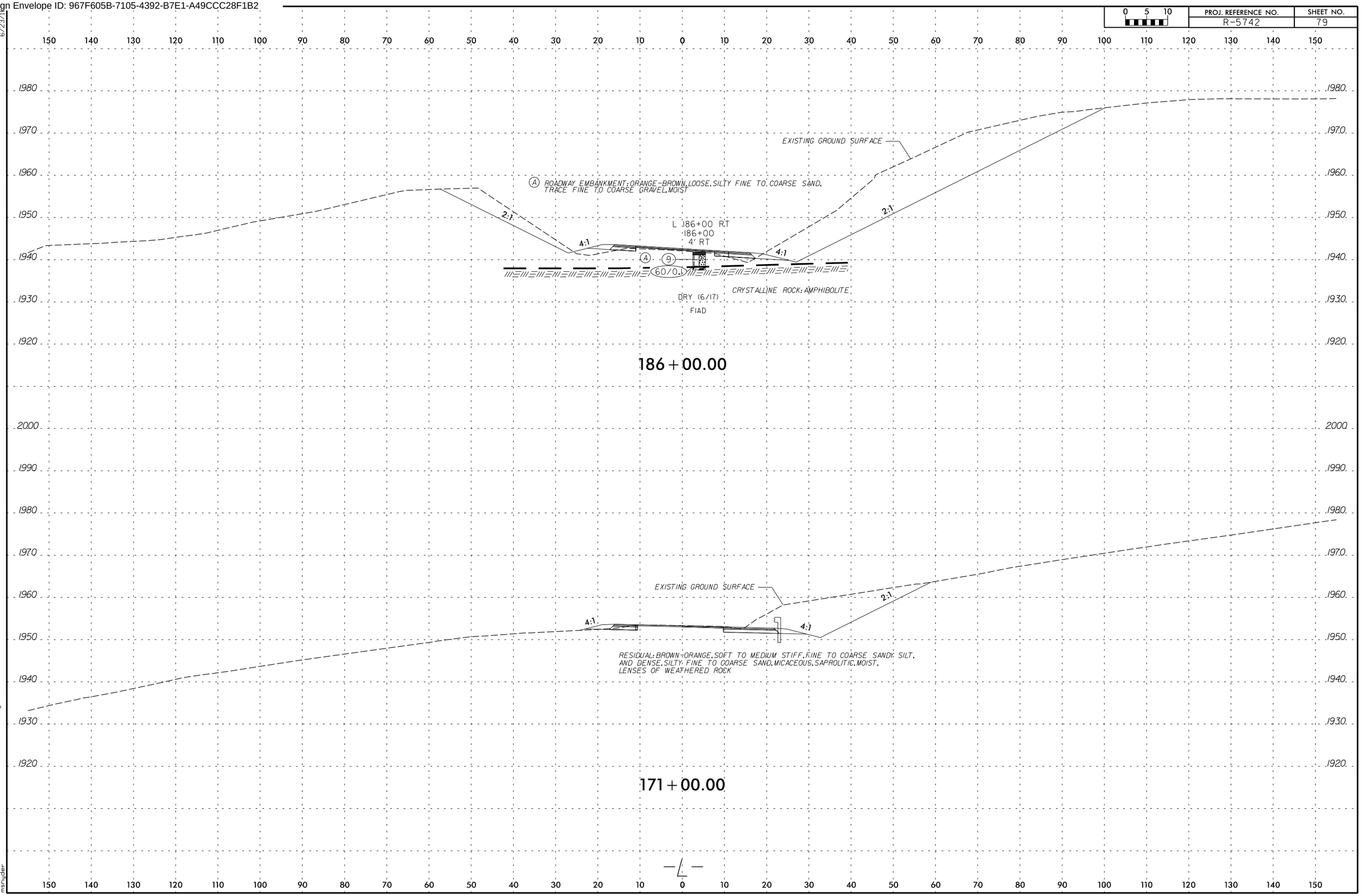
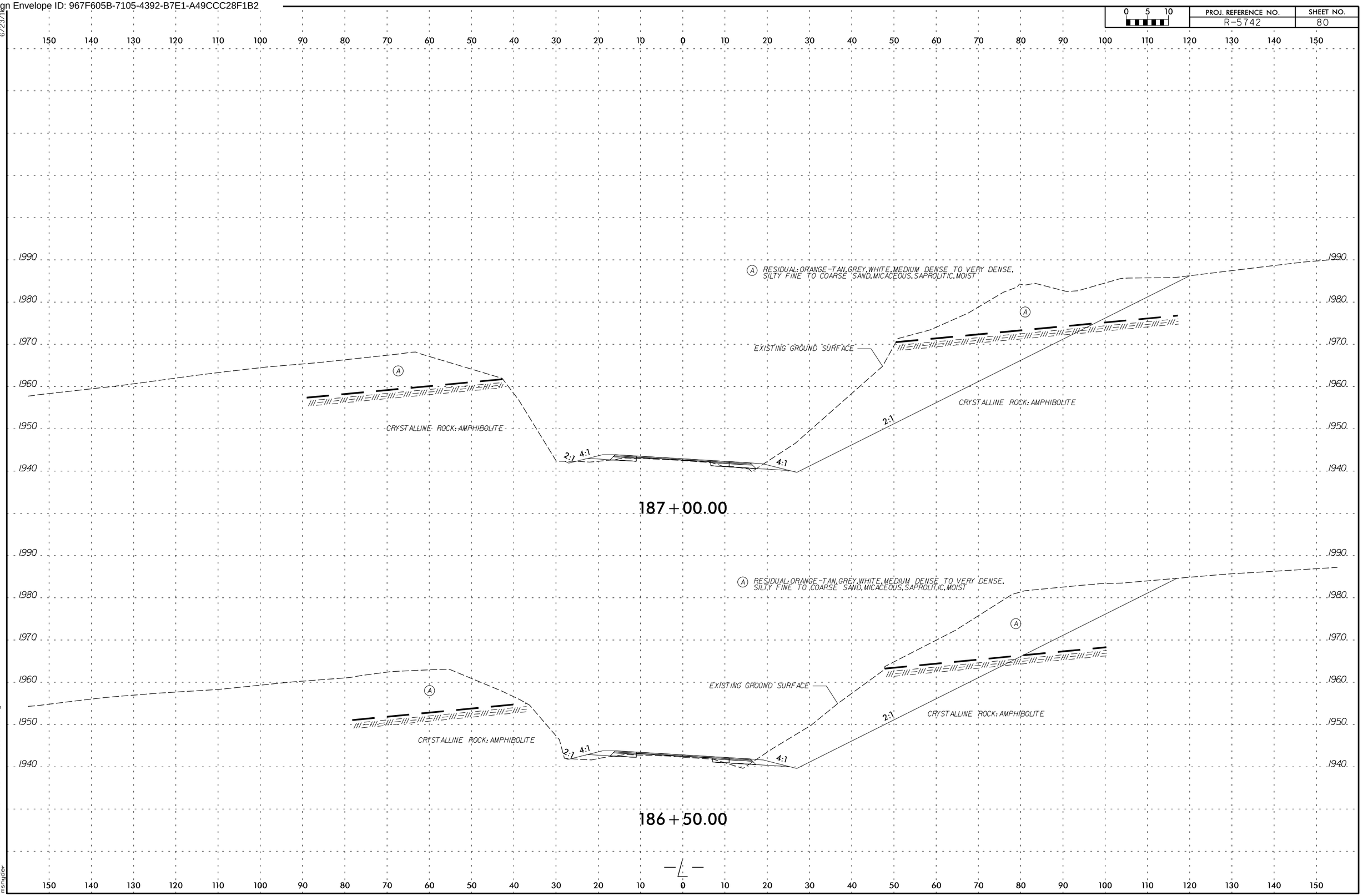
msyder

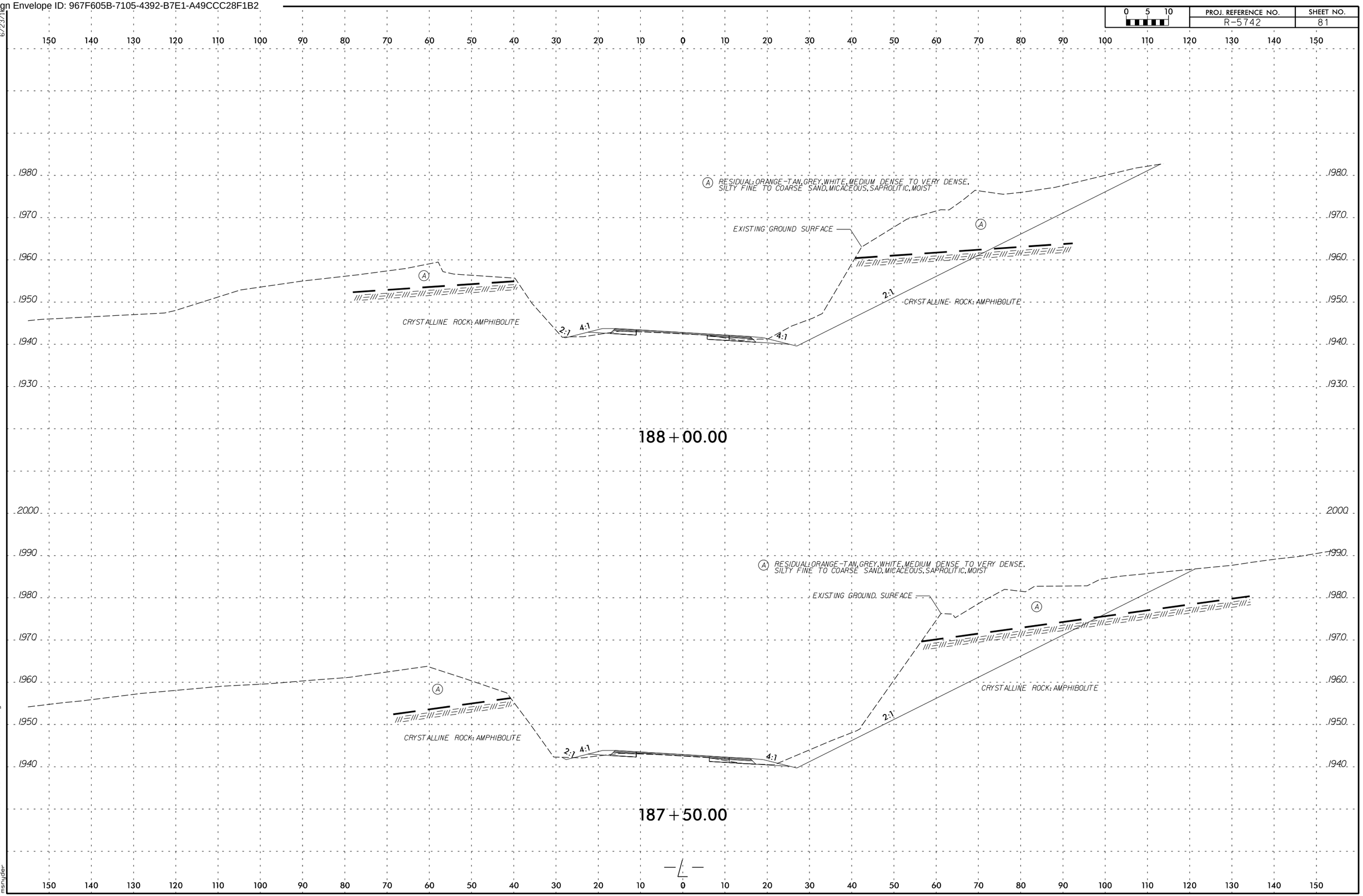
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	79



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	80



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	81



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msyder

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	82

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2010
2000
1990
1980
1970
1960
1950
1940
1930
1920

Ⓐ RESIDUAL: ORANGE-TAN, GREY, WHITE, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST

EXISTING GROUND SURFACE

2:1

4:1

4:1

2:1

Ⓐ

Ⓐ

CRYSTALLINE ROCK: AMPHIBOLITE

CRYSTALLINE ROCK: AMPHIBOLITE

188+50.00

9/18/2018
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msigler

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	83

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2010
2000
1990
1980
1970
1960
1950
1940
1930
1920

(A) ROADWAY EMBANKMENT: BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE GRAVEL, MOIST

(B) RESIDUAL: ORANGE-TAN, GREY, WHITE, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST

(C) WEATHERED ROCK: AMPHIBOLITE

EXISTING GROUND SURFACE

L 189+00 RT
189+00
5' RT

2.00:1 4:1 4:1 2:1

(A) (10)
(B) (100/0.8)
(60/0.1)

DRY (6/17)

CRYSTALLINE ROCK: AMPHIBOLITE

FIAD

189+00.00

9/18/2018
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msigler

6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	84

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2010
2000
1990
1980
1970
1960
1950
1940
1930
1920

EXISTING GROUND SURFACE

(A) RESIDUAL: ORANGE-TAN, GREY, WHITE, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST

4:1
4:1
2:1
(A)

WEATHERED ROCK: AMPHIBOLITE

CRYSTALLINE ROCK: AMPHIBOLITE

189+50.00

9/18/2018
R:\Geotech\CADD_GEOTECH\xsc\R5742_GEO_xs1_L.dgn
mstyler

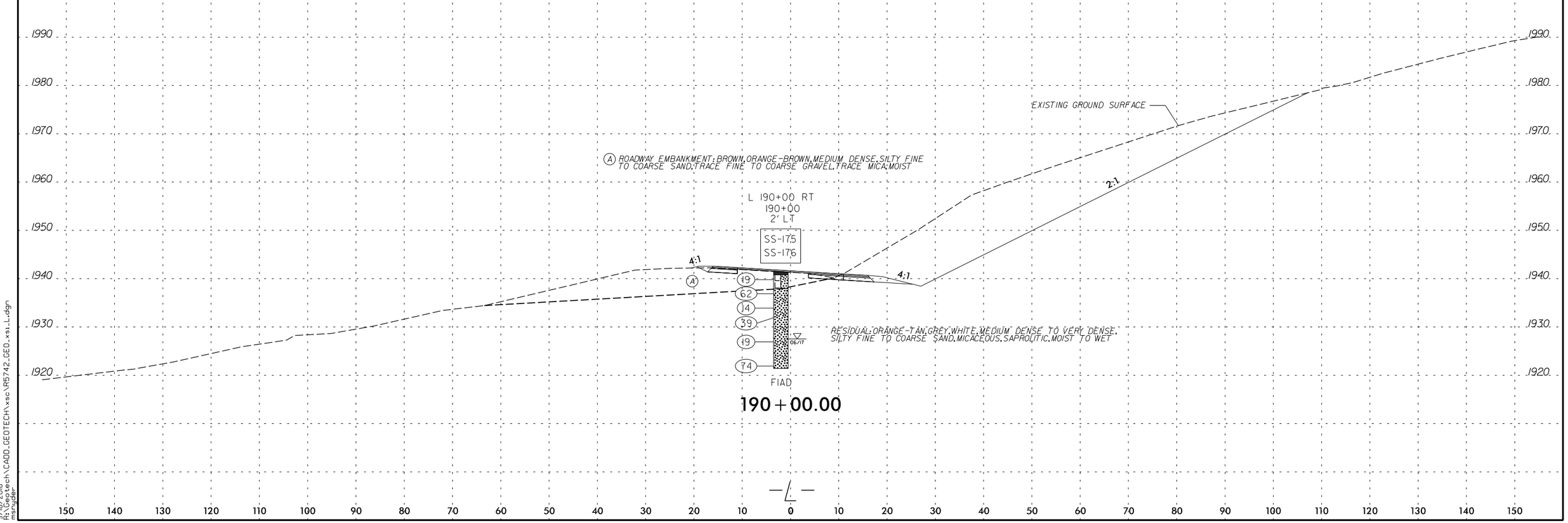
6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	85

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-175	2 LT	190+00	3.5-5.0	A-2-4(0)	32	NP	22.3	54.6	15.8	7.3	100.0	89.0	33.2	12.3	-
SS-176	2 LT	190+00	6.5-8.0	A-2-4(0)	39	NP	29	47.7	12.8	10.5	96	79.7	30.2	26.7	-



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mstyler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	86

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2010
2000
1990
1980
1970
1960
1950
1940
1930
1920

EXISTING GROUND SURFACE

Ⓐ RESIDUAL: DARK BROWN, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MOIST, LENSES OF WEATHERED ROCK

2:1

Ⓐ

4:1

4:1

CRYSTALLINE ROCK: BIOTITE GNEISS

190+50.00

9/18/2018
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mstyler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2010
2000
1990
1980
1970
1960
1950
1940
1930

Ⓐ RESIDUAL: DARK BROWN, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MOIST, LENSES OF WEATHERED ROCK

EXISTING GROUND SURFACE

4:1

4:1

2:1

CRYSTALLINE ROCK: BIOTITE GNEISS

CRYSTALLINE ROCK: BIOTITE GNEISS

191+00.00

9/18/2018
R:\Geotech\CADD_GEOTECH\xsc\R5742_GEO_xs1_L.dgn
mstyler

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

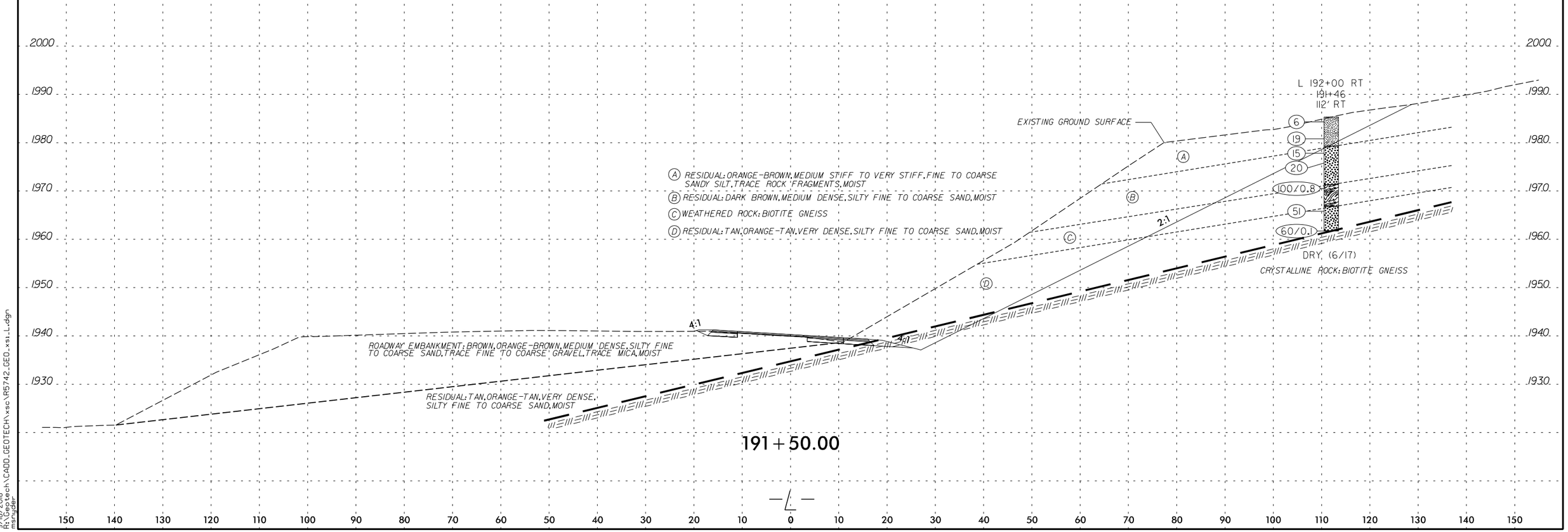
6/23/16

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5742	88

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2020
2010
2000
1990
1980
1970
1960
1950
1940
1930



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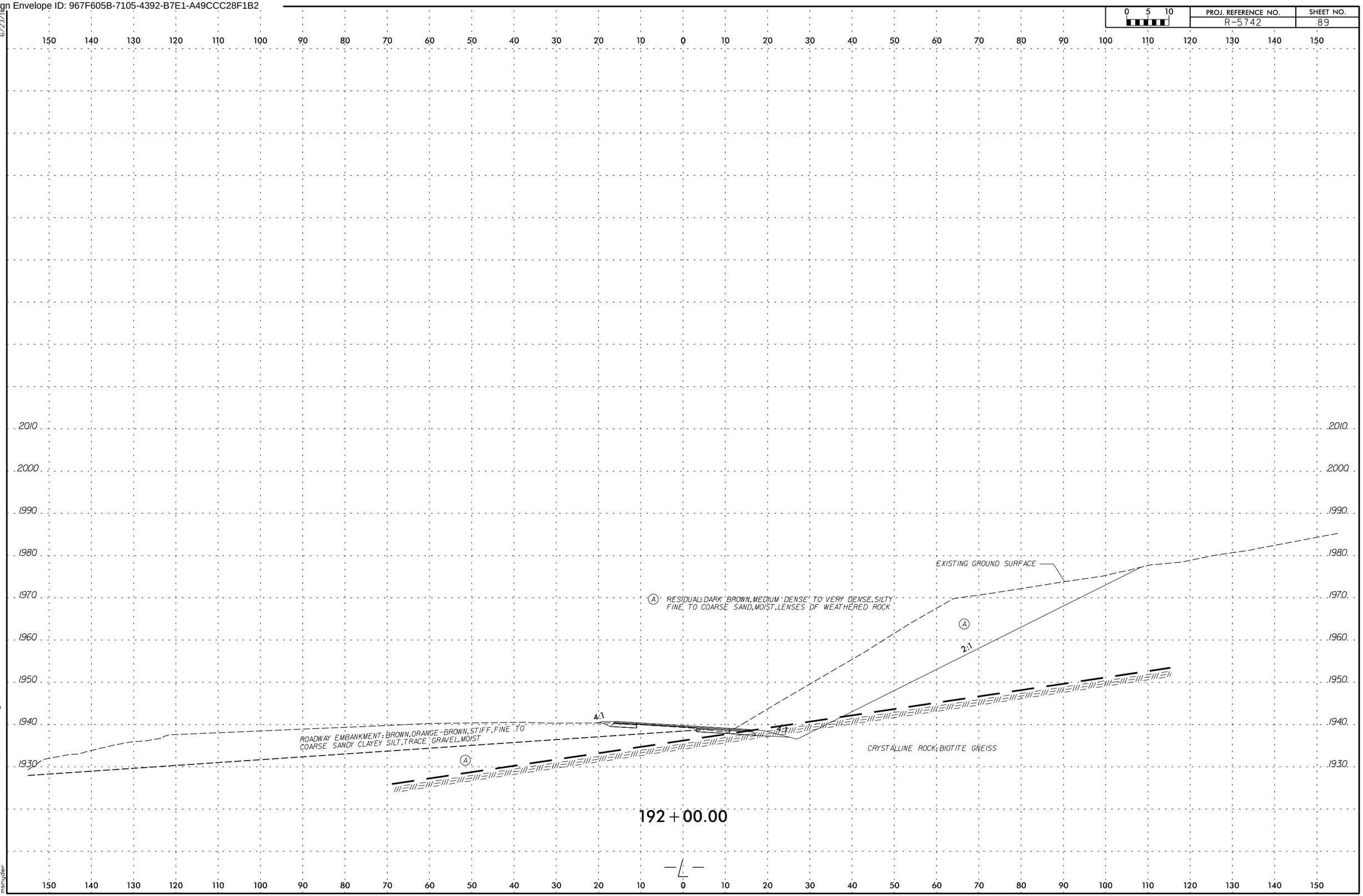
mstyler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	89



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msigler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	90

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2000
1990
1980
1970
1960
1950
1940
1930

EXISTING GROUND SURFACE

Ⓐ RESIDUAL: DARK BROWN, MEDIUM DENSE TO VERY DENSE, SILTY FINE TO COARSE SAND, MOIST, LENSES OF WEATHERED ROCK

4:1

4:1

2:1

ROADWAY EMBANKMENT: BROWN, ORANGE-BROWN, STIFF, FINE TO COARSE SANDY CLAYEY SILT, TRACE GRAVEL, MOIST

WEATHERED ROCK: BIOTITE GNEISS

CRYSTALLINE ROCK: BIOTITE GNEISS

192 + 50.00

9/18/2018
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msigler

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	91

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1980 1970 1960 1950 1940 1930 1920

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, RED-BROWN, LOOSE TO MEDIUM-DENSE, SILTY FINE TO COARSE SAND, TRACE FINE TO COARSE GRAVEL, MOIST

L 196+00 LT
196+00
10' LT

1.5:1

16
7
10
10

Ⓐ

3:1

EXISTING GROUND SURFACE

DRY (6/17)

RESIDUAL: ORANGE-BROWN, MEDIUM STIFF TO STIFF FINE TO COARSE SANDY SILT, MOIST

FIAD

196+00.00

1990 1980 1970 1960 1950 1940 1930 1920

EXISTING GROUND SURFACE

Ⓐ ROADWAY EMBANKMENT: BROWN, ORANGE-BROWN, STIFF, FINE TO COARSE SANDY CLAYEY SILT, TRACE GRAVEL, MOIST

Ⓑ RESIDUAL: TAN-BROWN, MEDIUM DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, SAPROLITIC, MOIST

L 193+00 RT
193+00
5' RT

4:1

Ⓐ

11
23
100/0.8
100/0.8
60/0.1

Ⓑ

4:1

2:1

Ⓑ

WEATHERED ROCK: BIOTITE GNEISS

DRY (6/17)

CRYSTALLINE ROCK: BIOTITE GNEISS

FIAD

193+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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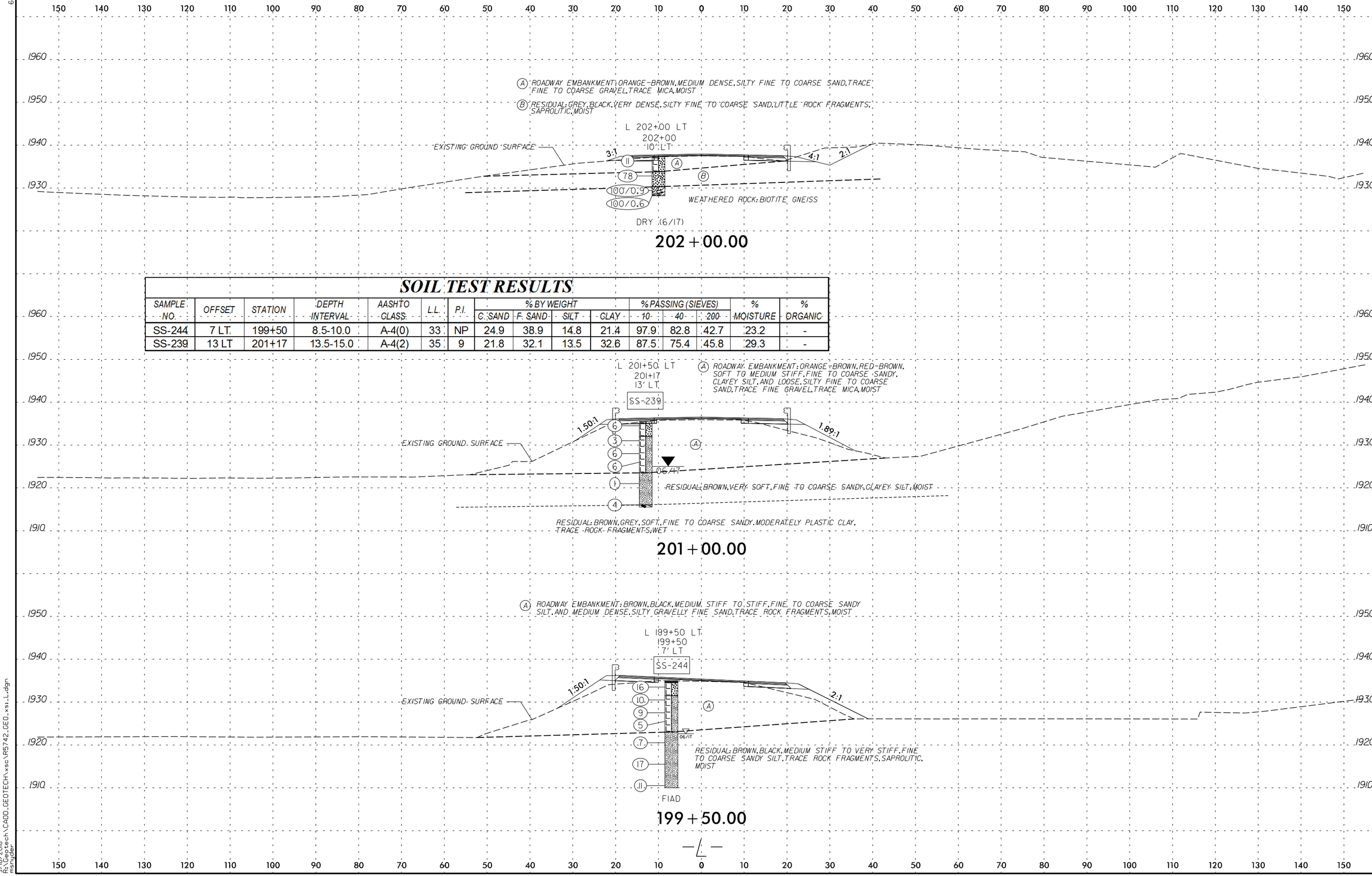
msyder



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-244	7 LT.	199+50	8.5-10.0	A-4(0)	33	NP	24.9	38.9	14.8	21.4	97.9	82.8	42.7	23.2	-
SS-239	13 LT	201+17	13.5-15.0	A-4(2)	35	9	21.8	32.1	13.5	32.6	87.5	75.4	45.8	29.3	-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	93

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1970 1960 1950 1940

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, GREY, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

2:1

Ⓐ

DRIVEWAY

RESIDUAL: TAN-ORANGE, BROWN, GREEN, DARK GREY, WHITE, SOFT TO MEDIUM STIFF, FINE SANDY, MODERATELY PLASTIC CLAY, MICACEOUS, SAPROLITIC, MOIST

208+50.00

1960 1950 1940 1930

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, LOOSE, SILTY FINE TO COARSE SAND, TRACE FINE GRAVEL, MOIST

EXISTING GROUND SURFACE

L 206+00 RT
206+00
10' RT

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

Ⓐ

10
14
6
42

DRY (6/17)

FIAD

RESIDUAL: BROWN-ORANGE, BLACK, LOOSE TO DENSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, SAPROLITIC, MOIST TO WET

206+00.00

1960 1950 1940 1930

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, MEDIUM DENSE, SILTY FINE TO COARSE SAND, MICACEOUS, MOIST

Ⓑ RESIDUAL: GREY, BLACK, VERY DENSE, SILTY FINE TO COARSE SAND, LITTLE ROCK FRAGMENTS, SAPROLITIC, MOIST

EXISTING GROUND SURFACE

L 203+00 LT
203+00
15' LT

2:1 4:1 4:1 Ⓑ 2:1

11
Ⓐ
60/0.1

DRY (6/17)

FIAD

CRYSTALLINE ROCK: BIOTITE GNEISS

203+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

9/18/2018
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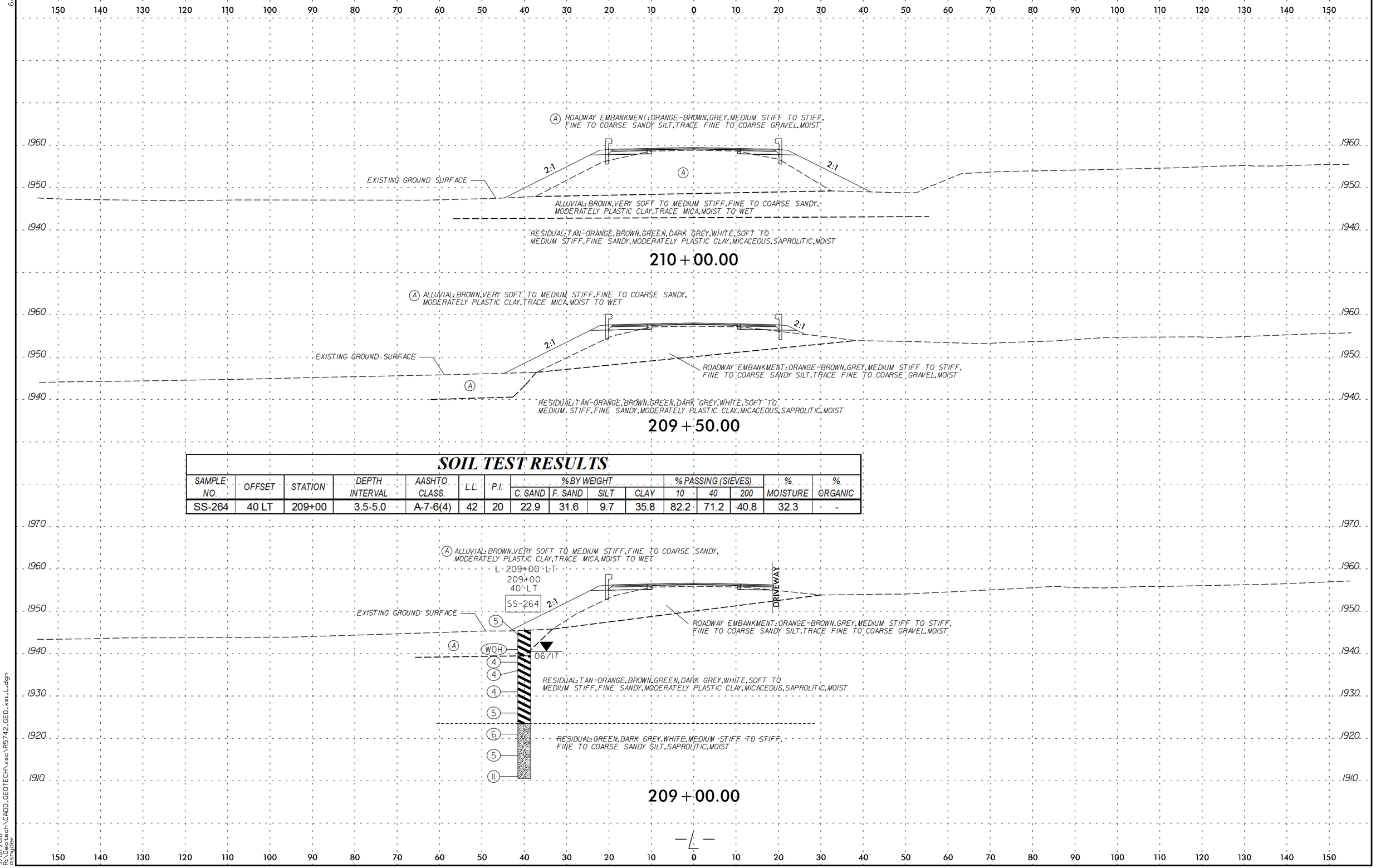
mcyder

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	94



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-264	40 LT	209+00	3.5-5.0	A-7-6(4)	42	20	22.9	31.6	9.7	35.8	82.2	71.2	40.8	32.3	-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	95

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1970
1960
1950

EXISTING GROUND SURFACE

2:1 4:1

ROADWAY EMBANKMENT: ORANGE-BROWN, GREY, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

2:1

RESIDUAL: TAN-ORANGE, BROWN, GREEN, DARK GREY, WHITE, SOFT TO MEDIUM STIFF, FINE SANDY, MODERATELY PLASTIC CLAY, Mmicaceous, SAPROLITIC, MOIST

211+50.00

1970
1960
1950

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, GREY, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

Ⓑ ALLUVIAL: BROWN, VERY SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, MODERATELY PLASTIC CLAY, TRACE MICA, MOIST TO WET

EXISTING GROUND SURFACE

2:1 Ⓐ 2:1

RESIDUAL: TAN-ORANGE, BROWN, GREEN, DARK GREY, WHITE, SOFT TO MEDIUM STIFF, FINE SANDY, MODERATELY PLASTIC CLAY, MICACEOUS, SAPROLITIC, MOIST

Ⓑ

211+00.00

1960
1950
1940

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, GREY, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

2:1 Ⓐ 2:1

ALLUVIAL: BROWN, VERY SOFT TO MEDIUM STIFF, FINE TO COARSE SANDY, MODERATELY PLASTIC CLAY, TRACE MICA, MOIST TO WET

RESIDUAL: TAN-ORANGE, BROWN, GREEN, DARK GREY, WHITE, SOFT TO MEDIUM STIFF, FINE SANDY, MODERATELY PLASTIC CLAY, MICACEOUS, SAPROLITIC, MOIST

210+50.00

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	96

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

2020 2010 2000 1990 1980 1970

Ⓐ RESIDUAL: ORANGE-BROWN, MEDIUM STIFF TO VERY STIFF, FINE TO COARSE SANDY SILT, MICACEOUS, SAPROLITIC, MOIST

L 216+00 LT
216+00
64' LT

6
Ⓐ 16
17
20
14
14
15

06/17

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

EXISTING GROUND SURFACE

RESIDUAL: RED-BROWN, MEDIUM DENSE, SILTY FINE TO COARSE SAND, TRACE ROCK FRAGMENTS, MICACEOUS, SAPROLITIC, MOIST

216+00.00

Ⓐ ROADWAY EMBANKMENT: ORANGE-BROWN, GREY, MEDIUM STIFF TO STIFF, FINE TO COARSE SANDY SILT, TRACE FINE TO COARSE GRAVEL, MOIST

EXISTING GROUND SURFACE

2:1 4:1

L 212+00 RT
212+00
10' RT

9
7
Ⓐ 7
5

DRY (6/17)

2:1

RESIDUAL: TAN-ORANGE, GREEN, DARK GREY, WHITE, SOFT TO MEDIUM STIFF, FINE SANDY, MODERATELY PLASTIC CLAY, MICACEOUS, SAPROLITIC, MOIST

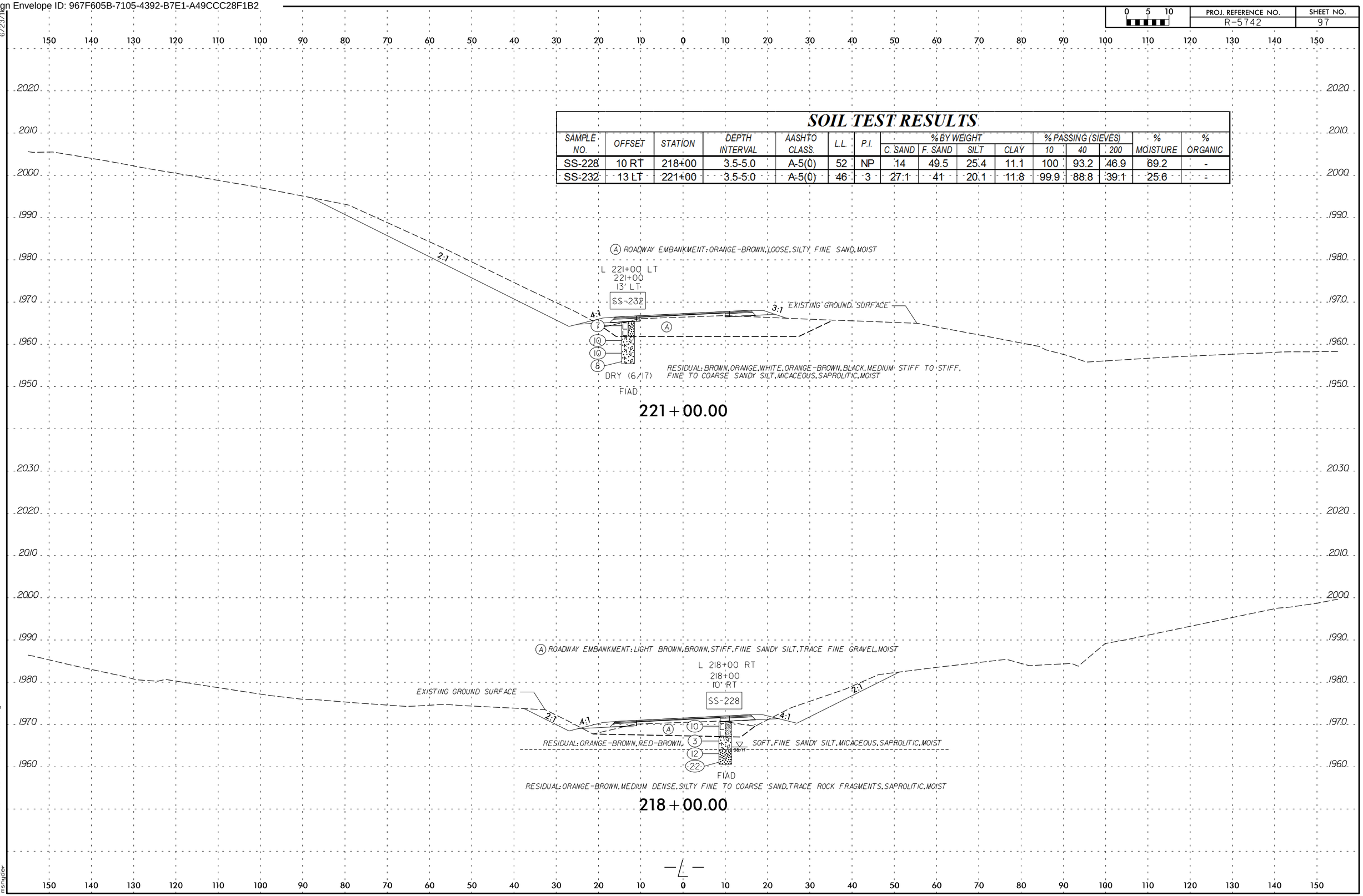
FIAD

212+00.00

9/18/2018
R:\Geotech\CADD_GEOTECH\xsc\R5742_GEO_xsi_L.dgn
mstyder

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-228	10 RT	218+00	3.5-5.0	A-5(0)	52	NP	14	49.5	25.4	11.1	100	93.2	46.9	69.2	-
SS-232	13 LT	221+00	3.5-5.0	A-5(0)	46	3	27.1	41	20.1	11.8	99.9	88.8	39.1	25.6	-

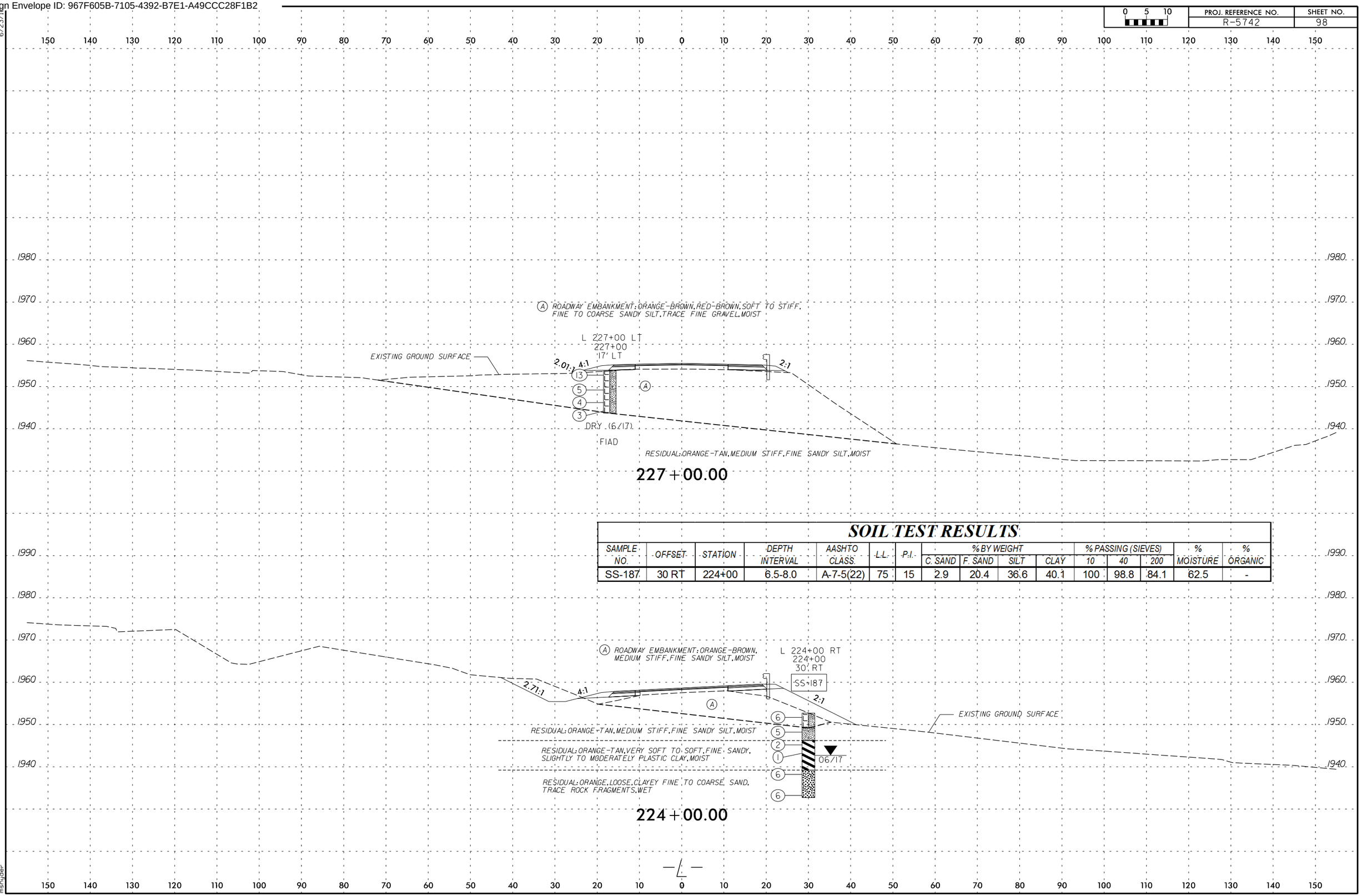


6/23/16

9/18/2018
R:\Geotech\CADD_GEOTECH\xsc\R5742_GEO_xsL.dgn
msyder

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5742	98



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-187	30 RT	224+00	6.5-8.0	A-7-5(22)	75	15	2.9	20.4	36.6	40.1	100	98.8	84.1	62.5	-

PROJECT REFERENCE NO.	SHEET NO.
R–5742	99

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY RESULTS

REFERENCE: R–5742

PROJECT: 46325

Prepared in the Office of:

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F–0112

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: R-5742
DESCRIPTION: NC-175 Widening

REPORT ON SAMPLES OF: SOIL FOR QUALITY

WBS No.: 46325.1.D.1
DATE SAMPLED: 6/17
SAMPLED FROM: -L-
SUBMITTED BY: M. Snyder

COUNTY: Clay
RECEIVED: 7/3/17
REPORTED: 7/17
BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-3	SS-8	SS-12	SS-17	SS-19	SS-24	SS-29	SS-32	SS-36	SS-40	SS-44	SS-52	SS-56	SS-61
BORING NO.	L33+00 RT	L34+21 RT	L22+75 LT	L16+50 LT	L13+75 LT	L10+75 LT	L40+75 RT	L54+75 RT	L57+75 RT	L61+75 RT	L64+75 RT	L70+75 RT	L76+75 RT	L79+75 LT
Retained #4 Sieve %	0.0	12.4	0.3	0.0	0.3	28.5	5.9	2.6	0.0	0.0	0.0	0.0	3.1	0.0
Passing #10 Sieve %	99.9	79.7	95.7	99.6	98.4	64.3	92.7	94.0	99.8	99.3	100.0	100.0	96.1	100.0
Passing #40 Sieve %	97.5	61.8	82.9	91.8	96.3	52.2	87.7	89.6	94.3	88.0	76.7	88.0	88.6	98.7
Passing #200 Sieve %	82.3	29.7	36.3	47.8	91.4	23.7	68.5	80.6	43.2	59.0	45.2	46.3	68.5	86.6
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	6.1	34.5	23.5	16.2	3.3	32.2	9.9	6.5	13.6	16.9	34.2	22.5	13.0	3.8
Fine Sand Ret - #270 %	16.4	34.4	48.1	47.1	5.6	35.5	20.6	11.2	49.3	30.2	25.8	38.9	19.5	13.8
Silt 0.053 - 0.010 mm %	40.0	12.2	17.9	23.8	45.8	9.0	21.1	48.1	14.6	23.1	22.3	25.3	20.5	31.0
Clay < 0.010 mm %	37.5	18.9	10.5	12.9	45.3	23.3	48.4	34.2	22.5	29.8	17.7	13.3	47.0	51.4
L.L.	83	44	42	50	76	29	50	59	63	63	40	36	65	90
P.L.	43	33	NP	47	50	26	32	44	55	45	NP	NP	43	52
P.I.	40	11	NP	3	26	3	18	15	8	18	NP	NP	22	38
AASHTO Classification	A-7-5(40)	A-2-7(0)	A-5(0)	A-5(1)	A-7-5(34)	A-2-4(0)	A-7-5(13)	A-7-5(17)	A-5(2)	A-7-5(11)	A-4(0)	A-4(0)	A-7-5(17)	A-7-5(43)
Station	33+37	34+20	22+75	16+50	13+70	10+71	40+75	54+73	57+73	61+75	64+79	70+73	77+17	79+70
Offset	48' RT	53' RT	15' LT	7' LT	6' LT	12' LT	8' RT	6' RT	1' RT	5' LT	9' LT	16' LT	4' RT	7' LT
Depth (ft)	6.0	6.5	6.5	8.5	0.5	3.5	6.5	3.5	3.5	3.5	3.5	3.5	3.5	6.5
to	7.5	8.0	8.0	10.0	2.0	5.0	8.0	5.0	5.0	5.0	5.0	5.0	5.0	8.0
Alignment	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-
Moisture Content (%)	68.9	47.9	27.6	34.1	42.2	14.3	35.2	66.0	84.2	92.5	55.1	34.4	40.0	69.6
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

NP = Not plastic
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ND = Not Determined
CL = Centerline

Soils Engineer

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: R-5742
DESCRIPTION: NC-175 Widening

REPORT ON SAMPLES OF: SOIL FOR QUALITY

WBS No.: 46325.1.D.1
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SUBMITTED BY: M. Snyder

COUNTY: Clay
RECEIVED: 7/3/17
REPORTED: 7/17
BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-67	SS-69	SS-74	SS-79	SS-87	SS-94	SS-96	SS-100	SS-106	SS-113	SS-122	SS-125	SS-134	SS-139
BORING NO.	L85+75 LT	L97+75 RT	L100+75 LT	L113+00 RT	L119+25 LT	L122+25 LT	L122+25 LT	L126+00 LT	L130+00 RT	L146+00 LT	L25+75 LT	L18+50 LT	L31+75 LT	L34+21 LT
Retained #4 Sieve %	0.0	0.0	22.3	0.8	4.4	1.2	0.0	0.0	0.8	0.0	0.0	0.3	0.2	0.0
Passing #10 Sieve %	100.0	100.0	73.7	98.1	93.9	98.3	100.0	100.0	99.2	100.0	100.0	96.3	99.7	99.8
Passing #40 Sieve %	84.5	91.0	58.9	91.5	89.2	97.3	93.8	95.0	84.1	94.6	97.8	83.9	98.7	98.0
Passing #200 Sieve %	52.0	45.6	29.1	61.5	59.5	34.1	26.9	60.3	46.6	36.0	87.5	36.6	86.3	46.9
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	24.2	19.8	28.6	12.7	8.5	3.5	20.1	10.5	23.2	18.1	4.2	23.6	3.0	8.3
Fine Sand Ret - #270 %	32.6	41.4	40.3	30.1	34.7	73.6	60.5	36.7	37.4	55.0	11.3	48.2	15.0	53.7
Silt 0.053 - 0.010 mm %	30.8	24.2	16.3	24.8	16.7	14.2	12.5	22.1	11.2	15.5	24.4	17.6	33.3	20.5
Clay < 0.010 mm %	12.4	14.6	14.8	32.4	40.1	8.7	6.9	30.7	28.2	11.4	60.1	10.6	48.7	17.5
L.L.	50	31	35	36	45	34	55	38	34	35	86	48	99	25
P.L.	NP	NP	NP	24	31	NP	NP	34	32	NP	55	NP	50	NP
P.I.	NP	NP	NP	12	14	NP	NP	4	2	NP	31	NP	49	NP
AASHTO Classification	A-5(1)	A-4(0)	A-2-4(0)	A-6(6)	A-7-5(7)	A-2-4(0)	A-2-5(0)	A-4(2)	A-4(0)	A-4(0)	A-7-5(38)	A-5(0)	A-7-5(53)	A-4(0)
Station	85+69	97+38	100+75	113+00	119+25	122+40	122+40	126+39	130+19	146+00	25+73	18+27	31+73	34+18
Offset	8' LT	7' RT	10' LT	1' RT	8' LT	7' LT	7' LT	6' LT	7' RT	5' LT	15' LT	59' RT	1' RT	1' RT
Depth (ft)	13.5	3.5	6.5	8.5	3.5	6.5	13.5	6.5	8.5	3.5	6.5	3.5	6.5	8.5
to	15.0	5.0	8.0	10.0	5.0	8.0	15.0	8.0	10.0	5.0	8.0	5.0	8.0	10.0
Alignment	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-
Moisture Content (%)	44.9	26.3	7.3	20.7	22.7	15.6	30.0	38.1	21.8	25.4	58.6	9.1	80.9	33.5
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

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Soils Engineer

North Carolina Department of Transportation
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Soils Laboratory

T.I.P. ID NO.: R-5742
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SUBMITTED BY: M. Snyder

COUNTY: Clay
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BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-142	SS-175	SS-176	SS-416	S-1	SS-187	SS-216	SS-239	SS-305	SS-342	SS-392	SS-399	SS-403	S-2
BORING NO.	L37+75 LT	L190+00 RT	L190+00 RT	L125+25 LT	L104+00 RT	L224+00 RT	L82+75 RT	L201+50 LT	L152+00 RT	L87+50 RT	L120+25 LT	L121+25 LT	L123+25 LT	L137+00 RT
Retained #4 Sieve %	0.2	0.0	2.8	1.8	0.6	0.0	10.2	7.9	26.8	0.1	6.8	0.1	1.6	6.3
Passing #10 Sieve %	99.4	100.0	96.0	96.4	96.8	100.0	88.7	87.5	71.7	99.3	92.5	99.7	96.7	92.4
Passing #40 Sieve %	95.6	89.0	79.7	88.4	88.3	98.8	84.2	75.4	65.2	83.8	86.2	95.8	90.9	82.7
Passing #200 Sieve %	69.2	33.2	30.2	46.6	40.6	84.1	60.4	45.8	47.4	53.8	41.2	56.7	62.5	44.8
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	9.6	22.3	29.0	17.8	16.4	2.9	10.8	21.8	14.8	25.0	14.4	7.1	10.5	18.0
Fine Sand Ret - #270 %	25.0	54.6	47.7	40.1	51.5	20.4	26.0	32.1	22.7	27.2	50.5	49.2	29.0	41.2
Silt 0.053 - 0.010 mm %	16.8	15.8	12.8	16.1	19.4	36.6	30.2	13.5	27.4	29.4	20.2	24.7	18.6	16.3
Clay < 0.010 mm %	48.6	7.3	10.5	26.0	12.7	40.1	33.0	32.6	35.1	18.4	14.9	19.0	41.9	24.5
L.L.	53	32	39	30	32	75	41	35	43	50	38	56	42	28
P.L.	31	NP	NP	24	NP	60	29	26	25	NP	NP	49	26	NP
P.I.	22	NP	NP	6	NP	15	12	9	18	NP	NP	7	16	NP
AASHTO Classification	A-7-5(16)	A-2-4(0)	A-2-4(0)	A-4(1)	A-4(0)	A-7-5(22)	A-7-6(6)	A-4(2)	A-7-6(5)	A-5(1)	A-4(0)	A-5(5)	A-7-6(9)	A-4(0)
Station	37+73	190+00	190+00	125+25	104+35	224+00	82+70	201+17	152+00	87+50	120+33	121+25	123+13	137+65
Offset	19' LT	2' LT	2' LT	19' LT	49' RT	30' RT	31' RT	13' LT	15' RT	30' RT	38' LT	22' LT	32' LT	62' LT
Depth (ft)	0.0	3.5	6.5	3.5	0.0	6.5	3.5	13.5	0.0	6.5	3.5	6.5	0.0	0.0
to	1.5	5.0	8.0	5.0	10.0	8.0	5.0	15.0	1.5	8.0	5.0	8.0	1.5	10.0
Alignment	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-
Moisture Content (%)	30.5	12.3	26.7	31.7	21.5	62.5	23.4	29.3	25.4	50.3	35.4	38.9	28.5	28.0
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

NP = Not plastic
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CL = Centerline

Soils Engineer

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: R-5742
DESCRIPTION: NC-175 Widening

REPORT ON SAMPLES OF: SOIL FOR QUALITY

WBS No.: 46325.1.D.1
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SUBMITTED BY: M. Snyder

COUNTY: Clay
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BY: D. Jenks
Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-83	SS-110	SS-117	SS-155	SS-167	SS-199	SS-206	SS-211	SS-228	SS-232	SS-244	SS-264	SS-288	SS-293
BORING NO.	L113+00 RT	L140+00 RT	L28+75 LT	L156+00 RT	L167+00 RT	L48+50 LT	L46+75 LT	L73+75 RT	L218+00 RT	L221+00 LT	L199+50 LT	L209+00 LT	L170+00 RT	L160+00 LT
Retained #4 Sieve %	11.0	3.6	21.1	5.3	0.0	0.2	5.6	2.4	0.0	0.0	0.2	11.6	0.0	0.9
Passing #10 Sieve %	87.9	95.4	77.8	94.4	100.0	99.7	89.4	97.5	100.0	99.9	97.9	82.2	100.0	98.8
Passing #40 Sieve %	80.2	86.6	73.4	89.5	95.9	95.8	79.9	95.6	93.2	88.8	82.8	71.2	86.6	96.4
Passing #200 Sieve %	39.1	38.2	51.6	61.0	67.4	65.5	48.0	83.2	46.9	39.1	42.7	40.8	45.4	56.9
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	19.5	18.7	12.9	11.6	9.0	9.6	19.7	4.5	14.0	27.1	24.9	22.9	21.4	8.3
Fine Sand Ret - #270 %	42.7	52.0	24.1	28.1	29.6	32.4	31.4	14.2	49.5	41.0	38.9	31.6	41.8	41.6
Silt 0.053 - 0.010 mm %	13.2	20.5	6.9	20.8	24.2	28.7	16.0	32.7	25.4	20.1	14.8	9.7	12.9	15.7
Clay < 0.010 mm %	24.6	8.8	56.1	39.5	37.2	29.3	32.9	48.6	11.1	11.8	21.4	35.8	23.9	34.4
L.L.	49	39	81	32	34	68	40	95	52	46	33	42	36	31
P.L.	42	NP	40	24	24	48	23	55	NP	43	NP	22	NP	20
P.I.	7	NP	41	8	10	20	17	40	NP	3	NP	20	NP	11
AASHTO Classification	A-5(0)	A-4(0)	A-7-5(18)	A-4(3)	A-4(6)	A-7-5(15)	A-6(5)	A-7-5(44)	A-5(0)	A-5(0)	A-4(0)	A-7-6(4)	A-4(0)	A-6(4)
Station	113+00	140+00	28+76	156+00	166+96	48+50	46+75	73+75	218+00	221+00	199+50	209+00	170+00	160+00
Offset	1' RT	10' RT	19' LT	6' RT	1' RT	16' LT	15' LT	10' RT	10' RT	13' LT	7' LT	40' LT	37' RT	20' LT
Depth (ft)	28.5	6.5	3.5	6.5	6.5	8.5	8.5	0.0	3.5	3.5	8.5	3.5	8.5	6.5
to	30.0	8.0	5.0	8.0	8.0	10.0	10.0	1.5	5.0	5.0	10.0	5.0	10.0	8.0
Alignment	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-
Moisture Content (%)	43.3	12.1	52.1	47.3	24.8	87.3	28.0	72.3	69.2	25.6	23.2	32.3	22.6	22.0
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

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Soils Engineer

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TEST RESULTS

PROJ. SAMPLE NO.	SS-302	SS-347	SS-375	SS-411	S-3	SS-192	SS-348	SS-379	SS-297	SS-309	SS-338			
BORING NO.	L158+00 LT	L90+75 RT	L111+00 RT	L124+25 LT	L170+00 RT	L51+75 LT	L90+75 RT	L117+00 LT	L160+50 LT	L149+00 RT	L143+00 LT			
Retained #4 Sieve %	2.4	0.8	0.0	0.0	0.8	11.9	0.0	13.9	2.7	1.6	0.0			
Passing #10 Sieve %	96.9	97.9	100.0	100.0	98.2	87.8	100.0	84.4	97.0	97.9	100.0			
Passing #40 Sieve %	88.3	93.3	97.7	98.1	79.1	82.2	91.1	78.3	90.3	94.3	97.0			
Passing #200 Sieve %	40.0	72.6	42.8	60.6	33.6	51.6	58.5	48.3	47.7	60.8	48.8			
SOIL MORTAR - 100%														
Coarse Sand Ret - #60 %	19.8	9.0	9.3	9.3	28.3	14.3	19.4	12.6	14.1	8.0	12.7			
Fine Sand Ret - #270 %	45.2	21.0	57.7	36.8	46.1	32.9	28.0	36.8	44.4	36.2	50.3			
Silt 0.053 - 0.010 mm %	12.1	24.8	16.2	27.7	17.0	22.2	26.6	18.1	14.9	19.2	27.4			
Clay < 0.010 mm %	22.9	45.2	16.8	26.2	8.6	30.6	26.0	32.5	26.6	36.6	9.6			
L.L.	27	41	36	73	35	49	85	35	24	30	46			
P.L.	NP	27	NP	62	NP	28	66	22	NP	19	NP			
P.I.	NP	14	NP	11	NP	21	19	13	NP	11	NP			
AASHTO Classification	A-4(0)	A-7-6(10)	A-4(0)	A-7-5(10)	A-2-4(0)	A-7-6(8)	A-7-5(14)	A-6(3)	A-4(0)	A-6(5)	A-5(0)			
Station	158+00	90+75	111+39	124+06	170+00	51+75	90+75	117+07	160+50	149+00	142+26			
Offset	25' LT	20' RT	45' RT	28' LT	37' RT	25' LT	20' RT	62' LT	22' LT	20' RT	57' LT			
Depth (ft)	3.5	0.0	3.5	6.5	0.0	3.5	3.5	0.0	3.5	0.0	23.5			
to	5.0	1.5	5.0	8.0	10.0	5.0	5.0	1.5	5.0	1.5	25.0			
Alignment	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-	-L-			
Moisture Content (%)	26.7	24.4	30.0	74.3	24.7	40.1	71.8	13.9	28.3	19.4	32.7			
Organic Content (%)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT			

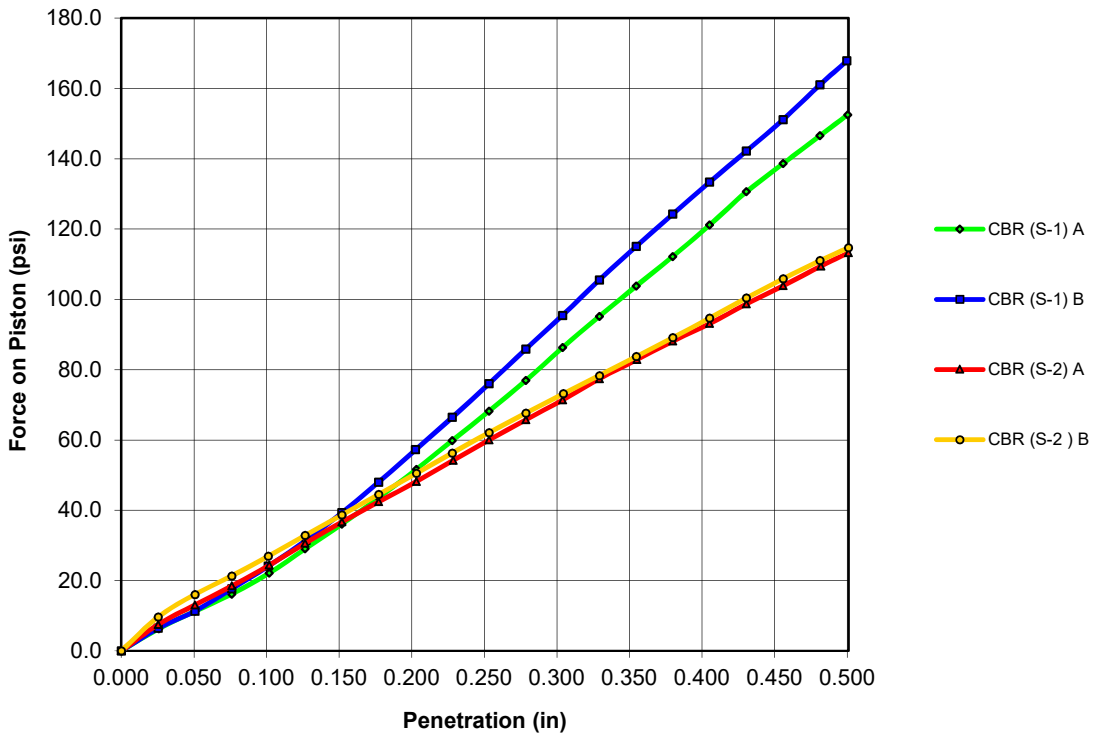
NP = Not plastic
NT = Not tested
ND = Not Determined
CL = Centerline

Soils Engineer

FROEHLING & ROBERTSON, INC.

California Bearing Ratio Test Report

Load Penetration Curve



SOAKED CBR TEST RESULTS					
Results	**S-1 (A)**	**S-1 (B)**	**S-2 (A)**	**S-2 (B)**	
0.1 in Pen.	2.2	2.4	2.4	2.7	
0.2 in Pen.	3.4	3.8	3.2	3.4	
Moisture (%)	21.5	21.7	22.4	21.9	
Density (pcf)	101.6	99.0	100.3	100.9	
Final Moisture (%)	24.7	23.8	22.9	23.9	
Final Density (pcf)	99.7	101.4	100.6	99.9	

Project Information		**Natural Moisture (%)**		
Project Name:	R-5742 Clay County	CBR (S-1)	21.5	
Client Name:	RK&K	CBR (S-2)	28.1	
Project Number:	66V-0041	**Percent Swell**	**A**	**B**
Date Received:	07/24/2017	CBR (S-1)	0.500	0.350
Project Location:	Hayesville, North Carolina	CBR (S-2)	0.150	0.130

Sample Information		**Proctor Value** *(AASHTO T-99)*	
Sample Number	**Classification**	**Max. Dry Density (pcf)**	**Optimum Moisture %**
CBR (S-1)	Dark Brown, Fine to Coarse sandy Silt with little clay	104.2	19.3
CBR (S-2)	Dark Brown, Fine to Coarse Sandy Silt with some clay	102.4	20.4
Sample Number	**Sample Location**	**AASHTO**	**% - #200**
CBR (S-1)	L104+00 RT	A-4 (5)	40.6
CBR (S-2)	L137+00 RT	A-4 (0)	44.8

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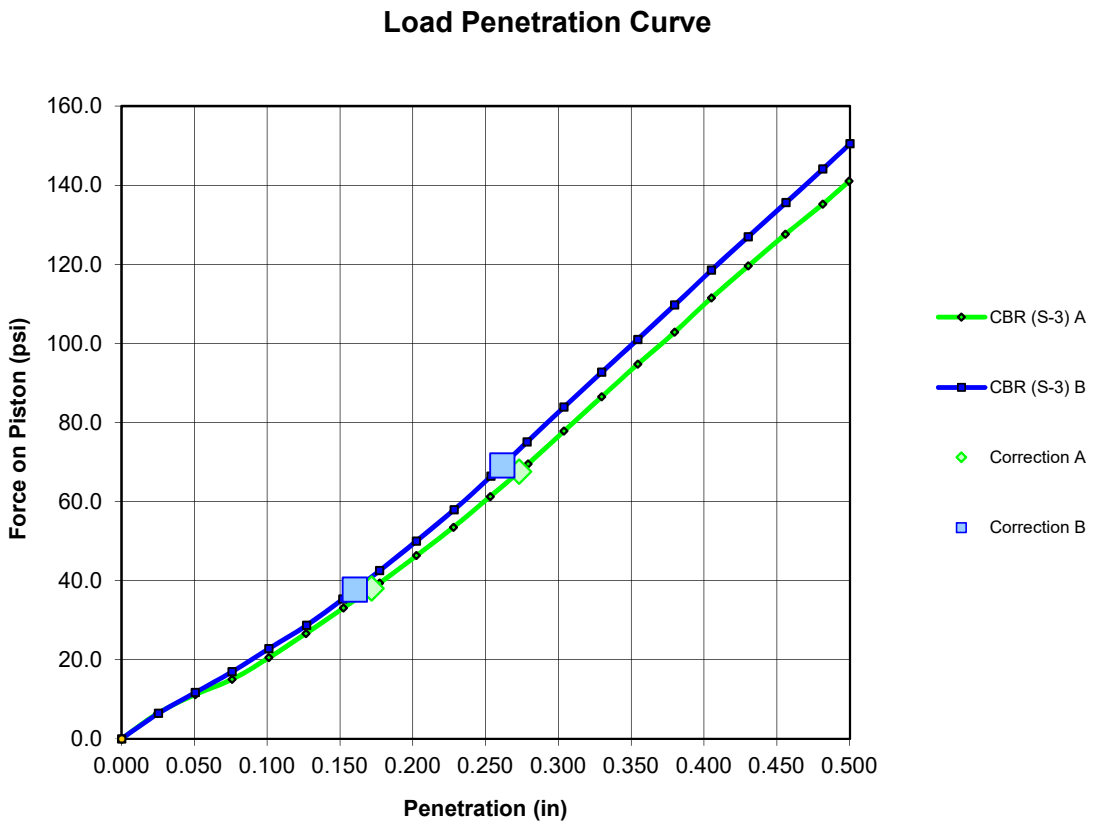
California Bearing Ratio Test Report



SOAKED CBR TEST RESULTS					
Results	**S-3 (A)**	**S-3 (B)**			
0.1 in Pen.	3.8	3.8			
0.2 in Pen.	4.5	4.6			
Moisture (%)	21.1	21.1			
Density (pcf)	101.1	101.2			
Final Moisture (%)	23.0	23.4			
Final Density (pcf)	99.8	99.8			

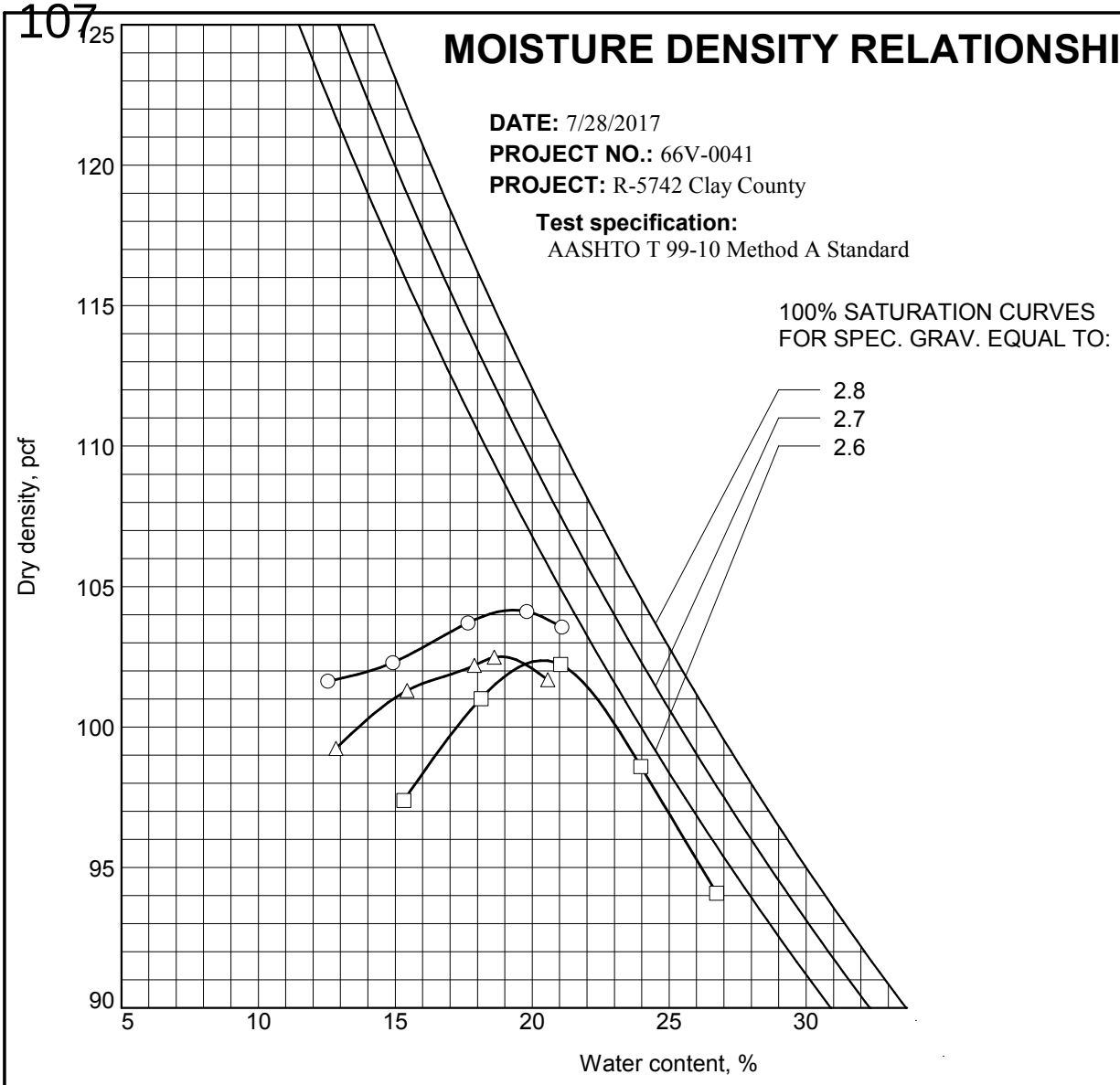
Project Information		**Natural Moisture (%)**		
Project Name:	R-5742 Clay County	CBR (S-3)	24.7	
Client Name:	RK&K			
Project Number:	66V-0041	**Percent Swell**	**A**	**B**
Date Received:	07/26/2017	CBR (S-3)	0.070	0.070
Project Location:	Hayesville, North Carolina			

Sample Information		**Proctor Value** *(AASHTO T-99)*	
Sample Number	**Classification**	**Max. Dry Density (pcf)**	**Optimum Moisture %**
CBR (S-3)	Dark Brown, Silty Fine to Coarse SAND with trace clay	102.5	18.8
Sample Number	**Sample Location**	**AASHTO**	**% - #200**
CBR (S-3)	L170+00 RT	A-2-4 (0)	33.6

MOISTURE DENSITY RELATIONSHIP

DATE: 7/28/2017
PROJECT NO.: 66V-0041
PROJECT: R-5742 Clay County

Test specification:
AASHTO T 99-10 Method A Standard



	No.	LOCATION AND DESCRIPTION	REMARKS
○	S-1	**Loc.:** L104+00 RT **Depth:** 0.0 - 25.0 **Sample No.:** S-1 Dark Brown, Fine to Coarse Sandy Silt, with little clay	Sample Received on 07/03/2017. 5.5 lb Hammer 12" Drop
□	S-2	**Location:** L137+00 RT **Sample Number:** S-2 Dark Brown, Fine to Coarse Sandy SILT with some clay	Sample Received on 07/03/2017. 5.5 lb Hammer 12" Drop
△	S-3	**Location:** L170+00 RT **Sample Number:** S-3 Dark Brown, Silty Fine to Coarse SAND, with trace clay	Sample Received on 07/03/2017. 5.5 lb. Hammer 12" Drop

	No.	AASHTO	LL	PI	NAT. MOIST.	OVERSIZE	%< No.200	MAX. DRY DEN.	OPT. MOIST.
○	S-1	A-4 (5)	32	NP	21.5	%>#4=0.6	40.6 %	104.2	19.3 %
□	S-2	A-4 (0)	28	NP	28.0	%>#4=6.3	44.8 %	102.4	20.4 %
△	S-3	A-2-4 (0)	35	NP	24.7	%>#4=0.8	33.6 %	102.5	18.8 %

Sp. gr. for ZAV is an assumed value.

Figure 01

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Tested By: ● C.Adams ■ C.Adams ▲ J.Flynn **Checked By:** D.Jenks