REFERENCE: U-5813

PROJECT: 44385

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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CROSS SECTIONS

APPENDICES

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *RANDOLPH*

PROJECT DESCRIPTION *US-64 FROM THE ASHEBORO BYPASS TO EAST OF I-73/I-74/US-220*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5813	1	201

CAUTION NOTICE

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

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

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

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

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S. PAPKE

TRIGON EXPLORATION

C DRISCOLL

HPC LAND SERVICES

INVESTIGATED BY *S. PAPKE*

DRAWN BY *S. PAPKE*

CHECKED BY *T. WELLS*

SUBMITTED BY *KLEINFELDER, INC.*

DATE *NOVEMBER 2019*

Prepared in the Office of:

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NC FIRM LICENSE NO. F-192

NORTH CAROLINA PROFESSIONAL SEAL 037998 ENGINEER THOMAS R. WELLS

DocuSigned by:
Thomas R. Wells 11/5/2019
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-5813	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	50 MX													
#40	30 MX	50 MX	51 MN									GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
MATERIAL PASSING #40 LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

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

CONSISTENCY OR DENSENESS

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

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

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

ABBREVIATIONS

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

SAMPLE ABBREVIATIONS

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] MOBILE B-52
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

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

ROCK DESCRIPTION

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

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

WEATHERING

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

ROCK HARDNESS

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

FRACTURE SPACING

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

BEDDING

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

INDURATION

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

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

TERMS AND DEFINITIONS

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

AQUIFER - A WATER BEARING FORMATION OR STRATA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BENCH MARK: N/A

ELEVATION: N/A FEET

NOTES:

BORING ELEVATIONS OBTAINED FROM PROJECT TIN FILE U5813_LS_TIN.TIN, RECEIVED ON AUGUST 2, 2019.

DATE: 8-15-14

09/08/99

TIP PROJECT: U-5813

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5813	1	201

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44385.1.3		PE
44385.2.3		R/W /UTILITIES

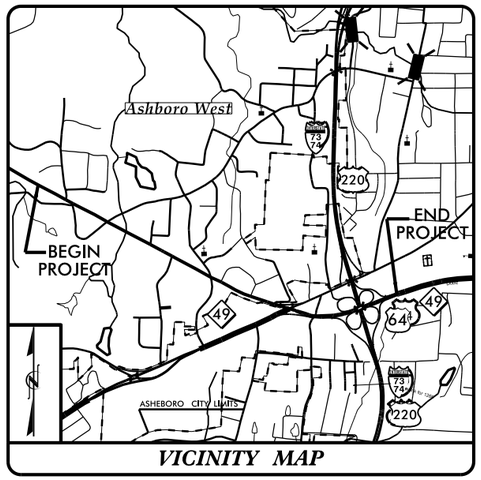
LOCATION: *US 64 FROM ASHEBORO BYPASS TO EAST OF I-73/I-74/US 220 TO ASHEBORO*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERT & SIGNALS*

NAD 83/NA 2011

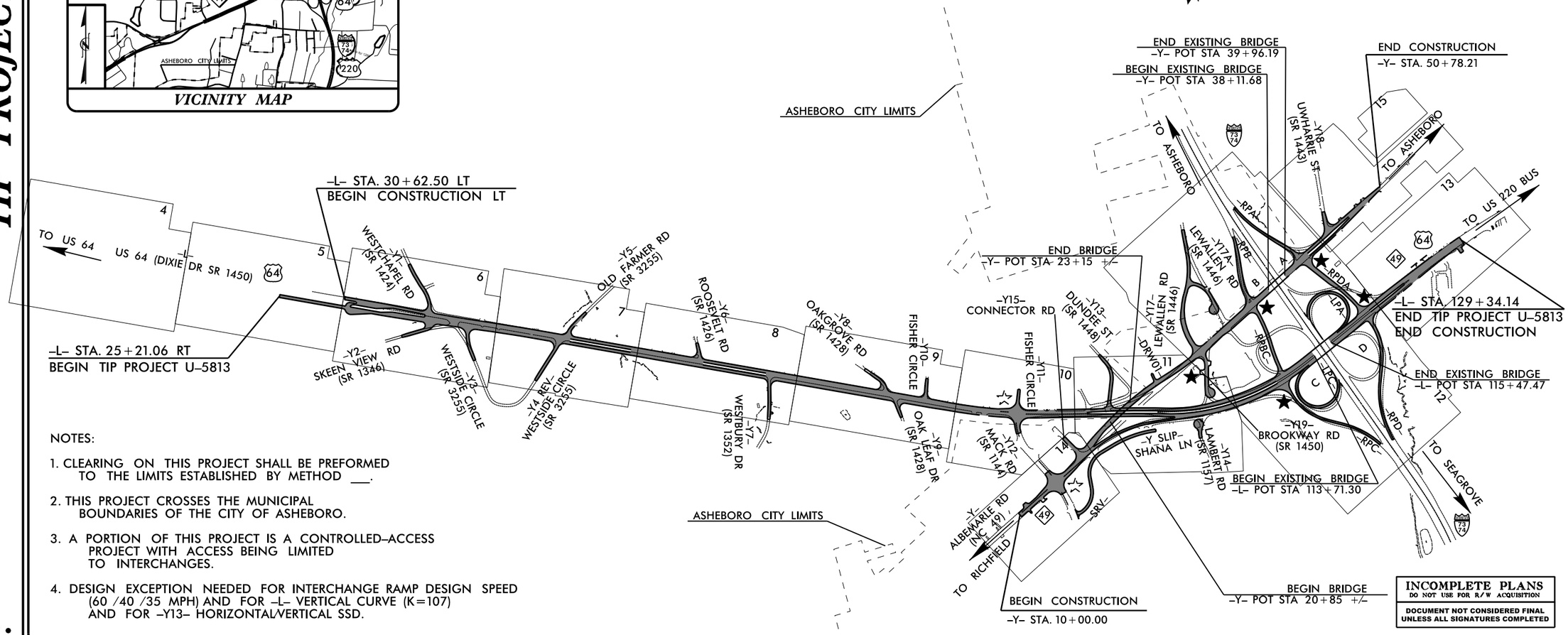
EXISTING SIGNAL

PROPOSED SIGNAL



VICINITY MAP

65% PLANS



NOTES:

1. CLEARING ON THIS PROJECT SHALL BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.
2. THIS PROJECT CROSSES THE MUNICIPAL BOUNDARIES OF THE CITY OF ASHEBORO.
3. A PORTION OF THIS PROJECT IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
4. DESIGN EXCEPTION NEEDED FOR INTERCHANGE RAMP DESIGN SPEED (60 /40 /35 MPH) AND FOR –L– VERTICAL CURVE (K=107) AND FOR –Y13– HORIZONTAL/VERTICAL SSD.

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

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2020 = 32,200
ADT 2040 = 35,700
K = 8%
D = 55%
T = 4 % *
V = 60 MPH
* TTST = 3% DUAL 1%
FUNC CLASS = PRINCIPAL ARTERIAL STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U–5813 = 1.939 MILES

TOTAL LENGTH TIP PROJECT U–5813 = 1.939 MILES

TOTAL LENGTH BASED ON –L– CENTERLINE AND RIGHT SIDE BEGIN CONSTRUCTION

PREPARED IN THE OFFICE OF:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
FOR NCDOT

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2019

LETTING DATE: SEPTEMBER 15, 2020

CORY GRELL, PE
PROJECT ENGINEER

TATYANA GIBBS, EI
PROJECT DESIGN ENGINEER

ALLISON WHITE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

03-NOV-2019 13:51
W:\share_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\PlanProf\U-5813_rdy_tsh.dgn
TWells AT KA21387

November 3, 2019

STATE PROJECT: 44385.1.3 (U-5813)
COUNTY: Randolph
DESCRIPTION: US 64 from the Asheboro Bypass to East of I-73/I-74/US 220

SUBJECT: GEOTECHNICAL REPORT - INVENTORY

PROJECT DESCRIPTION

This project consists of a widening and realignment of existing US-64 (-L-) to multiple lanes. This project will also include a widening of West Chapel Road (-Y1-) Skeet View Road (-Y2-), Westside Circle (-Y3-, -Y4_REV-), Old Farmer Road (-Y5-), Roosevelt Road (-Y6-), Westbury Drive (-Y7-), Oak Grove Road (-Y8-), Oak Leaf Road (-Y9-), Fisher Circle (-Y10-, -Y11-), Mack Road (-Y12-), Connector Road (-Y15-), Driveway (-DRW01-), Shana Lane (-Y_SLIP-), and ramps (-RPA-, RPB-). This project will also include the realignment of Dundee Street (-Y13-), Lambert Road (-Y14-), Lewallen Road (-Y17-, -Y17A-), Brookway Road (-Y19-), several ramps (-RPBC-, -RPC-, -RPD-, -RPDA-) and the creation of a new alignment (-SRV-).

The geotechnical investigation was conducted between November 2018 and April 2019. Standard Penetration Test borings were advanced with a CME-55 and Mobile B-57 drill rig with an automatic hammer. Hand Augers and Rod Soundings were also performed in areas where the use of a drill rig was restricted or underground and overhead utility conflicts were observed. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by Froehling & Robertson and Geotechnics, Inc.

The following alignments, totaling 6.44 miles, were investigated. Plan sheets, profile sheets, and cross sections of these alignments are included in this report.

LINE	STATIONS
-L-	25+21 to 129+34
-Y-	10+00 to 50+78
-Y1-	10+00 to 14+90
-Y2-	10+80 to 14+11
-Y3-	10+00 to 13+13
-Y4_REV-	10+00 to 14+05
-Y5-	10+00 to 13+50
-Y6-	10+00 to 11+70
-Y7-	10+00 to 13+70
-Y8-	10+00 to 13+00
-Y9-	10+00 to 11+74
-Y10-	10+00 to 12+00
-Y11-	10+00 to 12+05
-Y12-	10+00 to 20+45
-Y13-	10+00 to 15+16
-Y14-	10+00 to 11+08
-Y15-	10+00 to 12+10
-Y_SLIP-	10+00 to 17+21
-Y17-	10+00 to 20+65
-Y17A-	10+00 to 15+23
-Y18-	10+00 to 15+16
-Y19-	10+00 to 13+64
-RPBC-	10+00 to 16+69
-RPDA-	10+00 to 11+83
-RPA-	10+00 to 18+82
-RPB-	10+00 to 18+15
-RPC-	10+00 to 21+44
-RPD-	10+00 to 21+50
-LPA-	10+00 to 21+76
-LPC-	10+00 to 20+63
-DRW01-	10+00 to 10+80
-SRV-	10+00 to 21+37

PHYSIOGRAPHY AND GEOLOGY

The project is located in the Piedmont Physiographic Province. The project corridor is comprised primarily of residential, rural, commercial properties as well as undeveloped wooded areas. The general topography along the project is generally flat to steeply sloping.

Geologically, the project is located within the Carolina Slate Belt. Soils are derived from the underlying bedrock which consists of metamorphosed Volcanic Rock and metamorphosed Mudstone.

Surface water is drained from the corridor by the existing roadway ditches. Surface water is also drained to Cedar Fork Creek and Cable Creek, generally running South to North and East to West, respectively.

SOIL PROPERTIES

Soils encountered during this investigation are separated into four categories based on origin. They consist of roadway embankment, artificial fill, alluvial soil, and residual soils.

Roadway Embankment soils are present along the existing roadways on the project. The roadway embankment encountered generally consist of moist to wet, coarse to fine sandy silt and clayey silt (A-4, A-5), moist, medium stiff to stiff, silty coarse to fine sand (A-2-4) with trace gravel; dry to wet, medium stiff to stiff, silty clay and sandy clay (A-7, A-6) with trace to little gravel; and moist, loose, coarse to fine sandy gravel (A-1-a). The plasticity index of the road embankment clays tested ranged from 11 to 16. The plasticity index of the roadway embankment silt tested was 3.

Soil identified as artificial fill are present adjacent to the existing roadway. The artificial fill encountered generally consists of moist to wet, soft to very stiff, sandy silts and clayey silts (A-4, A-5) with trace gravel; moist to wet, and soft to medium stiff, sandy clays and silty clays (A-6, A-7) with trace gravel. The plasticity index of the artificial fill silts tested ranged from 8 to 9. The plasticity index of the artificial fill clays tested ranged from 12 to 29.

Alluvial soils are present along the existing streams and creeks on the project. The alluvial soils encountered generally consist of moist to wet, very soft to stiff, silty clays and sandy clays (A-7, A-6) with a trace of organic matter; and moist, medium stiff, sandy silt (A-4). The plasticity index of the alluvial silt tested was 8. The plasticity index of the alluvial clay tested was 11.

Residual soils are derived from the weathering of underlying metavolcanics and metamudstone. The majority of the residual soils encountered consist of dry to wet, soft to hard, sandy silts, and clayey silts (A-4, A-5)

7343 West Friendly Avenue | Suite B, Greensboro, NC 27409 p| 336.668.0093 f| 336.668.3868

with little rock fragments and trace manganese; moist, soft to stiff, sandy clays and silty clays (A-6, A-7); and dry to moist, medium dense to very dense, silty sands and sands (A-2-4, A-1) with trace to little rock fragments. The plasticity index of the residual silts tested ranged from 9 to 13. The plasticity index of the clays tested ranged from 11 to 47.

ROCK PROPERTIES

Weathered rock was encountered along the existing roadways (-L-) at elevations ranging from 719.5 to 850.9 feet (MSL) and typically ranges from 8 to 78 feet below the existing ground surface; (-Y-) at elevations ranging from 816.2 to 877.3 and typically ranges from 6 to 24 feet below the existing ground surface, (-Y_SLIP-) at elevation 860.6 feet, 5 feet below the existing ground surface. (-Y11-) at elevation 845.4 feet, 10 feet below the existing ground surface; (-RPBC-) at elevation 847.5 feet, 4 feet below the existing ground surface, (-Y4_REV-) at elevation 782.6 feet, 8 feet below the existing ground surface; (-Y7-) at elevation 788.4 feet, 7 feet below the existing ground surface; (-Y13-) at elevation 851.4 feet, 7 feet below the existing ground surface; (-Y17-) at elevations ranging from 851.3 to 871.7 feet and typically ranges from 3 to 17 feet below the existing ground surface and (-Y17A-) at elevation 873.0 feet, 8 feet below the existing ground surface. The weathered rock consists of metavolcanic rock and metamudstone.

Crystalline rock was encountered along the existing roadways (-L-) at elevations ranging from 720.2 to 814.0 feet (MSL) and typically ranges from 2 to 24 feet below the existing ground surface; (-Y-) at elevations ranging from 823.1 to 875.4 feet and typically ranges from 7 to 36 feet below the existing ground surface; (-Y_SLIP-) at elevation 853.5 feet, 14 feet below the existing ground surface; (-Y11-) at elevation 844.6 feet, 10 feet below the existing ground surface, (-RPBC-) at elevation 847.1 feet, 4 feet below the existing ground surface; (-RPA-) at elevation 840.4 feet, 7 feet below the existing ground surface; (-RPB-) at elevation 850.7 feet, 10 feet below the existing ground surface, (-RPC-) at elevation 824.6 feet, 9 feet below the existing ground surface; (-LPC-) at elevation 833.7 feet, 8 feet below the existing ground surface; (-Y13-) at elevation 859.5 feet, 5 feet below the existing ground surface; (-Y17-) at elevation 850.0 feet, 4 feet below the existing ground surface; and (-Y19-) at elevation 864.9 feet, 12 feet below the existing ground surface. The crystalline rock consists of metavolcanic rock and metamudstone.

GROUNDWATER

Groundwater was encountered at elevations ranging from 727.5 to 888.7 feet and typically ranges from 0 to 23 feet below the existing ground surface.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

1) Highly Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L-	33+75 to 35+25	LT
-L-	40+25 to 41+25	LT
-L-	43+25 to 44+25	LT, RT
-L-	49+75 to 52+75	LT, RT
-L-	51+75 to 52+75	LT, RT
-L-	62+25 to 63+25	LT
-L-	64+25 to 65+25	LT
-L-	70+25 to 71+75	LT
-Y-	46+25 to 50+75	LT, RT
-Y3-	10+00 to 10+38	LT, RT
-RPB-	13+63 to 14+88	RT
-RPDA-	12+88 to 14+13	LT, RT

Other highly plastic clays were found that will not impact construction.

2) Groundwater: The following areas exhibit a high water table, seasonal high groundwater or the potential for groundwater related construction problems:

LINE	STATIONS	OFFSETS
-L-	92+00 to 93+50	LT, RT
-Y13-	10+00 to 13+50	LT, RT
-Y14-	10+00 to 11+08	LT, RT
-Y17-	14+00 to 19+00	LT, RT

2) Alluvial Soil: Alluvial Soil was encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L-	25+00 to 27+00	RT
-L-	54+00 to 57+00	RT
-L-	71+50 to 75+50	RT
-L-	84+50 to 85+50	LT
-L-	88+50 to 89+50	RT
-L-	92+00 to 94+50	RT
-L-	105+00 to 107+50	LT, RT
-L-	117+50 to 118+50	RT
-Y-	18+50 to 21+50	LT
-Y5-	10+50 to 13+75	LT
-Y7-	10+00 to 11+50	LT
-Y17-	19+50 to 20+50	LT
-Y19-	12+00 to 12+50	LT
-RPB-	12+00 to 13+00	LT
-RPD-	18+00 to 19+00	LT, RT

3) Artificial Fill: Artificial Fill was encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L-	26+50 to 33+50	RT
-L-	45+00 to 48+00	LT
-L-	52+00 to 60+50	LT
-L-	74+00 to 76+00	RT
-L-	81+50 to 87+50	RT
-L-	88+00 to 91+00	LT, RT
-L-	104+00 to 110+00	LT
-L-	103+00 to 108+00	RT

Artificail Fill (Continued)

LINE	STATIONS	OFFSETS
-L-	121+25 to 129+92	LT
-L-	120+50 to 129+92	RT
-Y8-	10+50 to 13+00	LT
-Y11-	10+50 to 12+00	RT
-Y12-	10+00 to 13+50	RT
-Y12-	14+00 to 20+00	LT, RT
-Y14-	10+00 to 11+50	LT, RT
-Y15-	10+00 to 13+00	LT
-Y_SLIP-	10+00 to 17+25	RT
-Y18-	10+50 to 12+00	RT
-RPDA-	10+50 to 13+25	LT, RT
-RPDA-	14+00 to 17+00	LT, RT
-RPC-	12+00 to 18+00	RT
-RPD-	14+75 to 16+75	LT
-LPA-	16+50 to 20+00	LT, RT
-LPC-	12+00 to 15+50	LT
-SRV-	10+00 to 21+37	LT, RT

Prepared by,
KLEINFELDER, INC.
NC License No. F-1312

Stefanie Papke
Staff Professional

Thomas R. Wells, PE
Senior Professional

SAP/TRW:cas

Bulk Sample
Shelby Tube

SAMPLE NO.	ALIGNMENT	STA.	OFFSET	DEPTH (FT)	TESTS PERFORMED
ST-1	-L-	48+00	50’ RT	0.0 – 2.0	Consolidation
ST-2	-L-	72+50	90’ RT	0.0 – 2.0	Consolidation
BS-1	-Y17-	10+93	103’ LT	0.0 – 10.0’	Standard Proctor, CBR
BS-2	-RPDA-	11+50	40’ LT	0.0 – 10.0’	Standard Proctor, CBR

20190942.009A | GSO19100666 November 3, 2019
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PROJECT REFERENCE NO.	SHEET NO.
U-5813	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83/NA 2011

R-2536 DB
TO BE CONSTRUCTED
BY OTHERS

-L- POT Sta. 10+00.00 =
R-2536 -LFUTURE-
POT Sta. 9+99.95

S 61° 59' 43.8" E -L-

R-2536 DB
TO BE CONSTRUCTED
BY OTHERS

MATCH LINE -L- 17+00
SEE SHEET 5

REVISIONS

8/17/99

15-OCT-2019 08:49
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$$$$USERNAME$$$$

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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REVISIONS

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NAD 83/NA 2011

KELLY CONTRACTORS, LLC
DB 2173, PG 821
(REF DB 1278 PG 831)

-L- 20

R-2536 DB
TO BE CONSTRUCTED
BY OTHERS

-L- 25

-L- 30

MATCH LINE -L- 17+00
SEE SHEET 4

S 61°59'43.8" E -L-

BEGIN CONSTRUCTION
-L- Sta. 25+21.06 RT

BL 102

24" CMP

W

C

C

US 64 BST

MTL

ROADWAY EMBANKMENT

24" FDPS

EXIST 102

GREU TL-3

L-2600

TERMINUS UNKNOWN
PIPE CRUSHED

CONC HEAD WALL

36" CMP

L-2819

L-2970

ARTIFICIAL FILL

ALLUVIAL

SOIL

CONC

ISMTL

MATCH LINE -L- 30+50
SEE SHEET 6

15-OCT-2019 08:03
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PROJECT REFERENCE NO.	SHEET NO.
U-5813	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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REVISIONS

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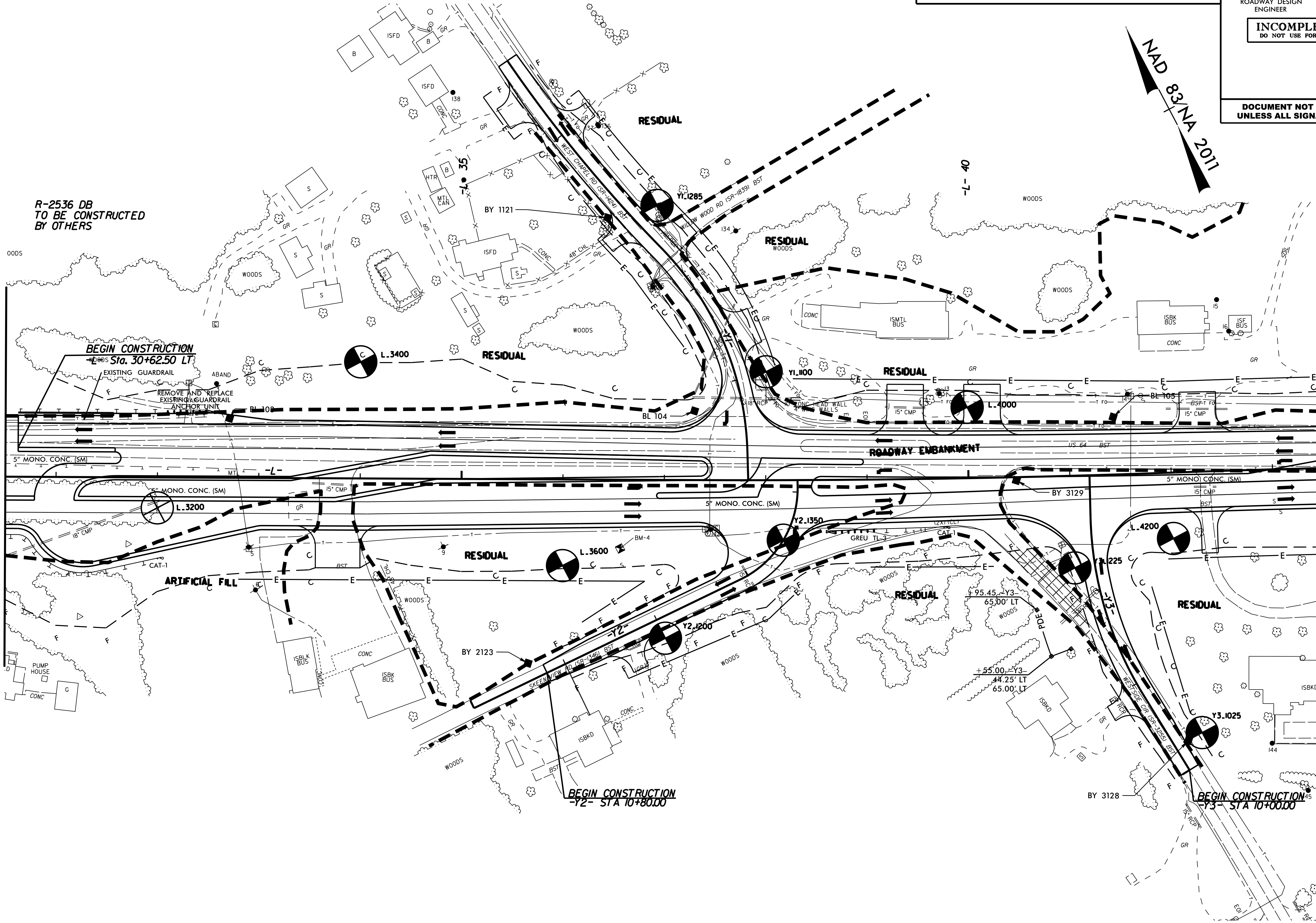

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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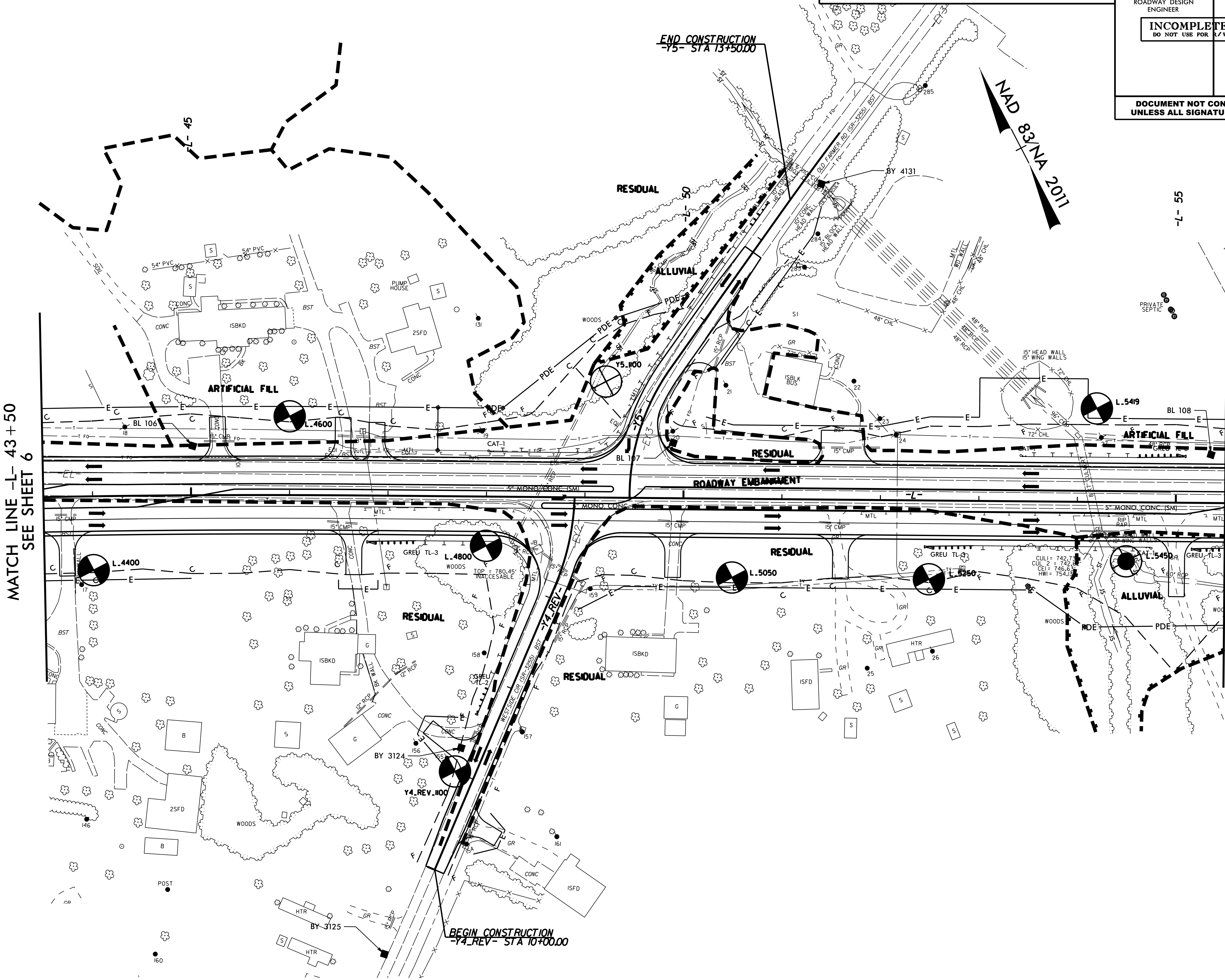

END CONSTRUCTION
-Y5- STA 13+50.00
NAD 83/NA 2011
-L- 45
-L- 50
-L- 55
RESIDUAL
ALLUVIAL
ARTIFICIAL FILL
ROADWAY EMBANKMENT
BY 4131
Y5_1100
L_4600
L_5419
L_4400
L_4800
L_5050
L_5250
L_5450
BL 106
BL 107
BL 108
PRIVATE SEPTIC
TOP = 780.45' INACCESSABLE
OLD FARMER RD (SR-1855) BST
WESTSIDE CIR (SR-1855) BST
-Y4_REV-
BY 3124
Y4_REV_1100
BY 3125
BEGIN CONSTRUCTION
-Y4_REV- STA 10+00.00
MATCH LINE -L- 43+50
SEE SHEET 6
MATCH LINE -L- 55+50
SEE SHEET 8

REVISIONS

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14-OCT-2019 10:11

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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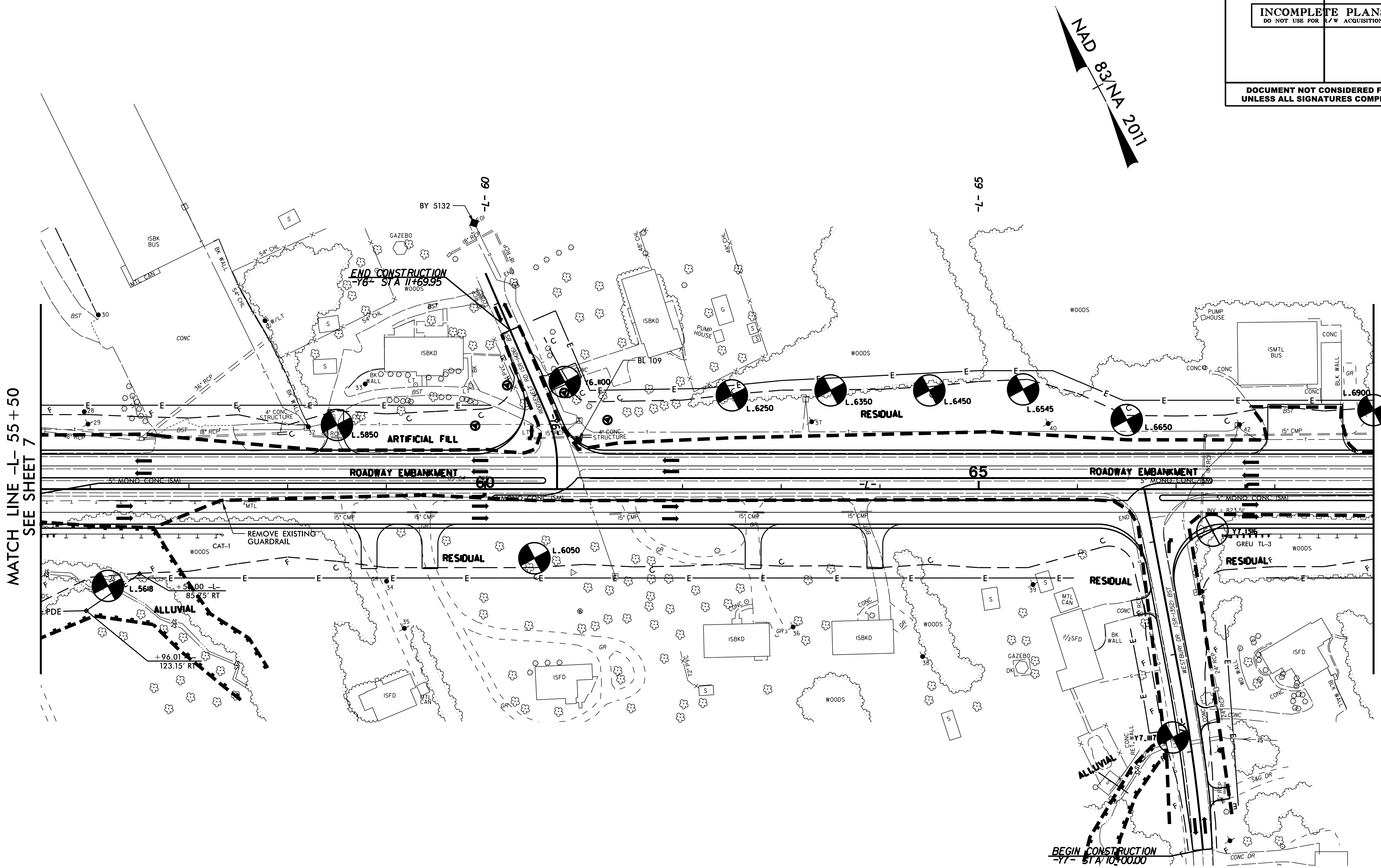

NAD 83/NA 2011
-L- 60
-L- 65
BY 5132
GAZEBO
END CONSTRUCTION
-Y6- STA 11+69.95
WOODS
ISBK BUS
MTL CAN
BK WALL
54" CHL
CONC
BST
ISBKD
PUMP HOUSE
BL 109
Y6_1100
4" CONC STRUCTURE
L.5850
ARTIFICIAL FILL
L.6250
L.6350
L.6450
L.6545
L.6650
L.6900
RESIDUAL
ISMTL BUS
ROADWAY EMBANKMENT
5" MONO CONC (SM)
60
65
-L-
15" CMP
REMOVE EXISTING GUARDRAIL
CAT-1
L.6050
L.5618
+51.00 -L-
85.75' RT
ALLUVIAL
PDE
+96.01
123.15' RT
INV = 823.5'
Y7_1316
GREU TL-3
ISFD
1½SFD
GAZEBO
Y7_1117
CONC RET. WALL
WESTBURY DR (SR-1352) BST
BEGIN CONSTRUCTION
-Y7- STA 10+00.00
CONC DR
S&G DR
MATCH LINE -L- 55+50
SEE SHEET 7
MATCH LINE -L- 69+00
SEE SHEET 9

REVISIONS

8/17/99

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8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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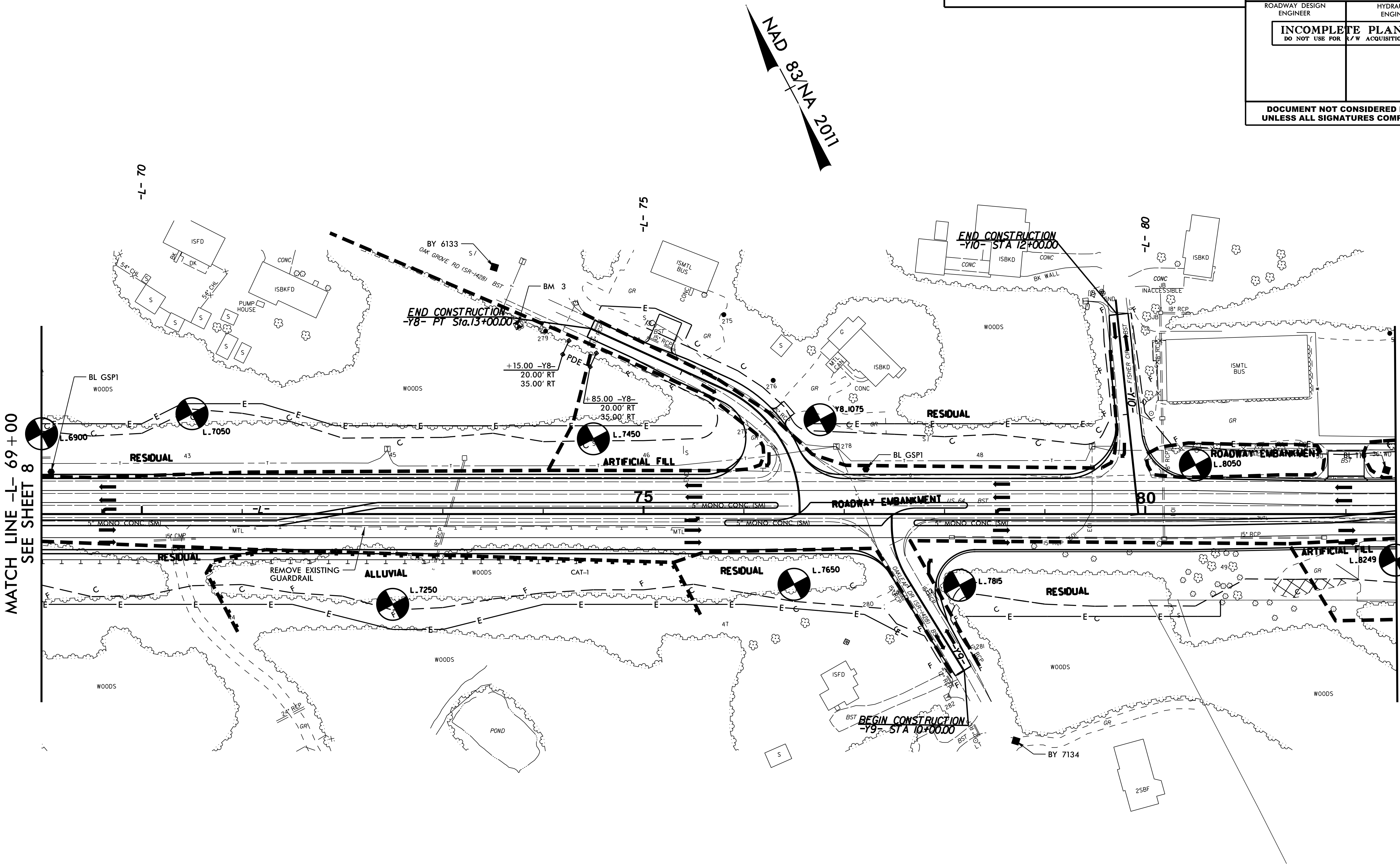

NAD 83/NA 2011
MATCH LINE -L- 69+00
SEE SHEET 8
MATCH LINE -L- 82+50
SEE SHEET 10
-L- 70
-L- 75
-L- 80
BY 6133
BM 3
BY 7134
END CONSTRUCTION
-Y8- PT Sta.13+00.00
END CONSTRUCTION
-Y10- STA 12+00.00
BEGIN CONSTRUCTION
-Y9- STA 10+00.00
+15.00 -Y8-
20.00' RT
35.00' RT
+85.00 -Y8-
20.00' RT
35.00' RT
BL GSP1
L.6900
L.7050
L.7450
Y8.1075
L.8050
L.7250
L.7650
L.7815
L.8249
RESIDUAL
ARTIFICIAL FILL
ROADWAY EMBANKMENT
ALLUVIAL
REMOVE EXISTING GUARDRAIL
WOODS
POND
ISMTL BUS
PUMP HOUSE
5" MONO CONC (SM)

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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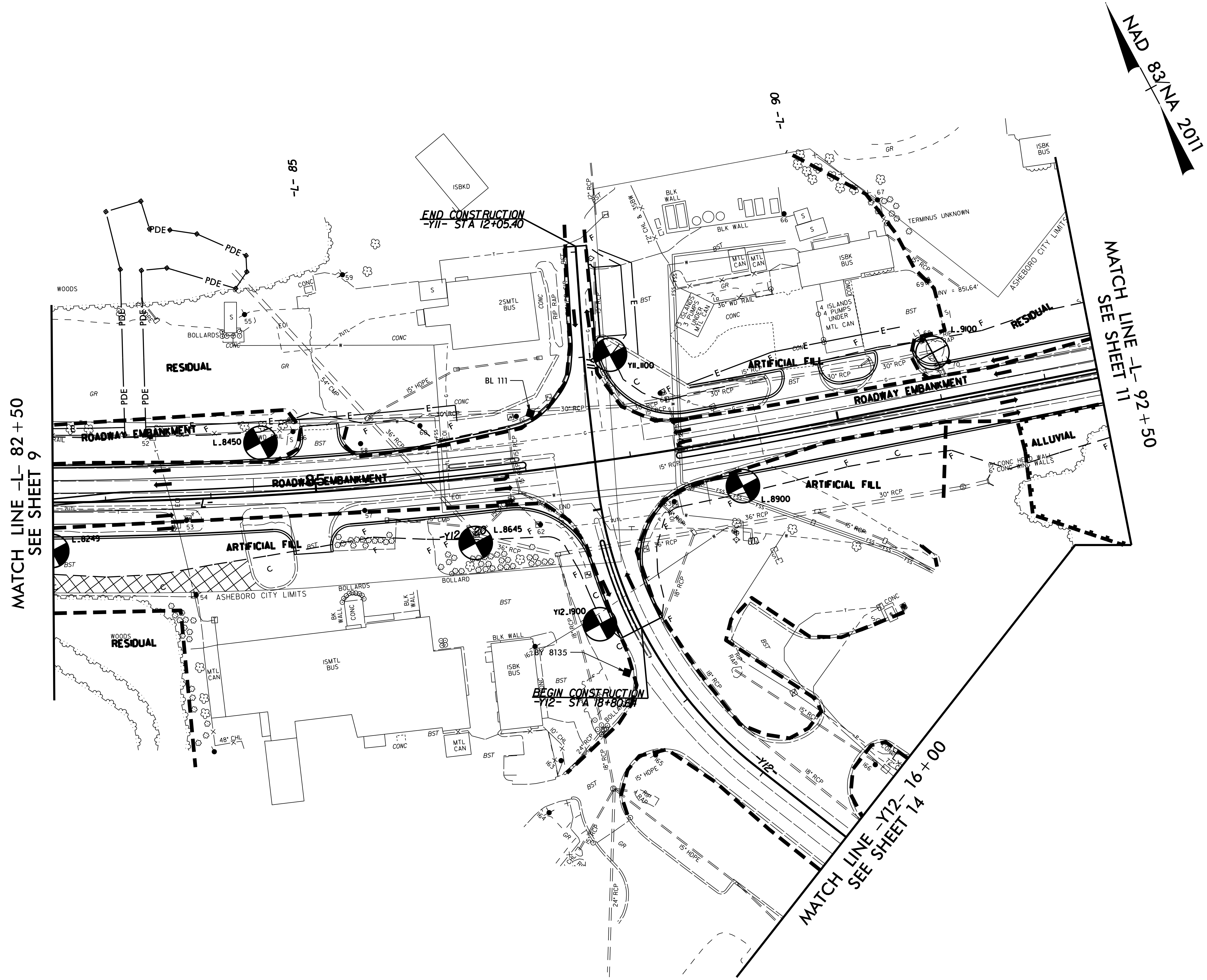

14-OCT-2019

PROJECT REFERENCE NO.	SHEET NO.
U-5813	11
R/W SHEET NO.	

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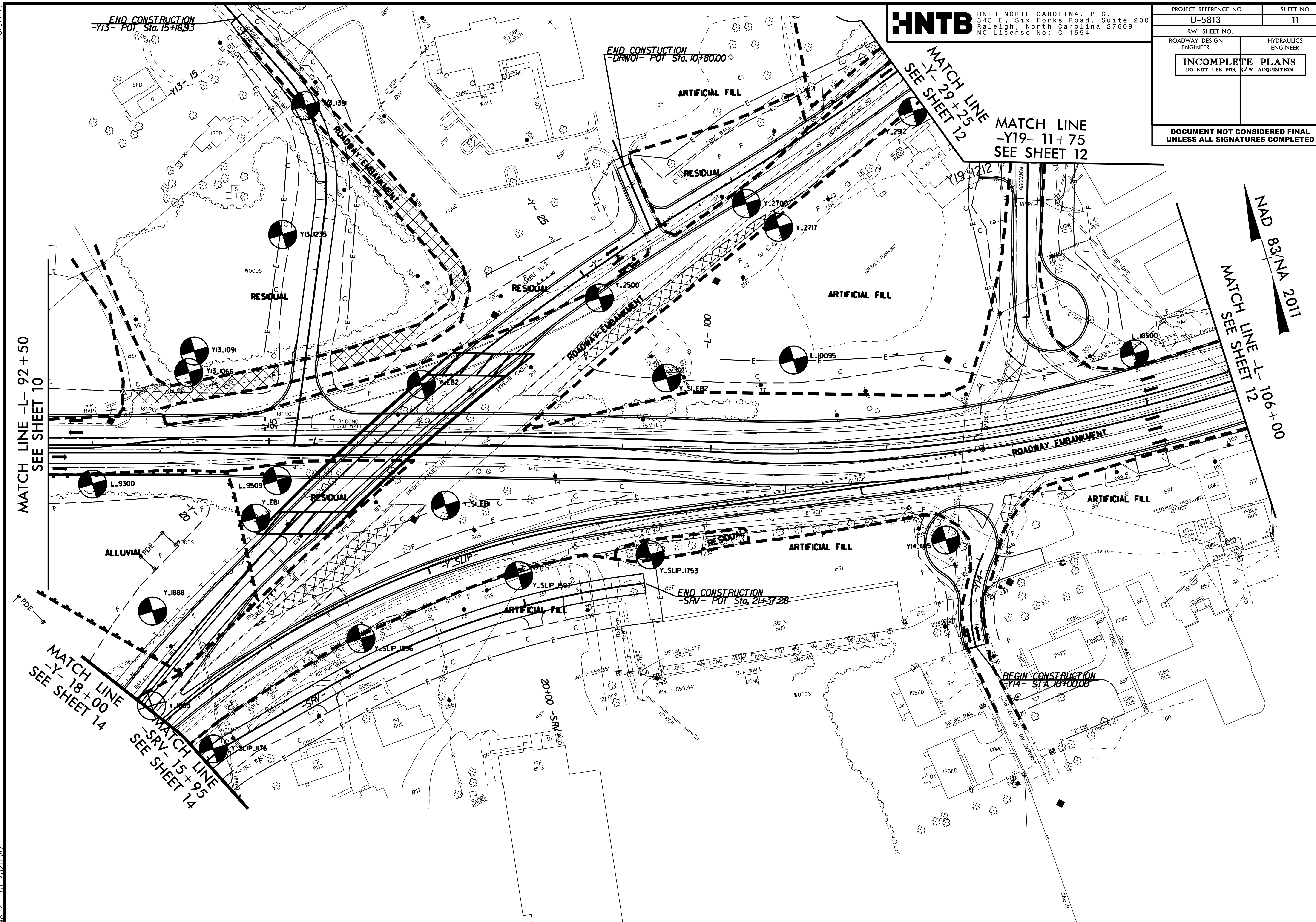
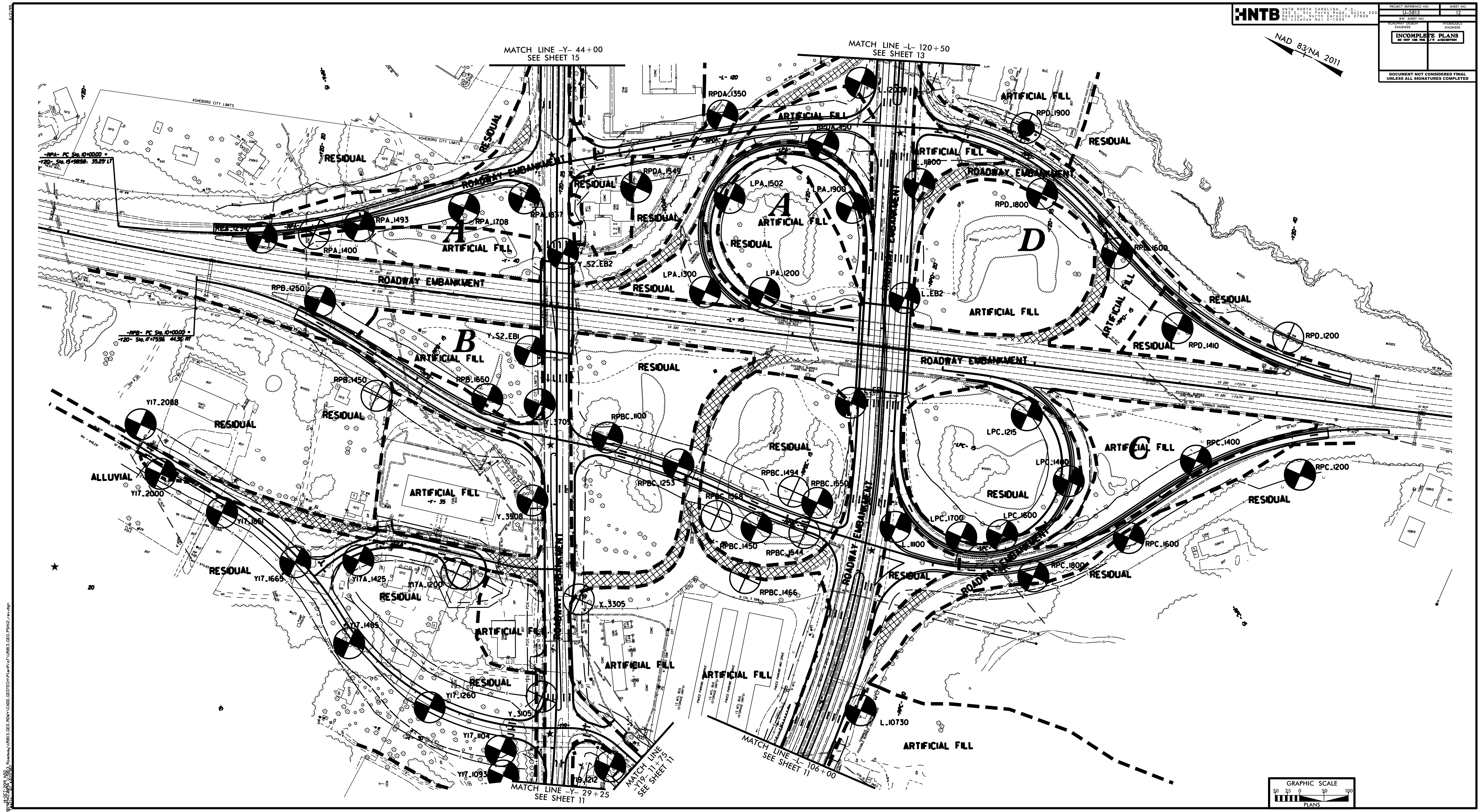


END CONSTRUCTION -Y13- POT Sta. 15+18.93
END CONSTUCTION -DRW01- POT Sta. 10+80.00
MATCH LINE -Y- 29+25 SEE SHEET 12
MATCH LINE -Y19- 11+75 SEE SHEET 12
NAD 83/NA 2011
MATCH LINE -L- 106+00 SEE SHEET 12
MATCH LINE -L- 92+50 SEE SHEET 10
MATCH LINE -Y- 18+00 SEE SHEET 14
MATCH LINE -SRV- 15+95 SEE SHEET 14
END CONSTRUCTION -SRV- POT Sta. 21+37.28
BEGIN CONSTRUCTION -Y14- STA 10+00.00
ARTIFICIAL FILL
RESIDUAL
ALLUVIAL
ROADWAY EMBANKMENT
WOODS
GRAVEL PARKING

REVISIONS

8/17/99

14-OCT-2019 11:38

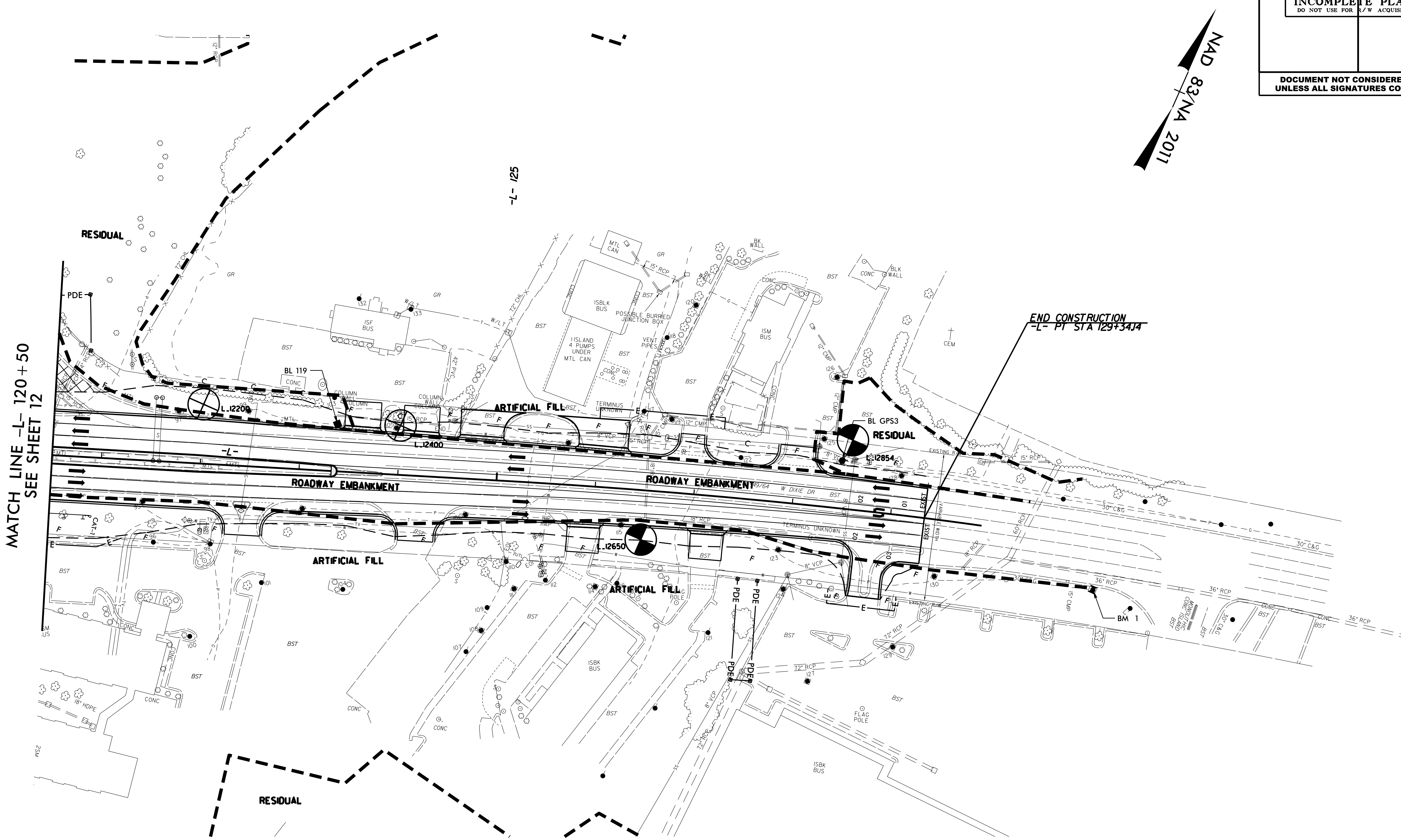

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
PROJECT REFERENCE NO.
U-5813
SHEET NO.
12
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
NAD 83/NA 2011
MATCH LINE -Y- 44+00
SEE SHEET 15
MATCH LINE -L- 120+50
SEE SHEET 13
MATCH LINE -Y- 29+25
SEE SHEET 11
MATCH LINE -Y19- 11+75
SEE SHEET 11
MATCH LINE -L- 106+00
SEE SHEET 11
ASHEBORO CITY LIMITS
RESIDUAL
ARTIFICIAL FILL
ROADWAY EMBANKMENT
ALLUVIAL
A
B
C
D
RPDA_1350
RPDA_1450
RPDA_1545
RPA_1493
RPA_1708
RPA_1400
RPA_1837
LPA_1502
LPA_1908
LPA_1300
LPA_1200
L_12000
L_11800
L_EB2
Y_S2_EB2
Y_S2_EB1
RPB_1250
RPB_1450
RPB_1650
Y_3705
Y_3508
Y_3305
Y_3105
RPD_1900
RPD_1800
RPD_1600
RPD_1410
RPD_1200
RPBC_1100
RPBC_1253
RPBC_1494
RPBC_1550
RPBC_1368
RPBC_1450
RPBC_1544
RPBC_1466
LPC_1215
LPC_1400
LPC_1700
LPC_1600
RPC_1400
RPC_1200
RPC_1600
RPC_1800
L_11100
L_10730
Y17_2088
Y17_2000
Y17_1851
Y17_1665
Y17A_1425
Y17A_1200
Y17_1465
Y17_1260
Y17_1104
Y17_1093
Y19_1212
GRAPHIC SCALE
PLANS

HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554	PROJECT REFERENCE NO.	SHEET NO.
	U-5813	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

REVISIONS



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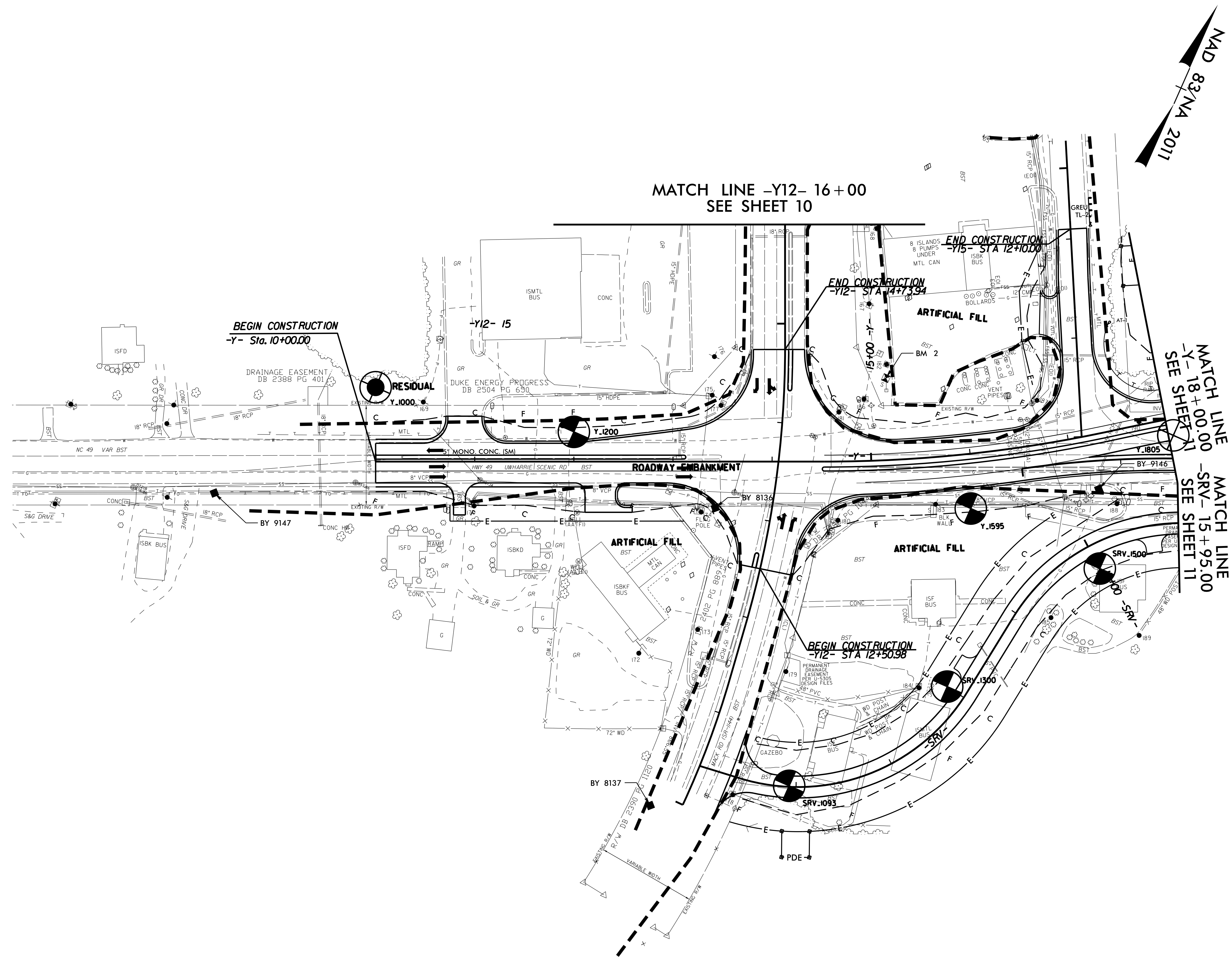
PROJECT REFERENCE NO.	SHEET NO.
U-5813	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



NAD 83/NA 2011
MATCH LINE -Y12- 16+00
SEE SHEET 10
MATCH LINE -Y- 18+00.00
SEE SHEET 11
MATCH LINE -SRV- 15+95.00
SEE SHEET 11
BEGIN CONSTRUCTION
-Y- Sta. 10+00.00
END CONSTRUCTION
-Y12- STA 14+73.94
END CONSTRUCTION
-Y15- STA 12+10.00
BEGIN CONSTRUCTION
-Y12- STA 12+50.98
RESIDUAL
ROADWAY EMBANKMENT
ARTIFICIAL FILL
ARTIFICIAL FILL
ARTIFICIAL FILL
DRAINAGE EASEMENT
DB 2388 PG 401
DUKE ENERGY PROGRESS
DB 2504 PG 650
Y_1000
Y_1200
Y_1595
Y_1805
SRV_1500
SRV_1300
SRV_1093
BY 9147
BY 8136
BY 8137
BY 9146
BM 2
-Y12- 15
NC 49 VAR BST
HWY 49 UWHARRIE SCENIC RD BST
PDE
GAZEBO

14-OCT-2019 14:15

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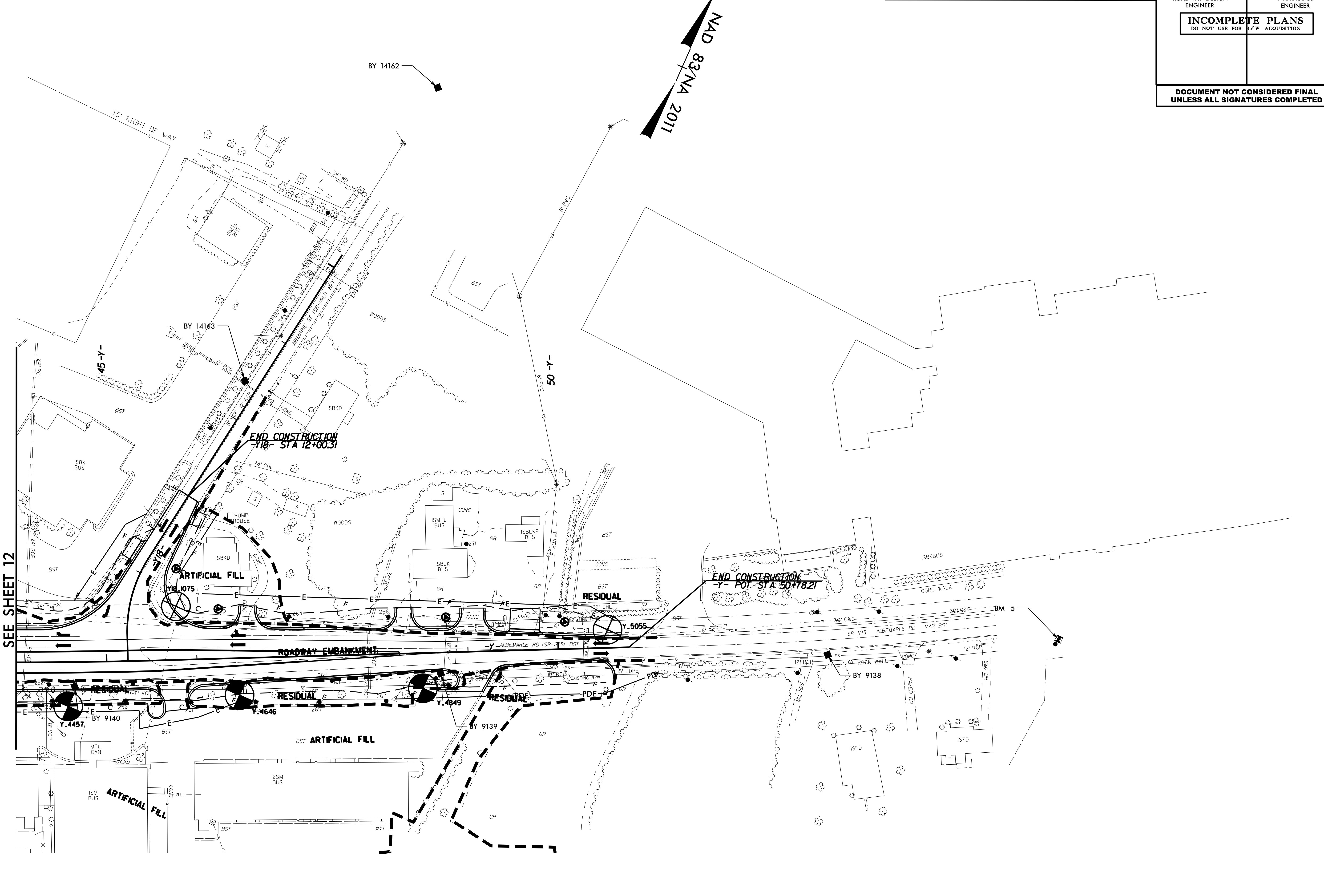
PROJECT REFERENCE NO.	SHEET NO.
U-5813	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99

REVISIONS



NAD 83/NA 2011
BY 14162
BY 14163
15' RIGHT OF WAY
45 -Y-
50 -Y-
WOODS
END CONSTRUCTION
-Y18- STA 12+00.31
PUMP HOUSE
ARTIFICIAL FILL
Y18_1075
RESIDUAL
END CONSTRUCTION
-Y- POT STA 50+78.21
Y_5055
BM 5
ROADWAY EMBANKMENT
-Y- ALBEMARLE RD (SR-1713) BST
SR 1713 ALBEMARLE RD VAR BST
ROCK WALL
BY 9138
BY 9139
BY 9140
Y_4457
Y_4646
Y_4849
PDE
ARTIFICIAL FILL
MATCH LINE -Y- 44+00
SEE SHEET 12
CONC WALK
ISBKBUS

14-OCT-2019 14:28

-Y-

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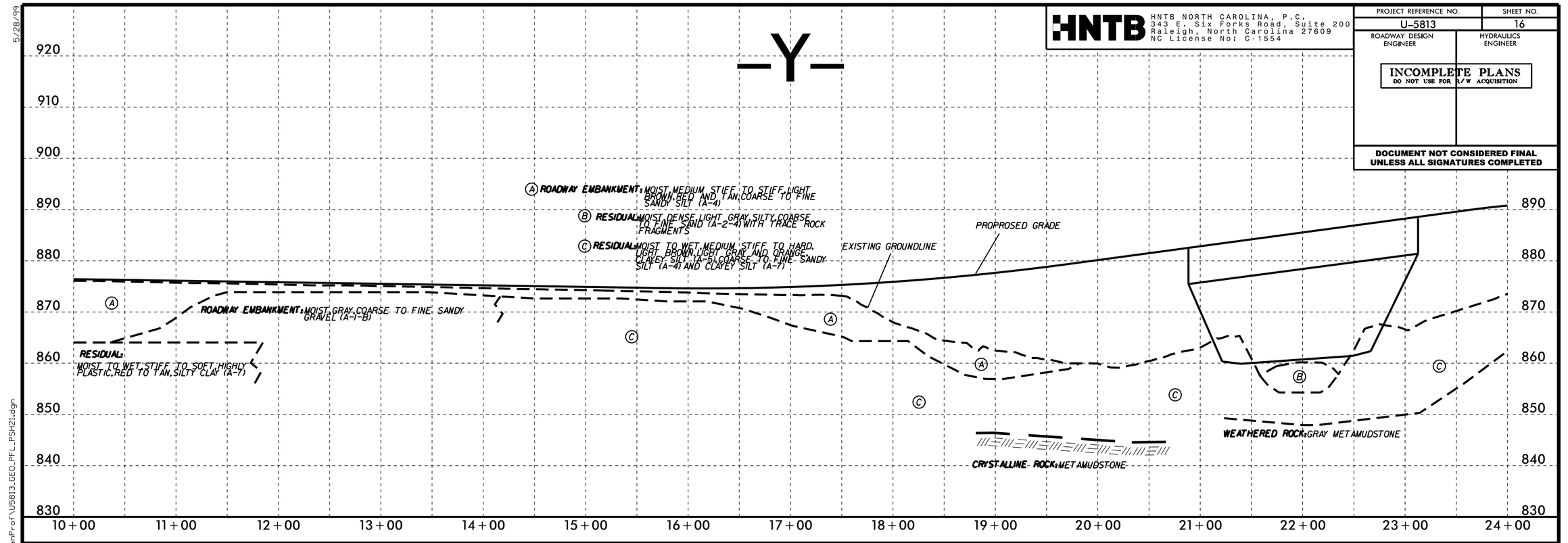
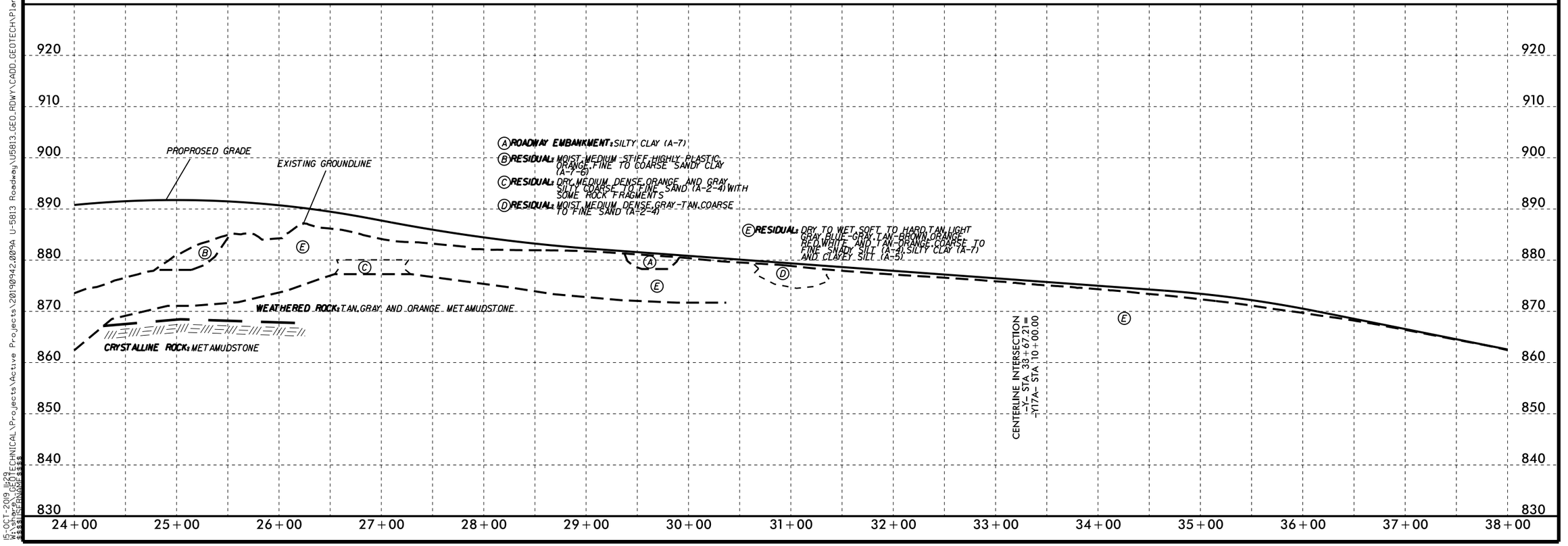
PROJECT REFERENCE NO.	SHEET NO.
U-5813	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





-Y-

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PROJECT REFERENCE NO.	SHEET NO.
U-5813	17

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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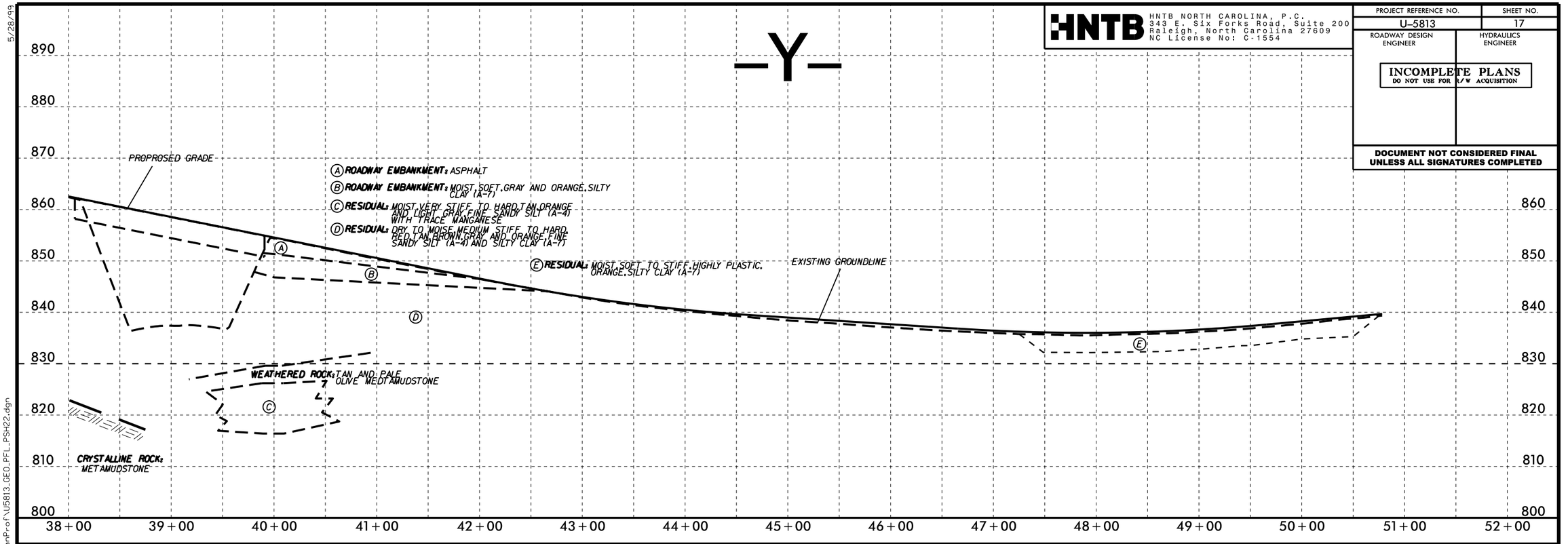
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
U-5813	18

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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5/28/99

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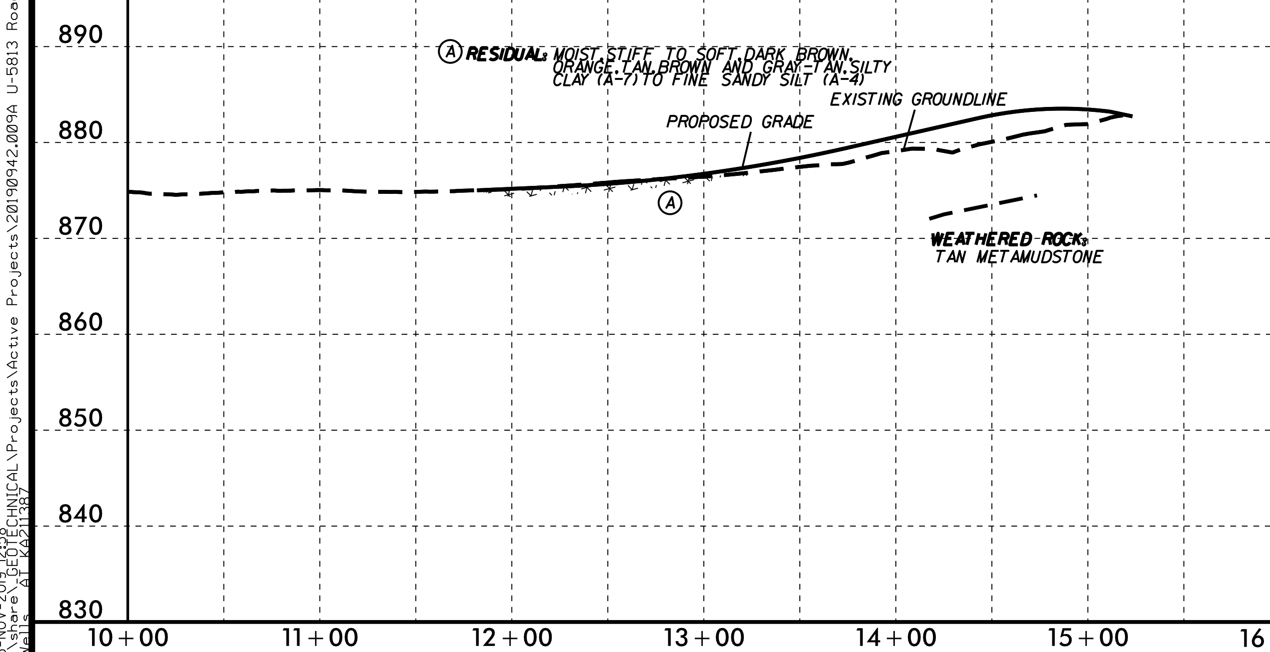

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TWells AT KA211387

5/28/99

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NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
U-5813	19

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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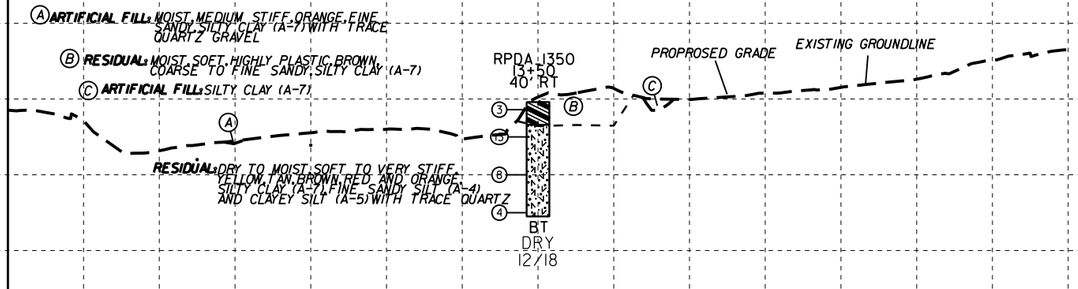

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kelis

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	20

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

810 800 790 780 770 760 750 740 730 720 710

6:1

2:1

L_2600
26+00

ROADWAY EMBANKMENT: MOIST, STIFF TO VERY STIFF, BROWN TO RED, SILTY CLAY (A-7)

BT
DRY
12/18

26+00.00
-L-

14-OCT-2019 17:39
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Shpake AT K:\20190546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

780
770
760
750
740
730
720
710

6:1

2:1

(A) ARTIFICIAL FILL: MOIST, MEDIUM STIFF, TAN-DARK BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7) WITH TRACE GRAVEL

(B) ALLUVIAL: MOIST, MEDIUM STIFF, GRAY-TAN, FINE SANDY, SILTY CLAY (A-7)

(C) WEATHERED ROCK: BROWN-TAN MET AVOLCANIC

ROADWAY EMBANKMENT:
SILTY CLAY (A-7)

L 2819
28+19
12/18
(A)
6
(B)
8
(C)
100/0.9'
50/0.3'
BT

CRYSTALLINE ROCK: MET AVOLCANIC

28+00.00
-L-

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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Shpake AT K42079546

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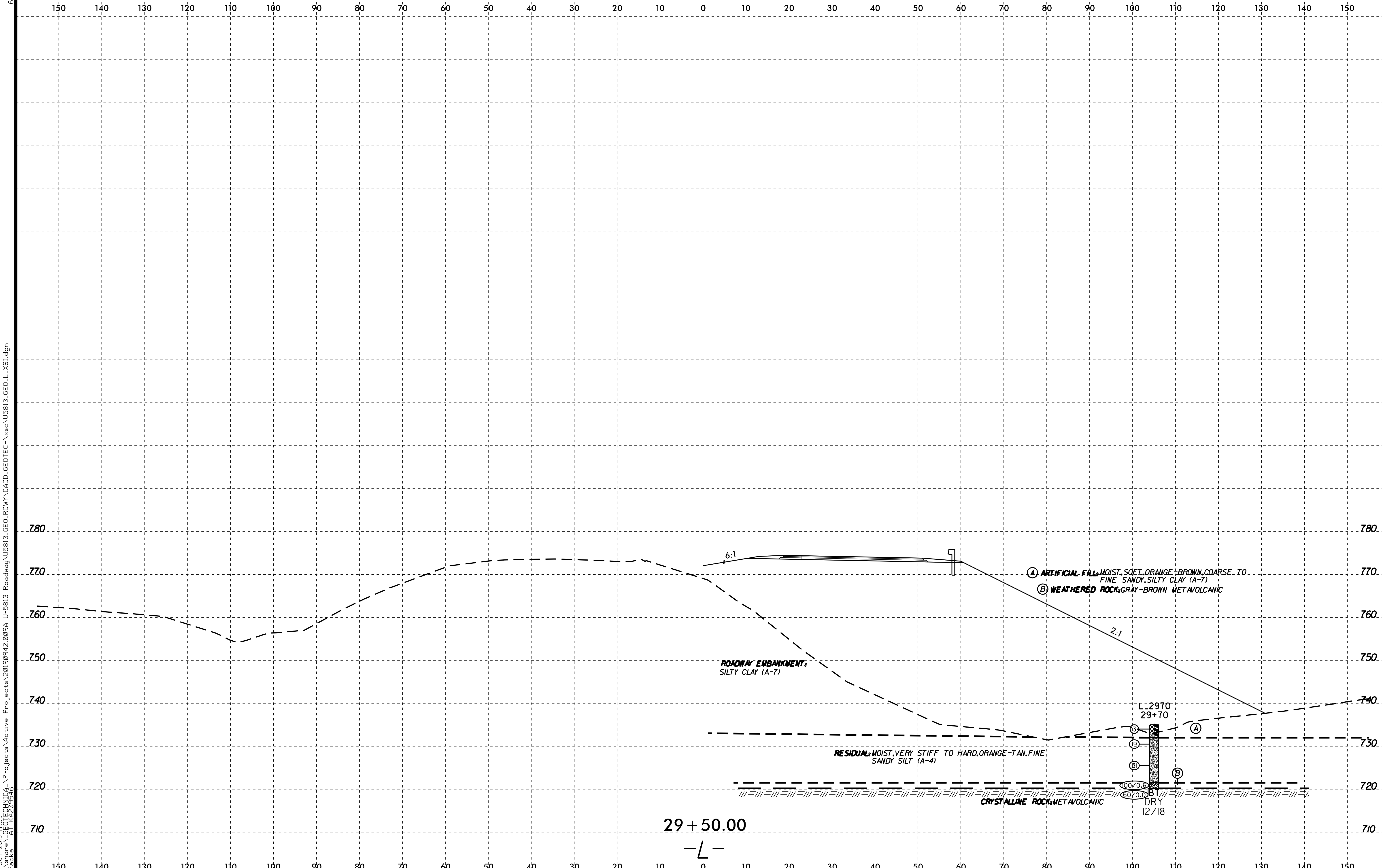

29+50.00

-L-

6/23/16

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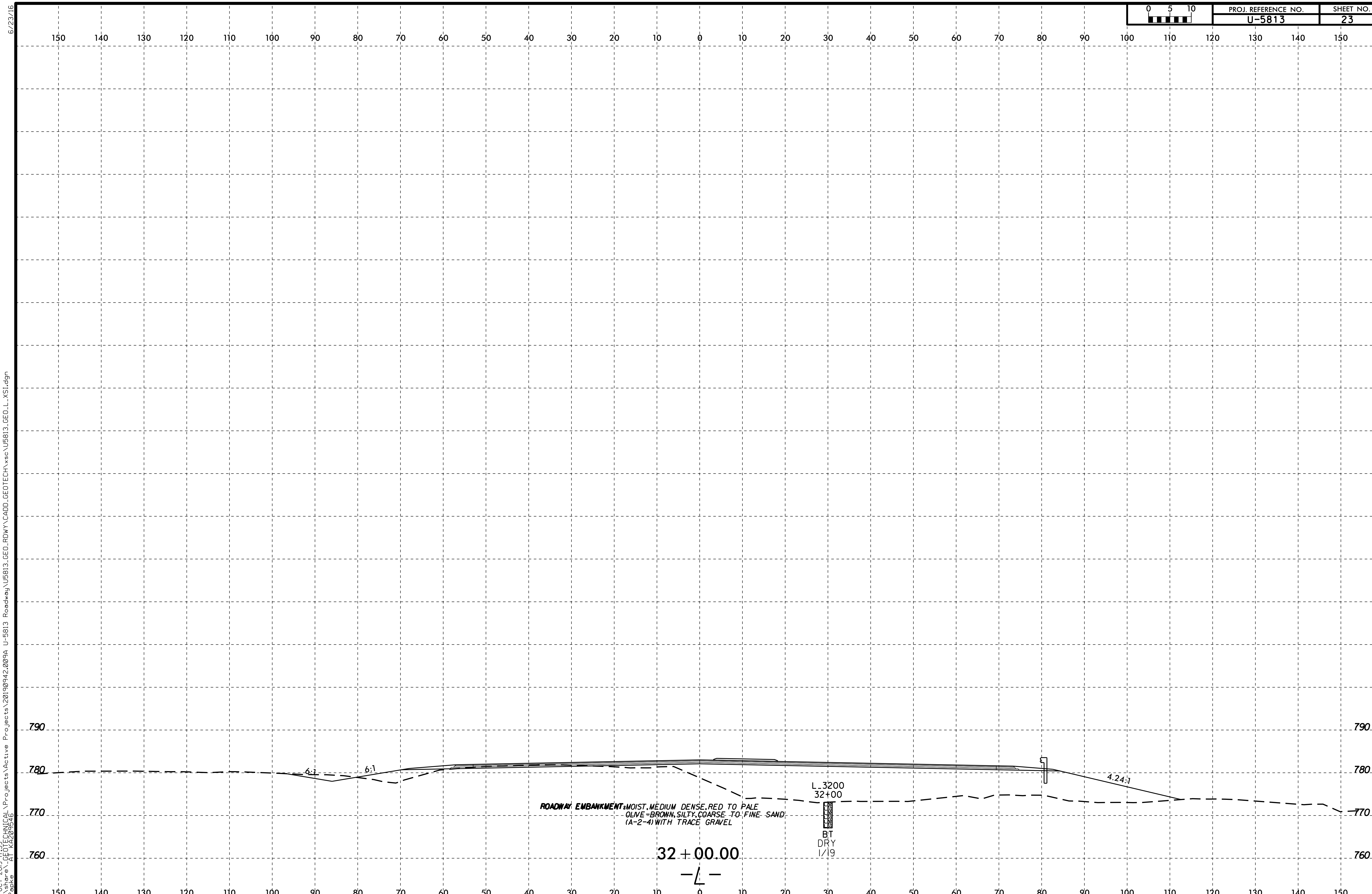
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	23



6/23/16

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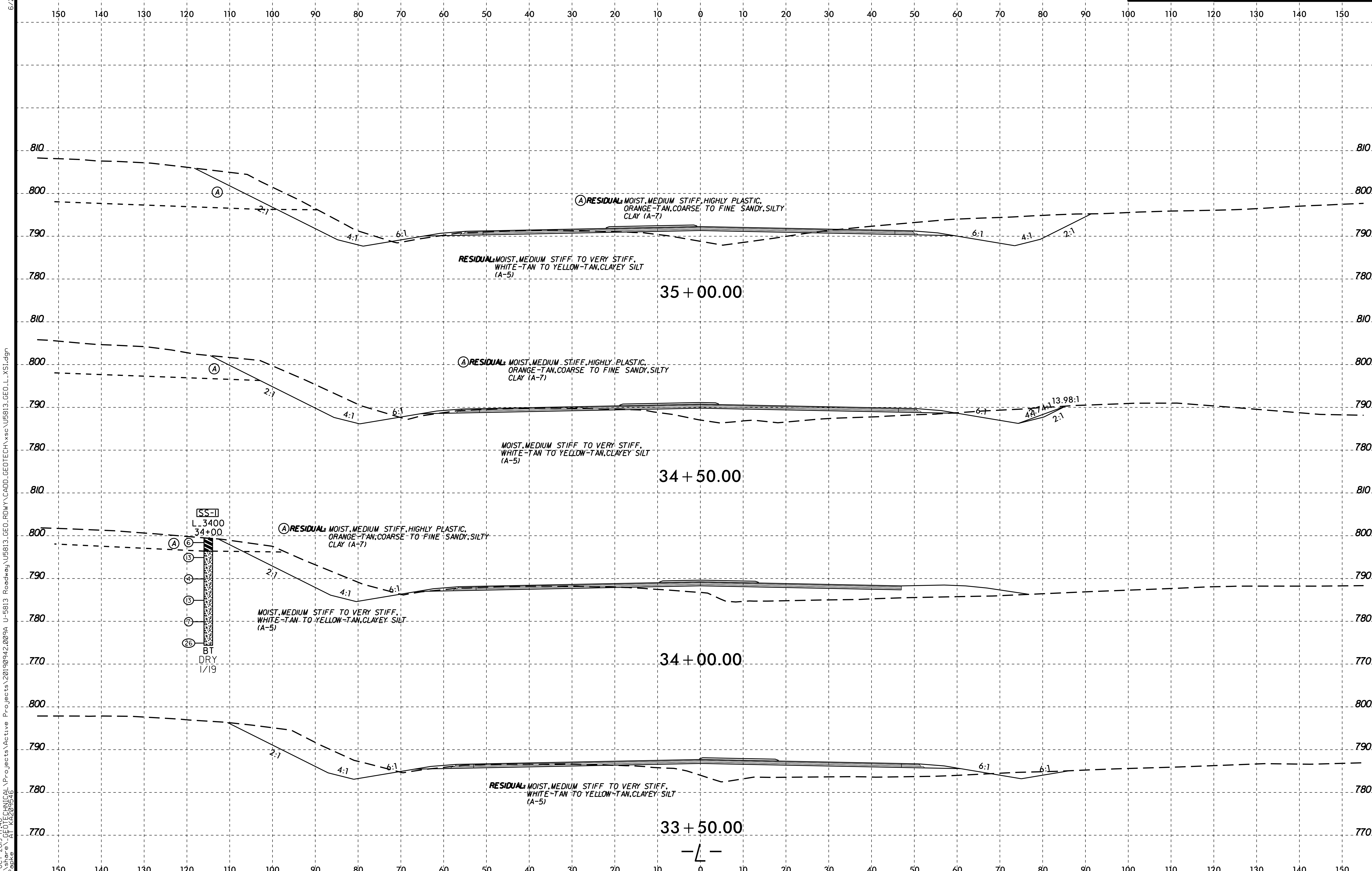
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	24



0 5 10
(A) RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-TAN, COARSE TO FINE SANDY, SILTY CLAY (A-7)
RESIDUAL: MOIST, MEDIUM STIFF TO VERY STIFF, WHITE-TAN TO YELLOW-TAN, CLAYEY SILT (A-5)
35+00.00
(A) RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-TAN, COARSE TO FINE SANDY, SILTY CLAY (A-7)
MOIST, MEDIUM STIFF TO VERY STIFF, WHITE-TAN TO YELLOW-TAN, CLAYEY SILT (A-5)
13.98:1
34+50.00
SS-1
L_3400
34+00
BT
DRY
1/19
(A) RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-TAN, COARSE TO FINE SANDY, SILTY CLAY (A-7)
MOIST, MEDIUM STIFF TO VERY STIFF, WHITE-TAN TO YELLOW-TAN, CLAYEY SILT (A-5)
34+00.00
RESIDUAL: MOIST, MEDIUM STIFF TO VERY STIFF, WHITE-TAN TO YELLOW-TAN, CLAYEY SILT (A-5)
33+50.00
-L-

6/23/16

14-OCT-2019 17:40
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SPapke AT KA209546

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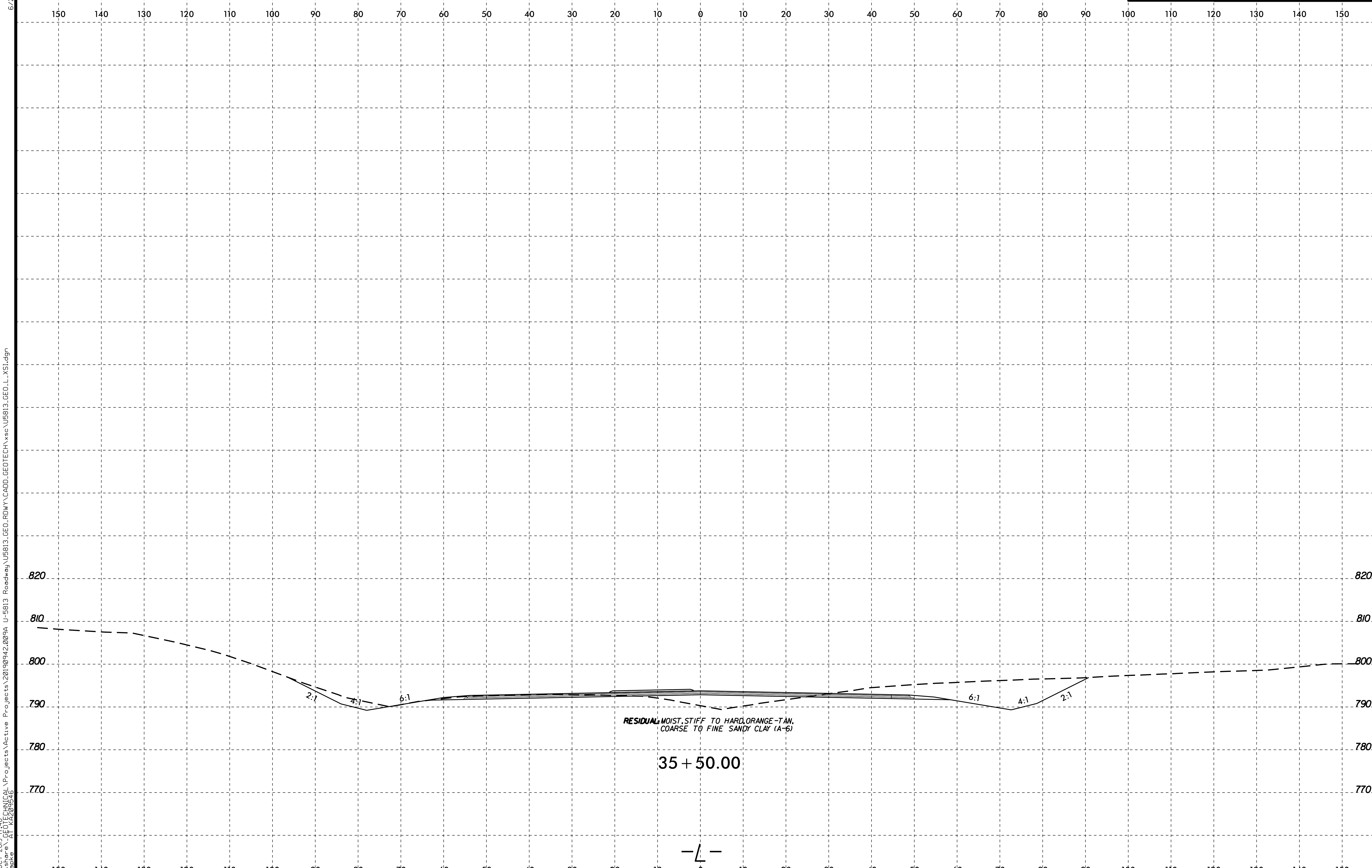
U-5813	25



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Sropke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

810
800
790
780
770

4.90:1
6:1
6:1
4:1

SS-2
L 3600
36+00

13
19
39
34
17

BT
DRY
12/18

RESIDUAL: MOIST, STIFF TO HARD, ORANGE-TAN TO WHITE, COARSE TO FINE SANDY CLAY (A-6)

36+00.00
-L-

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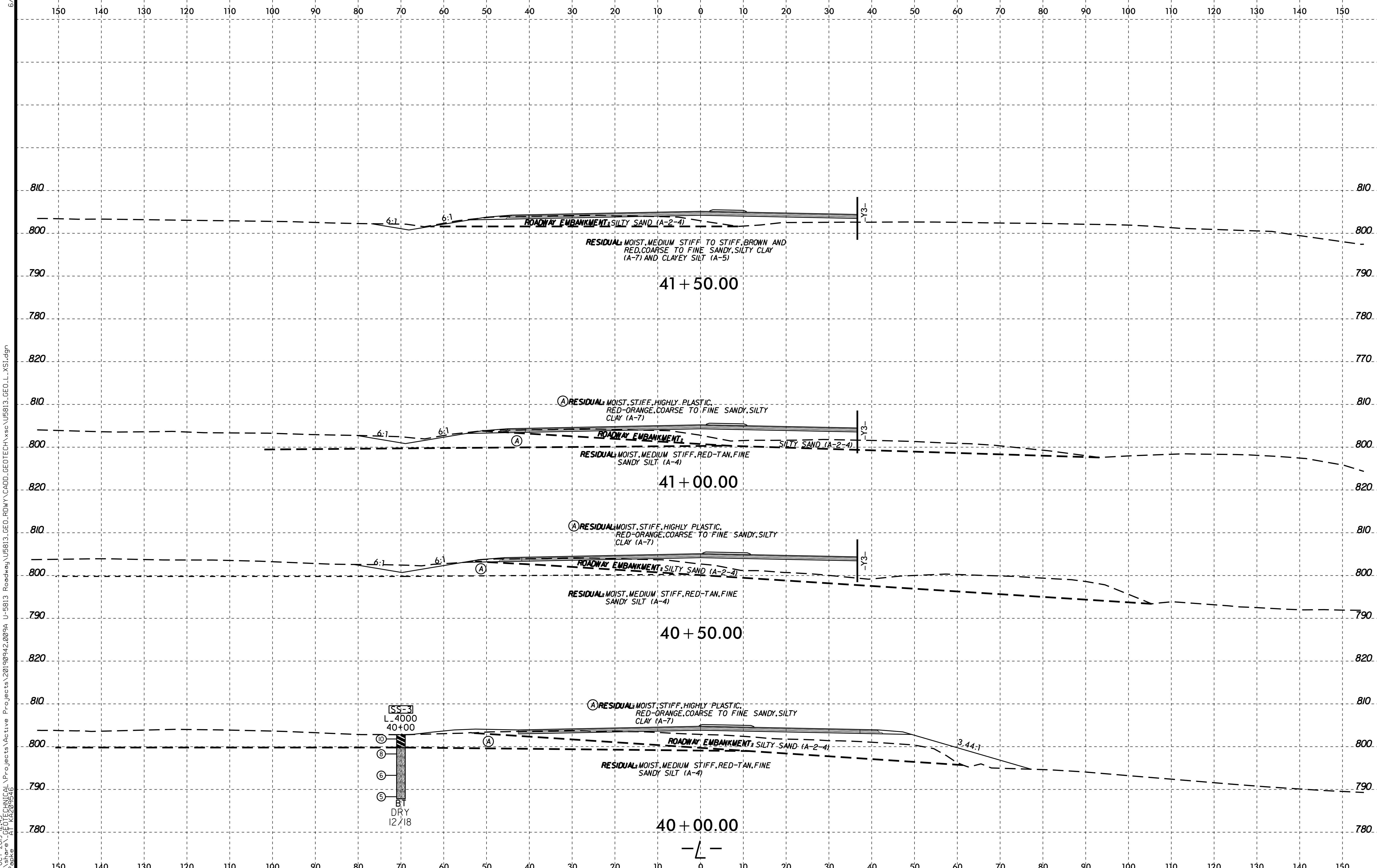
SPeake AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	27



0 5 10
810
800
790
780
770
820
6:1
6:1
-Y3-
ROADWAY EMBANKMENT: SILTY SAND (A-2-4)
RESIDUAL: MOIST, MEDIUM STIFF TO STIFF, BROWN AND RED, COARSE TO FINE SANDY, SILTY CLAY (A-7) AND CLAYEY SILT (A-5)
41+50.00
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, RED-ORANGE, COARSE TO FINE SANDY, SILTY CLAY (A-7)
ROADWAY EMBANKMENT:
SILTY SAND (A-2-4)
RESIDUAL: MOIST, MEDIUM STIFF, RED-TAN, FINE SANDY SILT (A-4)
41+00.00
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, RED-ORANGE, COARSE TO FINE SANDY, SILTY CLAY (A-7)
ROADWAY EMBANKMENT: SILTY SAND (A-2-4)
RESIDUAL: MOIST, MEDIUM STIFF, RED-TAN, FINE SANDY SILT (A-4)
40+50.00
SS-3
L 4000
40+00
10
8
6
5
BT
DRY
12/18
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, RED-ORANGE, COARSE TO FINE SANDY, SILTY CLAY (A-7)
ROADWAY EMBANKMENT: SILTY SAND (A-2-4)
3.44:1
RESIDUAL: MOIST, MEDIUM STIFF, RED-TAN, FINE SANDY SILT (A-4)
40+00.00
-L-
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

15-OCT-2019 12:45
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Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
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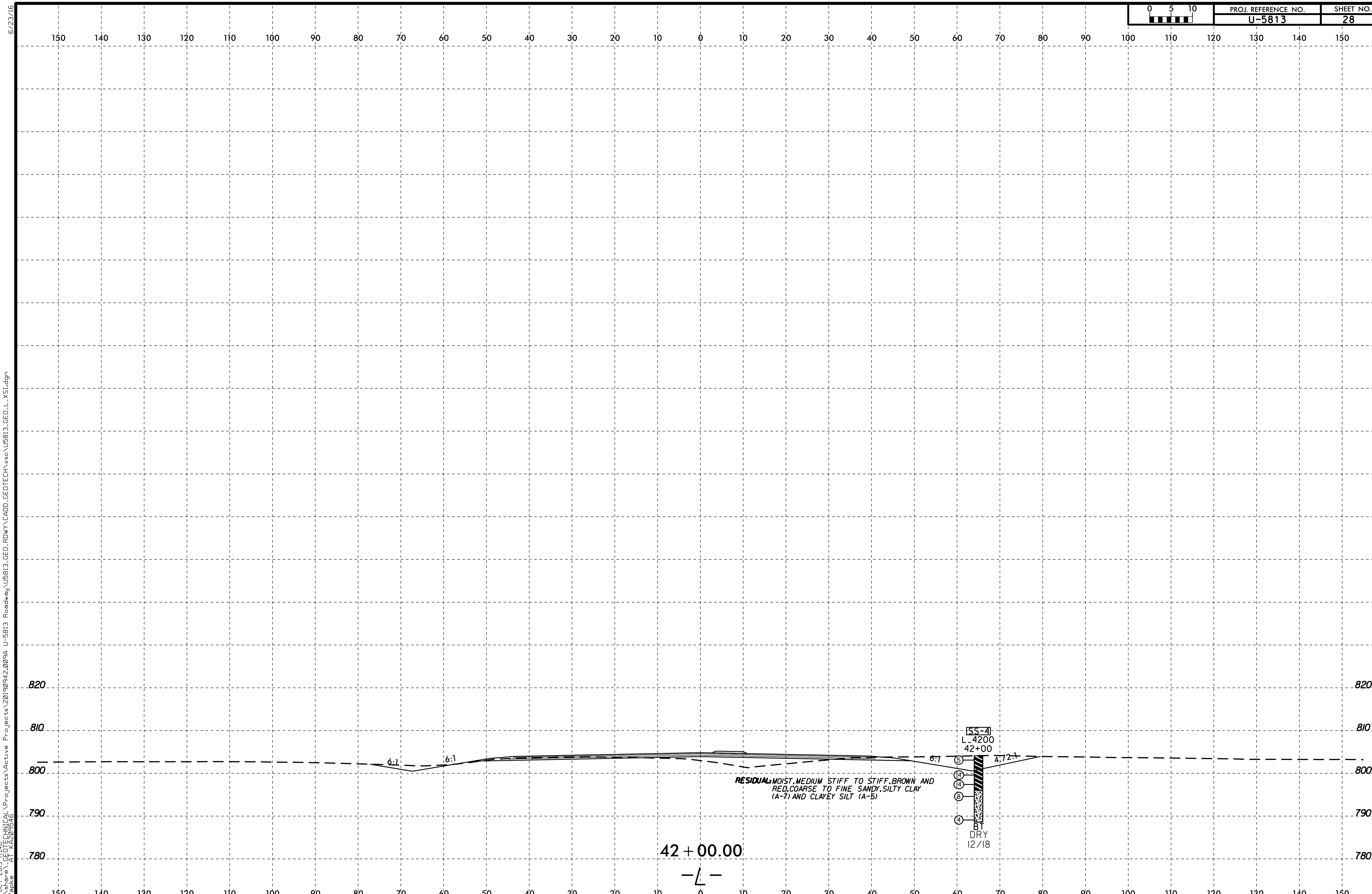

42 + 00.00

-L-

6/23/16

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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	29

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

810 800 790 780 820 810

4:1 6:1

RESIDUAL: MOIST, MEDIUM STIFF, RED, RED-BROWN AND TAN, CLAYEY FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5)

44+50.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)

SS-5
L_4400
44+00

MOIST, MEDIUM STIFF, RED, RED-BROWN AND TAN, SILTY CLAY (A-7), CLAYEY FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5)

44+00.00

BT
DRY
12/18

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-6)

RESIDUAL: MOIST, MEDIUM STIFF, RED, RED-BROWN AND TAN, CLAYEY FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5)

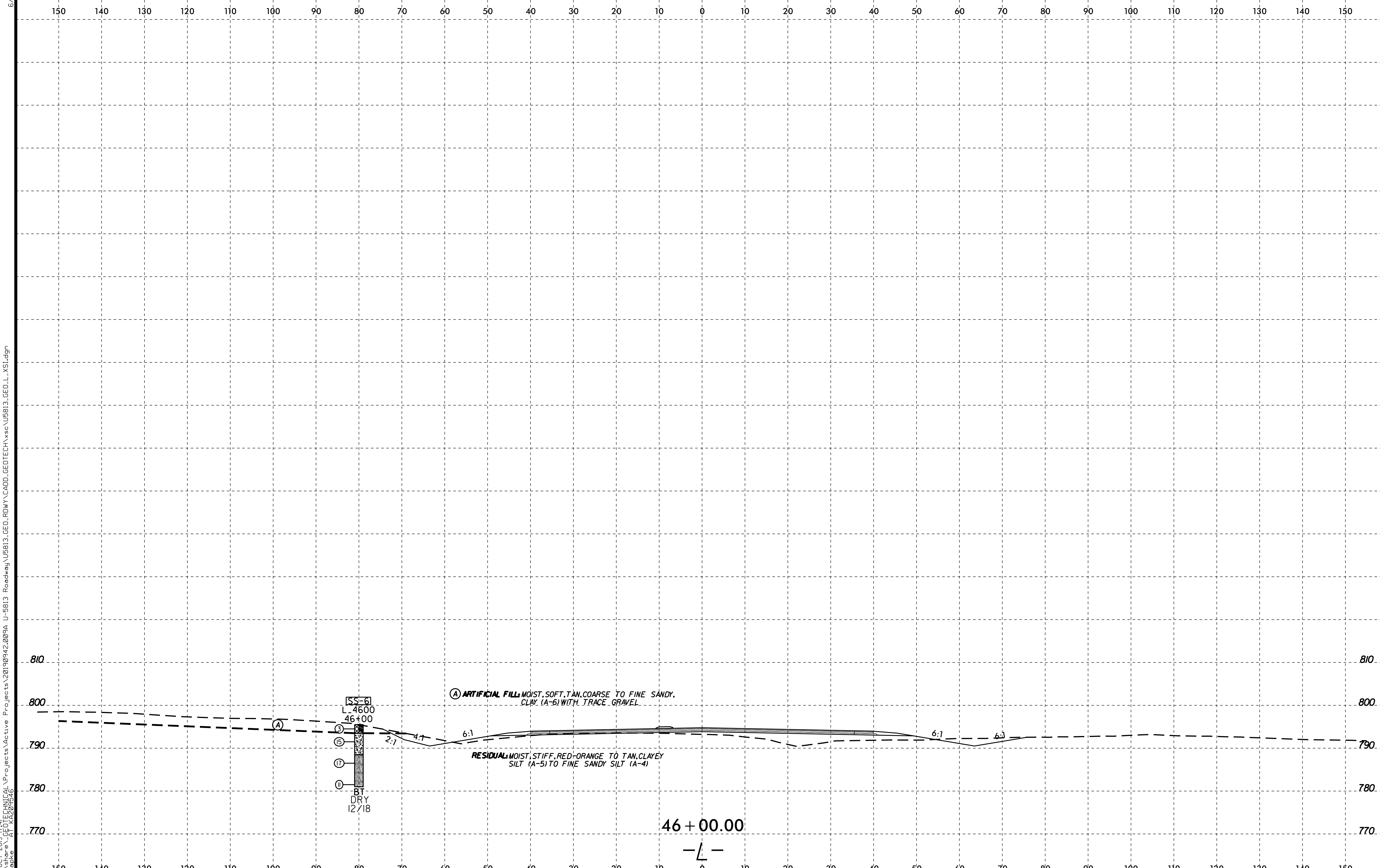
43+50.00

RESIDUAL: MOIST, MEDIUM STIFF, RED, RED-BROWN AND TAN, CLAYEY FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5)

43+00.00

—L—

PROJ. REFERENCE NO.	SHEET NO.
U-5813	30



46+00.00

-L-

6/23/16

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6/23/16

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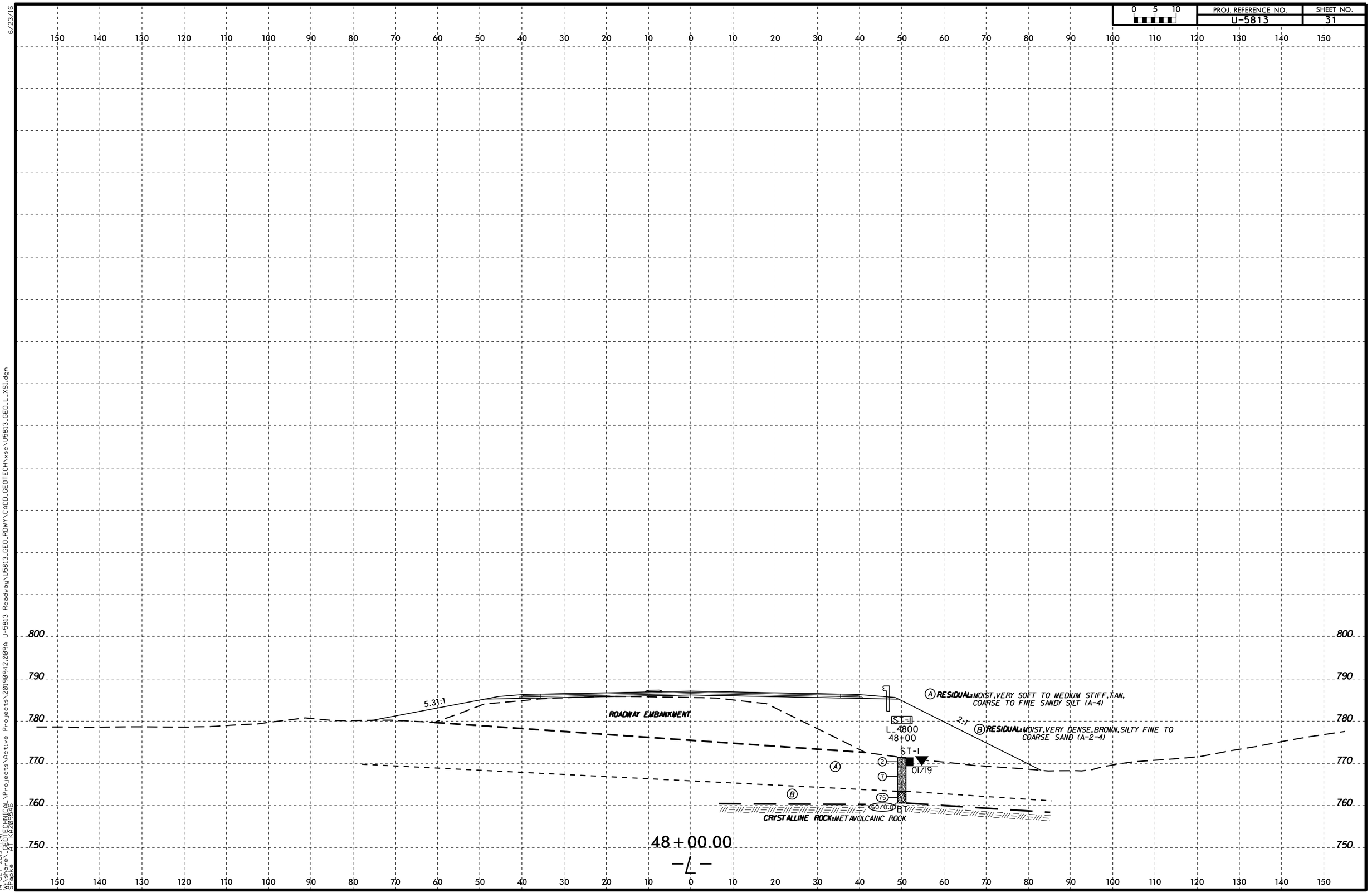

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USpake AT K20170546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	32

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

790 780 770 760 800 750

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)

MOIST, MEDIUM STIFF TO SOFT, RED-WHITE-BLACK TO BROWN-OLIVE, CLAYEY SILT (A-5) TO SILTY CLAY (A-7)

6:1 6:1 6:1 4:1 2:1

51 + 00.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)

MOIST, MEDIUM STIFF TO SOFT, RED-WHITE-BLACK TO BROWN-OLIVE, CLAYEY SILT (A-5) TO SILTY CLAY (A-7)

6:1 6:1 4:1 2:1

SS-8
L_5050
50+50
5
U
5
3
13
BT
DRY
1/19

50 + 50.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)

MOIST, MEDIUM STIFF TO SOFT, RED-WHITE-BLACK TO BROWN-OLIVE, CLAYEY SILT (A-5) TO SILTY CLAY (A-7)

6:1 6:1 4:1 2:1

50 + 00.00

RESIDUAL: MOIST, MEDIUM STIFF TO SOFT, RED-WHITE-BLACK TO BROWN-OLIVE, CLAYEY SILT (A-5) TO SILTY CLAY (A-7)

6:1 4:1 2:1

49 + 50.00

–L–

15-OCT-2019 12:46
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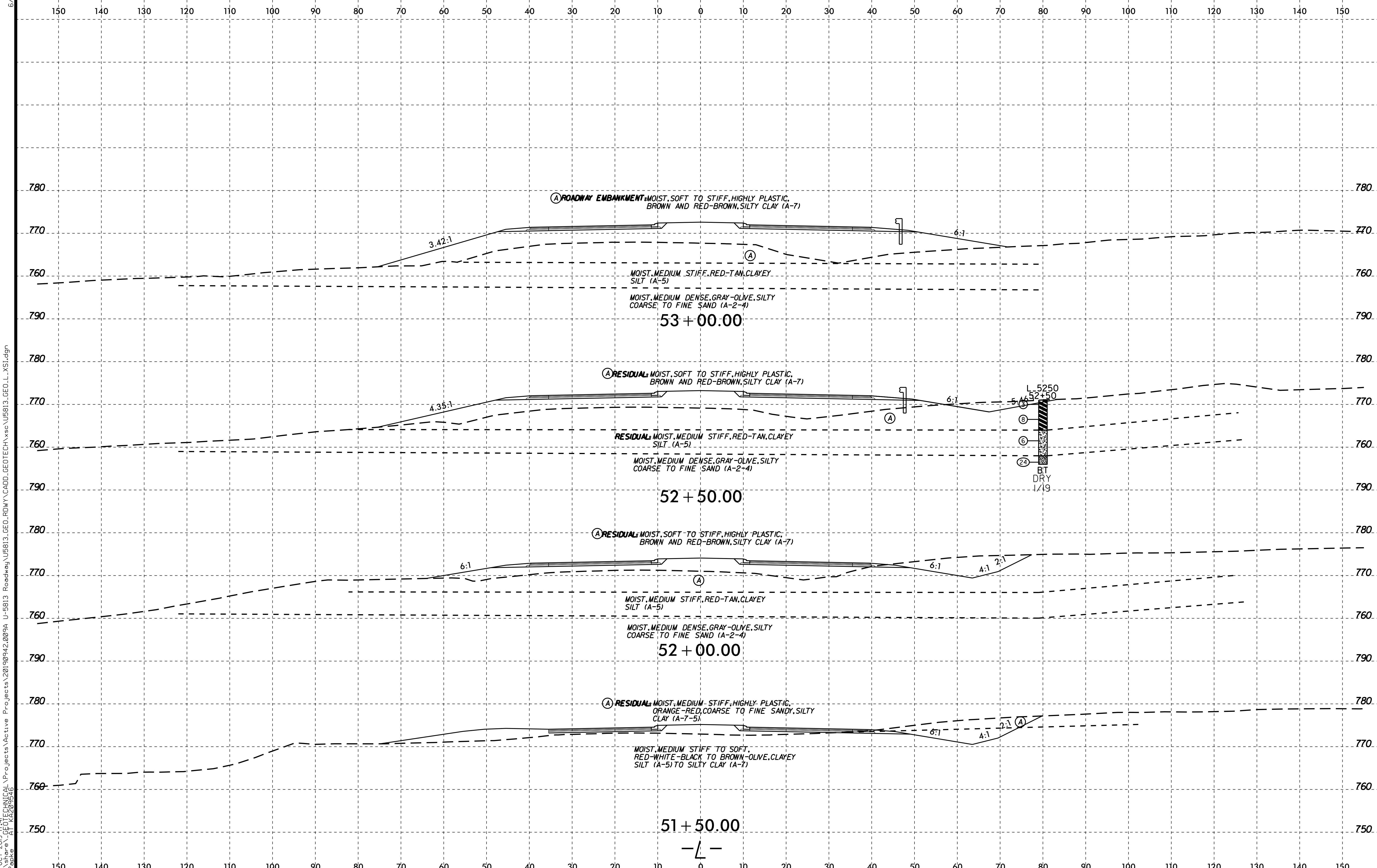
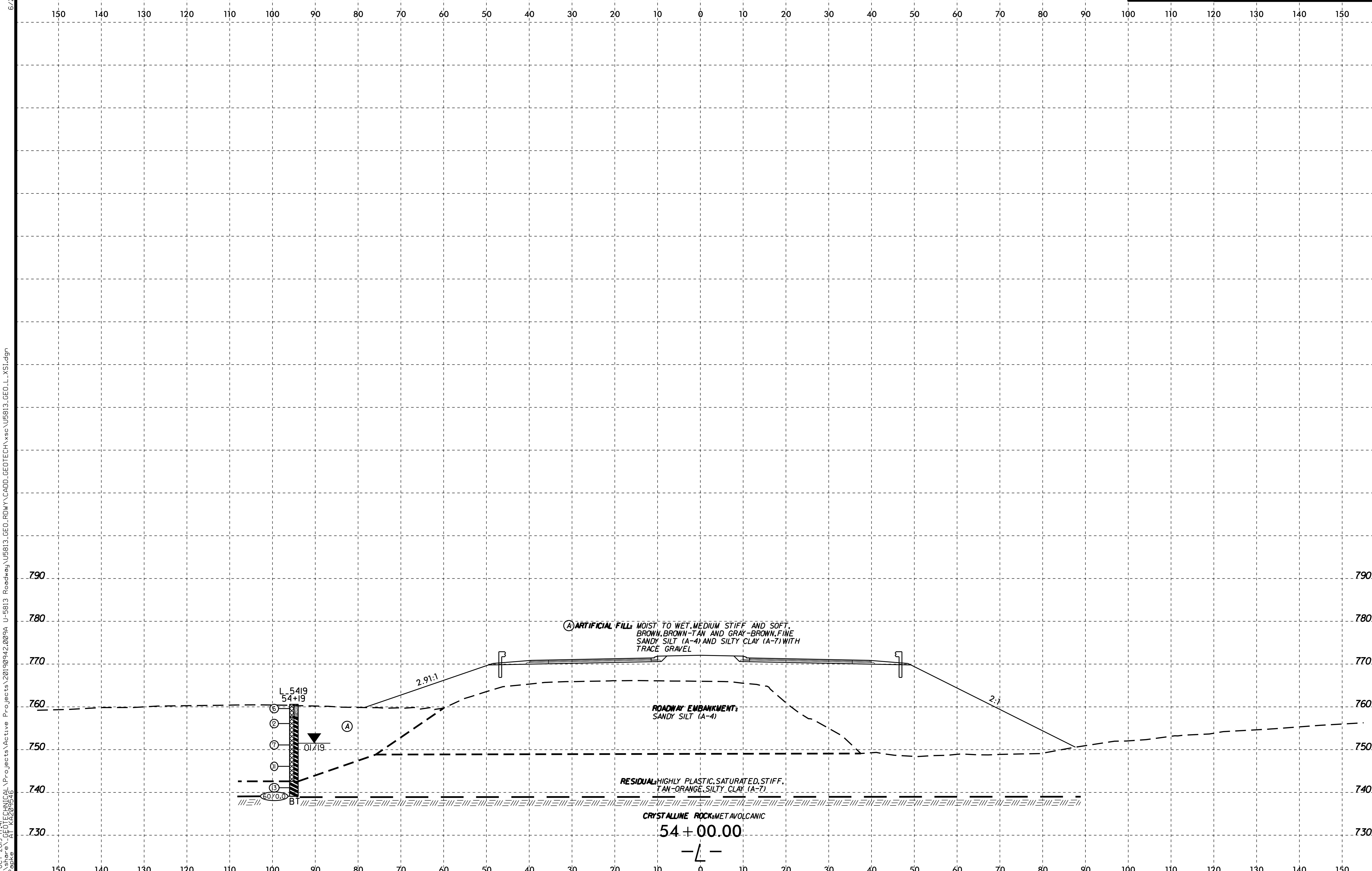
Spooke AT KA20954G

PROJ. REFERENCE NO.	SHEET NO.
U-5813	33



Ⓐ ROADWAY EMBANKMENT: MOIST, SOFT TO STIFF, HIGHLY PLASTIC, BROWN AND RED-BROWN, SILTY CLAY (A-7)
3.42:1
6:1
MOIST, MEDIUM STIFF, RED-TAN, CLAYEY SILT (A-5)
MOIST, MEDIUM DENSE, GRAY-OLIVE, SILTY COARSE TO FINE SAND (A-2-4)
53+00.00
Ⓐ RESIDUAL: MOIST, SOFT TO STIFF, HIGHLY PLASTIC, BROWN AND RED-BROWN, SILTY CLAY (A-7)
4.35:1
6:1
L_5250
52+50
RESIDUAL: MOIST, MEDIUM STIFF, RED-TAN, CLAYEY SILT (A-5)
MOIST, MEDIUM DENSE, GRAY-OLIVE, SILTY COARSE TO FINE SAND (A-2-4)
BT
DRY
1/19
52+50.00
Ⓐ RESIDUAL: MOIST, SOFT TO STIFF, HIGHLY PLASTIC, BROWN AND RED-BROWN, SILTY CLAY (A-7)
6:1
4:1
2:1
MOIST, MEDIUM STIFF, RED-TAN, CLAYEY SILT (A-5)
MOIST, MEDIUM DENSE, GRAY-OLIVE, SILTY COARSE TO FINE SAND (A-2-4)
52+00.00
Ⓐ RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)
MOIST, MEDIUM STIFF TO SOFT, RED-WHITE-BLACK TO BROWN-OLIVE, CLAYEY SILT (A-5) TO SILTY CLAY (A-7)
51+50.00
-L-

PROJ. REFERENCE NO.	SHEET NO.
U-5813	34



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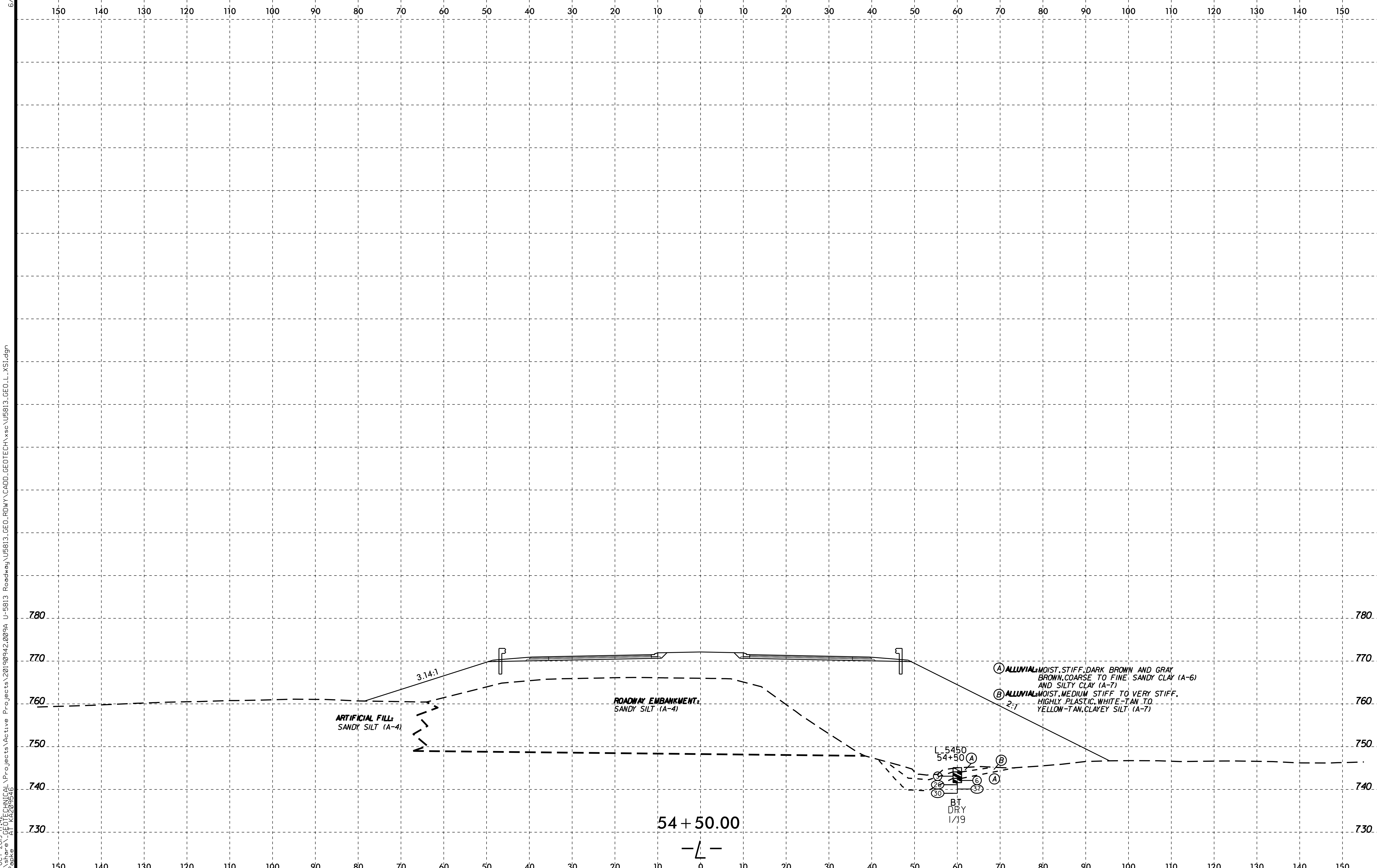
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	35



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
780
770
760
750
740
730
3.14:1
2:1
ARTIFICIAL FILL: SANDY SILT (A-4)
ROADWAY EMBANKMENT: SANDY SILT (A-4)
(A) ALLUVIAL: MOIST, STIFF, DARK BROWN AND GRAY BROWN, COARSE TO FINE SANDY CLAY (A-6) AND SILTY CLAY (A-7)
(B) ALLUVIAL: MOIST, MEDIUM STIFF TO VERY STIFF, HIGHLY PLASTIC, WHITE-TAN TO YELLOW-TAN, CLAYEY SILT (A-7)
L_5450
54+50
3
26
30
6
37
BT
DRY
1/19
54+50.00
-L-

6/23/16

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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	36

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

780
770
760
750
740

6:1

ARTIFICIAL FILL:
SILTY CLAY (A-7)

ROADWAY EMBANKMENT: SILTY CLAY (A-7)

2:1

(A) ALLUVIAL: MOIST, SOFT, TAN-BROWN, FINE SANDY, SILTY CLAY (A-7)

L 5618
56+18

(A) (2) 60/0.0 B
DRY
12/18

CRYSTALLINE ROCK: METAVOLCANIC

56+50.00
-L-

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

780
770
760
750
740

14-OCT-2019 17:42
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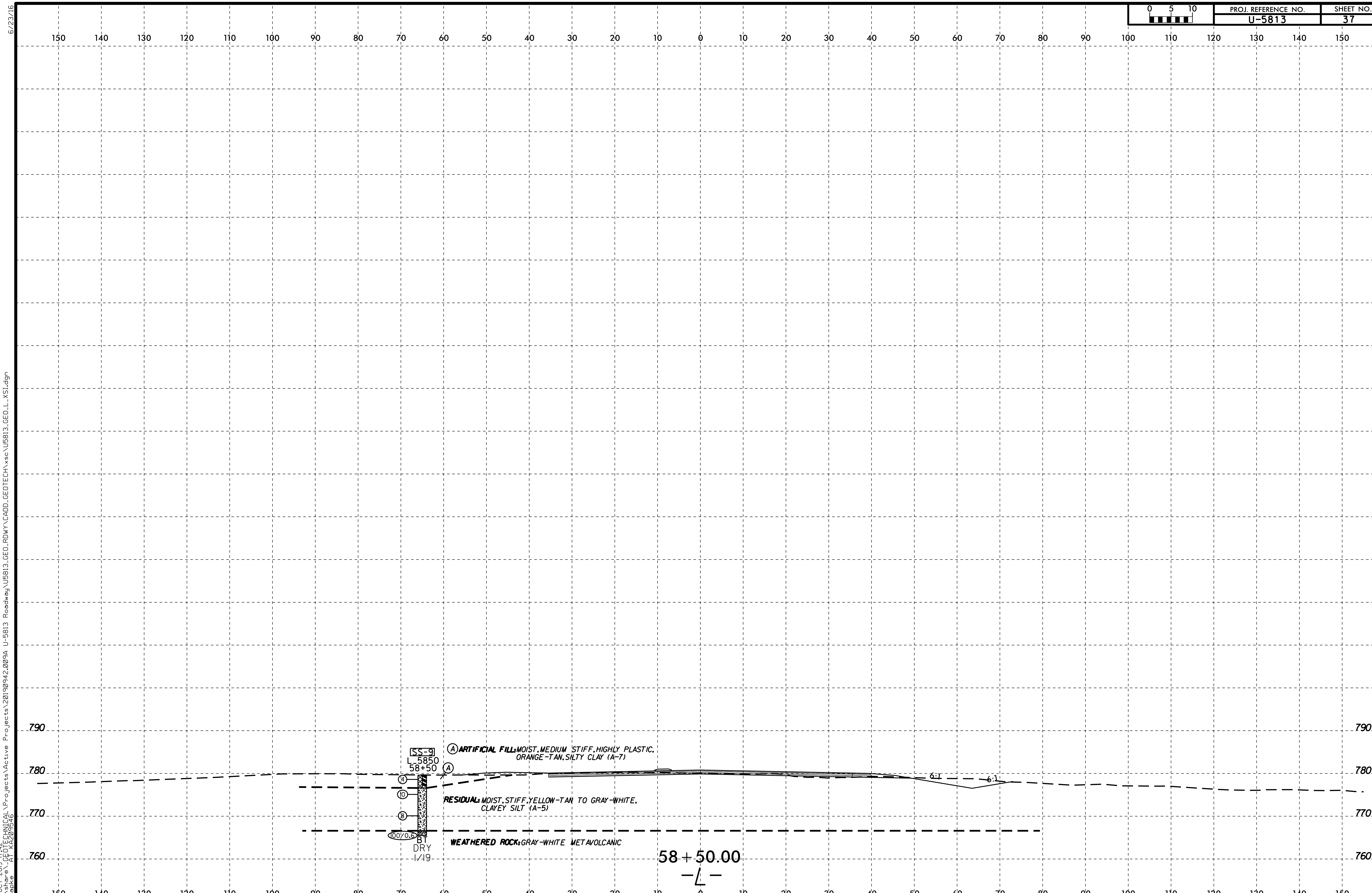
Shapke AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	37



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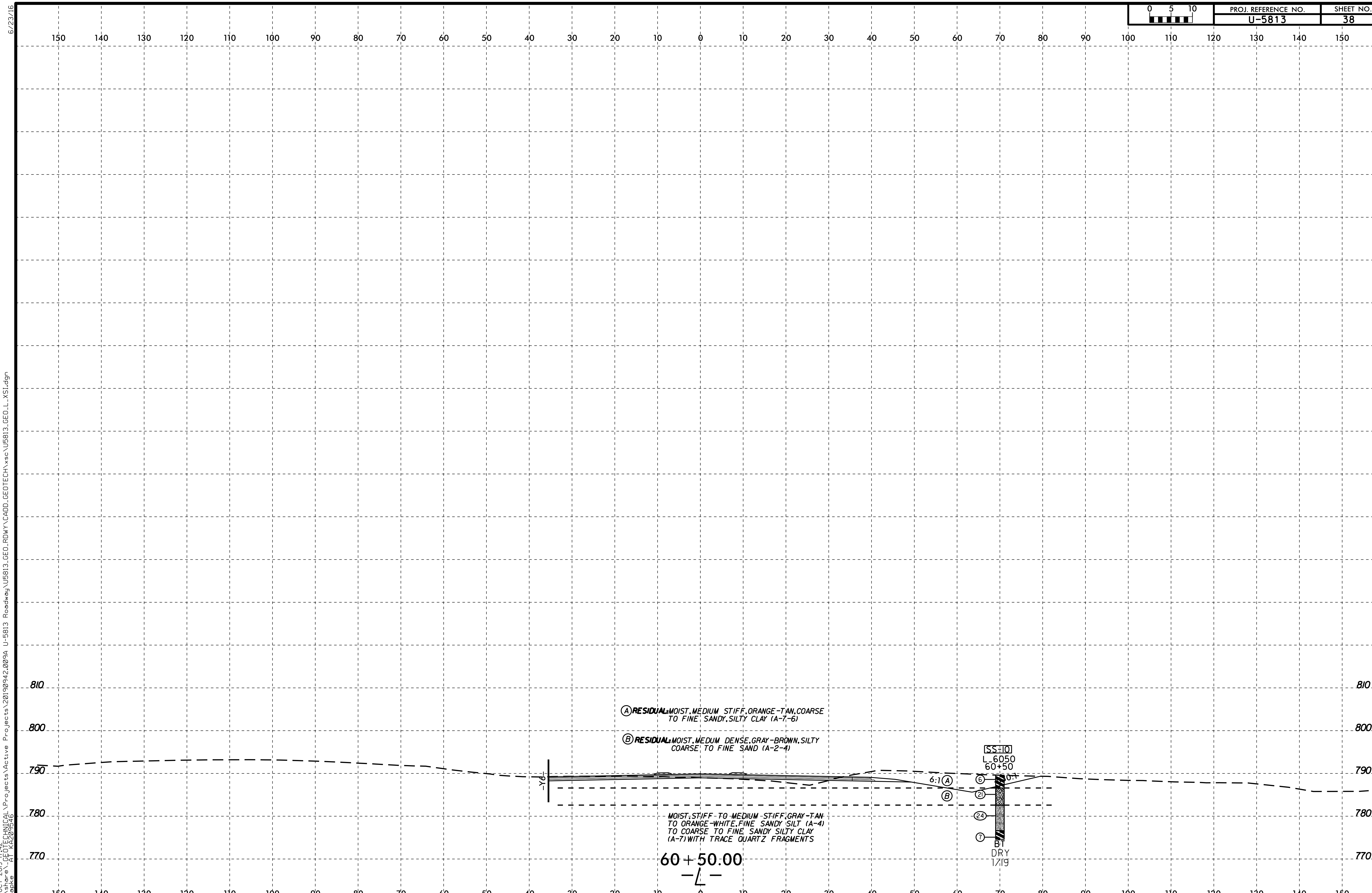
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	38



0 5 10
810
800
790
780
770
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
-Y6-
Ⓐ RESIDUAL: MOIST, MEDIUM STIFF, ORANGE-TAN, COARSE TO FINE SANDY, SILTY CLAY (A-7-6)
Ⓑ RESIDUAL: MOIST, MEDUM DENSE, GRAY-BROWN, SILTY COARSE TO FINE SAND (A-2-4)
MOIST, STIFF TO MEDIUM STIFF, GRAY-TAN TO ORANGE-WHITE, FINE SANDY SILT (A-4) TO COARSE TO FINE SANDY SILTY CLAY (A-7) WITH TRACE QUARTZ FRAGMENTS
6:1 Ⓐ
Ⓑ
SS-10
L_6050
60+50
6
21
24
7
BT
DRY
1/19
60+50.00
-L-

6/23/16

14-OCT-2019 17:42
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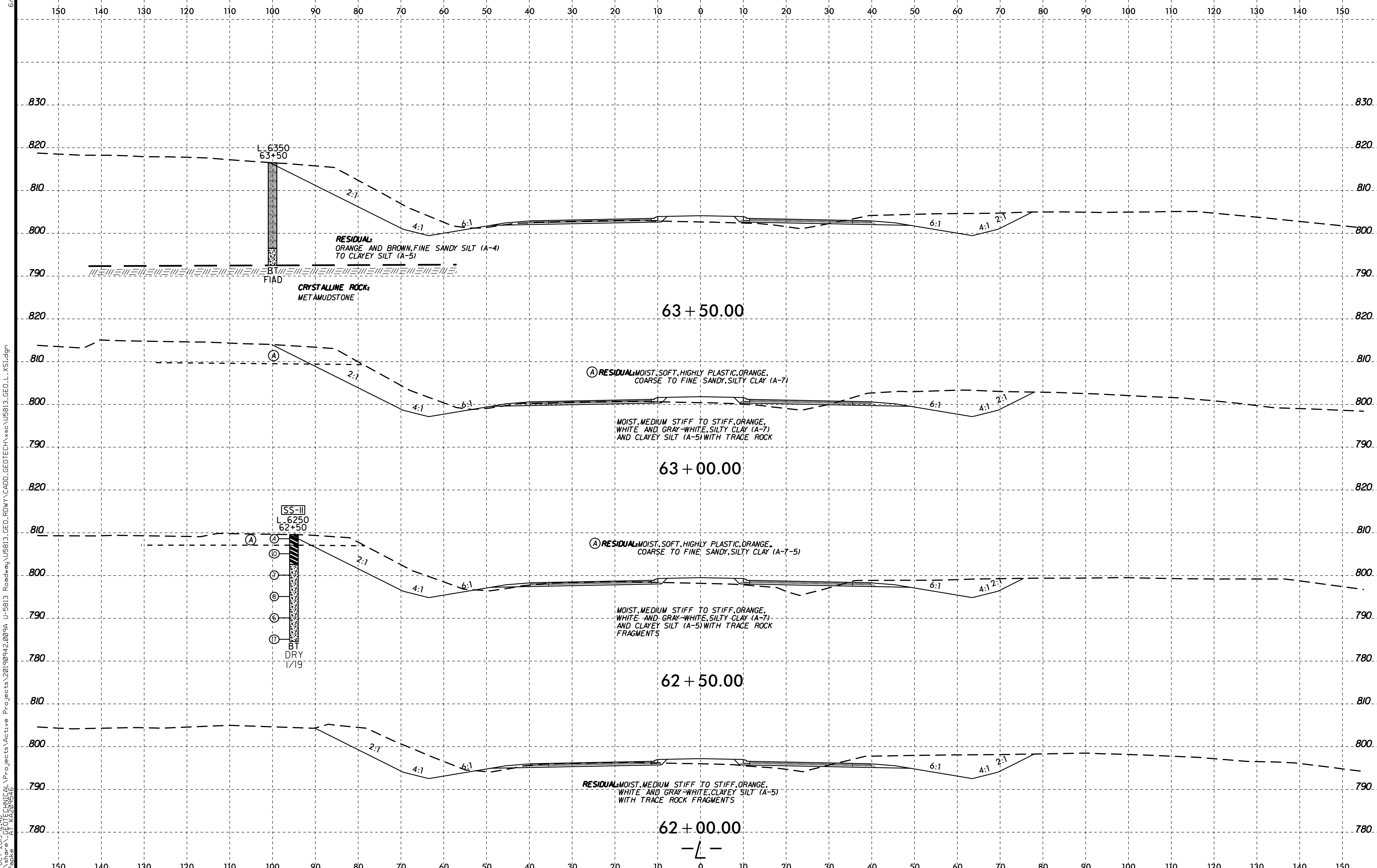
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	39



0 5 10
L_6350
63+50
2:1
4:1
6:1
RESIDUAL:
ORANGE AND BROWN,FINE SANDY SILT (A-4) TO CLAYEY SILT (A-5)
BT
F1AD
CRYSTALLINE ROCK:
METAMUDSTONE
63+50.00
(A) RESIDUAL:MOIST,SOFT,HIGHLY PLASTIC,ORANGE, COARSE TO FINE SANDY,SILTY CLAY (A-7)
MOIST,MEDIUM STIFF TO STIFF,ORANGE, WHITE AND GRAY-WHITE,SILTY CLAY (A-7) AND CLAYEY SILT (A-5) WITH TRACE ROCK
63+00.00
SS-11
L_6250
62+50
BT
DRY
1/19
(A) RESIDUAL:MOIST,SOFT,HIGHLY PLASTIC,ORANGE, COARSE TO FINE SANDY,SILTY CLAY (A-7-5)
MOIST,MEDIUM STIFF TO STIFF,ORANGE, WHITE AND GRAY-WHITE,SILTY CLAY (A-7) AND CLAYEY SILT (A-5) WITH TRACE ROCK FRAGMENTS
62+50.00
RESIDUAL:MOIST,MEDIUM STIFF TO STIFF,ORANGE, WHITE AND GRAY-WHITE,CLAYEY SILT (A-5) WITH TRACE ROCK FRAGMENTS
62+00.00
-L-

6/23/16

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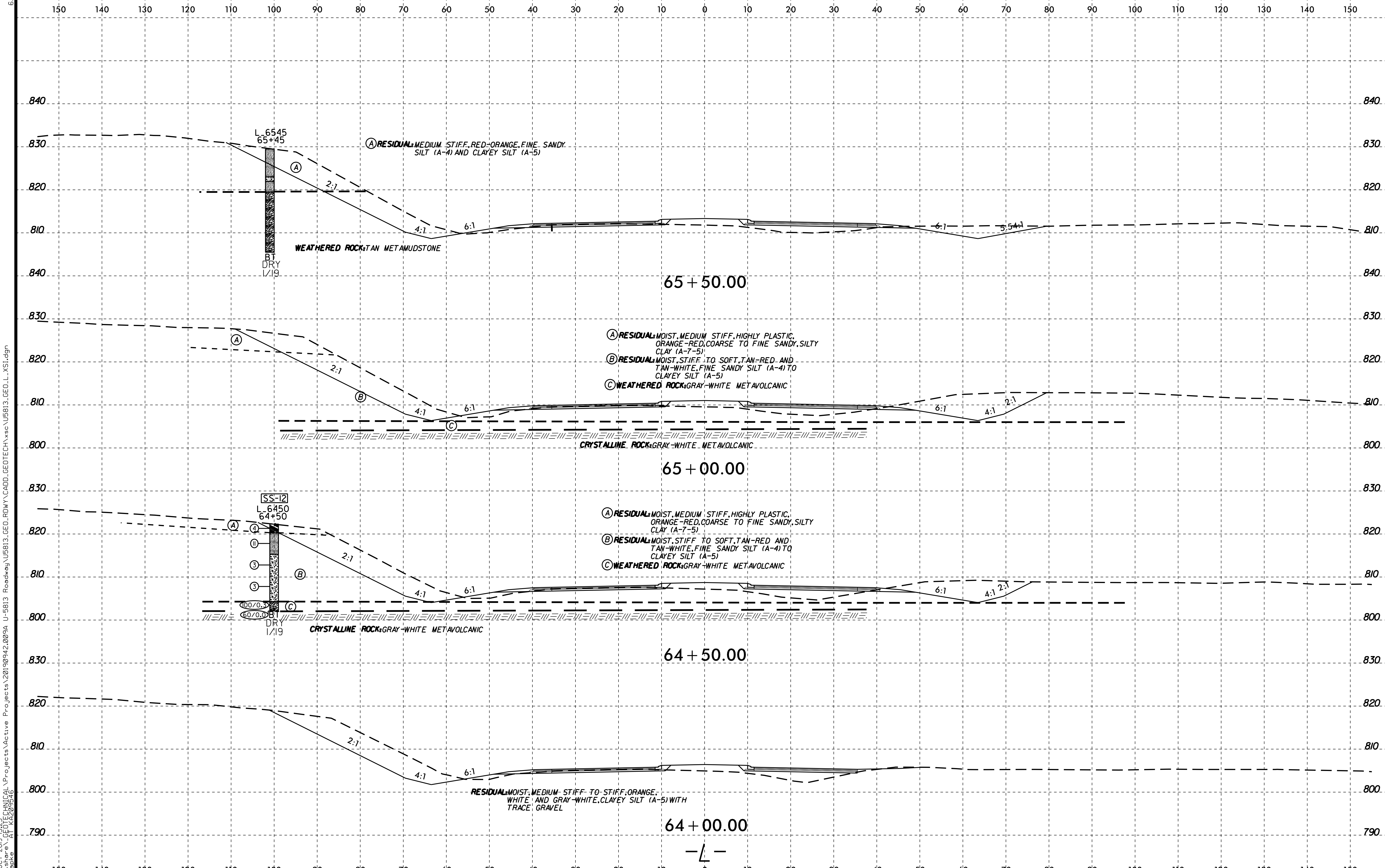
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	40



0 5 10
L_6545
65+45
Ⓐ RESIDUAL: MEDIUM STIFF, RED-ORANGE, FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5)
WEATHERED ROCK: TAN METAMUDSTONE
BT
DRY
1/19
65+50.00
Ⓐ RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)
Ⓑ RESIDUAL: MOIST, STIFF TO SOFT, TAN-RED AND TAN-WHITE, FINE SANDY SILT (A-4) TO CLAYEY SILT (A-5)
Ⓒ WEATHERED ROCK: GRAY-WHITE METAVOLCANIC
CRYSTALLINE ROCK: GRAY-WHITE METAVOLCANIC
65+00.00
SS-12
L_6450
64+50
Ⓐ RESIDUAL: MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE-RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5)
Ⓑ RESIDUAL: MOIST, STIFF TO SOFT, TAN-RED AND TAN-WHITE, FINE SANDY SILT (A-4) TO CLAYEY SILT (A-5)
Ⓒ WEATHERED ROCK: GRAY-WHITE METAVOLCANIC
100/0.3
60/0.0
BT
DRY
1/19
CRYSTALLINE ROCK: GRAY-WHITE METAVOLCANIC
64+50.00
RESIDUAL: MOIST, MEDIUM STIFF TO STIFF, ORANGE, WHITE AND GRAY-WHITE, CLAYEY SILT (A-5) WITH TRACE GRAVEL
64+00.00
-L-

6/23/16

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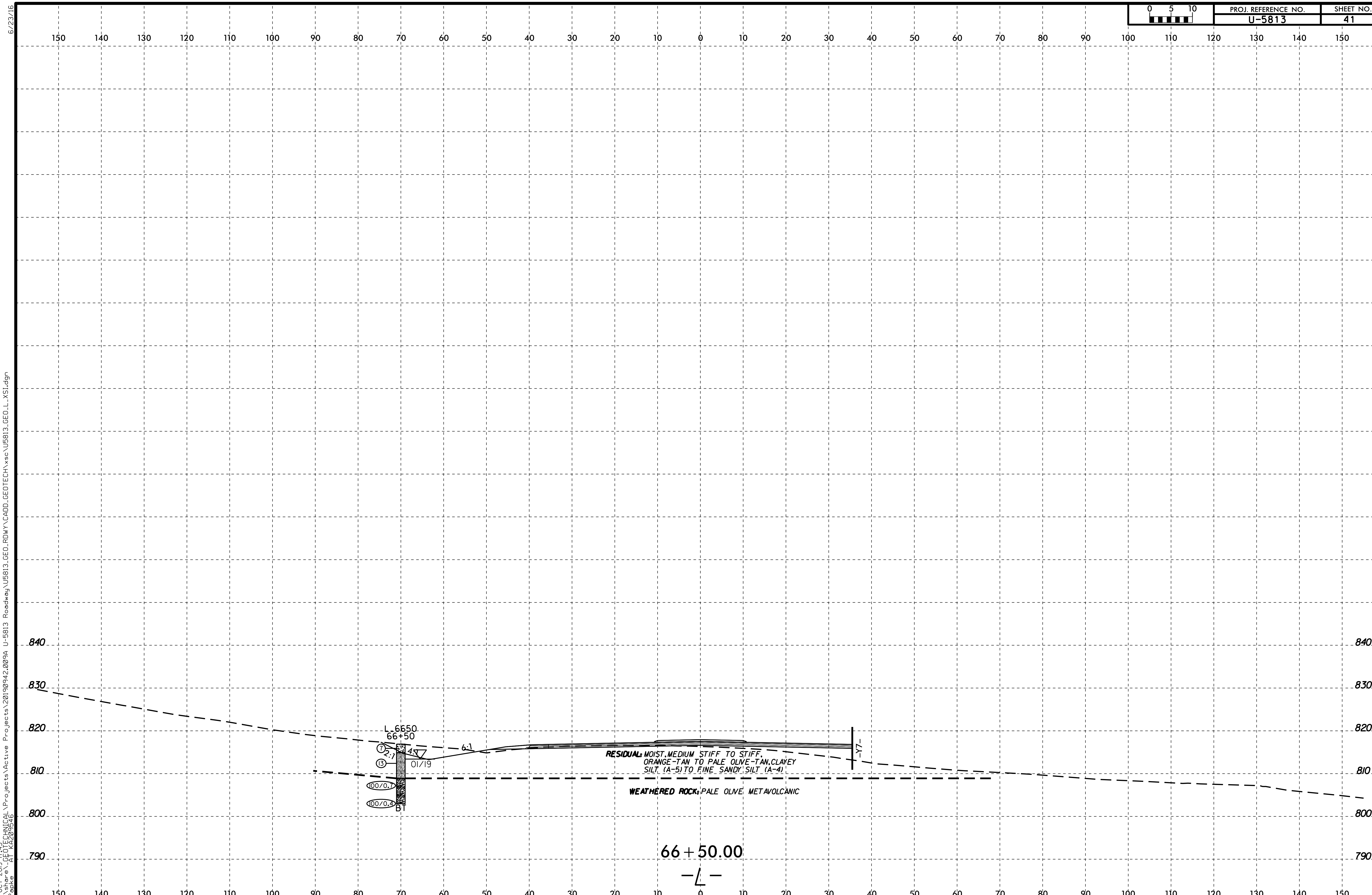
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	41



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14-OCT-2019 17:43
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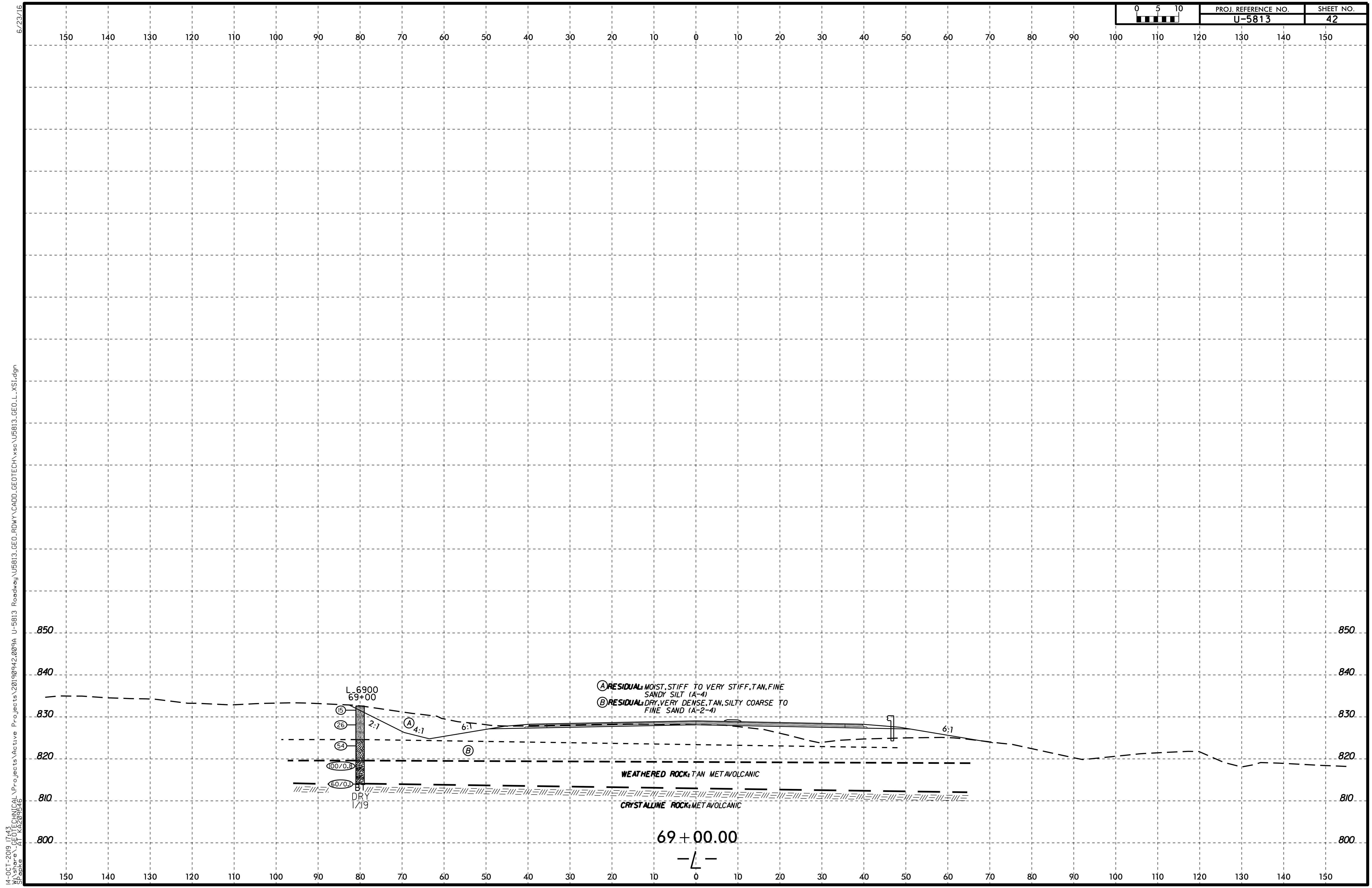
Spapke AT KA209546


0 5 10
PROJ. REFERENCE NO.
U-5813
SHEET NO.
42
6/23/16
L_6900
69+00
15
26
54
100/0.8
60/0.1
B1
DRY
1/19
2:1
A
4:1
6:1
B
6:1
A RESIDUAL: MOIST, STIFF TO VERY STIFF, TAN, FINE SANDY SILT (A-4)
B RESIDUAL: DRY, VERY DENSE, TAN, SILTY COARSE TO FINE SAND (A-2-4)
WEATHERED ROCK: TAN METAVOLCANIC
CRYSTALLINE ROCK: METAVOLCANIC
850
840
830
820
810
800
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
69+00.00
-L-
14-OCT-2019 17:43
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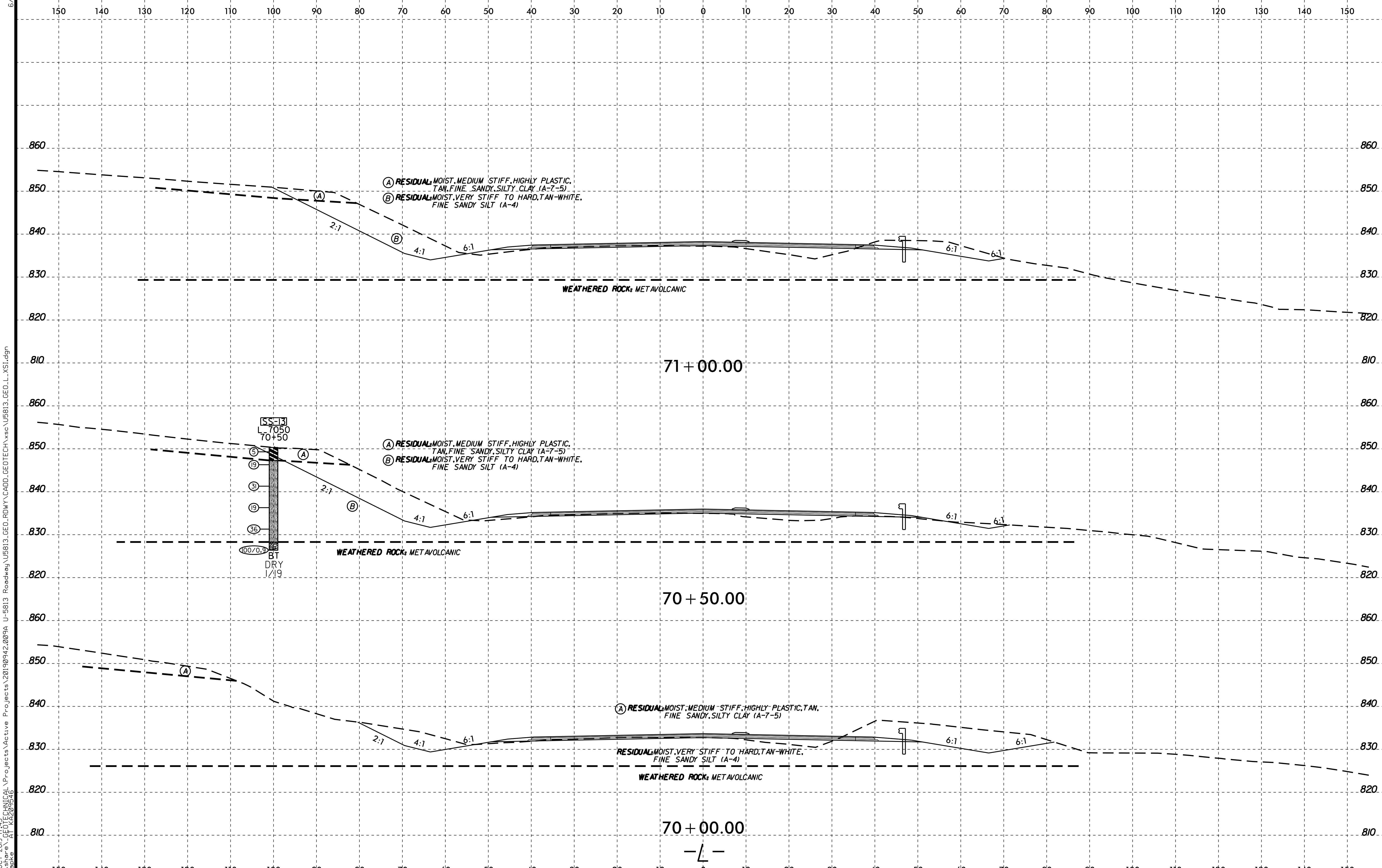
Spapke
AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	43



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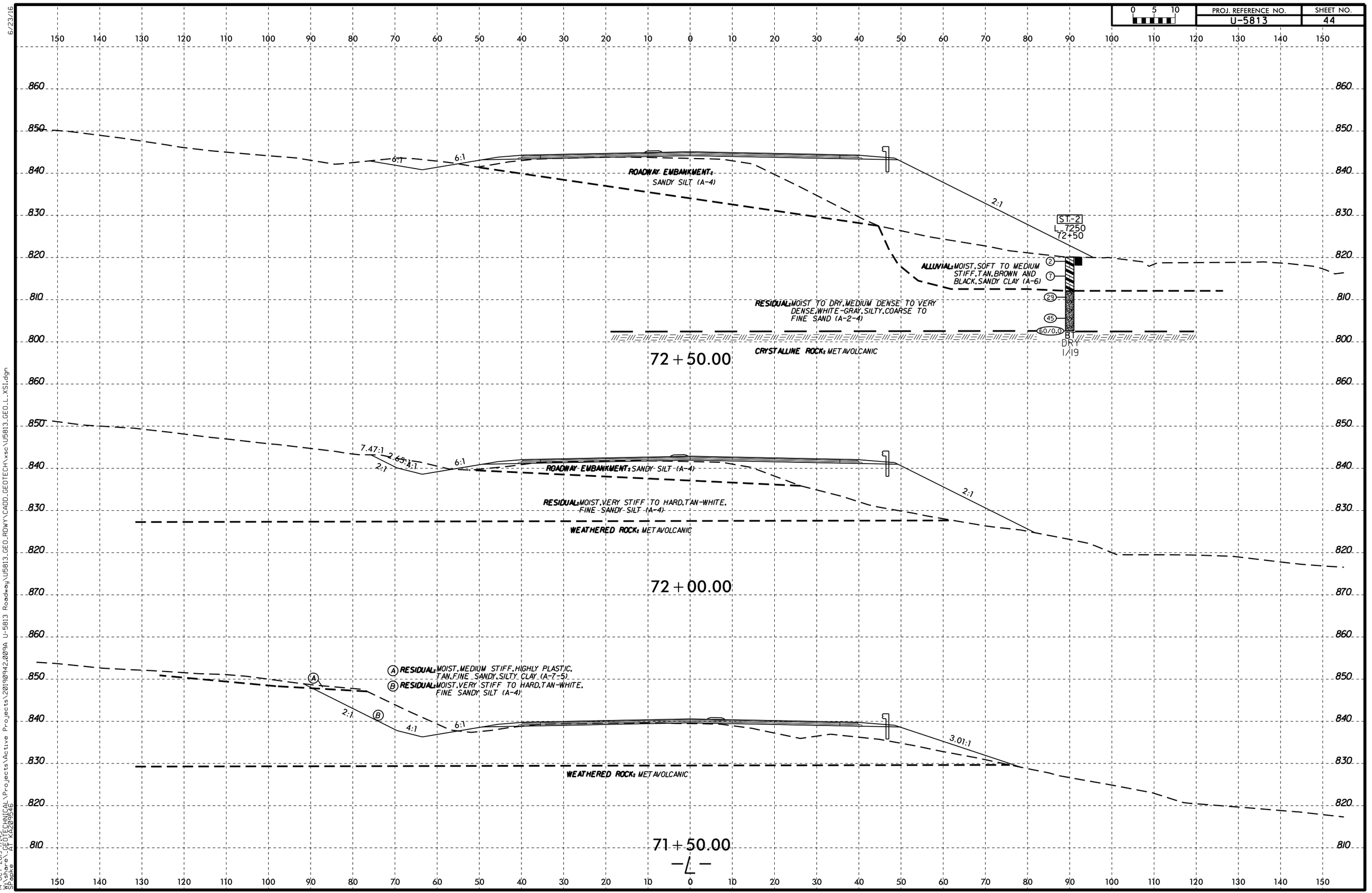
Spapke AT KA209546



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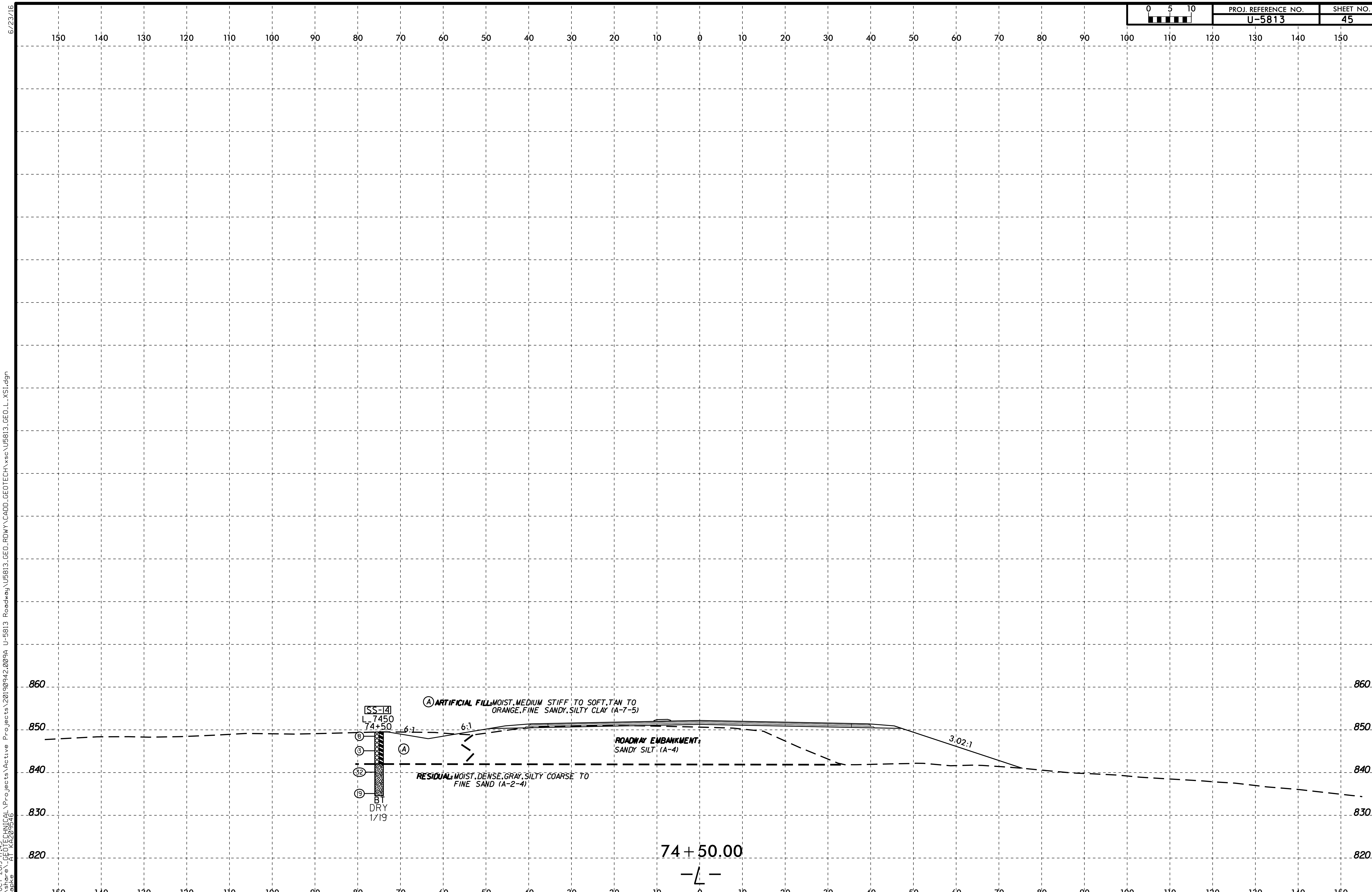
Spaoke AT KAZ09546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	45



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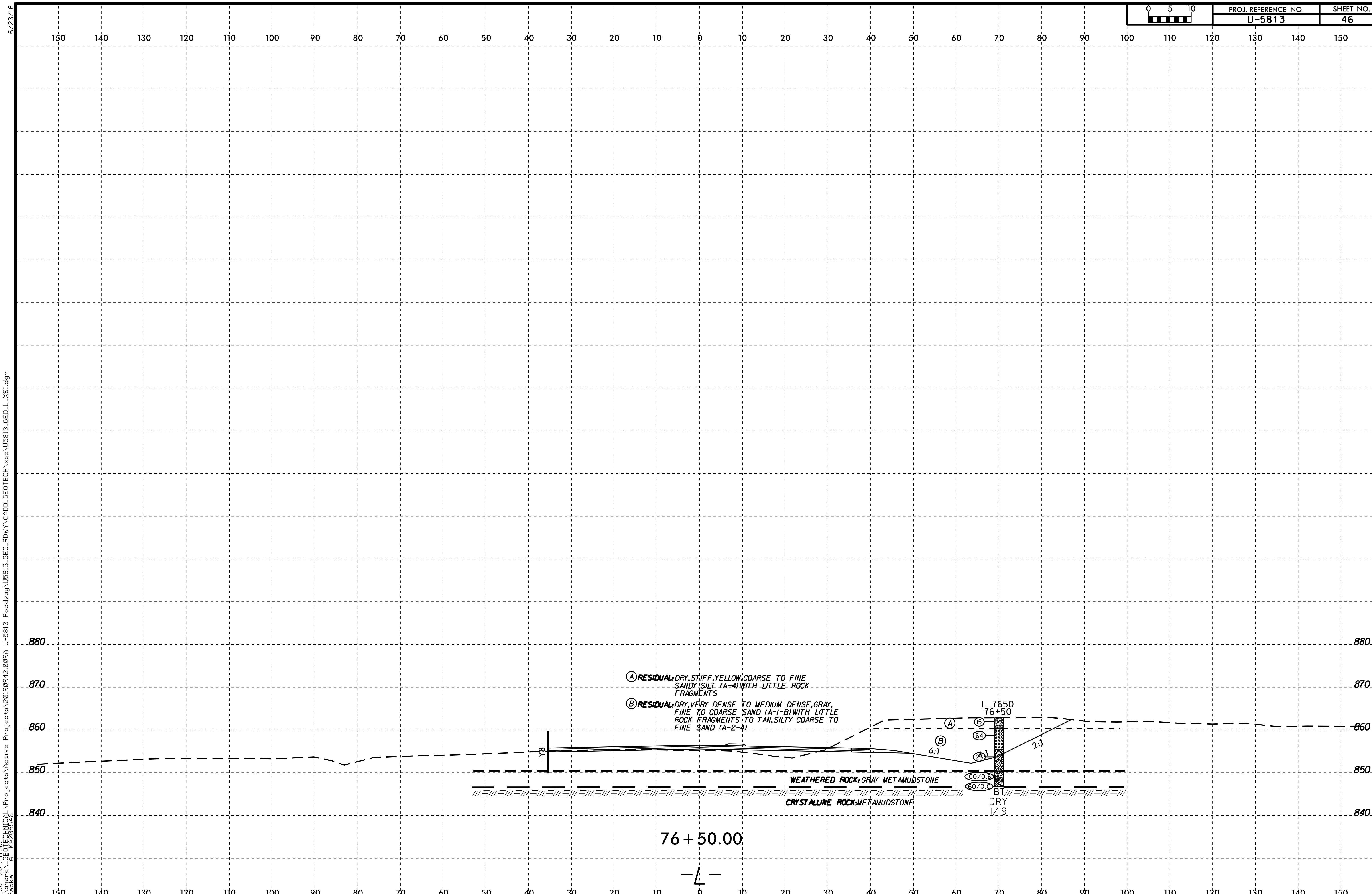
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	46



0 5 10
Ⓐ RESIDUAL: DRY, STIFF, YELLOW, COARSE TO FINE SANDY SILT (A-4) WITH LITTLE ROCK FRAGMENTS
Ⓑ RESIDUAL: DRY, VERY DENSE TO MEDIUM DENSE, GRAY, FINE TO COARSE SAND (A-1-B) WITH LITTLE ROCK FRAGMENTS TO TAN, SILTY COARSE TO FINE SAND (A-2-4)
L_7650
76+50
-Y8-
6:1
2:1
3:1
15
64
23
100/0.6
60/0.0
BT
DRY
1/19
WEATHERED ROCK: GRAY METAMUDSTONE
CRYSTALLINE ROCK: METAMUDSTONE
880
870
860
850
840
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

76+50.00

-L-

6/23/16

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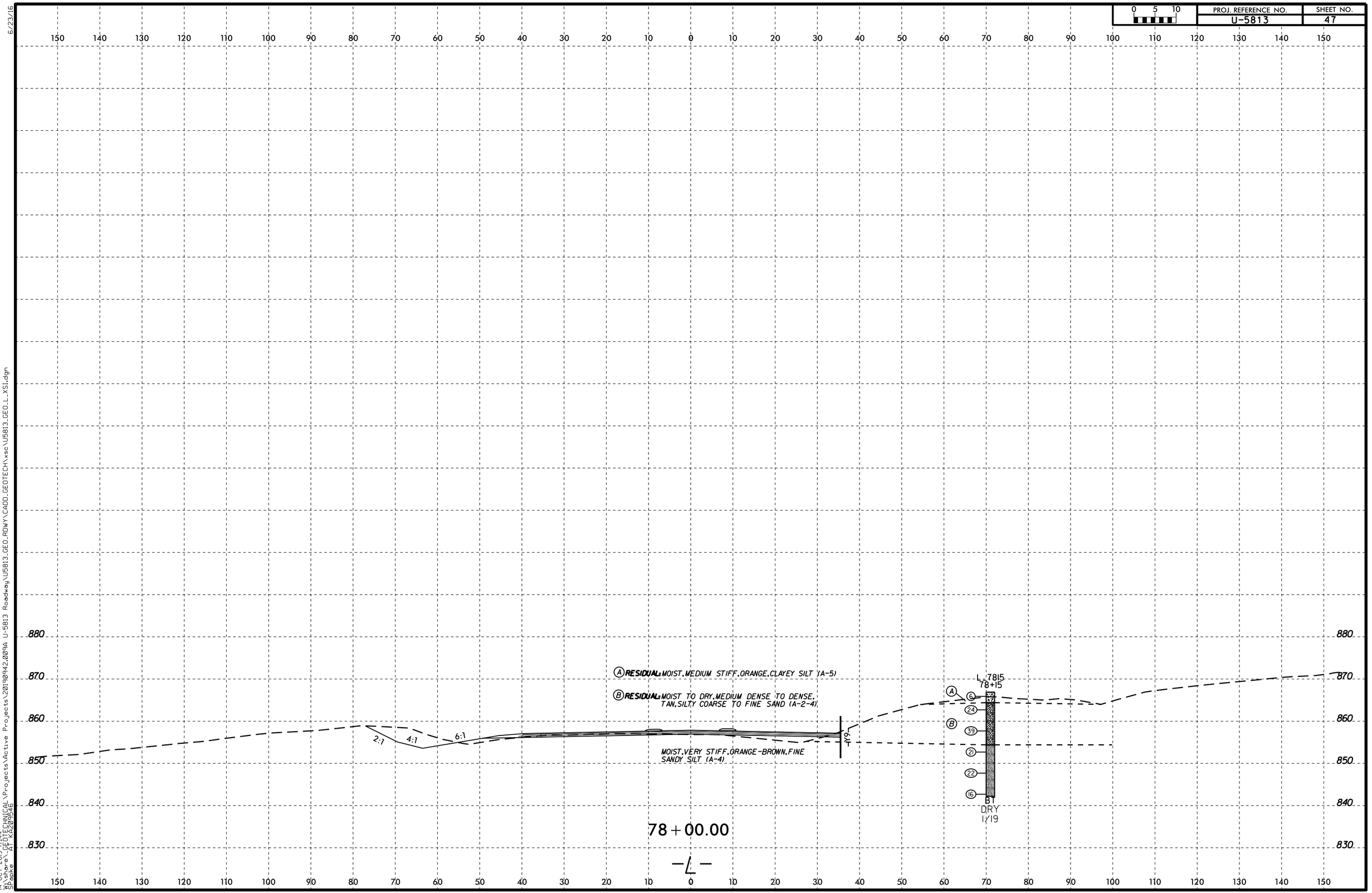
SPapke AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	47



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	48

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

900
890
880
870
860
850
840
830

(B) **ROADWAY EMBANKMENT:** MOIST, MEDIUM STIFF, BROWN, COARSE TO FINE SANDY SILT (A-4)

RESIDUAL: MOIST, SOFT TO STIFF, BROWN, TO LIGHT GRAY, COARSE TO FINE SANDY SILT (A-4) AND SANDY CLAY (A-6)

L_8050
80+50

4:1

2:1

8
4
11
13

BT
DRY
12/18

80+50.00
-L-

14-OCT-2019 17:44
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Shapke AT K:\20190546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	49

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

900
890
880
870
860
850
840
830

Ⓐ **ARTIFICIAL FILL:** ASPHALT AND ABC STONE
Ⓑ **ARTIFICIAL FILL:** MOIST, VERY STIFF, TAN-ORANGE, COARSE TO FINE, SANDY SILT (A-4)

SS-15
8249
82+49

4:1

ROADWAY EMBANKMENT: SANDY SILT (A-4)

RESIDUAL: MOIST, STIFF TO HARD, TAN, ORANGE, GRAY, BROWN, ORANGE TO WHITE-GRAY, FINE SANDY SILT (A-4)

18
9
11
38

BT
DRY
12/18

82+50.00
-L-

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

14-OCT-2019 17:44
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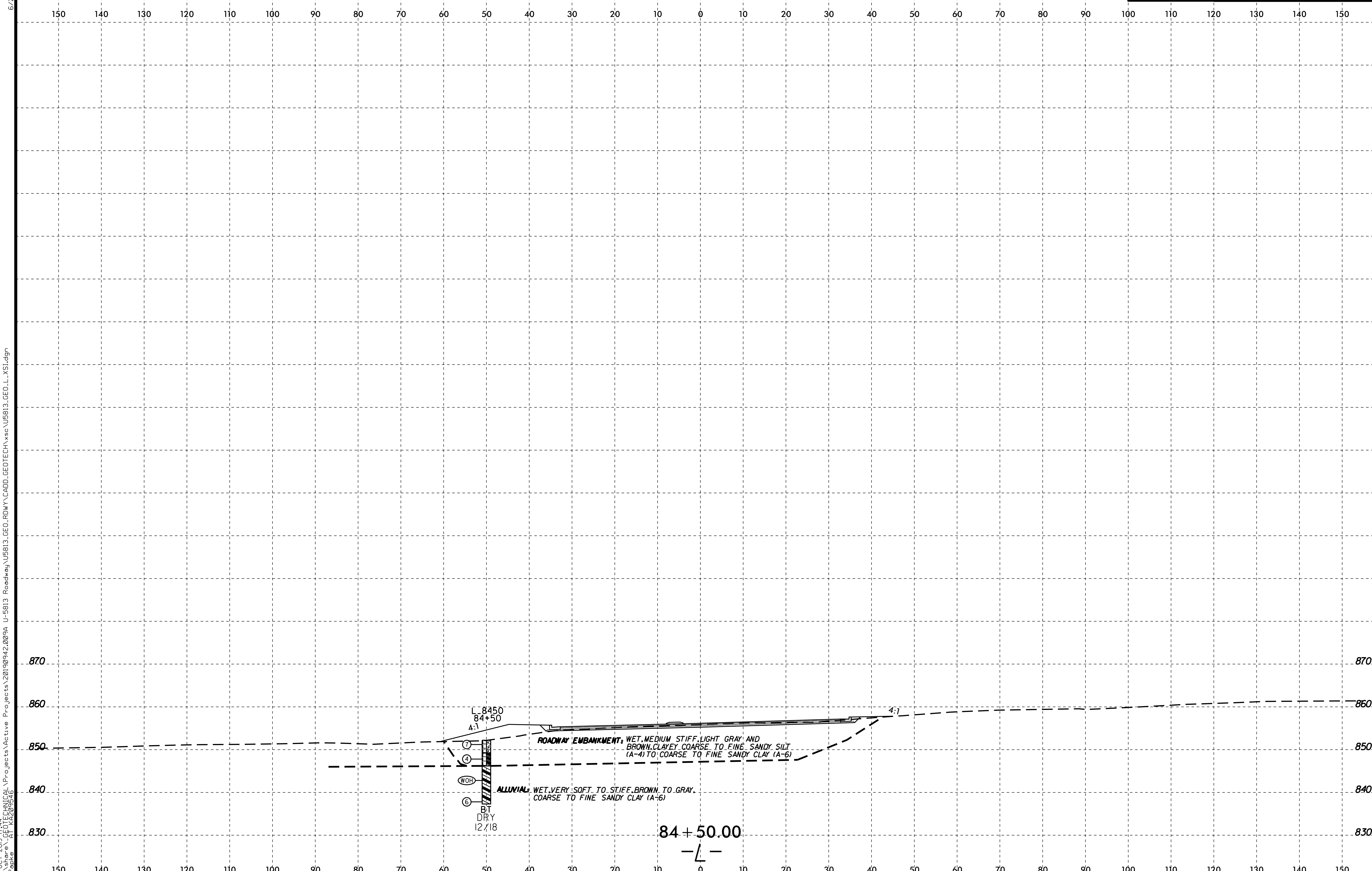
Shapke AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	50



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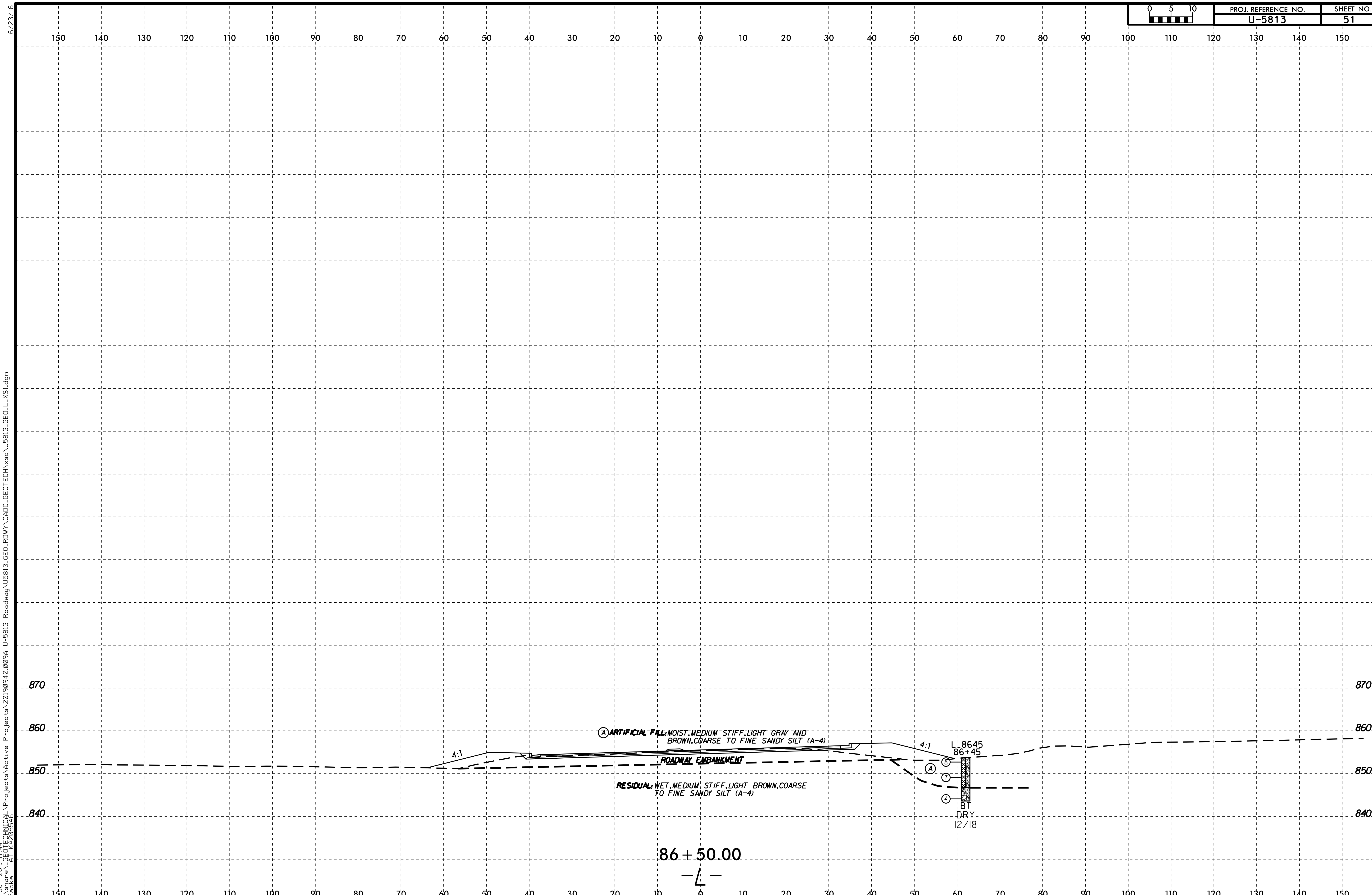
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	51



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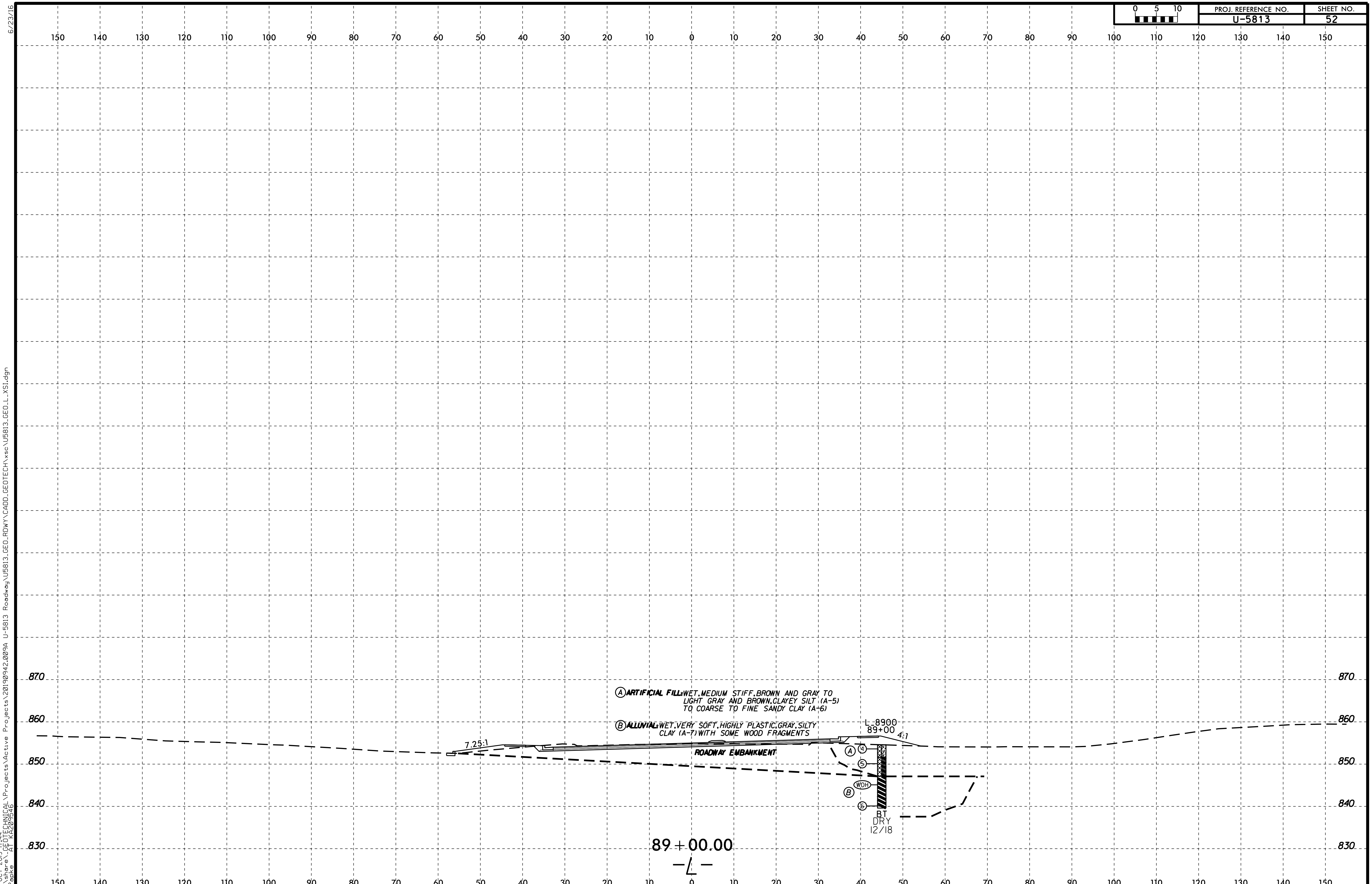
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	52



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
870
860
850
840
830
Ⓐ ARTIFICIAL FILL: WET, MEDIUM STIFF, BROWN AND GRAY TO LIGHT GRAY AND BROWN, CLAYEY SILT (A-5) TO COARSE TO FINE SANDY CLAY (A-6)
Ⓑ ALLUVIAL: WET, VERY SOFT, HIGHLY PLASTIC, GRAY, SILTY CLAY (A-7) WITH SOME WOOD FRAGMENTS
L_8900
89+00
7.25:1
4:1
ROADWAY EMBANKMENT
A
4
5
WOH
B
6
BT
DRY
12/18
89+00.00
-L-

6/23/16

14-OCT-2019 17:44
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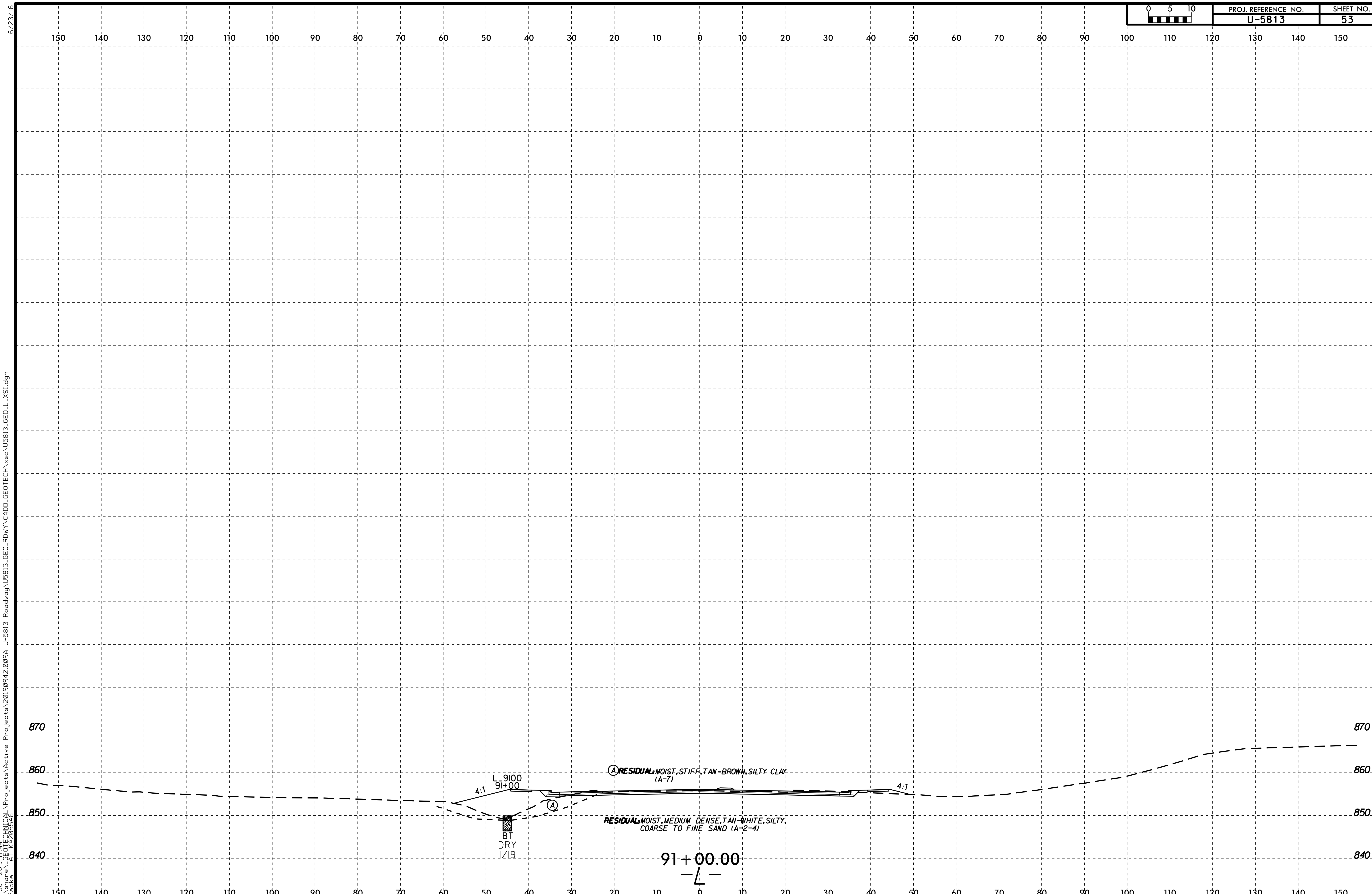
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	53



91+00.00
-L-

6/23/16

14-OCT-2019 17:44
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

870
860
850
840

Ⓐ **ALLUVIAL:** MOIST, MEDIUM STIFF, LIGHT GRAY AND BROWN, COARSE TO FINE SANDY CLAY (A-6)

RESIDUAL: MOIST, VERY STIFF, LIGHT GRAY, COARSE TO FINE SANDY SILT (A-4)

WEATHERED ROCK: GRAY METAMUDSTONE

L_9300
93+00

4:1

4:1

Ⓐ
Ⓣ
24
12/18
100/0.5
BT

93+00.00
—L—

870
860
850
840

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

14-OCT-2019 17:45
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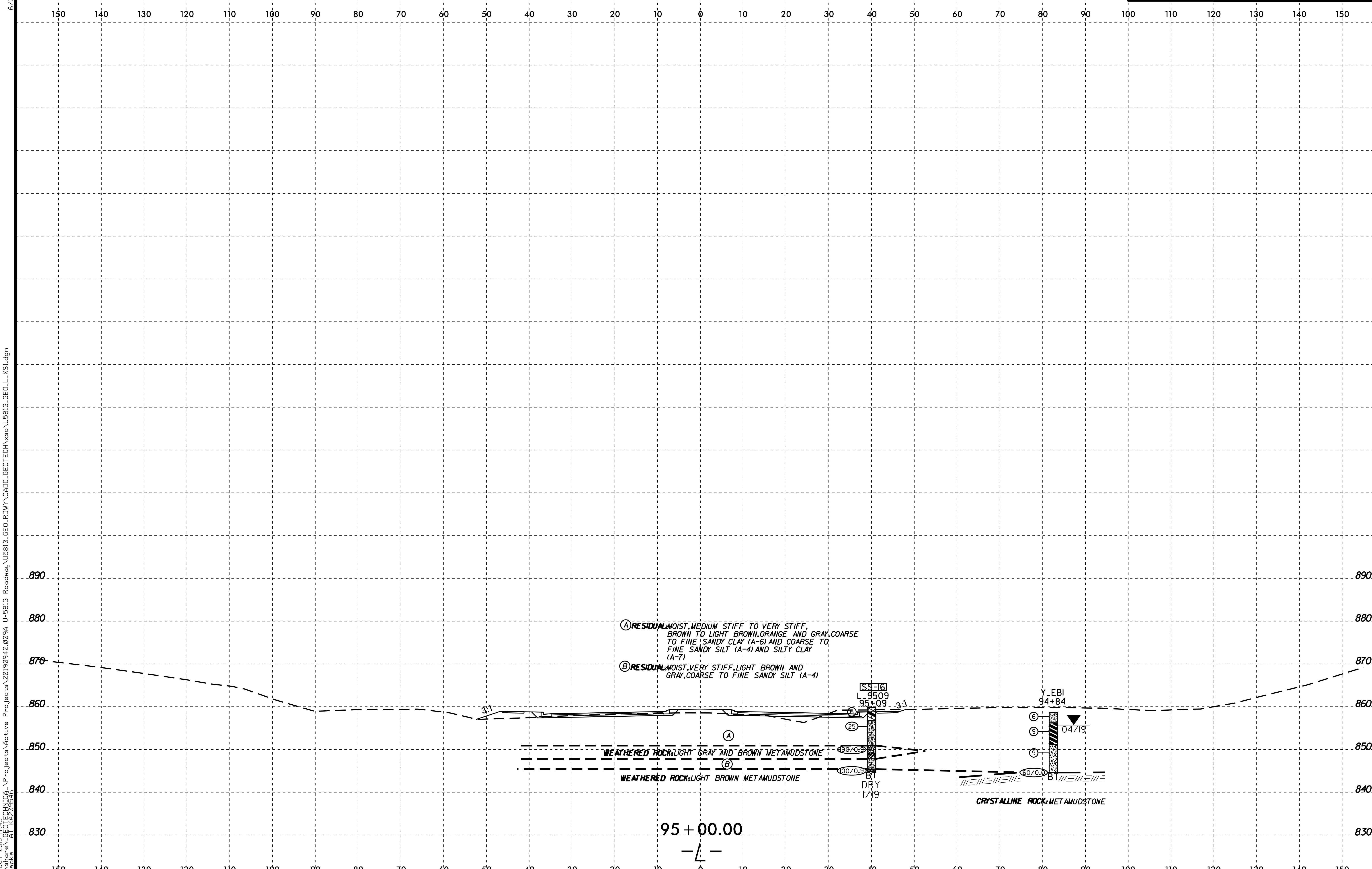
Shake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	55


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
890
880
870
860
850
840
830
Ⓐ RESIDUAL: MOIST, MEDIUM STIFF TO VERY STIFF, BROWN TO LIGHT BROWN, ORANGE AND GRAY, COARSE TO FINE SANDY CLAY (A-6) AND COARSE TO FINE SANDY SILT (A-4) AND SILTY CLAY (A-7)
Ⓑ RESIDUAL: MOIST, VERY STIFF, LIGHT BROWN AND GRAY, COARSE TO FINE SANDY SILT (A-4)
SS-16
L_9509
95+09
3:1
3:1
6
25
100/0.9
100/0.9
BT
DRY
1/19
Y_EBI
94+84
6
9
9
60/0.0
BT
04/19
Ⓐ
Ⓑ
WEATHERED ROCK: LIGHT GRAY AND BROWN METAMUDSTONE
WEATHERED ROCK: LIGHT BROWN METAMUDSTONE
CRYSTALLINE ROCK: METAMUDSTONE
95+00.00
-L-

6/23/16

14-OCT-2019 17:45
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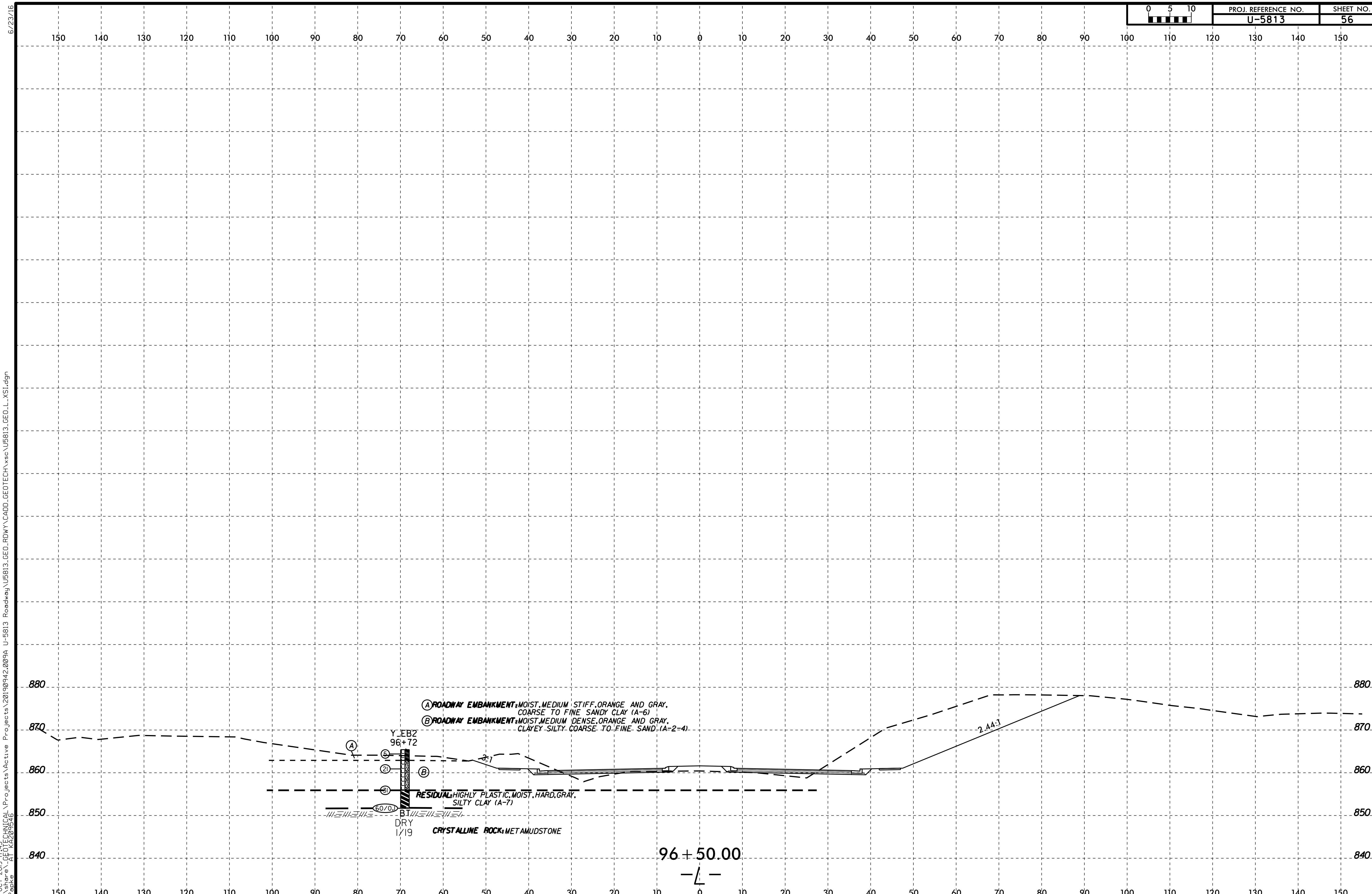
Spopke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	56



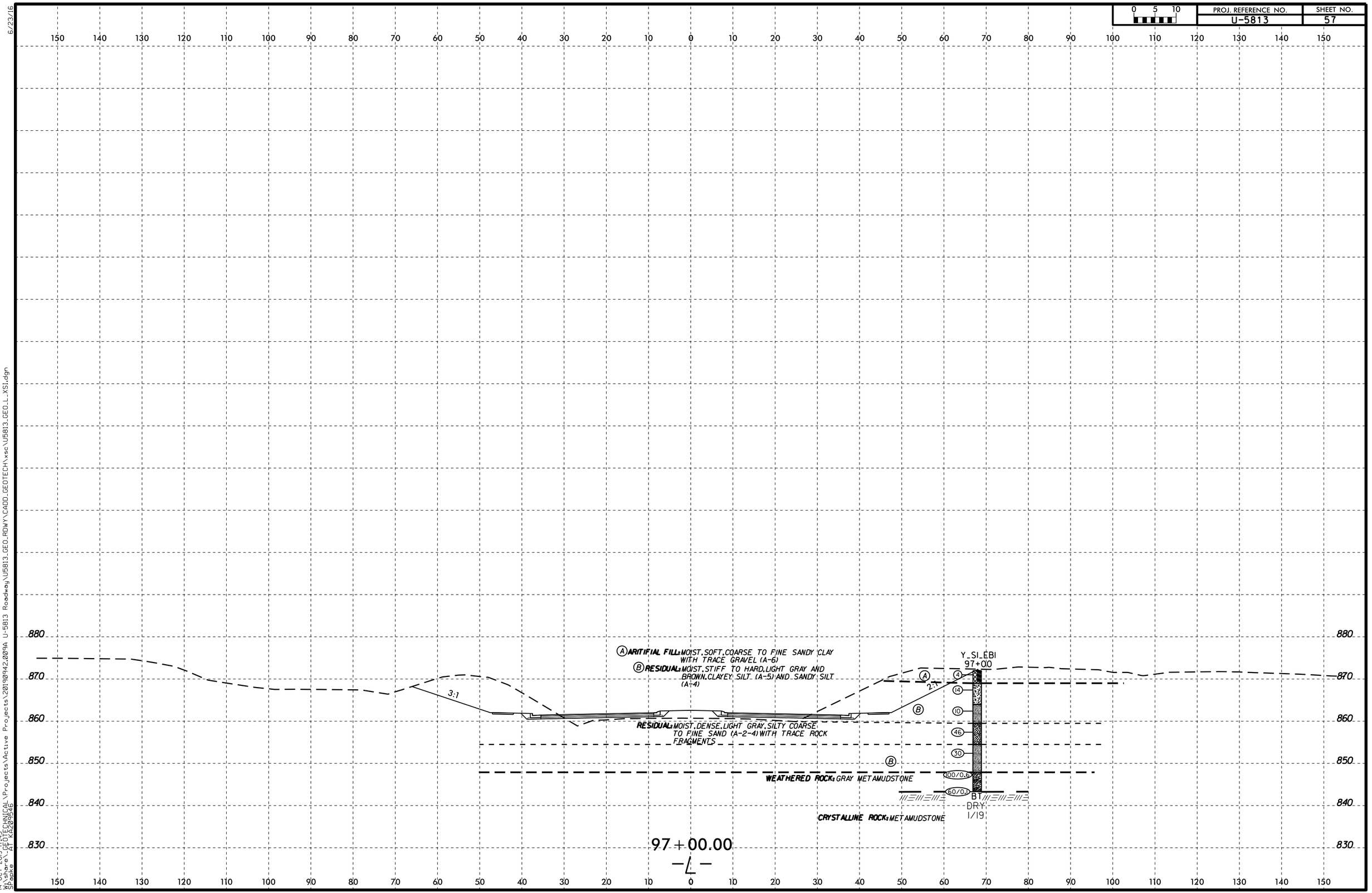
0 5 10
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
880
870
860
850
840
A ROADWAY EMBANKMENT: MOIST, MEDIUM STIFF, ORANGE AND GRAY, COARSE TO FINE SANDY CLAY (A-6)
B ROADWAY EMBANKMENT: MOIST, MEDIUM DENSE, ORANGE AND GRAY, CLAYEY SILTY COARSE TO FINE SAND (A-2-4)
Y_EB2
96+72
A
5
21
31
B
3:1
2.44:1
RESIDUAL: HIGHLY PLASTIC, MOIST, HARD, GRAY, SILTY CLAY (A-7)
60/0.1
BT
DRY
1/19
CRYSTALLINE ROCK: METAMUDSTONE
96+50.00
-L-

6/23/16

14-OCT-2019 17:45
W:\share_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_L_XSI.dgn
Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	57



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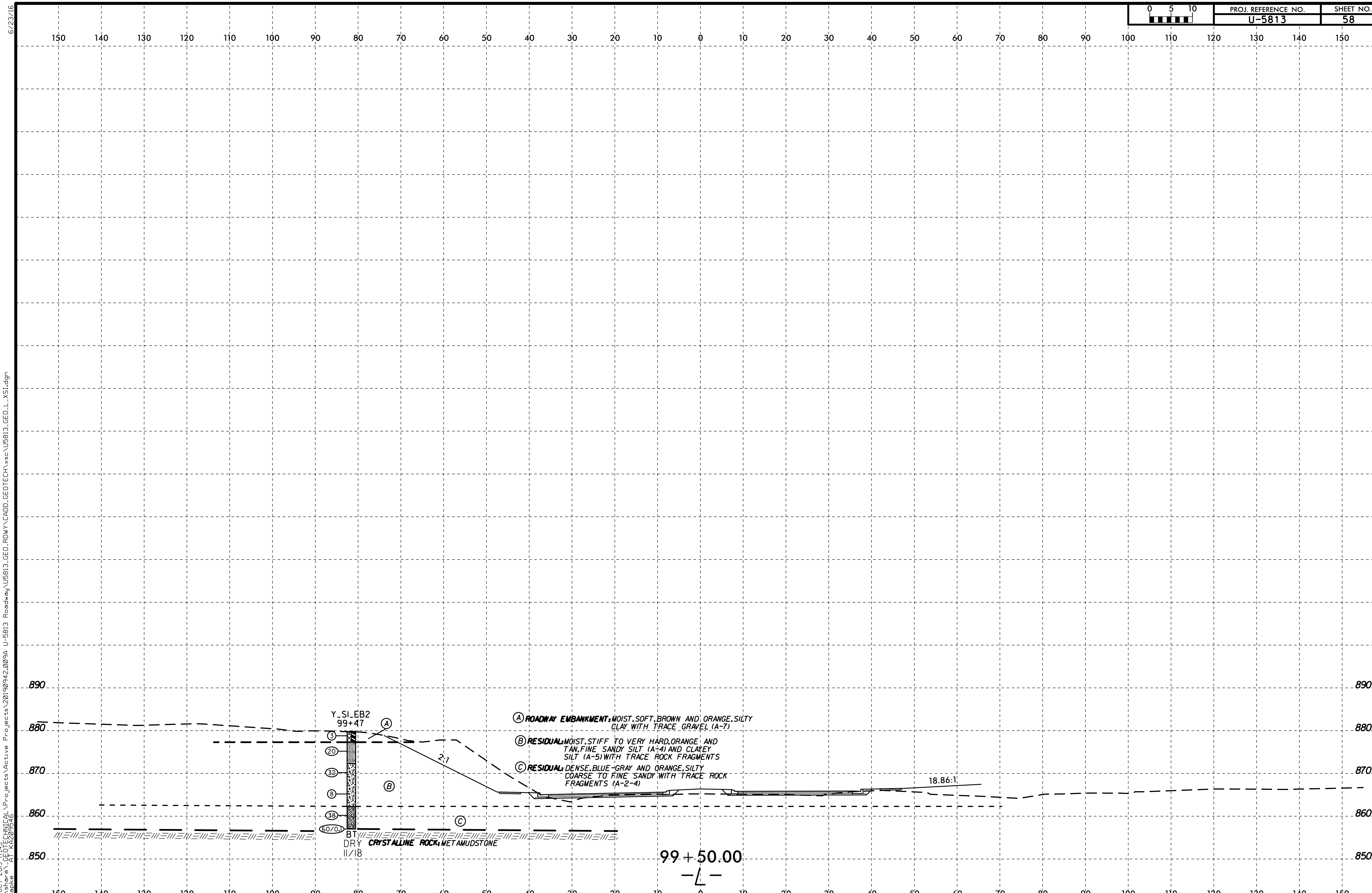
SSparks AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	58



99+50.00
-L-

6/23/16

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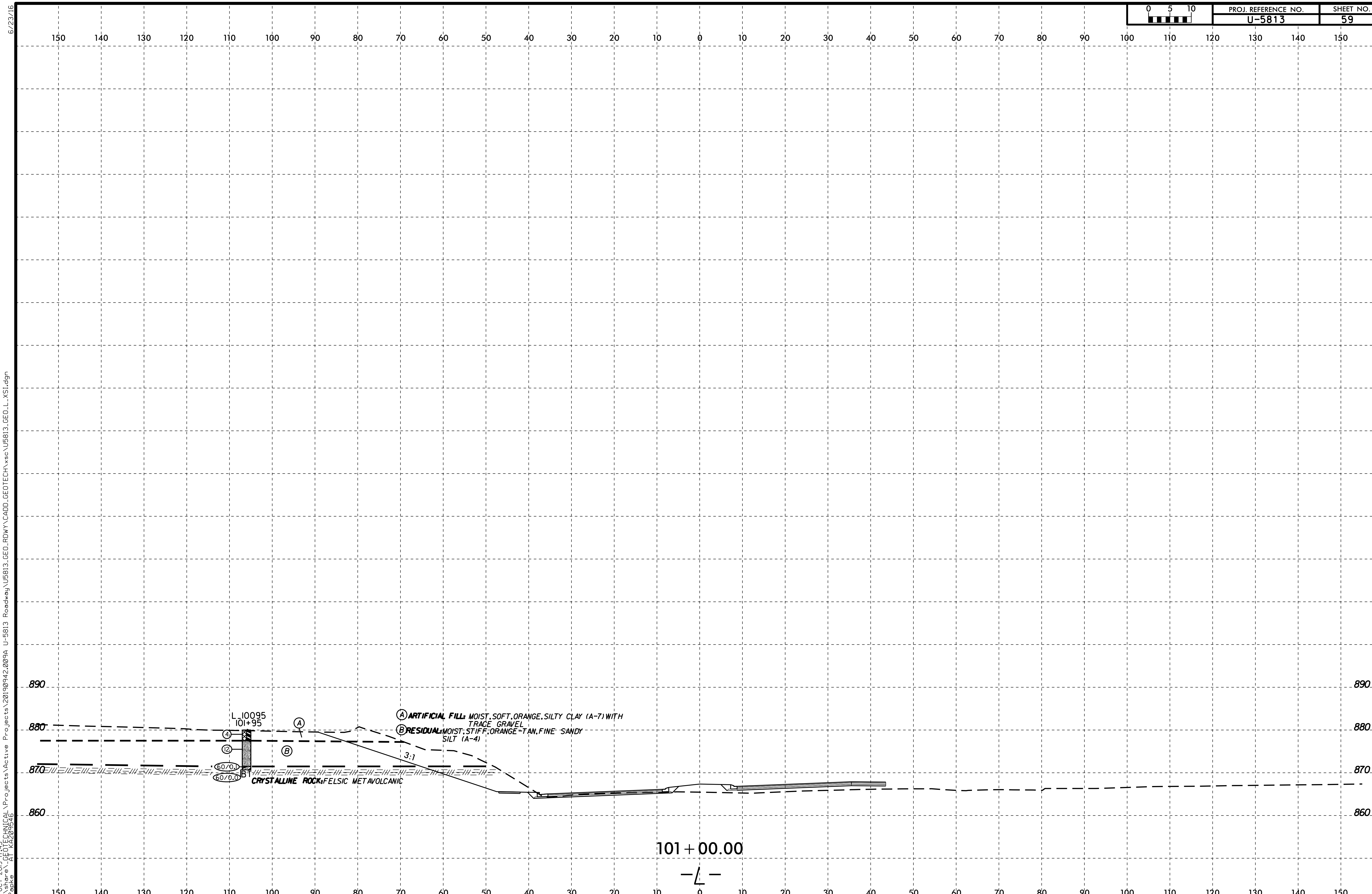
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	59



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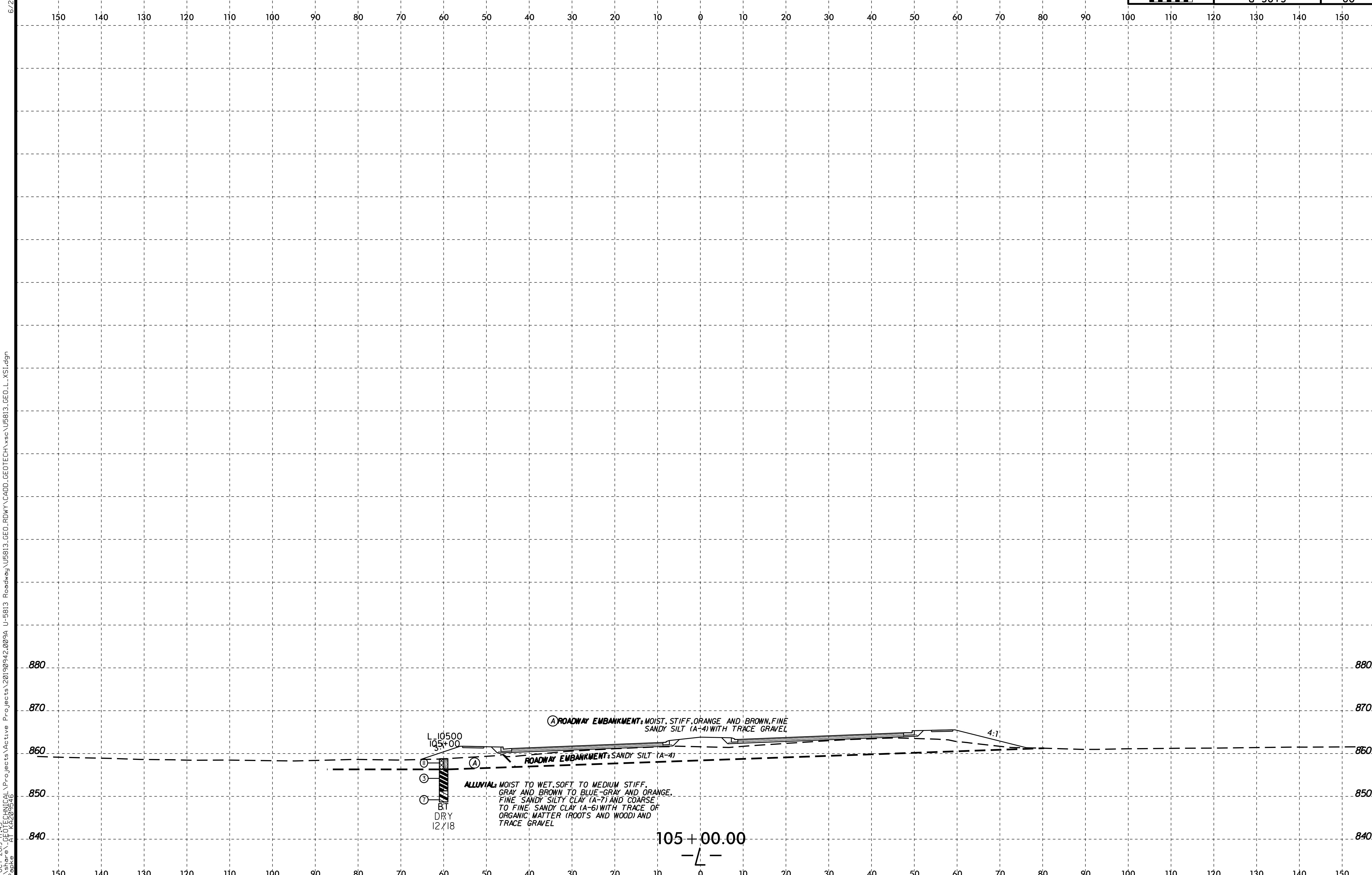
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	60



6/23/16

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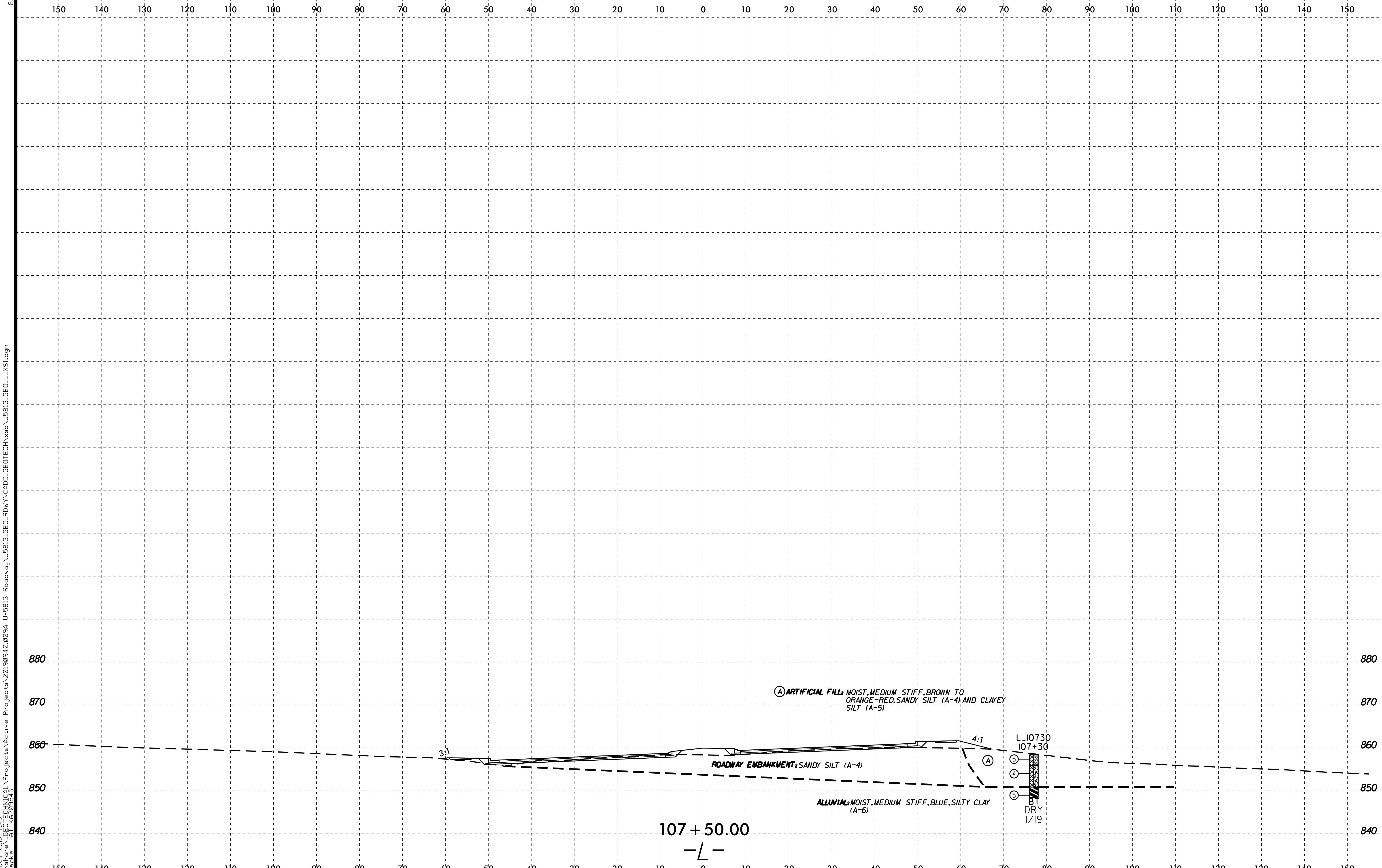
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	61



6/23/16

14-OCT-2019 17:45
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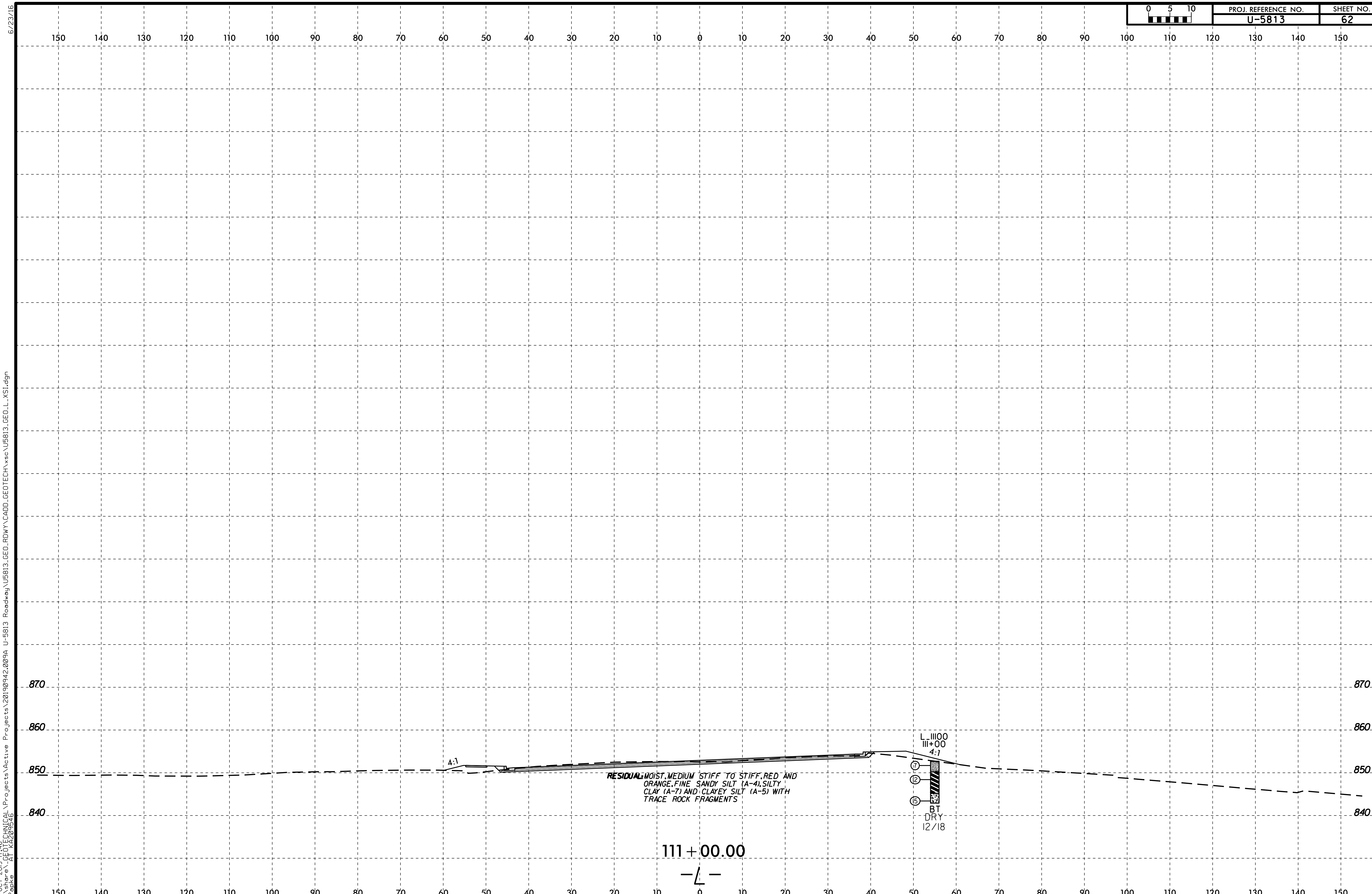
SPapke AT KA209546

6/23/16



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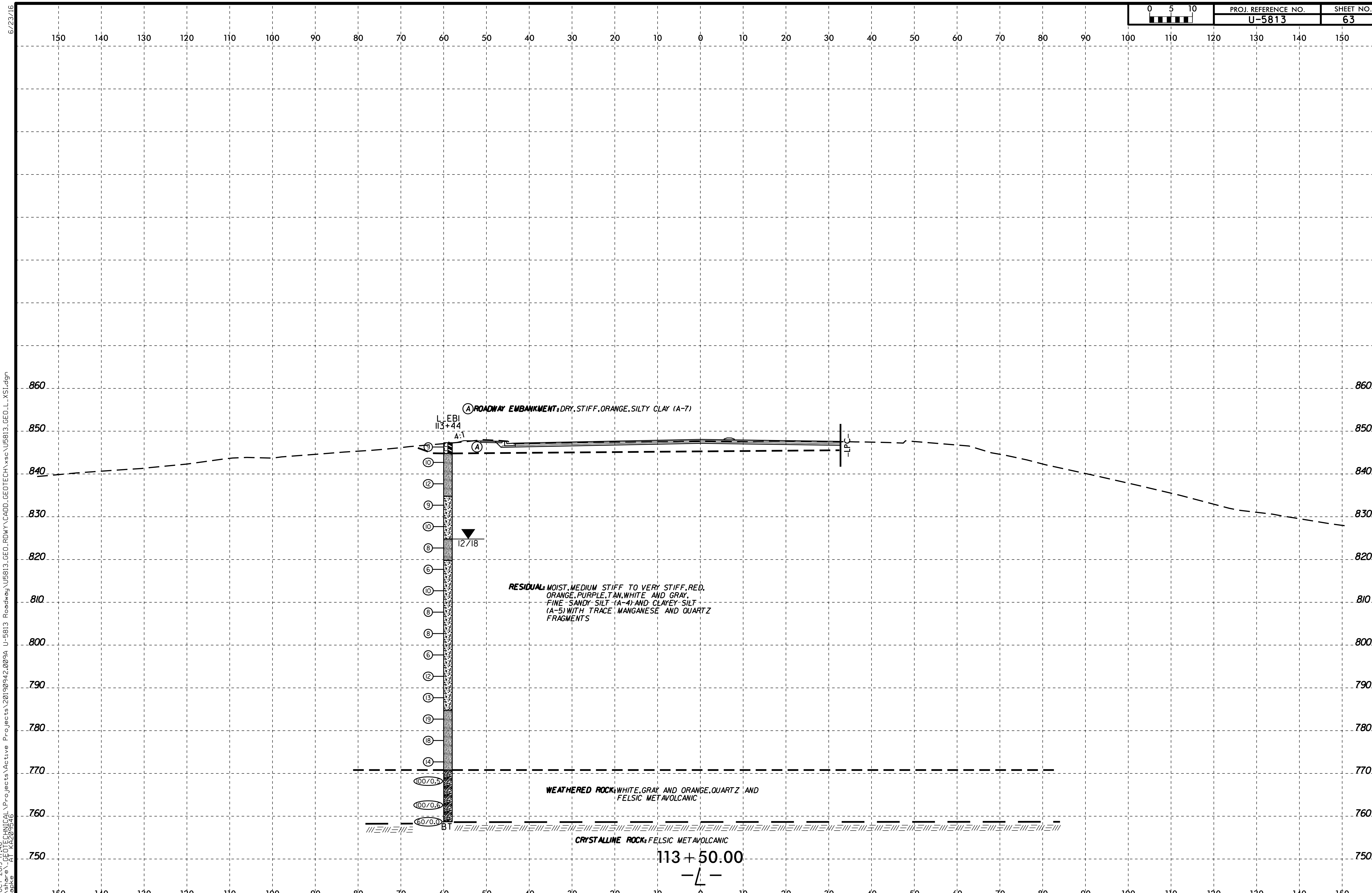
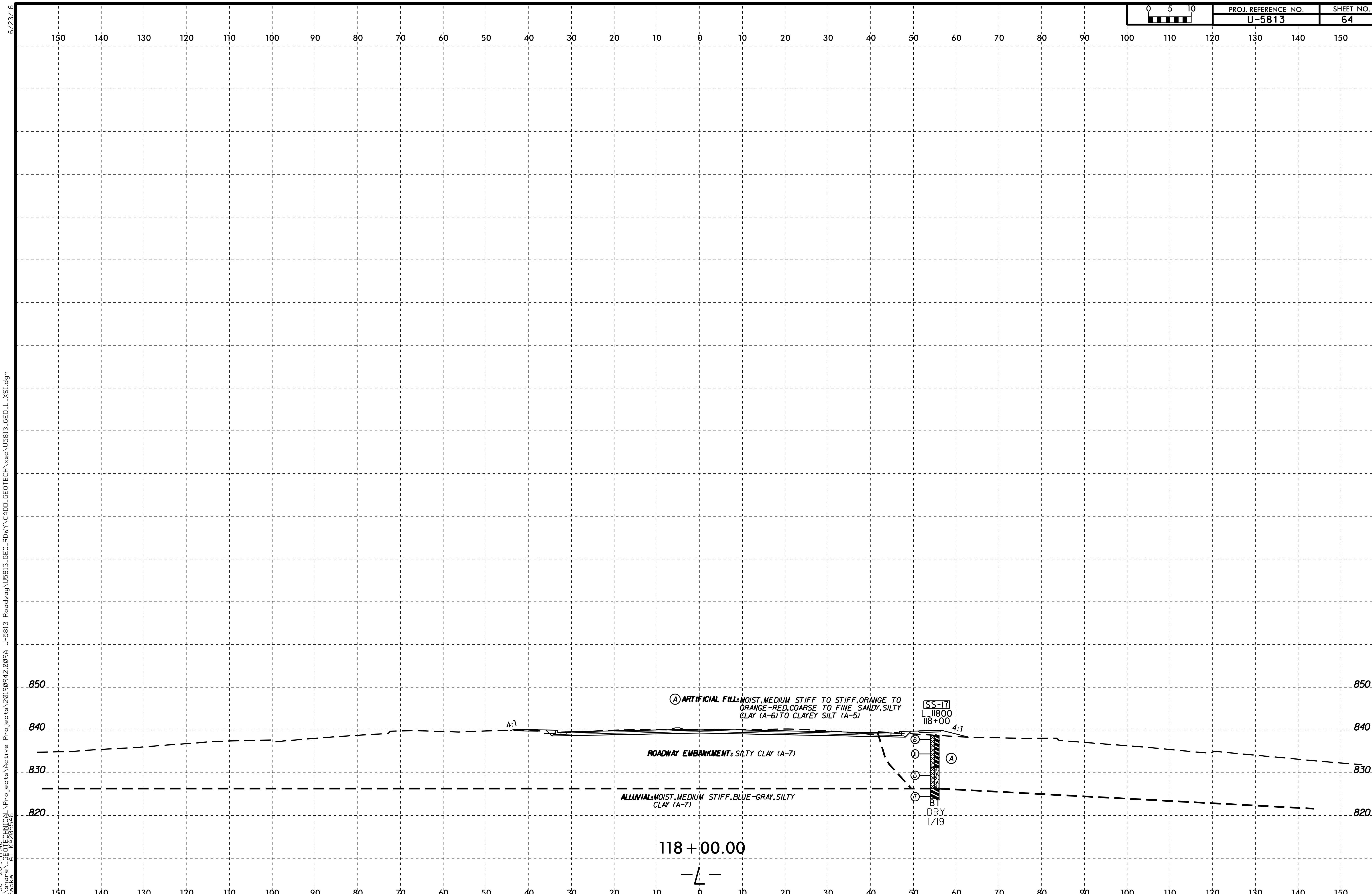
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	63



113+50.00
-L-



118+00.00

-L-

6/23/16
14-OCT-2019 17:46
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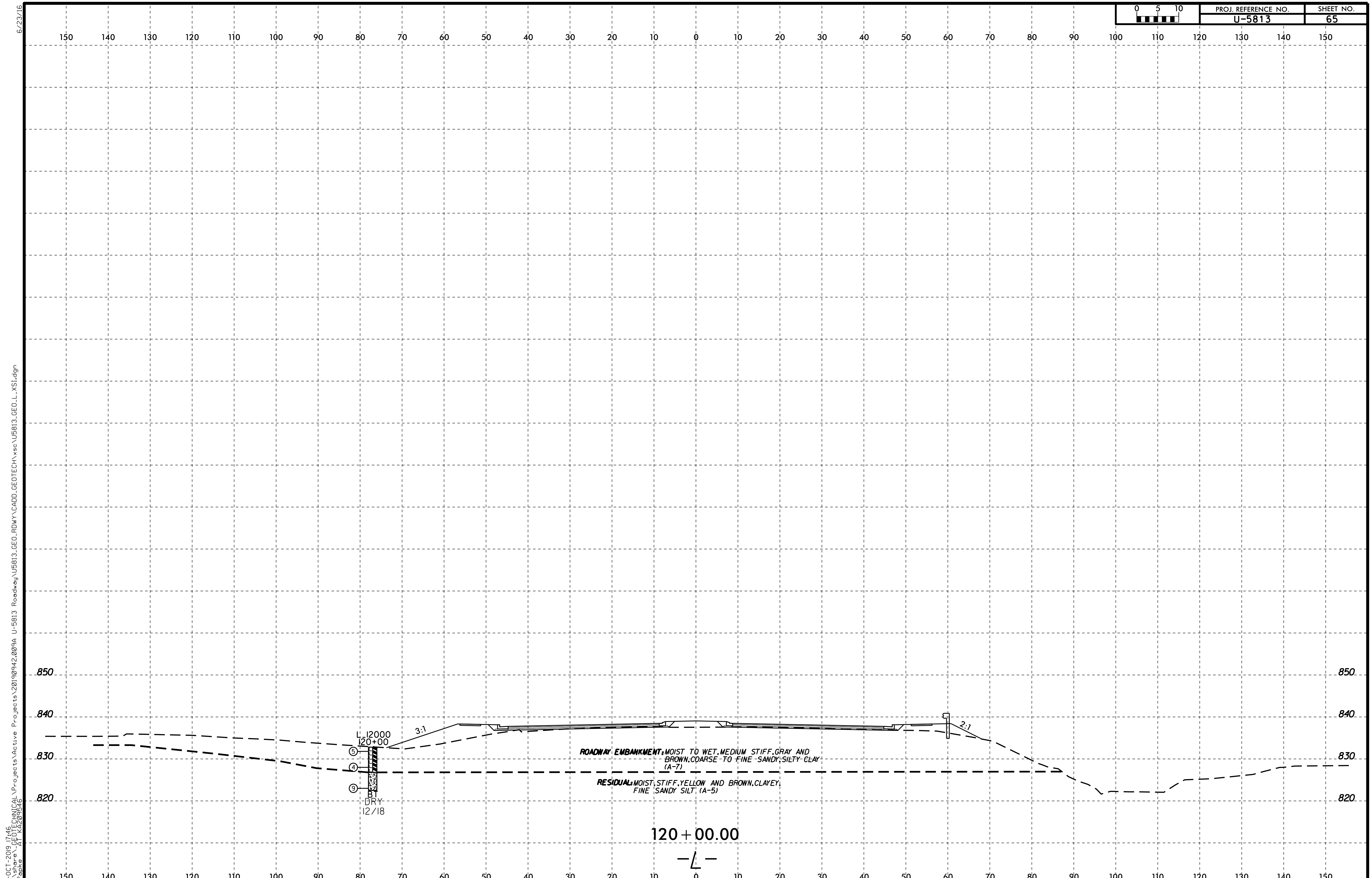
Spapke AT KA209546


PROJ. REFERENCE NO.
U-5813
SHEET NO.
65
0 5 10
850
840
830
820
L_12000
120+00
3:1
2:1
B1
DRY
12/18
ROADWAY EMBANKMENT: MOIST TO WET, MEDIUM STIFF, GRAY AND BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7)
RESIDUAL: MOIST, STIFF, YELLOW AND BROWN, CLAYEY, FINE SANDY SILT (A-5)
120+00.00
-L-
6/23/16
14-OCT-2019 17:46
W:\share\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_L_XS1.dgn
Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

850
840
830
820

L_I2200
122+00
3:1

RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, ORANGE-TAN, SILTY CLAY (A-7)

BT
DRY
1/19

4:1

122+00.00
-L-

850
840
830
820

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

14-OCT-2019 17:46
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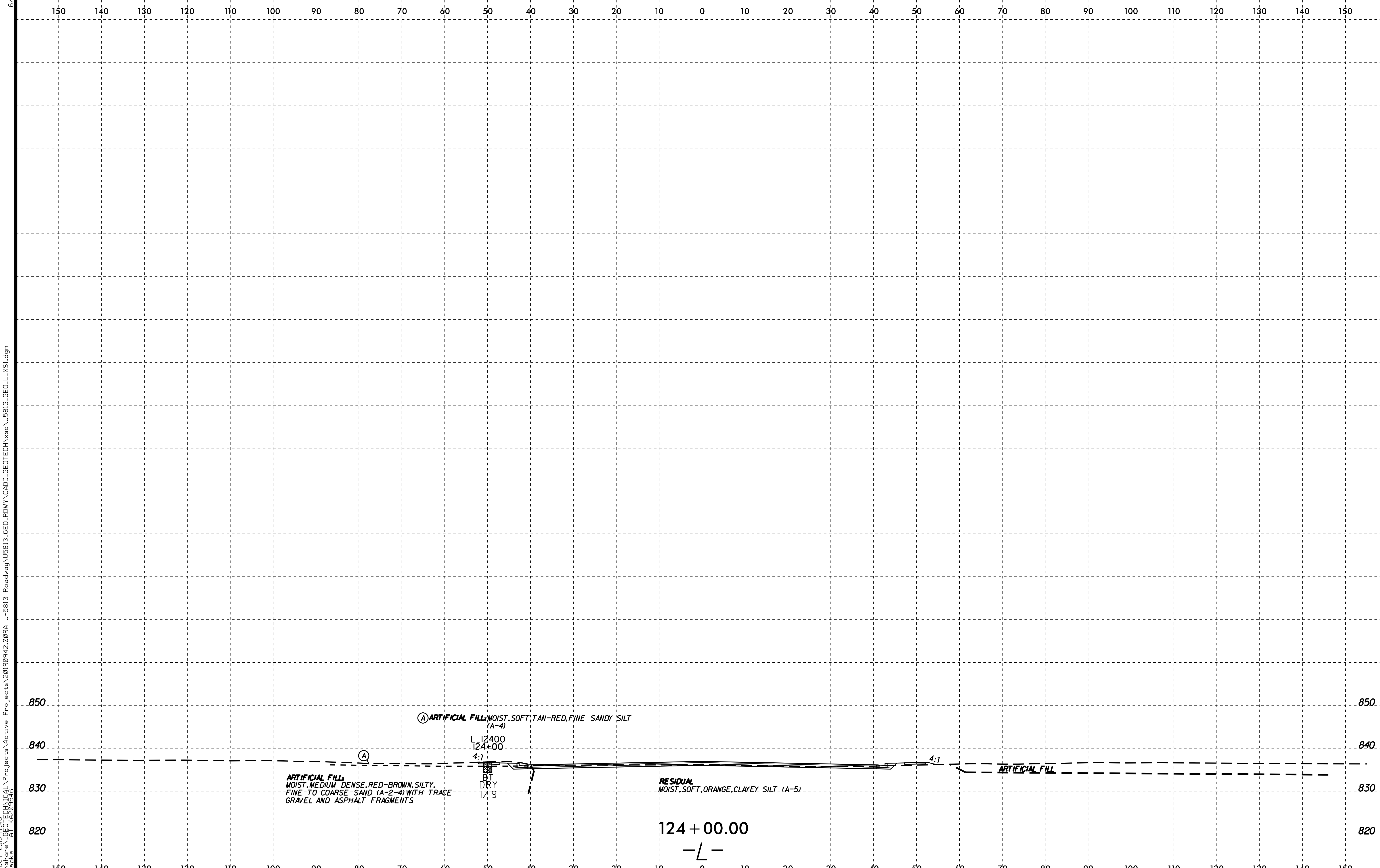
Shapke AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	67



6/23/16

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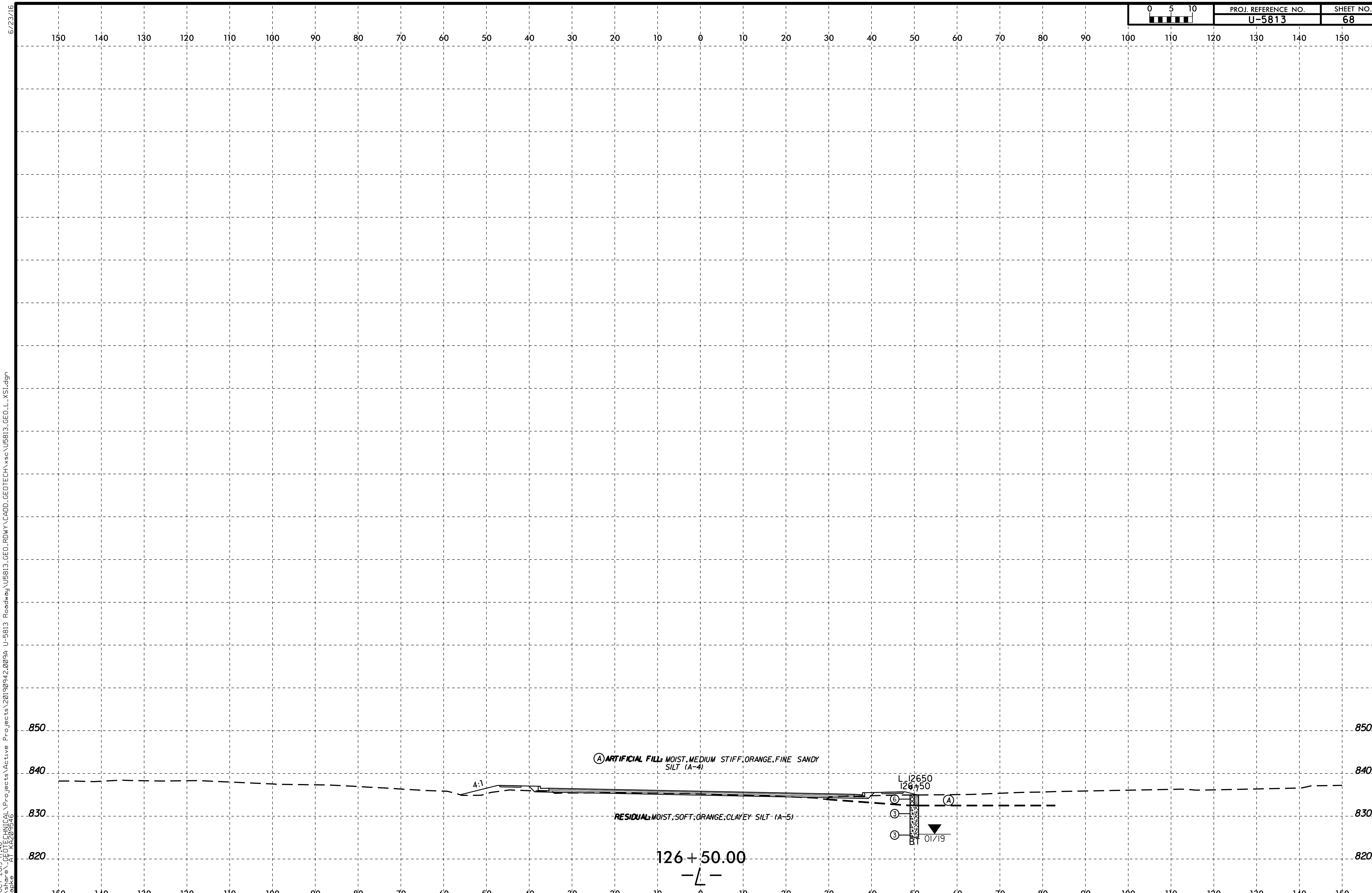
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	68



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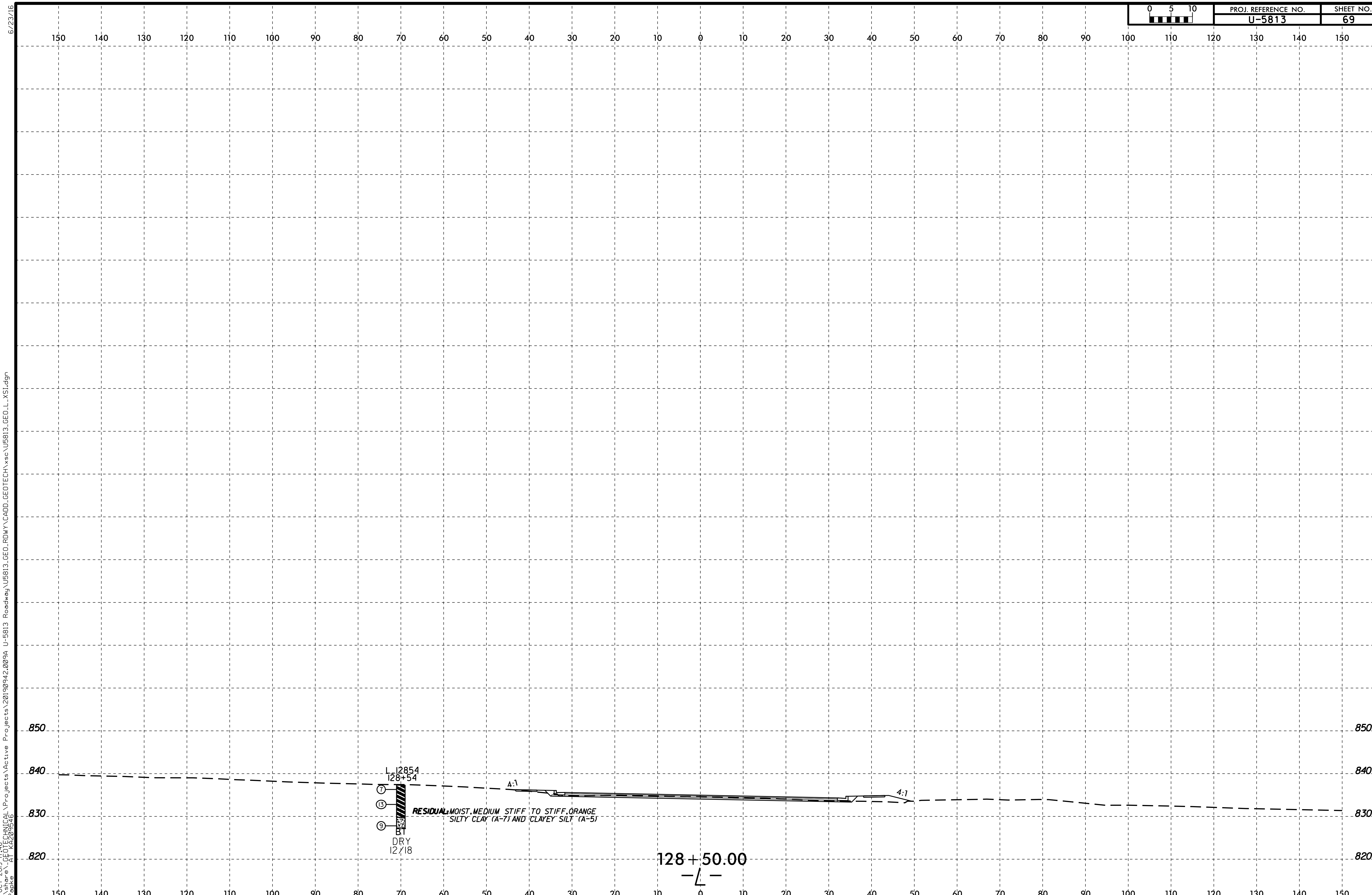
U-5813	69



6/23/16

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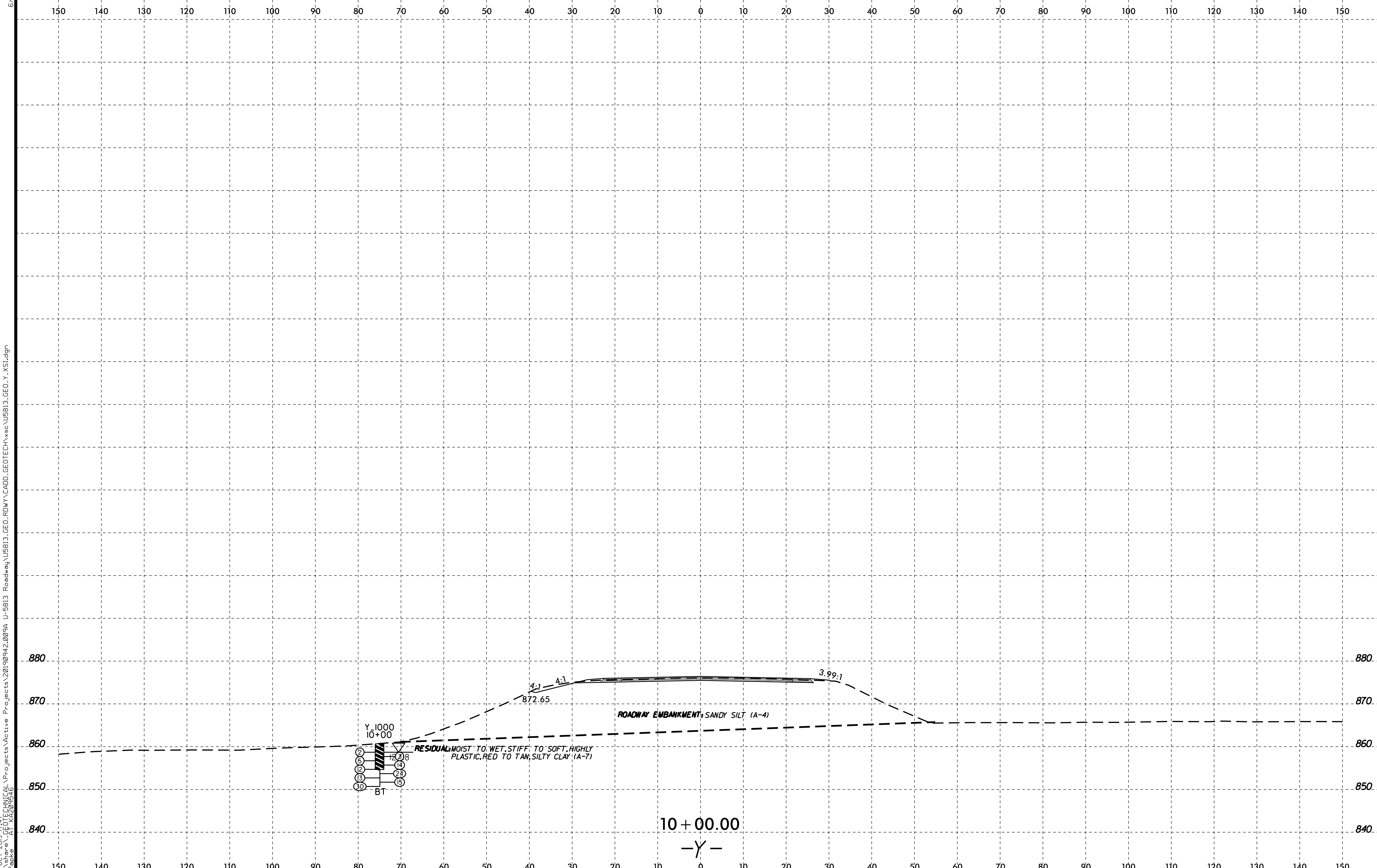
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	70



10 + 00.00

-Y-

6/23/16

14-OCT-2019 17:47
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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

890
880
870
860
850

SS-20
Y 1200
12+00

A ROADWAY EMBANKMENT: MOIST, MEDIUM STIFF, LIGHT BROWN, COARSE TO FINE SANDY SILT (A-4)

B ROADWAY EMBANKMENT: MOIST, GRAY, COARSE TO FINE SANDY GRAVEL (A-1-B)

4:1

5

12

RESIDUAL: WET TO MOIST, STIFF, LIGHT BROWN, CLAYEY SILT (A-5) AND COARSE TO FINE SANDY SILT (A-4)

11

11

BT
DRY
12/18

4:1

4:1

871.98

12 + 00.00
-Y-

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

14-OCT-2019 17:47
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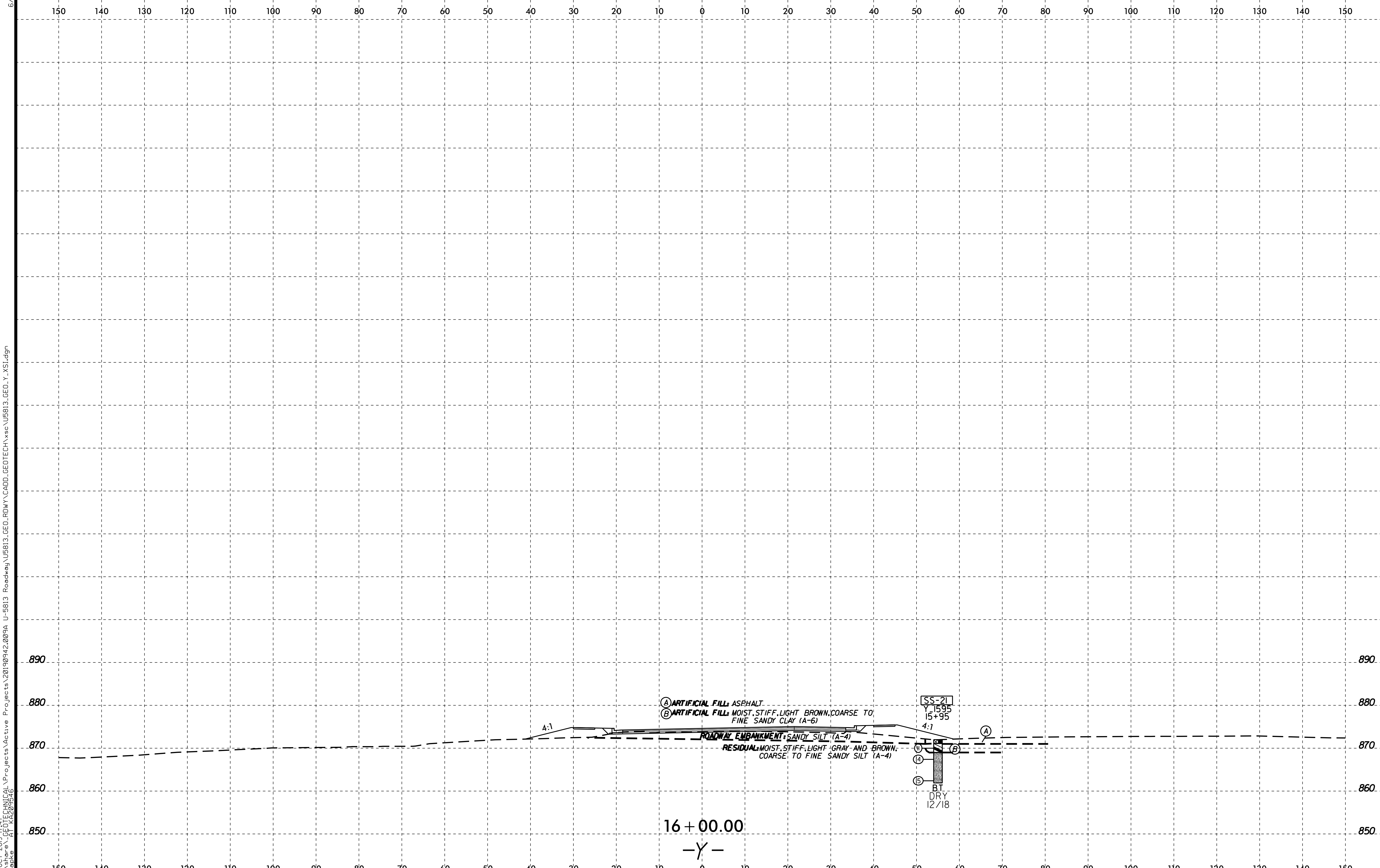
USpake AT K4207546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	72



16+00.00

-Y-

6/23/16

14-OCT-2019 17:47
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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	73

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

890
880
870
860

ENTRANCE TO -Y15-

Y-1805
18+05

BT
DRY
1/19

ROADWAY EMBANKMENT, MOIST, STIFF, RED TO TAN, COARSE TO FINE SANDY CLAY (A-6)

18+00.00
-Y-

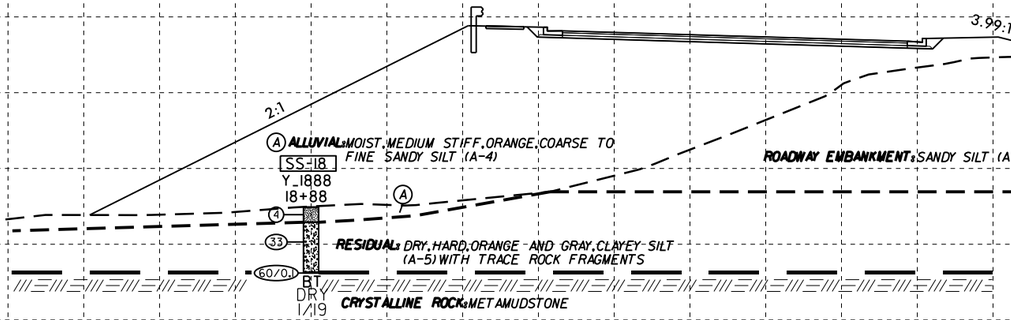
14-OCT-2019 17:47
\\ashare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y_XS1.dgn
Shpake AT K:\20190546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	74

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

900
890
880
870
860
850
840



19+00.00

-Y-

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

14-OCT-2019 17:47
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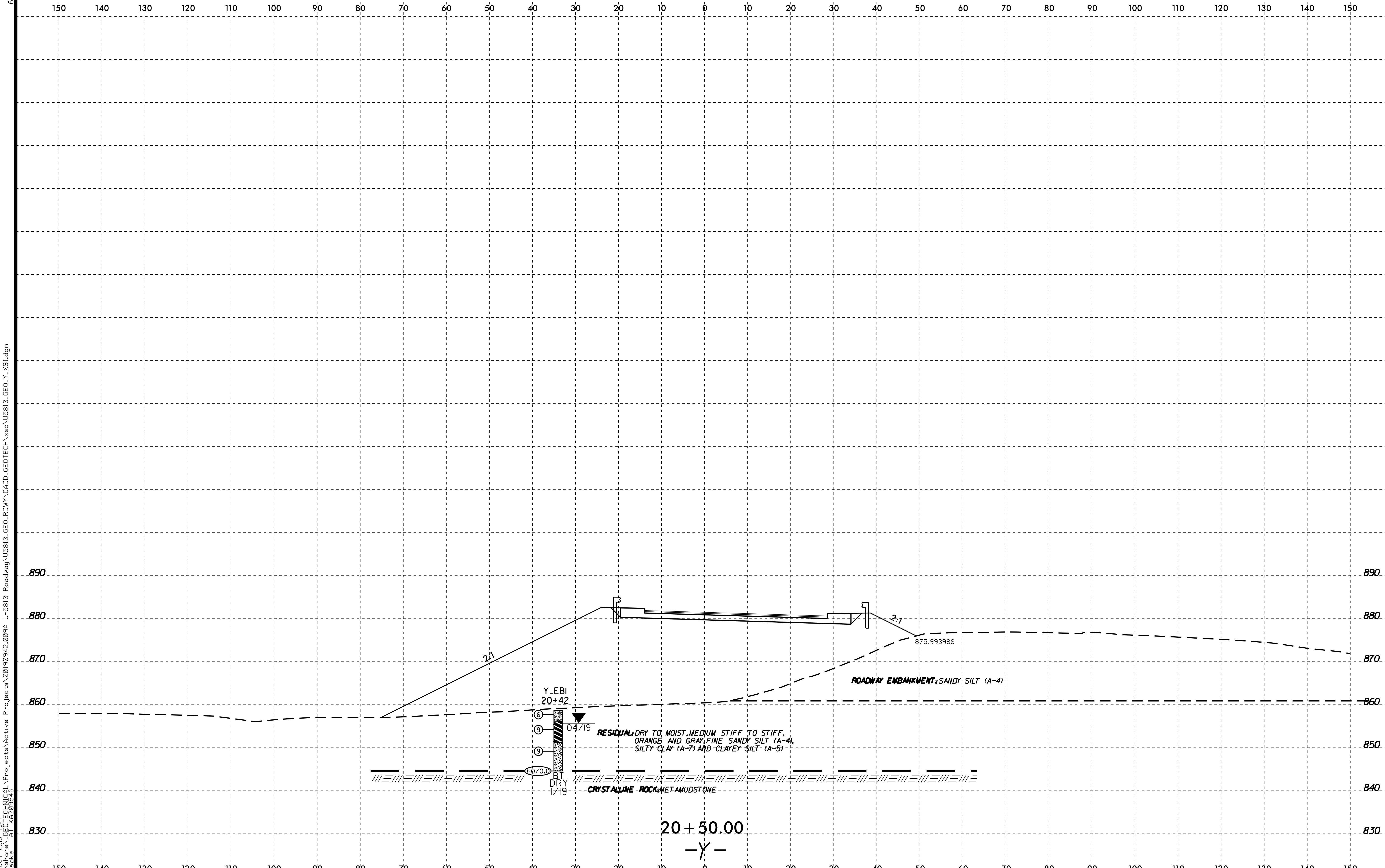
SPaske AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	75



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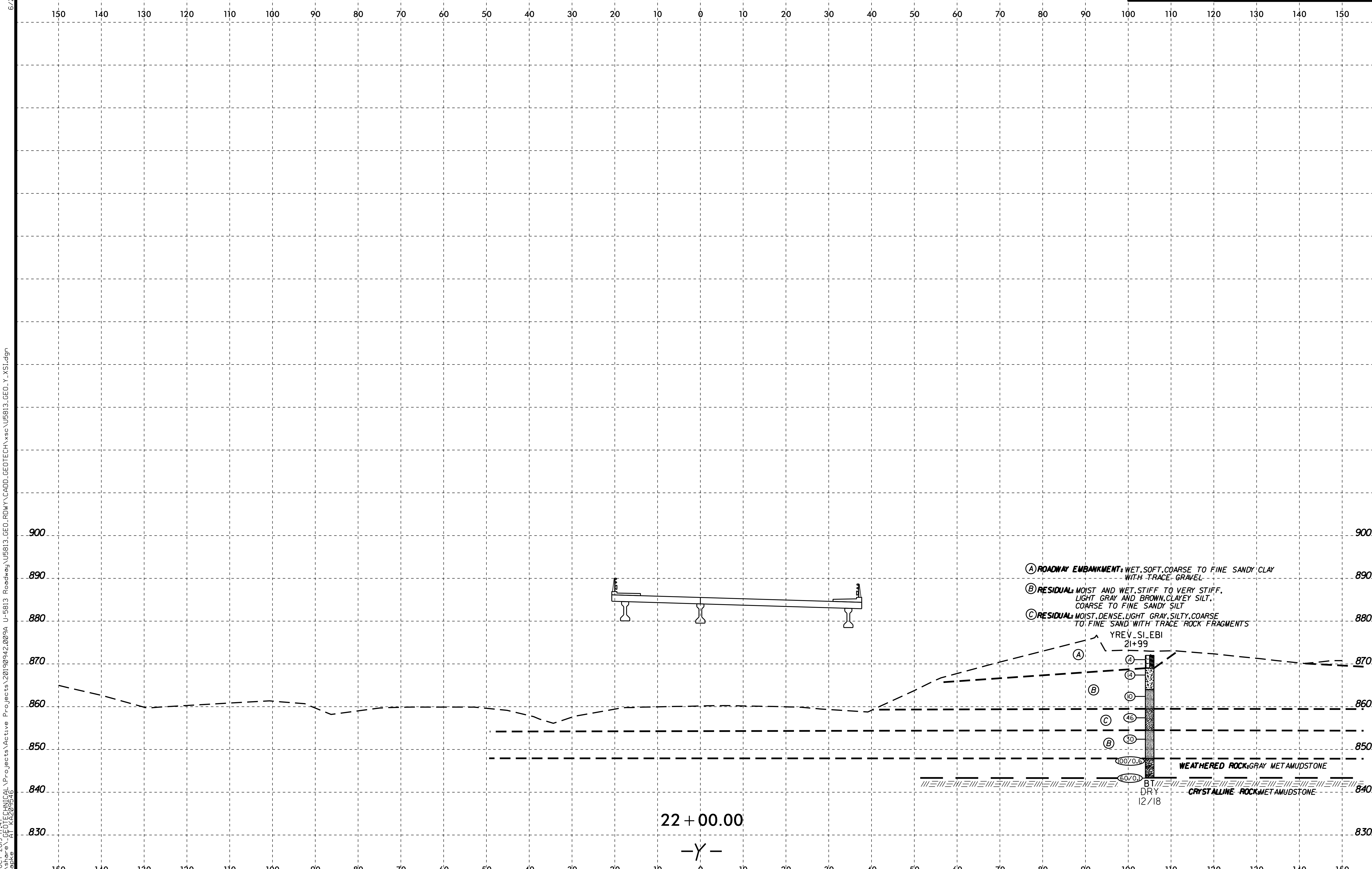
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	76



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
900
890
880
870
860
850
840
830
Ⓐ ROADWAY EMBANKMENT: WET, SOFT, COARSE TO FINE SANDY CLAY WITH TRACE GRAVEL
Ⓑ RESIDUAL: MOIST AND WET, STIFF TO VERY STIFF, LIGHT GRAY AND BROWN, CLAYEY SILT, COARSE TO FINE SANDY SILT
Ⓒ RESIDUAL: MOIST, DENSE, LIGHT GRAY, SILTY, COARSE TO FINE SAND WITH TRACE ROCK FRAGMENTS
YREV_SI_EBI
21+99
A
B
C
B
4
14
10
46
30
100/0.6
60/0.1
BT
DRY
12/18
WEATHERED ROCK: GRAY METAMUDSTONE
CRYSTALLINE ROCK: METAMUDSTONE

22 + 00.00

-Y-

6/23/16

14-OCT-2019 17:47
W:\share_GEOTECHNICAL\Projects\Active Projects\2019Ø942.ØØ9A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y_XSI.dgn
SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	77

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

920
910
900
890
880
870
860
850

Ⓐ **ARTIFICIAL FILL:** MOIST, MEDIUM STIFF, BROWN AND ORANGE, SILTY CLAY (A-7) WITH TRACE GRAVEL

Ⓑ **RESIDUAL:** MOIST, DENSE, BLUE-GRAY AND ORANGE, SILTY COARSE TO FINE SAND (A-2-4) WITH TRACE ROCK FRAGMENTS

Ⓒ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, ORANGE, FINE TO COARSE SANDY CLAY (A-7-6)

Ⓓ **WEATHERED ROCK:** GRAY METAMUDSTONE

3:1

3:1

SS-19
Y_2500
25+00

5 Ⓒ
22
100/0.8 Ⓓ
60/0.0 BT

RESIDUAL: MOIST, VERY STIFF TO HARD, ORANGE, TAN AND BLUE-GRAY, FINE SANDY SILT (A-4) AND CLAYEY SILT (A-5) WITH TRACE ROCK FRAGMENTS

CRYSTALLINE ROCK: METAMUDSTONE

Y_SI_EB2
25+11

Ⓐ
6
20
32
8
38
60/0.1 BT
Ⓑ

25+00.00
-Y-

14-OCT-2019 17:47
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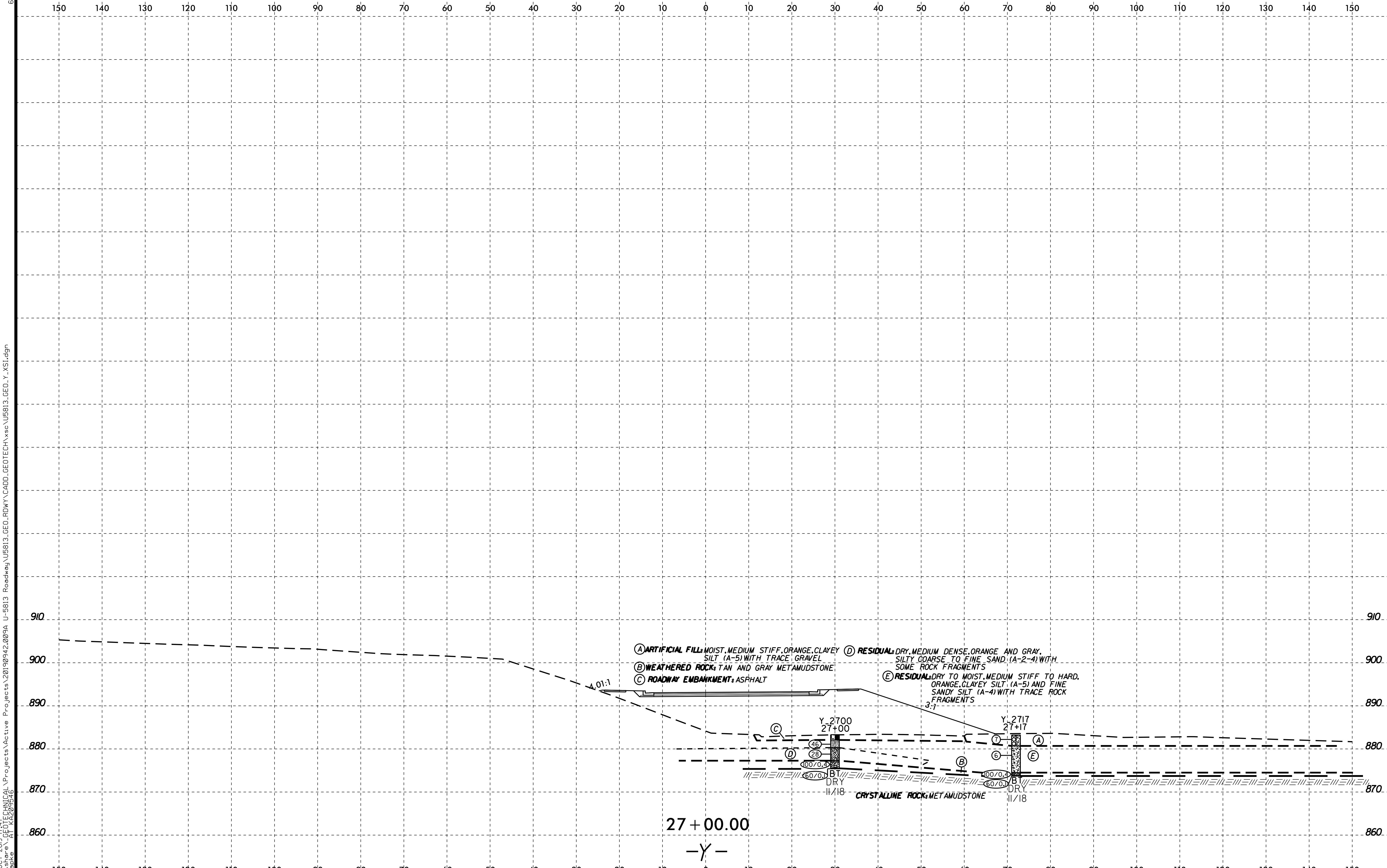
SPaske AT K42079546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	78



Ⓐ ARTIFICIAL FILL: MOIST, MEDIUM STIFF, ORANGE, CLAYEY SILT (A-5) WITH TRACE GRAVEL
Ⓑ WEATHERED ROCK: TAN AND GRAY METAMUDSTONE
Ⓒ ROADWAY EMBANKMENT: ASPHALT
Ⓓ RESIDUAL: DRY, MEDIUM DENSE, ORANGE AND GRAY, SILTY COARSE TO FINE SAND (A-2-4) WITH SOME ROCK FRAGMENTS
Ⓔ RESIDUAL: DRY TO MOIST, MEDIUM STIFF TO HARD, ORANGE, CLAYEY SILT (A-5) AND FINE SANDY SILT (A-4) WITH TRACE ROCK FRAGMENTS
CRYSTALLINE ROCK: METAMUDSTONE
Y_2700
27+00
Y_2717
27+17
DRY
11/18
4.01:1
3:1
910
900
890
880
870
860

27+00.00

-Y-

6/23/16

14-OCT-2019 17:47
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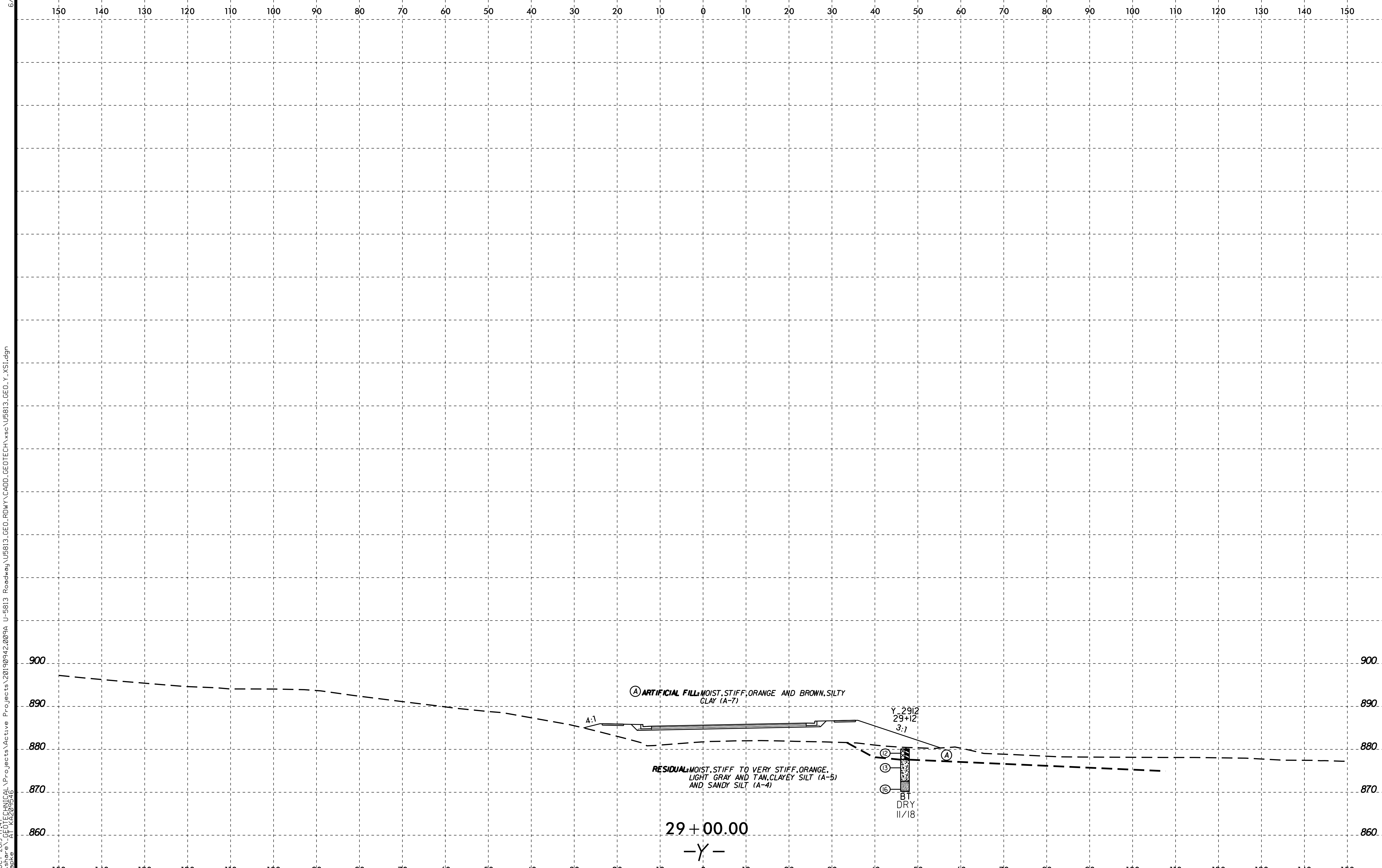
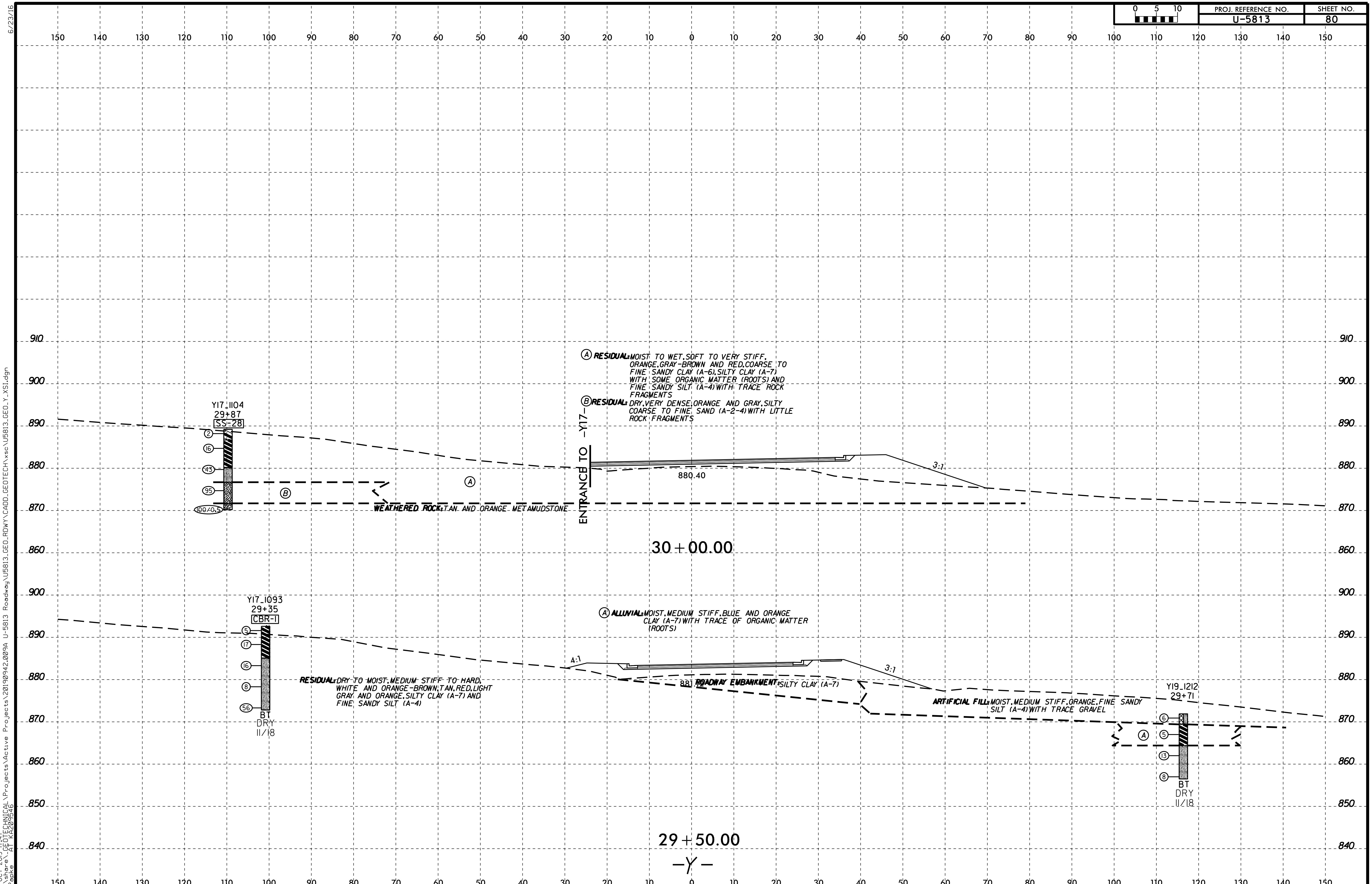
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	79



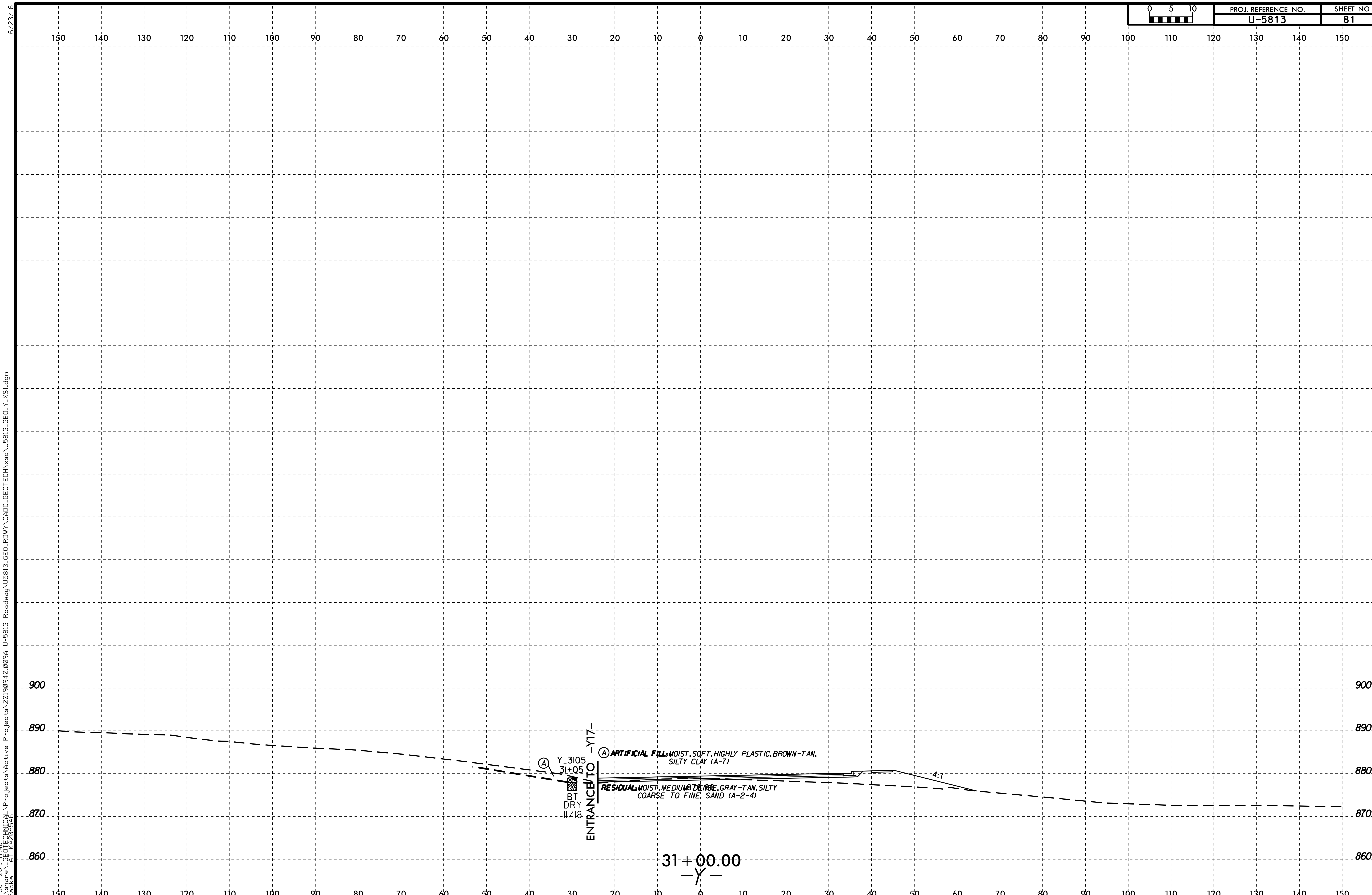
6/23/16

14-OCT-2019 17:47
Wilshore\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y_XSI.dgn
Spapke AT KA209546



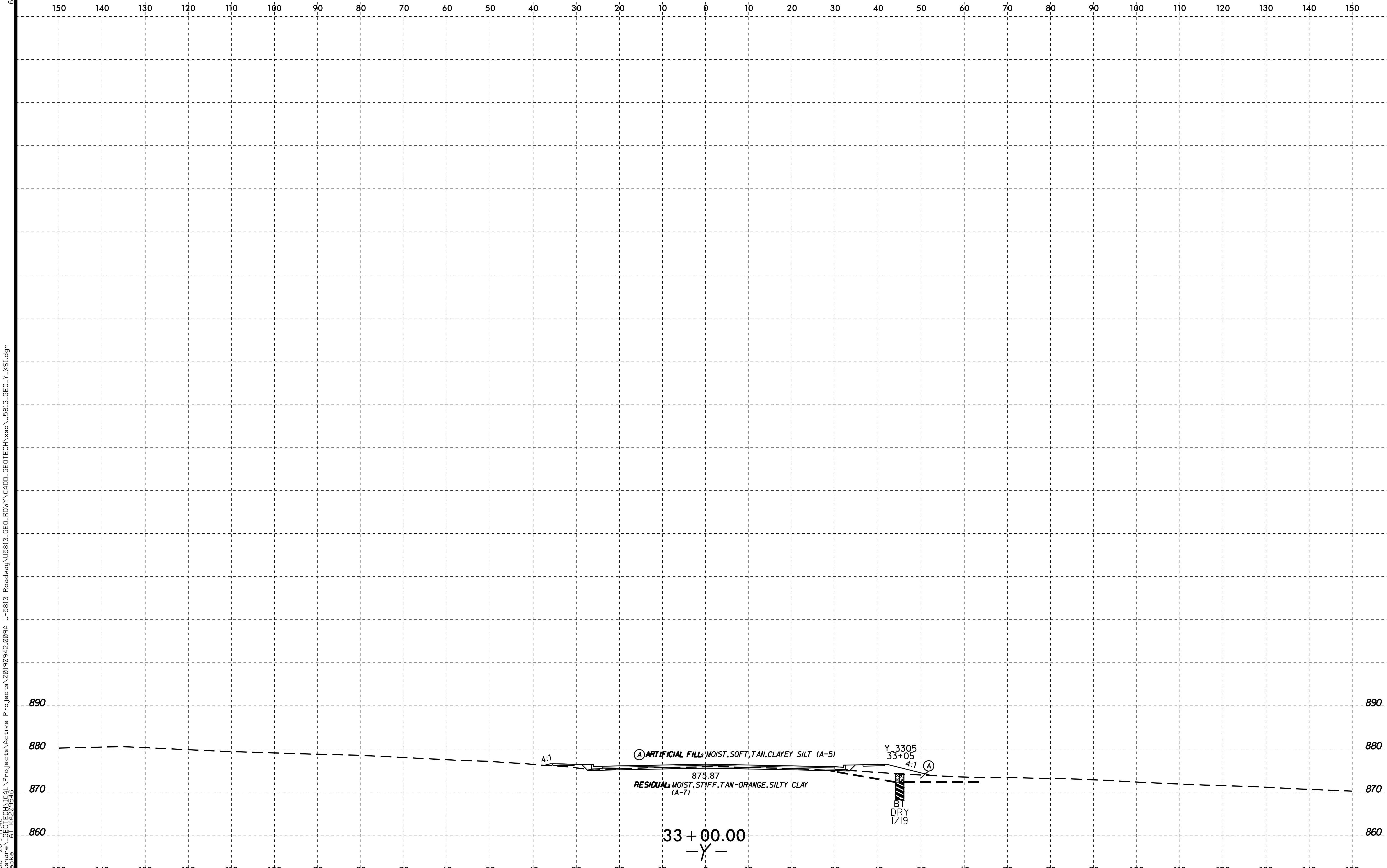
PROJ. REFERENCE NO. U-5813
SHEET NO. 80
Y17_1104
29+87
SS-28
A RESIDUAL: MOIST TO WET, SOFT TO VERY STIFF, ORANGE, GRAY-BROWN AND RED, COARSE TO FINE SANDY CLAY (A-6), SILTY CLAY (A-7) WITH SOME ORGANIC MATTER (ROOTS) AND FINE SANDY SILT (A-4) WITH TRACE ROCK FRAGMENTS
B RESIDUAL: DRY, VERY DENSE, ORANGE AND GRAY, SILTY COARSE TO FINE SAND (A-2-4) WITH LITTLE ROCK FRAGMENTS
ENTRANCE TO -Y17-
880.40
3:1
WEATHERED ROCK: TAN AND ORANGE METAMUDSTONE
30+00.00
Y17_1093
29+35
CBR-1
A ALLUVIAL: MOIST, MEDIUM STIFF, BLUE AND ORANGE CLAY (A-7) WITH TRACE OF ORGANIC MATTER (ROOTS)
4:1
3:1
RESIDUAL: DRY TO MOIST, MEDIUM STIFF TO HARD, WHITE AND ORANGE-BROWN, TAN, RED, LIGHT GRAY AND ORANGE, SILTY CLAY (A-7) AND FINE SANDY SILT (A-4)
ROADWAY EMBANKMENT: SILTY CLAY (A-7)
ARTIFICIAL FILL: MOIST, MEDIUM STIFF, ORANGE, FINE SANDY SILT (A-4) WITH TRACE GRAVEL
Y19_1212
29+71
BT
DRY
11/18
29+50.00
-Y-
14-OCT-2019 17:47
Spapke AT KA209546

6/23/16



14-OCT-2019 17:48
W:\share_GEOTECHNICAL\Projects\Active Projects\2019Ø942.ØØ9A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y_XSI.dgn
SPapke AT KA2Ø9546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	82



6/23/16

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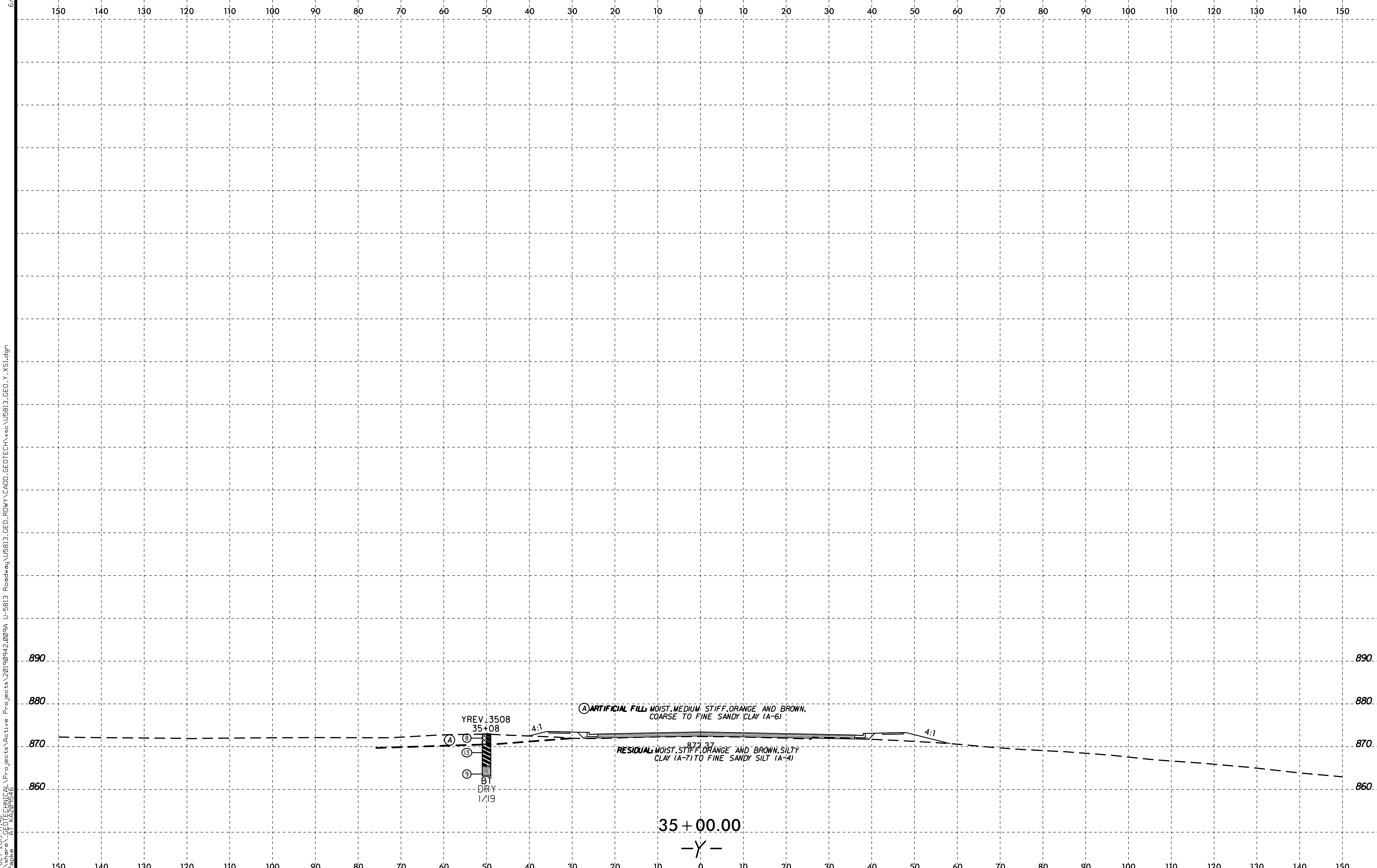
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	83



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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	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

880
870
860
850

Y-3705
37+05

(9)
(13)
(12)

BT
DRY
1/19

–RPB–
ENTRANCE TO

866.39

4:1

RESIDUAL: DRY, STIFF, RED AND WHITE, COARSE TO FINE SANDY SILT (A-4)

37+00.00
–Y–

880
870
860
850

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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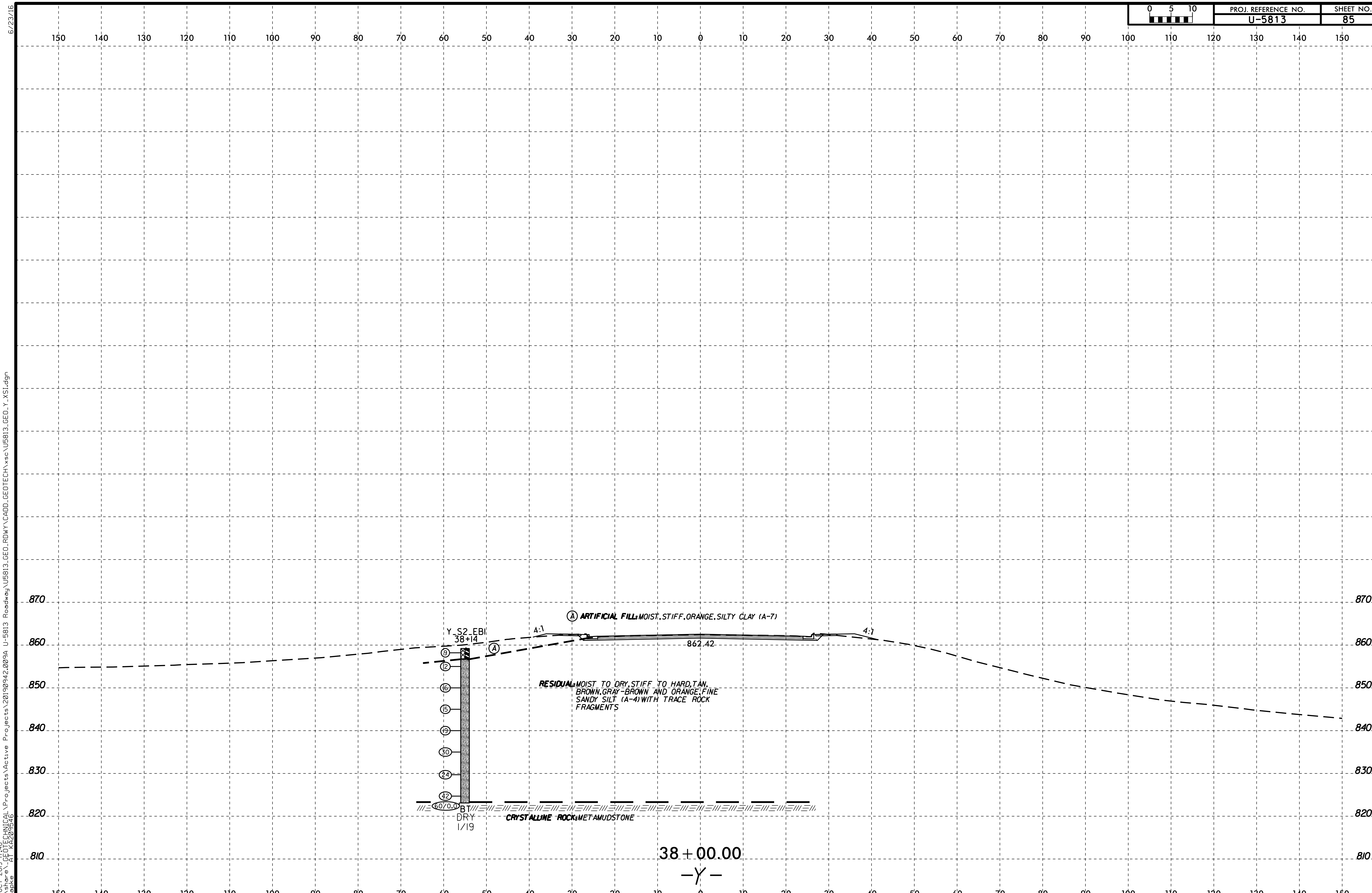
W:\share\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_Y_XSI.dgn
Shpake AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	85



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
870
860
850
840
830
820
810
Y_S2_EB1
38+14
(A) ARTIFICIAL FILL: MOIST, STIFF, ORANGE, SILTY CLAY (A-7)
4:1
4:1
862.42
RESIDUAL: MOIST TO DRY, STIFF TO HARD, TAN, BROWN, GRAY-BROWN AND ORANGE, FINE SANDY SILT (A-4) WITH TRACE ROCK FRAGMENTS
9
12
16
15
19
30
24
42
60/0.0
BT
DRY
1/19
CRYSTALLINE ROCK: METAMUDSTONE

38 + 00.00

-Y-

6/23/16

14-OCT-2019 17:48
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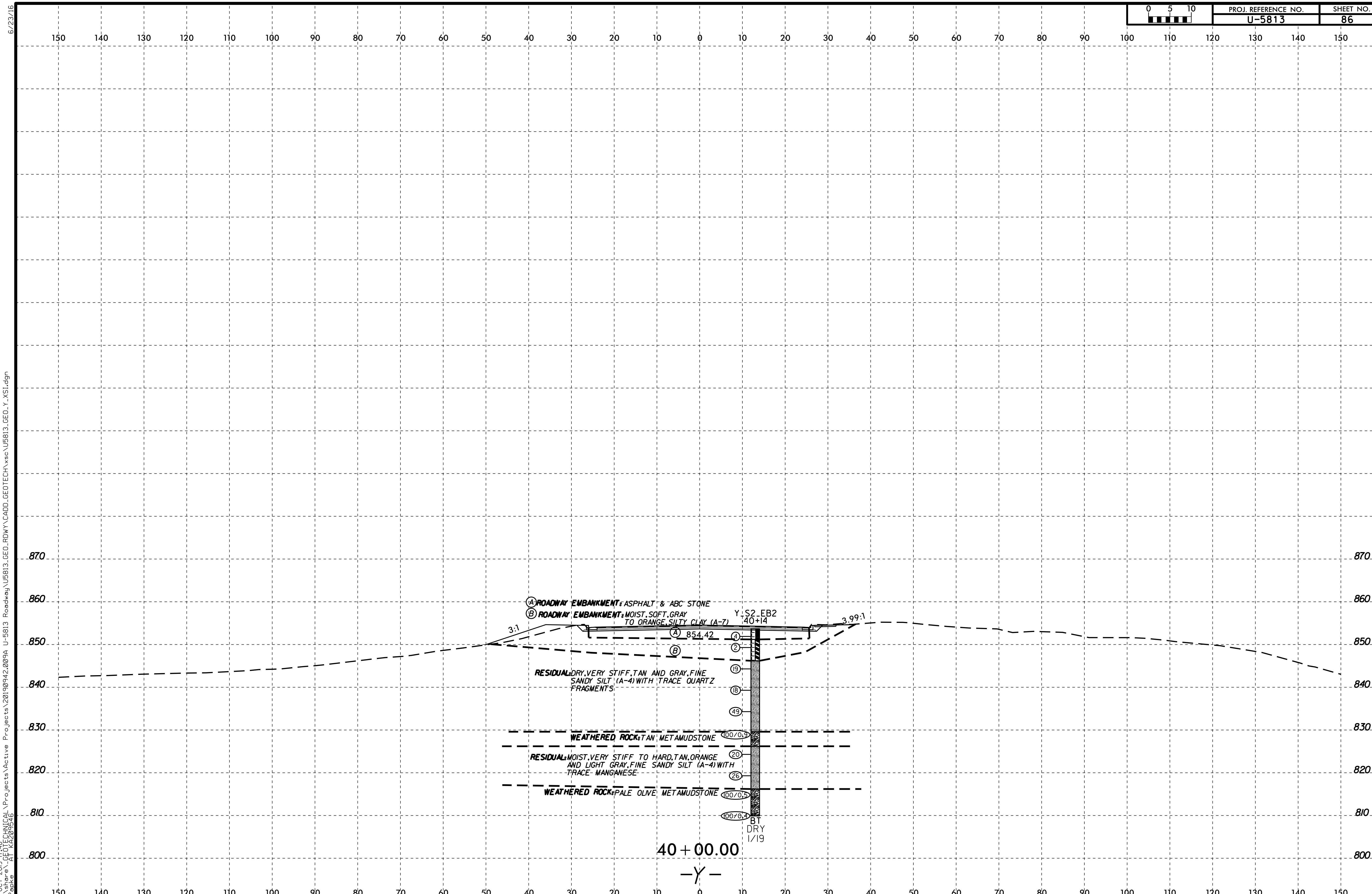
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	86



40 + 00.00

-Y-

6/23/16

14-OCT-2019 17:48
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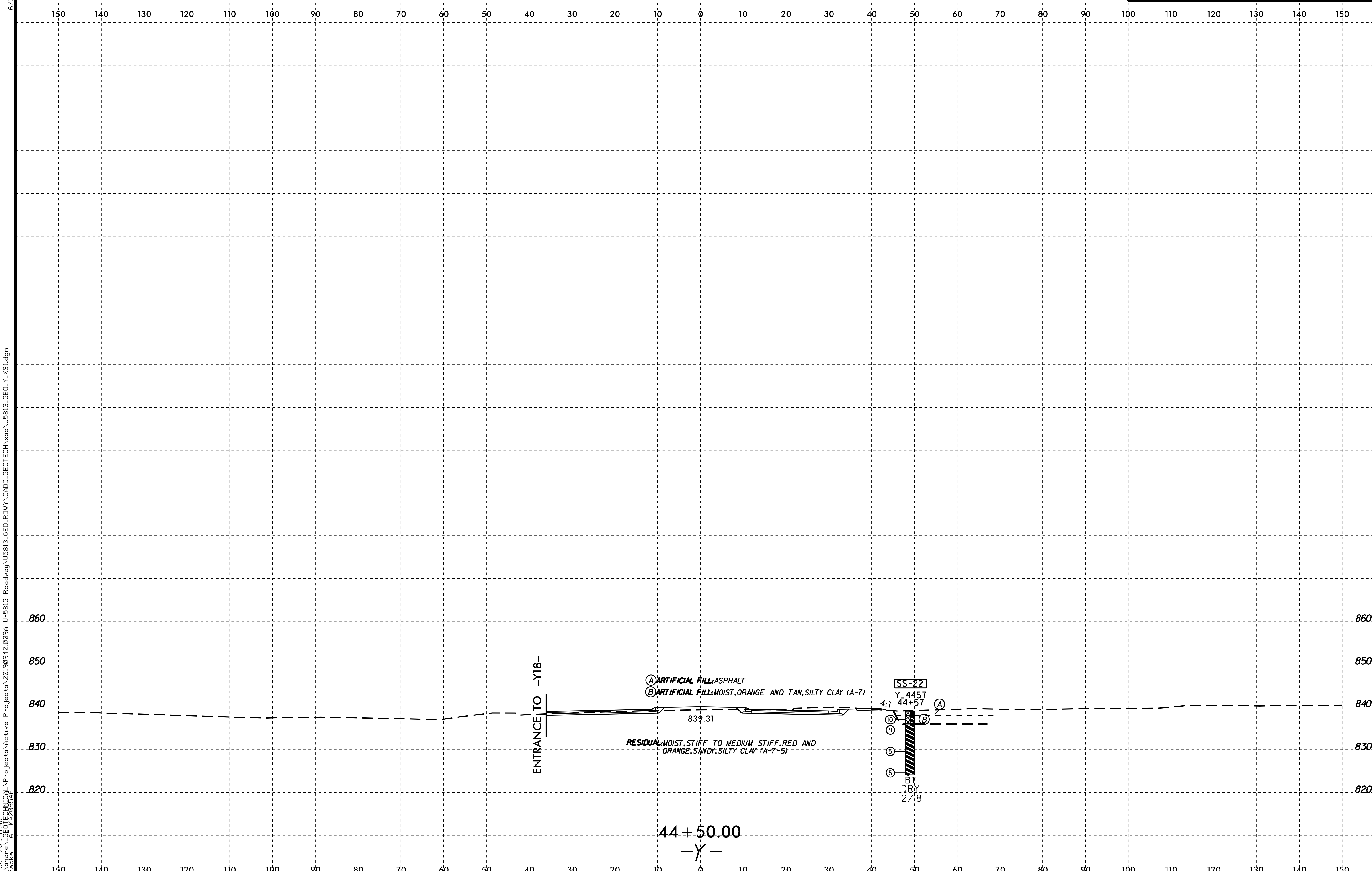
Spopke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	87



6/23/16

14-OCT-2019 17:48
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Spapke AT KA209546

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

850 840 830

Ⓐ **ARTIFICIAL FILL:** MOIST, SOFT, TAN TO BLUE, SILTY CLAY (A-7) WITH TRACE GRAVEL
Ⓑ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, YELLOW TO ORANGE, CLAYEY SILT (A-5)
Ⓒ **ARTIFICIAL FILL:** ASPHALT/ABC STONE

4:1 4:1

Ⓒ Ⓐ Ⓑ

RESIDUAL: MOIST, MEDIUM STIFF, ORANGE AND GRAY, CLAYEY SILT (A-7)

48 + 00.00

Ⓐ **RESIDUAL:** MOIST, SOFT TO STIFF, HIGHLY PLASTIC, ORANGE, SILTY CLAY (A-7)

4:1 4:1

RESIDUAL: MOIST, MEDIUM STIFF, PURPLE AND ORANGE, SILTY CLAY (A-7)

47 + 50.00

Ⓐ **RESIDUAL:** MOIST, SOFT TO STIFF, HIGHLY PLASTIC, ORANGE, SILTY CLAY (A-7)

4:1 4:1

Ⓐ

RESIDUAL: MOIST, MEDIUM STIFF, PURPLE AND ORANGE, SILTY CLAY (A-7)

47 + 00.00

Ⓐ **RESIDUAL:** MOIST, SOFT TO STIFF, HIGHLY PLASTIC, ORANGE, SILTY CLAY (A-7)

SS-23
Y-4646
46+46
3.99.1
4
10
Ⓐ
6
5
BT
DRY
12/18

RESIDUAL: MOIST, MEDIUM STIFF, PURPLE AND ORANGE, SILTY CLAY (A-7)

46 + 50.00

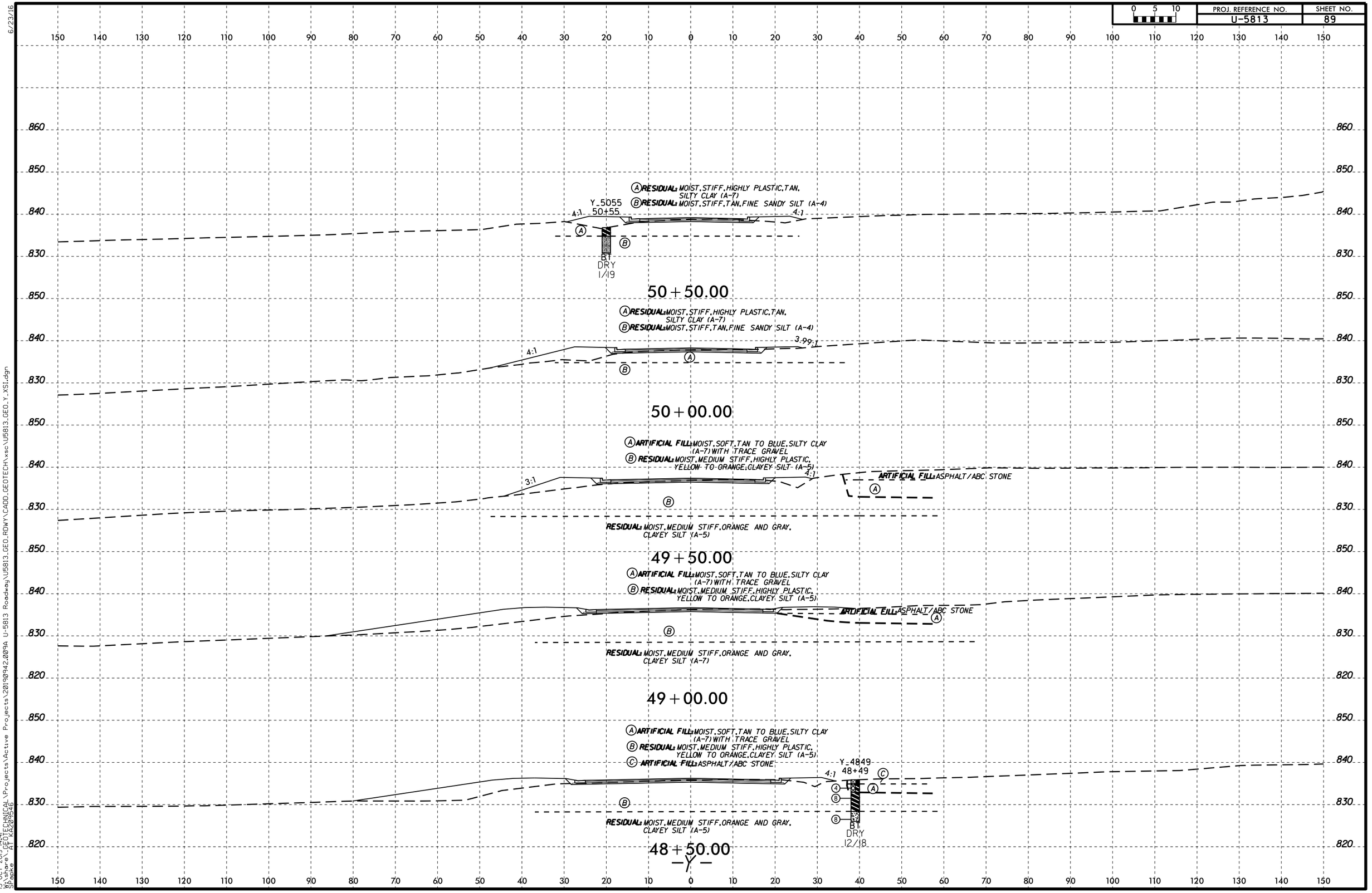
ENTRANCE TO –Y18–

RESIDUAL: MOIST, STIFF TO MEDIUM STIFF, RED AND ORANGE, SANDY, SILTY CLAY (A-7-5)

46 + 00.00

–Y–

820 830 840 850 860



6/23/16

15-OCT-2019 14:41
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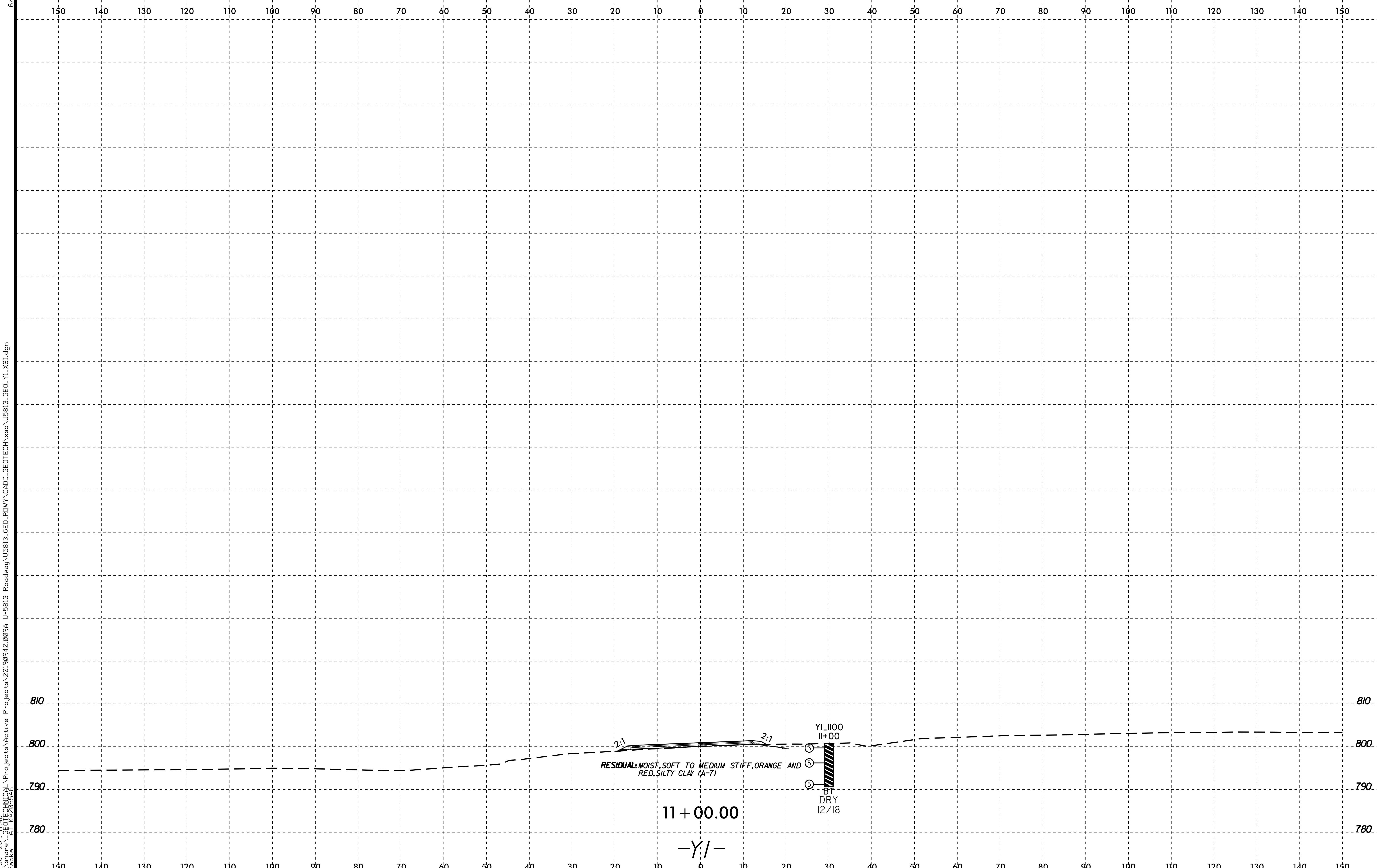
SPopke AT KA209546



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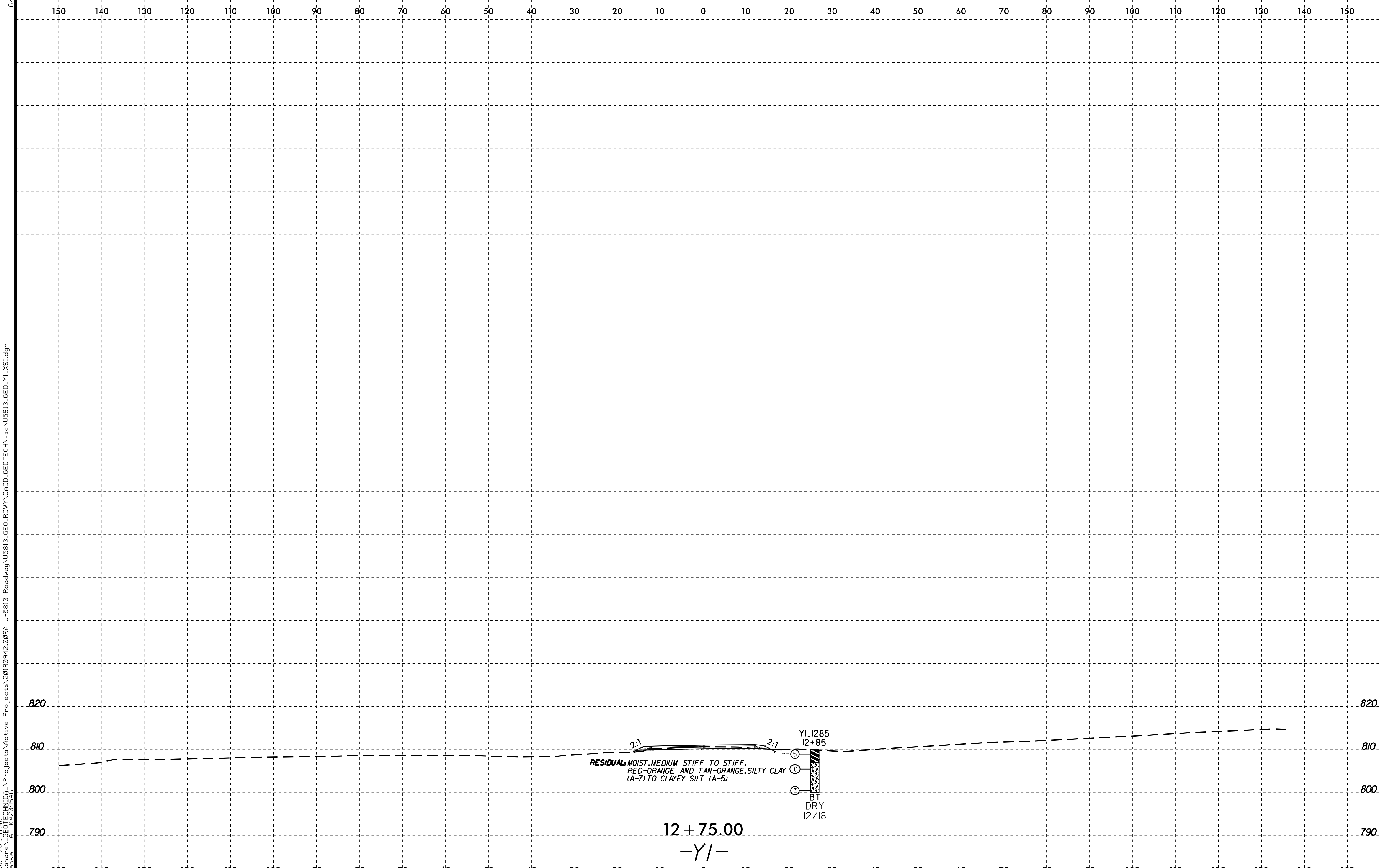
SPapke AT KA209546

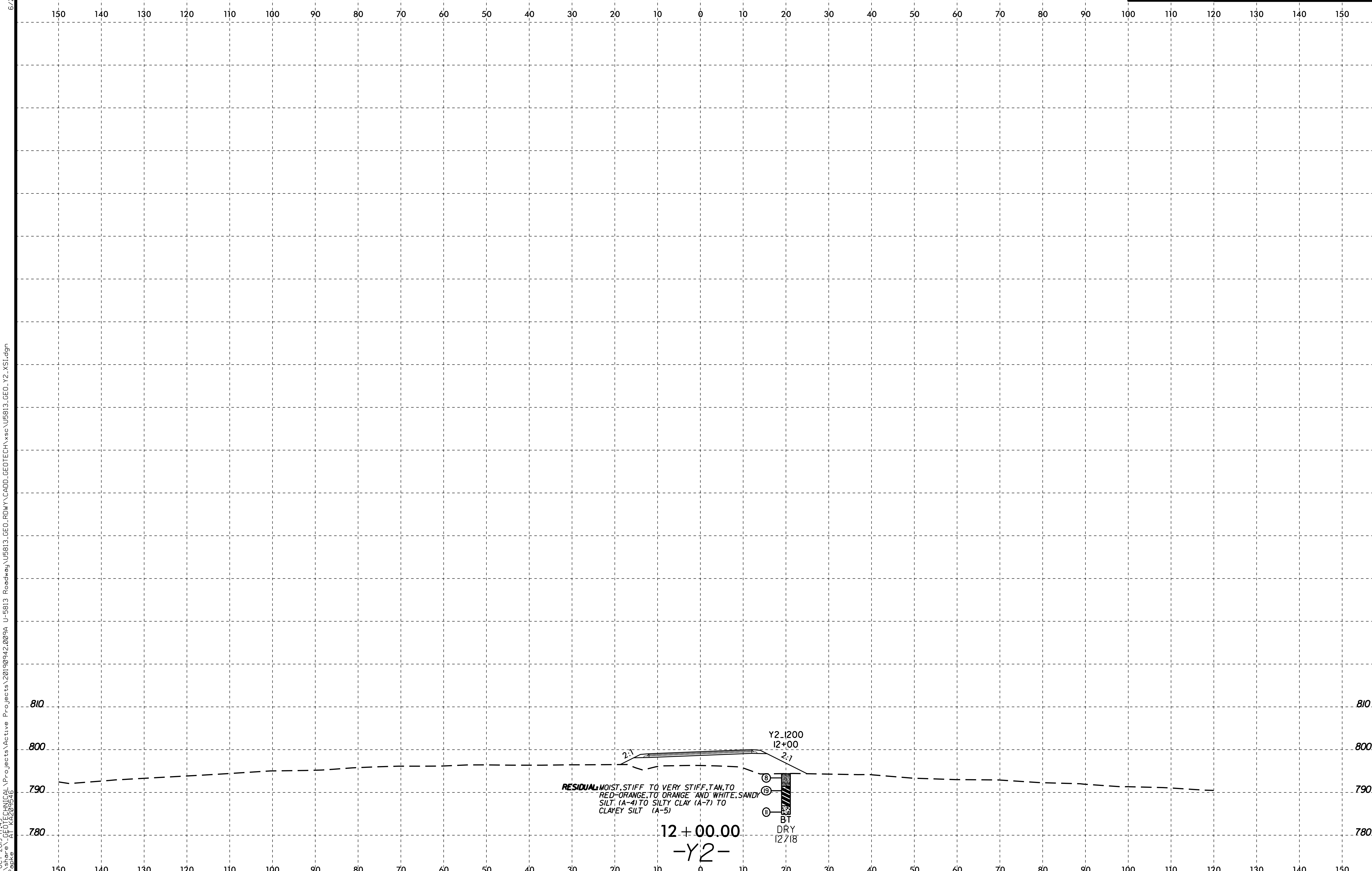
PROJ. REFERENCE NO.	SHEET NO.
U-5813	91



12 + 75.00

-Y1-

PROJ. REFERENCE NO.	SHEET NO.
U-5813	92



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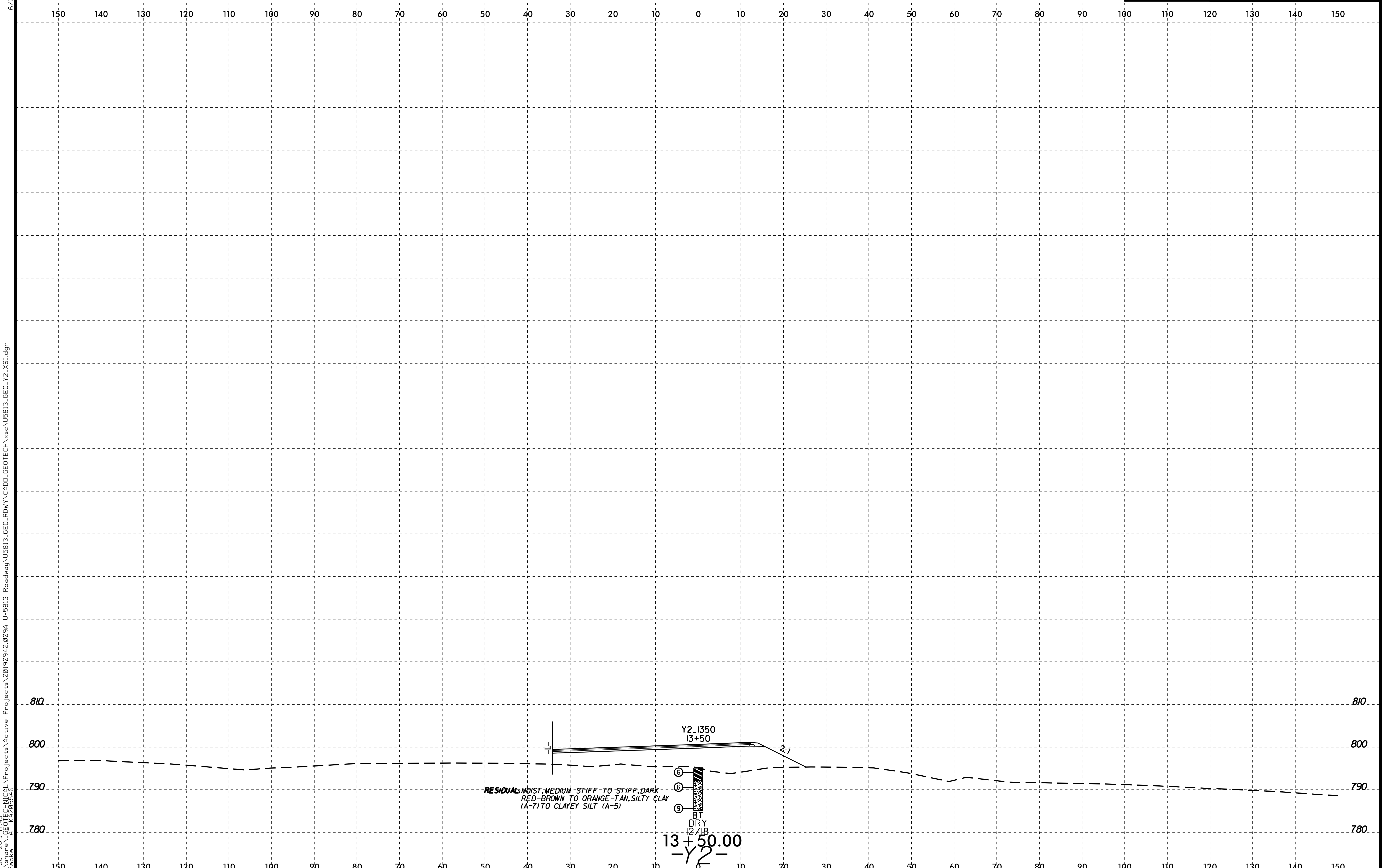
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	93



6/23/16

14-OCT-2019 17:49
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Spapke AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	94

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

810 800 790 780 820

10+50.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, BROWN-RED, FINE SANDY, SILTY CLAY (A-7-5)

2:1 2:1

RESIDUAL: MOIST, STIFF, RED-ORANGE TO TAN, FINE SANDY SILT (A-4)

10+25.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, BROWN-RED, FINE SANDY, SILTY CLAY (A-7-5)

SS-24
Y3_1025
10+25

2:1 4:1

RESIDUAL: MOIST, STIFF, RED-ORANGE TO TAN, FINE SANDY SILT (A-4)

15 13 4 8

BT
DRY
12/18

10+00.00

Ⓐ **RESIDUAL:** MOIST, MEDIUM STIFF, HIGHLY PLASTIC, BROWN-RED, FINE SANDY, SILTY CLAY (A-7-5)

2:1 4:1 2:1

RESIDUAL: MOIST, STIFF, RED-ORANGE TO TAN, FINE SANDY SILT (A-4)

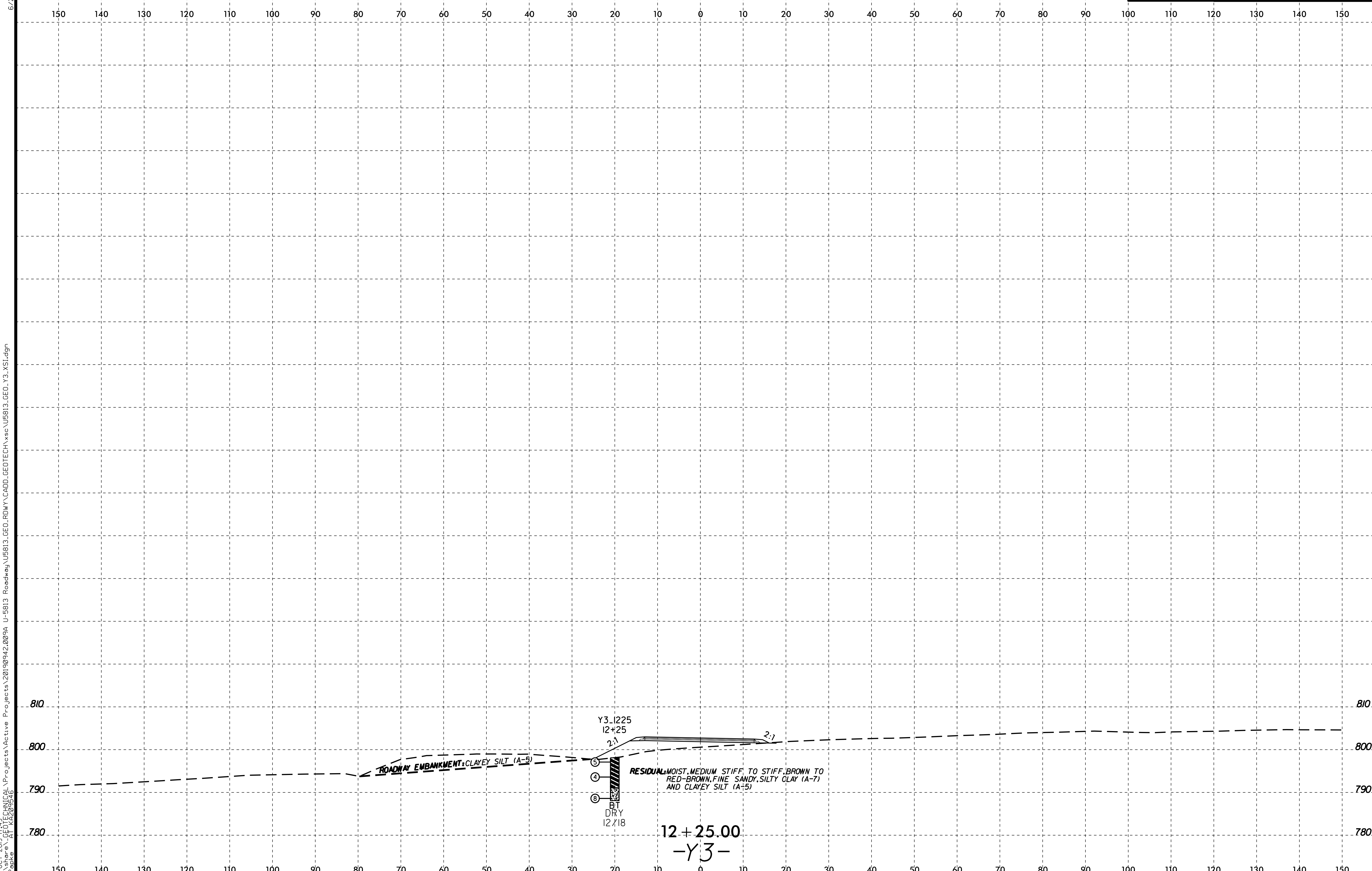
-Y3-

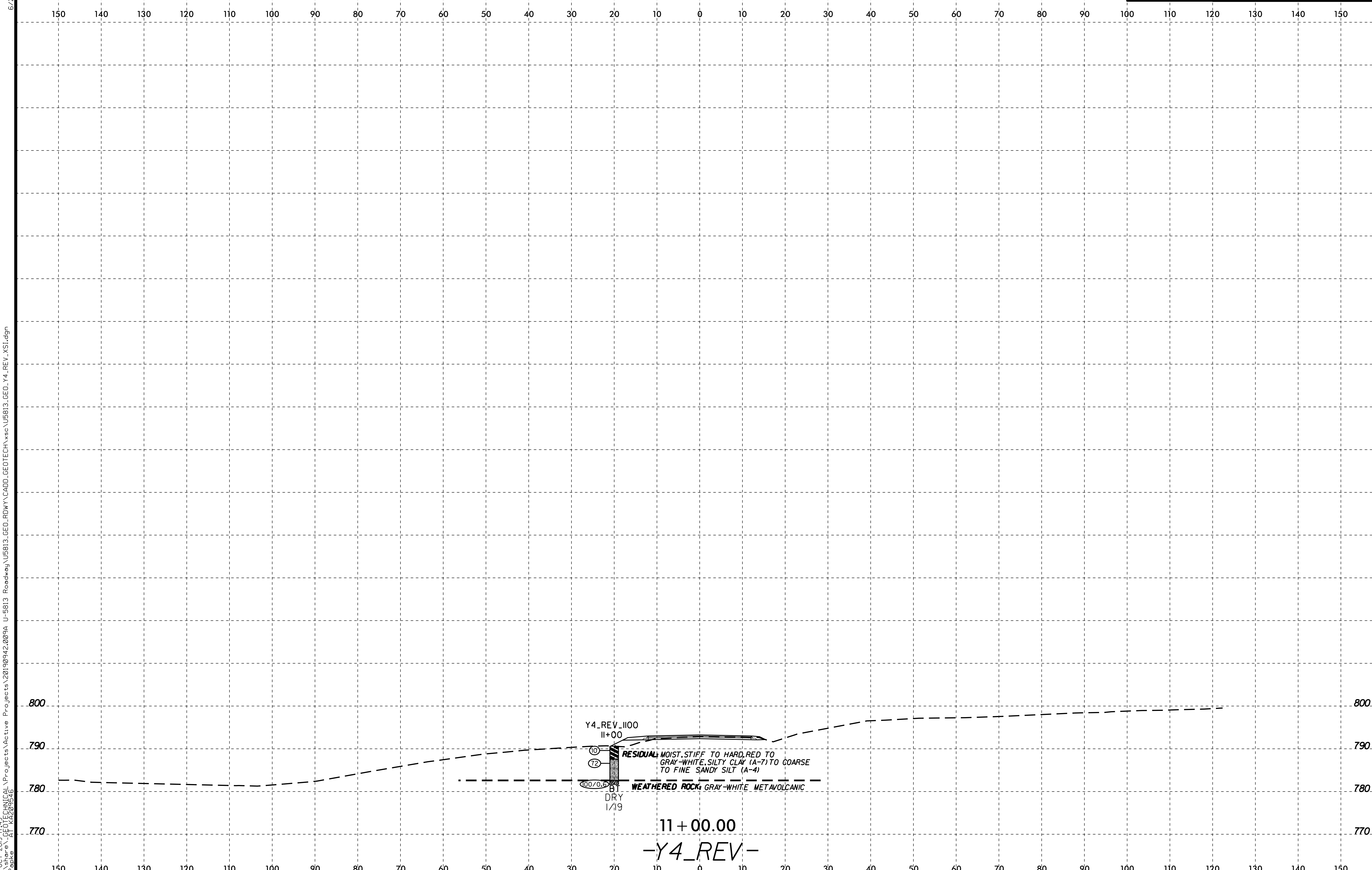
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/23/16

15-OCT-2019 14:41
W:\share_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y3_XS1.dgn
Stopke
AT KA20949

PROJ. REFERENCE NO.	SHEET NO.
U-5813	95





11+00.00

-Y4_REV-

6/23/16

14-OCT-2019 17:49
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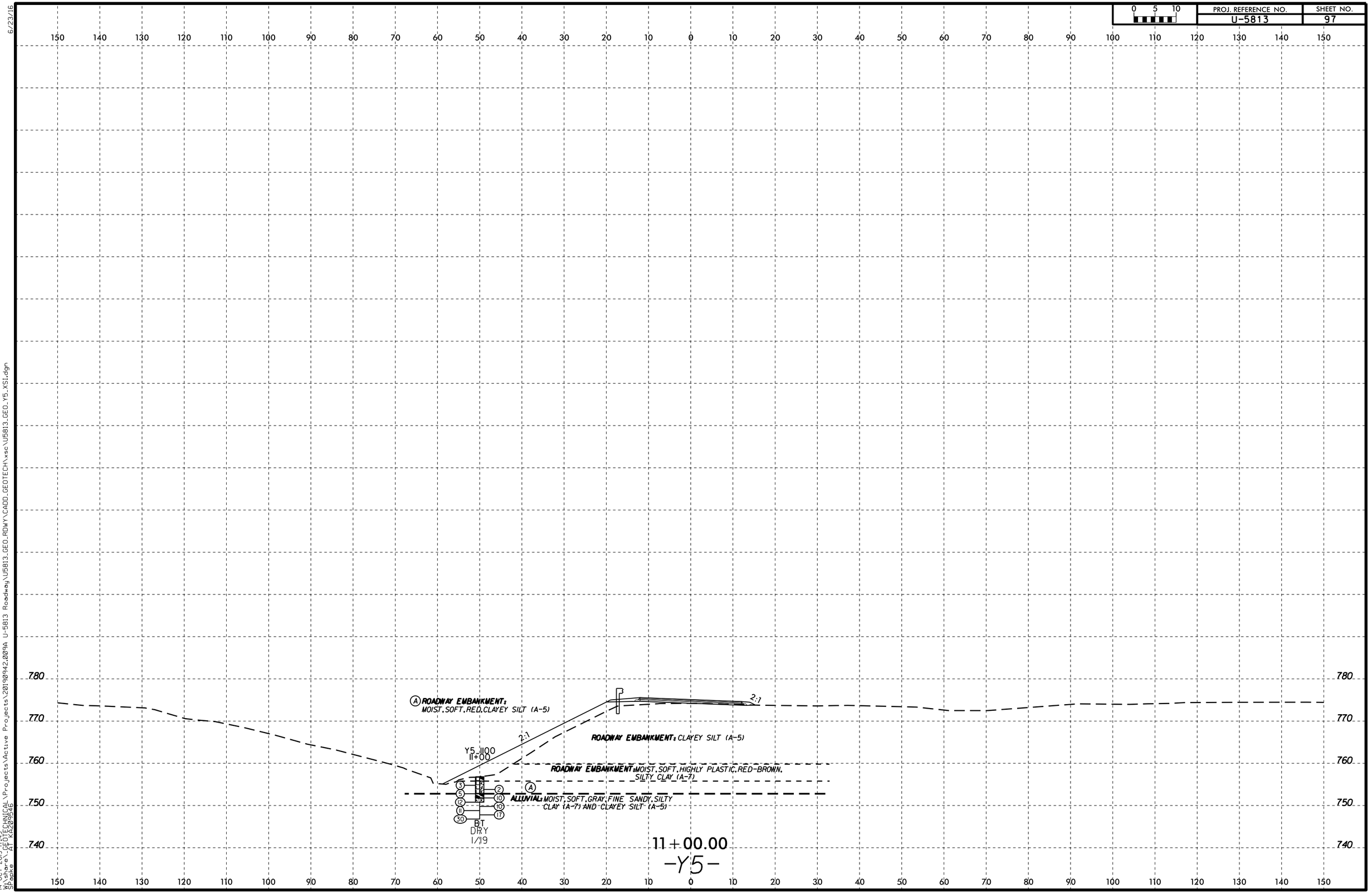
SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	97



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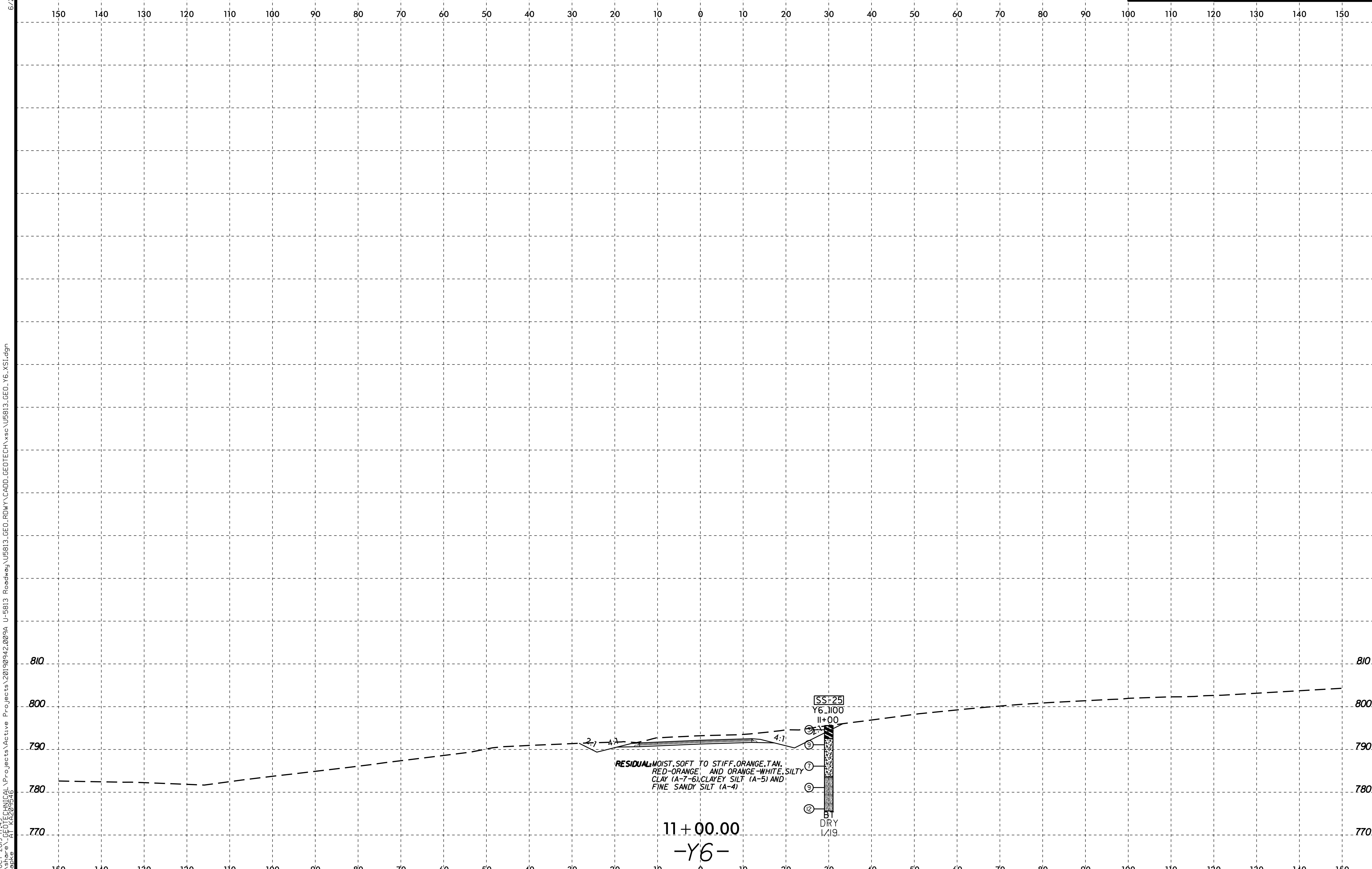
$Shake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	98



6/23/16

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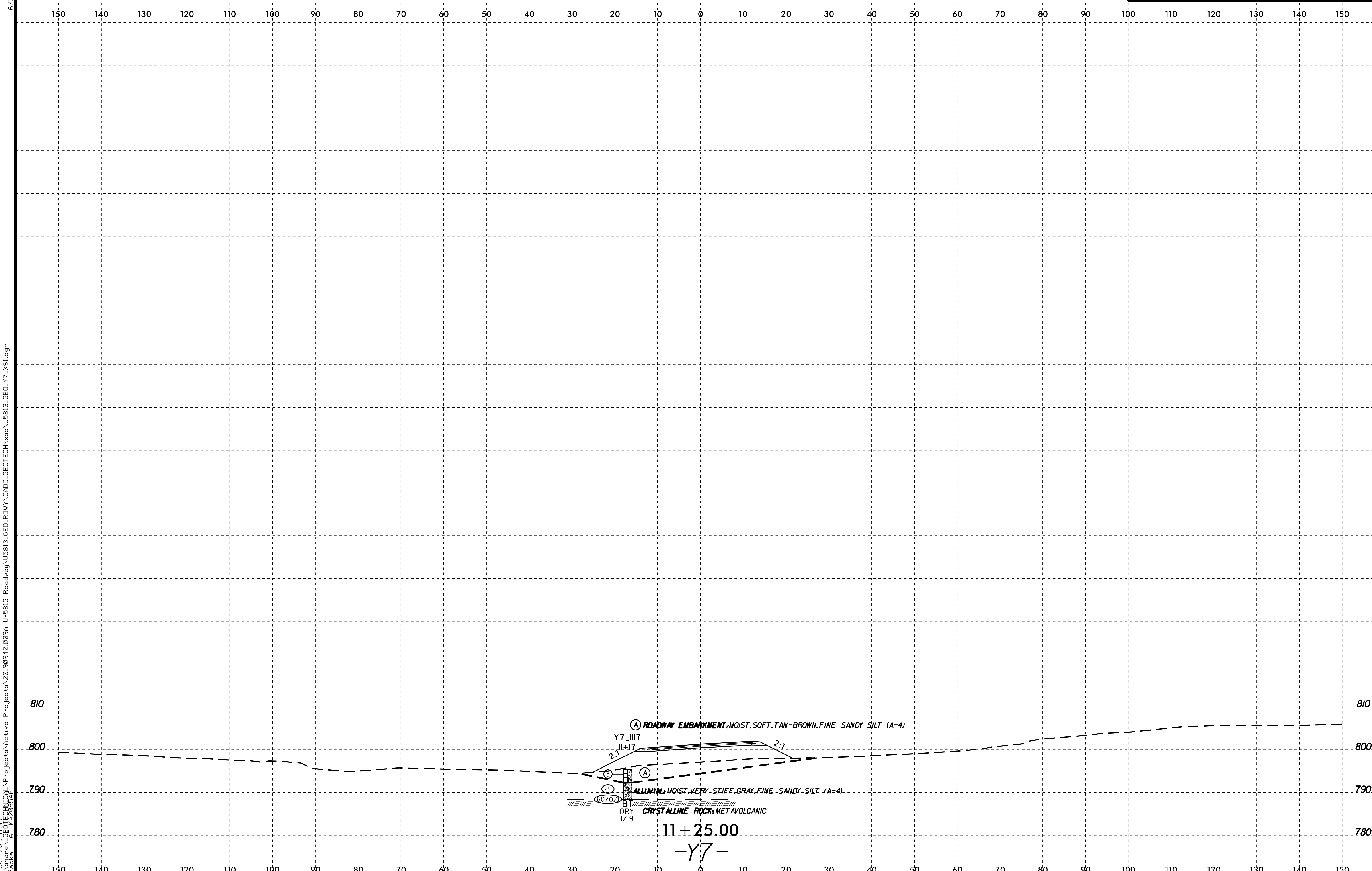
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	99



11+25.00

-Y7-

6/23/16

14-OCT-2019 17:49
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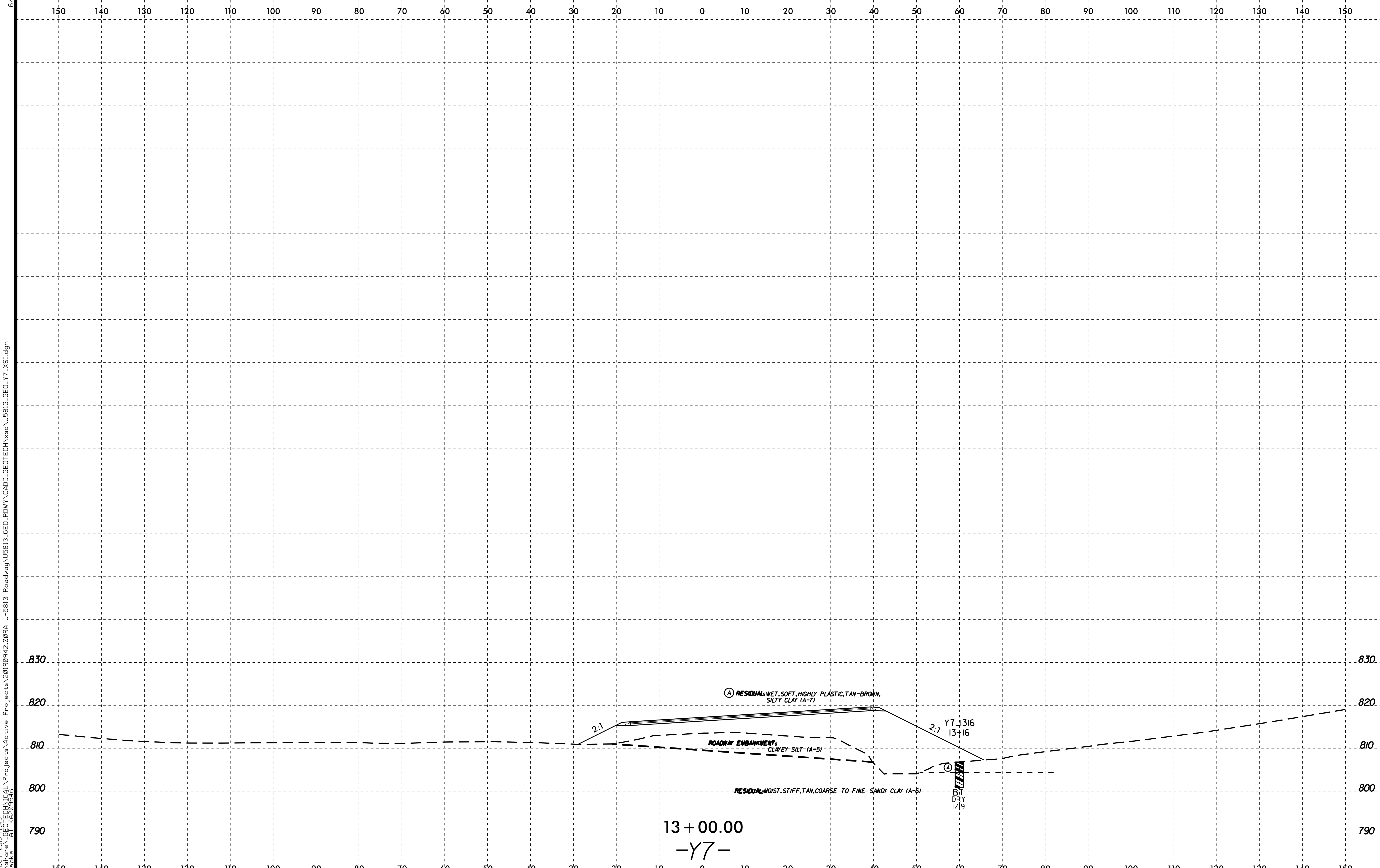
SPapke AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	100



6/23/16

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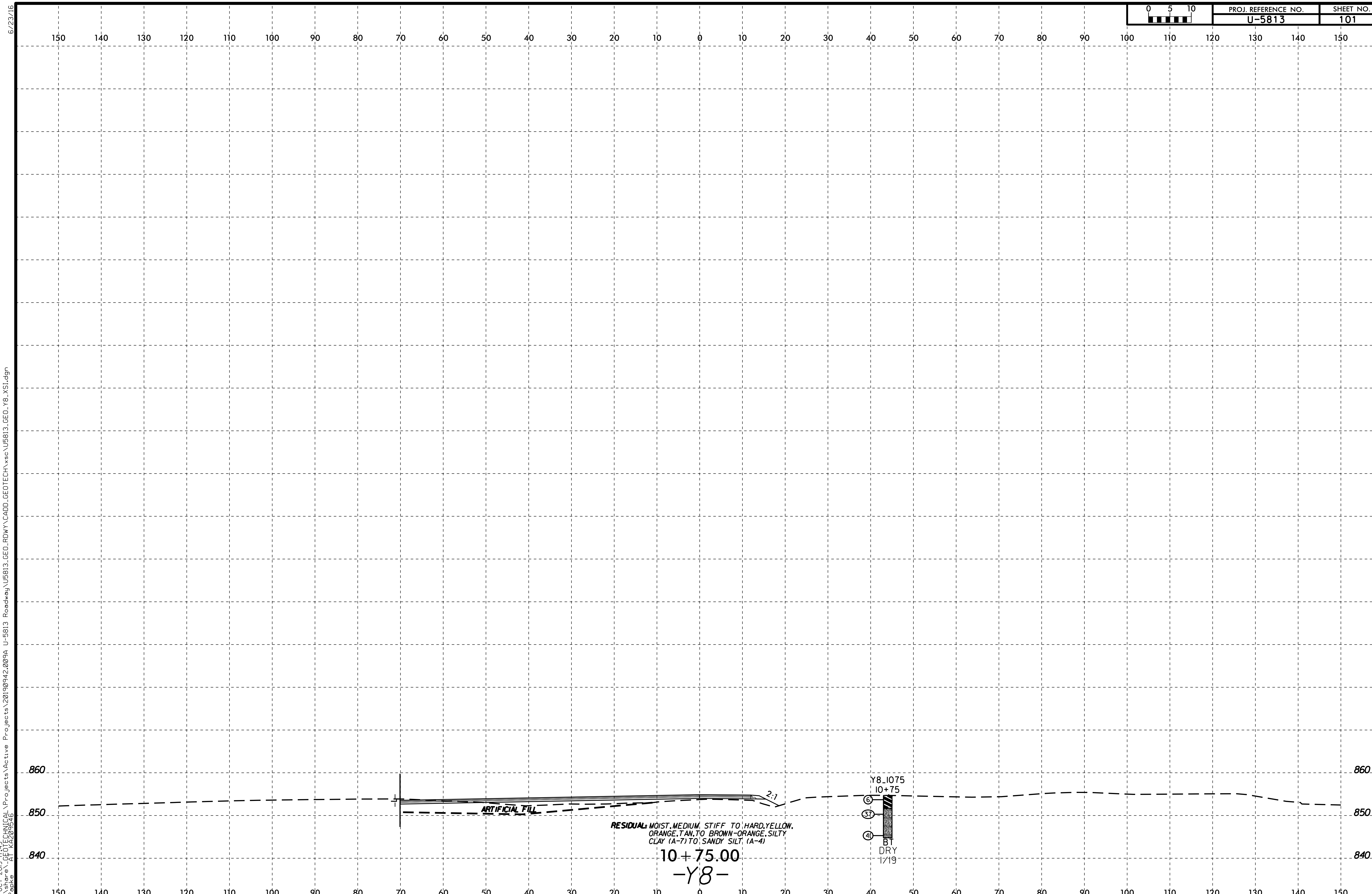
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	101



10+75.00
-Y8-

6/23/16

14-OCT-2019 17:49
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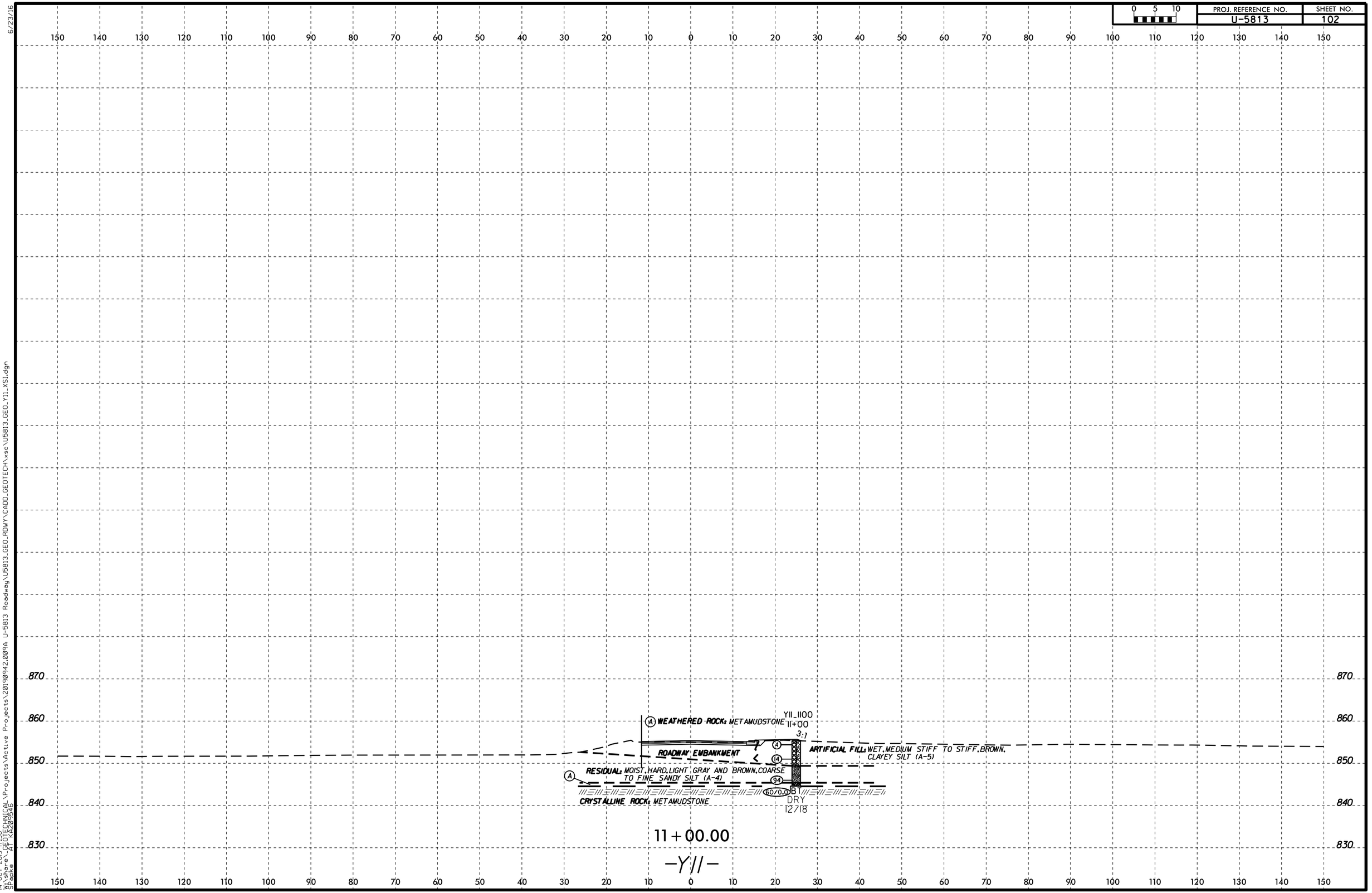
Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	102



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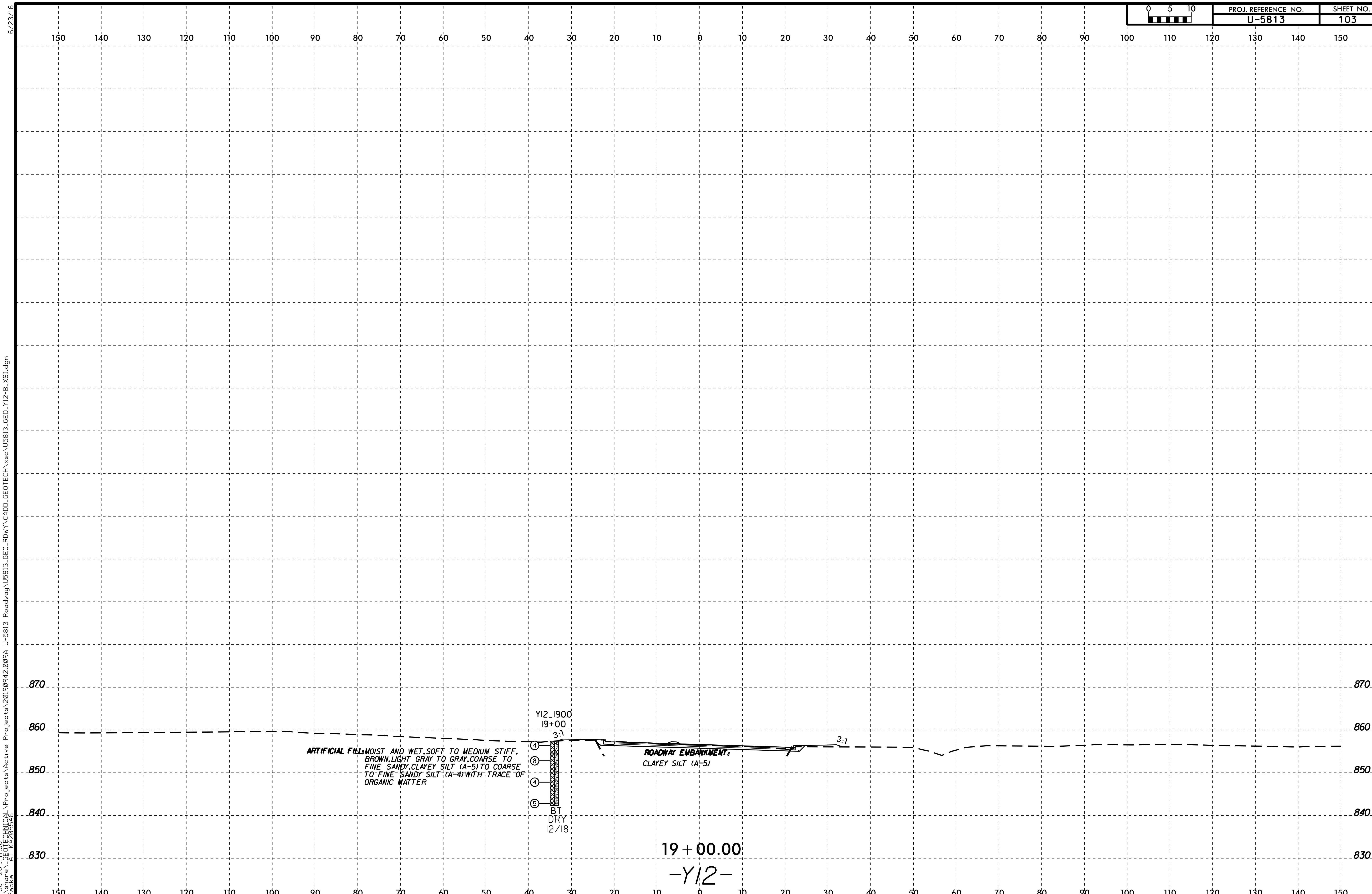
SPeake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	103



19 + 00.00

-YI2-

6/23/16

I4-OCT-2019 I7:50
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SPapke AT KA209546

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-5813	104

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

880 870 860 850 840

Y13_I066
10+66

RESIDUAL: MEDIUM STIFF TO VERY STIFF, TAN, FINE SANDY SILT (A-4)

2:1 4:1 2:1

4/19

BT

WEATHERED ROCK: METAMUDSTONE

CRYSTALLINE ROCK: METAMUDSTONE

10+75.00

-Y13-

14-OCT-2019 17:50
\\Washare\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y13_XS1.dgn
Shpake AT K:\20190546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	105

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

880 870 860 850

Y13_1091
10+91

18
82
60/0.0 BT
DRY
1/19

A **RESIDUAL:** MOIST,VERY STIFF,TAN,COARSE TO FINE SANDY CLAY (A-6)

B **RESIDUAL:** DRY,VERY DENSE,TAN TO WHITE,SILTY COARSE TO FINE SAND (A-2-4) WITH SOME ROCK FRAGMENTS

2:1

1:1

CRYSTALLINE ROCK: METAMUDSTONE

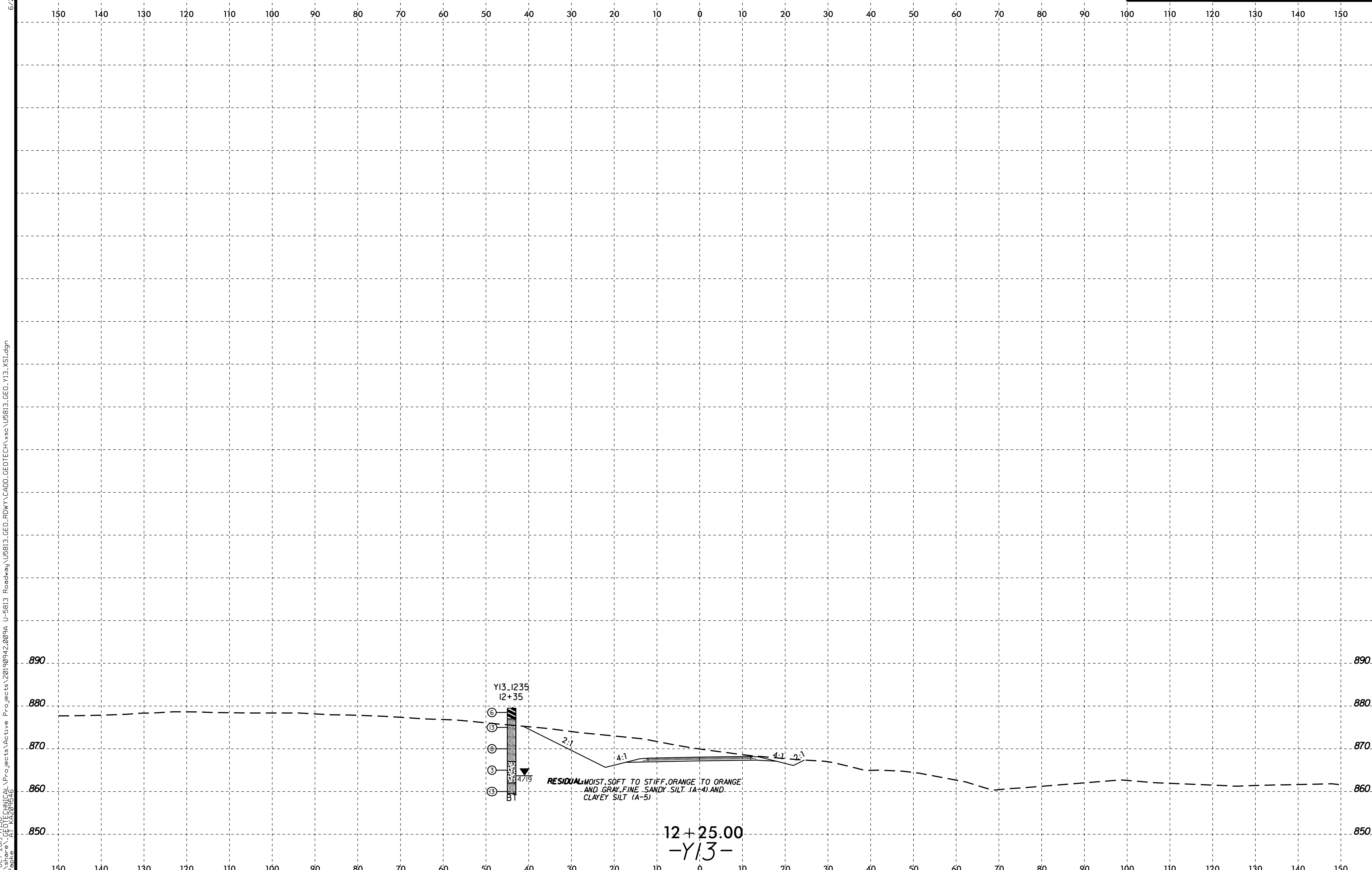
11+00.00
-Y13-

880 870 860 850

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

14-OCT-2019 17:50
\\Nashare\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y13_XS1.dgn
$Shake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	106



6/23/16

14-OCT-2019 17:50
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Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	107

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

900
890
880
870

SS-27
Y13_1391
13+91

15
13
12
15

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

RESIDUAL: MOIST, STIFF, ORANGE TO GRAY AND RED, FINE SANDY SILT (A-4)

5'
DRY
4/24

14+00.00
-Y13-

900
890
880
870

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

14-OCT-2019 17:50
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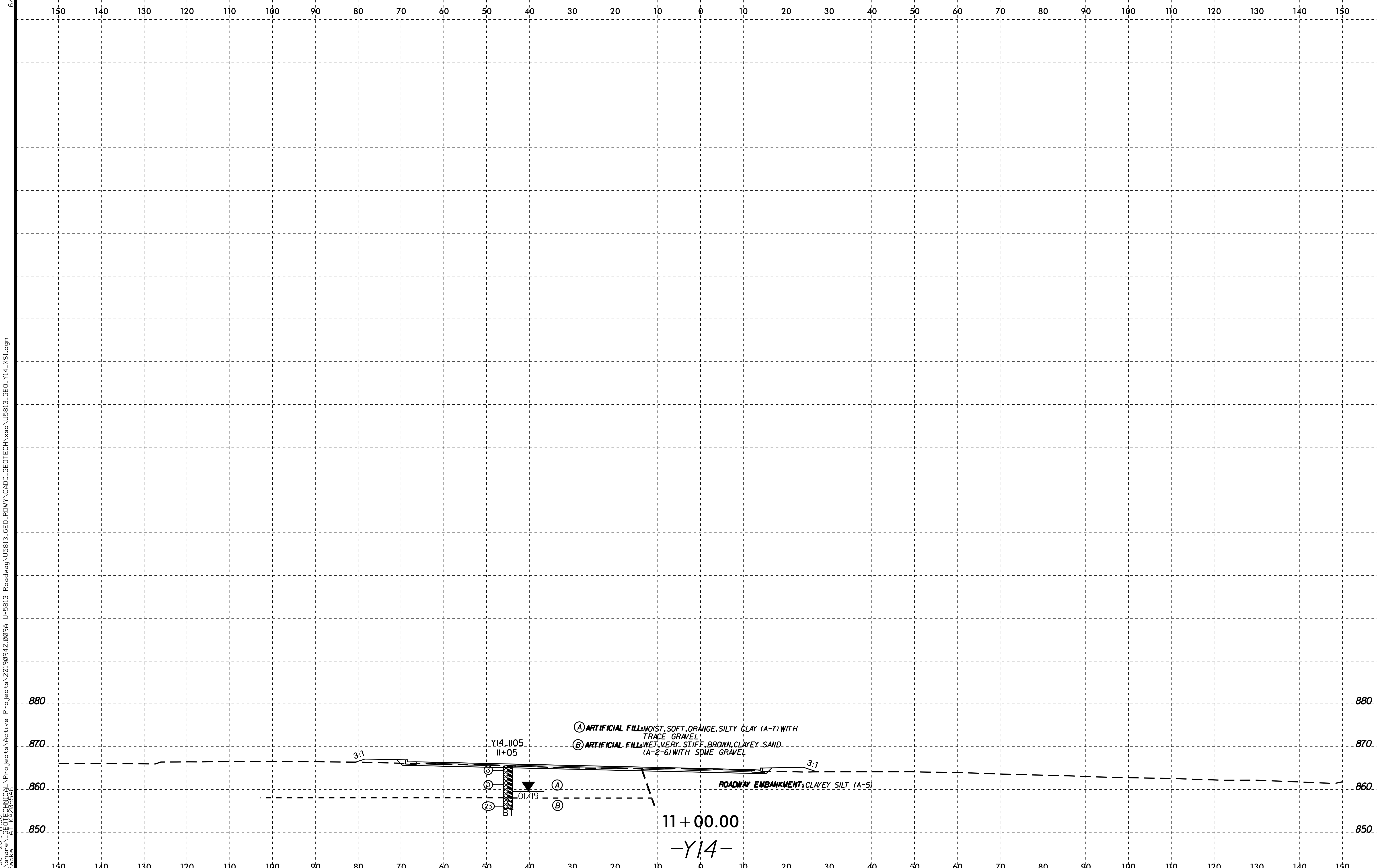
Shapke AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	108



6/23/16

14-OCT-2019 17:50
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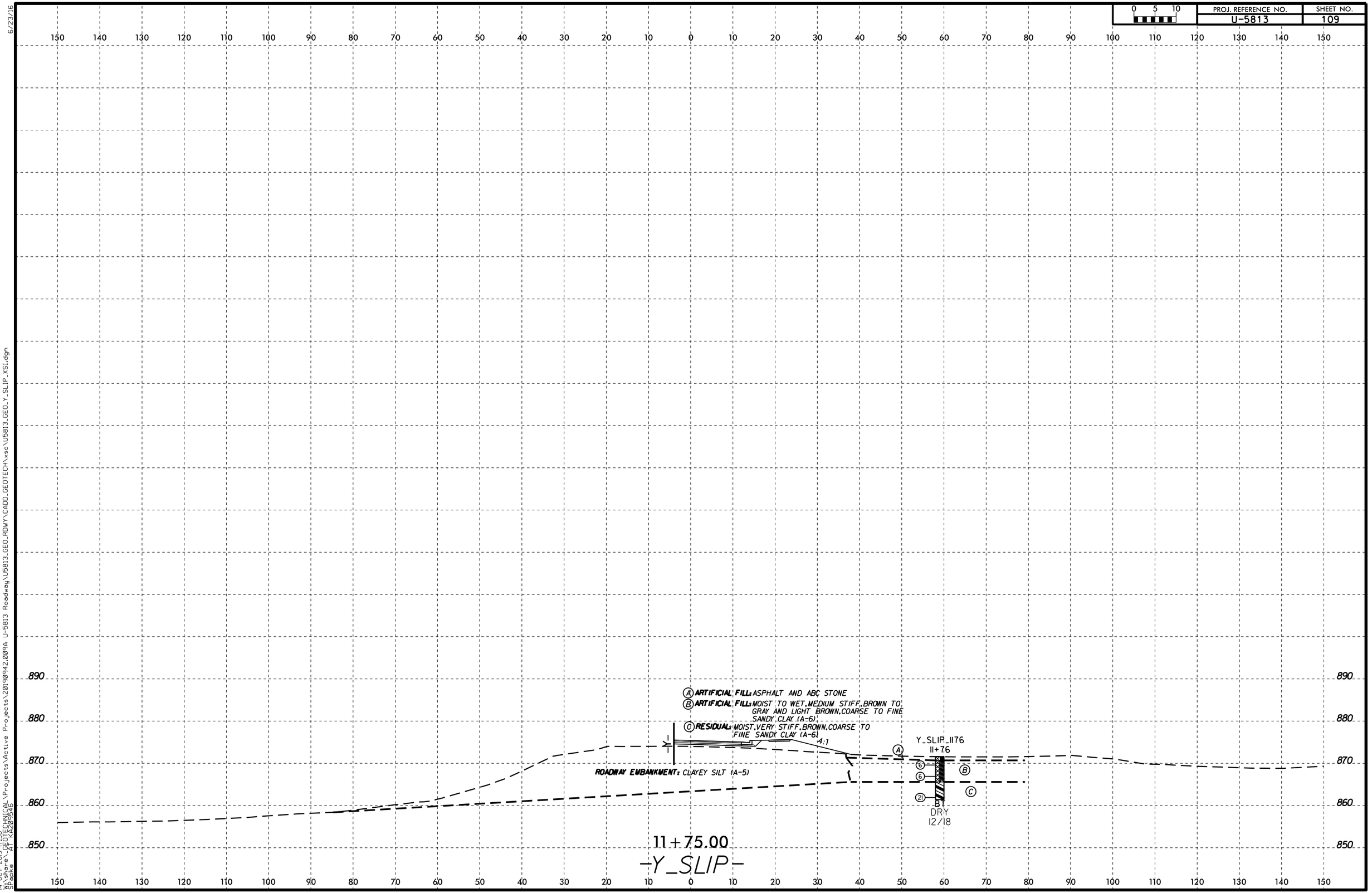
Spopke AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	109



6/23/16

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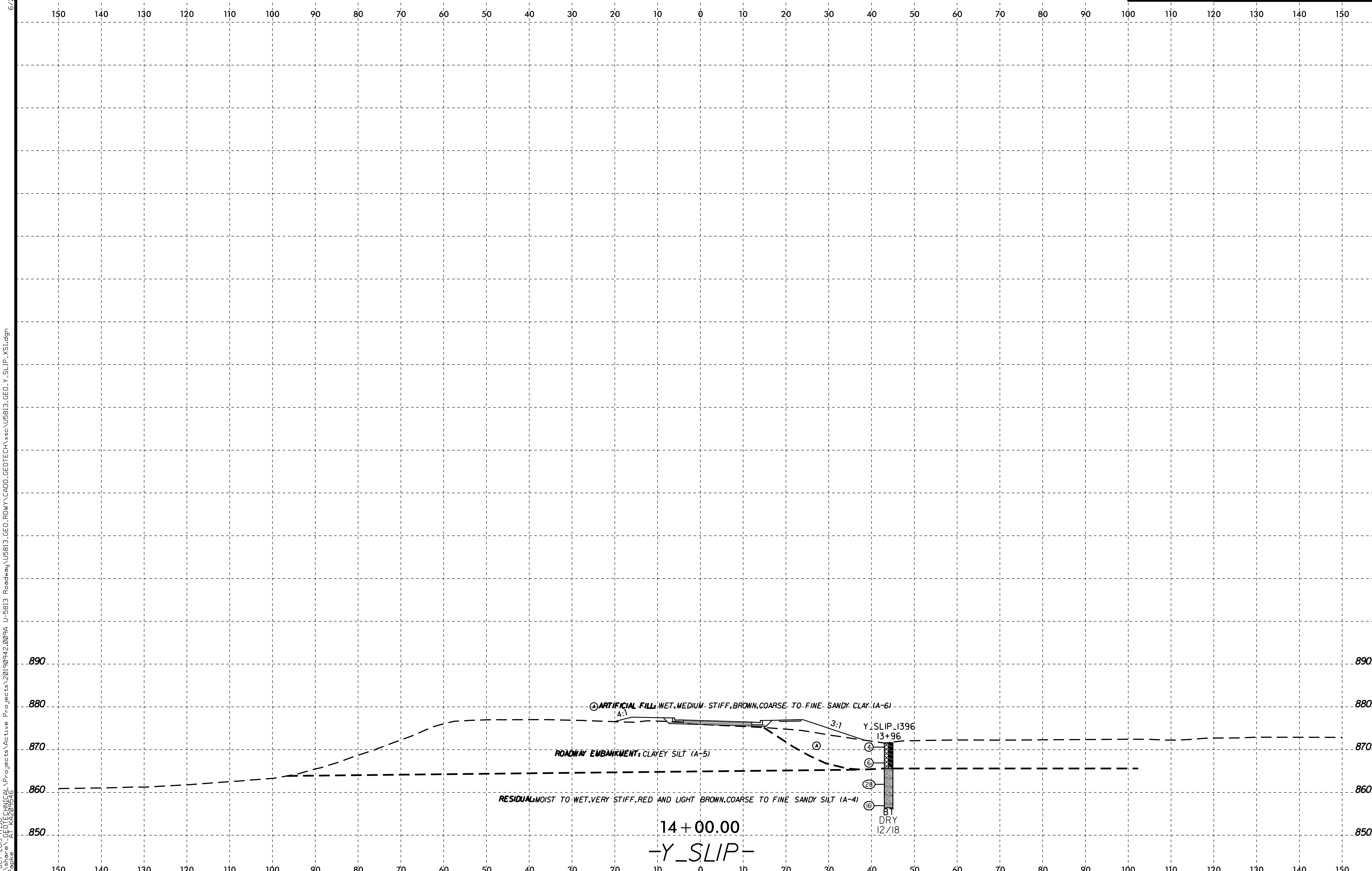
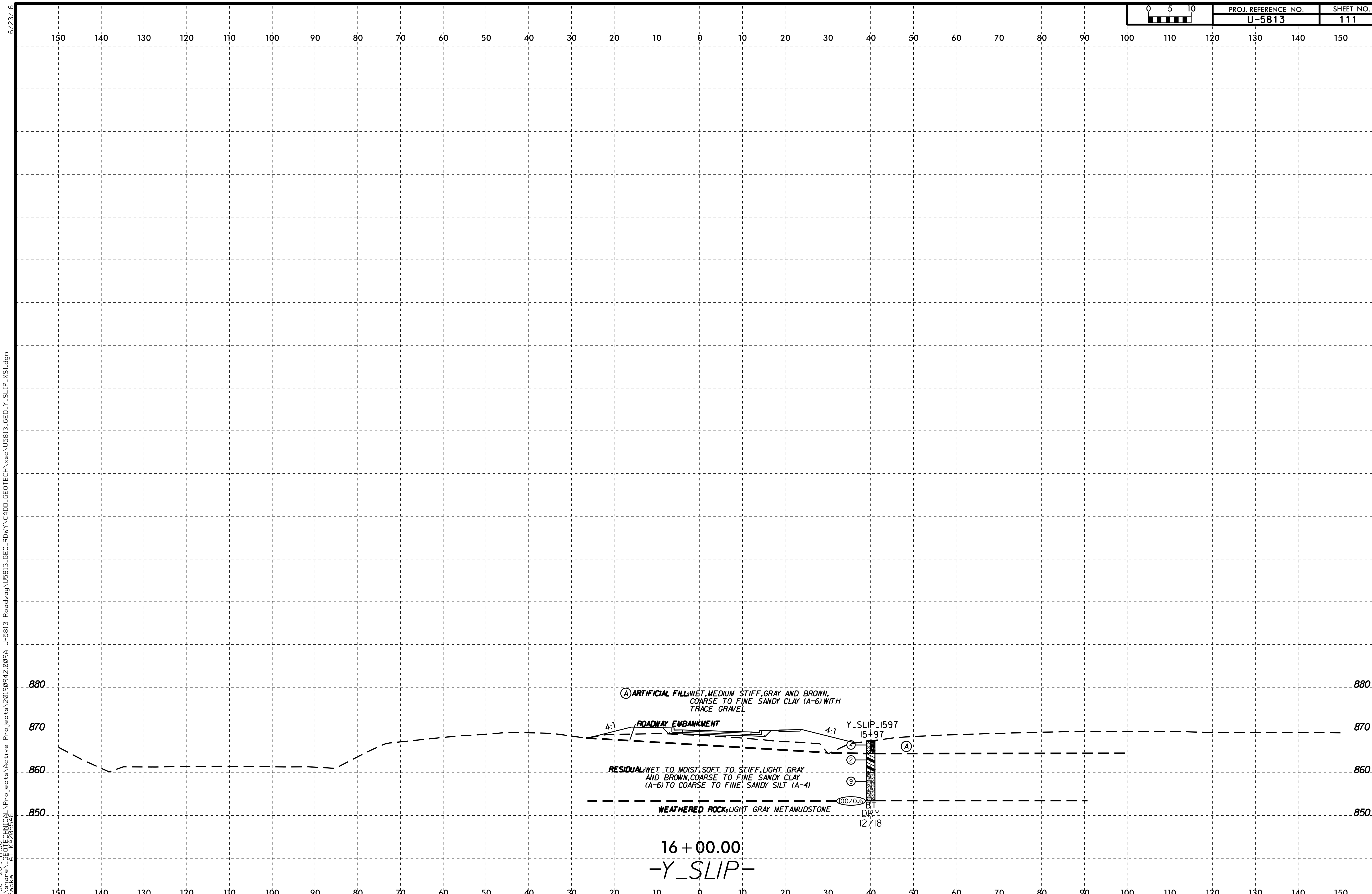
USpake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	110



PROJ. REFERENCE NO.	SHEET NO.
U-5813	111



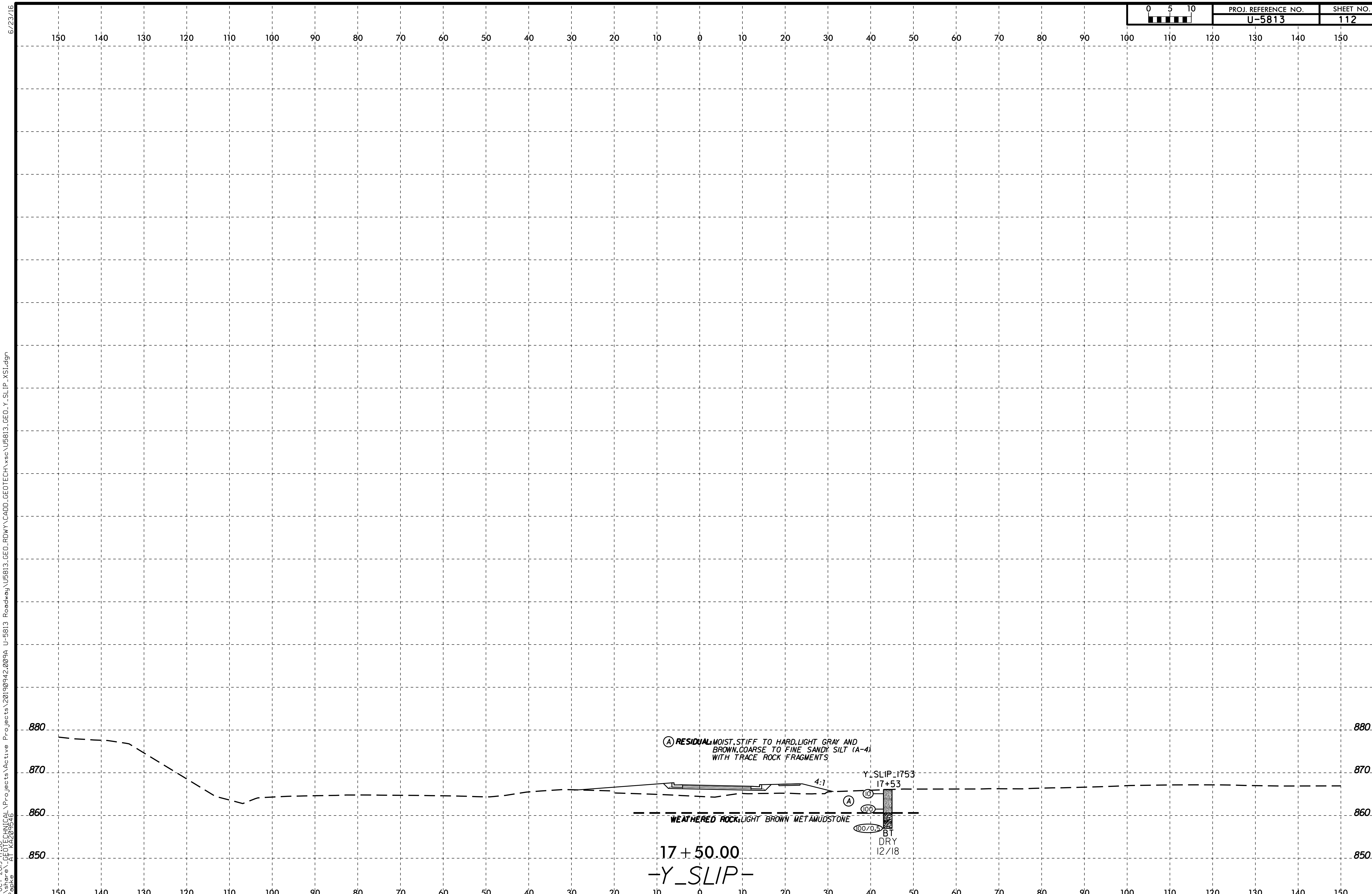
16 + 00.00

-Y_SLIP-

6/23/16

14-OCT-2019 17:50
Wilshare\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y_SLIP_XS1.dgn
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	112



6/23/16

14-OCT-2019 17:50
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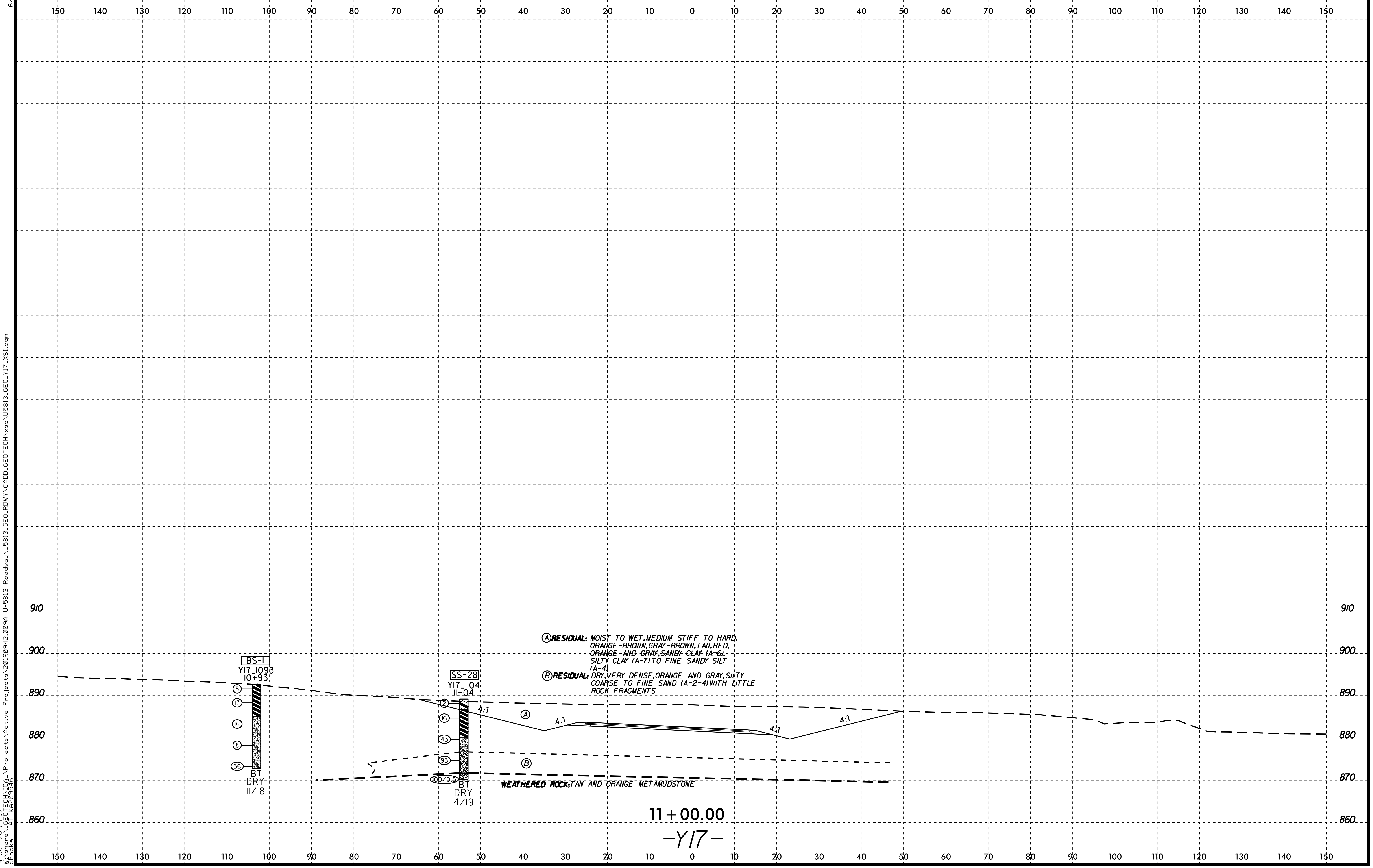
SPapke AT KA209546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	113

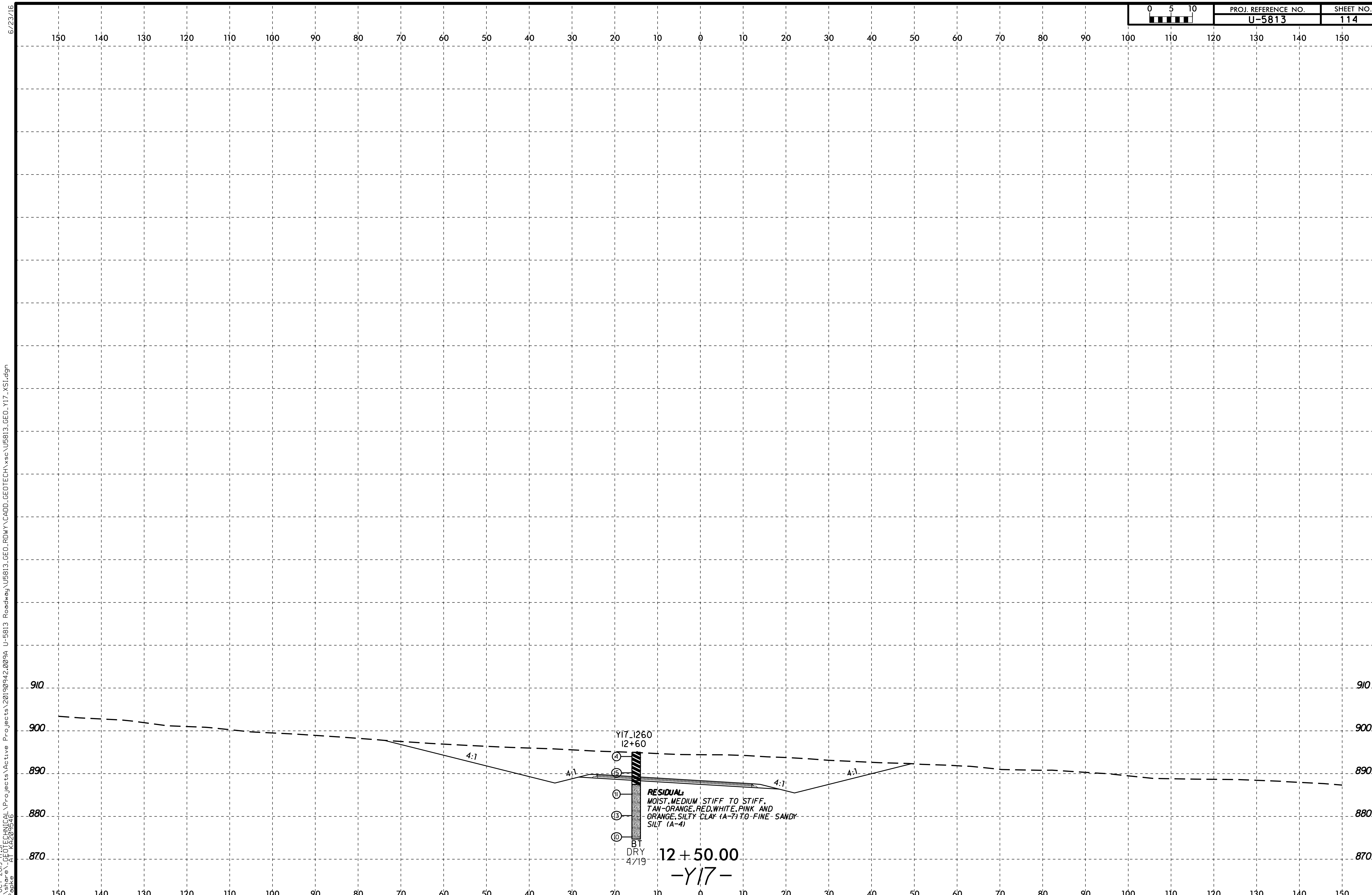


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
910
900
890
880
870
860
BS-1
Y17_1093
10+93
5
17
16
8
56
BT
DRY
11/18
SS-28
Y17_1104
11+04
2
16
43
95
100/0.8
BT
DRY
4/19
4:1
4:1
4:1
4:1
A
B
A RESIDUAL: MOIST TO WET, MEDIUM STIFF TO HARD, ORANGE-BROWN, GRAY-BROWN, TAN, RED, ORANGE AND GRAY, SANDY CLAY (A-6), SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)
B RESIDUAL: DRY, VERY DENSE, ORANGE AND GRAY, SILTY COARSE TO FINE SAND (A-2-4) WITH LITTLE ROCK FRAGMENTS
WEATHERED ROCK: TAN AND ORANGE METAMUDSTONE
11+00.00
-Y17-

6/23/16

14-OCT-2019 17:51
W:\share_GEOTECHNICAL\Projects\Active Projects\2019.0942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y17_XS1.dgn
SPapke AT KA209546

PROJ. REFERENCE NO. U-5813 | SHEET NO. 114



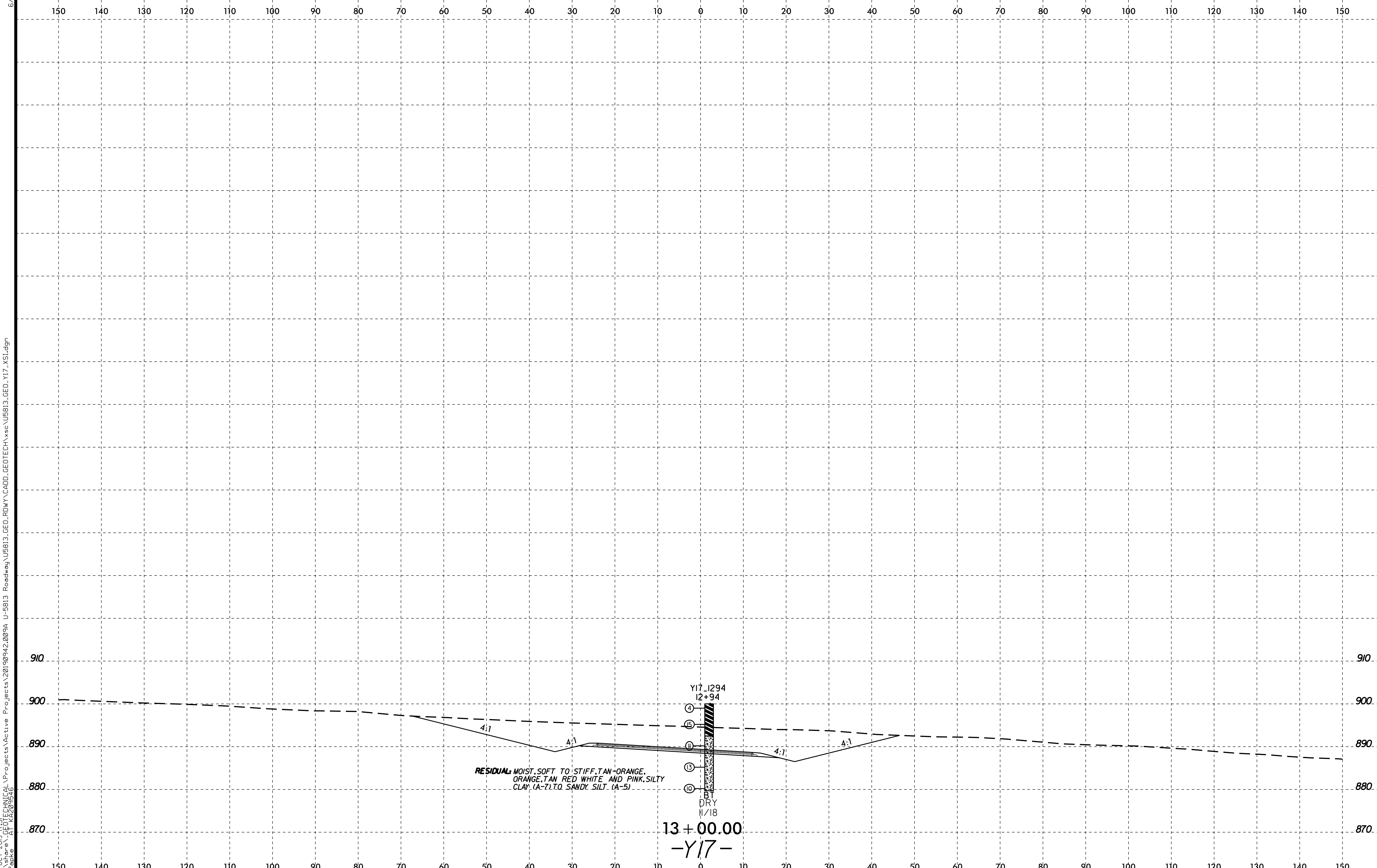
12+50.00

-Y17-

6/23/16

14-OCT-2019 17:51
Wilshere\GEOTECHNICAL\Projects\Active Projects\2019\0942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y17_XSI.dgn
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	115



6/23/16

14-OCT-2019 17:51
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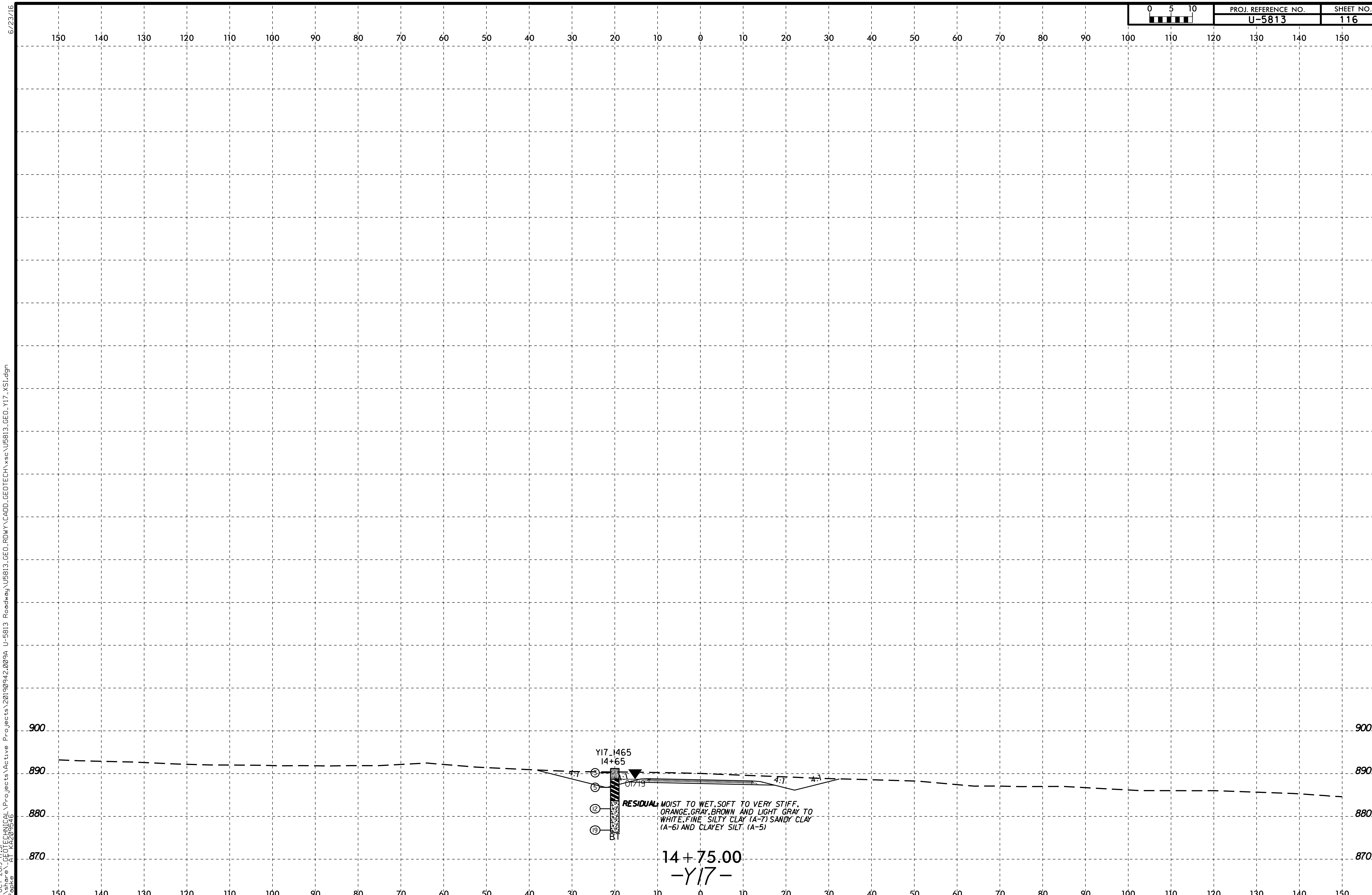
Spopke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	116



14+75.00

-Y17-

6/23/16

14-OCT-2019 17:51
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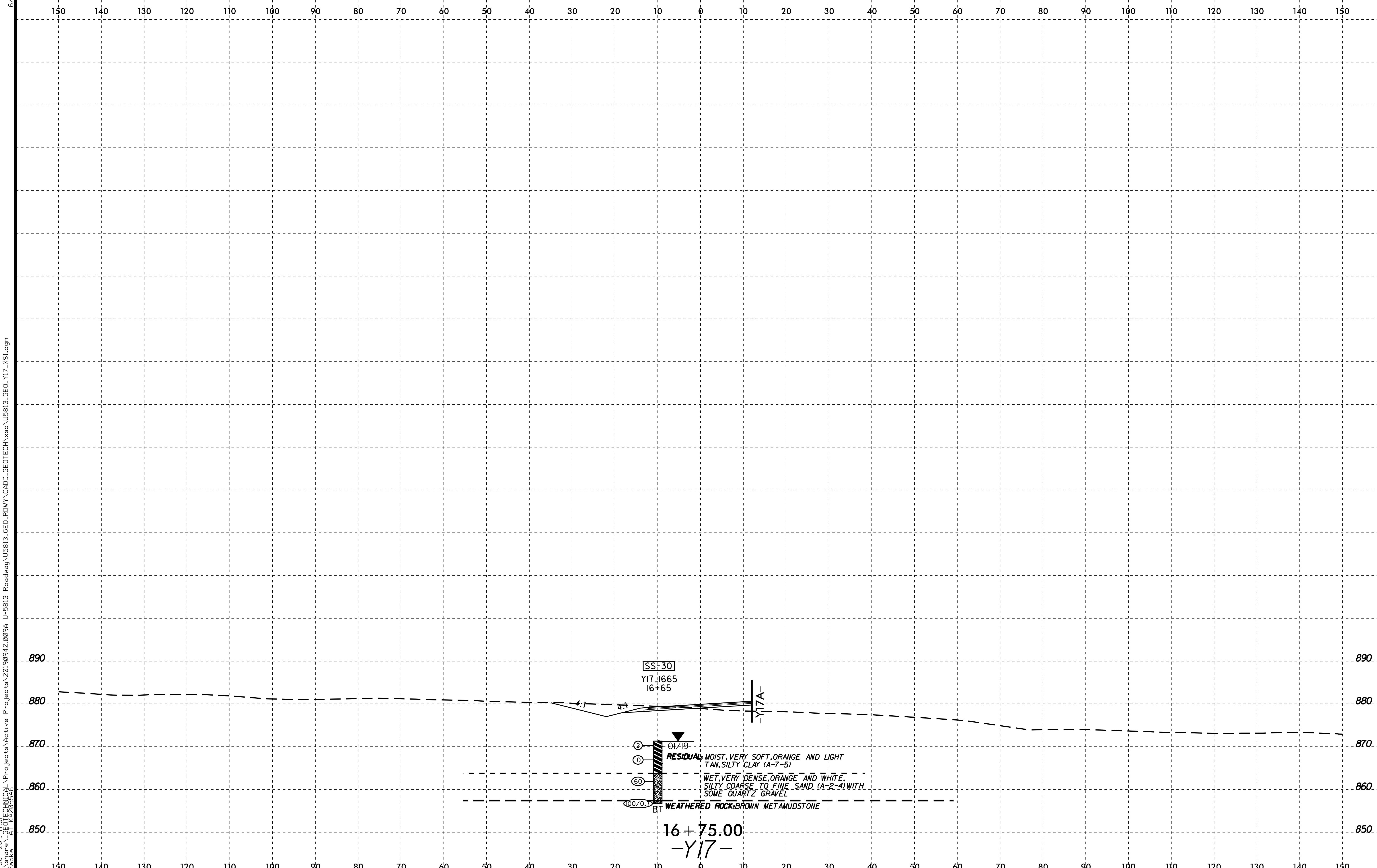
SPapke AT KA209546



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14-OCT-2019 17:51
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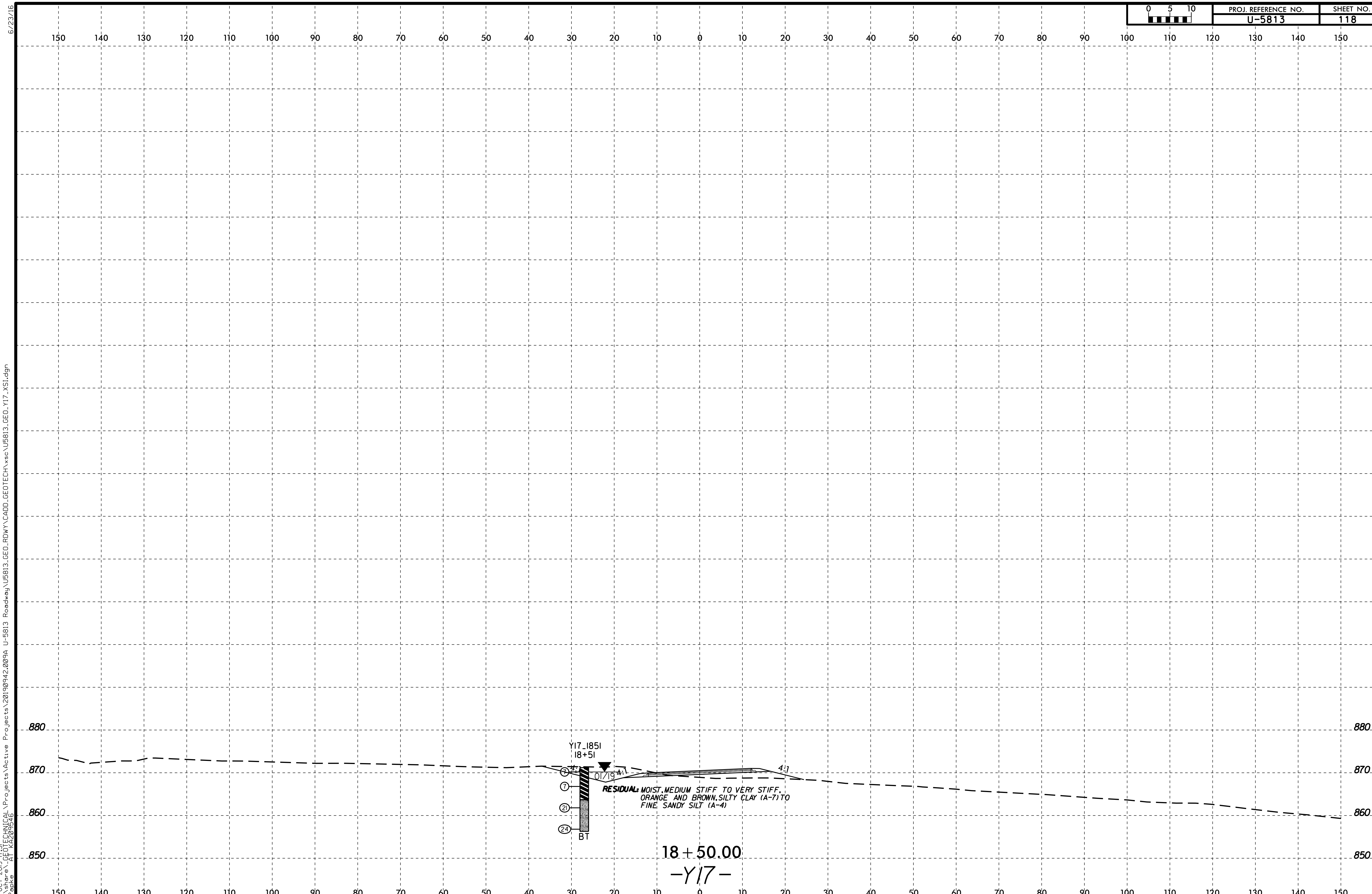
SPapke AT KA209546



18 + 50.00

-Y17-

6/23/16
14-OCT-2019 17:51
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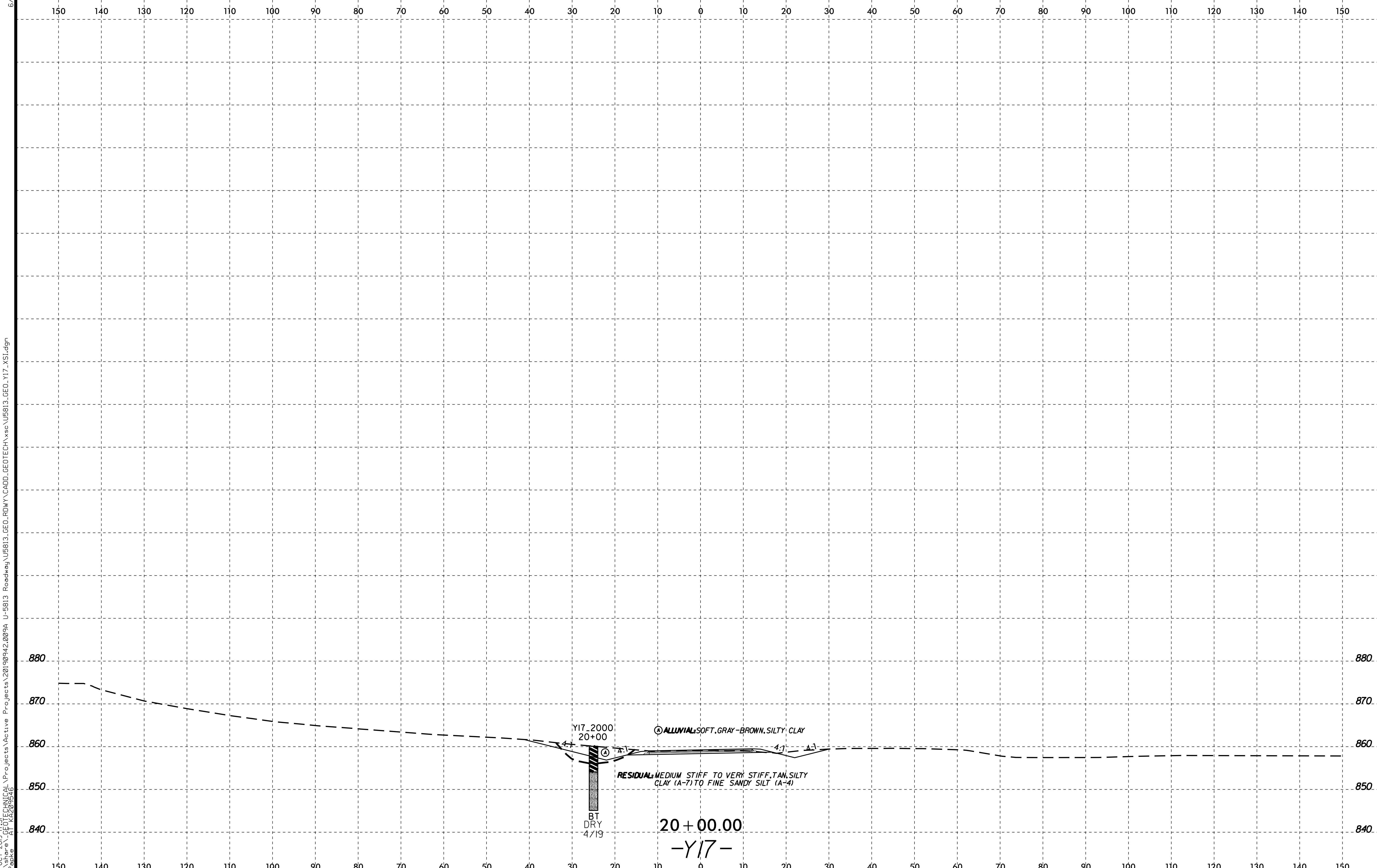
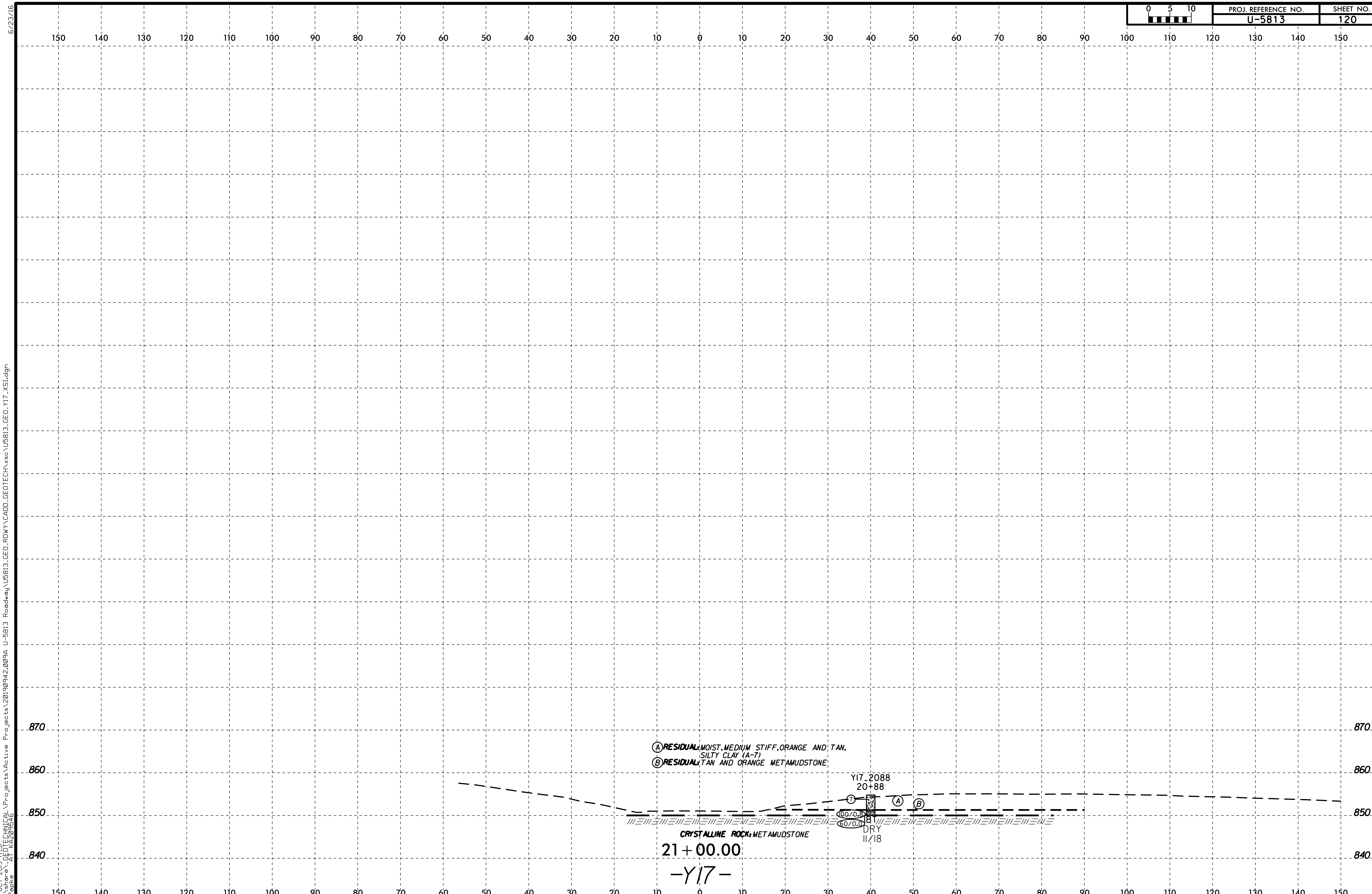
Spapke AT KA209546

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-5813	119



PROJ. REFERENCE NO.	SHEET NO.
U-5813	120



6/23/16

14-OCT-2019 17:51
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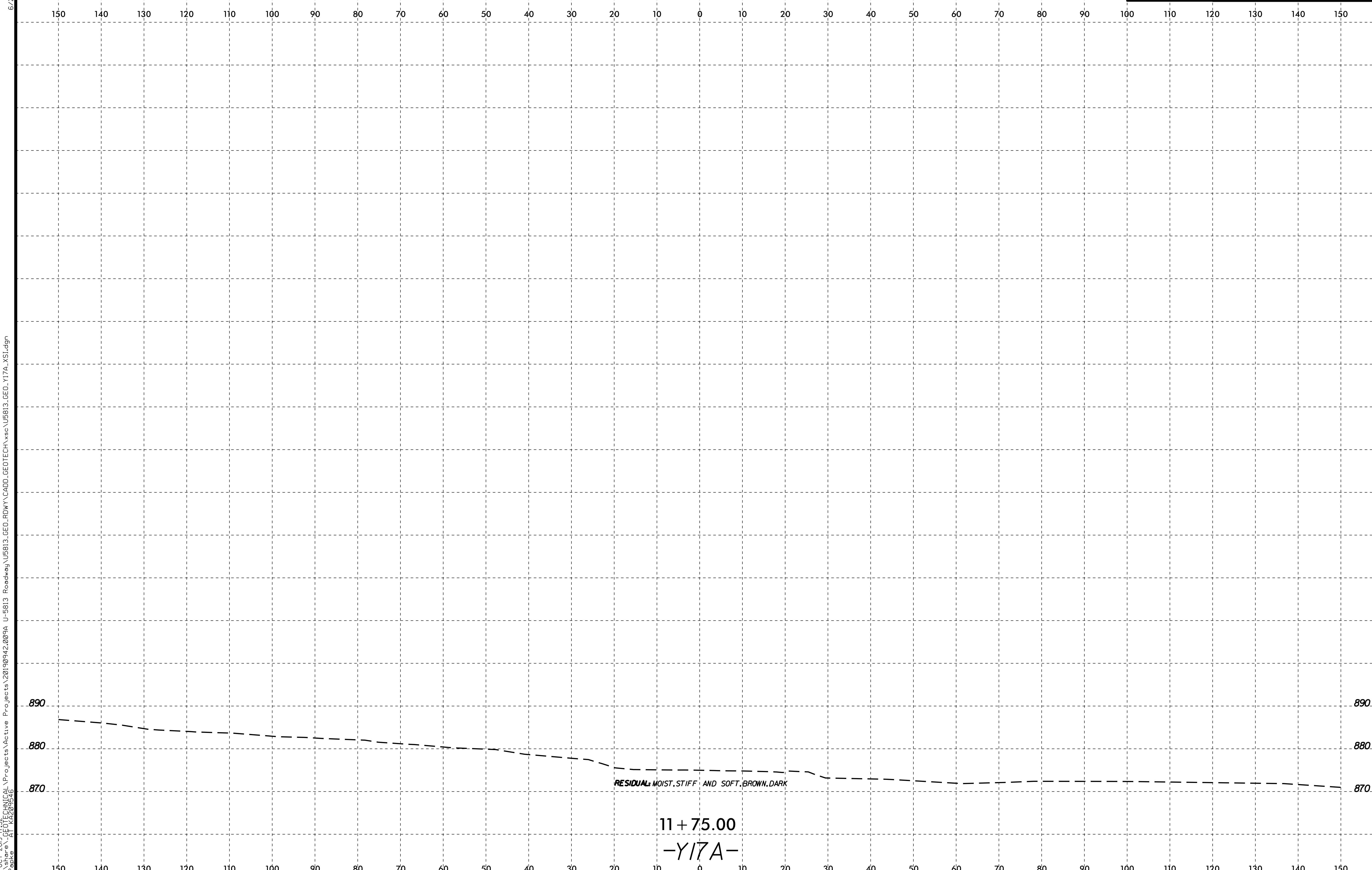
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	121



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

880 870 860 890

3:1 2:1

RESIDUAL: MOIST, STIFF - AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)

13+00.00

RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)

12+75.00

RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)

12+50.00

RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)

12+25.00

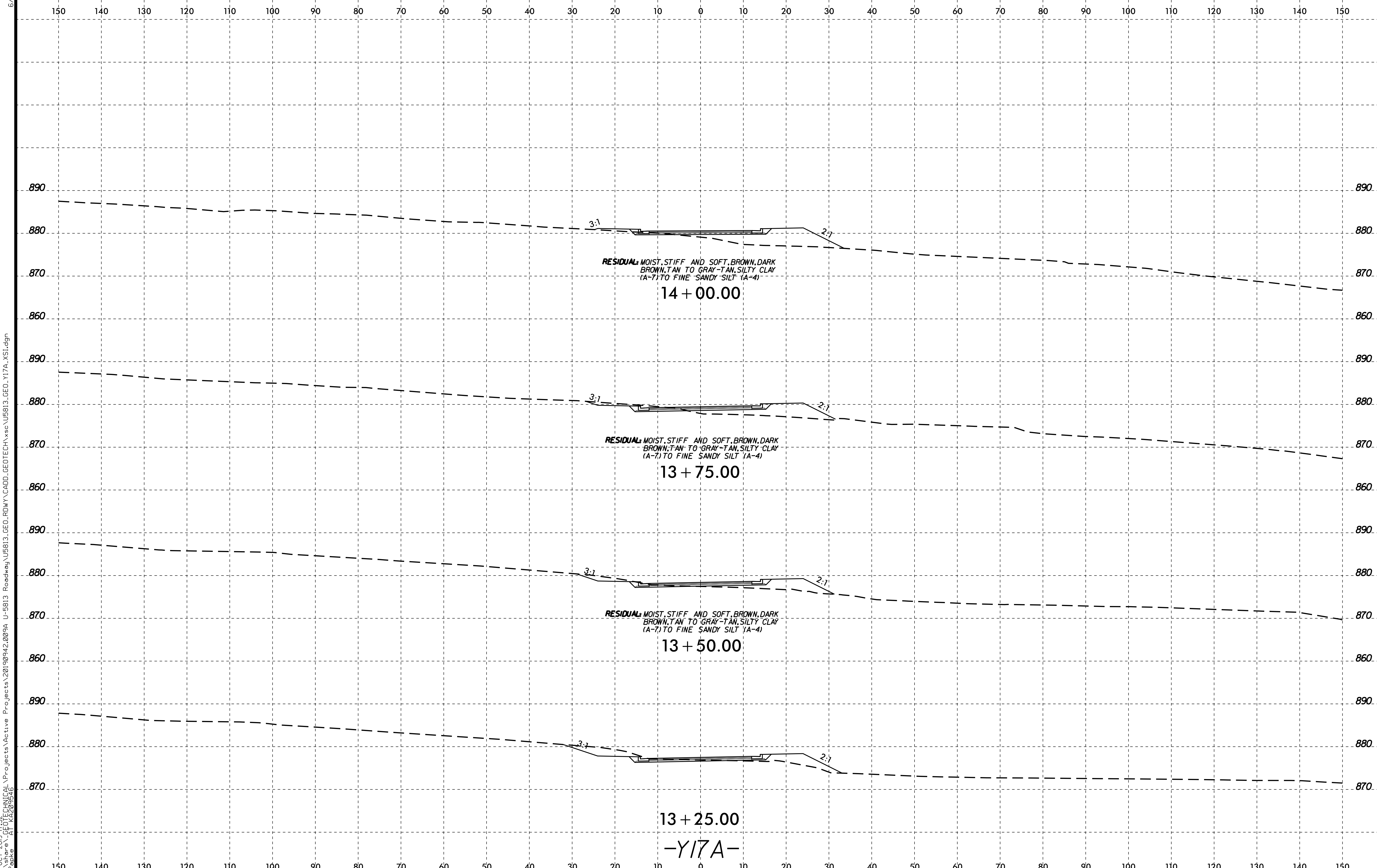
Y17A-1200
12+00
BT
DRY
1/19

RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)

12+00.00

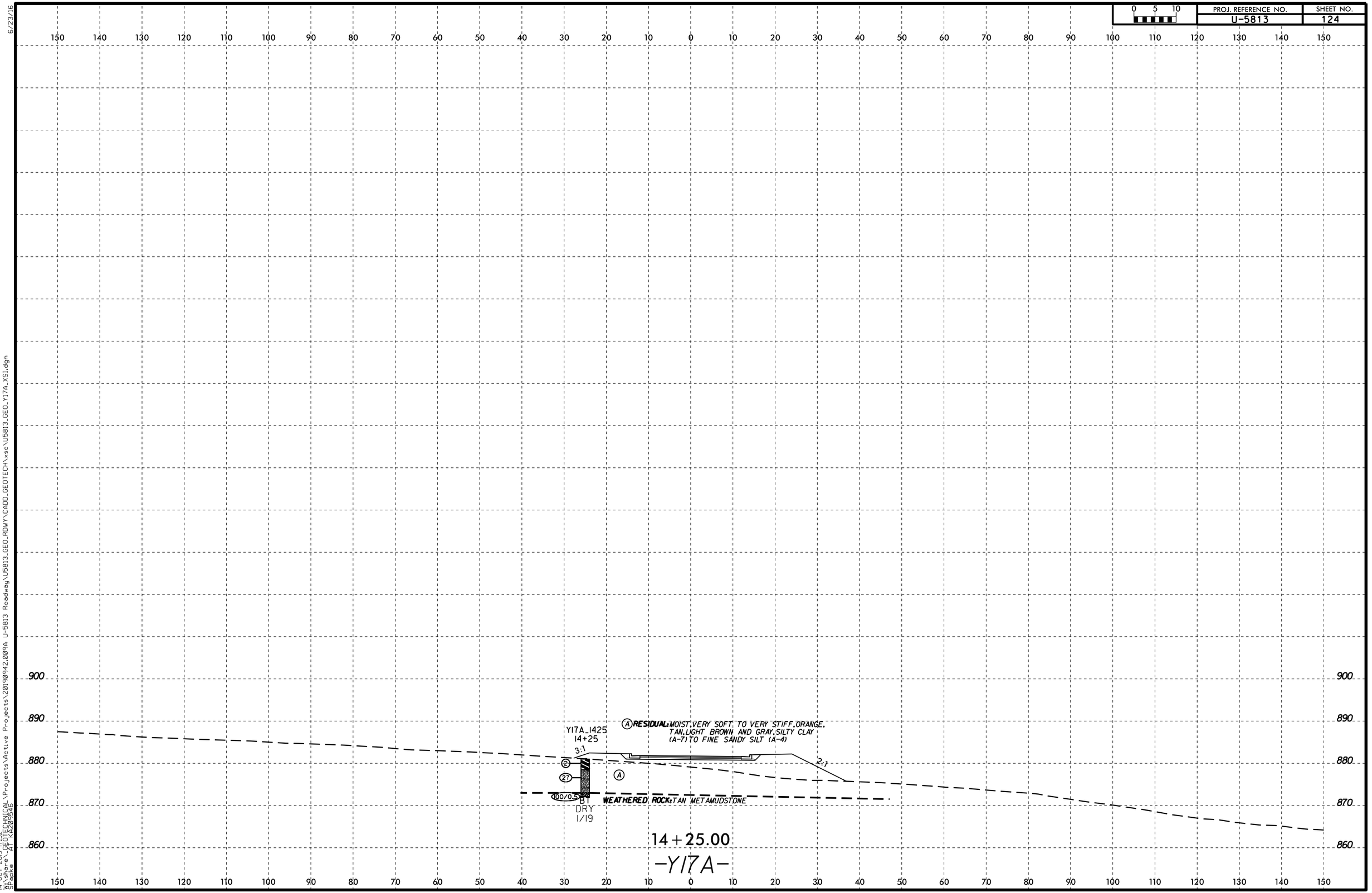
-Y17A-

6/23/16

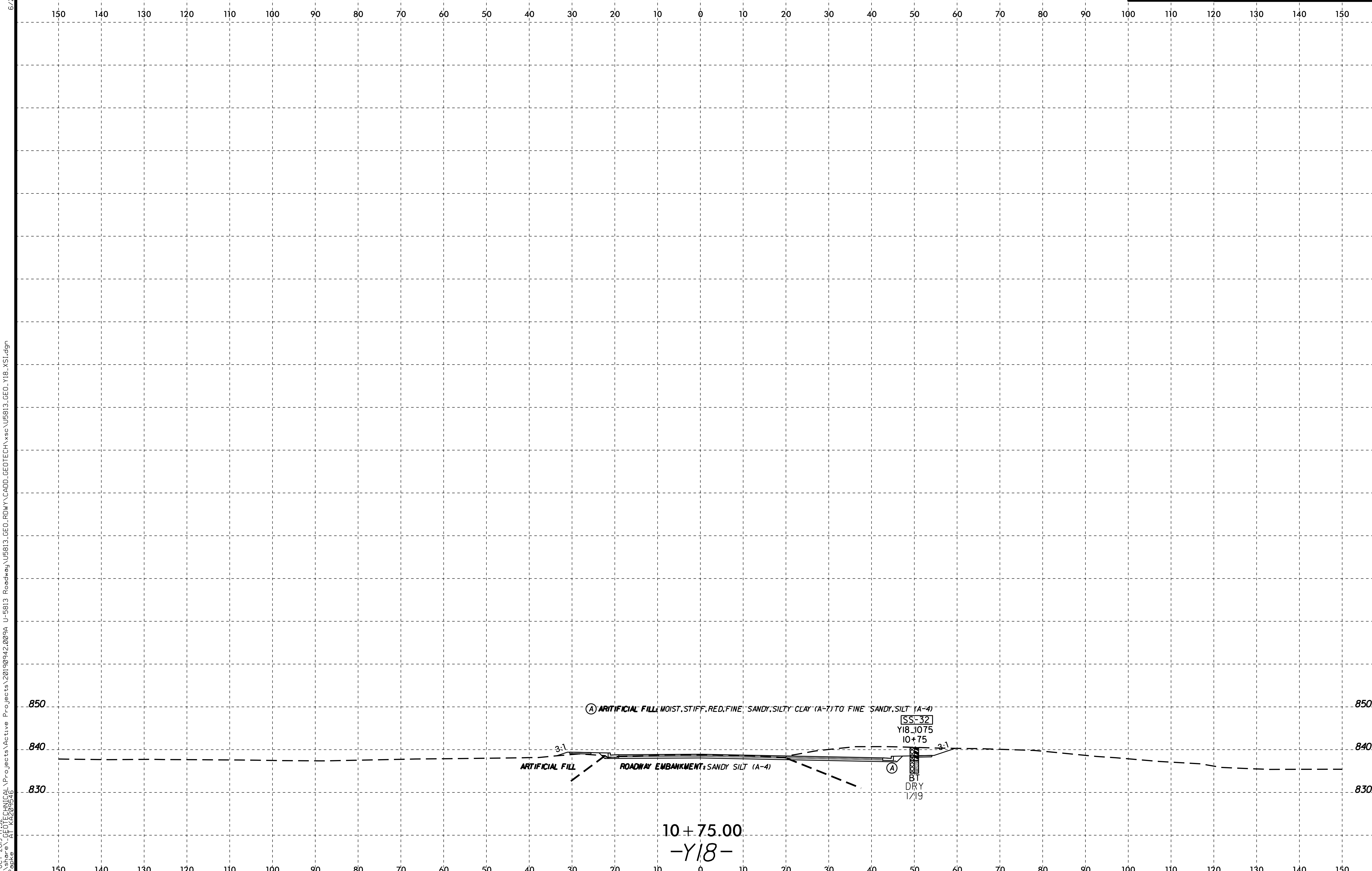

0 5 10
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
890
880
870
860
3:1
2:1
RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)
14 + 00.00
890
880
870
860
3:1
2:1
RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)
13 + 75.00
890
880
870
860
3:1
2:1
RESIDUAL: MOIST, STIFF AND SOFT, BROWN, DARK BROWN, TAN TO GRAY-TAN, SILTY CLAY (A-7) TO FINE SANDY SILT (A-4)
13 + 50.00
890
880
870
3:1
2:1
13 + 25.00
-Y17A-

PROJ. REFERENCE NO.	SHEET NO.
U-5813	124

0 5 10



PROJ. REFERENCE NO.	SHEET NO.
U-5813	125



6/23/16

14-OCT-2019 17:52
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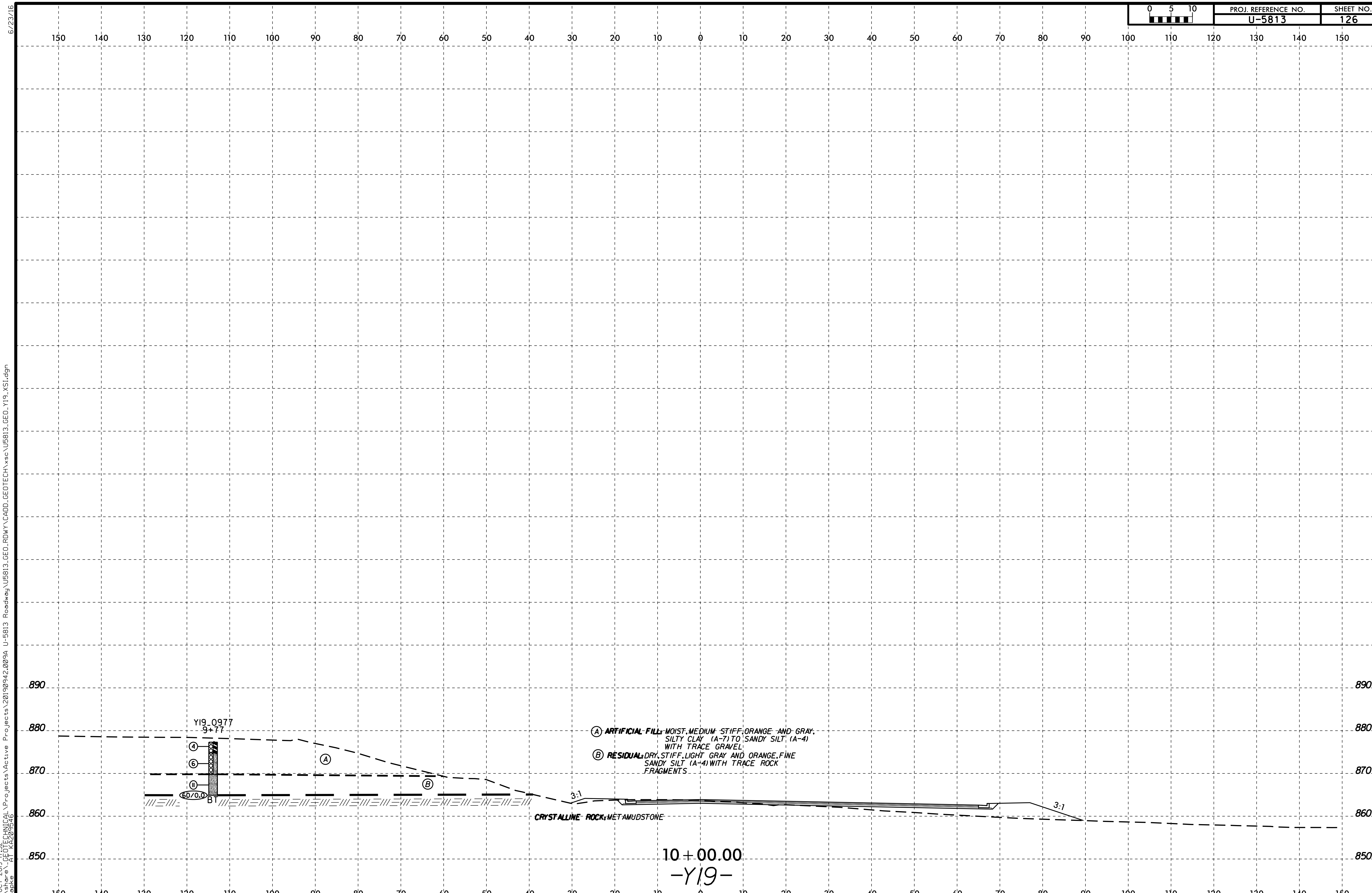
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	126



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
890
880
870
860
850
Y19_0977
9+77
4
6
11
60/0.0
BT
A
B
3:1
3:1
A ARTIFICIAL FILL: MOIST, MEDIUM STIFF, ORANGE AND GRAY, SILTY CLAY (A-7) TO SANDY SILT (A-4) WITH TRACE GRAVEL
B RESIDUAL: DRY, STIFF, LIGHT GRAY AND ORANGE, FINE SANDY SILT (A-4) WITH TRACE ROCK FRAGMENTS
CRYSTALLINE ROCK: METAMUDSTONE

10+00.00

-Y19-

6/23/16

14-OCT-2019 17:52
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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	127

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

890
880
870
860
850

(A) **ARTIFICIAL FILL:** MOIST, MEDIUM STIFF, ORANGE, COARSE TO FINE SANDY SILT (A-4) WITH TRACE GRAVEL

(B) **ALLUVIAL:** MOIST, MEDIUM STIFF, BLUE AND ORANGE, SILTY CLAY (A-7) WITH TRACE OF ORGANIC MATTER (ROOTS)

RESIDUAL: DRY TO MOIST, STIFF, WHITE AND ORANGE, FINE SANDY SILT (A-4)

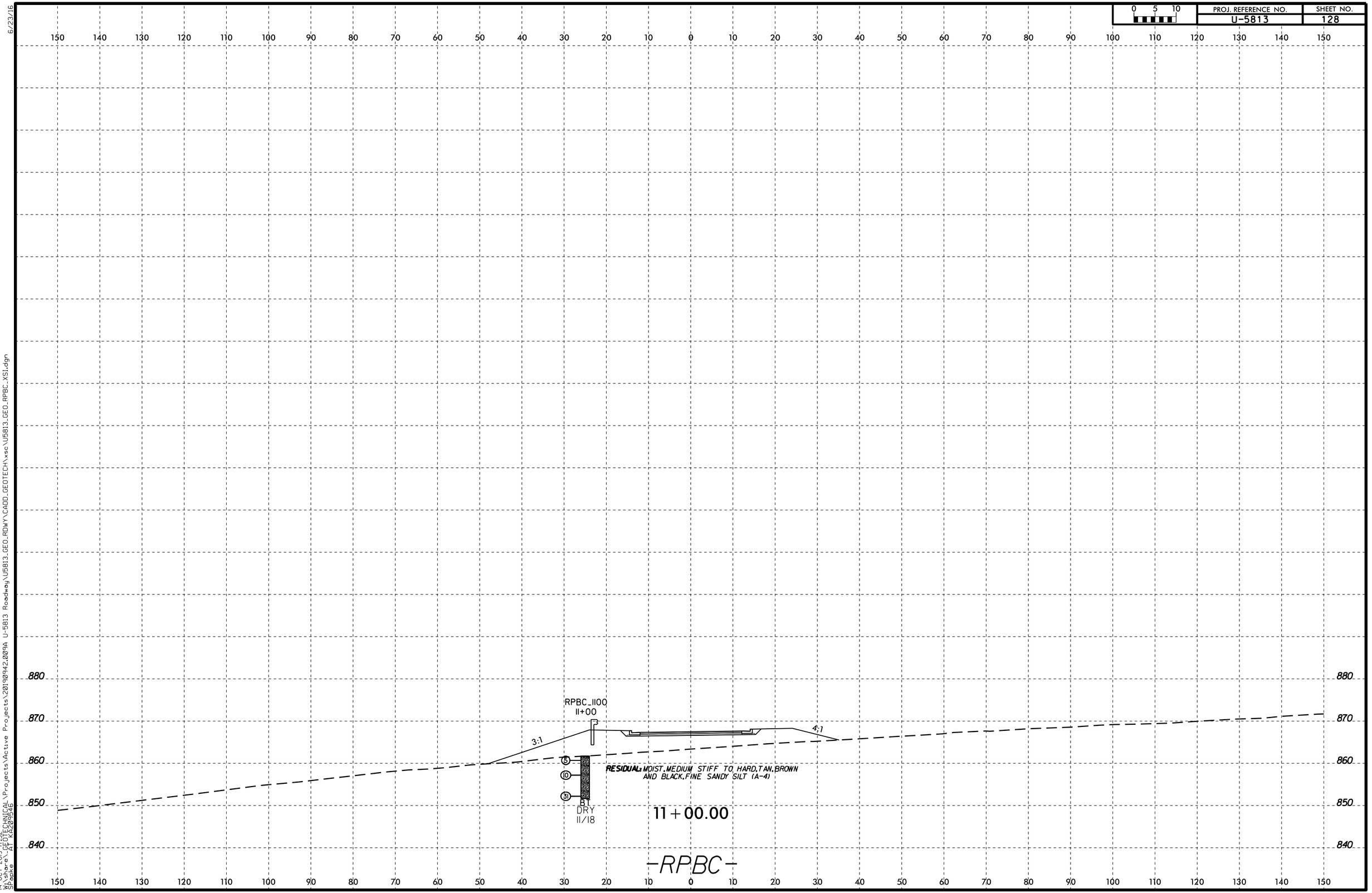
Y19-1212
12+12
(A)
3:1
3:1
(6)
(5)
(B)
(13)
(8)
BT
DRY
11/18

12+00.00
-Y19-

14-OCT-2019 17:52
\\fishare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_Y19_XS1.dgn
SSparks AT K42079546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	128



14-OCT-2019 17:52
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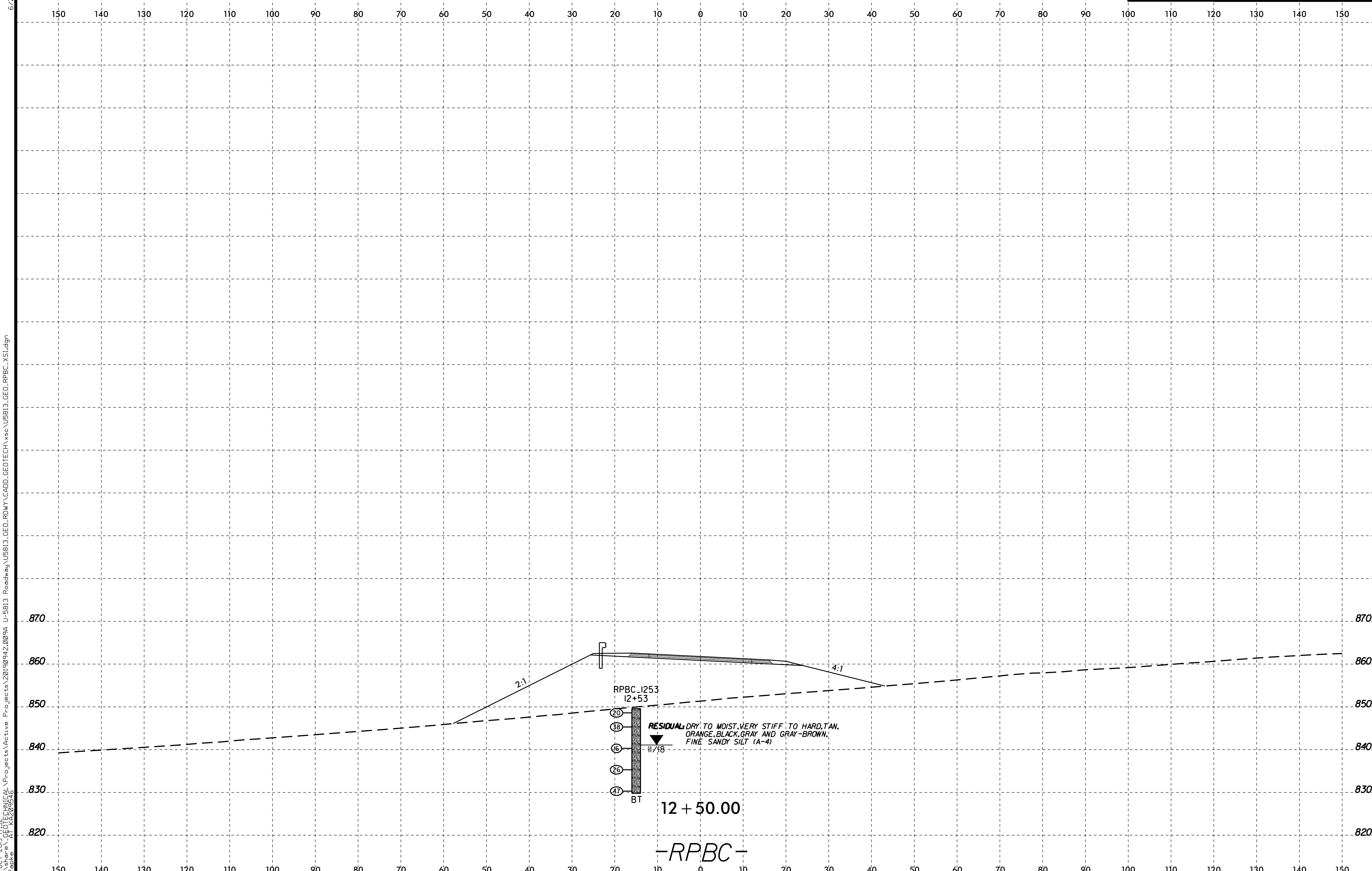
Shpake AT K1207546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	129



-RPBC-

6/23/16

14-OCT-2019 17:52
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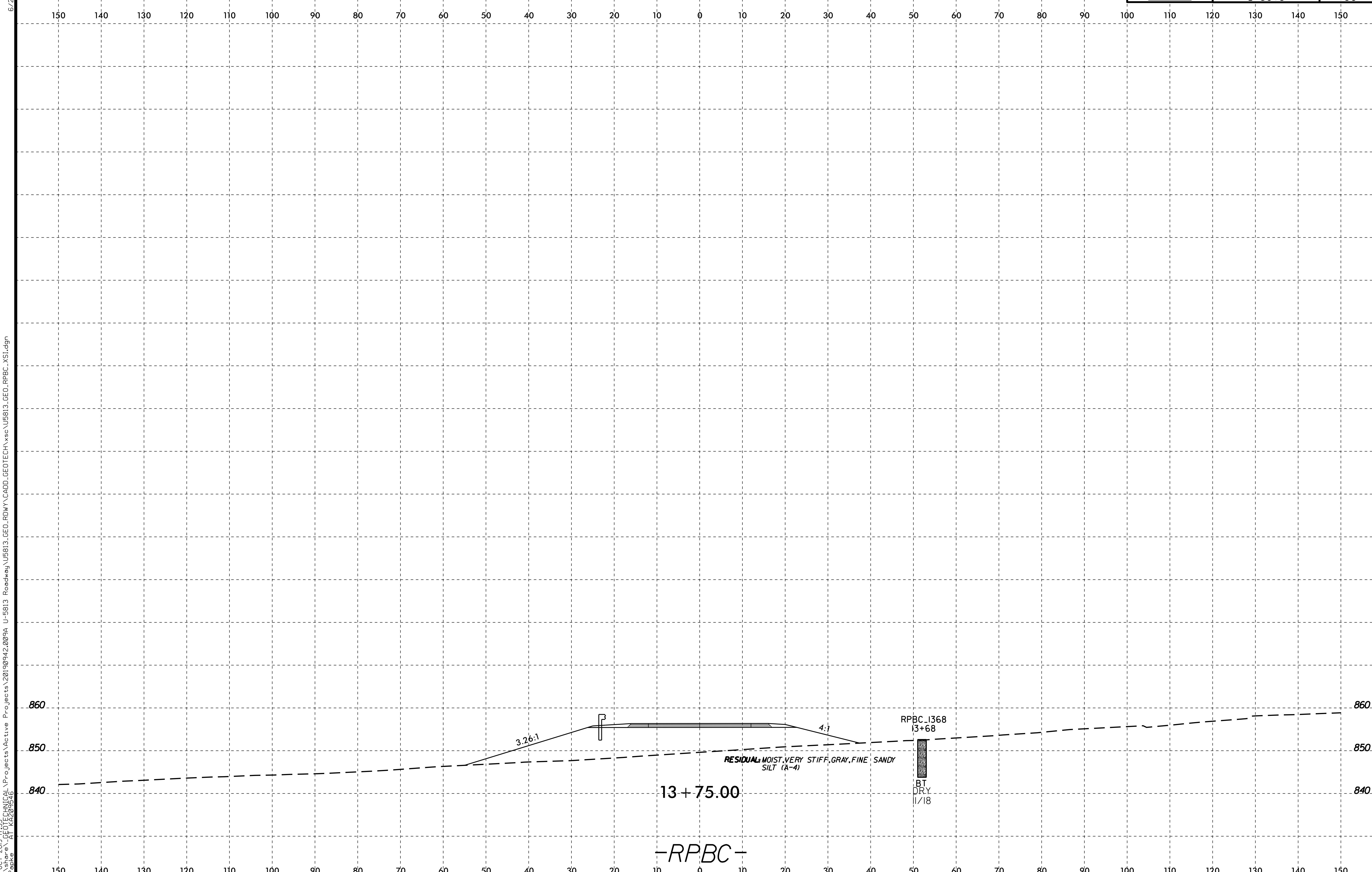
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	130



6/23/16

14-OCT-2019 17:53
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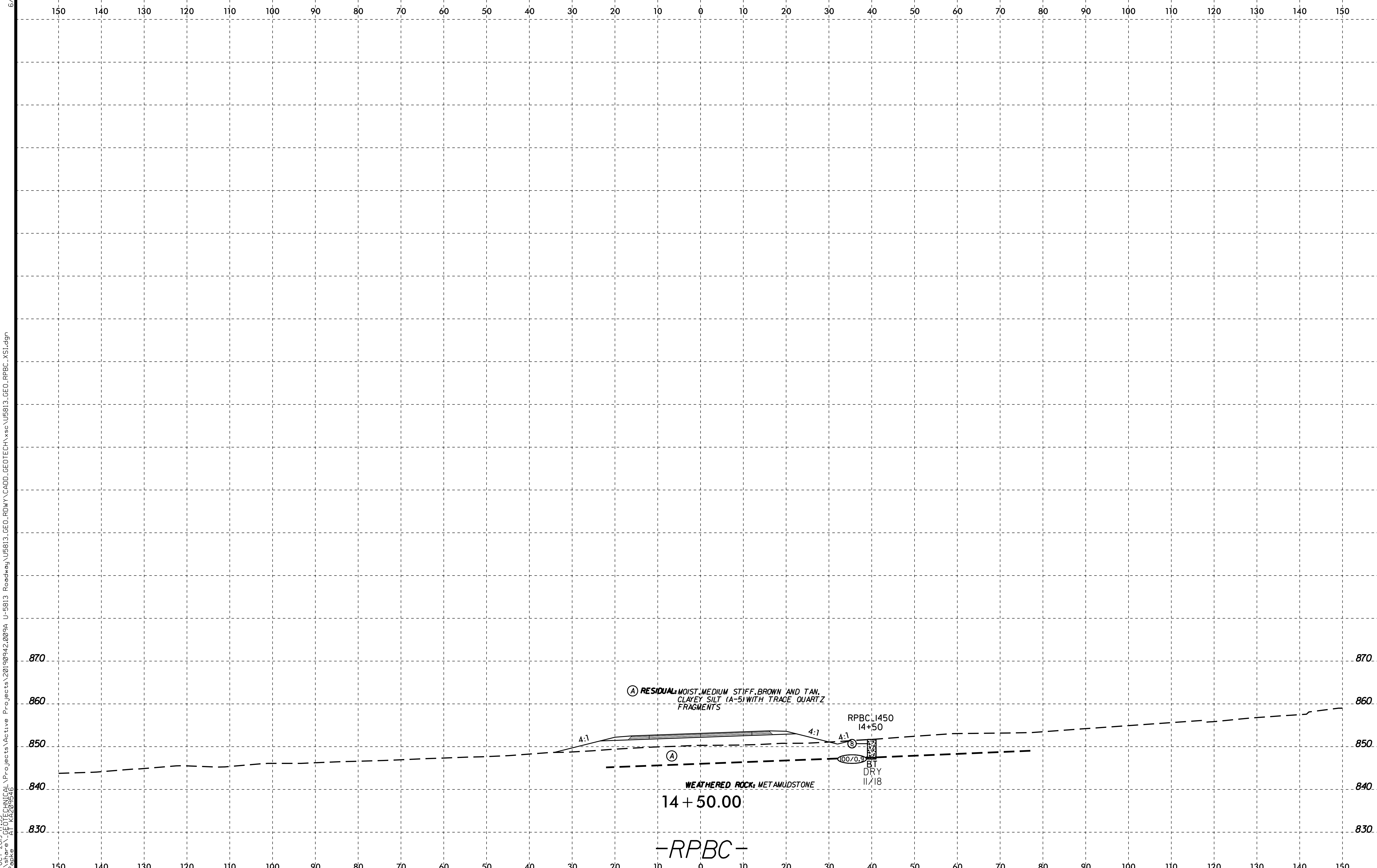
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	131



14+50.00

-RPBC-

6/23/16

14-OCT-2019 17:53
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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	132

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

870
860
850
840

4:1 4:1 4:1 4:1

14+75.00

-RPBC-

(A) ARTIFICIAL FILL:
MOIST, MEDIUM STIFF, RED-ORANGE, FINE SANDY SILT (A-4)

RESIDUAL:
MOIST, MEDIUM STIFF, PALE OLIVE TO TAN, FINE SANDY SILT (A-4)

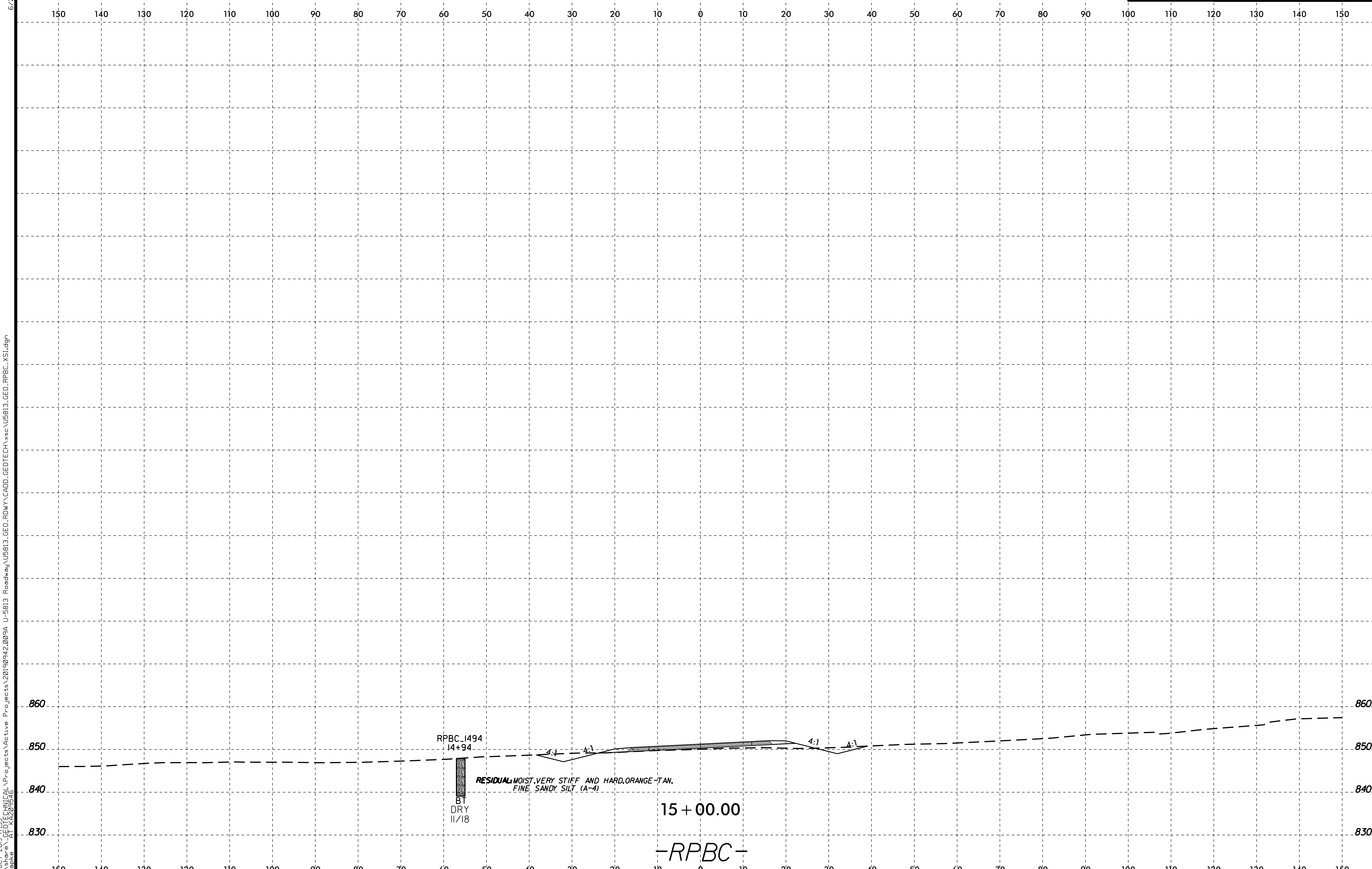
RPBC_1466
14+66

BT
DRY
11/18

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

14-OCT-2019 17:53
\\Wshare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPBC_XS1.dgn
Shpake AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	133



6/23/16

14-OCT-2019 17:53
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Spopke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	134

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

870
860
850
840
830
820
810

RPBC_1550
15+50

RPBC_1544
15+44

4:1 4:1 4:1 4:1

31
15
21
25

BT
DRY
11/18

BT
DRY
11/18

11/18

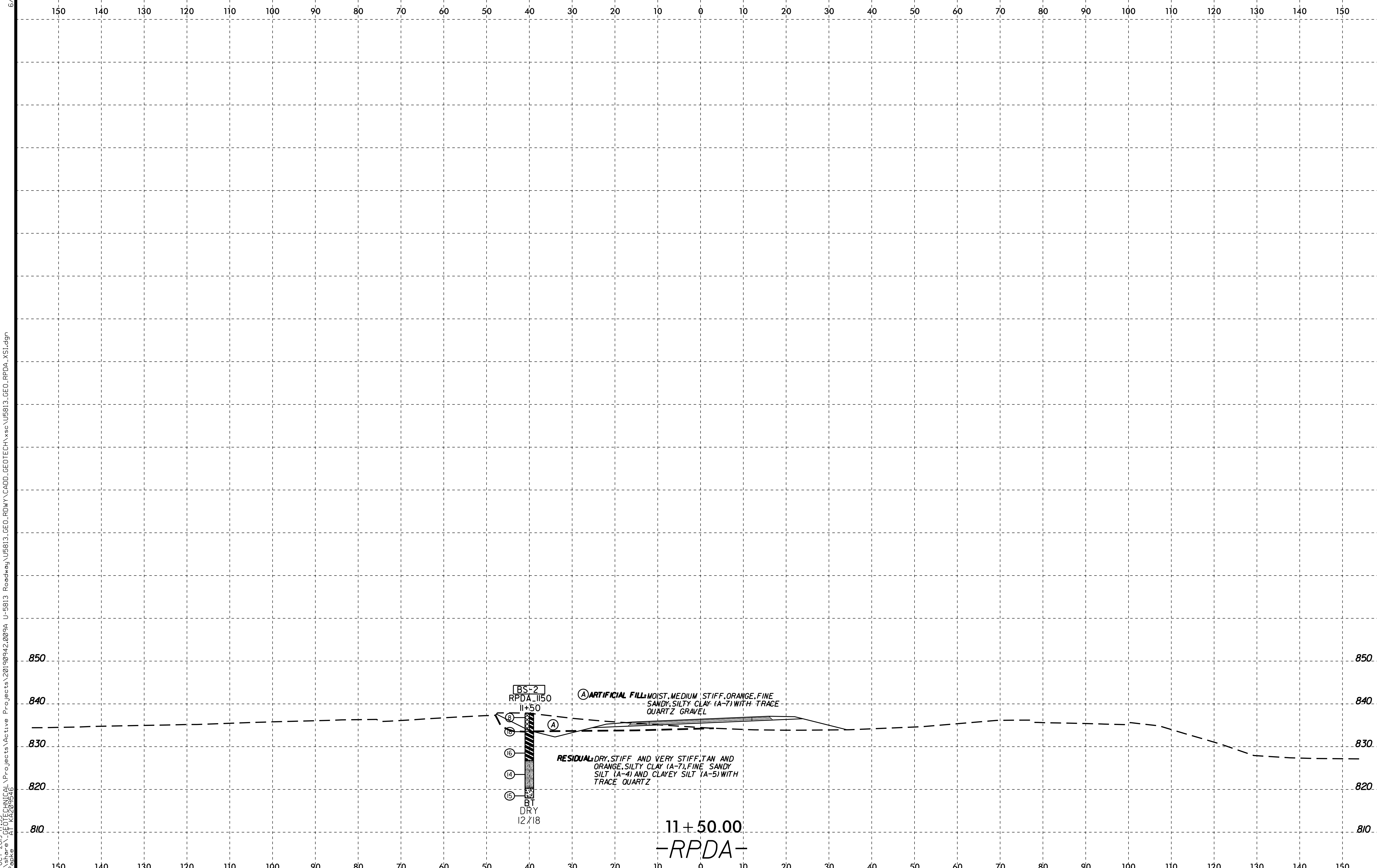
RESIDUAL: DRY TO MOIST, STIFF TO VERY STIFF, TAN, RED, ORANGE, BLACK AND WHITE, FINE SANDY SILT (A-4) WITH SOME ROCK FRAGMENTS

15+50.00

-RPBC-

14-OCT-2019 17:53
\\Wshare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPBC_XS1.dgn
Shpake AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	135



11+50.00
-RPDA-

6/23/16
14-OCT-2019 17:53
W:\share_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPDA_XS1.dgn
SPapke AT KA209546

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

850 840 830 820

Ⓐ **RESIDUAL:** MOIST, SOFT, HIGHLY PLASTIC, BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7)

RESIDUAL: MOIST, STIFF TO SOFT, YELLOW AND BROWN, CLAYEY SILT (A-5)

13+75.00

Ⓐ **RESIDUAL:** MOIST, SOFT, HIGHLY PLASTIC, BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7)

SS-41
RPDA L1350
13+50

RESIDUAL: MOIST, STIFF TO SOFT, YELLOW AND BROWN, CLAYEY SILT (A-5)

BT
DRY
12/18

13+50.00

Ⓐ **RESIDUAL:** MOIST, SOFT, HIGHLY PLASTIC, BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7)

RESIDUAL: MOIST, STIFF TO SOFT, YELLOW AND BROWN, CLAYEY SILT (A-5)

13+25.00

Ⓐ **RESIDUAL:** MOIST, SOFT, HIGHLY PLASTIC, BROWN, COARSE TO FINE SANDY, SILTY CLAY (A-7)

RESIDUAL: MOIST, STIFF TO SOFT, YELLOW AND BROWN, CLAYEY SILT (A-5)

13+00.00

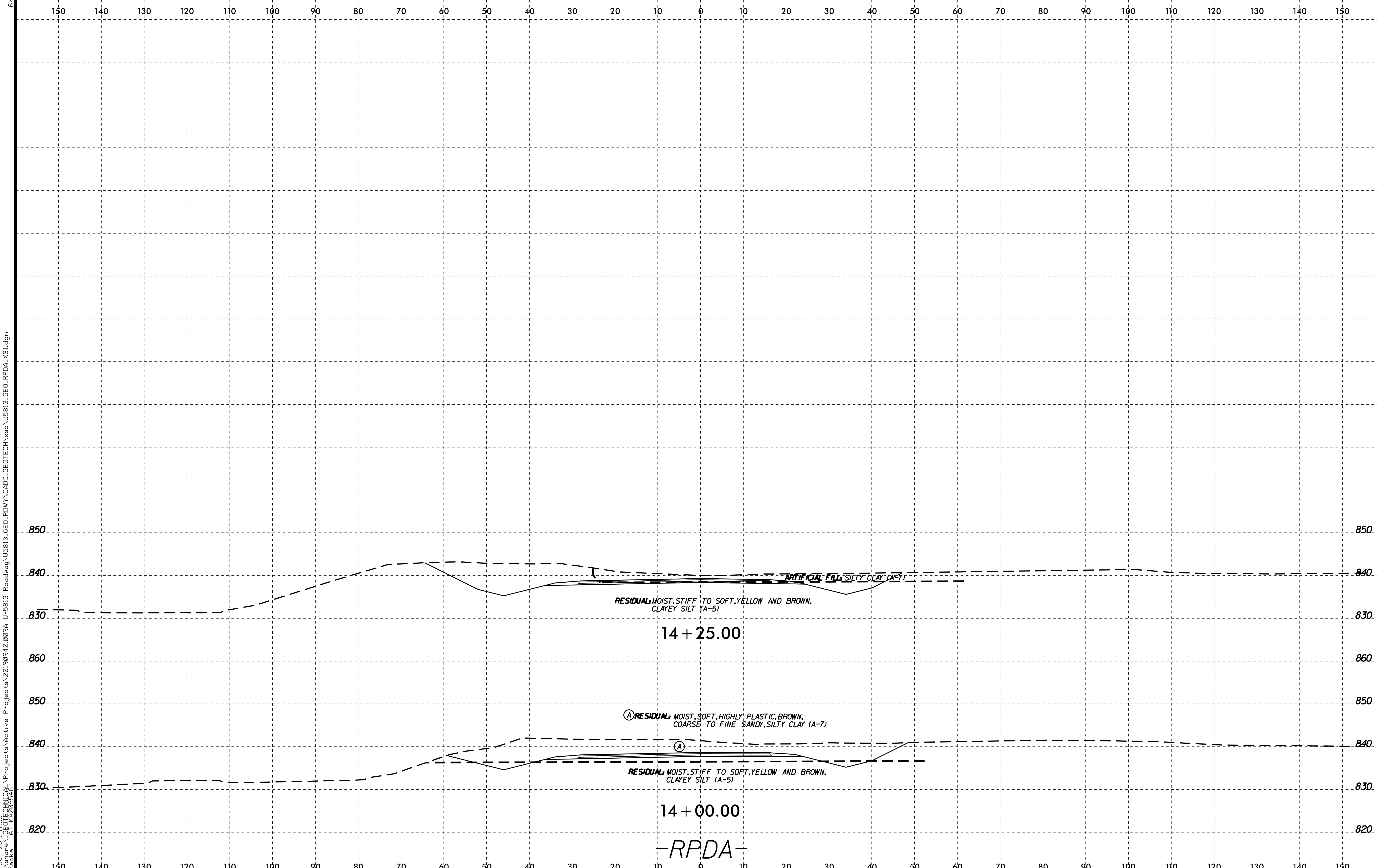
ENTRANCE TO -L-

RESIDUAL: MOIST, STIFF TO SOFT, YELLOW AND BROWN, CLAYEY SILT (A-5)

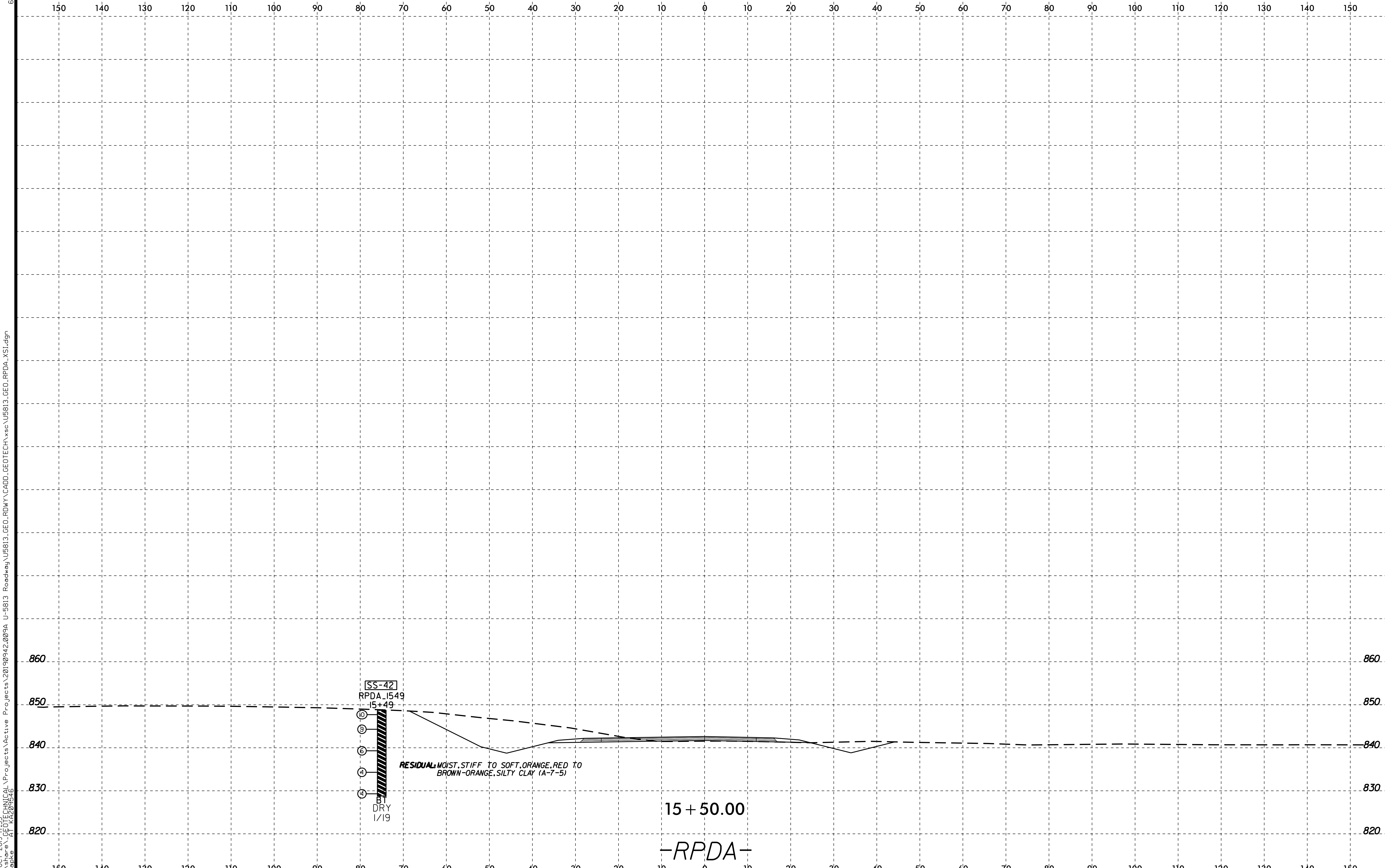
12+75.00

-RPDA-

PROJ. REFERENCE NO.	SHEET NO.
U-5813	137



PROJ. REFERENCE NO.	SHEET NO.
U-5813	138



6/23/16

14-OCT-2019 17:53
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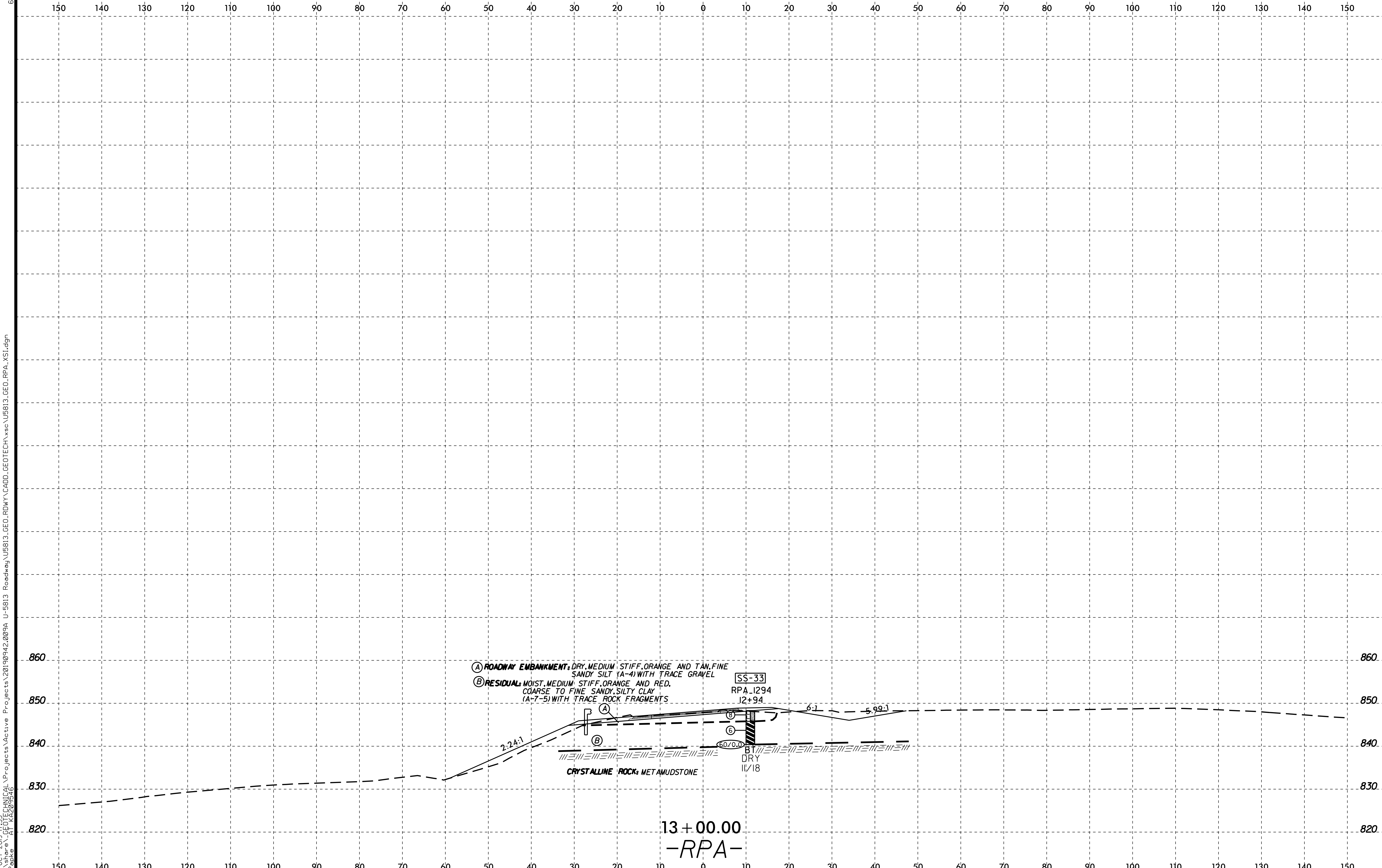
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	139



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
860
850
840
830
820
Ⓐ ROADWAY EMBANKMENT: DRY, MEDIUM STIFF, ORANGE AND TAN, FINE SANDY SILT (A-4) WITH TRACE GRAVEL
Ⓑ RESIDUAL: MOIST, MEDIUM STIFF, ORANGE AND RED, COARSE TO FINE SANDY, SILTY CLAY (A-7-5) WITH TRACE ROCK FRAGMENTS
SS-33
RPA_1294
12+94
2.24:1
6:1
5.99:1
8
6
60/0.0
BT
DRY
11/18
CRYSTALLINE ROCK: METAMUDSTONE

13+00.00
-RPA-

6/23/16

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	140

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

860
850
840
830
820
810

RPA_1400
14+00

6:1

5.99:1

2:1

B

BT
DRY
4/19

ROADWAY EMBANKMENT: MEDIUM STIFF, RED, FINE SANDY SILT (A-4) SILTY CLAY (A-7) AND CLAYEY SILT (A-5)

RESIDUAL: MOIST, MEDIUM STIFF, ORANGE AND GRAY, SILTY CLAY (A-7)

14+00.00
-RPA-

03-NOV-2019 13:16
W:\share\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPA_XS1.dgn
Wells AT KA21387

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	141

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

860 850 840 830 820

Ⓐ **ROADWAY EMBANKMENT:** MOIST, MEDIUM STIFF TO STIFF, ORANGE, WHITE AND TAN, SILTY CLAY (A-7-5) WITH TRACE GRAVEL

SS-34
RPA_1493
14+93

2:1

6:1

5.99:1

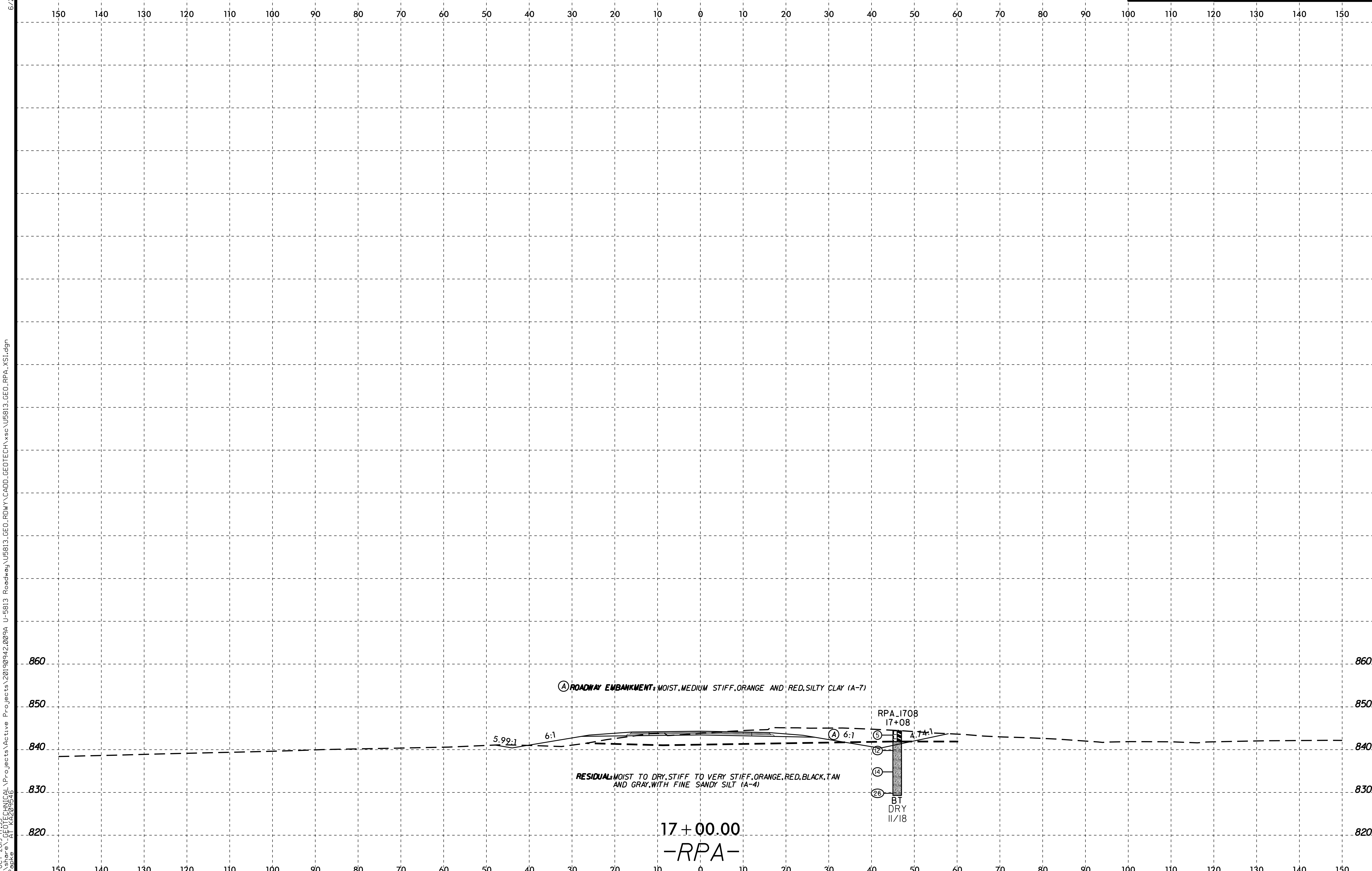
RESIDUAL: MOIST, MEDIUM STIFF, ORANGE, AND GRAY, SILTY CLAY (A-7)

BT
DRY
11/18

15+00.00
-RPA-

14-OCT-2019 17:53
\\Ashare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPA_XS1.dgn
SPaske AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	142



17+00.00
-RPA-

6/23/16

14-OCT-2019 17:53
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Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	143

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

860
850
840
830
820

(A) ROADWAY EMBANKMENT: MOIST, STIFF, ORANGE, SILTY CLAY (A-7) AND CLAYEY SILT (A-5) WITH TRACE GRAVEL

4:1

4:1

SS-35
RPA_1837
18+37

8
10
15
15
BT
DRY
11/18

RESIDUAL: MOIST, STIFF, ORANGE AND GRAY, COARSE TO FINE SANDY SILTY CLAY (A-7-5) AND FINE SANDY SILT (A-4)

18+25.00
-RPA-

860
850
840
830
820

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

14-OCT-2019 17:54
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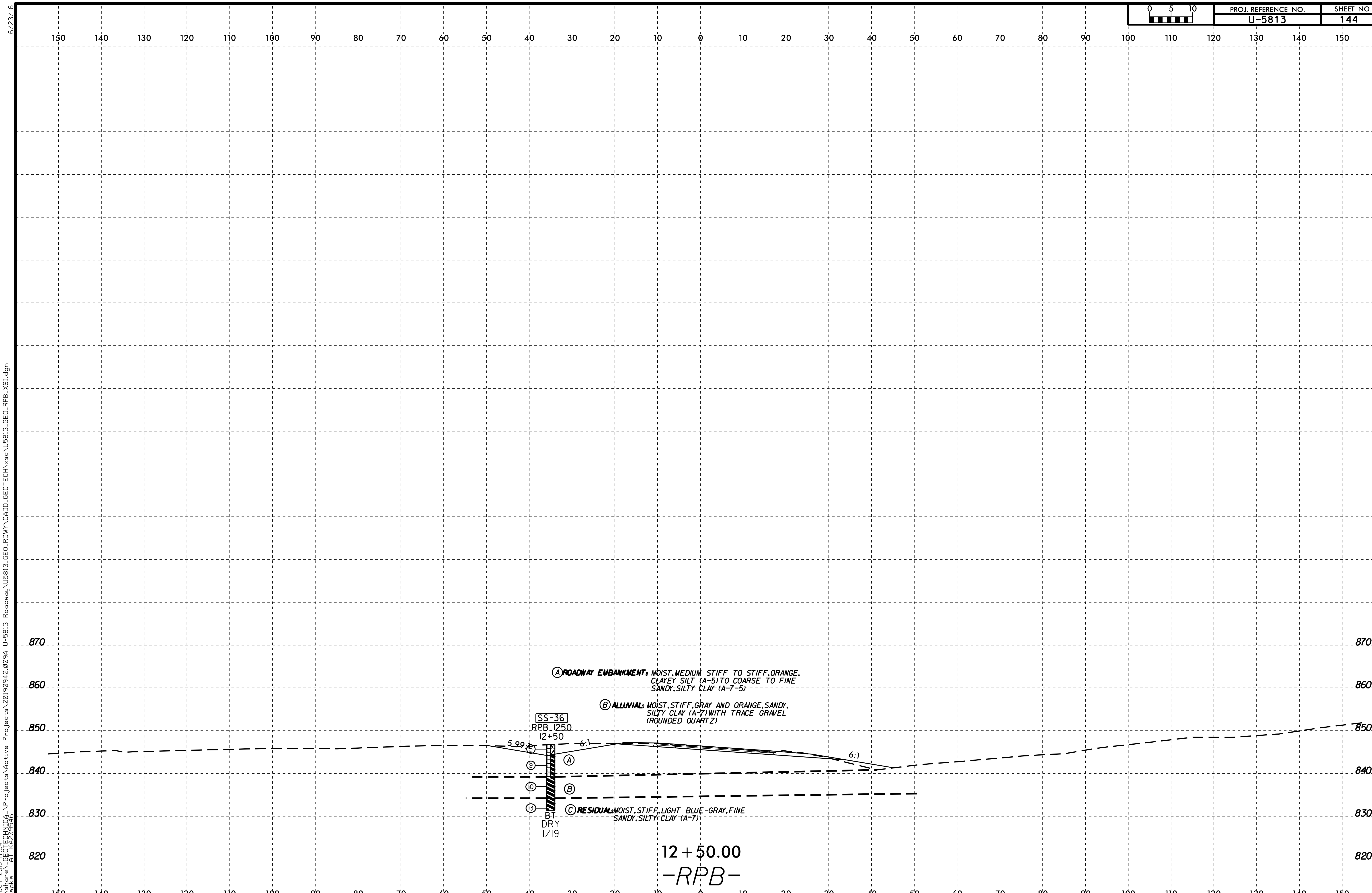
SSparks AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	144



12 + 50.00

-RPB-

6/23/16

14-OCT-2019 17:54
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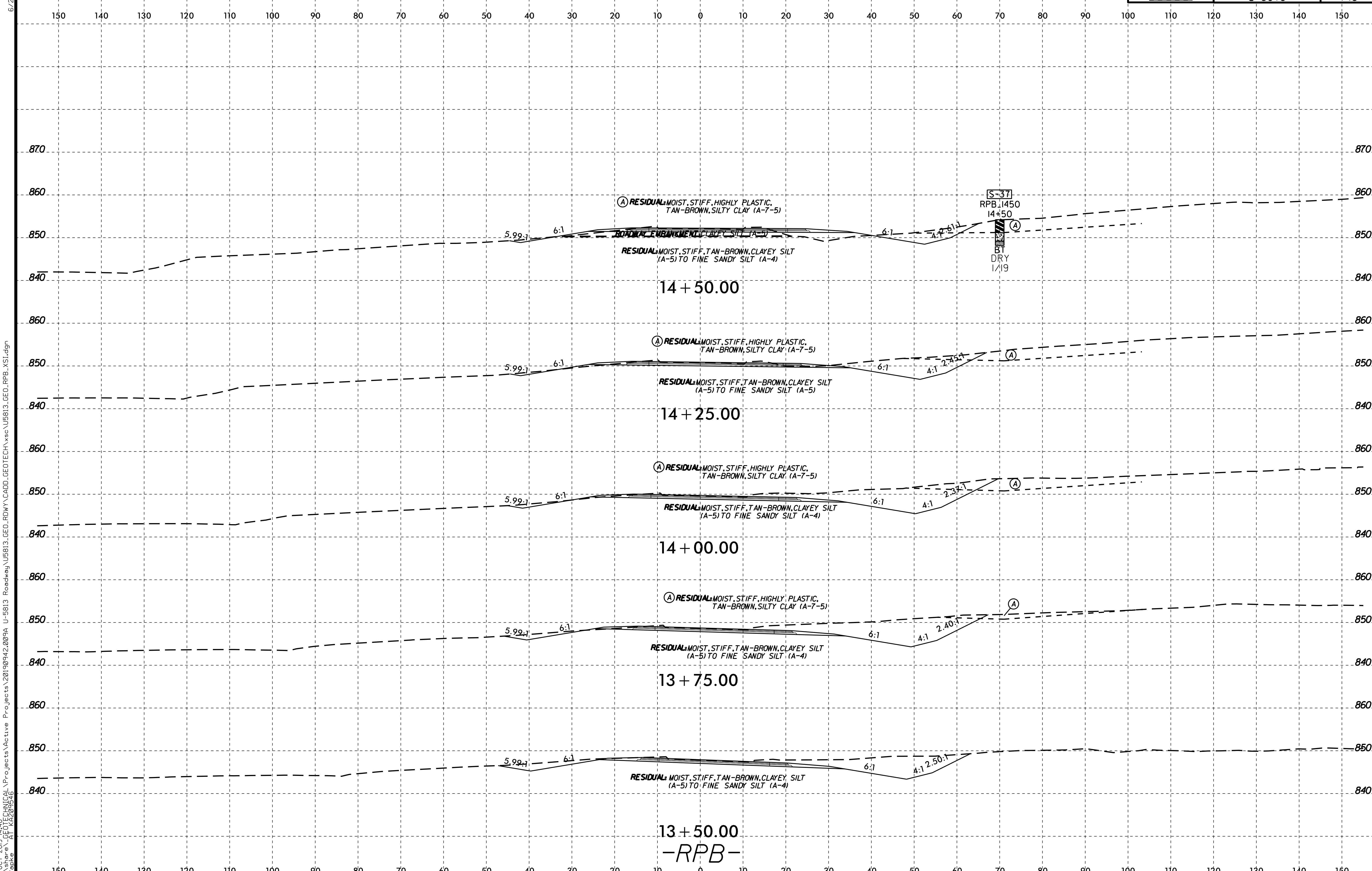
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	145


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
870
860
850
840
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
ROADWAY EMBANKMENT: CLAYEY SILT (A-5)
RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)
5.99:1
6:1
4:1
2.61:1
S-37
RPB_1450
14+50
BT
DRY
1/19
14+50.00
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-5)
2.45:1
14+25.00
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)
2.37:1
14+00.00
(A) RESIDUAL: MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)
2.40:1
13+75.00
RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)
2.50:1
13+50.00
-RPB-

6/23/16

15-OCT-2019 14:40
W:\share_GEOTECHNICAL\Projects\Active Projects\2019\0942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPB_XSl.dgn
SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	146

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

870
860
850
840

Ⓐ **RESIDUAL:** MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
Ⓑ **ROADWAY EMBANKMENT:** CLAYEY SILT (A-5)

5.99:1 6:1 6:1 5.99:1

RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)

15 + 00.00

Ⓐ **RESIDUAL:** MOIST, STIFF, HIGHLY PLASTIC, TAN-BROWN, SILTY CLAY (A-7-5)
Ⓑ **ROADWAY EMBANKMENT:** CLAYEY SILT (A-5)

5.99:1 6:1 6:1 3.63:1

RESIDUAL: MOIST, STIFF, TAN-BROWN, CLAYEY SILT (A-5) TO FINE SANDY SILT (A-4)

14 + 75.00

-RPB-

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

15-OCT-2019 14:40
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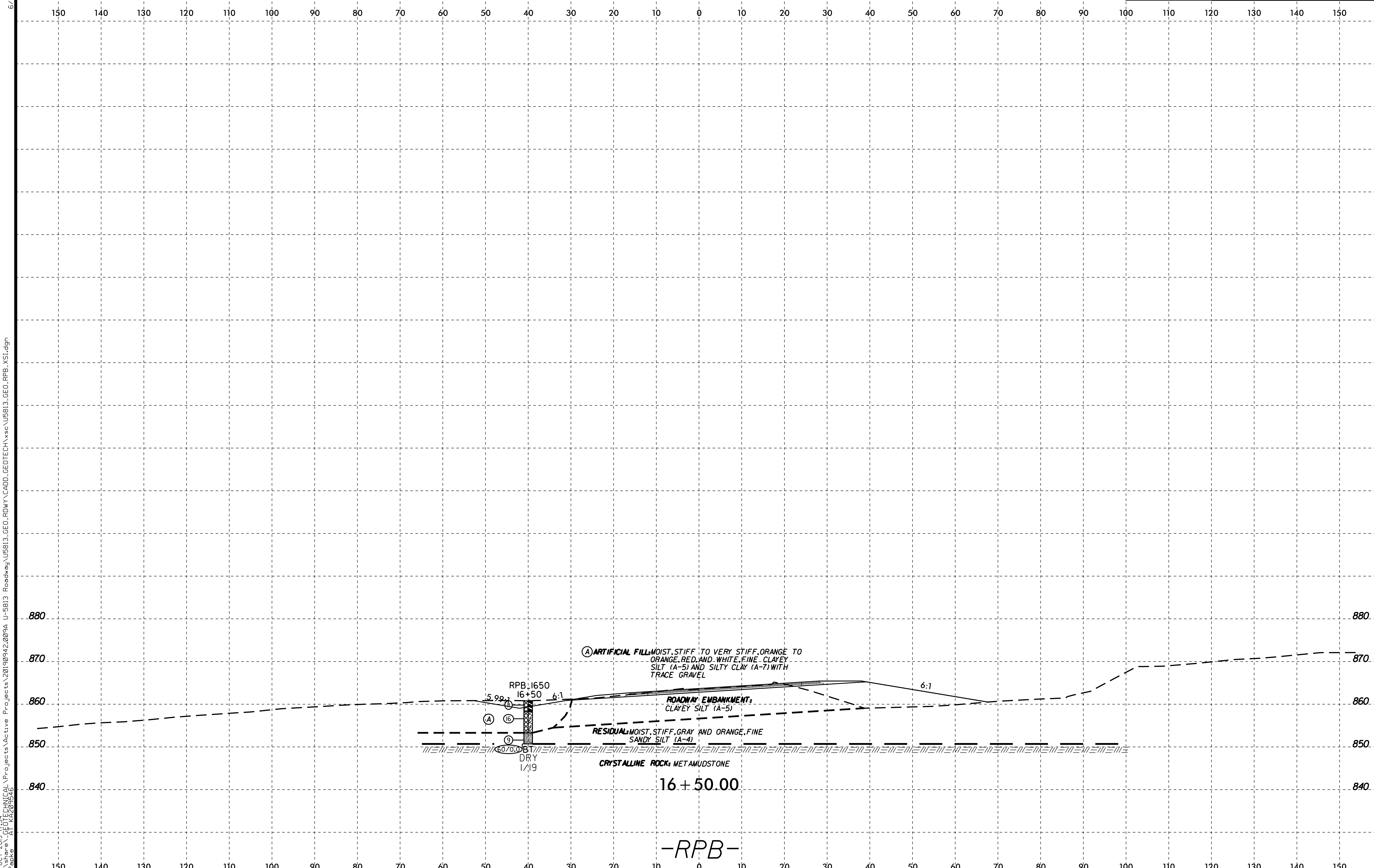
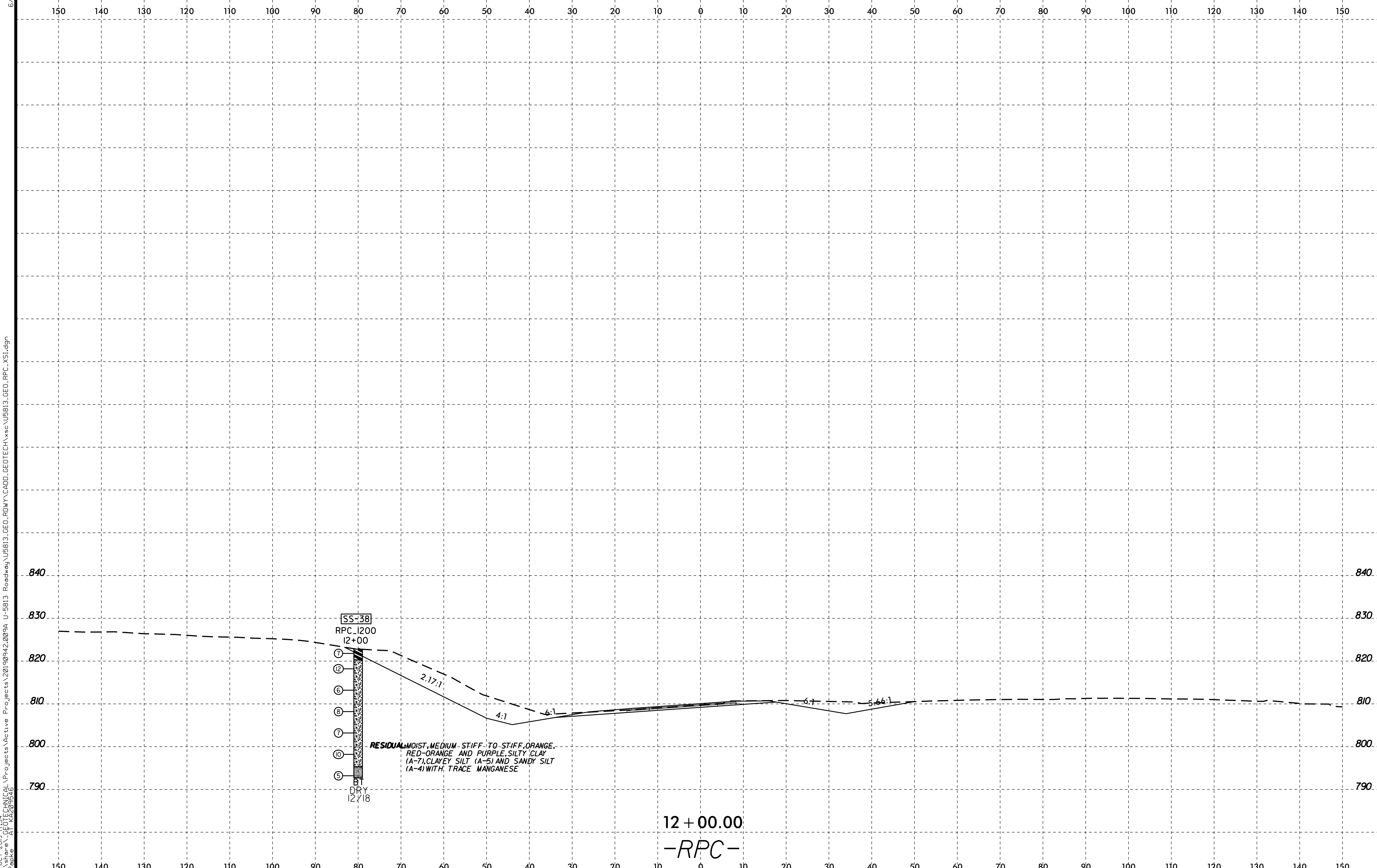
SPaske AT KA20946

PROJ. REFERENCE NO.	SHEET NO.
U-5813	147



0 5 10
880
870
860
850
840
A ARTIFICIAL FILL: MOIST, STIFF TO VERY STIFF, ORANGE TO ORANGE, RED, AND WHITE, FINE CLAYEY SILT (A-5) AND SILTY CLAY (A-7) WITH TRACE GRAVEL
RPB_1650
16+50
5.99:1
6:1
6:1
ROADWAY EMBANKMENT:
CLAYEY SILT (A-5)
A
16
9
RESIDUAL: MOIST, STIFF, GRAY AND ORANGE, FINE SANDY SILT (A-4)
60/0.0
BT
DRY
1/19
CRYSTALLINE ROCK: METAMUDSTONE
16 + 50.00
-RPB-
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

PROJ. REFERENCE NO.	SHEET NO.
U-5813	148



12 + 00.00

−RPC−

6/23/16

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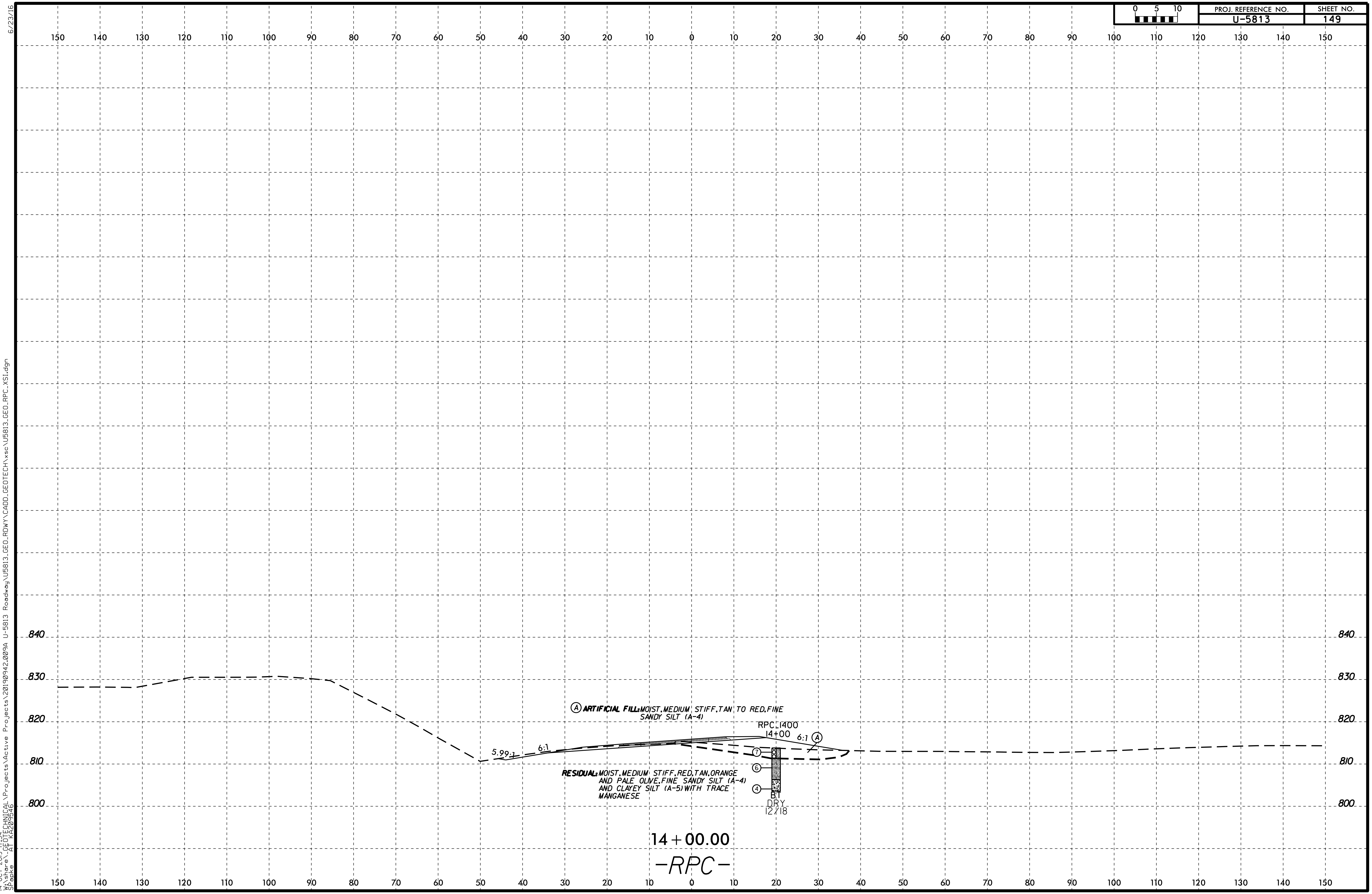
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	149



14 + 00.00

-RPC-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	150

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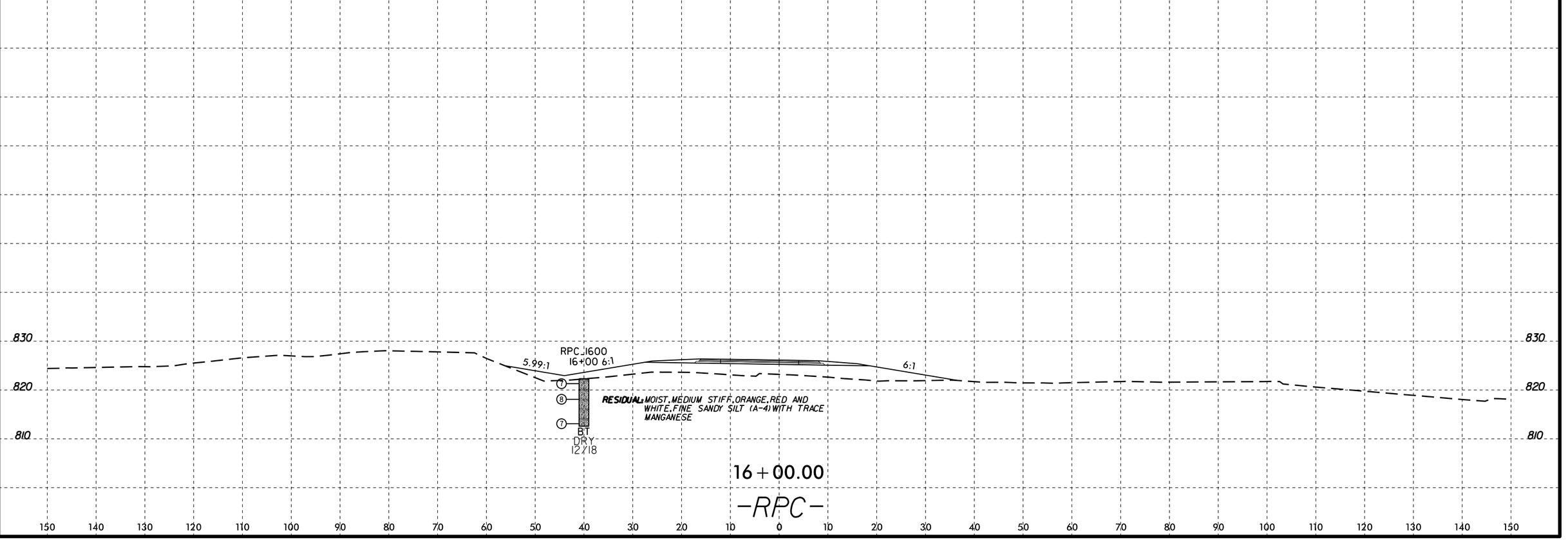

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USpake AT K4207546

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	151

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

860
850
840
830
820
810

Ⓐ **ROADWAY EMBANKMENT:** MOIST, MEDIUM STIFF, ORANGE, RED AND TAN, FINE SANDY SILT (A-4) TO SANDY CLAY (A-6) WITH TRACE GRAVEL

Ⓑ **RESIDUAL:** MOIST, VERY STIFF, RED, ORANGE AND TAN, COARSE TO FINE SANDY SILT (A-4)

3.37:1

4:1

RPC -1800
18+00

6
8
Ⓐ

60/0.0

BT
DRY
12/18

Ⓑ

CRYSTALLINE ROCK: METAMUDSTONE

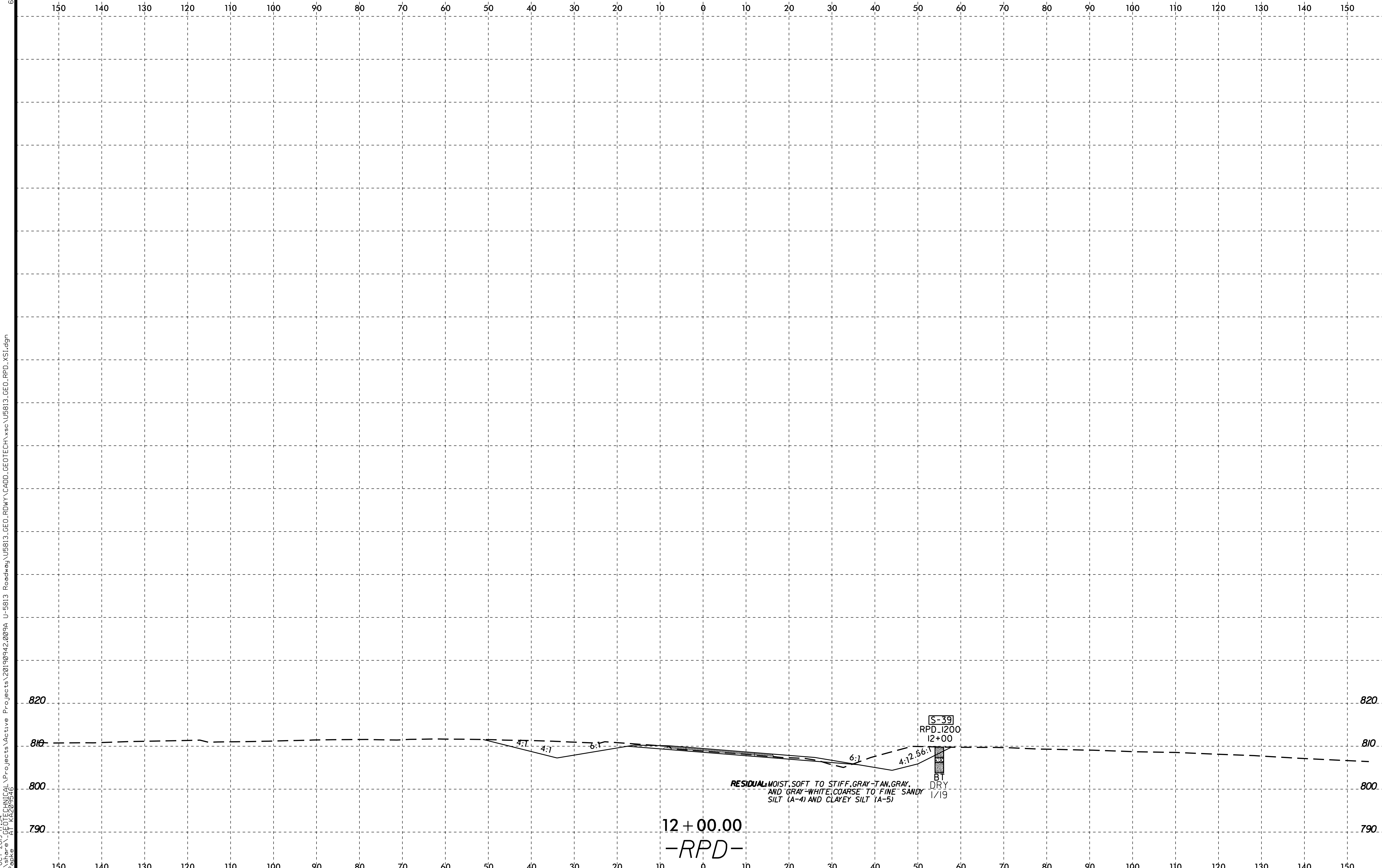
18+00.00
-RPC-

15-OCT-2019 14:41
W:\share_GEOTECHNICAL\Projects\Active Projects\20190942.0094 U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPC_XS1.dgn
SPapke AT KA20190946

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
U-5813	152

6/23/16



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SPapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	153

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

820
810
800
790

RPD-1410
14+10

5
8
24
29
17

B1
DRY
12/18

6:1

RESIDUAL: MOIST TO DRY, MEDIUM STIFF TO VERY STIFF, ORANGE AND TAN, CLAYEY SILT (A-5) AND FINE SANDY SILT (A-4)

6:1

4:1

0.70:1

14+00.00
-RPD-

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

820
810
800
790

14-OCT-2019 17:54
\\Wshare_GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPD_XS1.dgn
Shpake AT K:\20190546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	154

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

840
830
820
810
800

Ⓐ **ARTIFICIAL FILL:** MOIST, STIFF, RED AND ORANGE, SILTY CLAY (A-7) WITH TRACE GRAVEL

SS-40
RPD_1600
16+00

5.99:1 6:1 6:1 5.99:1

10
29
19
24

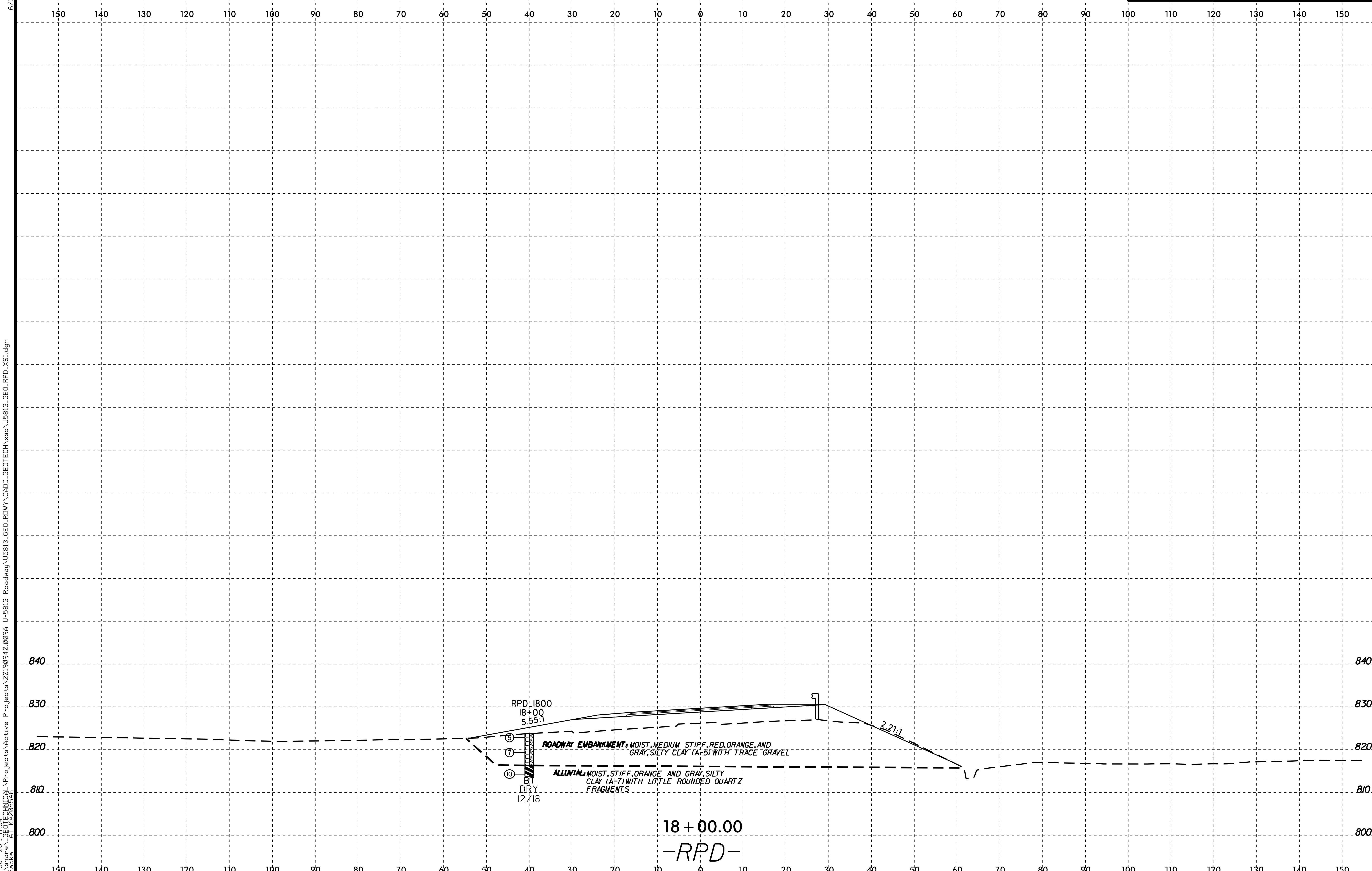
RESIDUAL: MOIST AND DRY; STIFF TO VERY STIFF, ORANGE AND TAN, SILTY CLAY (A-7-6) AND SANDY SILT (A-4) WITH TRACE ROCK FRAGMENTS

BT
DRY
12/18

16+00.00
-RPD-

14-OCT-2019 17:54
\\sharefs\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_RDWY\CADD_GEOTECH\xsc\U5813_GEO_RPD_XS1.dgn
SSparks AT K42079546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	155



6/23/16

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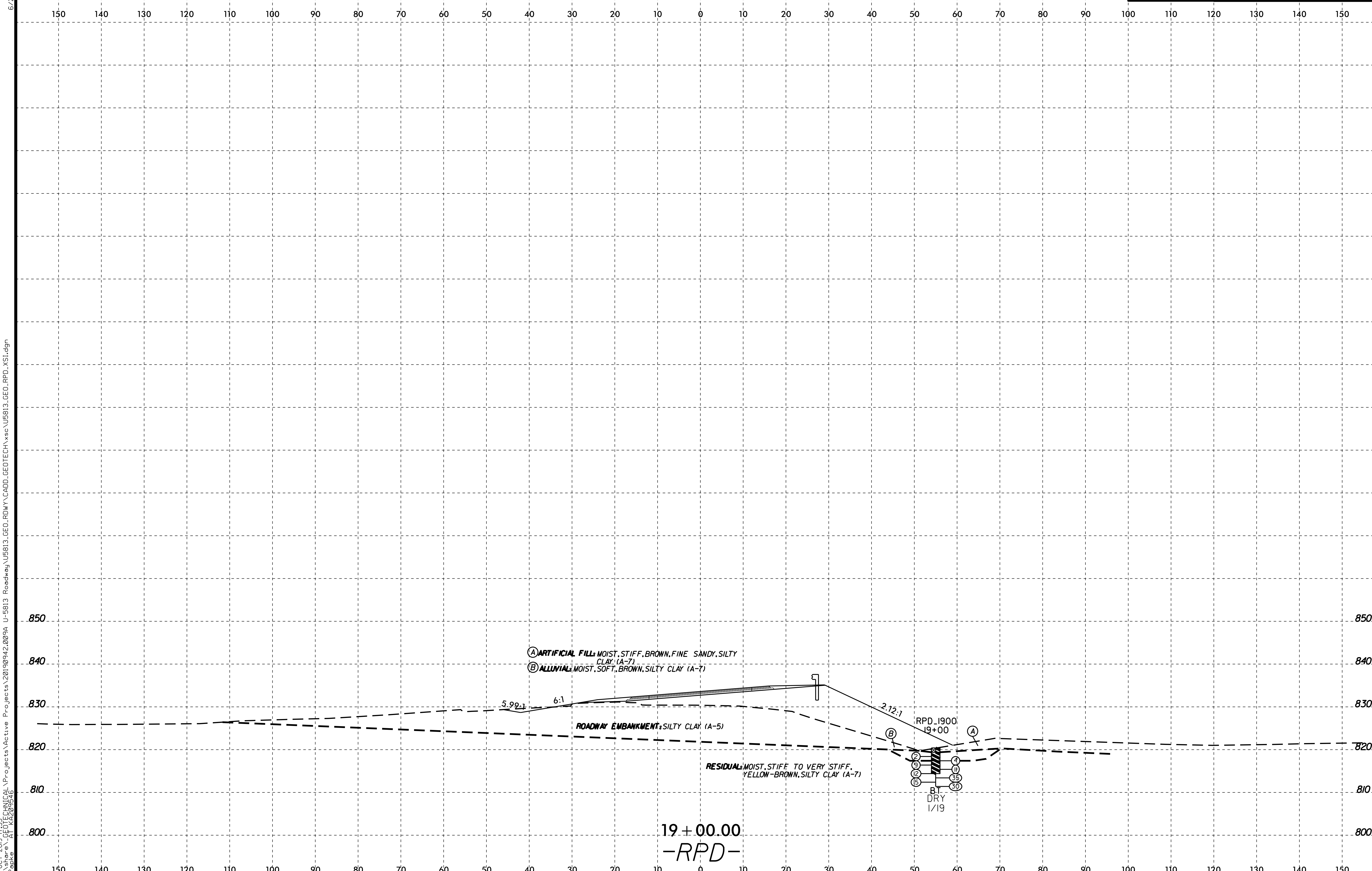
Spepke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	156



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
850
840
830
820
810
800
Ⓐ ARTIFICIAL FILL: MOIST, STIFF, BROWN, FINE SANDY, SILTY CLAY (A-7)
Ⓑ ALLUVIAL: MOIST, SOFT, BROWN, SILTY CLAY (A-7)
5.99:1
6:1
2.12:1
RPD_1900
19+00
ROADWAY EMBANKMENT: SILTY CLAY (A-5)
RESIDUAL: MOIST, STIFF TO VERY STIFF, YELLOW-BROWN, SILTY CLAY (A-7)
2
9
12
15
4
11
35
30
B.T.
DRY
1/19
19+00.00
-RPD-

6/23/16

14-OCT-2019 17:55
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Spapke AT KA209546

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	157

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

840
830
820
810

LPA 1200
12+00

3:1

RESIDUAL: MOIST, MEDIUM STIFF, TAN, RED, ORANGE AND PURPLE WITH FINE SANDY SILT (A-4) WITH TRACE MANGANESE

6
5
8
BT
DRY
12/18

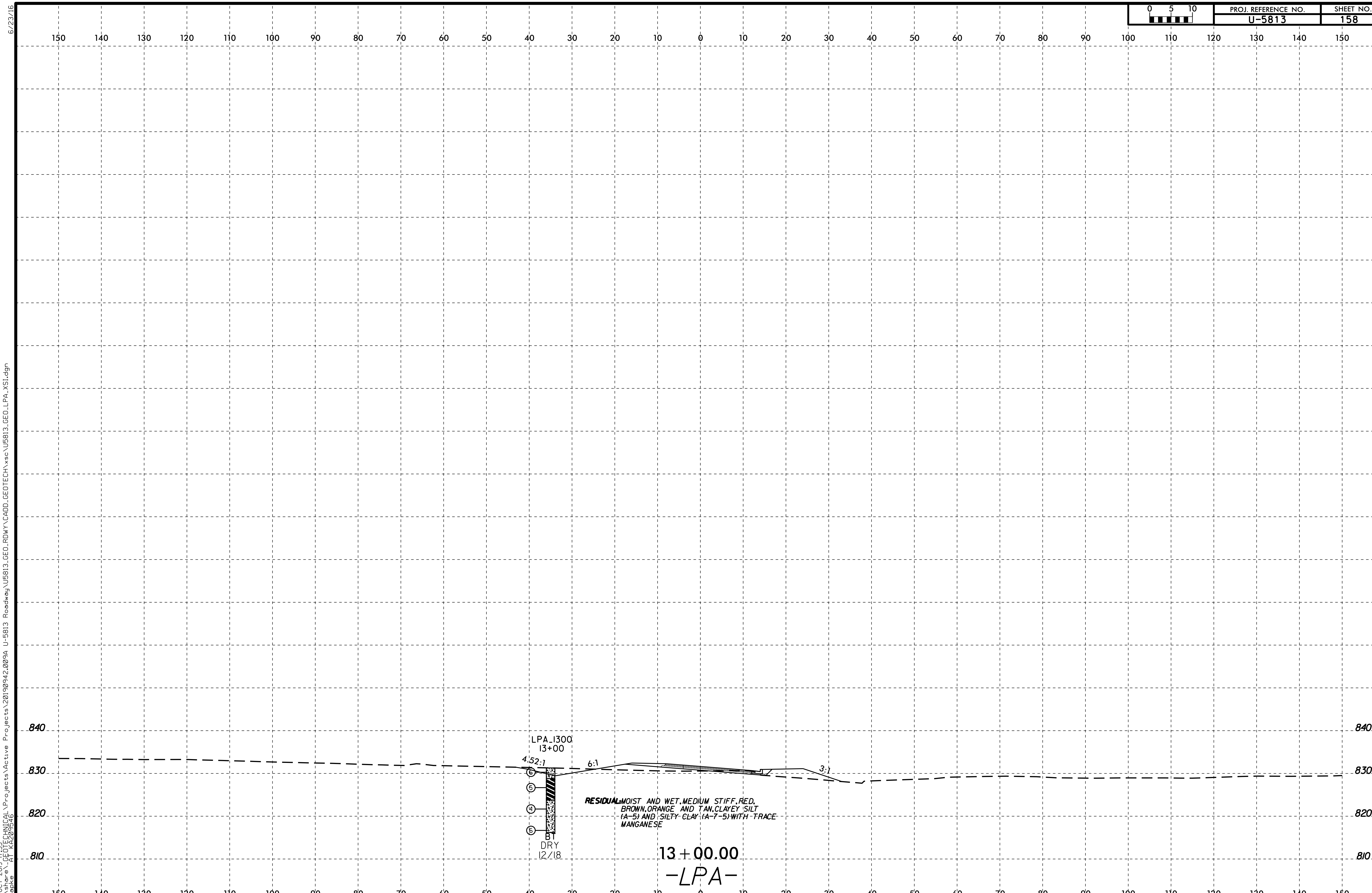
12+00.00
-LPA-

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

840
830
820
810

14-OCT-2019 17:55
\\Ashare\GEOTECHNICAL\Projects\Active Projects\20190942.009A U-5813 Roadway\U5813_GEO_LPA_XSI.dgn
USpake AT K42079546

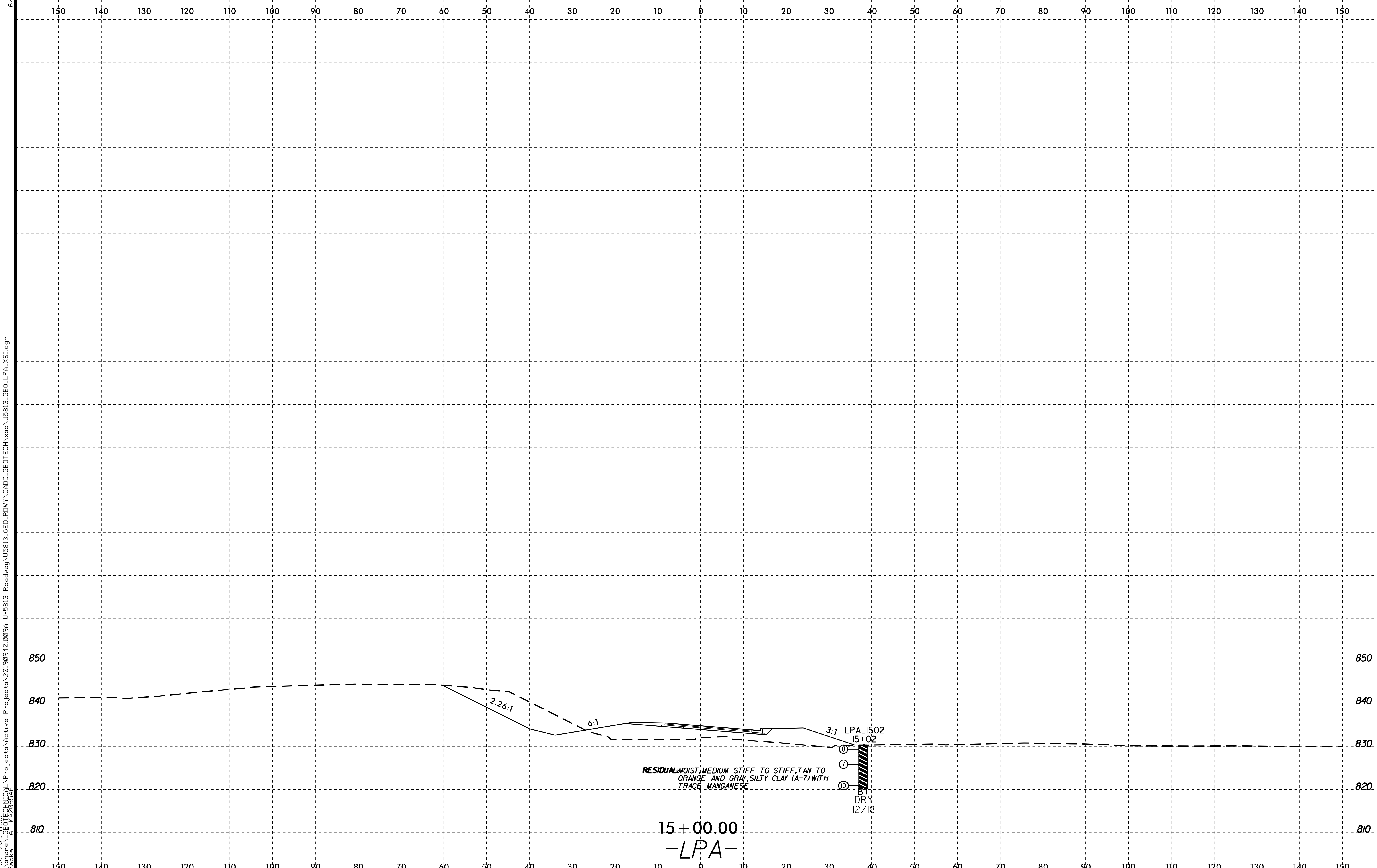
PROJ. REFERENCE NO.	SHEET NO.
U-5813	158



13 + 00.00

-LPA-

PROJ. REFERENCE NO.	SHEET NO.
U-5813	159



15+00.00

-LPA-

6/23/16

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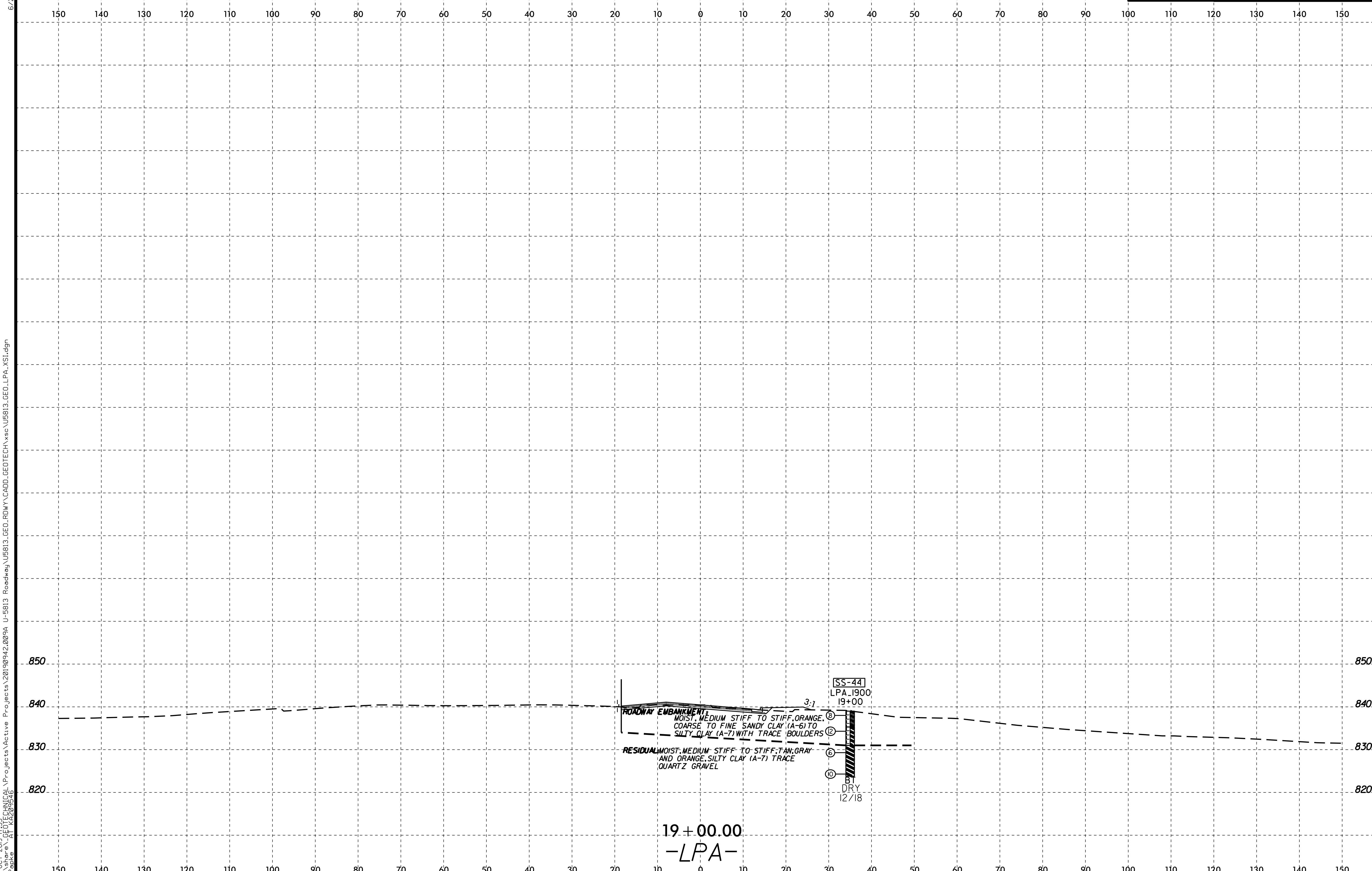
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	160

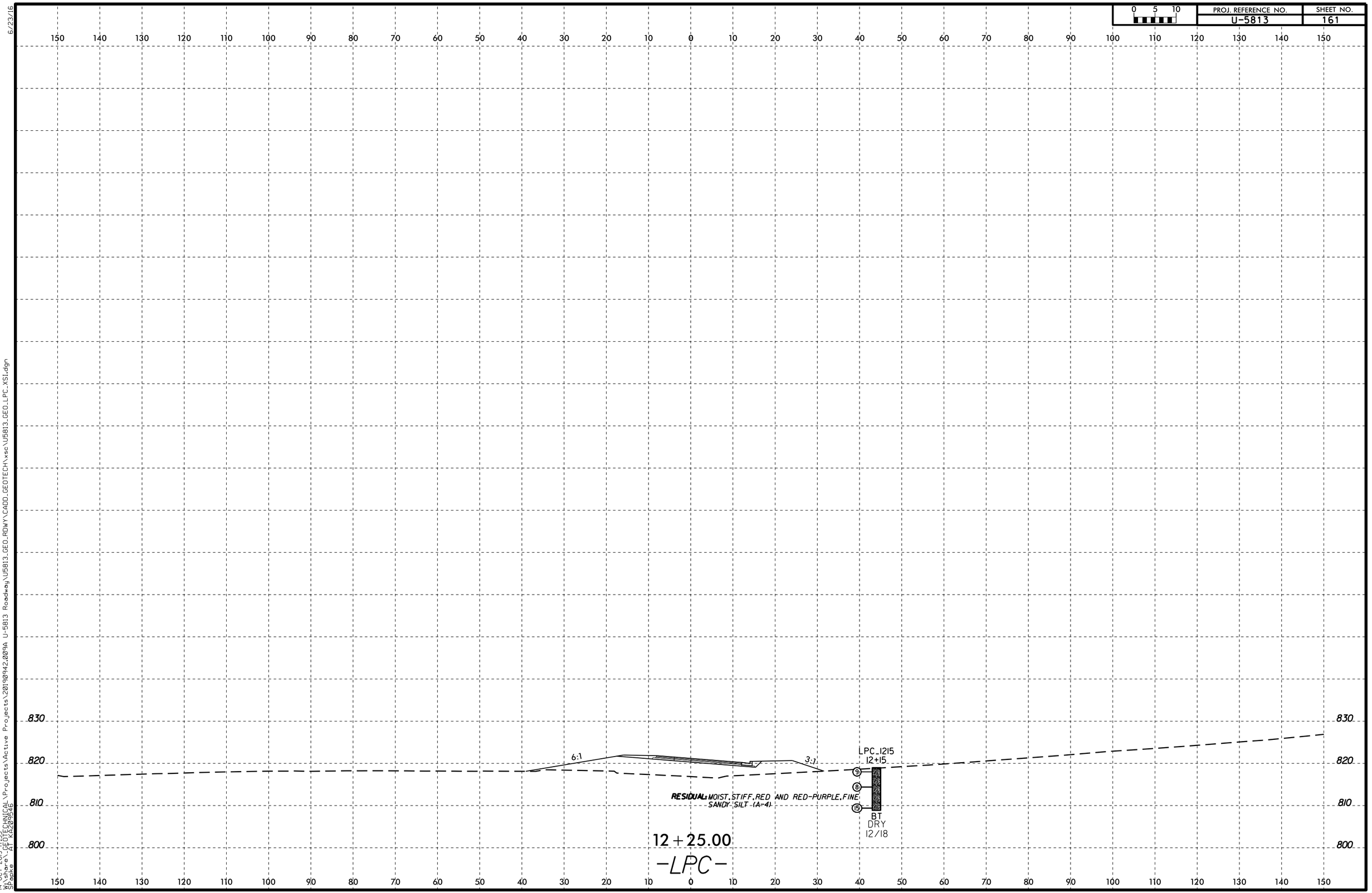


19+00.00

-LPA-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5813	161



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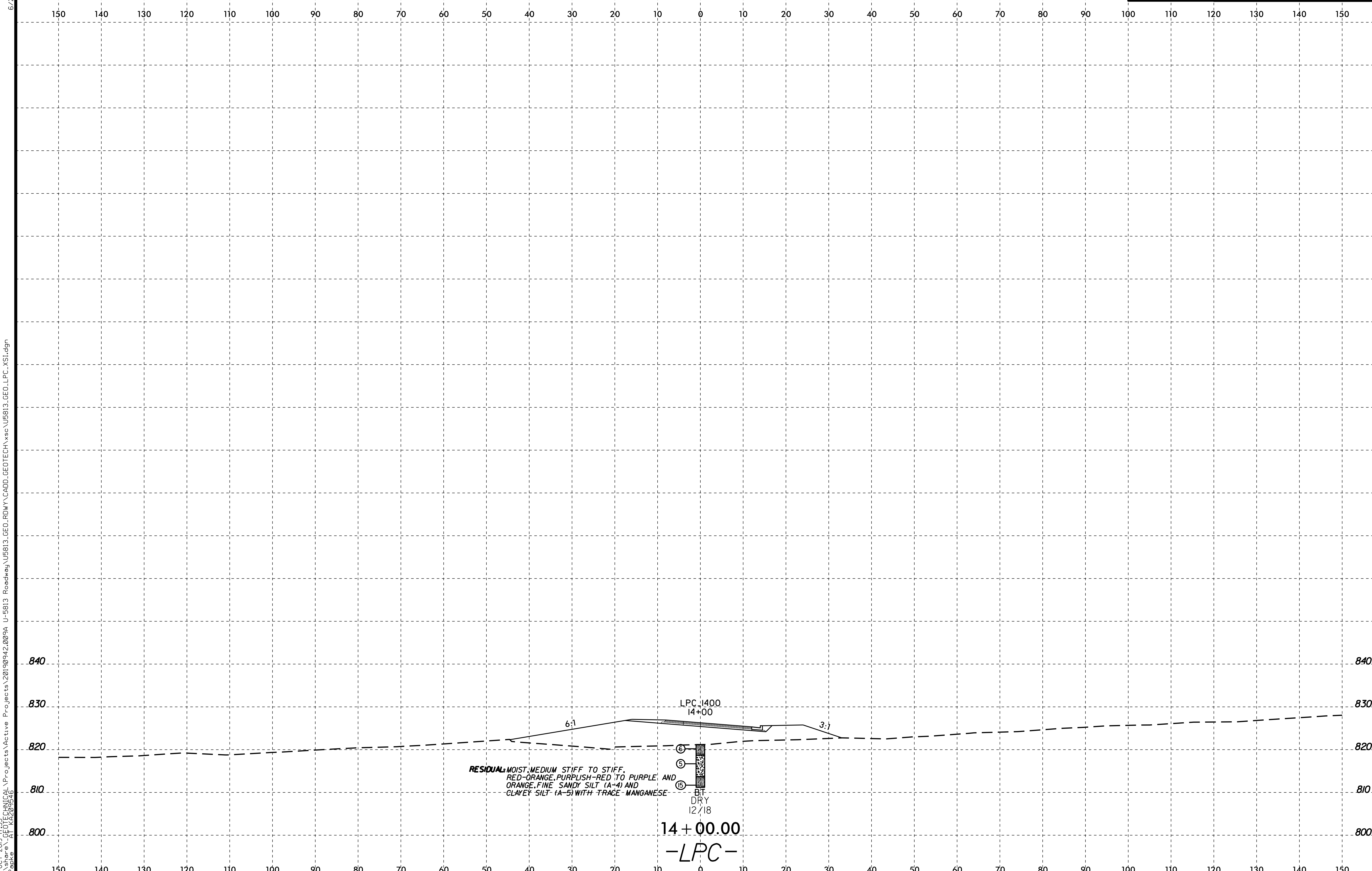
Shpake AT K:\20190546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	162



14 + 00.00

-LPC-

6/23/16

14-OCT-2019 17:55
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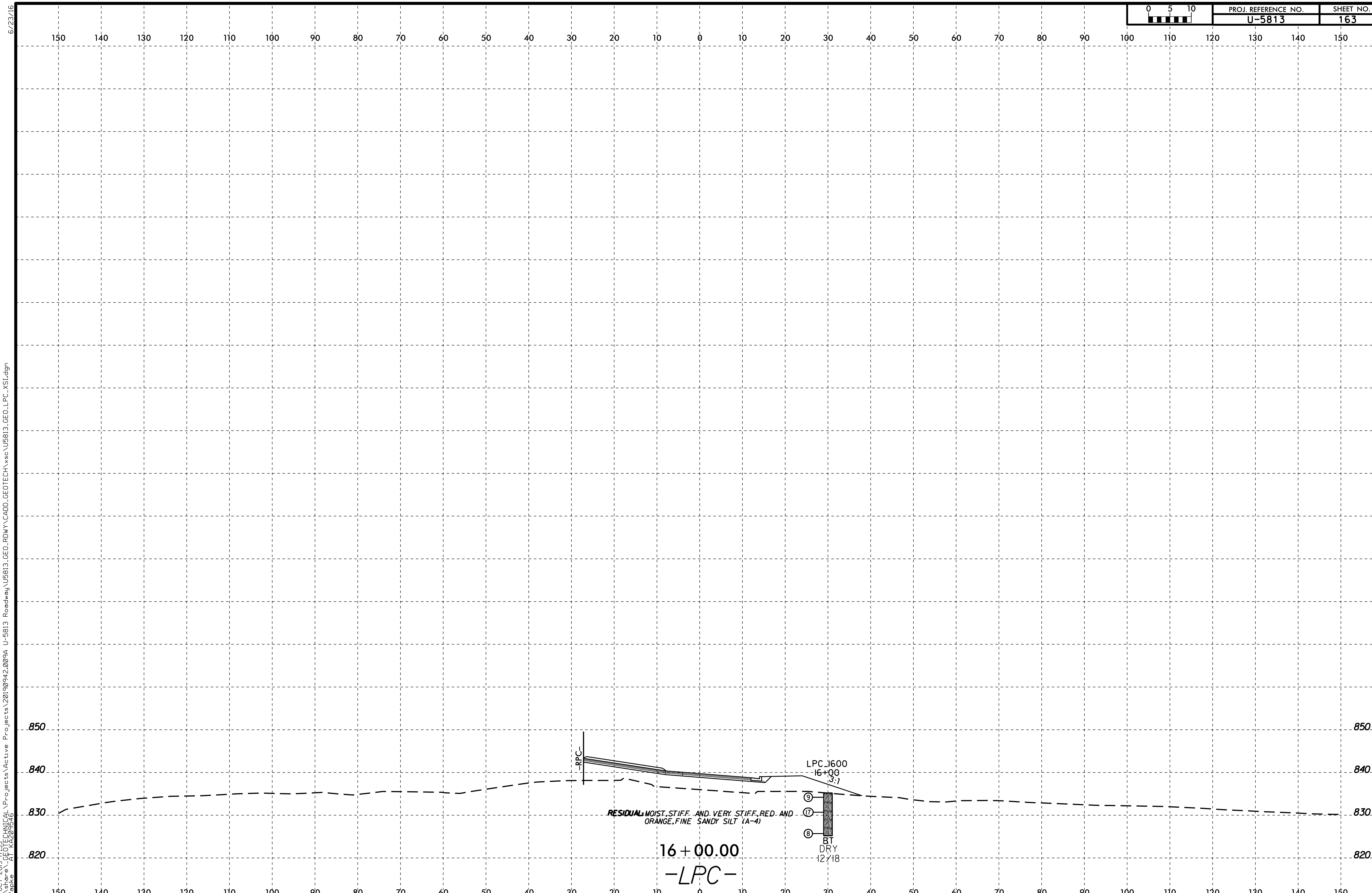
SPapke AT KA209546



6/23/16

14-OCT-2019 17:55
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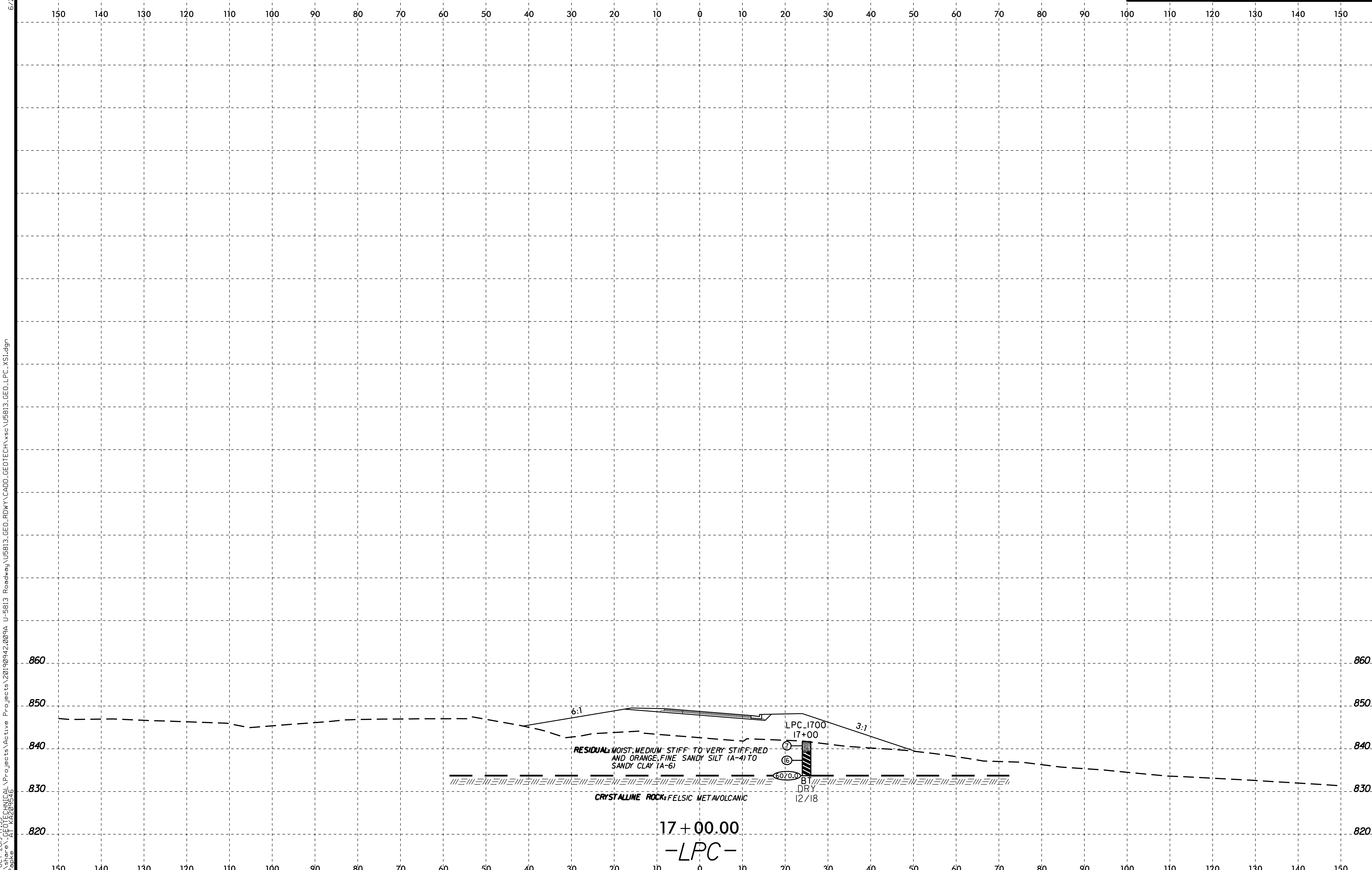
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	164



17 + 00.00

-LPC-

6/23/16

14-OCT-2019 17:55
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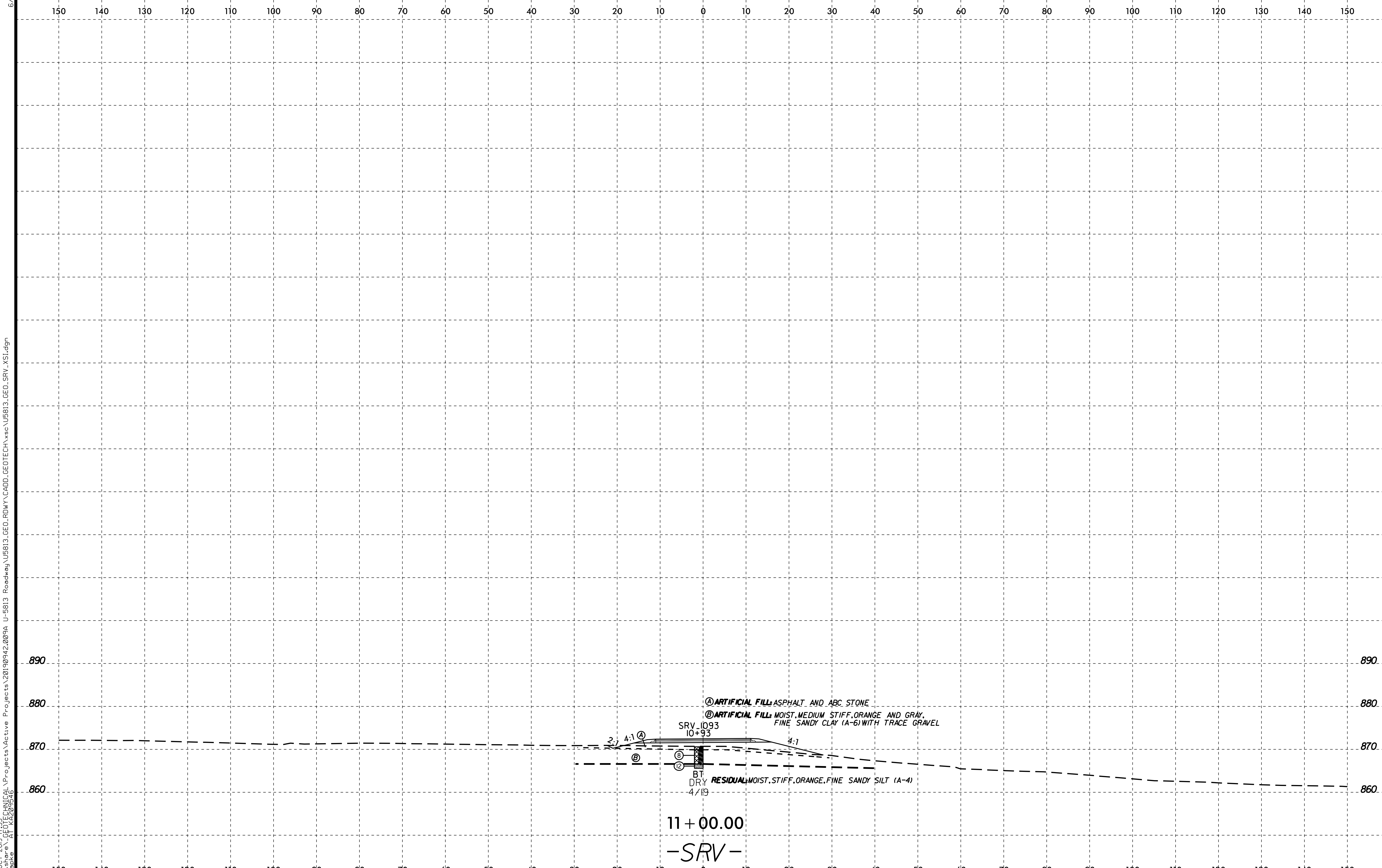
SPapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	165



11+00.00

-SRV-

6/23/16

14-OCT-2019 17:55
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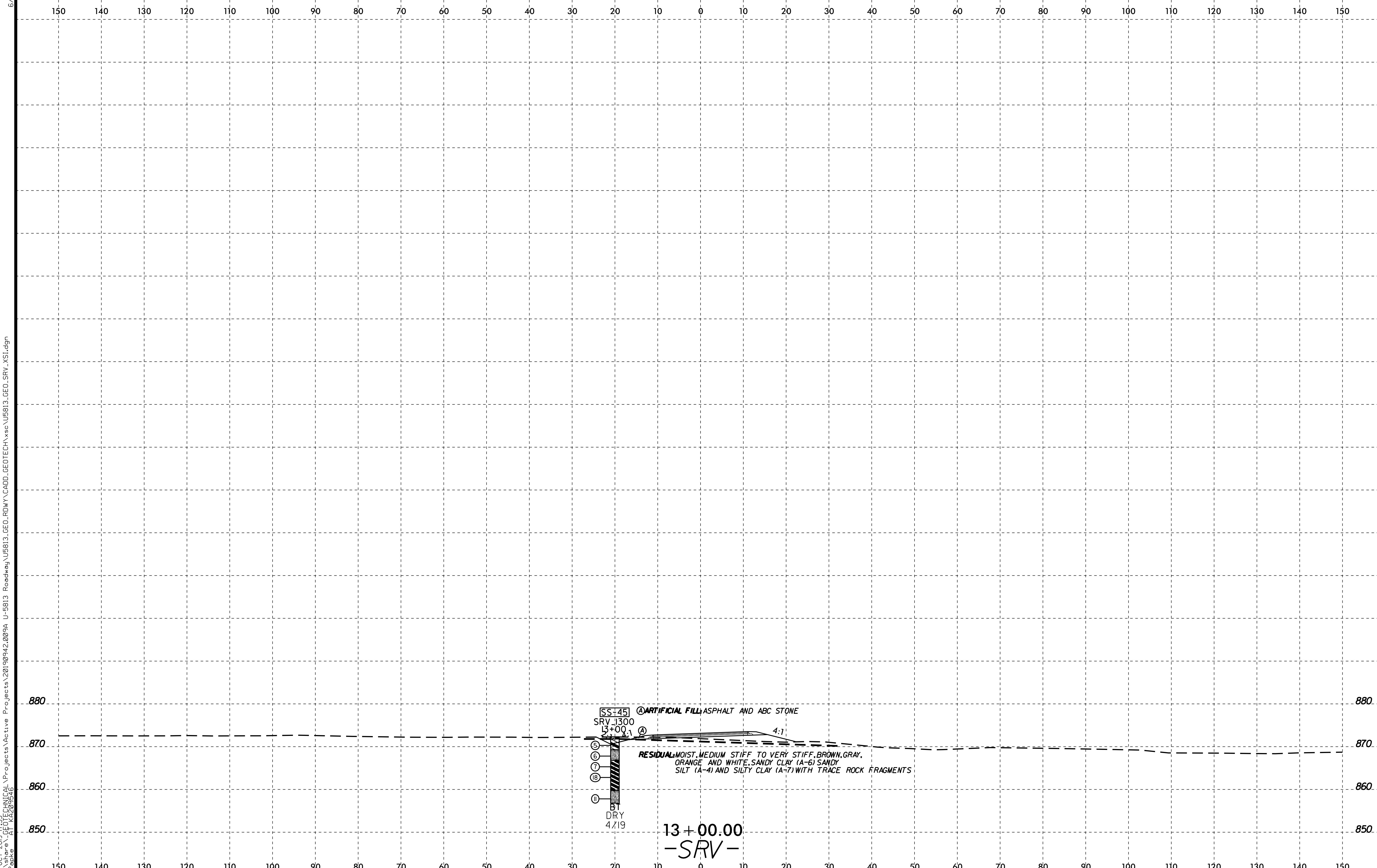
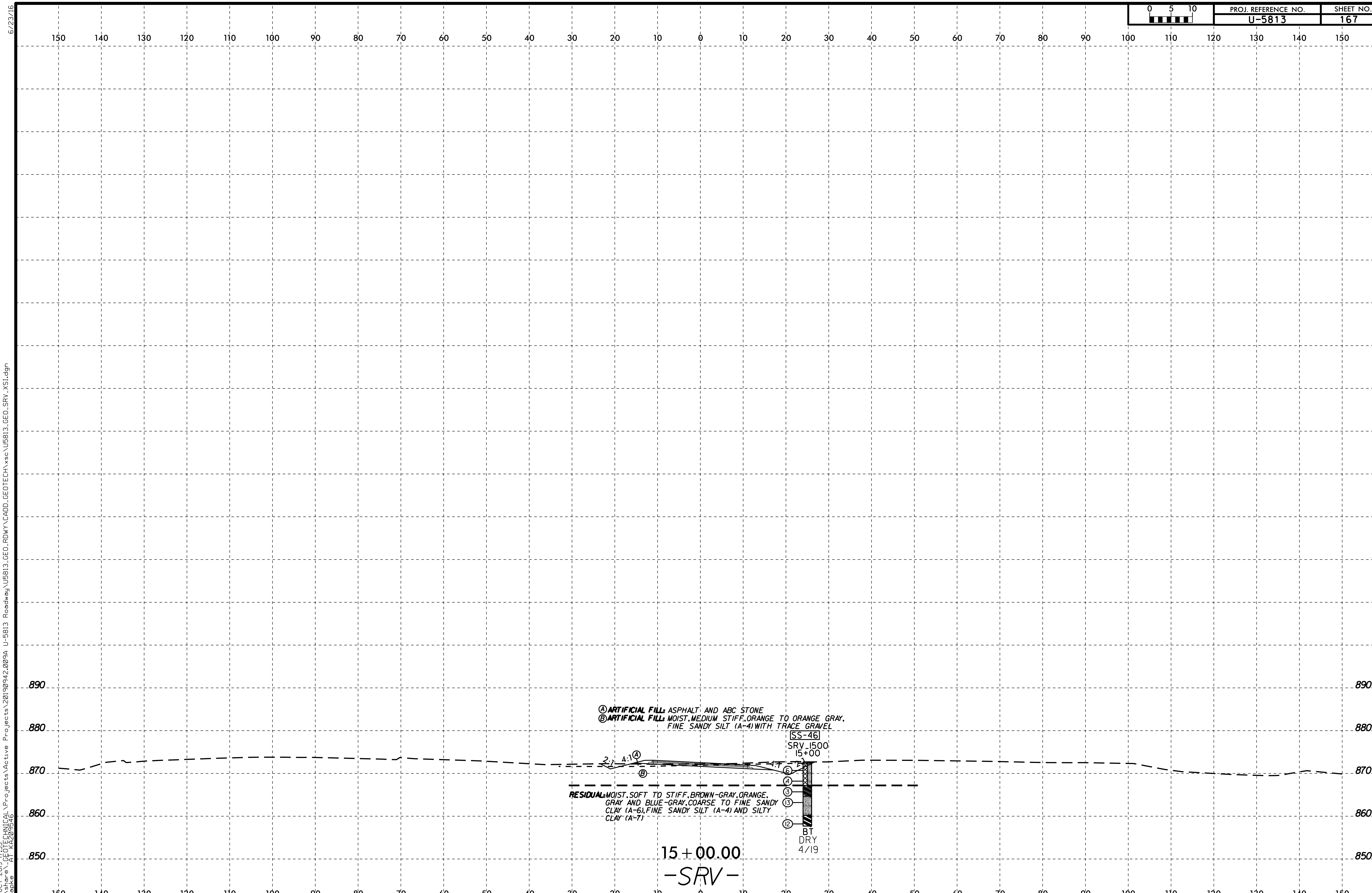
Spapke AT KA209546

PROJ. REFERENCE NO.	SHEET NO.
U-5813	166



PROJ. REFERENCE NO.	SHEET NO.
U-5813	167



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
890
880
870
860
850
Ⓐ ARTIFICIAL FILL: ASPHALT AND ABC STONE
Ⓑ ARTIFICIAL FILL: MOIST, MEDIUM STIFF, ORANGE TO ORANGE GRAY, FINE SANDY SILT (A-4) WITH TRACE GRAVEL
SS-46
SRV_1500
15+00
2:1
4:1
RESIDUAL: MOIST, SOFT TO STIFF, BROWN-GRAY, ORANGE, GRAY AND BLUE-GRAY, COARSE TO FINE SANDY CLAY (A-6), FINE SANDY SILT (A-4) AND SILTY CLAY (A-7)
6
4
3
13
12
BT
DRY
4/19

15+00.00

-SRV-

6/23/16

14-OCT-2019 17:55
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Spapke AT KA209546

PROJECT REFERENCE NO.	SHEET NO.
U–5813	168

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY RESULTS

REFERENCE: U–5813

PROJECT: 44385

DS
JRW

Prepared in the Office of:

KLEINFELDER
Bright People. Right Solutions.
7345 WEST FRIENDLY AVE.
GREENSBORO, NC 27410
NC FIRM LICENSE NO. F-132

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

PROJECT NO.: 44385.1.3 (U-5813)
COUNTY: RANDOLPH
US 64 FROM ASHEBORO BYPASS TO EAST OF I-73/I-74/US 220

								Atterberg Limits			Gradation Results							
Sample No.	New Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	AASHTO Class.	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-1	L_3400	-L-	34+00	115' LT	0.0-1.5	30.3	A-7-5	72	34	38	2.4	97.2	96.5	89.9	1.2	12.3	16.8	69.7
SS-2	L_3600	-L-	36+00	85' RT	0.0-1.5	20.3	A-6	37	26	11	1.6	96.9	95.8	90.8	1.7	10.3	49.6	38.4
SS-3	L_4000	-L-	40+00	70' LT	0.0-1.5	31.6	A-7-5	71	44	27	0.2	99.4	98.4	92.3	1.4	10.7	23.2	64.7
SS-4	L_4200	-L-	42+00	65' RT	0.0-1.5	27.3	A-7-6	42	24	18	4.7	94.0	92.1	84.0	2.9	14.6	35.1	47.4
SS-5	L_4400	-L-	44+00	75' RT	0.0-1.5	35.0	A-7-5	77	34	43	0.0	99.9	99.5	97.4	0.7	3.1	22.4	73.8
SS-6	L_4600	-L-	46+00	80' LT	0.0-1.5	19.1	A-6	38	22	16	5.7	93.3	91.5	86.2	2.6	9.1	44.9	43.4
ST-1	L_4800	-L-	48+00	50' RT	0.0-2.0	19.2	A-4	26	18	8	0.1	99.5	98.0	90.5	2.5	12.3	57.3	27.9
SS-8	L_5050	-L-	50+50	80' RT	0.0-1.5	25.9	A-7-5	59	33	26	0.0	99.9	99.2	95.7	1.2	5.5	31.5	61.8
SS-9	L_5850	-L-	58+50	65' LT	0.0-1.5	26.4	A-7-5	62	33	29	0.0	99.9	99.4	98.0	0.8	2.1	33.9	63.2
SS-10	L_6050	-L-	60+50	70' RT	0.0-1.5	20.5	A-7-6	49	27	22	0.7	97.4	94.1	88.7	4.8	6.2	37.9	51.1
SS-11	L_6250	-L-	62+50	95' LT	0.0-1.5	27.9	A-7-5	64	31	33	0.0	99.9	99.3	97.5	0.9	3.7	33.8	61.6
SS-12	L_6450	-L-	64+50	100' LT	0.0-1.5	28.5	A-7-5	69	33	36	0.0	100.0	99.6	99.0	0.4	1.2	29.9	68.5
SS-13	L_7050	-L-	70+50	100' LT	0.0-1.5	24.6	A-7-5	78	31	47	0.1	99.3	98.0	90.4	0.9	7.1	33.9	58.1
ST-2	L_7250	-L-	72+50	90' RT	0.0-2.0	--	A-6	31	20	11	3.8	84.1	75.6	62.3	15.4	15.2	45.5	23.9
SS-14	L_7450	-L-	74+50	75' LT	3.4-4.9	39.1	A-7-5	55	39	13	1.4	98.5	97.5	93.1	1.4	6.9	42.3	49.4
SS-15	L_8249	-L-	82+49	46' RT	1.0-2.5	18.6	A-4	35	27	8	1.3	98.2	97.0	85.2	2.1	19.9	45.5	32.5
SS-16	L_9509	-L-	95+09	40' RT	0.0-1.5	17.4	A-6	30	19	11	5.3	92.5	89.0	78.9	6.4	13.7	43.5	36.4
SS-17	L_11800	-L-	118+00	55' RT	3.4-4.9	25.2	A-7-5	48	34	14	3.4	95.5	93.0	87.2	3.6	9.6	42.5	44.3
SS-18	Y_1888	-Y-	18+88	50' LT	0.0-1.5	--	A-4	28	20	8	0.0	99.7	98.1	93.6	2.5	5.8	72.0	19.6
SS-19	Y_2500	-Y-	25+00	30' RT	0.0-1.5	--	A-7-6	46	16	30	8.5	91.0	81.9	71.4	13.1	12.3	44.1	30.5
SS-20	Y_1200	-Y-	12+00	30' LT	0.0-1.5	30.3	A-4	36	33	3	1.5	97.8	97.2	92.8	1.2	8.8	63.3	26.7
SS-21	Y_1595	-Y-	15+95	55' RT	1.0-2.5	17.2	A-6	36	24	12	4.5	91.7	89.3	84.8	3.6	7.5	52.6	36.3
SS-22	Y_4457	-Y-	44+57	49' RT	3.4-4.9	35.7	A-7-5	54	41	13	0.0	100.0	99.7	97.3	0.7	3.6	37.4	58.3
SS-23	Y_4646	-Y-	46+46	41' LT	3.6-5.1	30.4	A-7-5	73	42	31	0.0	99.9	99.7	97.1	0.4	4.3	31.1	64.2
SS-24	Y3_1025	-Y3-	10+25	30' RT	0.0-1.5	29.2	A-7-5	74	34	40	0.0	99.9	99.4	95.9	0.7	7.2	30.9	61.2
SS-25	Y6_1100	-Y6-	11+00	30' RT	0.0-1.5	26.7	A-7-6	43	27	16	0.0	100.0	99.7	97.2	0.5	5.1	41.6	52.8
SS-26	Y12_1900	-Y12-	19+00	34' LT	0.0-1.5	28.9	A-5	41	32	9	21.3	77.7	76.1	70.9	3.4	8.5	51.6	36.5
SS-27	Y13_1391	-Y13-	13+91	CL	0.0 -1.5	25.4	A-7-6	45	26	19	0.0	100.0	99.8	96.8	0.3	6.0	62.9	30.8
BS-1	Y17_1093	-Y17-	10+93	103' LT	0.0-10.0	26.5	A-7-5	48	31	17	2.7	96.1	95.4	93.1	1.0	4.4	42.2	52.4
SS-28	Y17_1104	-Y17-	11+04	54' LT	0.0-1.5	23.9	A-6	32	20	12	10.6	88.3	85.5	79.0	4.2	10.3	57.6	27.9
SS-29	Y17_1465	-Y17-	14+65	20' LT	3.4-4.9	16.6	A-6	34	23	11	9.0	89.8	88.0	84.2	2.7	6.8	58.6	31.9
SS-30	Y17_1665	-Y17-	16+65	10' LT	3.4-4.9	29.4	A-7-5	52	31	21	0.0	100.0	99.5	95.3	0.9	7.4	41.4	50.3
S-31	Y17A_1200	-Y17A-	12+00	40' LT	2.0-4.0	19.0	A-4	22	20	2	0.2	99.6	98.5	93.8	1.8	7.3	62.0	28.9
S-32	Y18_1075	-Y18-	10+75	50' RT	0.0-3.0	32.1	A-7-5	58	33	25	0.5	98.9	97.7	93.1	2.1	5.6	34.1	58.2
SS-33	RPA_1294	-RPA-	12+94	11' RT	3.6-5.1	36.3	A-7-5	57	33	24	1.2	98.1	98.7	95.5	1.9	4.4	36.4	57.3
SS-34	RPA_1493	-RPA-	14+93	18' RT	0.0-1.5	29.5	A-7-5	47	31	16	5.5	93.7	98.4	95.3	2.1	4.4	41.5	52.0
SS-35	RPA_1837	-RPA-	18+37	58' RT	3.5-5.0	29.4	A-7-5	50	34	16	0.0	100.0	99.9	96.3	0.2	7.3	39.2	53.3
SS-36	RPB_1250	-RPB-	12+50	35' LT	3.8-5.3	26.8	A-7-5	47	36	11	0.6	98.6	99.0	94.3	1.8	6.5	42.7	49.0
S-37	RPB_1450	-RPB-	14+50	40' RT	0.0.-3.0	32.1	A-7-5	63	30	33	0.1	99.8	99.1	95.1	1.3	6.0	41.4	51.3

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

PROJECT NO.: 44385.1.3 (U-5813)
COUNTY: RANDOLPH
US 64 FROM ASHEBORO BYPASS TO EAST OF I-73/I-74/US 220

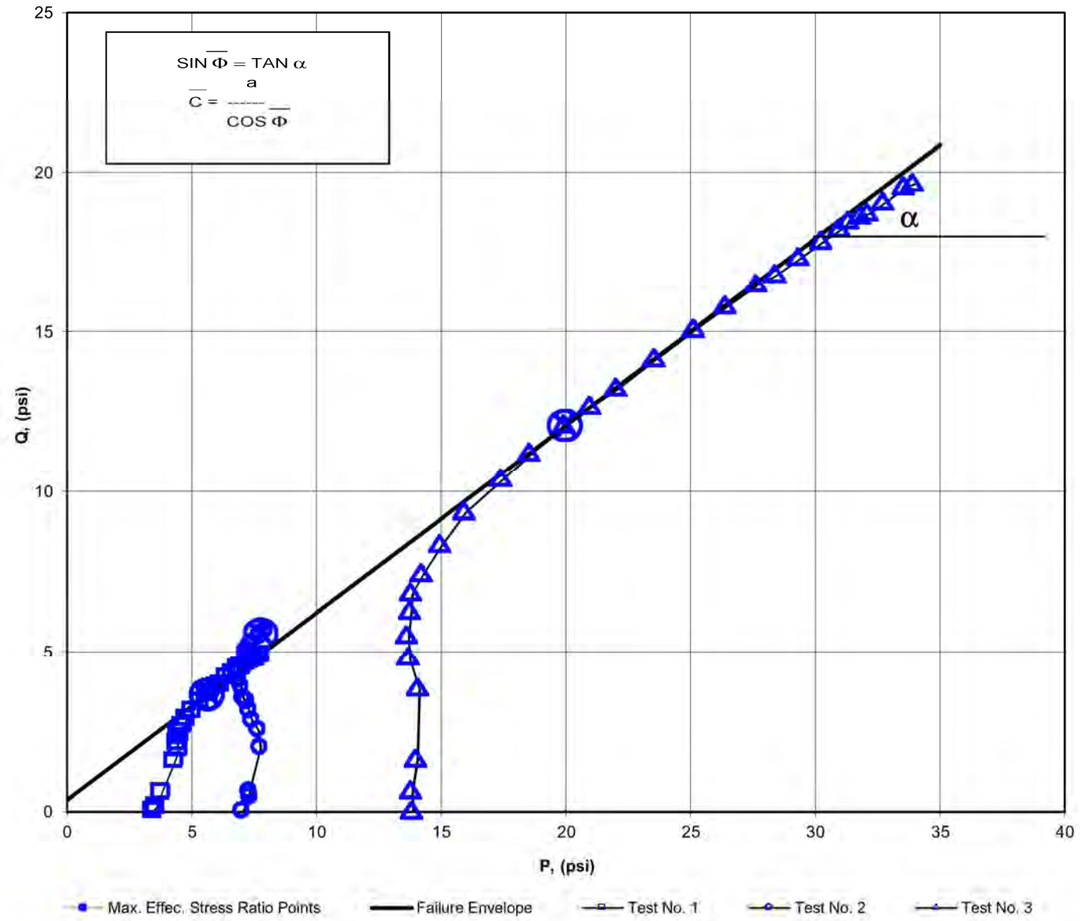
								Atterberg Limits			Gradation Results							
Sample No.	New Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	AASHTO Class.	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-38	RPC_1200	-RPC-	12+00	80' LT	18.6-20.1	37.3	A-5	46	36	10	0.0	100.0	99.4	91.2	1.3	12.7	44.6	41.4
S-39	RPD_1200	-RPD-	12+00	55' LT	0.0-2.5	23.1	A-4	29	21	8	13.2	86.8	82.7	75.6	6.5	9.8	54.2	29.5
SS-40	RPD_1600	-RPD-	16+00	15' LT	3.5-5.0	17.8	A-7-6	41	24	17	17.9	77.1	64.6	51.7	20.6	17.2	24.5	37.7
BS-2	RPDA_1150	-RPDA-	11+50	40' LT	0.0-10.0	20.6	A-7-5	47	30	17	8.7	88.4	84.9	79.8	5.1	7.8	38.4	48.7
SS-41	RPDA_1350	-RPDA-	13+50	40' RT	0.0-1.5	31.0	A-7-5	60	33	27	0.0	99.4	96.4	89.6	5.0	6.9	28.1	60.0
SS-42	RPDA_1549	-RPDA-	15+49	75' LT	13.4-14.9	44.4	A-7-5	55	44	11	0.0	100.0	99.8	95.0	0.5	8.7	49.8	41.0
SS-43	LPA_1300	-LPA-	13+00	35' LT	3.6-5.1	52.3	A-7-5	56	41	15	0.0	99.7	98.2	89.2	2.8	11.8	36.6	48.8
SS-44	LPA_1900	-LPA-	19+00	35' RT	3.7-5.2	27.5	A-7-5	54	33	21	0.8	98.0	95.9	90.3	2.9	9.3	29.0	58.8
SS-45	SRV_1300	-SRV-	13+00	20' LT	1.0-2.5	21.8	A-6	35	22	13	8.1	91.3	84.9	80.6	8.7	5.4	53.1	32.8
SS-46	SRV_1500	-SRV-	15+00	25' RT	6.0-7.5	19.4	A-6	30	17	13	0.2	99.6	95.5	87.0	6.3	9.8	58.0	26.0

CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	0.37	c̄	=	0.46
α	=	30.3	Φ̄	=	35.83

Tested By: 129-04-0411 Date: 1/21/19 Approved By: MPS Date: 1/29/19

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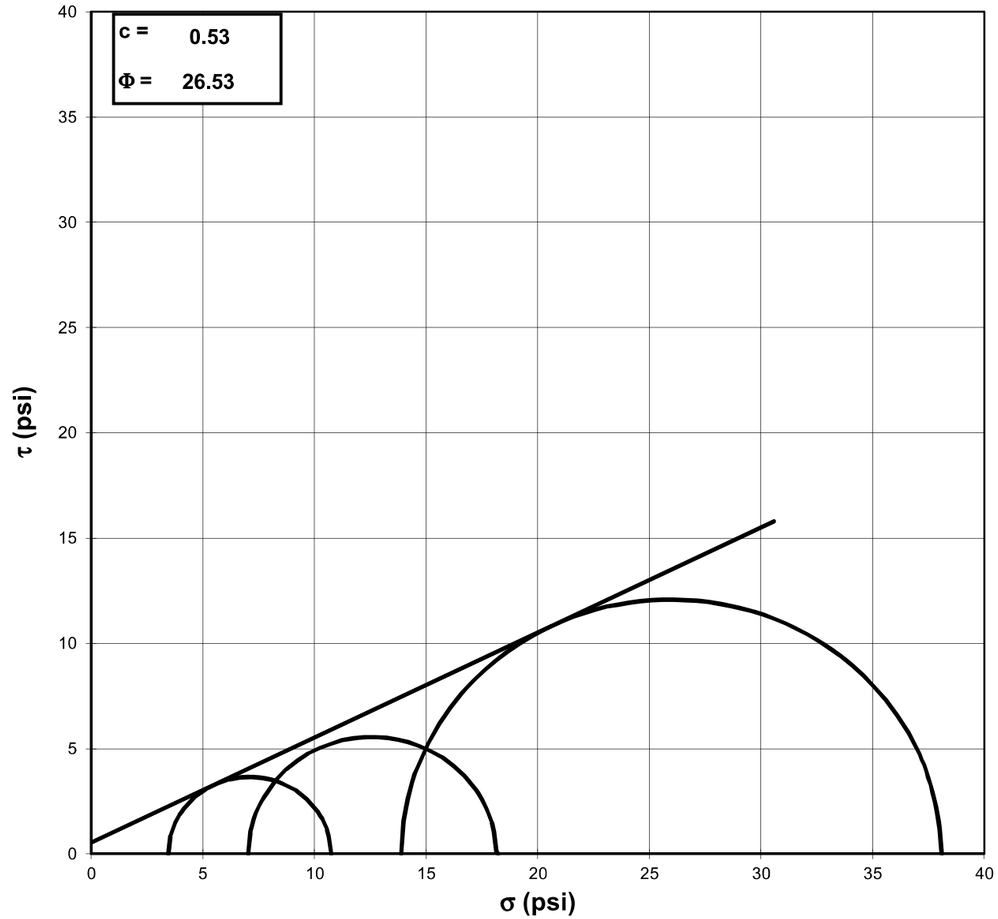
MOHR TOTAL STRENGTH ENVELOPE

AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		
Visual Description:	TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)		



Failure Based on Maximum Effective Principal Stress Ratio

NOTE: GRAPH NOT TO SCALE

Tested By: 129-04-0411 *Date:* 1/21/19 *Approved By:* MPS *Date:* 1/29/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Stage No.	1
Test No.	1

PRESSURES (psi)

Cell Pressure (psi)	53.5
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	3.5
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	5.60
Q	=	3.65

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	5.753	Diameter 1:	2.862
Length 2:	5.751	Diameter 2:	2.814
Length 3:	5.776	Diameter 3:	2.815
Length 4:	5.745	Diameter 4:	2.834
Avg. Length:	5.756	*Avg. Diam.:*	2.831

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	13.5
Final Change (ml)	10.5
Initial Dial Reading (mil)	238
Dial Reading After Saturation (mil)	231
Dial Reading After Consolidation (mil)	246

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
5.8	0.000	50.0
7.4	0.002	50.0
13.1	0.003	50.3
25.2	0.008	50.7
29.9	0.014	50.9
32.2	0.019	51.2
34.9	0.028	51.3
36.9	0.037	51.5
39.1	0.048	51.5
42.0	0.068	51.6
45.3	0.097	51.6
49.3	0.130	51.5
52.5	0.165	51.5
53.7	0.205	51.5
56.4	0.234	51.4
57.6	0.273	51.3
60.7	0.329	51.2
63.1	0.387	51.1
65.9	0.430	51.1
66.9	0.486	51.0
67.7	0.528	51.0
70.2	0.572	50.9
71.3	0.616	50.9
71.9	0.644	50.9
73.7	0.673	50.8
72.9	0.700	50.7
74.4	0.729	50.7
74.5	0.772	50.7
76.6	0.815	50.6
77.3	0.858	50.6
79.8	0.901	50.6

Tested By: 129-04-0411 Date: 1/21/19 Input Checked By: GEM Date: 1/29/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Effective Confining Pressure (psi)	3.5	*Stage No.*	1
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in)	5.76
Initial Sample Diameter (in)	2.83
Initial Sample Area (in^2)	6.30
Initial Sample Volume (in^3)	36.24

VOLUME CHANGE

Volume After Consolidation (in^3)	35.73
Length After Consolidation (in)	5.75
Area After Consolidation (in^2)	6.216

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	0.25	0.00	3.70	3.5	1.071	0.00	3.58	0.12
0.05	1.17	0.23	4.40	3.2	1.362	0.19	3.81	0.58
0.14	3.11	0.68	5.89	2.8	2.122	0.22	4.33	1.56
0.24	3.85	0.89	6.42	2.6	2.505	0.23	4.49	1.93
0.33	4.23	1.14	6.55	2.3	2.824	0.27	4.43	2.11
0.48	4.65	1.24	6.86	2.2	3.103	0.27	4.53	2.32
0.64	4.96	1.43	6.98	2.0	3.451	0.29	4.50	2.48
0.84	5.31	1.45	7.31	2.0	3.651	0.27	4.66	2.65
1.18	5.75	1.54	7.67	1.9	4.003	0.27	4.79	2.88
1.68	6.24	1.53	8.16	1.9	4.244	0.25	5.04	3.12
2.27	6.84	1.50	8.79	2.0	4.495	0.22	5.37	3.42
2.87	7.29	1.50	9.25	2.0	4.738	0.21	5.60	3.65
3.57	7.43	1.42	9.46	2.0	4.653	0.19	5.75	3.71
4.07	7.80	1.33	9.92	2.1	4.672	0.17	6.02	3.90
4.75	7.93	1.26	10.13	2.2	4.606	0.16	6.16	3.96
5.72	8.32	1.19	10.58	2.3	4.683	0.14	6.42	4.16
6.73	8.59	1.07	10.98	2.4	4.598	0.12	6.68	4.29
7.48	8.93	1.03	11.36	2.4	4.689	0.12	6.89	4.47
8.46	8.99	0.94	11.51	2.5	4.578	0.10	7.01	4.50
9.18	9.04	0.93	11.56	2.5	4.575	0.10	7.05	4.52
9.94	9.32	0.86	11.91	2.6	4.598	0.09	7.25	4.66
10.71	9.41	0.83	12.03	2.6	4.585	0.09	7.33	4.70
11.21	9.43	0.82	12.06	2.6	4.582	0.09	7.35	4.72
11.70	9.64	0.74	12.36	2.7	4.557	0.08	7.53	4.82
12.19	9.47	0.71	12.22	2.7	4.453	0.08	7.48	4.74
12.68	9.63	0.66	12.42	2.8	4.445	0.07	7.61	4.81
13.42	9.56	0.63	12.39	2.8	4.382	0.07	7.61	4.78
14.18	9.77	0.60	12.62	2.9	4.421	0.06	7.74	4.88
14.93	9.78	0.55	12.69	2.9	4.366	0.06	7.80	4.89
15.67	10.04	0.58	12.91	2.9	4.496	0.06	7.89	5.02

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Stage No.	1
Test No.	2

PRESSURES (psi)

Cell Pressure (psi)	57.0
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	7.0
Pore Pressure Response (%)	99

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	7.78
Q	=	5.55

INITIAL SAMPLE DIMENSIONS (in)

*Sample did not meet L:D ratio

Length 1:	5.128	Diameter 1:	2.771
Length 2:	5.125	Diameter 2:	2.734
Length 3:	5.020	Diameter 3:	2.752
Length 4:	4.998	Diameter 4:	2.778
Avg. Length:	5.068	*Avg. Diam.:*	2.759

VOLUME CHANGE

Initial Burette Reading (ml)	48.0
Final Burette Reading (ml)	24.7
Final Change (ml)	23.3
Initial Dial Reading (mil)	261
Dial Reading After Saturation (mil)	297
Dial Reading After Consolidation (mil)	465

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
7.8	0.000	50.0
12.9	0.001	50.1
14.7	0.003	50.3
30.7	0.010	51.2
37.2	0.017	51.9
40.6	0.024	52.4
44.2	0.034	52.8
47.7	0.046	53.2
49.0	0.060	53.5
53.5	0.085	53.9
56.2	0.120	54.2
60.0	0.161	54.4
64.3	0.204	54.6
67.5	0.254	54.7
69.0	0.289	54.7
70.1	0.338	54.8
74.0	0.423	54.9
76.2	0.519	54.9
79.7	0.588	54.8
82.8	0.684	54.8
85.2	0.754	54.7

Tested By: 129-04-0411 Date: 1/21/19 Input Checked By: GEM Date: 1/29/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Effective Confining Pressure (psi)	7.0	*Stage No.*	1
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in)	5.07
Initial Sample Diameter (in)	2.76
Initial Sample Area (in^2)	5.98
Initial Sample Volume (in^3)	30.29

VOLUME CHANGE

Volume After Consolidation (in^3)	28.22
Length After Consolidation (in)	4.86
Area After Consolidation (in^2)	5.803

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	0.87	0.10	7.81	6.9	1.126	0.12	7.37	0.44
0.05	1.20	0.30	7.93	6.7	1.178	0.26	7.33	0.60
0.20	3.95	1.25	9.74	5.8	1.682	0.32	7.76	1.97
0.34	5.04	1.87	10.21	5.2	1.976	0.37	7.69	2.52
0.48	5.63	2.39	10.27	4.6	2.212	0.43	7.45	2.81
0.71	6.23	2.82	10.45	4.2	2.480	0.46	7.33	3.12
0.94	6.81	3.22	10.63	3.8	2.783	0.48	7.23	3.41
1.23	7.02	3.46	10.59	3.6	2.964	0.50	7.08	3.51
1.75	7.74	3.90	10.87	3.1	3.471	0.51	7.00	3.87
2.46	8.14	4.19	10.99	2.8	3.858	0.52	6.92	4.07
3.32	8.70	4.42	11.31	2.6	4.323	0.51	6.96	4.35
4.20	9.33	4.56	11.80	2.5	4.766	0.49	7.14	4.66
5.22	9.76	4.71	12.09	2.3	5.189	0.49	7.21	4.88
5.94	9.92	4.74	12.22	2.3	5.316	0.48	7.26	4.96
6.96	9.99	4.84	12.18	2.2	5.554	0.49	7.19	5.00
8.70	10.42	4.87	12.58	2.2	5.818	0.47	7.37	5.21
10.66	10.53	4.85	12.71	2.2	5.819	0.47	7.45	5.26
12.08	10.89	4.78	13.15	2.3	5.834	0.44	7.70	5.45
14.07	11.10	4.81	13.33	2.2	5.988	0.44	7.78	5.55
15.49	11.27	4.70	13.60	2.3	5.827	0.42	7.97	5.63

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Stage No.	1
Test No.	3

PRESSURES (psi)

Cell Pressure (psi)	63.9
Back Pressure (psi)	50.0
Eff. Conf. Pressure (psi)	13.9
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	20.00
Q	=	12.08

INITIAL SAMPLE DIMENSIONS (in)

Length 1:	6.133	Diameter 1:	2.819
Length 2:	6.152	Diameter 2:	2.825
Length 3:	6.168	Diameter 3:	2.834
Length 4:	6.118	Diameter 4:	2.859
Avg. Length:	6.143	*Avg. Diam.:*	2.834

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	9.6
Final Change (ml)	14.4
Initial Dial Reading (mil)	288
Dial Reading After Saturation (mil)	275
Dial Reading After Consolidation (mil)	290

LOAD (LB)	DEFORMATION (IN)	PORE PRESSURE (PSI)
5.4	0.000	50.0
12.9	0.001	50.6
25.4	0.003	51.4
52.8	0.008	53.6
64.8	0.014	54.9
73.5	0.020	55.7
83.1	0.029	56.3
90.4	0.038	56.9
98.0	0.051	57.0
109.7	0.073	57.2
123.3	0.103	57.2
137.0	0.141	56.8
148.4	0.178	56.5
160.9	0.221	56.0
169.2	0.252	55.5
177.6	0.295	55.0
191.7	0.355	54.4
205.8	0.416	53.7
217.3	0.463	53.2
228.7	0.524	52.7
235.3	0.571	52.2
244.4	0.618	51.8
253.6	0.664	51.4
260.3	0.695	51.1
265.1	0.726	50.9
269.0	0.757	50.6
271.7	0.788	50.4
279.0	0.835	50.1
288.5	0.882	49.8
291.6	0.912	49.5
297.5	0.943	49.3

Tested By: 129-04-0411 Date: 1/21/19 Input Checked By: GEM Date: 1/29/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

AASHTO T-297

Client: Kleinfelder Boring No.: L_4800
Client Reference: U-5813 Depth (ft): 0-2.0
Project No.: R-2019-011-001 Sample No.: ST-1
Lab ID: R-2019-011-001-001

Visual Description: TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)

Effective Confining Pressure (psi)	13.9	*Stage No.*	1
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in)	6.14
Initial Sample Diameter (in)	2.83
Initial Sample Area (in^2)	6.31
Initial Sample Volume (in^3)	38.76

VOLUME CHANGE

Volume After Consolidation (in^3)	38.12
Length After Consolidation (in)	6.14
Area After Consolidation (in^2)	6.208

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.22	0.65	14.46	13.2	1.092	0.55	13.85	0.61
0.05	3.22	1.45	15.67	12.4	1.259	0.46	14.06	1.61
0.12	7.64	3.58	17.95	10.3	1.740	0.48	14.14	3.82
0.22	9.56	4.94	18.52	9.0	2.067	0.53	13.74	4.78
0.32	10.95	5.67	19.18	8.2	2.331	0.53	13.70	5.47
0.46	12.46	6.31	20.05	7.6	2.642	0.52	13.82	6.23
0.62	13.61	6.86	20.65	7.0	2.934	0.51	13.85	6.81
0.82	14.80	7.02	21.68	6.9	3.153	0.48	14.28	7.40
1.19	16.62	7.19	23.33	6.7	3.477	0.44	15.02	8.31
1.68	18.68	7.23	25.35	6.7	3.802	0.40	16.01	9.34
2.29	20.72	6.79	27.83	7.1	3.915	0.33	17.47	10.36
2.89	22.38	6.48	29.80	7.4	4.016	0.30	18.61	11.19
3.59	24.16	5.98	32.08	7.9	4.049	0.25	20.00	12.08
4.10	25.30	5.53	33.67	8.4	4.023	0.22	21.02	12.65
4.81	26.41	5.02	35.29	8.9	3.974	0.19	22.09	13.21
5.77	28.28	4.42	37.76	9.5	3.982	0.16	23.62	14.14
6.78	30.10	3.75	40.25	10.2	3.965	0.13	25.20	15.05
7.53	31.57	3.22	42.25	10.7	3.955	0.10	26.47	15.79
8.54	32.91	2.66	44.15	11.2	3.929	0.08	27.69	16.46
9.30	33.59	2.23	45.27	11.7	3.878	0.07	28.47	16.80
10.07	34.62	1.82	46.70	12.1	3.867	0.05	29.39	17.31
10.82	35.67	1.42	48.14	12.5	3.858	0.04	30.31	17.83
11.32	36.42	1.07	49.24	12.8	3.840	0.03	31.03	18.21
11.82	36.90	0.95	49.84	12.9	3.850	0.03	31.39	18.45
12.33	37.23	0.64	50.48	13.3	3.809	0.02	31.87	18.61
12.83	37.39	0.43	50.86	13.5	3.776	0.01	32.17	18.70
13.60	38.08	0.13	51.84	13.8	3.766	0.00	32.80	19.04
14.36	39.07	-0.19	53.16	14.1	3.773	0.00	33.62	19.53
14.85	39.26	-0.45	53.61	14.3	3.736	-0.01	33.98	19.63
15.36	39.83	-0.74	54.47	14.6	3.721	-0.02	34.55	19.91

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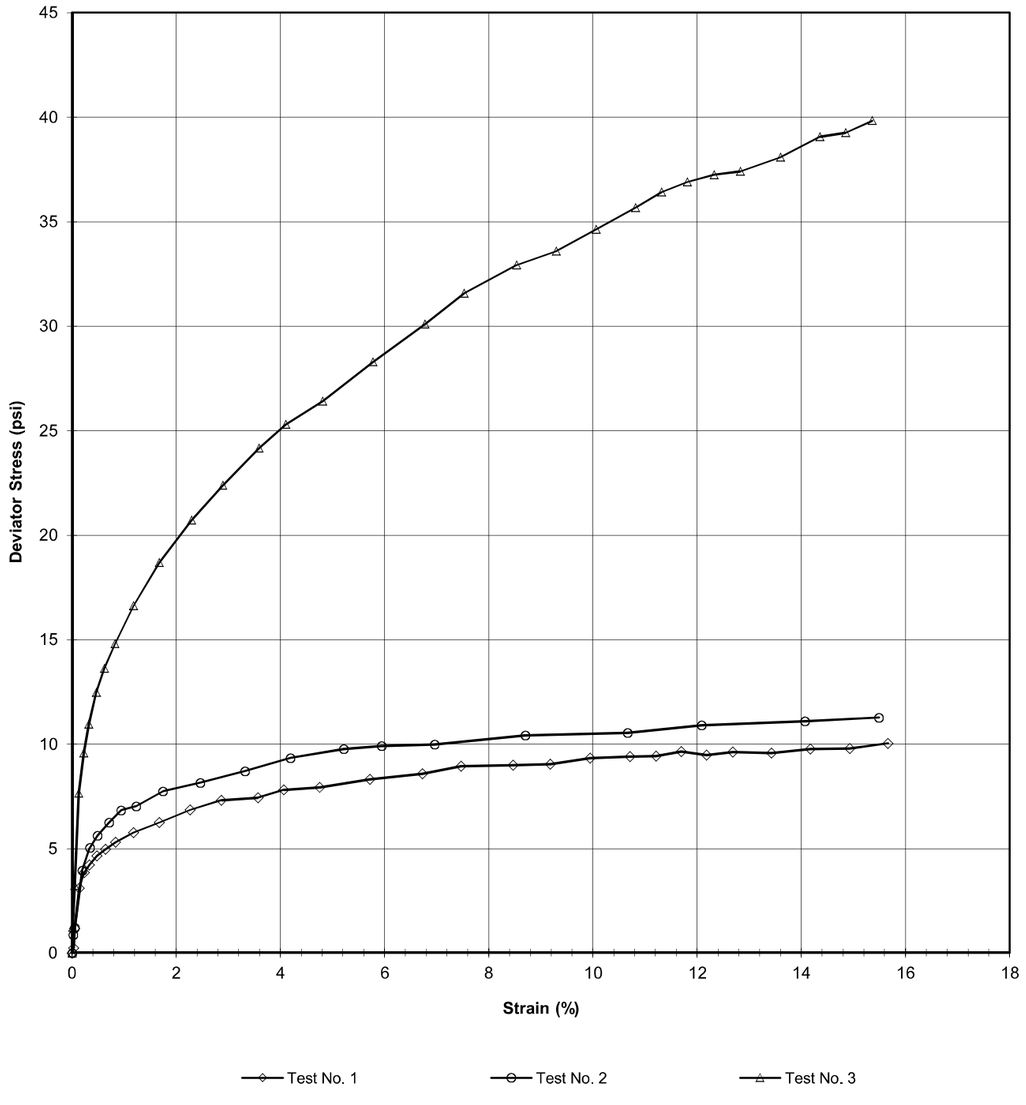
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		
Visual Description:	TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)		



Tested By: 129-04-0411 Date: 1/21/19 Approved By: MPS Date: 1/29/19

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder		
Client Reference:	U-5813		
Project No.:	R-2019-011-001		
Lab ID:	R-2019-011-001-001	Specific Gravity (Measured)	2.62
Visual Description:	TAN ORANGE CLAY WITH ORGANICS (UNDISTURBED)		

SAMPLE CONDITION SUMMARY

Boring No.:	L_4800	L_4800	L_4800
Depth (ft):	0-2.0	0-2.0	0-2.0
Sample No.:	ST-1001	ST-1001	ST-1001
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.0012	0.0012	0.0012
Back Pressure (psi)	50.0	50.0	50.0
Consolidation Time (days)	1	1	1
Moisture Content (%) (INITIAL)	19.2	19.2	19.2
Total Unit Weight (pcf)	115.0	103.9	127.0
Dry Unit Weight (pcf)	96.5	87.2	106.6
Moisture Content (%) (FINAL)	31.1	45.0	20.5
Initial State Void Ratio,e	0.695	0.876	0.535
Void Ratio at Shear, e	0.672	0.748	0.510

Tested By: 129-04-0411 Date: 1/21/19 Input Checked By: GEM Date: 1/29/19

 DCN: CT-S28 DATE: 4/12/13 REVISION: 3

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
AASHTO T-297

Client:	Kleinfelder	Boring No.:	L_4800
Client Reference:	U-5813	Depth (ft):	0-2.0
Project No.:	R-2019-011-001	Sample No.:	ST-1
Lab ID:	R-2019-011-001-001		

TEST 1 INITIAL

TEST 1 FINAL

TEST 2 INITIAL

TEST 2 FINAL

TEST 3 INITIAL

TEST 3 FINAL

Tested By 129-04-0411 *Date* 1/21/19 *Approved By* MPS *Date* 1/29/19

DCN: CT-S28 DATE: 4/12/13 REVISION: 3
Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT S(GMA)TRIAX.xlsm]THIRD
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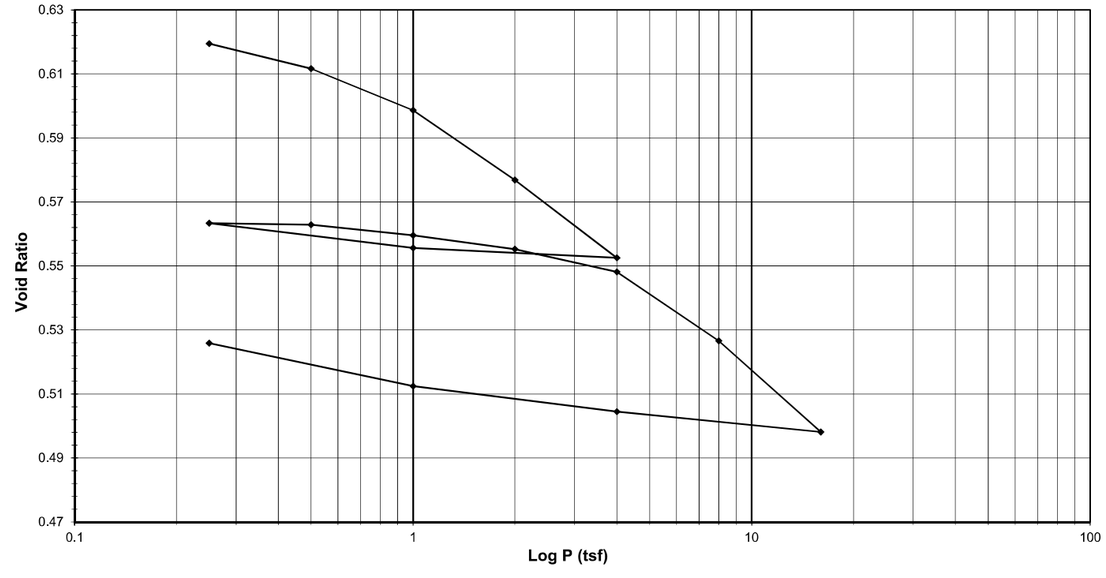
ONE DIMENSIONAL CONSOLIDATION
AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-04-0411 *Date* 1/16/19 *Approved By* MPS *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6
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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	861	812
Wt. Tare & WS (g)	239.90	261.30
Wt. Tare & DS (g)	223.70	237.67
Wt. Water (g)	16.20	23.63
Wt. Tare (g)	139.22	104.57
Wt. DS (g)	84.48	133.10
Water Content (%)	19.18	17.75
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.9323
Sample Volume (cc)	80.44	74.99
Wt. Wet Sample + Ring (g)	372.34	370.45
Wt. of Ring (g)	214.20	214.20
Wt. of Wet Sample (g)	158.14	156.25
Wet Density (pcf)	122.67	130.02
Wet Density (g/cc)	1.97	2.08
Water Content (%)	19.18	17.75
Wt. of Dry Sample (g)	132.69	132.69
Dry Density (pcf)	102.94	110.41
Dry Density (g/cc)	1.65	1.77
Void Ratio	0.6368	0.5259
Saturation (%)	81.31	91.15
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	Final Dial Reading (div)	Machine Deflection (div)	Corrected Reading (div)	Height of Sample (mm)	Volume (cc)	Dry Density (g/cc)	Void Ratio
Seating	0	0	0	25.400	80.440	1.64961	**0.63675**
0.25	137.5	31.8	105.7	25.132	79.589	1.66723	**0.61945**
0.5	200.3	47.0	153.3	25.011	79.207	1.67529	**0.61166**
1	302.8	70.0	232.9	24.809	78.567	1.68894	**0.59864**
2	461.8	95.6	366.1	24.470	77.495	1.71231	**0.57682**
4	641.6	126.9	514.8	24.092	76.299	1.73914	**0.55249**
1	588.5	92.9	495.6	24.141	76.453	1.73563	**0.55563**
0.25	513.8	65.2	448.6	24.261	76.832	1.72708	**0.56333**
0.5	523.4	72.1	451.3	24.254	76.809	1.72758	**0.56288**
1	555.8	84.4	471.4	24.203	76.648	1.73121	**0.55960**
2	598.7	100.9	497.8	24.136	76.436	1.73602	**0.55528**
4	670.4	128.9	541.5	24.025	76.084	1.74404	**0.54813**
8	839.6	166.5	673.1	23.690	75.025	1.76866	**0.52658**
16	1068.6	221.8	846.8	23.249	73.628	1.80222	**0.49815**
4	965.2	156.9	808.3	23.347	73.938	1.79468	**0.50445**
1	868.6	109.0	759.6	23.471	74.329	1.78522	**0.51242**
0.25	754.5	77.2	677.3	23.680	74.992	1.76945	**0.52589**

Tested By *129-04-0411* *Date* *1/16/19* *Input Checked By* *GEM* *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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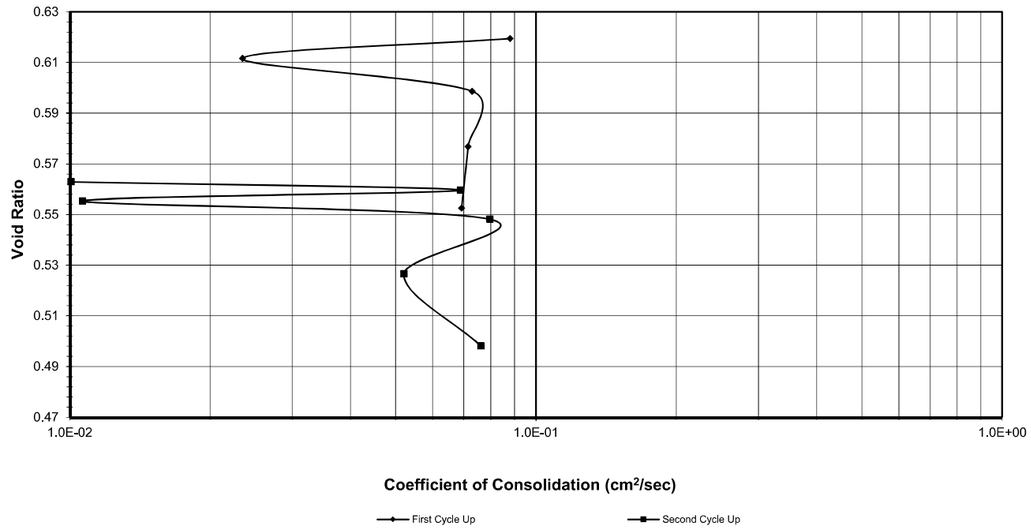
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By *129-04-0411* *Date* *1/16/19* *Input Checked By* *GEM* *Date* *1/29/19*

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R409
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	861	812
Wt. Tare & WS (g)	239.90	261.30
Wt. Tare & DS (g)	223.70	237.67
Wt. Water (g)	16.20	23.63
Wt. Tare (g)	139.22	104.57
Wt. DS (g)	84.48	133.10
Water Content (%)	19.18	17.75
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.932
Sample Volume (cc)	80.44	74.99
Wt. Wet Sample + Ring (g)	372.34	370.45
Wt. of Ring (g)	214.20	214.20
Wt. of Wet Sample (g)	158.14	156.25
Wet Density (pcf)	122.67	130.02
Wet Density (g/cc)	1.97	2.08
Water Content (%)	19.18	17.75
Wt. of Dry Sample (g)	132.69	132.69
Dry Density (pcf)	102.94	110.41
Dry Density (g/cc)	1.65	1.77
Void Ratio	0.6368	0.5259
Saturation (%)	81.31	91.15
Specific Gravity	2.7	*Assumed*

C_v Test Data Summary

Load Increment	**Dial Reading @ t_{50}**	**Machine Deflection**	**Corrected Dial Reading @ t_{50}**	**Sample Height @ t_{50}**	**Time t_{50}**	**C_v**
(tsf)	(div)	(div)	(div)	(cm)	(min.)	(cm²/sec)
0 - 0.25	45.5	31.8	13.7	2.537	**0.06**	**0.08802**
0.25 - 0.5	171.9	47.0	124.9	2.508	**0.22**	**0.02347**
0.5 - 1.0	248.8	70.0	178.8	2.495	**0.07**	**0.07297**
1.0 - 2.0	373.9	95.6	278.3	2.469	**0.07**	**0.07150**
2.0 - 4.0	557.7	126.9	430.8	2.431	**0.07**	**0.06927**
4.0 - 1.0	NA	92.9	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	65.2	NA	NA	**NA**	**NA**
0.25 - 0.5	521.1	72.1	449.0	2.426	**0.48**	**0.01006**
0.5 - 1.0	545.8	84.4	461.3	2.423	**0.07**	**0.06883**
1.0 - 2.0	585.5	100.9	484.6	2.417	**0.45**	**0.01066**
2.0 - 4.0	632.7	128.9	503.8	2.412	**0.06**	**0.07959**
4.0 - 8.0	758.4	166.5	591.8	2.390	**0.09**	**0.05208**
8.0 - 16.0	931.2	221.8	709.3	2.360	**0.06**	**0.07618**
16.0 - 4.0	NA	156.9	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	109.0	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	77.2	NA	NA	**NA**	**NA**

Tested By 129-04-0411 *Date* 1/16/19 *Input Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT

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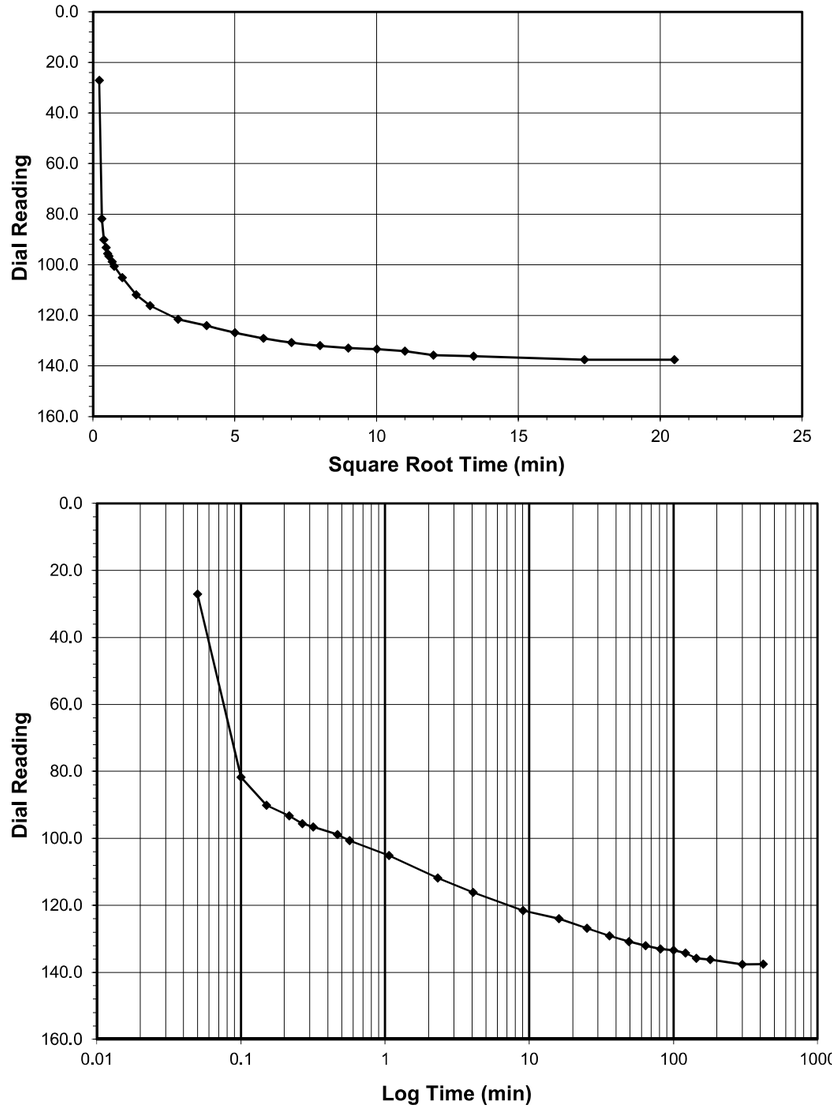
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**137.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/16/19
Start Time		11:32:10

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	27.1
0.10	81.8
0.15	90.1
0.22	93.3
0.27	95.6
0.32	96.6
0.47	98.8
0.57	100.7
1.07	105.1
2.32	111.9
4.07	116.1
9.07	121.5
16.07	124.0
25.07	126.8
36.07	129.1
49.07	130.8
64.07	132.0
81.07	133.0
100.07	133.4
121.07	134.2
144.07	135.8
180.07	136.2
300.08	137.6
420.10	137.5

Tested By 129-04-0411 *Date* 1/16/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 1

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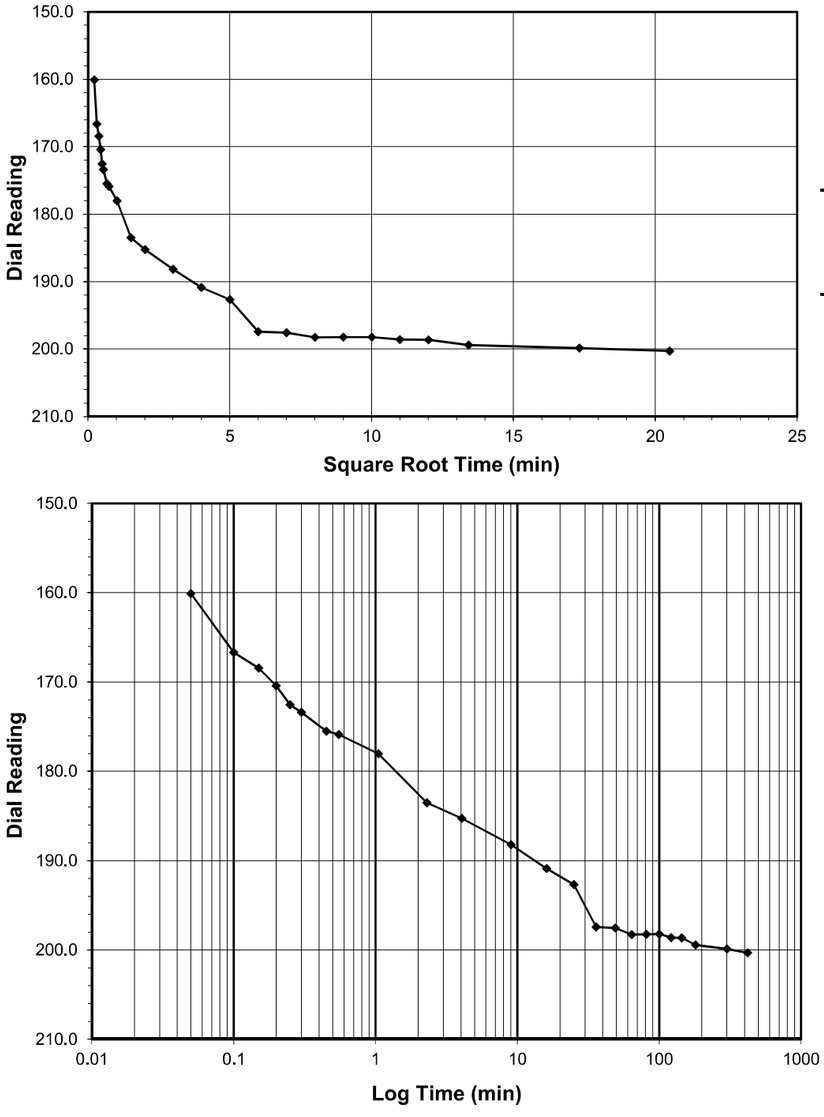
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**0.25-0.5**
Final Reading (div)		**200.3**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/16/19
Start Time		18:32:17

Elapsed Time (min)	Dial Reading (div)
Initial	**137.5**
0.05	160.1
0.10	166.7
0.15	168.5
0.20	170.4
0.25	172.6
0.30	173.4
0.45	175.5
0.55	175.9
1.05	178.0
2.30	183.5
4.05	185.3
9.05	188.2
16.05	190.9
25.05	192.7
36.05	197.4
49.07	197.5
64.07	198.3
81.07	198.2
100.07	198.2
121.07	198.6
144.07	198.6
180.07	199.4
300.07	199.9
420.40	200.3

Tested By 129-04-0411 *Date* 1/16/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 2

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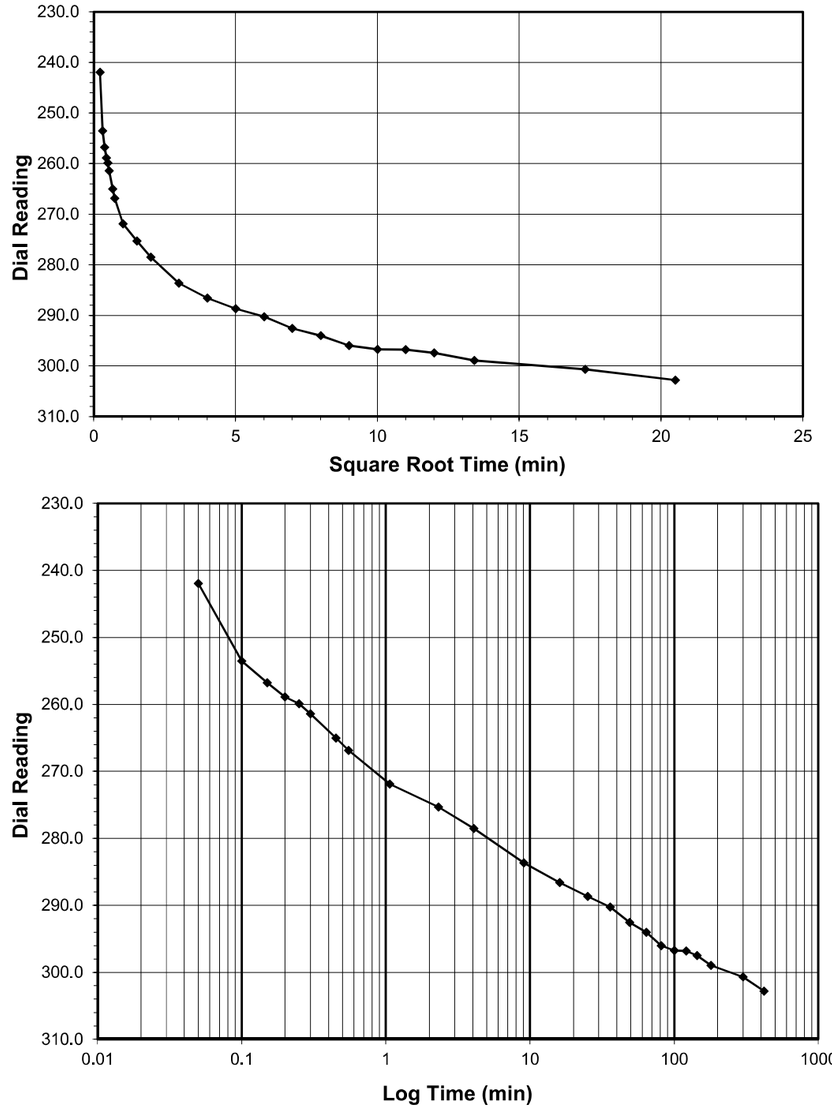
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**0.5-1.0**
Final Reading (div)		**302.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		1:32:41

Elapsed Time (min)	Dial Reading (div)
Initial	**200.3**
0.05	242.0
0.10	253.6
0.15	256.8
0.20	258.9
0.25	259.9
0.30	261.4
0.45	265.0
0.55	266.9
1.07	271.9
2.32	275.3
4.07	278.5
9.07	283.6
16.07	286.6
25.07	288.7
36.07	290.3
49.07	292.5
64.07	294.0
81.07	296.0
100.07	296.7
121.07	296.8
144.07	297.5
180.07	299.0
300.07	300.7
420.33	302.8

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 3

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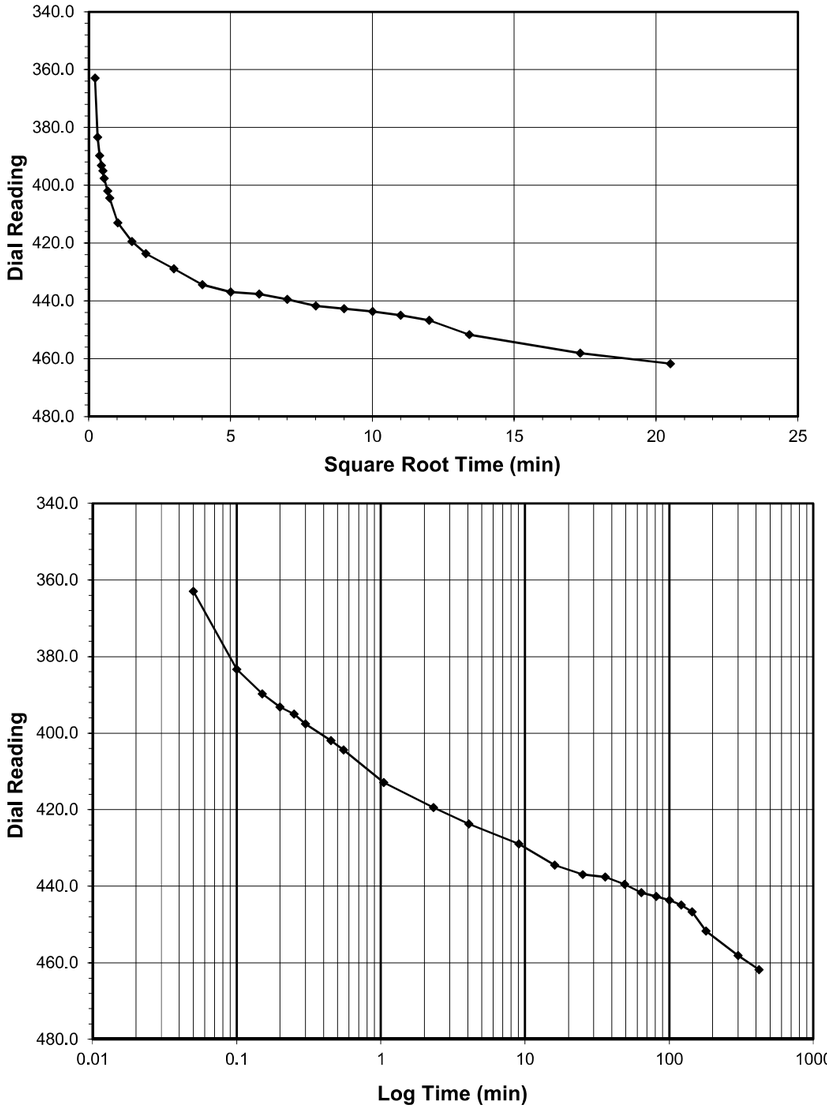
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**461.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		8:33:01

Elapsed Time (min)	Dial Reading (div)
Initial	**302.8**
0.05	363.0
0.10	383.4
0.15	389.8
0.20	393.2
0.25	395.0
0.30	397.6
0.45	401.9
0.55	404.4
1.05	412.9
2.32	419.5
4.07	423.7
9.07	428.9
16.07	434.4
25.07	436.9
36.07	437.6
49.07	439.5
64.07	441.7
81.07	442.7
100.07	443.7
121.07	444.9
144.07	446.7
180.07	451.7
300.07	458.1
420.38	461.8

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 4

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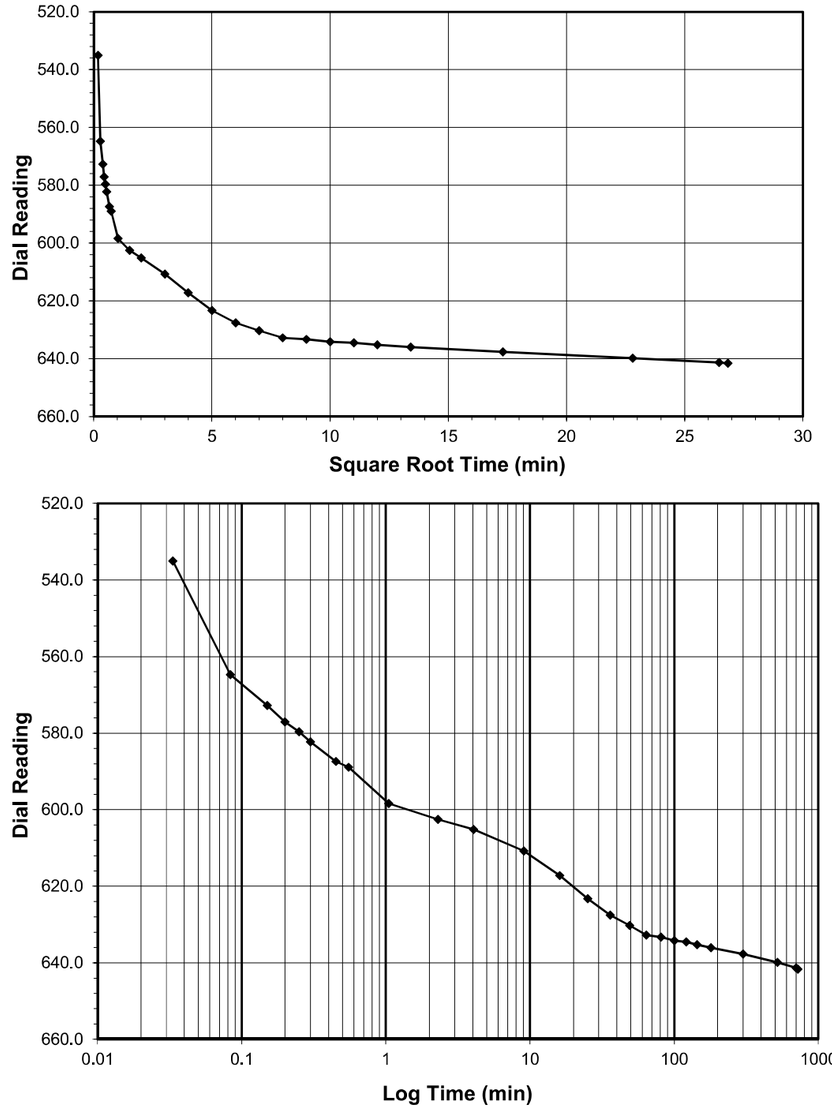
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**641.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		15:33:24

Elapsed Time (min)	Dial Reading (div)
Initial	**461.8**
0.03	535.1
0.08	564.8
0.15	572.8
0.20	577.1
0.25	579.6
0.30	582.3
0.45	587.4
0.55	588.9
1.05	598.4
2.30	602.5
4.05	605.2
9.05	610.7
16.05	617.2
25.05	623.3
36.05	627.5
49.05	630.2
64.05	632.8
81.05	633.3
100.05	634.2
121.05	634.5
144.05	635.2
180.05	636.0
300.05	637.7
520.05	639.9
700.05	641.3
720.05	641.6

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

page 1 of 1

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 5

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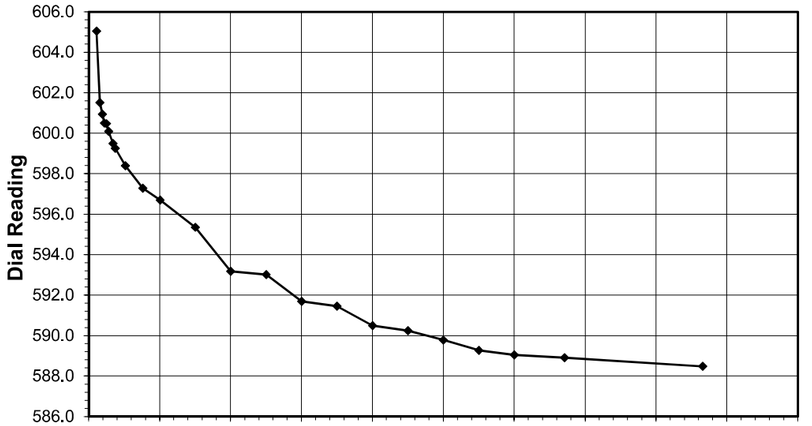
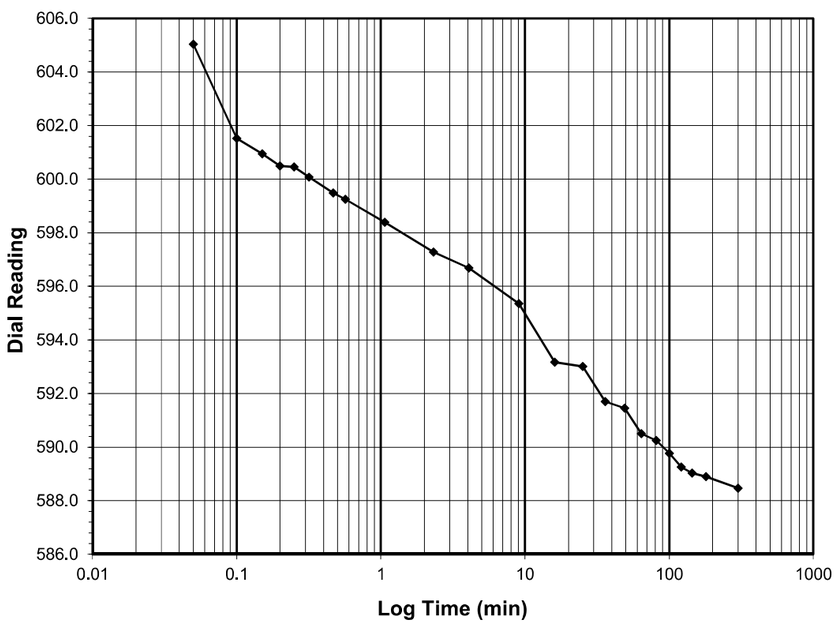
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**4.0-1.0**
Final Reading (div)		**588.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		3:33:28

Elapsed Time (min)	Dial Reading (div)
Initial	**641.6**
0.05	605.0
0.10	601.5
0.15	600.9
0.20	600.5
0.25	600.5
0.32	600.1
0.47	599.5
0.57	599.3
1.07	598.4
2.32	597.3
4.07	596.7
9.07	595.4
16.07	593.2
25.07	593.0
36.07	591.7
49.07	591.5
64.08	590.5
81.08	590.2
100.08	589.8
121.08	589.3
144.08	589.0
180.08	588.9
300.08	588.5

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 6

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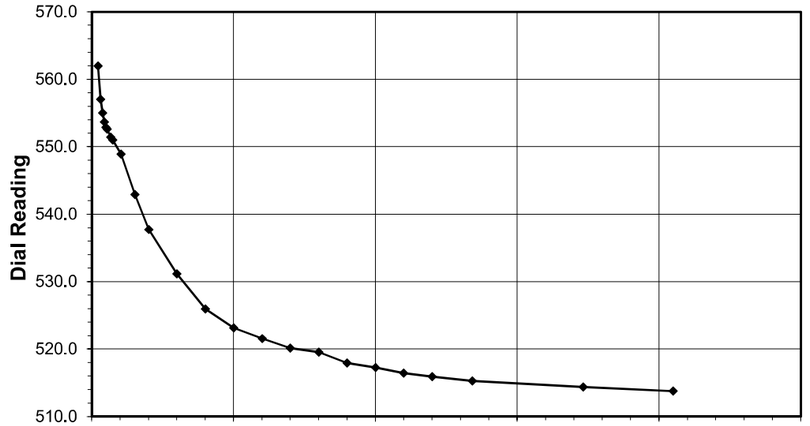
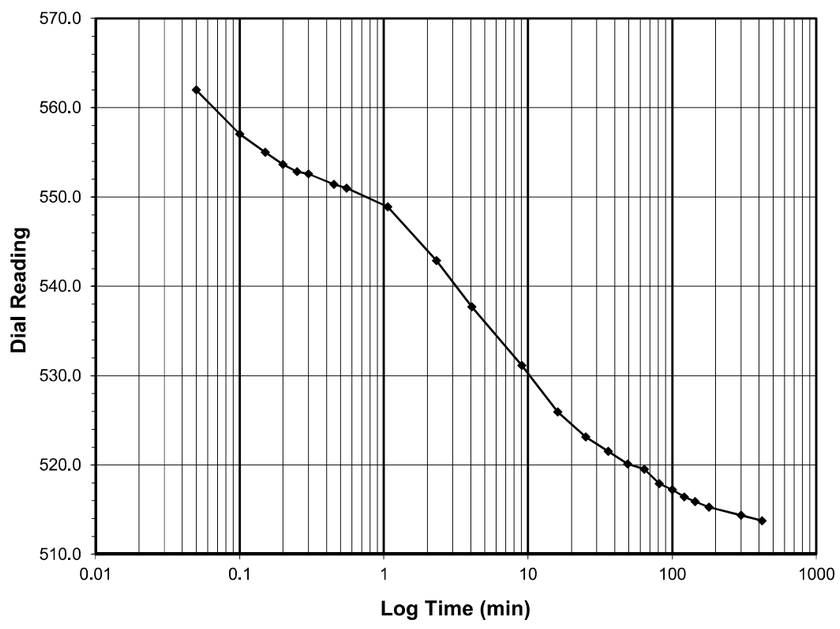
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**1.0-0.25**
Final Reading (div)		**513.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		10:33:49

Elapsed Time (min)	Dial Reading (div)
Initial	**588.5**
0.05	562.0
0.10	557.0
0.15	555.0
0.20	553.7
0.25	552.9
0.30	552.6
0.45	551.4
0.55	551.0
1.07	548.9
2.32	542.9
4.07	537.7
9.07	531.2
16.07	525.9
25.07	523.2
36.07	521.5
49.07	520.1
64.07	519.5
81.07	517.9
100.07	517.2
121.07	516.4
144.07	515.9
180.07	515.3
300.07	514.4
420.32	513.8

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 7

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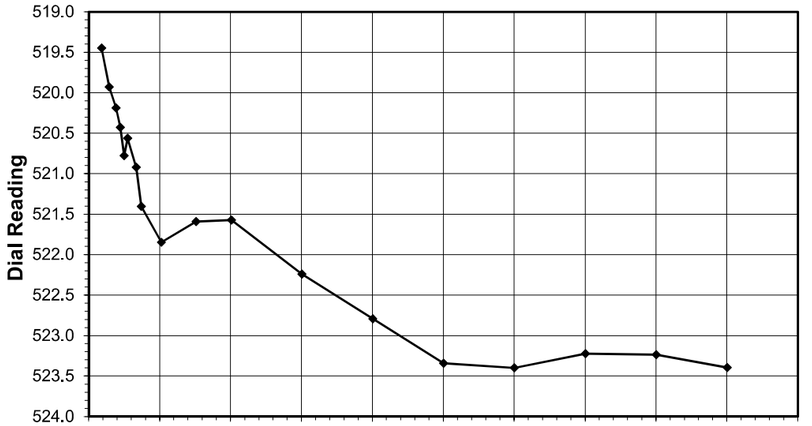
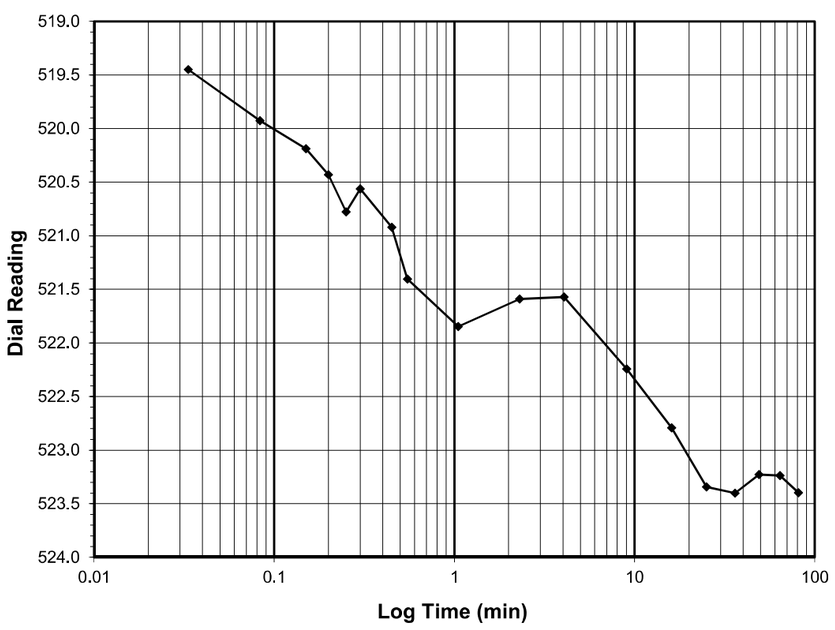
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**523.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		17:34:08

Elapsed Time (min)	Dial Reading (div)
Initial	**513.8**
0.03	519.4
0.08	519.9
0.15	520.2
0.20	520.4
0.25	520.8
0.30	520.6
0.45	520.9
0.55	521.4
1.05	521.8
2.30	521.6
4.05	521.6
9.05	522.2
16.05	522.8
25.05	523.3
36.05	523.4
49.05	523.2
64.05	523.2
81.07	523.4

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 8

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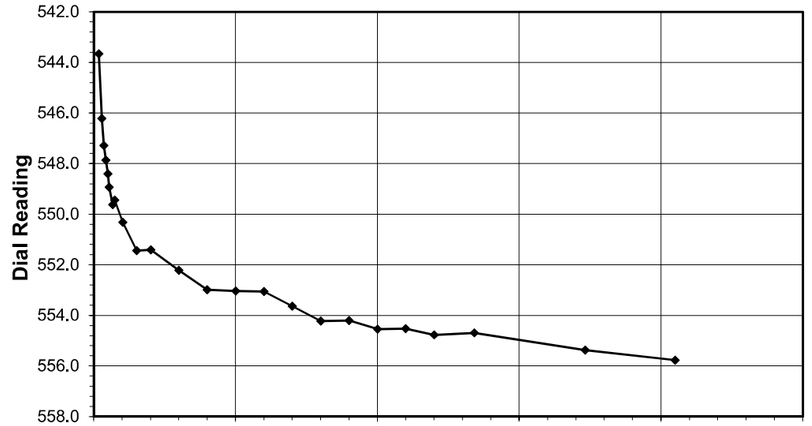
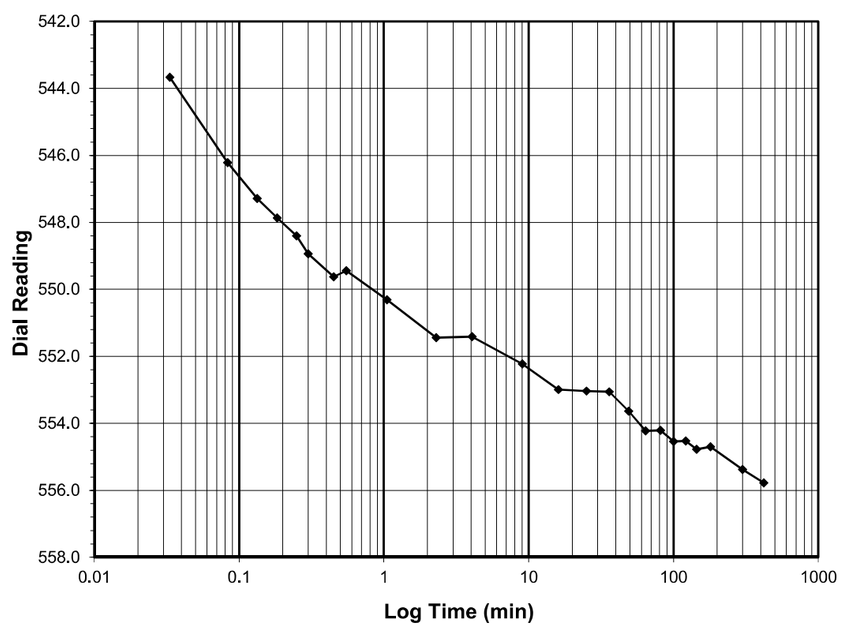
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**555.8**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		0:34:28

Elapsed Time (min)	Dial Reading (div)
Initial	**523.4**
0.03	543.7
0.08	546.2
0.13	547.3
0.18	547.9
0.25	548.4
0.30	548.9
0.45	549.6
0.55	549.4
1.05	550.3
2.30	551.4
4.05	551.4
9.05	552.2
16.05	553.0
25.05	553.0
36.05	553.1
49.07	553.6
64.07	554.2
81.07	554.2
100.07	554.5
121.07	554.5
144.07	554.8
180.07	554.7
300.07	555.4
420.28	555.8

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 9

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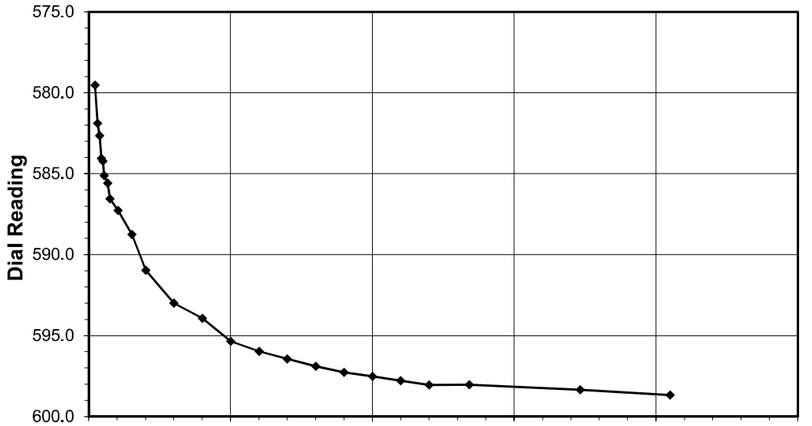
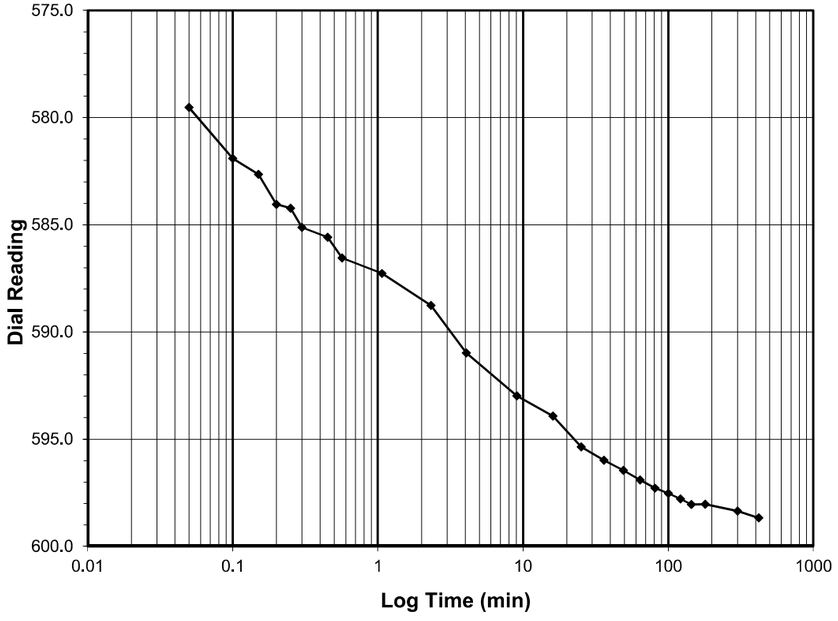
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**1.0-2.0**
Final Reading (div)		**598.7**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		7:34:46

Elapsed Time (min)	Dial Reading (div)
Initial	**555.8**
0.05	579.5
0.10	581.9
0.15	582.7
0.20	584.1
0.25	584.2
0.30	585.1
0.45	585.6
0.57	586.5
1.07	587.3
2.32	588.8
4.07	591.0
9.07	593.0
16.07	593.9
25.07	595.4
36.07	596.0
49.07	596.4
64.07	596.9
81.07	597.3
100.07	597.5
121.07	597.8
144.07	598.1
180.07	598.0
300.08	598.4
420.23	598.7

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 10

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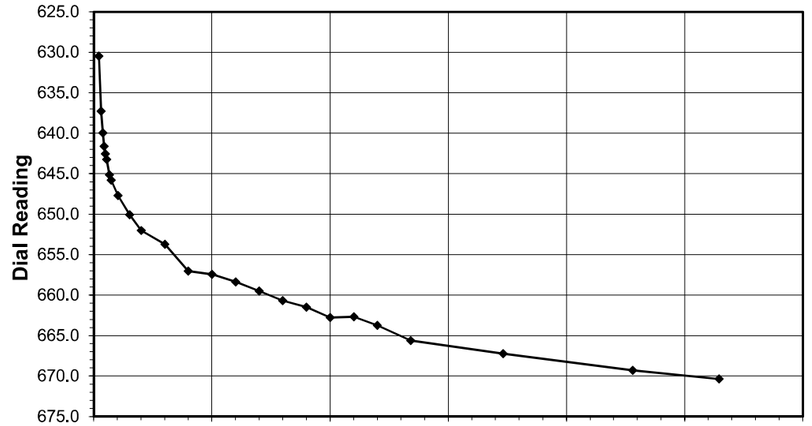
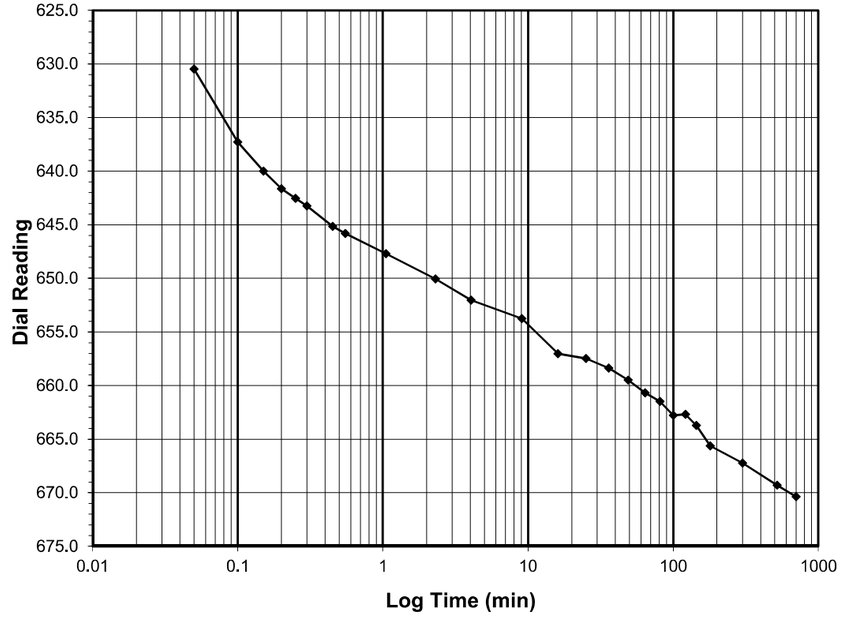
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**2.0-4.0**
Final Reading (div)		**670.4**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		14:35:00

Elapsed Time (min)	Dial Reading (div)
Initial	**598.7**
0.05	630.5
0.10	637.3
0.15	640.0
0.20	641.6
0.25	642.5
0.30	643.2
0.45	645.2
0.55	645.8
1.05	647.7
2.30	650.1
4.05	652.0
9.05	653.7
16.05	657.0
25.05	657.5
36.05	658.4
49.05	659.5
64.05	660.7
81.07	661.5
100.07	662.8
121.07	662.7
144.07	663.7
180.07	665.6
300.07	667.2
520.07	669.3
700.07	670.4

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

page 1 of 1

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 11

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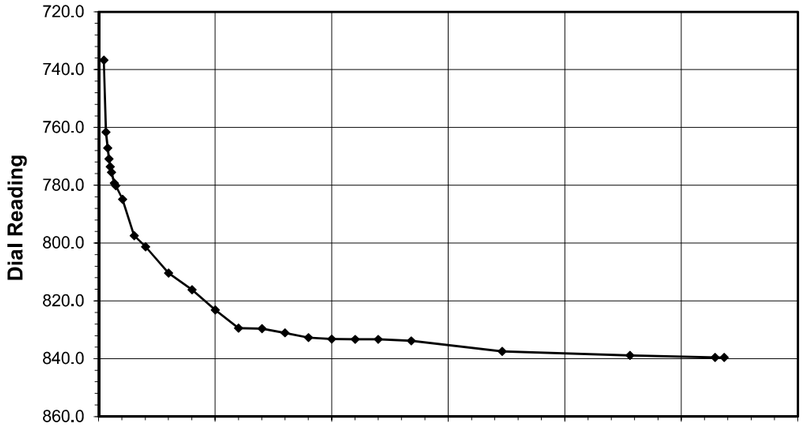
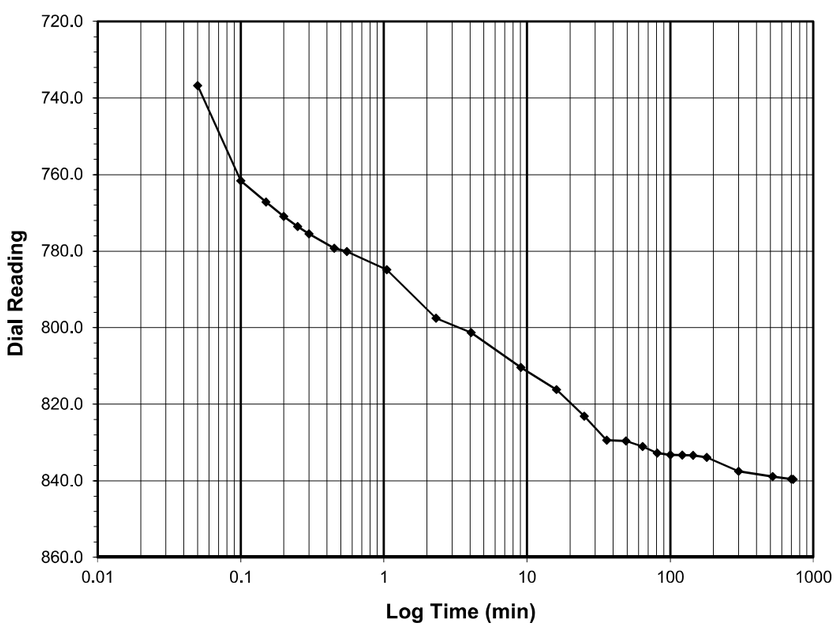
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**839.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/20/19
Start Time		2:35:20

Elapsed Time (min)	Dial Reading (div)
Initial	**670.4**
0.05	736.8
0.10	761.7
0.15	767.2
0.20	770.9
0.25	773.6
0.30	775.5
0.45	779.2
0.55	780.1
1.05	784.9
2.32	797.5
4.07	801.3
9.07	810.4
16.07	816.1
25.07	823.1
36.07	829.4
49.07	829.6
64.07	831.0
81.07	832.7
100.07	833.2
121.07	833.3
144.07	833.3
180.07	833.9
300.07	837.5
520.07	838.9
700.07	839.6
720.33	839.6

Tested By 129-04-0411 *Date* 1/20/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 12

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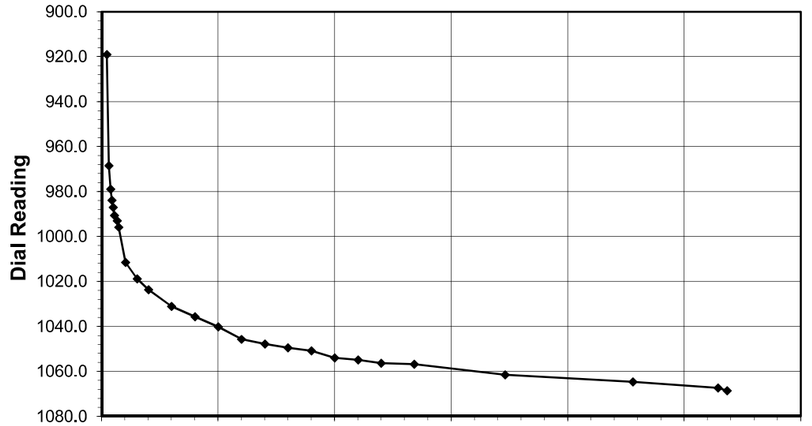
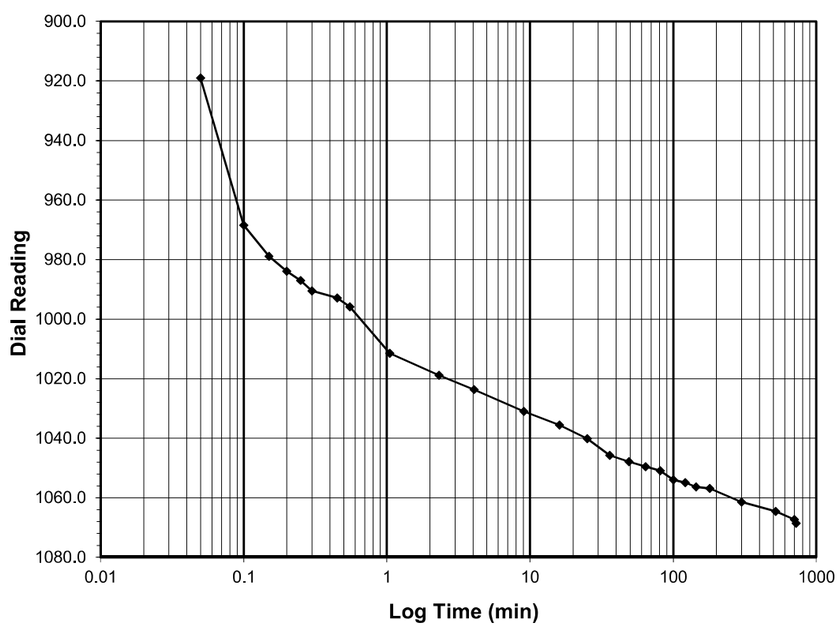
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**1068.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/20/19
Start Time		14:35:40

Elapsed Time (min)	Dial Reading (div)
Initial	**839.6**
0.05	919.1
0.10	968.4
0.15	978.9
0.20	983.9
0.25	987.0
0.30	990.6
0.45	992.9
0.55	995.9
1.05	1011.5
2.32	1018.8
4.07	1023.6
9.07	1031.0
16.07	1035.6
25.07	1040.1
36.07	1045.7
49.07	1047.8
64.07	1049.6
81.07	1050.9
100.07	1054.0
121.07	1054.9
144.07	1056.3
180.07	1056.8
300.07	1061.5
520.08	1064.6
700.08	1067.4
720.40	1068.6

Tested By 129-04-0411 *Date* 1/20/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 13

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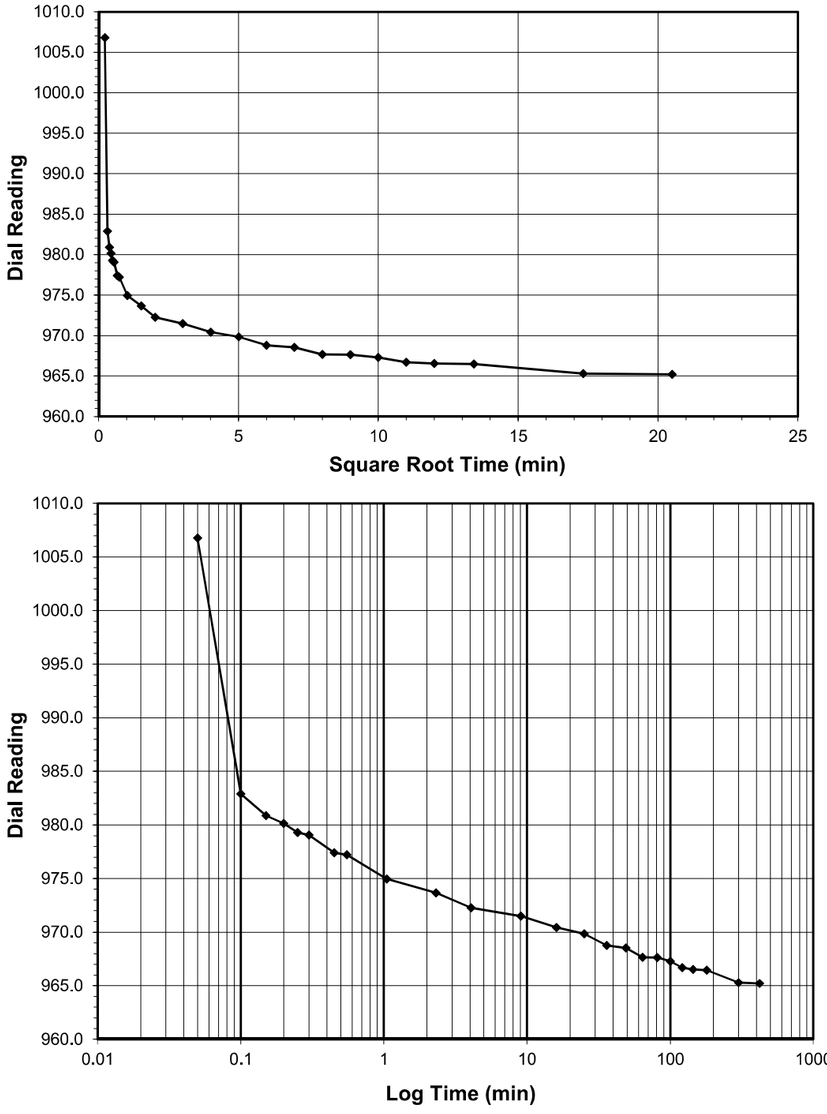
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**965.2**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		2:36:04

Elapsed Time (min)	Dial Reading (div)
Initial	**1068.6**
0.05	1006.8
0.10	982.9
0.15	980.9
0.20	980.2
0.25	979.3
0.30	979.1
0.45	977.4
0.55	977.2
1.05	974.9
2.32	973.7
4.07	972.3
9.07	971.5
16.07	970.4
25.07	969.9
36.07	968.8
49.07	968.5
64.07	967.7
81.07	967.6
100.07	967.3
121.07	966.7
144.07	966.5
180.07	966.5
300.07	965.3
420.37	965.2

Tested By 129-04-0411 *Date* 1/21/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-001 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 14

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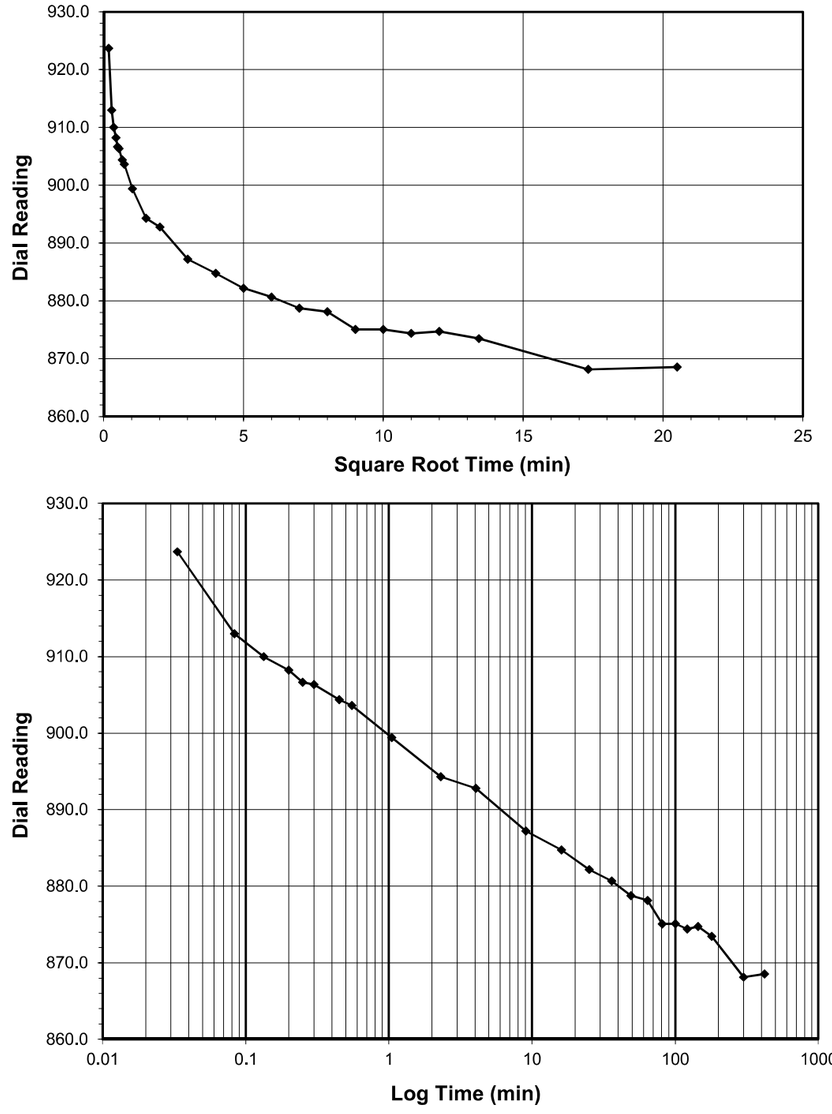
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**868.6**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		9:36:26

Elapsed Time (min)	Dial Reading (div)
Initial	**965.2**
0.03	923.7
0.08	913.0
0.13	910.0
0.20	908.2
0.25	906.6
0.30	906.3
0.45	904.4
0.55	903.6
1.05	899.4
2.30	894.3
4.05	892.8
9.05	887.2
16.05	884.8
25.05	882.2
36.05	880.7
49.05	878.8
64.05	878.1
81.05	875.1
100.05	875.1
121.05	874.4
144.05	874.7
180.07	873.5
300.07	868.1
420.42	868.6

Tested By 129-04-0411 *Date* 1/21/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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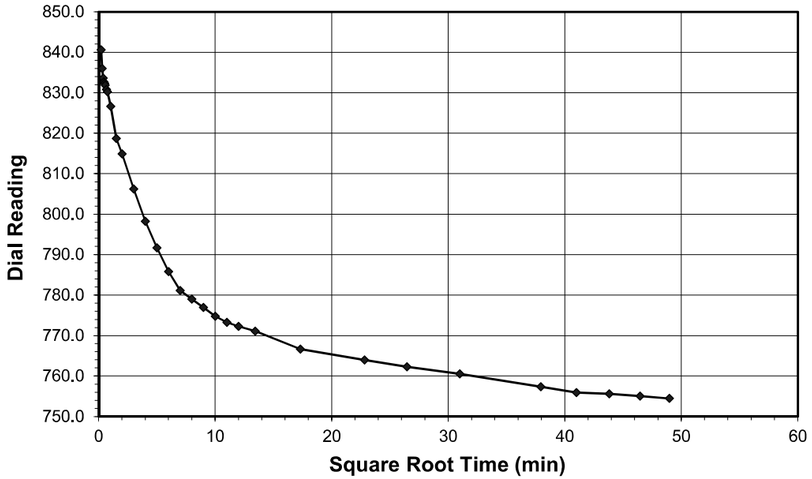
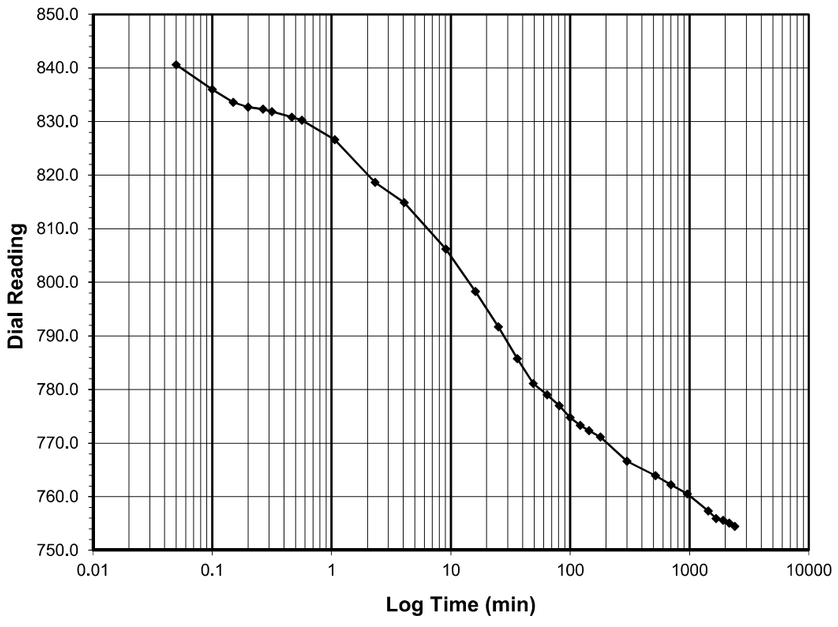
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_4800
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-1
Lab ID	R-2019-011-001-001	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**754.5**
Consolidometer No.		**R409**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		16:36:52

Elapsed Time (min)	Dial Reading (div)
Initial	**868.6**
0.05	840.6
0.10	836.0
0.15	833.6
0.20	832.7
0.27	832.3
0.32	831.8
0.47	830.8
0.57	830.3
1.07	826.6
2.32	818.7
4.07	814.9
9.07	806.2
16.07	798.3
25.07	791.7
36.08	785.8
49.08	781.1
64.08	779.0
81.08	777.0
100.08	774.8
121.08	773.3
144.08	772.3
180.08	771.1
300.08	766.6
520.08	764.0
700.08	762.3
960.10	760.5
1440.10	757.3
1680.10	755.9
1920.10	755.6
2160.10	755.1
2397.53	754.5

Tested By 129-04-0411 *Date* 1/21/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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SIEVE AND HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Soil Color	**Tan**

	SIEVE ANALYSIS			HYDROMETER
USCS	cobbles	gravel	sand	silt and clay fraction
AASHTO	cobbles	gravel	sand	silt and clay fraction

Sieve Size (mm)	Percent Finer	USCS	%	AASHTO	%	NCDOT SOIL MORTAR	%
100	100.00	*Gravel*	10.87	*Gravel*	15.93	*Coarse Sand Ret. #60*	15.44
2	84.07	*Sand*	26.83	*Coarse Sand*	8.45	*Fine Sand Ret. #270*	15.22
0.075	62.30	*Silt&Clay*	62.30	*Fine Sand*	13.32	*Silt 0.05-0.005mm*	45.46
				Silt & Clay	62.30	Clay <0.005mm	23.87

AASHTO (GI) ***A-6*** **(5)**

DCN: CT-S3Y DATE 6-26-98 REVISION: 0 *Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT SIEVEHYD10.xlsm]Data1*

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WASH SIEVE ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Soil Color	**Tan**

Minus #10 for Hygroscopic (10-15gm)		Hydrometer Specimen 50 or 100gms	
Tare No.	C-27	Air Dried Hydrometer Material (gm)	53.74
Wgt.Tare + Wet Specimen (gm)	36.35	Corrected Dry Wt. of Hydro Mtrl. (gm)	49.47
Wgt.Tare + Dry Specimen (gm)	35.20		
Weight of Tare (gm)	21.86	Weight of -#270 Material	34.30
Weight of Water (gm)	1.15	Weight of -#10; +#270 Material	15.17
Weight of Dry Soil (gm)	13.34		
Moisture Content (%)	**8.6**		

Tare No.	921		
Wgt. Tare + Air Dry Soil (gm)	747.22	Dry Weight of Material Ret. #10 (gm)	77.66
Weight of Tare (gm)	224.37	Corrected Dry Sample Wt - #10 (gm)	409.86
Air Dried Wgt.Total Sample (gm)	522.85		
Total Dry Weight Sample (gm)	487.5	**J - Factor (Percent Finer than #10)**	**0.8407**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	11.04	2.26	2.26	97.74	**97.74**
1/2"	12.5	5.90	1.21	3.47	96.53	**96.53**
3/8"	9.5	17.57	3.60	7.08	92.92	**92.92**
#4	4.75	18.48	3.79	10.87	89.13	**89.13**
#10	2.00	24.67	5.06	15.93	84.07	**84.07**
#20	0.85	1.60	3.23	3.23	96.77	**81.35**
#40	0.425	3.37	6.81	10.05	89.95	**75.63**
#60	0.25	2.67	5.40	15.44	84.56	**71.09**
#140	0.106	3.30	6.67	22.11	77.89	**65.48**
#200	0.075	1.87	3.78	25.89	74.11	**62.30**
#270	0.053	2.36	4.77	30.66	69.34	**58.29**
Pan	-	34.30	69.34	100.00	-	**-**

Tested By 129-05-0411 Date 1/21/19 Checked By GEM Date 1/21/19

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HYDROMETER ANALYSIS

NCDOT MOD. AASHTO T-88,

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Soil Color	**Tan**

Elapsed Time (min)		**R Measured**	**Temp. (°C)**	**Composite Correction**	**R Corrected**	**N (%)**	**K Factor**	**Diameter (mm)**	**N' (%)**
11:28:00	0	NA	NA	NA	NA	NA	NA	NA	NA
11:28:33	0.55	37.0	22.9	-2.21	33.2	66.7	0.01307	0.0563	**56.1**
12:28:00	60.00	15.5	23.7	-2.38	11.9	23.9	0.01294	0.0062	**20.1**

Corrections	
a - Factor	0.994
Percent Finer than # 10	84.07
Specific Gravity	2.68 Assumed

Note: *Hydrometer test is performed on - #10 sieve material.*

LL = 31

PL = 20

PI = 11

Tested By 129-05-0411 Date 1/18/19 Checked By GEM Date 1/21/19

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ATTERBERG LIMITS

AASHTO T-89, T-90 *(DOT Modified)*

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Soil Description	**TAN LEAN CLAY**

Note: The* USCS *symbol used with this test refers only to the minus No. 40 (Minus No. 40 sieve material, Airdried)
sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

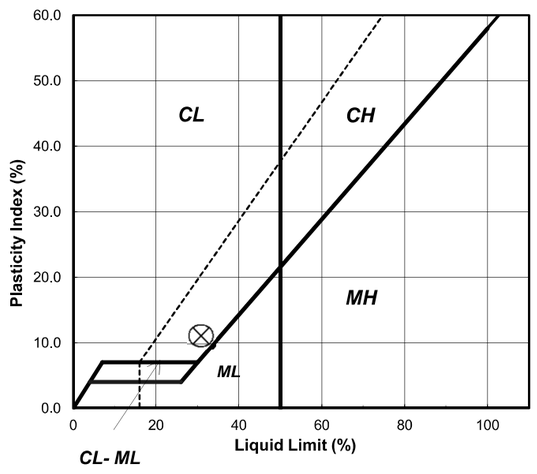
Liquid Limit Test	**1**
Tare Number	A-I
Wt. of Tare & WS (gm)	27.96
Wt. of Tare & DS (gm)	25.02
Wt. of Tare (gm)	15.39
Wt. of Water (gm)	2.9
Wt. of DS (gm)	9.6
Moisture Content (%)	**30.5**
Number of Blows	**25**

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	R	A-L	
Wt. of Tare & WS (gm)	22.99	22.55	
Wt. of Tare & DS (gm)	21.66	21.39	
Wt. of Tare (gm)	15.09	15.45	
Wt. of Water (gm)	1.3	1.2	
Wt. of DS (gm)	6.6	5.9	
Moisture Content (%)	**20.2**	**19.5**	**0.7**

Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**31**
Plastic Limit (%)	**20**
Plasticity Index (%)	**11**
USCS Symbol	**CL**

Plasticity Chart



Tested By 129-05-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/21/19

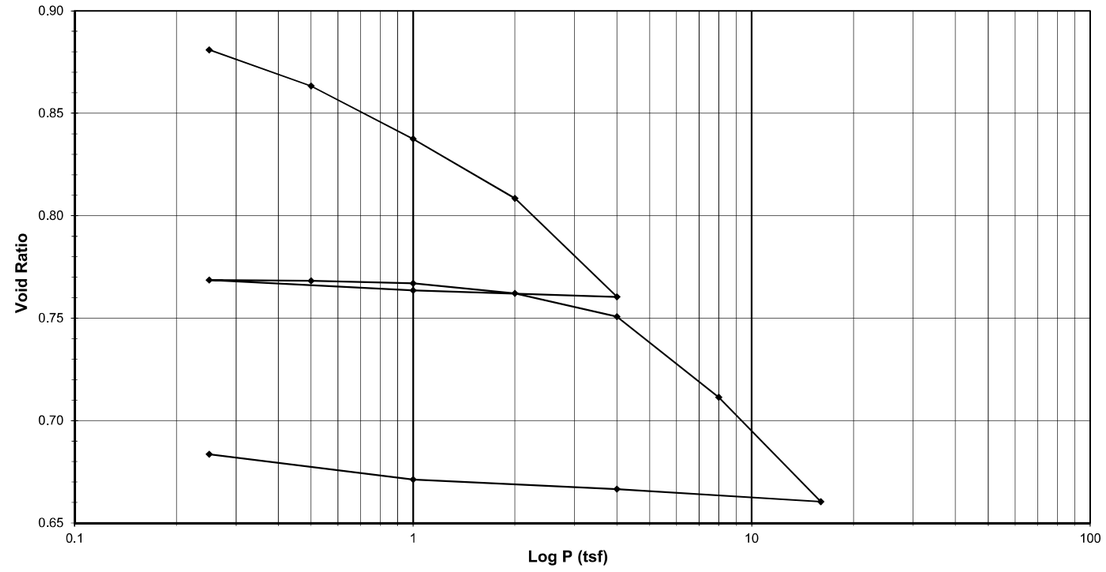
page 1 of 1 **DCN:** CT-S4B **DATE:** 10/8/01 **REVISION:** 2

ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By 129-04-0411 *Date* 1/16/19 *Approved By* MPS *Date* 1/29/19

page 1 of 4 DCN: CT-24E Date: 5/3/12 Revision: 6 ***Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]FINAL PLOT***

ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R553
1 Division = 0.0001 (in.)

Sample Properties	Initial	Final
Water Content		
Tare Number	860	TB-04
Wt. Tare & WS (g)	240.39	278.49
Wt. Tare & DS (g)	215.86	253.12
Wt. Water (g)	24.53	25.37
Wt. Tare (g)	135.07	134.77
Wt. DS (g)	80.79	118.35
Water Content (%)	30.36	21.44
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.0000	0.8811
Sample Volume (cc)	80.44	70.87
Wt. Wet Sample + Ring (g)	252.49	242.34
Wt. of Ring (g)	104.32	104.32
Wt. of Wet Sample (g)	148.17	138.02
Wet Density (pcf)	114.94	121.52
Wet Density (g/cc)	1.84	1.95
Water Content (%)	30.36	21.44
Wt. of Dry Sample (g)	113.66	113.66
Dry Density (pcf)	88.17	100.07
Dry Density (g/cc)	1.41	1.60
Void Ratio	0.9109	0.6836
Saturation (%)	90.00	84.67
Specific Gravity	2.70	*Assumed*

Test Data Summary

Applied Pressure (tsf)	Final Dial Reading (div)	Machine Deflection (div)	Corrected Reading (div)	Height of Sample (mm)	Volume (cc)	Dry Density (g/cc)	Void Ratio
Seating	0	0	0	25.400	80.440	1.41298	**0.91086**
0.25	169.2	12.8	156.4	25.003	79.181	1.43544	**0.88096**
0.5	269.5	20.7	248.8	24.768	78.438	1.44903	**0.86331**
1	420.8	36.9	383.8	24.425	77.352	1.46938	**0.83751**
2	623.7	87.8	535.8	24.039	76.130	1.49298	**0.80846**
4	875.4	87.8	787.6	23.399	74.104	1.53378	**0.76035**
1	822.3	51.5	770.8	23.442	74.240	1.53099	**0.76357**
0.25	772.4	27.9	744.5	23.509	74.451	1.52664	**0.76859**
0.5	776.6	30.2	746.4	23.504	74.436	1.52695	**0.76824**
1	795.4	42.2	753.1	23.487	74.382	1.52807	**0.76694**
2	835.3	56.7	778.6	23.422	74.177	1.53229	**0.76207**
4	926.1	88.0	838.1	23.271	73.698	1.54223	**0.75071**
8	1178.1	133.9	1044.2	22.748	72.040	1.57773	**0.71132**
16	1500.4	189.8	1310.6	22.071	69.897	1.62610	**0.66042**
4	1387.4	109.0	1278.4	22.153	70.156	1.62009	**0.66657**
1	1314.3	60.6	1253.8	22.215	70.355	1.61553	**0.67128**
0.25	1226.8	37.6	1189.3	22.379	70.873	1.60370	**0.68361**

Tested By 129-04-0411 *Date* 1/16/19 *Input Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Tested By 129-04-0411 *Date* 1/16/19 *Input Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6

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ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Reference	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. R553
1 Division = 0.0001 (in.)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	860	TB-04
Wt. Tare & WS (g)	240.39	278.49
Wt. Tare & DS (g)	215.86	253.12
Wt. Water (g)	24.53	25.37
Wt. Tare (g)	135.07	134.77
Wt. DS (g)	80.79	118.35
Water Content (%)	30.36	21.44
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.881
Sample Volume (cc)	80.44	70.87
Wt. Wet Sample + Ring (g)	252.49	242.34
Wt. of Ring (g)	104.32	104.32
Wt. of Wet Sample (g)	148.17	138.02
Wet Density (pcf)	114.94	121.52
Wet Density (g/cc)	1.84	1.95
Water Content (%)	30.36	21.44
Wt. of Dry Sample (g)	113.66	113.66
Dry Density (pcf)	88.17	100.07
Dry Density (g/cc)	1.41	1.60
Void Ratio	0.9109	0.6836
Saturation (%)	90.00	84.67
Specific Gravity	2.7	*Assumed*

C_v Test Data Summary

Load Increment	**Dial Reading @ t_{50}**	**Machine Deflection**	**Corrected Dial Reading @ t_{50}**	**Sample Height @ t_{50}**	**Time t_{50}**	**C_v**
(tsf)	(div)	(div)	(div)	(cm)	(min.)	(cm²/sec)
0 - 0.25	65.5	12.8	52.7	2.527	**0.09**	**0.05822**
0.25 - 0.5	198.2	20.7	177.5	2.495	**0.05**	**0.10219**
1.0 - 2.0	480.7	87.8	392.9	2.440	**0.05**	**0.09776**
2.0 - 4.0	688.0	87.8	600.1	2.388	**0.06**	**0.07799**
4.0 - 1.0	NA	51.5	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	27.9	NA	NA	**NA**	**NA**
0.25 - 0.5	NA	30.2	NA	NA	**NA**	**NA**
0.5 - 1.0	786.9	42.2	744.7	2.351	**0.08**	**0.05670**
1.0 - 2.0	820.1	56.7	763.4	2.346	**0.06**	**0.07530**
2.0 - 4.0	873.1	88.0	785.1	2.341	**0.05**	**0.08994**
4.0 - 8.0	996.9	133.9	863.0	2.321	**0.06**	**0.07369**
8.0 - 16.0	1265.7	189.8	1075.8	2.267	**0.05**	**0.08435**
16.0 - 4.0	NA	109.0	NA	NA	**NA**	**NA**
4.0 - 1.0	NA	60.6	NA	NA	**NA**	**NA**
1.0 - 0.25	NA	37.6	NA	NA	**NA**	**NA**

Tested By 129-04-0411 *Date* 1/16/19 *Input Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 6

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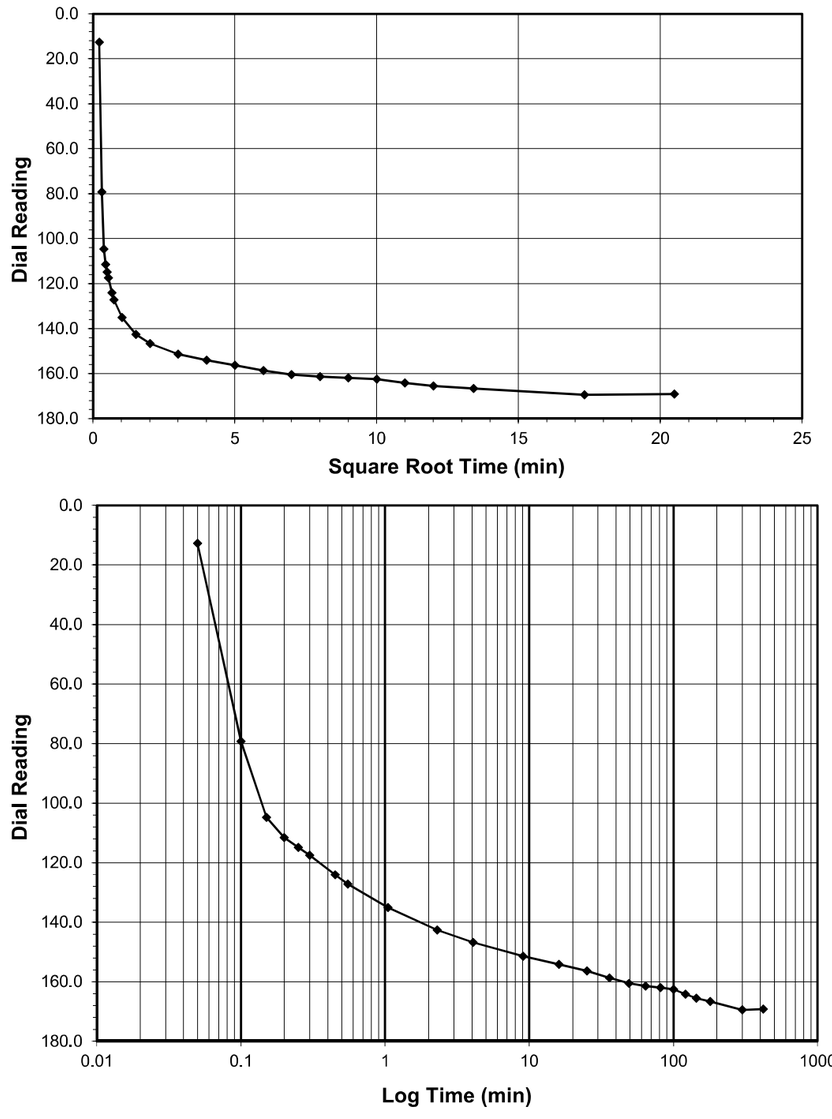
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.0-0.25**
Final Reading	**(div)**	**169.2**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/16/19
Start Time		12:07:05

Elapsed Time (min)	Dial Reading (div)
Initial	**0.0**
0.05	12.7
0.10	79.2
0.15	104.7
0.20	111.5
0.25	114.9
0.30	117.5
0.45	124.1
0.55	127.2
1.05	135.1
2.30	142.6
4.07	146.7
9.07	151.4
16.07	154.1
25.07	156.3
36.07	158.7
49.07	160.5
64.07	161.4
81.07	162.0
100.07	162.5
121.07	164.2
144.07	165.6
180.07	166.6
300.07	169.5
420.02	169.2

Tested By 129-04-0411 *Date* 1/16/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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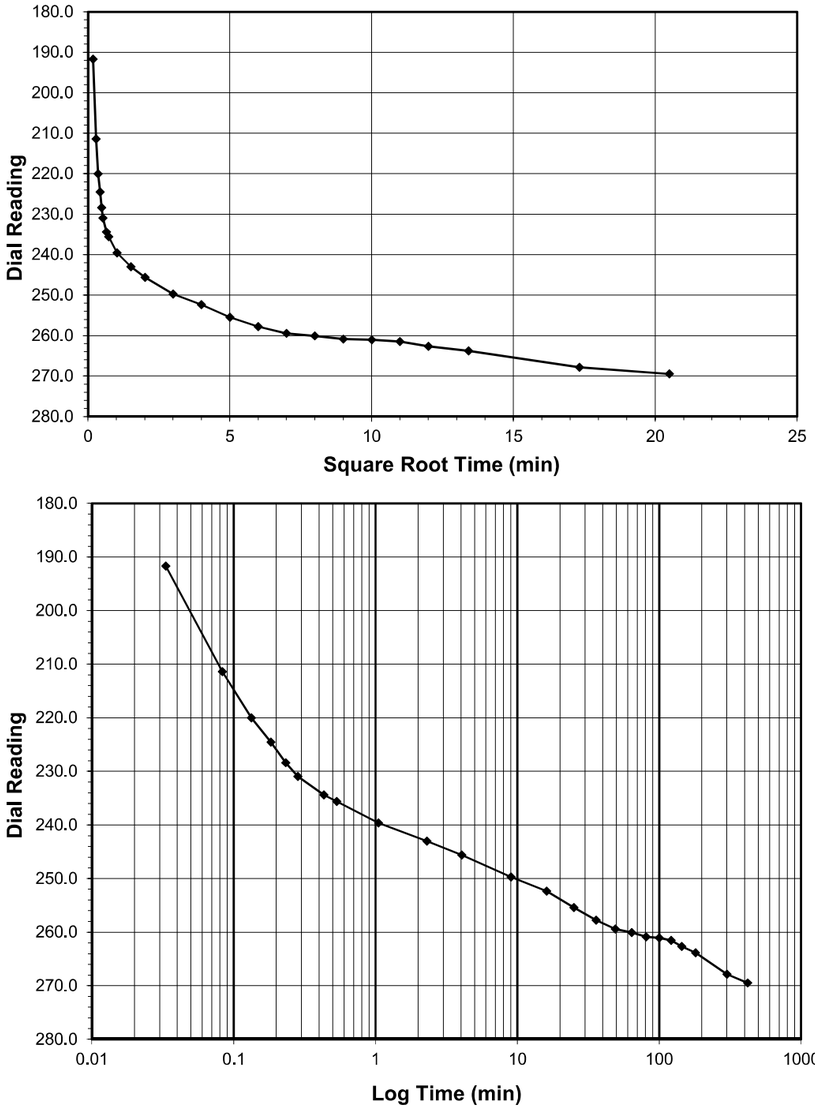
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**269.5**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/16/19
Start Time		19:07:06

Elapsed Time (min)	Dial Reading (div)
Initial	**169.2**
0.03	191.7
0.08	211.4
0.13	220.0
0.18	224.5
0.23	228.4
0.28	231.0
0.43	234.4
0.53	235.6
1.05	239.6
2.30	243.0
4.05	245.6
9.05	249.7
16.05	252.4
25.05	255.4
36.05	257.8
49.05	259.4
64.05	260.1
81.05	260.9
100.07	261.1
121.07	261.5
144.07	262.7
180.07	263.8
300.07	267.8
420.13	269.5

Tested By 129-04-0411 *Date* 1/16/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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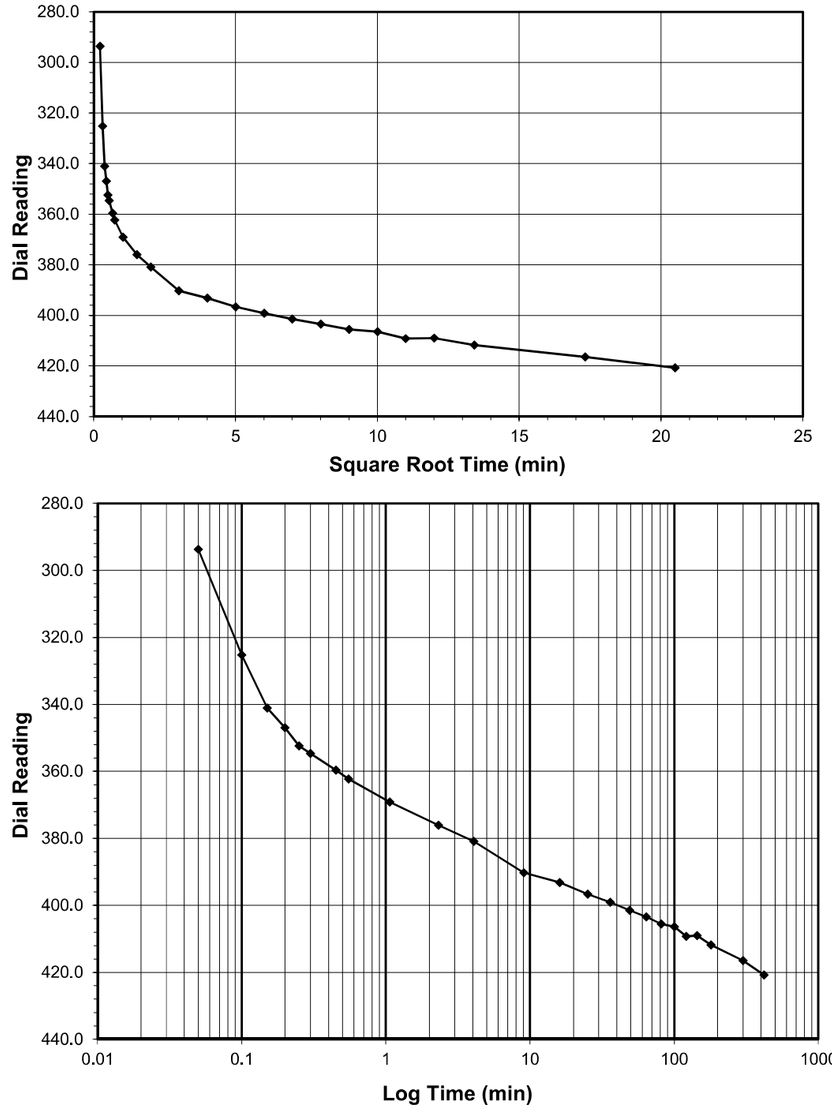
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**420.8**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		2:07:15

Elapsed Time (min)	Dial Reading (div)
Initial	**269.5**
0.05	293.7
0.10	325.2
0.15	341.1
0.20	346.9
0.25	352.4
0.30	354.6
0.45	359.6
0.55	362.3
1.07	369.2
2.32	376.1
4.07	380.9
9.07	390.3
16.07	393.2
25.07	396.7
36.07	399.1
49.07	401.5
64.07	403.4
81.07	405.5
100.07	406.4
121.07	409.2
144.07	409.0
180.08	411.8
300.08	416.4
420.15	420.8

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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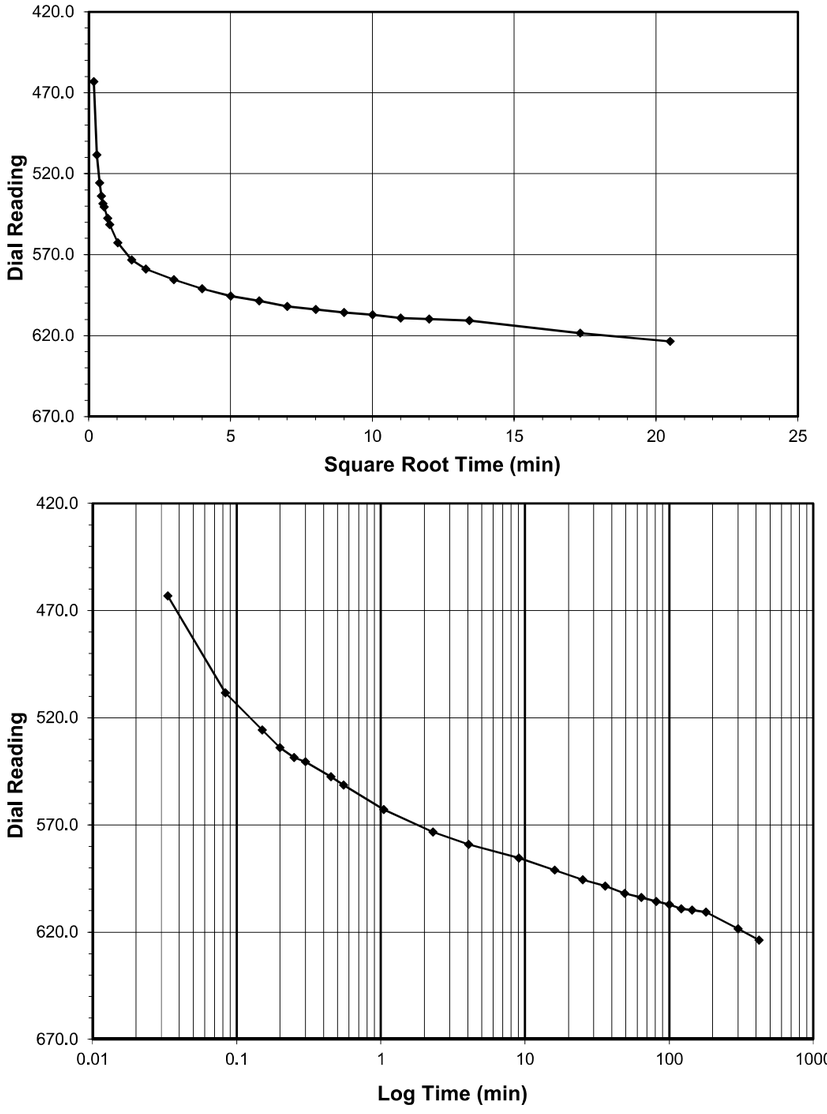
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**623.7**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		9:07:24

Elapsed Time (min)	Dial Reading (div)
Initial	**420.8**
0.03	463.2
0.08	508.4
0.15	525.7
0.20	533.9
0.25	538.5
0.30	540.5
0.45	547.5
0.55	551.4
1.05	562.8
2.30	573.3
4.05	579.0
9.05	585.4
16.05	591.0
25.07	595.6
36.07	598.6
49.07	601.9
64.07	603.8
81.07	605.7
100.07	607.2
121.07	609.2
144.07	609.7
180.07	610.7
300.07	618.4
420.22	623.7

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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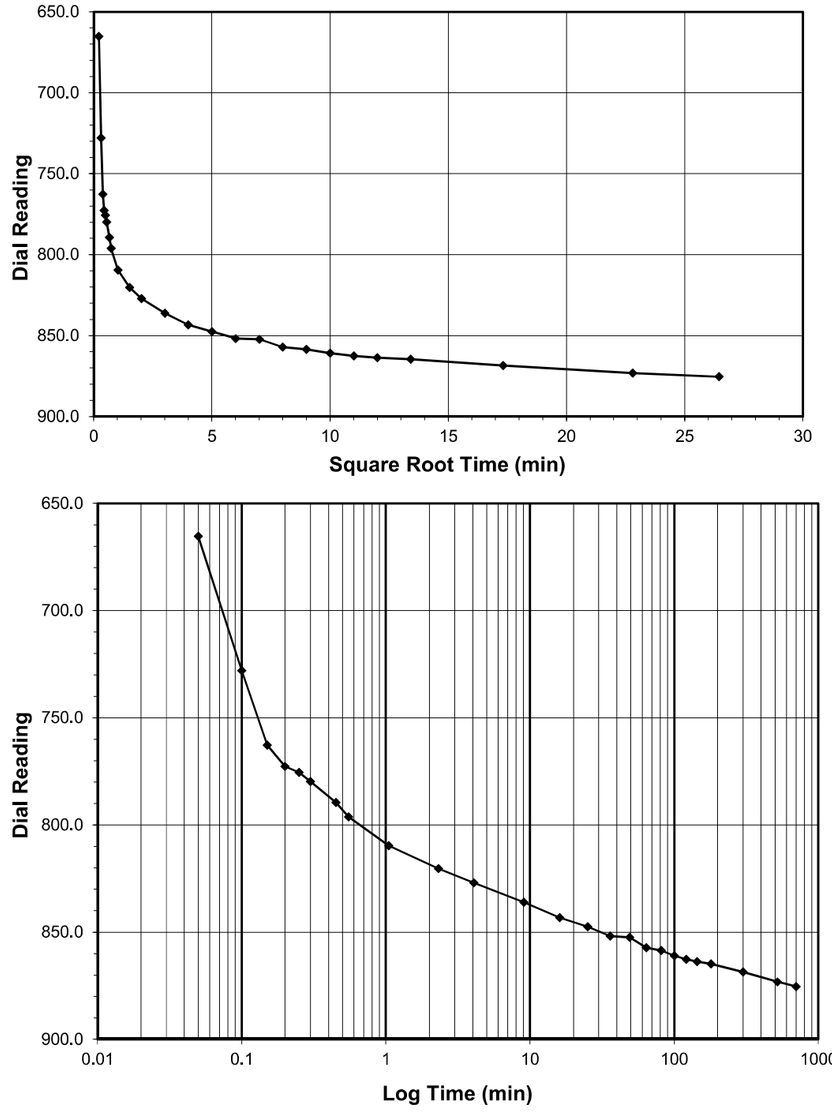
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**875.4**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/17/19
Start Time		16:07:38

Elapsed Time (min)	Dial Reading (div)
Initial	**623.7**
0.05	665.3
0.10	728.0
0.15	762.7
0.20	772.7
0.25	775.6
0.30	779.8
0.45	789.5
0.55	796.2
1.05	809.6
2.32	820.3
4.07	827.1
9.07	836.1
16.07	843.3
25.07	847.5
36.07	851.9
49.07	852.4
64.07	857.2
81.07	858.6
100.07	861.0
121.07	862.7
144.07	863.7
180.08	864.7
300.08	868.5
520.08	873.2
700.08	875.4

Tested By 129-04-0411 *Date* 1/17/19 *Checked By* GEM *Date* 1/29/19

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DCN: CT-24E Date: 5/3/12 Revision: 3

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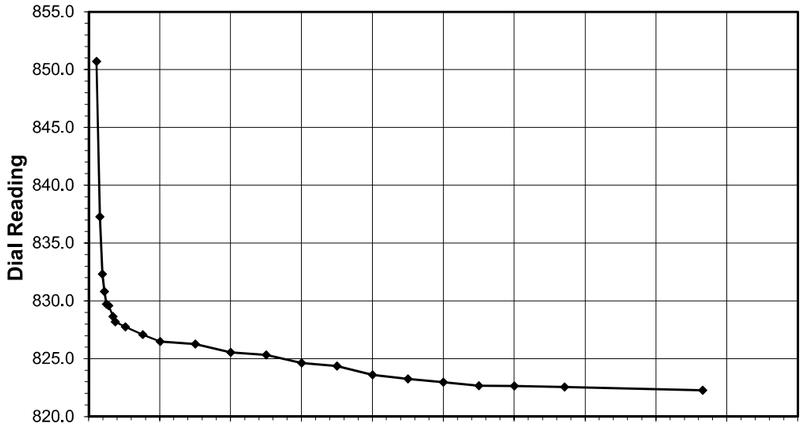
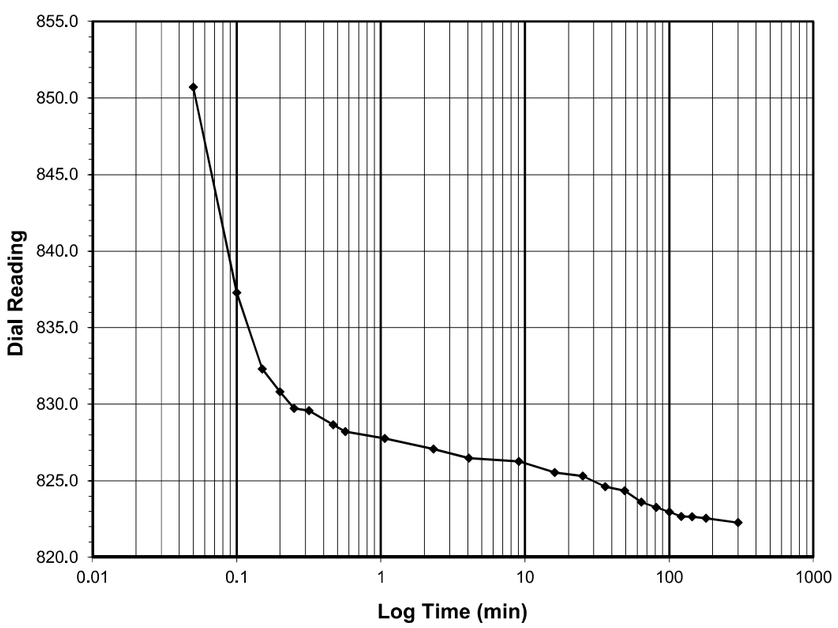
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**4.0-1.0**
Final Reading (div)		**822.3**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		4:08:03

Elapsed Time (min)	Dial Reading (div)
Initial	**875.4**
0.05	850.7
0.10	837.3
0.15	832.3
0.20	830.8
0.25	829.7
0.32	829.6
0.47	828.6
0.57	828.2
1.07	827.8
2.32	827.1
4.07	826.5
9.07	826.3
16.07	825.5
25.07	825.3
36.07	824.6
49.07	824.4
64.08	823.6
81.08	823.3
100.08	823.0
121.08	822.7
144.08	822.6
180.08	822.6
300.08	822.3

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 6

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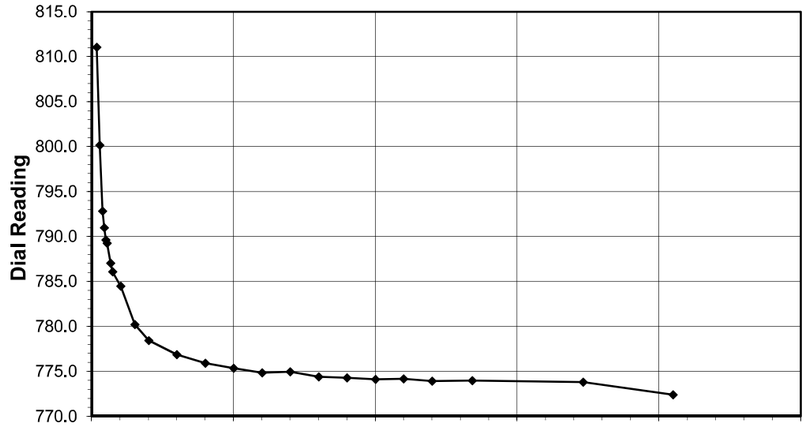
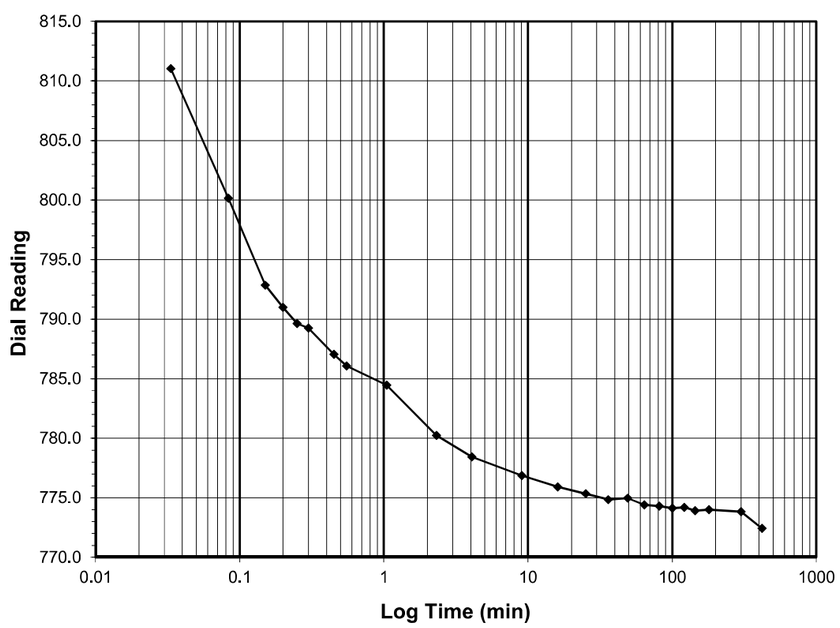
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load (tsf)		**1.0-0.25**
Final Reading (div)		**772.4**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		11:08:15

Elapsed Time (min)	Dial Reading (div)
Initial	**822.3**
0.03	811.0
0.08	800.1
0.15	792.8
0.20	791.0
0.25	789.6
0.30	789.2
0.45	787.0
0.55	786.1
1.05	784.5
2.32	780.2
4.07	778.4
9.07	776.9
16.07	775.9
25.07	775.3
36.07	774.9
49.07	775.0
64.07	774.4
81.07	774.3
100.07	774.1
121.07	774.2
144.07	773.9
180.07	774.0
300.07	773.8
420.22	772.4

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 7

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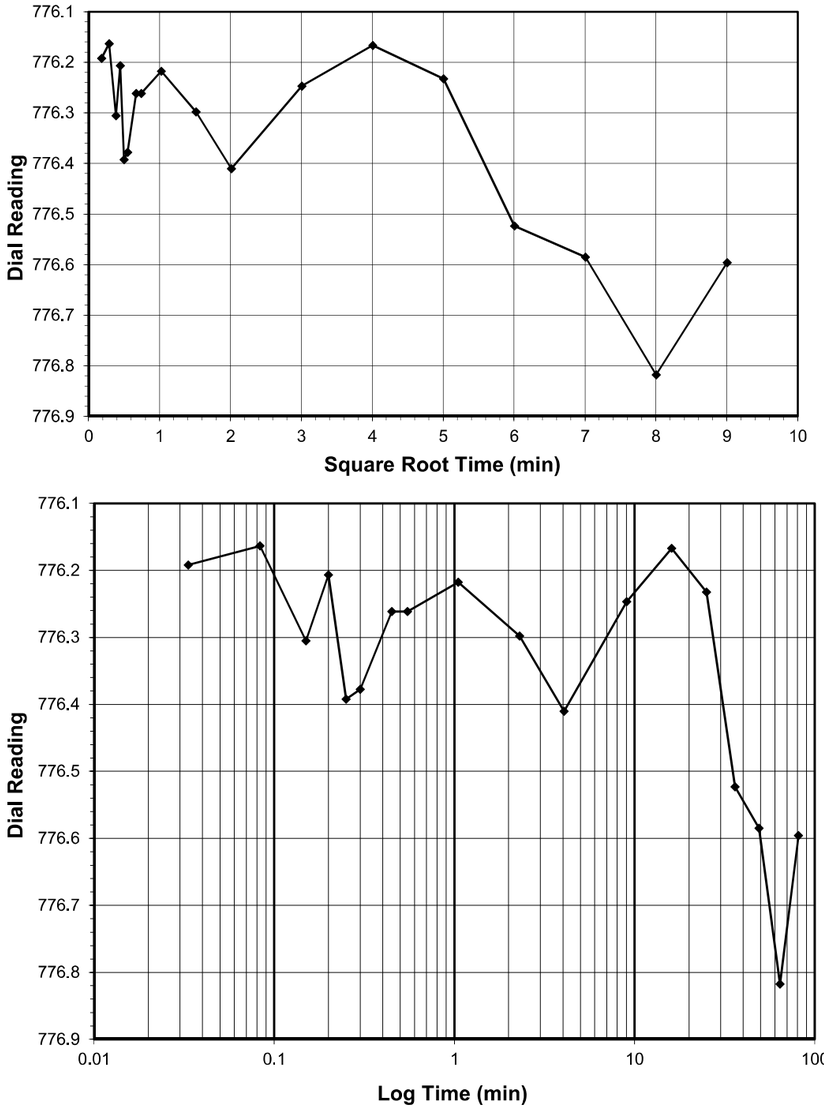
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.25-0.5**
Final Reading	**(div)**	**776.6**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/18/19
Start Time		18:08:29

Elapsed Time (min)	Dial Reading (div)
Initial	**772.4**
0.03	776.2
0.08	776.2
0.15	776.3
0.20	776.2
0.25	776.4
0.30	776.4
0.45	776.3
0.55	776.3
1.05	776.2
2.30	776.3
4.05	776.4
9.05	776.2
16.05	776.2
25.05	776.2
36.07	776.5
49.07	776.6
64.07	776.8
81.07	776.6

Tested By 129-04-0411 *Date* 1/18/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 8

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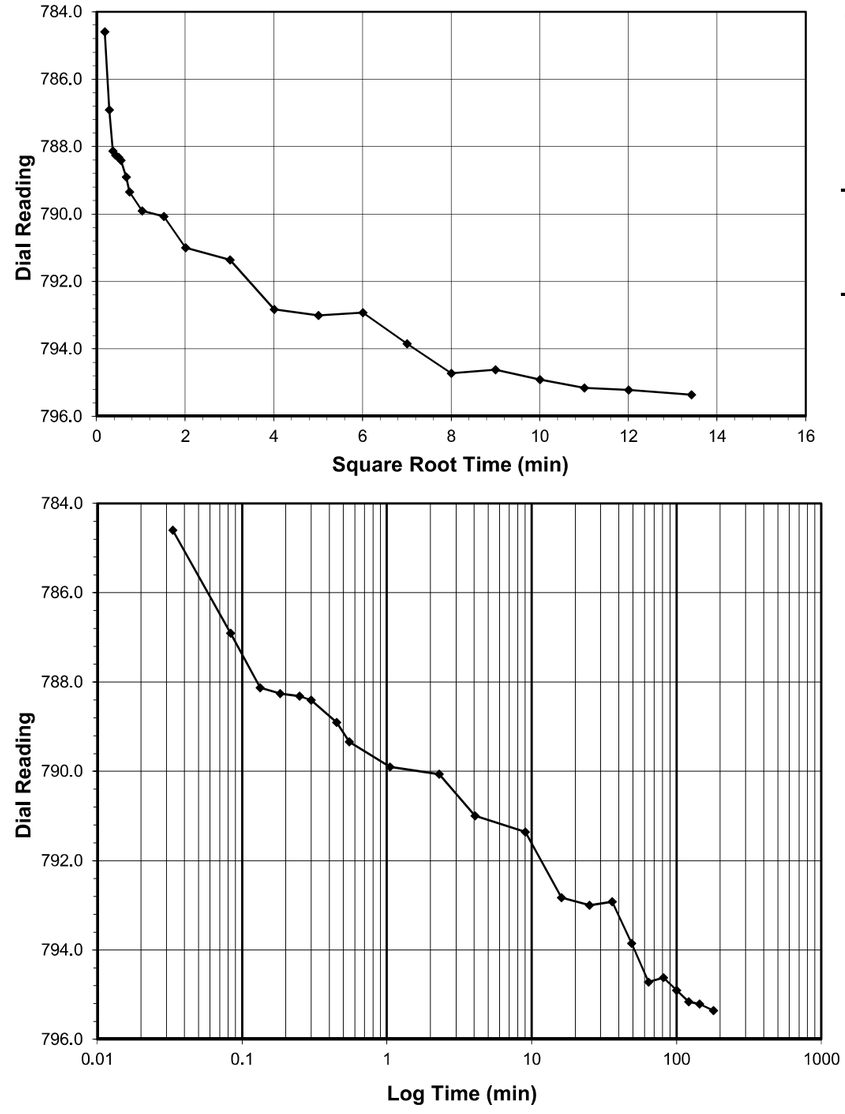
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0.5-1.0**
Final Reading	**(div)**	**795.4**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		1:08:43

Elapsed Time (min)	Dial Reading (div)
Initial	**776.6**
0.03	784.6
0.08	786.9
0.13	788.1
0.18	788.3
0.25	788.3
0.30	788.4
0.45	788.9
0.55	789.3
1.05	789.9
2.30	790.1
4.05	791.0
9.05	791.4
16.05	792.8
25.05	793.0
36.07	792.9
49.07	793.8
64.07	794.7
81.07	794.6
100.07	794.9
121.07	795.2
144.07	795.2
180.07	795.4

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 9

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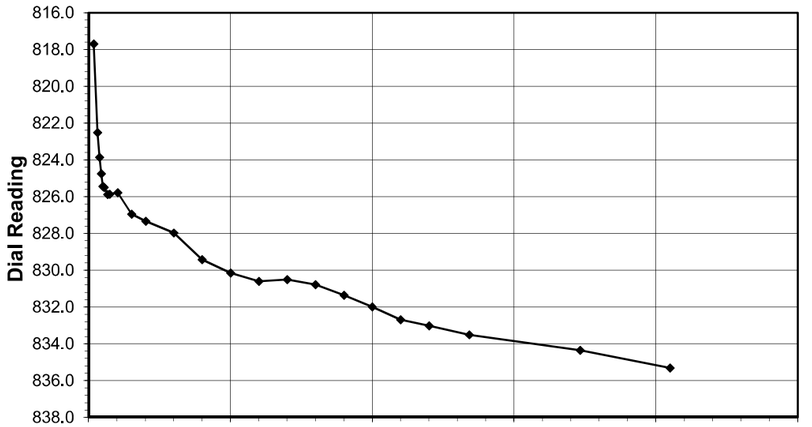
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**835.3**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		8:08:52

Elapsed Time (min)	Dial Reading (div)
Initial	**795.4**
0.03	817.7
0.10	822.5
0.15	823.9
0.20	824.8
0.25	825.4
0.30	825.5
0.45	825.9
0.55	825.9
1.05	825.8
2.30	827.0
4.05	827.3
9.05	828.0
16.05	829.4
25.05	830.1
36.05	830.6
49.05	830.5
64.05	830.8
81.05	831.4
100.05	832.0
121.07	832.7
144.07	833.0
180.07	833.5
300.07	834.4
420.18	835.3

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 10

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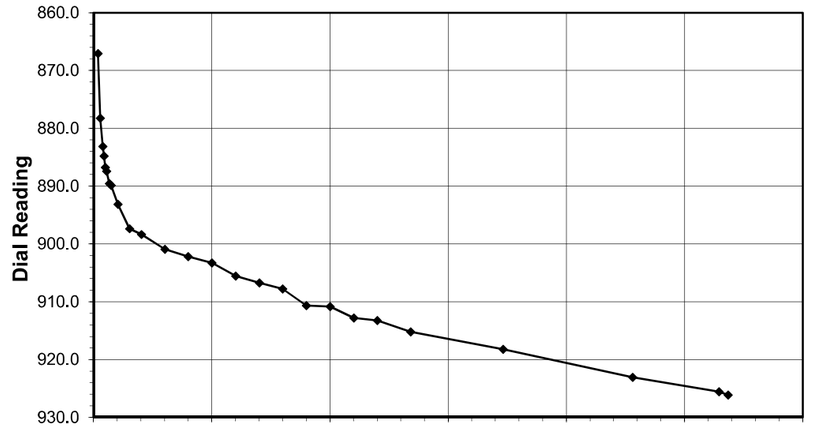
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**926.1**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/19/19
Start Time		15:09:03

Elapsed Time (min)	Dial Reading (div)
Initial	**835.3**
0.03	867.1
0.08	878.2
0.15	883.1
0.20	884.8
0.25	886.8
0.30	887.4
0.45	889.6
0.55	889.9
1.07	893.1
2.32	897.3
4.07	898.4
9.07	900.9
16.07	902.2
25.07	903.3
36.07	905.6
49.07	906.7
64.07	907.8
81.07	910.7
100.07	910.8
121.07	912.8
144.07	913.2
180.07	915.2
300.07	918.2
520.07	923.1
700.07	925.6
720.42	926.1

Tested By 129-04-0411 *Date* 1/19/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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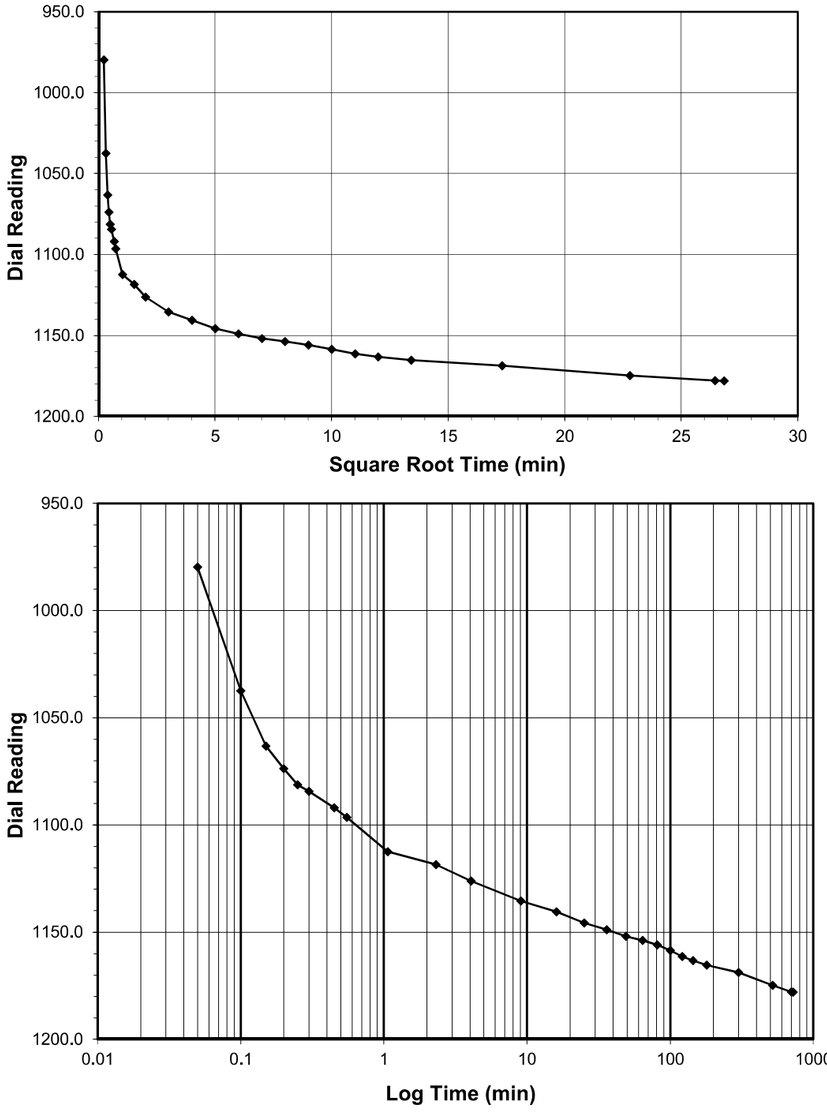
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**1178.1**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/20/19
Start Time		3:09:29

Elapsed Time (min)	Dial Reading (div)
Initial	**926.1**
0.05	979.7
0.10	1037.4
0.15	1063.2
0.20	1073.7
0.25	1081.3
0.30	1084.4
0.45	1092.0
0.55	1096.4
1.07	1112.4
2.32	1118.4
4.07	1126.2
9.07	1135.5
16.07	1140.5
25.07	1145.7
36.07	1148.9
49.07	1152.0
64.07	1153.8
81.08	1155.9
100.08	1158.5
121.08	1161.3
144.08	1163.2
180.08	1165.3
300.08	1168.7
520.08	1174.8
700.08	1177.9
720.43	1178.1

Tested By 129-04-0411 *Date* 1/20/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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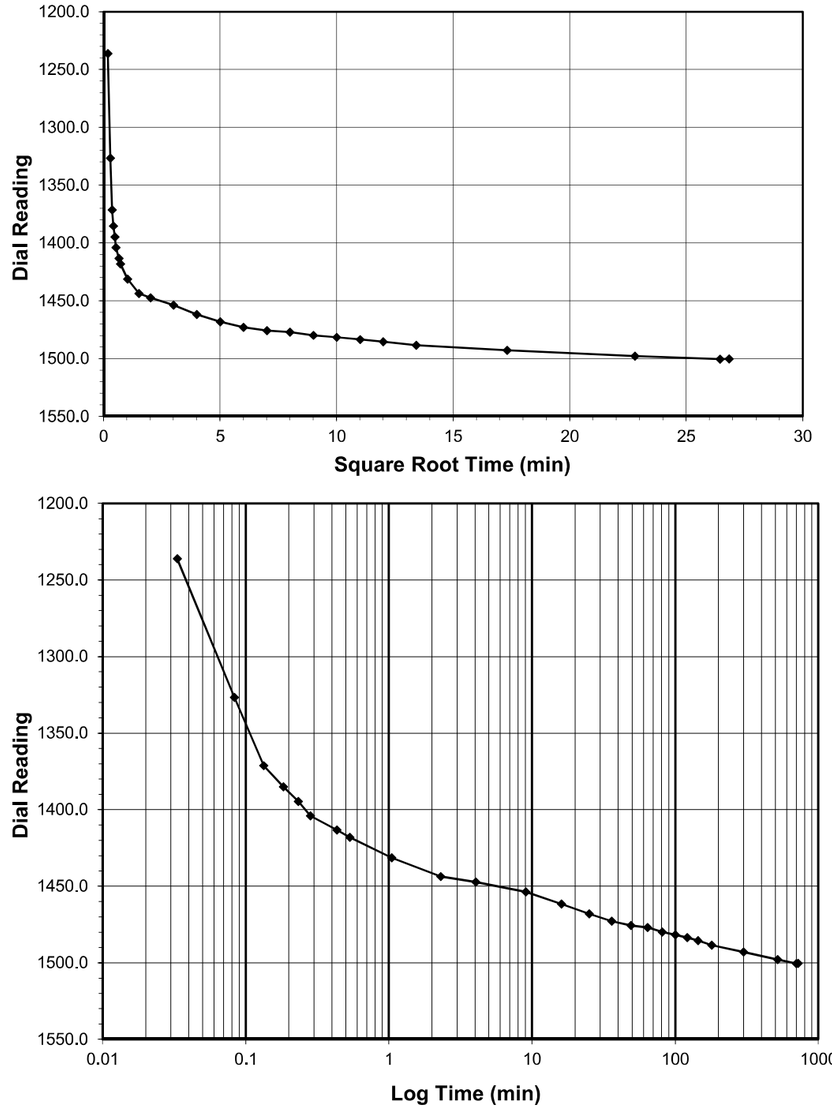
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**1500.4**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/20/19
Start Time		15:09:55

Elapsed Time (min)	Dial Reading (div)
Initial	**1178.1**
0.03	1236.3
0.08	1326.7
0.13	1371.3
0.18	1385.2
0.23	1394.7
0.28	1404.1
0.43	1413.3
0.53	1418.1
1.05	1431.3
2.30	1443.8
4.05	1447.3
9.05	1453.7
16.05	1461.7
25.05	1468.0
36.05	1472.9
49.05	1475.7
64.05	1477.0
81.05	1479.9
100.05	1481.7
121.05	1483.6
144.05	1485.5
180.05	1488.5
300.05	1492.9
520.05	1497.9
700.05	1500.4
720.35	1500.4

Tested By 129-04-0411 *Date* 1/20/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

Z:\2019 PROJECTS\KLEINFELDER\2019-011 KLEINFELDER - U-5813\[2019-011-001-003 DOT GEOJAC-16TSF1 Cv.xlsm]STEP 13

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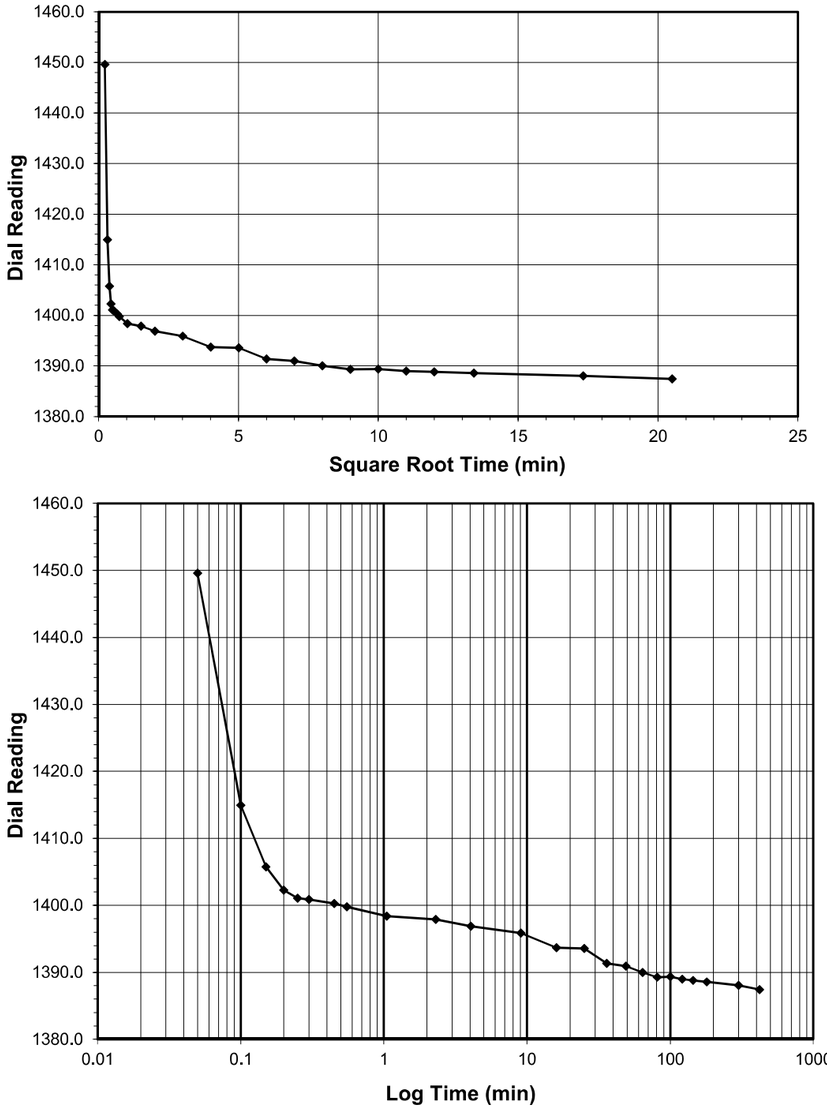
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**16.0-4.0**
Final Reading (div)		**1387.4**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		3:10:17

Elapsed Time (min)	Dial Reading (div)
Initial	**1500.4**
0.05	1449.6
0.10	1414.9
0.15	1405.8
0.20	1402.3
0.25	1401.1
0.30	1400.9
0.45	1400.3
0.55	1399.8
1.05	1398.4
2.30	1397.9
4.05	1396.9
9.07	1395.9
16.07	1393.7
25.07	1393.6
36.07	1391.3
49.07	1390.9
64.07	1390.0
81.07	1389.3
100.07	1389.4
121.07	1389.0
144.07	1388.8
180.07	1388.6
300.07	1388.0
420.33	1387.4

Tested By 129-04-0411 *Date* 1/21/19 *Checked By* GEM *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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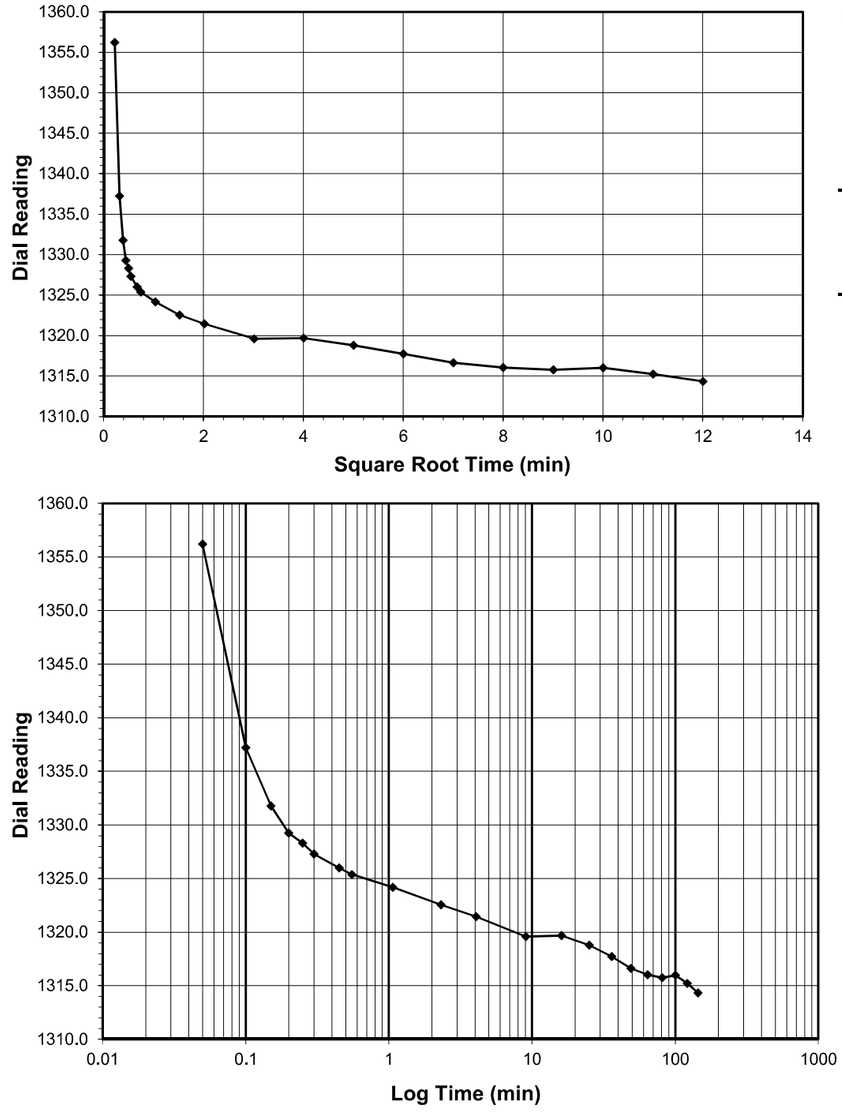
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load (tsf)		**4.0-1.0**
Final Reading (div)		**1314.3**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		10:10:37

Elapsed Time (min)	Dial Reading (div)
Initial	**1387.4**
0.05	1356.2
0.10	1337.2
0.15	1331.8
0.20	1329.3
0.25	1328.3
0.30	1327.3
0.45	1326.0
0.55	1325.4
1.07	1324.2
2.32	1322.6
4.07	1321.4
9.07	1319.6
16.07	1319.7
25.07	1318.8
36.07	1317.7
49.07	1316.6
64.07	1316.1
81.07	1315.8
100.07	1316.0
121.07	1315.2
144.08	1314.3

Tested By 129-04-0411 *Date* 1/21/19 *Checked By* GEM *Date* 1/29/19

page 1 of 1

DCN: CT-24E Date: 5/3/12 Revision: 3

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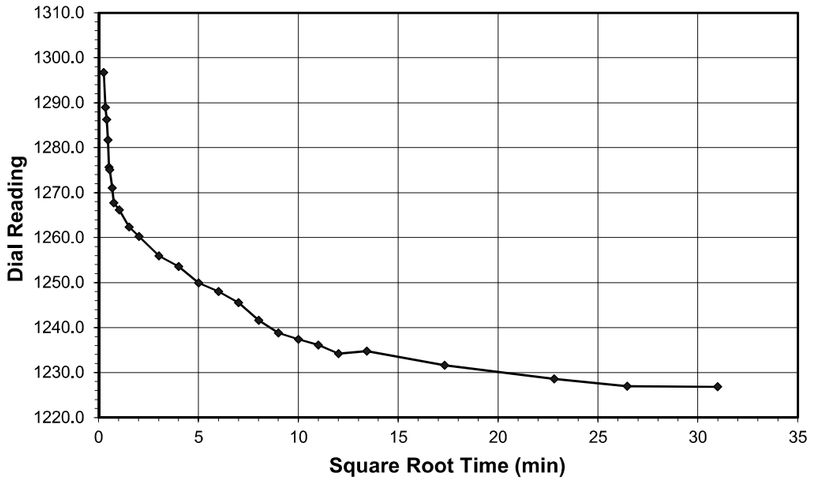
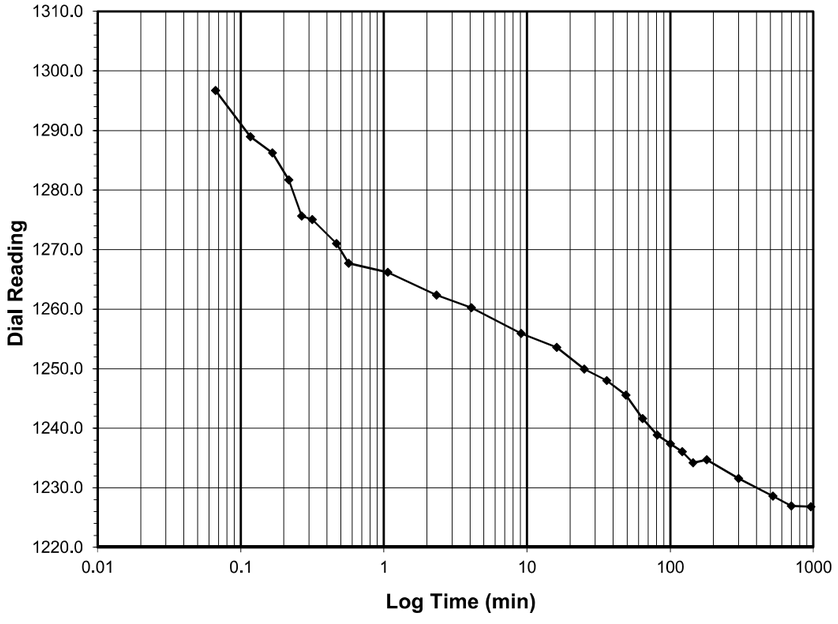
ONE DIMENSIONAL CONSOLIDATION

AASHTO T-216

Client	Kleinfelder	Boring No.	L_7250
Client Project	U-5813	Depth (ft)	0-2.0
Project No.	R-2019-011-001	Sample No.	ST-2
Lab ID	R-2019-011-001-003	Visual Description	TAN SILTY CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-0.25**
Final Reading	**(div)**	**1226.8**
Consolidometer No.		**R553**
1 Division	(in)	0.0001
Start Date		1/21/19
Start Time		12:42:26

Elapsed Time (min)	Dial Reading (div)
Initial	**1314.3**
0.07	1296.7
0.12	1289.0
0.17	1286.3
0.22	1281.7
0.27	1275.6
0.32	1275.1
0.47	1271.0
0.57	1267.7
1.07	1266.2
2.33	1262.4
4.08	1260.2
9.08	1255.9
16.08	1253.6
25.08	1249.9
36.08	1248.0
49.08	1245.5
64.08	1241.6
81.08	1238.9
100.08	1237.4
121.08	1236.1
144.10	1234.2
180.10	1234.7
300.10	1231.6
520.10	1228.6
700.10	1226.9
960.10	1226.8

Tested By *129-04-0411* *Date* *1/21/19* *Checked By* *GEM* *Date* 1/29/19

DCN: CT-24E Date: 5/3/12 Revision: 3

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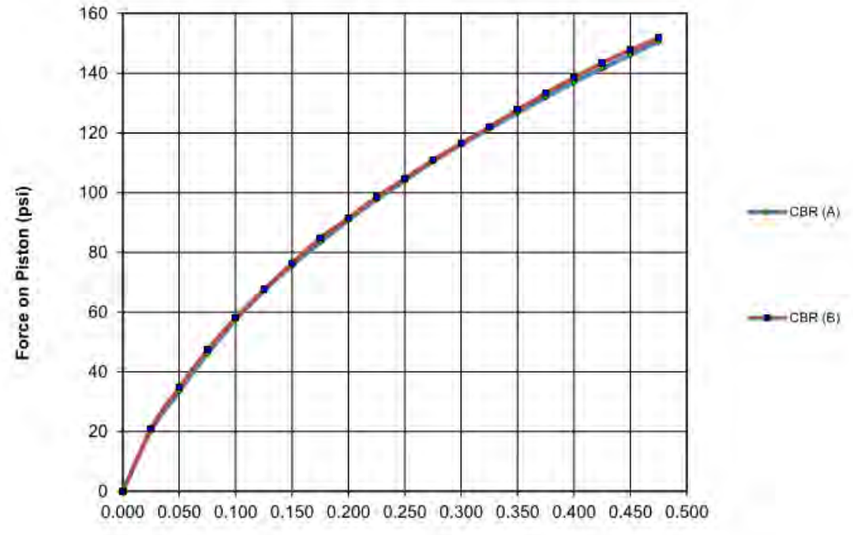
California Bearing Ratio Test Report - AASHTO T-193

Load Penetration Curve



SOAKED CBR TEST RESULTS

Results	CBR (A)	CBR (B)			
0.1" Penetration	5.7	5.8			
0.2" Penetration	6.1	6.1			
Initial Moisture (%)	18.9	18.9			
Initial Density (pcf)	99.6	103.1			
Final Moisture (%)	21.6	21.9			
Final Density (pcf)	100.3	103.9			

Project Information		Natural Moisture (%)		
Project Name:	U-5813	BS-2	20.6	
Client Name:	Kleinfelder			
Project Number:	20190942.009A	Percent Swell	A	B
Date Received:	1/13/2019	BS-2	1.490	1.470
Project Location:	N/A			

Sample Information		Proctor Value (AASHTO T-193)	
Sample Number	Classification	Max. Dry Density (pcf)	Optimum Moisture %
BS-2	A-7-5	104.2	18.9
Sample Number	**Sample Location**	**AASHTO**	**% - #270**
BS-2	RPDA_1150	A-7-5	77.0