

REFERENCE: R-4463A

PROJECT: 35601

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>	<u>PROFILE</u>
-L-	10+25.49 - 131+46.40	4-13	16-20
-Y-	14+40.00 - 48+25.00	4, 14-15	21-23
-Y1-	10+00.00 - 12+75.00	14	24
-Y2-	10+00.00 - 12+00.00	5	24
-Y3-	10+50.00 - 12+25.07	6	24
-Y4-	10+00.00 - 11+75.00	6	24
-DRI-	10+50.00 - 13+57.04	4	25
-DR2-	10+00.00 - 13+16.23	4	25

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-L-	13+00	26
-L-	20+00 - 23+00	27-29
-L-	24+50 - 44+00	30-38
-L-	52+50 - 89+00	39-61
-L-	124+00	62
-Y-	32+50 - 33+50	63
-Y-	35+50 - 37+50	64-65
-Y-	38+50	66
-Y-	40+00	67
-Y-	42+00	68
-Y-	43+50 - 45+00	69-70

BORE LOG

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-Y-	24+50	71

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

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY CRAVEN
PROJECT DESCRIPTION NC 43 CONNECTOR FROM
US 70 TO US 17 BUSINESS

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4463A	1	71

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.

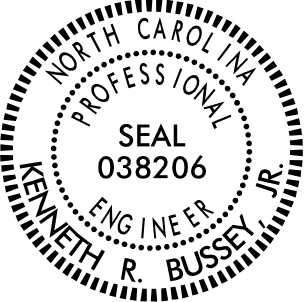
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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:
- 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.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL
<u>CATLIN INC.</u>
<u>M. JOHNSON</u>
<u>J. K. CRENSHAW</u>
<u>N. HARMON</u>

INVESTIGATED BY	<u>C. SWAFFORD</u>
DRAWN BY	<u>T. LYNN</u>
CHECKED BY	<u>J. K. CRENSHAW</u>
SUBMITTED BY	<u>P. ROGERS</u>
DATE	<u>NOVEMBER 2019</u>

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



Kenneth R. Bussey, Jr. 11/20/2019
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRADATION		ROCK DESCRIPTION																					
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.		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:																					
ANGULARITY OF GRAINS																							
THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.		WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)																					
MINERALOGICAL COMPOSITION																							
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.																					
COMPRESSIBILITY																							
SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50																							
PERCENTAGE OF MATERIAL																							
<table border="0" style="width: 100%;"> <tr> <th style="text-align: left;">ORGANIC MATERIAL</th> <th style="text-align: left;">GRANULAR SOILS</th> <th style="text-align: left;">SILT - CLAY SOILS</th> <th style="text-align: left;">OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table>		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		
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HIGHLY ORGANIC	> 10%	> 20%	HIGHLY 35% AND ABOVE																				
GROUND WATER																							
WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS 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		DIP & DIP DIRECTION OF ROCK STRUCTURES TEST BORING AUGER BORING CORE BORING 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																					
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 HL - 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 <u>SAMPLE ABBREVIATIONS</u> S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO																					
EQUIPMENT USED ON SUBJECT PROJECT																							
DRILL UNITS: ☐ CME-45C ☒ CME-55 ☐ CME-550 ☐ VANE SHEAR TEST ☐ PORTABLE HOIST ☐ ☐		ADVANCING TOOLS: ☒ CLAY BITS ☐ 6" CONTINUOUS FLIGHT AUGER ☐ 8" HOLLOW AUGERS ☐ HARD FACED FINGER BITS ☐ TUNG.-CARBIDE INSERTS ☐ CASING ☐ W/ ADVANCER ☒ TRICONE 2 15/16" STEEL TEETH ☐ TRICONE " TUNG.-CARB. ☐ CORE BIT ☐																					
		HAMMER TYPE: ☒ AUTOMATIC ☐ MANUAL CORE SIZE: ☐ -B ☐ -H 																					

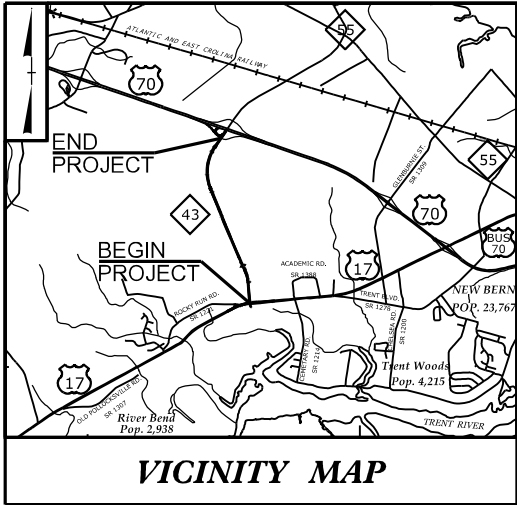
ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION 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 THROUGH 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 DISLOGGED 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 (SPAP.) - 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 (IN 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: ELEVATION:FEET NOTES: BORING AND GROUND SURFACE ELEVATIONS OBTAINED FROM 'R4463A_ls_merged_tin.tin' FILE DATED II/28/2018 FIAD - FILLED IMMEDIATELY AFTER DRILLING PAVEMENT / ABC STONE

09/08/99

TIP PROJECT: R-4463A

CONTRACT: C204421

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



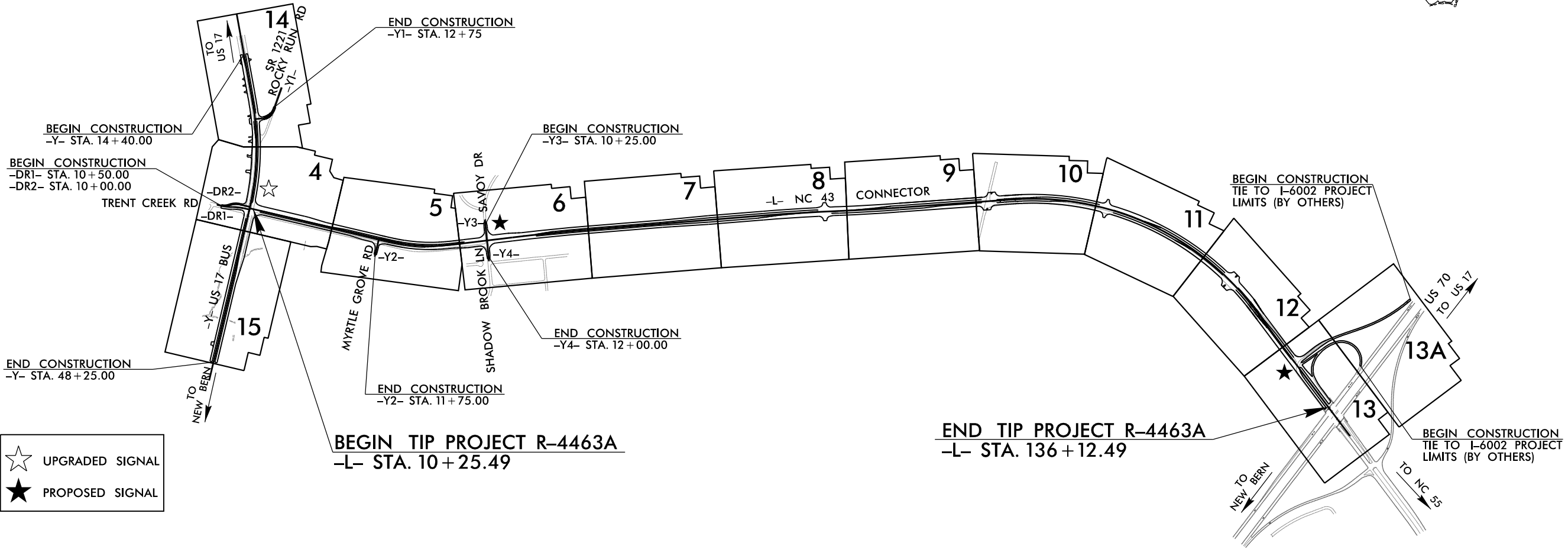
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CRAVEN COUNTY

LOCATION: NC 43 CONNECTOR FROM
US 17 BUSINESS TO US 70

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

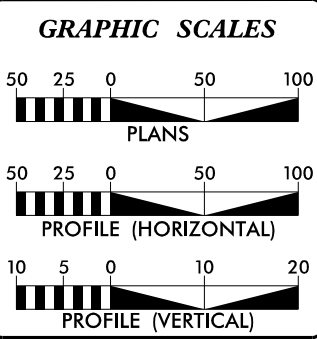


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4463A	3	71
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35601.1.1		PE	
35601.2.1		ROW/UTIL	
35601.3.1		CONSTRUCTION	



- ★ UPGRADED SIGNAL
- ★ PROPOSED SIGNAL

NOTES:
THIS PROJECT HAS PARTIALLY CONTROLLED ACCESS WITH
ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

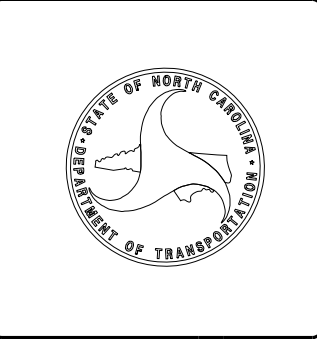


DESIGN DATA
ADT 2040 = 39,100
K = 10 %
D = 55 %
T = 6 % *
V = 60 MPH
(* TTST 4% + DUAL 2%)
FUNC CLASS =
ARTERIAL
STATEWIDE TIER

PROJECT LENGTH
LENGTH ROADWAY TIP PROJECT R-4463A = 2.384 MILES
TOTAL LENGTH TIP PROJECT R-4463A = 2.384 MILES
NCDOT CONTACT: HON YEUNG DIVISION 2 - PROJECT ENGINEER

Prepared for the North Carolina Department of Transportation In the office of:	HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116
2018 STANDARD SPECIFICATIONS	PHILLIP E. ROGERS, PE PROJECT ENGINEER
RIGHT OF WAY DATE: OCTOBER 18, 2019	ALEXANDER D. SNIDER, PE PROJECT DESIGN ENGINEER
LETTING DATE: FEBRUARY 18, 2020	

HYDRAULICS ENGINEER
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: _____ P.E.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/12019: PSH 05 PARCEL OWNER NAME CHANGE; PARCEL 32

PENTABLE: \$PENTBLS\$
TIME: \$TIME\$

PLOT DRIVER: \$PLTDVRS\$
USER: \$USERS\$
FILE: \$FILES\$

November 14, 2019

STATE PROJECT: 35601.1.R2

TIP NUMBER: R-4463A

COUNTY: Craven

DESCRIPTION: NC 43 Connector from US 70 to US 17 Business

SUBJECT: Geotechnical Roadway Inventory report

PROJECT DESCRIPTION

The R-4463A project is designed to improve traffic flow and ease congestion in the Town of New Bern, NC. The project consists of widening a portion of existing Trent Creek Road and connecting Trent Creek Road to NC 43. The project length is approximately 2.3 miles along NC 43 (-L-).

The field investigation was conducted in January and February of 2019 using a track mounted CME-55 with an automatic hammer. Standard Penetration Tests (SPT) were performed at selected locations. Borings were advanced with mud rotary equipment and hand augers. Representative soil samples were collected and forwarded to an NCDOT M&T approved testing facility for soil quality analysis, moisture content, and AASHTO classification.

The following alignments were investigated				
Line	Station			Length (ft)
-L-	10+25	to	131+46	12,121
-Y-	14+40	to	48+25	3,385
-Y1-	10+00	to	12+75	275
-Y2-	10+00	to	12+00	200
-Y3-	10+50	to	12+25	175
-Y4-	10+00	to	11+75	175
-DR1-	10+50	to	13+57	307
-DR2-	10+00	to	13+16	316
			Total =	16,954 (~3.21 miles)

PHYSIOGRAPHY AND GEOLOGY

Physiography and Geology

The project is located in the Coastal Plain Physiographic Province. Geologically, it is located in an area mapped as Tertiary Age deposits of the Yorktown Formation described as fossiliferous clay with varying amounts of fine grained sand. The topography is flat and the drainage from the area is very poor.

Soil Properties

Soils encountered along the project corridor are divided into two categories based on origin: Roadway Embankment soils, Alluvial soils, and Undivided Coastal Plain soils.

Roadway embankment soils are present in borings advanced on the shoulders of the existing roadways and consist of very loose to loose, fine to coarse sand, silty sand and clayey sand (A-2-6, A-2-4, A-3), as well as very soft to medium stiff, silty clay and clay (A-7-5, A-6) with some gravel were encountered throughout the project corridor. Roadway embankment soils ranged in thickness from less than one foot thick to approximately 6 feet thick.

Alluvial soils were encountered at the culvert location along US 17 Business, along Trent Creek Road, and at currently undeveloped portions of the project corridor. These soils were comprised of loose sand (A-2-4) and silty or sandy clay (A-6, A-7-6) with trace to moderate organics. Where tested, granular, alluvial soils were found to be non-plastic to 4, organic and moisture contents ranged from 1.8% to 9.3% and 33% to 46%, respectively.

Undivided Coastal Plain soils were encountered at most locations throughout the project corridor. These soils were comprised of very loose to medium dense sand, silty sand and clayey sand (A-2-6, A-2-7, A-2-4, A-3), and very soft to stiff silt, clay, and sandy clay (A-4, A-6, A-7-6). Within the cohesive soils, plasticity indices and moisture contents ranged from 9 to 15 and 22% to 42% respectively.

Ground Water

Groundwater was encountered from the ground surface to 5.9 feet below ground. Some of the hand auger borings were dry after being left open for 24 hours. Due to safety concerns, some of the borings had to be backfilled immediately after completion and no 24 hour water level could be obtained. Groundwater was encountered at elevations ranging from 38 feet to 19 feet.

Areas of Special Geotechnical Interest

Ponds: Two ponds are located within close proximity to the right of way on this project at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offset</u>
-L-	29+00 – 34+50	LT
-L-	36+85 – 39+35	LT

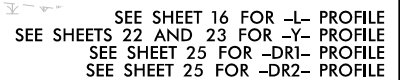
Organic Soils: Materials containing moderate or higher organic content were encountered at the following locations:

<u>Line</u>	<u>Station (±)</u>	<u>Offset</u>
-L-	20+25 – 57+00	LT to RT
-L-	64+25 – 66+75	LT to RT
-L-	71+50 – 88+90	LT to RT

Sincerely,
HDR ENGINEERING, INC., OF THE CAROLINAS



Kenneth R. Bussey, Jr., PE
Senior Geotechnical Engineer

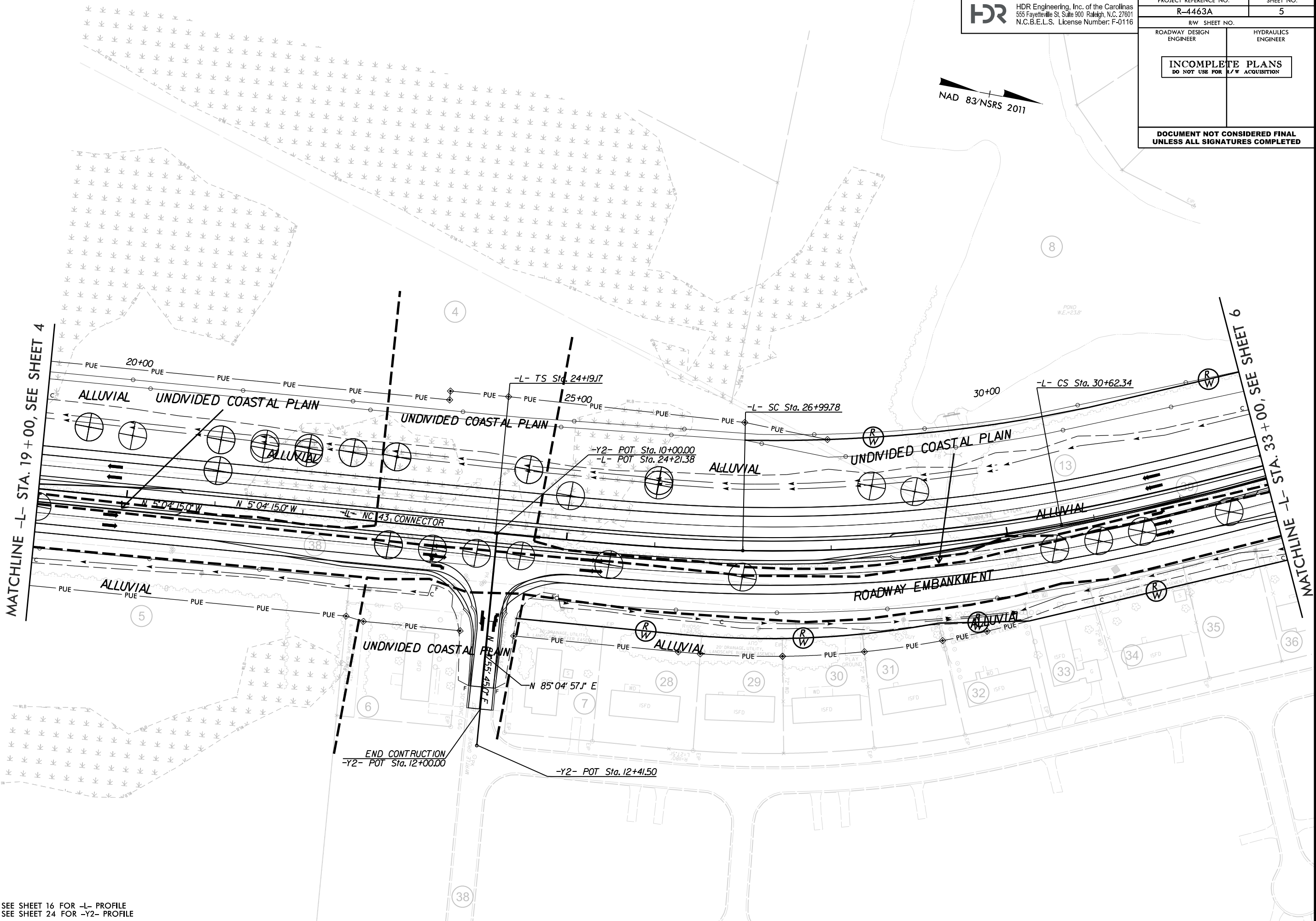




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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.		SHEET NO.	
R-4463A		5	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

NAD 83/NSRS 2011



SEE SHEET 16 FOR -L- PROFILE
SEE SHEET 24 FOR -Y2- PROFILE

REVISIONS

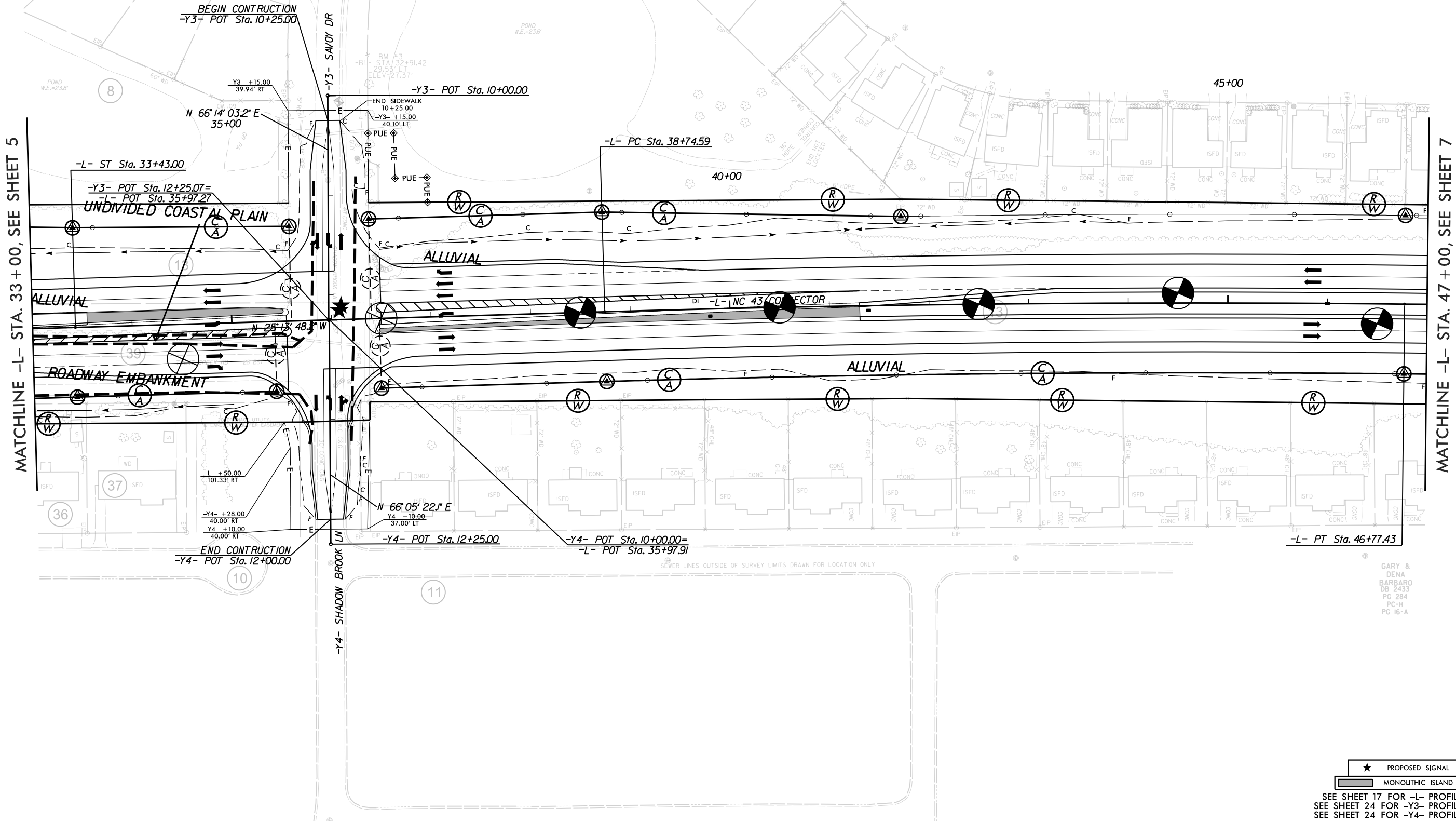
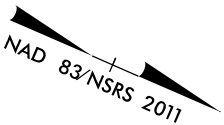
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USER: TLYNN
DATE: 11/13/2019
FILE: ...\\R4463A_GEO_RDY_PSH-05.dgn

TIME: 11:31:04 AM



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.		SHEET NO.	
R-4463A		6	
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			



GARY &
DENA
BARBARO
DB 2433
PG 284
PC-H
PG 16-A

★ PROPOSED SIGNAL
MONOLITHIC ISLAND
SEE SHEET 17 FOR -L- PROFILE
SEE SHEET 24 FOR -Y3- PROFILE
SEE SHEET 24 FOR -Y4- PROFILE

REVISIONS

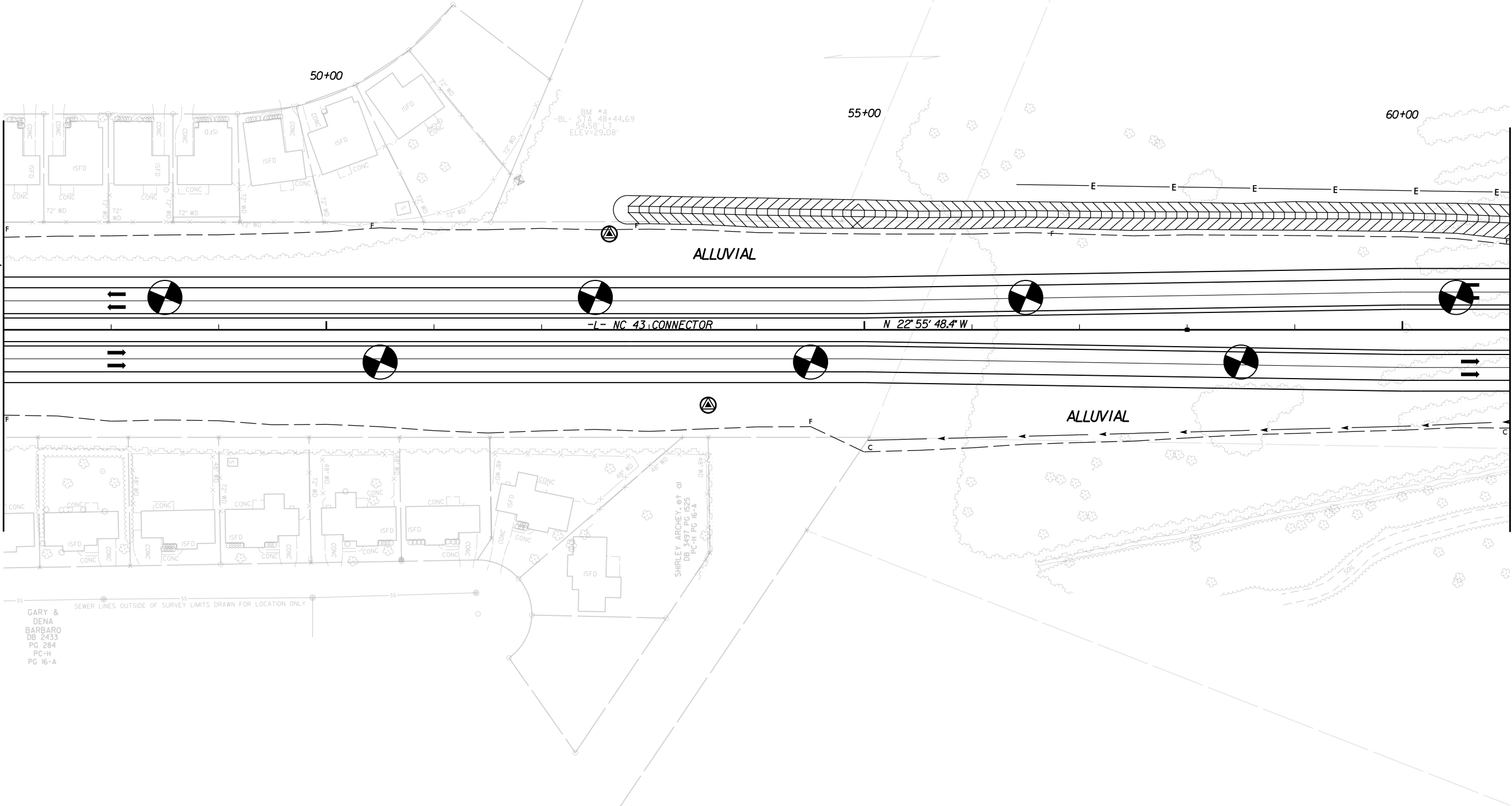
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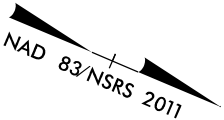
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REVISIONS

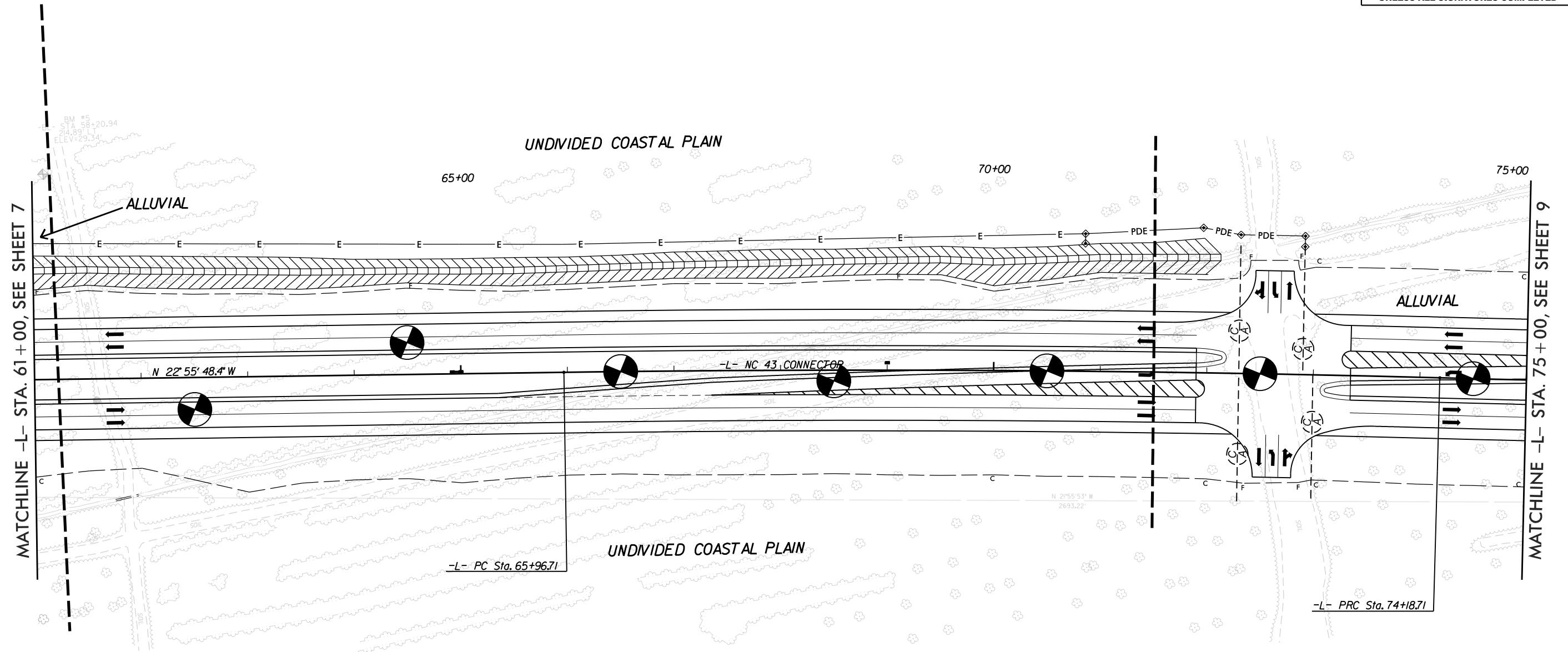
MATCHLINE -L- STA. 47+00, SEE SHEET 6



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PROJECT REFERENCE NO.		SHEET NO.
R-4463A		7
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		



SEE SHEET 18 FOR -L- PROFILE

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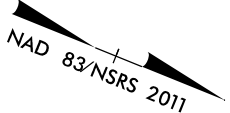
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REVISIONS

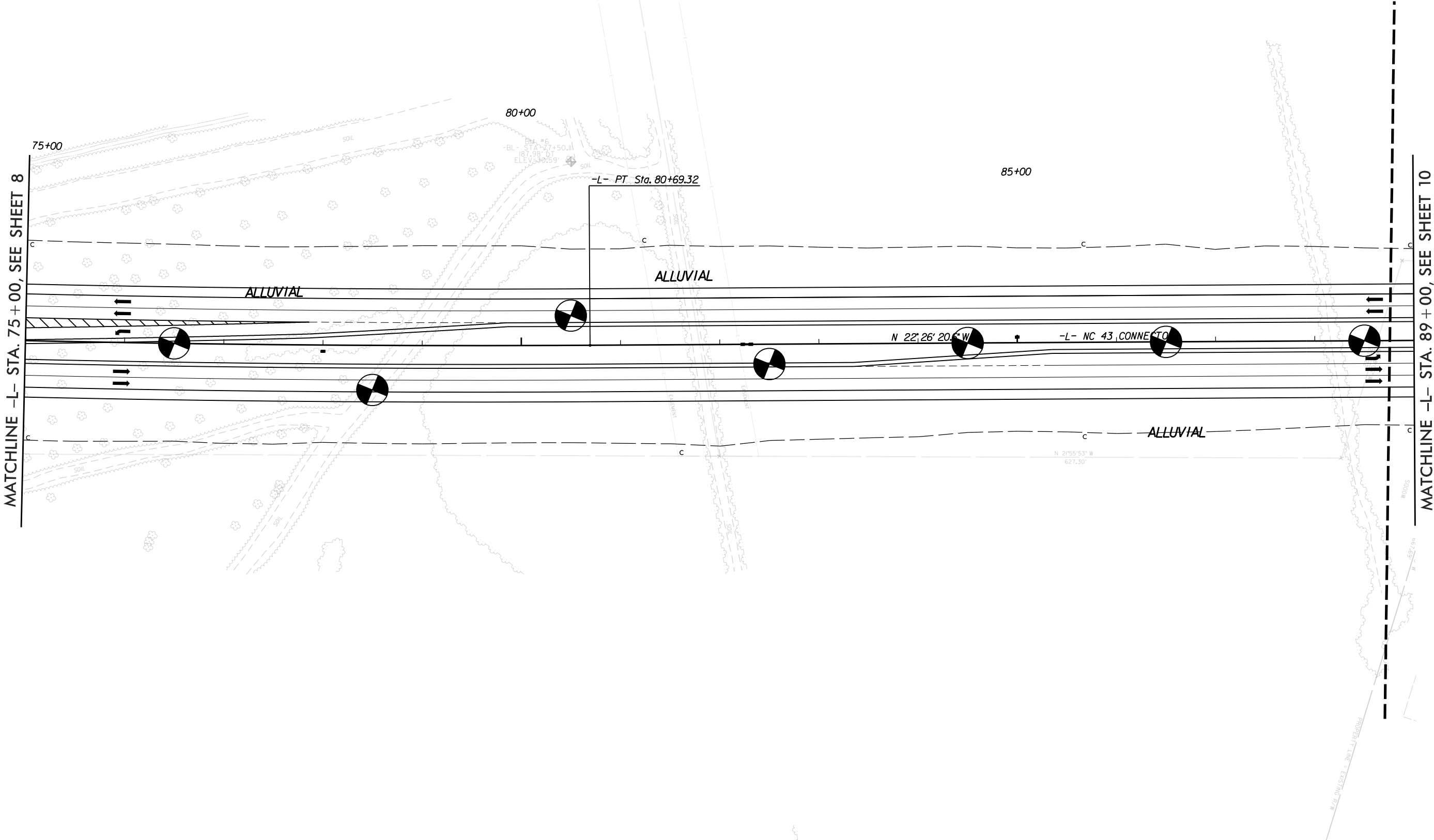


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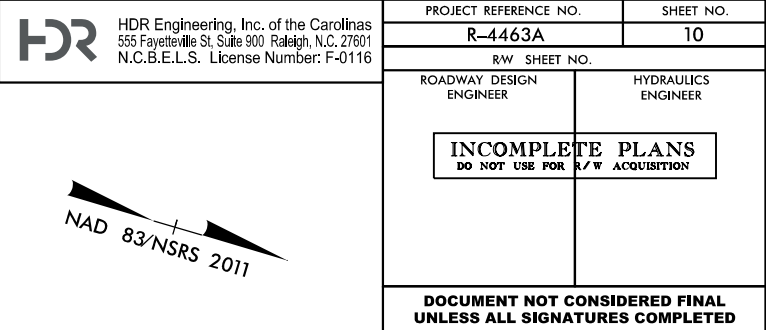
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R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
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NAD 83/NSRS 2011



SEE SHEET 18 FOR -L- PROFILE

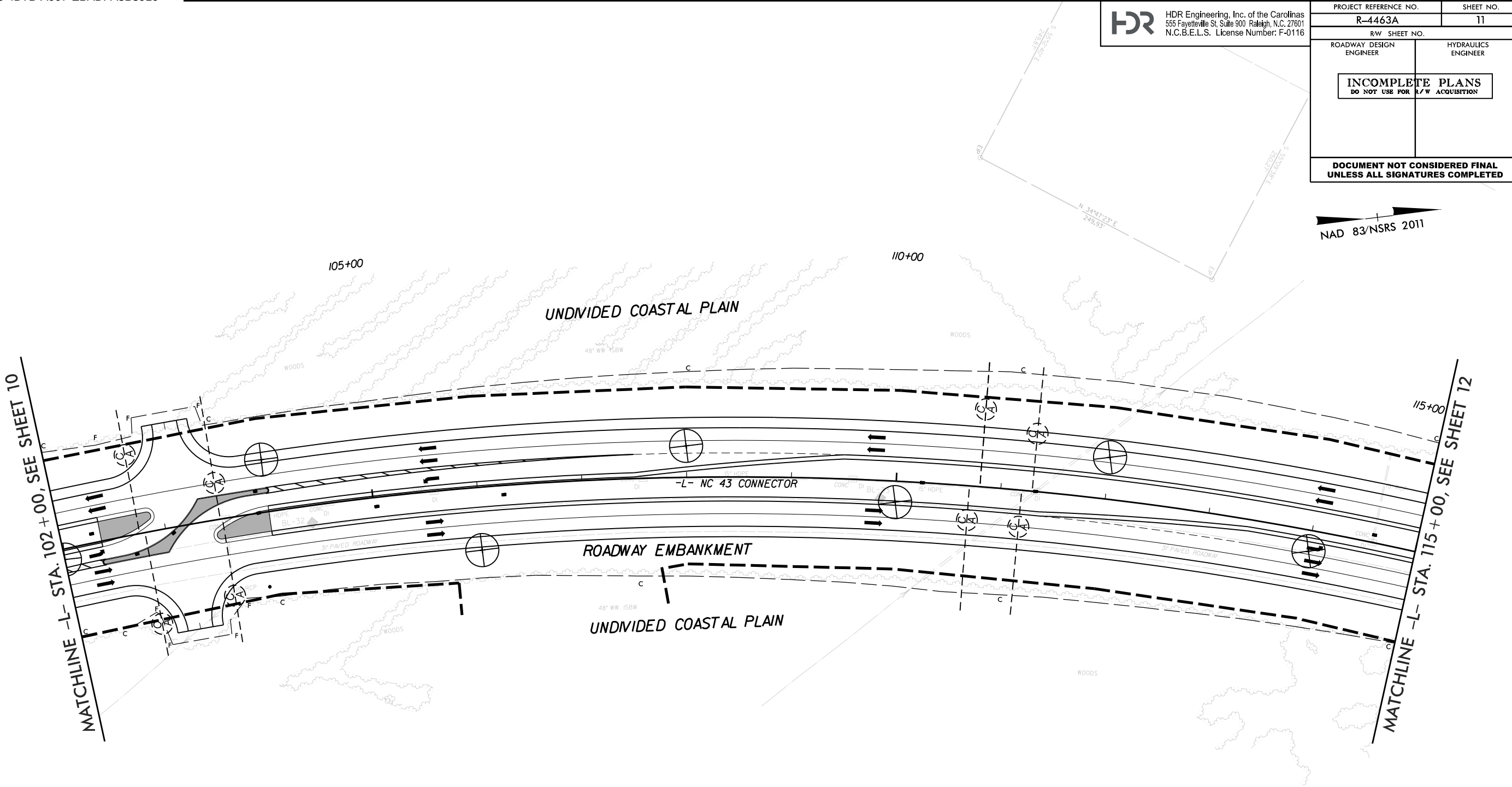


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DATE: 11/13/2019

REVISIONS



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PROJECT REFERENCE NO.		SHEET NO.
R-4463A		11
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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NAD 83/NSRS 2011

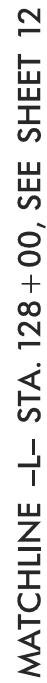
MONOLITHIC ISLAND

SEE SHEET 19 FOR -L- PROFILE



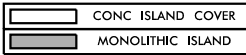
SEE SHEET 20 FOR -L- PROFILE

★	PROPOSED SIGNAL
	MONOLITHIC ISLAND



REVISIONS

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SEE SHEET 23 FOR -Y- PROFIL
SEE SHEET 24 FOR -Y1- PROFIL

NAD 83/NSRS 2017

END CONSTRUCTION
-YI- POT Sta. 12+75.00

-YI- POT Sta. 14+96.96

-YI- PT Sta. 12+48.18

$$\frac{-YI - POT \text{ Sta. } 10+00.00}{-Y - POC \text{ Sta. } 21+50.00} =$$

-Y- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y- POT Sta. 14+40.00

UNDIVIDED COASTAL PLAIN

-YI- PC Sta. 10+80.05

ROADWAY EMBANKMENT

20+00

A cross-sectional diagram of a roadway embankment. The embankment is shown as a sloped structure with a dashed line indicating its internal profile. The top surface is labeled "ROADWAY EMBANKMENT". A dashed line with a downward-pointing arrow indicates the "SUBGRADE". The embankment is supported by a "RETAINING WALL" on the left side. The area below the embankment is labeled "FILL".

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

UNDIVIDED COASTAL PLAIN

-Y- TS Sta. 18+54.04

-Y- SC Sta. 20+54.04

STA. 24 + 50, SEE MATCHLINE -Y- SHEET 4

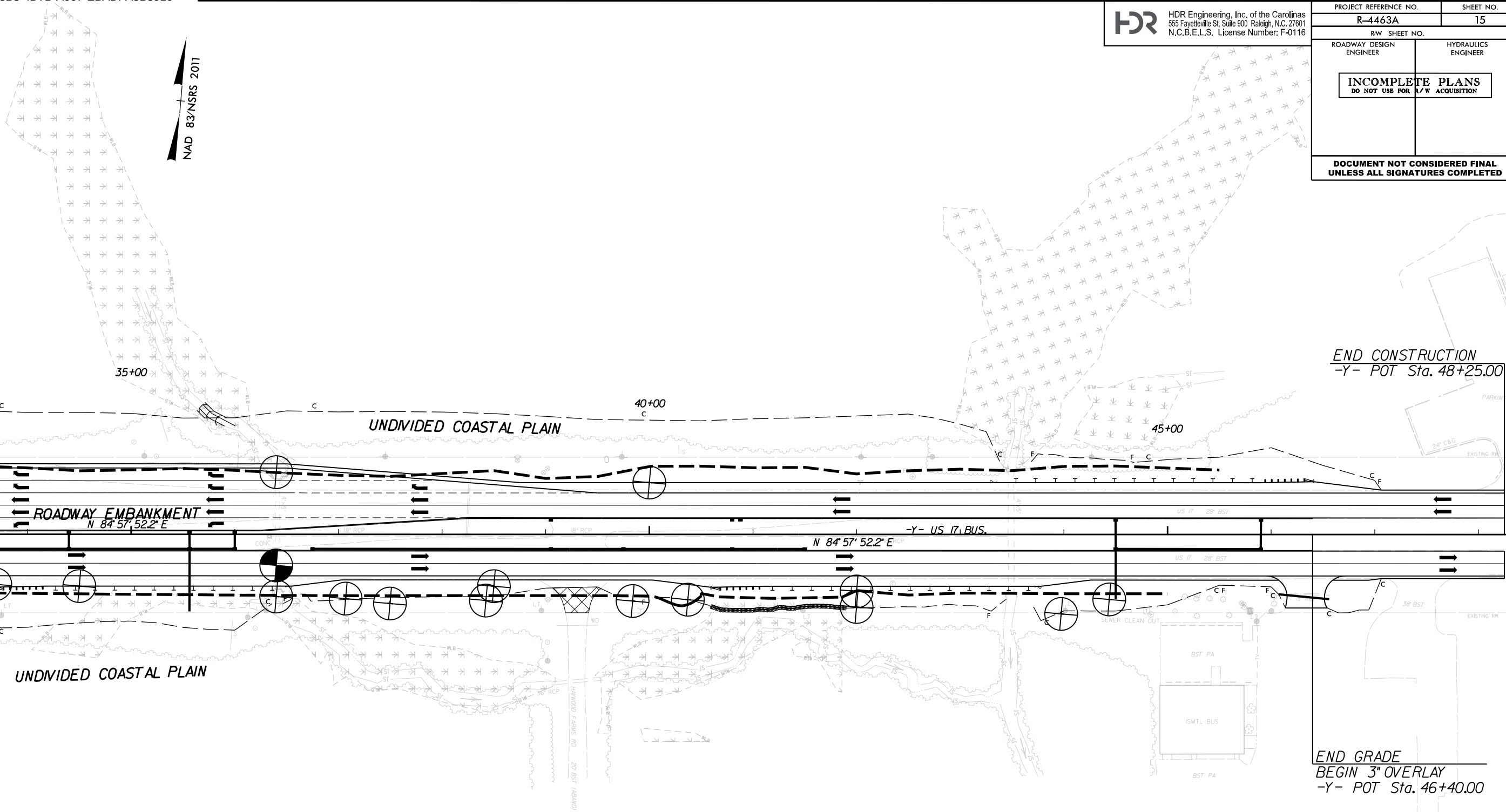
REVISIONS

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REVISIONS

MATCHLINE -Y- STA. 33 + 70, SEE SHEET 4



END CONSTRUCTION
-Y- POT Sta. 48+25.00

END GRADE
BEGIN 3\"/>

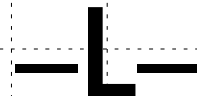
MONOLITHIC ISLAND
SEE SHEET 23 FOR -Y- PROFILE



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PROJECT REFERENCE NO.		SHEET NO.	
R-4463A		15	
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			

(A)	Loose to medium dense, dark gray to brown, silty SAND (A-2-4), with trace organics, moist to saturated (ALLUVIAL)
(U1)	Medium stiff, gray and tan, sandy CLAY (A-6), moist to wet (UNDIVIDED COASTAL PLAIN)
(U2)	Medium dense, tan and gray, SAND and clayey SAND (A-2-4, A-2-6), moist to saturated (UNDIVIDED COASTAL PLAIN)

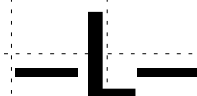


SEE SHEET 4 FOR -L- PLAN

Profile view of the proposed road section. The diagram shows the existing ground (dashed line) and the proposed grade (solid line). Key features include:

- Existing ground elevations: 70' LT, 75' LT, 75' LT, 50' LT, 70' LT, 70' LT.
- Proposed grade elevations: 40' LT (S-24, S-3), 75' LT (S-300, S-301), 75' LT, 75' LT, 75' LT, 50' LT (S-50), 70' LT, 70' LT (S-4).
- Structures: BT FIAD, BT, BT FIAD, BT, BT FIAD, BT, BT FIAD, BT, BT, BT, BT.
- Other labels: A1, A, U2, 01/19, 02/19, EXISTING GROUND, PROPOSED GRADE.

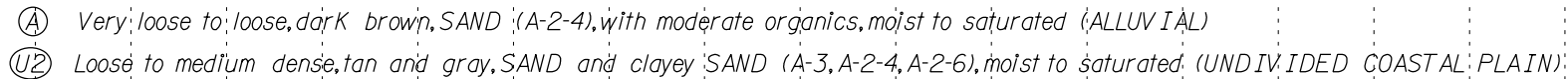
(U2) Medium dense, tan and gray, SAND (A-3, A-2-4, A-2-6), moist to saturated (UNDIVIDED COASTAL PLAIN)
 (A) Loose, SAND (A-2-4), with trace to moderate organics, moist to saturated (ALLUVIAL)
 (A1) Loose to medium dense, dark gray to brown, silty SAND (A-2-4), with trace organics, moist to saturated (ALLUVIAL)



SEE SHEET 5 FOR -L- PLAN

REVISIONS

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 108	CL	38+50	3. 5- 5. 0	A- 2- 4	21	5	39. 5	33. 4	5. 8	19. 2	98	82	26	21	-
SS- 94	20' RT	46+50	0. 0- 1. 5	A- 2- 4	40	NP	45. 9	32. 2	18. 8	3. 1	100	79	23	46	6. 6

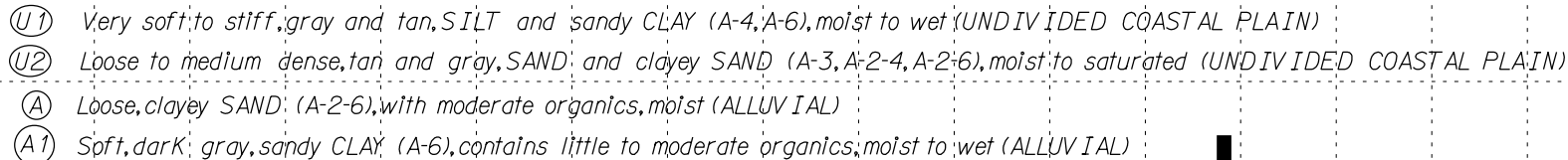


(A)	Very loose, tan and gray, silty SAND (A-2-4), contains little to moderate organics, moist to saturated (ALLUVIAL)
(A1)	Soft, tan and gray, silty SILT and CLAY (A-4, A-6), contains trace to little organics, moist to saturated (ALLUVIAL)
(U2)	Very loose to medium dense, tan and gray, SAND and clayey SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

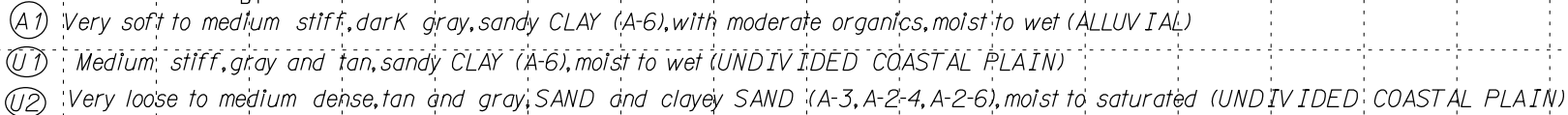


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SOIL TEST RESULTS															
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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 59	30' RT	62+50	0. 0- 1. 5	A- 6(3)	36	15	22. 1	35. 3	12. 8	29. 7	100	91	43	20	-
SS- 45	CL	70+50	0. 0- 1. 5	A- 6 (3)	34	15	21. 5	34. 0	9. 9	34. 5	100	92	46	25	-
SS- 42	CL	72+50	3. 5- 5. 0	A- 4 (0)	22	4	15. 5	40. 2	15. 0	29. 3	100	96	48	28	-

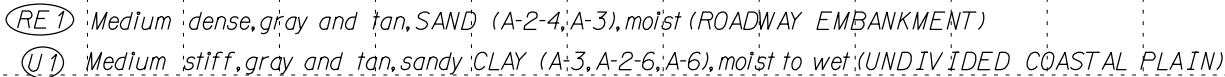
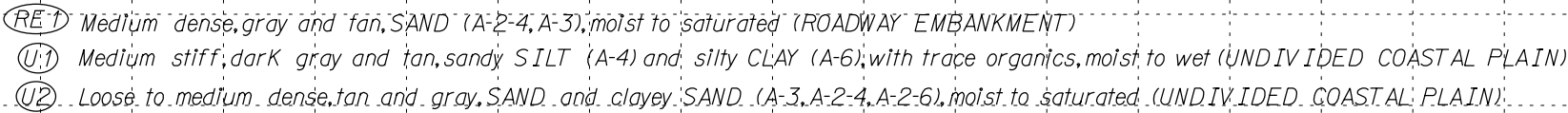


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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 18	CL	84+50	0. 0- 1. 5	A- 6 (5)	33	13	14. 1	31. 5	26. 4	27. 9	100	95	57	31	-
SS- 19	CL	84+50	3. 5- 5. 0	A- 2- 4	21	5	27. 5	44. 3	9. 0	19. 2	100	92	32	19	-

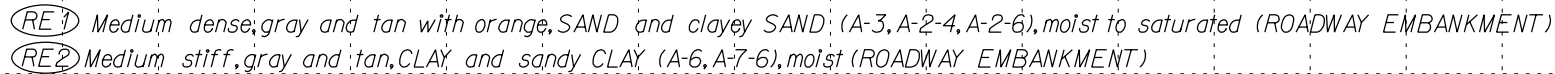
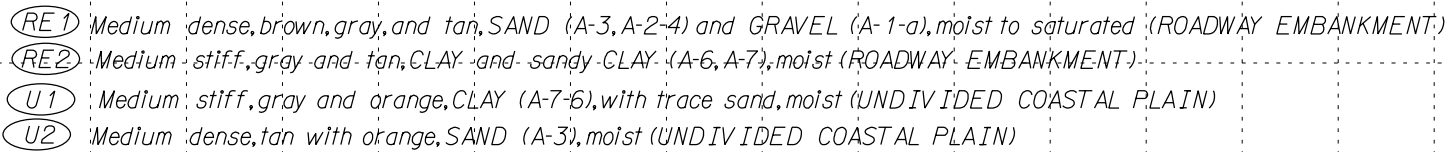


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							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-6	20' LT	92+00	5.5-6.0	A-4 (2)	26	9	15.6	35.5	17.5	31.4	100	95	53	22	-



SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-7	70' LT	123+50	0.0- 1.0	A-7-5(14)	45	12	2.1	12.1	32.8	53.0	100	99	91	42	-
S-9	40' LT	128+00	1.0- 2.0	A-1-a	20	NP	23.5	14.3	4.8	1.8	44	27	8	6	-



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PROJECT REFERENCE NO.

R-4463A

SHEET NO.

21

ROADWAY DESIGN ENGINEER

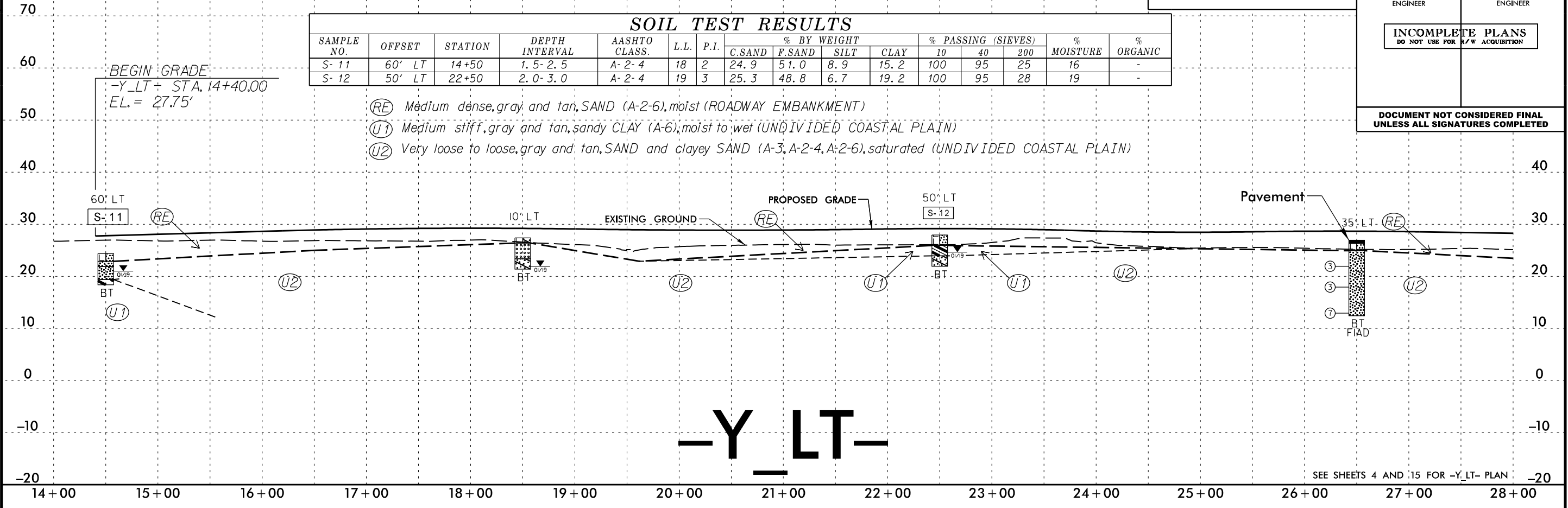
HYDRAULICS ENGINEER

INCOMPLETE PLANS

DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED



REVISIONS

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S- 14	50' LT	40+00	2.0- 3.0	A- 2- 4	22	6	21.9	54.0	12.0	12.1	100	93	27	18	-

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-14	50' LT	40+00	2.0-3.0	A-2-4	22	6	21.9	54.0	12.0	12.1	100	93	27	18	-

(RE) Medium dense, gray and tan, SAND (A-2-4; A-2-6; A-1-b), moist to saturated (ROADWAY EMBANKMENT)
 (U2) Medium dense, gray and tan, SAND (A-2-4; A-3), saturated (UNDIVIDED COASTAL PLAIN)
 (A) Very soft, gray SILT (A-4), contains little organics, moist to wet (ALLUVIAL)

-Y_LT-

SEE SHEETS 4 AND 14 FOR -Y_LT- PLAN

ENGINEER

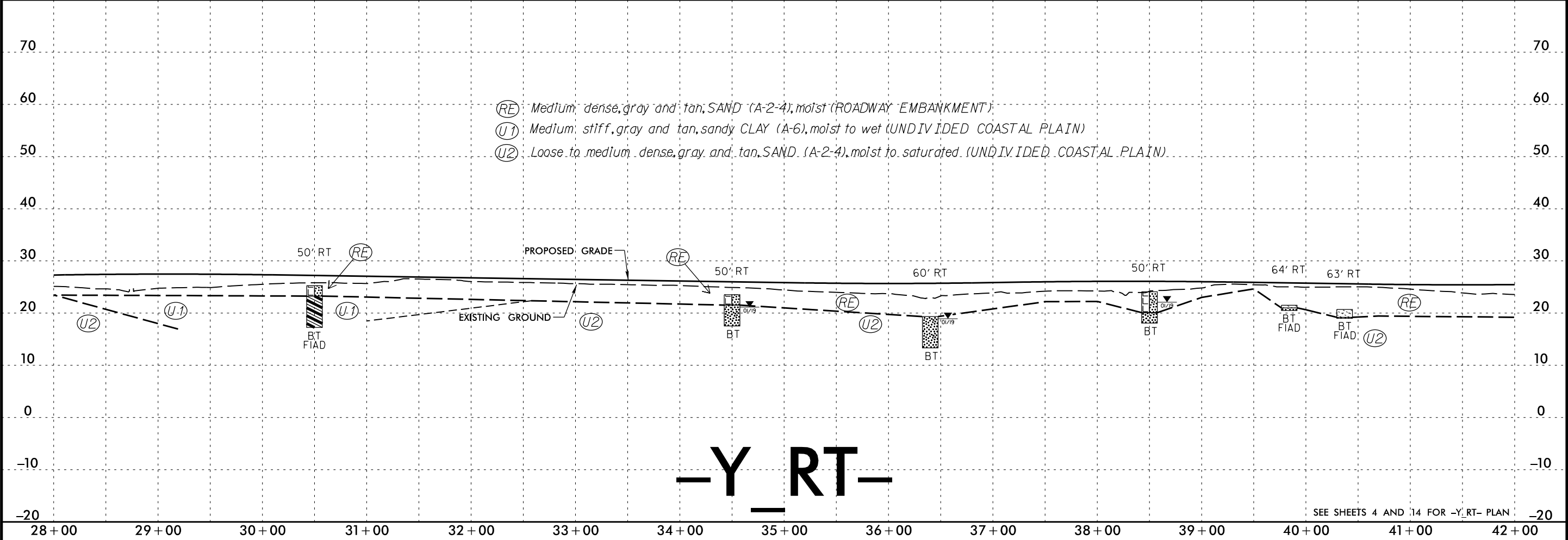
 INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

 DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

-Y-LT-

SEE SHEETS 4 AND 14 FOR -Y₁LT- PLAN

REVISIONS



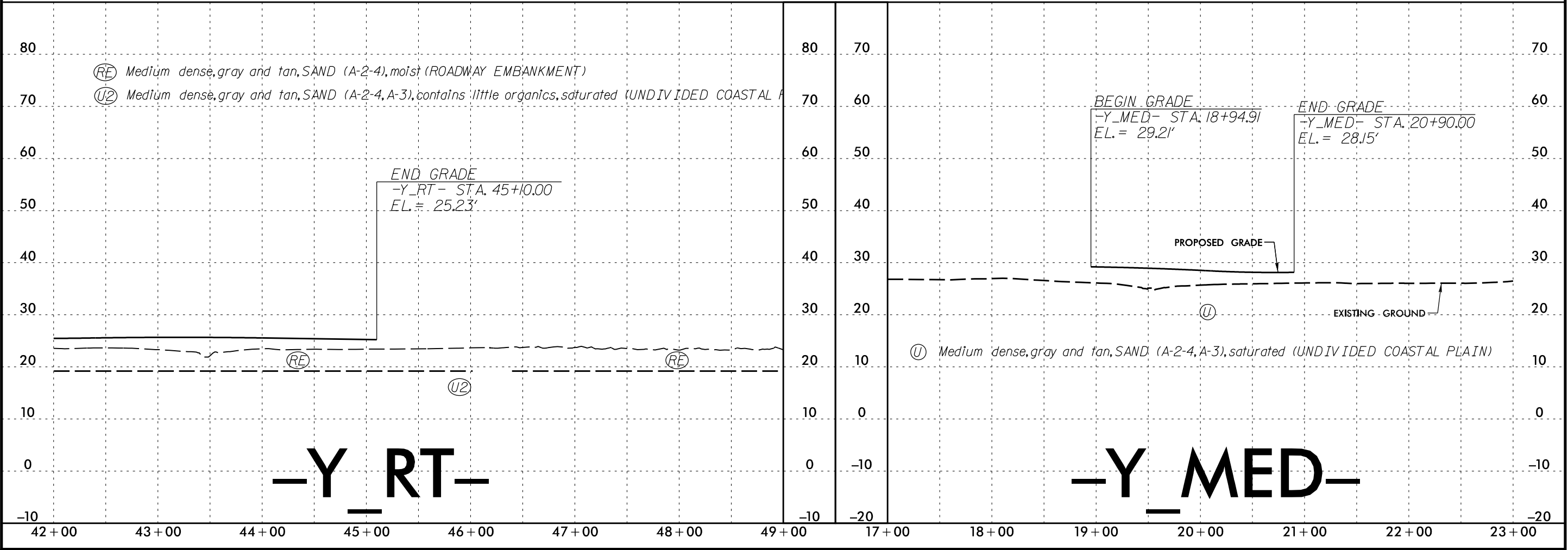
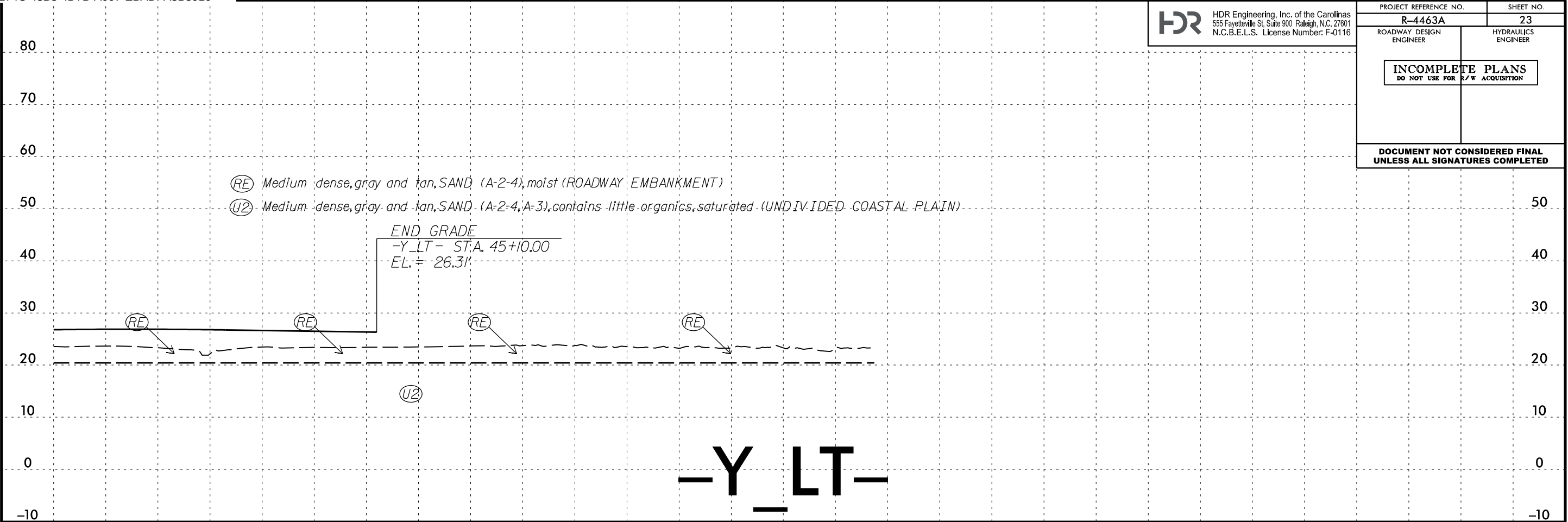
-Y_RT-

SEE SHEETS 4 AND '14 FOR -Y'RT- PLAN

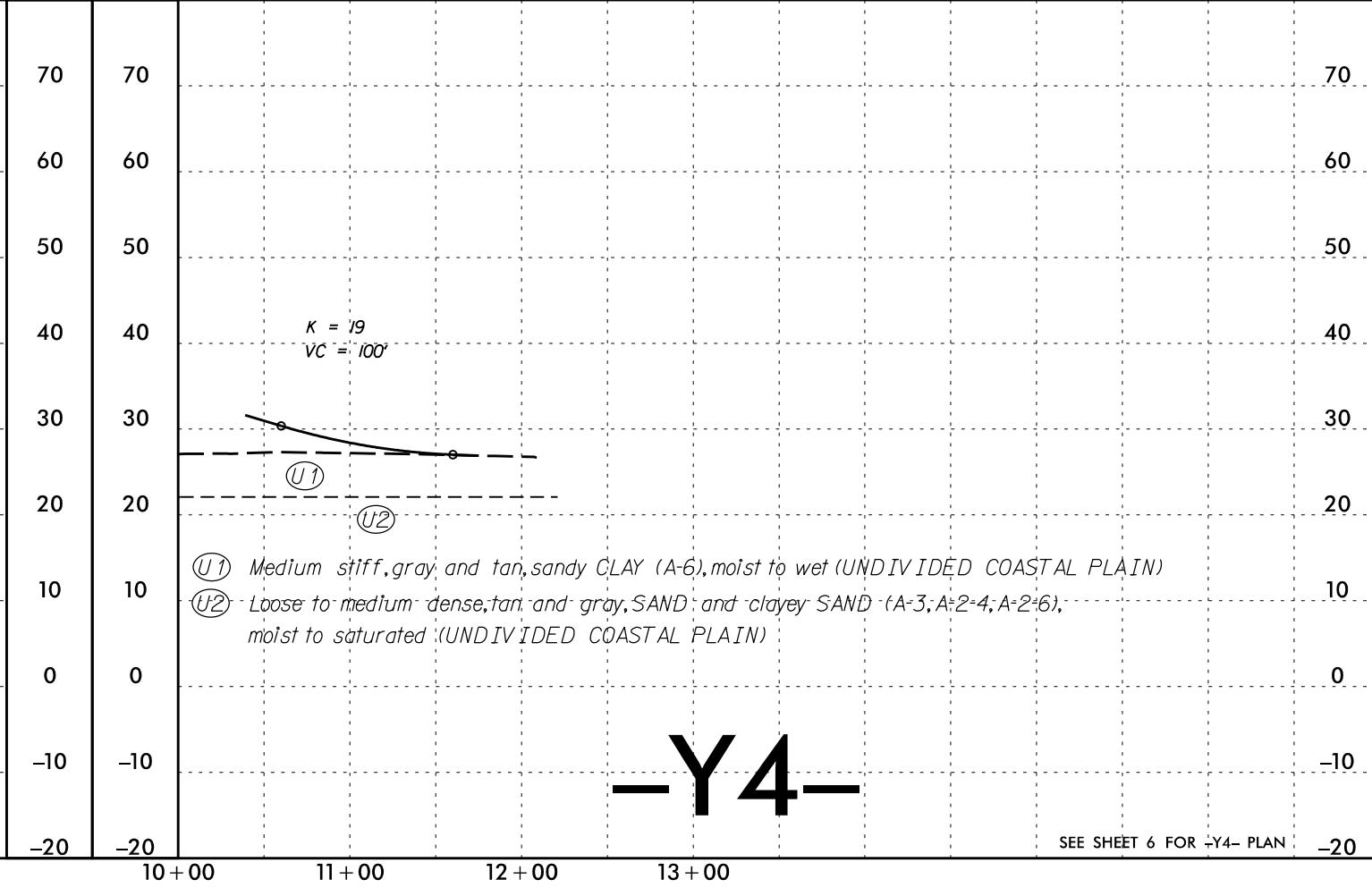
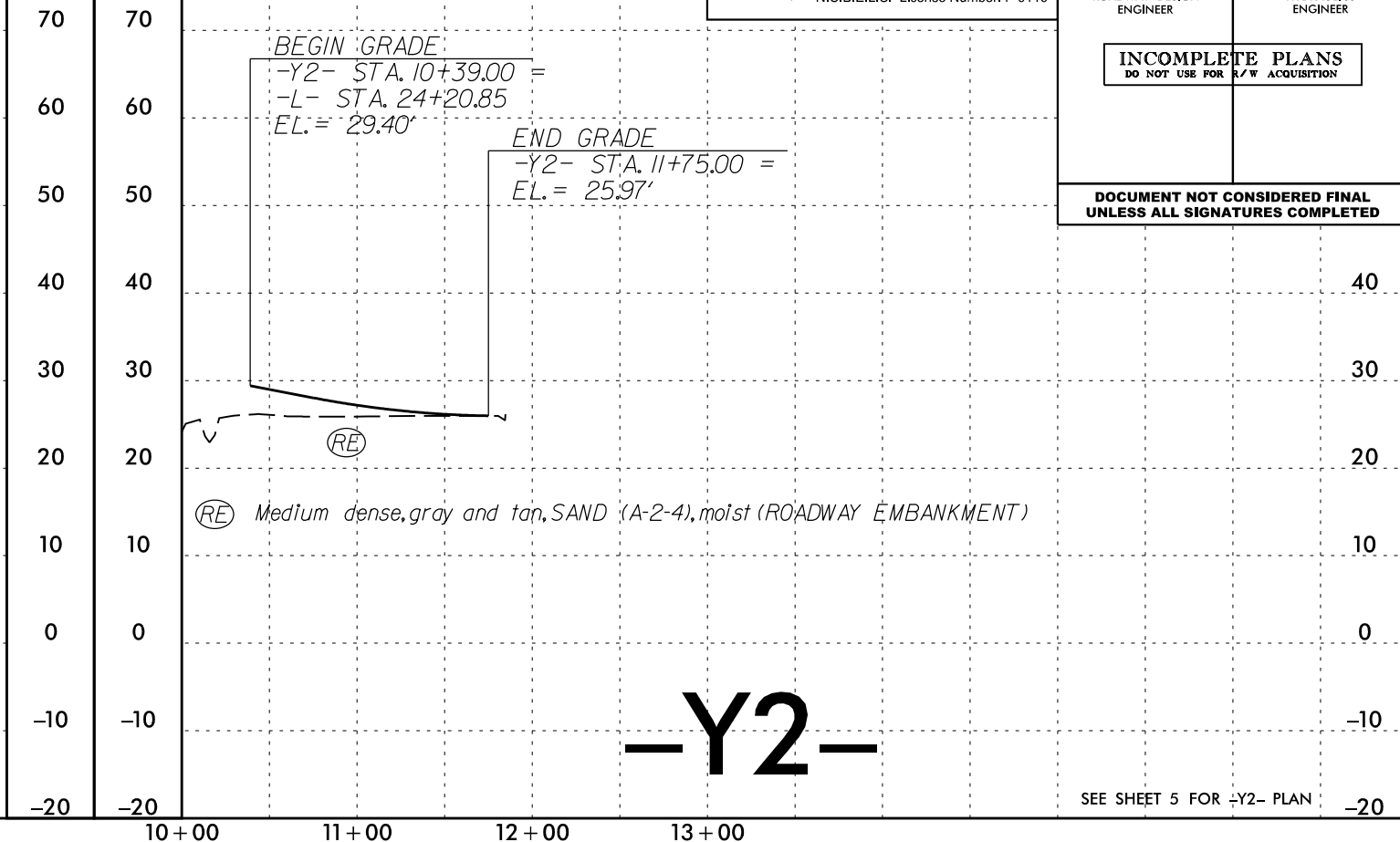


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N.C.B.E.L.S. License Number: F-0116

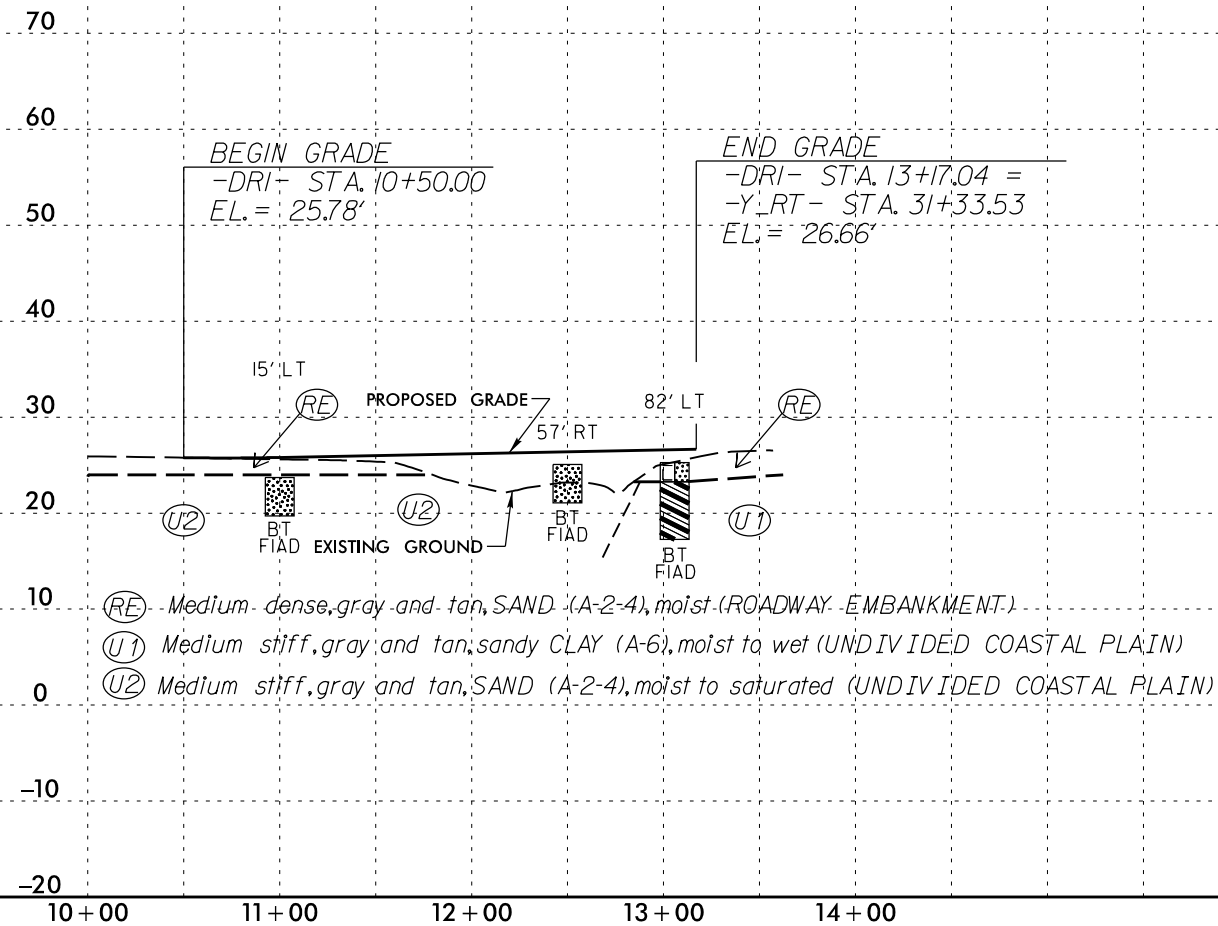
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



REVISIONS

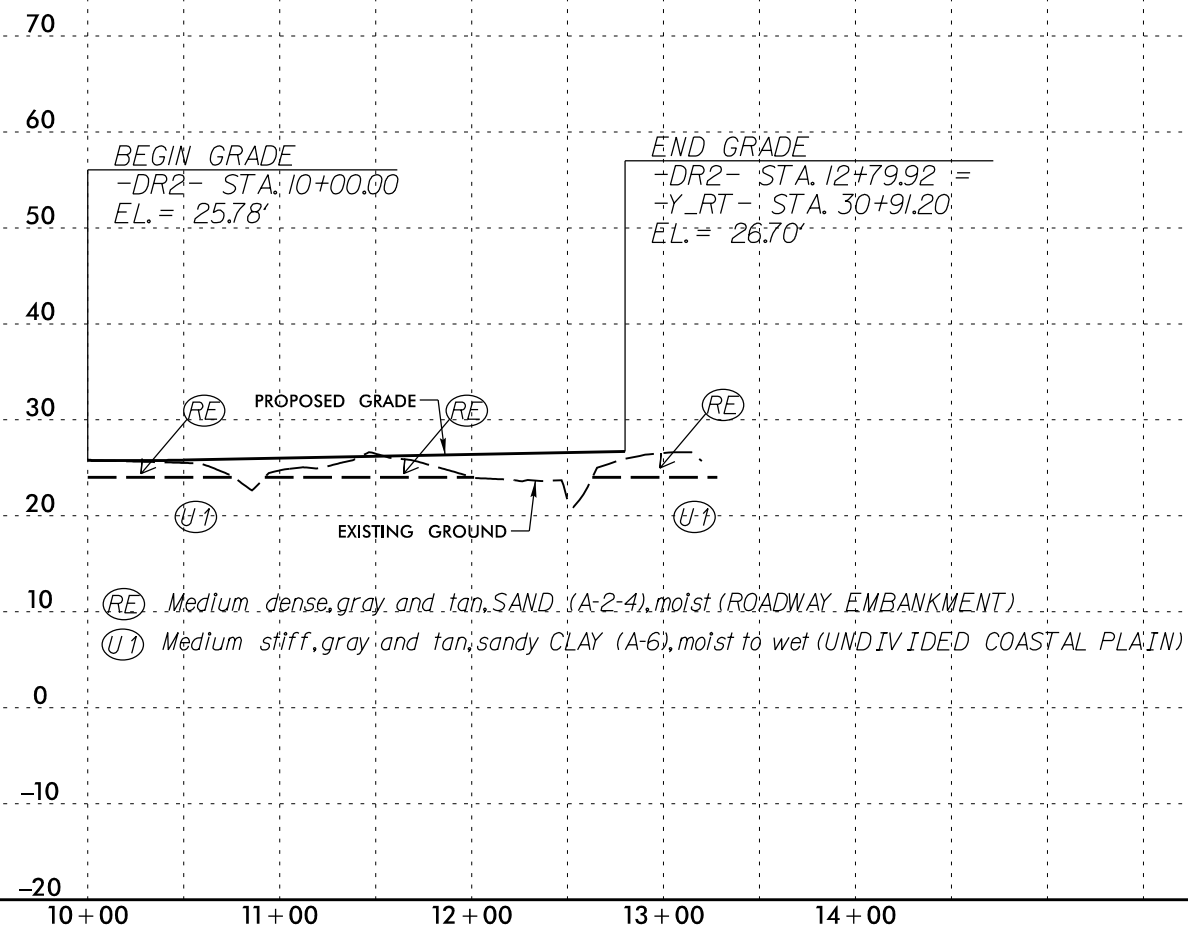


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R-4463A	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



—DR1—

SEE SHEET 4 FOR -DR1- PLAN -20



—DR2—

SEE SHEET 4 FOR -DR2- PLAN -20

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REVISIONS

6/23/16



PROJ. REFERENCE NO.
R-4463A

SHEET NO.
26

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50

40

30

20

10

(RE 1) Loose, dark gray and brown, silty SAND (A-2-4), moist (ROADWAY EMBANKMENT)

(A) Loose, dark gray and brown, silty SAND (A-2-4), with trace organics, moist (ALLUVIAL)

Loose to medium dense, tan and gray, SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

FIAD
BT

01/18

BT

(RE 1)

13 + 00.00

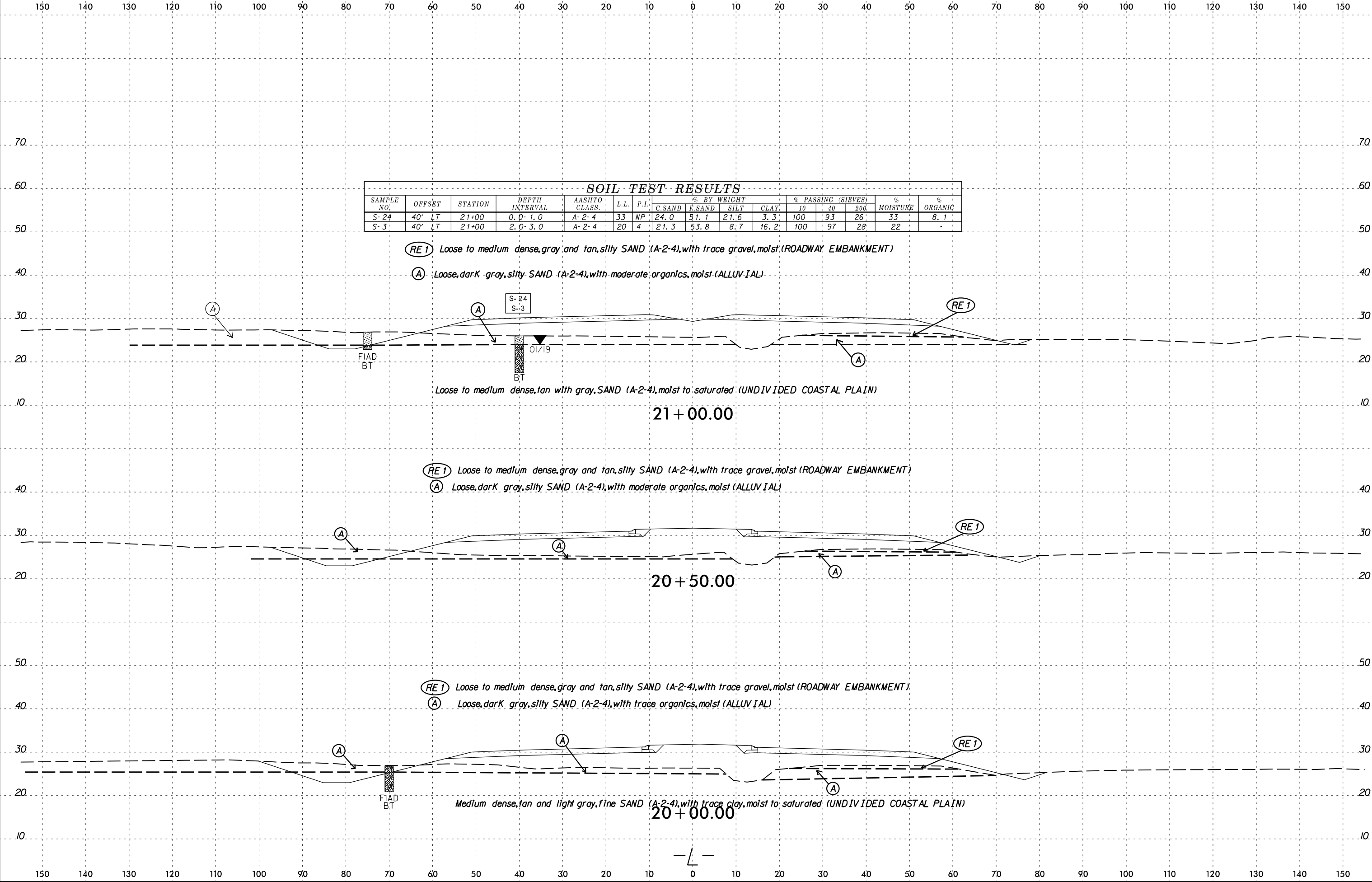


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6/23/16



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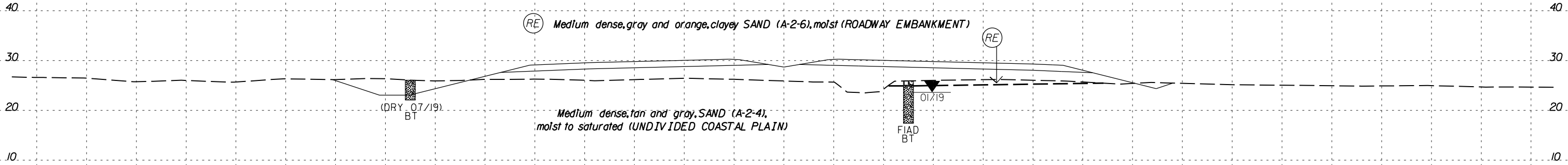
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PROJ. REFERENCE NO.
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23 + 00.00

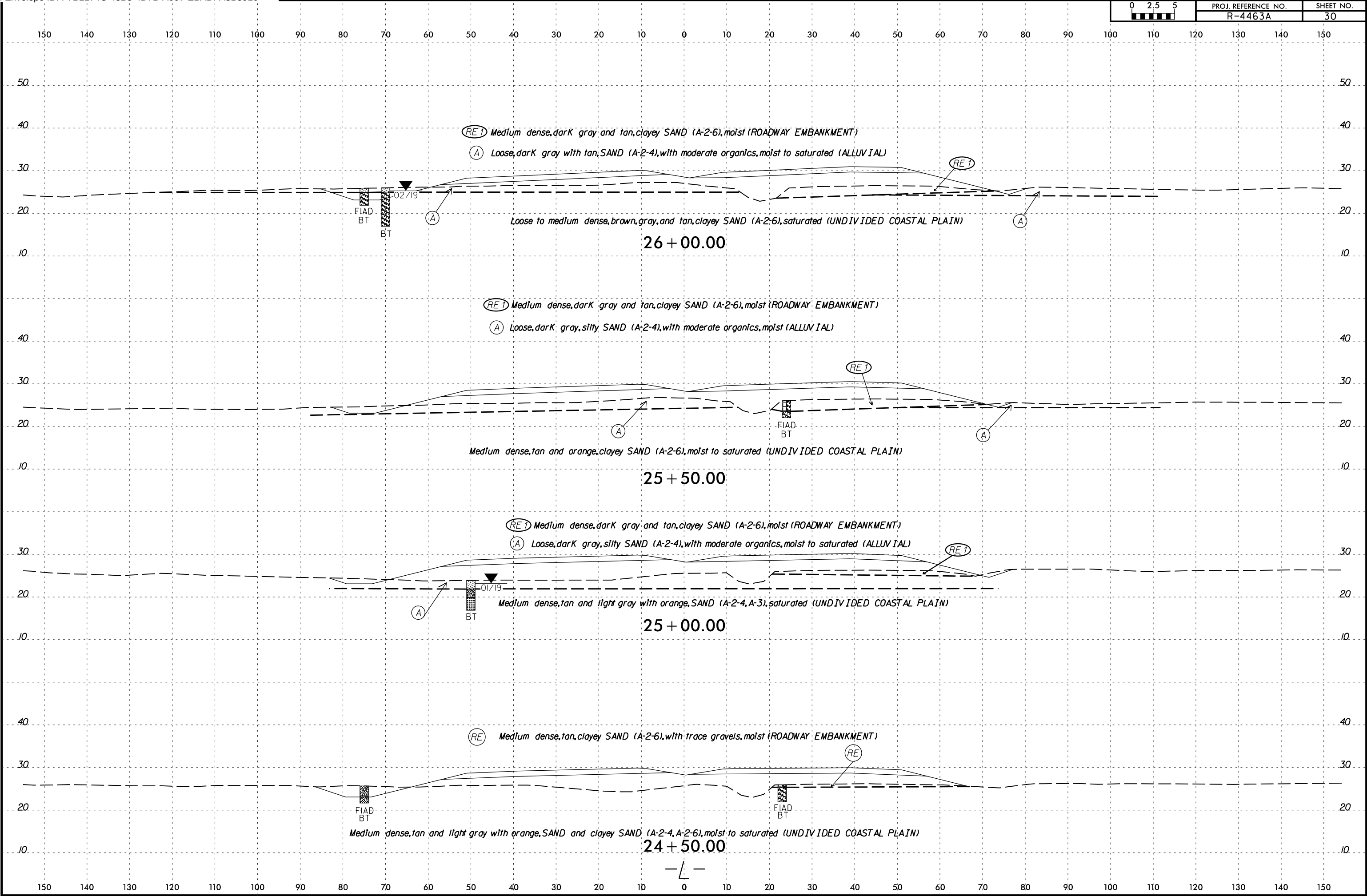


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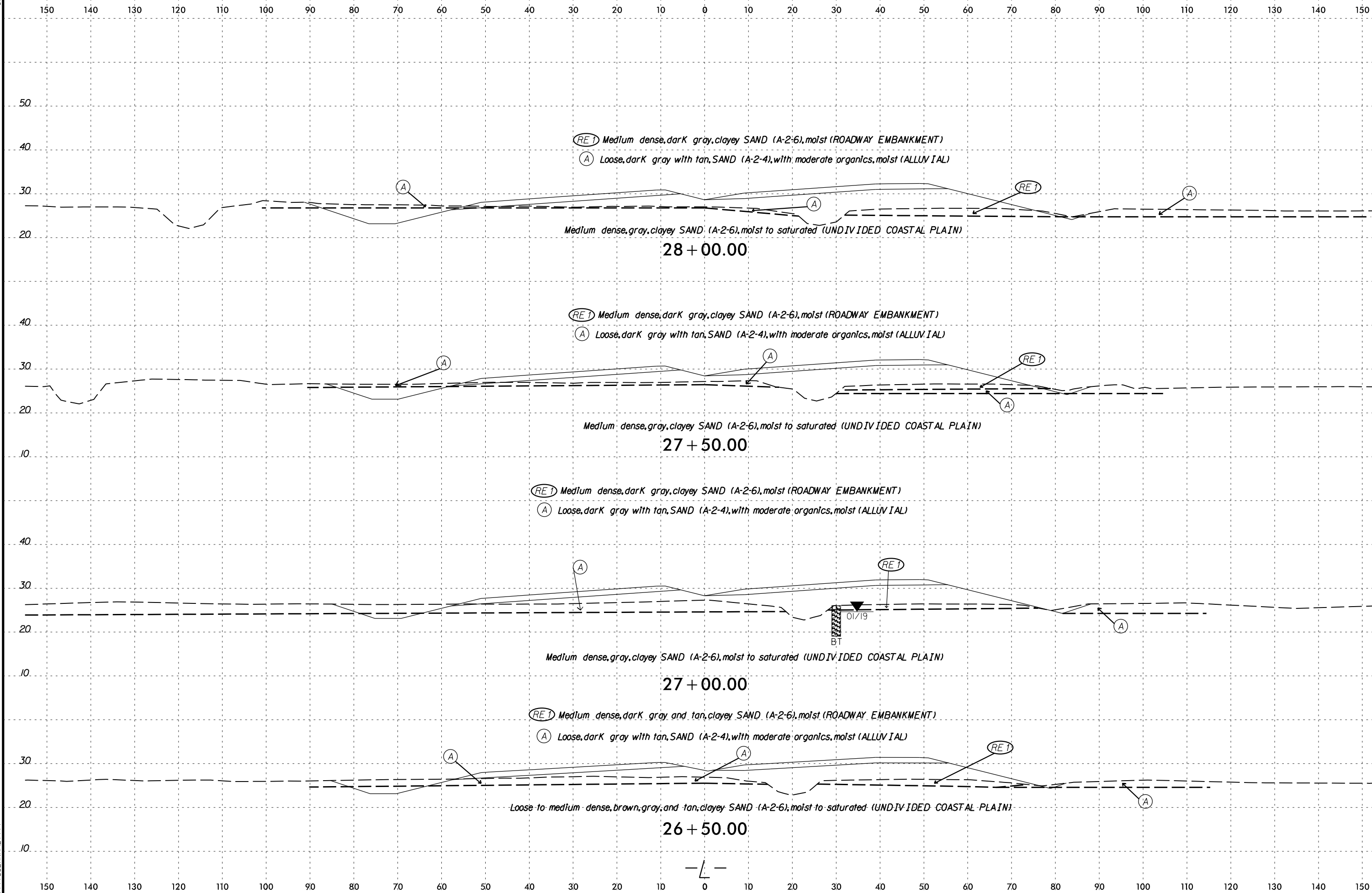
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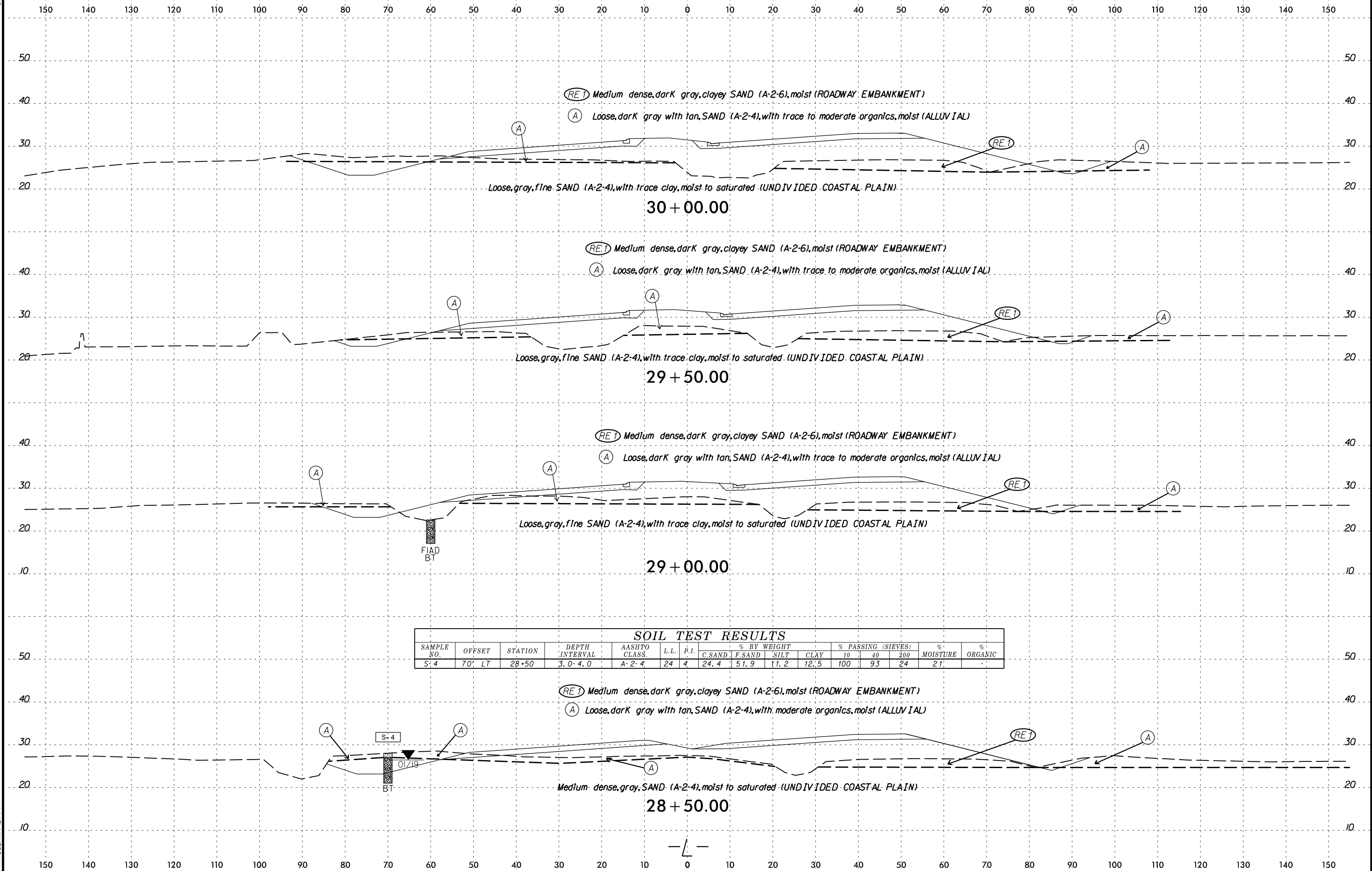


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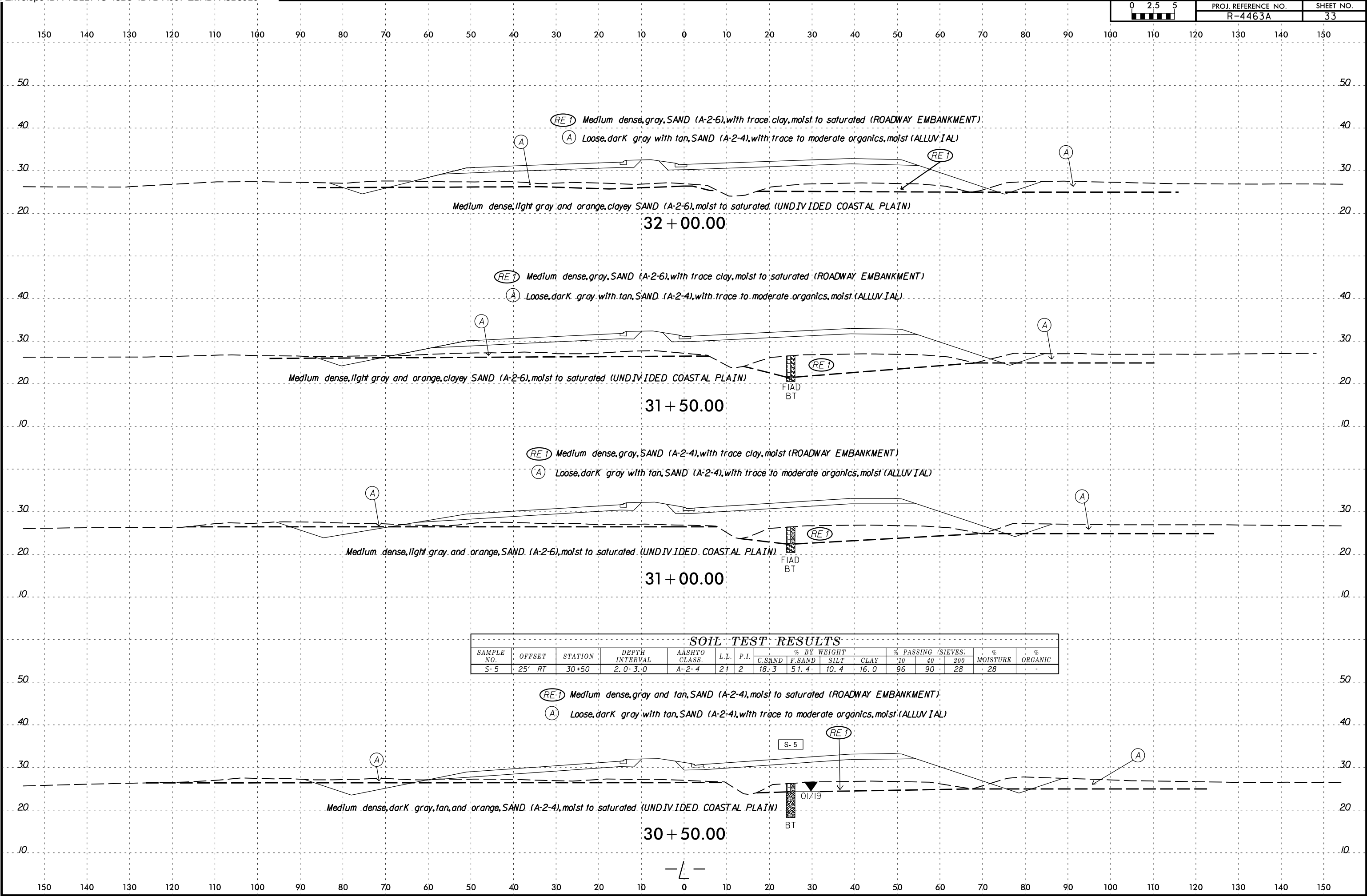




6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	33

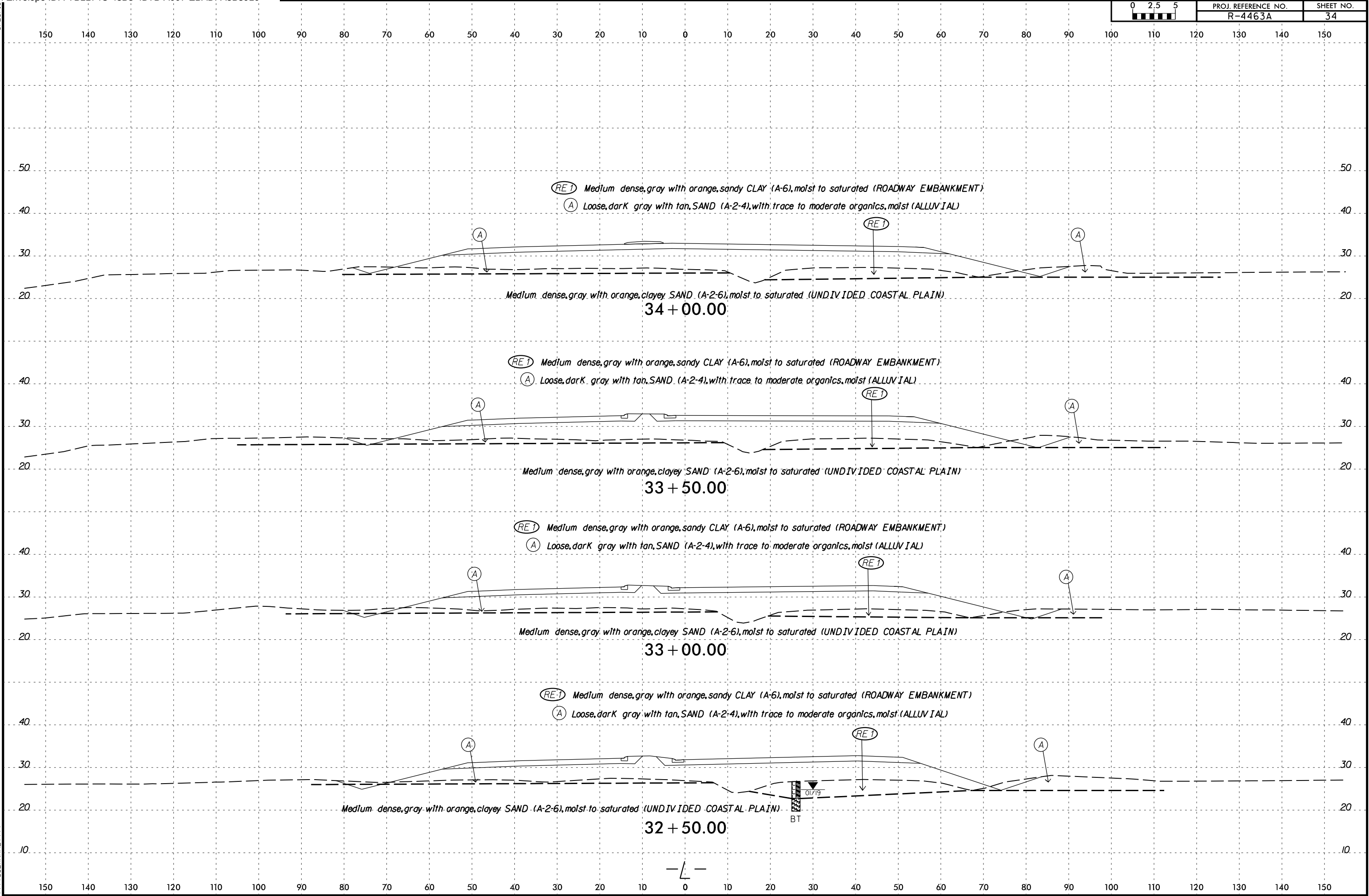


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	34

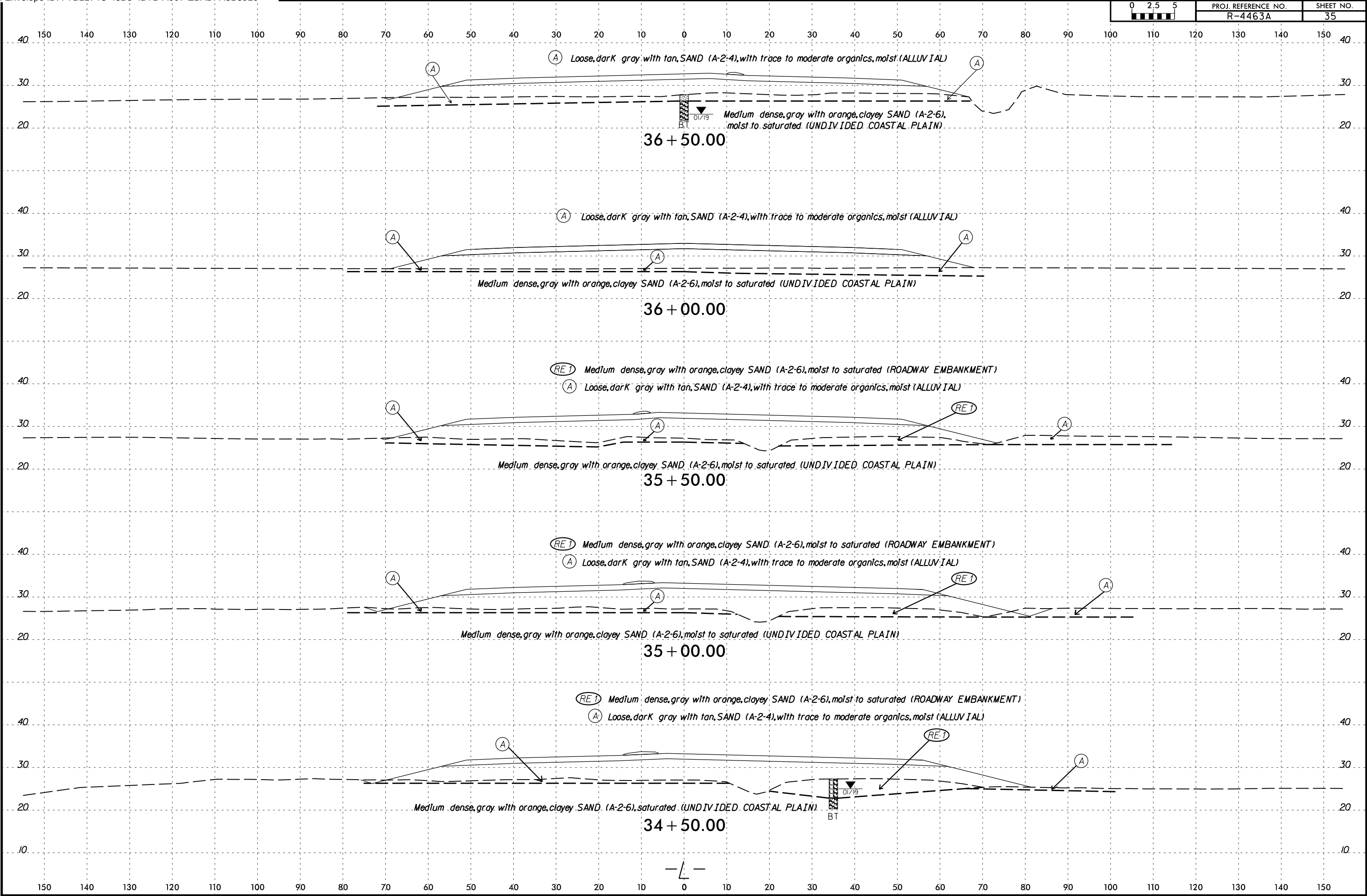


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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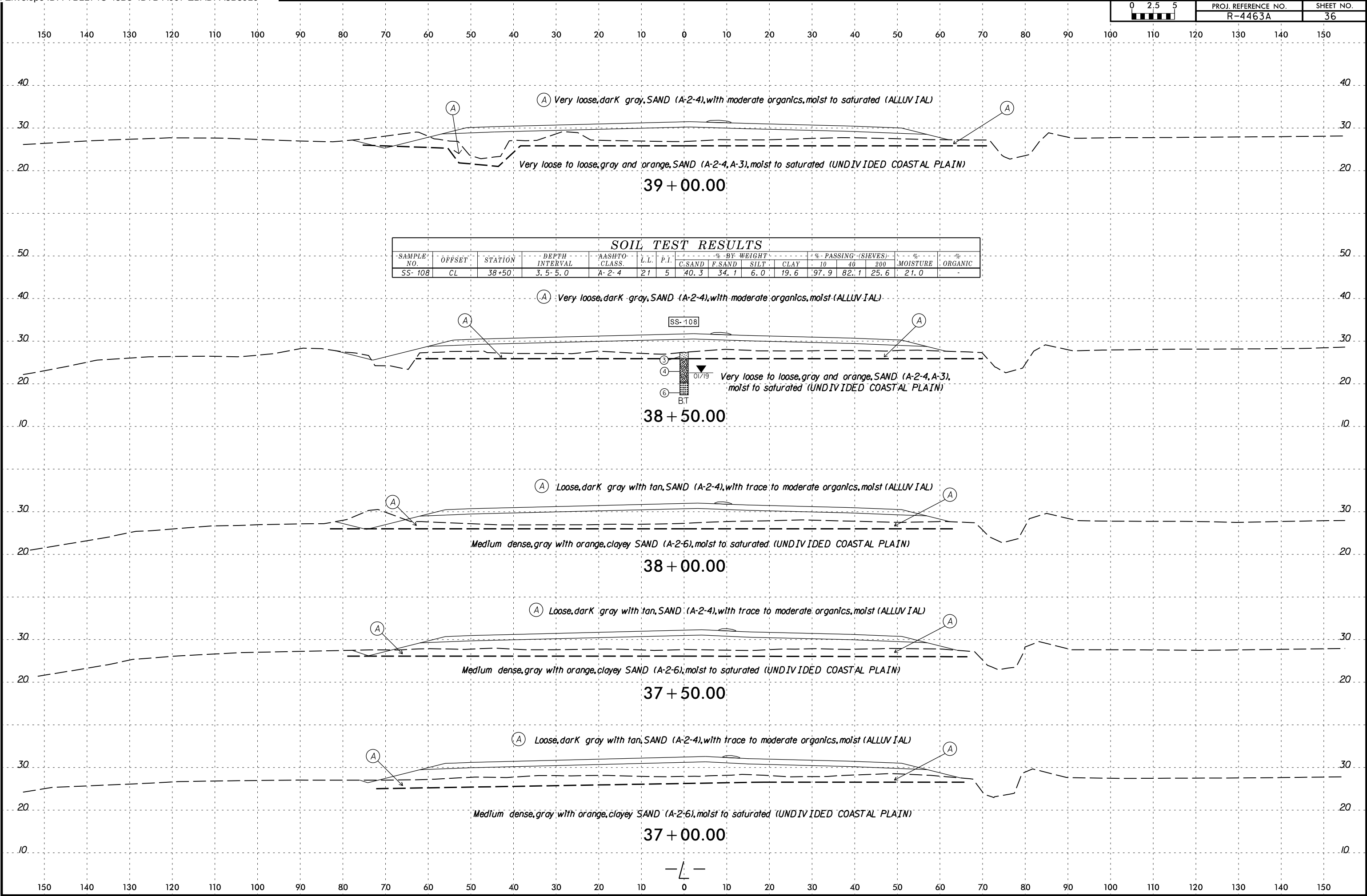


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6/23/16



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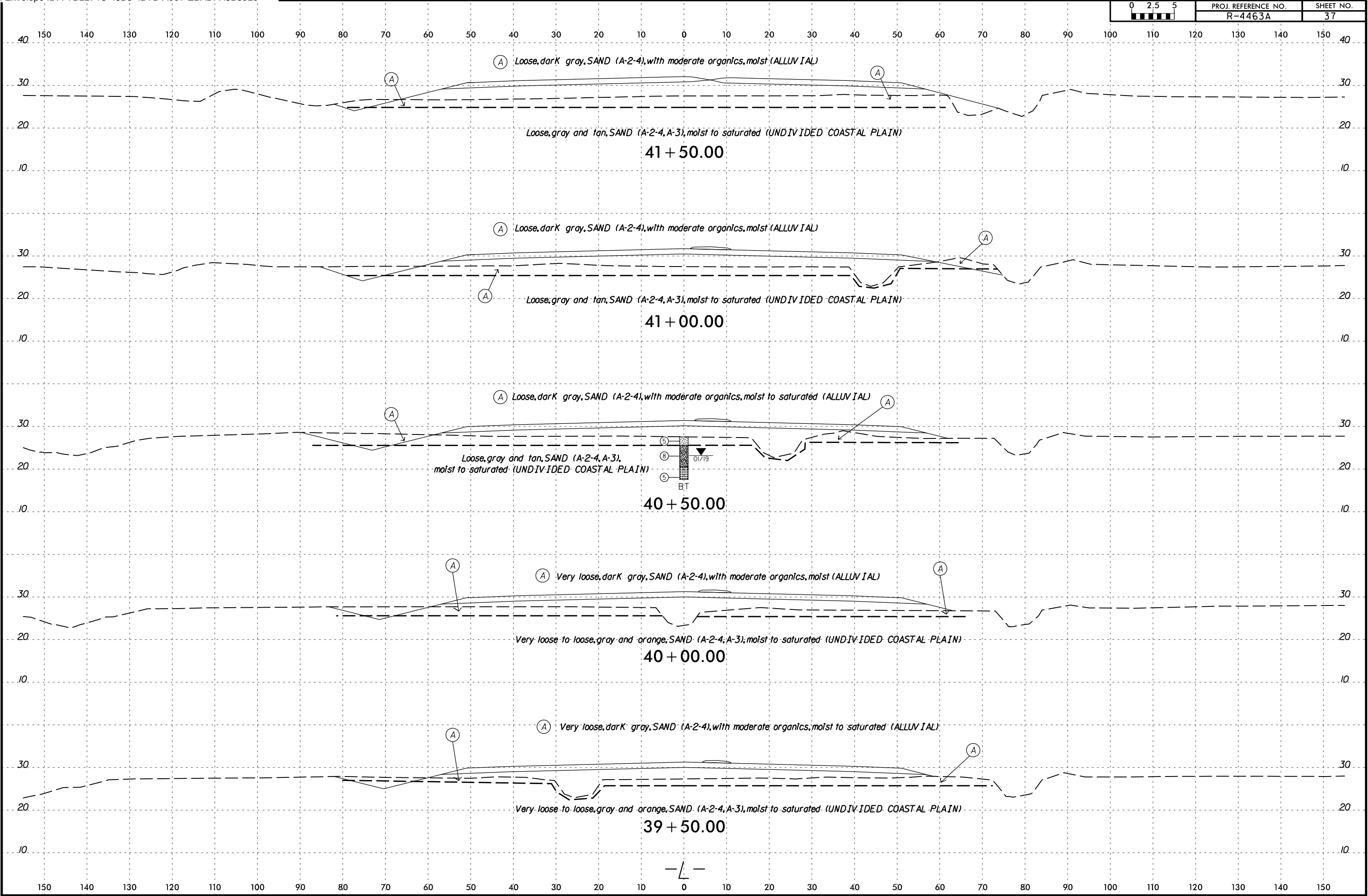


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	37

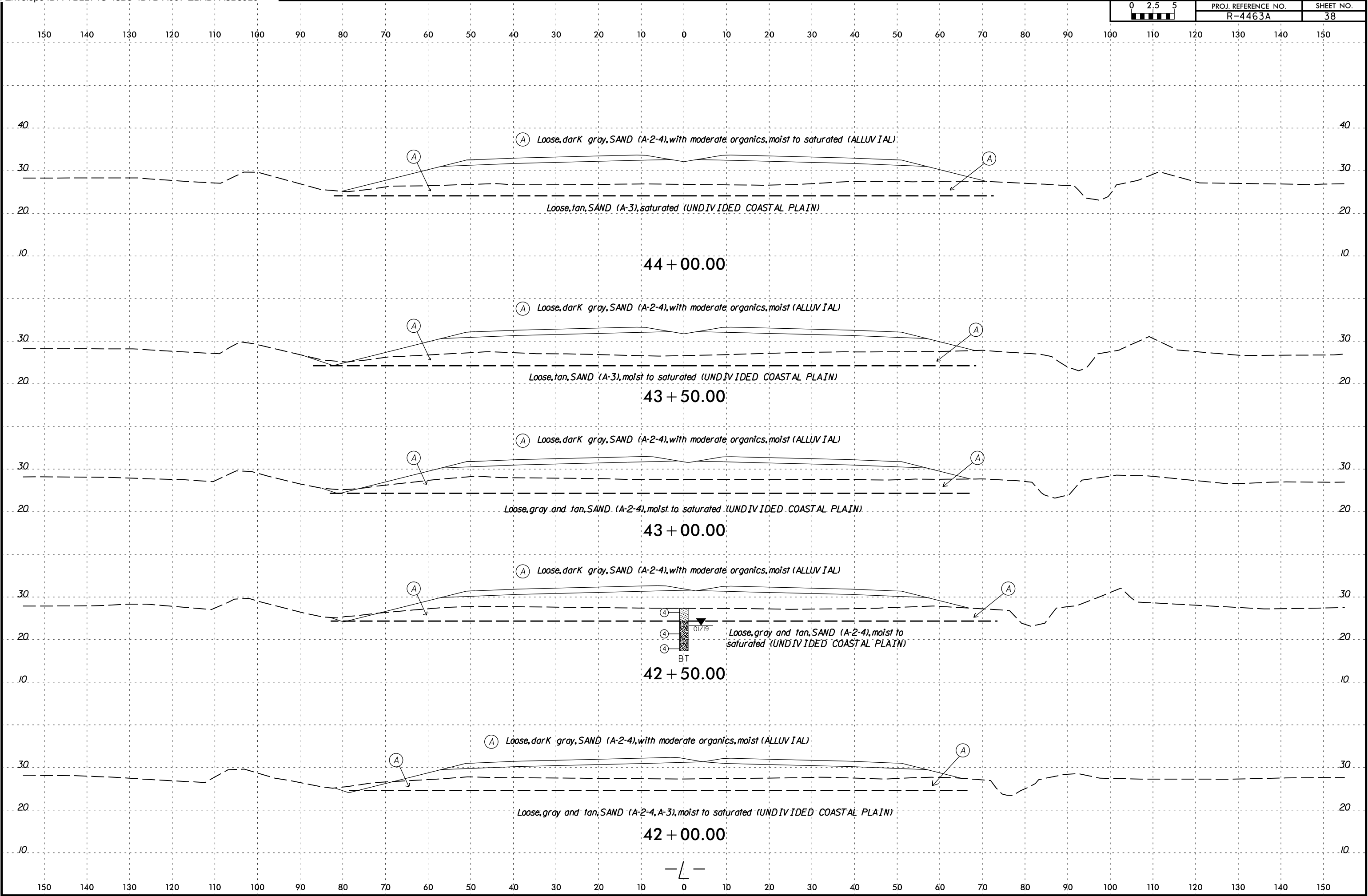


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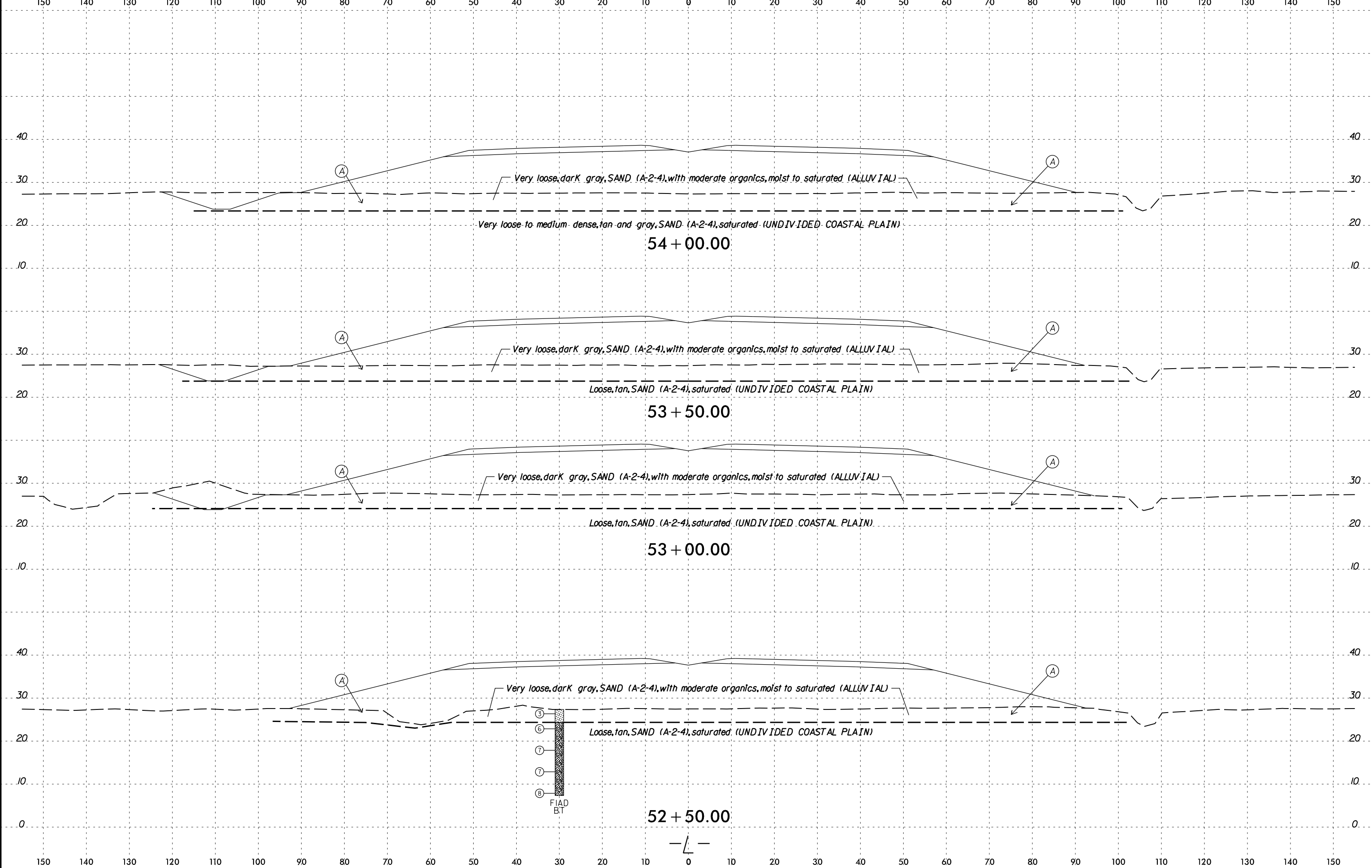
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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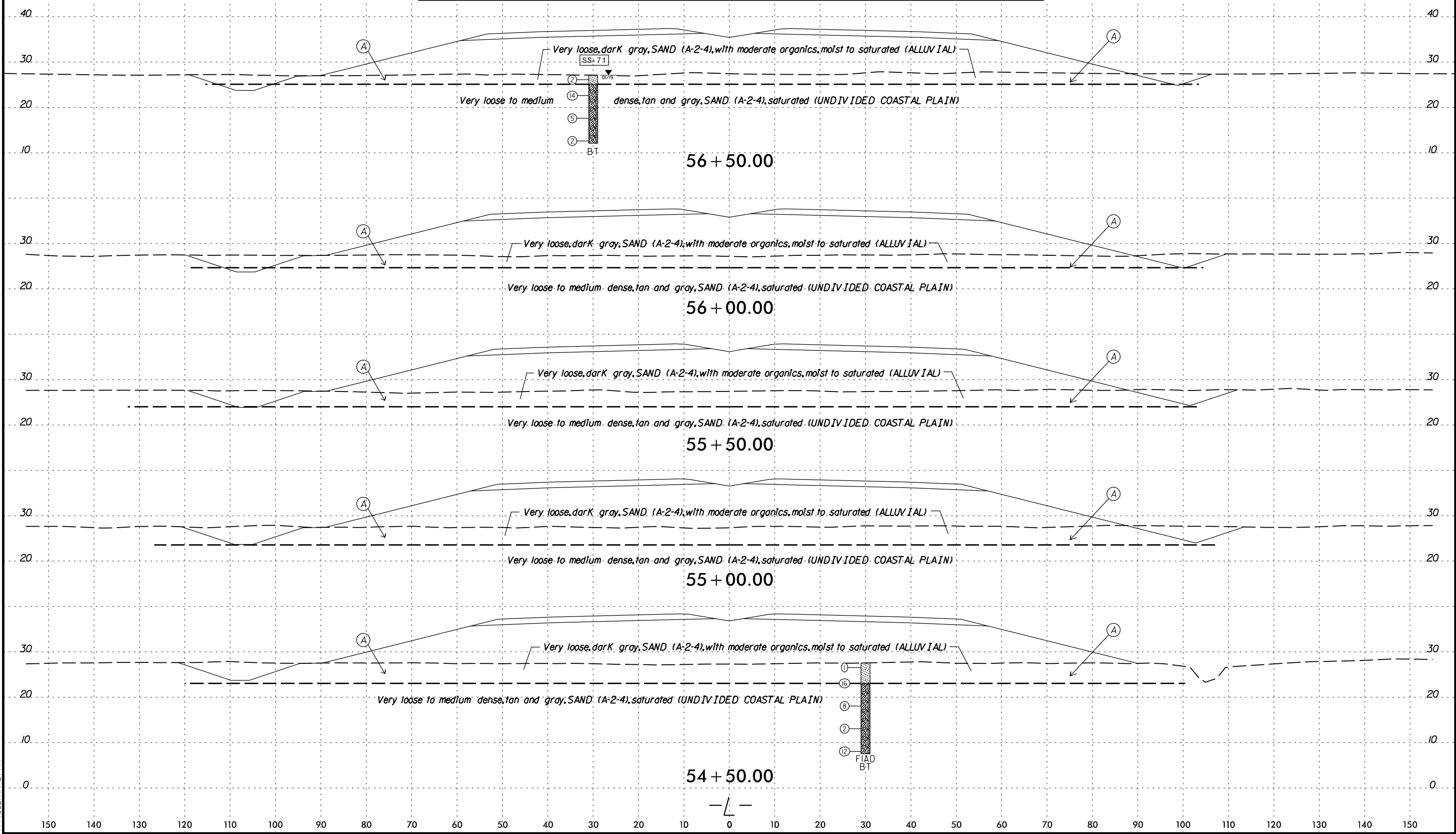


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	40

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-71	30' LT	56+50	0.0-1.5	A-2-4(0)	NP	NP	40.9	36.4	13.5	9.2	99.3	79.8	23.4	35	8.4



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R4463A\GEO_RDY_XSL_INV.dgn
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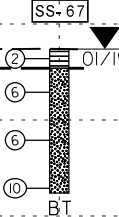


PROJ. REFERENCE NO.	SHEET NO.
R-4463A	41

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS- 67	30' RT	58+50	0.0' 1.5	A- 4	36	NP	32.4	31.0	27.4	9. 2	100	84	38	44	6. 1

(A1) Soft, dark gray, SILT (A-4), with little to moderate organics, moist to wet (ALLUVIAL)

Loose, gray, silty SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)



58 + 50.00

(A1) Soft, dark gray, SILT (A-4), with little to moderate organics, moist to wet (ALLUVIAL)

Loose, gray, silty SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

58 + 00.00

(A1) Soft, dark gray, SILT (A-4), with trace to moderate organics, moist to wet (ALLUVIAL)

Loose, gray, silty SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

57 + 50.00

(A) Very loose, dark gray, SAND (A-2-4), with moderate organics, moist to saturated (ALLUVIAL)

Very loose to medium dense, tan and gray, SAND (A-2-4), saturated (UNDIVIDED COASTAL PLAIN)

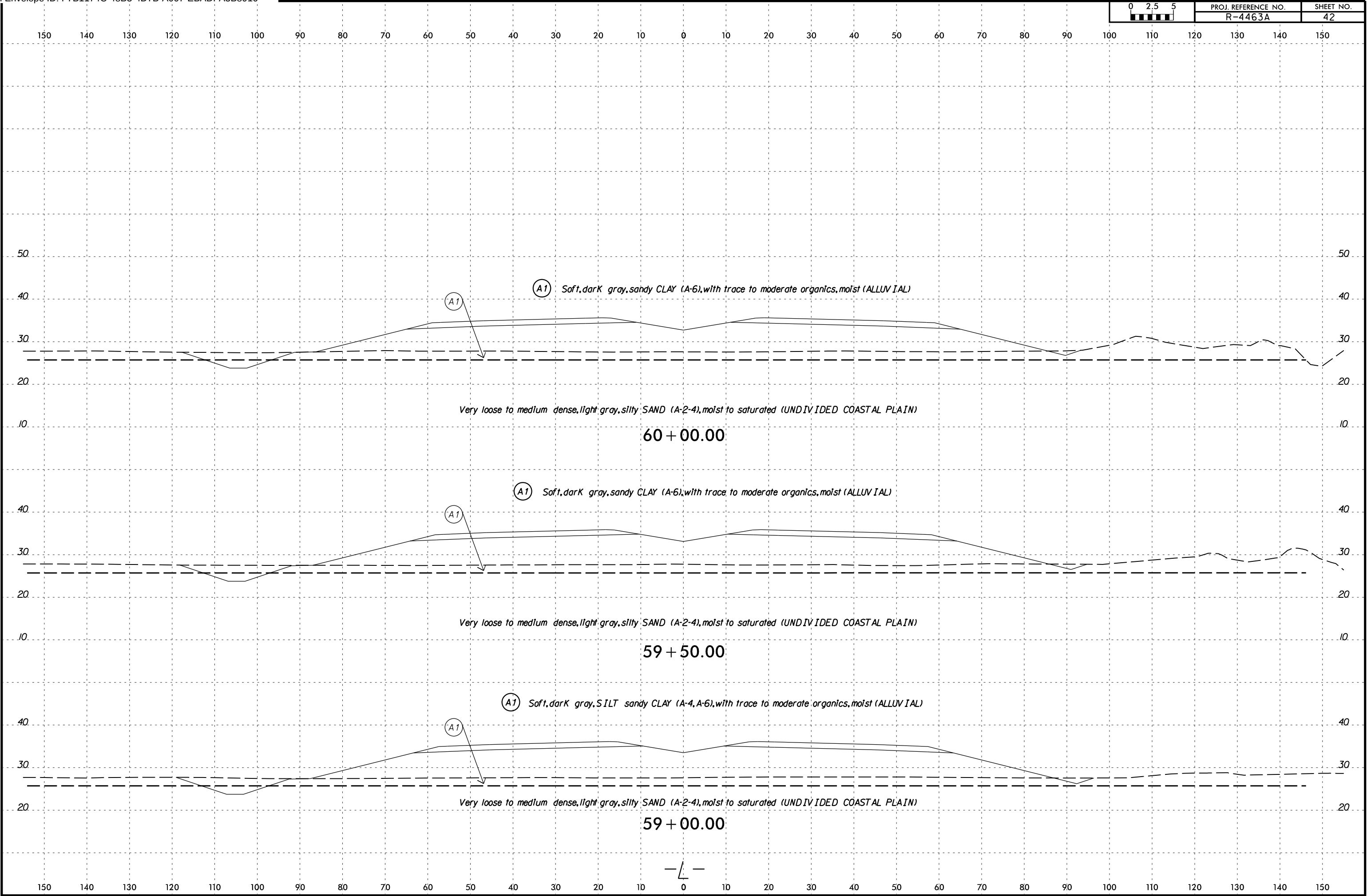
57 + 00.00



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	42

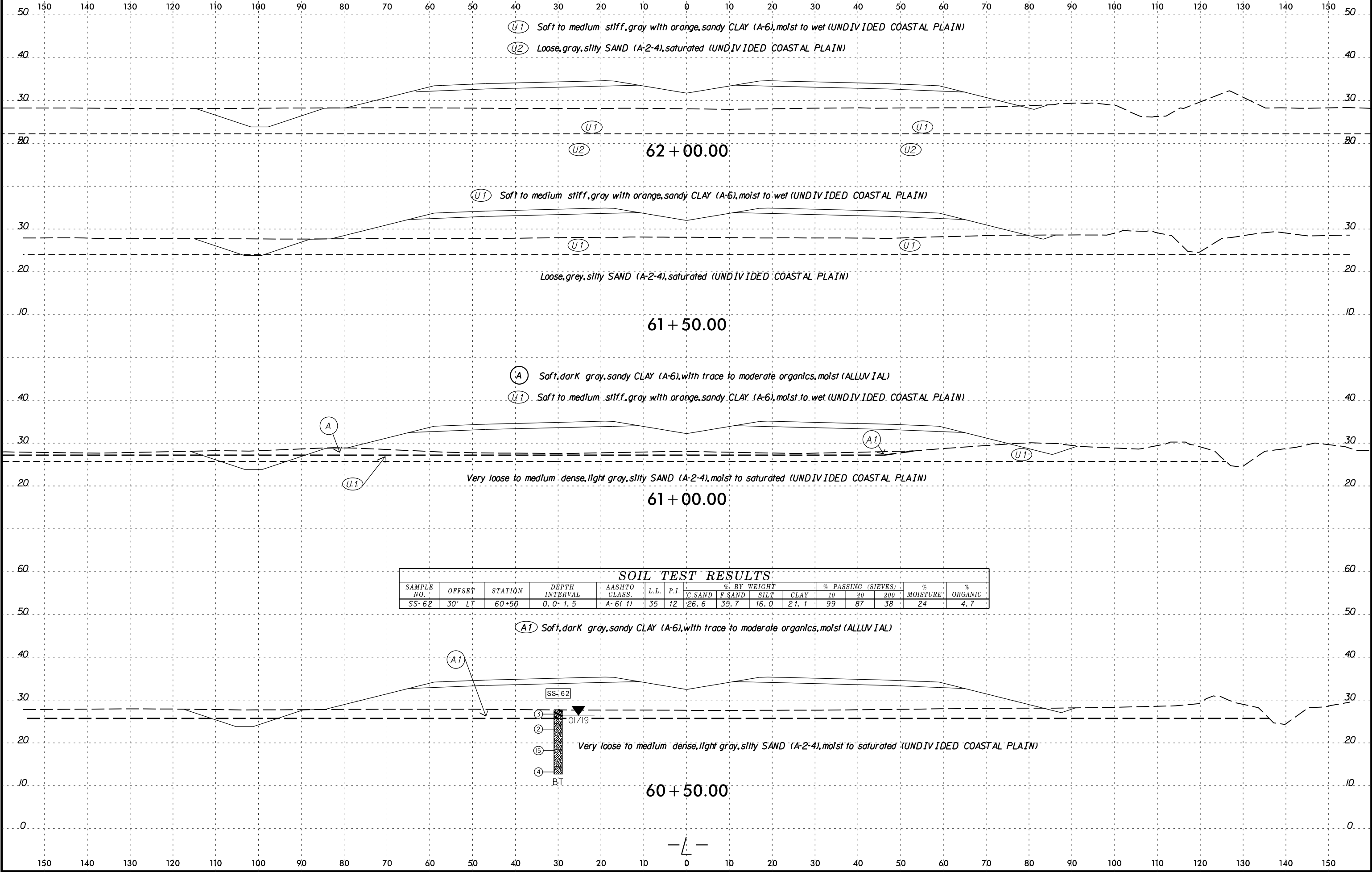


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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	43

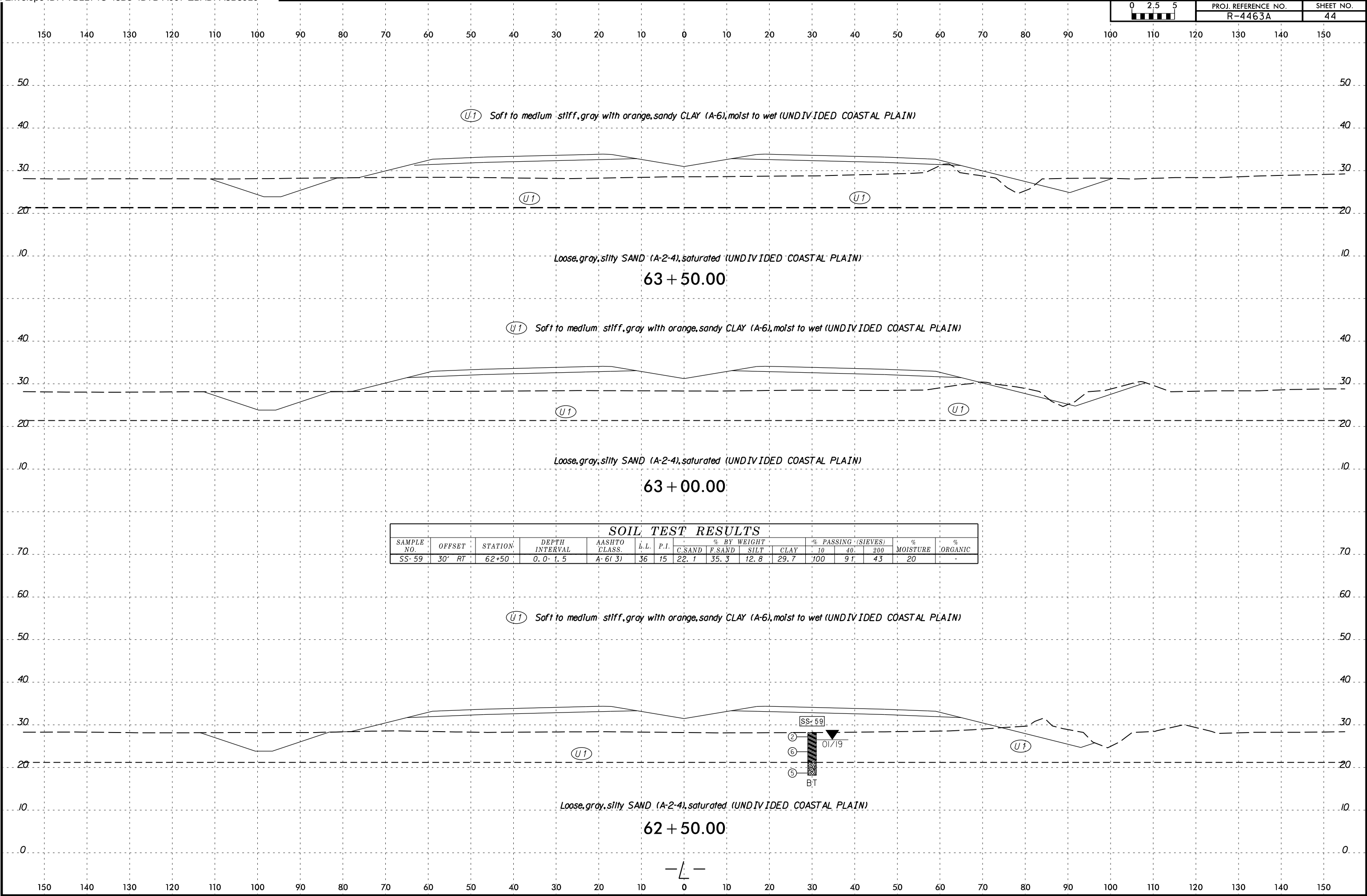


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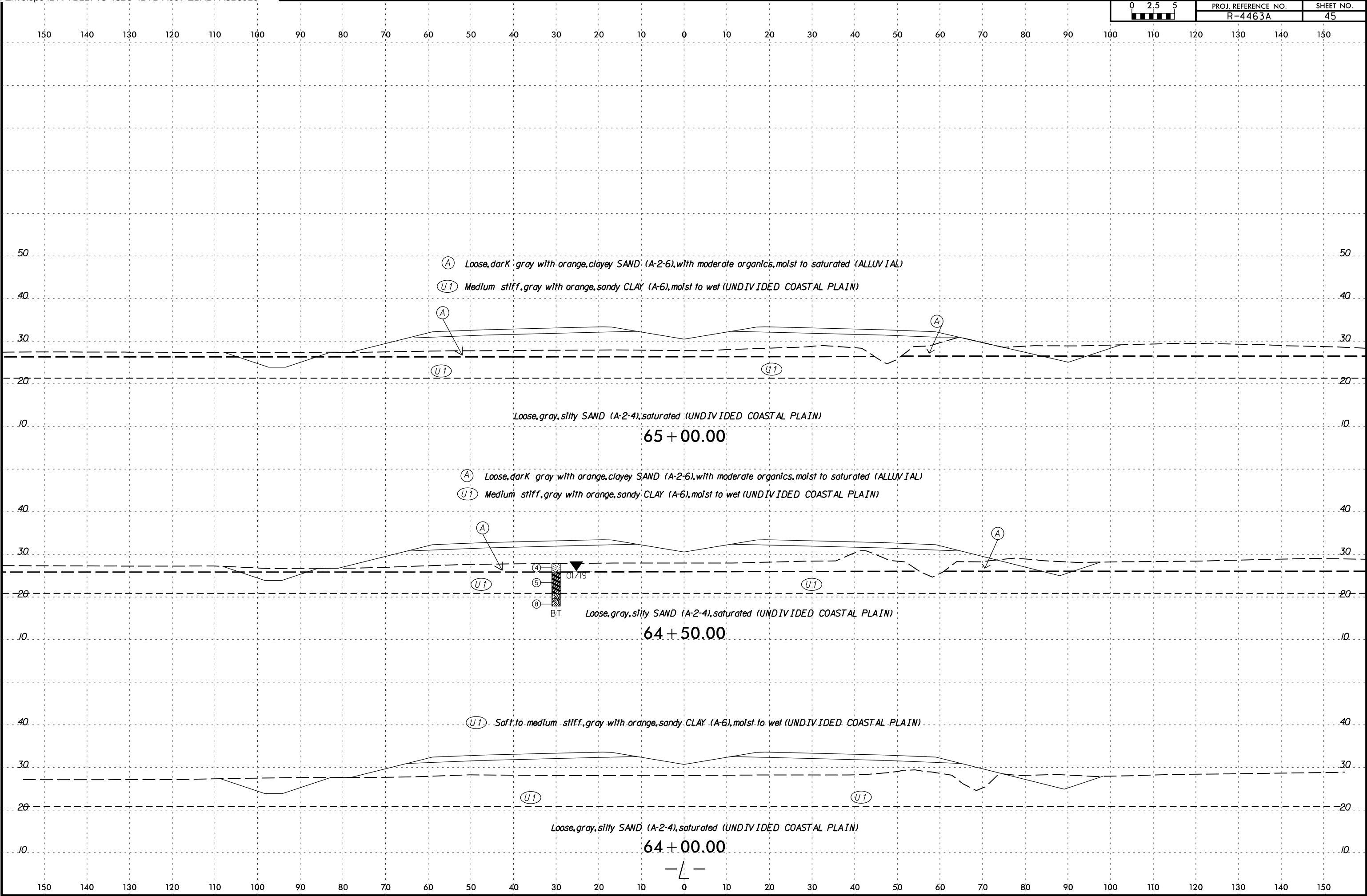
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R-4463A	44



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	45

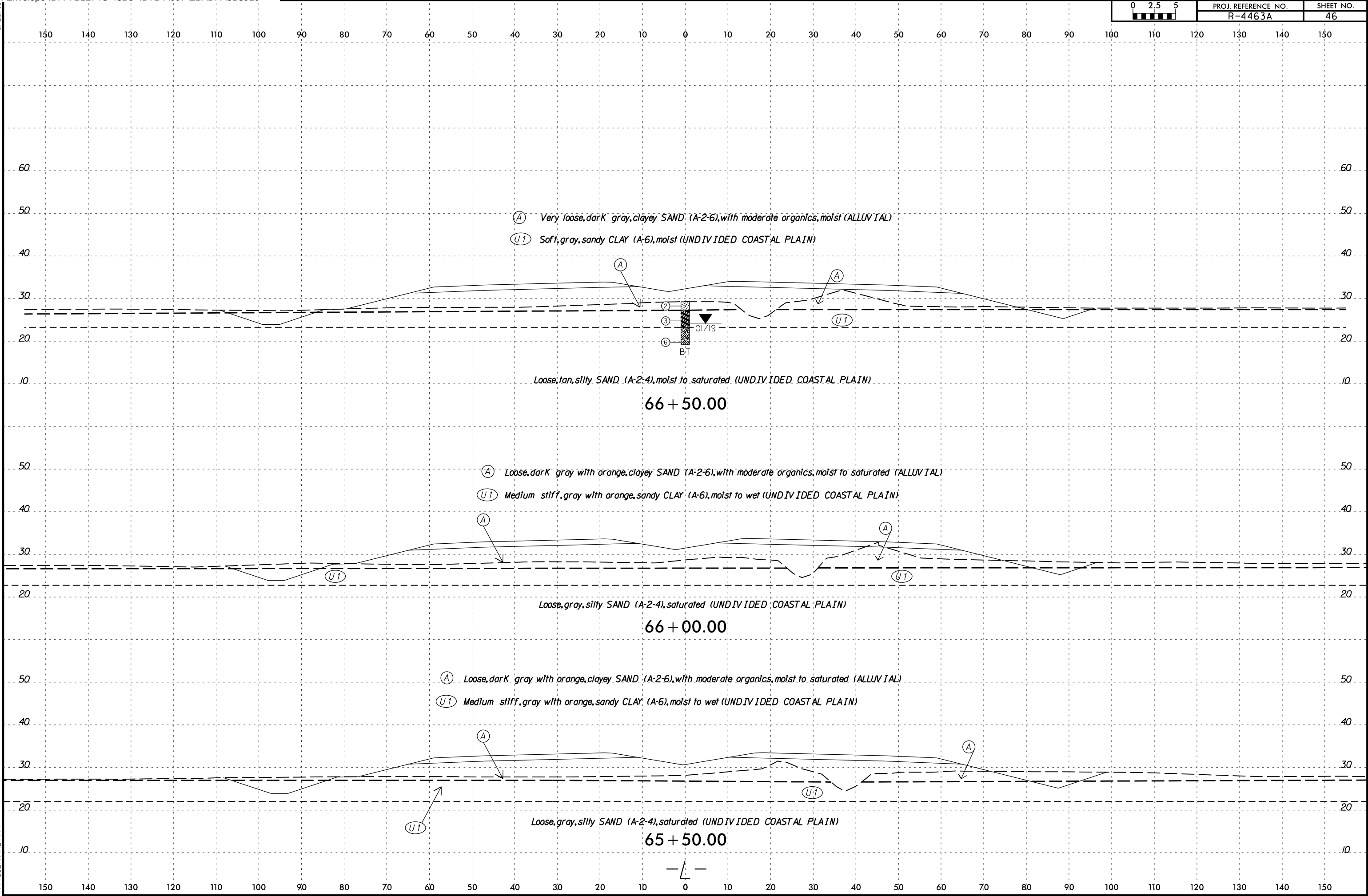


6/23/16

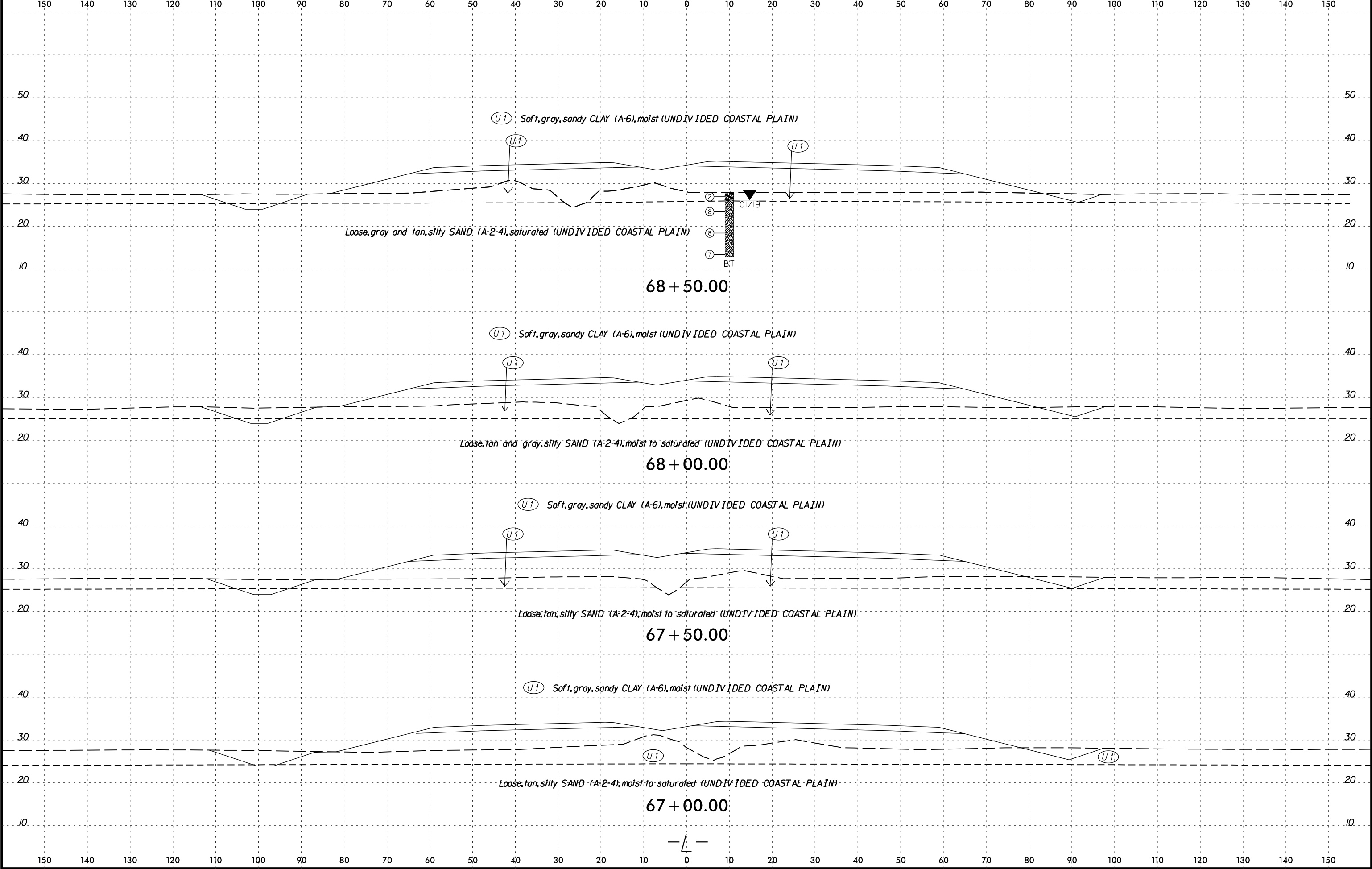


PROJ. REFERENCE NO.
R-4463A

SHEET NO.
46



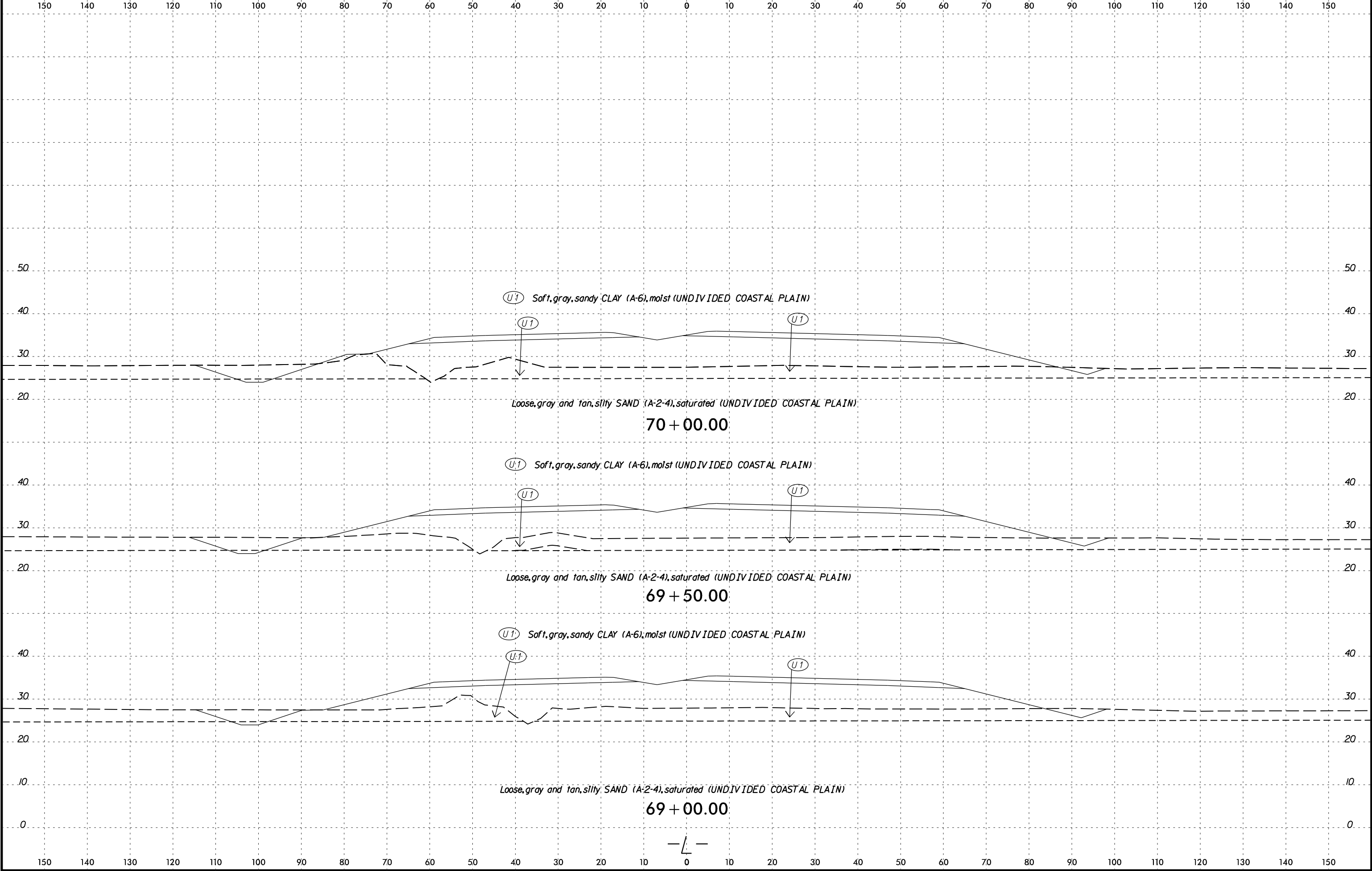
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	48

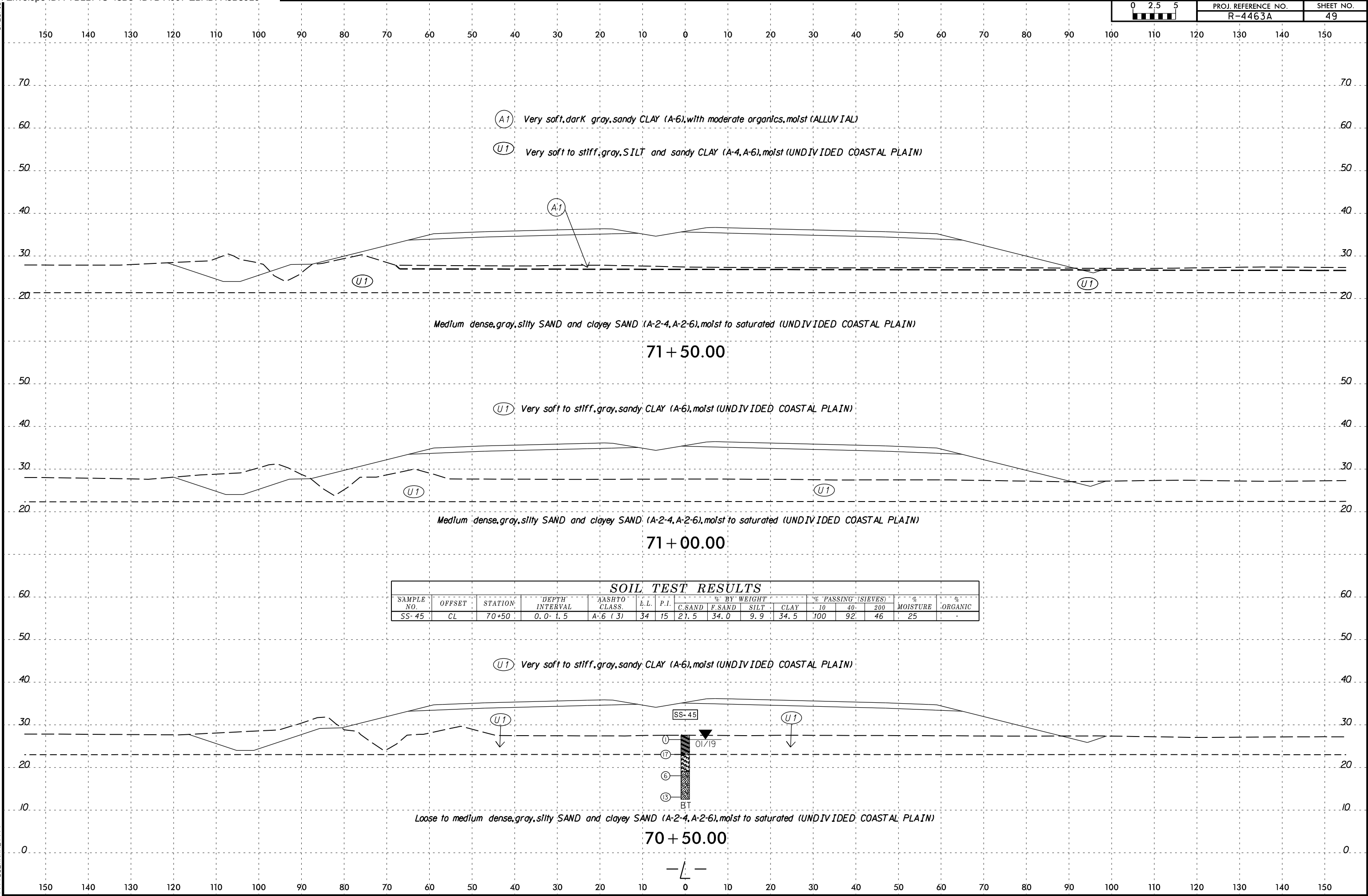


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PROJ. REFERENCE NO.	SHEET NO.
R-4463A	49



6/23/16



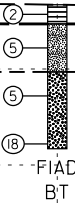
PROJ. REFERENCE NO.	SHEET NO.
R-4463A	50

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO. CLASS.	L.L.	P.L.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
SS-42	CL	72+50	3.5-5.0	A-4 (U)	22	4	C.SAND	F.SAND	SILT	CLAY	10	40	200	28	-
							15.5	40.2	15.0	29.3	100	96	48		

(A1) Very soft, dark gray, sandy CLAY (A-6), with moderate organics, moist (ALLUVIAL)

(U1) Medium stiff, gray, SILT (A-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

SS-42



Loose to medium dense, gray, silty SAND (A-2-4), saturated (UNDIVIDED COASTAL PLAIN)

72 + 50.00

(A1) Very soft, dark gray, sandy CLAY (A-6), with moderate organics, moist (ALLUVIAL)

(U1) Very soft to stiff, gray, SILT and sandy CLAY (A-4, A-6), moist (UNDIVIDED COASTAL PLAIN)

(A1)

Medium dense, gray, silty SAND and clayey SAND (A-2-4, A-2-6), moist to saturated (UNDIVIDED COASTAL PLAIN)

72 + 00.00

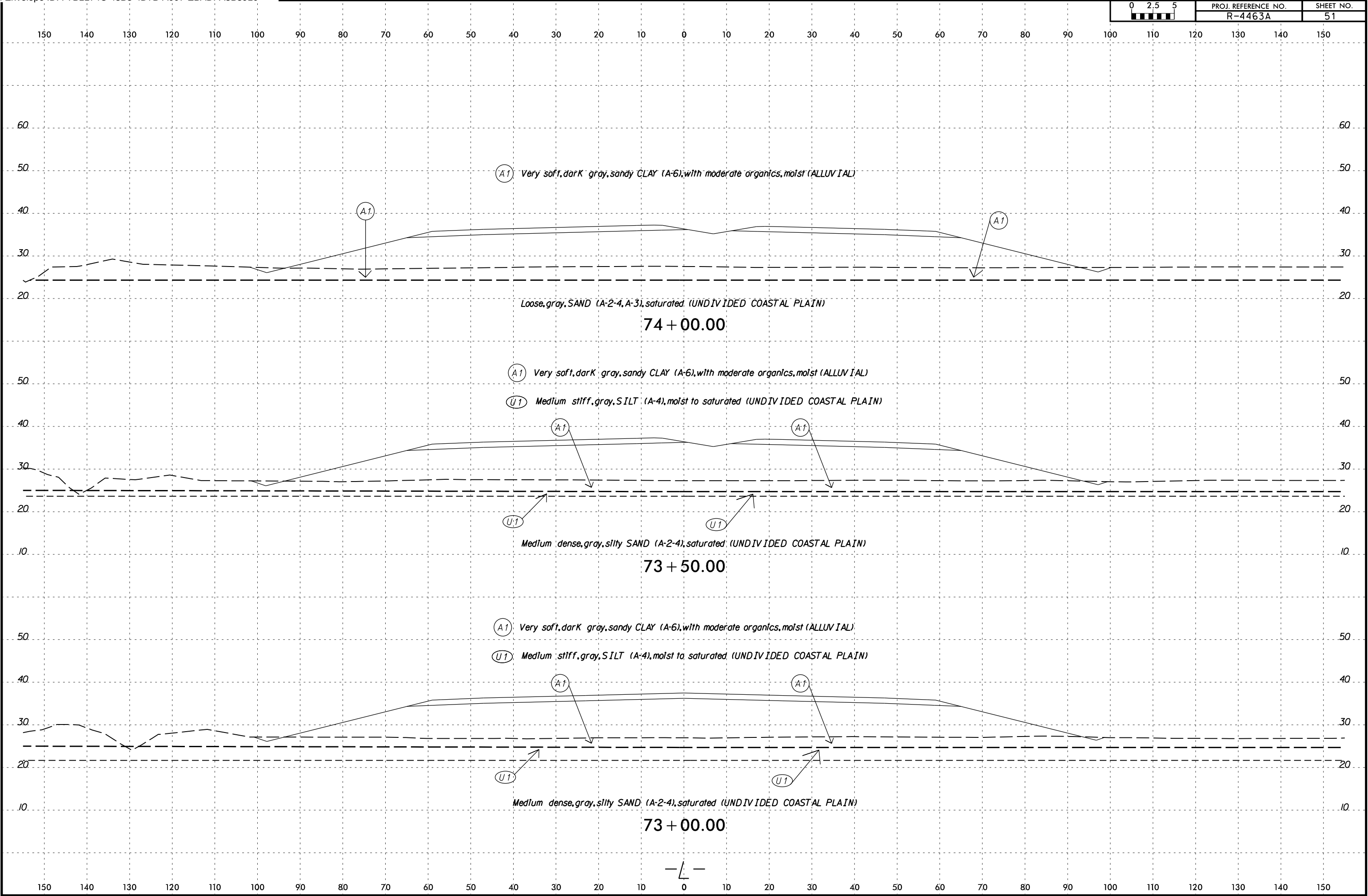


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PROJ. REFERENCE NO.	SHEET NO.
R-4463A	51



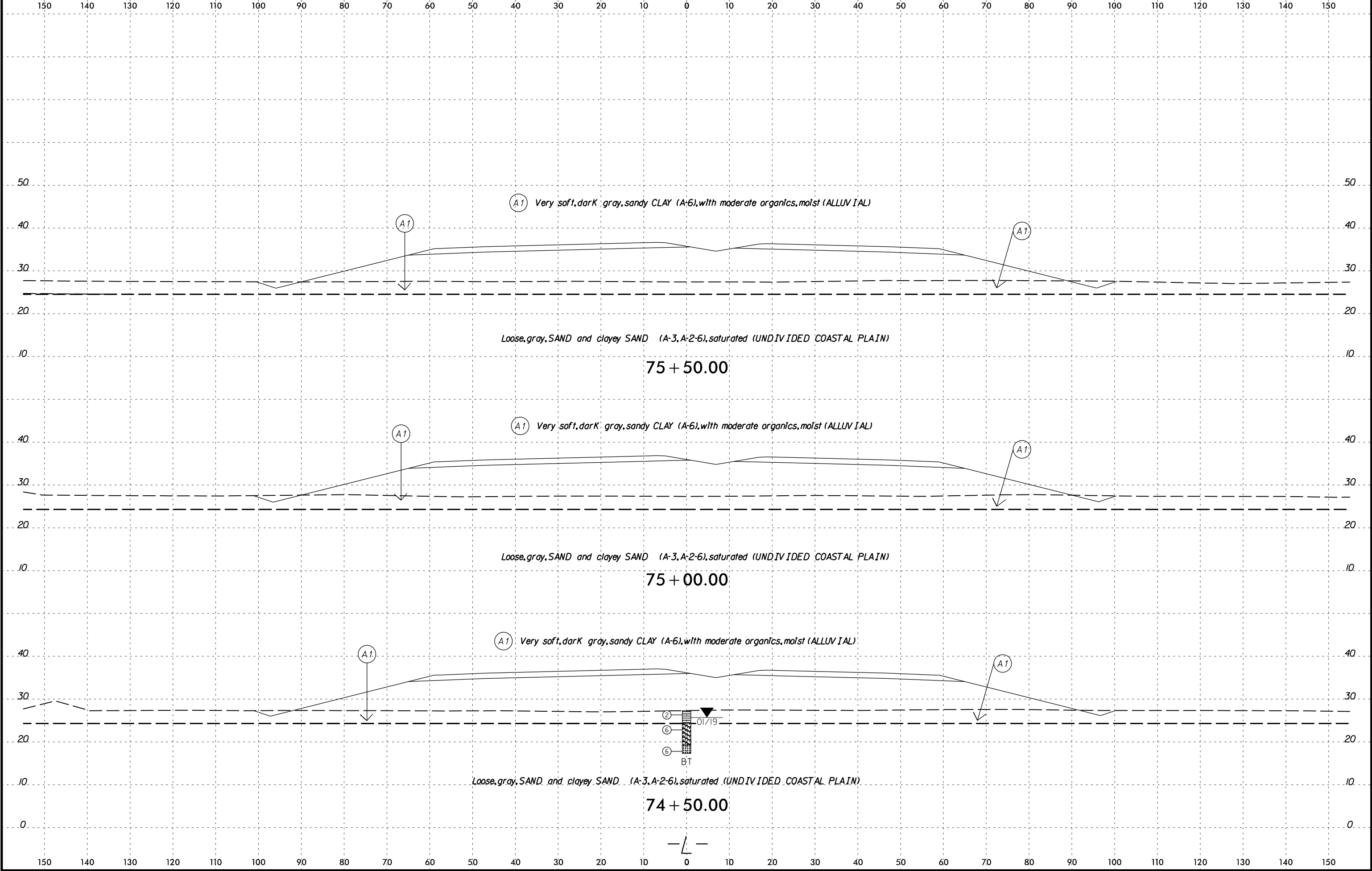
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PROJ. REFERENCE NO.
R-4463A

SHEET NO.
52



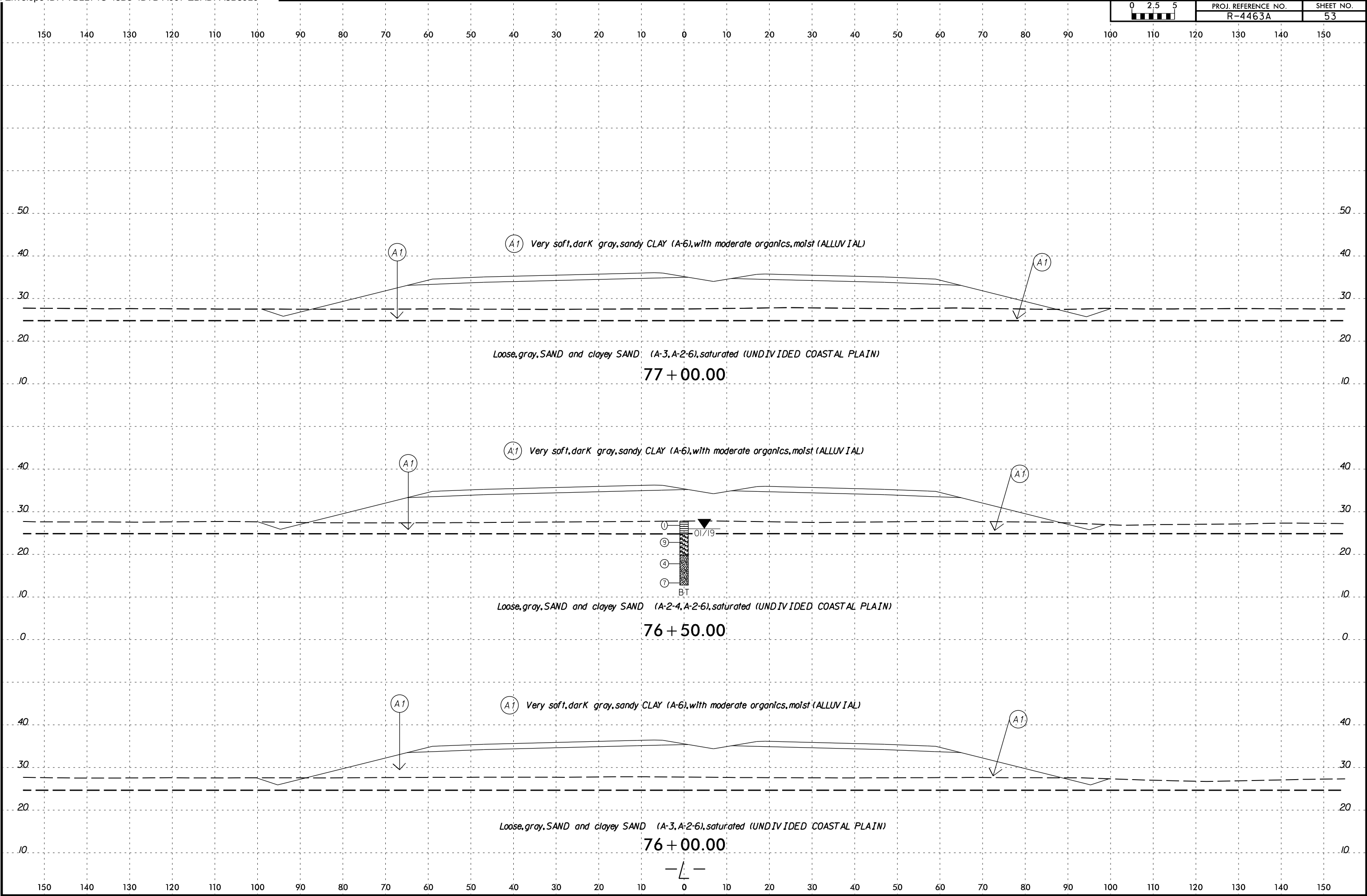
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6/23/16



PROJ. REFERENCE NO.
R-4463A

SHEET NO.
53



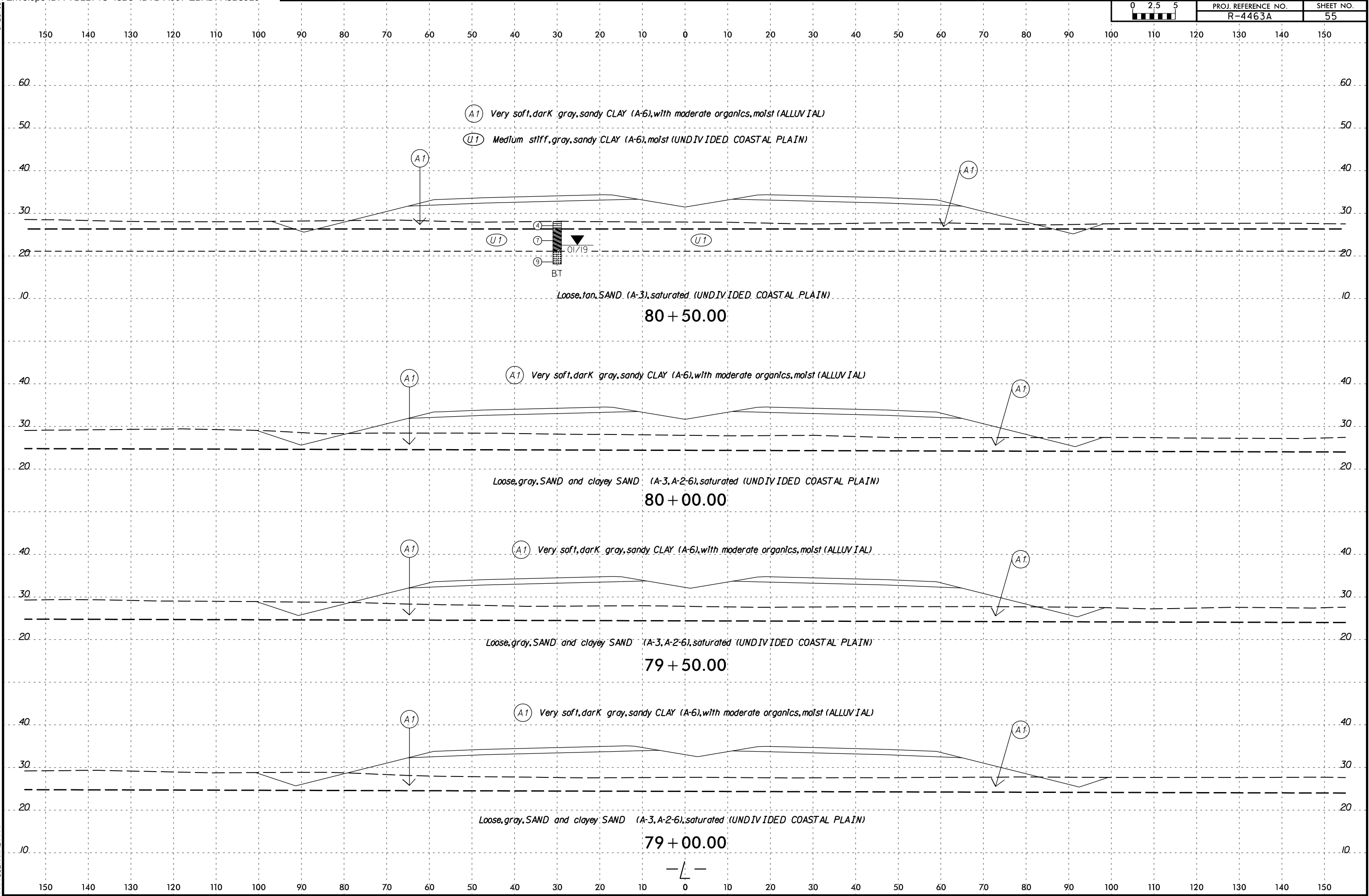
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6/23/16



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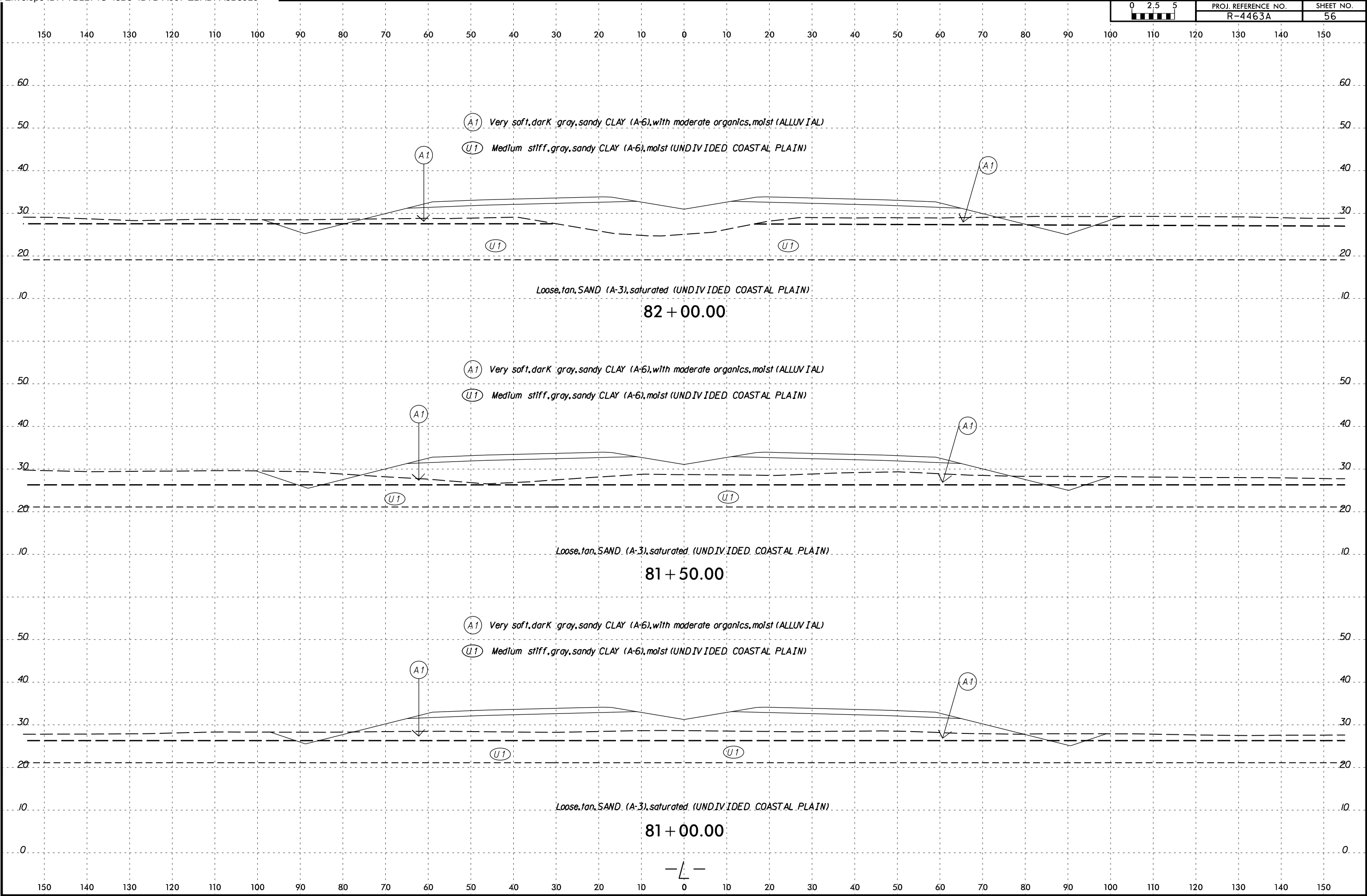


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PROJ. REFERENCE NO.	SHEET NO.
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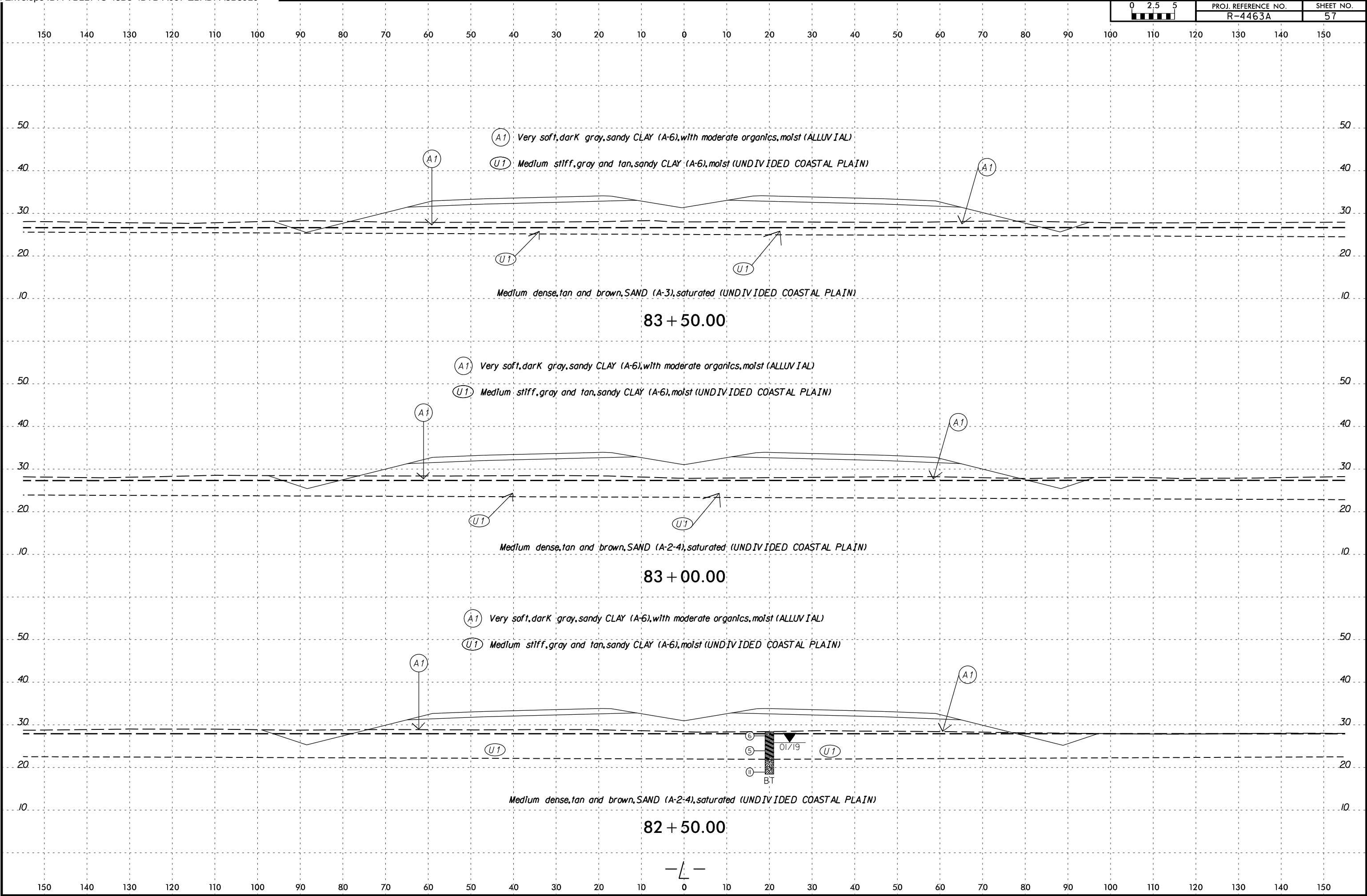


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PROJ. REFERENCE NO.	SHEET NO.
R-4463A	57

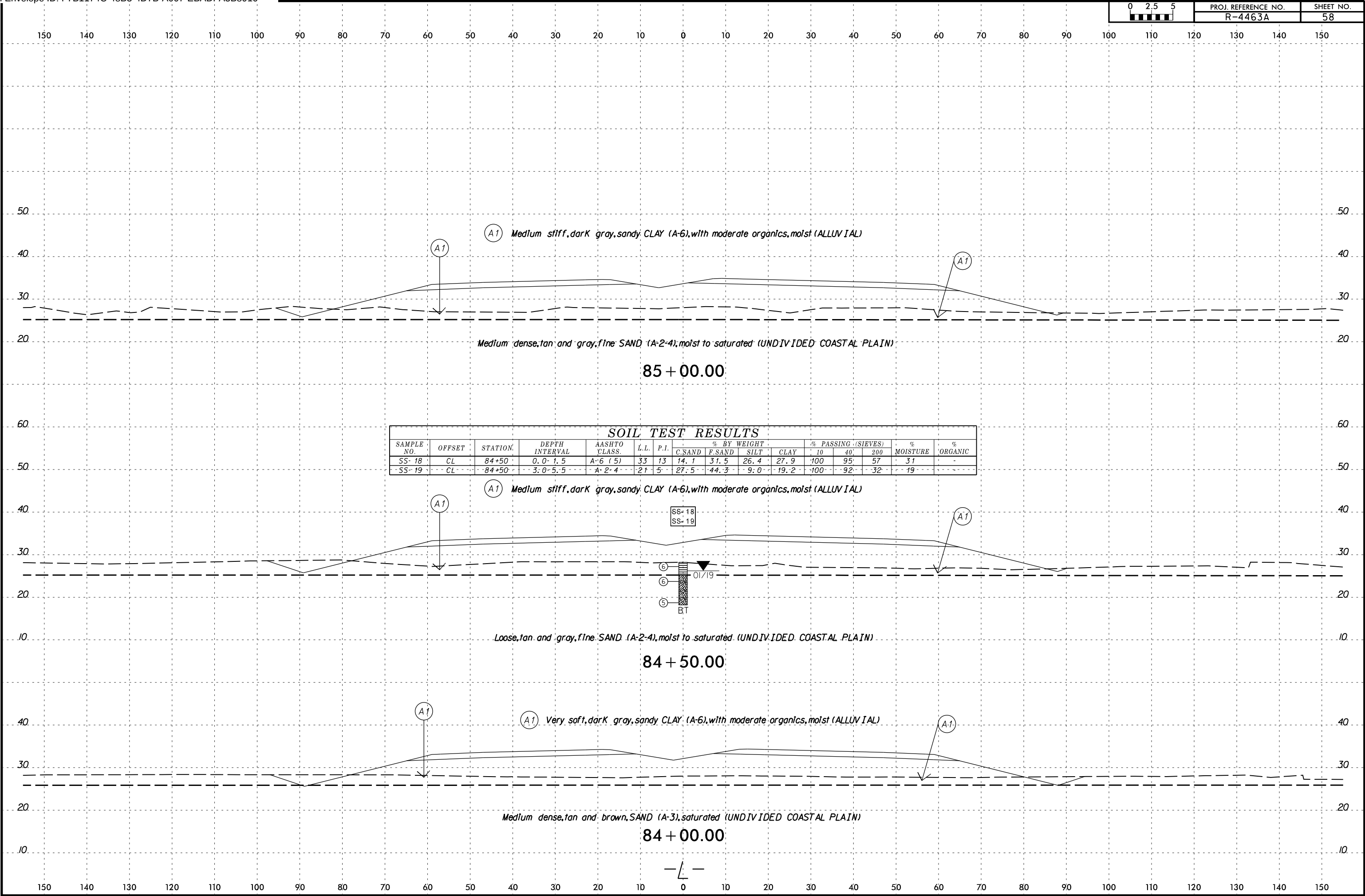


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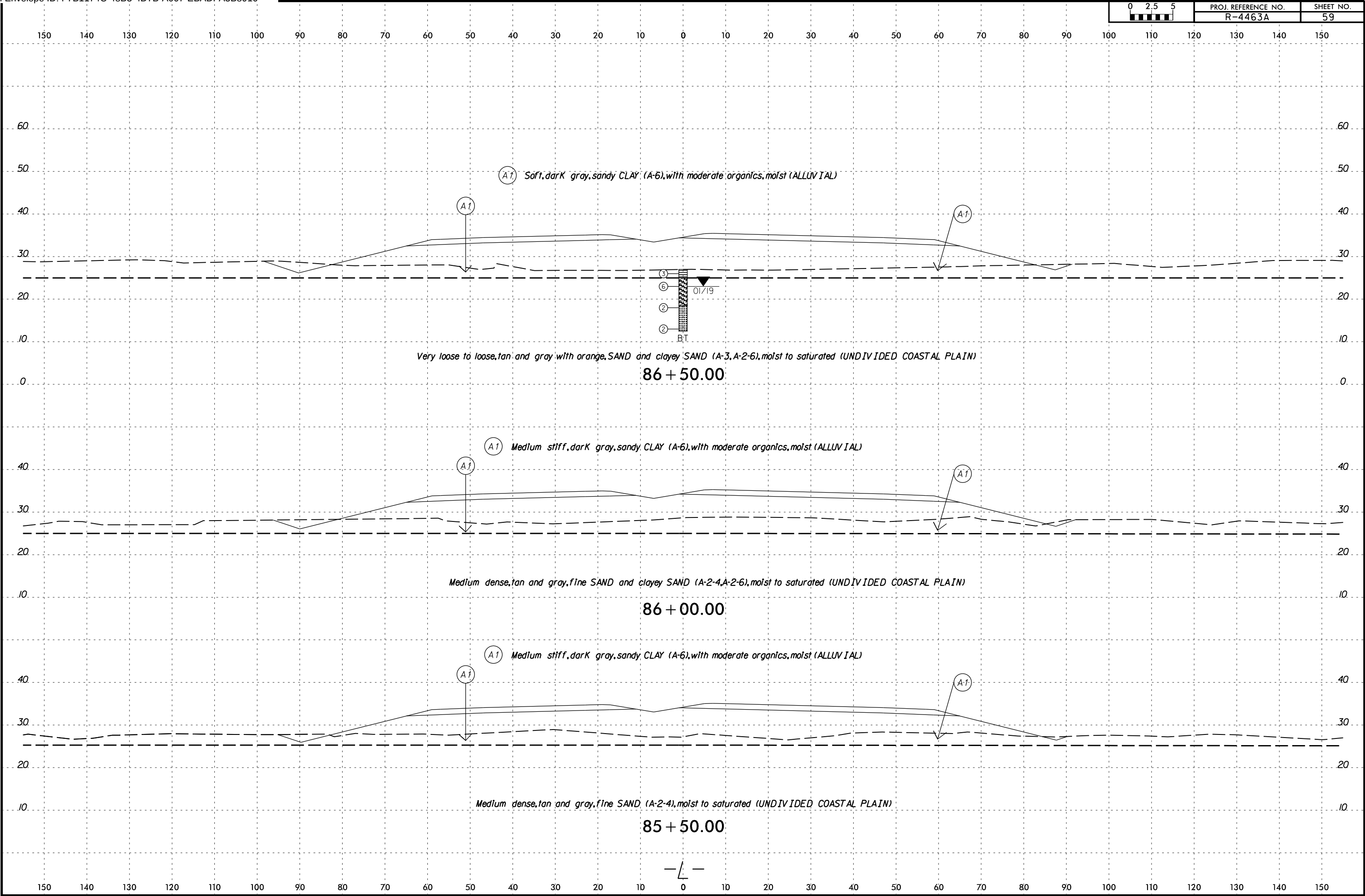
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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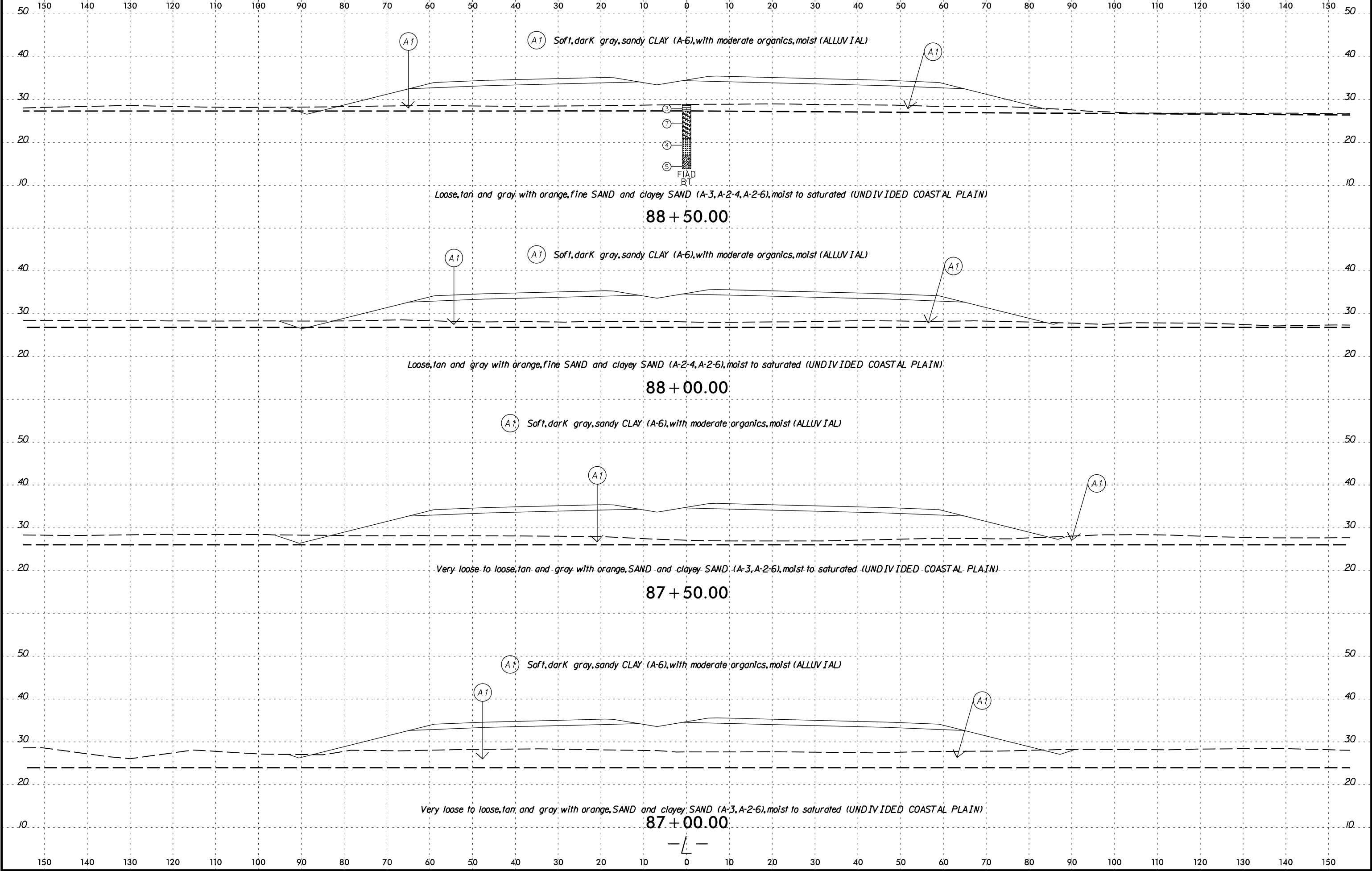


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PROJ. REFERENCE NO.
R-4463A

SHEET NO.
60





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PROJ. REFERENCE NO.	SHEET NO.
R-4463A	62

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

60

50

40

30

20

10

0

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC.
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-1	60' LT	124+00	0.0-1.0	A-6(7)	36	15	15.1	24.8	34.1	21.2	95	85	61	29	-

S-1

RE1

RE2

RE2

BT

DRY

FIAD

Medium stiff,gray and orange,sandy CLAY (A-6),wet (UNDIVIDED COASTAL PLAIN)

RE1

Medium dense,tan,SAND (A-3),saturated (ROADWAY EMBANKMENT)

RE2

Medium stiff,darK gray,slty CLAY (A-6),moist to wet (ROADWAY EMBANKMENT)

124 + 00.00

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

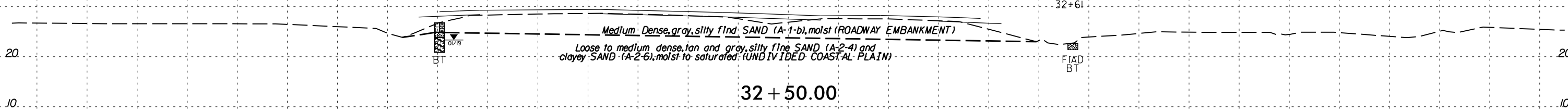
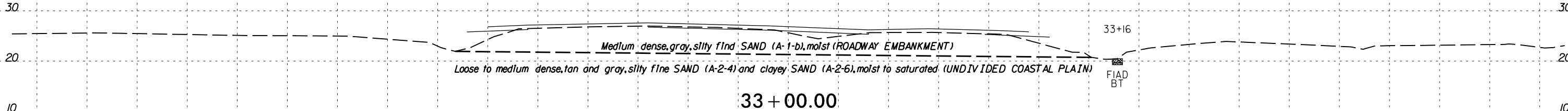
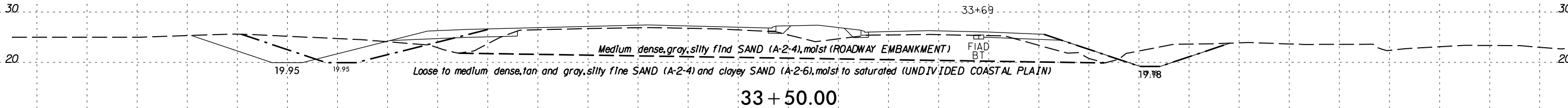
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PROJ. REFERENCE NO.
R-4463A

SHEET NO.
63

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



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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	64

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10.	40	200		
S-13	60' LT	36+40	2.0'-3.0'	A-2-4	27	NP	20.9	63.0	12.4	3.6	100	94	19	29	4

- (RE) Loose, gray, silty fine SAND (A-2-4), moist (ROADWAY EMBANKMENT)
- (A1) Loose, dark gray, fine SAND (A-2-4), contains little organics, moist to saturated (ALLUVIAL)
- (A2) Very soft, gray, sandy SILT (A-4), contains little organics moist to wet (ALLUVIAL)

Very loose to medium dense, gray and tan, silty SAND (A-2-4) and SAND (A-3), moist to saturated (UNDIVIDED COASTAL PLAIN)

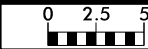
- (RE) Medium dense, gray and tan, SAND (A-2-4), moist (ROADWAY EMBANKMENT)
- (A1) Very soft, gray, SILT (A-4), contains little organics, moist to wet (ALLUVIAL)
- (U1) Loose to medium dense, gray and tan, SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

- (RE) Medium dense, gray and tan, SAND (A-2-4), moist (ROADWAY EMBANKMENT)

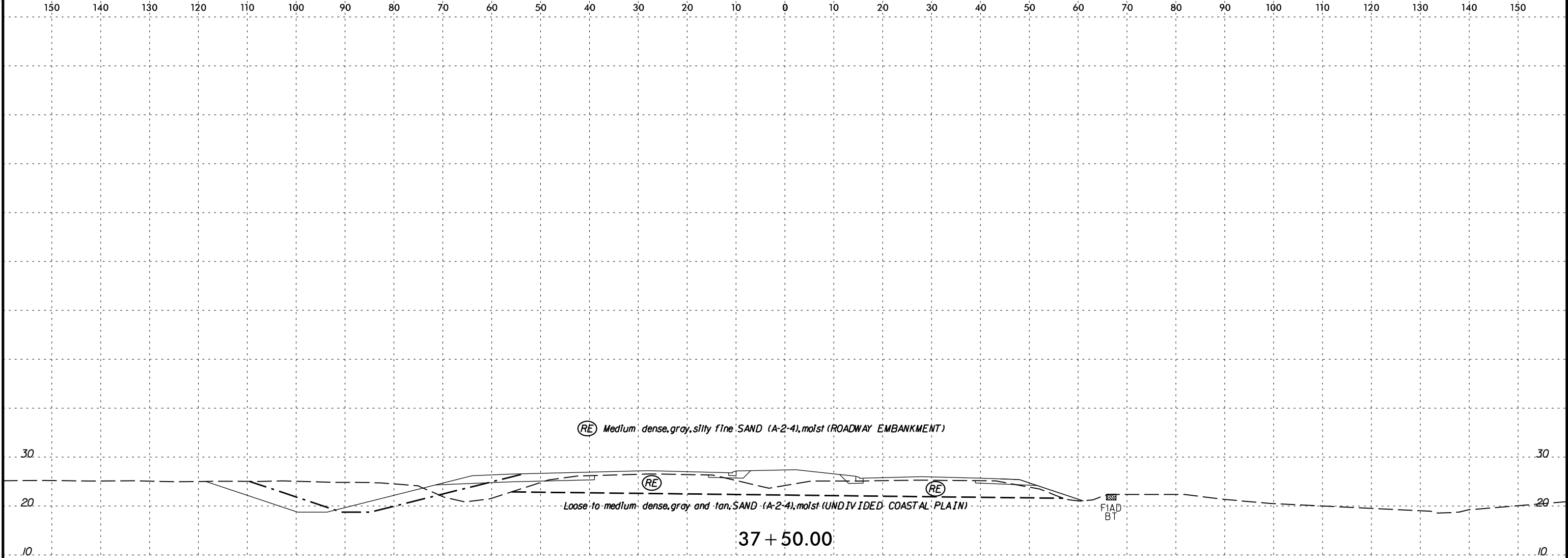
Loose to medium dense, gray and tan, SAND (A-2-4), moist to saturated (UNDIVIDED COASTAL PLAIN)

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R4463A.XSL
R4463A.Y.dgn

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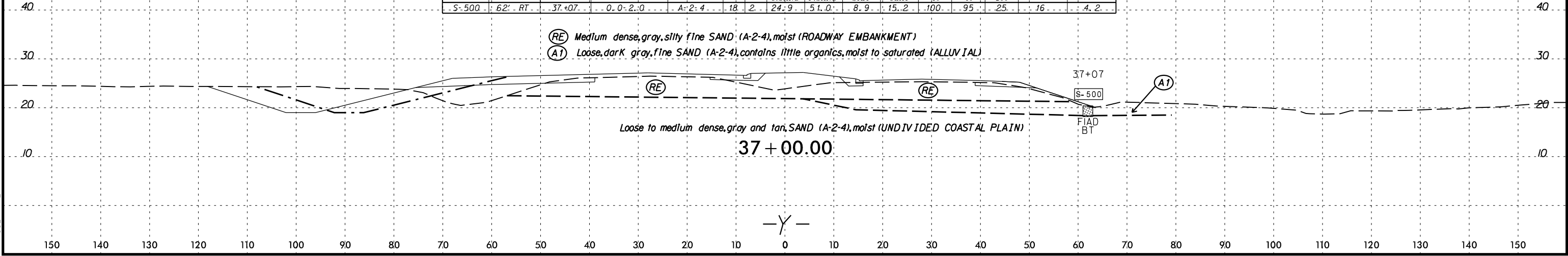


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R-4463A	65

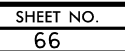


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-500	62' RT	37+07	0-0-2-0	A-2-4	18	2	24.9	51.0	8.9	15.2	100	95	25	16	4.2



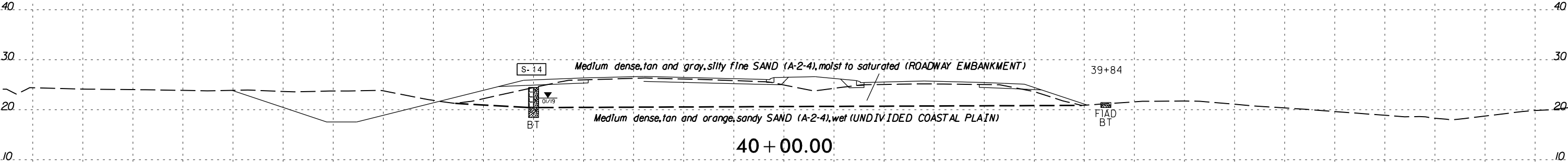
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6/23/16

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SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S- 14	50' LT	40+00	2.0 - 3.0	A- 2- 4(0)	22	6	21.9	54.0	12.0	12.1	100	92.5	27.2	18	-



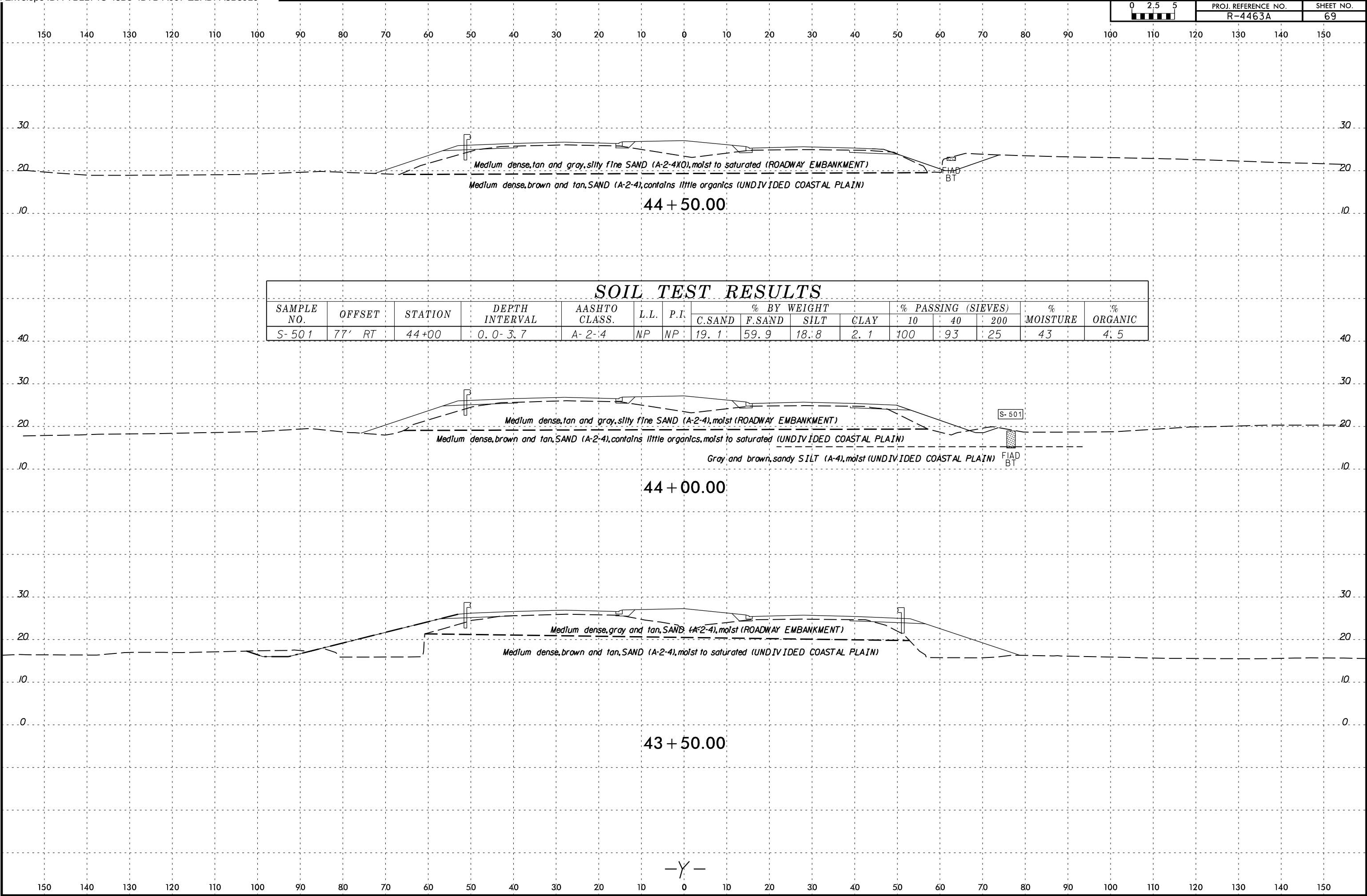
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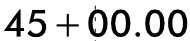


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-4463A	69





GEOTECHNICAL BORING REPORT
BORE LOG

WBS 35601.1.1				TIP R-4463A		COUNTY CRAVEN				GEOLOGIST Holland, J.			
SITE DESCRIPTION NC 43 Extension From US 17 to US 70										GROUND WTR (ft) 0 HR. 4.6 24 HR. 3.0			
BORING NO. Y_2450		STATION 24+50		OFFSET 80 ft RT		ALIGNMENT -Y-							
COLLAR ELEV. 25.9 ft		TOTAL DEPTH 6.0 ft		NORTHING 494,308		EASTING 2,558,948							
DRILL RIG/HAMMER EFF./DATE N/A						DRILL METHOD Hand Auger			HAMMER TYPE N/A				
DRILLER Holland, J.				START DATE 01/09/19		COMP. DATE 01/09/19		SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT				SAMP. NO.	▼ MOI	L O G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			
30													
25													25.9 GROUND SURFACE 0.0
											▼		UNDIVIDED COASTAL PLAIN Loose to medium dense, dark gray, silty fine SAND (A-2-4), saturated.
20													19.9 6.0
													Boring Terminated at Elevation 19.9 ft in Undivided Coastal Plain Sand.

NCDOT BORE DOUBLE R4463A_GEO_BORINGS.GPJ NC_DOT.GDT 11/13/19